H-5

NASA
Washington D.C.

D5-13285
VOLUME III
PART II

PLANETARY POSITION-VELOCITY EPHEMERIDES, 1965-2000

LUNAR DATA - GEOCENTRIC EQUATORIAL SYSTEM

(BASED ON THE JPL EPHEMERIS TAPE LIBRARY)

FACILITY FORM 602
N67-83942
(ACCESSION NUMBER)
57
(PAGES)
CR-84778
(NASA CR OR TMX OR AD NUMBER)
(THRU)
None
(CODE)
(CATEGORY)

THE BOEING COMPANY
SPACE DIVISION
LAUNCH SYSTEMS BRANCH

DOCUMENT NO. D5-13285 VOLUMES I - III

TITLE PLANETARY POSITION - VELOCITY EPHEMERIDES, 1965-2000

VOLUME III PART 2 LUNAR DATA - GEOCENTRIC EQUATORIAL SYSTEM

Prepared by: D. A. DAVIS
FLIGHT MECHANICS & CONTROLS RESEARCH

MARCH 20, 1967

A. G. BENNETT
FLIGHT MECHANICS & CONTROLS
RESEARCH SUPERVISOR

THE BOEING COMPANY SPACE DIVISION LAUNCH SYSTEMS BRANCH

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
64/12/31	2438760.5	-23.67649	-54.52683	-22.01708	0.89147	-0.31741	-0.23160	63.39166	0.97422	246.53	-20.32
64/12/31	2438761.0	-17.51366	-56.36658	-23.45934	0.92660	-0.22545	-0.19393	63.51583	0.97315	252.74	-21.68
65/ 1/ 1	2438761.5	-11.14898	-57.57623	-24.63957	0.95105	-0.13149	-0.15429	63.61155	0.97242	259.04	-22.79
65/ 1/ 1	2438762.0	-4.65532	-58.14540	-25.54579	0.96467	-0.03648	-0.11309	63.68004	0.97196	265.42	-23.65
65/ 1/ 2	2438762.5	1.89367	-58.07014	-26.16881	0.96739	0.05865	-0.07073	63.72232	0.97174	271.87	-24.25
65/ 1/ 2	2438763.0	8.42418	-57.35285	-26.50228	0.95922	0.15295	-0.02765	63.73921	0.97173	278.36	-24.57
65/ 1/ 3	2438763.5	14.86271	-56.00225	-26.54273	0.94025	0.24550	0.01572	63.73122	0.97190	284.86	-24.61
65/ 1/ 3	2438764.0	21.13675	-54.03335	-26.28957	0.91068	0.33538	0.05897	63.69856	0.97226	291.36	-24.38
65/ 1/ 4	2438764.5	27.17524	-51.46729	-25.74518	0.87075	0.42169	0.10165	63.64110	0.97281	297.83	-23.86
65/ 1/ 4	2438765.0	32.90921	-48.33127	-24.91481	0.82082	0.50354	0.14335	63.55844	0.97357	304.25	-23.08
65/ 1/ 5	2438765.5	38.27229	-44.65832	-23.80660	0.76130	0.58010	0.18363	63.44988	0.97459	310.60	-22.04
65/ 1/ 5	2438766.0	43.20124	-40.48713	-22.43158	0.69271	0.65054	0.22207	63.31454	0.97589	316.86	-20.75
65/ 1/ 6	2438766.5	47.63653	-35.86183	-20.80356	0.61563	0.71407	0.25827	63.15139	0.97754	323.03	-19.23
65/ 1/ 6	2438767.0	51.52280	-30.83175	-18.93912	0.53071	0.76994	0.29182	62.95940	0.97960	329.10	-17.51
65/ 1/ 7	2438767.5	54.80944	-25.45114	-16.85753	0.43869	0.81746	0.32232	62.73764	0.98213	335.09	-15.59
65/ 1/ 7	2438768.0	57.45103	-19.77891	-14.58067	0.34038	0.85595	0.34941	62.48538	0.98519	341.00	-13.49
65/ 1/ 8	2438768.5	59.40796	-13.87832	-12.13296	0.23667	0.88480	0.37272	62.20226	0.98883	346.85	-11.25
65/ 1/ 8	2438769.0	60.64686	-7.81665	-9.54125	0.12852	0.90343	0.39188	61.88842	0.99311	352.66	-8.87
65/ 1/ 9	2438769.5	61.14126	-1.66486	-6.83473	0.01700	0.91133	0.40656	61.54461	0.99805	358.44	-6.38
65/ 1/ 9	2438770.0	60.87214	4.50283	-4.04482	-0.09674	0.90805	0.41645	61.17232	1.00367	4.23	-3.79
65/ 1/10	2438770.5	59.82859	10.60942	-1.20499	-0.21146	0.89323	0.42126	60.77394	1.00997	10.06	-1.14
65/ 1/10	2438771.0	58.00853	16.57567	1.64942	-0.32581	0.86657	0.42072	60.35282	1.01691	15.95	1.57
65/ 1/11	2438771.5	55.41941	22.32080	4.48140	-0.43831	0.82792	0.41460	59.91337	1.02443	21.94	4.29
65/ 1/11	2438772.0	52.07893	27.76337	7.25263	-0.54740	0.77723	0.40275	59.46108	1.03245	28.06	7.01
65/ 1/12	2438772.5	48.01581	32.82226	9.92383	-0.65142	0.71466	0.38506	59.00255	1.04084	34.36	9.68
65/ 1/12	2438773.0	43.27037	37.41797	12.45529	-0.74859	0.64054	0.36149	58.54540	1.04945	40.85	12.28
65/ 1/13	2438773.5	37.89509	41.47407	14.80748	-0.83710	0.55544	0.33214	58.09817	1.05810	47.58	14.77
65/ 1/13	2438774.0	31.95480	44.91895	16.94179	-0.91512	0.46021	0.29720	57.67014	1.06657	54.57	17.08
65/ 1/14	2438774.5	25.52667	47.68769	18.82140	-0.98086	0.35599	0.25700	57.27104	1.07465	61.84	19.19
65/ 1/14	2438775.0	18.69973	49.72417	20.41224	-1.03263	0.24425	0.21202	56.91074	1.08209	69.39	21.02
65/ 1/15	2438775.5	11.57380	50.98314	21.68406	-1.06892	0.12672	0.16291	56.59887	1.08867	77.21	22.53
65/ 1/15	2438776.0	4.25793	51.43226	22.61148	-1.08854	0.00546	0.11047	56.34436	1.09414	85.27	23.66
65/ 1/16	2438776.5	-3.13181	51.05385	23.17501	-1.09063	-0.11725	0.05562	56.15500	1.09832	93.51	24.37
65/ 1/16	2438777.0	-10.47507	49.84621	23.36190	-1.07479	-0.23899	-0.00057	56.03705	1.10104	101.87	24.64
65/ 1/17	2438777.5	-17.65048	47.82442	23.16685	-1.04112	-0.35725	-0.05697	55.99480	1.10218	110.26	24.44
65/ 1/17	2438778.0	-24.53899	45.02033	22.59230	-0.99022	-0.46960	-0.11244	56.03039	1.10168	118.59	23.78
65/ 1/18	2438778.5	-31.02742	41.48184	21.64851	-0.92320	-0.57375	-0.16582	56.14359	1.09954	126.80	22.68
65/ 1/18	2438779.0	-37.01160	37.27149	20.35317	-0.84161	-0.66769	-0.21608	56.33182	1.09581	134.80	21.18
65/ 1/19	2438779.5	-42.39919	32.46428	18.73078	-0.74737	-0.74975	-0.26225	56.59031	1.09062	142.56	19.33
65/ 1/19	2438780.0	-47.11169	27.14523	16.81171	-0.64264	-0.81866	-0.30357	56.91229	1.08413	150.05	17.18
65/ 1/20	2438780.5	-51.08591	21.40650	14.63105	-0.52975	-0.87357	-0.33941	57.28940	1.07655	157.26	14.80
65/ 1/20	2438781.0	-54.27445	15.34465	12.22744	-0.41103	-0.91403	-0.36935	57.71209	1.06809	164.21	12.23
65/ 1/21	2438781.5	-56.64575	9.05793	9.64188	-0.28879	-0.93998	-0.39311	58.17003	1.05901	170.92	9.54
65/ 1/21	2438782.0	-58.18332	2.64395	6.91656	-0.16519	-0.95168	-0.41061	58.65261	1.04956	177.40	6.77
65/ 1/22	2438782.5	-58.88478	-3.80231	4.09390	-0.04220	-0.94962	-0.42187	59.14926	1.03997	183.69	3.97

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
65/ 1/22	2438783.0	-58.76043	-10.19009	1.21572	0.07839	-0.93454	-0.42704	59.64984	1.03047	189.84	1.17
65/ 1/23	2438783.5	-57.83184	-16.43398	-1.67747	0.19504	-0.90729	-0.42635	60.14492	1.02126	195.86	-1.60
65/ 1/23	2438784.0	-56.13035	-22.45474	-4.54695	0.30642	-0.86881	-0.42009	60.62595	1.01252	201.80	-4.30
65/ 1/24	2438784.5	-53.69560	-28.17977	-7.35613	0.41139	-0.82013	-0.40860	61.08543	1.00440	207.69	-6.92
65/ 1/24	2438785.0	-50.57430	-33.54340	-10.07086	0.50901	-0.76227	-0.39226	61.51700	0.99700	213.55	-9.42
65/ 1/25	2438785.5	-46.81898	-38.48693	-12.65952	0.59849	-0.69625	-0.37144	61.91546	0.99042	219.42	-11.80
65/ 1/25	2438786.0	-42.48708	-42.95864	-15.09312	0.67918	-0.62311	-0.34654	62.27679	0.98470	225.32	-14.03
65/ 1/26	2438786.5	-37.63997	-46.91363	-17.34540	0.75054	-0.54383	-0.31796	62.59807	0.97988	231.26	-16.09
65/ 1/26	2438787.0	-32.34233	-50.31372	-19.39273	0.81215	-0.45941	-0.28609	62.87746	0.97596	237.27	-17.96
65/ 1/27	2438787.5	-26.66145	-53.12729	-21.21422	0.86366	-0.37080	-0.25133	63.11406	0.97292	243.35	-19.64
65/ 1/27	2438788.0	-20.66672	-55.32914	-22.79162	0.90479	-0.27893	-0.21408	63.30786	0.97071	249.52	-21.10
65/ 1/28	2438788.5	-14.42916	-56.90037	-24.10941	0.93534	-0.18473	-0.17473	63.45957	0.96929	255.77	-22.33
65/ 1/28	2438789.0	-8.02098	-57.82834	-25.15471	0.95515	-0.08913	-0.13369	63.57053	0.96857	262.10	-23.31
65/ 1/29	2438789.5	-1.51519	-58.10659	-25.91739	0.96416	0.00697	-0.09134	63.64261	0.96850	268.51	-24.03
65/ 1/29	2438790.0	5.01488	-57.73480	-26.39003	0.96232	0.10267	-0.04811	63.67802	0.96898	274.96	-24.48
65/ 1/30	2438790.5	11.49595	-56.71883	-26.56803	0.94970	0.19705	-0.00440	63.67922	0.96994	281.46	-24.66
65/ 1/30	2438791.0	17.85528	-55.07067	-26.44958	0.92640	0.28920	0.03936	63.64880	0.97129	287.96	-24.55
65/ 1/31	2438791.5	24.02115	-52.80844	-26.03575	0.89261	0.37823	0.08275	63.58936	0.97296	294.46	-24.17
65/ 1/31	2438792.0	29.92338	-49.95636	-25.33053	0.84860	0.46323	0.12533	63.50341	0.97489	300.92	-23.51
65/ 2/ 1	2438792.5	35.49391	-46.54473	-24.34085	0.79473	0.54331	0.16667	63.39327	0.97701	307.33	-22.58
65/ 2/ 1	2438793.0	40.66736	-42.60977	-23.07659	0.73143	0.61762	0.20634	63.26101	0.97929	313.66	-21.39
65/ 2/ 2	2438793.5	45.38170	-38.19352	-21.55058	0.65925	0.68530	0.24389	63.10841	0.98170	319.92	-19.97
65/ 2/ 2	2438794.0	49.57885	-33.34361	-19.77859	0.57882	0.74554	0.27891	62.93689	0.98420	326.08	-18.32
65/ 2/ 3	2438794.5	53.20533	-28.11303	-17.77924	0.49087	0.79758	0.31096	62.74752	0.98681	332.15	-16.46
65/ 2/ 3	2438795.0	56.21294	-22.55976	-15.57393	0.39621	0.84072	0.33966	62.54106	0.98952	338.13	-14.42
65/ 2/ 4	2438795.5	58.55935	-16.74640	-13.18673	0.29578	0.87429	0.36461	62.31797	0.99237	344.04	-12.22
65/ 2/ 4	2438796.0	60.20876	-10.73969	-10.64426	0.19057	0.89772	0.38545	62.07847	0.99538	349.89	-9.87
65/ 2/ 5	2438796.5	61.13248	-4.61005	-7.97545	0.08168	0.91051	0.40186	61.82265	0.99860	355.69	-7.41
65/ 2/ 5	2438797.0	61.30950	1.56910	-5.21138	-0.02972	0.91227	0.41353	61.55059	1.00207	1.47	-4.86
65/ 2/ 6	2438797.5	60.72700	7.72186	-2.38505	-0.14239	0.90268	0.42021	61.26242	1.00583	7.25	-2.23
65/ 2/ 6	2438798.0	59.38087	13.77066	0.46893	-0.25499	0.88155	0.42167	60.95850	1.00993	13.06	0.44
65/ 2/ 7	2438798.5	57.27614	19.63693	3.31461	-0.36616	0.84878	0.41773	60.63952	1.01440	18.92	3.13
65/ 2/ 7	2438799.0	54.42742	25.24199	6.11502	-0.47444	0.80443	0.40828	60.30668	1.01927	24.88	5.82
65/ 2/ 8	2438799.5	50.85927	30.50794	8.83259	-0.57835	0.74869	0.39326	59.96177	1.02454	30.96	8.47
65/ 2/ 8	2438800.0	46.60647	35.35865	11.42954	-0.67636	0.68189	0.37267	59.60731	1.03020	37.19	11.05
65/ 2/ 9	2438800.5	41.71425	39.72092	13.86839	-0.76690	0.60455	0.34660	59.24662	1.03622	43.60	13.54
65/ 2/ 9	2438801.0	36.23843	43.52562	16.11247	-0.84844	0.51738	0.31520	58.88392	1.04253	50.22	15.88
65/ 2/10	2438801.5	30.24527	46.70911	18.12657	-0.91942	0.42128	0.27873	58.52426	1.04905	57.08	18.04
65/ 2/10	2438802.0	23.81125	49.21455	19.87755	-0.97838	0.31737	0.23757	58.17357	1.05564	64.18	19.98
65/ 2/11	2438802.5	17.02253	50.99350	21.33512	-1.02394	0.20699	0.19218	57.83849	1.06219	71.54	21.65
65/ 2/11	2438803.0	9.97406	52.00738	22.47261	-1.05489	0.09173	0.14316	57.52623	1.06850	79.14	22.99
65/ 2/12	2438803.5	2.76842	52.22900	23.26774	-1.07021	-0.02664	0.09121	57.24439	1.07442	86.97	23.98
65/ 2/12	2438804.0	-4.48586	51.64391	23.70341	-1.06915	-0.14614	0.03716	57.00060	1.07974	94.96	24.57
65/ 2/13	2438804.5	-11.67629	50.25160	23.76845	-1.05132	-0.26465	-0.01807	56.80228	1.08427	103.08	24.74
65/ 2/13	2438805.0	-18.68888	48.06627	23.45817	-1.01667	-0.37994	-0.07349	56.65621	1.08783	111.25	24.46

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/ 2/14	2438805.5	-25.41081	45.11721	22.77484	-0.96559	-0.48980	-0.12806	56.56823	1.09026	119.39	23.74
65/ 2/14	2438806.0	-31.73337	41.44861	21.72786	-0.89891	-0.59207	-0.18070	56.54285	1.09144	127.44	22.60
65/ 2/15	2438806.5	-37.55484	37.11881	20.33371	-0.81786	-0.68474	-0.23041	56.58296	1.09126	135.33	21.06
65/ 2/15	2438807.0	-42.78324	32.19893	18.61558	-0.72408	-0.76605	-0.27622	56.68965	1.08969	143.03	19.17
65/ 2/16	2438807.5	-47.33876	26.77092	16.60277	-0.61951	-0.83457	-0.31730	56.86205	1.08673	150.51	16.98
65/ 2/16	2438808.0	-51.15560	20.92531	14.32979	-0.50633	-0.88922	-0.35294	57.09734	1.08243	157.75	14.53
65/ 2/17	2438808.5	-54.18324	14.75854	11.83534	-0.38686	-0.92932	-0.38262	57.39088	1.07689	164.76	11.90
65/ 2/17	2438809.0	-56.38703	8.37034	9.16115	-0.26344	-0.95459	-0.40598	57.73635	1.07026	171.56	9.13
65/ 2/18	2438809.5	-57.74810	1.86109	6.35075	-0.13838	-0.96511	-0.42282	58.12606	1.06272	178.15	6.27
65/ 2/18	2438810.0	-58.26274	-4.67051	3.44843	-0.01385	-0.96128	-0.43313	58.55128	1.05445	184.58	3.38
65/ 2/19	2438810.5	-57.94129	-11.12948	0.49816	0.10820	-0.94379	-0.43701	59.00260	1.04567	190.87	0.48
65/ 2/19	2438811.0	-56.80671	-17.42617	-2.45730	0.22600	-0.91352	-0.43470	59.47026	1.03661	197.05	-2.37
65/ 2/20	2438811.5	-54.89299	-23.47746	-5.37702	0.33804	-0.87151	-0.42652	59.94450	1.02749	203.16	-5.15
65/ 2/20	2438812.0	-52.24350	-29.20760	-8.22251	0.44307	-0.81888	-0.41285	60.41586	1.01849	209.21	-7.82
65/ 2/21	2438812.5	-48.90939	-34.54866	-10.95806	0.54005	-0.75682	-0.39413	60.87543	1.00983	215.24	-10.37
65/ 2/21	2438813.0	-44.94811	-39.44074	-13.55094	0.62815	-0.68650	-0.37080	61.31503	1.00167	221.27	-12.77
65/ 2/22	2438813.5	-40.42206	-43.83193	-15.97159	0.70673	-0.60910	-0.34335	61.72741	0.99416	227.32	-15.00
65/ 2/22	2438814.0	-35.39745	-47.67815	-18.19360	0.77530	-0.52576	-0.31222	62.10630	0.98742	233.41	-17.03
65/ 2/23	2438814.5	-29.94333	-50.94293	-20.19371	0.83351	-0.43758	-0.27790	62.44655	0.98155	239.55	-18.87
65/ 2/23	2438815.0	-24.13082	-53.59703	-21.95176	0.88110	-0.34561	-0.24082	62.74406	0.97662	245.76	-20.48
65/ 2/24	2438815.5	-18.03239	-55.61819	-23.45059	0.91791	-0.25084	-0.20143	62.99587	0.97266	252.04	-21.85
65/ 2/24	2438816.0	-11.72141	-56.99083	-24.67601	0.94386	-0.15426	-0.16015	63.20009	0.96970	258.38	-22.98
65/ 2/25	2438816.5	-5.27165	-57.70579	-25.61667	0.95889	-0.05679	-0.11741	63.35584	0.96772	264.78	-23.85
65/ 2/25	2438817.0	1.24304	-57.76013	-26.26407	0.96304	0.04066	-0.07362	63.46321	0.96671	271.23	-24.45
65/ 2/26	2438817.5	7.74913	-57.15700	-26.61246	0.95636	0.13721	-0.02919	63.52318	0.96660	277.72	-24.77
65/ 2/26	2438818.0	14.17366	-55.90550	-26.65890	0.93898	0.23198	0.01548	63.53751	0.96734	284.23	-24.81
65/ 2/27	2438818.5	20.44464	-54.02068	-26.40320	0.91105	0.32408	0.05996	63.50864	0.96884	290.73	-24.57
65/ 2/27	2438819.0	26.49139	-51.52348	-25.84802	0.87281	0.41266	0.10385	63.43959	0.97101	297.21	-24.04
65/ 2/28	2438819.5	32.24493	-48.44071	-24.99882	0.82453	0.49685	0.14671	63.33387	0.97377	303.65	-23.25
65/ 2/28	2438820.0	37.63849	-44.80511	-23.86401	0.76658	0.57577	0.18812	63.19529	0.97700	310.03	-22.19
65/ 3/ 1	2438820.5	42.60803	-40.65527	-22.45491	0.69940	0.64856	0.22763	63.02791	0.98061	316.34	-20.87
65/ 3/ 1	2438821.0	47.09281	-36.03559	-20.78581	0.62353	0.71437	0.26482	62.83587	0.98450	322.58	-19.32
65/ 3/ 2	2438821.5	51.03609	-30.99618	-18.87401	0.53961	0.77236	0.29923	62.62327	0.98857	328.73	-17.54
65/ 3/ 2	2438822.0	54.38584	-25.59267	-16.73977	0.44840	0.82175	0.33043	62.39410	0.99273	334.80	-15.56
65/ 3/ 3	2438822.5	57.09546	-19.88593	-14.40625	0.35074	0.86179	0.35800	62.15209	0.99693	340.80	-13.40
65/ 3/ 3	2438823.0	59.12461	-13.94167	-11.89946	0.24763	0.89178	0.38153	61.90061	1.00108	346.73	-11.08
65/ 3/ 4	2438823.5	60.43993	-7.82997	-9.24806	0.14015	0.91114	0.40064	61.64268	1.00515	352.62	-8.63
65/ 3/ 4	2438824.0	61.01587	-1.62465	-6.48317	0.02950	0.91935	0.41499	61.38084	1.00911	358.47	-6.06
65/ 3/ 5	2438824.5	60.83532	4.59744	-3.63813	-0.08301	0.91604	0.42427	61.11717	1.01293	4.32	-3.41
65/ 3/ 5	2438825.0	59.89028	10.75731	-0.74814	-0.19601	0.90095	0.42823	60.85330	1.01661	10.18	-0.70
65/ 3/ 6	2438825.5	58.18238	16.77472	2.15013	-0.30803	0.87397	0.42668	60.59046	1.02018	16.08	2.03
65/ 3/ 6	2438826.0	55.72331	22.56927	5.01891	-0.41757	0.83516	0.41951	60.32950	1.02364	22.05	4.77
65/ 3/ 7	2438826.5	52.53506	28.06148	7.81987	-0.52310	0.78474	0.40665	60.07104	1.02704	28.11	7.48
65/ 3/ 7	2438827.0	48.65008	33.17393	10.51463	-0.62306	0.72310	0.38816	59.81553	1.03041	34.29	10.12
65/ 3/ 8	2438827.5	44.11124	37.83250	13.06528	-0.71593	0.65082	0.36412	59.56342	1.03378	40.62	12.67

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
65/ 3/ 8	2438828.0	38.97161	41.96752	15.43495	-0.80022	0.56865	0.33476	59.31523	1.03719	47.12	15.08
65/ 3/ 9	2438828.5	33.29413	45.51504	17.58845	-0.87452	0.47751	0.30034	59.07175	1.04067	53.81	17.32
65/ 3/ 9	2438829.0	27.15108	48.41802	19.49280	-0.93749	0.37851	0.26126	58.83413	1.04423	60.72	19.35
65/ 3/10	2438829.5	20.62329	50.62746	21.11789	-0.98794	0.27294	0.21796	58.60397	1.04786	67.84	21.12
65/ 3/10	2438830.0	13.79931	52.10356	22.43707	-1.02480	0.16221	0.17102	58.38342	1.05155	75.17	22.60
65/ 3/11	2438830.5	6.77420	52.81673	23.42768	-1.04720	0.04792	0.12106	58.17519	1.05526	82.69	23.75
65/ 3/11	2438831.0	-0.35171	52.74854	24.07170	-1.05447	-0.06822	0.06880	57.98257	1.05891	90.38	24.53
65/ 3/12	2438831.5	-7.47441	51.89250	24.35616	-1.04620	-0.18441	0.01502	57.80935	1.06243	98.20	24.92
65/ 3/12	2438832.0	-14.48793	50.25469	24.27366	-1.02223	-0.29876	-0.03942	57.65973	1.06572	106.08	24.90
65/ 3/13	2438832.5	-21.28626	47.85411	23.82268	-0.98270	-0.40933	-0.09364	57.53817	1.06866	113.98	24.46
65/ 3/13	2438833.0	-27.76542	44.72281	23.00787	-0.92809	-0.51422	-0.14670	57.44920	1.07112	121.83	23.61
65/ 3/14	2438833.5	-33.82570	40.90560	21.84011	-0.85917	-0.61157	-0.19771	57.39718	1.07298	129.59	22.37
65/ 3/14	2438834.0	-39.37380	36.45947	20.33646	-0.77706	-0.69966	-0.24574	57.38606	1.07412	137.20	20.76
65/ 3/15	2438834.5	-44.32501	31.45258	18.51990	-0.68317	-0.77692	-0.28997	57.41915	1.07443	144.64	18.82
65/ 3/15	2438835.0	-48.60516	25.96291	16.41891	-0.57920	-0.84202	-0.32962	57.49882	1.07383	151.89	16.59
65/ 3/16	2438835.5	-52.15227	20.07646	14.06683	-0.46705	-0.89393	-0.36402	57.62637	1.07226	158.95	14.13
65/ 3/16	2438836.0	-54.91789	13.88536	11.50106	-0.34878	-0.93189	-0.39264	57.80184	1.06969	165.81	11.48
65/ 3/17	2438836.5	-56.86794	7.48562	8.76218	-0.22657	-0.95550	-0.41508	58.02390	1.06612	172.50	8.69
65/ 3/17	2438837.0	-57.98303	0.97491	5.89294	-0.10259	-0.96467	-0.43110	58.28987	1.06159	179.04	5.80
65/ 3/18	2438837.5	-58.25835	-5.54965	2.93725	0.02106	-0.95965	-0.44061	58.59574	1.05617	185.44	2.87
65/ 3/18	2438838.0	-57.70303	-11.99348	-0.06082	0.14237	-0.94094	-0.44363	58.93630	1.04998	191.74	-0.06
65/ 3/19	2438838.5	-56.33920	-18.26637	-3.05793	0.25952	-0.90932	-0.44036	59.30528	1.04313	197.96	-2.96
65/ 3/19	2438839.0	-54.20064	-24.28395	-6.01227	0.37089	-0.86572	-0.43106	59.69562	1.03579	204.13	-5.78
65/ 3/20	2438839.5	-51.33137	-29.96880	-8.88425	0.47509	-0.81126	-0.41611	60.09965	1.02810	210.28	-8.50
65/ 3/20	2438840.0	-47.78399	-35.25130	-11.63698	0.57095	-0.74711	-0.39592	60.50937	1.02026	216.42	-11.09
65/ 3/21	2438840.5	-43.61824	-40.07004	-14.23666	0.65756	-0.67452	-0.37099	60.91667	1.01242	222.57	-13.52
65/ 3/21	2438841.0	-38.89938	-44.37209	-16.65279	0.73418	-0.59475	-0.34181	61.31362	1.00477	228.76	-15.76
65/ 3/22	2438841.5	-33.69692	-48.11294	-18.85834	0.80029	-0.50901	-0.30889	61.69258	0.99748	234.99	-17.80
65/ 3/22	2438842.0	-28.08337	-51.25635	-20.82975	0.85552	-0.41852	-0.27275	62.04649	0.99069	241.28	-19.62
65/ 3/23	2438842.5	-22.13325	-53.77399	-22.54688	0.89965	-0.32442	-0.23389	62.36894	0.98454	247.63	-21.19
65/ 3/23	2438843.0	-15.92216	-55.64517	-23.99298	0.93257	-0.22780	-0.19280	62.65432	0.97916	254.03	-22.52
65/ 3/24	2438843.5	-9.52617	-56.85639	-25.15454	0.95426	-0.12970	-0.14994	62.89791	0.97463	260.49	-23.57
65/ 3/24	2438844.0	-3.02117	-57.40096	-26.02116	0.96477	-0.03110	-0.10578	63.09594	0.97105	266.99	-24.36
65/ 3/25	2438844.5	3.51750	-57.27871	-26.58551	0.96422	0.06706	-0.06076	63.24565	0.96846	273.51	-24.86
65/ 3/25	2438845.0	10.01546	-56.49565	-26.84315	0.95278	0.16388	-0.01529	63.34526	0.96689	280.05	-25.07
65/ 3/26	2438845.5	16.39960	-55.06377	-26.79253	0.93065	0.25851	0.03021	63.39404	0.96635	286.59	-25.00
65/ 3/26	2438846.0	22.59831	-53.00085	-26.43486	0.89807	0.35008	0.07531	63.39224	0.96683	293.09	-24.65
65/ 3/27	2438846.5	28.54183	-50.33035	-25.77418	0.85534	0.43778	0.11962	63.34105	0.96828	299.56	-24.01
65/ 3/27	2438847.0	34.16251	-47.08135	-24.81728	0.80280	0.52077	0.16271	63.24262	0.97065	305.96	-23.10
65/ 3/28	2438847.5	39.39516	-43.28851	-23.57377	0.74083	0.59824	0.20418	63.09990	0.97386	312.30	-21.94
65/ 3/28	2438848.0	44.17748	-38.99207	-22.05608	0.66990	0.66935	0.24360	62.91663	0.97782	318.57	-20.52
65/ 3/29	2438848.5	48.45050	-34.23784	-20.27956	0.59054	0.73328	0.28054	62.69722	0.98242	324.75	-18.87
65/ 3/29	2438849.0	52.15922	-29.07715	-18.26246	0.50338	0.78923	0.31457	62.44664	0.98754	330.86	-17.00
65/ 3/30	2438849.5	55.25321	-23.56683	-16.02601	0.40915	0.83640	0.34524	62.17030	0.99306	336.90	-14.94
65/ 3/30	2438850.0	57.68742	-17.76896	-13.59437	0.30870	0.87402	0.37213	61.87391	0.99884	342.88	-12.69

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
65/ 3/31	2438850.5	59.42295	-11.75067	-10.99462	0.20301	0.90137	0.39481	61.56336	1.00477	348.81	-10.29
65/ 3/31	2438851.0	60.42796	-5.58373	-8.25668	0.09318	0.91781	0.41288	61.24450	1.01071	354.72	-7.75
65/ 4/ 1	2438851.5	60.67856	0.65602	-5.41310	-0.01955	0.92279	0.42595	60.92306	1.01654	0.62	-5.10
65/ 4/ 1	2438852.0	60.15972	6.88939	-2.49882	-0.13380	0.91587	0.43370	60.60445	1.02216	6.53	-2.36
65/ 4/ 2	2438852.5	58.86610	13.03472	0.44914	-0.24808	0.89676	0.43586	60.29364	1.02747	12.49	0.43
65/ 4/ 2	2438853.0	56.80275	19.00903	3.39212	-0.36082	0.86536	0.43221	59.99502	1.03239	18.50	3.24
65/ 4/ 3	2438853.5	53.98574	24.72916	6.29035	-0.47035	0.82174	0.42263	59.71231	1.03687	24.61	6.05
65/ 4/ 3	2438854.0	50.44247	30.11326	9.10353	-0.57499	0.76619	0.40709	59.44851	1.04086	30.84	8.81
65/ 4/ 4	2438854.5	46.21186	35.08217	11.79151	-0.67304	0.69924	0.38568	59.20586	1.04435	37.20	11.49
65/ 4/ 4	2438855.0	41.34413	39.56100	14.31499	-0.76286	0.62162	0.35856	58.98584	1.04734	43.74	14.05
65/ 4/ 5	2438855.5	35.90044	43.48064	16.63629	-0.84287	0.53429	0.32603	58.78923	1.04985	50.45	16.44
65/ 4/ 5	2438856.0	29.95211	46.77917	18.72004	-0.91164	0.43842	0.28849	58.61621	1.05192	57.37	18.62
65/ 4/ 6	2438856.5	23.57967	49.40324	20.53396	-0.96791	0.33537	0.24644	58.46644	1.05359	64.49	20.56
65/ 4/ 6	2438857.0	16.87159	51.30925	22.04944	-1.01060	0.22665	0.20047	58.33925	1.05492	71.80	22.21
65/ 4/ 7	2438857.5	9.92286	52.46432	23.24221	-1.03885	0.11391	0.15126	58.23374	1.05597	79.29	23.52
65/ 4/ 7	2438858.0	2.83335	52.84706	24.09282	-1.05209	-0.00112	0.09956	58.14898	1.05679	86.93	24.48
65/ 4/ 8	2438858.5	-4.29386	52.44813	24.58702	-1.04996	-0.11661	0.04616	58.08412	1.05742	94.68	25.04
65/ 4/ 8	2438859.0	-11.35437	51.27049	24.71615	-1.03240	-0.23076	-0.00810	58.03855	1.05790	102.49	25.20
65/ 4/ 9	2438859.5	-18.24423	49.32947	24.47724	-0.99962	-0.34173	-0.06237	58.01193	1.05826	110.30	24.96
65/ 4/ 9	2438860.0	-24.86184	46.65257	23.87318	-0.95211	-0.44777	-0.11579	58.00433	1.05850	118.05	24.30
65/ 4/10	2438860.5	-31.10973	43.27900	22.91265	-0.89059	-0.54718	-0.16750	58.01618	1.05859	125.71	23.26
65/ 4/10	2438861.0	-36.89631	39.25905	21.61001	-0.81607	-0.63839	-0.21668	58.04829	1.05852	133.22	21.86
65/ 4/11	2438861.5	-42.13751	34.65318	19.98501	-0.72977	-0.71998	-0.26256	58.10175	1.05824	140.57	20.12
65/ 4/11	2438862.0	-46.75827	29.53090	18.06246	-0.63312	-0.79069	-0.30443	58.17785	1.05769	147.72	18.09
65/ 4/12	2438862.5	-50.69388	23.96950	15.87174	-0.52773	-0.84949	-0.34165	58.27794	1.05681	154.69	15.80
65/ 4/12	2438863.0	-53.89104	18.05259	13.44625	-0.41536	-0.89556	-0.37367	58.40327	1.05555	161.48	13.31
65/ 4/13	2438863.5	-56.30876	11.86846	10.82275	-0.29788	-0.92832	-0.40006	58.55484	1.05383	168.10	10.65
65/ 4/13	2438864.0	-57.91889	5.50845	8.04063	-0.17721	-0.94746	-0.42047	58.73323	1.05161	174.57	7.87
65/ 4/14	2438864.5	-58.70638	-0.93485	5.14113	-0.05528	-0.95293	-0.43469	58.93848	1.04885	180.91	5.00
65/ 4/14	2438865.0	-58.66924	-7.36931	2.16653	0.06599	-0.94490	-0.44263	59.16992	1.04552	187.16	2.10
65/ 4/15	2438865.5	-57.81813	-13.70490	-0.84060	0.18478	-0.92382	-0.44432	59.42615	1.04164	193.33	-0.81
65/ 4/15	2438866.0	-56.17574	-19.85524	-3.83826	0.29937	-0.89032	-0.43987	59.70491	1.03720	199.47	-3.69
65/ 4/16	2438866.5	-53.77585	-25.73896	-6.78564	0.40822	-0.84524	-0.42952	60.00318	1.03226	205.58	-6.49
65/ 4/16	2438867.0	-50.66220	-31.28083	-9.64383	0.50993	-0.78955	-0.41359	60.31710	1.02688	211.69	-9.20
65/ 4/17	2438867.5	-46.88723	-36.41267	-12.37631	0.60332	-0.72435	-0.39246	60.64213	1.02113	217.83	-11.78
65/ 4/17	2438868.0	-42.51075	-41.07400	-14.94939	0.68740	-0.65082	-0.36660	60.97312	1.01512	224.02	-14.19
65/ 4/18	2438868.5	-37.59856	-45.21246	-17.33256	0.76140	-0.57016	-0.33647	61.30445	1.00897	230.25	-16.42
65/ 4/18	2438869.0	-32.22112	-48.78401	-19.49869	0.82470	-0.48362	-0.30259	61.63018	1.00279	236.56	-18.44
65/ 4/19	2438869.5	-26.45231	-51.75292	-21.42414	0.87691	-0.39241	-0.26549	61.94420	0.99671	242.93	-20.23
65/ 4/19	2438870.0	-20.36831	-54.09163	-23.08883	0.91775	-0.29772	-0.22568	62.24040	0.99087	249.37	-21.77
65/ 4/20	2438870.5	-14.04655	-55.78051	-24.47618	0.94710	-0.20070	-0.18368	62.51283	0.98540	255.87	-23.05
65/ 4/20	2438871.0	-7.56491	-56.80747	-25.57308	0.96497	-0.10244	-0.13999	62.75587	0.98044	262.41	-24.05
65/ 4/21	2438871.5	-1.00095	-57.16762	-26.36975	0.97143	-0.00396	-0.09510	62.96430	0.97609	269.00	-24.76
65/ 4/21	2438872.0	5.56867	-56.86290	-26.85965	0.96667	0.09374	-0.04948	63.13351	0.97247	275.59	-25.18
65/ 4/22	2438872.5	12.06864	-55.90163	-27.03933	0.95091	0.18976	-0.00357	63.25954	0.96967	282.18	-25.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
65/ 4/22	2438873.0	18.42545	-54.29827	-26.90832	0.92445	0.28320	0.04219	63.33922	0.96777	288.74	-25.14
65/ 4/23	2438873.5	24.56764	-52.07307	-26.46905	0.88760	0.37325	0.08739	63.37022	0.96684	295.26	-24.69
65/ 4/23	2438874.0	30.42616	-49.25186	-25.72673	0.84074	0.45907	0.13161	63.35110	0.96691	301.71	-23.96
65/ 4/24	2438874.5	35.93458	-45.86586	-24.68934	0.78429	0.53989	0.17446	63.28139	0.96800	308.08	-22.96
65/ 4/24	2438875.0	41.02939	-41.95156	-23.36759	0.71869	0.61494	0.21552	63.16161	0.97011	314.36	-21.71
65/ 4/25	2438875.5	45.65031	-37.55068	-21.77489	0.64444	0.68345	0.25440	62.99325	0.97321	320.56	-20.22
65/ 4/25	2438876.0	49.74065	-32.71004	-19.92739	0.56211	0.74467	0.29069	62.77882	0.97724	326.67	-18.51
65/ 4/26	2438876.5	53.24777	-27.48162	-17.84399	0.47233	0.79784	0.32399	62.52178	0.98215	332.70	-16.58
65/ 4/26	2438877.0	56.12357	-21.92242	-15.54642	0.37581	0.84222	0.35387	62.22651	0.98782	338.66	-14.47
65/ 4/27	2438877.5	58.32514	-16.09448	-13.05917	0.27338	0.87708	0.37992	61.89827	0.99416	344.57	-12.18
65/ 4/27	2438878.0	59.81550	-10.06464	-10.40960	0.16596	0.90173	0.40173	61.54308	1.00102	350.45	-9.74
65/ 4/28	2438878.5	60.56441	-3.90433	-7.62782	0.05463	0.91551	0.41890	61.16760	1.00827	356.31	-7.16
65/ 4/28	2438879.0	60.54931	2.31084	-4.74666	-0.05943	0.91784	0.43102	60.77902	1.01574	2.19	-4.48
65/ 4/29	2438879.5	59.75625	8.50161	-1.80143	-0.17486	0.90823	0.43776	60.38487	1.02328	8.10	-1.71
65/ 4/29	2438880.0	58.18091	14.58592	1.17027	-0.29017	0.88635	0.43879	59.99281	1.03071	14.07	1.12
65/ 4/30	2438880.5	55.82950	20.47984	4.12898	-0.40375	0.85200	0.43388	59.61045	1.03787	20.14	3.97
65/ 4/30	2438881.0	52.71963	26.09887	7.03383	-0.51385	0.80520	0.42287	59.24512	1.04461	26.34	6.82
65/ 5/ 1	2438881.5	48.88087	31.35934	9.84319	-0.61867	0.74618	0.40569	58.90362	1.05078	32.68	9.62
65/ 5/ 1	2438882.0	44.35524	36.18014	12.51541	-0.71638	0.67547	0.38239	58.59202	1.05625	39.20	12.33
65/ 5/ 2	2438882.5	39.19712	40.48446	15.00960	-0.80514	0.59382	0.35316	58.31546	1.06094	45.93	14.92
65/ 5/ 2	2438883.0	33.47299	44.20167	17.28656	-0.88324	0.50230	0.31831	58.07800	1.06477	52.86	17.32
65/ 5/ 3	2438883.5	27.26061	47.26919	19.30974	-0.94907	0.40221	0.27830	57.88250	1.06769	60.03	19.49
65/ 5/ 3	2438884.0	20.64782	49.63415	21.04609	-1.00127	0.29512	0.23372	57.73057	1.06970	67.41	21.38
65/ 5/ 4	2438884.5	13.73093	51.25491	22.46693	-1.03871	0.18276	0.18526	57.62262	1.07081	75.00	22.95
65/ 5/ 4	2438885.0	6.61280	52.10221	23.54869	-1.06058	0.06705	0.13373	57.55789	1.07108	82.77	24.15
65/ 5/ 5	2438885.5	-0.59933	52.16001	24.27351	-1.06641	-0.05004	0.08001	57.53459	1.07058	90.66	24.95
65/ 5/ 5	2438886.0	-7.79613	51.42587	24.62961	-1.05606	-0.16647	0.02501	57.55013	1.06940	98.62	25.34
65/ 5/ 6	2438886.5	-14.86858	49.91095	24.61156	-1.02975	-0.28027	-0.03032	57.60127	1.06764	106.59	25.29
65/ 5/ 6	2438887.0	-21.71016	47.63965	24.22029	-0.98801	-0.38952	-0.08504	57.68439	1.06542	114.50	24.83
65/ 5/ 7	2438887.5	-28.21903	44.64883	23.46298	-0.93167	-0.49245	-0.13826	57.79570	1.06284	122.29	23.95
65/ 5/ 7	2438888.0	-34.29988	40.98685	22.35277	-0.86182	-0.58746	-0.18912	57.93143	1.06000	129.92	22.70
65/ 5/ 8	2438888.5	-39.86559	36.71232	20.90835	-0.77978	-0.67312	-0.23683	58.08803	1.05699	137.36	21.10
65/ 5/ 8	2438889.0	-44.83855	31.89271	19.15345	-0.68705	-0.74824	-0.28069	58.26229	1.05389	144.58	19.19
65/ 5/ 9	2438889.5	-49.15177	26.60284	17.11624	-0.58524	-0.81183	-0.32010	58.45146	1.05074	151.58	17.03
65/ 5/ 9	2438890.0	-52.74962	20.92341	14.82872	-0.47610	-0.86317	-0.35453	58.65324	1.04758	158.36	14.64
65/ 5/10	2438890.5	-55.58839	14.93939	12.32603	-0.36139	-0.90171	-0.38357	58.86583	1.04442	164.96	12.09
65/ 5/10	2438891.0	-57.63656	8.73851	9.64579	-0.24294	-0.92717	-0.40691	59.08786	1.04127	171.38	9.40
65/ 5/11	2438891.5	-58.87484	2.40979	6.82742	-0.12254	-0.93946	-0.42433	59.31836	1.03811	177.66	6.61
65/ 5/11	2438892.0	-59.29607	-3.95789	3.91144	-0.00196	-0.93871	-0.43572	59.55659	1.03491	183.82	3.77
65/ 5/12	2438892.5	-58.90483	-10.27712	0.93883	0.11710	-0.92523	-0.44106	59.80200	1.03164	189.90	0.90
65/ 5/12	2438893.0	-57.71699	-16.46325	-2.04958	0.23301	-0.89950	-0.44041	60.05406	1.02828	195.92	-1.96
65/ 5/13	2438893.5	-55.75901	-22.43548	-5.01371	0.34427	-0.86218	-0.43393	60.31215	1.02478	201.92	-4.77
65/ 5/13	2438894.0	-53.06715	-28.11789	-7.91483	0.44950	-0.81406	-0.42184	60.57543	1.02113	207.92	-7.51
65/ 5/14	2438894.5	-49.68657	-33.44035	-10.71596	0.54745	-0.75605	-0.40446	60.84278	1.01730	213.94	-10.14
65/ 5/14	2438895.0	-45.67032	-38.33920	-13.38240	0.63704	-0.68915	-0.38213	61.11270	1.01330	220.01	-12.65

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
65/ 5/15	2438895.5	-41.07826	-42.75789	-15.88206	0.71735	-0.61445	-0.35528	61.38322	1.00913	226.15	-15.00
65/ 5/15	2438896.0	-35.97595	-46.64733	-18.18575	0.78760	-0.53306	-0.32435	61.65196	1.00482	232.36	-17.16
65/ 5/16	2438896.5	-30.43355	-49.96624	-20.26747	0.84722	-0.44617	-0.28981	61.91604	1.00041	238.66	-19.11
65/ 5/16	2438897.0	-24.52470	-52.68121	-22.10452	0.89575	-0.35492	-0.25218	62.17219	0.99596	245.04	-20.83
65/ 5/17	2438897.5	-18.32552	-54.76674	-23.67761	0.93292	-0.26048	-0.21195	62.41674	0.99152	251.50	-22.29
65/ 5/17	2438898.0	-11.91356	-56.20505	-24.97092	0.95857	-0.16399	-0.16965	62.64573	0.98718	258.03	-23.49
65/ 5/18	2438898.5	-5.36697	-56.98594	-25.97206	0.97268	-0.06653	-0.12576	62.85498	0.98303	264.62	-24.41
65/ 5/18	2438899.0	1.23631	-57.10644	-26.67203	0.97533	0.03085	-0.08080	63.04023	0.97916	271.24	-25.03
65/ 5/19	2438899.5	7.81925	-56.57054	-27.06514	0.96671	0.12714	-0.03523	63.19722	0.97567	277.87	-25.36
65/ 5/19	2438900.0	14.30633	-55.38878	-27.14891	0.94707	0.22141	0.01048	63.32181	0.97266	284.48	-25.39
65/ 5/20	2438900.5	20.62404	-53.57793	-26.92390	0.91675	0.31276	0.05588	63.41011	0.97024	291.05	-25.13
65/ 5/20	2438901.0	26.70127	-51.16065	-26.39370	0.87613	0.40035	0.10053	63.45862	0.96850	297.56	-24.58
65/ 5/21	2438901.5	32.46974	-48.16516	-25.56470	0.82565	0.48337	0.14404	63.46432	0.96752	303.99	-23.75
65/ 5/21	2438902.0	37.86425	-44.62498	-24.44611	0.76579	0.56107	0.18598	63.42478	0.96738	310.31	-22.67
65/ 5/22	2438902.5	42.82302	-40.57871	-23.04978	0.69707	0.63270	0.22598	63.33826	0.96813	316.54	-21.34
65/ 5/22	2438903.0	47.28796	-36.06981	-21.39021	0.62006	0.69756	0.26365	63.20382	0.96984	322.66	-19.78
65/ 5/23	2438903.5	51.20497	-31.14646	-19.48448	0.53538	0.75497	0.29861	63.02140	0.97251	328.69	-18.01
65/ 5/23	2438904.0	54.52431	-25.86146	-17.35225	0.44369	0.80424	0.33048	62.79184	0.97616	334.62	-16.04
65/ 5/24	2438904.5	57.20094	-20.27210	-15.01570	0.34572	0.84473	0.35888	62.51702	0.98076	340.49	-13.90
65/ 5/24	2438905.0	59.19509	-14.44008	-12.49961	0.24230	0.87580	0.38343	62.19979	0.98628	346.29	-11.59
65/ 5/25	2438905.5	60.47274	-8.43136	-9.83129	0.13431	0.89681	0.40377	61.84411	0.99264	352.06	-9.15
65/ 5/25	2438906.0	61.00635	-2.31600	-7.04059	0.02276	0.90719	0.41951	61.45493	0.99975	357.83	-6.58
65/ 5/26	2438906.5	60.77561	3.83216	-4.15984	-0.09120	0.90641	0.43030	61.03822	1.00750	3.61	-3.91
65/ 5/26	2438907.0	59.76831	9.93585	-1.22375	-0.20633	0.89399	0.43580	60.60090	1.01574	9.44	-1.16
65/ 5/27	2438907.5	57.98124	15.91500	1.73078	-0.32122	0.86958	0.43570	60.15070	1.02430	15.35	1.65
65/ 5/27	2438908.0	55.42119	21.68752	4.66493	-0.43432	0.83295	0.42974	59.69604	1.03301	21.37	4.48
65/ 5/28	2438908.5	52.10584	27.17027	7.53833	-0.54396	0.78403	0.41773	59.24583	1.04167	27.54	7.31
65/ 5/28	2438909.0	48.06467	32.28042	10.30958	-0.64834	0.72297	0.39957	58.80923	1.05009	33.89	10.10
65/ 5/29	2438909.5	43.33955	36.93699	12.93693	-0.74561	0.65017	0.37525	58.39540	1.05805	40.44	12.80
65/ 5/29	2438910.0	37.98516	41.06262	15.37907	-0.83385	0.56632	0.34491	58.01316	1.06536	47.23	15.37
65/ 5/30	2438910.5	32.06895	44.58559	17.59605	-0.91120	0.47240	0.30882	57.67073	1.07183	54.27	17.76
65/ 5/30	2438911.0	25.67070	47.44189	19.55028	-0.97591	0.36970	0.26741	57.37535	1.07731	61.58	19.92
65/ 5/31	2438911.5	18.88146	49.57729	21.20764	-1.02641	0.25981	0.22126	57.13301	1.08166	69.15	21.79
65/ 5/31	2438912.0	11.80207	50.94926	22.53846	-1.06140	0.14460	0.17112	56.94821	1.08479	76.96	23.31
65/ 6/ 1	2438912.5	4.54104	51.52861	23.51855	-1.07992	0.02612	0.11785	56.82377	1.08665	84.96	24.45
65/ 6/ 1	2438913.0	-2.78795	51.30066	24.12994	-1.08141	-0.09342	0.06242	56.76077	1.08723	93.11	25.16
65/ 6/ 2	2438913.5	-10.06882	50.26595	24.36149	-1.06573	-0.21174	0.00586	56.75852	1.08657	101.33	25.42
65/ 6/ 2	2438914.0	-17.18602	48.44030	24.20925	-1.03317	-0.32661	-0.05074	56.81469	1.08475	109.53	25.22
65/ 6/ 3	2438914.5	-24.02745	45.85433	23.67647	-0.98445	-0.43591	-0.10633	56.92551	1.08188	117.65	24.58
65/ 6/ 3	2438915.0	-30.48715	42.55248	22.77343	-0.92065	-0.53770	-0.15991	57.08598	1.07810	125.62	23.51
65/ 6/ 4	2438915.5	-36.46760	38.59153	21.51697	-0.84319	-0.63028	-0.21055	57.29025	1.07357	133.38	22.06
65/ 6/ 4	2438916.0	-41.88168	34.03881	19.92987	-0.75370	-0.71223	-0.25742	57.53186	1.06846	140.90	20.27
65/ 6/ 5	2438916.5	-46.65402	28.97027	18.04007	-0.65400	-0.78244	-0.29983	57.80414	1.06293	148.16	18.19
65/ 6/ 5	2438917.0	-50.72203	23.46843	15.87980	-0.54603	-0.84007	-0.33720	58.10042	1.05716	155.17	15.86
65/ 6/ 6	2438917.5	-54.03628	17.62036	13.48472	-0.43176	-0.88461	-0.36910	58.41434	1.05128	161.94	13.35

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
65/ 6/ 6	2438918.0	-56.56072	11.51584	10.89305	-0.31313	-0.91578	-0.39521	58.74000	1.04542	168.49	10.69
65/ 6/ 7	2438918.5	-58.27236	5.24558	8.14472	-0.19205	-0.93356	-0.41534	59.07216	1.03968	174.86	7.93
65/ 6/ 7	2438919.0	-59.16086	-1.10030	5.28064	-0.07036	-0.93815	-0.42939	59.40625	1.03414	181.07	5.10
65/ 6/ 8	2438919.5	-59.22788	-7.43358	2.34201	0.05025	-0.92992	-0.43736	59.73847	1.02887	187.15	2.25
65/ 6/ 8	2438920.0	-58.48631	-13.66914	-0.63034	0.16816	-0.90940	-0.43936	60.06573	1.02388	193.15	-0.60
65/ 6/ 9	2438920.5	-56.95942	-19.72594	-3.59640	0.28191	-0.87725	-0.43554	60.38561	1.01919	199.10	-3.41
65/ 6/ 9	2438921.0	-54.67996	-25.52777	-6.51753	0.39018	-0.83425	-0.42614	60.69632	1.01479	205.03	-6.16
65/ 6/10	2438921.5	-51.68924	-31.00398	-9.35682	0.49175	-0.78125	-0.41143	60.99651	1.01067	210.96	-8.82
65/ 6/10	2438922.0	-48.03620	-36.09004	-12.07944	0.58559	-0.71920	-0.39174	61.28524	1.00679	216.92	-11.37
65/ 6/11	2438922.5	-43.77648	-40.72796	-14.65296	0.67076	-0.64909	-0.36746	61.56181	1.00313	222.93	-13.77
65/ 6/11	2438923.0	-38.97149	-44.86662	-17.04759	0.74649	-0.57195	-0.33899	61.82565	0.99964	229.02	-16.01
65/ 6/12	2438923.5	-33.68746	-48.46207	-19.23640	0.81212	-0.48886	-0.30676	62.07622	0.99630	235.20	-18.05
65/ 6/12	2438924.0	-27.99459	-51.47768	-21.19547	0.86714	-0.40091	-0.27123	62.31289	0.99309	241.46	-19.89
65/ 6/13	2438924.5	-21.96611	-53.88422	-22.90401	0.91117	-0.30919	-0.23286	62.53489	0.98998	247.82	-21.49
65/ 6/13	2438925.0	-15.67742	-55.65986	-24.34451	0.94394	-0.21479	-0.19215	62.74119	0.98696	254.27	-22.83
65/ 6/14	2438925.5	-9.20529	-56.79014	-25.50270	0.96533	-0.11879	-0.14958	62.93048	0.98404	260.79	-23.91
65/ 6/14	2438926.0	-2.62704	-57.26780	-26.36765	0.97529	-0.02225	-0.10564	63.10116	0.98124	267.37	-24.70
65/ 6/15	2438926.5	3.98020	-57.09264	-26.93172	0.97391	0.07381	-0.06081	63.25132	0.97859	273.99	-25.20
65/ 6/15	2438927.0	10.54016	-56.27124	-27.19048	0.96136	0.16842	-0.01557	63.37878	0.97612	280.61	-25.41
65/ 6/16	2438927.5	16.97804	-54.81670	-27.14274	0.93791	0.26062	0.02962	63.48112	0.97390	287.21	-25.31
65/ 6/16	2438928.0	23.22115	-52.74835	-26.79038	0.90391	0.34953	0.07431	63.55577	0.97198	293.76	-24.93
65/ 6/17	2438928.5	29.19934	-50.09144	-26.13828	0.85976	0.43428	0.11806	63.60002	0.97042	300.24	-24.27
65/ 6/17	2438929.0	34.84547	-46.87677	-25.19422	0.80594	0.51410	0.16045	63.61121	0.96932	306.62	-23.33
65/ 6/18	2438929.5	40.09584	-43.14042	-23.96878	0.74298	0.58821	0.20108	63.58675	0.96874	312.91	-22.14
65/ 6/18	2438930.0	44.89054	-38.92345	-22.47521	0.67148	0.65591	0.23957	63.52425	0.96876	319.07	-20.72
65/ 6/19	2438930.5	49.17374	-34.27160	-20.72936	0.59206	0.71652	0.27552	63.42165	0.96945	325.13	-19.08
65/ 6/19	2438931.0	52.89411	-29.23504	-18.74957	0.50539	0.76940	0.30859	63.27733	0.97089	331.07	-17.24
65/ 6/20	2438931.5	56.00506	-23.86815	-16.55660	0.41223	0.81397	0.33841	63.09022	0.97313	336.92	-15.21
65/ 6/20	2438932.0	58.46515	-18.22927	-14.17360	0.31334	0.84963	0.36465	62.85993	0.97623	342.68	-13.03
65/ 6/21	2438932.5	60.23845	-12.38052	-11.62596	0.20957	0.87585	0.38697	62.58683	0.98019	348.39	-10.71
65/ 6/21	2438933.0	61.29497	-6.38758	-8.94135	0.10183	0.89212	0.40504	62.27216	0.98504	354.05	-8.26
65/ 6/22	2438933.5	61.61114	-0.31946	-6.14961	-0.00888	0.89797	0.41855	61.91811	0.99077	359.70	-5.70
65/ 6/22	2438934.0	61.17045	5.75178	-3.28267	-0.12148	0.89298	0.42720	61.52790	0.99733	5.37	-3.06
65/ 6/23	2438934.5	59.96403	11.75139	-0.37449	-0.23478	0.87677	0.43069	61.10581	1.00466	11.09	-0.35
65/ 6/23	2438935.0	57.99145	17.60240	2.53914	-0.34749	0.84906	0.42876	60.65724	1.01266	16.88	2.40
65/ 6/24	2438935.5	55.26146	23.22623	5.42077	-0.45819	0.80966	0.42120	60.18863	1.02123	22.80	5.17
65/ 6/24	2438936.0	51.79281	28.54347	8.23159	-0.56535	0.75853	0.40783	59.70748	1.03020	28.86	7.92
65/ 6/25	2438936.5	47.61507	33.47492	10.93184	-0.66730	0.69578	0.38854	59.22221	1.03940	35.11	10.64
65/ 6/25	2438937.0	42.76934	37.94286	13.48134	-0.76230	0.62173	0.36332	58.74201	1.04864	41.58	13.27
65/ 6/26	2438937.5	37.30879	41.87254	15.84010	-0.84855	0.53695	0.33225	58.27662	1.05770	48.30	15.77
65/ 6/26	2438938.0	31.29895	45.19398	17.96916	-0.92420	0.44229	0.29554	57.83607	1.06635	55.30	18.10
65/ 6/27	2438938.5	24.81760	47.84394	19.83152	-0.98749	0.33888	0.25356	57.43035	1.07437	62.58	20.20
65/ 6/27	2438939.0	17.95427	49.76799	21.39313	-1.03674	0.22820	0.20683	57.06904	1.08152	70.16	22.02
65/ 6/28	2438939.5	10.80905	50.92266	22.62403	-1.07051	0.11201	0.15603	56.76090	1.08760	78.02	23.49
65/ 6/28	2438940.0	3.49091	51.27737	23.49937	-1.08764	-0.00766	0.10199	56.51350	1.09243	86.11	24.57

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/ 6/29	2438940.5	-3.88458	50.81608	24.00048	-1.08735	-0.12856	0.04569	56.33282	1.09588	94.37	25.22
65/ 6/29	2438941.0	-11.19810	49.53851	24.11562	-1.06932	-0.24830	-0.01179	56.22299	1.09783	102.74	25.40
65/ 6/30	2438941.5	-18.32972	47.46070	23.84062	-1.03370	-0.36446	-0.06932	56.18605	1.09826	111.12	25.11
65/ 6/30	2438942.0	-25.16223	44.61492	23.17912	-0.98115	-0.47470	-0.12573	56.22189	1.09718	119.42	24.35
65/ 7/ 1	2438942.5	-31.58445	41.04885	22.14254	-0.91277	-0.57682	-0.17990	56.32830	1.09464	127.58	23.15
65/ 7/ 1	2438943.0	-37.49418	36.82409	20.74963	-0.83010	-0.66891	-0.23079	56.50110	1.09076	135.52	21.55
65/ 7/ 2	2438943.5	-42.80074	32.01417	19.02584	-0.73499	-0.74938	-0.27746	56.73441	1.08571	143.20	19.59
65/ 7/ 2	2438944.0	-47.42689	26.70217	17.00238	-0.62954	-0.81700	-0.31916	57.02102	1.07966	150.62	17.35
65/ 7/ 3	2438944.5	-51.31005	20.97817	14.71512	-0.51597	-0.87093	-0.35528	57.35276	1.07283	157.76	14.87
65/ 7/ 3	2438945.0	-54.40290	14.93667	12.20348	-0.39654	-0.91070	-0.38536	57.72092	1.06542	164.65	12.21
65/ 7/ 4	2438945.5	-56.67334	8.67416	9.50931	-0.27348	-0.93619	-0.40914	58.11657	1.05766	171.30	9.42
65/ 7/ 4	2438946.0	-58.10405	2.28698	6.67580	-0.14891	-0.94757	-0.42650	58.53100	1.04974	177.75	6.55
65/ 7/ 5	2438946.5	-58.69158	-4.13057	3.74656	-0.02481	-0.94525	-0.43742	58.95591	1.04185	184.03	3.64
65/ 7/ 5	2438947.0	-58.44525	-10.48776	0.76475	0.09703	-0.92986	-0.44204	59.38371	1.03415	190.17	0.74
65/ 7/ 6	2438947.5	-57.38594	-16.69858	-2.22751	0.21500	-0.90217	-0.44055	59.80761	1.02676	196.22	-2.13
65/ 7/ 6	2438948.0	-55.54478	-22.68269	-5.18977	0.32769	-0.86307	-0.43324	60.22176	1.01979	202.21	-4.94
65/ 7/ 7	2438948.5	-52.96189	-28.36604	-8.08364	0.43384	-0.81353	-0.42042	60.62127	1.01331	208.17	-7.66
65/ 7/ 7	2438949.0	-49.68515	-33.68133	-10.87309	0.53241	-0.75456	-0.40247	61.00221	1.00737	214.13	-10.27
65/ 7/ 8	2438949.5	-45.76908	-38.56828	-13.52475	0.62249	-0.68722	-0.37979	61.36155	1.00200	220.12	-12.73
65/ 7/ 8	2438950.0	-41.27379	-42.97377	-16.00802	0.70334	-0.61257	-0.35282	61.69706	0.99720	226.16	-15.04
65/ 7/ 9	2438950.5	-36.26402	-46.85194	-18.29527	0.77432	-0.53168	-0.32198	62.00726	0.99294	232.26	-17.16
65/ 7/ 9	2438951.0	-30.80828	-50.16421	-20.36186	0.83496	-0.44563	-0.28774	62.29128	0.98921	238.44	-19.08
65/ 7/10	2438951.5	-24.97805	-52.87920	-22.18624	0.88486	-0.35549	-0.25054	62.54871	0.98596	244.72	-20.78
65/ 7/10	2438952.0	-18.84700	-54.97271	-23.75001	0.92375	-0.26229	-0.21086	62.77954	0.98314	251.08	-22.23
65/ 7/11	2438952.5	-12.49036	-56.42762	-25.03792	0.95145	-0.16709	-0.16916	62.98399	0.98071	257.52	-23.42
65/ 7/11	2438953.0	-5.98418	-57.23380	-26.03788	0.96790	-0.07089	-0.12591	63.16241	0.97862	264.03	-24.35
65/ 7/12	2438953.5	0.59527	-57.38793	-26.74098	0.97310	0.02529	-0.08157	63.31516	0.97684	270.59	-24.98
65/ 7/12	2438954.0	7.17211	-56.89338	-27.14148	0.96715	0.12050	-0.03663	63.44254	0.97532	277.18	-25.33
65/ 7/13	2438954.5	13.67145	-55.76002	-27.23675	0.95025	0.21378	0.00848	63.54470	0.97404	283.78	-25.38
65/ 7/13	2438955.0	20.01996	-54.00401	-27.02726	0.92266	0.30421	0.05329	63.62157	0.97298	290.34	-25.14
65/ 7/14	2438955.5	26.14639	-51.64758	-26.51652	0.88474	0.39093	0.09736	63.67285	0.97215	296.85	-24.61
65/ 7/14	2438956.0	31.98213	-48.71880	-25.71102	0.83690	0.47309	0.14026	63.69799	0.97154	303.28	-23.81
65/ 7/15	2438956.5	37.46168	-45.25128	-24.62014	0.77965	0.54989	0.18157	63.69620	0.97118	309.62	-22.74
65/ 7/15	2438957.0	42.52314	-41.28387	-23.25607	0.71354	0.62058	0.22087	63.66647	0.97110	315.85	-21.42
65/ 7/16	2438957.5	47.10866	-36.86037	-21.63370	0.63921	0.68445	0.25778	63.60762	0.97135	321.96	-19.88
65/ 7/16	2438958.0	51.16480	-32.02921	-19.77049	0.55734	0.74085	0.29192	63.51834	0.97196	327.95	-18.13
65/ 7/17	2438958.5	54.64299	-26.84311	-17.68641	0.46868	0.78917	0.32294	63.39730	0.97301	333.84	-16.20
65/ 7/17	2438959.0	57.49987	-21.35873	-15.40376	0.37401	0.82884	0.35050	63.24323	0.97453	339.62	-14.10
65/ 7/18	2438959.5	59.69766	-15.63640	-12.94709	0.27420	0.85935	0.37428	63.05501	0.97661	345.32	-11.85
65/ 7/18	2438960.0	61.20455	-9.73975	-10.34307	0.17015	0.88025	0.39397	62.83183	0.97928	350.96	-9.47
65/ 7/19	2438960.5	61.99510	-3.73534	-7.62036	0.06283	0.89111	0.40928	62.57328	0.98262	356.55	-7.00
65/ 7/19	2438961.0	62.05059	2.30765	-4.80948	-0.04673	0.89158	0.41996	62.27947	0.98665	2.13	-4.43
65/ 7/20	2438961.5	61.35950	8.31784	-1.94269	-0.15744	0.88138	0.42575	61.95118	0.99140	7.72	-1.80
65/ 7/20	2438962.0	59.91793	14.22205	0.94620	-0.26814	0.86026	0.42645	61.58994	0.99690	13.35	0.88
65/ 7/21	2438962.5	57.73015	19.94585	3.82201	-0.37758	0.82808	0.42186	61.19816	1.00312	19.06	3.58

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
65/ 7/21	2438963.0	54.80908	25.41407	6.64838	-0.48445	0.78479	0.41183	60.77920	1.01004	24.88	6.28
65/ 7/22	2438963.5	51.17688	30.55156	9.38807	-0.58733	0.73044	0.39625	60.33744	1.01760	30.84	8.95
65/ 7/22	2438964.0	46.86552	35.28396	12.00329	-0.68474	0.66522	0.37507	59.87832	1.02571	36.98	11.56
65/ 7/23	2438964.5	41.91728	39.53879	14.45615	-0.77513	0.58949	0.34831	59.40837	1.03424	43.33	14.08
65/ 7/23	2438965.0	36.38518	43.24660	16.70913	-0.85688	0.50380	0.31608	58.93509	1.04305	49.92	16.47
65/ 7/24	2438965.5	30.33331	46.34241	18.72578	-0.92835	0.40892	0.27857	58.46694	1.05197	56.79	18.68
65/ 7/24	2438966.0	23.83677	48.76729	20.47141	-0.98792	0.30587	0.23611	58.01309	1.06080	63.95	20.66
65/ 7/25	2438966.5	16.98147	50.47014	21.91399	-1.03404	0.19595	0.18917	57.58323	1.06931	71.40	22.37
65/ 7/25	2438967.0	9.86338	51.40959	23.02505	-1.06530	0.08072	0.13833	57.18728	1.07727	79.14	23.74
65/ 7/26	2438967.5	2.58735	51.55579	23.78070	-1.08050	-0.03796	0.08435	56.83498	1.08445	87.13	24.73
65/ 7/26	2438968.0	-4.73467	50.89224	24.16260	-1.07876	-0.15802	0.02813	56.53555	1.09063	95.32	25.30
65/ 7/27	2438968.5	-11.98591	49.41723	24.15888	-1.05955	-0.27719	-0.02934	56.29721	1.09560	103.63	25.41
65/ 7/27	2438969.0	-19.04762	47.14485	23.76486	-1.02282	-0.39308	-0.08694	56.12680	1.09919	112.00	25.05
65/ 7/28	2438969.5	-25.80219	44.10548	22.98358	-0.96897	-0.50328	-0.14350	56.02938	1.10127	120.33	24.22
65/ 7/28	2438970.0	-32.13657	40.34549	21.82599	-0.89893	-0.60550	-0.19786	56.00796	1.10175	128.54	22.94
65/ 7/29	2438970.5	-37.94558	35.92628	20.31083	-0.81410	-0.69762	-0.24891	56.06330	1.10063	136.57	21.24
65/ 7/29	2438971.0	-43.13495	30.92261	18.46410	-0.71629	-0.77781	-0.29562	56.19390	1.09793	144.36	19.18
65/ 7/30	2438971.5	-47.62390	25.42031	16.31826	-0.60765	-0.84465	-0.33710	56.39604	1.09376	151.91	16.82
65/ 7/30	2438972.0	-51.34693	19.51360	13.91116	-0.49053	-0.89710	-0.37266	56.66400	1.08825	159.19	14.21
65/ 7/31	2438972.5	-54.25505	13.30222	11.28476	-0.36742	-0.93456	-0.40179	56.99040	1.08159	166.22	11.42
65/ 7/31	2438973.0	-56.31604	6.88849	8.48388	-0.24079	-0.95685	-0.42415	57.36657	1.07398	173.03	8.50
65/ 8/ 1	2438973.5	-57.51415	0.37469	5.55483	-0.11301	-0.96417	-0.43963	57.78299	1.06568	179.63	5.52
65/ 8/ 1	2438974.0	-57.84921	-6.13938	2.54427	0.01371	-0.95704	-0.44824	58.22969	1.05689	186.06	2.50
65/ 8/ 2	2438974.5	-57.33529	-12.55831	-0.50185	0.13738	-0.93622	-0.45016	58.69666	1.04787	192.35	-0.49
65/ 8/ 2	2438975.0	-55.99909	-18.79260	-3.53913	0.25625	-0.90269	-0.44569	59.17419	1.03882	198.55	-3.43
65/ 8/ 3	2438975.5	-53.87831	-24.75979	-6.52543	0.36884	-0.85754	-0.43518	59.65317	1.02995	204.68	-6.28
65/ 8/ 3	2438976.0	-51.01991	-30.38512	-9.42132	0.47388	-0.80194	-0.41906	60.12527	1.02141	210.78	-9.02
65/ 8/ 4	2438976.5	-47.47852	-35.60193	-12.19044	0.57037	-0.73711	-0.39782	60.58311	1.01337	216.86	-11.61
65/ 8/ 4	2438977.0	-43.31494	-40.35184	-14.79969	0.65748	-0.66427	-0.37194	61.02037	1.00592	222.97	-14.04
65/ 8/ 5	2438977.5	-38.59492	-44.58466	-17.21936	0.73459	-0.58462	-0.34193	61.43180	0.99916	229.12	-16.28
65/ 8/ 5	2438978.0	-33.38793	-48.25829	-19.42317	0.80121	-0.49933	-0.30828	61.81323	0.99313	235.32	-18.31
65/ 8/ 6	2438978.5	-27.76624	-51.33843	-21.38820	0.85700	-0.40955	-0.27150	62.16151	0.98788	241.59	-20.13
65/ 8/ 6	2438979.0	-21.80409	-53.79839	-23.09493	0.90172	-0.31638	-0.23208	62.47448	0.98339	247.94	-21.70
65/ 8/ 7	2438979.5	-15.57694	-55.61876	-24.52713	0.93524	-0.22086	-0.19051	62.75083	0.97967	254.35	-23.01
65/ 8/ 7	2438980.0	-9.16088	-56.78715	-25.67179	0.95750	-0.12402	-0.14726	62.99002	0.97666	260.84	-24.05
65/ 8/ 8	2438980.5	-2.63211	-57.29798	-26.51910	0.96853	-0.02685	-0.10278	63.19216	0.97434	267.37	-24.81
65/ 8/ 8	2438981.0	3.93363	-57.15224	-27.06236	0.96844	0.06970	-0.05755	63.35790	0.97265	273.94	-25.29
65/ 8/ 9	2438981.5	10.46146	-56.35729	-27.29797	0.95737	0.16471	-0.01201	63.48831	0.97151	280.52	-25.47
65/ 8/ 9	2438982.0	16.87786	-54.92666	-27.22533	0.93558	0.25727	0.03340	63.58474	0.97088	287.08	-25.35
65/ 8/10	2438982.5	23.11110	-52.87989	-26.84685	0.90334	0.34651	0.07823	63.64872	0.97068	293.61	-24.95
65/ 8/10	2438983.0	29.09172	-50.24234	-26.16786	0.86105	0.43158	0.12206	63.68185	0.97086	300.07	-24.26
65/ 8/11	2438983.5	34.75297	-47.04497	-25.19663	0.80912	0.51168	0.16446	63.68570	0.97136	306.45	-23.31
65/ 8/11	2438984.0	40.03130	-43.32417	-23.94423	0.74806	0.58602	0.20502	63.66172	0.97214	312.74	-22.09
65/ 8/12	2438984.5	44.86683	-39.12152	-22.42457	0.67846	0.65385	0.24332	63.61122	0.97316	318.91	-20.64
65/ 8/12	2438985.0	49.20383	-34.48351	-20.65422	0.60097	0.71446	0.27898	63.53524	0.97439	324.98	-18.97

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/ 8/13	2438985.5	52.99123	-29.46128	-18.65240	0.51629	0.76720	0.31161	63.43461	0.97584	330.93	-17.10
65/ 8/13	2438986.0	56.18308	-24.11023	-16.44083	0.42524	0.81146	0.34086	63.30989	0.97749	336.77	-15.05
65/ 8/14	2438986.5	58.73900	-18.48970	-14.04358	0.32866	0.84669	0.36638	63.16139	0.97936	342.53	-12.85
65/ 8/14	2438987.0	60.62465	-12.66254	-11.48697	0.22747	0.87240	0.38787	62.98920	0.98146	348.20	-10.51
65/ 8/15	2438987.5	61.81215	-6.69468	-8.79935	0.12267	0.88818	0.40502	62.79323	0.98384	353.82	-8.06
65/ 8/15	2438988.0	62.28049	-0.65463	-6.01097	0.01529	0.89367	0.41758	62.57332	0.98653	359.40	-5.51
65/ 8/16	2438988.5	62.01593	5.38698	-3.15373	-0.09356	0.88860	0.42532	62.32929	0.98958	4.96	-2.90
65/ 8/16	2438989.0	61.01236	11.35799	-0.26099	-0.20273	0.87279	0.42803	62.06110	0.99302	10.55	-0.24
65/ 8/17	2438989.5	59.27171	17.18525	2.63268	-0.31102	0.84615	0.42557	61.76892	0.99690	16.17	2.44
65/ 8/17	2438990.0	56.80421	22.79532	5.49178	-0.41716	0.80866	0.41781	61.45327	1.00126	21.87	5.13
65/ 8/18	2438990.5	53.62874	28.11507	8.28018	-0.51985	0.76045	0.40468	61.11514	1.00613	27.67	7.79
65/ 8/18	2438991.0	49.77314	33.07248	10.96140	-0.61777	0.70172	0.38616	60.75613	1.01152	33.60	10.39
65/ 8/19	2438991.5	45.27443	37.59747	13.49901	-0.70953	0.63282	0.36229	60.37853	1.01742	39.71	12.92
65/ 8/19	2438992.0	40.17903	41.62276	15.85705	-0.79373	0.55425	0.33316	59.98545	1.02382	46.01	15.33
65/ 8/20	2438992.5	34.54288	45.08494	18.00047	-0.86897	0.46666	0.29895	59.58087	1.03066	52.54	17.58
65/ 8/20	2438993.0	28.43149	47.92560	19.89570	-0.93384	0.37088	0.25992	59.16968	1.03786	59.32	19.65
65/ 8/21	2438993.5	21.91977	50.09255	21.51122	-0.98696	0.26791	0.21642	58.75774	1.04533	66.37	21.48
65/ 8/21	2438994.0	15.09168	51.54121	22.81826	-1.02705	0.15899	0.16891	58.35176	1.05292	73.68	23.02
65/ 8/22	2438994.5	8.03960	52.23602	23.79150	-1.05292	0.04556	0.11796	57.95923	1.06048	81.25	24.24
65/ 8/22	2438995.0	0.86340	52.15189	24.40988	-1.06355	-0.07073	0.06425	57.58826	1.06784	89.05	25.08
65/ 8/23	2438995.5	-6.33094	51.27563	24.65736	-1.05817	-0.18803	0.00858	57.24732	1.07478	97.04	25.51
65/ 8/23	2438996.0	-13.43309	49.60718	24.52371	-1.03627	-0.30431	-0.04814	56.94499	1.08110	105.15	25.51
65/ 8/24	2438996.5	-20.33051	47.16068	24.00516	-0.99772	-0.41741	-0.10491	56.68957	1.08660	113.32	25.05
65/ 8/24	2438997.0	-26.91109	43.96508	23.10497	-0.94279	-0.52514	-0.16065	56.48871	1.09107	121.47	24.14
65/ 8/25	2438997.5	-33.06595	40.06429	21.83375	-0.87217	-0.62529	-0.21429	56.34907	1.09434	129.53	22.80
65/ 8/25	2438998.0	-38.69251	35.51674	20.20951	-0.78701	-0.71579	-0.26472	56.27587	1.09628	137.45	21.05
65/ 8/26	2438998.5	-43.69739	30.39427	18.25746	-0.68889	-0.79477	-0.31092	56.27263	1.09677	145.18	18.93
65/ 8/26	2438999.0	-47.99920	24.78048	16.00944	-0.57975	-0.86064	-0.35197	56.34091	1.09577	152.69	16.51
65/ 8/27	2438999.5	-51.53079	18.76845	13.50309	-0.46184	-0.91220	-0.38709	56.48018	1.09327	159.99	13.83
65/ 8/27	2439000.0	-54.24095	12.45811	10.78073	-0.33760	-0.94864	-0.41567	56.68782	1.08934	167.06	10.96
65/ 8/28	2439000.5	-56.09534	5.95336	7.88813	-0.20956	-0.96958	-0.43731	56.95922	1.08408	173.94	7.96
65/ 8/28	2439001.0	-57.07674	-0.64077	4.87318	-0.08023	-0.97507	-0.45178	57.28798	1.07764	180.64	4.88
65/ 8/29	2439001.5	-57.18454	-7.22089	1.78454	0.04802	-0.96554	-0.45908	57.66626	1.07020	187.20	1.77
65/ 8/29	2439002.0	-56.43370	-13.68760	-1.32958	0.17298	-0.94173	-0.45935	58.08512	1.06197	193.63	-1.31
65/ 8/30	2439002.5	-54.85318	-19.94751	-4.42250	0.29272	-0.90466	-0.45288	58.53489	1.05318	199.98	-4.33
65/ 8/30	2439003.0	-52.48418	-25.91468	-7.44989	0.40556	-0.85550	-0.44008	59.00559	1.04405	206.28	-7.25
65/ 8/31	2439003.5	-49.37814	-31.51171	-10.37053	0.51015	-0.79558	-0.42144	59.48728	1.03480	212.54	-10.04
65/ 8/31	2439004.0	-45.59488	-36.67032	-13.14668	0.60538	-0.72627	-0.39750	59.97033	1.02565	218.81	-12.66
65/ 9/ 1	2439004.5	-41.20073	-41.33160	-15.74442	0.69043	-0.64895	-0.36885	60.44574	1.01680	225.09	-15.10
65/ 9/ 1	2439005.0	-36.26686	-45.44594	-18.13378	0.76467	-0.56499	-0.33607	60.90528	1.00840	231.41	-17.32
65/ 9/ 2	2439005.5	-30.86792	-48.97284	-20.28873	0.82770	-0.47570	-0.29973	61.34167	1.00061	237.78	-19.31
65/ 9/ 2	2439006.0	-25.08076	-51.88047	-22.18714	0.87928	-0.38233	-0.26041	61.74866	0.99354	244.20	-21.06
65/ 9/ 3	2439006.5	-18.98345	-54.14529	-23.81068	0.91928	-0.28607	-0.21865	62.12111	0.98728	250.68	-22.54
65/ 9/ 3	2439007.0	-12.65446	-55.75154	-25.14462	0.94770	-0.18804	-0.17498	62.45496	0.98189	257.21	-23.74
65/ 9/ 4	2439007.5	-6.17202	-56.69079	-26.17775	0.96461	-0.08928	-0.12990	62.74723	0.97741	263.79	-24.66

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
65/ 9/ 4	2439008.0	0.38644	-56.96153	-26.90217	0.97018	0.00921	-0.08390	62.99597	0.97384	270.39	-25.28
65/ 9/ 5	2439008.5	6.94470	-56.56876	-27.31319	0.96460	0.10649	-0.03743	63.20019	0.97118	277.00	-25.61
65/ 9/ 5	2439009.0	13.42815	-55.52372	-27.40920	0.94813	0.20168	0.00905	63.35979	0.96939	283.60	-25.63
65/ 9/ 6	2439009.5	19.76412	-53.84356	-27.19158	0.92110	0.29390	0.05511	63.47544	0.96842	290.16	-25.36
65/ 9/ 6	2439010.0	25.88218	-51.55115	-26.66462	0.88385	0.38233	0.10032	63.54849	0.96821	296.66	-24.81
65/ 9/ 7	2439010.5	31.71453	-48.67486	-25.83546	0.83680	0.46618	0.14428	63.58085	0.96870	303.09	-23.98
65/ 9/ 7	2439011.0	37.19630	-45.24844	-24.71406	0.78041	0.54466	0.18655	63.57492	0.96979	309.42	-22.88
65/ 9/ 8	2439011.5	42.26594	-41.31078	-23.31313	0.71520	0.61702	0.22675	63.53340	0.97141	315.65	-21.53
65/ 9/ 8	2439012.0	46.86570	-36.90582	-21.64812	0.64176	0.68253	0.26447	63.45924	0.97347	321.78	-19.95
65/ 9/ 9	2439012.5	50.94201	-32.08228	-19.73716	0.56074	0.74051	0.29932	63.35548	0.97590	327.80	-18.15
65/ 9/ 9	2439013.0	54.44603	-26.89352	-17.60098	0.47289	0.79028	0.33091	63.22520	0.97861	333.71	-16.16
65/ 9/10	2439013.5	57.33414	-21.39717	-15.26286	0.37901	0.83124	0.35889	63.07136	0.98153	339.53	-14.00
65/ 9/10	2439014.0	59.56848	-15.65488	-12.74851	0.28000	0.86282	0.38290	62.89676	0.98461	345.28	-11.69
65/ 9/11	2439014.5	61.11752	-9.73184	-10.08590	0.17682	0.88453	0.40261	62.70395	0.98780	350.95	-9.26
65/ 9/11	2439015.0	61.95659	-3.69638	-7.30513	0.07053	0.89595	0.41774	62.49517	0.99107	356.59	-6.71
65/ 9/12	2439015.5	62.06836	2.38064	-4.43820	-0.03775	0.89676	0.42802	62.27236	0.99438	2.20	-4.09
65/ 9/12	2439016.0	61.44336	8.42644	-1.51875	-0.14683	0.88670	0.43322	62.03707	0.99774	7.81	-1.40
65/ 9/13	2439016.5	60.08040	14.36699	1.41824	-0.25546	0.86566	0.43317	61.79059	1.00113	13.45	1.32
65/ 9/13	2439017.0	57.98691	20.12780	4.33676	-0.36233	0.83364	0.42775	61.53387	1.00459	19.14	4.04
65/ 9/14	2439017.5	55.17922	25.63475	7.20013	-0.46613	0.79073	0.41688	61.26768	1.00813	24.92	6.75
65/ 9/14	2439018.0	51.68280	30.81494	9.97145	-0.56549	0.73720	0.40056	60.99264	1.01177	30.80	9.41
65/ 9/15	2439018.5	47.53232	35.59762	12.61395	-0.65904	0.67343	0.37886	60.70934	1.01557	36.83	11.99
65/ 9/15	2439019.0	42.77164	39.91517	15.09151	-0.74545	0.59995	0.35189	60.41843	1.01954	43.02	14.46
65/ 9/16	2439019.5	37.45371	43.70405	17.36910	-0.82337	0.51744	0.31985	60.12080	1.02371	49.40	16.79
65/ 9/16	2439020.0	31.64037	46.90583	19.41331	-0.89153	0.42673	0.28302	59.81761	1.02812	56.00	18.94
65/ 9/17	2439020.5	25.40193	49.46823	21.19286	-0.94871	0.32881	0.24176	59.51052	1.03277	62.82	20.86
65/ 9/17	2439021.0	18.81670	51.34615	22.67914	-0.99376	0.22481	0.19650	59.20168	1.03764	69.87	22.52
65/ 9/18	2439021.5	11.97032	52.50271	23.84678	-1.02566	0.11603	0.14776	58.89391	1.04273	77.16	23.89
65/ 9/18	2439022.0	4.95492	52.91031	24.67422	-1.04353	0.00390	0.09615	58.59069	1.04796	84.65	24.91
65/ 9/19	2439022.5	-2.13197	52.55160	25.14427	-1.04667	-0.10998	0.04235	58.29622	1.05328	92.32	25.55
65/ 9/19	2439023.0	-9.18868	51.42038	25.24467	-1.03456	-0.22392	-0.01287	58.01535	1.05859	100.13	25.79
65/ 9/20	2439023.5	-16.11093	49.52244	24.96862	-1.00694	-0.33608	-0.06867	57.75349	1.06377	108.02	25.62
65/ 9/20	2439024.0	-22.79363	46.87615	24.31522	-0.96385	-0.44458	-0.12414	57.51654	1.06867	115.93	25.01
65/ 9/21	2439024.5	-29.13287	43.51282	23.28984	-0.90561	-0.54749	-0.17835	57.31061	1.07316	123.80	23.98
65/ 9/21	2439025.0	-35.02815	39.47681	21.90437	-0.83289	-0.64291	-0.23032	57.14185	1.07707	131.58	22.54
65/ 9/22	2439025.5	-40.38474	34.82512	20.17724	-0.74673	-0.72900	-0.27908	57.01611	1.08025	139.23	20.73
65/ 9/22	2439026.0	-45.11603	29.62674	18.13331	-0.64850	-0.80408	-0.32372	56.93871	1.08254	146.71	18.57
65/ 9/23	2439026.5	-49.14585	23.96133	15.80349	-0.53990	-0.86668	-0.36336	56.91406	1.08382	154.01	16.12
65/ 9/23	2439027.0	-52.41051	17.91764	13.22418	-0.42291	-0.91561	-0.39728	56.94543	1.08399	161.13	13.43
65/ 9/24	2439027.5	-54.86053	11.59144	10.43636	-0.29972	-0.94999	-0.42484	57.03469	1.08297	168.07	10.54
65/ 9/24	2439028.0	-56.46183	5.08314	7.48470	-0.17269	-0.96933	-0.44560	57.18214	1.08073	174.86	7.52
65/ 9/25	2439028.5	-57.19642	-1.50466	4.41634	-0.04419	-0.97348	-0.45927	57.38640	1.07729	181.51	4.41
65/ 9/25	2439029.0	-57.06244	-8.06979	1.27971	0.08341	-0.96270	-0.46576	57.64444	1.07270	188.05	1.27
65/ 9/26	2439029.5	-56.07360	-14.51289	-1.87667	0.20789	-0.93757	-0.46513	57.95165	1.06705	194.51	-1.86
65/ 9/26	2439030.0	-54.25811	-20.73959	-5.00531	0.32719	-0.89897	-0.45762	58.30203	1.06048	200.92	-4.92

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/ 9/27	2439030.5	-51.65724	-26.66232	-8.06078	0.43953	-0.84802	-0.44359	58.68838	1.05313	207.30	-7.89
65/ 9/27	2439031.0	-48.32347	-32.20173	-11.00050	0.54338	-0.78600	-0.42353	59.10262	1.04520	213.68	-10.73
65/ 9/28	2439031.5	-44.31864	-37.28763	-13.78542	0.63751	-0.71434	-0.39798	59.53610	1.03686	220.08	-13.39
65/ 9/28	2439032.0	-39.71197	-41.85956	-16.38043	0.72097	-0.63448	-0.36755	59.97985	1.02832	226.51	-15.85
65/ 9/29	2439032.5	-34.57818	-45.86702	-18.75461	0.79307	-0.54789	-0.33288	60.42491	1.01978	232.99	-18.08
65/ 9/29	2439033.0	-28.99582	-49.26932	-20.88141	0.85337	-0.45601	-0.29460	60.86260	1.01142	239.52	-20.07
65/ 9/30	2439033.5	-23.04572	-52.03525	-22.73854	0.90163	-0.36020	-0.25335	61.28469	1.00343	246.11	-21.78
65/ 9/30	2439034.0	-16.80979	-54.14266	-24.30792	0.93778	-0.26176	-0.20973	61.68364	0.99596	252.75	-23.21
65/10/ 1	2439034.5	-10.36992	-55.57785	-25.57552	0.96187	-0.16190	-0.16433	62.05272	0.98915	259.43	-24.34
65/10/ 1	2439035.0	-3.80718	-56.33499	-26.53111	0.97410	-0.06172	-0.11769	62.38611	0.98312	266.13	-25.17
65/10/ 2	2439035.5	2.79883	-56.41558	-27.16808	0.97470	0.03772	-0.07033	62.67899	0.97796	272.84	-25.69
65/10/ 2	2439036.0	9.37047	-55.82784	-27.48321	0.96401	0.13547	-0.02273	62.92758	0.97374	279.53	-25.90
65/10/ 3	2439036.5	15.83247	-54.58631	-27.47650	0.94239	0.23064	0.02464	63.12916	0.97051	286.17	-25.80
65/10/ 3	2439037.0	22.11217	-52.71139	-27.15099	0.91025	0.32238	0.07134	63.28202	0.96828	292.76	-25.41
65/10/ 4	2439037.5	28.13986	-50.22899	-26.51261	0.86804	0.40989	0.11695	63.38550	0.96705	299.26	-24.73
65/10/ 4	2439038.0	33.84893	-47.17028	-25.57010	0.81625	0.49243	0.16108	63.43986	0.96679	305.66	-23.77
65/10/ 5	2439038.5	39.17614	-43.57148	-24.33491	0.75537	0.56926	0.20332	63.44628	0.96746	311.96	-22.55
65/10/ 5	2439039.0	44.06188	-39.47361	-22.82114	0.68598	0.63968	0.24328	63.40678	0.96899	318.14	-21.10
65/10/ 6	2439039.5	48.45049	-34.92244	-21.04549	0.60868	0.70301	0.28058	63.32409	0.97131	324.22	-19.41
65/10/ 6	2439040.0	52.29060	-29.96827	-19.02726	0.52413	0.75858	0.31485	63.20158	0.97431	330.18	-17.52
65/10/ 7	2439040.5	55.53553	-24.66579	-16.78826	0.43306	0.80575	0.34571	63.04318	0.97790	336.05	-15.44
65/10/ 7	2439041.0	58.14384	-19.07394	-14.35283	0.33628	0.84393	0.37280	62.85320	0.98198	341.84	-13.20
65/10/ 8	2439041.5	60.07980	-13.25559	-11.74771	0.23467	0.87255	0.39576	62.63627	0.98642	347.56	-10.81
65/10/ 8	2439042.0	61.31403	-7.27728	-9.00201	0.12923	0.89109	0.41426	62.39716	0.99113	353.23	-8.29
65/10/ 9	2439042.5	61.82409	-1.20880	-6.14700	0.02102	0.89911	0.42799	62.14069	0.99600	358.88	-5.68
65/10/ 9	2439043.0	61.59513	4.87737	-3.21597	-0.08880	0.89626	0.43666	61.87157	1.00092	4.53	-2.98
65/10/10	2439043.5	60.62049	10.90663	-0.24399	-0.19896	0.88227	0.44005	61.59430	1.00580	10.20	-0.23
65/10/10	2439044.0	58.90229	16.80308	2.73246	-0.30813	0.85703	0.43795	61.31305	1.01056	15.92	2.55
65/10/11	2439044.5	56.45195	22.49036	5.67581	-0.41492	0.82052	0.43026	61.03158	1.01515	21.72	5.34
65/10/11	2439045.0	53.29049	27.89269	8.54786	-0.51787	0.77292	0.41690	60.75314	1.01951	27.63	8.09
65/10/12	2439045.5	49.44886	32.93590	11.31029	-0.61552	0.71455	0.39790	60.48046	1.02361	33.67	10.78
65/10/12	2439046.0	44.96795	37.54866	13.92520	-0.70641	0.64591	0.37336	60.21570	1.02743	39.86	13.37
65/10/13	2439046.5	39.89851	41.66364	16.35570	-0.78908	0.56768	0.34348	59.96048	1.03097	46.24	15.83
65/10/13	2439047.0	34.30078	45.21872	18.56654	-0.86218	0.48073	0.30855	59.71593	1.03425	52.82	18.11
65/10/14	2439047.5	28.24399	48.15821	20.52467	-0.92444	0.38609	0.26893	59.48275	1.03729	59.61	20.18
65/10/14	2439048.0	21.80561	50.43396	22.19993	-0.97468	0.28495	0.22510	59.26133	1.04013	66.62	22.00
65/10/15	2439048.5	15.07040	52.00641	23.56558	-1.01193	0.17865	0.17760	59.05184	1.04281	73.84	23.52
65/10/15	2439049.0	8.12935	52.84552	24.59886	-1.03535	0.06865	0.12707	58.85439	1.04538	81.25	24.71
65/10/16	2439049.5	1.07831	52.93157	25.28152	-1.04432	-0.04346	0.07419	58.66915	1.04785	88.83	25.53
65/10/16	2439050.0	-5.98334	52.25579	25.60021	-1.03843	-0.15603	0.01972	58.49649	1.05028	96.53	25.95
65/10/17	2439050.5	-12.95426	50.82084	25.54690	-1.01752	-0.26735	-0.03553	58.33708	1.05266	104.30	25.97
65/10/17	2439051.0	-19.73281	48.64107	25.11910	-0.98166	-0.37568	-0.09072	58.19199	1.05500	112.08	25.57
65/10/18	2439051.5	-26.21874	45.74265	24.32014	-0.93119	-0.47928	-0.14499	58.06274	1.05728	119.82	24.76
65/10/18	2439052.0	-32.31497	42.16336	23.15919	-0.86671	-0.57645	-0.19746	57.95131	1.05947	127.47	23.56
65/10/19	2439052.5	-37.92939	37.95231	21.65131	-0.78908	-0.66557	-0.24729	57.86014	1.06150	134.98	21.97

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
65/10/19	2439053.0	-42.97663	33.16926	19.81730	-0.69944	-0.74512	-0.29363	57.79201	1.06331	142.34	20.05
65/10/20	2439053.5	-47.37982	27.88379	17.68342	-0.59915	-0.81372	-0.33571	57.74995	1.06481	149.52	17.83
65/10/20	2439054.0	-51.07220	22.17413	15.28103	-0.48982	-0.87019	-0.37281	57.73709	1.06590	156.53	15.35
65/10/21	2439054.5	-53.99856	16.12582	12.64607	-0.37326	-0.91358	-0.40430	57.75647	1.06650	163.37	12.65
65/10/21	2439055.0	-56.11648	9.83004	9.81833	-0.25143	-0.94317	-0.42966	57.81080	1.06649	170.06	9.78
65/10/22	2439055.5	-57.39723	3.38182	6.84075	-0.12641	-0.95855	-0.44849	57.90228	1.06580	176.63	6.78
65/10/22	2439056.0	-57.82637	-3.12191	3.75846	-0.00032	-0.95957	-0.46054	58.03242	1.06437	183.09	3.71
65/10/23	2439056.5	-57.40390	-9.58435	0.61788	0.12472	-0.94641	-0.46570	58.20180	1.06213	189.48	0.61
65/10/23	2439057.0	-56.14400	-15.91082	-2.53428	0.24664	-0.91952	-0.46398	58.40998	1.05907	195.82	-2.49
65/10/24	2439057.5	-54.07443	-22.01069	-5.65200	0.36350	-0.87963	-0.45556	58.65543	1.05519	202.15	-5.53
65/10/24	2439058.0	-51.23545	-27.79903	-8.69084	0.47356	-0.82771	-0.44075	58.93545	1.05053	208.48	-8.48
65/10/25	2439058.5	-47.67852	-33.19810	-11.60879	0.57527	-0.76489	-0.41994	59.24626	1.04515	214.85	-11.30
65/10/25	2439059.0	-43.46476	-38.13851	-14.36691	0.66732	-0.69249	-0.39365	59.58305	1.03914	221.27	-13.95
65/10/26	2439059.5	-38.66319	-42.55998	-16.92995	0.74869	-0.61189	-0.36243	59.94011	1.03262	227.75	-16.41
65/10/26	2439060.0	-33.34903	-46.41184	-19.26667	0.81858	-0.52453	-0.32692	60.31104	1.02571	234.30	-18.63
65/10/27	2439060.5	-27.60197	-49.65324	-21.35011	0.87645	-0.43186	-0.28775	60.68888	1.01856	240.93	-20.60
65/10/27	2439061.0	-21.50460	-52.25302	-23.15772	0.92199	-0.33530	-0.24557	61.06640	1.01133	247.63	-22.29
65/10/28	2439061.5	-15.14094	-54.18941	-24.67130	0.95508	-0.23619	-0.20103	61.43625	1.00418	254.39	-23.68
65/10/28	2439062.0	-8.59521	-55.44960	-25.87692	0.97578	-0.13583	-0.15474	61.79118	0.99726	261.19	-24.76
65/10/29	2439062.5	-1.95077	-56.02913	-26.76476	0.98427	-0.03539	-0.10729	62.12424	0.99073	268.01	-25.52
65/10/29	2439063.0	4.71071	-55.93134	-27.32886	0.98086	0.06401	-0.05923	62.42894	0.98473	274.81	-25.96
65/10/30	2439063.5	11.30992	-55.16668	-27.56692	0.96595	0.16137	-0.01109	62.69937	0.97940	281.59	-26.08
65/10/30	2439064.0	17.77041	-53.75216	-27.48004	0.93998	0.25576	0.03664	62.93039	0.97485	288.29	-25.89
65/10/31	2439064.5	24.01898	-51.71080	-27.07250	0.90346	0.34633	0.08352	63.11766	0.97117	294.91	-25.40
65/10/31	2439065.0	29.98596	-49.07116	-26.35156	0.85692	0.43231	0.12912	63.25773	0.96844	301.43	-24.62
65/11/ 1	2439065.5	35.60541	-45.86689	-25.32729	0.80093	0.51295	0.17303	63.34815	0.96672	307.82	-23.57
65/11/ 1	2439066.0	40.81530	-42.13645	-24.01242	0.73609	0.58757	0.21487	63.38742	0.96604	314.09	-22.26
65/11/ 2	2439066.5	45.55772	-37.92281	-22.42222	0.66300	0.65552	0.25427	63.37509	0.96640	320.23	-20.72
65/11/ 2	2439067.0	49.77904	-33.27327	-20.57444	0.58232	0.71619	0.29087	63.31170	0.96780	326.24	-18.96
65/11/ 3	2439067.5	53.43016	-28.23922	-18.48924	0.49474	0.76896	0.32432	63.19879	0.97018	332.14	-17.01
65/11/ 3	2439068.0	56.46677	-22.87610	-16.18913	0.40099	0.81327	0.35427	63.03888	0.97350	337.95	-14.88
65/11/ 4	2439068.5	58.84976	-17.24314	-13.69898	0.30187	0.84855	0.38038	62.83536	0.97768	343.67	-12.59
65/11/ 4	2439069.0	60.54563	-11.40332	-11.04594	0.19824	0.87427	0.40232	62.59251	0.98260	349.33	-10.16
65/11/ 5	2439069.5	61.52700	-5.42306	-8.25941	0.09105	0.88994	0.41975	62.31532	0.98817	354.96	-7.62
65/11/ 5	2439070.0	61.77322	0.62802	-5.37094	-0.01867	0.89511	0.43237	62.00945	0.99424	0.58	-4.97
65/11/ 6	2439070.5	61.27103	6.67748	-2.41413	-0.12976	0.88941	0.43988	61.68108	1.00069	6.22	-2.24
65/11/ 6	2439071.0	60.01524	12.65060	0.57556	-0.24098	0.87253	0.44204	61.33675	1.00736	11.90	0.54
65/11/ 7	2439071.5	58.00944	18.47102	3.56109	-0.35100	0.84430	0.43862	60.98323	1.01411	17.66	3.35
65/11/ 7	2439072.0	55.26668	24.06162	6.50413	-0.45835	0.80467	0.42947	60.62731	1.02080	23.53	6.16
65/11/ 8	2439072.5	51.81007	29.34546	9.36555	-0.56153	0.75375	0.41451	60.27565	1.02727	29.53	8.94
65/11/ 8	2439073.0	47.67321	34.24705	12.10591	-0.65896	0.69186	0.39373	59.93454	1.03340	35.69	11.65
65/11/ 9	2439073.5	42.90045	38.69361	14.68610	-0.74904	0.61949	0.36724	59.60978	1.03908	42.05	14.26
65/11/ 9	2439074.0	37.54693	42.61653	17.06799	-0.83020	0.53737	0.33522	59.30647	1.04421	48.62	16.73
65/11/10	2439074.5	31.67827	45.95293	19.21525	-0.90092	0.44647	0.29801	59.02889	1.04871	55.42	19.00
65/11/10	2439075.0	25.36998	48.64709	21.09407	-0.95980	0.34794	0.25604	58.78039	1.05253	62.46	21.03

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/11/11	2439075.5	18.70654	50.65197	22.67398	-1.00560	0.24317	0.20985	58.56335	1.05565	69.73	22.78
65/11/11	2439076.0	11.78009	51.93048	23.92861	-1.03731	0.13372	0.16010	58.37913	1.05807	77.22	24.20
65/11/12	2439076.5	4.68893	52.45657	24.83631	-1.05413	0.02128	0.10753	58.22817	1.05982	84.89	25.25
65/11/12	2439077.0	-2.46431	52.21608	25.38075	-1.05558	-0.09234	0.05297	58.11002	1.06093	92.70	25.90
65/11/13	2439077.5	-9.57458	51.20726	25.55136	-1.04144	-0.20529	-0.00271	58.02352	1.06148	100.59	26.13
65/11/13	2439078.0	-16.53651	49.44098	25.34361	-1.01181	-0.31571	-0.05860	57.96693	1.06154	108.49	25.93
65/11/14	2439078.5	-23.24641	46.94060	24.75914	-0.96711	-0.42177	-0.11380	57.93816	1.06119	116.35	25.30
65/11/14	2439079.0	-29.60432	43.74155	23.80574	-0.90801	-0.52173	-0.16739	57.93490	1.06052	124.09	24.26
65/11/15	2439079.5	-35.51585	39.89066	22.49721	-0.83548	-0.61399	-0.21852	57.95485	1.05960	131.68	22.84
65/11/15	2439080.0	-40.89392	35.44518	20.85304	-0.75070	-0.69708	-0.26638	57.99588	1.05851	139.08	21.07
65/11/16	2439080.5	-45.66026	30.47165	18.89802	-0.65509	-0.76972	-0.31020	58.05614	1.05728	146.28	19.00
65/11/16	2439081.0	-49.74673	25.04463	16.66172	-0.55021	-0.83084	-0.34933	58.13418	1.05596	153.28	16.65
65/11/17	2439081.5	-53.09634	19.24525	14.17794	-0.43779	-0.87955	-0.38319	58.22899	1.05457	160.08	14.09
65/11/17	2439082.0	-55.66411	13.15976	11.48401	-0.31965	-0.91524	-0.41131	58.33999	1.05310	166.70	11.35
65/11/18	2439082.5	-57.41762	6.87790	8.62016	-0.19767	-0.93749	-0.43332	58.46704	1.05153	173.17	8.48
65/11/18	2439083.0	-58.33734	0.49139	5.62875	-0.07376	-0.94613	-0.44895	58.61032	1.04984	179.52	5.51
65/11/19	2439083.5	-58.41678	-5.90768	2.55350	0.05015	-0.94123	-0.45806	58.77024	1.04797	185.77	2.49
65/11/19	2439084.0	-57.66225	-12.22841	-0.56121	0.17220	-0.92307	-0.46061	58.94730	1.04588	191.97	-0.55
65/11/20	2439084.5	-56.09253	-18.38258	-3.67116	0.29058	-0.89215	-0.45667	59.14194	1.04351	198.14	-3.56
65/11/20	2439085.0	-53.73823	-24.28607	-6.73300	0.40360	-0.84917	-0.44644	59.35439	1.04081	204.32	-6.51
65/11/21	2439085.5	-50.64096	-29.86011	-9.70493	0.50973	-0.79502	-0.43018	59.58455	1.03775	210.53	-9.37
65/11/21	2439086.0	-46.85229	-35.03244	-12.54738	0.60756	-0.73074	-0.40827	59.83181	1.03430	216.79	-12.11
65/11/22	2439086.5	-42.43254	-39.73828	-15.22354	0.69589	-0.65747	-0.38116	60.09499	1.03045	223.12	-14.67
65/11/22	2439087.0	-37.44950	-43.92105	-17.69988	0.77374	-0.57649	-0.34935	60.37226	1.02619	229.55	-17.05
65/11/23	2439087.5	-31.97703	-47.53291	-19.94651	0.84031	-0.48911	-0.31342	60.66111	1.02156	236.07	-19.20
65/11/23	2439088.0	-26.09357	-50.53507	-21.93747	0.89502	-0.39668	-0.27396	60.95835	1.01660	242.69	-21.09
65/11/24	2439088.5	-19.88084	-52.89793	-23.65091	0.93750	-0.30055	-0.23158	61.26014	1.01137	249.40	-22.71
65/11/24	2439089.0	-13.42237	-54.60096	-25.06921	0.96756	-0.20205	-0.18690	61.56208	1.00595	256.19	-24.03
65/11/25	2439089.5	-6.80237	-55.63242	-26.17891	0.98521	-0.10245	-0.14055	61.85931	1.00045	263.03	-25.04
65/11/25	2439090.0	-0.10453	-55.98904	-26.97067	0.99059	-0.00297	-0.09312	62.14661	0.99496	269.89	-25.72
65/11/26	2439090.5	6.58891	-55.67545	-27.43910	0.98397	0.09527	-0.04517	62.41854	0.98960	276.75	-26.08
65/11/26	2439091.0	13.19801	-54.70370	-27.58258	0.96575	0.19122	0.00275	62.66961	0.98450	283.56	-26.11
65/11/27	2439091.5	19.64574	-53.09260	-27.40305	0.93641	0.28391	0.05013	62.89441	0.97978	290.31	-25.83
65/11/27	2439092.0	25.85858	-50.86724	-26.90577	0.89648	0.37247	0.09650	63.08774	0.97557	296.95	-25.24
65/11/28	2439092.5	31.76687	-48.05834	-26.09910	0.84658	0.45610	0.14142	63.24477	0.97197	303.46	-24.37
65/11/28	2439093.0	37.30515	-44.70180	-24.99426	0.78733	0.53407	0.18448	63.36117	0.96910	309.85	-23.23
65/11/29	2439093.5	42.41238	-40.83822	-23.60517	0.71941	0.60571	0.22530	63.43323	0.96705	316.08	-21.85
65/11/29	2439094.0	47.03211	-36.51253	-21.94824	0.64349	0.67043	0.26351	63.45794	0.96592	322.18	-20.23
65/11/30	2439094.5	51.11265	-31.77364	-20.04227	0.56031	0.72764	0.29879	63.43311	0.96575	328.13	-18.42
65/11/30	2439095.0	54.60723	-26.67416	-17.90829	0.47059	0.77682	0.33079	63.35746	0.96660	333.97	-16.42
65/12/ 1	2439095.5	57.47418	-21.27023	-15.56949	0.37511	0.81746	0.35922	63.23064	0.96850	339.69	-14.25
65/12/ 1	2439096.0	59.67718	-15.62127	-13.05116	0.27467	0.84910	0.38376	63.05333	0.97143	345.33	-11.95
65/12/ 2	2439096.5	61.18550	-9.78984	-10.38061	0.17012	0.87127	0.40412	62.82725	0.97538	350.91	-9.51
65/12/ 2	2439097.0	61.97441	-3.84147	-7.58714	0.06239	0.88356	0.42001	62.55516	0.98029	356.45	-6.97
65/12/ 3	2439097.5	62.02561	2.15557	-4.70199	-0.04755	0.88558	0.43115	62.24092	0.98610	1.99	-4.33

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
65/12/ 3	2439098.0	61.32778	8.13051	-1.75820	-0.15861	0.87698	0.43728	61.88936	0.99271	7.55	-1.63
65/12/ 4	2439098.5	59.87714	14.01047	1.20942	-0.26964	0.85749	0.43815	61.50632	0.99998	13.17	1.13
65/12/ 4	2439099.0	57.67820	19.72091	4.16452	-0.37936	0.82690	0.43355	61.09854	1.00779	18.88	3.91
65/12/ 5	2439099.5	54.74439	25.18630	7.06944	-0.48640	0.78512	0.42330	60.67351	1.01597	24.71	6.69
65/12/ 5	2439100.0	51.09884	30.33092	9.88554	-0.58928	0.73220	0.40730	60.23936	1.02434	30.69	9.45
65/12/ 6	2439100.5	46.77498	35.07993	12.57363	-0.68644	0.66835	0.38550	59.80465	1.03271	36.87	12.14
65/12/ 6	2439101.0	41.81707	39.36055	15.09454	-0.77623	0.59398	0.35795	59.37815	1.04090	43.27	14.73
65/12/ 7	2439101.5	36.28055	43.10357	17.40977	-0.85702	0.50973	0.32481	58.96860	1.04871	49.91	17.17
65/12/ 7	2439102.0	30.23207	46.24497	19.48229	-0.92715	0.41649	0.28634	58.58443	1.05596	56.83	19.42
65/12/ 8	2439102.5	23.74916	48.72763	21.27741	-0.98505	0.31542	0.24297	58.23343	1.06247	64.02	21.43
65/12/ 8	2439103.0	16.91950	50.50313	22.76367	-1.02932	0.20793	0.19524	57.92253	1.06810	71.48	23.14
65/12/ 9	2439103.5	9.83972	51.53346	23.91383	-1.05873	0.09568	0.14385	57.65752	1.07273	79.19	24.50
65/12/ 9	2439104.0	2.61375	51.79257	24.70573	-1.07236	-0.01948	0.08959	57.44280	1.07627	87.11	25.47
65/12/10	2439104.5	-4.64926	51.26757	25.12307	-1.06960	-0.13552	0.03340	57.28130	1.07867	95.18	26.01
65/12/10	2439105.0	-11.83737	49.95955	25.15605	-1.05023	-0.25034	-0.02373	57.17435	1.07992	103.33	26.10
65/12/11	2439105.5	-18.83846	47.88397	24.80178	-1.01444	-0.36183	-0.08078	57.12172	1.08006	111.48	25.73
65/12/11	2439106.0	-25.54296	45.07047	24.06444	-0.96278	-0.46791	-0.13668	57.12169	1.07915	119.54	24.92
65/12/12	2439106.5	-31.84641	41.56221	22.95521	-0.89620	-0.56668	-0.19043	57.17126	1.07729	127.46	23.67
65/12/12	2439107.0	-37.65193	37.41472	21.49192	-0.81598	-0.65640	-0.24108	57.26632	1.07462	135.18	22.04
65/12/13	2439107.5	-42.87224	32.69446	19.69858	-0.72367	-0.73559	-0.28776	57.40201	1.07126	142.67	20.07
65/12/13	2439108.0	-47.43133	27.47702	17.60463	-0.62104	-0.80304	-0.32973	57.57292	1.06737	149.92	17.81
65/12/14	2439108.5	-51.26571	21.84522	15.24416	-0.50999	-0.85782	-0.36637	57.77345	1.06310	156.92	15.30
65/12/14	2439109.0	-54.32514	15.88713	12.65502	-0.39254	-0.89931	-0.39718	57.99803	1.05858	163.70	12.60
65/12/15	2439109.5	-56.57304	9.69416	9.87793	-0.27069	-0.92715	-0.42182	58.24139	1.05395	170.28	9.76
65/12/15	2439110.0	-57.98650	3.35918	6.95556	-0.14646	-0.94125	-0.44005	58.49870	1.04930	176.68	6.83
65/12/16	2439110.5	-58.55597	-3.02514	3.93176	-0.02178	-0.94176	-0.45177	58.76573	1.04474	182.96	3.84
65/12/16	2439111.0	-58.28478	-9.36784	0.85070	0.10148	-0.92903	-0.45697	59.03893	1.04030	189.13	0.83
65/12/17	2439111.5	-57.18840	-15.58108	-2.24382	0.22161	-0.90363	-0.45576	59.31541	1.03604	195.24	-2.17
65/12/17	2439112.0	-55.29364	-21.58122	-5.30898	0.33698	-0.86624	-0.44834	59.59296	1.03196	201.32	-5.11
65/12/18	2439112.5	-52.63768	-27.28992	-8.30355	0.44615	-0.81772	-0.43497	59.86998	1.02806	207.40	-7.97
65/12/18	2439113.0	-49.26707	-32.63490	-11.18839	0.54781	-0.75901	-0.41600	60.14534	1.02433	213.52	-10.72
65/12/19	2439113.5	-45.23670	-37.55072	-13.92685	0.64080	-0.69117	-0.39182	60.41832	1.02072	219.70	-13.33
65/12/19	2439114.0	-40.60867	-41.97929	-16.48519	0.72414	-0.61532	-0.36289	60.68844	1.01720	225.95	-15.76
65/12/20	2439114.5	-35.45120	-45.87032	-18.83289	0.79702	-0.53264	-0.32970	60.95532	1.01373	232.30	-18.00
65/12/20	2439115.0	-29.83751	-49.18165	-20.94284	0.85877	-0.44434	-0.29278	61.21858	1.01027	238.76	-20.00
65/12/21	2439115.5	-23.84470	-51.87941	-22.79164	0.90890	-0.35166	-0.25268	61.47766	1.00678	245.32	-21.76
65/12/21	2439116.0	-17.55265	-53.93815	-24.35965	0.94709	-0.25584	-0.20996	61.73177	1.00325	251.97	-23.24
65/12/22	2439116.5	-11.04294	-55.34073	-25.63111	0.97316	-0.15811	-0.16520	61.97980	0.99966	258.72	-24.43
65/12/22	2439117.0	-4.39780	-56.07823	-26.59416	0.98709	-0.05965	-0.11898	62.22023	0.99602	265.52	-25.30
65/12/23	2439117.5	2.30083	-56.14968	-27.24083	0.98898	0.03838	-0.07187	62.45113	0.99233	272.35	-25.86
65/12/23	2439118.0	8.97222	-55.56176	-27.56693	0.97909	0.13489	-0.02441	62.67013	0.98864	279.17	-26.10
65/12/24	2439118.5	15.53768	-54.32832	-27.57193	0.95777	0.22883	0.02286	62.87446	0.98499	285.96	-26.01
65/12/24	2439119.0	21.92122	-52.47001	-27.25885	0.92546	0.31925	0.06944	63.06097	0.98144	292.67	-25.61
65/12/25	2439119.5	28.05025	-50.01372	-26.63402	0.88271	0.40527	0.11484	63.22626	0.97806	299.29	-24.91
65/12/25	2439120.0	33.85603	-46.99212	-25.70692	0.83011	0.48606	0.15862	63.36668	0.97494	305.77	-23.93

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
65/12/26	2439120.5	39.27414	-43.44310	-24.48997	0.76834	0.56089	0.20036	63.47850	0.97216	312.11	-22.69
65/12/26	2439121.0	44.24481	-39.40933	-22.99831	0.69811	0.62910	0.23968	63.55801	0.96983	318.31	-21.21
65/12/27	2439121.5	48.71321	-34.93774	-21.24960	0.62015	0.69008	0.27621	63.60163	0.96804	324.35	-19.52
65/12/27	2439122.0	52.62964	-30.07912	-19.26384	0.53525	0.74330	0.30962	63.60604	0.96688	330.25	-17.63
65/12/28	2439122.5	55.94976	-24.88774	-17.06320	0.44420	0.78827	0.33961	63.56829	0.96644	336.02	-15.57
65/12/28	2439123.0	58.63472	-19.42099	-14.67186	0.34783	0.82455	0.36589	63.48597	0.96682	341.67	-13.36
65/12/29	2439123.5	60.65136	-13.73906	-12.11590	0.24700	0.85174	0.38818	63.35727	0.96807	347.24	-11.02
65/12/29	2439124.0	61.97239	-7.90468	-9.42314	0.14257	0.86950	0.40624	63.18114	0.97026	352.73	-8.58
65/12/30	2439124.5	62.57660	-1.98291	-6.62308	0.03548	0.87750	0.41983	62.95735	0.97341	358.19	-6.04
65/12/30	2439125.0	62.44918	3.95920	-3.74680	-0.07331	0.87546	0.42872	62.68663	0.97755	3.63	-3.43
65/12/31	2439125.5	61.58202	9.85276	-0.82683	-0.18278	0.86313	0.43269	62.37071	0.98267	9.09	-0.76
65/12/31	2439126.0	59.97417	15.62744	2.10291	-0.29184	0.84033	0.43157	62.01242	0.98873	14.60	1.94
66/ 1/ 1	2439126.5	57.63230	21.21179	5.00728	-0.39933	0.80691	0.42518	61.61570	0.99567	20.21	4.66
66/ 1/ 1	2439127.0	54.57126	26.53371	7.85011	-0.50399	0.76284	0.41338	61.18565	1.00340	25.93	7.37
66/ 1/ 2	2439127.5	50.81466	31.52109	10.59441	-0.60449	0.70814	0.39607	60.72850	1.01180	31.81	10.05
66/ 1/ 2	2439128.0	46.39552	36.10254	13.20268	-0.69939	0.64301	0.37321	60.25155	1.02074	37.89	12.66
66/ 1/ 3	2439128.5	41.35679	40.20841	15.63739	-0.78719	0.56777	0.34483	59.76310	1.03002	44.19	15.17
66/ 1/ 3	2439129.0	35.75186	43.77189	17.86143	-0.86632	0.48295	0.31103	59.27229	1.03947	50.76	17.54
66/ 1/ 4	2439129.5	29.64490	46.73049	19.83879	-0.93517	0.38930	0.27203	58.78891	1.04886	57.61	19.72
66/ 1/ 4	2439130.0	23.11087	49.02758	21.53537	-0.99217	0.28781	0.22818	58.32313	1.05797	64.76	21.67
66/ 1/ 5	2439130.5	16.23530	50.61420	22.91978	-1.03579	0.17974	0.17994	57.88522	1.06656	72.22	23.33
66/ 1/ 5	2439131.0	9.11347	51.45091	23.96437	-1.06468	0.06664	0.12795	57.48515	1.07441	79.96	24.64
66/ 1/ 6	2439131.5	1.84921	51.50962	24.64621	-1.07768	-0.04968	0.07297	57.13226	1.08129	87.94	25.56
66/ 1/ 6	2439132.0	-5.44689	50.77523	24.94804	-1.07397	-0.16720	0.01590	56.83483	1.08702	96.12	26.04
66/ 1/ 7	2439132.5	-12.65980	49.24708	24.85918	-1.05308	-0.28370	-0.04223	56.59968	1.09144	104.42	26.05
66/ 1/ 7	2439133.0	-19.67285	46.93980	24.37618	-1.01498	-0.39688	-0.10030	56.43194	1.09443	112.74	25.59
66/ 1/ 8	2439133.5	-26.37080	43.88366	23.50329	-0.96014	-0.50445	-0.15716	56.33471	1.09592	121.00	24.66
66/ 1/ 8	2439134.0	-32.64307	40.12425	22.25260	-0.88948	-0.60420	-0.21167	56.30900	1.09591	129.13	23.28
66/ 1/ 9	2439134.5	-38.38686	35.72146	20.64378	-0.80435	-0.69412	-0.26274	56.35370	1.09445	137.06	21.49
66/ 1/ 9	2439135.0	-43.50995	30.74786	18.70361	-0.70651	-0.77249	-0.30936	56.46567	1.09161	144.75	19.34
66/ 1/10	2439135.5	-47.93309	25.28657	16.46513	-0.59802	-0.83794	-0.35070	56.64002	1.08754	152.19	16.90
66/ 1/10	2439136.0	-51.59163	19.42877	13.96658	-0.48112	-0.88945	-0.38606	56.87036	1.08242	159.36	14.22
66/ 1/11	2439136.5	-54.43660	13.27107	11.25027	-0.35817	-0.92642	-0.41494	57.14922	1.07644	166.30	11.35
66/ 1/11	2439137.0	-56.43508	6.91295	8.36129	-0.23154	-0.94863	-0.43701	57.46841	1.06980	173.02	8.37
66/ 1/12	2439137.5	-57.56994	0.45423	5.34637	-0.10352	-0.95617	-0.45211	57.81944	1.06273	179.55	5.31
66/ 1/12	2439138.0	-57.83915	-6.00702	2.25274	0.02373	-0.94946	-0.46026	58.19387	1.05541	185.93	2.22
66/ 1/13	2439138.5	-57.25472	-12.37638	-0.87288	0.14824	-0.92916	-0.46159	58.58361	1.04804	192.20	-0.85
66/ 1/13	2439139.0	-55.84136	-18.56454	-3.98508	0.26823	-0.89611	-0.45635	58.98118	1.04077	198.39	-3.87
66/ 1/14	2439139.5	-53.63509	-24.48841	-7.04044	0.38214	-0.85130	-0.44487	59.37990	1.03375	204.54	-6.81
66/ 1/14	2439140.0	-50.68174	-30.07201	-9.99810	0.48862	-0.79582	-0.42757	59.77396	1.02708	210.68	-9.63
66/ 1/15	2439140.5	-47.03557	-35.24698	-12.82012	0.58655	-0.73083	-0.40490	60.15854	1.02083	216.85	-12.30
66/ 1/15	2439141.0	-42.75786	-39.95298	-15.47180	0.67497	-0.65753	-0.37736	60.52976	1.01506	223.06	-14.81
66/ 1/16	2439141.5	-37.91564	-44.13785	-17.92189	0.75313	-0.57715	-0.34546	60.88464	1.00977	229.34	-17.12
66/ 1/16	2439142.0	-32.58058	-47.75766	-20.14272	0.82042	-0.49088	-0.30974	61.22105	1.00499	235.70	-19.21
66/ 1/17	2439142.5	-26.82784	-50.77673	-22.11026	0.87640	-0.39995	-0.27076	61.53757	1.00068	242.15	-21.06

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
66/ 1/17	2439143.0	-20.73515	-53.16745	-23.80421	0.92077	-0.30553	-0.22904	61.83336	0.99681	248.69	-22.64
66/ 1/18	2439143.5	-14.38188	-54.91021	-25.20795	0.95333	-0.20880	-0.18515	62.10806	0.99334	255.32	-23.95
66/ 1/18	2439144.0	-7.84823	-55.99317	-26.30857	0.97403	-0.11088	-0.13963	62.36162	0.99022	262.02	-24.95
66/ 1/19	2439144.5	-1.21443	-56.41204	-27.09684	0.98292	-0.01288	-0.09300	62.59419	0.98740	268.77	-25.65
66/ 1/19	2439145.0	5.44000	-56.16986	-27.56712	0.98016	0.08415	-0.04581	62.80599	0.98483	275.53	-26.04
66/ 1/20	2439145.5	12.03692	-55.27668	-27.71730	0.96599	0.17919	0.00143	62.99720	0.98247	282.28	-26.10
66/ 1/20	2439146.0	18.50024	-53.74927	-27.54871	0.94077	0.27127	0.04823	63.16783	0.98029	288.99	-25.86
66/ 1/21	2439146.5	24.75652	-51.61078	-27.06603	0.90494	0.35949	0.09411	63.31767	0.97826	295.63	-25.31
66/ 1/21	2439147.0	30.73557	-48.89033	-26.27710	0.85900	0.44298	0.13859	63.44624	0.97638	302.16	-24.47
66/ 1/22	2439147.5	36.37091	-45.62263	-25.19283	0.80354	0.52096	0.18125	63.55270	0.97465	308.56	-23.35
66/ 1/22	2439148.0	41.60028	-41.84756	-23.82703	0.73923	0.59269	0.22166	63.63591	0.97308	314.83	-21.99
66/ 1/23	2439148.5	46.36606	-37.60973	-22.19620	0.66677	0.65751	0.25944	63.69439	0.97171	320.95	-20.39
66/ 1/23	2439149.0	50.61563	-32.95804	-20.31938	0.58693	0.71481	0.29424	63.72638	0.97057	326.93	-18.59
66/ 1/24	2439149.5	54.30168	-27.94523	-18.21796	0.50051	0.76406	0.32571	63.72991	0.96974	332.77	-16.61
66/ 1/24	2439150.0	57.38252	-22.62742	-15.91547	0.40836	0.80479	0.35356	63.70287	0.96926	338.48	-14.47
66/ 1/25	2439150.5	59.82228	-17.06375	-13.43743	0.31135	0.83660	0.37751	63.64307	0.96921	344.08	-12.19
66/ 1/25	2439151.0	61.59115	-11.31586	-10.81112	0.21040	0.85914	0.39731	63.54839	0.96966	349.59	-9.80
66/ 1/26	2439151.5	62.66557	-5.44758	-8.06543	0.10644	0.87211	0.41273	63.41688	0.97069	355.03	-7.31
66/ 1/26	2439152.0	63.02841	0.47550	-5.23070	0.00044	0.87528	0.42357	63.24687	0.97238	0.43	-4.74
66/ 1/27	2439152.5	62.66916	6.38636	-2.33853	-0.10661	0.86848	0.42966	63.03712	0.97480	5.82	-2.13
66/ 1/27	2439153.0	61.58418	12.21697	0.57836	-0.21369	0.85157	0.43085	62.78694	0.97799	11.22	0.53
66/ 1/28	2439153.5	59.77687	17.89862	3.48629	-0.31973	0.82449	0.42700	62.49631	0.98200	16.67	3.20
66/ 1/28	2439154.0	57.25802	23.36236	6.35084	-0.42362	0.78722	0.41802	62.16602	0.98687	22.20	5.86
66/ 1/29	2439154.5	54.04609	28.53942	9.13696	-0.52419	0.73985	0.40383	61.79776	0.99259	27.84	8.50
66/ 1/29	2439155.0	50.16757	33.36176	11.80928	-0.62025	0.68251	0.38441	61.39423	0.99915	33.62	11.09
66/ 1/30	2439155.5	45.65734	37.76265	14.33233	-0.71051	0.61545	0.35976	60.95922	1.00650	39.59	13.60
66/ 1/30	2439156.0	40.55910	41.67746	16.67086	-0.79366	0.53904	0.32994	60.49768	1.01456	45.78	16.00
66/ 1/31	2439156.5	34.92567	45.04452	18.79031	-0.86832	0.45380	0.29509	60.01572	1.02323	52.21	18.25
66/ 1/31	2439157.0	28.81929	47.80618	20.65721	-0.93308	0.36040	0.25541	59.52060	1.03236	58.92	20.31
66/ 2/ 1	2439157.5	22.31174	49.91006	22.23984	-0.98655	0.25973	0.21121	59.02066	1.04180	65.91	22.14
66/ 2/ 1	2439158.0	15.48429	51.31046	23.50892	-1.02732	0.15287	0.16290	58.52518	1.05133	73.21	23.68
66/ 2/ 2	2439158.5	8.42731	51.96992	24.43836	-1.05412	0.04118	0.11102	58.04417	1.06075	80.79	24.90
66/ 2/ 2	2439159.0	1.23949	51.86088	25.00617	-1.06578	-0.07377	0.05623	57.58816	1.06981	88.63	25.74
66/ 2/ 3	2439159.5	-5.97329	50.96734	25.19537	-1.06136	-0.19016	-0.00064	57.16779	1.07826	96.68	26.15
66/ 2/ 3	2439160.0	-13.09977	49.28642	24.99488	-1.04022	-0.30592	-0.05867	56.79348	1.08586	104.88	26.11
66/ 2/ 4	2439160.5	-20.02552	46.82968	24.40037	-1.00207	-0.41887	-0.11681	56.47493	1.09236	113.15	25.60
66/ 2/ 4	2439161.0	-26.63568	43.62398	23.41492	-0.94709	-0.52670	-0.17392	56.22072	1.09756	121.41	24.61
66/ 2/ 5	2439161.5	-32.81809	39.71185	22.04944	-0.87591	-0.62710	-0.22883	56.03781	1.10129	129.57	23.17
66/ 2/ 5	2439162.0	-38.46663	35.15114	20.32284	-0.78967	-0.71787	-0.28037	55.93123	1.10341	137.58	21.31
66/ 2/ 6	2439162.5	-43.48450	30.01394	18.26175	-0.68998	-0.79702	-0.32743	55.90375	1.10387	145.39	19.07
66/ 2/ 6	2439163.0	-47.78726	24.38481	15.89994	-0.57888	-0.86289	-0.36901	55.95578	1.10265	152.97	16.51
66/ 2/ 7	2439163.5	-51.30540	18.35835	13.27735	-0.45870	-0.91417	-0.40431	56.08531	1.09981	160.31	13.69
66/ 2/ 7	2439164.0	-53.98611	12.03636	10.43891	-0.33203	-0.95005	-0.43267	56.28805	1.09546	167.43	10.69
66/ 2/ 8	2439164.5	-55.79431	5.52479	7.43305	-0.20150	-0.97013	-0.45369	56.55775	1.08977	174.34	7.55
66/ 2/ 8	2439165.0	-56.71285	-1.06939	4.31030	-0.06974	-0.97449	-0.46717	56.88646	1.08293	181.08	4.35

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
66/ 2/ 9	2439165.5	-56.74191	-7.64097	1.12183	0.06076	-0.96357	-0.47312	57.26506	1.07517	187.67	1.12
66/ 2/ 9	2439166.0	-55.89782	-14.08907	-2.08190	0.18774	-0.93818	-0.47172	57.68364	1.06674	194.15	-2.07
66/ 2/10	2439166.5	-54.21137	-20.31910	-5.25221	0.30919	-0.89937	-0.46332	58.13196	1.05789	200.55	-5.18
66/ 2/10	2439167.0	-51.72596	-26.24429	-8.34314	0.42341	-0.84838	-0.44836	58.59987	1.04883	206.90	-8.19
66/ 2/11	2439167.5	-48.49548	-31.78672	-11.31211	0.52899	-0.78657	-0.42740	59.07767	1.03981	213.24	-11.04
66/ 2/11	2439168.0	-44.58240	-36.87789	-14.12037	0.62481	-0.71537	-0.40101	59.55631	1.03099	219.60	-13.72
66/ 2/12	2439168.5	-40.05585	-41.45900	-16.73331	0.71002	-0.63619	-0.36982	60.02769	1.02256	225.99	-16.19
66/ 2/12	2439169.0	-34.98997	-45.48087	-19.12055	0.78399	-0.55046	-0.33447	60.48473	1.01465	232.43	-18.43
66/ 2/13	2439169.5	-29.46242	-48.90373	-21.25599	0.84629	-0.45953	-0.29557	60.92148	1.00735	238.93	-20.42
66/ 2/13	2439170.0	-23.55310	-51.69687	-23.11776	0.89669	-0.36472	-0.25375	61.33308	1.00073	245.51	-22.14
66/ 2/14	2439170.5	-17.34311	-53.83823	-24.68806	0.93507	-0.26726	-0.20960	61.71579	0.99485	252.14	-23.58
66/ 2/14	2439171.0	-10.91386	-55.31388	-25.95305	0.96145	-0.16834	-0.16369	62.06689	0.98970	258.84	-24.72
66/ 2/15	2439171.5	-4.34630	-56.11767	-26.90271	0.97594	-0.06905	-0.11658	62.38461	0.98530	265.57	-25.55
66/ 2/15	2439172.0	2.27968	-56.25071	-27.53066	0.97874	0.02956	-0.06878	62.66799	0.98160	272.32	-26.06
66/ 2/16	2439172.5	8.88583	-55.72100	-27.83402	0.97013	0.12650	-0.02081	62.91678	0.97857	279.06	-26.26
66/ 2/16	2439173.0	15.39599	-54.54308	-27.81328	0.95046	0.22082	0.02684	63.13131	0.97614	285.76	-26.14
66/ 2/17	2439173.5	21.73657	-52.73764	-27.47216	0.92013	0.31166	0.07372	63.31238	0.97427	292.40	-25.72
66/ 2/17	2439174.0	27.83697	-50.33121	-26.81749	0.87962	0.39816	0.11936	63.46105	0.97288	298.95	-25.00
66/ 2/18	2439174.5	33.62997	-47.35583	-25.85908	0.82945	0.47954	0.16334	63.57863	0.97192	305.38	-24.00
66/ 2/18	2439175.0	39.05216	-43.84872	-24.60962	0.77022	0.55505	0.20524	63.66644	0.97131	311.69	-22.74
66/ 2/19	2439175.5	44.04432	-39.85195	-23.08453	0.70258	0.62402	0.24467	63.72578	0.97102	317.86	-21.24
66/ 2/19	2439176.0	48.55177	-35.41210	-21.30183	0.62722	0.68579	0.28125	63.75782	0.97098	323.89	-19.52
66/ 2/20	2439176.5	52.52481	-30.57991	-19.28202	0.54490	0.73978	0.31463	63.76349	0.97118	329.79	-17.60
66/ 2/20	2439177.0	55.91905	-25.40989	-17.04790	0.45644	0.78547	0.34448	63.74350	0.97158	335.56	-15.51
66/ 2/21	2439177.5	58.69576	-19.95991	-14.62441	0.36270	0.82238	0.37050	63.69823	0.97217	341.22	-13.27
66/ 2/21	2439178.0	60.82222	-14.29081	-12.03849	0.26458	0.85011	0.39240	63.62778	0.97297	346.78	-10.91
66/ 2/22	2439178.5	62.27199	-8.46591	-9.31879	0.16304	0.86833	0.40996	63.53198	0.97399	352.26	-8.43
66/ 2/22	2439179.0	63.02520	-2.55055	-6.49558	0.05906	0.87678	0.42294	63.41036	0.97525	357.68	-5.88
66/ 2/23	2439179.5	63.06879	3.38837	-3.60045	-0.04633	0.87527	0.43117	63.26229	0.97680	3.08	-3.26
66/ 2/23	2439180.0	62.39674	9.28292	-0.66612	-0.15209	0.86367	0.43449	63.08699	0.97869	8.46	-0.60
66/ 2/24	2439180.5	61.01020	15.06462	2.27382	-0.25713	0.84194	0.43280	62.88368	0.98097	13.87	2.07
66/ 2/24	2439181.0	58.91775	20.66498	5.18510	-0.36036	0.81013	0.42602	62.65164	0.98370	19.33	4.75
66/ 2/25	2439181.5	56.13548	26.01605	8.03307	-0.46064	0.76835	0.41411	62.39036	0.98693	24.87	7.40
66/ 2/25	2439182.0	52.68717	31.05092	10.78294	-0.55684	0.71680	0.39706	62.09967	0.99073	30.51	10.00
66/ 2/26	2439182.5	48.60437	35.70438	13.40008	-0.64780	0.65578	0.37492	61.77985	0.99512	36.30	12.53
66/ 2/26	2439183.0	43.92658	39.91350	15.85028	-0.73235	0.58567	0.34778	61.43177	1.00014	42.26	14.95
66/ 2/27	2439183.5	38.70128	43.61834	18.10013	-0.80928	0.50696	0.31578	61.05705	1.00581	48.42	17.24
66/ 2/27	2439184.0	32.98406	46.76272	20.11734	-0.87741	0.42028	0.27913	60.65811	1.01212	54.80	19.37
66/ 2/28	2439184.5	26.83857	49.29504	21.87121	-0.93554	0.32636	0.23807	60.23836	1.01904	61.43	21.29
66/ 2/28	2439185.0	20.33651	51.16928	23.33307	-0.98251	0.22611	0.19296	59.80218	1.02649	68.33	22.97
66/ 3/ 1	2439185.5	13.55737	52.34601	24.47684	-1.01718	0.12059	0.14422	59.35505	1.03441	75.48	24.35
66/ 3/ 1	2439186.0	6.58804	52.79357	25.27960	-1.03850	0.01102	0.09236	58.90349	1.04266	82.89	25.41
66/ 3/ 2	2439186.5	-0.47775	52.48928	25.72228	-1.04552	-0.10118	0.03800	58.45501	1.05109	90.52	26.11
66/ 3/ 2	2439187.0	-7.54041	51.42072	25.79032	-1.03746	-0.21439	-0.01814	58.01801	1.05954	98.34	26.39
66/ 3/ 3	2439187.5	-14.49572	49.58696	25.47442	-1.01375	-0.32683	-0.07523	57.60155	1.06778	106.30	26.25

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/ 3/ 3	2439188.0	-21.23648	46.99969	24.77122	-0.97408	-0.43656	-0.13234	57.21514	1.07561	114.32	25.65
66/ 3/ 4	2439188.5	-27.65460	43.68417	23.68394	-0.91851	-0.54152	-0.18847	56.86838	1.08279	122.34	24.61
66/ 3/ 4	2439189.0	-33.64355	39.67981	22.22289	-0.84746	-0.63961	-0.24253	56.57060	1.08909	130.29	23.13
66/ 3/ 5	2439189.5	-39.10113	35.04030	20.40575	-0.76178	-0.72874	-0.29344	56.33041	1.09429	138.14	21.24
66/ 3/ 5	2439190.0	-43.93243	29.83317	18.25761	-0.66278	-0.80691	-0.34010	56.15529	1.09820	145.82	18.97
66/ 3/ 6	2439190.5	-48.05283	24.13873	15.81071	-0.55218	-0.87236	-0.38150	56.05115	1.10066	153.33	16.38
66/ 3/ 6	2439191.0	-51.39078	18.04835	13.10381	-0.43211	-0.92361	-0.41674	56.02200	1.10157	160.65	13.53
66/ 3/ 7	2439191.5	-53.89017	11.66212	10.18126	-0.30498	-0.95957	-0.44507	56.06972	1.10086	167.79	10.46
66/ 3/ 7	2439192.0	-55.51205	5.08611	7.09181	-0.17343	-0.97959	-0.46595	56.19386	1.09853	174.77	7.25
66/ 3/ 8	2439192.5	-56.23563	-1.57075	3.88716	-0.04018	-0.98345	-0.47905	56.39170	1.09466	181.60	3.95
66/ 3/ 8	2439193.0	-56.05845	-8.19973	0.62042	0.09212	-0.97144	-0.48428	56.65836	1.08936	188.32	0.63
66/ 3/ 9	2439193.5	-54.99566	-14.69533	-2.65532	0.22093	-0.94421	-0.48175	56.98707	1.08279	194.96	-2.67
66/ 3/ 9	2439194.0	-53.07875	-20.95782	-5.88849	0.34398	-0.90280	-0.47177	57.36949	1.07514	201.55	-5.89
66/ 3/10	2439194.5	-50.35362	-26.89541	-9.03014	0.45929	-0.84850	-0.45482	57.79614	1.06666	208.11	-8.99
66/ 3/10	2439195.0	-46.87837	-32.42581	-12.03497	0.56524	-0.78282	-0.43148	58.25681	1.05758	214.67	-11.92
66/ 3/11	2439195.5	-42.72097	-37.47724	-14.86200	0.66054	-0.70734	-0.40243	58.74099	1.04814	221.26	-14.66
66/ 3/11	2439196.0	-37.95691	-41.98891	-17.47498	0.74426	-0.62370	-0.36840	59.23825	1.03858	227.89	-17.16
66/ 3/12	2439196.5	-32.66701	-45.91112	-19.84266	0.81573	-0.53354	-0.33012	59.73856	1.02911	234.57	-19.40
66/ 3/12	2439197.0	-26.93554	-49.20499	-21.93882	0.87461	-0.43841	-0.28834	60.23260	1.01994	241.30	-21.36
66/ 3/13	2439197.5	-20.84848	-51.84194	-23.74211	0.92073	-0.33980	-0.24376	60.71189	1.01125	248.09	-23.02
66/ 3/13	2439198.0	-14.49222	-53.80308	-25.23594	0.95412	-0.23907	-0.19706	61.16902	1.00316	254.92	-24.37
66/ 3/14	2439198.5	-7.95241	-55.07848	-26.40815	0.97497	-0.13751	-0.14889	61.59765	0.99581	261.78	-25.39
66/ 3/14	2439199.0	-1.31313	-55.66646	-27.25079	0.98355	-0.03627	-0.09984	61.99262	0.98927	268.65	-26.08
66/ 3/15	2439199.5	5.34381	-55.57290	-27.75981	0.98025	0.06358	-0.05046	62.34991	0.98360	275.49	-26.44
66/ 3/15	2439200.0	11.93933	-54.81060	-27.93477	0.96549	0.16105	-0.00128	62.66658	0.97883	282.29	-26.47
66/ 3/16	2439200.5	18.39748	-53.39869	-27.77864	0.93977	0.25526	0.04723	62.94077	0.97497	289.01	-26.19
66/ 3/16	2439201.0	24.64579	-51.36216	-27.29756	0.90361	0.34536	0.09461	63.17154	0.97198	295.63	-25.60
66/ 3/17	2439201.5	30.61544	-48.73142	-26.50064	0.85759	0.43060	0.14043	63.35882	0.96984	302.14	-24.72
66/ 3/17	2439202.0	36.24161	-45.54191	-25.39981	0.80229	0.51025	0.18428	63.50331	0.96849	308.51	-23.58
66/ 3/18	2439202.5	41.46363	-41.83380	-24.00968	0.73835	0.58363	0.22579	63.60632	0.96787	314.75	-22.18
66/ 3/18	2439203.0	46.22527	-37.65163	-22.34741	0.66646	0.65013	0.26458	63.66968	0.96790	320.84	-20.55
66/ 3/19	2439203.5	50.47500	-33.04411	-20.43259	0.58731	0.70915	0.30031	63.69560	0.96851	326.79	-18.71
66/ 3/19	2439204.0	54.16628	-28.06375	-18.28715	0.50168	0.76014	0.33263	63.68657	0.96961	332.61	-16.69
66/ 3/20	2439204.5	57.25786	-22.76661	-15.93522	0.41037	0.80261	0.36123	63.64521	0.97112	338.32	-14.50
66/ 3/20	2439205.0	59.71417	-17.21199	-13.40298	0.31423	0.83610	0.38582	63.57416	0.97297	343.92	-12.17
66/ 3/21	2439205.5	61.50562	-11.46204	-10.71857	0.21420	0.86023	0.40613	63.47604	0.97509	349.44	-9.72
66/ 3/21	2439206.0	62.60899	-5.58140	-7.91190	0.11122	0.87465	0.42189	63.35327	0.97743	354.91	-7.17
66/ 3/22	2439206.5	63.00780	0.36329	-5.01442	0.00631	0.87910	0.43291	63.20806	0.97993	0.33	-4.55
66/ 3/22	2439207.0	62.69260	6.30386	-2.05896	-0.09944	0.87340	0.43899	63.04236	0.98256	5.74	-1.87
66/ 3/23	2439207.5	61.66130	12.17118	0.92056	-0.20495	0.85746	0.43999	62.85778	0.98531	11.17	0.84
66/ 3/23	2439208.0	59.91946	17.89575	3.88936	-0.30907	0.83126	0.43581	62.65562	0.98815	16.63	3.56
66/ 3/24	2439208.5	57.48045	23.40838	6.81216	-0.41063	0.79490	0.42640	62.43685	0.99111	22.16	6.26
66/ 3/24	2439209.0	54.36562	28.64085	9.65349	-0.50844	0.74857	0.41175	62.20216	0.99419	27.78	8.93
66/ 3/25	2439209.5	50.60439	33.52665	12.37801	-0.60130	0.69259	0.39192	61.95204	0.99742	33.53	11.53
66/ 3/25	2439210.0	46.23426	38.00170	14.95090	-0.68804	0.62736	0.36700	61.68683	1.00084	39.42	14.03

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
66/ 3/26	2439210.5	41.30073	42.00516	17.33827	-0.76748	0.55343	0.33717	61.40683	1.00448	45.48	16.40
66/ 3/26	2439211.0	35.85717	45.48020	19.50751	-0.83846	0.47144	0.30264	61.11242	1.00840	51.75	18.61
66/ 3/27	2439211.5	29.96459	48.37480	21.42777	-0.89989	0.38217	0.26370	60.80417	1.01262	58.22	20.63
66/ 3/27	2439212.0	23.69134	50.64257	23.07034	-0.95070	0.28650	0.22070	60.48297	1.01717	64.93	22.42
66/ 3/28	2439212.5	17.11266	52.24360	24.40914	-0.98992	0.18547	0.17407	60.15017	1.02208	71.86	23.94
66/ 3/28	2439213.0	10.31023	53.14533	25.42117	-1.01664	0.08020	0.12429	59.80771	1.02734	79.02	25.15
66/ 3/29	2439213.5	3.37146	53.32335	26.08698	-1.03006	-0.02801	0.07194	59.45820	1.03295	86.38	26.02
66/ 3/29	2439214.0	-3.61131	52.76235	26.39120	-1.02953	-0.13778	0.01763	59.10502	1.03886	93.92	26.52
66/ 3/30	2439214.5	-10.54178	51.45688	26.32301	-1.01455	-0.24759	-0.03791	58.75236	1.04501	101.58	26.62
66/ 3/30	2439215.0	-17.32091	49.41215	25.87664	-0.98481	-0.35580	-0.09391	58.40526	1.05131	109.32	26.30
66/ 3/31	2439215.5	-23.84832	46.64473	25.05180	-0.94022	-0.46070	-0.14952	58.06950	1.05765	117.08	25.56
66/ 3/31	2439216.0	-30.02395	43.18311	23.85415	-0.88098	-0.56049	-0.20385	57.75153	1.06388	124.81	24.40
66/ 4/ 1	2439216.5	-35.74997	39.06796	22.29555	-0.80756	-0.65337	-0.25595	57.45831	1.06984	132.46	22.83
66/ 4/ 1	2439217.0	-40.93287	34.35227	20.39434	-0.72077	-0.73754	-0.30486	57.19709	1.07536	140.00	20.89
66/ 4/ 2	2439217.5	-45.48579	29.10096	18.17531	-0.62175	-0.81126	-0.34964	56.97512	1.08026	147.39	18.60
66/ 4/ 2	2439218.0	-49.33081	23.39019	15.66959	-0.51201	-0.87296	-0.38937	56.79935	1.08435	154.63	16.01
66/ 4/ 3	2439218.5	-52.40128	17.30617	12.91422	-0.39336	-0.92127	-0.42323	56.67605	1.08747	161.72	13.17
66/ 4/ 3	2439219.0	-54.64392	10.94348	9.95151	-0.26793	-0.95510	-0.45049	56.61052	1.08947	168.68	10.12
66/ 4/ 4	2439219.5	-56.02064	4.40295	6.82817	-0.13807	-0.97369	-0.47058	56.60673	1.09022	175.51	6.93
66/ 4/ 4	2439220.0	-56.50975	-2.21077	3.59415	-0.00625	-0.97668	-0.48312	56.66707	1.08966	182.24	3.64
66/ 4/ 5	2439220.5	-56.10669	-8.79191	0.30144	0.12496	-0.96411	-0.48790	56.79215	1.08774	188.91	0.30
66/ 4/ 5	2439221.0	-54.82400	-15.23634	-2.99738	0.25309	-0.93642	-0.48494	56.98071	1.08448	195.53	-3.02
66/ 4/ 6	2439221.5	-52.69070	-21.44419	-6.25042	0.37577	-0.89442	-0.47443	57.22963	1.07994	202.15	-6.27
66/ 4/ 6	2439222.0	-49.75091	-27.32225	-9.40783	0.49091	-0.83925	-0.45677	57.53403	1.07423	208.77	-9.41
66/ 4/ 7	2439222.5	-46.06212	-32.78593	-12.42288	0.59667	-0.77230	-0.43250	57.88751	1.06748	215.44	-12.39
66/ 4/ 7	2439223.0	-41.69303	-37.76076	-15.25291	0.69158	-0.69517	-0.40226	58.28237	1.05988	222.17	-15.17
66/ 4/ 8	2439223.5	-36.72119	-42.18333	-17.86001	0.77450	-0.60951	-0.36679	58.70996	1.05161	228.96	-17.71
66/ 4/ 8	2439224.0	-31.23068	-46.00184	-20.21141	0.84463	-0.51707	-0.32689	59.16101	1.04289	235.83	-19.98
66/ 4/ 9	2439224.5	-25.30984	-49.17603	-22.27976	0.90151	-0.41953	-0.28334	59.62598	1.03393	242.77	-21.94
66/ 4/ 9	2439225.0	-19.04931	-51.67695	-24.04305	0.94493	-0.31852	-0.23694	60.09536	1.02494	249.76	-23.58
66/ 4/10	2439225.5	-12.54019	-53.48634	-25.48456	0.97494	-0.21557	-0.18844	60.55995	1.01611	256.80	-24.89
66/ 4/10	2439226.0	-5.87268	-54.59583	-26.59252	0.99176	-0.11208	-0.13856	61.01111	1.00764	263.86	-25.84
66/ 4/11	2439226.5	0.86512	-55.00618	-27.35987	0.99577	-0.00932	-0.08797	61.44096	0.99969	270.90	-26.44
66/ 4/11	2439227.0	7.58807	-54.72633	-27.78385	0.98746	0.09155	-0.03726	61.84248	0.99240	277.89	-26.70
66/ 4/12	2439227.5	14.21465	-53.77259	-27.86565	0.96741	0.18951	0.01299	62.20966	0.98588	284.81	-26.61
66/ 4/12	2439228.0	20.66739	-52.16788	-27.61006	0.93624	0.28364	0.06228	62.53754	0.98024	291.61	-26.20
66/ 4/13	2439228.5	26.87318	-49.94100	-27.02520	0.89460	0.37310	0.11015	62.82223	0.97553	298.28	-25.48
66/ 4/13	2439229.0	32.76349	-47.12606	-26.12215	0.84320	0.45717	0.15617	63.06091	0.97179	304.81	-24.47
66/ 4/14	2439229.5	38.27453	-43.76194	-24.91478	0.78272	0.53517	0.19995	63.25182	0.96904	311.17	-23.20
66/ 4/14	2439230.0	43.34730	-39.89186	-23.41955	0.71390	0.60648	0.24112	63.39420	0.96727	317.38	-21.68
66/ 4/15	2439230.5	47.92778	-35.56305	-21.65527	0.63748	0.67054	0.27934	63.48821	0.96645	323.42	-19.94
66/ 4/15	2439231.0	51.96700	-30.82641	-19.64304	0.55420	0.72682	0.31428	63.53491	0.96653	329.32	-18.01
66/ 4/16	2439231.5	55.42122	-25.73625	-17.40610	0.46486	0.77485	0.34565	63.53612	0.96745	335.09	-15.90
66/ 4/16	2439232.0	58.25213	-20.35007	-14.96972	0.37028	0.81417	0.37313	63.49432	0.96913	340.74	-13.64
66/ 4/17	2439232.5	60.42713	-14.72823	-12.36109	0.27132	0.84437	0.39646	63.41258	0.97147	346.30	-11.24

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/ 4/17	2439233.0	61.91958	-8.93378	-9.60922	0.16889	0.86508	0.41538	63.29442	0.97439	351.79	-8.73
66/ 4/18	2439233.5	62.70918	-3.03204	-6.74484	0.06394	0.87600	0.42965	63.14371	0.97779	357.23	-6.13
66/ 4/18	2439234.0	62.78234	2.90968	-3.80019	-0.04250	0.87685	0.43905	62.96451	0.98155	2.65	-3.46
66/ 4/19	2439234.5	62.13255	8.82255	-0.80888	-0.14936	0.86746	0.44340	62.76102	0.98559	8.08	-0.74
66/ 4/19	2439235.0	60.76079	14.63677	2.19433	-0.25550	0.84771	0.44255	62.53738	0.98982	13.54	2.01
66/ 4/20	2439235.5	58.67589	20.28210	5.17382	-0.35974	0.81760	0.43639	62.29761	0.99414	19.07	4.76
66/ 4/20	2439236.0	55.89487	25.68863	8.09344	-0.46085	0.77722	0.42486	62.04551	0.99848	24.68	7.50
66/ 4/21	2439236.5	52.44314	30.78750	10.91683	-0.55758	0.72679	0.40798	61.78455	1.00278	30.42	10.18
66/ 4/21	2439237.0	48.35473	35.51178	13.60786	-0.64865	0.66667	0.38579	61.51780	1.00699	36.29	12.78
66/ 4/22	2439237.5	43.67224	39.79737	16.13109	-0.73279	0.59735	0.35845	61.24792	1.01109	42.34	15.27
66/ 4/22	2439238.0	38.44683	43.58399	18.45222	-0.80877	0.51945	0.32616	60.97711	1.01504	48.58	17.61
66/ 4/23	2439238.5	32.73791	46.81612	20.53864	-0.87538	0.43375	0.28920	60.70713	1.01885	55.04	19.77
66/ 4/23	2439239.0	26.61275	49.44400	22.35992	-0.93150	0.34118	0.24793	60.43934	1.02253	61.71	21.71
66/ 4/24	2439239.5	20.14592	51.42460	23.88836	-0.97611	0.24280	0.20280	60.17476	1.02609	68.61	23.39
66/ 4/24	2439240.0	13.41857	52.72251	25.09949	-1.00829	0.13980	0.15432	59.91415	1.02957	75.72	24.77
66/ 4/25	2439240.5	6.51748	53.31079	25.97256	-1.02729	0.03348	0.10308	59.65813	1.03299	83.03	25.81
66/ 4/25	2439241.0	-0.46587	53.17174	26.49103	-1.03250	-0.07474	0.04972	59.40728	1.03640	90.50	26.48
66/ 4/26	2439241.5	-7.43658	52.29751	26.64296	-1.02350	-0.18336	-0.00503	59.16231	1.03981	98.09	26.77
66/ 4/26	2439242.0	-14.29755	50.69065	26.42139	-1.00008	-0.29081	-0.06043	58.92412	1.04325	105.75	26.64
66/ 4/27	2439242.5	-20.95093	48.36450	25.82467	-0.96222	-0.39549	-0.11568	58.69395	1.04674	113.42	26.10
66/ 4/27	2439243.0	-27.29962	45.34341	24.85669	-0.91017	-0.49575	-0.16993	58.47349	1.05026	121.05	25.16
66/ 4/28	2439243.5	-33.24889	41.66282	23.52704	-0.84438	-0.58996	-0.22233	58.26492	1.05379	128.59	23.82
66/ 4/28	2439244.0	-38.70808	37.36908	21.85110	-0.76559	-0.67654	-0.27204	58.07094	1.05728	136.01	22.10
66/ 4/29	2439244.5	-43.59226	32.51914	19.84998	-0.67477	-0.75396	-0.31821	57.89475	1.06068	143.28	20.05
66/ 4/29	2439245.0	-47.82407	27.17992	17.55043	-0.57317	-0.82080	-0.36004	57.74000	1.06389	150.39	17.70
66/ 4/30	2439245.5	-51.33536	21.42748	14.98449	-0.46228	-0.87579	-0.39675	57.61069	1.06682	157.34	15.08
66/ 4/30	2439246.0	-54.06889	15.34586	12.18913	-0.34381	-0.91784	-0.42768	57.51100	1.06937	164.15	12.24
66/ 5/ 1	2439246.5	-55.97975	9.02566	9.20560	-0.21969	-0.94611	-0.45223	57.44509	1.07140	170.84	9.22
66/ 5/ 1	2439247.0	-57.03668	2.56239	6.07875	-0.09201	-0.96001	-0.46993	57.41690	1.07281	177.43	6.08
66/ 5/ 2	2439247.5	-57.22298	-3.94546	2.85617	0.03703	-0.95926	-0.48046	57.42990	1.07349	183.94	2.85
66/ 5/ 2	2439248.0	-56.53706	-10.39852	-0.41284	0.16518	-0.94387	-0.48363	57.48686	1.07334	190.42	-0.41
66/ 5/ 3	2439248.5	-54.99261	-16.69868	-3.67834	0.29018	-0.91419	-0.47943	57.58961	1.07229	196.89	-3.66
66/ 5/ 3	2439249.0	-52.61823	-22.75128	-6.89080	0.40990	-0.87090	-0.46801	57.73891	1.07029	203.38	-6.85
66/ 5/ 4	2439249.5	-49.45658	-28.46718	-10.00227	0.52234	-0.81495	-0.44967	57.93427	1.06732	209.92	-9.94
66/ 5/ 4	2439250.0	-45.56318	-33.76455	-12.96735	0.62571	-0.74754	-0.42486	58.17388	1.06340	216.54	-12.88
66/ 5/ 5	2439250.5	-41.00473	-38.57050	-15.74411	0.71849	-0.67008	-0.39417	58.45467	1.05859	223.25	-15.62
66/ 5/ 5	2439251.0	-35.85726	-42.82220	-18.29487	0.79946	-0.58413	-0.35824	58.77232	1.05295	230.06	-18.14
66/ 5/ 6	2439251.5	-30.20404	-46.46765	-20.58671	0.86771	-0.49134	-0.31784	59.12139	1.04659	236.98	-20.38
66/ 5/ 6	2439252.0	-24.13349	-49.46614	-22.59187	0.92262	-0.39337	-0.27372	59.49552	1.03966	243.99	-22.32
66/ 5/ 7	2439252.5	-17.73719	-51.78817	-24.28793	0.96388	-0.29186	-0.22669	59.88761	1.03229	251.09	-23.93
66/ 5/ 7	2439253.0	-11.10793	-53.41520	-25.65781	0.99142	-0.18839	-0.17753	60.29007	1.02466	258.25	-25.19
66/ 5/ 8	2439253.5	-4.33813	-54.33907	-26.68961	1.00542	-0.08446	-0.12699	60.69505	1.01692	265.44	-26.09
66/ 5/ 8	2439254.0	2.48160	-54.56129	-27.37642	1.00624	0.01858	-0.07577	61.09469	1.00926	272.60	-26.62
66/ 5/ 9	2439254.5	9.26361	-54.09215	-27.71594	0.99438	0.11950	-0.02454	61.48129	1.00183	279.72	-26.80
66/ 5/ 9	2439255.0	15.92405	-52.94991	-27.71015	0.97045	0.21718	0.02610	61.84756	0.99480	286.74	-26.62

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/ 5/10	2439255.5	22.38358	-51.15983	-27.36490	0.93517	0.31064	0.07561	62.18675	0.98831	293.63	-26.11
66/ 5/10	2439256.0	28.56777	-48.75344	-26.68958	0.88927	0.39904	0.12349	62.49279	0.98249	300.37	-25.28
66/ 5/11	2439256.5	34.40739	-45.76771	-25.69673	0.83355	0.48160	0.16931	62.76045	0.97745	306.94	-24.17
66/ 5/11	2439257.0	39.83863	-42.24440	-24.40174	0.76882	0.55767	0.21265	62.98533	0.97329	313.32	-22.79
66/ 5/12	2439257.5	44.80317	-38.22953	-22.82256	0.69588	0.62667	0.25317	63.16400	0.97008	319.53	-21.18
66/ 5/12	2439258.0	49.24824	-33.77282	-20.97948	0.61556	0.68806	0.29053	63.29400	0.96785	325.56	-19.36
66/ 5/13	2439258.5	53.12662	-28.92738	-18.89494	0.52868	0.74138	0.32442	63.37389	0.96664	331.43	-17.35
66/ 5/13	2439259.0	56.39676	-23.74931	-16.59335	0.43609	0.78622	0.35458	63.40318	0.96645	337.16	-15.17
66/ 5/14	2439259.5	59.02283	-18.29742	-14.10095	0.33863	0.82217	0.38072	63.38238	0.96726	342.78	-12.85
66/ 5/14	2439260.0	60.97483	-12.63305	-11.44574	0.23719	0.84891	0.40261	63.31295	0.96902	348.29	-10.42
66/ 5/15	2439260.5	62.22883	-6.81975	-8.65733	0.13267	0.86610	0.42002	63.19720	0.97167	353.75	-7.87
66/ 5/15	2439261.0	62.76716	-0.92307	-5.76688	0.02602	0.87349	0.43271	63.03829	0.97514	359.16	-5.25
66/ 5/16	2439261.5	62.57877	4.98975	-2.80694	-0.08175	0.87083	0.44051	62.84011	0.97933	4.56	-2.56
66/ 5/16	2439262.0	61.65956	10.85006	0.18867	-0.18960	0.85796	0.44322	62.60720	0.98412	9.98	0.17
66/ 5/17	2439262.5	60.01280	16.58830	3.18503	-0.29640	0.83477	0.44070	62.34462	0.98940	15.45	2.93
66/ 5/17	2439263.0	57.64952	22.13445	6.14632	-0.40098	0.80124	0.43285	62.05786	0.99506	21.00	5.68
66/ 5/18	2439263.5	54.58898	27.41868	9.03614	-0.50209	0.75746	0.41959	61.75267	1.00095	26.67	8.41
66/ 5/18	2439264.0	50.85898	32.37212	11.81783	-0.59845	0.70360	0.40092	61.43494	1.00694	32.48	11.09
66/ 5/19	2439264.5	46.49621	36.92766	14.45488	-0.68872	0.64003	0.37689	61.11050	1.01293	38.46	13.68
66/ 5/19	2439265.0	41.54640	41.02102	16.91139	-0.77157	0.56722	0.34764	60.78505	1.01878	44.64	16.15
66/ 5/20	2439265.5	36.06434	44.59178	19.15263	-0.84567	0.48583	0.31337	60.46393	1.02440	51.04	18.47
66/ 5/20	2439266.0	30.11374	47.58455	21.14565	-0.90972	0.39670	0.27440	60.15202	1.02969	57.67	20.58
66/ 5/21	2439266.5	23.76681	49.95020	22.85985	-0.96251	0.30083	0.23111	59.85362	1.03457	64.55	22.45
66/ 5/21	2439267.0	17.10362	51.64700	24.26769	-1.00294	0.19941	0.18402	59.57237	1.03900	71.68	24.04
66/ 5/22	2439267.5	10.21119	52.64182	25.34530	-1.03006	0.09377	0.13371	59.31116	1.04293	79.02	25.30
66/ 5/22	2439268.0	3.18232	52.91108	26.07312	-1.04312	-0.01459	0.08085	59.07213	1.04635	86.56	26.19
66/ 5/23	2439268.5	-3.88577	52.44168	26.43638	-1.04157	-0.12408	0.02619	58.85670	1.04926	94.24	26.69
66/ 5/23	2439269.0	-10.89306	51.23160	26.42565	-1.02514	-0.23302	-0.02945	58.66558	1.05170	102.00	26.77
66/ 5/24	2439269.5	-17.73844	49.29036	26.03712	-0.99378	-0.33969	-0.08523	58.49892	1.05369	109.79	26.43
66/ 5/24	2439270.0	-24.32153	46.63916	25.27287	-0.94775	-0.44238	-0.14025	58.35637	1.05527	117.54	25.66
66/ 5/25	2439270.5	-30.54458	43.31075	24.14098	-0.88757	-0.53939	-0.19364	58.23727	1.05652	125.19	24.49
66/ 5/25	2439271.0	-36.31429	39.34909	22.65545	-0.81403	-0.62912	-0.24453	58.14076	1.05747	132.70	22.93
66/ 5/26	2439271.5	-41.54356	34.80869	20.83610	-0.72818	-0.71005	-0.29209	58.06595	1.05818	140.04	21.03
66/ 5/26	2439272.0	-46.15319	29.75372	18.70820	-0.63129	-0.78085	-0.33552	58.01205	1.05869	147.19	18.81
66/ 5/27	2439272.5	-50.07336	24.25703	16.30215	-0.52485	-0.84031	-0.37411	57.97848	1.05903	154.15	16.33
66/ 5/27	2439273.0	-53.24491	18.39877	13.65291	-0.41052	-0.88746	-0.40723	57.96497	1.05923	160.94	13.62
66/ 5/28	2439273.5	-55.62053	12.26510	10.79939	-0.29013	-0.92153	-0.43435	57.97157	1.05927	167.56	10.74
66/ 5/28	2439274.0	-57.16556	5.94658	7.78380	-0.16558	-0.94198	-0.45503	57.99871	1.05915	174.06	7.71
66/ 5/29	2439274.5	-57.85865	-0.46342	4.65085	-0.03889	-0.94852	-0.46896	58.04712	1.05883	180.46	4.60
66/ 5/29	2439275.0	-57.69210	-6.87040	1.44697	0.08792	-0.94110	-0.47595	58.11776	1.05827	186.79	1.43
66/ 5/30	2439275.5	-56.67197	-13.18047	-1.78055	0.21283	-0.91996	-0.47594	58.21175	1.05742	193.09	-1.75
66/ 5/30	2439276.0	-54.81784	-19.30203	-4.98442	0.33388	-0.88554	-0.46899	58.33017	1.05622	199.40	-4.90
66/ 5/31	2439276.5	-52.16231	-25.14743	-8.11823	0.44918	-0.83854	-0.45530	58.47397	1.05461	205.74	-7.98
66/ 5/31	2439277.0	-48.75023	-30.63451	-11.13725	0.55700	-0.77990	-0.43516	58.64381	1.05255	212.15	-10.95
66/ 6/ 1	2439277.5	-44.63763	-35.68799	-13.99927	0.65579	-0.71070	-0.40901	58.83987	1.04998	218.64	-13.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
66/ 6/ 1	2439278.0	-39.89044	-40.24069	-16.66527	0.74419	-0.63225	-0.37737	59.06176	1.04688	225.25	-16.39
66/ 6/ 2	2439278.5	-34.58300	-44.23454	-19.10003	0.82106	-0.54592	-0.34084	59.30842	1.04324	231.98	-18.79
66/ 6/ 2	2439279.0	-28.79643	-47.62122	-21.27267	0.88555	-0.45321	-0.30008	59.57802	1.03906	238.84	-20.92
66/ 6/ 3	2439279.5	-22.61691	-50.36271	-23.15698	0.93701	-0.35565	-0.25582	59.86796	1.03437	245.82	-22.76
66/ 6/ 3	2439280.0	-16.13402	-52.43141	-24.73167	0.97509	-0.25479	-0.20878	60.17487	1.02923	252.90	-24.27
66/ 6/ 4	2439280.5	-9.43901	-53.81006	-25.98046	0.99965	-0.15214	-0.15971	60.49464	1.02369	260.05	-25.43
66/ 6/ 4	2439281.0	-2.62325	-54.49143	-26.89208	1.01078	-0.04913	-0.10933	60.82254	1.01786	267.24	-26.24
66/ 6/ 5	2439281.5	4.22314	-54.47785	-27.46009	1.00875	0.05286	-0.05836	61.15331	1.01182	274.43	-26.68
66/ 6/ 5	2439282.0	11.01253	-53.78048	-27.68271	0.99403	0.15259	-0.00745	61.48128	1.00570	281.57	-26.76
66/ 6/ 6	2439282.5	17.66081	-52.41864	-27.56249	0.96719	0.24890	0.04278	61.80056	0.99962	288.62	-26.49
66/ 6/ 6	2439283.0	24.08820	-50.41896	-27.10600	0.92893	0.34078	0.09176	62.10514	0.99371	295.54	-25.88
66/ 6/ 7	2439283.5	30.21986	-47.81458	-26.32347	0.88000	0.42732	0.13898	62.38909	0.98809	302.29	-24.96
66/ 6/ 7	2439284.0	35.98636	-44.64434	-25.22844	0.82124	0.50775	0.18397	62.64670	0.98290	308.87	-23.75
66/ 6/ 8	2439284.5	41.32397	-40.95205	-23.83742	0.75350	0.58137	0.22632	62.87260	0.97825	315.26	-22.28
66/ 6/ 8	2439285.0	46.17487	-36.78585	-22.16953	0.67766	0.64760	0.26567	63.06192	0.97427	321.46	-20.58
66/ 6/ 9	2439285.5	50.48722	-32.19753	-20.24627	0.59462	0.70594	0.30168	63.21037	0.97104	327.47	-18.68
66/ 6/ 9	2439286.0	54.21520	-27.24210	-18.09122	0.50525	0.75594	0.33406	63.31439	0.96867	333.32	-16.60
66/ 6/10	2439286.5	57.31907	-21.97731	-15.72986	0.41047	0.79723	0.36256	63.37118	0.96722	339.02	-14.37
66/ 6/10	2439287.0	59.76517	-16.46330	-13.18935	0.31117	0.82949	0.38693	63.37882	0.96674	344.60	-12.01
66/ 6/11	2439287.5	61.52595	-10.76225	-10.49838	0.20825	0.85242	0.40695	63.33628	0.96726	350.08	-9.54
66/ 6/11	2439288.0	62.58006	-4.93814	-7.68709	0.10265	0.86579	0.42243	63.24350	0.96880	355.49	-6.98
66/ 6/12	2439288.5	62.91248	0.94352	-4.78688	-0.00470	0.86938	0.43318	63.10138	0.97133	0.86	-4.35
66/ 6/12	2439289.0	62.51471	6.81594	-1.83036	-0.11280	0.86303	0.43903	62.91181	0.97483	6.22	-1.67
66/ 6/13	2439289.5	61.38504	12.61132	1.14883	-0.22065	0.84662	0.43985	62.67766	0.97924	11.61	1.05
66/ 6/13	2439290.0	59.52885	18.26121	4.11610	-0.32716	0.82006	0.43549	62.40271	0.98447	17.05	3.78
66/ 6/14	2439290.5	56.95900	23.69688	7.03609	-0.43119	0.78336	0.42588	62.09168	0.99043	22.59	6.51
66/ 6/14	2439291.0	53.69621	28.84983	9.87295	-0.53157	0.73660	0.41094	61.75007	0.99700	28.25	9.20
66/ 6/15	2439291.5	49.76953	33.65242	12.59052	-0.62703	0.67995	0.39065	61.38414	1.00404	34.07	11.84
66/ 6/15	2439292.0	45.21666	38.03863	15.15275	-0.71626	0.61371	0.36508	61.00074	1.01140	40.07	14.38
66/ 6/16	2439292.5	40.08433	41.94496	17.52409	-0.79791	0.53833	0.33431	60.60715	1.01893	46.30	16.81
66/ 6/16	2439293.0	34.42847	45.31149	19.67003	-0.87062	0.45442	0.29856	60.21097	1.02646	52.77	19.07
66/ 6/17	2439293.5	28.31424	48.08308	21.55767	-0.93304	0.36280	0.25809	59.81983	1.03382	59.51	21.12
66/ 6/17	2439294.0	21.81585	50.21069	23.15640	-0.98385	0.26444	0.21332	59.44126	1.04086	66.52	22.93
66/ 6/18	2439294.5	15.01604	51.65271	24.43862	-1.02186	0.16057	0.16472	59.08240	1.04743	73.79	24.43
66/ 6/18	2439295.0	8.00526	52.37639	25.38050	-1.04599	0.05257	0.11293	58.74981	1.05338	81.31	25.60
66/ 6/19	2439295.5	0.88052	52.35912	25.96272	-1.05538	-0.05795	0.05865	58.44925	1.05860	89.04	26.37
66/ 6/19	2439296.0	-6.25618	51.58955	26.17119	-1.04944	-0.16927	0.00271	58.18550	1.06300	96.91	26.73
66/ 6/20	2439296.5	-13.29965	50.06858	25.99763	-1.02783	-0.27953	-0.05401	57.96223	1.06653	104.88	26.65
66/ 6/20	2439297.0	-20.14365	47.80985	25.44006	-0.99057	-0.38680	-0.11053	57.78188	1.06914	112.85	26.12
66/ 6/21	2439297.5	-26.68322	44.84004	24.50307	-0.93802	-0.48919	-0.16588	57.64567	1.07084	120.76	25.15
66/ 6/21	2439298.0	-32.81695	41.19858	23.19794	-0.87088	-0.58483	-0.21908	57.55362	1.07166	128.54	23.77
66/ 6/22	2439298.5	-38.44939	36.93710	21.54252	-0.79019	-0.67200	-0.26917	57.50466	1.07165	136.15	22.00
66/ 6/22	2439299.0	-43.49316	32.11839	19.56086	-0.69729	-0.74914	-0.31527	57.49672	1.07090	143.56	19.89
66/ 6/23	2439299.5	-47.87084	26.81503	17.28277	-0.59379	-0.81491	-0.35658	57.52701	1.06949	150.74	17.48
66/ 6/23	2439300.0	-51.51661	21.10781	14.74307	-0.48148	-0.86824	-0.39241	57.59218	1.06754	157.72	14.83

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
66/ 6/24	2439300.5	-54.37739	15.08393	11.98086	-0.36232	-0.90831	-0.42220	57.68853	1.06515	164.50	11.99
66/ 6/24	2439301.0	-56.41369	8.83514	9.03862	-0.23836	-0.93459	-0.44551	57.81229	1.06243	171.10	8.99
66/ 6/25	2439301.5	-57.60004	2.45579	5.96128	-0.11168	-0.94684	-0.46205	57.95975	1.05947	177.56	5.90
66/ 6/25	2439302.0	-57.92506	-3.95900	2.79535	0.01564	-0.94508	-0.47166	58.12745	1.05635	183.91	2.76
66/ 6/26	2439302.5	-57.39123	-10.31510	-0.41204	0.14160	-0.92957	-0.47430	58.31230	1.05315	190.19	-0.40
66/ 6/26	2439303.0	-56.01437	-16.52099	-3.61396	0.26427	-0.90083	-0.47007	58.51165	1.04990	196.43	-3.54
66/ 6/27	2439303.5	-53.82289	-22.48926	-6.76445	0.38186	-0.85954	-0.45916	58.72332	1.04664	202.68	-6.61
66/ 6/27	2439304.0	-50.85689	-28.13785	-9.81932	0.49273	-0.80659	-0.44189	58.94557	1.04338	208.95	-9.59
66/ 6/28	2439304.5	-47.16703	-33.39125	-12.73670	0.59538	-0.74302	-0.41864	59.17709	1.04010	215.30	-12.43
66/ 6/28	2439305.0	-42.81340	-38.18136	-15.47771	0.68853	-0.66999	-0.38989	59.41685	1.03681	221.73	-15.10
66/ 6/29	2439305.5	-37.86421	-42.44831	-18.00687	0.77108	-0.58875	-0.35617	59.66410	1.03347	228.27	-17.57
66/ 6/29	2439306.0	-32.39446	-46.14104	-20.29253	0.84212	-0.50065	-0.31809	59.91814	1.03005	234.93	-19.80
66/ 6/30	2439306.5	-26.48457	-49.21770	-22.30721	0.90095	-0.40707	-0.27626	60.17829	1.02652	241.71	-21.76
66/ 6/30	2439307.0	-20.21898	-51.64592	-24.02783	0.94709	-0.30941	-0.23136	60.44373	1.02286	248.62	-23.42
66/ 7/ 1	2439307.5	-13.68480	-53.40284	-25.43582	0.98023	-0.20907	-0.18406	60.71341	1.01904	255.63	-24.77
66/ 7/ 1	2439308.0	-6.97046	-54.47508	-26.51726	1.00029	-0.10745	-0.13505	60.98595	1.01507	262.71	-25.77
66/ 7/ 2	2439308.5	-0.16442	-54.85847	-27.26280	1.00734	-0.00588	-0.08499	61.25960	1.01093	269.83	-26.43
66/ 7/ 2	2439309.0	6.64597	-54.55769	-27.66763	1.00163	0.09437	-0.03454	61.53217	1.00666	276.95	-26.72
66/ 7/ 3	2439309.5	13.37561	-53.58579	-27.73128	0.98357	0.19211	0.01566	61.80103	1.00227	284.02	-26.66
66/ 7/ 3	2439310.0	19.94253	-51.96361	-27.45744	0.95368	0.28622	0.06502	62.06313	0.99783	291.00	-26.26
66/ 7/ 4	2439310.5	26.26880	-49.71913	-26.85369	0.91262	0.37571	0.11299	62.31503	0.99337	297.85	-25.53
66/ 7/ 4	2439311.0	32.28112	-46.88680	-25.93125	0.86111	0.45967	0.15905	62.55296	0.98899	304.55	-24.49
66/ 7/ 5	2439311.5	37.91146	-43.50681	-24.70460	0.79996	0.53730	0.20274	62.77291	0.98475	311.07	-23.18
66/ 7/ 5	2439312.0	43.09739	-39.62439	-23.19124	0.73002	0.60792	0.24365	62.97072	0.98075	317.40	-21.61
66/ 7/ 6	2439312.5	47.78246	-35.28916	-21.41133	0.65220	0.67093	0.28139	63.14217	0.97708	323.55	-19.82
66/ 7/ 6	2439313.0	51.91634	-30.55446	-19.38741	0.56742	0.72581	0.31565	63.28312	0.97385	329.52	-17.84
66/ 7/ 7	2439313.5	55.45499	-25.47679	-17.14411	0.47659	0.77214	0.34613	63.38961	0.97115	335.33	-15.69
66/ 7/ 7	2439314.0	58.36069	-20.11528	-14.70789	0.38067	0.80957	0.37258	63.45799	0.96908	340.98	-13.40
66/ 7/ 8	2439314.5	60.60211	-14.53124	-12.10685	0.28059	0.83781	0.39477	63.48503	0.96773	346.52	-10.99
66/ 7/ 8	2439315.0	62.15432	-8.78772	-9.37044	0.17731	0.85663	0.41252	63.46801	0.96717	351.95	-8.49
66/ 7/ 9	2439315.5	62.99878	-2.94917	-6.52938	0.07176	0.86584	0.42565	63.40486	0.96748	357.32	-5.91
66/ 7/ 9	2439316.0	63.12344	2.91889	-3.61543	-0.03508	0.86532	0.43402	63.29424	0.96870	2.65	-3.27
66/ 7/10	2439316.5	62.52282	8.75015	-0.66127	-0.14225	0.85497	0.43750	63.13561	0.97088	7.97	-0.60
66/ 7/10	2439317.0	61.19809	14.47784	2.29961	-0.24874	0.83473	0.43599	62.92935	0.97403	13.31	2.09
66/ 7/11	2439317.5	59.15733	20.03500	5.23311	-0.35351	0.80461	0.42940	62.67676	0.97814	18.71	4.79
66/ 7/11	2439318.0	56.41570	25.35485	8.10462	-0.45551	0.76467	0.41768	62.38016	0.98319	24.20	7.47
66/ 7/12	2439318.5	52.99580	30.37120	10.87923	-0.55361	0.71502	0.40078	62.04291	0.98912	29.82	10.10
66/ 7/12	2439319.0	48.92797	35.01889	13.52193	-0.64664	0.65585	0.37873	61.66938	0.99586	35.59	12.67
66/ 7/13	2439319.5	44.25065	39.23449	15.99792	-0.73338	0.58748	0.35157	61.26498	1.00329	41.56	15.14
66/ 7/13	2439320.0	39.01069	42.95695	18.27291	-0.81257	0.51031	0.31940	60.83612	1.01129	47.76	17.48
66/ 7/14	2439320.5	33.26370	46.12855	20.31360	-0.88289	0.42492	0.28241	60.39006	1.01971	54.20	19.66
66/ 7/14	2439321.0	27.07415	48.69591	22.08812	-0.94304	0.33203	0.24086	59.93485	1.02838	60.93	21.63
66/ 7/15	2439321.5	20.51539	50.61126	23.56672	-0.99170	0.23255	0.19509	59.47916	1.03712	67.93	23.34
66/ 7/15	2439322.0	13.66945	51.83369	24.72238	-1.02764	0.12762	0.14558	59.03204	1.04572	75.23	24.76
66/ 7/16	2439322.5	6.62645	52.33068	25.53163	-1.04971	0.01857	0.09291	58.60268	1.05398	82.78	25.83

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/ 7/16	2439323.0	-0.51627	52.07949	25.97533	-1.05694	-0.09304	0.03777	58.20015	1.06170	90.57	26.51
66/ 7/17	2439323.5	-7.65549	51.06860	26.03946	-1.04858	-0.20545	-0.01903	57.83305	1.06868	98.53	26.76
66/ 7/17	2439324.0	-14.68390	49.29893	25.71593	-1.02417	-0.31677	-0.07655	57.50922	1.07476	106.59	26.56
66/ 7/18	2439324.5	-21.49220	46.78481	25.00315	-0.98359	-0.42494	-0.13379	57.23539	1.07978	114.67	25.90
66/ 7/18	2439325.0	-27.97166	43.55452	23.90661	-0.92714	-0.52790	-0.18970	57.01698	1.08363	122.71	24.79
66/ 7/19	2439325.5	-34.01685	39.65038	22.43902	-0.85551	-0.62359	-0.24318	56.85779	1.08623	130.63	23.24
66/ 7/19	2439326.0	-39.52841	35.12824	20.62039	-0.76979	-0.71008	-0.29318	56.75992	1.08754	138.37	21.30
66/ 7/20	2439326.5	-44.41583	30.05644	18.47767	-0.67148	-0.78563	-0.33872	56.72372	1.08758	145.91	19.01
66/ 7/20	2439327.0	-48.59987	24.51427	16.04416	-0.56241	-0.84876	-0.37892	56.74779	1.08640	153.23	16.42
66/ 7/21	2439327.5	-52.01456	18.58992	13.35870	-0.44466	-0.89832	-0.41301	56.82917	1.08410	160.33	13.60
66/ 7/21	2439328.0	-54.60875	12.37824	10.46464	-0.32051	-0.93350	-0.44043	56.96354	1.08080	167.23	10.59
66/ 7/22	2439328.5	-56.34698	5.97824	7.40864	-0.19230	-0.95388	-0.46078	57.14551	1.07666	173.94	7.45
66/ 7/22	2439329.0	-57.20978	-0.50935	4.23953	-0.06239	-0.95938	-0.47381	57.36891	1.07182	180.51	4.24
66/ 7/23	2439329.5	-57.19344	-6.98441	1.00706	0.06693	-0.95025	-0.47949	57.62713	1.06648	186.96	1.00
66/ 7/23	2439330.0	-56.30933	-13.34957	-2.23916	0.19351	-0.92705	-0.47791	57.91343	1.06078	193.34	-2.22
66/ 7/24	2439330.5	-54.58278	-19.51205	-5.45073	0.31539	-0.89055	-0.46930	58.22122	1.05489	199.67	-5.37
66/ 7/24	2439331.0	-52.05178	-25.38512	-8.58124	0.43078	-0.84177	-0.45404	58.54426	1.04895	206.00	-8.43
66/ 7/25	2439331.5	-48.76552	-30.88932	-11.58704	0.53817	-0.78183	-0.43256	58.87687	1.04307	212.35	-11.35
66/ 7/25	2439332.0	-44.78278	-35.95332	-14.42779	0.63625	-0.71199	-0.40539	59.21402	1.03735	218.76	-14.10
66/ 7/26	2439332.5	-40.17045	-40.51454	-17.06685	0.72393	-0.63359	-0.37311	59.55141	1.03185	225.24	-16.65
66/ 7/26	2439333.0	-35.00194	-44.51956	-19.47167	0.80036	-0.54798	-0.33632	59.88550	1.02663	231.83	-18.97
66/ 7/27	2439333.5	-29.35581	-47.92422	-21.61393	0.86488	-0.45654	-0.29568	60.21342	1.02170	238.51	-21.04
66/ 7/27	2439334.0	-23.31437	-50.69376	-23.46969	0.91703	-0.36066	-0.25183	60.53299	1.01707	245.30	-22.81
66/ 7/28	2439334.5	-16.96245	-52.80264	-25.01946	0.95653	-0.26168	-0.20543	60.84256	1.01273	252.19	-24.28
66/ 7/28	2439335.0	-10.38618	-54.23443	-26.24815	0.98327	-0.16093	-0.15713	61.14091	1.00866	259.16	-25.42
66/ 7/29	2439335.5	-3.67200	-54.98144	-27.14510	0.99727	-0.05968	-0.10757	61.42718	1.00483	266.18	-26.23
66/ 7/29	2439336.0	3.09439	-55.04447	-27.70392	0.99873	0.04085	-0.05739	61.70070	1.00121	273.22	-26.68
66/ 7/30	2439336.5	9.82894	-54.43238	-27.92239	0.98793	0.13949	-0.00717	61.96088	0.99775	280.24	-26.79
66/ 7/30	2439337.0	16.45003	-53.16161	-27.80230	0.96530	0.23517	0.04249	62.20714	0.99444	287.19	-26.55
66/ 7/31	2439337.5	22.87927	-51.25576	-27.34930	0.93137	0.32687	0.09105	62.43876	0.99126	294.05	-25.98
66/ 7/31	2439338.0	29.04218	-48.74503	-26.57263	0.88676	0.41364	0.13799	62.65485	0.98818	300.79	-25.09
66/ 8/ 1	2439338.5	34.86873	-45.66564	-25.48492	0.83217	0.49465	0.18282	62.85428	0.98520	307.36	-23.92
66/ 8/ 1	2439339.0	40.29392	-42.05928	-24.10196	0.76838	0.56913	0.22510	63.03561	0.98234	313.77	-22.48
66/ 8/ 2	2439339.5	45.25817	-37.97253	-22.44240	0.69621	0.63641	0.26443	63.19712	0.97961	320.00	-20.80
66/ 8/ 2	2439340.0	49.70770	-33.45622	-20.52749	0.61653	0.69588	0.30044	63.33681	0.97705	326.06	-18.91
66/ 8/ 3	2439340.5	53.59478	-28.56491	-18.38085	0.53027	0.74707	0.33281	63.45242	0.97471	331.94	-16.84
66/ 8/ 3	2439341.0	56.87798	-23.35626	-16.02815	0.43837	0.78953	0.36125	63.54149	0.97264	337.68	-14.61
66/ 8/ 4	2439341.5	59.52232	-17.89052	-13.49687	0.34178	0.82293	0.38551	63.60143	0.97090	343.27	-12.25
66/ 8/ 4	2439342.0	61.49931	-12.22998	-10.81603	0.24147	0.84701	0.40538	63.62959	0.96957	348.75	-9.79
66/ 8/ 5	2439342.5	62.78710	-6.43854	-8.01598	0.13843	0.86156	0.42068	63.62335	0.96872	354.15	-7.24
66/ 8/ 5	2439343.0	63.37043	-0.58120	-5.12818	0.03362	0.86645	0.43127	63.58025	0.96843	359.47	-4.63
66/ 8/ 6	2439343.5	63.24073	5.27630	-2.18495	-0.07196	0.86160	0.43703	63.49806	0.96878	4.77	-1.97
66/ 8/ 6	2439344.0	62.39610	11.06790	0.78067	-0.17733	0.84699	0.43787	63.37493	0.96983	10.06	0.71
66/ 8/ 7	2439344.5	60.84138	16.72758	3.73514	-0.28148	0.82265	0.43373	63.20947	0.97165	15.37	3.39
66/ 8/ 7	2439345.0	58.58823	22.18970	6.64458	-0.38340	0.78867	0.42457	63.00091	0.97430	20.74	6.05

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
66/ 8/ 8	2439345.5	55.65523	27.38940	9.47495	-0.48206	0.74519	0.41038	62.74917	0.97781	26.20	8.68
66/ 8/ 8	2439346.0	52.06799	32.26299	12.19225	-0.57641	0.69241	0.39119	62.45500	0.98220	31.78	11.26
66/ 8/ 9	2439346.5	47.85936	36.74837	14.76272	-0.66537	0.63061	0.36704	62.12004	0.98747	37.52	13.75
66/ 8/ 9	2439347.0	43.06961	40.78557	17.15309	-0.74783	0.56013	0.33802	61.74692	0.99361	43.44	16.13
66/ 8/10	2439347.5	37.74663	44.31732	19.33086	-0.82264	0.48144	0.30428	61.33934	1.00055	49.58	18.37
66/ 8/10	2439348.0	31.94613	47.28976	21.26465	-0.88864	0.39508	0.26601	60.90206	1.00823	55.96	20.44
66/ 8/11	2439348.5	25.73178	49.65330	22.92457	-0.94465	0.30176	0.22347	60.44097	1.01654	62.61	22.29
66/ 8/11	2439349.0	19.17527	51.36356	24.28279	-0.98948	0.20233	0.17698	59.96299	1.02535	69.53	23.89
66/ 8/12	2439349.5	12.35620	52.38253	25.31404	-1.02199	0.09781	0.12699	59.47609	1.03449	76.73	25.19
66/ 8/12	2439350.0	5.36173	52.67976	25.99628	-1.04110	-0.01057	0.07402	58.98908	1.04378	84.19	26.15
66/ 8/13	2439350.5	-1.71396	52.23374	26.31145	-1.04583	-0.12141	0.01871	58.51148	1.05302	91.88	26.72
66/ 8/13	2439351.0	-8.77069	51.03325	26.24620	-1.03538	-0.23308	-0.03818	58.05325	1.06198	99.75	26.88
66/ 8/14	2439351.5	-15.70359	49.07872	25.79267	-1.00920	-0.34376	-0.09579	57.62452	1.07043	107.74	26.59
66/ 8/14	2439352.0	-22.40499	46.38341	24.94925	-0.96700	-0.45149	-0.15314	57.23521	1.07814	115.78	25.84
66/ 8/15	2439352.5	-28.76658	42.97429	23.72121	-0.90891	-0.55419	-0.20918	56.89465	1.08489	123.80	24.64
66/ 8/15	2439353.0	-34.68212	38.89260	22.12113	-0.83541	-0.64974	-0.26281	56.61120	1.09048	131.72	23.00
66/ 8/16	2439353.5	-40.05035	34.19381	20.16913	-0.74748	-0.73608	-0.31292	56.39185	1.09474	139.51	20.96
66/ 8/16	2439354.0	-44.77799	28.94693	17.89279	-0.64652	-0.81128	-0.35842	56.24184	1.09756	147.12	18.55
66/ 8/17	2439354.5	-48.78272	23.23330	15.32669	-0.53435	-0.87365	-0.39832	56.16447	1.09884	154.53	15.84
66/ 8/17	2439355.0	-51.99578	17.14464	12.51171	-0.41314	-0.92183	-0.43178	56.16086	1.09858	161.75	12.87
66/ 8/18	2439355.5	-54.36411	10.78059	9.49391	-0.28533	-0.95484	-0.45812	56.22999	1.09682	168.78	9.72
66/ 8/18	2439356.0	-55.85178	4.24597	6.32326	-0.15352	-0.97214	-0.47686	56.36872	1.09363	175.65	6.44
66/ 8/19	2439356.5	-56.44067	-2.35222	3.05222	-0.02036	-0.97363	-0.48774	56.57206	1.08916	182.39	3.09
66/ 8/19	2439357.0	-56.13039	-8.90769	-0.26577	0.11158	-0.95961	-0.49073	56.83343	1.08357	189.02	-0.27
66/ 8/20	2439357.5	-54.93749	-15.31756	-3.57769	0.23988	-0.93078	-0.48599	57.14504	1.07707	195.58	-3.59
66/ 8/20	2439358.0	-52.89410	-21.48473	-6.83218	0.36238	-0.88813	-0.47385	57.49833	1.06987	202.11	-6.82
66/ 8/21	2439358.5	-50.04613	-27.31968	-9.98070	0.47718	-0.83290	-0.45478	57.88432	1.06219	208.63	-9.93
66/ 8/21	2439359.0	-46.45129	-32.74191	-12.97831	0.58269	-0.76651	-0.42939	58.29401	1.05424	215.18	-12.86
66/ 8/22	2439359.5	-42.17697	-37.68087	-15.78431	0.67764	-0.69045	-0.39832	58.71873	1.04622	221.78	-15.59
66/ 8/22	2439360.0	-37.29812	-42.07640	-18.36269	0.76106	-0.60630	-0.36229	59.15033	1.03830	228.45	-18.09
66/ 8/23	2439360.5	-31.89535	-45.87895	-20.68232	0.83225	-0.51561	-0.32203	59.58146	1.03063	235.19	-20.31
66/ 8/23	2439361.0	-26.05316	-49.04941	-22.71704	0.89076	-0.41990	-0.27828	60.00564	1.02334	242.02	-22.25
66/ 8/24	2439361.5	-19.85836	-51.55884	-24.44562	0.93635	-0.32065	-0.23175	60.41736	1.01650	248.94	-23.87
66/ 8/24	2439362.0	-13.39873	-53.38800	-25.85164	0.96897	-0.21924	-0.18315	60.81210	1.01020	255.91	-25.16
66/ 8/25	2439362.5	-6.76191	-54.52682	-26.92333	0.98871	-0.11701	-0.13313	61.18629	1.00447	262.93	-26.11
66/ 8/25	2439363.0	-0.03437	-54.97387	-27.65333	0.99580	-0.01517	-0.08235	61.53726	0.99932	269.96	-26.70
66/ 8/26	2439363.5	6.69933	-54.73578	-28.03851	0.99059	0.08513	-0.03141	61.86311	0.99474	276.98	-26.95
66/ 8/26	2439364.0	13.35728	-53.82666	-28.07972	0.97352	0.18281	0.01913	62.16266	0.99072	283.94	-26.85
66/ 8/27	2439364.5	19.86081	-52.26756	-27.78155	0.94508	0.27690	0.06872	62.43528	0.98721	290.81	-26.42
66/ 8/27	2439365.0	26.13497	-50.08598	-27.15213	0.90589	0.36648	0.11686	62.68078	0.98418	297.56	-25.67
66/ 8/28	2439365.5	32.10905	-47.31532	-26.20292	0.85658	0.45072	0.16308	62.89931	0.98157	304.16	-24.62
66/ 8/28	2439366.0	37.71692	-43.99444	-24.94846	0.79788	0.52884	0.20693	63.09122	0.97934	310.61	-23.29
66/ 8/29	2439366.5	42.89749	-40.16710	-23.40619	0.73054	0.60016	0.24800	63.25694	0.97743	316.88	-21.72
66/ 8/29	2439367.0	47.59501	-35.88156	-21.59620	0.65537	0.66405	0.28592	63.39690	0.97582	322.99	-19.92
66/ 8/30	2439367.5	51.75935	-31.19002	-19.54103	0.57324	0.71996	0.32035	63.51141	0.97446	328.93	-17.92

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/ 8/30	2439368.0	55.34634	-26.14815	-17.26544	0.48504	0.76742	0.35096	63.60061	0.97333	334.71	-15.75
66/ 8/31	2439368.5	58.31798	-20.81462	-14.79615	0.39169	0.80603	0.37750	63.66444	0.97242	340.36	-13.44
66/ 8/31	2439369.0	60.64264	-15.25058	-12.16165	0.29415	0.83544	0.39971	63.70256	0.97173	345.88	-11.01
66/ 9/ 1	2439369.5	62.29526	-9.51916	-9.39193	0.19340	0.85541	0.41740	63.71438	0.97127	351.31	-8.48
66/ 9/ 1	2439370.0	63.25747	-3.68499	-6.51827	0.09044	0.86576	0.43038	63.69909	0.97106	356.67	-5.87
66/ 9/ 2	2439370.5	63.51767	2.18634	-3.57294	-0.01372	0.86637	0.43854	63.65564	0.97114	1.97	-3.22
66/ 9/ 2	2439371.0	63.07114	8.02870	-0.58903	-0.11808	0.85721	0.44176	63.58283	0.97155	7.25	-0.53
66/ 9/ 3	2439371.5	61.92003	13.77595	2.39984	-0.22161	0.83830	0.43999	63.47934	0.97234	12.54	2.17
66/ 9/ 3	2439372.0	60.07341	19.36237	5.35973	-0.32329	0.80974	0.43320	63.34384	0.97358	17.86	4.85
66/ 9/ 4	2439372.5	57.54728	24.72312	8.25661	-0.42209	0.77169	0.42139	63.17510	0.97532	23.25	7.51
66/ 9/ 4	2439373.0	54.36459	29.79471	11.05660	-0.51700	0.72440	0.40460	62.97207	0.97762	28.73	10.11
66/ 9/ 5	2439373.5	50.55523	34.51547	13.72621	-0.60697	0.66815	0.38291	62.73403	0.98054	34.32	12.64
66/ 9/ 5	2439374.0	46.15605	38.82602	16.23259	-0.69099	0.60333	0.35642	62.46069	0.98413	40.07	15.06
66/ 9/ 6	2439374.5	41.21087	42.66977	18.54376	-0.76803	0.53039	0.32529	62.15236	0.98843	46.00	17.36
66/ 9/ 6	2439375.0	35.77047	45.99350	20.62891	-0.83706	0.44987	0.28972	61.81004	0.99347	52.13	19.50
66/ 9/ 7	2439375.5	29.89258	48.74795	22.45873	-0.89705	0.36240	0.24994	61.43552	0.99925	58.48	21.44
66/ 9/ 7	2439376.0	23.64185	50.88846	24.00571	-0.94699	0.26871	0.20625	61.03152	1.00575	65.08	23.16
66/ 9/ 8	2439376.5	17.08973	52.37580	25.24456	-0.98588	0.16967	0.15902	60.60175	1.01293	71.93	24.62
66/ 9/ 8	2439377.0	10.31435	53.17698	26.15266	-1.01276	0.06627	0.10866	60.15096	1.02073	79.02	25.77
66/ 9/ 9	2439377.5	3.40010	53.26618	26.71058	-1.02674	-0.04036	0.05570	59.68502	1.02904	86.35	26.59
66/ 9/ 9	2439378.0	-3.56276	52.62585	26.90259	-1.02700	-0.14893	0.00072	59.21084	1.03774	93.87	27.02
66/ 9/10	2439378.5	-10.47892	51.24776	26.71736	-1.01285	-0.25796	-0.05558	58.73634	1.04666	101.56	27.06
66/ 9/10	2439379.0	-17.24900	49.13409	26.14852	-0.98379	-0.36585	-0.11242	58.27033	1.05562	109.34	26.66
66/ 9/11	2439379.5	-23.77095	46.29853	25.19533	-0.93955	-0.47082	-0.16892	57.82229	1.06441	117.18	25.83
66/ 9/11	2439380.0	-29.94181	42.76721	23.86331	-0.88014	-0.57099	-0.22412	57.40212	1.07280	125.00	24.56
66/ 9/12	2439380.5	-35.65981	38.57934	22.16472	-0.80592	-0.66437	-0.27699	57.01983	1.08056	132.75	22.87
66/ 9/12	2439381.0	-40.82689	33.78758	20.11890	-0.71762	-0.74898	-0.32647	56.68515	1.08745	140.39	20.79
66/ 9/13	2439381.5	-45.35148	28.45788	17.75244	-0.61643	-0.82291	-0.37150	56.40706	1.09324	147.89	18.34
66/ 9/13	2439382.0	-49.15134	22.66871	15.09898	-0.50392	-0.88438	-0.41106	56.19346	1.09774	155.24	15.59
66/ 9/14	2439382.5	-52.15641	16.50977	12.19876	-0.38209	-0.93188	-0.44422	56.05063	1.10078	162.44	12.57
66/ 9/14	2439383.0	-54.31134	10.07990	9.09778	-0.25329	-0.96421	-0.47022	55.98300	1.10226	169.49	9.35
66/ 9/15	2439383.5	-55.57756	3.48464	5.84669	-0.12011	-0.98062	-0.48847	55.99278	1.10211	176.41	5.99
66/ 9/15	2439384.0	-55.93462	-3.16676	2.49939	0.01472	-0.98078	-0.49859	56.07991	1.10034	183.24	2.55
66/ 9/16	2439384.5	-55.38075	-9.76448	-0.88854	0.14843	-0.96483	-0.50046	56.24200	1.09700	190.00	-0.91
66/ 9/16	2439385.0	-53.93259	-16.20125	-4.26141	0.27837	-0.93339	-0.49418	56.47446	1.09221	196.72	-4.33
66/ 9/17	2439385.5	-51.62406	-22.37521	-7.56501	0.40210	-0.88742	-0.48008	56.77079	1.08613	203.43	-7.66
66/ 9/17	2439386.0	-48.50467	-28.19236	-10.74791	0.51748	-0.82827	-0.45864	57.12294	1.07896	210.17	-10.85
66/ 9/18	2439386.5	-44.63727	-33.56850	-13.76269	0.62272	-0.75747	-0.43055	57.52166	1.07094	216.94	-13.84
66/ 9/18	2439387.0	-40.09557	-38.43054	-16.56671	0.71639	-0.67675	-0.39654	57.95703	1.06228	223.79	-16.61
66/ 9/19	2439387.5	-34.96161	-42.71724	-19.12276	0.79746	-0.58788	-0.35746	58.41881	1.05325	230.70	-19.11
66/ 9/19	2439388.0	-29.32325	-46.37950	-21.39932	0.86525	-0.49265	-0.31416	58.89688	1.04406	237.70	-21.31
66/ 9/20	2439388.5	-23.27192	-49.38014	-23.37066	0.91937	-0.39279	-0.26747	59.38155	1.03492	244.77	-23.18
66/ 9/20	2439389.0	-16.90065	-51.69341	-25.01673	0.95973	-0.28994	-0.21824	59.86382	1.02605	251.90	-24.70
66/ 9/21	2439389.5	-10.30240	-53.30429	-26.32291	0.98643	-0.18562	-0.16724	60.33558	1.01758	259.06	-25.87
66/ 9/21	2439390.0	-3.56872	-54.20767	-27.27975	0.99978	-0.08124	-0.11520	60.78973	1.00967	266.23	-26.66

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
66/ 9/22	2439390.5	3.21133	-54.40748	-27.88254	1.00021	0.02194	-0.06280	61.22028	1.00242	273.38	-27.09
66/ 9/22	2439391.0	9.95197	-53.91583	-28.13099	0.98824	0.12276	-0.01066	61.62232	0.99589	280.46	-27.16
66/ 9/23	2439391.5	16.57128	-52.75219	-28.02885	0.96449	0.22021	0.04064	61.99208	0.99014	287.44	-26.88
66/ 9/23	2439392.0	22.99173	-50.94268	-27.58354	0.92963	0.31334	0.09059	62.32678	0.98519	294.29	-26.27
66/ 9/24	2439392.5	29.14044	-48.51933	-26.80587	0.88437	0.40134	0.13871	62.62464	0.98103	300.99	-25.34
66/ 9/24	2439393.0	34.94950	-45.51954	-25.70974	0.82946	0.48344	0.18456	62.88471	0.97764	307.52	-24.13
66/ 9/25	2439393.5	40.35614	-41.98550	-24.31189	0.76567	0.55899	0.22774	63.10680	0.97498	313.87	-22.66
66/ 9/25	2439394.0	45.30294	-37.96373	-22.63165	0.69381	0.62737	0.26788	63.29134	0.97300	320.04	-20.95
66/ 9/26	2439394.5	49.73801	-33.50466	-20.69078	0.61470	0.68804	0.30465	63.43926	0.97163	326.03	-19.04
66/ 9/26	2439395.0	53.61515	-28.66218	-18.51321	0.52920	0.74051	0.33773	63.55190	0.97081	331.87	-16.94
66/ 9/27	2439395.5	56.89409	-23.49325	-16.12491	0.43820	0.78437	0.36683	63.63084	0.97047	337.56	-14.68
66/ 9/27	2439396.0	59.54063	-18.05754	-13.55366	0.34261	0.81924	0.39171	63.67781	0.97055	343.13	-12.29
66/ 9/28	2439396.5	61.52685	-12.41694	-10.82889	0.24338	0.84482	0.41214	63.69458	0.97098	348.59	-9.79
66/ 9/28	2439397.0	62.83134	-6.63523	-7.98142	0.14146	0.86088	0.42791	63.68286	0.97171	353.97	-7.20
66/ 9/29	2439397.5	63.43931	-0.77754	-5.04334	0.03787	0.86723	0.43887	63.64422	0.97269	359.30	-4.55
66/ 9/29	2439398.0	63.34286	5.09006	-2.04768	-0.06638	0.86379	0.44489	63.58002	0.97389	4.59	-1.85
66/ 9/30	2439398.5	62.54102	10.90107	0.97176	-0.17025	0.85053	0.44588	63.49139	0.97529	9.89	0.88
66/ 9/30	2439399.0	61.03993	16.58911	3.98068	-0.27269	0.82749	0.44178	63.37916	0.97687	15.20	3.60
66/10/ 1	2439399.5	58.85289	22.08839	6.94457	-0.37263	0.79482	0.43259	63.24387	0.97863	20.57	6.30
66/10/ 1	2439400.0	56.00037	27.33435	9.82898	-0.46902	0.75273	0.41832	63.08579	0.98060	26.02	8.96
66/10/ 2	2439400.5	52.51003	32.26416	12.59981	-0.56080	0.70152	0.39906	62.90497	0.98279	31.57	11.55
66/10/ 2	2439401.0	48.41666	36.81734	15.22361	-0.64692	0.64158	0.37493	62.70125	0.98524	37.25	14.05
66/10/ 3	2439401.5	43.76205	40.93630	17.66787	-0.72635	0.57339	0.34608	62.47441	0.98800	43.09	16.43
66/10/ 3	2439402.0	38.59492	44.56702	19.90140	-0.79810	0.49751	0.31274	62.22422	0.99110	49.11	18.65
66/10/ 4	2439402.5	32.97066	47.65958	21.89458	-0.86118	0.41459	0.27515	61.95057	0.99460	55.32	20.70
66/10/ 4	2439403.0	26.95112	50.16883	23.61974	-0.91467	0.32539	0.23365	61.65360	0.99854	61.75	22.53
66/10/ 5	2439403.5	20.60435	52.05501	25.05150	-0.95767	0.23075	0.18858	61.33385	1.00297	68.41	24.11
66/10/ 5	2439404.0	14.00417	53.28441	26.16710	-0.98936	0.13161	0.14037	60.99231	1.00790	75.27	25.41
66/10/ 6	2439404.5	7.22984	53.83004	26.94684	-1.00898	0.02902	0.08948	60.63065	1.01335	82.35	26.39
66/10/ 6	2439405.0	0.36547	53.67234	27.37443	-1.01584	-0.07587	0.03647	60.25125	1.01932	89.61	27.02
66/10/ 7	2439405.5	-6.50054	52.79992	27.43741	-1.00938	-0.18181	-0.01807	59.85733	1.02578	97.02	27.28
66/10/ 7	2439406.0	-13.27634	51.21028	27.12764	-0.98914	-0.28742	-0.07348	59.45303	1.03267	104.53	27.15
66/10/ 8	2439406.5	-19.86756	48.91058	26.44170	-0.95484	-0.39123	-0.12903	59.04344	1.03992	112.11	26.60
66/10/ 8	2439407.0	-26.17845	45.91832	25.38135	-0.90636	-0.49166	-0.18391	58.63460	1.04740	119.69	25.65
66/10/ 9	2439407.5	-32.11331	42.26198	23.95396	-0.84384	-0.58705	-0.23726	58.23342	1.05498	127.23	24.29
66/10/ 9	2439408.0	-37.57815	37.98144	22.17289	-0.76766	-0.67569	-0.28819	57.84760	1.06250	134.69	22.54
66/10/10	2439408.5	-42.48261	33.12833	20.05772	-0.67850	-0.75584	-0.33576	57.48539	1.06977	142.05	20.42
66/10/10	2439409.0	-46.74209	27.76589	17.63443	-0.57740	-0.82581	-0.37902	57.15541	1.07657	149.29	17.97
66/10/11	2439409.5	-50.28008	21.96862	14.93535	-0.46571	-0.88399	-0.41705	56.86626	1.08271	156.40	15.23
66/10/11	2439410.0	-53.03056	15.82133	11.99887	-0.34517	-0.92895	-0.44899	56.62621	1.08797	163.39	12.23
66/10/12	2439410.5	-54.94032	9.41780	8.86891	-0.21782	-0.95948	-0.47407	56.44281	1.09215	170.27	9.04
66/10/12	2439411.0	-55.97099	2.85890	5.59411	-0.08599	-0.97471	-0.49167	56.32246	1.09508	177.08	5.70
66/10/13	2439411.5	-56.10079	-3.74986	2.22677	0.04777	-0.97415	-0.50134	56.27005	1.09663	183.82	2.27
66/10/13	2439412.0	-55.32556	-10.30093	-1.17849	0.18081	-0.95771	-0.50284	56.28868	1.09670	190.55	-1.20
66/10/14	2439412.5	-53.65916	-16.68775	-4.56620	0.31049	-0.92574	-0.49617	56.37940	1.09526	197.28	-4.65

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/10/14	2439413.0	-51.13310	-22.80761	-7.88153	0.43426	-0.87904	-0.48152	56.54113	1.09231	204.04	-8.01
66/10/15	2439413.5	-47.79538	-28.56441	-11.07178	0.54980	-0.81876	-0.45932	56.77067	1.08794	210.86	-11.25
66/10/15	2439414.0	-43.70873	-33.87104	-14.08776	0.65511	-0.74637	-0.43018	57.06282	1.08226	217.77	-14.29
66/10/16	2439414.5	-38.94827	-38.65124	-16.88489	0.74853	-0.66360	-0.39483	57.41067	1.07543	224.78	-17.10
66/10/16	2439415.0	-33.59898	-42.84085	-19.42404	0.82881	-0.57230	-0.35415	57.80591	1.06765	231.89	-19.63
66/10/17	2439415.5	-27.75291	-46.38855	-21.67210	0.89511	-0.47437	-0.30903	58.23917	1.05913	239.11	-21.85
66/10/17	2439416.0	-21.50661	-49.25597	-23.60226	0.94695	-0.37173	-0.26043	58.70052	1.05010	246.41	-23.71
66/10/18	2439416.5	-14.95865	-51.41737	-25.19399	0.98419	-0.26618	-0.20925	59.17976	1.04080	253.78	-25.20
66/10/18	2439417.0	-8.20753	-52.85896	-26.43288	1.00698	-0.15944	-0.15638	59.66683	1.03145	261.17	-26.30
66/10/19	2439417.5	-1.34992	-53.57798	-27.31030	1.01572	-0.05306	-0.10264	60.15209	1.02227	268.56	-27.00
66/10/19	2439418.0	5.52074	-53.58162	-27.82292	1.01095	0.05158	-0.04878	60.62659	1.01343	275.88	-27.32
66/10/20	2439418.5	12.31528	-52.88593	-27.97227	0.99336	0.15326	0.00453	61.08221	1.00512	283.11	-27.25
66/10/20	2439419.0	18.94951	-51.51476	-27.76425	0.96374	0.25089	0.05666	61.51185	0.99747	290.20	-26.83
66/10/21	2439419.5	25.34473	-49.49870	-27.20859	0.92292	0.34354	0.10709	61.90948	0.99060	297.11	-26.07
66/10/21	2439420.0	31.42801	-46.87425	-26.31850	0.87178	0.43042	0.15534	62.27020	0.98457	303.84	-25.00
66/10/22	2439420.5	37.13238	-43.68296	-25.11020	0.81118	0.51082	0.20099	62.59023	0.97946	310.37	-23.65
66/10/22	2439421.0	42.39688	-39.97080	-23.60264	0.74203	0.58413	0.24366	62.86688	0.97529	316.69	-22.05
66/10/23	2439421.5	47.16657	-35.78757	-21.81716	0.66522	0.64984	0.28300	63.09853	0.97206	322.81	-20.23
66/10/23	2439422.0	51.39259	-31.18637	-19.77727	0.58164	0.70748	0.31873	63.28450	0.96975	328.75	-18.21
66/10/24	2439422.5	55.03209	-26.22324	-17.50841	0.49218	0.75665	0.35057	63.42503	0.96833	334.52	-16.02
66/10/24	2439423.0	58.04836	-20.95674	-15.03778	0.39775	0.79701	0.37827	63.52111	0.96774	340.15	-13.69
66/10/25	2439423.5	60.41079	-15.44764	-12.39420	0.29926	0.82825	0.40161	63.57444	0.96791	345.66	-11.24
66/10/25	2439424.0	62.09507	-9.75857	-9.60787	0.19765	0.85011	0.42039	63.58725	0.96876	351.07	-8.69
66/10/26	2439424.5	63.08326	-3.95374	-6.71031	0.09387	0.86240	0.43443	63.56223	0.97020	356.41	-6.06
66/10/26	2439425.0	63.36400	1.90147	-3.73411	-0.01109	0.86497	0.44359	63.50241	0.97215	1.72	-3.37
66/10/27	2439425.5	62.93270	7.74089	-0.71281	-0.11622	0.85773	0.44774	63.41099	0.97451	7.01	-0.64
66/10/27	2439426.0	61.79168	13.49797	2.31937	-0.22048	0.84066	0.44679	63.29129	0.97721	12.32	2.10
66/10/28	2439426.5	59.95044	19.10629	5.32771	-0.32281	0.81382	0.44069	63.14657	0.98016	17.68	4.84
66/10/28	2439427.0	57.42574	24.50006	8.27729	-0.42212	0.77734	0.42944	62.98001	0.98329	23.10	7.55
66/10/29	2439427.5	54.24178	29.61478	11.13326	-0.51730	0.73146	0.41306	62.79454	0.98654	28.63	10.21
66/10/29	2439428.0	50.43022	34.38780	13.86118	-0.60726	0.67650	0.39165	62.59281	0.98985	34.29	12.79
66/10/30	2439428.5	46.03023	38.75908	16.42738	-0.69088	0.61291	0.36533	62.37714	0.99320	40.10	15.27
66/10/30	2439429.0	41.08832	42.67187	18.79930	-0.76710	0.54121	0.33432	62.14944	0.99656	46.08	17.61
66/10/31	2439429.5	35.65823	46.07347	20.94596	-0.83487	0.46207	0.29886	61.91128	0.99992	52.26	19.77
66/10/31	2439430.0	29.80056	48.91595	22.83826	-0.89320	0.37625	0.25927	61.66385	1.00329	58.65	21.74
66/11/ 1	2439430.5	23.58246	51.15696	24.44948	-0.94116	0.28462	0.21593	61.40801	1.00668	65.25	23.46
66/11/ 1	2439431.0	17.07702	52.76040	25.75568	-0.97791	0.18815	0.16927	61.14441	1.01013	72.06	24.91
66/11/ 2	2439431.5	10.36274	53.69713	26.73606	-1.00272	0.08793	0.11980	60.87351	1.01367	79.08	26.05
66/11/ 2	2439432.0	3.52273	53.94564	27.37338	-1.01495	-0.01487	0.06807	60.59574	1.01733	86.26	26.86
66/11/ 3	2439432.5	-3.35605	53.49264	27.65431	-1.01410	-0.11901	0.01467	60.31158	1.02116	93.59	27.29
66/11/ 3	2439433.0	-10.18377	52.33358	27.56982	-0.99982	-0.22314	-0.03973	60.02172	1.02519	101.01	27.34
66/11/ 4	2439433.5	-16.86871	50.47314	27.11544	-0.97192	-0.32588	-0.09444	59.72720	1.02944	108.48	27.00
66/11/ 4	2439434.0	-23.31843	47.92565	26.29158	-0.93037	-0.42578	-0.14871	59.42949	1.03392	115.95	26.26
66/11/ 5	2439434.5	-29.44097	44.71533	25.10379	-0.87535	-0.52136	-0.20177	59.13064	1.03864	123.36	25.12
66/11/ 5	2439435.0	-35.14625	40.87654	23.56292	-0.80724	-0.61111	-0.25283	58.83334	1.04356	130.69	23.61

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
66/11/ 6	2439435.5	-40.34747	36.45380	21.68530	-0.72663	-0.69355	-0.30108	58.54101	1.04864	137.90	21.74
66/11/ 6	2439436.0	-44.96269	31.50169	19.49276	-0.63436	-0.76719	-0.34569	58.25777	1.05380	144.98	19.55
66/11/ 7	2439436.5	-48.91650	26.08454	17.01263	-0.53152	-0.83064	-0.38587	57.98842	1.05895	151.93	17.06
66/11/ 7	2439437.0	-52.14171	20.27589	14.27757	-0.41945	-0.88259	-0.42085	57.73836	1.06397	158.75	14.32
66/11/ 8	2439437.5	-54.58110	14.15764	11.32525	-0.29976	-0.92188	-0.44991	57.51345	1.06871	165.46	11.36
66/11/ 8	2439438.0	-56.18910	7.81894	8.19796	-0.17427	-0.94755	-0.47242	57.31978	1.07303	172.08	8.22
66/11/ 9	2439438.5	-56.93331	1.35471	4.94190	-0.04505	-0.95885	-0.48785	57.16345	1.07677	178.64	4.96
66/11/ 9	2439439.0	-56.79588	-5.13613	1.60643	0.08569	-0.95536	-0.49582	57.05026	1.07976	185.17	1.61
66/11/10	2439439.5	-55.77444	-11.55276	-1.75697	0.21560	-0.93694	-0.49607	56.98545	1.08187	191.70	-1.77
66/11/10	2439440.0	-53.88267	-17.79468	-5.09579	0.34230	-0.90384	-0.48856	56.97332	1.08295	198.28	-5.13
66/11/11	2439440.5	-51.15028	-23.76418	-8.35773	0.46344	-0.85663	-0.47341	57.01701	1.08292	204.92	-8.43
66/11/11	2439441.0	-47.62251	-29.36869	-11.49201	0.57681	-0.79625	-0.45093	57.11821	1.08169	211.66	-11.61
66/11/12	2439441.5	-43.35893	-34.52309	-14.45053	0.68041	-0.72394	-0.42161	57.27703	1.07926	218.53	-14.61
66/11/12	2439442.0	-38.43185	-39.15161	-17.18909	0.77248	-0.64123	-0.38610	57.49191	1.07563	225.53	-17.40
66/11/13	2439442.5	-32.92419	-43.18945	-19.66830	0.85164	-0.54982	-0.34516	57.75961	1.07085	232.68	-19.91
66/11/13	2439443.0	-26.92716	-46.58389	-21.85433	0.91685	-0.45155	-0.29967	58.07532	1.06504	239.97	-22.11
66/11/14	2439443.5	-20.53771	-49.29490	-23.71942	0.96744	-0.34832	-0.25055	58.43282	1.05832	247.38	-23.95
66/11/14	2439444.0	-13.85604	-51.29521	-25.24214	1.00311	-0.24200	-0.19873	58.82478	1.05085	254.88	-25.41
66/11/15	2439444.5	-6.98331	-52.57006	-26.40737	1.02389	-0.13438	-0.14514	59.24295	1.04282	262.43	-26.47
66/11/15	2439445.0	-0.01950	-53.11645	-27.20613	1.03008	-0.02716	-0.09065	59.67856	1.03442	269.98	-27.12
66/11/16	2439445.5	6.93831	-52.94223	-27.63521	1.02223	0.07816	-0.03610	60.12258	1.02585	277.47	-27.36
66/11/16	2439446.0	13.79738	-52.06501	-27.69671	1.00106	0.18023	0.01777	60.56600	1.01730	284.84	-27.21
66/11/17	2439446.5	20.47034	-50.51093	-27.39752	0.96742	0.27785	0.07030	61.00010	1.00898	292.06	-26.69
66/11/17	2439447.0	26.87592	-48.31354	-26.74879	0.92226	0.37004	0.12090	61.41670	1.00106	299.09	-25.82
66/11/18	2439447.5	32.93945	-45.51266	-25.76536	0.86658	0.45593	0.16906	61.80828	0.99369	305.89	-24.64
66/11/18	2439448.0	38.59308	-42.15337	-24.46529	0.80139	0.53482	0.21433	62.16818	0.98702	312.48	-23.17
66/11/19	2439448.5	43.77585	-38.28514	-22.86939	0.72771	0.60613	0.25635	62.49069	0.98116	318.83	-21.47
66/11/19	2439449.0	48.43369	-33.96104	-21.00086	0.64655	0.66936	0.29479	62.77109	0.97621	324.96	-19.55
66/11/20	2439449.5	52.51929	-29.23714	-18.88493	0.55890	0.72413	0.32937	63.00576	0.97222	330.90	-17.44
66/11/20	2439450.0	55.99203	-24.17194	-16.54856	0.46574	0.77010	0.35984	63.19212	0.96925	336.65	-15.18
66/11/21	2439450.5	58.81781	-18.82599	-14.02026	0.36802	0.80699	0.38601	63.32867	0.96730	342.25	-12.79
66/11/21	2439451.0	60.96900	-13.26148	-11.32987	0.26669	0.83460	0.40768	63.41491	0.96638	347.73	-10.29
66/11/22	2439451.5	62.42438	-7.54195	-8.50839	0.16271	0.85274	0.42469	63.45137	0.96644	353.11	-7.71
66/11/22	2439452.0	63.16916	-1.73201	-5.58784	0.05701	0.86128	0.43691	63.43947	0.96744	358.43	-5.05
66/11/23	2439452.5	63.19502	4.10295	-2.60115	-0.04942	0.86012	0.44421	63.38147	0.96931	3.71	-2.35
66/11/23	2439453.0	62.50025	9.89703	0.41804	-0.15561	0.84920	0.44649	63.28038	0.97197	9.00	0.38
66/11/24	2439453.5	61.08991	15.58414	3.43546	-0.26055	0.82854	0.44368	63.13989	0.97530	14.31	3.12
66/11/24	2439454.0	58.97604	21.09844	6.41646	-0.36319	0.79819	0.43573	62.96418	0.97922	19.68	5.85
66/11/25	2439454.5	56.17784	26.37473	9.32619	-0.46245	0.75829	0.42263	62.75790	0.98360	25.15	8.55
66/11/25	2439455.0	52.72191	31.34900	12.12986	-0.55722	0.70905	0.40442	62.52594	0.98833	30.74	11.19
66/11/26	2439455.5	48.64244	35.95904	14.79305	-0.64639	0.65079	0.38117	62.27338	0.99330	36.47	13.74
66/11/26	2439456.0	43.98127	40.14515	17.28206	-0.72880	0.58395	0.35301	62.00528	0.99838	42.39	16.18
66/11/27	2439456.5	38.78799	43.85092	19.56430	-0.80333	0.50905	0.32015	61.72659	1.00348	48.51	18.48
66/11/27	2439457.0	33.11980	47.02408	21.60875	-0.86885	0.42680	0.28285	61.44204	1.00850	54.84	20.59
66/11/28	2439457.5	27.04132	49.61743	23.38646	-0.92431	0.33798	0.24144	61.15594	1.01335	61.41	22.48

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
66/11/28	2439458.0	20.62414	51.58972	24.87097	-0.96871	0.24357	0.19635	60.87216	1.01798	68.21	24.12
66/11/29	2439458.5	13.94627	52.90661	26.03895	-1.00115	0.14464	0.14806	60.59402	1.02233	75.23	25.45
66/11/29	2439459.0	7.09137	53.54154	26.87061	-1.02087	0.04240	0.09713	60.32424	1.02636	82.46	26.45
66/11/30	2439459.5	0.14775	53.47653	27.35021	-1.02726	-0.06182	0.04421	60.06492	1.03007	89.84	27.09
66/11/30	2439460.0	-6.79270	52.70287	27.46652	-1.01989	-0.16661	-0.01002	59.81758	1.03345	97.34	27.33
66/12/ 1	2439460.5	-13.63588	51.22167	27.21319	-0.99852	-0.27050	-0.06482	59.58317	1.03653	104.91	27.18
66/12/ 1	2439461.0	-20.28682	49.04424	26.58902	-0.96314	-0.37195	-0.11939	59.36218	1.03934	112.47	26.61
66/12/ 2	2439461.5	-26.65122	46.19229	25.59820	-0.91396	-0.46942	-0.17295	59.15474	1.04192	119.98	25.64
66/12/ 2	2439462.0	-32.63700	42.69791	24.25041	-0.85143	-0.56140	-0.22467	58.96073	1.04430	127.39	24.29
66/12/ 3	2439462.5	-38.15588	38.60338	22.56084	-0.77622	-0.64640	-0.27374	58.77996	1.04656	134.67	22.57
66/12/ 3	2439463.0	-43.12492	33.96080	20.55008	-0.68923	-0.72301	-0.31938	58.61229	1.04871	141.78	20.52
66/12/ 4	2439463.5	-47.46806	28.83144	18.24396	-0.59160	-0.78993	-0.36084	58.45777	1.05080	148.73	18.19
66/12/ 4	2439464.0	-51.11756	23.28499	15.67324	-0.48464	-0.84599	-0.39741	58.31677	1.05286	155.51	15.59
66/12/ 5	2439464.5	-54.01530	17.39861	12.87320	-0.36988	-0.89016	-0.42846	58.19006	1.05488	162.15	12.78
66/12/ 5	2439465.0	-56.11407	11.25577	9.88316	-0.24900	-0.92159	-0.45343	58.07889	1.05685	168.66	9.80
66/12/ 6	2439465.5	-57.37856	4.94502	6.74593	-0.12384	-0.93965	-0.47185	57.98499	1.05874	175.07	6.68
66/12/ 6	2439466.0	-57.78629	-1.44151	3.50708	0.00366	-0.94392	-0.48338	57.91056	1.06050	181.43	3.47
66/12/ 7	2439466.5	-57.32828	-7.80966	0.21422	0.13147	-0.93422	-0.48777	57.85818	1.06206	187.76	0.21
66/12/ 7	2439467.0	-56.00945	-14.06490	-3.08383	0.25751	-0.91062	-0.48491	57.83070	1.06333	194.10	-3.06
66/12/ 8	2439467.5	-53.84876	-20.11412	-6.33795	0.37972	-0.87346	-0.47482	57.83111	1.06422	200.48	-6.29
66/12/ 8	2439468.0	-50.87907	-25.86741	-9.49966	0.49608	-0.82335	-0.45766	57.86230	1.06464	206.95	-9.45
66/12/ 9	2439468.5	-47.14653	-31.23988	-12.52205	0.60467	-0.76117	-0.43374	57.92691	1.06449	213.53	-12.48
66/12/ 9	2439469.0	-42.70980	-36.15331	-15.36075	0.70374	-0.68801	-0.40350	58.02707	1.06368	220.25	-15.35
66/12/10	2439469.5	-37.63877	-40.53774	-17.97479	0.79174	-0.60520	-0.36750	58.16424	1.06215	227.12	-18.00
66/12/10	2439470.0	-32.01302	-44.33283	-20.32742	0.86735	-0.51424	-0.32643	58.33898	1.05985	234.17	-20.39
66/12/11	2439470.5	-25.92006	-47.48884	-22.38676	0.92955	-0.41676	-0.28103	58.55088	1.05676	241.37	-22.48
66/12/11	2439471.0	-19.45335	-49.96743	-24.12632	0.97762	-0.31449	-0.23214	58.79843	1.05287	248.73	-24.23
66/12/12	2439471.5	-12.71020	-51.74200	-25.52537	1.01114	-0.20916	-0.18062	59.07900	1.04822	256.20	-25.60
66/12/12	2439472.0	-5.78973	-52.79772	-26.56907	1.02999	-0.10250	-0.12736	59.38885	1.04288	263.74	-26.58
66/12/13	2439472.5	1.20912	-53.13122	-27.24849	1.03433	0.00384	-0.07319	59.72327	1.03693	271.30	-27.15
66/12/13	2439473.0	8.18940	-52.74998	-27.56039	1.02459	0.10831	-0.01896	60.07664	1.03047	278.82	-27.31
66/12/14	2439473.5	15.05770	-51.67150	-27.50695	1.00139	0.20950	0.03457	60.44262	1.02365	286.25	-27.07
66/12/14	2439474.0	21.72547	-49.92231	-27.09532	0.96552	0.30617	0.08669	60.81439	1.01660	293.52	-26.46
66/12/15	2439474.5	28.11002	-47.53688	-26.33718	0.91792	0.39721	0.13679	61.18476	1.00949	300.60	-25.50
66/12/15	2439475.0	34.13526	-44.55652	-25.24817	0.85959	0.48171	0.18431	61.54648	1.00245	307.46	-24.22
66/12/16	2439475.5	39.73219	-41.02829	-23.84742	0.79162	0.55888	0.22878	61.89238	0.99567	314.08	-22.66
66/12/16	2439476.0	44.83918	-37.00395	-22.15702	0.71510	0.62811	0.26978	62.21558	0.98928	320.47	-20.86
66/12/17	2439476.5	49.40201	-32.53910	-20.20154	0.63112	0.68889	0.30700	62.50963	0.98343	326.63	-18.86
66/12/17	2439477.0	53.37389	-27.69228	-18.00763	0.54078	0.74084	0.34014	62.76870	0.97825	332.58	-16.67
66/12/18	2439477.5	56.71531	-22.52438	-15.60369	0.44512	0.78366	0.36899	62.98769	0.97387	338.34	-14.34
66/12/18	2439478.0	59.39385	-17.09799	-13.01947	0.34520	0.81714	0.39335	63.16231	0.97036	343.94	-11.90
66/12/19	2439478.5	61.38403	-11.47695	-10.28590	0.24202	0.84112	0.41307	63.28917	0.96783	349.41	-9.35
66/12/19	2439479.0	62.66713	-5.72595	-7.43483	0.13657	0.85550	0.42803	63.36586	0.96630	354.78	-6.74
66/12/20	2439479.5	63.23106	0.08977	-4.49888	0.02982	0.86023	0.43812	63.39097	0.96583	0.08	-4.07
66/12/20	2439480.0	63.07028	5.90472	-1.51124	-0.07727	0.85527	0.44327	63.36410	0.96642	5.35	-1.37

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
66/12/21	2439480.5	62.18576	11.65341	1.49438	-0.18373	0.84067	0.44343	63.28589	0.96804	10.61	1.35
66/12/21	2439481.0	60.58509	17.27060	4.48396	-0.28859	0.81646	0.43853	63.15800	0.97067	15.91	4.07
66/12/22	2439481.5	58.28250	22.69159	7.42328	-0.39083	0.78275	0.42858	62.98304	0.97424	21.27	6.77
66/12/22	2439482.0	55.29908	27.85257	10.27807	-0.48946	0.73971	0.41358	62.76458	0.97866	26.73	9.42
66/12/23	2439482.5	51.66295	32.69099	13.01422	-0.58339	0.68754	0.39356	62.50705	0.98385	32.32	12.02
66/12/23	2439483.0	47.40950	37.14604	15.59799	-0.67156	0.62656	0.36860	62.21565	0.98967	38.08	14.52
66/12/24	2439483.5	42.58157	41.15927	17.99634	-0.75285	0.55715	0.33883	61.89624	0.99599	44.03	16.90
66/12/24	2439484.0	37.22963	44.67530	20.17724	-0.82611	0.47983	0.30442	61.55524	1.00268	50.19	19.13
66/12/25	2439484.5	31.41184	47.64257	22.11009	-0.89022	0.39523	0.26563	61.19946	1.00958	56.60	21.18
66/12/25	2439485.0	25.19403	50.01434	23.76622	-0.94405	0.30413	0.22277	60.83590	1.01654	63.26	23.00
66/12/26	2439485.5	18.64949	51.74967	25.11944	-0.98653	0.20746	0.17625	60.47163	1.02340	70.18	24.54
66/12/26	2439486.0	11.85850	52.81450	26.14655	-1.01667	0.10633	0.12657	60.11354	1.03002	77.35	25.78
66/12/27	2439486.5	4.90768	53.18276	26.82804	-1.03359	0.00199	0.07430	59.76818	1.03626	84.73	26.67
66/12/27	2439487.0	-2.11096	52.83739	27.14864	-1.03659	-0.10415	0.02012	59.44153	1.04200	92.29	27.18
66/12/28	2439487.5	-9.10126	51.77135	27.09792	-1.02516	-0.21055	-0.03522	59.13884	1.04715	99.97	27.27
66/12/28	2439488.0	-15.96441	49.98836	26.67081	-0.99902	-0.31558	-0.09089	58.86451	1.05162	107.71	26.94
66/12/29	2439488.5	-22.60070	47.50353	25.86799	-0.95819	-0.41752	-0.14601	58.62192	1.05535	115.44	26.18
66/12/29	2439489.0	-28.91142	44.34358	24.69621	-0.90296	-0.51465	-0.19969	58.41341	1.05834	123.10	25.01
66/12/30	2439489.5	-34.80094	40.54687	23.16839	-0.83394	-0.60527	-0.25100	58.24027	1.06057	130.64	23.44
66/12/30	2439490.0	-40.17868	36.16297	21.30357	-0.75201	-0.68778	-0.29906	58.10274	1.06207	138.01	21.51
66/12/31	2439490.5	-44.96117	31.25196	19.12667	-0.65838	-0.76069	-0.34302	58.00018	1.06291	145.20	19.25
66/12/31	2439491.0	-49.07382	25.88339	16.66813	-0.55448	-0.82269	-0.38210	57.93114	1.06314	152.19	16.72
67/ 1/ 1	2439491.5	-52.45257	20.13499	13.96332	-0.44195	-0.87269	-0.41563	57.89356	1.06285	159.00	13.96
67/ 1/ 1	2439492.0	-55.04513	14.09117	11.05184	-0.32264	-0.90981	-0.44304	57.88497	1.06213	165.64	11.01
67/ 1/ 2	2439492.5	-56.81205	7.84133	7.97682	-0.19848	-0.93344	-0.46387	57.90272	1.06108	172.14	7.92
67/ 1/ 2	2439493.0	-57.72736	1.47814	4.78396	-0.07150	-0.94324	-0.47779	57.94410	1.05976	178.53	4.74
67/ 1/ 3	2439493.5	-57.77890	-4.90420	1.52076	0.05624	-0.93910	-0.48462	58.00660	1.05827	184.85	1.50
67/ 1/ 3	2439494.0	-56.96839	-11.21174	-1.76446	0.18272	-0.92120	-0.48429	58.08798	1.05666	191.13	-1.74
67/ 1/ 4	2439494.5	-55.31112	-17.35242	-5.02336	0.30596	-0.88992	-0.47687	58.18643	1.05497	197.42	-4.95
67/ 1/ 4	2439495.0	-52.83553	-23.23763	-8.20848	0.42406	-0.84588	-0.46255	58.30060	1.05323	203.74	-8.09
67/ 1/ 5	2439495.5	-49.58237	-28.78372	-11.27403	0.53528	-0.78993	-0.44162	58.42960	1.05144	210.14	-11.13
67/ 1/ 5	2439496.0	-45.60388	-33.91322	-14.17658	0.63800	-0.72305	-0.41449	58.57300	1.04959	216.64	-14.01
67/ 1/ 6	2439496.5	-40.96260	-38.55610	-16.87580	0.73077	-0.64643	-0.38167	58.73074	1.04765	223.27	-16.70
67/ 1/ 6	2439497.0	-35.73015	-42.65068	-19.33503	0.81237	-0.56137	-0.34372	58.90304	1.04558	230.05	-19.16
67/ 1/ 7	2439497.5	-29.98587	-46.14452	-21.52178	0.88177	-0.46928	-0.30132	59.09023	1.04333	236.98	-21.36
67/ 1/ 7	2439498.0	-23.81526	-48.99500	-23.40820	0.93815	-0.37165	-0.25516	59.29267	1.04084	244.08	-23.25
67/ 1/ 8	2439498.5	-17.30851	-51.16979	-24.97141	0.98095	-0.27001	-0.20600	59.51053	1.03808	251.31	-24.81
67/ 1/ 8	2439499.0	-10.55886	-52.64705	-26.19367	1.00984	-0.16593	-0.15462	59.74370	1.03500	258.66	-26.00
67/ 1/ 9	2439499.5	-3.66098	-53.41545	-27.06257	1.02472	-0.06095	-0.10179	59.99163	1.03157	266.08	-26.81
67/ 1/ 9	2439500.0	3.29052	-53.47396	-27.57099	1.02571	0.04345	-0.04830	60.25323	1.02777	273.52	-27.23
67/ 1/10	2439500.5	10.20262	-52.83150	-27.71704	1.01316	0.14582	0.00509	60.52682	1.02361	280.93	-27.25
67/ 1/10	2439501.0	16.98526	-51.50633	-27.50383	0.98759	0.24483	0.05767	60.81004	1.01911	288.25	-26.89
67/ 1/11	2439501.5	23.55249	-49.52535	-26.93921	0.94968	0.33928	0.10876	61.09993	1.01431	295.43	-26.16
67/ 1/11	2439502.0	29.82357	-46.92328	-26.03541	0.90028	0.42807	0.15773	61.39285	1.00927	302.44	-25.09
67/ 1/12	2439502.5	35.72377	-43.74173	-24.80863	0.84033	0.51025	0.20404	61.68464	1.00406	309.24	-23.71

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
67/ 1/12	2439503.0	41.18503	-40.02829	-23.27860	0.77084	0.58501	0.24720	61.97067	0.99877	315.82	-22.06
67/ 1/13	2439503.5	46.14641	-35.83554	-21.46814	0.69290	0.65168	0.28679	62.24595	0.99351	322.17	-20.18
67/ 1/13	2439504.0	50.55440	-31.22015	-19.40266	0.60761	0.70973	0.32245	62.50526	0.98838	328.30	-18.08
67/ 1/14	2439504.5	54.36300	-26.24201	-17.10980	0.51609	0.75874	0.35389	62.74331	0.98350	334.23	-15.82
67/ 1/14	2439505.0	57.53377	-20.96345	-14.61894	0.41945	0.79840	0.38088	62.95486	0.97901	339.98	-13.43
67/ 1/15	2439505.5	60.03575	-15.44855	-11.96092	0.31878	0.82850	0.40323	63.13487	0.97500	345.57	-10.92
67/ 1/15	2439506.0	61.84525	-9.76251	-9.16764	0.21515	0.84892	0.42080	63.27865	0.97161	351.03	-8.33
67/ 1/16	2439506.5	62.94575	-3.97114	-6.27183	0.10959	0.85960	0.43349	63.38196	0.96894	356.39	-5.68
67/ 1/16	2439507.0	63.32763	1.85959	-3.30678	0.00311	0.86055	0.44124	63.44117	0.96708	1.68	-2.99
67/ 1/17	2439507.5	62.98808	7.66388	-0.30615	-0.10329	0.85181	0.44399	63.45334	0.96612	6.94	-0.28
67/ 1/17	2439508.0	61.93086	13.37650	2.69619	-0.20865	0.83349	0.44174	63.41633	0.96612	12.19	2.44
67/ 1/18	2439508.5	60.16628	18.93296	5.66636	-0.31201	0.80573	0.43449	63.32887	0.96713	17.47	5.13
67/ 1/18	2439509.0	57.71113	24.26988	8.57056	-0.41241	0.76870	0.42227	63.19063	0.96917	22.81	7.80
67/ 1/19	2439509.5	54.58871	29.32521	11.37524	-0.50889	0.72262	0.40512	63.00231	0.97224	28.24	10.40
67/ 1/19	2439510.0	50.82889	34.03854	14.04726	-0.60046	0.66776	0.38311	62.76562	0.97633	33.81	12.93
67/ 1/20	2439510.5	46.46825	38.35147	16.55406	-0.68614	0.60444	0.35635	62.48336	0.98139	39.53	15.36
67/ 1/20	2439511.0	41.55022	42.20808	18.86388	-0.76488	0.53308	0.32497	62.15938	0.98733	45.45	17.67
67/ 1/21	2439511.5	36.12525	45.55541	20.94602	-0.83566	0.45415	0.28915	61.79858	0.99407	51.59	19.81
67/ 1/21	2439512.0	30.25095	48.34412	22.77116	-0.89739	0.36823	0.24913	61.40683	1.00148	57.96	21.77
67/ 1/22	2439512.5	23.99217	50.52929	24.31180	-0.94901	0.27605	0.20519	60.99095	1.00942	64.60	23.49
67/ 1/22	2439513.0	17.42098	52.07128	25.54265	-0.98947	0.17846	0.15772	60.55853	1.01773	71.50	24.95
67/ 1/23	2439513.5	10.61647	52.93679	26.44122	-1.01774	0.07647	0.10715	60.11781	1.02622	78.66	26.09
67/ 1/23	2439514.0	3.66437	53.09991	26.98841	-1.03290	-0.02873	0.05405	59.67748	1.03471	86.05	26.89
67/ 1/24	2439514.5	-3.34363	52.54335	27.16915	-1.03413	-0.13580	-0.00094	59.24649	1.04301	93.64	27.30
67/ 1/24	2439515.0	-10.31090	51.25959	26.97308	-1.02078	-0.24321	-0.05708	58.83372	1.05091	101.37	27.29
67/ 1/25	2439515.5	-17.13718	49.25194	26.39519	-0.99245	-0.34927	-0.11354	58.44778	1.05822	109.19	26.85
67/ 1/25	2439516.0	-23.72031	46.53551	25.43643	-0.94899	-0.45220	-0.16939	58.09663	1.06478	117.01	25.97
67/ 1/26	2439516.5	-29.95826	43.13782	24.10415	-0.89058	-0.55012	-0.22367	57.78736	1.07042	124.78	24.65
67/ 1/26	2439517.0	-35.75144	39.09913	22.41243	-0.81777	-0.64117	-0.27537	57.52586	1.07502	132.44	22.93
67/ 1/27	2439517.5	-41.00520	34.47227	20.38216	-0.73148	-0.72351	-0.32348	57.31664	1.07850	139.95	20.83
67/ 1/27	2439518.0	-45.63235	29.32204	18.04091	-0.63298	-0.79545	-0.36704	57.16264	1.08080	147.28	18.40
67/ 1/28	2439518.5	-49.55554	23.72405	15.42247	-0.52390	-0.85550	-0.40519	57.06518	1.08191	154.42	15.68
67/ 1/28	2439519.0	-52.70948	17.76319	12.56621	-0.40616	-0.90243	-0.43715	57.02394	1.08187	161.38	12.73
67/ 1/29	2439519.5	-55.04263	11.53163	9.51621	-0.28190	-0.93531	-0.46232	57.03708	1.08074	168.17	9.60
67/ 1/29	2439520.0	-56.51850	5.12663	6.32012	-0.15340	-0.95358	-0.48023	57.10137	1.07864	174.82	6.35
67/ 1/30	2439520.5	-57.11632	-1.35186	3.02808	-0.02301	-0.95700	-0.49062	57.21250	1.07568	181.36	3.03
67/ 1/30	2439521.0	-56.83123	-7.80351	-0.30853	0.10693	-0.94570	-0.49339	57.36531	1.07202	187.82	-0.31
67/ 1/31	2439521.5	-55.67390	-14.12991	-3.63829	0.23419	-0.92011	-0.48862	57.55410	1.06780	194.24	-3.62
67/ 1/31	2439522.0	-53.66968	-20.23655	-6.91079	0.35668	-0.88095	-0.47654	57.77293	1.06319	200.66	-6.87
67/ 2/ 1	2439522.5	-50.85748	-26.03464	-10.07769	0.47248	-0.82917	-0.45750	58.01591	1.05834	207.11	-10.00
67/ 2/ 1	2439523.0	-47.28836	-31.44250	-13.09346	0.57993	-0.76592	-0.43200	58.27743	1.05337	213.62	-12.98
67/ 2/ 2	2439523.5	-43.02394	-36.38671	-15.91617	0.67758	-0.69249	-0.40059	58.55233	1.04839	220.22	-15.77
67/ 2/ 2	2439524.0	-38.13474	-40.80296	-18.50796	0.76424	-0.61026	-0.36392	58.83608	1.04351	226.94	-18.33
67/ 2/ 3	2439524.5	-32.69859	-44.63661	-20.83549	0.83895	-0.52069	-0.32268	59.12481	1.03879	233.78	-20.63
67/ 2/ 3	2439525.0	-26.79901	-47.84300	-22.87017	0.90099	-0.42528	-0.27757	59.41536	1.03426	240.74	-22.64

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/ 2/ 4	2439525.5	-20.52362	-50.38762	-24.58839	0.94986	-0.32552	-0.22935	59.70528	1.02995	247.84	-24.32
67/ 2/ 4	2439526.0	-13.96272	-52.24604	-25.97156	0.98527	-0.22290	-0.17876	59.99273	1.02586	255.04	-25.65
67/ 2/ 5	2439526.5	-7.20794	-53.40379	-27.00613	1.00712	-0.11886	-0.12653	60.27644	1.02197	262.31	-26.62
67/ 2/ 5	2439527.0	-0.35089	-53.85603	-27.68355	1.01549	-0.01480	-0.07341	60.55555	1.01825	269.63	-27.20
67/ 2/ 6	2439527.5	6.51792	-53.60722	-28.00011	1.01065	0.08794	-0.02009	60.82947	1.01466	276.93	-27.41
67/ 2/ 6	2439528.0	13.31025	-52.67061	-27.95684	0.99299	0.18810	0.03274	61.09780	1.01117	284.18	-27.23
67/ 2/ 7	2439528.5	19.94106	-51.06773	-27.55921	0.96305	0.28450	0.08444	61.36016	1.00774	291.33	-26.69
67/ 2/ 7	2439529.0	26.32943	-48.82776	-26.81697	0.92152	0.37605	0.13440	61.61606	1.00433	298.33	-25.80
67/ 2/ 8	2439529.5	32.39937	-45.98691	-25.74379	0.86916	0.46178	0.18207	61.86483	1.00091	305.17	-24.59
67/ 2/ 8	2439530.0	38.08043	-42.58769	-24.35699	0.80684	0.54080	0.22693	62.10551	0.99747	311.80	-23.09
67/ 2/ 9	2439530.5	43.30839	-38.67816	-22.67717	0.73552	0.61235	0.26853	62.33676	0.99402	318.23	-21.33
67/ 2/ 9	2439531.0	48.02562	-34.31120	-20.72785	0.65620	0.67578	0.30645	62.55687	0.99055	324.46	-19.35
67/ 2/10	2439531.5	52.18148	-29.54368	-18.53511	0.56993	0.73055	0.34035	62.76374	0.98710	330.48	-17.18
67/ 2/10	2439532.0	55.73255	-24.43578	-16.12720	0.47779	0.77623	0.36995	62.95483	0.98371	336.33	-14.84
67/ 2/11	2439532.5	58.64275	-19.05019	-13.53416	0.38087	0.81250	0.39498	63.12729	0.98043	342.00	-12.38
67/ 2/11	2439533.0	60.88341	-13.45145	-10.78750	0.28026	0.83914	0.41528	63.27796	0.97733	347.54	-9.82
67/ 2/12	2439533.5	62.43322	-7.70528	-7.91983	0.17704	0.85602	0.43070	63.40349	0.97448	352.96	-7.18
67/ 2/12	2439534.0	63.27816	-1.87803	-4.96455	0.07229	0.86309	0.44114	63.50038	0.97198	358.30	-4.48
67/ 2/13	2439534.5	63.41132	3.96394	-1.95557	-0.03297	0.86038	0.44655	63.56518	0.96992	3.58	-1.76
67/ 2/13	2439535.0	62.83277	9.75464	1.07295	-0.13770	0.84797	0.44691	63.59451	0.96838	8.82	0.97
67/ 2/14	2439535.5	61.54940	15.42897	4.08685	-0.24094	0.82604	0.44224	63.58525	0.96745	14.07	3.69
67/ 2/14	2439536.0	59.57468	20.92303	7.05214	-0.34169	0.79478	0.43257	63.53462	0.96723	19.35	6.37
67/ 2/15	2439536.5	56.92860	26.17448	9.93523	-0.43903	0.75445	0.41798	63.44035	0.96780	24.69	9.01
67/ 2/15	2439537.0	53.63750	31.12288	12.70307	-0.53201	0.70535	0.39855	63.30073	0.96922	30.12	11.58
67/ 2/16	2439537.5	49.73398	35.70999	15.32336	-0.61971	0.64782	0.37443	63.11479	0.97155	35.68	14.05
67/ 2/16	2439538.0	45.25691	39.88008	17.76469	-0.70122	0.58228	0.34573	62.88237	0.97483	41.39	16.41
67/ 2/17	2439538.5	40.25139	43.58033	19.99673	-0.77561	0.50916	0.31266	62.60422	0.97906	47.27	18.63
67/ 2/17	2439539.0	34.76879	46.76119	21.99046	-0.84195	0.42900	0.27540	62.28209	0.98426	53.37	20.68
67/ 2/18	2439539.5	28.86679	49.37693	23.71841	-0.89930	0.34239	0.23422	61.91879	0.99037	59.69	22.52
67/ 2/18	2439540.0	22.60941	51.38616	25.15499	-0.94673	0.25002	0.18941	61.51826	0.99734	66.25	24.14
67/ 2/19	2439540.5	16.06698	52.75254	26.27679	-0.98332	0.15270	0.14133	61.08558	1.00509	73.06	25.48
67/ 2/19	2439541.0	9.31608	53.44557	27.06306	-1.00814	0.05135	0.09041	60.62695	1.01349	80.11	26.51
67/ 2/20	2439541.5	2.43926	53.44147	27.49613	-1.02036	-0.05296	0.03713	60.14963	1.02241	87.39	27.20
67/ 2/20	2439542.0	-4.47534	52.72425	27.56205	-1.01918	-0.15901	-0.01791	59.66190	1.03167	94.85	27.51
67/ 2/21	2439542.5	-11.33468	51.28672	27.25109	-1.00394	-0.26542	-0.07404	59.17284	1.04107	102.46	27.42
67/ 2/21	2439543.0	-18.04174	49.13164	26.55846	-0.97415	-0.37063	-0.13048	58.69220	1.05041	110.16	26.90
67/ 2/22	2439543.5	-24.49689	46.27276	25.48492	-0.92953	-0.47295	-0.18636	58.23012	1.05945	117.90	25.95
67/ 2/22	2439544.0	-30.59954	42.73577	24.03736	-0.87009	-0.57056	-0.24076	57.79682	1.06797	125.60	24.58
67/ 2/23	2439544.5	-36.25027	38.55897	22.22930	-0.79617	-0.66156	-0.29265	57.40225	1.07573	133.23	22.78
67/ 2/23	2439545.0	-41.35325	33.79360	20.08119	-0.70849	-0.74404	-0.34099	57.05570	1.08251	140.74	20.61
67/ 2/24	2439545.5	-45.81885	28.50368	17.62056	-0.60818	-0.81616	-0.38477	56.76540	1.08814	148.11	18.08
67/ 2/24	2439546.0	-49.56649	22.76532	14.88175	-0.49677	-0.87620	-0.42298	56.53815	1.09244	155.33	15.26
67/ 2/25	2439546.5	-52.52728	16.66541	11.90547	-0.37618	-0.92270	-0.45475	56.37900	1.09530	162.40	12.19
67/ 2/25	2439547.0	-54.64646	10.29978	8.73798	-0.24865	-0.95450	-0.47934	56.29097	1.09666	169.33	8.93
67/ 2/26	2439547.5	-55.88535	3.77081	5.42996	-0.11666	-0.97084	-0.49617	56.27501	1.09651	176.14	5.54

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
67/ 2/26	2439548.0	-56.22266	-2.81532	2.03517	0.01714	-0.97136	-0.50492	56.32988	1.09488	182.87	2.07
67/ 2/27	2439548.5	-55.65505	-9.35153	-1.39100	0.15011	-0.95615	-0.50544	56.45238	1.09189	189.54	-1.41
67/ 2/27	2439549.0	-54.19696	-15.73274	-4.79308	0.27968	-0.92571	-0.49784	56.63747	1.08766	196.19	-4.85
67/ 2/28	2439549.5	-51.87966	-21.85861	-8.11696	0.40345	-0.88092	-0.48241	56.87867	1.08236	202.85	-8.20
67/ 2/28	2439550.0	-48.74979	-27.63579	-11.31121	0.51929	-0.82296	-0.45965	57.16837	1.07620	209.55	-11.41
67/ 3/ 1	2439550.5	-44.86739	-32.97989	-14.32818	0.62539	-0.75328	-0.43018	57.49828	1.06939	216.32	-14.43
67/ 3/ 1	2439551.0	-40.30365	-37.81678	-17.12483	0.72027	-0.67347	-0.39472	57.85977	1.06214	223.18	-17.22
67/ 3/ 2	2439551.5	-35.13867	-42.08353	-19.66335	0.80278	-0.58521	-0.35409	58.24428	1.05466	230.14	-19.73
67/ 3/ 2	2439552.0	-29.45909	-45.72873	-21.91153	0.87211	-0.49022	-0.30913	58.64359	1.04712	237.21	-21.94
67/ 3/ 3	2439552.5	-23.35605	-48.71266	-23.84291	0.92776	-0.39021	-0.26068	59.05008	1.03970	244.38	-23.81
67/ 3/ 3	2439553.0	-16.92320	-51.00690	-25.43676	0.96948	-0.28683	-0.20960	59.45694	1.03252	251.65	-25.33
67/ 3/ 4	2439553.5	-10.25503	-52.59399	-26.67797	0.99726	-0.18165	-0.15668	59.85822	1.02571	258.97	-26.47
67/ 3/ 4	2439554.0	-3.44546	-53.46673	-27.55681	1.01129	-0.07613	-0.10272	60.24898	1.01934	266.31	-27.22
67/ 3/ 5	2439554.5	3.41343	-53.62754	-28.06866	1.01190	0.02836	-0.04843	60.62520	1.01345	273.64	-27.58
67/ 3/ 5	2439555.0	10.23237	-53.08772	-28.21372	0.99958	0.13056	0.00549	60.98378	1.00808	280.91	-27.56
67/ 3/ 6	2439555.5	16.92572	-51.86672	-27.99662	0.97492	0.22933	0.05841	61.32248	1.00323	288.07	-27.16
67/ 3/ 6	2439556.0	23.41222	-49.99138	-27.42615	0.93861	0.32362	0.10974	61.63979	0.99888	295.09	-26.42
67/ 3/ 7	2439556.5	29.61547	-47.49529	-26.51491	0.89142	0.41248	0.15895	61.93480	0.99500	301.95	-25.35
67/ 3/ 7	2439557.0	35.46449	-44.41808	-25.27900	0.83415	0.49509	0.20554	62.20710	0.99155	308.60	-23.98
67/ 3/ 8	2439557.5	40.89410	-40.80475	-23.73767	0.76772	0.57068	0.24906	62.45664	0.98848	315.06	-22.34
67/ 3/ 8	2439558.0	45.84524	-36.70509	-21.91307	0.69303	0.63860	0.28912	62.68358	0.98574	321.32	-20.46
67/ 3/ 9	2439558.5	50.26529	-32.17300	-19.82990	0.61105	0.69828	0.32536	62.88821	0.98328	327.38	-18.38
67/ 3/ 9	2439559.0	54.10832	-27.26592	-17.51514	0.52280	0.74926	0.35746	63.07076	0.98107	333.26	-16.12
67/ 3/10	2439559.5	57.33524	-22.04418	-14.99772	0.42929	0.79114	0.38516	63.23138	0.97905	338.97	-13.72
67/ 3/10	2439560.0	59.91397	-16.57043	-12.30824	0.33157	0.82363	0.40824	63.36999	0.97722	344.54	-11.20
67/ 3/11	2439560.5	61.81951	-10.90907	-9.47863	0.23068	0.84652	0.42651	63.48625	0.97556	349.99	-8.59
67/ 3/11	2439561.0	63.03403	-5.12561	-6.54191	0.12769	0.85967	0.43985	63.57954	0.97406	355.35	-5.91
67/ 3/12	2439561.5	63.54681	0.71382	-3.53187	0.02364	0.86304	0.44815	63.64889	0.97275	0.64	-3.18
67/ 3/12	2439562.0	63.35424	6.54304	-0.48276	-0.08042	0.85667	0.45138	63.69305	0.97164	5.90	-0.43
67/ 3/13	2439562.5	62.45973	12.29634	2.57094	-0.18347	0.84065	0.44951	63.71050	0.97078	11.14	2.31
67/ 3/13	2439563.0	60.87358	17.90899	5.59482	-0.28449	0.81517	0.44258	63.69950	0.97021	16.39	5.04
67/ 3/14	2439563.5	58.61285	23.31768	8.55477	-0.38251	0.78047	0.43065	63.65818	0.97000	21.69	7.72
67/ 3/14	2439564.0	55.70117	28.46098	11.41726	-0.47655	0.73686	0.41382	63.58460	0.97021	27.07	10.34
67/ 3/15	2439564.5	52.16858	33.27974	14.14950	-0.56570	0.68470	0.39221	63.47685	0.97091	32.53	12.88
67/ 3/15	2439565.0	48.05138	37.71751	16.71974	-0.64904	0.62443	0.36601	63.33321	0.97217	38.13	15.31
67/ 3/16	2439565.5	43.39190	41.72090	19.09743	-0.72569	0.55652	0.33539	63.15222	0.97407	43.88	17.60
67/ 3/16	2439566.0	38.23839	45.23997	21.25343	-0.79478	0.48151	0.30059	62.93281	0.97667	49.79	19.74
67/ 3/17	2439566.5	32.64485	48.22866	23.16027	-0.85549	0.40000	0.26186	62.67446	0.98001	55.91	21.69
67/ 3/17	2439567.0	26.67086	50.64516	24.79235	-0.90699	0.31266	0.21950	62.37730	0.98416	62.23	23.42
67/ 3/18	2439567.5	20.38150	52.45242	26.12619	-0.94849	0.22022	0.17385	62.04224	0.98912	68.77	24.90
67/ 3/18	2439568.0	13.84710	53.61863	27.14072	-0.97922	0.12351	0.12528	61.67105	0.99490	75.52	26.11
67/ 3/19	2439568.5	7.14312	54.11787	27.81763	-0.99845	0.02343	0.07423	61.26654	1.00147	82.48	27.00
67/ 3/19	2439569.0	0.34980	53.93069	28.14170	-1.00549	-0.07900	0.02118	60.83253	1.00881	89.63	27.56
67/ 3/20	2439569.5	-6.44814	53.04493	28.10121	-0.99972	-0.18266	-0.03332	60.37401	1.01681	96.93	27.74
67/ 3/20	2439570.0	-13.16214	51.45647	27.68844	-0.98062	-0.28628	-0.08865	59.89708	1.02539	104.35	27.53

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/ 3/21	2439570.5	-19.70042	49.17014	26.90012	-0.94778	-0.38850	-0.14410	59.40896	1.03440	111.83	26.92
67/ 3/21	2439571.0	-25.96905	46.20052	25.73796	-0.90096	-0.48779	-0.19890	58.91793	1.04367	119.34	25.90
67/ 3/22	2439571.5	-31.87315	42.57286	24.20918	-0.84015	-0.58253	-0.25221	58.43313	1.05300	126.82	24.48
67/ 3/22	2439572.0	-37.31853	38.32373	22.32697	-0.76557	-0.67101	-0.30311	57.96443	1.06218	134.24	22.66
67/ 3/23	2439572.5	-42.21365	33.50157	20.11091	-0.67778	-0.75145	-0.35063	57.52213	1.07098	141.56	20.46
67/ 3/23	2439573.0	-46.47180	28.16690	17.58718	-0.57767	-0.82206	-0.39380	57.11664	1.07915	148.78	17.93
67/ 3/24	2439573.5	-50.01369	22.39208	14.78864	-0.46652	-0.88114	-0.43162	56.75806	1.08644	155.88	15.10
67/ 3/24	2439574.0	-52.77004	16.26062	11.75461	-0.34601	-0.92713	-0.46319	56.45578	1.09263	162.87	12.02
67/ 3/25	2439574.5	-54.68421	9.86585	8.53033	-0.21820	-0.95870	-0.48768	56.21801	1.09752	169.77	8.73
67/ 3/25	2439575.0	-55.71459	3.30901	5.16613	-0.08545	-0.97485	-0.50441	56.05135	1.10094	176.60	5.29
67/ 3/26	2439575.5	-55.83653	-3.30317	1.71630	0.04960	-0.97498	-0.51290	55.96047	1.10277	183.39	1.76
67/ 3/26	2439576.0	-55.04367	-9.86133	-1.76239	0.18421	-0.95892	-0.51290	55.94781	1.10296	190.16	-1.81
67/ 3/27	2439576.5	-53.34849	-16.25664	-5.21223	0.31559	-0.92698	-0.50440	56.01346	1.10150	196.95	-5.34
67/ 3/27	2439577.0	-50.78199	-22.38391	-8.57627	0.44108	-0.87993	-0.48763	56.15516	1.09846	203.79	-8.78
67/ 3/28	2439577.5	-47.39249	-28.14458	-11.79993	0.55823	-0.81895	-0.46304	56.36847	1.09394	210.70	-12.08
67/ 3/28	2439578.0	-43.24383	-33.44922	-14.83244	0.66494	-0.74554	-0.43131	56.64698	1.08812	217.72	-15.18
67/ 3/29	2439578.5	-38.41289	-38.21956	-17.62805	0.75946	-0.66148	-0.39323	56.98274	1.08119	224.86	-18.02
67/ 3/29	2439579.0	-32.98683	-42.38987	-20.14690	0.84048	-0.56869	-0.34974	57.36662	1.07338	232.11	-20.56
67/ 3/30	2439579.5	-27.06028	-45.90764	-22.35561	0.90713	-0.46913	-0.30182	57.78879	1.06493	239.48	-22.76
67/ 3/30	2439580.0	-20.73253	-48.73381	-24.22750	0.95890	-0.36478	-0.25045	58.23911	1.05607	246.95	-24.58
67/ 3/31	2439580.5	-14.10501	-50.84238	-25.74261	0.99566	-0.25753	-0.19662	58.70758	1.04705	254.49	-26.01
67/ 3/31	2439581.0	-7.27908	-52.21972	-26.88746	1.01754	-0.14914	-0.14126	59.18462	1.03807	262.06	-27.02
67/ 4/ 1	2439581.5	-0.35421	-52.86369	-27.65468	1.02495	-0.04123	-0.08525	59.66135	1.02932	269.62	-27.61
67/ 4/ 1	2439582.0	6.57347	-52.78254	-28.04254	1.01848	0.06476	-0.02937	60.12978	1.02096	277.10	-27.80
67/ 4/ 2	2439582.5	13.41232	-51.99378	-28.05446	0.99885	0.16752	0.02565	60.58297	1.01313	284.46	-27.59
67/ 4/ 2	2439583.0	20.07595	-50.52313	-27.69847	0.96689	0.26594	0.07917	61.01505	1.00591	291.67	-27.00
67/ 4/ 3	2439583.5	26.48384	-48.40345	-26.98673	0.92349	0.35902	0.13062	61.42126	0.99939	298.69	-26.06
67/ 4/ 3	2439584.0	32.56167	-45.67379	-25.93499	0.86958	0.44593	0.17949	61.79791	0.99360	305.49	-24.81
67/ 4/ 4	2439584.5	38.24160	-42.37860	-24.56227	0.80615	0.52591	0.22533	62.14234	0.98855	312.06	-23.28
67/ 4/ 4	2439585.0	43.46239	-38.56686	-22.89036	0.73417	0.59836	0.26777	62.45279	0.98425	318.42	-21.50
67/ 4/ 5	2439585.5	48.16953	-34.29152	-20.94356	0.65464	0.66273	0.30645	62.72834	0.98065	324.55	-19.50
67/ 4/ 5	2439586.0	52.31521	-29.60883	-18.74831	0.56855	0.71858	0.34109	62.96875	0.97772	330.49	-17.32
67/ 4/ 6	2439586.5	55.85846	-24.57781	-16.33295	0.47691	0.76553	0.37141	63.17438	0.97541	336.25	-14.98
67/ 4/ 6	2439587.0	58.76510	-19.25975	-13.72742	0.38073	0.80330	0.39721	63.34601	0.97366	341.85	-12.52
67/ 4/ 7	2439587.5	61.00780	-13.71772	-10.96304	0.28102	0.83164	0.41829	63.48477	0.97240	347.33	-9.94
67/ 4/ 7	2439588.0	62.56611	-8.01610	-8.07225	0.17880	0.85040	0.43452	63.59196	0.97157	352.70	-7.29
67/ 4/ 8	2439588.5	63.42643	-2.22013	-5.08838	0.07508	0.85949	0.44576	63.66893	0.97112	358.00	-4.58
67/ 4/ 8	2439589.0	63.58210	3.60457	-2.04540	-0.02911	0.85888	0.45196	63.71703	0.97098	3.24	-1.84
67/ 4/ 9	2439589.5	63.03333	9.39242	1.02231	-0.13276	0.84862	0.45306	63.73746	0.97111	8.48	0.92
67/ 4/ 9	2439590.0	61.78724	15.07839	4.08024	-0.23486	0.82883	0.44907	63.73123	0.97148	13.71	3.67
67/ 4/10	2439590.5	59.85778	20.59849	7.09395	-0.33439	0.79968	0.44002	63.69910	0.97207	18.99	6.39
67/ 4/10	2439591.0	57.26568	25.89021	10.02938	-0.43036	0.76144	0.42597	63.64157	0.97286	24.33	9.07
67/ 4/11	2439591.5	54.03837	30.89307	12.85311	-0.52181	0.71444	0.40705	63.55887	0.97386	29.76	11.67
67/ 4/11	2439592.0	50.20975	35.54909	15.53261	-0.60777	0.65909	0.38341	63.45092	0.97508	35.30	14.17
67/ 4/12	2439592.5	45.82011	39.80326	18.03650	-0.68732	0.59587	0.35524	63.31744	0.97656	40.98	16.55

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
67/ 4/12	2439593.0	40.91583	43.60405	20.33487	-0.75959	0.52531	0.32276	63.15794	0.97832	46.82	18.78
67/ 4/13	2439593.5	35.54914	46.90388	22.39946	-0.82373	0.44804	0.28625	62.97183	0.98041	52.84	20.84
67/ 4/13	2439594.0	29.77790	49.65957	24.20401	-0.87893	0.36475	0.24603	62.75851	0.98289	59.05	22.69
67/ 4/14	2439594.5	23.66522	51.83283	25.72447	-0.92443	0.27618	0.20242	62.51746	0.98581	65.46	24.30
67/ 4/14	2439595.0	17.27914	53.39070	26.93929	-0.95954	0.18317	0.15584	62.24838	0.98922	72.07	25.64
67/ 4/15	2439595.5	10.69229	54.30604	27.82966	-0.98362	0.08661	0.10670	61.95128	0.99317	78.86	26.69
67/ 4/15	2439596.0	3.98142	54.55803	28.37986	-0.99607	-0.01254	0.05547	61.62667	0.99770	85.83	27.42
67/ 4/16	2439596.5	-2.77303	54.13263	28.57746	-0.99641	-0.11324	0.00267	61.27563	1.00283	92.93	27.80
67/ 4/16	2439597.0	-9.48746	53.02314	28.41370	-0.98419	-0.21436	-0.05114	60.89994	1.00856	100.14	27.81
67/ 4/17	2439597.5	-16.07573	51.23071	27.88381	-0.95911	-0.31470	-0.10535	60.50224	1.01490	107.42	27.44
67/ 4/17	2439598.0	-22.44995	48.76496	26.98731	-0.92096	-0.41297	-0.15928	60.08607	1.02180	114.72	26.69
67/ 4/18	2439598.5	-28.52130	45.64448	25.72840	-0.86968	-0.50780	-0.21224	59.65596	1.02920	122.00	25.55
67/ 4/18	2439599.0	-34.20118	41.89741	24.11631	-0.80540	-0.59775	-0.26345	59.21748	1.03700	129.23	24.03
67/ 4/19	2439599.5	-39.40245	37.56186	22.16556	-0.72842	-0.68132	-0.31210	58.77719	1.04508	136.37	22.15
67/ 4/19	2439600.0	-44.04091	32.68626	19.89631	-0.63932	-0.75696	-0.35735	58.34258	1.05329	143.42	19.94
67/ 4/20	2439600.5	-48.03711	27.32951	17.33450	-0.53893	-0.82314	-0.39835	57.92194	1.06146	150.36	17.41
67/ 4/20	2439601.0	-51.31825	21.56088	14.51192	-0.42838	-0.87834	-0.43422	57.52417	1.06936	157.21	14.61
67/ 4/21	2439601.5	-53.82029	15.45958	11.46612	-0.30914	-0.92116	-0.46413	57.15850	1.07681	163.97	11.57
67/ 4/21	2439602.0	-55.49019	9.11383	8.24009	-0.18298	-0.95033	-0.48731	56.83416	1.08355	170.67	8.34
67/ 4/22	2439602.5	-56.28804	2.61960	4.88171	-0.05200	-0.96486	-0.50311	56.56003	1.08939	177.34	4.95
67/ 4/22	2439603.0	-56.18904	-3.92126	1.44287	0.08144	-0.96401	-0.51100	56.34418	1.09411	183.99	1.47
67/ 4/23	2439603.5	-55.18507	-10.40330	-2.02158	0.21479	-0.94746	-0.51064	56.19348	1.09753	190.68	-2.06
67/ 4/23	2439604.0	-53.28576	-16.72014	-5.45521	0.34538	-0.91528	-0.50190	56.11323	1.09951	197.42	-5.58
67/ 4/24	2439604.5	-50.51884	-22.76737	-8.80149	0.47055	-0.86797	-0.48488	56.10680	1.09996	204.26	-9.03
67/ 4/24	2439605.0	-46.92974	-28.44557	-12.00539	0.58776	-0.80650	-0.45993	56.17545	1.09883	211.22	-12.34
67/ 4/25	2439605.5	-42.58038	-33.66306	-15.01493	0.69469	-0.73219	-0.42760	56.31819	1.09614	218.33	-15.46
67/ 4/25	2439606.0	-37.54724	-38.33844	-17.78262	0.78938	-0.64672	-0.38865	56.53188	1.09197	225.60	-18.33
67/ 4/26	2439606.5	-31.91885	-42.40252	-20.26660	0.87024	-0.55201	-0.34398	56.81129	1.08644	233.03	-20.90
67/ 4/26	2439607.0	-25.79293	-45.79965	-22.43157	0.93614	-0.45012	-0.29462	57.14944	1.07971	240.61	-23.11
67/ 4/27	2439607.5	-19.27333	-48.48839	-24.24929	0.98641	-0.34318	-0.24162	57.53793	1.07199	248.32	-24.93
67/ 4/27	2439608.0	-12.46707	-50.44157	-25.69882	1.02078	-0.23326	-0.18607	57.96731	1.06349	256.12	-26.32
67/ 4/28	2439608.5	-5.48163	-51.64580	-26.76641	1.03937	-0.12233	-0.12901	58.42754	1.05447	263.94	-27.27
67/ 4/28	2439609.0	1.57748	-52.10054	-27.44519	1.04263	-0.01222	-0.07142	58.90834	1.04514	271.73	-27.77
67/ 4/29	2439609.5	8.60861	-51.81690	-27.73465	1.03124	0.09545	-0.01419	59.39958	1.03575	279.43	-27.83
67/ 4/29	2439610.0	15.51546	-50.81634	-27.64005	1.00609	0.19926	0.04187	59.89158	1.02649	286.98	-27.48
67/ 4/30	2439610.5	22.20820	-49.12920	-27.17170	0.96819	0.29800	0.09606	60.37536	1.01756	294.32	-26.75
67/ 4/30	2439611.0	28.60414	-46.79342	-26.34438	0.91863	0.39065	0.14778	60.84281	1.00912	301.44	-25.66
67/ 5/ 1	2439611.5	34.62815	-43.85325	-25.17661	0.85855	0.47635	0.19651	61.28685	1.00132	308.30	-24.26
67/ 5/ 1	2439612.0	40.21284	-40.35812	-23.69016	0.78910	0.55442	0.24182	61.70149	0.99425	314.90	-22.58
67/ 5/ 2	2439612.5	45.29858	-36.36166	-21.90947	0.71140	0.62430	0.28334	62.08185	0.98799	321.25	-20.67
67/ 5/ 2	2439613.0	49.83337	-31.92089	-19.86124	0.62660	0.68556	0.32078	62.42417	0.98260	327.36	-18.55
67/ 5/ 3	2439613.5	53.77277	-27.09546	-17.57402	0.53577	0.73784	0.35388	62.72576	0.97810	333.26	-16.27
67/ 5/ 3	2439614.0	57.07962	-21.94707	-15.07789	0.43999	0.78088	0.38244	62.98492	0.97449	338.97	-13.85
67/ 5/ 4	2439614.5	59.72396	-16.53899	-12.40420	0.34030	0.81450	0.40629	63.20090	0.97174	344.52	-11.32
67/ 5/ 4	2439615.0	61.68281	-10.93556	-9.58533	0.23774	0.83855	0.42529	63.37376	0.96982	349.95	-8.70

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/ 5/ 5	2439615.5	62.94009	-5.20187	-6.65442	0.13330	0.85296	0.43935	63.50430	0.96868	355.28	-6.01
67/ 5/ 5	2439616.0	63.48653	0.59669	-3.64526	0.02800	0.85770	0.44839	63.59390	0.96824	0.54	-3.29
67/ 5/ 6	2439616.5	63.31960	6.39473	-0.59202	-0.07719	0.85281	0.45236	63.64444	0.96844	5.77	-0.53
67/ 5/ 6	2439617.0	62.44347	12.12722	2.47090	-0.18126	0.83837	0.45125	63.65817	0.96920	10.99	2.22
67/ 5/ 7	2439617.5	60.86902	17.72994	5.50907	-0.28323	0.81452	0.44506	63.63755	0.97043	16.24	4.97
67/ 5/ 7	2439618.0	58.61380	23.13980	8.48829	-0.38212	0.78146	0.43385	63.58521	0.97207	21.54	7.67
67/ 5/ 8	2439618.5	55.70204	28.29532	11.37475	-0.47694	0.73947	0.41769	63.50376	0.97404	26.93	10.32
67/ 5/ 8	2439619.0	52.16460	33.13711	14.13537	-0.56672	0.68888	0.39671	63.39576	0.97627	32.43	12.88
67/ 5/ 9	2439619.5	48.03893	37.60833	16.73796	-0.65048	0.63012	0.37106	63.26362	0.97871	38.06	15.34
67/ 5/ 9	2439620.0	43.36891	41.65529	19.15162	-0.72731	0.56369	0.34095	63.10951	0.98131	43.85	17.67
67/ 5/10	2439620.5	38.20468	45.22796	21.34697	-0.79627	0.49017	0.30664	62.93535	0.98404	49.81	19.83
67/ 5/10	2439621.0	32.60242	48.28054	23.29648	-0.85651	0.41023	0.26841	62.74276	0.98689	55.97	21.80
67/ 5/11	2439621.5	26.62399	50.77207	24.97482	-0.90722	0.32462	0.22662	62.53304	0.98984	62.33	23.54
67/ 5/11	2439622.0	20.33656	52.66694	26.35912	-0.94764	0.23419	0.18166	62.30718	0.99291	68.89	25.03
67/ 5/12	2439622.5	13.81215	53.93549	27.42936	-0.97710	0.13984	0.13396	62.06595	0.99610	75.64	26.23
67/ 5/12	2439623.0	7.12704	54.55453	28.16864	-0.99500	0.04256	0.08401	61.80990	0.99945	82.56	27.11
67/ 5/13	2439623.5	0.36118	54.50783	28.56350	-1.00087	-0.05657	0.03235	61.53948	1.00299	89.62	27.66
67/ 5/13	2439624.0	-6.40252	53.78659	28.60420	-0.99431	-0.15643	-0.02047	61.25512	1.00675	96.79	27.84
67/ 5/14	2439624.5	-13.07898	52.38988	28.28499	-0.97507	-0.25583	-0.07383	60.95736	1.01077	104.02	27.65
67/ 5/14	2439625.0	-19.58177	50.32500	27.60439	-0.94302	-0.35352	-0.12708	60.64696	1.01509	111.26	27.08
67/ 5/15	2439625.5	-25.82409	47.60783	26.56536	-0.89817	-0.44823	-0.17955	60.32502	1.01973	118.48	26.13
67/ 5/15	2439626.0	-31.71974	44.26310	25.17558	-0.84069	-0.53862	-0.23053	59.99311	1.02470	125.63	24.81
67/ 5/16	2439626.5	-37.18425	40.32457	23.44757	-0.77093	-0.62335	-0.27930	59.65340	1.03000	132.68	23.15
67/ 5/16	2439627.0	-42.13615	35.83515	21.39885	-0.68942	-0.70106	-0.32511	59.30871	1.03561	139.62	21.15
67/ 5/17	2439627.5	-46.49820	30.84693	19.05199	-0.59690	-0.77042	-0.36721	58.96265	1.04148	146.44	18.85
67/ 5/17	2439628.0	-50.19891	25.42097	16.43467	-0.49431	-0.83011	-0.40486	58.61957	1.04754	153.14	16.28
67/ 5/18	2439628.5	-53.17399	19.62702	13.57954	-0.38284	-0.87888	-0.43732	58.28462	1.05369	159.74	13.47
67/ 5/18	2439629.0	-55.36801	13.54294	10.52405	-0.26392	-0.91560	-0.46391	57.96364	1.05981	166.26	10.46
67/ 5/19	2439629.5	-56.73597	7.25386	7.31013	-0.13921	-0.93926	-0.48400	57.66305	1.06577	172.71	7.28
67/ 5/19	2439630.0	-57.24493	0.85111	3.98369	-0.01060	-0.94905	-0.49706	57.38969	1.07139	179.15	3.98
67/ 5/20	2439630.5	-56.87546	-5.56928	0.59395	0.11982	-0.94440	-0.50264	57.15057	1.07652	185.59	0.60
67/ 5/20	2439631.0	-55.62290	-11.90832	-2.80741	0.24978	-0.92501	-0.50045	56.95258	1.08096	192.08	-2.83
67/ 5/21	2439631.5	-53.49834	-18.06613	-6.16731	0.37692	-0.89092	-0.49038	56.80222	1.08456	198.66	-6.23
67/ 5/21	2439632.0	-50.52903	-23.94427	-9.43238	0.49883	-0.84252	-0.47248	56.70521	1.08716	205.35	-9.58
67/ 5/22	2439632.5	-46.75839	-29.44822	-12.55036	0.61316	-0.78058	-0.44700	56.66619	1.08861	212.20	-12.80
67/ 5/22	2439633.0	-42.24534	-34.48981	-15.47135	0.71771	-0.70620	-0.41440	56.68843	1.08883	219.23	-15.84
67/ 5/23	2439633.5	-37.06300	-38.98956	-18.14916	0.81049	-0.62085	-0.37531	56.77362	1.08775	226.45	-18.64
67/ 5/23	2439634.0	-31.29685	-42.87876	-20.54247	0.88985	-0.52622	-0.33054	56.92165	1.08536	233.87	-21.15
67/ 5/24	2439634.5	-25.04240	-46.10108	-22.61586	0.95450	-0.42425	-0.28101	57.13063	1.08168	241.49	-23.32
67/ 5/24	2439635.0	-18.40253	-48.61365	-24.34054	1.00355	-0.31698	-0.22774	57.39688	1.07679	249.27	-25.09
67/ 5/25	2439635.5	-11.48465	-50.38765	-25.69478	1.03655	-0.20650	-0.17180	57.71511	1.07079	257.16	-26.44
67/ 5/25	2439636.0	-4.39791	-51.40825	-26.66411	1.05344	-0.09484	-0.11426	58.07860	1.06386	265.11	-27.33
67/ 5/26	2439636.5	2.74945	-51.67407	-27.24119	1.05453	0.01607	-0.05614	58.47950	1.05615	273.05	-27.76
67/ 5/26	2439637.0	9.85236	-51.19630	-27.42546	1.04044	0.12446	0.00159	58.90914	1.04786	280.89	-27.75
67/ 5/27	2439637.5	16.81084	-49.99741	-27.22259	1.01205	0.22877	0.05804	59.35836	1.03920	288.58	-27.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
67/ 5/27	2439638.0	23.53152	-48.10973	-26.64385	0.97041	0.32764	0.11246	59.81783	1.03038	296.06	-26.45
67/ 5/28	2439638.5	29.92862	-45.57401	-25.70539	0.91671	0.41996	0.16416	60.27835	1.02160	303.29	-25.24
67/ 5/28	2439639.0	35.92471	-42.43795	-24.42751	0.85220	0.50479	0.21260	60.73111	1.01304	310.25	-23.72
67/ 5/29	2439639.5	41.45098	-38.75480	-22.83400	0.77819	0.58140	0.25730	61.16788	1.00489	316.93	-21.92
67/ 5/29	2439640.0	46.44734	-34.58218	-20.95143	0.69594	0.64924	0.29790	61.58120	0.99729	323.33	-19.89
67/ 5/30	2439640.5	50.86235	-29.98098	-18.80864	0.60672	0.70790	0.33410	61.96453	0.99038	329.48	-17.67
67/ 5/30	2439641.0	54.65298	-25.01446	-16.43624	0.51176	0.75708	0.36567	62.31229	0.98427	335.41	-15.29
67/ 5/31	2439641.5	57.78427	-19.74751	-13.86618	0.41222	0.79659	0.39244	62.61994	0.97903	341.13	-12.79
67/ 5/31	2439642.0	60.22908	-14.24600	-11.13140	0.30923	0.82633	0.41429	62.88401	0.97472	346.69	-10.20
67/ 6/ 1	2439642.5	61.96769	-8.57631	-8.26557	0.20386	0.84625	0.43113	63.10204	0.97138	352.12	-7.53
67/ 6/ 1	2439643.0	62.98760	-2.80492	-5.30283	0.09717	0.85637	0.44290	63.27262	0.96900	357.45	-4.81
67/ 6/ 2	2439643.5	63.28320	3.00197	-2.27763	-0.00985	0.85675	0.44957	63.39529	0.96759	2.72	-2.06
67/ 6/ 2	2439644.0	62.85567	8.77872	0.77550	-0.11620	0.84749	0.45115	63.47049	0.96710	7.95	0.70
67/ 6/ 3	2439644.5	61.71279	14.46052	3.82206	-0.22093	0.82874	0.44764	63.49948	0.96747	13.19	3.45
67/ 6/ 3	2439645.0	59.86889	19.98374	6.82776	-0.32305	0.80070	0.43909	63.48426	0.96865	18.46	6.17
67/ 6/ 4	2439645.5	57.34476	25.28619	9.75868	-0.42163	0.76359	0.42557	63.42747	0.97054	23.80	8.85
67/ 6/ 4	2439646.0	54.16770	30.30749	12.58147	-0.51570	0.71773	0.40718	63.33228	0.97307	29.23	11.46
67/ 6/ 5	2439646.5	50.37147	34.98945	15.26355	-0.60431	0.66346	0.38404	63.20224	0.97614	34.78	13.98
67/ 6/ 5	2439647.0	45.99628	39.27656	17.77335	-0.68650	0.60121	0.35633	63.04124	0.97965	40.49	16.38
67/ 6/ 6	2439647.5	41.08877	43.11643	20.08056	-0.76135	0.53148	0.32426	62.85334	0.98350	46.38	18.63
67/ 6/ 6	2439648.0	35.70189	46.46039	22.15646	-0.82791	0.45487	0.28808	62.64265	0.98759	52.46	20.71
67/ 6/ 7	2439648.5	29.89475	49.26410	23.97424	-0.88530	0.37207	0.24809	62.41323	0.99184	58.75	22.59
67/ 6/ 7	2439649.0	23.73238	51.48820	25.50932	-0.93267	0.28386	0.20467	62.16901	0.99616	65.25	24.23
67/ 6/ 8	2439649.5	17.28533	53.09896	26.73982	-0.96924	0.19111	0.15822	61.91365	1.00049	71.97	25.59
67/ 6/ 8	2439650.0	10.62917	54.06900	27.64682	-0.99430	0.09483	0.10923	61.65048	1.00477	78.88	26.64
67/ 6/ 9	2439650.5	3.84393	54.37788	28.21483	-1.00727	-0.00393	0.05822	61.38246	1.00896	85.96	27.36
67/ 6/ 9	2439651.0	-2.98674	54.01279	28.43216	-1.00765	-0.10399	0.00577	61.11210	1.01302	93.17	27.73
67/ 6/10	2439651.5	-9.77641	52.96904	28.29118	-0.99512	-0.20412	-0.04748	60.84150	1.01694	100.46	27.71
67/ 6/10	2439652.0	-16.43689	51.25058	27.78874	-0.96949	-0.30301	-0.10085	60.57233	1.02073	107.78	27.31
67/ 6/11	2439652.5	-22.87937	48.87032	26.92633	-0.93076	-0.39932	-0.15365	60.30589	1.02439	115.09	26.52
67/ 6/11	2439653.0	-29.01565	45.85036	25.71032	-0.87911	-0.49168	-0.20515	60.04318	1.02794	122.33	25.35
67/ 6/12	2439653.5	-34.75938	42.22211	24.15207	-0.81492	-0.57872	-0.25459	59.78498	1.03142	129.46	23.83
67/ 6/12	2439654.0	-40.02745	38.02622	22.26800	-0.73877	-0.65908	-0.30124	59.53196	1.03484	136.47	21.97
67/ 6/13	2439654.5	-44.74137	33.31236	20.07953	-0.65143	-0.73145	-0.34436	59.28483	1.03825	143.33	19.80
67/ 6/13	2439655.0	-48.82857	28.13886	17.61296	-0.55389	-0.79461	-0.38324	59.04440	1.04166	150.05	17.36
67/ 6/14	2439655.5	-52.22387	22.57213	14.89932	-0.44733	-0.84739	-0.41721	58.81177	1.04510	156.63	14.68
67/ 6/14	2439656.0	-54.87071	16.68601	11.97399	-0.33312	-0.88876	-0.44565	58.58835	1.04856	163.09	11.79
67/ 6/15	2439656.5	-56.72247	10.56082	8.87638	-0.21282	-0.91785	-0.46800	58.37602	1.05202	169.45	8.75
67/ 6/15	2439657.0	-57.74360	4.28236	5.64942	-0.08814	-0.93392	-0.48377	58.17712	1.05547	175.76	5.57
67/ 6/16	2439657.5	-57.91072	-2.05938	2.33893	0.03905	-0.93646	-0.49260	57.99450	1.05884	182.04	2.31
67/ 6/16	2439658.0	-57.21347	-8.37162	-1.00699	0.16676	-0.92518	-0.49420	57.83147	1.06207	188.32	-1.00
67/ 6/17	2439658.5	-55.65522	-14.56034	-4.33883	0.29295	-0.90000	-0.48843	57.69170	1.06507	194.66	-4.31
67/ 6/17	2439659.0	-53.25349	-20.53204	-7.60650	0.41549	-0.86115	-0.47526	57.57914	1.06775	201.08	-7.59
67/ 6/18	2439659.5	-50.04007	-26.19557	-10.76030	0.53228	-0.80911	-0.45484	57.49783	1.06998	207.63	-10.79
67/ 6/18	2439660.0	-46.06081	-31.46401	-13.75195	0.64130	-0.74464	-0.42744	57.45170	1.07166	214.34	-13.85

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/ 6/19	2439660.5	-41.37497	-36.25660	-16.53559	0.74062	-0.66879	-0.39350	57.44436	1.07268	221.23	-16.73
67/ 6/19	2439661.0	-36.05422	-40.50052	-19.06882	0.82852	-0.58286	-0.35361	57.47886	1.07294	228.32	-19.38
67/ 6/20	2439661.5	-30.18121	-44.13258	-21.31364	0.90348	-0.48838	-0.30847	57.55746	1.07235	235.63	-21.73
67/ 6/20	2439662.0	-23.84775	-47.10057	-23.23728	0.96431	-0.38706	-0.25891	57.68145	1.07086	243.15	-23.76
67/ 6/21	2439662.5	-17.15275	-49.36438	-24.81290	1.01012	-0.28075	-0.20586	57.85101	1.06843	250.84	-25.40
67/ 6/21	2439663.0	-10.19990	-50.89664	-26.02008	1.04039	-0.17136	-0.15028	58.06505	1.06506	258.67	-26.62
67/ 6/22	2439663.5	-3.09530	-51.68296	-26.84508	1.05493	-0.06080	-0.09317	58.32125	1.06078	266.57	-27.41
67/ 6/22	2439664.0	4.05490	-51.72183	-27.28089	1.05391	0.04906	-0.03552	58.61601	1.05565	274.48	-27.74
67/ 6/23	2439664.5	11.14678	-51.02400	-27.32709	1.03781	0.15646	0.02173	58.94462	1.04976	282.32	-27.62
67/ 6/23	2439665.0	18.08055	-49.61160	-26.98946	1.00737	0.25981	0.07768	59.30133	1.04323	290.02	-27.07
67/ 6/24	2439665.5	24.76228	-47.51701	-26.27953	0.96356	0.35769	0.13154	59.67956	1.03619	297.53	-26.13
67/ 6/24	2439666.0	31.10519	-44.78154	-25.21392	0.90752	0.44887	0.18260	60.07213	1.02880	304.78	-24.82
67/ 6/25	2439666.5	37.03065	-41.45403	-23.81369	0.84050	0.53236	0.23026	60.47146	1.02121	311.77	-23.19
67/ 6/25	2439667.0	42.46876	-37.58948	-22.10364	0.76383	0.60734	0.27402	60.86983	1.01360	318.49	-21.29
67/ 6/26	2439667.5	47.35870	-33.24769	-20.11162	0.67886	0.67320	0.31346	61.25955	1.00613	324.93	-19.17
67/ 6/26	2439668.0	51.64876	-28.49205	-17.86792	0.58692	0.72949	0.34829	61.63322	0.99896	331.12	-16.85
67/ 6/27	2439668.5	55.29626	-23.38846	-15.40468	0.48933	0.77590	0.37826	61.98387	0.99225	337.07	-14.39
67/ 6/27	2439669.0	58.26725	-18.00443	-12.75538	0.38736	0.81228	0.40321	62.30515	0.98612	342.83	-11.81
67/ 6/28	2439669.5	60.53618	-12.40824	-9.95440	0.28221	0.83855	0.42304	62.59140	0.98070	348.42	-9.15
67/ 6/28	2439670.0	62.08548	-6.66837	-7.03670	0.17504	0.85472	0.43767	62.83779	0.97609	353.87	-6.43
67/ 6/29	2439670.5	62.90519	-0.85292	-4.03748	0.06695	0.86088	0.44711	63.04040	0.97237	359.22	-3.67
67/ 6/29	2439671.0	62.99262	4.97075	-0.99198	-0.04103	0.85717	0.45134	63.19622	0.96961	4.51	-0.90
67/ 6/30	2439671.5	62.35197	10.73636	2.06472	-0.14788	0.84377	0.45043	63.30324	0.96784	9.77	1.87
67/ 6/30	2439672.0	60.99411	16.37902	5.09792	-0.25266	0.82091	0.44441	63.36041	0.96707	15.03	4.61
67/ 7/ 1	2439672.5	58.93636	21.83547	8.07336	-0.35440	0.78883	0.43339	63.36767	0.96730	20.33	7.32
67/ 7/ 1	2439673.0	56.20238	27.04429	10.95742	-0.45219	0.74784	0.41745	63.32588	0.96851	25.70	9.96
67/ 7/ 2	2439673.5	52.82206	31.94625	13.71725	-0.54511	0.69827	0.39672	63.23682	0.97063	31.17	12.53
67/ 7/ 2	2439674.0	48.83148	36.48452	16.32094	-0.63224	0.64051	0.37137	63.10314	0.97360	36.77	14.99
67/ 7/ 3	2439674.5	44.27291	40.60508	18.73768	-0.71268	0.57501	0.34155	62.92824	0.97735	42.53	17.32
67/ 7/ 3	2439675.0	39.19480	44.25714	20.93802	-0.78551	0.50226	0.30750	62.71624	0.98176	48.47	19.50
67/ 7/ 4	2439675.5	33.65173	47.39358	22.89411	-0.84983	0.42285	0.26947	62.47184	0.98673	54.62	21.50
67/ 7/ 4	2439676.0	27.70439	49.97157	24.58000	-0.90474	0.33747	0.22777	62.20022	0.99213	61.00	23.28
67/ 7/ 5	2439676.5	21.41938	51.95319	25.97199	-0.94940	0.24689	0.18275	61.90694	0.99785	67.59	24.81
67/ 7/ 5	2439677.0	14.86899	53.30614	27.04903	-0.98298	0.15199	0.13484	61.59774	1.00376	74.41	26.05
67/ 7/ 6	2439677.5	8.13078	54.00447	27.79312	-1.00474	0.05376	0.08452	61.27846	1.00972	81.44	26.97
67/ 7/ 6	2439678.0	1.28705	54.02938	28.18975	-1.01404	-0.04667	0.03234	60.95484	1.01563	88.64	27.55
67/ 7/ 7	2439678.5	-5.57593	53.37001	28.22836	-1.01035	-0.14809	-0.02109	60.63241	1.02136	95.96	27.75
67/ 7/ 7	2439679.0	-12.36882	52.02407	27.90274	-0.99330	-0.24918	-0.07510	60.31629	1.02682	103.37	27.56
67/ 7/ 8	2439679.5	-19.00038	49.99856	27.21147	-0.96269	-0.34853	-0.12894	60.01113	1.03193	110.81	26.96
67/ 7/ 8	2439680.0	-25.37881	47.31021	26.15820	-0.91857	-0.44467	-0.18186	59.72094	1.03661	118.21	25.98
67/ 7/ 9	2439680.5	-31.41317	43.98577	24.75191	-0.86116	-0.53611	-0.23305	59.44907	1.04083	125.53	24.60
67/ 7/ 9	2439681.0	-37.01506	40.06215	23.00706	-0.79097	-0.62135	-0.28170	59.19811	1.04454	132.74	22.87
67/ 7/10	2439681.5	-42.10029	35.58626	20.94360	-0.70873	-0.69896	-0.32700	58.96991	1.04775	139.79	20.80
67/ 7/10	2439682.0	-46.59054	30.61456	18.58685	-0.61546	-0.76754	-0.36818	58.76564	1.05046	146.69	18.44
67/ 7/11	2439682.5	-50.41502	25.21245	15.96723	-0.51236	-0.82585	-0.40451	58.58579	1.05270	153.43	15.82

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
67/ 7/11	2439683.0	-53.51205	19.45332	13.11990	-0.40090	-0.87280	-0.43532	58.43033	1.05452	160.02	12.98
67/ 7/12	2439683.5	-55.83038	13.41742	10.08416	-0.28271	-0.90745	-0.46005	58.29879	1.05595	166.49	9.96
67/ 7/12	2439684.0	-57.33041	7.19054	6.90292	-0.15957	-0.92909	-0.47822	58.19046	1.05706	172.85	6.81
67/ 7/13	2439684.5	-57.98505	0.86252	3.62189	-0.03340	-0.93725	-0.48947	58.10446	1.05789	179.15	3.57
67/ 7/13	2439685.0	-57.78049	-5.47431	0.28883	0.09381	-0.93167	-0.49355	58.03995	1.05850	185.41	0.29
67/ 7/14	2439685.5	-56.71648	-11.72679	-3.04730	0.22005	-0.91236	-0.49037	57.99623	1.05891	191.68	-3.01
67/ 7/14	2439686.0	-54.80650	-17.80262	-6.33724	0.34329	-0.87957	-0.47993	57.97281	1.05916	198.00	-6.28
67/ 7/15	2439686.5	-52.07760	-23.61200	-9.53230	0.46155	-0.83379	-0.46239	57.96954	1.05926	204.39	-9.46
67/ 7/15	2439687.0	-48.56991	-29.06926	-12.58523	0.57295	-0.77573	-0.43802	57.98660	1.05919	210.90	-12.54
67/ 7/16	2439687.5	-44.33596	-34.09441	-15.45109	0.67573	-0.70636	-0.40722	58.02450	1.05895	217.56	-15.44
67/ 7/16	2439688.0	-39.43973	-38.61455	-18.08803	0.76827	-0.62681	-0.37051	58.08402	1.05849	224.39	-18.14
67/ 7/17	2439688.5	-33.95544	-42.56518	-20.45805	0.84916	-0.53842	-0.32851	58.16612	1.05778	231.42	-20.59
67/ 7/17	2439689.0	-27.96614	-45.89129	-22.52767	0.91721	-0.44266	-0.28193	58.27187	1.05674	238.64	-22.74
67/ 7/18	2439689.5	-21.56216	-48.54830	-24.26849	0.97148	-0.34111	-0.23156	58.40225	1.05534	246.05	-24.55
67/ 7/18	2439690.0	-14.83931	-50.50272	-25.65763	1.01128	-0.23547	-0.17823	58.55804	1.05352	253.63	-25.99
67/ 7/19	2439690.5	-7.89711	-51.73259	-26.67808	1.03621	-0.12745	-0.12284	58.73964	1.05122	261.32	-27.01
67/ 7/19	2439691.0	-0.83683	-52.22763	-27.31890	1.04615	-0.01876	-0.06627	58.94699	1.04841	269.08	-27.61
67/ 7/20	2439691.5	6.24037	-51.98910	-27.57520	1.04125	0.08889	-0.00944	59.17939	1.04508	276.84	-27.77
67/ 7/20	2439692.0	13.23523	-51.02943	-27.44809	1.02193	0.19392	0.04680	59.43544	1.04121	284.54	-27.50
67/ 7/21	2439692.5	20.05213	-49.37158	-26.94443	0.98882	0.29482	0.10162	59.71301	1.03683	292.10	-26.82
67/ 7/21	2439693.0	26.60054	-47.04819	-26.07642	0.94280	0.39024	0.15427	60.00917	1.03197	299.48	-25.76
67/ 7/22	2439693.5	32.79636	-44.10052	-24.86120	0.88489	0.47898	0.20405	60.32028	1.02669	306.64	-24.34
67/ 7/22	2439694.0	38.56289	-40.57737	-23.32025	0.81624	0.56002	0.25036	60.64201	1.02106	313.54	-22.62
67/ 7/23	2439694.5	43.83164	-36.53381	-21.47882	0.73811	0.63253	0.29270	60.96944	1.01517	320.19	-20.63
67/ 7/23	2439695.0	48.54281	-32.03004	-19.36533	0.65181	0.69583	0.33064	61.29717	1.00914	326.58	-18.42
67/ 7/24	2439695.5	52.64556	-27.13012	-17.01073	0.55867	0.74944	0.36385	61.61950	1.00307	332.74	-16.03
67/ 7/24	2439696.0	56.09808	-21.90094	-14.44797	0.46002	0.79301	0.39207	61.93052	0.99710	338.67	-13.49
67/ 7/25	2439696.5	58.86749	-16.41119	-11.71143	0.35717	0.82636	0.41514	62.22432	0.99135	344.42	-10.85
67/ 7/25	2439697.0	60.92955	-10.73047	-8.83645	0.25136	0.84940	0.43294	62.49508	0.98595	350.01	-8.13
67/ 7/26	2439697.5	62.26837	-4.92853	-5.85890	0.14380	0.86217	0.44542	62.73729	0.98102	355.47	-5.36
67/ 7/26	2439698.0	62.87603	0.92538	-2.81484	0.03563	0.86477	0.45258	62.94581	0.97669	0.84	-2.56
67/ 7/27	2439698.5	62.75213	6.76300	0.25978	-0.07205	0.85739	0.45446	63.11605	0.97306	6.15	0.24
67/ 7/27	2439699.0	61.90344	12.51752	3.32938	-0.17823	0.84027	0.45111	63.24405	0.97022	11.43	3.02
67/ 7/28	2439699.5	60.34354	18.12391	6.35896	-0.28191	0.81370	0.44266	63.32657	0.96826	16.72	5.76
67/ 7/28	2439700.0	58.09247	23.51922	9.31425	-0.38217	0.77800	0.42920	63.36122	0.96724	22.04	8.45
67/ 7/29	2439700.5	55.17652	28.64282	12.16186	-0.47810	0.73353	0.41088	63.34643	0.96720	27.43	11.07
67/ 7/29	2439701.0	51.62800	33.43665	14.86943	-0.56881	0.68069	0.38787	63.28160	0.96816	32.93	13.59
67/ 7/30	2439701.5	47.48514	37.84544	17.40577	-0.65346	0.61991	0.36035	63.16705	0.97013	38.55	15.99
67/ 7/30	2439702.0	42.79193	41.81699	19.74099	-0.73118	0.55166	0.32852	63.00411	0.97308	44.34	18.26
67/ 7/31	2439702.5	37.59817	45.30252	21.84669	-0.80113	0.47648	0.29262	62.79505	0.97697	50.31	20.36
67/ 7/31	2439703.0	31.95933	48.25700	23.69615	-0.86247	0.39495	0.25290	62.54314	0.98173	56.48	22.26
67/ 8/ 1	2439703.5	25.93659	50.63963	25.26460	-0.91436	0.30774	0.20969	62.25254	0.98728	62.88	23.94
67/ 8/ 1	2439704.0	19.59674	52.41440	26.52948	-0.95598	0.21559	0.16333	61.92830	0.99350	69.50	25.37
67/ 8/ 2	2439704.5	13.01201	53.55069	27.47081	-0.98654	0.11935	0.11422	61.57625	1.00027	76.34	26.50
67/ 8/ 2	2439705.0	6.25987	54.02401	28.07156	-1.00529	0.01998	0.06284	61.20288	1.00745	83.39	27.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
67/ 8/ 3	2439705.5	-0.57740	53.81678	28.31811	-1.01157	-0.08142	0.00972	60.81525	1.01489	90.61	27.75
67/ 8/ 3	2439706.0	-7.41330	52.91913	28.20071	-1.00480	-0.18368	-0.04453	60.42079	1.02242	97.97	27.82
67/ 8/ 4	2439706.5	-14.15788	51.32981	27.71395	-0.98455	-0.28544	-0.09923	60.02714	1.02988	105.42	27.50
67/ 8/ 4	2439707.0	-20.71882	49.05687	26.85723	-0.95055	-0.38529	-0.15364	59.64191	1.03711	112.90	26.76
67/ 8/ 5	2439707.5	-27.00273	46.11848	25.63526	-0.90275	-0.48169	-0.20695	59.27249	1.04394	120.35	25.63
67/ 8/ 5	2439708.0	-32.91670	42.54338	24.05831	-0.84137	-0.57304	-0.25831	58.92580	1.05024	127.73	24.10
67/ 8/ 6	2439708.5	-38.37013	38.37117	22.14259	-0.76686	-0.65774	-0.30684	58.60809	1.05586	135.00	22.20
67/ 8/ 6	2439709.0	-43.27668	33.65240	19.91023	-0.68003	-0.73418	-0.35166	58.32472	1.06072	142.13	19.96
67/ 8/ 7	2439709.5	-47.55630	28.44812	17.38930	-0.58194	-0.80086	-0.39192	58.07999	1.06472	149.11	17.42
67/ 8/ 7	2439710.0	-51.13733	22.82921	14.61348	-0.47399	-0.85640	-0.42681	57.87705	1.06783	155.94	14.63
67/ 8/ 8	2439710.5	-53.95840	16.87528	11.62159	-0.35783	-0.89961	-0.45561	57.71781	1.07001	162.63	11.62
67/ 8/ 8	2439711.0	-55.97018	10.67322	8.45694	-0.23535	-0.92954	-0.47773	57.60294	1.07129	169.20	8.44
67/ 8/ 9	2439711.5	-57.13676	4.31542	5.16644	-0.10861	-0.94551	-0.49271	57.53194	1.07170	175.68	5.15
67/ 8/ 9	2439712.0	-57.43665	-2.10215	1.79965	0.02021	-0.94715	-0.50022	57.50327	1.07132	182.10	1.79
67/ 8/10	2439712.5	-56.86330	-8.48203	-1.59231	0.14888	-0.93440	-0.50013	57.51448	1.07023	188.48	-1.59
67/ 8/10	2439713.0	-55.42526	-14.72738	-4.95785	0.27519	-0.90749	-0.49244	57.56245	1.06853	194.88	-4.94
67/ 8/11	2439713.5	-53.14580	-20.74398	-8.24602	0.39700	-0.86696	-0.47732	57.64361	1.06633	201.32	-8.22
67/ 8/11	2439714.0	-50.06218	-26.44216	-11.40749	0.51233	-0.81361	-0.45509	57.75414	1.06375	207.84	-11.39
67/ 8/12	2439714.5	-46.22462	-31.73842	-14.39559	0.61935	-0.74847	-0.42620	57.89021	1.06087	214.47	-14.40
67/ 8/12	2439715.0	-41.69498	-36.55694	-17.16702	0.71645	-0.67275	-0.39122	58.04815	1.05780	221.24	-17.20
67/ 8/13	2439715.5	-36.54523	-40.83066	-19.68266	0.80225	-0.58784	-0.35078	58.22460	1.05461	228.17	-19.76
67/ 8/13	2439716.0	-30.85585	-44.50229	-21.90805	0.87563	-0.49521	-0.30564	58.41661	1.05137	235.26	-22.03
67/ 8/14	2439716.5	-24.71414	-47.52487	-23.81387	0.93570	-0.39644	-0.25655	58.62169	1.04810	242.52	-23.97
67/ 8/14	2439717.0	-18.21249	-49.86225	-25.37623	0.98183	-0.29315	-0.20435	58.83784	1.04484	249.93	-25.55
67/ 8/15	2439717.5	-11.44670	-51.48923	-26.57687	1.01365	-0.18694	-0.14988	59.06351	1.04158	257.47	-26.74
67/ 8/15	2439718.0	-4.51436	-52.39161	-27.40323	1.03101	-0.07944	-0.09397	59.29753	1.03833	265.08	-27.52
67/ 8/16	2439718.5	2.48677	-52.56593	-27.84844	1.03399	0.02779	-0.03746	59.53904	1.03505	272.71	-27.89
67/ 8/16	2439719.0	9.46020	-52.01919	-27.91121	1.02290	0.13324	0.01883	59.78735	1.03171	280.31	-27.83
67/ 8/17	2439719.5	16.31217	-50.76829	-27.59564	0.99822	0.23549	0.07413	60.04186	1.02830	287.81	-27.36
67/ 8/17	2439720.0	22.95281	-48.83942	-26.91096	0.96063	0.33323	0.12771	60.30191	1.02477	295.17	-26.50
67/ 8/18	2439720.5	29.29739	-46.26732	-25.87117	0.91095	0.42525	0.17888	60.56665	1.02110	302.34	-25.29
67/ 8/18	2439721.0	35.26724	-43.09444	-24.49466	0.85014	0.51047	0.22704	60.83500	1.01728	309.30	-23.74
67/ 8/19	2439721.5	40.79059	-39.37001	-22.80380	0.77929	0.58797	0.27163	61.10551	1.01330	316.02	-21.91
67/ 8/19	2439722.0	45.80327	-35.14908	-20.82440	0.69954	0.65697	0.31217	61.37632	1.00916	322.50	-19.83
67/ 8/20	2439722.5	50.24918	-30.49150	-18.58526	0.61213	0.71681	0.34826	61.64514	1.00489	328.75	-17.55
67/ 8/20	2439723.0	54.08062	-25.46099	-16.11765	0.51830	0.76702	0.37959	61.90924	1.00052	334.79	-15.09
67/ 8/21	2439723.5	57.25847	-20.12408	-13.45476	0.41934	0.80724	0.40589	62.16544	0.99611	340.64	-12.50
67/ 8/21	2439724.0	59.75223	-14.54923	-10.63130	0.31651	0.83726	0.42698	62.41021	0.99171	346.32	-9.81
67/ 8/22	2439724.5	61.53990	-8.80599	-7.68295	0.21104	0.85696	0.44275	62.63970	0.98740	351.86	-7.05
67/ 8/22	2439725.0	62.60776	-2.96414	-4.64597	0.10415	0.86638	0.45315	62.84985	0.98326	357.29	-4.24
67/ 8/23	2439725.5	62.95014	2.90694	-1.55682	-0.00300	0.86562	0.45816	63.03645	0.97940	2.64	-1.42
67/ 8/23	2439726.0	62.56902	8.73891	1.54820	-0.10931	0.85487	0.45784	63.19531	0.97590	7.95	1.40
67/ 8/24	2439726.5	61.47369	14.46501	4.63322	-0.21373	0.83441	0.45228	63.32233	0.97287	13.24	4.20
67/ 8/24	2439727.0	59.68038	20.02045	7.66308	-0.31526	0.80454	0.44158	63.41364	0.97040	18.54	6.94
67/ 8/25	2439727.5	57.21187	25.34285	10.60355	-0.41296	0.76565	0.42590	63.46569	0.96858	23.89	9.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
67/ 8/25	2439728.0	54.09717	30.37249	13.42147	-0.50593	0.71816	0.40542	63.47541	0.96752	29.31	12.21
67/ 8/26	2439728.5	50.37119	35.05262	16.08497	-0.59332	0.66253	0.38034	63.44028	0.96728	34.83	14.69
67/ 8/26	2439729.0	46.07453	39.32969	18.56356	-0.67431	0.59923	0.35086	63.35844	0.96793	40.48	17.04
67/ 8/27	2439729.5	41.25325	43.15362	20.82834	-0.74811	0.52881	0.31724	63.22883	0.96951	46.29	19.23
67/ 8/27	2439730.0	35.95869	46.47804	22.85209	-0.81394	0.45183	0.27973	63.05120	0.97206	52.27	21.25
67/ 8/28	2439730.5	30.24738	49.26060	24.60947	-0.87105	0.36891	0.23863	62.82624	0.97559	58.45	23.06
67/ 8/28	2439731.0	24.18091	51.46330	26.07716	-0.91870	0.28072	0.19425	62.55562	0.98007	64.83	24.64
67/ 8/29	2439731.5	17.82582	53.05292	27.23418	-0.95616	0.18800	0.14695	62.24205	0.98548	71.43	25.95
67/ 8/29	2439732.0	11.25351	54.00148	28.06204	-0.98273	0.09156	0.09713	61.88925	0.99175	78.23	26.96
67/ 8/30	2439732.5	4.54001	54.28686	28.54516	-0.99774	-0.00768	0.04523	61.50205	0.99879	85.22	27.65
67/ 8/30	2439733.0	-2.23424	53.89343	28.67118	-1.00057	-0.10871	-0.00823	61.08625	1.00649	92.37	27.99
67/ 8/31	2439733.5	-8.98484	52.81277	28.43137	-0.99067	-0.21041	-0.06269	60.64865	1.01471	99.66	27.96
67/ 8/31	2439734.0	-15.62402	51.04452	27.82112	-0.96760	-0.31153	-0.11751	60.19691	1.02329	107.02	27.53
67/ 9/ 1	2439734.5	-22.06143	48.59715	26.84039	-0.93105	-0.41071	-0.17197	59.73940	1.03205	114.42	26.70
67/ 9/ 1	2439735.0	-28.20523	45.48877	25.49419	-0.88090	-0.50647	-0.22529	59.28505	1.04079	121.80	25.47
67/ 9/ 2	2439735.5	-33.96345	41.74787	23.79303	-0.81723	-0.59723	-0.27664	58.84308	1.04932	129.13	23.85
67/ 9/ 2	2439736.0	-39.24565	37.41381	21.75332	-0.74042	-0.68135	-0.32512	58.42278	1.05743	136.37	21.86
67/ 9/ 3	2439736.5	-43.96488	32.53719	19.39758	-0.65113	-0.75717	-0.36981	58.03314	1.06491	143.50	19.53
67/ 9/ 3	2439737.0	-48.03984	27.17976	16.75456	-0.55037	-0.82306	-0.40980	57.68259	1.07157	150.50	16.89
67/ 9/ 4	2439737.5	-51.39723	21.41402	13.85912	-0.43949	-0.87750	-0.44421	57.37866	1.07725	157.38	13.98
67/ 9/ 4	2439738.0	-53.97400	15.32223	10.75183	-0.32017	-0.91913	-0.47223	57.12762	1.08181	164.15	10.85
67/ 9/ 5	2439738.5	-55.71965	8.99508	7.47835	-0.19442	-0.94684	-0.49318	56.93432	1.08514	170.83	7.55
67/ 9/ 5	2439739.0	-56.59805	2.52975	4.08855	-0.06447	-0.95982	-0.50650	56.80189	1.08718	177.44	4.13
67/ 9/ 6	2439739.5	-56.58890	-3.97226	0.63533	0.06726	-0.95763	-0.51186	56.73171	1.08792	184.02	0.64
67/ 9/ 6	2439740.0	-55.68866	-10.40775	-2.82663	0.19825	-0.94020	-0.50907	56.72334	1.08740	190.59	-2.86
67/ 9/ 7	2439740.5	-53.91070	-16.67435	-6.24225	0.32603	-0.90785	-0.49820	56.77467	1.08567	197.19	-6.31
67/ 9/ 7	2439741.0	-51.28496	-22.67317	-9.55747	0.44821	-0.86127	-0.47949	56.88202	1.08286	203.85	-9.67
67/ 9/ 8	2439741.5	-47.85688	-28.31117	-12.72059	0.56261	-0.80149	-0.45337	57.04048	1.07910	210.61	-12.89
67/ 9/ 8	2439742.0	-43.68593	-33.50319	-15.68337	0.66728	-0.72981	-0.42044	57.24414	1.07455	217.48	-15.90
67/ 9/ 9	2439742.5	-38.84361	-38.17368	-18.40209	0.76061	-0.64775	-0.38143	57.48646	1.06939	224.50	-18.67
67/ 9/ 9	2439743.0	-33.41140	-42.25789	-20.83826	0.84128	-0.55697	-0.33715	57.76058	1.06379	231.67	-21.15
67/ 9/10	2439743.5	-27.47847	-45.70264	-22.95918	0.90833	-0.45922	-0.28849	58.05964	1.05791	238.98	-23.29
67/ 9/10	2439744.0	-21.13945	-48.46671	-24.73822	0.96111	-0.35627	-0.23635	58.37704	1.05192	246.43	-25.07
67/ 9/11	2439744.5	-14.49239	-50.52087	-26.15494	0.99927	-0.24988	-0.18165	58.70663	1.04593	253.99	-26.46
67/ 9/11	2439745.0	-7.63672	-51.84761	-27.19510	1.02272	-0.14174	-0.12530	59.04293	1.04007	261.62	-27.43
67/ 9/12	2439745.5	-0.67164	-52.44065	-27.85042	1.03162	-0.03349	-0.06815	59.38113	1.03441	269.27	-27.97
67/ 9/12	2439746.0	6.30549	-52.30436	-28.11836	1.02635	0.07338	-0.01104	59.71723	1.02903	276.87	-28.09
67/ 9/13	2439746.5	13.20036	-51.45297	-28.00182	1.00744	0.17745	0.04526	60.04797	1.02395	284.39	-27.80
67/ 9/13	2439747.0	19.92287	-49.90980	-27.50872	0.97558	0.27745	0.10004	60.37084	1.01919	291.76	-27.11
67/ 9/14	2439747.5	26.38802	-47.70645	-26.65163	0.93159	0.37222	0.15264	60.68395	1.01474	298.95	-26.05
67/ 9/14	2439748.0	32.51669	-44.88188	-25.44735	0.87638	0.46073	0.20247	60.98595	1.01060	305.92	-24.66
67/ 9/15	2439748.5	38.23625	-41.48164	-23.91651	0.81095	0.54207	0.24899	61.27590	1.00672	312.67	-22.97
67/ 9/15	2439749.0	43.48107	-37.55696	-22.08313	0.73637	0.61547	0.29173	61.55317	1.00308	319.18	-21.02
67/ 9/16	2439749.5	48.19295	-33.16398	-19.97418	0.65377	0.68026	0.33030	61.81729	0.99963	325.47	-18.85
67/ 9/16	2439750.0	52.32137	-28.36290	-17.61921	0.56428	0.73590	0.36433	62.06784	0.99634	331.54	-16.49

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/ 9/17	2439750.5	55.82379	-23.21717	-15.04988	0.46911	0.78197	0.39355	62.30434	0.99319	337.42	-13.98
67/ 9/17	2439751.0	58.66568	-17.79270	-12.29959	0.36943	0.81817	0.41773	62.52617	0.99014	343.13	-11.34
67/ 9/18	2439751.5	60.82066	-12.15712	-9.40305	0.26646	0.84429	0.43672	62.73249	0.98719	348.70	-8.62
67/ 9/18	2439752.0	62.27037	-6.37905	-6.39589	0.16137	0.86024	0.45039	62.92216	0.98433	354.15	-5.83
67/ 9/19	2439752.5	63.00444	-0.52734	-3.31429	0.05533	0.86604	0.45869	63.09375	0.98157	359.52	-3.01
67/ 9/19	2439753.0	63.02026	5.32952	-0.19461	-0.05054	0.86179	0.46164	63.24551	0.97895	4.83	-0.18
67/ 9/20	2439753.5	62.32276	11.12402	2.92695	-0.15513	0.84767	0.45926	63.37537	0.97648	10.12	2.65
67/ 9/20	2439754.0	60.92415	16.79023	6.01462	-0.25740	0.82395	0.45165	63.48102	0.97424	15.41	5.44
67/ 9/21	2439754.5	58.84357	22.26425	9.03340	-0.35635	0.79098	0.43894	63.55993	0.97226	20.72	8.17
67/ 9/21	2439755.0	56.10675	27.48468	11.94928	-0.45103	0.74914	0.42129	63.60944	0.97063	26.10	10.83
67/ 9/22	2439755.5	52.74570	32.39302	14.72948	-0.54054	0.69890	0.39891	63.62683	0.96941	31.56	13.39
67/ 9/22	2439756.0	48.79831	36.93402	17.34265	-0.62403	0.64075	0.37201	63.60947	0.96870	37.12	15.82
67/ 9/23	2439756.5	44.30805	41.05598	19.75907	-0.70071	0.57525	0.34085	63.55484	0.96855	42.82	18.11
67/ 9/23	2439757.0	39.32364	44.71105	21.95078	-0.76983	0.50298	0.30571	63.46073	0.96906	48.67	20.24
67/ 9/24	2439757.5	33.89878	47.85548	23.89179	-0.83066	0.42457	0.26687	63.32529	0.97030	54.69	22.17
67/ 9/24	2439758.0	28.09187	50.44993	25.55822	-0.88253	0.34069	0.22468	63.14722	0.97233	60.89	23.87
67/ 9/25	2439758.5	21.96579	52.45974	26.92845	-0.92480	0.25206	0.17947	62.92584	0.97519	67.28	25.34
67/ 9/25	2439759.0	15.58766	53.85523	27.98334	-0.95686	0.15942	0.13162	62.66122	0.97894	73.86	26.52
67/ 9/26	2439759.5	9.02862	54.61212	28.70639	-0.97813	0.06362	0.08155	62.35428	0.98358	80.61	27.41
67/ 9/26	2439760.0	2.36361	54.71188	29.08402	-0.98807	-0.03447	0.02970	62.00691	0.98912	87.53	27.97
67/ 9/27	2439760.5	-4.32897	54.14226	29.10579	-0.98619	-0.13388	-0.02344	61.62200	0.99551	94.57	28.19
67/ 9/27	2439761.0	-10.96755	52.89778	28.76477	-0.97206	-0.23356	-0.07734	61.20355	1.00271	101.71	28.03
67/ 9/28	2439761.5	-17.46791	50.98042	28.05784	-0.94533	-0.33238	-0.13139	60.75667	1.01063	108.91	27.50
67/ 9/28	2439762.0	-23.74380	48.40020	26.98610	-0.90574	-0.42908	-0.18495	60.28761	1.01916	116.13	26.59
67/ 9/29	2439762.5	-29.70772	45.17590	25.55526	-0.85320	-0.52234	-0.23730	59.80370	1.02815	123.34	25.30
67/ 9/29	2439763.0	-35.27201	41.33574	23.77607	-0.78776	-0.61070	-0.28768	59.31324	1.03744	130.47	23.63
67/ 9/30	2439763.5	-40.35014	36.91797	21.66470	-0.70971	-0.69264	-0.33525	58.82542	1.04682	137.54	21.61
67/ 9/30	2439764.0	-44.85832	31.97132	19.24305	-0.61957	-0.76660	-0.37916	58.35006	1.05608	144.52	19.26
67/10/ 1	2439764.5	-48.71741	26.55527	16.53898	-0.51820	-0.83099	-0.41850	57.89737	1.06500	151.41	16.60
67/10/ 1	2439765.0	-51.85502	20.73992	13.58641	-0.40675	-0.88426	-0.45240	57.47763	1.07332	158.20	13.67
67/10/ 2	2439765.5	-54.20789	14.60558	10.42509	-0.28675	-0.92496	-0.48000	57.10080	1.08083	164.92	10.52
67/10/ 2	2439766.0	-55.72422	8.24168	7.10028	-0.16006	-0.95185	-0.50056	56.77612	1.08729	171.59	7.18
67/10/ 3	2439766.5	-56.36591	1.74537	3.66198	-0.02887	-0.96393	-0.51342	56.51170	1.09252	178.23	3.72
67/10/ 3	2439767.0	-56.11063	-4.78062	0.16398	0.10438	-0.96054	-0.51812	56.31415	1.09635	184.87	0.17
67/10/ 4	2439767.5	-54.95319	-11.23039	-3.33741	0.23708	-0.94142	-0.51440	56.18820	1.09867	191.55	-3.41
67/10/ 4	2439768.0	-52.90651	-17.49779	-6.78485	0.36653	-0.90675	-0.50220	56.13649	1.09943	198.30	-6.94
67/10/ 5	2439768.5	-50.00158	-23.47934	-10.12154	0.49008	-0.85715	-0.48175	56.15944	1.09862	205.15	-10.38
67/10/ 5	2439769.0	-46.28683	-29.07721	-13.29285	0.60527	-0.79366	-0.45346	56.25527	1.09630	212.14	-13.67
67/10/ 6	2439769.5	-41.82658	-34.20191	-16.24780	0.70988	-0.71768	-0.41798	56.42007	1.09257	219.27	-16.74
67/10/ 6	2439770.0	-36.69892	-38.77449	-18.94040	0.80207	-0.63092	-0.37614	56.64813	1.08759	226.58	-19.53
67/10/ 7	2439770.5	-30.99318	-42.72827	-21.33064	0.88038	-0.53529	-0.32886	56.93223	1.08155	234.04	-22.00
67/10/ 7	2439771.0	-24.80703	-46.00994	-23.38523	0.94380	-0.43279	-0.27720	57.26406	1.07466	241.67	-24.10
67/10/ 8	2439771.5	-18.24368	-48.57995	-25.07802	0.99170	-0.32548	-0.22220	57.63463	1.06714	249.42	-25.79
67/10/ 8	2439772.0	-11.40908	-50.41255	-26.39003	1.02389	-0.21537	-0.16493	58.03470	1.05921	257.25	-27.05
67/10/ 9	2439772.5	-4.40947	-51.49522	-27.30937	1.04047	-0.10434	-0.10641	58.45513	1.05109	265.11	-27.85

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
67/10/ 9	2439773.0	2.65073	-51.82780	-27.83085	1.04187	0.00585	-0.04760	58.88720	1.04297	272.93	-28.20
67/10/10	2439773.5	9.67072	-51.42150	-27.95551	1.02872	0.11360	0.01062	59.32287	1.03503	280.65	-28.12
67/10/10	2439774.0	16.55467	-50.29768	-27.69006	1.00185	0.21751	0.06747	59.75494	1.02740	288.22	-27.61
67/10/11	2439774.5	23.21277	-48.48665	-27.04632	0.96220	0.31634	0.12222	60.17717	1.02021	295.58	-26.71
67/10/11	2439775.0	29.56199	-46.02650	-26.04055	0.91081	0.40902	0.17427	60.58432	1.01354	302.71	-25.46
67/10/12	2439775.5	35.52655	-42.96199	-24.69296	0.84880	0.49466	0.22308	60.97221	1.00743	309.59	-23.89
67/10/12	2439776.0	41.03831	-39.34348	-23.02714	0.77729	0.57250	0.26817	61.33760	1.00193	316.21	-22.05
67/10/13	2439776.5	46.03688	-35.22605	-21.06955	0.69746	0.64190	0.30917	61.67816	0.99703	322.58	-19.97
67/10/13	2439777.0	50.46978	-30.66860	-18.84912	0.61045	0.70236	0.34574	61.99235	0.99272	328.71	-17.70
67/10/14	2439777.5	54.29241	-25.73309	-16.39679	0.51744	0.75348	0.37761	62.27931	0.98897	334.64	-15.26
67/10/14	2439778.0	57.46805	-20.48386	-13.74515	0.41959	0.79496	0.40456	62.53874	0.98574	340.38	-12.70
67/10/15	2439778.5	59.96778	-14.98695	-10.92809	0.31804	0.82659	0.42643	62.77074	0.98298	345.97	-10.03
67/10/15	2439779.0	61.77045	-9.30952	-7.98049	0.21394	0.84825	0.44310	62.97574	0.98063	351.43	-7.28
67/10/16	2439779.5	62.86252	-3.51928	-4.93789	0.10840	0.85990	0.45448	63.15429	0.97864	356.80	-4.48
67/10/16	2439780.0	63.23802	2.31608	-1.83619	0.00252	0.86159	0.46055	63.30705	0.97696	2.10	-1.66
67/10/17	2439780.5	62.89831	8.12944	1.28865	-0.10262	0.85343	0.46131	63.43458	0.97554	7.36	1.16
67/10/17	2439781.0	61.85202	13.85473	4.40087	-0.20596	0.83562	0.45683	63.53734	0.97436	12.63	3.97
67/10/18	2439781.5	60.11474	19.42745	7.46523	-0.30649	0.80843	0.44720	63.61554	0.97339	17.91	6.74
67/10/18	2439782.0	57.70887	24.78516	10.44722	-0.40323	0.77219	0.43254	63.66916	0.97261	23.24	9.44
67/10/19	2439782.5	54.66335	29.86794	13.31340	-0.49523	0.72731	0.41303	63.69789	0.97202	28.65	12.06
67/10/19	2439783.0	51.01332	34.61883	16.03157	-0.58159	0.67427	0.38887	63.70113	0.97165	34.16	14.58
67/10/20	2439783.5	46.79989	38.98424	18.57108	-0.66146	0.61358	0.36031	63.67799	0.97151	39.79	16.96
67/10/20	2439784.0	42.06972	42.91439	20.90300	-0.73405	0.54584	0.32762	63.62736	0.97165	45.57	19.18
67/10/21	2439784.5	36.87468	46.36358	23.00037	-0.79861	0.47167	0.29111	63.54794	0.97211	51.50	21.22
67/10/21	2439785.0	31.27154	49.29064	24.83839	-0.85445	0.39177	0.25109	63.43833	0.97294	57.61	23.05
67/10/22	2439785.5	25.32150	51.65915	26.39459	-0.90094	0.30686	0.20795	63.29708	0.97422	63.89	24.65
67/10/22	2439786.0	19.08992	53.43782	27.64905	-0.93750	0.21773	0.16206	63.12286	0.97600	70.34	25.98
67/10/23	2439786.5	12.64586	54.60079	28.58456	-0.96360	0.12519	0.11384	62.91456	0.97835	76.96	27.02
67/10/23	2439787.0	6.06174	55.12790	29.18683	-0.97879	0.03011	0.06373	62.67138	0.98132	83.73	27.76
67/10/24	2439787.5	-0.58710	55.00506	29.44464	-0.98265	-0.06658	0.01220	62.39301	0.98498	90.61	28.16
67/10/24	2439788.0	-7.22278	54.22454	29.35008	-0.97485	-0.16393	-0.04024	62.07976	0.98936	97.59	28.21
67/10/25	2439788.5	-13.76538	52.78538	28.89872	-0.95512	-0.26090	-0.09306	61.73264	0.99448	104.62	27.91
67/10/25	2439789.0	-20.13341	50.69374	28.08992	-0.92328	-0.35641	-0.14569	61.35351	1.00035	111.66	27.25
67/10/26	2439789.5	-26.24448	47.96333	26.92698	-0.87924	-0.44933	-0.19753	60.94519	1.00696	118.69	26.22
67/10/26	2439790.0	-32.01593	44.61584	25.41751	-0.82301	-0.53842	-0.24791	60.51151	1.01425	125.66	24.84
67/10/27	2439790.5	-37.36577	40.68141	23.57364	-0.75477	-0.62243	-0.29616	60.05742	1.02216	132.57	23.11
67/10/27	2439791.0	-42.21363	36.19899	21.41230	-0.67486	-0.70001	-0.34153	59.58896	1.03058	139.39	21.06
67/10/28	2439791.5	-46.48208	31.21676	18.95550	-0.58378	-0.76979	-0.38327	59.11329	1.03937	146.12	18.70
67/10/28	2439792.0	-50.09801	25.79226	16.23049	-0.48232	-0.83037	-0.42060	58.63856	1.04836	152.76	16.07
67/10/29	2439792.5	-52.99438	19.99250	13.26985	-0.37149	-0.88038	-0.45272	58.17381	1.05737	159.33	13.19
67/10/29	2439793.0	-55.11203	13.89367	10.11148	-0.25262	-0.91847	-0.47886	57.72878	1.06617	165.85	10.09
67/10/30	2439793.5	-56.40176	7.58061	6.79836	-0.12731	-0.94345	-0.49830	57.31354	1.07453	172.35	6.81
67/10/30	2439794.0	-56.82642	1.14574	3.37815	0.00249	-0.95429	-0.51039	56.93827	1.08221	178.84	3.40
67/10/31	2439794.5	-56.36286	-5.31235	-0.09755	0.13458	-0.95021	-0.51461	56.61274	1.08896	185.38	-0.10
67/10/31	2439795.0	-55.00376	-11.69094	-3.57414	0.26651	-0.93076	-0.51061	56.34595	1.09456	192.00	-3.64

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/11/ 1	2439795.5	-52.75898	-17.88551	-6.99524	0.39568	-0.89590	-0.49822	56.14566	1.09882	198.73	-7.16
67/11/ 1	2439796.0	-49.65626	-23.79263	-10.30418	0.51941	-0.84598	-0.47752	56.01793	1.10158	205.60	-10.60
67/11/ 2	2439796.5	-45.74129	-29.31283	-13.44555	0.63510	-0.78182	-0.44881	55.96687	1.10273	212.65	-13.90
67/11/ 2	2439797.0	-41.07689	-34.35365	-16.36685	0.74033	-0.70466	-0.41264	55.99427	1.10223	219.91	-17.00
67/11/ 3	2439797.5	-35.74137	-38.83239	-19.02005	0.83295	-0.61614	-0.36979	56.09958	1.10008	227.37	-19.82
67/11/ 3	2439798.0	-29.82621	-42.67841	-21.36295	0.91124	-0.51817	-0.32118	56.27988	1.09636	235.05	-22.31
67/11/ 4	2439798.5	-23.43317	-45.83489	-23.36023	0.97389	-0.41289	-0.26791	56.53009	1.09120	242.92	-24.41
67/11/ 4	2439799.0	-16.67110	-48.25985	-24.98416	1.02011	-0.30253	-0.21114	56.84318	1.08478	250.94	-26.07
67/11/ 5	2439799.5	-9.65270	-49.92652	-26.21498	1.04957	-0.18934	-0.15203	57.21064	1.07729	259.06	-27.27
67/11/ 5	2439800.0	-2.49140	-50.82302	-27.04085	1.06237	-0.07545	-0.09174	57.62286	1.06899	267.19	-27.99
67/11/ 6	2439800.5	4.70144	-50.95150	-27.45756	1.05899	0.03714	-0.03138	58.06958	1.06010	275.27	-28.22
67/11/ 6	2439801.0	11.81879	-50.32697	-27.46795	1.04023	0.14663	0.02808	58.54038	1.05089	283.22	-27.98
67/11/ 7	2439801.5	18.75984	-48.97575	-27.08126	1.00712	0.25148	0.08574	59.02499	1.04157	290.96	-27.31
67/11/ 7	2439802.0	25.43131	-46.93390	-26.31228	0.96083	0.35037	0.14085	59.51368	1.03238	298.45	-26.24
67/11/ 8	2439802.5	31.74836	-44.24563	-25.18059	0.90268	0.44220	0.19275	59.99747	1.02348	305.66	-24.82
67/11/ 8	2439803.0	37.63506	-40.96181	-23.70972	0.83398	0.52610	0.24092	60.46832	1.01506	312.58	-23.09
67/11/ 9	2439803.5	43.02458	-37.13856	-21.92650	0.75609	0.60139	0.28492	60.91928	1.00724	319.20	-21.10
67/11/ 9	2439804.0	47.85924	-32.83608	-19.86036	0.67035	0.66754	0.32442	61.34451	1.00011	325.55	-18.89
67/11/10	2439804.5	52.09025	-28.11763	-17.54279	0.57805	0.72417	0.35913	61.73933	0.99375	331.64	-16.51
67/11/10	2439805.0	55.67753	-23.04861	-15.00687	0.48047	0.77103	0.38887	62.10017	0.98820	337.51	-13.98
67/11/11	2439805.5	58.58936	-17.69584	-12.28682	0.37880	0.80794	0.41348	62.42453	0.98348	343.19	-11.35
67/11/11	2439806.0	60.80211	-12.12694	-9.41770	0.27422	0.83484	0.43287	62.71087	0.97956	348.72	-8.64
67/11/12	2439806.5	62.29991	-6.40981	-6.43507	0.16786	0.85172	0.44699	62.95851	0.97643	354.13	-5.87
67/11/12	2439807.0	63.07436	-0.61212	-3.37475	0.06080	0.85864	0.45582	63.16754	0.97403	359.44	-3.06
67/11/13	2439807.5	63.12433	5.19905	-0.27256	-0.04590	0.85573	0.45936	63.33866	0.97231	4.71	-0.25
67/11/13	2439808.0	62.45573	10.95766	2.83587	-0.15122	0.84316	0.45767	63.47307	0.97121	9.95	2.56
67/11/14	2439808.5	61.08128	16.59905	5.91535	-0.25417	0.82116	0.45083	63.57235	0.97064	15.20	5.34
67/11/14	2439809.0	59.02039	22.06034	8.93131	-0.35376	0.79003	0.43894	63.63830	0.97054	20.49	8.07
67/11/15	2439809.5	56.29892	27.28084	11.85004	-0.44907	0.75011	0.42214	63.67288	0.97085	25.85	10.73
67/11/15	2439810.0	52.94904	32.20239	14.63892	-0.53918	0.70183	0.40062	63.67804	0.97148	31.31	13.29
67/11/16	2439810.5	49.00898	36.76986	17.26661	-0.62320	0.64564	0.37459	63.65563	0.97239	36.88	15.74
67/11/16	2439811.0	44.52287	40.93150	19.70337	-0.70029	0.58208	0.34428	63.60736	0.97353	42.59	18.05
67/11/17	2439811.5	39.54037	44.63939	21.92119	-0.76965	0.51176	0.30999	63.53468	0.97486	48.47	20.18
67/11/17	2439812.0	34.11645	47.84991	23.89415	-0.83052	0.43532	0.27203	63.43876	0.97636	54.51	22.13
67/11/18	2439812.5	28.31099	50.52409	25.59858	-0.88221	0.35351	0.23076	63.32048	0.97801	60.74	23.85
67/11/18	2439813.0	22.18836	52.62809	27.01333	-0.92408	0.26709	0.18656	63.18037	0.97983	67.14	25.31
67/11/19	2439813.5	15.81700	54.13355	28.12001	-0.95557	0.17691	0.13986	63.01868	0.98182	73.71	26.50
67/11/19	2439814.0	9.26890	55.01798	28.90321	-0.97619	0.08386	0.09111	62.83539	0.98401	80.44	27.39
67/11/20	2439814.5	2.61908	55.26509	29.35069	-0.98554	-0.01113	0.04081	62.63029	0.98645	87.29	27.95
67/11/20	2439815.0	-4.05500	54.86514	29.45360	-0.98331	-0.10705	-0.01055	62.40306	0.98918	94.23	28.16
67/11/21	2439815.5	-10.67404	53.81522	29.20667	-0.96926	-0.20288	-0.06241	62.15337	0.99224	101.22	28.03
67/11/21	2439816.0	-17.15759	52.11950	28.60835	-0.94329	-0.29756	-0.11421	61.88104	0.99568	108.22	27.54
67/11/22	2439816.5	-23.42473	49.78953	27.66104	-0.90537	-0.38999	-0.16537	61.58610	0.99956	115.20	26.69
67/11/22	2439817.0	-29.39481	46.84436	26.37114	-0.85560	-0.47903	-0.21527	61.26897	1.00392	122.11	25.49
67/11/23	2439817.5	-34.98827	43.31082	24.74928	-0.79420	-0.56354	-0.26329	60.93056	1.00879	128.93	23.97

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
67/11/23	2439818.0	-40.12750	39.22361	22.81039	-0.72154	-0.64233	-0.30878	60.57245	1.01417	135.65	22.12
67/11/24	2439818.5	-44.73780	34.62543	20.57380	-0.63811	-0.71423	-0.35108	60.19695	1.02008	142.26	19.99
67/11/24	2439819.0	-48.74844	29.56704	18.06335	-0.54459	-0.77803	-0.38954	59.80723	1.02648	148.76	17.58
67/11/25	2439819.5	-52.09382	24.10719	15.30739	-0.44182	-0.83258	-0.42347	59.40740	1.03331	155.17	14.93
67/11/25	2439820.0	-54.71477	18.31249	12.33877	-0.33086	-0.87672	-0.45223	59.00253	1.04049	161.50	12.07
67/11/26	2439820.5	-56.55993	12.25711	9.19473	-0.21296	-0.90939	-0.47517	58.59868	1.04792	167.77	9.03
67/11/26	2439821.0	-57.58723	6.02216	5.91666	-0.08962	-0.92959	-0.49171	58.20277	1.05544	174.03	5.83
67/11/27	2439821.5	-57.76548	-0.30502	2.54978	0.03745	-0.93650	-0.50131	57.82254	1.06290	180.30	2.53
67/11/27	2439822.0	-57.07586	-6.63202	-0.85739	0.16632	-0.92945	-0.50354	57.46627	1.07009	186.63	-0.85
67/11/28	2439822.5	-55.51335	-12.86277	-4.25378	0.29484	-0.90803	-0.49808	57.14260	1.07682	193.05	-4.27
67/11/28	2439823.0	-53.08800	-18.89939	-7.58662	0.42071	-0.87213	-0.48476	56.86017	1.08287	199.60	-7.67
67/11/29	2439823.5	-49.82579	-24.64428	-10.80258	0.54155	-0.82195	-0.46359	56.62725	1.08803	206.32	-11.00
67/11/29	2439824.0	-45.76904	-30.00257	-13.84901	0.65494	-0.75810	-0.43476	56.45135	1.09209	213.25	-14.20
67/11/30	2439824.5	-40.97623	-34.88469	-16.67537	0.75853	-0.68154	-0.39869	56.33881	1.09490	220.41	-17.22
67/11/30	2439825.0	-35.52113	-39.20896	-19.23461	0.85017	-0.59363	-0.35600	56.29444	1.09632	227.83	-19.98
67/12/ 1	2439825.5	-29.49126	-42.90403	-21.48459	0.92797	-0.49605	-0.30751	56.32120	1.09625	235.50	-22.42
67/12/ 1	2439826.0	-22.98565	-45.91100	-23.38926	0.99043	-0.39078	-0.25421	56.42001	1.09466	243.40	-24.49
67/12/ 2	2439826.5	-16.11215	-48.18497	-24.91968	1.03646	-0.27997	-0.19719	56.58960	1.09157	251.51	-26.13
67/12/ 2	2439827.0	-8.98432	-49.69609	-26.05464	1.06547	-0.16589	-0.13764	56.82661	1.08706	259.75	-27.29
67/12/ 3	2439827.5	-1.71821	-50.42981	-26.78105	1.07731	-0.05078	-0.07674	57.12567	1.08124	268.05	-27.96
67/12/ 3	2439828.0	5.57075	-50.38658	-27.09381	1.07230	0.06319	-0.01568	57.47970	1.07428	276.31	-28.12
67/12/ 4	2439828.5	12.77060	-49.58097	-26.99555	1.05115	0.17403	0.04445	57.88023	1.06638	284.44	-27.80
67/12/ 4	2439829.0	19.77526	-48.04027	-26.49598	1.01486	0.27998	0.10267	58.31780	1.05777	292.37	-27.02
67/12/ 5	2439829.5	26.48644	-45.80288	-25.61111	0.96471	0.37953	0.15810	58.78234	1.04866	300.04	-25.83
67/12/ 5	2439830.0	32.81497	-42.91654	-24.36233	0.90212	0.47143	0.21002	59.26361	1.03931	307.40	-24.27
67/12/ 6	2439830.5	38.68173	-39.43648	-22.77554	0.82860	0.55470	0.25782	59.75146	1.02993	314.45	-22.41
67/12/ 6	2439831.0	44.01797	-35.42374	-20.88020	0.74572	0.62862	0.30106	60.23625	1.02074	321.17	-20.28
67/12/ 7	2439831.5	48.76545	-30.94356	-18.70852	0.65500	0.69266	0.33938	60.70899	1.01192	327.60	-17.95
67/12/ 7	2439832.0	52.87614	-26.06406	-16.29471	0.55792	0.74650	0.37253	61.16158	1.00365	333.76	-15.45
67/12/ 8	2439832.5	56.31190	-20.85508	-13.67436	0.45592	0.78994	0.40035	61.58695	0.99606	339.68	-12.83
67/12/ 8	2439833.0	59.04391	-15.38727	-10.88390	0.35033	0.82293	0.42275	61.97911	0.98927	345.39	-10.11
67/12/ 9	2439833.5	61.05217	-9.73126	-7.96021	0.24241	0.84552	0.43969	62.33322	0.98336	350.94	-7.34
67/12/ 9	2439834.0	62.32498	-3.95716	-4.94023	0.13335	0.85783	0.45119	62.64558	0.97838	356.37	-4.52
67/12/10	2439834.5	62.85839	1.86598	-1.86068	0.02425	0.86004	0.45729	62.91360	0.97435	1.70	-1.69
67/12/10	2439835.0	62.65576	7.67051	1.24211	-0.08383	0.85238	0.45807	63.13576	0.97129	6.98	1.13
67/12/11	2439835.5	61.72741	13.39053	4.33243	-0.18989	0.83513	0.45362	63.31153	0.96916	12.24	3.92
67/12/11	2439836.0	60.09023	18.96211	7.37535	-0.29298	0.80860	0.44409	63.44126	0.96793	17.51	6.68
67/12/12	2439836.5	57.76745	24.32359	10.33685	-0.39219	0.77315	0.42961	63.52611	0.96754	22.83	9.36
67/12/12	2439837.0	54.78844	29.41581	13.18400	-0.48662	0.72916	0.41035	63.56792	0.96792	28.23	11.97
67/12/13	2439837.5	51.18848	34.18241	15.88509	-0.57541	0.67707	0.38651	63.56912	0.96898	33.73	14.47
67/12/13	2439838.0	47.00861	38.57015	18.40981	-0.65772	0.61737	0.35831	63.53257	0.97063	39.37	16.84
67/12/14	2439838.5	42.29551	42.52922	20.72947	-0.73274	0.55058	0.32600	63.46145	0.97279	45.16	19.07
67/12/14	2439839.0	37.10127	46.01366	22.81718	-0.79967	0.47732	0.28987	63.35917	0.97536	51.12	21.11
67/12/15	2439839.5	31.48318	48.98177	24.64812	-0.85777	0.39823	0.25024	63.22922	0.97826	57.27	22.94
67/12/15	2439840.0	25.50350	51.39656	26.19975	-0.90634	0.31405	0.20746	63.07505	0.98138	63.61	24.54

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
67/12/16	2439840.5	19.22908	53.22622	27.45214	-0.94471	0.22559	0.16194	62.89999	0.98467	70.14	25.88
67/12/16	2439841.0	12.73097	54.44462	28.38819	-0.97230	0.13370	0.11412	62.70713	0.98806	76.84	26.92
67/12/17	2439841.5	6.08391	55.03177	28.99394	-0.98861	0.03935	0.06449	62.49926	0.99149	83.69	27.64
67/12/17	2439842.0	-0.63426	54.97428	29.25883	-0.99324	-0.05648	0.01356	62.27883	0.99493	90.66	28.02
67/12/18	2439842.5	-7.34328	54.26579	29.17594	-0.98587	-0.15271	-0.03811	62.04785	0.99836	97.71	28.05
67/12/18	2439843.0	-13.96127	52.90735	28.74227	-0.96634	-0.24822	-0.08993	61.80795	1.00175	104.78	27.71
67/12/19	2439843.5	-20.40557	50.90770	27.95888	-0.93459	-0.34186	-0.14127	61.56038	1.00512	111.84	27.01
67/12/19	2439844.0	-26.59368	48.28349	26.83110	-0.89071	-0.43245	-0.19152	61.30601	1.00849	118.85	25.95
67/12/20	2439844.5	-32.44426	45.05944	25.36860	-0.83497	-0.51879	-0.24000	61.04546	1.01189	125.76	24.56
67/12/20	2439845.0	-37.87815	41.26835	23.58548	-0.76775	-0.59969	-0.28608	60.77916	1.01534	132.55	22.83
67/12/21	2439845.5	-42.81947	36.95107	21.50029	-0.68962	-0.67398	-0.32910	60.50744	1.01889	139.21	20.81
67/12/21	2439846.0	-47.19670	32.15626	19.13593	-0.60131	-0.74051	-0.36841	60.23070	1.02258	145.73	18.52
67/12/22	2439846.5	-50.94379	26.94017	16.51962	-0.50371	-0.79820	-0.40340	59.94948	1.02644	152.13	16.00
67/12/22	2439847.0	-54.00132	21.36622	13.68267	-0.39788	-0.84602	-0.43346	59.66467	1.03051	158.41	13.26
67/12/23	2439847.5	-56.31754	15.50449	10.66032	-0.28503	-0.88303	-0.45806	59.37758	1.03480	164.61	10.34
67/12/23	2439848.0	-57.84955	9.43107	7.49137	-0.16655	-0.90840	-0.47667	59.09007	1.03930	170.74	7.28
67/12/24	2439848.5	-58.56432	3.22729	4.21785	-0.04397	-0.92142	-0.48887	58.80464	1.04400	176.85	4.11
67/12/24	2439849.0	-58.43978	-3.02125	0.88455	0.08101	-0.92154	-0.49427	58.52451	1.04886	182.96	0.87
67/12/25	2439849.5	-57.46570	-9.22579	-2.46155	0.20657	-0.90838	-0.49261	58.25359	1.05380	189.12	-2.42
67/12/25	2439850.0	-55.64461	-15.29565	-5.77191	0.33079	-0.88176	-0.48370	57.99650	1.05872	195.37	-5.71
67/12/26	2439850.5	-52.99240	-21.13978	-8.99722	0.45165	-0.84175	-0.46750	57.75842	1.06353	201.75	-8.96
67/12/26	2439851.0	-49.53886	-26.66839	-12.08826	0.56708	-0.78867	-0.44408	57.54501	1.06807	208.30	-12.13
67/12/27	2439851.5	-45.32778	-31.79474	-14.99683	0.67501	-0.72309	-0.41367	57.36217	1.07220	215.05	-15.16
67/12/27	2439852.0	-40.41679	-36.43710	-17.67686	0.77343	-0.64592	-0.37666	57.21583	1.07577	222.04	-18.00
67/12/28	2439852.5	-34.87674	-40.52072	-20.08540	0.86046	-0.55832	-0.33361	57.11164	1.07861	229.28	-20.59
67/12/28	2439853.0	-28.79062	-43.97974	-22.18378	0.93442	-0.46174	-0.28520	57.05469	1.08059	236.79	-22.88
67/12/29	2439853.5	-22.25202	-46.75898	-23.93857	0.99386	-0.35789	-0.23230	57.04919	1.08158	244.55	-24.81
67/12/29	2439854.0	-15.36313	-48.81545	-25.32252	1.03770	-0.24864	-0.17586	57.09820	1.08147	252.53	-26.33
67/12/30	2439854.5	-8.23237	-50.11951	-26.31521	1.06520	-0.13605	-0.11695	57.20339	1.08020	260.67	-27.39
67/12/30	2439855.0	-0.97176	-50.65552	-26.90357	1.07603	-0.02220	-0.05666	57.36487	1.07774	268.90	-27.97
67/12/31	2439855.5	6.30584	-50.42203	-27.08208	1.07026	0.09084	0.00389	57.58111	1.07411	277.13	-28.06
67/12/31	2439856.0	13.48942	-49.43145	-26.85270	1.04837	0.20105	0.06362	57.84894	1.06937	285.26	-27.66
68/ 1/ 1	2439856.5	20.47235	-47.70921	-26.22453	1.01118	0.30660	0.12149	58.16366	1.06360	293.22	-26.80
68/ 1/ 1	2439857.0	27.15463	-45.29251	-25.21326	0.95979	0.40586	0.17660	58.51917	1.05694	300.94	-25.52
68/ 1/ 2	2439857.5	33.44459	-42.22886	-23.84041	0.89557	0.49743	0.22814	58.90826	1.04954	308.38	-23.87
68/ 1/ 2	2439858.0	39.26030	-38.57430	-22.13251	0.82001	0.58018	0.27544	59.32281	1.04158	315.50	-21.91
68/ 1/ 3	2439858.5	44.53037	-34.39166	-20.12013	0.73472	0.65324	0.31797	59.75417	1.03327	322.32	-19.68
68/ 1/ 3	2439859.0	49.19441	-29.74887	-17.83705	0.64132	0.71598	0.35532	60.19340	1.02478	328.84	-17.24
68/ 1/ 4	2439859.5	53.20303	-24.71729	-15.31936	0.54145	0.76800	0.38721	60.63159	1.01633	335.08	-14.64
68/ 1/ 4	2439860.0	56.51767	-19.37032	-12.60468	0.43665	0.80909	0.41347	61.06009	1.00809	341.08	-11.91
68/ 1/ 5	2439860.5	59.11009	-13.78219	-9.73153	0.32842	0.83922	0.43400	61.47076	1.00025	346.88	-9.11
68/ 1/ 5	2439861.0	60.96176	-8.02691	-6.73871	0.21814	0.85847	0.44880	61.85611	0.99297	352.50	-6.25
68/ 1/ 6	2439861.5	62.06327	-2.17753	-3.66490	0.10710	0.86705	0.45793	62.20951	0.98638	357.99	-3.38
68/ 1/ 6	2439862.0	62.41357	3.69454	-0.54825	-0.00350	0.86523	0.46147	62.52523	0.98060	3.39	-0.50
68/ 1/ 7	2439862.5	62.01940	9.51997	2.57387	-0.11256	0.85334	0.45957	62.79857	0.97573	8.73	2.35

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/ 1/ 7	2439863.0	60.89466	15.23187	5.66509	-0.21906	0.83177	0.45238	63.02589	0.97184	14.04	5.16
68/ 1/ 8	2439863.5	59.05989	20.76604	8.69021	-0.32207	0.80093	0.44008	63.20458	0.96896	19.37	7.90
68/ 1/ 8	2439864.0	56.54190	26.06117	11.61532	-0.42067	0.76126	0.42288	63.33314	0.96711	24.75	10.57
68/ 1/ 9	2439864.5	53.37332	31.05905	14.40792	-0.51404	0.71323	0.40099	63.41107	0.96629	30.20	13.13
68/ 1/ 9	2439865.0	49.59241	35.70469	17.03703	-0.60136	0.65733	0.37464	63.43889	0.96647	35.75	15.58
68/ 1/10	2439865.5	45.24279	39.94656	19.47327	-0.68185	0.59409	0.34408	63.41803	0.96760	41.44	17.88
68/ 1/10	2439866.0	40.37326	43.73678	21.68904	-0.75476	0.52406	0.30958	63.35077	0.96961	47.29	20.02
68/ 1/11	2439866.5	35.03768	47.03141	23.65862	-0.81935	0.44784	0.27144	63.24020	0.97241	53.31	21.97
68/ 1/11	2439867.0	29.29480	49.79074	25.35841	-0.87492	0.36610	0.22997	63.09003	0.97591	59.53	23.70
68/ 1/12	2439867.5	23.20811	51.97974	26.76708	-0.92077	0.27955	0.18554	62.90458	0.97999	65.94	25.18
68/ 1/12	2439868.0	16.84560	53.56844	27.86586	-0.95626	0.18898	0.13853	62.68858	0.98455	72.54	26.39
68/ 1/13	2439868.5	10.27948	54.53246	28.63883	-0.98080	0.09524	0.08940	62.44710	0.98946	79.32	27.30
68/ 1/13	2439869.0	3.58577	54.85354	29.07317	-0.99385	-0.00072	0.03862	62.18535	0.99460	86.26	27.87
68/ 1/14	2439869.5	-3.15614	54.52005	29.15951	-0.99497	-0.09787	-0.01327	61.90860	0.99986	93.31	28.10
68/ 1/14	2439870.0	-9.86425	53.52762	28.89226	-0.98382	-0.19511	-0.06569	61.62201	1.00513	100.44	27.96
68/ 1/15	2439870.5	-16.45461	51.87957	28.26988	-0.96018	-0.29127	-0.11802	61.33050	1.01030	107.60	27.45
68/ 1/15	2439871.0	-22.84235	49.58741	27.29520	-0.92399	-0.38510	-0.16961	61.03861	1.01529	114.73	26.56
68/ 1/16	2439871.5	-28.94272	46.67117	25.97561	-0.87535	-0.47533	-0.21976	60.75040	1.02004	121.80	25.31
68/ 1/16	2439872.0	-34.67230	43.15967	24.32328	-0.81456	-0.56066	-0.26775	60.46939	1.02447	128.78	23.72
68/ 1/17	2439872.5	-39.95034	39.09054	22.35519	-0.74211	-0.63978	-0.31287	60.19846	1.02856	135.62	21.80
68/ 1/17	2439873.0	-44.70011	34.51014	20.09319	-0.65870	-0.71143	-0.35442	59.93985	1.03229	142.33	19.59
68/ 1/18	2439873.5	-48.85030	29.47327	17.56383	-0.56523	-0.77438	-0.39171	59.69517	1.03566	148.90	17.11
68/ 1/18	2439874.0	-52.33645	24.04260	14.79817	-0.46281	-0.82753	-0.42410	59.46542	1.03868	155.33	14.41
68/ 1/19	2439874.5	-55.10224	18.28804	11.83147	-0.35275	-0.86987	-0.45099	59.25110	1.04139	161.64	11.52
68/ 1/19	2439875.0	-57.10073	12.28579	8.70271	-0.23650	-0.90054	-0.47187	59.05228	1.04383	167.86	8.47
68/ 1/20	2439875.5	-58.29547	6.11730	5.45411	-0.11568	-0.91886	-0.48631	58.86876	1.04603	174.01	5.32
68/ 1/20	2439876.0	-58.66138	-0.13193	2.13049	0.00795	-0.92432	-0.49398	58.70020	1.04807	180.13	2.08
68/ 1/21	2439876.5	-58.18548	-6.37369	-1.22140	0.13258	-0.91662	-0.49463	58.54627	1.04997	186.25	-1.20
68/ 1/21	2439877.0	-56.86743	-12.51847	-4.55361	0.25632	-0.89568	-0.48816	58.40678	1.05178	192.41	-4.47
68/ 1/22	2439877.5	-54.71981	-18.47690	-7.81780	0.37723	-0.86164	-0.47455	58.28182	1.05353	198.66	-7.71
68/ 1/22	2439878.0	-51.76817	-24.16133	-10.96603	0.49342	-0.81485	-0.45394	58.17188	1.05523	205.02	-10.87
68/ 1/23	2439878.5	-48.05090	-29.48731	-13.95157	0.60301	-0.75591	-0.42657	58.07785	1.05687	211.54	-13.90
68/ 1/23	2439879.0	-43.61878	-34.37512	-16.72978	0.70422	-0.68562	-0.39279	58.00114	1.05843	218.24	-16.76
68/ 1/24	2439879.5	-38.53433	-38.75124	-19.25887	0.79537	-0.60500	-0.35310	57.94358	1.05987	225.16	-19.41
68/ 1/24	2439880.0	-32.87094	-42.54981	-21.50075	0.87494	-0.51529	-0.30808	57.90740	1.06111	232.31	-21.80
68/ 1/25	2439880.5	-26.71166	-45.71386	-23.42173	0.94160	-0.41788	-0.25846	57.89514	1.06209	239.70	-23.86
68/ 1/25	2439881.0	-20.14780	-48.19657	-24.99322	0.99424	-0.31436	-0.20503	57.90945	1.06272	247.31	-25.57
68/ 1/26	2439881.5	-13.27733	-49.96217	-26.19235	1.03203	-0.20642	-0.14866	57.95296	1.06291	255.12	-26.87
68/ 1/26	2439882.0	-6.20295	-50.98676	-27.00240	1.05438	-0.09585	-0.09029	58.02807	1.06258	263.06	-27.73
68/ 1/27	2439882.5	0.96981	-51.25874	-27.41314	1.06106	0.01552	-0.03091	58.13673	1.06163	271.08	-28.13
68/ 1/27	2439883.0	8.13479	-50.77896	-27.42102	1.05212	0.12583	0.02851	58.28027	1.06000	279.10	-28.07
68/ 1/28	2439883.5	15.18725	-49.56062	-27.02913	1.02792	0.23332	0.08698	58.45923	1.05765	287.04	-27.54
68/ 1/28	2439884.0	22.02595	-47.62869	-26.24705	0.98913	0.33628	0.14358	58.67318	1.05455	294.82	-26.57
68/ 1/29	2439884.5	28.55506	-45.01918	-25.09045	0.93668	0.43316	0.19743	58.92070	1.05070	302.39	-25.20
68/ 1/29	2439885.0	34.68586	-41.77800	-23.58060	0.87172	0.52259	0.24777	59.19928	1.04613	309.70	-23.47

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 1/30	2439885.5	40.33813	-37.95966	-21.74372	0.79561	0.60341	0.29390	59.50538	1.04090	316.74	-21.43
68/ 1/30	2439886.0	45.44121	-33.62589	-19.61023	0.70981	0.67466	0.33527	59.83448	1.03509	323.50	-19.13
68/ 1/31	2439886.5	49.93475	-28.84401	-17.21397	0.61588	0.73563	0.37143	60.18121	1.02879	329.99	-16.62
68/ 1/31	2439887.0	53.76909	-23.68553	-14.59144	0.51541	0.78581	0.40204	60.53949	1.02215	336.23	-13.95
68/ 2/ 1	2439887.5	56.90531	-18.22462	-11.78097	0.40999	0.82490	0.42690	60.90273	1.01528	342.24	-11.15
68/ 2/ 1	2439888.0	59.31509	-12.53681	-8.82201	0.30115	0.85280	0.44588	61.26401	1.00835	348.07	-8.28
68/ 2/ 2	2439888.5	60.98024	-6.69783	-5.75453	0.19035	0.86956	0.45895	61.61627	1.00150	353.73	-5.36
68/ 2/ 2	2439889.0	61.89224	-0.78256	-2.61841	0.07897	0.87537	0.46616	61.95255	0.99489	359.28	-2.42
68/ 2/ 3	2439889.5	62.05153	5.13573	0.54701	-0.03172	0.87051	0.46762	62.26610	0.98867	4.73	0.50
68/ 2/ 3	2439890.0	61.46684	10.98610	3.70330	-0.14053	0.85538	0.46349	62.55063	0.98298	10.13	3.39
68/ 2/ 4	2439890.5	60.15453	16.70036	6.81324	-0.24641	0.83040	0.45397	62.80039	0.97795	15.52	6.23
68/ 2/ 4	2439891.0	58.13790	22.21355	9.84105	-0.34836	0.79608	0.43928	63.01034	0.97369	20.91	8.99
68/ 2/ 5	2439891.5	55.44665	27.46409	12.75254	-0.44548	0.75294	0.41967	63.17622	0.97030	26.35	11.65
68/ 2/ 5	2439892.0	52.11633	32.39408	15.51528	-0.53693	0.70152	0.39540	63.29465	0.96787	31.86	14.19
68/ 2/ 6	2439892.5	48.18793	36.94938	18.09864	-0.62196	0.64239	0.36675	63.36319	0.96644	37.48	16.60
68/ 2/ 6	2439893.0	43.70751	41.07978	20.47393	-0.69982	0.57615	0.33400	63.38041	0.96605	43.22	18.85
68/ 2/ 7	2439893.5	38.72592	44.73911	22.61444	-0.76984	0.50339	0.29747	63.34586	0.96672	49.12	20.92
68/ 2/ 7	2439894.0	33.29859	47.88543	24.49557	-0.83134	0.42477	0.25746	63.26013	0.96842	55.19	22.78
68/ 2/ 8	2439894.5	27.48533	50.48121	26.09494	-0.88370	0.34094	0.21433	63.12481	0.97113	61.43	24.42
68/ 2/ 8	2439895.0	21.35018	52.49359	27.39253	-0.92629	0.25262	0.16841	62.94250	0.97478	67.87	25.80
68/ 2/ 9	2439895.5	14.96124	53.89473	28.37087	-0.95854	0.16057	0.12012	62.71672	0.97930	74.49	26.90
68/ 2/ 9	2439896.0	8.39047	54.66217	29.01525	-0.97990	0.06564	0.06987	62.45188	0.98457	81.27	27.68
68/ 2/10	2439896.5	1.71346	54.77932	29.31399	-0.98984	-0.03130	0.01814	62.15319	0.99050	88.21	28.14
68/ 2/10	2439897.0	-4.99096	54.23596	29.25875	-0.98792	-0.12923	-0.03457	61.82656	0.99693	95.26	28.24
68/ 2/11	2439897.5	-11.64114	53.02886	28.84481	-0.97377	-0.22711	-0.08768	61.47844	1.00374	102.38	27.98
68/ 2/11	2439898.0	-18.15332	51.16230	28.07148	-0.94713	-0.32376	-0.14059	61.11573	1.01077	109.54	27.34
68/ 2/12	2439898.5	-24.44237	48.64875	26.94239	-0.90787	-0.41795	-0.19262	60.74556	1.01785	116.68	26.33
68/ 2/12	2439899.0	-30.42284	45.50931	25.46583	-0.85603	-0.50836	-0.24307	60.37512	1.02484	123.76	24.95
68/ 2/13	2439899.5	-36.01018	41.77421	23.65505	-0.79184	-0.59361	-0.29119	60.01149	1.03159	130.76	23.21
68/ 2/13	2439900.0	-41.12210	37.48306	21.52843	-0.71574	-0.67232	-0.33621	59.66138	1.03795	137.65	21.15
68/ 2/14	2439900.5	-45.68023	32.68493	19.10958	-0.62844	-0.74309	-0.37735	59.33098	1.04380	144.42	18.79
68/ 2/14	2439901.0	-49.61174	27.43818	16.42733	-0.53089	-0.80458	-0.41386	59.02572	1.04904	151.05	16.16
68/ 2/15	2439901.5	-52.85113	21.80998	13.51550	-0.42428	-0.85553	-0.44503	58.75020	1.05357	157.58	13.30
68/ 2/15	2439902.0	-55.34190	15.87553	10.41259	-0.31009	-0.89484	-0.47019	58.50795	1.05734	163.99	10.25
68/ 2/16	2439902.5	-57.03822	9.71699	7.16119	-0.18999	-0.92157	-0.48879	58.30147	1.06033	170.33	7.06
68/ 2/16	2439903.0	-57.90629	3.42205	3.80734	-0.06584	-0.93502	-0.50038	58.13213	1.06253	176.62	3.76
68/ 2/17	2439903.5	-57.92545	-2.91762	0.39964	0.06035	-0.93473	-0.50465	58.00026	1.06397	182.88	0.39
68/ 2/17	2439904.0	-57.08895	-9.20827	-3.01163	0.18648	-0.92053	-0.50142	57.90519	1.06470	189.16	-2.98
68/ 2/18	2439904.5	-55.40435	-15.35587	-6.37560	0.31044	-0.89253	-0.49069	57.84542	1.06478	195.49	-6.33
68/ 2/18	2439905.0	-52.89346	-21.26811	-9.64177	0.43013	-0.85112	-0.47258	57.81881	1.06431	201.90	-9.60
68/ 2/19	2439905.5	-49.59198	-26.85625	-12.76107	0.54357	-0.79696	-0.44738	57.82272	1.06337	208.44	-12.75
68/ 2/19	2439906.0	-45.54869	-32.03682	-15.68684	0.64888	-0.73094	-0.41551	57.85429	1.06206	215.12	-15.73
68/ 2/20	2439906.5	-40.82445	-36.73326	-18.37568	0.74439	-0.65420	-0.37752	57.91057	1.06047	221.98	-18.50
68/ 2/20	2439907.0	-35.49084	-40.87719	-20.78824	0.82860	-0.56802	-0.33404	57.98875	1.05868	229.03	-21.01
68/ 2/21	2439907.5	-29.62868	-44.40963	-22.88989	0.90027	-0.47388	-0.28583	58.08632	1.05677	236.29	-23.21

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
68/ 2/21	2439908.0	-23.32642	-47.28177	-24.65124	0.95841	-0.37331	-0.23369	58.20113	1.05476	243.74	-25.06
68/ 2/22	2439908.5	-16.67842	-49.45572	-26.04852	1.00227	-0.26798	-0.17848	58.33149	1.05271	251.36	-26.52
68/ 2/22	2439909.0	-9.78321	-50.90481	-27.06392	1.03135	-0.15955	-0.12108	58.47620	1.05062	259.12	-27.57
68/ 2/23	2439909.5	-2.74175	-51.61386	-27.68571	1.04544	-0.04973	-0.06240	58.63451	1.04848	266.96	-28.18
68/ 2/23	2439910.0	4.34436	-51.57912	-27.90831	1.04456	0.05980	-0.00335	58.80607	1.04627	274.81	-28.33
68/ 2/24	2439910.5	11.37447	-50.80807	-27.73221	1.02897	0.16743	0.05519	58.99080	1.04396	282.62	-28.04
68/ 2/24	2439911.0	18.25054	-49.31897	-27.16382	0.99917	0.27159	0.11235	59.18881	1.04150	290.31	-27.32
68/ 2/25	2439911.5	24.87864	-47.14029	-26.21521	0.95588	0.37082	0.16734	59.40026	1.03885	297.82	-26.19
68/ 2/25	2439912.0	31.17033	-44.31000	-24.90375	0.90000	0.46380	0.21938	59.62518	1.03597	305.12	-24.69
68/ 2/26	2439912.5	37.04385	-40.87460	-23.25165	0.83259	0.54932	0.26781	59.86334	1.03280	312.19	-22.86
68/ 2/26	2439913.0	42.42524	-36.88817	-21.28551	0.75488	0.62635	0.31203	60.11414	1.02934	318.99	-20.74
68/ 2/27	2439913.5	47.24915	-32.41120	-19.03566	0.66820	0.69404	0.35151	60.37652	1.02555	325.55	-18.38
68/ 2/27	2439914.0	51.45955	-27.50947	-16.53562	0.57396	0.75169	0.38584	60.64884	1.02144	331.87	-15.82
68/ 2/28	2439914.5	55.01009	-22.25277	-13.82143	0.47360	0.79879	0.41470	60.92887	1.01702	337.98	-13.11
68/ 2/28	2439915.0	57.86440	-16.71373	-10.93100	0.36861	0.83502	0.43785	61.21376	1.01234	343.89	-10.29
68/ 2/29	2439915.5	59.99607	-10.96667	-7.90353	0.26045	0.86021	0.45516	61.50009	1.00745	349.64	-7.38
68/ 2/29	2439916.0	61.38846	-5.08645	-4.77882	0.15054	0.87435	0.46656	61.78391	1.00241	355.26	-4.44
68/ 3/ 1	2439916.5	62.03440	0.85250	-1.59680	0.04025	0.87758	0.47209	62.06080	0.99731	0.79	-1.47
68/ 3/ 1	2439917.0	61.93574	6.77705	1.60300	-0.06913	0.87015	0.47183	62.32603	0.99225	6.24	1.47
68/ 3/ 2	2439917.5	61.10276	12.61619	4.78187	-0.17640	0.85242	0.46594	62.57461	0.98734	11.67	4.38
68/ 3/ 2	2439918.0	59.55360	18.30159	7.90230	-0.28043	0.82483	0.45461	62.80148	0.98268	17.08	7.23
68/ 3/ 3	2439918.5	57.31363	23.76816	10.92825	-0.38023	0.78789	0.43809	63.00162	0.97840	22.52	9.99
68/ 3/ 3	2439919.0	54.41481	28.95445	13.82542	-0.47484	0.74216	0.41663	63.17019	0.97461	28.02	12.64
68/ 3/ 4	2439919.5	50.89511	33.80291	16.56140	-0.56343	0.68824	0.39054	63.30267	0.97142	33.59	15.17
68/ 3/ 4	2439920.0	46.79796	38.26016	19.10584	-0.64523	0.62675	0.36012	63.39497	0.96893	39.27	17.54
68/ 3/ 5	2439920.5	42.17180	42.27717	21.43056	-0.71954	0.55834	0.32571	63.44358	0.96725	45.07	19.74
68/ 3/ 5	2439921.0	37.06960	45.80933	23.50963	-0.78570	0.48369	0.28764	63.44566	0.96645	51.02	21.75
68/ 3/ 6	2439921.5	31.54855	48.81665	25.31944	-0.84312	0.40348	0.24626	63.39914	0.96659	57.13	23.54
68/ 3/ 6	2439922.0	25.66975	51.26388	26.83883	-0.89125	0.31842	0.20194	63.30280	0.96773	63.40	25.09
68/ 3/ 7	2439922.5	19.49795	53.12063	28.04912	-0.92956	0.22924	0.15505	63.15635	0.96988	69.84	26.37
68/ 3/ 7	2439923.0	13.10135	54.36163	28.93429	-0.95756	0.13672	0.10600	62.96051	0.97306	76.45	27.36
68/ 3/ 8	2439923.5	6.55135	54.96695	29.48111	-0.97478	0.04167	0.05521	62.71699	0.97723	83.20	28.04
68/ 3/ 8	2439924.0	-0.07763	54.92234	29.67931	-0.98081	-0.05505	0.00314	62.42860	0.98236	90.08	28.39
68/ 3/ 9	2439924.5	-6.70843	54.21963	29.52181	-0.97526	-0.15250	-0.04974	62.09918	0.98836	97.05	28.39
68/ 3/ 9	2439925.0	-13.26152	52.85719	29.00499	-0.95781	-0.24969	-0.10287	61.73362	0.99515	104.08	28.02
68/ 3/10	2439925.5	-19.65542	50.84043	28.12900	-0.92822	-0.34553	-0.15570	61.33779	1.00261	111.14	27.30
68/ 3/10	2439926.0	-25.80731	48.18237	26.89804	-0.88634	-0.43886	-0.20758	60.91849	1.01058	118.17	26.20
68/ 3/11	2439926.5	-31.63386	44.90423	25.32075	-0.83216	-0.52842	-0.25785	60.48331	1.01892	125.16	24.75
68/ 3/11	2439927.0	-37.05214	41.03593	23.41048	-0.76582	-0.61290	-0.30578	60.04048	1.02744	132.08	22.95
68/ 3/12	2439927.5	-41.98092	36.61661	21.18564	-0.68769	-0.69090	-0.35061	59.59870	1.03595	138.90	20.82
68/ 3/12	2439928.0	-46.34213	31.69489	18.66990	-0.59834	-0.76101	-0.39155	59.16692	1.04425	145.63	18.39
68/ 3/13	2439928.5	-50.06251	26.32903	15.89228	-0.49862	-0.82182	-0.42781	58.75404	1.05216	152.26	15.69
68/ 3/13	2439929.0	-53.07553	20.58672	12.88716	-0.38967	-0.87196	-0.45861	58.36869	1.05947	158.80	12.76
68/ 3/14	2439929.5	-55.32333	14.54457	9.69403	-0.27292	-0.91016	-0.48321	58.01887	1.06601	165.27	9.62
68/ 3/14	2439930.0	-56.75869	8.28715	6.35707	-0.15008	-0.93536	-0.50098	57.71168	1.07163	171.69	6.32

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 3/15	2439930.5	-57.34692	1.90572	2.92448	-0.02312	-0.94667	-0.51137	57.45306	1.07620	178.10	2.92
68/ 3/15	2439931.0	-57.06743	-4.50358	-0.55238	0.10578	-0.94352	-0.51400	57.24752	1.07963	184.51	-0.55
68/ 3/16	2439931.5	-55.91493	-10.84178	-4.02013	0.23428	-0.92565	-0.50866	57.09803	1.08188	190.97	-4.04
68/ 3/16	2439932.0	-53.90017	-17.00937	-7.42454	0.36000	-0.89319	-0.49531	57.00589	1.08292	197.51	-7.48
68/ 3/17	2439932.5	-51.05006	-22.90881	-10.71189	0.48057	-0.84658	-0.47414	56.97076	1.08279	204.17	-10.84
68/ 3/17	2439933.0	-47.40721	-28.44688	-13.83030	0.59373	-0.78664	-0.44550	56.99076	1.08157	210.97	-14.04
68/ 3/18	2439933.5	-43.02888	-33.53704	-16.73097	0.69743	-0.71452	-0.40995	57.06262	1.07935	217.93	-17.05
68/ 3/18	2439934.0	-37.98543	-38.10135	-19.36934	0.78985	-0.63161	-0.36817	57.18196	1.07627	225.09	-19.80
68/ 3/19	2439934.5	-32.35846	-42.07209	-21.70599	0.86952	-0.53953	-0.32100	57.34353	1.07247	232.44	-22.24
68/ 3/19	2439935.0	-26.23856	-45.39302	-23.70740	0.93525	-0.44003	-0.26934	57.54154	1.06811	239.97	-24.33
68/ 3/20	2439935.5	-19.72303	-48.02006	-25.34644	0.98623	-0.33494	-0.21416	57.76994	1.06334	247.67	-26.02
68/ 3/20	2439936.0	-12.91360	-49.92171	-26.60261	1.02198	-0.22614	-0.15644	58.02274	1.05833	255.50	-27.29
68/ 3/21	2439936.5	-5.91423	-51.07900	-27.46213	1.04232	-0.11544	-0.09719	58.29418	1.05319	263.40	-28.11
68/ 3/21	2439937.0	1.17099	-51.48516	-27.91782	1.04737	-0.00462	-0.03735	58.57898	1.04804	271.30	-28.46
68/ 3/22	2439937.5	8.23957	-51.14509	-27.96887	1.03749	0.10465	0.02215	58.87248	1.04299	279.15	-28.36
68/ 3/22	2439938.0	15.19230	-50.07462	-27.62051	1.01327	0.21082	0.08045	59.17065	1.03809	286.88	-27.83
68/ 3/23	2439938.5	21.93457	-48.29962	-26.88356	0.97549	0.31246	0.13677	59.47020	1.03340	294.42	-26.88
68/ 3/23	2439939.0	28.37755	-45.85512	-25.77400	0.92506	0.40831	0.19037	59.76852	1.02893	301.75	-25.55
68/ 3/24	2439939.5	34.43911	-42.78428	-24.31242	0.86304	0.49724	0.24061	60.06364	1.02469	308.83	-23.88
68/ 3/24	2439940.0	40.04463	-39.13740	-22.52356	0.79059	0.57826	0.28693	60.35412	1.02066	315.66	-21.91
68/ 3/25	2439940.5	45.12757	-34.97092	-20.43575	0.70894	0.65055	0.32882	60.63896	1.01682	322.23	-19.69
68/ 3/25	2439941.0	49.62996	-30.34640	-18.08038	0.61937	0.71342	0.36587	60.91746	1.01314	328.56	-17.27
68/ 3/26	2439941.5	53.50269	-25.32952	-15.49139	0.52323	0.76633	0.39775	61.18910	1.00958	334.67	-14.67
68/ 3/26	2439942.0	56.70577	-19.98914	-12.70472	0.42186	0.80889	0.42420	61.45340	1.00609	340.58	-11.93
68/ 3/27	2439942.5	59.20838	-14.39632	-9.75785	0.31661	0.84084	0.44504	61.70982	1.00266	346.33	-9.10
68/ 3/27	2439943.0	60.98886	-8.62342	-6.68924	0.20884	0.86206	0.46014	61.95765	0.99924	351.95	-6.20
68/ 3/28	2439943.5	62.03456	-2.74321	-3.53791	0.09986	0.87254	0.46946	62.19589	0.99584	357.47	-3.26
68/ 3/28	2439944.0	62.34167	3.17195	-0.34294	-0.00906	0.87241	0.47304	62.42325	0.99244	2.91	-0.31
68/ 3/29	2439944.5	61.91483	9.05088	2.85695	-0.11667	0.86189	0.47093	62.63806	0.98906	8.32	2.61
68/ 3/29	2439945.0	60.76680	14.82428	6.02378	-0.22183	0.84131	0.46330	62.83827	0.98573	13.71	5.50
68/ 3/30	2439945.5	58.91795	20.42538	9.12065	-0.32344	0.81108	0.45031	63.02148	0.98247	19.12	8.32
68/ 3/30	2439946.0	56.39580	25.79044	12.11211	-0.42049	0.77170	0.43221	63.18494	0.97936	24.58	11.05
68/ 3/31	2439946.5	53.23448	30.85928	14.96438	-0.51204	0.72371	0.40926	63.32565	0.97644	30.10	13.67
68/ 3/31	2439947.0	49.47415	35.57562	17.64561	-0.59724	0.66771	0.38176	63.44040	0.97379	35.72	16.15
68/ 4/ 1	2439947.5	45.16050	39.88745	20.12608	-0.67531	0.60437	0.35003	63.52589	0.97150	41.45	18.47
68/ 4/ 1	2439948.0	40.34422	43.74725	22.37832	-0.74555	0.53435	0.31442	63.57883	0.96966	47.32	20.61
68/ 4/ 2	2439948.5	35.08048	47.11225	24.37730	-0.80734	0.45837	0.27530	63.59604	0.96834	53.33	22.54
68/ 4/ 2	2439949.0	29.42852	49.94454	26.10047	-0.86010	0.37717	0.23305	63.57460	0.96765	59.49	24.24
68/ 4/ 3	2439949.5	23.45116	52.21129	27.52794	-0.90334	0.29150	0.18805	63.51192	0.96766	65.81	25.69
68/ 4/ 3	2439950.0	17.21449	53.88485	28.64249	-0.93660	0.20214	0.14072	63.40590	0.96845	72.28	26.85
68/ 4/ 4	2439950.5	10.78747	54.94290	29.42972	-0.95949	0.10988	0.09147	63.25504	0.97008	78.89	27.73
68/ 4/ 4	2439951.0	4.24164	55.36864	29.87813	-0.97163	0.01556	0.04074	63.05854	0.97261	85.62	28.28
68/ 4/ 5	2439951.5	-2.34918	55.15097	29.97923	-0.97273	-0.07996	-0.01101	62.81642	0.97607	92.44	28.51
68/ 4/ 5	2439952.0	-8.90922	54.28479	29.72772	-0.96250	-0.17579	-0.06331	62.52959	0.98047	99.32	28.39
68/ 4/ 6	2439952.5	-15.36108	52.77123	29.12163	-0.94075	-0.27096	-0.11563	62.19996	0.98580	106.23	27.92

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
68/ 4/ 6	2439953.0	-21.62615	50.61806	28.16256	-0.90732	-0.36449	-0.16745	61.83048	0.99203	113.13	27.10
68/ 4/ 7	2439953.5	-27.62505	47.84011	26.85589	-0.86215	-0.45528	-0.21817	61.42522	0.99909	120.00	25.93
68/ 4/ 7	2439954.0	-33.27830	44.45963	25.21105	-0.80527	-0.54221	-0.26720	60.98936	1.00690	126.82	24.42
68/ 4/ 8	2439954.5	-38.50703	40.50686	23.24181	-0.73683	-0.62407	-0.31385	60.52916	1.01533	133.55	22.58
68/ 4/ 8	2439955.0	-43.23397	36.02038	20.96653	-0.65716	-0.69959	-0.35745	60.05197	1.02424	140.20	20.43
68/ 4/ 9	2439955.5	-47.38457	31.04751	18.40839	-0.56675	-0.76747	-0.39726	59.56605	1.03345	146.77	18.00
68/ 4/ 9	2439956.0	-50.88845	25.64463	15.59562	-0.46633	-0.82635	-0.43252	59.08049	1.04278	153.25	15.31
68/ 4/10	2439956.5	-53.68101	19.87715	12.56154	-0.35689	-0.87491	-0.46248	58.60499	1.05201	159.68	12.38
68/ 4/10	2439957.0	-55.70526	13.81941	9.34457	-0.23969	-0.91186	-0.48640	58.14957	1.06091	166.07	9.25
68/ 4/11	2439957.5	-56.91379	7.55404	5.98795	-0.11630	-0.93604	-0.50361	57.72434	1.06926	172.44	5.95
68/ 4/11	2439958.0	-57.27081	1.17107	2.53931	0.01143	-0.94644	-0.51349	57.33904	1.07682	178.83	2.54
68/ 4/12	2439958.5	-56.75404	-5.23351	-0.95005	0.14135	-0.94232	-0.51556	57.00274	1.08340	185.27	-0.95
68/ 4/12	2439959.0	-55.35641	-11.55964	-4.42611	0.27113	-0.92323	-0.50952	56.72343	1.08880	191.80	-4.48
68/ 4/13	2439959.5	-53.08734	-17.70548	-7.83331	0.39826	-0.88910	-0.49523	56.50762	1.09286	198.44	-7.97
68/ 4/13	2439960.0	-49.97344	-23.56997	-11.11598	0.52018	-0.84024	-0.47278	56.36003	1.09550	205.25	-11.38
68/ 4/14	2439960.5	-46.05852	-29.05571	-14.21984	0.63438	-0.77741	-0.44250	56.28344	1.09664	212.25	-14.63
68/ 4/14	2439961.0	-41.40290	-34.07165	-17.09354	0.73853	-0.70174	-0.40492	56.27848	1.09628	219.45	-17.68
68/ 4/15	2439961.5	-36.08193	-38.53578	-19.69009	0.83054	-0.61474	-0.36080	56.34369	1.09447	226.88	-20.45
68/ 4/15	2439962.0	-30.18389	-42.37726	-21.96817	0.90868	-0.51820	-0.31105	56.47566	1.09132	234.54	-22.89
68/ 4/16	2439962.5	-23.80740	-45.53819	-23.89312	0.97163	-0.41412	-0.25670	56.66922	1.08695	242.40	-24.94
68/ 4/16	2439963.0	-17.05854	-47.97468	-25.43762	1.01853	-0.30463	-0.19890	56.91780	1.08156	250.43	-26.55
68/ 4/17	2439963.5	-10.04780	-49.65734	-26.58210	1.04893	-0.19188	-0.13877	57.21379	1.07532	258.56	-27.68
68/ 4/17	2439964.0	-2.88724	-50.57119	-27.31472	1.06280	-0.07795	-0.07746	57.54890	1.06846	266.73	-28.34
68/ 4/18	2439964.5	4.31216	-50.71509	-27.63121	1.06048	0.03517	-0.01606	57.91458	1.06119	274.86	-28.50
68/ 4/18	2439965.0	11.44280	-50.10078	-27.53436	1.04263	0.14566	0.04443	58.30237	1.05369	282.87	-28.18
68/ 4/19	2439965.5	18.40235	-48.75165	-27.03350	1.01013	0.25190	0.10310	58.70418	1.04615	290.68	-27.42
68/ 4/19	2439966.0	25.09521	-46.70142	-26.14376	0.96406	0.35247	0.15914	59.11250	1.03874	298.25	-26.25
68/ 4/20	2439966.5	31.43358	-43.99269	-24.88534	0.90566	0.44616	0.21186	59.52065	1.03158	305.55	-24.71
68/ 4/20	2439967.0	37.33826	-40.67560	-23.28284	0.83622	0.53196	0.26066	59.92279	1.02479	312.55	-22.86
68/ 4/21	2439967.5	42.73906	-36.80648	-21.36447	0.75710	0.60905	0.30505	60.31405	1.01843	319.27	-20.75
68/ 4/21	2439968.0	47.57508	-32.44662	-19.16151	0.66968	0.67678	0.34464	60.69049	1.01256	325.71	-18.40
68/ 4/22	2439968.5	51.79479	-27.66121	-16.70758	0.57533	0.73465	0.37911	61.04905	1.00719	331.90	-15.88
68/ 4/22	2439969.0	55.35593	-22.51826	-14.03821	0.47543	0.78231	0.40823	61.38748	1.00234	337.86	-13.22
68/ 4/23	2439969.5	58.22544	-17.08777	-11.19027	0.37132	0.81953	0.43182	61.70426	0.99798	343.64	-10.45
68/ 4/23	2439970.0	60.37921	-11.44085	-8.20153	0.26430	0.84620	0.44979	61.99844	0.99409	349.27	-7.60
68/ 4/24	2439970.5	61.80187	-5.64902	-5.11029	0.15564	0.86232	0.46209	62.26955	0.99063	354.78	-4.71
68/ 4/24	2439971.0	62.48652	0.21646	-1.95494	0.04657	0.86798	0.46872	62.51747	0.98755	0.20	-1.79
68/ 4/25	2439971.5	62.43443	6.08526	1.22632	-0.06173	0.86334	0.46975	62.74227	0.98480	5.57	1.12
68/ 4/25	2439972.0	61.65471	11.88853	4.39587	-0.16811	0.84868	0.46528	62.94413	0.98235	10.91	4.00
68/ 4/26	2439972.5	60.16396	17.55945	7.51692	-0.27151	0.82432	0.45546	63.12321	0.98014	16.27	6.84
68/ 4/26	2439973.0	57.98591	23.03376	10.55386	-0.37090	0.79069	0.44048	63.27957	0.97815	21.66	9.60
68/ 4/27	2439973.5	55.15101	28.25018	13.47247	-0.46532	0.74826	0.42056	63.41304	0.97636	27.12	12.27
68/ 4/27	2439974.0	51.69599	33.15088	16.24019	-0.55387	0.69756	0.39597	63.52322	0.97476	32.67	14.81
68/ 4/28	2439974.5	47.66346	37.68188	18.82636	-0.63572	0.63919	0.36700	63.60944	0.97334	38.33	17.22
68/ 4/28	2439975.0	43.10142	41.79338	21.20244	-0.71011	0.57379	0.33399	63.67073	0.97213	44.12	19.45

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 4/29	2439975.5	38.06281	45.44009	23.34215	-0.77634	0.50206	0.29727	63.70585	0.97115	50.05	21.49
68/ 4/29	2439976.0	32.60503	48.58154	25.22170	-0.83379	0.42472	0.25723	63.71333	0.97044	56.13	23.32
68/ 4/30	2439976.5	26.78943	51.18229	26.81989	-0.88192	0.34252	0.21426	63.69150	0.97005	62.37	24.90
68/ 4/30	2439977.0	20.68087	53.21217	28.11829	-0.92023	0.25627	0.16877	63.63860	0.97004	68.76	26.22
68/ 5/ 1	2439977.5	14.34723	54.64643	29.10130	-0.94832	0.16678	0.12120	63.55282	0.97047	75.29	27.25
68/ 5/ 1	2439978.0	7.85895	55.46597	29.75630	-0.96584	0.07489	0.07198	63.43244	0.97141	81.94	27.98
68/ 5/ 2	2439978.5	1.28862	55.65745	30.07372	-0.97251	-0.01853	0.02159	63.27591	0.97292	88.67	28.38
68/ 5/ 2	2439979.0	-5.28949	55.21348	30.04718	-0.96811	-0.11260	-0.02951	63.08201	0.97508	95.47	28.45
68/ 5/ 3	2439979.5	-11.79988	54.13275	29.67356	-0.95249	-0.20641	-0.08082	62.84992	0.97794	102.30	28.17
68/ 5/ 3	2439980.0	-18.16621	52.42027	28.95312	-0.92556	-0.29900	-0.13183	62.57938	0.98155	109.11	27.56
68/ 5/ 4	2439980.5	-24.31181	50.08752	27.88965	-0.88731	-0.38940	-0.18202	62.27083	0.98594	115.89	26.61
68/ 5/ 4	2439981.0	-30.16016	47.15270	26.49056	-0.83780	-0.47661	-0.23084	61.92546	0.99114	122.60	25.33
68/ 5/ 5	2439981.5	-35.63547	43.64098	24.76709	-0.77719	-0.55958	-0.27771	61.54536	0.99713	129.23	23.73
68/ 5/ 5	2439982.0	-40.66337	39.58478	22.73443	-0.70574	-0.63721	-0.32204	61.13362	1.00390	135.77	21.83
68/ 5/ 6	2439982.5	-45.17166	35.02401	20.41190	-0.62383	-0.70838	-0.36320	60.69436	1.01138	142.21	19.65
68/ 5/ 6	2439983.0	-49.09125	30.00632	17.82315	-0.53200	-0.77194	-0.40055	60.23284	1.01949	148.57	17.21
68/ 5/ 7	2439983.5	-52.35728	24.58729	14.99620	-0.43097	-0.82670	-0.43343	59.75538	1.02811	154.84	14.53
68/ 5/ 7	2439984.0	-54.91034	18.83049	11.96362	-0.32164	-0.87148	-0.46116	59.26939	1.03711	161.07	11.65
68/ 5/ 8	2439984.5	-56.69801	12.80739	8.76244	-0.20516	-0.90515	-0.48310	58.78328	1.04632	167.27	8.57
68/ 5/ 8	2439985.0	-57.67642	6.59699	5.43406	-0.08293	-0.92662	-0.49862	58.30625	1.05552	173.47	5.35
68/ 5/ 9	2439985.5	-57.81202	0.28525	2.02397	0.04341	-0.93493	-0.50715	57.84815	1.06451	179.72	2.01
68/ 5/ 9	2439986.0	-57.08338	-6.03595	-1.41878	0.17194	-0.92930	-0.50819	57.41914	1.07304	186.04	-1.42
68/ 5/10	2439986.5	-55.48287	-12.27021	-4.84221	0.30049	-0.90919	-0.50140	57.02941	1.08089	192.47	-4.87
68/ 5/10	2439987.0	-53.01819	-18.31846	-8.19247	0.42672	-0.87436	-0.48656	56.68872	1.08781	199.06	-8.31
68/ 5/11	2439987.5	-49.71351	-24.08121	-11.41492	0.54812	-0.82494	-0.46367	56.40601	1.09359	205.85	-11.68
68/ 5/11	2439988.0	-45.61004	-29.46116	-14.45557	0.66217	-0.76144	-0.43293	56.18896	1.09804	212.86	-14.91
68/ 5/12	2439988.5	-40.76596	-34.36597	-17.26262	0.76642	-0.68483	-0.39478	56.04357	1.10101	220.13	-17.94
68/ 5/12	2439989.0	-35.25559	-38.71115	-19.78797	0.85856	-0.59645	-0.34988	55.97387	1.10240	227.67	-20.70
68/ 5/13	2439989.5	-29.16777	-42.42267	-21.98873	0.93663	-0.49803	-0.29910	55.98166	1.10217	235.49	-23.13
68/ 5/13	2439990.0	-22.60349	-45.43927	-23.82859	0.99903	-0.39160	-0.24349	56.06645	1.10032	243.55	-25.15
68/ 5/14	2439990.5	-15.67298	-47.71420	-25.27874	1.04463	-0.27940	-0.18423	56.22545	1.09693	251.82	-26.72
68/ 5/14	2439991.0	-8.49243	-49.21625	-26.31865	1.07281	-0.16377	-0.12256	56.45380	1.09213	260.21	-27.79
68/ 5/15	2439991.5	-1.18056	-49.93012	-26.93629	1.08342	-0.04704	-0.05974	56.74481	1.08609	268.65	-28.34
68/ 5/15	2439992.0	6.14460	-49.85599	-27.12805	1.07682	0.06856	0.00300	57.09034	1.07901	277.03	-28.37
68/ 5/16	2439992.5	13.36872	-49.00865	-26.89836	1.05374	0.18096	0.06453	57.48123	1.07111	285.26	-27.90
68/ 5/16	2439993.0	20.38363	-47.41602	-26.25893	1.01525	0.28835	0.12383	57.90771	1.06264	293.26	-26.97
68/ 5/17	2439993.5	27.08926	-45.11754	-25.22797	0.96265	0.38916	0.18002	58.35984	1.05382	300.98	-25.61
68/ 5/17	2439994.0	33.39503	-42.16225	-23.82920	0.89743	0.48211	0.23233	58.82784	1.04488	308.38	-23.90
68/ 5/18	2439994.5	39.22075	-38.60702	-22.09090	0.82116	0.56617	0.28019	59.30242	1.03603	315.45	-21.87
68/ 5/18	2439995.0	44.49701	-34.51478	-20.04499	0.73545	0.64058	0.32310	59.77504	1.02743	322.20	-19.59
68/ 5/19	2439995.5	49.16531	-29.95293	-17.72612	0.64190	0.70477	0.36074	60.23804	1.01925	328.65	-17.11
68/ 5/19	2439996.0	53.17789	-24.99195	-15.17098	0.54207	0.75839	0.39284	60.68479	1.01159	334.83	-14.48
68/ 5/20	2439996.5	56.49732	-19.70417	-12.41758	0.43746	0.80125	0.41926	61.10972	1.00456	340.77	-11.72
68/ 5/20	2439997.0	59.09612	-14.16281	-9.50472	0.32950	0.83327	0.43992	61.50834	0.99822	346.52	-8.89
68/ 5/21	2439997.5	60.95617	-8.44110	-6.47149	0.21953	0.85452	0.45481	61.87719	0.99260	352.12	-6.00

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/ 5/21	2439998.0	62.06823	-2.61159	-3.35690	0.10883	0.86514	0.46396	62.21378	0.98771	357.59	-3.09
68/ 5/22	2439998.5	62.43142	3.25442	-0.19951	-0.00141	0.86534	0.46746	62.51650	0.98354	2.98	-0.18
68/ 5/22	2439999.0	62.05269	9.08740	2.96280	-0.11007	0.85543	0.46544	62.78451	0.98006	8.33	2.70
68/ 5/23	2439999.5	60.94641	14.81997	6.09310	-0.21608	0.83576	0.45804	63.01764	0.97723	13.67	5.55
68/ 5/23	2440000.0	59.13395	20.38730	9.15565	-0.31844	0.80671	0.44546	63.21623	0.97500	19.02	8.33
68/ 5/24	2440000.5	56.64323	25.72747	12.11608	-0.41621	0.76876	0.42792	63.38105	0.97331	24.43	11.02
68/ 5/24	2440001.0	53.50840	30.78183	14.94158	-0.50850	0.72240	0.40566	63.51315	0.97211	29.91	13.61
68/ 5/25	2440001.5	49.76944	35.49525	17.60110	-0.59447	0.66818	0.37896	63.61375	0.97132	35.50	16.06
68/ 5/25	2440002.0	45.47180	39.81649	20.06552	-0.67335	0.60670	0.34810	63.68408	0.97090	41.21	18.37
68/ 5/26	2440002.5	40.66600	43.69851	22.30785	-0.74441	0.53859	0.31343	63.72538	0.97080	47.06	20.49
68/ 5/26	2440003.0	35.40731	47.09873	24.30337	-0.80698	0.46454	0.27529	63.73870	0.97098	53.07	22.41
68/ 5/27	2440003.5	29.75528	49.97939	26.02987	-0.86046	0.38529	0.23405	63.72496	0.97140	59.23	24.11
68/ 5/27	2440004.0	23.77334	52.30779	27.46776	-0.90431	0.30160	0.19013	63.68480	0.97206	65.56	25.55
68/ 5/28	2440004.5	17.52837	54.05660	28.60025	-0.93806	0.21428	0.14395	63.61866	0.97293	72.03	26.72
68/ 5/28	2440005.0	11.09016	55.20410	29.41353	-0.96131	0.12418	0.09594	63.52669	0.97404	78.64	27.58
68/ 5/29	2440005.5	4.53095	55.73442	29.89686	-0.97375	0.03218	0.04659	63.40881	0.97539	85.35	28.13
68/ 5/29	2440006.0	-2.07512	55.63772	30.04273	-0.97512	-0.06082	-0.00362	63.26474	0.97702	92.14	28.35
68/ 5/30	2440006.5	-8.65256	54.91039	29.84696	-0.96527	-0.15389	-0.05420	63.09404	0.97896	98.95	28.23
68/ 5/30	2440007.0	-15.12508	53.55521	29.30883	-0.94413	-0.24606	-0.10464	62.89623	0.98126	105.77	27.77
68/ 5/31	2440007.5	-21.41618	51.58149	28.43112	-0.91171	-0.33637	-0.15439	62.67081	0.98397	112.55	26.98
68/ 5/31	2440008.0	-27.44978	49.00519	27.22025	-0.86812	-0.42383	-0.20292	62.41747	0.98714	119.25	25.86
68/ 6/ 1	2440008.5	-33.15081	45.84904	25.68633	-0.81355	-0.50743	-0.24969	62.13613	0.99081	125.87	24.42
68/ 6/ 1	2440009.0	-38.44594	42.14259	23.84322	-0.74831	-0.58616	-0.29413	61.82708	0.99502	132.37	22.68
68/ 6/ 2	2440009.5	-43.26423	37.92233	21.70859	-0.67282	-0.65899	-0.33568	61.49113	0.99982	138.76	20.67
68/ 6/ 2	2440010.0	-47.53793	33.23166	19.30397	-0.58760	-0.72489	-0.37376	61.12971	1.00521	145.04	18.41
68/ 6/ 3	2440010.5	-51.20334	28.12100	16.65478	-0.49332	-0.78284	-0.40780	60.74499	1.01119	151.22	15.91
68/ 6/ 3	2440011.0	-54.20171	22.64764	13.79033	-0.39078	-0.83182	-0.43723	60.33999	1.01775	157.32	13.21
68/ 6/ 4	2440011.5	-56.48030	16.87570	10.74377	-0.28095	-0.87085	-0.46149	59.91863	1.02483	163.36	10.33
68/ 6/ 4	2440012.0	-57.99350	10.87589	7.55201	-0.16497	-0.89896	-0.48002	59.48583	1.03236	169.38	7.29
68/ 6/ 5	2440012.5	-58.70409	4.72510	4.25555	-0.04418	-0.91529	-0.49232	59.04749	1.04024	175.40	4.13
68/ 6/ 5	2440013.0	-58.58454	-1.49416	0.89822	0.07989	-0.91906	-0.49793	58.61047	1.04832	181.46	0.88
68/ 6/ 6	2440013.5	-57.61839	-7.69457	-2.47327	0.20551	-0.90963	-0.49644	58.18250	1.05647	187.61	-2.44
68/ 6/ 6	2440014.0	-55.80160	-13.78513	-5.80985	0.33074	-0.88656	-0.48758	57.77199	1.06448	193.88	-5.77
68/ 6/ 7	2440014.5	-53.14376	-19.67254	-9.06084	0.45350	-0.84963	-0.47115	57.38786	1.07216	200.31	-9.08
68/ 6/ 7	2440015.0	-49.66920	-25.26300	-12.17486	0.57154	-0.79892	-0.44714	57.03925	1.07928	206.96	-12.32
68/ 6/ 8	2440015.5	-45.41765	-30.46428	-15.10095	0.68255	-0.73481	-0.41570	56.73512	1.08564	213.85	-15.44
68/ 6/ 8	2440016.0	-40.44454	-35.18804	-17.78982	0.78423	-0.65806	-0.37717	56.48396	1.09102	221.02	-18.36
68/ 6/ 9	2440016.5	-34.82067	-39.35236	-20.19521	0.87436	-0.56983	-0.33210	56.29328	1.09522	228.50	-21.02
68/ 6/ 9	2440017.0	-28.63119	-42.88425	-22.27528	0.95093	-0.47159	-0.28124	56.16931	1.09808	236.27	-23.36
68/ 6/10	2440017.5	-21.97396	-45.72204	-23.99395	1.01223	-0.36519	-0.22555	56.11657	1.09948	244.33	-25.31
68/ 6/10	2440018.0	-14.95718	-47.81743	-25.32208	1.05692	-0.25274	-0.16611	56.13761	1.09934	252.63	-26.81
68/ 6/11	2440018.5	-7.69651	-49.13704	-26.23837	1.08414	-0.13650	-0.10414	56.23288	1.09765	261.10	-27.81
68/ 6/11	2440019.0	-0.31185	-49.66329	-26.72996	1.09352	-0.01886	-0.04091	56.40062	1.09445	269.64	-28.29
68/ 6/12	2440019.5	7.07614	-49.39462	-26.79261	1.08518	0.09785	0.02231	56.63695	1.08981	278.15	-28.23
68/ 6/12	2440020.0	14.34923	-48.34504	-26.43057	1.05973	0.21138	0.08430	56.93609	1.08389	286.53	-27.66

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 6/13	2440020.5	21.39472	-46.54298	-25.65602	1.01817	0.31973	0.14394	57.29061	1.07685	294.69	-26.60
68/ 6/13	2440021.0	28.10786	-44.02973	-24.48835	0.96184	0.42112	0.20024	57.69183	1.06891	302.55	-25.12
68/ 6/14	2440021.5	34.39388	-40.85751	-22.95310	0.89232	0.51410	0.25235	58.13019	1.06029	310.09	-23.26
68/ 6/14	2440022.0	40.16924	-37.08743	-21.08098	0.81134	0.59750	0.29962	58.59567	1.05122	317.28	-21.09
68/ 6/15	2440022.5	45.36246	-32.78738	-18.90665	0.72072	0.67048	0.34152	59.07814	1.04193	324.14	-18.66
68/ 6/15	2440023.0	49.91433	-28.03009	-16.46778	0.62226	0.73245	0.37769	59.56773	1.03263	330.68	-16.05
68/ 6/16	2440023.5	53.77779	-22.89133	-13.80402	0.51772	0.78308	0.40790	60.05510	1.02354	336.94	-13.29
68/ 6/16	2440024.0	56.91745	-17.44842	-10.95616	0.40880	0.82226	0.43204	60.53165	1.01483	342.96	-10.43
68/ 6/17	2440024.5	59.30898	-11.77891	-7.96546	0.29706	0.85002	0.45008	60.98972	1.00665	348.77	-7.50
68/ 6/17	2440025.0	60.93830	-5.95959	-4.87305	0.18396	0.86653	0.46209	61.42264	0.99912	354.41	-4.55
68/ 6/18	2440025.5	61.80088	-0.06567	-1.71947	0.07086	0.87210	0.46817	61.82483	0.99235	359.94	-1.59
68/ 6/18	2440026.0	61.90086	5.82984	1.45568	-0.04103	0.86707	0.46849	62.19182	0.98640	5.38	1.34
68/ 6/19	2440026.5	61.25040	11.65662	4.61405	-0.15057	0.85188	0.46325	62.52022	0.98131	10.78	4.23
68/ 6/19	2440027.0	59.86896	17.34736	7.71871	-0.25672	0.82698	0.45267	62.80766	0.97709	16.16	7.06
68/ 6/20	2440027.5	57.78272	22.83806	10.73432	-0.35853	0.79289	0.43700	63.05272	0.97375	21.57	9.80
68/ 6/20	2440028.0	55.02408	28.06826	13.62732	-0.45513	0.75015	0.41650	63.25489	0.97126	27.03	12.44
68/ 6/21	2440028.5	51.63120	32.98122	16.36597	-0.54569	0.69931	0.39147	63.41441	0.96957	32.57	14.96
68/ 6/21	2440029.0	47.64761	37.52410	18.92054	-0.62944	0.64097	0.36220	63.53219	0.96862	38.22	17.33
68/ 6/22	2440029.5	43.12184	41.64821	21.26338	-0.70568	0.57576	0.32900	63.60973	0.96836	44.00	19.53
68/ 6/22	2440030.0	38.10710	45.30919	23.36908	-0.77372	0.50432	0.29223	63.64894	0.96870	49.93	21.54
68/ 6/23	2440030.5	32.66097	48.46721	25.21457	-0.83296	0.42736	0.25223	63.65205	0.96958	56.02	23.34
68/ 6/23	2440031.0	26.84504	51.08730	26.77929	-0.88283	0.34560	0.20938	63.62153	0.97091	62.28	24.89
68/ 6/24	2440031.5	20.72459	53.13953	28.04536	-0.92281	0.25981	0.16411	63.55990	0.97263	68.69	26.18
68/ 6/24	2440032.0	14.36817	54.59939	28.99771	-0.95244	0.17081	0.11682	63.46971	0.97466	75.26	27.19
68/ 6/25	2440032.5	7.84723	55.44799	29.62427	-0.97133	0.07946	0.06798	63.35342	0.97694	81.94	27.88
68/ 6/25	2440033.0	1.23558	55.67245	29.91615	-0.97918	-0.01334	0.01807	63.21333	0.97944	88.73	28.25
68/ 6/26	2440033.5	-5.39111	55.26609	29.86779	-0.97574	-0.10666	-0.03240	63.05148	0.98209	95.57	28.28
68/ 6/26	2440034.0	-11.95593	54.22873	29.47711	-0.96089	-0.19951	-0.08292	62.86970	0.98488	102.43	27.96
68/ 6/27	2440034.5	-18.38137	52.56688	28.74565	-0.93459	-0.29089	-0.13294	62.66949	0.98780	109.27	27.30
68/ 6/27	2440035.0	-24.59001	50.29396	27.67869	-0.89690	-0.37978	-0.18190	62.45207	0.99083	116.06	26.31
68/ 6/28	2440035.5	-30.50531	47.43034	26.28530	-0.84801	-0.46515	-0.22924	62.21839	0.99399	122.75	24.99
68/ 6/28	2440036.0	-36.05239	44.00348	24.57845	-0.78822	-0.54593	-0.27437	61.96919	0.99730	129.33	23.37
68/ 6/29	2440036.5	-41.15885	40.04790	22.57496	-0.71798	-0.62110	-0.31673	61.70506	1.00079	135.78	21.46
68/ 6/29	2440037.0	-45.75566	35.60512	20.29557	-0.63783	-0.68963	-0.35575	61.42650	1.00448	142.11	19.29
68/ 6/30	2440037.5	-49.77805	30.72350	17.76480	-0.54848	-0.75052	-0.39087	61.13408	1.00841	148.32	16.89
68/ 6/30	2440038.0	-53.16641	25.45806	15.01093	-0.45076	-0.80282	-0.42154	60.82851	1.01262	154.41	14.29
68/ 7/ 1	2440038.5	-55.86724	19.87014	12.06580	-0.34563	-0.84560	-0.44726	60.51078	1.01713	160.42	11.50
68/ 7/ 1	2440039.0	-57.83409	14.02704	8.96466	-0.23422	-0.87803	-0.46754	60.18226	1.02195	166.37	8.57
68/ 7/ 2	2440039.5	-59.02851	8.00150	5.74590	-0.11776	-0.89935	-0.48192	59.84484	1.02711	172.28	5.51
68/ 7/ 2	2440040.0	-59.42107	1.87115	2.45076	0.00233	-0.90889	-0.49003	59.50101	1.03257	178.20	2.36
68/ 7/ 3	2440040.5	-58.99225	-4.28231	-0.87704	0.12451	-0.90609	-0.49152	59.15397	1.03832	184.15	-0.85
68/ 7/ 3	2440041.0	-57.73345	-10.37394	-4.19179	0.24712	-0.89058	-0.48614	58.80767	1.04428	190.19	-4.09
68/ 7/ 4	2440041.5	-55.64785	-16.31667	-7.44634	0.36836	-0.86210	-0.47372	58.46678	1.05039	196.34	-7.32
68/ 7/ 4	2440042.0	-52.75115	-22.02256	-10.59275	0.48631	-0.82065	-0.45421	58.13676	1.05654	202.66	-10.50
68/ 7/ 5	2440042.5	-49.07223	-27.40424	-13.58309	0.59900	-0.76642	-0.42766	57.82366	1.06259	209.18	-13.59

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/ 7/ 5	2440043.0	-44.65355	-32.37657	-16.37030	0.70442	-0.69987	-0.39427	57.53406	1.06840	215.94	-16.53
68/ 7/ 6	2440043.5	-39.55122	-36.85850	-18.90920	0.80055	-0.62176	-0.35441	57.27483	1.07381	222.98	-19.28
68/ 7/ 6	2440044.0	-33.83475	-40.77500	-21.15756	0.88546	-0.53310	-0.30858	57.05290	1.07864	230.31	-21.77
68/ 7/ 7	2440044.5	-27.58627	-44.05907	-23.07718	0.95736	-0.43525	-0.25746	56.87495	1.08272	237.95	-23.94
68/ 7/ 7	2440045.0	-20.89936	-46.65372	-24.63501	1.01469	-0.32982	-0.20189	56.74713	1.08588	245.87	-25.73
68/ 7/ 8	2440045.5	-13.87722	-48.51379	-25.80414	1.05617	-0.21866	-0.14285	56.67467	1.08798	254.04	-27.08
68/ 7/ 8	2440046.0	-6.63052	-49.60738	-26.56470	1.08088	-0.10384	-0.08143	56.66163	1.08891	262.39	-27.96
68/ 7/ 9	2440046.5	0.72530	-49.91705	-26.90449	1.08834	0.01246	-0.01880	56.71058	1.08857	270.83	-28.32
68/ 7/ 9	2440047.0	8.07288	-49.44029	-26.81936	1.07848	0.12802	0.04384	56.82246	1.08694	279.27	-28.16
68/ 7/10	2440047.5	15.29599	-48.18958	-26.31326	1.05169	0.24065	0.10531	56.99641	1.08400	287.61	-27.49
68/ 7/10	2440048.0	22.28246	-46.19176	-25.39806	1.00877	0.34830	0.16447	57.22979	1.07980	295.75	-26.35
68/ 7/11	2440048.5	28.92684	-43.48698	-24.09294	0.95089	0.44912	0.22029	57.51825	1.07445	303.63	-24.76
68/ 7/11	2440049.0	35.13271	-40.12704	-22.42362	0.87954	0.54152	0.27187	57.85590	1.06806	311.20	-22.80
68/ 7/12	2440049.5	40.81440	-36.17363	-20.42142	0.79641	0.62418	0.31848	58.23557	1.06080	318.45	-20.53
68/ 7/12	2440050.0	45.89827	-31.69621	-18.12216	0.70332	0.69612	0.35951	58.64907	1.05285	325.37	-18.00
68/ 7/13	2440050.5	50.32331	-26.76996	-15.56506	0.60218	0.75662	0.39456	59.08754	1.04440	331.99	-15.27
68/ 7/13	2440051.0	54.04138	-21.47381	-12.79165	0.49487	0.80530	0.42335	59.54176	1.03567	338.33	-12.41
68/ 7/14	2440051.5	57.01691	-15.88863	-9.84486	0.38321	0.84196	0.44575	60.00248	1.02686	344.43	-9.44
68/ 7/14	2440052.0	59.22636	-10.09567	-6.76807	0.26893	0.86668	0.46174	60.46066	1.01816	350.33	-6.43
68/ 7/15	2440052.5	60.65746	-4.17522	-3.60445	0.15362	0.87966	0.47141	60.90773	1.00976	356.06	-3.39
68/ 7/15	2440053.0	61.30828	1.79438	-0.39634	0.03875	0.88126	0.47491	61.33582	1.00183	1.68	-0.37
68/ 7/16	2440053.5	61.18630	7.73756	2.81517	-0.07437	0.87194	0.47246	61.73782	0.99450	7.21	2.61
68/ 7/16	2440054.0	60.30748	13.58212	5.99064	-0.18456	0.85223	0.46431	62.10760	0.98790	12.69	5.54
68/ 7/17	2440054.5	58.69538	19.25963	9.09246	-0.29074	0.82271	0.45076	62.44000	0.98212	18.17	8.37
68/ 7/17	2440055.0	56.38037	24.70571	12.08507	-0.39197	0.78400	0.43211	62.73091	0.97725	23.66	11.11
68/ 7/18	2440055.5	53.39894	29.86021	14.93504	-0.48739	0.73672	0.40870	62.97725	0.97331	29.21	13.72
68/ 7/18	2440056.0	49.79308	34.66735	17.61120	-0.57623	0.68153	0.38084	63.17698	0.97035	34.85	16.19
68/ 7/19	2440056.5	45.60983	39.07580	20.08464	-0.65778	0.61910	0.34890	63.32904	0.96834	40.59	18.49
68/ 7/19	2440057.0	40.90077	43.03876	22.32884	-0.73139	0.55010	0.31321	63.43331	0.96728	46.46	20.61
68/ 7/20	2440057.5	35.72176	46.51406	24.31967	-0.79646	0.47522	0.27414	63.49054	0.96713	52.48	22.52
68/ 7/20	2440058.0	30.13254	49.46430	26.03551	-0.85243	0.39517	0.23207	63.50225	0.96781	58.65	24.20
68/ 7/21	2440058.5	24.19651	51.85702	27.45734	-0.89879	0.31071	0.18738	63.47068	0.96927	64.99	25.63
68/ 7/21	2440059.0	17.98037	53.66486	28.56881	-0.93507	0.22259	0.14050	63.39865	0.97141	71.48	26.78
68/ 7/22	2440059.5	11.55390	54.86585	29.35648	-0.96084	0.13165	0.09184	63.28947	0.97415	78.11	27.64
68/ 7/22	2440060.0	4.98953	55.44367	29.80987	-0.97573	0.03872	0.04186	63.14684	0.97740	84.86	28.17
68/ 7/23	2440060.5	-1.63799	55.38793	29.92169	-0.97944	-0.05528	-0.00894	62.97470	0.98104	91.69	28.37
68/ 7/23	2440061.0	-8.25212	54.69453	29.68805	-0.97174	-0.14941	-0.06006	62.77714	0.98500	98.58	28.22
68/ 7/24	2440061.5	-14.77501	53.36595	29.10858	-0.95249	-0.24267	-0.11097	62.55825	0.98916	105.48	27.73
68/ 7/24	2440062.0	-21.12823	51.41159	28.18665	-0.92164	-0.33403	-0.16109	62.32207	0.99346	112.34	26.89
68/ 7/25	2440062.5	-27.23348	48.84796	26.92953	-0.87929	-0.42240	-0.20985	62.07242	0.99780	119.14	25.71
68/ 7/25	2440063.0	-33.01342	45.69898	25.34851	-0.82563	-0.50670	-0.25664	61.81286	1.00213	125.84	24.21
68/ 7/26	2440063.5	-38.39261	41.99602	23.45896	-0.76102	-0.58580	-0.30085	61.54657	1.00640	132.43	22.41
68/ 7/26	2440064.0	-43.29854	37.77795	21.28043	-0.68598	-0.65862	-0.34187	61.27637	1.01056	138.90	20.32
68/ 7/27	2440064.5	-47.66268	33.09106	18.83653	-0.60116	-0.72407	-0.37911	61.00463	1.01459	145.23	17.99
68/ 7/27	2440065.0	-51.42155	27.98882	16.15492	-0.50740	-0.78111	-0.41198	60.73328	1.01848	151.44	15.43

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 7/28	2440065.5	-54.51787	22.53148	13.26707	-0.40569	-0.82877	-0.43992	60.46388	1.02224	157.55	12.68
68/ 7/28	2440066.0	-56.90161	16.78561	10.20801	-0.29718	-0.86617	-0.46245	60.19762	1.02588	163.56	9.76
68/ 7/29	2440066.5	-58.53107	10.82342	7.01602	-0.18318	-0.89253	-0.47911	59.93544	1.02942	169.52	6.72
68/ 7/29	2440067.0	-59.37380	4.72196	3.73223	-0.06512	-0.90720	-0.48950	59.67809	1.03289	175.45	3.59
68/ 7/30	2440067.5	-59.40753	-1.43782	0.40007	0.05544	-0.90967	-0.49334	59.42627	1.03632	181.39	0.39
68/ 7/30	2440068.0	-58.62088	-7.57207	-2.93521	0.17685	-0.89962	-0.49040	59.18073	1.03975	187.36	-2.84
68/ 7/31	2440068.5	-57.01403	-13.59523	-6.22719	0.29735	-0.87686	-0.48055	58.94241	1.04318	193.41	-6.06
68/ 7/31	2440069.0	-54.59916	-19.42131	-9.42896	0.41514	-0.84144	-0.46377	58.71252	1.04663	199.58	-9.24
68/ 8/ 1	2440069.5	-51.40076	-24.96517	-12.49385	0.52841	-0.79358	-0.44015	58.49269	1.05011	205.91	-12.33
68/ 8/ 1	2440070.0	-47.45575	-30.14401	-15.37616	0.63531	-0.73374	-0.40990	58.28495	1.05357	212.42	-15.30
68/ 8/ 2	2440070.5	-42.81331	-34.87882	-18.03200	0.73406	-0.66259	-0.37334	58.09187	1.05700	219.17	-18.08
68/ 8/ 2	2440071.0	-37.53462	-39.09588	-20.42013	0.82292	-0.58102	-0.33093	57.91647	1.06033	226.17	-20.65
68/ 8/ 3	2440071.5	-31.69212	-42.72829	-22.50277	0.90029	-0.49016	-0.28323	57.76220	1.06348	233.44	-22.93
68/ 8/ 3	2440072.0	-25.36872	-45.71748	-24.24642	0.96470	-0.39132	-0.23095	57.63288	1.06636	240.97	-24.88
68/ 8/ 4	2440072.5	-18.65647	-48.01460	-25.62271	1.01492	-0.28606	-0.17490	57.53250	1.06887	248.77	-26.45
68/ 8/ 4	2440073.0	-11.65511	-49.58177	-26.60906	1.04993	-0.17608	-0.11597	57.46508	1.07089	256.77	-27.58
68/ 8/ 5	2440073.5	-4.47020	-50.39320	-27.18932	1.06903	-0.06321	-0.05515	57.43445	1.07231	264.93	-28.26
68/ 8/ 5	2440074.0	2.78897	-50.43594	-27.35423	1.07182	0.05058	0.00650	57.44403	1.07303	273.17	-28.44
68/ 8/ 6	2440074.5	10.01163	-49.71035	-27.10176	1.05827	0.16334	0.06792	57.49658	1.07296	281.39	-28.12
68/ 8/ 6	2440075.0	17.08799	-48.23016	-26.43714	1.02870	0.27309	0.12803	57.59401	1.07200	289.51	-27.32
68/ 8/ 7	2440075.5	23.91158	-46.02219	-25.37276	0.98377	0.37795	0.18580	57.73719	1.07013	297.45	-26.07
68/ 8/ 7	2440076.0	30.38163	-43.12555	-23.92783	0.92449	0.47617	0.24025	57.92579	1.06731	305.16	-24.40
68/ 8/ 8	2440076.5	36.40511	-39.59054	-22.12777	0.85214	0.56621	0.29053	58.15824	1.06355	312.60	-22.36
68/ 8/ 8	2440077.0	41.89854	-35.47726	-20.00353	0.76824	0.64673	0.33587	58.43171	1.05890	319.74	-20.02
68/ 8/ 9	2440077.5	46.78939	-30.85385	-17.59063	0.67450	0.71669	0.37567	58.74212	1.05343	326.60	-17.42
68/ 8/ 9	2440078.0	51.01701	-25.79474	-14.92827	0.57270	0.77528	0.40947	59.08432	1.04724	333.18	-14.64
68/ 8/10	2440078.5	54.53315	-20.37877	-12.05829	0.46471	0.82200	0.43694	59.45218	1.04046	339.51	-11.70
68/ 8/10	2440079.0	57.30208	-14.68743	-9.02421	0.35236	0.85658	0.45791	59.83883	1.03323	345.62	-8.67
68/ 8/11	2440079.5	59.30030	-8.80315	-5.87033	0.23741	0.87899	0.47232	60.23688	1.02570	351.56	-5.59
68/ 8/11	2440080.0	60.51598	-2.80787	-2.64091	0.12155	0.88940	0.48023	60.63862	1.01805	357.34	-2.50
68/ 8/12	2440080.5	60.94822	3.21823	0.62050	0.00632	0.88816	0.48180	61.03628	1.01044	3.02	0.58
68/ 8/12	2440081.0	60.60614	9.19771	3.87166	-0.10688	0.87572	0.47725	61.42224	1.00303	8.63	3.61
68/ 8/13	2440081.5	59.50788	15.05668	7.07206	-0.21678	0.85267	0.46686	61.78920	0.99599	14.20	6.57
68/ 8/13	2440082.0	57.67967	20.72535	10.18325	-0.32225	0.81964	0.45096	62.13037	0.98946	19.76	9.43
68/ 8/14	2440082.5	55.15489	26.13847	13.16910	-0.42232	0.77732	0.42991	62.43962	0.98357	25.36	12.18
68/ 8/14	2440083.0	51.97321	31.23552	15.99592	-0.51610	0.72643	0.40407	62.71158	0.97843	31.01	14.78
68/ 8/15	2440083.5	48.17985	35.96093	18.63261	-0.60282	0.66770	0.37383	62.94173	0.97415	36.74	17.22
68/ 8/15	2440084.0	43.82492	40.26410	21.05066	-0.68182	0.60187	0.33957	63.12647	0.97079	42.58	19.48
68/ 8/16	2440084.5	38.96282	44.09947	23.22422	-0.75249	0.52969	0.30169	63.26317	0.96841	48.54	21.54
68/ 8/16	2440085.0	33.65187	47.42653	25.13009	-0.81428	0.45190	0.26059	63.35018	0.96704	54.64	23.37
68/ 8/17	2440085.5	27.95383	50.20985	26.74780	-0.86671	0.36925	0.21667	63.38684	0.96669	60.89	24.96
68/ 8/17	2440086.0	21.93365	52.41915	28.05959	-0.90934	0.28252	0.17033	63.37344	0.96733	67.29	26.28
68/ 8/18	2440086.5	15.65914	54.02936	29.05051	-0.94175	0.19248	0.12199	63.31124	0.96893	73.84	27.31
68/ 8/18	2440087.0	9.20071	55.02085	29.70848	-0.96359	0.09995	0.07208	63.20238	0.97144	80.51	28.04
68/ 8/19	2440087.5	2.63112	55.37955	30.02445	-0.97452	0.00577	0.02107	63.04986	0.97477	87.28	28.44

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/ 8/19	2440088.0	-3.97485	55.09723	29.99249	-0.97429	-0.08918	-0.03057	62.85741	0.97884	94.13	28.50
68/ 8/20	2440088.5	-10.54077	54.17183	29.61001	-0.96267	-0.18397	-0.08235	62.62945	0.98354	101.01	28.21
68/ 8/20	2440089.0	-16.98899	52.60777	28.87791	-0.93952	-0.27761	-0.13372	62.37096	0.98876	107.90	27.58
68/ 8/21	2440089.5	-23.24122	50.41627	27.80083	-0.90479	-0.36907	-0.18413	62.08736	0.99437	114.75	26.60
68/ 8/21	2440090.0	-29.21918	47.61576	26.38729	-0.85855	-0.45726	-0.23297	61.78439	1.00024	121.54	25.28
68/ 8/22	2440090.5	-34.84544	44.23214	24.64993	-0.80098	-0.54107	-0.27964	61.46792	1.00624	128.23	23.64
68/ 8/22	2440091.0	-40.04431	40.29903	22.60564	-0.73242	-0.61933	-0.32350	61.14388	1.01225	134.82	21.70
68/ 8/23	2440091.5	-44.74299	35.85795	20.27564	-0.65338	-0.69088	-0.36390	60.81800	1.01815	141.29	19.47
68/ 8/23	2440092.0	-48.87273	30.95827	17.68556	-0.56454	-0.75456	-0.40020	60.49577	1.02383	147.65	17.00
68/ 8/24	2440092.5	-52.37014	25.65711	14.86529	-0.46681	-0.80925	-0.43177	60.18218	1.02919	153.90	14.30
68/ 8/24	2440093.0	-55.17850	20.01890	11.84890	-0.36127	-0.85391	-0.45802	59.88171	1.03415	160.06	11.41
68/ 8/25	2440093.5	-57.24916	14.11489	8.67426	-0.24921	-0.88760	-0.47841	59.59815	1.03866	166.15	8.37
68/ 8/25	2440094.0	-58.54279	8.02226	5.38271	-0.13208	-0.90949	-0.49247	59.33454	1.04266	172.20	5.20
68/ 8/26	2440094.5	-59.03057	1.82312	2.01843	-0.01153	-0.91895	-0.49983	59.09320	1.04615	178.23	1.96
68/ 8/26	2440095.0	-58.69522	-4.39669	-1.37213	0.11068	-0.91554	-0.50020	58.87566	1.04913	184.28	-1.34
68/ 8/27	2440095.5	-57.53176	-10.54909	-4.74106	0.23269	-0.89903	-0.49343	58.68274	1.05160	190.39	-4.63
68/ 8/27	2440096.0	-55.54801	-16.54521	-8.03981	0.35258	-0.86942	-0.47948	58.51465	1.05361	196.59	-7.90
68/ 8/28	2440096.5	-52.76490	-22.29706	-11.22004	0.46842	-0.82696	-0.45846	58.37108	1.05521	202.91	-11.08
68/ 8/28	2440097.0	-49.21629	-27.71915	-14.23456	0.57831	-0.77214	-0.43059	58.25133	1.05644	209.39	-14.14
68/ 8/29	2440097.5	-44.94871	-32.73013	-17.03815	0.68044	-0.70570	-0.39625	58.15450	1.05736	216.06	-17.04
68/ 8/29	2440098.0	-40.02059	-37.25430	-19.58852	0.77309	-0.62857	-0.35591	58.07960	1.05803	222.95	-19.71
68/ 8/30	2440098.5	-34.50143	-41.22310	-21.84701	0.85472	-0.54191	-0.31017	58.02572	1.05850	230.07	-22.12
68/ 8/30	2440099.0	-28.47058	-44.57639	-23.77939	0.92398	-0.44705	-0.25973	57.99213	1.05880	237.43	-24.21
68/ 8/31	2440099.5	-22.01589	-47.26356	-25.35648	0.97971	-0.34547	-0.20539	57.97840	1.05894	245.02	-25.93
68/ 8/31	2440100.0	-15.23217	-49.24453	-26.55470	1.02101	-0.23879	-0.14800	57.98444	1.05895	252.81	-27.26
68/ 9/ 1	2440100.5	-8.21953	-50.49042	-27.35647	1.04722	-0.12870	-0.08848	58.01052	1.05880	260.75	-28.14
68/ 9/ 1	2440101.0	-1.08155	-50.98412	-27.75059	1.05798	-0.01696	-0.02778	58.05726	1.05848	268.78	-28.55
68/ 9/ 2	2440101.5	6.07658	-50.72051	-27.73236	1.05318	0.09463	0.03312	58.12554	1.05794	276.83	-28.50
68/ 9/ 2	2440102.0	13.14992	-49.70656	-27.30366	1.03299	0.20431	0.09326	58.21643	1.05713	284.82	-27.97
68/ 9/ 3	2440102.5	20.03568	-47.96109	-26.47288	0.99789	0.31037	0.15170	58.33102	1.05599	292.67	-26.99
68/ 9/ 3	2440103.0	26.63512	-45.51430	-25.25471	0.94858	0.41115	0.20751	58.47034	1.05447	300.34	-25.59
68/ 9/ 4	2440103.5	32.85519	-42.40705	-23.66974	0.88605	0.50515	0.25987	58.63512	1.05252	307.77	-23.81
68/ 9/ 4	2440104.0	38.61020	-38.68999	-21.74403	0.81147	0.59101	0.30801	58.82572	1.05007	314.94	-21.69
68/ 9/ 5	2440104.5	43.82319	-34.42232	-19.50848	0.72624	0.66756	0.35126	59.04193	1.04711	321.85	-19.29
68/ 9/ 5	2440105.0	48.42707	-29.67057	-16.99816	0.63187	0.73382	0.38907	59.28289	1.04361	328.50	-16.66
68/ 9/ 6	2440105.5	52.36550	-24.50709	-14.25151	0.53001	0.78903	0.42099	59.54703	1.03957	334.92	-13.85
68/ 9/ 6	2440106.0	55.59345	-19.00859	-11.30955	0.42236	0.83267	0.44670	59.83197	1.03502	341.12	-10.90
68/ 9/ 7	2440106.5	58.07749	-13.25462	-8.21506	0.31062	0.86444	0.46600	60.13457	1.03000	347.14	-7.85
68/ 9/ 7	2440107.0	59.79572	-7.32605	-5.01178	0.19650	0.88423	0.47882	60.45095	1.02457	353.02	-4.76
68/ 9/ 8	2440107.5	60.73753	-1.30376	-1.74362	0.08162	0.89215	0.48517	60.77654	1.01881	358.77	-1.64
68/ 9/ 8	2440108.0	60.90306	4.73266	1.54599	-0.03249	0.88846	0.48518	61.10622	1.01283	4.44	1.45
68/ 9/ 9	2440108.5	60.30248	10.70598	4.81473	-0.14438	0.87359	0.47905	61.43442	1.00673	10.07	4.49
68/ 9/ 9	2440109.0	58.95523	16.54222	8.02188	-0.25277	0.84808	0.46705	61.75528	1.00063	15.67	7.46
68/ 9/10	2440109.5	56.88912	22.17139	11.12875	-0.35647	0.81256	0.44949	62.06280	0.99467	21.29	10.33
68/ 9/10	2440110.0	54.13940	27.52800	14.09898	-0.45447	0.76772	0.42676	62.35099	0.98897	26.95	13.07

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/ 9/11	2440110.5	50.74788	32.55153	16.89876	-0.54585	0.71433	0.39923	62.61404	0.98367	32.68	15.66
68/ 9/11	2440111.0	46.76212	37.18661	19.49705	-0.62982	0.65315	0.36733	62.84644	0.97888	38.49	18.07
68/ 9/12	2440111.5	42.23463	41.38322	21.86557	-0.70571	0.58498	0.33146	63.04314	0.97473	44.42	20.29
68/ 9/12	2440112.0	37.22218	45.09676	23.97898	-0.77294	0.51063	0.29206	63.19968	0.97133	50.46	22.30
68/ 9/13	2440112.5	31.78524	48.28806	25.81479	-0.83099	0.43090	0.24956	63.31225	0.96876	56.65	24.06
68/ 9/13	2440113.0	25.98746	50.92338	27.35346	-0.87943	0.34659	0.20439	63.37784	0.96710	62.96	25.57
68/ 9/14	2440113.5	19.89521	52.97442	28.57834	-0.91788	0.25850	0.15697	63.39424	0.96642	69.42	26.80
68/ 9/14	2440114.0	13.57728	54.41834	29.47572	-0.94601	0.16745	0.10775	63.36021	0.96674	75.99	27.72
68/ 9/15	2440114.5	7.10456	55.23777	30.03486	-0.96355	0.07424	0.05717	63.27542	0.96809	82.67	28.34
68/ 9/15	2440115.0	0.54969	55.42095	30.24805	-0.97023	-0.02029	0.00567	63.14054	0.97046	89.43	28.62
68/ 9/16	2440115.5	-6.01310	54.96186	30.11067	-0.96586	-0.11528	-0.04627	62.95725	0.97381	96.24	28.57
68/ 9/16	2440116.0	-12.50841	53.86042	29.62134	-0.95028	-0.20982	-0.09817	62.72821	0.97811	103.07	28.18
68/ 9/17	2440116.5	-18.85990	52.12276	28.78206	-0.92338	-0.30299	-0.14952	62.45707	0.98326	109.89	27.44
68/ 9/17	2440117.0	-24.99081	49.76155	27.59839	-0.88514	-0.39378	-0.19978	62.14840	0.98917	116.67	26.36
68/ 9/18	2440117.5	-30.82444	46.79629	26.07964	-0.83561	-0.48118	-0.24837	61.80766	0.99573	123.37	24.96
68/ 9/18	2440118.0	-36.28482	43.25371	24.23906	-0.77496	-0.56408	-0.29471	61.44106	1.00280	129.99	23.24
68/ 9/19	2440118.5	-41.29753	39.16807	22.09406	-0.70348	-0.64135	-0.33816	61.05548	1.01023	136.52	21.21
68/ 9/19	2440119.0	-45.79067	34.58147	19.66639	-0.62163	-0.71181	-0.37807	60.65831	1.01786	142.94	18.92
68/ 9/20	2440119.5	-49.69605	29.54397	16.98220	-0.53004	-0.77429	-0.41379	60.25727	1.02552	149.27	16.37
68/ 9/20	2440120.0	-52.95046	24.11368	14.07213	-0.42956	-0.82761	-0.44467	59.86022	1.03305	155.52	13.60
68/ 9/21	2440120.5	-55.49717	18.35649	10.97121	-0.32126	-0.87064	-0.47005	59.47491	1.04027	161.70	10.63
68/ 9/21	2440121.0	-57.28745	12.34575	7.71865	-0.20643	-0.90232	-0.48935	59.10878	1.04702	167.84	7.50
68/ 9/22	2440121.5	-58.28215	6.16143	4.35749	-0.08660	-0.92175	-0.50204	58.76870	1.05317	173.97	4.25
68/ 9/22	2440122.0	-58.45319	-0.11082	0.93403	0.03648	-0.92818	-0.50768	58.46076	1.05858	180.11	0.92
68/ 9/23	2440122.5	-57.78495	-6.38109	-2.50286	0.16090	-0.92110	-0.50596	58.19006	1.06316	186.30	-2.47
68/ 9/23	2440123.0	-56.27531	-12.55679	-5.90262	0.28459	-0.90024	-0.49670	57.96054	1.06683	192.58	-5.85
68/ 9/24	2440123.5	-53.93646	-18.54456	-9.21403	0.40540	-0.86564	-0.47988	57.77492	1.06956	198.97	-9.18
68/ 9/24	2440124.0	-50.79518	-24.25233	-12.38630	0.52118	-0.81764	-0.45565	57.63459	1.07135	205.52	-12.41
68/ 9/25	2440124.5	-46.89268	-29.59137	-15.37022	0.62984	-0.75689	-0.42433	57.53970	1.07221	212.25	-15.49
68/ 9/25	2440125.0	-42.28404	-34.47835	-18.11932	0.72939	-0.68433	-0.38640	57.48919	1.07221	219.19	-18.37
68/ 9/26	2440125.5	-37.03705	-38.83729	-20.59088	0.81806	-0.60118	-0.34249	57.48097	1.07142	226.36	-20.99
68/ 9/26	2440126.0	-31.23082	-42.60116	-22.74691	0.89430	-0.50887	-0.29337	57.51213	1.06994	233.75	-23.30
68/ 9/27	2440126.5	-24.95394	-45.71335	-24.55494	0.95685	-0.40902	-0.23988	57.57911	1.06790	241.37	-25.24
68/ 9/27	2440127.0	-18.30254	-48.12860	-25.98857	1.00476	-0.30337	-0.18297	57.67799	1.06539	249.18	-26.78
68/ 9/28	2440127.5	-11.37813	-49.81377	-27.02794	1.03738	-0.19374	-0.12362	57.80470	1.06254	257.13	-27.88
68/ 9/28	2440128.0	-4.28553	-50.74813	-27.65990	1.05440	-0.08197	-0.06284	57.95523	1.05944	265.17	-28.51
68/ 9/29	2440128.5	2.86928	-50.92338	-27.87811	1.05577	0.03012	-0.00161	58.12583	1.05620	273.22	-28.66
68/ 9/29	2440129.0	9.98108	-50.34341	-27.68286	1.04176	0.14076	0.05910	58.31313	1.05289	281.21	-28.34
68/ 9/30	2440129.5	16.94727	-49.02378	-27.08090	1.01288	0.24827	0.11834	58.51423	1.04956	289.07	-27.57
68/ 9/30	2440130.0	23.66951	-46.99103	-26.08505	0.96987	0.35108	0.17527	58.72676	1.04624	296.73	-26.37
68/10/ 1	2440130.5	30.05516	-44.28189	-24.71377	0.91366	0.44778	0.22908	58.94886	1.04296	304.17	-24.79
68/10/ 1	2440131.0	36.01856	-40.94221	-22.99068	0.84538	0.53707	0.27905	59.17915	1.03970	311.34	-22.86
68/10/ 2	2440131.5	41.48209	-37.02601	-20.94395	0.76627	0.61785	0.32454	59.41665	1.03646	318.25	-20.64
68/10/ 2	2440132.0	46.37707	-32.59428	-18.60576	0.67772	0.68916	0.36503	59.66066	1.03320	324.90	-18.17
68/10/ 3	2440132.5	50.64443	-27.71384	-16.01162	0.58119	0.75024	0.40006	59.91066	1.02989	331.31	-15.50

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/10/ 3	2440133.0	54.23521	-22.45614	-13.19973	0.47819	0.80048	0.42928	60.16618	1.02651	337.51	-12.67
68/10/ 4	2440133.5	57.11089	-16.89604	-10.21037	0.37029	0.83948	0.45243	60.42666	1.02300	343.52	-9.73
68/10/ 4	2440134.0	59.24352	-11.11061	-7.08517	0.25903	0.86699	0.46937	60.69135	1.01935	349.38	-6.70
68/10/ 5	2440134.5	60.61568	-5.17796	-3.86655	0.14598	0.88295	0.48002	60.95918	1.01555	355.12	-3.64
68/10/ 5	2440135.0	61.22025	0.82386	-0.59706	0.03262	0.88745	0.48440	61.22871	1.01157	0.77	-0.56
68/10/ 6	2440135.5	61.06011	6.81792	2.68121	-0.07960	0.88071	0.48263	61.49805	1.00743	6.37	2.50
68/10/ 6	2440136.0	60.14758	12.72935	5.92712	-0.18934	0.86312	0.47488	61.76486	1.00316	11.95	5.51
68/10/ 7	2440136.5	58.50383	18.48620	9.10098	-0.29532	0.83516	0.46140	62.02633	0.99880	17.54	8.44
68/10/ 7	2440137.0	56.15821	24.02018	12.16494	-0.39641	0.79741	0.44249	62.27921	0.99439	23.16	11.26
68/10/ 8	2440137.5	53.14746	29.26723	15.08338	-0.49157	0.75055	0.41849	62.51985	0.99000	28.84	13.96
68/10/ 8	2440138.0	49.51494	34.16804	17.82313	-0.57987	0.69529	0.38979	62.74431	0.98571	34.61	16.50
68/10/ 9	2440138.5	45.30985	38.66841	20.35374	-0.66052	0.63243	0.35680	62.94842	0.98161	40.48	18.87
68/10/ 9	2440139.0	40.58645	42.71952	22.64760	-0.73282	0.56277	0.31995	63.12789	0.97781	46.47	21.02
68/10/10	2440139.5	35.40333	46.27809	24.68006	-0.79618	0.48713	0.27969	63.27846	0.97438	52.58	22.96
68/10/10	2440140.0	29.82276	49.30651	26.42951	-0.85011	0.40636	0.23646	63.39596	0.97146	58.83	24.64
68/10/11	2440140.5	23.91004	51.77284	27.87740	-0.89420	0.32129	0.19071	63.47650	0.96912	65.21	26.05
68/10/11	2440141.0	17.73302	53.65086	29.00824	-0.92811	0.23277	0.14291	63.51655	0.96747	71.71	27.17
68/10/12	2440141.5	11.36154	54.92003	29.80965	-0.95158	0.14164	0.09351	63.51307	0.96660	78.31	27.99
68/10/12	2440142.0	4.86709	55.56552	30.27232	-0.96439	0.04874	0.04296	63.46361	0.96658	84.99	28.49
68/10/13	2440142.5	-1.67760	55.57819	30.39004	-0.96639	-0.04509	-0.00828	63.36642	0.96748	91.73	28.66
68/10/13	2440143.0	-8.19888	54.95463	30.15972	-0.95747	-0.13899	-0.05973	63.22058	0.96934	98.49	28.49
68/10/14	2440143.5	-14.62251	53.69730	29.58146	-0.93755	-0.23209	-0.11094	63.02603	0.97220	105.23	27.99
68/10/14	2440144.0	-20.87394	51.81458	28.65863	-0.90662	-0.32350	-0.16140	62.78367	0.97605	111.94	27.16
68/10/15	2440144.5	-26.87874	49.32105	27.39793	-0.86473	-0.41230	-0.21062	62.49544	0.98087	118.59	26.00
68/10/15	2440145.0	-32.56296	46.23766	25.80961	-0.81198	-0.49752	-0.25806	62.16433	0.98663	125.16	24.53
68/10/16	2440145.5	-37.85368	42.59200	23.90753	-0.74857	-0.57816	-0.30317	61.79441	0.99325	131.63	22.76
68/10/16	2440146.0	-42.67959	38.41865	21.70941	-0.67479	-0.65317	-0.34538	61.39087	1.00063	138.01	20.71
68/10/17	2440146.5	-46.97184	33.75939	19.23693	-0.59106	-0.72146	-0.38409	60.95990	1.00866	144.29	18.40
68/10/17	2440147.0	-50.66490	28.66349	16.51595	-0.49796	-0.78192	-0.41866	60.50871	1.01717	150.50	15.84
68/10/18	2440147.5	-53.69773	23.18787	13.57654	-0.39625	-0.83341	-0.44848	60.04536	1.02602	156.64	13.07
68/10/18	2440148.0	-56.01507	17.39707	10.45308	-0.28687	-0.87480	-0.47291	59.57863	1.03499	162.75	10.10
68/10/19	2440148.5	-57.56894	11.36316	7.18413	-0.17101	-0.90502	-0.49134	59.11781	1.04390	168.83	6.98
68/10/19	2440149.0	-58.32019	5.16522	3.81226	-0.05012	-0.92308	-0.50321	58.67246	1.05253	174.94	3.73
68/10/20	2440149.5	-58.24023	-1.11139	0.38364	0.07414	-0.92812	-0.50803	58.25210	1.06066	181.09	0.38
68/10/20	2440150.0	-57.31262	-7.37614	-3.05256	0.19985	-0.91949	-0.50539	57.86590	1.06809	187.33	-3.02
68/10/21	2440150.5	-55.53459	-13.53483	-6.44494	0.32490	-0.89677	-0.49505	57.52234	1.07463	193.70	-6.43
68/10/21	2440151.0	-52.91821	-19.49155	-9.74088	0.44702	-0.85985	-0.47692	57.22886	1.08010	200.22	-9.80
68/10/22	2440151.5	-49.49122	-25.15077	-12.88778	0.56387	-0.80899	-0.45107	56.99155	1.08438	206.94	-13.07
68/10/22	2440152.0	-45.29723	-30.41987	-15.83432	0.67312	-0.74479	-0.41782	56.81491	1.08737	213.88	-16.18
68/10/23	2440152.5	-40.39540	-35.21161	-18.53189	0.77254	-0.66822	-0.37765	56.70164	1.08902	221.08	-19.08
68/10/23	2440153.0	-34.85931	-39.44656	-20.93591	0.86009	-0.58062	-0.33127	56.65259	1.08932	228.53	-21.69
68/10/24	2440153.5	-28.77541	-43.05538	-23.00709	0.93404	-0.48362	-0.27952	56.66671	1.08833	236.24	-23.95
68/10/24	2440154.0	-22.24075	-45.98058	-24.71246	0.99300	-0.37908	-0.22342	56.74126	1.08613	244.19	-25.82
68/10/25	2440154.5	-15.36044	-48.17795	-26.02613	1.03598	-0.26904	-0.16405	56.87194	1.08284	252.32	-27.23
68/10/25	2440155.0	-8.24488	-49.61730	-26.92985	1.06241	-0.15560	-0.10255	57.05323	1.07863	260.57	-28.17

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/10/26	2440155.5	-1.00688	-50.28278	-27.41310	1.07214	-0.04087	-0.04008	57.27870	1.07367	268.85	-28.59
68/10/26	2440156.0	6.24097	-50.17258	-27.47309	1.06539	0.07312	0.02225	57.54136	1.06813	277.09	-28.52
68/10/27	2440156.5	13.38882	-49.29829	-27.11436	1.04273	0.18446	0.08340	57.83399	1.06220	285.19	-27.96
68/10/27	2440157.0	20.33166	-47.68387	-26.34829	1.00501	0.29140	0.14238	58.14946	1.05605	293.09	-26.94
68/10/28	2440157.5	26.97105	-45.36443	-25.19249	0.95332	0.39241	0.19835	58.48102	1.04983	300.73	-25.52
68/10/28	2440158.0	33.21654	-42.38483	-23.66998	0.88892	0.48613	0.25055	58.82245	1.04369	308.09	-23.73
68/10/29	2440158.5	38.98667	-38.79831	-21.80854	0.81319	0.57146	0.29834	59.16825	1.03771	315.14	-21.63
68/10/29	2440159.0	44.20964	-34.66500	-19.63986	0.72760	0.64746	0.34120	59.51368	1.03200	321.90	-19.27
68/10/30	2440159.5	48.82381	-30.05064	-17.19884	0.63367	0.71340	0.37870	59.85487	1.02659	328.39	-16.70
68/10/30	2440160.0	52.77788	-25.02525	-14.52291	0.53293	0.76875	0.41052	60.18873	1.02153	334.63	-13.96
68/10/31	2440160.5	56.03092	-19.66197	-11.65135	0.42692	0.81313	0.43643	60.51290	1.01682	340.66	-11.10
68/10/31	2440161.0	58.55233	-14.03591	-8.62470	0.31713	0.84633	0.45630	60.82571	1.01245	346.52	-8.15
68/11/ 1	2440161.5	60.32158	-8.22318	-5.48419	0.20505	0.86825	0.47005	61.12602	1.00839	352.24	-5.15
68/11/ 1	2440162.0	61.32796	-2.29998	-2.27126	0.09210	0.87897	0.47769	61.41308	1.00462	357.85	-2.12
68/11/ 2	2440162.5	61.57020	3.65833	0.97295	-0.02037	0.87866	0.47930	61.68646	1.00109	3.40	0.90
68/11/ 2	2440163.0	61.05609	9.57790	4.20801	-0.13104	0.86759	0.47502	61.94586	0.99776	8.92	3.90
68/11/ 3	2440163.5	59.80197	15.38721	7.39460	-0.23869	0.84617	0.46503	62.19101	0.99460	14.43	6.83
68/11/ 3	2440164.0	57.83225	21.01764	10.49487	-0.34217	0.81486	0.44957	62.42157	0.99156	19.97	9.68
68/11/ 4	2440164.5	55.17885	26.40410	13.47279	-0.44041	0.77422	0.42895	62.63703	0.98862	25.57	12.42
68/11/ 4	2440165.0	51.88058	31.48552	16.29444	-0.53244	0.72489	0.40348	62.83663	0.98578	31.25	15.03
68/11/ 5	2440165.5	47.98255	36.20535	18.92822	-0.61738	0.66757	0.37354	63.01928	0.98302	37.04	17.48
68/11/ 5	2440166.0	43.53548	40.51190	21.34517	-0.69444	0.60298	0.33952	63.18360	0.98036	42.94	19.74
68/11/ 6	2440166.5	38.59506	44.35868	23.51904	-0.76295	0.53193	0.30183	63.32785	0.97783	48.97	21.80
68/11/ 6	2440167.0	33.22132	47.70464	25.42651	-0.82231	0.45523	0.26093	63.44995	0.97546	55.15	23.62
68/11/ 7	2440167.5	27.47792	50.51437	27.04730	-0.87203	0.37373	0.21725	63.54757	0.97330	61.46	25.19
68/11/ 7	2440168.0	21.43158	52.75821	28.36421	-0.91171	0.28828	0.17127	63.61816	0.97142	67.89	26.48
68/11/ 8	2440168.5	15.15145	54.41236	29.36321	-0.94102	0.19974	0.12346	63.65900	0.96988	74.44	27.47
68/11/ 8	2440169.0	8.70854	55.45888	30.03345	-0.95974	0.10899	0.07427	63.66737	0.96876	81.08	28.15
68/11/ 9	2440169.5	2.17522	55.88575	30.36730	-0.96770	0.01691	0.02420	63.64057	0.96815	87.77	28.50
68/11/ 9	2440170.0	-4.37528	55.68684	30.36033	-0.96480	-0.07565	-0.02629	63.57607	0.96812	94.49	28.53
68/11/10	2440170.5	-10.86932	54.86190	30.01131	-0.95103	-0.16781	-0.07672	63.47164	0.96876	101.21	28.22
68/11/10	2440171.0	-17.23327	53.41660	29.32225	-0.92640	-0.25869	-0.12662	63.32545	0.97014	107.88	27.58
68/11/11	2440171.5	-23.39391	51.36250	28.29841	-0.89101	-0.34743	-0.17550	63.13622	0.97232	114.49	26.63
68/11/11	2440172.0	-29.27886	48.71717	26.94830	-0.84502	-0.43314	-0.22288	62.90330	0.97537	121.01	25.37
68/11/12	2440172.5	-34.81695	45.50418	25.28377	-0.78863	-0.51490	-0.26827	62.62683	0.97930	127.42	23.81
68/11/12	2440173.0	-39.93873	41.75331	23.32005	-0.72214	-0.59182	-0.31115	62.30783	0.98415	133.73	21.98
68/11/13	2440173.5	-44.57696	37.50061	21.07582	-0.64591	-0.66293	-0.35101	61.94829	0.98989	139.93	19.89
68/11/13	2440174.0	-48.66725	32.78856	18.57334	-0.56042	-0.72729	-0.38732	61.55127	0.99651	146.03	17.56
68/11/14	2440174.5	-52.14873	27.66628	15.83849	-0.46625	-0.78391	-0.41953	61.12095	1.00394	152.05	15.02
68/11/14	2440175.0	-54.96497	22.18956	12.90090	-0.36411	-0.83179	-0.44710	60.66265	1.01210	158.02	12.28
68/11/15	2440175.5	-57.06496	16.42097	9.79394	-0.25490	-0.86993	-0.46945	60.18288	1.02085	163.95	9.37
68/11/15	2440176.0	-58.40428	10.42976	6.55471	-0.13969	-0.89736	-0.48606	59.68922	1.03006	169.87	6.30
68/11/16	2440176.5	-58.94643	4.29166	3.22397	-0.01974	-0.91316	-0.49640	59.19032	1.03955	175.84	3.12
68/11/16	2440177.0	-58.66430	-1.91162	-0.15415	0.10345	-0.91648	-0.49998	58.69564	1.04910	181.87	-0.15
68/11/17	2440177.5	-57.54170	-8.09310	-3.53250	0.22814	-0.90662	-0.49640	58.21532	1.05850	188.01	-3.48

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
68/11/17	2440178.0	-55.57491	-14.16168	-6.86150	0.35239	-0.88307	-0.48537	57.75988	1.06751	194.30	-6.82
68/11/18	2440178.5	-52.77409	-20.02359	-10.08996	0.47405	-0.84557	-0.46669	57.33983	1.07588	200.78	-10.13
68/11/18	2440179.0	-49.16451	-25.58429	-13.16602	0.59082	-0.79416	-0.44038	56.96533	1.08338	207.49	-13.36
68/11/19	2440179.5	-44.78730	-30.75072	-16.03845	0.70033	-0.72925	-0.40661	56.64575	1.08977	214.47	-16.45
68/11/19	2440180.0	-39.69971	-35.43384	-18.65797	0.80020	-0.65161	-0.36578	56.38921	1.09486	221.75	-19.32
68/11/20	2440180.5	-33.97467	-39.55130	-20.97872	0.88820	-0.56245	-0.31851	56.20223	1.09850	229.34	-21.92
68/11/20	2440181.0	-27.69963	-43.03014	-22.95977	0.96231	-0.46332	-0.26562	56.08933	1.10057	237.23	-24.16
68/11/21	2440181.5	-20.97459	-45.80919	-24.56643	1.02084	-0.35614	-0.20814	56.05288	1.10103	245.40	-25.99
68/11/21	2440182.0	-13.90955	-47.84111	-25.77140	1.06253	-0.24307	-0.14721	56.09289	1.09988	253.79	-27.35
68/11/22	2440182.5	-6.62142	-49.09377	-26.55558	1.08663	-0.12643	-0.08409	56.20712	1.09719	262.32	-28.19
68/11/22	2440183.0	0.76940	-49.55105	-26.90852	1.09285	-0.00860	-0.02008	56.39119	1.09307	270.89	-28.50
68/11/23	2440183.5	8.14239	-49.21277	-26.82847	1.08144	0.10811	0.04356	56.63888	1.08770	279.39	-28.27
68/11/23	2440184.0	15.38013	-48.09412	-26.32208	1.05306	0.22150	0.10562	56.94246	1.08128	287.73	-27.53
68/11/24	2440184.5	22.37113	-46.22436	-25.40376	1.00878	0.32960	0.16502	57.29319	1.07402	295.83	-26.32
68/11/24	2440185.0	29.01213	-43.64526	-24.09484	0.94996	0.43070	0.22082	57.68166	1.06615	303.61	-24.69
68/11/25	2440185.5	35.20988	-40.40921	-22.42258	0.87817	0.52338	0.27220	58.09830	1.05792	311.07	-22.70
68/11/25	2440186.0	40.88224	-36.57723	-20.41909	0.79511	0.60651	0.31853	58.53367	1.04953	318.18	-20.42
68/11/26	2440186.5	45.95894	-32.21705	-18.12031	0.70257	0.67923	0.35933	58.97888	1.04119	324.97	-17.89
68/11/26	2440187.0	50.38172	-27.40127	-15.56499	0.60231	0.74096	0.39424	59.42572	1.03307	331.46	-15.18
68/11/27	2440187.5	54.10426	-22.20574	-12.79382	0.49608	0.79132	0.42304	59.86692	1.02530	337.69	-12.34
68/11/27	2440188.0	57.09181	-16.70814	-9.84863	0.38554	0.83015	0.44561	60.29621	1.01802	343.69	-9.40
68/11/28	2440188.5	59.32068	-10.98674	-6.77174	0.27230	0.85742	0.46193	60.70838	1.01129	349.51	-6.40
68/11/28	2440189.0	60.77761	-5.11938	-3.60536	0.15784	0.87328	0.47205	61.09930	1.00517	355.19	-3.38
68/11/29	2440189.5	61.45913	0.81736	-0.39114	0.04355	0.87796	0.47608	61.46581	0.99968	0.76	-0.36
68/11/29	2440190.0	61.37090	6.74890	2.83020	-0.06926	0.87181	0.47419	61.80570	0.99484	6.28	2.62
68/11/30	2440190.5	60.52702	12.60320	6.01927	-0.17939	0.85523	0.46659	62.11757	0.99061	11.76	5.56
68/11/30	2440191.0	58.94945	18.31128	9.13820	-0.28573	0.82871	0.45352	62.40069	0.98696	17.26	8.42
68/12/ 1	2440191.5	56.66739	23.80762	12.15094	-0.38726	0.79280	0.43528	62.65493	0.98385	22.79	11.18
68/12/ 1	2440192.0	53.71673	29.03057	15.02347	-0.48301	0.74808	0.41217	62.88057	0.98123	28.39	13.82
68/12/ 2	2440192.5	50.13953	33.92263	17.72394	-0.57214	0.69520	0.38453	63.07817	0.97904	34.08	16.32
68/12/ 2	2440193.0	45.98343	38.43083	20.22292	-0.65383	0.63485	0.35273	63.24848	0.97721	39.89	18.65
68/12/ 3	2440193.5	41.30120	42.50693	22.49349	-0.72739	0.56774	0.31715	63.39231	0.97571	45.82	20.78
68/12/ 3	2440194.0	36.15016	46.10777	24.51143	-0.79217	0.49463	0.27820	63.51039	0.97447	51.90	22.70
68/12/ 4	2440194.5	30.59166	49.19541	26.25537	-0.84762	0.41633	0.23631	63.60332	0.97346	58.13	24.38
68/12/ 4	2440195.0	24.69054	51.73743	27.70685	-0.89327	0.33365	0.19192	63.67145	0.97267	64.49	25.80
68/12/ 5	2440195.5	18.51462	53.70704	28.85050	-0.92871	0.24745	0.14549	63.71490	0.97206	70.98	26.92
68/12/ 5	2440196.0	12.13405	55.08329	29.67407	-0.95365	0.15858	0.09748	63.73346	0.97165	77.58	27.75
68/12/ 6	2440196.5	5.62086	55.85113	30.16855	-0.96785	0.06794	0.04839	63.72664	0.97143	84.25	28.26
68/12/ 6	2440197.0	-0.95169	56.00157	30.32818	-0.97116	-0.02359	-0.00131	63.69365	0.97145	90.97	28.43
68/12/ 7	2440197.5	-7.50965	55.53167	30.15053	-0.96353	-0.11509	-0.05113	63.63345	0.97173	97.70	28.28
68/12/ 7	2440198.0	-13.97890	54.44459	29.63646	-0.94498	-0.20569	-0.10057	63.54481	0.97232	104.40	27.80
68/12/ 8	2440198.5	-20.28575	52.74957	28.79021	-0.91560	-0.29446	-0.14914	63.42637	0.97328	111.04	27.00
68/12/ 8	2440199.0	-26.35741	50.46196	27.61930	-0.87557	-0.38053	-0.19635	63.27675	0.97466	117.58	25.88
68/12/ 9	2440199.5	-32.12258	47.60313	26.13459	-0.82514	-0.46299	-0.24172	63.09465	0.97655	124.01	24.47
68/12/ 9	2440200.0	-37.51194	44.20050	24.35024	-0.76465	-0.54096	-0.28475	62.87896	0.97899	130.32	22.78

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
68/12/10	2440200.5	-42.45870	40.28744	22.28372	-0.69452	-0.61357	-0.32497	62.62893	0.98205	136.50	20.84
68/12/10	2440201.0	-46.89913	35.90327	19.95572	-0.61523	-0.67993	-0.36188	62.34424	0.98579	142.56	18.67
68/12/11	2440201.5	-50.77320	31.09320	17.39023	-0.52738	-0.73919	-0.39502	62.02519	0.99024	148.52	16.28
68/12/11	2440202.0	-54.02514	25.90827	14.61442	-0.43164	-0.79048	-0.42391	61.67281	0.99543	154.38	13.71
68/12/12	2440202.5	-56.60419	20.40528	11.65867	-0.32882	-0.83297	-0.44808	61.28894	1.00137	160.18	10.97
68/12/12	2440203.0	-58.46535	14.64669	8.55650	-0.21982	-0.86583	-0.46707	60.87641	1.00803	165.94	8.08
68/12/13	2440203.5	-59.57030	8.70044	5.34447	-0.10570	-0.88826	-0.48045	60.43907	1.01539	171.69	5.07
68/12/13	2440204.0	-59.88830	2.63966	2.06205	0.01234	-0.89953	-0.48779	59.98190	1.02335	177.48	1.97
68/12/14	2440204.5	-59.39733	-3.45768	-1.24859	0.13294	-0.89895	-0.48872	59.51098	1.03181	183.33	-1.20
68/12/14	2440205.0	-58.08521	-9.50939	-4.54288	0.25455	-0.88597	-0.48291	59.03353	1.04064	189.30	-4.41
68/12/15	2440205.5	-55.95082	-15.42985	-7.77427	0.37545	-0.86014	-0.47011	58.55779	1.04967	195.42	-7.63
68/12/15	2440206.0	-53.00528	-21.13113	-10.89486	0.49375	-0.82122	-0.45018	58.09288	1.05870	201.74	-10.81
68/12/16	2440206.5	-49.27302	-26.52435	-13.85609	0.60741	-0.76919	-0.42306	57.64861	1.06751	208.29	-13.91
68/12/16	2440207.0	-44.79270	-31.52142	-16.60970	0.71428	-0.70431	-0.38890	57.23520	1.07587	215.13	-16.87
68/12/17	2440207.5	-39.61776	-36.03706	-19.10883	0.81216	-0.62715	-0.34798	56.86286	1.08352	222.29	-19.64
68/12/17	2440208.0	-33.81656	-39.99114	-21.30929	0.89886	-0.53867	-0.30080	56.54146	1.09023	229.78	-22.14
68/12/18	2440208.5	-27.47182	-43.31112	-23.17085	0.97233	-0.44016	-0.24804	56.28004	1.09576	237.61	-24.31
68/12/18	2440209.0	-20.67951	-45.93456	-24.65867	1.03074	-0.33329	-0.19060	56.08633	1.09993	245.76	-26.08
68/12/19	2440209.5	-13.54696	-47.81145	-25.74455	1.07259	-0.22006	-0.12954	55.96639	1.10256	254.18	-27.39
68/12/19	2440210.0	-6.19026	-48.90616	-26.40803	1.09679	-0.10271	-0.06608	55.92420	1.10357	262.79	-28.18
68/12/20	2440210.5	1.26887	-49.19890	-26.63721	1.10278	0.01635	-0.00152	55.96144	1.10290	271.48	-28.42
68/12/20	2440211.0	8.70653	-48.68645	-26.42915	1.09049	0.13465	0.06281	56.07739	1.10056	280.14	-28.12
68/12/21	2440211.5	16.00029	-47.38210	-25.78993	1.06040	0.24980	0.12559	56.26894	1.09664	288.66	-27.28
68/12/21	2440212.0	23.03260	-45.31494	-24.73424	1.01348	0.35955	0.18559	56.53076	1.09127	296.94	-25.95
68/12/22	2440212.5	29.69389	-42.52835	-23.28465	0.95110	0.46193	0.24173	56.85563	1.08463	304.92	-24.18
68/12/22	2440213.0	35.88504	-39.07816	-21.47056	0.87496	0.55526	0.29309	57.23481	1.07692	312.56	-22.03
68/12/23	2440213.5	41.51916	-35.03031	-19.32699	0.78695	0.63822	0.33892	57.65844	1.06840	319.85	-19.58
68/12/23	2440214.0	46.52281	-30.45854	-16.89334	0.68912	0.70984	0.37867	58.11608	1.05932	326.79	-16.90
68/12/24	2440214.5	50.83639	-25.44203	-14.21211	0.58352	0.76947	0.41198	58.59710	1.04991	333.41	-14.04
68/12/24	2440215.0	54.41415	-20.06327	-11.32770	0.47217	0.81677	0.43865	59.09104	1.04042	339.76	-11.05
68/12/25	2440215.5	57.22365	-14.40613	-8.28542	0.35697	0.85168	0.45860	59.58801	1.03107	345.87	-7.99
68/12/25	2440216.0	59.24503	-8.55430	-5.13059	0.23973	0.87430	0.47190	60.07889	1.02204	351.78	-4.90
68/12/26	2440216.5	60.47003	-2.58997	-1.90784	0.12207	0.88496	0.47869	60.55553	1.01350	357.55	-1.81
68/12/26	2440217.0	60.90095	3.40712	1.33946	0.00547	0.88406	0.47919	61.01089	1.00559	3.20	1.26
68/12/27	2440217.5	60.54963	9.36051	4.56961	-0.10871	0.87214	0.47367	61.43906	0.99841	8.79	4.27
68/12/27	2440218.0	59.43645	15.19747	7.74288	-0.21931	0.84979	0.46245	61.83532	0.99201	14.34	7.19
68/12/28	2440218.5	57.58942	20.84948	10.82174	-0.32525	0.81764	0.44585	62.19608	0.98646	19.90	10.02
68/12/28	2440219.0	55.04337	26.25245	13.77103	-0.42558	0.77636	0.42425	62.51884	0.98175	25.50	12.72
68/12/29	2440219.5	51.83920	31.34693	16.55805	-0.51945	0.72665	0.39800	62.80208	0.97789	31.16	15.29
68/12/29	2440220.0	48.02325	36.07821	19.15266	-0.60611	0.66923	0.36749	63.04517	0.97483	36.92	17.69
68/12/30	2440220.5	43.64674	40.39650	21.52733	-0.68487	0.60483	0.33312	63.24825	0.97254	42.79	19.90
68/12/30	2440221.0	38.76529	44.25702	23.65723	-0.75512	0.53418	0.29528	63.41211	0.97095	48.78	21.91
68/12/31	2440221.5	33.43842	47.62008	25.52029	-0.81631	0.45806	0.25439	63.53806	0.97000	54.92	23.68
68/12/31	2440222.0	27.72916	50.45124	27.09728	-0.86797	0.37725	0.21088	63.62780	0.96961	61.21	25.21
69/ 1/ 1	2440222.5	21.70357	52.72147	28.37186	-0.90966	0.29255	0.16517	63.68328	0.96971	67.62	26.46

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
69/ 1/ 1	2440223.0	15.43037	54.40723	29.33071	-0.94103	0.20480	0.11772	63.70662	0.97023	74.17	27.41
69/ 1/ 2	2440223.5	8.98045	55.49069	29.96359	-0.96180	0.11484	0.06899	63.69994	0.97108	80.81	28.06
69/ 1/ 2	2440224.0	2.42642	55.95987	30.26344	-0.97175	0.02355	0.01946	63.66530	0.97223	87.52	28.38
69/ 1/ 3	2440224.5	-4.15793	55.80877	30.22647	-0.97073	-0.06817	-0.03039	63.60461	0.97360	94.26	28.37
69/ 1/ 3	2440225.0	-10.69813	55.03752	29.85220	-0.95871	-0.15942	-0.08006	63.51954	0.97516	101.00	28.03
69/ 1/ 4	2440225.5	-17.11964	53.65245	29.14359	-0.93569	-0.24927	-0.12904	63.41148	0.97689	107.70	27.36
69/ 1/ 4	2440226.0	-23.34841	51.66622	28.10699	-0.90182	-0.33678	-0.17682	63.28151	0.97876	114.32	26.37
69/ 1/ 5	2440226.5	-29.31160	49.09779	26.75224	-0.85731	-0.42103	-0.22290	63.13039	0.98078	120.84	25.07
69/ 1/ 5	2440227.0	-34.93813	45.97244	25.09263	-0.80247	-0.50109	-0.26676	62.95854	0.98296	127.23	23.49
69/ 1/ 6	2440227.5	-40.15944	42.32166	23.14487	-0.73773	-0.57603	-0.30790	62.76615	0.98532	133.50	21.64
69/ 1/ 6	2440228.0	-44.91013	38.18313	20.92904	-0.66360	-0.64497	-0.34584	62.55314	0.98790	139.63	19.55
69/ 1/ 7	2440228.5	-49.12865	33.60048	18.46852	-0.58070	-0.70704	-0.38008	62.31936	0.99074	145.63	17.24
69/ 1/ 7	2440229.0	-52.75801	28.62313	15.78985	-0.48975	-0.76139	-0.41018	62.06457	0.99389	151.52	14.74
69/ 1/ 8	2440229.5	-55.74650	23.30605	12.92266	-0.39160	-0.80723	-0.43568	61.78866	0.99739	157.31	12.07
69/ 1/ 8	2440230.0	-58.04833	17.70940	9.89941	-0.28716	-0.84382	-0.45619	61.49171	1.00130	163.03	9.26
69/ 1/ 9	2440230.5	-59.62443	11.89825	6.75532	-0.17747	-0.87046	-0.47131	61.17414	1.00565	168.71	6.34
69/ 1/ 9	2440231.0	-60.44308	5.94211	3.52804	-0.06369	-0.88653	-0.48070	60.83684	1.01048	174.39	3.32
69/ 1/10	2440231.5	-60.48073	-0.08552	0.25746	0.05293	-0.89149	-0.48405	60.48134	1.01580	180.08	0.24
69/ 1/10	2440232.0	-59.72271	-6.10775	-3.01463	0.17103	-0.88487	-0.48111	60.10985	1.02162	185.84	-2.87
69/ 1/11	2440232.5	-58.16402	-12.04492	-6.24489	0.28911	-0.86633	-0.47167	59.72547	1.02790	191.70	-6.00
69/ 1/11	2440233.0	-55.81007	-17.81547	-9.38889	0.40559	-0.83564	-0.45562	59.33217	1.03460	197.70	-9.10
69/ 1/12	2440233.5	-52.67744	-23.33688	-12.40160	0.51876	-0.79276	-0.43291	58.93490	1.04163	203.89	-12.15
69/ 1/12	2440234.0	-48.79449	-28.52679	-15.23806	0.62685	-0.73779	-0.40359	58.53955	1.04888	210.31	-15.09
69/ 1/13	2440234.5	-44.20194	-33.30438	-17.85403	0.72799	-0.67108	-0.36784	58.15290	1.05623	217.00	-17.88
69/ 1/13	2440235.0	-38.95316	-37.59188	-20.20690	0.82031	-0.59319	-0.32596	57.78250	1.06350	223.98	-20.47
69/ 1/14	2440235.5	-33.11428	-41.31629	-22.25659	0.90193	-0.50497	-0.27840	57.43647	1.07050	231.29	-22.80
69/ 1/14	2440236.0	-26.76390	-44.41127	-23.96661	0.97107	-0.40754	-0.22577	57.12325	1.07705	238.93	-24.81
69/ 1/15	2440236.5	-19.99230	-46.81914	-25.30509	1.02606	-0.30233	-0.16883	56.85131	1.08291	246.88	-26.43
69/ 1/15	2440237.0	-12.90025	-48.49279	-26.24590	1.06547	-0.19103	-0.10850	56.62874	1.08789	255.10	-27.61
69/ 1/16	2440237.5	-5.59722	-49.39753	-26.76962	1.08820	-0.07562	-0.04585	56.46289	1.09179	263.54	-28.30
69/ 1/16	2440238.0	1.80104	-49.51265	-26.86442	1.09350	0.04176	0.01795	56.35995	1.09445	272.08	-28.47
69/ 1/17	2440238.5	9.17517	-48.83250	-26.52665	1.08107	0.15883	0.08167	56.32460	1.09572	280.64	-28.10
69/ 1/17	2440239.0	16.40541	-47.36708	-25.76118	1.05108	0.27327	0.14404	56.35970	1.09553	289.10	-27.20
69/ 1/18	2440239.5	23.37480	-45.14194	-24.58136	1.00419	0.38280	0.20382	56.46609	1.09384	297.38	-25.81
69/ 1/18	2440240.0	29.97240	-42.19747	-23.00866	0.94151	0.48535	0.25987	56.64247	1.09066	305.39	-23.97
69/ 1/19	2440240.5	36.09616	-38.58751	-21.07191	0.86455	0.57903	0.31117	56.88545	1.08607	313.09	-21.74
69/ 1/19	2440241.0	41.65537	-34.37750	-18.80630	0.77513	0.66231	0.35685	57.18968	1.08019	320.47	-19.20
69/ 1/20	2440241.5	46.57241	-29.64223	-16.25219	0.67528	0.73397	0.39626	57.54811	1.07319	327.52	-16.40
69/ 1/20	2440242.0	50.78392	-24.46343	-13.45380	0.56716	0.79317	0.42893	57.95232	1.06525	334.28	-13.42
69/ 1/21	2440242.5	54.24129	-18.92734	-10.45784	0.45294	0.83942	0.45457	58.39288	1.05660	340.76	-10.32
69/ 1/21	2440243.0	56.91050	-13.12243	-7.31235	0.33476	0.87255	0.47308	58.85978	1.04748	347.02	-7.14
69/ 1/22	2440243.5	58.77154	-7.13736	-4.06551	0.21462	0.89266	0.48452	59.34277	1.03810	353.08	-3.93
69/ 1/22	2440244.0	59.81747	-1.05923	-0.76474	0.09436	0.90009	0.48904	59.83173	1.02871	358.99	-0.73
69/ 1/23	2440244.5	60.05323	5.02772	2.54405	-0.02436	0.89536	0.48694	60.31700	1.01950	4.79	2.42
69/ 1/23	2440245.0	59.49437	11.04323	5.81706	-0.14006	0.87911	0.47854	60.78956	1.01067	10.52	5.49

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 1/24	2440245.5	58.16577	16.91173	9.01300	-0.25146	0.85208	0.46425	61.24130	1.00240	16.21	8.46
69/ 1/24	2440246.0	56.10038	22.56282	12.09336	-0.35745	0.81505	0.44448	61.66509	0.99481	21.91	11.31
69/ 1/25	2440246.5	53.33816	27.93158	15.02258	-0.45708	0.76885	0.41969	62.05490	0.98802	27.64	14.01
69/ 1/25	2440247.0	49.92500	32.95870	17.76813	-0.54954	0.71430	0.39032	62.40584	0.98213	33.43	16.54
69/ 1/26	2440247.5	45.91195	37.59051	20.30053	-0.63412	0.65225	0.35683	62.71416	0.97718	39.31	18.89
69/ 1/26	2440248.0	41.35440	41.77899	22.59337	-0.71023	0.58353	0.31966	62.97723	0.97320	45.29	21.02
69/ 1/27	2440248.5	36.31155	45.48168	24.62326	-0.77735	0.50894	0.27925	63.19349	0.97019	51.40	22.93
69/ 1/27	2440249.0	30.84583	48.66167	26.36979	-0.83503	0.42931	0.23606	63.36237	0.96815	57.63	24.59
69/ 1/28	2440249.5	25.02250	51.28756	27.81559	-0.88289	0.34545	0.19052	63.48422	0.96702	63.99	25.99
69/ 1/28	2440250.0	18.90924	53.33342	28.94626	-0.92059	0.25817	0.14308	63.56020	0.96676	70.48	27.09
69/ 1/29	2440250.5	12.57583	54.77890	29.75041	-0.94786	0.16830	0.09418	63.59219	0.96728	77.07	27.89
69/ 1/29	2440251.0	6.09376	55.60923	30.21974	-0.96446	0.07667	0.04428	63.58264	0.96851	83.75	28.38
69/ 1/30	2440251.5	-0.46408	55.81537	30.34905	-0.97021	-0.01587	-0.00615	63.53452	0.97036	90.48	28.53
69/ 1/30	2440252.0	-7.02383	55.39415	30.13636	-0.96501	-0.10844	-0.05663	63.45113	0.97273	97.23	28.36
69/ 1/31	2440252.5	-13.51107	54.34841	29.58297	-0.94880	-0.20014	-0.10667	63.33601	0.97553	103.96	27.84
69/ 1/31	2440253.0	-19.85136	52.68717	28.69357	-0.92162	-0.29004	-0.15577	63.19284	0.97866	110.65	27.00
69/ 2/ 1	2440253.5	-25.97076	50.42577	27.47629	-0.88360	-0.37720	-0.20340	63.02527	0.98204	117.25	25.85
69/ 2/ 1	2440254.0	-31.79647	47.58599	25.94281	-0.83495	-0.46067	-0.24905	62.83686	0.98558	123.75	24.38
69/ 2/ 2	2440254.5	-37.25755	44.19614	24.10838	-0.77599	-0.53947	-0.29218	62.63096	0.98923	130.13	22.64
69/ 2/ 2	2440255.0	-42.28569	40.29104	21.99180	-0.70718	-0.61266	-0.33228	62.41063	0.99291	136.38	20.63
69/ 2/ 3	2440255.5	-46.81598	35.91200	19.61546	-0.62908	-0.67927	-0.36881	62.17856	0.99658	142.51	18.39
69/ 2/ 3	2440256.0	-50.78779	31.10663	17.00519	-0.54240	-0.73840	-0.40127	61.93705	1.00022	148.51	15.94
69/ 2/ 4	2440256.5	-54.14566	25.92864	14.19018	-0.44794	-0.78916	-0.42919	61.68799	1.00381	154.41	13.30
69/ 2/ 4	2440257.0	-56.84017	20.43742	11.20274	-0.34668	-0.83076	-0.45211	61.43285	1.00735	160.22	10.51
69/ 2/ 5	2440257.5	-58.82878	14.69767	8.07809	-0.23969	-0.86244	-0.46964	61.17273	1.01085	165.97	7.59
69/ 2/ 5	2440258.0	-60.07669	8.77874	4.85405	-0.12816	-0.88357	-0.48141	60.90843	1.01433	171.69	4.57
69/ 2/ 6	2440258.5	-60.55757	2.75402	1.57064	-0.01342	-0.89360	-0.48713	60.64051	1.01784	177.40	1.48
69/ 2/ 6	2440259.0	-60.25432	-3.29984	-1.73031	0.10315	-0.89211	-0.48656	60.36942	1.02139	183.13	-1.64
69/ 2/ 7	2440259.5	-59.15964	-9.30380	-5.00563	0.22003	-0.87883	-0.47954	60.09559	1.02504	188.94	-4.78
69/ 2/ 7	2440260.0	-57.27656	-15.17738	-8.21135	0.33569	-0.85360	-0.46600	59.81959	1.02882	194.84	-7.89
69/ 2/ 8	2440260.5	-54.61890	-20.83968	-11.30323	0.44849	-0.81645	-0.44593	59.54225	1.03276	200.88	-10.94
69/ 2/ 8	2440261.0	-51.21156	-26.21046	-14.23738	0.55679	-0.76757	-0.41945	59.26479	1.03687	207.10	-13.90
69/ 2/ 9	2440261.5	-47.09068	-31.21138	-16.97092	0.65891	-0.70731	-0.38673	58.98893	1.04116	213.54	-16.72
69/ 2/ 9	2440262.0	-42.30367	-35.76719	-19.46263	0.75321	-0.63624	-0.34810	58.71700	1.04561	220.21	-19.36
69/ 2/10	2440262.5	-36.90907	-39.80708	-21.67371	0.83807	-0.55511	-0.30394	58.45197	1.05018	227.16	-21.76
69/ 2/10	2440263.0	-30.97618	-43.26605	-23.56850	0.91192	-0.46487	-0.25479	58.19750	1.05481	234.40	-23.89
69/ 2/11	2440263.5	-24.58449	-46.08626	-25.11524	0.97332	-0.36670	-0.20128	57.95788	1.05940	241.92	-25.68
69/ 2/11	2440264.0	-17.82279	-48.21850	-26.28687	1.02097	-0.26196	-0.14416	57.73798	1.06386	249.71	-27.08
69/ 2/12	2440264.5	-10.78806	-49.62347	-27.06175	1.05378	-0.15222	-0.08427	57.54310	1.06805	257.73	-28.05
69/ 2/12	2440265.0	-3.58393	-50.27310	-27.42435	1.07087	-0.03922	-0.02258	57.37877	1.07183	265.92	-28.55
69/ 2/13	2440265.5	3.68108	-50.15162	-27.36585	1.07168	0.07516	0.03989	57.25054	1.07506	274.20	-28.55
69/ 2/13	2440266.0	10.89565	-49.25637	-26.88463	1.05597	0.18893	0.10206	57.16370	1.07758	282.47	-28.05
69/ 2/14	2440266.5	17.94806	-47.59836	-25.98652	1.02385	0.30006	0.16282	57.12299	1.07927	290.66	-27.06
69/ 2/14	2440267.0	24.72870	-45.20231	-24.68484	0.97583	0.40653	0.22105	57.13230	1.07999	298.68	-25.60
69/ 2/15	2440267.5	31.13264	-42.10638	-23.00029	0.91279	0.50642	0.27571	57.19442	1.07966	306.48	-23.71

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
69/ 2/15	2440268.0	37.06214	-38.36129	-20.96043	0.83597	0.59795	0.32581	57.31082	1.07821	314.01	-21.45
69/ 2/16	2440268.5	42.42895	-34.02910	-18.59907	0.74692	0.67955	0.37052	57.48148	1.07562	321.27	-18.88
69/ 2/16	2440269.0	47.15622	-29.18153	-15.95527	0.64744	0.74994	0.40911	57.70477	1.07190	328.25	-16.05
69/ 2/17	2440269.5	51.18001	-23.89802	-13.07239	0.53953	0.80814	0.44104	57.97755	1.06710	334.97	-13.03
69/ 2/17	2440270.0	54.45025	-18.26361	-9.99681	0.42527	0.85348	0.46596	58.29516	1.06132	341.46	-9.87
69/ 2/18	2440270.5	56.93111	-12.36671	-6.77684	0.30678	0.88562	0.48366	58.65162	1.05469	347.74	-6.64
69/ 2/18	2440271.0	58.60095	-6.29706	-3.46151	0.18612	0.90451	0.49413	59.03987	1.04735	353.87	-3.36
69/ 2/19	2440271.5	59.45173	-0.14376	-0.09952	0.06523	0.91038	0.49747	59.45199	1.03948	359.86	-0.10
69/ 2/19	2440272.0	59.48815	6.00638	3.26165	-0.05407	0.90367	0.49394	59.87951	1.03127	5.77	3.12
69/ 2/20	2440272.5	58.72649	12.07023	6.57651	-0.17018	0.88501	0.48386	60.31369	1.02290	11.61	6.26
69/ 2/20	2440273.0	57.19328	17.96938	9.80215	-0.28168	0.85517	0.46766	60.74580	1.01458	17.44	9.29
69/ 2/21	2440273.5	54.92405	23.63094	12.89864	-0.38734	0.81500	0.44581	61.16737	1.00648	23.28	12.17
69/ 2/21	2440274.0	51.96192	28.98801	15.82932	-0.48613	0.76541	0.41879	61.57039	0.99878	29.16	14.90
69/ 2/22	2440274.5	48.35645	33.97997	18.56097	-0.57718	0.70734	0.38712	61.94751	0.99163	35.10	17.44
69/ 2/22	2440275.0	44.16252	38.55260	21.06384	-0.65979	0.64175	0.35132	62.29219	0.98518	41.12	19.76
69/ 2/23	2440275.5	39.43935	42.65807	23.31167	-0.73338	0.56955	0.31189	62.59878	0.97954	47.25	21.86
69/ 2/23	2440276.0	34.24970	46.25482	25.28165	-0.79747	0.49167	0.26935	62.86265	0.97481	53.48	23.71
69/ 2/24	2440276.5	28.65920	49.30742	26.95430	-0.85169	0.40902	0.22417	63.08016	0.97104	59.83	25.30
69/ 2/24	2440277.0	22.73577	51.78648	28.31344	-0.89574	0.32245	0.17685	63.24876	0.96830	66.30	26.59
69/ 2/25	2440277.5	16.54917	53.66843	29.34608	-0.92937	0.23284	0.12784	63.36692	0.96658	72.86	27.59
69/ 2/25	2440278.0	10.17061	54.93549	30.04240	-0.95239	0.14102	0.07761	63.43418	0.96590	79.51	28.27
69/ 2/26	2440278.5	3.67244	55.57559	30.39572	-0.96467	0.04784	0.02663	63.45102	0.96622	86.22	28.62
69/ 2/26	2440279.0	-2.87217	55.58235	30.40244	-0.96609	-0.04586	-0.02465	63.41889	0.96750	92.96	28.65
69/ 2/27	2440279.5	-9.38954	54.95516	30.06217	-0.95662	-0.13922	-0.07576	63.34009	0.96966	99.70	28.33
69/ 2/27	2440280.0	-15.80577	53.69925	29.37767	-0.93624	-0.23137	-0.12622	63.21771	0.97262	106.40	27.69
69/ 2/28	2440280.5	-22.04717	51.82582	28.35502	-0.90501	-0.32142	-0.17553	63.05553	0.97630	113.05	26.72
69/ 2/28	2440281.0	-28.04066	49.35222	27.00366	-0.86306	-0.40844	-0.22320	62.85791	0.98056	119.60	25.44
69/ 3/ 1	2440281.5	-33.71430	46.30212	25.33647	-0.81060	-0.49149	-0.26870	62.62968	0.98531	126.06	23.86
69/ 3/ 1	2440282.0	-38.99794	42.70566	23.36991	-0.74795	-0.56961	-0.31151	62.37600	0.99042	132.40	22.00
69/ 3/ 2	2440282.5	-43.82393	38.59956	21.12404	-0.67554	-0.64182	-0.35109	62.10223	0.99577	138.63	19.89
69/ 3/ 2	2440283.0	-48.12792	34.02719	18.62258	-0.59392	-0.70714	-0.38690	61.81381	1.00123	144.74	17.53
69/ 3/ 3	2440283.5	-51.84984	29.03854	15.89285	-0.50379	-0.76459	-0.41841	61.51606	1.00671	150.75	14.97
69/ 3/ 3	2440284.0	-54.93483	23.69005	12.96576	-0.40599	-0.81324	-0.44510	61.21409	1.01208	156.67	12.23
69/ 3/ 4	2440284.5	-57.33436	18.04433	9.87555	-0.30155	-0.85222	-0.46650	60.91267	1.01726	162.53	9.33
69/ 3/ 4	2440285.0	-59.00726	12.16968	6.65963	-0.19163	-0.88072	-0.48215	60.61607	1.02218	168.35	6.31
69/ 3/ 5	2440285.5	-59.92078	6.13947	3.35817	-0.07755	-0.89805	-0.49169	60.32802	1.02677	174.15	3.19
69/ 3/ 5	2440286.0	-60.05160	0.03133	0.01370	0.03924	-0.90365	-0.49481	60.05161	1.03100	179.97	0.01
69/ 3/ 6	2440286.5	-59.38670	-6.07383	-3.32945	0.15715	-0.89712	-0.49128	59.78927	1.03483	185.84	-3.19
69/ 3/ 6	2440287.0	-57.92411	-12.09301	-6.62582	0.27451	-0.87824	-0.48098	59.54279	1.03827	191.79	-6.39
69/ 3/ 7	2440287.5	-55.67338	-17.94234	-9.82943	0.38959	-0.84698	-0.46390	59.31332	1.04132	197.86	-9.54
69/ 3/ 7	2440288.0	-52.65597	-23.53848	-12.89462	0.50061	-0.80352	-0.44013	59.10146	1.04402	204.09	-12.60
69/ 3/ 8	2440288.5	-48.90527	-28.80007	-15.77678	0.60583	-0.74827	-0.40990	58.90735	1.04640	210.49	-15.53
69/ 3/ 8	2440289.0	-44.46643	-33.64914	-18.43318	0.70354	-0.68183	-0.37353	58.73083	1.04851	217.12	-18.29
69/ 3/ 9	2440289.5	-39.39592	-38.01259	-20.82374	0.79210	-0.60502	-0.33148	58.57153	1.05040	223.98	-20.83
69/ 3/ 9	2440290.0	-33.76084	-41.82354	-22.91178	0.87001	-0.51886	-0.28430	58.42904	1.05212	231.09	-23.09

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 3/10	2440290.5	-27.63803	-45.02262	-24.66474	0.93591	-0.42456	-0.23265	58.30306	1.05371	238.46	-25.03
69/ 3/10	2440291.0	-21.11291	-47.55919	-26.05483	0.98862	-0.32346	-0.17728	58.19352	1.05519	246.06	-26.60
69/ 3/11	2440291.5	-14.27823	-49.39231	-27.05958	1.02718	-0.21709	-0.11901	58.10068	1.05659	253.88	-27.76
69/ 3/11	2440292.0	-7.23254	-50.49166	-27.66237	1.05083	-0.10707	-0.05873	58.02520	1.05790	261.85	-28.47
69/ 3/12	2440292.5	-0.07856	-50.83827	-27.85274	1.05909	0.00490	0.00261	57.96818	1.05911	269.91	-28.72
69/ 3/12	2440293.0	7.07854	-50.42495	-27.62673	1.05174	0.11703	0.06406	57.93114	1.06017	277.99	-28.48
69/ 3/13	2440293.5	14.13300	-49.25664	-26.98704	1.02882	0.22754	0.12461	57.91596	1.06102	286.01	-27.77
69/ 3/13	2440294.0	20.98042	-47.35043	-25.94298	0.99068	0.33463	0.18330	57.92477	1.06161	293.90	-26.61
69/ 3/14	2440294.5	27.51965	-44.73535	-24.51046	0.93794	0.43658	0.23917	57.95986	1.06186	301.60	-25.02
69/ 3/14	2440295.0	33.65475	-41.45189	-22.71163	0.87152	0.53174	0.29132	58.02344	1.06168	309.07	-23.04
69/ 3/15	2440295.5	39.29681	-37.55123	-20.57454	0.79256	0.61859	0.33893	58.11752	1.06098	316.30	-20.73
69/ 3/15	2440296.0	44.36561	-33.09427	-18.13253	0.70249	0.69581	0.38125	58.24368	1.05971	323.28	-18.14
69/ 3/16	2440296.5	48.79116	-28.15026	-15.42356	0.60290	0.76224	0.41766	58.40292	1.05780	330.02	-15.31
69/ 3/16	2440297.0	52.51487	-22.79541	-12.48938	0.49555	0.81700	0.44768	58.59545	1.05521	336.54	-12.31
69/ 3/17	2440297.5	55.49045	-17.11121	-9.37465	0.38230	0.85941	0.47093	58.82064	1.05191	342.86	-9.17
69/ 3/17	2440298.0	57.68445	-11.18269	-6.12597	0.26507	0.88910	0.48721	59.07686	1.04792	349.03	-5.95
69/ 3/18	2440298.5	59.07643	-5.09667	-2.79092	0.14578	0.90592	0.49643	59.36152	1.04325	355.07	-2.69
69/ 3/18	2440299.0	59.65877	1.05991	0.58283	0.02630	0.90997	0.49866	59.67103	1.03798	1.02	0.56
69/ 3/19	2440299.5	59.43616	7.20163	3.94848	-0.09163	0.90160	0.49408	60.00093	1.03218	6.91	3.77
69/ 3/19	2440300.0	58.42479	13.24597	7.26079	-0.20636	0.88132	0.48296	60.34592	1.02594	12.77	6.91
69/ 3/20	2440300.5	56.65135	19.11449	10.47675	-0.31643	0.84981	0.46570	60.70009	1.01940	18.64	9.94
69/ 3/20	2440301.0	54.15193	24.73381	13.55616	-0.42054	0.80787	0.44272	61.05704	1.01268	24.55	12.83
69/ 3/21	2440301.5	50.97074	30.03635	16.46195	-0.51758	0.75642	0.41452	61.41005	1.00592	30.51	15.55
69/ 3/21	2440302.0	47.15896	34.96078	19.16052	-0.60661	0.69639	0.38161	61.75233	0.99928	36.55	18.08
69/ 3/22	2440302.5	42.77354	39.45239	21.62186	-0.68686	0.62877	0.34455	62.07714	0.99290	42.69	20.38
69/ 3/22	2440303.0	37.87609	43.46313	23.81965	-0.75771	0.55456	0.30388	62.37802	0.98692	48.93	22.45
69/ 3/23	2440303.5	32.53195	46.95169	25.73124	-0.81869	0.47474	0.26013	62.64891	0.98148	55.28	24.25
69/ 3/23	2440304.0	26.80928	49.88338	27.33762	-0.86944	0.39028	0.21384	62.88429	0.97671	61.74	25.77
69/ 3/24	2440304.5	20.77838	52.22996	28.62331	-0.90967	0.30211	0.16552	63.07935	0.97272	68.31	26.99
69/ 3/24	2440305.0	14.51108	53.96950	29.57629	-0.93922	0.21117	0.11568	63.23002	0.96959	74.95	27.89
69/ 3/25	2440305.5	8.08019	55.08616	30.18791	-0.95796	0.11833	0.06480	63.33312	0.96742	81.66	28.47
69/ 3/25	2440306.0	1.55915	55.57006	30.45274	-0.96584	0.02446	0.01335	63.38637	0.96624	88.39	28.71
69/ 3/26	2440306.5	-4.97836	55.41716	30.36860	-0.96283	-0.06957	-0.03818	63.38847	0.96610	95.13	28.63
69/ 3/26	2440307.0	-11.45873	54.62921	29.93644	-0.94897	-0.16292	-0.08933	63.33911	0.96699	101.85	28.21
69/ 3/27	2440307.5	-17.80868	53.21366	29.16037	-0.92434	-0.25475	-0.13965	63.23899	0.96892	108.50	27.46
69/ 3/27	2440308.0	-23.95561	51.18378	28.04770	-0.88904	-0.34419	-0.18866	63.08981	0.97183	115.08	26.40
69/ 3/28	2440308.5	-29.82789	48.55871	26.60891	-0.84327	-0.43036	-0.23587	62.89424	0.97568	121.56	25.03
69/ 3/28	2440309.0	-35.35529	45.36358	24.85781	-0.78725	-0.51237	-0.28080	62.65590	0.98037	127.93	23.37
69/ 3/29	2440309.5	-40.46943	41.62967	22.81157	-0.72130	-0.58930	-0.32294	62.37926	0.98582	134.19	21.45
69/ 3/29	2440310.0	-45.10442	37.39458	20.49079	-0.64583	-0.66021	-0.36178	62.06960	0.99190	140.34	19.28
69/ 3/30	2440310.5	-49.19750	32.70233	17.91964	-0.56138	-0.72413	-0.39678	61.73289	0.99848	146.39	16.87
69/ 3/30	2440311.0	-52.68993	27.60348	15.12584	-0.46859	-0.78011	-0.42743	61.37566	1.00541	152.35	14.27
69/ 3/31	2440311.5	-55.52789	22.15512	12.14069	-0.36827	-0.82719	-0.45320	61.00486	1.01255	158.25	11.48
69/ 3/31	2440312.0	-57.66362	16.42069	8.99899	-0.26140	-0.86444	-0.47358	60.62767	1.01973	164.10	8.54
69/ 4/ 1	2440312.5	-59.05655	10.46974	5.73885	-0.14913	-0.89099	-0.48810	60.25135	1.02681	169.95	5.47

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
69/ 4/ 1	2440313.0	-59.67452	4.37738	2.40144	-0.03280	-0.90607	-0.49633	59.88303	1.03363	175.80	2.30
69/ 4/ 2	2440313.5	-59.49505	-1.77643	-0.96942	0.08608	-0.90904	-0.49793	59.52946	1.04004	181.71	-0.93
69/ 4/ 2	2440314.0	-58.50646	-7.90789	-4.32781	0.20584	-0.89941	-0.49262	59.19688	1.04593	187.70	-4.19
69/ 4/ 3	2440314.5	-56.70890	-13.93060	-7.62639	0.32465	-0.87690	-0.48025	58.89077	1.05119	193.80	-7.44
69/ 4/ 3	2440315.0	-54.11517	-19.75704	-10.81723	0.44062	-0.84146	-0.46081	58.61573	1.05572	200.06	-10.63
69/ 4/ 4	2440315.5	-50.75121	-25.30022	-13.85267	0.55177	-0.79331	-0.43440	58.37536	1.05948	206.50	-13.73
69/ 4/ 4	2440316.0	-46.65627	-30.47552	-16.68637	0.65615	-0.73293	-0.40129	58.17216	1.06243	213.15	-16.67
69/ 4/ 5	2440316.5	-41.88264	-35.20249	-19.27430	0.75187	-0.66108	-0.36190	58.00750	1.06457	220.05	-19.41
69/ 4/ 5	2440317.0	-36.49501	-39.40676	-21.57573	0.83718	-0.57877	-0.31680	57.88170	1.06593	227.20	-21.89
69/ 4/ 6	2440317.5	-30.56940	-43.02170	-23.55422	0.91049	-0.48728	-0.26666	57.79408	1.06656	234.60	-24.05
69/ 4/ 6	2440318.0	-24.19175	-45.98997	-25.17839	0.97046	-0.38807	-0.21231	57.74313	1.06652	242.25	-25.85
69/ 4/ 7	2440318.5	-17.45625	-48.26477	-26.42266	1.01601	-0.28279	-0.15464	57.72665	1.06591	250.12	-27.24
69/ 4/ 7	2440319.0	-10.46335	-49.81084	-27.26777	1.04636	-0.17318	-0.09461	57.74195	1.06481	258.14	-28.18
69/ 4/ 8	2440319.5	-3.31779	-50.60506	-27.70111	1.06104	-0.06108	-0.03322	57.78608	1.06331	266.25	-28.64
69/ 4/ 8	2440320.0	3.87355	-50.63682	-27.71694	1.05988	0.05166	0.02851	57.85603	1.06152	274.37	-28.62
69/ 4/ 9	2440320.5	11.00372	-49.90800	-27.31635	1.04302	0.16321	0.08958	57.94889	1.05951	282.43	-28.12
69/ 4/ 9	2440321.0	17.96767	-48.43272	-26.50714	1.01089	0.27179	0.14902	58.06199	1.05734	290.35	-27.16
69/ 4/10	2440321.5	24.66413	-46.23682	-25.30352	0.96417	0.37573	0.20590	58.19305	1.05508	298.08	-25.77
69/ 4/10	2440322.0	30.99728	-43.35710	-23.72572	0.90378	0.47347	0.25938	58.34020	1.05274	305.56	-24.00
69/ 4/11	2440322.5	36.87833	-39.84044	-21.79947	0.83087	0.56359	0.30867	58.50204	1.05036	312.79	-21.88
69/ 4/11	2440323.0	42.22675	-35.74275	-19.55545	0.74673	0.64485	0.35311	58.67758	1.04792	319.75	-19.47
69/ 4/12	2440323.5	46.97147	-31.12776	-17.02861	0.65285	0.71619	0.39210	58.86620	1.04541	326.47	-16.81
69/ 4/12	2440324.0	51.05168	-26.06580	-14.25750	0.55078	0.77671	0.42517	59.06756	1.04279	332.95	-13.97
69/ 4/13	2440324.5	54.41759	-20.63244	-11.28356	0.44220	0.82576	0.45194	59.28146	1.04004	339.24	-10.97
69/ 4/13	2440325.0	57.03086	-14.90716	-8.15034	0.32882	0.86285	0.47217	59.50773	1.03710	345.35	-7.87
69/ 4/14	2440325.5	58.86481	-8.97193	-4.90275	0.21237	0.88773	0.48570	59.74612	1.03395	351.33	-4.71
69/ 4/14	2440326.0	59.90449	-2.90989	-1.58631	0.09456	0.90031	0.49250	59.99609	1.03056	357.22	-1.52
69/ 4/15	2440326.5	60.14643	3.19600	1.75354	-0.02292	0.90071	0.49263	60.25680	1.02689	3.04	1.67
69/ 4/15	2440327.0	59.59830	9.26423	5.07218	-0.13849	0.88925	0.48627	60.52694	1.02294	8.84	4.81
69/ 4/16	2440327.5	58.27828	15.21585	8.32641	-0.25062	0.86637	0.47366	60.80468	1.01871	14.63	7.87
69/ 4/16	2440328.0	56.21433	20.97555	11.47502	-0.35794	0.83268	0.45514	61.08765	1.01422	20.46	10.83
69/ 4/17	2440328.5	53.44335	26.47253	14.47929	-0.45920	0.78892	0.43111	61.37293	1.00952	26.35	13.65
69/ 4/17	2440329.0	50.01018	31.64125	17.30340	-0.55331	0.73590	0.40202	61.65707	1.00465	32.32	16.30
69/ 4/18	2440329.5	45.96660	36.42201	19.91471	-0.63931	0.67451	0.36836	61.93615	0.99969	38.39	18.76
69/ 4/18	2440330.0	41.37029	40.76136	22.28404	-0.71641	0.60571	0.33065	62.20585	0.99471	44.58	20.99
69/ 4/19	2440330.5	36.28382	44.61238	24.38578	-0.78395	0.53047	0.28943	62.46156	0.98983	50.88	22.98
69/ 4/19	2440331.0	30.77368	47.93480	26.19797	-0.84144	0.44979	0.24524	62.69847	0.98513	57.30	24.70
69/ 4/20	2440331.5	24.90937	50.69507	27.70234	-0.88848	0.36464	0.19863	62.91174	0.98072	63.83	26.13
69/ 4/20	2440332.0	18.76259	52.86629	28.88426	-0.92481	0.27600	0.15011	63.09659	0.97673	70.46	27.24
69/ 4/21	2440332.5	12.40653	54.42805	29.73267	-0.95026	0.18483	0.10023	63.24845	0.97325	77.16	28.04
69/ 4/21	2440333.0	5.91521	55.36635	30.24002	-0.96475	0.09205	0.04948	63.36309	0.97039	83.90	28.51
69/ 4/22	2440333.5	-0.63701	55.67335	30.40213	-0.96825	-0.00144	-0.00163	63.43672	0.96825	90.66	28.64
69/ 4/22	2440334.0	-7.17594	55.34726	30.21815	-0.96083	-0.09475	-0.05264	63.46613	0.96693	97.39	28.43
69/ 4/23	2440334.5	-13.62794	54.39217	29.69042	-0.94260	-0.18704	-0.10306	63.44879	0.96649	104.07	27.90
69/ 4/23	2440335.0	-19.92023	52.81792	28.82446	-0.91371	-0.27745	-0.15244	63.38294	0.96699	110.66	27.05

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 4/24	2440335.5	-25.98127	50.64005	27.62890	-0.87435	-0.36514	-0.20031	63.26766	0.96848	117.16	25.89
69/ 4/24	2440336.0	-31.74106	47.87976	26.11545	-0.82479	-0.44929	-0.24623	63.10295	0.97097	123.54	24.45
69/ 4/25	2440336.5	-37.13144	44.56392	24.29893	-0.76533	-0.52905	-0.28973	62.88979	0.97446	129.80	22.73
69/ 4/25	2440337.0	-42.08654	40.72516	22.19731	-0.69632	-0.60356	-0.33034	62.63016	0.97892	135.94	20.76
69/ 4/26	2440337.5	-46.54318	36.40194	19.83174	-0.61821	-0.67196	-0.36759	62.32710	0.98430	141.97	18.55
69/ 4/26	2440338.0	-50.44143	31.63865	17.22660	-0.53153	-0.73336	-0.40100	61.98466	0.99053	147.90	16.14
69/ 4/27	2440338.5	-53.72529	26.48571	14.40957	-0.43691	-0.78687	-0.43008	61.60792	0.99751	153.76	13.53
69/ 4/27	2440339.0	-56.34347	20.99966	11.41163	-0.33510	-0.83158	-0.45434	61.20292	1.00511	159.56	10.75
69/ 4/28	2440339.5	-58.25030	15.24309	8.26709	-0.22701	-0.86661	-0.47329	60.77659	1.01319	165.34	7.82
69/ 4/28	2440340.0	-59.40681	9.28451	5.01347	-0.11373	-0.89109	-0.48648	60.33660	1.02158	171.12	4.77
69/ 4/29	2440340.5	-59.78189	3.19810	1.69135	0.00351	-0.90423	-0.49345	59.89126	1.03012	176.94	1.62
69/ 4/29	2440341.0	-59.35360	-2.93688	-1.65593	0.12325	-0.90532	-0.49385	59.44928	1.03860	182.83	-1.60
69/ 4/30	2440341.5	-58.11038	-9.03682	-4.98268	0.24386	-0.89380	-0.48735	59.01956	1.04683	188.84	-4.84
69/ 4/30	2440342.0	-56.05242	-15.01485	-8.24145	0.36353	-0.86928	-0.47375	58.61093	1.05463	195.00	-8.08
69/ 5/ 1	2440342.5	-53.19265	-20.78221	-11.38380	0.48029	-0.83159	-0.45297	58.23186	1.06179	201.34	-11.27
69/ 5/ 1	2440343.0	-49.55772	-26.24994	-14.36121	0.59208	-0.78084	-0.42507	57.89017	1.06815	207.91	-14.36
69/ 5/ 2	2440343.5	-45.18847	-31.33081	-17.12614	0.69678	-0.71745	-0.39028	57.59272	1.07357	214.73	-17.30
69/ 5/ 2	2440344.0	-40.13999	-35.94146	-19.63320	0.79230	-0.64214	-0.34900	57.34518	1.07791	221.84	-20.02
69/ 5/ 3	2440344.5	-34.48120	-40.00464	-21.84036	0.87668	-0.55598	-0.30183	57.15178	1.08111	229.24	-22.47
69/ 5/ 3	2440345.0	-28.29382	-43.45135	-23.71013	0.94812	-0.46035	-0.24951	57.01517	1.08310	236.93	-24.57
69/ 5/ 4	2440345.5	-21.67076	-46.22286	-25.21065	1.00510	-0.35690	-0.19296	56.93638	1.08390	244.88	-26.28
69/ 5/ 4	2440346.0	-14.71412	-48.27239	-26.31661	1.04646	-0.24749	-0.13318	56.91479	1.08354	253.05	-27.54
69/ 5/ 5	2440346.5	-7.53271	-49.56640	-27.00995	1.07138	-0.13414	-0.07130	56.94828	1.08209	261.36	-28.31
69/ 5/ 5	2440347.0	-0.23941	-50.08534	-27.28025	1.07947	-0.01897	-0.00846	57.03342	1.07967	269.73	-28.58
69/ 5/ 6	2440347.5	7.05162	-49.82395	-27.12492	1.07074	0.09594	0.05420	57.16566	1.07640	278.06	-28.33
69/ 5/ 6	2440348.0	14.22760	-48.79102	-26.54900	1.04559	0.20853	0.11556	57.33967	1.07242	286.26	-27.58
69/ 5/ 7	2440348.5	21.17959	-47.00874	-25.56487	1.00475	0.31691	0.17458	57.54962	1.06791	294.25	-26.37
69/ 5/ 7	2440349.0	27.80470	-44.51164	-24.19164	0.94926	0.41934	0.23031	57.78947	1.06300	301.99	-24.75
69/ 5/ 8	2440349.5	34.00791	-41.34535	-22.45443	0.88039	0.51428	0.28193	58.05323	1.05785	309.44	-22.75
69/ 5/ 8	2440350.0	39.70348	-37.56513	-20.38361	0.79961	0.60043	0.32871	58.33521	1.05259	316.59	-20.45
69/ 5/ 9	2440350.5	44.81606	-33.23427	-18.01394	0.70851	0.67672	0.37009	58.63017	1.04733	323.44	-17.89
69/ 5/ 9	2440351.0	49.28136	-28.42261	-15.38369	0.60876	0.74229	0.40559	58.93348	1.04216	330.03	-15.13
69/ 5/10	2440351.5	53.04662	-23.20496	-12.53383	0.50208	0.79652	0.43489	59.24113	1.03714	336.37	-12.21
69/ 5/10	2440352.0	56.07075	-17.65968	-9.50724	0.39020	0.83898	0.45775	59.54982	1.03232	342.52	-9.19
69/ 5/11	2440352.5	58.32426	-11.86733	-6.34798	0.27481	0.86945	0.47406	59.85691	1.02772	348.50	-6.09
69/ 5/11	2440353.0	59.78907	-5.90939	-3.10055	0.15757	0.88788	0.48379	60.16034	1.02334	354.36	-2.95
69/ 5/12	2440353.5	60.45813	0.13289	0.19067	0.04009	0.89439	0.48701	60.45857	1.01917	0.13	0.18
69/ 5/12	2440354.0	60.33496	6.17948	3.48203	-0.07612	0.88921	0.48386	60.75045	1.01519	5.85	3.29
69/ 5/13	2440354.5	59.43310	12.15259	6.73111	-0.18962	0.87276	0.47456	61.03513	1.01137	11.56	6.33
69/ 5/13	2440355.0	57.77547	17.97744	9.89718	-0.29908	0.84553	0.45940	61.31188	1.00768	17.28	9.29
69/ 5/14	2440355.5	55.39366	23.58307	12.94162	-0.40327	0.80814	0.43871	61.58007	1.00408	23.06	12.13
69/ 5/14	2440356.0	52.32721	28.90299	15.82828	-0.50108	0.76128	0.41288	61.83893	1.00055	28.91	14.83
69/ 5/15	2440356.5	48.62278	33.87572	18.52376	-0.59151	0.70575	0.38233	62.08759	0.99707	34.87	17.36
69/ 5/15	2440357.0	44.33338	38.44529	20.99772	-0.67368	0.64238	0.34754	62.32490	0.99362	40.93	19.69
69/ 5/16	2440357.5	39.51748	42.56159	23.22301	-0.74686	0.57206	0.30899	62.54941	0.99022	47.12	21.79

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
69/ 5/16	2440358.0	34.23820	46.18070	25.17589	-0.81042	0.49572	0.26718	62.75936	0.98687	53.45	23.65
69/ 5/17	2440358.5	28.56246	49.26504	26.83609	-0.86386	0.41430	0.22265	62.95263	0.98360	59.90	25.23
69/ 5/17	2440359.0	22.56018	51.78348	28.18691	-0.90679	0.32877	0.17591	63.12680	0.98046	66.46	26.52
69/ 5/18	2440359.5	16.30351	53.71143	29.21520	-0.93894	0.24009	0.12750	63.27915	0.97750	73.11	27.50
69/ 5/18	2440360.0	9.86610	55.03077	29.91136	-0.96014	0.14921	0.07792	63.40674	0.97479	79.84	28.15
69/ 5/19	2440360.5	3.32243	55.72978	30.26929	-0.97032	0.05707	0.02771	63.50651	0.97239	86.59	28.47
69/ 5/19	2440361.0	-3.25280	55.80302	30.28634	-0.96947	-0.03542	-0.02265	63.57531	0.97038	93.34	28.45
69/ 5/20	2440361.5	-9.78523	55.25121	29.96321	-0.95770	-0.12736	-0.07267	63.61007	0.96886	100.04	28.10
69/ 5/20	2440362.0	-16.20131	54.08107	29.30386	-0.93515	-0.21787	-0.12186	63.60787	0.96789	106.68	27.43
69/ 5/21	2440362.5	-22.42879	52.30512	28.31546	-0.90204	-0.30610	-0.16976	63.56604	0.96757	113.21	26.45
69/ 5/21	2440363.0	-28.39708	49.94163	27.00827	-0.85866	-0.39123	-0.21592	63.48234	0.96798	119.62	25.18
69/ 5/22	2440363.5	-34.03768	47.01444	25.39560	-0.80534	-0.47243	-0.25989	63.35501	0.96918	125.90	23.63
69/ 5/22	2440364.0	-39.28452	43.55285	23.49373	-0.74246	-0.54890	-0.30124	63.18291	0.97122	132.05	21.83
69/ 5/23	2440364.5	-44.07434	39.59164	21.32190	-0.67046	-0.61983	-0.33954	62.96562	0.97417	138.07	19.79
69/ 5/23	2440365.0	-48.34710	35.17096	18.90230	-0.58986	-0.68444	-0.37434	62.70355	0.97802	143.97	17.55
69/ 5/24	2440365.5	-52.04642	30.33634	16.26001	-0.50124	-0.74193	-0.40522	62.39801	0.98280	149.76	15.10
69/ 5/24	2440366.0	-55.12014	25.13873	13.42306	-0.40524	-0.79150	-0.43175	62.05131	0.98849	155.48	12.49
69/ 5/25	2440366.5	-57.52090	19.63445	10.42235	-0.30265	-0.83236	-0.45350	61.66677	0.99503	161.15	9.73
69/ 5/25	2440367.0	-59.20687	13.88517	7.29170	-0.19433	-0.86372	-0.47005	61.24884	1.00236	166.80	6.84
69/ 5/26	2440367.5	-60.14261	7.95782	4.06774	-0.08129	-0.88482	-0.48099	60.80302	1.01038	172.46	3.84
69/ 5/26	2440368.0	-60.30003	1.92437	0.78980	0.03530	-0.89493	-0.48593	60.33590	1.01896	178.17	0.75
69/ 5/27	2440368.5	-59.65945	-4.13851	-2.50027	0.15411	-0.89340	-0.48452	59.85507	1.02795	183.97	-2.39
69/ 5/27	2440369.0	-58.21079	-10.15002	-5.75844	0.27365	-0.87968	-0.47647	59.36901	1.03718	189.89	-5.57
69/ 5/28	2440369.5	-55.95475	-16.02600	-8.93891	0.39223	-0.85333	-0.46155	58.88694	1.04644	195.98	-8.73
69/ 5/28	2440370.0	-52.90401	-21.68003	-11.99471	0.50800	-0.81411	-0.43964	58.41858	1.05553	202.28	-11.85
69/ 5/29	2440370.5	-49.08426	-27.02482	-14.87849	0.61897	-0.76203	-0.41076	57.97392	1.06421	208.84	-14.87
69/ 5/29	2440371.0	-44.53511	-31.97394	-17.54345	0.72304	-0.69735	-0.37507	57.56285	1.07226	215.68	-17.74
69/ 5/30	2440371.5	-39.31050	-36.44385	-19.94443	0.81807	-0.62065	-0.33288	57.19484	1.07947	222.83	-20.41
69/ 5/30	2440372.0	-33.47874	-40.35613	-22.03916	0.90198	-0.53287	-0.28473	56.87853	1.08563	230.32	-22.80
69/ 5/31	2440372.5	-27.12194	-43.63988	-23.78954	0.97280	-0.43529	-0.23133	56.62138	1.09057	238.14	-24.84
69/ 5/31	2440373.0	-20.33477	-46.23409	-25.16288	1.02880	-0.32955	-0.17357	56.42929	1.09415	246.26	-26.48
69/ 6/ 1	2440373.5	-13.22261	-48.08975	-26.13315	1.06857	-0.21755	-0.11249	56.30633	1.09627	254.63	-27.65
69/ 6/ 1	2440374.0	-5.89904	-49.17171	-26.68185	1.09110	-0.10145	-0.04929	56.25458	1.09691	263.16	-28.31
69/ 6/ 2	2440374.5	1.51710	-49.45997	-26.79878	1.09585	0.01644	0.01480	56.27401	1.09607	271.76	-28.44
69/ 6/ 2	2440375.0	8.90492	-48.95028	-26.48232	1.08277	0.13378	0.07848	56.36258	1.09382	280.31	-28.02
69/ 6/ 3	2440375.5	16.14482	-47.65419	-25.73943	1.05228	0.24828	0.14051	56.51633	1.09027	288.72	-27.09
69/ 6/ 3	2440376.0	23.12160	-45.59838	-24.58528	1.00525	0.35778	0.19974	56.72968	1.08556	296.89	-25.68
69/ 6/ 4	2440376.5	29.72734	-42.82341	-23.04256	0.94295	0.46034	0.25510	56.99578	1.07988	304.77	-23.85
69/ 6/ 4	2440377.0	35.86366	-39.38207	-21.14055	0.86692	0.55430	0.30570	57.30683	1.07343	312.32	-21.65
69/ 6/ 5	2440377.5	41.44351	-35.33743	-18.91406	0.77894	0.63829	0.35080	57.65450	1.06641	319.55	-19.15
69/ 6/ 5	2440378.0	46.39241	-30.76075	-16.40229	0.68092	0.71126	0.38986	58.03029	1.05903	326.45	-16.42
69/ 6/ 6	2440378.5	50.64901	-25.72938	-13.64766	0.57484	0.77246	0.42246	58.42587	1.05148	333.07	-13.51
69/ 6/ 6	2440379.0	54.16535	-20.32480	-10.69480	0.46265	0.82141	0.44837	58.83333	1.04393	339.43	-10.47
69/ 6/ 7	2440379.5	56.90658	-14.63081	-7.58950	0.34627	0.85790	0.46747	59.24543	1.03655	345.58	-7.36
69/ 6/ 7	2440380.0	58.85056	-8.73194	-4.37787	0.22752	0.88193	0.47977	59.65569	1.02944	351.56	-4.21

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 6/ 8	2440380.5	59.98710	-2.71210	-1.10565	0.10812	0.89366	0.48539	60.05855	1.02271	357.41	-1.05
69/ 6/ 8	2440381.0	60.31720	3.34654	2.18249	-0.01036	0.89345	0.48451	60.44937	1.01642	3.18	2.07
69/ 6/ 9	2440381.5	59.85218	9.36452	5.44337	-0.12644	0.88174	0.47739	60.82440	1.01062	8.89	5.13
69/ 6/ 9	2440382.0	58.61282	15.26583	8.63578	-0.23881	0.85910	0.46434	61.18075	1.00533	14.60	8.11
69/ 6/10	2440382.5	56.62845	20.97853	11.72075	-0.34625	0.82616	0.44573	61.51631	1.00055	20.33	10.98
69/ 6/10	2440383.0	53.93614	26.43524	14.66187	-0.44769	0.78363	0.42193	61.82960	0.99626	26.11	13.72
69/ 6/11	2440383.5	50.57989	31.57357	17.42548	-0.54216	0.73227	0.39338	62.11974	0.99242	31.97	16.29
69/ 6/11	2440384.0	46.60984	36.33639	19.98084	-0.62880	0.67289	0.36052	62.38625	0.98901	37.94	18.68
69/ 6/12	2440384.5	42.08156	40.67218	22.30029	-0.70688	0.60631	0.32380	62.62896	0.98597	44.02	20.86
69/ 6/12	2440385.0	37.05532	44.53518	24.35937	-0.77575	0.53342	0.28371	62.84790	0.98327	50.24	22.80
69/ 6/13	2440385.5	31.59537	47.88564	26.13688	-0.83487	0.45511	0.24074	63.04314	0.98086	56.58	24.49
69/ 6/13	2440386.0	25.76929	50.68987	27.61498	-0.88380	0.37228	0.19538	63.21476	0.97871	63.05	25.90
69/ 6/14	2440386.5	19.64730	52.92040	28.77925	-0.92220	0.28586	0.14815	63.36269	0.97679	69.63	27.01
69/ 6/14	2440387.0	13.30163	54.55602	29.61866	-0.94982	0.19676	0.09954	63.48667	0.97508	76.30	27.81
69/ 6/15	2440387.5	6.80585	55.58177	30.12564	-0.96651	0.10592	0.05007	63.58621	0.97358	83.02	28.28
69/ 6/15	2440388.0	0.23431	55.98897	30.29604	-0.97219	0.01426	0.00023	63.66058	0.97229	89.76	28.42
69/ 6/16	2440388.5	-6.33850	55.77516	30.12908	-0.96689	-0.07731	-0.04947	63.70876	0.97124	96.48	28.22
69/ 6/16	2440389.0	-12.83851	54.94401	29.62737	-0.95072	-0.16789	-0.09854	63.72952	0.97044	103.15	27.70
69/ 6/17	2440389.5	-19.19264	53.50523	28.79676	-0.92385	-0.25659	-0.14651	63.72143	0.96995	109.73	26.87
69/ 6/17	2440390.0	-25.32929	51.47443	27.64633	-0.88655	-0.34256	-0.19290	63.68289	0.96981	116.20	25.73
69/ 6/18	2440390.5	-31.17887	48.87299	26.18828	-0.83914	-0.42496	-0.23727	63.61224	0.97007	122.54	24.31
69/ 6/18	2440391.0	-36.67423	45.72788	24.43786	-0.78202	-0.50297	-0.27917	63.50785	0.97081	128.73	22.63
69/ 6/19	2440391.5	-41.75118	42.07150	22.41324	-0.71566	-0.57580	-0.31817	63.36818	0.97209	134.78	20.71
69/ 6/19	2440392.0	-46.34885	37.94160	20.13548	-0.64059	-0.64267	-0.35385	63.19192	0.97396	140.70	18.58
69/ 6/20	2440392.5	-50.41020	33.38105	17.62840	-0.55740	-0.70285	-0.38582	62.97812	0.97649	146.49	16.26
69/ 6/20	2440393.0	-53.88247	28.43772	14.91853	-0.46675	-0.75558	-0.41367	62.72628	0.97974	152.18	13.76
69/ 6/21	2440393.5	-56.71763	23.16438	12.03498	-0.36940	-0.80018	-0.43704	62.43652	0.98374	157.78	11.11
69/ 6/21	2440394.0	-58.87297	17.61850	9.00941	-0.26615	-0.83595	-0.45555	62.10964	0.98852	163.34	8.34
69/ 6/22	2440394.5	-60.31160	11.86209	5.87590	-0.15792	-0.86224	-0.46886	61.74726	0.99409	168.87	5.46
69/ 6/22	2440395.0	-61.00316	5.96156	2.67085	-0.04572	-0.87841	-0.47662	61.35192	1.00044	174.42	2.50
69/ 6/23	2440395.5	-60.92451	-0.01263	-0.56719	0.06932	-0.88389	-0.47855	60.92715	1.00751	180.01	-0.53
69/ 6/23	2440396.0	-60.06060	-5.98622	-3.79771	0.18594	-0.87816	-0.47436	60.47754	1.01526	185.69	-3.60
69/ 6/24	2440396.5	-58.40530	-11.88168	-6.97847	0.30277	-0.86076	-0.46383	60.00877	1.02357	191.50	-6.68
69/ 6/24	2440397.0	-55.96236	-17.61885	-10.06593	0.41826	-0.83137	-0.44678	59.52758	1.03234	197.48	-9.74
69/ 6/25	2440397.5	-52.74641	-23.11576	-13.01566	0.53074	-0.78979	-0.42315	59.04176	1.04140	203.67	-12.74
69/ 6/25	2440398.0	-48.78382	-28.28973	-15.78298	0.63842	-0.73602	-0.39293	58.55999	1.05057	210.11	-15.64
69/ 6/26	2440398.5	-44.11357	-33.05875	-18.32367	0.73938	-0.67027	-0.35626	58.09170	1.05966	216.85	-18.39
69/ 6/26	2440399.0	-38.78784	-37.34309	-20.59491	0.83165	-0.59300	-0.31342	57.64680	1.06842	223.91	-20.93
69/ 6/27	2440399.5	-32.87228	-41.06722	-22.55632	0.91323	-0.50500	-0.26486	57.23540	1.07664	231.32	-23.21
69/ 6/27	2440400.0	-26.44591	-44.16199	-24.17107	0.98218	-0.40736	-0.21118	56.86746	1.08407	239.09	-25.15
69/ 6/28	2440400.5	-19.60040	-46.56681	-25.40718	1.03672	-0.30153	-0.15319	56.55235	1.09049	247.17	-26.70
69/ 6/28	2440401.0	-12.43872	-48.23200	-26.23865	1.07530	-0.18927	-0.09187	56.29844	1.09569	255.54	-27.78
69/ 6/29	2440401.5	-5.07323	-49.12079	-26.64665	1.09674	-0.07264	-0.02834	56.11269	1.09950	264.10	-28.35
69/ 6/29	2440402.0	2.37701	-49.21114	-26.62038	1.10024	0.04611	0.03615	56.00028	1.10180	272.77	-28.38
69/ 6/30	2440402.5	9.78926	-48.49689	-26.15772	1.08552	0.16455	0.10030	55.96431	1.10249	281.41	-27.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
69/ 6/30	2440403.0	17.04062	-46.98833	-25.26551	1.05281	0.28026	0.16278	56.00564	1.10157	289.93	-26.82
69/ 7/ 1	2440403.5	24.01151	-44.71205	-23.95941	1.00286	0.39087	0.22231	56.12284	1.09906	298.24	-25.27
69/ 7/ 1	2440404.0	30.58907	-41.71001	-22.26336	0.93690	0.49423	0.27774	56.31229	1.09507	306.26	-23.29
69/ 7/ 2	2440404.5	36.67012	-38.03799	-20.20872	0.85655	0.58843	0.32805	56.56836	1.08974	313.95	-20.93
69/ 7/ 2	2440405.0	42.16361	-33.76351	-17.83311	0.76374	0.67190	0.37240	56.88378	1.08325	321.31	-18.27
69/ 7/ 3	2440405.5	46.99228	-28.96344	-15.17908	0.66060	0.74346	0.41017	57.24997	1.07581	328.35	-15.38
69/ 7/ 3	2440406.0	51.09374	-23.72149	-12.29277	0.54937	0.80228	0.44094	57.65754	1.06765	335.10	-12.31
69/ 7/ 4	2440406.5	54.42077	-18.12574	-9.22253	0.43228	0.84789	0.46447	58.09662	1.05901	341.58	-9.13
69/ 7/ 4	2440407.0	56.94108	-12.26630	-6.01767	0.31150	0.88014	0.48069	58.55733	1.05012	347.84	-5.90
69/ 7/ 5	2440407.5	58.63665	-6.23336	-2.72740	0.18907	0.89916	0.48971	59.03008	1.04118	353.93	-2.65
69/ 7/ 5	2440408.0	59.50274	-0.11546	0.60010	0.06686	0.90530	0.49173	59.50587	1.03240	359.89	0.58
69/ 7/ 6	2440408.5	59.54666	6.00187	3.91840	-0.05344	0.89909	0.48705	59.97651	1.02393	5.76	3.75
69/ 7/ 6	2440409.0	58.78659	12.03712	7.18337	-0.17032	0.88118	0.47605	60.43472	1.01593	11.57	6.83
69/ 7/ 7	2440409.5	57.25022	17.91356	10.35358	-0.28247	0.85233	0.45914	60.87430	1.00850	17.37	9.79
69/ 7/ 7	2440410.0	54.97365	23.55980	13.39058	-0.38872	0.81335	0.43679	61.29008	1.00171	23.20	12.62
69/ 7/ 8	2440410.5	52.00016	28.91013	16.25908	-0.48810	0.76509	0.40947	61.67796	0.99563	29.07	15.28
69/ 7/ 8	2440411.0	48.37930	33.90473	18.92708	-0.57976	0.70845	0.37767	62.03484	0.99028	35.02	17.76
69/ 7/ 9	2440411.5	44.16593	38.48975	21.36589	-0.66296	0.64430	0.34187	62.35857	0.98565	41.07	20.04
69/ 7/ 9	2440412.0	39.41942	42.61745	23.55015	-0.73709	0.57355	0.30258	62.64780	0.98175	47.23	22.08
69/ 7/10	2440412.5	34.20298	46.24614	25.45789	-0.80165	0.49710	0.26030	62.90194	0.97852	53.51	23.87
69/ 7/10	2440413.0	28.58299	49.34024	27.07047	-0.85620	0.41584	0.21551	63.12097	0.97593	59.92	25.40
69/ 7/11	2440413.5	22.62842	51.87026	28.37262	-0.90040	0.33068	0.16871	63.30540	0.97392	66.43	26.63
69/ 7/11	2440414.0	16.41029	53.81278	29.35239	-0.93399	0.24251	0.12040	63.45610	0.97244	73.04	27.55
69/ 7/12	2440414.5	10.00112	55.15051	30.00119	-0.95678	0.15223	0.07106	63.57415	0.97142	79.72	28.16
69/ 7/12	2440415.0	3.47444	55.87220	30.31375	-0.96868	0.06075	0.02119	63.66080	0.97081	86.44	28.44
69/ 7/13	2440415.5	-3.09574	55.97269	30.28811	-0.96963	-0.03105	-0.02873	63.71730	0.97055	93.17	28.38
69/ 7/13	2440416.0	-9.63546	55.45286	29.92562	-0.95969	-0.12228	-0.07820	63.74484	0.97061	99.86	28.00
69/ 7/14	2440416.5	-16.07127	54.31964	29.23091	-0.93898	-0.21204	-0.12675	63.74445	0.97093	106.48	27.29
69/ 7/14	2440417.0	-22.33085	52.58593	28.21185	-0.90769	-0.29945	-0.17390	63.71700	0.97150	113.01	26.28
69/ 7/15	2440417.5	-28.34345	50.27054	26.87955	-0.86610	-0.38366	-0.21917	63.66309	0.97230	119.42	24.97
69/ 7/15	2440418.0	-34.04054	47.39809	25.24824	-0.81458	-0.46381	-0.26212	63.58310	0.97333	125.69	23.40
69/ 7/16	2440418.5	-39.35627	43.99889	23.33522	-0.75357	-0.53907	-0.30228	63.47717	0.97460	131.81	21.57
69/ 7/16	2440419.0	-44.22805	40.10877	21.16078	-0.68359	-0.60864	-0.33924	63.34519	0.97613	137.80	19.52
69/ 7/17	2440419.5	-48.59712	35.76886	18.74805	-0.60523	-0.67176	-0.37258	63.18687	0.97795	143.65	17.26
69/ 7/17	2440420.0	-52.40900	31.02544	16.12291	-0.51917	-0.72768	-0.40190	63.00182	0.98009	149.38	14.83
69/ 7/18	2440420.5	-55.61411	25.92963	13.31384	-0.42618	-0.77570	-0.42684	62.78959	0.98262	155.00	12.24
69/ 7/18	2440421.0	-58.16825	20.53716	10.35175	-0.32709	-0.81518	-0.44703	62.54981	0.98557	160.55	9.53
69/ 7/19	2440421.5	-60.03319	14.90806	7.26983	-0.22282	-0.84548	-0.46217	62.28229	0.98898	166.05	6.70
69/ 7/19	2440422.0	-61.17714	9.10634	4.10335	-0.11437	-0.86606	-0.47196	61.98714	0.99292	171.53	3.80
69/ 7/20	2440422.5	-61.57541	3.19957	0.88944	-0.00281	-0.87642	-0.47613	61.66490	0.99741	177.03	0.83
69/ 7/20	2440423.0	-61.21088	-2.74146	-2.33312	0.11068	-0.87612	-0.47448	61.31665	1.00248	182.56	-2.18
69/ 7/21	2440423.5	-60.07466	-8.64330	-5.52418	0.22484	-0.86479	-0.46681	60.94414	1.00813	188.19	-5.20
69/ 7/21	2440424.0	-58.16669	-14.43033	-8.64256	0.33834	-0.84218	-0.45300	60.54992	1.01437	193.93	-8.21
69/ 7/22	2440424.5	-55.49637	-20.02545	-11.64638	0.44971	-0.80811	-0.43297	60.13738	1.02115	199.84	-11.17
69/ 7/22	2440425.0	-52.08317	-25.35088	-14.49353	0.55744	-0.76254	-0.40674	59.71086	1.02842	205.95	-14.05

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 7/23	2440425.5	-47.95729	-30.32907	-17.14215	0.65989	-0.70560	-0.37437	59.27569	1.03609	212.31	-16.81
69/ 7/23	2440426.0	-43.16011	-34.88382	-19.55132	0.75538	-0.63757	-0.33607	58.83816	1.04405	218.95	-19.41
69/ 7/24	2440426.5	-37.74462	-38.94162	-21.68169	0.84218	-0.55896	-0.29211	58.40549	1.05215	225.89	-21.79
69/ 7/24	2440427.0	-31.77563	-42.43312	-23.49637	0.91854	-0.47049	-0.24293	57.98569	1.06023	233.17	-23.90
69/ 7/25	2440427.5	-25.32966	-45.29483	-24.96183	0.98275	-0.37317	-0.18909	57.58738	1.06809	240.79	-25.69
69/ 7/25	2440428.0	-18.49448	-47.47094	-26.04887	1.03321	-0.26827	-0.13131	57.21957	1.07552	248.71	-27.08
69/ 7/26	2440428.5	-11.36824	-48.91521	-26.73365	1.06848	-0.15735	-0.07047	56.89132	1.08230	256.92	-28.03
69/ 7/26	2440429.0	-4.05799	-49.59288	-26.99872	1.08737	-0.04222	-0.00756	56.61141	1.08822	265.32	-28.48
69/ 7/27	2440429.5	3.32226	-49.48233	-26.83388	1.08904	0.07504	0.05629	56.38790	1.09307	273.84	-28.42
69/ 7/27	2440430.0	10.65403	-48.57652	-26.23694	1.07302	0.19223	0.11983	56.22778	1.09667	282.37	-27.82
69/ 7/28	2440430.5	17.81735	-46.88391	-25.21415	1.03934	0.30699	0.18182	56.13655	1.09888	290.81	-26.69
69/ 7/28	2440431.0	24.69400	-44.42880	-23.78039	0.98849	0.41700	0.24098	56.11790	1.09958	299.07	-25.07
69/ 7/29	2440431.5	31.17079	-41.25101	-21.95894	0.92147	0.52003	0.29611	56.17347	1.09874	307.08	-23.01
69/ 7/29	2440432.0	37.14287	-37.40489	-19.78084	0.83973	0.61404	0.34613	56.30275	1.09635	314.80	-20.57
69/ 7/30	2440432.5	42.51647	-32.95764	-17.28401	0.74508	0.69728	0.39009	56.50304	1.09248	322.22	-17.81
69/ 7/30	2440433.0	47.21129	-27.98716	-14.51199	0.63966	0.76834	0.42728	56.76958	1.08724	329.34	-14.81
69/ 7/31	2440433.5	51.16207	-22.57955	-11.51261	0.52576	0.82622	0.45717	57.09583	1.08078	336.19	-11.63
69/ 7/31	2440434.0	54.31948	-16.82642	-8.33644	0.40578	0.87030	0.47945	57.47374	1.07329	342.79	-8.34
69/ 8/ 1	2440434.5	56.65030	-10.82231	-5.03546	0.28206	0.90033	0.49403	57.89416	1.06499	349.18	-4.99
69/ 8/ 1	2440435.0	58.13696	-4.66221	-1.66166	0.15687	0.91640	0.50098	58.34726	1.05612	355.42	-1.63
69/ 8/ 2	2440435.5	58.77661	1.56053	1.73406	0.03228	0.91891	0.50055	58.82289	1.04689	1.52	1.69
69/ 8/ 2	2440436.0	58.57984	7.75594	5.10285	-0.08983	0.90846	0.49309	59.31097	1.03755	7.54	4.94
69/ 8/ 3	2440436.5	57.56913	13.83886	8.39861	-0.20781	0.88583	0.47906	59.80180	1.02829	13.52	8.07
69/ 8/ 3	2440437.0	55.77734	19.72983	11.57849	-0.32026	0.85193	0.45897	60.28631	1.01932	19.48	11.07
69/ 8/ 4	2440437.5	53.24612	25.35582	14.60330	-0.42598	0.80775	0.43336	60.75626	1.01080	25.46	13.91
69/ 8/ 4	2440438.0	50.02452	30.65056	17.43758	-0.52398	0.75429	0.40281	61.20440	1.00288	31.50	16.55
69/ 8/ 5	2440438.5	46.16761	35.55471	20.04979	-0.61346	0.69258	0.36788	61.62451	0.99566	37.60	18.99
69/ 8/ 5	2440439.0	41.73541	40.01588	22.41221	-0.69376	0.62365	0.32914	62.01147	0.98923	43.80	21.19
69/ 8/ 6	2440439.5	36.79185	43.98856	24.50093	-0.76438	0.54850	0.28715	62.36128	0.98366	50.09	23.13
69/ 8/ 6	2440440.0	31.40397	47.43393	26.29574	-0.82491	0.46810	0.24244	62.67099	0.97896	56.49	24.81
69/ 8/ 7	2440440.5	25.64121	50.31971	27.78003	-0.87504	0.38341	0.19554	62.93866	0.97516	63.00	26.19
69/ 8/ 7	2440441.0	19.57484	52.61999	28.94069	-0.91454	0.29536	0.14696	63.16329	0.97222	69.59	27.27
69/ 8/ 8	2440441.5	13.27739	54.31508	29.76804	-0.94325	0.20485	0.09719	63.34472	0.97012	76.26	28.03
69/ 8/ 8	2440442.0	6.82227	55.39140	30.25571	-0.96108	0.11279	0.04674	63.48352	0.96881	82.98	28.46
69/ 8/ 9	2440442.5	0.28331	55.84133	30.40064	-0.96801	0.02004	-0.00393	63.58092	0.96822	89.71	28.56
69/ 8/ 9	2440443.0	-6.26564	55.66324	30.20300	-0.96404	-0.07252	-0.05434	63.63864	0.96829	96.42	28.33
69/ 8/10	2440443.5	-12.75109	54.86138	29.66620	-0.94928	-0.16402	-0.10401	63.65881	0.96894	103.08	27.78
69/ 8/10	2440444.0	-19.10037	53.44586	28.79683	-0.92386	-0.25358	-0.15247	63.64386	0.97009	109.67	26.90
69/ 8/11	2440444.5	-25.24207	51.43265	27.60466	-0.88802	-0.34036	-0.19925	63.59636	0.97166	116.14	25.73
69/ 8/11	2440445.0	-31.10653	48.84358	26.10262	-0.84205	-0.42349	-0.24389	63.51896	0.97359	122.49	24.26
69/ 8/12	2440445.5	-36.62635	45.70622	24.30679	-0.78632	-0.50213	-0.28593	63.41426	0.97580	128.71	22.54
69/ 8/12	2440446.0	-41.73695	42.05389	22.23632	-0.72130	-0.57542	-0.32492	63.28473	0.97824	134.78	20.57
69/ 8/13	2440446.5	-46.37720	37.92553	19.91337	-0.64753	-0.64256	-0.36041	63.13266	0.98085	140.72	18.39
69/ 8/13	2440447.0	-50.48997	33.36550	17.36304	-0.56565	-0.70276	-0.39199	62.96006	0.98361	146.54	16.01
69/ 8/14	2440447.5	-54.02285	28.42343	14.61322	-0.47642	-0.75526	-0.41926	62.76867	0.98649	152.25	13.46

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
69/ 8/14	2440448.0	-56.92873	23.15390	11.69442	-0.38065	-0.79934	-0.44183	62.55991	0.98947	157.87	10.77
69/ 8/15	2440448.5	-59.16647	17.61609	8.63961	-0.27929	-0.83437	-0.45937	62.33491	0.99257	163.42	7.97
69/ 8/15	2440449.0	-60.70155	11.87342	5.48392	-0.17334	-0.85975	-0.47157	62.09452	0.99579	168.93	5.07
69/ 8/16	2440449.5	-61.50664	5.99300	2.26444	-0.06392	-0.87497	-0.47817	61.83940	0.99915	174.43	2.10
69/ 8/16	2440450.0	-61.56224	0.04513	-0.98016	0.04778	-0.87960	-0.47895	61.57006	1.00269	179.96	-0.91
69/ 8/17	2440450.5	-60.85714	-5.89735	-4.20991	0.16049	-0.87333	-0.47376	61.28698	1.00644	185.53	-3.94
69/ 8/17	2440451.0	-59.38901	-11.75974	-7.38398	0.27287	-0.85592	-0.46250	60.99073	1.01043	191.20	-6.95
69/ 8/18	2440451.5	-57.16474	-17.46622	-10.46107	0.38353	-0.82728	-0.44512	60.68204	1.01471	196.99	-9.93
69/ 8/18	2440452.0	-54.20091	-22.94069	-13.39987	0.49102	-0.78743	-0.42167	60.36199	1.01929	202.94	-12.83
69/ 8/19	2440452.5	-50.52404	-28.10764	-16.15955	0.59383	-0.73652	-0.39226	60.03206	1.02419	209.09	-15.62
69/ 8/19	2440453.0	-46.17085	-32.89318	-18.70032	0.69047	-0.67486	-0.35707	59.69431	1.02941	215.47	-18.26
69/ 8/20	2440453.5	-41.18841	-37.22604	-20.98400	0.77939	-0.60294	-0.31640	59.35143	1.03494	222.11	-20.70
69/ 8/20	2440454.0	-35.63411	-41.03879	-22.97465	0.85909	-0.52140	-0.27061	59.00683	1.04073	229.03	-22.91
69/ 8/21	2440454.5	-29.57554	-44.26899	-24.63924	0.92806	-0.43108	-0.22020	58.66471	1.04672	236.25	-24.83
69/ 8/21	2440455.0	-23.09012	-46.86062	-25.94839	0.98490	-0.33302	-0.16576	58.33001	1.05281	243.77	-26.41
69/ 8/22	2440455.5	-16.26451	-48.76537	-26.87708	1.02831	-0.22847	-0.10798	58.00839	1.05890	251.56	-27.60
69/ 8/22	2440456.0	-9.19376	-49.94409	-27.40544	1.05712	-0.11889	-0.04769	57.70611	1.06485	259.57	-28.35
69/ 8/23	2440456.5	-1.98003	-50.36815	-27.51946	1.07039	-0.00592	0.01421	57.42988	1.07050	267.75	-28.63
69/ 8/23	2440457.0	5.26893	-50.02075	-27.21167	1.06743	0.10860	0.07669	57.18664	1.07568	276.01	-28.41
69/ 8/24	2440457.5	12.44176	-48.89800	-26.48174	1.04788	0.22270	0.13868	56.98328	1.08022	284.28	-27.69
69/ 8/24	2440458.0	19.42580	-47.00975	-25.33683	1.01171	0.33430	0.19904	56.82634	1.08394	292.45	-26.48
69/ 8/25	2440458.5	26.10960	-44.38000	-23.79186	0.95932	0.44131	0.25663	56.72167	1.08669	300.47	-24.80
69/ 8/25	2440459.0	32.38574	-41.04692	-21.86938	0.89150	0.54165	0.31033	56.67412	1.08833	308.27	-22.70
69/ 8/26	2440459.5	38.15359	-37.06228	-19.59929	0.80946	0.63340	0.35911	56.68722	1.08875	315.83	-20.23
69/ 8/26	2440460.0	43.32198	-32.49034	-17.01815	0.71477	0.71481	0.40204	56.76296	1.08788	323.13	-17.45
69/ 8/27	2440460.5	47.81156	-27.40626	-14.16832	0.60935	0.78441	0.43834	56.90158	1.08570	330.18	-14.42
69/ 8/27	2440461.0	51.55673	-21.89408	-11.09676	0.49532	0.84106	0.46743	57.10153	1.08223	336.99	-11.21
69/ 8/28	2440461.5	54.50692	-16.04439	-7.85375	0.37499	0.88398	0.48892	57.35946	1.07753	343.60	-7.87
69/ 8/28	2440462.0	56.62736	-9.95182	-4.49158	0.25070	0.91274	0.50261	57.67036	1.07171	350.03	-4.47
69/ 8/29	2440462.5	57.89910	-3.71259	-1.06310	0.12476	0.92730	0.50851	58.02775	1.06491	356.33	-1.05
69/ 8/29	2440463.0	58.31853	2.57782	2.37945	-0.00063	0.92792	0.50681	58.42395	1.05731	2.53	2.33
69/ 8/30	2440463.5	57.89635	8.82671	5.78561	-0.12345	0.91516	0.49783	58.85041	1.04909	8.67	5.64
69/ 8/30	2440464.0	56.65621	14.94590	9.10759	-0.24189	0.88977	0.48203	59.29801	1.04046	14.78	8.84
69/ 8/31	2440464.5	54.63320	20.85304	12.30094	-0.35439	0.85271	0.45995	59.75742	1.03162	20.89	11.88
69/ 8/31	2440465.0	51.87209	26.47257	15.32511	-0.45964	0.80502	0.43217	60.21934	1.02279	27.04	14.74
69/ 9/ 1	2440465.5	48.42573	31.73631	18.14370	-0.55658	0.74783	0.39935	60.67486	1.01416	33.24	17.40
69/ 9/ 1	2440466.0	44.35347	36.58379	20.72463	-0.64434	0.68229	0.36210	61.11558	1.00589	39.52	19.82
69/ 9/ 2	2440466.5	39.71973	40.96232	23.04014	-0.72228	0.60955	0.32107	61.53386	0.99816	45.88	21.99
69/ 9/ 2	2440467.0	34.59278	44.82688	25.06673	-0.78992	0.53071	0.27689	61.92294	0.99110	52.34	23.88
69/ 9/ 3	2440467.5	29.04367	48.13994	26.78505	-0.84690	0.44687	0.23014	62.27702	0.98483	58.90	25.47
69/ 9/ 3	2440468.0	23.14538	50.87113	28.17969	-0.89300	0.35906	0.18140	62.59133	0.97943	65.54	26.76
69/ 9/ 4	2440468.5	16.97209	52.99699	29.23902	-0.92809	0.26828	0.13122	62.86218	0.97496	72.24	27.72
69/ 9/ 4	2440469.0	10.59861	54.50065	29.95505	-0.95211	0.17548	0.08011	63.08689	0.97146	79.00	28.35
69/ 9/ 5	2440469.5	4.09988	55.37157	30.32324	-0.96508	0.08158	0.02858	63.26387	0.96894	85.77	28.64
69/ 9/ 5	2440470.0	-2.44938	55.60530	30.34237	-0.96705	-0.01253	-0.02288	63.39249	0.96740	92.52	28.60

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/ 9/ 6	2440470.5	-8.97504	55.20332	30.01447	-0.95813	-0.10599	-0.07382	63.47303	0.96680	99.23	28.22
69/ 9/ 6	2440471.0	-15.40388	54.17292	29.34472	-0.93849	-0.19796	-0.12375	63.50667	0.96709	105.87	27.52
69/ 9/ 7	2440471.5	-21.66391	52.52708	28.34140	-0.90832	-0.28759	-0.17224	63.49531	0.96820	112.41	26.51
69/ 9/ 7	2440472.0	-27.68472	50.28449	27.01588	-0.86790	-0.37404	-0.21882	63.44156	0.97007	118.84	25.20
69/ 9/ 8	2440472.5	-33.39786	47.46946	25.38258	-0.81753	-0.45648	-0.26305	63.34858	0.97258	125.13	23.62
69/ 9/ 8	2440473.0	-38.73727	44.11198	23.45898	-0.75761	-0.53408	-0.30447	63.21999	0.97566	131.29	21.78
69/ 9/ 9	2440473.5	-43.63979	40.24765	21.26559	-0.68860	-0.60601	-0.34264	63.05973	0.97920	137.32	19.71
69/ 9/ 9	2440474.0	-48.04573	35.91769	18.82592	-0.61107	-0.67145	-0.37712	62.87199	0.98309	143.22	17.42
69/ 9/10	2440474.5	-51.89947	31.16881	16.16644	-0.52566	-0.72958	-0.40748	62.66102	0.98724	149.01	14.95
69/ 9/10	2440475.0	-55.15016	26.05311	13.31649	-0.43313	-0.77964	-0.43330	62.43103	0.99156	154.71	12.32
69/ 9/11	2440475.5	-57.75248	20.62786	10.30811	-0.33435	-0.82087	-0.45420	62.18613	0.99595	160.34	9.54
69/ 9/11	2440476.0	-59.66734	14.95514	7.17591	-0.23030	-0.85260	-0.46981	61.93013	1.00035	165.93	6.65
69/ 9/12	2440476.5	-60.86273	9.10144	3.95676	-0.12209	-0.87422	-0.47982	61.66655	1.00469	171.49	3.68
69/ 9/12	2440477.0	-61.31442	3.13712	0.68954	-0.01091	-0.88519	-0.48397	61.39849	1.00891	177.07	0.64
69/ 9/13	2440477.5	-61.00671	-2.86429	-2.58530	0.10193	-0.88511	-0.48204	61.12861	1.01300	182.69	-2.42
69/ 9/13	2440478.0	-59.93307	-8.82684	-5.82612	0.21503	-0.87368	-0.47391	60.85910	1.01693	188.38	-5.49
69/ 9/14	2440478.5	-58.09666	-14.67311	-8.99065	0.32692	-0.85076	-0.45951	60.59170	1.02070	194.17	-8.53
69/ 9/14	2440479.0	-55.51078	-20.32517	-12.03651	0.43609	-0.81635	-0.43888	60.32774	1.02431	200.11	-11.51
69/ 9/15	2440479.5	-52.19911	-25.70565	-14.92181	0.54098	-0.77061	-0.41213	60.06819	1.02779	206.22	-14.38
69/ 9/15	2440480.0	-48.19586	-30.73894	-17.60577	0.64005	-0.71389	-0.37947	59.81377	1.03116	212.53	-17.12
69/ 9/16	2440480.5	-43.54569	-35.35230	-20.04938	0.73176	-0.64671	-0.34121	59.56500	1.03447	219.07	-19.67
69/ 9/16	2440481.0	-38.30346	-39.47711	-22.21606	0.81464	-0.56976	-0.29776	59.32243	1.03775	225.86	-21.99
69/ 9/17	2440481.5	-32.53386	-43.05004	-24.07226	0.88727	-0.48390	-0.24962	59.08664	1.04102	232.92	-24.04
69/ 9/17	2440482.0	-26.31075	-46.01425	-25.58817	0.94835	-0.39019	-0.19738	58.85848	1.04430	240.24	-25.77
69/ 9/18	2440482.5	-19.71640	-48.32052	-26.73825	0.99671	-0.28983	-0.14172	58.63909	1.04762	247.80	-27.13
69/ 9/18	2440483.0	-12.84051	-49.92836	-27.50189	1.03133	-0.18419	-0.08340	58.43008	1.05096	255.58	-28.08
69/ 9/19	2440483.5	-5.77902	-50.80697	-27.86388	1.05139	-0.07476	-0.02326	58.23351	1.05431	263.51	-28.59
69/ 9/19	2440484.0	1.36727	-50.93618	-27.81487	1.05629	0.03682	0.03781	58.05197	1.05760	271.54	-28.63
69/ 9/20	2440484.5	8.49422	-50.30718	-27.35182	1.04564	0.14884	0.09884	57.88856	1.06080	279.58	-28.20
69/ 9/20	2440485.0	15.49612	-48.92310	-26.47822	1.01937	0.25949	0.15887	57.74682	1.06381	287.58	-27.29
69/ 9/21	2440485.5	22.26757	-46.79940	-25.20431	0.97765	0.36694	0.21689	57.63060	1.06653	295.45	-25.93
69/ 9/21	2440486.0	28.70553	-43.96398	-23.54707	0.92100	0.46935	0.27190	57.54393	1.06886	303.14	-24.15
69/ 9/22	2440486.5	34.71143	-40.45698	-21.53012	0.85023	0.56496	0.32295	57.49084	1.07069	310.63	-21.99
69/ 9/22	2440487.0	40.19325	-36.33026	-19.18334	0.76646	0.65208	0.36915	57.47509	1.07189	317.89	-19.50
69/ 9/23	2440487.5	45.06765	-31.64653	-16.54245	0.67112	0.72920	0.40968	57.49999	1.07237	324.92	-16.72
69/ 9/23	2440488.0	49.26176	-26.47818	-13.64822	0.56588	0.79499	0.44385	57.56813	1.07202	331.74	-13.71
69/ 9/24	2440488.5	52.71490	-20.90568	-10.54567	0.45264	0.84839	0.47112	57.68118	1.07079	338.37	-10.53
69/ 9/24	2440489.0	55.37976	-15.01579	-7.28302	0.33346	0.88861	0.49108	57.83973	1.06863	344.83	-7.23
69/ 9/25	2440489.5	57.22332	-8.89960	-3.91060	0.21048	0.91516	0.50351	58.04312	1.06552	351.16	-3.86
69/ 9/25	2440490.0	58.22718	-2.65039	-0.47972	0.08586	0.92788	0.50835	58.28945	1.06149	357.39	-0.47
69/ 9/26	2440490.5	58.38748	3.63840	2.95851	-0.03827	0.92690	0.50571	58.57550	1.05657	3.57	2.90
69/ 9/26	2440491.0	57.71434	9.87521	6.35420	-0.15993	0.91262	0.49584	58.89686	1.05086	9.71	6.19
69/ 9/27	2440491.5	56.23093	15.97205	9.65968	-0.27725	0.88569	0.47914	59.24806	1.04446	15.86	9.38
69/ 9/27	2440492.0	53.97221	21.84608	12.83028	-0.38862	0.84698	0.45610	59.62270	1.03751	22.04	12.43
69/ 9/28	2440492.5	50.98346	27.42077	15.82494	-0.49261	0.79748	0.42729	60.01367	1.03015	28.27	15.29

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COURDINATE SYSTEM							
69/ 9/28	2440493.0	47.31875	32.62678	18.60671	-0.58805	0.73830	0.39334	60.41341	1.02255	34.59	17.94
69/ 9/29	2440493.5	43.03930	37.40253	21.14298	-0.67399	0.67063	0.35491	60.81412	1.01487	40.99	20.34
69/ 9/29	2440494.0	38.21200	41.69453	23.40567	-0.74972	0.59565	0.31267	61.20798	1.00729	47.50	22.48
69/ 9/30	2440494.5	32.90797	45.45737	25.37119	-0.81470	0.51457	0.26727	61.58738	0.99997	54.10	24.33
69/ 9/30	2440495.0	27.20131	48.65369	27.02041	-0.86857	0.42855	0.21937	61.94510	0.99307	60.79	25.86
69/10/ 1	2440495.5	21.16800	51.25387	28.33845	-0.91113	0.33872	0.16958	62.27448	0.98673	67.56	27.07
69/10/ 1	2440496.0	14.88504	53.23575	29.31452	-0.94228	0.24614	0.11848	62.56956	0.98108	74.38	27.94
69/10/ 2	2440496.5	8.42967	54.58422	29.94174	-0.96205	0.15184	0.06665	62.82518	0.97624	81.22	28.46
69/10/ 2	2440497.0	1.87875	55.29091	30.21685	-0.97052	0.05679	0.01460	63.03707	0.97228	88.05	28.64
69/10/ 3	2440497.5	-4.69164	55.35382	30.14008	-0.96783	-0.03811	-0.03718	63.20191	0.96929	94.84	28.48
69/10/ 3	2440498.0	-11.20665	54.77701	29.71497	-0.95420	-0.13197	-0.08819	63.31737	0.96731	101.56	27.99
69/10/ 4	2440498.5	-17.59294	53.57037	28.94820	-0.92987	-0.22395	-0.13799	63.38213	0.96636	108.18	27.18
69/10/ 4	2440499.0	-23.77898	51.74944	27.84950	-0.89512	-0.31324	-0.18613	63.39589	0.96643	114.68	26.06
69/10/ 5	2440499.5	-29.69529	49.33523	26.43158	-0.85028	-0.39901	-0.23218	63.35932	0.96752	121.04	24.66
69/10/ 5	2440500.0	-35.27475	46.35420	24.71004	-0.79571	-0.48048	-0.27572	63.27405	0.96956	127.27	22.99
69/10/ 6	2440500.5	-40.45292	42.83816	22.70342	-0.73185	-0.55686	-0.31630	63.14263	0.97250	133.36	21.07
69/10/ 6	2440501.0	-45.16840	38.82430	20.43308	-0.65917	-0.62735	-0.35352	62.96842	0.97624	139.32	18.94
69/10/ 7	2440501.5	-49.36330	34.35520	17.92329	-0.57823	-0.69116	-0.38694	62.75555	0.98070	145.16	16.60
69/10/ 7	2440502.0	-52.98379	29.47874	15.20115	-0.48966	-0.74751	-0.41615	62.50882	0.98576	150.91	14.07
69/10/ 8	2440502.5	-55.98068	24.24815	12.29657	-0.39422	-0.79561	-0.44074	62.23356	0.99129	156.58	11.40
69/10/ 8	2440503.0	-58.31021	18.72182	9.24220	-0.29275	-0.83471	-0.46032	61.93550	0.99717	162.20	8.58
69/10/ 9	2440503.5	-59.93478	12.96314	6.07330	-0.18622	-0.86411	-0.47451	61.62066	1.00325	167.80	5.66
69/10/ 9	2440504.0	-60.82383	7.04015	2.82754	-0.07575	-0.88313	-0.48296	61.29517	1.00941	173.40	2.64
69/10/10	2440504.5	-60.95478	1.02506	-0.45528	0.03742	-0.89121	-0.48541	60.96510	1.01552	179.04	-0.43
69/10/10	2440505.0	-60.31386	-5.00635	-3.73359	0.15194	-0.88789	-0.48160	60.63633	1.02145	184.74	-3.53
69/10/11	2440505.5	-58.89697	-10.97560	-6.96447	0.26630	-0.87281	-0.47139	60.31435	1.02710	190.56	-6.63
69/10/11	2440506.0	-56.71047	-16.80247	-10.10430	0.37893	-0.84583	-0.45471	60.00415	1.03236	196.50	-9.69
69/10/12	2440506.5	-53.77173	-22.40621	-13.10933	0.48815	-0.80694	-0.43159	59.71006	1.03717	202.62	-12.68
69/10/12	2440507.0	-50.10951	-27.70680	-15.93644	0.59228	-0.75637	-0.40220	59.43568	1.04147	208.94	-15.55
69/10/13	2440507.5	-45.76416	-32.62649	-18.54392	0.68960	-0.69455	-0.36680	59.18381	1.04522	215.49	-18.26
69/10/13	2440508.0	-40.78743	-37.09119	-20.89230	0.77845	-0.62215	-0.32577	58.95642	1.04842	222.28	-20.75
69/10/14	2440508.5	-35.24204	-41.03208	-22.94516	0.85727	-0.54004	-0.27962	58.75468	1.05106	229.34	-22.99
69/10/14	2440509.0	-29.20092	-44.38699	-24.66990	0.92461	-0.44931	-0.22899	58.57903	1.05319	236.66	-24.91
69/10/15	2440509.5	-22.74620	-47.10185	-26.03851	0.97921	-0.35126	-0.17459	58.42926	1.05485	244.22	-26.46
69/10/15	2440510.0	-15.96789	-49.13183	-27.02815	1.02000	-0.24733	-0.11722	58.30464	1.05609	252.00	-27.62
69/10/16	2440510.5	-8.96238	-50.44239	-27.62172	1.04618	-0.13910	-0.05778	58.20411	1.05697	259.93	-28.33
69/10/16	2440511.0	-1.83074	-51.01009	-27.80824	1.05718	-0.02825	0.00282	58.12640	1.05756	267.94	-28.58
69/10/17	2440511.5	5.32305	-50.82311	-27.58314	1.05270	0.08346	0.06361	58.07024	1.05791	275.98	-28.36
69/10/17	2440512.0	12.39397	-49.88158	-26.94836	1.03273	0.19427	0.12363	58.03444	1.05809	283.95	-27.67
69/10/18	2440512.5	19.27787	-48.19764	-25.91240	0.99754	0.30240	0.18192	58.01811	1.05812	291.80	-26.53
69/10/18	2440513.0	25.87329	-45.79523	-24.49013	0.94765	0.40614	0.23755	58.02066	1.05803	299.47	-24.97
69/10/19	2440513.5	32.08327	-42.70971	-22.70257	0.88387	0.50385	0.28964	58.04190	1.05783	306.91	-23.03
69/10/19	2440514.0	37.81709	-38.98720	-20.57649	0.80724	0.59400	0.33738	58.08207	1.05749	314.13	-20.75
69/10/20	2440514.5	42.99183	-34.68375	-18.14392	0.71901	0.67518	0.38003	58.14174	1.05701	321.11	-18.18
69/10/20	2440515.0	47.53377	-29.86430	-15.44159	0.62064	0.74618	0.41694	58.22181	1.05632	327.86	-15.38

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/10/21	2440515.5	51.37970	-24.60148	-12.51023	0.51376	0.80595	0.44758	58.32334	1.05538	334.41	-12.39
69/10/21	2440516.0	54.47790	-18.97425	-9.39379	0.40014	0.85367	0.47154	58.44747	1.05414	340.80	-9.25
69/10/22	2440516.5	56.78895	-13.06641	-6.13865	0.28164	0.88873	0.48850	58.59521	1.05252	347.04	-6.01
69/10/22	2440517.0	58.28624	-6.96504	-2.79273	0.16017	0.91077	0.49833	58.76732	1.05047	353.19	-2.72
69/10/23	2440517.5	58.95624	-0.75887	0.59539	0.03766	0.91968	0.50097	58.96413	1.04795	359.26	0.58
69/10/23	2440518.0	58.79837	5.46338	3.97736	-0.08398	0.91556	0.49654	59.18544	1.04492	5.31	3.85
69/10/24	2440518.5	57.82468	11.61454	7.30592	-0.20295	0.89876	0.48525	59.43036	1.04136	11.36	7.06
69/10/24	2440519.0	56.05918	17.61051	10.53570	-0.31753	0.86984	0.46743	59.69725	1.03727	17.44	10.17
69/10/25	2440519.5	53.53696	23.37155	13.62390	-0.42616	0.82953	0.44352	59.98371	1.03268	23.58	13.13
69/10/25	2440520.0	50.30308	28.82350	16.53097	-0.52746	0.77872	0.41403	60.28654	1.02764	29.81	15.91
69/10/26	2440520.5	46.41133	33.89864	19.22102	-0.62024	0.71844	0.37954	60.60178	1.02220	36.14	18.49
69/10/26	2440521.0	41.92286	38.53645	21.66221	-0.70352	0.64978	0.34065	60.92484	1.01646	42.59	20.83
69/10/27	2440521.5	36.90486	42.68410	23.82702	-0.77650	0.57389	0.29803	61.25053	1.01050	49.15	22.89
69/10/27	2440522.0	31.42914	46.29666	25.69233	-0.83859	0.49196	0.25232	61.57326	1.00445	55.83	24.66
69/10/28	2440522.5	25.57092	49.33721	27.23943	-0.88939	0.40518	0.20417	61.88715	0.99843	62.60	26.11
69/10/28	2440523.0	19.40764	51.77677	28.45399	-0.92865	0.31469	0.15423	62.18617	0.99257	69.45	27.23
69/10/29	2440523.5	13.01789	53.59406	29.32590	-0.95626	0.22161	0.10309	62.46437	0.98700	76.35	28.00
69/10/29	2440524.0	6.48055	54.77522	29.84911	-0.97224	0.12701	0.05135	62.71596	0.98185	83.25	28.42
69/10/30	2440524.5	-0.12599	55.31343	30.02140	-0.97672	0.03192	-0.00044	62.93549	0.97724	90.13	28.49
69/10/30	2440525.0	-6.72446	55.20858	29.84417	-0.96990	-0.06272	-0.05177	63.11798	0.97330	96.94	28.22
69/10/31	2440525.5	-13.23917	54.46687	29.32225	-0.95204	-0.15600	-0.10215	63.25906	0.97013	103.66	27.61
69/10/31	2440526.0	-19.59650	53.10047	28.46367	-0.92348	-0.24705	-0.15111	63.35506	0.96782	110.26	26.70
69/11/ 1	2440526.5	-25.72513	51.12724	27.27954	-0.88457	-0.33506	-0.19821	63.40307	0.96645	116.71	25.48
69/11/ 1	2440527.0	-31.55639	48.57044	25.78384	-0.83574	-0.41924	-0.24304	63.40110	0.96607	123.01	24.00
69/11/ 2	2440527.5	-37.02448	45.45857	23.99336	-0.77741	-0.49884	-0.28519	63.34805	0.96672	129.16	22.26
69/11/ 2	2440528.0	-42.06675	41.82522	21.92759	-0.71008	-0.57311	-0.32427	63.24381	0.96841	135.16	20.29
69/11/ 3	2440528.5	-46.62394	37.70899	19.60869	-0.63426	-0.64131	-0.35988	63.08930	0.97112	141.03	18.11
69/11/ 3	2440529.0	-50.64055	33.15341	17.06142	-0.55055	-0.70273	-0.39164	62.88645	0.97484	146.79	15.74
69/11/ 4	2440529.5	-54.06522	28.20693	14.31315	-0.45958	-0.75662	-0.41917	62.63820	0.97949	152.45	13.21
69/11/ 4	2440530.0	-56.85120	22.92290	11.39381	-0.36208	-0.80228	-0.44209	62.34852	0.98499	158.04	10.53
69/11/ 5	2440530.5	-58.95698	17.35952	8.33585	-0.25886	-0.83900	-0.46004	62.02230	0.99124	163.59	7.72
69/11/ 5	2440531.0	-60.34691	11.57973	5.17418	-0.15086	-0.86607	-0.47266	61.66532	0.99812	169.14	4.81
69/11/ 6	2440531.5	-60.99203	5.65103	1.94606	-0.03911	-0.88286	-0.47961	61.28417	1.00549	174.71	1.82
69/11/ 6	2440532.0	-60.87095	-0.35482	-1.30909	0.07519	-0.88876	-0.48060	60.88606	1.01318	180.33	-1.23
69/11/ 7	2440532.5	-59.97077	-6.36228	-4.54999	0.19071	-0.88326	-0.47536	60.47871	1.02102	186.06	-4.31
69/11/ 7	2440533.0	-58.28809	-12.29266	-7.73383	0.30600	-0.86595	-0.46372	60.07015	1.02885	191.91	-7.40
69/11/ 8	2440533.5	-55.82994	-18.06504	-10.81680	0.41943	-0.83657	-0.44557	59.66850	1.03649	197.93	-10.44
69/11/ 8	2440534.0	-52.61462	-23.59735	-13.75471	0.52929	-0.79506	-0.42090	59.28175	1.04375	204.16	-13.42
69/11/ 9	2440534.5	-48.67244	-28.80777	-16.50374	0.63376	-0.74156	-0.38982	58.91746	1.05049	210.62	-16.27
69/11/ 9	2440535.0	-44.04609	-33.61624	-19.02130	0.73101	-0.67646	-0.35260	58.58259	1.05655	217.35	-18.95
69/11/10	2440535.5	-38.79079	-37.94627	-21.26697	0.81919	-0.60041	-0.30962	58.28318	1.06180	224.37	-21.40
69/11/10	2440536.0	-32.97397	-41.72677	-23.20353	0.89654	-0.51436	-0.26142	58.02421	1.06616	231.68	-23.57
69/11/11	2440536.5	-26.67452	-44.89390	-24.79792	0.96145	-0.41952	-0.20870	57.80942	1.06955	239.28	-25.40
69/11/11	2440537.0	-19.98162	-47.39289	-26.02222	1.01251	-0.31733	-0.15228	57.64119	1.07194	247.14	-26.84
69/11/12	2440537.5	-12.99311	-49.17959	-26.85444	1.04858	-0.20947	-0.09309	57.52055	1.07334	255.20	-27.83

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/11/12	2440538.0	-5.81346	-50.22175	-27.27920	1.06884	-0.09779	-0.03214	57.44715	1.07378	263.40	-28.35
69/11/13	2440538.5	1.44843	-50.50002	-27.28820	1.07282	0.01577	0.02950	57.41947	1.07334	271.64	-28.38
69/11/13	2440539.0	8.68173	-50.00838	-26.88043	1.06040	0.12922	0.09075	57.43490	1.07210	279.85	-27.91
69/11/14	2440539.5	15.77606	-48.75427	-26.06217	1.03185	0.24060	0.15054	57.49000	1.07017	287.93	-26.96
69/11/14	2440540.0	22.62392	-46.75828	-24.84678	0.98775	0.34799	0.20786	57.58073	1.06768	295.82	-25.56
69/11/15	2440540.5	29.12284	-44.05341	-23.25426	0.92899	0.44964	0.26176	57.70272	1.06476	303.47	-23.77
69/11/15	2440541.0	35.17736	-40.68417	-21.31070	0.85673	0.54393	0.31139	57.85149	1.06151	310.85	-21.62
69/11/16	2440541.5	40.70069	-36.70528	-19.04758	0.77237	0.62944	0.35601	58.02270	1.05806	317.95	-19.16
69/11/16	2440542.0	45.61599	-32.18034	-16.50096	0.67746	0.70499	0.39500	58.21232	1.05451	324.80	-16.47
69/11/17	2440542.5	49.85743	-27.18035	-13.71073	0.57368	0.76958	0.42788	58.41677	1.05092	331.40	-13.57
69/11/17	2440543.0	53.37089	-21.78218	-10.71968	0.46279	0.82246	0.45425	58.63298	1.04736	337.80	-10.53
69/11/18	2440543.5	56.11439	-16.06706	-7.57277	0.34662	0.86310	0.47387	58.85849	1.04386	344.02	-7.39
69/11/18	2440544.0	58.05828	-10.11913	-4.31622	0.22698	0.89117	0.48661	59.09137	1.04043	350.11	-4.19
69/11/19	2440544.5	59.18524	-4.02399	-0.99684	0.10568	0.90657	0.49243	59.33025	1.03707	356.11	-0.96
69/11/19	2440545.0	59.49002	2.13263	2.33879	-0.01552	0.90936	0.49143	59.57416	1.03377	2.05	2.25
69/11/20	2440545.5	58.97908	8.26620	5.64494	-0.13492	0.89981	0.48377	59.82246	1.03048	7.98	5.41
69/11/20	2440546.0	57.67003	14.29448	8.87741	-0.25094	0.87835	0.46972	60.07473	1.02719	13.92	8.50
69/11/21	2440546.5	55.59097	20.13869	11.99405	-0.36206	0.84557	0.44963	60.33059	1.02384	19.91	11.47
69/11/21	2440547.0	52.77966	25.72443	14.95532	-0.46695	0.80216	0.42392	60.58961	1.02039	25.98	14.29
69/11/22	2440547.5	49.28264	30.98256	17.72473	-0.56436	0.74897	0.39306	60.85116	1.01683	32.16	16.93
69/11/22	2440548.0	45.15423	35.84992	20.26919	-0.65323	0.68693	0.35758	61.11433	1.01313	38.45	19.37
69/11/23	2440548.5	40.45549	40.26991	22.55931	-0.73263	0.61704	0.31805	61.37780	1.00928	44.87	21.56
69/11/23	2440549.0	35.25312	44.19298	24.56967	-0.80183	0.54037	0.27507	61.63984	1.00529	51.42	23.49
69/11/24	2440549.5	29.61837	47.57693	26.27892	-0.86023	0.45803	0.22924	61.89826	1.00117	58.10	25.12
69/11/24	2440550.0	23.62594	50.38710	27.66989	-0.90739	0.37113	0.18118	62.15036	0.99696	64.88	26.44
69/11/25	2440550.5	17.35291	52.59638	28.72956	-0.94305	0.28078	0.13151	62.39303	0.99271	71.74	27.42
69/11/25	2440551.0	10.87777	54.18520	29.44905	-0.96706	0.18809	0.08083	62.62275	0.98850	78.65	28.05
69/11/26	2440551.5	4.27950	55.14136	29.82345	-0.97942	0.09413	0.02971	62.83567	0.98438	85.56	28.34
69/11/26	2440552.0	-2.36329	55.45974	29.85175	-0.98023	-0.00007	-0.02129	63.02773	0.98047	92.44	28.27
69/11/27	2440552.5	-8.97303	55.14207	29.53659	-0.96971	-0.09353	-0.07163	63.19472	0.97684	99.24	27.87
69/11/27	2440553.0	-15.47387	54.19656	28.88412	-0.94813	-0.18532	-0.12081	63.33245	0.97360	105.93	27.13
69/11/28	2440553.5	-21.79219	52.63756	27.90376	-0.91588	-0.27455	-0.16837	63.43684	0.97085	112.49	26.10
69/11/28	2440554.0	-27.85705	50.48524	26.60805	-0.87336	-0.36039	-0.21386	63.50404	0.96870	118.89	24.77
69/11/29	2440554.5	-33.60055	47.76522	25.01240	-0.82107	-0.44206	-0.25687	63.53057	0.96724	125.12	23.19
69/11/29	2440555.0	-38.95819	44.50831	23.13498	-0.75951	-0.51881	-0.29700	63.51344	0.96655	131.20	21.36
69/11/30	2440555.5	-43.86911	40.75024	20.99654	-0.68925	-0.58993	-0.33389	63.45026	0.96673	137.11	19.32
69/11/30	2440556.0	-48.27639	36.53143	18.62031	-0.61089	-0.65475	-0.36717	63.33933	0.96783	142.88	17.10
69/12/ 1	2440556.5	-52.12728	31.89687	16.03188	-0.52506	-0.71259	-0.39649	63.17978	0.96989	148.54	14.70
69/12/ 1	2440557.0	-55.37354	26.89593	13.25912	-0.43246	-0.76283	-0.42154	62.97161	0.97295	154.09	12.15
69/12/ 2	2440557.5	-57.97177	21.58228	10.33211	-0.33384	-0.80483	-0.44199	62.71581	0.97701	159.58	9.48
69/12/ 2	2440558.0	-59.88384	16.01380	7.28309	-0.22999	-0.83798	-0.45752	62.41442	0.98205	165.03	6.70
69/12/ 3	2440558.5	-61.07737	10.25248	4.14641	-0.12181	-0.86168	-0.46783	62.07053	0.98802	170.47	3.83
69/12/ 3	2440559.0	-61.52636	4.36426	0.95836	-0.01030	-0.87536	-0.47264	61.68839	0.99486	175.94	0.89
69/12/ 4	2440559.5	-61.21185	-1.58116	-2.24285	0.10345	-0.87848	-0.47168	61.27333	1.00245	181.48	-2.10
69/12/ 4	2440560.0	-60.12274	-7.51064	-5.41737	0.21822	-0.87057	-0.46472	60.83175	1.01068	187.12	-5.11

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/12/ 5	2440560.5	-58.25667	-13.34802	-8.52394	0.33264	-0.85123	-0.45158	60.37107	1.01940	192.91	-8.12
69/12/ 5	2440561.0	-55.62090	-19.01478	-11.52023	0.44524	-0.82015	-0.43214	59.89960	1.02842	198.87	-11.09
69/12/ 6	2440561.5	-52.23330	-24.43090	-14.36339	0.55437	-0.77720	-0.40636	59.42637	1.03755	205.07	-13.99
69/12/ 6	2440562.0	-48.12317	-29.51594	-17.01059	0.65830	-0.72241	-0.37430	58.96092	1.04658	211.52	-16.77
69/12/ 7	2440562.5	-43.33199	-34.19042	-19.41985	0.75517	-0.65604	-0.33614	58.51305	1.05530	218.27	-19.38
69/12/ 7	2440563.0	-37.91391	-38.37751	-21.55093	0.84310	-0.57860	-0.29222	58.09251	1.06348	225.35	-21.78
69/12/ 8	2440563.5	-31.93585	-42.00484	-23.36631	0.92022	-0.49091	-0.24302	57.70866	1.07091	232.75	-23.88
69/12/ 8	2440564.0	-25.47725	-45.00661	-24.83234	0.98472	-0.39409	-0.18918	57.37012	1.07739	240.49	-25.65
69/12/ 9	2440564.5	-18.62911	-47.32567	-25.92033	1.03499	-0.28957	-0.13153	57.08438	1.08275	248.51	-27.01
69/12/ 9	2440565.0	-11.49266	-48.91555	-26.60761	1.06965	-0.17907	-0.07103	56.85752	1.08686	256.78	-27.90
69/12/10	2440565.5	-4.17733	-49.74231	-26.87849	1.08767	-0.06457	-0.00876	56.69392	1.08962	265.20	-28.30
69/12/10	2440566.0	3.20180	-49.78595	-26.72498	1.08842	0.05181	0.05409	56.59609	1.09099	273.68	-28.18
69/12/11	2440566.5	10.52680	-49.04141	-26.14720	1.07170	0.16780	0.11632	56.56456	1.09097	282.11	-27.53
69/12/11	2440567.0	17.68003	-47.51889	-25.15353	1.03778	0.28117	0.17670	56.59795	1.08962	290.41	-26.39
69/12/12	2440567.5	24.54723	-45.24359	-23.76041	0.98739	0.38974	0.23409	56.69309	1.08703	298.48	-24.78
69/12/12	2440568.0	31.02038	-42.25491	-21.99176	0.92164	0.49151	0.28743	56.84521	1.08334	306.28	-22.76
69/12/13	2440568.5	37.00028	-38.60503	-19.87822	0.84201	0.58471	0.33579	57.04834	1.07871	313.78	-20.39
69/12/13	2440569.0	42.39862	-34.35723	-17.45617	0.75022	0.66785	0.37841	57.29555	1.07333	320.98	-17.74
69/12/14	2440569.5	47.13950	-29.58388	-14.76660	0.64819	0.73973	0.41470	57.57943	1.06739	327.89	-14.86
69/12/14	2440570.0	51.16038	-24.36434	-11.85394	0.53795	0.79948	0.44423	57.89233	1.06109	334.53	-11.82
69/12/15	2440570.5	54.41264	-18.78291	-8.76498	0.42156	0.84652	0.46673	58.22678	1.05459	340.96	-8.66
69/12/15	2440571.0	56.86152	-12.92684	-5.54775	0.30105	0.88055	0.48210	58.57570	1.04806	347.19	-5.43
69/12/16	2440571.5	58.48581	-6.88456	-2.25058	0.17839	0.90152	0.49035	58.93261	1.04164	353.29	-2.19
69/12/16	2440572.0	59.27732	-0.74409	1.07874	0.05544	0.90959	0.49162	59.29181	1.03543	359.28	1.04
69/12/17	2440572.5	59.24001	5.40832	4.39366	-0.06607	0.90511	0.48615	59.64841	1.02953	5.22	4.22
69/12/17	2440573.0	58.38917	11.48929	7.64949	-0.18454	0.88859	0.47423	59.99844	1.02399	11.13	7.32
69/12/18	2440573.5	56.75039	17.41933	10.80388	-0.29851	0.86066	0.45626	60.33874	1.01883	17.06	10.31
69/12/18	2440574.0	54.35867	23.12357	13.81725	-0.40668	0.82205	0.43266	60.66697	1.01408	23.04	13.16
69/12/19	2440574.5	51.25734	28.53244	16.65303	-0.50787	0.77358	0.40391	60.98146	1.00970	29.10	15.85
69/12/19	2440575.0	47.49713	33.58210	19.27802	-0.60108	0.71613	0.37050	61.28113	1.00569	35.26	18.34
69/12/20	2440575.5	43.13526	38.21492	21.66249	-0.68541	0.65065	0.33298	61.56537	1.00200	41.54	20.60
69/12/20	2440576.0	38.23442	42.37978	23.78040	-0.76011	0.57811	0.29188	61.83385	0.99859	47.94	22.62
69/12/21	2440576.5	32.86199	46.03229	25.60947	-0.82458	0.49952	0.24778	62.08645	0.99541	54.48	24.36
69/12/21	2440577.0	27.08907	49.13496	27.13126	-0.87830	0.41592	0.20124	62.32309	0.99243	61.13	25.81
69/12/22	2440577.5	20.98966	51.65737	28.33121	-0.92093	0.32835	0.15284	62.54364	0.98959	67.89	26.94
69/12/22	2440578.0	14.63983	53.57614	29.19866	-0.95222	0.23785	0.10315	62.74782	0.98688	74.72	27.73
69/12/23	2440578.5	8.11690	54.87495	29.72681	-0.97204	0.14545	0.05273	62.93510	0.98427	81.59	28.19
69/12/23	2440579.0	1.49865	55.54447	29.91262	-0.98037	0.05219	0.00215	63.10466	0.98177	88.45	28.30
69/12/24	2440579.5	-5.13742	55.58218	29.75678	-0.97732	-0.04095	-0.04806	63.25534	0.97936	95.28	28.06
69/12/24	2440580.0	-11.71475	54.99224	29.26355	-0.96307	-0.13299	-0.09739	63.38563	0.97708	102.03	27.50
69/12/25	2440580.5	-18.15843	53.78522	28.44064	-0.93791	-0.22302	-0.14534	63.49369	0.97495	108.66	26.61
69/12/25	2440581.0	-24.39575	51.97782	27.29903	-0.90220	-0.31013	-0.19143	63.57738	0.97304	115.14	25.43
69/12/26	2440581.5	-30.35676	49.59265	25.85279	-0.85640	-0.39350	-0.23522	63.63435	0.97138	121.47	23.97
69/12/26	2440582.0	-35.97472	46.65783	24.11894	-0.80100	-0.47231	-0.27629	63.66205	0.97006	127.63	22.26
69/12/27	2440582.5	-41.18657	43.20671	22.11723	-0.73657	-0.54583	-0.31425	63.65787	0.96914	133.63	20.33

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
69/12/27	2440583.0	-45.93327	39.27758	19.86996	-0.66375	-0.61336	-0.34874	63.61925	0.96870	139.47	18.20
69/12/28	2440583.5	-50.16017	34.91330	17.40183	-0.58319	-0.67422	-0.37942	63.54373	0.96884	145.16	15.89
69/12/28	2440584.0	-53.81732	30.16110	14.73975	-0.49563	-0.72781	-0.40596	63.42914	0.96962	150.73	13.44

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
69/12/17	2440572.5	59.24001	5.40832	4.39366	-0.06607	0.90511	0.48615	59.64841	1.02953	5.22	4.22
69/12/17	2440573.0	58.38917	11.48929	7.64949	-0.18454	0.88859	0.47423	59.99844	1.02399	11.13	7.32
69/12/18	2440573.5	56.75039	17.41933	10.80388	-0.29851	0.86066	0.45626	60.33874	1.01883	17.06	10.31
69/12/18	2440574.0	54.35867	23.12357	13.81725	-0.40668	0.82205	0.43266	60.66697	1.01408	23.04	13.16
69/12/19	2440574.5	51.25734	28.53244	16.65303	-0.50787	0.77358	0.40391	60.98146	1.00970	29.10	15.85
69/12/19	2440575.0	47.49713	33.58210	19.27802	-0.60108	0.71613	0.37050	61.28113	1.00569	35.26	18.34
69/12/20	2440575.5	43.13526	38.21492	21.66249	-0.68541	0.65065	0.33298	61.56537	1.00200	41.54	20.60
69/12/20	2440576.0	38.23442	42.37978	23.78040	-0.76011	0.57811	0.29188	61.83385	0.99859	47.94	22.62
69/12/21	2440576.5	32.86199	46.03229	25.60947	-0.82458	0.49952	0.24778	62.08645	0.99541	54.48	24.36
69/12/21	2440577.0	27.08907	49.13496	27.13126	-0.87830	0.41592	0.20124	62.32309	0.99243	61.13	25.81
69/12/22	2440577.5	20.98966	51.65737	28.33121	-0.92093	0.32835	0.15284	62.54364	0.98959	67.89	26.94
69/12/22	2440578.0	14.63983	53.57614	29.19866	-0.95222	0.23785	0.10315	62.74782	0.98688	74.72	27.73
69/12/23	2440578.5	8.11690	54.87495	29.72681	-0.97204	0.14545	0.05273	62.93510	0.98427	81.59	28.19
69/12/23	2440579.0	1.49865	55.54447	29.91262	-0.98037	0.05219	0.00215	63.10466	0.98177	88.45	28.30
69/12/24	2440579.5	-5.13742	55.58218	29.75678	-0.97732	-0.04095	-0.04806	63.25534	0.97936	95.28	28.06
69/12/24	2440580.0	-11.71475	54.99224	29.26355	-0.96307	-0.13299	-0.09739	63.38563	0.97708	102.03	27.50
69/12/25	2440580.5	-18.15843	53.78522	28.44064	-0.93791	-0.22302	-0.14534	63.49369	0.97495	108.66	26.61
69/12/25	2440581.0	-24.39575	51.97782	27.29903	-0.90220	-0.31013	-0.19143	63.57738	0.97304	115.14	25.43
69/12/26	2440581.5	-30.35676	49.59265	25.85279	-0.85640	-0.39350	-0.23522	63.63435	0.97138	121.47	23.97
69/12/26	2440582.0	-35.97472	46.65783	24.11894	-0.80100	-0.47231	-0.27629	63.66205	0.97006	127.63	22.26
69/12/27	2440582.5	-41.18657	43.20671	22.11723	-0.73657	-0.54583	-0.31425	63.65787	0.96914	133.63	20.33
69/12/27	2440583.0	-45.93327	39.27758	19.86996	-0.66375	-0.61336	-0.34874	63.61925	0.96870	139.47	18.20
69/12/28	2440583.5	-50.16017	34.91330	17.40183	-0.58319	-0.67422	-0.37942	63.54373	0.96884	145.16	15.89
69/12/28	2440584.0	-53.81732	30.16110	14.73975	-0.49563	-0.72781	-0.40596	63.42914	0.96962	150.73	13.44
69/12/29	2440584.5	-56.85975	25.07223	11.91269	-0.40181	-0.77354	-0.42809	63.27369	0.97112	156.20	10.85
69/12/29	2440585.0	-59.24783	19.70178	8.95154	-0.30254	-0.81087	-0.44551	63.07610	0.97341	161.61	8.16
69/12/30	2440585.5	-60.94755	14.10841	5.88900	-0.19869	-0.83928	-0.45799	62.83575	0.97654	166.97	5.38
69/12/30	2440586.0	-61.93091	8.35417	2.75940	-0.09116	-0.85830	-0.46528	62.55273	0.98055	172.32	2.53
69/12/31	2440586.5	-62.17636	2.50421	-0.40139	0.01905	-0.86747	-0.46717	62.22806	0.98545	177.69	-0.37
69/12/31	2440587.0	-61.66921	-3.37339	-3.55614	0.13089	-0.86640	-0.46346	61.86369	0.99125	183.13	-3.30
70/ 1/ 1	2440587.5	-60.40225	-9.20800	-6.66642	0.24322	-0.85472	-0.45401	61.46267	0.99791	188.67	-6.23
70/ 1/ 1	2440588.0	-58.37634	-14.92676	-9.69285	0.35478	-0.83215	-0.43868	61.02915	1.00538	194.34	-9.14
70/ 1/ 2	2440588.5	-55.60111	-20.45509	-12.59536	0.46425	-0.79846	-0.41741	60.56845	1.01356	200.20	-12.00
70/ 1/ 2	2440589.0	-52.09567	-25.71733	-15.33355	0.57016	-0.75357	-0.39017	60.08709	1.02234	206.27	-14.78
70/ 1/ 3	2440589.5	-47.88934	-30.63755	-17.86720	0.67095	-0.69748	-0.35703	59.59266	1.03156	212.61	-17.45
70/ 1/ 3	2440590.0	-43.02239	-35.14056	-20.15681	0.76496	-0.63042	-0.31814	59.09384	1.04106	219.24	-19.94
70/ 1/ 4	2440590.5	-37.54655	-39.15325	-22.16429	0.85045	-0.55278	-0.27378	58.60014	1.05061	226.20	-22.22
70/ 1/ 4	2440591.0	-31.52548	-42.60606	-23.85388	0.92566	-0.46522	-0.22434	58.12177	1.06001	233.50	-24.23
70/ 1/ 5	2440591.5	-25.03480	-45.43476	-25.19300	0.98884	-0.36867	-0.17039	57.66928	1.06899	241.14	-25.90
70/ 1/ 5	2440592.0	-18.16178	-47.58243	-26.15341	1.03830	-0.26435	-0.11264	57.25329	1.07733	249.11	-27.18
70/ 1/ 6	2440592.5	-11.00450	-49.00153	-26.71221	1.07255	-0.15380	-0.05196	56.88401	1.08476	257.34	-28.01
70/ 1/ 6	2440593.0	-3.67038	-49.65590	-26.85298	1.09033	-0.03886	0.01062	56.57086	1.09108	265.77	-28.34
70/ 1/ 7	2440593.5	3.72579	-49.52270	-26.56668	1.09076	0.07839	0.07395	56.32200	1.09607	274.30	-28.14
70/ 1/ 7	2440594.0	11.06458	-48.59390	-25.85241	1.07335	0.19568	0.13678	56.14391	1.09958	282.83	-27.42
70/ 1/ 8	2440594.5	18.22492	-46.87730	-24.71791	1.03811	0.31062	0.19783	56.04109	1.10150	291.25	-26.17

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 1/ 8	2440595.0	25.08762	-44.39692	-23.17959	0.98558	0.42083	0.25581	56.01578	1.10178	299.47	-24.44
70/ 1/ 9	2440595.5	31.53875	-41.19257	-21.26230	0.91679	0.52404	0.30954	56.06787	1.10043	307.44	-22.29
70/ 1/ 9	2440596.0	37.47299	-37.31886	-18.99859	0.83323	0.61817	0.35794	56.19491	1.09752	315.12	-19.76
70/ 1/10	2440596.5	42.79648	-32.84334	-16.42771	0.73678	0.70148	0.40011	56.39231	1.09317	322.50	-16.94
70/ 1/10	2440597.0	47.42909	-27.84433	-13.59433	0.62960	0.77255	0.43536	56.65361	1.08755	329.58	-13.88
70/ 1/11	2440597.5	51.30593	-22.40836	-10.54710	0.51401	0.83038	0.46320	56.97082	1.08088	336.41	-10.67
70/ 1/11	2440598.0	54.37821	-16.62743	-7.33718	0.39241	0.87434	0.48337	57.33494	1.07337	343.00	-7.35
70/ 1/12	2440598.5	56.61327	-10.59649	-4.01685	0.26717	0.90420	0.49581	57.73632	1.06526	349.40	-3.99
70/ 1/12	2440599.0	57.99411	-4.41099	-0.63820	0.14053	0.92002	0.50062	58.16512	1.05679	355.65	-0.63
70/ 1/13	2440599.5	58.51849	1.83515	2.74790	0.01459	0.92218	0.49807	58.61170	1.04819	1.80	2.69
70/ 1/13	2440600.0	58.19760	8.05124	6.09276	-0.10877	0.91126	0.48851	59.06695	1.03965	7.88	5.92
70/ 1/14	2440600.5	57.05470	14.15117	9.35049	-0.22788	0.88802	0.47242	59.52248	1.03136	13.93	9.04
70/ 1/14	2440601.0	55.12360	20.05442	12.47853	-0.34130	0.85334	0.45031	59.97087	1.02345	19.99	12.01
70/ 1/15	2440601.5	52.44723	25.68673	15.43798	-0.44777	0.80818	0.42273	60.40572	1.01605	26.09	14.81
70/ 1/15	2440602.0	49.07623	30.98054	18.19378	-0.54626	0.75356	0.39027	60.82174	1.00923	32.26	17.41
70/ 1/16	2440602.5	45.06771	35.87528	20.71484	-0.63589	0.69051	0.35352	61.21469	1.00306	38.52	19.78
70/ 1/16	2440603.0	40.48409	40.31748	22.97408	-0.71597	0.62010	0.31305	61.58140	0.99757	44.88	21.90
70/ 1/17	2440603.5	35.39211	44.26077	24.94840	-0.78593	0.54336	0.26947	61.91962	0.99274	51.35	23.76
70/ 1/17	2440604.0	29.86191	47.66588	26.61861	-0.84531	0.46135	0.22335	62.22797	0.98857	57.93	25.33
70/ 1/18	2440604.5	23.96625	50.50052	27.96940	-0.89380	0.37508	0.17525	62.50576	0.98502	64.61	26.58
70/ 1/18	2440605.0	17.77977	52.73931	28.98927	-0.93116	0.28556	0.12572	62.75295	0.98204	71.37	27.51
70/ 1/19	2440605.5	11.37832	54.36367	29.67043	-0.95726	0.19381	0.07532	62.96991	0.97958	78.18	28.11
70/ 1/19	2440606.0	4.83838	55.36172	30.00873	-0.97206	0.10078	0.02456	63.15737	0.97758	85.01	28.37
70/ 1/20	2440606.5	-1.76359	55.72812	30.00357	-0.97559	0.00745	-0.02602	63.31626	0.97596	91.81	28.29
70/ 1/20	2440607.0	-8.35169	55.46400	29.65786	-0.96798	-0.08526	-0.07592	63.44757	0.97469	98.56	27.87
70/ 1/21	2440607.5	-14.85111	54.57674	28.97785	-0.94945	-0.17641	-0.12465	63.55228	0.97371	105.22	27.13
70/ 1/21	2440608.0	-21.18875	53.07989	27.97309	-0.92026	-0.26512	-0.17174	63.63121	0.97297	111.76	26.08
70/ 1/22	2440608.5	-27.29368	50.99291	26.65627	-0.88080	-0.35053	-0.21672	63.68499	0.97244	118.16	24.74
70/ 1/22	2440609.0	-33.09772	48.34102	25.04312	-0.83149	-0.43180	-0.25917	63.71398	0.97211	124.40	23.14
70/ 1/23	2440609.5	-38.53592	45.15496	23.15228	-0.77286	-0.50814	-0.29866	63.71825	0.97196	130.48	21.31
70/ 1/23	2440610.0	-43.54705	41.47068	21.00508	-0.70549	-0.57879	-0.33480	63.69754	0.97201	136.40	19.25
70/ 1/24	2440610.5	-48.07409	37.32912	18.62545	-0.63003	-0.64306	-0.36724	63.65131	0.97227	142.17	17.01
70/ 1/24	2440611.0	-52.06466	32.77585	16.03970	-0.54719	-0.70026	-0.39562	63.57874	0.97278	147.81	14.61
70/ 1/25	2440611.5	-55.47141	27.86076	13.27629	-0.45777	-0.74980	-0.41964	63.47881	0.97358	153.33	12.07
70/ 1/25	2440612.0	-58.25247	22.63770	10.36571	-0.36257	-0.79111	-0.43903	63.35032	0.97472	158.76	9.42
70/ 1/26	2440612.5	-60.37175	17.16414	7.34021	-0.26250	-0.82369	-0.45354	63.19205	0.97626	164.13	6.67
70/ 1/26	2440613.0	-61.79936	11.50079	4.23361	-0.15849	-0.84709	-0.46295	63.00280	0.97826	169.46	3.85
70/ 1/27	2440613.5	-62.51191	5.71126	1.08110	-0.05152	-0.86090	-0.46707	62.78157	0.98079	174.78	0.99
70/ 1/27	2440614.0	-62.49286	-0.13839	-2.08100	0.05737	-0.86479	-0.46576	62.52765	0.98391	180.13	-1.91
70/ 1/28	2440614.5	-61.73290	-5.97999	-5.21548	0.16708	-0.85848	-0.45890	62.24076	0.98767	185.53	-4.81
70/ 1/28	2440615.0	-60.23028	-11.74374	-8.28444	0.27648	-0.84177	-0.44640	61.92119	0.99211	191.03	-7.69
70/ 1/29	2440615.5	-57.99120	-17.35864	-11.24961	0.38435	-0.81451	-0.42824	61.56993	0.99727	196.66	-10.53
70/ 1/29	2440616.0	-55.03024	-22.75302	-14.07261	0.48943	-0.77665	-0.40443	61.18877	1.00314	202.46	-13.30
70/ 1/30	2440616.5	-51.37075	-27.85515	-16.71530	0.59039	-0.72822	-0.37502	60.78046	1.00971	208.47	-15.96
70/ 1/30	2440617.0	-47.04531	-32.59395	-19.14020	0.68584	-0.66940	-0.34014	60.34877	1.01694	214.72	-18.49

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/ 1/31	2440617.5	-42.09611	-36.89983	-21.31093	0.77434	-0.60045	-0.30000	59.89854	1.02476	221.24	-20.84
70/ 1/31	2440618.0	-36.57532	-40.70565	-23.19276	0.85438	-0.52182	-0.25489	59.43575	1.03307	228.06	-22.97
70/ 2/ 1	2440618.5	-30.54534	-43.94791	-24.75327	0.92444	-0.43415	-0.20519	58.96746	1.04172	235.20	-24.82
70/ 2/ 1	2440619.0	-24.07887	-46.56805	-25.96303	0.98302	-0.33827	-0.15141	58.50175	1.05056	242.66	-26.35
70/ 2/ 2	2440619.5	-17.25871	-48.51399	-26.79647	1.02864	-0.23526	-0.09418	58.04758	1.05940	250.42	-27.49
70/ 2/ 2	2440620.0	-10.17734	-49.74176	-27.23270	1.05994	-0.12644	-0.03426	57.61458	1.06801	258.44	-28.21
70/ 2/ 3	2440620.5	-2.93593	-50.21721	-27.25645	1.07572	-0.01340	0.02746	57.21278	1.07615	266.65	-28.45
70/ 2/ 3	2440621.0	4.35703	-49.91779	-26.85897	1.07503	0.10205	0.08995	56.85221	1.08360	274.99	-28.19
70/ 2/ 4	2440621.5	11.58763	-48.83408	-26.03880	1.05724	0.21784	0.15208	56.54255	1.09011	283.35	-27.42
70/ 2/ 4	2440622.0	18.63904	-46.97115	-24.80243	1.02211	0.33177	0.21265	56.29266	1.09545	291.64	-26.14
70/ 2/ 5	2440622.5	25.39438	-44.34940	-23.16467	0.96988	0.44153	0.27040	56.11012	1.09943	299.80	-24.38
70/ 2/ 5	2440623.0	31.73994	-41.00487	-21.14868	0.90127	0.54482	0.32413	56.00080	1.10190	307.74	-22.19
70/ 2/ 6	2440623.5	37.56856	-36.98890	-18.78574	0.81748	0.63945	0.37268	55.96856	1.10275	315.45	-19.61
70/ 2/ 6	2440624.0	42.78287	-32.36702	-16.11447	0.72018	0.72344	0.41502	56.01494	1.10194	322.89	-16.72
70/ 2/ 7	2440624.5	47.29822	-27.21715	-13.17981	0.61145	0.79511	0.45033	56.13913	1.09948	330.08	-13.58
70/ 2/ 7	2440625.0	51.04497	-21.62732	-10.03168	0.49363	0.85318	0.47797	56.33794	1.09546	337.04	-10.26
70/ 2/ 8	2440625.5	53.97009	-15.69285	-6.72345	0.36926	0.89677	0.49756	56.60602	1.09001	343.79	-6.82
70/ 2/ 8	2440626.0	56.03799	-9.51352	-3.31031	0.24093	0.92545	0.50895	56.93611	1.08329	350.36	-3.33
70/ 2/ 9	2440626.5	57.23042	-3.19059	0.15227	0.11115	0.93920	0.51219	57.31949	1.07554	356.81	0.15
70/ 2/ 9	2440627.0	57.54582	3.17577	3.60998	-0.01768	0.93836	0.50756	57.74633	1.06698	3.16	3.58
70/ 2/10	2440627.5	56.99801	9.48883	7.01083	-0.14340	0.92359	0.49549	58.20621	1.05787	9.45	6.92
70/ 2/10	2440628.0	55.61457	15.65713	10.30616	-0.26414	0.89578	0.47650	58.68853	1.04845	15.72	10.11
70/ 2/11	2440628.5	53.43495	21.59587	13.45129	-0.37827	0.85599	0.45124	59.18287	1.03895	22.01	13.14
70/ 2/11	2440629.0	50.50856	27.22784	16.40596	-0.48445	0.80539	0.42038	59.67936	1.02960	28.33	15.96
70/ 2/12	2440629.5	46.89295	32.48403	19.13463	-0.58163	0.74523	0.38462	60.16888	1.02058	34.71	18.54
70/ 2/12	2440630.0	42.65204	37.30379	21.60649	-0.66898	0.67673	0.34466	60.64330	1.01207	41.17	20.87
70/ 2/13	2440630.5	37.85468	41.63491	23.79546	-0.74586	0.60114	0.30120	61.09555	1.00419	47.72	22.92
70/ 2/13	2440631.0	32.57328	45.43342	25.68005	-0.81185	0.51965	0.25489	61.51974	0.99705	54.36	24.67
70/ 2/14	2440631.5	26.88273	48.66330	27.24316	-0.86664	0.43342	0.20637	61.91113	0.99071	61.08	26.11
70/ 2/14	2440632.0	20.85951	51.29621	28.47190	-0.91007	0.34355	0.15625	62.26612	0.98522	67.87	27.21
70/ 2/15	2440632.5	14.58085	53.31111	29.35737	-0.94207	0.25109	0.10510	62.58219	0.98060	74.70	27.98
70/ 2/15	2440633.0	8.12419	54.69392	29.89445	-0.96264	0.15706	0.05346	62.85782	0.97684	81.55	28.40
70/ 2/16	2440633.5	1.56658	55.43727	30.08163	-0.97189	0.06242	0.00186	63.09239	0.97390	88.38	28.48
70/ 2/16	2440634.0	-5.01573	55.54017	29.92088	-0.96997	-0.03191	-0.04920	63.28607	0.97174	95.16	28.22
70/ 2/17	2440634.5	-11.54776	55.00781	29.41743	-0.95709	-0.12502	-0.09925	63.43969	0.97031	101.86	27.63
70/ 2/17	2440635.0	-17.95617	53.85135	28.57972	-0.93351	-0.21606	-0.14783	63.55464	0.96953	108.44	26.72
70/ 2/18	2440635.5	-24.16962	52.08775	27.41929	-0.89958	-0.30417	-0.19448	63.63271	0.96932	114.89	25.52
70/ 2/18	2440636.0	-30.11926	49.73957	25.95060	-0.85568	-0.38854	-0.23878	63.67596	0.96962	121.20	24.05
70/ 2/19	2440636.5	-35.73905	46.83485	24.19104	-0.80226	-0.46838	-0.28031	63.68665	0.97035	127.35	22.32
70/ 2/19	2440637.0	-40.96625	43.40693	22.16073	-0.73984	-0.54291	-0.31867	63.66705	0.97143	133.34	20.37
70/ 2/20	2440637.5	-45.74187	39.49425	19.88246	-0.66902	-0.61140	-0.35347	63.61939	0.97280	139.19	18.21
70/ 2/20	2440638.0	-50.01115	35.14018	17.38154	-0.59044	-0.67314	-0.38435	63.54577	0.97440	144.91	15.87
70/ 2/21	2440638.5	-53.72400	30.39273	14.68566	-0.50484	-0.72746	-0.41098	63.44805	0.97620	150.50	13.38
70/ 2/21	2440639.0	-56.83557	25.30429	11.82470	-0.41302	-0.77373	-0.43305	63.32782	0.97815	156.00	10.76
70/ 2/22	2440639.5	-59.30668	19.93129	8.83057	-0.31587	-0.81140	-0.45027	63.18637	0.98024	161.42	8.03

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 2/22	2440640.0	-61.10433	14.33379	5.73692	-0.21431	-0.83994	-0.46240	63.02467	0.98247	166.80	5.22
70/ 2/23	2440640.5	-62.20211	8.57509	2.57896	-0.10938	-0.85893	-0.46923	62.84334	0.98484	172.15	2.35
70/ 2/23	2440641.0	-62.58068	2.72118	-0.60687	-0.00212	-0.86800	-0.47060	62.64276	0.98737	177.51	-0.56
70/ 2/24	2440641.5	-62.22812	-3.15969	-3.78318	0.10633	-0.86686	-0.46640	62.42304	0.99009	182.91	-3.47
70/ 2/24	2440642.0	-61.14031	-8.99767	-6.91193	0.21480	-0.85531	-0.45655	62.18417	0.99304	188.37	-6.38
70/ 2/25	2440642.5	-59.32122	-14.72189	-9.95480	0.32207	-0.83325	-0.44104	61.92608	0.99627	193.94	-9.25
70/ 2/25	2440643.0	-56.78319	-20.26108	-12.87357	0.42688	-0.80068	-0.41991	61.64877	0.99982	199.64	-12.05
70/ 2/26	2440643.5	-53.54714	-25.54430	-15.63043	0.52797	-0.75769	-0.39326	61.35241	1.00374	205.50	-14.76
70/ 2/26	2440644.0	-49.64275	-30.50166	-18.18845	0.62402	-0.70450	-0.36123	61.03748	1.00807	211.57	-17.34
70/ 2/27	2440644.5	-45.10858	-35.06508	-20.51201	0.71372	-0.64143	-0.32406	60.70492	1.01284	217.86	-19.75
70/ 2/27	2440645.0	-39.99216	-39.16916	-22.56719	0.79574	-0.56895	-0.28204	60.35623	1.01806	224.40	-21.96
70/ 2/28	2440645.5	-34.34992	-42.75208	-24.32234	0.86877	-0.48765	-0.23553	59.99361	1.02373	231.22	-23.92
70/ 2/28	2440646.0	-28.24719	-45.75655	-25.74857	0.93151	-0.39828	-0.18499	59.62008	1.02983	238.31	-25.59
70/ 3/ 1	2440646.5	-21.75787	-48.13094	-26.82031	0.98272	-0.30175	-0.13095	59.23952	1.03631	245.67	-26.92
70/ 3/ 1	2440647.0	-14.96412	-49.83033	-27.51595	1.02122	-0.19915	-0.07404	58.85673	1.04309	253.28	-27.87
70/ 3/ 2	2440647.5	-7.95572	-50.81779	-27.81843	1.04593	-0.09175	-0.01499	58.47740	1.05006	261.10	-28.41
70/ 3/ 2	2440648.0	-0.82928	-51.06556	-27.71592	1.05594	0.01901	0.04540	58.10810	1.05708	269.07	-28.49
70/ 3/ 3	2440648.5	6.31299	-50.55630	-27.20242	1.05050	0.13151	0.10622	57.75608	1.06401	277.12	-28.10
70/ 3/ 3	2440649.0	13.36466	-49.28430	-26.27837	1.02913	0.24394	0.16647	57.42917	1.07066	285.17	-27.23
70/ 3/ 4	2440649.5	20.21698	-47.25647	-24.95112	0.99163	0.35437	0.22510	57.13543	1.07683	293.16	-25.89
70/ 3/ 4	2440650.0	26.76104	-44.49311	-23.23532	0.93816	0.46079	0.28102	56.88295	1.08233	301.03	-24.11
70/ 3/ 5	2440650.5	32.89029	-41.02843	-21.15306	0.86926	0.56113	0.33313	56.67941	1.08695	308.72	-21.91
70/ 3/ 5	2440651.0	38.50325	-36.91046	-18.73379	0.78589	0.65337	0.38037	56.53173	1.09050	316.21	-19.35
70/ 3/ 6	2440651.5	43.50629	-32.20056	-16.01388	0.68942	0.73561	0.42175	56.44571	1.09284	323.49	-16.48
70/ 3/ 6	2440652.0	47.81641	-26.97234	-13.03603	0.58160	0.80617	0.45641	56.42565	1.09383	330.57	-13.36
70/ 3/ 7	2440652.5	51.36362	-21.30993	-9.84819	0.46451	0.86362	0.48365	56.47408	1.09340	337.47	-10.04
70/ 3/ 7	2440653.0	54.09301	-15.30591	-6.50239	0.34051	0.90690	0.50299	56.59156	1.09152	344.20	-6.60
70/ 3/ 8	2440653.5	55.96608	-9.05871	-3.05329	0.21207	0.93535	0.51413	56.77662	1.08820	350.81	-3.08
70/ 3/ 8	2440654.0	56.96149	-2.66994	0.44331	0.08176	0.94870	0.51702	57.02575	1.08352	357.32	0.45
70/ 3/ 9	2440654.5	57.07500	3.75841	3.93196	-0.04794	0.94709	0.51183	57.33360	1.07761	3.77	3.93
70/ 3/ 9	2440655.0	56.31875	10.12654	7.35896	-0.17470	0.93103	0.49889	57.69317	1.07062	10.19	7.33
70/ 3/10	2440655.5	54.71996	16.33916	10.67354	-0.29640	0.90132	0.47873	58.09619	1.06274	16.63	10.59
70/ 3/10	2440656.0	52.31927	22.30734	13.82885	-0.41122	0.85904	0.45197	58.53341	1.05419	23.09	13.67
70/ 3/11	2440656.5	49.16869	27.94994	16.78264	-0.51761	0.80540	0.41934	58.99505	1.04520	29.62	16.53
70/ 3/11	2440657.0	45.32958	33.19460	19.49771	-0.61435	0.74175	0.38161	59.47111	1.03598	36.22	19.14
70/ 3/12	2440657.5	40.87063	37.97820	21.94216	-0.70052	0.66949	0.33956	59.95173	1.02676	42.90	21.47
70/ 3/12	2440658.0	35.86589	42.24713	24.08940	-0.77543	0.59000	0.29397	60.42749	1.01775	49.67	23.49
70/ 3/13	2440658.5	30.39319	45.95710	25.91801	-0.83865	0.50466	0.24560	60.88961	1.00912	56.52	25.19
70/ 3/13	2440659.0	24.53260	49.07286	27.41160	-0.88994	0.41475	0.19516	61.33017	1.00105	63.44	26.55
70/ 3/14	2440659.5	18.36528	51.56779	28.55844	-0.92922	0.32153	0.14332	61.74225	0.99367	70.40	27.55
70/ 3/14	2440660.0	11.97246	53.42336	29.35122	-0.95654	0.22614	0.09071	62.11996	0.98709	77.37	28.20
70/ 3/15	2440660.5	5.43474	54.62862	29.78672	-0.97205	0.12967	0.03791	62.45855	0.98139	84.32	28.48
70/ 3/15	2440661.0	-1.16859	55.17969	29.86551	-0.97596	0.03313	-0.01454	62.75438	0.97663	91.21	28.42
70/ 3/16	2440661.5	-7.75997	55.07933	29.59170	-0.96857	-0.06254	-0.06613	63.00491	0.97284	98.02	28.01
70/ 3/16	2440662.0	-14.26396	54.33649	28.97269	-0.95021	-0.15645	-0.11640	63.20863	0.97002	104.71	27.28

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
70/ 3/17	2440662.5	-20.60754	52.96598	28.01896	-0.92127	-0.24775	-0.16490	63.36504	0.96815	111.26	26.24
70/ 3/17	2440663.0	-26.72040	50.98820	26.74394	-0.88215	-0.33564	-0.21121	63.47452	0.96719	117.66	24.92
70/ 3/18	2440663.5	-32.53516	48.42886	25.16385	-0.83332	-0.41935	-0.25492	63.53826	0.96709	123.89	23.33
70/ 3/18	2440664.0	-37.98769	45.31887	23.29760	-0.77528	-0.49813	-0.29564	63.55818	0.96778	129.97	21.50
70/ 3/19	2440664.5	-43.01742	41.69409	21.16667	-0.70857	-0.57124	-0.33301	63.53679	0.96917	135.89	19.46
70/ 3/19	2440665.0	-47.56765	37.59523	18.79504	-0.63379	-0.63800	-0.36666	63.47706	0.97117	141.68	17.22
70/ 3/20	2440665.5	-51.58598	33.06772	16.20909	-0.55161	-0.69771	-0.39624	63.38234	0.97370	147.34	14.82
70/ 3/20	2440666.0	-55.02470	28.16147	13.43749	-0.46277	-0.74973	-0.42143	63.25624	0.97665	152.90	12.26
70/ 3/21	2440666.5	-57.84133	22.93076	10.51106	-0.36806	-0.79343	-0.44191	63.10247	0.97994	158.37	9.59
70/ 3/21	2440667.0	-59.99912	17.43388	7.46264	-0.26837	-0.82823	-0.45741	62.92476	0.98347	163.80	6.81
70/ 3/22	2440667.5	-61.46757	11.73289	4.32686	-0.16467	-0.85362	-0.46767	62.72675	0.98717	169.19	3.96
70/ 3/22	2440668.0	-62.22302	5.89317	1.13993	-0.05801	-0.86913	-0.47248	62.51186	0.99095	174.59	1.04
70/ 3/23	2440668.5	-62.24917	-0.01706	-2.06067	0.05049	-0.87438	-0.47168	62.28327	0.99478	180.02	-1.90
70/ 3/23	2440669.0	-61.53759	-5.92733	-5.23647	0.15963	-0.86910	-0.46515	62.04377	0.99859	185.50	-4.84
70/ 3/24	2440669.5	-60.08822	-11.76553	-8.34846	0.26814	-0.85309	-0.45283	61.79579	1.00235	191.08	-7.76
70/ 3/24	2440670.0	-57.90973	-17.45875	-11.35743	0.37472	-0.82628	-0.43474	61.54133	1.00606	196.78	-10.63
70/ 3/25	2440670.5	-55.01980	-22.93404	-14.22451	0.47799	-0.78875	-0.41095	61.28202	1.00970	202.63	-13.42
70/ 3/25	2440671.0	-51.44540	-28.11933	-16.91160	0.57661	-0.74070	-0.38162	61.01908	1.01328	208.66	-16.09
70/ 3/26	2440671.5	-47.22276	-32.94440	-19.38191	0.66919	-0.68245	-0.34698	60.75344	1.01683	214.90	-18.60
70/ 3/26	2440672.0	-42.39739	-37.34184	-21.60052	0.75437	-0.61451	-0.30735	60.48581	1.02038	221.37	-20.92
70/ 3/27	2440672.5	-37.02383	-41.24807	-23.53488	0.83085	-0.53752	-0.26312	60.21675	1.02395	228.09	-23.01
70/ 3/27	2440673.0	-31.16535	-44.60436	-25.15535	0.89736	-0.45227	-0.21475	59.94681	1.02758	235.06	-24.81
70/ 3/28	2440673.5	-24.89343	-47.35787	-26.43578	0.95274	-0.35969	-0.16280	59.67664	1.03131	242.27	-26.29
70/ 3/28	2440674.0	-18.28719	-49.46260	-27.35397	0.99592	-0.26088	-0.10789	59.40715	1.03516	249.71	-27.42
70/ 3/29	2440674.5	-11.43251	-50.88039	-27.89220	1.02596	-0.15706	-0.05073	59.13959	1.03915	257.34	-28.14
70/ 3/29	2440675.0	-4.42117	-51.58187	-28.03770	1.04206	-0.04959	0.00794	58.87571	1.04327	265.10	-28.44
70/ 3/30	2440675.5	2.65027	-51.54727	-27.78306	1.04362	0.06004	0.06729	58.61778	1.04751	272.94	-28.29
70/ 3/30	2440676.0	9.68181	-50.76725	-27.12664	1.03023	0.17025	0.12644	58.36871	1.05183	280.80	-27.69
70/ 3/31	2440676.5	16.57141	-49.24353	-26.07286	1.00170	0.27936	0.18448	58.13201	1.05616	288.60	-26.65
70/ 3/31	2440677.0	23.21663	-46.98946	-24.63240	0.95810	0.38563	0.24046	57.91180	1.06042	296.29	-25.17
70/ 4/ 1	2440677.5	29.51648	-44.03032	-22.82238	0.89979	0.48727	0.29344	57.71267	1.06450	303.84	-23.29
70/ 4/ 1	2440678.0	35.37333	-40.40343	-20.66632	0.82742	0.58251	0.34249	57.53961	1.06829	311.20	-21.05
70/ 4/ 2	2440678.5	40.69500	-36.15798	-18.19396	0.74194	0.66964	0.38670	57.39776	1.07165	318.38	-18.48
70/ 4/ 2	2440679.0	45.39684	-31.35451	-15.44091	0.64462	0.74703	0.42524	57.29223	1.07445	325.37	-15.64
70/ 4/ 3	2440679.5	49.40379	-26.06406	-12.44813	0.53703	0.81322	0.45738	57.22784	1.07653	332.19	-12.56
70/ 4/ 3	2440680.0	52.65233	-20.36688	-9.26119	0.42100	0.86695	0.48249	57.20880	1.07779	338.85	-9.32
70/ 4/ 4	2440680.5	55.09213	-14.35086	-5.92931	0.29857	0.90723	0.50011	57.23851	1.07811	345.40	-5.95
70/ 4/ 4	2440681.0	56.68737	-8.10960	-2.50431	0.17198	0.93337	0.50995	57.31924	1.07741	351.86	-2.50
70/ 4/ 5	2440681.5	57.41760	-1.74025	0.96059	0.04353	0.94502	0.51189	57.45200	1.07564	358.26	0.96
70/ 4/ 5	2440682.0	57.27810	4.65878	4.41204	-0.08446	0.94216	0.50601	57.63637	1.07278	4.65	4.39
70/ 4/ 6	2440682.5	56.27964	10.99012	7.79778	-0.20974	0.92512	0.49255	57.87042	1.06885	11.05	7.74
70/ 4/ 6	2440683.0	54.44780	17.15968	11.06782	-0.33022	0.89452	0.47192	58.15079	1.06391	17.49	10.97
70/ 4/ 7	2440683.5	51.82175	23.07854	14.17546	-0.44397	0.85126	0.44469	58.47270	1.05807	24.01	14.03
70/ 4/ 7	2440684.0	48.45270	28.66469	17.07811	-0.54937	0.79647	0.41151	58.83018	1.05143	30.61	16.88
70/ 4/ 8	2440684.5	44.40206	33.84425	19.73797	-0.64504	0.73142	0.37312	59.21624	1.04416	37.32	19.47

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 4/ 8	2440685.0	39.73955	38.55241	22.12239	-0.72989	0.65750	0.33031	59.62315	1.03642	44.13	21.78
70/ 4/ 9	2440685.5	34.54123	42.73392	24.20414	-0.80315	0.57615	0.28388	60.04269	1.02839	51.05	23.77
70/ 4/ 9	2440686.0	28.88763	46.34326	25.96139	-0.86426	0.48878	0.23462	60.46641	1.02025	58.06	25.43
70/ 4/10	2440686.5	22.86212	49.34455	27.37763	-0.91294	0.39682	0.18330	60.88592	1.01219	65.14	26.72
70/ 4/10	2440687.0	16.54936	51.71121	28.44142	-0.94908	0.30160	0.13066	61.29310	1.00439	72.25	27.65
70/ 4/11	2440687.5	10.03412	53.42549	29.14610	-0.97276	0.20438	0.07737	61.68032	0.99700	79.36	28.20
70/ 4/11	2440688.0	3.40021	54.47790	29.48945	-0.98417	0.10635	0.02407	62.04056	0.99019	86.43	28.38
70/ 4/12	2440688.5	-3.27028	54.86665	29.47335	-0.98362	0.00858	-0.02868	62.36764	0.98407	93.41	28.20
70/ 4/12	2440689.0	-9.89763	54.59698	29.10341	-0.97150	-0.08792	-0.08034	62.65622	0.97877	100.28	27.68
70/ 4/13	2440689.5	-16.40492	53.68070	28.38868	-0.94825	-0.18222	-0.13042	62.90196	0.97436	106.99	26.83
70/ 4/13	2440690.0	-22.71842	52.13561	27.34134	-0.91435	-0.27346	-0.17848	63.10148	0.97092	113.55	25.68
70/ 4/14	2440690.5	-28.76778	49.98510	25.97650	-0.87034	-0.36086	-0.22411	63.25246	0.96847	119.92	24.25
70/ 4/14	2440691.0	-34.48630	47.25781	24.31193	-0.81675	-0.44366	-0.26692	63.35357	0.96704	126.12	22.57
70/ 4/15	2440691.5	-39.81110	43.98729	22.36796	-0.75417	-0.52116	-0.30656	63.40450	0.96662	132.15	20.66
70/ 4/15	2440692.0	-44.68330	40.21181	20.16731	-0.68321	-0.59266	-0.34266	63.40589	0.96718	138.02	18.55
70/ 4/16	2440692.5	-49.04825	35.97413	17.73499	-0.60450	-0.65753	-0.37492	63.35928	0.96867	143.74	16.25
70/ 4/16	2440693.0	-52.85581	31.32140	15.09818	-0.51873	-0.71512	-0.40299	63.26707	0.97102	149.35	13.81
70/ 4/17	2440693.5	-56.06068	26.30496	12.28619	-0.42665	-0.76483	-0.42660	63.13241	0.97416	154.86	11.22
70/ 4/17	2440694.0	-58.62274	20.98023	9.33033	-0.32906	-0.80606	-0.44543	62.95912	0.97797	160.31	8.52
70/ 4/18	2440694.5	-60.50756	15.40652	6.26379	-0.22682	-0.83826	-0.45923	62.75159	0.98236	165.71	5.73
70/ 4/18	2440695.0	-61.68692	9.64680	3.12153	-0.12090	-0.86091	-0.46775	62.51465	0.98721	171.11	2.86
70/ 4/19	2440695.5	-62.13933	3.76739	-0.05994	-0.01234	-0.87353	-0.47078	62.25346	0.99239	176.53	-0.06
70/ 4/19	2440696.0	-61.85068	-2.16244	-3.24278	0.09773	-0.87573	-0.46813	61.97337	0.99780	182.00	-3.00
70/ 4/20	2440696.5	-60.81485	-8.07095	-6.38812	0.20808	-0.86720	-0.45969	61.67977	1.00332	187.56	-5.94
70/ 4/20	2440697.0	-59.03430	-13.88464	-9.45643	0.31741	-0.84771	-0.44538	61.37797	1.00882	193.24	-8.86
70/ 4/21	2440697.5	-56.52063	-19.52894	-12.40795	0.42433	-0.81718	-0.42521	61.07305	1.01422	199.06	-11.72
70/ 4/21	2440698.0	-53.29501	-24.92918	-15.20320	0.52740	-0.77566	-0.39926	60.76972	1.01941	205.07	-14.49
70/ 4/22	2440698.5	-49.38856	-30.01160	-17.80356	0.62513	-0.72338	-0.36769	60.47225	1.02434	211.29	-17.12
70/ 4/22	2440699.0	-44.84246	-34.70451	-20.17188	0.71604	-0.66072	-0.33079	60.18433	1.02892	217.74	-19.58
70/ 4/23	2440699.5	-39.70791	-38.93950	-22.27312	0.79865	-0.58827	-0.28890	59.90905	1.03314	224.44	-21.83
70/ 4/23	2440700.0	-34.04589	-42.65269	-24.07507	0.87157	-0.50678	-0.24250	59.64884	1.03695	231.40	-23.80
70/ 4/24	2440700.5	-27.92664	-45.78608	-25.54899	0.93346	-0.41723	-0.19213	59.40549	1.04036	238.62	-25.47
70/ 4/24	2440701.0	-21.42885	-48.28870	-26.67024	0.98316	-0.32073	-0.13847	59.18020	1.04338	246.07	-26.79
70/ 4/25	2440701.5	-14.63875	-50.11782	-27.41889	1.01963	-0.21858	-0.08224	58.97359	1.04603	253.72	-27.71
70/ 4/25	2440702.0	-7.64879	-51.23997	-27.78022	1.04205	-0.11221	-0.02424	58.78588	1.04836	261.51	-28.20
70/ 4/26	2440702.5	-0.55631	-51.63182	-27.74513	1.04982	-0.00319	0.03468	58.61694	1.05040	269.38	-28.25
70/ 4/26	2440703.0	6.53803	-51.28083	-27.31046	1.04257	0.10686	0.09360	58.46649	1.05220	277.27	-27.85
70/ 4/27	2440703.5	13.53195	-50.18577	-26.47921	1.02017	0.21624	0.15163	58.33416	1.05381	285.09	-27.00
70/ 4/27	2440704.0	20.32331	-48.35700	-25.26059	0.98279	0.32324	0.20784	58.21970	1.05525	292.80	-25.71
70/ 4/28	2440704.5	26.81182	-45.81646	-23.66999	0.93084	0.42614	0.26132	58.12306	1.05657	300.34	-24.03
70/ 4/28	2440705.0	32.90091	-42.59754	-21.72883	0.86498	0.52329	0.31122	58.04449	1.05777	307.68	-21.98
70/ 4/29	2440705.5	38.49947	-38.74463	-19.46425	0.78616	0.61310	0.35670	57.98459	1.05885	314.82	-19.61
70/ 4/29	2440706.0	43.52349	-34.31253	-16.90874	0.69554	0.69409	0.39701	57.94437	1.05979	321.75	-16.97
70/ 4/30	2440706.5	47.89773	-29.36555	-14.09957	0.59453	0.76493	0.43149	57.92518	1.06055	328.49	-14.09
70/ 4/30	2440707.0	51.55710	-23.97648	-11.07824	0.48473	0.82446	0.45958	57.92869	1.06108	335.06	-11.03

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/ 5/ 1	2440707.5	54.44795	-18.22531	-7.88968	0.36790	0.87171	0.48081	57.95677	1.06133	341.49	-7.82
70/ 5/ 1	2440708.0	56.52913	-12.19777	-4.58147	0.24597	0.90596	0.49486	58.01136	1.06120	347.82	-4.53
70/ 5/ 2	2440708.5	57.77279	-5.98377	-1.20296	0.12093	0.92671	0.50155	58.09430	1.06065	354.09	-1.19
70/ 5/ 2	2440709.0	58.16485	0.32437	2.19570	-0.00516	0.93374	0.50082	58.20719	1.05958	0.32	2.16
70/ 5/ 3	2440709.5	57.70518	6.63366	5.56453	-0.13024	0.92708	0.49277	58.35115	1.05795	6.56	5.47
70/ 5/ 3	2440710.0	56.40739	12.85227	8.85464	-0.25232	0.90704	0.47763	58.52674	1.05570	12.84	8.70
70/ 5/ 4	2440710.5	54.29837	18.89128	12.01921	-0.36949	0.87416	0.45576	58.73377	1.05280	19.18	11.81
70/ 5/ 4	2440711.0	51.41737	24.66628	15.01428	-0.48000	0.82923	0.42766	58.97118	1.04924	25.63	14.75
70/ 5/ 5	2440711.5	47.81488	30.09885	17.79953	-0.58230	0.77322	0.39391	59.23704	1.04504	32.19	17.49
70/ 5/ 5	2440712.0	43.55124	35.11779	20.33889	-0.67503	0.70728	0.35517	59.52848	1.04022	38.88	19.98
70/ 5/ 6	2440712.5	38.69508	39.66005	22.60097	-0.75710	0.63268	0.31216	59.84173	1.03486	45.71	22.19
70/ 5/ 6	2440713.0	33.32168	43.67148	24.55939	-0.82765	0.55076	0.26563	60.17222	1.02903	52.66	24.09
70/ 5/ 7	2440713.5	27.51128	47.10713	26.19294	-0.88606	0.46289	0.21635	60.51465	1.02283	59.71	25.65
70/ 5/ 7	2440714.0	21.34749	49.93148	27.48557	-0.93196	0.37047	0.16508	60.86316	1.01639	66.85	26.85
70/ 5/ 8	2440714.5	14.91578	52.11826	28.42630	-0.96516	0.27485	0.11256	61.21151	1.00983	74.03	27.67
70/ 5/ 8	2440715.0	8.30211	53.65024	29.00901	-0.98570	0.17732	0.05948	61.55319	1.00329	81.20	28.12
70/ 5/ 9	2440715.5	1.59178	54.51871	29.23218	-0.99375	0.07912	0.00649	61.88169	0.99691	88.33	28.19
70/ 5/ 9	2440716.0	-5.13156	54.72304	29.09853	-0.98961	-0.01861	-0.04579	62.19058	0.99084	95.36	27.90
70/ 5/10	2440716.5	-11.78674	54.27005	28.61473	-0.97370	-0.11481	-0.09682	62.47374	0.98521	102.25	27.26
70/ 5/10	2440717.0	-18.29565	53.17343	27.79103	-0.94650	-0.20852	-0.14608	62.72548	0.98014	108.99	26.30
70/ 5/11	2440717.5	-24.58371	51.45317	26.64094	-0.90858	-0.29883	-0.19313	62.94066	0.97576	115.54	25.04
70/ 5/11	2440718.0	-30.58031	49.13502	25.18093	-0.86053	-0.38494	-0.23753	63.11485	0.97217	121.90	23.51
70/ 5/12	2440718.5	-36.21896	46.25003	23.43013	-0.80299	-0.46610	-0.27893	63.24436	0.96945	128.06	21.74
70/ 5/12	2440719.0	-41.43757	42.83410	21.41018	-0.73661	-0.54161	-0.31696	63.32636	0.96768	134.05	19.76
70/ 5/13	2440719.5	-46.17857	38.92768	19.14494	-0.66207	-0.61083	-0.35131	63.35892	0.96689	139.87	17.59
70/ 5/13	2440720.0	-50.38909	34.57544	16.66040	-0.58008	-0.67316	-0.38167	63.34106	0.96711	145.54	15.25
70/ 5/14	2440720.5	-54.02112	29.82609	13.98452	-0.49137	-0.72800	-0.40777	63.27277	0.96835	151.10	12.77
70/ 5/14	2440721.0	-57.03174	24.73214	11.14710	-0.39671	-0.77482	-0.42933	63.15501	0.97059	156.56	10.17
70/ 5/15	2440721.5	-59.38336	19.34978	8.17974	-0.29692	-0.81308	-0.44610	62.98973	0.97379	161.95	7.46
70/ 5/15	2440722.0	-61.04409	13.73871	5.11568	-0.19285	-0.84228	-0.45784	62.77980	0.97788	167.32	4.67
70/ 5/16	2440722.5	-61.98810	7.96196	1.98970	-0.08544	-0.86193	-0.46434	62.52901	0.98277	172.68	1.82
70/ 5/16	2440723.0	-62.19618	2.08564	-1.16198	0.02430	-0.87161	-0.46540	62.24198	0.98838	178.08	-1.07
70/ 5/17	2440723.5	-61.65620	-3.82128	-4.30191	0.13526	-0.87091	-0.46085	61.92411	0.99457	183.55	-3.98
70/ 5/17	2440724.0	-60.36379	-9.68742	-7.39166	0.24627	-0.85952	-0.45057	61.58141	1.00121	189.12	-6.89
70/ 5/18	2440724.5	-58.32299	-15.43948	-10.39208	0.35604	-0.83719	-0.43447	61.22045	1.00817	194.83	-9.77
70/ 5/18	2440725.0	-55.54684	-21.00289	-13.26371	0.46318	-0.80380	-0.41254	60.84817	1.01529	200.71	-12.59
70/ 5/19	2440725.5	-52.05806	-26.30268	-15.96723	0.56623	-0.75936	-0.38484	60.47168	1.02242	206.81	-15.31
70/ 5/19	2440726.0	-47.88949	-31.26445	-18.46403	0.66365	-0.70403	-0.35153	60.09816	1.02940	213.14	-17.89
70/ 5/20	2440726.5	-43.08453	-35.81554	-20.71686	0.75389	-0.63817	-0.31285	59.73456	1.03609	219.74	-20.29
70/ 5/20	2440727.0	-37.69726	-39.88645	-22.69057	0.83535	-0.56234	-0.26917	59.38749	1.04234	226.62	-22.46
70/ 5/21	2440727.5	-31.79233	-43.41220	-24.35283	0.90650	-0.47734	-0.22098	59.06294	1.04805	233.78	-24.35
70/ 5/21	2440728.0	-25.44453	-46.33393	-25.67503	0.96589	-0.38417	-0.16886	58.76619	1.05311	241.23	-25.91
70/ 5/22	2440728.5	-18.73805	-48.60045	-26.63298	1.01221	-0.28408	-0.11354	58.50157	1.05744	248.92	-27.08
70/ 5/22	2440729.0	-11.76525	-50.16967	-27.20770	1.04436	-0.17852	-0.05584	58.27243	1.06098	256.80	-27.83
70/ 5/23	2440729.5	-4.62525	-51.00994	-27.38610	1.06147	-0.06911	0.00333	58.08103	1.06372	264.82	-28.13

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 5/23	2440730.0	2.57793	-51.10113	-27.16141	1.06294	0.04238	0.06302	57.92852	1.06565	272.89	-27.96
70/ 5/24	2440730.5	9.73736	-50.43542	-26.53358	1.04853	0.15408	0.12221	57.81504	1.06682	280.93	-27.32
70/ 5/24	2440731.0	16.74547	-49.01774	-25.50941	1.01830	0.26411	0.17989	57.73975	1.06726	288.86	-26.22
70/ 5/25	2440731.5	23.49622	-46.86582	-24.10252	0.97263	0.37059	0.23506	57.70103	1.06705	296.63	-24.69
70/ 5/25	2440732.0	29.88738	-44.00995	-22.33310	0.91225	0.47169	0.28679	57.69661	1.06628	304.18	-22.77
70/ 5/26	2440732.5	35.82257	-40.49232	-20.22745	0.83818	0.56573	0.33421	57.72377	1.06503	311.50	-20.51
70/ 5/26	2440733.0	41.21318	-36.36607	-17.81749	0.75168	0.65117	0.37653	57.77958	1.06340	318.58	-17.96
70/ 5/27	2440733.5	45.98000	-31.69416	-15.13999	0.65425	0.72665	0.41311	57.86104	1.06147	325.42	-15.17
70/ 5/27	2440734.0	50.05460	-26.54798	-12.23583	0.54756	0.79105	0.44338	57.96528	1.05932	332.06	-12.19
70/ 5/28	2440734.5	53.38033	-21.00583	-9.14914	0.43342	0.84345	0.46695	58.08968	1.05702	338.52	-9.06
70/ 5/28	2440735.0	55.91313	-15.15138	-5.92642	0.31373	0.88318	0.48352	58.23199	1.05462	344.84	-5.84
70/ 5/29	2440735.5	57.62195	-9.07203	-2.61565	0.19043	0.90980	0.49293	58.39035	1.05213	351.05	-2.57
70/ 5/29	2440736.0	58.48896	-2.85734	0.73453	0.06547	0.92313	0.49516	58.56332	1.04959	357.20	0.72
70/ 5/30	2440736.5	58.50945	3.40258	4.07572	-0.05922	0.92318	0.49030	58.74985	1.04698	3.33	3.98
70/ 5/30	2440737.0	57.69158	9.61854	7.36052	-0.18179	0.91021	0.47855	58.94923	1.04429	9.47	7.17
70/ 5/31	2440737.5	56.05581	15.70372	10.54325	-0.30046	0.88465	0.46022	59.16097	1.04148	15.65	10.27
70/ 5/31	2440738.0	53.63420	21.57495	13.58070	-0.41357	0.84715	0.43572	59.38469	1.03854	21.91	13.22
70/ 6/ 1	2440738.5	50.46955	27.15396	16.43266	-0.51963	0.79851	0.40554	59.62001	1.03542	28.28	16.00
70/ 6/ 1	2440739.0	46.61436	32.36839	19.06250	-0.61728	0.73966	0.37023	59.86643	1.03209	34.78	18.57
70/ 6/ 2	2440739.5	42.12963	37.15272	21.43758	-0.70535	0.67169	0.33042	60.12321	1.02852	41.41	20.89
70/ 6/ 2	2440740.0	37.08365	41.44900	23.52960	-0.78286	0.59574	0.28676	60.38922	1.02470	48.18	22.93
70/ 6/ 3	2440740.5	31.55064	45.20739	25.31485	-0.84905	0.51306	0.23995	60.66294	1.02063	55.09	24.66
70/ 6/ 3	2440741.0	25.60946	48.38655	26.77436	-0.90332	0.42492	0.19069	60.94234	1.01632	62.11	26.06
70/ 6/ 4	2440741.5	19.34219	50.95383	27.89395	-0.94529	0.33260	0.13969	61.22488	1.01178	69.21	27.10
70/ 6/ 4	2440742.0	12.83289	52.88530	28.66416	-0.97477	0.23738	0.08763	61.50750	1.00707	76.36	27.78
70/ 6/ 5	2440742.5	6.16638	54.16559	29.08018	-0.99172	0.14051	0.03520	61.78667	1.00225	83.51	28.08
70/ 6/ 5	2440743.0	-0.57291	54.78765	29.14163	-0.99629	0.04320	-0.01696	62.05844	0.99737	90.60	28.01
70/ 6/ 6	2440743.5	-7.30193	54.75237	28.85234	-0.98875	-0.05341	-0.06827	62.31852	0.99254	97.60	27.58
70/ 6/ 6	2440744.0	-13.93986	54.06810	28.22004	-0.96947	-0.14827	-0.11816	62.56237	0.98783	104.46	26.81
70/ 6/ 7	2440744.5	-20.40886	52.75018	27.25609	-0.93895	-0.24037	-0.16612	62.78533	0.98336	111.15	25.73
70/ 6/ 7	2440745.0	-26.63467	50.82038	25.97515	-0.89776	-0.32881	-0.21169	62.98274	0.97923	117.66	24.36
70/ 6/ 8	2440745.5	-32.54707	48.30638	24.39490	-0.84651	-0.41275	-0.25444	63.15005	0.97554	123.97	22.72
70/ 6/ 8	2440746.0	-38.08026	45.24123	22.53570	-0.78590	-0.49143	-0.29400	63.28296	0.97241	130.09	20.86
70/ 6/ 9	2440746.5	-43.17316	41.66291	20.42038	-0.71662	-0.56417	-0.33002	63.37753	0.96992	136.02	18.80
70/ 6/ 9	2440747.0	-47.76960	37.61385	18.07395	-0.63942	-0.63034	-0.36220	63.43031	0.96818	141.78	16.56
70/ 6/10	2440747.5	-51.81852	33.14059	15.52341	-0.55507	-0.68935	-0.39025	63.43842	0.96726	147.40	14.16
70/ 6/10	2440748.0	-55.27411	28.29341	12.79755	-0.46435	-0.74067	-0.41393	63.39970	0.96723	152.89	11.65
70/ 6/11	2440748.5	-58.09601	23.12609	9.92682	-0.36808	-0.78380	-0.43299	63.31275	0.96815	158.29	9.02
70/ 6/11	2440749.0	-60.24942	17.69562	6.94315	-0.26710	-0.81830	-0.44724	63.17702	0.97004	163.63	6.31
70/ 6/12	2440749.5	-61.70541	12.06202	3.87985	-0.16228	-0.84372	-0.45648	62.99288	0.97291	168.94	3.53
70/ 6/12	2440750.0	-62.44113	6.28814	0.77150	-0.05456	-0.85966	-0.46052	62.76170	0.97676	174.25	0.70
70/ 6/13	2440750.5	-62.44019	0.43943	-2.34622	0.05508	-0.86576	-0.45922	62.48580	0.98155	179.60	-2.15
70/ 6/13	2440751.0	-61.69308	-5.41630	-5.43664	0.16559	-0.86168	-0.45244	62.16856	0.98722	185.02	-5.02
70/ 6/14	2440751.5	-60.19766	-11.20916	-8.46229	0.27585	-0.84715	-0.44008	61.81435	0.99369	190.55	-7.87
70/ 6/14	2440752.0	-57.95972	-16.86759	-11.38517	0.38464	-0.82195	-0.42208	61.42855	1.00085	196.23	-10.68

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/ 6/15	2440752.5	-54.99357	-22.31885	-14.16699	0.49066	-0.78596	-0.39843	61.01744	1.00858	202.09	-13.43
70/ 6/15	2440753.0	-51.32269	-27.48972	-16.76960	0.59251	-0.73916	-0.36918	60.58814	1.01672	208.17	-16.07
70/ 6/16	2440753.5	-46.98029	-32.30730	-19.15544	0.68870	-0.68167	-0.33445	60.14849	1.02511	214.52	-18.57
70/ 6/16	2440754.0	-42.00986	-36.70004	-21.28814	0.77770	-0.61378	-0.29447	59.70684	1.03356	221.14	-20.89
70/ 6/17	2440754.5	-36.46553	-40.59903	-23.13316	0.85791	-0.53596	-0.24956	59.27190	1.04189	228.07	-22.97
70/ 6/17	2440755.0	-30.41221	-43.93935	-24.65857	0.92773	-0.44895	-0.20018	58.85248	1.04991	235.31	-24.77
70/ 6/18	2440755.5	-23.92549	-46.66175	-25.83595	0.98564	-0.35368	-0.14690	58.45720	1.05742	242.85	-26.23
70/ 6/18	2440756.0	-17.09108	-48.71429	-26.64119	1.03018	-0.25137	-0.09042	58.09424	1.06425	250.67	-27.30
70/ 6/19	2440756.5	-10.00385	-50.05413	-27.05545	1.06010	-0.14348	-0.03159	57.77102	1.07023	258.70	-27.93
70/ 6/19	2440757.0	-2.76648	-50.64914	-27.06595	1.07437	-0.03172	0.02864	57.49395	1.07522	266.87	-28.08
70/ 6/20	2440757.5	4.51250	-50.47936	-26.66667	1.07229	0.08202	0.08923	57.26814	1.07912	275.11	-27.75
70/ 6/20	2440758.0	11.72094	-49.53822	-25.85887	1.05351	0.19571	0.14909	57.09726	1.08186	283.31	-26.93
70/ 6/21	2440758.5	18.74566	-47.83320	-24.65138	1.01808	0.30724	0.20707	56.98338	1.08341	291.40	-25.63
70/ 6/21	2440759.0	25.47522	-45.38609	-23.06062	0.96647	0.41449	0.26208	56.92694	1.08377	299.31	-23.90
70/ 6/22	2440759.5	31.80276	-42.23273	-21.11029	0.89955	0.51546	0.31308	56.92683	1.08301	306.98	-21.77
70/ 6/22	2440760.0	37.62858	-38.42216	-18.83084	0.81855	0.60827	0.35912	56.98046	1.08120	314.40	-19.30
70/ 6/23	2440760.5	42.86253	-34.01537	-16.25871	0.72506	0.69127	0.39939	57.08404	1.07846	321.56	-16.55
70/ 6/23	2440761.0	47.42598	-29.08362	-13.43533	0.62088	0.76308	0.43322	57.23276	1.07492	328.48	-13.58
70/ 6/24	2440761.5	51.25329	-23.70656	-10.40604	0.50802	0.82261	0.46012	57.42113	1.07074	335.18	-10.44
70/ 6/24	2440762.0	54.29279	-17.97014	-7.21896	0.38860	0.86909	0.47977	57.64326	1.06607	341.69	-7.19
70/ 6/25	2440762.5	56.50725	-11.96453	-3.92384	0.26475	0.90204	0.49201	57.89314	1.06106	348.05	-3.89
70/ 6/25	2440763.0	57.87394	-5.78212	-0.57101	0.13861	0.92129	0.49683	58.16487	1.05585	354.29	-0.56
70/ 6/26	2440763.5	58.38430	0.48437	2.78964	0.01222	0.92691	0.49435	58.45292	1.05057	0.48	2.74
70/ 6/26	2440764.0	58.04328	6.74358	6.10955	-0.11248	0.91921	0.48484	58.75224	1.04531	6.63	5.97
70/ 6/27	2440764.5	56.86851	12.90700	9.34219	-0.23370	0.89872	0.46865	59.05839	1.04017	12.79	9.10
70/ 6/27	2440765.0	54.88924	18.89019	12.44373	-0.34978	0.86612	0.44621	59.36762	1.03519	18.99	12.10
70/ 6/28	2440765.5	52.14528	24.61388	15.37355	-0.45927	0.82224	0.41803	59.67679	1.03042	25.27	14.93
70/ 6/28	2440766.0	48.68581	30.00482	18.09466	-0.56087	0.76803	0.38468	59.98345	1.02587	31.65	17.56
70/ 6/29	2440766.5	44.56818	34.99645	20.57398	-0.65345	0.70451	0.34674	60.28568	1.02155	38.14	19.95
70/ 6/29	2440767.0	39.85674	39.52945	22.78262	-0.73608	0.63278	0.30485	60.58205	1.01743	44.76	22.09
70/ 6/30	2440767.5	34.62163	43.55211	24.69602	-0.80797	0.55400	0.25967	60.87148	1.01349	51.52	23.94
70/ 6/30	2440768.0	28.93767	47.02065	26.29405	-0.86853	0.46935	0.21183	61.15314	1.00971	58.39	25.47
70/ 7/ 1	2440768.5	22.88321	49.89931	27.56102	-0.91731	0.38002	0.16202	61.42632	1.00605	65.36	26.66
70/ 7/ 1	2440769.0	16.53910	52.16048	28.48572	-0.95403	0.28721	0.11087	61.69030	1.00248	72.41	27.50
70/ 7/ 2	2440769.5	9.98756	53.78461	29.06131	-0.97855	0.19210	0.05903	61.94429	0.99898	79.48	27.98
70/ 7/ 2	2440770.0	3.31131	54.76013	29.28522	-0.99087	0.09587	0.00713	62.18730	0.99553	86.54	28.09
70/ 7/ 3	2440770.5	-3.40746	55.08319	29.15904	-0.99114	-0.00038	-0.04425	62.41809	0.99212	93.54	27.85
70/ 7/ 3	2440771.0	-10.08786	54.75744	28.68825	-0.97960	-0.09555	-0.09454	62.63512	0.98878	100.44	27.26
70/ 7/ 4	2440771.5	-16.65115	53.79363	27.88210	-0.95662	-0.18863	-0.14320	62.83650	0.98550	107.20	26.34
70/ 7/ 4	2440772.0	-23.02138	52.20925	26.75329	-0.92268	-0.27864	-0.18974	63.02006	0.98233	113.79	25.12
70/ 7/ 5	2440772.5	-29.12609	50.02813	25.31775	-0.87831	-0.36470	-0.23370	63.18331	0.97931	120.21	23.62
70/ 7/ 5	2440773.0	-34.89674	47.27990	23.59438	-0.82414	-0.44597	-0.27467	63.32350	0.97650	126.43	21.88
70/ 7/ 6	2440773.5	-40.26926	43.99960	21.60475	-0.76086	-0.52169	-0.31226	63.43771	0.97395	132.47	19.91
70/ 7/ 6	2440774.0	-45.18436	40.22718	19.37285	-0.68920	-0.59118	-0.34615	63.52290	0.97176	138.32	17.76
70/ 7/ 7	2440774.5	-49.58786	36.00702	16.92484	-0.60992	-0.65381	-0.37603	63.57604	0.96999	144.02	15.44

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 7/ 7	2440775.0	-53.43095	31.38755	14.28878	-0.52385	-0.70901	-0.40164	63.59414	0.96872	149.57	12.98
70/ 7/ 8	2440775.5	-56.67037	26.42078	11.49443	-0.43180	-0.75628	-0.42274	63.57444	0.96805	155.00	10.42
70/ 7/ 8	2440776.0	-59.26859	21.16197	8.57302	-0.33465	-0.79517	-0.43913	63.51449	0.96805	160.35	7.76
70/ 7/ 9	2440776.5	-61.19400	15.66929	5.55708	-0.23328	-0.82528	-0.45063	63.41225	0.96880	165.64	5.03
70/ 7/ 9	2440777.0	-62.42109	10.00349	2.48023	-0.12860	-0.84624	-0.45709	63.26621	0.97035	170.90	2.25
70/ 7/10	2440777.5	-62.93062	4.22763	-0.62293	-0.02155	-0.85773	-0.45838	63.07554	0.97277	176.16	-0.57
70/ 7/10	2440778.0	-62.70989	-1.59321	-3.71703	0.08688	-0.85948	-0.45440	62.84015	0.97608	181.46	-3.39
70/ 7/11	2440778.5	-61.75297	-7.39222	-6.76608	0.19566	-0.85125	-0.44507	62.56081	0.98030	186.83	-6.21
70/ 7/11	2440779.0	-60.06109	-13.10116	-9.73364	0.30372	-0.83285	-0.43033	62.23921	0.98543	192.31	-9.00
70/ 7/12	2440779.5	-57.64297	-18.65071	-12.58305	0.40992	-0.80417	-0.41018	61.87806	0.99144	197.93	-11.73
70/ 7/12	2440780.0	-54.51530	-23.97091	-15.27766	0.51304	-0.76512	-0.38463	61.48113	0.99828	203.74	-14.39
70/ 7/13	2440780.5	-50.70320	-28.99167	-17.78114	0.61181	-0.71576	-0.35375	61.05326	1.00586	209.76	-16.93
70/ 7/13	2440781.0	-46.24074	-33.64345	-20.05786	0.70486	-0.65620	-0.31770	60.60037	1.01408	216.04	-19.33
70/ 7/14	2440781.5	-41.17139	-37.85805	-22.07337	0.79077	-0.58672	-0.27666	60.12944	1.02279	222.60	-21.54
70/ 7/14	2440782.0	-35.54848	-41.56966	-23.79492	0.86807	-0.50775	-0.23095	59.64838	1.03185	229.46	-23.51
70/ 7/15	2440782.5	-29.43542	-44.71600	-25.19215	0.93526	-0.41993	-0.18097	59.16595	1.04105	236.64	-25.20
70/ 7/15	2440783.0	-22.90584	-47.23979	-26.23781	0.99082	-0.32408	-0.12723	58.69155	1.05021	244.13	-26.55
70/ 7/16	2440783.5	-16.04337	-49.09022	-26.90860	1.03333	-0.22129	-0.07039	58.23497	1.05910	251.90	-27.52
70/ 7/16	2440784.0	-8.94104	-50.22476	-27.18608	1.06144	-0.11292	-0.01123	57.80615	1.06749	259.91	-28.05
70/ 7/17	2440784.5	-1.70027	-50.61084	-27.05752	1.07404	-0.00057	0.04935	57.41478	1.07517	268.08	-28.12
70/ 7/17	2440785.0	5.57067	-50.22760	-26.51676	1.07023	0.11393	0.11031	57.06998	1.08192	276.33	-27.69
70/ 7/18	2440785.5	12.75871	-49.06736	-25.56491	1.04950	0.22852	0.17054	56.77988	1.08755	284.58	-26.76
70/ 7/18	2440786.0	19.74852	-47.13679	-24.21088	1.01171	0.34103	0.22887	56.55129	1.09190	292.73	-25.35
70/ 7/19	2440786.5	26.42540	-44.45767	-22.47159	0.95719	0.44919	0.28411	56.38935	1.09485	300.73	-23.48
70/ 7/19	2440787.0	32.67845	-41.06691	-20.37191	0.88673	0.55080	0.33511	56.29731	1.09634	308.51	-21.21
70/ 7/20	2440787.5	38.40368	-37.01611	-17.94421	0.80157	0.64377	0.38081	56.27637	1.09635	316.05	-18.59
70/ 7/20	2440788.0	43.50705	-32.37029	-15.22758	0.70340	0.72621	0.42029	56.32565	1.09490	323.35	-15.69
70/ 7/21	2440788.5	47.90700	-27.20621	-12.26682	0.59422	0.79658	0.45279	56.44230	1.09208	330.41	-12.55
70/ 7/21	2440789.0	51.53647	-21.61004	-9.11109	0.47628	0.85363	0.47779	56.62167	1.08803	337.25	-9.26
70/ 7/22	2440789.5	54.34428	-15.67491	-5.81251	0.35199	0.89656	0.49494	56.85762	1.08290	343.91	-5.87
70/ 7/22	2440790.0	56.29575	-9.49826	-2.42476	0.22381	0.92491	0.50411	57.14287	1.07689	350.42	-2.43
70/ 7/23	2440790.5	57.37268	-3.17921	0.99833	0.09414	0.93863	0.50540	57.46937	1.07019	356.83	1.00
70/ 7/23	2440791.0	57.57278	3.18376	4.40405	-0.03474	0.93796	0.49904	57.82869	1.06302	3.17	4.37
70/ 7/24	2440791.5	56.90862	9.49495	7.74182	-0.16074	0.92345	0.48541	58.21238	1.05556	9.47	7.64
70/ 7/24	2440792.0	55.40624	15.66316	10.96410	-0.28197	0.89588	0.46503	58.61227	1.04802	15.79	10.78
70/ 7/25	2440792.5	53.10363	21.60302	14.02704	-0.39679	0.85619	0.43846	59.02071	1.04055	22.14	13.75
70/ 7/25	2440793.0	50.04909	27.23605	16.89093	-0.50379	0.80546	0.40636	59.43078	1.03330	28.55	16.51
70/ 7/26	2440793.5	46.29964	32.49136	19.52053	-0.60181	0.74485	0.36939	59.83641	1.02637	35.06	19.04
70/ 7/26	2440794.0	41.91944	37.30608	21.88521	-0.68990	0.67556	0.32825	60.23243	1.01985	41.67	21.31
70/ 7/27	2440794.5	36.97843	41.62560	23.95904	-0.76731	0.59882	0.28362	60.61461	1.01380	48.38	23.28
70/ 7/27	2440795.0	31.55096	45.40364	25.72073	-0.83347	0.51587	0.23619	60.97958	1.00826	55.20	24.95
70/ 7/28	2440795.5	25.71465	48.60222	27.15360	-0.88798	0.42791	0.18663	61.32484	1.00322	62.12	26.28
70/ 7/28	2440796.0	19.54932	51.19151	28.24542	-0.93060	0.33615	0.13559	61.64860	0.99869	69.10	27.27
70/ 7/29	2440796.5	13.13606	53.14965	28.98830	-0.96118	0.24173	0.08369	61.94968	0.99464	76.12	27.90
70/ 7/29	2440797.0	6.55640	54.46256	29.37850	-0.97975	0.14580	0.03154	62.22743	0.99104	83.14	28.17

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
70/ 7/30	2440797.5	-0.10853	55.12361	29.41629	-0.98639	0.04943	-0.02028	62.48154	0.98783	90.11	28.09
70/ 7/30	2440798.0	-6.77864	55.13346	29.10577	-0.98132	-0.04633	-0.07122	62.71199	0.98499	97.01	27.65
70/ 7/31	2440798.5	-13.37555	54.49967	28.45466	-0.96483	-0.14047	-0.12077	62.91889	0.98246	103.79	26.89
70/ 7/31	2440799.0	-19.82325	53.23644	27.47412	-0.93733	-0.23204	-0.16842	63.10235	0.98020	110.42	25.81
70/ 8/ 1	2440799.5	-26.04861	51.36427	26.17857	-0.89926	-0.32014	-0.21372	63.26244	0.97818	116.89	24.44
70/ 8/ 1	2440800.0	-31.98194	48.90963	24.58543	-0.85119	-0.40391	-0.25623	63.39905	0.97638	123.18	22.82
70/ 8/ 2	2440800.5	-37.55747	45.90453	22.71492	-0.79371	-0.48256	-0.29556	63.51187	0.97478	129.29	20.96
70/ 8/ 2	2440801.0	-42.71380	42.38621	20.58987	-0.72752	-0.55534	-0.33134	63.60033	0.97338	135.22	18.89
70/ 8/ 3	2440801.5	-47.39430	38.39668	18.23542	-0.65333	-0.62159	-0.36324	63.66361	0.97219	140.99	16.64
70/ 8/ 3	2440802.0	-51.54747	33.98237	15.67884	-0.57194	-0.68068	-0.39098	63.70062	0.97124	146.61	14.25
70/ 8/ 4	2440802.5	-55.12728	29.19364	12.94924	-0.48416	-0.73207	-0.41429	63.71003	0.97055	152.10	11.73
70/ 8/ 4	2440803.0	-58.09344	24.08440	10.07739	-0.39088	-0.77525	-0.43295	63.69034	0.97018	157.48	9.10
70/ 8/ 5	2440803.5	-60.41165	18.71167	7.09542	-0.29298	-0.80981	-0.44678	63.63991	0.97017	162.79	6.40
70/ 8/ 5	2440804.0	-62.05378	13.13518	4.03663	-0.19140	-0.83536	-0.45562	63.55705	0.97059	168.05	3.64
70/ 8/ 6	2440804.5	-62.99811	7.41695	0.93523	-0.08708	-0.85161	-0.45934	63.44011	0.97151	173.29	0.84
70/ 8/ 6	2440805.0	-63.22946	1.62091	-2.17382	0.01897	-0.85830	-0.45787	63.28758	0.97298	178.53	-1.97
70/ 8/ 7	2440805.5	-62.73942	-4.18747	-5.25511	0.12577	-0.85523	-0.45113	63.09822	0.97507	183.82	-4.78
70/ 8/ 7	2440806.0	-61.52651	-9.94160	-8.27291	0.23226	-0.84226	-0.43912	62.87120	0.97784	189.18	-7.56
70/ 8/ 8	2440806.5	-59.59642	-15.57413	-11.19146	0.33737	-0.81932	-0.42183	62.60620	0.98134	194.65	-10.30
70/ 8/ 8	2440807.0	-56.96220	-21.01739	-13.97518	0.43999	-0.78638	-0.39931	62.30352	0.98561	200.25	-12.96
70/ 8/ 9	2440807.5	-53.64453	-26.20386	-16.58890	0.53899	-0.74350	-0.37165	61.96426	0.99067	206.03	-15.53
70/ 8/ 9	2440808.0	-49.67196	-31.06662	-18.99817	0.63317	-0.69082	-0.33897	61.59034	0.99651	212.02	-17.97
70/ 8/10	2440808.5	-45.08126	-35.53998	-21.16960	0.72132	-0.62856	-0.30145	61.18466	1.00312	218.25	-20.24
70/ 8/10	2440809.0	-39.91763	-39.56014	-23.07120	0.80214	-0.55706	-0.25934	60.75114	1.01045	224.74	-22.32
70/ 8/11	2440809.5	-34.23499	-43.06599	-24.67285	0.87435	-0.47678	-0.21294	60.29481	1.01841	231.52	-24.15
70/ 8/11	2440810.0	-28.09619	-46.00010	-25.94680	0.93662	-0.38834	-0.16264	59.82174	1.02690	238.58	-25.70
70/ 8/12	2440810.5	-21.57302	-48.30974	-26.86830	0.98763	-0.29253	-0.10895	59.33913	1.03579	245.94	-26.92
70/ 8/12	2440811.0	-14.74619	-49.94824	-27.41623	1.02609	-0.19034	-0.05244	58.85513	1.04491	253.55	-27.76
70/ 8/13	2440811.5	-7.70486	-50.87629	-27.57384	1.05078	-0.08296	0.00618	58.37875	1.05406	261.39	-28.19
70/ 8/13	2440812.0	-0.54604	-51.06356	-27.32954	1.06061	0.02816	0.06610	57.91967	1.06304	269.39	-28.15
70/ 8/14	2440812.5	6.62653	-50.49015	-26.67767	1.05471	0.14136	0.12637	57.48795	1.07162	277.48	-27.65
70/ 8/14	2440813.0	13.70395	-49.14820	-25.61926	1.03244	0.25477	0.18597	57.09370	1.07955	285.58	-26.66
70/ 8/15	2440813.5	20.57418	-47.04318	-24.16262	0.99351	0.36634	0.24377	56.74672	1.08660	293.62	-25.20
70/ 8/15	2440814.0	27.12456	-44.19493	-22.32378	0.93804	0.47387	0.29863	56.45604	1.09255	301.54	-23.29
70/ 8/16	2440814.5	33.24470	-40.63826	-20.12669	0.86660	0.57516	0.34937	56.22954	1.09721	309.29	-20.97
70/ 8/16	2440815.0	38.82963	-36.42299	-17.60302	0.78022	0.66800	0.39489	56.07353	1.10041	316.83	-18.30
70/ 8/17	2440815.5	43.78306	-31.61322	-14.79173	0.68041	0.75039	0.43415	55.99239	1.10205	324.17	-15.32
70/ 8/17	2440816.0	48.02034	-26.28604	-11.73812	0.56910	0.82052	0.46631	55.98832	1.10208	331.30	-12.10
70/ 8/18	2440816.5	51.47116	-20.52949	-8.49268	0.44857	0.87697	0.49070	56.06126	1.10049	338.26	-8.71
70/ 8/18	2440817.0	54.08153	-14.44006	-5.10965	0.32136	0.91868	0.50689	56.20886	1.09735	345.05	-5.22
70/ 8/19	2440817.5	55.81507	-8.11982	-1.64539	0.19010	0.94506	0.51468	56.42660	1.09278	351.72	-1.67
70/ 8/19	2440818.0	56.65343	-1.67344	1.84322	0.05745	0.95594	0.51411	56.70811	1.08693	358.31	1.86
70/ 8/20	2440818.5	56.59597	4.79473	5.30031	-0.07402	0.95157	0.50543	57.04548	1.08001	4.84	5.33
70/ 8/20	2440819.0	55.65872	11.18332	8.67241	-0.20197	0.93257	0.48910	57.42970	1.07223	11.36	8.69
70/ 8/21	2440819.5	53.87282	17.39617	11.90957	-0.32429	0.89985	0.46569	57.85106	1.06384	17.90	11.88

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/ 8/21	2440820.0	51.28266	23.34410	14.96621	-0.43919	0.85454	0.43591	58.29962	1.05506	24.48	14.88
70/ 8/22	2440820.5	47.94374	28.94621	17.80173	-0.54518	0.79795	0.40053	58.76552	1.04612	31.12	17.63
70/ 8/22	2440821.0	43.92059	34.13073	20.38083	-0.64107	0.73147	0.36033	59.23937	1.03723	37.85	20.12
70/ 8/23	2440821.5	39.28476	38.83541	22.67366	-0.72597	0.65650	0.31613	59.71245	1.02857	44.67	22.32
70/ 8/23	2440822.0	34.11299	43.00767	24.65579	-0.79924	0.57448	0.26871	60.17694	1.02030	51.58	24.19
70/ 8/24	2440822.5	28.48553	46.60442	26.30803	-0.86047	0.48678	0.21884	60.62599	1.01255	58.57	25.72
70/ 8/24	2440823.0	22.48484	49.59181	27.61624	-0.90943	0.39475	0.16724	61.05385	1.00542	65.61	26.89
70/ 8/25	2440823.5	16.19433	51.94476	28.57104	-0.94605	0.29965	0.11459	61.45582	0.99897	72.68	27.70
70/ 8/25	2440824.0	9.69744	53.64656	29.16752	-0.97040	0.20267	0.06153	61.82830	0.99324	79.75	28.15
70/ 8/26	2440824.5	3.07683	54.68839	29.40494	-0.98263	0.10494	0.00866	62.16862	0.98825	86.78	28.23
70/ 8/26	2440825.0	-3.58633	55.06882	29.28648	-0.98301	0.00753	-0.04347	62.47507	0.98400	93.73	27.95
70/ 8/27	2440825.5	-10.21284	54.79339	28.81892	-0.97187	-0.08857	-0.09434	62.74669	0.98044	100.56	27.34
70/ 8/27	2440826.0	-16.72603	53.87421	28.01247	-0.94961	-0.18241	-0.14347	62.98324	0.97756	107.25	26.41
70/ 8/28	2440826.5	-23.05213	52.32959	26.88048	-0.91671	-0.27311	-0.19040	63.18502	0.97529	113.77	25.18
70/ 8/28	2440827.0	-29.12071	50.18367	25.43930	-0.87366	-0.35983	-0.23470	63.35278	0.97357	120.13	23.68
70/ 8/29	2440827.5	-34.86502	47.46612	23.70803	-0.82105	-0.44178	-0.27600	63.48758	0.97235	126.30	21.93
70/ 8/29	2440828.0	-40.22238	44.21178	21.70834	-0.75950	-0.51822	-0.31390	63.59067	0.97156	132.29	19.96
70/ 8/30	2440828.5	-45.13454	40.46037	19.46432	-0.68970	-0.58845	-0.34809	63.66339	0.97115	138.13	17.80
70/ 8/30	2440829.0	-49.54799	36.25615	17.00224	-0.61237	-0.65183	-0.37825	63.70705	0.97106	143.81	15.48
70/ 8/31	2440829.5	-53.41440	31.64757	14.35036	-0.52830	-0.70776	-0.40409	63.72284	0.97124	149.35	13.01
70/ 8/31	2440830.0	-56.69087	26.68695	11.53875	-0.43831	-0.75570	-0.42538	63.71178	0.97167	154.79	10.43
70/ 9/ 1	2440830.5	-59.34031	21.43006	8.59904	-0.34329	-0.79517	-0.44189	63.67467	0.97232	160.14	7.76
70/ 9/ 1	2440831.0	-61.33174	15.93572	5.56421	-0.24416	-0.82575	-0.45344	63.61203	0.97318	165.44	5.02
70/ 9/ 2	2440831.5	-62.64059	10.26540	2.46833	-0.14189	-0.84708	-0.45989	63.52412	0.97426	170.69	2.23
70/ 9/ 2	2440832.0	-63.24893	4.48275	-0.65368	-0.03748	-0.85888	-0.46114	63.41095	0.97557	175.95	-0.59
70/ 9/ 3	2440832.5	-63.14572	-1.34689	-3.76633	0.06805	-0.86093	-0.45712	63.27228	0.97713	181.22	-3.41
70/ 9/ 3	2440833.0	-62.32700	-7.15693	-6.83382	0.17363	-0.85308	-0.44780	63.10767	0.97899	186.55	-6.22
70/ 9/ 4	2440833.5	-60.79610	-12.88006	-9.82031	0.27817	-0.83526	-0.43321	62.91661	0.98118	191.96	-8.98
70/ 9/ 4	2440834.0	-58.56371	-18.44879	-12.69022	0.38058	-0.80749	-0.41339	62.69855	0.98376	197.49	-11.68
70/ 9/ 5	2440834.5	-55.64812	-23.79595	-15.40852	0.47973	-0.76985	-0.38846	62.45305	0.98677	203.15	-14.28
70/ 9/ 5	2440835.0	-52.07524	-28.85525	-17.94103	0.57448	-0.72253	-0.35856	62.17988	0.99027	208.99	-16.77
70/ 9/ 6	2440835.5	-47.87874	-33.56192	-20.25476	0.66369	-0.66578	-0.32389	61.87917	0.99431	215.03	-19.11
70/ 9/ 6	2440836.0	-43.10006	-37.85329	-22.31821	0.74620	-0.59996	-0.28470	61.55152	0.99891	221.29	-21.26
70/ 9/ 7	2440836.5	-37.78849	-41.66949	-24.10178	0.82086	-0.52555	-0.24130	61.19814	1.00411	227.80	-23.19
70/ 9/ 7	2440837.0	-32.00112	-44.95415	-25.57810	0.88651	-0.44311	-0.19404	60.82094	1.00990	234.55	-24.87
70/ 9/ 8	2440837.5	-25.80279	-47.65524	-26.72253	0.94203	-0.35335	-0.14337	60.42267	1.01628	241.57	-26.25
70/ 9/ 8	2440838.0	-19.26595	-49.72593	-27.51354	0.98629	-0.25711	-0.08977	60.00700	1.02320	248.82	-27.29
70/ 9/ 9	2440838.5	-12.47040	-51.12559	-27.93330	1.01825	-0.15537	-0.03384	59.57857	1.03059	256.29	-27.96
70/ 9/ 9	2440839.0	-5.50284	-51.82080	-27.96819	1.03693	-0.04930	0.02376	59.14301	1.03837	263.94	-28.22
70/ 9/10	2440839.5	1.54370	-51.78656	-27.60936	1.04144	0.05979	0.08229	58.70697	1.04640	271.71	-28.05
70/ 9/10	2440840.0	8.57084	-51.00743	-26.85334	1.03109	0.17040	0.14090	58.27795	1.05453	279.54	-27.44
70/ 9/11	2440840.5	15.47598	-49.47870	-25.70262	1.00535	0.28085	0.19868	57.86426	1.06258	287.37	-26.37
70/ 9/11	2440841.0	22.15390	-47.20752	-24.16614	0.96398	0.38932	0.25464	57.47476	1.07036	295.14	-24.86
70/ 9/12	2440841.5	28.49867	-44.21383	-22.25971	0.90702	0.49387	0.30775	57.11858	1.07763	302.80	-22.94
70/ 9/12	2440842.0	34.40597	-40.53106	-20.00627	0.83490	0.59247	0.35694	56.80483	1.08419	310.33	-20.62

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/ 9/13	2440842.5	39.77568	-36.20639	-17.43592	0.74844	0.68308	0.40116	56.54218	1.08981	317.69	-17.96
70/ 9/13	2440843.0	44.51469	-31.30059	-14.58564	0.64890	0.76375	0.43943	56.33849	1.09430	324.89	-15.00
70/ 9/14	2440843.5	48.53976	-25.88725	-11.49882	0.53793	0.83268	0.47088	56.20036	1.09747	331.93	-11.81
70/ 9/14	2440844.0	51.78026	-20.05133	-8.22429	0.41759	0.88830	0.49476	56.13279	1.09920	338.83	-8.43
70/ 9/15	2440844.5	54.18052	-13.88726	-4.81520	0.29023	0.92940	0.51054	56.13885	1.09940	345.62	-4.92
70/ 9/15	2440845.0	55.70165	-7.49640	-1.32762	0.15843	0.95517	0.51791	56.21950	1.09803	352.34	-1.35
70/ 9/16	2440845.5	56.32266	-0.98424	2.18109	0.02488	0.96520	0.51678	56.37347	1.09512	359.00	2.22
70/ 9/16	2440846.0	56.04080	5.54262	5.65384	-0.10774	0.95955	0.50733	56.59733	1.09075	5.65	5.73
70/ 9/17	2440846.5	54.87104	11.97941	9.03536	-0.23690	0.93871	0.48993	56.88563	1.08505	12.32	9.14
70/ 9/17	2440847.0	52.84493	18.22584	12.27363	-0.36025	0.90351	0.46514	57.23120	1.07818	19.03	12.38
70/ 9/18	2440847.5	50.00883	24.18845	15.32098	-0.47577	0.85511	0.43368	57.62549	1.07035	25.81	15.42
70/ 9/18	2440848.0	46.42173	29.78238	18.13494	-0.58176	0.79489	0.39636	58.05897	1.06179	32.68	18.20
70/ 9/19	2440848.5	42.15292	34.93264	20.67884	-0.67688	0.72436	0.35408	58.52155	1.05273	39.65	20.69
70/ 9/19	2440849.0	37.27959	39.57481	22.92205	-0.76014	0.64512	0.30772	59.00300	1.04340	46.71	22.86
70/ 9/20	2440849.5	31.88455	43.65539	24.84003	-0.83085	0.55879	0.25819	59.49323	1.03403	53.86	24.68
70/ 9/20	2440850.0	26.05419	47.13164	26.41417	-0.88864	0.46693	0.20633	59.98267	1.02483	61.07	26.13
70/ 9/21	2440850.5	19.87666	49.97125	27.63154	-0.93336	0.37104	0.15296	60.46246	1.01598	68.31	27.19
70/ 9/21	2440851.0	13.44043	52.15174	28.48444	-0.96506	0.27252	0.09883	60.92464	1.00766	75.55	27.87
70/ 9/22	2440851.5	6.83305	53.65979	28.97007	-0.98394	0.17268	0.04462	61.36228	0.99998	82.74	28.17
70/ 9/22	2440852.0	0.14027	54.49058	29.09004	-0.99034	0.07272	-0.00905	61.76952	0.99305	89.85	28.10
70/ 9/23	2440852.5	-6.55474	54.64704	28.85000	-0.98468	-0.02627	-0.06160	62.14166	0.98695	96.84	27.66
70/ 9/23	2440853.0	-13.17189	54.13919	28.25923	-0.96743	-0.12328	-0.11253	62.47508	0.98173	103.67	26.89
70/ 9/24	2440853.5	-19.63456	52.98361	27.33035	-0.93916	-0.21740	-0.16137	62.76724	0.97740	110.33	25.81
70/ 9/24	2440854.0	-25.86997	51.20280	26.07896	-0.90042	-0.30777	-0.20770	63.01662	0.97397	116.80	24.45
70/ 9/25	2440854.5	-31.80936	48.82483	24.52341	-0.85185	-0.39361	-0.25113	63.22260	0.97141	123.08	22.82
70/ 9/25	2440855.0	-37.38825	45.88285	22.68458	-0.79408	-0.47420	-0.29130	63.38539	0.96968	129.18	20.97
70/ 9/26	2440855.5	-42.54663	42.41479	20.58566	-0.72779	-0.54885	-0.32788	63.50590	0.96872	135.09	18.91
70/ 9/26	2440856.0	-47.22918	38.46305	18.25201	-0.65369	-0.61693	-0.36056	63.58567	0.96846	140.84	16.68
70/ 9/27	2440856.5	-51.38553	34.07417	15.71093	-0.57253	-0.67783	-0.38908	63.62668	0.96883	146.45	14.30
70/ 9/27	2440857.0	-54.97047	29.29863	12.99159	-0.48510	-0.73102	-0.41317	63.63132	0.96975	151.94	11.78
70/ 9/28	2440857.5	-57.94432	24.19050	10.12478	-0.39222	-0.77597	-0.43259	63.60217	0.97113	157.34	9.16
70/ 9/28	2440858.0	-60.27316	18.80714	7.14276	-0.29478	-0.81222	-0.44715	63.54196	0.97290	162.67	6.45
70/ 9/29	2440858.5	-61.92921	13.20890	4.07908	-0.19371	-0.83935	-0.45668	63.45345	0.97498	167.96	3.69
70/ 9/29	2440859.0	-62.89114	7.45872	0.96836	-0.08998	-0.85703	-0.46102	63.33929	0.97731	173.24	0.88
70/ 9/30	2440859.5	-63.14444	1.62171	-2.15398	0.01537	-0.86495	-0.46010	63.20198	0.97983	178.53	-1.95
70/ 9/30	2440860.0	-62.68170	-4.23533	-5.25198	0.12128	-0.86291	-0.45383	63.04376	0.98249	183.87	-4.78
70/10/ 1	2440860.5	-61.50288	-10.04443	-8.28940	0.22663	-0.85078	-0.44221	62.86660	0.98526	189.28	-7.58
70/10/ 1	2440861.0	-59.61563	-15.73706	-11.23012	0.33028	-0.82852	-0.42528	62.67211	0.98813	194.79	-10.32
70/10/ 2	2440861.5	-57.03539	-21.24473	-14.03840	0.43107	-0.79618	-0.40312	62.46159	0.99108	200.43	-12.99
70/10/ 2	2440862.0	-53.78559	-26.49967	-16.67931	0.52780	-0.75393	-0.37589	62.23602	0.99412	206.23	-15.55
70/10/ 3	2440862.5	-49.89768	-31.43558	-19.11908	0.61930	-0.70203	-0.34377	61.99608	0.99727	212.21	-17.96
70/10/ 3	2440863.0	-45.41110	-35.98833	-21.32551	0.70439	-0.64086	-0.30703	61.74225	1.00056	218.40	-20.21
70/10/ 4	2440863.5	-40.37322	-40.09673	-23.26838	0.78191	-0.57091	-0.26600	61.47489	1.00403	224.80	-22.24
70/10/ 4	2440864.0	-34.83911	-43.70338	-24.91983	0.85074	-0.49280	-0.22105	61.19434	1.00771	231.44	-24.03
70/10/ 5	2440864.5	-28.87128	-46.75540	-26.25483	0.90980	-0.40726	-0.17263	60.90102	1.01164	238.30	-25.54

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/10/ 5	2440865.0	-22.53935	-49.20526	-27.25152	0.95809	-0.31514	-0.12124	60.59559	1.01585	245.39	-26.73
70/10/ 6	2440865.5	-15.91952	-51.01162	-27.89166	0.99467	-0.21742	-0.06744	60.27903	1.02039	252.67	-27.56
70/10/ 6	2440866.0	-9.09403	-52.14014	-28.16106	1.01869	-0.11517	-0.01187	59.95283	1.02525	260.11	-28.02
70/10/ 7	2440866.5	-2.15047	-52.56430	-28.04994	1.02942	-0.00963	0.04480	59.61904	1.03044	267.66	-28.07
70/10/ 7	2440867.0	4.81905	-52.26622	-27.55335	1.02627	0.09787	0.10183	59.28042	1.03594	275.27	-27.70
70/10/ 8	2440867.5	11.71893	-51.23744	-26.67154	1.00880	0.20588	0.15842	58.94048	1.04171	282.88	-26.91
70/10/ 8	2440868.0	18.45123	-49.47972	-25.41027	0.97676	0.31285	0.21374	58.60352	1.04767	290.45	-25.70
70/10/ 9	2440868.5	24.91703	-47.00564	-23.78115	0.93012	0.41713	0.26690	58.27462	1.05374	297.93	-24.08
70/10/ 9	2440869.0	31.01805	-43.83921	-21.80181	0.86911	0.51701	0.31700	57.95960	1.05978	305.28	-22.10
70/10/10	2440869.5	36.65847	-40.01620	-19.49602	0.79421	0.61072	0.36314	57.66485	1.06566	312.49	-19.76
70/10/10	2440870.0	41.74684	-35.58430	-16.89366	0.70625	0.69652	0.40443	57.39718	1.07122	319.56	-17.12
70/10/11	2440870.5	46.19834	-30.60290	-14.03052	0.60636	0.77271	0.44002	57.16362	1.07628	326.48	-14.21
70/10/11	2440871.0	49.93692	-25.14259	-10.94787	0.49601	0.83769	0.46913	56.97106	1.08066	333.28	-11.08
70/10/12	2440871.5	52.89754	-19.28415	-7.69189	0.37696	0.89006	0.49110	56.82599	1.08420	339.97	-7.78
70/10/12	2440872.0	55.02824	-13.11712	-4.31274	0.25130	0.92864	0.50543	56.73417	1.08673	346.59	-4.36
70/10/13	2440872.5	56.29183	-6.73797	-0.86353	0.12131	0.95258	0.51175	56.70023	1.08812	353.17	-0.87
70/10/13	2440873.0	56.66725	-0.24785	2.60093	-0.01055	0.96136	0.50992	56.72745	1.08827	359.75	2.63
70/10/14	2440873.5	56.15034	6.24992	6.02552	-0.14177	0.95485	0.50000	56.81750	1.08713	6.35	6.09
70/10/14	2440874.0	54.75388	12.65248	9.35623	-0.26987	0.93332	0.48226	56.97027	1.08466	13.01	9.45
70/10/15	2440874.5	52.50712	18.86003	12.54146	-0.39248	0.89740	0.45714	57.18380	1.08090	19.76	12.67
70/10/15	2440875.0	49.45459	24.77829	15.53332	-0.50747	0.84808	0.42527	57.45436	1.07593	26.61	15.69
70/10/16	2440875.5	45.65436	30.32059	18.28865	-0.61299	0.78661	0.38743	57.77659	1.06986	33.59	18.45
70/10/16	2440876.0	41.17604	35.40952	20.76978	-0.70749	0.71447	0.34445	58.14365	1.06285	40.69	20.93
70/10/17	2440876.5	36.09836	39.97817	22.94507	-0.78980	0.63325	0.29727	58.54760	1.05507	47.92	23.07
70/10/17	2440877.0	30.50689	43.97078	24.78915	-0.85910	0.54465	0.24681	58.97967	1.04671	55.25	24.85
70/10/18	2440877.5	24.49166	47.34301	26.28295	-0.91488	0.45033	0.19398	59.43059	1.03799	62.65	26.25
70/10/18	2440878.0	18.14511	50.06176	27.41350	-0.95693	0.35195	0.13968	59.89094	1.02912	70.08	27.24
70/10/19	2440878.5	11.56017	52.10475	28.17361	-0.98530	0.25104	0.08473	60.35142	1.02030	77.49	27.83
70/10/19	2440879.0	4.82875	53.45982	28.56141	-1.00023	0.14904	0.02986	60.80315	1.01172	84.84	28.02
70/10/20	2440879.5	-1.95948	54.12413	28.57988	-1.00215	0.04727	-0.02423	61.23782	1.00356	92.07	27.82
70/10/20	2440880.0	-8.71810	54.10334	28.23636	-0.99158	-0.05308	-0.07694	61.64794	0.99598	99.15	27.26
70/10/21	2440880.5	-15.36456	53.41071	27.54204	-0.96914	-0.15095	-0.12773	62.02691	0.98911	106.05	26.36
70/10/21	2440881.0	-21.82071	52.06634	26.51153	-0.93550	-0.24538	-0.17614	62.36913	0.98306	112.74	25.16
70/10/22	2440881.5	-28.01312	50.09645	25.16244	-0.89138	-0.33553	-0.22174	62.67007	0.97791	119.21	23.67
70/10/22	2440882.0	-33.87327	47.53272	23.51506	-0.83752	-0.42062	-0.26416	62.92627	0.97372	125.47	21.94
70/10/23	2440882.5	-39.33769	44.41175	21.59202	-0.77465	-0.49997	-0.30309	63.13535	0.97052	131.53	20.00
70/10/23	2440883.0	-44.34806	40.77460	19.41808	-0.70356	-0.57294	-0.33821	63.29597	0.96832	137.40	17.87
70/10/24	2440883.5	-48.85125	36.66642	17.01988	-0.62502	-0.63897	-0.36926	63.40778	0.96710	143.11	15.57
70/10/24	2440884.0	-52.79948	32.13609	14.42580	-0.53982	-0.69751	-0.39601	63.47138	0.96683	148.67	13.14
70/10/25	2440884.5	-56.15036	27.23598	11.66577	-0.44877	-0.74808	-0.41823	63.48820	0.96744	154.12	10.59
70/10/25	2440885.0	-58.86714	22.02171	8.77115	-0.35271	-0.79021	-0.43572	63.46045	0.96887	159.49	7.94
70/10/26	2440885.5	-60.91887	16.55183	5.77459	-0.25253	-0.82349	-0.44831	63.39099	0.97102	164.80	5.23
70/10/26	2440886.0	-62.28069	10.88768	2.70986	-0.14915	-0.84752	-0.45583	63.28325	0.97382	170.08	2.45
70/10/27	2440886.5	-62.93413	5.09301	-0.38830	-0.04352	-0.86198	-0.45816	63.14107	0.97715	175.37	-0.35
70/10/27	2440887.0	-62.86749	-0.76632	-3.48438	0.06332	-0.86657	-0.45520	62.96863	0.98090	180.70	-3.17

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM									
70/10/28	2440887.5	-62.07615	-6.62273	-6.54234	0.17029	-0.86109	-0.44690	62.77030	0.98498	186.09	-5.98
70/10/28	2440888.0	-60.56300	-12.40743	-9.52588	0.27627	-0.84538	-0.43323	62.55049	0.98928	191.58	-8.76
70/10/29	2440888.5	-58.33879	-18.05096	-12.39877	0.38006	-0.81940	-0.41423	62.31357	0.99371	197.19	-11.48
70/10/29	2440889.0	-55.42237	-23.48386	-15.12519	0.48046	-0.78320	-0.39000	62.06370	0.99817	202.96	-14.11
70/10/30	2440889.5	-51.84103	-28.63743	-17.67017	0.57620	-0.73696	-0.36068	61.80477	1.00260	208.92	-16.61
70/10/30	2440890.0	-47.63057	-33.44454	-20.00002	0.66602	-0.68096	-0.32651	61.54031	1.00693	215.08	-18.97
70/10/31	2440890.5	-42.83536	-37.84056	-22.08279	0.74867	-0.61565	-0.28778	61.27337	1.01111	221.46	-21.12
70/10/31	2440891.0	-37.50822	-41.76428	-23.88882	0.82290	-0.54160	-0.24486	61.00653	1.01511	228.07	-23.05
70/11/ 1	2440891.5	-31.71013	-45.15895	-25.39121	0.88754	-0.45955	-0.19820	60.74188	1.01892	234.92	-24.71
70/11/ 1	2440892.0	-25.50981	-47.97322	-26.56636	0.94150	-0.37037	-0.14832	60.48100	1.02254	242.00	-26.06
70/11/ 2	2440892.5	-18.98309	-50.16217	-27.39439	0.98377	-0.27508	-0.09581	60.22503	1.02599	249.27	-27.06
70/11/ 2	2440893.0	-12.21216	-51.68821	-27.85965	1.01348	-0.17482	-0.04131	59.97473	1.02928	256.71	-27.68
70/11/ 3	2440893.5	-5.28458	-52.52191	-27.95112	1.02992	-0.07086	0.01445	59.73059	1.03245	264.25	-27.90
70/11/ 3	2440894.0	1.70774	-52.64283	-27.66270	1.03252	0.03542	0.07073	59.49293	1.03555	271.86	-27.71
70/11/ 4	2440894.5	8.66980	-52.04010	-26.99358	1.02094	0.14258	0.12674	59.26205	1.03861	279.46	-27.10
70/11/ 4	2440895.0	15.50482	-50.71301	-25.94836	0.99500	0.24906	0.18165	59.03835	1.04166	287.00	-26.07
70/11/ 5	2440895.5	22.11568	-48.67136	-24.53726	0.95477	0.35332	0.23465	58.82246	1.04474	294.44	-24.65
70/11/ 5	2440896.0	28.40638	-45.93570	-22.77608	0.90053	0.45373	0.28489	58.61536	1.04785	301.73	-22.87
70/11/ 6	2440896.5	34.28367	-42.53740	-20.68625	0.83280	0.54872	0.33156	58.41850	1.05099	308.87	-20.74
70/11/ 6	2440897.0	39.65866	-38.51855	-18.29460	0.75235	0.63672	0.37389	58.23384	1.05415	315.84	-18.31
70/11/ 7	2440897.5	44.44842	-33.93162	-15.63314	0.66018	0.71623	0.41112	58.06386	1.05728	322.64	-15.62
70/11/ 7	2440898.0	48.57767	-28.83895	-12.73872	0.55753	0.78584	0.44257	57.91157	1.06031	329.30	-12.71
70/11/ 8	2440898.5	51.98038	-23.31201	-9.65249	0.44590	0.84427	0.46766	57.78044	1.06317	335.84	-9.62
70/11/ 8	2440899.0	54.60126	-17.43035	-6.41934	0.32697	0.89041	0.48588	57.67428	1.06575	342.30	-6.39
70/11/ 9	2440899.5	56.39721	-11.28040	-3.08716	0.20263	0.92336	0.49685	57.59708	1.06795	348.69	-3.07
70/11/ 9	2440900.0	57.33844	-4.95392	0.29406	0.07493	0.94245	0.50033	57.55280	1.06965	355.06	0.29
70/11/10	2440900.5	57.40942	1.45371	3.67317	-0.05398	0.94728	0.49623	57.54517	1.07075	1.45	3.66
70/11/10	2440901.0	56.60945	7.84542	6.99886	-0.18189	0.93776	0.48459	57.57747	1.07112	7.89	6.98
70/11/11	2440901.5	54.95282	14.12450	10.22084	-0.30659	0.91408	0.46565	57.65223	1.07069	14.41	10.21
70/11/11	2440902.0	52.46854	20.19665	13.29085	-0.42594	0.87677	0.43979	57.77109	1.06937	21.05	13.30
70/11/12	2440902.5	49.19961	25.97205	16.16372	-0.53797	0.82661	0.40753	57.93457	1.06714	27.83	16.20
70/11/12	2440903.0	45.20190	31.36724	18.79830	-0.64087	0.76469	0.36954	58.14199	1.06397	34.76	18.86
70/11/13	2440903.5	40.54260	36.30673	21.15828	-0.73310	0.69228	0.32658	58.39139	1.05988	41.85	21.24
70/11/13	2440904.0	35.29841	40.72440	23.21275	-0.81340	0.61085	0.27947	58.67952	1.05492	49.08	23.30
70/11/14	2440904.5	29.55349	44.56438	24.93665	-0.88082	0.52196	0.22911	59.00194	1.04919	56.45	25.00
70/11/14	2440905.0	23.39741	47.78170	26.31093	-0.93473	0.42726	0.17638	59.35313	1.04278	63.91	26.31
70/11/15	2440905.5	16.92305	50.34247	27.32257	-0.97478	0.32836	0.12217	59.72668	1.03583	71.42	27.22
70/11/15	2440906.0	10.22468	52.22373	27.96441	-1.00089	0.22686	0.06732	60.11547	1.02849	78.92	27.72
70/11/16	2440906.5	3.39618	53.41306	28.23483	-1.01325	0.12428	0.01262	60.51194	1.02092	86.36	27.81
70/11/16	2440907.0	-3.47041	53.90793	28.13733	-1.01222	0.02202	-0.04121	60.90828	1.01329	93.68	27.51
70/11/17	2440907.5	-10.28614	53.71491	27.68008	-0.99833	-0.07865	-0.09351	61.29668	1.00578	100.84	26.84
70/11/17	2440908.0	-16.96612	52.84884	26.87539	-0.97225	-0.17655	-0.14371	61.66957	0.99854	107.80	25.84
70/11/18	2440908.5	-23.43021	51.33193	25.73923	-0.93471	-0.27067	-0.19132	62.01976	0.99174	114.53	24.52
70/11/18	2440909.0	-29.60355	49.19292	24.29073	-0.88653	-0.36011	-0.23588	62.34062	0.98552	121.04	22.93
70/11/19	2440909.5	-35.41683	46.46626	22.55175	-0.82853	-0.44408	-0.27703	62.62625	0.98001	127.31	21.11

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
70/11/19	2440910.0	-40.80650	43.19144	20.54651	-0.76158	-0.52187	-0.31445	62.87153	0.97531	133.37	19.07
70/11/20	2440910.5	-45.71482	39.41234	18.30124	-0.68654	-0.59289	-0.34787	63.07229	0.97153	139.23	16.87
70/11/20	2440911.0	-50.08996	35.17672	15.84392	-0.60428	-0.65660	-0.37704	63.22527	0.96872	144.92	14.51
70/11/21	2440911.5	-53.88590	30.53575	13.20400	-0.51565	-0.71251	-0.40175	63.32826	0.96694	150.46	12.03
70/11/21	2440912.0	-57.06252	25.54371	10.41226	-0.42154	-0.76020	-0.42184	63.38003	0.96620	155.88	9.46
70/11/22	2440912.5	-59.58560	20.25763	7.50064	-0.32281	-0.79927	-0.43713	63.38040	0.96650	161.22	6.80
70/11/22	2440913.0	-61.42688	14.73709	4.50206	-0.22036	-0.82938	-0.44749	63.33019	0.96782	166.51	4.08
70/11/23	2440913.5	-62.56425	9.04394	1.45035	-0.11511	-0.85019	-0.45281	63.23118	0.97011	171.77	1.31
70/11/23	2440914.0	-62.98190	3.24211	-1.61995	-0.00799	-0.86143	-0.45297	63.08609	0.97329	177.05	-1.47
70/11/24	2440914.5	-62.67058	-2.60266	-4.67369	0.09998	-0.86283	-0.44790	62.89848	0.97729	182.38	-4.26
70/11/24	2440915.0	-61.62798	-8.42310	-7.67528	0.20777	-0.85421	-0.43756	62.67270	0.98199	187.78	-7.03
70/11/25	2440915.5	-59.85904	-14.15078	-10.58894	0.31428	-0.83543	-0.42194	62.41374	0.98729	193.30	-9.77
70/11/25	2440916.0	-57.37636	-19.71656	-13.37895	0.41833	-0.80640	-0.40106	62.12717	0.99304	198.96	-12.44
70/11/26	2440916.5	-54.20063	-25.05116	-16.00993	0.51872	-0.76717	-0.37500	61.81898	0.99912	204.81	-15.01
70/11/26	2440917.0	-50.36097	-30.08582	-18.44728	0.61417	-0.71787	-0.34391	61.49542	1.00539	210.85	-17.46
70/11/27	2440917.5	-45.89527	-34.75314	-20.65757	0.70337	-0.65875	-0.30799	61.16283	1.01170	217.13	-19.74
70/11/27	2440918.0	-40.85036	-38.98800	-22.60910	0.78499	-0.59025	-0.26755	60.82752	1.01793	223.66	-21.82
70/11/28	2440918.5	-35.28206	-42.72864	-24.27242	0.85770	-0.51292	-0.22296	60.49554	1.02394	230.45	-23.65
70/11/28	2440919.0	-29.25507	-45.91779	-25.62095	0.92023	-0.42754	-0.17468	60.17255	1.02962	237.50	-25.20
70/11/29	2440919.5	-22.84253	-48.50392	-26.63159	0.97136	-0.33503	-0.12328	59.86362	1.03488	244.78	-26.42
70/11/29	2440920.0	-16.12543	-50.44247	-27.28533	1.00999	-0.23651	-0.06941	59.57316	1.03963	252.27	-27.26
70/11/30	2440920.5	-9.19165	-51.69701	-27.56786	1.03520	-0.13327	-0.01379	59.30475	1.04383	259.92	-27.70
70/11/30	2440921.0	-2.13483	-52.24037	-27.47005	1.04622	-0.02676	0.04276	59.06114	1.04744	267.66	-27.72
70/12/ 1	2440921.5	4.94711	-52.05563	-26.98838	1.04255	0.08146	0.09941	58.84415	1.05044	275.43	-27.30
70/12/ 1	2440922.0	11.95359	-51.13676	-26.12523	1.02391	0.18974	0.15526	58.65479	1.05286	283.16	-26.45
70/12/ 2	2440922.5	18.78316	-49.48924	-24.88907	0.99033	0.29634	0.20941	58.49323	1.05472	290.78	-25.18
70/12/ 2	2440923.0	25.33543	-47.13019	-23.29447	0.94210	0.39956	0.26096	58.35898	1.05608	298.26	-23.53
70/12/ 3	2440923.5	31.51295	-44.08836	-21.36190	0.87979	0.49769	0.30906	58.25101	1.05700	305.56	-21.51
70/12/ 3	2440924.0	37.22312	-40.40375	-19.11755	0.80426	0.58910	0.35290	58.16790	1.05755	312.65	-19.19
70/12/ 4	2440924.5	42.37995	-36.12706	-16.59281	0.71660	0.67229	0.39174	58.10805	1.05780	319.55	-16.59
70/12/ 4	2440925.0	46.90568	-31.31875	-13.82379	0.61814	0.74587	0.42494	58.06982	1.05782	326.27	-13.77
70/12/ 5	2440925.5	50.73225	-26.04808	-10.85065	0.51041	0.80864	0.45193	58.05170	1.05767	332.82	-10.77
70/12/ 5	2440926.0	53.80253	-20.39178	-7.71692	0.39511	0.85958	0.47230	58.05246	1.05738	339.24	-7.64
70/12/ 6	2440926.5	56.07132	-14.43277	-4.46869	0.27405	0.89791	0.48570	58.07122	1.05700	345.57	-4.41
70/12/ 6	2440927.0	57.50609	-8.25863	-1.15379	0.14915	0.92303	0.49196	58.10755	1.05653	351.83	-1.14
70/12/ 7	2440927.5	58.08752	-1.96009	2.17902	0.02239	0.93461	0.49099	58.16142	1.05597	358.07	2.15
70/12/ 7	2440928.0	57.80975	4.37059	5.48091	-0.10423	0.93252	0.48285	58.23323	1.05528	4.32	5.40
70/12/ 8	2440928.5	56.68038	10.64121	8.70386	-0.22875	0.91691	0.46772	58.32374	1.05443	10.63	8.58
70/12/ 8	2440929.0	54.72025	16.76124	11.80147	-0.34924	0.88814	0.44590	58.43389	1.05336	17.03	11.65
70/12/ 9	2440929.5	51.96290	22.64339	14.72973	-0.46387	0.84678	0.41779	58.56476	1.05203	23.55	14.57
70/12/ 9	2440930.0	48.45386	28.20506	17.44779	-0.57094	0.79365	0.38392	58.71735	1.05036	30.20	17.29
70/12/10	2440930.5	44.24962	33.36977	19.91862	-0.66891	0.72974	0.34489	58.89246	1.04830	37.02	19.77
70/12/10	2440931.0	39.41641	38.06833	22.10959	-0.75646	0.65621	0.30140	59.09048	1.04579	44.00	21.97
70/12/11	2440931.5	34.02885	42.23988	23.99292	-0.83244	0.57435	0.25418	59.31130	1.04281	51.14	23.86
70/12/11	2440932.0	28.16837	45.83278	25.54603	-0.89598	0.48557	0.20402	59.55418	1.03932	58.43	25.40

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
70/12/12	2440932.5	21.92157	48.80509	26.75178	-0.94643	0.39135	0.15174	59.81764	1.03533	65.81	26.57
70/12/12	2440933.0	15.37855	51.12499	27.59851	-0.98341	0.29317	0.09814	60.09943	1.03086	73.26	27.34
70/12/13	2440933.5	8.63123	52.77079	28.08001	-1.00675	0.19254	0.04402	60.39653	1.02594	80.71	27.71
70/12/13	2440934.0	1.77181	53.73083	28.19535	-1.01654	0.09091	-0.00986	60.70518	1.02065	88.11	27.68
70/12/14	2440934.5	-5.10872	54.00306	27.94860	-1.01305	-0.01034	-0.06279	61.02093	1.01504	95.40	27.26
70/12/14	2440935.0	-11.92182	53.59455	27.34849	-0.99672	-0.10991	-0.11410	61.33877	1.00923	102.54	26.48
70/12/15	2440935.5	-18.58256	52.52076	26.40796	-0.96817	-0.20660	-0.16322	61.65324	1.00333	109.48	25.36
70/12/15	2440936.0	-25.01047	50.80487	25.14374	-0.92809	-0.29935	-0.20960	61.95859	0.99745	116.21	23.94
70/12/16	2440936.5	-31.13023	48.47690	23.57591	-0.87731	-0.38719	-0.25280	62.24890	0.99172	122.71	22.26
70/12/16	2440937.0	-36.87223	45.57295	21.72739	-0.81669	-0.46930	-0.29243	62.51827	0.98628	128.98	20.34
70/12/17	2440937.5	-42.17284	42.13442	19.62358	-0.74713	-0.54494	-0.32814	62.76100	0.98125	135.03	18.22
70/12/17	2440938.0	-46.97471	38.20727	17.29191	-0.66957	-0.61349	-0.35967	62.97165	0.97676	140.88	15.94
70/12/18	2440938.5	-51.22677	33.84141	14.76152	-0.58494	-0.67441	-0.38678	63.14527	0.97292	146.55	13.52
70/12/18	2440939.0	-54.88437	29.09007	12.06296	-0.49418	-0.72725	-0.40930	63.27749	0.96986	152.08	10.99
70/12/19	2440939.5	-57.90915	24.00934	9.22792	-0.39823	-0.77161	-0.42706	63.36460	0.96766	157.48	8.37
70/12/19	2440940.0	-60.26912	18.65776	6.28900	-0.29802	-0.80718	-0.43996	63.40371	0.96639	162.80	5.69
70/12/20	2440940.5	-61.93854	13.09595	3.27955	-0.19447	-0.83365	-0.44788	63.39276	0.96612	168.06	2.97
70/12/20	2440941.0	-62.89802	7.38632	0.23350	-0.08853	-0.85079	-0.45075	63.33066	0.96688	173.30	0.21
70/12/21	2440941.5	-63.13450	1.59283	-2.81479	0.01886	-0.85838	-0.44853	63.21729	0.96869	178.55	-2.55
70/12/21	2440942.0	-62.64144	-4.21928	-5.83063	0.12673	-0.85626	-0.44117	63.05354	0.97153	183.85	-5.31
70/12/22	2440942.5	-61.41896	-9.98372	-8.77921	0.23408	-0.84429	-0.42866	62.84137	0.97538	189.23	-8.03
70/12/22	2440943.0	-59.47409	-15.63342	-11.62568	0.33987	-0.82237	-0.41102	62.58376	0.98017	194.73	-10.71
70/12/23	2440943.5	-56.82111	-21.10088	-14.33541	0.44300	-0.79047	-0.38830	62.28475	0.98583	200.37	-13.31
70/12/23	2440944.0	-53.48188	-26.31857	-16.87418	0.54232	-0.74862	-0.36056	61.94931	0.99225	206.20	-15.81
70/12/24	2440944.5	-49.48623	-31.21945	-19.20854	0.63663	-0.69695	-0.32796	61.58335	0.99930	212.25	-18.17
70/12/24	2440945.0	-44.87234	-35.73765	-21.30610	0.72467	-0.63567	-0.29068	61.19360	1.00683	218.53	-20.38
70/12/25	2440945.5	-39.68710	-39.80921	-23.13603	0.80513	-0.56513	-0.24898	60.78746	1.01469	225.09	-22.37
70/12/25	2440946.0	-33.98631	-43.37309	-24.66954	0.87668	-0.48585	-0.20321	60.37284	1.02270	231.92	-24.12
70/12/26	2440946.5	-27.83482	-46.37226	-25.88050	0.93800	-0.39851	-0.15381	59.95802	1.03068	239.03	-25.57
70/12/26	2440947.0	-21.30637	-48.75497	-26.74607	0.98778	-0.30398	-0.10132	59.55133	1.03845	246.39	-26.69
70/12/27	2440947.5	-14.48326	-50.47610	-27.24741	1.02482	-0.20335	-0.04637	59.16099	1.04583	253.99	-27.42
70/12/27	2440948.0	-7.45556	-51.49862	-27.37038	1.04803	-0.09791	0.01028	58.79483	1.05264	261.76	-27.74
70/12/28	2440948.5	-0.32009	-51.79496	-27.10623	1.05651	0.01082	0.06780	58.45997	1.05874	269.65	-27.62
70/12/28	2440949.0	6.82108	-51.34832	-26.45214	1.04962	0.12119	0.12526	58.16264	1.06400	277.57	-27.05
70/12/29	2440949.5	13.86244	-50.15379	-25.41179	1.02701	0.23136	0.18169	57.90793	1.06831	285.45	-26.03
70/12/29	2440950.0	20.69717	-48.21915	-23.99556	0.98863	0.33941	0.23608	57.69962	1.07160	293.23	-24.57
70/12/30	2440950.5	27.21951	-45.56532	-22.22069	0.93485	0.44340	0.28743	57.54007	1.07385	300.85	-22.72
70/12/30	2440951.0	33.32725	-42.22636	-20.11108	0.86635	0.54142	0.33477	57.43019	1.07507	308.28	-20.50
70/12/31	2440951.5	38.92416	-38.24898	-17.69698	0.78421	0.63163	0.37721	57.36948	1.07528	315.50	-17.97
70/12/31	2440952.0	43.92231	-33.69172	-15.01428	0.68980	0.71239	0.41396	57.35616	1.07457	322.51	-15.18
71/ 1/ 1	2440952.5	48.24410	-28.62358	-12.10380	0.58478	0.78227	0.44437	57.38732	1.07302	329.32	-12.18
71/ 1/ 1	2440953.0	51.82395	-23.12247	-9.01032	0.47103	0.84007	0.46793	57.45917	1.07078	335.95	-9.02
71/ 1/ 2	2440953.5	54.60953	-17.27334	-5.78152	0.35058	0.88491	0.48429	57.56731	1.06795	342.45	-5.76
71/ 1/ 2	2440954.0	56.56256	-11.16625	-2.46694	0.22554	0.91617	0.49324	57.70697	1.06467	348.83	-2.45
71/ 1/ 3	2440954.5	57.65920	-4.89437	0.88311	0.09805	0.93354	0.49477	57.87329	1.06109	355.15	0.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MCON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
71/ 1/ 3	2440955.0	57.89002	1.44793	4.21854	-0.02978	0.93698	0.48896	58.06158	1.05731	1.43	4.17
71/ 1/ 4	2440955.5	57.25961	7.76691	7.49043	-0.15593	0.92671	0.47605	58.26743	1.05344	7.72	7.39
71/ 1/ 4	2440956.0	55.78594	13.97111	10.65184	-0.27848	0.90318	0.45640	58.48696	1.04957	14.06	10.49
71/ 1/ 5	2440956.5	53.49950	19.97281	13.65855	-0.39565	0.86704	0.43045	58.71683	1.04575	20.47	13.45
71/ 1/ 5	2440957.0	50.44225	25.68934	16.46966	-0.50584	0.81912	0.39874	58.95433	1.04203	26.99	16.22
71/ 1/ 6	2440957.5	46.66647	31.04412	19.04811	-0.60761	0.76040	0.36185	59.19736	1.03842	33.63	18.77
71/ 1/ 6	2440958.0	42.23354	35.96764	21.36106	-0.69970	0.69196	0.32045	59.44441	1.03493	40.42	21.06
71/ 1/ 7	2440958.5	37.21263	40.39814	23.38024	-0.78107	0.61502	0.27522	59.69442	1.03154	47.35	23.06
71/ 1/ 7	2440959.0	31.67940	44.28221	25.08212	-0.85086	0.53083	0.22688	59.94674	1.02820	54.42	24.73
71/ 1/ 8	2440959.5	25.71471	47.57525	26.44814	-0.90839	0.44071	0.17616	60.20095	1.02490	61.61	26.06
71/ 1/ 8	2440960.0	19.40323	50.24166	27.46468	-0.95320	0.34601	0.12380	60.45675	1.02159	68.88	27.02
71/ 1/ 9	2440960.5	12.83217	52.25505	28.12313	-0.98501	0.24810	0.07054	60.71380	1.01822	76.20	27.59
71/ 1/ 9	2440961.0	6.09001	53.59822	28.41973	-1.00372	0.14832	0.01708	60.97162	1.01477	83.52	27.78
71/ 1/10	2440961.5	-0.73473	54.26300	28.35554	-1.00942	0.04800	-0.03589	61.22948	1.01120	90.78	27.59
71/ 1/10	2440962.0	-7.55466	54.25000	27.93612	-1.00235	-0.05161	-0.08772	61.48628	1.00751	97.93	27.02
71/ 1/11	2440962.5	-14.28456	53.56826	27.17134	-0.98291	-0.14928	-0.13778	61.74049	1.00369	104.93	26.11
71/ 1/11	2440963.0	-20.84236	52.23473	26.07504	-0.95164	-0.24390	-0.18552	61.99015	0.99976	111.75	24.87
71/ 1/12	2440963.5	-27.15004	50.27376	24.66471	-0.90917	-0.33440	-0.23043	62.23282	0.99575	118.37	23.35
71/ 1/12	2440964.0	-33.13428	47.71644	22.96109	-0.85626	-0.41984	-0.27205	62.46559	0.99170	124.78	21.57
71/ 1/13	2440964.5	-38.72712	44.59993	20.98781	-0.79374	-0.49939	-0.31000	62.68518	0.98768	130.97	19.56
71/ 1/13	2440965.0	-43.86643	40.96682	18.77098	-0.72248	-0.57228	-0.34392	62.88794	0.98375	136.96	17.37
71/ 1/14	2440965.5	-48.49621	36.86438	16.33880	-0.64344	-0.63788	-0.37354	63.06997	0.98001	142.76	15.01
71/ 1/14	2440966.0	-52.56688	32.34396	13.72126	-0.55755	-0.69562	-0.39863	63.22722	0.97655	148.40	12.53
71/ 1/15	2440966.5	-56.03542	27.46033	10.94973	-0.46579	-0.74506	-0.41899	63.35562	0.97346	153.89	9.95
71/ 1/15	2440967.0	-58.86543	22.27111	8.05666	-0.36915	-0.78581	-0.43449	63.45116	0.97085	159.28	7.29
71/ 1/16	2440967.5	-61.02713	16.83622	5.07536	-0.26861	-0.81756	-0.44503	63.51007	0.96881	164.58	4.58
71/ 1/16	2440968.0	-62.49742	11.21747	2.03969	-0.16514	-0.84007	-0.45054	63.52888	0.96745	169.82	1.84
71/ 1/17	2440968.5	-63.25974	5.47808	-1.01613	-0.05972	-0.85315	-0.45098	63.50461	0.96686	175.05	-0.92
71/ 1/17	2440969.0	-63.30414	-0.31763	-4.05771	0.04669	-0.85668	-0.44633	63.43485	0.96710	180.29	-3.67
71/ 1/18	2440969.5	-62.62726	-6.10460	-7.05065	0.15311	-0.85056	-0.43662	63.31787	0.96826	185.57	-6.39
71/ 1/18	2440970.0	-61.23236	-11.81731	-9.96076	0.25855	-0.83475	-0.42188	63.15273	0.97038	190.92	-9.07
71/ 1/19	2440970.5	-59.12940	-17.39009	-12.75412	0.36202	-0.80924	-0.40216	62.93940	0.97348	196.39	-11.69
71/ 1/19	2440971.0	-56.33520	-22.75742	-15.39735	0.46249	-0.77409	-0.37756	62.67881	0.97758	202.00	-14.22
71/ 1/20	2440971.5	-52.87367	-27.85425	-17.85774	0.55890	-0.72939	-0.34819	62.37294	0.98266	207.78	-16.64
71/ 1/20	2440972.0	-48.77599	-32.61645	-20.10351	0.65016	-0.67531	-0.31421	62.02484	0.98867	213.77	-18.91
71/ 1/21	2440972.5	-44.08093	-36.98127	-22.10406	0.73511	-0.61209	-0.27582	61.63872	0.99555	219.99	-21.01
71/ 1/21	2440973.0	-38.83514	-40.88792	-23.83033	0.81259	-0.54008	-0.23327	61.21989	1.00319	226.47	-22.91
71/ 1/22	2440973.5	-33.09339	-44.27836	-25.25520	0.88136	-0.45975	-0.18688	60.77475	1.01148	233.23	-24.55
71/ 1/22	2440974.0	-26.91876	-47.09814	-26.35395	0.94020	-0.37169	-0.13704	60.31074	1.02025	240.25	-25.91
71/ 1/23	2440974.5	-20.38278	-49.29747	-27.10482	0.98787	-0.27668	-0.08424	59.83619	1.02933	247.54	-26.94
71/ 1/23	2440975.0	-13.56522	-50.83243	-27.48966	1.02315	-0.17568	-0.02906	59.36020	1.03853	255.06	-27.59
71/ 1/24	2440975.5	-6.55383	-51.66632	-27.49459	1.04493	-0.06987	0.02782	58.89239	1.04763	262.77	-27.83
71/ 1/24	2440976.0	0.55644	-51.77109	-27.11074	1.05220	0.03937	0.08561	58.44268	1.05641	270.62	-27.64
71/ 1/25	2440976.5	7.66450	-51.12884	-26.33495	1.04416	0.15044	0.14340	58.02097	1.06464	278.53	-26.99
71/ 1/25	2440977.0	14.66464	-49.73322	-25.17039	1.02026	0.26152	0.20024	57.63674	1.07211	286.43	-25.89

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 1/26	2440977.5	21.44851	-47.59064	-23.62711	0.98029	0.37067	0.25506	57.29876	1.07862	294.26	-24.35
71/ 1/26	2440978.0	27.90753	-44.72116	-21.72236	0.92439	0.47582	0.30680	57.01467	1.08399	301.97	-22.40
71/ 1/27	2440978.5	33.93553	-41.15900	-19.48066	0.85315	0.57487	0.35438	56.79067	1.08808	309.51	-20.06
71/ 1/27	2440979.0	39.43171	-36.95246	-16.93360	0.76755	0.66577	0.39680	56.63119	1.09080	316.86	-17.40
71/ 1/28	2440979.5	44.30350	-32.16327	-14.11932	0.66904	0.74662	0.43315	56.53876	1.09209	324.02	-14.46
71/ 1/28	2440980.0	48.46929	-26.86536	-11.08167	0.55940	0.81574	0.46265	56.51392	1.09197	331.00	-11.31
71/ 1/29	2440980.5	51.86077	-21.14300	-7.86913	0.44076	0.87175	0.48471	56.55518	1.09049	337.82	-8.00
71/ 1/29	2440981.0	54.42473	-15.08864	-4.53352	0.31545	0.91364	0.49894	56.65925	1.08774	344.50	-4.59
71/ 1/30	2440981.5	56.12425	-8.80034	-1.12862	0.18591	0.94076	0.50516	56.82122	1.08387	351.09	-1.14
71/ 1/30	2440982.0	56.93916	-2.37914	2.29127	0.05464	0.95287	0.50339	57.03489	1.07905	357.61	2.30
71/ 1/31	2440982.5	56.86590	4.07348	5.67265	-0.07597	0.95009	0.49384	57.29313	1.07346	4.10	5.68
71/ 1/31	2440983.0	55.91677	10.45804	8.96404	-0.20364	0.93287	0.47689	57.58828	1.06731	10.59	8.95
71/ 2/ 1	2440983.5	54.11877	16.67909	12.11700	-0.32631	0.90195	0.45306	57.91247	1.06078	17.13	12.08
71/ 2/ 1	2440984.0	51.51206	22.64696	15.08693	-0.44216	0.85829	0.42295	58.25798	1.05406	23.73	15.01
71/ 2/ 2	2440984.5	48.14834	28.27911	17.83369	-0.54961	0.80302	0.38728	58.61751	1.04732	30.43	17.71
71/ 2/ 2	2440985.0	44.08905	33.50113	20.32202	-0.64736	0.73739	0.34677	58.98436	1.04071	37.23	20.15
71/ 2/ 3	2440985.5	39.40360	38.24738	22.52175	-0.73435	0.66275	0.30218	59.35263	1.03432	44.15	22.30
71/ 2/ 3	2440986.0	34.16778	42.46141	24.40792	-0.80976	0.58046	0.25431	59.71729	1.02826	51.18	24.12
71/ 2/ 4	2440986.5	28.46214	46.09612	25.96081	-0.87300	0.49191	0.20389	60.07420	1.02259	58.31	25.60
71/ 2/ 4	2440987.0	22.37060	49.11375	27.16581	-0.92366	0.39847	0.15170	60.42007	1.01732	65.51	26.72
71/ 2/ 5	2440987.5	15.97919	51.48580	28.01326	-0.96153	0.30149	0.09843	60.75248	1.01249	72.76	27.46
71/ 2/ 5	2440988.0	9.37484	53.19273	28.49832	-0.98655	0.20228	0.04480	61.06970	1.00807	80.00	27.82
71/ 2/ 6	2440988.5	2.64439	54.22373	28.62070	-0.99879	0.10211	-0.00856	61.37060	1.00403	87.21	27.80
71/ 2/ 6	2440989.0	-4.12635	54.57637	28.38446	-0.99849	0.00216	-0.06100	61.65456	1.00036	94.32	27.41
71/ 2/ 7	2440989.5	-10.85347	54.25620	27.79773	-0.98598	-0.09639	-0.11196	61.92129	0.99699	101.31	26.67
71/ 2/ 7	2440990.0	-17.45572	53.27635	26.87245	-0.96170	-0.19246	-0.16089	62.17073	0.99388	108.14	25.61
71/ 2/ 8	2440990.5	-23.85519	51.65709	25.62411	-0.92620	-0.28503	-0.20728	62.40288	0.99098	114.79	24.24
71/ 2/ 8	2440991.0	-29.97796	49.42537	24.07147	-0.88011	-0.37316	-0.25067	62.61774	0.98827	121.24	22.61
71/ 2/ 9	2440991.5	-35.75470	46.61433	22.23623	-0.82414	-0.45597	-0.29066	62.81516	0.98569	127.49	20.73
71/ 2/ 9	2440992.0	-41.12111	43.26273	20.14277	-0.75908	-0.53266	-0.32687	62.99477	0.98324	133.55	18.65
71/ 2/10	2440992.5	-46.01843	39.41447	17.81778	-0.68576	-0.60252	-0.35898	63.15592	0.98090	139.42	16.39
71/ 2/10	2440993.0	-50.39377	35.11797	15.28999	-0.60509	-0.66492	-0.38671	63.29762	0.97867	145.13	13.98
71/ 2/11	2440993.5	-54.20043	30.42567	12.58986	-0.51799	-0.71931	-0.40984	63.41855	0.97657	150.69	11.45
71/ 2/11	2440994.0	-57.39811	25.39340	9.74920	-0.42543	-0.76524	-0.42818	63.51704	0.97463	156.14	8.83
71/ 2/12	2440994.5	-59.95314	20.07988	6.80096	-0.32839	-0.80231	-0.44159	63.59115	0.97290	161.48	6.14
71/ 2/12	2440995.0	-61.83857	14.54614	3.77887	-0.22787	-0.83022	-0.44997	63.63866	0.97142	166.76	3.40
71/ 2/13	2440995.5	-63.03421	8.85503	0.71717	-0.12487	-0.84875	-0.45328	63.65718	0.97027	172.00	0.65
71/ 2/13	2440996.0	-63.52671	3.07069	-2.34962	-0.02040	-0.85773	-0.45148	63.64427	0.96951	177.23	-2.12
71/ 2/14	2440996.5	-63.30953	-2.74192	-5.38698	0.08453	-0.85708	-0.44459	63.59744	0.96922	182.48	-4.86
71/ 2/14	2440997.0	-62.38294	-8.51740	-8.36059	0.18892	-0.84677	-0.43266	63.51439	0.96949	187.77	-7.56
71/ 2/15	2440997.5	-60.75398	-14.19038	-11.23658	0.29177	-0.82682	-0.41578	63.39301	0.97038	193.15	-10.21
71/ 2/15	2440998.0	-58.43644	-19.69590	-13.98170	0.39208	-0.79734	-0.39404	63.23159	0.97198	198.63	-12.77
71/ 2/16	2440998.5	-55.45092	-24.96978	-16.56355	0.48885	-0.75845	-0.36759	63.02892	0.97434	204.24	-15.24
71/ 2/16	2440999.0	-51.82478	-29.94899	-18.95075	0.58108	-0.71037	-0.33659	62.78440	0.97753	210.02	-17.57
71/ 2/17	2440999.5	-47.59225	-34.57212	-21.11321	0.66774	-0.65335	-0.30126	62.49817	0.98158	216.00	-19.74

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
71/ 2/17	2441000.0	-42.79449	-38.77973	-23.02230	0.74782	-0.58773	-0.26182	62.17123	0.98651	222.18	-21.73
71/ 2/18	2441000.5	-37.47968	-42.51492	-24.65117	0.82025	-0.51392	-0.21856	61.80555	0.99232	228.60	-23.51
71/ 2/18	2441001.0	-31.70316	-45.72388	-25.97505	0.88398	-0.43243	-0.17182	61.40413	0.99897	235.26	-25.03
71/ 2/19	2441001.5	-25.52747	-48.35657	-26.97157	0.93794	-0.34386	-0.12197	60.97110	1.00641	242.17	-26.25
71/ 2/19	2441002.0	-19.02239	-50.36753	-27.62125	0.98107	-0.24897	-0.06948	60.51176	1.01455	249.31	-27.16
71/ 2/20	2441002.5	-12.26487	-51.71677	-27.90794	1.01231	-0.14863	-0.01487	60.03253	1.02328	256.66	-27.70
71/ 2/20	2441003.0	-5.33879	-52.37088	-27.81933	1.03068	-0.04389	0.04123	59.54097	1.03244	264.18	-27.85
71/ 2/21	2441003.5	1.66544	-52.30415	-27.34760	1.03525	0.06401	0.09813	59.04566	1.04186	271.82	-27.59
71/ 2/21	2441004.0	8.65164	-51.49989	-26.49002	1.02524	0.17364	0.15503	58.55605	1.05133	279.54	-26.90
71/ 2/22	2441004.5	15.51890	-49.95171	-25.24952	1.00005	0.28340	0.21105	58.08225	1.06064	287.26	-25.77
71/ 2/22	2441005.0	22.16307	-47.66479	-23.63537	0.95933	0.39147	0.26521	57.63475	1.06953	294.94	-24.21
71/ 2/23	2441005.5	28.47863	-44.65705	-21.66354	0.90304	0.49592	0.31649	57.22407	1.07776	302.53	-22.25
71/ 2/23	2441006.0	34.36106	-40.95997	-19.35710	0.83151	0.59468	0.36384	56.86035	1.08510	309.99	-19.90
71/ 2/24	2441006.5	39.70947	-36.61905	-16.74623	0.74551	0.68569	0.40622	56.55292	1.09131	317.32	-17.22
71/ 2/24	2441007.0	44.42955	-31.69374	-13.86802	0.64621	0.76692	0.44263	56.30986	1.09621	324.50	-14.26
71/ 2/25	2441007.5	48.43659	-26.25680	-10.76595	0.53526	0.83648	0.47219	56.13758	1.09962	331.54	-11.06
71/ 2/25	2441008.0	51.65833	-20.39287	-7.48893	0.41469	0.89276	0.49418	56.04048	1.10145	338.46	-7.68
71/ 2/26	2441008.5	54.03749	-14.19654	-4.09017	0.28687	0.93445	0.50807	56.02073	1.10165	345.28	-4.19
71/ 2/26	2441009.0	55.53373	-7.76982	-0.62571	0.15441	0.96068	0.51355	56.07813	1.10022	352.04	-0.64
71/ 2/27	2441009.5	56.12479	-1.21921	2.84720	0.02004	0.97100	0.51057	56.21019	1.09724	358.76	2.90
71/ 2/27	2441010.0	55.80695	5.34736	6.27172	-0.11354	0.96544	0.49931	56.41227	1.09283	5.47	6.38
71/ 2/28	2441010.5	54.59450	11.82359	9.59298	-0.24372	0.94443	0.48016	56.67788	1.08715	12.22	9.74
71/ 2/28	2441011.0	52.51862	18.10751	12.75945	-0.36813	0.90882	0.45371	56.99904	1.08043	19.02	12.94
71/ 3/ 1	2441011.5	49.62560	24.10388	15.72409	-0.48470	0.85973	0.42069	57.36675	1.07287	25.91	15.91
71/ 3/ 1	2441012.0	45.97467	29.72602	18.44515	-0.59167	0.79856	0.38193	57.77136	1.06472	32.89	18.62
71/ 3/ 2	2441012.5	41.63569	34.89714	20.88672	-0.68767	0.72681	0.33831	58.20306	1.05622	39.97	21.03
71/ 3/ 2	2441013.0	36.68678	39.55110	23.01901	-0.77164	0.64611	0.29076	58.65223	1.04758	47.15	23.11
71/ 3/ 3	2441013.5	31.21202	43.63276	24.81840	-0.84285	0.55809	0.24016	59.10974	1.03901	54.42	24.83
71/ 3/ 3	2441014.0	25.29946	47.09800	26.26725	-0.90087	0.46435	0.18739	59.56721	1.03068	61.76	26.17
71/ 3/ 4	2441014.5	19.03925	49.91339	27.35371	-0.94549	0.36644	0.13328	60.01720	1.02274	69.12	27.11
71/ 3/ 4	2441015.0	12.52218	52.05572	28.07129	-0.97673	0.26584	0.07859	60.45329	1.01531	76.47	27.67
71/ 3/ 5	2441015.5	5.83837	53.51143	28.41856	-0.99477	0.16391	0.02404	60.87014	1.00847	83.77	27.83
71/ 3/ 5	2441016.0	-0.92377	54.27593	28.39865	-0.99992	0.06194	-0.02973	61.26348	1.00228	90.98	27.62
71/ 3/ 6	2441016.5	-7.67835	54.35298	28.01895	-0.99262	-0.03890	-0.08212	61.63007	0.99677	98.04	27.04
71/ 3/ 6	2441017.0	-14.34268	53.75402	27.29064	-0.97337	-0.13751	-0.13259	61.96762	0.99193	104.94	26.13
71/ 3/ 7	2441017.5	-20.83781	52.49755	26.22839	-0.94276	-0.23290	-0.18065	62.27468	0.98776	111.65	24.91
71/ 3/ 7	2441018.0	-27.08903	50.60861	24.85002	-0.90145	-0.32413	-0.22586	62.55054	0.98422	118.16	23.41
71/ 3/ 8	2441018.5	-33.02616	48.11820	23.17619	-0.85014	-0.41037	-0.26783	62.79510	0.98126	124.46	21.66
71/ 3/ 8	2441019.0	-38.58398	45.06280	21.23012	-0.78957	-0.49084	-0.30620	63.00871	0.97883	130.57	19.69
71/ 3/ 9	2441019.5	-43.70249	41.48389	19.03732	-0.72055	-0.56485	-0.34064	63.19209	0.97687	136.49	17.53
71/ 3/ 9	2441020.0	-48.32720	37.42750	16.62533	-0.64390	-0.63174	-0.37088	63.34617	0.97532	142.24	15.22
71/ 3/10	2441020.5	-52.40937	32.94374	14.02346	-0.56049	-0.69096	-0.39667	63.47196	0.97413	147.85	12.76
71/ 3/10	2441021.0	-55.90629	28.08634	11.26255	-0.47123	-0.74200	-0.41781	63.57044	0.97323	153.33	10.20
71/ 3/11	2441021.5	-58.78148	22.91220	8.37470	-0.37705	-0.78442	-0.43413	63.64249	0.97260	158.70	7.56
71/ 3/11	2441022.0	-61.00487	17.48096	5.39302	-0.27892	-0.81787	-0.44550	63.68880	0.97220	164.01	4.86

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 3/12	2441022.5	-62.55300	11.85445	2.35140	-0.17782	-0.84204	-0.45182	63.70977	0.97200	169.27	2.12
71/ 3/12	2441023.0	-63.40918	6.09630	-0.71583	-0.07476	-0.85671	-0.45305	63.70558	0.97201	174.51	-0.64
71/ 3/13	2441023.5	-63.56354	0.27138	-3.77409	0.02925	-0.86173	-0.44918	63.67607	0.97221	179.76	-3.40
71/ 3/13	2441024.0	-63.01322	-5.55468	-6.78883	0.13316	-0.85704	-0.44021	63.62082	0.97264	185.04	-6.13
71/ 3/14	2441024.5	-61.76228	-11.31597	-9.72585	0.23596	-0.84262	-0.42624	63.53914	0.97332	190.38	-8.80
71/ 3/14	2441025.0	-59.82182	-16.94686	-12.55149	0.33660	-0.81855	-0.40735	63.43017	0.97429	195.82	-11.41
71/ 3/15	2441025.5	-57.20990	-22.38244	-15.23293	0.43407	-0.78497	-0.38368	63.29287	0.97561	201.37	-13.93
71/ 3/15	2441026.0	-53.95149	-27.55904	-17.73844	0.52733	-0.74212	-0.35543	63.12619	0.97732	207.06	-16.32
71/ 3/16	2441026.5	-50.07844	-32.41474	-20.03765	0.61540	-0.69027	-0.32280	62.92911	0.97948	212.91	-18.57
71/ 3/16	2441027.0	-45.62940	-36.88985	-22.10178	0.69726	-0.62980	-0.28606	62.70081	0.98216	218.95	-20.64
71/ 3/17	2441027.5	-40.64966	-40.92743	-23.90390	0.77194	-0.56115	-0.24549	62.44074	0.98542	225.20	-22.51
71/ 3/17	2441028.0	-35.19113	-44.47381	-25.41925	0.83849	-0.48484	-0.20143	62.14880	0.98930	231.65	-24.14
71/ 3/18	2441028.5	-29.31214	-47.47915	-26.62543	0.89595	-0.40149	-0.15426	61.82543	0.99384	238.31	-25.51
71/ 3/18	2441029.0	-23.07734	-49.89801	-27.50278	0.94340	-0.31179	-0.10440	61.47176	0.99906	245.18	-26.58
71/ 3/19	2441029.5	-16.55751	-51.69003	-28.03467	0.97997	-0.21653	-0.05233	61.08971	1.00497	252.24	-27.32
71/ 3/19	2441030.0	-9.82926	-52.82065	-28.20787	1.00481	-0.11664	0.00142	60.68212	1.01156	259.46	-27.70
71/ 3/20	2441030.5	-2.97478	-53.26188	-28.01293	1.01712	-0.01314	0.05627	60.25281	1.01876	266.80	-27.71
71/ 3/20	2441031.0	3.91872	-52.99318	-27.44464	1.01622	0.09279	0.11156	59.80670	1.02653	274.23	-27.32
71/ 3/21	2441031.5	10.75959	-52.00238	-26.50240	1.00149	0.19986	0.16657	59.34975	1.03474	281.69	-26.52
71/ 3/21	2441032.0	17.45261	-50.28666	-25.19073	0.97250	0.30660	0.22051	58.88900	1.04326	289.14	-25.33
71/ 3/22	2441032.5	23.90015	-47.85350	-23.51970	0.92898	0.41143	0.27254	58.43245	1.05193	296.54	-23.74
71/ 3/22	2441033.0	30.00356	-44.72164	-21.50529	0.87090	0.51263	0.32176	57.98893	1.06056	303.86	-21.77
71/ 3/23	2441033.5	35.66498	-40.92181	-19.16971	0.79853	0.60837	0.36722	57.56790	1.06893	311.07	-19.45
71/ 3/23	2441034.0	40.78938	-36.49735	-16.54155	0.71246	0.69676	0.40799	57.17913	1.07682	318.18	-16.82
71/ 3/24	2441034.5	45.28704	-31.50438	-13.65577	0.61365	0.77593	0.44315	56.83240	1.08398	325.18	-13.90
71/ 3/24	2441035.0	49.07605	-26.01161	-10.55338	0.50346	0.84406	0.47182	56.53703	1.09019	332.08	-10.76
71/ 3/25	2441035.5	52.08510	-20.09959	-7.28091	0.38365	0.89948	0.49326	56.30153	1.09524	338.90	-7.43
71/ 3/25	2441036.0	54.25600	-13.85933	-3.88952	0.25634	0.94077	0.50685	56.13309	1.09893	345.67	-3.97
71/ 3/26	2441036.5	55.54602	-7.39041	-0.43388	0.12396	0.96685	0.51218	56.03719	1.10113	352.42	-0.44
71/ 3/26	2441037.0	55.92964	-0.79844	3.02928	-0.01085	0.97702	0.50906	56.01731	1.10174	359.18	3.10
71/ 3/27	2441037.5	55.39974	5.80775	6.44273	-0.14534	0.97105	0.49753	56.07469	1.10072	5.98	6.60
71/ 3/27	2441038.0	53.96788	12.31925	9.75035	-0.27675	0.94914	0.47787	56.20823	1.09810	12.86	9.99
71/ 3/28	2441038.5	51.66375	18.63016	12.89875	-0.40249	0.91196	0.45061	56.41457	1.09395	19.83	13.22
71/ 3/28	2441039.0	48.53393	24.64048	15.83867	-0.52021	0.86058	0.41644	56.68826	1.08841	26.92	16.22
71/ 3/29	2441039.5	44.63984	30.25854	18.52616	-0.62787	0.79639	0.37622	57.02204	1.08166	34.13	18.96
71/ 3/29	2441040.0	40.05536	35.40298	20.92339	-0.72383	0.72101	0.33090	57.40724	1.07391	41.47	21.38
71/ 3/30	2441040.5	34.86409	40.00401	22.99925	-0.80687	0.63623	0.28149	57.83417	1.06540	48.93	23.43
71/ 3/30	2441041.0	29.15668	44.00421	24.72946	-0.87614	0.54389	0.22900	58.29261	1.05635	56.47	25.10
71/ 3/31	2441041.5	23.02817	47.35863	26.09657	-0.93117	0.44584	0.17443	58.77216	1.04703	64.07	26.36
71/ 3/31	2441042.0	16.57570	50.03457	27.08966	-0.97181	0.34383	0.11871	59.26265	1.03765	71.67	27.20
71/ 4/ 1	2441042.5	9.89644	52.01099	27.70390	-0.99817	0.23954	0.06269	59.75440	1.02843	79.23	27.62
71/ 4/ 1	2441043.0	3.08603	53.27771	27.94000	-1.01061	0.13451	0.00717	60.23854	1.01955	86.68	27.63
71/ 4/ 2	2441043.5	-3.76281	53.83445	27.80370	-1.00962	0.03011	-0.04717	60.70710	1.01117	94.00	27.26
71/ 4/ 2	2441044.0	-10.56119	53.68989	27.30516	-0.99582	-0.07239	-0.09970	61.15321	1.00341	101.13	26.52
71/ 4/ 3	2441044.5	-17.22480	52.86073	26.45843	-0.96994	-0.17187	-0.14990	61.57109	0.99639	108.05	25.45

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
71/ 4/ 3	2441045.0	-23.67437	51.37079	25.28094	-0.93275	-0.26736	-0.19730	61.95611	0.99017	114.74	24.08
71/ 4/ 4	2441045.5	-29.83605	49.25017	23.79311	-0.88507	-0.35796	-0.24148	62.30474	0.98478	121.21	22.45
71/ 4/ 4	2441046.0	-35.64157	46.53461	22.01788	-0.82772	-0.44292	-0.28211	62.61452	0.98025	127.45	20.59
71/ 4/ 5	2441046.5	-41.02843	43.26477	19.98043	-0.76158	-0.52153	-0.31887	62.88394	0.97656	133.48	18.53
71/ 4/ 5	2441047.0	-45.93996	39.48576	17.70785	-0.68751	-0.59318	-0.35150	63.11238	0.97370	139.32	16.29
71/ 4/ 6	2441047.5	-50.32542	35.24657	15.22892	-0.60639	-0.65733	-0.37977	63.29999	0.97160	144.99	13.92
71/ 4/ 6	2441048.0	-54.14009	30.59973	12.57384	-0.51911	-0.71348	-0.40348	63.44757	0.97022	150.53	11.43
71/ 4/ 7	2441048.5	-57.34534	25.60083	9.77403	-0.42658	-0.76122	-0.42248	63.55645	0.96949	155.94	8.85
71/ 4/ 7	2441049.0	-59.90875	20.30819	6.86192	-0.32973	-0.80016	-0.43662	63.62835	0.96934	161.27	6.19
71/ 4/ 8	2441049.5	-61.80426	14.78248	3.87077	-0.22951	-0.83000	-0.44581	63.66530	0.96970	166.55	3.49
71/ 4/ 8	2441050.0	-63.01225	9.08631	0.83442	-0.12688	-0.85046	-0.44996	63.66946	0.97049	171.79	0.75
71/ 4/ 9	2441050.5	-63.51975	3.28389	-2.21288	-0.02283	-0.86135	-0.44904	63.64307	0.97164	177.04	-1.99
71/ 4/ 9	2441051.0	-63.32059	-2.55945	-5.23675	0.08163	-0.86252	-0.44304	63.58829	0.97309	182.31	-4.72
71/ 4/10	2441051.5	-62.41548	-8.37767	-8.20288	0.18546	-0.85392	-0.43200	63.50720	0.97478	187.64	-7.42
71/ 4/10	2441052.0	-60.81220	-14.10453	-11.07732	0.28761	-0.83555	-0.41598	63.40164	0.97668	193.06	-10.06
71/ 4/11	2441052.5	-58.52566	-19.67411	-13.82675	0.38704	-0.80750	-0.39511	63.27324	0.97876	198.58	-12.62
71/ 4/11	2441053.0	-55.57795	-25.02136	-16.41877	0.48268	-0.76994	-0.36953	63.12331	0.98099	204.24	-15.08
71/ 4/12	2441053.5	-51.99832	-30.08268	-18.82221	0.57347	-0.72312	-0.33946	62.95291	0.98336	210.05	-17.40
71/ 4/12	2441054.0	-47.82314	-34.79655	-21.00741	0.65837	-0.66740	-0.30513	62.76276	0.98589	216.04	-19.55
71/ 4/13	2441054.5	-43.09579	-39.10411	-22.94657	0.73635	-0.60322	-0.26686	62.55337	0.98859	222.22	-21.52
71/ 4/13	2441055.0	-37.86645	-42.94982	-24.61408	0.80644	-0.53112	-0.22497	62.32502	0.99149	228.60	-23.26
71/ 4/14	2441055.5	-32.19187	-46.28211	-25.98678	0.86767	-0.45173	-0.17987	62.07788	0.99462	235.18	-24.75
71/ 4/14	2441056.0	-26.13509	-49.05401	-27.04434	0.91916	-0.36577	-0.13199	61.81210	0.99803	241.95	-25.95
71/ 4/15	2441056.5	-19.76502	-51.22380	-27.76951	0.96005	-0.27407	-0.08181	61.52787	1.00175	248.90	-26.83
71/ 4/15	2441057.0	-13.15604	-52.75565	-28.14848	0.98958	-0.17755	-0.02985	61.22563	1.00583	256.00	-27.37
71/ 4/16	2441057.5	-6.38744	-53.62030	-28.17116	1.00708	-0.07723	0.02330	60.90608	1.01030	263.21	-27.55
71/ 4/16	2441058.0	0.45714	-53.79566	-27.83147	1.01193	0.02580	0.07705	60.57040	1.01519	270.49	-27.35
71/ 4/17	2441058.5	7.29041	-53.26751	-27.12765	1.00367	0.13030	0.13072	60.22033	1.02050	277.79	-26.77
71/ 4/17	2441059.0	14.02225	-52.03014	-26.06253	0.98193	0.23500	0.18362	59.85828	1.02622	285.08	-25.81
71/ 4/18	2441059.5	20.56062	-50.08696	-24.64380	0.94652	0.33849	0.23501	59.48747	1.03233	292.32	-24.47
71/ 4/18	2441060.0	26.81270	-47.45112	-22.88425	0.89740	0.43928	0.28413	59.11192	1.03876	299.47	-22.78
71/ 4/19	2441060.5	32.68614	-44.14607	-20.80197	0.83475	0.53584	0.33018	58.73654	1.04544	306.52	-20.74
71/ 4/19	2441061.0	38.09050	-40.20591	-18.42048	0.75898	0.62655	0.37235	58.36708	1.05226	313.45	-18.40
71/ 4/20	2441061.5	42.93897	-35.67576	-15.76872	0.67073	0.70979	0.40985	58.01007	1.05908	320.28	-15.77
71/ 4/20	2441062.0	47.15016	-30.61174	-12.88104	0.57097	0.78393	0.44189	57.67267	1.06575	327.01	-12.91
71/ 4/21	2441062.5	50.65008	-25.08080	-9.79689	0.46094	0.84741	0.46775	57.36250	1.07208	333.66	-9.83
71/ 4/21	2441063.0	53.37429	-19.16014	-6.56041	0.34220	0.89878	0.48677	57.08735	1.07789	340.25	-6.60
71/ 4/22	2441063.5	55.26995	-12.93624	-3.21982	0.21660	0.93676	0.49842	56.85491	1.08299	346.83	-3.25
71/ 4/22	2441064.0	56.29774	-6.50343	0.17349	0.08630	0.96032	0.50228	56.67239	1.08718	353.41	0.18
71/ 4/23	2441064.5	56.43364	0.03793	3.56599	-0.04636	0.96873	0.49815	56.54620	1.09029	0.04	3.62
71/ 4/23	2441065.0	55.67013	6.58375	6.90328	-0.17886	0.96161	0.48599	56.48154	1.09219	6.74	7.02
71/ 4/24	2441065.5	54.01698	13.02876	10.13145	-0.30864	0.93900	0.46598	56.48211	1.09275	13.56	10.33
71/ 4/24	2441066.0	51.50126	19.26925	13.19855	-0.43316	0.90132	0.43851	56.54985	1.09192	20.51	13.50
71/ 4/25	2441066.5	48.16678	25.20584	16.05593	-0.55003	0.84943	0.40417	56.68479	1.08968	27.62	16.45
71/ 4/25	2441067.0	44.07272	30.74606	18.65953	-0.65712	0.78451	0.36371	56.88499	1.08607	34.90	19.15

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
71/ 4/26	2441067.5	39.29175	35.80661	20.97089	-0.75260	0.70806	0.31803	57.14659	1.08115	42.34	21.53
71/ 4/26	2441068.0	33.90766	40.31518	22.95798	-0.83501	0.62181	0.26812	57.46400	1.07507	49.93	23.55
71/ 4/27	2441068.5	28.01270	44.21161	24.59559	-0.90331	0.52762	0.21501	57.83010	1.06798	57.64	25.17
71/ 4/27	2441069.0	21.70488	47.44863	25.86560	-0.95685	0.42741	0.15974	58.23661	1.06007	65.42	26.37
71/ 4/28	2441069.5	15.08532	49.99194	26.75677	-0.99535	0.32308	0.10331	58.67441	1.05156	73.21	27.13
71/ 4/28	2441070.0	8.25585	51.81993	27.26449	-1.01887	0.21647	0.04666	59.13389	1.04265	80.95	27.46
71/ 4/29	2441070.5	1.31693	52.92290	27.39026	-1.02775	0.10927	-0.00935	59.60532	1.03358	88.57	27.36
71/ 4/29	2441071.0	-5.63406	53.30221	27.14108	-1.02254	0.00302	-0.06394	60.07916	1.02454	96.03	26.86
71/ 4/30	2441071.5	-12.50416	52.96910	26.52881	-1.00399	-0.10089	-0.11646	60.54632	1.01574	103.28	25.99
71/ 4/30	2441072.0	-19.20576	51.94362	25.56953	-0.97294	-0.20124	-0.16632	60.99837	1.00736	110.29	24.78
71/ 5/ 1	2441072.5	-25.65730	50.25347	24.28289	-0.93031	-0.29700	-0.21305	61.42774	0.99954	117.05	23.29
71/ 5/ 1	2441073.0	-31.78368	47.93298	22.69154	-0.87708	-0.38724	-0.25624	61.82781	0.99241	123.55	21.53
71/ 5/ 2	2441073.5	-37.51642	45.02212	20.82065	-0.81424	-0.47121	-0.29555	62.19303	0.98609	129.80	19.56
71/ 5/ 2	2441074.0	-42.79380	41.56570	18.69742	-0.74278	-0.54824	-0.33071	62.51888	0.98064	135.83	17.40
71/ 5/ 3	2441074.5	-47.56080	37.61263	16.35079	-0.66369	-0.61778	-0.36149	62.80197	0.97612	141.66	15.09
71/ 5/ 3	2441075.0	-51.76904	33.21532	13.81101	-0.57795	-0.67935	-0.38771	63.03995	0.97255	147.32	12.66
71/ 5/ 4	2441075.5	-55.37671	28.42914	11.10951	-0.48651	-0.73254	-0.40923	63.23146	0.96994	152.83	10.12
71/ 5/ 4	2441076.0	-58.34849	23.31206	8.27856	-0.39033	-0.77701	-0.42592	63.37612	0.96825	158.22	7.51
71/ 5/ 5	2441076.5	-60.65548	17.92419	5.35115	-0.29036	-0.81246	-0.43770	63.47439	0.96746	163.54	4.84
71/ 5/ 5	2441077.0	-62.27524	12.32751	2.36083	-0.18755	-0.83864	-0.44449	63.52753	0.96750	168.80	2.13
71/ 5/ 6	2441077.5	-63.19181	6.58552	-0.65854	-0.08287	-0.85534	-0.44627	63.53745	0.96831	174.05	-0.59
71/ 5/ 6	2441078.0	-63.39578	0.76294	-3.67288	0.02271	-0.86241	-0.44301	63.50667	0.96981	179.31	-3.32
71/ 5/ 7	2441078.5	-62.88439	-5.07464	-6.64810	0.12820	-0.85975	-0.43472	63.43813	0.97190	184.61	-6.02
71/ 5/ 7	2441079.0	-61.66172	-10.86111	-9.55032	0.23258	-0.84732	-0.42146	63.33514	0.97451	189.99	-8.67
71/ 5/ 8	2441079.5	-59.73877	-16.53026	-12.34607	0.33481	-0.82512	-0.40330	63.20123	0.97753	195.47	-11.26
71/ 5/ 8	2441080.0	-57.13369	-22.01624	-15.00255	0.43383	-0.79325	-0.38036	63.04006	0.98088	201.07	-13.77
71/ 5/ 9	2441080.5	-53.87183	-27.25412	-17.48790	0.52857	-0.75189	-0.35280	62.85529	0.98448	206.84	-16.15
71/ 5/ 9	2441081.0	-49.98589	-32.18043	-19.77155	0.61794	-0.70130	-0.32083	62.65049	0.98823	212.77	-18.40
71/ 5/10	2441081.5	-45.51590	-36.73387	-21.82451	0.70085	-0.64185	-0.28472	62.42903	0.99209	218.91	-20.46
71/ 5/10	2441082.0	-40.50921	-40.85597	-23.61975	0.77625	-0.57402	-0.24479	62.19404	0.99598	225.24	-22.32
71/ 5/11	2441082.5	-35.02028	-44.49186	-25.13259	0.84308	-0.49839	-0.20140	61.94831	0.99987	231.79	-23.94
71/ 5/11	2441083.0	-29.11047	-47.59106	-26.34108	0.90037	-0.41567	-0.15499	61.69426	1.00373	238.55	-25.27
71/ 5/12	2441083.5	-22.84764	-50.10826	-27.22637	0.94718	-0.32667	-0.10605	61.43393	1.00753	245.49	-26.31
71/ 5/12	2441084.0	-16.30565	-52.00411	-27.77309	0.98267	-0.23235	-0.05511	61.16900	1.01127	252.59	-27.00
71/ 5/13	2441084.5	-9.56368	-53.24600	-27.96972	1.00612	-0.13375	-0.00277	60.90079	1.01497	259.82	-27.34
71/ 5/13	2441085.0	-2.70555	-53.80878	-27.80889	1.01689	-0.03202	0.05034	60.63035	1.01864	267.12	-27.30
71/ 5/14	2441085.5	4.18127	-53.67544	-27.28768	1.01452	0.07160	0.10353	60.35854	1.02230	274.45	-26.88
71/ 5/14	2441086.0	11.00658	-52.83767	-26.40784	0.99869	0.17577	0.15611	60.08609	1.02598	281.77	-26.07
71/ 5/15	2441086.5	17.67860	-51.29641	-25.17600	0.96925	0.27910	0.20735	59.81376	1.02972	289.02	-24.89
71/ 5/15	2441087.0	24.10520	-49.06223	-23.60377	0.92623	0.38014	0.25650	59.54243	1.03354	296.17	-23.35
71/ 5/16	2441087.5	30.19512	-46.15560	-21.70783	0.86989	0.47742	0.30282	59.27322	1.03746	303.19	-21.48
71/ 5/16	2441088.0	35.85944	-42.60710	-19.50988	0.80065	0.56943	0.34556	59.00763	1.04149	310.08	-19.31
71/ 5/17	2441088.5	41.01295	-38.45739	-17.03659	0.71918	0.65470	0.38401	58.74758	1.04562	316.84	-16.86
71/ 5/17	2441089.0	45.57571	-33.75709	-14.31940	0.62637	0.73178	0.41747	58.49557	1.04982	323.47	-14.17
71/ 5/18	2441089.5	49.47453	-28.56646	-11.39423	0.52333	0.79927	0.44532	58.25462	1.05405	330.00	-11.28

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
71/ 5/18	2441090.0	52.64462	-22.95481	-8.30115	0.41142	0.85589	0.46697	58.02834	1.05824	336.44	-8.22
71/ 5/19	2441090.5	55.03102	-16.99981	-5.08383	0.29219	0.90048	0.48193	57.82086	1.06231	342.83	-5.04
71/ 5/19	2441091.0	56.59015	-10.78641	-1.78894	0.16744	0.93205	0.48982	57.63673	1.06615	349.21	-1.78
71/ 5/20	2441091.5	57.29113	-4.40558	1.53462	0.03913	0.94981	0.49036	57.48076	1.06964	355.60	1.53
71/ 5/20	2441092.0	57.11693	2.04721	4.83657	-0.09063	0.95323	0.48343	57.35788	1.07265	2.05	4.84
71/ 5/21	2441092.5	56.06523	8.47386	8.06625	-0.21961	0.94207	0.46904	57.27286	1.07505	8.59	8.10
71/ 5/21	2441093.0	54.14899	14.77559	11.17369	-0.34555	0.91638	0.44738	57.23008	1.07671	15.26	11.26
71/ 5/22	2441093.5	51.39648	20.85510	14.11075	-0.46618	0.87655	0.41880	57.23327	1.07752	22.09	14.27
71/ 5/22	2441094.0	47.85096	26.61883	16.83220	-0.57937	0.82328	0.38381	57.28525	1.07739	29.09	17.09
71/ 5/23	2441094.5	43.56976	31.97909	19.29677	-0.68311	0.75760	0.34307	57.38773	1.07624	36.28	19.65
71/ 5/23	2441095.0	38.62293	36.85604	21.46814	-0.77565	0.68080	0.29737	57.54111	1.07404	43.66	21.91
71/ 5/24	2441095.5	33.09148	41.17951	23.31566	-0.85553	0.59443	0.24759	57.74441	1.07078	51.21	23.81
71/ 5/24	2441096.0	27.06521	44.89029	24.81495	-0.92161	0.50018	0.19470	57.99522	1.06651	58.91	25.33
71/ 5/25	2441096.5	20.64045	47.94113	25.94821	-0.97310	0.39986	0.13967	58.28970	1.06129	66.71	26.43
71/ 5/25	2441097.0	13.91756	50.29722	26.70434	-1.00960	0.29533	0.08349	58.62278	1.05522	74.53	27.10
71/ 5/26	2441097.5	6.99864	51.93625	27.07876	-1.03100	0.18841	0.02711	58.98826	1.04843	82.33	27.33
71/ 5/26	2441098.0	-0.01467	52.84803	27.07313	-1.03753	0.08086	-0.02859	59.37902	1.04107	90.02	27.13
71/ 5/27	2441098.5	-7.02316	53.03384	26.69482	-1.02968	-0.02570	-0.08281	59.78734	1.03332	97.54	26.52
71/ 5/27	2441099.0	-13.93160	52.50550	25.95641	-1.00812	-0.12979	-0.13482	60.20508	1.02535	104.86	25.54
71/ 5/28	2441099.5	-20.65007	51.28431	24.87494	-0.97373	-0.23009	-0.18401	60.62399	1.01733	111.93	24.22
71/ 5/28	2441100.0	-27.09487	49.39987	23.47134	-0.92748	-0.32547	-0.22986	61.03591	1.00945	118.74	22.62
71/ 5/29	2441100.5	-33.18918	46.88894	21.76977	-0.87041	-0.41494	-0.27194	61.43303	1.00187	125.29	20.75
71/ 5/29	2441101.0	-38.86343	43.79436	19.79701	-0.80362	-0.49769	-0.30989	61.80804	0.99475	131.59	18.68
71/ 5/30	2441101.5	-44.05546	40.16403	17.58195	-0.72820	-0.57304	-0.34345	62.15430	0.98824	137.65	16.43
71/ 5/30	2441102.0	-48.71059	36.04999	15.15510	-0.64526	-0.64044	-0.37240	62.46599	0.98245	143.50	14.04
71/ 5/31	2441102.5	-52.78147	31.50768	12.54824	-0.55586	-0.69944	-0.39658	62.73815	0.97748	149.17	11.54
71/ 5/31	2441103.0	-56.22796	26.59527	9.79404	-0.46105	-0.74967	-0.41589	62.96678	0.97342	154.69	8.95
71/ 6/ 1	2441103.5	-59.01695	21.37312	6.92583	-0.36187	-0.79086	-0.43024	63.14885	0.97032	160.09	6.30
71/ 6/ 1	2441104.0	-61.12218	15.90330	3.97736	-0.25931	-0.82277	-0.43959	63.28234	0.96821	165.42	3.60
71/ 6/ 2	2441104.5	-62.52413	10.24928	0.98260	-0.15436	-0.84523	-0.44390	63.36623	0.96711	170.69	0.89
71/ 6/ 2	2441105.0	-63.20989	4.47554	-2.02437	-0.04799	-0.85811	-0.44320	63.40046	0.96699	175.95	-1.83
71/ 6/ 3	2441105.5	-63.17314	-1.35268	-5.00956	0.05883	-0.86131	-0.43748	63.38589	0.96783	181.23	-4.53
71/ 6/ 3	2441106.0	-62.41417	-7.16965	-7.93921	0.16512	-0.85478	-0.42680	63.32427	0.96958	186.55	-7.20
71/ 6/ 4	2441106.5	-60.93993	-12.90949	-10.77990	0.26988	-0.83853	-0.41123	63.21817	0.97215	191.96	-9.82
71/ 6/ 4	2441107.0	-58.76416	-18.50645	-13.49880	0.37210	-0.81260	-0.39085	63.07086	0.97547	197.48	-12.36
71/ 6/ 5	2441107.5	-55.90753	-23.89531	-16.06380	0.47076	-0.77710	-0.36581	62.88628	0.97945	203.14	-14.80
71/ 6/ 5	2441108.0	-52.39780	-29.01180	-18.44381	0.56478	-0.73221	-0.33626	62.66887	0.98396	208.97	-17.12
71/ 6/ 6	2441108.5	-48.26994	-33.79315	-20.60900	0.65310	-0.67819	-0.30241	62.42352	0.98891	215.00	-19.28
71/ 6/ 6	2441109.0	-43.56634	-38.17868	-22.53115	0.73462	-0.61540	-0.26454	62.15537	0.99416	221.23	-21.25
71/ 6/ 7	2441109.5	-38.33674	-42.11051	-24.18398	0.80824	-0.54430	-0.22294	61.86975	0.99961	227.69	-23.01
71/ 6/ 7	2441110.0	-32.63832	-45.53432	-25.54359	0.87288	-0.46550	-0.17802	61.57199	1.00514	234.37	-24.51
71/ 6/ 8	2441110.5	-26.53544	-48.40026	-26.58888	0.92750	-0.37970	-0.13021	61.26731	1.01063	241.27	-25.72
71/ 6/ 8	2441111.0	-20.09939	-50.66383	-27.30197	0.97111	-0.28777	-0.08001	60.96069	1.01600	248.36	-26.61
71/ 6/ 9	2441111.5	-13.40786	-52.28684	-27.66869	1.00280	-0.19073	-0.02803	60.65674	1.02116	255.62	-27.14
71/ 6/ 9	2441112.0	-6.54426	-53.23837	-27.67901	1.02180	-0.08969	0.02512	60.35958	1.02603	262.99	-27.29

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 6/10	2441112.5	0.40316	-53.49569	-27.32744	1.02746	0.01405	0.07872	60.07279	1.03057	270.43	-27.06
71/ 6/10	2441113.0	7.34242	-53.04505	-26.61338	1.01933	0.11912	0.13203	59.79933	1.03472	277.88	-26.43
71/ 6/11	2441113.5	14.17909	-51.88242	-25.54139	0.99714	0.22404	0.18428	59.54154	1.03848	285.29	-25.40
71/ 6/11	2441114.0	20.81773	-50.01404	-24.12138	0.96086	0.32726	0.23467	59.30112	1.04184	292.60	-24.00
71/ 6/12	2441114.5	27.16345	-47.45674	-22.36864	0.91070	0.42721	0.28239	59.07919	1.04481	299.79	-22.25
71/ 6/12	2441115.0	33.12361	-44.23809	-20.30386	0.84710	0.52229	0.32668	58.87638	1.04742	306.82	-20.17
71/ 6/13	2441115.5	38.60944	-40.39630	-17.95289	0.77077	0.61096	0.36678	58.69290	1.04971	313.70	-17.81
71/ 6/13	2441116.0	43.53776	-35.97991	-15.34649	0.68265	0.69173	0.40200	58.52867	1.05172	320.43	-15.20
71/ 6/14	2441116.5	47.83256	-31.04715	-12.51990	0.58391	0.76322	0.43170	58.38345	1.05348	327.01	-12.38
71/ 6/14	2441117.0	51.42655	-25.66523	-9.51235	0.47595	0.82417	0.45535	58.25701	1.05505	333.48	-9.40
71/ 6/15	2441117.5	54.26247	-19.90930	-6.36644	0.36034	0.87350	0.47250	58.14919	1.05645	339.85	-6.29
71/ 6/15	2441118.0	56.29435	-13.86127	-3.12745	0.23882	0.91029	0.48279	58.06005	1.05771	346.17	-3.09
71/ 6/16	2441118.5	57.48845	-7.60853	0.15741	0.11328	0.93385	0.48601	57.98997	1.05883	352.46	0.16
71/ 6/16	2441119.0	57.82410	-1.24238	3.43982	-0.01434	0.94371	0.48206	57.93965	1.05980	358.77	3.40
71/ 6/17	2441119.5	57.29420	5.14345	6.67120	-0.14198	0.93965	0.47096	57.91015	1.06061	5.13	6.62
71/ 6/17	2441120.0	55.90549	11.45453	9.80359	-0.26759	0.92167	0.45287	57.90286	1.06121	11.58	9.75
71/ 6/18	2441120.5	53.67859	17.59744	12.79051	-0.38916	0.89005	0.42806	57.91941	1.06154	18.15	12.76
71/ 6/18	2441121.0	50.64763	23.48149	15.58785	-0.50470	0.84534	0.39697	57.96158	1.06156	24.87	15.60
71/ 6/19	2441121.5	46.85972	29.02045	18.15472	-0.61238	0.78830	0.36010	58.03115	1.06118	31.77	18.23
71/ 6/19	2441122.0	42.37400	34.13411	20.45417	-0.71049	0.71994	0.31811	58.12974	1.06034	38.85	20.60
71/ 6/20	2441122.5	37.26046	38.74985	22.45391	-0.79754	0.64148	0.27173	58.25865	1.05897	46.12	22.67
71/ 6/20	2441123.0	31.59846	42.80392	24.12686	-0.87226	0.55433	0.22176	58.41869	1.05702	53.56	24.39
71/ 6/21	2441123.5	25.47509	46.24250	25.45162	-0.93364	0.46000	0.16906	58.61001	1.05445	61.15	25.74
71/ 6/21	2441124.0	18.98330	49.02255	26.41271	-0.98095	0.36015	0.11452	58.83203	1.05123	68.83	26.68
71/ 6/22	2441124.5	12.21996	51.11231	27.00072	-1.01378	0.25645	0.05904	59.08329	1.04737	76.55	27.19
71/ 6/22	2441125.0	5.28390	52.49147	27.21228	-1.03196	0.15059	0.00349	59.36145	1.04289	84.25	27.28
71/ 6/23	2441125.5	-1.72603	53.15107	27.04981	-1.03563	0.04424	-0.05127	59.66329	1.03784	91.86	26.96
71/ 6/23	2441126.0	-8.71266	53.09311	26.52127	-1.02516	-0.06105	-0.10448	59.98472	1.03228	99.32	26.24
71/ 6/24	2441126.5	-15.58215	52.32988	25.63966	-1.00115	-0.16379	-0.15542	60.32091	1.02630	106.58	25.15
71/ 6/24	2441127.0	-22.24534	50.88317	24.42250	-0.96438	-0.26267	-0.20347	60.66639	1.02001	113.61	23.74
71/ 6/25	2441127.5	-28.61879	48.78325	22.89129	-0.91576	-0.35649	-0.24808	61.01518	1.01353	120.40	22.04
71/ 6/25	2441128.0	-34.62571	46.06789	21.07088	-0.85632	-0.44425	-0.28880	61.36100	1.00700	126.93	20.08
71/ 6/26	2441128.5	-40.19646	42.78123	18.98891	-0.78715	-0.52506	-0.32526	61.69739	1.00054	133.22	17.93
71/ 6/26	2441129.0	-45.26894	38.97283	16.67524	-0.70938	-0.59821	-0.35717	62.01792	0.99431	139.27	15.60
71/ 6/27	2441129.5	-49.78880	34.69664	14.16144	-0.62415	-0.66311	-0.38432	62.31635	0.98843	145.13	13.14
71/ 6/27	2441130.0	-53.70937	30.01011	11.48035	-0.53261	-0.71931	-0.40655	62.58676	0.98303	150.81	10.57
71/ 6/28	2441130.5	-56.99167	24.97347	8.66566	-0.43586	-0.76644	-0.42376	62.82371	0.97825	156.34	7.93
71/ 6/28	2441131.0	-59.60417	19.64901	5.75160	-0.33500	-0.80426	-0.43589	63.02239	0.97420	161.75	5.24
71/ 6/29	2441131.5	-61.52260	14.10050	2.77266	-0.23108	-0.83258	-0.44292	63.17865	0.97096	167.09	2.52
71/ 6/29	2441132.0	-62.72976	8.39277	-0.23668	-0.12513	-0.85126	-0.44487	63.28916	0.96862	172.38	-0.21
71/ 6/30	2441132.5	-63.21534	2.59126	-3.24208	-0.01817	-0.86026	-0.44177	63.35144	0.96723	177.65	-2.93
71/ 6/30	2441133.0	-62.97574	-3.23828	-6.20954	0.08885	-0.85954	-0.43368	63.36393	0.96684	182.94	-5.62
71/ 7/ 1	2441133.5	-62.01396	-9.03010	-9.10553	0.19492	-0.84913	-0.42068	63.32602	0.96746	188.28	-8.27
71/ 7/ 1	2441134.0	-60.33961	-14.71871	-11.89713	0.29910	-0.82908	-0.40287	63.23804	0.96909	193.71	-10.84
71/ 7/ 2	2441134.5	-57.96885	-20.23918	-14.55220	0.40040	-0.79950	-0.38038	63.10134	0.97170	199.25	-13.33

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
71/ 7/ 2	2441135.0	-54.92454	-25.52740	-17.03949	0.49783	-0.76053	-0.35336	62.91818	0.97524	204.93	-15.71
71/ 7/ 3	2441135.5	-51.23628	-30.52046	-19.32887	0.59039	-0.71238	-0.32197	62.69178	0.97965	210.78	-17.96
71/ 7/ 3	2441136.0	-46.94057	-35.15707	-21.39153	0.67703	-0.65532	-0.28645	62.42624	0.98482	216.83	-20.04
71/ 7/ 4	2441136.5	-42.08101	-39.37804	-23.20027	0.75671	-0.58971	-0.24704	62.12643	0.99066	223.10	-21.93
71/ 7/ 4	2441137.0	-36.70834	-43.12687	-24.72978	0.82837	-0.51599	-0.20405	61.79799	0.99703	229.60	-23.59
71/ 7/ 5	2441137.5	-30.88060	-46.35049	-25.95707	0.89092	-0.43472	-0.15786	61.44713	1.00381	236.33	-24.99
71/ 7/ 5	2441138.0	-24.66304	-49.00009	-26.86184	0.94330	-0.34661	-0.10889	61.08054	1.01085	243.28	-26.09
71/ 7/ 6	2441138.5	-18.12801	-51.03200	-27.42695	0.98450	-0.25248	-0.05765	60.70525	1.01799	250.44	-26.86
71/ 7/ 6	2441139.0	-11.35460	-52.40875	-27.63896	1.01354	-0.15332	-0.00472	60.32840	1.02508	257.78	-27.27
71/ 7/ 7	2441139.5	-4.42809	-53.10013	-27.48858	1.02957	-0.05030	0.04924	59.95710	1.03198	265.23	-27.29
71/ 7/ 7	2441140.0	2.56086	-53.08427	-26.97121	1.03188	0.05529	0.10352	59.59819	1.03853	272.76	-26.91
71/ 7/ 8	2441140.5	9.51733	-52.34871	-26.08739	1.01991	0.16197	0.15732	59.25807	1.04460	280.30	-26.12
71/ 7/ 8	2441141.0	16.34349	-50.89133	-24.84316	0.99336	0.26816	0.20980	58.94251	1.05009	287.80	-24.93
71/ 7/ 9	2441141.5	22.94022	-48.72111	-23.25038	0.95218	0.37218	0.26010	58.65646	1.05490	295.21	-23.35
71/ 7/ 9	2441142.0	29.20903	-45.85866	-21.32681	0.89659	0.47228	0.30734	58.40391	1.05895	302.49	-21.42
71/ 7/10	2441142.5	35.05405	-42.33645	-19.09610	0.82715	0.56671	0.35065	58.18782	1.06222	309.62	-19.16
71/ 7/10	2441143.0	40.38416	-38.19869	-16.58759	0.74471	0.65377	0.38924	58.01008	1.06467	316.59	-16.62
71/ 7/11	2441143.5	45.11508	-33.50082	-13.83585	0.65043	0.73185	0.42236	57.87146	1.06633	323.40	-13.83
71/ 7/11	2441144.0	49.17132	-28.30866	-10.88017	0.54575	0.79951	0.44937	57.77177	1.06723	330.07	-10.86
71/ 7/12	2441144.5	52.48800	-22.69720	-7.76374	0.43234	0.85548	0.46975	57.70987	1.06744	336.62	-7.73
71/ 7/12	2441145.0	55.01226	-16.74918	-4.53286	0.31208	0.89874	0.48311	57.68389	1.06702	343.07	-4.51
71/ 7/13	2441145.5	56.70447	-10.55337	-1.23594	0.18698	0.92854	0.48922	57.69140	1.06607	349.46	-1.23
71/ 7/13	2441146.0	57.53893	-4.20274	2.07747	0.05915	0.94440	0.48798	57.72960	1.06467	355.82	2.06
71/ 7/14	2441146.5	57.50430	2.20742	5.35768	-0.06930	0.94611	0.47944	57.79552	1.06292	2.20	5.32
71/ 7/14	2441147.0	56.60362	8.58138	8.55584	-0.19625	0.93375	0.46379	57.88620	1.06090	8.62	8.50
71/ 7/15	2441147.5	54.85395	14.82482	11.62482	-0.31967	0.90764	0.44136	57.99886	1.05868	15.12	11.56
71/ 7/15	2441148.0	52.28579	20.84649	14.52008	-0.43763	0.86838	0.41258	58.13100	1.05632	21.74	14.46
71/ 7/16	2441148.5	48.94221	26.55982	17.20040	-0.54836	0.81675	0.37799	58.28051	1.05387	28.49	17.17
71/ 7/16	2441149.0	44.87774	31.88432	19.62851	-0.65025	0.75374	0.33821	58.44570	1.05135	35.39	19.62
71/ 7/17	2441149.5	40.15715	36.74674	21.77160	-0.74189	0.68050	0.29394	58.62527	1.04876	42.46	21.80
71/ 7/17	2441150.0	34.85405	41.08214	23.60178	-0.82208	0.59833	0.24594	58.81829	1.04609	49.69	23.66
71/ 7/18	2441150.5	29.04944	44.83469	25.09637	-0.88984	0.50863	0.19498	59.02412	1.04333	57.06	25.16
71/ 7/18	2441151.0	22.83014	47.95829	26.23813	-0.94443	0.41286	0.14188	59.24232	1.04045	64.54	26.29
71/ 7/19	2441151.5	16.28727	50.41701	27.01531	-0.98533	0.31255	0.08746	59.47249	1.03740	72.10	27.02
71/ 7/19	2441152.0	9.51459	52.18532	27.42174	-1.01226	0.20924	0.03253	59.71420	1.03417	79.67	27.34
71/ 7/20	2441152.5	2.60701	53.24809	27.45662	-1.02517	0.10447	-0.02212	59.96684	1.03072	87.20	27.25
71/ 7/20	2441153.0	-4.34092	53.60048	27.12445	-1.02422	-0.00028	-0.07574	60.22949	1.02702	94.63	26.77
71/ 7/21	2441153.5	-11.23647	53.24758	26.43465	-1.00978	-0.10357	-0.12761	60.50085	1.02306	101.92	25.91
71/ 7/21	2441154.0	-17.98998	52.20388	25.40126	-0.98238	-0.20405	-0.17709	60.77918	1.01886	109.01	24.70
71/ 7/22	2441154.5	-24.51604	50.49271	24.04253	-0.94274	-0.30047	-0.22359	61.06221	1.01442	115.90	23.19
71/ 7/22	2441155.0	-30.73452	48.14540	22.38044	-0.89170	-0.39172	-0.26659	61.34716	1.00977	122.55	21.40
71/ 7/23	2441155.5	-36.57132	45.20053	20.44024	-0.83021	-0.47678	-0.30565	61.63077	1.00498	128.98	19.37
71/ 7/23	2441156.0	-41.95911	41.70296	18.24989	-0.75929	-0.55479	-0.34040	61.90931	1.00009	135.18	17.14
71/ 7/24	2441156.5	-46.83773	37.70300	15.83962	-0.68004	-0.62502	-0.37055	62.17864	0.99519	141.17	14.76
71/ 7/24	2441157.0	-51.15454	33.25546	13.24143	-0.59358	-0.68687	-0.39586	62.43435	0.99037	146.97	12.24

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 7/25	2441157.5	-54.86454	28.41879	10.48862	-0.50104	-0.73986	-0.41618	62.67182	0.98572	152.62	9.63
71/ 7/25	2441158.0	-57.93045	23.25430	7.61538	-0.40357	-0.78362	-0.43141	62.88635	0.98134	158.13	6.96
71/ 7/26	2441158.5	-60.32257	17.82543	4.65644	-0.30227	-0.81789	-0.44149	63.07330	0.97735	163.54	4.23
71/ 7/26	2441159.0	-62.01873	12.19705	1.64671	-0.19823	-0.84251	-0.44641	63.22818	0.97386	168.87	1.49
71/ 7/27	2441159.5	-63.00403	6.43493	-1.37899	-0.09253	-0.85738	-0.44621	63.34681	0.97096	174.17	-1.25
71/ 7/27	2441160.0	-63.27067	0.60521	-4.38614	0.01381	-0.86247	-0.44095	63.42541	0.96875	179.45	-3.97
71/ 7/28	2441160.5	-62.81772	-5.22596	-7.34077	0.11979	-0.85782	-0.43071	63.46073	0.96732	184.76	-6.64
71/ 7/28	2441161.0	-61.65098	-10.99286	-10.20958	0.22443	-0.84351	-0.41563	63.45015	0.96676	190.11	-9.26
71/ 7/29	2441161.5	-59.78280	-16.63046	-12.96016	0.32677	-0.81966	-0.39582	63.39180	0.96711	195.55	-11.80
71/ 7/29	2441162.0	-57.23198	-22.07476	-15.56107	0.42585	-0.78646	-0.37146	63.28460	0.96842	201.09	-14.23
71/ 7/30	2441162.5	-54.02375	-27.26304	-17.98201	0.52074	-0.74410	-0.34271	63.12837	0.97073	206.78	-16.55
71/ 7/30	2441163.0	-50.18974	-32.13419	-20.19399	0.61048	-0.69286	-0.30979	62.92387	0.97402	212.63	-18.72
71/ 7/31	2441163.5	-45.76804	-36.62905	-22.16951	0.69412	-0.63304	-0.27293	62.67286	0.97828	218.67	-20.72
71/ 7/31	2441164.0	-40.80328	-40.69076	-23.88271	0.77068	-0.56502	-0.23238	62.37811	0.98346	224.92	-22.51
71/ 8/ 1	2441164.5	-35.34671	-44.26529	-25.30970	0.83918	-0.48926	-0.18846	62.04343	0.98950	231.39	-24.08
71/ 8/ 1	2441165.0	-29.45632	-47.30200	-26.42881	0.89862	-0.40631	-0.14153	61.67363	0.99631	238.09	-25.37
71/ 8/ 2	2441165.5	-23.19685	-49.75429	-27.22095	0.94800	-0.31681	-0.09199	61.27449	1.00376	245.00	-26.38
71/ 8/ 2	2441166.0	-16.63976	-51.58041	-27.67002	0.98634	-0.22155	-0.04031	60.85269	1.01172	252.12	-27.05
71/ 8/ 3	2441166.5	-9.86308	-52.74441	-27.76340	1.01269	-0.12145	0.01295	60.41572	1.02003	259.41	-27.36
71/ 8/ 3	2441167.0	-2.95105	-53.21714	-27.49238	1.02617	-0.01762	0.06718	59.97169	1.02852	266.83	-27.29
71/ 8/ 4	2441167.5	4.00646	-52.97738	-26.85277	1.02600	0.08872	0.12167	59.52920	1.03700	274.32	-26.81
71/ 8/ 4	2441168.0	10.91485	-52.01297	-25.84537	1.01157	0.19612	0.17565	59.09709	1.04527	281.85	-25.93
71/ 8/ 5	2441168.5	17.67590	-50.32194	-24.47647	0.98245	0.30300	0.22828	58.68418	1.05315	289.35	-24.65
71/ 8/ 5	2441169.0	24.18941	-47.91356	-22.75826	0.93847	0.40765	0.27865	58.29902	1.06045	296.79	-22.98
71/ 8/ 6	2441169.5	30.35499	-44.80912	-20.70914	0.87976	0.50823	0.32584	57.94956	1.06698	304.11	-20.94
71/ 8/ 6	2441170.0	36.07429	-41.04252	-18.35378	0.80679	0.60287	0.36892	57.64290	1.07260	311.31	-18.57
71/ 8/ 7	2441170.5	41.25334	-36.66036	-15.72307	0.72040	0.68970	0.40700	57.38497	1.07718	318.37	-15.90
71/ 8/ 7	2441171.0	45.80510	-31.72167	-12.85373	0.62179	0.76692	0.43926	57.18033	1.08062	325.30	-12.99
71/ 8/ 8	2441171.5	49.65192	-26.29710	-9.78776	0.51252	0.83292	0.46496	57.03201	1.08287	332.09	-9.88
71/ 8/ 8	2441172.0	52.72777	-20.46760	-6.57156	0.39446	0.88628	0.48353	56.94142	1.08393	338.79	-6.63
71/ 8/ 9	2441172.5	54.98021	-14.32270	-3.25491	0.26975	0.92590	0.49457	56.90833	1.08381	345.40	-3.28
71/ 8/ 9	2441173.0	56.37186	-7.95833	0.11023	0.14067	0.95099	0.49783	56.93095	1.08259	351.96	0.11
71/ 8/10	2441173.5	56.88127	-1.47455	3.47099	0.00963	0.96112	0.49328	57.00615	1.08036	358.52	3.49
71/ 8/10	2441174.0	56.50330	5.02697	6.77486	-0.12097	0.95624	0.48107	57.12961	1.07725	5.08	6.81
71/ 8/11	2441174.5	55.24886	11.44532	9.97094	-0.24881	0.93664	0.46152	57.29617	1.07340	11.70	10.02
71/ 8/11	2441175.0	53.14412	17.68261	13.01101	-0.37171	0.90290	0.43509	57.50007	1.06898	18.40	13.08
71/ 8/12	2441175.5	50.22939	23.64601	15.85050	-0.48768	0.85592	0.40239	57.73529	1.06412	25.21	15.93
71/ 8/12	2441176.0	46.55763	29.24938	18.44919	-0.59499	0.79679	0.36411	57.99579	1.05899	32.14	18.55
71/ 8/13	2441176.5	42.19272	34.41468	20.77186	-0.69214	0.72679	0.32102	58.27578	1.05372	39.20	20.88
71/ 8/13	2441177.0	37.20772	39.07294	22.78859	-0.77791	0.64731	0.27391	58.56986	1.04842	46.40	22.90
71/ 8/14	2441177.5	31.68305	43.16498	24.47504	-0.85136	0.55984	0.22363	58.87324	1.04319	53.72	24.56
71/ 8/14	2441178.0	25.70469	46.64182	25.81254	-0.91179	0.46590	0.17100	59.18174	1.03810	61.14	25.86
71/ 8/15	2441178.5	19.36258	49.46490	26.78800	-0.95872	0.36704	0.11686	59.49187	1.03321	68.62	26.76
71/ 8/15	2441179.0	12.74898	51.60601	27.39386	-0.99193	0.26477	0.06199	59.80084	1.02853	76.12	27.26
71/ 8/16	2441179.5	5.95706	53.04715	27.62782	-1.01139	0.16059	0.00717	60.10643	1.02408	83.59	27.36

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 8/16	2441180.0	-0.92040	53.78022	27.49266	-1.01723	0.05592	-0.04689	60.40699	1.01985	90.98	27.07
71/ 8/17	2441180.5	-7.79225	53.80661	26.99587	-1.00979	-0.04787	-0.09951	60.70129	1.01581	98.24	26.41
71/ 8/17	2441181.0	-14.57000	53.13672	26.14939	-0.98954	-0.14948	-0.15006	60.98841	1.01195	105.33	25.39
71/ 8/18	2441181.5	-21.16878	51.78940	24.96921	-0.95706	-0.24771	-0.19796	61.26762	1.00822	112.23	24.05
71/ 8/18	2441182.0	-27.50821	49.79135	23.47498	-0.91308	-0.34146	-0.24271	61.53824	1.00460	118.92	22.42
71/ 8/19	2441182.5	-33.51313	47.17642	21.68967	-0.85842	-0.42971	-0.28384	61.79957	1.00105	125.39	20.55
71/ 8/19	2441183.0	-39.11420	43.98499	19.63912	-0.79399	-0.51156	-0.32097	62.05075	0.99756	131.65	18.45
71/ 8/20	2441183.5	-44.24848	40.26317	17.35166	-0.72075	-0.58621	-0.35375	62.29070	0.99411	137.70	16.17
71/ 8/20	2441184.0	-48.85981	36.06212	14.85768	-0.63974	-0.65297	-0.38191	62.51806	0.99070	143.57	13.75
71/ 8/21	2441184.5	-52.89913	31.43725	12.18921	-0.55202	-0.71127	-0.40524	62.73114	0.98735	149.28	11.20
71/ 8/21	2441185.0	-56.32473	26.44752	9.37958	-0.45869	-0.76064	-0.42358	62.92792	0.98407	154.85	8.57
71/ 8/22	2441185.5	-59.10229	21.15470	6.46295	-0.36085	-0.80072	-0.43682	63.10604	0.98090	160.31	5.88
71/ 8/22	2441186.0	-61.20501	15.62268	3.47406	-0.25959	-0.83124	-0.44492	63.26286	0.97791	165.68	3.15
71/ 8/23	2441186.5	-62.61349	9.91679	0.44779	-0.15602	-0.85204	-0.44786	63.39552	0.97514	171.00	0.40
71/ 8/23	2441187.0	-63.31568	4.10323	-2.58105	-0.05121	-0.86303	-0.44569	63.50097	0.97266	176.29	-2.33
71/ 8/24	2441187.5	-63.30669	-1.75152	-5.57806	0.05381	-0.86420	-0.43848	63.57609	0.97057	181.58	-5.03
71/ 8/24	2441188.0	-62.58864	-7.58117	-8.50948	0.15801	-0.85563	-0.42634	63.61779	0.96894	186.91	-7.69
71/ 8/25	2441188.5	-61.17045	-13.32010	-11.34238	0.26039	-0.83744	-0.40941	63.62310	0.96785	192.28	-10.27
71/ 8/25	2441189.0	-59.06765	-18.90375	-14.04487	0.36001	-0.80981	-0.38786	63.58929	0.96739	197.75	-12.76
71/ 8/26	2441189.5	-56.30219	-24.26898	-16.58627	0.45592	-0.77299	-0.36188	63.51397	0.96764	203.32	-15.14
71/ 8/26	2441190.0	-52.90232	-29.35440	-18.93729	0.54719	-0.72724	-0.33168	63.39525	0.96867	209.02	-17.38
71/ 8/27	2441190.5	-48.90244	-34.10074	-21.07016	0.63294	-0.67292	-0.29750	63.23181	0.97054	214.89	-19.46
71/ 8/27	2441191.0	-44.34304	-38.45114	-22.95883	0.71227	-0.61039	-0.25961	63.02304	0.97330	220.93	-21.36
71/ 8/28	2441191.5	-39.27063	-42.35152	-24.57909	0.78429	-0.54011	-0.21830	62.76914	0.97697	227.16	-23.05
71/ 8/28	2441192.0	-33.73769	-45.75099	-25.90883	0.84811	-0.46257	-0.17388	62.47121	0.98158	233.59	-24.50
71/ 8/29	2441192.5	-27.80270	-48.60227	-26.92824	0.90286	-0.37834	-0.12672	62.13132	0.98710	240.23	-25.68
71/ 8/29	2441193.0	-21.53009	-50.86226	-27.62009	0.94766	-0.28808	-0.07722	61.75260	0.99349	247.06	-26.57
71/ 8/30	2441193.5	-14.99016	-52.49264	-27.97001	0.98166	-0.19255	-0.02583	61.33925	1.00069	254.06	-27.13
71/ 8/30	2441194.0	-8.25902	-53.46060	-27.96690	1.00400	-0.09263	0.02694	60.89658	1.00862	261.22	-27.34
71/ 8/31	2441194.5	-1.41827	-53.73967	-27.60331	1.01389	0.01069	0.08051	60.43101	1.01714	268.49	-27.18
71/ 8/31	2441195.0	5.44533	-53.31069	-26.87593	1.01063	0.11625	0.13425	59.94995	1.02611	275.83	-26.64
71/ 9/ 1	2441195.5	12.24047	-52.16282	-25.78599	0.99359	0.22275	0.18744	59.46180	1.03536	283.21	-25.70
71/ 9/ 1	2441196.0	18.87224	-50.29459	-24.33983	0.96232	0.32871	0.23931	58.97571	1.04469	290.57	-24.38
71/ 9/ 2	2441196.5	25.24325	-47.71500	-22.54930	0.91657	0.43252	0.28899	58.50140	1.05389	297.88	-22.67
71/ 9/ 2	2441197.0	31.25523	-44.44451	-20.43218	0.85633	0.53243	0.33559	58.04893	1.06273	305.12	-20.61
71/ 9/ 3	2441197.5	36.81093	-40.51583	-18.01242	0.78191	0.62657	0.37820	57.62833	1.07098	312.26	-18.21
71/ 9/ 3	2441198.0	41.81639	-35.97442	-15.32025	0.69399	0.71304	0.41588	57.24928	1.07843	319.29	-15.52
71/ 9/ 4	2441198.5	46.18347	-30.87864	-12.39207	0.59361	0.78996	0.44775	56.92071	1.08485	326.23	-12.57
71/ 9/ 4	2441199.0	49.83254	-25.29930	-9.26998	0.48224	0.85554	0.47301	56.65041	1.09007	333.08	-9.42
71/ 9/ 5	2441199.5	52.69511	-19.31876	-6.00116	0.36170	0.90819	0.49098	56.44469	1.09394	339.87	-6.10
71/ 9/ 5	2441200.0	54.71637	-13.02927	-2.63684	0.23419	0.94658	0.50114	56.30804	1.09636	346.61	-2.68
71/ 9/ 6	2441200.5	55.85722	-6.53094	0.76893	0.10215	0.96973	0.50319	56.24298	1.09728	353.33	0.78
71/ 9/ 6	2441201.0	56.09576	0.07090	4.16068	-0.03181	0.97709	0.49701	56.24989	1.09669	0.07	4.24
71/ 9/ 7	2441201.5	55.42808	6.66854	7.48310	-0.16500	0.96851	0.48275	56.32706	1.09466	6.86	7.63
71/ 9/ 7	2441202.0	53.86827	13.15485	10.68248	-0.29482	0.94429	0.46075	56.47083	1.09129	13.72	10.90

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/ 9/ 8	2441202.5	51.44766	19.42613	13.70818	-0.41880	0.90516	0.43157	56.67583	1.08672	20.69	14.00
71/ 9/ 8	2441203.0	48.21344	25.38473	16.51381	-0.53473	0.85217	0.39590	56.93528	1.08114	27.77	16.86
71/ 9/ 9	2441203.5	44.22676	30.94119	19.05823	-0.64071	0.78666	0.35458	57.24142	1.07474	34.98	19.45
71/ 9/ 9	2441204.0	39.56044	36.01591	21.30619	-0.73519	0.71019	0.30852	57.58583	1.06773	42.31	21.72
71/ 9/10	2441204.5	34.29659	40.54033	23.22878	-0.81699	0.62444	0.25866	57.95990	1.06033	49.77	23.63
71/ 9/10	2441205.0	28.52419	44.45753	24.80356	-0.88525	0.53117	0.20597	58.35510	1.05273	57.32	25.15
71/ 9/11	2441205.5	22.33683	47.72252	26.01453	-0.93947	0.43214	0.15138	58.76332	1.04511	64.92	26.28
71/ 9/11	2441206.0	15.83056	50.30207	26.85187	-0.97940	0.32905	0.09578	59.17708	1.03763	72.53	26.98
71/ 9/12	2441206.5	9.10212	52.17430	27.31163	-1.00509	0.22354	0.04002	59.58969	1.03043	80.10	27.28
71/ 9/12	2441207.0	2.24738	53.32815	27.39530	-1.01676	0.11716	-0.01515	59.99537	1.02360	87.59	27.17
71/ 9/13	2441207.5	-4.63999	53.76263	27.10936	-1.01481	0.01134	-0.06901	60.38930	1.01722	94.93	26.67
71/ 9/13	2441208.0	-11.46959	53.48606	26.46482	-0.99980	-0.09259	-0.12094	60.76756	1.01133	102.10	25.82
71/ 9/14	2441208.5	-18.15512	52.51533	25.47674	-0.97238	-0.19345	-0.17037	61.12718	1.00597	109.07	24.63
71/ 9/14	2441209.0	-24.61506	50.87509	24.16379	-0.93332	-0.29012	-0.21680	61.46597	1.00113	115.82	23.15
71/ 9/15	2441209.5	-30.77329	48.59701	22.54782	-0.88343	-0.38164	-0.25978	61.78243	0.99679	122.34	21.40
71/ 9/15	2441210.0	-36.55945	45.71903	20.65346	-0.82360	-0.46713	-0.29894	62.07567	0.99292	128.65	19.43
71/ 9/16	2441210.5	-41.90936	42.28473	18.50775	-0.75477	-0.54580	-0.33395	62.34525	0.98949	134.74	17.27
71/ 9/16	2441211.0	-46.76527	38.34264	16.13975	-0.67789	-0.61697	-0.36454	62.59105	0.98645	140.65	14.94
71/ 9/17	2441211.5	-51.07612	33.94557	13.58025	-0.59398	-0.68006	-0.39047	62.81318	0.98375	146.39	12.49
71/ 9/17	2441212.0	-54.79772	29.15009	10.86139	-0.50407	-0.73455	-0.41157	63.01181	0.98134	151.99	9.93
71/ 9/18	2441212.5	-57.89292	24.01583	8.01636	-0.40918	-0.78003	-0.42771	63.18712	0.97919	157.47	7.29
71/ 9/18	2441213.0	-60.33165	18.60494	5.07910	-0.31039	-0.81619	-0.43880	63.33916	0.97727	162.86	4.60
71/ 9/19	2441213.5	-62.09107	12.98147	2.08398	-0.20876	-0.84277	-0.44479	63.46780	0.97554	168.19	1.88
71/ 9/19	2441214.0	-63.15548	7.21084	-0.93450	-0.10534	-0.85963	-0.44570	63.57267	0.97401	173.49	-0.84
71/ 9/20	2441214.5	-63.51641	1.35923	-3.94196	-0.00120	-0.86668	-0.44155	63.65313	0.97267	178.77	-3.55
71/ 9/20	2441215.0	-63.17244	-4.50691	-6.90444	0.10263	-0.86392	-0.43243	63.70824	0.97154	184.08	-6.22
71/ 9/21	2441215.5	-62.12916	-10.32143	-9.78868	0.20513	-0.85145	-0.41846	63.73683	0.97065	189.43	-8.83
71/ 9/21	2441216.0	-60.39904	-16.01897	-12.56230	0.30529	-0.82941	-0.39980	63.73746	0.97003	194.85	-11.37
71/ 9/22	2441216.5	-58.00120	-21.53543	-15.19410	0.40214	-0.79802	-0.37662	63.70851	0.96974	200.37	-13.80
71/ 9/22	2441217.0	-54.96127	-26.80839	-17.65421	0.49474	-0.75756	-0.34914	63.64827	0.96983	206.00	-16.10
71/ 9/23	2441217.5	-51.31117	-31.77761	-19.91437	0.58217	-0.70839	-0.31761	63.55498	0.97037	211.77	-18.26
71/ 9/23	2441218.0	-47.08891	-36.38534	-21.94802	0.66355	-0.65089	-0.28231	63.42692	0.97142	217.69	-20.25
71/ 9/24	2441218.5	-42.33840	-40.57679	-23.73059	0.73802	-0.58554	-0.24352	63.26260	0.97305	223.78	-22.03
71/ 9/24	2441219.0	-37.10927	-44.30047	-25.23960	0.80475	-0.51286	-0.20158	63.06082	0.97534	230.05	-23.59
71/ 9/25	2441219.5	-31.45665	-47.50862	-26.45491	0.86294	-0.43341	-0.15685	62.82079	0.97832	236.49	-24.91
71/ 9/25	2441220.0	-25.44104	-50.15765	-27.35887	0.91181	-0.34786	-0.10971	62.54233	0.98206	243.10	-25.94
71/ 9/26	2441220.5	-19.12807	-52.20853	-27.93656	0.95062	-0.25691	-0.06058	62.22592	0.98659	249.88	-26.68
71/ 9/26	2441221.0	-12.58834	-53.62734	-28.17605	0.97866	-0.16136	-0.00992	61.87283	0.99192	256.79	-27.09
71/ 9/27	2441221.5	-5.89714	-54.38582	-28.06860	0.99524	-0.06207	0.04178	61.48528	0.99805	263.81	-27.16
71/ 9/27	2441222.0	0.86580	-54.46196	-27.60901	0.99975	0.03996	0.09397	61.06645	1.00495	270.91	-26.88
71/ 9/28	2441222.5	7.61675	-53.84073	-26.79591	0.99161	0.14366	0.14606	60.62062	1.01256	278.05	-26.23
71/ 9/28	2441223.0	14.26846	-52.51483	-25.63213	0.97037	0.24783	0.19741	60.15316	1.02079	285.20	-25.22
71/ 9/29	2441223.5	20.73088	-50.48554	-24.12506	0.93567	0.35114	0.24731	59.67058	1.02953	292.32	-23.85
71/ 9/29	2441224.0	26.91204	-47.76356	-22.28702	0.88730	0.45213	0.29502	59.18045	1.03863	299.40	-22.12
71/ 9/30	2441224.5	32.71930	-44.36983	-20.13558	0.82527	0.54923	0.33972	58.69136	1.04792	306.41	-20.06

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOD. V(KM/SEC)	RA	DEC
71/ 9/30	2441225.0	38.06077	-40.33638	-17.69388	0.74982	0.64075	0.38059	58.21270	1.05719	313.34	-17.70
71/10/ 1	2441225.5	42.84715	-35.70685	-14.99075	0.66148	0.72495	0.41677	57.75448	1.06621	320.19	-15.04
71/10/ 1	2441226.0	46.99384	-30.53690	-12.06077	0.56110	0.80004	0.44744	57.32700	1.07475	326.98	-12.14
71/10/ 2	2441226.5	50.42329	-24.89419	-8.94409	0.44992	0.86426	0.47178	56.94055	1.08257	333.72	-9.04
71/10/ 2	2441227.0	53.06757	-18.85794	-5.68596	0.32954	0.91599	0.48909	56.60494	1.08942	340.44	-5.77
71/10/ 3	2441227.5	54.87088	-12.51786	-2.33610	0.20195	0.95376	0.49879	56.32910	1.09510	347.15	-2.38
71/10/ 3	2441228.0	55.79202	-5.97254	1.05239	0.06945	0.97642	0.50045	56.12066	1.09940	353.89	1.07
71/10/ 4	2441228.5	55.80635	0.67270	4.42423	-0.06538	0.98317	0.49386	55.98548	1.10218	0.69	4.53
71/10/ 4	2441229.0	54.90728	7.30859	7.72349	-0.19981	0.97364	0.47903	55.92742	1.10334	7.58	7.94
71/10/ 5	2441229.5	53.10698	13.82490	10.89513	-0.33105	0.94792	0.45624	55.94804	1.10285	14.59	11.23
71/10/ 5	2441230.0	50.43627	20.11364	13.88668	-0.45640	0.90657	0.42595	56.04655	1.10073	21.74	14.35
71/10/ 6	2441230.5	46.94357	26.07220	16.64969	-0.57338	0.85062	0.38888	56.21984	1.09706	29.05	17.23
71/10/ 6	2441231.0	42.69321	31.60608	19.14104	-0.67980	0.78143	0.34589	56.46268	1.09197	36.51	19.82
71/10/ 7	2441231.5	37.76305	36.63127	21.32391	-0.77386	0.70070	0.29796	56.76801	1.08564	44.13	22.06
71/10/ 7	2441232.0	32.24170	41.07588	23.16847	-0.85418	0.61031	0.24617	57.12734	1.07829	51.87	23.93
71/10/ 8	2441232.5	26.22563	44.88121	24.65215	-0.91982	0.51226	0.19158	57.53117	1.07014	59.70	25.37
71/10/ 8	2441233.0	19.81622	48.00219	25.75970	-0.97027	0.40856	0.13527	57.96943	1.06144	67.57	26.38
71/10/ 9	2441233.5	13.11715	50.40726	26.48285	-1.00537	0.30118	0.07823	58.43195	1.05242	75.41	26.95
71/10/ 9	2441234.0	6.23196	52.07778	26.81993	-1.02528	0.19196	0.02141	58.90875	1.04332	83.18	27.08
71/10/10	2441234.5	-0.73788	53.00722	26.77524	-1.03045	0.08261	-0.03437	59.39043	1.03433	90.80	26.80
71/10/10	2441235.0	-7.69454	53.20009	26.35839	-1.02151	-0.02530	-0.08837	59.86836	1.02564	98.23	26.12
71/10/11	2441235.5	-14.54508	52.67078	25.58368	-0.99925	-0.13043	-0.13995	60.33486	1.01740	105.44	25.09
71/10/11	2441236.0	-21.20224	51.44243	24.46939	-0.96457	-0.23154	-0.18856	60.78330	1.00973	112.40	23.74
71/10/12	2441236.5	-27.58511	49.54584	23.03723	-0.91842	-0.32759	-0.23374	61.20819	1.00272	119.11	22.11
71/10/12	2441237.0	-33.61944	47.01843	21.31174	-0.86182	-0.41767	-0.27512	61.60511	0.99643	125.57	20.24
71/10/13	2441237.5	-39.23789	43.90333	19.31987	-0.79579	-0.50101	-0.31236	61.97073	0.99089	131.79	18.17
71/10/13	2441238.0	-44.38016	40.24854	17.09050	-0.72138	-0.57694	-0.34521	62.30272	0.98611	137.79	15.92
71/10/14	2441238.5	-48.99298	36.10623	14.65407	-0.63962	-0.64489	-0.37347	62.59963	0.98207	143.61	13.54
71/10/14	2441239.0	-53.03011	31.53205	12.04228	-0.55155	-0.70439	-0.39697	62.86080	0.97875	149.26	11.04
71/10/15	2441239.5	-56.45235	26.58462	9.28779	-0.45821	-0.75505	-0.41559	63.08623	0.97610	154.78	8.47
71/10/15	2441240.0	-59.22746	21.32496	6.42393	-0.36063	-0.79654	-0.42925	63.27648	0.97406	160.20	5.83
71/10/16	2441240.5	-61.33019	15.81603	3.48450	-0.25984	-0.82862	-0.43790	63.43249	0.97257	165.54	3.15
71/10/16	2441241.0	-62.74224	10.12226	0.50349	-0.15685	-0.85110	-0.44153	63.55550	0.97156	170.84	0.45
71/10/17	2441241.5	-63.45224	4.30909	-2.48512	-0.05270	-0.86386	-0.44015	63.64693	0.97096	176.11	-2.24
71/10/17	2441242.0	-63.45577	-1.55748	-5.44759	0.05160	-0.86686	-0.43383	63.70822	0.97073	181.41	-4.91
71/10/18	2441242.5	-62.75528	-7.41134	-8.35068	0.15502	-0.86012	-0.42264	63.74078	0.97080	186.74	-7.53
71/10/18	2441243.0	-61.36009	-13.18677	-11.16185	0.25657	-0.84372	-0.40671	63.74589	0.97114	192.13	-10.08
71/10/19	2441243.5	-59.28631	-18.81888	-13.84954	0.35524	-0.81783	-0.38620	63.72462	0.97170	197.61	-12.55
71/10/19	2441244.0	-56.55674	-24.24415	-16.38335	0.45006	-0.78269	-0.36131	63.67777	0.97247	203.20	-14.91
71/10/20	2441244.5	-53.20075	-29.40088	-18.73435	0.54006	-0.73859	-0.33226	63.60588	0.97344	208.93	-17.13
71/10/20	2441245.0	-49.25413	-34.22970	-20.87527	0.62432	-0.68593	-0.29932	63.50920	0.97461	214.80	-19.19
71/10/21	2441245.5	-44.75882	-38.67407	-22.78075	0.70193	-0.62515	-0.26278	63.38768	0.97600	220.83	-21.06
71/10/21	2441246.0	-39.76274	-42.68077	-24.42755	0.77205	-0.55678	-0.22299	63.24104	0.97765	227.03	-22.72
71/10/22	2441246.5	-34.31949	-46.20037	-25.79483	0.83385	-0.48142	-0.18030	63.06881	0.97958	233.39	-24.14
71/10/22	2441247.0	-28.48804	-49.18772	-26.86428	0.88656	-0.39973	-0.13512	62.87042	0.98185	239.92	-25.30

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COURDINATE SYSTEM MOO.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/10/23	2441247.5	-22.33239	-51.60240	-27.62042	0.92947	-0.31244	-0.08786	62.64528	0.98451	246.60	-26.16
71/10/23	2441248.0	-15.92120	-53.40924	-28.05075	0.96191	-0.22038	-0.03899	62.39292	0.98760	253.40	-26.72
71/10/24	2441248.5	-9.32742	-54.57876	-28.14597	0.98329	-0.12440	0.01101	62.11310	0.99119	260.30	-26.95
71/10/24	2441249.0	-2.62779	-55.08767	-27.90021	0.99309	-0.02547	0.06161	61.80598	0.99532	267.27	-26.83
71/10/25	2441249.5	4.09761	-54.91934	-27.31122	0.99084	0.07541	0.11227	61.47216	1.00003	274.27	-26.38
71/10/25	2441250.0	10.76595	-54.06431	-26.38056	0.97618	0.17712	0.16241	61.11292	1.00533	281.26	-25.57
71/10/26	2441250.5	17.29226	-52.52082	-25.11386	0.94886	0.27850	0.21140	60.73026	1.01123	288.22	-24.43
71/10/26	2441251.0	23.59014	-50.29532	-23.52100	0.90872	0.37830	0.25861	60.32704	1.01772	295.13	-22.95
71/10/27	2441251.5	29.57265	-47.40306	-21.61629	0.85574	0.47517	0.30337	59.90706	1.02475	301.96	-21.15
71/10/27	2441252.0	35.15331	-43.86854	-19.41874	0.79009	0.56771	0.34497	59.47513	1.03225	308.71	-19.06
71/10/28	2441252.5	40.24729	-39.72608	-16.95210	0.71211	0.65444	0.38270	59.03710	1.04012	315.37	-16.69
71/10/28	2441253.0	44.77282	-35.02012	-14.24504	0.62235	0.73385	0.41585	58.59979	1.04823	321.97	-14.07
71/10/29	2441253.5	48.65282	-29.80550	-11.33107	0.52164	0.80439	0.44369	58.17093	1.05641	328.51	-11.23
71/10/29	2441254.0	51.81669	-24.14749	-8.24845	0.41109	0.86453	0.46554	57.75904	1.06449	335.01	-8.21
71/10/30	2441254.5	54.20231	-18.12146	-5.03987	0.29209	0.91282	0.48078	57.37315	1.07225	341.51	-5.04
71/10/30	2441255.0	55.75815	-11.81230	-1.75201	0.16637	0.94793	0.48887	57.02255	1.07947	348.04	-1.76
71/10/31	2441255.5	56.44530	-5.31326	1.56525	0.03594	0.96872	0.48940	56.71642	1.08592	354.62	1.58
71/10/31	2441256.0	56.23948	1.27558	4.85968	-0.09692	0.97433	0.48211	56.46346	1.09139	1.30	4.94
71/11/ 1	2441256.5	55.13266	7.84942	8.07796	-0.22969	0.96423	0.46692	56.27146	1.09568	8.10	8.25
71/11/ 1	2441257.0	53.13422	14.30120	11.16696	-0.35976	0.93830	0.44397	56.14686	1.09861	15.06	11.47
71/11/ 2	2441257.5	50.27146	20.52445	14.07520	-0.48448	0.89684	0.41362	56.09442	1.10006	22.21	14.53
71/11/ 2	2441258.0	46.58943	26.41630	16.75441	-0.60128	0.84060	0.37645	56.11689	1.09994	29.55	17.37
71/11/ 3	2441258.5	42.14984	31.88043	19.16086	-0.70781	0.77076	0.33322	56.21484	1.09823	37.10	19.93
71/11/ 3	2441259.0	37.02934	36.82973	21.25664	-0.80204	0.68887	0.28488	56.38658	1.09497	44.85	22.15
71/11/ 4	2441259.5	31.31710	41.18865	23.01058	-0.88231	0.59675	0.23246	56.62820	1.09024	52.75	23.98
71/11/ 4	2441260.0	25.11194	44.89480	24.39890	-0.94743	0.49646	0.17710	56.93381	1.08419	60.78	25.38
71/11/ 5	2441260.5	18.51924	47.90000	25.40547	-0.99666	0.39013	0.11992	57.29582	1.07699	68.86	26.32
71/11/ 5	2441261.0	11.64791	50.17065	26.02175	-1.02970	0.27990	0.06203	57.70528	1.06886	76.93	26.80
71/11/ 6	2441261.5	4.60744	51.68742	26.24644	-1.04665	0.16785	0.00445	58.15233	1.06004	84.91	26.83
71/11/ 6	2441262.0	-2.49460	52.44459	26.08493	-1.04798	0.05590	-0.05187	58.62663	1.05075	92.72	26.42
71/11/ 7	2441262.5	-9.55468	52.44888	25.54857	-1.03440	-0.05420	-0.10611	59.11773	1.04124	100.32	25.60
71/11/ 7	2441263.0	-16.47492	51.71810	24.65387	-1.00686	-0.16091	-0.15757	59.61542	1.03174	107.67	24.43
71/11/ 8	2441263.5	-23.16431	50.27980	23.42168	-0.96642	-0.26292	-0.20568	60.11005	1.02245	114.74	22.93
71/11/ 8	2441264.0	-29.53946	48.16975	21.87643	-0.91426	-0.35911	-0.24995	60.59276	1.01356	121.52	21.16
71/11/ 9	2441264.5	-35.52503	45.43062	20.04541	-0.85159	-0.44854	-0.29001	61.05561	1.00523	128.02	19.17
71/11/ 9	2441265.0	-41.05393	42.11077	17.95812	-0.77961	-0.53048	-0.32558	61.49175	0.99760	134.27	16.98
71/11/10	2441265.5	-46.06725	38.26313	15.64572	-0.69954	-0.60431	-0.35645	61.89545	0.99076	140.29	14.64
71/11/10	2441266.0	-50.51416	33.94432	13.14063	-0.61255	-0.66954	-0.38247	62.26213	0.98478	146.10	12.18
71/11/11	2441266.5	-54.35169	29.21380	10.47608	-0.51978	-0.72582	-0.40353	62.58835	0.97971	151.74	9.64
71/11/11	2441267.0	-57.54448	24.13330	7.68583	-0.42234	-0.77285	-0.41958	62.87174	0.97556	157.25	7.02
71/11/12	2441267.5	-60.06452	18.76619	4.80393	-0.32130	-0.81043	-0.43059	63.11097	0.97233	162.65	4.37
71/11/12	2441268.0	-61.89096	13.17707	1.86445	-0.21770	-0.83839	-0.43658	63.30562	0.97000	167.98	1.69
71/11/13	2441268.5	-63.00991	7.43136	-1.09864	-0.11255	-0.85666	-0.43757	63.45613	0.96850	173.27	-0.99
71/11/13	2441269.0	-63.41431	1.59492	-4.05172	-0.00686	-0.86518	-0.43363	63.56363	0.96779	178.56	-3.65
71/11/14	2441269.5	-63.10382	-4.26629	-6.96161	0.09839	-0.86397	-0.42484	63.62984	0.96779	183.87	-6.28

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
71/11/14	2441270.0	-62.08477	-10.08653	-9.79581	0.20221	-0.85310	-0.41130	63.65700	0.96842	189.23	-8.85
71/11/15	2441270.5	-60.37011	-15.80068	-12.52265	0.30363	-0.83267	-0.39316	63.64769	0.96959	194.67	-11.35
71/11/15	2441271.0	-57.97940	-21.34464	-15.11147	0.40168	-0.80287	-0.37058	63.60473	0.97123	200.21	-13.74
71/11/16	2441271.5	-54.93876	-26.65569	-17.53286	0.49539	-0.76394	-0.34375	63.53104	0.97324	205.88	-16.02
71/11/16	2441272.0	-51.28080	-31.67301	-19.75886	0.58381	-0.71620	-0.31292	63.42959	0.97555	211.70	-18.15
71/11/17	2441272.5	-47.04462	-36.33817	-21.76323	0.66599	-0.66002	-0.27836	63.30321	0.97809	217.68	-20.11
71/11/17	2441273.0	-42.27557	-40.59563	-23.52171	0.74101	-0.59589	-0.24037	63.15457	0.98080	223.84	-21.87
71/11/18	2441273.5	-37.02516	-44.39335	-25.01225	0.80799	-0.52436	-0.19930	62.98607	0.98363	230.17	-23.40
71/11/18	2441274.0	-31.35074	-47.68333	-26.21532	0.86608	-0.44607	-0.15555	62.79978	0.98654	236.68	-24.67
71/11/19	2441274.5	-25.31522	-50.42221	-27.11416	0.91449	-0.36176	-0.10954	62.59742	0.98953	243.34	-25.67
71/11/19	2441275.0	-18.98662	-52.57188	-27.69505	0.95251	-0.27223	-0.06174	62.38037	0.99257	250.14	-26.36
71/11/20	2441275.5	-12.43759	-54.10005	-27.94757	0.97948	-0.17839	-0.01266	62.14963	0.99568	257.05	-26.72
71/11/20	2441276.0	-5.74483	-54.98082	-27.86481	0.99487	-0.08122	0.03717	61.90591	0.99887	264.03	-26.75
71/11/21	2441276.5	1.01156	-55.19518	-27.44362	0.99821	0.01821	0.08718	61.64968	1.00217	271.05	-26.43
71/11/21	2441277.0	7.74883	-54.73154	-26.68474	0.98918	0.11879	0.13679	61.38128	1.00563	278.06	-25.77
71/11/22	2441277.5	14.38239	-53.58614	-25.59302	0.96756	0.21933	0.18537	61.10098	1.00927	285.02	-24.76
71/11/22	2441278.0	20.82667	-51.76342	-24.17749	0.93328	0.31859	0.23230	60.80914	1.01315	291.92	-23.43
71/11/23	2441278.5	26.99610	-49.27637	-22.45144	0.88642	0.41528	0.27695	60.50634	1.01730	298.72	-21.78
71/11/23	2441279.0	32.80609	-46.14678	-20.43252	0.82720	0.50810	0.31868	60.19346	1.02175	305.41	-19.84
71/11/24	2441279.5	38.17415	-42.40541	-18.14269	0.75600	0.59571	0.35684	59.87188	1.02652	311.99	-17.64
71/11/24	2441280.0	43.02103	-38.09212	-15.60822	0.67341	0.67676	0.39082	59.54356	1.03161	318.48	-15.20
71/11/25	2441280.5	47.27199	-33.25586	-12.85956	0.58017	0.74992	0.41999	59.21116	1.03700	324.87	-12.54
71/11/25	2441281.0	50.85809	-27.95454	-9.93118	0.47726	0.81388	0.44379	58.87810	1.04265	331.20	-9.71
71/11/26	2441281.5	53.71765	-22.25477	-6.86133	0.36584	0.86738	0.46169	58.54860	1.04850	337.50	-6.73
71/11/26	2441282.0	55.79764	-16.23136	-3.69165	0.24731	0.90926	0.47320	58.22767	1.05443	343.78	-3.64
71/11/27	2441282.5	57.05520	-9.96666	-0.46675	0.12327	0.93847	0.47793	57.92105	1.06035	350.09	-0.46
71/11/27	2441283.0	57.45910	-3.54958	2.76641	-0.00445	0.95413	0.47560	57.63507	1.06610	356.47	2.75
71/11/28	2441283.5	56.99114	2.92566	5.95927	-0.13384	0.95555	0.46601	57.37650	1.07152	2.94	5.96
71/11/28	2441284.0	55.64733	9.36110	9.06254	-0.26271	0.94233	0.44915	57.15229	1.07644	9.55	9.12
71/11/29	2441284.5	53.43882	15.65693	12.02721	-0.38878	0.91433	0.42512	56.96929	1.08069	16.33	12.19
71/11/29	2441285.0	50.39250	21.71363	14.80569	-0.50972	0.87178	0.39423	56.83392	1.08408	23.31	15.10
71/11/30	2441285.5	46.55108	27.43434	17.35300	-0.62320	0.81524	0.35695	56.75185	1.08647	30.51	17.80
71/11/30	2441286.0	41.97254	32.72730	19.62791	-0.72703	0.74565	0.31392	56.72764	1.08771	37.94	20.24
71/12/ 1	2441286.5	36.72915	37.50827	21.59410	-0.81921	0.66429	0.26593	56.76447	1.08771	45.60	22.36
71/12/ 1	2441287.0	30.90574	41.70274	23.22113	-0.89805	0.57275	0.21393	56.86391	1.08642	53.46	24.10
71/12/ 2	2441287.5	24.59757	45.24784	24.48522	-0.96217	0.47286	0.15894	57.02573	1.08380	61.47	25.43
71/12/ 2	2441288.0	17.90774	48.09375	25.36974	-1.01063	0.36663	0.10203	57.24787	1.07990	69.58	26.31
71/12/ 3	2441288.5	10.94437	50.20457	25.86541	-1.04289	0.25615	0.04429	57.52649	1.07480	77.70	26.72
71/12/ 3	2441289.0	3.81778	51.55867	25.97029	-1.05884	0.14352	-0.01320	57.85610	1.06860	85.77	26.67
71/12/ 4	2441289.5	-3.36225	52.14843	25.68935	-1.05874	0.03077	-0.06947	58.22977	1.06147	93.69	26.18
71/12/ 4	2441290.0	-10.48897	51.97948	25.03401	-1.04322	-0.08022	-0.12362	58.63946	1.05358	101.41	25.27
71/12/ 5	2441290.5	-17.46071	51.06964	24.02131	-1.01315	-0.18774	-0.17487	59.07629	1.04513	108.88	23.99
71/12/ 5	2441291.0	-24.18255	49.44754	22.67321	-0.96962	-0.29031	-0.22257	59.53091	1.03633	116.06	22.39
71/12/ 6	2441291.5	-30.56752	47.15112	21.01566	-0.91389	-0.38667	-0.26617	59.99383	1.02740	122.95	20.51
71/12/ 6	2441292.0	-36.53735	44.22611	19.07781	-0.84726	-0.47578	-0.30528	60.45568	1.01853	129.56	18.40

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
71/12/ 7	2441292.5	-42.02291	40.72453	16.89123	-0.77111	-0.55681	-0.33958	60.90752	1.00993	135.90	16.10
71/12/ 7	2441293.0	-46.96430	36.70335	14.48922	-0.68680	-0.62912	-0.36887	61.34101	1.00177	141.99	13.66
71/12/ 8	2441293.5	-51.31074	32.22330	11.90622	-0.59565	-0.69224	-0.39301	61.74862	0.99421	147.87	11.12
71/12/ 8	2441294.0	-55.02029	27.34781	9.17734	-0.49894	-0.74585	-0.41194	62.12374	0.98738	153.57	8.50
71/12/ 9	2441294.5	-58.05948	22.14217	6.33792	-0.39789	-0.78970	-0.42565	62.46078	0.98139	159.12	5.82
71/12/ 9	2441295.0	-60.40293	16.67285	3.42323	-0.29368	-0.82369	-0.43418	62.75521	0.97633	164.57	3.13
71/12/10	2441295.5	-62.03293	11.00692	0.46821	-0.18740	-0.84776	-0.43757	63.00362	0.97226	169.94	0.43
71/12/10	2441296.0	-62.93908	5.21158	-2.49268	-0.08010	-0.86191	-0.43593	63.20366	0.96920	175.27	-2.26
71/12/11	2441296.5	-63.11799	-0.64617	-5.42568	0.02719	-0.86620	-0.42936	63.35405	0.96716	180.59	-4.91
71/12/11	2441297.0	-62.57297	-6.49985	-8.29786	0.13351	-0.86073	-0.41799	63.45454	0.96612	185.93	-7.51
71/12/12	2441297.5	-61.31390	-12.28380	-11.07718	0.23789	-0.84563	-0.40196	63.50583	0.96606	191.33	-10.05
71/12/12	2441298.0	-59.35706	-17.93338	-13.73268	0.33940	-0.82109	-0.38145	63.50948	0.96690	196.81	-12.49
71/12/13	2441298.5	-56.72505	-23.38534	-16.23460	0.43711	-0.78732	-0.35664	63.46785	0.96857	202.40	-14.82
71/12/13	2441299.0	-53.44675	-28.57806	-18.55450	0.53009	-0.74459	-0.32774	63.38399	0.97099	208.13	-17.02
71/12/14	2441299.5	-49.55733	-33.45192	-20.66549	0.61741	-0.69322	-0.29499	63.26154	0.97405	214.02	-19.07
71/12/14	2441300.0	-45.09819	-37.94972	-22.54238	0.69817	-0.63361	-0.25867	63.10457	0.97766	220.08	-20.93
71/12/15	2441300.5	-40.11695	-42.01718	-24.16197	0.77143	-0.56623	-0.21907	62.91751	0.98169	226.33	-22.58
71/12/15	2441301.0	-34.66738	-45.60344	-25.50325	0.83631	-0.49162	-0.17655	62.70499	0.98604	232.76	-24.00
71/12/16	2441301.5	-28.80923	-48.66167	-26.54776	0.89194	-0.41042	-0.13150	62.47170	0.99060	239.37	-25.15
71/12/16	2441302.0	-22.60803	-51.14976	-27.27985	0.93748	-0.32339	-0.08437	62.22227	0.99528	246.15	-26.00
71/12/17	2441302.5	-16.13470	-53.03098	-27.68702	0.97218	-0.23137	-0.03564	61.96115	0.99996	253.08	-26.54
71/12/17	2441303.0	-9.46510	-54.27471	-27.76022	0.99533	-0.13531	0.01415	61.69248	1.00459	260.11	-26.74
71/12/18	2441303.5	-2.67944	-54.85715	-27.49419	1.00636	-0.03628	0.06443	61.42000	1.00908	267.20	-26.59
71/12/18	2441304.0	4.13855	-54.76201	-26.88769	1.00481	0.06457	0.11459	61.14698	1.01338	274.32	-26.09
71/12/19	2441304.5	10.90246	-53.98115	-25.94377	0.99036	0.16600	0.16396	60.87617	1.01747	281.42	-25.22
71/12/19	2441305.0	17.52429	-52.51507	-24.66997	0.96285	0.26669	0.21189	60.60974	1.02132	288.45	-24.02
71/12/20	2441305.5	23.91563	-50.37339	-23.07836	0.92231	0.36527	0.25769	60.34937	1.02493	295.40	-22.48
71/12/20	2441306.0	29.98887	-47.57508	-21.18565	0.86897	0.46035	0.30069	60.09620	1.02832	302.23	-20.64
71/12/21	2441306.5	35.65860	-44.14863	-19.01311	0.80324	0.55052	0.34021	59.85095	1.03151	308.93	-18.52
71/12/21	2441307.0	40.84293	-40.13198	-16.58645	0.72576	0.63440	0.37563	59.61401	1.03455	315.50	-16.15
71/12/22	2441307.5	45.46490	-35.57231	-13.93557	0.63734	0.71065	0.40633	59.38558	1.03746	321.96	-13.57
71/12/22	2441308.0	49.45385	-30.52570	-11.09428	0.53901	0.77799	0.43177	59.16574	1.04030	328.31	-10.81
71/12/23	2441308.5	52.74671	-25.05652	-8.09992	0.43201	0.83525	0.45145	58.95467	1.04311	334.59	-7.90
71/12/23	2441309.0	55.28928	-19.23672	-4.99286	0.31771	0.88136	0.46498	58.75274	1.04591	340.82	-4.87
71/12/24	2441309.5	57.03738	-13.14497	-1.81602	0.19768	0.91541	0.47202	58.56066	1.04874	347.02	-1.78
71/12/24	2441310.0	57.95789	-6.86561	1.38582	0.07362	0.93665	0.47233	58.37957	1.05158	353.24	1.36
71/12/25	2441310.5	58.02967	-0.48742	4.56660	-0.05263	0.94452	0.46579	58.21111	1.05444	359.52	4.50
71/12/25	2441311.0	57.24431	5.89766	7.67979	-0.17916	0.93865	0.45238	58.05749	1.05726	5.88	7.60
71/12/26	2441311.5	55.60668	12.19607	10.67913	-0.30397	0.91892	0.43219	57.92142	1.06000	12.37	10.62
71/12/26	2441312.0	53.13528	18.31415	13.51946	-0.42503	0.88544	0.40547	57.80607	1.06257	19.02	13.53
71/12/27	2441312.5	49.86232	24.15995	16.15759	-0.54033	0.83860	0.37256	57.71500	1.06489	25.85	16.26
71/12/27	2441313.0	45.83348	29.64491	18.55317	-0.64791	0.77902	0.33394	57.65196	1.06685	32.89	18.77
71/12/28	2441313.5	41.10738	34.68574	20.66955	-0.74593	0.70762	0.29022	57.62072	1.06835	40.16	21.02
71/12/28	2441314.0	35.75466	39.20615	22.47456	-0.83268	0.62556	0.24212	57.62485	1.06925	47.64	22.96
71/12/29	2441314.5	29.85673	43.13850	23.94126	-0.90670	0.53422	0.19046	57.66748	1.06948	55.31	24.53

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
71/12/29	2441315.0	23.50414	46.42535	25.04853	-0.96676	0.43522	0.13614	57.75108	1.06892	63.15	25.70
71/12/30	2441315.5	16.79466	49.02064	25.78156	-1.01196	0.33031	0.08011	57.87722	1.06751	71.09	26.45
71/12/30	2441316.0	9.83117	50.89058	26.13208	-1.04170	0.22135	0.02335	58.04644	1.06522	79.07	26.76
71/12/31	2441316.5	2.71935	52.01424	26.09843	-1.05575	0.11026	-0.03317	58.25808	1.06201	87.01	26.61
71/12/31	2441317.0	-4.43468	52.38358	25.68546	-1.05421	-0.00108	-0.08851	58.51025	1.05792	94.84	26.04
72/ 1/ 1	2441317.5	-11.52651	52.00324	24.90418	-1.03748	-0.11082	-0.14179	58.79979	1.05298	102.50	25.06
72/ 1/ 1	2441318.0	-18.45561	50.88982	23.77125	-1.00629	-0.21728	-0.19222	59.12238	1.04727	109.93	23.71
72/ 1/ 2	2441318.5	-25.12705	49.07096	22.30837	-0.96157	-0.31889	-0.23912	59.47260	1.04091	117.11	22.03
72/ 1/ 2	2441319.0	-31.45299	46.58411	20.54153	-0.90447	-0.41432	-0.28189	59.84417	1.03402	124.03	20.08
72/ 1/ 3	2441319.5	-37.35384	43.47520	18.50027	-0.83626	-0.50241	-0.32008	60.23008	1.02675	130.67	17.89
72/ 1/ 3	2441320.0	-42.75892	39.79720	16.21691	-0.75831	-0.58223	-0.35333	60.62286	1.01925	137.05	15.52
72/ 1/ 4	2441320.5	-47.60700	35.60873	13.72578	-0.67202	-0.65304	-0.38140	61.01479	1.01170	143.20	13.00
72/ 1/ 4	2441321.0	-51.84633	30.97272	11.06257	-0.57879	-0.71431	-0.40413	61.39814	1.00427	149.15	10.38
72/ 1/ 5	2441321.5	-55.43464	25.95521	8.26377	-0.48000	-0.76565	-0.42144	61.76538	0.99711	154.91	7.69
72/ 1/ 5	2441322.0	-58.33879	20.62427	5.36607	-0.37698	-0.80683	-0.43333	62.10933	0.99039	160.53	4.96
72/ 1/ 6	2441322.5	-60.53443	15.04913	2.40602	-0.27099	-0.83776	-0.43986	62.42342	0.98425	166.04	2.21
72/ 1/ 6	2441323.0	-62.00556	9.29934	-0.58034	-0.16322	-0.85841	-0.44112	62.70170	0.97882	171.47	-0.53
72/ 1/ 7	2441323.5	-62.74399	3.44427	-3.55776	-0.05481	-0.86886	-0.43724	62.93909	0.97422	176.86	-3.24
72/ 1/ 7	2441324.0	-62.74897	-2.44745	-6.49193	0.05319	-0.86926	-0.42838	63.13136	0.97054	182.23	-5.90
72/ 1/ 8	2441324.5	-62.02672	-8.30825	-9.34969	0.15977	-0.85977	-0.41471	63.27526	0.96784	187.63	-8.50
72/ 1/ 8	2441325.0	-60.59010	-14.07198	-12.09914	0.26398	-0.84063	-0.39643	63.36853	0.96618	193.08	-11.01
72/ 1/ 9	2441325.5	-58.45832	-19.67410	-14.70970	0.36490	-0.81210	-0.37374	63.40995	0.96557	198.60	-13.41
72/ 1/ 9	2441326.0	-55.65673	-25.05198	-17.15227	0.46162	-0.77446	-0.34686	63.39932	0.96602	204.23	-15.70
72/ 1/10	2441326.5	-52.21668	-30.14506	-19.39929	0.55329	-0.72805	-0.31603	63.33749	0.96750	210.00	-17.84
72/ 1/10	2441327.0	-48.17539	-34.89513	-21.42487	0.63902	-0.67324	-0.28151	63.22629	0.96997	215.92	-19.81
72/ 1/11	2441327.5	-43.57598	-39.24663	-23.20492	0.71795	-0.61043	-0.24358	63.06847	0.97335	222.01	-21.59
72/ 1/11	2441328.0	-38.46736	-43.14701	-24.71736	0.78924	-0.54011	-0.20254	62.86772	0.97756	228.28	-23.15
72/ 1/12	2441328.5	-32.90430	-46.54709	-25.94229	0.85201	-0.46280	-0.15874	62.62848	0.98250	234.74	-24.47
72/ 1/12	2441329.0	-26.94729	-49.40167	-26.86226	0.90542	-0.37913	-0.11256	62.35593	0.98803	241.39	-25.52
72/ 1/13	2441329.5	-20.66251	-51.67005	-27.46256	0.94866	-0.28983	-0.06442	62.05583	0.99404	248.20	-26.27
72/ 1/13	2441330.0	-14.12162	-53.31673	-27.73153	0.98093	-0.19570	-0.01480	61.73436	1.00037	255.17	-26.69
72/ 1/14	2441330.5	-7.40140	-54.31217	-27.66094	1.00150	-0.09769	0.03576	61.39805	1.00688	262.24	-26.78
72/ 1/14	2441331.0	-0.58335	-54.63359	-27.24629	1.00972	0.00315	0.08669	61.05350	1.01344	269.39	-26.50
72/ 1/15	2441331.5	6.24706	-54.26581	-26.48723	1.00507	0.10562	0.13735	60.70731	1.01989	276.57	-25.87
72/ 1/15	2441332.0	13.00120	-53.20204	-25.38786	0.98715	0.20844	0.18707	60.36581	1.02611	283.73	-24.87
72/ 1/16	2441332.5	19.58840	-51.44464	-23.95701	0.95575	0.31020	0.23511	60.03495	1.03197	290.85	-23.52
72/ 1/16	2441333.0	25.91725	-49.00578	-22.20847	0.91088	0.40942	0.28076	59.72007	1.03738	297.87	-21.83
72/ 1/17	2441333.5	31.89710	-45.90788	-20.16105	0.85275	0.50456	0.32324	59.42580	1.04223	304.79	-19.83
72/ 1/17	2441334.0	37.43969	-42.18385	-17.83862	0.78186	0.59405	0.36184	59.15593	1.04649	311.59	-17.55
72/ 1/18	2441334.5	42.46094	-37.87714	-15.26993	0.69895	0.67637	0.39585	58.91333	1.05010	318.27	-15.02
72/ 1/18	2441335.0	46.88273	-33.04135	-12.48830	0.60503	0.75004	0.42462	58.69991	1.05306	324.83	-12.28
72/ 1/19	2441335.5	50.63461	-27.73973	-9.53118	0.50136	0.81371	0.44758	58.51666	1.05538	331.28	-9.37
72/ 1/19	2441336.0	53.65546	-22.04422	-6.43960	0.38943	0.86617	0.46426	58.36373	1.05709	337.66	-6.33
72/ 1/20	2441336.5	55.89493	-16.03431	-3.25741	0.27092	0.90640	0.47429	58.24048	1.05826	343.99	-3.21
72/ 1/20	2441337.0	57.31461	-9.79569	-0.03055	0.14767	0.93360	0.47742	58.14569	1.05893	350.30	-0.03

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COURDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 1/21	2441337.5	57.88895	-3.41864	3.19384	0.02163	0.94720	0.47355	58.07769	1.05920	356.62	3.15
72/ 1/21	2441338.0	57.60587	3.00358	6.36826	-0.10518	0.94691	0.46268	58.03458	1.05913	2.98	6.30
72/ 1/22	2441338.5	56.46706	9.37650	9.44580	-0.23072	0.93266	0.44497	58.01440	1.05881	9.43	9.37
72/ 1/22	2441339.0	54.48791	15.60618	12.38096	-0.35299	0.90466	0.42069	58.01528	1.05830	15.98	12.32
72/ 1/23	2441339.5	51.69723	21.60088	15.13047	-0.47005	0.86337	0.39023	58.03561	1.05765	22.68	15.11
72/ 1/23	2441340.0	48.13667	27.27272	17.65408	-0.58004	0.80945	0.35407	58.07414	1.05690	29.53	17.70
72/ 1/24	2441340.5	43.85989	32.53918	19.91521	-0.68127	0.74383	0.31283	58.13006	1.05606	36.57	20.04
72/ 1/24	2441341.0	38.93154	37.32451	21.88161	-0.77220	0.66758	0.26716	58.20300	1.05515	43.79	22.08
72/ 1/25	2441341.5	33.42601	41.56096	23.52581	-0.85150	0.58197	0.21782	58.29301	1.05413	51.19	23.80
72/ 1/25	2441342.0	27.42606	45.18985	24.82561	-0.91803	0.48842	0.16559	58.40053	1.05297	58.75	25.16
72/ 1/26	2441342.5	21.02132	48.16250	25.76433	-0.97091	0.38845	0.11133	58.52626	1.05164	66.42	26.12
72/ 1/26	2441343.0	14.30661	50.44090	26.33108	-1.00948	0.28368	0.05590	58.67102	1.05007	74.17	26.67
72/ 1/27	2441343.5	7.38028	51.99819	26.52080	-1.03336	0.17579	0.00015	58.83564	1.04820	81.92	26.79
72/ 1/27	2441344.0	0.34239	52.81892	26.33427	-1.04242	0.06647	-0.05507	59.02075	1.04598	89.63	26.50
72/ 1/28	2441344.5	-6.70700	52.89908	25.77797	-1.03679	-0.04262	-0.10891	59.22669	1.04337	97.23	25.80
72/ 1/28	2441345.0	-13.66957	52.24584	24.86380	-1.01686	-0.14984	-0.16062	59.45329	1.04032	104.66	24.72
72/ 1/29	2441345.5	-20.45034	50.87710	23.60872	-0.98323	-0.25365	-0.20947	59.69981	1.03680	111.90	23.29
72/ 1/29	2441346.0	-26.95921	48.82083	22.03430	-0.93672	-0.35263	-0.25482	59.96485	1.03283	118.91	21.56
72/ 1/30	2441346.5	-33.11221	46.11418	20.16615	-0.87832	-0.44550	-0.29612	60.24624	1.02840	125.68	19.56
72/ 1/30	2441347.0	-38.83261	42.80248	18.03335	-0.80918	-0.53113	-0.33290	60.54110	1.02356	132.22	17.33
72/ 1/31	2441347.5	-44.05176	38.93812	15.66780	-0.73053	-0.60855	-0.36479	60.84583	1.01837	138.53	14.92
72/ 1/31	2441348.0	-48.70975	34.57936	13.10360	-0.64369	-0.67701	-0.39152	61.15616	1.01290	144.63	12.37
72/ 2/ 1	2441348.5	-52.75569	29.78913	10.37639	-0.55002	-0.73587	-0.41290	61.46727	1.00724	150.55	9.72
72/ 2/ 1	2441349.0	-56.14795	24.63393	7.52281	-0.45089	-0.78472	-0.42883	61.77391	1.00149	156.31	6.99
72/ 2/ 2	2441349.5	-58.85404	19.18263	4.57992	-0.34762	-0.82327	-0.43928	62.07050	0.99578	161.95	4.23
72/ 2/ 2	2441350.0	-60.85043	13.50561	1.58474	-0.24153	-0.85137	-0.44428	62.35132	0.99023	167.49	1.46
72/ 2/ 3	2441350.5	-62.12224	7.67377	-1.42617	-0.13386	-0.86899	-0.44394	62.61065	0.98496	172.96	-1.31
72/ 2/ 3	2441351.0	-62.66282	1.75784	-4.41703	-0.02580	-0.87622	-0.43839	62.84290	0.98011	178.39	-4.03
72/ 2/ 4	2441351.5	-62.47332	-4.17227	-7.35314	0.08155	-0.87321	-0.42780	63.04278	0.97579	183.82	-6.70
72/ 2/ 4	2441352.0	-61.56220	-10.04801	-10.20109	0.18712	-0.86021	-0.41239	63.20545	0.97213	189.27	-9.29
72/ 2/ 5	2441352.5	-59.94480	-15.80257	-12.92894	0.28994	-0.83748	-0.39238	63.32660	0.96923	194.77	-11.78
72/ 2/ 5	2441353.0	-57.64296	-21.37127	-15.50635	0.38908	-0.80538	-0.36801	63.40259	0.96718	200.34	-14.16
72/ 2/ 6	2441353.5	-54.68464	-26.69176	-17.90466	0.48365	-0.76426	-0.33954	63.43057	0.96607	206.02	-16.40
72/ 2/ 6	2441354.0	-51.10366	-31.70435	-20.09704	0.57282	-0.71453	-0.30724	63.40852	0.96595	211.82	-18.48
72/ 2/ 7	2441354.5	-46.93941	-36.35217	-22.05854	0.65575	-0.65662	-0.27141	63.33536	0.96686	217.76	-20.38
72/ 2/ 7	2441355.0	-42.23679	-40.58140	-23.76619	0.73167	-0.59100	-0.23234	63.21098	0.96881	223.85	-22.09
72/ 2/ 8	2441355.5	-37.04597	-44.34156	-25.19914	0.79978	-0.51819	-0.19035	63.03630	0.97180	230.12	-23.56
72/ 2/ 8	2441356.0	-31.42244	-47.58578	-26.33878	0.85932	-0.43875	-0.14578	62.81328	0.97580	236.56	-24.79
72/ 2/ 9	2441356.5	-25.42683	-50.27120	-27.16893	0.90952	-0.35329	-0.09902	62.54493	0.98074	243.17	-25.75
72/ 2/ 9	2441357.0	-19.12493	-52.35939	-27.67606	0.94964	-0.26251	-0.05047	62.23530	0.98655	249.93	-26.40
72/ 2/10	2441357.5	-12.58755	-53.81692	-27.84954	0.97894	-0.16720	-0.00058	61.88945	0.99312	256.84	-26.74
72/ 2/10	2441358.0	-5.89032	-54.61596	-27.68195	0.99673	-0.06823	0.05016	61.51333	1.00032	263.84	-26.74
72/ 2/11	2441358.5	0.88659	-54.73507	-27.16942	1.00237	0.03341	0.10119	61.11375	1.00801	270.93	-26.40
72/ 2/11	2441359.0	7.65889	-54.15992	-26.31197	0.99528	0.13659	0.15191	60.69823	1.01603	278.05	-25.69
72/ 2/12	2441359.5	14.33886	-52.88423	-25.11391	0.97504	0.24006	0.20165	60.27481	1.02420	285.17	-24.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
72/ 2/12	2441360.0	20.83620	-50.91059	-23.58418	0.94132	0.34244	0.24972	59.85189	1.03234	292.26	-23.21
72/ 2/13	2441360.5	27.05922	-48.25134	-21.73668	0.89403	0.44225	0.29536	59.43801	1.04025	299.28	-21.45
72/ 2/13	2441361.0	32.91622	-44.92926	-19.59050	0.83328	0.53790	0.33779	59.04154	1.04776	306.23	-19.38
72/ 2/14	2441361.5	38.31721	-40.97815	-17.17006	0.75946	0.62772	0.37622	58.67051	1.05469	313.08	-17.02
72/ 2/14	2441362.0	43.17583	-36.44310	-14.50508	0.67326	0.71006	0.40987	58.33223	1.06088	319.83	-14.40
72/ 2/15	2441362.5	47.41142	-31.38043	-11.63038	0.57568	0.78326	0.43803	58.03309	1.06620	326.50	-11.56
72/ 2/15	2441363.0	50.95122	-25.85728	-8.58550	0.46805	0.84579	0.46003	57.77834	1.07054	333.09	-8.55
72/ 2/16	2441363.5	53.73246	-19.95071	-5.41404	0.35198	0.89627	0.47532	57.57186	1.07383	339.63	-5.40
72/ 2/16	2441364.0	55.70428	-13.74640	-2.16290	0.22937	0.93354	0.48350	57.41610	1.07605	346.14	-2.16
72/ 2/17	2441364.5	56.82939	-7.33698	1.11874	0.10232	0.95671	0.48430	57.31198	1.07718	352.64	1.12
72/ 2/17	2441365.0	57.08528	-0.82000	4.38049	-0.02693	0.96523	0.47763	57.25897	1.07728	359.18	4.39
72/ 2/18	2441365.5	56.46492	5.70427	7.57193	-0.15604	0.95886	0.46357	57.25522	1.07641	5.77	7.60
72/ 2/18	2441366.0	54.97701	12.13519	10.64380	-0.28273	0.93771	0.44237	57.29769	1.07468	12.45	10.71
72/ 2/19	2441366.5	52.64561	18.37402	13.54905	-0.40476	0.90223	0.41445	57.38242	1.07221	19.24	13.66
72/ 2/19	2441367.0	49.50938	24.32607	16.24392	-0.52006	0.85318	0.38035	57.50479	1.06913	26.17	16.41
72/ 2/20	2441367.5	45.62035	29.90264	18.68875	-0.62676	0.79155	0.34073	57.65981	1.06559	33.24	18.91
72/ 2/20	2441368.0	41.04249	35.02267	20.84865	-0.72322	0.71858	0.29635	57.84237	1.06171	40.48	21.13
72/ 2/21	2441368.5	35.84991	39.61402	22.69409	-0.80807	0.63568	0.24801	58.04747	1.05763	47.86	23.01
72/ 2/21	2441369.0	30.12512	43.61452	24.20115	-0.88022	0.54437	0.19657	58.27045	1.05345	55.37	24.54
72/ 2/22	2441369.5	23.95715	46.97261	25.35175	-0.93883	0.44625	0.14290	58.50712	1.04927	62.98	25.68
72/ 2/22	2441370.0	17.43970	49.64778	26.13372	-0.98335	0.34298	0.08786	58.75387	1.04514	70.65	26.41
72/ 2/23	2441370.5	10.66941	51.61072	26.54066	-1.01346	0.23621	0.03229	59.00771	1.04113	78.32	26.73
72/ 2/23	2441371.0	3.74417	52.84325	26.57185	-1.02911	0.12757	-0.02297	59.26627	1.03724	85.95	26.64
72/ 2/24	2441371.5	-3.23838	53.33812	26.23194	-1.03043	0.01864	-0.07716	59.52778	1.03348	93.47	26.15
72/ 2/24	2441372.0	-10.18232	53.09861	25.53070	-1.01778	-0.08904	-0.12955	59.79096	1.02985	100.86	25.28
72/ 2/25	2441372.5	-16.99470	52.13805	24.48259	-0.99168	-0.19405	-0.17948	60.05492	1.02630	108.05	24.06
72/ 2/25	2441373.0	-23.58674	50.47918	23.10644	-0.95284	-0.29503	-0.22633	60.31906	1.02282	115.04	22.52
72/ 2/26	2441373.5	-29.87483	48.15348	21.42494	-0.90208	-0.39076	-0.26956	60.58293	1.01937	121.82	20.71
72/ 2/26	2441374.0	-35.78148	45.20037	19.46423	-0.84037	-0.48012	-0.30871	60.84606	1.01589	128.37	18.66
72/ 2/27	2441374.5	-41.23604	41.66638	17.25338	-0.76877	-0.56214	-0.34337	61.10791	1.01237	134.70	16.40
72/ 2/27	2441375.0	-46.17537	37.60426	14.82390	-0.68842	-0.63595	-0.37322	61.36769	1.00878	140.84	13.98
72/ 2/28	2441375.5	-50.54430	33.07207	12.20927	-0.60054	-0.70084	-0.39800	61.62430	1.00510	146.80	11.43
72/ 2/28	2441376.0	-54.29600	28.13220	9.44442	-0.50637	-0.75625	-0.41755	61.87627	1.00134	152.61	8.78
72/ 2/29	2441376.5	-57.39219	22.85043	6.56520	-0.40718	-0.80174	-0.43176	62.12171	0.99749	158.29	6.07
72/ 2/29	2441377.0	-59.80318	17.29506	3.60802	-0.30425	-0.83700	-0.44058	62.35830	0.99361	163.87	3.32
72/ 3/ 1	2441377.5	-61.50788	11.53594	0.60929	-0.19882	-0.86188	-0.44403	62.58329	0.98971	169.38	0.56
72/ 3/ 1	2441378.0	-62.49355	5.64372	-2.39487	-0.09213	-0.87631	-0.44220	62.79355	0.98588	174.84	-2.19
72/ 3/ 2	2441378.5	-62.75562	-0.31098	-5.36906	0.01466	-0.88035	-0.43521	62.98564	0.98216	180.28	-4.89
72/ 3/ 2	2441379.0	-62.29733	-6.25823	-8.27890	0.12040	-0.87414	-0.42323	63.15587	0.97864	185.74	-7.53
72/ 3/ 3	2441379.5	-61.12939	-12.12938	-11.09127	0.22404	-0.85792	-0.40647	63.30040	0.97542	191.22	-10.09
72/ 3/ 3	2441380.0	-59.26953	-17.85764	-13.77457	0.32456	-0.83200	-0.38516	63.41539	0.97258	196.77	-12.55
72/ 3/ 4	2441380.5	-56.74212	-23.37847	-16.29890	0.42101	-0.79674	-0.35957	63.49704	0.97022	202.39	-14.87
72/ 3/ 4	2441381.0	-53.57776	-28.62999	-18.63620	0.51250	-0.75255	-0.32998	63.54180	0.96844	208.12	-17.06
72/ 3/ 5	2441381.5	-49.81292	-33.55332	-20.76041	0.59819	-0.69990	-0.29669	63.54641	0.96733	213.96	-19.07
72/ 3/ 5	2441382.0	-45.48958	-38.09284	-22.64753	0.67730	-0.63930	-0.26002	63.50809	0.96698	219.94	-20.89

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 3/ 6	2441382.5	-40.65493	-42.19646	-24.27578	0.74906	-0.57128	-0.22031	63.42458	0.96746	226.07	-22.50
72/ 3/ 6	2441383.0	-35.36111	-45.81584	-25.62565	0.81277	-0.49641	-0.17788	63.29434	0.96884	232.34	-23.88
72/ 3/ 7	2441383.5	-29.66502	-48.90667	-26.68005	0.86773	-0.41531	-0.13312	63.11657	0.97117	238.76	-25.01
72/ 3/ 7	2441384.0	-23.62813	-51.42897	-27.42439	0.91330	-0.32864	-0.08639	62.89137	0.97446	245.32	-25.85
72/ 3/ 8	2441384.5	-17.31629	-53.34735	-27.84676	0.94882	-0.23710	-0.03811	62.61977	0.97874	252.02	-26.40
72/ 3/ 8	2441385.0	-10.79965	-54.63150	-27.93809	0.97368	-0.14149	0.01129	62.30385	0.98397	258.82	-26.64
72/ 3/ 9	2441385.5	-4.15238	-55.25659	-27.69239	0.98729	-0.04263	0.06133	61.94676	0.99011	265.70	-26.55
72/ 3/ 9	2441386.0	2.54747	-55.20384	-27.10698	0.98912	0.05851	0.11151	61.55276	0.99710	272.64	-26.13
72/ 3/10	2441386.5	9.21839	-54.46117	-26.18279	0.97867	0.16091	0.16128	61.12721	1.00484	279.61	-25.36
72/ 3/10	2441387.0	15.77580	-53.02389	-24.92464	0.95554	0.26342	0.21002	60.67657	1.01319	286.57	-24.25
72/ 3/11	2441387.5	22.13273	-50.89548	-23.34162	0.91943	0.36477	0.25710	60.20830	1.02202	293.50	-22.81
72/ 3/11	2441388.0	28.20065	-48.08843	-21.44736	0.87019	0.46358	0.30181	59.73075	1.03113	300.39	-21.04
72/ 3/12	2441388.5	33.89060	-44.62497	-19.26036	0.80784	0.55835	0.34342	59.25303	1.04034	307.21	-18.97
72/ 3/12	2441389.0	39.11460	-40.53784	-16.80423	0.73266	0.64748	0.38115	58.78478	1.04943	313.98	-16.61
72/ 3/13	2441389.5	43.78733	-35.87081	-14.10779	0.64517	0.72931	0.41425	58.33588	1.05818	320.68	-13.99
72/ 3/13	2441390.0	47.82814	-30.67903	-11.20506	0.54623	0.80216	0.44194	57.91621	1.06636	327.32	-11.16
72/ 3/14	2441390.5	51.16323	-25.02891	-8.13507	0.43700	0.86438	0.46353	57.53522	1.07377	333.93	-8.13
72/ 3/14	2441391.0	53.72797	-18.99768	-4.94142	0.31903	0.91445	0.47837	57.20162	1.08020	340.53	-4.96
72/ 3/15	2441391.5	55.46927	-12.67244	-1.67157	0.19418	0.95100	0.48595	56.92297	1.08547	347.13	-1.68
72/ 3/15	2441392.0	56.34765	-6.14857	1.62403	0.06461	0.97294	0.48593	56.70538	1.08946	353.77	1.64
72/ 3/16	2441392.5	56.33915	0.47221	4.89316	-0.06730	0.97952	0.47812	56.55321	1.09206	0.48	4.96
72/ 3/16	2441393.0	55.43654	7.08432	8.08306	-0.19898	0.97035	0.46256	56.46887	1.09322	7.28	8.23
72/ 3/17	2441393.5	53.65007	13.58101	11.14190	-0.32787	0.94548	0.43948	56.45277	1.09296	14.21	11.38
72/ 3/17	2441394.0	51.00736	19.85726	14.02017	-0.45141	0.90537	0.40932	56.50334	1.09134	21.27	14.37
72/ 3/18	2441394.5	47.55270	25.81258	16.67198	-0.56726	0.85088	0.37272	56.61716	1.08844	28.49	17.13
72/ 3/18	2441395.0	43.34554	31.35349	19.05621	-0.67329	0.78323	0.33045	56.78923	1.08442	35.88	19.61
72/ 3/19	2441395.5	38.45863	36.39581	21.13744	-0.76771	0.70392	0.28340	57.01326	1.07945	43.42	21.76
72/ 3/19	2441396.0	32.97566	40.86621	22.88652	-0.84910	0.61465	0.23254	57.28206	1.07370	51.10	23.55
72/ 3/20	2441396.5	26.98873	44.70349	24.28103	-0.91638	0.51728	0.17886	57.58787	1.06739	58.88	24.94
72/ 3/20	2441397.0	20.59588	47.85915	25.30529	-0.96888	0.41369	0.12337	57.92276	1.06070	66.72	25.90
72/ 3/21	2441397.5	13.89858	50.29757	25.95028	-1.00625	0.30580	0.06703	58.27893	1.05382	74.55	26.44
72/ 3/21	2441398.0	6.99956	51.99586	26.21338	-1.02846	0.19543	0.01075	58.64899	1.04692	82.33	26.55
72/ 3/22	2441398.5	0.00083	52.94327	26.09790	-1.03575	0.08435	-0.04463	59.02618	1.04014	90.00	26.24
72/ 3/22	2441399.0	-6.99797	53.14053	25.61261	-1.02858	-0.02582	-0.09833	59.40449	1.03359	97.50	25.54
72/ 3/23	2441399.5	-13.90099	52.59898	24.77120	-1.00759	-0.13358	-0.14968	59.77878	1.02737	104.80	24.48
72/ 3/23	2441400.0	-20.61725	51.33959	23.59171	-0.97358	-0.23758	-0.19807	60.14477	1.02153	111.88	23.09
72/ 3/24	2441400.5	-27.06157	49.39206	22.09598	-0.92744	-0.33659	-0.24298	60.49906	1.01611	118.72	21.42
72/ 3/24	2441401.0	-33.15518	46.79386	20.30915	-0.87019	-0.42955	-0.28397	60.83907	1.01113	125.32	19.50
72/ 3/25	2441401.5	-38.82635	43.58925	18.25911	-0.80288	-0.51551	-0.32065	61.16292	1.00657	131.69	17.37
72/ 3/25	2441402.0	-44.01069	39.82843	15.97606	-0.72663	-0.59367	-0.35273	61.46934	1.00242	137.86	15.06
72/ 3/26	2441402.5	-48.65152	35.56670	13.49203	-0.64258	-0.66333	-0.37996	61.75755	0.99864	143.83	12.62
72/ 3/26	2441403.0	-52.69999	30.86358	10.84050	-0.55190	-0.72392	-0.40217	62.02714	0.99519	149.64	10.07
72/ 3/27	2441403.5	-56.11526	25.78210	8.05597	-0.45580	-0.77499	-0.41922	62.27791	0.99202	155.32	7.43
72/ 3/27	2441404.0	-58.86457	20.38796	5.17357	-0.35545	-0.81619	-0.43106	62.50978	0.98910	160.90	4.75
72/ 3/28	2441404.5	-60.92321	14.74887	2.22874	-0.25204	-0.84729	-0.43766	62.72267	0.98639	166.39	2.04

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM					MOO		
72/ 3/28	2441405.0	-62.27444	8.93382	-0.74314	-0.14675	-0.86814	-0.43905	62.91639	0.98386	171.84	-0.68
72/ 3/29	2441405.5	-62.90945	3.01238	-3.70707	-0.04073	-0.87871	-0.43533	63.09054	0.98148	177.26	-3.37
72/ 3/29	2441406.0	-62.82712	-2.94594	-6.62875	0.06489	-0.87904	-0.42660	63.24450	0.97924	182.68	-6.02
72/ 3/30	2441406.5	-62.03383	-8.87226	-9.47482	0.16903	-0.86929	-0.41303	63.37732	0.97716	188.14	-8.60
72/ 3/30	2441407.0	-60.54318	-14.69897	-12.21319	0.27064	-0.84967	-0.39483	63.48778	0.97523	193.65	-11.09
72/ 3/31	2441407.5	-58.37574	-20.36022	-14.81322	0.36872	-0.82049	-0.37223	63.57434	0.97350	199.23	-13.47
72/ 3/31	2441408.0	-55.55866	-25.79244	-17.24596	0.46232	-0.78211	-0.34548	63.63520	0.97200	204.90	-15.72
72/ 4/ 1	2441408.5	-52.12538	-30.93480	-19.48436	0.55054	-0.73497	-0.31489	63.66834	0.97078	210.69	-17.82
72/ 4/ 1	2441409.0	-48.11522	-35.72958	-21.50339	0.63253	-0.67956	-0.28076	63.67160	0.96991	216.60	-19.74
72/ 4/ 2	2441409.5	-43.57302	-40.12259	-23.28025	0.70752	-0.61643	-0.24343	63.64276	0.96944	222.64	-21.46
72/ 4/ 2	2441410.0	-38.54879	-44.06352	-24.79448	0.77476	-0.54616	-0.20326	63.57962	0.96946	228.82	-22.95
72/ 4/ 3	2441410.5	-33.09731	-47.50616	-26.02805	0.83357	-0.46940	-0.16062	63.48012	0.97004	235.14	-24.21
72/ 4/ 3	2441411.0	-27.27786	-50.40879	-26.96553	0.88331	-0.38682	-0.11590	63.34247	0.97124	241.58	-25.20
72/ 4/ 4	2441411.5	-21.15384	-52.73443	-27.59418	0.92341	-0.29914	-0.06949	63.16521	0.97314	248.14	-25.90
72/ 4/ 4	2441412.0	-14.79247	-54.45113	-27.90404	0.95331	-0.20713	-0.02183	62.94743	0.97580	254.80	-26.31
72/ 4/ 5	2441412.5	-8.26455	-55.53229	-27.88810	0.97252	-0.11161	0.02664	62.68879	0.97926	261.54	-26.41
72/ 4/ 5	2441413.0	-1.64405	-55.95700	-27.54243	0.98057	-0.01344	0.07546	62.38970	0.98356	268.32	-26.20
72/ 4/ 6	2441413.5	4.99210	-55.71048	-26.86633	0.97708	0.08644	0.12413	62.05141	0.98872	275.12	-25.66
72/ 4/ 6	2441414.0	11.56447	-54.78446	-25.86252	0.96169	0.18704	0.17213	61.67612	0.99471	281.92	-24.79
72/ 4/ 7	2441414.5	17.99151	-53.17774	-24.53739	0.93413	0.28726	0.21892	61.26704	1.00152	288.69	-23.61
72/ 4/ 7	2441415.0	24.19013	-50.89675	-22.90115	0.89422	0.38594	0.26390	60.82848	1.00907	295.42	-22.12
72/ 4/ 8	2441415.5	30.07639	-47.95610	-20.96814	0.84189	0.48183	0.30645	60.36588	1.01727	302.09	-20.33
72/ 4/ 8	2441416.0	35.56635	-44.37928	-18.75700	0.77722	0.57357	0.34592	59.88581	1.02602	308.71	-18.25
72/ 4/ 9	2441416.5	40.57718	-40.19915	-16.29090	0.70046	0.65973	0.38162	59.39590	1.03515	315.27	-15.92
72/ 4/ 9	2441417.0	45.02844	-35.45860	-13.59768	0.61208	0.73881	0.41287	58.90475	1.04448	321.78	-13.35
72/ 4/10	2441417.5	48.84372	-30.21083	-10.70991	0.51280	0.80925	0.43896	58.42179	1.05382	328.26	-10.56
72/ 4/10	2441418.0	51.95246	-24.51960	-7.66480	0.40364	0.86950	0.45922	57.95704	1.06294	334.73	-7.60
72/ 4/11	2441418.5	54.29200	-18.45907	-4.50398	0.28591	0.91806	0.47303	57.52082	1.07160	341.22	-4.49
72/ 4/11	2441419.0	55.80979	-12.11327	-1.27305	0.16128	0.95352	0.47984	57.12342	1.07957	347.75	-1.28
72/ 4/12	2441419.5	56.46561	-5.57508	1.97912	0.03173	0.97469	0.47924	56.77468	1.08660	354.36	2.00
72/ 4/12	2441420.0	56.23366	1.05533	5.20133	-0.10047	0.98062	0.47096	56.48356	1.09248	1.08	5.28
72/ 4/13	2441420.5	55.10433	7.67254	8.34120	-0.23282	0.97073	0.45493	56.25772	1.09703	7.93	8.53
72/ 4/13	2441421.0	53.08551	14.16847	11.34651	-0.36268	0.94481	0.43127	56.10312	1.10009	14.94	11.67
72/ 4/14	2441421.5	50.20319	20.43528	14.16672	-0.48736	0.90315	0.40035	56.02372	1.10158	22.15	14.65
72/ 4/14	2441422.0	46.50132	26.36842	16.75446	-0.60427	0.84645	0.36273	56.02123	1.10145	29.56	17.40
72/ 4/15	2441422.5	42.04082	31.86976	19.06688	-0.71101	0.77586	0.31920	56.09508	1.09972	37.16	19.87
72/ 4/15	2441423.0	36.89782	36.85030	21.06696	-0.80549	0.69294	0.27067	56.24243	1.09647	44.96	22.00
72/ 4/16	2441423.5	31.16129	41.23257	22.72439	-0.88603	0.59953	0.21819	56.45838	1.09183	52.92	23.73
72/ 4/16	2441424.0	24.93015	44.95235	24.01618	-0.95137	0.49767	0.16289	56.73626	1.08597	60.99	25.04
72/ 4/17	2441424.5	18.31021	47.95979	24.92696	-1.00074	0.38954	0.10587	57.06801	1.07909	69.10	25.90
72/ 4/17	2441425.0	11.41108	50.21975	25.44890	-1.03379	0.27731	0.04824	57.44461	1.07143	77.20	26.30
72/ 4/18	2441425.5	4.34329	51.71169	25.58136	-1.05059	0.16309	-0.00898	57.85645	1.06321	85.20	26.24
72/ 4/18	2441426.0	-2.78425	52.42893	25.33037	-1.05153	0.04886	-0.06484	58.29385	1.05466	93.04	25.76
72/ 4/19	2441426.5	-9.86642	52.37762	24.70792	-1.03732	-0.06357	-0.11854	58.74728	1.04601	100.67	24.87
72/ 4/19	2441427.0	-16.80354	51.57551	23.73118	-1.00887	-0.17260	-0.16935	59.20778	1.03744	108.05	23.63

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 4/20	2441427.5	-23.50265	50.05054	22.42177	-0.96723	-0.27681	-0.21669	59.66714	1.02913	115.15	22.07
72/ 4/20	2441428.0	-29.87840	47.83945	20.80495	-0.91358	-0.37502	-0.26005	60.11803	1.02122	121.99	20.25
72/ 4/21	2441428.5	-35.85355	44.98648	18.90894	-0.84915	-0.46620	-0.29907	60.55418	1.01382	128.55	18.20
72/ 4/21	2441429.0	-41.35935	41.54207	16.76431	-0.77519	-0.54953	-0.33343	60.97034	1.00702	134.87	15.96
72/ 4/22	2441429.5	-46.33560	37.56182	14.40336	-0.69298	-0.62434	-0.36291	61.36232	1.00086	140.97	13.58
72/ 4/22	2441430.0	-50.73063	33.10538	11.85969	-0.60377	-0.69007	-0.38737	61.72694	0.99538	146.87	11.08
72/ 4/23	2441430.5	-54.50120	28.23566	9.16774	-0.50879	-0.74631	-0.40669	62.06191	0.99058	152.61	8.49
72/ 4/23	2441431.0	-57.61234	23.01802	6.36243	-0.40925	-0.79277	-0.42083	62.36579	0.98644	158.22	5.86
72/ 4/24	2441431.5	-60.03715	17.51955	3.47886	-0.30632	-0.82921	-0.42980	62.63782	0.98293	163.73	3.18
72/ 4/24	2441432.0	-61.75662	11.80853	0.55199	-0.20115	-0.85552	-0.43363	62.87786	0.98001	169.18	0.50
72/ 4/25	2441432.5	-62.75940	5.95378	-2.38360	-0.09487	-0.87165	-0.43239	63.08622	0.97762	174.58	-2.17
72/ 4/25	2441433.0	-63.04163	0.02420	-5.29394	0.01144	-0.87763	-0.42620	63.26353	0.97571	179.98	-4.80
72/ 4/26	2441433.5	-62.60675	-5.91176	-8.14593	0.11672	-0.87356	-0.41519	63.41065	0.97422	185.39	-7.38
72/ 4/26	2441434.0	-61.46524	-11.78661	-10.90754	0.21994	-0.85961	-0.39954	63.52853	0.97311	190.86	-9.89
72/ 4/27	2441434.5	-59.63443	-17.53421	-13.54799	0.32010	-0.83603	-0.37945	63.61810	0.97231	196.38	-12.30
72/ 4/27	2441435.0	-57.13831	-23.09031	-16.03803	0.41624	-0.80312	-0.35516	63.68020	0.97180	202.00	-14.59
72/ 4/28	2441435.5	-54.00722	-28.39292	-18.35007	0.50745	-0.76125	-0.32693	63.71549	0.97154	207.73	-16.74
72/ 4/28	2441436.0	-50.27763	-33.38285	-20.45839	0.59283	-0.71086	-0.29506	63.72441	0.97151	213.58	-18.73
72/ 4/29	2441436.5	-45.99184	-38.00404	-22.33936	0.67155	-0.65245	-0.25985	63.70716	0.97170	219.57	-20.53
72/ 4/29	2441437.0	-41.19765	-42.20407	-23.97156	0.74283	-0.58659	-0.22166	63.66369	0.97212	225.69	-22.12
72/ 4/30	2441437.5	-35.94803	-45.93453	-25.33602	0.80592	-0.51390	-0.18085	63.59368	0.97279	231.95	-23.48
72/ 4/30	2441438.0	-30.30073	-49.15143	-26.41632	0.86016	-0.43506	-0.13782	63.49661	0.97372	238.35	-24.58
72/ 5/ 1	2441438.5	-24.31786	-51.81554	-27.19875	0.90491	-0.35079	-0.09296	63.37177	0.97497	244.86	-25.42
72/ 5/ 1	2441439.0	-18.06553	-53.89277	-27.67247	0.93964	-0.26189	-0.04673	63.21835	0.97657	251.47	-25.96
72/ 5/ 2	2441439.5	-11.61335	-55.35450	-27.82961	0.96385	-0.16918	0.00044	63.03553	0.97858	258.15	-26.20
72/ 5/ 2	2441440.0	-5.03406	-56.17791	-27.66539	0.97711	-0.07355	0.04809	62.82255	0.98106	264.88	-26.13
72/ 5/ 3	2441440.5	1.59701	-56.34631	-27.17826	0.97908	0.02408	0.09572	62.57887	0.98405	271.62	-25.74
72/ 5/ 3	2441441.0	8.20237	-55.84948	-26.37000	0.96948	0.12272	0.14283	62.30425	0.98760	278.36	-25.04
72/ 5/ 4	2441441.5	14.70293	-54.68396	-25.24583	0.94811	0.22136	0.18891	61.99890	0.99177	285.05	-24.03
72/ 5/ 4	2441442.0	21.01854	-52.85343	-23.81456	0.91486	0.31891	0.23343	61.66358	0.99657	291.69	-22.72
72/ 5/ 5	2441442.5	27.06864	-50.36904	-22.08864	0.86971	0.41425	0.27583	61.29975	1.00204	298.25	-21.12
72/ 5/ 5	2441443.0	32.77292	-47.24979	-20.08432	0.81277	0.50618	0.31554	60.90966	1.00815	304.75	-19.25
72/ 5/ 6	2441443.5	38.05216	-43.52287	-17.82175	0.74425	0.59347	0.35199	60.49646	1.01490	311.16	-17.13
72/ 5/ 6	2441444.0	42.82915	-39.22402	-15.32505	0.66453	0.67485	0.38458	60.06427	1.02221	317.52	-14.78
72/ 5/ 7	2441444.5	47.02979	-34.39786	-12.62236	0.57417	0.74897	0.41271	59.61827	1.03002	323.82	-12.22
72/ 5/ 7	2441445.0	50.58435	-29.09804	-9.74586	0.47389	0.81449	0.43581	59.16464	1.03822	330.09	-9.48
72/ 5/ 8	2441445.5	53.42891	-23.38737	-6.73162	0.36469	0.87007	0.45329	58.71057	1.04665	336.36	-6.58
72/ 5/ 8	2441446.0	55.50692	-17.33766	-3.61949	0.24776	0.91439	0.46463	58.26416	1.05517	342.65	-3.56
72/ 5/ 9	2441446.5	56.77100	-11.02940	-0.45267	0.12461	0.94622	0.46937	57.83423	1.06356	349.01	-0.45
72/ 5/ 9	2441447.0	57.18473	-4.55101	2.72271	-0.00302	0.96446	0.46711	57.43011	1.07162	355.45	2.72
72/ 5/10	2441447.5	56.72450	2.00226	5.85837	-0.13311	0.96820	0.45760	57.06135	1.07913	2.02	5.89
72/ 5/10	2441448.0	55.38119	8.52987	8.90469	-0.26340	0.95680	0.44073	56.73736	1.08585	8.76	9.03
72/ 5/11	2441448.5	53.16161	14.92799	11.81188	-0.39145	0.92994	0.41655	56.46700	1.09157	15.68	12.07
72/ 5/11	2441449.0	50.08948	21.09190	14.53123	-0.51472	0.88769	0.38531	56.25816	1.09608	22.84	14.97
72/ 5/12	2441449.5	46.20582	26.91879	17.01641	-0.63066	0.83053	0.34749	56.11735	1.09921	30.22	17.65

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
72/ 5/12	2441450.0	41.56869	32.31060	19.22495	-0.73682	0.75940	0.30375	56.04935	1.10085	37.86	20.06
72/ 5/13	2441450.5	36.25204	37.17698	21.11948	-0.83097	0.67564	0.25493	56.05685	1.10090	45.72	22.13
72/ 5/13	2441451.0	30.34392	41.43799	22.66895	-0.91119	0.58095	0.20203	56.14037	1.09936	53.79	23.82
72/ 5/14	2441451.5	23.94399	45.02636	23.84943	-0.97599	0.47736	0.14616	56.29816	1.09626	62.00	25.06
72/ 5/14	2441452.0	17.16050	47.88916	24.64474	-1.02432	0.36708	0.08849	56.52626	1.09170	70.29	25.85
72/ 5/15	2441452.5	10.10707	49.98886	25.04664	-1.05565	0.25241	0.03018	56.81877	1.08582	78.57	26.16
72/ 5/15	2441453.0	2.89941	51.30354	25.05464	-1.06989	0.13565	-0.02765	57.16813	1.07881	86.77	25.99
72/ 5/16	2441453.5	-4.34777	51.82660	24.67558	-1.06741	0.01900	-0.08395	57.56547	1.07088	94.80	25.38
72/ 5/16	2441454.0	-11.52350	51.56578	23.92296	-1.04894	-0.09551	-0.13781	58.00111	1.06226	102.60	24.36
72/ 5/17	2441454.5	-18.52274	50.54182	22.81606	-1.01549	-0.20606	-0.18845	58.46487	1.05318	110.13	22.97
72/ 5/17	2441455.0	-25.24815	48.78691	21.37905	-0.96830	-0.31111	-0.23520	58.94655	1.04389	117.36	21.27
72/ 5/18	2441455.5	-31.61121	46.34292	19.64000	-0.90873	-0.40935	-0.27756	59.43622	1.03460	124.30	19.30
72/ 5/18	2441456.0	-37.53304	43.25971	17.63006	-0.83824	-0.49971	-0.31514	59.92454	1.02551	130.95	17.11
72/ 5/19	2441456.5	-42.94465	39.59356	15.38258	-0.75831	-0.58137	-0.34766	60.40295	1.01681	137.32	14.75
72/ 5/19	2441457.0	-47.78702	35.40567	12.93245	-0.67040	-0.65369	-0.37496	60.86386	1.00863	143.47	12.27
72/ 5/20	2441457.5	-52.01093	30.76088	10.31547	-0.57592	-0.71622	-0.39693	61.30071	1.00110	149.40	9.69
72/ 5/20	2441458.0	-55.57658	25.72660	7.56785	-0.47624	-0.76866	-0.41354	61.70807	0.99431	155.16	7.04
72/ 5/21	2441458.5	-58.45321	20.37187	4.72578	-0.37267	-0.81083	-0.42482	62.08159	0.98833	160.79	4.37
72/ 5/21	2441459.0	-60.61867	14.76663	1.82514	-0.26644	-0.84263	-0.43085	62.41801	0.98318	166.31	1.68
72/ 5/22	2441459.5	-62.05895	8.98107	-1.09879	-0.15872	-0.86408	-0.43172	62.71507	0.97888	171.77	-1.00
72/ 5/22	2441460.0	-62.76779	3.08510	-4.01156	-0.05063	-0.87525	-0.42757	62.97147	0.97542	177.19	-3.65
72/ 5/23	2441460.5	-62.74629	-2.85205	-6.87969	0.05677	-0.87627	-0.41857	63.18672	0.97277	182.60	-6.25
72/ 5/23	2441461.0	-62.00260	-8.76225	-9.67088	0.16247	-0.86733	-0.40489	63.36107	0.97087	188.04	-8.78
72/ 5/24	2441461.5	-60.55162	-14.57885	-12.35414	0.26547	-0.84867	-0.38673	63.49541	0.96968	193.54	-11.22
72/ 5/24	2441462.0	-58.41477	-20.23697	-14.89993	0.36484	-0.82059	-0.36433	63.59110	0.96913	199.11	-13.55
72/ 5/25	2441462.5	-55.61973	-25.67389	-17.28030	0.45968	-0.78342	-0.33793	63.64992	0.96915	204.78	-15.75
72/ 5/25	2441463.0	-52.20024	-30.82940	-19.46908	0.54910	-0.73756	-0.30780	63.67387	0.96966	210.57	-17.80
72/ 5/26	2441463.5	-48.19588	-35.64614	-21.44200	0.63225	-0.68346	-0.27424	63.66513	0.97060	216.49	-19.68
72/ 5/26	2441464.0	-43.65184	-40.06999	-23.17689	0.70832	-0.62163	-0.23757	63.62590	0.97190	222.55	-21.36
72/ 5/27	2441464.5	-38.61873	-44.05050	-24.65381	0.77655	-0.55265	-0.19813	63.55835	0.97350	228.76	-22.82
72/ 5/27	2441465.0	-33.15222	-47.54133	-25.85531	0.83619	-0.47714	-0.15630	63.46451	0.97535	235.11	-24.04
72/ 5/28	2441465.5	-27.31277	-50.50063	-26.76651	0.88656	-0.39581	-0.11248	63.34624	0.97740	241.59	-25.00
72/ 5/28	2441466.0	-21.16525	-52.89152	-27.37537	0.92706	-0.30943	-0.06709	63.20516	0.97963	248.19	-25.67
72/ 5/29	2441466.5	-14.77851	-54.68254	-27.67281	0.95712	-0.21882	-0.02059	63.04260	0.98203	254.88	-26.04
72/ 5/29	2441467.0	-8.22487	-55.84803	-27.65290	0.97627	-0.12487	0.02654	62.85964	0.98458	261.62	-26.10
72/ 5/30	2441467.5	-1.57961	-56.36857	-27.31299	0.98412	-0.02853	0.07382	62.65708	0.98729	268.39	-25.84
72/ 5/30	2441468.0	5.07966	-56.23132	-26.65382	0.98036	0.06920	0.12072	62.43549	0.99019	275.16	-25.27
72/ 5/31	2441468.5	11.67362	-55.43044	-25.67969	0.96481	0.16726	0.16674	62.19528	0.99329	281.89	-24.39
72/ 5/31	2441469.0	18.12194	-53.96731	-24.39848	0.93735	0.26457	0.21131	61.93675	0.99663	288.56	-23.20
72/ 6/ 1	2441469.5	24.34408	-51.85089	-22.82176	0.89803	0.35998	0.25390	61.66021	1.00026	295.15	-21.72
72/ 6/ 1	2441470.0	30.26003	-49.09790	-20.96483	0.84697	0.45235	0.29397	61.36609	1.00419	301.65	-19.98
72/ 6/ 2	2441470.5	35.79122	-45.73301	-18.84668	0.78447	0.54047	0.33095	61.05503	1.00848	308.05	-17.98
72/ 6/ 2	2441471.0	40.86139	-41.78897	-16.49003	0.71092	0.62316	0.36431	60.72802	1.01314	314.36	-15.76
72/ 6/ 3	2441471.5	45.39760	-37.30670	-13.92123	0.62690	0.69921	0.39350	60.38652	1.01820	320.59	-13.33
72/ 6/ 3	2441472.0	49.33121	-32.33527	-11.17021	0.53311	0.76741	0.41803	60.03259	1.02366	326.76	-10.72

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 6/ 4	2441472.5	52.59906	-26.93183	-8.27029	0.43047	0.82659	0.43740	59.66895	1.02950	332.89	-7.97
72/ 6/ 4	2441473.0	55.14464	-21.16140	-5.25800	0.32002	0.87560	0.45114	59.29909	1.03567	339.01	-5.09
72/ 6/ 5	2441473.5	56.91930	-15.09651	-2.17280	0.20305	0.91336	0.45886	58.92735	1.04212	345.15	-2.11
72/ 6/ 5	2441474.0	57.88365	-8.81672	0.94331	0.08100	0.93890	0.46022	58.55887	1.04876	351.34	0.92
72/ 6/ 6	2441474.5	58.00881	-2.40786	4.04624	-0.04446	0.95135	0.45493	58.19959	1.05546	357.62	3.99
72/ 6/ 6	2441475.0	57.27779	4.03898	7.09042	-0.17150	0.95001	0.44285	57.85614	1.06210	4.03	7.04
72/ 6/ 7	2441475.5	55.68669	10.42869	10.02955	-0.29809	0.93442	0.42391	57.53570	1.06850	10.61	10.04
72/ 6/ 7	2441476.0	53.24579	16.66374	12.81742	-0.42207	0.90433	0.39821	57.24580	1.07449	17.38	12.94
72/ 6/ 8	2441476.5	49.98034	22.64608	15.40894	-0.54119	0.85983	0.36599	56.99399	1.07988	24.38	15.69
72/ 6/ 8	2441477.0	45.93096	28.27929	17.76119	-0.65318	0.80133	0.32764	56.78760	1.08449	31.62	18.23
72/ 6/ 9	2441477.5	41.15366	33.47095	19.83459	-0.75578	0.72960	0.28375	56.63337	1.08814	39.12	20.50
72/ 6/ 9	2441478.0	35.71913	38.13507	21.59399	-0.84692	0.64578	0.23506	56.53707	1.09066	46.87	22.45
72/ 6/10	2441478.5	29.71159	42.19457	23.00976	-0.92470	0.55134	0.18244	56.50318	1.09194	54.85	24.03
72/ 6/10	2441479.0	23.22689	45.58346	24.05871	-0.98759	0.44807	0.12691	56.53461	1.09188	63.00	25.19
72/ 6/11	2441479.5	16.37021	48.24876	24.72476	-1.03439	0.33802	0.06956	56.63250	1.09044	71.26	25.89
72/ 6/11	2441480.0	9.25321	50.15181	24.99933	-1.06437	0.22336	0.01150	56.79606	1.08761	79.55	26.11
72/ 6/12	2441480.5	1.99105	51.26912	24.88152	-1.07724	0.10637	-0.04613	57.02260	1.08347	87.78	25.87
72/ 6/12	2441481.0	-5.30071	51.59249	24.37780	-1.07317	-0.01072	-0.10228	57.30759	1.07809	95.87	25.18
72/ 6/13	2441481.5	-12.50900	51.12856	23.50165	-1.05272	-0.12577	-0.15596	57.64488	1.07162	103.75	24.06
72/ 6/13	2441482.0	-19.52587	49.89785	22.27273	-1.01682	-0.23683	-0.20631	58.02697	1.06423	111.37	22.57
72/ 6/14	2441482.5	-26.25060	47.93333	20.71610	-0.96668	-0.34219	-0.25262	58.44532	1.05612	118.71	20.76
72/ 6/14	2441483.0	-32.59143	45.27877	18.86122	-0.90371	-0.44038	-0.29430	58.89070	1.04749	125.75	18.68
72/ 6/15	2441483.5	-38.46664	41.98691	16.74098	-0.82945	-0.53021	-0.33092	59.35354	1.03856	132.49	16.38
72/ 6/15	2441484.0	-43.80521	38.11765	14.39074	-0.74551	-0.61075	-0.36218	59.82428	1.02955	138.97	13.92
72/ 6/16	2441484.5	-48.54707	33.73634	11.84753	-0.65351	-0.68132	-0.38788	60.29363	1.02065	145.20	11.33
72/ 6/16	2441485.0	-52.64300	28.91217	9.14924	-0.55503	-0.74146	-0.40796	60.75284	1.01206	151.22	8.66
72/ 6/17	2441485.5	-56.05428	23.71682	6.33400	-0.45159	-0.79089	-0.42242	61.19386	1.00393	157.07	5.94
72/ 6/17	2441486.0	-58.75217	18.22331	3.43972	-0.34461	-0.82949	-0.43132	61.60956	0.99642	162.77	3.20
72/ 6/18	2441486.5	-60.71735	12.50504	0.50360	-0.23544	-0.85727	-0.43480	61.99376	0.98965	168.36	0.47
72/ 6/18	2441487.0	-61.93928	6.63503	-2.43813	-0.12533	-0.87433	-0.43301	62.34134	0.98370	173.89	-2.24
72/ 6/19	2441487.5	-62.41557	0.68529	-5.35045	-0.01544	-0.88085	-0.42615	62.64823	0.97864	179.37	-4.90
72/ 6/19	2441488.0	-62.15143	-5.27356	-8.19974	0.09314	-0.87707	-0.41443	62.91142	0.97451	184.85	-7.49
72/ 6/20	2441488.5	-61.15917	-11.17277	-10.95389	0.19940	-0.86329	-0.39810	63.12894	0.97134	190.35	-9.99
72/ 6/20	2441489.0	-59.45776	-16.94569	-13.58243	0.30239	-0.83983	-0.37739	63.29980	0.96911	195.91	-12.39
72/ 6/21	2441489.5	-57.07245	-22.52802	-16.05662	0.40121	-0.80707	-0.35256	63.42390	0.96780	201.54	-14.66
72/ 6/21	2441490.0	-54.03447	-27.85812	-18.34953	0.49498	-0.76542	-0.32390	63.50200	0.96736	207.27	-16.80
72/ 6/22	2441490.5	-50.38081	-32.87721	-20.43614	0.58288	-0.71531	-0.29169	63.53560	0.96773	213.13	-18.76
72/ 6/22	2441491.0	-46.15395	-37.52961	-22.29344	0.66411	-0.65723	-0.25624	63.52682	0.96884	219.12	-20.54
72/ 6/23	2441491.5	-41.40172	-41.76313	-23.90059	0.73789	-0.59171	-0.21788	63.47834	0.97060	225.25	-22.12
72/ 6/23	2441492.0	-36.17705	-45.52929	-25.23904	0.80349	-0.51932	-0.17696	63.39325	0.97294	231.53	-23.46
72/ 6/24	2441492.5	-30.53782	-48.78380	-26.29267	0.86020	-0.44073	-0.13384	63.27497	0.97575	237.95	-24.55
72/ 6/24	2441493.0	-24.54655	-51.48690	-27.04803	0.90734	-0.35662	-0.08895	63.12709	0.97895	244.51	-25.37
72/ 6/25	2441493.5	-18.27017	-53.60386	-27.49447	0.94429	-0.26778	-0.04270	62.95330	0.98245	251.18	-25.90
72/ 6/25	2441494.0	-11.77960	-55.10543	-27.62438	0.97050	-0.17505	0.00444	62.75726	0.98617	257.93	-26.12
72/ 6/26	2441494.5	-5.14933	-55.96838	-27.43337	0.98547	-0.07936	0.05198	62.54250	0.99002	264.74	-26.02

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
72/ 6/26	2441495.0	1.54313	-56.17595	-26.92047	0.98880	0.01830	0.09941	62.31236	0.99395	271.57	-25.60
72/ 6/27	2441495.5	8.21788	-55.71837	-26.08829	0.98020	0.11687	0.14617	62.06988	0.99791	278.39	-24.85
72/ 6/27	2441496.0	14.79344	-54.59329	-24.94318	0.95949	0.21522	0.19172	61.81776	1.00184	285.16	-23.80
72/ 6/28	2441496.5	21.18749	-52.80616	-23.49532	0.92661	0.31217	0.23547	61.55835	1.00574	291.86	-22.44
72/ 6/28	2441497.0	27.31790	-50.37054	-21.75882	0.88166	0.40651	0.27686	61.29360	1.00957	298.47	-20.79
72/ 6/29	2441497.5	33.10370	-47.30837	-19.75170	0.82490	0.49698	0.31529	61.02513	1.01334	304.98	-18.88
72/ 6/29	2441498.0	38.46615	-43.65001	-17.49585	0.75674	0.58235	0.35021	60.75420	1.01707	311.39	-16.74
72/ 6/30	2441498.5	43.32992	-39.43429	-15.01694	0.67775	0.66136	0.38107	60.48185	1.02076	317.69	-14.38
72/ 6/30	2441499.0	47.62418	-34.70839	-12.34426	0.58871	0.73281	0.40735	60.20893	1.02446	323.92	-11.83
72/ 7/ 1	2441499.5	51.28382	-29.52751	-9.51044	0.49052	0.79552	0.42858	59.93624	1.02818	330.07	-9.13
72/ 7/ 1	2441500.0	54.25060	-23.95454	-6.55119	0.38430	0.84841	0.44432	59.66461	1.03195	336.18	-6.30
72/ 7/ 2	2441500.5	56.47426	-18.05947	-3.50490	0.27131	0.89048	0.45422	59.39504	1.03580	342.27	-3.38
72/ 7/ 2	2441501.0	57.91365	-11.91871	-0.41224	0.15296	0.92083	0.45797	59.12881	1.03974	348.37	-0.40
72/ 7/ 3	2441501.5	58.53773	-5.61425	2.68437	0.03083	0.93870	0.45536	58.86758	1.04377	354.52	2.61
72/ 7/ 3	2441502.0	58.32658	0.76730	5.74131	-0.09338	0.94351	0.44625	58.61349	1.04789	0.75	5.62
72/ 7/ 4	2441502.5	57.27218	7.13594	8.71442	-0.21786	0.93483	0.43061	58.36922	1.05204	7.10	8.59
72/ 7/ 4	2441503.0	55.37917	13.39951	11.55966	-0.34069	0.91247	0.40851	58.13798	1.05620	13.60	11.47
72/ 7/ 5	2441503.5	52.66534	19.46522	14.23390	-0.45991	0.87643	0.38015	57.92354	1.06027	20.28	14.23
72/ 7/ 5	2441504.0	49.16198	25.24126	16.69572	-0.57350	0.82699	0.34585	57.73014	1.06416	27.18	16.81
72/ 7/ 6	2441504.5	44.91389	30.63852	18.90628	-0.67950	0.76469	0.30604	57.56235	1.06777	34.30	19.17
72/ 7/ 6	2441505.0	39.97910	35.57249	20.83016	-0.77597	0.69035	0.26130	57.42496	1.07097	41.66	21.27
72/ 7/ 7	2441505.5	34.42824	39.96513	22.43620	-0.86113	0.60505	0.21231	57.32275	1.07364	49.26	23.04
72/ 7/ 7	2441506.0	28.34346	43.74669	23.69835	-0.93338	0.51015	0.15989	57.26025	1.07565	57.06	24.45
72/ 7/ 8	2441506.5	21.81701	46.85750	24.59632	-0.99135	0.40726	0.10493	57.24148	1.07687	65.03	25.45
72/ 7/ 8	2441507.0	14.94941	49.24948	25.11621	-1.03398	0.29820	0.04841	57.26971	1.07721	73.11	26.01
72/ 7/ 9	2441507.5	7.84721	50.88736	25.25081	-1.06053	0.18492	-0.00867	57.34724	1.07657	81.23	26.12
72/ 7/ 9	2441508.0	0.62064	51.74952	24.99988	-1.07067	0.06948	-0.06527	57.47514	1.07491	89.31	25.78
72/ 7/10	2441508.5	-6.61898	51.82839	24.37003	-1.06443	-0.04604	-0.12040	57.65320	1.07220	97.28	25.01
72/ 7/10	2441509.0	-13.76185	51.13034	23.37447	-1.04220	-0.15960	-0.17311	57.87976	1.06847	105.06	23.82
72/ 7/11	2441509.5	-20.70209	49.67516	22.03251	-1.00474	-0.26931	-0.22255	58.15177	1.06375	112.62	22.26
72/ 7/11	2441510.0	-27.33992	47.49503	20.36888	-0.95310	-0.37340	-0.26798	58.46486	1.05813	119.93	20.39
72/ 7/12	2441510.5	-33.58357	44.63325	18.41294	-0.88857	-0.47036	-0.30878	58.81343	1.05173	126.96	18.24
72/ 7/12	2441511.0	-39.35064	41.14269	16.19778	-0.81263	-0.55889	-0.34446	59.19089	1.04469	133.72	15.88
72/ 7/13	2441511.5	-44.56915	37.08403	13.75932	-0.72686	-0.63796	-0.37467	59.58988	1.03715	140.24	13.35
72/ 7/13	2441512.0	-49.17807	32.52410	11.13544	-0.63290	-0.70680	-0.39919	60.00248	1.02931	146.52	10.70
72/ 7/14	2441512.5	-53.12752	27.53420	8.36511	-0.53239	-0.76486	-0.41790	60.42053	1.02132	152.60	7.96
72/ 7/14	2441513.0	-56.37866	22.18854	5.48772	-0.42695	-0.81181	-0.43081	60.83584	1.01337	158.52	5.18
72/ 7/15	2441513.5	-58.90327	16.56290	2.54242	-0.31810	-0.84752	-0.43797	61.24042	1.00564	164.29	2.38
72/ 7/15	2441514.0	-60.68324	10.73347	-0.43237	-0.20729	-0.87200	-0.43954	61.62670	0.99828	169.97	-0.40
72/ 7/16	2441514.5	-61.70987	4.77588	-3.39937	-0.09586	-0.88540	-0.43571	61.98768	0.99145	175.57	-3.14
72/ 7/16	2441515.0	-61.98320	-1.23556	-6.32275	0.01495	-0.88795	-0.42670	62.31710	0.98527	181.14	-5.82
72/ 7/17	2441515.5	-61.51133	-7.22847	-9.16837	0.12401	-0.87999	-0.41279	62.60953	0.97987	186.70	-8.42
72/ 7/17	2441516.0	-60.30971	-13.13283	-11.90387	0.23027	-0.86187	-0.39424	62.86044	0.97533	192.28	-10.92
72/ 7/18	2441516.5	-58.40061	-18.88134	-14.49888	0.33277	-0.83404	-0.37135	63.06627	0.97173	197.92	-13.29
72/ 7/18	2441517.0	-55.81258	-24.40966	-16.92500	0.43061	-0.79693	-0.34442	63.22445	0.96910	203.62	-15.53

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 7/19	2441517.5	-52.57998	-29.65664	-19.15594	0.52297	-0.75104	-0.31376	63.33341	0.96747	209.42	-17.61
72/ 7/19	2441518.0	-48.74270	-34.56447	-21.16749	0.60904	-0.69687	-0.27969	63.39256	0.96685	215.34	-19.51
72/ 7/20	2441518.5	-44.34580	-39.07889	-22.93768	0.68810	-0.63496	-0.24254	63.40227	0.96720	221.39	-21.21
72/ 7/20	2441519.0	-39.43932	-43.14937	-24.44676	0.75940	-0.56588	-0.20265	63.36381	0.96849	227.57	-22.69
72/ 7/21	2441519.5	-34.07807	-46.72934	-25.67737	0.82228	-0.49022	-0.16037	63.27932	0.97066	233.90	-23.94
72/ 7/21	2441520.0	-28.32143	-49.77650	-26.61460	0.87605	-0.40865	-0.11608	63.15172	0.97362	240.36	-24.93
72/ 7/22	2441520.5	-22.23321	-52.25316	-27.24618	0.92009	-0.32188	-0.07018	62.98462	0.97729	246.95	-25.63
72/ 7/22	2441521.0	-15.88137	-54.12661	-27.56264	0.95379	-0.23067	-0.02310	62.78221	0.98156	253.65	-26.04
72/ 7/23	2441521.5	-9.33782	-55.36960	-27.55749	0.97661	-0.13586	0.02470	62.54920	0.98633	260.43	-26.14
72/ 7/23	2441522.0	-2.67801	-55.96085	-27.22745	0.98805	-0.03837	0.07275	62.29063	0.99147	267.26	-25.92
72/ 7/24	2441522.5	4.01951	-55.88559	-26.57269	0.98768	0.06079	0.12051	62.01180	0.99686	274.11	-25.37
72/ 7/24	2441523.0	10.67365	-55.13610	-25.59697	0.97519	0.16053	0.16743	61.71808	1.00240	280.96	-24.50
72/ 7/25	2441523.5	17.20150	-53.71232	-24.30795	0.95037	0.25970	0.21293	61.41483	1.00796	287.76	-23.32
72/ 7/25	2441524.0	23.51924	-51.62231	-22.71725	0.91315	0.35705	0.25641	61.10721	1.01344	294.49	-21.82
72/ 7/26	2441524.5	29.54310	-48.88274	-20.84067	0.86362	0.45129	0.29725	60.80009	1.01875	301.15	-20.05
72/ 7/26	2441525.0	35.19057	-45.51921	-18.69816	0.80207	0.54108	0.33483	60.49790	1.02381	307.71	-18.00
72/ 7/27	2441525.5	40.38167	-41.56644	-16.31385	0.72895	0.62506	0.36855	60.20457	1.02855	314.17	-15.72
72/ 7/27	2441526.0	45.04034	-37.06830	-13.71592	0.64497	0.70190	0.39782	59.92343	1.03291	320.55	-13.23
72/ 7/28	2441526.5	49.09583	-32.07763	-10.93635	0.55101	0.77030	0.42209	59.65717	1.03689	326.84	-10.56
72/ 7/28	2441527.0	52.48420	-26.65579	-8.01064	0.44818	0.82902	0.44090	59.40785	1.04045	333.07	-7.75
72/ 7/29	2441527.5	55.14967	-20.87210	-4.97734	0.33778	0.87697	0.45380	59.17689	1.04361	339.27	-4.82
72/ 7/29	2441528.0	57.04593	-14.80294	-1.87751	0.22130	0.91318	0.46049	58.96516	1.04638	345.45	-1.82
72/ 7/30	2441528.5	58.13731	-8.53068	1.24585	0.10038	0.93683	0.46072	58.77305	1.04880	351.65	1.21
72/ 7/30	2441529.0	58.39973	-2.14249	4.34853	-0.02318	0.94733	0.45437	58.60058	1.05091	357.90	4.26
72/ 7/31	2441529.5	57.82147	4.27110	7.38584	-0.14754	0.94428	0.44143	58.44754	1.05276	4.22	7.26
72/ 7/31	2441530.0	56.40369	10.61769	10.31338	-0.27076	0.92754	0.42199	58.31361	1.05438	10.66	10.19
72/ 8/ 1	2441530.5	54.16070	16.80460	13.08783	-0.39090	0.89716	0.39627	58.19852	1.05581	17.24	13.00
72/ 8/ 1	2441531.0	51.11996	22.74050	15.66773	-0.50602	0.85349	0.36460	58.10213	1.05709	23.98	15.64
72/ 8/ 2	2441531.5	47.32179	28.33703	18.01427	-0.61425	0.79707	0.32744	58.02459	1.05822	30.91	18.09
72/ 8/ 2	2441532.0	42.81892	33.51046	20.09198	-0.71383	0.72870	0.28532	57.96636	1.05923	38.05	20.28
72/ 8/ 3	2441532.5	37.67562	38.18318	21.86943	-0.80310	0.64940	0.23889	57.92823	1.06008	45.38	22.18
72/ 8/ 3	2441533.0	31.96677	42.28521	23.31985	-0.88061	0.56040	0.18887	57.91139	1.06075	52.91	23.75
72/ 8/ 4	2441533.5	25.77652	45.75553	24.42161	-0.94506	0.46311	0.13607	57.91729	1.06119	60.61	24.94
72/ 8/ 4	2441534.0	19.19687	48.54325	25.15872	-0.99544	0.35910	0.08134	57.94763	1.06135	68.42	25.73
72/ 8/ 5	2441534.5	12.32598	50.60858	25.52109	-1.03096	0.25009	0.02557	58.00418	1.06117	76.31	26.10
72/ 8/ 5	2441535.0	5.26630	51.92363	25.50476	-1.05113	0.13785	-0.03034	58.08864	1.06056	84.21	26.04
72/ 8/ 6	2441535.5	-1.87731	52.47285	25.11192	-1.05574	0.02425	-0.08546	58.20251	1.05947	92.05	25.56
72/ 8/ 6	2441536.0	-8.99968	52.25324	24.35086	-1.04490	-0.08887	-0.13893	58.34689	1.05783	99.77	24.67
72/ 8/ 7	2441536.5	-15.99731	51.27427	23.23568	-1.01899	-0.19969	-0.18989	58.52231	1.05559	107.33	23.39
72/ 8/ 7	2441537.0	-22.77030	49.55740	21.78597	-0.97870	-0.30648	-0.23759	58.72862	1.05273	114.68	21.77
72/ 8/ 8	2441537.5	-29.22424	47.13544	20.02622	-0.92495	-0.40764	-0.28134	58.96487	1.04922	121.80	19.85
72/ 8/ 8	2441538.0	-35.27174	44.05150	17.98526	-0.85889	-0.50173	-0.32054	59.22921	1.04507	128.68	17.68
72/ 8/ 9	2441538.5	-40.83383	40.35780	15.69554	-0.78184	-0.58751	-0.35473	59.51894	1.04033	135.34	15.29
72/ 8/ 9	2441539.0	-45.84101	36.11435	13.19234	-0.69528	-0.66392	-0.38353	59.83044	1.03503	141.77	12.74
72/ 8/10	2441539.5	-50.23393	31.38741	10.51304	-0.60073	-0.73016	-0.40670	60.15930	1.02927	148.00	10.06

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO' V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
72/ 8/10	2441540.0	-53.96390	26.24806	7.69634	-0.49977	-0.78562	-0.42409	60.50039	1.02314	154.06	7.31
72/ 8/11	2441540.5	-56.99291	20.77072	4.78157	-0.39400	-0.82991	-0.43566	60.84800	1.01675	159.98	4.51
72/ 8/11	2441541.0	-59.29355	15.03181	1.80803	-0.28494	-0.86284	-0.44146	61.19599	1.01023	165.77	1.69
72/ 8/12	2441541.5	-60.84861	9.10848	-1.18558	-0.17407	-0.88438	-0.44161	61.53798	1.00372	171.49	-1.10
72/ 8/12	2441542.0	-61.65060	3.07754	-4.16161	-0.06279	-0.89465	-0.43630	61.86749	0.99734	177.14	-3.86
72/ 8/13	2441542.5	-61.70111	-2.98542	-7.08386	0.04762	-0.89389	-0.42577	62.17814	0.99125	182.77	-6.54
72/ 8/13	2441543.0	-61.01016	-9.00683	-9.91784	0.15597	-0.88244	-0.41029	62.46380	0.98558	188.40	-9.14
72/ 8/14	2441543.5	-59.59545	-14.91569	-12.63108	0.26117	-0.86073	-0.39016	62.71873	0.98045	194.05	-11.62
72/ 8/14	2441544.0	-57.48175	-20.64406	-15.19317	0.36222	-0.82923	-0.36571	62.93775	0.97600	199.76	-13.97
72/ 8/15	2441544.5	-54.70024	-26.12736	-17.57595	0.45823	-0.78845	-0.33727	63.11631	0.97231	205.53	-16.17
72/ 8/15	2441545.0	-51.28796	-31.30466	-19.75356	0.54835	-0.73896	-0.30518	63.25061	0.96948	211.40	-18.20
72/ 8/16	2441545.5	-47.28733	-36.11885	-21.70247	0.63184	-0.68133	-0.26979	63.33767	0.96758	217.37	-20.04
72/ 8/16	2441546.0	-42.74576	-40.51682	-23.40152	0.70797	-0.61615	-0.23146	63.37542	0.96667	223.47	-21.67
72/ 8/17	2441546.5	-37.71529	-44.44956	-24.83198	0.77610	-0.54406	-0.19054	63.36271	0.96677	229.69	-23.07
72/ 8/17	2441547.0	-32.25231	-47.87238	-25.97757	0.83559	-0.46569	-0.14741	63.29937	0.96788	236.03	-24.23
72/ 8/18	2441547.5	-26.41737	-50.74506	-26.82457	0.88584	-0.38172	-0.10243	63.18620	0.97001	242.50	-25.12
72/ 8/18	2441548.0	-20.27498	-53.03207	-27.36187	0.92629	-0.29287	-0.05602	63.02498	0.97310	249.08	-25.73
72/ 8/19	2441548.5	-13.89337	-54.70294	-27.58112	0.95639	-0.19991	-0.00859	62.81843	0.97710	255.75	-26.04
72/ 8/19	2441549.0	-7.34434	-55.73253	-27.47688	0.97564	-0.10365	0.03943	62.57023	0.98192	262.49	-26.05
72/ 8/20	2441549.5	-0.70298	-56.10153	-27.04679	0.98358	-0.00499	0.08755	62.28487	0.98748	269.28	-25.74
72/ 8/20	2441550.0	5.95265	-55.79694	-26.29179	0.97980	0.09509	0.13528	61.96766	0.99365	276.09	-25.11
72/ 8/21	2441550.5	12.54200	-54.81259	-25.21637	0.96396	0.19555	0.18208	61.62457	1.00031	282.89	-24.15
72/ 8/21	2441551.0	18.98258	-53.14981	-23.82873	0.93583	0.29523	0.22738	61.26214	1.00730	289.65	-22.89
72/ 8/22	2441551.5	25.19069	-50.81798	-22.14109	0.89531	0.39290	0.27057	60.88732	1.01447	296.37	-21.32
72/ 8/22	2441552.0	31.08241	-47.83509	-20.16980	0.84243	0.48725	0.31103	60.50730	1.02168	303.02	-19.47
72/ 8/23	2441552.5	36.57471	-44.22833	-17.93555	0.77742	0.57690	0.34811	60.12935	1.02877	309.59	-17.35
72/ 8/23	2441553.0	41.58676	-40.03437	-15.46337	0.70071	0.66041	0.38118	59.76056	1.03558	316.09	-15.00
72/ 8/24	2441553.5	46.04148	-35.29963	-12.78261	0.61297	0.73635	0.40960	59.40772	1.04198	322.52	-12.43
72/ 8/24	2441554.0	49.86717	-30.08022	-9.92678	0.51513	0.80330	0.43278	59.07702	1.04783	328.90	-9.67
72/ 8/25	2441554.5	52.99920	-24.44161	-6.93323	0.40836	0.85991	0.45019	58.77395	1.05303	335.24	-6.77
72/ 8/25	2441555.0	55.38181	-18.45804	-3.84269	0.29409	0.90497	0.46135	58.50308	1.05750	341.57	-3.77
72/ 8/26	2441555.5	56.96972	-12.21148	-0.69866	0.17398	0.93741	0.46593	58.26797	1.06118	347.90	-0.69
72/ 8/26	2441556.0	57.72957	-5.79039	2.45338	0.04990	0.95639	0.46369	58.07108	1.06404	354.27	2.42
72/ 8/27	2441556.5	57.64119	0.71190	5.56681	-0.07615	0.96131	0.45453	57.91375	1.06608	0.71	5.52
72/ 8/27	2441557.0	56.69841	7.19900	8.59483	-0.20204	0.95188	0.43849	57.79625	1.06732	7.24	8.55
72/ 8/28	2441557.5	54.90953	13.57343	11.49145	-0.32564	0.92807	0.41577	57.71783	1.06781	13.88	11.48
72/ 8/28	2441558.0	52.29736	19.73870	14.21249	-0.44480	0.89019	0.38671	57.67690	1.06763	20.68	14.27
72/ 8/29	2441558.5	48.89886	25.60131	16.71650	-0.55751	0.83882	0.35177	57.67120	1.06685	27.63	16.85
72/ 8/29	2441559.0	44.76434	31.07271	18.96564	-0.66185	0.77483	0.31155	57.69796	1.06558	34.77	19.19
72/ 8/30	2441559.5	39.95635	36.07101	20.92638	-0.75611	0.69932	0.26673	57.75414	1.06391	42.07	21.24
72/ 8/30	2441560.0	34.54832	40.52255	22.57015	-0.83881	0.61361	0.21809	57.83662	1.06192	49.55	22.97
72/ 8/31	2441560.5	28.62293	44.36316	23.87376	-0.90870	0.51918	0.16643	57.94237	1.05970	57.17	24.33
72/ 8/31	2441561.0	22.27038	47.53917	24.81977	-0.96480	0.41763	0.11263	58.06861	1.05733	64.90	25.30
72/ 9/ 1	2441561.5	15.58659	50.00813	25.39662	-1.00642	0.31068	0.05757	58.21291	1.05485	72.69	25.87
72/ 9/ 1	2441562.0	8.67132	51.73926	25.59871	-1.03310	0.20005	0.00212	58.37325	1.05230	80.49	26.01

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/ 9/ 2	2441562.5	1.62637	52.71368	25.42635	-1.04470	0.08752	-0.05287	58.54807	1.04969	88.23	25.74
72/ 9/ 2	2441563.0	-5.44621	52.92438	24.88553	-1.04130	-0.02518	-0.10655	58.73620	1.04704	95.88	25.07
72/ 9/ 3	2441563.5	-12.44578	52.37598	23.98769	-1.02322	-0.13636	-0.15816	58.93684	1.04432	103.37	24.02
72/ 9/ 3	2441564.0	-19.27477	51.08431	22.74938	-0.99103	-0.24441	-0.20698	59.14945	1.04150	110.67	22.62
72/ 9/ 4	2441564.5	-25.84004	49.07580	21.19179	-0.94550	-0.34780	-0.25234	59.37368	1.03856	117.77	20.91
72/ 9/ 4	2441565.0	-32.05432	46.38670	19.34029	-0.88756	-0.44516	-0.29368	59.60916	1.03546	124.65	18.93
72/ 9/ 5	2441565.5	-37.83728	43.06223	17.22391	-0.81833	-0.53523	-0.33049	59.85548	1.03216	131.30	16.72
72/ 9/ 5	2441566.0	-43.11656	39.15549	14.87472	-0.73904	-0.61693	-0.36236	60.11196	1.02863	137.76	14.33
72/ 9/ 6	2441566.5	-47.82857	34.72643	12.32724	-0.65104	-0.68933	-0.38899	60.37763	1.02486	144.02	11.78
72/ 9/ 6	2441567.0	-51.91906	29.84061	9.61786	-0.55575	-0.75169	-0.41014	60.65108	1.02084	150.11	9.12
72/ 9/ 7	2441567.5	-55.34352	24.56804	6.78415	-0.45462	-0.80346	-0.42569	60.93043	1.01658	156.06	6.39
72/ 9/ 7	2441568.0	-58.06737	18.98194	3.86434	-0.34911	-0.84422	-0.43557	61.21329	1.01208	161.90	3.62
72/ 9/ 8	2441568.5	-60.06596	13.15761	0.89673	-0.24069	-0.87378	-0.43982	61.49672	1.00740	167.64	0.84
72/ 9/ 8	2441569.0	-61.32437	7.17127	-2.08085	-0.13077	-0.89206	-0.43853	61.77730	1.00259	173.33	-1.93
72/ 9/ 9	2441569.5	-61.83708	1.09909	-5.03146	-0.02071	-0.89916	-0.43188	62.05118	0.99772	178.98	-4.65
72/ 9/ 9	2441570.0	-61.60756	-4.98379	-7.91948	0.08820	-0.89527	-0.42009	62.31410	0.99286	184.62	-7.30
72/ 9/10	2441570.5	-60.64765	-11.00404	-10.71093	0.19477	-0.88072	-0.40341	62.56158	0.98810	190.28	-9.86
72/ 9/10	2441571.0	-58.97705	-16.89082	-13.37374	0.29789	-0.85593	-0.38216	62.78892	0.98356	195.98	-12.30
72/ 9/11	2441571.5	-56.62260	-22.57634	-15.87799	0.39654	-0.82138	-0.35665	62.99143	0.97934	201.74	-14.60
72/ 9/11	2441572.0	-53.61772	-27.99634	-18.19603	0.48981	-0.77762	-0.32723	63.16447	0.97554	207.57	-16.74
72/ 9/12	2441572.5	-50.00180	-33.09042	-20.30262	0.57685	-0.72524	-0.29427	63.30365	0.97228	213.50	-18.71
72/ 9/12	2441573.0	-45.81957	-37.80231	-22.17499	0.65691	-0.66487	-0.25813	63.40487	0.96965	219.52	-20.47
72/ 9/13	2441573.5	-41.12069	-42.08009	-23.79291	0.72931	-0.59716	-0.21919	63.46454	0.96775	225.66	-22.02
72/ 9/13	2441574.0	-35.95920	-45.87634	-25.13871	0.79341	-0.52279	-0.17784	63.47958	0.96667	231.91	-23.33
72/ 9/14	2441574.5	-30.39322	-49.14831	-26.19731	0.84866	-0.44246	-0.13445	63.44764	0.96647	238.27	-24.39
72/ 9/14	2441575.0	-24.48457	-51.85802	-26.95629	0.89452	-0.35688	-0.08943	63.36710	0.96723	244.73	-25.18
72/ 9/15	2441575.5	-18.29848	-53.97246	-27.40589	0.93051	-0.26681	-0.04316	63.23720	0.96896	251.27	-25.68
72/ 9/15	2441576.0	-11.90337	-55.46378	-27.53911	0.95617	-0.17301	0.00393	63.05810	0.97170	257.89	-25.90
72/ 9/16	2441576.5	-5.37064	-56.30951	-27.35180	0.97108	-0.07631	0.05141	62.83093	0.97543	264.55	-25.81
72/ 9/16	2441577.0	1.22566	-56.49290	-26.84277	0.97487	0.02242	0.09885	62.55784	0.98013	271.24	-25.41
72/ 9/17	2441577.5	7.80901	-56.00325	-26.01396	0.96721	0.12227	0.14576	62.24203	0.98574	277.94	-24.71
72/ 9/17	2441578.0	14.30079	-54.83642	-24.87060	0.94780	0.22222	0.19165	61.88774	0.99218	284.62	-23.69
72/ 9/18	2441578.5	20.62075	-52.99526	-23.42141	0.91644	0.32120	0.23598	61.50021	0.99936	291.26	-22.39
72/ 9/18	2441579.0	26.68751	-50.49023	-21.67885	0.87302	0.41806	0.27819	61.08567	1.00714	297.86	-20.79
72/ 9/19	2441579.5	32.41938	-47.33995	-19.65927	0.81756	0.51153	0.31768	60.65125	1.01537	304.40	-18.91
72/ 9/19	2441580.0	37.73521	-43.57179	-17.38314	0.75021	0.60029	0.35384	60.20482	1.02390	310.89	-16.78
72/ 9/20	2441580.5	42.55559	-39.22235	-14.87517	0.67133	0.68293	0.38603	59.75485	1.03252	317.33	-14.41
72/ 9/20	2441581.0	46.80426	-34.33794	-12.16437	0.58150	0.75802	0.41363	59.31024	1.04107	323.73	-11.84
72/ 9/21	2441581.5	50.40963	-28.97470	-9.28404	0.48154	0.82408	0.43600	58.88003	1.04932	330.11	-9.07
72/ 9/21	2441582.0	53.30667	-23.19864	-6.27154	0.37254	0.87969	0.45256	58.47316	1.05710	336.48	-6.16
72/ 9/22	2441582.5	55.43874	-17.08522	-3.16796	0.25590	0.92349	0.46281	58.09815	1.06419	342.87	-3.13
72/ 9/22	2441583.0	56.75961	-10.71860	-0.01758	0.13330	0.95427	0.46632	57.76281	1.07045	349.31	-0.02
72/ 9/23	2441583.5	57.23531	-4.19044	3.13287	0.00667	0.97104	0.46280	57.47395	1.07571	355.81	3.12
72/ 9/23	2441584.0	56.84575	2.40170	6.23516	-0.12183	0.97307	0.45209	57.23709	1.07986	2.42	6.25
72/ 9/24	2441584.5	55.58608	8.95641	9.24057	-0.24987	0.95995	0.43421	57.05627	1.08281	9.15	9.32

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
72/ 9/24	2441585.0	53.46745	15.37077	12.10117	-0.37507	0.93165	0.40937	56.93388	1.08454	16.04	12.27
72/ 9/25	2441585.5	50.51728	21.54283	14.77095	-0.49503	0.88849	0.37794	56.87064	1.08504	23.10	15.05
72/ 9/25	2441586.0	46.77888	27.37424	17.20711	-0.60746	0.83121	0.34048	56.86561	1.08436	30.34	17.61
72/ 9/26	2441586.5	42.31048	32.77271	19.37104	-0.71026	0.76085	0.29769	56.91629	1.08258	37.76	19.90
72/ 9/26	2441587.0	37.18366	37.65424	21.22935	-0.80160	0.67881	0.25038	57.01887	1.07983	45.36	21.86
72/ 9/27	2441587.5	31.48148	41.94497	22.75449	-0.87994	0.58668	0.19946	57.16845	1.07623	53.11	23.45
72/ 9/27	2441588.0	25.29617	45.58266	23.92530	-0.94410	0.48628	0.14591	57.35935	1.07195	60.97	24.65
72/ 9/28	2441588.5	18.72674	48.51759	24.72719	-0.99326	0.37949	0.09069	57.58542	1.06714	68.89	25.43
72/ 9/28	2441589.0	11.87659	50.71313	25.15219	-1.02694	0.26826	0.03477	57.84036	1.06197	76.82	25.78
72/ 9/29	2441589.5	4.85117	52.14579	25.19878	-1.04502	0.15453	-0.02090	58.11794	1.05659	84.69	25.69
72/ 9/29	2441590.0	-2.24419	52.80498	24.87158	-1.04764	0.04017	-0.07547	58.41230	1.05112	92.43	25.20
72/ 9/30	2441590.5	-9.30613	52.69245	24.18086	-1.03524	-0.07307	-0.12812	58.71807	1.04569	100.02	24.32
72/ 9/30	2441591.0	-16.23497	51.82153	23.14210	-1.00846	-0.18352	-0.17813	59.03052	1.04039	107.40	23.08
72/10/ 1	2441591.5	-22.93607	50.21626	21.77537	-0.96815	-0.28968	-0.22486	59.34562	1.03527	114.55	21.53
72/10/ 1	2441592.0	-29.32100	47.91032	20.10478	-0.91528	-0.39020	-0.26777	59.66006	1.03038	121.47	19.69
72/10/ 2	2441592.5	-35.30846	44.94609	18.15792	-0.85097	-0.48388	-0.30638	59.97123	1.02575	128.15	17.62
72/10/ 2	2441593.0	-40.82500	41.37351	15.96522	-0.77642	-0.56968	-0.34030	60.27716	1.02136	134.62	15.36
72/10/ 3	2441593.5	-45.80558	37.24901	13.55948	-0.69292	-0.64672	-0.36924	60.57640	1.01722	140.88	12.93
72/10/ 3	2441594.0	-50.19396	32.63453	10.97525	-0.60178	-0.71427	-0.39298	60.86791	1.01328	146.97	10.39
72/10/ 4	2441594.5	-53.94296	27.59641	8.24837	-0.50434	-0.77173	-0.41135	61.15097	1.00953	152.91	7.75
72/10/ 4	2441595.0	-57.01461	22.20445	5.41544	-0.40199	-0.81869	-0.42428	61.42500	1.00592	158.72	5.06
72/10/ 5	2441595.5	-59.38016	16.53090	2.51342	-0.29606	-0.85485	-0.43176	61.68948	1.00241	164.44	2.34
72/10/ 5	2441596.0	-61.02003	10.64957	-0.42087	-0.18792	-0.88003	-0.43383	61.94380	0.99899	170.10	-0.39
72/10/ 6	2441596.5	-61.92362	4.63495	-3.35114	-0.07886	-0.89421	-0.43059	62.18720	0.99561	175.72	-3.09
72/10/ 6	2441597.0	-62.08911	-1.43870	-6.24198	0.02983	-0.89748	-0.42221	62.41866	0.99228	181.33	-5.74
72/10/ 7	2441597.5	-61.52305	-7.49805	-9.05922	0.13696	-0.89003	-0.40890	62.63686	0.98900	186.95	-8.32
72/10/ 7	2441598.0	-60.24004	-13.47147	-11.77025	0.24136	-0.87217	-0.39089	62.84012	0.98576	192.61	-10.80
72/10/ 8	2441598.5	-58.26219	-19.28969	-14.34426	0.34196	-0.84428	-0.36849	63.02644	0.98261	198.32	-13.16
72/10/ 8	2441599.0	-55.61867	-24.88635	-16.75251	0.43777	-0.80683	-0.34200	63.19347	0.97958	204.11	-15.37
72/10/ 9	2441599.5	-52.34516	-30.19854	-18.96847	0.52785	-0.76037	-0.31176	63.33854	0.97672	209.98	-17.43
72/10/ 9	2441600.0	-48.48327	-35.16721	-20.96800	0.61138	-0.70549	-0.27815	63.45878	0.97410	215.96	-19.29
72/10/10	2441600.5	-44.08002	-39.73752	-22.72948	0.68759	-0.64285	-0.24153	63.55114	0.97179	222.03	-20.96
72/10/10	2441601.0	-39.18729	-43.85917	-24.23388	0.75581	-0.57312	-0.20230	63.61251	0.96987	228.22	-22.39
72/10/11	2441601.5	-33.86131	-47.48662	-25.46483	0.81543	-0.49704	-0.16085	63.63981	0.96843	234.51	-23.59
72/10/11	2441602.0	-28.16217	-50.57926	-26.40869	0.86592	-0.41533	-0.11759	63.63009	0.96754	240.89	-24.52
72/10/12	2441602.5	-22.15338	-53.10163	-27.05454	0.90679	-0.32877	-0.07292	63.58068	0.96731	247.35	-25.18
72/10/12	2441603.0	-15.90149	-55.02351	-27.39426	0.93764	-0.23814	-0.02726	63.48928	0.96779	253.88	-25.56
72/10/13	2441603.5	-9.47568	-56.32013	-27.42254	0.95809	-0.14427	0.01897	63.35409	0.96908	260.45	-25.65
72/10/13	2441604.0	-2.94747	-56.97230	-27.13695	0.96783	-0.04798	0.06535	63.17392	0.97122	267.04	-25.44
72/10/14	2441604.5	3.60966	-56.96665	-26.53796	0.96659	0.04984	0.11144	62.94832	0.97427	273.63	-24.93
72/10/14	2441605.0	10.12053	-56.29580	-25.62907	0.95414	0.14829	0.15679	62.67768	0.97824	280.19	-24.14
72/10/15	2441605.5	16.50865	-54.95873	-24.41686	0.93032	0.24641	0.20093	62.36330	0.98315	286.72	-23.05
72/10/15	2441606.0	22.69662	-52.96104	-22.91118	0.89502	0.34319	0.24337	62.00750	0.98898	293.20	-21.68
72/10/16	2441606.5	28.60655	-50.31539	-21.12520	0.84822	0.43756	0.28361	61.61370	0.99567	299.62	-20.05
72/10/16	2441607.0	34.16067	-47.04193	-19.07565	0.78998	0.52838	0.32111	61.18640	1.00317	305.99	-18.17

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/10/17	2441607.5	39.28203	-43.16876	-16.78292	0.72047	0.61444	0.35532	60.73126	1.01137	312.30	-16.04
72/10/17	2441608.0	43.89540	-38.73238	-14.27120	0.64004	0.69447	0.38568	60.25505	1.02014	318.58	-13.70
72/10/18	2441608.5	47.92837	-33.77813	-11.56859	0.54918	0.76714	0.41159	59.76557	1.02933	324.83	-11.16
72/10/18	2441609.0	51.31261	-28.36053	-8.70712	0.44862	0.83107	0.43249	59.27156	1.03874	331.07	-8.45
72/10/19	2441609.5	53.98548	-22.54339	-5.72269	0.33930	0.88489	0.44781	58.78253	1.04818	337.34	-5.59
72/10/19	2441610.0	55.89170	-16.39980	-2.65487	0.22246	0.92725	0.45704	58.30852	1.05743	343.65	-2.61
72/10/20	2441610.5	56.98525	-10.01172	0.45347	0.09960	0.95689	0.45971	57.85982	1.06625	350.04	0.45
72/10/20	2441611.0	57.23138	-3.46917	3.55667	-0.02746	0.97269	0.45547	57.44663	1.07440	356.53	3.55
72/10/21	2441611.5	56.60847	3.13098	6.60711	-0.15665	0.97377	0.44410	57.07868	1.08166	3.17	6.65
72/10/21	2441612.0	55.10981	9.68680	9.55613	-0.28566	0.95953	0.42553	56.76482	1.08783	9.97	9.69
72/10/22	2441612.5	52.74493	16.09344	12.35523	-0.41202	0.92971	0.39986	56.51264	1.09271	16.97	12.63
72/10/22	2441613.0	49.54046	22.24577	14.95733	-0.53316	0.88450	0.36743	56.32809	1.09617	24.18	15.40
72/10/23	2441613.5	45.54028	28.04126	17.31822	-0.64657	0.82448	0.32873	56.21521	1.09813	31.62	17.94
72/10/23	2441614.0	40.80494	33.38289	19.39778	-0.74987	0.75068	0.28449	56.17593	1.09853	39.29	20.20
72/10/24	2441614.5	35.41031	38.18206	21.16131	-0.84093	0.66456	0.23557	56.20997	1.09740	47.16	22.12
72/10/24	2441615.0	29.44550	42.36102	22.58045	-0.91797	0.56786	0.18297	56.31492	1.09482	55.20	23.64
72/10/25	2441615.5	23.01030	45.85498	23.63390	-0.97964	0.46263	0.12777	56.48641	1.09089	63.35	24.73
72/10/25	2441616.0	16.21220	48.61345	24.30785	-1.02502	0.35105	0.07109	56.71838	1.08580	71.56	25.38
72/10/26	2441616.5	9.16329	50.60101	24.59600	-1.05367	0.23537	0.01403	57.00343	1.07973	79.74	25.56
72/10/26	2441617.0	1.97723	51.79743	24.49935	-1.06555	0.11780	-0.04237	57.33325	1.07288	87.81	25.30
72/10/27	2441617.5	-5.23354	52.19722	24.02573	-1.06105	0.00046	-0.09714	57.69901	1.06549	95.73	24.61
72/10/27	2441618.0	-12.36020	51.80867	23.18913	-1.04086	-0.11468	-0.14942	58.09173	1.05776	103.42	23.53
72/10/28	2441618.5	-19.29956	50.65269	22.00896	-1.00592	-0.22588	-0.19848	58.50267	1.04990	110.86	22.10
72/10/28	2441619.0	-25.95559	48.76134	20.50924	-0.95740	-0.33159	-0.24369	58.92360	1.04209	118.03	20.37
72/10/29	2441619.5	-32.24058	46.17636	18.71775	-0.89658	-0.43050	-0.28456	59.34699	1.03448	124.92	18.38
72/10/29	2441620.0	-38.07582	42.94764	16.66529	-0.82483	-0.52152	-0.32070	59.76621	1.02721	131.56	16.19
72/10/30	2441620.5	-43.39209	39.13183	14.38495	-0.74357	-0.60374	-0.35181	60.17558	1.02037	137.96	13.83
72/10/30	2441621.0	-48.12983	34.79097	11.91149	-0.65423	-0.67645	-0.37770	60.57042	1.01403	144.14	11.34
72/10/31	2441621.5	-52.23916	29.99135	9.28072	-0.55823	-0.73913	-0.39825	60.94705	1.00824	150.14	8.76
72/10/31	2441622.0	-55.67973	24.80234	6.52906	-0.45698	-0.79138	-0.41340	61.30267	1.00300	155.99	6.11
72/11/ 1	2441622.5	-58.42055	19.29552	3.69307	-0.35182	-0.83295	-0.42316	61.63535	0.99832	161.72	3.44
72/11/ 1	2441623.0	-60.43967	13.54375	0.80908	-0.24408	-0.86370	-0.42758	61.94386	0.99417	167.37	0.75
72/11/ 2	2441623.5	-61.72389	7.62046	-2.08713	-0.13502	-0.88360	-0.42679	62.22754	0.99052	172.96	-1.92
72/11/ 2	2441624.0	-62.26847	1.59894	-4.96066	-0.02587	-0.89272	-0.42091	62.48621	0.98732	178.53	-4.55
72/11/ 3	2441624.5	-62.07673	-4.44829	-7.77773	0.08221	-0.89123	-0.41015	62.72002	0.98451	184.10	-7.12
72/11/ 3	2441625.0	-61.15976	-10.45008	-10.50591	0.18810	-0.87935	-0.39471	62.92929	0.98206	189.70	-9.61
72/11/ 4	2441625.5	-59.53605	-16.33717	-13.11439	0.29074	-0.85742	-0.37484	63.11443	0.97990	195.34	-11.99
72/11/ 4	2441626.0	-57.23107	-22.04272	-15.57414	0.38911	-0.82582	-0.35084	63.27583	0.97799	201.06	-14.25
72/11/ 5	2441626.5	-54.27693	-27.50281	-17.85815	0.48228	-0.78502	-0.32300	63.41374	0.97631	206.87	-16.36
72/11/ 5	2441627.0	-50.71189	-32.65688	-19.94154	0.56936	-0.73554	-0.29166	63.52820	0.97482	212.78	-18.29
72/11/ 6	2441627.5	-46.57997	-37.44814	-21.80180	0.64955	-0.67799	-0.25717	63.61899	0.97351	218.80	-20.04
72/11/ 6	2441628.0	-41.93047	-41.82401	-23.41886	0.72208	-0.61299	-0.21991	63.68560	0.97238	224.93	-21.58
72/11/ 7	2441628.5	-36.81750	-45.73639	-24.77522	0.78630	-0.54124	-0.18026	63.72721	0.97145	231.17	-22.88
72/11/ 7	2441629.0	-31.29944	-49.14204	-25.85610	0.84161	-0.46348	-0.13862	63.74271	0.97074	237.51	-23.93
72/11/ 8	2441629.5	-25.43852	-52.00285	-26.64946	0.88747	-0.38048	-0.09542	63.73075	0.97029	243.93	-24.72

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO V(KM/SEC)	RA	DEC
72/11/ 8	2441630.0	-19.30026	-54.28602	-27.14610	0.92343	-0.29305	-0.05108	63.68974	0.97016	250.43	-25.23
72/11/ 9	2441630.5	-12.95302	-55.96434	-27.33971	0.94912	-0.20202	-0.00601	63.61799	0.97040	256.97	-25.45
72/11/ 9	2441631.0	-6.46750	-57.01634	-27.22691	0.96422	-0.10825	0.03933	63.51375	0.97108	263.53	-25.38
72/11/10	2441631.5	0.08374	-57.42644	-26.80725	0.96849	-0.01262	0.08453	63.37532	0.97226	270.08	-25.02
72/11/10	2441632.0	6.62672	-57.18516	-26.08329	0.96176	0.08395	0.12912	63.20121	0.97401	276.61	-24.37
72/11/11	2441632.5	13.08648	-56.28923	-25.06060	0.94391	0.18053	0.17266	62.99021	0.97641	283.09	-23.44
72/11/11	2441633.0	19.38761	-54.74181	-23.74781	0.91491	0.27617	0.21471	62.74156	0.97950	289.50	-22.24
72/11/12	2441633.5	25.45462	-52.55264	-22.15664	0.87479	0.36987	0.25479	62.45506	0.98335	295.84	-20.78
72/11/12	2441634.0	31.21257	-49.73827	-20.30195	0.82367	0.46062	0.29244	62.13122	0.98799	302.11	-19.07
72/11/13	2441634.5	36.58752	-46.32225	-18.20178	0.76174	0.54735	0.32720	61.77137	0.99343	308.30	-17.14
72/11/13	2441635.0	41.50721	-42.33540	-15.87743	0.68929	0.62899	0.35856	61.37774	0.99966	314.43	-14.99
72/11/14	2441635.5	45.90178	-37.81606	-13.35349	0.60675	0.70440	0.38605	60.95362	1.00666	320.52	-12.65
72/11/14	2441636.0	49.70462	-32.81032	-10.65787	0.51466	0.77243	0.40918	60.50336	1.01437	326.57	-10.15
72/11/15	2441636.5	52.85337	-27.37224	-7.82180	0.41374	0.83187	0.42745	60.03247	1.02269	332.62	-7.49
72/11/15	2441637.0	55.29109	-21.56393	-4.87976	0.30487	0.88155	0.44039	59.54762	1.03151	338.69	-4.70
72/11/16	2441637.5	56.96760	-15.45558	-1.86936	0.18916	0.92028	0.44756	59.05655	1.04068	344.82	-1.81
72/11/16	2441638.0	57.84096	-9.12519	1.16892	0.06795	0.94693	0.44856	58.56801	1.05000	351.03	1.14
72/11/17	2441638.5	57.87913	-2.65813	4.19210	-0.05718	0.96048	0.44306	58.09159	1.05928	357.37	4.14
72/11/17	2441639.0	57.06162	3.85369	7.15525	-0.18440	0.96002	0.43081	57.63746	1.06829	3.86	7.13
72/11/18	2441639.5	55.38119	10.31306	10.01223	-0.31163	0.94489	0.41169	57.21608	1.07677	10.55	10.08
72/11/18	2441640.0	52.84538	16.61908	12.71659	-0.43660	0.91470	0.38576	56.83783	1.08448	17.46	12.93
72/11/19	2441640.5	49.47769	22.66935	15.22267	-0.55687	0.86939	0.35320	56.51257	1.09119	24.62	15.63
72/11/19	2441641.0	45.31837	28.36242	17.48689	-0.66994	0.80932	0.31442	56.24921	1.09667	32.04	18.11
72/11/20	2441641.5	40.42453	33.60062	19.46903	-0.77337	0.73525	0.27002	56.05522	1.10072	39.73	20.32
72/11/20	2441642.0	34.86950	38.29308	21.13357	-0.86482	0.64840	0.22078	55.93630	1.10321	47.68	22.20
72/11/21	2441642.5	28.74142	42.35856	22.45093	-0.94227	0.55041	0.16767	55.89598	1.10405	55.84	23.68
72/11/21	2441643.0	22.14105	45.72814	23.39848	-1.00404	0.44326	0.11177	55.93547	1.10321	64.16	24.73
72/11/22	2441643.5	15.17896	48.34727	23.96125	-1.04893	0.32920	0.05424	56.05355	1.10071	72.57	25.31
72/11/22	2441644.0	7.97217	50.17729	24.13231	-1.07622	0.21065	-0.00370	56.24664	1.09665	80.97	25.41
72/11/23	2441644.5	0.64073	51.19611	23.91275	-1.08575	0.09006	-0.06091	56.50904	1.09118	89.28	25.03
72/11/23	2441645.0	-6.69578	51.39809	23.31133	-1.07781	-0.03017	-0.11629	56.83322	1.08448	97.42	24.22
72/11/24	2441645.5	-13.92132	50.79334	22.34383	-1.05314	-0.14780	-0.16886	57.21026	1.07678	105.33	22.99
72/11/24	2441646.0	-20.92614	49.40640	21.03217	-1.01284	-0.26083	-0.21779	57.63027	1.06832	112.96	21.40
72/11/25	2441646.5	-27.60887	47.27450	19.40339	-0.95827	-0.36752	-0.26240	58.08286	1.05934	120.29	19.52
72/11/25	2441647.0	-33.87805	44.44567	17.48866	-0.89099	-0.46641	-0.30216	58.55760	1.05010	127.32	17.38
72/11/26	2441647.5	-39.65312	40.97674	15.32221	-0.81264	-0.55636	-0.33668	59.04433	1.04081	134.06	15.04
72/11/26	2441648.0	-44.86484	36.93144	12.94044	-0.72492	-0.63649	-0.36571	59.53352	1.03168	140.54	12.55
72/11/27	2441648.5	-49.45541	32.37860	10.38101	-0.62950	-0.70615	-0.38912	60.01647	1.02291	146.79	9.96
72/11/27	2441649.0	-53.37823	27.39056	7.68220	-0.52800	-0.76494	-0.40687	60.48549	1.01463	152.84	7.30
72/11/28	2441649.5	-56.59746	22.04189	4.88226	-0.42198	-0.81262	-0.41900	60.93401	1.00697	158.72	4.60
72/11/28	2441650.0	-59.08745	16.40818	2.01899	-0.31290	-0.84911	-0.42560	61.35659	1.00001	164.48	1.89
72/11/29	2441650.5	-60.83215	10.56519	-0.87069	-0.20213	-0.87444	-0.42682	61.74894	0.99382	170.15	-0.81
72/11/29	2441651.0	-61.82448	4.58803	-3.75101	-0.09094	-0.88876	-0.42286	62.10787	0.98842	175.76	-3.46
72/11/30	2441651.5	-62.06576	-1.44941	-6.58755	0.01947	-0.89228	-0.41394	62.43120	0.98381	181.34	-6.06
72/11/30	2441652.0	-61.56507	-7.47500	-9.34748	0.12798	-0.88531	-0.40029	62.71769	0.97999	186.92	-8.57

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
72/12/ 1	2441652.5	-60.33882	-13.41875	-11.99970	0.23355	-0.86818	-0.38217	62.96689	0.97690	192.54	-10.99
72/12/ 1	2441653.0	-58.41026	-19.21325	-14.51492	0.33521	-0.84130	-0.35988	63.17904	0.97451	198.21	-13.28
72/12/ 2	2441653.5	-55.80906	-24.79392	-16.86585	0.43203	-0.80512	-0.33371	63.35492	0.97274	203.95	-15.44
72/12/ 2	2441654.0	-52.57091	-30.09943	-19.02725	0.52315	-0.76013	-0.30397	63.49577	0.97154	209.79	-17.44
72/12/ 3	2441654.5	-48.73721	-35.07193	-20.97611	0.60776	-0.70688	-0.27100	63.60309	0.97083	215.74	-19.26
72/12/ 3	2441655.0	-44.35462	-39.65744	-22.69171	0.68511	-0.64596	-0.23515	63.67856	0.97053	221.80	-20.88
72/12/ 4	2441655.5	-39.47479	-43.80611	-24.15574	0.75448	-0.57800	-0.19678	63.72389	0.97059	227.98	-22.28
72/12/ 4	2441656.0	-34.15392	-47.47261	-25.35246	0.81524	-0.50369	-0.15628	63.74078	0.97095	234.27	-23.44
72/12/ 5	2441656.5	-28.45239	-50.61638	-26.26877	0.86680	-0.42377	-0.11405	63.73072	0.97156	240.66	-24.34
72/12/ 5	2441657.0	-22.43430	-53.20201	-26.89433	0.90864	-0.33901	-0.07049	63.69503	0.97238	247.14	-24.98
72/12/ 6	2441657.5	-16.16706	-55.19951	-27.22164	0.94031	-0.25024	-0.02605	63.63472	0.97338	253.68	-25.33
72/12/ 6	2441658.0	-9.72085	-56.58462	-27.24618	0.96143	-0.15832	0.01884	63.55051	0.97456	260.25	-25.39
72/12/ 7	2441658.5	-3.16813	-57.33903	-26.96641	0.97171	-0.06415	0.06373	63.44280	0.97591	266.84	-25.15
72/12/ 7	2441659.0	3.41692	-57.45067	-26.38388	0.97095	0.03133	0.10817	63.31165	0.97746	273.40	-24.63
72/12/ 8	2441659.5	9.95900	-56.91390	-25.50327	0.95901	0.12716	0.15168	63.15687	0.97922	279.93	-23.82
72/12/ 8	2441660.0	16.38224	-55.72966	-24.33236	0.93586	0.22235	0.19381	62.97806	0.98124	286.38	-22.73
72/12/ 9	2441660.5	22.61087	-53.90563	-22.88210	0.90156	0.31591	0.23410	62.77467	0.98357	292.76	-21.38
72/12/ 9	2441661.0	28.56981	-51.45638	-21.16655	0.85626	0.40681	0.27207	62.54611	0.98625	299.04	-19.78
72/12/10	2441661.5	34.18537	-48.40340	-19.20289	0.80021	0.49401	0.30728	62.29189	0.98935	305.23	-17.96
72/12/10	2441662.0	39.38590	-44.77520	-17.01139	0.73377	0.57649	0.33928	62.01173	0.99291	311.34	-15.92
72/12/11	2441662.5	44.10249	-40.60733	-14.61531	0.65740	0.65320	0.36762	61.70569	0.99699	317.36	-13.70
72/12/11	2441663.0	48.26975	-35.94236	-12.04086	0.57166	0.72311	0.39188	61.37430	1.00162	323.33	-11.31
72/12/12	2441663.5	51.82655	-30.82990	-9.31710	0.47726	0.78517	0.41164	61.01871	1.00684	329.25	-8.78
72/12/12	2441664.0	54.71692	-25.32648	-6.47585	0.37501	0.83839	0.42651	60.64081	1.01264	335.16	-6.13
72/12/13	2441664.5	56.89091	-19.49545	-3.55149	0.26589	0.88175	0.43612	60.24335	1.01902	341.08	-3.38
72/12/13	2441665.0	58.30568	-13.40673	-0.58080	0.15102	0.91432	0.44014	59.83001	1.02592	347.05	-0.56
72/12/14	2441665.5	58.92653	-7.13653	2.39734	0.03168	0.93520	0.43828	59.40550	1.03330	353.09	2.31
72/12/14	2441666.0	58.72809	-0.76678	5.34227	-0.09065	0.94359	0.43030	58.97556	1.04103	359.25	5.20
72/12/15	2441666.5	57.69551	5.61551	8.21199	-0.21434	0.93881	0.41605	58.54692	1.04900	5.56	8.06
72/12/15	2441667.0	55.82568	11.91923	10.96376	-0.33757	0.92032	0.39547	58.12726	1.05704	12.05	10.87
72/12/16	2441667.5	53.12841	18.05040	13.55473	-0.45834	0.88782	0.36859	57.72500	1.06497	18.77	13.58
72/12/16	2441668.0	49.62740	23.91375	15.94284	-0.57454	0.84125	0.33560	57.34911	1.07258	25.73	16.14
72/12/17	2441668.5	45.36103	29.41457	18.08770	-0.68397	0.78084	0.29683	57.00882	1.07965	32.96	18.50
72/12/17	2441669.0	40.38273	34.46094	19.95169	-0.78440	0.70718	0.25276	56.71324	1.08594	40.48	20.60
72/12/18	2441669.5	34.76086	38.96613	21.50109	-0.87366	0.62122	0.20405	56.47099	1.09126	48.26	22.38
72/12/18	2441670.0	28.57800	42.85117	22.70715	-0.94974	0.52431	0.15153	56.28978	1.09538	56.30	23.79
72/12/19	2441670.5	21.92959	46.04738	23.54718	-1.01087	0.41813	0.09614	56.17595	1.09815	64.53	24.78
72/12/19	2441671.0	14.92185	48.49866	24.00543	-1.05564	0.30469	0.03897	56.13414	1.09943	72.90	25.32
72/12/20	2441671.5	7.66914	50.16346	24.07368	-1.08308	0.18627	-0.01883	56.16698	1.09915	81.31	25.38
72/12/20	2441672.0	0.29085	51.01608	23.75160	-1.09269	0.06528	-0.07609	56.27489	1.09728	89.67	24.96
72/12/21	2441672.5	-7.09198	51.04739	23.04675	-1.08447	-0.05585	-0.13167	56.45605	1.09386	97.91	24.09
72/12/21	2441673.0	-14.36005	50.26471	21.97416	-1.05892	-0.17470	-0.18451	56.70640	1.08898	105.94	22.80
72/12/22	2441673.5	-21.39900	48.69106	20.55572	-1.01700	-0.28906	-0.23366	57.01994	1.08279	113.72	21.13
72/12/22	2441674.0	-28.10215	46.36375	18.81920	-0.96001	-0.39694	-0.27832	57.38894	1.07547	121.22	19.14
72/12/23	2441674.5	-34.37272	43.33257	16.79723	-0.88954	-0.49666	-0.31786	57.80435	1.06723	128.42	16.89

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM					MOO		
72/12/23	2441675.0	-40.12540	39.65766	14.52615	-0.80739	-0.58683	-0.35182	58.25622	1.05831	135.34	14.44
72/12/24	2441675.5	-45.28733	35.40728	12.04483	-0.71542	-0.66644	-0.37990	58.73411	1.04895	141.98	11.83
72/12/24	2441676.0	-49.79850	30.65562	9.39371	-0.61553	-0.73476	-0.40195	59.22752	1.03938	148.38	9.13
72/12/25	2441676.5	-53.61159	25.48082	6.61377	-0.50959	-0.79134	-0.41794	59.72618	1.02984	154.58	6.36
72/12/25	2441677.0	-56.69160	19.96317	3.74583	-0.39934	-0.83599	-0.42796	60.22040	1.02054	160.60	3.57
72/12/26	2441677.5	-59.01510	14.18361	0.82986	-0.28646	-0.86870	-0.43216	60.70128	1.01166	166.49	0.78
72/12/26	2441678.0	-60.56941	8.22252	-2.09546	-0.17245	-0.88963	-0.43076	61.16089	1.00336	172.27	-1.96
72/12/27	2441678.5	-61.35167	2.15877	-4.99313	-0.05870	-0.89907	-0.42404	61.59236	0.99578	177.98	-4.65
72/12/27	2441679.0	-61.36795	-3.93105	-7.82807	0.05354	-0.89739	-0.41229	61.98998	0.98902	183.67	-7.25
72/12/28	2441679.5	-60.63244	-9.97307	-10.56729	0.16312	-0.88504	-0.39582	62.34920	0.98315	189.34	-9.76
72/12/28	2441680.0	-59.16663	-15.89665	-13.17997	0.26903	-0.86250	-0.37498	62.66662	0.97821	195.04	-12.14
72/12/29	2441680.5	-56.99868	-21.63458	-15.63759	0.37031	-0.83031	-0.35009	62.93996	0.97422	200.78	-14.39
72/12/29	2441681.0	-54.16279	-27.12333	-17.91391	0.46613	-0.78901	-0.32150	63.16796	0.97117	206.60	-16.47
72/12/30	2441681.5	-50.69874	-32.30323	-19.98504	0.55568	-0.73920	-0.28956	63.35031	0.96904	212.50	-18.39
72/12/30	2441682.0	-46.65144	-37.11861	-21.82946	0.63824	-0.68148	-0.25462	63.48759	0.96777	218.51	-20.11
72/12/31	2441682.5	-42.07059	-41.51800	-23.42807	0.71312	-0.61647	-0.21703	63.58108	0.96731	224.62	-21.62
72/12/31	2441683.0	-37.01030	-45.45427	-24.76423	0.77971	-0.54484	-0.17718	63.63270	0.96757	230.85	-22.90
73/ 1/ 1	2441683.5	-31.52884	-48.88489	-25.82385	0.83740	-0.46727	-0.13544	63.64488	0.96846	237.18	-23.94
73/ 1/ 1	2441684.0	-25.68830	-51.77213	-26.59545	0.88566	-0.38451	-0.09220	63.62044	0.96991	243.61	-24.71
73/ 1/ 2	2441684.5	-19.55426	-54.08338	-27.07028	0.92399	-0.29732	-0.04787	63.56242	0.97183	250.12	-25.21
73/ 1/ 2	2441685.0	-13.19543	-55.79141	-27.24240	0.95197	-0.20652	-0.00288	63.47401	0.97411	256.69	-25.42
73/ 1/ 3	2441685.5	-6.68328	-56.87471	-27.10882	0.96921	-0.11299	0.04233	63.35840	0.97669	263.30	-25.33
73/ 1/ 3	2441686.0	-0.09151	-57.31780	-26.66955	0.97543	-0.01763	0.08731	63.21869	0.97949	269.91	-24.95
73/ 1/ 4	2441686.5	6.50438	-57.11156	-25.92775	0.97040	0.07859	0.13158	63.05780	0.98243	276.50	-24.28
73/ 1/ 4	2441687.0	13.02779	-56.25354	-24.88979	0.95401	0.17467	0.17468	62.87834	0.98548	283.04	-23.32
73/ 1/ 5	2441687.5	19.40161	-54.74818	-23.56530	0.92624	0.26957	0.21611	62.68261	0.98858	289.51	-22.08
73/ 1/ 5	2441688.0	25.54898	-52.60710	-21.96724	0.88717	0.36222	0.25539	62.47253	0.99171	295.90	-20.59
73/ 1/ 6	2441688.5	31.39408	-49.84919	-20.11183	0.83702	0.45153	0.29202	62.24962	0.99487	302.20	-18.85
73/ 1/ 6	2441689.0	36.86295	-46.50075	-18.01855	0.77614	0.53641	0.32555	62.01504	0.99805	308.41	-16.89
73/ 1/ 7	2441689.5	41.88438	-42.59548	-15.71009	0.70499	0.61578	0.35549	61.76960	1.00128	314.52	-14.73
73/ 1/ 7	2441690.0	46.39079	-38.17439	-13.21214	0.62417	0.68855	0.38143	61.51381	1.00458	320.55	-12.40
73/ 1/ 8	2441690.5	50.31914	-33.28564	-10.55329	0.53443	0.75370	0.40294	61.24804	1.00799	326.52	-9.92
73/ 1/ 8	2441691.0	53.61189	-27.98431	-7.76482	0.43663	0.81023	0.41965	60.97253	1.01155	332.44	-7.32
73/ 1/ 9	2441691.5	56.21783	-22.33198	-4.88038	0.33180	0.85720	0.43122	60.68756	1.01530	338.34	-4.61
73/ 1/ 9	2441692.0	58.09301	-16.39636	-1.93579	0.22105	0.89375	0.43737	60.39359	1.01928	344.24	-1.84
73/ 1/10	2441692.5	59.20162	-10.25070	1.03137	0.10565	0.91910	0.43785	60.09136	1.02353	350.18	0.98
73/ 1/10	2441693.0	59.51683	-3.97315	3.98212	-0.01299	0.93259	0.43250	59.78208	1.02808	356.18	3.82
73/ 1/11	2441693.5	59.02164	2.35395	6.87651	-0.13339	0.93365	0.42120	59.46748	1.03291	2.28	6.64
73/ 1/11	2441694.0	57.70960	8.64501	9.67409	-0.25392	0.92189	0.40391	59.15000	1.03803	8.52	9.41
73/ 1/12	2441694.5	55.58560	14.81220	12.33450	-0.37287	0.89705	0.38071	58.83281	1.04339	14.92	12.10
73/ 1/12	2441695.0	52.66640	20.76659	14.81803	-0.48843	0.85906	0.35172	58.51987	1.04893	21.52	14.67
73/ 1/13	2441695.5	48.98121	26.41952	17.08632	-0.59875	0.80807	0.31720	58.21591	1.05456	28.34	17.07
73/ 1/13	2441696.0	44.57194	31.68409	19.10307	-0.70193	0.74446	0.27751	57.92639	1.06016	35.41	19.26
73/ 1/14	2441696.5	39.49330	36.47685	20.83485	-0.79610	0.66887	0.23314	57.65737	1.06561	42.73	21.18
73/ 1/14	2441697.0	33.81257	40.71957	22.25187	-0.87943	0.58222	0.18468	57.41532	1.07074	50.29	22.80

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO. V(KM/SEC)	RA	DEC
73/ 1/15	2441697.5	27.60902	44.34115	23.32887	-0.95021	0.48568	0.13286	57.20692	1.07538	58.09	24.07
73/ 1/15	2441698.0	20.97289	47.27953	24.04582	-1.00693	0.38074	0.07851	57.03874	1.07937	66.08	24.93
73/ 1/16	2441698.5	14.00396	49.48353	24.38872	-1.04830	0.26913	0.02256	56.91696	1.08253	74.20	25.37
73/ 1/16	2441699.0	6.80962	50.91449	24.35013	-1.07336	0.15281	-0.03397	56.84703	1.08471	82.38	25.36
73/ 1/17	2441699.5	-0.49745	51.54761	23.92956	-1.08152	0.03390	-0.09005	56.83333	1.08579	90.55	24.90
73/ 1/17	2441700.0	-7.80191	51.37288	23.13368	-1.07260	-0.08537	-0.14463	56.87890	1.08566	98.64	24.00
73/ 1/18	2441700.5	-14.98865	50.39547	21.97616	-1.04683	-0.20275	-0.19668	56.98521	1.08427	106.56	22.68
73/ 1/18	2441701.0	-21.94562	48.63556	20.47738	-1.00489	-0.31608	-0.24525	57.15200	1.08160	114.29	21.00
73/ 1/19	2441701.5	-28.56662	46.12762	18.66375	-0.94783	-0.42332	-0.28952	57.37722	1.07768	121.77	18.98
73/ 1/19	2441702.0	-34.75375	42.91913	16.56696	-0.87703	-0.52267	-0.32876	57.65708	1.07259	129.00	16.70
73/ 1/20	2441702.5	-40.41940	39.06891	14.22293	-0.79413	-0.61259	-0.36245	57.98620	1.06643	135.97	14.20
73/ 1/20	2441703.0	-45.48778	34.64515	11.67078	-0.70097	-0.69185	-0.39017	58.35780	1.05937	142.71	11.54
73/ 1/21	2441703.5	-49.89585	29.72327	8.95175	-0.59947	-0.75956	-0.41170	58.76396	1.05156	149.22	8.76
73/ 1/21	2441704.0	-53.59372	24.38380	6.10814	-0.49158	-0.81509	-0.42695	59.19599	1.04322	155.54	5.92
73/ 1/22	2441704.5	-56.54456	18.71033	3.18242	-0.37919	-0.85815	-0.43596	59.64470	1.03454	161.69	3.06
73/ 1/22	2441705.0	-58.72417	12.78770	0.21638	-0.26413	-0.88867	-0.43889	60.10075	1.02573	167.72	0.21
73/ 1/23	2441705.5	-60.12021	6.70044	-2.74951	-0.14808	-0.90681	-0.43596	60.55490	1.01700	173.64	-2.60
73/ 1/23	2441706.0	-60.73128	0.53144	-5.67658	-0.03258	-0.91288	-0.42748	60.99832	1.00854	179.50	-5.34
73/ 1/24	2441706.5	-60.56588	-5.63902	-8.52838	0.08099	-0.90733	-0.41380	61.42278	1.00051	185.32	-7.98
73/ 1/24	2441707.0	-59.64137	-11.73408	-11.27091	0.19139	-0.89071	-0.39528	61.82083	0.99309	191.13	-10.50
73/ 1/25	2441707.5	-57.98298	-17.68079	-13.87275	0.29753	-0.86362	-0.37232	62.18592	0.98641	196.96	-12.89
73/ 1/25	2441708.0	-55.62286	-23.41049	-16.30519	0.39845	-0.82674	-0.34532	62.51251	0.98056	202.83	-15.12
73/ 1/26	2441708.5	-52.59934	-28.85907	-18.54220	0.49330	-0.78072	-0.31468	62.79610	0.97565	208.75	-17.17
73/ 1/26	2441709.0	-48.95614	-33.96705	-20.56046	0.58132	-0.72628	-0.28079	63.03330	0.97173	214.75	-19.04
73/ 1/27	2441709.5	-44.74184	-38.67969	-22.33932	0.66183	-0.66410	-0.24405	63.22180	0.96882	220.84	-20.69
73/ 1/27	2441710.0	-40.00934	-42.94704	-23.86077	0.73424	-0.59491	-0.20485	63.36034	0.96695	227.03	-22.12
73/ 1/28	2441710.5	-34.81550	-46.72401	-25.10946	0.79798	-0.51941	-0.16357	63.44870	0.96608	233.31	-23.31
73/ 1/28	2441711.0	-29.22075	-49.97040	-26.07265	0.85254	-0.43835	-0.12061	63.48761	0.96619	239.68	-24.25
73/ 1/29	2441711.5	-23.28887	-52.65104	-26.74026	0.89746	-0.35248	-0.07635	63.47869	0.96722	246.14	-24.91
73/ 1/29	2441712.0	-17.08661	-54.73594	-27.10493	0.93231	-0.26257	-0.03122	63.42439	0.96908	252.66	-25.30
73/ 1/30	2441712.5	-10.68353	-56.20052	-27.16204	0.95670	-0.16944	0.01439	63.32782	0.97170	259.24	-25.40
73/ 1/30	2441713.0	-4.15160	-57.02582	-26.90986	0.97030	-0.07394	0.06004	63.19272	0.97497	265.84	-25.20
73/ 1/31	2441713.5	2.43509	-57.19884	-26.34960	0.97283	0.02302	0.10529	63.02331	0.97878	272.44	-24.71
73/ 1/31	2441714.0	9.00074	-56.71285	-25.48555	0.96406	0.12049	0.14967	62.82415	0.98303	279.02	-23.93
73/ 2/ 1	2441714.5	15.46839	-55.56777	-24.32520	0.94387	0.21747	0.19271	62.60003	0.98759	285.56	-22.87
73/ 2/ 1	2441715.0	21.76046	-53.77050	-22.87932	0.91222	0.31290	0.23390	62.35582	0.99235	292.03	-21.53
73/ 2/ 2	2441715.5	27.79952	-51.33526	-21.16208	0.86918	0.40567	0.27275	62.09635	0.99722	298.44	-19.93
73/ 2/ 2	2441716.0	33.50906	-48.28387	-19.19106	0.81496	0.49465	0.30876	61.82626	1.00209	304.76	-18.08
73/ 2/ 3	2441716.5	38.81446	-44.64596	-16.98728	0.74991	0.57867	0.34140	61.54991	1.00687	311.00	-16.02
73/ 2/ 3	2441717.0	43.64396	-40.45906	-14.57515	0.67453	0.65657	0.37020	61.27125	1.01150	317.17	-13.76
73/ 2/ 4	2441717.5	47.92981	-35.76859	-11.98231	0.58950	0.72718	0.39469	60.99372	1.01592	323.27	-11.33
73/ 2/ 4	2441718.0	51.60936	-30.62769	-9.23952	0.49566	0.78940	0.41442	60.72026	1.02008	329.31	-8.75
73/ 2/ 5	2441718.5	54.62628	-25.09683	-6.38029	0.39401	0.84216	0.42901	60.45320	1.02398	335.32	-6.06
73/ 2/ 5	2441719.0	56.93162	-19.24338	-3.44062	0.28574	0.88451	0.43812	60.19431	1.02760	341.32	-3.28
73/ 2/ 6	2441719.5	58.48496	-13.14085	-0.45850	0.17218	0.91558	0.44150	59.94483	1.03095	347.34	-0.44

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
73/ 2/ 6	2441720.0	59.25534	-6.86808	2.52651	0.05480	0.93467	0.43895	59.70551	1.03407	353.39	2.43
73/ 2/ 7	2441720.5	59.22214	-0.50820	5.47390	-0.06483	0.94123	0.43038	59.47675	1.03698	359.51	5.28
73/ 2/ 7	2441721.0	58.37583	5.85246	8.34274	-0.18503	0.93486	0.41576	59.25867	1.03974	5.73	8.09
73/ 2/ 8	2441721.5	56.71844	12.12566	11.09234	-0.30404	0.91538	0.39519	59.05127	1.04238	12.07	10.83
73/ 2/ 8	2441722.0	54.26397	18.22257	13.68293	-0.42010	0.88282	0.36885	58.85459	1.04494	18.56	13.44
73/ 2/ 9	2441722.5	51.03854	24.05518	16.07626	-0.53141	0.83739	0.33700	58.66882	1.04747	25.24	15.90
73/ 2/ 9	2441723.0	47.08032	29.53774	18.23635	-0.63620	0.77955	0.30004	58.49444	1.04998	32.10	18.17
73/ 2/10	2441723.5	42.43929	34.58825	20.13008	-0.73276	0.70994	0.25843	58.33233	1.05249	39.18	20.19
73/ 2/10	2441724.0	37.17675	39.12991	21.72783	-0.81946	0.62945	0.21274	58.18384	1.05498	46.47	21.93
73/ 2/11	2441724.5	31.36463	43.09258	23.00411	-0.89481	0.53917	0.16362	58.05084	1.05743	53.95	23.35
73/ 2/11	2441725.0	25.08452	46.41419	23.93812	-0.95744	0.44038	0.11180	57.93569	1.05978	61.61	24.41
73/ 2/12	2441725.5	18.42654	49.04203	24.51420	-1.00622	0.33456	0.05807	57.84120	1.06197	69.41	25.08
73/ 2/12	2441726.0	11.48788	50.93399	24.72230	-1.04019	0.22336	0.00328	57.77053	1.06391	77.29	25.34
73/ 2/13	2441726.5	4.37119	52.05955	24.55824	-1.05870	0.10856	-0.05167	57.72705	1.06550	85.20	25.18
73/ 2/13	2441727.0	-2.81731	52.40068	24.02400	-1.06136	-0.00796	-0.10588	57.71413	1.06665	93.08	24.60
73/ 2/14	2441727.5	-9.96982	51.95229	23.12769	-1.04809	-0.12425	-0.15844	57.73498	1.06725	100.86	23.61
73/ 2/14	2441728.0	-16.97915	50.72260	21.88350	-1.01914	-0.23835	-0.20847	57.79240	1.06720	108.51	22.25
73/ 2/15	2441728.5	-23.74090	48.73295	20.31144	-0.97510	-0.34834	-0.25513	57.88856	1.06642	115.97	20.54
73/ 2/15	2441729.0	-30.15562	46.01737	18.43690	-0.91684	-0.45242	-0.29767	58.02482	1.06484	123.24	18.53
73/ 2/16	2441729.5	-36.13087	42.62173	16.29009	-0.84554	-0.54890	-0.33543	58.20154	1.06242	130.29	16.25
73/ 2/16	2441730.0	-41.58298	38.60258	13.90527	-0.76262	-0.63631	-0.36787	58.41798	1.05915	137.13	13.77
73/ 2/17	2441730.5	-46.43859	34.02567	11.31998	-0.66968	-0.71341	-0.39457	58.67222	1.05504	143.77	11.12
73/ 2/17	2441731.0	-50.63574	28.96427	8.57412	-0.56848	-0.77923	-0.41524	58.96119	1.05014	150.23	8.36
73/ 2/18	2441731.5	-54.12465	23.49740	5.70909	-0.46085	-0.83305	-0.42975	59.28068	1.04453	156.53	5.53
73/ 2/18	2441732.0	-56.86800	17.70795	2.76683	-0.34863	-0.87443	-0.43805	59.62546	1.03830	162.70	2.66
73/ 2/19	2441732.5	-58.84088	11.68096	-0.21092	-0.23363	-0.90319	-0.44025	59.98948	1.03158	168.77	-0.20
73/ 2/19	2441733.0	-60.03040	5.50189	-3.18339	-0.11759	-0.91936	-0.43653	60.36600	1.02451	174.76	-3.02
73/ 2/20	2441733.5	-60.43505	-0.74477	-6.11136	-0.00212	-0.92320	-0.42716	60.74783	1.01724	180.71	-5.77
73/ 2/20	2441734.0	-60.06381	-6.97677	-8.95769	0.11129	-0.91512	-0.41248	61.12755	1.00993	186.63	-8.43
73/ 2/21	2441734.5	-58.93521	-13.11512	-11.68767	0.22131	-0.89565	-0.39287	61.49769	1.00275	192.55	-10.96
73/ 2/21	2441735.0	-57.07630	-19.08485	-14.26927	0.32676	-0.86544	-0.36874	61.85101	0.99585	198.49	-13.34
73/ 2/22	2441735.5	-54.52165	-24.81560	-16.67334	0.42660	-0.82520	-0.34052	62.18058	0.98939	204.47	-15.55
73/ 2/22	2441736.0	-51.31237	-30.24200	-18.87367	0.51993	-0.77569	-0.30865	62.48002	0.98351	210.51	-17.58
73/ 2/23	2441736.5	-47.49525	-35.30388	-20.84703	0.60597	-0.71770	-0.27357	62.74362	0.97833	216.62	-19.41
73/ 2/23	2441737.0	-43.12196	-39.94647	-22.57312	0.68406	-0.65201	-0.23571	62.96642	0.97396	222.81	-21.01
73/ 2/24	2441737.5	-38.24840	-44.12037	-24.03458	0.75361	-0.57943	-0.19549	63.14434	0.97050	229.08	-22.37
73/ 2/24	2441738.0	-32.93412	-47.78161	-25.21689	0.81412	-0.50076	-0.15335	63.27424	0.96802	235.42	-23.49
73/ 2/25	2441738.5	-27.24187	-50.89162	-26.10834	0.86515	-0.41679	-0.10967	63.35394	0.96655	241.84	-24.34
73/ 2/25	2441739.0	-21.23721	-53.41727	-26.70002	0.90631	-0.32833	-0.06489	63.38229	0.96613	248.32	-24.91
73/ 2/26	2441739.5	-14.98817	-55.33086	-26.98573	0.93726	-0.23619	-0.01940	63.35912	0.96676	254.84	-25.21
73/ 2/26	2441740.0	-8.56498	-56.61023	-26.96209	0.95769	-0.14119	0.02639	63.28532	0.96840	261.40	-25.22
73/ 2/27	2441740.5	-2.03982	-57.23891	-26.62849	0.96733	-0.04419	0.07206	63.16273	0.97101	267.96	-24.93
73/ 2/27	2441741.0	4.51347	-57.20625	-25.98718	0.96596	0.05394	0.11718	62.99413	0.97454	274.51	-24.36
73/ 2/28	2441741.5	11.01974	-56.50776	-25.04337	0.95342	0.15227	0.16132	62.78321	0.97888	281.03	-23.51
73/ 2/28	2441742.0	17.40282	-55.14532	-23.80529	0.92958	0.24983	0.20400	62.53445	0.98394	287.51	-22.38

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/ 3/ 1	2441742.5	23.58606	-53.12762	-22.28437	0.89440	0.34559	0.24476	62.25303	0.98960	293.94	-20.98
73/ 3/ 1	2441743.0	29.49286	-50.47045	-20.49529	0.84796	0.43848	0.28310	61.94475	0.99572	300.30	-19.32
73/ 3/ 2	2441743.5	35.04737	-47.19710	-18.45609	0.79042	0.52735	0.31853	61.61584	1.00216	306.60	-17.43
73/ 3/ 2	2441744.0	40.17537	-43.33872	-16.18829	0.72208	0.61104	0.35052	61.27288	1.00878	312.83	-15.32
73/ 3/ 3	2441744.5	44.80525	-38.93452	-13.71685	0.64342	0.68833	0.37858	60.92256	1.01543	319.01	-13.01
73/ 3/ 3	2441745.0	48.86912	-34.03194	-11.07015	0.55507	0.75800	0.40219	60.57155	1.02197	325.15	-10.53
73/ 3/ 4	2441745.5	52.30415	-28.68665	-8.27988	0.45788	0.81886	0.42090	60.22627	1.02827	331.26	-7.90
73/ 3/ 4	2441746.0	55.05383	-22.96233	-5.38078	0.35288	0.86974	0.43426	59.89279	1.03419	337.36	-5.15
73/ 3/ 5	2441746.5	57.06945	-16.93021	-2.41032	0.24134	0.90958	0.44191	59.57654	1.03965	343.48	-2.32
73/ 3/ 5	2441747.0	58.31143	-10.66839	0.59177	0.12469	0.93742	0.44356	59.28227	1.04454	349.63	0.57
73/ 3/ 6	2441747.5	58.75064	-4.26084	3.58405	0.00457	0.95249	0.43899	59.01387	1.04880	355.85	3.48
73/ 3/ 6	2441748.0	58.36949	2.20381	6.52408	-0.11724	0.95421	0.42812	58.77430	1.05240	2.16	6.37
73/ 3/ 7	2441748.5	57.16293	8.63375	9.36914	-0.23885	0.94221	0.41097	58.56554	1.05532	8.59	9.21
73/ 3/ 7	2441749.0	55.13895	14.93566	12.07710	-0.35829	0.91640	0.38767	58.38865	1.05757	15.16	11.94
73/ 3/ 8	2441749.5	52.31898	21.01645	14.60722	-0.47358	0.87697	0.35851	58.24378	1.05919	21.89	14.52
73/ 3/ 8	2441750.0	48.73771	26.78517	16.92102	-0.58277	0.82435	0.32387	58.13029	1.06022	28.79	16.92
73/ 3/ 9	2441750.5	44.44278	32.15477	18.98306	-0.68402	0.75925	0.28426	58.04693	1.06073	35.89	19.09
73/ 3/ 9	2441751.0	39.49391	37.04389	20.76170	-0.77560	0.68265	0.24029	57.99196	1.06080	43.17	20.98
73/ 3/10	2441751.5	33.96192	41.37849	22.22971	-0.85597	0.59572	0.19265	57.96336	1.06051	50.62	22.55
73/ 3/10	2441752.0	27.92736	45.09319	23.36480	-0.92380	0.49984	0.14211	57.95902	1.05993	58.23	23.77
73/ 3/11	2441752.5	21.47901	48.13259	24.15003	-0.97800	0.39657	0.08948	57.97687	1.05913	65.95	24.62
73/ 3/11	2441753.0	14.71219	50.45213	24.57411	-1.01773	0.28756	0.03561	58.01511	1.05817	73.74	25.06
73/ 3/12	2441753.5	7.72699	52.01887	24.63152	-1.04241	0.17457	-0.01865	58.07220	1.05709	81.55	25.10
73/ 3/12	2441754.0	0.62648	52.81193	24.32258	-1.05175	0.05940	-0.07243	58.14706	1.05592	89.32	24.73
73/ 3/13	2441754.5	-6.48519	52.82273	23.65336	-1.04572	-0.05612	-0.12490	58.23899	1.05465	97.00	23.96
73/ 3/13	2441755.0	-13.50457	52.05495	22.63548	-1.02456	-0.17021	-0.17525	58.34772	1.05328	104.54	22.83
73/ 3/14	2441755.5	-20.33065	50.52432	21.28587	-0.98875	-0.28110	-0.22274	58.47333	1.05179	111.92	21.35
73/ 3/14	2441756.0	-26.86661	48.25811	19.62636	-0.93903	-0.38715	-0.26666	58.61616	1.05012	119.11	19.56
73/ 3/15	2441756.5	-33.02133	45.29453	17.68324	-0.87635	-0.48679	-0.30639	58.77669	1.04825	126.09	17.51
73/ 3/15	2441757.0	-38.71085	41.68181	15.48671	-0.80186	-0.57861	-0.34140	58.95541	1.04611	132.88	15.23
73/ 3/16	2441757.5	-43.85962	37.47717	13.07029	-0.71690	-0.66138	-0.37125	59.15266	1.04365	139.49	12.77
73/ 3/16	2441758.0	-48.40159	32.74567	10.47018	-0.62293	-0.73403	-0.39560	59.36849	1.04084	145.92	10.16
73/ 3/17	2441758.5	-52.28101	27.55885	7.72455	-0.52153	-0.79571	-0.41419	59.60254	1.03764	152.20	7.45
73/ 3/17	2441759.0	-55.45304	21.99335	4.87286	-0.41432	-0.84576	-0.42690	59.85392	1.03403	158.37	4.67
73/ 3/18	2441759.5	-57.88407	16.12947	1.95517	-0.30300	-0.88377	-0.43369	60.12111	1.03002	164.43	1.86
73/ 3/18	2441760.0	-59.55185	10.04969	-0.98856	-0.18921	-0.90949	-0.43461	60.40196	1.02561	170.42	-0.94
73/ 3/19	2441760.5	-60.44526	3.83734	-3.91906	-0.07460	-0.92293	-0.42981	60.69360	1.02084	176.37	-3.70
73/ 3/19	2441761.0	-60.56397	-2.42481	-6.79837	0.03930	-0.92424	-0.41953	60.99255	1.01576	182.29	-6.40
73/ 3/20	2441761.5	-59.91786	-8.65565	-9.59025	0.15102	-0.91375	-0.40405	61.29472	1.01045	188.22	-9.00
73/ 3/20	2441762.0	-58.52629	-14.77684	-12.26067	0.25921	-0.89195	-0.38373	61.59550	1.00499	194.17	-11.48
73/ 3/21	2441762.5	-56.41727	-20.71368	-14.77811	0.36268	-0.85942	-0.35894	61.88988	0.99949	200.16	-13.81
73/ 3/21	2441763.0	-53.62659	-26.39580	-17.11377	0.46034	-0.81685	-0.33012	62.17259	0.99405	206.21	-15.98
73/ 3/22	2441763.5	-50.19690	-31.75773	-19.24179	0.55123	-0.76501	-0.29770	62.43819	0.98880	212.32	-17.95
73/ 3/22	2441764.0	-46.17680	-36.73932	-21.13930	0.63455	-0.70468	-0.26213	62.68129	0.98384	218.51	-19.71
73/ 3/23	2441764.5	-41.62004	-41.28596	-22.78650	0.70960	-0.63671	-0.22386	62.89661	0.97931	224.77	-21.24

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO. V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
73/ 3/23	2441765.0	-36.58472	-45.34879	-24.16662	0.77578	-0.56195	-0.18334	63.07916	0.97531	231.11	-22.53
73/ 3/24	2441765.5	-31.13259	-48.88473	-25.26592	0.83260	-0.48127	-0.14101	63.22438	0.97197	237.51	-23.55
73/ 3/24	2441766.0	-25.32843	-51.85655	-26.07362	0.87966	-0.39552	-0.09730	63.32823	0.96939	243.97	-24.31
73/ 3/25	2441766.5	-19.23958	-54.23282	-26.58184	0.91662	-0.30555	-0.05265	63.38734	0.96764	250.47	-24.79
73/ 3/25	2441767.0	-12.93543	-55.98793	-26.78558	0.94320	-0.21223	-0.00746	63.39906	0.96681	256.99	-24.99
73/ 3/26	2441767.5	-6.48706	-57.10205	-26.68265	0.95917	-0.11641	0.03784	63.36158	0.96695	263.52	-24.91
73/ 3/26	2441768.0	0.03306	-57.56118	-26.27366	0.96436	-0.01897	0.08285	63.27397	0.96810	270.03	-24.53
73/ 3/27	2441768.5	6.55141	-57.35725	-25.56201	0.95863	0.07924	0.12714	63.13629	0.97027	276.52	-23.88
73/ 3/27	2441769.0	12.99369	-56.48819	-24.55395	0.94189	0.17729	0.17031	62.94957	0.97344	282.95	-22.96
73/ 3/28	2441769.5	19.28517	-54.95817	-23.25860	0.91410	0.27426	0.21191	62.71587	0.97760	289.34	-21.77
73/ 3/28	2441770.0	25.35101	-52.77777	-21.68802	0.87527	0.36917	0.25150	62.43827	0.98267	295.66	-20.33
73/ 3/29	2441770.5	31.11675	-49.96436	-19.85732	0.82550	0.46101	0.28864	62.12087	0.98858	301.91	-18.64
73/ 3/29	2441771.0	36.50880	-46.54236	-17.78475	0.76496	0.54870	0.32285	61.76877	0.99522	308.11	-16.73
73/ 3/30	2441771.5	41.45514	-42.54356	-15.49176	0.69394	0.63114	0.35365	61.38793	1.00248	314.26	-14.62
73/ 3/30	2441772.0	45.88616	-38.00753	-13.00310	0.61287	0.70715	0.38055	60.98518	1.01019	320.37	-12.31
73/ 3/31	2441772.5	49.73559	-32.98176	-10.34681	0.52232	0.77555	0.40306	60.56799	1.01821	326.45	-9.84
73/ 3/31	2441773.0	52.94171	-27.52195	-7.55423	0.42305	0.83512	0.42072	60.14439	1.02636	332.53	-7.22
73/ 4/ 1	2441773.5	55.44864	-21.69191	-4.65981	0.31603	0.88468	0.43306	59.72273	1.03444	338.63	-4.47
73/ 4/ 1	2441774.0	57.20784	-15.56343	-1.70093	0.20246	0.92307	0.43969	59.31147	1.04229	344.78	-1.64
73/ 4/ 2	2441774.5	58.17960	-9.21574	1.28248	0.08376	0.94924	0.44026	58.91893	1.04972	351.00	1.25
73/ 4/ 2	2441775.0	58.33461	-2.73475	4.24849	-0.03842	0.96229	0.43452	58.55301	1.05655	357.32	4.16
73/ 4/ 3	2441775.5	57.65547	3.78812	7.15379	-0.16223	0.96151	0.42232	58.22096	1.06262	3.76	7.06
73/ 4/ 3	2441776.0	56.13793	10.25742	9.95453	-0.28564	0.94642	0.40365	57.92905	1.06782	10.35	9.89
73/ 4/ 4	2441776.5	53.79193	16.57553	12.60721	-0.40651	0.91686	0.37863	57.68242	1.07203	17.13	12.62
73/ 4/ 4	2441777.0	50.64216	22.64473	15.06973	-0.52262	0.87297	0.34755	57.48485	1.07518	24.09	15.20
73/ 4/ 5	2441777.5	46.72819	28.36947	17.30241	-0.63181	0.81526	0.31085	57.33868	1.07724	31.26	17.56
73/ 4/ 5	2441778.0	42.10408	33.65874	19.26902	-0.73199	0.74455	0.26909	57.24473	1.07823	38.64	19.67
73/ 4/ 6	2441778.5	36.83739	38.42827	20.93773	-0.82126	0.66200	0.22301	57.20239	1.07817	46.21	21.47
73/ 4/ 6	2441779.0	31.00780	42.60264	22.28188	-0.89796	0.56906	0.17340	57.20971	1.07714	53.95	22.92
73/ 4/ 7	2441779.5	24.70521	46.11705	23.28063	-0.96073	0.46741	0.12117	57.26357	1.07525	61.82	23.99
73/ 4/ 7	2441780.0	18.02762	48.91865	23.91937	-1.00855	0.35890	0.06725	57.35996	1.07262	69.77	24.65
73/ 4/ 8	2441780.5	11.07880	50.96753	24.18994	-1.04074	0.24547	0.01261	57.49419	1.06937	77.74	24.88
73/ 4/ 8	2441781.0	3.96592	52.23722	24.09062	-1.05698	0.12914	-0.04182	57.66120	1.06566	85.66	24.70
73/ 4/ 9	2441781.5	-3.20284	52.71481	23.62593	-1.05727	0.01190	-0.09514	57.85581	1.06161	93.48	24.10
73/ 4/ 9	2441782.0	-10.32040	52.40064	22.80636	-1.04193	-0.10435	-0.14648	58.07295	1.05734	101.14	23.12
73/ 4/10	2441782.5	-17.28281	51.30774	21.64785	-1.01157	-0.21776	-0.19510	58.30788	1.05298	108.62	21.79
73/ 4/10	2441783.0	-23.99098	49.46104	20.17127	-0.96701	-0.32667	-0.24030	58.55631	1.04861	115.88	20.15
73/ 4/11	2441783.5	-30.35213	46.89633	18.40183	-0.90929	-0.42954	-0.28149	58.81450	1.04429	122.91	18.23
73/ 4/11	2441784.0	-36.28103	43.65920	16.36849	-0.83958	-0.52502	-0.31816	59.07932	1.04008	129.73	16.08
73/ 4/12	2441784.5	-41.70097	39.80381	14.10325	-0.75922	-0.61193	-0.34990	59.34826	1.03601	136.33	13.75
73/ 4/12	2441785.0	-46.54452	35.39169	11.64059	-0.66962	-0.68927	-0.37641	59.61935	1.03207	142.75	11.26
73/ 4/13	2441785.5	-50.75406	30.49051	9.01680	-0.57226	-0.75623	-0.39745	59.89114	1.02826	149.00	8.66
73/ 4/13	2441786.0	-54.28219	25.17284	6.26945	-0.46866	-0.81217	-0.41288	60.16256	1.02456	155.12	5.98
73/ 4/14	2441786.5	-57.09189	19.51491	3.43673	-0.36037	-0.85664	-0.42265	60.43282	1.02095	161.13	3.26
73/ 4/14	2441787.0	-59.15656	13.59548	0.55698	-0.24892	-0.88935	-0.42678	60.70128	1.01737	167.06	0.53

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/ 4/15	2441787.5	-60.45998	7.49468	-2.33184	-0.13582	-0.91019	-0.42535	60.96734	1.01381	172.93	-2.19
73/ 4/15	2441788.0	-60.99601	1.29292	-5.19264	-0.02256	-0.91919	-0.41854	61.23029	1.01024	178.79	-4.86
73/ 4/16	2441788.5	-60.76831	-4.93015	-7.98961	0.08947	-0.91652	-0.40655	61.48925	1.00663	184.64	-7.47
73/ 4/16	2441789.0	-59.78985	-11.09656	-10.68862	0.19892	-0.90252	-0.38966	61.74307	1.00297	190.51	-9.97
73/ 4/17	2441789.5	-58.08234	-17.13091	-13.25755	0.30455	-0.87761	-0.36819	61.99024	0.99926	196.43	-12.35
73/ 4/17	2441790.0	-55.67565	-22.96114	-15.66660	0.40521	-0.84234	-0.34251	62.22888	0.99551	202.41	-14.58
73/ 4/18	2441790.5	-52.60704	-28.51921	-17.88852	0.49985	-0.79735	-0.31300	62.45674	0.99176	208.46	-16.64
73/ 4/18	2441791.0	-48.92049	-33.74165	-19.89878	0.58753	-0.74336	-0.28008	62.67117	0.98804	214.59	-18.51
73/ 4/19	2441791.5	-44.66592	-38.57008	-21.67576	0.66745	-0.68113	-0.24419	62.86918	0.98441	220.81	-20.17
73/ 4/19	2441792.0	-39.89839	-42.95149	-23.20077	0.73890	-0.61150	-0.20575	63.04750	0.98093	227.11	-21.59
73/ 4/20	2441792.5	-34.67742	-46.83857	-24.45815	0.80126	-0.53531	-0.16523	63.20266	0.97769	233.49	-22.77
73/ 4/20	2441793.0	-29.06625	-50.18988	-25.43527	0.85405	-0.45344	-0.12307	63.33107	0.97476	239.92	-23.68
73/ 4/21	2441793.5	-23.13114	-52.96997	-26.12250	0.89685	-0.36678	-0.07970	63.42911	0.97223	246.41	-24.32
73/ 4/21	2441794.0	-16.94083	-55.14939	-26.51321	0.92936	-0.27622	-0.03558	63.49328	0.97019	252.92	-24.68
73/ 4/22	2441794.5	-10.56594	-56.70479	-26.60369	0.95133	-0.18266	0.00888	63.52030	0.96874	259.44	-24.76
73/ 4/22	2441795.0	-4.07848	-57.61885	-26.39312	0.96258	-0.08698	0.05325	63.50719	0.96797	265.95	-24.56
73/ 4/23	2441795.5	2.44860	-57.88033	-25.88354	0.96301	0.00990	0.09711	63.45145	0.96795	272.42	-24.07
73/ 4/23	2441796.0	8.94180	-57.48404	-25.07976	0.95257	0.10710	0.14005	63.35112	0.96875	278.84	-23.32
73/ 4/24	2441796.5	15.32743	-56.43086	-23.98939	0.93125	0.20372	0.18167	63.20492	0.97043	285.20	-22.31
73/ 4/24	2441797.0	21.53202	-54.72785	-22.62280	0.89912	0.29884	0.22155	63.01235	0.97304	291.48	-21.04
73/ 4/25	2441797.5	27.48263	-52.38831	-20.99313	0.85628	0.39152	0.25928	62.77373	0.97659	297.68	-19.54
73/ 4/25	2441798.0	33.10730	-49.43196	-19.11635	0.80291	0.48082	0.29445	62.49037	0.98109	303.81	-17.81
73/ 4/26	2441798.5	38.33545	-45.88511	-17.01124	0.73924	0.56573	0.32664	62.16456	0.98652	309.88	-15.88
73/ 4/26	2441799.0	43.09848	-41.78089	-14.69950	0.66562	0.64523	0.35540	61.79965	0.99282	315.89	-13.76
73/ 4/27	2441799.5	47.33037	-37.15947	-12.20576	0.58248	0.71827	0.38031	61.40009	0.99991	321.86	-11.47
73/ 4/27	2441800.0	50.96845	-32.06835	-9.55758	0.49038	0.78375	0.40093	60.97138	1.00771	327.82	-9.02
73/ 4/28	2441800.5	53.95437	-26.56245	-6.78550	0.39004	0.84056	0.41683	60.52009	1.01608	333.79	-6.44
73/ 4/28	2441801.0	56.23518	-20.70430	-3.92292	0.28233	0.88758	0.42758	60.05375	1.02486	339.79	-3.75
73/ 4/29	2441801.5	57.76457	-14.56393	-1.00602	0.16834	0.92372	0.43281	59.58074	1.03388	345.85	-0.97
73/ 4/29	2441802.0	58.50428	-8.21867	1.92657	0.04938	0.94792	0.43216	59.11014	1.04295	352.00	1.87
73/ 4/30	2441802.5	58.42563	-1.75265	4.83406	-0.07304	0.95923	0.42536	58.65146	1.05185	358.28	4.73
73/ 4/30	2441803.0	57.51109	4.74405	7.67407	-0.19714	0.95686	0.41221	58.21445	1.06036	4.72	7.58
73/ 5/ 1	2441803.5	55.75575	11.17660	10.40335	-0.32097	0.94021	0.39265	57.80873	1.06827	11.34	10.37
73/ 5/ 1	2441804.0	53.16868	17.44704	12.97857	-0.44238	0.90896	0.36674	57.44346	1.07536	18.17	13.06
73/ 5/ 2	2441804.5	49.77398	23.45622	15.35737	-0.55908	0.86309	0.33470	57.12699	1.08145	25.23	15.59
73/ 5/ 2	2441805.0	45.61133	29.10621	17.49943	-0.66876	0.80298	0.29692	56.86646	1.08636	32.54	17.92
73/ 5/ 3	2441805.5	40.73603	34.30278	19.36768	-0.76915	0.72936	0.25395	56.66755	1.08998	40.10	19.99
73/ 5/ 3	2441806.0	35.21841	38.95813	20.92939	-0.85809	0.64338	0.20653	56.53416	1.09221	47.89	21.73
73/ 5/ 4	2441806.5	29.14252	42.99343	22.15723	-0.93371	0.54655	0.15552	56.46826	1.09303	55.87	23.10
73/ 5/ 4	2441807.0	22.60422	46.34119	23.03013	-0.99441	0.44068	0.10189	56.46985	1.09244	64.00	24.07
73/ 5/ 5	2441807.5	15.70873	48.94714	23.53392	-1.03902	0.32786	0.04670	56.53699	1.09052	72.21	24.60
73/ 5/ 5	2441808.0	8.56777	50.77159	23.66164	-1.06681	0.21029	-0.00898	56.66599	1.08737	80.42	24.68
73/ 5/ 6	2441808.5	1.29659	51.79023	23.41360	-1.07746	0.09029	-0.06408	56.85161	1.08314	88.57	24.32
73/ 5/ 6	2441809.0	-5.98906	51.99421	22.79713	-1.07114	-0.02990	-0.11761	57.08744	1.07799	96.57	23.54
73/ 5/ 7	2441809.5	-13.17575	51.38972	21.82614	-1.04836	-0.14810	-0.16863	57.36623	1.07212	104.38	22.36

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
73/ 5/ 7	2441810.0	-20.15488	49.99704	20.52040	-1.01002	-0.26233	-0.21633	57.68024	1.06571	111.96	20.84
73/ 5/ 8	2441810.5	-26.82471	47.84925	18.90478	-0.95724	-0.37080	-0.26003	58.02160	1.05897	119.28	19.02
73/ 5/ 8	2441811.0	-33.09206	44.99070	17.00843	-0.89140	-0.47198	-0.29915	58.38265	1.05207	126.34	16.94
73/ 5/ 9	2441811.5	-38.87343	41.47536	14.86384	-0.81400	-0.56455	-0.33327	58.75612	1.04517	133.15	14.65
73/ 5/ 9	2441812.0	-44.09582	37.36514	12.50609	-0.72661	-0.64748	-0.36205	59.13542	1.03840	139.72	12.21
73/ 5/10	2441812.5	-48.69718	32.72829	9.97204	-0.63088	-0.71995	-0.38530	59.51468	1.03189	146.10	9.65
73/ 5/10	2441813.0	-52.62648	27.63785	7.29960	-0.52843	-0.78134	-0.40290	59.88891	1.02570	152.29	7.00
73/ 5/11	2441813.5	-55.84374	22.17029	4.52718	-0.42088	-0.83126	-0.41483	60.25396	1.01991	158.35	4.31
73/ 5/11	2441814.0	-58.31970	16.40422	1.69308	-0.30979	-0.86946	-0.42113	60.60653	1.01454	164.29	1.60
73/ 5/12	2441814.5	-60.03553	10.41931	-1.16496	-0.19667	-0.89588	-0.42192	60.94411	1.00960	170.15	-1.10
73/ 5/12	2441815.0	-60.98239	4.29528	-4.01013	-0.08295	-0.91056	-0.41737	61.26485	1.00509	175.97	-3.75
73/ 5/13	2441815.5	-61.16090	-1.88899	-6.80697	0.03000	-0.91370	-0.40769	61.56751	1.00098	181.77	-6.35
73/ 5/13	2441816.0	-60.58069	-8.05622	-9.52160	0.14089	-0.90559	-0.39314	61.85130	0.99725	187.57	-8.86
73/ 5/14	2441816.5	-59.25983	-14.13145	-12.12205	0.24851	-0.88661	-0.37402	62.11578	0.99384	193.41	-11.25
73/ 5/14	2441817.0	-57.22428	-20.04268	-14.57843	0.35175	-0.85725	-0.35065	62.36071	0.99074	199.30	-13.52
73/ 5/15	2441817.5	-54.50731	-25.72140	-16.86319	0.44957	-0.81805	-0.32340	62.58597	0.98788	205.26	-15.63
73/ 5/15	2441818.0	-51.14891	-31.10314	-18.95122	0.54101	-0.76966	-0.29263	62.79144	0.98524	211.30	-17.57
73/ 5/16	2441818.5	-47.19517	-36.12790	-20.82007	0.62523	-0.71276	-0.25874	62.97686	0.98279	217.43	-19.31
73/ 5/16	2441819.0	-42.69771	-40.74054	-22.45002	0.70145	-0.64809	-0.22215	63.14182	0.98051	223.66	-20.83
73/ 5/17	2441819.5	-37.71298	-44.89113	-23.82417	0.76901	-0.57645	-0.18328	63.28565	0.97840	229.97	-22.11
73/ 5/17	2441820.0	-32.30170	-48.53525	-24.92852	0.82732	-0.49867	-0.14256	63.40743	0.97645	236.36	-23.15
73/ 5/18	2441820.5	-26.52820	-51.63419	-25.75204	0.87590	-0.41561	-0.10042	63.50592	0.97469	242.81	-23.92
73/ 5/18	2441821.0	-20.45980	-54.15516	-26.28664	0.91434	-0.32816	-0.05731	63.57965	0.97314	249.30	-24.42
73/ 5/19	2441821.5	-14.16622	-56.07145	-26.52719	0.94234	-0.23720	-0.01367	63.62689	0.97184	255.82	-24.64
73/ 5/19	2441822.0	-7.71900	-57.36246	-26.47154	0.95968	-0.14367	0.03008	63.64572	0.97084	262.34	-24.58
73/ 5/20	2441822.5	-1.19092	-58.01382	-26.12044	0.96621	-0.04847	0.07351	63.63410	0.97021	268.82	-24.23
73/ 5/20	2441823.0	5.34453	-58.01737	-25.47751	0.96185	0.04747	0.11619	63.58996	0.97001	275.26	-23.62
73/ 5/21	2441823.5	11.81365	-57.37120	-24.54922	0.94662	0.14323	0.15770	63.51127	0.97030	281.64	-22.74
73/ 5/21	2441824.0	18.14299	-56.07964	-23.34482	0.92059	0.23790	0.19765	63.39617	0.97116	287.93	-21.61
73/ 5/22	2441824.5	24.25984	-54.15326	-21.87629	0.88391	0.33054	0.23563	63.24308	0.97266	294.13	-20.24
73/ 5/22	2441825.0	30.09269	-51.60890	-20.15832	0.83677	0.42023	0.27125	63.05082	0.97486	300.25	-18.65
73/ 5/23	2441825.5	35.57166	-48.46967	-18.20825	0.77946	0.50604	0.30410	62.81872	0.97781	306.27	-16.85
73/ 5/23	2441826.0	40.62899	-44.76501	-16.04608	0.71233	0.58704	0.33382	62.54676	0.98156	312.23	-14.87
73/ 5/24	2441826.5	45.19955	-40.53074	-13.69438	0.63580	0.66227	0.36000	62.23565	0.98613	318.12	-12.71
73/ 5/24	2441827.0	49.22142	-35.80914	-11.17833	0.55040	0.73078	0.38228	61.88698	0.99152	323.96	-10.41
73/ 5/25	2441827.5	52.63651	-30.64901	-8.52566	0.45673	0.79160	0.40029	61.50326	0.99773	329.79	-7.97
73/ 5/25	2441828.0	55.39129	-25.10576	-5.76660	0.35555	0.84375	0.41364	61.08803	1.00471	335.62	-5.42
73/ 5/26	2441828.5	57.43772	-19.24138	-2.93378	0.24772	0.88627	0.42201	60.64593	1.01238	341.48	-2.77
73/ 5/26	2441829.0	58.73414	-13.12444	-0.06217	0.13427	0.91818	0.42505	60.18267	1.02066	347.40	-0.06
73/ 5/27	2441829.5	59.24647	-6.82985	2.81121	0.01640	0.93858	0.42248	59.70506	1.02941	353.42	2.70
73/ 5/27	2441830.0	58.94939	-0.43851	5.64750	-0.10450	0.94661	0.41406	59.22092	1.03848	359.57	5.47
73/ 5/28	2441830.5	57.82767	5.96324	8.40641	-0.22683	0.94154	0.39961	58.73897	1.04768	5.89	8.23
73/ 5/28	2441831.0	55.87753	12.28452	11.04677	-0.34881	0.92277	0.37905	58.26868	1.05681	12.40	10.93
73/ 5/29	2441831.5	53.10799	18.43116	13.52720	-0.46845	0.88992	0.35240	57.81999	1.06564	19.14	13.53
73/ 5/29	2441832.0	49.54198	24.30722	15.80693	-0.58363	0.84288	0.31982	57.40303	1.07394	26.13	15.98

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/ 5/30	2441832.5	45.21729	29.81704	17.84680	-0.69211	0.78183	0.28163	57.02777	1.08148	33.40	18.24
73/ 5/30	2441833.0	40.18699	34.86747	19.61030	-0.79162	0.70735	0.23831	56.70360	1.08802	40.95	20.23
73/ 5/31	2441833.5	34.51941	39.37051	21.06477	-0.87994	0.62038	0.19050	56.43892	1.09337	48.76	21.92
73/ 5/31	2441834.0	28.29737	43.24596	22.18249	-0.95502	0.52229	0.13902	56.24071	1.09735	56.80	23.23
73/ 6/ 1	2441834.5	21.61672	46.42409	22.94174	-1.01509	0.41479	0.08482	56.11419	1.09984	65.03	24.13
73/ 6/ 1	2441835.0	14.58428	48.84800	23.32766	-1.05871	0.29994	0.02896	56.06254	1.10075	73.38	24.59
73/ 6/ 2	2441835.5	7.31500	50.47561	23.33285	-1.08490	0.18004	-0.02742	56.08670	1.10008	81.75	24.58
73/ 6/ 2	2441836.0	-0.07118	51.28097	22.95765	-1.09319	0.05755	-0.08318	56.18537	1.09786	90.08	24.12
73/ 6/ 3	2441836.5	-7.45275	51.25490	22.21009	-1.08358	-0.06506	-0.13720	56.35509	1.09417	98.27	23.21
73/ 6/ 3	2441837.0	-14.71000	50.40490	21.10547	-1.05660	-0.18537	-0.18845	56.59045	1.08917	106.27	21.90
73/ 6/ 4	2441837.5	-21.72823	48.75426	19.66571	-1.01319	-0.30112	-0.23602	56.88439	1.08302	114.02	20.23
73/ 6/ 4	2441838.0	-28.40043	46.34072	17.91844	-0.95466	-0.41033	-0.27914	57.22864	1.07595	121.50	18.25
73/ 6/ 5	2441838.5	-34.62942	43.21464	15.89596	-0.88260	-0.51127	-0.31720	57.61409	1.06817	128.71	16.02
73/ 6/ 5	2441839.0	-40.32944	39.43690	13.63415	-0.79877	-0.60256	-0.34975	58.03122	1.05992	135.64	13.59
73/ 6/ 6	2441839.5	-45.42711	35.07674	11.17141	-0.70504	-0.68311	-0.37649	58.47051	1.05141	142.33	11.01
73/ 6/ 6	2441840.0	-49.86183	30.20964	8.54766	-0.60332	-0.75215	-0.39728	58.92272	1.04286	148.79	8.34
73/ 6/ 7	2441840.5	-53.58579	24.91534	5.80347	-0.49547	-0.80919	-0.41206	59.37922	1.03444	155.06	5.61
73/ 6/ 7	2441841.0	-56.56361	19.27613	2.97928	-0.38328	-0.85398	-0.42092	59.83216	1.02633	161.18	2.85
73/ 6/ 8	2441841.5	-58.77177	13.37529	0.11481	-0.26847	-0.88646	-0.42399	60.27464	1.01865	167.18	0.11
73/ 6/ 8	2441842.0	-60.19785	7.29584	-2.75145	-0.15260	-0.90675	-0.42149	60.70075	1.01150	173.09	-2.60
73/ 6/ 9	2441842.5	-60.83979	1.11954	-5.58263	-0.03714	-0.91511	-0.41368	61.10564	1.00496	178.95	-5.24
73/ 6/ 9	2441843.0	-60.70499	-5.07403	-8.34375	0.07655	-0.91191	-0.40086	61.48544	0.99906	184.78	-7.80
73/ 6/10	2441843.5	-59.80957	-11.20804	-11.00199	0.18726	-0.89761	-0.38335	61.83728	0.99384	190.61	-10.25
73/ 6/10	2441844.0	-58.17760	-17.20901	-13.52680	0.29387	-0.87272	-0.36151	62.15913	0.98929	196.48	-12.57
73/ 6/11	2441844.5	-55.84037	-23.00724	-15.89004	0.39536	-0.83784	-0.33571	62.44977	0.98539	202.39	-14.74
73/ 6/11	2441845.0	-52.83575	-28.53716	-18.06612	0.49080	-0.79360	-0.30631	62.70862	0.98210	208.37	-16.74
73/ 6/12	2441845.5	-49.20758	-33.73764	-20.03201	0.57936	-0.74068	-0.27371	62.93565	0.97937	214.44	-18.56
73/ 6/12	2441846.0	-45.00511	-38.55228	-21.76736	0.66027	-0.67979	-0.23830	63.13126	0.97717	220.58	-20.17
73/ 6/13	2441846.5	-40.28242	-42.92966	-23.25455	0.73287	-0.61168	-0.20049	63.29615	0.97542	226.82	-21.55
73/ 6/13	2441847.0	-35.09793	-46.82355	-24.47870	0.79654	-0.53715	-0.16070	63.43120	0.97408	233.15	-22.70
73/ 6/14	2441847.5	-29.51386	-50.19315	-25.42779	0.85078	-0.45700	-0.11933	63.53733	0.97310	239.54	-23.59
73/ 6/14	2441848.0	-23.59568	-53.00326	-26.09259	0.89513	-0.37208	-0.07682	63.61545	0.97242	246.00	-24.21
73/ 6/15	2441848.5	-17.41166	-55.22449	-26.46681	0.92923	-0.28326	-0.03360	63.66633	0.97202	252.50	-24.56
73/ 6/15	2441849.0	-11.03227	-56.83341	-26.54703	0.95278	-0.19142	0.00992	63.69059	0.97187	259.01	-24.63
73/ 6/16	2441849.5	-4.52970	-57.81270	-26.33273	0.96557	-0.09748	0.05330	63.68861	0.97195	265.52	-24.42
73/ 6/16	2441850.0	2.02270	-58.15126	-25.82632	0.96748	-0.00238	0.09611	63.66050	0.97225	271.99	-23.93
73/ 6/17	2441850.5	8.55102	-57.84434	-25.03312	0.95846	0.09297	0.13792	63.60617	0.97279	278.41	-23.18
73/ 6/17	2441851.0	14.98129	-56.89355	-23.96129	0.93854	0.18760	0.17832	63.52526	0.97358	284.75	-22.16
73/ 6/18	2441851.5	21.24008	-55.30691	-22.62181	0.90785	0.28057	0.21688	63.41721	0.97465	291.01	-20.90
73/ 6/18	2441852.0	27.25505	-53.09888	-21.02845	0.86659	0.37094	0.25322	63.28131	0.97606	297.17	-19.41
73/ 6/19	2441852.5	32.95553	-50.29028	-19.19766	0.81504	0.45775	0.28693	63.11679	0.97783	303.24	-17.71
73/ 6/19	2441853.0	38.27304	-46.90831	-17.14854	0.75357	0.54009	0.31763	62.92287	0.98003	309.21	-15.82
73/ 6/20	2441853.5	43.14191	-42.98649	-14.90270	0.68264	0.61702	0.34496	62.69890	0.98270	315.10	-13.75
73/ 6/20	2441854.0	47.49983	-38.56455	-12.48423	0.60279	0.68762	0.36855	62.44449	0.98590	320.93	-11.53
73/ 6/21	2441854.5	51.28848	-33.68839	-9.91958	0.51465	0.75100	0.38807	62.15958	0.98968	326.70	-9.18

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
73/ 6/21	2441855.0	54.45415	-28.40991	-7.23741	0.41895	0.80627	0.40320	61.84462	0.99407	332.45	-6.72
73/ 6/22	2441855.5	56.94839	-22.78693	-4.46852	0.31653	0.85259	0.41363	61.50066	0.99909	338.19	-4.17
73/ 6/22	2441856.0	58.72877	-16.88296	-1.64564	0.20832	0.88911	0.41910	61.12946	1.00477	343.96	-1.54
73/ 6/23	2441856.5	59.75962	-10.76702	1.19671	0.09539	0.91506	0.41934	60.73362	1.01108	349.79	1.13
73/ 6/23	2441857.0	60.01291	-4.51329	4.02248	-0.02108	0.92968	0.41417	60.31666	1.01798	355.70	3.82
73/ 6/24	2441857.5	59.46916	1.79927	6.79434	-0.13974	0.93233	0.40340	59.88306	1.02542	1.73	6.51
73/ 6/24	2441858.0	58.11843	8.08753	9.47405	-0.25911	0.92242	0.38694	59.43835	1.03331	7.92	9.17
73/ 6/25	2441858.5	55.96132	14.26492	12.02289	-0.37757	0.89953	0.36476	58.98905	1.04152	14.30	11.76
73/ 6/25	2441859.0	53.00997	20.24242	14.40222	-0.49334	0.86336	0.33691	58.54261	1.04990	20.90	14.24
73/ 6/26	2441859.5	49.28899	25.92982	16.57412	-0.60451	0.81387	0.30354	58.10733	1.05828	27.75	16.57
73/ 6/26	2441860.0	44.83623	31.23724	18.50215	-0.70909	0.75121	0.26495	57.69214	1.06646	34.86	18.71
73/ 6/27	2441860.5	39.70332	36.07701	20.15225	-0.80501	0.67588	0.22155	57.30635	1.07422	42.26	20.59
73/ 6/27	2441861.0	33.95581	40.36573	21.49369	-0.89024	0.58866	0.17391	56.95935	1.08133	49.93	22.17
73/ 6/28	2441861.5	27.67288	44.02661	22.50006	-0.96280	0.49070	0.12274	56.66025	1.08758	57.85	23.40
73/ 6/28	2441862.0	20.94645	46.99187	23.15026	-1.02092	0.38353	0.06889	56.41741	1.09276	65.98	24.23
73/ 6/29	2441862.5	13.87962	49.20512	23.42945	-1.06309	0.26897	0.01335	56.23813	1.09667	74.25	24.62
73/ 6/29	2441863.0	6.58458	50.62347	23.32973	-1.08816	0.14918	-0.04281	56.12815	1.09917	82.59	24.56
73/ 6/30	2441863.5	-0.82018	51.21930	22.85068	-1.09541	0.02649	-0.09847	56.09138	1.10015	90.92	24.04
73/ 6/30	2441864.0	-8.21300	50.98141	21.99954	-1.08464	-0.09660	-0.15250	56.12965	1.09956	99.15	23.08
73/ 7/ 1	2441864.5	-15.47248	49.91548	20.79111	-1.05613	-0.21761	-0.20380	56.24254	1.09740	107.22	21.70
73/ 7/ 1	2441865.0	-22.48085	48.04385	19.24724	-1.01066	-0.33413	-0.25139	56.42744	1.09374	115.08	19.94
73/ 7/ 2	2441865.5	-29.12717	45.40448	17.39612	-0.94945	-0.44397	-0.29440	56.67966	1.08869	122.68	17.87
73/ 7/ 2	2441866.0	-35.31007	42.04938	15.27125	-0.87410	-0.54519	-0.33213	56.99265	1.08240	130.02	15.54
73/ 7/ 3	2441866.5	-40.93992	38.04251	12.91030	-0.78647	-0.63619	-0.36404	57.35840	1.07508	137.10	13.01
73/ 7/ 3	2441867.0	-45.94027	33.45746	10.35394	-0.68857	-0.71575	-0.38979	57.76776	1.06694	143.93	10.33
73/ 7/ 4	2441867.5	-50.24872	28.37497	7.64458	-0.58250	-0.78297	-0.40920	58.21093	1.05820	150.55	7.55
73/ 7/ 4	2441868.0	-53.81711	22.88055	4.82537	-0.47038	-0.83732	-0.42224	58.67781	1.04912	156.97	4.72
73/ 7/ 5	2441868.5	-56.61125	17.06229	1.93919	-0.35420	-0.87858	-0.42900	59.15839	1.03990	163.23	1.88
73/ 7/ 5	2441869.0	-58.61019	11.00895	-0.97213	-0.23587	-0.90676	-0.42970	59.64308	1.03078	169.36	-0.93
73/ 7/ 6	2441869.5	-59.80536	4.80835	-3.86841	-0.11712	-0.92212	-0.42461	60.12292	1.02192	175.40	-3.69
73/ 7/ 6	2441870.0	-60.19940	-1.45392	-6.71160	0.00045	-0.92505	-0.41408	60.58983	1.01350	181.38	-6.36
73/ 7/ 7	2441870.5	-59.80511	-7.69546	-9.46612	0.11544	-0.91610	-0.39849	61.03669	1.00566	187.33	-8.92
73/ 7/ 7	2441871.0	-58.64427	-13.83781	-12.09904	0.22661	-0.89587	-0.37825	61.45748	0.99850	193.28	-11.35
73/ 7/ 8	2441871.5	-56.74664	-19.80696	-14.58024	0.33284	-0.86507	-0.35376	61.84723	0.99211	199.24	-13.64
73/ 7/ 8	2441872.0	-54.14898	-25.53369	-16.88247	0.43317	-0.82441	-0.32547	62.20208	0.98652	205.25	-15.75
73/ 7/ 9	2441872.5	-50.89421	-30.95384	-18.98134	0.52675	-0.77467	-0.29378	62.51922	0.98177	211.31	-17.67
73/ 7/ 9	2441873.0	-47.03066	-36.00843	-20.85533	0.61282	-0.71660	-0.25913	62.79678	0.97786	217.44	-19.40
73/ 7/10	2441873.5	-42.61143	-40.64379	-22.48579	0.69074	-0.65100	-0.22194	63.03381	0.97477	223.65	-20.90
73/ 7/10	2441874.0	-37.69377	-44.81162	-23.85688	0.75991	-0.57868	-0.18261	63.23015	0.97246	229.93	-22.17
73/ 7/11	2441874.5	-32.33866	-48.46911	-24.95559	0.81983	-0.50044	-0.14158	63.38632	0.97088	236.29	-23.19
73/ 7/11	2441875.0	-26.61028	-51.57899	-25.77173	0.87007	-0.41711	-0.09924	63.50339	0.96997	242.71	-23.94
73/ 7/12	2441875.5	-20.57557	-54.10966	-26.29789	0.91023	-0.32954	-0.05602	63.58293	0.96967	249.18	-24.43
73/ 7/12	2441876.0	-14.30384	-56.03528	-26.52952	0.94001	-0.23859	-0.01233	63.62679	0.96990	255.68	-24.64
73/ 7/13	2441876.5	-7.86631	-57.33592	-26.46486	0.95916	-0.14514	0.03140	63.63706	0.97058	262.19	-24.57
73/ 7/13	2441877.0	-1.33563	-57.99768	-26.10503	0.96749	-0.05009	0.07476	63.61594	0.97167	268.68	-24.23

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/ 7/14	2441877.5	5.21452	-58.01284	-25.45398	0.96490	0.04564	0.11732	63.56561	0.97308	275.14	-23.61
73/ 7/14	2441878.0	11.71001	-57.38000	-24.51856	0.95135	0.14111	0.15866	63.48817	0.97476	281.53	-22.72
73/ 7/15	2441878.5	18.07677	-56.10417	-23.30847	0.92690	0.23535	0.19836	63.38558	0.97667	287.86	-21.58
73/ 7/15	2441879.0	24.24136	-54.19693	-21.83627	0.89168	0.32740	0.23599	63.25957	0.97876	294.10	-20.19
73/ 7/16	2441879.5	30.13161	-51.67644	-20.11734	0.84594	0.41628	0.27115	63.11161	0.98103	300.25	-18.59
73/ 7/16	2441880.0	35.67728	-48.56747	-18.16982	0.78999	0.50101	0.30343	62.94291	0.98345	306.30	-16.78
73/ 7/17	2441880.5	40.81072	-44.90136	-16.01453	0.72429	0.58063	0.33244	62.75438	0.98602	312.27	-14.79
73/ 7/17	2441881.0	45.46754	-40.71598	-13.67487	0.64935	0.65419	0.35781	62.54671	0.98876	318.16	-12.63
73/ 7/18	2441881.5	49.58736	-36.05553	-11.17665	0.56583	0.72077	0.37920	62.32034	0.99169	323.98	-10.33
73/ 7/18	2441882.0	53.11447	-30.97036	-8.54800	0.47447	0.77946	0.39628	62.07559	0.99484	329.75	-7.91
73/ 7/19	2441882.5	55.99863	-25.51674	-5.81909	0.37612	0.82943	0.40876	61.81272	0.99825	335.50	-5.40
73/ 7/19	2441883.0	58.19572	-19.75651	-3.02201	0.27175	0.86988	0.41637	61.53206	1.00195	341.25	-2.82
73/ 7/20	2441883.5	59.66848	-13.75668	-0.19042	0.16242	0.90007	0.41891	61.23406	1.00597	347.02	-0.18
73/ 7/20	2441884.0	60.38722	-7.58897	2.64063	0.04930	0.91934	0.41619	60.91947	1.01037	352.84	2.48
73/ 7/21	2441884.5	60.33055	-1.32929	5.43509	-0.06634	0.92714	0.40809	60.58946	1.01514	358.74	5.15
73/ 7/21	2441885.0	59.48603	4.94290	8.15619	-0.18311	0.92297	0.39452	60.24569	1.02032	4.75	7.78
73/ 7/22	2441885.5	57.85086	11.14533	10.76690	-0.29956	0.90649	0.37549	59.89045	1.02589	10.90	10.36
73/ 7/22	2441886.0	55.43257	17.19375	13.23035	-0.41410	0.87747	0.35105	59.52678	1.03183	17.23	12.84
73/ 7/23	2441886.5	52.24960	23.00296	15.51030	-0.52508	0.83585	0.32134	59.15848	1.03808	23.76	15.20
73/ 7/23	2441887.0	48.33179	28.48786	17.57175	-0.63079	0.78174	0.28657	58.79019	1.04458	30.52	17.39
73/ 7/24	2441887.5	43.72085	33.56486	19.38152	-0.72946	0.71547	0.24708	58.42736	1.05122	37.51	19.37
73/ 7/24	2441888.0	38.47054	38.15334	20.90899	-0.81930	0.63760	0.20329	58.07621	1.05788	44.76	21.10
73/ 7/25	2441888.5	32.64666	42.17726	22.12680	-0.89854	0.54892	0.15574	57.74358	1.06440	52.26	22.53
73/ 7/25	2441889.0	26.32673	45.56704	23.01160	-0.96551	0.45054	0.10508	57.43679	1.07062	59.98	23.62
73/ 7/26	2441889.5	19.59925	48.26137	23.54488	-1.01864	0.34381	0.05208	57.16338	1.07636	67.90	24.32
73/ 7/26	2441890.0	12.56261	50.20916	23.71368	-1.05660	0.23039	-0.00240	56.93082	1.08143	75.95	24.62
73/ 7/27	2441890.5	5.32343	51.37135	23.51121	-1.07830	0.11217	-0.05739	56.74620	1.08564	84.08	24.48
73/ 7/27	2441891.0	-2.00554	51.72246	22.93738	-1.08302	-0.00875	-0.11189	56.61588	1.08882	92.22	23.90
73/ 7/28	2441891.5	-9.30794	51.25186	21.99908	-1.07043	-0.13009	-0.16484	56.54512	1.09084	100.29	22.90
73/ 7/28	2441892.0	-16.46663	49.96453	20.71024	-1.04064	-0.24953	-0.21523	56.53776	1.09157	108.24	21.49
73/ 7/29	2441892.5	-23.36673	47.88124	19.09165	-0.99420	-0.36476	-0.26206	56.59601	1.09095	116.01	19.71
73/ 7/29	2441893.0	-29.89864	45.03811	17.17037	-0.93212	-0.47356	-0.30447	56.72021	1.08895	123.58	17.62
73/ 7/30	2441893.5	-35.96091	41.48554	14.97908	-0.85578	-0.57393	-0.34168	56.90878	1.08559	130.92	15.26
73/ 7/30	2441894.0	-41.46262	37.28662	12.55504	-0.76690	-0.66416	-0.37311	57.15829	1.08095	138.04	12.69
73/ 7/31	2441894.5	-46.32538	32.51509	9.93900	-0.66745	-0.74282	-0.39832	57.46352	1.07514	144.94	9.96
73/ 7/31	2441895.0	-50.48466	27.25298	7.17404	-0.55953	-0.80888	-0.41706	57.81776	1.06831	151.64	7.13
73/ 8/ 1	2441895.5	-53.89047	21.58819	4.30440	-0.44531	-0.86164	-0.42923	58.21306	1.06065	158.17	4.24
73/ 8/ 1	2441896.0	-56.50747	15.61208	1.37440	-0.32695	-0.90078	-0.43490	58.64060	1.05235	164.56	1.34
73/ 8/ 2	2441896.5	-58.31459	9.41727	-1.57251	-0.20649	-0.92624	-0.43427	59.09102	1.04362	170.83	-1.52
73/ 8/ 2	2441897.0	-59.30419	3.09566	-4.49456	-0.08585	-0.93828	-0.42762	59.55477	1.03469	177.01	-4.33
73/ 8/ 3	2441897.5	-59.48097	-3.26318	-7.35224	0.03325	-0.93733	-0.41533	60.02241	1.02576	183.14	-7.04
73/ 8/ 3	2441898.0	-58.86073	-9.57332	-10.10880	0.14927	-0.92401	-0.39783	60.48489	1.01703	189.24	-9.62
73/ 8/ 4	2441898.5	-57.46905	-15.75343	-12.73049	0.26085	-0.89906	-0.37558	60.93380	1.00867	195.33	-12.06
73/ 8/ 4	2441899.0	-55.33998	-21.72744	-15.18678	0.36683	-0.86329	-0.34907	61.36149	1.00084	201.44	-14.33
73/ 8/ 5	2441899.5	-52.51484	-27.42496	-17.45042	0.46624	-0.81756	-0.31878	61.76126	0.99368	207.58	-16.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
73/ 8/ 5	2441900.0	-49.04114	-32.78157	-19.49742	0.55822	-0.76277	-0.28518	62.12740	0.98730	213.76	-18.29
73/ 8/ 6	2441900.5	-44.97162	-37.73890	-21.30701	0.64207	-0.69981	-0.24875	62.45526	0.98177	220.00	-19.95
73/ 8/ 6	2441901.0	-40.36339	-42.24463	-22.86160	0.71720	-0.62957	-0.20995	62.74125	0.97715	226.30	-21.37
73/ 8/ 7	2441901.5	-35.27728	-46.25248	-24.14661	0.78311	-0.55293	-0.16922	62.98283	0.97347	232.67	-22.54
73/ 8/ 7	2441902.0	-29.77722	-49.72214	-25.15049	0.83938	-0.47079	-0.12700	63.17848	0.97073	239.08	-23.46
73/ 8/ 8	2441902.5	-23.92975	-52.61921	-25.86453	0.88565	-0.38400	-0.08371	63.32762	0.96893	245.55	-24.11
73/ 8/ 8	2441903.0	-17.80361	-54.91517	-26.28291	0.92162	-0.29343	-0.03976	63.43056	0.96802	252.04	-24.48
73/ 8/ 9	2441903.5	-11.46933	-56.58741	-26.40257	0.94707	-0.19996	0.00443	63.48839	0.96796	258.54	-24.57
73/ 8/ 9	2441904.0	-4.99889	-57.61921	-26.22326	0.96180	-0.10446	0.04846	63.50293	0.96867	265.04	-24.39
73/ 8/10	2441904.5	1.53465	-57.99987	-25.74748	0.96569	-0.00783	0.09190	63.47656	0.97008	271.52	-23.93
73/ 8/10	2441905.0	8.05754	-57.72479	-24.98056	0.95865	0.08902	0.13436	63.41217	0.97211	277.95	-23.20
73/ 8/11	2441905.5	14.49576	-56.79561	-23.93057	0.94069	0.18516	0.17542	63.31304	0.97465	284.32	-22.21
73/ 8/11	2441906.0	20.77546	-55.22036	-22.60846	0.91186	0.27964	0.21465	63.18267	0.97763	290.62	-20.97
73/ 8/12	2441906.5	26.82353	-53.01359	-21.02797	0.87232	0.37148	0.25165	63.02474	0.98095	296.84	-19.49
73/ 8/12	2441907.0	32.56816	-50.19651	-19.20569	0.82231	0.45969	0.28598	62.84292	0.98453	302.98	-17.80
73/ 8/13	2441907.5	37.93952	-46.79710	-17.16100	0.76216	0.54327	0.31725	62.64084	0.98827	309.03	-15.90
73/ 8/13	2441908.0	42.87047	-42.85013	-14.91604	0.69234	0.62122	0.34506	62.42194	0.99213	315.01	-13.82
73/ 8/14	2441908.5	47.29737	-38.39715	-12.49562	0.61343	0.69253	0.36900	62.18941	0.99602	320.93	-11.59
73/ 8/14	2441909.0	51.16091	-33.48636	-9.92707	0.52611	0.75624	0.38874	61.94612	0.99991	326.79	-9.22
73/ 8/15	2441909.5	54.40696	-28.17243	-7.24005	0.43124	0.81143	0.40393	61.69458	1.00376	332.62	-6.74
73/ 8/15	2441910.0	56.98746	-22.51613	-4.46638	0.32975	0.85720	0.41429	61.43692	1.00755	338.44	-4.17
73/ 8/16	2441910.5	58.86129	-16.58392	-1.63967	0.22275	0.89277	0.41956	61.17488	1.01128	344.27	-1.54
73/ 8/16	2441911.0	59.99508	-10.44737	1.20495	0.11144	0.91743	0.41955	60.90985	1.01495	350.12	1.13
73/ 8/17	2441911.5	60.36405	-4.18248	4.03124	-0.00287	0.93058	0.41413	60.64291	1.01857	356.04	3.81
73/ 8/17	2441912.0	59.95263	2.13112	6.80226	-0.11876	0.93175	0.40322	60.37492	1.02218	2.04	6.47
73/ 8/18	2441912.5	58.75519	8.41106	9.48083	-0.23472	0.92060	0.38684	60.10661	1.02579	8.15	9.08
73/ 8/18	2441913.0	56.77646	14.57327	12.03008	-0.34920	0.89697	0.36505	59.83869	1.02944	14.40	11.60
73/ 8/19	2441913.5	54.03195	20.53305	14.41388	-0.46058	0.86084	0.33802	59.57196	1.03316	20.81	14.00
73/ 8/19	2441914.0	50.54826	26.20626	16.59749	-0.56720	0.81239	0.30598	59.30743	1.03698	27.40	16.25
73/ 8/20	2441914.5	46.36311	31.51057	18.54804	-0.66744	0.75198	0.26926	59.04645	1.04089	34.20	18.31
73/ 8/20	2441915.0	41.52533	36.36680	20.23519	-0.75965	0.68018	0.22827	58.79081	1.04491	41.21	20.13
73/ 8/21	2441915.5	36.09463	40.70025	21.63164	-0.84227	0.59775	0.18351	58.54281	1.04900	48.43	21.68
73/ 8/21	2441916.0	30.14116	44.44211	22.71376	-0.91378	0.50567	0.13556	58.30527	1.05313	55.85	22.93
73/ 8/22	2441916.5	23.74482	47.53092	23.46214	-0.97282	0.40513	0.08507	58.08164	1.05724	63.45	23.83
73/ 8/22	2441917.0	16.99438	49.91396	23.86210	-1.01816	0.29751	0.03280	57.87584	1.06124	71.20	24.35
73/ 8/23	2441917.5	9.98629	51.54860	23.90424	-1.04875	0.18441	-0.02045	57.69226	1.06504	79.04	24.48
73/ 8/23	2441918.0	2.82317	52.40357	23.58479	-1.06382	0.06759	-0.07383	57.53561	1.06852	86.92	24.20
73/ 8/24	2441918.5	-4.38785	52.46004	22.90593	-1.06284	-0.05105	-0.12643	57.41072	1.07155	94.78	23.51
73/ 8/24	2441919.0	-11.53725	51.71249	21.87600	-1.04562	-0.16949	-0.17734	57.32233	1.07401	102.58	22.43
73/ 8/25	2441919.5	-18.51527	50.16925	20.50952	-1.01229	-0.28567	-0.22566	57.27485	1.07576	110.26	20.98
73/ 8/25	2441920.0	-25.21435	47.85266	18.82699	-0.96336	-0.39751	-0.27053	57.27212	1.07669	117.79	19.19
73/ 8/26	2441920.5	-31.53154	44.79885	16.85458	-0.89969	-0.50304	-0.31114	57.31712	1.07671	125.14	17.10
73/ 8/26	2441921.0	-37.37085	41.05702	14.62357	-0.82248	-0.60039	-0.34678	57.41175	1.07573	132.31	14.76
73/ 8/27	2441921.5	-42.64552	36.68829	12.16964	-0.73323	-0.68790	-0.37688	57.55668	1.07372	139.29	12.21
73/ 8/27	2441922.0	-47.27980	31.76418	9.53196	-0.63369	-0.76418	-0.40098	57.75119	1.07066	146.11	9.50

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/ 8/28	2441922.5	-51.21050	26.36472	6.75227	-0.52580	-0.82811	-0.41878	57.99316	1.06658	152.76	6.69
73/ 8/28	2441923.0	-54.38798	20.57642	3.87383	-0.41161	-0.87890	-0.43013	58.27905	1.06155	159.28	3.81
73/ 8/29	2441923.5	-56.77665	14.49004	0.94040	-0.29322	-0.91608	-0.43502	58.60404	1.05566	165.68	0.92
73/ 8/29	2441924.0	-58.35497	8.19847	-2.00469	-0.17266	-0.93949	-0.43360	58.96216	1.04903	172.00	-1.95
73/ 8/30	2441924.5	-59.11501	1.79466	-4.91944	-0.05190	-0.94926	-0.42612	59.34649	1.04181	178.26	-4.75
73/ 8/30	2441925.0	-59.06167	-4.63014	-7.76387	0.06724	-0.94577	-0.41290	59.74945	1.03416	184.48	-7.47
73/ 8/31	2441925.5	-58.21159	-10.98794	-10.50062	0.18311	-0.92959	-0.39439	60.16300	1.02626	190.69	-10.05
73/ 8/31	2441926.0	-56.59190	-17.19525	-13.09533	0.29427	-0.90146	-0.37105	60.57893	1.01829	196.90	-12.48
73/ 9/ 1	2441926.5	-54.23889	-23.17400	-15.51699	0.39946	-0.86225	-0.34337	60.98909	1.01042	203.13	-14.74
73/ 9/ 1	2441927.0	-51.19673	-28.85219	-17.73803	0.49762	-0.81287	-0.31189	61.38560	1.00282	209.40	-16.80
73/ 9/ 2	2441927.5	-47.51615	-34.16431	-19.73443	0.58785	-0.75431	-0.27712	61.76109	0.99567	215.72	-18.63
73/ 9/ 2	2441928.0	-43.25331	-39.05152	-21.48566	0.66944	-0.68756	-0.23958	62.10880	0.98909	222.08	-20.24
73/ 9/ 3	2441928.5	-38.46879	-43.46171	-22.97461	0.74181	-0.61362	-0.19976	62.42276	0.98321	228.49	-21.60
73/ 9/ 3	2441929.0	-33.22671	-47.34946	-24.18749	0.80449	-0.53345	-0.15814	62.69785	0.97815	234.94	-22.69
73/ 9/ 4	2441929.5	-27.59396	-50.67591	-25.11369	0.85712	-0.44803	-0.11518	62.92990	0.97399	241.43	-23.52
73/ 9/ 4	2441930.0	-21.63959	-53.40864	-25.74568	0.89942	-0.35828	-0.07133	63.11572	0.97078	247.94	-24.07
73/ 9/ 5	2441930.5	-15.43433	-55.52148	-26.07884	0.93118	-0.26513	-0.02701	63.25314	0.96856	254.46	-24.35
73/ 9/ 5	2441931.0	-9.05015	-56.99443	-26.11142	0.95223	-0.16948	0.01736	63.34096	0.96735	260.98	-24.35
73/ 9/ 6	2441931.5	-2.55988	-57.81356	-25.84444	0.96249	-0.07221	0.06138	63.37899	0.96714	267.46	-24.07
73/ 9/ 6	2441932.0	3.96309	-57.97097	-25.28164	0.96188	0.02578	0.10465	63.36798	0.96790	273.91	-23.51
73/ 9/ 7	2441932.5	10.44514	-57.46481	-24.42945	0.95041	0.12358	0.14677	63.30958	0.96958	280.30	-22.70
73/ 9/ 7	2441933.0	16.81271	-56.29936	-23.29700	0.92809	0.22031	0.18734	63.20629	0.97211	286.63	-21.63
73/ 9/ 8	2441933.5	22.99273	-54.48510	-21.89612	0.89504	0.31501	0.22597	63.06134	0.97540	292.88	-20.32
73/ 9/ 8	2441934.0	28.91299	-52.03893	-20.24135	0.85142	0.40675	0.26225	62.87864	0.97936	299.06	-18.78
73/ 9/ 9	2441934.5	34.50264	-48.98422	-18.34999	0.79747	0.49454	0.29577	62.66265	0.98387	305.16	-17.03
73/ 9/ 9	2441935.0	39.69281	-45.35107	-16.24209	0.73352	0.57739	0.32612	62.41830	0.98883	311.19	-15.08
73/ 9/10	2441935.5	44.41725	-41.17639	-13.94044	0.66002	0.65428	0.35291	62.15081	0.99412	317.17	-12.96
73/ 9/10	2441936.0	48.61314	-36.50399	-11.47053	0.57755	0.72420	0.37574	61.86559	0.99960	323.10	-10.69
73/ 9/11	2441936.5	52.22194	-31.38457	-8.86049	0.48679	0.78612	0.39423	61.56810	1.00517	328.99	-8.27
73/ 9/11	2441937.0	55.19041	-25.87561	-6.14087	0.38861	0.83906	0.40804	61.26368	1.01071	334.88	-5.75
73/ 9/12	2441937.5	57.47155	-20.04112	-3.34451	0.28401	0.88209	0.41685	60.95746	1.01613	340.78	-3.15
73/ 9/12	2441938.0	59.02572	-13.95121	-0.50620	0.17415	0.91435	0.42039	60.65417	1.02132	346.70	-0.48
73/ 9/13	2441938.5	59.82164	-7.68149	2.33766	0.06034	0.93507	0.41846	60.35809	1.02621	352.68	2.22
73/ 9/13	2441939.0	59.83740	-1.31228	5.14953	-0.05597	0.94364	0.41092	60.07291	1.03075	358.74	4.92
73/ 9/14	2441939.5	59.06133	5.07239	7.89122	-0.17321	0.93958	0.39774	59.80168	1.03489	4.91	7.58
73/ 9/14	2441940.0	57.49275	11.38593	10.52453	-0.28971	0.92260	0.37893	59.54680	1.03861	11.20	10.18
73/ 9/15	2441940.5	55.14253	17.54051	13.01180	-0.40373	0.89264	0.35465	59.30999	1.04191	17.65	12.67
73/ 9/15	2441941.0	52.03339	23.44850	15.31666	-0.51352	0.84983	0.32511	59.09235	1.04480	24.26	15.02
73/ 9/16	2441941.5	48.19997	29.02398	17.40465	-0.61732	0.79454	0.29067	58.89441	1.04731	31.05	17.19
73/ 9/16	2441942.0	43.68868	34.18434	19.24392	-0.71342	0.72736	0.25175	58.71625	1.04947	38.04	19.13
73/ 9/17	2441942.5	38.55716	38.85177	20.80583	-0.80020	0.64913	0.20886	58.55764	1.05134	45.22	20.81
73/ 9/17	2441943.0	32.87366	42.95477	22.06557	-0.87618	0.56088	0.16262	58.41814	1.05296	52.57	22.19
73/ 9/18	2441943.5	26.71597	46.42957	23.00267	-0.94001	0.46385	0.11371	58.29726	1.05438	60.08	23.24
73/ 9/18	2441944.0	20.17035	49.22135	23.60142	-0.99056	0.35944	0.06284	58.19461	1.05563	67.72	23.93
73/ 9/19	2441944.5	13.33009	51.28543	23.85127	-1.02688	0.24923	0.01081	58.10998	1.05675	75.43	24.23

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
73/ 9/19	2441945.0	6.29400	52.58814	23.74703	-1.04829	0.13491	-0.04158	58.04350	1.05776	83.18	24.15
73/ 9/20	2441945.5	-0.83526	53.10758	23.28910	-1.05434	0.01824	-0.09350	57.99564	1.05864	90.90	23.68
73/ 9/20	2441946.0	-7.95294	52.83416	22.48348	-1.04487	-0.09891	-0.14411	57.96727	1.05939	98.56	22.82
73/ 9/21	2441946.5	-14.95406	51.77087	21.34173	-1.01997	-0.21469	-0.19262	57.95961	1.05996	106.11	21.61
73/ 9/21	2441947.0	-21.73529	49.93334	19.88082	-0.98002	-0.32723	-0.23823	57.97420	1.06032	113.52	20.06
73/ 9/22	2441947.5	-28.19682	47.34963	18.12283	-0.92569	-0.43473	-0.28023	58.01280	1.06039	120.77	18.20
73/ 9/22	2441948.0	-34.24424	44.05975	16.09455	-0.85791	-0.53548	-0.31794	58.07722	1.06012	127.86	16.09
73/ 9/23	2441948.5	-39.79027	40.11489	13.82701	-0.77786	-0.62789	-0.35079	58.16920	1.05942	134.77	13.75
73/ 9/23	2441949.0	-44.75640	35.57644	11.35487	-0.68692	-0.71055	-0.37829	58.29023	1.05822	141.52	11.23
73/ 9/24	2441949.5	-49.07426	30.51471	8.71570	-0.58670	-0.78223	-0.40006	58.44137	1.05648	148.13	8.58
73/ 9/24	2441950.0	-52.68679	25.00749	5.94925	-0.47895	-0.84195	-0.41584	58.62308	1.05413	154.61	5.82
73/ 9/25	2441950.5	-55.54912	19.13836	3.09663	-0.36549	-0.88899	-0.42549	58.83512	1.05116	160.99	3.02
73/ 9/25	2441951.0	-57.62906	12.99503	0.19951	-0.24823	-0.92287	-0.42899	59.07638	1.04754	167.29	0.19
73/ 9/26	2441951.5	-58.90729	6.66747	-2.70069	-0.12906	-0.94338	-0.42642	59.34491	1.04329	173.54	-2.61
73/ 9/26	2441952.0	-59.37722	0.24625	-5.56355	-0.00984	-0.95056	-0.41800	59.63781	1.03845	179.76	-5.35
73/ 9/27	2441952.5	-59.04448	-6.17919	-8.35033	0.10768	-0.94469	-0.40402	59.95132	1.03308	185.97	-8.01
73/ 9/27	2441953.0	-57.92619	-12.52199	-11.02457	0.22186	-0.92625	-0.38484	60.28089	1.02726	192.20	-10.54
73/ 9/28	2441953.5	-56.04999	-18.69921	-13.55255	0.33125	-0.89591	-0.36090	60.62123	1.02110	198.45	-12.92
73/ 9/28	2441954.0	-53.45292	-24.63284	-15.90366	0.43453	-0.85447	-0.33269	60.96653	1.01470	204.74	-15.12
73/ 9/29	2441954.5	-50.18026	-30.25069	-18.05063	0.53058	-0.80282	-0.30071	61.31058	1.00820	211.08	-17.12
73/ 9/29	2441955.0	-46.28424	-35.48697	-19.96971	0.61846	-0.74196	-0.26548	61.64693	1.00173	217.48	-18.90
73/ 9/30	2441955.5	-41.82292	-40.28266	-21.64069	0.69739	-0.67290	-0.22754	61.96910	0.99545	223.93	-20.44
73/ 9/30	2441956.0	-36.85907	-44.58577	-23.04691	0.76676	-0.59668	-0.18739	62.27071	0.98948	230.42	-21.72
73/10/ 1	2441956.5	-31.45909	-48.35135	-24.17516	0.82610	-0.51434	-0.14554	62.54571	0.98396	236.95	-22.74
73/10/ 1	2441957.0	-25.69220	-51.54142	-25.01558	0.87506	-0.42690	-0.10247	62.78843	0.97902	243.50	-23.48
73/10/ 2	2441957.5	-19.62962	-54.12491	-25.56154	0.91339	-0.33538	-0.05866	62.99381	0.97478	250.07	-23.94
73/10/ 2	2441958.0	-13.34392	-56.07741	-25.80946	0.94093	-0.24074	-0.01454	63.15746	0.97134	256.62	-24.12
73/10/ 3	2441958.5	-6.90851	-57.38102	-25.75870	0.95759	-0.14392	0.02947	63.27575	0.96879	263.13	-24.02
73/10/ 3	2441959.0	-0.39716	-58.02418	-25.41145	0.96335	-0.04586	0.07295	63.34591	0.96720	269.61	-23.65
73/10/ 4	2441959.5	6.11636	-58.00149	-24.77258	0.95824	0.05254	0.11552	63.36611	0.96660	276.02	-23.01
73/10/ 4	2441960.0	12.55859	-57.31366	-23.84964	0.94231	0.15040	0.15678	63.33545	0.96703	282.36	-22.12
73/10/ 5	2441960.5	18.85669	-55.96741	-22.65270	0.91570	0.24682	0.19636	63.25401	0.96849	288.62	-20.98
73/10/ 5	2441961.0	24.93875	-53.97551	-21.19445	0.87855	0.34091	0.23388	63.12290	0.97096	294.80	-19.62
73/10/ 6	2441961.5	30.73411	-51.35684	-19.49007	0.83108	0.43175	0.26897	62.94420	0.97439	300.90	-18.04
73/10/ 6	2441962.0	36.17373	-48.13648	-17.55731	0.77355	0.51842	0.30125	62.72096	0.97873	306.92	-16.26
73/10/ 7	2441962.5	41.19065	-44.34589	-15.41651	0.70632	0.59998	0.33034	62.45715	0.98387	312.89	-14.29
73/10/ 7	2441963.0	45.72053	-40.02299	-13.09057	0.62982	0.67544	0.35586	62.15762	0.98971	318.80	-12.16
73/10/ 8	2441963.5	49.70232	-35.21240	-10.60495	0.54457	0.74383	0.37743	61.82798	0.99614	324.68	-9.88
73/10/ 8	2441964.0	53.07903	-29.96546	-7.98770	0.45126	0.80413	0.39467	61.47451	1.00301	330.55	-7.47
73/10/ 9	2441964.5	55.79863	-24.34029	-5.26930	0.35068	0.85535	0.40724	61.10403	1.01017	336.43	-4.95
73/10/ 9	2441965.0	57.81510	-18.40173	-2.48256	0.24381	0.89651	0.41480	60.72374	1.01747	342.34	-2.34
73/10/10	2441965.5	59.08955	-12.22101	0.33760	0.13177	0.92671	0.41707	60.34105	1.02474	348.31	0.32
73/10/10	2441966.0	59.59138	-5.87536	3.15448	0.01589	0.94509	0.41380	59.96334	1.03183	354.37	3.02
73/10/11	2441966.5	59.29949	0.55272	5.93002	-0.10234	0.95094	0.40484	59.59782	1.03858	0.53	5.71
73/10/11	2441967.0	58.20346	6.97638	8.62532	-0.22128	0.94371	0.39010	59.25124	1.04486	6.83	8.37

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/10/12	2441967.5	56.30456	13.30569	11.20126	-0.33912	0.92304	0.36961	58.92973	1.05053	13.30	10.96
73/10/12	2441968.0	53.61655	19.44908	13.61927	-0.45397	0.88881	0.34349	58.63860	1.05549	19.94	13.43
73/10/13	2441968.5	50.16625	25.31507	15.84208	-0.56389	0.84117	0.31202	58.38216	1.05967	26.78	15.74
73/10/13	2441969.0	45.99373	30.81417	17.83460	-0.66692	0.78056	0.27557	58.16364	1.06301	33.82	17.86
73/10/14	2441969.5	41.15207	35.86082	19.56473	-0.76117	0.70771	0.23463	57.98509	1.06550	41.07	19.72
73/10/14	2441970.0	35.70678	40.37539	21.00418	-0.84489	0.62364	0.18984	57.84740	1.06714	48.51	21.29
73/10/15	2441970.5	29.73468	44.28604	22.12916	-0.91649	0.52961	0.14190	57.75036	1.06798	56.12	22.53
73/10/15	2441971.0	23.32252	47.53042	22.92099	-0.97463	0.42716	0.09160	57.69274	1.06807	63.86	23.41
73/10/16	2441971.5	16.56523	50.05708	23.36657	-1.01825	0.31797	0.03980	57.67248	1.06749	71.69	23.90
73/10/16	2441972.0	9.56392	51.82661	23.45863	-1.04659	0.20390	-0.01264	57.68686	1.06634	79.54	23.99
73/10/17	2441972.5	2.42384	52.81235	23.19586	-1.05919	0.08685	-0.06483	57.73272	1.06472	87.37	23.69
73/10/17	2441973.0	-4.74787	53.00080	22.58291	-1.05593	-0.03121	-0.11591	57.80670	1.06273	95.12	23.00
73/10/18	2441973.5	-11.84422	52.39169	21.63012	-1.03699	-0.14835	-0.16505	57.90541	1.06047	102.74	21.93
73/10/18	2441974.0	-18.76046	50.99766	20.35329	-1.00284	-0.26268	-0.21148	58.02562	1.05803	110.20	20.53
73/10/19	2441974.5	-25.39592	48.84378	18.77320	-0.95422	-0.37244	-0.25449	58.16443	1.05547	117.47	18.83
73/10/19	2441975.0	-31.65569	45.96672	16.91514	-0.89209	-0.47597	-0.29346	58.31933	1.05285	124.55	16.86
73/10/20	2441975.5	-37.45214	42.41382	14.80832	-0.81761	-0.57177	-0.32786	58.48830	1.05020	131.45	14.67
73/10/20	2441976.0	-42.70615	38.24199	12.48529	-0.73214	-0.65853	-0.35724	58.66982	1.04753	138.16	12.29
73/10/21	2441976.5	-47.34818	33.51647	9.98126	-0.63716	-0.73510	-0.38126	58.86280	1.04485	144.71	9.76
73/10/21	2441977.0	-51.31911	28.30951	7.33349	-0.53424	-0.80055	-0.39965	59.06656	1.04213	151.12	7.13
73/10/22	2441977.5	-54.57083	22.69903	4.58064	-0.42506	-0.85415	-0.41227	59.28072	1.03934	157.41	4.43
73/10/22	2441978.0	-57.06667	16.76724	1.76205	-0.31132	-0.89537	-0.41906	59.50504	1.03645	163.63	1.70
73/10/23	2441978.5	-58.78158	10.59916	-1.08281	-0.19475	-0.92389	-0.42004	59.73934	1.03341	169.78	-1.04
73/10/23	2441979.0	-59.70214	4.28129	-3.91498	-0.07704	-0.93960	-0.41534	59.98335	1.03019	175.90	-3.74
73/10/24	2441979.5	-59.82632	-2.09976	-6.69660	0.04015	-0.94258	-0.40516	60.23656	1.02675	182.01	-6.38
73/10/24	2441980.0	-59.16311	-8.45861	-9.39142	0.15522	-0.93310	-0.38976	60.49810	1.02307	188.14	-8.93
73/10/25	2441980.5	-57.73191	-14.71227	-11.96526	0.26668	-0.91160	-0.36949	60.76670	1.01915	194.30	-11.36
73/10/25	2441981.0	-55.56188	-20.78123	-14.38642	0.37317	-0.87867	-0.34475	61.04057	1.01498	200.51	-13.63
73/10/26	2441981.5	-52.69100	-26.59049	-16.62604	0.47344	-0.83504	-0.31596	61.31738	1.01058	206.78	-15.73
73/10/26	2441982.0	-49.16520	-32.07029	-18.65832	0.56640	-0.78153	-0.28360	61.59426	1.00600	213.12	-17.63
73/10/27	2441982.5	-45.03732	-37.15680	-20.46073	0.65109	-0.71907	-0.24817	61.86784	1.00128	219.52	-19.31
73/10/27	2441983.0	-40.36608	-41.79264	-22.01415	0.72673	-0.64862	-0.21016	62.13427	0.99650	225.99	-20.75
73/10/28	2441983.5	-35.21504	-45.92717	-23.30284	0.79267	-0.57121	-0.17008	62.38932	0.99173	232.52	-21.93
73/10/28	2441984.0	-29.65167	-49.51676	-24.31451	0.84842	-0.48787	-0.12844	62.62848	0.98708	239.09	-22.84
73/10/29	2441984.5	-23.74635	-52.52478	-25.04022	0.89360	-0.39965	-0.08572	62.84707	0.98264	245.67	-23.48
73/10/29	2441985.0	-17.57154	-54.92167	-25.47430	0.92796	-0.30758	-0.04240	63.04038	0.97852	252.26	-23.83
73/10/30	2441985.5	-11.20107	-56.68477	-25.61422	0.95136	-0.21266	0.00107	63.20376	0.97484	258.82	-23.91
73/10/30	2441986.0	-4.70941	-57.79818	-25.46045	0.96375	-0.11589	0.04425	63.33279	0.97170	265.34	-23.70
73/10/31	2441986.5	1.82888	-58.25261	-25.01635	0.96514	-0.01823	0.08674	63.42341	0.96920	271.80	-23.23
73/10/31	2441987.0	8.33963	-58.04513	-24.28801	0.95563	0.07941	0.12812	63.47200	0.96745	278.18	-22.50
73/11/ 1	2441987.5	14.74948	-57.17905	-23.28416	0.93537	0.17611	0.16803	63.47553	0.96653	284.46	-21.52
73/11/ 1	2441988.0	20.98624	-55.66372	-22.01601	0.90456	0.27098	0.20611	63.43167	0.96651	290.66	-20.31
73/11/ 2	2441988.5	26.97924	-53.51446	-20.49724	0.86343	0.36316	0.24198	63.33887	0.96745	296.75	-18.88
73/11/ 2	2441989.0	32.65958	-50.75244	-18.74387	0.81229	0.45178	0.27532	63.19645	0.96939	302.76	-17.25
73/11/ 3	2441989.5	37.96053	-47.40475	-16.77430	0.75146	0.53596	0.30577	63.00468	0.97234	308.69	-15.44

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
73/11/ 3	2441990.0	42.81783	-43.50434	-14.60919	0.68135	0.61484	0.33300	62.76482	0.97630	314.54	-13.46
73/11/ 4	2441990.5	47.17010	-39.09015	-12.27153	0.60242	0.68753	0.35667	62.47919	0.98123	320.35	-11.33
73/11/ 4	2441991.0	50.95940	-34.20718	-9.78659	0.51520	0.75312	0.37644	62.15118	0.98708	326.13	-9.06
73/11/ 5	2441991.5	54.13174	-28.90661	-7.18190	0.42035	0.81069	0.39197	61.78525	0.99376	331.90	-6.68
73/11/ 5	2441992.0	56.63788	-23.24583	-4.48725	0.31862	0.85933	0.40295	61.38692	1.00117	337.69	-4.19
73/11/ 6	2441992.5	58.43413	-17.28851	-1.73453	0.21089	0.89811	0.40907	60.96268	1.00916	343.52	-1.63
73/11/ 6	2441993.0	59.48334	-11.10447	1.04232	0.09821	0.92613	0.41004	60.51994	1.01759	349.43	0.99
73/11/ 7	2441993.5	59.75604	-4.76944	3.80759	-0.01819	0.94256	0.40561	60.06688	1.02629	355.44	3.63
73/11/ 7	2441994.0	59.23161	1.63536	6.52407	-0.13693	0.94662	0.39560	59.61226	1.03505	1.58	6.28
73/11/ 8	2441994.5	57.89954	8.02391	9.15350	-0.25641	0.93767	0.37989	59.16524	1.04369	7.89	8.90
73/11/ 8	2441995.0	55.76067	14.30642	11.65712	-0.37486	0.91524	0.35846	58.73512	1.05198	14.39	11.45
73/11/ 9	2441995.5	52.82833	20.39059	13.99634	-0.49038	0.87908	0.33137	58.33101	1.05974	21.11	13.88
73/11/ 9	2441996.0	49.12927	26.18331	16.13353	-0.60093	0.82920	0.29885	57.96155	1.06677	28.06	16.16
73/11/10	2441996.5	44.70422	31.59259	18.03298	-0.70441	0.76593	0.26124	57.63460	1.07289	35.25	18.23
73/11/10	2441997.0	39.60811	36.52978	19.66181	-0.79874	0.68994	0.21903	57.35690	1.07795	42.68	20.05
73/11/11	2441997.5	33.90970	40.91189	20.99099	-0.88194	0.60222	0.17287	57.13381	1.08184	50.35	21.56
73/11/11	2441998.0	27.69065	44.66399	21.99625	-0.95220	0.50415	0.12352	56.96910	1.08449	58.20	22.71
73/11/12	2441998.5	21.04404	47.72140	22.65889	-1.00797	0.39739	0.07185	56.86483	1.08586	66.20	23.48
73/11/12	2441999.0	14.07230	50.03168	22.96644	-1.04804	0.28387	0.01882	56.82126	1.08596	74.29	23.84
73/11/13	2441999.5	6.88478	51.55610	22.91305	-1.07158	0.16570	-0.03457	56.83696	1.08487	82.39	23.77
73/11/13	2442000.0	-0.40498	52.27069	22.49965	-1.07820	0.04510	-0.08732	56.90890	1.08267	90.44	23.29
73/11/14	2442000.5	-7.68213	52.16663	21.73389	-1.06789	-0.07567	-0.13846	57.03274	1.07949	98.38	22.40
73/11/14	2442001.0	-14.83323	51.25016	20.62974	-1.04108	-0.19444	-0.18709	57.20306	1.07548	106.14	21.14
73/11/15	2442001.5	-21.74892	49.54196	19.20706	-0.99853	-0.30914	-0.23240	57.41369	1.07081	113.70	19.54
73/11/15	2442002.0	-28.32613	47.07606	17.49082	-0.94133	-0.41789	-0.27367	57.65808	1.06566	121.04	17.66
73/11/16	2442002.5	-34.46999	43.89853	15.51039	-0.87081	-0.51902	-0.31033	57.92956	1.06018	128.14	15.53
73/11/16	2442003.0	-40.09528	40.06586	13.29866	-0.78847	-0.61113	-0.34190	58.22164	1.05454	135.02	13.20
73/11/17	2442003.5	-45.12751	35.64328	10.89128	-0.69596	-0.69304	-0.36806	58.52824	1.04887	141.70	10.72
73/11/17	2442004.0	-49.50356	30.70313	8.32578	-0.59500	-0.76383	-0.38856	58.84389	1.04328	148.19	8.13
73/11/18	2442004.5	-53.17211	25.32314	5.64088	-0.48733	-0.82283	-0.40330	59.16379	1.03787	154.53	5.47
73/11/18	2442005.0	-56.09366	19.58493	2.87579	-0.37470	-0.86956	-0.41225	59.48394	1.03271	160.75	2.77
73/11/19	2442005.5	-58.24048	13.57251	0.06958	-0.25883	-0.90377	-0.41546	59.80110	1.02781	166.88	0.07
73/11/19	2442006.0	-59.59623	7.37101	-2.73935	-0.14138	-0.92539	-0.41308	60.11278	1.02322	172.95	-2.61
73/11/20	2442006.5	-60.15562	1.06545	-5.51374	-0.02393	-0.93453	-0.40530	60.41717	1.01891	178.99	-5.24
73/11/20	2442007.0	-59.92383	-5.26037	-8.21790	0.09200	-0.93143	-0.39239	60.71302	1.01488	185.02	-7.78
73/11/21	2442007.5	-58.91596	-11.52476	-10.81806	0.20501	-0.91647	-0.37465	60.99951	1.01109	191.07	-10.22
73/11/21	2442008.0	-57.15632	-17.64909	-13.28270	0.31378	-0.89016	-0.35243	61.27614	1.00750	197.16	-12.52
73/11/22	2442008.5	-54.67779	-23.55854	-15.58277	0.41711	-0.85312	-0.32612	61.54257	1.00407	203.31	-14.67
73/11/22	2442009.0	-51.52103	-29.18275	-17.69198	0.51388	-0.80606	-0.29614	61.79851	1.00075	209.53	-16.64
73/11/23	2442009.5	-47.73376	-34.45647	-19.58693	0.60314	-0.74976	-0.26292	62.04360	0.99752	215.82	-18.40
73/11/23	2442010.0	-43.36990	-39.32003	-21.24726	0.68401	-0.68509	-0.22693	62.27728	0.99435	222.20	-19.95
73/11/24	2442010.5	-38.48878	-43.71981	-22.65576	0.75577	-0.61297	-0.18864	62.49874	0.99121	228.64	-21.25
73/11/24	2442011.0	-33.15434	-47.60853	-23.79844	0.81779	-0.53434	-0.14852	62.70684	0.98811	235.15	-22.30
73/11/25	2442011.5	-27.43422	-50.94550	-24.66453	0.86958	-0.45021	-0.10705	62.90008	0.98505	241.70	-23.09
73/11/25	2442012.0	-21.39902	-53.69684	-25.24648	0.91078	-0.36158	-0.06469	63.07657	0.98206	248.27	-23.59

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
73/11/26	2442012.5	-15.12147	-55.83549	-25.53993	0.94111	-0.26945	-0.02193	63.23408	0.97917	254.85	-23.82
73/11/26	2442013.0	-8.67568	-57.34124	-25.54359	0.96044	-0.17485	0.02080	63.37003	0.97645	261.40	-23.77
73/11/27	2442013.5	-2.13645	-58.20068	-25.25919	0.96870	-0.07877	0.06306	63.48158	0.97394	267.90	-23.45
73/11/27	2442014.0	4.42136	-58.40708	-24.69137	0.96594	0.01782	0.10443	63.56571	0.97174	274.33	-22.86
73/11/28	2442014.5	10.92348	-57.96025	-23.84750	0.95228	0.11397	0.14451	63.61930	0.96991	280.67	-22.01
73/11/28	2442015.0	17.29670	-56.86633	-22.73761	0.92792	0.20875	0.18292	63.63925	0.96854	286.92	-20.93
73/11/29	2442015.5	23.46935	-55.13768	-21.37425	0.89311	0.30126	0.21930	63.62258	0.96772	293.06	-19.63
73/11/29	2442016.0	29.37175	-52.79263	-19.77234	0.84817	0.39062	0.25331	63.56655	0.96755	299.09	-18.12
73/11/30	2442016.5	34.93658	-49.85535	-17.94910	0.79349	0.47600	0.28461	63.46882	0.96809	305.02	-16.43
73/11/30	2442017.0	40.09926	-46.35571	-15.92391	0.72950	0.55655	0.31289	63.32751	0.96944	310.86	-14.56
73/12/ 1	2442017.5	44.79829	-42.32916	-13.71827	0.65666	0.63145	0.33784	63.14139	0.97164	316.62	-12.55
73/12/ 1	2442018.0	48.97563	-37.81667	-11.35569	0.57554	0.69991	0.35918	62.90998	0.97475	322.33	-10.40
73/12/ 2	2442018.5	52.57712	-32.86466	-8.86165	0.48673	0.76111	0.37662	62.63360	0.97879	327.99	-8.13
73/12/ 2	2442019.0	55.55292	-27.52496	-6.26352	0.39090	0.81426	0.38987	62.31358	0.98378	333.64	-5.77
73/12/ 3	2442019.5	57.85806	-21.85481	-3.59051	0.28882	0.85856	0.39868	61.95224	0.98969	339.31	-3.32
73/12/ 3	2442020.0	59.45305	-15.91683	-0.87361	0.18135	0.89322	0.40280	61.55301	0.99648	345.01	-0.81
73/12/ 4	2442020.5	60.30463	-9.77889	1.85459	0.06947	0.91748	0.40198	61.12049	1.00408	350.79	1.74
73/12/ 4	2442021.0	60.38663	-3.51398	4.55996	-0.04571	0.93059	0.39603	60.66042	1.01238	356.67	4.31
73/12/ 5	2442021.5	59.68091	2.80004	7.20716	-0.16292	0.93187	0.38477	60.17968	1.02126	2.69	6.88
73/12/ 5	2442022.0	58.17841	9.08098	9.75983	-0.28073	0.92073	0.36810	59.68623	1.03056	8.87	9.41
73/12/ 6	2442022.5	55.88033	15.24290	12.18108	-0.39757	0.89666	0.34597	59.18899	1.04007	15.26	11.88
73/12/ 6	2442023.0	52.79919	21.19713	14.43397	-0.51166	0.85936	0.31840	58.69764	1.04960	21.87	14.24
73/12/ 7	2442023.5	48.95996	26.85350	16.48220	-0.62110	0.80871	0.28556	58.22242	1.05892	28.74	16.44
73/12/ 7	2442024.0	44.40091	32.12197	18.29083	-0.72387	0.74486	0.24771	57.77384	1.06779	35.88	18.46
73/12/ 8	2442024.5	39.17428	36.91457	19.82725	-0.81789	0.66829	0.20526	57.36226	1.07596	43.30	20.22
73/12/ 8	2442025.0	33.34639	41.14765	21.06213	-0.90107	0.57981	0.15877	56.99758	1.08320	50.98	21.69
73/12/ 9	2442025.5	26.99736	44.74435	21.97047	-0.97146	0.48060	0.10896	56.68876	1.08930	58.89	22.80
73/12/ 9	2442026.0	20.22009	47.63710	22.53253	-1.02726	0.37223	0.05668	56.44343	1.09408	67.00	23.53
73/12/10	2442026.5	13.11860	49.77010	22.73481	-1.06698	0.25660	0.00289	56.26751	1.09740	75.23	23.83
73/12/10	2442027.0	5.80572	51.10146	22.57064	-1.08953	0.13589	-0.05135	56.16493	1.09917	83.52	23.69
73/12/11	2442027.5	-1.59977	51.60483	22.04068	-1.09426	0.01251	-0.10494	56.13742	1.09935	91.78	23.12
73/12/11	2442028.0	-8.97641	51.27051	21.15300	-1.08103	-0.11105	-0.15680	56.18444	1.09797	99.93	22.12
73/12/12	2442028.5	-16.20349	50.10571	19.92291	-1.05020	-0.23232	-0.20589	56.30326	1.09511	107.92	20.72
73/12/12	2442029.0	-23.16434	48.13412	18.37238	-1.00259	-0.34891	-0.25128	56.48916	1.09090	115.70	18.98
73/12/13	2442029.5	-29.74941	45.39485	16.52931	-0.93947	-0.45867	-0.29216	56.73568	1.08551	123.24	16.94
73/12/13	2442030.0	-35.85882	41.94068	14.42653	-0.86242	-0.55973	-0.32788	57.03508	1.07915	130.53	14.65
73/12/14	2442030.5	-41.40430	37.83607	12.10069	-0.77327	-0.65051	-0.35796	57.37866	1.07203	137.58	12.17
73/12/14	2442031.0	-46.31056	33.15485	9.59118	-0.67400	-0.72982	-0.38207	57.75727	1.06438	144.40	9.56
73/12/15	2442031.5	-50.51600	27.97790	6.93904	-0.56666	-0.79678	-0.40006	58.16167	1.05641	151.02	6.85
73/12/15	2442032.0	-53.97292	22.39093	4.18599	-0.45330	-0.85083	-0.41188	58.58286	1.04835	157.47	4.10
73/12/16	2442032.5	-56.64726	16.48240	1.37354	-0.33590	-0.89171	-0.41762	59.01244	1.04037	163.78	1.33
73/12/16	2442033.0	-58.51807	10.34176	-1.45768	-0.21633	-0.91939	-0.41746	59.44275	1.03264	169.98	-1.41
73/12/17	2442033.5	-59.57668	4.05788	-4.26855	-0.09634	-0.93405	-0.41165	59.86708	1.02528	176.10	-4.09
73/12/17	2442034.0	-59.82582	-2.28219	-7.02187	0.02244	-0.93605	-0.40052	60.27972	1.01839	182.18	-6.69
73/12/18	2442034.5	-59.27866	-8.59426	-9.68274	0.13857	-0.92588	-0.38442	60.67600	1.01204	188.25	-9.18

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
73/12/18	2442035.0	-57.95779	-14.79782	-12.21879	0.25071	-0.90412	-0.36373	61.05227	1.00627	194.32	-11.54
73/12/19	2442035.5	-55.89430	-20.81668	-14.60037	0.35767	-0.87145	-0.33887	61.40585	1.00110	200.43	-13.75
73/12/19	2442036.0	-53.12689	-26.57947	-16.80068	0.45841	-0.82863	-0.31027	61.73489	0.99651	206.58	-15.79
73/12/20	2442036.5	-49.70097	-32.02002	-18.79583	0.55198	-0.77644	-0.27837	62.03830	0.99248	212.79	-17.64
73/12/20	2442037.0	-45.66793	-37.07772	-20.56494	0.63756	-0.71572	-0.24360	62.31560	0.98897	219.07	-19.27
73/12/21	2442037.5	-41.08437	-41.69774	-22.09013	0.71443	-0.64734	-0.20642	62.56677	0.98594	225.42	-20.67
73/12/21	2442038.0	-36.01139	-45.83126	-23.35658	0.78198	-0.57221	-0.16727	62.79215	0.98331	231.84	-21.84
73/12/22	2442038.5	-30.51393	-49.43565	-24.35252	0.83970	-0.49125	-0.12661	62.99229	0.98105	238.32	-22.74
73/12/22	2442039.0	-24.66009	-52.47462	-25.06920	0.88716	-0.40540	-0.08488	63.16780	0.97908	244.83	-23.38
73/12/23	2442039.5	-18.52051	-54.91834	-25.50095	0.92403	-0.31563	-0.04254	63.31928	0.97738	251.36	-23.75
73/12/23	2442040.0	-12.16770	-56.74349	-25.64506	0.95009	-0.22291	-0.00002	63.44719	0.97589	257.90	-23.84
73/12/24	2442040.5	-5.67545	-57.93335	-25.50181	0.96519	-0.12820	0.04225	63.55175	0.97459	264.40	-23.66
73/12/24	2442041.0	0.88186	-58.47779	-25.07435	0.96930	-0.03248	0.08383	63.63295	0.97346	270.86	-23.21
73/12/25	2442041.5	7.42979	-58.37323	-24.36867	0.96244	0.06328	0.12433	63.69041	0.97250	277.25	-22.50
73/12/25	2442042.0	13.89448	-57.62262	-23.39351	0.94475	0.15814	0.16335	63.72346	0.97172	283.56	-21.54
73/12/26	2442042.5	20.20323	-56.23528	-22.16022	0.91643	0.25115	0.20049	63.73110	0.97114	289.76	-20.35
73/12/26	2442043.0	26.28503	-54.22683	-20.68269	0.87779	0.34140	0.23541	63.71205	0.97081	295.86	-18.94
73/12/27	2442043.5	32.07110	-51.61896	-18.97721	0.82917	0.42800	0.26775	63.66480	0.97077	301.85	-17.34
73/12/27	2442044.0	37.49538	-48.43932	-17.06234	0.77103	0.51010	0.29719	63.58769	0.97109	307.74	-15.56
73/12/28	2442044.5	42.49499	-44.72127	-14.95878	0.70386	0.58686	0.32342	63.47898	0.97181	313.54	-13.63
73/12/28	2442045.0	47.01070	-40.50369	-12.68921	0.62824	0.65747	0.34616	63.33697	0.97303	319.25	-11.56
73/12/29	2442045.5	50.98738	-35.83081	-10.27823	0.54480	0.72118	0.36514	63.16013	0.97480	324.90	-9.37
73/12/29	2442046.0	54.37440	-30.75194	-7.75215	0.45424	0.77724	0.38011	62.94722	0.97720	330.51	-7.07
73/12/30	2442046.5	57.12609	-25.32134	-5.13889	0.35732	0.82493	0.39084	62.69744	0.98028	336.09	-4.70
73/12/30	2442047.0	59.20221	-19.59795	-2.46785	0.25489	0.86358	0.39714	62.41051	0.98411	341.68	-2.27
73/12/31	2442047.5	60.56842	-13.64522	0.23024	0.14785	0.89255	0.39880	62.08687	0.98871	347.30	0.21
73/12/31	2442048.0	61.19686	-7.53087	2.92345	0.03720	0.91121	0.39568	61.72776	0.99411	352.98	2.71
74/ 1/ 1	2442048.5	61.06669	-1.32660	5.57888	-0.07597	0.91901	0.38762	61.33534	1.00030	358.76	5.22
74/ 1/ 1	2442049.0	60.16483	4.89220	8.16281	-0.19046	0.91542	0.37455	60.91282	1.00726	4.65	7.70
74/ 1/ 2	2442049.5	58.48666	11.04692	10.64098	-0.30498	0.90002	0.35639	60.46449	1.01492	10.70	10.14
74/ 1/ 2	2442050.0	56.03683	17.05626	12.97894	-0.41808	0.87244	0.33315	59.99579	1.02320	16.93	12.49
74/ 1/ 3	2442050.5	52.83009	22.83695	15.14238	-0.52822	0.83248	0.30488	59.51334	1.03198	23.38	14.74
74/ 1/ 3	2442051.0	48.89214	28.30474	17.09770	-0.63371	0.78005	0.27172	59.02483	1.04110	30.07	16.84
74/ 1/ 4	2442051.5	44.26036	33.37551	18.81251	-0.73279	0.71528	0.23391	58.53900	1.05039	37.02	18.75
74/ 1/ 4	2442052.0	38.98450	37.96684	20.25641	-0.82359	0.63855	0.19178	58.06543	1.05964	44.24	20.42
74/ 1/ 5	2442052.5	33.12704	41.99967	21.40172	-0.90422	0.55050	0.14582	57.61429	1.06861	51.74	21.81
74/ 1/ 5	2442053.0	26.76326	45.40039	22.22437	-0.97280	0.45208	0.09662	57.19607	1.07706	59.48	22.87
74/ 1/ 6	2442053.5	19.98084	48.10303	22.70486	-1.02756	0.34460	0.04492	56.82118	1.08473	67.44	23.55
74/ 1/ 6	2442054.0	12.87885	50.05158	22.82909	-1.06692	0.22971	-0.00843	56.49950	1.09140	75.57	23.83
74/ 1/ 7	2442054.5	5.56621	51.20233	22.58923	-1.08958	0.10937	-0.06243	56.23997	1.09683	83.80	23.68
74/ 1/ 7	2442055.0	-1.84061	51.52585	21.98436	-1.09461	-0.01417	-0.11603	56.05009	1.10084	92.05	23.09
74/ 1/ 8	2442055.5	-9.22042	51.00874	21.02092	-1.08156	-0.13844	-0.16813	55.93555	1.10327	100.25	22.07
74/ 1/ 8	2442056.0	-16.45056	49.65461	19.71279	-1.05047	-0.26090	-0.21763	55.89986	1.10405	108.33	20.65
74/ 1/ 9	2442056.5	-23.41049	47.48446	18.08111	-1.00191	-0.37899	-0.26350	55.94418	1.10313	116.24	18.86
74/ 1/ 9	2442057.0	-29.98534	44.53617	16.15372	-0.93698	-0.49029	-0.30481	56.06723	1.10056	123.95	16.75

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 1/10	2442057.5	-36.06913	40.86328	13.96426	-0.85720	-0.59263	-0.34077	56.26535	1.09641	131.43	14.37
74/ 1/10	2442058.0	-41.56762	36.53300	11.55109	-0.76448	-0.68414	-0.37079	56.53277	1.09085	138.69	11.79
74/ 1/11	2442058.5	-46.40039	31.62384	8.95602	-0.66099	-0.76335	-0.39444	56.86188	1.08406	145.72	9.06
74/ 1/11	2442059.0	-50.50218	26.22288	6.22300	-0.54902	-0.82922	-0.41150	57.24365	1.07627	152.56	6.24
74/ 1/12	2442059.5	-53.82356	20.42297	3.39691	-0.43093	-0.88108	-0.42193	57.66812	1.06772	159.22	3.38
74/ 1/12	2442060.0	-56.33078	14.32011	0.52234	-0.30898	-0.91867	-0.42584	58.12482	1.05866	165.74	0.51
74/ 1/13	2442060.5	-58.00521	8.01098	-2.35730	-0.18535	-0.94202	-0.42347	58.60321	1.04933	172.14	-2.31
74/ 1/13	2442061.0	-58.84227	1.59098	-5.20059	-0.06203	-0.95148	-0.41517	59.09306	1.03997	178.45	-5.05
74/ 1/14	2442061.5	-58.85019	-4.84751	-7.96870	0.05921	-0.94759	-0.40135	59.58476	1.03078	184.71	-7.69
74/ 1/14	2442062.0	-58.04854	-11.21640	-10.62577	0.17678	-0.93105	-0.38246	60.06953	1.02196	190.94	-10.19
74/ 1/15	2442062.5	-56.46686	-17.43277	-13.13919	0.28934	-0.90270	-0.35901	60.53962	1.01364	197.16	-12.53
74/ 1/15	2442063.0	-54.14322	-23.41957	-15.47970	0.39570	-0.86342	-0.33149	60.98840	1.00596	203.39	-14.70
74/ 1/16	2442063.5	-51.12301	-29.10598	-17.62148	0.49488	-0.81416	-0.30041	61.41040	0.99900	209.65	-16.68
74/ 1/16	2442064.0	-47.45780	-34.42766	-19.54209	0.58604	-0.75587	-0.26626	61.80129	0.99282	215.96	-18.43
74/ 1/17	2442064.5	-43.20429	-39.32680	-21.22245	0.66849	-0.68955	-0.22954	62.15786	0.98744	222.31	-19.96
74/ 1/17	2442065.0	-38.42348	-43.75222	-22.64671	0.74166	-0.61615	-0.19072	62.47795	0.98289	228.71	-21.25
74/ 1/18	2442065.5	-33.17993	-47.65926	-23.80219	0.80507	-0.53663	-0.15025	62.76031	0.97912	235.15	-22.29
74/ 1/18	2442066.0	-27.54104	-51.00975	-24.67931	0.85834	-0.45196	-0.10859	63.00454	0.97612	241.63	-23.06
74/ 1/19	2442066.5	-21.57652	-53.77200	-25.27145	0.90118	-0.36309	-0.06617	63.21092	0.97382	248.14	-23.57
74/ 1/19	2442067.0	-15.35786	-55.92070	-25.57494	0.93336	-0.27094	-0.02342	63.38033	0.97217	254.64	-23.80
74/ 1/20	2442067.5	-8.95779	-57.43692	-25.58895	0.95473	-0.17648	0.01924	63.51406	0.97109	261.14	-23.76
74/ 1/20	2442068.0	-2.44982	-58.30810	-25.31545	0.96521	-0.08062	0.06141	63.61375	0.97052	267.59	-23.45
74/ 1/21	2442068.5	4.09223	-58.52801	-24.75919	0.96480	0.01568	0.10267	63.68117	0.97037	274.00	-22.88
74/ 1/21	2442069.0	10.59474	-58.09675	-23.92756	0.95355	0.11151	0.14265	63.71820	0.97059	280.34	-22.06
74/ 1/22	2442069.5	16.98478	-57.02072	-22.83062	0.93162	0.20592	0.18096	63.72662	0.97111	286.59	-20.99
74/ 1/22	2442070.0	23.19063	-55.31261	-21.48098	0.89920	0.29800	0.21721	63.70811	0.97188	292.75	-19.71
74/ 1/23	2442070.5	29.14230	-52.99135	-19.89374	0.85662	0.38683	0.25106	63.66410	0.97286	298.81	-18.21
74/ 1/23	2442071.0	34.77210	-50.08198	-18.08638	0.80423	0.47152	0.28215	63.59577	0.97402	304.77	-16.52
74/ 1/24	2442071.5	40.01519	-46.61559	-16.07870	0.74251	0.55118	0.31016	63.50397	0.97535	310.64	-14.67
74/ 1/24	2442072.0	44.81015	-42.62910	-13.89264	0.67199	0.62496	0.33478	63.38923	0.97684	316.43	-12.66
74/ 1/25	2442072.5	49.09950	-38.16510	-11.55215	0.59332	0.69205	0.35572	63.25178	0.97851	322.14	-10.52
74/ 1/25	2442073.0	52.83034	-33.27157	-9.08306	0.50719	0.75167	0.37271	63.09155	0.98039	327.80	-8.28
74/ 1/26	2442073.5	55.95479	-28.00162	-6.51287	0.41440	0.80309	0.38553	62.90824	0.98250	333.42	-5.94
74/ 1/26	2442074.0	58.43062	-22.41314	-3.87057	0.31581	0.84562	0.39398	62.70141	0.98490	339.01	-3.54
74/ 1/27	2442074.5	60.22168	-16.56843	-1.18641	0.21236	0.87865	0.39787	62.47057	0.98763	344.62	-1.09
74/ 1/27	2442075.0	61.29848	-10.53385	1.50829	0.10506	0.90160	0.39707	62.21528	0.99075	350.25	1.39
74/ 1/28	2442075.5	61.63861	-4.37930	4.18137	-0.00499	0.91399	0.39147	61.93530	0.99431	355.94	3.87
74/ 1/28	2442076.0	61.22729	1.82220	6.80014	-0.11664	0.91540	0.38102	61.63070	0.99837	1.70	6.33
74/ 1/29	2442076.5	60.05779	7.99506	9.33160	-0.22866	0.90549	0.36569	61.30202	1.00296	7.58	8.76
74/ 1/29	2442077.0	58.13195	14.06169	11.74273	-0.33976	0.88400	0.34550	60.95037	1.00810	13.60	11.11
74/ 1/30	2442077.5	55.46067	19.94319	14.00088	-0.44855	0.85080	0.32053	60.57757	1.01381	19.78	13.36
74/ 1/30	2442078.0	52.06436	25.56008	16.07407	-0.55361	0.80587	0.29091	60.18630	1.02007	26.15	15.49
74/ 1/31	2442078.5	47.97338	30.83316	17.93145	-0.65342	0.74931	0.25684	59.78015	1.02684	32.73	17.45
74/ 1/31	2442079.0	43.22850	35.68456	19.54374	-0.74644	0.68141	0.21859	59.36370	1.03406	39.54	19.22
74/ 2/ 1	2442079.5	37.88115	40.03888	20.88380	-0.83106	0.60262	0.17652	58.94257	1.04162	46.59	20.75

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
74/ 2/ 1	2442080.0	31.99358	43.82452	21.92718	-0.90569	0.51362	0.13106	58.52332	1.04941	53.87	22.00
74/ 2/ 2	2442080.5	25.63888	46.97525	22.65277	-0.96875	0.41531	0.08277	58.11346	1.05726	61.37	22.94
74/ 2/ 2	2442081.0	18.90061	49.43181	23.04349	-1.01872	0.30885	0.03230	57.72122	1.06500	69.08	23.53
74/ 2/ 3	2442081.5	11.87213	51.14373	23.08698	-1.05422	0.19568	-0.01963	57.35536	1.07241	76.93	23.74
74/ 2/ 3	2442082.0	4.65557	52.07115	22.77628	-1.07408	0.07750	-0.07215	57.02489	1.07929	84.89	23.54
74/ 2/ 4	2442082.5	-2.63982	52.18662	22.11044	-1.07738	-0.04374	-0.12434	56.73873	1.08541	92.90	22.94
74/ 2/ 4	2442083.0	-9.89971	51.47665	21.09496	-1.06353	-0.16587	-0.17522	56.50528	1.09056	100.89	21.92
74/ 2/ 5	2442083.5	-17.00719	49.94302	19.74212	-1.03238	-0.28657	-0.22379	56.33206	1.09454	108.81	20.52
74/ 2/ 5	2442084.0	-23.84575	47.60352	18.07103	-0.98421	-0.40343	-0.26904	56.22523	1.09718	116.61	18.75
74/ 2/ 6	2442084.5	-30.30244	44.49218	16.10736	-0.91978	-0.51410	-0.31004	56.18931	1.09837	124.26	16.66
74/ 2/ 6	2442085.0	-36.27103	40.65875	13.88284	-0.84032	-0.61630	-0.34594	56.22682	1.09802	131.74	14.29
74/ 2/ 7	2442085.5	-41.65513	36.16752	11.43445	-0.74749	-0.70803	-0.37604	56.33814	1.09611	139.03	11.71
74/ 2/ 7	2442086.0	-46.37075	31.09543	8.80333	-0.64329	-0.78757	-0.39982	56.52142	1.09268	146.15	8.96
74/ 2/ 8	2442086.5	-50.34844	25.52973	6.03363	-0.52998	-0.85360	-0.41693	56.77268	1.08781	153.11	6.10
74/ 2/ 8	2442087.0	-53.53461	19.56527	3.17113	-0.40996	-0.90521	-0.42721	57.08599	1.08165	159.92	3.18
74/ 2/ 9	2442087.5	-55.89215	13.30161	0.26204	-0.28569	-0.94190	-0.43070	57.45375	1.07438	166.61	0.26
74/ 2/ 9	2442088.0	-57.40031	6.84028	-2.64822	-0.15954	-0.96359	-0.42760	57.86707	1.06621	173.20	-2.62
74/ 2/10	2442088.5	-58.05400	0.28219	-5.51605	-0.03373	-0.97055	-0.41824	58.31615	1.05737	179.72	-5.43
74/ 2/10	2442089.0	-57.86259	-6.27459	-8.30047	0.08970	-0.96332	-0.40305	58.79071	1.04808	186.19	-8.12
74/ 2/11	2442089.5	-56.84839	-12.73655	-10.96375	0.20896	-0.94270	-0.38256	59.28038	1.03860	192.63	-10.66
74/ 2/11	2442090.0	-55.04496	-19.01614	-13.47183	0.32252	-0.90964	-0.35731	59.77501	1.02914	199.06	-13.02
74/ 2/12	2442090.5	-52.49540	-25.03271	-15.79449	0.42909	-0.86521	-0.32791	60.26500	1.01992	205.49	-15.19
74/ 2/12	2442091.0	-49.25072	-30.71303	-17.90553	0.52763	-0.81054	-0.29492	60.74151	1.01111	211.95	-17.14
74/ 2/13	2442091.5	-45.36827	-35.99164	-19.78266	0.61729	-0.74678	-0.25893	61.19666	1.00288	218.43	-18.86
74/ 2/13	2442092.0	-40.91047	-40.81085	-21.40741	0.69743	-0.67507	-0.22049	61.62361	0.99536	224.93	-20.33
74/ 2/14	2442092.5	-35.94360	-45.12069	-22.76500	0.76755	-0.59655	-0.18012	62.01664	0.98866	231.46	-21.54
74/ 2/14	2442093.0	-30.53685	-48.87867	-23.84414	0.82727	-0.51229	-0.13834	62.37120	0.98283	238.01	-22.48
74/ 2/15	2442093.5	-24.76151	-52.04960	-24.63684	0.87635	-0.42336	-0.09562	62.68386	0.97794	244.56	-23.14
74/ 2/15	2442094.0	-18.69031	-54.60526	-25.13824	0.91462	-0.33078	-0.05240	62.95230	0.97400	251.10	-23.54
74/ 2/16	2442094.5	-12.39686	-56.52420	-25.34645	0.94197	-0.23551	-0.00911	63.17523	0.97101	257.63	-23.65
74/ 2/16	2442095.0	-5.95521	-57.79153	-25.26240	0.95838	-0.13851	0.03384	63.35230	0.96893	264.12	-23.50
74/ 2/17	2442095.5	0.56054	-58.39869	-24.88976	0.96386	-0.04072	0.07605	63.48403	0.96772	270.55	-23.08
74/ 2/17	2442096.0	7.07666	-58.34341	-24.23480	0.95850	0.05695	0.11714	63.57168	0.96731	276.92	-22.41
74/ 2/18	2442096.5	13.52010	-57.62953	-23.30633	0.94243	0.15361	0.15675	63.61714	0.96764	283.20	-21.49
74/ 2/18	2442097.0	19.81887	-56.26699	-22.11568	0.91582	0.24835	0.19450	63.62283	0.96862	289.40	-20.34
74/ 2/19	2442097.5	25.90245	-54.27180	-20.67658	0.87893	0.34028	0.23006	63.59156	0.97017	295.51	-18.97
74/ 2/19	2442098.0	31.70221	-51.66601	-19.00514	0.83207	0.42851	0.26305	63.52639	0.97219	301.53	-17.41
74/ 2/20	2442098.5	37.15188	-48.47767	-17.11980	0.77562	0.51215	0.29316	63.43055	0.97459	307.47	-15.66
74/ 2/20	2442099.0	42.18808	-44.74080	-15.04124	0.71006	0.59034	0.32006	63.30729	0.97730	313.32	-13.74
74/ 2/21	2442099.5	46.75088	-40.49533	-12.79229	0.63593	0.66220	0.34343	63.15979	0.98023	319.10	-11.69
74/ 2/21	2442100.0	50.78441	-35.78693	-10.39784	0.55388	0.72690	0.36298	62.99107	0.98332	324.83	-9.50
74/ 2/22	2442100.5	54.23750	-30.66684	-7.88467	0.46466	0.78363	0.37844	62.80389	0.98651	330.52	-7.21
74/ 2/22	2442101.0	57.06432	-25.19163	-5.28129	0.36910	0.83164	0.38958	62.60070	0.98977	336.18	-4.84
74/ 2/23	2442101.5	59.22509	-19.42280	-2.61771	0.26814	0.87022	0.39619	62.38356	0.99305	341.84	-2.40
74/ 2/23	2442102.0	60.68665	-13.42641	0.07478	0.16281	0.89874	0.39809	62.15419	0.99635	347.52	0.07

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
74/ 2/24	2442102.5	61.42316	-7.27252	2.76390	0.05423	0.91665	0.39518	61.91392	0.99967	353.25	2.56
74/ 2/24	2442103.0	61.41665	-1.03461	5.41672	-0.05639	0.92349	0.38736	61.66373	1.00302	359.03	5.04
74/ 2/25	2442103.5	60.65755	5.21113	7.99996	-0.16778	0.91891	0.37463	61.40434	1.00643	4.91	7.49
74/ 2/25	2442104.0	59.14516	11.38654	10.48039	-0.27861	0.90269	0.35701	61.13625	1.00992	10.90	9.87
74/ 2/26	2442104.5	56.88802	17.41235	12.82521	-0.38747	0.87473	0.33461	60.85986	1.01353	17.02	12.17
74/ 2/26	2442105.0	53.90423	23.20908	15.00247	-0.49294	0.83506	0.30756	60.57559	1.01731	23.29	14.34
74/ 2/27	2442105.5	50.22164	28.69799	16.98147	-0.59358	0.78388	0.27611	60.28398	1.02129	29.74	16.36
74/ 2/27	2442106.0	45.87795	33.80211	18.73325	-0.68791	0.72151	0.24052	59.98586	1.02550	36.38	18.20
74/ 2/28	2442106.5	40.92074	38.44732	20.23100	-0.77450	0.64846	0.20116	59.68246	1.02996	43.22	19.81
74/ 2/28	2442107.0	35.40733	42.56347	21.45056	-0.85192	0.56541	0.15845	59.37554	1.03468	50.24	21.18
74/ 3/ 1	2442107.5	29.40453	46.08561	22.37086	-0.91879	0.47321	0.11288	59.06747	1.03964	57.46	22.26
74/ 3/ 1	2442108.0	22.98822	48.95520	22.97447	-0.97382	0.37290	0.06503	58.76135	1.04480	64.85	23.02
74/ 3/ 2	2442108.5	16.24269	51.12136	23.24801	-1.01582	0.26572	0.01552	58.46100	1.05011	72.37	23.43
74/ 3/ 2	2442109.0	9.25985	52.54221	23.18262	-1.04374	0.15307	-0.03493	58.17098	1.05548	80.01	23.49
74/ 3/ 3	2442109.5	2.13811	53.18607	22.77443	-1.05671	0.03656	-0.08557	57.89649	1.06080	87.70	23.16
74/ 3/ 3	2442110.0	-5.01897	53.03270	22.02488	-1.05409	-0.08204	-0.13559	57.64332	1.06593	95.41	22.46
74/ 3/ 4	2442110.5	-12.10434	52.07435	20.94108	-1.03550	-0.20082	-0.18413	57.41760	1.07074	103.09	21.39
74/ 3/ 4	2442111.0	-19.00942	50.31665	19.53590	-1.00086	-0.31774	-0.23034	57.22565	1.07506	110.70	19.96
74/ 3/ 5	2442111.5	-25.62631	47.77921	17.82808	-0.95047	-0.43072	-0.27336	57.07365	1.07872	118.21	18.20
74/ 3/ 5	2442112.0	-31.85019	44.49579	15.84206	-0.88495	-0.53767	-0.31236	56.96737	1.08157	125.60	16.15
74/ 3/ 6	2442112.5	-37.58189	40.51414	13.60765	-0.80533	-0.63658	-0.34659	56.91188	1.08347	132.85	13.83
74/ 3/ 6	2442113.0	-42.73035	35.89522	11.15946	-0.71299	-0.72556	-0.37539	56.91119	1.08430	139.97	11.31
74/ 3/ 7	2442113.5	-47.21505	30.71204	8.53616	-0.60963	-0.80295	-0.39822	56.96803	1.08395	146.96	8.62
74/ 3/ 7	2442114.0	-50.96799	25.04789	5.77960	-0.49726	-0.86738	-0.41469	57.08359	1.08239	153.83	5.81
74/ 3/ 8	2442114.5	-53.93538	18.99431	2.93371	-0.37804	-0.91780	-0.42457	57.25745	1.07960	160.60	2.94
74/ 3/ 8	2442115.0	-56.07867	12.64864	0.04341	-0.25430	-0.95355	-0.42781	57.48745	1.07561	167.29	0.04
74/ 3/ 9	2442115.5	-57.37505	6.11150	-2.84652	-0.12834	-0.97432	-0.42449	57.76980	1.07050	173.92	-2.82
74/ 3/ 9	2442116.0	-57.81734	-0.51569	-5.69247	-0.00245	-0.98018	-0.41487	58.09918	1.06437	180.51	-5.62
74/ 3/10	2442116.5	-57.41328	-7.13314	-8.45297	0.12124	-0.97153	-0.39933	58.46896	1.05738	187.08	-8.31
74/ 3/10	2442117.0	-56.18443	-13.64474	-11.08945	0.24080	-0.94906	-0.37834	58.87142	1.04968	193.65	-10.86
74/ 3/11	2442117.5	-54.16469	-19.95980	-13.56683	0.35451	-0.91367	-0.35245	59.29812	1.04148	200.23	-13.23
74/ 3/11	2442118.0	-51.39869	-25.99440	-15.85393	0.46095	-0.86643	-0.32225	59.74011	1.03297	206.83	-15.39
74/ 3/12	2442118.5	-47.93995	-31.67233	-17.92371	0.55889	-0.80855	-0.28838	60.18833	1.02434	213.45	-17.33
74/ 3/12	2442119.0	-43.84928	-36.92567	-19.75333	0.64742	-0.74127	-0.25144	60.63381	1.01580	220.10	-19.01
74/ 3/13	2442119.5	-39.19306	-41.69510	-21.32415	0.72579	-0.66586	-0.21205	61.06797	1.00753	226.77	-20.44
74/ 3/13	2442120.0	-34.04188	-45.92984	-22.62156	0.79350	-0.58359	-0.17080	61.48280	0.99970	233.46	-21.59
74/ 3/14	2442120.5	-28.46923	-49.58756	-23.63478	0.85020	-0.49567	-0.12822	61.87104	0.99246	240.14	-22.46
74/ 3/14	2442121.0	-22.55047	-52.63405	-24.35668	0.89569	-0.40329	-0.08485	62.22632	0.98595	246.81	-23.04
74/ 3/15	2442121.5	-16.36193	-55.04290	-24.78349	0.92986	-0.30756	-0.04117	62.54322	0.98027	253.45	-23.34
74/ 3/15	2442122.0	-9.98023	-56.79506	-24.91460	0.95273	-0.20955	0.00239	62.81736	0.97551	260.03	-23.37
74/ 3/16	2442122.5	-3.48171	-57.87851	-24.75236	0.96437	-0.11026	0.04539	63.04541	0.97172	266.56	-23.12
74/ 3/16	2442123.0	3.05799	-58.28791	-24.30184	0.96492	-0.01066	0.08745	63.22509	0.96893	273.00	-22.60
74/ 3/17	2442123.5	9.56433	-58.02432	-23.57072	0.95455	0.08832	0.12819	63.35517	0.96716	279.36	-21.84
74/ 3/17	2442124.0	15.96413	-57.09494	-22.56915	0.93350	0.18580	0.16726	63.43541	0.96640	285.62	-20.84
74/ 3/18	2442124.5	22.18591	-55.51294	-21.30960	0.90203	0.28089	0.20431	63.46653	0.96659	291.78	-19.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
74/ 3/18	2442125.0	28.16010	-53.29740	-19.80687	0.86045	0.37274	0.23902	63.45011	0.96770	297.85	-18.19
74/ 3/19	2442125.5	33.81944	-50.47315	-18.07795	0.80912	0.46049	0.27105	63.38853	0.96964	303.82	-16.57
74/ 3/19	2442126.0	39.09925	-47.07079	-16.14199	0.74845	0.54330	0.30010	63.28487	0.97233	309.71	-14.78
74/ 3/20	2442126.5	43.93789	-43.12669	-14.02029	0.67893	0.62033	0.32585	63.14283	0.97567	315.53	-12.83
74/ 3/20	2442127.0	48.27720	-38.68288	-11.73617	0.60110	0.69072	0.34801	62.96658	0.97956	321.30	-10.74
74/ 3/21	2442127.5	52.06308	-33.78710	-9.31496	0.51562	0.75365	0.36629	62.76066	0.98388	327.02	-8.54
74/ 3/21	2442128.0	55.24608	-28.49266	-6.78387	0.42321	0.80831	0.38041	62.52985	0.98853	332.72	-6.23
74/ 3/22	2442128.5	57.78211	-22.85827	-4.17186	0.32472	0.85391	0.39014	62.27903	0.99339	338.42	-3.84
74/ 3/22	2442129.0	59.63315	-16.94781	-1.50948	0.22111	0.88971	0.39526	62.01305	0.99835	344.13	-1.39
74/ 3/23	2442129.5	60.76802	-10.82995	1.17141	0.11343	0.91505	0.39558	61.73664	1.00333	349.89	1.09
74/ 3/23	2442130.0	61.16319	-4.57766	3.83785	0.00288	0.92932	0.39097	61.45421	1.00822	355.72	3.58
74/ 3/24	2442130.5	60.80348	1.73244	6.45619	-0.10926	0.93205	0.38137	61.16982	1.01296	1.63	6.06
74/ 3/24	2442131.0	59.68277	8.02086	8.99245	-0.22159	0.92287	0.36674	60.88704	1.01749	7.65	8.49
74/ 3/25	2442131.5	57.80464	14.20617	11.41276	-0.33267	0.90158	0.34714	60.60893	1.02177	13.81	10.85
74/ 3/25	2442132.0	55.18278	20.20603	13.68389	-0.44095	0.86812	0.32271	60.33798	1.02577	20.11	13.11
74/ 3/26	2442132.5	51.84139	25.93840	15.77372	-0.54488	0.82263	0.29365	60.07613	1.02949	26.58	15.22
74/ 3/26	2442133.0	47.81525	31.32281	17.65182	-0.64290	0.76543	0.26025	59.82477	1.03292	33.23	17.16
74/ 3/27	2442133.5	43.14965	36.28160	19.28999	-0.73345	0.69705	0.22287	59.58482	1.03610	40.06	18.89
74/ 3/27	2442134.0	37.90019	40.74138	20.66278	-0.81507	0.61821	0.18196	59.35684	1.03905	47.07	20.37
74/ 3/28	2442134.5	32.13218	44.63425	21.74800	-0.88635	0.52982	0.13804	59.14109	1.04182	54.25	21.58
74/ 3/28	2442135.0	25.92002	47.89916	22.52723	-0.94602	0.43298	0.09170	58.93770	1.04443	61.58	22.47
74/ 3/29	2442135.5	19.34625	50.48310	22.98618	-0.99296	0.32896	0.04358	58.74679	1.04694	69.03	23.03
74/ 3/29	2442136.0	12.50047	52.34225	23.11511	-1.02620	0.21920	-0.00563	58.56860	1.04937	76.57	23.25
74/ 3/30	2442136.5	5.47806	53.44294	22.90911	-1.04501	0.10527	-0.05520	58.40364	1.05174	84.15	23.09
74/ 3/30	2442137.0	-1.62123	53.76254	22.36830	-1.04883	-0.01116	-0.10437	58.25273	1.05407	91.73	22.58
74/ 3/31	2442137.5	-8.69484	53.29013	21.49798	-1.03740	-0.12831	-0.15237	58.11713	1.05635	99.27	21.71
74/ 3/31	2442138.0	-15.63912	52.02701	20.30869	-1.01066	-0.24434	-0.19843	57.99858	1.05854	106.73	20.50
74/ 4/ 1	2442138.5	-22.35108	49.98700	18.81614	-0.96886	-0.35741	-0.24180	57.89921	1.06061	114.09	18.96
74/ 4/ 1	2442139.0	-28.73026	47.19649	17.04107	-0.91250	-0.46565	-0.28174	57.82158	1.06248	121.33	17.14
74/ 4/ 2	2442139.5	-34.68062	43.69427	15.00897	-0.84239	-0.56728	-0.31759	57.76854	1.06409	128.44	15.06
74/ 4/ 2	2442140.0	-40.11245	39.53101	12.74973	-0.75958	-0.66058	-0.34872	57.74309	1.06533	135.42	12.76
74/ 4/ 3	2442140.5	-44.94417	34.76854	10.29707	-0.66542	-0.74398	-0.37462	57.74824	1.06613	142.27	10.27
74/ 4/ 3	2442141.0	-49.10409	29.47872	7.68802	-0.56148	-0.81608	-0.39484	57.78678	1.06637	149.02	7.65
74/ 4/ 4	2442141.5	-52.53183	23.74211	4.96212	-0.44953	-0.87573	-0.40908	57.86108	1.06599	155.68	4.92
74/ 4/ 4	2442142.0	-55.17967	17.64637	2.16065	-0.33151	-0.92201	-0.41713	57.97291	1.06489	162.27	2.14
74/ 4/ 5	2442142.5	-57.01334	11.28433	-0.67421	-0.20946	-0.95428	-0.41894	58.12325	1.06304	168.80	-0.66
74/ 4/ 5	2442143.0	-58.01267	4.75213	-3.50028	-0.08548	-0.97223	-0.41456	58.31213	1.06038	175.32	-3.44
74/ 4/ 6	2442143.5	-58.17160	-1.85294	-6.27627	0.03836	-0.97582	-0.40419	58.53854	1.05691	181.82	-6.15
74/ 4/ 6	2442144.0	-57.49796	-8.43438	-8.96253	0.16005	-0.96532	-0.38813	58.80035	1.05266	188.35	-8.77
74/ 4/ 7	2442144.5	-56.01275	-14.89842	-11.52186	0.27771	-0.94126	-0.36678	59.09436	1.04768	194.89	-11.24
74/ 4/ 7	2442145.0	-53.74910	-21.15572	-13.92008	0.38964	-0.90442	-0.34064	59.41632	1.04203	201.48	-13.55
74/ 4/ 8	2442145.5	-50.75104	-27.12283	-16.12652	0.49434	-0.85574	-0.31025	59.76103	1.03582	208.12	-15.66
74/ 4/ 8	2442146.0	-47.07201	-32.72332	-18.11437	0.59054	-0.79635	-0.27619	60.12254	1.02917	214.81	-17.54
74/ 4/ 9	2442146.5	-42.77327	-37.88865	-19.86086	0.67718	-0.72745	-0.23908	60.49427	1.02222	221.53	-19.17
74/ 4/ 9	2442147.0	-37.92240	-42.55873	-21.34740	0.75346	-0.65032	-0.19953	60.86925	1.01510	228.30	-20.53

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 4/10	2442147.5	-32.59173	-46.68215	-22.55947	0.81878	-0.56625	-0.15813	61.24030	1.00799	235.08	-21.62
74/ 4/10	2442148.0	-26.85701	-50.21625	-23.48656	0.87273	-0.47651	-0.11547	61.60023	1.00102	241.86	-22.41
74/ 4/11	2442148.5	-20.79610	-53.12696	-24.12196	0.91507	-0.38237	-0.07208	61.94207	0.99436	248.62	-22.92
74/ 4/11	2442149.0	-14.48797	-55.38854	-24.46254	0.94573	-0.28502	-0.02849	62.25920	0.98815	255.34	-23.14
74/ 4/12	2442149.5	-8.01175	-56.98318	-24.50853	0.96472	-0.18561	0.01483	62.54549	0.98253	262.00	-23.07
74/ 4/12	2442150.0	-1.44598	-57.90061	-24.26324	0.97219	-0.08522	0.05745	62.79551	0.97761	268.57	-22.73
74/ 4/13	2442150.5	5.13192	-58.13766	-23.73285	0.96835	0.01513	0.09895	63.00454	0.97351	275.04	-22.13
74/ 4/13	2442151.0	11.64616	-57.69788	-22.92619	0.95345	0.11449	0.13897	63.16873	0.97030	281.41	-21.28
74/ 4/14	2442151.5	18.02295	-56.59115	-21.85455	0.92781	0.21193	0.17714	63.28512	0.96805	287.67	-20.20
74/ 4/14	2442152.0	24.19075	-54.83342	-20.53152	0.89180	0.30658	0.21315	63.35172	0.96681	293.81	-18.91
74/ 4/15	2442152.5	30.08060	-52.44643	-18.97288	0.84580	0.39761	0.24667	63.36751	0.96660	299.84	-17.42
74/ 4/15	2442153.0	35.62632	-49.45753	-17.19647	0.79025	0.48419	0.27741	63.33246	0.96741	305.77	-15.76
74/ 4/16	2442153.5	40.76478	-45.89957	-15.22212	0.72562	0.56551	0.30507	63.24754	0.96923	311.61	-13.93
74/ 4/16	2442154.0	45.43621	-41.81082	-13.07161	0.65243	0.64079	0.32938	63.11466	0.97200	317.38	-11.95
74/ 4/17	2442154.5	49.58453	-37.23491	-10.76858	0.57126	0.70924	0.35006	62.93668	0.97565	323.10	-9.85
74/ 4/17	2442155.0	53.15779	-32.22081	-8.33848	0.48274	0.77006	0.36686	62.71731	0.98010	328.78	-7.64
74/ 4/18	2442155.5	56.10865	-26.82278	-5.80854	0.38760	0.82248	0.37951	62.46104	0.98525	334.45	-5.34
74/ 4/18	2442156.0	58.39503	-21.10031	-3.20762	0.28666	0.86574	0.38778	62.17308	0.99098	340.13	-2.96
74/ 4/19	2442156.5	59.98073	-15.11796	-0.56613	0.18086	0.89910	0.39145	61.85921	0.99716	345.85	-0.52
74/ 4/19	2442157.0	60.83623	-8.94512	2.08416	0.07122	0.92188	0.39035	61.52565	1.00364	351.64	1.94
74/ 4/20	2442157.5	60.93951	-2.65566	4.71034	-0.04106	0.93344	0.38432	61.17895	1.01029	357.50	4.42
74/ 4/20	2442158.0	60.27693	3.67259	7.27871	-0.15471	0.93325	0.37326	60.82578	1.01696	3.49	6.87
74/ 4/21	2442158.5	58.84404	9.95855	9.75508	-0.26828	0.92089	0.35715	60.47276	1.02351	9.61	9.28
74/ 4/21	2442159.0	56.64644	16.11880	12.10529	-0.38025	0.89610	0.33602	60.12631	1.02981	15.88	11.61
74/ 4/22	2442159.5	53.70044	22.06872	14.29570	-0.48900	0.85878	0.30999	59.79241	1.03572	22.34	13.83
74/ 4/22	2442160.0	50.03360	27.72374	16.29382	-0.59283	0.80906	0.27928	59.47651	1.04116	28.99	15.90
74/ 4/23	2442160.5	45.68501	33.00085	18.06893	-0.69003	0.74727	0.24420	59.18330	1.04603	35.84	17.78
74/ 4/23	2442161.0	40.70535	37.82024	19.59273	-0.77890	0.67401	0.20515	58.91665	1.05027	42.90	19.42
74/ 4/24	2442161.5	35.15655	42.10691	20.84008	-0.85783	0.59013	0.16265	58.67950	1.05384	50.14	20.80
74/ 4/24	2442162.0	29.11114	45.79246	21.78956	-0.92531	0.49670	0.11730	58.47386	1.05673	57.56	21.88
74/ 4/25	2442162.5	22.65129	48.81658	22.42409	-0.98001	0.39505	0.06977	58.30077	1.05894	65.11	22.62
74/ 4/25	2442163.0	15.86749	51.12865	22.73141	-1.02080	0.28670	0.02080	58.16041	1.06051	72.76	23.01
74/ 4/26	2442163.5	8.85696	52.68889	22.70443	-1.04684	0.17334	-0.02881	58.05218	1.06148	80.46	23.02
74/ 4/26	2442164.0	1.72184	53.46940	22.34147	-1.05752	0.05677	-0.07827	57.97484	1.06193	88.16	22.67
74/ 4/27	2442164.5	-5.43273	53.45487	21.64638	-1.05256	-0.06112	-0.12675	57.92671	1.06193	95.80	21.94
74/ 4/27	2442165.0	-12.50069	52.64293	20.62848	-1.03197	-0.17838	-0.17346	57.90578	1.06154	103.36	20.87
74/ 4/28	2442165.5	-19.37704	51.04421	19.30240	-0.99605	-0.29313	-0.21764	57.90996	1.06086	110.79	19.47
74/ 4/28	2442166.0	-25.95984	48.68212	17.68776	-0.94541	-0.40350	-0.25856	57.93720	1.05993	118.07	17.78
74/ 4/29	2442166.5	-32.15207	45.59235	15.80882	-0.88089	-0.50773	-0.29558	57.98566	1.05883	125.19	15.82
74/ 4/29	2442167.0	-37.86337	41.82203	13.69395	-0.80359	-0.60420	-0.32814	58.05378	1.05759	132.16	13.64
74/ 4/30	2442167.5	-43.01154	37.42885	11.37508	-0.71483	-0.69143	-0.35575	58.14038	1.05623	138.97	11.28
74/ 4/30	2442168.0	-47.52392	32.47982	8.88713	-0.61611	-0.76814	-0.37801	58.24467	1.05476	145.65	8.78
74/ 5/ 1	2442168.5	-51.33846	27.05000	6.26729	-0.50905	-0.83324	-0.39465	58.36624	1.05317	152.22	6.16
74/ 5/ 1	2442169.0	-54.40465	21.22106	3.55440	-0.39543	-0.88587	-0.40547	58.50498	1.05144	158.69	3.48
74/ 5/ 2	2442169.5	-56.68417	15.07976	0.78820	-0.27706	-0.92539	-0.41038	58.66103	1.04954	165.10	0.77

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
74/ 5/ 2	2442170.0	-58.15127	8.71638	-1.99132	-0.15584	-0.95140	-0.40941	58.83461	1.04741	171.48	-1.94
74/ 5/ 3	2442170.5	-58.79294	2.22310	-4.74463	-0.03363	-0.96374	-0.40267	59.02596	1.04502	177.83	-4.61
74/ 5/ 3	2442171.0	-58.60880	-4.30760	-7.43329	0.08771	-0.96248	-0.39037	59.23513	1.04233	184.20	-7.21
74/ 5/ 4	2442171.5	-57.61078	-10.78448	-10.02059	0.20641	-0.94791	-0.37280	59.46191	1.03929	190.60	-9.70
74/ 5/ 4	2442172.0	-55.82249	-17.11901	-12.47211	0.32080	-0.92055	-0.35034	59.70565	1.03589	197.05	-12.06
74/ 5/ 5	2442172.5	-53.27850	-23.22678	-14.75617	0.42933	-0.88108	-0.32343	59.96521	1.03210	203.55	-14.25
74/ 5/ 5	2442173.0	-50.02327	-29.02865	-16.84426	0.53061	-0.83037	-0.29256	60.23885	1.02794	210.13	-16.24
74/ 5/ 6	2442173.5	-46.11009	-34.45179	-18.71136	0.62343	-0.76942	-0.25826	60.52422	1.02341	216.77	-18.01
74/ 5/ 6	2442174.0	-41.59979	-39.43055	-20.33615	0.70678	-0.69934	-0.22110	60.81833	1.01857	223.47	-19.53
74/ 5/ 7	2442174.5	-36.55948	-43.90701	-21.70117	0.77982	-0.62130	-0.18164	61.11760	1.01347	230.22	-20.80
74/ 5/ 7	2442175.0	-31.06122	-47.83145	-22.79281	0.84191	-0.53654	-0.14047	61.41791	1.00818	237.00	-21.78
74/ 5/ 8	2442175.5	-25.18076	-51.16255	-23.60131	0.89262	-0.44630	-0.09813	61.71466	1.00278	243.79	-22.48
74/ 5/ 8	2442176.0	-18.99633	-53.86738	-24.12066	0.93164	-0.35181	-0.05517	62.00291	0.99738	250.57	-22.89
74/ 5/ 9	2442176.5	-12.58751	-55.92134	-24.34844	0.95887	-0.25430	-0.01211	62.27751	0.99209	257.31	-23.01
74/ 5/ 9	2442177.0	-6.03427	-57.30791	-24.28559	0.97430	-0.15493	0.03057	62.53318	0.98701	263.99	-22.85
74/ 5/10	2442177.5	0.58389	-58.01829	-23.93625	0.97807	-0.05481	0.07241	62.76470	0.98227	270.58	-22.42
74/ 5/10	2442178.0	7.18867	-58.05108	-23.30750	0.97039	0.04499	0.11301	62.96701	0.97799	277.06	-21.73
74/ 5/11	2442178.5	13.70358	-57.41183	-22.40911	0.95159	0.14348	0.15197	63.13537	0.97427	283.42	-20.79
74/ 5/11	2442179.0	20.05442	-56.11268	-21.25339	0.92201	0.23970	0.18894	63.26547	0.97122	289.67	-19.63
74/ 5/12	2442179.5	26.16969	-54.17195	-19.85493	0.88210	0.33279	0.22360	63.35354	0.96894	295.78	-18.26
74/ 5/12	2442180.0	31.98089	-51.61382	-18.23046	0.83230	0.42188	0.25563	63.39648	0.96750	301.78	-16.71
74/ 5/13	2442180.5	37.42283	-48.46803	-16.39869	0.77314	0.50619	0.28477	63.39191	0.96699	307.67	-14.99
74/ 5/13	2442181.0	42.43385	-44.76963	-14.38021	0.70515	0.58493	0.31073	63.33831	0.96744	313.47	-13.12
74/ 5/14	2442181.5	46.95612	-40.55882	-12.19733	0.62892	0.65737	0.33327	63.23504	0.96889	319.18	-11.12
74/ 5/14	2442182.0	50.93585	-35.88079	-9.87405	0.54505	0.72278	0.35215	63.08240	0.97134	324.84	-9.01
74/ 5/15	2442182.5	54.32365	-30.78561	-7.43596	0.45424	0.78044	0.36713	62.88168	0.97478	330.46	-6.79
74/ 5/15	2442183.0	57.07488	-25.32816	-4.91018	0.35721	0.82964	0.37801	62.63519	0.97918	336.07	-4.50
74/ 5/16	2442183.5	59.15012	-19.56806	-2.32526	0.25477	0.86970	0.38456	62.34623	0.98446	341.69	-2.14
74/ 5/16	2442184.0	60.51572	-13.56955	0.28890	0.14781	0.89993	0.38661	62.01910	0.99055	347.36	0.27
74/ 5/17	2442184.5	61.14444	-7.40135	2.90116	0.03734	0.91970	0.38398	61.65905	0.99733	353.10	2.70
74/ 5/17	2442185.0	61.01614	-1.13644	5.47934	-0.07553	0.92840	0.37653	61.27221	1.00469	358.93	5.13
74/ 5/18	2442185.5	60.11868	5.14836	7.99045	-0.18957	0.92549	0.36416	60.86550	1.01246	4.89	7.54
74/ 5/18	2442186.0	58.44871	11.37286	10.40097	-0.30341	0.91052	0.34682	60.44646	1.02049	11.01	9.91
74/ 5/19	2442186.5	56.01261	17.45427	12.67728	-0.41554	0.88319	0.32453	60.02314	1.02860	17.31	12.19
74/ 5/19	2442187.0	52.82731	23.30810	14.78608	-0.52436	0.84332	0.29738	59.60386	1.03661	23.81	14.36
74/ 5/20	2442187.5	48.92107	28.84946	16.69501	-0.62814	0.79094	0.26555	59.19700	1.04435	30.53	16.38
74/ 5/20	2442188.0	44.33403	33.99441	18.37329	-0.72509	0.72633	0.22933	58.81075	1.05162	37.48	18.20
74/ 5/21	2442188.5	39.11855	38.66173	19.79247	-0.81341	0.65001	0.18912	58.45282	1.05826	44.66	19.79
74/ 5/21	2442189.0	33.33911	42.77472	20.92716	-0.89133	0.56280	0.14542	58.13019	1.06413	52.07	21.10
74/ 5/22	2442189.5	27.07191	46.26327	21.75581	-0.95718	0.46582	0.09886	57.84889	1.06909	59.67	22.09
74/ 5/22	2442190.0	20.40392	49.06573	22.26150	-1.00945	0.36046	0.05018	57.61372	1.07306	67.42	22.73
74/ 5/23	2442190.5	13.43147	51.13091	22.43251	-1.04690	0.24840	0.00017	57.42815	1.07596	75.28	22.99
74/ 5/23	2442191.0	6.25845	52.41966	22.26284	-1.06855	0.13152	-0.05027	57.29418	1.07779	83.19	22.87
74/ 5/24	2442191.5	-1.00592	52.90622	21.75256	-1.07380	0.01187	-0.10025	57.21236	1.07854	91.09	22.35
74/ 5/24	2442192.0	-8.24959	52.57908	20.90793	-1.06243	-0.10840	-0.14886	57.18179	1.07827	98.92	21.45

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 5/25	2442192.5	-15.36024	51.44141	19.74129	-1.03458	-0.22711	-0.19520	57.20030	1.07705	106.63	20.19
74/ 5/25	2442193.0	-22.22794	49.51096	18.27078	-0.99081	-0.34215	-0.23846	57.26463	1.07500	114.18	18.61
74/ 5/26	2442193.5	-28.74758	46.81947	16.51983	-0.93198	-0.45152	-0.27789	57.37065	1.07223	121.55	16.74
74/ 5/26	2442194.0	-34.82112	43.41171	14.51659	-0.85930	-0.55338	-0.31286	57.51364	1.06888	128.73	14.62
74/ 5/27	2442194.5	-40.35948	39.34412	12.29316	-0.77420	-0.64611	-0.34284	57.68855	1.06508	135.73	12.30
74/ 5/27	2442195.0	-45.28406	34.68326	9.88476	-0.67834	-0.72835	-0.36742	57.89027	1.06096	142.55	9.83
74/ 5/28	2442195.5	-49.52786	29.50413	7.32899	-0.57348	-0.79899	-0.38632	58.11382	1.05665	149.22	7.25
74/ 5/28	2442196.0	-53.03624	23.88833	4.66494	-0.46149	-0.85718	-0.39937	58.35458	1.05225	155.75	4.59
74/ 5/29	2442196.5	-55.76735	17.92233	1.93248	-0.34427	-0.90233	-0.40652	58.60838	1.04784	162.18	1.89
74/ 5/29	2442197.0	-57.69218	11.69574	-0.82850	-0.22372	-0.93409	-0.40781	58.87159	1.04350	168.54	-0.81
74/ 5/30	2442197.5	-58.79446	5.29970	-3.57873	-0.10168	-0.95236	-0.40338	59.14121	1.03925	174.85	-3.47
74/ 5/30	2442198.0	-59.07027	-1.17461	-6.28014	0.02004	-0.95724	-0.39343	59.41479	1.03513	181.14	-6.07
74/ 5/31	2442198.5	-58.52751	-7.63737	-8.89636	0.13976	-0.94902	-0.37828	59.69041	1.03114	187.43	-8.57
74/ 5/31	2442199.0	-57.18525	-14.00133	-11.39323	0.25588	-0.92816	-0.35825	59.96662	1.02727	193.76	-10.95
74/ 6/ 1	2442199.5	-55.07290	-20.18291	-13.73908	0.36692	-0.89528	-0.33376	60.24231	1.02350	200.13	-13.18
74/ 6/ 1	2442200.0	-52.22940	-26.10323	-15.90516	0.47157	-0.85114	-0.30524	60.51664	1.01980	206.55	-15.24
74/ 6/ 2	2442200.5	-48.70227	-31.68888	-17.86579	0.56861	-0.79661	-0.27317	60.78883	1.01613	213.05	-17.09
74/ 6/ 2	2442201.0	-44.54657	-36.87271	-19.59865	0.65702	-0.73265	-0.23806	61.05817	1.01248	219.62	-18.72
74/ 6/ 3	2442201.5	-39.82393	-41.59435	-21.08485	0.73589	-0.66031	-0.20043	61.32378	1.00882	226.25	-20.11
74/ 6/ 3	2442202.0	-34.60148	-45.80074	-22.30907	0.80450	-0.58069	-0.16079	61.58461	1.00512	232.93	-21.24
74/ 6/ 4	2442202.5	-28.95079	-49.44641	-23.25957	0.86226	-0.49493	-0.11969	61.83933	1.00139	239.65	-22.09
74/ 6/ 4	2442203.0	-22.94681	-52.49373	-23.92817	0.90876	-0.40419	-0.07763	62.08627	0.99762	246.39	-22.67
74/ 6/ 5	2442203.5	-16.66688	-54.91297	-24.31021	0.94372	-0.30965	-0.03515	62.32339	0.99384	253.12	-22.96
74/ 6/ 5	2442204.0	-10.18973	-56.68231	-24.40440	0.96699	-0.21247	0.00728	62.54830	0.99008	259.81	-22.97
74/ 6/ 6	2442204.5	-3.59461	-57.78769	-24.21276	0.97856	-0.11378	0.04918	62.75823	0.98638	266.44	-22.69
74/ 6/ 6	2442205.0	3.03962	-58.22264	-23.74036	0.97856	-0.01468	0.09011	62.95014	0.98281	272.99	-22.16
74/ 6/ 7	2442205.5	9.63515	-57.98800	-22.99521	0.96718	0.08377	0.12966	63.12071	0.97942	279.43	-21.36
74/ 6/ 7	2442206.0	16.11596	-57.09160	-21.98803	0.94474	0.18057	0.16743	63.26648	0.97631	285.76	-20.34
74/ 6/ 8	2442206.5	22.40836	-55.54788	-20.73204	0.91162	0.27476	0.20307	63.38390	0.97354	291.97	-19.09
74/ 6/ 8	2442207.0	28.44151	-53.37759	-19.24279	0.86827	0.36545	0.23626	63.46946	0.97121	298.05	-17.65
74/ 6/ 9	2442207.5	34.14783	-50.60738	-17.53794	0.81520	0.45178	0.26669	63.51977	0.96942	304.01	-16.03
74/ 6/ 9	2442208.0	39.46336	-47.26948	-15.63709	0.75297	0.53296	0.29409	63.53172	0.96824	309.86	-14.25
74/ 6/10	2442208.5	44.32808	-43.40136	-13.56162	0.68218	0.60823	0.31821	63.50255	0.96776	315.61	-12.33
74/ 6/10	2442209.0	48.68620	-39.04546	-11.33455	0.60348	0.67688	0.33882	63.43001	0.96806	321.27	-10.29
74/ 6/11	2442209.5	52.48641	-34.24894	-8.98041	0.51755	0.73823	0.35570	63.31241	0.96921	326.87	-8.15
74/ 6/11	2442210.0	55.68221	-29.06348	-6.52510	0.42512	0.79163	0.36866	63.14880	0.97124	332.44	-5.93
74/ 6/12	2442210.5	58.23213	-23.54503	-3.99581	0.32697	0.83645	0.37752	62.93899	0.97421	337.99	-3.64
74/ 6/12	2442211.0	60.10018	-17.75372	-1.42092	0.22391	0.87210	0.38210	62.68369	0.97811	343.54	-1.30
74/ 6/13	2442211.5	61.25616	-11.75365	1.17014	0.11685	0.89800	0.38227	62.38457	0.98295	349.14	1.07
74/ 6/13	2442212.0	61.67619	-5.61276	3.74699	0.00676	0.91360	0.37789	62.04430	0.98869	354.80	3.46
74/ 6/14	2442212.5	61.34326	0.59744	6.27842	-0.10531	0.91839	0.36884	61.66661	0.99527	0.56	5.84
74/ 6/14	2442213.0	60.24788	6.80214	8.73262	-0.21818	0.91190	0.35507	61.25630	1.00262	6.44	8.20
74/ 6/15	2442213.5	58.38881	12.92361	11.07738	-0.33060	0.89375	0.33653	60.81925	1.01061	12.48	10.49
74/ 6/15	2442214.0	55.77381	18.88177	13.28042	-0.44116	0.86364	0.31323	60.36231	1.01912	18.70	12.71
74/ 6/16	2442214.5	52.42048	24.59493	15.30975	-0.54836	0.82139	0.28525	59.89329	1.02798	25.14	14.81

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
74/ 6/16	2442215.0	48.35705	29.98073	17.13415	-0.65057	0.76699	0.25275	59.42077	1.03701	31.80	16.76
74/ 6/17	2442215.5	43.62306	34.95738	18.72376	-0.74608	0.70062	0.21596	58.95396	1.04601	38.71	18.52
74/ 6/17	2442216.0	38.26992	39.44511	20.05070	-0.83310	0.62270	0.17525	58.50242	1.05477	45.87	20.04
74/ 6/18	2442216.5	32.36115	43.36791	21.08985	-0.90985	0.53394	0.13107	58.07582	1.06306	53.27	21.29
74/ 6/18	2442217.0	25.97233	46.65554	21.81965	-0.97457	0.43533	0.08401	57.68361	1.07068	60.90	22.23
74/ 6/19	2442217.5	19.19054	49.24556	22.22288	-1.02564	0.32819	0.03477	57.33462	1.07743	68.71	22.81
74/ 6/19	2442218.0	12.11325	51.08553	22.28749	-1.06161	0.21414	-0.01584	57.03678	1.08311	76.66	23.00
74/ 6/20	2442218.5	4.84675	52.13500	22.00722	-1.08135	0.09510	-0.06692	56.79671	1.08758	84.69	22.80
74/ 6/20	2442219.0	-2.49610	52.36733	21.38216	-1.08406	-0.02678	-0.11749	56.61947	1.09073	92.73	22.19
74/ 6/21	2442219.5	-9.79844	51.77103	20.41906	-1.06937	-0.14919	-0.16657	56.50829	1.09250	100.72	21.18
74/ 6/21	2442220.0	-16.94247	50.35060	19.13134	-1.03736	-0.26974	-0.21319	56.46449	1.09285	108.60	19.81
74/ 6/22	2442220.5	-23.81249	48.12670	17.53889	-0.98859	-0.38606	-0.25641	56.48740	1.09183	116.33	18.09
74/ 6/22	2442221.0	-30.29809	45.13568	15.66755	-0.92404	-0.49591	-0.29541	56.57452	1.08951	123.87	16.08
74/ 6/23	2442221.5	-36.29691	41.42848	13.54841	-0.84511	-0.59722	-0.32948	56.72164	1.08602	131.22	13.82
74/ 6/23	2442222.0	-41.71714	37.06901	11.21684	-0.75349	-0.68825	-0.35806	56.92319	1.08150	138.38	11.36
74/ 6/24	2442222.5	-46.47939	32.13205	8.71150	-0.65115	-0.76754	-0.38074	57.17248	1.07614	145.34	8.76
74/ 6/24	2442223.0	-50.51801	26.70105	6.07325	-0.54017	-0.83399	-0.39728	57.46216	1.07011	152.14	6.07
74/ 6/25	2442223.5	-53.78184	20.86569	3.34412	-0.42272	-0.88684	-0.40757	57.78448	1.06363	158.80	3.32
74/ 6/25	2442224.0	-56.23440	14.71963	0.56634	-0.30096	-0.92569	-0.41166	58.13171	1.05686	165.33	0.56
74/ 6/26	2442224.5	-57.85361	8.35834	-2.21856	-0.17698	-0.95040	-0.40971	58.49636	1.04998	171.78	-2.17
74/ 6/26	2442225.0	-58.63120	1.87715	-4.97043	-0.05275	-0.96114	-0.40196	58.87144	1.04314	178.17	-4.84
74/ 6/27	2442225.5	-58.57183	-4.63036	-7.65112	0.06988	-0.95826	-0.38875	59.25065	1.03647	184.52	-7.42
74/ 6/27	2442226.0	-57.69204	-11.07382	-10.22499	0.18924	-0.94233	-0.37048	59.62844	1.03007	190.87	-9.87
74/ 6/28	2442226.5	-56.01915	-17.36710	-12.65921	0.30384	-0.91404	-0.34759	60.00014	1.02402	197.22	-12.18
74/ 6/28	2442227.0	-53.59011	-23.42932	-14.92402	0.41232	-0.87424	-0.32054	60.36190	1.01836	203.61	-14.31
74/ 6/29	2442227.5	-50.45033	-29.18546	-16.99295	0.51353	-0.82382	-0.28983	60.71069	1.01311	210.05	-16.25
74/ 6/29	2442228.0	-46.65261	-34.56694	-18.84291	0.60645	-0.76377	-0.25596	61.04420	1.00829	216.54	-17.98
74/ 6/30	2442228.5	-42.25603	-39.51199	-20.45421	0.69023	-0.69512	-0.21945	61.36078	1.00388	223.08	-19.47
74/ 6/30	2442229.0	-37.32503	-43.96596	-21.81065	0.76416	-0.61894	-0.18079	61.65929	0.99986	229.67	-20.72
74/ 7/ 1	2442229.5	-31.92836	-47.88150	-22.89944	0.82766	-0.53631	-0.14049	61.93902	0.99618	236.30	-21.70
74/ 7/ 1	2442230.0	-26.13826	-51.21868	-23.71121	0.88027	-0.44834	-0.09907	62.19954	0.99283	242.96	-22.41
74/ 7/ 2	2442230.5	-20.02957	-53.94507	-24.23991	0.92169	-0.35613	-0.05699	62.44059	0.98974	249.63	-22.84
74/ 7/ 2	2442231.0	-13.67889	-56.03572	-24.48277	0.95170	-0.26079	-0.01474	62.66195	0.98690	256.28	-23.00
74/ 7/ 3	2442231.5	-7.16386	-57.47315	-24.44018	0.97022	-0.16342	0.02723	62.86340	0.98426	262.89	-22.88
74/ 7/ 3	2442232.0	-0.56232	-58.24720	-24.11557	0.97726	-0.06508	0.06847	63.04453	0.98181	269.45	-22.49
74/ 7/ 4	2442232.5	6.04831	-58.35490	-23.51529	0.97293	0.03318	0.10856	63.20478	0.97953	275.92	-21.84
74/ 7/ 4	2442233.0	12.59174	-57.80027	-22.64847	0.95746	0.13033	0.14711	63.34332	0.97742	282.29	-20.95
74/ 7/ 5	2442233.5	18.99342	-56.59413	-21.52684	0.93114	0.22541	0.18374	63.45904	0.97549	288.55	-19.83
74/ 7/ 5	2442234.0	25.18116	-54.75376	-20.16461	0.89435	0.31746	0.21811	63.55058	0.97376	294.70	-18.50
74/ 7/ 6	2442234.5	31.08559	-52.30270	-18.57822	0.84756	0.40560	0.24988	63.61632	0.97227	300.72	-16.98
74/ 7/ 6	2442235.0	36.64070	-49.27036	-16.78626	0.79129	0.48897	0.27877	63.65444	0.97106	306.64	-15.29
74/ 7/ 7	2442235.5	41.78428	-45.69171	-14.80920	0.72614	0.56679	0.30450	63.66295	0.97018	312.44	-13.45
74/ 7/ 7	2442236.0	46.45829	-41.60696	-12.66926	0.65274	0.63830	0.32683	63.63979	0.96970	318.15	-11.48
74/ 7/ 8	2442236.5	50.60923	-37.06122	-10.39024	0.57180	0.70280	0.34553	63.58290	0.96968	323.78	-9.41
74/ 7/ 8	2442237.0	54.18845	-32.10415	-7.99733	0.48405	0.75965	0.36042	63.49033	0.97020	329.36	-7.24

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 7/ 9	2442237.5	57.15249	-26.78969	-5.51699	0.39028	0.80824	0.37133	63.36033	0.97132	334.89	-5.00
74/ 7/ 9	2442238.0	59.46336	-21.17573	-2.97673	0.29132	0.84800	0.37809	63.19149	0.97310	340.40	-2.70
74/ 7/10	2442238.5	61.08891	-15.32384	-0.40506	0.18805	0.87842	0.38059	62.98284	0.97562	345.92	-0.37
74/ 7/10	2442239.0	62.00307	-9.29897	2.16877	0.08141	0.89901	0.37871	62.73401	0.97891	351.47	1.98
74/ 7/11	2442239.5	62.18632	-3.16919	4.71483	-0.02761	0.90933	0.37237	62.44527	0.98301	357.08	4.33
74/ 7/11	2442240.0	61.62600	2.99464	7.20272	-0.13797	0.90900	0.36153	62.11772	0.98794	2.78	6.66
74/ 7/12	2442240.5	60.31685	9.11921	9.60176	-0.24855	0.89768	0.34613	61.75334	0.99369	8.60	8.94
74/ 7/12	2442241.0	58.26143	15.12914	11.88116	-0.35813	0.87511	0.32620	61.35509	1.00024	14.56	11.17
74/ 7/13	2442241.5	55.47079	20.94749	14.01033	-0.46543	0.84109	0.30178	60.92697	1.00754	20.69	13.29
74/ 7/13	2442242.0	51.96498	26.49637	15.95916	-0.56908	0.79553	0.27297	60.47406	1.01550	27.02	15.30
74/ 7/14	2442242.5	47.77372	31.69769	17.69841	-0.66759	0.73848	0.23992	60.00254	1.02401	33.56	17.16
74/ 7/14	2442243.0	42.93695	36.47416	19.20011	-0.75942	0.67012	0.20288	59.51967	1.03293	40.35	18.82
74/ 7/15	2442243.5	37.50539	40.75043	20.43819	-0.84296	0.59085	0.16214	59.03365	1.04210	47.37	20.26
74/ 7/15	2442244.0	31.54084	44.45452	21.38900	-0.91654	0.50128	0.11812	58.55355	1.05132	54.64	21.43
74/ 7/16	2442244.5	25.11633	47.51945	22.03205	-0.97851	0.40228	0.07135	58.08906	1.06038	62.14	22.29
74/ 7/16	2442245.0	18.31588	49.88512	22.35073	-1.02729	0.29501	0.02246	57.65025	1.06905	69.84	22.81
74/ 7/17	2442245.5	11.23390	51.50028	22.33309	-1.06142	0.18093	-0.02783	57.24724	1.07709	77.69	22.96
74/ 7/17	2442246.0	3.97400	52.32460	21.97253	-1.07964	0.06180	-0.07866	56.88979	1.08427	85.66	22.72
74/ 7/18	2442246.5	-3.35274	52.33063	21.26850	-1.08102	-0.06034	-0.12909	56.58696	1.09037	93.67	22.08
74/ 7/18	2442247.0	-10.63000	51.50548	20.22694	-1.06497	-0.18324	-0.17816	56.34662	1.09521	101.66	21.04
74/ 7/19	2442247.5	-17.73905	49.85221	18.86058	-1.03137	-0.30447	-0.22484	56.17507	1.09862	109.59	19.62
74/ 7/19	2442248.0	-24.56190	47.39047	17.18890	-0.98056	-0.42156	-0.26815	56.07675	1.10051	117.40	17.85
74/ 7/20	2442248.5	-30.98464	44.15662	15.23787	-0.91340	-0.53208	-0.30719	56.05397	1.10081	125.06	15.77
74/ 7/20	2442249.0	-36.90081	40.20296	13.03930	-0.83123	-0.63376	-0.34113	56.10678	1.09953	132.55	13.44
74/ 7/21	2442249.5	-42.21439	35.59635	10.62996	-0.73579	-0.72458	-0.36933	56.23301	1.09672	139.86	10.90
74/ 7/21	2442250.0	-46.84241	30.41614	8.05053	-0.62916	-0.80289	-0.39129	56.42840	1.09251	147.00	8.20
74/ 7/22	2442250.5	-50.71683	24.75162	5.34430	-0.51365	-0.86742	-0.40673	56.68687	1.08705	153.99	5.41
74/ 7/22	2442251.0	-53.78571	18.69925	2.55598	-0.39170	-0.91732	-0.41553	57.00085	1.08054	160.83	2.57
74/ 7/23	2442251.5	-56.01365	12.35982	-0.26955	-0.26573	-0.95215	-0.41774	57.36171	1.07318	167.56	-0.27
74/ 7/23	2442252.0	-57.38155	5.83572	-3.08834	-0.13812	-0.97187	-0.41358	57.76015	1.06520	174.19	-3.06
74/ 7/24	2442252.5	-57.88583	-0.77148	-5.85826	-0.01106	-0.97676	-0.40338	58.18663	1.05684	180.76	-5.78
74/ 7/24	2442253.0	-57.53724	-7.36319	-8.53979	0.11342	-0.96740	-0.38756	58.63172	1.04830	187.29	-8.38
74/ 7/25	2442253.5	-56.35937	-13.84538	-11.09656	0.23354	-0.94457	-0.36662	59.08643	1.03979	193.80	-10.82
74/ 7/25	2442254.0	-54.38706	-20.12996	-13.49569	0.34777	-0.90922	-0.34111	59.54243	1.03149	200.31	-13.10
74/ 7/26	2442254.5	-51.66486	-26.13562	-15.70806	0.45478	-0.86239	-0.31157	59.99226	1.02354	206.83	-15.18
74/ 7/26	2442255.0	-48.24540	-31.78849	-17.70838	0.55350	-0.80523	-0.27858	60.42941	1.01605	213.38	-17.04
74/ 7/27	2442255.5	-44.18802	-37.02246	-19.47520	0.64302	-0.73889	-0.24271	60.84839	1.00913	219.96	-18.67
74/ 7/27	2442256.0	-39.55746	-41.77934	-20.99084	0.72265	-0.66455	-0.20450	61.24477	1.00283	226.56	-20.04
74/ 7/28	2442256.5	-34.42269	-46.00890	-22.24132	0.79183	-0.58337	-0.16450	61.61507	0.99718	233.20	-21.16
74/ 7/28	2442257.0	-28.85593	-49.66877	-23.21620	0.85016	-0.49651	-0.12320	61.95678	0.99221	239.84	-22.01
74/ 7/29	2442257.5	-22.93171	-52.72430	-23.90841	0.89735	-0.40510	-0.08111	62.26819	0.98788	246.49	-22.58
74/ 7/29	2442258.0	-16.72615	-55.14842	-24.31419	0.93322	-0.31024	-0.03869	62.54832	0.98419	253.13	-22.88
74/ 7/30	2442258.5	-10.31623	-56.92144	-24.43284	0.95769	-0.21301	0.00360	62.79681	0.98110	259.73	-22.90
74/ 7/30	2442259.0	-3.77918	-58.03088	-24.26668	0.97077	-0.11446	0.04534	63.01378	0.97854	266.27	-22.65
74/ 7/31	2442259.5	2.80814	-58.47126	-23.82084	0.97255	-0.01561	0.08612	63.19973	0.97648	272.75	-22.14

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 7/31	2442260.0	9.36973	-58.24394	-23.10319	0.96321	0.08254	0.12554	63.35539	0.97485	279.14	-21.39
74/ 8/ 1	2442260.5	15.83104	-57.35692	-22.12416	0.94298	0.17903	0.16324	63.48163	0.97361	285.43	-20.40
74/ 8/ 1	2442261.0	22.11943	-55.82463	-20.89666	0.91220	0.27293	0.19886	63.57931	0.97270	291.61	-19.19
74/ 8/ 2	2442261.5	28.16469	-53.66774	-19.43588	0.87126	0.36333	0.23207	63.64927	0.97209	297.69	-17.78
74/ 8/ 2	2442262.0	33.89953	-50.91290	-17.75921	0.82062	0.44936	0.26256	63.69216	0.97174	303.66	-16.19
74/ 8/ 3	2442262.5	39.26003	-47.59253	-15.88608	0.76082	0.53019	0.29004	63.70845	0.97163	309.52	-14.44
74/ 8/ 3	2442263.0	44.18613	-43.74456	-13.83777	0.69245	0.60503	0.31424	63.69839	0.97175	315.29	-12.55
74/ 8/ 4	2442263.5	48.62207	-39.41210	-11.63731	0.61619	0.67313	0.33493	63.66197	0.97210	320.97	-10.53
74/ 8/ 4	2442264.0	52.51681	-34.64314	-9.30922	0.53277	0.73381	0.35189	63.59893	0.97270	326.59	-8.42
74/ 8/ 5	2442264.5	55.82445	-29.49022	-6.87944	0.44296	0.78641	0.36494	63.50881	0.97357	332.15	-6.22
74/ 8/ 5	2442265.0	58.50463	-24.01003	-4.37504	0.34762	0.83036	0.37390	63.39096	0.97475	337.69	-3.96
74/ 8/ 6	2442265.5	60.52282	-18.26309	-1.82411	0.24764	0.86510	0.37866	63.24460	0.97627	343.21	-1.65
74/ 8/ 6	2442266.0	61.85078	-12.31329	0.74450	0.14396	0.89018	0.37911	63.06893	0.97820	348.74	0.68
74/ 8/ 7	2442266.5	62.46679	-6.22752	3.30131	0.03758	0.90519	0.37517	62.86319	0.98058	354.31	3.01
74/ 8/ 7	2442267.0	62.35607	-0.07526	5.81649	-0.07046	0.90977	0.36681	62.62680	0.98346	359.93	5.33
74/ 8/ 8	2442267.5	61.51105	6.07190	8.26000	-0.17907	0.90364	0.35401	62.35948	0.98689	5.64	7.61
74/ 8/ 8	2442268.0	59.93176	12.14075	10.60188	-0.28709	0.88661	0.33680	62.06137	0.99093	11.45	9.84
74/ 8/ 9	2442268.5	57.62611	18.05693	12.81245	-0.39335	0.85855	0.31525	61.73313	0.99560	17.40	11.98
74/ 8/ 9	2442269.0	54.61025	23.74553	14.86258	-0.49660	0.81941	0.28945	61.37610	1.00091	23.50	14.01
74/ 8/10	2442269.5	50.90895	29.13172	16.72402	-0.59554	0.76927	0.25955	60.99239	1.00688	29.78	15.91
74/ 8/10	2442270.0	46.55589	34.14150	18.36968	-0.68883	0.70830	0.22577	60.58497	1.01348	36.25	17.65
74/ 8/11	2442270.5	41.59403	38.70248	19.77403	-0.77508	0.63681	0.18834	60.15777	1.02066	42.94	19.19
74/ 8/11	2442271.0	36.07583	42.74492	20.91350	-0.85287	0.55527	0.14761	59.71573	1.02835	49.84	20.50
74/ 8/12	2442271.5	30.06347	46.20286	21.76700	-0.92076	0.46433	0.10397	59.26482	1.03644	56.95	21.55
74/ 8/12	2442272.0	23.62887	49.01536	22.31642	-0.97733	0.36484	0.05791	58.81200	1.04481	64.26	22.30
74/ 8/13	2442272.5	16.85344	51.12803	22.54719	-1.02118	0.25787	0.00998	58.36515	1.05328	71.76	22.73
74/ 8/13	2442273.0	9.82771	52.49459	22.44896	-1.05104	0.14476	-0.03913	57.93290	1.06168	79.40	22.80
74/ 8/14	2442273.5	2.65041	53.07853	22.01610	-1.06576	0.02706	-0.08869	57.52446	1.06979	87.14	22.50
74/ 8/14	2442274.0	-4.57275	52.85487	21.24839	-1.06445	-0.09340	-0.13787	57.14929	1.07739	94.94	21.83
74/ 8/15	2442274.5	-11.73078	51.81175	20.15142	-1.04646	-0.21457	-0.18577	56.81680	1.08426	102.76	20.77
74/ 8/15	2442275.0	-18.70967	49.95180	18.73703	-1.01154	-0.33422	-0.23145	56.53592	1.09017	110.53	19.35
74/ 8/16	2442275.5	-25.39500	47.29318	17.02342	-0.95984	-0.45001	-0.27397	56.31472	1.09492	118.23	17.60
74/ 8/16	2442276.0	-31.67496	43.87012	15.03510	-0.89198	-0.55956	-0.31242	56.15999	1.09833	125.83	15.53
74/ 8/17	2442276.5	-37.44353	39.73273	12.80256	-0.80905	-0.66057	-0.34595	56.07685	1.10027	133.30	13.20
74/ 8/17	2442277.0	-42.60365	34.94620	10.36157	-0.71260	-0.75091	-0.37386	56.06844	1.10065	140.64	10.65
74/ 8/18	2442277.5	-47.07015	29.58923	7.75234	-0.60458	-0.82874	-0.39556	56.13573	1.09945	147.85	7.94
74/ 8/18	2442278.0	-50.77220	23.75187	5.01832	-0.48726	-0.89256	-0.41066	56.27745	1.09668	154.93	5.12
74/ 8/19	2442278.5	-53.65511	17.53285	2.20502	-0.36312	-0.94130	-0.41895	56.49012	1.09244	161.90	2.24
74/ 8/19	2442279.0	-55.68139	11.03657	-0.64137	-0.23473	-0.97436	-0.42044	56.76825	1.08685	168.79	-0.65
74/ 8/20	2442279.5	-56.83100	4.37013	-3.47520	-0.10467	-0.99156	-0.41529	57.10462	1.08009	175.60	-3.49
74/ 8/20	2442280.0	-57.10090	-2.35964	-6.25254	0.02465	-0.99313	-0.40382	57.49065	1.07238	182.37	-6.24
74/ 8/21	2442280.5	-56.50395	-9.04874	-8.93210	0.15096	-0.97967	-0.38650	57.91682	1.06392	189.10	-8.87
74/ 8/21	2442281.0	-55.06735	-15.59820	-11.47602	0.27228	-0.95206	-0.36387	58.37308	1.05497	195.82	-11.34
74/ 8/22	2442281.5	-52.83085	-21.91579	-13.85037	0.38690	-0.91140	-0.33653	58.84924	1.04575	202.53	-13.61
74/ 8/22	2442282.0	-49.84474	-27.91720	-16.02546	0.49342	-0.85892	-0.30514	59.33535	1.03649	209.25	-15.67

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/ 8/23	2442282.5	-46.16795	-33.52691	-17.97600	0.59069	-0.79595	-0.27033	59.82198	1.02739	215.99	-17.49
74/ 8/23	2442283.0	-41.86616	-38.67847	-19.68104	0.67785	-0.72386	-0.23275	60.30044	1.01864	222.73	-19.05
74/ 8/24	2442283.5	-37.01020	-43.31468	-21.12392	0.75425	-0.64400	-0.19301	60.76296	1.01038	229.49	-20.34
74/ 8/24	2442284.0	-31.67455	-47.38745	-22.29202	0.81944	-0.55770	-0.15170	61.20279	1.00275	236.24	-21.36
74/ 8/25	2442284.5	-25.93614	-50.85751	-23.17656	0.87314	-0.46623	-0.10937	61.61431	0.99585	242.98	-22.10
74/ 8/25	2442285.0	-19.87332	-53.69406	-23.77236	0.91522	-0.37082	-0.06652	61.99295	0.98973	249.69	-22.55
74/ 8/26	2442285.5	-13.56502	-55.87438	-24.07759	0.94564	-0.27264	-0.02364	62.33528	0.98444	256.35	-22.72
74/ 8/26	2442286.0	-7.09001	-57.38343	-24.09354	0.96446	-0.17278	0.01883	62.63884	0.98000	262.96	-22.62
74/ 8/27	2442286.5	-0.52640	-58.21344	-23.82439	0.97183	-0.07230	0.06048	62.90218	0.97639	269.48	-22.26
74/ 8/27	2442287.0	6.04891	-58.36360	-23.27706	0.96796	0.02781	0.10091	63.12465	0.97360	275.92	-21.64
74/ 8/28	2442287.5	12.56062	-57.83972	-22.46099	0.95310	0.12659	0.13977	63.30638	0.97157	282.25	-20.78
74/ 8/28	2442288.0	18.93539	-56.65396	-21.38803	0.92758	0.22311	0.17671	63.44816	0.97026	288.48	-19.70
74/ 8/29	2442288.5	25.10228	-54.82463	-20.07231	0.89178	0.31648	0.21141	63.55126	0.96960	294.60	-18.41
74/ 8/29	2442289.0	30.99305	-52.37594	-18.53010	0.84612	0.40586	0.24355	63.61739	0.96951	300.61	-16.93
74/ 8/30	2442289.5	36.54257	-49.33782	-16.77968	0.79110	0.49040	0.27284	63.64855	0.96993	306.53	-15.29
74/ 8/30	2442290.0	41.68923	-45.74572	-14.84126	0.72725	0.56932	0.29902	63.64688	0.97079	312.34	-13.48
74/ 8/31	2442290.5	46.37533	-41.64039	-12.73683	0.65520	0.64183	0.32182	63.61462	0.97201	318.08	-11.55
74/ 8/31	2442291.0	50.54750	-37.06771	-10.49003	0.57562	0.70721	0.34102	63.55396	0.97353	323.75	-9.50
74/ 9/ 1	2442291.5	54.15722	-32.07835	-8.12602	0.48924	0.76476	0.35640	63.46698	0.97531	329.36	-7.36
74/ 9/ 1	2442292.0	57.16120	-26.72756	-5.67130	0.39689	0.81383	0.36778	63.35557	0.97729	334.94	-5.14
74/ 9/ 2	2442292.5	59.52189	-21.07476	-3.15353	0.29944	0.85384	0.37500	63.22140	0.97945	340.50	-2.86
74/ 9/ 2	2442293.0	61.20793	-15.18319	-0.60132	0.19783	0.88425	0.37793	63.06585	0.98177	346.07	-0.55
74/ 9/ 3	2442293.5	62.19456	-9.11946	1.95596	0.09308	0.90461	0.37648	62.89001	0.98424	351.66	1.78
74/ 9/ 3	2442294.0	62.46407	-2.95304	4.48845	-0.01375	0.91452	0.37060	62.69471	0.98686	357.29	4.11
74/ 9/ 4	2442294.5	62.00614	3.24429	6.96607	-0.12154	0.91369	0.36028	62.48050	0.98965	3.00	6.40
74/ 9/ 4	2442295.0	60.81821	9.39900	9.35873	-0.22911	0.90191	0.34553	62.24775	0.99264	8.79	8.65
74/ 9/ 5	2442295.5	58.90580	15.43651	11.63669	-0.33527	0.87907	0.32642	61.99671	0.99585	14.68	10.82
74/ 9/ 5	2442296.0	56.28273	21.28184	13.77083	-0.43876	0.84517	0.30308	61.72761	0.99934	20.71	12.89
74/ 9/ 6	2442296.5	52.97132	26.86036	15.73296	-0.53831	0.80031	0.27566	61.44075	1.00313	26.89	14.84
74/ 9/ 6	2442297.0	49.00259	32.09858	17.49619	-0.63265	0.74473	0.24438	61.13664	1.00727	33.23	16.63
74/ 9/ 7	2442297.5	44.41628	36.92499	19.03520	-0.72046	0.67878	0.20950	60.81611	1.01178	39.74	18.24
74/ 9/ 7	2442298.0	39.26091	41.27092	20.32671	-0.80047	0.60295	0.17135	60.48043	1.01669	46.43	19.64
74/ 9/ 8	2442298.5	33.59368	45.07154	21.34974	-0.87140	0.51787	0.13030	60.13144	1.02201	53.30	20.80
74/ 9/ 8	2442299.0	27.48036	48.26680	22.08610	-0.93200	0.42433	0.08677	59.77165	1.02772	60.35	21.69
74/ 9/ 9	2442299.5	20.99500	50.80257	22.52073	-0.98107	0.32330	0.04129	59.40433	1.03379	67.55	22.28
74/ 9/ 9	2442300.0	14.21947	52.63175	22.64216	-1.01750	0.21589	-0.00561	59.03356	1.04017	74.88	22.55
74/ 9/10	2442300.5	7.24290	53.71549	22.44294	-1.04028	0.10341	-0.05329	58.66429	1.04676	82.32	22.49
74/ 9/10	2442301.0	0.16078	54.02444	21.92003	-1.04854	-0.01264	-0.10107	58.30226	1.05347	89.83	22.08
74/ 9/11	2442301.5	-6.92610	53.53994	21.07523	-1.04159	-0.13060	-0.14822	57.95396	1.06016	97.37	21.32
74/ 9/11	2442302.0	-13.91311	52.25524	19.91551	-1.01899	-0.24862	-0.19394	57.62649	1.06666	104.91	20.22
74/ 9/12	2442302.5	-20.69348	50.17651	18.45325	-0.98057	-0.36473	-0.23742	57.32734	1.07281	112.41	18.78
74/ 9/12	2442303.0	-27.16039	47.32366	16.70640	-0.92648	-0.47686	-0.27784	57.06417	1.07841	119.85	17.02
74/ 9/13	2442303.5	-33.20931	43.73086	14.69847	-0.85726	-0.58288	-0.31438	56.84445	1.08327	127.21	14.99
74/ 9/13	2442304.0	-38.74056	39.44663	12.45831	-0.77381	-0.68069	-0.34629	56.67519	1.08721	134.48	12.70
74/ 9/14	2442304.5	-43.66202	34.53335	10.01967	-0.67744	-0.76831	-0.37288	56.56252	1.09007	141.66	10.20

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
74/ 9/14	2442305.0	-47.89171	29.06634	7.42062	-0.56984	-0.84393	-0.39358	56.51135	1.09171	148.75	7.55
74/ 9/15	2442305.5	-51.36024	23.13222	4.70261	-0.45304	-0.90601	-0.40795	56.52511	1.09203	155.75	4.77
74/ 9/15	2442306.0	-54.01283	16.82690	1.90951	-0.32930	-0.95337	-0.41572	56.60545	1.09096	162.70	1.93
74/ 9/16	2442306.5	-55.81079	10.25302	-0.91360	-0.20109	-0.98522	-0.41681	56.75212	1.08849	169.59	-0.92
74/ 9/16	2442307.0	-56.73231	3.51720	-3.72159	-0.07092	-1.00116	-0.41128	56.96293	1.08467	176.45	-3.75
74/ 9/17	2442307.5	-56.77262	-3.27283	-6.47045	0.05872	-1.00127	-0.39940	57.23381	1.07959	183.30	-6.49
74/ 9/17	2442308.0	-55.94344	-10.01102	-9.11838	0.18546	-0.98596	-0.38156	57.55896	1.07336	190.15	-9.12
74/ 9/18	2442308.5	-54.27179	-16.59550	-11.62669	0.30716	-0.95603	-0.35827	57.93115	1.06616	197.00	-11.58
74/ 9/18	2442309.0	-51.79842	-22.93068	-13.96052	0.42192	-0.91254	-0.33014	58.34200	1.05818	203.88	-13.84
74/ 9/19	2442309.5	-48.57585	-28.92895	-16.08931	0.52815	-0.85677	-0.29784	58.78234	1.04962	210.78	-15.89
74/ 9/19	2442310.0	-44.66633	-34.51184	-17.98711	0.62458	-0.79013	-0.26205	59.24259	1.04071	217.69	-17.68
74/ 9/20	2442310.5	-40.13971	-39.61075	-19.63266	0.71023	-0.71410	-0.22346	59.71306	1.03165	224.62	-19.19
74/ 9/20	2442311.0	-35.07153	-44.16723	-21.00933	0.78441	-0.63020	-0.18276	60.18428	1.02267	231.55	-20.43
74/ 9/21	2442311.5	-29.54116	-48.13297	-22.10499	0.84666	-0.53991	-0.14058	60.64728	1.01395	238.46	-21.38
74/ 9/21	2442312.0	-23.63032	-51.46952	-22.91166	0.89674	-0.44464	-0.09752	61.09376	1.00566	245.34	-22.03
74/ 9/22	2442312.5	-17.42170	-54.14786	-23.42530	0.93459	-0.34576	-0.05414	61.51627	0.99796	252.16	-22.38
74/ 9/22	2442313.0	-10.99797	-56.14783	-23.64543	0.96028	-0.24453	-0.01093	61.90833	0.99099	258.92	-22.45
74/ 9/23	2442313.5	-4.44090	-57.45757	-23.57487	0.97400	-0.14213	0.03163	62.26450	0.98482	265.58	-22.25
74/ 9/23	2442314.0	2.16928	-58.07294	-23.21938	0.97601	-0.03966	0.07313	62.58044	0.97955	272.14	-21.78
74/ 9/24	2442314.5	8.75437	-57.99699	-22.58747	0.96665	0.06185	0.11320	62.85287	0.97522	278.58	-21.06
74/ 9/24	2442315.0	15.23862	-57.23948	-21.69010	0.94630	0.16144	0.15146	63.07959	0.97185	284.91	-20.11
74/ 9/25	2442315.5	21.54903	-55.81645	-20.54053	0.91539	0.25823	0.18762	63.25939	0.96944	291.11	-18.95
74/ 9/25	2442316.0	27.61557	-53.74987	-19.15412	0.87437	0.35134	0.22135	63.39202	0.96797	297.19	-17.59
74/ 9/26	2442316.5	33.37152	-51.06734	-17.54819	0.82376	0.43998	0.25239	63.47811	0.96740	303.16	-16.05
74/ 9/26	2442317.0	38.75360	-47.80189	-15.74192	0.76407	0.52335	0.28047	63.51906	0.96766	309.03	-14.35
74/ 9/27	2442317.5	43.70236	-43.99172	-13.75623	0.69590	0.60070	0.30533	63.51694	0.96868	314.81	-12.51
74/ 9/27	2442318.0	48.16241	-39.68007	-11.61368	0.61986	0.67131	0.32675	63.47442	0.97039	320.52	-10.54
74/ 9/28	2442318.5	52.08277	-34.91504	-9.33835	0.53665	0.73447	0.34451	63.39463	0.97269	326.16	-8.47
74/ 9/28	2442319.0	55.41733	-29.74941	-6.95577	0.44701	0.78950	0.35839	63.28104	0.97549	331.77	-6.31
74/ 9/29	2442319.5	58.12525	-24.24040	-4.49274	0.35175	0.83576	0.36823	63.13736	0.97868	337.36	-4.08
74/ 9/29	2442320.0	60.17143	-18.44943	-1.97722	0.25176	0.87266	0.37387	62.96739	0.98219	342.95	-1.80
74/ 9/30	2442320.5	61.52707	-12.44181	0.56186	0.14801	0.89965	0.37517	62.77495	0.98592	348.57	0.51
74/ 9/30	2442321.0	62.17015	-6.28627	3.09481	0.04153	0.91626	0.37205	62.56375	0.98979	354.23	2.84
74/10/ 1	2442321.5	62.08598	-0.05457	5.59147	-0.06655	0.92209	0.36445	62.33728	0.99373	359.95	5.15
74/10/ 1	2442322.0	61.26767	6.17920	8.02140	-0.17505	0.91683	0.35235	62.09873	0.99768	5.76	7.42
74/10/ 2	2442322.5	59.71663	12.33919	10.35430	-0.28271	0.90028	0.33580	61.85098	1.00160	11.67	9.64
74/10/ 2	2442323.0	57.44291	18.34868	12.56026	-0.38823	0.87238	0.31489	61.59645	1.00545	17.71	11.77
74/10/ 3	2442323.5	54.46554	24.13086	14.61022	-0.49027	0.83318	0.28976	61.33720	1.00922	23.90	13.78
74/10/ 3	2442324.0	50.81267	29.60982	16.47632	-0.58747	0.78289	0.26063	61.07485	1.01290	30.23	15.65
74/10/ 4	2442324.5	46.52168	34.71153	18.13231	-0.67848	0.72186	0.22777	60.81067	1.01651	36.73	17.35
74/10/ 4	2442325.0	41.63910	39.36493	19.55397	-0.76195	0.65060	0.19150	60.54560	1.02006	43.39	18.84
74/10/ 5	2442325.5	36.22037	43.50297	20.71954	-0.83659	0.56980	0.15222	60.28037	1.02358	50.22	20.10
74/10/ 5	2442326.0	30.32950	47.06371	21.61010	-0.90117	0.48028	0.11037	60.01556	1.02711	57.20	21.10
74/10/ 6	2442326.5	24.03855	49.99139	22.20997	-0.95455	0.38304	0.06647	59.75177	1.03068	64.32	21.82
74/10/ 6	2442327.0	17.42695	52.23750	22.50703	-0.99569	0.27923	0.02105	59.48968	1.03432	71.55	22.23

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/10/ 7	2442327.5	10.58068	53.76179	22.49311	-1.02371	0.17012	-0.02526	59.23024	1.03805	78.87	22.32
74/10/ 7	2442328.0	3.59131	54.53320	22.16424	-1.03784	0.05715	-0.07184	58.97474	1.04189	86.23	22.08
74/10/ 8	2442328.5	-3.44513	54.53076	21.52089	-1.03753	-0.05812	-0.11801	58.72497	1.04583	93.62	21.50
74/10/ 8	2442329.0	-10.42945	53.74440	20.56820	-1.02241	-0.17405	-0.16307	58.48320	1.04986	100.98	20.59
74/10/ 9	2442329.5	-17.26075	52.17558	19.31608	-0.99234	-0.28888	-0.20631	58.25234	1.05392	108.31	19.37
74/10/ 9	2442330.0	-23.83798	49.83781	17.77931	-0.94742	-0.40081	-0.24701	58.03585	1.05796	115.56	17.84
74/10/10	2442330.5	-30.06173	46.75700	15.97744	-0.88804	-0.50798	-0.28447	57.83774	1.06188	122.74	16.04
74/10/10	2442331.0	-35.83609	42.97158	13.93474	-0.81485	-0.60857	-0.31802	57.66246	1.06559	129.83	13.98
74/10/11	2442331.5	-41.07059	38.53227	11.67988	-0.72881	-0.70078	-0.34702	57.51476	1.06896	136.83	11.72
74/10/11	2442332.0	-45.68225	33.50162	9.24557	-0.63117	-0.78292	-0.37092	57.39953	1.07188	143.75	9.27
74/10/12	2442332.5	-49.59752	27.95315	6.66805	-0.52345	-0.85345	-0.38924	57.32151	1.07419	150.59	6.68
74/10/12	2442333.0	-52.75417	21.97015	3.98642	-0.40747	-0.91103	-0.40161	57.28509	1.07578	157.39	3.99
74/10/13	2442333.5	-55.10285	15.64406	1.24183	-0.28522	-0.95460	-0.40780	57.29400	1.07653	164.15	1.24
74/10/13	2442334.0	-56.60846	9.07259	-1.52337	-0.15889	-0.98339	-0.40769	57.35111	1.07634	170.89	-1.52
74/10/14	2442334.5	-57.25102	2.35754	-4.26658	-0.03075	-0.99696	-0.40133	57.45816	1.07515	177.64	-4.26
74/10/14	2442335.0	-57.02606	-4.39759	-6.94599	0.09690	-0.99524	-0.38889	57.61560	1.07291	184.41	-6.92
74/10/15	2442335.5	-55.94455	-11.08994	-9.52144	0.22182	-0.97850	-0.37069	57.82246	1.06961	191.21	-9.48
74/10/15	2442336.0	-54.03222	-17.61962	-11.95535	0.34190	-0.94734	-0.34718	58.07635	1.06530	198.06	-11.88
74/10/16	2442336.5	-51.32850	-23.89190	-14.21347	0.45522	-0.90266	-0.31888	58.37346	1.06005	204.96	-14.09
74/10/16	2442337.0	-47.88500	-29.81896	-16.26544	0.56009	-0.84561	-0.28641	58.70867	1.05394	211.91	-16.08
74/10/17	2442337.5	-43.76377	-35.32142	-18.08526	0.65514	-0.77751	-0.25044	59.07577	1.04711	218.91	-17.83
74/10/17	2442338.0	-39.03534	-40.32938	-19.65148	0.73923	-0.69983	-0.21164	59.46761	1.03972	225.93	-19.30
74/10/18	2442338.5	-33.77677	-44.78305	-20.94734	0.81157	-0.61409	-0.17071	59.87640	1.03194	232.98	-20.48
74/10/18	2442339.0	-28.06978	-48.63307	-21.96065	0.87158	-0.52183	-0.12832	60.29393	1.02393	240.01	-21.36
74/10/19	2442339.5	-21.99891	-51.84044	-22.68367	0.91898	-0.42457	-0.08509	60.71188	1.01589	247.01	-21.94
74/10/19	2442340.0	-15.65004	-54.37625	-23.11279	0.95368	-0.32376	-0.04163	61.12202	1.00799	253.94	-22.22
74/10/20	2442340.5	-9.10903	-56.22117	-23.24824	0.97575	-0.22078	0.00154	61.51646	1.00041	260.80	-22.20
74/10/20	2442341.0	-2.46066	-57.36484	-23.09375	0.98543	-0.11689	0.04391	61.88781	0.99331	267.54	-21.91
74/10/21	2442341.5	4.21226	-57.80525	-22.65622	0.98306	-0.01330	0.08505	62.22937	0.98683	274.17	-21.35
74/10/21	2442342.0	10.82954	-57.54806	-21.94534	0.96907	0.08893	0.12456	62.53524	0.98109	280.66	-20.54
74/10/22	2442342.5	17.31407	-56.60596	-20.97335	0.94395	0.18879	0.16210	62.80042	0.97620	287.01	-19.51
74/10/22	2442343.0	23.59220	-54.99808	-19.75475	0.90822	0.28538	0.19734	63.02088	0.97224	293.22	-18.27
74/10/23	2442343.5	29.59399	-52.74954	-18.30606	0.86244	0.37784	0.23000	63.19359	0.96926	299.29	-16.84
74/10/23	2442344.0	35.25340	-49.89096	-16.64566	0.80722	0.46539	0.25981	63.31658	0.96731	305.25	-15.24
74/10/24	2442344.5	40.50849	-46.45814	-14.79361	0.74315	0.54729	0.28655	63.38886	0.96639	311.09	-13.50
74/10/24	2442345.0	45.30153	-42.49175	-12.77153	0.67089	0.62284	0.30999	63.41048	0.96649	316.83	-11.62
74/10/25	2442345.5	49.57923	-38.03714	-10.60247	0.59109	0.69135	0.32992	63.38246	0.96757	322.50	-9.63
74/10/25	2442346.0	53.29293	-33.14412	-8.31084	0.50446	0.75219	0.34615	63.30671	0.96958	328.12	-7.54
74/10/26	2442346.5	56.39891	-27.86686	-5.92232	0.41176	0.80472	0.35850	63.18602	0.97244	333.71	-5.38
74/10/26	2442347.0	58.85870	-22.26364	-3.46374	0.31379	0.84834	0.36681	63.02391	0.97606	339.28	-3.15
74/10/27	2442347.5	60.63951	-16.39675	-0.96299	0.21142	0.88248	0.37093	62.82460	0.98034	344.87	-0.88
74/10/27	2442348.0	61.71472	-10.33225	1.55110	0.10559	0.90661	0.37074	62.59287	0.98516	350.50	1.42
74/10/28	2442348.5	62.06437	-4.13966	4.04898	-0.00265	0.92023	0.36613	62.33392	0.99040	356.18	3.72
74/10/28	2442349.0	61.67580	2.10843	6.50052	-0.11221	0.92293	0.35705	62.05326	0.99593	1.96	6.01
74/10/29	2442349.5	60.54420	8.33683	8.87534	-0.22186	0.91437	0.34347	61.75658	1.00163	7.84	8.26

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
74/10/29	2442350.0	58.67321	14.46840	11.14303	-0.33032	0.89431	0.32543	61.44956	1.00738	13.85	10.45
74/10/30	2442350.5	56.07549	20.42487	13.27361	-0.43622	0.86266	0.30300	61.13775	1.01305	20.01	12.54
74/10/30	2442351.0	52.77316	26.12771	15.23786	-0.53815	0.81944	0.27634	60.82644	1.01855	26.34	14.51
74/10/31	2442351.5	48.79815	31.49923	17.00783	-0.63462	0.76487	0.24567	60.52047	1.02378	32.84	16.32
74/10/31	2442352.0	44.19237	36.46379	18.55730	-0.72416	0.69935	0.21129	60.22414	1.02866	39.53	17.95
74/11/ 1	2442352.5	39.00772	40.94907	19.86233	-0.80532	0.62346	0.17356	59.94114	1.03313	46.39	19.35
74/11/ 1	2442353.0	33.30575	44.88746	20.90172	-0.87669	0.53800	0.13293	59.67444	1.03716	53.43	20.50
74/11/ 2	2442353.5	27.15723	48.21741	21.65759	-0.93697	0.44397	0.08992	59.42629	1.04073	60.61	21.37
74/11/ 2	2442354.0	20.64132	50.88476	22.11575	-0.98499	0.34256	0.04512	59.19822	1.04384	67.92	21.94
74/11/ 3	2442354.5	13.84460	52.84403	22.26617	-1.01975	0.23512	-0.00084	58.99107	1.04650	75.32	22.18
74/11/ 3	2442355.0	6.85975	54.05950	22.10328	-1.04043	0.12318	-0.04728	58.80511	1.04876	82.77	22.08
74/11/ 4	2442355.5	-0.21581	54.50617	21.62621	-1.04646	0.00838	-0.09350	58.64011	1.05066	90.23	21.64
74/11/ 4	2442356.0	-7.28158	54.17050	20.83894	-1.03750	-0.10755	-0.13876	58.49552	1.05225	97.66	20.87
74/11/ 5	2442356.5	-14.23566	53.05087	19.75032	-1.01349	-0.22281	-0.18236	58.37057	1.05359	105.02	19.78
74/11/ 5	2442357.0	-20.97652	51.15792	18.37403	-0.97460	-0.33560	-0.22359	58.26450	1.05473	112.30	18.38
74/11/ 6	2442357.5	-27.40483	48.51447	16.72842	-0.92128	-0.44413	-0.26178	58.17662	1.05572	119.46	16.71
74/11/ 6	2442358.0	-33.42516	45.15538	14.83624	-0.85426	-0.54664	-0.29630	58.10648	1.05659	126.51	14.79
74/11/ 7	2442358.5	-38.94778	41.12701	12.72429	-0.77449	-0.64149	-0.32659	58.05401	1.05736	133.44	12.66
74/11/ 7	2442359.0	-43.89023	36.48658	10.42301	-0.68316	-0.72714	-0.35214	58.01949	1.05803	140.26	10.35
74/11/ 8	2442359.5	-48.17885	31.30123	7.96596	-0.58167	-0.80218	-0.37252	58.00367	1.05859	146.99	7.89
74/11/ 8	2442360.0	-51.75018	25.64695	5.38927	-0.47163	-0.86543	-0.38742	58.00768	1.05900	153.64	5.33
74/11/ 9	2442360.5	-54.55208	19.60723	2.73098	-0.35477	-0.91585	-0.39659	58.03301	1.05921	160.23	2.70
74/11/ 9	2442361.0	-56.54477	13.27160	0.03040	-0.23300	-0.95270	-0.39989	58.08139	1.05917	166.79	0.03
74/11/10	2442361.5	-57.70156	6.73403	-2.67264	-0.10827	-0.97542	-0.39732	58.15462	1.05878	173.34	-2.63
74/11/10	2442362.0	-58.00928	0.09118	-5.33849	0.01739	-0.98376	-0.38894	58.25448	1.05800	179.91	-5.26
74/11/11	2442362.5	-57.46849	-6.55940	-7.92844	0.14196	-0.97773	-0.37494	58.38247	1.05673	186.51	-7.80
74/11/11	2442363.0	-56.09330	-13.12113	-10.40543	0.26346	-0.95759	-0.35564	58.53969	1.05493	193.17	-10.24
74/11/12	2442363.5	-53.91093	-19.50020	-12.73471	0.38001	-0.92390	-0.33140	58.72664	1.05253	199.89	-12.52
74/11/12	2442364.0	-50.96088	-25.60725	-14.88447	0.48987	-0.87742	-0.30271	58.94311	1.04951	206.68	-14.63
74/11/13	2442364.5	-47.29389	-31.35897	-16.82634	0.59147	-0.81915	-0.27011	59.18802	1.04585	213.55	-16.52
74/11/13	2442365.0	-42.97058	-36.67938	-18.53579	0.68347	-0.75027	-0.23418	59.45942	1.04157	220.48	-18.16
74/11/14	2442365.5	-38.05997	-41.50099	-19.99245	0.76473	-0.67208	-0.19556	59.75443	1.03670	227.48	-19.55
74/11/14	2442366.0	-32.63787	-45.76553	-21.18025	0.83439	-0.58601	-0.15490	60.06927	1.03131	234.51	-20.65
74/11/15	2442366.5	-26.78514	-49.42450	-22.08748	0.89180	-0.49351	-0.11282	60.39935	1.02547	241.54	-21.45
74/11/15	2442367.0	-20.58614	-52.43938	-22.70671	0.93659	-0.39606	-0.06996	60.73938	1.01929	248.57	-21.95
74/11/16	2442367.5	-14.12713	-54.78160	-23.03466	0.96857	-0.29512	-0.02690	61.08351	1.01289	255.54	-22.15
74/11/16	2442368.0	-7.49486	-56.43228	-23.07193	0.98777	-0.19208	0.01579	61.42548	1.00640	262.43	-22.06
74/11/17	2442368.5	-0.77536	-57.38179	-22.82273	0.99438	-0.08828	0.05761	61.75879	0.99995	269.23	-21.69
74/11/17	2442369.0	5.94714	-57.62923	-22.29458	0.98872	0.01504	0.09809	62.07693	0.99369	275.89	-21.05
74/11/18	2442369.5	12.59105	-57.18178	-21.49796	0.97125	0.11673	0.13682	62.37349	0.98776	282.42	-20.16
74/11/18	2442370.0	19.07808	-56.05402	-20.44598	0.94249	0.21576	0.17344	62.64235	0.98230	288.80	-19.05
74/11/19	2442370.5	25.33376	-54.26736	-19.15410	0.90304	0.31115	0.20761	62.87786	0.97745	295.02	-17.74
74/11/19	2442371.0	31.28784	-51.84932	-17.63983	0.85354	0.40206	0.23906	63.07491	0.97331	301.11	-16.24
74/11/20	2442371.5	36.87449	-48.83306	-15.92249	0.79465	0.48768	0.26754	63.22912	0.96999	307.06	-14.59
74/11/20	2442372.0	42.03252	-45.25684	-14.02299	0.72709	0.56729	0.29282	63.33687	0.96759	312.88	-12.79

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
74/11/21	2442372.5	46.70555	-41.16362	-11.96366	0.65155	0.64024	0.31470	63.39544	0.96616	318.61	-10.88
74/11/21	2442373.0	50.84206	-36.60072	-9.76811	0.56878	0.70589	0.33302	63.40303	0.96576	324.25	-8.86
74/11/22	2442373.5	54.39558	-31.61954	-7.46108	0.47953	0.76366	0.34760	63.35884	0.96641	329.83	-6.76
74/11/22	2442374.0	57.32481	-26.27532	-5.06837	0.38457	0.81300	0.35830	63.26306	0.96811	335.38	-4.60
74/11/23	2442374.5	59.59386	-20.62700	-2.61672	0.28472	0.85337	0.36498	63.11694	0.97084	340.91	-2.38
74/11/23	2442375.0	61.17249	-14.73700	-0.13373	0.18084	0.88428	0.36753	62.92274	0.97455	346.46	-0.12
74/11/24	2442375.5	62.03648	-8.67108	2.35225	0.07385	0.90524	0.36585	62.68369	0.97916	352.04	2.15
74/11/24	2442376.0	62.16803	-2.49814	4.81221	-0.03527	0.91582	0.35984	62.40402	0.98460	357.70	4.42
74/11/25	2442376.5	61.55630	3.71008	7.21668	-0.14545	0.91560	0.34945	62.08883	0.99075	3.45	6.67
74/11/25	2442377.0	60.19792	9.87928	9.53587	-0.25555	0.90425	0.33466	61.74401	0.99748	9.32	8.88
74/11/26	2442377.5	58.09769	15.93315	11.73998	-0.36431	0.88151	0.31547	61.37617	1.00464	15.34	11.03
74/11/26	2442378.0	55.26912	21.79396	13.79945	-0.47039	0.84722	0.29196	60.99244	1.01207	21.52	13.08
74/11/27	2442378.5	51.73514	27.38336	15.68533	-0.57237	0.80137	0.26424	60.60035	1.01962	27.89	15.00
74/11/27	2442379.0	47.52858	32.62336	17.36980	-0.66874	0.74408	0.23252	60.20763	1.02710	34.47	16.77
74/11/28	2442379.5	42.69261	37.43756	18.82660	-0.75796	0.67570	0.19707	59.82199	1.03437	41.25	18.34
74/11/28	2442380.0	37.28098	41.75249	20.03163	-0.83847	0.59676	0.15824	59.45088	1.04125	48.24	19.69
74/11/29	2442380.5	31.35795	45.49915	20.96354	-0.90872	0.50805	0.11650	59.10130	1.04760	55.43	20.78
74/11/29	2442381.0	24.99797	48.61467	21.60438	-0.96726	0.41058	0.07239	58.77954	1.05329	62.79	21.56
74/11/30	2442381.5	18.28496	51.04395	21.94016	-1.01277	0.30564	0.02653	58.49099	1.05821	70.29	22.03
74/11/30	2442382.0	11.31119	52.74133	21.96142	-1.04409	0.19473	-0.02037	58.23998	1.06229	77.90	22.15
74/12/ 1	2442382.5	4.17585	53.67205	21.66365	-1.06035	0.07955	-0.06754	58.02965	1.06548	85.55	21.92
74/12/ 1	2442383.0	-3.01682	53.81352	21.04765	-1.06095	-0.03801	-0.11420	57.86190	1.06775	93.21	21.33
74/12/ 2	2442383.5	-10.15957	53.15622	20.11970	-1.04559	-0.15598	-0.15953	57.73736	1.06913	100.82	20.39
74/12/ 2	2442384.0	-17.14442	51.70431	18.89153	-1.01436	-0.27232	-0.20272	57.65550	1.06966	108.34	19.13
74/12/ 3	2442384.5	-23.86502	49.47571	17.38019	-0.96766	-0.38500	-0.24302	57.61472	1.06941	115.75	17.56
74/12/ 3	2442385.0	-30.21894	46.50182	15.60772	-0.90623	-0.49208	-0.27972	57.61254	1.06848	123.02	15.72
74/12/ 4	2442385.5	-36.10986	42.82688	13.60065	-0.83113	-0.59173	-0.31220	57.64582	1.06696	130.14	13.65
74/12/ 4	2442386.0	-41.44948	38.50686	11.38944	-0.74368	-0.68230	-0.33993	57.71097	1.06496	137.11	11.38
74/12/ 5	2442386.5	-46.15921	33.60824	9.00776	-0.64541	-0.76236	-0.36247	57.80421	1.06261	143.94	8.97
74/12/ 5	2442387.0	-50.17153	28.20644	6.49182	-0.53803	-0.83071	-0.37953	57.92175	1.06000	150.66	6.44
74/12/ 6	2442387.5	-53.43094	22.38418	3.87960	-0.42339	-0.88639	-0.39088	58.06004	1.05723	157.27	3.83
74/12/ 6	2442388.0	-55.89470	16.22977	1.21008	-0.30341	-0.92870	-0.39644	58.21587	1.05437	163.81	1.19
74/12/ 7	2442388.5	-57.53316	9.83537	-1.47745	-0.18002	-0.95720	-0.39621	58.38649	1.05148	170.30	-1.45
74/12/ 7	2442389.0	-58.32989	3.29531	-4.14408	-0.05517	-0.97170	-0.39029	58.56969	1.04860	176.77	-4.06
74/12/ 8	2442389.5	-58.28152	-3.29558	-6.75191	0.06922	-0.97223	-0.37889	58.76381	1.04575	183.24	-6.60
74/12/ 8	2442390.0	-57.39737	-9.84350	-9.26467	0.19133	-0.95907	-0.36227	58.96767	1.04291	189.73	-9.04
74/12/ 9	2442390.5	-55.69888	-16.25714	-11.64817	0.30941	-0.93268	-0.34078	59.18056	1.04007	196.27	-11.35
74/12/ 9	2442391.0	-53.21889	-22.44900	-13.87083	0.42184	-0.89371	-0.31485	59.40208	1.03720	202.87	-13.50
74/12/10	2442391.5	-50.00076	-28.33666	-15.90404	0.52714	-0.84300	-0.28492	59.63205	1.03426	209.54	-15.47
74/12/10	2442392.0	-46.09737	-33.84379	-17.72251	0.62399	-0.78151	-0.25152	59.87033	1.03121	216.29	-17.22
74/12/11	2442392.5	-41.56996	-38.90111	-19.30453	0.71123	-0.71037	-0.21519	60.11675	1.02800	223.10	-18.73
74/12/11	2442393.0	-36.48699	-43.44719	-20.63215	0.78790	-0.63075	-0.17650	60.37089	1.02459	229.98	-19.98
74/12/12	2442393.5	-30.92279	-47.42900	-21.69131	0.85322	-0.54396	-0.13602	60.63202	1.02097	236.90	-20.96
74/12/12	2442394.0	-24.95634	-50.80236	-22.47190	0.90660	-0.45131	-0.09433	60.89897	1.01711	243.84	-21.65
74/12/13	2442394.5	-18.66990	-53.53223	-22.96771	0.94766	-0.35417	-0.05202	61.17010	1.01302	250.77	-22.05

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
74/12/13	2442395.0	-12.14775	-55.59274	-23.17639	0.97619	-0.25388	-0.00963	61.44319	1.00871	257.67	-22.16
74/12/14	2442395.5	-5.47494	-56.96714	-23.09922	0.99216	-0.15178	0.03230	61.71551	1.00422	264.51	-21.98
74/12/14	2442396.0	1.26382	-57.64755	-22.74101	0.99570	-0.04916	0.07328	61.98380	0.99960	271.26	-21.52
74/12/15	2442396.5	7.98522	-57.63460	-22.10976	0.98709	0.05277	0.11285	62.24430	0.99492	277.89	-20.81
74/12/15	2442397.0	14.60828	-56.93698	-21.21649	0.96673	0.15284	0.15059	62.49289	0.99026	284.39	-19.85
74/12/16	2442397.5	21.05509	-55.57089	-20.07486	0.93514	0.24999	0.18613	62.72512	0.98571	290.75	-18.67
74/12/16	2442398.0	27.25149	-53.55948	-18.70096	0.89289	0.34324	0.21913	62.93637	0.98137	296.97	-17.29
74/12/17	2442398.5	33.12756	-50.93223	-17.11297	0.84066	0.43170	0.24930	63.12196	0.97736	303.04	-15.73
74/12/17	2442399.0	38.61805	-47.72442	-15.33095	0.77916	0.51455	0.27639	63.27726	0.97377	308.98	-14.02
74/12/18	2442399.5	43.66265	-43.97648	-13.37652	0.70912	0.59107	0.30018	63.39786	0.97074	314.79	-12.18
74/12/18	2442400.0	48.20622	-39.73359	-11.27268	0.63134	0.66061	0.32048	63.47969	0.96835	320.50	-10.23
74/12/19	2442400.5	52.19897	-35.04511	-9.04362	0.54660	0.72256	0.33713	63.51912	0.96670	326.12	-8.19
74/12/19	2442401.0	55.59654	-29.96426	-6.71451	0.45572	0.77639	0.35000	63.51312	0.96590	331.68	-6.07
74/12/20	2442401.5	58.36017	-24.54772	-4.31139	0.35954	0.82161	0.35897	63.45934	0.96600	337.19	-3.90
74/12/20	2442402.0	60.45679	-18.85534	-1.86102	0.25891	0.85777	0.36394	63.35622	0.96708	342.68	-1.68
74/12/21	2442402.5	61.85919	-12.94991	0.60923	0.15469	0.88445	0.36483	63.20309	0.96917	348.18	0.55
74/12/21	2442403.0	62.54620	-6.89693	3.07149	0.04781	0.90128	0.36157	63.00023	0.97227	353.71	2.79
74/12/22	2442403.5	62.50299	-0.76438	5.49750	-0.06078	0.90789	0.35411	62.74895	0.97640	359.30	5.03
74/12/22	2442404.0	61.72137	5.37753	7.85869	-0.17006	0.90399	0.34243	62.45162	0.98151	4.98	7.23
74/12/23	2442404.5	60.20022	11.45656	10.12642	-0.27897	0.88929	0.32651	62.11170	0.98756	10.77	9.38
74/12/23	2442405.0	57.94596	17.39888	12.27205	-0.38634	0.86359	0.30638	61.73377	0.99444	16.71	11.47
74/12/24	2442405.5	54.97311	23.12946	14.26726	-0.49095	0.82675	0.28210	61.32348	1.00206	22.82	13.45
74/12/24	2442406.0	51.30484	28.57264	16.08425	-0.59147	0.77873	0.25378	60.88749	1.01027	29.11	15.32
74/12/25	2442406.5	46.97359	33.65296	17.69619	-0.68648	0.71962	0.22158	60.43340	1.01893	35.62	17.03
74/12/25	2442407.0	42.02159	38.29604	19.07756	-0.77452	0.64967	0.18574	59.96961	1.02784	42.34	18.55
74/12/26	2442407.5	36.50129	42.42980	20.20470	-0.85403	0.56931	0.14657	59.50514	1.03681	49.30	19.85
74/12/26	2442408.0	30.47569	45.98583	21.05637	-0.92347	0.47920	0.10447	59.04943	1.04563	56.47	20.89
74/12/27	2442408.5	24.01827	48.90103	21.61440	-0.98130	0.38025	0.05995	58.61203	1.05410	63.84	21.64
74/12/27	2442409.0	17.21269	51.11934	21.86436	-1.02605	0.27364	0.01361	58.20235	1.06200	71.39	22.07
74/12/28	2442409.5	10.15202	52.59362	21.79618	-1.05642	0.16081	-0.03386	57.82929	1.06912	79.07	22.14
74/12/28	2442410.0	2.93754	53.28751	21.40485	-1.07131	0.04350	-0.08168	57.50091	1.07530	86.84	21.85
74/12/29	2442410.5	-4.32302	53.17709	20.69084	-1.06992	-0.07635	-0.12900	57.22414	1.08037	94.65	21.20
74/12/29	2442411.0	-11.51767	52.25237	19.66056	-1.05180	-0.19659	-0.17493	57.00443	1.08422	102.43	20.18
74/12/30	2442411.5	-18.53269	50.51831	18.32645	-1.01691	-0.31496	-0.21857	56.84557	1.08677	110.15	18.81
74/12/30	2442412.0	-25.25554	47.99528	16.70698	-0.96562	-0.42919	-0.25905	56.74956	1.08800	117.75	17.12
74/12/31	2442412.5	-31.57774	44.71902	14.82628	-0.89877	-0.53703	-0.29558	56.71652	1.08791	125.23	15.15
74/12/31	2442413.0	-37.39778	40.73989	12.71365	-0.81758	-0.63641	-0.32743	56.74478	1.08658	132.55	12.95
75/ 1/ 1	2442413.5	-42.62370	36.12161	10.40278	-0.72362	-0.72548	-0.35403	56.83105	1.08411	139.72	10.55
75/ 1/ 1	2442414.0	-47.17525	30.93947	7.93084	-0.61877	-0.80268	-0.37493	56.97064	1.08062	146.74	8.00
75/ 1/ 2	2442414.5	-50.98560	25.27823	5.33753	-0.50510	-0.86678	-0.38984	57.15776	1.07629	153.63	5.36
75/ 1/ 2	2442415.0	-54.00237	19.22980	2.66403	-0.38481	-0.91690	-0.39860	57.38587	1.07129	160.40	2.66
75/ 1/ 3	2442415.5	-56.18827	12.89083	-0.04801	-0.26012	-0.95251	-0.40123	57.64804	1.06580	167.08	-0.05
75/ 1/ 3	2442416.0	-57.52100	6.36042	-2.75733	-0.13324	-0.97342	-0.39783	57.93723	1.05999	173.69	-2.73
75/ 1/ 4	2442416.5	-57.99294	-0.26202	-5.42394	-0.00628	-0.97973	-0.38866	58.24662	1.05402	180.26	-5.34
75/ 1/ 4	2442417.0	-57.61034	-6.87870	-8.00974	0.11878	-0.97180	-0.37403	58.56981	1.04805	186.81	-7.86

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COURDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 1/ 5	2442417.5	-56.39235	-13.39505	-10.47911	0.24012	-0.95022	-0.35435	58.90107	1.04218	193.36	-10.25
75/ 1/ 5	2442418.0	-54.36985	-19.72117	-12.79936	0.35609	-0.91576	-0.33008	59.23537	1.03652	199.94	-12.48
75/ 1/ 6	2442418.5	-51.58425	-25.77284	-14.94102	0.46523	-0.86934	-0.30170	59.56851	1.03113	206.55	-14.53
75/ 1/ 6	2442419.0	-48.08614	-31.47249	-16.87807	0.56629	-0.81199	-0.26975	59.89711	1.02605	213.20	-16.37
75/ 1/ 7	2442419.5	-43.93414	-36.74980	-18.58814	0.65816	-0.74482	-0.23476	60.21856	1.02130	219.91	-17.98
75/ 1/ 7	2442420.0	-39.19356	-41.54225	-20.05252	0.73995	-0.66902	-0.19729	60.53096	1.01687	226.67	-19.35
75/ 1/ 8	2442420.5	-33.93528	-45.79545	-21.25624	0.81093	-0.58579	-0.15788	60.83300	1.01276	233.46	-20.45
75/ 1/ 8	2442421.0	-28.23458	-49.46338	-22.18803	0.87051	-0.49640	-0.11708	61.12386	1.00892	240.28	-21.28
75/ 1/ 9	2442421.5	-22.17005	-52.50850	-22.84030	0.91830	-0.40209	-0.07543	61.40304	1.00531	247.11	-21.84
75/ 1/ 9	2442422.0	-15.82257	-54.90180	-23.20900	0.95404	-0.30413	-0.03343	61.67024	1.00190	253.92	-22.11
75/ 1/10	2442422.5	-9.27432	-56.62274	-23.29357	0.97759	-0.20375	0.00839	61.92526	0.99863	260.70	-22.10
75/ 1/10	2442423.0	-2.60780	-57.65914	-23.09676	0.98897	-0.10219	0.04958	62.16782	0.99547	267.41	-21.81
75/ 1/11	2442423.5	4.09501	-58.00698	-22.62451	0.98834	-0.00062	0.08966	62.39749	0.99239	274.04	-21.26
75/ 1/11	2442424.0	10.75352	-57.67011	-21.88570	0.97594	0.09981	0.12822	62.61361	0.98938	280.56	-20.46
75/ 1/12	2442424.5	17.28930	-56.65995	-20.89204	0.95217	0.19802	0.16485	62.81518	0.98641	286.97	-19.43
75/ 1/12	2442425.0	23.62679	-54.99507	-19.65778	0.91747	0.29298	0.19921	63.00088	0.98351	293.25	-18.18
75/ 1/13	2442425.5	29.69392	-52.70077	-18.19947	0.87243	0.38373	0.23096	63.16898	0.98068	299.40	-16.74
75/ 1/13	2442426.0	35.42270	-49.80859	-16.53579	0.81767	0.46939	0.25981	63.31742	0.97797	305.42	-15.14
75/ 1/14	2442426.5	40.74967	-46.35582	-14.68725	0.75390	0.54914	0.28551	63.44377	0.97542	311.32	-13.39
75/ 1/14	2442427.0	45.61629	-42.38499	-12.67595	0.68187	0.62225	0.30783	63.54537	0.97309	317.10	-11.51
75/ 1/15	2442427.5	49.96933	-37.94336	-10.52539	0.60238	0.68806	0.32660	63.61931	0.97106	322.79	-9.52
75/ 1/15	2442428.0	53.76106	-33.08242	-8.26023	0.51626	0.74598	0.34165	63.66262	0.96940	328.39	-7.46
75/ 1/16	2442428.5	56.94950	-27.85741	-5.90605	0.42438	0.79549	0.35287	63.67231	0.96820	333.93	-5.32
75/ 1/16	2442429.0	59.49860	-22.32688	-3.48922	0.32762	0.83613	0.36014	63.64549	0.96754	339.43	-3.14
75/ 1/17	2442429.5	61.37836	-16.55226	-1.03669	0.22688	0.86750	0.36340	63.57952	0.96752	344.91	-0.93
75/ 1/17	2442430.0	62.56496	-10.59751	1.42419	0.12309	0.88927	0.36260	63.47212	0.96821	350.39	1.29
75/ 1/18	2442430.5	63.04092	-4.52873	3.86579	0.01719	0.90113	0.35770	63.32149	0.96968	355.89	3.50
75/ 1/18	2442431.0	62.79522	1.58615	6.26034	-0.08985	0.90284	0.34871	63.12644	0.97201	1.45	5.69
75/ 1/19	2442431.5	61.82350	7.67770	8.58011	-0.19703	0.89421	0.33562	62.88649	0.97523	7.08	7.84
75/ 1/19	2442432.0	60.12831	13.67526	10.79751	-0.30331	0.87507	0.31849	62.60202	0.97938	12.81	9.93
75/ 1/20	2442432.5	57.71936	19.50738	12.88527	-0.40761	0.84534	0.29736	62.27434	0.98446	18.67	11.94
75/ 1/20	2442433.0	54.61388	25.10214	14.81664	-0.50880	0.80498	0.27232	61.90578	0.99047	24.68	13.85
75/ 1/21	2442433.5	50.83698	30.38764	16.56556	-0.60567	0.75404	0.24351	61.49979	0.99735	30.87	15.63
75/ 1/21	2442434.0	46.42208	35.29262	18.10700	-0.69698	0.69265	0.21108	61.06097	1.00503	37.24	17.25
75/ 1/22	2442434.5	41.41135	39.74712	19.41721	-0.78139	0.62107	0.17527	60.59506	1.01342	43.83	18.69
75/ 1/22	2442435.0	35.85607	43.68343	20.47415	-0.85755	0.53971	0.13635	60.10899	1.02238	50.62	19.91
75/ 1/23	2442435.5	29.81697	47.03710	21.25792	-0.92402	0.44913	0.09467	59.61073	1.03175	57.63	20.89
75/ 1/23	2442436.0	23.36442	49.74827	21.75127	-0.97940	0.35013	0.05067	59.10926	1.04134	64.84	21.59
75/ 1/24	2442436.5	16.57839	51.76316	21.94021	-1.02227	0.24371	0.00487	58.61434	1.05093	72.24	21.98
75/ 1/24	2442437.0	9.54807	53.03570	21.81460	-1.05132	0.13115	-0.04210	58.13629	1.06031	79.79	22.04
75/ 1/25	2442437.5	2.37117	53.52935	21.36882	-1.06538	0.01399	-0.08955	57.68570	1.06922	87.46	21.74
75/ 1/25	2442438.0	-4.84731	53.21889	20.60236	-1.06346	-0.10597	-0.13666	57.27306	1.07743	95.20	21.08
75/ 1/26	2442438.5	-11.99678	52.09220	19.52035	-1.04492	-0.22668	-0.18258	56.90838	1.08470	102.97	20.06
75/ 1/26	2442439.0	-18.96334	50.15169	18.13394	-1.00943	-0.34590	-0.22639	56.60071	1.09080	110.71	18.69
75/ 1/27	2442439.5	-25.63247	47.41545	16.46051	-0.95715	-0.46125	-0.26718	56.35776	1.09557	118.40	16.98

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
75/ 1/27	2442440.0	-31.89213	43.91776	14.52358	-0.88866	-0.57035	-0.30406	56.18552	1.09885	125.99	14.98
75/ 1/28	2442440.5	-37.63601	39.70895	12.35248	-0.80506	-0.67086	-0.33620	56.08791	1.10055	133.46	12.72
75/ 1/28	2442441.0	-42.76675	34.85455	9.98172	-0.70790	-0.76065	-0.36291	56.06665	1.10064	140.82	10.26
75/ 1/29	2442441.5	-47.19890	29.43368	7.45008	-0.59913	-0.83786	-0.38363	56.12113	1.09915	148.05	7.63
75/ 1/29	2442442.0	-50.86139	23.53683	4.79953	-0.48102	-0.90099	-0.39797	56.24855	1.09615	155.17	4.89
75/ 1/30	2442442.5	-53.69925	17.26316	2.07402	-0.35605	-0.94899	-0.40575	56.44403	1.09178	162.18	2.11
75/ 1/30	2442443.0	-55.67469	10.71751	-0.68183	-0.22678	-0.98124	-0.40694	56.70098	1.08622	169.10	-0.69
75/ 1/31	2442443.5	-56.76729	4.00741	-3.42386	-0.09577	-0.99755	-0.40171	57.01147	1.07966	175.96	-3.44
75/ 1/31	2442444.0	-56.97358	-2.75974	-6.10952	0.03455	-0.99816	-0.39036	57.36664	1.07233	182.77	-6.11
75/ 2/ 1	2442444.5	-56.30596	-9.47929	-8.69873	0.16193	-0.98362	-0.37331	57.75712	1.06446	189.56	-8.66
75/ 2/ 1	2442445.0	-54.79125	-16.05141	-11.15462	0.28437	-0.95479	-0.35108	58.17349	1.05629	196.33	-11.05
75/ 2/ 2	2442445.5	-52.46899	-22.38282	-13.44404	0.40013	-0.91273	-0.32425	58.60655	1.04801	203.10	-13.26
75/ 2/ 2	2442446.0	-49.38952	-28.38802	-15.53786	0.50775	-0.85867	-0.29343	59.04769	1.03982	209.89	-15.26
75/ 2/ 3	2442446.5	-45.61220	-33.99011	-17.41115	0.60602	-0.79392	-0.25923	59.48906	1.03188	216.69	-17.02
75/ 2/ 3	2442447.0	-41.20365	-39.12129	-19.04321	0.69401	-0.71984	-0.22230	59.92378	1.02432	223.51	-18.53
75/ 2/ 4	2442447.5	-36.23609	-43.72307	-20.41751	0.77099	-0.63782	-0.18322	60.34597	1.01725	230.35	-19.78
75/ 2/ 4	2442448.0	-30.78596	-47.74626	-21.52154	0.83644	-0.54922	-0.14258	60.75079	1.01074	237.19	-20.75
75/ 2/ 5	2442448.5	-24.93260	-51.15087	-22.34668	0.89002	-0.45537	-0.10095	61.13445	1.00483	244.01	-21.44
75/ 2/ 5	2442449.0	-18.75716	-53.90581	-22.88796	0.93153	-0.35759	-0.05885	61.49412	0.99954	250.81	-21.85
75/ 2/ 6	2442449.5	-12.34162	-55.98863	-23.14388	0.96091	-0.25711	-0.01677	61.82784	0.99486	257.57	-21.98
75/ 2/ 6	2442450.0	-5.76800	-57.38518	-23.11620	0.97823	-0.15513	0.02482	62.13443	0.99076	264.26	-21.84
75/ 2/ 7	2442450.5	0.88241	-58.08925	-22.80973	0.98363	-0.05281	0.06549	62.41333	0.98722	270.87	-21.44
75/ 2/ 7	2442451.0	7.52972	-58.10226	-22.23213	0.97736	0.04876	0.10482	62.66448	0.98417	277.38	-20.78
75/ 2/ 8	2442451.5	14.09599	-57.43289	-21.39376	0.95976	0.14852	0.14243	62.88821	0.98157	283.79	-19.89
75/ 2/ 8	2442452.0	20.50583	-56.09676	-20.30744	0.93124	0.24548	0.17798	63.08508	0.97936	290.08	-18.78
75/ 2/ 9	2442452.5	26.68688	-54.11605	-18.98832	0.89229	0.33871	0.21113	63.25577	0.97748	296.25	-17.47
75/ 2/ 9	2442453.0	32.57034	-51.51916	-17.45364	0.84346	0.42729	0.24158	63.40095	0.97589	302.30	-15.98
75/ 2/10	2442453.5	38.09137	-48.34032	-15.72258	0.78538	0.51042	0.26907	63.52117	0.97455	308.24	-14.33
75/ 2/10	2442454.0	43.18957	-44.61923	-13.81606	0.71872	0.58730	0.29336	63.61681	0.97341	314.07	-12.54
75/ 2/11	2442454.5	47.80935	-40.40060	-11.75653	0.64423	0.65722	0.31422	63.68798	0.97247	319.80	-10.64
75/ 2/11	2442455.0	51.90029	-35.73377	-9.56777	0.56269	0.71954	0.33149	63.73449	0.97172	325.45	-8.63
75/ 2/12	2442455.5	55.41749	-30.67228	-7.27472	0.47495	0.77367	0.34500	63.75585	0.97117	331.04	-6.55
75/ 2/12	2442456.0	58.32186	-25.27339	-4.90325	0.38188	0.81909	0.35463	63.75128	0.97083	336.57	-4.41
75/ 2/13	2442456.5	60.58039	-19.59763	-2.47996	0.28439	0.85536	0.36028	63.71970	0.97073	342.07	-2.23
75/ 2/13	2442457.0	62.16635	-13.70832	-0.03199	0.18343	0.88209	0.36191	63.65983	0.97093	347.56	-0.03
75/ 2/14	2442457.5	63.05952	-7.67113	2.41319	0.07998	0.89898	0.35946	63.57022	0.97148	353.06	2.18
75/ 2/14	2442458.0	63.24631	-1.55360	4.82799	-0.02498	0.90578	0.35294	63.44934	0.97244	358.59	4.36
75/ 2/15	2442458.5	62.71997	4.57533	7.18486	-0.13044	0.90232	0.34236	63.29573	0.97386	4.17	6.52
75/ 2/15	2442459.0	61.48064	10.64575	9.45649	-0.23535	0.88850	0.32778	63.10805	0.97583	9.82	8.62
75/ 2/16	2442459.5	59.53556	16.58729	11.61603	-0.33866	0.86426	0.30927	62.88524	0.97841	15.57	10.64
75/ 2/16	2442460.0	56.89917	22.32949	13.63722	-0.43931	0.82965	0.28695	62.62663	0.98165	21.43	12.58
75/ 2/17	2442460.5	53.59325	27.80237	15.49465	-0.53619	0.78476	0.26094	62.33211	0.98561	27.42	14.39
75/ 2/17	2442461.0	49.64708	32.93690	17.16395	-0.62818	0.72977	0.23142	62.00220	0.99032	33.56	16.07
75/ 2/18	2442461.5	45.09764	37.66558	18.62200	-0.71414	0.66496	0.19860	61.63823	0.99580	39.87	17.58
75/ 2/18	2442462.0	39.98973	41.92305	19.84723	-0.79289	0.59070	0.16272	61.24242	1.00204	46.35	18.91

1.10 1 E.R.=6378.3255KM.

		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 2/19	2442462.5	34.37620	45.64685	20.81989	-0.86325	0.50746	0.12407	60.81797	1.00901	53.02	20.02
75/ 2/19	2442463.0	28.31801	48.77825	21.52239	-0.92399	0.41588	0.08300	60.36920	1.01667	59.86	20.89
75/ 2/20	2442463.5	21.88433	51.26323	21.93971	-0.97392	0.31673	0.03993	59.90154	1.02491	66.88	21.49
75/ 2/20	2442464.0	15.15244	53.05363	22.05980	-1.01186	0.21095	-0.00468	59.42154	1.03362	74.06	21.79
75/ 2/21	2442464.5	8.20747	54.10837	21.87406	-1.03666	0.09970	-0.05028	58.93685	1.04266	81.37	21.79
75/ 2/21	2442465.0	1.14190	54.39488	21.37785	-1.04731	-0.01566	-0.09625	58.45613	1.05184	88.80	21.45
75/ 2/22	2442465.5	-5.94525	53.89056	20.57098	-1.04290	-0.13354	-0.14190	57.98882	1.06095	96.30	20.78
75/ 2/22	2442466.0	-12.94963	52.58433	19.45821	-1.02278	-0.25214	-0.18645	57.54499	1.06977	103.83	19.76
75/ 2/23	2442466.5	-19.76321	50.47802	18.04963	-0.98652	-0.36945	-0.22910	57.13496	1.07806	111.38	18.42
75/ 2/23	2442467.0	-26.27637	47.58766	16.36103	-0.93409	-0.48329	-0.26900	56.76897	1.08556	118.91	16.75
75/ 2/24	2442467.5	-32.38042	43.94438	14.41397	-0.86581	-0.59140	-0.30528	56.45673	1.09205	126.38	14.79
75/ 2/24	2442468.0	-37.97053	39.59483	12.23575	-0.78249	-0.69147	-0.33713	56.20698	1.09730	133.80	12.57
75/ 2/25	2442468.5	-42.94878	34.60103	9.85903	-0.68538	-0.78128	-0.36378	56.02704	1.10113	141.14	10.14
75/ 2/25	2442469.0	-47.22736	29.03943	7.32125	-0.57620	-0.85881	-0.38459	55.92238	1.10340	148.41	7.52
75/ 2/26	2442469.5	-50.73147	22.99936	4.66370	-0.45707	-0.92231	-0.39908	55.89636	1.10401	155.61	4.79
75/ 2/26	2442470.0	-53.40181	16.58065	1.93045	-0.33043	-0.97043	-0.40691	55.94996	1.10295	162.75	1.98
75/ 2/27	2442470.5	-55.19642	9.89087	-0.83296	-0.19893	-1.00225	-0.40798	56.08179	1.10024	169.84	-0.85
75/ 2/27	2442471.0	-56.09167	3.04206	-3.58081	-0.06531	-1.01736	-0.40235	56.28812	1.09598	176.90	-3.65
75/ 2/28	2442471.5	-56.08250	-3.85254	-6.26854	0.06771	-1.01582	-0.39028	56.56309	1.09032	183.93	-6.36
75/ 2/28	2442472.0	-55.18167	-10.68163	-8.85387	0.19758	-0.99814	-0.37219	56.89908	1.08344	190.96	-8.95
75/ 3/ 1	2442472.5	-53.41850	-17.33872	-11.29788	0.32199	-0.96521	-0.34864	57.28708	1.07557	197.98	-11.37
75/ 3/ 1	2442473.0	-50.83692	-23.72447	-13.56566	0.43894	-0.91823	-0.32027	57.71715	1.06695	205.02	-13.59
75/ 3/ 2	2442473.5	-47.49327	-29.74844	-15.62687	0.54677	-0.85863	-0.28777	58.17886	1.05783	212.06	-15.58
75/ 3/ 2	2442474.0	-43.45398	-35.33034	-17.45601	0.64417	-0.78796	-0.25186	58.66169	1.04845	219.11	-17.31
75/ 3/ 3	2442474.5	-38.79327	-40.40067	-19.03245	0.73014	-0.70784	-0.21326	59.15544	1.03905	226.16	-18.77
75/ 3/ 3	2442475.0	-33.59097	-44.90099	-20.34036	0.80400	-0.61991	-0.17268	59.65050	1.02982	233.20	-19.94
75/ 3/ 4	2442475.5	-27.93062	-48.78380	-21.36853	0.86535	-0.52575	-0.13076	60.13811	1.02095	240.21	-20.81
75/ 3/ 4	2442476.0	-21.89784	-52.01217	-22.11000	0.91397	-0.42690	-0.08812	60.61050	1.01259	247.17	-21.39
75/ 3/ 5	2442476.5	-15.57891	-54.55922	-22.56181	0.94985	-0.32480	-0.04532	61.06100	1.00487	254.06	-21.68
75/ 3/ 5	2442477.0	-9.05970	-56.40751	-22.72465	0.97314	-0.22078	-0.00287	61.48410	0.99787	260.88	-21.69
75/ 3/ 6	2442477.5	-2.42476	-57.54837	-22.60248	0.98408	-0.11610	0.03877	61.87541	0.99166	267.59	-21.43
75/ 3/ 6	2442478.0	4.24340	-57.98130	-22.20228	0.98301	-0.01192	0.07917	62.23165	0.98627	274.19	-20.90
75/ 3/ 7	2442478.5	10.86482	-57.71334	-21.53373	0.97035	0.09070	0.11795	62.55058	0.98169	280.66	-20.14
75/ 3/ 7	2442479.0	17.36258	-56.75853	-20.60896	0.94658	0.19074	0.15477	62.83088	0.97793	287.01	-19.15
75/ 3/ 8	2442479.5	23.66313	-55.13744	-19.44237	0.91221	0.28730	0.18931	63.07207	0.97494	293.23	-17.95
75/ 3/ 8	2442480.0	29.69663	-52.87669	-18.05034	0.86782	0.37949	0.22129	63.27439	0.97267	299.32	-16.58
75/ 3/ 9	2442480.5	35.39721	-50.00858	-16.45116	0.81401	0.46651	0.25045	63.43864	0.97107	305.29	-15.03
75/ 3/ 9	2442481.0	40.70334	-46.57074	-14.66476	0.75145	0.54761	0.27654	63.56611	0.97006	311.15	-13.34
75/ 3/10	2442481.5	45.55800	-42.60575	-12.71261	0.68082	0.62206	0.29935	63.65840	0.96958	316.92	-11.52
75/ 3/10	2442482.0	49.90906	-38.16084	-10.61757	0.60286	0.68922	0.31870	63.71732	0.96956	322.60	-9.59
75/ 3/11	2442482.5	53.70952	-33.28754	-8.40369	0.51836	0.74847	0.33442	63.74476	0.96992	328.21	-7.58
75/ 3/11	2442483.0	56.91784	-28.04132	-6.09607	0.42815	0.79925	0.34636	63.74259	0.97061	333.77	-5.49
75/ 3/12	2442483.5	59.49824	-22.48125	-3.72070	0.33309	0.84107	0.35441	63.71256	0.97157	339.30	-3.35
75/ 3/12	2442484.0	61.42102	-16.66960	-1.30428	0.23411	0.87347	0.35847	63.65625	0.97276	344.82	-1.17
75/ 3/13	2442484.5	62.66284	-10.67139	1.12600	0.13217	0.89610	0.35849	63.57498	0.97415	350.34	1.01

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
75/ 3/13	2442485.0	63.20699	-4.55397	3.54262	0.02827	0.90863	0.35444	63.46978	0.97572	355.88	3.20
75/ 3/14	2442485.5	63.04369	1.61354	5.91796	-0.07656	0.91086	0.34631	63.34139	0.97747	1.47	5.36
75/ 3/14	2442486.0	62.17024	7.76075	8.22458	-0.18125	0.90262	0.33415	63.19028	0.97940	7.12	7.48
75/ 3/15	2442486.5	60.59125	13.81653	10.43535	-0.28472	0.88386	0.31802	63.01660	0.98153	12.85	9.53
75/ 3/15	2442487.0	58.31875	19.70969	12.52377	-0.38585	0.85461	0.29804	62.82033	0.98390	18.67	11.50
75/ 3/16	2442487.5	55.37234	25.36950	14.46420	-0.48354	0.81498	0.27435	62.60128	0.98654	24.62	13.36
75/ 3/16	2442488.0	51.77915	30.72637	16.23209	-0.57665	0.76520	0.24713	62.35922	0.98951	30.69	15.09
75/ 3/17	2442488.5	47.57398	35.71253	17.80425	-0.66407	0.70557	0.21659	62.09396	0.99284	36.89	16.66
75/ 3/17	2442489.0	42.79918	40.26265	19.15910	-0.74467	0.63652	0.18300	61.80551	0.99658	43.25	18.06
75/ 3/18	2442489.5	37.50460	44.31460	20.27693	-0.81737	0.55856	0.14666	61.49417	1.00079	49.76	19.25
75/ 3/18	2442490.0	31.74751	47.81016	21.14022	-0.88107	0.47233	0.10789	61.16064	1.00550	56.41	20.22
75/ 3/19	2442490.5	25.59240	50.69582	21.73385	-0.93473	0.37860	0.06710	60.80623	1.01072	63.21	20.94
75/ 3/19	2442491.0	19.11075	52.92363	22.04549	-0.97733	0.27823	0.02470	60.43289	1.01646	70.15	21.39
75/ 3/20	2442491.5	12.38071	54.45207	22.06583	-1.00793	0.17226	-0.01884	60.04341	1.02271	77.19	21.56
75/ 3/20	2442492.0	5.48662	55.24706	21.78898	-1.02563	0.06186	-0.06297	59.64143	1.02943	84.33	21.43
75/ 3/21	2442492.5	-1.48157	55.28295	21.21276	-1.02969	-0.05166	-0.10714	59.23158	1.03653	91.54	20.99
75/ 3/21	2442493.0	-8.42912	54.54353	20.33908	-1.01945	-0.16682	-0.15070	58.81943	1.04394	98.78	20.23
75/ 3/22	2442493.5	-15.25755	53.02318	19.17421	-0.99445	-0.28198	-0.19300	58.41148	1.05152	106.05	19.16
75/ 3/22	2442494.0	-21.86594	50.72779	17.72911	-0.95445	-0.39538	-0.23334	58.01508	1.05912	113.32	17.79
75/ 3/23	2442494.5	-28.15254	47.67575	16.01958	-0.89945	-0.50509	-0.27096	57.63826	1.06656	120.56	16.14
75/ 3/23	2442495.0	-34.01669	43.89863	14.06644	-0.82979	-0.60915	-0.30515	57.28952	1.07365	127.77	14.21
75/ 3/24	2442495.5	-39.36106	39.44166	11.89546	-0.74611	-0.70551	-0.33517	56.97754	1.08017	134.94	12.05
75/ 3/24	2442496.0	-44.09409	34.36379	9.53721	-0.64947	-0.79217	-0.36034	56.71082	1.08591	142.07	9.68
75/ 3/25	2442496.5	-48.13263	28.73720	7.02664	-0.54130	-0.86724	-0.38006	56.49735	1.09066	149.16	7.14
75/ 3/25	2442497.0	-51.40451	22.64638	4.40249	-0.42341	-0.92899	-0.39381	56.34415	1.09425	156.22	4.48
75/ 3/26	2442497.5	-53.85098	16.18651	1.70645	-0.29795	-0.97601	-0.40123	56.25693	1.09652	163.27	1.74
75/ 3/26	2442498.0	-55.42882	9.46127	-1.01782	-0.16733	-1.00720	-0.40213	56.23972	1.09734	170.31	-1.04
75/ 3/27	2442498.5	-56.11187	2.58028	-3.72586	-0.03416	-1.02193	-0.39645	56.29460	1.09667	177.37	-3.79
75/ 3/27	2442499.0	-55.89187	-4.34395	-6.37361	0.09889	-1.01998	-0.38436	56.42157	1.09447	184.44	-6.49
75/ 3/28	2442499.5	-54.77857	-11.19913	-8.91865	0.22919	-1.00161	-0.36619	56.61850	1.09081	191.55	-9.06
75/ 3/28	2442500.0	-52.79904	-17.87618	-11.32129	0.35428	-0.96753	-0.34240	56.88118	1.08576	198.70	-11.48
75/ 3/29	2442500.5	-49.99633	-24.27205	-13.54551	0.47193	-0.91879	-0.31361	57.20355	1.07947	205.90	-13.70
75/ 3/29	2442501.0	-46.42749	-30.29206	-15.55974	0.58023	-0.85679	-0.28052	57.57800	1.07212	213.12	-15.68
75/ 3/30	2442501.5	-42.16130	-35.85166	-17.33731	0.67762	-0.78312	-0.24386	57.99568	1.06391	220.38	-17.39
75/ 3/30	2442502.0	-37.27578	-40.87767	-18.85671	0.76295	-0.69952	-0.20441	58.44692	1.05508	227.64	-18.82
75/ 3/31	2442502.5	-31.85567	-45.30889	-20.10166	0.83537	-0.60778	-0.16294	58.92161	1.04585	234.89	-19.95
75/ 3/31	2442503.0	-25.99013	-49.09630	-21.06092	0.89442	-0.50970	-0.12017	59.40956	1.03645	242.10	-20.76
75/ 4/ 1	2442503.5	-19.77062	-52.20276	-21.72804	0.93989	-0.40699	-0.07678	59.90086	1.02710	249.26	-21.27
75/ 4/ 1	2442504.0	-13.28908	-54.60249	-22.10098	0.97182	-0.30127	-0.03340	60.38613	1.01799	256.32	-21.47
75/ 4/ 2	2442504.5	-6.63650	-56.28031	-22.18172	0.99045	-0.19405	0.00942	60.85676	1.00933	263.27	-21.38
75/ 4/ 2	2442505.0	0.09828	-57.23078	-21.97580	0.99617	-0.08671	0.05117	61.30503	1.00124	270.10	-21.01
75/ 4/ 3	2442505.5	6.82942	-57.45735	-21.49190	0.98947	0.01952	0.09143	61.72430	0.99387	276.78	-20.38
75/ 4/ 3	2442506.0	13.47472	-56.97148	-20.74152	0.97092	0.12349	0.12981	62.10900	0.98732	283.31	-19.51
75/ 4/ 4	2442506.5	19.95611	-55.79187	-19.73855	0.94117	0.22421	0.16597	62.45470	0.98164	289.68	-18.42
75/ 4/ 4	2442507.0	26.19994	-53.94372	-18.49901	0.90089	0.32077	0.19962	62.75807	0.97690	295.91	-17.14

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 4/ 5	2442507.5	32.13718	-51.45811	-17.04080	0.85076	0.41232	0.23050	63.01685	0.97310	301.99	-15.69
75/ 4/ 5	2442508.0	37.70358	-48.37146	-15.38344	0.79150	0.49813	0.25839	63.22980	0.97024	307.93	-14.08
75/ 4/ 6	2442508.5	42.83984	-44.72509	-13.54791	0.72386	0.57749	0.28308	63.39662	0.96830	313.77	-12.34
75/ 4/ 6	2442509.0	47.49165	-40.56481	-11.55651	0.64858	0.64978	0.30439	63.51782	0.96722	319.50	-10.48
75/ 4/ 7	2442509.5	51.60992	-35.94058	-9.43264	0.56644	0.71440	0.32217	63.59469	0.96696	325.15	-8.53
75/ 4/ 7	2442510.0	55.15087	-30.90624	-7.20076	0.47824	0.77080	0.33627	63.62912	0.96743	330.73	-6.50
75/ 4/ 8	2442510.5	58.07627	-25.51916	-4.88618	0.38481	0.81848	0.34657	63.62354	0.96855	336.28	-4.40
75/ 4/ 8	2442511.0	60.35365	-19.84001	-2.51498	0.28703	0.85697	0.35297	63.58076	0.97024	341.80	-2.27
75/ 4/ 9	2442511.5	61.95657	-13.93240	-0.11385	0.18581	0.88587	0.35540	63.50387	0.97242	347.33	-0.10
75/ 4/ 9	2442512.0	62.86496	-7.86258	2.29006	0.08210	0.90482	0.35379	63.39612	0.97499	352.87	2.07
75/ 4/10	2442512.5	63.06535	-1.69902	4.66935	-0.02309	0.91351	0.34812	63.26079	0.97787	358.46	4.23
75/ 4/10	2442513.0	62.55125	4.48803	6.99650	-0.12870	0.91172	0.33840	63.10113	0.98098	4.10	6.37
75/ 4/11	2442513.5	61.32345	10.62705	9.24419	-0.23365	0.89931	0.32466	62.92023	0.98425	9.83	8.45
75/ 4/11	2442514.0	59.39028	16.64583	11.38543	-0.33681	0.87621	0.30699	62.72094	0.98764	15.66	10.46
75/ 4/12	2442514.5	56.76781	22.47213	13.39394	-0.43700	0.84249	0.28549	62.50583	0.99109	21.60	12.37
75/ 4/12	2442515.0	53.48010	28.03440	15.24438	-0.53305	0.79828	0.26034	62.27712	0.99457	27.66	14.17
75/ 4/13	2442515.5	49.55919	33.26254	16.91264	-0.62378	0.74388	0.23174	62.03666	0.99808	33.87	15.82
75/ 4/13	2442516.0	45.04518	38.08875	18.37622	-0.70800	0.67967	0.19994	61.78597	1.00159	40.22	17.30
75/ 4/14	2442516.5	39.98608	42.44835	19.61448	-0.78455	0.60619	0.16526	61.52623	1.00513	46.71	18.59
75/ 4/14	2442517.0	34.43763	46.28070	20.60901	-0.85231	0.52410	0.12803	61.25835	1.00872	53.35	19.66
75/ 4/15	2442517.5	28.46299	49.53006	21.34390	-0.91023	0.43418	0.08866	60.98304	1.01237	60.12	20.49
75/ 4/15	2442518.0	22.13225	52.14653	21.80608	-0.95731	0.33737	0.04758	60.70092	1.01613	67.00	21.05
75/ 4/16	2442518.5	15.52194	54.08685	21.98561	-0.99264	0.23471	0.00527	60.41262	1.02003	73.99	21.34
75/ 4/16	2442519.0	8.71434	55.31534	21.87589	-1.01544	0.12738	-0.03774	60.11889	1.02410	81.05	21.34
75/ 4/17	2442519.5	1.79671	55.80469	21.47399	-1.02504	0.01667	-0.08091	59.82077	1.02836	88.16	21.04
75/ 4/17	2442520.0	-5.13968	55.53673	20.78082	-1.02090	-0.09601	-0.12366	59.51963	1.03284	95.29	20.43
75/ 4/18	2442520.5	-12.00052	54.50317	19.80131	-1.00268	-0.20914	-0.16536	59.21740	1.03753	102.42	19.54
75/ 4/18	2442521.0	-18.68969	52.70629	18.54461	-0.97020	-0.32114	-0.20540	58.91655	1.04241	109.52	18.35
75/ 4/19	2442521.5	-25.11060	50.15946	17.02412	-0.92349	-0.43031	-0.24315	58.62025	1.04744	116.59	16.88
75/ 4/19	2442522.0	-31.16766	46.88757	15.25759	-0.86282	-0.53495	-0.27795	58.33233	1.05256	123.61	15.16
75/ 4/20	2442522.5	-36.76790	42.92732	13.26705	-0.78871	-0.63329	-0.30919	58.05728	1.05769	130.58	13.21
75/ 4/20	2442523.0	-41.82277	38.32731	11.07868	-0.70193	-0.72358	-0.33627	57.80021	1.06271	137.50	11.05
75/ 4/21	2442523.5	-46.25002	33.14777	8.72257	-0.60357	-0.80414	-0.35864	57.56668	1.06750	144.37	8.72
75/ 4/21	2442524.0	-49.97561	27.46013	6.23240	-0.49499	-0.87337	-0.37579	57.36256	1.07191	151.21	6.24
75/ 4/22	2442524.5	-52.93569	21.34611	3.64487	-0.37782	-0.92982	-0.38732	57.19379	1.07580	158.04	3.65
75/ 4/22	2442525.0	-55.07847	14.89649	0.99914	-0.25398	-0.97228	-0.39294	57.06612	1.07900	164.87	1.00
75/ 4/23	2442525.5	-56.36582	8.20949	-1.66399	-0.12559	-0.99979	-0.39244	56.98482	1.08137	171.71	-1.67
75/ 4/23	2442526.0	-56.77464	1.38873	-4.30295	0.00505	-1.01170	-0.38580	56.95440	1.08278	178.60	-4.33
75/ 4/24	2442526.5	-56.29777	-5.45904	-6.87634	0.13554	-1.00775	-0.37311	56.97827	1.08312	185.54	-6.93
75/ 4/24	2442527.0	-54.94437	-12.22653	-9.34396	0.26348	-0.98804	-0.35462	57.05858	1.08231	192.55	-9.43
75/ 4/25	2442527.5	-52.73976	-18.80844	-11.66776	0.38652	-0.95307	-0.33072	57.19595	1.08033	199.63	-11.77
75/ 4/25	2442528.0	-49.72464	-25.10406	-13.81277	0.50247	-0.90368	-0.30192	57.38943	1.07716	206.79	-13.93
75/ 4/26	2442528.5	-45.95375	-31.01960	-15.74786	0.60939	-0.84105	-0.26884	57.63643	1.07284	214.02	-15.86
75/ 4/26	2442529.0	-41.49413	-36.47016	-17.44637	0.70560	-0.76663	-0.23218	57.93281	1.06747	221.31	-17.53
75/ 4/27	2442529.5	-36.42298	-41.38129	-18.88650	0.78977	-0.68205	-0.19267	58.27302	1.06116	228.65	-18.91

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
75/ 4/27	2442530.0	-30.82539	-45.69011	-20.05155	0.86092	-0.58907	-0.15107	58.65028	1.05404	235.99	-19.99
75/ 4/28	2442530.5	-24.79194	-49.34584	-20.92991	0.91840	-0.48950	-0.10814	59.05686	1.04630	243.32	-20.76
75/ 4/28	2442531.0	-18.41653	-52.30995	-21.51495	0.96187	-0.38513	-0.06457	59.48439	1.03812	250.60	-21.20
75/ 4/29	2442531.5	-11.79426	-54.55590	-21.80472	0.99131	-0.27771	-0.02105	59.92409	1.02969	257.80	-21.34
75/ 4/29	2442532.0	-5.01965	-56.06855	-21.80156	1.00691	-0.16886	0.02183	60.36711	1.02120	264.88	-21.17
75/ 4/30	2442532.5	1.81481	-56.84340	-21.51171	1.00906	-0.06008	0.06352	60.80477	1.01284	271.83	-20.72
75/ 4/30	2442533.0	8.61988	-56.88565	-20.94484	0.99833	0.04726	0.10356	61.22879	1.00480	278.62	-20.00
75/ 5/ 1	2442533.5	15.31045	-56.20922	-20.11359	0.97537	0.15195	0.14153	61.63151	0.99723	285.24	-19.05
75/ 5/ 1	2442534.0	21.80617	-54.83586	-19.03319	0.94092	0.25289	0.17708	62.00599	0.99028	291.69	-17.88
75/ 5/ 2	2442534.5	28.03190	-52.79418	-17.72102	0.89578	0.34915	0.20992	62.34619	0.98407	297.97	-16.51
75/ 5/ 2	2442535.0	33.91794	-50.11885	-16.19633	0.84075	0.43987	0.23980	62.64700	0.97870	304.09	-14.98
75/ 5/ 3	2442535.5	39.40019	-46.84991	-14.47992	0.77668	0.52432	0.26650	62.90435	0.97425	310.06	-13.31
75/ 5/ 3	2442536.0	44.42022	-43.03210	-12.59390	0.70440	0.60184	0.28985	63.11517	0.97078	315.91	-11.51
75/ 5/ 4	2442536.5	48.92529	-38.71440	-10.56151	0.62475	0.67185	0.30970	63.27744	0.96830	321.65	-9.61
75/ 5/ 4	2442537.0	52.86835	-33.94953	-8.40692	0.53859	0.73380	0.32592	63.39014	0.96683	327.29	-7.62
75/ 5/ 5	2442537.5	56.20813	-28.79364	-6.15512	0.44675	0.78723	0.33839	63.45323	0.96635	332.88	-5.57
75/ 5/ 5	2442538.0	58.90913	-23.30601	-3.83177	0.35011	0.83170	0.34703	63.46761	0.96681	338.41	-3.46
75/ 5/ 6	2442538.5	60.94179	-17.54870	-1.46312	0.24955	0.86680	0.35176	63.43500	0.96817	343.94	-1.32
75/ 5/ 6	2442539.0	62.28265	-11.58640	0.92417	0.14598	0.89218	0.35252	63.35793	0.97034	349.46	0.84
75/ 5/ 7	2442539.5	62.91452	-5.48606	3.30306	0.04035	0.90751	0.34928	63.23957	0.97324	355.02	2.99
75/ 5/ 7	2442540.0	62.82680	0.68336	5.64635	-0.06634	0.91254	0.34201	63.08371	0.97678	0.62	5.14
75/ 5/ 8	2442540.5	62.01576	6.85127	7.92682	-0.17306	0.90704	0.33073	62.89459	0.98084	6.30	7.24
75/ 5/ 8	2442541.0	60.48490	12.94585	10.11737	-0.27872	0.89087	0.31547	62.67679	0.98532	12.08	9.29
75/ 5/ 9	2442541.5	58.24525	18.89460	12.19134	-0.38217	0.86397	0.29632	62.43512	0.99010	17.97	11.26
75/ 5/ 9	2442542.0	55.31573	24.62489	14.12268	-0.48223	0.82637	0.27338	62.17448	0.99508	24.00	13.13
75/ 5/10	2442542.5	51.72344	30.06475	15.88629	-0.57768	0.77824	0.24682	61.89973	1.00014	30.17	14.87
75/ 5/10	2442543.0	47.50381	35.14363	17.45835	-0.66727	0.71984	0.21685	61.61559	1.00520	36.49	16.46
75/ 5/11	2442543.5	42.70078	39.79335	18.81667	-0.74974	0.65159	0.18375	61.32646	1.01018	42.98	17.87
75/ 5/11	2442544.0	37.36672	43.94909	19.94107	-0.82387	0.57408	0.14784	61.03639	1.01498	49.63	19.07
75/ 5/12	2442544.5	31.56224	47.55047	20.81377	-0.88846	0.48803	0.10950	60.74895	1.01957	56.43	20.04
75/ 5/12	2442545.0	25.35583	50.54263	21.41979	-0.94238	0.39434	0.06917	60.46720	1.02390	63.36	20.75
75/ 5/13	2442545.5	18.82333	52.87734	21.74729	-0.98459	0.29408	0.02734	60.19365	1.02794	70.41	21.18
75/ 5/13	2442546.0	12.04710	54.51409	21.78795	-1.01421	0.18846	-0.01544	59.93024	1.03169	77.54	21.32
75/ 5/14	2442546.5	5.11513	55.42107	21.53725	-1.03048	0.07882	-0.05860	59.67841	1.03515	84.73	21.15
75/ 5/14	2442547.0	-1.88016	55.57607	20.99468	-1.03283	-0.03334	-0.10152	59.43914	1.03834	91.94	20.68
75/ 5/15	2442547.5	-8.84316	54.96724	20.16399	-1.02090	-0.14646	-0.14358	59.21305	1.04130	99.14	19.91
75/ 5/15	2442548.0	-15.67654	53.59365	19.05321	-0.99454	-0.25889	-0.18412	59.00049	1.04405	106.30	18.84
75/ 5/16	2442548.5	-22.28276	51.46573	17.67472	-0.95385	-0.36893	-0.22252	58.80168	1.04664	113.41	17.49
75/ 5/16	2442549.0	-28.56568	48.60544	16.04518	-0.89916	-0.47487	-0.25816	58.61685	1.04911	120.44	15.89
75/ 5/17	2442549.5	-34.43225	45.04631	14.18537	-0.83102	-0.57502	-0.29042	58.44634	1.05147	127.39	14.05
75/ 5/17	2442550.0	-39.79410	40.83314	12.11997	-0.75027	-0.66773	-0.31878	58.29073	1.05375	134.26	12.00
75/ 5/18	2442550.5	-44.56920	36.02162	9.87727	-0.65796	-0.75145	-0.34270	58.15093	1.05595	141.05	9.78
75/ 5/18	2442551.0	-48.68346	30.67764	7.48872	-0.55536	-0.82473	-0.36177	58.02825	1.05806	147.78	7.41
75/ 5/19	2442551.5	-52.07223	24.87638	4.98854	-0.44399	-0.88628	-0.37562	57.92440	1.06005	154.46	4.94
75/ 5/19	2442552.0	-54.68162	18.70121	2.41310	-0.32552	-0.93498	-0.38396	57.84149	1.06187	161.12	2.39

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 5/20	2442552.5	-56.46982	12.24237	-0.19964	-0.20181	-0.96992	-0.38661	57.78197	1.06346	167.77	-0.20
75/ 5/20	2442553.0	-57.40803	5.59538	-2.81083	-0.07486	-0.99045	-0.38349	57.74851	1.06473	174.43	-2.79
75/ 5/21	2442553.5	-57.48125	-1.14063	-5.38144	0.05326	-0.99616	-0.37464	57.74388	1.06561	181.14	-5.35
75/ 5/21	2442554.0	-56.68879	-7.86483	-7.87302	0.18041	-0.98696	-0.36019	57.77074	1.06601	187.90	-7.83
75/ 5/22	2442554.5	-55.04434	-14.47665	-10.24849	0.30449	-0.96304	-0.34040	57.83152	1.06585	194.74	-10.21
75/ 5/22	2442555.0	-52.57581	-20.87782	-12.47283	0.42343	-0.92487	-0.31563	57.92815	1.06503	201.66	-12.43
75/ 5/23	2442555.5	-49.32463	-26.97433	-14.51383	0.53529	-0.87322	-0.28635	58.06191	1.06351	208.67	-14.48
75/ 5/23	2442556.0	-45.34486	-32.67832	-16.34271	0.63830	-0.80915	-0.25309	58.23326	1.06123	215.78	-16.30
75/ 5/24	2442556.5	-40.70180	-37.90976	-17.93462	0.73092	-0.73391	-0.21648	58.44174	1.05817	222.97	-17.87
75/ 5/24	2442557.0	-35.47037	-42.59790	-19.26910	0.81185	-0.64897	-0.17719	58.68582	1.05435	230.22	-19.17
75/ 5/25	2442557.5	-29.73334	-46.68232	-20.33027	0.88007	-0.55592	-0.13590	58.96296	1.04978	237.51	-20.17
75/ 5/25	2442558.0	-23.57931	-50.11376	-21.10703	0.93489	-0.45643	-0.09332	59.26955	1.04453	244.80	-20.86
75/ 5/26	2442558.5	-17.10078	-52.85444	-21.59295	0.97585	-0.35223	-0.05013	59.60104	1.03868	252.07	-21.24
75/ 5/26	2442559.0	-10.39217	-54.87814	-21.78619	1.00282	-0.24499	-0.00699	59.95202	1.03234	259.28	-21.31
75/ 5/27	2442559.5	-3.54806	-56.16991	-21.68920	1.01590	-0.13636	0.03547	60.31641	1.02562	266.39	-21.08
75/ 5/27	2442560.0	3.33838	-56.72558	-21.30843	1.01539	-0.02787	0.07672	60.68760	1.01867	273.37	-20.56
75/ 5/28	2442560.5	10.17681	-56.55098	-20.65385	1.00181	0.07906	0.11625	61.05868	1.01163	280.20	-19.77
75/ 5/28	2442561.0	16.88076	-55.66112	-19.73865	0.97580	0.18314	0.15362	61.42259	1.00465	286.87	-18.75
75/ 5/29	2442561.5	23.36852	-54.07929	-18.57869	0.93811	0.28321	0.18846	61.77237	0.99789	293.37	-17.50
75/ 5/29	2442562.0	29.56379	-51.83609	-17.19219	0.88957	0.37828	0.22046	62.10128	0.99148	299.70	-16.07
75/ 5/30	2442562.5	35.39605	-48.96853	-15.59931	0.83107	0.46744	0.24937	62.40302	0.98558	305.86	-14.48
75/ 5/30	2442563.0	40.80089	-45.51923	-13.82179	0.76351	0.54994	0.27495	62.67180	0.98030	311.87	-12.74
75/ 5/31	2442563.5	45.72008	-41.53561	-11.88268	0.68781	0.62512	0.29706	62.90255	0.97576	317.75	-10.89
75/ 5/31	2442564.0	50.10166	-37.06927	-9.80608	0.60491	0.69240	0.31554	63.09093	0.97206	323.50	-8.94
75/ 6/ 1	2442564.5	53.89991	-32.17540	-7.61690	0.51571	0.75129	0.33028	63.23348	0.96927	329.17	-6.92
75/ 6/ 1	2442565.0	57.07532	-26.91232	-5.34073	0.42114	0.80136	0.34121	63.32763	0.96745	334.76	-4.84
75/ 6/ 2	2442565.5	59.59459	-21.34108	-3.00365	0.32211	0.84223	0.34826	63.37175	0.96664	340.30	-2.72
75/ 6/ 2	2442566.0	61.43063	-15.52511	-0.63211	0.21954	0.87357	0.35138	63.36521	0.96685	345.82	-0.57
75/ 6/ 3	2442566.5	62.56256	-9.52996	1.74717	0.11435	0.89509	0.35054	63.30834	0.96807	351.34	1.58
75/ 6/ 3	2442567.0	62.97588	-3.42302	4.10731	0.00750	0.90654	0.34573	63.20244	0.97026	356.89	3.73
75/ 6/ 4	2442567.5	62.66259	2.72675	6.42141	-0.10004	0.90771	0.33695	63.04974	0.97338	2.49	5.85
75/ 6/ 4	2442568.0	61.62142	8.84907	8.66263	-0.20726	0.89842	0.32422	62.85338	0.97736	8.17	7.92
75/ 6/ 5	2442568.5	59.85813	14.87274	10.80439	-0.31310	0.87856	0.30758	62.61732	0.98209	13.95	9.94
75/ 6/ 5	2442569.0	57.38579	20.72596	12.82050	-0.41645	0.84809	0.28713	62.34629	0.98748	19.86	11.87
75/ 6/ 6	2442569.5	54.22517	26.33691	14.68543	-0.51615	0.80703	0.26296	62.04566	0.99341	25.91	13.69
75/ 6/ 6	2442570.0	50.40508	31.63430	16.37454	-0.61098	0.75553	0.23524	61.72136	0.99973	32.11	15.38
75/ 6/ 7	2442570.5	45.96266	36.54814	17.86441	-0.69971	0.69383	0.20417	61.37972	1.00631	38.49	16.92
75/ 6/ 7	2442571.0	40.94364	41.01062	19.13316	-0.78103	0.62232	0.17000	61.02730	1.01301	45.05	18.27
75/ 6/ 8	2442571.5	35.40249	44.95714	20.16089	-0.85368	0.54157	0.13305	60.67077	1.01969	51.78	19.41
75/ 6/ 8	2442572.0	29.40233	48.32742	20.93007	-0.91637	0.45230	0.09372	60.31670	1.02620	58.68	20.30
75/ 6/ 9	2442572.5	23.01475	51.06675	21.42603	-0.96788	0.35543	0.05245	59.97138	1.03241	65.74	20.93
75/ 6/ 9	2442573.0	16.31926	53.12732	21.63739	-1.00711	0.25207	0.00977	59.64065	1.03822	72.92	21.27
75/ 6/10	2442573.5	9.40259	54.46951	21.55649	-1.03305	0.14353	-0.03375	59.32974	1.04352	80.21	21.31
75/ 6/10	2442574.0	2.35758	55.06314	21.17979	-1.04489	0.03128	-0.07747	59.04313	1.04822	87.55	21.02
75/ 6/11	2442574.5	-4.71811	54.88863	20.50820	-1.04203	-0.08301	-0.12071	58.78442	1.05228	94.91	20.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
75/ 6/11	2442575.0	-11.72367	53.93795	19.54727	-1.02414	-0.19761	-0.16279	58.55632	1.05566	102.26	19.50
75/ 6/12	2442575.5	-18.55691	52.21531	18.30734	-0.99116	-0.31066	-0.20298	58.36057	1.05835	109.56	18.28
75/ 6/12	2442576.0	-25.11625	49.73754	16.80348	-0.94333	-0.42028	-0.24061	58.19799	1.06037	116.79	16.78
75/ 6/13	2442576.5	-31.30277	46.53418	15.05536	-0.88119	-0.52462	-0.27500	58.06856	1.06176	123.93	15.03
75/ 6/13	2442577.0	-37.02227	42.64716	13.08699	-0.80558	-0.62187	-0.30556	57.97152	1.06257	130.96	13.05
75/ 6/14	2442577.5	-42.18719	38.13017	10.92624	-0.71763	-0.71037	-0.33173	57.90554	1.06286	137.89	10.88
75/ 6/14	2442578.0	-46.71844	33.04776	8.60442	-0.61871	-0.78860	-0.35305	57.86884	1.06270	144.73	8.55
75/ 6/15	2442578.5	-50.54698	27.47408	6.15560	-0.51041	-0.85524	-0.36917	57.85943	1.06219	151.47	6.11
75/ 6/15	2442579.0	-53.61514	21.49148	3.61601	-0.39448	-0.90919	-0.37982	57.87523	1.06137	158.16	3.58
75/ 6/16	2442579.5	-55.87763	15.18889	1.02334	-0.27283	-0.94961	-0.38483	57.91424	1.06032	164.79	1.01
75/ 6/16	2442580.0	-57.30233	8.66016	-1.58401	-0.14742	-0.97589	-0.38415	57.97469	1.05909	171.41	-1.57
75/ 6/17	2442580.5	-57.87070	2.00227	-4.16757	-0.02029	-0.98771	-0.37783	58.05511	1.05771	178.02	-4.12
75/ 6/17	2442581.0	-57.57792	-4.68648	-6.68956	0.10653	-0.98501	-0.36600	58.15437	1.05620	184.65	-6.61
75/ 6/18	2442581.5	-56.43281	-11.30818	-9.11351	0.23107	-0.96797	-0.34892	58.27172	1.05456	191.33	-9.00
75/ 6/18	2442582.0	-54.45740	-17.76706	-11.40490	0.35140	-0.93702	-0.32692	58.40674	1.05279	198.07	-11.26
75/ 6/19	2442582.5	-51.68630	-23.97106	-13.53166	0.46574	-0.89284	-0.30039	58.55930	1.05086	204.88	-13.36
75/ 6/19	2442583.0	-48.16590	-29.83338	-15.46475	0.57241	-0.83629	-0.26981	58.72940	1.04872	211.77	-15.27
75/ 6/20	2442583.5	-43.95324	-35.27379	-17.17852	0.66992	-0.76844	-0.23572	58.91714	1.04636	218.75	-16.95
75/ 6/20	2442584.0	-39.11483	-40.21985	-18.65111	0.75699	-0.69053	-0.19869	59.12250	1.04371	225.80	-18.39
75/ 6/21	2442584.5	-33.72527	-44.60793	-19.86465	0.83251	-0.60391	-0.15933	59.34530	1.04075	232.91	-19.56
75/ 6/21	2442585.0	-27.86573	-48.38394	-20.80549	0.89564	-0.51004	-0.11827	59.58501	1.03745	240.06	-20.44
75/ 6/22	2442585.5	-21.62242	-51.50397	-21.46428	0.94575	-0.41046	-0.07614	59.84065	1.03379	247.23	-21.02
75/ 6/22	2442586.0	-15.08500	-53.93457	-21.83591	0.98245	-0.30672	-0.03357	60.11075	1.02976	254.37	-21.30
75/ 6/23	2442586.5	-8.34497	-55.65286	-21.91945	1.00557	-0.20038	0.00883	60.39322	1.02538	261.47	-21.28
75/ 6/23	2442587.0	-1.49420	-56.64641	-21.71800	1.01518	-0.09296	0.05049	60.68542	1.02067	268.49	-20.97
75/ 6/24	2442587.5	5.37651	-56.91293	-21.23836	1.01152	0.01408	0.09089	60.98407	1.01569	275.40	-20.38
75/ 6/24	2442588.0	12.17868	-56.45972	-20.49083	0.99502	0.11935	0.12952	61.28535	1.01049	282.17	-19.53
75/ 6/25	2442588.5	18.82727	-55.30307	-19.48880	0.96627	0.22159	0.16597	61.58497	1.00515	288.80	-18.45
75/ 6/25	2442589.0	25.24159	-53.46749	-18.24842	0.92597	0.31965	0.19985	61.87823	0.99977	295.27	-17.15
75/ 6/26	2442589.5	31.34607	-50.98491	-16.78823	0.87492	0.41249	0.23083	62.16013	0.99444	301.58	-15.67
75/ 6/26	2442590.0	37.07081	-47.89387	-15.12877	0.81399	0.49919	0.25865	62.42553	0.98927	307.74	-14.03
75/ 6/27	2442590.5	42.35203	-44.23864	-13.29227	0.74410	0.57896	0.28308	62.66926	0.98439	313.75	-12.25
75/ 6/27	2442591.0	47.13226	-40.06850	-11.30230	0.66621	0.65113	0.30394	62.88622	0.97989	319.63	-10.35
75/ 6/28	2442591.5	51.36056	-35.43699	-9.18348	0.58128	0.71512	0.32110	63.07158	0.97590	325.40	-8.37
75/ 6/28	2442592.0	54.99255	-30.40122	-6.96126	0.49029	0.77043	0.33446	63.22084	0.97253	331.07	-6.32
75/ 6/29	2442592.5	57.99044	-25.02132	-4.66163	0.39420	0.81667	0.34395	63.32999	0.96987	336.66	-4.22
75/ 6/29	2442593.0	60.32295	-19.35992	-2.31103	0.29397	0.85350	0.34951	63.39562	0.96801	342.21	-2.09
75/ 6/30	2442593.5	61.96532	-13.48175	0.06390	0.19056	0.88065	0.35113	63.41500	0.96703	347.73	0.06
75/ 6/30	2442594.0	62.89928	-7.45319	2.43643	0.08494	0.89788	0.34880	63.38616	0.96698	353.24	2.20
75/ 7/ 1	2442594.5	63.11302	-1.34203	4.77984	-0.02195	0.90501	0.34254	63.30799	0.96792	358.78	4.33
75/ 7/ 1	2442595.0	62.60130	4.78289	7.06756	-0.12913	0.90192	0.33236	63.18029	0.96984	4.37	6.42
75/ 7/ 2	2442595.5	61.36548	10.85193	9.27329	-0.23560	0.88850	0.31833	63.00381	0.97277	10.03	8.46
75/ 7/ 2	2442596.0	59.41374	16.79496	11.37111	-0.34036	0.86470	0.30051	62.78030	0.97666	15.78	10.44
75/ 7/ 3	2442596.5	56.76128	22.54170	13.33563	-0.44234	0.83054	0.27899	62.51248	0.98148	21.66	12.32
75/ 7/ 3	2442597.0	53.43058	28.02208	15.14214	-0.54045	0.78607	0.25388	62.20409	0.98714	27.68	14.09

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 7/ 4	2442597.5	49.45174	33.16680	16.76687	-0.63354	0.73145	0.22534	61.85983	0.99357	33.85	15.73
75/ 7/ 4	2442598.0	44.86274	37.90786	18.18721	-0.72042	0.66692	0.19356	61.48533	1.00063	40.20	17.21
75/ 7/ 5	2442598.5	39.70981	42.17932	19.38200	-0.79986	0.59286	0.15878	61.08704	1.00820	46.73	18.50
75/ 7/ 5	2442599.0	34.04763	45.91821	20.33192	-0.87059	0.50976	0.12130	60.67215	1.01612	53.44	19.58
75/ 7/ 6	2442599.5	27.93944	49.06554	21.01985	-0.93135	0.41830	0.08149	60.24843	1.02422	60.34	20.42
75/ 7/ 6	2442600.0	21.45705	51.56752	21.43139	-0.98088	0.31935	0.03976	59.82406	1.03233	67.41	20.99
75/ 7/ 7	2442600.5	14.68052	53.37688	21.55529	-1.01801	0.21397	-0.00337	59.40740	1.04026	74.62	21.27
75/ 7/ 7	2442601.0	7.69767	54.45432	21.38393	-1.04164	0.10345	-0.04732	59.00678	1.04784	81.95	21.25
75/ 7/ 8	2442601.5	0.60312	54.76995	20.91386	-1.05086	-0.01072	-0.09146	58.63020	1.05488	89.37	20.90
75/ 7/ 8	2442602.0	-6.50290	54.30469	20.14618	-1.04493	-0.12684	-0.13508	58.28512	1.06124	96.83	20.22
75/ 7/ 9	2442602.5	-13.51622	53.05156	19.08692	-1.02343	-0.24305	-0.17744	57.97816	1.06676	104.29	19.22
75/ 7/ 9	2442603.0	-20.33068	51.01670	17.74722	-0.98622	-0.35734	-0.21776	57.71485	1.07133	111.73	17.91
75/ 7/10	2442603.5	-26.84047	48.22002	16.14344	-0.93353	-0.46766	-0.25529	57.49949	1.07488	119.10	16.31
75/ 7/10	2442604.0	-32.94251	44.69547	14.29703	-0.86595	-0.57194	-0.28929	57.33497	1.07735	126.39	14.44
75/ 7/11	2442604.5	-38.53907	40.49076	12.23421	-0.78446	-0.66818	-0.31909	57.22270	1.07873	133.59	12.35
75/ 7/11	2442605.0	-43.54020	35.66666	9.98551	-0.69037	-0.75455	-0.34409	57.16266	1.07906	140.68	10.06
75/ 7/12	2442605.5	-47.86600	30.29569	7.58509	-0.58533	-0.82942	-0.36382	57.15344	1.07838	147.67	7.63
75/ 7/12	2442606.0	-51.44852	24.46054	5.06994	-0.47122	-0.89142	-0.37792	57.19241	1.07680	154.57	5.09
75/ 7/13	2442606.5	-54.23331	18.25205	2.47907	-0.35012	-0.93951	-0.38616	57.27596	1.07442	161.40	2.48
75/ 7/13	2442607.0	-56.18040	11.76708	-0.14749	-0.22422	-0.97297	-0.38845	57.39968	1.07138	168.17	-0.15
75/ 7/14	2442607.5	-57.26483	5.10618	-2.76951	-0.09576	-0.99142	-0.38484	57.55870	1.06780	174.90	-2.76
75/ 7/14	2442608.0	-57.47672	-1.62859	-5.34747	0.03307	-0.99480	-0.37548	57.74791	1.06382	181.62	-5.31
75/ 7/15	2442608.5	-56.82091	-8.33580	-7.84330	0.16012	-0.98335	-0.36064	57.96221	1.05957	188.35	-7.78
75/ 7/15	2442609.0	-55.31623	-14.91660	-10.22106	0.28341	-0.95758	-0.34068	58.19674	1.05515	195.09	-10.12
75/ 7/16	2442609.5	-52.99455	-21.27645	-12.44756	0.40109	-0.91825	-0.31605	58.44700	1.05068	201.87	-12.30
75/ 7/16	2442610.0	-49.89955	-27.32657	-14.49274	0.51151	-0.86629	-0.28723	58.70899	1.04623	208.71	-14.29
75/ 7/17	2442610.5	-46.08544	-32.98513	-16.33006	0.61321	-0.80282	-0.25476	58.97929	1.04185	215.59	-16.07
75/ 7/17	2442611.0	-41.61556	-38.17827	-17.93676	0.70496	-0.72907	-0.21922	59.25506	1.03758	222.53	-17.62
75/ 7/18	2442611.5	-36.56095	-42.84083	-19.29402	0.78572	-0.64637	-0.18120	59.53401	1.03343	229.52	-18.91
75/ 7/18	2442612.0	-30.99894	-46.91686	-20.38703	0.85467	-0.55611	-0.14129	59.81436	1.02941	236.55	-19.93
75/ 7/19	2442612.5	-25.01171	-50.36007	-21.20501	0.91120	-0.45974	-0.10009	60.09472	1.02551	243.59	-20.66
75/ 7/19	2442613.0	-18.68497	-53.13392	-21.74123	0.95488	-0.35870	-0.05818	60.37402	1.02169	250.63	-21.11
75/ 7/20	2442613.5	-12.10659	-55.21177	-21.99281	0.98548	-0.25445	-0.01613	60.65140	1.01793	257.63	-21.26
75/ 7/20	2442614.0	-5.36539	-56.57670	-21.96069	1.00296	-0.14842	0.02551	60.92604	1.01421	264.58	-21.13
75/ 7/21	2442614.5	1.45006	-57.22137	-21.64939	1.00744	-0.04199	0.06622	61.19709	1.01049	271.45	-20.72
75/ 7/21	2442615.0	8.25256	-57.14766	-21.06680	0.99920	0.06349	0.10554	61.46356	1.00676	278.22	-20.04
75/ 7/22	2442615.5	14.95727	-56.36625	-20.22395	0.97865	0.16678	0.14301	61.72424	1.00300	284.86	-19.13
75/ 7/22	2442616.0	21.48265	-54.89611	-19.13473	0.94634	0.26668	0.17823	61.97762	0.99922	291.37	-17.98
75/ 7/23	2442616.5	27.75125	-52.76391	-17.81560	0.90294	0.36211	0.21084	62.22185	0.99543	297.74	-16.64
75/ 7/23	2442617.0	33.69040	-50.00337	-16.28530	0.84919	0.45207	0.24054	62.45471	0.99164	303.97	-15.11
75/ 7/24	2442617.5	39.23283	-46.65456	-14.56453	0.78593	0.53568	0.26705	62.67367	0.98790	310.06	-13.44
75/ 7/24	2442618.0	44.31707	-42.76325	-12.67563	0.71405	0.61215	0.29015	62.87583	0.98426	316.02	-11.63
75/ 7/25	2442618.5	48.88786	-38.38014	-10.64232	0.63447	0.68080	0.30966	63.05805	0.98078	321.87	-9.72
75/ 7/25	2442619.0	52.89638	-33.56021	-8.48941	0.54817	0.74105	0.32545	63.21697	0.97753	327.61	-7.72
75/ 7/26	2442619.5	56.30041	-28.36204	-6.24248	0.45614	0.79242	0.33741	63.34911	0.97459	333.26	-5.66

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
75/ 7/26	2442620.0	59.06444	-22.84719	-3.92774	0.35935	0.83450	0.34547	63.45100	0.97205	338.85	-3.55
75/ 7/27	2442620.5	61.15966	-17.07963	-1.57171	0.25881	0.86699	0.34959	63.51920	0.96999	344.40	-1.42
75/ 7/27	2442621.0	62.56401	-11.12523	0.79892	0.15551	0.88964	0.34978	63.55049	0.96850	349.92	0.72
75/ 7/28	2442621.5	63.26211	-5.05124	3.15748	0.05042	0.90228	0.34603	63.54195	0.96767	355.43	2.85
75/ 7/28	2442622.0	63.24524	1.07404	5.47746	-0.05546	0.90478	0.33840	63.49108	0.96758	0.97	4.95
75/ 7/29	2442622.5	62.51133	7.18174	7.73269	-0.16115	0.89708	0.32692	63.39589	0.96830	6.55	7.01
75/ 7/29	2442623.0	61.06497	13.20269	9.89742	-0.26567	0.87917	0.31169	63.25504	0.96988	12.20	9.00
75/ 7/30	2442623.5	58.91743	19.06782	11.94649	-0.36803	0.85108	0.29279	63.06793	0.97237	17.93	10.92
75/ 7/30	2442624.0	56.08679	24.70847	13.85545	-0.46722	0.81290	0.27034	62.83478	0.97580	23.78	12.74
75/ 7/31	2442624.5	52.59804	30.05677	15.60073	-0.56220	0.76478	0.24447	62.55674	0.98016	29.75	14.44
75/ 7/31	2442625.0	48.48324	35.04608	17.15975	-0.65190	0.70693	0.21537	62.23592	0.98545	35.86	16.00
75/ 8/ 1	2442625.5	43.78178	39.61142	18.51121	-0.73525	0.63964	0.18322	61.87547	0.99162	42.14	17.41
75/ 8/ 1	2442626.0	38.54054	43.69014	19.63524	-0.81111	0.56330	0.14826	61.47962	0.99859	48.58	18.63
75/ 8/ 2	2442626.5	32.81411	47.22255	20.51374	-0.87833	0.47842	0.11077	61.05365	1.00628	55.21	19.63
75/ 8/ 2	2442627.0	26.66500	50.15282	21.13070	-0.93573	0.38562	0.07108	60.60391	1.01457	62.00	20.41
75/ 8/ 3	2442627.5	20.16361	52.42997	21.47256	-0.98216	0.28570	0.02960	60.13771	1.02329	68.96	20.92
75/ 8/ 3	2442628.0	13.38822	54.00904	21.52867	-1.01646	0.17966	-0.01322	59.66326	1.03230	76.08	21.15
75/ 8/ 4	2442628.5	6.42461	54.85236	21.29171	-1.03756	0.06865	-0.05684	59.18947	1.04138	83.32	21.08
75/ 8/ 4	2442629.0	-0.63446	54.93098	20.75824	-1.04450	-0.04590	-0.10067	58.72580	1.05034	90.66	20.70
75/ 8/ 5	2442629.5	-7.69025	54.22614	19.92909	-1.03648	-0.16241	-0.14403	58.28192	1.05896	98.07	20.00
75/ 8/ 5	2442630.0	-14.63936	52.73069	18.80988	-1.01292	-0.27905	-0.18620	57.86751	1.06703	105.52	18.97
75/ 8/ 6	2442630.5	-21.37545	50.45042	17.41130	-0.97356	-0.39382	-0.22639	57.49181	1.07432	112.96	17.63
75/ 8/ 6	2442631.0	-27.79150	47.40507	15.74940	-0.91846	-0.50461	-0.26383	57.16338	1.08065	120.38	15.99
75/ 8/ 7	2442631.5	-33.78224	43.62900	13.84556	-0.84808	-0.60923	-0.29771	56.88962	1.08583	127.75	14.09
75/ 8/ 7	2442632.0	-39.24702	39.17136	11.72637	-0.76333	-0.70552	-0.32730	56.67655	1.08975	135.06	11.94
75/ 8/ 8	2442632.5	-44.09265	34.09560	9.42323	-0.66550	-0.79143	-0.35193	56.52848	1.09229	142.29	9.60
75/ 8/ 8	2442633.0	-48.23620	28.47844	6.97169	-0.55632	-0.86511	-0.37104	56.44782	1.09342	149.44	7.09
75/ 8/ 9	2442633.5	-51.60752	22.40810	4.41065	-0.43784	-0.92501	-0.38420	56.43503	1.09314	156.53	4.48
75/ 8/ 9	2442634.0	-54.15128	15.98215	1.78132	-0.31235	-0.96995	-0.39117	56.48861	1.09151	163.56	1.81
75/ 8/10	2442634.5	-55.82842	9.30485	-0.87388	-0.18235	-0.99914	-0.39184	56.60526	1.08861	170.54	-0.88
75/ 8/10	2442635.0	-56.61687	2.48431	-3.51242	-0.05035	-1.01222	-0.38628	56.78009	1.08459	177.49	-3.55
75/ 8/11	2442635.5	-56.51166	-4.37032	-6.09275	0.08113	-1.00925	-0.37470	57.00693	1.07962	184.42	-6.14
75/ 8/11	2442636.0	-55.52435	-11.15159	-8.57531	0.20975	-0.99066	-0.35747	57.27868	1.07387	191.36	-8.61
75/ 8/12	2442636.5	-53.68187	-17.75618	-10.92329	0.33332	-0.95723	-0.33505	57.58770	1.06754	198.30	-10.93
75/ 8/12	2442637.0	-51.02506	-24.08692	-13.10336	0.44991	-0.90999	-0.30798	57.92611	1.06083	205.27	-13.07
75/ 8/13	2442637.5	-47.60691	-30.05444	-15.08607	0.55788	-0.85020	-0.27688	58.28616	1.05391	212.26	-15.00
75/ 8/13	2442638.0	-43.49064	-35.57837	-16.84620	0.65586	-0.77924	-0.24236	58.66046	1.04695	219.29	-16.69
75/ 8/14	2442638.5	-38.74780	-40.58814	-18.36288	0.74274	-0.69862	-0.20509	59.04222	1.04010	226.33	-18.12
75/ 8/14	2442639.0	-33.45646	-45.02345	-19.61962	0.81771	-0.60987	-0.16572	59.42538	1.03346	233.38	-19.28
75/ 8/15	2442639.5	-27.69946	-48.83446	-20.60429	0.88017	-0.51453	-0.12485	59.80469	1.02714	240.44	-20.15
75/ 8/15	2442640.0	-21.56290	-51.98172	-21.30889	0.92975	-0.41412	-0.08311	60.17580	1.02119	247.47	-20.74
75/ 8/16	2442640.5	-15.13468	-54.43601	-21.72944	0.96628	-0.31014	-0.04107	60.53516	1.01566	254.46	-21.04
75/ 8/16	2442641.0	-8.50331	-56.17797	-21.86573	0.98975	-0.20401	0.00074	60.88005	1.01056	261.39	-21.05
75/ 8/17	2442641.5	-1.75681	-57.19776	-21.72106	1.00031	-0.09710	0.04181	61.20845	1.00588	268.24	-20.79
75/ 8/17	2442642.0	5.01826	-57.49451	-21.30203	0.99824	0.00928	0.08169	61.51893	1.00162	274.99	-20.26

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/ 8/18	2442642.5	11.73762	-57.07592	-20.61824	0.98393	0.11393	0.11993	61.81055	0.99774	281.62	-19.49
75/ 8/18	2442643.0	18.32001	-55.95769	-19.68207	0.95788	0.21570	0.15615	62.08276	0.99421	288.13	-18.48
75/ 8/19	2442643.5	24.68783	-54.16300	-18.50842	0.92068	0.31352	0.19000	62.33523	0.99098	294.50	-17.27
75/ 8/19	2442644.0	30.76776	-51.72198	-17.11443	0.87299	0.40640	0.22116	62.56774	0.98802	300.75	-15.87
75/ 8/20	2442644.5	36.49128	-48.67118	-15.51930	0.81556	0.49344	0.24935	62.78014	0.98529	306.86	-14.31
75/ 8/20	2442645.0	41.79507	-45.05294	-13.74395	0.74919	0.57383	0.27434	62.97215	0.98276	312.85	-12.61
75/ 8/21	2442645.5	46.62147	-40.91487	-11.81085	0.67474	0.64683	0.29591	63.14336	0.98042	318.73	-10.78
75/ 8/21	2442646.0	50.91877	-36.30922	-9.74372	0.59311	0.71180	0.31389	63.29314	0.97824	324.51	-8.86
75/ 8/22	2442646.5	54.64152	-31.29233	-7.56732	0.50523	0.76818	0.32816	63.42058	0.97624	330.20	-6.85
75/ 8/22	2442647.0	57.75071	-25.92402	-5.30717	0.41209	0.81550	0.33861	63.52453	0.97443	335.82	-4.79
75/ 8/23	2442647.5	60.21398	-20.26703	-2.98938	0.31466	0.85337	0.34517	63.60355	0.97283	341.40	-2.69
75/ 8/23	2442648.0	62.00568	-14.38642	-0.64039	0.21395	0.88149	0.34782	63.65598	0.97148	346.94	-0.58
75/ 8/24	2442648.5	63.10701	-8.34905	1.71325	0.11097	0.89963	0.34654	63.67996	0.97043	352.46	1.54
75/ 8/24	2442649.0	63.50598	-2.22305	4.04504	0.00672	0.90764	0.34137	63.67349	0.96974	358.00	3.64
75/ 8/25	2442649.5	63.19741	3.92269	6.32878	-0.09779	0.90545	0.33236	63.63453	0.96947	3.55	5.71
75/ 8/25	2442650.0	62.18295	10.01900	8.53868	-0.20156	0.89305	0.31958	63.56107	0.96969	9.15	7.72
75/ 8/26	2442650.5	60.47103	15.99684	10.64956	-0.30359	0.87048	0.30314	63.45122	0.97046	14.82	9.66
75/ 8/26	2442651.0	58.07679	21.78779	12.63699	-0.40288	0.83788	0.28315	63.30335	0.97187	20.56	11.52
75/ 8/27	2442651.5	55.02214	27.32441	14.47747	-0.49844	0.79542	0.25977	63.11621	0.97397	26.41	13.26
75/ 8/27	2442652.0	51.33571	32.54072	16.14856	-0.58927	0.74334	0.23317	62.88902	0.97681	32.37	14.88
75/ 8/28	2442652.5	47.05288	37.37260	17.62907	-0.67438	0.68196	0.20353	62.62163	0.98045	38.46	16.35
75/ 8/28	2442653.0	42.21583	41.75830	18.89920	-0.75276	0.61166	0.17109	62.31462	0.98491	44.69	17.66
75/ 8/29	2442653.5	36.87354	45.63892	19.94080	-0.82340	0.53290	0.13609	61.96938	0.99020	51.06	18.77
75/ 8/29	2442654.0	31.08188	48.95904	20.73752	-0.88529	0.44624	0.09883	61.58827	0.99631	57.59	19.68
75/ 8/30	2442654.5	24.90363	51.66737	21.27512	-0.93739	0.35236	0.05963	61.17465	1.00321	64.27	20.35
75/ 8/30	2442655.0	18.40842	53.71755	21.54173	-0.97871	0.25204	0.01887	60.73295	1.01082	71.08	20.77
75/ 8/31	2442655.5	11.67269	55.06907	21.52822	-1.00826	0.14622	-0.02302	60.26872	1.01906	78.03	20.93
75/ 8/31	2442656.0	4.77940	55.68829	21.22849	-1.02509	0.03599	-0.06556	59.78860	1.02781	85.09	20.80
75/ 9/ 1	2442656.5	-2.18239	55.54957	20.63994	-1.02835	-0.07736	-0.10821	59.30029	1.03692	92.25	20.37
75/ 9/ 1	2442657.0	-9.11817	54.63655	19.76385	-1.01730	-0.19239	-0.15036	58.81244	1.04619	99.47	19.64
75/ 9/ 2	2442657.5	-15.92899	52.94339	18.60575	-0.99137	-0.30744	-0.19137	58.33446	1.05544	106.74	18.60
75/ 9/ 2	2442658.0	-22.51279	50.47609	17.17583	-0.95023	-0.42067	-0.23051	57.87634	1.06444	114.04	17.26
75/ 9/ 3	2442658.5	-28.76615	47.25356	15.48924	-0.89381	-0.53011	-0.26704	57.44830	1.07295	121.33	15.64
75/ 9/ 3	2442659.0	-34.58640	43.30864	13.56621	-0.82241	-0.63364	-0.30020	57.06048	1.08073	128.61	13.75
75/ 9/ 4	2442659.5	-39.87417	38.68854	11.43211	-0.73672	-0.72912	-0.32924	56.72253	1.08756	135.86	11.63
75/ 9/ 4	2442660.0	-44.53619	33.45499	9.11723	-0.63785	-0.81444	-0.35347	56.44318	1.09321	143.09	9.30
75/ 9/ 5	2442660.5	-48.48816	27.68361	6.65637	-0.52734	-0.88762	-0.37225	56.22980	1.09752	150.28	6.80
75/ 9/ 5	2442661.0	-51.65764	21.46273	4.08813	-0.40715	-0.94691	-0.38511	56.08809	1.10033	157.44	4.18
75/ 9/ 6	2442661.5	-53.98666	14.89142	1.45400	-0.27957	-0.99090	-0.39167	56.02168	1.10156	164.58	1.49
75/ 9/ 6	2442662.0	-55.43375	8.07705	-1.20273	-0.14716	-1.01856	-0.39176	56.03201	1.10118	171.71	-1.23
75/ 9/ 7	2442662.5	-55.97536	1.13225	-3.83819	-0.01265	-1.02936	-0.38540	56.11822	1.09921	178.84	-3.92
75/ 9/ 7	2442663.0	-55.60647	-5.82826	-6.40917	0.12125	-1.02323	-0.37277	56.27722	1.09575	185.98	-6.54
75/ 9/ 8	2442663.5	-54.34036	-12.69098	-8.87436	0.25187	-1.00058	-0.35423	56.50389	1.09091	193.15	-9.04
75/ 9/ 8	2442664.0	-52.20758	-19.34661	-11.19534	0.37678	-0.96225	-0.33028	56.79136	1.08489	200.33	-11.37
75/ 9/ 9	2442664.5	-49.25438	-25.69276	-13.33750	0.49381	-0.90942	-0.30154	57.13143	1.07788	207.55	-13.50

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
					GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						
75/ 9/ 9	2442665.0	-45.54050	-31.63607	-15.27066	0.60112	-0.84356	-0.26868	57.51496	1.07011	214.79	-15.40
75/ 9/10	2442665.5	-41.13690	-37.09376	-16.96945	0.69726	-0.76631	-0.23245	57.93232	1.06181	222.04	-17.03
75/ 9/10	2442666.0	-36.12322	-41.99469	-18.41352	0.78112	-0.67944	-0.19359	58.37378	1.05322	229.30	-18.39
75/ 9/11	2442666.5	-30.58543	-46.27976	-19.58751	0.85193	-0.58475	-0.15282	58.82989	1.04454	236.54	-19.45
75/ 9/11	2442667.0	-24.61363	-49.90199	-20.48093	0.90923	-0.48400	-0.11085	59.29172	1.03598	243.75	-20.21
75/ 9/12	2442667.5	-18.30006	-52.82623	-21.08782	0.95284	-0.37892	-0.06832	59.75114	1.02769	250.89	-20.67
75/ 9/12	2442668.0	-11.73747	-55.02861	-21.40652	0.98279	-0.27111	-0.02584	60.20095	1.01982	257.96	-20.83
75/ 9/13	2442668.5	-5.01773	-56.49586	-21.43921	0.99929	-0.16208	0.01605	60.63497	1.01248	264.92	-20.71
75/ 9/13	2442669.0	1.76929	-57.22456	-21.19163	1.00273	-0.05324	0.05685	61.04806	1.00575	271.77	-20.31
75/ 9/14	2442669.5	8.53663	-57.22036	-20.67264	0.99357	0.05414	0.09612	61.43616	0.99967	278.49	-19.66
75/ 9/14	2442670.0	15.20088	-56.49720	-19.89393	0.97239	0.15888	0.13348	61.79619	0.99428	285.06	-18.78
75/ 9/15	2442670.5	21.68280	-55.07657	-18.86967	0.93984	0.25992	0.16857	62.12597	0.98958	291.49	-17.68
75/ 9/15	2442671.0	27.90768	-52.98686	-17.61625	0.89661	0.35630	0.20110	62.42417	0.98555	297.78	-16.39
75/ 9/16	2442671.5	33.80574	-50.26269	-16.15199	0.84346	0.44713	0.23079	62.69014	0.98215	303.92	-14.93
75/ 9/16	2442672.0	39.31241	-46.94440	-14.49691	0.78117	0.53162	0.25741	62.92379	0.97934	309.94	-13.32
75/ 9/17	2442672.5	44.36858	-43.07743	-12.67254	0.71057	0.60904	0.28075	63.12551	0.97706	315.85	-11.58
75/ 9/17	2442673.0	48.92084	-38.71188	-10.70164	0.63251	0.67874	0.30065	63.29600	0.97527	321.64	-9.73
75/ 9/18	2442673.5	52.92170	-33.90198	-8.60807	0.54789	0.74016	0.31696	63.43618	0.97390	327.36	-7.80
75/ 9/18	2442674.0	56.32979	-28.70563	-6.41657	0.45763	0.79278	0.32955	63.54708	0.97290	333.00	-5.80
75/ 9/19	2442674.5	59.11005	-23.18390	-4.15256	0.36266	0.83618	0.33836	63.62967	0.97221	338.58	-3.74
75/ 9/19	2442675.0	61.23391	-17.40055	-1.84195	0.26396	0.86998	0.34331	63.68488	0.97180	344.14	-1.66
75/ 9/20	2442675.5	62.67942	-11.42154	0.48907	0.16252	0.89391	0.34438	63.71342	0.97164	349.67	0.44
75/ 9/20	2442676.0	63.43140	-5.31452	2.81420	0.05933	0.90775	0.34157	63.71582	0.97170	355.21	2.53
75/ 9/21	2442676.5	63.48153	0.85167	5.10723	-0.04457	0.91137	0.33491	63.69233	0.97198	0.77	4.60
75/ 9/21	2442677.0	62.82842	7.00757	7.34228	-0.14816	0.90471	0.32446	63.64295	0.97248	6.36	6.62
75/ 9/22	2442677.5	61.47764	13.08355	9.49396	-0.25041	0.88778	0.31031	63.56741	0.97322	12.01	8.59
75/ 9/22	2442678.0	59.44174	19.01042	11.53758	-0.35030	0.86070	0.29257	63.46520	0.97422	17.74	10.47
75/ 9/23	2442678.5	56.74015	24.71993	13.44934	-0.44681	0.82363	0.27140	63.33565	0.97553	23.54	12.26
75/ 9/23	2442679.0	53.39923	30.14525	15.20654	-0.53893	0.77683	0.24696	63.17794	0.97719	29.45	13.93
75/ 9/24	2442679.5	49.45208	35.22159	16.78771	-0.62566	0.72064	0.21946	62.99124	0.97925	35.46	15.46
75/ 9/24	2442680.0	44.93853	39.88668	18.17289	-0.70602	0.65547	0.18912	62.77477	0.98177	41.59	16.83
75/ 9/25	2442680.5	39.90497	44.08130	19.34374	-0.77905	0.58181	0.15621	62.52798	0.98480	47.85	18.02
75/ 9/25	2442681.0	34.40426	47.74991	20.28378	-0.84382	0.50024	0.12102	62.25061	0.98839	54.23	19.02
75/ 9/26	2442681.5	28.49549	50.84117	20.97858	-0.89940	0.41144	0.08385	61.94286	0.99259	60.73	19.80
75/ 9/26	2442682.0	22.24386	53.30859	21.41598	-0.94492	0.31616	0.04507	61.60551	0.99742	67.35	20.34
75/ 9/27	2442682.5	15.72041	55.11117	21.58631	-0.97953	0.21527	0.00506	61.24003	1.00292	74.08	20.64
75/ 9/27	2442683.0	9.00175	56.21413	21.48265	-1.00243	0.10974	-0.03577	60.84870	1.00906	80.90	20.67
75/ 9/28	2442683.5	2.16965	56.58970	21.10103	-1.01291	0.00067	-0.07694	60.43472	1.01582	87.80	20.44
75/ 9/28	2442684.0	-4.68940	56.21795	20.44078	-1.01029	-0.11072	-0.11796	60.00228	1.02316	94.77	19.92
75/ 9/29	2442684.5	-11.48483	55.08767	19.50475	-0.99404	-0.22308	-0.15828	59.55659	1.03099	101.78	19.12
75/ 9/29	2442685.0	-18.12287	53.19736	18.29965	-0.96376	-0.33489	-0.19731	59.10394	1.03919	108.81	18.04
75/ 9/30	2442685.5	-24.50760	50.55617	16.83626	-0.91922	-0.44453	-0.23444	58.65158	1.04763	115.86	16.68
75/ 9/30	2442686.0	-30.54225	47.18473	15.12968	-0.86041	-0.55022	-0.26902	58.20769	1.05613	122.91	15.07
75/10/ 1	2442686.5	-36.13095	43.11603	13.19950	-0.78760	-0.65011	-0.30036	57.78117	1.06450	129.96	13.21
75/10/ 1	2442687.0	-41.18060	38.39590	11.06983	-0.70136	-0.74226	-0.32781	57.38142	1.07252	137.00	11.12

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/10/ 2	2442687.5	-45.60319	33.08333	8.76926	-0.60261	-0.82473	-0.35072	57.01804	1.07997	144.04	8.85
75/10/ 2	2442688.0	-49.31823	27.25028	6.33058	-0.49267	-0.89565	-0.36850	56.70045	1.08661	151.08	6.41
75/10/ 3	2442688.5	-52.25538	20.98097	3.79032	-0.37322	-0.95328	-0.38064	56.43751	1.09221	158.12	3.85
75/10/ 3	2442689.0	-54.35695	14.37064	1.18812	-0.24630	-0.99613	-0.38674	56.23704	1.09659	165.19	1.21
75/10/ 4	2442689.5	-55.58024	7.52361	-1.43419	-0.11429	-1.02301	-0.38655	56.10547	1.09956	172.29	-1.46
75/10/ 4	2442690.0	-55.89939	0.55084	-4.03364	0.02023	-1.03317	-0.37999	56.04744	1.10101	179.44	-4.13
75/10/ 5	2442690.5	-55.30665	-6.43302	-6.56728	0.15453	-1.02628	-0.36715	56.06549	1.10087	186.63	-6.73
75/10/ 5	2442691.0	-53.81285	-13.31284	-8.99341	0.28586	-1.00251	-0.34830	56.15991	1.09912	193.90	-9.21
75/10/ 6	2442691.5	-51.44703	-19.97627	-11.27279	0.41161	-0.96253	-0.32390	56.32872	1.09580	201.22	-11.54
75/10/ 6	2442692.0	-48.25535	-26.31689	-13.36966	0.52936	-0.90740	-0.29452	56.56770	1.09103	208.61	-13.67
75/10/ 7	2442692.5	-44.29917	-32.23687	-15.25262	0.63704	-0.83858	-0.26086	56.87068	1.08494	216.04	-15.56
75/10/ 7	2442693.0	-39.65273	-37.64919	-16.89526	0.73294	-0.75780	-0.22368	57.22980	1.07772	223.52	-17.17
75/10/ 8	2442693.5	-34.40047	-42.47919	-18.27651	0.81575	-0.66695	-0.18380	57.63596	1.06961	231.00	-18.49
75/10/ 8	2442694.0	-28.63421	-46.66544	-19.38076	0.88460	-0.56804	-0.14202	58.07922	1.06083	238.47	-19.49
75/10/ 9	2442694.5	-22.45051	-50.16009	-20.19778	0.93897	-0.46306	-0.09911	58.54921	1.05162	245.89	-20.18
75/10/ 9	2442695.0	-15.94816	-52.92862	-20.72244	0.97869	-0.35394	-0.05580	59.03560	1.04222	253.23	-20.55
75/10/10	2442695.5	-9.22604	-54.94927	-20.95431	1.00390	-0.24250	-0.01276	59.52835	1.03286	260.47	-20.61
75/10/10	2442696.0	-2.38137	-56.21213	-20.89725	1.01496	-0.13044	0.02942	60.01808	1.02373	267.57	-20.38
75/10/11	2442696.5	4.49173	-56.71815	-20.55886	1.01240	-0.01925	0.07023	60.49621	1.01502	274.53	-19.87
75/10/11	2442697.0	11.30326	-56.47800	-19.95003	0.99690	0.08969	0.10921	60.95516	1.00687	281.32	-19.10
75/10/12	2442697.5	17.96810	-55.51102	-19.08446	0.96922	0.19519	0.14599	61.38845	0.99940	287.94	-18.11
75/10/12	2442698.0	24.40656	-53.84417	-17.97826	0.93019	0.29619	0.18022	61.79072	0.99270	294.38	-16.92
75/10/13	2442698.5	30.54468	-51.51113	-16.64957	0.88068	0.39176	0.21164	62.15772	0.98684	300.67	-15.54
75/10/13	2442699.0	36.31440	-48.55148	-15.11824	0.82156	0.48110	0.24002	62.48634	0.98185	306.79	-14.00
75/10/14	2442699.5	41.65375	-45.00992	-13.40555	0.75374	0.56348	0.26517	62.77449	0.97773	312.78	-12.33
75/10/14	2442700.0	46.50683	-40.93571	-11.53398	0.67812	0.63829	0.28691	63.02103	0.97446	318.65	-10.55
75/10/15	2442700.5	50.82389	-36.38209	-9.52701	0.59561	0.70497	0.30513	63.22569	0.97202	324.40	-8.67
75/10/15	2442701.0	54.56135	-31.40579	-7.40891	0.50712	0.76303	0.31971	63.38893	0.97036	330.08	-6.71
75/10/16	2442701.5	57.68186	-26.06664	-5.20463	0.41358	0.81205	0.33057	63.51184	0.96941	335.68	-4.70
75/10/16	2442702.0	60.15436	-20.42713	-2.93958	0.31593	0.85166	0.33765	63.59604	0.96909	341.24	-2.65
75/10/17	2442702.5	61.95421	-14.55206	-0.63955	0.21511	0.88156	0.34090	63.64351	0.96935	346.78	-0.58
75/10/17	2442703.0	63.06326	-8.50812	1.66951	0.11210	0.90149	0.34031	63.65650	0.97009	352.32	1.50
75/10/18	2442703.5	63.47002	-2.36347	3.96159	0.00789	0.91127	0.33589	63.63744	0.97124	357.87	3.57
75/10/18	2442704.0	63.16977	3.81267	6.21086	-0.09650	0.91078	0.32767	63.58877	0.97273	3.45	5.61
75/10/19	2442704.5	62.16469	9.95052	8.39179	-0.20006	0.89996	0.31572	63.51286	0.97450	9.09	7.59
75/10/19	2442705.0	60.46397	15.98022	10.47938	-0.30174	0.87886	0.30013	63.41196	0.97648	14.80	9.51
75/10/20	2442705.5	58.08391	21.83241	12.44937	-0.40049	0.84757	0.28102	63.28808	0.97864	20.60	11.34
75/10/20	2442706.0	55.04792	27.43878	14.27844	-0.49526	0.80631	0.25855	63.14296	0.98095	26.49	13.07
75/10/21	2442706.5	51.38655	32.73271	15.94445	-0.58499	0.75537	0.23290	62.97803	0.98338	32.50	14.67
75/10/21	2442707.0	47.13739	37.64989	17.42665	-0.66866	0.69513	0.20431	62.79439	0.98593	38.62	16.11
75/10/22	2442707.5	42.34495	42.12902	18.70595	-0.74525	0.62610	0.17303	62.59282	0.98860	44.85	17.39
75/10/22	2442708.0	37.06050	46.11243	19.76510	-0.81379	0.54886	0.13936	62.37384	0.99142	51.21	18.47
75/10/23	2442708.5	31.34173	49.54683	20.58897	-0.87335	0.46410	0.10361	62.13773	0.99442	57.68	19.35
75/10/23	2442709.0	25.25247	52.38393	21.16474	-0.92305	0.37262	0.06616	61.88465	0.99762	64.26	20.00
75/10/24	2442709.5	18.86227	54.58118	21.48216	-0.96209	0.27532	0.02739	61.61472	1.00108	70.94	20.40

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
75/10/24	2442710.0	12.24591	56.10240	21.53369	-0.98972	0.17317	-0.01228	61.32815	1.00483	77.69	20.56
75/10/25	2442710.5	5.48284	56.91844	21.31478	-1.00531	0.06727	-0.05240	61.02533	1.00892	84.50	20.44
75/10/25	2442711.0	-1.34347	57.00786	20.82400	-1.00831	-0.04119	-0.09248	60.70700	1.01338	91.35	20.06
75/10/26	2442711.5	-8.14621	56.35752	20.06324	-0.99829	-0.15095	-0.13204	60.37437	1.01824	98.22	19.41
75/10/26	2442712.0	-14.83610	54.96323	19.03785	-0.97495	-0.26064	-0.17053	60.02921	1.02349	105.11	18.49
75/10/27	2442712.5	-21.32231	52.83031	17.75682	-0.93813	-0.36881	-0.20743	59.67400	1.02915	111.98	17.31
75/10/27	2442713.0	-27.51349	49.97417	16.23286	-0.88785	-0.47394	-0.24217	59.31202	1.03516	118.84	15.88
75/10/28	2442713.5	-33.31907	46.42078	14.48252	-0.82431	-0.57444	-0.27419	58.94737	1.04147	125.67	14.22
75/10/28	2442714.0	-38.65057	42.20705	12.52618	-0.74795	-0.66866	-0.30291	58.58504	1.04799	132.48	12.35
75/10/29	2442714.5	-43.42320	37.38106	10.38804	-0.65942	-0.75496	-0.32778	58.23083	1.05462	139.28	10.28
75/10/29	2442715.0	-47.55754	32.00214	8.09603	-0.55965	-0.83167	-0.34826	57.89130	1.06121	146.06	8.04
75/10/30	2442715.5	-50.98147	26.14059	5.68152	-0.44986	-0.89721	-0.36387	57.57361	1.06760	152.85	5.66
75/10/30	2442716.0	-53.63207	19.87718	3.17904	-0.33156	-0.95010	-0.37418	57.28531	1.07361	159.66	3.18
75/10/31	2442716.5	-55.45760	13.30218	0.62570	-0.20655	-0.98902	-0.37884	57.03407	1.07905	166.51	0.63
75/10/31	2442717.0	-56.41946	6.51401	-1.93937	-0.07689	-1.01289	-0.37762	56.82736	1.08372	173.41	-1.96
75/11/ 1	2442717.5	-56.49377	-0.38260	-4.47589	0.05514	-1.02094	-0.37040	56.67209	1.08745	180.39	-4.53
75/11/ 1	2442718.0	-55.67279	-7.27883	-6.94331	0.18707	-1.01274	-0.35723	56.57429	1.09007	187.45	-7.05
75/11/ 2	2442718.5	-53.96565	-14.06436	-9.30186	0.31639	-0.98829	-0.33829	56.53867	1.09144	194.61	-9.47
75/11/ 2	2442719.0	-51.39863	-20.63020	-11.51354	0.44057	-0.94797	-0.31393	56.56842	1.09147	201.87	-11.74
75/11/ 3	2442719.5	-48.01469	-26.87153	-13.54321	0.55724	-0.89263	-0.28464	56.66488	1.09010	209.23	-13.83
75/11/ 3	2442720.0	-43.87230	-32.69050	-15.35947	0.66420	-0.82349	-0.25103	56.82747	1.08734	216.69	-15.68
75/11/ 4	2442720.5	-39.04370	-37.99867	-16.93542	0.75959	-0.74208	-0.21381	57.05364	1.08322	224.22	-17.27
75/11/ 4	2442721.0	-33.61261	-42.71899	-18.24926	0.84189	-0.65022	-0.17376	57.33895	1.07785	231.80	-18.56
75/11/ 5	2442721.5	-27.67165	-46.78729	-19.28459	0.90999	-0.54988	-0.13170	57.67726	1.07136	239.40	-19.53
75/11/ 5	2442722.0	-21.31962	-50.15310	-20.03050	0.96319	-0.44312	-0.08843	58.06101	1.06392	246.97	-20.18
75/11/ 6	2442722.5	-14.65875	-52.77992	-20.48149	1.00117	-0.33200	-0.04474	58.48154	1.05573	254.48	-20.50
75/11/ 6	2442723.0	-7.79221	-54.64496	-20.63715	1.02396	-0.21849	-0.00134	58.92946	1.04701	261.88	-20.50
75/11/ 7	2442723.5	-0.82191	-55.73841	-20.50175	1.03189	-0.10445	0.04111	59.39502	1.03798	269.16	-20.19
75/11/ 7	2442724.0	6.15335	-56.06251	-20.08373	1.02554	0.00842	0.08203	59.86840	1.02885	276.26	-19.60
75/11/ 8	2442724.5	13.03933	-55.63032	-19.39515	1.00566	0.11864	0.12093	60.34010	1.01983	283.19	-18.75
75/11/ 8	2442725.0	19.74741	-54.46442	-18.45113	0.97316	0.22488	0.15739	60.80113	1.01113	289.93	-17.67
75/11/ 9	2442725.5	26.19528	-52.59572	-17.26937	0.92900	0.32600	0.19108	61.24323	1.00291	296.48	-16.38
75/11/ 9	2442726.0	32.30745	-50.06219	-15.86962	0.87420	0.42105	0.22172	61.65905	0.99532	302.84	-14.91
75/11/10	2442726.5	38.01537	-46.90780	-14.27330	0.80980	0.50921	0.24910	62.04222	0.98850	309.02	-13.30
75/11/10	2442727.0	43.25759	-43.18157	-12.50314	0.73685	0.58980	0.27303	62.38746	0.98253	315.05	-11.56
75/11/11	2442727.5	47.97961	-38.93677	-10.58288	0.65636	0.66226	0.29340	62.69061	0.97749	320.94	-9.72
75/11/11	2442728.0	52.13385	-34.23018	-8.53700	0.56935	0.72609	0.31011	62.94858	0.97342	326.71	-7.79
75/11/12	2442728.5	55.67951	-29.12154	-6.39058	0.47681	0.78092	0.32308	63.15941	0.97034	332.39	-5.81
75/11/12	2442729.0	58.58240	-23.67309	-4.16907	0.37971	0.82639	0.33228	63.32214	0.96825	338.00	-3.78
75/11/13	2442729.5	60.81490	-17.94911	-1.89818	0.27901	0.86223	0.33766	63.43679	0.96711	343.56	-1.71
75/11/13	2442730.0	62.35589	-12.01565	0.39626	0.17567	0.88822	0.33923	63.50425	0.96689	349.09	0.36
75/11/14	2442730.5	63.19074	-5.94010	2.68840	0.07065	0.90416	0.33699	63.52623	0.96750	354.63	2.43
75/11/14	2442731.0	63.31136	0.20904	4.95251	-0.03507	0.90993	0.33096	63.50512	0.96888	0.19	4.47
75/11/15	2442731.5	62.71629	6.36252	7.16308	-0.14052	0.90544	0.32119	63.44387	0.97094	5.79	6.48
75/11/15	2442732.0	61.41081	12.45074	9.29501	-0.24468	0.89066	0.30775	63.34592	0.97358	11.46	8.44

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/11/16	2442732.5	-59.40709	-18.40412	11.32374	-0.34653	0.86563	0.29073	63.21504	0.97669	17.21	10.32
75/11/16	2442733.0	56.72437	24.15360	13.22543	-0.44501	0.83047	0.27026	63.05523	0.98019	23.06	12.11
75/11/17	2442733.5	53.38901	29.63119	14.97720	-0.53907	0.78538	0.24649	62.87058	0.98396	29.03	13.78
75/11/17	2442734.0	49.43465	34.77055	16.55731	-0.62762	0.73066	0.21961	62.66514	0.98792	35.12	15.32
75/11/18	2442734.5	44.90221	39.50771	17.94549	-0.70959	0.66669	0.18985	62.44284	0.99199	41.34	16.70
75/11/18	2442735.0	39.83987	43.78178	19.12313	-0.78392	0.59401	0.15749	62.20734	0.99608	47.70	17.90
75/11/19	2442735.5	34.30289	47.53579	20.07360	-0.84958	0.51324	0.12283	61.96200	1.00014	54.18	18.90
75/11/19	2442736.0	28.35337	50.71750	20.78253	-0.90558	0.42515	0.08623	61.70975	1.00412	60.79	19.68
75/11/20	2442736.5	22.05986	53.28027	21.23810	-0.95101	0.33062	0.04808	61.45308	1.00799	67.51	20.22
75/11/20	2442737.0	15.49682	55.18386	21.43131	-0.98505	0.23068	0.00882	61.19404	1.01173	74.31	20.50
75/11/21	2442737.5	8.74392	56.39533	21.35619	-1.00696	0.12644	-0.03107	60.93420	1.01535	81.19	20.52
75/11/21	2442738.0	1.88532	56.88974	21.01009	-1.01618	0.01915	-0.07111	60.67472	1.01884	88.10	20.26
75/11/22	2442738.5	-4.99137	56.65087	20.39380	-1.01224	-0.08986	-0.11077	60.41640	1.02224	95.04	19.73
75/11/22	2442739.0	-11.79607	55.67178	19.51169	-0.99489	-0.19919	-0.14951	60.15979	1.02559	101.96	18.93
75/11/23	2442739.5	-18.43741	53.95533	18.37184	-0.96400	-0.30735	-0.18679	59.90526	1.02891	108.87	17.86
75/11/23	2442740.0	-24.82395	51.51454	16.98603	-0.91968	-0.41283	-0.22205	59.65318	1.03225	115.73	16.54
75/11/24	2442740.5	-30.86549	48.37277	15.36977	-0.86219	-0.51408	-0.25475	59.40398	1.03564	122.54	14.99
75/11/24	2442741.0	-36.47447	44.56385	13.54216	-0.79204	-0.60957	-0.28437	59.15838	1.03912	129.30	13.23
75/11/25	2442741.5	-41.56730	40.13199	11.52582	-0.70991	-0.69778	-0.31040	58.91741	1.04270	136.01	11.28
75/11/25	2442742.0	-46.06586	35.13156	9.34667	-0.61673	-0.77723	-0.33237	58.68262	1.04638	142.67	9.16
75/11/26	2442742.5	-49.89894	29.62663	7.03365	-0.51361	-0.84653	-0.34986	58.45608	1.05015	149.30	6.91
75/11/26	2442743.0	-53.00367	23.69042	4.61842	-0.40189	-0.90438	-0.36250	58.24049	1.05396	155.92	4.55
75/11/27	2442743.5	-55.32690	17.40447	2.13490	-0.28311	-0.94963	-0.36998	58.03912	1.05775	162.54	2.11
75/11/27	2442744.0	-56.82661	10.85756	-0.38113	-0.15901	-0.98129	-0.37207	57.85582	1.06144	169.18	-0.38
75/11/28	2442744.5	-57.47310	4.14446	-2.89268	-0.03149	-0.99859	-0.36864	57.69490	1.06493	175.88	-2.87
75/11/28	2442745.0	-57.25006	-2.63560	-5.36214	0.09741	-1.00100	-0.35965	57.56099	1.06810	182.64	-5.35
75/11/29	2442745.5	-56.15539	-9.38070	-7.75201	0.22553	-0.98825	-0.34516	57.45885	1.07081	189.48	-7.75
75/11/29	2442746.0	-54.20177	-15.98823	-10.02567	0.35068	-0.96041	-0.32537	57.39311	1.07295	196.43	-10.06
75/11/30	2442746.5	-51.41678	-22.35697	-12.14814	0.47067	-0.91783	-0.30058	57.36808	1.07438	203.50	-12.23
75/11/30	2442747.0	-47.84265	-28.38934	-14.08691	0.58336	-0.86123	-0.27120	57.38741	1.07498	210.68	-14.21
75/12/ 1	2442747.5	-43.53553	-33.99363	-15.81267	0.68680	-0.79161	-0.23777	57.45389	1.07466	217.98	-15.98
75/12/ 1	2442748.0	-38.56427	-39.08604	-17.29999	0.77920	-0.71031	-0.20090	57.56919	1.07334	225.38	-17.49
75/12/ 2	2442748.5	-33.00886	-43.59256	-18.52788	0.85907	-0.61889	-0.16128	57.73369	1.07100	232.87	-18.72
75/12/ 2	2442749.0	-26.95838	-47.45051	-19.48019	0.92522	-0.51910	-0.11965	57.94638	1.06762	240.40	-19.64
75/12/ 3	2442749.5	-20.50883	-50.60964	-20.14585	0.97681	-0.41285	-0.07677	58.20483	1.06325	247.94	-20.25
75/12/ 3	2442750.0	-13.76069	-53.03277	-20.51893	1.01334	-0.30210	-0.03338	58.50520	1.05794	255.45	-20.53
75/12/ 4	2442750.5	-6.81661	-54.69603	-20.59853	1.03467	-0.18879	0.00978	58.84235	1.05180	262.90	-20.49
75/12/ 4	2442751.0	0.22090	-55.58856	-20.38851	1.04098	-0.07481	0.05203	59.21004	1.04496	270.23	-20.14
75/12/ 5	2442751.5	7.25146	-55.71190	-19.89710	1.03272	0.03807	0.09277	59.60112	1.03758	277.42	-19.50
75/12/ 5	2442752.0	14.17861	-55.07905	-19.13644	1.01057	0.14823	0.13146	60.00782	1.02981	284.44	-18.60
75/12/ 6	2442752.5	20.91116	-53.71337	-18.12202	0.97541	0.25425	0.16763	60.42193	1.02185	291.27	-17.45
75/12/ 6	2442753.0	27.36430	-51.64726	-16.87222	0.92824	0.35487	0.20092	60.83516	1.01387	297.92	-16.10
75/12/ 7	2442753.5	33.46029	-48.92099	-15.40767	0.87014	0.44903	0.23100	61.23929	1.00605	304.37	-14.57
75/12/ 7	2442754.0	39.12896	-45.58133	-13.75089	0.80224	0.53586	0.25765	61.62646	0.99856	310.64	-12.89
75/12/ 8	2442754.5	44.30788	-41.68052	-11.92574	0.72571	0.61463	0.28069	61.98933	0.99157	316.75	-11.09

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
75/12/ 8	2442755.0	48.94238	-37.27513	-9.95710	0.64167	0.68477	0.30000	62.32123	0.98522	322.71	-9.19
75/12/ 9	2442755.5	52.98549	-32.42524	-7.87054	0.55126	0.74582	0.31550	62.61633	0.97963	328.53	-7.22
75/12/ 9	2442756.0	56.39771	-27.19365	-5.69205	0.45555	0.79743	0.32714	62.86967	0.97491	334.26	-5.19
75/12/10	2442756.5	59.14679	-21.64523	-3.44784	0.35561	0.83934	0.33491	63.07730	0.97114	339.90	-3.13
75/12/10	2442757.0	61.20754	-15.84643	-1.16412	0.25246	0.87134	0.33881	63.23629	0.96838	345.49	-1.05
75/12/11	2442757.5	62.56160	-9.86488	1.13294	0.14710	0.89329	0.33886	63.34472	0.96666	351.04	1.02
75/12/11	2442758.0	63.19730	-3.76900	3.41744	0.04050	0.90509	0.33511	63.40176	0.96598	356.59	3.09
75/12/12	2442758.5	63.10954	2.37230	5.66376	-0.06637	0.90669	0.32760	63.40757	0.96634	2.15	5.12
75/12/12	2442759.0	62.29978	8.48987	7.84670	-0.17255	0.89808	0.31640	63.36332	0.96769	7.76	7.11
75/12/13	2442759.5	60.77602	14.51460	9.94160	-0.27705	0.87929	0.30161	63.27111	0.96998	13.43	9.04
75/12/13	2442760.0	58.55292	20.37776	11.92440	-0.37889	0.85039	0.28332	63.13390	0.97313	19.19	10.89
75/12/14	2442760.5	55.65191	26.01134	13.77183	-0.47706	0.81152	0.26166	62.95544	0.97705	25.05	12.64
75/12/14	2442761.0	52.10131	31.34845	15.46155	-0.57053	0.76288	0.23678	62.74019	0.98161	31.03	14.27
75/12/15	2442761.5	47.93652	36.32386	16.97237	-0.65825	0.70477	0.20886	62.49315	0.98672	37.15	15.76
75/12/15	2442762.0	43.20014	40.87459	18.28444	-0.73914	0.63755	0.17813	62.21981	0.99223	43.42	17.09
75/12/16	2442762.5	37.94209	44.94057	19.37955	-0.81212	0.56172	0.14484	61.92595	0.99802	49.83	18.24
75/12/16	2442763.0	32.21954	48.46552	20.24140	-0.87612	0.47790	0.10931	61.61753	1.00396	56.38	19.18
75/12/17	2442763.5	26.09687	51.39779	20.85593	-0.93010	0.38685	0.07188	61.30049	1.00990	63.08	19.89
75/12/17	2442764.0	19.64536	53.69139	21.21166	-0.97307	0.28946	0.03296	60.98065	1.01575	69.90	20.36
75/12/18	2442764.5	12.94271	55.30693	21.30001	-1.00412	0.18681	-0.00700	60.66350	1.02137	76.83	20.56
75/12/18	2442765.0	6.07242	56.21272	21.11566	-1.02245	0.08010	-0.04749	60.35408	1.02668	83.83	20.48
75/12/19	2442765.5	-0.87709	56.38575	20.65681	-1.02742	-0.02933	-0.08796	60.05686	1.03159	90.89	20.12
75/12/19	2442766.0	-7.81362	55.81258	19.92545	-1.01856	-0.14000	-0.12785	59.77558	1.03605	97.97	19.47
75/12/20	2442766.5	-14.64249	54.49013	18.92757	-0.99560	-0.25032	-0.16657	59.51328	1.04001	105.04	18.54
75/12/20	2442767.0	-21.26803	52.42630	17.67321	-0.95853	-0.35865	-0.20349	59.27215	1.04346	112.08	17.35
75/12/21	2442767.5	-27.59521	49.64029	16.17653	-0.90756	-0.46329	-0.23802	59.05365	1.04640	119.07	15.90
75/12/21	2442768.0	-33.53136	46.16275	14.45568	-0.84316	-0.56257	-0.26959	58.85846	1.04885	125.99	14.22
75/12/22	2442768.5	-38.98792	42.03565	12.53265	-0.76608	-0.65483	-0.29764	58.68664	1.05085	132.85	12.33
75/12/22	2442769.0	-43.88219	37.31180	10.43295	-0.67730	-0.73853	-0.32168	58.53770	1.05245	139.63	10.27
75/12/23	2442769.5	-48.13890	32.05416	8.18526	-0.57804	-0.81223	-0.34127	58.41080	1.05371	146.34	8.06
75/12/23	2442770.0	-51.69178	26.33496	5.82097	-0.46972	-0.87463	-0.35606	58.30483	1.05470	153.00	5.73
75/12/24	2442770.5	-54.48485	20.23449	3.37364	-0.35395	-0.92465	-0.36575	58.21868	1.05548	159.63	3.32
75/12/24	2442771.0	-56.47355	13.83981	0.87848	-0.23250	-0.96138	-0.37016	58.15130	1.05609	166.23	0.87
75/12/25	2442771.5	-57.62564	7.24327	-1.62832	-0.10723	-0.98416	-0.36918	58.10190	1.05658	172.84	-1.61
75/12/25	2442772.0	-57.92185	0.54094	-4.11016	0.01990	-0.99257	-0.36280	58.07002	1.05698	179.46	-4.06
75/12/26	2442772.5	-57.35632	-6.16908	-6.53069	0.14690	-0.98642	-0.35110	58.05562	1.05730	186.14	-6.46
75/12/26	2442773.0	-55.93675	-12.78829	-8.85444	0.27177	-0.96579	-0.33425	58.05912	1.05751	192.88	-8.77
75/12/27	2442773.5	-53.68429	-19.21961	-11.04745	0.39252	-0.93101	-0.31254	58.08134	1.05761	199.70	-10.96
75/12/27	2442774.0	-50.63325	-25.36900	-13.07786	0.50727	-0.88266	-0.28631	58.12351	1.05753	206.61	-13.00
75/12/28	2442774.5	-46.83046	-31.14717	-14.91647	0.61422	-0.82155	-0.25598	58.18711	1.05723	213.63	-14.85
75/12/28	2442775.0	-42.33441	-36.47116	-16.53729	0.71173	-0.74873	-0.22208	58.27375	1.05663	220.74	-16.49
75/12/29	2442775.5	-37.21415	-41.26580	-17.91791	0.79832	-0.66546	-0.18516	58.38503	1.05567	227.96	-17.87
75/12/29	2442776.0	-31.54796	-45.46504	-19.04000	0.87275	-0.57317	-0.14584	58.52235	1.05427	235.24	-18.99
75/12/30	2442776.5	-25.42176	-49.01301	-19.88947	0.93401	-0.47342	-0.10477	58.68673	1.05237	242.59	-19.81
75/12/30	2442777.0	-18.92745	-51.86490	-20.45675	0.98135	-0.36791	-0.06262	58.87865	1.04991	249.95	-20.33

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
75/12/31	2442777.5	-12.16108	-53.98755	-20.73683	1.01429	-0.25837	-0.02007	59.09791	1.04688	257.31	-20.54
75/12/31	2442778.0	-5.22092	-55.35969	-20.72920	1.03265	-0.14658	0.02223	59.34351	1.04324	264.61	-20.45
76/ 1/ 1	2442778.5	1.79433	-55.97196	-20.43774	1.03650	-0.03427	0.06364	59.61360	1.03902	271.84	-20.05
76/ 1/ 1	2442779.0	8.78736	-55.82658	-19.87047	1.02616	0.07688	0.10358	59.90543	1.03424	278.95	-19.37
76/ 1/ 2	2442779.5	15.66384	-54.93674	-19.03919	1.00220	0.18531	0.14152	60.21538	1.02896	285.91	-18.43
76/ 1/ 2	2442780.0	22.33389	-53.32583	-17.95910	0.96535	0.28958	0.17698	60.53905	1.02326	292.72	-17.26
76/ 1/ 3	2442780.5	28.71325	-51.02647	-16.64834	0.91652	0.38840	0.20957	60.87133	1.01724	299.37	-15.87
76/ 1/ 3	2442781.0	34.72420	-48.07941	-15.12754	0.85674	0.48067	0.23895	61.20655	1.01101	305.84	-14.31
76/ 1/ 4	2442781.5	40.29630	-44.53239	-13.41937	0.78712	0.56542	0.26486	61.53865	1.00469	312.14	-12.60
76/ 1/ 4	2442782.0	45.36683	-40.43904	-11.54802	0.70882	0.64188	0.28710	61.86131	0.99843	318.29	-10.76
76/ 1/ 5	2442782.5	49.88099	-35.85774	-9.53889	0.62303	0.70941	0.30553	62.16817	0.99236	324.29	-8.83
76/ 1/ 5	2442783.0	53.79201	-30.85066	-7.41813	0.53091	0.76754	0.32006	62.45295	0.98662	330.16	-6.82
76/ 1/ 6	2442783.5	57.06104	-25.48281	-5.21233	0.43365	0.81589	0.33064	62.70969	0.98135	335.94	-4.77
76/ 1/ 6	2442784.0	59.65703	-19.82129	-2.94829	0.33235	0.85423	0.33726	62.93280	0.97668	341.62	-2.69
76/ 1/ 7	2442784.5	61.55642	-13.93457	-0.65272	0.22812	0.88237	0.33995	63.11728	0.97272	347.24	-0.59
76/ 1/ 7	2442785.0	62.74294	-7.89195	1.64786	0.12202	0.90025	0.33875	63.25880	0.96959	352.83	1.49
76/ 1/ 8	2442785.5	63.20736	-1.76309	3.92736	0.01506	0.90784	0.33374	63.35380	0.96736	358.40	3.55
76/ 1/ 8	2442786.0	62.94724	4.38238	6.16019	-0.09177	0.90517	0.32499	63.39959	0.96611	3.98	5.58
76/ 1/ 9	2442786.5	61.96674	10.47517	8.32137	-0.19750	0.89230	0.31260	63.39441	0.96588	9.59	7.54
76/ 1/ 9	2442787.0	60.27656	16.44663	10.38664	-0.30118	0.86936	0.29668	63.33749	0.96670	15.26	9.44
76/ 1/10	2442787.5	57.89380	22.22901	12.33252	-0.40185	0.83650	0.27737	63.22904	0.96858	21.00	11.25
76/ 1/10	2442788.0	54.84203	27.75575	14.13644	-0.49857	0.79391	0.25479	63.07035	0.97148	26.84	12.95
76/ 1/11	2442788.5	51.15132	32.96178	15.77687	-0.59037	0.74184	0.22911	62.86371	0.97537	32.80	14.53
76/ 1/11	2442789.0	46.85832	37.78390	17.23340	-0.67626	0.68060	0.20052	62.61243	0.98018	38.88	15.98
76/ 1/12	2442789.5	42.00644	42.16125	18.48699	-0.75523	0.61057	0.16922	62.32080	0.98580	45.11	17.26
76/ 1/12	2442790.0	36.64594	46.03583	19.52011	-0.82628	0.53222	0.13546	61.99401	0.99214	51.48	18.35
76/ 1/13	2442790.5	30.83403	49.35317	20.31703	-0.88836	0.44613	0.09953	61.63810	0.99906	58.00	19.25
76/ 1/13	2442791.0	24.63494	52.06315	20.86411	-0.94044	0.35300	0.06174	61.25980	1.00640	64.68	19.91
76/ 1/14	2442791.5	18.11980	54.12086	21.15009	-0.98152	0.25368	0.02250	60.86642	1.01402	71.49	20.33
76/ 1/14	2442792.0	11.36643	55.48768	21.16650	-1.01063	0.14917	-0.01778	60.46568	1.02174	78.42	20.49
76/ 1/15	2442792.5	4.45886	56.13236	20.90796	-1.02691	0.04064	-0.05861	60.06552	1.02939	85.46	20.37
76/ 1/15	2442793.0	-2.51329	56.03220	20.37264	-1.02960	-0.07054	-0.09942	59.67385	1.03679	92.57	19.96
76/ 1/16	2442793.5	-9.45591	55.17416	19.56254	-1.01811	-0.18289	-0.13964	59.29835	1.04378	99.73	19.26
76/ 1/16	2442794.0	-16.27155	53.55598	18.48383	-0.99206	-0.29472	-0.17864	58.94623	1.05022	106.90	18.27
76/ 1/17	2442794.5	-22.86113	51.18709	17.14702	-0.95135	-0.40426	-0.21574	58.62397	1.05596	114.07	17.01
76/ 1/17	2442795.0	-29.12571	48.08924	15.56715	-0.89615	-0.50966	-0.25030	58.33711	1.06089	121.20	15.48
76/ 1/18	2442795.5	-34.96862	44.29691	13.76369	-0.82694	-0.60903	-0.28166	58.09010	1.06493	128.29	13.71
76/ 1/18	2442796.0	-40.29762	39.85721	11.76044	-0.74456	-0.70052	-0.30920	57.88613	1.06804	135.31	11.72
76/ 1/19	2442796.5	-45.02718	34.82951	9.58514	-0.65015	-0.78238	-0.33238	57.72709	1.07018	142.28	9.56
76/ 1/19	2442797.0	-49.08058	29.28445	7.26905	-0.54516	-0.85304	-0.35071	57.61355	1.07139	149.18	7.25
76/ 1/20	2442797.5	-52.39186	23.30273	4.84630	-0.43131	-0.91112	-0.36382	57.54486	1.07170	156.02	4.83
76/ 1/20	2442798.0	-54.90744	16.97338	2.35317	-0.31053	-0.95553	-0.37145	57.51921	1.07119	162.82	2.34
76/ 1/21	2442798.5	-56.58733	10.39192	-0.17265	-0.18490	-0.98547	-0.37346	57.53389	1.06995	169.59	-0.17
76/ 1/21	2442799.0	-57.40601	3.65819	-2.69294	-0.05658	-1.00044	-0.36982	57.58545	1.06811	176.35	-2.68
76/ 1/22	2442799.5	-57.35269	-3.12572	-5.16971	0.07223	-1.00028	-0.36064	57.66998	1.06576	183.12	-5.14

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
76/ 1/22	2442800.0	-56.43135	-9.85766	-7.56601	0.19938	-0.98514	-0.34611	57.78335	1.06304	189.91	-7.52
76/ 1/23	2442800.5	-54.66026	-16.43742	-9.84663	0.32282	-0.95544	-0.32653	57.92140	1.06005	196.74	-9.79
76/ 1/23	2442801.0	-52.07122	-22.76859	-11.97867	0.44061	-0.91187	-0.30231	58.08020	1.05690	203.62	-11.90
76/ 1/24	2442801.5	-48.70858	-28.76021	-13.93215	0.55098	-0.85534	-0.27389	58.25616	1.05366	210.56	-13.84
76/ 1/24	2442802.0	-44.62797	-34.32821	-15.68040	0.65237	-0.78697	-0.24179	58.44619	1.05042	217.57	-15.56
76/ 1/25	2442802.5	-39.89503	-39.39658	-17.20037	0.74341	-0.70803	-0.20658	58.64773	1.04720	224.64	-17.05
76/ 1/25	2442803.0	-34.58387	-43.89832	-18.47294	0.82294	-0.61990	-0.16883	58.85878	1.04403	231.77	-18.29
76/ 1/26	2442803.5	-28.77568	-47.77626	-19.48302	0.89004	-0.52407	-0.12917	59.07790	1.04092	238.94	-19.26
76/ 1/26	2442804.0	-22.55715	-50.98349	-20.21970	0.94401	-0.42211	-0.08820	59.30411	1.03784	246.13	-19.93
76/ 1/27	2442804.5	-16.01894	-53.48380	-20.67621	0.98438	-0.31559	-0.04654	59.53679	1.03478	253.33	-20.32
76/ 1/27	2442805.0	-9.25423	-55.25180	-20.84991	1.01087	-0.20613	-0.00479	59.77559	1.03168	260.49	-20.41
76/ 1/28	2442805.5	-2.35724	-56.27292	-20.74215	1.02345	-0.09530	0.03648	60.02029	1.02853	267.60	-20.22
76/ 1/28	2442806.0	4.57823	-56.54320	-20.35814	1.02227	0.01533	0.07670	60.27062	1.02526	274.63	-19.74
76/ 1/29	2442806.5	11.46003	-56.06900	-19.70670	1.00768	0.12430	0.11537	60.52618	1.02185	281.55	-19.00
76/ 1/29	2442807.0	18.19900	-54.86647	-18.80000	0.98019	0.23018	0.15200	60.78629	1.01827	288.35	-18.02
76/ 1/30	2442807.5	24.71003	-52.96096	-17.65327	0.94050	0.33167	0.18618	61.04988	1.01449	295.01	-16.81
76/ 1/30	2442808.0	30.91309	-50.38631	-16.28447	0.88940	0.42758	0.21752	61.31544	1.01053	301.53	-15.40
76/ 1/31	2442808.5	36.73405	-47.18396	-14.71388	0.82783	0.51686	0.24571	61.58096	1.00639	307.90	-13.82
76/ 1/31	2442809.0	42.10542	-43.40214	-12.96380	0.75681	0.59856	0.27049	61.84393	1.00210	314.13	-12.10
76/ 2/ 1	2442809.5	46.96684	-39.09487	-11.05810	0.67743	0.67190	0.29163	62.10133	0.99770	320.23	-10.26
76/ 2/ 1	2442810.0	51.26549	-34.32108	-9.02193	0.59082	0.73622	0.30900	62.34968	0.99326	326.20	-8.32
76/ 2/ 2	2442810.5	54.95630	-29.14360	-6.88126	0.49813	0.79102	0.32247	62.58511	0.98886	332.06	-6.31
76/ 2/ 2	2442811.0	58.00202	-23.62837	-4.66267	0.40052	0.83591	0.33200	62.80346	0.98457	337.84	-4.26
76/ 2/ 3	2442811.5	60.37324	-17.84352	-2.39296	0.29915	0.87060	0.33757	63.00036	0.98051	343.53	-2.18
76/ 2/ 3	2442812.0	62.04824	-11.85868	-0.09891	0.19512	0.89495	0.33919	63.17137	0.97676	349.18	-0.09
76/ 2/ 4	2442812.5	63.01283	-5.74425	2.19292	0.08955	0.90886	0.33693	63.31210	0.97343	354.79	1.98
76/ 2/ 4	2442813.0	63.26012	0.42913	4.45643	-0.01652	0.91236	0.33085	63.41834	0.97064	0.39	4.03
76/ 2/ 5	2442813.5	62.79025	6.59116	6.66613	-0.12206	0.90553	0.32105	63.48619	0.96848	5.99	6.03
76/ 2/ 5	2442814.0	61.61021	12.67225	8.79729	-0.22607	0.88849	0.30767	63.51217	0.96705	11.62	7.96
76/ 2/ 6	2442814.5	59.73354	18.60397	10.82604	-0.32760	0.86145	0.29084	63.49336	0.96644	17.30	9.82
76/ 2/ 6	2442815.0	57.18023	24.31933	12.72951	-0.42573	0.82465	0.27070	63.42751	0.96673	23.04	11.58
76/ 2/ 7	2442815.5	53.97650	29.75310	14.48589	-0.51951	0.77835	0.24743	63.31312	0.96796	28.86	13.23
76/ 2/ 7	2442816.0	50.15478	34.84212	16.07456	-0.60807	0.72290	0.22121	63.14955	0.97019	34.79	14.75
76/ 2/ 8	2442816.5	45.75360	39.52559	17.47620	-0.69047	0.65867	0.19224	62.93712	0.97342	40.82	16.12
76/ 2/ 8	2442817.0	40.81766	43.74547	18.67287	-0.76582	0.58608	0.16073	62.67713	0.97766	46.98	17.33
76/ 2/ 9	2442817.5	35.39783	47.44683	19.64823	-0.83321	0.50564	0.12693	62.37195	0.98286	53.28	18.36
76/ 2/ 9	2442818.0	29.55122	50.57840	20.38767	-0.89170	0.41793	0.09111	62.02505	0.98899	59.70	19.19
76/ 2/10	2442818.5	23.34118	53.09316	20.87856	-0.94037	0.32362	0.05359	61.64097	0.99594	66.27	19.80
76/ 2/10	2442819.0	16.83733	54.94904	21.11046	-0.97831	0.22351	0.01470	61.22535	1.00362	72.96	20.17
76/ 2/11	2442819.5	10.11543	56.10975	21.07548	-1.00461	0.11851	-0.02515	60.78488	1.01189	79.78	20.29
76/ 2/11	2442820.0	3.25717	56.54576	20.76854	-1.01844	0.00970	-0.06553	60.32715	1.02059	86.70	20.14
76/ 2/12	2442820.5	-3.65028	56.23538	20.18779	-1.01902	-0.10168	-0.10592	59.86058	1.02954	93.71	19.71
76/ 2/12	2442821.0	-10.51492	55.16585	19.33492	-1.00570	-0.21422	-0.14578	59.39422	1.03854	100.79	19.00
76/ 2/13	2442821.5	-17.24090	53.33459	18.21557	-0.97801	-0.32633	-0.18451	58.93754	1.04739	107.91	18.00
76/ 2/13	2442822.0	-23.72983	50.75029	16.83961	-0.93568	-0.43628	-0.22145	58.50016	1.05588	115.06	16.73

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 2/14	2442822.5	-29.88244	47.43392	15.22141	-0.87872	-0.54219	-0.25593	58.09155	1.06378	122.21	15.19
76/ 2/14	2442823.0	-35.60060	43.41947	13.37996	-0.80747	-0.64209	-0.28726	57.72067	1.07089	129.35	13.40
76/ 2/15	2442823.5	-40.78962	38.75434	11.33888	-0.72262	-0.73399	-0.31477	57.39567	1.07704	136.47	11.39
76/ 2/15	2442824.0	-45.36081	33.49932	9.12618	-0.62524	-0.81596	-0.33783	57.12351	1.08206	143.55	9.19
76/ 2/16	2442824.5	-49.23402	27.72794	6.77393	-0.51678	-0.88618	-0.35589	56.90970	1.08584	150.61	6.84
76/ 2/16	2442825.0	-52.34017	21.52535	4.31761	-0.39906	-0.94305	-0.36850	56.75805	1.08830	157.64	4.36
76/ 2/17	2442825.5	-54.62352	14.98654	1.79537	-0.27419	-0.98527	-0.37532	56.67052	1.08941	164.66	1.82
76/ 2/17	2442826.0	-56.04343	8.21420	-0.75292	-0.14450	-1.01189	-0.37617	56.64721	1.08918	171.66	-0.76
76/ 2/18	2442826.5	-56.57569	1.31604	-3.28665	-0.01249	-1.02237	-0.37103	56.68635	1.08768	178.67	-3.32
76/ 2/18	2442827.0	-56.21303	-5.59790	-5.76558	0.11934	-1.01657	-0.36002	56.78454	1.08502	185.69	-5.83
76/ 2/19	2442827.5	-54.96515	-12.41814	-8.15079	0.24851	-0.99478	-0.34341	56.93693	1.08133	192.73	-8.23
76/ 2/19	2442828.0	-52.85796	-19.03838	-10.40563	0.37272	-0.95765	-0.32160	57.13756	1.07677	199.81	-10.49
76/ 2/20	2442828.5	-49.93240	-25.35794	-12.49650	0.48984	-0.90618	-0.29508	57.37972	1.07153	206.92	-12.58
76/ 2/20	2442829.0	-46.24279	-31.28375	-14.39347	0.59805	-0.84161	-0.26444	57.65623	1.06578	214.08	-14.46
76/ 2/21	2442829.5	-41.85496	-36.73195	-16.07073	0.69579	-0.76540	-0.23031	57.95983	1.05972	221.27	-16.10
76/ 2/21	2442830.0	-36.84422	-41.62905	-17.50685	0.78181	-0.67914	-0.19335	58.28348	1.05349	228.49	-17.48
76/ 2/22	2442830.5	-31.29329	-45.91265	-18.68493	0.85517	-0.58452	-0.15423	58.62055	1.04726	235.72	-18.59
76/ 2/22	2442831.0	-25.29037	-49.53185	-19.59258	0.91519	-0.48323	-0.11360	58.96504	1.04115	242.95	-19.41
76/ 2/23	2442831.5	-18.92729	-52.44726	-20.22184	0.96147	-0.37698	-0.07212	59.31172	1.03525	250.16	-19.93
76/ 2/23	2442832.0	-12.29781	-54.63092	-20.56897	0.99384	-0.26742	-0.03039	59.65615	1.02964	257.31	-20.17
76/ 2/24	2442832.5	-5.49617	-56.06592	-20.63429	1.01233	-0.15617	0.01101	59.99474	1.02437	264.40	-20.12
76/ 2/24	2442833.0	1.38427	-56.74592	-20.42186	1.01716	-0.04473	0.05154	60.32469	1.01945	271.40	-19.79
76/ 2/25	2442833.5	8.25215	-56.67464	-19.93921	1.00870	0.06545	0.09072	60.64392	1.01488	278.28	-19.20
76/ 2/25	2442834.0	15.01914	-55.86518	-19.19707	0.98746	0.17303	0.12809	60.95097	1.01066	285.05	-18.36
76/ 2/26	2442834.5	21.60080	-54.33942	-18.20908	0.95409	0.27677	0.16326	61.24490	1.00675	291.68	-17.30
76/ 2/26	2442835.0	27.91736	-52.12731	-16.99143	0.90931	0.37553	0.19585	61.52515	1.00311	298.17	-16.03
76/ 2/27	2442835.5	33.89435	-49.26614	-15.56262	0.85396	0.46827	0.22556	61.79138	0.99970	304.53	-14.59
76/ 2/27	2442836.0	39.46317	-45.79987	-13.94314	0.78894	0.55407	0.25211	62.04338	0.99648	310.75	-12.99
76/ 2/28	2442836.5	44.56158	-41.77838	-12.15517	0.71522	0.63210	0.27528	62.28094	0.99341	316.85	-11.25
76/ 2/28	2442837.0	49.13409	-37.25668	-10.22230	0.63382	0.70166	0.29488	62.50371	0.99046	322.83	-9.41
76/ 2/29	2442837.5	53.13225	-32.29423	-8.16921	0.54580	0.76216	0.31076	62.71116	0.98760	328.71	-7.49
76/ 2/29	2442838.0	56.51492	-26.95414	-6.02141	0.45225	0.81310	0.32283	62.90246	0.98483	334.50	-5.49
76/ 3/ 1	2442838.5	59.24836	-21.30246	-3.80495	0.35427	0.85412	0.33103	63.07647	0.98214	340.22	-3.46
76/ 3/ 1	2442839.0	61.30633	-15.40743	-1.54615	0.25297	0.88493	0.33533	63.23168	0.97956	345.89	-1.40
76/ 3/ 2	2442839.5	62.67009	-9.33879	0.72865	0.14946	0.90536	0.33575	63.36627	0.97711	351.52	0.66
76/ 3/ 2	2442840.0	63.32830	-3.16715	2.99329	0.04481	0.91534	0.33234	63.47806	0.97484	357.14	2.70
76/ 3/ 3	2442840.5	63.27694	3.03670	5.22206	-0.05990	0.91488	0.32518	63.56463	0.97279	2.75	4.71
76/ 3/ 3	2442841.0	62.51912	9.20231	7.38985	-0.16363	0.90407	0.31436	63.62337	0.97105	8.37	6.67
76/ 3/ 4	2442841.5	61.06490	15.26012	9.47236	-0.26538	0.88308	0.30002	63.65154	0.96967	14.03	8.56
76/ 3/ 4	2442842.0	58.93104	21.14195	11.44624	-0.36416	0.85215	0.28231	63.64641	0.96875	19.74	10.36
76/ 3/ 5	2442842.5	56.14080	26.78145	13.28924	-0.45905	0.81157	0.26140	63.60534	0.96835	25.50	12.06
76/ 3/ 5	2442843.0	52.72372	32.11447	14.98033	-0.54912	0.76171	0.23748	63.52590	0.96857	31.35	13.64
76/ 3/ 6	2442843.5	48.71541	37.07946	16.49983	-0.63349	0.70297	0.21077	63.40601	0.96948	37.28	15.08
76/ 3/ 6	2442844.0	44.15737	41.61782	17.82951	-0.71131	0.63581	0.18147	63.24404	0.97116	43.30	16.37
76/ 3/ 7	2442844.5	39.09684	45.67427	18.95275	-0.78173	0.56075	0.14984	63.03894	0.97365	49.44	17.50

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
76/ 3/ 7	2442845.0	33.58667	49.19719	19.85458	-0.84395	0.47837	0.11614	62.79038	0.97702	55.68	18.43
76/ 3/ 8	2442845.5	27.68520	52.13908	20.52191	-0.89715	0.38929	0.08064	62.49882	0.98129	62.03	19.17
76/ 3/ 8	2442846.0	21.45618	54.45699	20.94363	-0.94054	0.29424	0.04367	62.16564	0.98646	68.50	19.69
76/ 3/ 9	2442846.5	14.96866	56.11308	21.11081	-0.97335	0.19400	0.00554	61.79325	0.99251	75.06	19.98
76/ 3/ 9	2442847.0	8.29682	57.07523	21.01694	-0.99484	0.08948	-0.03336	61.38510	0.99942	81.73	20.02
76/ 3/10	2442847.5	1.51980	57.31775	20.65811	-1.00430	-0.01832	-0.07263	60.94581	1.00709	88.48	19.81
76/ 3/10	2442848.0	-5.27871	56.82225	20.03333	-1.00108	-0.12825	-0.11181	60.48113	1.01544	95.31	19.34
76/ 3/11	2442848.5	-12.01085	55.57848	19.14481	-0.98462	-0.23905	-0.15042	59.99793	1.02433	102.19	18.61
76/ 3/11	2442849.0	-18.58537	53.58537	17.99826	-0.95448	-0.34928	-0.18791	59.50416	1.03360	109.13	17.61
76/ 3/12	2442849.5	-24.90852	50.85201	16.60318	-0.91036	-0.45737	-0.22371	59.00870	1.04307	116.10	16.34
76/ 3/12	2442850.0	-30.88534	47.39864	14.97317	-0.85222	-0.56159	-0.25718	58.52120	1.05252	123.09	14.82
76/ 3/13	2442850.5	-36.42124	43.25759	13.12608	-0.78022	-0.66012	-0.28770	58.05187	1.06173	130.10	13.07
76/ 3/13	2442851.0	-41.42393	38.47390	11.08418	-0.69488	-0.75104	-0.31460	57.61112	1.07046	137.11	11.09
76/ 3/14	2442851.5	-45.80572	33.10572	8.87410	-0.59705	-0.83239	-0.33726	57.20929	1.07847	144.14	8.92
76/ 3/14	2442852.0	-49.48602	27.22423	6.52667	-0.48797	-0.90231	-0.35507	56.85616	1.08552	151.18	6.59
76/ 3/15	2442852.5	-52.39398	20.91299	4.07649	-0.36928	-0.95902	-0.36752	56.56059	1.09140	158.24	4.13
76/ 3/15	2442853.0	-54.47110	14.26670	1.56132	-0.24299	-1.00101	-0.37420	56.33007	1.09595	165.32	1.59
76/ 3/16	2442853.5	-55.67358	7.38936	-0.97875	-0.11142	-1.02708	-0.37484	56.17034	1.09901	172.44	-1.00
76/ 3/16	2442854.0	-55.97430	0.39176	-3.50228	0.02285	-1.03643	-0.36931	56.08513	1.10050	179.60	-3.58
76/ 3/17	2442854.5	-55.36412	-6.61140	-5.96765	0.15710	-1.02871	-0.35769	56.07593	1.10039	186.81	-6.11
76/ 3/17	2442855.0	-53.85241	-13.50473	-8.33422	0.28861	-1.00406	-0.34019	56.14195	1.09871	194.08	-8.54
76/ 3/18	2442855.5	-51.46676	-20.17542	-10.56348	0.41474	-0.96311	-0.31722	56.28021	1.09554	201.41	-10.82
76/ 3/18	2442856.0	-48.25198	-26.51637	-12.62011	0.53307	-0.90690	-0.28931	56.48574	1.09102	208.79	-12.91
76/ 3/19	2442856.5	-44.26826	-32.42887	-14.47281	0.64148	-0.83685	-0.25712	56.75185	1.08532	216.22	-14.77
76/ 3/19	2442857.0	-39.58894	-37.82482	-16.09494	0.73822	-0.75467	-0.22136	57.07055	1.07865	223.69	-16.38
76/ 3/20	2442857.5	-34.29791	-42.62834	-17.46495	0.82192	-0.66223	-0.18280	57.43298	1.07123	231.18	-17.70
76/ 3/20	2442858.0	-28.48692	-46.77672	-18.56652	0.89163	-0.56154	-0.14221	57.82976	1.06328	238.66	-18.73
76/ 3/21	2442858.5	-22.25290	-50.22080	-19.38850	0.94677	-0.45460	-0.10036	58.25148	1.05504	246.10	-19.44
76/ 3/21	2442859.0	-15.69559	-52.92492	-19.92479	0.98708	-0.34335	-0.05796	58.68897	1.04670	253.48	-19.85
76/ 3/22	2442859.5	-8.91536	-54.86637	-20.17392	1.01263	-0.22969	-0.01568	59.13365	1.03847	260.77	-19.95
76/ 3/22	2442860.0	-2.01138	-56.03469	-20.13877	1.02369	-0.11533	0.02589	59.57770	1.03049	267.94	-19.76
76/ 3/23	2442860.5	4.91985	-56.43075	-19.82604	1.02077	-0.00190	0.06620	60.01421	1.02291	274.98	-19.29
76/ 3/23	2442861.0	11.78564	-56.06572	-19.24590	1.00449	0.10918	0.10478	60.43732	1.01582	281.87	-18.57
76/ 3/24	2442861.5	18.49810	-54.96007	-18.41149	0.97562	0.21660	0.14122	60.84219	1.00930	288.60	-17.61
76/ 3/24	2442862.0	24.97474	-53.14260	-17.33859	0.93500	0.31920	0.17516	61.22500	1.00339	295.17	-16.45
76/ 3/25	2442862.5	31.13901	-50.64943	-16.04518	0.88354	0.41597	0.20629	61.58287	0.99811	301.58	-15.10
76/ 3/25	2442863.0	36.92066	-47.52318	-14.55115	0.82218	0.50600	0.23436	61.91384	0.99345	307.84	-13.59
76/ 3/26	2442863.5	42.25597	-43.81214	-12.87797	0.75190	0.58853	0.25916	62.21666	0.98939	313.96	-11.95
76/ 3/26	2442864.0	47.08799	-39.56954	-11.04844	0.67373	0.66286	0.28051	62.49076	0.98589	319.96	-10.18
76/ 3/27	2442864.5	51.36664	-34.85285	-9.08638	0.58867	0.72843	0.29827	62.73607	0.98291	325.84	-8.33
76/ 3/27	2442865.0	55.04883	-29.72315	-7.01645	0.49777	0.78475	0.31234	62.95292	0.98039	331.63	-6.40
76/ 3/28	2442865.5	58.09857	-24.24448	-4.86389	0.40208	0.83142	0.32266	63.14187	0.97829	337.35	-4.42
76/ 3/28	2442866.0	60.48697	-18.48329	-2.65432	0.30266	0.86813	0.32918	63.30364	0.97653	343.01	-2.40
76/ 3/29	2442866.5	62.19230	-12.50783	-0.41351	0.20055	0.89466	0.33188	63.43894	0.97509	348.63	-0.37
76/ 3/29	2442867.0	63.19998	-6.38761	1.83279	0.09682	0.91087	0.33080	63.54839	0.97390	354.23	1.65

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 3/30	2442867.5	63.50256	-0.19280	4.05909	-0.00748	0.91668	0.32599	63.63245	0.97295	359.83	3.66
76/ 3/30	2442868.0	63.09966	6.00627	6.24030	-0.11133	0.91213	0.31751	63.69132	0.97221	5.44	5.62
76/ 3/31	2442868.5	61.99792	12.13968	8.35196	-0.21368	0.89732	0.30547	63.72495	0.97167	11.08	7.53
76/ 3/31	2442869.0	60.21084	18.13844	10.37041	-0.31353	0.87241	0.29000	63.73299	0.97134	16.76	9.36
76/ 4/ 1	2442869.5	57.75868	23.93505	12.27294	-0.40991	0.83767	0.27127	63.71481	0.97124	22.51	11.11
76/ 4/ 1	2442870.0	54.66825	29.46394	14.03802	-0.50185	0.79342	0.24945	63.66952	0.97139	28.32	12.74
76/ 4/ 2	2442870.5	50.97273	34.66206	15.64540	-0.58844	0.74006	0.22474	63.59604	0.97184	34.22	14.24
76/ 4/ 2	2442871.0	46.71139	39.46925	17.07629	-0.66879	0.67807	0.19737	63.49311	0.97263	40.20	15.60
76/ 4/ 3	2442871.5	41.92941	43.82875	18.31350	-0.74205	0.60796	0.16759	63.35944	0.97383	46.27	16.80
76/ 4/ 3	2442872.0	36.67755	47.68764	19.34157	-0.80741	0.53035	0.13566	63.19375	0.97549	52.44	17.82
76/ 4/ 4	2442872.5	31.01195	50.99727	20.14694	-0.86410	0.44588	0.10187	62.99494	0.97768	58.70	18.65
76/ 4/ 4	2442873.0	24.99381	53.71368	20.71804	-0.91139	0.35530	0.06654	62.76215	0.98046	65.05	19.28
76/ 4/ 5	2442873.5	18.68911	55.79805	21.04547	-0.94860	0.25938	0.02997	62.49493	0.98388	71.48	19.68
76/ 4/ 5	2442874.0	12.16836	57.21716	21.12209	-0.97509	0.15900	-0.00746	62.19337	0.98800	77.99	19.85
76/ 4/ 6	2442874.5	5.50620	57.94391	20.94323	-0.99026	0.05510	-0.04540	61.85817	0.99283	84.57	19.79
76/ 4/ 6	2442875.0	-1.21888	57.95782	20.50683	-0.99359	-0.05132	-0.08344	61.49085	0.99840	91.20	19.48
76/ 4/ 7	2442875.5	-7.92500	57.24566	19.81363	-0.98459	-0.15912	-0.12116	61.09378	1.00470	97.88	18.92
76/ 4/ 7	2442876.0	-14.52740	55.80204	18.86733	-0.96290	-0.26710	-0.15810	60.67033	1.01169	104.59	18.12
76/ 4/ 8	2442876.5	-20.93906	53.63016	17.67484	-0.92824	-0.37394	-0.19378	60.22490	1.01931	111.33	17.07
76/ 4/ 8	2442877.0	-27.07153	50.74251	16.24645	-0.88045	-0.47822	-0.22767	59.76300	1.02748	118.08	15.77
76/ 4/ 9	2442877.5	-32.83591	47.16154	14.59604	-0.81956	-0.57840	-0.25925	59.29125	1.03607	124.85	14.25
76/ 4/ 9	2442878.0	-38.14407	42.92043	12.74122	-0.74579	-0.67288	-0.28794	58.81727	1.04493	131.63	12.51
76/ 4/10	2442878.5	-42.91017	38.06355	10.70345	-0.65959	-0.75994	-0.31318	58.34964	1.05388	138.43	10.57
76/ 4/10	2442879.0	-47.05240	32.64698	8.50803	-0.56171	-0.83786	-0.33439	57.89767	1.06271	145.25	8.45
76/ 4/11	2442879.5	-50.49502	26.73853	6.18409	-0.45320	-0.90491	-0.35105	57.47121	1.07121	152.10	6.18
76/ 4/11	2442880.0	-53.17059	20.41756	3.76424	-0.33547	-0.95941	-0.36264	57.08027	1.07913	158.99	3.78
76/ 4/12	2442880.5	-55.02229	13.77420	1.28425	-0.21024	-0.99987	-0.36874	56.73474	1.08623	165.95	1.30
76/ 4/12	2442881.0	-56.00630	6.90814	-1.21758	-0.07962	-1.02498	-0.36905	56.44387	1.09230	172.97	-1.24
76/ 4/13	2442881.5	-56.09388	-0.07325	-3.70126	0.05405	-1.03379	-0.36336	56.21591	1.09712	180.07	-3.78
76/ 4/13	2442882.0	-55.27318	-7.05732	-6.12600	0.18815	-1.02571	-0.35165	56.05763	1.10052	187.28	-6.27
76/ 4/14	2442882.5	-53.55037	-13.92899	-8.45139	0.31997	-1.00062	-0.33406	55.97397	1.10237	194.58	-8.68
76/ 4/14	2442883.0	-50.95016	-20.57402	-10.63849	0.44679	-0.95888	-0.31088	55.96773	1.10260	201.99	-10.96
76/ 4/15	2442883.5	-47.51542	-26.88221	-12.65103	0.56599	-0.90134	-0.28260	56.03942	1.10119	209.50	-13.05
76/ 4/15	2442884.0	-43.30597	-32.75069	-14.45645	0.67518	-0.82929	-0.24983	56.18722	1.09819	217.10	-14.91
76/ 4/16	2442884.5	-38.39667	-38.08668	-16.02676	0.77234	-0.74441	-0.21331	56.40706	1.09369	224.77	-16.51
76/ 4/16	2442885.0	-32.87484	-42.80979	-17.33921	0.85582	-0.64866	-0.17383	56.69287	1.08785	232.48	-17.81
76/ 4/17	2442885.5	-26.83737	-46.85366	-18.37664	0.92445	-0.54420	-0.13224	57.03692	1.08085	240.20	-18.80
76/ 4/17	2442886.0	-20.38761	-50.16679	-19.12761	0.97749	-0.43325	-0.08938	57.43019	1.07293	247.88	-19.45
76/ 4/18	2442886.5	-13.63237	-52.71283	-19.58628	1.01464	-0.31804	-0.04605	57.86283	1.06431	255.50	-19.79
76/ 4/18	2442887.0	-6.67919	-54.47016	-19.75208	1.03598	-0.20069	-0.00301	58.32456	1.05524	263.01	-19.80
76/ 4/19	2442887.5	0.36607	-55.43103	-19.62927	1.04191	-0.08317	0.03907	58.80511	1.04596	270.38	-19.50
76/ 4/19	2442888.0	7.40115	-55.60046	-19.22637	1.03310	0.03273	0.07960	59.29453	1.03668	277.58	-18.92
76/ 4/20	2442888.5	14.32896	-54.99488	-18.55565	1.01039	0.14544	0.11808	59.78351	1.02761	284.60	-18.08
76/ 4/20	2442889.0	21.05862	-53.64071	-17.63248	0.97476	0.25357	0.15408	60.26355	1.01892	291.43	-17.01
76/ 4/21	2442889.5	27.50624	-51.57301	-16.47484	0.92729	0.35596	0.18726	60.72716	1.01076	298.07	-15.74

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
76/ 4/21	2442890.0	33.59533	-48.83415	-15.10283	0.86908	0.45161	0.21735	61.16793	1.00324	304.53	-14.29
76/ 4/22	2442890.5	39.25707	-45.47268	-13.53821	0.80129	0.53969	0.24411	61.58056	0.99645	310.80	-12.70
76/ 4/22	2442891.0	44.43036	-41.54223	-11.80404	0.72503	0.61952	0.26739	61.96086	0.99044	316.92	-10.98
76/ 4/23	2442891.5	49.06173	-37.10065	-9.92438	0.64145	0.69054	0.28706	62.30573	0.98524	322.90	-9.17
76/ 4/23	2442892.0	53.10530	-32.20920	-7.92397	0.55164	0.75230	0.30303	62.61305	0.98086	328.76	-7.27
76/ 4/24	2442892.5	56.52262	-26.93187	-5.82807	0.45670	0.80443	0.31525	62.88163	0.97728	334.52	-5.32
76/ 4/24	2442893.0	59.28254	-21.33481	-3.66219	0.35769	0.84667	0.32369	63.11105	0.97446	340.21	-3.33
76/ 4/25	2442893.5	61.36105	-15.48581	-1.45194	0.25566	0.87880	0.32835	63.30163	0.97235	345.84	-1.31
76/ 4/25	2442894.0	62.74122	-9.45378	0.77712	0.15165	0.90070	0.32925	63.45422	0.97091	351.43	0.70
76/ 4/26	2442894.5	63.41309	-3.30835	2.99964	0.04667	0.91228	0.32643	63.57014	0.97005	357.01	2.70
76/ 4/26	2442895.0	63.37357	2.88058	5.19064	-0.05825	0.91355	0.31996	63.65100	0.96971	2.60	4.68
76/ 4/27	2442895.5	62.62641	9.04330	7.32567	-0.16212	0.90456	0.30992	63.69862	0.96982	8.22	6.60
76/ 4/27	2442896.0	61.18211	15.11072	9.38094	-0.26395	0.88543	0.29642	63.71488	0.97032	13.87	8.47
76/ 4/28	2442896.5	59.05785	21.01481	11.33347	-0.36274	0.85637	0.27960	63.70164	0.97115	19.59	10.25
76/ 4/28	2442897.0	56.27745	26.68911	13.16128	-0.45754	0.81763	0.25962	63.66065	0.97225	25.37	11.93
76/ 4/29	2442897.5	52.87123	32.06919	14.84355	-0.54739	0.76955	0.23666	63.59348	0.97358	31.24	13.50
76/ 4/29	2442898.0	48.87589	37.09322	16.36080	-0.63135	0.71256	0.21093	63.50146	0.97511	37.20	14.93
76/ 4/30	2442898.5	44.33434	41.70244	17.69503	-0.70853	0.64715	0.18266	63.38565	0.97683	43.25	16.21
76/ 4/30	2442899.0	39.29545	45.84175	18.82995	-0.77807	0.57390	0.15212	63.24686	0.97873	49.40	17.32
76/ 5/ 1	2442899.5	33.81375	49.46022	19.75112	-0.83916	0.49347	0.11959	63.08558	0.98081	55.64	18.25
76/ 5/ 1	2442900.0	27.94918	52.51162	20.44611	-0.89101	0.40658	0.08538	62.90207	0.98311	61.98	18.97
76/ 5/ 2	2442900.5	21.76662	54.95496	20.90469	-0.93294	0.31405	0.04984	62.69641	0.98564	68.39	19.48
76/ 5/ 2	2442901.0	15.33553	56.75499	21.11894	-0.96430	0.21677	0.01330	62.46853	0.98845	74.88	19.76
76/ 5/ 3	2442901.5	8.72947	57.88271	21.08346	-0.98452	0.11569	-0.02385	62.21836	0.99158	81.42	19.81
76/ 5/ 3	2442902.0	2.02554	58.31585	20.79544	-0.99312	0.01184	-0.06121	61.94588	0.99508	88.01	19.62
76/ 5/ 4	2442902.5	-4.69613	58.03938	20.25484	-0.98971	-0.09367	-0.09836	61.65129	0.99898	94.63	19.18
76/ 5/ 4	2442903.0	-11.35307	57.04590	19.46447	-0.97397	-0.19968	-0.13488	61.33508	1.00333	101.26	18.50
76/ 5/ 5	2442903.5	-17.86112	55.33617	18.43016	-0.94572	-0.30496	-0.17032	60.99821	1.00816	107.89	17.59
76/ 5/ 5	2442904.0	-24.13522	52.91952	17.16080	-0.90488	-0.40821	-0.20421	60.64221	1.01348	114.52	16.44
76/ 5/ 6	2442904.5	-30.09025	49.81425	15.66849	-0.85152	-0.50807	-0.23608	60.26926	1.01929	121.13	15.07
76/ 5/ 6	2442905.0	-35.64204	46.04806	13.96858	-0.78586	-0.60314	-0.26543	59.88238	1.02557	127.74	13.49
76/ 5/ 7	2442905.5	-40.70846	41.65837	12.07973	-0.70828	-0.69194	-0.29179	59.48544	1.03227	134.34	11.72
76/ 5/ 7	2442906.0	-45.21068	36.69257	10.02390	-0.61937	-0.77301	-0.31466	59.08323	1.03931	140.94	9.77
76/ 5/ 8	2442906.5	-49.07457	31.20814	7.82634	-0.51994	-0.84484	-0.33357	58.68146	1.04659	147.55	7.66
76/ 5/ 8	2442907.0	-52.23231	25.27262	5.51542	-0.41104	-0.90597	-0.34806	58.28670	1.05399	154.18	5.43
76/ 5/ 9	2442907.5	-54.62404	18.96325	3.12244	-0.29398	-0.95501	-0.35773	57.90630	1.06134	160.86	3.09
76/ 5/ 9	2442908.0	-56.19965	12.36646	0.68131	-0.17034	-0.99065	-0.36223	57.54819	1.06846	167.59	0.68
76/ 5/10	2442908.5	-56.92068	5.57684	-1.77195	-0.04195	-1.01178	-0.36127	57.22067	1.07516	174.40	-1.77
76/ 5/10	2442909.0	-56.76198	-1.30421	-4.19976	0.08907	-1.01752	-0.35469	56.93208	1.08125	181.32	-4.23
76/ 5/11	2442909.5	-55.71336	-8.17028	-6.56377	0.22044	-1.00729	-0.34244	56.69052	1.08650	188.34	-6.65
76/ 5/11	2442910.0	-53.78077	-14.91218	-8.82569	0.34968	-0.98085	-0.32458	56.50342	1.09073	195.50	-8.99
76/ 5/12	2442910.5	-50.98707	-21.42056	-10.94832	0.47429	-0.93839	-0.30135	56.37718	1.09378	202.79	-11.20
76/ 5/12	2442911.0	-47.37221	-27.58874	-12.89647	0.59176	-0.88053	-0.27313	56.31681	1.09549	210.22	-13.24
76/ 5/13	2442911.5	-42.99268	-33.31561	-14.63806	0.69971	-0.80829	-0.24045	56.32560	1.09579	217.77	-15.06
76/ 5/13	2442912.0	-37.92029	-38.50852	-16.14499	0.79603	-0.72313	-0.20396	56.40492	1.09461	225.44	-16.63

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 5/14	2442912.5	-32.24020	-43.08580	-17.39393	0.87889	-0.62682	-0.16440	56.55409	1.09196	233.19	-17.91
76/ 5/14	2442913.0	-26.04850	-46.97881	-18.36687	0.94690	-0.52143	-0.12260	56.77037	1.08791	240.99	-18.88
76/ 5/15	2442913.5	-19.44934	-50.13344	-19.05149	0.99909	-0.40916	-0.07940	57.04908	1.08254	248.80	-19.51
76/ 5/15	2442914.0	-12.55186	-52.51090	-19.44120	1.03494	-0.29231	-0.03566	57.38383	1.07602	256.56	-19.80
76/ 5/16	2442914.5	-5.46723	-54.08783	-19.53505	1.05438	-0.17314	0.00784	57.76679	1.06853	264.23	-19.77
76/ 5/16	2442915.0	1.69420	-54.85585	-19.33729	1.05770	-0.05379	0.05033	58.18905	1.06026	271.77	-19.41
76/ 5/17	2442915.5	8.82531	-54.82061	-18.85696	1.04555	0.06374	0.09118	58.64103	1.05145	279.15	-18.76
76/ 5/17	2442916.0	15.82420	-54.00045	-18.10724	1.01883	0.17771	0.12980	59.11282	1.04232	286.33	-17.84
76/ 5/18	2442916.5	22.59573	-52.42487	-17.10480	0.97861	0.28658	0.16573	59.59453	1.03309	293.32	-16.68
76/ 5/18	2442917.0	29.05262	-50.13294	-15.86920	0.92612	0.38905	0.19859	60.07660	1.02396	300.09	-15.32
76/ 5/19	2442917.5	35.11608	-47.17170	-14.42226	0.86265	0.48406	0.22810	60.55006	1.01514	306.67	-13.78
76/ 5/19	2442918.0	40.71613	-43.59467	-12.78751	0.78950	0.57076	0.25402	61.00671	1.00678	313.04	-12.10
76/ 5/20	2442918.5	45.79172	-39.46051	-10.98970	0.70799	0.64848	0.27622	61.43929	0.99904	319.25	-10.30
76/ 5/20	2442919.0	50.29054	-34.83186	-9.05443	0.61940	0.71671	0.29460	61.84157	0.99203	325.29	-8.42
76/ 5/21	2442919.5	54.16885	-29.77432	-7.00779	0.52496	0.77508	0.30911	62.20838	0.98584	331.20	-6.47
76/ 5/21	2442920.0	57.39109	-24.35564	-4.87608	0.42586	0.82332	0.31972	62.53567	0.98053	337.00	-4.47
76/ 5/22	2442920.5	59.92962	-18.64503	-2.68559	0.32325	0.86126	0.32647	62.82045	0.97614	342.72	-2.45
76/ 5/22	2442921.0	61.76435	-12.71257	-0.46245	0.21822	0.88882	0.32938	63.06075	0.97268	348.37	-0.42
76/ 5/23	2442921.5	62.88250	-6.62875	1.76756	0.11182	0.90595	0.32851	63.25561	0.97014	353.98	1.60
76/ 5/23	2442922.0	63.27826	-0.46410	3.97910	0.00507	0.91270	0.32394	63.40495	0.96849	359.58	3.60
76/ 5/24	2442922.5	62.95271	5.71123	6.14741	-0.10102	0.90912	0.31576	63.50947	0.96769	5.18	5.55
76/ 5/24	2442923.0	61.91356	11.82778	8.24840	-0.20548	0.89536	0.30408	63.57060	0.96766	10.82	7.46
76/ 5/25	2442923.5	60.17509	17.81710	10.25879	-0.30736	0.87159	0.28902	63.59035	0.96834	16.49	9.28
76/ 5/25	2442924.0	57.75805	23.61215	12.15619	-0.40570	0.83804	0.27074	63.57121	0.96964	22.24	11.02
76/ 5/26	2442924.5	54.68962	29.14766	13.91927	-0.49956	0.79500	0.24939	63.51603	0.97149	28.06	12.66
76/ 5/26	2442925.0	51.00328	34.36055	15.52789	-0.58801	0.74284	0.22516	63.42789	0.97379	33.97	14.17
76/ 5/27	2442925.5	46.73882	39.19042	16.96325	-0.67013	0.68198	0.19826	63.31001	0.97646	39.98	15.54
76/ 5/27	2442926.0	41.94218	43.58003	18.20805	-0.74501	0.61292	0.16894	63.16564	0.97942	46.10	16.75
76/ 5/28	2442926.5	36.66531	47.47587	19.24674	-0.81179	0.53628	0.13744	62.99793	0.98259	52.32	17.79
76/ 5/28	2442927.0	30.96597	50.82876	20.06563	-0.86963	0.45272	0.10408	62.80990	0.98592	58.65	18.63
76/ 5/29	2442927.5	24.90742	53.59446	20.65317	-0.91774	0.36302	0.06918	62.60430	0.98935	65.07	19.26
76/ 5/29	2442928.0	18.55805	55.73430	21.00008	-0.95539	0.26806	0.03309	62.38362	0.99284	71.58	19.67
76/ 5/30	2442928.5	11.99087	57.21581	21.09958	-0.98195	0.16879	-0.00381	62.14999	0.99636	78.16	19.85
76/ 5/30	2442929.0	5.28299	58.01332	20.94757	-0.99685	0.06626	-0.04111	61.90522	0.99990	84.80	19.78
76/ 5/31	2442929.5	-1.48507	58.10855	20.54279	-0.99966	-0.03839	-0.07838	61.65075	1.00346	91.46	19.46
76/ 5/31	2442930.0	-8.23017	57.49114	19.88691	-0.99003	-0.14397	-0.11518	61.38775	1.00705	98.15	18.90
76/ 6/ 1	2442930.5	-14.86737	56.15913	18.98473	-0.96777	-0.24920	-0.15104	61.11715	1.01069	104.83	18.10
76/ 6/ 1	2442931.0	-21.31088	54.11933	17.84419	-0.93284	-0.35275	-0.18549	60.83971	1.01441	111.49	17.06
76/ 6/ 2	2442931.5	-27.47509	51.38766	16.47643	-0.88533	-0.45327	-0.21805	60.55613	1.01824	118.13	15.79
76/ 6/ 2	2442932.0	-33.27560	47.98936	14.89582	-0.82550	-0.54937	-0.24826	60.26715	1.02220	124.74	14.31
76/ 6/ 3	2442932.5	-38.63044	43.95909	13.11991	-0.75381	-0.63965	-0.27564	59.97370	1.02634	131.31	12.64
76/ 6/ 3	2442933.0	-43.46121	39.34097	11.16936	-0.67087	-0.72273	-0.29976	59.67699	1.03066	137.85	10.79
76/ 6/ 4	2442933.5	-47.69433	34.18841	9.06781	-0.57748	-0.79724	-0.32016	59.37864	1.03517	144.37	8.78
76/ 6/ 4	2442934.0	-51.26238	28.56390	6.84173	-0.47466	-0.86188	-0.33647	59.08077	1.03988	150.87	6.65
76/ 6/ 5	2442934.5	-54.10536	22.53855	4.52015	-0.36359	-0.91541	-0.34831	58.78612	1.04475	157.38	4.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
76/ 6/ 5	2442935.0	-56.17207	16.19150	2.13437	-0.24568	-0.95670	-0.35537	58.49804	1.04973	163.92	2.09
76/ 6/ 6	2442935.5	-57.42141	9.60911	-0.28236	-0.12251	-0.98475	-0.35742	58.22056	1.05475	170.50	-0.28
76/ 6/ 6	2442936.0	-57.82371	2.88392	-2.69538	0.00414	-0.99875	-0.35425	57.95829	1.05972	177.14	-2.67
76/ 6/ 7	2442936.5	-57.36183	-3.88662	-5.06906	0.13234	-0.99806	-0.34579	57.71638	1.06453	183.88	-5.04
76/ 6/ 7	2442937.0	-56.03228	-10.60175	-7.36749	0.26000	-0.98234	-0.33204	57.50038	1.06904	190.71	-7.36
76/ 6/ 8	2442937.5	-53.84598	-17.15915	-9.55511	0.38496	-0.95150	-0.31310	57.31602	1.07312	197.68	-9.60
76/ 6/ 8	2442938.0	-50.82873	-23.45701	-11.59752	0.50500	-0.90577	-0.28920	57.16899	1.07661	204.77	-11.70
76/ 6/ 9	2442938.5	-47.02136	-29.39625	-13.46221	0.61792	-0.84572	-0.26069	57.06469	1.07937	212.01	-13.65
76/ 6/ 9	2442939.0	-42.47934	-34.88282	-15.11943	0.72160	-0.77228	-0.22802	57.00792	1.08126	219.39	-15.38
76/ 6/10	2442939.5	-37.27195	-39.83005	-16.54287	0.81409	-0.68670	-0.19177	57.00261	1.08216	226.90	-16.87
76/ 6/10	2442940.0	-31.48086	-44.16080	-17.71044	0.89370	-0.59052	-0.15258	57.05156	1.08199	234.52	-18.09
76/ 6/11	2442940.5	-25.19833	-47.80941	-18.60477	0.95901	-0.48559	-0.11120	57.15621	1.08067	242.21	-19.00
76/ 6/11	2442941.0	-18.52492	-50.72325	-19.21361	1.00898	-0.37390	-0.06841	57.31652	1.07820	249.94	-19.59
76/ 6/12	2442941.5	-11.56696	-52.86380	-19.53011	1.04296	-0.25760	-0.02501	57.53087	1.07459	257.66	-19.84
76/ 6/12	2442942.0	-4.43387	-54.20715	-19.55278	1.06068	-0.13886	0.01822	57.79606	1.06989	265.32	-19.77
76/ 6/13	2442942.5	2.76451	-54.74405	-19.28534	1.06229	-0.01981	0.06054	58.10747	1.06420	272.89	-19.38
76/ 6/13	2442943.0	9.92044	-54.47938	-18.73639	1.04826	0.09752	0.10125	58.45913	1.05764	280.32	-18.69
76/ 6/14	2442943.5	16.93050	-53.43116	-17.91889	1.01937	0.21127	0.13974	58.84401	1.05037	287.58	-17.73
76/ 6/14	2442944.0	23.69744	-51.62934	-16.84965	0.97665	0.31980	0.17551	59.25426	1.04256	294.65	-16.52
76/ 6/15	2442944.5	30.13160	-49.11423	-15.54864	0.92132	0.42168	0.20812	59.68150	1.03438	301.53	-15.10
76/ 6/15	2442945.0	36.15197	-45.93496	-14.03841	0.85469	0.51575	0.23724	60.11708	1.02605	308.20	-13.50
76/ 6/16	2442945.5	41.68678	-42.14782	-12.34346	0.77817	0.60104	0.26263	60.55236	1.01773	314.68	-11.76
76/ 6/16	2442946.0	46.67380	-37.81479	-10.48969	0.69317	0.67684	0.28412	60.97897	1.00961	320.99	-9.91
76/ 6/17	2442946.5	51.06033	-33.00209	-8.50387	0.60108	0.74261	0.30161	61.38901	1.00186	327.12	-7.96
76/ 6/17	2442947.0	54.80306	-27.77900	-6.41328	0.50328	0.79798	0.31505	61.77522	0.99464	333.12	-5.96
76/ 6/18	2442947.5	57.86768	-22.21677	-4.24532	0.40105	0.84272	0.32446	62.13112	0.98808	339.00	-3.92
76/ 6/18	2442948.0	60.22849	-16.38780	-2.02721	0.29565	0.87674	0.32987	62.45111	0.98229	344.78	-1.86
76/ 6/19	2442948.5	61.86797	-10.36488	0.21416	0.18824	0.90000	0.33135	62.73056	0.97736	350.49	0.20
76/ 6/19	2442949.0	62.77632	-4.22065	2.45249	0.07993	0.91258	0.32899	62.96582	0.97335	356.15	2.23
76/ 6/20	2442949.5	62.95106	1.97289	4.66215	-0.02822	0.91458	0.32290	63.15429	0.97032	1.80	4.23
76/ 6/20	2442950.0	62.39670	8.14470	6.81828	-0.13521	0.90619	0.31320	63.29433	0.96828	7.44	6.18
76/ 6/21	2442950.5	61.12440	14.22504	8.89693	-0.24006	0.88761	0.30004	63.38533	0.96722	13.10	8.07
76/ 6/21	2442951.0	59.15182	20.14577	10.87510	-0.34184	0.85910	0.28356	63.42758	0.96712	18.81	9.87
76/ 6/22	2442951.5	56.50287	25.84060	12.73085	-0.43963	0.82096	0.26392	63.42228	0.96794	24.58	11.58
76/ 6/22	2442952.0	53.20766	31.24537	14.44338	-0.53253	0.77351	0.24130	63.37143	0.96961	30.42	13.17
76/ 6/23	2442952.5	49.30236	36.29841	15.99313	-0.61964	0.71716	0.21589	63.27778	0.97205	36.36	14.64
76/ 6/23	2442953.0	44.82920	40.94090	17.36194	-0.70007	0.65236	0.18790	63.14469	0.97518	42.40	15.96
76/ 6/24	2442953.5	39.83637	45.11728	18.53318	-0.77295	0.57962	0.15759	62.97606	0.97890	48.56	17.11
76/ 6/24	2442954.0	34.37794	48.77578	19.49191	-0.83741	0.49954	0.12520	62.77622	0.98309	54.82	18.09
76/ 6/25	2442954.5	28.51376	51.86895	20.22506	-0.89263	0.41281	0.09103	62.54979	0.98766	61.20	18.87
76/ 6/25	2442955.0	22.30923	54.35433	20.72169	-0.93779	0.32020	0.05541	62.30155	0.99249	67.68	19.43
76/ 6/26	2442955.5	15.83503	56.19509	20.97315	-0.97214	0.22261	0.01870	62.03636	0.99748	74.26	19.76
76/ 6/26	2442956.0	9.16669	57.36078	20.97335	-0.99501	0.12103	-0.01872	61.75896	1.00252	80.92	19.85
76/ 6/27	2442956.5	2.38404	57.82803	20.71899	-1.00580	0.01656	-0.05640	61.47391	1.00752	87.64	19.70
76/ 6/27	2442957.0	-4.42947	57.58132	20.20972	-1.00405	-0.08959	-0.09391	61.18546	1.01241	94.40	19.29

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COURDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 6/28	2442957.5	-11.18766	56.61358	19.44837	-0.98942	-0.19613	-0.13076	60.89746	1.01711	101.18	18.62
76/ 6/28	2442958.0	-17.80259	54.92687	18.44111	-0.96174	-0.30166	-0.16645	60.61327	1.02159	107.96	17.71
76/ 6/29	2442958.5	-24.18576	52.53281	17.19749	-0.92100	-0.40476	-0.20047	60.33573	1.02580	114.72	16.56
76/ 6/29	2442959.0	-30.24933	49.45291	15.73055	-0.86741	-0.50393	-0.23231	60.06715	1.02972	121.45	15.18
76/ 6/30	2442959.5	-35.90752	45.71881	14.05675	-0.80138	-0.59769	-0.26147	59.80929	1.03335	128.15	13.59
76/ 6/30	2442960.0	-41.07806	41.37219	12.19590	-0.72353	-0.68456	-0.28746	59.56345	1.03671	134.80	11.82
76/ 7/ 1	2442960.5	-45.68362	36.46457	10.17098	-0.63471	-0.76312	-0.30984	59.33049	1.03981	141.40	9.87
76/ 7/ 1	2442961.0	-49.65327	31.05690	8.00791	-0.53595	-0.83201	-0.32819	59.11096	1.04268	147.98	7.79
76/ 7/ 2	2442961.5	-52.92388	25.21887	5.73522	-0.42851	-0.89001	-0.34216	58.90519	1.04537	154.52	5.59
76/ 7/ 2	2442962.0	-55.44142	19.02809	3.38367	-0.31383	-0.93601	-0.35144	58.71345	1.04790	161.06	3.30
76/ 7/ 3	2442962.5	-57.16217	12.56904	0.98582	-0.19350	-0.96908	-0.35580	58.53602	1.05031	167.60	0.96
76/ 7/ 3	2442963.0	-58.05373	5.93186	-1.42444	-0.06927	-0.98850	-0.35508	58.37338	1.05262	174.17	-1.40
76/ 7/ 4	2442963.5	-58.09594	-0.78899	-3.81248	0.05699	-0.99372	-0.34923	58.22625	1.05484	180.78	-3.75
76/ 7/ 4	2442964.0	-57.28152	-7.49626	-6.14345	0.18335	-0.98446	-0.33824	58.09569	1.05697	187.46	-6.07
76/ 7/ 5	2442964.5	-55.61655	-14.09155	-8.38290	0.30782	-0.96067	-0.32223	57.98315	1.05899	194.22	-8.31
76/ 7/ 5	2442965.0	-53.12068	-20.47695	-10.49741	0.42838	-0.92254	-0.30139	57.89048	1.06086	201.08	-10.45
76/ 7/ 6	2442965.5	-49.82709	-26.55690	-12.45518	0.54305	-0.87057	-0.27600	57.81989	1.06253	208.06	-12.44
76/ 7/ 6	2442966.0	-45.78215	-32.23992	-14.22670	0.64993	-0.80548	-0.24645	57.77384	1.06393	215.15	-14.26
76/ 7/ 7	2442966.5	-41.04482	-37.44046	-15.78527	0.74723	-0.72828	-0.21321	57.75499	1.06499	222.37	-15.86
76/ 7/ 7	2442967.0	-35.68564	-42.08057	-17.10762	0.83330	-0.64022	-0.17680	57.76599	1.06561	229.70	-17.23
76/ 7/ 8	2442967.5	-29.78556	-46.09154	-18.17438	0.90674	-0.54276	-0.13784	57.80932	1.06572	237.13	-18.32
76/ 7/ 8	2442968.0	-23.43432	-49.41532	-18.97046	0.96635	-0.43758	-0.09698	57.88713	1.06523	244.63	-19.13
76/ 7/ 9	2442968.5	-16.72868	-52.00564	-19.48536	1.01126	-0.32649	-0.05493	58.00099	1.06408	252.17	-19.63
76/ 7/ 9	2442969.0	-9.77040	-53.82892	-19.71339	1.04088	-0.21141	-0.01239	58.15179	1.06221	259.71	-19.82
76/ 7/10	2442969.5	-2.66412	-54.86474	-19.65367	1.05495	-0.09429	0.02993	58.33956	1.05958	267.22	-19.69
76/ 7/10	2442970.0	4.48488	-55.10601	-19.31007	1.05353	0.02290	0.07133	58.56334	1.05619	274.65	-19.25
76/ 7/11	2442970.5	11.57273	-54.55867	-18.69098	1.03699	0.13827	0.11117	58.82117	1.05205	281.98	-18.53
76/ 7/11	2442971.0	18.49907	-53.24116	-17.80900	1.00597	0.25004	0.14887	59.11004	1.04721	289.16	-17.53
76/ 7/12	2442971.5	25.16875	-51.18343	-16.68046	0.96137	0.35659	0.18390	59.42598	1.04173	296.19	-16.30
76/ 7/12	2442972.0	31.49341	-48.42582	-15.32496	0.90428	0.45649	0.21582	59.76411	1.03570	303.04	-14.86
76/ 7/13	2442972.5	37.39261	-45.01767	-13.76480	0.83595	0.54851	0.24428	60.11878	1.02924	309.71	-13.24
76/ 7/13	2442973.0	42.79473	-41.01592	-12.02444	0.75773	0.63162	0.26900	60.48373	1.02247	316.22	-11.47
76/ 7/14	2442973.5	47.63749	-36.48367	-10.12991	0.67101	0.70505	0.28978	60.85231	1.01554	322.55	-9.58
76/ 7/14	2442974.0	51.86822	-31.48869	-8.10835	0.57723	0.76818	0.30649	61.21760	1.00858	328.74	-7.61
76/ 7/15	2442974.5	55.44384	-26.10218	-5.98748	0.47779	0.82061	0.31909	61.57266	1.00175	334.79	-5.58
76/ 7/15	2442975.0	58.33069	-20.39757	-3.79528	0.37407	0.86209	0.32757	61.91069	0.99520	340.73	-3.51
76/ 7/16	2442975.5	60.50418	-14.44945	-1.55954	0.26736	0.89250	0.33196	62.22520	0.98906	346.57	-1.44
76/ 7/16	2442976.0	61.94841	-8.33276	0.69232	0.15892	0.91187	0.33234	62.51016	0.98347	352.34	0.63
76/ 7/17	2442976.5	62.65562	-2.12202	2.93353	0.04991	0.92030	0.32883	62.76014	0.97856	358.06	2.68
76/ 7/17	2442977.0	62.62578	4.10923	5.13816	-0.05855	0.91797	0.32156	62.97042	0.97442	3.75	4.68
76/ 7/18	2442977.5	61.86610	10.28891	7.28120	-0.16543	0.90512	0.31067	63.13708	0.97114	9.44	6.62
76/ 7/18	2442978.0	60.39063	16.34674	9.33871	-0.26976	0.88204	0.29633	63.25706	0.96880	15.15	8.49
76/ 7/19	2442978.5	58.21991	22.21457	11.28789	-0.37058	0.84907	0.27871	63.32821	0.96744	20.89	10.27
76/ 7/19	2442979.0	55.38067	27.82665	13.10716	-0.46702	0.80658	0.25800	63.34934	0.96708	26.68	11.94
76/ 7/20	2442979.5	51.90559	33.11984	14.77619	-0.55820	0.75497	0.23439	63.32022	0.96773	32.54	13.49

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
76/ 7/20	2442980.0	47.83319	38.03387	16.27606	-0.64327	0.69470	0.20808	63.24159	0.96938	38.49	14.91
76/ 7/21	2442980.5	43.20765	42.51163	17.58925	-0.72139	0.62623	0.17930	63.11515	0.97197	44.53	16.18
76/ 7/21	2442981.0	38.07880	46.49951	18.69982	-0.79176	0.55013	0.14829	62.94349	0.97546	50.69	17.28
76/ 7/22	2442981.5	32.50197	49.94777	19.59354	-0.85354	0.46699	0.11531	62.73009	0.97975	56.95	18.20
76/ 7/22	2442982.0	26.53798	52.81101	20.25799	-0.90595	0.37750	0.08064	62.47922	0.98476	63.32	18.92
76/ 7/23	2442982.5	20.25301	55.04872	20.68282	-0.94820	0.28242	0.04460	62.19586	0.99037	69.80	19.42
76/ 7/23	2442983.0	13.71841	56.62596	20.85989	-0.97955	0.18262	0.00755	61.88561	0.99645	76.38	19.70
76/ 7/24	2442983.5	7.01039	57.51399	20.78359	-0.99930	0.07908	-0.03015	61.55455	1.00287	83.05	19.73
76/ 7/24	2442984.0	0.20965	57.69112	20.45099	-1.00683	-0.02711	-0.06806	61.20909	1.00949	89.79	19.52
76/ 7/25	2442984.5	-6.59925	57.14348	19.86217	-1.00163	-0.13473	-0.10573	60.85584	1.01617	96.59	19.05
76/ 7/25	2442985.0	-13.32867	55.86584	19.02040	-0.98331	-0.24244	-0.14267	60.50142	1.02276	103.42	18.32
76/ 7/26	2442985.5	-19.88887	53.86239	17.93241	-0.95164	-0.34881	-0.17835	60.15227	1.02912	110.27	17.34
76/ 7/26	2442986.0	-26.18923	51.14740	16.60851	-0.90659	-0.45230	-0.21224	59.81450	1.03515	117.11	16.12
76/ 7/27	2442986.5	-32.13965	47.74576	15.06269	-0.84836	-0.55131	-0.24379	59.49369	1.04071	123.95	14.67
76/ 7/27	2442987.0	-37.65220	43.69327	13.31271	-0.77738	-0.64421	-0.27244	59.19475	1.04573	130.75	13.00
76/ 7/28	2442987.5	-42.64277	39.03674	11.37991	-0.69436	-0.72941	-0.29768	58.92177	1.05014	137.53	11.14
76/ 7/28	2442988.0	-47.03294	33.83373	9.28914	-0.60027	-0.80534	-0.31902	58.67799	1.05388	144.27	9.11
76/ 7/29	2442988.5	-50.75175	28.15197	7.06834	-0.49634	-0.87055	-0.33601	58.46567	1.05694	150.98	6.94
76/ 7/29	2442989.0	-53.73744	22.06848	4.74823	-0.38405	-0.92376	-0.34829	58.28615	1.05931	157.67	4.67
76/ 7/30	2442989.5	-55.93899	15.66837	2.36172	-0.26509	-0.96388	-0.35558	58.13988	1.06103	164.35	2.33
76/ 7/30	2442990.0	-57.31743	9.04334	-0.05664	-0.14132	-0.99006	-0.35767	58.02648	1.06213	171.03	-0.06
76/ 7/31	2442990.5	-57.84689	2.29001	-2.47136	-0.01473	-1.00170	-0.35449	57.94493	1.06267	177.73	-2.44
76/ 7/31	2442991.0	-57.51527	-4.49196	-4.84665	0.11261	-0.99849	-0.34604	57.89364	1.06273	184.47	-4.80
76/ 8/ 1	2442991.5	-56.32458	-11.20180	-7.14717	0.23860	-0.98042	-0.33244	57.87072	1.06239	191.25	-7.09
76/ 8/ 1	2442992.0	-54.29094	-17.73958	-9.33868	0.36118	-0.94775	-0.31390	57.87409	1.06170	198.09	-9.29
76/ 8/ 2	2442992.5	-51.44424	-24.00810	-11.38870	0.47837	-0.90102	-0.29072	57.90165	1.06075	205.02	-11.34
76/ 8/ 2	2442993.0	-47.82747	-29.91469	-13.26710	0.58828	-0.84103	-0.26329	57.95146	1.05958	212.02	-13.23
76/ 8/ 3	2442993.5	-43.49582	-35.37292	-14.94666	0.68919	-0.76881	-0.23208	58.02183	1.05826	219.12	-14.93
76/ 8/ 3	2442994.0	-38.51554	-40.30402	-16.40348	0.77958	-0.68559	-0.19761	58.11140	1.05680	226.30	-16.40
76/ 8/ 4	2442994.5	-32.96256	-44.63822	-17.61738	0.85810	-0.59279	-0.16045	58.21918	1.05522	233.56	-17.61
76/ 8/ 4	2442995.0	-26.92103	-48.31580	-18.57221	0.92368	-0.49196	-0.12121	58.34454	1.05352	240.87	-18.56
76/ 8/ 5	2442995.5	-20.48174	-51.28793	-19.25601	0.97544	-0.38477	-0.08052	58.48716	1.05167	248.23	-19.22
76/ 8/ 5	2442996.0	-13.74037	-53.51736	-19.66117	1.01280	-0.27294	-0.03904	58.64697	1.04966	255.60	-19.59
76/ 8/ 6	2442996.5	-6.79579	-54.97870	-19.78446	1.03541	-0.15826	0.00261	58.82402	1.04744	262.95	-19.65
76/ 8/ 6	2442997.0	0.25168	-55.65869	-19.62695	1.04319	-0.04250	0.04378	59.01839	1.04497	270.26	-19.42
76/ 8/ 7	2442997.5	7.30201	-55.55600	-19.19392	1.03630	0.07257	0.08387	59.23001	1.04222	277.49	-18.91
76/ 8/ 7	2442998.0	14.25710	-54.68098	-18.49463	1.01515	0.18528	0.12231	59.45860	1.03915	284.61	-18.12
76/ 8/ 8	2442998.5	21.02236	-53.05510	-17.54204	0.98037	0.29404	0.15858	59.70349	1.03573	291.62	-17.09
76/ 8/ 8	2442999.0	27.50813	-50.71021	-16.35246	0.93277	0.39737	0.19222	59.96354	1.03195	298.48	-15.83
76/ 8/ 9	2442999.5	33.63091	-47.68761	-14.94519	0.87336	0.49396	0.22280	60.23707	1.02781	305.19	-14.37
76/ 8/ 9	2443000.0	39.31443	-44.03700	-13.34203	0.80326	0.58264	0.25001	60.52183	1.02333	311.76	-12.74
76/ 8/10	2443000.5	44.49050	-39.81533	-11.56688	0.72372	0.66244	0.27355	60.81494	1.01854	318.17	-10.96
76/ 8/10	2443001.0	49.09957	-35.08556	-9.64526	0.63606	0.73256	0.29323	61.11297	1.01351	324.45	-9.08
76/ 8/11	2443001.5	53.09116	-29.91548	-7.60383	0.54162	0.79237	0.30891	61.41193	1.00828	330.60	-7.11
76/ 8/11	2443002.0	56.42401	-24.37645	-5.46999	0.44177	0.84144	0.32051	61.70738	1.00295	336.63	-5.09

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 8/12	2443002.5	59.06610	-18.54231	-3.27149	0.33786	0.87948	0.32801	61.99454	0.99761	342.57	-3.02
76/ 8/12	2443003.0	60.99442	-12.48829	-1.03601	0.23121	0.90636	0.33144	62.26837	0.99237	348.43	-0.95
76/ 8/13	2443003.5	62.19474	-6.29010	1.20908	0.12309	0.92207	0.33086	62.52370	0.98733	354.22	1.11
76/ 8/13	2443004.0	62.66121	-0.02309	3.43702	0.01470	0.92671	0.32639	62.75540	0.98262	359.98	3.14
76/ 8/14	2443004.5	62.39589	6.23843	5.62188	-0.09281	0.92049	0.31817	62.95848	0.97834	5.71	5.12
76/ 8/14	2443005.0	61.40833	12.42180	7.73875	-0.19839	0.90368	0.30634	63.12823	0.97460	11.44	7.04
76/ 8/15	2443005.5	59.71512	18.45645	9.76385	-0.30103	0.87663	0.29110	63.26033	0.97152	17.18	8.88
76/ 8/15	2443006.0	57.33941	24.27434	11.67465	-0.39978	0.83974	0.27263	63.35100	0.96918	22.95	10.62
76/ 8/16	2443006.5	54.31056	29.81022	13.44999	-0.49375	0.79344	0.25113	63.39707	0.96768	28.76	12.25
76/ 8/16	2443007.0	50.66379	35.00197	15.07010	-0.58211	0.73820	0.22683	63.39610	0.96708	34.64	13.75
76/ 8/17	2443007.5	46.43991	39.79076	16.51671	-0.66404	0.67454	0.19994	63.34644	0.96743	40.59	15.11
76/ 8/17	2443008.0	41.68507	44.12136	17.77312	-0.73877	0.60299	0.17070	63.24732	0.96877	46.63	16.32
76/ 8/18	2443008.5	36.45063	47.94238	18.82423	-0.80554	0.52416	0.13936	63.09890	0.97111	52.75	17.36
76/ 8/18	2443009.0	30.79299	51.20652	19.65670	-0.86361	0.43867	0.10618	62.90232	0.97444	58.98	18.21
76/ 8/19	2443009.5	24.77348	53.87101	20.25901	-0.91228	0.34720	0.07144	62.65971	0.97872	65.30	18.86
76/ 8/19	2443010.0	18.45827	55.89795	20.62165	-0.95082	0.25053	0.03546	62.37420	0.98391	71.73	19.31
76/ 8/20	2443010.5	11.91823	57.25484	20.73723	-0.97856	0.14949	-0.00145	62.04993	0.98991	78.24	19.52
76/ 8/20	2443011.0	5.22873	57.91523	20.60074	-0.99485	0.04502	-0.03892	61.69200	0.99663	84.84	19.51
76/ 8/21	2443011.5	-1.53065	57.85932	20.20971	-0.99910	-0.06184	-0.07654	61.30641	1.00393	91.52	19.25
76/ 8/21	2443012.0	-8.27653	57.07482	19.56450	-0.99078	-0.16992	-0.11390	60.89996	1.01168	98.25	18.74
76/ 8/22	2443012.5	-14.92235	55.55769	18.66854	-0.96949	-0.27795	-0.15051	60.48014	1.01972	105.03	17.98
76/ 8/22	2443013.0	-21.37916	53.31303	17.52857	-0.93493	-0.38451	-0.18587	60.05496	1.02786	111.85	16.97
76/ 8/23	2443013.5	-27.55667	50.35589	16.15486	-0.88701	-0.48808	-0.21944	59.63275	1.03594	118.69	15.72
76/ 8/23	2443014.0	-33.36458	46.71198	14.56142	-0.82583	-0.58703	-0.25066	59.22195	1.04376	125.54	14.23
76/ 8/24	2443014.5	-38.71414	42.41828	12.76607	-0.75175	-0.67967	-0.27896	58.83084	1.05115	132.39	12.53
76/ 8/24	2443015.0	-43.52001	37.52331	10.79051	-0.66541	-0.76429	-0.30378	58.46730	1.05792	139.23	10.64
76/ 8/25	2443015.5	-47.70219	32.08720	8.66014	-0.56777	-0.83920	-0.32459	58.13850	1.06394	146.07	8.57
76/ 8/25	2443016.0	-51.18823	26.18122	6.40387	-0.46008	-0.90278	-0.34088	57.85068	1.06906	152.91	6.36
76/ 8/26	2443016.5	-53.91530	19.88704	4.05369	-0.34393	-0.95361	-0.35226	57.60891	1.07319	159.75	4.03
76/ 8/26	2443017.0	-55.83215	13.29541	1.64410	-0.22117	-0.99044	-0.35838	57.41689	1.07625	166.61	1.64
76/ 8/27	2443017.5	-56.90092	6.50443	-0.78855	-0.09386	-1.01234	-0.35904	57.27691	1.07822	173.48	-0.79
76/ 8/27	2443018.0	-57.09845	-0.38250	-3.20690	0.03572	-1.01870	-0.35415	57.18971	1.07909	180.38	-3.21
76/ 8/28	2443018.5	-56.41715	-7.25902	-5.57342	0.16525	-1.00926	-0.34375	57.15462	1.07892	187.33	-5.60
76/ 8/28	2443019.0	-54.86536	-14.01834	-7.85129	0.29238	-0.98414	-0.32802	57.16961	1.07778	194.33	-7.89
76/ 8/29	2443019.5	-52.46715	-20.55570	-10.00530	0.41483	-0.94382	-0.30724	57.23151	1.07577	201.39	-10.07
76/ 8/29	2443020.0	-49.26159	-26.77077	-12.00259	0.53045	-0.88913	-0.28181	57.33620	1.07301	208.52	-12.08
76/ 8/30	2443020.5	-45.30156	-32.56978	-13.81336	0.63731	-0.82117	-0.25225	57.47896	1.06964	215.71	-13.91
76/ 8/30	2443021.0	-40.65224	-37.86739	-15.41145	0.73373	-0.74131	-0.21911	57.65463	1.06579	222.97	-15.50
76/ 8/31	2443021.5	-35.38936	-42.58812	-16.77470	0.81828	-0.65110	-0.18301	57.85797	1.06161	230.27	-16.85
76/ 8/31	2443022.0	-29.59719	-46.66750	-17.88527	0.88986	-0.55221	-0.14461	58.08384	1.05721	237.62	-17.93
76/ 9/ 1	2443022.5	-23.36666	-50.05277	-18.72979	0.94762	-0.44643	-0.10456	58.32740	1.05272	244.97	-18.73
76/ 9/ 1	2443023.0	-16.79333	-52.70331	-19.29934	0.99102	-0.33555	-0.06352	58.58429	1.04821	252.33	-19.23
76/ 9/ 2	2443023.5	-9.97554	-54.59072	-19.58946	1.01978	-0.22138	-0.02214	58.85070	1.04376	259.64	-19.44
76/ 9/ 2	2443024.0	-3.01270	-55.69870	-19.59993	1.03387	-0.10568	0.01896	59.12342	1.03943	266.90	-19.36
76/ 9/ 3	2443024.5	3.99640	-56.02270	-19.33460	1.03348	0.00984	0.05920	59.39984	1.03523	274.08	-19.00

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 9/ 3	2443025.0	10.95497	-55.56943	-18.80115	1.01903	0.12358	0.09805	59.67793	1.03117	281.15	-18.36
76/ 9/ 4	2443025.5	17.76960	-54.35618	-18.01074	0.99109	0.23401	0.13500	59.95615	1.02725	288.10	-17.48
76/ 9/ 4	2443026.0	24.35134	-52.41016	-16.97775	0.95040	0.33974	0.16961	60.23335	1.02345	294.92	-16.37
76/ 9/ 5	2443026.5	30.61676	-49.76758	-15.71938	0.89784	0.43950	0.20149	60.50865	1.01974	301.60	-15.06
76/ 9/ 5	2443027.0	36.48878	-46.47285	-14.25533	0.83440	0.53214	0.23029	60.78134	1.01609	308.14	-13.56
76/ 9/ 6	2443027.5	41.89739	-42.57763	-12.60743	0.76119	0.61667	0.25574	61.05074	1.01246	314.54	-11.92
76/ 9/ 6	2443028.0	46.78027	-38.13982	-10.79928	0.67936	0.69223	0.27758	61.31610	1.00884	320.81	-10.14
76/ 9/ 7	2443028.5	51.08319	-33.22263	-8.85585	0.59014	0.75812	0.29566	61.57647	1.00520	326.96	-8.27
76/ 9/ 7	2443029.0	54.76037	-27.89356	-6.80314	0.49479	0.81377	0.30984	61.83066	1.00152	333.01	-6.32
76/ 9/ 8	2443029.5	57.77460	-22.22341	-4.66782	0.39459	0.85878	0.32004	62.07716	0.99781	338.96	-4.31
76/ 9/ 8	2443030.0	60.09738	-16.28532	-2.47691	0.29082	0.89286	0.32625	62.31406	0.99409	344.84	-2.28
76/ 9/ 9	2443030.5	61.70880	-10.15387	-0.25741	0.18474	0.91587	0.32849	62.53913	0.99038	350.66	-0.24
76/ 9/ 9	2443031.0	62.59737	-3.90417	1.96391	0.07757	0.92778	0.32681	62.74974	0.98671	356.43	1.79
76/ 9/10	2443031.5	62.75982	2.38892	4.16086	-0.02949	0.92870	0.32131	62.94294	0.98315	2.18	3.79
76/ 9/10	2443032.0	62.20073	8.65147	6.30801	-0.13531	0.91881	0.31213	63.11552	0.97977	7.92	5.74
76/ 9/11	2443032.5	60.93217	14.81123	8.38091	-0.23881	0.89839	0.29941	63.26406	0.97662	13.66	7.61
76/ 9/11	2443033.0	58.97333	20.79807	10.35625	-0.33898	0.86782	0.28335	63.38505	0.97381	19.43	9.40
76/ 9/12	2443033.5	56.35002	26.54455	12.21202	-0.43487	0.82750	0.26414	63.47497	0.97141	25.22	11.09
76/ 9/12	2443034.0	53.09432	31.98631	13.92766	-0.52558	0.77792	0.24200	63.53039	0.96951	31.07	12.66
76/ 9/13	2443034.5	49.24414	37.06240	15.48407	-0.61028	0.71961	0.21716	63.54812	0.96822	36.97	14.10
76/ 9/13	2443035.0	44.84285	41.71561	16.86379	-0.68819	0.65314	0.18987	63.52528	0.96760	42.93	15.39
76/ 9/14	2443035.5	39.93899	45.89272	18.05100	-0.75857	0.57912	0.16036	63.45946	0.96774	48.97	16.53
76/ 9/14	2443036.0	34.58591	49.54474	19.03166	-0.82073	0.49820	0.12892	63.34880	0.96872	55.08	17.48
76/ 9/15	2443036.5	28.84155	52.62723	19.79351	-0.87401	0.41106	0.09580	63.19211	0.97058	61.28	18.25
76/ 9/15	2443037.0	22.76822	55.10051	20.32620	-0.91777	0.31843	0.06130	62.98899	0.97337	67.55	18.83
76/ 9/16	2443037.5	16.43240	56.93003	20.62139	-0.95142	0.22109	0.02572	62.73989	0.97711	73.90	19.19
76/ 9/16	2443038.0	9.90453	58.08670	20.67285	-0.97439	0.11989	-0.01062	62.44622	0.98179	80.32	19.33
76/ 9/17	2443038.5	3.25879	58.54736	20.47660	-0.98614	0.01573	-0.04737	62.11042	0.98740	86.81	19.25
76/ 9/17	2443039.0	-3.42711	58.29529	20.03110	-0.98617	-0.09040	-0.08416	61.73597	0.99387	93.36	18.93
76/ 9/18	2443039.5	-10.07230	57.32080	19.33739	-0.97405	-0.19741	-0.12059	61.32748	1.00114	99.97	18.38
76/ 9/18	2443040.0	-16.59320	55.62191	18.39935	-0.94942	-0.30410	-0.15624	60.89062	1.00910	106.61	17.59
76/ 9/19	2443040.5	-22.90412	53.20510	17.22387	-0.91201	-0.40918	-0.19062	60.43214	1.01761	113.29	16.56
76/ 9/19	2443041.0	-28.91804	50.08603	15.82113	-0.86171	-0.51123	-0.22326	59.95975	1.02652	120.00	15.30
76/ 9/20	2443041.5	-34.54768	46.29034	14.20472	-0.79856	-0.60872	-0.25363	59.48203	1.03565	126.73	13.82
76/ 9/20	2443042.0	-39.70677	41.85431	12.39190	-0.72282	-0.70004	-0.28117	59.00822	1.04479	133.49	12.12
76/ 9/21	2443042.5	-44.31167	36.82542	10.40364	-0.63502	-0.78350	-0.30534	58.54803	1.05373	140.27	10.24
76/ 9/21	2443043.0	-48.28320	31.26267	8.26463	-0.53595	-0.85740	-0.32559	58.11132	1.06226	147.08	8.18
76/ 9/22	2443043.5	-51.54873	25.23652	6.00322	-0.42676	-0.92007	-0.34141	57.70782	1.07014	153.92	5.97
76/ 9/22	2443044.0	-54.04446	18.82851	3.65105	-0.30891	-0.96992	-0.35232	57.34672	1.07717	160.79	3.65
76/ 9/23	2443044.5	-55.71767	12.13024	1.24268	-0.18420	-1.00556	-0.35795	57.03635	1.08315	167.72	1.25
76/ 9/23	2443045.0	-56.52890	5.24196	-1.18508	-0.05475	-1.02586	-0.35801	56.78379	1.08792	174.70	-1.20
76/ 9/24	2443045.5	-56.45385	-1.72949	-3.59394	0.07710	-1.03002	-0.35235	56.59456	1.09135	181.75	-3.64
76/ 9/24	2443046.0	-55.48476	-8.67315	-5.94509	0.20882	-1.01763	-0.34098	56.47235	1.09336	188.88	-6.04
76/ 9/25	2443046.5	-53.63129	-15.47679	-8.20025	0.33782	-0.98871	-0.32404	56.41889	1.09393	196.10	-8.36
76/ 9/25	2443047.0	-50.92059	-22.02991	-10.32263	0.46154	-0.94376	-0.30184	56.43386	1.09308	203.39	-10.54

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/ 9/26	2443047.5	-47.39669	-28.22672	-12.27805	0.57757	-0.88369	-0.27482	56.51500	1.09088	210.78	-12.55
76/ 9/26	2443048.0	-43.11922	-33.96894	-14.03571	0.68373	-0.80977	-0.24355	56.65825	1.08744	218.23	-14.34
76/ 9/27	2443048.5	-38.16147	-39.16816	-15.56900	0.77817	-0.72363	-0.20868	56.85804	1.08293	225.75	-15.89
76/ 9/27	2443049.0	-32.60814	-43.74774	-16.85599	0.85938	-0.62712	-0.17094	57.10761	1.07752	233.30	-17.17
76/ 9/28	2443049.5	-26.55272	-47.64410	-17.87975	0.92628	-0.52223	-0.13108	57.39941	1.07140	240.87	-18.15
76/ 9/28	2443050.0	-20.09490	-50.80749	-18.62845	0.97812	-0.41102	-0.08984	57.72543	1.06477	248.42	-18.83
76/ 9/29	2443050.5	-13.33798	-53.20221	-19.09532	1.01457	-0.29558	-0.04797	58.07760	1.05784	255.93	-19.20
76/ 9/29	2443051.0	-6.38653	-54.80631	-19.27844	1.03559	-0.17789	-0.00616	58.44808	1.05077	263.35	-19.26
76/ 9/30	2443051.5	0.65570	-55.61109	-19.18040	1.04144	-0.05985	0.03495	58.82951	1.04374	270.68	-19.03
76/ 9/30	2443052.0	7.68756	-55.62020	-18.80791	1.03262	0.05679	0.07478	59.21523	1.03689	277.87	-18.52
76/10/ 1	2443052.5	14.61194	-54.84866	-18.17143	1.00983	0.17042	0.11283	59.59937	1.03031	284.92	-17.75
76/10/ 1	2443053.0	21.33697	-53.32177	-17.28467	0.97391	0.27961	0.14862	59.97697	1.02409	291.81	-16.75
76/10/ 2	2443053.5	27.77692	-51.07402	-16.16418	0.92582	0.38308	0.18178	60.34396	1.01830	298.54	-15.54
76/10/ 2	2443054.0	33.85286	-48.14799	-14.82893	0.86660	0.47973	0.21199	60.69713	1.01296	305.11	-14.14
76/10/ 3	2443054.5	39.49321	-44.59327	-13.29994	0.79738	0.56858	0.23895	61.03410	1.00807	311.53	-12.59
76/10/ 3	2443055.0	44.63408	-40.46548	-11.59988	0.71930	0.64883	0.26247	61.35318	1.00363	317.80	-10.90
76/10/ 4	2443055.5	49.21949	-35.82531	-9.75273	0.63356	0.71978	0.28236	61.65328	0.99960	323.95	-9.10
76/10/ 4	2443056.0	53.20155	-30.73763	-7.78349	0.54134	0.78089	0.29851	61.93376	0.99597	329.98	-7.22
76/10/ 5	2443056.5	56.54056	-25.27064	-5.71787	0.44387	0.83173	0.31082	62.19433	0.99267	335.92	-5.27
76/10/ 5	2443057.0	59.20498	-19.49507	-3.58198	0.34234	0.87197	0.31925	62.43491	0.98967	341.77	-3.29
76/10/ 6	2443057.5	61.17143	-13.48342	-1.40212	0.23796	0.90142	0.32380	62.65550	0.98693	347.57	-1.28
76/10/ 6	2443058.0	62.42461	-7.30922	0.79549	0.13191	0.91996	0.32450	62.85610	0.98439	353.32	0.73
76/10/ 7	2443058.5	62.95718	-1.04633	2.98497	0.02536	0.92761	0.32141	63.03659	0.98205	359.05	2.71
76/10/ 7	2443059.0	62.76952	5.23174	5.14097	-0.08058	0.92447	0.31463	63.19663	0.97986	4.76	4.67
76/10/ 8	2443059.5	61.86958	11.45247	7.23889	-0.18480	0.91072	0.30429	63.33566	0.97783	10.49	6.56
76/10/ 8	2443060.0	60.27252	17.54493	9.25508	-0.28626	0.88665	0.29053	63.45280	0.97596	16.23	8.39
76/10/ 9	2443060.5	58.00049	23.44035	11.16701	-0.38395	0.85260	0.27353	63.54690	0.97425	22.01	10.12
76/10/ 9	2443061.0	55.08221	29.07262	12.95342	-0.47694	0.80902	0.25350	63.61649	0.97275	27.83	11.75
76/10/10	2443061.5	51.55264	34.37881	14.59450	-0.56431	0.75640	0.23065	63.65985	0.97149	33.70	13.25
76/10/10	2443062.0	47.45262	39.29954	16.07196	-0.64525	0.69529	0.20523	63.67505	0.97052	39.63	14.62
76/10/11	2443062.5	42.82839	43.77942	17.36922	-0.71898	0.62632	0.17748	63.66002	0.96990	45.63	15.83
76/10/11	2443063.0	37.73131	47.76737	18.47144	-0.78477	0.55015	0.14768	63.61263	0.96971	51.69	16.88
76/10/12	2443063.5	32.21735	51.21694	19.36562	-0.84197	0.46747	0.11610	63.53078	0.97001	57.83	17.75
76/10/12	2443064.0	26.34683	54.08662	20.04072	-0.88997	0.37903	0.08303	63.41253	0.97088	64.03	18.42
76/10/13	2443064.5	20.18399	56.34010	20.48769	-0.92820	0.28564	0.04878	63.25619	0.97238	70.29	18.90
76/10/13	2443065.0	13.79669	57.94656	20.69956	-0.95617	0.18812	0.01366	63.06048	0.97459	76.61	19.16
76/10/14	2443065.5	7.25606	58.88099	20.67156	-0.97341	0.08735	-0.02199	62.82463	0.97757	82.97	19.21
76/10/14	2443066.0	0.63616	59.12451	20.40117	-0.97951	-0.01574	-0.05785	62.54854	0.98135	89.38	19.04
76/10/15	2443066.5	-5.98637	58.66471	19.88825	-0.97413	-0.12017	-0.09355	62.23284	0.98596	95.83	18.64
76/10/15	2443067.0	-12.53268	57.49607	19.13516	-0.95696	-0.22488	-0.12871	61.87908	0.99142	102.30	18.01
76/10/16	2443067.5	-18.92218	55.62042	18.14686	-0.92779	-0.32875	-0.16294	61.48974	0.99771	108.79	17.16
76/10/16	2443068.0	-25.07303	53.04742	16.93109	-0.88648	-0.43059	-0.19581	61.06838	1.00479	115.30	16.10
76/10/17	2443068.5	-30.90284	49.79514	15.49853	-0.83300	-0.52912	-0.22688	60.61968	1.01258	121.82	14.81
76/10/17	2443069.0	-36.32944	45.89061	13.86290	-0.76745	-0.62296	-0.25569	60.14945	1.02100	128.37	13.32
76/10/18	2443069.5	-41.27191	41.37036	12.04114	-0.69010	-0.71069	-0.28176	59.66462	1.02990	134.93	11.64

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
76/10/18	2443070.0	-45.65180	36.28095	10.05352	-0.60141	-0.79078	-0.30459	59.17320	1.03914	141.52	9.78
76/10/19	2443070.5	-49.39457	30.67932	7.92364	-0.50210	-0.86168	-0.32368	58.68415	1.04851	148.16	7.76
76/10/19	2443071.0	-52.43135	24.63297	5.67847	-0.39312	-0.92184	-0.33856	58.20717	1.05781	154.84	5.60
76/10/20	2443071.5	-54.70083	18.21984	3.34813	-0.27576	-0.96974	-0.34876	57.75252	1.06681	161.58	3.32
76/10/20	2443072.0	-56.15136	11.52783	0.96566	-0.15159	-1.00397	-0.35389	57.33061	1.07526	168.40	0.97
76/10/21	2443072.5	-56.74314	4.65381	-1.43343	-0.02252	-1.02330	-0.35362	56.95171	1.08292	175.31	-1.44
76/10/21	2443073.0	-56.45028	-2.29787	-3.81182	0.10925	-1.02677	-0.34775	56.62548	1.08955	182.33	-3.86
76/10/22	2443073.5	-55.26264	-9.21740	-6.13116	0.24128	-1.01374	-0.33619	56.36054	1.09495	189.47	-6.25
76/10/22	2443074.0	-53.18723	-15.99213	-8.35303	0.37096	-0.98401	-0.31899	56.16407	1.09893	196.73	-8.55
76/10/23	2443074.5	-50.24903	-22.50950	-10.44003	0.49561	-0.93783	-0.29641	56.04138	1.10137	204.13	-10.74
76/10/23	2443075.0	-46.49099	-28.66026	-12.35682	0.61262	-0.87592	-0.26882	55.99566	1.10218	211.65	-12.75
76/10/24	2443075.5	-41.97330	-34.34171	-14.07128	0.71955	-0.79948	-0.23676	56.02778	1.10135	219.29	-14.55
76/10/24	2443076.0	-36.77174	-39.46071	-15.55542	0.81423	-0.71013	-0.20092	56.13626	1.09892	227.02	-16.09
76/10/25	2443076.5	-30.97544	-43.93626	-16.78611	0.89491	-0.60982	-0.16206	56.31737	1.09499	234.82	-17.34
76/10/25	2443077.0	-24.68402	-47.70147	-17.74568	0.96026	-0.50075	-0.12100	56.56536	1.08972	242.64	-18.28
76/10/26	2443077.5	-18.00448	-50.70480	-18.42213	1.00942	-0.38524	-0.07859	56.87278	1.08328	250.45	-18.90
76/10/26	2443078.0	-11.04807	-52.91060	-18.80915	1.04199	-0.26564	-0.03567	57.23090	1.07591	258.21	-19.19
76/10/27	2443078.5	-3.92719	-54.29900	-18.90592	1.05802	-0.14423	0.00699	57.63018	1.06783	265.86	-19.15
76/10/27	2443079.0	3.24729	-54.86513	-18.71672	1.05791	-0.02317	0.04866	58.06068	1.05928	273.39	-18.81
76/10/28	2443079.5	10.36831	-54.61804	-18.25038	1.04238	0.09560	0.08872	58.51246	1.05050	280.75	-18.17
76/10/28	2443080.0	17.33449	-53.57929	-17.51976	1.01236	0.21034	0.12662	58.97598	1.04171	287.93	-17.28
76/10/29	2443080.5	24.05147	-51.78135	-16.54110	0.96899	0.31955	0.16190	59.44232	1.03308	294.91	-16.16
76/10/29	2443081.0	30.43288	-49.26607	-15.33341	0.91348	0.42197	0.19419	59.90342	1.02480	301.70	-14.83
76/10/30	2443081.5	36.40089	-46.08313	-13.91798	0.84713	0.51655	0.22321	60.35221	1.01699	308.31	-13.33
76/10/30	2443082.0	41.88653	-42.28863	-12.31781	0.77126	0.60243	0.24871	60.78271	1.00977	314.73	-11.69
76/10/31	2443082.5	46.82980	-37.94387	-10.55720	0.68719	0.67894	0.27056	61.19004	1.00319	320.98	-9.94
76/10/31	2443083.0	51.17954	-33.11417	-8.66138	0.59621	0.74555	0.28863	61.57039	0.99731	327.10	-8.09
76/11/ 1	2443083.5	54.89334	-27.86793	-6.65616	0.49961	0.80188	0.30286	61.92096	0.99214	333.08	-6.17
76/11/ 1	2443084.0	57.93729	-22.27579	-4.56766	0.39861	0.84766	0.31322	62.23989	0.98769	338.97	-4.21
76/11/ 2	2443084.5	60.28571	-16.40987	-2.42207	0.29443	0.88271	0.31972	62.52613	0.98391	344.77	-2.22
76/11/ 2	2443085.0	61.92096	-10.34311	-0.24542	0.18821	0.90696	0.32239	62.77934	0.98078	350.52	-0.22
76/11/ 3	2443085.5	62.83315	-4.14873	1.93655	0.08110	0.92040	0.32131	62.99973	0.97824	356.22	1.76
76/11/ 3	2443086.0	63.01992	2.10037	4.09864	-0.02582	0.92313	0.31654	63.18798	0.97624	1.91	3.72
76/11/ 4	2443086.5	62.48622	8.33206	6.21629	-0.13148	0.91530	0.30820	63.34504	0.97470	7.60	5.63
76/11/ 4	2443087.0	61.24411	14.47550	8.26577	-0.23485	0.89712	0.29643	63.47207	0.97357	13.30	7.48
76/11/ 5	2443087.5	59.31246	20.46161	10.22433	-0.33493	0.86889	0.28138	63.57029	0.97279	19.03	9.26
76/11/ 5	2443088.0	56.71680	26.22357	12.07032	-0.43077	0.83099	0.26323	63.64089	0.97231	24.81	10.93
76/11/ 6	2443088.5	53.48899	31.69723	13.78338	-0.52144	0.78384	0.24216	63.68491	0.97209	30.65	12.50
76/11/ 6	2443089.0	49.66701	36.82161	15.34455	-0.60608	0.72794	0.21841	63.70320	0.97208	36.55	13.94
76/11/ 7	2443089.5	45.29456	41.53936	16.73641	-0.68386	0.66386	0.19221	63.69634	0.97227	42.52	15.23
76/11/ 7	2443090.0	40.42084	45.79716	17.94325	-0.75398	0.59223	0.16382	63.66463	0.97266	48.57	16.37
76/11/ 8	2443090.5	35.10008	49.54619	18.95113	-0.81575	0.51374	0.13351	63.60807	0.97324	54.69	17.33
76/11/ 8	2443091.0	29.39119	52.74248	19.74808	-0.86849	0.42915	0.10158	63.52636	0.97404	60.87	18.11
76/11/ 9	2443091.5	23.35733	55.34735	20.32412	-0.91162	0.33924	0.06833	63.41895	0.97509	67.12	18.69
76/11/ 9	2443092.0	17.06544	57.32770	20.67143	-0.94460	0.24488	0.03409	63.28509	0.97642	73.42	19.06

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/11/10	2443092.5	10.58582	58.65640	20.78438	-0.96698	0.14696	-0.00081	63.12387	0.97809	79.77	19.22
76/11/10	2443093.0	3.99160	59.31255	20.65968	-0.97838	0.04644	-0.03603	62.93436	0.98015	86.15	19.16
76/11/11	2443093.5	-2.64174	59.28185	20.29639	-0.97849	-0.05569	-0.07121	62.71571	0.98266	92.55	18.88
76/11/11	2443094.0	-9.23688	58.55683	19.69603	-0.96707	-0.15841	-0.10597	62.46724	0.98568	98.96	18.38
76/11/12	2443094.5	-15.71525	57.13719	18.86266	-0.94399	-0.26063	-0.13995	62.18864	0.98926	105.38	17.66
76/11/12	2443095.0	-21.99753	55.03002	17.80289	-0.90917	-0.36124	-0.17276	61.88002	0.99345	111.79	16.72
76/11/13	2443095.5	-28.00437	52.25013	16.52603	-0.86266	-0.45908	-0.20399	61.54211	0.99828	118.19	15.58
76/11/13	2443096.0	-33.65700	48.82034	15.04408	-0.80461	-0.55295	-0.23325	61.17633	1.00377	124.58	14.24
76/11/14	2443096.5	-38.87801	44.77171	13.37182	-0.73527	-0.64161	-0.26012	60.78496	1.00992	130.97	12.71
76/11/14	2443097.0	-43.59224	40.14387	11.52686	-0.65504	-0.72377	-0.28418	60.37121	1.01670	137.36	11.01
76/11/15	2443097.5	-47.72776	34.98522	9.52964	-0.56448	-0.79813	-0.30501	59.93929	1.02406	143.76	9.15
76/11/15	2443098.0	-51.21701	29.35307	7.40347	-0.46434	-0.86337	-0.32219	59.49451	1.03190	150.18	7.15
76/11/16	2443098.5	-53.99811	23.31375	5.17442	-0.35555	-0.91815	-0.33532	59.04322	1.04012	156.65	5.03
76/11/16	2443099.0	-56.01631	16.94239	2.87125	-0.23928	-0.96120	-0.34402	58.59280	1.04858	163.17	2.81
76/11/17	2443099.5	-57.22560	10.32266	0.52518	-0.11694	-0.99131	-0.34794	58.15155	1.05708	169.77	0.52
76/11/17	2443100.0	-57.59041	3.54600	-1.83043	0.00979	-1.00737	-0.34679	57.72850	1.06544	176.48	-1.82
76/11/18	2443100.5	-57.08734	-3.28934	-4.16052	0.13900	-1.00850	-0.34037	57.33319	1.07343	183.30	-4.16
76/11/18	2443101.0	-55.70684	-10.07980	-6.42893	0.26852	-0.99404	-0.32857	56.97530	1.08082	190.26	-6.48
76/11/19	2443101.5	-53.45464	-16.71842	-8.59913	0.39600	-0.96364	-0.31139	56.66435	1.08737	197.37	-8.73
76/11/19	2443102.0	-50.35288	-23.09719	-10.63509	0.51896	-0.91735	-0.28896	56.40920	1.09286	204.64	-10.87
76/11/20	2443102.5	-46.44070	-29.10980	-12.50224	0.63489	-0.85562	-0.26160	56.21766	1.09709	212.08	-12.85
76/11/20	2443103.0	-41.77418	-34.65457	-14.16851	0.74132	-0.77939	-0.22973	56.09606	1.09990	219.68	-14.63
76/11/21	2443103.5	-36.42549	-39.63750	-15.60532	0.83597	-0.68998	-0.19395	56.04885	1.10115	227.42	-16.17
76/11/21	2443104.0	-30.48136	-43.97518	-16.78849	0.91685	-0.58917	-0.15496	56.07837	1.10079	235.27	-17.42
76/11/22	2443104.5	-24.04077	-47.59728	-17.69899	0.98234	-0.47904	-0.11357	56.18464	1.09881	243.20	-18.36
76/11/22	2443105.0	-17.21205	-50.44848	-18.32346	1.03131	-0.36193	-0.07064	56.36535	1.09525	251.16	-18.97
76/11/23	2443105.5	-10.10968	-52.48977	-18.65445	1.06308	-0.24030	-0.02706	56.61599	1.09024	259.10	-19.24
76/11/23	2443106.0	-2.85091	-53.69887	-18.69044	1.07750	-0.11660	0.01633	56.93004	1.08392	266.96	-19.17
76/11/24	2443106.5	4.44749	-54.07002	-18.43557	1.07487	0.00676	0.05870	57.29937	1.07649	274.70	-18.77
76/11/24	2443107.0	11.67214	-53.61302	-17.89915	1.05587	0.12759	0.09935	57.71460	1.06818	282.28	-18.07
76/11/25	2443107.5	18.71555	-52.35189	-17.09506	1.02154	0.24391	0.13765	58.16557	1.05924	289.67	-17.09
76/11/25	2443108.0	25.47800	-50.32307	-16.04107	0.97314	0.35402	0.17307	58.64176	1.04989	296.85	-15.88
76/11/26	2443108.5	31.86897	-47.57354	-14.75809	0.91209	0.45652	0.20521	59.13268	1.04040	303.82	-14.45
76/11/26	2443109.0	37.80795	-44.15890	-13.26945	0.83992	0.55026	0.23375	59.62825	1.03097	310.57	-12.86
76/11/27	2443109.5	43.22488	-40.14150	-11.60028	0.75819	0.63438	0.25849	60.11903	1.02182	317.12	-11.13
76/11/27	2443110.0	48.06018	-35.58879	-9.77690	0.66842	0.70825	0.27928	60.59645	1.01312	323.48	-9.28
76/11/28	2443110.5	52.26452	-30.57181	-7.82634	0.57212	0.77142	0.29604	61.05299	1.00501	329.67	-7.36
76/11/28	2443111.0	55.79851	-25.16401	-5.77592	0.47070	0.82362	0.30876	61.48221	0.99762	335.73	-5.39
76/11/29	2443111.5	58.63215	-19.44018	-3.65294	0.36553	0.86473	0.31747	61.87886	0.99104	341.66	-3.38
76/11/29	2443112.0	60.74435	-13.47561	-1.48442	0.25788	0.89472	0.32222	62.23882	0.98531	347.49	-1.37
76/11/30	2443112.5	62.12242	-7.34543	0.70314	0.14894	0.91365	0.32311	62.55913	0.98048	353.26	0.64
76/11/30	2443113.0	62.76157	-1.12403	2.88389	0.03986	0.92168	0.32023	62.83785	0.97654	358.97	2.63
76/12/ 1	2443113.5	62.66447	5.11537	5.03278	-0.06829	0.91901	0.31372	63.07402	0.97348	4.67	4.58
76/12/ 1	2443114.0	61.84087	11.30113	7.12565	-0.17450	0.90589	0.30372	63.26756	0.97125	10.36	6.47
76/12/ 2	2443114.5	60.30727	17.36353	9.13937	-0.27779	0.88263	0.29038	63.41914	0.96981	16.06	8.29

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
76/12/ 2	2443115.0	58.08661	23.23509	11.05191	-0.37723	0.84960	0.27387	63.53006	0.96908	21.80	10.02
76/12/ 3	2443115.5	55.20805	28.85091	12.84242	-0.47192	0.80719	0.25438	63.60213	0.96900	27.59	11.65
76/12/ 3	2443116.0	51.70673	34.14899	14.49138	-0.56099	0.75585	0.23210	63.63757	0.96948	33.44	13.16
76/12/ 4	2443116.5	47.62356	39.07062	15.98068	-0.64360	0.69611	0.20727	63.63882	0.97044	39.37	14.54
76/12/ 4	2443117.0	43.00496	43.56073	17.29376	-0.71896	0.62853	0.18011	63.60848	0.97180	45.37	15.78
76/12/ 5	2443117.5	37.90267	47.56835	18.41572	-0.78631	0.55374	0.15088	63.54919	0.97349	51.45	16.85
76/12/ 5	2443118.0	32.37341	51.04698	19.33345	-0.84493	0.47245	0.11985	63.46348	0.97543	57.62	17.74
76/12/ 6	2443118.5	26.47861	53.95506	20.03578	-0.89415	0.38540	0.08732	63.35375	0.97758	63.86	18.44
76/12/ 6	2443119.0	20.28398	56.25647	20.51362	-0.93337	0.29344	0.05361	63.22214	0.97988	70.17	18.93
76/12/ 7	2443119.5	13.85912	57.92089	20.76007	-0.96205	0.19746	0.01905	63.07048	0.98229	76.54	19.22
76/12/ 7	2443120.0	7.27695	58.92431	20.77058	-0.97975	0.09842	-0.01600	62.90028	0.98481	82.96	19.28
76/12/ 8	2443120.5	0.61322	59.24939	20.54302	-0.98609	-0.00267	-0.05119	62.71270	0.98742	89.41	19.12
76/12/ 8	2443121.0	-6.05418	58.88589	20.07779	-0.98080	-0.10474	-0.08612	62.50855	0.99012	95.87	18.74
76/12/ 9	2443121.5	-12.64588	57.83092	19.37793	-0.96371	-0.20667	-0.12041	62.28834	0.99295	102.33	18.13
76/12/ 9	2443122.0	-19.08175	56.08931	18.44914	-0.93478	-0.30730	-0.15365	62.05236	0.99592	108.79	17.30
76/12/10	2443122.5	-25.28173	53.67380	17.29985	-0.89408	-0.40547	-0.18545	61.80071	0.99908	115.22	16.26
76/12/10	2443123.0	-31.16664	50.60519	15.94119	-0.84179	-0.49996	-0.21541	61.53346	1.00248	121.63	15.01
76/12/11	2443123.5	-36.65901	46.91247	14.38706	-0.77823	-0.58956	-0.24311	61.25072	1.00614	128.01	13.59
76/12/11	2443124.0	-41.68405	42.63284	12.65402	-0.70387	-0.67306	-0.26817	60.95279	1.01013	134.36	11.98
76/12/12	2443124.5	-46.17052	37.81171	10.76128	-0.61931	-0.74927	-0.29020	60.64031	1.01448	140.68	10.22
76/12/12	2443125.0	-50.05178	32.50255	8.73061	-0.52529	-0.81698	-0.30884	60.31434	1.01920	147.00	8.32
76/12/13	2443125.5	-53.26677	26.76674	6.58620	-0.42273	-0.87506	-0.32373	59.97654	1.02432	153.32	6.30
76/12/13	2443126.0	-55.76112	20.67328	4.35454	-0.31268	-0.92242	-0.33456	59.62926	1.02983	159.66	4.19
76/12/14	2443126.5	-57.48824	14.29834	2.06419	-0.19639	-0.95802	-0.34102	59.27563	1.03569	166.03	2.00
76/12/14	2443127.0	-58.41052	7.72475	-0.25443	-0.07527	-0.98093	-0.34287	58.91965	1.04185	172.47	-0.25
76/12/15	2443127.5	-58.50052	1.04119	-2.56941	0.04909	-0.99037	-0.33991	58.56618	1.04823	178.98	-2.51
76/12/15	2443128.0	-57.74212	-5.65873	-4.84769	0.17495	-0.98568	-0.33202	58.22090	1.05470	185.60	-4.78
76/12/16	2443128.5	-56.13163	-12.27774	-7.05557	0.30038	-0.96642	-0.31912	57.89028	1.06115	192.34	-7.00
76/12/16	2443129.0	-53.67885	-18.71637	-9.15925	0.42332	-0.93240	-0.30126	57.58136	1.06739	199.22	-9.15
76/12/17	2443129.5	-50.40779	-24.87471	-11.12550	0.54164	-0.88369	-0.27857	57.30160	1.07326	206.26	-11.20
76/12/17	2443130.0	-46.35721	-30.65453	-12.92239	0.65314	-0.82072	-0.25130	57.05857	1.07857	213.48	-13.09
76/12/18	2443130.5	-41.58075	-35.96149	-14.52006	0.75564	-0.74422	-0.21981	56.85965	1.08313	220.86	-14.80
76/12/18	2443131.0	-36.14647	-40.70758	-15.89155	0.84706	-0.65531	-0.18460	56.71169	1.08675	228.40	-16.27
76/12/19	2443131.5	-30.13594	-44.81357	-17.01358	0.92550	-0.55547	-0.14626	56.62061	1.08926	236.08	-17.49
76/12/19	2443132.0	-23.64274	-48.21130	-17.86730	0.98934	-0.44650	-0.10549	56.59107	1.09055	243.88	-18.40
76/12/20	2443132.5	-16.77029	-50.84576	-18.43885	1.03731	-0.33045	-0.06307	56.62618	1.09050	251.75	-19.00
76/12/20	2443133.0	-9.62933	-52.67662	-18.71980	1.06852	-0.20959	-0.01982	56.72726	1.08906	259.64	-19.27
76/12/21	2443133.5	-2.33503	-53.67934	-18.70739	1.08256	-0.08630	0.02342	56.89367	1.08625	267.51	-19.20
76/12/21	2443134.0	4.99613	-53.84547	-18.40445	1.07945	0.03705	0.06583	57.12285	1.08209	275.30	-18.80
76/12/22	2443134.5	12.24935	-53.18250	-17.81922	1.05965	0.15816	0.10665	57.41036	1.07669	282.97	-18.08
76/12/22	2443135.0	19.31430	-51.71287	-16.96488	1.02403	0.27491	0.14519	57.75006	1.07018	290.48	-17.08
76/12/23	2443135.5	26.08755	-49.47267	-15.85896	0.97374	0.38541	0.18085	58.13443	1.06274	297.80	-15.83
76/12/23	2443136.0	32.47448	-46.50988	-14.52265	0.91020	0.48805	0.21315	58.55484	1.05456	304.92	-14.36
76/12/24	2443136.5	38.39067	-42.88240	-12.98005	0.83500	0.58150	0.24172	59.00191	1.04585	311.84	-12.71
76/12/24	2443137.0	43.76277	-38.65601	-11.25743	0.74982	0.66475	0.26628	59.46593	1.03683	318.55	-10.91

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
76/12/25	2443137.5	48.52887	-33.90242	-9.38252	0.65634	0.73708	0.28666	59.93711	1.02773	325.06	-9.01
76/12/25	2443138.0	52.63851	-28.69746	-7.38391	0.55624	0.79798	0.30280	60.40596	1.01876	331.40	-7.02
76/12/26	2443138.5	56.05234	-23.11945	-5.29051	0.45113	0.84721	0.31466	60.86349	1.01010	337.59	-4.99
76/12/26	2443139.0	58.74160	-17.24785	-3.13106	0.34252	0.88468	0.32231	61.30145	1.00193	343.64	-2.93
76/12/27	2443139.5	60.68744	-11.16216	-0.93386	0.23183	0.91045	0.32583	61.71249	0.99440	349.58	-0.87
76/12/27	2443140.0	61.88024	-4.94100	1.27356	0.12037	0.92471	0.32535	62.09025	0.98764	355.43	1.18
76/12/28	2443140.5	62.31888	1.33851	3.46462	0.00933	0.92773	0.32103	62.42947	0.98175	1.23	3.18
76/12/28	2443141.0	62.01009	7.60133	5.61383	-0.10017	0.91985	0.31302	62.72596	0.97680	6.99	5.13
76/12/29	2443141.5	60.96781	13.77487	7.69690	-0.20710	0.90144	0.30153	62.97669	0.97283	12.73	7.02
76/12/29	2443142.0	59.21272	19.78928	9.69081	-0.31051	0.87293	0.28673	63.17969	0.96986	18.48	8.82
76/12/30	2443142.5	56.77172	25.57769	11.57387	-0.40950	0.83478	0.26883	63.33404	0.96789	24.25	10.53
76/12/30	2443143.0	53.67763	31.07644	13.32577	-0.50322	0.78748	0.24803	63.43980	0.96689	30.07	12.13
76/12/31	2443143.5	49.96884	36.22526	14.92764	-0.59088	0.73154	0.22456	63.49794	0.96681	35.94	13.60
76/12/31	2443144.0	45.68909	40.96750	16.36210	-0.67170	0.66751	0.19864	63.51021	0.96758	41.88	14.93
77/ 1/ 1	2443144.5	40.88725	45.25040	17.61337	-0.74493	0.59600	0.17050	63.47910	0.96913	47.90	16.11
77/ 1/ 1	2443145.0	35.61712	49.02535	18.66729	-0.80986	0.51763	0.14041	63.40766	0.97136	54.00	17.12
77/ 1/ 2	2443145.5	29.93724	52.24829	19.51153	-0.86581	0.43311	0.10863	63.29946	0.97418	60.19	17.95
77/ 1/ 2	2443146.0	23.91067	54.88006	20.13563	-0.91213	0.34320	0.07545	63.15841	0.97748	66.46	18.59
77/ 1/ 3	2443146.5	17.60470	56.88687	20.53115	-0.94822	0.24871	0.04119	62.98865	0.98116	72.80	19.02
77/ 1/ 3	2443147.0	11.09053	58.24077	20.69188	-0.97353	0.15055	0.00618	62.79443	0.98512	79.22	19.24
77/ 1/ 4	2443147.5	4.44283	58.92016	20.61391	-0.98758	0.04970	-0.02923	62.58001	0.98926	85.69	19.23
77/ 1/ 4	2443148.0	-2.26077	58.91031	20.29584	-0.98998	-0.05279	-0.06466	62.34948	0.99349	92.20	19.00
77/ 1/ 5	2443148.5	-8.94035	58.20386	19.73891	-0.98044	-0.15581	-0.09970	62.10671	0.99774	98.73	18.53
77/ 1/ 5	2443149.0	-15.51437	56.80124	18.94709	-0.95879	-0.25816	-0.13395	61.85522	1.00193	105.28	17.84
77/ 1/ 6	2443149.5	-21.90060	54.71115	17.92723	-0.92499	-0.35861	-0.16697	61.59814	1.00603	111.82	16.92
77/ 1/ 6	2443150.0	-28.01704	51.95080	16.68909	-0.87916	-0.45587	-0.19833	61.33812	1.00998	118.34	15.79
77/ 1/ 7	2443150.5	-33.78296	48.54617	15.24535	-0.82155	-0.54864	-0.22761	61.07733	1.01378	124.83	14.45
77/ 1/ 7	2443151.0	-39.12004	44.53208	13.61165	-0.75261	-0.63562	-0.25436	60.81744	1.01742	131.30	12.93
77/ 1/ 8	2443151.5	-43.95353	39.95211	11.80644	-0.67296	-0.71553	-0.27818	60.55969	1.02090	137.73	11.24
77/ 1/ 8	2443152.0	-48.21344	34.85842	9.85090	-0.58338	-0.78712	-0.29869	60.30493	1.02426	144.13	9.40
77/ 1/ 9	2443152.5	-51.83568	29.31134	7.76874	-0.48484	-0.84922	-0.31552	60.05369	1.02752	150.51	7.43
77/ 1/ 9	2443153.0	-54.76331	23.37889	5.58599	-0.37846	-0.90074	-0.32834	59.80632	1.03072	156.88	5.36
77/ 1/10	2443153.5	-56.94753	17.13608	3.33068	-0.26554	-0.94072	-0.33690	59.56307	1.03391	163.25	3.21
77/ 1/10	2443154.0	-58.34880	10.66408	1.03253	-0.14752	-0.96829	-0.34096	59.32429	1.03711	169.64	1.00
77/ 1/11	2443154.5	-58.93775	4.04927	-1.27742	-0.02594	-0.98278	-0.34036	59.09050	1.04038	176.07	-1.24
77/ 1/11	2443155.0	-58.69604	-2.61786	-3.56722	0.09749	-0.98367	-0.33500	58.86258	1.04371	182.55	-3.47
77/ 1/12	2443155.5	-57.61702	-9.24394	-5.80449	0.22100	-0.97063	-0.32485	58.64182	1.04713	189.11	-5.68
77/ 1/12	2443156.0	-55.70637	-15.73409	-7.95688	0.34275	-0.94353	-0.30995	58.43007	1.05062	195.77	-7.83
77/ 1/13	2443156.5	-52.98246	-21.99337	-9.99260	0.46083	-0.90249	-0.29043	58.22973	1.05413	202.54	-9.88
77/ 1/13	2443157.0	-49.47657	-27.92836	-11.88100	0.57334	-0.84785	-0.26649	58.04379	1.05763	209.44	-11.81
77/ 1/14	2443157.5	-45.23286	-33.44885	-13.59309	0.67839	-0.78021	-0.23842	57.87581	1.06103	216.48	-13.58
77/ 1/14	2443158.0	-40.30813	-38.46957	-15.10218	0.77415	-0.70043	-0.20661	57.72979	1.06424	223.66	-15.17
77/ 1/15	2443158.5	-34.77118	-42.91194	-16.38440	0.85890	-0.60964	-0.17152	57.61005	1.06714	230.98	-16.52
77/ 1/15	2443159.0	-28.70196	-46.70587	-17.41931	0.93108	-0.50920	-0.13368	57.52106	1.06961	238.43	-17.63
77/ 1/16	2443159.5	-22.19029	-49.79137	-18.19041	0.98935	-0.40073	-0.09372	57.46721	1.07153	245.98	-18.45

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/ 1/16	2443160.0	-15.33429	-52.12012	-18.68555	1.03261	-0.28606	-0.05231	57.45256	1.07277	253.61	-18.98
77/ 1/17	2443160.5	-8.23839	-53.65668	-18.89730	1.06008	-0.16715	-0.01016	57.48059	1.07323	261.27	-19.19
77/ 1/17	2443161.0	-1.01120	-54.37942	-18.82317	1.07133	-0.04609	0.03199	57.55394	1.07280	268.93	-19.09
77/ 1/18	2443161.5	6.23688	-54.28106	-18.46566	1.06627	0.07496	0.07340	57.67420	1.07142	276.55	-18.67
77/ 1/18	2443162.0	13.39617	-53.36874	-17.83220	1.04519	0.19392	0.11336	57.84175	1.06905	284.09	-17.96
77/ 1/19	2443162.5	20.36009	-51.66363	-16.93489	1.00871	0.30874	0.15121	58.05561	1.06569	291.51	-16.96
77/ 1/19	2443163.0	27.02746	-49.20009	-15.79010	0.95780	0.41758	0.18634	58.31346	1.06136	298.78	-15.71
77/ 1/20	2443163.5	33.30451	-46.02444	-14.41798	0.89368	0.51876	0.21826	58.61158	1.05613	305.89	-14.24
77/ 1/20	2443164.0	39.10649	-42.19346	-12.84186	0.81777	0.61088	0.24652	58.94505	1.05010	312.83	-12.58
77/ 1/21	2443164.5	44.35894	-37.77258	-11.08756	0.73168	0.69279	0.27083	59.30782	1.04339	319.58	-10.77
77/ 1/21	2443165.0	48.99846	-32.83409	-9.18276	0.63706	0.76360	0.29094	59.69296	1.03614	326.17	-8.85
77/ 1/22	2443165.5	52.97312	-27.45531	-7.15632	0.53563	0.82273	0.30673	60.09291	1.02852	332.60	-6.84
77/ 1/22	2443166.0	56.24247	-21.71678	-5.03772	0.42906	0.86979	0.31815	60.49969	1.02071	338.89	-4.78
77/ 1/23	2443166.5	58.77724	-15.70079	-2.85649	0.31898	0.90466	0.32523	60.90516	1.01288	345.04	-2.69
77/ 1/23	2443167.0	60.55888	-9.48989	-0.64178	0.20691	0.92737	0.32806	61.30128	1.00521	351.09	-0.60
77/ 1/24	2443167.5	61.57881	-3.16581	1.57800	0.09428	0.93812	0.32675	61.68032	0.99786	357.06	1.47
77/ 1/24	2443168.0	61.83774	3.19147	3.77546	-0.01760	0.93723	0.32150	62.03503	0.99100	2.95	3.49
77/ 1/25	2443168.5	61.34483	9.50449	5.92449	-0.12754	0.92512	0.31248	62.35883	0.98477	8.81	5.45
77/ 1/25	2443169.0	60.11697	15.69880	8.00032	-0.23445	0.90226	0.29992	62.64589	0.97929	14.64	7.34
77/ 1/26	2443169.5	58.17805	21.70338	9.97970	-0.33735	0.86919	0.28404	62.89131	0.97467	20.46	9.13
77/ 1/26	2443170.0	55.55832	27.45093	11.84094	-0.43534	0.82646	0.26507	63.09111	0.97099	26.29	10.82
77/ 1/27	2443170.5	52.29387	32.87801	13.56394	-0.52760	0.77466	0.24326	63.24233	0.96831	32.16	12.38
77/ 1/27	2443171.0	48.42618	37.92525	15.13022	-0.61336	0.71440	0.21884	63.34306	0.96668	38.07	13.82
77/ 1/28	2443171.5	44.00170	42.53747	16.52296	-0.69190	0.64630	0.19206	63.39239	0.96608	44.03	15.11
77/ 1/28	2443172.0	39.07162	46.66379	17.72704	-0.76255	0.57103	0.16317	63.39045	0.96653	50.06	16.24
77/ 1/29	2443172.5	33.69158	50.25782	18.72904	-0.82467	0.48924	0.13243	63.33836	0.96797	56.16	17.20
77/ 1/29	2443173.0	27.92147	53.27789	19.51737	-0.87763	0.40166	0.10012	63.23819	0.97036	62.34	17.98
77/ 1/30	2443173.5	21.82526	55.68728	20.08228	-0.92086	0.30904	0.06651	63.09289	0.97361	68.60	18.56
77/ 1/30	2443174.0	15.47082	57.45459	20.41602	-0.95380	0.21220	0.03191	62.90620	0.97764	74.93	18.94
77/ 1/31	2443174.5	8.92965	58.55415	20.51295	-0.97592	0.11201	-0.00337	62.68260	0.98233	81.33	19.10
77/ 1/31	2443175.0	2.27662	58.96645	20.36967	-0.98676	0.00942	-0.03897	62.42715	0.98757	87.79	19.04
77/ 2/ 1	2443175.5	-4.41045	58.67871	19.98521	-0.98591	-0.09453	-0.07452	62.14540	0.99323	94.30	18.76
77/ 2/ 1	2443176.0	-11.05123	57.68539	19.36117	-0.97305	-0.19873	-0.10964	61.84326	0.99917	100.85	18.24
77/ 2/ 2	2443176.5	-17.56361	55.98880	18.50190	-0.94796	-0.30199	-0.14391	61.52680	1.00526	107.42	17.50
77/ 2/ 2	2443177.0	-23.86441	53.59964	17.41466	-0.91057	-0.40303	-0.17689	61.20214	1.01136	114.00	16.53
77/ 2/ 3	2443177.5	-29.87041	50.53746	16.10973	-0.86093	-0.50050	-0.20812	60.87528	1.01736	120.59	15.35
77/ 2/ 3	2443178.0	-35.49943	46.83109	14.60049	-0.79931	-0.59302	-0.23714	60.55192	1.02313	127.16	13.95
77/ 2/ 4	2443178.5	-40.67161	42.51885	12.90347	-0.72613	-0.67917	-0.26349	60.23730	1.02857	133.73	12.37
77/ 2/ 4	2443179.0	-45.31084	37.64863	11.03830	-0.64205	-0.75756	-0.28672	59.93609	1.03360	140.28	10.61
77/ 2/ 5	2443179.5	-49.34618	32.27771	9.02759	-0.54797	-0.82681	-0.30640	59.65227	1.03815	146.81	8.70
77/ 2/ 5	2443180.0	-52.71343	26.47235	6.89672	-0.44497	-0.88564	-0.32214	59.38902	1.04218	153.33	6.67
77/ 2/ 6	2443180.5	-55.35657	20.30713	4.67354	-0.33438	-0.93289	-0.33361	59.14873	1.04565	159.85	4.53
77/ 2/ 6	2443181.0	-57.22919	13.86397	2.38802	-0.21771	-0.96756	-0.34051	58.93295	1.04858	166.38	2.32
77/ 2/ 7	2443181.5	-58.29566	7.23094	0.07174	-0.09663	-0.98884	-0.34266	58.74245	1.05098	172.93	0.07
77/ 2/ 7	2443182.0	-58.53224	0.50086	-2.24259	0.02704	-0.99614	-0.33992	58.57733	1.05289	179.51	-2.19

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
					GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						
77/ 2/ 8	2443182.5	-57.92779	-6.23024	-4.52172	0.15140	-0.98911	-0.33227	58.43706	1.05435	186.14	-4.44
77/ 2/ 8	2443183.0	-56.48429	-12.86491	-6.73247	0.27448	-0.96767	-0.31975	58.32073	1.05544	192.83	-6.63
77/ 2/ 9	2443183.5	-54.21706	-19.30594	-8.84231	0.39432	-0.93198	-0.30250	58.22710	1.05621	199.60	-8.73
77/ 2/ 9	2443184.0	-51.15461	-25.45822	-10.82001	0.50898	-0.88249	-0.28077	58.15486	1.05673	206.46	-10.72
77/ 2/10	2443184.5	-47.33832	-31.23043	-12.63615	0.61662	-0.81988	-0.25486	58.10274	1.05706	213.41	-12.56
77/ 2/10	2443185.0	-42.82172	-36.53671	-14.26371	0.71550	-0.74508	-0.22516	58.06965	1.05725	220.47	-14.22
77/ 2/11	2443185.5	-37.66967	-41.29822	-15.67855	0.80402	-0.65922	-0.19212	58.05484	1.05732	227.63	-15.67
77/ 2/11	2443186.0	-31.95720	-45.44453	-16.85982	0.88077	-0.56366	-0.15627	58.05792	1.05730	234.88	-16.88
77/ 2/12	2443186.5	-25.76821	-48.91489	-17.79035	0.94455	-0.45988	-0.11818	58.07894	1.05718	242.22	-17.84
77/ 2/12	2443187.0	-19.19402	-51.65926	-18.45693	0.99437	-0.34956	-0.07844	58.11839	1.05694	249.62	-18.52
77/ 2/13	2443187.5	-12.33177	-53.63918	-18.85054	1.02951	-0.23445	-0.03768	58.17712	1.05654	257.05	-18.91
77/ 2/13	2443188.0	-5.28263	-54.82842	-18.96653	1.04950	-0.11639	0.00344	58.25626	1.05594	264.50	-19.00
77/ 2/14	2443188.5	1.84993	-55.21336	-18.80460	1.05413	0.00274	0.04428	58.35710	1.05507	271.92	-18.80
77/ 2/14	2443189.0	8.96205	-54.79315	-18.36884	1.04350	0.12106	0.08419	58.48095	1.05387	279.29	-18.31
77/ 2/15	2443189.5	15.95134	-53.57955	-17.66759	1.01794	0.23672	0.12258	58.62898	1.05227	286.58	-17.54
77/ 2/15	2443190.0	22.71867	-51.59659	-16.71318	0.97808	0.34796	0.15885	58.80201	1.05022	293.76	-16.51
77/ 2/16	2443190.5	29.16993	-48.87983	-15.52171	0.92477	0.45314	0.19250	59.00039	1.04766	300.83	-15.25
77/ 2/16	2443191.0	35.21757	-45.47551	-14.11259	0.85909	0.55076	0.22305	59.22386	1.04457	307.76	-13.79
77/ 2/17	2443191.5	40.78199	-41.43938	-12.50817	0.78230	0.63951	0.25011	59.47140	1.04093	314.54	-12.14
77/ 2/17	2443192.0	45.79268	-36.83537	-10.73318	0.69582	0.71828	0.27337	59.74123	1.03674	321.19	-10.35
77/ 2/18	2443192.5	50.18904	-31.73416	-8.81423	0.60116	0.78620	0.29259	60.03072	1.03204	327.70	-8.44
77/ 2/18	2443193.0	53.92099	-26.21166	-6.77927	0.49989	0.84259	0.30761	60.33641	1.02688	334.08	-6.45
77/ 2/19	2443193.5	56.94921	-20.34750	-4.65705	0.39362	0.88703	0.31835	60.65412	1.02133	340.34	-4.40
77/ 2/19	2443194.0	59.24517	-14.22354	-2.47664	0.28392	0.91929	0.32480	60.97896	1.01548	346.50	-2.33
77/ 2/20	2443194.5	60.79086	-7.92254	-0.26695	0.17232	0.93932	0.32701	61.30552	1.00944	352.57	-0.25
77/ 2/20	2443195.0	61.57842	-1.52686	1.94367	0.06028	0.94728	0.32509	61.62801	1.00332	358.58	1.81
77/ 2/21	2443195.5	61.60949	4.88256	4.12775	-0.05085	0.94344	0.31920	61.94035	0.99727	4.53	3.82
77/ 2/21	2443196.0	60.89458	11.22711	6.25900	-0.15980	0.92820	0.30953	62.23643	0.99141	10.45	5.77
77/ 2/22	2443196.5	59.45233	17.43124	8.31250	-0.26544	0.90206	0.29628	62.51021	0.98588	16.34	7.64
77/ 2/22	2443197.0	57.30876	23.42304	10.26491	-0.36673	0.86560	0.27971	62.75589	0.98081	22.23	9.41
77/ 2/23	2443197.5	54.49656	29.13461	12.09452	-0.46274	0.81943	0.26007	62.96807	0.97633	28.13	11.07
77/ 2/23	2443198.0	51.05440	34.50244	13.78137	-0.55262	0.76421	0.23760	63.14187	0.97255	34.05	12.61
77/ 2/24	2443198.5	47.02640	39.46756	15.30726	-0.63562	0.70062	0.21258	63.27308	0.96957	40.01	14.00
77/ 2/24	2443199.0	42.46153	43.97573	16.65582	-0.71104	0.62939	0.18528	63.35820	0.96749	46.00	15.24
77/ 2/25	2443199.5	37.41321	47.97752	17.81249	-0.77827	0.55122	0.15597	63.39460	0.96637	52.05	16.32
77/ 2/25	2443200.0	31.93896	51.42845	18.76458	-0.83673	0.46685	0.12491	63.38053	0.96626	58.16	17.22
77/ 2/26	2443200.5	26.10005	54.28909	19.50125	-0.88587	0.37704	0.09240	63.31522	0.96719	64.32	17.94
77/ 2/26	2443201.0	19.96130	56.52522	20.01359	-0.92519	0.28257	0.05872	63.19888	0.96916	70.55	18.46
77/ 2/27	2443201.5	13.59082	58.10805	20.29465	-0.95422	0.18426	0.02416	63.03276	0.97214	76.84	18.78
77/ 2/27	2443202.0	7.05983	59.01445	20.33953	-0.97252	0.08297	-0.01097	62.81913	0.97611	83.18	18.89
77/ 2/28	2443202.5	0.44239	59.22733	20.14551	-0.97968	-0.02038	-0.04634	62.56128	0.98099	89.57	18.78
77/ 2/28	2443203.0	-6.18484	58.73601	19.71212	-0.97535	-0.12480	-0.08159	62.26346	0.98668	96.01	18.46
77/ 3/ 1	2443203.5	-12.74297	57.53673	19.04134	-0.95923	-0.22925	-0.11637	61.93085	0.99309	102.49	17.91
77/ 3/ 1	2443204.0	-19.15135	55.63316	18.13774	-0.93110	-0.33257	-0.15028	61.56948	1.00007	109.00	17.13
77/ 3/ 2	2443204.5	-25.32819	53.03702	17.00863	-0.89085	-0.43355	-0.18289	61.18608	1.00749	115.53	16.14

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
77/ 3/ 2	2443205.0	-31.19133	49.76857	15.66425	-0.83848	-0.53087	-0.21377	60.78798	1.01517	122.08	14.93
77/ 3/ 3	2443205.5	-36.65921	45.85724	14.11790	-0.77418	-0.62315	-0.24245	60.38294	1.02296	128.64	13.52
77/ 3/ 3	2443206.0	-41.65209	41.34203	12.38606	-0.69830	-0.70895	-0.26847	59.97895	1.03068	135.21	11.92
77/ 3/ 4	2443206.5	-46.09341	36.27180	10.48839	-0.61142	-0.78680	-0.29134	59.58399	1.03816	141.80	10.14
77/ 3/ 4	2443207.0	-49.91138	30.70542	8.44775	-0.51438	-0.85522	-0.31061	59.20585	1.04522	148.40	8.20
77/ 3/ 5	2443207.5	-53.04069	24.71151	6.29005	-0.40827	-0.91282	-0.32584	58.85183	1.05171	155.02	6.14
77/ 3/ 5	2443208.0	-55.42429	18.36794	4.04397	-0.29443	-0.95827	-0.33665	58.52851	1.05749	161.66	3.96
77/ 3/ 6	2443208.5	-57.01518	11.76098	1.74062	-0.17448	-0.99042	-0.34270	58.24158	1.06246	168.34	1.71
77/ 3/ 6	2443209.0	-57.77804	4.98396	-0.58696	-0.05024	-1.00835	-0.34377	57.99557	1.06652	175.07	-0.58
77/ 3/ 7	2443209.5	-57.69065	-1.86431	-2.90442	0.07625	-1.01137	-0.33970	57.79380	1.06962	181.85	-2.88
77/ 3/ 7	2443210.0	-56.74501	-8.68150	-5.17679	0.20283	-0.99914	-0.33046	57.63821	1.07174	188.70	-5.15
77/ 3/ 8	2443210.5	-54.94797	-15.36398	-7.36929	0.32728	-0.97162	-0.31613	57.52945	1.07289	195.62	-7.36
77/ 3/ 8	2443211.0	-52.32150	-21.80908	-9.44805	0.44739	-0.92912	-0.29692	57.46687	1.07312	202.63	-9.46
77/ 3/ 9	2443211.5	-48.90233	-27.91743	-11.38093	0.56101	-0.87232	-0.27312	57.44865	1.07250	209.72	-11.43
77/ 3/ 9	2443212.0	-44.74126	-33.59523	-13.13823	0.66615	-0.80217	-0.24515	57.47201	1.07113	216.90	-13.21
77/ 3/10	2443212.5	-39.90191	-38.75617	-14.69334	0.76102	-0.71992	-0.21350	57.53344	1.06913	224.17	-14.80
77/ 3/10	2443213.0	-34.45925	-43.32327	-16.02324	0.84407	-0.62707	-0.17874	57.62890	1.06660	231.50	-16.14
77/ 3/11	2443213.5	-28.49780	-47.23023	-17.10892	0.91403	-0.52528	-0.14149	57.75408	1.06367	238.89	-17.23
77/ 3/11	2443214.0	-22.10967	-50.42247	-17.93564	0.96993	-0.41633	-0.10238	57.90467	1.06046	246.32	-18.04
77/ 3/12	2443214.5	-15.39260	-52.85787	-18.49311	1.01108	-0.30210	-0.06209	58.07652	1.05707	253.76	-18.57
77/ 3/12	2443215.0	-8.44790	-54.50707	-18.77549	1.03710	-0.18449	-0.02126	58.26583	1.05360	261.19	-18.80
77/ 3/13	2443215.5	-1.37859	-55.35355	-18.78135	1.04788	-0.06538	0.01946	58.46927	1.05010	268.57	-18.74
77/ 3/13	2443216.0	5.71251	-55.39343	-18.51355	1.04358	0.05339	0.05945	58.68404	1.04663	275.89	-18.39
77/ 3/14	2443216.5	12.72441	-54.63505	-17.97898	1.02458	0.17006	0.09814	58.90792	1.04322	283.11	-17.77
77/ 3/14	2443217.0	19.55950	-53.09833	-17.18833	0.99149	0.28296	0.13499	59.13920	1.03987	290.22	-16.90
77/ 3/15	2443217.5	26.12498	-50.81406	-16.15574	0.94511	0.39056	0.16950	59.37669	1.03658	297.21	-15.79
77/ 3/15	2443218.0	32.33400	-47.82298	-14.89851	0.88641	0.49146	0.20126	59.61955	1.03332	304.06	-14.47
77/ 3/16	2443218.5	38.10679	-44.17482	-13.43666	0.81649	0.58440	0.22987	59.86724	1.03006	310.78	-12.97
77/ 3/16	2443219.0	43.37151	-39.92722	-11.79256	0.73659	0.66830	0.25502	60.11934	1.02675	317.37	-11.31
77/ 3/17	2443219.5	48.06499	-35.14461	-9.99054	0.64803	0.74224	0.27646	60.37547	1.02338	323.83	-9.52
77/ 3/17	2443220.0	52.13324	-29.89705	-8.05644	0.55220	0.80549	0.29400	60.63509	1.01989	330.17	-7.64
77/ 3/18	2443220.5	55.53192	-24.25901	-6.01723	0.45055	0.85747	0.30749	60.89746	1.01627	336.40	-5.67
77/ 3/18	2443221.0	58.22647	-18.30821	-3.90053	0.34452	0.89779	0.31687	61.16148	1.01249	342.55	-3.66
77/ 3/19	2443221.5	60.19220	-12.12443	-1.73430	0.23557	0.92624	0.32212	61.42565	1.00856	348.61	-1.62
77/ 3/19	2443222.0	61.41416	-5.78837	0.45362	0.12513	0.94277	0.32328	61.68801	1.00448	354.62	0.42
77/ 3/20	2443222.5	61.88693	0.61943	2.63580	0.01457	0.94745	0.32044	61.94613	1.00028	0.57	2.44
77/ 3/20	2443223.0	61.61416	7.01954	4.78559	-0.09481	0.94055	0.31374	62.19711	0.99602	6.50	4.41
77/ 3/21	2443223.5	60.60818	13.33456	6.87733	-0.20175	0.92239	0.30334	62.43764	0.99173	12.41	6.32
77/ 3/21	2443224.0	58.88932	19.48985	8.88668	-0.30513	0.89347	0.28944	62.66402	0.98750	18.31	8.15
77/ 3/22	2443224.5	56.48539	25.41423	10.79072	-0.40388	0.85431	0.27228	62.87226	0.98341	24.22	9.88
77/ 3/22	2443225.0	53.43097	31.04050	12.56818	-0.49706	0.80554	0.25210	63.05823	0.97955	30.15	11.50
77/ 3/23	2443225.5	49.76680	36.30583	14.19949	-0.58380	0.74785	0.22917	63.21767	0.97602	36.11	12.98
77/ 3/23	2443226.0	45.53913	41.15218	15.66694	-0.66334	0.68194	0.20376	63.34641	0.97292	42.10	14.32
77/ 3/24	2443226.5	40.79912	45.52646	16.95469	-0.73498	0.60857	0.17616	63.44043	0.97036	48.13	15.50
77/ 3/24	2443227.0	35.60235	49.38076	18.04882	-0.79812	0.52853	0.14664	63.49603	0.96842	54.21	16.51

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/ 3/25	2443227.5	30.00824	52.67250	18.93736	-0.85222	0.44259	0.11550	63.50992	0.96722	60.33	17.35
77/ 3/25	2443228.0	24.07973	55.36451	19.61033	-0.89680	0.35157	0.08303	63.47935	0.96682	66.49	17.99
77/ 3/26	2443228.5	17.88282	57.42520	20.05970	-0.93141	0.25630	0.04952	63.40221	0.96730	72.70	18.44
77/ 3/26	2443229.0	11.48627	58.82861	20.27952	-0.95569	0.15762	0.01529	63.27716	0.96872	78.95	18.69
77/ 3/27	2443229.5	4.96130	59.55464	20.26586	-0.96928	0.05642	-0.01937	63.10368	0.97111	85.24	18.73
77/ 3/27	2443230.0	-1.61868	59.58922	20.01693	-0.97189	-0.04640	-0.05413	62.88221	0.97450	91.56	18.56
77/ 3/28	2443230.5	-8.17836	58.92455	19.53313	-0.96325	-0.14990	-0.08867	62.61415	0.97886	97.90	18.18
77/ 3/28	2443231.0	-14.64084	57.55948	18.81715	-0.94315	-0.25306	-0.12263	62.30195	0.98418	104.27	17.58
77/ 3/29	2443231.5	-20.92801	55.49984	17.87411	-0.91146	-0.35481	-0.15566	61.94915	0.99039	110.66	16.77
77/ 3/29	2443232.0	-26.96101	52.75893	16.71162	-0.86810	-0.45403	-0.18736	61.56037	0.99742	117.07	15.75
77/ 3/30	2443232.5	-32.66083	49.35799	15.34002	-0.81309	-0.54951	-0.21734	61.14129	1.00514	123.49	14.53
77/ 3/30	2443233.0	-37.94906	45.32670	13.77242	-0.74659	-0.63995	-0.24516	60.69861	1.01343	129.94	13.11
77/ 3/31	2443233.5	-42.74883	40.70367	12.02491	-0.66891	-0.72402	-0.27039	60.23994	1.02213	136.40	11.51
77/ 3/31	2443234.0	-46.98594	35.53686	10.11661	-0.58054	-0.80029	-0.29257	59.77368	1.03106	142.90	9.74
77/ 4/ 1	2443234.5	-50.59025	29.88391	8.06971	-0.48219	-0.86733	-0.31124	59.30887	1.04002	149.43	7.82
77/ 4/ 1	2443235.0	-53.49728	23.81217	5.90947	-0.37482	-0.92372	-0.32597	58.85491	1.04881	156.01	5.76
77/ 4/ 2	2443235.5	-55.64998	17.39856	3.66408	-0.25967	-0.96806	-0.33632	58.42136	1.05721	162.64	3.60
77/ 4/ 2	2443236.0	-57.00059	10.72901	1.36437	-0.13825	-0.99909	-0.34195	58.01759	1.06500	169.34	1.35
77/ 4/ 3	2443236.5	-57.51262	3.89750	-0.95657	-0.01236	-1.01572	-0.34255	57.65247	1.07200	176.12	-0.95
77/ 4/ 3	2443237.0	-57.16260	-2.99540	-3.26393	0.11594	-1.01710	-0.33792	57.33401	1.07802	183.00	-3.26
77/ 4/ 4	2443237.5	-55.94168	-9.84437	-5.52192	0.24441	-1.00269	-0.32796	57.06904	1.08291	189.98	-5.55
77/ 4/ 4	2443238.0	-53.85683	-16.54167	-7.69452	0.37065	-0.97232	-0.31272	56.86291	1.08654	197.07	-7.78
77/ 4/ 5	2443238.5	-50.93149	-22.97972	-9.74648	0.49220	-0.92621	-0.29238	56.71930	1.08886	204.28	-9.89
77/ 4/ 5	2443239.0	-47.20561	-29.05397	-11.64416	0.60665	-0.86503	-0.26723	56.64000	1.08982	211.61	-11.86
77/ 4/ 6	2443239.5	-42.73502	-34.66563	-13.35656	0.71174	-0.78982	-0.23774	56.62496	1.08946	219.05	-13.64
77/ 4/ 6	2443240.0	-37.59018	-39.72438	-14.85605	0.80544	-0.70202	-0.20447	56.67230	1.08783	226.58	-15.20
77/ 4/ 7	2443240.5	-31.85428	-44.15062	-16.11915	0.88602	-0.60336	-0.16806	56.77851	1.08504	234.19	-16.49
77/ 4/ 7	2443241.0	-25.62096	-47.87736	-17.12704	0.95213	-0.49581	-0.12923	56.93866	1.08124	241.85	-17.51
77/ 4/ 8	2443241.5	-18.99172	-50.85149	-17.86587	1.00280	-0.38148	-0.08873	57.14674	1.07658	249.52	-18.22
77/ 4/ 8	2443242.0	-12.07323	-53.03451	-18.32692	1.03749	-0.26256	-0.04733	57.39598	1.07124	257.18	-18.62
77/ 4/ 9	2443242.5	-4.97462	-54.40270	-18.50655	1.05599	-0.14123	-0.00575	57.67922	1.06541	264.78	-18.71
77/ 4/ 9	2443243.0	2.19495	-54.94680	-18.40596	1.05849	-0.01956	0.03531	57.98921	1.05926	272.29	-18.51
77/ 4/10	2443243.5	9.32851	-54.67136	-18.03095	1.04546	0.10047	0.07519	58.31890	1.05296	279.68	-18.01
77/ 4/10	2443244.0	16.32318	-53.59370	-17.39142	1.01762	0.21704	0.11332	58.66168	1.04666	286.94	-17.25
77/ 4/11	2443244.5	23.08173	-51.74280	-16.50099	0.97591	0.32854	0.14920	59.01158	1.04048	294.04	-16.24
77/ 4/11	2443245.0	29.51381	-49.15799	-15.37648	0.92141	0.43354	0.18238	59.36336	1.03451	300.98	-15.01
77/ 4/12	2443245.5	35.53687	-45.88763	-14.03744	0.85534	0.53079	0.21249	59.71259	1.02883	307.76	-13.60
77/ 4/12	2443246.0	41.07687	-41.98783	-12.50569	0.77898	0.61925	0.23924	60.05563	1.02348	314.37	-12.02
77/ 4/13	2443246.5	46.06870	-37.52119	-10.80487	0.69370	0.69805	0.26238	60.38965	1.01849	320.84	-10.31
77/ 4/13	2443247.0	50.45652	-32.55559	-8.96004	0.60085	0.76649	0.28174	60.71251	1.01386	327.17	-8.49
77/ 4/14	2443247.5	54.19388	-27.16303	-6.99727	0.50185	0.82404	0.29719	61.02269	1.00957	333.38	-6.58
77/ 4/14	2443248.0	57.24371	-21.41864	-4.94330	0.39807	0.87033	0.30866	61.31914	1.00559	339.49	-4.62
77/ 4/15	2443248.5	59.57835	-15.39958	-2.82518	0.29088	0.90512	0.31613	61.60120	1.00189	345.51	-2.63
77/ 4/15	2443249.0	61.17930	-9.18422	-0.67002	0.18164	0.92830	0.31961	61.86845	0.99844	351.46	-0.62
77/ 4/16	2443249.5	62.03709	-2.85115	1.49537	0.07165	0.93989	0.31916	62.12057	0.99518	357.37	1.38

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
77/ 4/16	2443250.0	62.15097	3.52156	3.64470	-0.03783	0.94004	0.31489	62.35726	0.99209	3.24	3.35
77/ 4/17	2443250.5	61.52856	9.85717	5.75244	-0.14558	0.92898	0.30691	62.57809	0.98914	9.10	5.27
77/ 4/17	2443251.0	60.18549	16.08097	7.79408	-0.25045	0.90709	0.29540	62.78247	0.98630	14.96	7.13
77/ 4/18	2443251.5	58.14492	22.12095	9.74633	-0.35137	0.87478	0.28054	62.96951	0.98357	20.83	8.90
77/ 4/18	2443252.0	55.43710	27.90836	11.58724	-0.44733	0.83260	0.26256	63.13804	0.98095	26.72	10.57
77/ 4/19	2443252.5	52.09880	33.37829	13.29643	-0.53739	0.78114	0.24169	63.28657	0.97846	32.65	12.13
77/ 4/19	2443253.0	48.17284	38.47006	14.85520	-0.62073	0.72105	0.21818	63.41329	0.97612	38.61	13.55
77/ 4/20	2443253.5	43.70748	43.12769	16.24660	-0.69655	0.65306	0.19232	63.51608	0.97399	44.62	14.82
77/ 4/20	2443254.0	38.75588	47.30016	17.45559	-0.76420	0.57792	0.16437	63.59262	0.97211	50.67	15.93
77/ 4/21	2443254.5	33.37560	50.94177	18.46904	-0.82305	0.49643	0.13463	63.64039	0.97056	56.77	16.87
77/ 4/21	2443255.0	27.62800	54.01227	19.27584	-0.87258	0.40942	0.10339	63.65681	0.96939	62.91	17.63
77/ 4/22	2443255.5	21.57777	56.47712	19.86691	-0.91234	0.31773	0.07097	63.63929	0.96869	69.09	18.19
77/ 4/22	2443256.0	15.29246	58.30758	20.23526	-0.94194	0.22224	0.03767	63.58537	0.96853	75.30	18.56
77/ 4/23	2443256.5	8.84205	59.48091	20.37596	-0.96105	0.12383	0.00381	63.49284	0.96900	81.54	18.72
77/ 4/23	2443257.0	2.29846	59.98043	20.28624	-0.96941	0.02342	-0.03031	63.35981	0.97017	87.81	18.67
77/ 4/24	2443257.5	-4.26478	59.79569	19.96548	-0.96682	-0.07807	-0.06437	63.18491	0.97210	94.08	18.42
77/ 4/24	2443258.0	-10.77291	58.92265	19.41524	-0.95312	-0.17967	-0.09802	62.96734	0.97485	100.36	17.96
77/ 4/25	2443258.5	-17.15040	57.36381	18.63933	-0.92823	-0.28041	-0.13095	62.70700	0.97846	106.65	17.29
77/ 4/25	2443259.0	-23.32126	55.12848	17.64385	-0.89211	-0.37926	-0.16280	62.40462	0.98296	112.93	16.42
77/ 4/26	2443259.5	-29.20956	52.23303	16.43729	-0.84480	-0.47516	-0.19322	62.06184	0.98834	119.21	15.36
77/ 4/26	2443260.0	-34.73990	48.70120	15.03058	-0.78644	-0.56699	-0.22184	61.68132	0.99457	125.50	14.10
77/ 4/27	2443260.5	-39.83806	44.56442	13.43719	-0.71723	-0.65360	-0.24828	61.26676	1.00163	131.79	12.67
77/ 4/27	2443261.0	-44.43172	39.86217	11.67325	-0.63753	-0.73376	-0.27214	60.82299	1.00941	138.10	11.06
77/ 4/28	2443261.5	-48.45139	34.64234	9.75757	-0.54783	-0.80623	-0.29302	60.35593	1.01783	144.44	9.30
77/ 4/28	2443262.0	-51.83144	28.96143	7.71172	-0.44878	-0.86970	-0.31051	59.87263	1.02674	150.81	7.40
77/ 4/29	2443262.5	-54.51141	22.88476	5.56005	-0.34126	-0.92287	-0.32420	59.38114	1.03598	157.23	5.37
77/ 4/29	2443263.0	-56.43748	16.48645	3.32960	-0.22637	-0.96447	-0.33371	58.89039	1.04537	163.72	3.24
77/ 4/30	2443263.5	-57.56409	9.84915	1.04996	-0.10544	-0.99325	-0.33867	58.41004	1.05468	170.29	1.03
77/ 4/30	2443264.0	-57.85573	3.06343	-1.24699	0.01990	-1.00812	-0.33877	57.95020	1.06370	176.97	-1.23
77/ 5/ 1	2443264.5	-57.28874	-3.77317	-3.52751	0.14777	-1.00814	-0.33378	57.52113	1.07219	183.77	-3.52
77/ 5/ 1	2443265.0	-55.85310	-10.55766	-5.75653	0.27604	-0.99264	-0.32355	57.13292	1.07992	190.70	-5.78
77/ 5/ 2	2443265.5	-53.55390	-17.18347	-7.89837	0.40237	-0.96125	-0.30805	56.79503	1.08665	197.79	-7.99
77/ 5/ 2	2443266.0	-50.41255	-23.54284	-9.91761	0.52430	-0.91400	-0.28737	56.51592	1.09219	205.03	-10.11
77/ 5/ 3	2443266.5	-46.46739	-29.52961	-11.77999	0.63931	-0.85134	-0.26178	56.30262	1.09637	212.44	-12.08
77/ 5/ 3	2443267.0	-41.77366	-35.04215	-13.45346	0.74495	-0.77416	-0.23167	56.16036	1.09907	219.99	-13.86
77/ 5/ 4	2443267.5	-36.40266	-39.98646	-14.90916	0.83894	-0.68380	-0.19758	56.09237	1.10020	227.69	-15.41
77/ 5/ 4	2443268.0	-30.44029	-44.27901	-16.12230	0.91928	-0.58202	-0.16016	56.09964	1.09976	235.49	-16.70
77/ 5/ 5	2443268.5	-23.98468	-47.84924	-17.07295	0.98436	-0.47087	-0.12020	56.18096	1.09778	243.38	-17.69
77/ 5/ 5	2443269.0	-17.14348	-50.64150	-17.74656	1.03299	-0.35269	-0.07850	56.33295	1.09436	251.30	-18.36
77/ 5/ 6	2443269.5	-10.03065	-52.61633	-18.13428	1.06449	-0.22990	-0.03591	56.55036	1.08963	259.21	-18.70
77/ 5/ 6	2443270.0	-2.76319	-53.75088	-18.23296	1.07865	-0.10497	0.00672	56.82634	1.08377	267.06	-18.71
77/ 5/ 7	2443270.5	4.54202	-54.03881	-18.04500	1.07572	0.01972	0.04860	57.15282	1.07699	274.80	-18.41
77/ 5/ 7	2443271.0	11.77111	-53.48938	-17.57795	1.05631	0.14194	0.08902	57.52093	1.06952	282.41	-17.79
77/ 5/ 8	2443271.5	18.81565	-52.12624	-16.84396	1.02140	0.25969	0.12733	57.92143	1.06156	289.85	-16.91
77/ 5/ 8	2443272.0	25.57460	-49.98571	-15.85918	0.97220	0.37122	0.16299	58.34506	1.05335	297.10	-15.77

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/ 5/ 9	2443272.5	31.95579	-47.11511	-14.64311	0.91009	0.47506	0.19556	58.78288	1.04508	304.15	-14.42
77/ 5/ 9	2443273.0	37.87683	-43.57080	-13.21792	0.83658	0.56998	0.22469	59.22653	1.03693	311.00	-12.90
77/ 5/10	2443273.5	43.26571	-39.41653	-11.60783	0.75321	0.65504	0.25012	59.66847	1.02906	317.67	-11.22
77/ 5/10	2443274.0	48.06104	-34.72167	-9.83857	0.66156	0.72951	0.27167	60.10204	1.02159	324.15	-9.42
77/ 5/11	2443274.5	52.21194	-29.55982	-7.93688	0.56317	0.79287	0.28922	60.52159	1.01462	330.48	-7.54
77/ 5/11	2443275.0	55.67790	-24.00745	-5.93004	0.45955	0.84478	0.30271	60.92250	1.00821	336.68	-5.59
77/ 5/12	2443275.5	58.42840	-18.14275	-3.84556	0.35214	0.88508	0.31215	61.30110	1.00240	342.75	-3.60
77/ 5/12	2443276.0	60.44251	-12.04468	-1.71080	0.24232	0.91370	0.31757	61.65467	0.99720	348.73	-1.59
77/ 5/13	2443276.5	61.70844	-5.79213	0.44724	0.13142	0.93072	0.31904	61.98129	0.99262	354.64	0.41
77/ 5/13	2443277.0	62.22309	0.53687	2.60216	0.02068	0.93630	0.31667	62.27979	0.98862	0.49	2.39
77/ 5/14	2443277.5	61.99160	6.86568	4.72838	-0.08872	0.93071	0.31059	62.54961	0.98517	6.32	4.34
77/ 5/14	2443278.0	61.02687	13.11974	6.80130	-0.19566	0.91429	0.30095	62.79064	0.98223	12.13	6.22
77/ 5/15	2443278.5	59.34919	19.22696	8.79741	-0.29908	0.88743	0.28794	63.00315	0.97974	17.95	8.03
77/ 5/15	2443279.0	56.98576	25.11829	10.69453	-0.39800	0.85062	0.27175	63.18764	0.97765	23.79	9.74
77/ 5/16	2443279.5	53.97025	30.72811	12.47185	-0.49148	0.80440	0.25260	63.34470	0.97592	29.66	11.36
77/ 5/16	2443280.0	50.34242	35.99465	14.11008	-0.57867	0.74936	0.23072	63.47494	0.97449	35.56	12.84
77/ 5/17	2443280.5	46.14762	40.86037	15.59160	-0.65878	0.68615	0.20637	63.57886	0.97333	41.52	14.20
77/ 5/17	2443281.0	41.43638	45.27233	16.90050	-0.73106	0.61549	0.17979	63.65677	0.97242	47.53	15.40
77/ 5/18	2443281.5	36.26394	49.18252	18.02270	-0.79486	0.53811	0.15129	63.70880	0.97173	53.60	16.43
77/ 5/18	2443282.0	30.68975	52.54816	18.94607	-0.84960	0.45482	0.12113	63.73479	0.97126	59.71	17.29
77/ 5/19	2443282.5	24.77706	55.33200	19.66044	-0.89474	0.36645	0.08962	63.73434	0.97102	65.88	17.97
77/ 5/19	2443283.0	18.59231	57.50257	20.15772	-0.92986	0.27387	0.05708	63.70678	0.97103	72.08	18.45
77/ 5/20	2443283.5	12.20473	59.03439	20.43194	-0.95458	0.17799	0.02381	63.65123	0.97133	78.32	18.72
77/ 5/20	2443284.0	5.68576	59.90817	20.47928	-0.96862	0.07971	-0.00987	63.56664	0.97194	84.58	18.79
77/ 5/21	2443284.5	-0.89143	60.11095	20.29813	-0.97175	-0.01999	-0.04361	63.45183	0.97293	90.85	18.66
77/ 5/21	2443285.0	-7.45248	59.63629	19.88909	-0.96383	-0.12017	-0.07710	63.30562	0.97435	97.12	18.31
77/ 5/22	2443285.5	-13.92228	58.48435	19.25504	-0.94480	-0.21982	-0.11000	63.12690	0.97625	103.39	17.76
77/ 5/22	2443286.0	-20.22557	56.66206	18.40112	-0.91467	-0.31795	-0.14197	62.91474	0.97871	109.64	17.01
77/ 5/23	2443286.5	-26.28740	54.18322	17.33478	-0.87352	-0.41352	-0.17267	62.66852	0.98176	115.88	16.06
77/ 5/23	2443287.0	-32.03371	51.06864	16.06578	-0.82153	-0.50550	-0.20176	62.38809	0.98547	122.10	14.92
77/ 5/24	2443287.5	-37.39186	47.34624	14.60623	-0.75896	-0.59283	-0.22888	62.07383	0.98987	128.30	13.61
77/ 5/24	2443288.0	-42.29131	43.05119	12.97061	-0.68615	-0.67442	-0.25369	61.72679	0.99499	134.49	12.13
77/ 5/25	2443288.5	-46.66423	38.22606	11.17575	-0.60356	-0.74918	-0.27584	61.34884	1.00082	140.68	10.50
77/ 5/25	2443289.0	-50.44636	32.92090	9.24093	-0.51179	-0.81598	-0.29497	60.94273	1.00736	146.87	8.72
77/ 5/26	2443289.5	-53.57782	27.19336	7.18778	-0.41156	-0.87372	-0.31072	60.51219	1.01455	153.09	6.82
77/ 5/26	2443290.0	-56.00416	21.10864	5.04029	-0.30374	-0.92127	-0.32277	60.06201	1.02233	159.35	4.81
77/ 5/27	2443290.5	-57.67749	14.73947	2.82475	-0.18939	-0.95754	-0.33077	59.59802	1.03061	165.66	2.72
77/ 5/27	2443291.0	-58.55777	8.16580	0.56959	-0.06978	-0.98149	-0.33442	59.12712	1.03924	172.06	0.55
77/ 5/28	2443291.5	-58.61417	1.47436	-1.69478	0.05363	-0.99216	-0.33345	58.65720	1.04807	178.56	-1.66
77/ 5/28	2443292.0	-57.82659	-5.24211	-3.93636	0.17914	-0.98875	-0.32765	58.19698	1.05692	185.18	-3.88
77/ 5/29	2443292.5	-56.18706	-11.88588	-6.12189	0.30486	-0.97061	-0.31688	57.75585	1.06557	191.94	-6.08
77/ 5/29	2443293.0	-53.70126	-18.35578	-8.21742	0.42868	-0.93736	-0.30108	57.34358	1.07381	198.87	-8.24
77/ 5/30	2443293.5	-50.38965	-24.54896	-10.18902	0.54833	-0.88892	-0.28030	56.97003	1.08139	205.97	-10.30
77/ 5/30	2443294.0	-46.28841	-30.36322	-12.00352	0.66145	-0.82555	-0.25473	56.64474	1.08809	213.26	-12.23
77/ 5/31	2443294.5	-41.44982	-35.69962	-13.62945	0.76567	-0.74795	-0.22468	56.37652	1.09369	220.74	-13.99

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
77/ 5/31	2443295.0	-35.94209	-40.46523	-15.03795	0.85867	-0.65723	-0.19061	56.17302	1.09800	228.39	-15.53
77/ 6/ 1	2443295.5	-29.84842	-44.57610	-16.20373	0.93836	-0.55490	-0.15312	56.04032	1.10086	236.19	-16.81
77/ 6/ 1	2443296.0	-23.26536	-47.95999	-17.10596	1.00292	-0.44290	-0.11291	55.98260	1.10216	244.12	-17.79
77/ 6/ 2	2443296.5	-16.30046	-50.55878	-17.72895	1.05092	-0.32346	-0.07080	56.00188	1.10185	252.13	-18.46
77/ 6/ 2	2443297.0	-9.06932	-52.33030	-18.06269	1.08142	-0.19904	-0.02765	56.09789	1.09993	260.17	-18.78
77/ 6/ 3	2443297.5	-1.69228	-53.24953	-18.10315	1.09397	-0.07222	0.01566	56.26811	1.09646	268.18	-18.77
77/ 6/ 3	2443298.0	5.70908	-53.30896	-17.85222	1.08865	0.05443	0.05825	56.50788	1.09157	276.11	-18.42
77/ 6/ 4	2443298.5	13.01535	-52.51816	-17.31749	1.06602	0.17845	0.09933	56.81067	1.08541	283.92	-17.75
77/ 6/ 4	2443299.0	20.11231	-50.90270	-16.51176	1.02704	0.29759	0.13817	57.16841	1.07817	291.56	-16.79
77/ 6/ 5	2443299.5	26.89352	-48.50249	-15.45238	0.97303	0.40988	0.17414	57.57194	1.07010	299.01	-15.57
77/ 6/ 5	2443300.0	33.26236	-45.36978	-14.16050	0.90554	0.51364	0.20675	58.01139	1.06140	306.25	-14.13
77/ 6/ 6	2443300.5	39.13332	-41.56698	-12.66029	0.82630	0.60756	0.23560	58.47660	1.05234	313.27	-12.50
77/ 6/ 6	2443301.0	44.43286	-37.16439	-10.97814	0.73711	0.69062	0.26044	58.95754	1.04312	320.09	-10.73
77/ 6/ 7	2443301.5	49.09971	-32.23814	-9.14195	0.63977	0.76210	0.28107	59.44455	1.03397	326.71	-8.85
77/ 6/ 7	2443302.0	53.08472	-26.86822	-7.18050	0.53605	0.82157	0.29742	59.92869	1.02508	333.15	-6.88
77/ 6/ 8	2443302.5	56.35045	-21.13687	-5.12288	0.42765	0.86881	0.30947	60.40186	1.01660	339.44	-4.87
77/ 6/ 8	2443303.0	58.87063	-15.12717	-2.99805	0.31615	0.90378	0.31728	60.85697	1.00868	345.59	-2.82
77/ 6/ 9	2443303.5	60.62939	-8.92184	-0.83448	0.20305	0.92660	0.32093	61.28800	1.00141	351.63	-0.78
77/ 6/ 9	2443304.0	61.62053	-2.60238	1.34013	0.08970	0.93753	0.32056	61.69002	0.99487	357.58	1.24
77/ 6/10	2443304.5	61.84678	3.75169	3.49907	-0.02262	0.93689	0.31633	62.05919	0.98911	3.47	3.23
77/ 6/10	2443305.0	61.31906	10.06342	5.61679	-0.13276	0.92510	0.30842	62.39269	0.98415	9.32	5.16
77/ 6/11	2443305.5	60.05585	16.25884	7.66901	-0.23964	0.90263	0.29702	62.68866	0.97999	15.15	7.03
77/ 6/11	2443306.0	58.08256	22.26735	9.63283	-0.34228	0.87000	0.28235	62.94608	0.97661	20.98	8.80
77/ 6/12	2443306.5	55.43104	28.02202	11.48684	-0.43976	0.82777	0.26463	63.16472	0.97397	26.82	10.48
77/ 6/13	2443307.5	48.25005	38.52207	14.78744	-0.61596	0.71696	0.22097	63.48768	0.97071	38.60	13.47
77/ 6/13	2443308.0	43.81230	43.15434	16.19915	-0.69317	0.64969	0.19553	63.59423	0.96995	44.57	14.76
77/ 6/14	2443308.5	38.87898	47.30701	17.43141	-0.76219	0.57546	0.16803	63.66618	0.96970	50.59	15.89
77/ 6/14	2443309.0	33.50757	50.93544	18.47118	-0.82243	0.49501	0.13874	63.70526	0.96989	56.66	16.85
77/ 6/15	2443309.5	27.75948	54.00018	19.30734	-0.87334	0.40914	0.10795	63.71327	0.97045	62.79	17.64
77/ 6/15	2443310.0	21.69966	56.46730	19.93071	-0.91441	0.31869	0.07595	63.69195	0.97132	68.98	18.24
77/ 6/16	2443310.5	15.39619	58.30866	20.33418	-0.94522	0.22451	0.04306	63.64292	0.97247	75.21	18.63
77/ 6/16	2443311.0	8.91978	59.50216	20.51275	-0.96542	0.12753	0.00960	63.56763	0.97386	81.47	18.83
77/ 6/17	2443311.5	2.34331	60.03204	20.46364	-0.97473	0.02871	-0.02411	63.46730	0.97545	87.76	18.81
77/ 6/17	2443312.0	-4.25875	59.88905	20.18630	-0.97295	-0.07099	-0.05774	63.34289	0.97724	94.07	18.58
77/ 6/18	2443312.5	-10.81086	59.07070	19.68249	-0.95997	-0.17055	-0.09093	63.19511	0.97923	100.37	18.15
77/ 6/18	2443313.0	-17.23706	57.58141	18.95633	-0.93577	-0.26894	-0.12334	63.02442	0.98143	106.67	17.50
77/ 6/19	2443313.5	-23.46157	55.43268	18.01427	-0.90043	-0.36511	-0.15462	62.83105	0.98387	112.94	16.66
77/ 6/19	2443314.0	-29.40946	52.64312	16.86516	-0.85413	-0.45799	-0.18442	62.61508	0.98656	119.19	15.63
77/ 6/20	2443314.5	-35.00733	49.23860	15.52023	-0.79713	-0.54652	-0.21239	62.37652	0.98955	125.41	14.41
77/ 6/20	2443315.0	-40.18402	45.25220	13.99305	-0.72983	-0.62964	-0.23818	62.11540	0.99289	131.61	13.02
77/ 6/21	2443315.5	-44.87135	40.72422	12.29953	-0.65272	-0.70627	-0.26146	61.83186	0.99661	137.77	11.47
77/ 6/21	2443316.0	-49.00491	35.70209	10.45784	-0.56641	-0.77538	-0.28188	61.52631	1.00075	143.93	9.79
77/ 6/22	2443316.5	-52.52481	30.24028	8.48836	-0.47164	-0.83594	-0.29914	61.19953	1.00535	150.07	7.97
77/ 6/22	2443317.0	-55.37653	24.40009	6.41362	-0.36926	-0.88695	-0.31292	60.85277	1.01043	156.22	6.05
77/ 6/23	2443317.5	-57.51186	18.24941	4.25812	-0.26027	-0.92747	-0.32294	60.48791	1.01599	162.39	4.04

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/ 6/23	2443318.0	-58.88976	11.86239	2.04826	-0.14580	-0.95660	-0.32893	60.10753	1.02202	168.61	1.95
77/ 6/24	2443318.5	-59.47739	5.31900	-0.18788	-0.02714	-0.97352	-0.33066	59.71505	1.02850	174.89	-0.18
77/ 6/24	2443319.0	-59.25115	-1.29557	-2.42079	0.09428	-0.97751	-0.32794	59.31473	1.03535	181.25	-2.34
77/ 6/25	2443319.5	-58.19770	-7.89167	-4.61978	0.21685	-0.96798	-0.32062	58.91174	1.04250	187.72	-4.50
77/ 6/25	2443320.0	-56.31509	-14.37620	-6.75335	0.33882	-0.94451	-0.30862	58.51215	1.04983	194.32	-6.63
77/ 6/26	2443320.5	-53.61365	-20.65383	-8.78968	0.45831	-0.90686	-0.29191	58.12282	1.05720	201.07	-8.70
77/ 6/26	2443321.0	-50.11695	-26.62847	-10.69712	0.57332	-0.85506	-0.27058	57.75130	1.06444	207.98	-10.67
77/ 6/27	2443321.5	-45.86244	-32.20508	-12.44485	0.68174	-0.78940	-0.24479	57.40562	1.07138	215.08	-12.52
77/ 6/27	2443322.0	-40.90180	-37.29173	-14.00354	0.78148	-0.71051	-0.21481	57.09405	1.07781	222.36	-14.20
77/ 6/28	2443322.5	-35.30097	-41.80183	-15.34614	0.87045	-0.61934	-0.18105	56.82478	1.08353	229.82	-15.67
77/ 6/28	2443323.0	-29.13954	-45.65655	-16.44866	0.94670	-0.51723	-0.14402	56.60558	1.08836	237.45	-16.89
77/ 6/29	2443323.5	-22.50972	-48.78723	-17.29098	1.00849	-0.40585	-0.10433	56.44342	1.09209	245.23	-17.84
77/ 6/29	2443324.0	-15.51457	-51.13769	-17.85751	1.05437	-0.28719	-0.06271	56.34408	1.09458	253.12	-18.48
77/ 6/30	2443324.5	-8.26575	-52.66613	-18.13782	1.08326	-0.16351	-0.01995	56.31185	1.09571	261.08	-18.79
77/ 6/30	2443325.0	-0.88072	-53.34669	-18.12705	1.09452	-0.03723	0.02311	56.34922	1.09540	269.05	-18.77
77/ 7/ 1	2443325.5	6.52036	-53.17028	-17.82607	1.08801	0.08913	0.06561	56.45673	1.09363	276.99	-18.41
77/ 7/ 1	2443326.0	13.81793	-52.14477	-17.24146	1.06405	0.21309	0.10673	56.63286	1.09041	284.84	-17.72
77/ 7/ 2	2443326.5	20.89621	-50.29449	-16.38524	1.02342	0.33230	0.14569	56.87410	1.08584	292.56	-16.74
77/ 7/ 2	2443327.0	27.64611	-47.65899	-15.27433	0.96731	0.44463	0.18183	57.17510	1.08002	300.12	-15.49
77/ 7/ 3	2443327.5	33.96775	-44.29137	-13.92993	0.89723	0.54822	0.21456	57.52891	1.07313	307.49	-14.01
77/ 7/ 3	2443328.0	39.77230	-40.25611	-12.37669	0.81493	0.64155	0.24343	57.92731	1.06534	314.65	-12.34
77/ 7/ 4	2443328.5	44.98334	-35.62683	-10.64197	0.72230	0.72346	0.26810	58.36115	1.05688	321.62	-10.51
77/ 7/ 4	2443329.0	49.53752	-30.48385	-8.75494	0.62129	0.79313	0.28838	58.82075	1.04796	328.39	-8.56
77/ 7/ 5	2443329.5	53.38474	-24.91203	-6.74585	0.51385	0.85004	0.30414	59.29626	1.03880	334.98	-6.53
77/ 7/ 5	2443330.0	56.48784	-18.99865	-4.64537	0.40186	0.89397	0.31537	59.77795	1.02963	341.41	-4.46
77/ 7/ 6	2443330.5	58.82202	-12.83170	-2.48397	0.28708	0.92494	0.32214	60.25656	1.02064	347.69	-2.36
77/ 7/ 6	2443331.0	60.37402	-6.49841	-0.29150	0.17115	0.94314	0.32457	60.72344	1.01200	353.86	-0.28
77/ 7/ 7	2443331.5	61.14114	-0.08404	1.90320	0.05555	0.94895	0.32283	61.17081	1.00389	359.92	1.78
77/ 7/ 7	2443332.0	61.13028	6.32896	4.07258	-0.05837	0.94282	0.31713	61.59182	0.99644	5.91	3.79
77/ 7/ 8	2443332.5	60.35699	12.66163	6.19053	-0.16940	0.92532	0.30768	61.98069	0.98974	11.85	5.73
77/ 7/ 8	2443333.0	58.84455	18.83899	8.23253	-0.27647	0.89707	0.29474	62.33268	0.98389	17.75	7.59
77/ 7/ 9	2443333.5	56.62318	24.79035	10.17575	-0.37859	0.85870	0.27856	62.64416	0.97892	23.64	9.35
77/ 7/ 9	2443334.0	53.72929	30.44952	11.99906	-0.47492	0.81090	0.25938	62.91253	0.97488	29.54	11.00
77/ 7/10	2443334.5	50.20489	35.75501	13.68311	-0.56465	0.75438	0.23747	63.13620	0.97176	35.46	12.52
77/ 7/10	2443335.0	46.09707	40.65010	15.21030	-0.64708	0.68984	0.21311	63.31449	0.96954	41.41	13.90
77/ 7/11	2443335.5	41.45753	45.08300	16.56485	-0.72156	0.61801	0.18654	63.44760	0.96819	47.40	15.13
77/ 7/11	2443336.0	36.34218	49.00691	17.73276	-0.78749	0.53967	0.15804	63.53646	0.96766	53.44	16.21
77/ 7/12	2443336.5	30.81080	52.38025	18.70195	-0.84432	0.45556	0.12790	63.58269	0.96787	59.54	17.11
77/ 7/12	2443337.0	24.92672	55.16674	19.46221	-0.89156	0.36651	0.09639	63.58843	0.96877	65.68	17.82
77/ 7/13	2443337.5	18.75645	57.33569	20.00529	-0.92876	0.27335	0.06382	63.55625	0.97026	71.89	18.35
77/ 7/13	2443338.0	12.36936	58.86218	20.32499	-0.95553	0.17695	0.03048	63.48907	0.97225	78.13	18.67
77/ 7/14	2443338.5	5.83729	59.72734	20.41719	-0.97153	0.07822	-0.00330	63.38999	0.97468	84.42	18.79
77/ 7/14	2443339.0	-0.76589	59.91862	20.27999	-0.97649	-0.02188	-0.03721	63.26220	0.97744	90.73	18.70
77/ 7/15	2443339.5	-7.36475	59.43010	19.91371	-0.97023	-0.12235	-0.07089	63.10889	0.98048	97.06	18.39
77/ 7/15	2443340.0	-13.88286	58.26274	19.32105	-0.95263	-0.22216	-0.10400	62.93316	0.98371	103.40	17.88

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
77/ 7/16	2443340.5	-20.24339	56.42463	18.50709	-0.92370	-0.32024	-0.13617	62.73791	0.98708	109.74	17.16
77/ 7/16	2443341.0	-26.36984	53.93123	17.47938	-0.88354	-0.41548	-0.16705	62.52579	0.99054	116.06	16.23
77/ 7/17	2443341.5	-32.18678	50.80550	16.24795	-0.83235	-0.50677	-0.19627	62.29915	0.99406	122.36	15.12
77/ 7/17	2443342.0	-37.62066	47.07801	14.82533	-0.77049	-0.59299	-0.22345	62.06000	0.99761	128.63	13.82
77/ 7/18	2443342.5	-42.60071	42.78690	13.22649	-0.69843	-0.67302	-0.24824	61.81003	1.00119	134.88	12.36
77/ 7/18	2443343.0	-47.05979	37.97787	11.46883	-0.61677	-0.74575	-0.27029	61.55060	1.00479	141.10	10.74
77/ 7/19	2443343.5	-50.93539	32.70389	9.57206	-0.52626	-0.81014	-0.28927	61.28281	1.00844	147.30	8.99
77/ 7/19	2443344.0	-54.17053	27.02501	7.55809	-0.42780	-0.86516	-0.30485	61.00756	1.01215	153.49	7.12
77/ 7/20	2443344.5	-56.71471	21.00787	5.45085	-0.32241	-0.90987	-0.31677	60.72562	1.01595	159.67	5.15
77/ 7/20	2443345.0	-58.52485	14.72522	3.27608	-0.21125	-0.94342	-0.32475	60.43776	1.01987	165.88	3.11
77/ 7/21	2443345.5	-59.56615	8.25527	1.06112	-0.09561	-0.96506	-0.32860	60.14484	1.02395	172.11	1.01
77/ 7/21	2443346.0	-59.81298	1.68094	-1.16538	0.02311	-0.97415	-0.32814	59.84795	1.02819	178.39	-1.12
77/ 7/22	2443346.5	-59.24966	-4.91103	-3.37381	0.14336	-0.97020	-0.32325	59.54850	1.03263	184.74	-3.25
77/ 7/22	2443347.0	-57.87120	-11.43103	-5.53388	0.26353	-0.95286	-0.31386	59.24836	1.03726	191.17	-5.36
77/ 7/23	2443347.5	-55.68392	-17.78779	-7.61511	0.38191	-0.92198	-0.29997	58.94993	1.04206	197.72	-7.42
77/ 7/23	2443348.0	-52.70605	-23.88959	-9.58720	0.49669	-0.87760	-0.28165	58.65624	1.04700	204.38	-9.41
77/ 7/24	2443348.5	-48.96803	-29.64568	-11.42054	0.60606	-0.81996	-0.25903	58.37091	1.05202	211.19	-11.28
77/ 7/24	2443349.0	-44.51281	-34.96787	-13.08677	0.70817	-0.74957	-0.23234	58.09824	1.05704	218.15	-13.02
77/ 7/25	2443349.5	-39.39578	-39.77213	-14.55926	0.80119	-0.66717	-0.20188	57.84308	1.06197	225.27	-14.58
77/ 7/25	2443350.0	-33.68449	-43.98043	-15.81377	0.88336	-0.57378	-0.16804	57.61075	1.06667	232.55	-15.93
77/ 7/26	2443350.5	-27.45804	-47.52252	-16.82900	0.95305	-0.47068	-0.13131	57.40687	1.07102	239.98	-17.05
77/ 7/26	2443351.0	-20.80609	-50.33777	-17.58721	1.00879	-0.35943	-0.09225	57.23718	1.07487	247.54	-17.89
77/ 7/27	2443351.5	-13.82746	-52.37695	-18.07473	1.04933	-0.24183	-0.05149	57.10726	1.07807	255.21	-18.45
77/ 7/27	2443352.0	-6.62836	-53.60372	-18.28244	1.07376	-0.11988	-0.00974	57.02229	1.08048	262.95	-18.70
77/ 7/28	2443352.5	0.67981	-53.99592	-18.20616	1.08147	0.00424	0.03225	56.98672	1.08196	270.72	-18.63
77/ 7/28	2443353.0	7.98292	-53.54646	-17.84681	1.07226	0.12828	0.07371	57.00402	1.08242	278.48	-18.24
77/ 7/29	2443353.5	15.16675	-52.26367	-17.21053	1.04632	0.24994	0.11390	57.07647	1.08177	286.18	-17.55
77/ 7/29	2443354.0	22.11979	-50.17118	-16.30848	1.00425	0.36701	0.15207	57.20488	1.07997	293.79	-16.56
77/ 7/30	2443354.5	28.73589	-47.30723	-15.15661	0.94702	0.47742	0.18757	57.38857	1.07701	301.28	-15.31
77/ 7/30	2443355.0	34.91670	-43.72345	-13.77510	0.87595	0.57928	0.21979	57.62525	1.07292	308.61	-13.83
77/ 7/31	2443355.5	40.57376	-39.48324	-12.18783	0.79264	0.67102	0.24826	57.91113	1.06779	315.78	-12.15
77/ 7/31	2443356.0	45.63009	-34.65975	-10.42160	0.69887	0.75133	0.27258	58.24099	1.06171	322.78	-10.31
77/ 8/ 1	2443356.5	50.02132	-29.33378	-8.50541	0.59657	0.81926	0.29250	58.60841	1.05482	329.61	-8.34
77/ 8/ 1	2443357.0	53.69624	-23.59151	-6.46969	0.48768	0.87418	0.30786	59.00596	1.04728	336.28	-6.29
77/ 8/ 2	2443357.5	56.61692	-17.52239	-4.34558	0.37416	0.91575	0.31860	59.42553	1.03928	342.80	-4.19
77/ 8/ 2	2443358.0	58.75834	-11.21714	-2.16426	0.25787	0.94392	0.32477	59.85859	1.03100	349.19	-2.07
77/ 8/ 3	2443358.5	60.10778	-4.76607	0.04358	0.14057	0.95886	0.32646	60.29646	1.02262	355.47	0.04
77/ 8/ 3	2443359.0	60.66391	1.74243	2.24825	0.02387	0.96095	0.32386	60.73056	1.01434	1.65	2.12
77/ 8/ 4	2443359.5	60.43577	8.22301	4.42135	-0.09078	0.95071	0.31718	61.15266	1.00633	7.75	4.15
77/ 8/ 4	2443360.0	59.44172	14.59424	6.53610	-0.20209	0.92877	0.30667	61.55510	0.99876	13.79	6.10
77/ 8/ 5	2443360.5	57.70837	20.77927	8.56748	-0.30892	0.89585	0.29261	61.93089	0.99176	19.80	7.95
77/ 8/ 5	2443361.0	55.26958	26.70621	10.49237	-0.41025	0.85269	0.27527	62.27389	0.98548	25.79	9.70
77/ 8/ 6	2443361.5	52.16554	32.30845	12.28958	-0.50522	0.80010	0.25496	62.57886	0.98001	31.77	11.33
77/ 8/ 6	2443362.0	48.44201	37.52479	13.93991	-0.59306	0.73888	0.23195	62.84154	0.97543	37.76	12.82
77/ 8/ 7	2443362.5	44.14958	42.29951	15.42614	-0.67311	0.66983	0.20655	63.05870	0.97180	43.77	14.16

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/ 8/ 7	2443363.0	39.34315	46.58236	16.73300	-0.74475	0.59377	0.17903	63.22811	0.96916	49.82	15.35
77/ 8/ 8	2443363.5	34.08138	50.32864	17.84719	-0.80748	0.51152	0.14970	63.34852	0.96751	55.90	16.36
77/ 8/ 8	2443364.0	28.42635	53.49918	18.75737	-0.86081	0.42389	0.11884	63.41970	0.96685	62.02	17.20
77/ 8/ 9	2443364.5	22.44318	56.06038	19.45412	-0.90431	0.33173	0.08673	63.44230	0.96713	68.18	17.86
77/ 8/ 9	2443365.0	16.19970	57.98437	19.93005	-0.93761	0.23587	0.05367	63.41785	0.96831	74.39	18.32
77/ 8/10	2443365.5	9.76622	59.24907	20.17974	-0.96037	0.13719	0.01997	63.34866	0.97032	80.64	18.58
77/ 8/10	2443366.0	3.21517	59.83847	20.19986	-0.97228	0.03661	-0.01406	63.23776	0.97308	86.92	18.63
77/ 8/11	2443366.5	-3.37922	59.74281	19.98924	-0.97313	-0.06494	-0.04811	63.08876	0.97648	93.24	18.47
77/ 8/11	2443367.0	-9.94131	58.95886	19.54892	-0.96272	-0.16646	-0.08183	62.90578	0.98043	99.57	18.11
77/ 8/12	2443367.5	-16.39451	57.49029	18.88224	-0.94097	-0.26693	-0.11489	62.69332	0.98482	105.92	17.53
77/ 8/12	2443368.0	-22.66186	55.34788	17.99495	-0.90785	-0.36526	-0.14692	62.45611	0.98954	112.27	16.75
77/ 8/13	2443368.5	-28.66667	52.54991	16.89530	-0.86346	-0.46032	-0.17754	62.19905	0.99448	118.61	15.76
77/ 8/13	2443369.0	-34.33324	49.12237	15.59405	-0.80802	-0.55097	-0.20638	61.92700	0.99953	124.95	14.58
77/ 8/14	2443369.5	-39.58780	45.09917	14.10458	-0.74187	-0.63602	-0.23306	61.64469	1.00459	131.28	13.23
77/ 8/14	2443370.0	-44.35946	40.52222	12.44284	-0.66552	-0.71429	-0.25719	61.35663	1.00959	137.59	11.70
77/ 8/15	2443370.5	-48.58123	35.44142	10.62734	-0.57962	-0.78461	-0.27840	61.06694	1.01443	143.89	10.02
77/ 8/15	2443371.0	-52.19120	29.91451	8.67908	-0.48501	-0.84584	-0.29634	60.77932	1.01907	150.18	8.21
77/ 8/16	2443371.5	-55.13365	24.00665	6.62134	-0.38269	-0.89693	-0.31067	60.49695	1.02345	156.47	6.28
77/ 8/16	2443372.0	-57.36026	17.78997	4.47954	-0.27383	-0.93688	-0.32111	60.22249	1.02754	162.77	4.27
77/ 8/17	2443372.5	-58.83113	11.34279	2.28094	-0.15976	-0.96486	-0.32741	59.95802	1.03135	169.09	2.18
77/ 8/17	2443373.0	-59.51592	4.74877	0.05431	-0.04196	-0.98014	-0.32936	59.70510	1.03485	175.44	0.05
77/ 8/18	2443373.5	-59.39468	-1.90421	-2.17046	0.07798	-0.98220	-0.32684	59.46482	1.03808	181.84	-2.09
77/ 8/18	2443374.0	-58.45865	-8.52528	-4.36277	0.19836	-0.97068	-0.31977	59.23789	1.04106	188.30	-4.22
77/ 8/19	2443374.5	-56.71079	-15.02190	-6.49181	0.31740	-0.94545	-0.30816	59.02469	1.04383	194.84	-6.31
77/ 8/19	2443375.0	-54.16621	-21.30139	-8.52702	0.43332	-0.90659	-0.29209	58.82548	1.04642	201.47	-8.33
77/ 8/20	2443375.5	-50.85228	-27.27239	-10.43864	0.54429	-0.85442	-0.27170	58.64045	1.04886	208.20	-10.25
77/ 8/20	2443376.0	-46.80857	-32.84647	-12.19820	0.64853	-0.78949	-0.24723	58.46990	1.05119	215.06	-12.04
77/ 8/21	2443376.5	-42.08652	-37.93969	-13.77905	0.74431	-0.71258	-0.21899	58.31430	1.05344	222.03	-13.67
77/ 8/21	2443377.0	-36.74892	-42.47415	-15.15687	0.83003	-0.62468	-0.18735	58.17446	1.05559	229.13	-15.10
77/ 8/22	2443377.5	-30.86911	-46.37950	-16.31014	0.90419	-0.52703	-0.15276	58.05154	1.05766	236.35	-16.32
77/ 8/22	2443378.0	-24.52998	-49.59435	-17.22058	0.96546	-0.42103	-0.11573	57.94711	1.05961	243.68	-17.29
77/ 8/23	2443378.5	-17.82270	-52.06755	-17.87356	1.01273	-0.30831	-0.07683	57.86314	1.06141	251.10	-17.99
77/ 8/23	2443379.0	-10.84526	-53.75941	-18.25844	1.04511	-0.19061	-0.03667	57.80194	1.06298	258.59	-18.41
77/ 8/24	2443379.5	-3.70081	-54.64257	-18.36883	1.06197	-0.06983	0.00411	57.76608	1.06427	266.13	-18.54
77/ 8/24	2443380.0	3.50421	-54.70278	-18.20282	1.06297	0.05207	0.04484	57.75826	1.06518	273.67	-18.37
77/ 8/25	2443380.5	10.66208	-53.93935	-17.76303	1.04807	0.17305	0.08485	57.78113	1.06564	281.18	-17.90
77/ 8/25	2443381.0	17.66593	-52.36523	-17.05664	1.01755	0.29112	0.12346	57.83711	1.06556	288.64	-17.15
77/ 8/26	2443381.5	24.41180	-50.00687	-16.09520	0.97202	0.40432	0.16005	57.92822	1.06485	296.02	-16.13
77/ 8/26	2443382.0	30.80080	-46.90360	-14.89448	0.91235	0.51079	0.19403	58.05586	1.06345	303.29	-14.87
77/ 8/27	2443382.5	36.74104	-43.10677	-13.47403	0.83972	0.60886	0.22486	58.22068	1.06131	310.44	-13.38
77/ 8/27	2443383.0	42.14939	-38.67843	-11.85675	0.75553	0.69704	0.25208	58.42238	1.05841	317.46	-11.71
77/ 8/28	2443383.5	46.95295	-33.68991	-10.06835	0.66141	0.77409	0.27533	58.65971	1.05475	324.34	-9.88
77/ 8/28	2443384.0	51.09021	-28.22001	-8.13673	0.55908	0.83905	0.29433	58.93034	1.05033	331.09	-7.94
77/ 8/29	2443384.5	54.51175	-22.35317	-6.09137	0.45037	0.89121	0.30890	59.23091	1.04523	337.70	-5.90
77/ 8/29	2443385.0	57.18067	-16.17762	-3.96265	0.33714	0.93016	0.31894	59.55709	1.03951	344.20	-3.82

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
77/ 8/30	2443385.5	59.07253	-9.78348	-1.78127	0.22121	0.95575	0.32446	59.90370	1.03328	350.60	-1.70
77/ 8/30	2443386.0	60.17503	-3.26107	0.42235	0.10433	0.96807	0.32552	60.26481	1.02665	356.90	0.40
77/ 8/31	2443386.5	60.48739	3.30061	2.61852	-0.01185	0.96742	0.32229	60.63395	1.01976	3.12	2.48
77/ 8/31	2443387.0	60.01954	9.81526	4.77874	-0.12582	0.95427	0.31495	61.00427	1.01275	9.29	4.49
77/ 9/ 1	2443387.5	58.79115	16.20026	6.87600	-0.23622	0.92925	0.30374	61.36878	1.00577	15.41	6.43
77/ 9/ 1	2443388.0	56.83058	22.37759	8.88507	-0.34183	0.89308	0.28895	61.72047	0.99896	21.49	8.28
77/ 9/ 2	2443388.5	54.17392	28.27441	10.78263	-0.44161	0.84656	0.27086	62.05256	0.99249	27.56	10.01
77/ 9/ 2	2443389.0	50.86389	33.82348	12.54741	-0.53462	0.79053	0.24979	62.35864	0.98649	33.62	11.61
77/ 9/ 3	2443389.5	46.94899	38.96341	14.16026	-0.62010	0.72589	0.22605	62.63281	0.98109	39.69	13.07
77/ 9/ 3	2443390.0	42.48264	43.63883	15.60414	-0.69736	0.65351	0.19995	62.86980	0.97641	45.77	14.37
77/ 9/ 4	2443390.5	37.52244	47.80036	16.86415	-0.76584	0.57429	0.17180	63.06511	0.97255	51.87	15.51
77/ 9/ 4	2443391.0	32.12955	51.40469	17.92746	-0.82506	0.48912	0.14192	63.21506	0.96959	57.99	16.47
77/ 9/ 5	2443391.5	26.36817	54.41445	18.78335	-0.87459	0.39887	0.11060	63.31688	0.96759	64.15	17.26
77/ 9/ 5	2443392.0	20.30514	56.79824	19.42311	-0.91408	0.30442	0.07815	63.36873	0.96660	70.33	17.85
77/ 9/ 6	2443392.5	14.00950	58.53059	19.84010	-0.94323	0.20665	0.04487	63.36976	0.96664	76.54	18.25
77/ 9/ 6	2443393.0	7.55226	59.59201	20.02969	-0.96176	0.10645	0.01105	63.32008	0.96770	82.78	18.44
77/ 9/ 7	2443393.5	1.00605	59.96905	19.98931	-0.96947	0.00471	-0.02299	63.22081	0.96975	89.04	18.43
77/ 9/ 7	2443394.0	-5.55515	59.65445	19.71848	-0.96616	-0.09763	-0.05694	63.07402	0.97275	95.32	18.22
77/ 9/ 8	2443394.5	-12.05627	58.64735	19.21887	-0.95171	-0.19962	-0.09049	62.88267	0.97662	101.62	17.80
77/ 9/ 8	2443395.0	-18.42159	56.95354	18.49437	-0.92605	-0.30024	-0.12329	62.65064	0.98128	107.92	17.17
77/ 9/ 9	2443395.5	-24.57512	54.58572	17.55119	-0.88918	-0.39846	-0.15501	62.38255	0.98663	114.24	16.34
77/ 9/ 9	2443396.0	-30.44114	51.56390	16.39794	-0.84117	-0.49318	-0.18527	62.08374	0.99254	120.56	15.32
77/ 9/10	2443396.5	-35.94486	47.91563	15.04571	-0.78224	-0.58325	-0.21370	61.76013	0.99887	126.88	14.10
77/ 9/10	2443397.0	-41.01322	43.67640	13.50817	-0.71268	-0.66749	-0.23992	61.41810	1.00550	133.20	12.71
77/ 9/11	2443397.5	-45.57581	38.88978	11.80161	-0.63298	-0.74469	-0.26354	61.06429	1.01226	139.53	11.14
77/ 9/11	2443398.0	-49.56595	33.60761	9.94499	-0.54376	-0.81362	-0.28418	60.70550	1.01902	145.86	9.43
77/ 9/12	2443398.5	-52.92191	27.88996	7.95982	-0.44586	-0.87308	-0.30144	60.34846	1.02564	152.21	7.58
77/ 9/12	2443399.0	-55.58819	21.80491	5.87014	-0.34029	-0.92192	-0.31498	59.99966	1.03197	158.58	5.61
77/ 9/13	2443399.5	-57.51694	15.42809	3.70229	-0.22829	-0.95907	-0.32447	59.66516	1.03789	164.98	3.56
77/ 9/13	2443400.0	-58.66929	8.84198	1.48465	-0.11128	-0.98358	-0.32964	59.35040	1.04330	171.43	1.43
77/ 9/14	2443400.5	-59.01670	2.13489	-0.75272	0.00912	-0.99468	-0.33027	59.06010	1.04812	177.93	-0.73
77/ 9/14	2443401.0	-58.54211	-4.60026	-2.97854	0.13114	-0.99180	-0.32621	58.79807	1.05227	184.49	-2.90
77/ 9/15	2443401.5	-57.24093	-11.26752	-5.16085	0.25288	-0.97460	-0.31742	58.56719	1.05572	191.14	-5.06
77/ 9/15	2443402.0	-55.12170	-17.76964	-7.26758	0.37237	-0.94304	-0.30391	58.36934	1.05846	197.87	-7.15
77/ 9/16	2443402.5	-52.20647	-24.00992	-9.26720	0.48760	-0.89735	-0.28582	58.20543	1.06051	204.70	-9.16
77/ 9/16	2443403.0	-48.53075	-29.89422	-11.12937	0.59661	-0.83804	-0.26337	58.07547	1.06189	211.63	-11.05
77/ 9/17	2443403.5	-44.14315	-35.33289	-12.82558	0.69751	-0.76591	-0.23687	57.97868	1.06266	218.67	-12.78
77/ 9/17	2443404.0	-39.10463	-40.24268	-14.32974	0.78855	-0.68206	-0.20673	57.91361	1.06290	225.82	-14.33
77/ 9/18	2443404.5	-33.48736	-44.54838	-15.61875	0.86817	-0.58777	-0.17342	57.87837	1.06267	233.07	-15.66
77/ 9/18	2443405.0	-27.37340	-48.18440	-16.67292	0.93501	-0.48457	-0.13748	57.87077	1.06206	240.40	-16.74
77/ 9/19	2443405.5	-20.85310	-51.09602	-17.47639	0.98800	-0.37415	-0.09949	57.88850	1.06114	247.80	-17.57
77/ 9/19	2443406.0	-14.02334	-53.24030	-18.01739	1.02628	-0.25830	-0.06008	57.92935	1.05999	255.24	-18.12
77/ 9/20	2443406.5	-6.98563	-54.58685	-18.28841	1.04933	-0.13890	-0.01988	57.99128	1.05867	262.71	-18.38
77/ 9/20	2443407.0	0.15570	-55.11819	-18.28629	1.05686	-0.01789	0.02047	58.07260	1.05721	270.16	-18.35
77/ 9/21	2443407.5	7.29550	-54.82988	-18.01225	1.04890	0.10282	0.06032	58.17199	1.05565	277.58	-18.04

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
77/ 9/21	2443408.0	14.32960	-53.73039	-17.47174	1.02572	0.22133	0.09906	58.28854	1.05399	284.93	-17.44
77/ 9/22	2443408.5	21.15662	-51.84075	-16.67430	0.98786	0.33585	0.13609	58.42172	1.05223	292.20	-16.58
77/ 9/22	2443409.0	27.67965	-49.19390	-15.63331	0.93610	0.44466	0.17088	58.57135	1.05034	299.36	-15.48
77/ 9/23	2443409.5	33.80779	-45.83395	-14.36572	0.87144	0.54618	0.20293	58.73748	1.04828	306.41	-14.16
77/ 9/23	2443410.0	39.45757	-41.81512	-12.89161	0.79506	0.63900	0.23180	58.92026	1.04602	313.34	-12.64
77/ 9/24	2443410.5	44.55415	-37.20064	-11.23386	0.70832	0.72188	0.25710	59.11987	1.04351	320.14	-10.95
77/ 9/24	2443411.0	49.03233	-32.06146	-9.41765	0.61271	0.79378	0.27855	59.33632	1.04072	326.82	-9.13
77/ 9/25	2443411.5	52.83737	-26.47482	-7.46996	0.50982	0.85389	0.29589	59.56932	1.03759	333.39	-7.20
77/ 9/25	2443412.0	55.92554	-20.52280	-5.41914	0.40130	0.90159	0.30898	59.81821	1.03411	339.85	-5.20
77/ 9/26	2443412.5	58.26444	-14.29082	-3.29431	0.28884	0.93652	0.31774	60.08181	1.03027	346.22	-3.14
77/ 9/26	2443413.0	59.83303	-7.86612	-1.12494	0.17411	0.95849	0.32214	60.35837	1.02606	352.51	-1.07
77/ 9/27	2443413.5	60.62153	-1.33635	1.05967	0.05875	0.96757	0.32225	60.64552	1.02151	358.74	1.00
77/ 9/27	2443414.0	60.63098	5.21180	3.23081	-0.05568	0.96397	0.31819	60.94028	1.01666	4.91	3.04
77/ 9/28	2443414.5	59.87268	11.69384	5.36076	-0.16772	0.94812	0.31012	61.23905	1.01156	11.05	5.02
77/ 9/28	2443415.0	58.36747	18.02855	7.42312	-0.27602	0.92057	0.29827	61.53774	1.00628	17.16	6.93
77/ 9/29	2443415.5	56.14490	24.13886	9.39309	-0.37936	0.88199	0.28288	61.83175	1.00092	23.26	8.74
77/ 9/29	2443416.0	53.24233	29.95264	11.24771	-0.47665	0.83314	0.26425	62.11616	0.99557	29.36	10.43
77/ 9/30	2443416.5	49.70400	35.40321	12.96599	-0.56695	0.77488	0.24268	62.38583	0.99033	35.46	12.00
77/ 9/30	2443417.0	45.58011	40.42976	14.52905	-0.64944	0.70808	0.21847	62.63550	0.98533	41.57	13.41
77/10/ 1	2443417.5	40.92597	44.97764	15.92017	-0.72343	0.63368	0.19196	62.85996	0.98069	47.70	14.67
77/10/ 1	2443418.0	35.80118	48.99845	17.12483	-0.78833	0.55260	0.16346	63.05420	0.97650	53.85	15.76
77/10/ 2	2443418.5	30.26886	52.45017	18.13069	-0.84369	0.46579	0.13331	63.21350	0.97291	60.01	16.67
77/10/ 2	2443419.0	24.39507	55.29710	18.92759	-0.88911	0.37417	0.10181	63.33357	0.96999	66.19	17.39
77/10/ 3	2443419.5	18.24817	57.50983	19.50749	-0.92429	0.27867	0.06929	63.41071	0.96787	72.40	17.92
77/10/ 3	2443420.0	11.89843	59.06520	19.86451	-0.94898	0.18020	0.03604	63.44186	0.96661	78.61	18.25
77/10/ 4	2443420.5	5.41754	59.94623	19.99481	-0.96299	0.07969	0.00239	63.42470	0.96628	84.84	18.38
77/10/ 4	2443421.0	-1.12168	60.14212	19.89665	-0.96619	-0.02196	-0.03137	63.35779	0.96694	91.07	18.30
77/10/ 5	2443421.5	-7.64565	59.64826	19.57033	-0.95847	-0.12383	-0.06493	63.24056	0.96862	97.30	18.03
77/10/ 5	2443422.0	-14.08028	58.46630	19.01828	-0.93980	-0.22499	-0.09798	63.07343	0.97131	103.54	17.55
77/10/ 6	2443422.5	-20.35131	56.60433	18.24503	-0.91017	-0.32448	-0.13020	62.85783	0.97501	109.78	16.87
77/10/ 6	2443423.0	-26.38466	54.07698	17.25727	-0.86963	-0.42130	-0.16126	62.59620	0.97967	116.01	16.00
77/10/ 7	2443423.5	-32.10682	50.90578	16.06398	-0.81830	-0.51443	-0.19083	62.29204	0.98523	122.24	14.94
77/10/ 7	2443424.0	-37.44537	47.11933	14.67644	-0.75639	-0.60280	-0.21856	61.94986	0.99160	128.47	13.70
77/10/ 8	2443424.5	-42.32961	42.75366	13.10834	-0.68421	-0.68528	-0.24409	61.57516	0.99866	134.71	12.29
77/10/ 8	2443425.0	-46.69130	37.85251	11.37589	-0.60217	-0.76072	-0.26703	61.17435	1.00629	140.97	10.72
77/10/ 9	2443425.5	-50.46557	32.46756	9.49781	-0.51086	-0.82794	-0.28703	60.75463	1.01432	147.24	8.99
77/10/ 9	2443426.0	-53.59208	26.65857	7.49539	-0.41103	-0.88574	-0.30369	60.32389	1.02260	153.55	7.14
77/10/10	2443426.5	-56.01619	20.49337	5.39247	-0.30362	-0.93293	-0.31664	59.89049	1.03093	159.91	5.17
77/10/10	2443427.0	-57.69042	14.04769	3.21530	-0.18980	-0.96839	-0.32556	59.46309	1.03913	166.31	3.10
77/10/11	2443427.5	-58.57589	7.40459	0.99237	-0.07096	-0.99106	-0.33011	59.05038	1.04700	172.80	0.96
77/10/11	2443428.0	-58.64392	0.65378	-1.24591	0.05129	-1.00006	-0.33005	58.66080	1.05437	179.36	-1.22
77/10/12	2443428.5	-57.87749	-6.10964	-3.46761	0.17513	-0.99469	-0.32519	58.30228	1.06105	186.03	-3.41
77/10/12	2443429.0	-56.27256	-12.78663	-5.63984	0.29855	-0.97449	-0.31543	57.98195	1.06689	192.80	-5.58
77/10/13	2443429.5	-53.83919	-19.27612	-7.72937	0.41940	-0.93932	-0.30078	57.70589	1.07177	199.70	-7.70
77/10/13	2443430.0	-50.60217	-25.47716	-9.70338	0.53549	-0.88937	-0.28135	57.47887	1.07559	206.72	-9.72

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/10/14	2443430.5	-46.60131	-31.29130	-11.53025	0.64460	-0.82520	-0.25738	57.30423	1.07828	213.88	-11.61
77/10/14	2443431.0	-41.89107	-36.62506	-13.18037	0.74462	-0.74770	-0.22923	57.18373	1.07984	221.16	-13.33
77/10/15	2443431.5	-36.53971	-41.39230	-14.62691	0.83361	-0.65814	-0.19735	57.11759	1.08028	228.56	-14.84
77/10/15	2443432.0	-30.62788	-45.51648	-15.84650	0.90986	-0.55809	-0.16231	57.10454	1.07966	236.06	-16.11
77/10/16	2443432.5	-24.24679	-48.93249	-16.81984	0.97197	-0.44935	-0.12474	57.14195	1.07806	243.64	-17.12
77/10/16	2443433.0	-17.49597	-51.58817	-17.53212	1.01889	-0.33391	-0.08534	57.22607	1.07560	251.27	-17.84
77/10/17	2443433.5	-10.48088	-53.44528	-17.97328	1.04993	-0.21389	-0.04480	57.35229	1.07243	258.90	-18.26
77/10/17	2443434.0	-3.31039	-54.47999	-18.13812	1.06476	-0.09142	-0.00386	57.51539	1.06868	266.52	-18.38
77/10/18	2443434.5	3.90561	-54.68298	-18.02626	1.06340	0.03137	0.03679	57.70986	1.06450	274.09	-18.20
77/10/18	2443435.0	11.05857	-54.05900	-17.64196	1.04622	0.15244	0.07648	57.93018	1.06003	281.56	-17.73
77/10/19	2443435.5	18.04331	-52.62620	-16.99382	1.01386	0.26990	0.11460	58.17102	1.05541	288.92	-16.99
77/10/19	2443436.0	24.75984	-50.41514	-16.09443	0.96719	0.38198	0.15059	58.42745	1.05073	296.16	-15.99
77/10/20	2443436.5	31.11486	-47.46766	-14.95994	0.90730	0.48711	0.18395	58.69508	1.04609	303.24	-14.77
77/10/20	2443437.0	37.02300	-43.83555	-13.60960	0.83545	0.58393	0.21426	58.97015	1.04156	310.18	-13.34
77/10/21	2443437.5	42.40780	-39.57924	-12.06532	0.75300	0.67125	0.24116	59.24955	1.03718	316.98	-11.75
77/10/21	2443438.0	47.20240	-34.76646	-10.35117	0.66142	0.74811	0.26438	59.53083	1.03297	323.63	-10.01
77/10/22	2443438.5	51.35007	-29.47083	-8.49292	0.56222	0.81372	0.28368	59.81212	1.02894	330.15	-8.16
77/10/22	2443439.0	54.80452	-23.77057	-6.51761	0.45697	0.86751	0.29892	60.09205	1.02506	336.55	-6.23
77/10/23	2443439.5	57.53003	-17.74723	-4.45314	0.34723	0.90908	0.31000	60.36968	1.02132	342.86	-4.23
77/10/23	2443440.0	59.50146	-11.48439	-2.32780	0.23456	0.93821	0.31689	60.64432	1.01768	349.08	-2.20
77/10/24	2443440.5	60.70411	-5.06656	-0.16994	0.12047	0.95485	0.31962	60.91542	1.01411	355.23	-0.16
77/10/24	2443441.0	61.13346	1.42198	1.99242	0.00645	0.95912	0.31824	61.18245	1.01056	1.33	1.87
77/10/25	2443441.5	60.79478	7.89822	4.13190	-0.10610	0.95127	0.31289	61.44477	1.00701	7.40	3.86
77/10/25	2443442.0	59.70268	14.28136	6.22211	-0.21582	0.93171	0.30372	61.70155	1.00344	13.45	5.79
77/10/26	2443442.5	57.88052	20.49369	8.23787	-0.32147	0.90093	0.29094	61.95166	0.99984	19.50	7.64
77/10/26	2443443.0	55.35980	26.46141	10.15551	-0.42192	0.85958	0.27478	62.19363	0.99620	25.55	9.40
77/10/27	2443443.5	52.17941	32.11526	11.95302	-0.51611	0.80838	0.25551	62.42560	0.99253	31.61	11.04
77/10/27	2443444.0	48.38492	37.39109	13.61026	-0.60311	0.74810	0.23341	62.64529	0.98888	37.70	12.55
77/10/28	2443444.5	44.02776	42.23037	15.10909	-0.68213	0.67961	0.20879	62.85008	0.98527	43.81	13.91
77/10/28	2443445.0	39.16451	46.58050	16.43344	-0.75246	0.60381	0.18194	63.03696	0.98177	49.94	15.11
77/10/29	2443445.5	33.85604	50.39507	17.56942	-0.81351	0.52162	0.15321	63.20268	0.97845	56.11	16.14
77/10/29	2443446.0	28.16688	53.63407	18.50531	-0.86480	0.43400	0.12292	63.34377	0.97537	62.29	16.99
77/10/30	2443446.5	22.16442	56.26391	19.23162	-0.90596	0.34190	0.09138	63.45663	0.97263	68.50	17.64
77/10/30	2443447.0	15.91835	58.25752	19.74104	-0.93670	0.24629	0.05892	63.53771	0.97033	74.72	18.10
77/10/31	2443447.5	9.50004	59.59426	20.02846	-0.95680	0.14810	0.02587	63.58353	0.96854	80.94	18.36
77/10/31	2443448.0	2.98200	60.25996	20.09090	-0.96613	0.04829	-0.00746	63.59087	0.96736	87.17	18.42
77/11/ 1	2443448.5	-3.56254	60.24679	19.92753	-0.96462	-0.05221	-0.04076	63.55685	0.96689	93.38	18.27
77/11/ 1	2443449.0	-10.06010	59.55325	19.53959	-0.95226	-0.15247	-0.07372	63.47905	0.96720	99.59	17.93
77/11/ 2	2443449.5	-16.43730	58.18414	18.93042	-0.92909	-0.25155	-0.10603	63.35566	0.96836	105.78	17.39
77/11/ 2	2443450.0	-22.62124	56.15058	18.10544	-0.89521	-0.34852	-0.13740	63.18556	0.97043	111.94	16.65
77/11/ 3	2443450.5	-28.53983	53.47003	17.07214	-0.85077	-0.44244	-0.16750	62.96843	0.97345	118.09	15.73
77/11/ 3	2443451.0	-34.12222	50.16637	15.84010	-0.79597	-0.53235	-0.19602	62.70486	0.97744	124.22	14.63
77/11/ 4	2443451.5	-39.29914	46.27010	14.42108	-0.73109	-0.61727	-0.22266	62.39641	0.98239	130.34	13.36
77/11/ 4	2443452.0	-44.00348	41.81844	12.82900	-0.65648	-0.69619	-0.24707	62.04572	0.98827	136.46	11.93
77/11/ 5	2443452.5	-48.17080	36.85556	11.08002	-0.57259	-0.76806	-0.26893	61.65650	0.99504	142.58	10.35

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
77/11/ 5	2443453.0	-51.74008	31.43274	9.19260	-0.47999	-0.83182	-0.28790	61.23363	1.00260	148.72	8.63
77/11/ 6	2443453.5	-54.65458	25.60859	7.18750	-0.37937	-0.88639	-0.30363	60.78308	1.01084	154.89	6.79
77/11/ 6	2443454.0	-56.86280	19.44904	5.08781	-0.27159	-0.93068	-0.31577	60.31193	1.01963	161.12	4.84
77/11/ 7	2443454.5	-58.31969	13.02737	2.91889	-0.15770	-0.96362	-0.32401	59.82824	1.02879	167.41	2.80
77/11/ 7	2443455.0	-58.98797	6.42396	0.70830	-0.03895	-0.98418	-0.32803	59.34096	1.03814	173.78	0.68
77/11/ 8	2443455.5	-58.83957	-0.27421	-1.51444	0.08320	-0.99145	-0.32756	58.85969	1.04747	180.27	-1.47
77/11/ 8	2443456.0	-57.85715	-6.97432	-3.71813	0.20703	-0.98464	-0.32237	58.39448	1.05655	186.87	-3.65
77/11/ 9	2443456.5	-56.03563	-13.57892	-5.87028	0.33064	-0.96317	-0.31232	57.95549	1.06516	193.62	-5.81
77/11/ 9	2443457.0	-53.38357	-19.98745	-7.93773	0.45192	-0.92672	-0.29736	57.55268	1.07306	200.53	-7.93
77/11/10	2443457.5	-49.92431	-26.09829	-9.88726	0.56862	-0.87529	-0.27753	57.19541	1.08004	207.60	-9.95
77/11/10	2443458.0	-45.69671	-31.81107	-11.68646	0.67842	-0.80927	-0.25301	56.89206	1.08590	214.84	-11.85
77/11/11	2443458.5	-40.75537	-37.02931	-13.30458	0.77900	-0.72943	-0.22411	56.64964	1.09048	222.26	-13.58
77/11/11	2443459.0	-35.17017	-41.66327	-14.71342	0.86819	-0.63697	-0.19130	56.47348	1.09365	229.83	-15.10
77/11/12	2443459.5	-29.02518	-45.63264	-15.88827	0.94400	-0.53347	-0.15513	56.36697	1.09535	237.54	-16.37
77/11/12	2443460.0	-22.41681	-48.86907	-16.80869	1.00478	-0.42088	-0.11628	56.33144	1.09556	245.36	-17.36
77/11/13	2443460.5	-15.45140	-51.31831	-17.45912	1.04926	-0.30141	-0.07553	56.36609	1.09430	253.24	-18.04
77/11/13	2443461.0	-8.24232	-52.94170	-17.82936	1.07664	-0.17742	-0.03368	56.46810	1.09168	261.15	-18.41
77/11/14	2443461.5	-0.90687	-53.71703	-17.91475	1.08656	-0.05139	0.00844	56.63285	1.08781	269.03	-18.44
77/11/14	2443462.0	6.43691	-53.63866	-17.71616	1.07915	0.07427	0.05005	56.85422	1.08286	276.84	-18.16
77/11/15	2443462.5	13.67325	-52.71706	-17.23974	1.05495	0.19724	0.09036	57.12491	1.07703	284.54	-17.57
77/11/15	2443463.0	20.69132	-50.97774	-16.49653	1.01488	0.31540	0.12872	57.43689	1.07053	292.09	-16.69
77/11/16	2443463.5	27.38752	-48.45975	-15.50188	0.96013	0.42688	0.16452	57.78176	1.06355	299.47	-15.56
77/11/16	2443464.0	33.66718	-45.21397	-14.27486	0.89213	0.53007	0.19726	58.15113	1.05631	306.67	-14.21
77/11/17	2443464.5	39.44589	-41.30117	-12.83761	0.81247	0.62365	0.22654	58.53691	1.04899	313.68	-12.67
77/11/17	2443465.0	44.65026	-36.79017	-11.21464	0.72282	0.70657	0.25206	58.93158	1.04175	320.51	-10.97
77/11/18	2443465.5	49.21837	-31.75595	-9.43228	0.62487	0.77804	0.27358	59.32838	1.03473	327.17	-9.15
77/11/18	2443466.0	53.09983	-26.27803	-7.51809	0.52034	0.83752	0.29097	59.72143	1.02803	333.67	-7.23
77/11/19	2443466.5	56.25570	-20.43887	-5.50033	0.41088	0.88467	0.30415	60.10578	1.02175	340.03	-5.25
77/11/19	2443467.0	58.65811	-14.32258	-3.40757	0.29811	0.91935	0.31312	60.47745	1.01593	346.28	-3.23
77/11/20	2443467.5	60.28985	-8.01368	-1.26827	0.18356	0.94156	0.31791	60.83332	1.01059	352.43	-1.19
77/11/20	2443468.0	61.14386	-1.59612	0.88953	0.06869	0.95147	0.31860	61.17116	1.00574	358.50	0.83
77/11/21	2443468.5	61.22267	4.84764	3.03852	-0.04513	0.94935	0.31533	61.48941	1.00137	4.53	2.83
77/11/21	2443469.0	60.53782	11.23741	5.15233	-0.15661	0.93560	0.30824	61.78716	0.99744	10.52	4.78
77/11/22	2443469.5	59.10925	17.49593	7.20575	-0.26455	0.91068	0.29753	62.06395	0.99391	16.49	6.67
77/11/22	2443470.0	56.96473	23.54949	9.17493	-0.36785	0.87518	0.28340	62.31964	0.99074	22.46	8.47
77/11/23	2443470.5	54.13926	29.32847	11.03752	-0.46547	0.82971	0.26610	62.55434	0.98787	28.45	10.16
77/11/23	2443471.0	50.67448	34.76781	12.77285	-0.55648	0.77500	0.24587	62.76822	0.98527	34.45	11.74
77/11/24	2443471.5	46.61803	39.80742	14.36202	-0.64005	0.71181	0.22298	62.96141	0.98288	40.49	13.19
77/11/24	2443472.0	42.02295	44.39261	15.78803	-0.71542	0.64095	0.19774	63.13393	0.98069	46.57	14.48
77/11/25	2443472.5	36.94706	48.47434	17.03587	-0.78193	0.56329	0.17042	63.28560	0.97865	52.69	15.62
77/11/25	2443473.0	31.45231	52.00954	18.09259	-0.83902	0.47972	0.14135	63.41594	0.97676	58.84	16.58
77/11/26	2443473.5	25.60415	54.96132	18.94737	-0.88622	0.39117	0.11084	63.52419	0.97503	65.02	17.35
77/11/26	2443474.0	19.47090	57.29914	19.59155	-0.92315	0.29858	0.07922	63.60925	0.97346	71.23	17.94
77/11/27	2443474.5	13.12313	58.99890	20.01865	-0.94953	0.20291	0.04680	63.66971	0.97209	77.46	18.33
77/11/27	2443475.0	6.63304	60.04304	20.22439	-0.96515	0.10514	0.01391	63.70392	0.97096	83.70	18.51

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
77/11/28	2443475.5	0.07390	60.42056	20.20670	-0.96990	0.00623	-0.01913	63.70997	0.97011	89.93	18.49
77/11/28	2443476.0	-6.48052	60.12701	19.96568	-0.96376	-0.09286	-0.05199	63.68581	0.96961	96.15	18.27
77/11/29	2443476.5	-12.95649	59.16444	19.50357	-0.94675	-0.19117	-0.08436	63.62932	0.96954	102.35	17.85
77/11/29	2443477.0	-19.28082	57.54137	18.82477	-0.91900	-0.28774	-0.11593	63.53842	0.96995	108.52	17.23
77/11/30	2443477.5	-25.38132	55.27273	17.93576	-0.88069	-0.38165	-0.14638	63.41118	0.97093	114.66	16.43
77/11/30	2443478.0	-31.18727	52.37978	16.84509	-0.83207	-0.47194	-0.17542	63.24591	0.97254	120.77	15.45
77/12/ 1	2443478.5	-36.62988	48.89012	15.56338	-0.77346	-0.55770	-0.20275	63.04134	0.97487	126.84	14.29
77/12/ 1	2443479.0	-41.64272	44.83760	14.10326	-0.70524	-0.63799	-0.22806	62.79673	0.97796	132.88	12.98
77/12/ 2	2443479.5	-46.16225	40.26236	12.47939	-0.62787	-0.71190	-0.25105	62.51196	0.98186	138.91	11.52
77/12/ 2	2443480.0	-50.12827	35.21078	10.70845	-0.54189	-0.77850	-0.27144	62.18773	0.98660	144.92	9.92
77/12/ 3	2443480.5	-53.48456	29.73555	8.80912	-0.44793	-0.83685	-0.28892	61.82558	0.99219	150.93	8.19
77/12/ 3	2443481.0	-56.17953	23.89561	6.80205	-0.34673	-0.88604	-0.30320	61.42807	0.99861	156.96	6.36
77/12/ 4	2443481.5	-58.16694	17.75615	4.70988	-0.23915	-0.92514	-0.31400	60.99882	1.00582	163.02	4.43
77/12/ 4	2443482.0	-59.40682	11.38852	2.55717	-0.12617	-0.95327	-0.32103	60.54261	1.01376	169.15	2.42
77/12/ 5	2443482.5	-59.86647	4.87003	0.37031	-0.00896	-0.96955	-0.32404	60.06536	1.02231	175.35	0.35
77/12/ 5	2443483.0	-59.52154	-1.71640	-1.82262	0.11118	-0.97320	-0.32279	59.57417	1.03135	181.65	-1.75
77/12/ 6	2443483.5	-58.35730	-8.28278	-3.99202	0.23271	-0.96353	-0.31706	59.07720	1.04071	188.08	-3.87
77/12/ 6	2443484.0	-56.36989	-14.73687	-6.10711	0.35395	-0.93997	-0.30673	58.58359	1.05019	194.65	-5.98
77/12/ 7	2443484.5	-53.56762	-20.98331	-8.13631	0.47301	-0.90217	-0.29169	58.10326	1.05959	201.39	-8.05
77/12/ 7	2443485.0	-49.97216	-26.92512	-10.04774	0.58782	-0.85002	-0.27196	57.64665	1.06866	208.32	-10.04
77/12/ 8	2443485.5	-45.61954	-32.46557	-11.80993	0.69622	-0.78371	-0.24765	57.22438	1.07715	215.44	-11.91
77/12/ 8	2443486.0	-40.56080	-37.51042	-13.39249	0.79596	-0.70380	-0.21897	56.84689	1.08482	222.76	-13.63
77/12/ 9	2443486.5	-34.86214	-41.97050	-14.76705	0.88482	-0.61122	-0.18630	56.52396	1.09142	230.29	-15.14
77/12/ 9	2443487.0	-28.60450	-45.76444	-15.90810	0.96069	-0.50735	-0.15011	56.26428	1.09675	237.99	-16.42
77/12/10	2443487.5	-21.88238	-48.82144	-16.79395	1.02169	-0.39394	-0.11105	56.07502	1.10062	245.86	-17.43
77/12/10	2443488.0	-14.80195	-51.08387	-17.40752	1.06627	-0.27310	-0.06984	55.96143	1.10290	253.84	-18.12
77/12/11	2443488.5	-7.47848	-52.50951	-17.73701	1.09331	-0.14725	-0.02731	55.92654	1.10352	261.89	-18.49
77/12/11	2443489.0	-0.03318	-53.07307	-17.77643	1.10219	-0.01898	0.01567	55.97101	1.10246	269.96	-18.52
77/12/12	2443489.5	7.41033	-52.76712	-17.52573	1.09280	0.10907	0.05821	56.09308	1.09977	277.99	-18.21
77/12/12	2443490.0	14.72951	-51.60204	-16.99082	1.06559	0.23429	0.09946	56.28870	1.09557	285.93	-17.57
77/12/13	2443490.5	21.80645	-49.60531	-16.18318	1.02146	0.35427	0.13862	56.55178	1.09000	293.73	-16.63
77/12/13	2443491.0	28.53081	-46.81997	-15.11934	0.96172	0.46683	0.17501	56.87452	1.08327	301.36	-15.42
77/12/14	2443491.5	34.80229	-43.30267	-13.82015	0.88802	0.57013	0.20803	57.24786	1.07560	308.79	-13.97
77/12/14	2443492.0	40.53249	-39.12135	-12.30998	0.80221	0.66269	0.23724	57.66193	1.06723	316.01	-12.33
77/12/15	2443492.5	45.64603	-34.35270	-10.61587	0.70626	0.74340	0.26230	58.10649	1.05842	323.04	-10.53
77/12/15	2443493.0	50.08107	-29.07983	-8.76671	0.60219	0.81149	0.28300	58.57137	1.04940	329.86	-8.61
77/12/16	2443493.5	53.78936	-23.38994	-6.79247	0.49198	0.86650	0.29923	59.04677	1.04038	336.50	-6.61
77/12/16	2443494.0	56.73580	-17.37233	-4.72359	0.37753	0.90825	0.31095	59.52362	1. 3157	342.98	-4.55
77/12/17	2443494.5	58.89781	-11.11672	-2.59037	0.26063	0.93680	0.31824	59.99370	1.02313	349.31	-2.47
77/12/17	2443495.0	60.26445	-4.71183	-0.42257	0.14293	0.95239	0.32119	60.44985	1.01520	355.53	-0.40
77/12/18	2443495.5	60.83551	1.75575	1.75100	0.02594	0.95539	0.31997	60.88603	1.00788	1.65	1.65
77/12/18	2443496.0	60.62053	8.20245	3.90269	-0.08897	0.94631	0.31476	61.29730	1.00124	7.71	3.65
77/12/19	2443496.5	59.63788	14.54832	6.00626	-0.20055	0.92572	0.30580	61.67987	0.99534	13.71	5.59
77/12/19	2443497.0	57.91394	20.71765	8.03700	-0.30769	0.89428	0.29330	62.03095	0.99017	19.68	7.44
77/12/20	2443497.5	55.48221	26.63925	9.97187	-0.40939	0.85269	0.27753	62.34872	0.98575	25.65	9.20

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
77/12/20	2443498.0	52.38267	32.24681	11.78957	-0.50475	0.80168	0.25874	62.63222	0.98204	31.62	10.85
77/12/21	2443498.5	48.66107	37.47911	13.47059	-0.59295	0.74201	0.23721	62.88116	0.97900	37.60	12.37
77/12/21	2443499.0	44.36837	42.28026	14.99728	-0.67328	0.67449	0.21322	63.09589	0.97658	43.62	13.75
77/12/22	2443499.5	39.56016	46.59984	16.35392	-0.74508	0.59995	0.18705	63.27719	0.97471	49.67	14.98
77/12/22	2443500.0	34.29615	50.39311	17.52671	-0.80779	0.51922	0.15898	63.42616	0.97334	55.76	16.04
77/12/23	2443500.5	28.63965	53.62117	18.50390	-0.86090	0.43319	0.12933	63.54411	0.97239	61.89	16.93
77/12/23	2443501.0	22.65709	56.25112	19.27574	-0.90401	0.34275	0.09840	63.63243	0.97180	68.06	17.63
77/12/24	2443501.5	16.41747	58.25621	19.83459	-0.93676	0.24883	0.06649	63.69246	0.97152	74.26	18.14
77/12/24	2443502.0	9.99191	59.61598	20.17494	-0.95888	0.15236	0.03393	63.72544	0.97150	80.49	18.46
77/12/25	2443502.5	3.45305	60.31641	20.29342	-0.97019	0.05429	0.00103	63.73238	0.97170	86.72	18.57
77/12/25	2443503.0	-3.12544	60.34999	20.18884	-0.97057	-0.04440	-0.03188	63.71404	0.97211	92.96	18.47
77/12/26	2443503.5	-9.66946	59.71583	19.86221	-0.96001	-0.14273	-0.06449	63.67092	0.97270	99.20	18.18
77/12/26	2443504.0	-16.10503	58.41964	19.31675	-0.93856	-0.23972	-0.09645	63.60317	0.97348	105.41	17.68
77/12/27	2443504.5	-22.35888	56.47383	18.55784	-0.90638	-0.33440	-0.12746	63.51068	0.97447	111.60	16.99
77/12/27	2443505.0	-28.35905	53.89737	17.59305	-0.86370	-0.42578	-0.15720	63.39303	0.97569	117.75	16.11
77/12/28	2443505.5	-34.03542	50.71579	16.43208	-0.81083	-0.51292	-0.18534	63.24962	0.97718	123.87	15.06
77/12/28	2443506.0	-39.32038	46.96109	15.08671	-0.74819	-0.59487	-0.21159	63.07967	0.97899	129.94	13.84
77/12/29	2443506.5	-44.14931	42.67156	13.57080	-0.67626	-0.67070	-0.23566	62.88235	0.98117	135.98	12.46
77/12/29	2443507.0	-48.46126	37.89167	11.90014	-0.59563	-0.73952	-0.25724	62.65689	0.98379	141.98	10.95
77/12/30	2443507.5	-52.19946	32.67191	10.09248	-0.50696	-0.80045	-0.27607	62.40269	0.98689	147.96	9.31
77/12/30	2443508.0	-55.31197	27.06853	8.16741	-0.41100	-0.85266	-0.29187	62.11945	0.99053	153.92	7.56
77/12/31	2443508.5	-57.75228	21.14336	6.14624	-0.30861	-0.89534	-0.30440	61.80731	0.99476	159.89	5.71
77/12/31	2443509.0	-59.47994	14.96355	4.05198	-0.20073	-0.92774	-0.31342	61.46698	0.99961	165.88	3.78
78/ 1/ 1	2443509.5	-60.46129	8.60121	1.90916	-0.08841	-0.94913	-0.31870	61.09986	1.00510	171.90	1.79
78/ 1/ 1	2443510.0	-60.67016	2.13312	-0.25627	0.02718	-0.95886	-0.32006	60.70819	1.01124	177.99	-0.24
78/ 1/ 2	2443510.5	-60.08869	-4.35982	-2.41710	0.14475	-0.95637	-0.31732	60.29511	1.01798	184.15	-2.30
78/ 1/ 2	2443511.0	-58.70814	-10.79309	-4.54508	0.26289	-0.94117	-0.31034	59.86480	1.02529	190.42	-4.35
78/ 1/ 3	2443511.5	-56.52983	-17.07932	-6.61116	0.38005	-0.91291	-0.29903	59.42249	1.03308	196.81	-6.39
78/ 1/ 3	2443512.0	-53.56594	-23.12922	-8.58585	0.49457	-0.87137	-0.28335	58.97447	1.04124	203.35	-8.37
78/ 1/ 4	2443512.5	-49.84043	-28.85274	-10.43955	0.60465	-0.81654	-0.26332	58.52806	1.04961	210.07	-10.27
78/ 1/ 4	2443513.0	-45.38975	-34.16048	-12.14311	0.70839	-0.74865	-0.23904	58.09150	1.05803	216.97	-12.07
78/ 1/ 5	2443513.5	-40.26341	-38.96535	-13.66832	0.80384	-0.66816	-0.21069	57.67377	1.06629	224.06	-13.71
78/ 1/ 5	2443514.0	-34.52426	-43.18460	-14.98864	0.88902	-0.57587	-0.17859	57.28433	1.07419	231.36	-15.17
78/ 1/ 6	2443514.5	-28.24844	-46.74194	-16.07987	0.96200	-0.47292	-0.14312	56.93281	1.08147	238.85	-16.41
78/ 1/ 6	2443515.0	-21.52472	-49.56989	-16.92093	1.02099	-0.36077	-0.10481	56.62866	1.08792	246.53	-17.39
78/ 1/ 7	2443515.5	-14.45338	-51.61220	-17.49466	1.06441	-0.24125	-0.06429	56.38069	1.09330	254.36	-18.08
78/ 1/ 7	2443516.0	-7.14437	-52.82601	-17.78851	1.09099	-0.11650	-0.02230	56.19663	1.09742	262.30	-18.45
78/ 1/ 8	2443516.5	0.28505	-53.18387	-17.79515	1.09987	0.01109	0.02038	56.08273	1.10011	270.31	-18.50
78/ 1/ 8	2443517.0	7.71335	-52.67508	-17.51289	1.09063	0.13898	0.06287	56.04338	1.10125	278.33	-18.21
78/ 1/ 9	2443517.5	15.01796	-51.30649	-16.94592	1.06340	0.26455	0.10431	56.08083	1.10077	286.32	-17.59
78/ 1/ 9	2443518.0	22.07883	-49.10253	-16.10422	1.01880	0.38525	0.14386	56.19501	1.09867	294.21	-16.65
78/ 1/10	2443518.5	28.78181	-46.10439	-15.00324	0.95794	0.49869	0.18075	56.38355	1.09500	301.98	-15.43
78/ 1/10	2443519.0	35.02173	-42.36850	-13.66339	0.88235	0.60277	0.21429	56.64185	1.08986	309.58	-13.96
78/ 1/11	2443519.5	40.70494	-37.96443	-12.10925	0.79388	0.69574	0.24394	56.96336	1.08343	317.00	-12.27
78/ 1/11	2443520.0	45.75120	-32.97234	-10.36873	0.69463	0.77622	0.26927	57.33985	1.07589	324.22	-10.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/ 1/12	2443520.5	50.09487	-27.48026	-8.47212	0.58678	0.84325	0.29000	57.76190	1.06747	331.25	-8.43
78/ 1/12	2443521.0	53.68528	-21.58141	-6.45121	0.47257	0.89627	0.30596	58.21928	1.05841	338.10	-6.36
78/ 1/13	2443521.5	56.48668	-15.37162	-4.33842	0.35414	0.93506	0.31713	58.70140	1.04897	344.78	-4.24
78/ 1/13	2443522.0	58.47755	-8.94709	-2.16609	0.23354	0.95972	0.32356	59.19768	1.03937	351.30	-2.10
78/ 1/14	2443522.5	59.64958	-2.40253	0.03418	0.11265	0.97058	0.32541	59.69796	1.02986	357.69	0.03
78/ 1/14	2443523.0	60.00657	4.17034	2.23194	-0.00687	0.96818	0.32286	60.19270	1.02062	3.98	2.13
78/ 1/15	2443523.5	59.56301	10.68397	4.39831	-0.12351	0.95321	0.31618	60.67326	1.01185	10.17	4.16
78/ 1/15	2443524.0	58.34291	17.05573	6.50620	-0.23598	0.92643	0.30564	61.13202	1.00368	16.30	6.11
78/ 1/16	2443524.5	56.37849	23.20853	8.53047	-0.34313	0.88869	0.29154	61.56247	0.99625	22.37	7.96
78/ 1/16	2443525.0	53.70909	29.07106	10.44802	-0.44400	0.84087	0.27418	61.95929	0.98963	28.43	9.71
78/ 1/17	2443525.5	50.38020	34.57804	12.23785	-0.53775	0.78385	0.25388	62.31830	0.98389	34.46	11.33
78/ 1/17	2443526.0	46.44258	39.67030	13.88105	-0.62365	0.71855	0.23094	62.63648	0.97907	40.50	12.80
78/ 1/18	2443526.5	41.95148	44.29470	15.36081	-0.70108	0.64585	0.20566	62.91185	0.97516	46.56	14.13
78/ 1/18	2443527.0	36.96610	48.40421	16.66238	-0.76952	0.56665	0.17837	63.14345	0.97215	52.63	15.30
78/ 1/19	2443527.5	31.54896	51.95785	17.77306	-0.82851	0.48185	0.14935	63.33117	0.97000	58.73	16.30
78/ 1/19	2443528.0	25.76548	54.92066	18.68222	-0.87764	0.39233	0.11891	63.47569	0.96867	64.87	17.12
78/ 1/20	2443528.5	19.68355	57.26374	19.38123	-0.91659	0.29900	0.08734	63.57837	0.96807	71.03	17.75
78/ 1/20	2443529.0	13.37310	58.96430	19.86353	-0.94508	0.20275	0.05497	63.64109	0.96815	77.22	18.19
78/ 1/21	2443529.5	6.90572	60.00571	20.12464	-0.96290	0.10451	0.02208	63.66613	0.96880	83.44	18.43
78/ 1/21	2443530.0	0.35425	60.37763	20.16213	-0.96989	0.00521	-0.01101	63.65607	0.96997	89.66	18.47
78/ 1/22	2443530.5	-6.20764	60.07608	19.97571	-0.96597	-0.09420	-0.04399	63.61367	0.97155	95.90	18.30
78/ 1/22	2443531.0	-12.70595	59.10358	19.56725	-0.95112	-0.19275	-0.07653	63.54173	0.97347	102.13	17.94
78/ 1/23	2443531.5	-19.06686	57.46926	18.94079	-0.92541	-0.28946	-0.10831	63.44300	0.97566	108.35	17.37
78/ 1/23	2443532.0	-25.21728	55.18895	18.10255	-0.88900	-0.38334	-0.13901	63.32009	0.97805	114.56	16.61
78/ 1/24	2443532.5	-31.08547	52.28522	17.06101	-0.84212	-0.47339	-0.16829	63.17538	0.98060	120.73	15.67
78/ 1/24	2443533.0	-36.60168	48.78741	15.82680	-0.78513	-0.55861	-0.19584	63.01097	0.98327	126.88	14.55
78/ 1/25	2443533.5	-41.69886	44.73155	14.41277	-0.71847	-0.63801	-0.22134	62.82861	0.98602	132.99	13.26
78/ 1/25	2443534.0	-46.31334	40.16027	12.83389	-0.64269	-0.71065	-0.24447	62.62972	0.98886	139.07	11.82
78/ 1/26	2443534.5	-50.38560	35.12262	11.10718	-0.55847	-0.77558	-0.26494	62.41535	0.99177	145.12	10.25
78/ 1/26	2443535.0	-53.86097	29.67379	9.25164	-0.46657	-0.83192	-0.28247	62.18625	0.99477	151.15	8.56
78/ 1/27	2443535.5	-56.69040	23.87478	7.28811	-0.36789	-0.87885	-0.29679	61.94291	0.99790	157.16	6.76
78/ 1/27	2443536.0	-58.83119	17.79200	5.23914	-0.26339	-0.91560	-0.30766	61.68560	1.00118	163.17	4.87
78/ 1/28	2443536.5	-60.24767	11.49674	3.12878	-0.15419	-0.94148	-0.31488	61.41454	1.00465	169.20	2.92
78/ 1/28	2443537.0	-60.91186	5.06463	0.98244	-0.04146	-0.95592	-0.31826	61.12994	1.00836	175.25	0.92
78/ 1/29	2443537.5	-60.80417	-1.42502	-1.17337	0.07352	-0.95840	-0.31766	60.83219	1.01235	181.34	-1.11
78/ 1/29	2443538.0	-59.91398	-7.88995	-3.31129	0.18938	-0.94857	-0.31296	60.52191	1.01665	187.50	-3.14
78/ 1/30	2443538.5	-58.24020	-14.24577	-5.40336	0.30466	-0.92615	-0.30411	60.20016	1.02130	193.74	-5.15
78/ 1/30	2443539.0	-55.79182	-20.40682	-7.42135	0.41785	-0.89105	-0.29109	59.86853	1.02630	200.09	-7.12
78/ 1/31	2443539.5	-52.58835	-26.28725	-9.33708	0.52736	-0.84331	-0.27393	59.52928	1.03166	206.56	-9.02
78/ 1/31	2443540.0	-48.66027	-31.80211	-11.12280	0.63155	-0.78315	-0.25272	59.18541	1.03733	213.17	-10.83
78/ 2/ 1	2443540.5	-44.04923	-36.86859	-12.75161	0.72875	-0.71099	-0.22763	58.84073	1.04327	219.93	-12.52
78/ 2/ 1	2443541.0	-38.80826	-41.40744	-14.19794	0.81729	-0.62747	-0.19888	58.49990	1.04939	226.86	-14.05
78/ 2/ 2	2443541.5	-33.00166	-45.34445	-15.43800	0.89550	-0.53344	-0.16678	58.16838	1.05560	233.95	-15.39
78/ 2/ 2	2443542.0	-26.70476	-48.61210	-16.45036	0.96181	-0.43002	-0.13171	57.85236	1.06176	241.22	-16.52
78/ 2/ 3	2443542.5	-20.00331	-51.15126	-17.21649	1.01473	-0.31857	-0.09415	57.55859	1.06772	248.64	-17.40

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/ 2/ 3	2443543.0	-12.99256	-52.91292	-17.72131	1.05295	-0.20072	-0.05465	57.29423	1.07330	256.20	-18.02
78/ 2/ 4	2443543.5	-5.77588	-53.85993	-17.95377	1.07538	-0.07834	-0.01383	57.06655	1.07832	263.88	-18.34
78/ 2/ 4	2443544.0	1.53700	-53.96849	-17.90729	1.08125	0.04651	0.02760	56.88261	1.08260	271.63	-18.35
78/ 2/ 5	2443544.5	8.83214	-53.22944	-17.58021	1.07010	0.17157	0.06890	56.74895	1.08596	279.42	-18.05
78/ 2/ 5	2443545.0	15.99398	-51.64917	-16.97599	1.04191	0.29452	0.10930	56.67123	1.08824	287.21	-17.43
78/ 2/ 6	2443545.5	22.90812	-49.24998	-16.10338	0.99706	0.41301	0.14803	56.65387	1.08932	294.94	-16.51
78/ 2/ 6	2443546.0	29.46426	-46.06988	-14.97624	0.93637	0.52475	0.18434	56.69977	1.08910	302.60	-15.32
78/ 2/ 7	2443546.5	35.55908	-42.16180	-13.61331	0.86108	0.62764	0.21755	56.81010	1.08753	310.14	-13.86
78/ 2/ 7	2443547.0	41.09890	-37.59215	-12.03766	0.77278	0.71982	0.24707	56.98416	1.08460	317.55	-12.20
78/ 2/ 8	2443547.5	46.00191	-32.43889	-10.27603	0.67337	0.79975	0.27240	57.21936	1.08038	324.81	-10.35
78/ 2/ 8	2443548.0	50.19987	-26.78921	-8.35809	0.56494	0.86625	0.29318	57.51127	1.07494	331.91	-8.36
78/ 2/ 9	2443548.5	53.63920	-20.73695	-6.31548	0.44972	0.91853	0.30918	57.85387	1.06842	338.86	-6.27
78/ 2/ 9	2443549.0	56.28143	-14.38002	-4.18106	0.32993	0.95618	0.32029	58.23973	1.06100	345.67	-4.12
78/ 2/10	2443549.5	58.10306	-7.81788	-1.98797	0.20776	0.97914	0.32651	58.66035	1.05285	352.34	-1.94
78/ 2/10	2443550.0	59.09490	-1.14925	0.23100	0.08523	0.98768	0.32796	59.10652	1.04419	358.89	0.22
78/ 2/11	2443550.5	59.26106	5.52975	2.44414	-0.03577	0.98231	0.32482	59.56865	1.03524	5.33	2.35
78/ 2/11	2443551.0	58.61764	12.12722	4.62126	-0.15357	0.96375	0.31737	60.03710	1.02621	11.69	4.41
78/ 2/12	2443551.5	57.19134	18.55667	6.73407	-0.26672	0.93285	0.30589	60.50246	1.01731	17.98	6.39
78/ 2/12	2443552.0	55.01801	24.73780	8.75645	-0.37398	0.89058	0.29072	60.95585	1.00872	24.21	8.26
78/ 2/13	2443552.5	52.14121	30.59706	10.66461	-0.47429	0.83797	0.27222	61.38908	1.00063	30.40	10.00
78/ 2/13	2443553.0	48.61099	36.06789	12.43713	-0.56680	0.77606	0.25073	61.79485	0.99317	36.57	11.61
78/ 2/14	2443553.5	44.48271	41.09086	14.05502	-0.65079	0.70589	0.22661	62.16682	0.98649	42.73	13.07
78/ 2/14	2443554.0	39.81606	45.61354	15.50167	-0.72568	0.62850	0.20022	62.49973	0.98067	48.88	14.36
78/ 2/15	2443554.5	34.67425	49.59047	16.76278	-0.79103	0.54490	0.17188	62.78941	0.97580	55.04	15.48
78/ 2/15	2443555.0	29.12330	52.98290	17.82633	-0.84645	0.45607	0.14193	63.03279	0.97191	61.20	16.43
78/ 2/16	2443555.5	23.23144	55.75868	18.68247	-0.89165	0.36297	0.11059	63.22788	0.96904	67.38	17.19
78/ 2/16	2443556.0	17.06873	57.89206	19.32352	-0.92640	0.26653	0.07847	63.37374	0.96717	73.57	17.75
78/ 2/17	2443556.5	10.70656	59.36363	19.74388	-0.95052	0.16769	0.04557	63.47040	0.96627	79.78	18.12
78/ 2/17	2443557.0	4.21738	60.16019	19.94002	-0.96389	0.06736	0.01231	63.51881	0.96632	85.99	18.30
78/ 2/18	2443557.5	-2.32566	60.27477	19.91045	-0.96642	-0.03354	-0.02102	63.52072	0.96723	92.21	18.27
78/ 2/18	2443558.0	-8.84904	59.70663	19.65576	-0.95808	-0.13409	-0.05412	63.47863	0.96893	98.43	18.04
78/ 2/19	2443558.5	-15.27921	58.46139	19.17861	-0.93890	-0.23333	-0.08666	63.39564	0.97133	104.65	17.61
78/ 2/19	2443559.0	-21.54298	56.55107	18.48378	-0.90897	-0.33032	-0.11835	63.27538	0.97434	110.85	16.98
78/ 2/20	2443559.5	-27.56802	53.99424	17.57817	-0.86844	-0.42407	-0.14885	63.12184	0.97784	117.05	16.17
78/ 2/20	2443560.0	-33.28334	50.81617	16.47089	-0.81756	-0.51360	-0.17785	62.93929	0.98174	123.22	15.17
78/ 2/21	2443560.5	-38.61992	47.04888	15.17323	-0.75666	-0.59790	-0.20501	62.73215	0.98592	129.38	14.00
78/ 2/21	2443561.0	-43.51138	42.73124	13.69872	-0.68620	-0.67595	-0.23002	62.50483	0.99030	135.52	12.66
78/ 2/22	2443561.5	-47.89479	37.90891	12.06307	-0.60674	-0.74676	-0.25254	62.26166	0.99477	141.64	11.17
78/ 2/22	2443562.0	-51.71142	32.63429	10.28418	-0.51896	-0.80935	-0.27226	62.00671	0.99925	147.74	9.55
78/ 2/23	2443562.5	-54.90767	26.96630	8.38201	-0.42370	-0.86277	-0.28889	61.74376	1.00367	153.84	7.80
78/ 2/23	2443563.0	-57.43600	20.97001	6.37850	-0.32190	-0.90615	-0.30214	61.47618	1.00798	159.94	5.96
78/ 2/24	2443563.5	-59.25576	14.71622	4.29740	-0.21466	-0.93868	-0.31177	61.20686	1.01213	166.05	4.03
78/ 2/24	2443564.0	-60.33417	8.28080	2.16402	-0.10320	-0.95967	-0.31755	60.93822	1.01610	172.19	2.04
78/ 2/25	2443564.5	-60.64711	1.74397	0.00504	0.01115	-0.96854	-0.31930	60.67218	1.01988	178.35	0.00
78/ 2/25	2443565.0	-60.17986	-4.81063	-2.15185	0.12694	-0.96486	-0.31691	60.41017	1.02348	184.57	-2.04

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/ 2/26	2443565.5	-58.92779	-11.29695	-4.27830	0.24264	-0.94835	-0.31030	60.15322	1.02691	190.85	-4.08
78/ 2/26	2443566.0	-56.89681	-17.62772	-6.34561	0.35668	-0.91892	-0.29946	59.90200	1.03020	197.21	-6.08
78/ 2/27	2443566.5	-54.10375	-23.71558	-8.32523	0.46741	-0.87666	-0.28442	59.65697	1.03339	203.67	-8.02
78/ 2/27	2443567.0	-50.57656	-29.47450	-10.18911	0.57319	-0.82185	-0.26530	59.41845	1.03652	210.23	-9.87
78/ 2/28	2443567.5	-46.35429	-34.82102	-11.91019	0.67239	-0.75498	-0.24229	59.18679	1.03962	216.91	-11.61
78/ 2/28	2443568.0	-41.48691	-39.67571	-13.46284	0.76342	-0.67675	-0.21561	58.96248	1.04273	223.72	-13.20
78/ 3/ 1	2443568.5	-36.03501	-43.96447	-14.82329	0.84475	-0.58804	-0.18559	58.74628	1.04587	230.66	-14.62
78/ 3/ 1	2443569.0	-30.06914	-47.61997	-15.97010	0.91496	-0.48995	-0.15260	58.53938	1.04904	237.73	-15.83
78/ 3/ 2	2443569.5	-23.66913	-50.58296	-16.88459	0.97274	-0.38377	-0.11706	58.34340	1.05224	244.92	-16.82
78/ 3/ 2	2443570.0	-16.92310	-52.80351	-17.55123	1.01697	-0.27097	-0.07949	58.16053	1.05544	252.23	-17.56
78/ 3/ 3	2443570.5	-9.92623	-54.24225	-17.95801	1.04667	-0.15319	-0.04043	57.99347	1.05859	259.63	-18.04
78/ 3/ 3	2443571.0	-2.77946	-54.87143	-18.09683	1.06113	-0.03222	-0.00047	57.84543	1.06162	267.10	-18.23
78/ 3/ 4	2443571.5	4.41225	-54.67581	-17.96373	1.05988	0.09004	0.03976	57.72008	1.06444	274.61	-18.13
78/ 3/ 4	2443572.0	11.54163	-53.65339	-17.55912	1.04272	0.21159	0.07960	57.62134	1.06695	282.14	-17.74
78/ 3/ 5	2443572.5	18.50116	-51.81586	-16.88792	1.00977	0.33039	0.11837	57.55326	1.06903	289.65	-17.06
78/ 3/ 5	2443573.0	25.18522	-49.18870	-15.95958	0.96147	0.44442	0.15542	57.51983	1.07056	297.11	-16.11
78/ 3/ 6	2443573.5	31.49222	-45.81098	-14.78795	0.89859	0.55171	0.19011	57.52469	1.07144	304.51	-14.90
78/ 3/ 6	2443574.0	37.32689	-41.73476	-13.39111	0.82220	0.65039	0.22183	57.57090	1.07156	311.81	-13.45
78/ 3/ 7	2443574.5	42.60230	-37.02406	-11.79096	0.73370	0.73881	0.25006	57.66076	1.07083	319.01	-11.80
78/ 3/ 7	2443575.0	47.24180	-31.75345	-10.01281	0.63471	0.81551	0.27433	57.79555	1.06919	326.09	-9.98
78/ 3/ 8	2443575.5	51.18056	-26.00636	-8.08472	0.52710	0.87934	0.29428	57.97537	1.06661	333.06	-8.02
78/ 3/ 8	2443576.0	54.36681	-19.87308	-6.03691	0.41284	0.92943	0.30965	58.19909	1.06309	339.92	-5.95
78/ 3/ 9	2443576.5	56.76253	-13.44861	-3.90098	0.29401	0.96526	0.32028	58.46424	1.05866	346.67	-3.83
78/ 3/ 9	2443577.0	58.34379	-6.83044	-1.70923	0.17268	0.98662	0.32613	58.76712	1.05337	353.32	-1.67
78/ 3/10	2443577.5	59.10053	-0.11647	0.50606	0.05086	0.99360	0.32725	59.10281	1.04734	359.89	0.49
78/ 3/10	2443578.0	59.03601	6.59706	2.71327	-0.06953	0.98657	0.32378	59.46539	1.04067	6.38	2.62
78/ 3/11	2443578.5	58.16585	13.21723	4.88201	-0.18676	0.96615	0.31593	59.84810	1.03350	12.80	4.68
78/ 3/11	2443579.0	56.51690	19.65592	6.98358	-0.29926	0.93313	0.30399	60.24355	1.02601	19.18	6.66
78/ 3/12	2443579.5	54.12589	25.83093	8.99131	-0.40567	0.88845	0.28828	60.64398	1.01834	25.51	8.53
78/ 3/12	2443580.0	51.03807	31.66684	10.88086	-0.50485	0.83317	0.26915	61.04152	1.01069	31.82	10.27
78/ 3/13	2443580.5	47.30582	37.09550	12.63033	-0.59583	0.76838	0.24698	61.42835	1.00320	38.10	11.87
78/ 3/13	2443581.0	42.98733	42.05633	14.22040	-0.67784	0.69521	0.22214	61.79697	0.99606	44.37	13.30
78/ 3/14	2443581.5	38.14546	46.49641	15.63430	-0.75029	0.61480	0.19502	62.14035	0.98941	50.63	14.57
78/ 3/14	2443582.0	32.84667	50.37041	16.85776	-0.81270	0.52824	0.16597	62.45211	0.98340	56.89	15.66
78/ 3/15	2443582.5	27.16011	53.64044	17.87903	-0.86475	0.43662	0.13537	62.72661	0.97814	63.15	16.56
78/ 3/15	2443583.0	21.15690	56.27581	18.68870	-0.90617	0.34100	0.10355	62.95910	0.97373	69.40	17.27
78/ 3/16	2443583.5	14.90950	58.25277	19.27968	-0.93683	0.24237	0.07085	63.14574	0.97027	75.64	17.78
78/ 3/16	2443584.0	8.49122	59.55430	19.64711	-0.95663	0.14171	0.03758	63.28368	0.96780	81.89	18.09
78/ 3/17	2443584.5	1.97577	60.16990	19.78823	-0.96552	0.03997	0.00407	63.37109	0.96636	88.12	18.20
78/ 3/17	2443585.0	-4.56301	60.09542	19.70241	-0.96352	-0.06191	-0.02938	63.40714	0.96596	94.34	18.10
78/ 3/18	2443585.5	-11.05154	59.33296	19.39105	-0.95069	-0.16303	-0.06248	63.39203	0.96659	100.55	17.81
78/ 3/18	2443586.0	-17.41671	57.89084	18.85758	-0.92712	-0.26246	-0.09492	63.32693	0.96822	106.74	17.32
78/ 3/19	2443586.5	-23.58625	55.78361	18.10748	-0.89295	-0.35928	-0.12640	63.21395	0.97078	112.92	16.65
78/ 3/19	2443587.0	-29.48902	53.03210	17.14826	-0.84838	-0.45255	-0.15661	63.05608	0.97421	119.08	15.78
78/ 3/20	2443587.5	-35.05545	49.66355	15.98955	-0.79368	-0.54133	-0.18526	62.85713	0.97841	125.22	14.74

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/ 3/20	2443588.0	-40.21799	45.71171	14.64307	-0.72918	-0.62463	-0.21201	62.62161	0.98327	131.34	13.52
78/ 3/21	2443588.5	-44.91170	41.21695	13.12269	-0.65532	-0.70148	-0.23655	62.35466	0.98867	137.46	12.15
78/ 3/21	2443589.0	-49.07495	36.22639	11.44446	-0.57264	-0.77087	-0.25857	62.06189	0.99449	143.57	10.63
78/ 3/22	2443589.5	-52.65015	30.79389	9.62662	-0.48180	-0.83182	-0.27773	61.74928	1.00059	149.68	8.97
78/ 3/22	2443590.0	-55.58468	24.97997	7.68953	-0.38360	-0.88334	-0.29373	61.42300	1.00683	155.80	7.19
78/ 3/23	2443590.5	-57.83189	18.85168	5.65564	-0.27901	-0.92450	-0.30626	61.08928	1.01309	161.95	5.31
78/ 3/23	2443591.0	-59.35211	12.48217	3.54935	-0.16912	-0.95443	-0.31507	60.75422	1.01922	168.12	3.35
78/ 3/24	2443591.5	-60.11372	5.95015	1.39679	-0.05522	-0.97237	-0.31989	60.42363	1.02512	174.35	1.32
78/ 3/24	2443592.0	-60.09427	-0.66081	-0.77439	0.06127	-0.97765	-0.32054	60.10289	1.03068	180.63	-0.74
78/ 3/25	2443592.5	-59.28140	-7.26334	-2.93538	0.17880	-0.96981	-0.31686	59.79679	1.03581	186.99	-2.81
78/ 3/25	2443593.0	-57.67376	-13.76740	-5.05662	0.29567	-0.94855	-0.30879	59.50944	1.04044	193.43	-4.87
78/ 3/26	2443593.5	-55.28168	-20.08175	-7.10824	0.41014	-0.91379	-0.29631	59.24414	1.04452	199.96	-6.89
78/ 3/26	2443594.0	-52.12762	-26.11543	-9.06060	0.52038	-0.86572	-0.27950	59.00338	1.04804	206.61	-8.83
78/ 3/27	2443594.5	-48.24633	-31.77953	-10.88481	0.62458	-0.80475	-0.25850	58.78883	1.05097	213.37	-10.67
78/ 3/27	2443595.0	-43.68471	-36.98884	-12.55336	0.72099	-0.73156	-0.23357	58.60133	1.05335	220.26	-12.37
78/ 3/28	2443595.5	-38.50136	-41.66365	-14.04060	0.80791	-0.64709	-0.20503	58.44101	1.05521	227.26	-13.90
78/ 3/28	2443596.0	-32.76576	-45.73134	-15.32335	0.88381	-0.55250	-0.17326	58.30742	1.05660	234.38	-15.24
78/ 3/29	2443596.5	-26.55728	-49.12798	-16.38133	0.94734	-0.44917	-0.13874	58.19961	1.05757	241.61	-16.35
78/ 3/29	2443597.0	-19.96378	-51.79959	-17.19765	0.99733	-0.33868	-0.10199	58.11634	1.05820	248.92	-17.21
78/ 3/30	2443597.5	-13.08014	-53.70333	-17.75912	1.03289	-0.22272	-0.06358	58.05622	1.05854	256.31	-17.81
78/ 3/30	2443598.0	-6.00654	-54.80837	-18.05653	1.05334	-0.10314	-0.02412	58.01788	1.05865	263.75	-18.13
78/ 3/31	2443598.5	1.15332	-55.09648	-18.08485	1.05832	0.01819	0.01577	58.00012	1.05859	271.20	-18.17
78/ 3/31	2443599.0	8.29411	-54.56241	-17.84334	1.04771	0.13933	0.05546	58.00201	1.05839	278.64	-17.92
78/ 4/ 1	2443599.5	15.31070	-53.21397	-17.33551	1.02170	0.25835	0.09431	58.02297	1.05807	286.05	-17.38
78/ 4/ 1	2443600.0	22.10009	-51.07192	-16.56912	0.98072	0.37337	0.13171	58.06282	1.05762	293.40	-16.58
78/ 4/ 2	2443600.5	28.56316	-48.16946	-15.55599	0.92548	0.48260	0.16708	58.12176	1.05703	300.67	-15.52
78/ 4/ 2	2443601.0	34.60644	-44.55165	-14.31177	0.85693	0.58433	0.19986	58.20036	1.05628	307.84	-14.24
78/ 4/ 3	2443601.5	40.14371	-40.27453	-12.85562	0.77627	0.67704	0.22958	58.29942	1.05531	314.91	-12.74
78/ 4/ 3	2443602.0	45.09744	-35.40397	-11.20990	0.68487	0.75936	0.25578	58.41987	1.05408	321.87	-11.06
78/ 4/ 4	2443602.5	49.40007	-30.01444	-9.39966	0.58428	0.83012	0.27810	58.56268	1.05253	328.72	-9.24
78/ 4/ 4	2443603.0	52.99506	-24.18754	-7.45222	0.47620	0.88838	0.29625	58.72861	1.05059	335.47	-7.29
78/ 4/ 5	2443603.5	55.83770	-18.01040	-5.39658	0.36242	0.93344	0.31002	58.91814	1.04823	342.12	-5.26
78/ 4/ 5	2443604.0	57.89562	-11.57403	-3.26293	0.24478	0.96487	0.31927	59.13128	1.04539	348.69	-3.16
78/ 4/ 6	2443604.5	59.14902	-4.97158	-1.08203	0.12516	0.98247	0.32397	59.36745	1.04205	355.20	-1.04
78/ 4/ 6	2443605.0	59.59062	1.70332	1.11532	0.00537	0.98630	0.32414	59.62539	1.03821	1.64	1.07
78/ 4/ 7	2443605.5	59.22533	8.35826	3.29881	-0.11283	0.97664	0.31990	59.90311	1.03388	8.03	3.16
78/ 4/ 7	2443606.0	58.06961	14.90350	5.43912	-0.22778	0.95401	0.31143	60.19783	1.02908	14.39	5.18
78/ 4/ 8	2443606.5	56.15066	21.25337	7.50837	-0.33796	0.91908	0.29896	60.50602	1.02387	20.73	7.13
78/ 4/ 8	2443607.0	53.50541	27.32742	9.48047	-0.44204	0.87271	0.28279	60.82348	1.01833	27.06	8.97
78/ 4/ 9	2443607.5	50.17938	33.05132	11.33141	-0.53881	0.81585	0.26324	61.14540	1.01254	33.37	10.68
78/ 4/ 9	2443608.0	46.22548	38.35758	13.03950	-0.62729	0.74957	0.24067	61.46648	1.00661	39.69	12.25
78/ 4/10	2443608.5	41.70284	43.18604	14.58551	-0.70663	0.67495	0.21544	61.78105	1.00065	46.00	13.66
78/ 4/10	2443609.0	36.67560	47.48416	15.95275	-0.77620	0.59315	0.18794	62.08329	0.99480	52.32	14.89
78/ 4/11	2443609.5	31.21182	51.20707	17.12709	-0.83547	0.50529	0.15855	62.36729	0.98918	58.64	15.94
78/ 4/11	2443610.0	25.38246	54.31765	18.09696	-0.88410	0.41251	0.12763	62.62728	0.98391	64.95	16.80

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/ 4/12	2443610.5	19.26054	56.78627	18.85327	-0.92183	0.31591	0.09554	62.85773	0.97913	71.26	17.45
78/ 4/12	2443611.0	12.92035	58.59067	19.38935	-0.94854	0.21655	0.06265	63.05354	0.97496	77.56	17.91
78/ 4/13	2443611.5	6.43676	59.71566	19.70086	-0.96417	0.11545	0.02929	63.21010	0.97150	83.85	18.16
78/ 4/13	2443612.0	-0.11523	60.15292	19.78572	-0.96875	0.01362	-0.00423	63.32347	0.96885	90.11	18.21
78/ 4/14	2443612.5	-6.66102	59.90070	19.64398	-0.96236	-0.08799	-0.03757	63.39044	0.96710	96.35	18.05
78/ 4/14	2443613.0	-13.12675	58.96364	19.27782	-0.94513	-0.18845	-0.07045	63.40864	0.96631	102.55	17.70
78/ 4/15	2443613.5	-19.43961	57.35262	18.69141	-0.91725	-0.28685	-0.10256	63.37658	0.96652	108.72	17.15
78/ 4/15	2443614.0	-25.52818	55.08464	17.89097	-0.87894	-0.38230	-0.13361	63.29370	0.96775	114.86	16.42
78/ 4/16	2443614.5	-31.32269	52.18276	16.88465	-0.83047	-0.47389	-0.16330	63.16045	0.97001	120.97	15.51
78/ 4/16	2443615.0	-36.75534	48.67611	15.68259	-0.77215	-0.56073	-0.19136	62.97827	0.97327	127.06	14.42
78/ 4/17	2443615.5	-41.76071	44.59994	14.29694	-0.70436	-0.64191	-0.21747	62.74962	0.97748	133.12	13.17
78/ 4/17	2443616.0	-46.27613	39.99571	12.74185	-0.62755	-0.71651	-0.24134	62.47793	0.98258	139.16	11.77
78/ 4/18	2443616.5	-50.24229	34.91113	11.03349	-0.54226	-0.78360	-0.26267	62.16761	0.98847	145.21	10.22
78/ 4/18	2443617.0	-53.60380	29.40031	9.19013	-0.44912	-0.84222	-0.28116	61.82398	0.99504	151.26	8.55
78/ 4/19	2443617.5	-56.31003	23.52372	7.23206	-0.34890	-0.89145	-0.29649	61.45314	1.00216	157.33	6.76
78/ 4/19	2443618.0	-58.31594	17.34819	5.18164	-0.24248	-0.93035	-0.30838	61.06192	1.00968	163.43	4.87
78/ 4/20	2443618.5	-59.58310	10.94667	3.06318	-0.13094	-0.95804	-0.31654	60.65772	1.01744	169.59	2.89
78/ 4/20	2443619.0	-60.08080	4.39792	0.90283	-0.01549	-0.97369	-0.32071	60.24832	1.02527	175.81	0.86
78/ 4/21	2443619.5	-59.78722	-2.21409	-1.27160	0.10247	-0.97661	-0.32066	59.84171	1.03300	182.12	-1.22
78/ 4/21	2443620.0	-58.69058	-8.80100	-3.43094	0.22137	-0.96620	-0.31623	59.44588	1.04046	188.53	-3.31
78/ 4/22	2443620.5	-56.79029	-15.27117	-5.54503	0.33948	-0.94209	-0.30729	59.06854	1.04747	195.05	-5.39
78/ 4/22	2443621.0	-54.09793	-21.53106	-7.58319	0.45495	-0.90410	-0.29381	58.71692	1.05390	201.70	-7.42
78/ 4/23	2443621.5	-50.63800	-27.48694	-9.51478	0.56581	-0.85236	-0.27584	58.39752	1.05960	208.49	-9.38
78/ 4/23	2443622.0	-46.44838	-33.04679	-11.30982	0.67009	-0.78725	-0.25352	58.11588	1.06445	215.43	-11.22
78/ 4/24	2443622.5	-41.58037	-38.12238	-12.93970	0.76582	-0.70950	-0.22711	57.87641	1.06839	222.52	-12.92
78/ 4/24	2443623.0	-36.09828	-42.63140	-14.37785	0.85112	-0.62015	-0.19697	57.68228	1.07135	229.74	-14.43
78/ 4/25	2443623.5	-30.07860	-46.49961	-15.60047	0.92430	-0.52052	-0.16355	57.53530	1.07332	237.10	-15.73
78/ 4/25	2443624.0	-23.60860	-49.66277	-16.58711	0.98387	-0.41224	-0.12739	57.43596	1.07432	244.57	-16.79
78/ 4/26	2443624.5	-16.78468	-52.06834	-17.32127	1.02864	-0.29713	-0.08910	57.38348	1.07440	252.13	-17.57
78/ 4/26	2443625.0	-9.71018	-53.67680	-17.79079	1.05774	-0.17721	-0.04936	57.37594	1.07362	259.75	-18.06
78/ 4/27	2443625.5	-2.49317	-54.46261	-17.98812	1.07067	-0.05456	-0.00885	57.41049	1.07209	267.38	-18.26
78/ 4/27	2443626.0	4.75602	-54.41460	-17.91048	1.06725	0.06866	0.03172	57.48351	1.06992	275.00	-18.15
78/ 4/28	2443626.5	11.92714	-53.53606	-17.55985	1.04768	0.19034	0.07166	57.59092	1.06723	282.56	-17.75
78/ 4/28	2443627.0	18.91237	-51.84430	-16.94278	1.01247	0.30846	0.11029	57.72839	1.06414	290.04	-17.07
78/ 4/29	2443627.5	25.60837	-49.36997	-16.07020	0.96242	0.42113	0.14701	57.89157	1.06077	297.42	-16.12
78/ 4/29	2443628.0	31.91816	-46.15597	-14.95701	0.89862	0.52661	0.18125	58.07628	1.05720	304.66	-14.92
78/ 4/30	2443628.5	37.75267	-42.25627	-13.62168	0.82231	0.62338	0.21253	58.27870	1.05354	311.78	-13.52
78/ 4/30	2443629.0	43.03208	-37.73447	-12.08579	0.73495	0.71011	0.24041	58.49544	1.04986	318.75	-11.92
78/ 5/ 1	2443629.5	47.68675	-32.66237	-10.37352	0.63810	0.78571	0.26456	58.72364	1.04619	325.59	-10.17
78/ 5/ 1	2443630.0	51.65800	-27.11839	-8.51117	0.53342	0.84932	0.28469	58.96097	1.04256	332.30	-8.30
78/ 5/ 2	2443630.5	54.89859	-21.18610	-6.52662	0.42263	0.90029	0.30062	59.20560	1.03900	338.90	-6.33
78/ 5/ 2	2443631.0	57.37299	-14.95267	-4.44884	0.30746	0.93819	0.31220	59.45615	1.03548	345.39	-4.29
78/ 5/ 3	2443631.5	59.05739	-8.50744	-2.30746	0.18964	0.96282	0.31940	59.71161	1.03198	351.80	-2.21
78/ 5/ 3	2443632.0	59.93964	-1.94050	-0.13223	0.07087	0.97415	0.32221	59.97119	1.02849	358.15	-0.13
78/ 5/ 4	2443632.5	60.01892	4.65863	2.04735	-0.04721	0.97237	0.32070	60.23425	1.02497	4.44	1.95

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/ 5/ 4	2443633.0	59.30527	11.20224	4.20248	-0.16302	0.95783	0.31501	60.50013	1.02139	10.70	3.98
78/ 5/ 5	2443633.5	57.81905	17.60560	6.30539	-0.27511	0.93105	0.30532	60.76806	1.01772	16.94	5.96
78/ 5/ 5	2443634.0	55.59021	23.78795	8.32971	-0.38210	0.89269	0.29184	61.03705	1.01393	23.17	7.84
78/ 5/ 6	2443634.5	52.65746	29.67344	10.25074	-0.48277	0.84353	0.27486	61.30578	1.01003	29.40	9.63
78/ 5/ 6	2443635.0	49.06741	35.19190	12.04571	-0.57602	0.78446	0.25467	61.57255	1.00609	35.65	11.28
78/ 5/ 7	2443635.5	44.87360	40.27948	13.69398	-0.66091	0.71646	0.23160	61.83528	1.00188	41.91	12.79
78/ 5/ 7	2443636.0	40.13552	44.87913	15.17717	-0.73662	0.64056	0.20599	62.09141	0.99768	48.19	14.15
78/ 5/ 8	2443636.5	34.91759	48.94097	16.47934	-0.80251	0.55783	0.17820	62.33799	0.99345	54.49	15.33
78/ 5/ 8	2443637.0	29.28823	52.42247	17.58695	-0.85804	0.46937	0.14860	62.57169	0.98926	60.81	16.32
78/ 5/ 9	2443637.5	23.31888	55.28861	18.48898	-0.90285	0.37630	0.11755	62.78887	0.98517	67.13	17.13
78/ 5/ 9	2443638.0	17.08313	57.51180	19.17686	-0.93667	0.27970	0.08542	62.98566	0.98127	73.46	17.73
78/ 5/10	2443638.5	10.65595	59.07184	19.64444	-0.95937	0.18065	0.05256	63.15802	0.97764	79.77	18.12
78/ 5/10	2443639.0	4.11291	59.95571	19.88797	-0.97089	0.08020	0.01932	63.30193	0.97438	86.08	18.31
78/ 5/11	2443639.5	-2.47043	60.15740	19.90598	-0.97128	-0.02063	-0.01398	63.41344	0.97160	92.35	18.29
78/ 5/11	2443640.0	-9.01905	59.67767	19.69923	-0.96066	-0.12086	-0.04700	63.48879	0.96938	98.59	18.08
78/ 5/12	2443640.5	-15.45901	58.52381	19.27060	-0.93923	-0.21954	-0.07944	63.52459	0.96781	104.80	17.66
78/ 5/12	2443641.0	-21.71785	56.70942	18.62508	-0.90722	-0.31575	-0.11100	63.51785	0.96699	110.96	17.05
78/ 5/13	2443641.5	-27.72495	54.25424	17.76962	-0.86494	-0.40861	-0.14139	63.46617	0.96700	117.07	16.26
78/ 5/13	2443642.0	-33.41186	51.18395	16.71315	-0.81274	-0.49725	-0.17031	63.36780	0.96789	123.14	15.29
78/ 5/14	2443642.5	-38.71268	47.53008	15.46648	-0.75100	-0.58080	-0.19751	63.22177	0.96971	129.16	14.16
78/ 5/14	2443643.0	-43.56433	43.32991	14.04231	-0.68018	-0.65842	-0.22268	63.02791	0.97250	135.15	12.87
78/ 5/15	2443643.5	-47.90694	38.62646	12.45522	-0.60078	-0.72927	-0.24557	62.78703	0.97626	141.12	11.44
78/ 5/15	2443644.0	-51.68431	33.46846	10.72162	-0.51337	-0.79251	-0.26590	62.50088	0.98098	147.07	9.88
78/ 5/16	2443644.5	-54.84435	27.91039	8.85981	-0.41860	-0.84727	-0.28338	62.17225	0.98661	153.03	8.19
78/ 5/16	2443645.0	-57.33968	22.01243	6.88997	-0.31722	-0.89273	-0.29776	61.80500	0.99310	159.00	6.40
78/ 5/17	2443645.5	-59.12839	15.84049	4.83409	-0.21009	-0.92804	-0.30874	61.40404	1.00036	165.00	4.52
78/ 5/17	2443646.0	-60.17479	9.46606	2.71601	-0.09820	-0.95239	-0.31608	60.97531	1.00827	171.06	2.55
78/ 5/18	2443646.5	-60.45042	2.96601	0.56128	0.01731	-0.96501	-0.31952	60.52574	1.01668	177.19	0.53
78/ 5/18	2443647.0	-59.93504	-3.57778	-1.60292	0.13515	-0.96520	-0.31884	60.06312	1.02544	183.42	-1.53
78/ 5/19	2443647.5	-58.61780	-10.07904	-3.74801	0.25383	-0.95236	-0.31386	59.59598	1.03437	189.76	-3.61
78/ 5/19	2443648.0	-56.49841	-16.44790	-5.84431	0.37173	-0.92605	-0.30442	59.13341	1.04327	196.23	-5.67
78/ 5/20	2443648.5	-53.58825	-22.59211	-7.86137	0.48703	-0.88600	-0.29045	58.68480	1.05193	202.86	-7.70
78/ 5/20	2443649.0	-49.91139	-28.41846	-9.76852	0.59780	-0.83220	-0.27197	58.25959	1.06014	209.66	-9.65
78/ 5/21	2443649.5	-45.50538	-33.83460	-11.53544	0.70200	-0.76494	-0.24907	57.86697	1.06769	216.63	-11.50
78/ 5/21	2443650.0	-40.42169	-38.75111	-13.13286	0.79757	-0.68480	-0.22196	57.51550	1.07440	223.79	-13.20
78/ 5/22	2443650.5	-34.72571	-43.08385	-14.53332	0.88247	-0.59274	-0.19097	57.21285	1.08008	231.13	-14.72
78/ 5/22	2443651.0	-28.49619	-46.75636	-15.71200	0.95481	-0.49008	-0.15655	56.96540	1.08460	238.64	-16.01
78/ 5/23	2443651.5	-21.82412	-49.70225	-16.64744	1.01290	-0.37848	-0.11925	56.77802	1.08786	246.29	-17.05
78/ 5/23	2443652.0	-14.81096	-51.86743	-17.32234	1.05533	-0.25989	-0.07973	56.65385	1.08978	254.06	-17.80
78/ 5/24	2443652.5	-7.56642	-53.21193	-17.72409	1.08109	-0.13652	-0.03872	56.59420	1.09036	261.91	-18.25
78/ 5/24	2443653.0	-0.20568	-53.71124	-17.84524	1.08958	-0.01072	0.00300	56.59852	1.08963	269.78	-18.38
78/ 5/25	2443653.5	7.15349	-53.35711	-17.68372	1.08064	0.11509	0.04462	56.66452	1.08767	277.64	-18.18
78/ 5/25	2443654.0	14.39385	-52.15759	-17.24284	1.05458	0.23853	0.08536	56.78832	1.08458	285.43	-17.68
78/ 5/26	2443654.5	21.40157	-50.13656	-16.53115	1.01210	0.35732	0.12447	56.96474	1.08051	293.12	-16.87
78/ 5/26	2443655.0	28.06896	-47.33263	-15.56200	0.95428	0.46939	0.16128	57.18759	1.07564	300.67	-15.79

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/ 5/27	2443655.5	34.29668	-43.79763	-14.35309	0.88252	0.57291	0.19518	57.45003	1.07012	308.06	-14.47
78/ 5/27	2443656.0	39.99558	-39.59479	-12.92583	0.79841	0.66636	0.22568	57.74488	1.06416	315.29	-12.93
78/ 5/28	2443656.5	45.08800	-34.79678	-11.30467	0.70374	0.74849	0.25238	58.06496	1.05791	322.34	-11.23
78/ 5/28	2443657.0	49.50863	-29.48360	-9.51643	0.60035	0.81835	0.27497	58.40333	1.05154	329.23	-9.38
78/ 5/29	2443657.5	53.20487	-23.74065	-7.58964	0.49015	0.87531	0.29326	58.75354	1.04518	335.95	-7.42
78/ 5/29	2443658.0	56.13694	-17.65682	-5.55391	0.37500	0.91896	0.30713	59.10977	1.03897	342.54	-5.39
78/ 5/30	2443658.5	58.27761	-11.32285	-3.43940	0.25675	0.94917	0.31653	59.46694	1.03297	349.00	-3.32
78/ 5/30	2443659.0	59.61179	-4.82973	-1.27628	0.13713	0.96598	0.32149	59.82073	1.02727	355.37	-1.22
78/ 5/31	2443659.5	60.13588	1.73255	0.90567	0.01781	0.96965	0.32211	60.16765	1.02190	1.65	0.86
78/ 5/31	2443660.0	59.85716	8.27619	3.07744	-0.09968	0.96056	0.31851	60.50492	1.01689	7.87	2.92
78/ 6/ 1	2443660.5	58.79294	14.71652	5.21113	-0.21391	0.93924	0.31089	60.83043	1.01222	14.05	4.91
78/ 6/ 1	2443661.0	56.96983	20.97288	7.28017	-0.32357	0.90635	0.29947	61.14266	1.00789	20.21	6.84
78/ 6/ 2	2443661.5	54.42290	26.96931	9.25962	-0.42747	0.86261	0.28448	61.44051	1.00387	26.36	8.67
78/ 6/ 2	2443662.0	51.19485	32.63513	11.12631	-0.52453	0.80887	0.26622	61.72324	1.00013	32.52	10.38
78/ 6/ 3	2443662.5	47.33520	37.90548	12.85901	-0.61382	0.74599	0.24497	61.99033	0.99664	38.69	11.97
78/ 6/ 3	2443663.0	42.89949	42.72170	14.43856	-0.69451	0.67493	0.22105	62.24133	0.99335	44.88	13.41
78/ 6/ 4	2443663.5	37.94842	47.03170	15.84802	-0.76590	0.59667	0.19479	62.47578	0.99023	51.10	14.69
78/ 6/ 4	2443664.0	32.54707	50.79016	17.07269	-0.82739	0.51224	0.16654	62.69313	0.98727	57.35	15.80
78/ 6/ 5	2443664.5	26.76407	53.95879	18.10019	-0.87853	0.42267	0.13663	62.89263	0.98444	63.62	16.73
78/ 6/ 5	2443665.0	20.67086	56.50636	18.92051	-0.91895	0.32902	0.10542	63.07328	0.98175	69.91	17.46
78/ 6/ 6	2443665.5	14.34088	58.40880	19.52597	-0.94841	0.23234	0.07324	63.23379	0.97920	76.21	17.99
78/ 6/ 6	2443666.0	7.84892	59.64916	19.91129	-0.96677	0.13368	0.04046	63.37260	0.97681	82.50	18.31
78/ 6/ 7	2443666.5	1.27033	60.21752	20.07346	-0.97399	0.03408	0.00741	63.48786	0.97461	88.79	18.43
78/ 6/ 7	2443667.0	-5.31952	60.11093	20.01181	-0.97011	-0.06546	-0.02558	63.57746	0.97265	95.06	18.35
78/ 6/ 8	2443667.5	-11.84593	59.33317	19.72785	-0.95528	-0.16395	-0.05818	63.63913	0.97099	101.29	18.06
78/ 6/ 8	2443668.0	-18.23537	57.89461	19.22530	-0.92971	-0.26043	-0.09008	63.67046	0.96969	107.48	17.57
78/ 6/ 9	2443668.5	-24.41603	55.81201	18.50993	-0.89368	-0.35398	-0.12097	63.66899	0.96881	113.63	16.90
78/ 6/ 9	2443669.0	-30.31821	53.10827	17.58957	-0.84754	-0.44370	-0.15056	63.63234	0.96844	119.72	16.05
78/ 6/10	2443669.5	-35.87485	49.81223	16.47398	-0.79171	-0.52874	-0.17857	63.55828	0.96864	125.76	15.02
78/ 6/10	2443670.0	-41.02183	45.95850	15.17481	-0.72666	-0.60825	-0.20473	63.44485	0.96949	131.75	13.84
78/ 6/11	2443670.5	-45.69843	41.58723	13.70554	-0.65290	-0.68143	-0.22876	63.29049	0.97106	137.70	12.51
78/ 6/11	2443671.0	-49.84767	36.74400	12.08141	-0.57103	-0.74749	-0.25041	63.09415	0.97341	143.61	11.04
78/ 6/12	2443671.5	-53.41672	31.47963	10.31939	-0.48169	-0.80566	-0.26944	62.85541	0.97658	149.49	9.45
78/ 6/12	2443672.0	-56.35733	25.85009	8.43815	-0.38559	-0.85520	-0.28558	62.57458	0.98061	155.36	7.75
78/ 6/13	2443672.5	-58.62633	19.91636	6.45797	-0.28351	-0.89537	-0.29861	62.25281	0.98551	161.24	5.95
78/ 6/13	2443673.0	-60.18614	13.74428	4.40075	-0.17632	-0.92546	-0.30829	61.89219	0.99127	167.14	4.08
78/ 6/14	2443673.5	-61.00543	7.40442	2.28994	-0.06501	-0.94480	-0.31440	61.49579	0.99786	173.08	2.13
78/ 6/14	2443674.0	-61.05985	0.97185	0.15044	0.04935	-0.95274	-0.31673	61.06776	1.00522	179.09	0.14
78/ 6/15	2443674.5	-60.33281	-5.47419	-1.99146	0.16554	-0.94869	-0.31508	60.61337	1.01326	185.18	-1.88
78/ 6/15	2443675.0	-58.81643	-11.85077	-4.10828	0.28220	-0.93215	-0.30930	60.13894	1.02186	191.39	-3.92
78/ 6/16	2443675.5	-56.51251	-18.07188	-6.17152	0.39783	-0.90273	-0.29925	59.65186	1.03089	197.73	-5.94
78/ 6/16	2443676.0	-53.43350	-24.04934	-8.15201	0.51079	-0.86017	-0.28485	59.16050	1.04017	204.23	-7.92
78/ 6/17	2443676.5	-49.60350	-29.69392	-10.02021	0.61929	-0.80444	-0.26609	58.67401	1.04950	210.91	-9.83
78/ 6/17	2443677.0	-45.05910	-34.91681	-11.74677	0.72142	-0.73571	-0.24304	58.20218	1.05867	217.77	-11.64
78/ 6/18	2443677.5	-39.85010	-39.63141	-13.30309	0.81521	-0.65445	-0.21585	57.75510	1.06745	224.84	-13.32

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/ 6/18	2443678.0	-34.03979	-43.75534	-14.66197	0.89865	-0.56145	-0.18480	57.34292	1.07561	232.12	-14.81
78/ 6/19	2443678.5	-27.70488	-47.21279	-15.79843	0.96980	-0.45786	-0.15025	56.97542	1.08292	239.60	-16.10
78/ 6/19	2443679.0	-20.93487	-49.93695	-16.69048	1.02685	-0.34519	-0.11272	56.66162	1.08917	247.26	-17.13
78/ 6/20	2443679.5	-13.83073	-51.87243	-17.31995	1.06823	-0.22531	-0.07282	56.40938	1.09415	255.07	-17.88
78/ 6/20	2443680.0	-6.50302	-52.97755	-17.67323	1.09269	-0.10038	-0.03129	56.22502	1.09774	263.00	-18.32
78/ 6/21	2443680.5	0.93065	-53.22619	-17.74186	1.09942	0.02719	0.01109	56.11299	1.09981	271.00	-18.43
78/ 6/21	2443681.0	8.34869	-52.60912	-17.52301	1.08806	0.15483	0.05346	56.07563	1.10032	279.02	-18.21
78/ 6/22	2443681.5	15.62885	-51.13463	-17.01964	1.05877	0.27994	0.09496	56.11310	1.09927	287.00	-17.66
78/ 6/22	2443682.0	22.65171	-48.82842	-16.24048	1.01223	0.40002	0.13477	56.22337	1.09672	294.89	-16.79
78/ 6/23	2443682.5	29.30393	-45.73266	-15.19971	0.94955	0.51272	0.17209	56.40237	1.09277	302.65	-15.63
78/ 6/23	2443683.0	35.48125	-41.90446	-13.91645	0.87228	0.61599	0.20627	56.64424	1.08759	310.26	-14.22
78/ 6/24	2443683.5	41.09086	-37.41373	-12.41404	0.78224	0.70811	0.23672	56.94168	1.08136	317.68	-12.59
78/ 6/24	2443684.0	46.05316	-32.34078	-10.71924	0.68149	0.78773	0.26302	57.28632	1.07430	324.92	-10.78
78/ 6/25	2443684.5	50.30287	-26.77368	-8.86136	0.57218	0.85390	0.28484	57.66916	1.06661	331.98	-8.84
78/ 6/25	2443685.0	53.78944	-20.80571	-6.87140	0.45650	0.90603	0.30200	58.08096	1.05853	338.85	-6.79
78/ 6/26	2443685.5	56.47701	-14.53297	-4.78128	0.33659	0.94388	0.31441	58.51257	1.05026	345.57	-4.69
78/ 6/26	2443686.0	58.34385	-8.05224	-2.62311	0.21447	0.96748	0.32210	58.95527	1.04200	352.14	-2.55
78/ 6/27	2443686.5	59.38152	-1.45912	-0.42860	0.09204	0.97713	0.32517	59.40099	1.03392	358.59	-0.41
78/ 6/27	2443687.0	59.59387	5.15340	1.77146	-0.02897	0.97331	0.32377	59.84250	1.02615	4.94	1.70
78/ 6/28	2443687.5	58.99587	11.69618	3.94754	-0.14700	0.95665	0.31812	60.27351	1.01882	11.21	3.76
78/ 6/28	2443688.0	57.61243	18.08483	6.07171	-0.26068	0.92792	0.30849	60.68870	1.01201	17.43	5.74
78/ 6/29	2443688.5	55.47732	24.24036	8.11786	-0.36878	0.88796	0.29513	61.08377	1.00577	23.60	7.64
78/ 6/29	2443689.0	52.63204	30.08971	10.06183	-0.47022	0.83767	0.27836	61.45537	1.00014	29.76	9.42
78/ 6/30	2443689.5	49.12483	35.56607	11.88155	-0.56410	0.77798	0.25850	61.80102	0.99513	35.90	11.08
78/ 6/30	2443690.0	45.00976	40.60911	13.55710	-0.64960	0.70987	0.23585	62.11902	0.99072	42.06	12.61
78/ 7/ 1	2443690.5	40.34589	45.16512	15.07075	-0.72605	0.63433	0.21074	62.40838	0.98688	48.23	13.97
78/ 7/ 1	2443691.0	35.19647	49.18716	16.40701	-0.79289	0.55236	0.18352	62.66864	0.98359	54.41	15.18
78/ 7/ 2	2443691.5	29.62829	52.63507	17.55263	-0.84964	0.46496	0.15451	62.89977	0.98079	60.62	16.20
78/ 7/ 2	2443692.0	23.71097	55.47556	18.49665	-0.89594	0.37316	0.12404	63.10209	0.97843	66.86	17.04
78/ 7/ 3	2443692.5	17.51631	57.68219	19.23034	-0.93150	0.27796	0.09246	63.27607	0.97647	73.11	17.69
78/ 7/ 3	2443693.0	11.11770	59.23538	19.74728	-0.95614	0.18037	0.06009	63.42230	0.97485	79.37	18.14
78/ 7/ 4	2443693.5	4.58951	60.12240	20.04325	-0.96975	0.08141	0.02726	63.54131	0.97354	85.63	18.39
78/ 7/ 4	2443694.0	-1.99347	60.33727	20.11632	-0.97232	-0.01794	-0.00568	63.63353	0.97250	91.89	18.43
78/ 7/ 5	2443694.5	-8.55662	59.88076	19.96674	-0.96391	-0.11668	-0.03843	63.69923	0.97171	98.13	18.27
78/ 7/ 5	2443695.0	-15.02604	58.76024	19.59695	-0.94467	-0.21386	-0.07065	63.73844	0.97115	104.34	17.91
78/ 7/ 6	2443695.5	-21.32911	56.98960	19.01155	-0.91483	-0.30850	-0.10205	63.75095	0.97083	110.52	17.35
78/ 7/ 6	2443696.0	-27.39502	54.58907	18.21721	-0.87470	-0.39970	-0.13230	63.73633	0.97075	116.65	16.61
78/ 7/ 7	2443696.5	-33.15528	51.58507	17.22266	-0.82465	-0.48656	-0.16112	63.69390	0.97095	122.73	15.69
78/ 7/ 7	2443697.0	-38.54425	48.01002	16.03859	-0.76514	-0.56819	-0.18822	63.62278	0.97145	128.76	14.60
78/ 7/ 8	2443697.5	-43.49962	43.90205	14.67760	-0.69670	-0.64378	-0.21332	63.52195	0.97229	134.74	13.36
78/ 7/ 8	2443698.0	-47.96283	39.30486	13.15407	-0.61992	-0.71253	-0.23617	63.39033	0.97354	140.67	11.98
78/ 7/ 9	2443698.5	-51.87960	34.26737	11.48417	-0.53546	-0.77367	-0.25650	63.22683	0.97523	146.55	10.46
78/ 7/ 9	2443699.0	-55.20034	28.84357	9.68570	-0.44404	-0.82649	-0.27409	63.03048	0.97744	152.41	8.84
78/ 7/10	2443699.5	-57.88060	23.09217	7.77803	-0.34647	-0.87030	-0.28871	62.80056	0.98021	158.25	7.11
78/ 7/10	2443700.0	-59.88158	17.07639	5.78203	-0.24360	-0.90446	-0.30014	62.53670	0.98360	164.08	5.31

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
78/ 7/11	2443700.5	-61.17057	10.86361	3.71995	-0.13638	-0.92838	-0.30820	62.23901	0.98766	169.93	3.43
78/ 7/11	2443701.0	-61.72148	4.52508	1.61531	-0.02583	-0.94150	-0.31268	61.90821	0.99240	175.81	1.50
78/ 7/12	2443701.5	-61.51540	-1.86442	-0.50720	0.08696	-0.94335	-0.31344	61.54574	0.99786	181.74	-0.47
78/ 7/12	2443702.0	-60.54118	-8.22706	-2.62184	0.20079	-0.93351	-0.31034	61.15385	1.00402	187.74	-2.46
78/ 7/13	2443702.5	-58.79610	-14.48237	-4.70203	0.31437	-0.91162	-0.30325	60.73573	1.01086	193.84	-4.44
78/ 7/13	2443703.0	-56.28653	-20.54795	-6.72050	0.42629	-0.87745	-0.29210	60.29558	1.01831	200.06	-6.40
78/ 7/14	2443703.5	-53.02869	-26.34017	-8.64958	0.53507	-0.83088	-0.27685	59.83863	1.02631	206.41	-8.31
78/ 7/14	2443704.0	-49.04929	-31.77512	-10.46147	0.63909	-0.77197	-0.25751	59.37115	1.03474	212.94	-10.15
78/ 7/15	2443704.5	-44.38627	-36.76981	-12.12866	0.73665	-0.70094	-0.23414	58.90046	1.04345	219.64	-11.88
78/ 7/15	2443705.0	-39.08926	-41.24355	-13.62438	0.82600	-0.61823	-0.20690	58.43479	1.05228	226.54	-13.48
78/ 7/16	2443705.5	-33.22000	-45.11957	-14.92311	0.90533	-0.52458	-0.17602	57.98312	1.06103	233.64	-14.91
78/ 7/16	2443706.0	-26.85234	-48.32692	-16.00125	0.97288	-0.42097	-0.14183	57.55501	1.06950	240.94	-16.14
78/ 7/17	2443706.5	-20.07200	-50.80254	-16.83777	1.02692	-0.30875	-0.10475	57.16024	1.07744	248.44	-17.13
78/ 7/17	2443707.0	-12.97572	-52.49343	-17.41493	1.06593	-0.18955	-0.06534	56.80853	1.08463	256.12	-17.85
78/ 7/18	2443707.5	-5.66989	-53.35884	-17.71904	1.08861	-0.06534	-0.02424	56.50910	1.09084	263.93	-18.27
78/ 7/18	2443708.0	1.73134	-53.37225	-17.74108	1.09398	0.06165	0.01782	56.27024	1.09586	271.86	-18.38
78/ 7/19	2443708.5	9.10866	-52.52303	-17.47728	1.08150	0.18897	0.06003	56.09894	1.09952	279.84	-18.15
78/ 7/19	2443709.0	16.34061	-50.81760	-16.92952	1.05108	0.31405	0.10153	56.00047	1.10168	287.83	-17.60
78/ 7/20	2443709.5	23.30688	-48.27989	-16.10546	1.00316	0.43431	0.14148	55.97807	1.10225	295.77	-16.72
78/ 7/20	2443710.0	29.89184	-44.95104	-15.01844	0.93868	0.54726	0.17905	56.03278	1.10122	303.62	-15.55
78/ 7/21	2443710.5	35.98787	-40.88833	-13.68719	0.85905	0.65066	0.21348	56.16335	1.09859	311.35	-14.11
78/ 7/21	2443711.0	41.49832	-36.16334	-12.13517	0.76609	0.74253	0.24414	56.36630	1.09447	318.93	-12.43
78/ 7/22	2443711.5	46.33991	-30.85964	-10.38983	0.66192	0.82132	0.27049	56.63615	1.08898	326.34	-10.57
78/ 7/22	2443712.0	50.44444	-25.06994	-8.48170	0.54884	0.88589	0.29216	56.96563	1.08230	333.57	-8.56
78/ 7/23	2443712.5	53.75973	-18.89324	-6.44341	0.42926	0.93552	0.30890	57.34615	1.07465	340.64	-6.45
78/ 7/23	2443713.0	56.24984	-12.43191	-4.30873	0.30556	0.96992	0.32062	57.76818	1.06626	347.54	-4.28
78/ 7/24	2443713.5	57.89463	-5.78904	-2.11171	0.18001	0.98917	0.32732	58.22165	1.05735	354.29	-2.08
78/ 7/24	2443714.0	58.68887	0.93387	0.11410	0.05473	0.99365	0.32914	58.69641	1.04817	0.91	0.11
78/ 7/25	2443714.5	58.64096	7.63885	2.33628	-0.06837	0.98400	0.32629	59.18253	1.03894	7.42	2.26
78/ 7/25	2443715.0	57.77145	14.23292	4.52404	-0.18762	0.96105	0.31903	59.67063	1.02985	13.84	4.35
78/ 7/26	2443715.5	56.11153	20.62920	6.64860	-0.30155	0.92576	0.30768	60.15207	1.02109	20.19	6.35
78/ 7/26	2443716.0	53.70145	26.74763	8.68339	-0.40894	0.87918	0.29258	60.61916	1.01282	26.48	8.24
78/ 7/27	2443716.5	50.58915	32.51542	10.60425	-0.50876	0.82240	0.27410	61.06525	1.00514	32.73	10.00
78/ 7/27	2443717.0	46.82892	37.86728	12.38948	-0.60014	0.75654	0.25259	61.48478	0.99816	38.96	11.62
78/ 7/28	2443717.5	42.48027	42.74542	14.01984	-0.68241	0.68270	0.22843	61.87326	0.99194	45.18	13.10
78/ 7/28	2443718.0	37.60689	47.09959	15.47856	-0.75501	0.60199	0.20197	62.22728	0.98652	51.39	14.40
78/ 7/29	2443718.5	32.27583	50.88685	16.75131	-0.81750	0.51548	0.17357	62.54445	0.98191	57.61	15.54
78/ 7/29	2443719.0	26.55677	54.07151	17.82611	-0.86954	0.42422	0.14357	62.82325	0.97810	63.84	16.48
78/ 7/30	2443719.5	20.52132	56.62491	18.69330	-0.91089	0.32924	0.11232	63.06302	0.97505	70.08	17.24
78/ 7/30	2443720.0	14.24253	58.52528	19.34549	-0.94137	0.23156	0.08014	63.26379	0.97274	76.32	17.81
78/ 7/31	2443720.5	7.79435	59.75767	19.77754	-0.96090	0.13215	0.04737	63.42619	0.97110	82.57	18.17
78/ 7/31	2443721.0	1.25114	60.31375	19.98649	-0.96944	0.03201	0.01431	63.55134	0.97007	88.81	18.33
78/ 8/ 1	2443721.5	-5.31277	60.19179	19.97153	-0.96702	-0.06791	-0.01870	63.64070	0.96958	95.04	18.29
78/ 8/ 1	2443722.0	-11.82352	59.39656	19.73400	-0.95376	-0.16665	-0.05136	63.69598	0.96957	101.26	18.05
78/ 8/ 2	2443722.5	-18.20823	57.93922	19.27736	-0.92984	-0.26327	-0.08335	63.71898	0.96997	107.45	17.61

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM

MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/ 8/ 2	2443723.0	-24.39542	55.83727	18.60715	-0.89549	-0.35684	-0.11437	63.71156	0.97073	113.60	16.98
78/ 8/ 3	2443723.5	-30.31556	53.11447	17.73097	-0.85104	-0.44645	-0.14412	63.67548	0.97178	119.72	16.17
78/ 8/ 3	2443724.0	-35.90155	49.80069	16.65843	-0.79689	-0.53120	-0.17230	63.61236	0.97308	125.79	15.18
78/ 8/ 4	2443724.5	-41.08924	45.93180	15.40114	-0.73351	-0.61023	-0.19863	63.52363	0.97461	131.81	14.03
78/ 8/ 4	2443725.0	-45.81802	41.54949	13.97263	-0.66147	-0.68268	-0.22282	63.41045	0.97634	137.80	12.73
78/ 8/ 5	2443725.5	-50.03132	36.70102	12.38825	-0.58141	-0.74775	-0.24461	63.27374	0.97826	143.74	11.29
78/ 8/ 5	2443726.0	-53.67718	31.43900	10.66515	-0.49404	-0.80467	-0.26375	63.11415	0.98038	149.64	9.73
78/ 8/ 6	2443726.5	-56.70882	25.82101	8.82212	-0.40017	-0.85275	-0.27999	62.93206	0.98270	155.52	8.06
78/ 8/ 6	2443727.0	-59.08513	19.90930	6.87950	-0.30068	-0.89130	-0.29312	62.72767	0.98526	161.38	6.30
78/ 8/ 7	2443727.5	-60.77125	13.77037	4.85907	-0.19653	-0.91975	-0.30294	62.50103	0.98810	167.23	4.46
78/ 8/ 7	2443728.0	-61.73907	7.47449	2.78385	-0.08875	-0.93756	-0.30927	62.25215	0.99124	173.10	2.56
78/ 8/ 8	2443728.5	-61.96771	1.09526	0.67799	0.02156	-0.94430	-0.31196	61.98109	0.99473	178.99	0.63
78/ 8/ 8	2443729.0	-61.44404	-5.29103	-1.43343	0.13320	-0.93959	-0.31089	61.68808	0.99861	184.92	-1.33
78/ 8/ 9	2443729.5	-60.16315	-11.60591	-3.52460	0.24494	-0.92318	-0.30597	61.37365	1.00293	190.92	-3.29
78/ 8/ 9	2443730.0	-58.12879	-17.76948	-5.56920	0.35547	-0.89489	-0.29713	61.03873	1.00771	197.00	-5.23
78/ 8/10	2443730.5	-55.35379	-23.70109	-7.54061	0.46342	-0.85469	-0.28436	60.68479	1.01297	203.18	-7.14
78/ 8/10	2443731.0	-51.86048	-29.32021	-9.41225	0.56734	-0.80264	-0.26767	60.31397	1.01870	209.48	-8.98
78/ 8/11	2443731.5	-47.68110	-34.54735	-11.15779	0.66576	-0.73899	-0.24714	59.92915	1.02490	215.93	-10.73
78/ 8/11	2443732.0	-42.85802	-39.30509	-12.75157	0.75716	-0.66411	-0.22288	59.53404	1.03151	222.52	-12.37
78/ 8/12	2443732.5	-37.44403	-43.51929	-14.16895	0.83999	-0.57860	-0.19509	59.13327	1.03847	229.29	-13.86
78/ 8/12	2443733.0	-31.50240	-47.12042	-15.38675	0.91272	-0.48322	-0.16400	58.73234	1.04568	236.24	-15.19
78/ 8/13	2443733.5	-25.10673	-50.04501	-16.38376	0.97382	-0.37901	-0.12995	58.33762	1.05302	243.36	-16.31
78/ 8/13	2443734.0	-18.34065	-52.23724	-17.14120	1.02187	-0.26720	-0.09333	57.95628	1.06034	250.65	-17.20
78/ 8/14	2443734.5	-11.29709	-53.65066	-17.64337	1.05555	-0.14930	-0.05465	57.59606	1.06746	258.11	-17.84
78/ 8/14	2443735.0	-4.07724	-54.24983	-17.87811	1.07375	-0.02707	-0.01447	57.26513	1.07419	265.70	-18.19
78/ 8/15	2443735.5	3.21092	-54.01201	-17.83744	1.07560	0.09751	0.02656	56.97176	1.08034	273.40	-18.25
78/ 8/15	2443736.0	10.45456	-52.92862	-17.51800	1.06055	0.22225	0.06773	56.72404	1.08570	281.17	-17.99
78/ 8/16	2443736.5	17.53838	-51.00638	-16.92143	1.02842	0.34482	0.10826	56.52946	1.09007	288.98	-17.42
78/ 8/16	2443737.0	24.34733	-48.26801	-16.05468	0.97946	0.46284	0.14738	56.39456	1.09329	296.77	-16.54
78/ 8/17	2443737.5	30.76963	-44.75245	-14.93001	0.91440	0.57394	0.18430	56.32457	1.09521	304.51	-15.37
78/ 8/17	2443738.0	36.69982	-40.51426	-13.56488	0.83437	0.67586	0.21827	56.32307	1.09573	312.17	-13.94
78/ 8/18	2443738.5	42.04175	-35.62256	-11.98157	0.74098	0.76660	0.24862	56.39178	1.09478	319.72	-12.27
78/ 8/18	2443739.0	46.71123	-30.15912	-10.20657	0.63615	0.84444	0.27478	56.53039	1.09237	327.15	-10.40
78/ 8/19	2443739.5	50.63819	-24.21607	-8.26987	0.52211	0.90804	0.29631	56.73654	1.08854	334.44	-8.38
78/ 8/19	2443740.0	53.76817	-17.89318	-6.20403	0.40122	0.95649	0.31288	57.00589	1.08339	341.59	-6.25
78/ 8/20	2443740.5	56.06314	-11.29493	-4.04324	0.27594	0.98930	0.32433	57.33235	1.07706	348.61	-4.04
78/ 8/20	2443741.0	57.50159	-4.52766	-1.82238	0.14869	1.00642	0.33062	57.70834	1.06972	355.50	-1.81
78/ 8/21	2443741.5	58.07796	2.30313	0.42384	0.02174	1.00814	0.33184	58.12515	1.06157	2.27	0.42
78/ 8/21	2443742.0	57.80159	9.09511	2.66172	-0.10279	0.99509	0.32819	58.57328	1.05284	8.94	2.60
78/ 8/22	2443742.5	56.69527	15.75105	4.85915	-0.22305	0.96813	0.31995	59.04286	1.04374	15.53	4.72
78/ 8/22	2443743.0	54.79355	22.18033	6.98615	-0.33742	0.92834	0.30746	59.52400	1.03451	22.04	6.74
78/ 8/23	2443743.5	52.14100	28.29996	9.01521	-0.44456	0.87690	0.29109	60.00704	1.02534	28.49	8.64
78/ 8/23	2443744.0	48.79045	34.03520	10.92147	-0.54337	0.81505	0.27127	60.48290	1.01644	34.90	10.40
78/ 8/24	2443744.5	44.80139	39.31993	12.68290	-0.63298	0.74408	0.24840	60.94323	1.00797	41.27	12.01
78/ 8/24	2443745.0	40.23848	44.09664	14.28026	-0.71272	0.66524	0.22289	61.38057	1.00010	47.62	13.45

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
78/ 8/25	2443745.5	35.17033	48.31631	15.69711	-0.78211	0.57979	0.19516	61.78849	0.99294	53.95	14.72
78/ 8/25	2443746.0	29.66836	51.93820	16.91968	-0.84078	0.48892	0.16559	62.16159	0.98659	60.26	15.79
78/ 8/26	2443746.5	23.80597	54.92947	17.93682	-0.88851	0.39376	0.13456	62.49561	0.98112	66.57	16.68
78/ 8/26	2443747.0	17.65779	57.26491	18.73986	-0.92516	0.29543	0.10242	62.78734	0.97657	72.86	17.37
78/ 8/27	2443747.5	11.29904	58.92653	19.32251	-0.95068	0.19496	0.06953	63.03463	0.97295	79.15	17.85
78/ 8/27	2443748.0	4.80510	59.90333	19.68078	-0.96509	0.09337	0.03622	63.23631	0.97027	85.41	18.13
78/ 8/28	2443748.5	-1.74897	60.19099	19.81286	-0.96845	-0.00837	0.00279	63.39214	0.96849	91.66	18.21
78/ 8/28	2443749.0	-8.28874	59.79170	19.71908	-0.96089	-0.10932	-0.03043	63.50270	0.96757	97.89	18.09
78/ 8/29	2443749.5	-14.74083	58.71398	19.40186	-0.94259	-0.20856	-0.06314	63.56929	0.96745	104.09	17.77
78/ 8/29	2443750.0	-21.03319	56.97254	18.86566	-0.91377	-0.30516	-0.09504	63.59385	0.96805	110.26	17.26
78/ 8/30	2443750.5	-27.09552	54.58825	18.11696	-0.87472	-0.39824	-0.12584	63.57883	0.96931	116.40	16.56
78/ 8/30	2443751.0	-32.85964	51.58801	17.16423	-0.82577	-0.48690	-0.15524	63.52708	0.97112	122.50	15.68
78/ 8/31	2443751.5	-38.25996	48.00470	16.01791	-0.76736	-0.57027	-0.18295	63.44170	0.97341	128.56	14.62
78/ 8/31	2443752.0	-43.23393	43.87712	14.69042	-0.69996	-0.64748	-0.20869	63.32601	0.97608	134.58	13.41
78/ 9/ 1	2443752.5	-47.72259	39.24985	13.19606	-0.62415	-0.71769	-0.23218	63.18332	0.97906	140.56	12.06
78/ 9/ 1	2443753.0	-51.67114	34.17310	11.55103	-0.54059	-0.78007	-0.25314	63.01693	0.98226	146.52	10.56
78/ 9/ 2	2443753.5	-55.02956	28.70253	9.77331	-0.45003	-0.83385	-0.27132	62.82997	0.98562	152.45	8.95
78/ 9/ 2	2443754.0	-57.75323	22.89894	7.88260	-0.35330	-0.87829	-0.28647	62.62533	0.98908	158.37	7.23
78/ 9/ 3	2443754.5	-59.80360	16.82790	5.90023	-0.25137	-0.91272	-0.29836	62.40562	0.99260	164.28	5.43
78/ 9/ 3	2443755.0	-61.14884	10.55932	3.84894	-0.14527	-0.93653	-0.30678	62.17310	0.99615	170.20	3.55
78/ 9/ 4	2443755.5	-61.76447	4.16686	1.75277	-0.03612	-0.94922	-0.31158	61.92968	0.99970	176.14	1.62
78/ 9/ 4	2443756.0	-61.63394	-2.27268	-0.36316	0.07486	-0.95038	-0.31260	61.67690	1.00326	182.11	-0.34
78/ 9/ 5	2443756.5	-60.74919	-8.68009	-2.47292	0.18638	-0.93970	-0.30974	61.41598	1.00683	188.13	-2.31
78/ 9/ 5	2443757.0	-59.11109	-14.97464	-4.55000	0.29709	-0.91703	-0.30295	61.14788	1.01043	194.22	-4.27
78/ 9/ 6	2443757.5	-56.72989	-21.07490	-6.56764	0.40558	-0.88234	-0.29219	60.87336	1.01409	200.38	-6.19
78/ 9/ 6	2443758.0	-53.62543	-26.89977	-8.49910	0.51042	-0.83574	-0.27751	60.59306	1.01784	206.64	-8.06
78/ 9/ 7	2443758.5	-49.82737	-32.36949	-10.31806	0.61015	-0.77752	-0.25898	60.30765	1.02171	213.01	-9.85
78/ 9/ 7	2443759.0	-45.37526	-37.40674	-11.99891	0.70331	-0.70812	-0.23675	60.01793	1.02574	219.50	-11.53
78/ 9/ 8	2443759.5	-40.31848	-41.93776	-13.51717	0.78847	-0.62815	-0.21101	59.72495	1.02994	226.13	-13.08
78/ 9/ 8	2443760.0	-34.71606	-45.89354	-14.84987	0.86421	-0.53841	-0.18200	59.43013	1.03434	232.89	-14.47
78/ 9/ 9	2443760.5	-28.63635	-49.21103	-15.97591	0.92919	-0.43985	-0.15004	59.13540	1.03893	239.80	-15.67
78/ 9/ 9	2443761.0	-22.15651	-51.83433	-16.87651	0.98216	-0.33363	-0.11550	58.84323	1.04369	246.86	-16.67
78/ 9/10	2443761.5	-15.36187	-53.71601	-17.53560	1.02197	-0.22109	-0.07881	58.55676	1.04858	254.04	-17.43
78/ 9/10	2443762.0	-8.34497	-54.81826	-17.94024	1.04764	-0.10373	-0.04045	58.27977	1.05354	261.34	-17.93
78/ 9/11	2443762.5	-1.20450	-55.11410	-18.08098	1.05834	0.01675	-0.00098	58.01669	1.05848	268.75	-18.16
78/ 9/11	2443763.0	5.95611	-54.58849	-17.95229	1.05351	0.13852	0.03901	57.77251	1.06329	276.23	-18.10
78/ 9/12	2443763.5	13.03034	-53.23926	-17.55281	1.03280	0.25962	0.07888	57.55267	1.06785	283.75	-17.76
78/ 9/12	2443764.0	19.91044	-51.07784	-16.88566	0.99621	0.37800	0.11794	57.36285	1.07202	291.30	-17.12
78/ 9/13	2443764.5	26.48962	-48.12975	-15.95855	0.94402	0.49157	0.15552	57.20881	1.07564	298.83	-16.20
78/ 9/13	2443765.0	32.66435	-44.43464	-14.78389	0.87691	0.59825	0.19093	57.09606	1.07858	306.32	-15.01
78/ 9/14	2443765.5	38.33674	-40.04603	-13.37862	0.79589	0.69604	0.22351	57.02963	1.08068	313.75	-13.57
78/ 9/14	2443766.0	43.41703	-35.03045	-11.76405	0.70232	0.78310	0.25264	57.01372	1.08182	321.10	-11.91
78/ 9/15	2443766.5	47.82581	-29.46616	-9.96536	0.59790	0.85782	0.27779	57.05148	1.08190	328.36	-10.06
78/ 9/15	2443767.0	51.49606	-23.44146	-8.01110	0.48459	0.91886	0.29851	57.14476	1.08085	335.52	-8.06
78/ 9/16	2443767.5	54.37474	-17.05251	-5.93250	0.36453	0.96524	0.31446	57.29393	1.07864	342.59	-5.94

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/ 9/16	2443768.0	56.42392	-10.40092	-3.76267	0.24003	0.99634	0.32543	57.49778	1.07528	349.56	-3.75
78/ 9/17	2443768.5	57.62129	-3.59123	-1.53574	0.11339	1.01192	0.33132	57.75352	1.07080	356.43	-1.52
78/ 9/17	2443769.0	57.96016	3.27166	0.71390	-0.01311	1.01211	0.33215	58.05681	1.06530	3.23	0.70
78/ 9/18	2443769.5	57.44884	10.08493	2.95249	-0.13732	0.99737	0.32808	58.40199	1.05889	9.96	2.90
78/ 9/18	2443770.0	56.10961	16.74995	5.14754	-0.25728	0.96848	0.31934	58.78220	1.05172	16.62	5.02
78/ 9/19	2443770.5	53.97733	23.17407	7.26843	-0.37124	0.92642	0.30625	59.18969	1.04396	23.24	7.05
78/ 9/19	2443771.0	51.09775	29.27204	9.28693	-0.47772	0.87238	0.28917	59.61610	1.03580	29.81	8.96
78/ 9/20	2443771.5	47.52582	34.96700	11.17749	-0.57550	0.80763	0.26854	60.05273	1.02742	36.34	10.73
78/ 9/20	2443772.0	43.32389	40.19105	12.91745	-0.66361	0.73355	0.24478	60.49083	1.01902	42.85	12.33
78/ 9/21	2443772.5	38.56008	44.88555	14.48717	-0.74132	0.65149	0.21834	60.92184	1.01077	49.33	13.76
78/ 9/21	2443773.0	33.30675	49.00111	15.86998	-0.80810	0.56281	0.18966	61.33763	1.00287	55.80	14.99
78/ 9/22	2443773.5	27.63916	52.49738	17.05220	-0.86361	0.46883	0.15917	61.73067	0.99547	62.23	16.04
78/ 9/22	2443774.0	21.63434	55.34272	18.02298	-0.90766	0.37080	0.12729	62.09420	0.98870	68.65	16.87
78/ 9/23	2443774.5	15.37019	57.51377	18.77415	-0.94018	0.26991	0.09439	62.42231	0.98270	75.04	17.50
78/ 9/23	2443775.0	8.92471	58.99499	19.30015	-0.96122	0.16728	0.06085	62.71009	0.97756	81.40	17.92
78/ 9/24	2443775.5	2.37538	59.77824	19.59780	-0.97087	0.06398	0.02702	62.95359	0.97335	87.72	18.14
78/ 9/24	2443776.0	-4.20128	59.86235	19.66625	-0.96932	-0.03900	-0.00678	63.14993	0.97013	94.01	18.14
78/ 9/25	2443776.5	-10.73010	59.25278	19.50680	-0.95678	-0.14071	-0.04022	63.29725	0.96791	100.26	17.95
78/ 9/25	2443777.0	-17.13757	57.96128	19.12285	-0.93353	-0.24022	-0.07302	63.39471	0.96671	106.47	17.56
78/ 9/26	2443777.5	-23.35213	56.00571	18.51980	-0.89987	-0.33666	-0.10487	63.44245	0.96649	112.63	16.97
78/ 9/26	2443778.0	-29.30443	53.40986	17.70500	-0.85615	-0.42915	-0.13550	63.44155	0.96723	118.75	16.21
78/ 9/27	2443778.5	-34.92763	50.20328	16.68773	-0.80276	-0.51686	-0.16462	63.39392	0.96885	124.83	15.26
78/ 9/27	2443779.0	-40.15770	46.42126	15.47914	-0.74014	-0.59894	-0.19195	63.30228	0.97128	130.86	14.15
78/ 9/28	2443779.5	-44.93385	42.10472	14.09228	-0.66881	-0.67456	-0.21722	63.17001	0.97443	136.86	12.89
78/ 9/28	2443780.0	-49.19890	37.30021	12.54202	-0.58933	-0.74290	-0.24015	63.00111	0.97820	142.83	11.48
78/ 9/29	2443780.5	-52.89986	32.05976	10.84512	-0.50235	-0.80315	-0.26048	62.80000	0.98248	148.78	9.94
78/ 9/29	2443781.0	-55.98850	26.44083	9.02010	-0.40864	-0.85453	-0.27794	62.57149	0.98715	154.72	8.29
78/ 9/30	2443781.5	-58.42196	20.50609	7.08724	-0.30904	-0.89629	-0.29228	62.32057	0.99210	160.66	6.53
78/ 9/30	2443782.0	-60.16352	14.32315	5.06849	-0.20450	-0.92771	-0.30326	62.05233	0.99722	166.61	4.69
78/10/ 1	2443782.5	-61.18332	7.96416	2.98732	-0.09609	-0.94817	-0.31068	61.77177	1.00239	172.58	2.77
78/10/ 1	2443783.0	-61.45915	1.50530	0.86860	0.01499	-0.95712	-0.31433	61.48372	1.00752	178.60	0.81
78/10/ 2	2443783.5	-60.97717	-4.97388	-1.26166	0.12746	-0.95411	-0.31406	61.19270	1.01253	184.66	-1.18
78/10/ 2	2443784.0	-59.73264	-11.39131	-3.37655	0.23992	-0.93885	-0.30977	60.90281	1.01733	190.80	-3.18
78/10/ 3	2443784.5	-57.73054	-17.66336	-5.44860	0.35091	-0.91117	-0.30140	60.61763	1.02187	197.01	-5.16
78/10/ 3	2443785.0	-54.98603	-23.70594	-7.45010	0.45889	-0.87111	-0.28895	60.34019	1.02611	203.32	-7.09
78/10/ 4	2443785.5	-51.52479	-29.43576	-9.35354	0.56229	-0.81887	-0.27246	60.07293	1.03002	209.74	-8.96
78/10/ 4	2443786.0	-47.38319	-34.77162	-11.13202	0.65954	-0.75486	-0.25207	59.81767	1.03361	216.27	-10.73
78/10/ 5	2443786.5	-42.60813	-39.63584	-12.75973	0.74909	-0.67971	-0.22798	59.57570	1.03688	222.93	-12.37
78/10/ 5	2443787.0	-37.25685	-43.95560	-14.21238	0.82946	-0.59424	-0.20043	59.34778	1.03985	229.72	-13.86
78/10/ 6	2443787.5	-31.39628	-47.66435	-15.46767	0.89925	-0.49947	-0.16976	59.13430	1.04257	236.63	-15.16
78/10/ 6	2443788.0	-25.10239	-50.70313	-16.50574	0.95722	-0.39662	-0.13635	58.93536	1.04507	243.66	-16.26
78/10/ 7	2443788.5	-18.45917	-53.02178	-17.30954	1.00224	-0.28707	-0.10066	58.75092	1.04739	250.80	-17.14
78/10/ 7	2443789.0	-11.55749	-54.58003	-17.86526	1.03340	-0.17235	-0.06318	58.58091	1.04958	258.04	-17.76
78/10/ 8	2443789.5	-4.49376	-55.34849	-18.16258	1.04999	-0.05413	-0.02445	58.42541	1.05167	265.36	-18.11
78/10/ 8	2443790.0	2.63153	-55.30938	-18.19500	1.05152	0.06582	0.01494	58.28474	1.05368	272.72	-18.19

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/10/ 9	2443790.5	9.71544	-54.45719	-17.95999	1.03775	0.18566	0.05441	58.15958	1.05563	280.12	-17.99
78/10/ 9	2443791.0	16.65426	-52.79897	-17.45919	1.00870	0.30351	0.09333	58.05101	1.05750	287.51	-17.50
78/10/10	2443791.5	23.34532	-50.35459	-16.69842	0.96466	0.41750	0.13108	57.96055	1.05927	294.87	-16.74
78/10/10	2443792.0	29.68882	-47.15657	-15.68768	0.90619	0.52575	0.16704	57.89017	1.06089	302.19	-15.72
78/10/11	2443792.5	35.58968	-43.24981	-14.44108	0.83411	0.62649	0.20063	57.84216	1.06230	309.45	-14.46
78/10/11	2443793.0	40.95935	-38.69096	-12.97662	0.74954	0.71804	0.23128	57.81913	1.06343	316.63	-12.97
78/10/12	2443793.5	45.71761	-33.54752	-11.31593	0.65381	0.79888	0.25849	57.82375	1.06419	323.73	-11.29
78/10/12	2443794.0	49.79414	-27.89668	-9.48390	0.54851	0.86767	0.28181	57.85867	1.06448	330.74	-9.43
78/10/13	2443794.5	53.13002	-21.82391	-7.50819	0.43541	0.92331	0.30086	57.92629	1.06424	337.67	-7.45
78/10/13	2443795.0	55.67887	-15.42124	-5.41873	0.31644	0.96497	0.31536	58.02856	1.06337	344.52	-5.36
78/10/14	2443795.5	57.40775	-8.78541	-3.24709	0.19362	0.99209	0.32511	58.16680	1.06180	351.30	-3.20
78/10/14	2443796.0	58.29766	-2.01590	-1.02581	0.06904	1.00443	0.33001	58.34152	1.05950	358.02	-1.01
78/10/15	2443796.5	58.34369	4.78718	1.21223	-0.05523	1.00204	0.33007	58.55231	1.05644	4.69	1.19
78/10/15	2443797.0	57.55475	11.52508	3.43451	-0.17720	0.98526	0.32538	58.79772	1.05262	11.32	3.35
78/10/16	2443797.5	55.95289	18.10232	5.60952	-0.29498	0.95472	0.31614	59.07527	1.04807	17.93	5.45
78/10/16	2443798.0	53.57239	24.42845	7.70726	-0.40686	0.91127	0.30262	59.38141	1.04284	24.51	7.46
78/10/17	2443798.5	50.45842	30.41944	9.69982	-0.51133	0.85595	0.28514	59.71165	1.03702	31.08	9.35
78/10/17	2443799.0	46.66567	35.99892	11.56170	-0.60710	0.78996	0.26410	60.06063	1.03071	37.65	11.10
78/10/18	2443799.5	42.25675	41.09898	13.27013	-0.69312	0.71460	0.23990	60.42231	1.02402	44.20	12.69
78/10/18	2443800.0	37.30063	45.66073	14.80526	-0.76857	0.63123	0.21300	60.79009	1.01711	50.75	14.10
78/10/19	2443800.5	31.87110	49.63455	16.15026	-0.83283	0.54122	0.18383	61.15706	1.01011	57.29	15.31
78/10/19	2443801.0	26.04534	52.98010	17.29130	-0.88552	0.44593	0.15284	61.51618	1.00318	63.82	16.33
78/10/20	2443801.5	19.90260	55.66615	18.21755	-0.92641	0.34669	0.12047	61.86043	0.99646	70.33	17.13
78/10/20	2443802.0	13.52314	57.67021	18.92102	-0.95542	0.24475	0.08713	62.18306	0.99012	76.80	17.71
78/10/21	2443802.5	6.98723	58.97815	19.39647	-0.97263	0.14132	0.05320	62.47773	0.98428	83.24	18.09
78/10/21	2443803.0	0.37439	59.58368	19.64125	-0.97818	0.03752	0.01907	62.73862	0.97908	89.64	18.24
78/10/22	2443803.5	-6.23724	59.48789	19.65514	-0.97231	-0.06561	-0.01492	62.96060	0.97464	95.99	18.19
78/10/22	2443804.0	-12.77135	58.69876	19.44018	-0.95534	-0.16706	-0.04845	63.13931	0.97105	102.27	17.93
78/10/23	2443804.5	-19.15390	57.23077	19.00056	-0.92762	-0.26592	-0.08121	63.27127	0.96839	108.50	17.48
78/10/23	2443805.0	-25.31338	55.10448	18.34252	-0.88954	-0.36131	-0.11290	63.35392	0.96673	114.67	16.83
78/10/24	2443805.5	-31.18107	52.34628	17.47421	-0.84153	-0.45238	-0.14326	63.38565	0.96610	120.78	16.00
78/10/24	2443806.0	-36.69129	48.98814	16.40562	-0.78406	-0.53834	-0.17200	63.36586	0.96651	126.83	15.00
78/10/25	2443806.5	-41.78164	45.06740	15.14856	-0.71763	-0.61838	-0.19887	63.29498	0.96796	132.83	13.85
78/10/25	2443807.0	-46.39323	40.62671	13.71662	-0.64278	-0.69175	-0.22360	63.17441	0.97040	138.79	12.54
78/10/26	2443807.5	-50.47103	35.71390	12.12510	-0.56011	-0.75767	-0.24595	63.00655	0.97379	144.72	11.10
78/10/26	2443808.0	-53.96426	30.38195	10.39103	-0.47028	-0.81539	-0.26565	62.79473	0.97806	150.62	9.52
78/10/27	2443808.5	-56.82683	24.68889	8.53318	-0.37401	-0.86418	-0.28246	62.54314	0.98309	156.52	7.84
78/10/27	2443809.0	-59.01791	18.69771	6.57195	-0.27214	-0.90330	-0.29613	62.25680	0.98879	162.42	6.06
78/10/28	2443809.5	-60.50259	12.47625	4.52941	-0.16558	-0.93207	-0.30643	61.94139	0.99502	168.35	4.19
78/10/28	2443810.0	-61.25258	6.09687	2.42918	-0.05537	-0.94983	-0.31313	61.60318	1.00165	174.32	2.26
78/10/29	2443810.5	-61.24707	-0.36386	0.29634	0.05731	-0.95600	-0.31603	61.24886	1.00851	180.34	0.28
78/10/29	2443811.0	-60.47352	-6.82571	-1.84279	0.17119	-0.95009	-0.31496	60.88541	1.01547	186.44	-1.73
78/10/30	2443811.5	-58.92858	-13.20556	-3.96081	0.28485	-0.93173	-0.30978	60.51985	1.02237	192.63	-3.75
78/10/30	2443812.0	-56.61886	-19.41827	-6.02960	0.39676	-0.90071	-0.30041	60.15913	1.02906	198.93	-5.75
78/10/31	2443812.5	-53.56168	-25.37784	-8.02066	0.50530	-0.85700	-0.28683	59.80986	1.03540	205.35	-7.71

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
78/10/31	2443813.0	-49.78561	-30.99879	-9.90555	0.60876	-0.80077	-0.26908	59.47816	1.04126	211.91	-9.59
78/11/ 1	2443813.5	-45.33081	-36.19766	-11.65643	0.70543	-0.73245	-0.24728	59.16946	1.04655	218.61	-11.36
78/11/ 1	2443814.0	-40.24912	-40.89471	-13.24654	0.79360	-0.65272	-0.22165	58.88836	1.05118	225.46	-13.00
78/11/ 2	2443814.5	-34.60369	-45.01564	-14.65086	0.87163	-0.56251	-0.19248	58.63848	1.05508	232.45	-14.47
78/11/ 2	2443815.0	-28.46844	-48.49339	-15.84665	0.93800	-0.46301	-0.16014	58.42240	1.05824	239.58	-15.74
78/11/ 3	2443815.5	-21.92699	-51.26977	-16.81401	0.99137	-0.35565	-0.12511	58.24168	1.06064	246.84	-16.78
78/11/ 3	2443816.0	-15.07133	-53.29698	-17.53640	1.03062	-0.24207	-0.08790	58.09680	1.06231	254.21	-17.57
78/11/ 4	2443816.5	-8.00018	-54.53888	-18.00108	1.05489	-0.12407	-0.04911	57.98734	1.06329	261.65	-18.09
78/11/ 4	2443817.0	-0.81710	-54.97198	-18.19942	1.06361	-0.00357	-0.00936	57.91204	1.06365	269.15	-18.32
78/11/ 5	2443817.5	6.37158	-54.58602	-18.12714	1.05652	0.11746	0.03070	57.86902	1.06347	276.66	-18.25
78/11/ 5	2443818.0	13.45879	-53.38429	-17.78443	1.03368	0.23699	0.07039	57.85592	1.06283	284.15	-17.90
78/11/ 6	2443818.5	20.33891	-51.38354	-17.17593	0.99545	0.35308	0.10907	57.87013	1.06183	291.59	-17.27
78/11/ 6	2443819.0	26.90975	-48.61360	-16.31062	0.94248	0.46383	0.14612	57.90901	1.06055	298.97	-16.36
78/11/ 7	2443819.5	33.07444	-45.11666	-15.20160	0.87569	0.56747	0.18094	57.97000	1.05906	306.24	-15.20
78/11/ 7	2443820.0	38.74317	-40.94636	-13.86582	0.79624	0.66241	0.21300	58.05083	1.05743	313.42	-13.82
78/11/ 8	2443820.5	43.83466	-36.16661	-12.32370	0.70548	0.74722	0.24180	58.14959	1.05570	320.48	-12.24
78/11/ 8	2443821.0	48.27747	-30.85032	-10.59870	0.60496	0.82066	0.26694	58.26482	1.05390	327.42	-10.48
78/11/ 9	2443821.5	52.01103	-25.07795	-8.71686	0.49633	0.88175	0.28806	58.39550	1.05205	334.26	-8.58
78/11/ 9	2443822.0	54.98644	-18.93597	-6.70632	0.38138	0.92969	0.30490	58.54105	1.05012	341.00	-6.58
78/11/10	2443822.5	57.16706	-12.51531	-4.59682	0.26195	0.96397	0.31726	58.70125	1.04810	347.65	-4.49
78/11/10	2443823.0	58.52883	-5.90976	-2.41910	0.13989	0.98426	0.32503	58.87615	1.04594	354.23	-2.35
78/11/11	2443823.5	59.06037	0.78570	-0.20447	0.01710	0.99052	0.32816	59.06595	1.04361	0.76	-0.20
78/11/11	2443824.0	58.76286	7.47642	2.01580	-0.10462	0.98291	0.32671	59.27085	1.04106	7.25	1.95
78/11/12	2443824.5	57.64966	14.06965	4.21094	-0.22349	0.96182	0.32077	59.49093	1.03824	13.72	4.06
78/11/12	2443825.0	55.74573	20.47600	6.35119	-0.33785	0.92784	0.31053	59.72596	1.03511	20.17	6.10
78/11/13	2443825.5	53.08688	26.61070	8.40821	-0.44617	0.88175	0.29624	59.97536	1.03165	26.62	8.06
78/11/13	2443826.0	49.71876	32.39486	10.35551	-0.54707	0.82449	0.27819	60.23802	1.02785	33.09	9.90
78/11/14	2443826.5	45.69580	37.75641	12.16878	-0.63935	0.75715	0.25672	60.51225	1.02369	39.57	11.60
78/11/14	2443827.0	41.07998	42.63094	13.82615	-0.72199	0.68088	0.23222	60.79576	1.01921	46.06	13.15
78/11/15	2443827.5	35.93954	46.96229	15.30844	-0.79414	0.59696	0.20509	61.08564	1.01444	52.57	14.51
78/11/15	2443828.0	30.34769	50.70293	16.59926	-0.85519	0.50667	0.17575	61.37837	1.00943	59.10	15.69
78/11/16	2443828.5	24.38132	53.81417	17.68509	-0.90468	0.41132	0.14463	61.66989	1.00427	65.63	16.66
78/11/16	2443829.0	18.11976	56.26617	18.55532	-0.94233	0.31222	0.11215	61.95569	0.99902	72.15	17.43
78/11/17	2443829.5	11.64366	58.03780	19.20218	-0.96802	0.21062	0.07874	62.23090	0.99379	78.66	17.97
78/11/17	2443830.0	5.03398	59.11631	19.62071	-0.98179	0.10775	0.04479	62.49041	0.98870	85.13	18.30
78/11/18	2443830.5	-1.62896	59.49704	19.80856	-0.98378	0.00476	0.01069	62.72903	0.98385	91.57	18.41
78/11/18	2443831.0	-8.26618	59.18296	19.76596	-0.97425	-0.09725	-0.02320	62.94161	0.97936	97.95	18.30
78/11/19	2443831.5	-14.80073	58.18418	19.49548	-0.95353	-0.19726	-0.05655	63.12317	0.97536	104.27	17.99
78/11/19	2443832.0	-21.15817	56.51753	19.00194	-0.92202	-0.29432	-0.08902	63.26905	0.97194	110.52	17.48
78/11/20	2443832.5	-27.26703	54.20608	18.29226	-0.88020	-0.38752	-0.12032	63.37505	0.96923	116.70	16.78
78/11/20	2443833.0	-33.05911	51.27875	17.37531	-0.82857	-0.47605	-0.15018	63.43750	0.96731	122.81	15.90
78/11/21	2443833.5	-38.46975	47.76996	16.26180	-0.76766	-0.55910	-0.17832	63.45343	0.96628	128.84	14.85
78/11/21	2443834.0	-43.43810	43.71931	14.96420	-0.69806	-0.63594	-0.20450	63.42061	0.96619	134.82	13.65
78/11/22	2443834.5	-47.90732	39.17131	13.49664	-0.62037	-0.70584	-0.22847	63.33769	0.96710	140.73	12.30
78/11/22	2443835.0	-51.82481	34.17527	11.87487	-0.53525	-0.76813	-0.25000	63.20421	0.96903	146.60	10.83

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
78/11/23	2443835.5	-55.14252	28.78504	10.11621	-0.44338	-0.82213	-0.26886	63.02074	0.97199	152.43	9.24
78/11/23	2443836.0	-57.81722	23.05901	8.23952	-0.34551	-0.86718	-0.28482	62.78884	0.97596	158.26	7.54
78/11/24	2443836.5	-59.81096	17.05990	6.26514	-0.24244	-0.90266	-0.29766	62.51115	0.98090	164.08	5.75
78/11/24	2443837.0	-61.09152	10.85472	4.21491	-0.13506	-0.92794	-0.30718	62.19135	0.98675	169.92	3.89
78/11/25	2443837.5	-61.63300	4.51455	2.11210	-0.02436	-0.94243	-0.31316	61.83420	0.99339	175.81	1.96
78/11/25	2443838.0	-61.41650	-1.88568	-0.01869	0.08857	-0.94558	-0.31541	61.44544	1.00073	181.76	-0.02
78/11/26	2443838.5	-60.43090	-8.26755	-2.15158	0.20253	-0.93693	-0.31376	61.03176	1.00861	187.79	-2.02
78/11/26	2443839.0	-58.67369	-14.54965	-4.25964	0.31619	-0.91607	-0.30805	60.60065	1.01689	193.93	-4.03
78/11/27	2443839.5	-56.15182	-20.64833	-6.31504	0.42807	-0.88273	-0.29819	60.16029	1.02537	200.19	-6.03
78/11/27	2443840.0	-52.88262	-26.47858	-8.28940	0.53660	-0.83680	-0.28412	59.71935	1.03388	206.60	-7.98
78/11/28	2443840.5	-48.89452	-31.95526	-10.15417	0.64007	-0.77836	-0.26584	59.28676	1.04221	213.17	-9.86
78/11/28	2443841.0	-44.22775	-36.99452	-11.88108	0.73671	-0.70771	-0.24343	58.87146	1.05017	219.91	-11.64
78/11/29	2443841.5	-38.93470	-41.51555	-13.44271	0.82470	-0.62544	-0.21707	58.48212	1.05756	226.84	-13.29
78/11/29	2443842.0	-33.07997	-45.44242	-14.81313	0.90227	-0.53243	-0.18702	58.12681	1.06421	233.95	-14.76
78/11/30	2443842.5	-26.74006	-48.70615	-15.96857	0.96770	-0.42985	-0.15366	57.81276	1.06997	241.23	-16.03
78/11/30	2443843.0	-20.00250	-51.24680	-16.88813	1.01945	-0.31918	-0.11745	57.54601	1.07469	248.68	-17.07
78/12/ 1	2443843.5	-12.96453	-53.01543	-17.55445	1.05622	-0.20219	-0.07898	57.33126	1.07829	256.26	-17.83
78/12/ 1	2443844.0	-5.73127	-53.97584	-17.95428	1.07698	-0.08087	-0.03888	57.17163	1.08071	263.94	-18.30
78/12/ 2	2443844.5	1.58651	-54.10599	-18.07904	1.08110	0.04261	0.00213	57.06861	1.08194	271.68	-18.47
78/12/ 2	2443845.0	8.87500	-53.39889	-17.92507	1.06832	0.16598	0.04330	57.02206	1.08201	279.44	-18.32
78/12/ 3	2443845.5	16.02007	-51.86302	-17.49387	1.03881	0.28696	0.08387	57.03026	1.08098	287.17	-17.86
78/12/ 3	2443846.0	22.91006	-49.52212	-16.79201	0.99312	0.40334	0.12310	57.09013	1.07895	294.83	-17.11
78/12/ 4	2443846.5	29.43838	-46.41450	-15.83096	0.93220	0.51304	0.16030	57.19740	1.07606	302.38	-16.07
78/12/ 4	2443847.0	35.50590	-42.59185	-14.62671	0.85729	0.61419	0.19482	57.34698	1.07244	309.82	-14.78
78/12/ 5	2443847.5	41.02296	-38.11771	-13.19930	0.76992	0.70518	0.22611	57.53316	1.06826	317.10	-13.26
78/12/ 5	2443848.0	45.91090	-33.06562	-11.57223	0.67182	0.78465	0.25371	57.75000	1.06367	324.24	-11.56
78/12/ 6	2443848.5	50.10325	-27.51724	-9.77179	0.56483	0.85158	0.27725	57.99157	1.05881	331.22	-9.70
78/12/ 6	2443849.0	53.54640	-21.56032	-7.82649	0.45091	0.90519	0.29645	58.25219	1.05384	338.07	-7.72
78/12/ 7	2443849.5	56.19994	-15.28678	-5.76636	0.33200	0.94502	0.31113	58.52666	1.04885	344.78	-5.65
78/12/ 7	2443850.0	58.03667	-8.79086	-3.62236	0.21003	0.97084	0.32120	58.81034	1.04394	351.39	-3.53
78/12/ 8	2443850.5	59.04232	-2.16747	-1.42582	0.08689	0.98268	0.32665	59.09930	1.03919	357.90	-1.38
78/12/ 8	2443851.0	59.21508	4.48938	0.79207	-0.03563	0.98078	0.32752	59.39030	1.03463	4.34	0.76
78/12/ 9	2443851.5	58.56494	11.08791	3.00071	-0.15583	0.96555	0.32394	59.68080	1.03029	10.72	2.88
78/12/ 9	2443852.0	57.11300	17.53977	5.17052	-0.27214	0.93758	0.31609	59.96893	1.02617	17.07	4.95
78/12/10	2443852.5	54.89055	23.76110	7.27326	-0.38312	0.89760	0.30418	60.25332	1.02225	23.41	6.93
78/12/10	2443853.0	51.93824	29.67341	9.28237	-0.48746	0.84648	0.28849	60.53308	1.01851	29.74	8.82
78/12/11	2443853.5	48.30506	35.20435	11.17322	-0.58400	0.78515	0.26931	60.80761	1.01491	36.08	10.59
78/12/11	2443854.0	44.04739	40.28835	12.92333	-0.67171	0.71468	0.24699	61.07648	1.01142	42.45	12.22
78/12/12	2443854.5	39.22800	44.86713	14.51256	-0.74974	0.63616	0.22187	61.33930	1.00798	48.84	13.69
78/12/12	2443855.0	33.91500	48.89010	15.92323	-0.81737	0.55075	0.19433	61.59560	1.00458	55.25	14.98
78/12/13	2443855.5	28.18084	52.31466	17.14028	-0.87402	0.45965	0.16475	61.84475	1.00117	61.69	16.09
78/12/13	2443856.0	22.10128	55.10637	18.15128	-0.91930	0.36407	0.13355	62.08580	0.99775	68.15	17.00
78/12/14	2443856.5	15.75438	57.23898	18.94650	-0.95293	0.26523	0.10110	62.31750	0.99431	74.61	17.70
78/12/14	2443857.0	9.21957	58.69443	19.51892	-0.97478	0.16431	0.06782	62.53819	0.99086	81.07	18.19
78/12/15	2443857.5	2.57670	59.46272	19.86413	-0.98485	0.06250	0.03408	62.74582	0.98742	87.52	18.46

1.10 1 E.R.=6378.3255KM.

		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
78/12/15	2443858.0	-4.09480	59.54161	19.98036	-0.98326	-0.03907	0.00026	62.93794	0.98404	93.93	18.51
78/12/16	2443858.5	-10.71667	58.93640	19.86829	-0.97025	-0.13933	-0.03328	63.11177	0.98076	100.31	18.35
78/12/16	2443859.0	-17.21257	57.65957	19.53103	-0.94613	-0.23724	-0.06618	63.26420	0.97766	106.62	17.98
78/12/17	2443859.5	-23.50865	55.73033	18.97395	-0.91132	-0.33182	-0.09813	63.39193	0.97480	112.87	17.42
78/12/17	2443860.0	-29.53410	53.17428	18.20458	-0.86630	-0.42218	-0.12882	63.49152	0.97227	119.05	16.66
78/12/18	2443860.5	-35.22160	50.02293	17.23242	-0.81162	-0.50747	-0.15797	63.55951	0.97016	125.15	15.73
78/12/18	2443861.0	-40.50771	46.31333	16.06890	-0.74787	-0.58690	-0.18529	63.59252	0.96856	131.17	14.64
78/12/19	2443861.5	-45.33318	42.08768	14.72717	-0.67571	-0.65974	-0.21055	63.58742	0.96756	137.13	13.39
78/12/19	2443862.0	-49.64325	37.39294	13.22203	-0.59579	-0.72531	-0.23351	63.54138	0.96725	143.01	12.01
78/12/20	2443862.5	-53.38788	32.28052	11.56983	-0.50886	-0.78298	-0.25394	63.45202	0.96772	148.84	10.51
78/12/20	2443863.0	-56.52202	26.80601	9.78835	-0.41565	-0.83214	-0.27165	63.31756	0.96903	154.63	8.89
78/12/21	2443863.5	-59.00586	21.02892	7.89676	-0.31697	-0.87224	-0.28642	63.13689	0.97124	160.38	7.19
78/12/21	2443864.0	-60.80512	15.01247	5.91554	-0.21364	-0.90274	-0.29808	62.90970	0.97439	166.13	5.40
78/12/22	2443864.5	-61.89138	8.82334	3.86639	-0.10658	-0.92314	-0.30645	62.63660	0.97850	171.89	3.54
78/12/22	2443865.0	-62.24250	2.53152	1.77221	0.00327	-0.93299	-0.31135	62.31916	0.98358	177.67	1.63
78/12/23	2443865.5	-61.84307	-3.79000	-0.34299	0.11488	-0.93184	-0.31263	61.96004	0.98958	183.51	-0.32
78/12/23	2443866.0	-60.68498	-10.06544	-2.45419	0.22710	-0.91933	-0.31015	61.56300	0.99646	189.42	-2.28
78/12/24	2443866.5	-58.76807	-16.21672	-4.53546	0.33874	-0.89513	-0.30378	61.13295	1.00413	195.43	-4.25
78/12/24	2443867.0	-56.10080	-22.16389	-6.56013	0.44845	-0.85903	-0.29342	60.67597	1.01249	201.56	-6.21
78/12/25	2443867.5	-52.70104	-27.82587	-8.50099	0.55479	-0.81091	-0.27902	60.19922	1.02138	207.83	-8.12
78/12/25	2443868.0	-48.59678	-33.12130	-10.33058	0.65621	-0.75081	-0.26057	59.71088	1.03064	214.28	-9.96
78/12/26	2443868.5	-43.82688	-37.96969	-12.02156	0.75107	-0.67895	-0.23811	59.22002	1.04008	220.90	-11.71
78/12/26	2443869.0	-38.44164	-42.29278	-13.54714	0.83763	-0.59579	-0.21175	58.73639	1.04949	227.73	-13.33
78/12/27	2443869.5	-32.50320	-46.01626	-14.88165	0.91413	-0.50203	-0.18173	58.27021	1.05863	234.76	-14.80
78/12/27	2443870.0	-26.08561	-49.07160	-16.00114	0.97883	-0.39869	-0.14832	57.83180	1.06727	242.01	-16.06
78/12/28	2443870.5	-19.27451	-51.39816	-16.88412	1.03007	-0.28708	-0.11196	57.43127	1.07517	249.44	-17.10
78/12/28	2443871.0	-12.16623	-52.94540	-17.51225	1.06635	-0.16886	-0.07316	57.07811	1.08211	257.06	-17.87
78/12/29	2443871.5	-4.86643	-53.67495	-17.87109	1.08644	-0.04597	-0.03256	56.78079	1.08790	264.82	-18.35
78/12/29	2443872.0	2.51199	-53.56259	-17.95081	1.08945	0.07937	0.00914	56.54637	1.09237	272.69	-18.51
78/12/30	2443872.5	9.85135	-52.59970	-17.74666	1.07487	0.20477	0.05113	56.38016	1.09539	280.61	-18.35
78/12/30	2443873.0	17.03228	-50.79435	-17.25942	1.04270	0.32772	0.09259	56.28545	1.09690	288.54	-17.86
78/12/31	2443873.5	23.93689	-48.17153	-16.49551	0.99340	0.44575	0.13269	56.26342	1.09688	296.42	-17.05
78/12/31	2443874.0	30.45213	-44.77275	-15.46693	0.92792	0.55648	0.17062	56.31303	1.09536	304.22	-15.94
79/ 1/ 1	2443874.5	36.47292	-40.65494	-14.19092	0.84765	0.65774	0.20564	56.43120	1.09244	311.90	-14.56
79/ 1/ 1	2443875.0	41.90481	-35.88864	-12.68941	0.75434	0.74769	0.23711	56.61298	1.08825	319.42	-12.95
79/ 1/ 2	2443875.5	46.66626	-30.55575	-10.98833	0.65002	0.82484	0.26449	56.85188	1.08298	326.78	-11.14
79/ 1/ 2	2443876.0	50.69008	-24.74695	-9.11674	0.53690	0.88807	0.28740	57.14027	1.07682	333.98	-9.18
79/ 1/ 3	2443876.5	53.92436	-18.55907	-7.10600	0.41726	0.93669	0.30555	57.46974	1.06998	341.01	-7.10
79/ 1/ 3	2443877.0	56.33269	-12.09244	-4.98887	0.29338	0.97036	0.31880	57.83155	1.06268	347.88	-4.95
79/ 1/ 4	2443877.5	57.89384	-5.44850	-2.79872	0.16745	0.98908	0.32712	58.21697	1.05514	354.62	-2.76
79/ 1/ 4	2443878.0	58.60105	1.27236	-0.56881	0.04155	0.99314	0.33056	58.61763	1.04753	1.24	-0.56
79/ 1/ 5	2443878.5	58.46104	7.97259	1.66833	-0.08243	0.98309	0.32928	59.02574	1.04004	7.77	1.62
79/ 1/ 5	2443879.0	57.49272	14.55891	3.88140	-0.20277	0.95964	0.32349	59.43434	1.03280	14.21	3.74
79/ 1/ 6	2443879.5	55.72601	20.94349	6.04072	-0.31795	0.92367	0.31346	59.83735	1.02592	20.60	5.79
79/ 1/ 6	2443880.0	53.20044	27.04476	8.11855	-0.42665	0.87615	0.29948	60.22970	1.01949	26.95	7.75

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
79/ 1/ 7	2443880.5	49.96390	32.78806	10.08930	-0.52772	0.81814	0.28189	60.60728	1.01356	33.27	9.58
79/ 1/ 7	2443881.0	46.07146	38.10604	11.92968	-0.62018	0.75074	0.26104	60.96693	1.00816	39.59	11.28
79/ 1/ 8	2443881.5	41.58422	42.93892	13.61882	-0.70323	0.67509	0.23730	61.30637	1.00329	45.92	12.83
79/ 1/ 8	2443882.0	36.56829	47.23468	15.13835	-0.77620	0.59233	0.21102	61.62406	0.99894	52.25	14.22
79/ 1/ 9	2443882.5	31.09382	50.94912	16.47241	-0.83856	0.50362	0.18259	61.91913	0.99507	58.60	15.43
79/ 1/ 9	2443883.0	25.23410	54.04585	17.60769	-0.88991	0.41012	0.15238	62.19119	0.99164	64.97	16.45
79/ 1/10	2443883.5	19.06477	56.49629	18.53341	-0.92995	0.31297	0.12077	62.44024	0.98861	71.35	17.27
79/ 1/10	2443884.0	12.66303	58.27959	19.24134	-0.95852	0.21330	0.08813	62.66652	0.98591	77.74	17.88
79/ 1/11	2443884.5	6.10689	59.38254	19.72577	-0.97554	0.11225	0.05483	62.87039	0.98351	84.13	18.29
79/ 1/11	2443885.0	-0.52553	59.79939	19.98344	-0.98106	0.01089	0.02123	63.05221	0.98135	90.50	18.48
79/ 1/12	2443885.5	-7.15667	59.53172	20.01353	-0.97519	-0.08971	-0.01231	63.21222	0.97939	96.85	18.46
79/ 1/12	2443886.0	-13.71021	58.58820	19.81759	-0.95818	-0.18852	-0.04545	63.35048	0.97761	103.17	18.23
79/ 1/13	2443886.5	-20.11165	56.98434	19.39948	-0.93034	-0.28454	-0.07786	63.46679	0.97599	109.44	17.80
79/ 1/13	2443887.0	-26.28893	54.74223	18.76524	-0.89206	-0.37684	-0.10922	63.56063	0.97453	115.65	17.17
79/ 1/14	2443887.5	-32.17293	51.89021	17.92307	-0.84383	-0.46450	-0.13922	63.63118	0.97324	121.80	16.36
79/ 1/14	2443888.0	-37.69805	48.46251	16.88314	-0.78618	-0.54669	-0.16757	63.67729	0.97213	127.88	15.38
79/ 1/15	2443888.5	-42.80260	44.49892	15.65755	-0.71974	-0.62262	-0.19400	63.69753	0.97125	133.89	14.23
79/ 1/15	2443889.0	-47.42928	40.04438	14.26018	-0.64519	-0.69155	-0.21825	63.69020	0.97064	139.83	12.94
79/ 1/16	2443889.5	-51.52555	35.14862	12.70656	-0.56324	-0.75280	-0.24010	63.65347	0.97036	145.70	11.51
79/ 1/16	2443890.0	-55.04395	29.86573	11.01376	-0.47468	-0.80577	-0.25932	63.58538	0.97048	151.52	9.97
79/ 1/17	2443890.5	-57.94244	24.25377	9.20026	-0.38033	-0.84988	-0.27571	63.48398	0.97106	157.29	8.33
79/ 1/17	2443891.0	-60.18469	18.37444	7.28583	-0.28104	-0.88464	-0.28909	63.34745	0.97219	163.02	6.60
79/ 1/18	2443891.5	-61.74034	12.29267	5.29143	-0.17774	-0.90959	-0.29930	63.17419	0.97392	168.74	4.80
79/ 1/18	2443892.0	-62.58534	6.07625	3.23909	-0.07135	-0.92434	-0.30618	62.96298	0.97634	174.45	2.95
79/ 1/19	2443892.5	-62.70218	-0.20449	1.15177	0.03711	-0.92853	-0.30960	62.71309	0.97949	180.19	1.05
79/ 1/19	2443893.0	-62.08025	-6.47708	-0.94670	0.14662	-0.92189	-0.30946	62.42441	0.98343	185.96	-0.87
79/ 1/20	2443893.5	-60.71621	-12.66727	-3.03180	0.25607	-0.90417	-0.30564	62.09759	0.98819	191.78	-2.80
79/ 1/20	2443894.0	-58.61436	-18.69950	-5.07842	0.36429	-0.87522	-0.29808	61.73414	0.99377	197.69	-4.72
79/ 1/21	2443894.5	-55.78707	-24.49735	-7.06100	0.47007	-0.83495	-0.28673	61.33658	1.00016	203.71	-6.61
79/ 1/21	2443895.0	-52.25534	-29.98414	-8.95375	0.57209	-0.78338	-0.27155	60.90845	1.00733	209.85	-8.45
79/ 1/22	2443895.5	-48.04920	-35.08367	-10.73084	0.66898	-0.72063	-0.25258	60.45445	1.01520	216.14	-10.22
79/ 1/22	2443896.0	-43.20829	-39.72104	-12.36672	0.75929	-0.64697	-0.22987	59.98044	1.02368	222.59	-11.90
79/ 1/23	2443896.5	-37.78228	-43.82374	-13.83640	0.84150	-0.56283	-0.20353	59.49342	1.03263	229.23	-13.45
79/ 1/23	2443897.0	-31.83121	-47.32291	-15.11592	0.91407	-0.46887	-0.17375	59.00148	1.04190	236.07	-14.84
79/ 1/24	2443897.5	-25.42574	-50.15476	-16.18278	0.97542	-0.36595	-0.14078	58.51368	1.05128	243.12	-16.06
79/ 1/24	2443898.0	-18.64702	-52.26234	-17.01653	1.02404	-0.25521	-0.10498	58.03986	1.06057	250.36	-17.05
79/ 1/25	2443898.5	-11.58630	-53.59730	-17.59939	1.05847	-0.13806	-0.06678	57.59038	1.06952	257.80	-17.79
79/ 1/25	2443899.0	-4.34408	-54.12194	-17.91691	1.07744	-0.01623	-0.02672	57.17579	1.07789	265.41	-18.26
79/ 1/26	2443899.5	2.97129	-53.81108	-17.95864	1.07992	0.10830	0.01455	56.80646	1.08543	273.16	-18.43
79/ 1/26	2443900.0	10.24552	-52.65389	-17.71876	1.06521	0.23329	0.05631	56.49210	1.09191	281.01	-18.28
79/ 1/27	2443900.5	17.36093	-50.65536	-17.19660	1.03300	0.35633	0.09776	56.24136	1.09710	288.92	-17.80
79/ 1/27	2443901.0	24.19934	-47.83722	-16.39707	0.98348	0.47489	0.13807	56.06131	1.10083	296.83	-17.01
79/ 1/28	2443901.5	30.64546	-44.23828	-15.33075	0.91732	0.58648	0.17640	55.95714	1.10297	304.71	-15.90
79/ 1/28	2443902.0	36.59026	-39.91399	-14.01389	0.83569	0.68870	0.21193	55.93177	1.10345	312.51	-14.51
79/ 1/29	2443902.5	41.93433	-34.93518	-12.46800	0.74024	0.77942	0.24391	55.98576	1.10225	320.20	-12.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
79/ 1/29	2443903.0	46.59080	-29.38608	-10.71929	0.63301	0.85684	0.27172	56.11727	1.09942	327.76	-11.01
79/ 1/30	2443903.5	50.48772	-23.36172	-8.79784	0.51635	0.91957	0.29485	56.32212	1.09506	335.17	-8.99
79/ 1/30	2443904.0	53.56961	-16.96497	-6.73665	0.39277	0.96669	0.31294	56.59413	1.08935	342.43	-6.84
79/ 1/31	2443904.5	55.79830	-10.30337	-4.57059	0.26484	0.99774	0.32580	56.92539	1.08248	349.54	-4.61
79/ 1/31	2443905.0	57.15292	-3.48605	-2.33542	0.13507	1.01270	0.33335	57.30675	1.07468	356.51	-2.34
79/ 2/ 1	2443905.5	57.62921	3.37906	-0.06682	0.00585	1.01195	0.33569	57.72822	1.06619	3.36	-0.07
79/ 2/ 1	2443906.0	57.23830	10.18769	2.20045	-0.12066	0.99616	0.33300	58.17950	1.05726	10.09	2.17
79/ 2/ 2	2443906.5	56.00516	16.84116	4.43320	-0.24256	0.96630	0.32555	58.65029	1.04812	16.74	4.33
79/ 2/ 2	2443907.0	53.96680	23.24785	6.60035	-0.35819	0.92349	0.31369	59.13072	1.03901	23.31	6.41
79/ 2/ 3	2443907.5	51.17042	29.32418	8.67329	-0.46619	0.86897	0.29780	59.61162	1.03011	29.82	8.37
79/ 2/ 3	2443908.0	47.67166	34.99529	10.62612	-0.56543	0.80405	0.27829	60.08470	1.02159	36.28	10.19
79/ 2/ 4	2443908.5	43.53292	40.19526	12.43576	-0.65504	0.73006	0.25559	60.54273	1.01361	42.72	11.85
79/ 2/ 4	2443909.0	38.82190	44.86718	14.08205	-0.73433	0.64834	0.23012	60.97957	1.00625	49.13	13.35
79/ 2/ 5	2443909.5	33.61029	48.96307	15.54766	-0.80279	0.56018	0.20231	61.39025	0.99960	55.53	14.67
79/ 2/ 5	2443910.0	27.97265	52.44357	16.81808	-0.86008	0.46683	0.17255	61.77091	0.99370	61.93	15.80
79/ 2/ 6	2443910.5	21.98551	55.27772	17.88153	-0.90597	0.36951	0.14125	62.11874	0.98857	68.31	16.73
79/ 2/ 6	2443911.0	15.72650	57.44257	18.72887	-0.94035	0.26938	0.10880	62.43189	0.98421	74.69	17.46
79/ 2/ 7	2443911.5	9.27369	58.92291	19.35349	-0.96320	0.16756	0.07555	62.70940	0.98058	81.06	17.98
79/ 2/ 7	2443912.0	2.70502	59.71098	19.75126	-0.97458	0.06513	0.04187	62.95101	0.97765	87.41	18.29
79/ 2/ 8	2443912.5	-3.90228	59.80612	19.92042	-0.97463	-0.03688	0.00810	63.15713	0.97537	93.73	18.39
79/ 2/ 8	2443913.0	-10.47216	59.21459	19.86149	-0.96357	-0.13748	-0.02543	63.32861	0.97366	100.03	18.28
79/ 2/ 9	2443913.5	-16.93022	57.94927	19.57723	-0.94167	-0.23569	-0.05839	63.46667	0.97247	106.29	17.97
79/ 2/ 9	2443914.0	-23.20418	56.02947	19.07256	-0.90927	-0.33059	-0.09046	63.57278	0.97172	112.50	17.46
79/ 2/10	2443914.5	-29.22432	53.48064	18.35449	-0.86679	-0.42129	-0.12136	63.64847	0.97136	118.65	16.76
79/ 2/10	2443915.0	-34.92395	50.33419	17.43202	-0.81471	-0.50692	-0.15077	63.69528	0.97132	124.75	15.88
79/ 2/11	2443915.5	-40.23983	46.62720	16.31613	-0.75357	-0.58668	-0.17843	63.71465	0.97154	130.79	14.84
79/ 2/11	2443916.0	-45.11267	42.40215	15.01964	-0.68399	-0.65978	-0.20406	63.70781	0.97200	136.77	13.64
79/ 2/12	2443916.5	-49.48756	37.70661	13.55714	-0.60665	-0.72549	-0.22741	63.67576	0.97266	142.69	12.29
79/ 2/12	2443917.0	-53.31440	32.59293	11.94492	-0.52229	-0.78314	-0.24823	63.61922	0.97351	148.56	10.82
79/ 2/13	2443917.5	-56.54838	27.11785	10.20078	-0.43172	-0.83211	-0.26632	63.53859	0.97454	154.38	9.24
79/ 2/13	2443918.0	-59.15032	21.34210	8.34400	-0.33580	-0.87184	-0.28147	63.43397	0.97575	160.16	7.56
79/ 2/14	2443918.5	-61.08714	15.32996	6.39511	-0.23547	-0.90184	-0.29349	63.30517	0.97719	165.91	5.80
79/ 2/14	2443919.0	-62.33216	9.14880	4.37583	-0.13168	-0.92169	-0.30223	63.15177	0.97887	171.65	3.97
79/ 2/15	2443919.5	-62.86545	2.86859	2.30885	-0.02547	-0.93104	-0.30755	62.97320	0.98085	177.39	2.10
79/ 2/15	2443920.0	-62.67415	-3.43861	0.21771	0.08210	-0.92962	-0.30935	62.76879	0.98317	183.14	0.20
79/ 2/16	2443920.5	-61.75278	-9.69918	-1.87339	0.18993	-0.91725	-0.30753	62.53790	0.98589	188.93	-1.72
79/ 2/16	2443921.0	-60.10346	-15.83852	-3.93976	0.29686	-0.89381	-0.30204	62.28006	0.98907	194.76	-3.63
79/ 2/17	2443921.5	-57.73619	-21.78163	-5.95643	0.40173	-0.85930	-0.29285	61.99505	0.99275	200.67	-5.51
79/ 2/17	2443922.0	-54.66909	-27.45371	-7.89830	0.50331	-0.81380	-0.27996	61.68305	0.99698	206.66	-7.36
79/ 2/18	2443922.5	-50.92862	-32.78087	-9.74043	0.60036	-0.75749	-0.26340	61.34481	1.00180	212.77	-9.14
79/ 2/18	2443923.0	-46.54976	-37.69084	-11.45819	0.69161	-0.69067	-0.24325	60.98172	1.00723	219.00	-10.83
79/ 2/19	2443923.5	-41.57626	-42.11374	-13.02761	0.77574	-0.61375	-0.21962	60.59597	1.01326	225.37	-12.42
79/ 2/19	2443924.0	-36.06072	-45.98307	-14.42559	0.85145	-0.52730	-0.19266	60.19066	1.01987	231.90	-13.87
79/ 2/20	2443924.5	-30.06468	-49.23662	-15.63029	0.91741	-0.43205	-0.16258	59.76985	1.02700	238.59	-15.16
79/ 2/20	2443925.0	-23.65861	-51.81769	-16.62149	0.97231	-0.32889	-0.12966	59.33866	1.03459	245.46	-16.27

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
79/ 2/21	2443925.5	-16.92168	-53.67633	-17.38101	1.01490	-0.21892	-0.09423	58.90323	1.04251	252.50	-17.16
79/ 2/21	2443926.0	-9.94139	-54.77066	-17.89316	1.04399	-0.10343	-0.05669	58.47069	1.05063	259.71	-17.82
79/ 2/22	2443926.5	-2.81289	-55.06841	-18.14526	1.05850	0.01604	-0.01752	58.04905	1.05877	267.08	-18.22
79/ 2/22	2443927.0	4.36205	-54.54836	-18.12812	1.05757	0.13775	0.02271	57.64703	1.06674	274.57	-18.33
79/ 2/23	2443927.5	11.47641	-53.20184	-17.83661	1.04053	0.25974	0.06339	57.27381	1.07433	282.17	-18.15
79/ 2/23	2443928.0	18.41977	-51.03405	-17.27008	1.00704	0.37990	0.10380	56.93872	1.08131	289.85	-17.66
79/ 2/24	2443928.5	25.08054	-48.06509	-16.43278	0.95712	0.49594	0.14321	56.65088	1.08745	297.56	-16.86
79/ 2/24	2443929.0	31.34866	-44.33062	-15.33414	0.89120	0.60556	0.18085	56.41878	1.09254	305.27	-15.77
79/ 2/25	2443929.5	37.11847	-39.88199	-13.98883	0.81016	0.70645	0.21592	56.24981	1.09638	312.94	-14.40
79/ 2/25	2443930.0	42.29180	-34.78568	-12.41672	0.71532	0.79647	0.24770	56.14993	1.09882	320.56	-12.78
79/ 2/26	2443930.5	46.78098	-29.12209	-10.64247	0.60846	0.87367	0.27551	56.12325	1.09974	328.10	-10.93
79/ 2/26	2443931.0	50.51154	-22.98366	-8.69500	0.49169	0.93645	0.29877	56.17176	1.09907	335.53	-8.90
79/ 2/27	2443931.5	53.42443	-16.47232	-6.60671	0.36743	0.98362	0.31703	56.29525	1.09682	342.86	-6.74
79/ 2/27	2443932.0	55.47758	-9.69659	-4.41254	0.23826	1.01444	0.32999	56.49121	1.09304	350.09	-4.48
79/ 2/28	2443932.5	56.64670	-2.76843	-2.14894	0.10681	1.02863	0.33752	56.75500	1.08784	357.20	-2.17
79/ 2/28	2443933.0	56.92516	4.19993	0.14717	-0.02433	1.02638	0.33961	57.08008	1.08138	4.22	0.15
79/ 3/ 1	2443933.5	56.32334	11.09896	2.43939	-0.15275	1.00828	0.33640	57.45830	1.07384	11.15	2.43
79/ 3/ 1	2443934.0	54.86717	17.82435	4.69271	-0.27627	0.97528	0.32817	57.88035	1.06546	18.00	4.65
79/ 3/ 2	2443934.5	52.59637	24.27908	6.87425	-0.39301	0.92858	0.31527	58.33616	1.05646	24.78	6.77
79/ 3/ 2	2443935.0	49.56238	30.37498	8.95377	-0.50140	0.86956	0.29813	58.81530	1.04710	31.50	8.76
79/ 3/ 3	2443935.5	45.82618	36.03367	10.90409	-0.60018	0.79973	0.27720	59.30736	1.03761	38.18	10.59
79/ 3/ 3	2443936.0	41.45626	41.18710	12.70125	-0.68840	0.72063	0.25298	59.80235	1.02820	44.81	12.26
79/ 3/ 4	2443936.5	36.52664	45.77771	14.32464	-0.76536	0.63379	0.22597	60.29088	1.01908	51.41	13.74
79/ 3/ 4	2443937.0	31.11517	49.75821	15.75698	-0.83062	0.54071	0.19664	60.76443	1.01043	57.98	15.03
79/ 3/ 5	2443937.5	25.30211	53.09122	16.98419	-0.88392	0.44282	0.16547	61.21550	1.00239	64.52	16.11
79/ 3/ 5	2443938.0	19.16887	55.74880	17.99527	-0.92517	0.34147	0.13290	61.63768	0.99509	71.02	16.97
79/ 3/ 6	2443938.5	12.79704	57.71184	18.78215	-0.95439	0.23793	0.09933	62.02572	0.98861	77.50	17.63
79/ 3/ 6	2443939.0	6.26764	58.96950	19.33949	-0.97173	0.13337	0.06518	62.37549	0.98300	83.93	18.06
79/ 3/ 7	2443939.5	-0.33954	59.51869	19.66455	-0.97740	0.02890	0.03080	62.68401	0.97831	90.33	18.28
79/ 3/ 7	2443940.0	-6.94640	59.36353	19.75698	-0.97169	-0.07445	-0.00346	62.94934	0.97454	96.67	18.29
79/ 3/ 8	2443940.5	-13.47695	58.51489	19.61873	-0.95493	-0.17572	-0.03727	63.17052	0.97167	102.97	18.09
79/ 3/ 8	2443941.0	-19.85765	56.99006	19.25389	-0.92750	-0.27398	-0.07031	63.34750	0.96967	109.21	17.69
79/ 3/ 9	2443941.5	-26.01767	54.81237	18.66865	-0.88984	-0.36836	-0.10230	63.48097	0.96849	115.39	17.10
79/ 3/ 9	2443942.0	-31.88925	52.01095	17.87112	-0.84241	-0.45803	-0.13295	63.57232	0.96805	121.51	16.33
79/ 3/10	2443942.5	-37.40799	48.62044	16.87135	-0.78574	-0.54218	-0.16198	63.62348	0.96829	127.57	15.38
79/ 3/10	2443943.0	-42.51312	44.68081	15.68121	-0.72038	-0.62005	-0.18912	63.63679	0.96911	133.58	14.27
79/ 3/11	2443943.5	-47.14796	40.23712	14.31433	-0.64697	-0.69091	-0.21413	63.61491	0.97045	139.52	13.00
79/ 3/11	2443944.0	-51.26020	35.33929	12.78605	-0.56618	-0.75404	-0.23675	63.56065	0.97221	145.42	11.60
79/ 3/12	2443944.5	-54.80238	30.04186	11.11334	-0.47876	-0.80880	-0.25674	63.47693	0.97431	151.27	10.08
79/ 3/12	2443945.0	-57.73233	24.40369	9.31470	-0.38553	-0.85456	-0.27389	63.36659	0.97669	157.09	8.45
79/ 3/13	2443945.5	-60.01358	18.48765	7.41010	-0.28736	-0.89076	-0.28800	63.23237	0.97928	162.88	6.73
79/ 3/13	2443946.0	-61.61590	12.36021	5.42082	-0.18521	-0.91691	-0.29887	63.07677	0.98201	168.66	4.93
79/ 3/14	2443946.5	-62.51571	6.09096	3.36933	-0.08009	-0.93257	-0.30634	62.90204	0.98486	174.44	3.07
79/ 3/14	2443947.0	-62.69655	-0.24787	1.27912	0.02691	-0.93741	-0.31028	62.71009	0.98780	180.23	1.17
79/ 3/15	2443947.5	-62.14946	-6.58207	-0.82549	0.13467	-0.93117	-0.31058	62.50248	0.99080	186.05	-0.76

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/ 3/15	2443948.0	-60.87337	-12.83605	-2.91957	0.24198	-0.91371	-0.30716	62.28046	0.99386	191.91	-2.69
79/ 3/16	2443948.5	-58.87539	-18.93359	-4.97779	0.34763	-0.88498	-0.29999	62.04491	0.99701	197.83	-4.60
79/ 3/16	2443949.0	-56.17107	-24.79861	-6.97467	0.45035	-0.84507	-0.28905	61.79649	1.00025	203.82	-6.48
79/ 3/17	2443949.5	-52.78456	-30.35600	-8.88486	0.54886	-0.79418	-0.27440	61.53565	1.00363	209.90	-8.30
79/ 3/17	2443950.0	-48.74866	-35.53246	-10.68345	0.64189	-0.73265	-0.25611	61.26274	1.00717	216.09	-10.04
79/ 3/18	2443950.5	-44.10488	-40.25744	-12.34619	0.72815	-0.66095	-0.23431	60.97812	1.01092	222.39	-11.68
79/ 3/18	2443951.0	-38.90331	-44.46404	-13.84988	0.80640	-0.57969	-0.20918	60.68226	1.01492	228.82	-13.19
79/ 3/19	2443951.5	-33.20243	-48.08993	-15.17264	0.87539	-0.48961	-0.18093	60.37592	1.01920	235.38	-14.55
79/ 3/19	2443952.0	-27.06885	-51.07840	-16.29424	0.93398	-0.39163	-0.14983	60.06020	1.02378	242.08	-15.74
79/ 3/20	2443952.5	-20.57689	-53.37932	-17.19649	0.98104	-0.28677	-0.11621	59.73675	1.02868	248.92	-16.73
79/ 3/20	2443953.0	-13.80809	-54.95018	-17.86353	1.01557	-0.17625	-0.08044	59.40783	1.03388	255.89	-17.50
79/ 3/21	2443953.5	-6.85046	-55.75711	-18.28221	1.03666	-0.06143	-0.04295	59.07641	1.03937	263.00	-18.03
79/ 3/21	2443954.0	0.20232	-55.77593	-18.44247	1.04355	0.05620	-0.00421	58.74624	1.04507	270.21	-18.30
79/ 3/22	2443954.5	7.25196	-54.99318	-18.33767	1.03566	0.17499	0.03523	58.42183	1.05092	277.51	-18.29
79/ 3/22	2443955.0	14.19690	-53.40697	-17.96496	1.01259	0.29315	0.07480	58.10848	1.05682	284.89	-18.01
79/ 3/23	2443955.5	20.93378	-51.02790	-17.32553	0.97422	0.40879	0.11388	57.81214	1.06263	292.31	-17.44
79/ 3/23	2443956.0	27.35925	-47.87964	-16.42493	0.92068	0.51995	0.15181	57.53927	1.06820	299.74	-16.59
79/ 3/24	2443956.5	33.37200	-43.99938	-15.27319	0.85245	0.62462	0.18793	57.29665	1.07337	307.18	-15.46
79/ 3/24	2443957.0	38.87498	-39.43784	-13.88493	0.77031	0.72080	0.22154	57.09114	1.07797	314.59	-14.08
79/ 3/25	2443957.5	43.77778	-34.25896	-12.27929	0.67544	0.80660	0.25201	56.92935	1.08182	321.95	-12.46
79/ 3/25	2443958.0	47.99899	-28.53910	-10.47971	0.56933	0.88027	0.27872	56.81732	1.08476	329.27	-10.63
79/ 3/26	2443958.5	51.46857	-22.36570	-8.51354	0.45382	0.94030	0.30112	56.76018	1.08664	336.51	-8.63
79/ 3/26	2443959.0	54.12984	-15.83552	-6.41151	0.33101	0.98546	0.31877	56.76188	1.08734	343.69	-6.49
79/ 3/27	2443959.5	55.94121	-9.05232	-4.20703	0.20324	1.01490	0.33133	56.82484	1.08679	350.81	-4.25
79/ 3/27	2443960.0	56.87728	-2.12437	-1.93531	0.07296	1.02816	0.33860	56.94983	1.08494	357.86	-1.95
79/ 3/28	2443960.5	56.92940	4.83840	0.36747	-0.05737	1.02521	0.34050	57.13582	1.08180	4.86	0.37
79/ 3/28	2443961.0	56.10556	11.72713	2.66514	-0.18532	1.00639	0.33711	57.37998	1.07741	11.81	2.66
79/ 3/29	2443961.5	54.42961	18.43674	4.92242	-0.30863	0.97247	0.32862	57.67778	1.07188	18.71	4.90
79/ 3/29	2443962.0	51.93998	24.86828	7.10571	-0.42527	0.92448	0.31532	58.02313	1.06534	25.58	7.03
79/ 3/30	2443962.5	48.68795	30.93085	9.18382	-0.53349	0.86375	0.29763	58.40870	1.05795	32.43	9.05
79/ 3/30	2443963.0	44.73564	36.54309	11.12845	-0.63185	0.79176	0.27599	58.82616	1.04990	39.24	10.90
79/ 3/31	2443963.5	40.15386	41.63415	12.91457	-0.71921	0.71012	0.25091	59.26652	1.04139	46.04	12.59
79/ 3/31	2443964.0	35.01998	46.14419	14.52067	-0.79476	0.62046	0.22292	59.72048	1.03263	52.80	14.07
79/ 4/ 1	2443964.5	29.41598	50.02448	15.92879	-0.85797	0.52443	0.19254	60.17869	1.02382	59.54	15.35
79/ 4/ 1	2443965.0	23.42657	53.23720	17.12451	-0.90854	0.42359	0.16028	60.63210	1.01517	66.25	16.41
79/ 4/ 2	2443965.5	17.13771	55.75493	18.09683	-0.94640	0.31945	0.12665	61.07216	1.00685	72.91	17.24
79/ 4/ 2	2443966.0	10.63528	57.56007	18.83799	-0.97163	0.21339	0.09210	61.49098	0.99904	79.53	17.84
79/ 4/ 3	2443966.5	4.00409	58.64414	19.34326	-0.98447	0.10672	0.05706	61.88158	0.99188	86.09	18.22
79/ 4/ 3	2443967.0	-2.67297	59.00703	19.61073	-0.98524	0.00062	0.02194	62.23789	0.98549	92.59	18.37
79/ 4/ 4	2443967.5	-9.31553	58.65631	19.64110	-0.97435	-0.10382	-0.01290	62.55489	0.97995	99.02	18.30
79/ 4/ 4	2443968.0	-15.84616	57.60662	19.43744	-0.95227	-0.20562	-0.04711	62.82863	0.97535	105.38	18.02
79/ 4/ 5	2443968.5	-22.19072	55.87905	19.00505	-0.91950	-0.30385	-0.08039	63.05623	0.97173	111.66	17.54
79/ 4/ 5	2443969.0	-28.27863	53.50068	18.35128	-0.87657	-0.39766	-0.11244	63.23585	0.96910	117.86	16.87
79/ 4/ 6	2443969.5	-34.04305	50.50412	17.48540	-0.82407	-0.48627	-0.14298	63.36666	0.96746	123.98	16.02
79/ 4/ 6	2443970.0	-39.42107	46.92722	16.41852	-0.76258	-0.56891	-0.17175	63.44881	0.96679	130.03	15.00

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
79/ 4/ 7	2443970.5	-44.35391	42.81276	15.16345	-0.69272	-0.64489	-0.19851	63.48332	0.96703	136.01	13.82
79/ 4/ 7	2443971.0	-48.78716	38.20823	13.73467	-0.61516	-0.71352	-0.22301	63.47202	0.96812	141.93	12.50
79/ 4/ 8	2443971.5	-52.67099	33.16560	12.14825	-0.53060	-0.77415	-0.24502	63.41743	0.96999	147.80	11.04
79/ 4/ 8	2443972.0	-55.96052	27.74113	10.42181	-0.43980	-0.82617	-0.26432	63.32270	0.97255	153.63	9.47
79/ 4/ 9	2443972.5	-58.61615	21.99516	8.57444	-0.34356	-0.86899	-0.28070	63.19147	0.97569	159.43	7.80
79/ 4/ 9	2443973.0	-60.60401	15.99188	6.62661	-0.24276	-0.90207	-0.29395	63.02775	0.97932	165.22	6.04
79/ 4/10	2443973.5	-61.89637	9.79899	4.60014	-0.13835	-0.92490	-0.30389	62.83584	0.98333	171.00	4.20
79/ 4/10	2443974.0	-62.47222	3.48737	2.51804	-0.03135	-0.93706	-0.31035	62.62012	0.98762	176.80	2.30
79/ 4/11	2443974.5	-62.31771	-2.86943	0.40439	0.07713	-0.93819	-0.31318	62.38505	0.99209	182.64	0.37
79/ 4/11	2443975.0	-61.42674	-9.19571	-1.71585	0.18592	-0.92801	-0.31228	62.13493	0.99664	188.51	-1.58
79/ 4/12	2443975.5	-59.80138	-15.41432	-3.81703	0.29377	-0.90638	-0.30755	61.87387	1.00120	194.45	-3.54
79/ 4/12	2443976.0	-57.45236	-21.44742	-5.87308	0.39939	-0.87324	-0.29895	61.60567	1.00570	200.47	-5.47
79/ 4/13	2443976.5	-54.39938	-27.21742	-7.85780	0.50142	-0.82871	-0.28648	61.33372	1.01008	206.58	-7.36
79/ 4/13	2443977.0	-50.67139	-32.64790	-9.74516	0.59849	-0.77304	-0.27021	61.06098	1.01429	212.79	-9.18
79/ 4/14	2443977.5	-46.30667	-37.66473	-11.50966	0.68921	-0.70665	-0.25023	60.78990	1.01832	219.12	-10.91
79/ 4/14	2443978.0	-41.35282	-42.19721	-13.12673	0.77223	-0.63013	-0.22671	60.52249	1.02215	225.58	-12.53
79/ 4/15	2443978.5	-35.86650	-46.17918	-14.57309	0.84623	-0.54423	-0.19986	60.26024	1.02579	232.16	-13.99
79/ 4/15	2443979.0	-29.91307	-49.55023	-15.82715	0.90997	-0.44990	-0.16997	60.00429	1.02924	238.88	-15.29
79/ 4/16	2443979.5	-23.56597	-52.25683	-16.86944	0.96230	-0.34822	-0.13739	59.75541	1.03254	245.73	-16.40
79/ 4/16	2443980.0	-16.90600	-54.25343	-17.68293	1.00220	-0.24046	-0.10248	59.51415	1.03572	252.69	-17.28
79/ 4/17	2443980.5	-10.02035	-55.50345	-18.25346	1.02881	-0.12800	-0.06572	59.28094	1.03882	259.77	-17.93
79/ 4/17	2443981.0	-3.00153	-55.98021	-18.57000	1.04142	-0.01238	-0.02757	59.05622	1.04186	266.93	-18.33
79/ 4/18	2443981.5	4.05393	-55.66768	-18.62497	1.03955	0.10479	0.01143	58.84058	1.04488	274.17	-18.45
79/ 4/18	2443982.0	11.04676	-54.56118	-18.41449	1.02291	0.22178	0.05072	58.63486	1.04790	281.45	-18.30
79/ 4/19	2443982.5	17.87656	-52.66781	-17.93860	0.99142	0.33684	0.08971	58.44025	1.05092	288.75	-17.88
79/ 4/19	2443983.0	24.44332	-50.00679	-17.20132	0.94529	0.44816	0.12780	58.25839	1.05392	296.05	-17.17
79/ 4/20	2443983.5	30.64917	-46.60954	-16.21083	0.88494	0.55395	0.16438	58.09141	1.05688	303.33	-16.20
79/ 4/20	2443984.0	36.40011	-42.51959	-14.97939	0.81109	0.65242	0.19885	57.94192	1.05975	310.57	-14.98
79/ 4/21	2443984.5	41.60780	-37.79220	-13.52329	0.72471	0.74191	0.23062	57.81296	1.06246	317.75	-13.53
79/ 4/21	2443985.0	46.19137	-32.49370	-11.86272	0.62702	0.82082	0.25915	57.70795	1.06492	324.88	-11.86
79/ 4/22	2443985.5	50.07917	-26.70064	-10.02143	0.51952	0.88773	0.28391	57.63052	1.06703	331.93	-10.01
79/ 4/22	2443986.0	53.21038	-20.49850	-8.02643	0.40391	0.94143	0.30447	57.58435	1.06870	338.93	-8.01
79/ 4/23	2443986.5	55.53650	-13.98027	-5.90751	0.28211	0.98093	0.32045	57.57299	1.06981	345.87	-5.89
79/ 4/23	2443987.0	57.02249	-7.24458	-3.69666	0.15618	1.00555	0.33157	57.59960	1.07026	352.76	-3.68
79/ 4/24	2443987.5	57.64774	-0.39376	-1.42742	0.02830	1.01489	0.33767	57.66675	1.06996	359.61	-1.42
79/ 4/24	2443988.0	57.40646	6.46833	0.86577	-0.09932	1.00889	0.33865	57.77621	1.06884	6.43	0.86
79/ 4/25	2443988.5	56.30782	13.23853	3.14839	-0.22451	0.98783	0.33456	57.92876	1.06684	13.23	3.12
79/ 4/25	2443989.0	54.37547	19.81662	5.38651	-0.34517	0.95229	0.32554	58.12405	1.06394	20.02	5.32
79/ 4/26	2443989.5	51.64679	26.10736	7.54758	-0.45936	0.90314	0.31185	58.36053	1.06015	26.82	7.43
79/ 4/26	2443990.0	48.17161	32.02235	9.60097	-0.56534	0.84154	0.29381	58.63543	1.05552	33.61	9.42
79/ 4/27	2443990.5	44.01069	37.48161	11.51865	-0.66163	0.76881	0.27184	58.94481	1.05010	40.42	11.27
79/ 4/27	2443991.0	39.23391	42.41475	13.27552	-0.74702	0.68644	0.24641	59.28364	1.04400	47.23	12.94
79/ 4/28	2443991.5	33.91844	46.76179	14.84977	-0.82057	0.59600	0.21801	59.64597	1.03734	54.04	14.42
79/ 4/28	2443992.0	28.14680	50.47358	16.22308	-0.88164	0.49912	0.18716	60.02510	1.03026	60.85	15.68
79/ 4/29	2443992.5	22.00501	53.51189	17.38067	-0.92982	0.39739	0.15439	60.41383	1.02290	67.65	16.72

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/ 4/29	2443993.0	15.58096	55.84921	18.31127	-0.96498	0.29238	0.12021	60.80463	1.01544	74.41	17.53
79/ 4/30	2443993.5	8.96285	57.46830	19.00702	-0.98715	0.18554	0.08512	61.18991	1.00804	81.14	18.10
79/ 4/30	2443994.0	2.23799	58.36159	19.46330	-0.99655	0.07828	0.04958	61.56219	1.00085	87.80	18.43
79/ 5/ 1	2443994.5	-4.50828	58.53050	19.67852	-0.99354	-0.02816	0.01401	61.91436	0.99404	94.40	18.53
79/ 5/ 1	2443995.0	-11.19340	57.98466	19.65388	-0.97858	-0.13260	-0.02119	62.23976	0.98775	100.93	18.41
79/ 5/ 2	2443995.5	-17.73819	56.74119	19.39316	-0.95220	-0.23400	-0.05565	62.53239	0.98211	107.36	18.07
79/ 5/ 2	2443996.0	-24.06732	54.82399	18.90247	-0.91500	-0.33140	-0.08904	62.78702	0.97723	113.70	17.52
79/ 5/ 3	2443996.5	-30.10967	52.26310	18.19008	-0.86762	-0.42394	-0.12107	62.99923	0.97321	119.95	16.78
79/ 5/ 3	2443997.0	-35.79847	49.09413	17.26621	-0.81071	-0.51083	-0.15145	63.16554	0.97013	126.10	15.86
79/ 5/ 4	2443997.5	-41.07155	45.35778	16.14288	-0.74497	-0.59137	-0.17993	63.28343	0.96803	132.16	14.78
79/ 5/ 4	2443998.0	-45.87144	41.09943	14.83380	-0.67110	-0.66487	-0.20626	63.35135	0.96694	138.14	13.54
79/ 5/ 5	2443998.5	-50.14547	36.36883	13.35424	-0.58982	-0.73072	-0.23023	63.36873	0.96687	144.05	12.17
79/ 5/ 5	2443999.0	-53.84598	31.21984	11.72095	-0.50187	-0.78832	-0.25162	63.33600	0.96780	149.89	10.66
79/ 5/ 6	2443999.5	-56.93047	25.71016	9.95213	-0.40804	-0.83714	-0.27022	63.25453	0.96970	155.70	9.05
79/ 5/ 6	2444000.0	-59.36186	19.90115	8.06729	-0.30916	-0.87663	-0.28584	63.12660	0.97250	161.47	7.34
79/ 5/ 7	2444000.5	-61.10880	13.85765	6.08729	-0.20608	-0.90630	-0.29829	62.95534	0.97613	167.22	5.55
79/ 5/ 7	2444001.0	-62.14603	7.64770	4.03418	-0.09975	-0.92570	-0.30740	62.74465	0.98050	172.98	3.69
79/ 5/ 8	2444001.5	-62.45485	1.34231	1.93120	0.00884	-0.93442	-0.31300	62.49912	0.98549	178.77	1.77
79/ 5/ 8	2444002.0	-62.02361	-4.98490	-0.19738	0.11860	-0.93210	-0.31494	62.22392	0.99099	184.60	-0.18
79/ 5/ 9	2444002.5	-60.84824	-11.25818	-2.32636	0.22838	-0.91845	-0.31310	61.92469	0.99687	190.48	-2.15
79/ 5/ 9	2444003.0	-58.93283	-17.40017	-4.42982	0.33692	-0.89331	-0.30739	61.60737	1.00299	196.45	-4.12
79/ 5/10	2444003.5	-56.29019	-23.33266	-6.48130	0.44290	-0.85659	-0.29774	61.27810	1.00924	202.51	-6.07
79/ 5/10	2444004.0	-52.94231	-28.97745	-8.45412	0.54493	-0.80837	-0.28416	60.94303	1.01546	208.69	-7.97
79/ 5/11	2444004.5	-48.92081	-34.25735	-10.32167	0.64157	-0.74889	-0.26667	60.60816	1.02155	215.00	-9.81
79/ 5/11	2444005.0	-44.26723	-39.09734	-12.05783	0.73134	-0.67856	-0.24538	60.27919	1.02738	221.45	-11.54
79/ 5/12	2444005.5	-39.03305	-43.42591	-13.63738	0.81277	-0.59799	-0.22046	59.96137	1.03285	228.05	-13.15
79/ 5/12	2444006.0	-33.27963	-47.17638	-15.03645	0.88443	-0.50801	-0.19214	59.65936	1.03789	234.80	-14.60
79/ 5/13	2444006.5	-27.07777	-50.28841	-16.23306	0.94497	-0.40965	-0.16073	59.37712	1.04241	241.70	-15.87
79/ 5/13	2444007.0	-20.50703	-52.70939	-17.20757	0.99317	-0.30417	-0.12662	59.11784	1.04639	248.74	-16.92
79/ 5/14	2444007.5	-13.65477	-54.39578	-17.94319	1.02794	-0.19299	-0.09027	58.88388	1.04979	255.91	-17.74
79/ 5/14	2444008.0	-6.61488	-55.31437	-18.42639	1.04845	-0.07772	-0.05218	58.67681	1.05262	263.18	-18.30
79/ 5/15	2444008.5	0.51370	-55.44330	-18.64732	1.05405	0.03989	-0.01292	58.49741	1.05489	270.53	-18.59
79/ 5/15	2444009.0	7.62873	-54.77286	-18.60010	1.04441	0.15801	0.02690	58.34576	1.05663	277.93	-18.59
79/ 5/16	2444009.5	14.62647	-53.30597	-18.28304	1.01943	0.27476	0.06666	58.22138	1.05791	285.34	-18.30
79/ 5/16	2444010.0	21.40366	-51.05840	-17.69875	0.97934	0.38823	0.10571	58.12334	1.05877	292.74	-17.73
79/ 5/17	2444010.5	27.85945	-48.05870	-16.85418	0.92463	0.49656	0.14341	58.05042	1.05928	300.10	-16.88
79/ 5/17	2444011.0	33.89732	-44.34776	-15.76052	0.85608	0.59796	0.17916	58.00126	1.05950	307.39	-15.77
79/ 5/18	2444011.5	39.42692	-39.97817	-14.43303	0.77473	0.69078	0.21237	57.97455	1.05948	314.60	-14.42
79/ 5/18	2444012.0	44.36571	-35.01328	-12.89078	0.68185	0.77351	0.24249	57.96911	1.05927	321.72	-12.85
79/ 5/19	2444012.5	48.64048	-29.52607	-11.15630	0.57892	0.84482	0.26906	57.98404	1.05889	328.74	-11.09
79/ 5/19	2444013.0	52.18869	-23.59780	-9.25517	0.46759	0.90359	0.29164	58.01874	1.05838	335.67	-9.18
79/ 5/20	2444013.5	54.95949	-17.31654	-7.21555	0.34966	0.94893	0.30990	58.07299	1.05772	342.51	-7.14
79/ 5/20	2444014.0	56.91458	-10.77555	-5.06767	0.22704	0.98020	0.32357	58.14691	1.05690	349.28	-5.00
79/ 5/21	2444014.5	58.02878	-4.07160	-2.84328	0.10169	0.99700	0.33247	58.24089	1.05589	355.99	-2.80
79/ 5/21	2444015.0	58.29037	2.69679	-0.57507	-0.02440	0.99922	0.33650	58.35555	1.05464	2.65	-0.56

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
79/ 5/22	2444015.5	57.70110	9.43109	1.70391	-0.14924	0.98698	0.33566	58.49158	1.05312	9.28	1.67
79/ 5/22	2444016.0	56.27597	16.03453	3.96086	-0.27091	0.96067	0.33001	58.64963	1.05127	15.90	3.87
79/ 5/23	2444016.5	54.04275	22.41377	6.16378	-0.38757	0.92090	0.31974	58.83016	1.04905	22.53	6.01
79/ 5/23	2444017.0	51.04115	28.48046	8.28202	-0.49753	0.86853	0.30506	59.03327	1.04640	29.16	8.06
79/ 5/24	2444017.5	47.32188	34.15270	10.28680	-0.59925	0.80461	0.28629	59.25863	1.04329	35.82	10.00
79/ 5/24	2444018.0	42.94540	39.35622	12.15164	-0.69140	0.73034	0.26380	59.50531	1.03972	42.50	11.78
79/ 5/25	2444018.5	37.98051	44.02545	13.85274	-0.77283	0.64707	0.23801	59.77172	1.03567	49.22	13.40
79/ 5/25	2444019.0	32.50290	48.10425	15.36928	-0.84267	0.55623	0.20938	60.05557	1.03118	55.95	14.83
79/ 5/26	2444019.5	26.59353	51.54641	16.68361	-0.90024	0.45933	0.17838	60.35388	1.02627	62.71	16.05
79/ 5/26	2444020.0	20.33709	54.31591	17.78139	-0.94510	0.35785	0.14552	60.66295	1.02100	69.47	17.04
79/ 5/27	2444020.5	13.82048	56.38692	18.65164	-0.97704	0.25331	0.11127	60.97847	1.01546	76.23	17.81
79/ 5/27	2444021.0	7.13140	57.74356	19.28669	-0.99605	0.14714	0.07614	61.29560	1.00973	82.96	18.34
79/ 5/28	2444021.5	0.35702	58.37953	19.68206	-1.00227	0.04073	0.04058	61.60910	1.00392	89.65	18.63
79/ 5/28	2444022.0	-6.41708	58.29760	19.83637	-0.99603	-0.06465	0.00503	61.91341	0.99814	96.28	18.69
79/ 5/29	2444022.5	-13.10790	57.50891	19.75111	-0.97776	-0.16778	-0.03010	62.20287	0.99251	102.84	18.51
79/ 5/29	2444023.0	-19.63578	56.03235	19.43042	-0.94801	-0.26759	-0.06443	62.47183	0.98716	109.31	18.12
79/ 5/30	2444023.5	-25.92501	53.89384	18.88092	-0.90740	-0.36309	-0.09761	62.71476	0.98221	115.69	17.52
79/ 5/30	2444024.0	-31.90428	51.12566	18.11148	-0.85660	-0.45339	-0.12933	62.92648	0.97778	121.97	16.73
79/ 5/31	2444024.5	-37.50707	47.76577	17.13298	-0.79635	-0.53769	-0.15930	63.10221	0.97399	128.14	15.75
79/ 5/31	2444025.0	-42.67182	43.85728	15.95816	-0.72738	-0.61528	-0.18726	63.23771	0.97094	134.22	14.62
79/ 6/ 1	2444025.5	-47.34213	39.44789	14.60144	-0.65047	-0.68550	-0.21298	63.32942	0.96871	140.20	13.33
79/ 6/ 1	2444026.0	-51.46692	34.58946	13.07877	-0.56642	-0.74779	-0.23623	63.37451	0.96738	146.10	11.91
79/ 6/ 2	2444026.5	-55.00048	29.33763	11.40753	-0.47602	-0.80159	-0.25682	63.37098	0.96700	151.92	10.37
79/ 6/ 2	2444027.0	-57.90263	23.75151	9.60640	-0.38011	-0.84642	-0.27455	63.31771	0.96762	157.70	8.73
79/ 6/ 3	2444027.5	-60.13887	17.89340	7.69528	-0.27953	-0.88183	-0.28927	63.21451	0.96925	163.43	6.99
79/ 6/ 3	2444028.0	-61.68053	11.82855	5.69525	-0.17516	-0.90740	-0.30078	63.06218	0.97187	169.14	5.18
79/ 6/ 4	2444028.5	-62.50508	5.62494	3.62845	-0.06793	-0.92274	-0.30896	62.86247	0.97546	174.86	3.31
79/ 6/ 4	2444029.0	-62.59640	-0.64694	1.51806	0.04119	-0.92751	-0.31363	62.61814	0.97997	180.59	1.39
79/ 6/ 5	2444029.5	-61.94521	-6.91442	-0.61180	0.15115	-0.92140	-0.31469	62.33292	0.98531	186.37	-0.56
79/ 6/ 5	2444030.0	-60.54951	-13.10294	-2.73618	0.26085	-0.90416	-0.31200	62.01143	0.99141	192.21	-2.53
79/ 6/ 6	2444030.5	-58.41511	-19.13652	-4.82941	0.36908	-0.87562	-0.30547	61.65918	0.99812	198.14	-4.49
79/ 6/ 6	2444031.0	-55.55617	-24.93831	-6.86530	0.47458	-0.83571	-0.29506	61.28246	1.00533	204.17	-6.43
79/ 6/ 7	2444031.5	-51.99577	-30.43132	-8.81733	0.57598	-0.78446	-0.28071	60.88818	1.01288	210.34	-8.33
79/ 6/ 7	2444032.0	-47.76645	-35.53932	-10.65897	0.67186	-0.72206	-0.26246	60.48380	1.02062	216.65	-10.15
79/ 6/ 8	2444032.5	-42.91061	-40.18791	-12.36399	0.76073	-0.64887	-0.24039	60.07709	1.02837	223.12	-11.88
79/ 6/ 8	2444033.0	-37.48089	-44.30576	-13.90693	0.84108	-0.56545	-0.21463	59.67596	1.03596	229.77	-13.48
79/ 6/ 9	2444033.5	-31.54017	-47.82612	-15.26352	0.91138	-0.47259	-0.18540	59.28824	1.04323	236.60	-14.92
79/ 6/ 9	2444034.0	-25.16145	-50.68833	-16.41125	0.97018	-0.37130	-0.15301	58.92142	1.05001	243.60	-16.17
79/ 6/10	2444034.5	-18.42731	-52.83949	-17.32994	1.01612	-0.26285	-0.11784	58.58245	1.05616	250.77	-17.21
79/ 6/10	2444035.0	-11.42902	-54.23614	-18.00233	1.04800	-0.14877	-0.08037	58.27749	1.06155	258.10	-17.99
79/ 6/11	2444035.5	-4.26525	-54.84583	-18.41461	1.06484	-0.03077	-0.04113	58.01168	1.06608	265.55	-18.51
79/ 6/11	2444036.0	2.95961	-54.64845	-18.55697	1.06595	0.08922	-0.00077	57.78904	1.06967	273.10	-18.73
79/ 6/12	2444036.5	10.13751	-53.63733	-18.42401	1.05094	0.20917	0.04005	57.61229	1.07230	280.70	-18.65
79/ 6/12	2444037.0	17.15897	-51.81994	-18.01502	1.01978	0.32695	0.08062	57.48285	1.07394	288.32	-18.26
79/ 6/13	2444037.5	23.91557	-49.21814	-17.33418	0.97281	0.44045	0.12021	57.40082	1.07462	295.92	-17.58

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/ 6/13	2444038.0	30.30246	-45.86793	-16.39048	0.91075	0.54762	0.15812	57.36509	1.07441	303.45	-16.60
79/ 6/14	2444038.5	36.22071	-41.81876	-15.19766	0.83463	0.64654	0.19367	57.37349	1.07337	310.90	-15.36
79/ 6/14	2444039.0	41.57954	-37.13244	-13.77380	0.74580	0.73550	0.22624	57.42294	1.07162	318.23	-13.88
79/ 6/15	2444039.5	46.29822	-31.88165	-12.14098	0.64588	0.81300	0.25529	57.50972	1.06926	325.45	-12.19
79/ 6/15	2444040.0	50.30758	-26.14821	-10.32464	0.53667	0.87784	0.28036	57.62968	1.06641	332.54	-10.32
79/ 6/16	2444040.5	53.55123	-20.02117	-8.35306	0.42010	0.92910	0.30108	57.77850	1.06318	339.50	-8.31
79/ 6/16	2444041.0	55.98620	-13.59484	-6.25668	0.29821	0.96614	0.31718	57.95187	1.05970	346.35	-6.20
79/ 6/17	2444041.5	57.58339	-6.96677	-4.06742	0.17305	0.98864	0.32848	58.14573	1.05606	353.10	-4.01
79/ 6/17	2444042.0	58.32755	-0.23589	-1.81809	0.04665	0.99652	0.33491	58.35635	1.05233	359.77	-1.79
79/ 6/18	2444042.5	58.21700	6.49937	0.45826	-0.07901	0.98998	0.33647	58.58046	1.04858	6.37	0.45
79/ 6/18	2444043.0	57.26312	13.14265	2.72890	-0.20207	0.96945	0.33325	58.81531	1.04485	12.93	2.66
79/ 6/19	2444043.5	55.48960	19.60121	4.96195	-0.32077	0.93555	0.32540	59.05865	1.04117	19.46	4.82
79/ 6/19	2444044.0	52.93157	25.78722	7.12682	-0.43348	0.88912	0.31316	59.30871	1.03754	25.97	6.90
79/ 6/20	2444044.5	49.63455	31.61892	9.19467	-0.53875	0.83110	0.29680	59.56414	1.03396	32.50	8.88
79/ 6/20	2444045.0	45.65340	37.02155	11.13871	-0.63530	0.76261	0.27666	59.82390	1.03040	39.04	10.73
79/ 6/21	2444045.5	41.05106	41.92821	12.93457	-0.72202	0.68485	0.25311	60.08716	1.02684	45.61	12.43
79/ 6/21	2444046.0	35.89736	46.28044	14.56048	-0.79797	0.59911	0.22655	60.35319	1.02324	52.20	13.96
79/ 6/22	2444046.5	30.26777	50.02872	15.99752	-0.86244	0.50674	0.19741	60.62121	1.01958	58.83	15.30
79/ 6/22	2444047.0	24.24209	53.13276	17.22971	-0.91486	0.40910	0.16613	60.89033	1.01584	65.47	16.44
79/ 6/23	2444047.5	17.90321	55.56165	18.24416	-0.95488	0.30760	0.13318	61.15939	1.01200	72.14	17.36
79/ 6/23	2444048.0	11.33588	57.29384	19.03103	-0.98230	0.20360	0.09901	61.42691	1.00805	78.81	18.05
79/ 6/24	2444048.5	4.62556	58.31703	19.58358	-0.99711	0.09846	0.06407	61.69108	1.00401	85.46	18.51
79/ 6/24	2444049.0	-2.14273	58.62790	19.89810	-0.99945	-0.00653	0.02879	61.94962	0.99989	92.09	18.74
79/ 6/25	2444049.5	-8.88536	58.23167	19.97377	-0.98959	-0.11014	-0.00640	62.19991	0.99573	98.68	18.73
79/ 6/25	2444050.0	-15.52103	57.14171	19.81257	-0.96794	-0.21120	-0.04109	62.43889	0.99157	105.20	18.50
79/ 6/26	2444050.5	-21.97154	55.37893	19.41912	-0.93501	-0.30865	-0.07492	62.66320	0.98748	111.64	18.05
79/ 6/26	2444051.0	-28.16247	52.97122	18.80049	-0.89140	-0.40149	-0.10753	62.86918	0.98354	118.00	17.40
79/ 6/27	2444051.5	-34.02374	49.95286	17.96602	-0.83778	-0.48883	-0.13860	63.05300	0.97982	124.26	16.55
79/ 6/27	2444052.0	-39.49004	46.36386	16.92710	-0.77489	-0.56987	-0.16785	63.21073	0.97641	130.42	15.53
79/ 6/28	2444052.5	-44.50117	42.24939	15.69704	-0.70351	-0.64388	-0.19501	63.33847	0.97342	136.49	14.35
79/ 6/28	2444053.0	-49.00235	37.65922	14.29084	-0.62444	-0.71024	-0.21983	63.43244	0.97092	142.46	13.02
79/ 6/29	2444053.5	-52.94433	32.64720	12.72502	-0.53853	-0.76836	-0.24210	63.48912	0.96902	148.34	11.56
79/ 6/29	2444054.0	-56.28362	27.27077	11.01751	-0.44662	-0.81777	-0.26164	63.50533	0.96781	154.15	9.99
79/ 6/30	2444054.5	-58.98257	21.59055	9.18746	-0.34959	-0.85800	-0.27826	63.47838	0.96737	159.89	8.32
79/ 6/30	2444055.0	-61.00950	15.66996	7.25518	-0.24832	-0.88868	-0.29181	63.40619	0.96777	165.60	6.57
79/ 7/ 1	2444055.5	-62.33882	9.57492	5.24197	-0.14374	-0.90946	-0.30213	63.28732	0.96906	171.27	4.75
79/ 7/ 1	2444056.0	-62.95118	3.37350	3.17008	-0.03677	-0.92005	-0.30911	63.12116	0.97128	176.93	2.88
79/ 7/ 2	2444056.5	-62.83370	-2.86432	1.06259	0.07161	-0.92017	-0.31263	62.90793	0.97447	182.61	0.97
79/ 7/ 2	2444057.0	-61.98021	-9.06697	-1.05666	0.18040	-0.90963	-0.31257	62.64880	0.97861	188.32	-0.97
79/ 7/ 3	2444057.5	-60.39153	-15.16158	-3.16318	0.28852	-0.88825	-0.30885	62.34594	0.98368	194.09	-2.91
79/ 7/ 3	2444058.0	-58.07592	-21.07437	-5.23194	0.39487	-0.85593	-0.30141	62.00254	0.98964	199.94	-4.84
79/ 7/ 4	2444058.5	-55.04944	-26.73111	-7.23747	0.49823	-0.81264	-0.29018	61.62284	0.99641	205.90	-6.74
79/ 7/ 4	2444059.0	-51.33648	-32.05766	-9.15409	0.59736	-0.75844	-0.27515	61.21213	1.00389	211.98	-8.60
79/ 7/ 5	2444059.5	-46.97021	-36.98069	-10.95610	0.69092	-0.69353	-0.25634	60.77670	1.01196	218.21	-10.39
79/ 7/ 5	2444060.0	-41.99307	-41.42857	-12.61803	0.77751	-0.61820	-0.23381	60.32378	1.02047	224.61	-12.07

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
79/ 7/ 6	2444060.5	-36.45717	-45.33242	-14.11506	0.85567	-0.53298	-0.20767	59.86141	1.02926	231.19	-13.64
79/ 7/ 6	2444061.0	-30.42455	-48.62740	-15.42336	0.92394	-0.43854	-0.17811	59.39829	1.03813	237.97	-15.05
79/ 7/ 7	2444061.5	-23.96724	-51.25414	-16.52063	0.98084	-0.33583	-0.14540	58.94359	1.04689	244.94	-16.28
79/ 7/ 7	2444062.0	-17.16705	-53.16041	-17.38661	1.02496	-0.22601	-0.10988	58.50668	1.05532	252.10	-17.29
79/ 7/ 8	2444062.5	-10.11498	-54.30282	-18.00374	1.05502	-0.11053	-0.07200	58.09685	1.06323	259.45	-18.05
79/ 7/ 8	2444063.0	-2.91025	-54.64860	-18.35774	1.06988	0.00893	-0.03228	57.72301	1.07040	266.95	-18.54
79/ 7/ 9	2444063.5	4.34125	-54.17729	-18.43824	1.06870	0.13041	0.00865	57.39333	1.07667	274.58	-18.74
79/ 7/ 9	2444064.0	11.52880	-52.88221	-18.23934	1.05094	0.25181	0.05010	57.11493	1.08185	282.30	-18.62
79/ 7/10	2444064.5	18.53936	-50.77156	-17.76007	1.01644	0.37086	0.09132	56.89358	1.08583	290.06	-18.19
79/ 7/10	2444065.0	25.26018	-47.86907	-17.00468	0.96547	0.48525	0.13151	56.73344	1.08853	297.82	-17.44
79/ 7/11	2444065.5	31.58180	-44.21404	-15.98276	0.89871	0.59271	0.16989	56.63692	1.08989	305.54	-16.39
79/ 7/11	2444066.0	37.40097	-39.86081	-14.70917	0.81732	0.69109	0.20570	56.60456	1.08992	313.18	-15.06
79/ 7/12	2444066.5	42.62345	-34.87753	-13.20369	0.72280	0.77846	0.23825	56.63513	1.08867	320.71	-13.48
79/ 7/12	2444067.0	47.16646	-29.34442	-11.49056	0.61701	0.85320	0.26693	56.72568	1.08624	328.11	-11.69
79/ 7/13	2444067.5	50.96066	-23.35158	-9.59776	0.50205	0.91403	0.29123	56.87180	1.08274	335.38	-9.72
79/ 7/13	2444068.0	53.95151	-16.99655	-7.55628	0.38017	0.96004	0.31078	57.06790	1.07833	342.51	-7.61
79/ 7/14	2444068.5	56.10009	-10.38167	-5.39922	0.25372	0.99071	0.32533	57.30751	1.07318	349.52	-5.41
79/ 7/14	2444069.0	57.38328	-3.61152	-3.16098	0.12501	1.00589	0.33475	57.58364	1.06747	356.40	-3.15
79/ 7/15	2444069.5	57.79342	3.20947	-0.87640	-0.00372	1.00578	0.33902	57.88910	1.06139	3.18	-0.87
79/ 7/15	2444070.0	57.33754	9.97917	1.41996	-0.13038	0.99085	0.33825	58.21678	1.05508	9.87	1.40
79/ 7/16	2444070.5	56.03632	16.59963	3.69449	-0.25304	0.96185	0.33261	58.55994	1.04872	16.50	3.62
79/ 7/16	2444071.0	53.92277	22.97851	5.91505	-0.36999	0.91969	0.32236	58.91235	1.04242	23.08	5.76
79/ 7/17	2444071.5	51.04083	29.03037	8.05147	-0.47971	0.86547	0.30782	59.26850	1.03630	29.63	7.81
79/ 7/17	2444072.0	47.44391	34.67747	10.07585	-0.58092	0.80037	0.28934	59.62360	1.03043	36.16	9.73
79/ 7/18	2444072.5	43.19348	39.85045	11.96282	-0.67253	0.72568	0.26731	59.97369	1.02487	42.69	11.51
79/ 7/18	2444073.0	38.35764	44.48876	13.68975	-0.75365	0.64271	0.24215	60.31557	1.01966	49.23	13.12
79/ 7/19	2444073.5	33.00984	48.54085	15.23689	-0.82360	0.55280	0.21429	60.64673	1.01480	55.78	14.55
79/ 7/19	2444074.0	27.22765	51.96430	16.58736	-0.88185	0.45730	0.18415	60.96535	1.01030	62.35	15.79
79/ 7/20	2444074.5	21.09157	54.72579	17.72729	-0.92805	0.35755	0.15219	61.27009	1.00613	68.92	16.82
79/ 7/20	2444075.0	14.68402	56.80101	18.64571	-0.96200	0.25486	0.11882	61.56003	1.00225	75.51	17.63
79/ 7/21	2444075.5	8.08833	58.17443	19.33463	-0.98361	0.15053	0.08448	61.83456	0.99865	82.08	18.22
79/ 7/21	2444076.0	1.38779	58.83912	19.78888	-0.99298	0.04578	0.04960	62.09321	0.99527	88.65	18.58
79/ 7/22	2444076.5	-5.33517	58.79638	20.00612	-0.99027	-0.05817	0.01456	62.33557	0.99209	95.18	18.72
79/ 7/22	2444077.0	-11.99976	58.05548	19.98672	-0.97580	-0.16020	-0.02022	62.56119	0.98907	101.68	18.63
79/ 7/23	2444077.5	-18.52761	56.63315	19.73365	-0.94997	-0.25922	-0.05438	62.76944	0.98620	108.12	18.32
79/ 7/23	2444078.0	-24.84340	54.55324	19.25233	-0.91327	-0.35422	-0.08756	62.95953	0.98346	114.48	17.81
79/ 7/24	2444078.5	-30.87546	51.84619	18.55055	-0.86629	-0.44426	-0.11943	63.13038	0.98086	120.77	17.09
79/ 7/24	2444079.0	-36.55631	48.54856	17.63826	-0.80968	-0.52847	-0.14967	63.28060	0.97840	126.98	16.18
79/ 7/25	2444079.5	-41.82316	44.70249	16.52746	-0.74416	-0.60608	-0.17800	63.40856	0.97611	133.09	15.11
79/ 7/25	2444080.0	-46.61824	40.35519	15.23201	-0.67051	-0.67637	-0.20415	63.51233	0.97403	139.12	13.88
79/ 7/26	2444080.5	-50.88923	35.55841	13.76748	-0.58954	-0.73871	-0.22789	63.58976	0.97220	145.06	12.50
79/ 7/26	2444081.0	-54.58944	30.36790	12.15097	-0.50211	-0.79255	-0.24900	63.63853	0.97069	150.91	11.01
79/ 7/27	2444081.5	-57.67812	24.84292	10.40094	-0.40910	-0.83740	-0.26729	63.65623	0.96956	156.70	9.40
79/ 7/27	2444082.0	-60.12057	19.04574	8.53709	-0.31143	-0.87287	-0.28259	63.64043	0.96889	162.42	7.71
79/ 7/28	2444082.5	-61.88832	13.04118	6.58015	-0.21003	-0.89859	-0.29475	63.58880	0.96874	168.10	5.94

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/ 7/28	2444083.0	-62.95928	6.89620	4.55183	-0.10583	-0.91429	-0.30365	63.49919	0.96919	173.75	4.11
79/ 7/29	2444083.5	-63.31781	0.67949	2.47458	0.00018	-0.91974	-0.30918	63.36979	0.97031	179.39	2.24
79/ 7/29	2444084.0	-62.95489	-5.53895	0.37159	0.10704	-0.91477	-0.31124	63.19918	0.97218	185.03	0.34
79/ 7/30	2444084.5	-61.86831	-11.68811	-1.73343	0.21371	-0.89927	-0.30976	62.98655	0.97484	190.70	-1.58
79/ 7/30	2444085.0	-60.06279	-17.69644	-3.81633	0.31916	-0.87318	-0.30470	62.73171	0.97834	196.42	-3.49
79/ 7/31	2444085.5	-57.55023	-23.49218	-5.85263	0.42231	-0.83650	-0.29600	62.43528	0.98270	202.21	-5.38
79/ 7/31	2444086.0	-54.34997	-29.00381	-7.81769	0.52204	-0.78930	-0.28366	62.09876	0.98792	208.09	-7.23
79/ 8/ 1	2444086.5	-50.48907	-34.16059	-9.68686	0.61719	-0.73175	-0.26769	61.72461	0.99400	214.08	-9.03
79/ 8/ 1	2444087.0	-46.00265	-38.89312	-11.43563	0.70655	-0.66407	-0.24812	61.31632	1.00088	220.21	-10.75
79/ 8/ 2	2444087.5	-40.93418	-43.13402	-13.03990	0.78885	-0.58665	-0.22503	60.87848	1.00850	226.50	-12.37
79/ 8/ 2	2444088.0	-35.33584	-46.81884	-14.47623	0.86280	-0.49996	-0.19855	60.41677	1.01676	232.96	-13.86
79/ 8/ 3	2444088.5	-29.26871	-49.88702	-15.72218	0.92706	-0.40468	-0.16885	59.93796	1.02553	239.60	-15.21
79/ 8/ 3	2444089.0	-22.80292	-52.28312	-16.75668	0.98030	-0.30166	-0.13616	59.44984	1.03466	246.44	-16.37
79/ 8/ 4	2444089.5	-16.01760	-53.95811	-17.56051	1.02120	-0.19194	-0.10079	58.96111	1.04396	253.47	-17.33
79/ 8/ 4	2444090.0	-9.00056	-54.87097	-18.11681	1.04852	-0.07684	-0.06314	58.48122	1.05323	260.68	-18.05
79/ 8/ 5	2444090.5	-1.84766	-54.99026	-18.41164	1.06115	0.04212	-0.02367	58.02009	1.06225	268.08	-18.50
79/ 8/ 5	2444091.0	5.33829	-54.29580	-18.43462	1.05814	0.16314	0.01704	57.58790	1.07078	275.62	-18.67
79/ 8/ 6	2444091.5	12.44900	-52.78031	-18.17944	1.03884	0.28421	0.05835	57.19467	1.07860	283.27	-18.53
79/ 8/ 6	2444092.0	19.37273	-50.45080	-17.64450	1.00291	0.40313	0.09953	56.84992	1.08547	291.01	-18.08
79/ 8/ 7	2444092.5	25.99683	-47.32961	-16.83329	0.95040	0.51759	0.13980	56.56223	1.09120	298.78	-17.31
79/ 8/ 7	2444093.0	32.21050	-43.45504	-15.75470	0.88184	0.62521	0.17835	56.33886	1.09560	306.55	-16.24
79/ 8/ 8	2444093.5	37.90804	-38.88123	-14.42315	0.79820	0.72369	0.21437	56.18538	1.09855	314.27	-14.87
79/ 8/ 8	2444094.0	42.99193	-33.67743	-12.85839	0.70091	0.81090	0.24709	56.10538	1.09995	321.93	-13.25
79/ 8/ 9	2444094.5	47.37587	-27.92654	-11.08512	0.59185	0.88497	0.27583	56.10031	1.09979	329.48	-11.40
79/ 8/ 9	2444095.0	50.98739	-21.72289	-9.13242	0.47321	0.94438	0.29999	56.16938	1.09808	336.92	-9.36
79/ 8/10	2444095.5	53.76988	-15.16965	-7.03286	0.34746	0.98806	0.31913	56.30968	1.09491	344.25	-7.17
79/ 8/10	2444096.0	55.68386	-8.37577	-4.82155	0.21718	1.01537	0.33295	56.51631	1.09041	351.45	-4.89
79/ 8/11	2444096.5	56.70751	-1.45291	-2.53516	0.08499	1.02615	0.34129	56.78274	1.08476	358.53	-2.56
79/ 8/11	2444097.0	56.83644	5.48763	-0.21085	-0.04661	1.02067	0.34416	57.10114	1.07814	5.51	-0.21
79/ 8/12	2444097.5	56.08282	12.33762	2.11468	-0.17525	0.99955	0.34168	57.46278	1.07078	12.41	2.11
79/ 8/12	2444098.0	54.47393	18.99425	4.40597	-0.29883	0.96375	0.33410	57.85848	1.06289	19.22	4.37
79/ 8/13	2444098.5	52.05049	25.36202	6.62956	-0.41550	0.91446	0.32175	58.27896	1.05471	25.98	6.53
79/ 8/13	2444099.0	48.86468	31.35408	8.75447	-0.52372	0.85304	0.30503	58.71521	1.04643	32.69	8.57
79/ 8/14	2444099.5	44.97815	36.89314	10.75260	-0.62223	0.78095	0.28439	59.15873	1.03824	39.36	10.47
79/ 8/14	2444100.0	40.46013	41.91203	12.59896	-0.71005	0.69969	0.26029	59.60179	1.03029	46.01	12.20
79/ 8/15	2444100.5	35.38567	46.35384	14.27179	-0.78645	0.61079	0.23323	60.03755	1.02272	52.64	13.75
79/ 8/15	2444101.0	29.83397	50.17188	15.75263	-0.85091	0.51575	0.20368	60.46014	1.01564	59.26	15.10
79/ 8/16	2444101.5	23.88704	53.32945	17.02624	-0.90312	0.41600	0.17211	60.86472	1.00911	65.87	16.24
79/ 8/16	2444102.0	17.62845	55.79943	18.08055	-0.94293	0.31293	0.13900	61.24741	1.00318	72.47	17.17
79/ 8/17	2444102.5	11.14228	57.56394	18.90656	-0.97033	0.20789	0.10477	61.60532	0.99786	79.05	17.87
79/ 8/17	2444103.0	4.51226	58.61377	19.49818	-0.98543	0.10210	0.06985	61.93637	0.99317	85.60	18.35
79/ 8/18	2444103.5	-2.17900	58.94801	19.85215	-0.98846	-0.00323	0.03466	62.23924	0.98907	92.12	18.60
79/ 8/18	2444104.0	-8.85071	58.57352	19.96788	-0.97972	-0.10700	-0.00044	62.51327	0.98554	98.59	18.63
79/ 8/19	2444104.5	-15.42441	57.50453	19.84731	-0.95959	-0.20814	-0.03506	62.75826	0.98253	105.01	18.44
79/ 8/19	2444105.0	-21.82455	55.76218	19.49481	-0.92855	-0.30568	-0.06887	62.97443	0.97999	111.37	18.03

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
79/ 8/20	2444105.5	-27.97894	53.37410	18.91705	-0.88712	-0.39867	-0.10153	63.16225	0.97787	117.66	17.43
79/ 8/20	2444106.0	-33.81922	50.37400	18.12285	-0.83590	-0.48626	-0.13273	63.32233	0.97611	123.88	16.63
79/ 8/21	2444106.5	-39.28127	46.80125	17.12310	-0.77554	-0.56765	-0.16218	63.45531	0.97467	130.01	15.66
79/ 8/21	2444107.0	-44.30560	42.70044	15.93058	-0.70676	-0.64208	-0.18961	63.56176	0.97352	136.06	14.51
79/ 8/22	2444107.5	-48.83771	38.12093	14.55988	-0.63033	-0.70889	-0.21476	63.64210	0.97261	142.03	13.23
79/ 8/22	2444108.0	-52.82846	33.11644	13.02719	-0.54704	-0.76748	-0.23740	63.69656	0.97192	147.92	11.80
79/ 8/23	2444108.5	-56.23434	27.74456	11.35026	-0.45777	-0.81730	-0.25732	63.72511	0.97146	153.74	10.26
79/ 8/23	2444109.0	-59.01779	22.06631	9.54815	-0.36340	-0.85788	-0.27433	63.72746	0.97122	159.50	8.62
79/ 8/24	2444109.5	-61.14746	16.14561	7.64113	-0.26487	-0.88883	-0.28827	63.70306	0.97122	165.21	6.89
79/ 8/24	2444110.0	-62.59839	10.04882	5.65054	-0.16313	-0.90983	-0.29899	63.65113	0.97149	170.88	5.09
79/ 8/25	2444110.5	-63.35223	3.84424	3.59857	-0.05918	-0.92062	-0.30638	63.57069	0.97207	176.53	3.25
79/ 8/25	2444111.0	-63.39734	-2.39838	1.50816	0.04598	-0.92104	-0.31033	63.46061	0.97300	182.17	1.36
79/ 8/26	2444111.5	-62.72900	-8.60834	-0.59719	0.15132	-0.91097	-0.31078	63.31973	0.97434	187.81	-0.54
79/ 8/26	2444112.0	-61.34948	-14.71448	-2.69357	0.25581	-0.89038	-0.30767	63.14689	0.97615	193.49	-2.44
79/ 8/27	2444112.5	-59.26815	-20.64564	-4.75681	0.35838	-0.85931	-0.30099	62.94110	0.97849	199.21	-4.33
79/ 8/27	2444113.0	-56.50162	-26.33121	-6.76266	0.45796	-0.81788	-0.29073	62.70167	0.98142	204.99	-6.19
79/ 8/28	2444113.5	-53.07386	-31.70161	-8.68695	0.55346	-0.76629	-0.27691	62.42827	0.98498	210.85	-8.00
79/ 8/28	2444114.0	-49.01624	-36.68888	-10.50577	0.64377	-0.70480	-0.25960	62.12115	0.98923	216.82	-9.74
79/ 8/29	2444114.5	-44.36772	-41.22722	-12.19568	0.72776	-0.63379	-0.23886	61.78117	0.99417	222.90	-11.39
79/ 8/29	2444115.0	-39.17489	-45.25368	-13.73390	0.80431	-0.55373	-0.21483	61.41000	0.99984	229.12	-12.92
79/ 8/30	2444115.5	-33.49208	-48.70888	-15.09857	0.87226	-0.46521	-0.18764	61.01017	1.00621	235.49	-14.33
79/ 8/30	2444116.0	-27.38139	-51.53780	-16.26899	0.93046	-0.36893	-0.15750	60.58519	1.01325	242.02	-15.58
79/ 8/31	2444116.5	-20.91270	-53.69074	-17.22598	0.97779	-0.26575	-0.12466	60.13959	1.02090	248.72	-16.64
79/ 8/31	2444117.0	-14.16348	-55.12437	-17.95221	1.01312	-0.15671	-0.08942	59.67899	1.02906	255.59	-17.51
79/ 9/ 1	2444117.5	-7.21856	-55.80289	-18.43259	1.03541	-0.04299	-0.05213	59.21006	1.03761	262.63	-18.14
79/ 9/ 1	2444118.0	-0.16957	-55.69933	-18.65474	1.04370	0.07399	-0.01324	58.74047	1.04640	269.83	-18.52
79/ 9/ 2	2444118.5	6.88580	-54.79684	-18.60946	1.03717	0.19264	0.02675	58.27881	1.05525	277.16	-18.62
79/ 9/ 2	2444119.0	13.84498	-53.09010	-18.29123	1.01521	0.31116	0.06726	57.83435	1.06395	284.62	-18.44
79/ 9/ 3	2444119.5	20.60200	-50.58663	-17.69869	0.97744	0.42757	0.10764	57.41683	1.07228	292.16	-17.95
79/ 9/ 3	2444120.0	27.04944	-47.30782	-16.83509	0.92382	0.53975	0.14718	57.03615	1.08001	299.76	-17.17
79/ 9/ 4	2444120.5	33.08081	-43.28984	-15.70866	0.85466	0.64547	0.18512	56.70196	1.08690	307.39	-16.08
79/ 9/ 4	2444121.0	38.59321	-38.58396	-14.33280	0.77073	0.74251	0.22070	56.42328	1.09273	315.01	-14.72
79/ 9/ 5	2444121.5	43.49030	-33.25634	-12.72617	0.67320	0.82872	0.25314	56.20806	1.09729	322.60	-13.09
79/ 9/ 5	2444122.0	47.68532	-27.38721	-10.91248	0.56372	0.90211	0.28173	56.06275	1.10043	330.13	-11.22
79/ 9/ 6	2444122.5	51.10398	-21.06928	-8.92006	0.44432	0.96099	0.30582	55.99195	1.10202	337.59	-9.17
79/ 9/ 6	2444123.0	53.68698	-14.40547	-6.78125	0.31737	1.00406	0.32488	55.99817	1.10200	344.98	-6.96
79/ 9/ 7	2444123.5	55.39194	-7.50618	-4.53147	0.18549	1.03042	0.33853	56.08159	1.10036	352.28	-4.63
79/ 9/ 7	2444124.0	56.19464	-0.48609	-2.20826	0.05140	1.03971	0.34654	56.24011	1.09714	359.50	-2.25
79/ 9/ 8	2444124.5	56.08934	6.53917	0.14984	-0.08219	1.03201	0.34884	56.46944	1.09246	6.65	0.15
79/ 9/ 8	2444125.0	55.08840	13.45622	2.50439	-0.21266	1.00788	0.34552	56.76331	1.08648	13.73	2.53
79/ 9/ 9	2444125.5	53.22103	20.15686	4.81809	-0.33766	0.96829	0.33682	57.11385	1.07938	20.74	4.84
79/ 9/ 9	2444126.0	50.53160	26.54055	7.05561	-0.45510	0.91452	0.32310	57.51195	1.07138	27.71	7.05
79/ 9/10	2444126.5	47.07739	32.51627	9.18437	-0.56323	0.84809	0.30479	57.94775	1.06272	34.63	9.12
79/ 9/10	2444127.0	42.92631	38.00389	11.17501	-0.66068	0.77067	0.28240	58.41100	1.05365	41.52	11.03
79/ 9/11	2444127.5	38.15446	42.93484	13.00178	-0.74639	0.68401	0.25649	58.89150	1.04439	48.37	12.75

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
79/ 9/11	2444128.0	32.84386	47.25241	14.64265	-0.81967	0.58984	0.22760	59.37943	1.03516	55.20	14.28
79/ 9/12	2444128.5	27.08044	50.91162	16.07941	-0.88006	0.48987	0.19630	59.86560	1.02617	61.99	15.58
79/ 9/12	2444129.0	20.95217	53.87876	17.29754	-0.92739	0.38574	0.16313	60.34169	1.01757	68.75	16.66
79/ 9/13	2444129.5	14.54766	56.13081	18.28605	-0.96165	0.27896	0.12859	60.80035	1.00952	75.47	17.50
79/ 9/13	2444130.0	7.95485	57.65470	19.03734	-0.98303	0.17094	0.09316	61.23532	1.00212	82.14	18.11
79/ 9/14	2444130.5	1.26011	58.44656	19.54695	-0.99181	0.06300	0.05729	61.64147	0.99546	88.76	18.49
79/ 9/14	2444131.0	-5.45253	58.51097	19.81331	-0.98839	-0.04367	0.02140	62.01477	0.98959	95.32	18.63
79/ 9/15	2444131.5	-12.10200	57.86029	19.83758	-0.97324	-0.14799	-0.01414	62.35223	0.98453	101.81	18.55
79/ 9/15	2444132.0	-18.61062	56.51394	19.62341	-0.94689	-0.24894	-0.04896	62.65189	0.98029	108.23	18.25
79/ 9/16	2444132.5	-24.90447	54.49790	19.17677	-0.90992	-0.34560	-0.08273	62.91266	0.97685	114.56	17.75
79/ 9/16	2444133.0	-30.91368	51.84411	18.50581	-0.86294	-0.43712	-0.11515	63.13424	0.97417	120.81	17.04
79/ 9/17	2444133.5	-36.57270	48.59006	17.62066	-0.80663	-0.52272	-0.14593	63.31702	0.97220	126.97	16.16
79/ 9/17	2444134.0	-41.82059	44.77838	16.53336	-0.74166	-0.60167	-0.17480	63.46193	0.97089	133.04	15.10
79/ 9/18	2444134.5	-46.60122	40.45639	15.25772	-0.66877	-0.67330	-0.20151	63.57036	0.97015	139.04	13.89
79/ 9/18	2444135.0	-50.86354	35.67580	13.80918	-0.58874	-0.73700	-0.22582	63.64398	0.96993	144.95	12.53
79/ 9/19	2444135.5	-54.56187	30.49232	12.20474	-0.50237	-0.79219	-0.24751	63.68466	0.97015	150.80	11.05
79/ 9/19	2444136.0	-57.65618	24.96526	10.46281	-0.41052	-0.83837	-0.26638	63.69434	0.97075	156.59	9.45
79/ 9/20	2444136.5	-60.11231	19.15715	8.60312	-0.31407	-0.87511	-0.28226	63.67495	0.97166	162.32	7.76
79/ 9/20	2444137.0	-61.90233	13.13335	6.64654	-0.21398	-0.90201	-0.29497	63.62830	0.97284	168.02	6.00
79/ 9/21	2444137.5	-63.00478	6.96156	4.61501	-0.11120	-0.91876	-0.30437	63.55599	0.97423	173.69	4.16
79/ 9/21	2444138.0	-63.40491	0.71135	2.53132	-0.00676	-0.92513	-0.31035	63.45941	0.97582	179.36	2.29
79/ 9/22	2444138.5	-63.09496	-5.54636	0.41899	0.09831	-0.92096	-0.31281	63.33965	0.97759	185.02	0.38
79/ 9/22	2444139.0	-62.07429	-11.73985	-1.69793	0.20293	-0.90617	-0.31170	63.19750	0.97953	190.71	-1.54
79/ 9/23	2444139.5	-60.34962	-17.79721	-3.79505	0.30601	-0.88077	-0.30696	63.03348	0.98164	196.43	-3.45
79/ 9/23	2444140.0	-57.93510	-23.64691	-5.84783	0.40645	-0.84487	-0.29861	62.84783	0.98396	202.20	-5.34
79/ 9/24	2444140.5	-54.85241	-29.21847	-7.83179	0.50313	-0.79868	-0.28665	62.64058	0.98650	208.04	-7.18
79/ 9/24	2444141.0	-51.13077	-34.44309	-9.72275	0.59494	-0.74248	-0.27115	62.41164	0.98932	213.97	-8.96
79/ 9/25	2444141.5	-46.80695	-39.25435	-11.49704	0.68076	-0.67669	-0.25221	62.16089	0.99245	219.98	-10.66
79/ 9/25	2444142.0	-41.92523	-43.58890	-13.13171	0.75951	-0.60181	-0.22995	61.88828	0.99594	226.11	-12.25
79/ 9/26	2444142.5	-36.53721	-47.38719	-14.60484	0.83009	-0.51844	-0.20454	61.59395	0.99983	232.37	-13.72
79/ 9/26	2444143.0	-30.70173	-50.59417	-15.89575	0.89147	-0.42733	-0.17618	61.27839	1.00417	238.75	-15.03
79/ 9/27	2444143.5	-24.48458	-53.16013	-16.98528	0.94263	-0.32930	-0.14512	60.94255	1.00899	245.27	-16.18
79/ 9/27	2444144.0	-17.95822	-55.04144	-17.85608	0.98262	-0.22533	-0.11164	60.58793	1.01429	251.93	-17.14
79/ 9/28	2444144.5	-11.20139	-56.20142	-18.49290	1.01054	-0.11649	-0.07609	60.21676	1.02008	258.73	-17.88
79/ 9/28	2444145.0	-4.29861	-56.61125	-18.88288	1.02559	-0.00403	-0.03883	59.83205	1.02633	265.66	-18.40
79/ 9/29	2444145.5	2.66043	-56.25084	-19.01596	1.02705	0.11071	-0.00030	59.43771	1.03300	272.71	-18.66
79/ 9/29	2444146.0	9.58172	-55.10983	-18.88514	1.01436	0.22622	0.03902	59.03856	1.04001	279.86	-18.66
79/ 9/30	2444146.5	16.36793	-53.18848	-18.48689	0.98711	0.34086	0.07858	58.64033	1.04726	287.10	-18.38
79/ 9/30	2444147.0	22.91967	-50.49856	-17.82147	0.94511	0.45287	0.11781	58.24964	1.05461	294.41	-17.82
79/10/ 1	2444147.5	29.13702	-47.06415	-16.89328	0.88840	0.56038	0.15607	57.87386	1.06190	301.76	-16.97
79/10/ 1	2444148.0	34.92136	-42.92225	-15.71108	0.81732	0.66146	0.19270	57.52094	1.06896	309.13	-15.85
79/10/ 2	2444148.5	40.17745	-38.12307	-14.28822	0.73255	0.75414	0.22702	57.19920	1.07559	316.50	-14.47
79/10/ 2	2444149.0	44.81574	-32.73003	-12.64272	0.63510	0.83651	0.25833	56.91699	1.08158	323.86	-12.83
79/10/ 3	2444149.5	48.75487	-26.81928	-10.79718	0.52636	0.90673	0.28598	56.68236	1.08674	331.19	-10.98
79/10/ 3	2444150.0	51.92414	-20.47869	-8.77852	0.40808	0.96319	0.30935	56.50270	1.09085	338.48	-8.94

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
79/10/ 4	2444150.5	54.26590	-13.80626	-6.61759	0.28237	1.00452	0.32791	56.38434	1.09376	345.73	-6.74
79/10/ 4	2444151.0	55.73763	-6.90801	-4.34850	0.15158	1.02973	0.34123	56.33217	1.09534	352.93	-4.43
79/10/ 5	2444151.5	56.31350	0.10460	-2.00778	0.01827	1.03823	0.34902	56.34937	1.09548	0.11	-2.04
79/10/ 5	2444152.0	55.98534	7.11765	0.36652	-0.11493	1.02987	0.35114	56.43717	1.09414	7.25	0.37
79/10/ 6	2444152.5	54.76291	14.01780	2.73588	-0.24538	1.00498	0.34758	56.59470	1.09134	14.36	2.77
79/10/ 6	2444153.0	52.67332	20.69538	5.06238	-0.37059	0.96431	0.33852	56.81906	1.08712	21.45	5.11
79/10/ 7	2444153.5	49.75984	27.04718	7.30968	-0.48831	0.90900	0.32425	57.10537	1.08161	28.53	7.35
79/10/ 7	2444154.0	46.08006	32.97886	9.44385	-0.59658	0.84051	0.30520	57.44705	1.07495	35.59	9.46
79/10/ 8	2444154.5	41.70367	38.40673	11.43414	-0.69378	0.76053	0.28186	57.83609	1.06733	42.64	11.40
79/10/ 8	2444155.0	36.70995	43.25912	13.25345	-0.77869	0.67089	0.25480	58.26342	1.05895	49.68	13.15
79/10/ 9	2444155.5	31.18529	47.47697	14.87866	-0.85045	0.57347	0.22464	58.71933	1.05005	56.70	14.68
79/10/ 9	2444156.0	25.22068	51.01403	16.29081	-0.90855	0.47017	0.19199	59.19379	1.04085	63.69	15.97
79/10/10	2444156.5	18.90959	53.83658	17.47502	-0.95276	0.36278	0.15744	59.67685	1.03157	70.65	17.03
79/10/10	2444157.0	12.34597	55.92278	18.42044	-0.98314	0.25300	0.12156	60.15890	1.02243	77.55	17.83
79/10/11	2444157.5	5.62273	57.26191	19.11995	-0.99995	0.14242	0.08491	60.63096	1.01361	84.39	18.38
79/10/11	2444158.0	-1.16957	57.85333	19.56994	-1.00361	0.03244	0.04796	61.08484	1.00528	91.16	18.69
79/10/12	2444158.5	-7.94361	57.70558	19.77001	-0.99466	-0.07565	0.01118	61.51332	0.99760	97.84	18.75
79/10/12	2444159.0	-14.61607	56.83538	19.72263	-0.97372	-0.18072	-0.02504	61.91019	0.99067	104.42	18.58
79/10/13	2444159.5	-21.10805	55.26674	19.43293	-0.94149	-0.28174	-0.06032	62.27038	0.98459	110.90	18.18
79/10/13	2444160.0	-27.34545	53.03015	18.90837	-0.89867	-0.37781	-0.09434	62.58991	0.97941	117.28	17.58
79/10/14	2444160.5	-33.25913	50.16193	18.15855	-0.84602	-0.46813	-0.12679	62.86590	0.97518	123.55	16.79
79/10/14	2444161.0	-38.78511	46.70352	17.19504	-0.78431	-0.55197	-0.15740	63.09654	0.97190	129.71	15.81
79/10/15	2444161.5	-43.86462	42.70108	16.03115	-0.71431	-0.62868	-0.18592	63.28100	0.96956	135.77	14.67
79/10/15	2444162.0	-48.44420	38.20495	14.68181	-0.63682	-0.69766	-0.21212	63.41936	0.96813	141.74	13.39
79/10/16	2444162.5	-52.47584	33.26934	13.16347	-0.55264	-0.75837	-0.23579	63.51251	0.96754	147.63	11.96
79/10/16	2444163.0	-55.91705	27.95195	11.49398	-0.46261	-0.81032	-0.25673	63.56209	0.96775	153.44	10.42
79/10/17	2444163.5	-58.73106	22.31369	9.69248	-0.36759	-0.85305	-0.27474	63.57029	0.96866	159.20	8.77
79/10/17	2444164.0	-60.88704	16.41835	7.77931	-0.26845	-0.88617	-0.28967	63.53984	0.97019	164.91	7.03
79/10/18	2444164.5	-62.36030	10.33225	5.77591	-0.16614	-0.90932	-0.30136	63.47380	0.97226	170.59	5.22
79/10/18	2444165.0	-63.13258	4.12394	3.70473	-0.06162	-0.92222	-0.30967	63.37550	0.97477	176.26	3.35
79/10/19	2444165.5	-63.19234	-2.13627	1.58905	0.04409	-0.92462	-0.31448	63.24840	0.97763	181.94	1.44
79/10/19	2444166.0	-62.53505	-8.37674	-0.54709	0.14994	-0.91637	-0.31570	63.09597	0.98075	187.63	-0.50
79/10/20	2444166.5	-61.16347	-14.52506	-2.67912	0.25483	-0.89740	-0.31326	62.92158	0.98407	193.36	-2.44
79/10/20	2444167.0	-59.08792	-20.50861	-4.78211	0.35762	-0.86772	-0.30712	62.72841	0.98750	199.14	-4.37
79/10/21	2444167.5	-56.32649	-26.25526	-6.83098	0.45717	-0.82747	-0.29728	62.51939	0.99100	204.99	-6.27
79/10/21	2444168.0	-52.90517	-31.69408	-8.80075	0.55228	-0.77688	-0.28377	62.29707	0.99453	210.92	-8.12
79/10/22	2444168.5	-48.85797	-36.75618	-10.66682	0.64179	-0.71630	-0.26667	62.06367	0.99804	216.95	-9.90
79/10/22	2444169.0	-44.22685	-41.37547	-12.40521	0.72452	-0.64621	-0.24610	61.82098	1.00154	223.09	-11.58
79/10/23	2444169.5	-39.06162	-45.48961	-13.99291	0.79932	-0.56724	-0.22220	61.57042	1.00501	229.35	-13.14
79/10/23	2444170.0	-33.41969	-49.04084	-15.40815	0.86511	-0.48012	-0.19521	61.31306	1.00848	235.73	-14.55
79/10/24	2444170.5	-27.36572	-51.97690	-16.63076	0.92083	-0.38574	-0.16537	61.04968	1.01196	242.23	-15.81
79/10/24	2444171.0	-20.97113	-54.25190	-17.64243	0.96554	-0.28510	-0.13298	60.78085	1.01549	248.87	-16.87
79/10/25	2444171.5	-14.31349	-55.82716	-18.42706	0.99837	-0.17931	-0.09839	60.50706	1.01910	255.62	-17.73
79/10/25	2444172.0	-7.47585	-56.67203	-18.97106	1.01858	-0.06963	-0.06199	60.22880	1.02284	262.49	-18.36
79/10/26	2444172.5	-0.54583	-56.76462	-19.26362	1.02555	0.04260	-0.02421	59.94670	1.02672	269.45	-18.74

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/10/26	2444173.0	6.38525	-56.09252	-19.29699	1.01883	0.15593	0.01447	59.66168	1.03079	276.49	-18.87
79/10/27	2444173.5	13.22350	-54.65342	-19.06674	0.99811	0.26883	0.05355	59.37506	1.03506	283.60	-18.73
79/10/27	2444174.0	19.87362	-52.45561	-18.57198	0.96327	0.37969	0.09248	59.08866	1.03953	290.75	-18.32
79/10/28	2444174.5	26.24023	-49.51845	-17.81556	0.91442	0.48687	0.13071	58.80493	1.04417	297.92	-17.64
79/10/28	2444175.0	32.22927	-45.87264	-16.80424	0.85186	0.58867	0.16766	58.52698	1.04895	305.09	-16.69
79/10/29	2444175.5	37.74962	-41.56036	-15.54878	0.77613	0.68339	0.20271	58.25858	1.05380	312.25	-15.48
79/10/29	2444176.0	42.71475	-36.63522	-14.06397	0.68806	0.76937	0.23528	58.00418	1.05864	319.38	-14.03
79/10/30	2444176.5	47.04448	-31.16194	-12.36864	0.58870	0.84500	0.26478	57.76878	1.06334	326.48	-12.36
79/10/30	2444177.0	50.66681	-25.21576	-10.48552	0.47942	0.90877	0.29064	57.55785	1.06779	333.54	-10.50
79/10/31	2444177.5	53.51979	-18.88158	-8.44099	0.36181	0.95936	0.31236	57.37710	1.07184	340.57	-8.46
79/10/31	2444178.0	55.55319	-12.25267	-6.26473	0.23773	0.99564	0.32947	57.23226	1.07535	347.56	-6.28
79/11/ 1	2444178.5	56.73019	-5.42906	-3.98925	0.10928	1.01674	0.34161	57.12883	1.07814	354.53	-4.00
79/11/ 1	2444179.0	57.02860	1.48443	-1.64925	-0.02132	1.02212	0.34849	57.07176	1.08010	1.49	-1.66
79/11/ 2	2444179.5	56.44187	8.38042	0.71908	-0.15170	1.01157	0.34996	57.06517	1.08109	8.45	0.72
79/11/ 2	2444180.0	54.97950	15.15148	3.07889	-0.27950	0.98528	0.34598	57.11211	1.08102	15.41	3.09
79/11/ 3	2444180.5	52.66698	21.69261	5.39357	-0.40237	0.94380	0.33665	57.21426	1.07981	22.39	5.41
79/11/ 3	2444181.0	49.54516	27.90383	7.62756	-0.51813	0.88804	0.32220	57.37182	1.07745	29.39	7.64
79/11/ 4	2444181.5	45.66903	33.69246	9.74725	-0.62480	0.81924	0.30297	57.58342	1.07393	36.42	9.75
79/11/ 4	2444182.0	41.10608	38.97512	11.72170	-0.72068	0.73891	0.27939	57.84607	1.06931	43.48	11.69
79/11/ 5	2444182.5	35.93426	43.67937	13.52324	-0.80439	0.64874	0.25200	58.15528	1.06368	50.56	13.45
79/11/ 5	2444183.0	30.23969	47.74478	15.12798	-0.87490	0.55057	0.22138	58.50520	1.05716	57.65	14.99
79/11/ 6	2444183.5	24.11429	51.12353	16.51608	-0.93153	0.44629	0.18813	58.88884	1.04991	64.75	16.29
79/11/ 6	2444184.0	17.65353	53.78058	17.67187	-0.97390	0.33776	0.15288	59.29834	1.04209	71.83	17.34
79/11/ 7	2444184.5	10.95421	55.69336	18.58388	-1.00198	0.22680	0.11624	59.72524	1.03389	78.87	18.13
79/11/ 7	2444185.0	4.11261	56.85114	19.24466	-1.01597	0.11509	0.07879	60.16080	1.02550	85.86	18.66
79/11/ 8	2444185.5	-2.77711	57.25423	19.65059	-1.01628	0.00419	0.04108	60.59624	1.01712	92.78	18.92
79/11/ 8	2444186.0	-9.62423	56.91291	19.80158	-1.00350	-0.10450	0.00359	61.02301	1.00893	99.60	18.93
79/11/ 9	2444186.5	-16.34237	55.84641	19.70073	-0.97832	-0.20975	-0.03322	61.43300	1.00111	106.31	18.70
79/11/ 9	2444187.0	-22.85028	54.08184	19.35400	-0.94155	-0.31047	-0.06895	61.81875	0.99381	112.90	18.24
79/11/10	2444187.5	-29.07222	51.65317	18.76991	-0.89402	-0.40571	-0.10326	62.17358	0.98719	119.37	17.57
79/11/10	2444188.0	-34.93829	48.60034	17.95923	-0.83661	-0.49466	-0.13582	62.49169	0.98135	125.71	16.70
79/11/11	2444188.5	-40.38454	44.96844	16.93472	-0.77020	-0.57660	-0.16636	62.76827	0.97640	131.93	15.65
79/11/11	2444189.0	-45.35303	40.80701	15.71087	-0.69568	-0.65092	-0.19464	62.99953	0.97240	138.02	14.44
79/11/12	2444189.5	-49.79184	36.16951	14.30376	-0.61394	-0.71710	-0.22044	63.18273	0.96940	144.00	13.08
79/11/12	2444190.0	-53.65503	31.11276	12.73084	-0.52585	-0.77465	-0.24357	63.31619	0.96743	149.89	11.60
79/11/13	2444190.5	-56.90264	25.69663	11.01083	-0.43231	-0.82316	-0.26385	63.39925	0.96649	155.70	10.00
79/11/13	2444191.0	-59.50070	19.98361	9.16359	-0.33420	-0.86226	-0.28111	63.43224	0.96654	161.44	8.31
79/11/14	2444191.5	-61.42132	14.03859	7.21006	-0.23242	-0.89161	-0.29521	63.41645	0.96755	167.13	6.53
79/11/14	2444192.0	-62.64278	7.92855	5.17212	-0.12789	-0.91094	-0.30602	63.35401	0.96944	172.79	4.68
79/11/15	2444192.5	-63.14970	1.72230	3.07255	-0.02158	-0.91999	-0.31339	63.24786	0.97214	178.44	2.78
79/11/15	2444193.0	-62.93331	-4.50986	0.93490	0.08553	-0.91856	-0.31724	63.10162	0.97556	184.10	0.85
79/11/16	2444193.5	-61.99168	-10.69646	-1.21658	0.19240	-0.90652	-0.31746	62.91950	0.97958	189.79	-1.11
79/11/16	2444194.0	-60.33009	-16.76528	-3.35709	0.29795	-0.88378	-0.31399	62.70617	0.98409	195.53	-3.07
79/11/17	2444194.5	-57.96129	-22.64390	-5.46144	0.40104	-0.85036	-0.30678	62.46667	0.98897	201.34	-5.02
79/11/17	2444195.0	-54.90585	-28.26028	-7.50426	0.50050	-0.80637	-0.29582	62.20619	0.99410	207.24	-6.93

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/11/18	2444195.5	-51.19246	-33.54346	-9.46019	0.59513	-0.75202	-0.28113	61.93002	0.99937	213.23	-8.79
79/11/18	2444196.0	-46.85808	-38.42445	-11.30418	0.68367	-0.68767	-0.26278	61.64335	1.00466	219.35	-10.57
79/11/19	2444196.5	-41.94809	-42.83708	-13.01182	0.76489	-0.61381	-0.24089	61.35116	1.00988	225.60	-12.24
79/11/19	2444197.0	-36.51627	-46.71904	-14.55962	0.83756	-0.53109	-0.21562	61.05808	1.01492	231.99	-13.80
79/11/20	2444197.5	-30.62457	-50.01299	-15.92546	0.90050	-0.44032	-0.18720	60.76827	1.01972	238.52	-15.19
79/11/20	2444198.0	-24.34274	-52.66760	-17.08894	0.95258	-0.34248	-0.15592	60.48535	1.02421	245.19	-16.41
79/11/21	2444198.5	-17.74781	-54.63875	-18.03180	0.99280	-0.23870	-0.12211	60.21231	1.02837	252.01	-17.43
79/11/21	2444199.0	-10.92318	-55.89047	-18.73830	1.02027	-0.13027	-0.08619	59.95152	1.03216	258.94	-18.21
79/11/22	2444199.5	-3.95775	-56.39603	-19.19561	1.03428	-0.01861	-0.04861	59.70467	1.03558	265.99	-18.75
79/11/22	2444200.0	3.05536	-56.13870	-19.39414	1.03428	0.09474	-0.00986	59.47287	1.03866	273.12	-19.03
79/11/23	2444200.5	10.02014	-55.11249	-19.32783	1.01997	0.20816	0.02950	59.25669	1.04141	280.30	-19.04
79/11/23	2444201.0	16.83912	-53.32260	-18.99437	0.99123	0.31997	0.06892	59.05626	1.04388	287.53	-18.76
79/11/24	2444201.5	23.41504	-50.78574	-18.39540	0.94823	0.42845	0.10781	58.87144	1.04611	294.75	-18.21
79/11/24	2444202.0	29.65239	-47.53015	-17.53656	0.89134	0.53192	0.14556	58.70188	1.04815	301.96	-17.38
79/11/25	2444202.5	35.45914	-43.59550	-16.42753	0.82120	0.62871	0.18159	58.54726	1.05006	309.12	-16.30
79/11/25	2444203.0	40.74831	-39.03243	-15.08195	0.73867	0.71723	0.21532	58.40737	1.05186	316.23	-14.96
79/11/26	2444203.5	45.43961	-33.90202	-13.51730	0.64485	0.79600	0.24619	58.28227	1.05360	323.27	-13.41
79/11/26	2444204.0	49.46090	-28.27493	-11.75468	0.54106	0.86368	0.27369	58.17237	1.05527	330.25	-11.66
79/11/27	2444204.5	52.74962	-22.23040	-9.81853	0.42880	0.91909	0.29736	58.07853	1.05689	337.15	-9.73
79/11/27	2444205.0	55.25404	-15.85503	-7.73625	0.30976	0.96123	0.31678	58.00207	1.05842	343.99	-7.66
79/11/28	2444205.5	56.93436	-9.24146	-5.53782	0.18577	0.98932	0.33161	57.94474	1.05983	350.78	-5.48
79/11/28	2444206.0	57.76364	-2.48675	-3.25527	0.05878	1.00284	0.34158	57.90871	1.06104	357.53	-3.22
79/11/29	2444206.5	57.72845	4.30928	-0.92215	-0.06916	1.00150	0.34652	57.89641	1.06200	4.27	-0.91
79/11/29	2444207.0	56.82933	11.04582	1.42706	-0.19599	0.98530	0.34633	57.91044	1.06262	11.00	1.41
79/11/30	2444207.5	55.08086	17.62303	3.75763	-0.31962	0.95452	0.34102	57.95336	1.06281	17.74	3.72
79/11/30	2444208.0	52.51151	23.94391	6.03517	-0.43806	0.90972	0.33070	58.02752	1.06247	24.51	5.97
79/12/ 1	2444208.5	49.16308	29.91623	8.22637	-0.54938	0.85175	0.31557	58.13486	1.06154	31.32	8.13
79/12/ 1	2444209.0	45.08976	35.45429	10.29963	-0.65183	0.78169	0.29593	58.27671	1.05995	38.18	10.18
79/12/ 2	2444209.5	40.35699	40.48053	12.22563	-0.74387	0.70085	0.27216	58.45363	1.05764	45.09	12.07
79/12/ 2	2444210.0	35.03990	44.92699	13.97793	-0.82418	0.61074	0.24471	58.66525	1.05459	52.05	13.78
79/12/ 3	2444210.5	29.22157	48.73631	15.53337	-0.89173	0.51299	0.21411	58.91022	1.05081	59.05	15.29
79/12/ 3	2444211.0	22.99115	51.86258	16.87243	-0.94576	0.40933	0.18091	59.18614	1.04630	66.09	16.56
79/12/ 4	2444211.5	16.44193	54.27166	17.97945	-0.98582	0.30151	0.14569	59.48958	1.04114	73.15	17.59
79/12/ 4	2444212.0	9.66932	55.94130	18.84272	-1.01172	0.19126	0.10903	59.81616	1.03540	80.19	18.36
79/12/ 5	2444212.5	2.76910	56.86084	19.45448	-1.02354	0.08028	0.07152	60.16062	1.02917	87.21	18.87
79/12/ 5	2444213.0	-4.16432	57.03068	19.81081	-1.02159	-0.02986	0.03370	60.51700	1.02258	94.18	19.11
79/12/ 6	2444213.5	-11.03931	56.46150	19.91141	-1.00638	-0.13771	-0.00391	60.87882	1.01577	101.06	19.09
79/12/ 6	2444214.0	-17.76821	55.17339	19.75937	-0.97858	-0.24195	-0.04083	61.23924	1.00887	107.85	18.82
79/12/ 7	2444214.5	-24.26833	53.19484	19.36086	-0.93896	-0.34142	-0.07663	61.59128	1.00204	114.52	18.32
79/12/ 7	2444215.0	-30.46262	50.56171	18.72479	-0.88842	-0.43509	-0.11092	61.92798	0.99544	121.07	17.60
79/12/ 8	2444215.5	-36.28016	47.31625	17.86252	-0.82787	-0.52210	-0.14337	62.24265	0.98920	127.48	16.68
79/12/ 8	2444216.0	-41.65646	43.50616	16.78756	-0.75829	-0.60171	-0.17368	62.52894	0.98347	133.76	15.57
79/12/ 9	2444216.5	-46.53361	39.18374	15.51525	-0.68064	-0.67329	-0.20160	62.78109	0.97838	139.90	14.31
79/12/ 9	2444217.0	-50.86033	34.40513	14.06255	-0.59591	-0.73634	-0.22692	62.99397	0.97406	145.92	12.90
79/12/10	2444217.5	-54.59189	29.22967	12.44777	-0.50506	-0.79041	-0.24943	63.16325	0.97059	151.83	11.37

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
79/12/10	2444218.0	-57.69012	23.71940	10.69045	-0.40904	-0.83515	-0.26899	63.28543	0.96806	157.65	9.73
79/12/11	2444218.5	-60.12323	17.93856	8.81114	-0.30881	-0.87026	-0.28543	63.35796	0.96654	163.39	7.99
79/12/11	2444219.0	-61.86587	11.95323	6.83132	-0.20531	-0.89550	-0.29865	63.37927	0.96605	169.06	6.19
79/12/12	2444219.5	-62.89900	5.83105	4.77325	-0.09946	-0.91064	-0.30852	63.34879	0.96662	174.70	4.32
79/12/12	2444220.0	-63.21000	-0.35907	2.65994	0.00777	-0.91554	-0.31495	63.26696	0.96822	180.33	2.41
79/12/13	2444220.5	-62.79275	-6.54726	0.51501	0.11542	-0.91005	-0.31784	63.13527	0.97085	185.95	0.47
79/12/13	2444221.0	-61.64779	-12.66289	-1.63738	0.22249	-0.89410	-0.31714	62.95617	0.97442	191.61	-1.49
79/12/14	2444221.5	-59.78252	-18.63496	-3.77261	0.32795	-0.86766	-0.31277	62.73311	0.97888	197.31	-3.45
79/12/14	2444222.0	-57.21151	-24.39242	-5.86571	0.43071	-0.83074	-0.30469	62.47042	0.98411	203.09	-5.39
79/12/15	2444222.5	-53.95682	-29.86466	-7.89156	0.52964	-0.78346	-0.29290	62.17325	0.99001	208.96	-7.29
79/12/15	2444223.0	-50.04829	-34.98210	-9.82498	0.62358	-0.72601	-0.27741	61.84747	0.99644	214.95	-9.14
79/12/16	2444223.5	-45.52392	-39.67687	-11.64104	0.71129	-0.65871	-0.25826	61.49956	1.00326	221.07	-10.91
79/12/16	2444224.0	-40.43006	-43.88366	-13.31530	0.79153	-0.58200	-0.23555	61.13643	1.01032	227.35	-12.58
79/12/17	2444224.5	-34.82162	-47.54071	-14.82411	0.86303	-0.49649	-0.20944	60.76528	1.01745	233.78	-14.12
79/12/17	2444225.0	-28.76207	-50.59093	-16.14506	0.92454	-0.40295	-0.18012	60.39339	1.02449	240.38	-15.51
79/12/18	2444225.5	-22.32325	-52.98311	-17.25735	0.97483	-0.30235	-0.14787	60.02794	1.03130	247.15	-16.71
79/12/18	2444226.0	-15.58495	-54.67325	-18.14227	1.01279	-0.19586	-0.11304	59.67577	1.03773	254.09	-17.70
79/12/19	2444226.5	-8.63420	-55.62587	-18.78372	1.03742	-0.08481	-0.07605	59.34319	1.04365	261.18	-18.45
79/12/19	2444227.0	-1.56423	-55.81525	-19.16864	1.04788	0.02925	-0.03738	59.03579	1.04895	268.39	-18.95
79/12/20	2444227.5	5.52683	-55.22664	-19.28749	1.04356	0.14463	0.00242	58.75827	1.05354	275.71	-19.16
79/12/20	2444228.0	12.53759	-53.85718	-19.13468	1.02413	0.25952	0.04274	58.51429	1.05736	283.10	-19.09
79/12/21	2444228.5	19.36527	-51.71659	-18.70883	0.98952	0.37202	0.08293	58.30643	1.06039	290.53	-18.72
79/12/21	2444229.0	25.90773	-48.82754	-18.01305	0.93998	0.48022	0.12234	58.13613	1.06261	297.95	-18.05
79/12/22	2444229.5	32.06565	-45.22558	-17.05497	0.87609	0.58223	0.16028	58.00372	1.06405	305.34	-17.10
79/12/22	2444230.0	37.74464	-40.95879	-15.84674	0.79872	0.67625	0.19610	57.90854	1.06477	312.66	-15.88
79/12/23	2444230.5	42.85730	-36.08694	-14.40486	0.70907	0.76063	0.22918	57.84907	1.06483	319.90	-14.42
79/12/23	2444231.0	47.32506	-30.68043	-12.74984	0.60855	0.83391	0.25894	57.82308	1.06432	327.04	-12.74
79/12/24	2444231.5	51.07982	-24.81886	-10.90584	0.49882	0.89482	0.28490	57.82786	1.06334	334.09	-10.87
79/12/24	2444232.0	54.06524	-18.58940	-8.90015	0.38168	0.94240	0.30663	57.86042	1.06199	341.03	-8.85
79/12/25	2444232.5	56.23773	-12.08506	-6.76265	0.25909	0.97590	0.32378	57.91774	1.06035	347.87	-6.71
79/12/25	2444233.0	57.56710	-5.40283	-4.52518	0.13305	0.99487	0.33611	57.99688	1.05851	354.64	-4.48
79/12/26	2444233.5	58.03685	1.35816	-2.22099	0.00560	0.99915	0.34347	58.09521	1.05655	1.34	-2.19
79/12/26	2444234.0	57.64428	8.09846	0.11599	-0.12126	0.98880	0.34578	58.21049	1.05451	8.00	0.11
79/12/27	2444234.5	56.40013	14.72005	2.45163	-0.24554	0.96417	0.34309	58.34094	1.05243	14.63	2.41
79/12/27	2444235.0	54.32821	21.12797	4.75230	-0.36539	0.92582	0.33548	58.48529	1.05033	21.25	4.66
79/12/28	2444235.5	51.46459	27.23183	6.98534	-0.47904	0.87453	0.32315	58.64274	1.04819	27.88	6.84
79/12/28	2444236.0	47.85679	32.94720	9.11961	-0.58489	0.81128	0.30636	58.81290	1.04600	34.55	8.92
79/12/29	2444236.5	43.56269	38.19686	11.12594	-0.68148	0.73721	0.28543	58.99572	1.04372	41.25	10.87
79/12/29	2444237.0	38.64933	42.91181	12.97758	-0.76756	0.65361	0.26075	59.19131	1.04132	47.99	12.66
79/12/30	2444237.5	33.19159	47.03220	14.65052	-0.84207	0.56188	0.23274	59.39989	1.03873	54.79	14.28
79/12/30	2444238.0	27.27081	50.50798	16.12381	-0.90417	0.46352	0.20188	59.62156	1.03592	61.63	15.69
79/12/31	2444238.5	20.97328	53.29943	17.37983	-0.95324	0.36006	0.16867	59.85622	1.03284	68.52	16.88
79/12/31	2444239.0	14.38873	55.37742	18.40439	-0.98888	0.25310	0.13362	60.10338	1.02946	75.43	17.83
80/ 1/ 1	2444239.5	7.60883	56.72348	19.18689	-1.01091	0.14419	0.09727	60.36211	1.02577	82.36	18.53
80/ 1/ 1	2444240.0	0.72570	57.32969	19.72029	-1.01938	0.03488	0.06015	60.63093	1.02175	89.27	18.98

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
80/ 1/ 2	2444240.5	-6.16948	57.19833	20.00111	-1.01452	-0.07337	0.02277	60.90776	1.01743	96.16	19.17
80/ 1/ 2	2444241.0	-12.98775	56.34138	20.02928	-0.99675	-0.17916	-0.01437	61.18991	1.01283	102.98	19.11
80/ 1/ 3	2444241.5	-19.64354	54.77991	19.80799	-0.96665	-0.28121	-0.05082	61.47409	1.00801	109.73	18.80
80/ 1/ 3	2444242.0	-26.05565	52.54325	19.34349	-0.92493	-0.37835	-0.08612	61.75646	1.00302	116.38	18.25
80/ 1/ 4	2444242.5	-32.14806	49.66822	18.64481	-0.87239	-0.46955	-0.11991	62.03273	0.99796	122.91	17.49
80/ 1/ 4	2444243.0	-37.85061	46.19821	17.72350	-0.80996	-0.55391	-0.15181	62.29820	0.99292	129.33	16.53
80/ 1/ 5	2444243.5	-43.09943	42.18232	16.59336	-0.73857	-0.63063	-0.18152	62.54796	0.98800	135.62	15.38
80/ 1/ 5	2444244.0	-47.83726	37.67445	15.27015	-0.65924	-0.69908	-0.20878	62.77695	0.98331	141.78	14.08
80/ 1/ 6	2444244.5	-52.01368	32.73258	13.77134	-0.57296	-0.75871	-0.23334	62.98011	0.97897	147.82	12.63
80/ 1/ 6	2444245.0	-55.58516	27.41793	12.11583	-0.48077	-0.80909	-0.25502	63.15256	0.97509	153.74	11.06
80/ 1/ 7	2444245.5	-58.51505	21.79435	10.32374	-0.38367	-0.84989	-0.27365	63.28969	0.97180	159.57	9.39
80/ 1/ 7	2444246.0	-60.77354	15.92773	8.41621	-0.28268	-0.88083	-0.28909	63.38729	0.96919	165.31	7.63
80/ 1/ 8	2444246.5	-62.33759	9.88545	6.41521	-0.17877	-0.90173	-0.30123	63.44172	0.96737	170.99	5.80
80/ 1/ 8	2444247.0	-63.19078	3.73603	4.34342	-0.07293	-0.91245	-0.30998	63.44996	0.96642	176.62	3.93
80/ 1/ 9	2444247.5	-63.32332	-2.45130	2.22405	0.03387	-0.91291	-0.31527	63.40977	0.96641	182.22	2.01
80/ 1/ 9	2444248.0	-62.73198	-8.60691	0.08081	0.14067	-0.90308	-0.31703	63.31972	0.96739	187.81	0.07
80/ 1/10	2444248.5	-61.42009	-14.66105	-2.06230	0.24648	-0.88295	-0.31522	63.17932	0.96939	193.43	-1.87
80/ 1/10	2444249.0	-59.39766	-20.54416	-4.18096	0.35032	-0.85259	-0.30981	62.98908	0.97243	199.08	-3.81
80/ 1/11	2444249.5	-56.68145	-26.18719	-6.25075	0.45117	-0.81208	-0.30078	62.75052	0.97647	204.80	-5.72
80/ 1/11	2444250.0	-53.29526	-31.52194	-8.24717	0.54799	-0.76158	-0.28814	62.46625	0.98149	210.60	-7.59
80/ 1/12	2444250.5	-49.27004	-36.48149	-10.14582	0.63968	-0.70133	-0.27192	62.13995	0.98742	216.52	-9.40
80/ 1/12	2444251.0	-44.64428	-41.00074	-11.92256	0.72513	-0.63163	-0.25216	61.77637	0.99416	222.56	-11.13
80/ 1/13	2444251.5	-39.46421	-45.01708	-13.55371	0.80317	-0.55290	-0.22894	61.38130	1.00160	228.76	-12.76
80/ 1/13	2444252.0	-33.78404	-48.47112	-15.01630	0.87260	-0.46569	-0.20241	60.96147	1.00959	235.12	-14.26
80/ 1/14	2444252.5	-27.66618	-51.30770	-16.28843	0.93222	-0.37070	-0.17273	60.52446	1.01798	241.67	-15.61
80/ 1/14	2444253.0	-21.18123	-53.47695	-17.34957	0.98081	-0.26879	-0.14015	60.07858	1.02658	248.39	-16.79
80/ 1/15	2444253.5	-14.40785	-54.93554	-18.18107	1.01720	-0.16104	-0.10498	59.63263	1.03521	255.30	-17.75
80/ 1/15	2444254.0	-7.43234	-55.64808	-18.76659	1.04032	-0.04872	-0.06759	59.19572	1.04365	262.39	-18.48
80/ 1/16	2444254.5	-0.34795	-55.58851	-19.09265	1.04921	0.06669	-0.02845	58.77697	1.05171	269.64	-18.96
80/ 1/16	2444255.0	6.74625	-54.74153	-19.14919	1.04311	0.18350	0.01191	58.38525	1.05919	277.03	-19.15
80/ 1/17	2444255.5	13.74683	-53.10392	-18.93004	1.02150	0.29983	0.05285	58.02886	1.06591	284.51	-19.04
80/ 1/17	2444256.0	20.54789	-50.68564	-18.43343	0.98418	0.41368	0.09372	57.71517	1.07170	292.07	-18.63
80/ 1/18	2444256.5	27.04328	-47.51057	-17.66235	0.93130	0.52295	0.13378	57.45043	1.07642	299.65	-17.90
80/ 1/18	2444257.0	33.12911	-43.61686	-16.62478	0.86336	0.62554	0.17229	57.23942	1.07999	307.22	-16.88
80/ 1/19	2444257.5	38.70636	-39.05674	-15.33375	0.78131	0.71941	0.20850	57.08533	1.08234	314.74	-15.58
80/ 1/19	2444258.0	43.68360	-33.89577	-13.80726	0.68643	0.80267	0.24171	56.98965	1.08346	322.19	-14.02
80/ 1/20	2444258.5	47.97937	-28.21157	-12.06788	0.58038	0.87366	0.27126	56.95214	1.08338	329.54	-12.23
80/ 1/20	2444259.0	51.52441	-22.09206	-10.14234	0.46508	0.93102	0.29659	56.97097	1.08216	336.79	-10.25
80/ 1/21	2444259.5	54.26333	-15.63325	-8.06083	0.34271	0.97371	0.31725	57.04283	1.07991	343.93	-8.12
80/ 1/21	2444260.0	56.15580	-8.93691	-5.85621	0.21552	1.00108	0.33290	57.16325	1.07677	350.96	-5.88
80/ 1/22	2444260.5	57.17712	-2.10800	-3.56323	0.08585	1.01284	0.34332	57.32681	1.07289	357.89	-3.56
80/ 1/22	2444261.0	57.31833	4.74779	-1.21766	-0.04399	1.00906	0.34842	57.52752	1.06842	4.74	-1.21
80/ 1/23	2444261.5	56.58577	11.52631	1.14452	-0.17181	0.99012	0.34824	57.75911	1.06354	11.51	1.14
80/ 1/23	2444262.0	55.00019	18.12710	3.48787	-0.29555	0.95671	0.34289	58.01533	1.05840	18.24	3.45
80/ 1/24	2444262.5	52.59569	24.45513	5.77816	-0.41334	0.90974	0.33261	58.29019	1.05315	24.94	5.69

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/ 1/24	2444263.0	49.41826	30.42224	7.98294	-0.52353	0.85033	0.31770	58.57819	1.04789	31.62	7.83
80/ 1/25	2444263.5	45.52441	35.94833	10.07199	-0.62468	0.77973	0.29850	58.87444	1.04274	38.30	9.85
80/ 1/25	2444264.0	40.97955	40.96221	12.01769	-0.71559	0.69931	0.27544	59.17475	1.03777	44.99	11.72
80/ 1/26	2444264.5	35.85651	45.40218	13.79533	-0.79527	0.61050	0.24895	59.47569	1.03303	51.70	13.41
80/ 1/26	2444265.0	30.23405	49.21642	15.38328	-0.86295	0.51479	0.21951	59.77457	1.02853	58.44	14.91
80/ 1/27	2444265.5	24.19543	52.36322	16.76313	-0.91808	0.41366	0.18759	60.06936	1.02429	65.20	16.20
80/ 1/27	2444266.0	17.82705	54.81097	17.91981	-0.96028	0.30861	0.15368	60.35864	1.02030	71.98	17.27
80/ 1/28	2444266.5	11.21718	56.53811	18.84155	-0.98937	0.20111	0.11829	60.64146	1.01651	78.78	18.10
80/ 1/28	2444267.0	4.45477	57.53289	19.51993	-1.00534	0.09259	0.08190	60.91721	1.01291	85.57	18.69
80/ 1/29	2444267.5	-2.37168	57.79312	19.94983	-1.00832	-0.01557	0.04499	61.18550	1.00944	92.35	19.03
80/ 1/29	2444268.0	-9.17515	57.32576	20.12931	-0.99861	-0.12205	0.00803	61.44603	1.00607	99.09	19.12
80/ 1/30	2444268.5	-15.87105	56.14645	20.05953	-0.97664	-0.22560	-0.02854	61.69845	1.00276	105.78	18.97
80/ 1/30	2444269.0	-22.37814	54.27902	19.74462	-0.94296	-0.32506	-0.06428	61.94225	0.99948	112.41	18.59
80/ 1/31	2444269.5	-28.61926	51.75484	19.19149	-0.89822	-0.41936	-0.09881	62.17668	0.99621	118.94	17.98
80/ 1/31	2444270.0	-34.52210	48.61225	18.40968	-0.84319	-0.50753	-0.13176	62.40066	0.99293	125.38	17.16
80/ 2/ 1	2444270.5	-40.01971	44.89578	17.41109	-0.77871	-0.58869	-0.16277	62.61274	0.98966	131.71	16.15
80/ 2/ 1	2444271.0	-45.05110	40.65552	16.20984	-0.70568	-0.66208	-0.19155	62.81108	0.98642	137.94	14.96
80/ 2/ 2	2444271.5	-49.56156	35.94632	14.82197	-0.62504	-0.72706	-0.21784	62.99347	0.98323	144.05	13.61
80/ 2/ 2	2444272.0	-53.50296	30.82712	13.26525	-0.53781	-0.78307	-0.24138	63.15730	0.98015	150.05	12.12
80/ 2/ 3	2444272.5	-56.83398	25.36018	11.55895	-0.44498	-0.82968	-0.26198	63.29968	0.97724	155.95	10.52
80/ 2/ 3	2444273.0	-59.52024	19.61047	9.72356	-0.34758	-0.86652	-0.27947	63.41748	0.97456	161.76	8.82
80/ 2/ 4	2444273.5	-61.53429	13.64497	7.78065	-0.24665	-0.89336	-0.29371	63.50742	0.97221	167.50	7.04
80/ 2/ 4	2444274.0	-62.85565	7.53214	5.75262	-0.14321	-0.91001	-0.30459	63.56618	0.97026	173.17	5.19
80/ 2/ 5	2444274.5	-63.47077	1.34130	3.66249	-0.03827	-0.91638	-0.31203	63.59049	0.96880	178.79	3.30
80/ 2/ 5	2444275.0	-63.37289	-4.85777	1.53382	0.06717	-0.91244	-0.31597	63.57730	0.96794	184.38	1.38
80/ 2/ 6	2444275.5	-62.56205	-10.99534	-0.60954	0.17210	-0.89823	-0.31636	63.52385	0.96774	189.97	-0.55
80/ 2/ 6	2444276.0	-61.04497	-17.00208	-2.74353	0.27555	-0.87383	-0.31320	63.42780	0.96830	195.56	-2.48
80/ 2/ 7	2444276.5	-58.83500	-22.80947	-4.84404	0.37654	-0.83939	-0.30648	63.28739	0.96969	201.19	-4.39
80/ 2/ 7	2444277.0	-55.95212	-28.35013	-6.88702	0.47409	-0.79511	-0.29621	63.10151	0.97196	206.87	-6.27
80/ 2/ 8	2444277.5	-52.42298	-33.55821	-8.84859	0.56722	-0.74123	-0.28245	62.86986	0.97515	212.63	-8.09
80/ 2/ 8	2444278.0	-48.28091	-38.36973	-10.70520	0.65492	-0.67806	-0.26523	62.59300	0.97930	218.47	-9.85
80/ 2/ 9	2444278.5	-43.56610	-42.72306	-12.43374	0.73618	-0.60600	-0.24464	62.27249	0.98440	224.44	-11.52
80/ 2/ 9	2444279.0	-38.32565	-46.55942	-14.01174	0.80996	-0.52549	-0.22079	61.91093	0.99041	230.54	-13.08
80/ 2/10	2444279.5	-32.61378	-49.82344	-15.41751	0.87521	-0.43709	-0.19382	61.51206	0.99730	236.79	-14.52
80/ 2/10	2444280.0	-26.49188	-52.46395	-16.63047	0.93086	-0.34149	-0.16389	61.08075	1.00497	243.21	-15.80
80/ 2/11	2444280.5	-20.02862	-54.43472	-17.63133	0.97583	-0.23948	-0.13123	60.62300	1.01332	249.80	-16.91
80/ 2/11	2444281.0	-13.29989	-55.69557	-18.40253	1.00907	-0.13202	-0.09612	60.14596	1.02220	256.57	-17.82
80/ 2/12	2444281.5	-6.38860	-56.21338	-18.92855	1.02957	-0.02027	-0.05889	59.65776	1.03146	263.52	-18.50
80/ 2/12	2444282.0	0.61571	-55.96343	-19.19641	1.03640	0.09445	-0.01996	59.16744	1.04088	270.63	-18.93
80/ 2/13	2444282.5	7.61761	-54.93068	-19.19616	1.02874	0.21061	0.02019	58.68475	1.05027	277.90	-19.09
80/ 2/13	2444283.0	14.51682	-53.11118	-18.92139	1.00599	0.32647	0.06100	58.21988	1.05940	285.29	-18.97
80/ 2/14	2444283.5	21.20968	-50.51335	-18.36975	0.96777	0.44012	0.10184	57.78319	1.06801	292.78	-18.54
80/ 2/14	2444284.0	27.59104	-47.15906	-17.54342	0.91402	0.54949	0.14200	57.38479	1.07589	300.33	-17.80
80/ 2/15	2444284.5	33.55656	-43.08448	-16.44951	0.84506	0.65245	0.18072	57.03422	1.08281	307.91	-16.76
80/ 2/15	2444285.0	39.00534	-38.34043	-15.10032	0.76159	0.74683	0.21725	56.73997	1.08856	315.49	-15.43

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
80/ 2/16	2444285.5	43.84280	-32.99213	-13.51339	0.66477	0.83054	0.25080	56.50914	1.09299	323.04	-13.84
80/ 2/16	2444286.0	47.98361	-27.11838	-11.71139	0.55617	0.90169	0.28064	56.34705	1.09596	330.53	-12.00
80/ 2/17	2444286.5	51.35444	-20.81007	-9.72172	0.43776	0.95862	0.30612	56.25700	1.09741	337.94	-9.95
80/ 2/17	2444287.0	53.89643	-14.16798	-7.57589	0.31182	1.00007	0.32667	56.24012	1.09731	345.27	-7.74
80/ 2/18	2444287.5	55.56699	-7.30016	-5.30874	0.18087	1.02517	0.34188	56.29534	1.09571	352.52	-5.41
80/ 2/18	2444288.0	56.34106	-0.31893	-2.95745	0.04753	1.03353	0.35148	56.41953	1.09270	359.68	-3.00
80/ 2/19	2444288.5	56.21146	6.66225	-0.56050	-0.08555	1.02521	0.35536	56.60767	1.08842	6.76	-0.57
80/ 2/19	2444289.0	55.18855	13.53180	1.84339	-0.21584	1.00069	0.35355	56.85318	1.08303	13.78	1.86
80/ 2/20	2444289.5	53.29924	20.18282	4.21627	-0.34102	0.96085	0.34624	57.14834	1.07676	20.74	4.23
80/ 2/20	2444290.0	50.58541	26.51541	6.52181	-0.45900	0.90688	0.33373	57.48465	1.06980	27.66	6.51
80/ 2/21	2444290.5	47.10198	32.43854	8.72607	-0.56801	0.84019	0.31641	57.85326	1.06239	34.55	8.68
80/ 2/21	2444291.0	42.91482	37.87139	10.79806	-0.66659	0.76237	0.29475	58.24536	1.05472	41.43	10.68
80/ 2/22	2444291.5	38.09854	42.74418	12.71011	-0.75362	0.67509	0.26927	58.65246	1.04700	48.29	12.52
80/ 2/22	2444292.0	32.73439	46.99863	14.43813	-0.82826	0.58006	0.24050	59.06667	1.03939	55.14	14.15
80/ 2/23	2444292.5	26.90835	50.58797	15.96178	-0.88994	0.47897	0.20901	59.48092	1.03203	61.99	15.57
80/ 2/23	2444293.0	20.70931	53.47675	17.26440	-0.93836	0.37346	0.17533	59.88904	1.02506	68.83	16.75
80/ 2/24	2444293.5	14.22761	55.64044	18.33302	-0.97341	0.26512	0.14000	60.28585	1.01853	75.66	17.70
80/ 2/24	2444294.0	7.55367	57.06494	19.15822	-0.99516	0.15542	0.10353	60.66714	1.01253	82.46	18.41
80/ 2/25	2444294.5	0.77689	57.74589	19.73398	-1.00382	0.04578	0.06642	61.02968	1.00706	89.23	18.87
80/ 2/25	2444295.0	-6.01527	57.68816	20.05751	-0.99977	-0.06250	0.02912	61.37109	1.00214	95.95	19.08
80/ 2/26	2444295.5	-12.73811	56.90509	20.12908	-0.98344	-0.16821	-0.00791	61.68978	0.99775	102.62	19.04
80/ 2/26	2444296.0	-19.31039	55.41794	19.95185	-0.95540	-0.27023	-0.04428	61.98481	0.99387	109.21	18.78
80/ 2/27	2444296.5	-25.65487	53.25525	19.53166	-0.91629	-0.36753	-0.07959	62.25577	0.99045	115.72	18.28
80/ 2/27	2444297.0	-31.69885	50.45222	18.87688	-0.86679	-0.45917	-0.11350	62.50264	0.98744	122.14	17.58
80/ 2/28	2444297.5	-37.37460	47.05014	17.99821	-0.80768	-0.54429	-0.14565	62.72569	0.98479	128.46	16.67
80/ 2/28	2444298.0	-42.61979	43.09581	16.90850	-0.73979	-0.62212	-0.17576	62.92530	0.98246	134.68	15.59
80/ 2/29	2444298.5	-47.37784	38.64094	15.62260	-0.66398	-0.69199	-0.20355	63.10188	0.98038	140.80	14.33
80/ 2/29	2444299.0	-51.59818	33.74158	14.15712	-0.58117	-0.75329	-0.22875	63.25575	0.97853	146.82	12.93
80/ 3/ 1	2444299.5	-55.23659	28.45750	12.53031	-0.49230	-0.80551	-0.25115	63.38706	0.97688	152.74	11.40
80/ 3/ 1	2444300.0	-58.25537	22.85167	10.76179	-0.39836	-0.84824	-0.27056	63.49569	0.97540	158.58	9.76
80/ 3/ 2	2444300.5	-60.62350	16.98961	8.87246	-0.30034	-0.88113	-0.28681	63.58126	0.97409	164.34	8.02
80/ 3/ 2	2444301.0	-62.31683	10.93883	6.88420	-0.19926	-0.90393	-0.29975	63.64304	0.97295	170.04	6.21
80/ 3/ 3	2444301.5	-63.31810	4.76829	4.81976	-0.09615	-0.91647	-0.30928	63.68005	0.97202	175.69	4.34
80/ 3/ 3	2444302.0	-63.61703	-1.45221	2.70256	0.00796	-0.91867	-0.31532	63.69097	0.97131	181.31	2.43
80/ 3/ 4	2444302.5	-63.21030	-7.65255	0.55644	0.11205	-0.91052	-0.31781	63.67428	0.97088	186.90	0.50
80/ 3/ 4	2444303.0	-62.10153	-13.76284	-1.59444	0.21510	-0.89210	-0.31673	63.62828	0.97078	192.50	-1.44
80/ 3/ 5	2444303.5	-60.30117	-19.71388	-3.72582	0.31610	-0.86353	-0.31206	63.55116	0.97107	198.10	-3.36
80/ 3/ 5	2444304.0	-57.82652	-25.43769	-5.81352	0.41406	-0.82504	-0.30383	63.44115	0.97183	203.74	-5.26
80/ 3/ 6	2444304.5	-54.70153	-30.86796	-7.83357	0.50798	-0.77690	-0.29209	63.29655	0.97311	209.44	-7.11
80/ 3/ 6	2444305.0	-50.95682	-35.94049	-9.76240	0.59690	-0.71946	-0.27691	63.11593	0.97498	215.20	-8.90
80/ 3/ 7	2444305.5	-46.62950	-40.59367	-11.57698	0.67986	-0.65314	-0.25837	62.89820	0.97753	221.04	-10.61
80/ 3/ 7	2444306.0	-41.76317	-44.76893	-13.25498	0.75591	-0.57842	-0.23660	62.64275	0.98079	226.99	-12.22
80/ 3/ 8	2444306.5	-36.40780	-48.41120	-14.77498	0.82411	-0.49586	-0.21174	62.34960	0.98482	233.05	-13.71
80/ 3/ 8	2444307.0	-30.61969	-51.46948	-16.11659	0.88354	-0.40609	-0.18396	62.01949	0.98964	239.25	-15.06
80/ 3/ 9	2444307.5	-24.46138	-53.89739	-17.26069	0.93327	-0.30984	-0.15346	61.65403	0.99526	245.59	-16.26

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
80/ 3/ 9	2444308.0	-18.00159	-55.65381	-18.18969	0.97242	-0.20795	-0.12048	61.25576	1.00168	252.08	-17.27
80/ 3/10	2444308.5	-11.31501	-56.70367	-18.88771	1.00010	-0.10137	-0.08530	60.82830	1.00884	258.72	-18.09
80/ 3/10	2444309.0	-4.48213	-57.01877	-19.34097	1.01549	0.00883	-0.04826	60.37635	1.01667	265.51	-18.68
80/ 3/11	2444309.5	2.41120	-56.57870	-19.53807	1.01783	0.12141	-0.00973	59.90576	1.02509	272.44	-19.04
80/ 3/11	2444310.0	9.27425	-55.37186	-19.47041	1.00645	0.23500	0.02985	59.42349	1.03395	279.51	-19.13
80/ 3/12	2444310.5	16.01224	-53.39656	-19.13256	0.98082	0.34806	0.06997	58.93759	1.04310	286.69	-18.94
80/ 3/12	2444311.0	22.52737	-50.66209	-18.52272	0.94060	0.45889	0.11006	58.45701	1.05234	293.97	-18.47
80/ 3/13	2444311.5	28.72027	-47.18976	-17.64314	0.88567	0.56563	0.14951	57.99145	1.06146	301.33	-17.71
80/ 3/13	2444312.0	34.49171	-43.01378	-16.50052	0.81621	0.66633	0.18762	57.55112	1.07023	308.73	-16.66
80/ 3/14	2444312.5	39.74481	-38.18191	-15.10632	0.73272	0.75897	0.22367	57.14638	1.07840	316.15	-15.33
80/ 3/14	2444313.0	44.38745	-32.75566	-13.47698	0.63613	0.84152	0.25693	56.78739	1.08573	323.57	-13.73
80/ 3/15	2444313.5	48.33500	-26.81003	-11.63395	0.52772	0.91202	0.28665	56.48361	1.09199	330.98	-11.89
80/ 3/15	2444314.0	51.51312	-20.43267	-9.60355	0.40924	0.96873	0.31215	56.24343	1.09698	338.36	-9.83
80/ 3/16	2444314.5	53.86048	-13.72227	-7.41655	0.28278	1.01015	0.33280	56.07367	1.10051	345.71	-7.60
80/ 3/16	2444315.0	55.33111	-6.78645	-5.10759	0.15078	1.03514	0.34809	55.97924	1.10246	353.01	-5.23
80/ 3/17	2444315.5	55.89637	0.26102	-2.71429	0.01589	1.04304	0.35766	55.96284	1.10277	0.27	-2.78
80/ 3/17	2444316.0	55.54606	7.30342	-0.27625	-0.11912	1.03365	0.36128	56.02482	1.10143	7.49	-0.28
80/ 3/18	2444316.5	54.28884	14.22438	2.16612	-0.25146	1.00728	0.35894	56.16318	1.09849	14.68	2.21
80/ 3/18	2444317.0	52.15169	20.91127	4.57272	-0.37853	0.96470	0.35076	56.37366	1.09406	21.85	4.65
80/ 3/19	2444317.5	49.17865	27.25818	6.90491	-0.49793	0.90712	0.33703	56.65002	1.08829	29.00	7.00
80/ 3/19	2444318.0	45.42881	33.16853	9.12649	-0.60760	0.83607	0.31817	56.98440	1.08140	36.13	9.22
80/ 3/20	2444318.5	40.97399	38.55703	11.20447	-0.70586	0.75333	0.29472	57.36769	1.07359	43.26	11.26
80/ 3/20	2444319.0	35.89598	43.35094	13.10967	-0.79144	0.66082	0.26726	57.79005	1.06512	50.37	13.11
80/ 3/21	2444319.5	30.28396	47.49084	14.81712	-0.86344	0.56053	0.23643	58.24127	1.05623	57.48	14.74
80/ 3/21	2444320.0	24.23186	50.93068	16.30617	-0.92133	0.45442	0.20288	58.71123	1.04714	64.56	16.13
80/ 3/22	2444320.5	17.83608	53.63749	17.56056	-0.96491	0.34438	0.16724	59.19019	1.03808	71.61	17.26
80/ 3/22	2444321.0	11.19349	55.59073	18.56827	-0.99424	0.23218	0.13013	59.66912	1.02925	78.62	18.13
80/ 3/23	2444321.5	4.39982	56.78141	19.32130	-1.00959	0.11946	0.09213	60.13983	1.02080	85.57	18.74
80/ 3/23	2444322.0	-2.45173	57.21115	19.81543	-1.01141	0.00771	0.05376	60.59520	1.01287	92.45	19.09
80/ 3/24	2444322.5	-9.27144	56.89113	20.04989	-1.00029	-0.10173	0.01553	61.02916	1.00557	99.26	19.18
80/ 3/24	2444323.0	-15.97386	55.84111	20.02709	-0.97690	-0.20766	-0.02213	61.43678	0.99897	105.96	19.02
80/ 3/25	2444323.5	-22.47837	54.08851	19.75232	-0.94198	-0.30902	-0.05881	61.81422	0.99312	112.57	18.64
80/ 3/25	2444324.0	-28.70959	51.66756	19.23345	-0.89633	-0.40487	-0.09415	62.15869	0.98803	119.06	18.02
80/ 3/26	2444324.5	-34.59763	48.61847	18.48075	-0.84079	-0.49437	-0.12781	62.46831	0.98370	125.44	17.21
80/ 3/26	2444325.0	-40.07836	44.98683	17.50659	-0.77620	-0.57678	-0.15950	62.74210	0.98011	131.70	16.20
80/ 3/27	2444325.5	-45.09353	40.82292	16.32527	-0.70346	-0.65145	-0.18894	62.97977	0.97721	137.85	15.02
80/ 3/27	2444326.0	-49.59091	36.18116	14.95284	-0.62345	-0.71780	-0.21589	63.18167	0.97495	143.89	13.69
80/ 3/28	2444326.5	-53.52446	31.11965	13.40693	-0.53711	-0.77532	-0.24014	63.34861	0.97328	149.83	12.22
80/ 3/28	2444327.0	-56.85439	25.69961	11.70657	-0.44537	-0.82360	-0.26147	63.48177	0.97213	155.68	10.63
80/ 3/29	2444327.5	-59.54736	19.98493	9.87203	-0.34918	-0.86227	-0.27973	63.58256	0.97144	161.45	8.93
80/ 3/29	2444328.0	-61.57651	14.04172	7.92472	-0.24952	-0.89104	-0.29475	63.65247	0.97113	167.15	7.15
80/ 3/30	2444328.5	-62.92165	7.93781	5.88694	-0.14737	-0.90970	-0.30642	63.69301	0.97116	172.81	5.30
80/ 3/30	2444329.0	-63.56935	1.74229	3.78183	-0.04373	-0.91808	-0.31462	63.70557	0.97148	178.43	3.40
80/ 3/31	2444329.5	-63.51301	-4.47499	1.63311	0.06036	-0.91611	-0.31928	63.69140	0.97203	184.03	1.47
80/ 3/31	2444330.0	-62.75296	-10.64394	-0.53502	0.16389	-0.90381	-0.32035	63.65150	0.97281	189.63	-0.48

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
80/ 4/ 1	2444330.5	-61.29652	-16.69475	-2.69810	0.26583	-0.88125	-0.31779	63.58661	0.97379	195.24	-2.43
80/ 4/ 1	2444331.0	-59.15799	-22.55847	-4.83161	0.36514	-0.84860	-0.31162	63.49721	0.97496	200.87	-4.36
80/ 4/ 2	2444331.5	-56.35862	-28.16751	-6.91111	0.46080	-0.80610	-0.30185	63.38349	0.97634	206.56	-6.26
80/ 4/ 2	2444332.0	-52.92659	-33.45625	-8.91250	0.55180	-0.75408	-0.28856	63.24537	0.97795	212.30	-8.10
80/ 4/ 3	2444332.5	-48.89682	-38.36158	-10.81217	0.63714	-0.69295	-0.27183	63.08259	0.97981	218.12	-9.87
80/ 4/ 3	2444333.0	-44.31090	-42.82349	-12.58725	0.71587	-0.62323	-0.25179	62.89472	0.98197	224.02	-11.54
80/ 4/ 4	2444333.5	-39.21687	-46.78561	-14.21576	0.78703	-0.54548	-0.22858	62.68129	0.98448	230.03	-13.11
80/ 4/ 4	2444334.0	-33.66902	-50.19581	-15.67688	0.84973	-0.46037	-0.20239	62.44186	0.98739	236.15	-14.54
80/ 4/ 5	2444334.5	-27.72762	-53.00676	-16.95111	0.90310	-0.36865	-0.17344	62.17618	0.99074	242.39	-15.82
80/ 4/ 5	2444335.0	-21.45866	-55.17652	-18.02053	0.94632	-0.27117	-0.14196	61.88426	0.99459	248.75	-16.93
80/ 4/ 6	2444335.5	-14.93346	-56.66911	-18.86899	0.97864	-0.16885	-0.10824	61.56651	0.99898	255.24	-17.85
80/ 4/ 6	2444336.0	-8.22838	-57.45516	-19.48236	0.99933	-0.06272	-0.07259	61.22388	1.00393	261.85	-18.56
80/ 4/ 7	2444336.5	-1.42427	-57.51255	-19.84877	1.00778	0.04612	-0.03538	60.85800	1.00946	268.58	-19.04
80/ 4/ 7	2444337.0	5.39399	-56.82710	-19.95890	1.00343	0.15643	0.00302	60.47124	1.01555	275.42	-19.27
80/ 4/ 8	2444337.5	12.13814	-55.39324	-19.80621	0.98583	0.26689	0.04215	60.06689	1.02219	282.36	-19.25
80/ 4/ 8	2444338.0	18.71735	-53.21479	-19.38731	0.95468	0.37605	0.08155	59.64915	1.02931	289.38	-18.97
80/ 4/ 9	2444338.5	25.03917	-50.30567	-18.70218	0.90982	0.48239	0.12068	59.22324	1.03683	296.46	-18.41
80/ 4/ 9	2444339.0	31.01072	-46.69053	-17.75454	0.85127	0.58425	0.15897	58.79536	1.04464	303.59	-17.58
80/ 4/10	2444339.5	36.54003	-42.40543	-16.55206	0.77929	0.67993	0.19582	58.37264	1.05259	310.75	-16.47
80/ 4/10	2444340.0	41.53778	-37.49818	-15.10666	0.69441	0.76767	0.23059	57.96302	1.06052	317.93	-15.11
80/ 4/11	2444340.5	45.91915	-32.02860	-13.43463	0.59744	0.84569	0.26263	57.57507	1.06823	325.10	-13.49
80/ 4/11	2444341.0	49.60595	-26.06841	-11.55676	0.48953	0.91226	0.29127	57.21775	1.07550	332.28	-11.65
80/ 4/12	2444341.5	52.52889	-19.70069	-9.49820	0.37216	0.96578	0.31588	56.90007	1.08213	339.44	-9.61
80/ 4/12	2444342.0	54.62994	-13.01887	-7.28832	0.24716	1.00480	0.33587	56.63074	1.08789	346.60	-7.39
80/ 4/13	2444342.5	55.86453	-6.12518	-4.96021	0.11668	1.02817	0.35071	56.41779	1.09259	353.74	-5.04
80/ 4/13	2444343.0	56.20354	0.87140	-2.55012	-0.01688	1.03508	0.36002	56.26811	1.09603	0.89	-2.60
80/ 4/14	2444343.5	55.63484	7.85776	-0.09662	-0.15091	1.02512	0.36350	56.18709	1.09808	8.04	-0.10
80/ 4/14	2444344.0	54.16424	14.71954	2.36035	-0.28275	0.99834	0.36103	56.17830	1.09863	15.20	2.41
80/ 4/15	2444344.5	51.81570	21.34435	4.78058	-0.40973	0.95527	0.35267	56.24324	1.09763	22.39	4.88
80/ 4/15	2444345.0	48.63073	27.62486	7.12470	-0.52934	0.89687	0.33861	56.38123	1.09509	29.60	7.26
80/ 4/16	2444345.5	44.66712	33.46175	9.35527	-0.63931	0.82453	0.31921	56.58941	1.09108	36.84	9.52
80/ 4/16	2444346.0	39.99686	38.76620	11.43775	-0.73772	0.73995	0.29497	56.86290	1.08571	44.10	11.60
80/ 4/17	2444346.5	34.70369	43.46185	13.34128	-0.82303	0.64509	0.26648	57.19501	1.07914	51.39	13.49
80/ 4/17	2444347.0	28.88031	47.48605	15.03931	-0.89414	0.54203	0.23440	57.57758	1.07155	58.69	15.14
80/ 4/18	2444347.5	22.62547	50.79047	16.50993	-0.95035	0.43290	0.19944	58.00139	1.06318	65.99	16.54
80/ 4/18	2444348.0	16.04126	53.34114	17.73600	-0.99138	0.31980	0.16231	58.45652	1.05425	73.26	17.66
80/ 4/19	2444348.5	9.23058	55.11793	18.70518	-1.01726	0.20470	0.12369	58.93279	1.04500	80.49	18.51
80/ 4/19	2444349.0	2.29500	56.11368	19.40964	-1.02834	0.08945	0.08425	59.42008	1.03565	87.66	19.07
80/ 4/20	2444349.5	-4.66696	56.33306	19.84585	-1.02516	-0.02429	0.04457	59.90869	1.02642	94.74	19.35
80/ 4/20	2444350.0	-11.56122	55.79131	20.01415	-1.00848	-0.13507	0.00522	60.38955	1.01750	101.71	19.35
80/ 4/21	2444350.5	-18.29910	54.51299	19.91838	-0.97913	-0.24160	-0.03333	60.85445	1.00905	108.56	19.11
80/ 4/21	2444351.0	-24.79797	52.53069	19.56549	-0.93806	-0.34278	-0.07064	61.29617	1.00122	115.27	18.61
80/ 4/22	2444351.5	-30.98169	49.88389	18.96518	-0.88624	-0.43768	-0.10633	61.70856	0.99413	121.84	17.90
80/ 4/22	2444352.0	-36.78083	46.61797	18.12950	-0.82466	-0.52549	-0.14009	62.08658	0.98784	128.27	16.98
80/ 4/23	2444352.5	-42.13272	42.78322	17.07259	-0.75434	-0.60554	-0.17162	62.42630	0.98243	134.56	15.87

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/ 4/23	2444353.0	-46.98150	38.43413	15.81041	-0.67626	-0.67728	-0.20067	62.72490	0.97791	140.71	14.60
80/ 4/24	2444353.5	-51.27801	33.62872	14.36048	-0.59142	-0.74022	-0.22702	62.98054	0.97429	146.74	13.18
80/ 4/24	2444354.0	-54.97978	28.42792	12.74171	-0.50080	-0.79397	-0.25049	63.19235	0.97157	152.66	11.63
80/ 4/25	2444354.5	-58.05091	22.89516	10.97421	-0.40536	-0.83820	-0.27091	63.36032	0.96969	158.48	9.97
80/ 4/25	2444355.0	-60.46209	17.09589	9.07916	-0.30608	-0.87263	-0.28814	63.48515	0.96861	164.21	8.22
80/ 4/26	2444355.5	-62.19056	11.09719	7.07863	-0.20393	-0.89706	-0.30204	63.56824	0.96826	169.88	6.39
80/ 4/26	2444356.0	-63.22014	4.96742	4.99553	-0.09987	-0.91132	-0.31251	63.61145	0.96857	175.51	4.50
80/ 4/27	2444356.5	-63.54128	-1.22421	2.85339	0.00511	-0.91531	-0.31946	63.61710	0.96947	181.10	2.57
80/ 4/27	2444357.0	-63.15114	-7.40798	0.67630	0.11000	-0.90900	-0.32282	63.58775	0.97087	186.69	0.61
80/ 4/28	2444357.5	-62.05366	-13.51415	-1.51128	0.21381	-0.89240	-0.32255	63.52616	0.97269	192.29	-1.36
80/ 4/28	2444358.0	-60.25969	-19.47334	-3.68463	0.31550	-0.86562	-0.31862	63.43514	0.97486	197.91	-3.33
80/ 4/29	2444358.5	-57.78703	-25.21713	-5.81898	0.41405	-0.82883	-0.31103	63.31749	0.97731	203.58	-5.27
80/ 4/29	2444359.0	-54.66051	-30.67851	-7.88969	0.50841	-0.78228	-0.29983	63.17586	0.97997	209.30	-7.17
80/ 4/30	2444359.5	-50.91199	-35.79257	-9.87242	0.59755	-0.72633	-0.28507	63.01272	0.98279	215.11	-9.01
80/ 4/30	2444360.0	-46.58032	-40.49707	-11.74342	0.68044	-0.66142	-0.26685	62.83030	0.98574	221.00	-10.77
80/ 5/ 1	2444360.5	-41.71122	-44.73311	-13.47970	0.75608	-0.58810	-0.24532	62.63050	0.98879	227.00	-12.43
80/ 5/ 1	2444361.0	-36.35712	-48.44585	-15.05933	0.82350	-0.50701	-0.22063	62.41494	0.99191	233.11	-13.96
80/ 5/ 2	2444361.5	-30.57686	-51.58518	-16.46166	0.88177	-0.41891	-0.19300	62.18490	0.99512	239.34	-15.35
80/ 5/ 2	2444362.0	-24.43535	-54.10642	-17.66762	0.93003	-0.32465	-0.16268	61.94139	0.99841	245.70	-16.57
80/ 5/ 3	2444362.5	-18.00314	-55.97103	-18.65995	0.96749	-0.22518	-0.12997	61.68520	1.00181	252.17	-17.61
80/ 5/ 3	2444363.0	-11.35586	-57.14727	-19.42348	0.99343	-0.12156	-0.09518	61.41692	1.00536	258.76	-18.44
80/ 5/ 4	2444363.5	-4.57362	-57.61084	-19.94539	1.00725	-0.01493	-0.05868	61.13710	1.00907	265.46	-19.04
80/ 5/ 4	2444364.0	2.25971	-57.34548	-20.21546	1.00845	0.09348	-0.02088	60.84633	1.01298	272.26	-19.40
80/ 5/ 5	2444364.5	9.05731	-56.34356	-20.22632	0.99665	0.20235	0.01779	60.54532	1.01714	279.13	-19.52
80/ 5/ 5	2444365.0	15.73032	-54.60654	-19.97364	0.97163	0.31031	0.05686	60.23507	1.02156	286.07	-19.37
80/ 5/ 6	2444365.5	22.18877	-52.14548	-19.45639	0.93330	0.41591	0.09583	59.91697	1.02626	293.05	-18.95
80/ 5/ 6	2444366.0	28.34277	-48.98137	-18.67700	0.88175	0.51766	0.13417	59.59293	1.03124	300.06	-18.26
80/ 5/ 7	2444366.5	34.10361	-45.14545	-17.64156	0.81726	0.61403	0.17134	59.26544	1.03649	307.07	-17.32
80/ 5/ 7	2444367.0	39.38518	-40.67940	-16.35993	0.74032	0.70348	0.20677	58.93771	1.04197	314.07	-16.12
80/ 5/ 8	2444367.5	44.10536	-35.63536	-14.84585	0.65162	0.78445	0.23989	58.61366	1.04763	321.06	-14.67
80/ 5/ 8	2444368.0	48.18757	-30.07580	-13.11698	0.55211	0.85546	0.27011	58.29795	1.05338	328.03	-13.00
80/ 5/ 9	2444368.5	51.56245	-24.07315	-11.19484	0.44297	0.91506	0.29687	57.99592	1.05910	334.97	-11.13
80/ 5/ 9	2444369.0	54.16952	-17.70918	-9.10471	0.32565	0.96195	0.31962	57.71349	1.06468	341.90	-9.08
80/ 5/10	2444369.5	55.95894	-11.07411	-6.87541	0.20183	0.99495	0.33788	57.45702	1.06996	348.81	-6.87
80/ 5/10	2444370.0	56.89315	-4.26526	-4.53891	0.07345	1.01312	0.35121	57.23307	1.07479	355.71	-4.55
80/ 5/11	2444370.5	56.94841	2.61452	-2.12988	-0.05735	1.01580	0.35925	57.04817	1.07898	2.63	-2.14
80/ 5/11	2444371.0	56.11601	9.45886	0.31498	-0.18828	1.00263	0.36176	56.90849	1.08240	9.57	0.32
80/ 5/12	2444371.5	54.40317	16.16019	2.75763	-0.31693	0.97360	0.35859	56.81955	1.08487	16.54	2.78
80/ 5/12	2444372.0	51.83346	22.61220	5.15961	-0.44091	0.92911	0.34976	56.78592	1.08626	23.57	5.21
80/ 5/13	2444372.5	48.44658	28.71254	7.48293	-0.55785	0.86992	0.33540	56.81087	1.08649	30.65	7.57
80/ 5/13	2444373.0	44.29765	34.36538	9.69107	-0.66559	0.79718	0.31580	56.89620	1.08547	37.80	9.81
80/ 5/14	2444373.5	39.45583	39.48385	11.74983	-0.76216	0.71239	0.29137	57.04205	1.08319	45.02	11.89
80/ 5/14	2444374.0	34.00241	43.99210	13.62822	-0.84595	0.61730	0.26263	57.24681	1.07966	52.30	13.77
80/ 5/15	2444374.5	28.02852	47.82690	15.29911	-0.91567	0.51387	0.23021	57.50716	1.07495	59.63	15.43
80/ 5/15	2444375.0	21.63252	50.93874	16.73979	-0.97048	0.40417	0.19477	57.81818	1.06916	66.99	16.83

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
80/ 5/16	2444375.5	14.91738	53.29229	17.93223	-1.00987	0.29030	0.15703	58.17354	1.06244	74.36	17.95
80/ 5/16	2444376.0	7.98797	54.86637	18.86327	-1.03376	0.17433	0.11769	58.56577	1.05494	81.72	18.79
80/ 5/17	2444376.5	0.94877	55.65342	19.52449	-1.04236	0.05821	0.07747	58.98651	1.04685	89.02	19.33
80/ 5/17	2444377.0	-6.09833	55.65855	19.91209	-1.03619	-0.05628	0.03700	59.42689	1.03838	96.25	19.58
80/ 5/18	2444377.5	-13.05569	54.89842	20.02650	-1.01600	-0.16752	-0.00311	59.87777	1.02972	103.38	19.54
80/ 5/18	2444378.0	-19.83128	53.39986	19.87203	-0.98268	-0.27411	-0.04231	60.33011	1.02107	110.37	19.23
80/ 5/19	2444378.5	-26.33966	51.19852	19.45643	-0.93727	-0.37486	-0.08014	60.77515	1.01263	117.22	18.67
80/ 5/19	2444379.0	-32.50259	48.33751	18.79046	-0.88086	-0.46876	-0.11619	61.20469	1.00456	123.92	17.88
80/ 5/20	2444379.5	-38.24941	44.86613	17.88742	-0.81458	-0.55498	-0.15009	61.61125	0.99703	130.45	16.88
80/ 5/20	2444380.0	-43.51713	40.83874	16.76286	-0.73958	-0.63284	-0.18156	61.98820	0.99017	136.82	15.69
80/ 5/21	2444380.5	-48.25047	36.31376	15.43414	-0.65697	-0.70183	-0.21034	62.32984	0.98408	143.03	14.34
80/ 5/21	2444381.0	-52.40169	31.35283	13.92016	-0.56786	-0.76152	-0.23623	62.63152	0.97887	149.11	12.84
80/ 5/22	2444381.5	-55.93042	26.02010	12.24111	-0.47333	-0.81157	-0.25906	62.88960	0.97458	155.05	11.22
80/ 5/22	2444382.0	-58.80346	20.38164	10.41827	-0.37441	-0.85176	-0.27867	63.10149	0.97126	160.88	9.50
80/ 5/23	2444382.5	-60.99458	14.50495	8.47378	-0.27213	-0.88190	-0.29496	63.26561	0.96891	166.62	7.70
80/ 5/23	2444383.0	-62.48437	8.45857	6.43056	-0.16748	-0.90185	-0.30781	63.38136	0.96754	172.29	5.82
80/ 5/24	2444383.5	-63.26013	2.31171	4.31211	-0.06145	-0.91156	-0.31716	63.44905	0.96711	177.91	3.90
80/ 5/24	2444384.0	-63.31578	-3.86605	2.14245	0.04500	-0.91098	-0.32292	63.46987	0.96757	183.49	1.93
80/ 5/25	2444384.5	-62.65188	-10.00512	-0.05400	0.15087	-0.90014	-0.32506	63.44575	0.96885	189.07	-0.05
80/ 5/25	2444385.0	-61.27563	-16.03617	-2.25257	0.25518	-0.87910	-0.32355	63.37930	0.97089	194.67	-2.04
80/ 5/26	2444385.5	-59.20097	-21.89057	-4.42842	0.35694	-0.84800	-0.31835	63.27372	0.97358	200.29	-4.01
80/ 5/26	2444386.0	-56.44865	-27.50074	-6.55669	0.45512	-0.80702	-0.30950	63.13265	0.97683	205.97	-5.96
80/ 5/27	2444386.5	-53.04633	-32.80066	-8.61267	0.54871	-0.75643	-0.29702	62.96010	0.98056	211.73	-7.86
80/ 5/27	2444387.0	-49.02868	-37.72640	-10.57198	0.63665	-0.69659	-0.28097	62.76033	0.98464	217.58	-9.70
80/ 5/28	2444387.5	-44.43739	-42.21674	-12.41077	0.71792	-0.62795	-0.26145	62.53769	0.98898	223.53	-11.45
80/ 5/28	2444388.0	-39.32120	-46.21386	-14.10600	0.79148	-0.55105	-0.23860	62.29652	0.99349	229.61	-13.09
80/ 5/29	2444388.5	-33.73577	-49.66408	-15.63565	0.85632	-0.46657	-0.21259	62.04109	0.99808	235.81	-14.60
80/ 5/29	2444389.0	-27.74349	-52.51866	-16.97906	0.91146	-0.37531	-0.18364	61.77539	1.00267	242.15	-15.95
80/ 5/30	2444389.5	-21.41313	-54.73465	-18.11721	0.95600	-0.27816	-0.15203	61.50315	1.00719	248.63	-17.13
80/ 5/30	2444390.0	-14.81940	-56.27571	-19.03309	0.98911	-0.17619	-0.11806	61.22768	1.01159	255.25	-18.11
80/ 5/31	2444390.5	-8.04228	-57.11297	-19.71197	1.01005	-0.07054	-0.08211	60.95188	1.01583	261.98	-18.87
80/ 5/31	2444391.0	-1.16626	-57.22578	-20.14175	1.01822	0.03752	-0.04458	60.67816	1.01989	268.83	-19.39
80/ 6/ 1	2444391.5	5.72060	-56.60242	-20.31327	1.01318	0.14661	-0.00592	60.40851	1.02375	275.77	-19.65
80/ 6/ 1	2444392.0	12.52773	-55.24075	-20.22055	0.99465	0.25529	0.03336	60.14445	1.02743	282.78	-19.65
80/ 6/ 2	2444392.5	19.16328	-53.14861	-19.86107	0.96252	0.36205	0.07276	59.88713	1.03093	289.83	-19.37
80/ 6/ 2	2444393.0	25.53543	-50.34424	-19.23595	0.91690	0.46535	0.11172	59.63742	1.03428	296.89	-18.82
80/ 6/ 3	2444393.5	31.55378	-46.85634	-18.35005	0.85811	0.56363	0.14967	59.39598	1.03752	303.96	-18.00
80/ 6/ 3	2444394.0	37.13079	-42.72416	-17.21212	0.78668	0.65535	0.18605	59.16338	1.04066	310.99	-16.91
80/ 6/ 4	2444394.5	42.18325	-37.99718	-15.83474	0.70336	0.73902	0.22028	58.94023	1.04374	317.99	-15.58
80/ 6/ 4	2444395.0	46.63380	-32.73482	-14.23432	0.60912	0.81322	0.25182	58.72730	1.04679	324.93	-14.03
80/ 6/ 5	2444395.5	50.41235	-27.00579	-12.43094	0.50514	0.87662	0.28012	58.52560	1.04981	331.82	-12.26
80/ 6/ 5	2444396.0	53.45751	-20.88731	-10.44821	0.39281	0.92804	0.30470	58.33653	1.05280	338.66	-10.32
80/ 6/ 6	2444396.5	55.71794	-14.46411	-8.31292	0.27369	0.96644	0.32510	58.16188	1.05575	345.45	-8.22
80/ 6/ 6	2444397.0	57.15353	-7.82728	-6.05477	0.14954	0.99100	0.34092	58.00391	1.05862	352.20	-5.99
80/ 6/ 7	2444397.5	57.73654	-1.07285	-3.70592	0.02226	1.00109	0.35184	57.86530	1.06135	358.94	-3.67

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/ 6/ 7	2444398.0	57.45245	5.69977	-1.30047	-0.10616	0.99633	0.35760	57.74913	1.06387	5.67	-1.29
80/ 6/ 8	2444398.5	56.30067	12.38952	1.12608	-0.23361	0.97662	0.35805	57.65876	1.06610	12.41	1.12
80/ 6/ 8	2444399.0	54.29492	18.89559	3.53749	-0.35798	0.94215	0.35313	57.59770	1.06794	19.19	3.52
80/ 6/ 9	2444399.5	51.46330	25.11943	5.89745	-0.47714	0.89338	0.34288	57.56941	1.06928	26.02	5.88
80/ 6/ 9	2444400.0	47.84801	30.96674	8.17036	-0.58906	0.83111	0.32745	57.57713	1.07003	32.91	8.16
80/ 6/10	2444400.5	43.50464	36.34950	10.32203	-0.69183	0.75641	0.30713	57.62364	1.07010	39.88	10.32
80/ 6/10	2444401.0	38.50113	41.18786	12.32039	-0.78373	0.67060	0.28226	57.71108	1.06939	46.93	12.33
80/ 6/11	2444401.5	32.91630	45.41179	14.13624	-0.86327	0.57525	0.25331	57.84070	1.06786	54.06	14.15
80/ 6/11	2444402.0	26.83804	48.96257	15.74379	-0.92925	0.47212	0.22084	58.01277	1.06545	61.27	15.75
80/ 6/12	2444402.5	20.36135	51.79378	17.12114	-0.98081	0.36309	0.18545	58.22640	1.06217	68.54	17.10
80/ 6/12	2444403.0	13.58604	53.87197	18.25072	-1.01737	0.25009	0.14778	58.47955	1.05803	75.85	18.19
80/ 6/13	2444403.5	6.61453	55.17691	19.11941	-1.03873	0.13508	0.10852	58.76900	1.05308	83.16	18.99
80/ 6/13	2444404.0	-0.45037	55.70141	19.71867	-1.04499	0.01994	0.06833	59.09040	1.04741	90.46	19.49
80/ 6/14	2444404.5	-7.50750	55.45075	20.04443	-1.03653	-0.09354	0.02787	59.43843	1.04111	97.71	19.71
80/ 6/14	2444405.0	-14.45921	54.44183	20.09691	-1.01398	-0.20371	-0.01227	59.80692	1.03431	104.87	19.64
80/ 6/15	2444405.5	-21.21285	52.70209	19.88032	-0.97819	-0.30912	-0.05150	60.18906	1.02716	111.93	19.29
80/ 6/15	2444406.0	-27.68199	50.26825	19.40251	-0.93015	-0.40848	-0.08932	60.57761	1.01981	118.84	18.68
80/ 6/16	2444406.5	-33.78733	47.18499	18.67452	-0.87095	-0.50072	-0.12530	60.96511	1.01241	125.60	17.84
80/ 6/16	2444407.0	-39.45728	43.50371	17.71022	-0.80178	-0.58494	-0.15905	61.34412	1.00514	132.21	16.78
80/ 6/17	2444407.5	-44.62829	39.28122	16.52584	-0.72382	-0.66043	-0.19024	61.70739	0.99814	138.65	15.53
80/ 6/17	2444408.0	-49.24499	34.57863	15.13959	-0.63829	-0.72662	-0.21862	62.04803	0.99156	144.92	14.12
80/ 6/18	2444408.5	-53.26011	29.46037	13.57135	-0.54638	-0.78312	-0.24395	62.35972	0.98555	151.05	12.57
80/ 6/18	2444409.0	-56.63438	23.99326	11.84227	-0.44924	-0.82960	-0.26608	62.63679	0.98023	157.04	10.90
80/ 6/19	2444409.5	-59.33621	18.24579	9.97456	-0.34800	-0.86588	-0.28487	62.87437	0.97570	162.91	9.13
80/ 6/19	2444410.0	-61.34150	12.28753	7.99126	-0.24373	-0.89183	-0.30020	63.06840	0.97205	168.67	7.28
80/ 6/20	2444410.5	-62.63335	6.18864	5.91601	-0.13750	-0.90740	-0.31201	63.21578	0.96935	174.36	5.37
80/ 6/20	2444411.0	-63.20182	0.01940	3.77293	-0.03029	-0.91260	-0.32022	63.31434	0.96763	179.98	3.42
80/ 6/21	2444411.5	-63.04376	-6.15007	1.58648	0.07688	-0.90748	-0.32481	63.36289	0.96692	185.57	1.43
80/ 6/21	2444412.0	-62.16264	-12.25014	-0.61866	0.18306	-0.89213	-0.32574	63.36120	0.96722	191.15	-0.56
80/ 6/22	2444412.5	-60.56851	-18.21196	-2.81769	0.28727	-0.86668	-0.32300	63.31003	0.96850	196.74	-2.55
80/ 6/22	2444413.0	-58.27799	-23.96774	-4.98578	0.38854	-0.83132	-0.31661	63.21103	0.97072	202.36	-4.52
80/ 6/23	2444413.5	-55.31424	-29.45110	-7.09820	0.48590	-0.78628	-0.30657	63.06676	0.97382	208.03	-6.46
80/ 6/23	2444414.0	-51.70710	-34.59740	-9.13044	0.57836	-0.73185	-0.29294	62.88060	0.97771	213.79	-8.35
80/ 6/24	2444414.5	-47.49316	-39.34422	-11.05834	0.66492	-0.66838	-0.27578	62.65664	0.98230	219.64	-10.17
80/ 6/24	2444415.0	-42.71584	-43.63186	-12.85832	0.74455	-0.59634	-0.25518	62.39967	0.98747	225.61	-11.89
80/ 6/25	2444415.5	-37.42548	-47.40396	-14.50750	0.81624	-0.51625	-0.23127	62.11497	0.99310	231.71	-13.51
80/ 6/25	2444416.0	-31.67934	-50.60823	-15.98405	0.87897	-0.42878	-0.20423	61.80828	0.99908	237.95	-14.99
80/ 6/26	2444416.5	-25.54152	-53.19721	-17.26740	0.93174	-0.33470	-0.17427	61.48557	1.00525	244.35	-16.31
80/ 6/26	2444417.0	-19.08274	-55.12923	-18.33861	0.97359	-0.23494	-0.14164	61.15299	1.01151	250.91	-17.45
80/ 6/27	2444417.5	-12.38000	-56.36927	-19.18072	1.00364	-0.13056	-0.10667	60.81660	1.01770	257.61	-18.38
80/ 6/27	2444418.0	-5.51602	-56.89001	-19.77909	1.02109	-0.02275	-0.06973	60.48233	1.02372	264.46	-19.09
80/ 6/28	2444418.5	1.42158	-56.67276	-20.12184	1.02528	0.08713	-0.03126	60.15572	1.02945	271.44	-19.54
80/ 6/28	2444419.0	8.34122	-55.70836	-20.20020	1.01572	0.19762	0.00825	59.84184	1.03480	278.52	-19.73
80/ 6/29	2444419.5	15.14864	-53.99802	-20.00886	0.99211	0.30713	0.04828	59.54513	1.03968	285.67	-19.64
80/ 6/29	2444420.0	21.74831	-51.55390	-19.54632	0.95438	0.41402	0.08824	59.26932	1.04405	292.87	-19.26

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
80/ 6/30	2444420.5	28.04506	-48.39954	-18.81509	0.90271	0.51658	0.12752	59.01735	1.04786	300.09	-18.59
80/ 6/30	2444421.0	33.94585	-44.57001	-17.82184	0.83755	0.61311	0.16551	58.79137	1.05109	307.29	-17.65
80/ 7/ 1	2444421.5	39.36158	-40.11179	-16.57753	0.75962	0.70196	0.20156	58.59270	1.05375	314.46	-16.44
80/ 7/ 1	2444422.0	44.20890	-35.08228	-15.09728	0.66989	0.78156	0.23507	58.42192	1.05586	321.57	-14.98
80/ 7/ 2	2444422.5	48.41204	-29.54906	-13.40029	0.56962	0.85047	0.26547	58.27898	1.05747	328.60	-13.29
80/ 7/ 2	2444423.0	51.90435	-23.58888	-11.50950	0.46026	0.90744	0.29221	58.16327	1.05862	335.56	-11.41
80/ 7/ 3	2444423.5	54.62983	-17.28636	-9.45130	0.34347	0.95141	0.31483	58.07378	1.05937	342.44	-9.37
80/ 7/ 3	2444424.0	56.54427	-10.73250	-7.25504	0.22108	0.98154	0.33292	58.00928	1.05978	349.25	-7.18
80/ 7/ 4	2444424.5	57.61622	-4.02306	-4.95252	0.09502	0.99727	0.34617	57.96845	1.05991	356.01	-4.90
80/ 7/ 4	2444425.0	57.82767	2.74321	-2.57739	-0.03269	0.99829	0.35433	57.95004	1.05982	2.72	-2.55
80/ 7/ 5	2444425.5	57.17435	9.46638	-0.16458	-0.16000	0.98456	0.35728	57.95296	1.05953	9.40	-0.16
80/ 7/ 5	2444426.0	55.66589	16.04715	2.25034	-0.28487	0.95630	0.35496	57.97643	1.05908	16.08	2.22
80/ 7/ 6	2444426.5	53.32552	22.38862	4.63185	-0.40533	0.91400	0.34742	58.01996	1.05849	22.78	4.58
80/ 7/ 6	2444427.0	50.18967	28.39805	6.94505	-0.51947	0.85840	0.33482	58.08344	1.05773	29.50	6.87
80/ 7/ 7	2444427.5	46.30714	33.98846	9.15634	-0.62553	0.79045	0.31738	58.16704	1.05680	36.28	9.06
80/ 7/ 7	2444428.0	41.73821	39.08012	11.23396	-0.72191	0.71133	0.29541	58.27123	1.05565	43.12	11.12
80/ 7/ 8	2444428.5	36.55337	43.60193	13.14853	-0.80718	0.62241	0.26930	58.39658	1.05426	50.03	13.01
80/ 7/ 8	2444429.0	30.83198	47.49247	14.87359	-0.88017	0.52519	0.23952	58.54374	1.05256	57.01	14.72
80/ 7/ 9	2444429.5	24.66068	50.70103	16.38595	-0.93990	0.42130	0.20658	58.71323	1.05052	64.06	16.21
80/ 7/ 9	2444430.0	18.13173	53.18821	17.66608	-0.98568	0.31246	0.17104	58.90531	1.04807	71.18	17.45
80/ 7/10	2444430.5	11.34125	54.92640	18.69836	-1.01708	0.20042	0.13349	59.11989	1.04520	78.33	18.44
80/ 7/10	2444431.0	4.38742	55.89989	19.47121	-1.03391	0.08695	0.09454	59.35634	1.04186	85.51	19.15
80/ 7/11	2444431.5	-2.63132	56.10480	19.97723	-1.03628	-0.02625	0.05480	59.61344	1.03806	92.69	19.58
80/ 7/11	2444432.0	-9.61792	55.54866	20.21309	-1.02450	-0.13752	0.01487	59.88929	1.03379	99.82	19.73
80/ 7/12	2444432.5	-16.47833	54.24982	20.17947	-0.99912	-0.24532	-0.02468	60.18130	1.02909	106.90	19.59
80/ 7/12	2444433.0	-23.12286	52.23660	19.88081	-0.96089	-0.34825	-0.06331	60.48616	1.02401	113.88	19.19
80/ 7/13	2444433.5	-29.46742	49.54638	19.32508	-0.91070	-0.44504	-0.10052	60.79993	1.01860	120.74	18.53
80/ 7/13	2444434.0	-35.43445	46.22443	18.52346	-0.84959	-0.53462	-0.13585	61.11806	1.01295	127.47	17.64
80/ 7/14	2444434.5	-40.95365	42.32287	17.48993	-0.77866	-0.61606	-0.16893	61.43553	1.00716	134.06	16.54
80/ 7/14	2444435.0	-45.96251	37.89943	16.24098	-0.69908	-0.68861	-0.19942	61.74697	1.00134	140.49	15.25
80/ 7/15	2444435.5	-50.40656	33.01643	14.79515	-0.61208	-0.75168	-0.22702	62.04678	0.99559	146.78	13.80
80/ 7/15	2444436.0	-54.23956	27.73964	13.17276	-0.51884	-0.80483	-0.25152	62.32928	0.99006	152.91	12.20
80/ 7/16	2444436.5	-57.42337	22.13743	11.39548	-0.42057	-0.84774	-0.27273	62.58887	0.98485	158.92	10.49
80/ 7/16	2444437.0	-59.92789	16.27984	9.48612	-0.31844	-0.88022	-0.29051	62.82015	0.98009	164.80	8.69
80/ 7/17	2444437.5	-61.73080	10.23790	7.46826	-0.21358	-0.90217	-0.30475	63.01810	0.97591	170.58	6.81
80/ 7/17	2444438.0	-62.81729	4.08297	5.36612	-0.10707	-0.91358	-0.31539	63.17814	0.97240	176.28	4.87
80/ 7/18	2444438.5	-63.17981	-2.11372	3.20427	0.00003	-0.91452	-0.32238	63.29631	0.96967	181.92	2.90
80/ 7/18	2444439.0	-62.81777	-8.28156	1.00753	0.10672	-0.90509	-0.32569	63.36932	0.96780	187.51	0.91
80/ 7/19	2444439.5	-61.73733	-14.35087	-1.19922	0.21201	-0.88545	-0.32533	63.39467	0.96686	193.09	-1.08
80/ 7/19	2444440.0	-59.95123	-20.25326	-3.39112	0.31494	-0.85583	-0.32131	63.37069	0.96689	198.67	-3.07
80/ 7/20	2444440.5	-57.47862	-25.92187	-5.54346	0.41458	-0.81647	-0.31366	63.29664	0.96792	204.27	-5.02
80/ 7/20	2444441.0	-54.34500	-31.29171	-7.63179	0.50998	-0.76766	-0.30242	63.17273	0.96996	209.93	-6.94
80/ 7/21	2444441.5	-50.58221	-36.29989	-9.63201	0.60021	-0.70974	-0.28765	63.00014	0.97300	215.66	-8.79
80/ 7/21	2444442.0	-46.22843	-40.88605	-11.52050	0.68433	-0.64310	-0.26944	62.78103	0.97698	221.49	-10.57
80/ 7/22	2444442.5	-41.32826	-44.99267	-13.27424	0.76139	-0.56822	-0.24788	62.51856	0.98186	227.43	-12.26

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/ 7/22	2444443.0	-35.93278	-48.56566	-14.87102	0.83043	-0.48562	-0.22311	62.21684	0.98754	233.50	-13.83
80/ 7/23	2444443.5	-30.09960	-51.55488	-16.28959	0.89048	-0.39595	-0.19529	61.88088	0.99392	239.72	-15.26
80/ 7/23	2444444.0	-23.89289	-53.91487	-17.50995	0.94058	-0.29995	-0.16462	61.51651	1.00088	246.10	-16.54
80/ 7/24	2444444.5	-17.38326	-55.60563	-18.51362	0.97978	-0.19849	-0.13135	61.13033	1.00827	252.64	-17.63
80/ 7/24	2444445.0	-10.64761	-56.59356	-19.28396	1.00717	-0.09259	-0.09577	60.72951	1.01595	259.34	-18.51
80/ 7/25	2444445.5	-3.76872	-56.85246	-19.80656	1.02194	0.01658	-0.05826	60.32168	1.02374	266.21	-19.17
80/ 7/25	2444446.0	3.16534	-56.36457	-20.06966	1.02336	0.12770	-0.01922	59.91474	1.03147	273.21	-19.57
80/ 7/26	2444446.5	10.06207	-55.12164	-20.06455	1.01084	0.23928	0.02086	59.51661	1.03898	280.35	-19.70
80/ 7/26	2444447.0	16.82567	-53.12593	-19.78603	0.98400	0.34970	0.06142	59.13505	1.04610	287.57	-19.55
80/ 7/27	2444447.5	23.35849	-50.39113	-19.23278	0.94269	0.45723	0.10188	58.77741	1.05266	294.87	-19.10
80/ 7/27	2444448.0	29.56276	-46.94299	-18.40774	0.88703	0.56004	0.14157	58.45037	1.05854	302.20	-18.36
80/ 7/28	2444448.5	35.34259	-42.81974	-17.31832	0.81745	0.65628	0.17983	58.15972	1.06361	309.54	-17.32
80/ 7/28	2444449.0	40.60606	-38.07209	-15.97662	0.73471	0.74412	0.21596	57.91018	1.06778	316.84	-16.01
80/ 7/29	2444449.5	45.26756	-32.76286	-14.39936	0.63989	0.82183	0.24928	57.70527	1.07099	324.10	-14.45
80/ 7/29	2444450.0	49.24991	-26.96609	-12.60776	0.53442	0.88784	0.27915	57.54719	1.07321	331.30	-12.66
80/ 7/30	2444450.5	52.48647	-20.76581	-10.62720	0.41998	0.94078	0.30498	57.43680	1.07446	338.41	-10.66
80/ 7/30	2444451.0	54.92294	-14.25436	-8.48677	0.29850	0.97957	0.32628	57.37370	1.07476	345.45	-8.51
80/ 7/31	2444451.5	56.51872	-7.53037	-6.21865	0.17209	1.00344	0.34263	57.35629	1.07420	352.41	-6.22
80/ 7/31	2444452.0	57.24795	-0.69665	-3.85737	0.04298	1.01193	0.35375	57.38199	1.07284	359.30	-3.85
80/ 8/ 1	2444452.5	57.09996	6.14221	-1.43910	-0.08657	1.00496	0.35944	57.44739	1.07081	6.14	-1.44
80/ 8/ 1	2444453.0	56.07932	12.88202	0.99922	-0.21434	0.98275	0.35966	57.54855	1.06822	12.94	0.99
80/ 8/ 2	2444453.5	54.20546	19.42127	3.42063	-0.33818	0.94585	0.35447	57.68118	1.06520	19.71	3.40
80/ 8/ 2	2444454.0	51.51183	25.66304	5.78890	-0.45609	0.89507	0.34401	57.84092	1.06184	26.48	5.74
80/ 8/ 3	2444454.5	48.04484	31.51681	8.06927	-0.56626	0.83147	0.32856	58.02352	1.05827	33.26	7.99
80/ 8/ 3	2444455.0	43.86249	36.89991	10.22896	-0.66708	0.75631	0.30844	58.22502	1.05458	40.07	10.12
80/ 8/ 4	2444455.5	39.03291	41.73871	12.23779	-0.75717	0.67099	0.28408	58.44186	1.05083	46.92	12.09
80/ 8/ 4	2444456.0	33.63273	45.96958	14.06852	-0.83540	0.57705	0.25593	58.67100	1.04708	53.81	13.87
80/ 8/ 5	2444456.5	27.74548	49.53948	15.69722	-0.90087	0.47608	0.22451	58.90989	1.04338	60.75	15.45
80/ 8/ 5	2444457.0	21.45993	52.40642	17.10353	-0.95293	0.36974	0.19035	59.15650	1.03972	67.73	16.81
80/ 8/ 6	2444457.5	14.86849	54.53962	18.27077	-0.99115	0.25969	0.15401	59.40929	1.03612	74.75	17.91
80/ 8/ 6	2444458.0	8.06566	55.91955	19.18613	-1.01533	0.14758	0.11606	59.66706	1.03255	81.79	18.76
80/ 8/ 7	2444458.5	1.14655	56.53769	19.84060	-1.02550	0.03501	0.07707	59.92891	1.02899	88.84	19.33
80/ 8/ 7	2444459.0	-5.79453	56.39627	20.22902	-1.02188	-0.07646	0.03759	60.19410	1.02542	95.87	19.64
80/ 8/ 8	2444459.5	-12.66538	55.50775	20.34995	-1.00485	-0.18537	-0.00183	60.46191	1.02180	102.85	19.67
80/ 8/ 8	2444460.0	-19.37707	53.89421	20.20557	-0.97499	-0.29033	-0.04067	60.73155	1.01811	109.78	19.43
80/ 8/ 9	2444460.5	-25.84506	51.58668	19.80146	-0.93301	-0.39010	-0.07845	61.00205	1.01432	116.61	18.94
80/ 8/ 9	2444461.0	-31.99009	48.62433	19.14638	-0.87977	-0.48352	-0.11470	61.27214	1.01042	123.34	18.21
80/ 8/10	2444461.5	-37.73903	45.05356	18.25207	-0.81621	-0.56960	-0.14903	61.54020	1.00641	129.95	17.25
80/ 8/10	2444462.0	-43.02550	40.92716	17.13290	-0.74338	-0.64747	-0.18104	61.80422	1.00230	136.43	16.09
80/ 8/11	2444462.5	-47.79037	36.30326	15.80561	-0.66238	-0.71640	-0.21043	62.06177	0.99813	142.78	14.75
80/ 8/11	2444463.0	-51.98218	31.24446	14.28898	-0.57435	-0.77580	-0.23691	62.31001	0.99392	148.99	13.26
80/ 8/12	2444463.5	-55.55726	25.81687	12.60351	-0.48046	-0.82523	-0.26025	62.54573	0.98974	155.08	11.63
80/ 8/12	2444464.0	-58.47990	20.08921	10.77115	-0.38189	-0.86437	-0.28026	62.76538	0.98565	161.04	9.88
80/ 8/13	2444464.5	-60.72230	14.13199	8.81496	-0.27978	-0.89300	-0.29680	62.96518	0.98174	166.90	8.05
80/ 8/13	2444465.0	-62.26444	8.01672	6.75884	-0.17530	-0.91103	-0.30975	63.14120	0.97808	172.66	6.14

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
80/ 8/14	2444465.5	-63.09394	1.81526	4.62731	-0.06953	-0.91846	-0.31906	63.28944	0.97478	178.35	4.19
80/ 8/14	2444466.0	-63.20579	-4.40083	2.44525	0.03645	-0.91537	-0.32467	63.40598	0.97192	183.98	2.21
80/ 8/15	2444466.5	-62.60210	-10.56079	0.23770	0.14160	-0.90191	-0.32659	63.48708	0.96962	189.58	0.21
80/ 8/15	2444467.0	-61.29183	-16.59510	-1.97030	0.24493	-0.87831	-0.32481	63.52927	0.96794	195.15	-1.78
80/ 8/16	2444467.5	-59.29059	-22.43593	-4.15388	0.34548	-0.84482	-0.31938	63.52951	0.96700	200.73	-3.75
80/ 8/16	2444468.0	-56.62033	-28.01741	-6.28844	0.44233	-0.80178	-0.31035	63.48529	0.96686	206.33	-5.68
80/ 8/17	2444468.5	-53.30926	-33.27599	-8.34982	0.53456	-0.74954	-0.29778	63.39470	0.96760	211.97	-7.57
80/ 8/17	2444469.0	-49.39163	-38.15074	-10.31441	0.62130	-0.68851	-0.28178	63.25662	0.96925	217.68	-9.38
80/ 8/18	2444469.5	-44.90767	-42.58366	-12.15920	0.70165	-0.61915	-0.26243	63.07070	0.97187	223.48	-11.12
80/ 8/18	2444470.0	-39.90350	-46.52000	-13.86201	0.77476	-0.54196	-0.23987	62.83753	0.97546	229.38	-12.74
80/ 8/19	2444470.5	-34.43118	-49.90867	-15.40152	0.83975	-0.45753	-0.21424	62.55867	0.98001	235.40	-14.25
80/ 8/19	2444471.0	-28.54860	-52.70266	-16.75751	0.89576	-0.36648	-0.18571	62.23671	0.98548	241.56	-15.62
80/ 8/20	2444471.5	-22.31957	-54.85965	-17.91103	0.94192	-0.26955	-0.15449	61.87527	0.99183	247.86	-16.83
80/ 8/20	2444472.0	-15.81367	-56.34256	-18.84461	0.97737	-0.16758	-0.12080	61.47906	0.99897	254.32	-17.85
80/ 8/21	2444472.5	-9.10623	-57.12038	-19.54253	1.00130	-0.06151	-0.08495	61.05384	1.00678	260.94	-18.67
80/ 8/21	2444473.0	-2.27800	-57.16899	-19.99119	1.01291	0.04756	-0.04726	60.60636	1.01513	267.72	-19.26
80/ 8/22	2444473.5	4.58515	-56.47213	-20.17940	1.01150	0.15840	-0.00811	60.14427	1.02386	274.64	-19.60
80/ 8/22	2444474.0	11.39293	-55.02238	-20.09884	0.99647	0.26963	0.03203	59.67600	1.03280	281.70	-19.68
80/ 8/23	2444474.5	18.05142	-52.82231	-19.74444	0.96736	0.37970	0.07266	59.21059	1.04175	288.87	-19.48
80/ 8/23	2444475.0	24.46434	-49.88542	-19.11487	0.92393	0.48692	0.11319	58.75744	1.05050	296.12	-18.98
80/ 8/24	2444475.5	30.53448	-46.23706	-18.21289	0.86617	0.58948	0.15298	58.32606	1.05884	303.44	-18.20
80/ 8/24	2444476.0	36.16564	-41.91517	-17.04577	0.79438	0.68549	0.19136	57.92576	1.06656	310.79	-17.11
80/ 8/25	2444476.5	41.26472	-36.97065	-15.62555	0.70919	0.77302	0.22760	57.56530	1.07346	318.14	-15.75
80/ 8/25	2444477.0	45.74420	-31.46728	-13.96916	0.61161	0.85021	0.26098	57.25259	1.07936	325.48	-14.12
80/ 8/26	2444477.5	49.52462	-25.48123	-12.09841	0.50302	0.91528	0.29079	56.99432	1.08412	332.77	-12.26
80/ 8/26	2444478.0	52.53710	-19.09992	-10.03974	0.38516	0.96668	0.31637	56.79569	1.08762	340.02	-10.18
80/ 8/27	2444478.5	54.72569	-12.42039	-7.82383	0.26010	1.00316	0.33714	56.66021	1.08979	347.21	-7.94
80/ 8/27	2444479.0	56.04929	-5.54711	-5.48488	0.13014	1.02378	0.35263	56.58955	1.09060	354.35	-5.56
80/ 8/28	2444479.5	56.48307	1.41060	-3.05986	-0.00223	1.02804	0.36250	56.58348	1.09008	1.43	-3.10
80/ 8/28	2444480.0	56.01934	8.34135	-0.58756	-0.13447	1.01584	0.36657	56.64000	1.08830	8.47	-0.59
80/ 8/29	2444480.5	54.66758	15.13462	1.89246	-0.26405	0.98753	0.36479	56.75546	1.08536	15.47	1.91
80/ 8/29	2444481.0	52.45397	21.68349	4.34085	-0.38858	0.94383	0.35726	56.92482	1.08141	22.46	4.37
80/ 8/30	2444481.5	49.42022	27.88723	6.71944	-0.50589	0.88581	0.34423	57.14199	1.07661	29.44	6.75
80/ 8/30	2444482.0	45.62198	33.65337	8.99211	-0.61404	0.81485	0.32605	57.40010	1.07114	36.41	9.01
80/ 8/31	2444482.5	41.12687	38.89943	11.12547	-0.71142	0.73251	0.30318	57.69194	1.06518	43.41	11.12
80/ 8/31	2444483.0	36.01238	43.55409	13.08946	-0.79675	0.64051	0.27613	58.01020	1.05892	50.41	13.04
80/ 9/ 1	2444483.5	30.36368	47.55797	14.85772	-0.86904	0.54064	0.24548	58.34779	1.05251	57.44	14.75
80/ 9/ 1	2444484.0	24.27150	50.86394	16.40789	-0.92762	0.43473	0.21182	58.69808	1.04610	64.49	16.23
80/ 9/ 2	2444484.5	17.83013	53.43715	17.72166	-0.97211	0.32456	0.17578	59.05506	1.03982	71.55	17.46
80/ 9/ 2	2444485.0	11.13563	55.25473	18.78489	-1.00236	0.21188	0.13794	59.41346	1.03376	78.61	18.43
80/ 9/ 3	2444485.5	4.28417	56.30532	19.58744	-1.01848	0.09834	0.09890	59.76882	1.02799	85.65	19.13
80/ 9/ 3	2444486.0	-2.62929	56.58850	20.12313	-1.02074	-0.01448	0.05923	60.11748	1.02255	92.66	19.56
80/ 9/ 4	2444486.5	-9.51227	56.11400	20.38953	-1.00957	-0.12516	0.01946	60.45657	1.01748	99.62	19.71
80/ 9/ 4	2444487.0	-16.27579	54.90105	20.38774	-0.98556	-0.23233	-0.01988	60.78393	1.01277	106.51	19.60
80/ 9/ 5	2444487.5	-22.83520	52.97748	20.12221	-0.94942	-0.33480	-0.05834	61.09797	1.00842	113.32	19.23

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/ 9/ 5	2444488.0	-29.11097	50.37899	19.60048	-0.90195	-0.43146	-0.09547	61.39763	1.00438	120.02	18.62
80/ 9/ 6	2444488.5	-35.02925	47.14832	18.83292	-0.84402	-0.52133	-0.13087	61.68218	1.00063	126.61	17.78
80/ 9/ 6	2444489.0	-40.52245	43.33447	17.83253	-0.77658	-0.60354	-0.16417	61.95115	0.99714	133.08	16.73
80/ 9/ 7	2444489.5	-45.52959	38.99188	16.61463	-0.70066	-0.67734	-0.19504	62.20415	0.99386	139.42	15.49
80/ 9/ 7	2444490.0	-49.99669	34.17967	15.19666	-0.61729	-0.74211	-0.22320	62.44083	0.99076	145.64	14.09
80/ 9/ 8	2444490.5	-53.87701	28.96088	13.59790	-0.52757	-0.79733	-0.24839	62.66073	0.98781	151.74	12.53
80/ 9/ 8	2444491.0	-57.13123	23.40166	11.83921	-0.43260	-0.84258	-0.27039	62.86320	0.98498	157.73	10.86
80/ 9/ 9	2444491.5	-59.72759	17.57058	9.94277	-0.33349	-0.87757	-0.28904	63.04736	0.98229	163.61	9.07
80/ 9/ 9	2444492.0	-61.64189	11.53786	7.93186	-0.23138	-0.90210	-0.30418	63.21202	0.97971	169.40	7.21
80/ 9/10	2444492.5	-62.85748	5.37471	5.83055	-0.12735	-0.91608	-0.31571	63.35570	0.97729	175.11	5.28
80/ 9/10	2444493.0	-63.36516	-0.84737	3.66355	-0.02252	-0.91950	-0.32357	63.47664	0.97503	180.77	3.31
80/ 9/11	2444493.5	-63.16307	-7.05713	1.45589	0.08206	-0.91246	-0.32771	63.57276	0.97300	186.38	1.31
80/ 9/11	2444494.0	-62.25646	-13.18425	-0.76722	0.18535	-0.89513	-0.32814	63.64181	0.97123	191.96	-0.69
80/ 9/12	2444494.5	-60.65752	-19.15978	-2.98063	0.28634	-0.86775	-0.32486	63.68136	0.96980	197.53	-2.68
80/ 9/12	2444495.0	-58.38508	-24.91665	-5.15943	0.38407	-0.83062	-0.31792	63.68891	0.96877	203.11	-4.65
80/ 9/13	2444495.5	-55.46442	-30.39009	-7.27910	0.47761	-0.78412	-0.30741	63.66196	0.96822	208.72	-6.57
80/ 9/13	2444496.0	-51.92698	-35.51804	-9.31569	0.56605	-0.72867	-0.29341	63.59815	0.96823	214.37	-8.42
80/ 9/14	2444496.5	-47.81016	-40.24149	-11.24592	0.64855	-0.66476	-0.27603	63.49535	0.96887	220.09	-10.20
80/ 9/14	2444497.0	-43.15709	-44.50485	-13.04737	0.72427	-0.59290	-0.25540	63.35179	0.97022	225.88	-11.89
80/ 9/15	2444497.5	-38.01646	-48.25626	-14.69858	0.79239	-0.51369	-0.23169	63.16618	0.97234	231.77	-13.46
80/ 9/15	2444498.0	-32.44234	-51.44801	-16.17920	0.85215	-0.42775	-0.20506	62.93782	0.97528	237.77	-14.90
80/ 9/16	2444498.5	-26.49403	-54.03687	-17.47013	0.90276	-0.33578	-0.17571	62.66676	0.97908	243.88	-16.19
80/ 9/16	2444499.0	-20.23594	-55.98454	-18.55369	0.94350	-0.23854	-0.14386	62.35384	0.98377	250.13	-17.31
80/ 9/17	2444499.5	-13.73740	-57.25815	-19.41382	0.97365	-0.13688	-0.10977	62.00087	0.98933	256.51	-18.25
80/ 9/17	2444500.0	-7.07251	-57.83078	-20.03624	0.99251	-0.03171	-0.07372	61.61063	0.99575	263.03	-18.98
80/ 9/18	2444500.5	-0.31990	-57.68216	-20.40876	0.99945	0.07592	-0.03604	61.18702	1.00297	269.68	-19.48
80/ 9/18	2444501.0	6.43762	-56.79937	-20.52150	0.99387	0.18488	0.00292	60.73502	1.01092	276.47	-19.75
80/ 9/19	2444501.5	13.11351	-55.17763	-20.36726	0.97527	0.29390	0.04273	60.26077	1.01948	283.37	-19.75
80/ 9/19	2444502.0	19.61815	-52.82121	-19.94184	0.94325	0.40158	0.08292	59.77148	1.02852	290.38	-19.49
80/ 9/20	2444502.5	25.85975	-49.74433	-19.24440	0.89757	0.50639	0.12296	59.27539	1.03787	297.47	-18.95
80/ 9/20	2444503.0	31.74548	-45.97200	-18.27790	0.83817	0.60666	0.16227	58.78165	1.04733	304.63	-18.12
80/ 9/21	2444503.5	37.18296	-41.54083	-17.04944	0.76526	0.70064	0.20021	58.30006	1.05669	311.83	-17.00
80/ 9/21	2444504.0	42.08207	-36.49962	-15.57058	0.67930	0.78649	0.23609	57.84087	1.06572	319.06	-15.62
80/ 9/22	2444504.5	46.35707	-30.90970	-13.85759	0.58113	0.86236	0.26922	57.41446	1.07418	326.31	-13.97
80/ 9/22	2444505.0	49.92897	-24.84478	-11.93160	0.47191	0.92646	0.29887	57.03095	1.08183	333.54	-12.08
80/ 9/23	2444505.5	52.72812	-18.39040	-9.81852	0.35323	0.97711	0.32436	56.69977	1.08845	340.77	-9.97
80/ 9/23	2444506.0	54.69671	-11.64268	-7.54876	0.22701	1.01286	0.34504	56.42930	1.09383	347.98	-7.69
80/ 9/24	2444506.5	55.79126	-4.70658	-5.15681	0.09553	1.03257	0.36036	56.22641	1.09781	355.18	-5.26
80/ 9/24	2444507.0	55.98457	2.30653	-2.68043	-0.03868	1.03551	0.36990	56.09614	1.10028	2.36	-2.74
80/ 9/25	2444507.5	55.26722	9.28174	-0.15981	-0.17292	1.02137	0.37339	56.04143	1.10115	9.53	-0.16
80/ 9/25	2444508.0	53.64829	16.10380	2.36359	-0.30446	0.99036	0.37072	56.06298	1.10043	16.71	2.42
80/ 9/26	2444508.5	51.15525	22.66038	4.84814	-0.43061	0.94313	0.36195	56.15921	1.09815	23.89	4.95
80/ 9/26	2444509.0	47.83310	28.84526	7.25330	-0.54890	0.88082	0.34733	56.32641	1.09442	31.09	7.40
80/ 9/27	2444509.5	43.74266	34.56110	9.54063	-0.65714	0.80491	0.32724	56.55894	1.08940	38.31	9.71
80/ 9/27	2444510.0	38.95842	39.72173	11.67482	-0.75350	0.71719	0.30220	56.84959	1.08326	45.56	11.85

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
80/ 9/28	2444510.5	33.56586	44.25384	13.62439	-0.83657	0.61965	0.27283	57.18998	1.07622	52.82	13.78
80/ 9/28	2444511.0	27.65869	48.09794	15.36224	-0.90533	0.51437	0.23980	57.57094	1.06850	60.10	15.48
80/ 9/29	2444511.5	21.33611	51.20876	16.86599	-0.95917	0.40347	0.20382	57.98300	1.06034	67.38	16.91
80/ 9/29	2444512.0	14.70019	53.55515	18.11804	-0.99784	0.28898	0.16559	58.41672	1.05196	74.65	18.07
80/ 9/30	2444512.5	7.85360	55.11948	19.10558	-1.02141	0.17284	0.12582	58.86305	1.04355	81.89	18.94
80/ 9/30	2444513.0	0.89762	55.89675	19.82036	-1.03022	0.05685	0.08515	59.31357	1.03529	89.08	19.52
80/10/ 1	2444513.5	-6.06947	55.89362	20.25845	-1.02480	-0.05735	0.04421	59.76069	1.02735	96.20	19.82
80/10/ 1	2444514.0	-12.95361	55.12717	20.41990	-1.00585	-0.16832	0.00356	60.19779	1.01984	103.22	19.83
80/10/ 2	2444514.5	-19.66596	53.62383	20.30841	-0.97421	-0.27475	-0.03631	60.61928	1.01286	110.14	19.57
80/10/ 2	2444515.0	-26.12355	51.41820	19.93096	-0.93079	-0.37553	-0.07491	61.02060	1.00648	116.93	19.06
80/10/ 3	2444515.5	-32.24986	48.55201	19.29745	-0.87655	-0.46966	-0.11185	61.39823	1.00071	123.59	18.32
80/10/ 3	2444516.0	-37.97507	45.07317	18.42043	-0.81252	-0.55631	-0.14676	61.74956	0.99559	130.11	17.36
80/10/ 4	2444516.5	-43.23633	41.03482	17.31475	-0.73973	-0.63477	-0.17932	62.07284	0.99110	136.50	16.20
80/10/ 4	2444517.0	-47.97791	36.49458	15.99730	-0.65923	-0.70442	-0.20925	62.36704	0.98721	142.74	14.86
80/10/ 5	2444517.5	-52.15122	31.51379	14.48676	-0.57210	-0.76478	-0.23630	62.63175	0.98389	148.86	13.37
80/10/ 5	2444518.0	-55.71493	26.15683	12.80336	-0.47940	-0.81544	-0.26026	62.86700	0.98108	154.85	11.75
80/10/ 6	2444518.5	-58.63495	20.49051	10.96867	-0.38220	-0.85609	-0.28095	63.07321	0.97873	160.74	10.01
80/10/ 6	2444519.0	-60.88445	14.58346	9.00536	-0.28158	-0.88650	-0.29822	63.25101	0.97678	166.53	8.19
80/10/ 7	2444519.5	-62.44384	8.50556	6.93706	-0.17860	-0.90652	-0.31194	63.40111	0.97519	172.24	6.28
80/10/ 7	2444520.0	-63.30078	2.32739	4.78807	-0.07432	-0.91610	-0.32203	63.52425	0.97390	177.89	4.32
80/10/ 8	2444520.5	-63.45005	-3.88032	2.58325	0.03020	-0.91526	-0.32842	63.62106	0.97287	183.50	2.33
80/10/ 8	2444521.0	-62.89355	-10.04728	0.34776	0.13392	-0.90409	-0.33108	63.69198	0.97207	189.08	0.31
80/10/ 9	2444521.5	-61.64015	-16.10410	-1.89312	0.23582	-0.88277	-0.33001	63.73723	0.97150	194.64	-1.70
80/10/ 9	2444522.0	-59.70555	-21.98285	-4.11417	0.33491	-0.85156	-0.32523	63.75676	0.97113	200.21	-3.70
80/10/10	2444522.5	-57.11212	-27.61757	-6.29042	0.43021	-0.81077	-0.31680	63.75024	0.97097	205.81	-5.66
80/10/10	2444523.0	-53.88870	-32.94476	-8.39737	0.52078	-0.76082	-0.30478	63.71707	0.97106	211.44	-7.57
80/10/11	2444523.5	-50.07037	-37.90385	-10.41114	0.60573	-0.70216	-0.28930	63.65639	0.97141	217.13	-9.41
80/10/11	2444524.0	-45.69819	-42.43766	-12.30868	0.68419	-0.63533	-0.27048	63.56715	0.97207	222.88	-11.16
80/10/12	2444524.5	-40.81891	-46.49280	-14.06790	0.75534	-0.56092	-0.24849	63.44816	0.97309	228.72	-12.81
80/10/12	2444525.0	-35.48472	-50.02012	-15.66786	0.81840	-0.47958	-0.22349	63.29818	0.97454	234.65	-14.33
80/10/13	2444525.5	-29.75293	-52.97513	-17.08896	0.87263	-0.39204	-0.19570	63.11604	0.97646	240.68	-15.71
80/10/13	2444526.0	-23.68569	-55.31835	-18.31305	0.91734	-0.29906	-0.16535	62.90071	0.97893	246.82	-16.93
80/10/14	2444526.5	-17.34967	-57.01578	-19.32363	0.95189	-0.20148	-0.13270	62.65152	0.98199	253.08	-17.96
80/10/14	2444527.0	-10.81573	-58.03928	-20.10604	0.97569	-0.10021	-0.09803	62.36819	0.98571	259.44	-18.81
80/10/15	2444527.5	-4.15857	-58.36705	-20.64762	0.98820	0.00380	-0.06164	62.05103	0.99012	265.92	-19.44
80/10/15	2444528.0	2.54366	-57.98405	-20.93791	0.98893	0.10949	-0.02388	61.70102	0.99526	272.51	-19.84
80/10/16	2444528.5	9.20980	-56.88257	-20.96886	0.97747	0.21576	0.01488	61.31998	1.00112	279.20	-20.00
80/10/16	2444529.0	15.75616	-55.06274	-20.73505	0.95351	0.32141	0.05423	60.91062	1.00769	285.97	-19.90
80/10/17	2444529.5	22.09722	-52.53310	-20.23397	0.91682	0.42514	0.09372	60.47666	1.01493	292.81	-19.55
80/10/17	2444530.0	28.14628	-49.31126	-19.46626	0.86729	0.52558	0.13288	60.02290	1.02278	299.72	-18.92
80/10/18	2444530.5	33.81649	-45.42448	-18.43602	0.80497	0.62124	0.17116	59.55522	1.03112	306.67	-18.03
80/10/18	2444531.0	39.02196	-40.91023	-17.15106	0.73011	0.71060	0.20799	59.08062	1.03984	313.65	-16.88
80/10/19	2444531.5	43.67915	-35.81671	-15.62320	0.64316	0.79203	0.24278	58.60707	1.04877	320.65	-15.46
80/10/19	2444532.0	47.70851	-30.20310	-13.86844	0.54486	0.86390	0.27489	58.14347	1.05771	327.66	-13.80
80/10/20	2444532.5	51.03640	-24.13969	-11.90715	0.43622	0.92459	0.30366	57.69938	1.06647	334.69	-11.91

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
80/10/20	2444533.0	53.59713	-17.70755	-9.76411	0.31858	0.97253	0.32845	57.28479	1.07480	341.72	-9.81
80/10/21	2444533.5	55.33526	-10.99787	-7.46838	0.19362	1.00632	0.34865	56.90976	1.08246	348.76	-7.54
80/10/21	2444534.0	56.20786	-4.11072	-5.05303	0.06335	1.02476	0.36369	56.58404	1.08923	355.82	-5.12
80/10/22	2444534.5	56.18660	2.84670	-2.55463	-0.06992	1.02695	0.37310	56.31664	1.09486	2.90	-2.60
80/10/22	2444535.0	55.25964	9.76239	-0.01257	-0.20366	1.01239	0.37653	56.11535	1.09917	10.02	-0.01
80/10/23	2444535.5	53.43293	16.52234	2.53190	-0.33516	0.98099	0.37379	55.98639	1.10200	17.18	2.59
80/10/23	2444536.0	50.73080	23.01368	5.03672	-0.46171	0.93318	0.36484	55.93399	1.10322	24.40	5.17
80/10/24	2444536.5	47.19585	29.12797	7.46023	-0.58066	0.86984	0.34982	55.96018	1.10280	31.68	7.66
80/10/24	2444537.0	42.88792	34.76440	9.76239	-0.68958	0.79233	0.32907	56.06462	1.10073	39.03	10.03
80/10/25	2444537.5	37.88227	39.83265	11.90590	-0.78637	0.70238	0.30307	56.24462	1.09707	46.44	12.22
80/10/25	2444538.0	32.26713	44.25526	13.85722	-0.86932	0.60203	0.27243	56.49530	1.09196	53.90	14.20
80/10/26	2444538.5	26.14075	47.96927	15.58736	-0.93717	0.49352	0.23788	56.80982	1.08555	61.41	15.92
80/10/26	2444539.0	19.60829	50.92716	17.07241	-0.98914	0.37914	0.20019	57.17979	1.07806	68.94	17.37
80/10/27	2444539.5	12.77866	53.09709	18.29384	-1.02490	0.26121	0.16017	57.59566	1.06972	76.47	18.52
80/10/27	2444540.0	5.76163	54.46245	19.23851	-1.04452	0.14192	0.11860	58.04719	1.06076	83.96	19.36
80/10/28	2444540.5	-1.33473	55.02098	19.89854	-1.04842	0.02328	0.07624	58.52386	1.05145	91.39	19.88
80/10/28	2444541.0	-8.40620	54.78348	20.27098	-1.03730	-0.09286	0.03378	59.01530	1.04200	98.72	20.09
80/10/29	2444541.5	-15.35400	53.77231	20.35737	-1.01207	-0.20493	-0.00813	59.51159	1.03264	105.94	20.00
80/10/29	2444542.0	-22.08605	52.01990	20.16331	-0.97377	-0.31154	-0.04895	60.00352	1.02357	113.00	19.64
80/10/30	2444542.5	-28.51770	49.56717	19.69789	-0.92356	-0.41155	-0.08818	60.48281	1.01495	119.91	19.01
80/10/30	2444543.0	-34.57226	46.46211	18.97331	-0.86262	-0.50402	-0.12542	60.94223	1.00692	126.65	18.14
80/10/31	2444543.5	-40.18116	42.75851	18.00434	-0.79216	-0.58818	-0.16029	61.37566	0.99959	133.22	17.06
80/10/31	2444544.0	-45.28402	38.51480	16.80797	-0.71339	-0.66342	-0.19252	61.77815	0.99303	139.62	15.79
80/11/ 1	2444544.5	-49.82852	33.79310	15.40303	-0.62748	-0.72926	-0.22185	62.14586	0.98730	145.86	14.35
80/11/ 1	2444545.0	-53.77028	28.65836	13.80990	-0.53559	-0.78534	-0.24806	62.47606	0.98242	151.94	12.77
80/11/ 2	2444545.5	-57.07259	23.17768	12.05023	-0.43884	-0.83138	-0.27100	62.76698	0.97837	157.90	11.07
80/11/ 2	2444546.0	-59.70628	17.41968	10.14672	-0.33833	-0.86720	-0.29052	63.01779	0.97515	163.74	9.27
80/11/ 3	2444546.5	-61.64947	11.45397	8.12292	-0.23512	-0.89270	-0.30650	63.22842	0.97269	169.47	7.38
80/11/ 3	2444547.0	-62.88742	5.35075	6.00305	-0.13025	-0.90781	-0.31887	63.39949	0.97096	175.14	5.43
80/11/ 4	2444547.5	-63.41240	-0.81971	3.81185	-0.02475	-0.91256	-0.32756	63.53215	0.96988	180.74	3.44
80/11/ 4	2444548.0	-63.22357	-6.98741	1.57440	0.08037	-0.90702	-0.33252	63.62800	0.96938	186.31	1.42
80/11/ 5	2444548.5	-62.32689	-13.08309	-0.68399	0.18411	-0.89132	-0.33374	63.68890	0.96940	191.85	-0.62
80/11/ 5	2444549.0	-60.73503	-19.03862	-2.93799	0.28548	-0.86567	-0.33123	63.71691	0.96984	197.40	-2.64
80/11/ 6	2444549.5	-58.46731	-24.78744	-5.16237	0.38352	-0.83033	-0.32500	63.71416	0.97065	202.97	-4.65
80/11/ 6	2444550.0	-55.54956	-30.26503	-7.33219	0.47727	-0.78564	-0.31513	63.68270	0.97176	208.58	-6.61
80/11/ 7	2444550.5	-52.01402	-35.40939	-9.42298	0.56580	-0.73200	-0.30168	63.62449	0.97312	214.25	-8.52
80/11/ 7	2444551.0	-47.89918	-40.16155	-11.41093	0.64818	-0.66991	-0.28478	63.54126	0.97469	219.98	-10.35
80/11/ 8	2444551.5	-43.24962	-44.46603	-13.27308	0.72356	-0.59991	-0.26456	63.43447	0.97643	225.79	-12.08
80/11/ 8	2444552.0	-38.11571	-48.27140	-14.98751	0.79108	-0.52264	-0.24119	63.30530	0.97833	231.70	-13.69
80/11/ 9	2444552.5	-32.55333	-51.53080	-16.53359	0.84995	-0.43881	-0.21488	63.15458	0.98038	237.72	-15.18
80/11/ 9	2444553.0	-26.62355	-54.20240	-17.89212	0.89945	-0.34920	-0.18585	62.98286	0.98259	243.84	-16.50
80/11/10	2444553.5	-20.39223	-56.24994	-19.04559	0.93889	-0.25468	-0.15437	62.79039	0.98499	250.07	-17.66
80/11/10	2444554.0	-13.92954	-57.64321	-19.97835	0.96768	-0.15616	-0.12073	62.57720	0.98760	256.41	-18.62
80/11/11	2444554.5	-7.30947	-58.35847	-20.67686	0.98528	-0.05464	-0.08525	62.34317	0.99047	262.86	-19.37
80/11/11	2444555.0	-0.60930	-58.37894	-21.12982	0.99126	0.04883	-0.04828	62.08817	0.99364	269.40	-19.90

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/11/12	2444555.5	6.09102	-57.69519	-21.32840	0.98528	0.15312	-0.01020	61.81210	0.99716	276.03	-20.18
80/11/12	2444556.0	12.70955	-56.30553	-21.26645	0.96708	0.25708	0.02858	61.51510	1.00107	282.72	-20.23
80/11/13	2444556.5	19.16301	-54.21638	-20.94063	0.93652	0.35947	0.06764	61.19760	1.00542	289.47	-20.01
80/11/13	2444557.0	25.36763	-51.44258	-20.35061	0.89360	0.45903	0.10652	60.86052	1.01024	296.25	-19.53
80/11/14	2444557.5	31.23996	-48.00774	-19.49922	0.83843	0.55445	0.14474	60.50535	1.01554	303.05	-18.80
80/11/14	2444558.0	36.69780	-43.94446	-18.39266	0.77126	0.64438	0.18179	60.13430	1.02133	309.87	-17.81
80/11/15	2444558.5	41.66127	-39.29459	-17.04060	0.69253	0.72744	0.21714	59.75038	1.02758	316.67	-16.57
80/11/15	2444559.0	46.05401	-34.10932	-15.45633	0.60284	0.80224	0.25026	59.35752	1.03424	323.47	-15.09
80/11/16	2444559.5	49.80440	-28.44925	-13.65686	0.50301	0.86742	0.28059	58.96056	1.04123	330.26	-13.39
80/11/16	2444560.0	52.84710	-22.38421	-11.66298	0.39406	0.92161	0.30758	58.56530	1.04845	337.04	-11.49
80/11/17	2444560.5	55.12456	-15.99292	-9.49922	0.27727	0.96355	0.33067	58.17839	1.05577	343.82	-9.40
80/11/17	2444561.0	56.58866	-9.36240	-7.19375	0.15416	0.99207	0.34934	57.80728	1.06302	350.61	-7.15
80/11/18	2444561.5	57.20248	-2.58703	-4.77819	0.02650	1.00617	0.36311	57.45997	1.07002	357.41	-4.77
80/11/18	2444562.0	56.94191	4.23278	-2.28720	-0.10369	1.00508	0.37155	57.14481	1.07656	4.25	-2.29
80/11/19	2444562.5	55.79722	10.99225	0.24197	-0.23419	0.98830	0.37433	56.87018	1.08246	11.14	0.24
80/11/19	2444563.0	53.77430	17.58437	2.77021	-0.36262	0.95567	0.37125	56.64415	1.08748	18.11	2.80
80/11/20	2444563.5	50.89554	23.90234	5.25735	-0.48650	0.90742	0.36219	56.47404	1.09145	25.16	5.34
80/11/20	2444564.0	47.20013	29.84229	7.66311	-0.60336	0.84419	0.34724	56.36610	1.09420	32.30	7.81
80/11/21	2444564.5	42.74373	35.30616	9.94822	-0.71083	0.76704	0.32661	56.32511	1.09559	39.56	10.17
80/11/21	2444565.0	37.59747	40.20444	12.07540	-0.80673	0.67745	0.30069	56.35408	1.09552	46.92	12.37
80/11/22	2444565.5	31.84617	44.45877	14.01050	-0.88921	0.57722	0.26999	56.45401	1.09397	54.39	14.37
80/11/22	2444566.0	25.58607	48.00404	15.72337	-0.95677	0.46843	0.23518	56.62383	1.09094	61.94	16.12
80/11/23	2444566.5	18.92198	50.78991	17.18860	-1.00837	0.35336	0.19700	56.86039	1.08650	69.57	17.60
80/11/23	2444567.0	11.96428	52.78170	18.38609	-1.04341	0.23434	0.15625	57.15856	1.08076	77.23	18.76
80/11/24	2444567.5	4.82577	53.96059	19.30128	-1.06177	0.11369	0.11378	57.51150	1.07388	84.89	19.61
80/11/24	2444568.0	-2.38122	54.32308	19.92521	-1.06371	-0.00638	0.07038	57.91097	1.06606	92.51	20.12
80/11/25	2444568.5	-9.54751	53.88009	20.25433	-1.04988	-0.12384	0.02685	58.34772	1.05750	100.05	20.31
80/11/25	2444569.0	-16.56923	52.65548	20.29017	-1.02120	-0.23690	-0.01611	58.81182	1.04844	107.47	20.18
80/11/26	2444569.5	-23.34953	50.68449	20.03881	-0.97880	-0.34401	-0.05786	59.29310	1.03910	114.73	19.75
80/11/26	2444570.0	-29.79979	48.01191	19.51038	-0.92396	-0.44388	-0.09785	59.78148	1.02971	121.83	19.05
80/11/27	2444570.5	-35.84040	44.69037	18.71843	-0.85806	-0.53549	-0.13560	60.26727	1.02049	128.73	18.09
80/11/27	2444571.0	-41.40110	40.77873	17.67944	-0.78248	-0.61802	-0.17074	60.74141	1.01162	135.43	16.92
80/11/28	2444571.5	-46.42105	36.34058	16.41221	-0.69861	-0.69088	-0.20295	61.19569	1.00328	141.94	15.56
80/11/28	2444572.0	-50.84872	31.44293	14.93744	-0.60780	-0.75365	-0.23199	61.62287	0.99560	148.27	14.03
80/11/29	2444572.5	-54.64155	26.15522	13.27731	-0.51136	-0.80603	-0.25766	62.01678	0.98872	154.42	12.36
80/11/29	2444573.0	-57.76557	20.54833	11.45512	-0.41051	-0.84788	-0.27982	62.37238	0.98271	160.42	10.58
80/11/30	2444573.5	-60.19500	14.69393	9.49501	-0.30644	-0.87911	-0.29837	62.68576	0.97764	166.28	8.71
80/11/30	2444574.0	-61.91185	8.66389	7.42175	-0.20027	-0.89975	-0.31323	62.95413	0.97354	172.03	6.77
80/12/ 1	2444574.5	-62.90552	2.52979	5.26050	-0.09307	-0.90986	-0.32435	63.17576	0.97041	177.70	4.78
80/12/ 1	2444575.0	-63.17249	-3.63744	3.03669	0.01415	-0.90956	-0.33170	63.34995	0.96826	183.30	2.75
80/12/ 2	2444575.5	-62.71608	-9.76785	0.77587	0.12038	-0.89902	-0.33528	63.47692	0.96702	188.85	0.70
80/12/ 2	2444576.0	-61.54618	-15.79279	-1.49642	0.22468	-0.87845	-0.33509	63.55772	0.96667	194.39	-1.35
80/12/ 3	2444576.5	-59.67916	-21.64520	-3.75475	0.32608	-0.84812	-0.33116	63.59414	0.96711	199.94	-3.38
80/12/ 3	2444577.0	-57.13771	-27.25992	-5.97394	0.42368	-0.80832	-0.32354	63.58860	0.96828	205.51	-5.39
80/12/ 4	2444577.5	-53.95079	-32.57404	-8.12918	0.51653	-0.75942	-0.31229	63.54400	0.97007	211.12	-7.35

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/12/ 4	2444578.0	-50.15354	-37.52726	-10.19614	0.60375	-0.70183	-0.29749	63.46364	0.97241	216.81	-9.25
80/12/ 5	2444578.5	-45.78720	-42.06236	-12.15121	0.68444	-0.63604	-0.27926	63.35110	0.97518	222.57	-11.06
80/12/ 5	2444579.0	-40.89900	-46.12567	-13.97160	0.75771	-0.56261	-0.25775	63.21006	0.97830	228.44	-12.77
80/12/ 6	2444579.5	-35.54206	-49.66756	-15.63558	0.82272	-0.48218	-0.23311	63.04423	0.98168	234.41	-14.36
80/12/ 6	2444580.0	-29.77509	-52.64305	-17.12270	0.87865	-0.39548	-0.20556	62.85724	0.98523	240.51	-15.81
80/12/ 7	2444580.5	-23.66221	-55.01237	-18.41401	0.92474	-0.30333	-0.17533	62.65251	0.98889	246.73	-17.09
80/12/ 7	2444581.0	-17.27248	-56.74159	-19.49232	0.96029	-0.20662	-0.14271	62.43314	0.99258	253.07	-18.19
80/12/ 8	2444581.5	-10.67949	-57.80322	-20.34244	0.98467	-0.10636	-0.10801	62.20192	0.99627	259.53	-19.09
80/12/ 8	2444582.0	-3.96074	-58.17680	-20.95145	0.99734	-0.00363	-0.07157	61.96121	0.99992	266.11	-19.76
80/12/ 9	2444582.5	2.80303	-57.84944	-21.30895	0.99790	0.10042	-0.03380	61.71293	1.00351	272.77	-20.20
80/12/ 9	2444583.0	9.52864	-56.81633	-21.40727	0.98604	0.20456	0.00489	61.45862	1.00705	279.52	-20.38
80/12/10	2444583.5	16.13138	-55.08115	-21.24172	0.96160	0.30752	0.04404	61.19939	1.01054	286.32	-20.31
80/12/10	2444584.0	22.52597	-52.65639	-20.81077	0.92458	0.40797	0.08318	60.93606	1.01401	293.16	-19.97
80/12/11	2444584.5	28.62759	-49.56358	-20.11618	0.87513	0.50456	0.12180	60.66917	1.01748	300.01	-19.36
80/12/11	2444585.0	34.35303	-45.83339	-19.16316	0.81357	0.59596	0.15940	60.39915	1.02101	306.85	-18.50
80/12/12	2444585.5	39.62182	-41.50563	-17.96041	0.74038	0.68080	0.19546	60.12638	1.02463	313.67	-17.38
80/12/12	2444586.0	44.35741	-36.62911	-16.52019	0.65625	0.75778	0.22944	59.85139	1.02837	320.45	-16.02
80/12/13	2444586.5	48.48841	-31.26139	-14.85830	0.56201	0.82564	0.26083	59.57491	1.03226	327.19	-14.44
80/12/13	2444587.0	51.94979	-25.46838	-12.99400	0.45870	0.88318	0.28912	59.29809	1.03634	333.88	-12.66
80/12/14	2444587.5	54.68410	-19.32379	-10.94997	0.34753	0.92929	0.31383	59.02255	1.04059	340.54	-10.69
80/12/14	2444588.0	56.64273	-12.90844	-8.75207	0.22989	0.96298	0.33449	58.75054	1.04501	347.16	-8.57
80/12/15	2444588.5	57.78705	-6.30937	-6.42916	0.10734	0.98341	0.35068	58.48492	1.04957	353.77	-6.31
80/12/15	2444589.0	58.08959	0.38119	-4.01275	-0.01838	0.98990	0.36203	58.22927	1.05418	0.38	-3.95
80/12/16	2444589.5	57.53504	7.06710	-1.53669	-0.14542	0.98198	0.36825	57.98781	1.05879	7.00	-1.52
80/12/16	2444590.0	56.12122	13.64980	0.96337	-0.27178	0.95940	0.36909	57.76536	1.06327	13.67	0.96
80/12/17	2444590.5	53.85975	20.02996	3.45051	-0.39538	0.92219	0.36442	57.56716	1.06750	20.40	3.44
80/12/17	2444591.0	50.77656	26.10938	5.88716	-0.51407	0.87067	0.35419	57.39876	1.07135	27.21	5.89
80/12/18	2444591.5	46.91201	31.79301	8.23590	-0.62576	0.80545	0.33848	57.26571	1.07466	34.13	8.27
80/12/18	2444592.0	42.32065	36.99112	10.46018	-0.72836	0.72748	0.31748	57.17338	1.07728	41.16	10.54
80/12/19	2444592.5	37.07050	41.62145	12.52519	-0.81998	0.63802	0.29151	57.12659	1.07909	48.31	12.67
80/12/19	2444593.0	31.24192	45.61124	14.39872	-0.89891	0.53862	0.26102	57.12938	1.07994	55.59	14.60
80/12/20	2444593.5	24.92594	48.89913	16.05190	-0.96370	0.43108	0.22654	57.18470	1.07975	62.99	16.30
80/12/20	2444594.0	18.22219	51.43666	17.45993	-1.01326	0.31739	0.18874	57.29422	1.07845	70.49	17.74
80/12/21	2444594.5	11.23653	53.18942	18.60268	-1.04686	0.19970	0.14833	57.45810	1.07601	78.07	18.89
80/12/21	2444595.0	4.07844	54.13760	19.46505	-1.06415	0.08017	0.10608	57.67497	1.07243	85.69	19.72
80/12/22	2444595.5	-3.14164	54.27613	20.03723	-1.06520	-0.03904	0.06277	57.94186	1.06776	93.31	20.23
80/12/22	2444596.0	-10.31492	53.61419	20.31471	-1.05043	-0.15587	0.01918	58.25433	1.06211	100.89	20.41
80/12/23	2444596.5	-17.33658	52.17431	20.29811	-1.02058	-0.26846	-0.02395	58.60656	1.05557	108.38	20.26
80/12/23	2444597.0	-24.10782	49.99108	19.99287	-0.97667	-0.37512	-0.06594	58.99161	1.04831	115.75	19.81
80/12/24	2444597.5	-30.53746	47.10965	19.40882	-0.91993	-0.47442	-0.10619	59.40167	1.04049	122.95	19.07
80/12/24	2444598.0	-36.54315	43.58399	18.55962	-0.85172	-0.56518	-0.14416	59.82831	1.03230	129.98	18.07
80/12/25	2444598.5	-42.05214	39.47522	17.46222	-0.77350	-0.64647	-0.17941	60.26280	1.02392	136.81	16.84
80/12/25	2444599.0	-47.00164	34.84992	16.13628	-0.68675	-0.71761	-0.21159	60.69638	1.01556	143.44	15.42
80/12/26	2444599.5	-51.33892	29.77861	14.60361	-0.59296	-0.77811	-0.24042	61.12050	1.00740	149.88	13.82
80/12/26	2444600.0	-55.02110	24.33445	12.88769	-0.49354	-0.82768	-0.26568	61.52706	0.99961	156.14	12.09

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
80/12/27	2444600.5	-58.01482	18.59198	11.01318	-0.38988	-0.86618	-0.28722	61.90858	0.99236	162.23	10.25
80/12/27	2444601.0	-60.29574	12.62629	9.00561	-0.28327	-0.89360	-0.30496	62.25834	0.98578	168.17	8.32
80/12/28	2444601.5	-61.84802	6.51216	6.89099	-0.17492	-0.91004	-0.31883	62.57053	0.98001	173.99	6.32
80/12/28	2444602.0	-62.66381	0.32348	4.69561	-0.06597	-0.91565	-0.32881	62.84033	0.97513	179.70	4.29
80/12/29	2444602.5	-62.74274	-5.86717	2.44579	0.04250	-0.91066	-0.33490	63.06391	0.97122	185.34	2.22
80/12/29	2444603.0	-62.09145	-11.98893	0.16778	0.14949	-0.89535	-0.33714	63.23853	0.96833	190.93	0.15
80/12/30	2444603.5	-60.72328	-17.97293	-2.11245	0.25404	-0.87004	-0.33556	63.36249	0.96649	196.49	-1.91
80/12/30	2444604.0	-58.65788	-23.75253	-4.36924	0.35523	-0.83506	-0.33023	63.43516	0.96569	202.04	-3.95
80/12/31	2444604.5	-55.92103	-29.26354	-6.57739	0.45217	-0.79079	-0.32121	63.45690	0.96591	207.62	-5.95
80/12/31	2444605.0	-52.54445	-34.44444	-8.71224	0.54399	-0.73765	-0.30860	63.42903	0.96710	213.25	-7.89
81/ 1/ 1	2444605.5	-48.56572	-39.23669	-10.74977	0.62984	-0.67610	-0.29249	63.35380	0.96921	218.94	-9.77
81/ 1/ 1	2444606.0	-44.02813	-43.58495	-12.66670	0.70887	-0.60664	-0.27301	63.23424	0.97213	224.71	-11.56
81/ 1/ 2	2444606.5	-38.98068	-47.43753	-14.44065	0.78026	-0.52983	-0.25030	63.07413	0.97579	230.59	-13.24
81/ 1/ 2	2444607.0	-33.47800	-50.74676	-16.05030	0.84317	-0.44630	-0.22452	62.87784	0.98006	236.59	-14.79
81/ 1/ 3	2444607.5	-27.58021	-53.46954	-17.47557	0.89680	-0.35678	-0.19589	62.65026	0.98484	242.71	-16.20
81/ 1/ 3	2444608.0	-21.35280	-55.56789	-18.69784	0.94037	-0.26206	-0.16462	62.39665	0.98999	248.98	-17.44
81/ 1/ 4	2444608.5	-14.86637	-57.00961	-19.70021	0.97317	-0.16304	-0.13100	62.12248	0.99539	255.38	-18.49
81/ 1/ 4	2444609.0	-8.19623	-57.76894	-20.46778	0.99451	-0.06073	-0.09534	61.83332	1.00092	261.92	-19.33
81/ 1/ 5	2444609.5	-1.42196	-57.82729	-20.98793	1.00383	0.04376	-0.05800	61.53463	1.00646	268.59	-19.94
81/ 1/ 5	2444610.0	5.37328	-57.17395	-21.25062	1.00064	0.14922	-0.01939	61.23170	1.01189	275.37	-20.31
81/ 1/ 6	2444610.5	12.10362	-55.80671	-21.24873	0.98462	0.25434	0.02005	60.92943	1.01713	282.24	-20.41
81/ 1/ 6	2444611.0	18.68139	-53.73253	-20.97833	0.95558	0.35774	0.05982	60.63225	1.02210	289.17	-20.24
81/ 1/ 7	2444611.5	25.01837	-50.96795	-20.43889	0.91353	0.45797	0.09940	60.34401	1.02672	296.14	-19.80
81/ 1/ 7	2444612.0	31.02706	-47.53943	-19.63359	0.85869	0.55355	0.13823	60.06791	1.03096	303.13	-19.08
81/ 1/ 8	2444612.5	36.62208	-43.48346	-18.56939	0.79147	0.64300	0.17575	59.80644	1.03478	310.10	-18.09
81/ 1/ 8	2444613.0	41.72173	-38.84649	-17.25713	0.71253	0.72488	0.21139	59.56141	1.03819	317.04	-16.84
81/ 1/ 9	2444613.5	46.24945	-33.68461	-15.71154	0.62275	0.79778	0.24456	59.33394	1.04119	323.93	-15.35
81/ 1/ 9	2444614.0	50.13532	-28.06298	-13.95116	0.52320	0.86044	0.27473	59.12458	1.04382	330.76	-13.65
81/ 1/10	2444614.5	53.31756	-22.05503	-11.99811	0.41520	0.91168	0.30137	58.93336	1.04612	337.53	-11.75
81/ 1/10	2444615.0	55.74375	-15.74153	-9.87788	0.30021	0.95051	0.32402	58.75997	1.04814	344.23	-9.68
81/ 1/11	2444615.5	57.37206	-9.20932	-7.61898	0.17987	0.97614	0.34226	58.60387	1.04993	350.88	-7.47
81/ 1/11	2444616.0	58.17217	-2.55005	-5.25247	0.05595	0.98796	0.35574	58.46446	1.05154	357.49	-5.15
81/ 1/12	2444616.5	58.12610	4.14135	-2.81156	-0.06968	0.98558	0.36419	58.34123	1.05303	4.08	-2.76
81/ 1/12	2444617.0	57.22871	10.76819	-0.33103	-0.19511	0.96889	0.36741	58.23391	1.05442	10.66	-0.33
81/ 1/13	2444617.5	55.48804	17.23367	2.15331	-0.31837	0.93797	0.36530	58.14257	1.05575	17.25	2.12
81/ 1/13	2444618.0	52.92539	23.44253	4.60522	-0.43751	0.89319	0.35784	58.06770	1.05700	23.89	4.55
81/ 1/14	2444618.5	49.57516	29.30273	6.98869	-0.55063	0.83514	0.34511	58.01025	1.05818	30.59	6.92
81/ 1/14	2444619.0	45.48441	34.72710	9.26849	-0.65589	0.76465	0.32727	57.97162	1.05924	37.36	9.20
81/ 1/15	2444619.5	40.71222	39.63495	11.41090	-0.75158	0.68281	0.30459	57.95363	1.06013	44.23	11.36
81/ 1/15	2444620.0	35.32876	43.95358	13.38425	-0.83615	0.59089	0.27742	57.95840	1.06078	51.21	13.35
81/ 1/16	2444620.5	29.41407	47.61971	15.15958	-0.90823	0.49039	0.24619	57.98825	1.06112	58.30	15.15
81/ 1/16	2444621.0	23.05670	50.58067	16.71114	-0.96670	0.38295	0.21143	58.04548	1.06107	65.49	16.73
81/ 1/17	2444621.5	16.35202	52.79546	18.01692	-1.01067	0.27036	0.17372	58.13225	1.06053	72.79	18.06
81/ 1/17	2444622.0	9.40038	54.23548	19.05906	-1.03955	0.15448	0.13369	58.25034	1.05944	80.17	19.10
81/ 1/18	2444622.5	2.30514	54.88500	19.82415	-1.05305	0.03725	0.09202	58.40098	1.05772	87.60	19.84

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM							
81/ 1/18	2444623.0	-4.82936	54.74131	20.30344	-1.05117	-0.07943	0.04941	58.58466	1.05533	95.04	20.28
81/ 1/19	2444623.5	-11.89988	53.81447	20.49291	-1.03423	-0.19370	0.00656	58.80106	1.05224	102.47	20.40
81/ 1/19	2444624.0	-18.80625	52.12683	20.39323	-1.00282	-0.30381	-0.03586	59.04884	1.04844	109.84	20.20
81/ 1/20	2444624.5	-25.45315	49.71212	20.00958	-0.95777	-0.40815	-0.07720	59.32572	1.04397	117.11	19.71
81/ 1/20	2444625.0	-31.75171	46.61436	19.35136	-0.90015	-0.50529	-0.11685	59.62839	1.03886	124.26	18.94
81/ 1/21	2444625.5	-37.62084	42.88657	18.43180	-0.83118	-0.59401	-0.15428	59.95262	1.03320	131.26	17.90
81/ 1/21	2444626.0	-42.98818	38.58929	17.26756	-0.75221	-0.67330	-0.18903	60.29332	1.02708	138.09	16.64
81/ 1/22	2444626.5	-47.79082	33.78913	15.87818	-0.66467	-0.74239	-0.22070	60.64474	1.02061	144.74	15.18
81/ 1/22	2444627.0	-51.97566	28.55729	14.28560	-0.57002	-0.80070	-0.24899	61.00054	1.01392	151.21	13.54
81/ 1/23	2444627.5	-55.49950	22.96814	12.51367	-0.46972	-0.84785	-0.27363	61.35407	1.00716	157.52	11.77
81/ 1/23	2444628.0	-58.32894	17.09798	10.58765	-0.36520	-0.88366	-0.29446	61.69850	1.00047	163.66	9.88
81/ 1/24	2444628.5	-60.44006	11.02386	8.53379	-0.25783	-0.90809	-0.31137	62.02702	0.99400	169.66	7.91
81/ 1/24	2444629.0	-61.81794	4.82268	6.37895	-0.14890	-0.92121	-0.32427	62.33303	0.98790	175.54	5.87
81/ 1/25	2444629.5	-62.45624	-1.42969	4.15027	-0.03963	-0.92324	-0.33317	62.61030	0.98231	181.31	3.80
81/ 1/25	2444630.0	-62.35655	-7.65896	1.87489	0.06884	-0.91444	-0.33807	62.85311	0.97736	187.00	1.71
81/ 1/26	2444630.5	-61.52792	-13.79299	-0.42026	0.17545	-0.89518	-0.33902	63.05639	0.97317	192.64	-0.38
81/ 1/26	2444631.0	-59.98634	-19.76214	-2.70865	0.27921	-0.86583	-0.33609	63.21582	0.96983	198.23	-2.46
81/ 1/27	2444631.5	-57.75424	-25.49960	-4.96430	0.37921	-0.82683	-0.32936	63.32792	0.96743	203.82	-4.50
81/ 1/27	2444632.0	-54.86017	-30.94157	-7.16185	0.47455	-0.77865	-0.31895	63.39015	0.96604	209.42	-6.49
81/ 1/28	2444632.5	-51.33843	-36.02753	-9.27672	0.56441	-0.72179	-0.30497	63.40091	0.96568	215.06	-8.41
81/ 1/28	2444633.0	-47.22888	-40.70036	-11.28515	0.64800	-0.65675	-0.28754	63.35962	0.96639	220.75	-10.26
81/ 1/29	2444633.5	-42.57672	-44.90662	-13.16430	0.72452	-0.58411	-0.26682	63.26674	0.96814	226.53	-12.01
81/ 1/29	2444634.0	-37.43235	-48.59674	-14.89236	0.79321	-0.50444	-0.24296	63.12374	0.97091	232.39	-13.65
81/ 1/30	2444634.5	-31.85133	-51.72534	-16.44866	0.85333	-0.41840	-0.21613	62.93311	0.97465	238.38	-15.15
81/ 1/30	2444635.0	-25.89427	-54.25160	-17.81381	0.90413	-0.32670	-0.18654	62.69833	0.97928	244.48	-16.51
81/ 1/31	2444635.5	-19.62671	-56.13970	-18.96986	0.94490	-0.23010	-0.15443	62.42379	0.98470	250.73	-17.69
81/ 1/31	2444636.0	-13.11902	-57.35938	-19.90053	0.97493	-0.12947	-0.12004	62.11472	0.99079	257.12	-18.69
81/ 2/ 1	2444636.5	-6.44615	-57.88654	-20.59143	0.99357	-0.02577	-0.08368	61.77711	0.99742	263.65	-19.47
81/ 2/ 1	2444637.0	0.31265	-57.70395	-21.03036	1.00021	0.07993	-0.04569	61.41759	1.00444	270.31	-20.02
81/ 2/ 2	2444637.5	7.07438	-56.80200	-21.20759	0.99435	0.18645	-0.00647	61.04323	1.01170	277.10	-20.33
81/ 2/ 2	2444638.0	13.75288	-55.17945	-21.11622	0.97558	0.29249	0.03354	60.66143	1.01904	284.00	-20.37
81/ 2/ 3	2444638.5	20.25977	-52.84426	-20.75253	0.94365	0.39664	0.07386	60.27969	1.02628	290.98	-20.14
81/ 2/ 3	2444639.0	26.50552	-49.81419	-20.11628	0.89847	0.49742	0.11393	59.90543	1.03328	298.02	-19.62
81/ 2/ 4	2444639.5	32.40079	-46.11743	-19.21104	0.84020	0.59324	0.15319	59.54572	1.03988	305.09	-18.82
81/ 2/ 4	2444640.0	37.85802	-41.79297	-18.04445	0.76921	0.68251	0.19101	59.20713	1.04594	312.17	-17.74
81/ 2/ 5	2444640.5	42.79315	-36.89067	-16.62836	0.68616	0.76361	0.22676	58.89548	1.05135	319.24	-16.40
81/ 2/ 5	2444641.0	47.12746	-31.47109	-14.97892	0.59197	0.83501	0.25981	58.61565	1.05602	326.27	-14.81
81/ 2/ 6	2444641.5	50.78952	-25.60493	-13.11654	0.48787	0.89526	0.28954	58.37150	1.05988	333.25	-12.99
81/ 2/ 6	2444642.0	53.71704	-19.37213	-11.06566	0.37533	0.94308	0.31538	58.16570	1.06289	340.17	-10.97
81/ 2/ 7	2444642.5	55.85856	-12.86057	-8.85442	0.25607	0.97741	0.33681	57.99977	1.06506	347.03	-8.78
81/ 2/ 7	2444643.0	57.17490	-6.16452	-6.51424	0.13200	0.99745	0.35339	57.87406	1.06640	353.85	-6.46
81/ 2/ 8	2444643.5	57.64038	0.61726	-4.07916	0.00517	1.00267	0.36478	57.78784	1.06697	0.61	-4.05
81/ 2/ 8	2444644.0	57.24349	7.38349	-1.58520	-0.12229	0.99285	0.37075	57.73947	1.06684	7.35	-1.57
81/ 2/ 9	2444644.5	55.98730	14.03253	0.93037	-0.24822	0.96810	0.37115	57.72655	1.06611	14.07	0.92
81/ 2/ 9	2444645.0	53.88936	20.46440	3.42983	-0.37050	0.92882	0.36599	57.74616	1.06486	20.79	3.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
81/ 2/10	2444645.5	50.98130	26.58289	5.87574	-0.48712	0.87569	0.35537	57.79504	1.06321	27.54	5.84
81/ 2/10	2444646.0	47.30798	32.29729	8.23171	-0.59618	0.80967	0.33948	57.86987	1.06125	34.32	8.18
81/ 2/11	2444646.5	42.92646	37.52416	10.46303	-0.69598	0.73194	0.31862	57.96739	1.05907	41.16	10.40
81/ 2/11	2444647.0	37.90463	42.18861	12.53736	-0.78502	0.64384	0.29318	58.08464	1.05676	48.06	12.47
81/ 2/12	2444647.5	32.31980	46.22554	14.42515	-0.86204	0.54690	0.26362	58.21903	1.05437	55.04	14.35
81/ 2/12	2444648.0	26.25706	49.58050	16.10020	-0.92600	0.44274	0.23045	58.36845	1.05195	62.10	16.01
81/ 2/13	2444648.5	19.80763	52.21035	17.53993	-0.97611	0.33306	0.19423	58.53129	1.04950	69.22	17.44
81/ 2/13	2444649.0	13.06720	54.08366	18.72572	-1.01186	0.21963	0.15556	58.70644	1.04704	76.42	18.60
81/ 2/14	2444649.5	6.13418	55.18091	19.64306	-1.03296	0.10419	0.11507	58.89321	1.04455	83.66	19.48
81/ 2/14	2444650.0	-0.89189	55.49446	20.28170	-1.03935	-0.01150	0.07337	59.09126	1.04200	90.92	20.07
81/ 2/15	2444650.5	-7.91201	55.02832	20.63569	-1.03125	-0.12576	0.03111	59.30049	1.03935	98.18	20.36
81/ 2/15	2444651.0	-14.82923	53.79778	20.70331	-1.00905	-0.23697	-0.01109	59.52087	1.03656	105.41	20.35
81/ 2/16	2444651.5	-21.55009	51.82877	20.48700	-0.97339	-0.34359	-0.05263	59.75237	1.03359	112.58	20.05
81/ 2/16	2444652.0	-27.98599	49.15713	19.99319	-0.92505	-0.44422	-0.09294	59.99473	1.03039	119.65	19.47
81/ 2/17	2444652.5	-34.05433	45.82774	19.23203	-0.86502	-0.53762	-0.13149	60.24741	1.02693	126.62	18.62
81/ 2/17	2444653.0	-39.67954	41.89347	18.21713	-0.79440	-0.62267	-0.16779	60.50944	1.02320	133.45	17.52
81/ 2/18	2444653.5	-44.79395	37.41410	16.96521	-0.71439	-0.69844	-0.20141	60.77936	1.01919	140.13	16.21
81/ 2/18	2444654.0	-49.33840	32.45516	15.49572	-0.62631	-0.76417	-0.23198	61.05516	1.01491	146.66	14.70
81/ 2/19	2444654.5	-53.26273	27.08670	13.83045	-0.53150	-0.81928	-0.25918	61.33424	1.01039	153.04	13.03
81/ 2/19	2444655.0	-56.52599	21.38215	11.99311	-0.43134	-0.86337	-0.28276	61.61346	1.00568	159.28	11.22
81/ 2/20	2444655.5	-59.09654	15.41711	10.00890	-0.32718	-0.89617	-0.30252	61.88915	1.00085	165.38	9.31
81/ 2/20	2444656.0	-60.95195	9.26835	7.90414	-0.22038	-0.91762	-0.31834	62.15720	0.99595	171.35	7.31
81/ 2/21	2444656.5	-62.07872	3.01275	5.70587	-0.11223	-0.92774	-0.33012	62.41314	0.99110	177.22	5.25
81/ 2/21	2444657.0	-62.47196	-3.27352	3.44150	-0.00397	-0.92671	-0.33785	62.65226	0.98638	183.00	3.15
81/ 2/22	2444657.5	-62.13496	-9.51579	1.13856	0.10322	-0.91480	-0.34152	62.86970	0.98191	188.71	1.04
81/ 2/22	2444658.0	-61.07868	-15.64150	-1.17568	0.20825	-0.89236	-0.34119	63.06064	0.97780	194.36	-1.07
81/ 2/23	2444658.5	-59.32128	-21.58077	-3.47432	0.31009	-0.85982	-0.33693	63.22037	0.97415	199.99	-3.15
81/ 2/23	2444659.0	-56.88760	-27.26678	-5.73110	0.40779	-0.81766	-0.32885	63.34447	0.97108	205.61	-5.19
81/ 2/24	2444659.5	-53.80870	-32.63613	-7.92053	0.50048	-0.76640	-0.31707	63.42892	0.96870	211.24	-7.17
81/ 2/24	2444660.0	-50.12142	-37.62909	-10.01804	0.58731	-0.70661	-0.30173	63.47020	0.96710	216.90	-9.08
81/ 2/25	2444660.5	-45.86803	-42.18987	-12.00005	0.66752	-0.63888	-0.28299	63.46544	0.96635	222.61	-10.90
81/ 2/25	2444661.0	-41.09588	-46.26677	-13.84413	0.74038	-0.56383	-0.26103	63.41250	0.96654	228.39	-12.61
81/ 2/26	2444661.5	-35.85715	-49.81243	-15.52903	0.80518	-0.48212	-0.23602	63.31006	0.96771	234.25	-14.20
81/ 2/26	2444662.0	-30.20865	-52.78398	-17.03481	0.86127	-0.39442	-0.20817	63.15771	0.96989	240.22	-15.65
81/ 2/27	2444662.5	-24.21165	-55.14336	-18.34297	0.90799	-0.30147	-0.17770	62.95601	0.97309	246.30	-16.94
81/ 2/27	2444663.0	-17.93171	-56.85761	-19.43651	0.94472	-0.20405	-0.14484	62.70656	0.97729	252.50	-18.06
81/ 2/28	2444663.5	-11.43857	-57.89924	-20.30014	0.97085	-0.10300	-0.10985	62.41200	0.98246	258.82	-18.98
81/ 2/28	2444664.0	-4.80591	-58.24670	-20.92044	0.98582	0.00077	-0.07304	62.07608	0.98852	265.28	-19.69
81/ 3/ 1	2444664.5	1.88879	-57.88494	-21.28608	0.98909	0.10625	-0.03471	61.70357	0.99538	271.87	-20.18
81/ 3/ 1	2444665.0	8.56467	-56.80602	-21.38810	0.98019	0.21235	0.00475	61.30031	1.00294	278.57	-20.42
81/ 3/ 2	2444665.5	15.13791	-55.00983	-21.22014	0.95872	0.31785	0.04493	60.87308	1.01103	285.39	-20.40
81/ 3/ 2	2444666.0	21.52235	-52.50481	-20.77884	0.92440	0.42143	0.08538	60.42951	1.01952	292.29	-20.11
81/ 3/ 3	2444666.5	27.63039	-49.30870	-20.06411	0.87709	0.52167	0.12558	59.97795	1.02820	299.26	-19.54
81/ 3/ 3	2444667.0	33.37406	-45.44931	-19.07952	0.81683	0.61704	0.16497	59.52727	1.03690	306.29	-18.69
81/ 3/ 4	2444667.5	38.66641	-40.96505	-17.83262	0.74389	0.70592	0.20294	59.08662	1.04540	313.35	-17.57

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
81/ 3/ 4	2444668.0	43.42317	-35.90538	-16.33520	0.65878	0.78667	0.23884	58.66522	1.05351	320.41	-16.17
81/ 3/ 5	2444668.5	47.56461	-30.33099	-14.60350	0.56235	0.85764	0.27201	58.27198	1.06103	327.48	-14.51
81/ 3/ 5	2444669.0	51.01764	-24.31350	-12.65826	0.45572	0.91726	0.30178	57.91526	1.06776	334.52	-12.62
81/ 3/ 6	2444669.5	53.71797	-17.93490	-10.52469	0.34035	0.96405	0.32752	57.60252	1.07355	341.54	-10.53
81/ 3/ 6	2444670.0	55.61228	-11.28638	-8.23220	0.21803	0.99677	0.34862	57.34002	1.07825	348.53	-8.25
81/ 3/ 7	2444670.5	56.66019	-4.46676	-5.81393	0.09078	1.01444	0.36458	57.13257	1.08178	355.49	-5.84
81/ 3/ 7	2444671.0	56.83591	2.41955	-3.30619	-0.03913	1.01639	0.37498	56.98338	1.08406	2.44	-3.33
81/ 3/ 8	2444671.5	56.12948	9.26499	-0.74764	-0.16931	1.00235	0.37955	56.89391	1.08509	9.37	-0.75
81/ 3/ 8	2444672.0	54.54739	15.96139	1.82162	-0.29730	0.97244	0.37814	56.86389	1.08490	16.31	1.84
81/ 3/ 9	2444672.5	52.11265	22.40280	4.36106	-0.42070	0.92717	0.37075	56.89141	1.08355	23.26	4.40
81/ 3/ 9	2444673.0	48.86418	28.48800	6.83068	-0.53723	0.86743	0.35756	56.97309	1.08116	30.24	6.89
81/ 3/10	2444673.5	44.85567	34.12301	9.19204	-0.64481	0.79446	0.33884	57.10433	1.07785	37.26	9.26
81/ 3/10	2444674.0	40.15394	39.22306	11.40905	-0.74165	0.70973	0.31502	57.27961	1.07378	44.33	11.49
81/ 3/11	2444674.5	34.83700	43.71424	13.44881	-0.82625	0.61496	0.28659	57.49280	1.06911	51.45	13.53
81/ 3/11	2444675.0	28.99188	47.53468	15.28211	-0.89746	0.51198	0.25415	57.73749	1.06402	58.62	15.35
81/ 3/12	2444675.5	22.71235	50.63521	16.88391	-0.95442	0.40270	0.21834	58.00726	1.05866	65.84	16.92
81/ 3/12	2444676.0	16.09675	52.97971	18.23359	-0.99663	0.28905	0.17982	58.29596	1.05317	73.10	18.23
81/ 3/13	2444676.5	9.24587	54.54499	19.31509	-1.02388	0.17291	0.13926	58.59791	1.04768	80.38	19.25
81/ 3/13	2444677.0	2.26106	55.32046	20.11693	-1.03621	0.05611	0.09734	58.90803	1.04229	87.66	19.97
81/ 3/14	2444677.5	-4.75749	55.30752	20.63210	-1.03391	-0.05962	0.05472	59.22194	1.03708	94.92	20.39
81/ 3/14	2444678.0	-11.71226	54.51887	20.85794	-1.01747	-0.17269	0.01201	59.53602	1.03209	102.12	20.51
81/ 3/15	2444678.5	-18.50963	52.97763	20.79589	-0.98756	-0.28162	-0.03020	59.84735	1.02737	109.26	20.33
81/ 3/15	2444679.0	-25.06101	50.71646	20.45129	-0.94498	-0.38507	-0.07134	60.15371	1.02292	116.30	19.88
81/ 3/16	2444679.5	-31.28375	47.77657	19.83302	-0.89068	-0.48185	-0.11093	60.45347	1.01872	123.22	19.15
81/ 3/16	2444680.0	-37.10187	44.20677	18.95329	-0.82568	-0.57092	-0.14848	60.74548	1.01476	130.01	18.18
81/ 3/17	2444680.5	-42.44667	40.06248	17.82727	-0.75110	-0.65136	-0.18359	61.02896	1.01100	136.66	16.98
81/ 3/17	2444681.0	-47.25727	35.40477	16.47281	-0.66813	-0.72241	-0.21588	61.30335	1.00741	143.16	15.59
81/ 3/18	2444681.5	-51.48087	30.29940	14.91006	-0.57798	-0.78346	-0.24504	61.56820	1.00395	149.52	14.01
81/ 3/18	2444682.0	-55.07312	24.81583	13.16119	-0.48191	-0.83402	-0.27080	61.82306	1.00058	155.74	12.29
81/ 3/19	2444682.5	-57.99821	19.02633	11.25004	-0.38118	-0.87375	-0.29293	62.06736	0.99727	161.84	10.44
81/ 3/19	2444683.0	-60.22891	13.00501	9.20180	-0.27707	-0.90245	-0.31126	62.30028	0.99401	167.82	8.49
81/ 3/20	2444683.5	-61.74657	6.82701	7.04265	-0.17083	-0.92002	-0.32566	62.52077	0.99079	173.69	6.47
81/ 3/20	2444684.0	-62.54094	0.56763	4.79950	-0.06369	-0.92649	-0.33606	62.72740	0.98761	179.48	4.39
81/ 3/21	2444684.5	-62.60997	-5.69843	2.49962	0.04316	-0.92202	-0.34241	62.91842	0.98450	185.20	2.28
81/ 3/21	2444685.0	-61.95948	-11.89782	0.17044	0.14859	-0.90685	-0.34471	63.09172	0.98147	190.87	0.15
81/ 3/22	2444685.5	-60.60288	-17.95913	-2.16079	0.25150	-0.88132	-0.34302	63.24483	0.97859	196.51	-1.96
81/ 3/22	2444686.0	-58.56071	-23.81354	-4.46721	0.35087	-0.84583	-0.33740	63.37505	0.97590	202.13	-4.04
81/ 3/23	2444686.5	-55.86023	-29.39526	-6.72257	0.44574	-0.80088	-0.32796	63.47944	0.97347	207.75	-6.08
81/ 3/23	2444687.0	-52.53502	-34.64201	-8.90140	0.53520	-0.74701	-0.31483	63.55495	0.97138	213.40	-8.05
81/ 3/24	2444687.5	-48.62449	-39.49537	-10.97922	0.61844	-0.68482	-0.29816	63.59849	0.96971	219.09	-9.94
81/ 3/24	2444688.0	-44.17349	-43.90111	-12.93270	0.69468	-0.61494	-0.27814	63.60707	0.96855	224.82	-11.73
81/ 3/25	2444688.5	-39.23187	-47.80946	-14.73973	0.76320	-0.53806	-0.25495	63.57786	0.96798	230.63	-13.41
81/ 3/25	2444689.0	-33.85415	-51.17538	-16.37959	0.82335	-0.45488	-0.22881	63.50837	0.96808	236.51	-14.95
81/ 3/26	2444689.5	-28.09912	-53.95872	-17.83305	0.87452	-0.36616	-0.19995	63.39654	0.96894	242.49	-16.34
81/ 3/26	2444690.0	-22.02958	-56.12452	-19.08247	0.91613	-0.27266	-0.16860	63.24084	0.97060	248.57	-17.56

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
81/ 3/27	2444690.5	-15.71203	-57.64319	-20.11190	0.94767	-0.17521	-0.13503	63.04041	0.97314	254.75	-18.60
81/ 3/27	2444691.0	-9.21644	-58.49083	-20.90724	0.96863	-0.07466	-0.09952	62.79516	0.97659	261.05	-19.45
81/ 3/28	2444691.5	-2.61594	-58.64953	-21.45633	0.97857	0.02808	-0.06237	62.50587	0.98096	267.45	-20.08
81/ 3/28	2444692.0	4.01339	-58.10773	-21.74916	0.97708	0.13203	-0.02391	62.17429	0.98625	273.95	-20.48
81/ 3/29	2444692.5	10.59291	-56.86072	-21.77802	0.96381	0.23615	0.01551	61.80318	0.99244	280.55	-20.63
81/ 3/29	2444693.0	17.04176	-54.91107	-21.53774	0.93846	0.33932	0.05550	61.39642	0.99946	287.24	-20.54
81/ 3/30	2444693.5	23.27740	-52.26925	-21.02594	0.90082	0.44033	0.09562	60.95902	1.00723	294.01	-20.18
81/ 3/30	2444694.0	29.21624	-48.95424	-20.24330	0.85081	0.53788	0.13539	60.49709	1.01564	300.83	-19.55
81/ 3/31	2444694.5	34.77450	-44.99410	-19.19384	0.78846	0.63059	0.17431	60.01781	1.02455	307.70	-18.65
81/ 3/31	2444695.0	39.86925	-40.42659	-17.88525	0.71399	0.71698	0.21182	59.52939	1.03379	314.60	-17.48
81/ 4/ 1	2444695.5	44.41976	-35.29969	-16.32914	0.62784	0.79552	0.24730	59.04087	1.04316	321.53	-16.06
81/ 4/ 1	2444696.0	48.34903	-29.67192	-14.54132	0.53068	0.86462	0.28013	58.56194	1.05246	328.46	-14.38
81/ 4/ 2	2444696.5	51.58566	-23.61243	-12.54197	0.42350	0.92274	0.30966	58.10273	1.06146	335.40	-12.47
81/ 4/ 2	2444697.0	54.06589	-17.20078	-10.35568	0.30757	0.96837	0.33523	57.67346	1.06992	342.35	-10.34
81/ 4/ 3	2444697.5	55.73581	-10.52626	-8.01139	0.18451	1.00015	0.35621	57.28407	1.07761	349.31	-8.04
81/ 4/ 3	2444698.0	56.55351	-3.68672	-5.54213	0.05626	1.01693	0.37204	56.94389	1.08431	356.27	-5.59
81/ 4/ 4	2444698.5	56.49119	3.21317	-2.98451	-0.07496	1.01786	0.38223	56.66115	1.08984	3.26	-3.02
81/ 4/ 4	2444699.0	55.53690	10.06406	-0.37807	-0.20671	1.00242	0.38641	56.44267	1.09402	10.27	-0.38
81/ 4/ 5	2444699.5	53.69578	16.75469	2.23563	-0.33640	0.97055	0.38435	56.29347	1.09675	17.33	2.28
81/ 4/ 5	2444700.0	50.99073	23.17477	4.81408	-0.46139	0.92263	0.37600	56.21654	1.09795	24.44	4.91
81/ 4/ 6	2444700.5	47.46225	29.21813	7.31494	-0.57913	0.85949	0.36147	56.21275	1.09762	31.62	7.48
81/ 4/ 6	2444701.0	43.16758	34.78576	9.69723	-0.68727	0.78239	0.34105	56.28077	1.09581	38.86	9.92
81/ 4/ 7	2444701.5	38.17904	39.78846	11.92251	-0.78371	0.69297	0.31519	56.41725	1.09259	46.18	12.20
81/ 4/ 7	2444702.0	32.58179	44.14917	13.95581	-0.86676	0.59315	0.28447	56.61702	1.08813	53.57	14.27
81/ 4/ 8	2444702.5	26.47122	47.80456	15.76649	-0.93511	0.48506	0.24957	56.87340	1.08259	61.03	16.09
81/ 4/ 8	2444703.0	19.95001	50.70604	17.32880	-0.98791	0.37090	0.21126	57.17860	1.07618	68.52	17.64
81/ 4/ 9	2444703.5	13.12525	52.82011	18.62224	-1.02471	0.25291	0.17031	57.52412	1.06911	76.05	18.89
81/ 4/ 9	2444704.0	6.10570	54.12816	19.63169	-1.04545	0.13324	0.12753	57.90112	1.06160	83.56	19.82
81/ 4/10	2444704.5	-1.00069	54.62574	20.34735	-1.05043	0.01391	0.08368	58.30084	1.05384	91.05	20.43
81/ 4/10	2444705.0	-8.08889	54.32161	20.76448	-1.04019	-0.10321	0.03950	58.71483	1.04605	98.47	20.71
81/ 4/11	2444705.5	-15.05847	53.23643	20.88313	-1.01555	-0.21646	-0.00435	59.13527	1.03837	105.79	20.68
81/ 4/11	2444706.0	-21.81499	51.40146	20.70770	-0.97745	-0.32439	-0.04725	59.55512	1.03096	113.00	20.35
81/ 4/12	2444706.5	-28.27096	48.85715	20.24654	-0.92699	-0.42573	-0.08864	59.96825	1.02392	120.06	19.73
81/ 4/12	2444707.0	-34.34653	45.65186	19.51148	-0.86532	-0.51942	-0.12805	60.36948	1.01734	126.96	18.86
81/ 4/13	2444707.5	-39.96996	41.84052	18.51741	-0.79368	-0.60456	-0.16506	60.75460	1.01127	133.69	17.75
81/ 4/13	2444708.0	-45.07789	37.48353	17.28190	-0.71331	-0.68043	-0.19929	61.12034	1.00574	140.26	16.42
81/ 4/14	2444708.5	-49.61544	32.64567	15.82476	-0.62546	-0.74647	-0.23045	61.46426	1.00076	146.66	14.92
81/ 4/14	2444709.0	-53.53624	27.39514	14.16773	-0.53139	-0.80223	-0.25828	61.78469	0.99632	152.90	13.26
81/ 4/15	2444709.5	-56.80240	21.80268	12.33416	-0.43235	-0.84740	-0.28256	62.08060	0.99239	159.00	11.46
81/ 4/15	2444710.0	-59.38436	15.94081	10.34866	-0.32956	-0.88176	-0.30311	62.35148	0.98893	164.97	9.55
81/ 4/16	2444710.5	-61.26083	9.88306	8.23689	-0.22422	-0.90523	-0.31983	62.59721	0.98590	170.84	7.56
81/ 4/16	2444711.0	-62.41856	3.70332	6.02524	-0.11752	-0.91779	-0.33260	62.81795	0.98325	176.60	5.50
81/ 4/17	2444711.5	-62.85218	-2.52482	3.74060	-0.01059	-0.91954	-0.34137	63.01399	0.98092	182.30	3.40
81/ 4/17	2444712.0	-62.56396	-8.72867	1.41011	0.09545	-0.91066	-0.34613	63.18566	0.97888	187.94	1.28
81/ 4/18	2444712.5	-61.56360	-14.83701	-0.93904	0.19953	-0.89139	-0.34689	63.33321	0.97710	193.55	-0.85

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
81/ 4/18	2444713.0	-59.86790	-20.78064	-3.27988	0.30061	-0.86208	-0.34369	63.45674	0.97554	199.14	-2.96
81/ 4/19	2444713.5	-57.50052	-26.49286	-5.58582	0.39771	-0.82313	-0.33660	63.55614	0.97418	204.74	-5.04
81/ 4/19	2444714.0	-54.49161	-31.91000	-7.83089	0.48990	-0.77503	-0.32573	63.63102	0.97302	210.35	-7.07
81/ 4/20	2444714.5	-50.87731	-36.97184	-9.98993	0.57628	-0.71831	-0.31122	63.68074	0.97207	216.01	-9.03
81/ 4/20	2444715.0	-46.70033	-41.62204	-12.03875	0.65603	-0.65358	-0.29322	63.70439	0.97135	221.71	-10.89
81/ 4/21	2444715.5	-42.00769	-45.80856	-13.95434	0.72839	-0.58150	-0.27191	63.70081	0.97089	227.48	-12.65
81/ 4/21	2444716.0	-36.85204	-49.48395	-15.71501	0.79263	-0.50277	-0.24751	63.66864	0.97072	233.32	-14.29
81/ 4/22	2444716.5	-31.29057	-52.60573	-17.30055	0.84812	-0.41815	-0.22023	63.60638	0.97091	239.26	-15.78
81/ 4/22	2444717.0	-25.38457	-55.13667	-18.69237	0.89427	-0.32843	-0.19035	63.51247	0.97151	245.28	-17.12
81/ 4/23	2444717.5	-19.19913	-57.04504	-19.87364	0.93056	-0.23445	-0.15811	63.38536	0.97258	251.40	-18.27
81/ 4/23	2444718.0	-12.80268	-58.30489	-20.82941	0.95651	-0.13708	-0.12381	63.22367	0.97418	257.62	-19.24
81/ 4/24	2444718.5	-6.26660	-58.89631	-21.54674	0.97173	-0.03723	-0.08775	63.02624	0.97639	263.93	-19.99
81/ 4/24	2444719.0	0.33517	-58.80567	-22.01484	0.97586	0.06416	-0.05026	62.79230	0.97926	270.33	-20.52
81/ 4/25	2444719.5	6.92658	-58.02593	-22.22517	0.96862	0.16610	-0.01169	62.52155	0.98283	276.81	-20.82
81/ 4/25	2444720.0	13.42988	-56.55687	-22.17164	0.94981	0.26754	0.02759	62.21433	0.98715	283.36	-20.88
81/ 4/26	2444720.5	19.76609	-54.40548	-21.85071	0.91927	0.36740	0.06720	61.87171	0.99224	289.97	-20.68
81/ 4/26	2444721.0	25.85553	-51.58627	-21.26161	0.87694	0.46454	0.10671	61.49559	0.99810	296.62	-20.23
81/ 4/27	2444721.5	31.61846	-48.12164	-20.40650	0.82287	0.55778	0.14567	61.08883	1.00471	303.31	-19.51
81/ 4/27	2444722.0	36.97579	-44.04233	-19.29070	0.75720	0.64585	0.18360	60.65531	1.01202	310.02	-18.54
81/ 4/28	2444722.5	41.84995	-39.38772	-17.92289	0.68025	0.72744	0.22000	60.20001	1.01995	316.74	-17.32
81/ 4/28	2444723.0	46.16593	-34.20624	-16.31531	0.59247	0.80120	0.25431	59.72897	1.02841	323.46	-15.85
81/ 4/29	2444723.5	49.85256	-28.55558	-14.48397	0.49453	0.86575	0.28598	59.24934	1.03724	330.20	-14.15
81/ 4/29	2444724.0	52.84388	-22.50281	-12.44879	0.38732	0.91971	0.31441	58.76925	1.04630	336.93	-12.23
81/ 4/30	2444724.5	55.08085	-16.12429	-10.23370	0.27199	0.96173	0.33901	58.29769	1.05538	343.68	-10.11
81/ 4/30	2444725.0	56.51312	-9.50523	-7.86662	0.14997	0.99054	0.35919	57.84433	1.06427	350.45	-7.82
81/ 5/ 1	2444725.5	57.10101	-2.73897	-5.37933	0.02296	1.00502	0.37441	57.41920	1.07275	357.25	-5.38
81/ 5/ 1	2444726.0	56.81739	4.07426	-2.80718	-0.10703	1.00428	0.38418	57.03240	1.08056	4.10	-2.82
81/ 5/ 2	2444726.5	55.64957	10.82902	-0.18858	-0.23774	0.98768	0.38807	56.69372	1.08749	11.01	-0.19
81/ 5/ 2	2444727.0	53.60085	17.41685	2.43565	-0.36673	0.95497	0.38581	56.41215	1.09330	18.00	2.47
81/ 5/ 3	2444727.5	50.69164	23.72888	5.02324	-0.49141	0.90630	0.37724	56.19551	1.09780	25.08	5.13
81/ 5/ 3	2444728.0	46.95991	29.65880	7.53150	-0.60918	0.84227	0.36240	56.04999	1.10084	32.28	7.72
81/ 5/ 4	2444728.5	42.46105	35.10593	9.91847	-0.71753	0.76395	0.34147	55.97985	1.10231	39.58	10.21
81/ 5/ 4	2444729.0	37.26677	39.97832	12.14421	-0.81417	0.67284	0.31486	55.98714	1.10215	47.01	12.53
81/ 5/ 5	2444729.5	31.46331	44.19552	14.17190	-0.89712	0.57082	0.28310	56.07162	1.10037	54.55	14.64
81/ 5/ 5	2444730.0	25.14892	47.69085	15.96899	-0.96482	0.46006	0.24689	56.23072	1.09704	62.20	16.50
81/ 5/ 6	2444730.5	18.43092	50.41306	17.50794	-1.01617	0.34293	0.20702	56.45975	1.09227	69.92	18.07
81/ 5/ 6	2444731.0	11.42237	52.32724	18.76691	-1.05056	0.22186	0.16435	56.75216	1.08623	77.69	19.31
81/ 5/ 7	2444731.5	4.23883	53.41493	19.72998	-1.06786	0.09927	0.11979	57.09986	1.07913	85.46	20.21
81/ 5/ 7	2444732.0	-3.00477	53.67361	20.38727	-1.06837	-0.02257	0.07420	57.49371	1.07119	93.20	20.77
81/ 5/ 8	2444732.5	-10.19685	53.11562	20.73469	-1.05278	-0.14156	0.02842	57.92385	1.06264	100.87	20.98
81/ 5/ 8	2444733.0	-17.23143	51.76665	20.77359	-1.02205	-0.25586	-0.01678	58.38022	1.05372	108.41	20.84
81/ 5/ 9	2444733.5	-24.00988	49.66405	20.51024	-0.97736	-0.36386	-0.06072	58.85289	1.04466	115.80	20.40
81/ 5/ 9	2444734.0	-30.44215	46.85500	19.95525	-0.92006	-0.46427	-0.10281	59.33235	1.03567	123.01	19.65
81/ 5/10	2444734.5	-36.44756	43.39473	19.12297	-0.85155	-0.55600	-0.14253	59.80982	1.02693	130.03	18.65
81/ 5/10	2444735.0	-41.95515	39.34489	18.03090	-0.77330	-0.63825	-0.17946	60.27743	1.01861	136.84	17.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
81/ 5/11	2444735.5	-46.90387	34.77197	16.69914	-0.68676	-0.71038	-0.21326	60.72828	1.01082	143.45	15.96
81/ 5/11	2444736.0	-51.24238	29.74606	15.14987	-0.59334	-0.77195	-0.24365	61.15659	1.00366	149.86	14.34
81/ 5/12	2444736.5	-54.92884	24.33964	13.40693	-0.49444	-0.82270	-0.27041	61.55763	0.99721	156.10	12.58
81/ 5/12	2444737.0	-57.93056	18.62667	11.49542	-0.39136	-0.86246	-0.29340	61.92776	0.99151	162.18	10.70
81/ 5/13	2444737.5	-60.22358	12.68176	9.44138	-0.28537	-0.89119	-0.31249	62.26433	0.98656	168.11	8.72
81/ 5/13	2444738.0	-61.79230	6.57952	7.27149	-0.17767	-0.90894	-0.32760	62.56559	0.98237	173.92	6.67
81/ 5/14	2444738.5	-62.62909	0.39395	5.01285	-0.06942	-0.91582	-0.33869	62.83062	0.97891	179.64	4.58
81/ 5/14	2444739.0	-62.73394	-5.80204	2.69275	0.03828	-0.91205	-0.34575	63.05919	0.97614	185.28	2.45
81/ 5/15	2444739.5	-62.11413	-11.93709	0.33848	0.14439	-0.89788	-0.34878	63.25167	0.97400	190.88	0.31
81/ 5/15	2444740.0	-60.78391	-17.94180	-2.02284	0.24790	-0.87362	-0.34784	63.40886	0.97245	196.45	-1.83
81/ 5/16	2444740.5	-58.76424	-23.74911	-4.36446	0.34782	-0.83966	-0.34298	63.53192	0.97141	202.01	-3.94
81/ 5/16	2444741.0	-56.08249	-29.29475	-6.66012	0.44325	-0.79642	-0.33429	63.62221	0.97083	207.58	-6.01
81/ 5/17	2444741.5	-52.77217	-34.51755	-8.88426	0.53329	-0.74441	-0.32188	63.68118	0.97065	213.19	-8.02
81/ 5/17	2444742.0	-48.87266	-39.35986	-11.01214	0.61710	-0.68416	-0.30589	63.71030	0.97080	218.85	-9.95
81/ 5/18	2444742.5	-44.42893	-43.76793	-13.02006	0.69387	-0.61629	-0.28648	63.71094	0.97125	224.57	-11.79
81/ 5/18	2444743.0	-39.49121	-47.69231	-14.88547	0.76285	-0.54145	-0.26384	63.68430	0.97196	230.37	-13.52
81/ 5/19	2444743.5	-34.11468	-51.08823	-16.58719	0.82333	-0.46036	-0.23818	63.63139	0.97291	236.27	-15.11
81/ 5/19	2444744.0	-28.35906	-53.91599	-18.10557	0.87468	-0.37381	-0.20974	63.55299	0.97406	242.26	-16.55
81/ 5/20	2444744.5	-22.28826	-56.14130	-19.42266	0.91632	-0.28261	-0.17879	63.44960	0.97543	248.35	-17.83
81/ 5/20	2444745.0	-15.96986	-57.73567	-20.52237	0.94772	-0.18765	-0.14560	63.32150	0.97703	254.54	-18.91
81/ 5/21	2444745.5	-9.47469	-58.67672	-21.39063	0.96845	-0.08984	-0.11050	63.16871	0.97886	260.83	-19.79
81/ 5/21	2444746.0	-2.87629	-58.94845	-22.01557	0.97815	0.00983	-0.07381	62.99110	0.98098	267.21	-20.46
81/ 5/22	2444746.5	3.74960	-58.54160	-22.38763	0.97653	0.11037	-0.03588	62.78840	0.98340	273.66	-20.89
81/ 5/22	2444747.0	10.32564	-57.45381	-22.49973	0.96340	0.21073	0.00289	62.56034	0.98618	280.19	-21.08
81/ 5/23	2444747.5	16.77345	-55.68995	-22.34742	0.93866	0.30983	0.04213	62.30671	0.98936	286.76	-21.02
81/ 5/23	2444748.0	23.01430	-53.26229	-21.92897	0.90229	0.40656	0.08141	62.02749	0.99300	293.37	-20.70
81/ 5/24	2444748.5	28.96972	-50.19072	-21.24554	0.85440	0.49978	0.12030	61.72297	0.99712	299.99	-20.13
81/ 5/24	2444749.0	34.56227	-46.50287	-20.30130	0.79518	0.58834	0.15835	61.39390	1.00176	306.62	-19.31
81/ 5/25	2444749.5	39.71631	-42.23434	-19.10351	0.72497	0.67105	0.19509	61.04153	1.00695	313.24	-18.24
81/ 5/25	2444750.0	44.35884	-37.42874	-17.66268	0.64422	0.74673	0.23003	60.66784	1.01269	319.84	-16.93
81/ 5/26	2444750.5	48.42045	-32.13779	-15.99266	0.55355	0.81417	0.26268	60.27556	1.01897	326.43	-15.39
81/ 5/26	2444751.0	51.83640	-26.42134	-14.11073	0.45371	0.87219	0.29253	59.86829	1.02573	332.99	-13.63
81/ 5/27	2444751.5	54.54776	-20.34720	-12.03762	0.34566	0.91960	0.31905	59.45058	1.03293	339.54	-11.68
81/ 5/27	2444752.0	56.50271	-13.99093	-9.79757	0.23055	0.95532	0.34174	59.02791	1.04046	346.09	-9.55
81/ 5/28	2444752.5	57.65790	-7.43539	-7.41824	0.10974	0.97828	0.36010	58.60673	1.04821	352.65	-7.27
81/ 5/28	2444753.0	57.97997	-0.77005	-4.93059	-0.01519	0.98760	0.37365	58.19433	1.05603	359.24	-4.86
81/ 5/29	2444753.5	57.44695	5.91001	-2.36861	-0.14244	0.98252	0.38198	57.79871	1.06374	5.87	-2.35
81/ 5/29	2444754.0	56.04983	12.50537	0.23102	-0.27000	0.96252	0.38472	57.42840	1.07115	12.58	0.23
81/ 5/30	2444754.5	53.79381	18.91397	2.82948	-0.39569	0.92736	0.38160	57.09219	1.07804	19.37	2.84
81/ 5/30	2444755.0	50.69938	25.03318	5.38650	-0.51718	0.87711	0.37246	56.79878	1.08422	26.28	5.44
81/ 5/31	2444755.5	46.80302	30.76216	7.86117	-0.63209	0.81223	0.35729	56.55644	1.08946	33.32	7.99
81/ 5/31	2444756.0	42.15736	36.00448	10.21294	-0.73806	0.73358	0.33621	56.37260	1.09358	40.50	10.44
81/ 6/ 1	2444756.5	36.83070	40.67092	12.40269	-0.83283	0.64242	0.30951	56.25345	1.09640	47.84	12.74
81/ 6/ 1	2444757.0	30.90588	44.68209	14.39385	-0.91438	0.54039	0.27765	56.20361	1.09782	55.33	14.84
81/ 6/ 2	2444757.5	24.47842	47.97096	16.15345	-0.98100	0.42949	0.24124	56.22579	1.09773	62.97	16.70

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM									
81/ 6/ 2	2444758.0	17.65406	50.48485	17.65308	-1.03140	0.31194	0.20102	56.32067	1.09613	70.73	18.27
81/ 6/ 3	2444758.5	10.54582	52.18690	18.86972	-1.06472	0.19016	0.15782	56.48675	1.09303	78.58	19.52
81/ 6/ 3	2444759.0	3.27081	53.05676	19.78622	-1.08063	0.06661	0.11254	56.72047	1.08851	86.47	20.42
81/ 6/ 4	2444759.5	-4.05310	53.09065	20.39160	-1.07922	-0.05630	0.06610	57.01633	1.08271	94.37	20.96
81/ 6/ 4	2444760.0	-11.31036	52.30070	20.68107	-1.06107	-0.17630	0.01940	57.36719	1.07579	102.20	21.13
81/ 6/ 5	2444760.5	-18.39048	50.71368	20.65575	-1.02710	-0.29135	-0.02672	57.76458	1.06796	109.93	20.95
81/ 6/ 5	2444761.0	-25.19035	48.36932	20.32224	-0.97854	-0.39966	-0.07148	58.19913	1.05942	117.51	20.44
81/ 6/ 6	2444761.5	-31.61594	45.31844	19.69202	-0.91683	-0.49976	-0.11423	58.66092	1.05042	124.90	19.61
81/ 6/ 6	2444762.0	-37.58347	41.62081	18.78082	-0.84355	-0.59047	-0.15437	59.13990	1.04118	132.08	18.52
81/ 6/ 7	2444762.5	-43.02010	37.34323	17.60785	-0.76033	-0.67089	-0.19145	59.62619	1.03192	139.04	17.18
81/ 6/ 7	2444763.0	-47.86414	32.55763	16.19519	-0.66883	-0.74040	-0.22510	60.11039	1.02284	145.78	15.63
81/ 6/ 8	2444763.5	-52.06495	27.33938	14.56707	-0.57065	-0.79860	-0.25503	60.58382	1.01413	152.30	13.91
81/ 6/ 8	2444764.0	-55.58255	21.76587	12.74938	-0.46734	-0.84529	-0.28105	61.03867	1.00594	158.61	12.06
81/ 6/ 9	2444764.5	-58.38717	15.91533	10.76914	-0.36035	-0.88041	-0.30302	61.46815	0.99840	164.75	10.09
81/ 6/ 9	2444765.0	-60.45856	9.86584	8.65409	-0.25104	-0.90406	-0.32085	61.86651	0.99161	170.73	8.04
81/ 6/10	2444765.5	-61.78543	3.69455	6.43235	-0.14070	-0.91641	-0.33452	62.22912	0.98566	176.58	5.93
81/ 6/10	2444766.0	-62.36480	-2.52290	4.13214	-0.03050	-0.91774	-0.34402	62.55244	0.98057	182.32	3.79
81/ 6/11	2444766.5	-62.20142	-8.71284	1.78158	0.07845	-0.90835	-0.34939	62.83394	0.97639	187.97	1.62
81/ 6/11	2444767.0	-61.30729	-14.80402	-0.59151	0.18512	-0.88864	-0.35069	63.07213	0.97310	193.58	-0.54
81/ 6/12	2444767.5	-59.70117	-20.72781	-2.95978	0.28854	-0.85900	-0.34799	63.26636	0.97069	199.15	-2.68
81/ 6/12	2444768.0	-57.40822	-26.41858	-5.29646	0.38779	-0.81990	-0.34138	63.41685	0.96910	204.71	-4.79
81/ 6/13	2444768.5	-54.45964	-31.81388	-7.57548	0.48200	-0.77184	-0.33098	63.52451	0.96830	210.29	-6.85
81/ 6/13	2444769.0	-50.89242	-36.85476	-9.77161	0.57033	-0.71534	-0.31692	63.59085	0.96821	215.91	-8.84
81/ 6/14	2444769.5	-46.74904	-41.48600	-11.86056	0.65200	-0.65097	-0.29936	63.61787	0.96876	221.59	-10.74
81/ 6/14	2444770.0	-42.07725	-45.65642	-13.81914	0.72625	-0.57937	-0.27846	63.60796	0.96987	227.34	-12.55
81/ 6/15	2444770.5	-36.92980	-49.31924	-15.62540	0.79234	-0.50120	-0.25441	63.56375	0.97146	233.17	-14.23
81/ 6/15	2444771.0	-31.36419	-52.43237	-17.25874	0.84962	-0.41718	-0.22743	63.48803	0.97345	239.11	-15.77
81/ 6/16	2444771.5	-25.44235	-54.95884	-18.70013	0.89743	-0.32810	-0.19777	63.38361	0.97578	245.16	-17.16
81/ 6/16	2444772.0	-19.23033	-56.86718	-19.93226	0.93521	-0.23479	-0.16569	63.25328	0.97837	251.32	-18.37
81/ 6/17	2444772.5	-12.79790	-58.13182	-20.93975	0.96244	-0.13817	-0.13149	63.09967	0.98116	257.58	-19.38
81/ 6/17	2444773.0	-6.21806	-58.73350	-21.70931	0.97868	-0.03919	-0.09549	62.92521	0.98410	263.96	-20.18
81/ 6/18	2444773.5	0.43349	-58.65967	-22.22995	0.98356	0.06113	-0.05804	62.73209	0.98717	270.42	-20.75
81/ 6/18	2444774.0	7.07893	-57.90485	-22.49316	0.97684	0.16172	-0.01954	62.52219	0.99032	276.97	-21.09
81/ 6/19	2444774.5	13.63901	-56.47093	-22.49309	0.95834	0.26147	0.01963	62.29709	0.99356	283.58	-21.17
81/ 6/19	2444775.0	20.03382	-54.36746	-22.22673	0.92803	0.35924	0.05903	62.05805	0.99689	290.23	-20.99
81/ 6/20	2444775.5	26.18354	-51.61186	-21.69402	0.88600	0.45384	0.09820	61.80609	1.00030	296.90	-20.55
81/ 6/20	2444776.0	32.00938	-48.22959	-20.89803	0.83244	0.54410	0.13669	61.54203	1.00383	303.57	-19.85
81/ 6/21	2444776.5	37.43442	-44.25413	-19.84500	0.76771	0.62881	0.17402	61.26653	1.00750	310.23	-18.90
81/ 6/21	2444777.0	42.38461	-39.72705	-18.54445	0.69231	0.70679	0.20970	60.98025	1.01135	316.85	-17.70
81/ 6/22	2444777.5	46.78975	-34.69785	-17.00920	0.60688	0.77689	0.24325	60.68389	1.01540	323.44	-16.28
81/ 6/22	2444778.0	50.58451	-29.22372	-15.25540	0.51222	0.83799	0.27416	60.37835	1.01968	329.98	-14.64
81/ 6/23	2444778.5	53.70945	-23.36930	-13.30247	0.40926	0.88902	0.30197	60.06484	1.02422	336.49	-12.80
81/ 6/23	2444779.0	56.11215	-17.20619	-11.17305	0.29914	0.92898	0.32620	59.74499	1.02903	342.95	-10.78
81/ 6/24	2444779.5	57.74822	-10.81242	-8.89286	0.18311	0.95699	0.34641	59.42095	1.03410	349.40	-8.61
81/ 6/24	2444780.0	58.58244	-4.27174	-6.49057	0.06261	0.97224	0.36219	59.09550	1.03940	355.83	-6.31

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
81/ 6/25	2444780.5	58.58980	2.32723	-3.99752	-0.06078	0.97411	0.37316	58.77211	1.04491	2.27	-3.90
81/ 6/25	2444781.0	57.75654	8.89207	-1.44742	-0.18532	0.96210	0.37899	58.45495	1.05053	8.75	-1.42
81/ 6/26	2444781.5	56.08110	15.32780	1.12404	-0.30915	0.93595	0.37943	58.14890	1.05619	15.29	1.11
81/ 6/26	2444782.0	53.57496	21.53831	3.67964	-0.43028	0.89561	0.37428	57.85944	1.06177	21.90	3.65
81/ 6/27	2444782.5	50.26328	27.42812	6.18125	-0.54667	0.84131	0.36348	57.59259	1.06713	28.62	6.16
81/ 6/27	2444783.0	46.18523	32.90419	8.59052	-0.65623	0.77355	0.34703	57.35467	1.07212	35.47	8.61
81/ 6/28	2444783.5	41.39412	37.87801	10.86961	-0.75690	0.69317	0.32507	57.15212	1.07659	42.46	10.96
81/ 6/28	2444784.0	35.95693	42.26778	12.98205	-0.84670	0.60130	0.29787	56.99122	1.08036	49.61	13.17
81/ 6/29	2444784.5	29.95354	46.00049	14.89364	-0.92381	0.49941	0.26584	56.87776	1.08329	56.93	15.18
81/ 6/29	2444785.0	23.47532	49.01407	16.57332	-0.98667	0.38926	0.22949	56.81676	1.08522	64.41	16.96
81/ 6/30	2444785.5	16.62336	51.25915	17.99404	-1.03400	0.27283	0.18948	56.81216	1.08604	72.03	18.47
81/ 6/30	2444786.0	9.50607	52.70057	19.13345	-1.06490	0.15232	0.14656	56.86655	1.08567	79.78	19.66
81/ 7/ 1	2444786.5	2.23662	53.31833	19.97456	-1.07888	0.02999	0.10154	56.98096	1.08406	87.60	20.52
81/ 7/ 1	2444787.0	-5.06993	53.10801	20.50610	-1.07588	-0.09183	0.05529	57.15474	1.08121	95.45	21.03
81/ 7/ 2	2444787.5	-12.29956	52.08064	20.72269	-1.05626	-0.21091	0.00868	57.38556	1.07714	103.29	21.17
81/ 7/ 2	2444788.0	-19.34199	50.26194	20.62482	-1.02076	-0.32517	-0.03743	57.66939	1.07195	111.05	20.96
81/ 7/ 3	2444788.5	-26.09321	47.69105	20.21858	-0.97047	-0.43273	-0.08225	58.00071	1.06575	118.68	20.40
81/ 7/ 3	2444789.0	-32.45749	44.41896	19.51519	-0.90674	-0.53199	-0.12506	58.37273	1.05870	126.16	19.53
81/ 7/ 4	2444789.5	-38.34901	40.50656	18.53047	-0.83114	-0.62162	-0.16523	58.77760	1.05095	133.43	18.38
81/ 7/ 4	2444790.0	-43.69291	36.02268	17.28412	-0.74532	-0.70060	-0.20224	59.20679	1.04271	140.50	16.97
81/ 7/ 5	2444790.5	-48.42587	31.04203	15.79904	-0.65102	-0.76821	-0.23567	59.65134	1.03417	147.34	15.36
81/ 7/ 5	2444791.0	-52.49630	25.64339	14.10064	-0.54996	-0.82398	-0.26519	60.10219	1.02553	153.97	13.57
81/ 7/ 6	2444791.5	-55.86413	19.90782	12.21616	-0.44382	-0.86768	-0.29058	60.55045	1.01700	160.39	11.64
81/ 7/ 6	2444792.0	-58.50035	13.91725	10.17408	-0.33418	-0.89928	-0.31171	60.98764	1.00874	166.62	9.60
81/ 7/ 7	2444792.5	-60.38638	7.75326	8.00362	-0.22253	-0.91892	-0.32849	61.40591	1.00092	172.68	7.49
81/ 7/ 7	2444793.0	-61.51335	1.49606	5.73431	-0.11025	-0.92686	-0.34090	61.79816	0.99370	178.61	5.32
81/ 7/ 8	2444793.5	-61.88131	-4.77627	3.39562	0.00139	-0.92346	-0.34898	62.15819	0.98720	184.41	3.13
81/ 7/ 8	2444794.0	-61.49852	-10.98831	1.01670	0.11125	-0.90913	-0.35279	62.48075	0.98151	190.13	0.93
81/ 7/ 9	2444794.5	-60.38070	-17.06775	-1.37386	0.21827	-0.88438	-0.35243	62.76165	0.97672	195.78	-1.25
81/ 7/ 9	2444795.0	-58.55045	-22.94570	-3.74816	0.32148	-0.84973	-0.34801	62.99769	0.97288	201.40	-3.41
81/ 7/10	2444795.5	-56.03668	-28.55692	-6.07915	0.41997	-0.80571	-0.33967	63.18673	0.97001	207.00	-5.52
81/ 7/10	2444796.0	-52.87414	-33.83996	-8.34074	0.51292	-0.75292	-0.32755	63.32760	0.96812	212.62	-7.57
81/ 7/11	2444796.5	-49.10306	-38.73737	-10.50787	0.59954	-0.69194	-0.31180	63.42011	0.96719	218.27	-9.54
81/ 7/11	2444797.0	-44.76883	-43.19586	-12.55661	0.67909	-0.62341	-0.29262	63.46494	0.96718	223.98	-11.41
81/ 7/12	2444797.5	-39.92170	-47.16643	-14.46425	0.75088	-0.54798	-0.27017	63.46360	0.96803	229.76	-13.17
81/ 7/12	2444798.0	-34.61659	-50.60467	-16.20942	0.81422	-0.46634	-0.24467	63.41835	0.96969	235.63	-14.81
81/ 7/13	2444798.5	-28.91286	-53.47099	-17.77217	0.86849	-0.37922	-0.21634	63.33206	0.97205	241.60	-16.30
81/ 7/13	2444799.0	-22.87402	-55.73091	-19.13415	0.91308	-0.28741	-0.18543	63.20816	0.97504	247.68	-17.62
81/ 7/14	2444799.5	-16.56757	-57.35549	-20.27876	0.94743	-0.19175	-0.15220	63.05050	0.97854	253.89	-18.76
81/ 7/14	2444800.0	-10.06458	-58.32168	-21.19131	0.97103	-0.09314	-0.11696	62.86322	0.98247	260.21	-19.70
81/ 7/15	2444800.5	-3.43939	-58.61274	-21.85922	0.98344	0.00744	-0.08002	62.65068	0.98672	266.64	-20.42
81/ 7/15	2444801.0	3.23091	-58.21877	-22.27225	0.98430	0.10896	-0.04176	62.41728	0.99119	273.18	-20.91
81/ 7/16	2444801.5	9.86703	-57.13708	-22.42271	0.97331	0.21033	-0.00255	62.16737	0.99578	279.80	-21.14
81/ 7/16	2444802.0	16.38817	-55.37268	-22.30567	0.95033	0.31037	0.03716	61.90515	1.00041	286.49	-21.12
81/ 7/17	2444802.5	22.71283	-52.93860	-21.91918	0.91530	0.40787	0.07693	61.63456	1.00501	293.22	-20.83

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
81/ 7/17	2444803.0	28.75975	-49.85626	-21.26448	0.86834	0.50158	0.11628	61.35917	1.00952	299.98	-20.28
81/ 7/18	2444803.5	34.44889	-46.15563	-20.34611	0.80971	0.59024	0.15471	61.08217	1.01387	306.74	-19.46
81/ 7/18	2444804.0	39.70257	-41.87529	-19.17211	0.73984	0.67255	0.19168	60.80629	1.01805	313.47	-18.38
81/ 7/19	2444804.5	44.44668	-37.06243	-17.75404	0.65935	0.74728	0.22669	60.53377	1.02204	320.18	-17.06
81/ 7/19	2444805.0	48.61184	-31.77255	-16.10698	0.56903	0.81322	0.25921	60.26641	1.02582	326.83	-15.50
81/ 7/20	2444805.5	52.13468	-26.06908	-14.24955	0.46986	0.86923	0.28873	60.00560	1.02941	333.43	-13.74
81/ 7/20	2444806.0	54.95906	-20.02280	-12.20373	0.36298	0.91428	0.31476	59.75234	1.03284	339.98	-11.78
81/ 7/21	2444806.5	57.03720	-13.71111	-9.99472	0.24973	0.94747	0.33685	59.50741	1.03611	346.48	-9.67
81/ 7/21	2444807.0	58.33076	-7.21708	-7.65064	0.13156	0.96801	0.35458	59.27138	1.03927	352.95	-7.42
81/ 7/22	2444807.5	58.81183	-0.62841	-5.20226	0.01008	0.97533	0.36759	59.04481	1.04235	359.39	-5.05
81/ 7/22	2444808.0	58.46375	5.96379	-2.68258	-0.11299	0.96900	0.37559	58.82834	1.04537	5.82	-2.61
81/ 7/23	2444808.5	57.28180	12.46633	-0.12639	-0.23585	0.94884	0.37834	58.62278	1.04836	12.28	-0.12
81/ 7/23	2444809.0	55.27371	18.78538	2.43021	-0.35663	0.91484	0.37570	58.42926	1.05132	18.77	2.38
81/ 7/24	2444809.5	52.45994	24.82801	4.95041	-0.47344	0.86727	0.36759	58.24931	1.05424	25.33	4.88
81/ 7/24	2444810.0	48.87384	30.50377	7.39721	-0.58438	0.80661	0.35404	58.08485	1.05710	31.97	7.32
81/ 7/25	2444810.5	44.56143	35.72634	9.73413	-0.68761	0.73359	0.33517	57.93829	1.05986	38.72	9.67
81/ 7/25	2444811.0	39.58106	40.41525	11.92583	-0.78134	0.64920	0.31120	57.81244	1.06245	45.60	11.90
81/ 7/26	2444811.5	34.00271	44.49743	13.93883	-0.86393	0.55466	0.28246	57.71045	1.06480	52.61	13.98
81/ 7/26	2444812.0	27.90697	47.90892	15.74212	-0.93389	0.45141	0.24936	57.63573	1.06681	59.78	15.85
81/ 7/27	2444812.5	21.38380	50.59622	17.30792	-0.98995	0.34110	0.21242	57.59174	1.06840	67.09	17.49
81/ 7/27	2444813.0	14.53092	52.51766	18.61221	-1.03110	0.22557	0.17225	57.58183	1.06945	74.53	18.86
81/ 7/28	2444813.5	7.45197	53.64440	19.63536	-1.05662	0.10677	0.12951	57.60903	1.06987	82.09	19.93
81/ 7/28	2444814.0	0.25436	53.96117	20.36249	-1.06610	-0.01326	0.08496	57.67584	1.06956	89.73	20.67
81/ 7/29	2444814.5	-6.95292	53.46661	20.78390	-1.05949	-0.13246	0.03937	57.78401	1.06846	97.41	21.08
81/ 7/29	2444815.0	-14.06164	52.17328	20.89517	-1.03707	-0.24880	-0.00648	57.93435	1.06652	105.08	21.14
81/ 7/30	2444815.5	-20.96665	50.10717	20.69725	-0.99947	-0.36035	-0.05181	58.12663	1.06370	112.71	20.86
81/ 7/30	2444816.0	-27.56804	47.30687	20.19626	-0.94759	-0.46532	-0.09586	58.35945	1.06002	120.23	20.25
81/ 7/31	2444816.5	-33.77307	43.82236	19.40325	-0.88264	-0.56215	-0.13793	58.63024	1.05550	127.62	19.33
81/ 7/31	2444817.0	-39.49781	39.71352	18.33375	-0.80601	-0.64948	-0.17740	58.93528	1.05022	134.84	18.12
81/ 8/ 1	2444817.5	-44.66837	35.04847	17.00724	-0.71927	-0.72624	-0.21374	59.26976	1.04424	141.88	16.68
81/ 8/ 1	2444818.0	-49.22179	29.90175	15.44659	-0.62406	-0.79160	-0.24648	59.62798	1.03771	148.72	15.01
81/ 8/ 2	2444818.5	-53.10650	24.35252	13.67734	-0.52208	-0.84502	-0.27528	60.00346	1.03073	155.37	13.18
81/ 8/ 2	2444819.0	-56.28241	18.48290	11.72713	-0.41503	-0.88618	-0.29988	60.38917	1.02347	161.82	11.20
81/ 8/ 3	2444819.5	-58.72072	12.37631	9.62506	-0.30454	-0.91500	-0.32010	60.77777	1.01609	168.10	9.11
81/ 8/ 3	2444820.0	-60.40346	6.11614	7.40113	-0.19217	-0.93156	-0.33586	61.16177	1.00873	174.22	6.95
81/ 8/ 4	2444820.5	-61.32287	-0.21542	5.08574	-0.07937	-0.93613	-0.34711	61.53378	1.00157	180.20	4.74
81/ 8/ 4	2444821.0	-61.48067	-6.53839	2.70927	0.03252	-0.92910	-0.35390	61.88670	0.99475	186.07	2.51
81/ 8/ 5	2444821.5	-60.88724	-12.77570	0.30174	0.14227	-0.91093	-0.35630	62.21387	0.98842	191.85	0.28
81/ 8/ 5	2444822.0	-59.56087	-18.85380	-2.10751	0.24877	-0.88218	-0.35443	62.50924	0.98272	197.57	-1.93
81/ 8/ 6	2444822.5	-57.52700	-24.70302	-4.48997	0.35103	-0.84345	-0.34842	62.76747	0.97776	203.24	-4.10
81/ 8/ 6	2444823.0	-54.81752	-30.25791	-6.81820	0.44813	-0.79537	-0.33844	62.98404	0.97364	208.90	-6.21
81/ 8/ 7	2444823.5	-51.47018	-35.45738	-9.06591	0.53925	-0.73860	-0.32467	63.15533	0.97043	214.56	-8.25
81/ 8/ 7	2444824.0	-47.52806	-40.24487	-11.20804	0.62364	-0.67383	-0.30730	63.27864	0.96820	220.26	-10.20
81/ 8/ 8	2444824.5	-43.03914	-44.56845	-13.22090	0.70061	-0.60173	-0.28653	63.35224	0.96697	226.00	-12.05
81/ 8/ 8	2444825.0	-38.05594	-48.38092	-15.08220	0.76950	-0.52302	-0.26258	63.37540	0.96676	231.81	-13.77

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
81/ 8/ 9	2444825.5	-32.63525	-51.63994	-16.77110	0.82970	-0.43842	-0.23567	63.34834	0.96755	237.71	-15.35
81/ 8/ 9	2444826.0	-26.83784	-54.30817	-18.26834	0.88065	-0.34870	-0.20602	63.27226	0.96932	243.70	-16.78
81/ 8/10	2444826.5	-20.72827	-56.35352	-19.55630	0.92179	-0.25463	-0.17391	63.14926	0.97200	249.81	-18.04
81/ 8/10	2444827.0	-14.37467	-57.74938	-20.61916	0.95262	-0.15705	-0.13960	62.98232	0.97552	256.02	-19.11
81/ 8/11	2444827.5	-7.84851	-58.47498	-21.44301	0.97267	-0.05685	-0.10338	62.77519	0.97980	262.36	-19.97
81/ 8/11	2444828.0	-1.22428	-58.51575	-22.01603	0.98151	0.04501	-0.06559	62.53237	0.98473	268.80	-20.61
81/ 8/12	2444828.5	5.42082	-57.86379	-22.32871	0.97878	0.14753	-0.02657	62.25893	0.99020	275.35	-21.02
81/ 8/12	2444829.0	12.00740	-56.51833	-22.37404	0.96419	0.24961	0.01329	61.96045	0.99607	281.99	-21.17
81/ 8/13	2444829.5	18.45443	-54.48627	-22.14778	0.93755	0.35008	0.05356	61.64287	1.00221	288.71	-21.06
81/ 8/13	2444830.0	24.67996	-51.78259	-21.64867	0.89879	0.44772	0.09378	61.31234	1.00849	295.48	-20.68
81/ 8/14	2444830.5	30.60206	-48.43088	-20.87872	0.84797	0.54122	0.13345	60.97505	1.01479	302.29	-20.02
81/ 8/14	2444831.0	36.13984	-44.46361	-19.84340	0.78536	0.62926	0.17205	60.63713	1.02096	309.10	-19.10
81/ 8/15	2444831.5	41.21470	-39.92239	-18.55182	0.71136	0.71048	0.20903	60.30438	1.02689	315.91	-17.92
81/ 8/15	2444832.0	45.75162	-34.85804	-17.01689	0.62663	0.78352	0.24382	59.98224	1.03248	322.70	-16.48
81/ 8/16	2444832.5	49.68069	-29.33038	-15.25535	0.53203	0.84708	0.27585	59.67552	1.03763	329.44	-14.81
81/ 8/16	2444833.0	52.93856	-23.40784	-13.28778	0.42863	0.89993	0.30456	59.38841	1.04228	336.15	-12.93
81/ 8/17	2444833.5	55.46997	-17.16676	-11.13844	0.31775	0.94096	0.32944	59.12428	1.04638	342.80	-10.86
81/ 8/17	2444834.0	57.22920	-10.69048	-8.83502	0.20088	0.96924	0.34999	58.88570	1.04989	349.42	-8.63
81/ 8/18	2444834.5	58.18135	-4.06809	-6.40832	0.07971	0.98400	0.36578	58.67440	1.05281	356.00	-6.27
81/ 8/18	2444835.0	58.30343	2.60702	-3.89179	-0.04392	0.98474	0.37646	58.49131	1.05516	2.56	-3.82
81/ 8/19	2444835.5	57.58526	9.23875	-1.32097	-0.16808	0.97117	0.38177	58.33662	1.05697	9.11	-1.30
81/ 8/19	2444836.0	56.02994	15.73009	1.26712	-0.29078	0.94330	0.38154	58.20993	1.05828	15.68	1.25
81/ 8/20	2444836.5	53.65414	21.98492	3.83465	-0.41003	0.90140	0.37570	58.11031	1.05915	22.28	3.78
81/ 8/20	2444837.0	50.48797	27.90989	6.34371	-0.52385	0.84601	0.36429	58.03653	1.05965	28.93	6.28
81/ 8/21	2444837.5	46.57455	33.41616	8.75701	-0.63038	0.77792	0.34745	57.98719	1.05984	35.66	8.69
81/ 8/21	2444838.0	41.96936	38.42115	11.03855	-0.72786	0.69817	0.32543	57.96086	1.05978	42.47	10.98
81/ 8/22	2444838.5	36.73915	42.85003	13.15435	-0.81469	0.60802	0.29857	57.95625	1.05951	49.39	13.12
81/ 8/22	2444839.0	30.96082	46.63710	15.07303	-0.88950	0.50891	0.26730	57.97230	1.05908	56.42	15.07
81/ 8/23	2444839.5	24.71997	49.72699	16.76636	-0.95110	0.40243	0.23212	58.00829	1.05850	63.57	16.80
81/ 8/23	2444840.0	18.10930	52.07556	18.20979	-0.99857	0.29030	0.19361	58.06382	1.05778	70.82	18.28
81/ 8/24	2444840.5	11.22696	53.65062	19.38286	-1.03123	0.17432	0.15239	58.13888	1.05690	78.18	19.47
81/ 8/24	2444841.0	4.17474	54.43243	20.26947	-1.04869	0.05636	0.10914	58.23374	1.05586	85.61	20.37
81/ 8/25	2444841.5	-2.94376	54.41387	20.85819	-1.05080	-0.06171	0.06455	58.34894	1.05459	93.10	20.95
81/ 8/25	2444842.0	-10.02497	53.60044	21.14237	-1.03772	-0.17805	0.01933	58.48511	1.05306	100.59	21.19
81/ 8/26	2444842.5	-16.96719	52.00998	21.12020	-1.00985	-0.29087	-0.02580	58.64287	1.05122	108.07	21.11
81/ 8/26	2444843.0	-23.67233	49.67207	20.79462	-0.96784	-0.39849	-0.07015	58.82270	1.04902	115.48	20.70
81/ 8/27	2444843.5	-30.04759	46.62734	20.17322	-0.91260	-0.49935	-0.11305	59.02478	1.04641	122.80	19.99
81/ 8/27	2444844.0	-36.00690	42.92640	19.26793	-0.84522	-0.59205	-0.15388	59.24885	1.04336	129.99	18.98
81/ 8/28	2444844.5	-41.47229	38.62870	18.09473	-0.76697	-0.67538	-0.19207	59.49409	1.03984	137.03	17.71
81/ 8/28	2444845.0	-46.37486	33.80121	16.67323	-0.67927	-0.74834	-0.22713	59.75907	1.03586	143.91	16.20
81/ 8/29	2444845.5	-50.65567	28.51694	15.02614	-0.58363	-0.81015	-0.25862	60.04163	1.03143	150.62	14.49
81/ 8/29	2444846.0	-54.26624	22.85349	13.17883	-0.48162	-0.86024	-0.28620	60.33894	1.02658	157.16	12.62
81/ 8/30	2444846.5	-57.16880	16.89157	11.15874	-0.37482	-0.89825	-0.30960	60.64745	1.02137	163.54	10.60
81/ 8/30	2444847.0	-59.33630	10.71355	8.99486	-0.26482	-0.92404	-0.32864	60.96298	1.01586	169.77	8.48
81/ 8/31	2444847.5	-60.75223	4.40219	6.71721	-0.15313	-0.93765	-0.34319	61.28077	1.01015	175.86	6.29

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
81/ 8/31	2444848.0	-61.41013	-1.96063	4.35635	-0.04122	-0.93928	-0.35321	61.59566	1.00434	181.83	4.06
81/ 9/ 1	2444848.5	-61.31310	-8.29489	1.94291	0.06957	-0.92928	-0.35872	61.90215	0.99854	187.70	1.80
81/ 9/ 1	2444849.0	-60.47309	-14.52330	-0.49273	0.17798	-0.90811	-0.35978	62.19456	0.99287	193.50	-0.45
81/ 9/ 2	2444849.5	-58.91020	-20.57207	-2.92085	0.28285	-0.87633	-0.35651	62.46721	0.98745	199.25	-2.68
81/ 9/ 2	2444850.0	-56.65192	-26.37138	-5.31260	0.38316	-0.83456	-0.34907	62.71454	0.98242	204.96	-4.86
81/ 9/ 3	2444850.5	-53.73241	-31.85585	-7.64024	0.47796	-0.78347	-0.33762	62.93124	0.97789	210.66	-6.97
81/ 9/ 3	2444851.0	-50.19182	-36.96481	-9.87731	0.56643	-0.72379	-0.32236	63.11242	0.97398	216.37	-9.00
81/ 9/ 4	2444851.5	-46.07565	-41.64248	-11.99877	0.64781	-0.65624	-0.30351	63.25371	0.97079	222.11	-10.93
81/ 9/ 4	2444852.0	-41.43420	-45.83814	-13.98108	0.72143	-0.58158	-0.28131	63.35139	0.96842	227.89	-12.75
81/ 9/ 5	2444852.5	-36.32210	-49.50620	-15.80228	0.78669	-0.50058	-0.25598	63.40245	0.96695	233.73	-14.43
81/ 9/ 5	2444853.0	-30.79789	-52.60630	-17.44205	0.84304	-0.41400	-0.22778	63.40471	0.96643	239.65	-15.97
81/ 9/ 6	2444853.5	-24.92369	-55.10335	-18.88180	0.88996	-0.32264	-0.19696	63.35686	0.96691	245.66	-17.34
81/ 9/ 6	2444854.0	-18.76492	-56.96772	-20.10471	0.92699	-0.22731	-0.16379	63.25853	0.96841	251.77	-18.53
81/ 9/ 7	2444854.5	-12.39004	-58.17532	-21.09584	0.95371	-0.12884	-0.12856	63.11035	0.97092	257.98	-19.53
81/ 9/ 7	2444855.0	-5.87033	-58.70789	-21.84219	0.96970	-0.02812	-0.09156	62.91390	0.97442	264.29	-20.31
81/ 9/ 8	2444855.5	0.72039	-58.55321	-22.33287	0.97462	0.07394	-0.05312	62.67180	0.97886	270.70	-20.88
81/ 9/ 8	2444856.0	7.30598	-57.70547	-22.55924	0.96814	0.17637	-0.01357	62.38764	0.98417	277.22	-21.20
81/ 9/ 9	2444856.5	13.80839	-56.16569	-22.51510	0.95002	0.27812	0.02670	62.06598	0.99025	283.81	-21.27
81/ 9/ 9	2444857.0	20.14806	-53.94217	-22.19689	0.92006	0.37808	0.06728	61.71227	0.99699	290.48	-21.08
81/ 9/10	2444857.5	26.24453	-51.05097	-21.60395	0.87819	0.47507	0.10775	61.33276	1.00425	297.21	-20.62
81/ 9/10	2444858.0	32.01712	-47.51643	-20.73876	0.82444	0.56784	0.14760	60.93442	1.01189	303.97	-19.90
81/ 9/11	2444858.5	37.38592	-43.37163	-19.60718	0.75900	0.65505	0.18632	60.52476	1.01975	310.76	-18.90
81/ 9/11	2444859.0	42.27283	-38.65879	-18.21873	0.68222	0.73535	0.22335	60.11170	1.02764	317.56	-17.64
81/ 9/12	2444859.5	46.60294	-33.42950	-16.58678	0.59469	0.80732	0.25812	59.70332	1.03540	324.35	-16.13
81/ 9/12	2444860.0	50.30599	-27.74478	-14.72869	0.49721	0.86960	0.29003	59.30767	1.04286	331.12	-14.38
81/ 9/13	2444860.5	53.31806	-21.67489	-12.66588	0.39085	0.92085	0.31848	58.93251	1.04983	337.88	-12.41
81/ 9/13	2444861.0	55.58329	-15.29881	-10.42376	0.27692	0.95983	0.34288	58.58507	1.05618	344.61	-10.25
81/ 9/14	2444861.5	57.05565	-8.70335	-8.03161	0.15701	0.98547	0.36270	58.27179	1.06176	351.33	-7.92
81/ 9/14	2444862.0	57.70063	-1.98190	-5.52214	0.03292	0.99690	0.37745	57.99814	1.06647	358.03	-5.46
81/ 9/15	2444862.5	57.49669	4.76715	-2.93109	-0.09332	0.99354	0.38673	57.76839	1.07023	4.74	-2.91
81/ 9/15	2444863.0	56.43647	11.44238	-0.29656	-0.21957	0.97509	0.39025	57.58551	1.07299	11.46	-0.30
81/ 9/16	2444863.5	54.52750	17.94153	2.34180	-0.34358	0.94158	0.38784	57.45112	1.07473	18.21	2.34
81/ 9/16	2444864.0	51.79255	24.16379	4.94359	-0.46311	0.89342	0.37946	57.36546	1.07548	25.01	4.94
81/ 9/17	2444864.5	48.26934	30.01219	7.46861	-0.57599	0.83133	0.36520	57.32748	1.07529	31.87	7.49
81/ 9/17	2444865.0	44.00988	35.39580	9.87778	-0.68019	0.75637	0.34530	57.33501	1.07424	38.81	9.92
81/ 9/18	2444865.5	39.07926	40.23187	12.13403	-0.77389	0.66988	0.32011	57.38490	1.07244	45.83	12.21
81/ 9/18	2444866.0	33.55408	44.44745	14.20306	-0.85552	0.57343	0.29010	57.47329	1.07000	52.95	14.31
81/ 9/19	2444866.5	27.52060	47.98090	16.05407	-0.92380	0.46876	0.25583	57.59586	1.06705	60.16	16.18
81/ 9/19	2444867.0	21.07271	50.78280	17.66028	-0.97776	0.35773	0.21792	57.74805	1.06371	67.46	17.81
81/ 9/20	2444867.5	14.30981	52.81661	18.99938	-1.01674	0.24227	0.17707	57.92531	1.06010	74.84	19.15
81/ 9/20	2444868.0	7.33471	54.05893	20.05375	-1.04039	0.12432	0.13397	58.12331	1.05632	82.27	20.18
81/ 9/21	2444868.5	0.25158	54.49937	20.81068	-1.04865	0.00580	0.08935	58.33806	1.05247	89.74	20.90
81/ 9/21	2444869.0	-6.83593	54.14028	21.26231	-1.04174	-0.11148	0.04394	58.56608	1.04861	97.20	21.29
81/ 9/22	2444869.5	-13.82644	52.99610	21.40564	-1.02011	-0.22575	-0.00157	58.80441	1.04479	104.62	21.35
81/ 9/22	2444870.0	-20.62242	51.09266	21.24232	-0.98442	-0.33542	-0.04651	59.05065	1.04104	111.98	21.08

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
81/ 9/23	2444870.5	-27.13152	48.46624	20.77843	-0.93555	-0.43901	-0.09022	59.30294	1.03736	119.24	20.51
81/ 9/23	2444871.0	-33.26780	45.16263	20.02423	-0.87451	-0.53519	-0.13214	59.55988	1.03376	126.38	19.65
81/ 9/24	2444871.5	-38.95272	41.23598	18.99382	-0.80247	-0.62281	-0.17170	59.82045	1.03021	133.37	18.51
81/ 9/24	2444872.0	-44.11595	36.74774	17.70475	-0.72068	-0.70088	-0.20844	60.08387	1.02667	140.21	17.14
81/ 9/25	2444872.5	-48.69607	31.76540	16.17767	-0.63051	-0.76859	-0.24192	60.34952	1.02313	146.88	15.55
81/ 9/25	2444873.0	-52.64102	26.36139	14.43588	-0.53336	-0.82530	-0.27179	60.61678	1.01954	153.40	13.78
81/ 9/26	2444873.5	-55.90844	20.61183	12.50494	-0.43068	-0.87056	-0.29773	60.88493	1.01588	159.76	11.85
81/ 9/26	2444874.0	-58.46581	14.59537	10.41220	-0.32393	-0.90408	-0.31953	61.15300	1.01212	165.98	9.80
81/ 9/27	2444874.5	-60.29048	8.39206	8.18639	-0.21456	-0.92573	-0.33701	61.41975	1.00826	172.08	7.66
81/ 9/27	2444875.0	-61.36951	2.08224	5.85717	-0.10398	-0.93555	-0.35005	61.68354	1.00429	178.06	5.45
81/ 9/28	2444875.5	-61.69940	-4.25445	3.45475	0.00643	-0.93371	-0.35862	61.94233	1.00023	183.94	3.20
81/ 9/28	2444876.0	-61.28569	-10.54004	1.00944	0.11539	-0.92052	-0.36272	62.19363	0.99611	189.76	0.93
81/ 9/29	2444876.5	-60.14247	-16.69904	-1.44862	0.22165	-0.89641	-0.36240	62.43455	0.99197	195.52	-1.33
81/ 9/29	2444877.0	-58.29181	-22.65915	-3.88987	0.32410	-0.86189	-0.35778	62.66182	0.98787	201.24	-3.56
81/ 9/30	2444877.5	-55.76316	-28.35193	-6.28559	0.42170	-0.81757	-0.34898	62.87186	0.98389	206.95	-5.74
81/ 9/30	2444878.0	-52.59264	-33.71323	-8.60811	0.51349	-0.76412	-0.33619	63.06083	0.98009	212.66	-7.85
81/10/ 1	2444878.5	-48.82246	-38.68367	-10.83108	0.59864	-0.70227	-0.31962	63.22477	0.97658	218.39	-9.86
81/10/ 1	2444879.0	-44.50024	-43.20886	-12.92961	0.67639	-0.63278	-0.29949	63.35970	0.97345	224.16	-11.77
81/10/ 2	2444879.5	-39.67838	-47.23969	-14.88041	0.74607	-0.55642	-0.27604	63.46171	0.97079	229.97	-13.56
81/10/ 2	2444880.0	-34.41355	-50.73245	-16.66188	0.80711	-0.47402	-0.24953	63.52710	0.96870	235.85	-15.21
81/10/ 3	2444880.5	-28.76614	-53.64897	-18.25424	0.85897	-0.38640	-0.22024	63.55250	0.96728	241.80	-16.69
81/10/ 3	2444881.0	-22.79982	-55.95667	-19.63957	0.90121	-0.29438	-0.18844	63.53497	0.96661	247.83	-18.01
81/10/ 4	2444881.5	-16.58115	-57.62866	-20.80186	0.93342	-0.19882	-0.15443	63.47215	0.96678	253.95	-19.13
81/10/ 4	2444882.0	-10.17919	-58.64384	-21.72714	0.95527	-0.10058	-0.11850	63.36233	0.96784	260.15	-20.05
81/10/ 5	2444882.5	-3.66522	-58.98700	-22.40347	0.96645	-0.00053	-0.08097	63.20456	0.96984	266.44	-20.76
81/10/ 5	2444883.0	2.88758	-58.64897	-22.82111	0.96670	0.10042	-0.04217	62.99875	0.97281	272.82	-21.24
81/10/ 6	2444883.5	9.40438	-57.62684	-22.97256	0.95579	0.20132	-0.00243	62.74578	0.97677	279.27	-21.48
81/10/ 6	2444884.0	15.80910	-55.92419	-22.85272	0.93358	0.30120	0.03788	62.44749	0.98169	285.78	-21.47
81/10/ 7	2444884.5	22.02469	-53.55147	-22.45904	0.89994	0.39901	0.07837	62.10681	0.98754	292.36	-21.20
81/10/ 7	2444885.0	27.97364	-50.52632	-21.79171	0.85484	0.49367	0.11861	61.72772	0.99425	298.97	-20.67
81/10/ 8	2444885.5	33.57849	-46.87399	-20.85386	0.79835	0.58402	0.15817	61.31533	1.00172	305.62	-19.88
81/10/ 8	2444886.0	38.76259	-42.62780	-19.65179	0.73063	0.66883	0.19655	60.87578	1.00984	312.28	-18.83
81/10/ 9	2444886.5	43.45093	-37.82951	-18.19520	0.65202	0.74683	0.23324	60.41623	1.01847	318.96	-17.53
81/10/ 9	2444887.0	47.57124	-32.52973	-16.49744	0.56300	0.81669	0.26768	59.94474	1.02743	325.64	-15.97
81/10/10	2444887.5	51.05531	-26.78809	-14.57567	0.46428	0.87708	0.29929	59.47013	1.03653	332.31	-14.19
81/10/10	2444888.0	53.84045	-20.67331	-12.45107	0.35679	0.92666	0.32747	59.00177	1.04558	338.99	-12.18
81/10/11	2444888.5	55.87121	-14.26300	-10.14883	0.24174	0.96414	0.35164	58.54933	1.05435	345.68	-9.98
81/10/11	2444889.0	57.10122	-7.64314	-7.69816	0.12060	0.98836	0.37121	58.12253	1.06263	352.38	-7.61
81/10/12	2444889.5	57.49503	-0.90707	-5.13205	-0.00487	0.99830	0.38564	57.73075	1.07021	359.10	-5.10
81/10/12	2444890.0	57.02999	5.84580	-2.48691	-0.13266	0.99322	0.39448	57.38274	1.07689	5.85	-2.48
81/10/13	2444890.5	55.69783	12.51192	0.19799	-0.26054	0.97264	0.39734	57.08621	1.08249	12.66	0.20
81/10/13	2444891.0	53.50592	18.98577	2.88134	-0.38613	0.93646	0.39399	56.84756	1.08686	19.54	2.91
81/10/14	2444891.5	50.47809	25.16247	5.52063	-0.50697	0.88498	0.38433	56.67155	1.08991	26.50	5.59
81/10/14	2444892.0	46.65475	30.94058	8.07329	-0.62064	0.81891	0.36843	56.56115	1.09158	33.55	8.21
81/10/15	2444892.5	42.09239	36.22485	10.49776	-0.72483	0.73937	0.34653	56.51736	1.09185	40.72	10.70

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
81/10/15	2444893.0	36.86232	40.92895	12.75465	-0.81748	0.64786	0.31902	56.53928	1.09077	47.99	13.04
81/10/16	2444893.5	31.04891	44.97769	14.80779	-0.89683	0.54617	0.28646	56.62418	1.08842	55.38	15.16
81/10/16	2444894.0	24.74720	48.30896	16.62509	-0.96148	0.43635	0.24950	56.76771	1.08494	62.88	17.03
81/10/17	2444894.5	18.06028	50.87490	18.17933	-1.01045	0.32055	0.20891	56.96417	1.08047	70.46	18.61
81/10/17	2444895.0	11.09645	52.64265	19.44860	-1.04319	0.20102	0.16549	57.20688	1.07519	78.10	19.88
81/10/18	2444895.5	3.96647	53.59440	20.41659	-1.05952	0.07995	0.12009	57.48852	1.06930	85.77	20.80
81/10/18	2444896.0	-3.21907	53.72698	21.07268	-1.05966	-0.04054	0.07352	57.80146	1.06298	93.43	21.38
81/10/19	2444896.5	-10.35208	53.05106	21.41174	-1.04412	-0.15848	0.02661	58.13814	1.05641	101.04	21.61
81/10/19	2444897.0	-17.32893	51.58998	21.43398	-1.01369	-0.27211	-0.01991	58.49131	1.04977	108.57	21.50
81/10/20	2444897.5	-24.05206	49.37847	21.14448	-0.96938	-0.37983	-0.06534	58.85426	1.04319	115.97	21.06
81/10/20	2444898.0	-30.43128	46.46122	20.55279	-0.91234	-0.48030	-0.10905	59.22099	1.03679	123.22	20.31
81/10/21	2444898.5	-36.38465	42.89147	19.67250	-0.84385	-0.57234	-0.15048	59.58631	1.03068	130.31	19.28
81/10/21	2444899.0	-41.83913	38.72960	18.52069	-0.76525	-0.65500	-0.18915	59.94590	1.02490	137.21	18.00
81/10/22	2444899.5	-46.73103	34.04179	17.11748	-0.67796	-0.72753	-0.22465	60.29628	1.01951	143.93	16.49
81/10/22	2444900.0	-51.00620	28.89879	15.48557	-0.58338	-0.78934	-0.25663	60.63477	1.01451	150.47	14.80
81/10/23	2444900.5	-54.62012	23.37473	13.64981	-0.48293	-0.84000	-0.28480	60.95943	1.00991	156.83	12.94
81/10/23	2444901.0	-57.53782	17.54610	11.63677	-0.37802	-0.87924	-0.30895	61.26892	1.00569	163.04	10.95
81/10/24	2444901.5	-59.73381	11.49073	9.47433	-0.27004	-0.90694	-0.32889	61.56239	1.00181	169.11	8.85
81/10/24	2444902.0	-61.19180	5.28692	7.19139	-0.16032	-0.92308	-0.34452	61.83934	0.99824	175.06	6.68
81/10/25	2444902.5	-61.90448	-0.98742	4.81744	-0.05017	-0.92779	-0.35576	62.09950	0.99493	180.91	4.45
81/10/25	2444903.0	-61.87321	-7.25552	2.38231	0.05916	-0.92129	-0.36259	62.34270	0.99184	186.69	2.19
81/10/26	2444903.5	-61.10764	-13.44245	-0.08420	0.16647	-0.90389	-0.36503	62.56876	0.98893	192.41	-0.08
81/10/26	2444904.0	-59.62530	-19.47582	-2.55255	0.27063	-0.87602	-0.36314	62.77738	0.98617	198.09	-2.33
81/10/27	2444904.5	-57.45119	-25.28635	-4.99377	0.37058	-0.83818	-0.35704	62.96806	0.98354	203.76	-4.55
81/10/27	2444905.0	-54.61725	-30.80843	-7.37971	0.46532	-0.79094	-0.34685	63.14003	0.98103	209.43	-6.71
81/10/28	2444905.5	-51.16187	-35.98060	-9.68325	0.55394	-0.73496	-0.33274	63.29222	0.97864	215.12	-8.80
81/10/28	2444906.0	-47.12933	-40.74597	-11.87853	0.63562	-0.67094	-0.31491	63.42324	0.97639	220.85	-10.79
81/10/29	2444906.5	-42.56925	-45.05261	-13.94114	0.70960	-0.59963	-0.29360	63.53136	0.97431	226.62	-12.68
81/10/29	2444907.0	-37.53604	-48.85382	-15.84827	0.77523	-0.52182	-0.26904	63.61460	0.97245	232.46	-14.43
81/10/30	2444907.5	-32.08832	-52.10838	-17.57886	0.83191	-0.43835	-0.24152	63.67071	0.97086	238.38	-16.03
81/10/30	2444908.0	-26.28837	-54.78077	-19.11376	0.87916	-0.35006	-0.21130	63.69730	0.96959	244.36	-17.46
81/10/31	2444908.5	-20.20162	-56.84127	-20.43574	0.91654	-0.25781	-0.17870	63.69188	0.96873	250.43	-18.71
81/10/31	2444909.0	-13.89615	-58.26614	-21.52970	0.94369	-0.16250	-0.14402	63.65198	0.96835	256.59	-19.77
81/11/ 1	2444909.5	-7.44222	-59.03765	-22.38262	0.96034	-0.06503	-0.10758	63.57525	0.96853	262.82	-20.61
81/11/ 1	2444910.0	-0.91179	-59.14420	-22.98375	0.96625	0.03370	-0.06972	63.45960	0.96934	269.12	-21.23
81/11/ 2	2444910.5	5.62182	-58.58040	-23.32460	0.96126	0.13276	-0.03078	63.30328	0.97087	275.48	-21.62
81/11/ 2	2444911.0	12.08441	-57.34718	-23.39905	0.94526	0.23122	0.00888	63.10505	0.97317	281.90	-21.76
81/11/ 3	2444911.5	18.40123	-55.45190	-23.20346	0.91821	0.32810	0.04890	62.86429	0.97630	288.36	-21.66
81/11/ 3	2444912.0	24.49746	-52.90852	-22.73671	0.88013	0.42243	0.08889	62.58110	0.98029	294.84	-21.30
81/11/ 4	2444912.5	30.29858	-49.73778	-22.00035	0.83109	0.51318	0.12844	62.25646	0.98517	301.35	-20.69
81/11/ 4	2444913.0	35.73093	-45.96744	-20.99874	0.77126	0.59931	0.16714	61.89226	0.99094	307.86	-19.83
81/11/ 5	2444913.5	40.72224	-41.63251	-19.73917	0.70091	0.67972	0.20454	61.49148	0.99756	314.37	-18.72
81/11/ 5	2444914.0	45.20235	-36.77552	-18.23204	0.62038	0.75328	0.24017	61.05816	1.00498	320.87	-17.37
81/11/ 6	2444914.5	49.10403	-31.44676	-16.49104	0.53019	0.81883	0.27352	60.59751	1.01311	327.36	-15.79
81/11/ 6	2444915.0	52.36396	-25.70451	-14.53329	0.43100	0.87518	0.30408	60.11591	1.02185	333.85	-13.99

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
81/11/ 7	2444915.5	54.92393	-19.61507	-12.37952	0.32366	0.92115	0.33131	59.62082	1.03104	340.35	-11.98
81/11/ 7	2444916.0	56.73220	-13.25279	-10.05412	0.20923	0.95556	0.35467	59.12076	1.04051	346.85	-9.79
81/11/ 8	2444916.5	57.74501	-6.69974	-7.58522	0.08900	0.97731	0.37360	58.62515	1.05006	353.38	-7.43
81/11/ 8	2444917.0	57.92825	-0.04513	-5.00458	-0.03546	0.98540	0.38758	58.14405	1.05947	359.96	-4.94
81/11/ 9	2444917.5	57.25926	6.61558	-2.34741	-0.16233	0.97899	0.39612	57.68794	1.06850	6.59	-2.33
81/11/ 9	2444918.0	55.72849	13.18208	0.34806	-0.28957	0.95750	0.39882	57.26738	1.07690	13.31	0.35
81/11/10	2444918.5	53.34115	19.55099	3.04108	-0.41488	0.92063	0.39536	56.89259	1.08443	20.13	3.06
81/11/10	2444919.0	50.11836	25.61818	5.68923	-0.53585	0.86845	0.38555	56.57304	1.09087	27.07	5.77
81/11/11	2444919.5	46.09801	31.28138	8.24932	-0.64998	0.80145	0.36937	56.31699	1.09600	34.16	8.42
81/11/11	2444920.0	41.33486	36.44311	10.67858	-0.75480	0.72056	0.34696	56.13113	1.09968	41.40	10.97
81/11/12	2444920.5	35.89992	41.01367	12.93581	-0.84799	0.62714	0.31864	56.02018	1.10178	48.80	13.35
81/11/12	2444921.0	29.87905	44.91402	14.98270	-0.92750	0.52298	0.28494	55.98668	1.10225	56.37	15.52
81/11/13	2444921.5	23.37082	48.07831	16.78492	-0.99166	0.41016	0.24652	56.03081	1.10108	64.08	17.43
81/11/13	2444922.0	16.48372	50.45581	18.31320	-1.03921	0.29105	0.20419	56.15047	1.09835	71.91	19.03
81/11/14	2444922.5	9.33297	52.01223	19.54407	-1.06943	0.16812	0.15885	56.34134	1.09415	79.83	20.30
81/11/14	2444923.0	2.03711	52.73015	20.46035	-1.08206	0.04386	0.11145	56.59721	1.08867	87.79	21.19
81/11/15	2444923.5	-5.28531	52.60884	21.05135	-1.07735	-0.07931	0.06296	56.91032	1.08209	95.74	21.71
81/11/15	2444924.0	-12.51877	51.66332	21.31279	-1.05594	-0.19917	0.01429	57.27175	1.07465	103.62	21.85
81/11/16	2444924.5	-19.55343	49.92297	21.24651	-1.01884	-0.31371	-0.03368	57.67195	1.06657	111.39	21.62
81/11/16	2444925.0	-26.28723	47.42974	20.85988	-0.96732	-0.42122	-0.08018	58.10106	1.05810	119.00	21.04
81/11/17	2444925.5	-32.62740	44.23625	20.16530	-0.90285	-0.52028	-0.12452	58.54939	1.04945	126.41	20.15
81/11/17	2444926.0	-38.49150	40.40378	19.17939	-0.82701	-0.60974	-0.16611	59.00771	1.04083	133.61	18.97
81/11/18	2444926.5	-43.80801	36.00037	17.92242	-0.74143	-0.68875	-0.20449	59.46748	1.03243	140.59	17.54
81/11/18	2444927.0	-48.51650	31.09906	16.41753	-0.64774	-0.75668	-0.23926	59.92109	1.02439	147.34	15.90
81/11/19	2444927.5	-52.56751	25.77634	14.69020	-0.54755	-0.81314	-0.27013	60.36195	1.01685	153.88	14.09
81/11/19	2444928.0	-55.92231	20.11076	12.76766	-0.44240	-0.85790	-0.29688	60.78454	1.00988	160.22	12.13
81/11/20	2444928.5	-58.55238	14.18184	10.67838	-0.33378	-0.89091	-0.31935	61.18443	1.00355	166.38	10.05
81/11/20	2444929.0	-60.43902	8.06903	8.45172	-0.22309	-0.91222	-0.33744	61.55823	0.99789	172.40	7.89
81/11/21	2444929.5	-61.57271	1.85095	6.11748	-0.11166	-0.92203	-0.35111	61.90354	0.99292	178.28	5.67
81/11/21	2444930.0	-61.95262	-4.39528	3.70567	-0.00071	-0.92059	-0.36035	62.21879	0.98860	184.06	3.41
81/11/22	2444930.5	-61.58611	-10.59464	1.24621	0.10857	-0.90825	-0.36519	62.50319	0.98492	189.76	1.14
81/11/22	2444931.0	-60.48821	-16.67470	-1.23131	0.21509	-0.88544	-0.36569	62.75655	0.98183	195.41	-1.12
81/11/23	2444931.5	-58.68114	-22.56607	-3.69786	0.31781	-0.85262	-0.36196	62.97919	0.97927	201.03	-3.37
81/11/23	2444932.0	-56.19391	-28.20278	-6.12510	0.41578	-0.81033	-0.35411	63.17174	0.97719	206.65	-5.56
81/11/24	2444932.5	-53.06187	-33.52267	-8.48564	0.50808	-0.75917	-0.34229	63.33512	0.97552	212.28	-7.70
81/11/24	2444933.0	-49.32625	-38.46775	-10.75319	0.59387	-0.69976	-0.32668	63.47029	0.97420	217.95	-9.75
81/11/25	2444933.5	-45.03379	-42.98455	-12.90270	0.67239	-0.63282	-0.30747	63.57825	0.97319	223.67	-11.71
81/11/25	2444934.0	-40.23623	-47.02444	-14.91058	0.74291	-0.55906	-0.28490	63.65985	0.97244	229.45	-13.55
81/11/26	2444934.5	-34.98988	-50.54390	-16.75480	0.80481	-0.47927	-0.25919	63.71578	0.97190	235.31	-15.25
81/11/26	2444935.0	-29.35518	-53.50484	-18.41511	0.85750	-0.39427	-0.23063	63.74646	0.97157	241.25	-16.79
81/11/27	2444935.5	-23.39614	-55.87486	-19.87313	0.90051	-0.30492	-0.19950	63.75202	0.97144	247.28	-18.16
81/11/27	2444936.0	-17.17987	-57.62742	-21.11248	0.93340	-0.21210	-0.16612	63.73229	0.97150	253.40	-19.35
81/11/28	2444936.5	-10.77608	-58.74211	-22.11895	0.95583	-0.11671	-0.13079	63.68679	0.97177	259.60	-20.32
81/11/28	2444937.0	-4.25651	-59.20474	-22.88057	0.96755	-0.01971	-0.09387	63.61477	0.97229	265.89	-21.08
81/11/29	2444937.5	2.30562	-59.00751	-23.38772	0.96837	0.07798	-0.05571	63.51526	0.97310	272.24	-21.61

1.10 1 E.R.=6378.3255KM.

		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						MOON		
DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
81/11/29	2444938.0	8.83607	-58.14911	-23.63322	0.95819	0.17537	-0.01667	63.38710	0.97425	278.64	-21.89
81/11/30	2444938.5	15.26020	-56.63478	-23.61241	0.93698	0.27151	0.02287	63.22909	0.97579	285.08	-21.93
81/11/30	2444939.0	21.50346	-54.47640	-23.32323	0.90479	0.36539	0.06251	63.04006	0.97779	291.54	-21.71
81/12/ 1	2444939.5	27.49195	-51.69251	-22.76627	0.86178	0.45605	0.10187	62.81900	0.98031	298.01	-21.25
81/12/ 1	2444940.0	33.15299	-48.30840	-21.94490	0.80814	0.54247	0.14053	62.56518	0.98342	304.46	-20.53
81/12/ 2	2444940.5	38.41566	-44.35610	-20.86525	0.74420	0.62366	0.17807	62.27829	0.98716	310.89	-19.57
81/12/ 2	2444941.0	43.21143	-39.87446	-19.53633	0.67035	0.69861	0.21406	61.95860	0.99159	317.30	-18.38
81/12/ 3	2444941.5	47.47482	-34.90911	-17.97010	0.58708	0.76632	0.24807	61.60705	0.99672	323.67	-16.96
81/12/ 3	2444942.0	51.14407	-29.51255	-16.18153	0.49501	0.82578	0.27964	61.22539	1.00257	330.01	-15.33
81/12/ 4	2444942.5	54.16200	-23.74407	-14.18865	0.39488	0.87598	0.30832	60.81629	1.00913	336.33	-13.49
81/12/ 4	2444943.0	56.47689	-17.66969	-12.01263	0.28757	0.91595	0.33364	60.38344	1.01635	342.63	-11.47
81/12/ 5	2444943.5	58.04346	-11.36203	-9.67780	0.17410	0.94472	0.35514	59.93162	1.02417	348.92	-9.29
81/12/ 5	2444944.0	58.82408	-4.89998	-7.21167	0.05570	0.96139	0.37234	59.46671	1.03248	355.24	-6.97
81/12/ 6	2444944.5	58.78995	1.63174	-4.64478	-0.06624	0.96516	0.38481	58.99572	1.04116	1.59	-4.52
81/12/ 6	2444945.0	57.92249	8.14330	-2.01066	-0.19010	0.95534	0.39213	58.52667	1.05004	8.00	-1.97
81/12/ 7	2444945.5	56.21464	14.54072	0.65454	-0.31408	0.93139	0.39393	58.06846	1.05892	14.50	0.65
81/12/ 7	2444946.0	53.67226	20.72722	3.31235	-0.43618	0.89302	0.38991	57.63073	1.06760	21.12	3.29
81/12/ 8	2444946.5	50.31532	26.60486	5.92260	-0.55424	0.84021	0.37986	57.22348	1.07584	27.87	5.94
81/12/ 8	2444947.0	46.17883	32.07664	8.44411	-0.66599	0.77326	0.36370	56.85682	1.08339	34.78	8.54
81/12/ 9	2444947.5	41.31342	37.04887	10.83556	-0.76910	0.69284	0.34148	56.54049	1.09003	41.88	11.05
81/12/ 9	2444948.0	35.78533	41.43385	13.05660	-0.86130	0.60006	0.31343	56.28347	1.09551	49.18	13.41
81/12/10	2444948.5	29.67581	45.15259	15.06888	-0.94046	0.49639	0.27992	56.09351	1.09965	56.69	15.58
81/12/10	2444949.0	23.07969	48.13753	16.83734	-1.00471	0.38371	0.24154	55.97669	1.10228	64.38	17.51
81/12/11	2444949.5	16.10329	50.33495	18.33129	-1.05253	0.26423	0.19899	55.93710	1.10329	72.26	19.13
81/12/11	2444950.0	8.86169	51.70690	19.52542	-1.08288	0.14038	0.15315	55.97656	1.10263	80.27	20.41
81/12/12	2444950.5	1.47544	52.23246	20.40059	-1.09520	0.01473	0.10497	56.09448	1.10032	88.38	21.33
81/12/12	2444951.0	-5.93296	51.90823	20.94438	-1.08946	-0.11013	0.05546	56.28793	1.09642	96.52	21.84
81/12/13	2444951.5	-13.24259	50.74801	21.15120	-1.06615	-0.23173	0.00564	56.55174	1.09106	104.63	21.96
81/12/13	2444952.0	-20.33736	48.78171	21.02228	-1.02621	-0.34780	-0.04352	56.87882	1.08442	112.63	21.69
81/12/14	2444952.5	-27.10888	46.05374	20.56517	-0.97095	-0.45635	-0.09113	57.26050	1.07671	120.48	21.05
81/12/14	2444953.0	-33.45869	42.62083	19.79319	-0.90196	-0.55571	-0.13638	57.68700	1.06816	128.13	20.07
81/12/15	2444953.5	-39.29981	38.54980	18.72464	-0.82104	-0.64460	-0.17860	58.14786	1.05902	135.55	18.78
81/12/15	2444954.0	-44.55776	33.91509	17.38194	-0.73007	-0.72203	-0.21725	58.63240	1.04954	142.72	17.24
81/12/16	2444954.5	-49.17089	28.79658	15.79080	-0.63095	-0.78738	-0.25190	59.13010	1.03996	149.64	15.49
81/12/16	2444955.0	-53.09031	23.27745	13.97941	-0.52553	-0.84029	-0.28225	59.63090	1.03050	156.32	13.56
81/12/17	2444955.5	-56.27946	17.44245	11.97766	-0.41559	-0.88065	-0.30809	60.12554	1.02136	162.78	11.49
81/12/17	2444956.0	-58.71340	11.37639	9.81652	-0.30279	-0.90855	-0.32930	60.60569	1.01271	169.03	9.32
81/12/18	2444956.5	-60.37800	5.16294	7.52751	-0.18866	-0.92423	-0.34585	61.06409	1.00469	175.11	7.08
81/12/18	2444957.0	-61.26910	-1.11628	5.14225	-0.07460	-0.92804	-0.35773	61.49464	0.99740	181.04	4.80
81/12/19	2444957.5	-61.39158	-7.38242	2.69208	0.03811	-0.92044	-0.36502	61.89244	0.99092	186.86	2.49
81/12/19	2444958.0	-60.75861	-13.55992	0.20783	0.14830	-0.90195	-0.36782	62.25370	0.98529	192.58	0.19
81/12/20	2444958.5	-59.39084	-19.57686	-2.28043	0.25492	-0.87313	-0.36623	62.57576	0.98055	198.24	-2.09
81/12/20	2444959.0	-57.31579	-25.36533	-4.74358	0.35700	-0.83459	-0.36042	62.85699	0.97667	203.87	-4.33
81/12/21	2444959.5	-54.56722	-30.86157	-7.15352	0.45366	-0.78695	-0.35055	63.09667	0.97365	209.49	-6.51
81/12/21	2444960.0	-51.18462	-36.00620	-9.48340	0.54409	-0.73087	-0.33681	63.29492	0.97142	215.12	-8.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
81/12/22	2444960.5	-47.21280	-40.74440	-11.70761	0.62754	-0.66705	-0.31939	63.45252	0.96993	220.79	-10.63
81/12/22	2444961.0	-42.70142	-45.02608	-13.80198	0.70331	-0.59619	-0.29851	63.57085	0.96912	226.52	-12.54
81/12/23	2444961.5	-37.70466	-48.80608	-15.74385	0.77076	-0.51903	-0.27440	63.65173	0.96890	232.31	-14.32
81/12/23	2444962.0	-32.28085	-52.04435	-17.51218	0.82932	-0.43635	-0.24731	63.69729	0.96919	238.19	-15.96
81/12/24	2444962.5	-26.49206	-54.70624	-19.08769	0.87845	-0.34896	-0.21750	63.70982	0.96993	244.16	-17.43
81/12/24	2444963.0	-20.40377	-56.76264	-20.45298	0.91769	-0.25771	-0.18528	63.69172	0.97103	250.23	-18.73
81/12/25	2444963.5	-14.08440	-58.19033	-21.59265	0.94663	-0.16346	-0.15093	63.64532	0.97242	256.39	-19.83
81/12/25	2444964.0	-7.60489	-58.97214	-22.49348	0.96493	-0.06714	-0.11480	63.57282	0.97405	262.65	-20.72
81/12/26	2444964.5	-1.03819	-59.09722	-23.14451	0.97233	0.03031	-0.07723	63.47620	0.97587	268.99	-21.38
81/12/26	2444965.0	5.54124	-58.56126	-23.53722	0.96867	0.12790	-0.03859	63.35714	0.97784	275.41	-21.81
81/12/27	2444965.5	12.05807	-57.36666	-23.66563	0.95384	0.22463	0.00075	63.21703	0.97994	281.87	-21.98
81/12/27	2444966.0	18.43670	-55.52267	-23.52641	0.92787	0.31949	0.04037	63.05688	0.98216	288.37	-21.91
81/12/28	2444966.5	24.60190	-53.04549	-23.11902	0.89085	0.41143	0.07987	62.87740	0.98451	294.88	-21.57
81/12/28	2444967.0	30.47952	-49.95835	-22.44574	0.84299	0.49943	0.11882	62.67894	0.98701	301.39	-20.98
81/12/29	2444967.5	35.99723	-46.29145	-21.51178	0.78463	0.58246	0.15678	62.46163	0.98969	307.87	-20.15
81/12/29	2444968.0	41.08522	-42.08195	-20.32528	0.71618	0.65949	0.19331	62.22542	0.99258	314.31	-19.06
81/12/30	2444968.5	45.67700	-37.37383	-18.89739	0.63820	0.72954	0.22798	61.97018	0.99574	320.71	-17.75
81/12/30	2444969.0	49.71012	-32.21772	-17.24223	0.55133	0.79162	0.26035	61.69580	0.99921	327.05	-16.23
81/12/31	2444969.5	53.12699	-26.67065	-15.37687	0.45636	0.84483	0.28998	61.40235	1.00304	333.34	-14.50
81/12/31	2444970.0	55.87565	-20.79578	-13.32133	0.35418	0.88828	0.31644	61.09018	1.00728	339.59	-12.60
82/ 1/ 1	2444970.5	57.91059	-14.66204	-11.09845	0.24579	0.92114	0.33933	60.76008	1.01196	345.79	-10.52
82/ 1/ 1	2444971.0	59.19359	-8.34367	-8.73386	0.13233	0.94268	0.35823	60.41340	1.01710	351.98	-8.31
82/ 1/ 2	2444971.5	59.69457	-1.91971	-6.25581	0.01508	0.95222	0.37277	60.05216	1.02269	358.16	-5.98
82/ 1/ 2	2444972.0	59.39247	4.52661	-3.69503	-0.10457	0.94920	0.38260	59.67922	1.02874	4.36	-3.55
82/ 1/ 3	2444972.5	58.27617	10.90868	-1.08449	-0.22508	0.93319	0.38741	59.29829	1.03517	10.60	-1.05
82/ 1/ 3	2444973.0	56.34533	17.13743	1.54085	-0.34480	0.90389	0.38694	58.91403	1.04194	16.92	1.50
82/ 1/ 4	2444973.5	53.61130	23.12246	4.14448	-0.46195	0.86122	0.38097	58.53202	1.04892	23.33	4.06
82/ 1/ 4	2444974.0	50.09781	28.77338	6.68869	-0.57465	0.80527	0.36938	58.15872	1.05599	29.87	6.60
82/ 1/ 5	2444974.5	45.84161	34.00136	9.13523	-0.68094	0.73641	0.35213	57.80137	1.06300	36.56	9.09
82/ 1/ 5	2444975.0	40.89283	38.72096	11.44592	-0.77883	0.65528	0.32928	57.46777	1.06976	43.44	11.49
82/ 1/ 6	2444975.5	35.31505	42.85205	13.58342	-0.86636	0.56282	0.30103	57.16608	1.07608	50.51	13.75
82/ 1/ 6	2444976.0	29.18494	46.32204	15.51216	-0.94163	0.46029	0.26770	56.90447	1.08176	57.79	15.82
82/ 1/ 7	2444976.5	22.59141	49.06797	17.19919	-1.00293	0.34930	0.22975	56.69083	1.08658	65.28	17.66
82/ 1/ 7	2444977.0	15.63427	51.03867	18.61522	-1.04878	0.23171	0.18778	56.53232	1.09037	72.97	19.23
82/ 1/ 8	2444977.5	8.42220	52.19665	19.73549	-1.07805	0.10968	0.14254	56.43504	1.09295	80.83	20.47
82/ 1/ 8	2444978.0	1.07034	52.51959	20.54059	-1.08997	-0.01447	0.09487	56.40362	1.09419	88.83	21.36
82/ 1/ 9	2444978.5	-6.30261	52.00135	21.01716	-1.08427	-0.13831	0.04569	56.44098	1.09401	96.91	21.86
82/ 1/ 9	2444979.0	-13.57754	50.65232	21.15830	-1.06110	-0.25939	-0.00402	56.54804	1.09235	105.01	21.97
82/ 1/10	2444979.5	-20.63816	48.49913	20.96372	-1.02113	-0.37540	-0.05328	56.72369	1.08925	113.05	21.69
82/ 1/10	2444980.0	-27.37404	45.58360	20.43965	-0.96542	-0.48417	-0.10116	56.96475	1.08475	120.99	21.03
82/ 1/11	2444980.5	-33.68331	41.96118	19.59847	-0.89542	-0.58385	-0.14679	57.26610	1.07898	128.75	20.01
82/ 1/11	2444981.0	-39.47489	37.69889	18.45811	-0.81285	-0.67289	-0.18939	57.62096	1.07209	136.32	18.68
82/ 1/12	2444981.5	-44.67006	32.87299	17.04125	-0.71963	-0.75011	-0.22834	58.02114	1.06427	143.65	17.08
82/ 1/12	2444982.0	-49.20346	27.56657	15.37449	-0.61777	-0.81468	-0.26311	58.45743	1.05573	150.74	15.25
82/ 1/13	2444982.5	-53.02342	21.86712	13.48744	-0.50930	-0.86612	-0.29334	58.91999	1.04670	157.59	13.23

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/ 1/13	2444983.0	-56.09189	15.86434	11.41183	-0.39618	-0.90424	-0.31876	59.39871	1.03741	164.21	11.08
82/ 1/14	2444983.5	-58.38379	9.64827	9.18070	-0.28029	-0.92913	-0.33924	59.88356	1.02808	170.62	8.82
82/ 1/14	2444984.0	-59.88625	3.30761	6.82774	-0.16334	-0.94110	-0.35474	60.36490	1.01891	176.84	6.49
82/ 1/15	2444984.5	-60.59756	-3.07151	4.38661	-0.04691	-0.94058	-0.36529	60.83372	1.01011	182.90	4.14
82/ 1/15	2444985.0	-60.52606	-9.40652	1.89054	0.06760	-0.92817	-0.37099	61.28181	1.00185	188.83	1.77
82/ 1/16	2444985.5	-59.68906	-15.61907	-0.62809	0.17894	-0.90453	-0.37198	61.70198	0.99427	194.66	-0.58
82/ 1/16	2444986.0	-58.11184	-21.63550	-3.13800	0.28601	-0.87039	-0.36844	62.08806	0.98748	200.42	-2.90
82/ 1/17	2444986.5	-55.82663	-27.38717	-5.60923	0.38785	-0.82648	-0.36059	62.43504	0.98159	206.13	-5.15
82/ 1/17	2444987.0	-52.87189	-32.81058	-8.01325	0.48359	-0.77358	-0.34864	62.73901	0.97664	211.82	-7.34
82/ 1/18	2444987.5	-49.29150	-37.84744	-10.32312	0.57248	-0.71247	-0.33283	62.99721	0.97268	217.52	-9.43
82/ 1/18	2444988.0	-45.13422	-42.44479	-12.51349	0.65383	-0.64392	-0.31339	63.20795	0.96971	223.24	-11.42
82/ 1/19	2444988.5	-40.45315	-46.55490	-14.56070	0.72705	-0.56872	-0.29059	63.37058	0.96773	229.01	-13.28
82/ 1/19	2444989.0	-35.30532	-50.13542	-16.44282	0.79158	-0.48767	-0.26469	63.48537	0.96668	234.85	-15.01
82/ 1/20	2444989.5	-29.75133	-53.14934	-18.13970	0.84691	-0.40155	-0.23594	63.55346	0.96652	240.76	-16.58
82/ 1/20	2444990.0	-23.85500	-55.56514	-19.63303	0.89259	-0.31118	-0.20463	63.57674	0.96718	246.77	-17.99
82/ 1/21	2444990.5	-17.68310	-57.35691	-20.90647	0.92822	-0.21742	-0.17105	63.55775	0.96856	252.87	-19.20
82/ 1/21	2444991.0	-11.30501	-58.50451	-21.94566	0.95343	-0.12111	-0.13551	63.49955	0.97059	259.06	-20.22
82/ 1/22	2444991.5	-4.79234	-58.99379	-22.73842	0.96791	-0.02317	-0.09834	63.40560	0.97317	265.36	-21.02
82/ 1/22	2444992.0	1.78137	-58.81685	-23.27484	0.97142	0.07546	-0.05988	63.27965	0.97618	271.73	-21.58
82/ 1/23	2444992.5	8.34120	-57.97226	-23.54743	0.96378	0.17381	-0.02049	63.12559	0.97954	278.19	-21.90
82/ 1/23	2444993.0	14.81126	-56.46532	-23.55126	0.94491	0.27087	0.01942	62.94734	0.98316	284.70	-21.97
82/ 1/24	2444993.5	21.11539	-54.30833	-23.28412	0.91479	0.36559	0.05945	62.74875	0.98693	291.25	-21.78
82/ 1/24	2444994.0	27.17776	-51.52076	-22.74667	0.87354	0.45690	0.09917	62.53344	0.99079	297.81	-21.33
82/ 1/25	2444994.5	32.92368	-48.12941	-21.94254	0.82139	0.54370	0.13812	62.30476	0.99467	304.37	-20.62
82/ 1/25	2444995.0	38.28041	-44.16844	-20.87846	0.75869	0.62492	0.17585	62.06570	0.99853	310.92	-19.66
82/ 1/26	2444995.5	43.17806	-39.67944	-19.56433	0.68593	0.69945	0.21188	61.81881	1.00231	317.42	-18.45
82/ 1/26	2444996.0	47.55057	-34.71118	-18.01325	0.60373	0.76626	0.24574	61.56622	1.00601	323.87	-17.01
82/ 1/27	2444996.5	51.33664	-29.31944	-16.24149	0.51289	0.82434	0.27697	61.30959	1.00961	330.27	-15.36
82/ 1/27	2444997.0	54.48071	-23.56662	-14.26849	0.41432	0.87274	0.30509	61.05017	1.01312	336.61	-13.52
82/ 1/28	2444997.5	56.93396	-17.52121	-12.11670	0.30909	0.91060	0.32969	60.78884	1.01658	342.89	-11.50
82/ 1/28	2444998.0	58.65520	-11.25719	-9.81142	0.19838	0.93718	0.35035	60.52620	1.02000	349.14	-9.33
82/ 1/29	2444998.5	59.61174	-4.85326	-7.38063	0.08351	0.95182	0.36670	60.26265	1.02343	355.35	-7.03
82/ 1/29	2444999.0	59.78020	1.60799	-4.85468	-0.03409	0.95403	0.37840	59.99855	1.02690	1.54	-4.64
82/ 1/30	2444999.5	59.14721	8.04107	-2.26599	-0.15289	0.94346	0.38518	59.73429	1.03046	7.74	-2.17
82/ 1/30	2445000.0	57.71004	14.35864	0.35130	-0.27129	0.91990	0.38681	59.47052	1.03414	13.97	0.34
82/ 1/31	2445000.5	55.47709	20.47265	2.96174	-0.38760	0.88336	0.38314	59.20818	1.03796	20.26	2.87
82/ 1/31	2445001.0	52.46826	26.29564	5.52906	-0.50011	0.83401	0.37407	58.94870	1.04193	26.62	5.38
82/ 2/ 1	2445001.5	48.71521	31.74202	8.01664	-0.60707	0.77224	0.35960	58.69408	1.04604	33.09	7.85
82/ 2/ 1	2445002.0	44.26140	36.72953	10.38807	-0.70675	0.69863	0.33979	58.44691	1.05025	39.69	10.24
82/ 2/ 2	2445002.5	39.16198	41.18065	12.60773	-0.79744	0.61400	0.31482	58.21049	1.05452	46.44	12.51
82/ 2/ 2	2445003.0	33.48342	45.02419	14.64146	-0.87750	0.51941	0.28494	57.98870	1.05876	53.36	14.62
82/ 2/ 3	2445003.5	27.30292	48.19683	16.45719	-0.94541	0.41612	0.25051	57.78602	1.06288	60.47	16.55
82/ 2/ 3	2445004.0	20.70754	50.64463	18.02566	-0.99980	0.30563	0.21201	57.60734	1.06675	67.76	18.23
82/ 2/ 4	2445004.5	13.79291	52.32450	19.32108	-1.03951	0.18966	0.16999	57.45783	1.07025	75.23	19.65
82/ 2/ 4	2445005.0	6.66177	53.20555	20.32181	-1.06361	0.07007	0.12511	57.34270	1.07323	82.86	20.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/ 2/ 5	2445005.5	-0.57798	53.27015	21.01096	-1.07150	-0.05108	0.07811	57.26695	1.07556	90.62	21.52
82/ 2/ 5	2445006.0	-7.81537	52.51479	21.37694	-1.06290	-0.17170	0.02981	57.23510	1.07709	98.46	21.93
82/ 2/ 6	2445006.5	-14.93883	50.95042	21.41377	-1.03790	-0.28962	-0.01894	57.25088	1.07772	106.34	21.96
82/ 2/ 6	2445007.0	-21.83866	48.60249	21.12138	-0.99697	-0.40273	-0.06726	57.31703	1.07735	114.20	21.62
82/ 2/ 7	2445007.5	-28.40960	45.51040	20.50560	-0.94095	-0.50904	-0.11429	57.43502	1.07591	121.97	20.92
82/ 2/ 7	2445008.0	-34.55326	41.72652	19.57800	-0.87102	-0.60673	-0.15920	57.60493	1.07338	129.63	19.87
82/ 2/ 8	2445008.5	-40.18025	37.31477	18.35555	-0.78865	-0.69421	-0.20124	57.82535	1.06977	137.12	18.51
82/ 2/ 8	2445009.0	-45.21206	32.34883	16.86004	-0.69557	-0.77019	-0.23973	58.09335	1.06512	144.42	16.87
82/ 2/ 9	2445009.5	-49.58232	26.91009	15.11745	-0.59363	-0.83369	-0.27412	58.40460	1.05952	151.51	15.00
82/ 2/ 9	2445010.0	-53.23775	21.08549	13.15713	-0.48481	-0.88405	-0.30396	58.75343	1.05308	158.39	12.94
82/ 2/10	2445010.5	-56.13841	14.96536	11.01103	-0.37108	-0.92092	-0.32894	59.13312	1.04595	165.07	10.73
82/ 2/10	2445011.0	-58.25769	8.64137	8.71282	-0.25439	-0.94426	-0.34885	59.53608	1.03828	171.56	8.42
82/ 2/11	2445011.5	-59.58174	2.20468	6.29717	-0.13655	-0.95426	-0.36361	59.95414	1.03027	177.88	6.03
82/ 2/11	2445012.0	-60.10872	-4.25566	3.79903	-0.01929	-0.95133	-0.37322	60.37882	1.02210	184.05	3.61
82/ 2/12	2445012.5	-59.84778	-10.65397	1.25303	0.09587	-0.93605	-0.37776	60.80160	1.01394	190.09	1.18
82/ 2/12	2445013.0	-58.81795	-16.90897	-1.30701	0.20755	-0.90913	-0.37740	61.21415	1.00599	196.04	-1.22
82/ 2/13	2445013.5	-57.04697	-22.94447	-3.84849	0.31454	-0.87137	-0.37232	61.60857	0.99842	201.91	-3.58
82/ 2/13	2445014.0	-54.57023	-28.68988	-6.34029	0.41579	-0.82362	-0.36277	61.97756	0.99138	207.73	-5.87
82/ 2/14	2445014.5	-51.42965	-34.08050	-8.75300	0.51042	-0.76675	-0.34901	62.31456	0.98501	213.53	-8.07
82/ 2/14	2445015.0	-47.67282	-39.05761	-11.05908	0.59765	-0.70166	-0.33133	62.61388	0.97943	219.33	-10.17
82/ 2/15	2445015.5	-43.35213	-43.56854	-13.23288	0.67683	-0.62924	-0.31000	62.87077	0.97475	225.14	-12.15
82/ 2/15	2445016.0	-38.52410	-47.56663	-15.25078	0.74738	-0.55037	-0.28534	63.08151	0.97103	231.00	-13.99
82/ 2/16	2445016.5	-33.24882	-51.01115	-17.09115	0.80882	-0.46592	-0.25763	63.24341	0.96832	236.90	-15.68
82/ 2/16	2445017.0	-27.58943	-53.86722	-18.73439	0.86073	-0.37675	-0.22718	63.35480	0.96665	242.88	-17.20
82/ 2/17	2445017.5	-21.61179	-56.10579	-20.16295	0.90274	-0.28372	-0.19429	63.41509	0.96602	248.93	-18.54
82/ 2/17	2445018.0	-15.38409	-57.70364	-21.36137	0.93452	-0.18769	-0.15927	63.42466	0.96640	255.07	-19.68
82/ 2/18	2445018.5	-8.97658	-58.64338	-22.31629	0.95579	-0.08953	-0.12244	63.38487	0.96775	261.30	-20.61
82/ 2/18	2445019.0	-2.46131	-58.91359	-23.01658	0.96631	0.00987	-0.08413	63.29797	0.97001	267.61	-21.32
82/ 2/19	2445019.5	4.08820	-58.50898	-23.45335	0.96588	0.10959	-0.04469	63.16703	0.97310	274.00	-21.80
82/ 2/19	2445020.0	10.59730	-57.43052	-23.62014	0.95435	0.20869	-0.00447	62.99586	0.97691	280.45	-22.02
82/ 2/20	2445020.5	16.99055	-55.68579	-23.51297	0.93166	0.30617	0.03614	62.78890	0.98135	286.97	-21.99
82/ 2/20	2445021.0	23.19226	-53.28916	-23.13059	0.89780	0.40101	0.07673	62.55110	0.98628	293.52	-21.70
82/ 2/21	2445021.5	29.12702	-50.26212	-22.47456	0.85286	0.49215	0.11688	62.28779	0.99158	300.09	-21.15
82/ 2/21	2445022.0	34.72041	-46.63347	-21.54942	0.79704	0.57847	0.15612	62.00455	0.99713	306.67	-20.34
82/ 2/22	2445022.5	39.89980	-42.43957	-20.36292	0.73068	0.65887	0.19398	61.70705	1.00281	313.23	-19.27
82/ 2/22	2445023.0	44.59532	-37.72444	-18.92603	0.65425	0.73220	0.22997	61.40090	1.00849	319.77	-17.95
82/ 2/23	2445023.5	48.74083	-32.53973	-17.25316	0.56838	0.79735	0.26358	61.09152	1.01405	326.27	-16.40
82/ 2/23	2445024.0	52.27510	-26.94459	-15.36209	0.47390	0.85322	0.29432	60.78397	1.01941	332.73	-14.64
82/ 2/24	2445024.5	55.14299	-21.00533	-13.27402	0.37178	0.89880	0.32167	60.48283	1.02447	339.15	-12.68
82/ 2/24	2445025.0	57.29663	-14.79492	-11.01346	0.26320	0.93315	0.34517	60.19211	1.02917	345.52	-10.54
82/ 2/25	2445025.5	58.69666	-8.39220	-8.60803	0.14948	0.95546	0.36438	59.91515	1.03345	351.86	-8.26
82/ 2/25	2445026.0	59.31326	-1.88099	-6.08820	0.03212	0.96509	0.37890	59.65456	1.03730	358.18	-5.86
82/ 2/26	2445026.5	59.12720	4.65111	-3.48691	-0.08726	0.96157	0.38838	59.41227	1.04070	4.50	-3.36
82/ 2/26	2445027.0	58.13062	11.11395	-0.83916	-0.20693	0.94462	0.39258	59.18947	1.04367	10.82	-0.81
82/ 2/27	2445027.5	56.32761	17.41638	1.81856	-0.32509	0.91421	0.39130	58.98676	1.04622	17.18	1.77

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/ 2/27	2445028.0	53.73458	23.46774	4.44881	-0.43991	0.87053	0.38446	58.80418	1.04840	23.59	4.34
82/ 2/28	2445028.5	50.38034	29.17947	7.01387	-0.54956	0.81401	0.37206	58.64141	1.05027	30.08	6.87
82/ 2/28	2445029.0	46.30592	34.46674	9.47634	-0.65228	0.74532	0.35419	58.49783	1.05187	36.66	9.32
82/ 3/ 1	2445029.5	41.56414	39.25000	11.79985	-0.74636	0.66535	0.33107	58.37274	1.05325	43.36	11.66
82/ 3/ 1	2445030.0	36.21890	43.45647	13.94972	-0.83023	0.57520	0.30297	58.26549	1.05448	50.19	13.85
82/ 3/ 2	2445030.5	30.34425	47.02153	15.89353	-0.90246	0.47618	0.27029	58.17562	1.05558	57.16	15.85
82/ 3/ 2	2445031.0	24.02330	49.88999	17.60180	-0.96183	0.36975	0.23350	58.10295	1.05658	64.29	17.63
82/ 3/ 3	2445031.5	17.34683	52.01712	19.04849	-1.00729	0.25755	0.19315	58.04772	1.05749	71.56	19.16
82/ 3/ 3	2445032.0	10.41182	53.36960	20.21149	-1.03806	0.14130	0.14984	58.01055	1.05830	78.96	20.39
82/ 3/ 4	2445032.5	3.31982	53.92620	21.07312	-1.05358	0.02284	0.10427	57.99253	1.05898	86.48	21.31
82/ 3/ 4	2445033.0	-3.82482	53.67829	21.62040	-1.05358	-0.09595	0.05714	57.99508	1.05948	94.08	21.89
82/ 3/ 5	2445033.5	-10.91680	52.63003	21.84536	-1.03806	-0.21318	0.00922	58.01997	1.05976	101.72	22.12
82/ 3/ 5	2445034.0	-17.85177	50.79842	21.74519	-1.00729	-0.32696	-0.03874	58.06908	1.05973	109.36	21.99
82/ 3/ 6	2445034.5	-24.52828	48.21294	21.32234	-0.96185	-0.43549	-0.08594	58.14436	1.05933	116.96	21.51
82/ 3/ 6	2445035.0	-30.84959	44.91506	20.58441	-0.90257	-0.53705	-0.13165	58.24756	1.05848	124.48	20.70
82/ 3/ 7	2445035.5	-36.72555	40.95733	19.54403	-0.83054	-0.63009	-0.17514	58.38012	1.05711	131.88	19.56
82/ 3/ 7	2445036.0	-42.07418	36.40229	18.21854	-0.74709	-0.71322	-0.21574	58.54297	1.05516	139.13	18.13
82/ 3/ 8	2445036.5	-46.82312	31.32111	16.62958	-0.65372	-0.78528	-0.25284	58.73635	1.05259	146.22	16.45
82/ 3/ 8	2445037.0	-50.91075	25.79204	14.80259	-0.55210	-0.84535	-0.28594	58.95974	1.04938	153.13	14.54
82/ 3/ 9	2445037.5	-54.28711	19.89873	12.76624	-0.44398	-0.89275	-0.31461	59.21171	1.04551	159.87	12.45
82/ 3/ 9	2445038.0	-56.91433	13.72850	10.55175	-0.33119	-0.92708	-0.33850	59.48993	1.04103	166.44	10.22
82/ 3/10	2445038.5	-58.76686	7.37053	8.19221	-0.21552	-0.94818	-0.35741	59.79114	1.03597	172.85	7.88
82/ 3/10	2445039.0	-59.83127	0.91427	5.72193	-0.09875	-0.95614	-0.37119	60.11121	1.03041	179.12	5.46
82/ 3/11	2445039.5	-60.10587	-5.55220	3.17577	0.01744	-0.95126	-0.37982	60.44525	1.02443	185.28	3.01
82/ 3/11	2445040.0	-59.59993	-11.94344	0.58854	0.13148	-0.93402	-0.38333	60.78770	1.01815	191.33	0.55
82/ 3/12	2445040.5	-58.33291	-18.17787	-2.00556	0.24196	-0.90507	-0.38187	61.13252	1.01169	197.31	-1.88
82/ 3/12	2445041.0	-56.33339	-24.17865	-4.57335	0.34758	-0.86516	-0.37560	61.47336	1.00518	203.23	-4.27
82/ 3/13	2445041.5	-53.63808	-29.87441	-7.08310	0.44724	-0.81515	-0.36477	61.80367	0.99877	209.12	-6.58
82/ 3/13	2445042.0	-50.29073	-35.19975	-9.50477	0.53998	-0.75593	-0.34964	62.11699	0.99260	214.99	-8.80
82/ 3/14	2445042.5	-46.34114	-40.09553	-11.81027	0.62496	-0.68846	-0.33052	62.40701	0.98681	220.87	-10.91
82/ 3/14	2445043.0	-41.84422	-44.50903	-13.97358	0.70150	-0.61368	-0.30771	62.66780	0.98152	226.77	-12.88
82/ 3/15	2445043.5	-36.85911	-48.39403	-15.97088	0.76903	-0.53255	-0.28155	62.89392	0.97687	232.71	-14.71
82/ 3/15	2445044.0	-31.44850	-51.71071	-17.78057	0.82708	-0.44602	-0.25236	63.08054	0.97297	238.69	-16.37
82/ 3/16	2445044.5	-25.67791	-54.42565	-19.38331	0.87527	-0.35501	-0.22049	63.22357	0.96992	244.74	-17.85
82/ 3/16	2445045.0	-19.61523	-56.51166	-20.76204	0.91328	-0.26045	-0.18627	63.31972	0.96779	250.86	-19.14
82/ 3/17	2445045.5	-13.33025	-57.94771	-21.90196	0.94087	-0.16324	-0.15003	63.36662	0.96664	257.05	-20.22
82/ 3/17	2445046.0	-6.89427	-58.71885	-22.79057	0.95784	-0.06426	-0.11212	63.36280	0.96652	263.30	-21.08
82/ 3/18	2445046.5	-0.37981	-58.81622	-23.41766	0.96403	0.03558	-0.07287	63.30781	0.96743	269.63	-21.71
82/ 3/18	2445047.0	6.13970	-58.23703	-23.77538	0.95932	0.13537	-0.03263	63.20218	0.96937	276.02	-22.10
82/ 3/19	2445047.5	12.59022	-56.98466	-23.85827	0.94365	0.23420	0.00823	63.04746	0.97231	282.46	-22.24
82/ 3/19	2445048.0	18.89740	-55.06883	-23.66336	0.91699	0.33113	0.04933	62.84618	0.97619	288.94	-22.12
82/ 3/20	2445048.5	24.98694	-52.50575	-23.19032	0.87939	0.42517	0.09029	62.60185	0.98094	295.45	-21.74
82/ 3/20	2445049.0	30.78505	-49.31836	-22.44152	0.83096	0.51531	0.13069	62.31887	0.98647	301.97	-21.11
82/ 3/21	2445049.5	36.21898	-45.53663	-21.42225	0.77189	0.60050	0.17009	62.00251	0.99264	308.50	-20.21
82/ 3/21	2445050.0	41.21764	-41.19774	-20.14086	0.70249	0.67965	0.20802	61.65876	0.99934	315.01	-19.07

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
82/ 3/22	2445050.5	45.71249	-36.34636	-18.60888	0.62320	0.75164	0.24400	61.29421	1.00642	321.51	-17.67
82/ 3/22	2445051.0	49.63841	-31.03475	-16.84125	0.53460	0.81536	0.27752	60.91597	1.01372	327.99	-16.05
82/ 3/23	2445051.5	52.93482	-25.32282	-14.85635	0.43746	0.86967	0.30807	60.53141	1.02108	334.43	-14.21
82/ 3/23	2445052.0	55.54696	-19.27793	-12.67611	0.33271	0.91350	0.33512	60.14804	1.02834	340.86	-12.17
82/ 3/24	2445052.5	57.42713	-12.97464	-10.32596	0.22152	0.94582	0.35815	59.77325	1.03534	347.27	-9.95
82/ 3/24	2445053.0	58.53618	-6.49401	-7.83476	0.10525	0.96573	0.37669	59.41414	1.04192	353.67	-7.58
82/ 3/25	2445053.5	58.84485	0.07723	-5.23453	-0.01455	0.97247	0.39028	59.07726	1.04796	0.08	-5.08
82/ 3/25	2445054.0	58.33506	6.64788	-2.56009	-0.13613	0.96548	0.39854	58.76842	1.05334	6.50	-2.50
82/ 3/26	2445054.5	57.00106	13.12373	0.15137	-0.25761	0.94444	0.40117	58.49253	1.05795	12.97	0.15
82/ 3/26	2445055.0	54.85029	19.40929	2.86095	-0.37698	0.90930	0.39796	58.25341	1.06175	19.49	2.82
82/ 3/27	2445055.5	51.90395	25.40970	5.52874	-0.49219	0.86030	0.38883	58.05377	1.06469	26.08	5.46
82/ 3/27	2445056.0	48.19710	31.03280	8.11463	-0.60122	0.79800	0.37380	57.89510	1.06676	32.78	8.06
82/ 3/28	2445056.5	43.77839	36.19117	10.57917	-0.70208	0.72324	0.35303	57.77773	1.06800	39.58	10.55
82/ 3/28	2445057.0	38.70934	40.80414	12.88443	-0.79297	0.63716	0.32682	57.70095	1.06845	46.51	12.90
82/ 3/29	2445057.5	33.06320	44.79963	14.99483	-0.87224	0.54115	0.29557	57.66305	1.06818	53.57	15.07
82/ 3/29	2445058.0	26.92350	48.11571	16.87794	-0.93850	0.43682	0.25979	57.66161	1.06728	60.77	17.02
82/ 3/30	2445058.5	20.38226	50.70189	18.50508	-0.99065	0.32592	0.22009	57.69364	1.06586	68.10	18.71
82/ 3/30	2445059.0	13.53807	52.52002	19.85198	-1.02785	0.21034	0.17715	57.75581	1.06401	75.55	20.10
82/ 3/31	2445059.5	6.49401	53.54495	20.89910	-1.04961	0.09202	0.13170	57.84468	1.06183	83.08	21.18
82/ 3/31	2445060.0	-0.64439	53.76470	21.63198	-1.05570	-0.02710	0.08449	57.95688	1.05942	90.69	21.92
82/ 4/ 1	2445060.5	-7.77122	53.18039	22.04136	-1.04623	-0.14510	0.03630	58.08930	1.05686	98.31	22.30
82/ 4/ 1	2445061.0	-14.78209	51.80591	22.12327	-1.02154	-0.26013	-0.01209	58.23917	1.05421	105.93	22.33
82/ 4/ 2	2445061.5	-21.57595	49.66731	21.87888	-0.98227	-0.37046	-0.05993	58.40418	1.05152	113.48	22.00
82/ 4/ 2	2445062.0	-28.05673	46.80197	21.31437	-0.92925	-0.47447	-0.10650	58.58248	1.04880	120.94	21.34
82/ 4/ 3	2445062.5	-34.13476	43.25769	20.44069	-0.86353	-0.57072	-0.15112	58.77271	1.04606	128.28	20.35
82/ 4/ 3	2445063.0	-39.72805	39.09152	19.27321	-0.78633	-0.65791	-0.19315	58.97390	1.04330	135.46	19.08
82/ 4/ 4	2445063.5	-44.76336	34.36862	17.83134	-0.69900	-0.73495	-0.23205	59.18545	1.04048	142.48	17.53
82/ 4/ 4	2445064.0	-49.17711	29.16093	16.13812	-0.60303	-0.80093	-0.26730	59.40696	1.03759	149.33	15.76
82/ 4/ 5	2445064.5	-52.91598	23.54585	14.21970	-0.49998	-0.85515	-0.29848	59.63814	1.03458	156.01	13.79
82/ 4/ 5	2445065.0	-55.93743	17.60488	12.10490	-0.39146	-0.89710	-0.32524	59.87868	1.03141	162.53	11.66
82/ 4/ 6	2445065.5	-58.20998	11.42222	9.82461	-0.27911	-0.92649	-0.34731	60.12813	1.02806	168.90	9.40
82/ 4/ 6	2445066.0	-59.71321	5.08343	7.41131	-0.16456	-0.94320	-0.36449	60.38573	1.02449	175.13	7.05
82/ 4/ 7	2445066.5	-60.43769	-1.32590	4.89850	-0.04941	-0.94735	-0.37668	60.65037	1.02068	181.26	4.63
82/ 4/ 7	2445067.0	-60.38464	-7.72138	2.32018	0.06479	-0.93917	-0.38384	60.92051	1.01665	187.29	2.18
82/ 4/ 8	2445067.5	-59.56545	-14.02097	-0.28964	0.17659	-0.91911	-0.38600	61.19407	1.01240	193.25	-0.27
82/ 4/ 8	2445068.0	-58.00105	-20.14599	-2.89743	0.28463	-0.88773	-0.38326	61.46851	1.00795	199.15	-2.70
82/ 4/ 9	2445068.5	-55.72114	-26.02201	-5.47055	0.38768	-0.84571	-0.37579	61.74073	1.00336	205.03	-5.08
82/ 4/ 9	2445069.0	-52.76342	-31.57962	-7.97763	0.48461	-0.79384	-0.36380	62.00721	0.99869	210.90	-7.39
82/ 4/10	2445069.5	-49.17266	-36.75494	-10.38889	0.57446	-0.73298	-0.34754	62.26400	0.99400	216.78	-9.60
82/ 4/10	2445070.0	-44.99980	-41.49017	-12.67636	0.65637	-0.66404	-0.32730	62.50685	0.98939	222.68	-11.70
82/ 4/11	2445070.5	-40.30107	-45.73380	-14.81415	0.72963	-0.58797	-0.30339	62.73129	0.98495	228.61	-13.66
82/ 4/11	2445071.0	-35.13715	-49.44081	-16.77855	0.79365	-0.50574	-0.27615	62.93276	0.98077	234.60	-15.46
82/ 4/12	2445071.5	-29.57235	-52.57280	-18.54816	0.84794	-0.41833	-0.24593	63.10671	0.97698	240.64	-17.09
82/ 4/12	2445072.0	-23.67388	-55.09793	-20.10397	0.89212	-0.32670	-0.21308	63.24874	0.97366	246.75	-18.53
82/ 4/13	2445072.5	-17.51121	-56.99091	-21.42934	0.92591	-0.23182	-0.17795	63.35474	0.97094	252.92	-19.77

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/ 4/13	2445073.0	-11.15552	-58.23288	-22.51011	0.94910	-0.13462	-0.14091	63.42097	0.96890	259.16	-20.79
82/ 4/14	2445073.5	-4.67916	-58.81134	-23.33452	0.96153	-0.03604	-0.10231	63.44422	0.96763	265.45	-21.58
82/ 4/14	2445074.0	1.84476	-58.72005	-23.89328	0.96313	0.06300	-0.06252	63.42190	0.96721	271.80	-22.13
82/ 4/15	2445074.5	8.34276	-57.95895	-24.17955	0.95387	0.16160	-0.02190	63.35213	0.96771	278.19	-22.44
82/ 4/15	2445075.0	14.74129	-56.53414	-24.18894	0.93377	0.25884	0.01918	63.23385	0.96917	284.61	-22.49
82/ 4/16	2445075.5	20.96713	-54.45789	-23.91961	0.90289	0.35381	0.06034	63.06687	0.97161	291.06	-22.29
82/ 4/16	2445076.0	26.94767	-51.74874	-23.37226	0.86136	0.44558	0.10120	62.85198	0.97505	297.51	-21.83
82/ 4/17	2445076.5	32.61130	-48.43154	-22.55028	0.80935	0.53320	0.14137	62.59095	0.97945	303.95	-21.12
82/ 4/17	2445077.0	37.88787	-44.53768	-21.45980	0.74711	0.61570	0.18042	62.28658	0.98478	310.39	-20.15
82/ 4/18	2445077.5	42.70914	-40.10523	-20.10982	0.67497	0.69207	0.21792	61.94276	0.99097	316.80	-18.94
82/ 4/18	2445078.0	47.00949	-35.17912	-18.51240	0.59336	0.76129	0.25341	61.56437	0.99793	323.19	-17.50
82/ 4/19	2445078.5	50.72661	-29.81136	-16.68272	0.50285	0.82231	0.28642	61.15733	1.00553	329.56	-15.83
82/ 4/19	2445079.0	53.80244	-24.06108	-14.63927	0.40412	0.87407	0.31645	60.72847	1.01364	335.91	-13.95
82/ 4/20	2445079.5	56.18425	-17.99459	-12.40394	0.29807	0.91552	0.34300	60.28543	1.02209	342.24	-11.87
82/ 4/20	2445080.0	57.82582	-11.68521	-10.00205	0.18573	0.94563	0.36555	59.83653	1.03070	348.58	-9.62
82/ 4/21	2445080.5	58.68884	-5.21290	-7.46236	0.06839	0.96348	0.38361	59.39058	1.03929	354.92	-7.22
82/ 4/21	2445081.0	58.74432	1.33632	-4.81695	-0.05246	0.96822	0.39670	58.95662	1.04765	1.30	-4.69
82/ 4/22	2445081.5	57.97409	7.87135	-2.10095	-0.17513	0.95919	0.40438	58.54372	1.05558	7.73	-2.06
82/ 4/22	2445082.0	56.37219	14.29728	0.64778	-0.29772	0.93595	0.40631	58.16060	1.06288	14.23	0.64
82/ 4/23	2445082.5	53.94610	20.51704	3.38932	-0.41815	0.89831	0.40222	57.81538	1.06939	20.82	3.36
82/ 4/23	2445083.0	50.71771	26.43341	6.08227	-0.53426	0.84641	0.39196	57.51526	1.07493	27.53	6.07
82/ 4/24	2445083.5	46.72382	31.95121	8.68472	-0.64383	0.78072	0.37551	57.26622	1.07937	34.37	8.72
82/ 4/24	2445084.0	42.01620	36.97977	11.15517	-0.74467	0.70211	0.35301	57.07278	1.08264	41.35	11.27
82/ 4/25	2445084.5	36.66101	41.43538	13.45358	-0.83472	0.61177	0.32477	56.93785	1.08466	48.50	13.67
82/ 4/25	2445085.0	30.73766	45.24363	15.54246	-0.91215	0.51123	0.29122	56.86262	1.08545	55.81	15.86
82/ 4/26	2445085.5	24.33712	48.34151	17.38783	-0.97540	0.40232	0.25297	56.84658	1.08502	63.28	17.81
82/ 4/26	2445086.0	17.55976	50.67906	18.96014	-1.02326	0.28706	0.21072	56.88760	1.08345	70.89	19.47
82/ 4/27	2445086.5	10.51278	52.22060	20.23498	-1.05491	0.16763	0.16527	56.98214	1.08086	78.62	20.80
82/ 4/27	2445087.0	3.30757	52.94539	21.19356	-1.06995	0.04625	0.11748	57.12549	1.07737	86.43	21.78
82/ 4/28	2445087.5	-3.94307	52.84768	21.82305	-1.06836	-0.07489	0.06824	57.31204	1.07315	94.27	22.38
82/ 4/28	2445088.0	-11.12751	51.93633	22.11666	-1.05049	-0.19367	0.01844	57.53565	1.06835	102.09	22.61
82/ 4/29	2445088.5	-18.13766	50.23402	22.07349	-1.01703	-0.30814	-0.03107	57.78988	1.06314	109.85	22.46
82/ 4/29	2445089.0	-24.87106	47.77604	21.69828	-0.96895	-0.41654	-0.07948	58.06836	1.05768	117.50	21.94
82/ 4/30	2445089.5	-31.23255	44.60893	21.00099	-0.90742	-0.51730	-0.12606	58.36497	1.05210	125.00	21.09
82/ 4/30	2445090.0	-37.13559	40.78896	19.99636	-0.83381	-0.60912	-0.17014	58.67406	1.04652	132.32	19.93
82/ 5/ 1	2445090.5	-42.50328	36.38060	18.70331	-0.74959	-0.69089	-0.21114	58.99060	1.04106	139.44	18.48
82/ 5/ 1	2445091.0	-47.26904	31.45489	17.14439	-0.65633	-0.76176	-0.24857	59.31022	1.03577	146.36	16.80
82/ 5/ 2	2445091.5	-51.37696	26.08803	15.34525	-0.55561	-0.82107	-0.28201	59.62930	1.03072	153.08	14.91
82/ 5/ 2	2445092.0	-54.78203	20.35989	13.33405	-0.44905	-0.86838	-0.31114	59.94492	1.02593	159.61	12.85
82/ 5/ 3	2445092.5	-57.45014	14.35277	11.14092	-0.33825	-0.90343	-0.33570	60.25480	1.02141	165.97	10.66
82/ 5/ 3	2445093.0	-59.35791	8.15010	8.79750	-0.22478	-0.92612	-0.35550	60.55726	1.01716	172.18	8.35
82/ 5/ 4	2445093.5	-60.49242	1.83539	6.33641	-0.11016	-0.93654	-0.37043	60.85106	1.01314	178.26	5.98
82/ 5/ 4	2445094.0	-60.85087	-4.50885	3.79085	0.00415	-0.93489	-0.38044	61.13533	1.00934	184.24	3.56
82/ 5/ 5	2445094.5	-60.44011	-10.80199	1.19413	0.11675	-0.92151	-0.38554	61.40942	1.00571	190.13	1.11
82/ 5/ 5	2445095.0	-59.27615	-16.96614	-1.42066	0.22635	-0.89688	-0.38579	61.67277	1.00223	195.97	-1.32

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/ 5/ 6	2445095.5	-57.38357	-22.92694	-4.02106	0.33172	-0.86157	-0.38131	61.92485	0.99886	201.78	-3.72
82/ 5/ 6	2445096.0	-54.79486	-28.61417	-6.57554	0.43173	-0.81622	-0.37226	62.16498	0.99558	207.57	-6.07
82/ 5/ 7	2445096.5	-51.54983	-33.96240	-9.05384	0.52536	-0.76159	-0.35885	62.39232	0.99237	213.38	-8.34
82/ 5/ 7	2445097.0	-47.69482	-38.91148	-11.42718	0.61171	-0.69849	-0.34131	62.60575	0.98923	219.21	-10.52
82/ 5/ 8	2445097.5	-43.28201	-43.40692	-13.66855	0.68995	-0.62778	-0.31993	62.80384	0.98616	225.08	-12.57
82/ 5/ 8	2445098.0	-38.36868	-47.40025	-15.75289	0.75940	-0.55038	-0.29500	62.98486	0.98317	231.01	-14.48
82/ 5/ 9	2445098.5	-33.01643	-50.84925	-17.65725	0.81947	-0.46721	-0.26684	63.14673	0.98031	237.00	-16.24
82/ 5/ 9	2445099.0	-27.29052	-53.71814	-19.36095	0.86967	-0.37923	-0.23580	63.28710	0.97762	243.07	-17.81
82/ 5/10	2445099.5	-21.25912	-55.97763	-20.84567	0.90963	-0.28742	-0.20224	63.40337	0.97516	249.20	-19.19
82/ 5/10	2445100.0	-14.99263	-57.60501	-22.09554	0.93905	-0.19274	-0.16651	63.49274	0.97298	255.41	-20.37
82/ 5/11	2445100.5	-8.56310	-58.58410	-23.09716	0.95774	-0.09614	-0.12899	63.55236	0.97116	261.68	-21.31
82/ 5/11	2445101.0	-2.04364	-58.90522	-23.83969	0.96559	0.00140	-0.09006	63.57933	0.96979	268.01	-22.02
82/ 5/12	2445101.5	4.49214	-58.56508	-24.31482	0.96256	0.09896	-0.05010	63.57089	0.96893	274.39	-22.49
82/ 5/12	2445102.0	10.97061	-57.56673	-24.51680	0.94868	0.19561	-0.00947	63.52445	0.96868	280.79	-22.70
82/ 5/13	2445102.5	17.31853	-55.91947	-24.44247	0.92403	0.29043	0.03143	63.43779	0.96911	287.21	-22.66
82/ 5/13	2445103.0	23.46350	-53.63879	-24.09124	0.88878	0.38251	0.07223	63.30911	0.97029	293.63	-22.37
82/ 5/14	2445103.5	29.33437	-50.74628	-23.46513	0.84313	0.47095	0.11254	63.13717	0.97228	300.03	-21.82
82/ 5/14	2445104.0	34.86162	-47.26968	-22.56880	0.78736	0.55484	0.15196	62.92143	0.97513	306.41	-21.02
82/ 5/15	2445104.5	39.97778	-43.24283	-21.40960	0.72180	0.63328	0.19010	62.66208	0.97887	312.75	-19.98
82/ 5/15	2445105.0	44.61791	-38.70575	-19.99762	0.64687	0.70535	0.22654	62.36022	0.98350	319.06	-18.70
82/ 5/16	2445105.5	48.72011	-33.70466	-18.34576	0.56305	0.77014	0.26086	62.01790	0.98903	325.32	-17.21
82/ 5/16	2445106.0	52.22613	-28.29209	-16.46983	0.47093	0.82671	0.29263	61.63819	0.99541	331.55	-15.50
82/ 5/17	2445106.5	55.08209	-22.52687	-14.38865	0.37122	0.87412	0.32139	61.22523	1.00258	337.76	-13.59
82/ 5/17	2445107.0	57.23930	-16.47417	-12.12408	0.26475	0.91144	0.34670	60.78428	1.01046	343.94	-11.51
82/ 5/18	2445107.5	58.65528	-10.20537	-9.70114	0.15251	0.93778	0.36808	60.32167	1.01891	350.13	-9.25
82/ 5/18	2445108.0	59.29484	-3.79785	-7.14798	0.03568	0.95227	0.38508	59.84476	1.02780	356.34	-6.86
82/ 5/19	2445108.5	59.13132	2.66544	-4.49582	-0.08439	0.95413	0.39724	59.36186	1.03696	2.58	-4.34
82/ 5/19	2445109.0	58.14792	9.09663	-1.77885	-0.20614	0.94269	0.40415	58.88203	1.04618	8.89	-1.73
82/ 5/20	2445109.5	56.33911	15.40388	0.96605	-0.32782	0.91747	0.40543	58.41496	1.05527	15.29	0.95
82/ 5/20	2445110.0	53.71189	21.49272	3.69972	-0.44747	0.87817	0.40079	57.97061	1.06398	21.81	3.66
82/ 5/21	2445110.5	50.28705	27.26768	6.38129	-0.56299	0.82480	0.39002	57.55897	1.07209	28.47	6.37
82/ 5/21	2445111.0	46.10002	32.63436	8.96891	-0.67217	0.75769	0.37305	57.18964	1.07938	35.29	9.02
82/ 5/22	2445111.5	41.20138	37.50174	11.42067	-0.77275	0.67751	0.34993	56.87149	1.08564	42.31	11.58
82/ 5/22	2445112.0	35.65677	41.78478	13.69563	-0.86256	0.58535	0.32089	56.61222	1.09069	49.52	14.00
82/ 5/23	2445112.5	29.54626	45.40698	15.75497	-0.93954	0.48265	0.28634	56.41803	1.09438	56.95	16.22
82/ 5/23	2445113.0	22.96293	48.30297	17.56316	-1.00191	0.37123	0.24684	56.29332	1.09661	64.57	18.18
82/ 5/24	2445113.5	16.01083	50.42070	19.08903	-1.04823	0.25321	0.20311	56.24042	1.09733	72.38	19.84
82/ 5/24	2445114.0	8.80236	51.72321	20.30679	-1.07748	0.13091	0.15600	56.25956	1.09655	80.34	21.16
82/ 5/25	2445114.5	1.45526	52.18980	21.19674	-1.08912	0.00678	0.10647	56.34886	1.09433	88.40	22.10
82/ 5/25	2445115.0	-5.91072	51.81643	21.74581	-1.08308	-0.11672	0.05551	56.50450	1.09076	96.51	22.63
82/ 5/26	2445115.5	-13.17700	50.61550	21.94770	-1.05978	-0.23721	0.00412	56.72093	1.08601	104.59	22.76
82/ 5/26	2445116.0	-20.22926	48.61493	21.80288	-1.02005	-0.35250	-0.04672	56.99123	1.08025	112.59	22.49
82/ 5/27	2445116.5	-26.96005	45.85671	21.31820	-0.96508	-0.46064	-0.09609	57.30748	1.07368	120.45	21.84
82/ 5/27	2445117.0	-33.27098	42.39509	20.50636	-0.89633	-0.55996	-0.14319	57.66118	1.06652	128.12	20.83
82/ 5/28	2445117.5	-39.07430	38.29453	19.38525	-0.81548	-0.64912	-0.18731	58.04360	1.05898	135.58	19.51

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/ 5/28	2445118.0	-44.29398	33.62758	17.97718	-0.72429	-0.72706	-0.22784	58.44613	1.05125	142.79	17.91
82/ 5/29	2445118.5	-48.86625	28.47285	16.30809	-0.62461	-0.79306	-0.26432	58.86057	1.04352	149.77	16.08
82/ 5/29	2445119.0	-52.73976	22.91304	14.40678	-0.51826	-0.84662	-0.29636	59.27938	1.03595	156.52	14.07
82/ 5/30	2445119.5	-55.87545	17.03324	12.30420	-0.40702	-0.88752	-0.32371	59.69582	1.02866	163.05	11.89
82/ 5/30	2445120.0	-58.24605	10.91946	10.03282	-0.29261	-0.91573	-0.34619	60.10403	1.02177	169.38	9.61
82/ 5/31	2445120.5	-59.83561	4.65728	7.62598	-0.17664	-0.93138	-0.36370	60.49914	1.01535	175.55	7.24
82/ 5/31	2445121.0	-60.63875	-1.66917	5.11749	-0.06063	-0.93476	-0.37621	60.87719	1.00945	181.58	4.82
82/ 6/ 1	2445121.5	-60.65997	-7.97814	2.54111	0.05402	-0.92629	-0.38375	61.23512	1.00409	187.49	2.38
82/ 6/ 1	2445122.0	-59.91295	-14.19097	-0.06977	0.16602	-0.90646	-0.38641	61.57069	0.99928	193.33	-0.06
82/ 6/ 2	2445122.5	-58.41978	-20.23269	-2.68244	0.27417	-0.87587	-0.38431	61.88237	0.99499	199.10	-2.48
82/ 6/ 2	2445123.0	-56.21031	-26.03256	-5.26520	0.37737	-0.83516	-0.37761	62.16925	0.99121	204.85	-4.86
82/ 6/ 3	2445123.5	-53.32144	-31.52447	-7.78753	0.47463	-0.78506	-0.36650	62.43087	0.98788	210.59	-7.17
82/ 6/ 3	2445124.0	-49.79650	-36.64734	-10.22034	0.56505	-0.72632	-0.35121	62.66717	0.98497	216.35	-9.39
82/ 6/ 4	2445124.5	-45.68461	-41.34541	-12.53616	0.64782	-0.65975	-0.33200	62.87831	0.98243	222.15	-11.50
82/ 6/ 4	2445125.0	-41.04005	-45.56852	-14.70931	0.72223	-0.58621	-0.30913	63.06457	0.98022	227.99	-13.49
82/ 6/ 5	2445125.5	-35.92162	-49.27239	-16.71604	0.78765	-0.50657	-0.28291	63.22624	0.97829	233.91	-15.33
82/ 6/ 5	2445126.0	-30.39210	-52.41872	-18.53469	0.84355	-0.42173	-0.25365	63.36353	0.97661	239.90	-17.01
82/ 6/ 6	2445126.5	-24.51758	-54.97546	-20.14578	0.88946	-0.33262	-0.22168	63.47650	0.97515	245.96	-18.50
82/ 6/ 6	2445127.0	-18.36687	-56.91685	-21.53218	0.92505	-0.24018	-0.18735	63.56496	0.97391	252.12	-19.80
82/ 6/ 7	2445127.5	-12.01094	-58.22356	-22.67913	0.95003	-0.14536	-0.15103	63.62852	0.97288	258.34	-20.88
82/ 6/ 7	2445128.0	-5.52231	-58.88273	-23.57437	0.96421	-0.04913	-0.11309	63.66649	0.97206	264.64	-21.73
82/ 6/ 8	2445128.5	1.02556	-58.88797	-24.20820	0.96751	0.04758	-0.07390	63.67795	0.97149	271.00	-22.34
82/ 6/ 8	2445129.0	7.55879	-58.23938	-24.57350	0.95989	0.14379	-0.03386	63.66175	0.97119	277.39	-22.71
82/ 6/ 9	2445129.5	14.00366	-56.94349	-24.66582	0.94143	0.23856	0.00665	63.61655	0.97121	283.82	-22.81
82/ 6/ 9	2445130.0	20.28716	-55.01316	-24.48332	0.91227	0.33098	0.04722	63.54093	0.97160	290.24	-22.66
82/ 6/10	2445130.5	26.33747	-52.46753	-24.02685	0.87262	0.42011	0.08748	63.43338	0.97242	296.66	-22.26
82/ 6/10	2445131.0	32.08450	-49.33191	-23.29997	0.82276	0.50505	0.12701	63.29250	0.97373	303.04	-21.60
82/ 6/11	2445131.5	37.46032	-45.63768	-22.30889	0.76307	0.58491	0.16543	63.11703	0.97559	309.38	-20.70
82/ 6/11	2445132.0	42.39974	-41.42218	-21.06254	0.69398	0.65883	0.20233	62.90601	0.97806	315.67	-19.56
82/ 6/12	2445132.5	46.84076	-36.72863	-19.57254	0.61599	0.72594	0.23731	62.65887	0.98119	321.90	-18.20
82/ 6/12	2445133.0	50.72511	-31.60602	-17.85325	0.52970	0.78539	0.26997	62.37560	0.98504	328.07	-16.63
82/ 6/13	2445133.5	53.99880	-26.10899	-15.92174	0.43579	0.83636	0.29991	62.05684	0.98963	334.20	-14.87
82/ 6/13	2445134.0	56.61274	-20.29771	-13.79781	0.33502	0.87805	0.32672	61.70396	0.99497	340.28	-12.92
82/ 6/14	2445134.5	58.52346	-14.23773	-11.50402	0.22828	0.90967	0.35000	61.31925	1.00106	346.33	-10.81
82/ 6/14	2445135.0	59.69378	-7.99981	-9.06564	0.11657	0.93048	0.36935	60.90591	1.00787	352.37	-8.56
82/ 6/15	2445135.5	60.09375	-1.65958	-6.51067	0.00101	0.93977	0.38436	60.46819	1.01534	358.42	-6.18
82/ 6/15	2445136.0	59.70159	4.70280	-3.86974	-0.11712	0.93692	0.39467	60.01142	1.02338	4.50	-3.70
82/ 6/16	2445136.5	58.50465	11.00325	-1.17599	-0.23639	0.92140	0.39991	59.54199	1.03188	10.65	-1.13
82/ 6/16	2445137.0	56.50057	17.15448	1.53516	-0.35519	0.89281	0.39975	59.06731	1.04070	16.89	1.49
82/ 6/17	2445137.5	53.69833	23.06704	4.22626	-0.47177	0.85090	0.39395	58.59573	1.04967	23.25	4.14
82/ 6/17	2445138.0	50.11931	28.65061	6.85831	-0.58423	0.79567	0.38229	58.13639	1.05857	29.75	6.77
82/ 6/18	2445138.5	45.79823	33.81559	9.39133	-0.69056	0.72736	0.36469	57.69895	1.06720	36.44	9.37
82/ 6/18	2445139.0	40.78372	38.47504	11.78503	-0.78864	0.64652	0.34117	57.29335	1.07533	43.33	11.87
82/ 6/19	2445139.5	35.13872	42.54691	13.99975	-0.87639	0.55403	0.31188	56.92945	1.08272	50.45	14.24
82/ 6/19	2445140.0	28.94016	45.95638	15.99741	-0.95177	0.45116	0.27714	56.61660	1.08914	57.80	16.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
82/ 6/20	2445140.5	22.27824	48.63841	17.74264	-1.01293	0.33952	0.23743	56.36325	1.09438	65.39	18.35
82/ 6/20	2445141.0	15.25488	50.54009	19.20389	-1.05827	0.22108	0.19340	56.17652	1.09827	73.20	19.99
82/ 6/21	2445141.5	7.98164	51.62281	20.35451	-1.08655	0.09808	0.14585	56.06182	1.10067	81.21	21.29
82/ 6/21	2445142.0	0.57691	51.86390	21.17369	-1.09700	-0.02703	0.09570	56.02251	1.10150	89.36	22.21
82/ 6/22	2445142.5	-6.83722	51.25768	21.64722	-1.08932	-0.15170	0.04396	56.05978	1.10071	97.60	22.71
82/ 6/22	2445143.0	-14.13848	49.81575	21.76795	-1.06375	-0.27339	-0.00831	56.17250	1.09835	105.84	22.80
82/ 6/23	2445143.5	-21.20787	47.56658	21.53591	-1.02101	-0.38969	-0.06004	56.35733	1.09450	114.03	22.47
82/ 6/23	2445144.0	-27.93286	44.55423	20.95818	-0.96228	-0.49841	-0.11023	56.60892	1.08929	122.09	21.73
82/ 6/24	2445144.5	-34.21021	40.83663	20.04838	-0.88911	-0.59766	-0.15795	56.92018	1.08290	129.95	20.62
82/ 6/24	2445145.0	-39.94818	36.48331	18.82600	-0.80333	-0.68591	-0.20240	57.28269	1.07553	137.60	19.19
82/ 6/25	2445145.5	-45.06803	31.57291	17.31553	-0.70693	-0.76199	-0.24292	57.68712	1.06743	144.99	17.47
82/ 6/25	2445146.0	-49.50496	26.19070	15.54553	-0.60201	-0.82513	-0.27897	58.12364	1.05881	152.12	15.51
82/ 6/26	2445146.5	-53.20829	20.42611	13.54763	-0.49065	-0.87486	-0.31016	58.58230	1.04991	159.00	13.37
82/ 6/26	2445147.0	-56.14130	14.37056	11.35564	-0.37487	-0.91104	-0.33625	59.05344	1.04096	165.64	11.09
82/ 6/27	2445147.5	-58.28058	8.11556	9.00470	-0.25658	-0.93379	-0.35709	59.52792	1.03214	172.07	8.70
82/ 6/27	2445148.0	-59.61520	1.75114	6.53056	-0.13754	-0.94343	-0.37263	59.99739	1.02363	178.32	6.25
82/ 6/28	2445148.5	-60.14562	-4.63543	3.96895	-0.01936	-0.94042	-0.38293	60.45441	1.01558	184.41	3.76
82/ 6/28	2445149.0	-59.88268	-10.96056	1.35511	0.09651	-0.92539	-0.38808	60.89257	1.00810	190.37	1.28
82/ 6/29	2445149.5	-58.84649	-17.14509	-1.27662	0.20877	-0.89903	-0.38824	61.30655	1.00128	196.24	-1.19
82/ 6/29	2445150.0	-57.06543	-23.11476	-3.89310	0.31628	-0.86208	-0.38361	61.69208	0.99517	202.05	-3.62
82/ 6/30	2445150.5	-54.57521	-28.80062	-6.46264	0.41803	-0.81535	-0.37442	62.04590	0.98981	207.82	-5.98
82/ 6/30	2445151.0	-51.41797	-34.13919	-8.95517	0.51310	-0.75967	-0.36091	62.36575	0.98521	213.58	-8.26
82/ 7/ 1	2445151.5	-47.64160	-39.07270	-11.34238	0.60073	-0.69588	-0.34336	62.65020	0.98134	219.36	-10.43
82/ 7/ 1	2445152.0	-43.29899	-43.54917	-13.59784	0.68020	-0.62485	-0.32206	62.89860	0.97818	225.17	-12.49
82/ 7/ 2	2445152.5	-38.44745	-47.52249	-15.69710	0.75092	-0.54745	-0.29729	63.11095	0.97568	231.03	-14.40
82/ 7/ 2	2445153.0	-33.14815	-50.95252	-17.61775	0.81234	-0.46457	-0.26937	63.28779	0.97380	236.95	-16.16
82/ 7/ 3	2445153.5	-27.46557	-53.80517	-19.33957	0.86403	-0.37711	-0.23863	63.43007	0.97247	242.96	-17.75
82/ 7/ 3	2445154.0	-21.46701	-56.05246	-20.84453	0.90559	-0.28596	-0.20539	63.53901	0.97162	249.04	-19.15
82/ 7/ 4	2445154.5	-15.22211	-57.67259	-22.11690	0.93673	-0.19207	-0.17001	63.61602	0.97121	255.21	-20.34
82/ 7/ 4	2445155.0	-8.80231	-58.65003	-23.14336	0.95720	-0.09634	-0.13283	63.66256	0.97116	261.46	-21.32
82/ 7/ 5	2445155.5	-2.28042	-58.97557	-23.91302	0.96686	0.00028	-0.09424	63.68006	0.97144	267.79	-22.06
82/ 7/ 5	2445156.0	4.26999	-58.64639	-24.41753	0.96561	0.09684	-0.05460	63.66984	0.97199	274.16	-22.55
82/ 7/ 6	2445156.5	10.77501	-57.66610	-24.65116	0.95346	0.19239	-0.01431	63.63301	0.97278	280.58	-22.79
82/ 7/ 6	2445157.0	17.16103	-56.04476	-24.61081	0.93049	0.28598	0.02623	63.57050	0.97380	287.02	-22.78
82/ 7/ 7	2445157.5	23.35526	-53.79884	-24.29613	0.89686	0.37666	0.06663	63.48295	0.97503	293.47	-22.50
82/ 7/ 7	2445158.0	29.28634	-50.95122	-23.70950	0.85283	0.46350	0.10647	63.37079	0.97647	299.89	-21.97
82/ 7/ 8	2445158.5	34.88490	-47.53108	-22.85608	0.79874	0.54557	0.14534	63.23417	0.97814	306.28	-21.19
82/ 7/ 8	2445159.0	40.08420	-43.57377	-21.74381	0.73501	0.62198	0.18284	63.07305	0.98006	312.61	-20.17
82/ 7/ 9	2445159.5	44.82067	-39.12064	-20.38341	0.66216	0.69184	0.21855	62.88720	0.98227	318.88	-18.91
82/ 7/ 9	2445160.0	49.03456	-34.21890	-18.78836	0.58081	0.75431	0.25206	62.67634	0.98481	325.09	-17.44
82/ 7/10	2445160.5	52.67054	-28.92136	-16.97488	0.49164	0.80858	0.28298	62.44020	0.98772	331.23	-15.77
82/ 7/10	2445161.0	55.67833	-23.28617	-14.96186	0.39544	0.85389	0.31092	62.17861	0.99105	337.30	-13.92
82/ 7/11	2445161.5	58.01330	-17.37652	-12.77080	0.29311	0.88952	0.33549	61.89167	0.99484	343.33	-11.91
82/ 7/11	2445162.0	59.63712	-11.26028	-10.42575	0.18562	0.91479	0.35633	61.57983	0.99913	349.31	-9.75
82/ 7/12	2445162.5	60.51843	-5.00962	-7.95320	0.07404	0.92911	0.37309	61.24402	1.00396	355.27	-7.46

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/ 7/12	2445163.0	60.63353	1.29945	-5.38194	-0.04044	0.93196	0.38543	60.88578	1.00932	1.23	-5.07
82/ 7/13	2445163.5	59.96703	7.58766	-2.74294	-0.15653	0.92289	0.39304	60.50737	1.01523	7.21	-2.60
82/ 7/13	2445164.0	58.51266	13.77307	-0.06914	-0.27285	0.90156	0.39566	60.11184	1.02166	13.25	-0.07
82/ 7/14	2445164.5	56.27394	19.77186	2.60480	-0.38788	0.86776	0.39305	59.70316	1.02856	19.36	2.50
82/ 7/14	2445165.0	53.26498	25.49927	5.24279	-0.50002	0.82142	0.38502	59.28624	1.03585	25.58	5.07
82/ 7/15	2445165.5	49.51115	30.87069	7.80769	-0.60755	0.76267	0.37145	58.86691	1.04343	31.94	7.62
82/ 7/15	2445166.0	45.04965	35.80296	10.26182	-0.70868	0.69182	0.35231	58.45193	1.05117	38.48	10.11
82/ 7/16	2445166.5	39.93002	40.21591	12.56749	-0.80158	0.60943	0.32763	58.04884	1.05891	45.20	12.50
82/ 7/16	2445167.0	34.21430	44.03408	14.68776	-0.88440	0.51635	0.29759	57.66583	1.06646	52.15	14.76
82/ 7/17	2445167.5	27.97693	47.18864	16.58714	-0.95532	0.41369	0.26247	57.31151	1.07362	59.34	16.82
82/ 7/17	2445168.0	21.30427	49.61941	18.23258	-1.01267	0.30288	0.22268	56.99460	1.08020	66.76	18.66
82/ 7/18	2445168.5	14.29351	51.27696	19.59433	-1.05493	0.18567	0.17880	56.72361	1.08596	74.42	20.21
82/ 7/18	2445169.0	7.05120	52.12450	20.64692	-1.08087	0.06405	0.13152	56.50644	1.09072	82.30	21.43
82/ 7/19	2445169.5	-0.30894	52.13968	21.37011	-1.08961	-0.05973	0.08168	56.35001	1.09430	90.34	22.29
82/ 7/19	2445170.0	-7.66857	51.31586	21.74961	-1.08068	-0.18329	0.03020	56.25985	1.09653	98.50	22.74
82/ 7/20	2445170.5	-14.90780	49.66286	21.77777	-1.05409	-0.30417	-0.02190	56.23978	1.09732	106.71	22.78
82/ 7/20	2445171.0	-21.90840	47.20709	21.45385	-1.01034	-0.41995	-0.07359	56.29170	1.09661	114.90	22.40
82/ 7/21	2445171.5	-28.55712	43.99094	20.78418	-0.95038	-0.52835	-0.12383	56.41537	1.09440	122.99	21.62
82/ 7/21	2445172.0	-34.74868	40.07149	19.78186	-0.87561	-0.62732	-0.17166	56.60845	1.09073	130.93	20.45
82/ 7/22	2445172.5	-40.38852	35.51861	18.46630	-0.78778	-0.71513	-0.21620	56.86658	1.08570	138.67	18.95
82/ 7/22	2445173.0	-45.39481	30.41267	16.86244	-0.68888	-0.79044	-0.25668	57.18358	1.07946	146.18	17.15
82/ 7/23	2445173.5	-49.69999	24.84191	14.99984	-0.58111	-0.85226	-0.29251	57.55175	1.07219	153.44	15.11
82/ 7/23	2445174.0	-53.25140	18.89981	12.91167	-0.46668	-0.90003	-0.32323	57.96228	1.06410	160.46	12.87
82/ 7/24	2445174.5	-56.01152	12.68250	10.63366	-0.34780	-0.93352	-0.34853	58.40557	1.05541	167.24	10.49
82/ 7/24	2445175.0	-57.95744	6.28647	8.20312	-0.22659	-0.95284	-0.36825	58.87168	1.04636	173.81	8.01
82/ 7/25	2445175.5	-59.08004	-0.19342	5.65804	-0.10500	-0.95837	-0.38236	59.35067	1.03715	180.19	5.47
82/ 7/25	2445176.0	-59.38289	-6.66558	3.03630	0.01520	-0.95067	-0.39091	59.83290	1.02802	186.40	2.91
82/ 7/26	2445176.5	-58.88086	-13.04293	0.37506	0.13243	-0.93050	-0.39405	60.30932	1.01914	192.49	0.36
82/ 7/26	2445177.0	-57.59886	-19.24378	-2.28979	0.24531	-0.89870	-0.39201	60.77166	1.01070	198.47	-2.16
82/ 7/27	2445177.5	-55.57044	-25.19245	-4.92392	0.35266	-0.85619	-0.38503	61.21257	1.00284	204.39	-4.61
82/ 7/27	2445178.0	-52.83663	-30.81961	-7.49491	0.45345	-0.80392	-0.37342	61.62574	0.99567	210.26	-6.99
82/ 7/28	2445178.5	-49.44477	-36.06248	-9.97241	0.54684	-0.74287	-0.35748	62.00594	0.98928	216.11	-9.26
82/ 7/28	2445179.0	-45.44757	-40.86485	-12.32820	0.63210	-0.67401	-0.33754	62.34903	0.98375	221.96	-11.40
82/ 7/29	2445179.5	-40.90224	-45.17706	-14.53634	0.70861	-0.59829	-0.31393	62.65194	0.97910	227.84	-13.42
82/ 7/29	2445180.0	-35.86978	-48.95594	-16.57317	0.77586	-0.51668	-0.28700	62.91260	0.97534	233.77	-15.27
82/ 7/30	2445180.5	-30.41438	-52.16468	-18.41732	0.83343	-0.43009	-0.25709	63.12992	0.97246	239.76	-16.96
82/ 7/30	2445181.0	-24.60286	-54.77279	-20.04976	0.88097	-0.33947	-0.22454	63.30365	0.97044	245.81	-18.46
82/ 7/31	2445181.5	-18.50425	-56.75599	-21.45379	0.91817	-0.24571	-0.18971	63.43433	0.96922	251.94	-19.77
82/ 7/31	2445182.0	-12.18931	-58.09622	-22.61511	0.94481	-0.14975	-0.15293	63.52317	0.96875	258.15	-20.86
82/ 8/ 1	2445182.5	-5.73018	-58.78160	-23.52180	0.96072	-0.05250	-0.11458	63.57190	0.96896	264.43	-21.72
82/ 8/ 1	2445183.0	0.80007	-58.80650	-24.16444	0.96580	0.04513	-0.07502	63.58274	0.96976	270.78	-22.34
82/ 8/ 2	2445183.5	7.32783	-58.17153	-24.53610	0.95999	0.14220	-0.03462	63.55819	0.97108	277.18	-22.71
82/ 8/ 2	2445184.0	13.77942	-56.88361	-24.63244	0.94332	0.23778	0.00621	63.50098	0.97284	283.62	-22.82
82/ 8/ 3	2445184.5	20.08155	-54.95604	-24.45180	0.91588	0.33093	0.04710	63.41393	0.97497	290.07	-22.68
82/ 8/ 3	2445185.0	26.16188	-52.40854	-23.99522	0.87785	0.42069	0.08763	63.29984	0.97739	296.53	-22.28

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/ 8/ 4	2445185.5	31.94955	-49.26725	-23.26656	0.82951	0.50611	0.12738	63.16145	0.98003	302.96	-21.61
82/ 8/ 4	2445186.0	37.37583	-45.56473	-22.27248	0.77121	0.58626	0.16593	63.00128	0.98285	309.36	-20.70
82/ 8/ 5	2445186.5	42.37480	-41.33989	-21.02258	0.70341	0.66020	0.20285	62.82164	0.98580	315.71	-19.55
82/ 8/ 5	2445187.0	46.88400	-36.63783	-19.52930	0.62669	0.72703	0.23772	62.62455	0.98885	321.99	-18.17
82/ 8/ 6	2445187.5	50.84520	-31.50970	-17.80801	0.54171	0.78587	0.27012	62.41170	0.99198	328.21	-16.58
82/ 8/ 6	2445188.0	54.20512	-26.01235	-15.87688	0.44927	0.83592	0.29962	62.18450	0.99518	334.36	-14.79
82/ 8/ 7	2445188.5	56.91616	-20.20801	-13.75687	0.35026	0.87640	0.32583	61.94404	0.99846	340.45	-12.83
82/ 8/ 7	2445189.0	58.93716	-14.16384	-11.47159	0.24569	0.90663	0.34836	61.69117	1.00185	346.49	-10.72
82/ 8/ 8	2445189.5	60.23411	-7.95140	-9.04714	0.13665	0.92600	0.36686	61.42656	1.00536	352.48	-8.47
82/ 8/ 8	2445190.0	60.78080	-1.64602	-6.51195	0.02435	0.93400	0.38101	61.15080	1.00902	358.45	-6.11
82/ 8/ 9	2445190.5	60.55951	4.67385	-3.89655	-0.08991	0.93023	0.39050	60.86446	1.01286	4.41	-3.67
82/ 8/ 9	2445191.0	59.56158	10.92748	-1.23330	-0.20475	0.91440	0.39510	60.56825	1.01693	10.40	-1.17
82/ 8/10	2445191.5	57.78795	17.03265	1.44391	-0.31872	0.88638	0.39460	60.26311	1.02125	16.42	1.37
82/ 8/10	2445192.0	55.24961	22.90667	4.10001	-0.43030	0.84615	0.38885	59.95035	1.02584	22.52	3.92
82/ 8/11	2445192.5	51.96804	28.46735	6.69913	-0.53793	0.79389	0.37776	59.63175	1.03069	28.71	6.45
82/ 8/11	2445193.0	47.97547	33.63416	9.20501	-0.63999	0.72992	0.36132	59.30965	1.03581	35.03	8.93
82/ 8/12	2445193.5	43.31509	38.32943	11.58154	-0.73486	0.65475	0.33958	58.98707	1.04117	41.51	11.32
82/ 8/12	2445194.0	38.04109	42.47969	13.79325	-0.82092	0.56912	0.31268	58.66773	1.04670	48.16	13.60
82/ 8/13	2445194.5	32.21849	46.01708	15.80593	-0.89659	0.47395	0.28085	58.35606	1.05232	55.00	15.72
82/ 8/13	2445195.0	25.92280	48.88081	17.58727	-0.96037	0.37040	0.24443	58.05719	1.05795	62.06	17.63
82/ 8/14	2445195.5	19.23938	51.01872	19.10755	-1.01087	0.25987	0.20385	57.77683	1.06346	69.34	19.31
82/ 8/14	2445196.0	12.26247	52.38876	20.34037	-1.04685	0.14394	0.15964	57.52113	1.06869	76.83	20.71
82/ 8/15	2445196.5	5.09391	52.96050	21.26337	-1.06732	0.02445	0.11247	57.29653	1.07351	84.51	21.78
82/ 8/15	2445197.0	-2.15856	52.71639	21.85891	-1.07153	-0.09662	0.06308	57.10945	1.07773	92.34	22.50
82/ 8/16	2445197.5	-9.38333	51.65288	22.11476	-1.05910	-0.21715	0.01231	56.96604	1.08120	100.30	22.84
82/ 8/16	2445198.0	-16.46731	49.78107	22.02455	-1.02998	-0.33494	-0.03895	56.87186	1.08377	108.30	22.78
82/ 8/17	2445198.5	-23.29849	47.12704	21.58821	-0.98455	-0.44778	-0.08974	56.83157	1.08531	116.31	22.33
82/ 8/17	2445199.0	-29.76874	43.73156	20.81208	-0.92357	-0.55354	-0.13913	56.84866	1.08570	124.24	21.48
82/ 8/18	2445199.5	-35.77654	39.64935	19.70889	-0.84821	-0.65025	-0.18617	56.92514	1.08487	132.06	20.26
82/ 8/18	2445200.0	-41.22945	34.94776	18.29742	-0.76000	-0.73617	-0.23002	57.06145	1.08280	139.71	18.70
82/ 8/19	2445200.5	-46.04642	29.70492	16.60202	-0.66074	-0.80986	-0.26990	57.25629	1.07949	147.17	16.86
82/ 8/19	2445201.0	-50.15948	24.00763	14.65187	-0.55249	-0.87021	-0.30515	57.50667	1.07500	154.42	14.76
82/ 8/20	2445201.5	-53.51491	17.94892	12.48008	-0.43739	-0.91649	-0.33527	57.80798	1.06943	161.46	12.47
82/ 8/20	2445202.0	-56.07391	11.62558	10.12275	-0.31767	-0.94832	-0.35989	58.15417	1.06290	168.29	10.02
82/ 8/21	2445202.5	-57.81254	5.13573	7.61800	-0.19550	-0.96568	-0.37878	58.53801	1.05558	174.92	7.48
82/ 8/21	2445203.0	-58.72127	-1.42337	5.00494	-0.07294	-0.96885	-0.39187	58.95136	1.04764	181.39	4.87
82/ 8/22	2445203.5	-58.80409	-7.95730	2.32286	0.04809	-0.95836	-0.39918	59.38548	1.03928	187.71	2.24
82/ 8/22	2445204.0	-58.07725	-14.37600	-0.38956	0.16587	-0.93496	-0.40086	59.83133	1.03070	193.90	-0.37
82/ 8/23	2445204.5	-56.56794	-20.59504	-3.09493	0.27891	-0.89956	-0.39714	60.27990	1.02211	200.01	-2.94
82/ 8/23	2445205.0	-54.31283	-26.53644	-5.75755	0.38591	-0.85315	-0.38829	60.72244	1.01369	206.04	-5.44
82/ 8/24	2445205.5	-51.35658	-32.12926	-8.34389	0.48578	-0.79680	-0.37467	61.15070	1.00561	212.03	-7.84
82/ 8/24	2445206.0	-47.75059	-37.30986	-10.82275	0.57764	-0.73161	-0.35662	61.55710	0.99805	218.00	-10.13
82/ 8/25	2445206.5	-43.55171	-42.02203	-13.16544	0.66075	-0.65866	-0.33452	61.93490	0.99113	223.98	-12.27
82/ 8/25	2445207.0	-38.82119	-46.21689	-15.34590	0.73454	-0.57903	-0.30877	62.27826	0.98497	229.97	-14.27
82/ 8/26	2445207.5	-33.62379	-49.85273	-17.34067	0.79855	-0.49376	-0.27975	62.58237	0.97967	236.00	-16.09

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/ 8/26	2445208.0	-28.02699	-52.89488	-19.12891	0.85243	-0.40388	-0.24785	62.84342	0.97529	242.08	-17.72
82/ 8/27	2445208.5	-22.10039	-55.31542	-20.69238	0.89590	-0.31036	-0.21344	63.05868	0.97187	248.22	-19.16
82/ 8/27	2445209.0	-15.91515	-57.09299	-22.01537	0.92878	-0.21417	-0.17690	63.22640	0.96943	254.42	-20.38
82/ 8/28	2445209.5	-9.54356	-58.21265	-23.08473	0.95091	-0.11624	-0.13861	63.34585	0.96796	260.69	-21.37
82/ 8/28	2445210.0	-3.05869	-58.66572	-23.88982	0.96222	-0.01749	-0.09893	63.41723	0.96745	267.02	-22.13
82/ 8/29	2445210.5	3.46598	-58.44969	-24.42249	0.96266	0.08119	-0.05823	63.44161	0.96783	273.39	-22.64
82/ 8/29	2445211.0	9.95689	-57.56823	-24.67716	0.95225	0.17886	-0.01690	63.42084	0.96905	279.81	-22.90
82/ 8/30	2445211.5	16.34075	-56.03115	-24.65080	0.93106	0.27463	0.02469	63.35749	0.97104	286.26	-22.90
82/ 8/30	2445212.0	22.54491	-53.85447	-24.34303	0.89922	0.36758	0.06614	63.25472	0.97370	292.72	-22.63
82/ 8/31	2445212.5	28.49784	-51.06047	-23.75615	0.85691	0.45676	0.10704	63.11619	0.97693	299.17	-22.11
82/ 8/31	2445213.0	34.12955	-47.67779	-22.89525	0.80442	0.54126	0.14698	62.94593	0.98064	305.60	-21.33
82/ 9/ 1	2445213.5	39.37222	-43.74141	-21.76827	0.74210	0.62011	0.18554	62.74823	0.98472	311.99	-20.30
82/ 9/ 1	2445214.0	44.16083	-39.29275	-20.38606	0.67043	0.69238	0.22228	62.52752	0.98907	318.34	-19.03
82/ 9/ 2	2445214.5	48.43388	-34.37955	-18.76246	0.58997	0.75713	0.25675	62.28824	0.99359	324.63	-17.53
82/ 9/ 2	2445215.0	52.13419	-29.05579	-16.91431	0.50142	0.81346	0.28851	62.03472	0.99819	330.87	-15.82
82/ 9/ 3	2445215.5	55.20971	-23.38146	-14.86142	0.40562	0.86051	0.31713	61.77108	1.00279	337.05	-13.92
82/ 9/ 3	2445216.0	57.61446	-17.42220	-12.62653	0.30352	0.89747	0.34218	61.50112	1.00731	343.18	-11.85
82/ 9/ 4	2445216.5	59.30941	-11.24881	-10.23522	0.19621	0.92363	0.36326	61.22827	1.01170	349.26	-9.62
82/ 9/ 4	2445217.0	60.26334	-4.93669	-7.71570	0.08492	0.93835	0.37998	60.95550	1.01592	355.32	-7.27
82/ 9/ 5	2445217.5	60.45369	1.43501	-5.09858	-0.02903	0.94115	0.39203	60.68528	1.01994	1.36	-4.82
82/ 9/ 5	2445218.0	59.86733	7.78424	-2.41658	-0.14419	0.93167	0.39910	60.41963	1.02375	7.41	-2.29
82/ 9/ 6	2445218.5	58.50118	14.02709	0.29582	-0.25904	0.90972	0.40097	60.16008	1.02736	13.48	0.28
82/ 9/ 6	2445219.0	56.36273	20.07895	3.00286	-0.37198	0.87528	0.39749	59.90775	1.03077	19.61	2.87
82/ 9/ 7	2445219.5	53.47038	25.85573	5.66792	-0.48139	0.82853	0.38857	59.66343	1.03402	25.81	5.45
82/ 9/ 7	2445220.0	49.85361	31.27517	8.25408	-0.58562	0.76984	0.37420	59.42767	1.03712	32.10	7.98
82/ 9/ 8	2445220.5	45.55299	36.25815	10.72466	-0.68306	0.69976	0.35446	59.20090	1.04013	38.52	10.44
82/ 9/ 8	2445221.0	40.61990	40.73009	13.04381	-0.77212	0.61907	0.32952	58.98354	1.04308	45.08	12.78
82/ 9/ 9	2445221.5	35.11620	44.62224	15.17709	-0.85132	0.52873	0.29963	58.77615	1.04598	51.80	14.96
82/ 9/ 9	2445222.0	29.11351	47.87302	17.09211	-0.91925	0.42989	0.26513	58.57954	1.04886	58.69	16.96
82/ 9/10	2445222.5	22.69247	50.42924	18.75907	-0.97466	0.32387	0.22646	58.39486	1.05173	65.77	18.74
82/ 9/10	2445223.0	15.94166	52.24731	20.15140	-1.01646	0.21218	0.18413	58.22368	1.05457	73.03	20.25
82/ 9/11	2445223.5	8.95639	53.29423	21.24629	-1.04376	0.09644	0.13873	58.06803	1.05735	80.46	21.46
82/ 9/11	2445224.0	1.83727	53.54857	22.02519	-1.05589	-0.02156	0.09094	57.93043	1.06002	88.03	22.35
82/ 9/12	2445224.5	-5.31143	53.00119	22.47434	-1.05245	-0.13999	0.04148	57.81378	1.06253	95.72	22.88
82/ 9/12	2445225.0	-12.38354	51.65575	22.58508	-1.03328	-0.25690	-0.00886	57.72135	1.06477	103.48	23.03
82/ 9/13	2445225.5	-19.27295	49.52903	22.35422	-0.99855	-0.37037	-0.05925	57.65659	1.06667	111.26	22.81
82/ 9/13	2445226.0	-25.87570	46.65092	21.78420	-0.94873	-0.47847	-0.10887	57.62301	1.06812	119.02	22.21
82/ 9/14	2445226.5	-32.09203	43.06405	20.88318	-0.88460	-0.57936	-0.15686	57.62393	1.06901	126.69	21.25
82/ 9/14	2445227.0	-37.82852	38.82315	19.66493	-0.80724	-0.67133	-0.20241	57.66232	1.06925	134.26	19.94
82/ 9/15	2445227.5	-43.00005	33.99399	18.14861	-0.71803	-0.75283	-0.24475	57.74052	1.06875	141.67	18.32
82/ 9/15	2445228.0	-47.53165	28.65201	16.35838	-0.61856	-0.82256	-0.28319	57.86011	1.06743	148.92	16.42
82/ 9/16	2445228.5	-51.35995	22.88066	14.32283	-0.51066	-0.87947	-0.31710	58.02165	1.06527	155.99	14.29
82/ 9/16	2445229.0	-54.43441	16.76948	12.07432	-0.39629	-0.92281	-0.34600	58.22464	1.06223	162.88	11.97
82/ 9/17	2445229.5	-56.71804	10.41211	9.64819	-0.27748	-0.95212	-0.36949	58.46739	1.05833	169.60	9.50
82/ 9/17	2445230.0	-58.18776	3.90413	7.08196	-0.15629	-0.96728	-0.38734	58.74701	1.05361	176.16	6.92

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
82/ 9/18	2445230.5	-58.83422	-2.65891	4.41443	-0.03471	-0.96843	-0.39940	59.05949	1.04813	182.59	4.29
82/ 9/18	2445231.0	-58.66137	-9.18343	1.68488	0.08535	-0.95600	-0.40566	59.39975	1.04200	188.90	1.63
82/ 9/19	2445231.5	-57.68550	-15.57947	-1.06776	0.20213	-0.93062	-0.40624	59.76184	1.03534	195.11	-1.02
82/ 9/19	2445232.0	-55.93424	-21.76213	-3.80553	0.31407	-0.89313	-0.40131	60.13910	1.02829	201.26	-3.63
82/ 9/20	2445232.5	-53.44519	-27.65259	-6.49207	0.41979	-0.84451	-0.39116	60.52438	1.02099	207.36	-6.16
82/ 9/20	2445233.0	-50.26457	-33.17902	-9.09306	0.51811	-0.78582	-0.37611	60.91025	1.01361	213.43	-8.59
82/ 9/21	2445233.5	-46.44586	-38.27702	-11.57659	0.60807	-0.71819	-0.35654	61.28919	1.00631	219.49	-10.89
82/ 9/21	2445234.0	-42.04844	-42.88994	-13.91338	0.68888	-0.64277	-0.33285	61.65387	0.99925	225.57	-13.04
82/ 9/22	2445234.5	-37.13640	-46.96893	-16.07697	0.75994	-0.56072	-0.30546	61.99727	0.99258	231.67	-15.03
82/ 9/22	2445235.0	-31.77742	-50.47289	-18.04373	0.82079	-0.47315	-0.27480	62.31287	0.98645	237.81	-16.83
82/ 9/23	2445235.5	-26.04184	-53.36824	-19.79293	0.87110	-0.38118	-0.24129	62.59478	0.98099	243.99	-18.43
82/ 9/23	2445236.0	-20.00185	-55.62870	-21.30667	0.91066	-0.28585	-0.20534	62.83789	0.97630	250.22	-19.82
82/ 9/24	2445236.5	-13.73082	-57.23499	-22.56987	0.93931	-0.18817	-0.16737	63.03791	0.97249	256.51	-20.98
82/ 9/24	2445237.0	-7.30278	-58.17457	-23.57018	0.95701	-0.08913	-0.12777	63.19149	0.96961	262.84	-21.90
82/ 9/25	2445237.5	-0.79196	-58.44139	-24.29791	0.96376	0.01034	-0.08695	63.29622	0.96773	269.22	-22.57
82/ 9/25	2445238.0	5.72760	-58.03567	-24.74603	0.95960	0.10932	-0.04527	63.35069	0.96687	275.64	-22.99
82/ 9/26	2445238.5	12.18230	-56.96375	-24.91008	0.94463	0.20691	-0.00313	63.35447	0.96703	282.07	-23.15
82/ 9/26	2445239.0	18.49936	-55.23801	-24.78822	0.91899	0.30224	0.03909	63.30813	0.96820	288.52	-23.05
82/ 9/27	2445239.5	24.60707	-52.87681	-24.38120	0.88285	0.39441	0.08101	63.21319	0.97033	294.96	-22.69
82/ 9/27	2445240.0	30.43515	-49.90453	-23.69240	0.83646	0.48254	0.12223	63.07211	0.97337	301.38	-22.06
82/ 9/28	2445240.5	35.91511	-46.35157	-22.72793	0.78010	0.56573	0.16235	62.88816	0.97722	307.77	-21.19
82/ 9/28	2445241.0	40.98068	-42.25444	-21.49664	0.71416	0.64307	0.20095	62.66545	0.98181	314.12	-20.06
82/ 9/29	2445241.5	45.56841	-37.65584	-20.01027	0.63908	0.71365	0.23761	62.40876	0.98701	320.43	-18.70
82/ 9/29	2445242.0	49.61826	-32.60470	-18.28345	0.55543	0.77655	0.27188	62.12345	0.99270	326.69	-17.12
82/ 9/30	2445242.5	53.07434	-27.15614	-16.33386	0.46387	0.83086	0.30331	61.81534	0.99875	332.90	-15.32
82/ 9/30	2445243.0	55.88579	-21.37138	-14.18220	0.36522	0.87568	0.33147	61.49059	1.00503	339.07	-13.33
82/10/ 1	2445243.5	58.00770	-15.31755	-11.85220	0.26043	0.91018	0.35590	61.15550	1.01139	345.21	-11.17
82/10/ 1	2445244.0	59.40211	-9.06731	-9.37060	0.15059	0.93356	0.37617	60.81640	1.01770	351.32	-8.86
82/10/ 2	2445244.5	60.03906	-2.69825	-6.76698	0.03698	0.94516	0.39187	60.47943	1.02384	357.43	-6.42
82/10/ 2	2445245.0	59.89766	3.70779	-4.07357	-0.07900	0.94440	0.40263	60.15041	1.02968	3.54	-3.88
82/10/ 3	2445245.5	58.96703	10.06572	-1.32494	-0.19581	0.93090	0.40813	59.83465	1.03513	9.69	-1.27
82/10/ 3	2445246.0	57.24721	16.28838	1.44244	-0.31176	0.90444	0.40813	59.53683	1.04008	15.88	1.39
82/10/ 4	2445246.5	54.74981	22.28790	4.19067	-0.42512	0.86503	0.40245	59.26090	1.04449	22.15	4.06
82/10/ 4	2445247.0	51.49853	27.97724	6.88101	-0.53408	0.81291	0.39103	59.00994	1.04831	28.51	6.70
82/10/ 5	2445247.5	47.52930	33.27181	9.47462	-0.63683	0.74856	0.37390	58.78619	1.05152	34.99	9.27
82/10/ 5	2445248.0	42.89014	38.09120	11.93318	-0.73161	0.67273	0.35119	58.59099	1.05412	41.61	11.75
82/10/ 6	2445248.5	37.64074	42.36085	14.21975	-0.81676	0.58641	0.32316	58.42489	1.05613	48.38	14.09
82/10/ 6	2445249.0	31.85163	46.01366	16.29943	-0.89074	0.49080	0.29017	58.28769	1.05759	55.31	16.24
82/10/ 7	2445249.5	25.60312	48.99145	18.14013	-0.95221	0.38733	0.25268	58.17857	1.05858	62.41	18.17
82/10/ 7	2445250.0	18.98389	51.24626	19.71323	-1.00004	0.27759	0.21124	58.09629	1.05913	69.67	19.84
82/10/ 8	2445250.5	12.08948	52.74134	20.99414	-1.03335	0.16329	0.16651	58.03928	1.05934	77.09	21.21
82/10/ 8	2445251.0	5.02046	53.45196	21.96283	-1.05152	0.04625	0.11917	58.00589	1.05926	84.63	22.25
82/10/ 9	2445251.5	-2.11930	53.36588	22.60419	-1.05421	-0.07166	0.06998	57.99447	1.05896	92.27	22.94
82/10/ 9	2445252.0	-9.22465	52.48362	22.90831	-1.04137	-0.18854	0.01972	58.00358	1.05848	99.97	23.26
82/10/10	2445252.5	-16.19097	50.81837	22.87067	-1.01322	-0.30256	-0.03081	58.03207	1.05787	107.67	23.21

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/10/10	2445253.0	-22.91606	48.39571	22.49216	-0.97024	-0.41191	-0.08080	58.07916	1.05715	115.34	22.78
82/10/11	2445253.5	-29.30196	45.25310	21.77907	-0.91320	-0.51488	-0.12948	58.14444	1.05631	122.92	22.00
82/10/11	2445254.0	-35.25656	41.43909	20.74290	-0.84307	-0.60992	-0.17609	58.22793	1.05535	130.39	20.87
82/10/12	2445254.5	-40.69522	37.01240	19.40014	-0.76106	-0.69559	-0.21990	58.32995	1.05423	137.71	19.43
82/10/12	2445255.0	-45.54211	32.04073	17.77188	-0.66857	-0.77065	-0.26028	58.45111	1.05292	144.87	17.70
82/10/13	2445255.5	-49.73143	26.59954	15.88346	-0.56716	-0.83408	-0.29664	58.59210	1.05136	151.86	15.73
82/10/13	2445256.0	-53.20838	20.77053	13.76389	-0.45850	-0.88505	-0.32846	58.75365	1.04949	158.68	13.55
82/10/14	2445256.5	-55.92993	14.64017	11.44532	-0.34439	-0.92299	-0.35534	58.93630	1.04727	165.33	11.20
82/10/14	2445257.0	-57.86528	8.29805	8.96238	-0.22665	-0.94755	-0.37695	59.14028	1.04466	171.84	8.72
82/10/15	2445257.5	-58.99610	1.83527	6.35157	-0.10712	-0.95862	-0.39307	59.36540	1.04160	178.22	6.14
82/10/15	2445258.0	-59.31644	-4.65718	3.65051	0.01238	-0.95635	-0.40359	59.61087	1.03809	184.49	3.51
82/10/16	2445258.5	-58.83244	-11.08996	0.89732	0.13011	-0.94108	-0.40847	59.87527	1.03412	190.68	0.86
82/10/16	2445259.0	-57.56171	-17.37681	-1.87008	0.24443	-0.91337	-0.40780	60.15647	1.02970	196.80	-1.78
82/10/17	2445259.5	-55.53253	-23.43585	-4.61454	0.35383	-0.87394	-0.40174	60.45159	1.02487	202.88	-4.38
82/10/17	2445260.0	-52.78291	-29.19062	-7.30030	0.45696	-0.82368	-0.39051	60.75708	1.01968	208.94	-6.90
82/10/18	2445260.5	-49.35943	-34.57102	-9.89337	0.55264	-0.76356	-0.37442	61.06871	1.01421	215.01	-9.32
82/10/18	2445261.0	-45.31610	-39.51391	-12.36200	0.63985	-0.69467	-0.35383	61.38173	1.00854	221.09	-11.62
82/10/19	2445261.5	-40.71310	-43.96360	-14.67697	0.71777	-0.61811	-0.32911	61.69091	1.00279	227.20	-13.76
82/10/19	2445262.0	-35.61567	-47.87212	-16.81178	0.78576	-0.53505	-0.30070	61.99073	0.99706	233.35	-15.74
82/10/20	2445262.5	-30.09289	-51.19926	-18.74284	0.84330	-0.44663	-0.26902	62.27552	0.99147	239.55	-17.52
82/10/20	2445263.0	-24.21674	-53.91256	-20.44951	0.89006	-0.35398	-0.23451	62.53956	0.98616	245.81	-19.09
82/10/21	2445263.5	-18.06110	-55.98712	-21.91415	0.92581	-0.25819	-0.19762	62.77731	0.98124	252.12	-20.43
82/10/21	2445264.0	-11.70098	-57.40536	-23.12208	0.95043	-0.16034	-0.15878	62.98348	0.97685	258.48	-21.54
82/10/22	2445264.5	-5.21183	-58.15676	-24.06153	0.96391	-0.06145	-0.11841	63.15322	0.97310	264.88	-22.40
82/10/22	2445265.0	1.33103	-58.23755	-24.72360	0.96631	0.03753	-0.07694	63.28223	0.97009	271.31	-23.00
82/10/23	2445265.5	7.85292	-57.65040	-25.10215	0.95774	0.13564	-0.03476	63.36683	0.96792	277.76	-23.34
82/10/23	2445266.0	14.28014	-56.40422	-25.19374	0.93839	0.23199	0.00773	63.40412	0.96667	284.21	-23.41
82/10/24	2445266.5	20.54036	-54.51390	-24.99759	0.90847	0.32570	0.05014	63.39204	0.96639	290.65	-23.22
82/10/24	2445267.0	26.56288	-52.00017	-24.51554	0.86824	0.41593	0.09209	63.32942	0.96712	297.06	-22.77
82/10/25	2445267.5	32.27892	-48.88949	-23.75203	0.81802	0.50184	0.13319	63.21606	0.96889	303.43	-22.07
82/10/25	2445268.0	37.62197	-45.21401	-22.71411	0.75816	0.58258	0.17306	63.05275	0.97168	309.76	-21.11
82/10/26	2445268.5	42.52805	-41.01152	-21.41147	0.68907	0.65732	0.21130	62.84131	0.97546	316.04	-19.92
82/10/26	2445269.0	46.93618	-36.32554	-19.85650	0.61121	0.72521	0.24750	62.58459	0.98018	322.26	-18.50
82/10/27	2445269.5	50.78886	-31.20531	-18.06436	0.52514	0.78541	0.28126	62.28644	0.98577	328.43	-16.86
82/10/27	2445270.0	54.03261	-25.70584	-16.05303	0.43151	0.83705	0.31216	61.95170	0.99212	334.56	-15.02
82/10/28	2445270.5	56.61872	-19.88790	-13.84339	0.33108	0.87931	0.33975	61.58610	0.99911	340.65	-12.99
82/10/28	2445271.0	58.50407	-13.81795	-11.45927	0.22474	0.91134	0.36360	61.19622	1.00660	346.71	-10.79
82/10/29	2445271.5	59.65205	-7.56791	-8.92749	0.11353	0.93236	0.38328	60.78931	1.01444	352.77	-8.44
82/10/29	2445272.0	60.03363	-1.21483	-6.27773	-0.00136	0.94165	0.39837	60.37319	1.02245	358.84	-5.97
82/10/30	2445272.5	59.62847	5.15964	-3.54249	-0.11854	0.93859	0.40846	59.95603	1.03045	4.95	-3.39
82/10/30	2445273.0	58.42610	11.47013	-0.75684	-0.23650	0.92268	0.41320	59.54616	1.03827	11.11	-0.73
82/10/31	2445273.5	56.42696	17.62849	2.04195	-0.35353	0.89363	0.41230	59.15180	1.04573	17.35	1.98
82/10/31	2445274.0	53.64349	23.54525	4.81484	-0.46780	0.85134	0.40553	58.78082	1.05265	23.70	4.70
82/11/ 1	2445274.5	50.10083	29.13114	7.52164	-0.57738	0.79598	0.39277	58.44049	1.05888	30.18	7.39
82/11/ 1	2445275.0	45.83740	34.29896	10.12172	-0.68031	0.72799	0.37403	58.13721	1.06428	36.81	10.03

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
82/11/ 2	2445275.5	40.90494	38.96563	12.57491	-0.77462	0.64814	0.34942	57.87627	1.06875	43.61	12.55
82/11/ 2	2445276.0	35.36822	43.05424	14.84234	-0.85844	0.55750	0.31923	57.66172	1.07221	50.60	14.92
82/11/ 3	2445276.5	29.30421	46.49613	16.88746	-0.93005	0.45742	0.28385	57.49620	1.07462	57.78	17.08
82/11/ 3	2445277.0	22.80076	49.23279	18.67692	-0.98798	0.34954	0.24384	57.38092	1.07598	65.15	19.00
82/11/ 4	2445277.5	15.95483	51.21752	20.18149	-1.03101	0.23570	0.19985	57.31565	1.07633	72.70	20.62
82/11/ 4	2445278.0	8.87042	52.41667	21.37678	-1.05828	0.11791	0.15264	57.29885	1.07572	80.39	21.91
82/11/ 5	2445278.5	1.65619	52.81051	22.24379	-1.06929	-0.00175	0.10306	57.32782	1.07425	88.20	22.83
82/11/ 5	2445279.0	-5.57703	52.39359	22.76939	-1.06390	-0.12115	0.05197	57.39893	1.07204	96.08	23.37
82/11/ 6	2445279.5	-12.71870	51.17466	22.94644	-1.04232	-0.23824	0.00029	57.50783	1.06920	103.96	23.52
82/11/ 6	2445280.0	-19.66093	49.17616	22.77390	-1.00513	-0.35104	-0.05112	57.64978	1.06589	111.79	23.27
82/11/ 7	2445280.5	-26.30066	46.43335	22.25657	-0.95316	-0.45774	-0.10139	57.81986	1.06222	119.53	22.64
82/11/ 7	2445281.0	-32.54149	42.99319	21.40490	-0.88754	-0.55670	-0.14972	58.01321	1.05833	127.12	21.65
82/11/ 8	2445281.5	-38.29530	38.91298	20.23449	-0.80958	-0.64652	-0.19539	58.22529	1.05432	134.54	20.34
82/11/ 8	2445282.0	-43.48346	34.25887	18.76565	-0.72077	-0.72599	-0.23775	58.45196	1.05028	141.77	18.73
82/11/ 9	2445282.5	-48.03783	29.10438	17.02279	-0.62270	-0.79414	-0.27622	58.68964	1.04628	148.79	16.86
82/11/ 9	2445283.0	-51.90138	23.52880	15.03390	-0.51706	-0.85023	-0.31033	58.93535	1.04237	155.61	14.78
82/11/10	2445283.5	-55.02865	17.61569	12.82987	-0.40557	-0.89374	-0.33969	59.18674	1.03858	162.25	12.52
82/11/10	2445284.0	-57.38592	11.45141	10.44397	-0.28997	-0.92437	-0.36399	59.44203	1.03490	168.71	10.12
82/11/11	2445284.5	-58.95121	5.12370	7.91119	-0.17199	-0.94200	-0.38303	59.69995	1.03134	175.03	7.61
82/11/11	2445285.0	-59.71409	-1.27963	5.26767	-0.05330	-0.94672	-0.39667	59.95964	1.02785	181.23	5.04
82/11/12	2445285.5	-59.67536	-7.67195	2.55019	0.06446	-0.93880	-0.40487	60.22052	1.02442	187.33	2.43
82/11/12	2445286.0	-58.84656	-13.96896	-0.20442	0.17975	-0.91866	-0.40765	60.48216	1.02099	193.35	-0.19
82/11/13	2445286.5	-57.24941	-20.08973	-2.95973	0.29111	-0.88687	-0.40510	60.74415	1.01754	199.34	-2.79
82/11/13	2445287.0	-54.91506	-25.95764	-5.68024	0.39722	-0.84412	-0.39740	61.00597	1.01403	205.30	-5.34
82/11/14	2445287.5	-51.88336	-31.50122	-8.33174	0.49685	-0.79124	-0.38477	61.26686	1.01043	211.26	-7.82
82/11/14	2445288.0	-48.20194	-36.65488	-10.88174	0.58891	-0.72914	-0.36748	61.52576	1.00673	217.25	-10.19
82/11/15	2445288.5	-43.92529	-41.35943	-13.29978	0.67247	-0.65879	-0.34586	61.78121	1.00292	223.28	-12.43
82/11/15	2445289.0	-39.11382	-45.56258	-15.55776	0.74672	-0.58126	-0.32027	62.03132	0.99901	229.36	-14.53
82/11/16	2445289.5	-33.83284	-49.21926	-17.63011	0.81101	-0.49761	-0.29111	62.27373	0.99504	235.50	-16.45
82/11/16	2445290.0	-28.15157	-52.29178	-19.49402	0.86484	-0.40894	-0.25879	62.50566	0.99104	241.70	-18.17
82/11/17	2445290.5	-22.14224	-54.74993	-21.12954	0.90784	-0.31637	-0.22375	62.72393	0.98708	247.98	-19.69
82/11/17	2445291.0	-15.87914	-56.57096	-22.51969	0.93975	-0.22098	-0.18641	62.92501	0.98322	254.32	-20.97
82/11/18	2445291.5	-9.43779	-57.73942	-23.65043	0.96046	-0.12385	-0.14722	63.10511	0.97954	260.72	-22.01
82/11/18	2445292.0	-2.89422	-58.24700	-24.51071	0.96995	-0.02600	-0.10662	63.26029	0.97613	267.16	-22.80
82/11/19	2445292.5	3.67579	-58.09229	-25.09243	0.96828	0.07156	-0.06503	63.38656	0.97310	273.62	-23.32
82/11/19	2445293.0	10.19722	-57.28051	-25.39035	0.95563	0.16787	-0.02288	63.47999	0.97054	280.09	-23.58
82/11/20	2445293.5	16.59639	-55.82319	-25.40205	0.93222	0.26203	0.01942	63.53686	0.96854	286.56	-23.57
82/11/20	2445294.0	22.80136	-53.73797	-25.12787	0.89834	0.35315	0.06147	63.55376	0.96722	292.99	-23.29
82/11/21	2445294.5	28.74233	-51.04828	-24.57081	0.85433	0.44039	0.10289	63.52773	0.96665	299.38	-22.75
82/11/21	2445295.0	34.35199	-47.78314	-23.73649	0.80058	0.52294	0.14328	63.45635	0.96691	305.71	-21.97
82/11/22	2445295.5	39.56583	-43.97701	-22.63311	0.73752	0.60001	0.18228	63.33790	0.96808	311.98	-20.94
82/11/22	2445296.0	44.32244	-39.66961	-21.27141	0.66564	0.67083	0.21950	63.17143	0.97019	318.17	-19.68
82/11/23	2445296.5	48.56386	-34.90583	-19.66469	0.58548	0.73465	0.25457	62.95685	0.97330	324.29	-18.20
82/11/23	2445297.0	52.23595	-29.73567	-17.82877	0.49763	0.79071	0.28711	62.69505	0.97739	330.35	-16.52
82/11/24	2445297.5	55.28884	-24.21421	-15.78206	0.40275	0.83826	0.31675	62.38795	0.98246	336.35	-14.65

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
82/11/24	2445298.0	57.67740	-18.40153	-13.54559	0.30159	0.87658	0.34308	62.03855	0.98846	342.31	-12.61
82/11/25	2445298.5	59.36193	-12.36269	-11.14302	0.19501	0.90493	0.36573	61.65096	0.99533	348.24	-10.41
82/11/25	2445299.0	60.30883	-6.16756	-8.60067	0.08395	0.92262	0.38429	61.23043	1.00297	354.16	-8.07
82/11/26	2445299.5	60.49150	0.10939	-5.94753	-0.03047	0.92898	0.39838	60.78327	1.01126	0.10	-5.62
82/11/26	2445300.0	59.89125	6.38941	-3.21521	-0.14702	0.92343	0.40762	60.31687	1.02004	6.09	-3.06
82/11/27	2445300.5	58.49842	12.59004	-0.43778	-0.26427	0.90546	0.41165	59.83950	1.02915	12.15	-0.42
82/11/27	2445301.0	56.31339	18.62585	2.34841	-0.38067	0.87471	0.41015	59.36022	1.03839	18.30	2.27
82/11/28	2445301.5	53.34781	24.40950	5.10507	-0.49447	0.83099	0.40289	58.88865	1.04755	24.59	4.97
82/11/28	2445302.0	49.62550	29.85306	7.79244	-0.60380	0.77432	0.38967	58.43473	1.05640	31.03	7.66
82/11/29	2445302.5	45.18340	34.86970	10.36990	-0.70668	0.70500	0.37043	58.00837	1.06472	37.66	10.30
82/11/29	2445303.0	40.07207	39.37562	12.79677	-0.80108	0.62363	0.34522	57.61916	1.07230	44.50	12.83
82/11/30	2445303.5	34.35581	43.29224	15.03320	-0.88498	0.53116	0.31424	57.27597	1.07892	51.57	15.22
82/11/30	2445304.0	28.11233	46.54851	17.04122	-0.95646	0.42888	0.27785	56.98658	1.08441	58.87	17.40
82/12/ 1	2445304.5	21.43174	49.08332	18.78582	-1.01379	0.31842	0.23656	56.75737	1.08863	66.41	19.33
82/12/ 1	2445305.0	14.41495	50.84758	20.23606	-1.05552	0.20169	0.19105	56.59298	1.09147	74.17	20.95
82/12/ 2	2445305.5	7.17151	51.80616	21.36603	-1.08057	0.08088	0.14213	56.49616	1.09287	82.12	22.22
82/12/ 2	2445306.0	-0.18312	51.93923	22.15576	-1.08828	-0.04168	0.09074	56.46764	1.09285	90.20	23.10
82/12/ 3	2445306.5	-7.53054	51.24300	22.59182	-1.07845	-0.16360	0.03786	56.50614	1.09144	98.36	23.57
82/12/ 3	2445307.0	-14.75258	49.72989	22.66767	-1.05134	-0.28252	-0.01546	56.60851	1.08875	106.52	23.60
82/12/ 4	2445307.5	-21.73442	47.42794	22.38375	-1.00767	-0.39618	-0.06820	56.76995	1.08490	114.62	23.22
82/12/ 4	2445308.0	-28.36738	44.37968	21.74731	-0.94853	-0.50258	-0.11940	56.98430	1.08007	122.59	22.44
82/12/ 5	2445308.5	-34.55139	40.64055	20.77192	-0.87536	-0.59993	-0.16815	57.24444	1.07445	130.37	21.28
82/12/ 5	2445309.0	-40.19690	36.27691	19.47685	-0.78981	-0.68677	-0.21367	57.54262	1.06823	137.93	19.78
82/12/ 6	2445309.5	-45.22627	31.36401	17.88637	-0.69373	-0.76196	-0.25529	57.87088	1.06161	145.26	18.00
82/12/ 6	2445310.0	-49.57463	25.98376	16.02883	-0.58904	-0.82466	-0.29245	58.22133	1.05478	152.34	15.98
82/12/ 7	2445310.5	-53.19031	20.22270	13.93588	-0.47770	-0.87434	-0.32474	58.58648	1.04791	159.18	13.76
82/12/ 7	2445311.0	-56.03478	14.17009	11.64166	-0.36163	-0.91073	-0.35185	58.95944	1.04115	165.81	11.39
82/12/ 8	2445311.5	-58.08238	7.91614	9.18197	-0.24269	-0.93380	-0.37357	59.33411	1.03462	172.24	8.90
82/12/ 8	2445312.0	-59.31976	1.55057	6.59366	-0.12266	-0.94374	-0.38982	59.70523	1.02842	178.50	6.34
82/12/ 9	2445312.5	-59.74522	-4.83873	3.91395	-0.00320	-0.94088	-0.40056	60.06849	1.02260	184.63	3.74
82/12/ 9	2445313.0	-59.36786	-11.16670	1.17996	0.11416	-0.92572	-0.40586	60.42044	1.01721	190.65	1.12
82/12/10	2445313.5	-58.20682	-17.35206	-1.57181	0.22799	-0.89888	-0.40584	60.75852	1.01226	196.60	-1.48
82/12/10	2445314.0	-56.29036	-23.31804	-4.30585	0.33702	-0.86106	-0.40066	61.08090	1.00774	202.50	-4.04
82/12/11	2445314.5	-53.65506	-28.99295	-6.98799	0.44008	-0.81307	-0.39055	61.38639	1.00363	208.38	-6.54
82/12/11	2445315.0	-50.34495	-34.31070	-9.58569	0.53613	-0.75575	-0.37577	61.67433	0.99990	214.27	-8.94
82/12/12	2445315.5	-46.41067	-39.21121	-12.06828	0.62425	-0.69002	-0.35662	61.94443	0.99648	220.19	-11.23
82/12/12	2445316.0	-41.90869	-43.64073	-14.40723	0.70364	-0.61683	-0.33341	62.19662	0.99335	226.16	-13.39
82/12/13	2445316.5	-36.90051	-47.55213	-16.57630	0.77362	-0.53718	-0.30651	62.43097	0.99046	232.19	-15.40
82/12/13	2445317.0	-31.45188	-50.90507	-18.55171	0.83362	-0.45209	-0.27629	62.64753	0.98775	238.29	-17.23
82/12/14	2445317.5	-25.63201	-53.66616	-20.31231	0.88318	-0.36259	-0.24314	62.84621	0.98519	244.47	-18.86
82/12/14	2445318.0	-19.51278	-55.80907	-21.83964	0.92196	-0.26972	-0.20748	63.02674	0.98276	250.73	-20.27
82/12/15	2445318.5	-13.16806	-57.31449	-23.11807	0.94974	-0.17452	-0.16972	63.18856	0.98044	257.06	-21.46
82/12/15	2445319.0	-6.67288	-58.17018	-24.13484	0.96638	-0.07802	-0.13028	63.33077	0.97824	263.46	-22.40
82/12/16	2445319.5	-0.10280	-58.37077	-24.88007	0.97186	0.01875	-0.08961	63.45215	0.97616	269.90	-23.09
82/12/16	2445320.0	6.46678	-57.91774	-25.34680	0.96625	0.11483	-0.04812	63.55111	0.97424	276.37	-23.51

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
82/12/17	2445320.5	12.96128	-56.81913	-25.53095	0.94972	0.20923	-0.00623	63.62576	0.97251	282.85	-23.66
82/12/17	2445321.0	19.30746	-55.08940	-25.43132	0.92251	0.30104	0.03562	63.67395	0.97104	289.31	-23.54
82/12/18	2445321.5	25.43406	-52.74912	-25.04949	0.88494	0.38937	0.07703	63.69331	0.96987	295.74	-23.16
82/12/18	2445322.0	31.27218	-49.82477	-24.38980	0.83740	0.47338	0.11760	63.68139	0.96910	302.11	-22.52
82/12/19	2445322.5	36.75582	-46.34842	-23.45927	0.78034	0.55224	0.15694	63.63571	0.96878	308.42	-21.63
82/12/19	2445323.0	41.82223	-42.35750	-22.26751	0.71428	0.62520	0.19468	63.55390	0.96901	314.64	-20.51
82/12/20	2445323.5	46.41232	-37.89451	-20.82669	0.63979	0.69152	0.23043	63.43381	0.96986	320.77	-19.17
82/12/20	2445324.0	50.47104	-33.00686	-19.15144	0.55748	0.75049	0.26384	63.27366	0.97140	326.82	-17.62
82/12/21	2445324.5	53.94770	-27.74657	-17.25884	0.46803	0.80145	0.29456	63.07213	0.97372	332.78	-15.88
82/12/21	2445325.0	56.79641	-22.17011	-15.16831	0.37217	0.84374	0.32223	62.82852	0.97686	338.68	-13.97
82/12/22	2445325.5	58.97646	-16.33824	-12.90164	0.27072	0.87677	0.34651	62.54289	0.98086	344.52	-11.90
82/12/22	2445326.0	60.45279	-10.31575	-10.48292	0.16452	0.89994	0.36707	62.21612	0.98575	350.32	-9.70
82/12/23	2445326.5	61.19650	-4.17133	-7.93849	0.05455	0.91269	0.38358	61.85007	0.99152	356.10	-7.37
82/12/23	2445327.0	61.18549	2.02275	-5.29693	-0.05816	0.91452	0.39570	61.44764	0.99815	1.89	-4.95
82/12/24	2445327.5	60.40510	8.19089	-2.58898	-0.17244	0.90496	0.40313	61.01287	1.00558	7.72	-2.43
82/12/24	2445328.0	58.84895	14.25463	0.15256	-0.28702	0.88363	0.40557	60.55094	1.01374	13.62	0.14
82/12/25	2445328.5	56.51970	20.13320	2.89300	-0.40048	0.85024	0.40276	60.06823	1.02250	19.61	2.76
82/12/25	2445329.0	53.43004	25.74428	5.59597	-0.51129	0.80463	0.39447	59.57224	1.03173	25.73	5.39
82/12/26	2445329.5	49.60352	31.00497	8.22375	-0.61778	0.74679	0.38054	59.07155	1.04123	32.01	8.00
82/12/26	2445330.0	45.07544	35.83306	10.73774	-0.71815	0.67694	0.36087	58.57561	1.05081	38.48	10.56
82/12/27	2445330.5	39.89355	40.14853	13.09903	-0.81053	0.59552	0.33546	58.09462	1.06025	45.18	13.03
82/12/27	2445331.0	34.11850	43.87544	15.26912	-0.89299	0.50328	0.30444	57.63915	1.06930	52.13	15.36
82/12/28	2445331.5	27.82394	46.94392	17.21081	-0.96362	0.40130	0.26807	57.21988	1.07771	59.34	17.50
82/12/28	2445332.0	21.09617	49.29247	18.88918	-1.02062	0.29096	0.22676	56.84714	1.08524	66.83	19.41
82/12/29	2445332.5	14.03315	50.87030	20.27270	-1.06237	0.17402	0.18111	56.53051	1.09166	74.58	21.02
82/12/29	2445333.0	6.74288	51.63944	21.33430	-1.08753	0.05253	0.13184	56.27834	1.09675	82.56	22.28
82/12/30	2445333.5	-0.65881	51.57679	22.05247	-1.09515	-0.07120	0.07985	56.09734	1.10037	90.73	23.15
82/12/30	2445334.0	-8.05117	50.67549	22.41211	-1.08474	-0.19469	0.02615	55.99223	1.10238	99.03	23.60
82/12/31	2445334.5	-15.31178	48.94578	22.40527	-1.05629	-0.31540	-0.02818	55.96549	1.10274	107.37	23.60
82/12/31	2445335.0	-22.32006	46.41504	22.03146	-1.01036	-0.43083	-0.08202	56.01720	1.10144	115.68	23.16
83/ 1/ 1	2445335.5	-28.96082	43.12709	21.29779	-0.94798	-0.53863	-0.13427	56.14509	1.09855	123.88	22.29
83/ 1/ 1	2445336.0	-35.12743	39.14071	20.21856	-0.87063	-0.63675	-0.18390	56.34467	1.09419	131.91	21.03
83/ 1/ 2	2445336.5	-40.72457	34.52757	18.81475	-0.78015	-0.72345	-0.22998	56.60953	1.08853	139.71	19.41
83/ 1/ 2	2445337.0	-45.67031	29.36972	17.11309	-0.67864	-0.79741	-0.27173	56.93167	1.08178	147.26	17.49
83/ 1/ 3	2445337.5	-49.89744	23.75691	15.14509	-0.56833	-0.85768	-0.30854	57.30199	1.07415	154.54	15.33
83/ 1/ 3	2445338.0	-53.35413	17.78384	12.94591	-0.45151	-0.90373	-0.33993	57.71070	1.06590	161.57	12.96
83/ 1/ 4	2445338.5	-56.00396	11.54763	10.55332	-0.33043	-0.93538	-0.36561	58.14777	1.05726	168.35	10.46
83/ 1/ 4	2445339.0	-57.82531	5.14548	8.00660	-0.20722	-0.95277	-0.38543	58.60332	1.04846	174.92	7.85
83/ 1/ 5	2445339.5	-58.81058	-1.32721	5.34569	-0.08385	-0.95630	-0.39934	59.06794	1.03971	181.29	5.19
83/ 1/ 5	2445340.0	-58.96491	-7.77841	2.61035	0.03787	-0.94654	-0.40742	59.53300	1.03120	187.51	2.51
83/ 1/ 6	2445340.5	-58.30499	-14.12071	-0.16043	0.15634	-0.92427	-0.40984	59.99077	1.02308	193.61	-0.15
83/ 1/ 6	2445341.0	-56.85770	-20.27215	-2.92899	0.27015	-0.89034	-0.40681	60.43457	1.01547	199.62	-2.78
83/ 1/ 7	2445341.5	-54.65883	-26.15689	-5.65935	0.37808	-0.84568	-0.39861	60.85884	1.00847	205.57	-5.34
83/ 1/ 7	2445342.0	-51.75190	-31.70555	-8.31753	0.47908	-0.79126	-0.38555	61.25914	1.00213	211.49	-7.80
83/ 1/ 8	2445342.5	-48.18702	-36.85550	-10.87174	0.57223	-0.72811	-0.36797	61.63206	0.99649	217.41	-10.16

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/ 1/ 8	2445343.0	-44.01994	-41.55094	-13.29256	0.65679	-0.65722	-0.34622	61.97522	0.99155	223.35	-12.39
83/ 1/ 9	2445343.5	-39.31115	-45.74299	-15.55302	0.73210	-0.57963	-0.32068	62.28712	0.98731	229.32	-14.46
83/ 1/ 9	2445344.0	-34.12507	-49.38965	-17.62872	0.79765	-0.49634	-0.29172	62.56701	0.98372	235.36	-16.37
83/ 1/10	2445344.5	-28.52936	-52.45579	-19.49784	0.85300	-0.40837	-0.25974	62.81481	0.98073	241.46	-18.08
83/ 1/10	2445345.0	-22.59424	-54.91309	-21.14123	0.89782	-0.31672	-0.22513	63.03093	0.97830	247.64	-19.60
83/ 1/11	2445345.5	-16.39192	-56.74003	-22.54241	0.93187	-0.22239	-0.18829	63.21618	0.97636	253.89	-20.89
83/ 1/11	2445346.0	-9.99599	-57.92179	-23.68766	0.95497	-0.12637	-0.14963	63.37159	0.97485	260.21	-21.95
83/ 1/12	2445346.5	-3.48084	-58.45024	-24.56602	0.96706	-0.02964	-0.10955	63.49831	0.97370	266.59	-22.76
83/ 1/12	2445347.0	3.07888	-58.32381	-25.16931	0.96814	0.06685	-0.06847	63.59749	0.97286	273.02	-23.31
83/ 1/13	2445347.5	9.60882	-57.54745	-25.49215	0.95829	0.16213	-0.02680	63.67015	0.97228	279.48	-23.60
83/ 1/13	2445348.0	16.03548	-56.13249	-25.53199	0.93768	0.25527	0.01503	63.71716	0.97192	285.94	-23.62
83/ 1/14	2445348.5	22.28677	-54.09651	-25.28909	0.90655	0.34536	0.05662	63.73908	0.97176	292.39	-23.38
83/ 1/14	2445349.0	28.29255	-51.46317	-24.76651	0.86524	0.43152	0.09755	63.73622	0.97179	298.80	-22.87
83/ 1/15	2445349.5	33.98515	-48.26202	-23.97007	0.81415	0.51289	0.13742	63.70854	0.97200	305.15	-22.10
83/ 1/15	2445350.0	39.29993	-44.52830	-22.90834	0.75376	0.58865	0.17583	63.65569	0.97241	311.43	-21.09
83/ 1/16	2445350.5	44.17578	-40.30264	-21.59254	0.68463	0.65803	0.21238	63.57704	0.97305	317.63	-19.85
83/ 1/16	2445351.0	48.55558	-35.63078	-20.03649	0.60739	0.72029	0.24671	63.47171	0.97397	323.73	-18.40
83/ 1/17	2445351.5	52.38671	-30.56331	-18.25652	0.52274	0.77474	0.27844	63.33864	0.97520	329.74	-16.75
83/ 1/17	2445352.0	55.62147	-25.15529	-16.27139	0.43142	0.82075	0.30723	63.17669	0.97680	335.66	-14.92
83/ 1/18	2445352.5	58.21754	-19.46596	-14.10217	0.33428	0.85772	0.33275	62.98473	0.97885	341.51	-12.94
83/ 1/18	2445353.0	60.13841	-13.55835	-11.77216	0.23220	0.88512	0.35466	62.76178	0.98140	347.29	-10.81
83/ 1/19	2445353.5	61.35382	-7.49893	-9.30674	0.12612	0.90247	0.37268	62.50712	0.98451	353.03	-8.56
83/ 1/19	2445354.0	61.84015	-1.35724	-6.73328	0.01708	0.90935	0.38652	62.22044	0.98823	358.74	-6.21
83/ 1/20	2445354.5	61.58092	4.79454	-4.08101	-0.09385	0.90540	0.39592	61.90195	0.99262	4.45	-3.78
83/ 1/20	2445355.0	60.56724	10.88205	-1.38083	-0.20550	0.89033	0.40063	61.55255	0.99771	10.19	-1.29
83/ 1/21	2445355.5	58.79833	16.82920	1.33480	-0.31665	0.86393	0.40044	61.17391	1.00349	15.97	1.25
83/ 1/21	2445356.0	56.28204	22.55883	4.03207	-0.42597	0.82608	0.39518	60.76863	1.00996	21.84	3.80
83/ 1/22	2445356.5	53.03543	27.99331	6.67609	-0.53207	0.77678	0.38470	60.34030	1.01709	27.83	6.35
83/ 1/22	2445357.0	49.08533	33.05542	9.23113	-0.63345	0.71616	0.36890	59.89361	1.02481	33.96	8.87
83/ 1/23	2445357.5	44.46890	37.66933	11.66104	-0.72857	0.64449	0.34775	59.43434	1.03301	40.27	11.31
83/ 1/23	2445358.0	39.23405	41.76171	13.92967	-0.81579	0.56225	0.32129	58.96937	1.04157	46.79	13.66
83/ 1/24	2445358.5	33.43986	45.26317	16.00143	-0.89346	0.47013	0.28964	58.50662	1.05033	53.54	15.87
83/ 1/24	2445359.0	27.15667	48.10976	17.84195	-0.95992	0.36905	0.25305	58.05488	1.05909	60.56	17.90
83/ 1/25	2445359.5	20.46594	50.24479	19.41884	-1.01354	0.26023	0.21187	57.62364	1.06765	67.84	19.69
83/ 1/25	2445360.0	13.45974	51.62066	20.70256	-1.05284	0.14515	0.16657	57.22283	1.07577	75.39	21.21
83/ 1/26	2445360.5	6.23970	52.20084	21.66736	-1.07648	0.02559	0.11780	56.86243	1.08321	83.18	22.40
83/ 1/26	2445361.0	-1.08448	51.96173	22.29220	-1.08344	-0.09642	0.06632	56.55210	1.08974	91.20	23.22
83/ 1/27	2445361.5	-8.39717	50.89429	22.56168	-1.07301	-0.21862	0.01303	56.30072	1.09513	99.37	23.62
83/ 1/27	2445362.0	-15.57945	49.00532	22.46686	-1.04493	-0.33861	-0.04108	56.11595	1.09919	107.64	23.60
83/ 1/28	2445362.5	-22.51220	46.31815	22.00587	-0.99940	-0.45391	-0.09492	56.00383	1.10175	115.92	23.14
83/ 1/28	2445363.0	-29.07943	42.87275	21.18425	-0.93715	-0.56212	-0.14738	55.96837	1.10270	124.15	22.24
83/ 1/29	2445363.5	-35.17174	38.72494	20.01498	-0.85940	-0.66097	-0.19739	56.01136	1.10201	132.25	20.94
83/ 1/29	2445364.0	-40.68952	33.94498	18.51822	-0.76781	-0.74848	-0.24393	56.13220	1.09966	140.16	19.26
83/ 1/30	2445364.5	-45.54574	28.61544	16.72064	-0.66442	-0.82302	-0.28609	56.32795	1.09574	147.86	17.27
83/ 1/30	2445365.0	-49.66815	22.82854	14.65452	-0.55152	-0.88337	-0.32312	56.59348	1.09037	155.32	15.01

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
83/ 1/31	2445365.5	-53.00063	16.68326	12.35663	-0.43157	-0.92876	-0.35445	56.92174	1.08373	162.53	12.54
83/ 1/31	2445366.0	-55.50386	10.28231	9.86702	-0.30706	-0.95884	-0.37968	57.30412	1.07602	169.50	9.91
83/ 2/ 1	2445366.5	-57.15513	3.72932	7.22780	-0.18039	-0.97369	-0.39861	57.73090	1.06748	176.27	7.19
83/ 2/ 1	2445367.0	-57.94763	-2.87375	4.48192	-0.05383	-0.97373	-0.41118	58.19170	1.05835	182.84	4.42
83/ 2/ 2	2445367.5	-57.88920	-9.42873	1.67222	0.07056	-0.95963	-0.41748	58.67586	1.04888	189.25	1.63
83/ 2/ 2	2445368.0	-57.00078	-15.84291	-1.15953	0.19098	-0.93231	-0.41773	59.17289	1.03932	195.53	-1.12
83/ 2/ 3	2445368.5	-55.31474	-22.03029	-3.97327	0.30586	-0.89284	-0.41222	59.67278	1.02987	201.72	-3.82
83/ 2/ 3	2445369.0	-52.87314	-27.91236	-6.73118	0.41389	-0.84236	-0.40131	60.16625	1.02075	207.83	-6.42
83/ 2/ 4	2445369.5	-49.72609	-33.41859	-9.39806	0.51401	-0.78206	-0.38540	60.64495	1.01211	213.90	-8.91
83/ 2/ 4	2445370.0	-45.93026	-38.48659	-11.94152	0.60535	-0.71315	-0.36494	61.10161	1.00409	219.96	-11.27
83/ 2/ 5	2445370.5	-41.54754	-43.06209	-14.33215	0.68721	-0.63682	-0.34035	61.53010	0.99682	226.03	-13.47
83/ 2/ 5	2445371.0	-36.64390	-47.09882	-16.54353	0.75909	-0.55424	-0.31208	61.92546	0.99036	232.12	-15.49
83/ 2/ 6	2445371.5	-31.28839	-50.55821	-18.55225	0.82059	-0.46653	-0.28058	62.28388	0.98475	238.25	-17.33
83/ 2/ 6	2445372.0	-25.55236	-53.40920	-20.33788	0.87142	-0.37476	-0.24628	62.60268	0.98004	244.43	-18.96
83/ 2/ 7	2445372.5	-19.50874	-55.62789	-21.88291	0.91140	-0.27998	-0.20960	62.88016	0.97620	250.67	-20.37
83/ 2/ 7	2445373.0	-13.23147	-57.19732	-23.17269	0.94040	-0.18320	-0.17097	63.11560	0.97322	256.97	-21.54
83/ 2/ 8	2445373.5	-6.79503	-58.10721	-24.19542	0.95840	-0.08539	-0.13081	63.30907	0.97104	263.33	-22.47
83/ 2/ 8	2445374.0	-0.27396	-58.35380	-24.94206	0.96540	0.01251	-0.08951	63.46138	0.96962	269.73	-23.14
83/ 2/ 9	2445374.5	6.25757	-57.93965	-25.40633	0.96150	0.10957	-0.04749	63.57390	0.96889	276.16	-23.56
83/ 2/ 9	2445375.0	12.72612	-56.87353	-25.58469	0.94683	0.20488	-0.00515	63.64848	0.96876	282.61	-23.70
83/ 2/10	2445375.5	19.05943	-55.17029	-25.47634	0.92161	0.29756	0.03710	63.68726	0.96916	289.06	-23.58
83/ 2/10	2445376.0	25.18686	-52.85078	-25.08320	0.88609	0.38672	0.07887	63.69262	0.97002	295.48	-23.19
83/ 2/11	2445376.5	31.03982	-49.94169	-24.40992	0.84062	0.47151	0.11976	63.66700	0.97124	301.86	-22.54
83/ 2/11	2445377.0	36.55225	-46.47547	-23.46390	0.78561	0.55110	0.15935	63.61282	0.97277	308.18	-21.65
83/ 2/12	2445377.5	41.66117	-42.49018	-22.25525	0.72155	0.62466	0.19725	63.53239	0.97455	314.44	-20.51
83/ 2/12	2445378.0	46.30715	-38.02930	-20.79675	0.64901	0.69141	0.23306	63.42779	0.97651	320.61	-19.14
83/ 2/13	2445378.5	50.43494	-33.14151	-19.10386	0.56865	0.75060	0.26640	63.30087	0.97864	326.69	-17.57
83/ 2/13	2445379.0	53.99396	-27.88039	-17.19461	0.48119	0.80154	0.29688	63.15313	0.98089	332.69	-15.80
83/ 2/14	2445379.5	56.93891	-22.30411	-15.08954	0.38746	0.84356	0.32416	62.98576	0.98326	338.61	-13.86
83/ 2/14	2445380.0	59.23031	-16.47504	-12.81156	0.28836	0.87609	0.34789	62.79962	0.98576	344.46	-11.77
83/ 2/15	2445380.5	60.83503	-10.45928	-10.38584	0.18486	0.89861	0.36774	62.59523	0.98839	350.24	-9.55
83/ 2/15	2445381.0	61.72684	-4.32617	-7.83961	0.07802	0.91068	0.38343	62.37289	0.99118	355.99	-7.22
83/ 2/16	2445381.5	61.88684	1.85227	-5.20201	-0.03105	0.91195	0.39468	62.13270	0.99417	1.71	-4.80
83/ 2/16	2445382.0	61.30394	8.00196	-2.50382	-0.14115	0.90215	0.40128	61.87465	0.99741	7.44	-2.32
83/ 2/17	2445382.5	59.97526	14.04740	0.22273	-0.25106	0.88114	0.40303	61.59878	1.00094	13.18	0.21
83/ 2/17	2445383.0	57.90650	19.91239	2.94428	-0.35947	0.84887	0.39978	61.30525	1.00480	18.98	2.75
83/ 2/18	2445383.5	55.11224	25.52078	5.62659	-0.46506	0.80539	0.39143	60.99449	1.00904	24.85	5.29
83/ 2/18	2445384.0	51.61627	30.79728	8.23489	-0.56646	0.75091	0.37792	60.66733	1.01369	30.82	7.80
83/ 2/19	2445384.5	47.45174	35.66834	10.73423	-0.66225	0.68574	0.35926	60.32513	1.01876	36.93	10.25
83/ 2/19	2445385.0	42.66141	40.06311	13.08989	-0.75101	0.61035	0.33551	59.96994	1.02427	43.20	12.61
83/ 2/20	2445385.5	37.29767	43.91446	15.26778	-0.83133	0.52539	0.30679	59.60454	1.03018	49.66	14.84
83/ 2/20	2445386.0	31.42257	47.16013	17.23496	-0.90178	0.43165	0.27333	59.23259	1.03646	56.32	16.92
83/ 2/21	2445386.5	25.10761	49.74391	18.96020	-0.96100	0.33012	0.23541	58.85863	1.04303	63.22	18.79
83/ 2/21	2445387.0	18.43338	51.61699	20.41454	-1.00766	0.22200	0.19341	58.48809	1.04979	70.35	20.43
83/ 2/22	2445387.5	11.48901	52.73928	21.57194	-1.04058	0.10867	0.14781	58.12725	1.05663	77.71	21.78

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/ 2/22	2445388.0	4.37124	53.08081	22.40999	-1.05871	-0.00827	0.09921	57.78311	1.06338	85.29	22.82
83/ 2/23	2445388.5	-2.81677	52.62308	22.91061	-1.06120	-0.12703	0.04829	57.46320	1.06987	93.06	23.50
83/ 2/23	2445389.0	-9.96702	51.36034	23.06071	-1.04748	-0.24565	-0.00415	57.17537	1.07591	100.98	23.79
83/ 2/24	2445389.5	-16.96864	49.30060	22.85289	-1.01730	-0.36202	-0.05725	56.92749	1.08131	108.99	23.67
83/ 2/24	2445390.0	-23.71022	46.46640	22.28594	-0.97075	-0.47398	-0.11004	56.72710	1.08587	117.03	23.13
83/ 2/25	2445390.5	-30.08243	42.89506	21.36526	-0.90835	-0.57933	-0.16153	56.58103	1.08941	125.04	22.19
83/ 2/25	2445391.0	-35.98088	38.63854	20.10302	-0.83104	-0.67597	-0.21073	56.49506	1.09177	132.96	20.84
83/ 2/26	2445391.5	-41.30893	33.76261	18.51813	-0.74017	-0.76193	-0.25665	56.47356	1.09282	140.74	19.14
83/ 2/26	2445392.0	-45.98045	28.34546	16.63588	-0.63749	-0.83553	-0.29840	56.51919	1.09249	148.35	17.12
83/ 2/27	2445392.5	-49.92218	22.47574	14.48734	-0.52504	-0.89537	-0.33516	56.63273	1.09073	155.76	14.82
83/ 2/27	2445393.0	-53.07566	16.25019	12.10853	-0.40512	-0.94047	-0.36630	56.81295	1.08756	162.98	12.31
83/ 2/28	2445393.5	-55.39849	9.77091	9.53933	-0.28016	-0.97023	-0.39131	57.05666	1.08304	170.00	9.62
83/ 2/28	2445394.0	-56.86486	3.14253	6.82238	-0.15262	-0.98450	-0.40989	57.35880	1.07729	176.84	6.83
83/ 3/ 1	2445394.5	-57.46546	-3.53048	4.00182	-0.02489	-0.98349	-0.42190	57.71272	1.07045	183.52	3.98
83/ 3/ 1	2445395.0	-57.20671	-10.14643	1.12219	0.10078	-0.96777	-0.42736	58.11039	1.06272	190.06	1.11
83/ 3/ 2	2445395.5	-56.10951	-16.60848	-1.77267	0.22238	-0.93820	-0.42644	58.54282	1.05429	196.49	-1.74
83/ 3/ 2	2445396.0	-54.20764	-22.82639	-4.64052	0.33812	-0.89587	-0.41943	59.00040	1.04539	202.84	-4.51
83/ 3/ 3	2445396.5	-51.54592	-28.71780	-7.44139	0.44653	-0.84200	-0.40673	59.47325	1.03624	209.12	-7.19
83/ 3/ 3	2445397.0	-48.17834	-34.20900	-10.13818	0.54638	-0.77792	-0.38878	59.95157	1.02705	215.38	-9.74
83/ 3/ 4	2445397.5	-44.16626	-39.23543	-12.69698	0.63671	-0.70499	-0.36607	60.42591	1.01804	221.62	-12.13
83/ 3/ 4	2445398.0	-39.57670	-43.74172	-15.08729	0.71680	-0.62455	-0.33911	60.88744	1.00939	227.86	-14.35
83/ 3/ 5	2445398.5	-34.48086	-47.68159	-17.28215	0.78614	-0.53794	-0.30844	61.32811	1.00127	234.13	-16.37
83/ 3/ 5	2445399.0	-28.95279	-51.01756	-19.25808	0.84439	-0.44643	-0.27455	61.74082	0.99381	240.42	-18.17
83/ 3/ 6	2445399.5	-23.06839	-53.72051	-20.99504	0.89134	-0.35121	-0.23795	62.11953	0.98715	246.76	-19.75
83/ 3/ 6	2445400.0	-16.90447	-55.76926	-22.47634	0.92692	-0.25343	-0.19913	62.45925	0.98136	253.14	-21.09
83/ 3/ 7	2445400.5	-10.53807	-57.15013	-23.68847	0.95114	-0.15416	-0.15855	62.75613	0.97651	259.55	-22.18
83/ 3/ 7	2445401.0	-4.04591	-57.85646	-24.62104	0.96408	-0.05441	-0.11665	63.00742	0.97263	266.00	-23.00
83/ 3/ 8	2445401.5	2.49610	-57.88827	-25.26657	0.96589	0.04486	-0.07386	63.21141	0.96974	272.47	-23.56
83/ 3/ 8	2445402.0	9.01316	-57.25193	-25.62049	0.95675	0.14274	-0.03060	63.36742	0.96782	278.95	-23.85
83/ 3/ 9	2445402.5	15.43197	-55.95986	-25.68096	0.93692	0.23835	0.01272	63.47569	0.96684	285.42	-23.86
83/ 3/ 9	2445403.0	21.68098	-54.03034	-25.44887	0.90666	0.33083	0.05572	63.53729	0.96674	291.86	-23.61
83/ 3/10	2445403.5	27.69075	-51.48738	-24.92778	0.86632	0.41936	0.09800	63.55409	0.96746	298.27	-23.09
83/ 3/10	2445404.0	33.39419	-48.36052	-24.12393	0.81628	0.50312	0.13916	63.52854	0.96892	304.63	-22.32
83/ 3/11	2445404.5	38.72702	-44.68480	-23.04616	0.75696	0.58130	0.17881	63.46368	0.97102	310.91	-21.29
83/ 3/11	2445405.0	43.62808	-40.50063	-21.70600	0.68887	0.65313	0.21658	63.36293	0.97367	317.13	-20.03
83/ 3/12	2445405.5	48.03989	-35.85365	-20.11761	0.61259	0.71784	0.25205	63.23001	0.97677	323.26	-18.55
83/ 3/12	2445406.0	51.90911	-30.79467	-18.29778	0.52876	0.77467	0.28485	63.06882	0.98023	329.32	-16.87
83/ 3/13	2445406.5	55.18710	-25.37938	-16.26592	0.43814	0.82293	0.31460	62.88330	0.98395	335.30	-14.99
83/ 3/13	2445407.0	57.83059	-19.66818	-14.04400	0.34155	0.86195	0.34092	62.67734	0.98784	341.22	-12.95
83/ 3/14	2445407.5	59.80228	-13.72578	-11.65647	0.23992	0.89111	0.36345	62.45465	0.99183	347.07	-10.76
83/ 3/14	2445408.0	61.07150	-7.62082	-9.13011	0.13429	0.90987	0.38186	62.21868	0.99585	352.89	-8.44
83/ 3/15	2445408.5	61.61488	-1.42528	-6.49391	0.02578	0.91778	0.39583	61.97254	0.99984	358.67	-6.01
83/ 3/15	2445409.0	61.41694	4.78609	-3.77882	-0.08440	0.91450	0.40511	61.71893	1.00376	4.46	-3.51
83/ 3/16	2445409.5	60.47069	10.93657	-1.01751	-0.19497	0.89978	0.40945	61.46014	1.00760	10.25	-0.95
83/ 3/16	2445410.0	58.77812	16.94830	1.75600	-0.30456	0.87352	0.40868	61.19800	1.01134	16.08	1.64

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
83/ 3/17	2445410.5	56.35057	22.74316	4.50663	-0.41176	0.83576	0.40268	60.93396	1.01498	21.98	4.24
83/ 3/17	2445411.0	53.20903	28.24382	7.19871	-0.51515	0.78669	0.39139	60.66907	1.01855	27.96	6.81
83/ 3/18	2445411.5	49.38432	33.37480	9.79639	-0.61326	0.72666	0.37481	60.40412	1.02206	34.05	9.33
83/ 3/18	2445412.0	44.91705	38.06353	12.26414	-0.70466	0.65620	0.35304	60.13969	1.02556	40.28	11.77
83/ 3/19	2445412.5	39.85750	42.24151	14.56725	-0.78792	0.57597	0.32623	59.87629	1.02907	46.66	14.08
83/ 3/19	2445413.0	34.26537	45.84543	16.67233	-0.86170	0.48684	0.29461	59.61447	1.03264	53.23	16.24
83/ 3/20	2445413.5	28.20928	48.81829	18.54787	-0.92472	0.38981	0.25851	59.35497	1.03628	59.98	18.21
83/ 3/20	2445414.0	21.76620	51.11051	20.16478	-0.97579	0.28606	0.21831	59.09881	1.04003	66.93	19.95
83/ 3/21	2445414.5	15.02064	52.68101	21.49692	-1.01387	0.17692	0.17450	58.84748	1.04388	74.09	21.43
83/ 3/21	2445415.0	8.06374	53.49818	22.52164	-1.03807	0.06386	0.12763	58.60293	1.04783	81.43	22.60
83/ 3/22	2445415.5	0.99208	53.54086	23.22029	-1.04766	-0.05151	0.07833	58.36771	1.05185	88.94	23.44
83/ 3/22	2445416.0	-6.09362	52.79914	23.57873	-1.04215	-0.16747	0.02729	58.14498	1.05587	96.58	23.92
83/ 3/23	2445416.5	-13.09002	51.27505	23.58777	-1.02127	-0.28223	-0.02472	57.93843	1.05983	104.32	24.02
83/ 3/23	2445417.0	-19.89284	48.98306	23.24354	-0.98501	-0.39391	-0.07689	57.75229	1.06364	112.10	23.73
83/ 3/24	2445417.5	-26.39881	45.95040	22.54784	-0.93368	-0.50063	-0.12836	57.59116	1.06717	119.88	23.05
83/ 3/24	2445418.0	-32.50760	42.21706	21.50832	-0.86786	-0.60051	-0.17827	57.45983	1.07031	127.60	21.98
83/ 3/25	2445418.5	-38.12405	37.83548	20.13854	-0.78847	-0.69176	-0.22574	57.36312	1.07293	135.22	20.55
83/ 3/25	2445419.0	-43.16026	32.86987	18.45793	-0.69675	-0.77270	-0.26992	57.30560	1.07489	142.71	18.79
83/ 3/26	2445419.5	-47.53767	27.39518	16.49151	-0.59421	-0.84186	-0.31001	57.29132	1.07607	150.05	16.73
83/ 3/26	2445420.0	-51.18904	21.49562	14.26944	-0.48267	-0.89798	-0.34530	57.32361	1.07636	157.22	14.41
83/ 3/27	2445420.5	-54.06001	15.26291	11.82643	-0.36412	-0.94010	-0.37516	57.40475	1.07569	164.23	11.89
83/ 3/27	2445421.0	-56.11045	8.79421	9.20092	-0.24074	-0.96759	-0.39911	57.53588	1.07400	171.09	9.20
83/ 3/28	2445421.5	-57.31517	2.18981	6.43421	-0.11477	-0.98015	-0.41681	57.71675	1.07126	177.81	6.40
83/ 3/28	2445422.0	-57.66430	-4.44919	3.56943	0.01154	-0.97784	-0.42805	57.94573	1.06749	184.41	3.53
83/ 3/29	2445422.5	-57.16299	-11.02319	0.65054	0.13601	-0.96105	-0.43280	58.21976	1.06274	190.91	0.64
83/ 3/29	2445423.0	-55.83070	-17.43623	-2.27871	0.25660	-0.93045	-0.43114	58.53444	1.05710	197.34	-2.23
83/ 3/30	2445423.5	-53.70008	-23.59785	-5.17567	0.37146	-0.88698	-0.42331	58.88416	1.05067	203.72	-5.04
83/ 3/30	2445424.0	-50.81550	-29.42468	-7.99962	0.47899	-0.83179	-0.40964	59.26230	1.04360	210.07	-7.76
83/ 3/31	2445424.5	-47.23136	-34.84152	-10.71243	0.57783	-0.76614	-0.39057	59.66145	1.03605	216.42	-10.34
83/ 3/31	2445425.0	-43.01034	-39.78219	-13.27911	0.66690	-0.69141	-0.36658	60.07368	1.02819	222.77	-12.77
83/ 4/ 1	2445425.5	-38.22164	-44.18992	-15.66811	0.74535	-0.60900	-0.33819	60.49076	1.02019	229.14	-15.01
83/ 4/ 1	2445426.0	-32.93931	-48.01748	-17.85157	0.81258	-0.52032	-0.30597	60.90447	1.01225	235.55	-17.04
83/ 4/ 2	2445426.5	-27.24072	-51.22703	-19.80540	0.86821	-0.42673	-0.27048	61.30677	1.00452	242.00	-18.85
83/ 4/ 2	2445427.0	-21.20526	-53.78985	-21.50929	0.91204	-0.32955	-0.23226	61.69004	0.99718	248.48	-20.41
83/ 4/ 3	2445427.5	-14.91317	-55.68583	-22.94660	0.94399	-0.23002	-0.19185	62.04725	0.99037	255.01	-21.70
83/ 4/ 3	2445428.0	-8.44468	-56.90300	-24.10423	0.96415	-0.12929	-0.14976	62.37209	0.98424	261.56	-22.73
83/ 4/ 4	2445428.5	-1.87918	-57.43698	-24.97250	0.97267	-0.02846	-0.10648	62.65911	0.97890	268.13	-23.49
83/ 4/ 4	2445429.0	4.70527	-57.29049	-25.54492	0.96979	0.07149	-0.06247	62.90375	0.97443	274.70	-23.96
83/ 4/ 5	2445429.5	11.23247	-56.47281	-25.81807	0.95582	0.16959	-0.01818	63.10246	0.97092	281.25	-24.15
83/ 4/ 5	2445430.0	17.62838	-54.99945	-25.79147	0.93108	0.26496	0.02598	63.25266	0.96840	287.77	-24.06
83/ 4/ 6	2445430.5	23.82139	-52.89171	-25.46740	0.89597	0.35678	0.06960	63.35282	0.96690	294.25	-23.70
83/ 4/ 6	2445431.0	29.74264	-50.17645	-24.85082	0.85090	0.44423	0.11229	63.40240	0.96643	300.66	-23.08
83/ 4/ 7	2445431.5	35.32618	-46.88585	-23.94935	0.79633	0.52654	0.15366	63.40184	0.96695	307.00	-22.19
83/ 4/ 7	2445432.0	40.50924	-43.05725	-22.77314	0.73274	0.60297	0.19335	63.35252	0.96843	313.25	-21.07
83/ 4/ 8	2445432.5	45.23257	-38.73301	-21.33492	0.66066	0.67278	0.23097	63.25670	0.97080	319.43	-19.71

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/ 4/ 8	2445433.0	49.44070	-33.96041	-19.64994	0.58071	0.73525	0.26615	63.11745	0.97399	325.52	-18.14
83/ 4/ 9	2445433.5	53.08241	-28.79158	-17.73599	0.49352	0.78967	0.29852	62.93857	0.97788	331.52	-16.37
83/ 4/ 9	2445434.0	56.11118	-23.28334	-15.61340	0.39984	0.83536	0.32770	62.72445	0.98239	337.46	-14.41
83/ 4/10	2445434.5	58.48577	-17.49705	-13.30500	0.30049	0.87167	0.35333	62.48003	0.98739	343.34	-12.30
83/ 4/10	2445435.0	60.17080	-11.49841	-10.83612	0.19638	0.89797	0.37503	62.21062	0.99276	349.18	-10.03
83/ 4/11	2445435.5	61.13753	-5.35709	-8.23450	0.08855	0.91371	0.39247	61.92175	0.99837	354.99	-7.64
83/ 4/11	2445436.0	61.36450	0.85366	-5.53014	-0.02186	0.91840	0.40532	61.61909	1.00410	0.80	-5.15
83/ 4/12	2445436.5	60.83832	7.05764	-2.75516	-0.13363	0.91166	0.41328	61.30826	1.00984	6.62	-2.58
83/ 4/12	2445437.0	59.55440	13.17640	0.05644	-0.24539	0.89320	0.41610	60.99465	1.01546	12.48	0.05
83/ 4/13	2445437.5	57.51763	19.13011	2.86916	-0.35569	0.86291	0.41358	60.68336	1.02087	18.40	2.71
83/ 4/13	2445438.0	54.74290	24.83865	5.64635	-0.46304	0.82082	0.40559	60.37901	1.02599	24.41	5.37
83/ 4/14	2445438.5	51.25559	30.22275	8.35070	-0.56585	0.76716	0.39207	60.08564	1.03075	30.53	7.99
83/ 4/14	2445439.0	47.09176	35.20530	10.94480	-0.66255	0.70234	0.37304	59.80665	1.03509	36.78	10.54
83/ 4/15	2445439.5	42.29819	39.71274	13.39175	-0.75155	0.62699	0.34864	59.54476	1.03899	43.19	13.00
83/ 4/15	2445440.0	36.93213	43.67649	15.65576	-0.83135	0.54195	0.31907	59.30195	1.04243	49.78	15.31
83/ 4/16	2445440.5	31.06080	47.03432	17.70289	-0.90053	0.44825	0.28466	59.07955	1.04542	56.56	17.44
83/ 4/16	2445441.0	24.76060	49.73173	19.50167	-0.95779	0.34715	0.24581	58.87824	1.04800	63.53	19.34
83/ 4/17	2445441.5	18.11612	51.72318	21.02375	-1.00202	0.24004	0.20304	58.69821	1.05018	70.70	20.99
83/ 4/17	2445442.0	11.21888	52.97316	22.24454	-1.03230	0.12847	0.15694	58.53920	1.05203	78.04	22.33
83/ 4/18	2445442.5	4.16585	53.45708	23.14368	-1.04793	0.01411	0.10818	58.40072	1.05359	85.54	23.35
83/ 4/18	2445443.0	-2.94211	53.16200	23.70555	-1.04846	-0.10127	0.05748	58.28213	1.05491	93.17	24.00
83/ 4/19	2445443.5	-10.00198	52.08701	23.91960	-1.03372	-0.21589	0.00561	58.18285	1.05604	100.87	24.27
83/ 4/19	2445444.0	-16.91040	50.24348	23.78068	-1.00377	-0.32791	-0.04662	58.10240	1.05701	108.60	24.16
83/ 4/20	2445444.5	-23.56544	47.65502	23.28912	-0.95898	-0.43556	-0.09839	58.04062	1.05785	116.31	23.66
83/ 4/20	2445445.0	-29.86848	44.35719	22.45086	-0.89995	-0.53710	-0.14886	57.99765	1.05856	123.95	22.77
83/ 4/21	2445445.5	-35.72593	40.39703	21.27738	-0.82757	-0.63089	-0.19724	57.97403	1.05915	131.49	21.53
83/ 4/21	2445446.0	-41.05097	35.83224	19.78551	-0.74294	-0.71540	-0.24275	57.97066	1.05957	138.88	19.96
83/ 4/22	2445446.5	-45.76514	30.73029	17.99722	-0.64743	-0.78929	-0.28466	57.98878	1.05980	146.12	18.08
83/ 4/22	2445447.0	-49.79980	25.16720	15.93919	-0.54256	-0.85140	-0.32230	58.02987	1.05977	153.19	15.94
83/ 4/23	2445447.5	-53.09739	19.22618	13.64239	-0.43007	-0.90076	-0.35508	58.09555	1.05944	160.10	13.58
83/ 4/23	2445448.0	-55.61245	12.99607	11.14143	-0.31181	-0.93666	-0.38251	58.18740	1.05871	166.85	11.04
83/ 4/24	2445448.5	-57.31247	6.56968	8.47396	-0.18972	-0.95866	-0.40419	58.30684	1.05754	173.46	8.36
83/ 4/24	2445449.0	-58.17831	0.04201	5.67994	-0.06582	-0.96656	-0.41984	58.45493	1.05586	179.96	5.58
83/ 4/25	2445449.5	-58.20441	-6.49158	2.80078	0.05791	-0.96044	-0.42931	58.63223	1.05362	186.36	2.74
83/ 4/25	2445450.0	-57.39862	-12.93716	-0.12136	0.17952	-0.94065	-0.43254	58.83864	1.05078	192.70	-0.12
83/ 4/26	2445450.5	-55.78167	-19.20396	-3.04447	0.29714	-0.90777	-0.42962	59.07331	1.04734	199.00	-2.95
83/ 4/26	2445451.0	-53.38645	-25.20597	-5.92742	0.40907	-0.86261	-0.42072	59.33454	1.04328	205.27	-5.73
83/ 4/27	2445451.5	-50.25685	-30.86329	-8.73069	0.51376	-0.80617	-0.40614	59.61978	1.03865	211.55	-8.42
83/ 4/27	2445452.0	-46.44656	-36.10332	-11.41699	0.60987	-0.73959	-0.38625	59.92562	1.03350	217.86	-10.98
83/ 4/28	2445452.5	-42.01758	-40.86164	-13.95181	0.69628	-0.66414	-0.36149	60.24786	1.02789	224.20	-13.39
83/ 4/28	2445453.0	-37.03877	-45.08260	-16.30384	0.77210	-0.58114	-0.33236	60.58156	1.02192	230.59	-15.61
83/ 4/29	2445453.5	-31.58425	-48.71968	-18.44524	0.83666	-0.49195	-0.29939	60.92125	1.01570	237.05	-17.62
83/ 4/29	2445454.0	-25.73202	-51.73559	-20.35188	0.88948	-0.39794	-0.26313	61.26098	1.00934	243.56	-19.40
83/ 4/30	2445454.5	-19.56252	-54.10219	-22.00337	0.93031	-0.30043	-0.22414	61.59454	1.00298	250.12	-20.93
83/ 4/30	2445455.0	-13.15743	-55.80014	-23.38313	0.95905	-0.20070	-0.18298	61.91562	0.99676	256.73	-22.19

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
83/ 5/ 1	2445455.5	-6.59858	-56.81857	-24.47824	0.97574	-0.09997	-0.14017	62.21797	0.99081	263.38	-23.17
83/ 5/ 1	2445456.0	0.03294	-57.15457	-25.27939	0.98055	0.00063	-0.09625	62.49555	0.98526	270.03	-23.86
83/ 5/ 2	2445456.5	6.65759	-56.81267	-25.78067	0.97376	0.10004	-0.05171	62.74269	0.98025	276.68	-24.26
83/ 5/ 2	2445457.0	13.19792	-55.80430	-25.97944	0.95571	0.19728	-0.00700	62.95424	0.97589	283.31	-24.37
83/ 5/ 3	2445457.5	19.57906	-54.14733	-25.87614	0.92682	0.29143	0.03742	63.12565	0.97228	289.88	-24.20
83/ 5/ 3	2445458.0	25.72911	-51.86556	-25.47412	0.88755	0.38164	0.08114	63.25310	0.96953	296.38	-23.75
83/ 5/ 4	2445458.5	31.57942	-48.98835	-24.77951	0.83840	0.46713	0.12376	63.33358	0.96770	302.81	-23.03
83/ 5/ 4	2445459.0	37.06481	-45.55026	-23.80106	0.77989	0.54714	0.16489	63.36495	0.96684	309.14	-22.06
83/ 5/ 5	2445459.5	42.12383	-41.59078	-22.55008	0.71259	0.62097	0.20417	63.34600	0.96699	315.36	-20.85
83/ 5/ 5	2445460.0	46.69894	-37.15413	-21.04034	0.63709	0.68794	0.24124	63.27650	0.96817	321.49	-19.42
83/ 5/ 6	2445460.5	50.73677	-32.28902	-19.28803	0.55404	0.74738	0.27574	63.15718	0.97035	327.53	-17.78
83/ 5/ 6	2445461.0	54.18844	-27.04859	-17.31174	0.46412	0.79866	0.30733	62.98976	0.97351	333.47	-15.95
83/ 5/ 7	2445461.5	57.00985	-21.49026	-15.13241	0.36807	0.84116	0.33564	62.77694	0.97759	339.35	-13.95
83/ 5/ 7	2445462.0	59.16219	-15.67556	-12.77336	0.26669	0.87427	0.36034	62.52237	0.98250	345.16	-11.79
83/ 5/ 8	2445462.5	60.61238	-9.67005	-10.26023	0.16088	0.89741	0.38108	62.23056	0.98816	350.94	-9.49
83/ 5/ 8	2445463.0	61.33374	-3.54302	-7.62097	0.05164	0.91006	0.39753	61.90686	0.99444	356.69	-7.07
83/ 5/ 9	2445463.5	61.30662	2.63275	-4.88577	-0.05994	0.91173	0.40936	61.55732	1.00121	2.46	-4.55
83/ 5/ 9	2445464.0	60.51920	8.78149	-2.08695	-0.17266	0.90202	0.41627	61.18859	1.00833	8.26	-1.95
83/ 5/10	2445464.5	58.96823	14.82499	0.74125	-0.28518	0.88061	0.41799	60.80775	1.01564	14.11	0.70
83/ 5/10	2445465.0	56.65988	20.68336	3.56291	-0.39606	0.84734	0.41430	60.42216	1.02298	20.05	3.38
83/ 5/11	2445465.5	53.61043	26.27604	6.34077	-0.50375	0.80217	0.40504	60.03927	1.03019	26.11	6.06
83/ 5/11	2445466.0	49.84697	31.52294	9.03672	-0.60663	0.74527	0.39011	59.66639	1.03712	32.31	8.71
83/ 5/12	2445466.5	45.40782	36.34582	11.61234	-0.70300	0.67704	0.36951	59.31050	1.04361	38.67	11.29
83/ 5/12	2445467.0	40.34280	40.66983	14.02954	-0.79116	0.59809	0.34336	58.97800	1.04954	45.23	13.76
83/ 5/13	2445467.5	34.71313	44.42517	16.25133	-0.86946	0.50928	0.31186	58.67455	1.05479	52.00	16.08
83/ 5/13	2445468.0	28.59103	47.54883	18.24263	-0.93632	0.41176	0.27536	58.40489	1.05928	58.98	18.20
83/ 5/14	2445468.5	22.05887	49.98624	19.97106	-0.99033	0.30689	0.23432	58.17268	1.06294	66.19	20.08
83/ 5/14	2445469.0	15.20798	51.69289	21.40781	-1.03026	0.19626	0.18933	57.98044	1.06574	73.61	21.67
83/ 5/15	2445469.5	8.13706	52.63568	22.52837	-1.05516	0.08163	0.14108	57.82952	1.06768	81.21	22.93
83/ 5/15	2445470.0	0.95030	52.79399	23.31319	-1.06438	-0.03507	0.09033	57.72013	1.06878	88.97	23.82
83/ 5/16	2445470.5	-6.24476	52.16042	23.74827	-1.05759	-0.15187	0.03794	57.65143	1.06911	96.83	24.33
83/ 5/16	2445471.0	-13.33950	50.74112	23.82545	-1.03479	-0.26676	-0.01520	57.62165	1.06873	104.73	24.42
83/ 5/17	2445471.5	-20.22651	48.55570	23.54268	-0.99633	-0.37777	-0.06820	57.62834	1.06773	112.61	24.11
83/ 5/17	2445472.0	-26.80181	45.63684	22.90403	-0.94288	-0.48304	-0.12014	57.66847	1.06620	120.43	23.40
83/ 5/18	2445472.5	-32.96700	42.02945	21.91953	-0.87541	-0.58082	-0.17018	57.73875	1.06426	128.11	22.31
83/ 5/18	2445473.0	-38.63107	37.78961	20.60490	-0.79513	-0.66955	-0.21750	57.83576	1.06200	135.63	20.87
83/ 5/19	2445473.5	-43.71204	32.98326	18.98113	-0.70348	-0.74790	-0.26135	57.95619	1.05950	142.96	19.12
83/ 5/19	2445474.0	-48.13828	27.68472	17.07395	-0.60207	-0.81472	-0.30109	58.09697	1.05684	150.10	17.09
83/ 5/20	2445474.5	-51.84955	21.97513	14.91325	-0.49265	-0.86915	-0.33613	58.25536	1.05409	157.03	14.83
83/ 5/20	2445475.0	-54.79769	15.94079	12.53242	-0.37704	-0.91053	-0.36602	58.42908	1.05128	163.78	12.39
83/ 5/21	2445475.5	-56.94713	9.67156	9.96769	-0.25711	-0.93847	-0.39038	58.61629	1.04844	170.36	9.79
83/ 5/21	2445476.0	-58.27505	3.25922	7.25739	-0.13476	-0.95278	-0.40897	58.81559	1.04557	176.80	7.09
83/ 5/22	2445476.5	-58.77136	-3.20410	4.44132	-0.01185	-0.95354	-0.42160	59.02596	1.04266	183.12	4.32
83/ 5/22	2445477.0	-58.43842	-9.62735	1.56003	0.10981	-0.94102	-0.42822	59.24668	1.03969	189.36	1.51
83/ 5/23	2445477.5	-57.29064	-15.92204	-1.34584	0.22849	-0.91567	-0.42887	59.47722	1.03663	195.53	-1.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
83/ 5/23	2445478.0	-55.35377	-22.00343	-4.23620	0.34256	-0.87816	-0.42367	59.71713	1.03344	201.68	-4.07
83/ 5/24	2445478.5	-52.66415	-27.79178	-7.07208	0.45053	-0.82928	-0.41283	59.96591	1.03010	207.82	-6.77
83/ 5/24	2445479.0	-49.26778	-33.21329	-9.81618	0.55105	-0.77000	-0.39662	60.22287	1.02658	213.99	-9.38
83/ 5/25	2445479.5	-45.21922	-38.20101	-12.43338	0.64293	-0.70137	-0.37542	60.48705	1.02285	220.19	-11.86
83/ 5/25	2445480.0	-40.58047	-42.69552	-14.89114	0.72517	-0.62456	-0.34961	60.75713	1.01891	226.45	-14.19
83/ 5/26	2445480.5	-35.41980	-46.64547	-17.15985	0.79693	-0.54078	-0.31967	61.03132	1.01476	232.79	-16.33
83/ 5/26	2445481.0	-29.81043	-50.00791	-19.21314	0.85757	-0.45128	-0.28609	61.30740	1.01041	239.20	-18.26
83/ 5/27	2445481.5	-23.82940	-52.74847	-21.02806	0.90662	-0.35735	-0.24937	61.58263	1.00591	245.69	-19.97
83/ 5/27	2445482.0	-17.55628	-54.84140	-22.58520	0.94379	-0.26025	-0.21005	61.85381	1.00129	252.25	-21.42
83/ 5/28	2445482.5	-11.07213	-56.26946	-23.86878	0.96893	-0.16122	-0.16868	62.11733	0.99663	258.87	-22.60
83/ 5/28	2445483.0	-4.45836	-57.02361	-24.86661	0.98207	-0.06145	-0.12576	62.36920	0.99200	265.53	-23.50
83/ 5/29	2445483.5	2.20412	-57.10273	-25.57007	0.98335	0.03793	-0.08184	62.60518	0.98748	272.21	-24.11
83/ 5/29	2445484.0	8.83579	-56.51319	-25.97399	0.97303	0.13583	-0.03739	62.82086	0.98317	278.89	-24.42
83/ 5/30	2445484.5	15.35919	-55.26837	-26.07649	0.95145	0.23126	0.00709	63.01175	0.97917	285.53	-24.45
83/ 5/30	2445485.0	21.69952	-53.38820	-25.87889	0.91904	0.32330	0.05115	63.17346	0.97559	292.12	-24.18
83/ 5/31	2445485.5	27.78513	-50.89868	-25.38549	0.87632	0.41106	0.09437	63.30175	0.97253	298.63	-23.64
83/ 5/31	2445486.0	33.54791	-47.83142	-24.60345	0.82381	0.49377	0.13632	63.39272	0.97008	305.04	-22.84
83/ 6/ 1	2445486.5	38.92361	-44.22325	-23.54262	0.76212	0.57067	0.17663	63.44287	0.96834	311.35	-21.78
83/ 6/ 1	2445487.0	43.85210	-40.11580	-22.21540	0.69186	0.64109	0.21492	63.44926	0.96740	317.55	-20.50
83/ 6/ 2	2445487.5	48.27763	-35.55521	-20.63663	0.61371	0.70438	0.25085	63.40957	0.96732	323.63	-18.99
83/ 6/ 2	2445488.0	52.14904	-30.59186	-18.82348	0.52835	0.75993	0.28408	63.32225	0.96817	329.60	-17.29
83/ 6/ 3	2445488.5	55.41998	-25.28006	-16.79536	0.43652	0.80717	0.31428	63.18655	0.96997	335.48	-15.41
83/ 6/ 3	2445489.0	58.04921	-19.67796	-14.57389	0.33899	0.84557	0.34112	63.00263	0.97276	341.27	-13.37
83/ 6/ 4	2445489.5	60.00088	-13.84728	-12.18282	0.23658	0.87459	0.36431	62.77160	0.97652	347.00	-11.19
83/ 6/ 4	2445490.0	61.24492	-7.85316	-9.64801	0.13019	0.89375	0.38352	62.49557	0.98123	352.69	-8.88
83/ 6/ 5	2445490.5	61.75750	-1.76397	-6.99737	0.02076	0.90259	0.39846	62.17768	0.98685	358.36	-6.46
83/ 6/ 5	2445491.0	61.52158	4.34893	-4.26084	-0.09066	0.90069	0.40884	61.82210	0.99328	4.04	-3.95
83/ 6/ 6	2445491.5	60.52751	10.41154	-1.47024	-0.20292	0.88768	0.41438	61.43403	1.00043	9.76	-1.37
83/ 6/ 6	2445492.0	58.77374	16.34766	1.34075	-0.31478	0.86329	0.41482	61.01963	1.00819	15.54	1.26
83/ 6/ 7	2445492.5	56.26758	22.07947	4.13690	-0.42486	0.82733	0.40996	60.58595	1.01639	21.43	3.92
83/ 6/ 7	2445493.0	53.02596	27.52830	6.88160	-0.53170	0.77974	0.39960	60.14080	1.02488	27.44	6.57
83/ 6/ 8	2445493.5	49.07616	32.61563	9.53725	-0.63371	0.72061	0.38365	59.69261	1.03347	33.61	9.19
83/ 6/ 8	2445494.0	44.45649	37.26429	12.06575	-0.72922	0.65027	0.36206	59.25022	1.04197	39.97	11.75
83/ 6/ 9	2445494.5	39.21673	41.39992	14.42909	-0.81652	0.56923	0.33490	58.82265	1.05018	46.55	14.20
83/ 6/ 9	2445495.0	33.41842	44.95260	16.59004	-0.89388	0.47828	0.30234	58.41881	1.05791	53.37	16.50
83/ 6/10	2445495.5	27.13468	47.85872	18.51299	-0.95960	0.37850	0.26468	58.04721	1.06496	60.45	18.60
83/ 6/10	2445496.0	20.44968	50.06283	20.16485	-1.01211	0.27124	0.22237	57.71566	1.07116	67.78	20.45
83/ 6/11	2445496.5	13.45768	51.51961	21.51599	-1.05004	0.15811	0.17599	57.43097	1.07637	75.36	22.00
83/ 6/11	2445497.0	6.26142	52.19555	22.54119	-1.07227	0.04099	0.12625	57.19866	1.08045	83.16	23.21
83/ 6/12	2445497.5	-1.02984	52.07054	23.22048	-1.07799	-0.07805	0.07399	57.02274	1.08334	91.13	24.03
83/ 6/12	2445498.0	-8.30271	51.13889	23.53991	-1.06681	-0.19683	0.02015	56.90561	1.08500	99.22	24.44
83/ 6/13	2445498.5	-15.44247	49.40994	23.49205	-1.03872	-0.31311	-0.03429	56.84794	1.08543	107.36	24.41
83/ 6/13	2445499.0	-22.33584	46.90816	23.07633	-0.99416	-0.42468	-0.08831	56.84876	1.08467	115.46	23.95
83/ 6/14	2445499.5	-28.87388	43.67256	22.29906	-0.93396	-0.52947	-0.14089	56.90554	1.08281	123.47	23.07
83/ 6/14	2445500.0	-34.95460	39.75565	21.17328	-0.85935	-0.62557	-0.19107	57.01442	1.07997	131.32	21.80

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
83/ 6/15	2445500.5	-40.48534	35.22197	19.71826	-0.77183	-0.71135	-0.23797	57.17045	1.07628	138.98	20.18
83/ 6/15	2445501.0	-45.38458	30.14618	17.95894	-0.67318	-0.78545	-0.28081	57.36790	1.07190	146.41	18.24
83/ 6/16	2445501.5	-49.58343	24.61105	15.92509	-0.56534	-0.84684	-0.31894	57.60059	1.06699	153.60	16.05
83/ 6/16	2445502.0	-53.02646	18.70531	13.65051	-0.45034	-0.89480	-0.35182	57.86216	1.06172	160.57	13.65
83/ 6/17	2445502.5	-55.67220	12.52151	11.17211	-0.33025	-0.92890	-0.37907	58.14635	1.05623	167.32	11.08
83/ 6/17	2445503.0	-57.49314	6.15409	8.52903	-0.20712	-0.94902	-0.40042	58.44722	1.05066	173.89	8.39
83/ 6/18	2445503.5	-58.47539	-0.30253	5.76178	-0.08292	-0.95528	-0.41572	58.75935	1.04511	180.30	5.63
83/ 6/18	2445504.0	-58.61815	-6.75551	2.91150	0.04048	-0.94802	-0.42494	59.07792	1.03969	186.57	2.82
83/ 6/19	2445504.5	-57.93285	-13.11501	0.01924	0.16132	-0.92778	-0.42814	59.39882	1.03446	192.76	0.02
83/ 6/19	2445505.0	-56.44234	-19.29540	-2.87469	0.27800	-0.89526	-0.42546	59.71862	1.02946	198.87	-2.76
83/ 6/20	2445505.5	-54.17979	-25.21621	-5.73122	0.38907	-0.85128	-0.41713	60.03460	1.02472	204.96	-5.48
83/ 6/20	2445506.0	-51.18772	-30.80296	-8.51297	0.49322	-0.79678	-0.40343	60.34464	1.02023	211.04	-8.11
83/ 6/21	2445506.5	-47.51690	-35.98780	-11.18470	0.58932	-0.73278	-0.38470	60.64714	1.01600	217.14	-10.63
83/ 6/21	2445507.0	-43.22528	-40.71005	-13.71361	0.67639	-0.66036	-0.36132	60.94092	1.01199	223.28	-13.00
83/ 6/22	2445507.5	-38.37694	-44.91650	-16.06961	0.75359	-0.58066	-0.33372	61.22511	1.00818	229.49	-15.22
83/ 6/22	2445508.0	-33.04106	-48.56179	-18.22557	0.82025	-0.49484	-0.30233	61.49903	1.00453	235.77	-17.24
83/ 6/23	2445508.5	-27.29087	-51.60846	-20.15746	0.87586	-0.40409	-0.26763	61.76203	1.00102	242.13	-19.05
83/ 6/23	2445509.0	-21.20267	-54.02713	-21.84454	0.92001	-0.30960	-0.23012	62.01345	0.99761	248.57	-20.63
83/ 6/24	2445509.5	-14.85486	-55.79641	-23.26941	0.95249	-0.21253	-0.19029	62.25248	0.99429	255.09	-21.95
83/ 6/24	2445510.0	-8.32701	-56.90285	-24.41804	0.97317	-0.11405	-0.14864	62.47811	0.99104	261.67	-23.01
83/ 6/25	2445510.5	-1.69902	-57.34073	-25.27985	0.98208	-0.01529	-0.10567	62.68905	0.98786	268.30	-23.78
83/ 6/25	2445511.0	4.94978	-57.11181	-25.84762	0.97934	0.08267	-0.06189	62.88370	0.98477	274.95	-24.27
83/ 6/26	2445511.5	11.54130	-56.22508	-26.11746	0.96521	0.17879	-0.01777	63.06015	0.98179	281.60	-24.47
83/ 6/26	2445512.0	17.99945	-54.69632	-26.08870	0.94002	0.27209	0.02620	63.21620	0.97896	288.22	-24.37
83/ 6/27	2445512.5	24.25072	-52.54781	-25.76384	0.90420	0.36165	0.06959	63.34939	0.97632	294.77	-24.00
83/ 6/27	2445513.0	30.22473	-49.80783	-25.14834	0.85824	0.44661	0.11196	63.45702	0.97395	301.25	-23.35
83/ 6/28	2445513.5	35.85474	-46.51032	-24.25054	0.80272	0.52616	0.15289	63.53629	0.97189	307.63	-22.44
83/ 6/28	2445514.0	41.07802	-42.69435	-23.08149	0.73824	0.59958	0.19199	63.58433	0.97024	313.89	-21.28
83/ 6/29	2445514.5	45.83620	-38.40384	-21.65482	0.66549	0.66619	0.22890	63.59830	0.96906	320.04	-19.91
83/ 6/29	2445515.0	50.07561	-33.68704	-19.98657	0.58518	0.72536	0.26327	63.57552	0.96845	326.07	-18.32
83/ 6/30	2445515.5	53.74752	-28.59627	-18.09507	0.49804	0.77653	0.29477	63.51357	0.96847	331.98	-16.55
83/ 6/30	2445516.0	56.80838	-23.18752	-16.00084	0.40487	0.81917	0.32309	63.41041	0.96920	337.80	-14.62
83/ 7/ 1	2445516.5	59.22011	-17.52020	-13.72644	0.30650	0.85281	0.34793	63.26448	0.97071	343.52	-12.53
83/ 7/ 1	2445517.0	60.95035	-11.65678	-11.29638	0.20378	0.87701	0.36900	63.07483	0.97305	349.17	-10.32
83/ 7/ 2	2445517.5	61.97274	-5.66259	-8.73705	0.09763	0.89136	0.38605	62.84124	0.97627	354.78	-7.99
83/ 7/ 2	2445518.0	62.26724	0.39450	-6.07660	-0.01099	0.89552	0.39882	62.56428	0.98038	0.36	-5.57
83/ 7/ 3	2445518.5	61.82053	6.44434	-3.34489	-0.12107	0.88918	0.40706	62.24545	0.98539	5.95	-3.08
83/ 7/ 3	2445519.0	60.62648	12.41484	-0.57334	-0.23149	0.87206	0.41055	61.88721	0.99127	11.57	-0.53
83/ 7/ 4	2445519.5	58.68660	18.23234	2.20515	-0.34110	0.84397	0.40908	61.49307	0.99799	17.26	2.06
83/ 7/ 4	2445520.0	56.01067	23.82211	4.95636	-0.44862	0.80480	0.40247	61.06762	1.00546	23.04	4.66
83/ 7/ 5	2445520.5	52.61735	29.10898	7.64500	-0.55271	0.75453	0.39058	60.61654	1.01358	28.95	7.25
83/ 7/ 5	2445521.0	48.53480	34.01807	10.23494	-0.65190	0.69328	0.37331	60.14657	1.02224	35.03	9.80
83/ 7/ 6	2445521.5	43.80130	38.47580	12.68962	-0.74467	0.62131	0.35064	59.66546	1.03126	41.30	12.28
83/ 7/ 6	2445522.0	38.46579	42.41103	14.97251	-0.82940	0.53908	0.32260	59.18183	1.04047	47.79	14.65
83/ 7/ 7	2445522.5	32.58826	45.75651	17.04766	-0.90445	0.44729	0.28933	58.70499	1.04967	54.54	16.88

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COURDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/ 7/ 7	2445523.0	26.23988	48.45046	18.88048	-0.96816	0.34687	0.25109	58.24475	1.05863	61.56	18.91
83/ 7/ 8	2445523.5	19.50282	50.43841	20.43850	-1.01896	0.23904	0.20826	57.81111	1.06714	68.86	20.70
83/ 7/ 8	2445524.0	12.46964	51.67507	21.69229	-1.05538	0.12529	0.16135	57.41393	1.07497	76.43	22.20
83/ 7/ 9	2445524.5	5.24218	52.12628	22.61646	-1.07614	0.00742	0.11104	57.06255	1.08188	84.26	23.35
83/ 7/ 9	2445525.0	-2.07015	51.77084	23.19060	-1.08030	-0.11255	0.05814	56.76539	1.08770	92.29	24.11
83/ 7/10	2445525.5	-9.35251	50.60195	23.40019	-1.06723	-0.23240	0.00356	56.52960	1.09225	100.47	24.45
83/ 7/10	2445526.0	-16.48742	48.62838	23.23734	-1.03677	-0.34977	-0.05166	56.36070	1.09540	108.73	24.35
83/ 7/11	2445526.5	-23.35775	45.87493	22.70135	-0.98919	-0.46230	-0.10644	56.26229	1.09706	116.98	23.80
83/ 7/11	2445527.0	-29.84999	42.38233	21.79894	-0.92529	-0.56767	-0.15968	56.23591	1.09722	125.16	22.81
83/ 7/12	2445527.5	-35.85746	38.20636	20.54425	-0.84629	-0.66376	-0.21030	56.28098	1.09590	133.18	21.41
83/ 7/12	2445528.0	-41.28327	33.41637	18.95838	-0.75383	-0.74870	-0.25731	56.39488	1.09317	141.01	19.64
83/ 7/13	2445528.5	-46.04282	28.09320	17.06884	-0.64990	-0.82097	-0.29984	56.57309	1.08916	148.61	17.56
83/ 7/13	2445529.0	-50.06573	22.32676	14.90854	-0.53668	-0.87944	-0.33716	56.80956	1.08403	155.97	15.21
83/ 7/14	2445529.5	-53.29702	16.21332	12.51481	-0.41653	-0.92335	-0.36870	57.09697	1.07797	163.08	12.66
83/ 7/14	2445530.0	-55.69770	9.85283	9.92819	-0.29181	-0.95236	-0.39406	57.42718	1.07118	169.97	9.96
83/ 7/15	2445530.5	-57.24470	3.34640	7.19135	-0.16482	-0.96648	-0.41303	57.79161	1.06388	176.65	7.15
83/ 7/15	2445531.0	-57.93023	-3.20607	4.34796	-0.03777	-0.96603	-0.42552	58.18157	1.05627	183.17	4.29
83/ 7/16	2445531.5	-57.76081	-9.70776	1.44174	0.08732	-0.95160	-0.43160	58.58865	1.04855	189.54	1.41
83/ 7/16	2445532.0	-56.75596	-16.06661	-1.48440	0.20863	-0.92400	-0.43144	59.00490	1.04089	195.81	-1.44
83/ 7/17	2445532.5	-54.94687	-22.19653	-4.38902	0.32456	-0.88417	-0.42530	59.42312	1.03343	202.00	-4.24
83/ 7/17	2445533.0	-52.37483	-28.01825	-7.23273	0.43371	-0.83318	-0.41351	59.83693	1.02630	208.14	-6.94
83/ 7/18	2445533.5	-49.08987	-33.46004	-9.97857	0.53490	-0.77217	-0.39647	60.24087	1.01959	214.28	-9.53
83/ 7/18	2445534.0	-45.14933	-38.45799	-12.59238	0.62715	-0.70232	-0.37460	60.63042	1.01336	220.42	-11.99
83/ 7/19	2445534.5	-40.61661	-42.95630	-15.04295	0.70965	-0.62483	-0.34835	61.00199	1.00765	226.60	-14.28
83/ 7/19	2445535.0	-35.55998	-46.90728	-17.30224	0.78176	-0.54090	-0.31819	61.35286	1.00248	232.83	-16.38
83/ 7/20	2445535.5	-30.05156	-50.27136	-19.34541	0.84299	-0.45172	-0.28461	61.68104	0.99784	239.13	-18.28
83/ 7/20	2445536.0	-24.16629	-53.01699	-21.15090	0.89299	-0.35846	-0.24809	61.98525	0.99372	245.50	-19.95
83/ 7/21	2445536.5	-17.98115	-55.12045	-22.70045	0.93151	-0.26228	-0.20912	62.26473	0.99007	251.93	-21.38
83/ 7/21	2445537.0	-11.57428	-56.56573	-23.97913	0.95845	-0.16429	-0.16818	62.51915	0.98686	258.44	-22.55
83/ 7/22	2445537.5	-5.02432	-57.34427	-24.97526	0.97378	-0.06558	-0.12576	62.74849	0.98405	264.99	-23.45
83/ 7/22	2445538.0	1.59034	-57.45481	-25.68045	0.97758	0.03280	-0.08235	62.95292	0.98159	271.59	-24.07
83/ 7/23	2445538.5	8.19217	-56.90308	-26.08951	0.97003	0.12982	-0.03840	63.13267	0.97943	278.19	-24.41
83/ 7/23	2445539.0	14.70515	-55.70155	-26.20041	0.95139	0.22452	0.00562	63.28796	0.97754	284.79	-24.46
83/ 7/24	2445539.5	21.05530	-53.86916	-26.01421	0.92201	0.31596	0.04926	63.41886	0.97589	291.35	-24.22
83/ 7/24	2445540.0	27.17127	-51.43101	-25.53497	0.88231	0.40325	0.09208	63.52528	0.97446	297.85	-23.70
83/ 7/25	2445540.5	32.98481	-48.41801	-24.76967	0.83280	0.48557	0.13366	63.60690	0.97324	304.26	-22.92
83/ 7/25	2445541.0	38.43132	-44.86655	-23.72809	0.77403	0.56213	0.17360	63.66315	0.97224	310.58	-21.88
83/ 7/26	2445541.5	43.45024	-40.81815	-22.42271	0.70664	0.63220	0.21150	63.69319	0.97147	316.79	-20.61
83/ 7/26	2445542.0	47.98548	-36.31903	-20.86856	0.63132	0.69511	0.24700	63.69596	0.97096	322.88	-19.12
83/ 7/27	2445542.5	51.98584	-31.41979	-19.08311	0.54882	0.75026	0.27975	63.67021	0.97075	328.85	-17.44
83/ 7/27	2445543.0	55.40528	-26.17494	-17.08608	0.45992	0.79708	0.30942	63.61452	0.97088	334.71	-15.58
83/ 7/28	2445543.5	58.20330	-20.64253	-14.89935	0.36546	0.83509	0.33572	63.52739	0.97141	340.47	-13.56
83/ 7/28	2445544.0	60.34520	-14.88378	-12.54678	0.26632	0.86385	0.35835	63.40735	0.97241	346.14	-11.41
83/ 7/29	2445544.5	61.80234	-8.96266	-10.05407	0.16342	0.88298	0.37706	63.25301	0.97393	351.75	-9.15
83/ 7/29	2445545.0	62.55247	-2.94551	-7.44862	0.05771	0.89216	0.39160	63.06322	0.97603	357.30	-6.78

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
83/ 7/30	2445545.5	62.57996	3.09934	-4.75937	-0.04980	0.89112	0.40177	62.83716	0.97877	2.84	-4.34
83/ 7/30	2445546.0	61.87612	9.10197	-2.01667	-0.15807	0.87966	0.40735	62.57449	0.98221	8.37	-1.85
83/ 7/31	2445546.5	60.43950	14.99130	0.74788	-0.26600	0.85765	0.40820	62.27545	0.98638	13.93	0.69
83/ 7/31	2445547.0	58.27623	20.69553	3.50164	-0.37245	0.82500	0.40414	61.94098	0.99130	19.55	3.24
83/ 8/ 1	2445547.5	55.40036	26.14264	6.21105	-0.47622	0.78173	0.39508	61.57284	0.99698	25.26	5.79
83/ 8/ 1	2445548.0	51.83429	31.26098	8.84190	-0.57605	0.72794	0.38094	61.17370	1.00341	31.09	8.31
83/ 8/ 2	2445548.5	47.60915	35.97993	11.35958	-0.67062	0.66384	0.36166	60.74723	1.01055	37.08	10.78
83/ 8/ 2	2445549.0	42.76518	40.23071	13.72939	-0.75855	0.58976	0.33728	60.29814	1.01832	43.25	13.16
83/ 8/ 3	2445549.5	37.35215	43.94730	15.91693	-0.83842	0.50619	0.30786	59.83224	1.02662	49.64	15.43
83/ 8/ 3	2445550.0	31.42960	47.06759	17.88859	-0.90876	0.41380	0.27356	59.35638	1.03533	56.27	17.54
83/ 8/ 4	2445550.5	25.06702	49.53465	19.61208	-0.96811	0.31346	0.23463	58.87844	1.04429	63.16	19.46
83/ 8/ 4	2445551.0	18.34371	51.29817	21.05711	-1.01504	0.20626	0.19140	58.40715	1.05332	70.32	21.13
83/ 8/ 5	2445551.5	11.34851	52.31610	22.19614	-1.04819	0.09354	0.14435	57.95198	1.06221	77.76	22.52
83/ 8/ 5	2445552.0	4.17898	52.55633	23.00523	-1.06633	-0.02311	0.09408	57.52279	1.07072	85.45	23.57
83/ 8/ 6	2445552.5	-3.05975	51.99838	23.46486	-1.06848	-0.14183	0.04130	57.12961	1.07864	93.37	24.25
83/ 8/ 6	2445553.0	-10.25670	50.63500	23.56089	-1.05390	-0.26058	-0.01314	56.78220	1.08572	101.45	24.52
83/ 8/ 7	2445553.5	-17.29720	48.47353	23.28530	-1.02226	-0.37712	-0.06827	56.48966	1.09174	109.64	24.34
83/ 8/ 7	2445554.0	-24.06566	45.53679	22.63694	-0.97362	-0.48912	-0.12304	56.25999	1.09650	117.86	23.73
83/ 8/ 8	2445554.5	-30.44854	41.86353	21.62195	-0.90853	-0.59423	-0.17635	56.09971	1.09984	126.03	22.67
83/ 8/ 8	2445555.0	-36.33770	37.50809	20.25397	-0.82804	-0.69020	-0.22709	56.01347	1.10163	134.09	21.20
83/ 8/ 9	2445555.5	-41.63362	32.53943	18.55403	-0.73364	-0.77499	-0.27420	56.00379	1.10182	141.99	19.35
83/ 8/ 9	2445556.0	-46.24840	27.03944	16.55008	-0.62725	-0.84684	-0.31671	56.07095	1.10041	149.69	17.17
83/ 8/10	2445556.5	-50.10834	21.10057	14.27619	-0.51114	-0.90439	-0.35379	56.21289	1.09743	157.16	14.71
83/ 8/10	2445557.0	-53.15578	14.82312	11.77151	-0.38775	-0.94670	-0.38477	56.42544	1.09300	164.42	12.04
83/ 8/11	2445557.5	-55.35023	8.31220	9.07903	-0.25969	-0.97329	-0.40918	56.70246	1.08727	171.46	9.21
83/ 8/11	2445558.0	-56.66868	1.67470	6.24426	-0.12950	-0.98410	-0.42675	57.03626	1.08044	178.31	6.29
83/ 8/12	2445558.5	-57.10519	-4.98352	3.31394	0.00035	-0.97950	-0.43740	57.41794	1.07272	184.99	3.31
83/ 8/12	2445559.0	-56.66983	-11.56017	0.33477	0.12760	-0.96016	-0.44120	57.83787	1.06435	191.53	0.33
83/ 8/13	2445559.5	-55.38723	-17.95859	-2.64760	0.25022	-0.92705	-0.43839	58.28607	1.05556	197.96	-2.60
83/ 8/13	2445560.0	-53.29479	-24.08933	-5.58951	0.36647	-0.88132	-0.42932	58.75264	1.04658	204.32	-5.46
83/ 8/14	2445560.5	-50.44075	-29.87124	-8.44994	0.47489	-0.82426	-0.41441	59.22805	1.03763	210.63	-8.20
83/ 8/14	2445561.0	-46.88231	-35.23220	-11.19099	0.57430	-0.75724	-0.39416	59.70341	1.02888	216.92	-10.80
83/ 8/15	2445561.5	-42.68382	-40.10939	-13.77825	0.66376	-0.68164	-0.36909	60.17069	1.02051	223.22	-13.24
83/ 8/15	2445562.0	-37.91515	-44.44938	-16.18094	0.74257	-0.59884	-0.33975	60.62284	1.01264	229.54	-15.48
83/ 8/16	2445562.5	-32.65023	-48.20794	-18.37202	0.81023	-0.51017	-0.30669	61.05386	1.00539	235.89	-17.51
83/ 8/16	2445563.0	-26.96579	-51.34980	-20.32815	0.86641	-0.41694	-0.27046	61.45884	0.99882	242.29	-19.31
83/ 8/17	2445563.5	-20.94036	-53.84823	-22.02964	0.91091	-0.32037	-0.23159	61.83393	0.99299	248.75	-20.87
83/ 8/17	2445564.0	-14.65329	-55.68466	-23.46038	0.94366	-0.22165	-0.19059	62.17628	0.98790	255.26	-22.17
83/ 8/18	2445564.5	-8.18408	-56.84828	-24.60772	0.96471	-0.12188	-0.14798	62.48397	0.98357	261.81	-23.19
83/ 8/18	2445565.0	-1.61169	-57.33564	-25.46235	0.97416	-0.02212	-0.10424	62.75591	0.97997	268.39	-23.94
83/ 8/19	2445565.5	4.98600	-57.15027	-26.01818	0.97221	0.07661	-0.05983	62.99174	0.97706	274.99	-24.40
83/ 8/19	2445566.0	11.53263	-56.30233	-26.27230	0.95913	0.17337	-0.01521	63.19167	0.97479	281.58	-24.57
83/ 8/20	2445566.5	17.95390	-54.80835	-26.22480	0.93525	0.26724	0.02916	63.35643	0.97312	288.14	-24.45
83/ 8/20	2445567.0	24.17790	-52.69089	-25.87874	0.90095	0.35734	0.07288	63.48708	0.97197	294.65	-24.06
83/ 8/21	2445567.5	30.13562	-49.97827	-25.24006	0.85670	0.44285	0.11551	63.58494	0.97128	301.09	-23.39

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/ 8/21	2445568.0	35.76130	-46.70432	-24.31747	0.80300	0.52297	0.15665	63.65142	0.97100	307.44	-22.46
83/ 8/22	2445568.5	40.99286	-42.90805	-23.12239	0.74042	0.59696	0.19591	63.68799	0.97106	313.69	-21.29
83/ 8/22	2445569.0	45.77233	-38.63338	-21.66886	0.66961	0.66412	0.23290	63.69602	0.97143	319.83	-19.89
83/ 8/23	2445569.5	50.04622	-33.92887	-19.97341	0.59125	0.72379	0.26728	63.67676	0.97205	325.86	-18.28
83/ 8/23	2445570.0	53.76601	-28.84730	-18.05502	0.50611	0.77537	0.29869	63.63124	0.97291	331.78	-16.48
83/ 8/24	2445570.5	56.88849	-23.44537	-15.93489	0.41501	0.81830	0.32680	63.56026	0.97398	337.60	-14.52
83/ 8/24	2445571.0	59.37616	-17.78329	-13.63642	0.31881	0.85211	0.35130	63.46436	0.97527	343.33	-12.41
83/ 8/25	2445571.5	61.19763	-11.92434	-11.18494	0.21844	0.87637	0.37193	63.34384	0.97677	348.97	-10.17
83/ 8/25	2445572.0	62.32795	-5.93440	-8.60762	0.11488	0.89074	0.38842	63.19875	0.97851	354.56	-7.83
83/ 8/26	2445572.5	62.74893	0.11849	-5.93326	0.00915	0.89492	0.40055	63.02892	0.98052	0.11	-5.40
83/ 8/26	2445573.0	62.44942	6.16467	-3.19208	-0.09769	0.88873	0.40812	62.83409	0.98283	5.64	-2.91
83/ 8/27	2445573.5	61.42564	12.13339	-0.41553	-0.20453	0.87203	0.41097	62.61391	0.98548	11.17	-0.38
83/ 8/27	2445574.0	59.68140	17.95334	2.36396	-0.31024	0.84480	0.40897	62.36810	0.98853	16.74	2.17
83/ 8/28	2445574.5	57.22832	23.55327	5.11322	-0.41365	0.80708	0.40203	62.09655	0.99202	22.37	4.72
83/ 8/28	2445575.0	54.08608	28.86259	7.79858	-0.51355	0.75902	0.39010	61.79944	0.99600	28.09	7.25
83/ 8/29	2445575.5	50.28257	33.81205	10.38616	-0.60871	0.70087	0.37316	61.47735	1.00050	33.92	9.73
83/ 8/29	2445576.0	45.85408	38.33444	12.84219	-0.69789	0.63298	0.35127	61.13139	1.00554	39.90	12.13
83/ 8/30	2445576.5	40.84535	42.36537	15.13335	-0.77983	0.55583	0.32450	60.76336	1.01113	46.05	14.42
83/ 8/30	2445577.0	35.30976	45.84412	17.22711	-0.85326	0.47003	0.29301	60.37579	1.01727	52.40	16.58
83/ 8/31	2445577.5	29.30922	48.71455	19.09219	-0.91692	0.37634	0.25701	59.97207	1.02393	58.97	18.56
83/ 8/31	2445578.0	22.91416	50.92615	20.69901	-0.96956	0.27565	0.21680	59.55653	1.03103	65.77	20.34
83/ 9/ 1	2445578.5	16.20329	52.43517	22.02023	-1.00999	0.16907	0.17274	59.13446	1.03851	72.83	21.86
83/ 9/ 1	2445579.0	9.26312	53.20584	23.03134	-1.03709	0.05785	0.12531	58.71209	1.04623	80.12	23.10
83/ 9/ 2	2445579.5	2.18738	53.21161	23.71132	-1.04987	-0.05654	0.07506	58.29654	1.05407	87.65	24.00
83/ 9/ 2	2445580.0	-4.92403	52.43650	24.04328	-1.04750	-0.17245	0.02266	57.89570	1.06184	95.36	24.54
83/ 9/ 3	2445580.5	-11.96628	50.87635	24.01521	-1.02937	-0.28804	-0.03112	57.51804	1.06936	103.24	24.68
83/ 9/ 3	2445581.0	-18.83134	48.53994	23.62059	-0.99515	-0.40133	-0.08542	57.17235	1.07642	111.20	24.40
83/ 9/ 4	2445581.5	-25.41009	45.44991	22.85908	-0.94485	-0.51022	-0.13929	56.86743	1.08281	119.21	23.70
83/ 9/ 4	2445582.0	-31.59473	41.64332	21.73696	-0.87887	-0.61257	-0.19173	56.61174	1.08831	127.19	22.58
83/ 9/ 5	2445582.5	-37.28157	37.17174	20.26745	-0.79803	-0.70624	-0.24170	56.41297	1.09272	135.08	21.06
83/ 9/ 5	2445583.0	-42.37392	32.10078	18.47076	-0.70357	-0.78924	-0.28818	56.27769	1.09588	142.85	19.16
83/ 9/ 6	2445583.5	-46.78503	26.50899	16.37392	-0.59717	-0.85976	-0.33018	56.21095	1.09764	150.46	16.94
83/ 9/ 6	2445584.0	-50.44071	20.48615	14.01022	-0.48087	-0.91631	-0.36684	56.21596	1.09792	157.90	14.43
83/ 9/ 7	2445584.5	-53.28169	14.13096	11.41844	-0.35700	-0.95775	-0.39743	56.29390	1.09667	165.15	11.70
83/ 9/ 7	2445585.0	-55.26521	7.54836	8.64173	-0.22810	-0.98338	-0.42137	56.44379	1.09390	172.22	8.81
83/ 9/ 8	2445585.5	-56.36606	0.84653	5.72644	-0.09679	-0.99295	-0.43831	56.66252	1.08969	179.14	5.80
83/ 9/ 8	2445586.0	-56.57667	-5.86611	2.72071	0.03436	-0.98664	-0.44806	56.94500	1.08416	185.92	2.74
83/ 9/ 9	2445586.5	-55.90662	-12.48377	-0.32682	0.16287	-0.96503	-0.45067	57.28439	1.07746	192.59	-0.33
83/ 9/ 9	2445587.0	-54.38138	-18.90581	-3.36832	0.28653	-0.92905	-0.44633	57.67243	1.06979	199.17	-3.35
83/ 9/10	2445587.5	-52.04066	-25.03883	-6.35782	0.40338	-0.87990	-0.43539	58.09987	1.06137	205.69	-6.28
83/ 9/10	2445588.0	-48.93635	-30.79824	-9.25216	0.51177	-0.81897	-0.41831	58.55682	1.05243	212.18	-9.09
83/ 9/11	2445588.5	-45.13040	-36.10929	-12.01163	0.61038	-0.74776	-0.39566	59.03315	1.04320	218.66	-11.74
83/ 9/11	2445589.0	-40.69259	-40.90765	-14.60045	0.69821	-0.66784	-0.36803	59.51887	1.03390	225.15	-14.20
83/ 9/12	2445589.5	-35.69858	-45.13956	-16.98706	0.77453	-0.58075	-0.33605	60.00441	1.02474	231.66	-16.45
83/ 9/12	2445590.0	-30.22802	-48.76169	-19.14416	0.83887	-0.48802	-0.30036	60.48086	1.01591	238.20	-18.45

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
83/ 9/13	2445590.5	-24.36297	-51.74069	-21.04878	0.89099	-0.39107	-0.26159	60.94017	1.00758	244.79	-20.21
83/ 9/13	2445591.0	-18.18662	-54.05270	-22.68208	0.93080	-0.29128	-0.22034	61.37528	0.99989	251.40	-21.69
83/ 9/14	2445591.5	-11.78217	-55.68275	-24.02923	0.95836	-0.18990	-0.17719	61.78019	0.99293	258.05	-22.89
83/ 9/14	2445592.0	-5.23199	-56.62407	-25.07919	0.97387	-0.08809	-0.13267	62.15002	0.98680	264.72	-23.80
83/ 9/15	2445592.5	1.38306	-56.87754	-25.82452	0.97757	0.01305	-0.08732	62.48098	0.98155	271.39	-24.41
83/ 9/15	2445593.0	7.98415	-56.45108	-26.26115	0.96980	0.11252	-0.04160	62.77037	0.97720	278.05	-24.73
83/ 9/16	2445593.5	14.49489	-55.35917	-26.38821	0.95096	0.20940	0.00402	63.01648	0.97375	284.67	-24.76
83/ 9/16	2445594.0	20.84168	-53.62237	-26.20785	0.92147	0.30281	0.04911	63.21856	0.97119	291.24	-24.49
83/ 9/17	2445594.5	26.95401	-51.26698	-25.72513	0.88181	0.39194	0.09324	63.37668	0.96948	297.73	-23.95
83/ 9/17	2445595.0	32.76472	-48.32465	-24.94784	0.83249	0.47600	0.13603	63.49168	0.96857	304.14	-23.14
83/ 9/18	2445595.5	38.21026	-44.83217	-23.88647	0.77407	0.55428	0.17707	63.56501	0.96838	310.44	-22.07
83/ 9/18	2445596.0	43.23104	-40.83115	-22.55406	0.70716	0.62606	0.21600	63.59867	0.96886	316.64	-20.77
83/ 9/19	2445596.5	47.77167	-36.36779	-20.96617	0.63240	0.69069	0.25245	63.59504	0.96991	322.72	-19.25
83/ 9/19	2445597.0	51.78135	-31.49268	-19.14077	0.55050	0.74755	0.28608	63.55680	0.97145	328.69	-17.53
83/ 9/20	2445597.5	55.21425	-26.26046	-17.09817	0.46221	0.79605	0.31653	63.48679	0.97341	334.56	-15.62
83/ 9/20	2445598.0	58.02989	-20.72961	-14.86095	0.36837	0.83565	0.34350	63.38795	0.97570	340.34	-13.56
83/ 9/21	2445598.5	60.19357	-14.96204	-12.45381	0.26985	0.86587	0.36666	63.26314	0.97826	346.04	-11.35
83/ 9/21	2445599.0	61.67682	-9.02276	-9.90345	0.16761	0.88629	0.38574	63.11512	0.98102	351.68	-9.03
83/ 9/22	2445599.5	62.45784	-2.97940	-7.23844	0.06266	0.89655	0.40047	62.94643	0.98393	357.27	-6.60
83/ 9/22	2445600.0	62.52188	3.09825	-4.48900	-0.04393	0.89638	0.41064	62.75935	0.98694	2.84	-4.10
83/ 9/23	2445600.5	61.86168	9.13890	-1.68678	-0.15101	0.88560	0.41603	62.55583	0.99004	8.40	-1.55
83/ 9/23	2445601.0	60.47778	15.07029	1.13539	-0.25743	0.86412	0.41650	62.33751	0.99320	13.99	1.04
83/ 9/24	2445601.5	58.37886	20.81998	3.94377	-0.36195	0.83195	0.41195	62.10569	0.99642	19.63	3.64
83/ 9/24	2445602.0	55.58193	26.31602	6.70406	-0.46334	0.78925	0.40230	61.86137	0.99972	25.34	6.22
83/ 9/25	2445602.5	52.11252	31.48781	9.38172	-0.56032	0.73626	0.38755	61.60530	1.00311	31.14	8.76
83/ 9/25	2445603.0	48.00470	36.26688	11.94236	-0.65164	0.67336	0.36776	61.33807	1.00662	37.07	11.23
83/ 9/26	2445603.5	43.30115	40.58781	14.35214	-0.73603	0.60106	0.34302	61.06017	1.01029	43.15	13.59
83/ 9/26	2445604.0	38.05294	44.38907	16.57816	-0.81227	0.52002	0.31353	60.77212	1.01415	49.39	15.83
83/ 9/27	2445604.5	32.31938	47.61395	18.58891	-0.87916	0.43101	0.27950	60.47461	1.01824	55.83	17.90
83/ 9/27	2445605.0	26.16766	50.21150	20.35473	-0.93556	0.33494	0.24126	60.16856	1.02258	62.47	19.77
83/ 9/28	2445605.5	19.67242	52.13739	21.84827	-0.98043	0.23286	0.19917	59.85532	1.02719	69.33	21.41
83/ 9/28	2445606.0	12.91520	53.35493	23.04496	-1.01277	0.12597	0.15368	59.53672	1.03208	76.39	22.77
83/ 9/29	2445606.5	5.98369	53.83591	23.92348	-1.03176	0.01559	0.10531	59.21522	1.03724	83.66	23.83
83/ 9/29	2445607.0	-1.02912	53.56155	24.46631	-1.03668	-0.09682	0.05466	58.89396	1.04262	91.10	24.55
83/ 9/30	2445607.5	-8.02599	52.52334	24.66021	-1.02698	-0.20969	0.00239	58.57682	1.04817	98.69	24.90
83/ 9/30	2445608.0	-14.90672	50.72387	24.49665	-1.00234	-0.32133	-0.05077	58.26840	1.05381	106.38	24.86
83/10/ 1	2445608.5	-21.56959	48.17742	23.97234	-0.96265	-0.42996	-0.10400	57.97399	1.05943	114.12	24.42
83/10/ 1	2445609.0	-27.91310	44.91058	23.08956	-0.90809	-0.53375	-0.15647	57.69947	1.06489	121.86	23.59
83/10/ 2	2445609.5	-33.83789	40.96246	21.85653	-0.83911	-0.63083	-0.20728	57.45114	1.07006	129.56	22.36
83/10/ 2	2445610.0	-39.24884	36.38468	20.28758	-0.75652	-0.71938	-0.25551	57.23550	1.07476	137.17	20.76
83/10/ 3	2445610.5	-44.05736	31.24105	18.40322	-0.66143	-0.79764	-0.30027	57.05903	1.07884	144.66	18.82
83/10/ 3	2445611.0	-48.18363	25.60674	16.22997	-0.55533	-0.86402	-0.34068	56.92784	1.08212	152.01	16.56
83/10/ 4	2445611.5	-51.55886	19.56705	13.80004	-0.43998	-0.91714	-0.37594	56.84739	1.08446	159.22	14.05
83/10/ 4	2445612.0	-54.12729	13.21573	11.15075	-0.31745	-0.95589	-0.40535	56.82216	1.08573	166.28	11.32
83/10/ 5	2445612.5	-55.84789	6.65288	8.32374	-0.19001	-0.97950	-0.42834	56.85536	1.08582	173.21	8.42

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/10/ 5	2445613.0	-56.69550	-0.01741	5.36399	-0.06007	-0.98759	-0.44449	56.94868	1.08467	180.02	5.40
83/10/ 6	2445613.5	-56.66151	-6.68973	2.31868	0.06991	-0.98014	-0.45357	57.10215	1.08226	186.73	2.33
83/10/ 6	2445614.0	-55.75385	-13.25996	-0.76397	0.19753	-0.95753	-0.45553	57.31407	1.07861	193.38	-0.76
83/10/ 7	2445614.5	-53.99635	-19.62780	-3.83597	0.32050	-0.92052	-0.45046	57.58099	1.07378	199.98	-3.82
83/10/ 7	2445615.0	-51.42754	-25.69906	-6.85070	0.43677	-0.87015	-0.43867	57.89789	1.06788	206.55	-6.80
83/10/ 8	2445615.5	-48.09905	-31.38755	-9.76388	0.54456	-0.80773	-0.42056	58.25831	1.06105	213.13	-9.65
83/10/ 8	2445616.0	-44.07361	-36.61655	-12.53450	0.64236	-0.73473	-0.39667	58.65466	1.05347	219.72	-12.34
83/10/ 9	2445616.5	-39.42292	-41.31976	-15.12542	0.72902	-0.65274	-0.36760	59.07849	1.04531	226.35	-14.83
83/10/ 9	2445617.0	-34.22550	-45.44184	-17.50383	0.80369	-0.56339	-0.33403	59.52084	1.03678	233.01	-17.10
83/10/10	2445617.5	-28.56461	-48.93849	-19.64150	0.86581	-0.46832	-0.29663	59.97251	1.02807	239.73	-19.12
83/10/10	2445618.0	-22.52637	-51.77626	-21.51483	0.91509	-0.36909	-0.25609	60.42439	1.01941	246.49	-20.86
83/10/11	2445618.5	-16.19811	-53.93204	-23.10484	0.95145	-0.26717	-0.21307	60.86770	1.01096	253.28	-22.31
83/10/11	2445619.0	-9.66699	-55.39240	-24.39698	0.97502	-0.16396	-0.16823	61.29422	1.00292	260.10	-23.46
83/10/12	2445619.5	-3.01893	-56.15291	-25.38088	0.98604	-0.06071	-0.12215	61.69645	0.99543	266.92	-24.29
83/10/12	2445620.0	3.66233	-56.21730	-26.05014	0.98489	0.04142	-0.07541	62.06777	0.98864	273.73	-24.82
83/10/13	2445620.5	10.29579	-55.59679	-26.40202	0.97201	0.14137	-0.02852	62.40251	0.98265	280.49	-25.03
83/10/13	2445621.0	16.80377	-54.30933	-26.43717	0.94792	0.23821	0.01804	62.69605	0.97756	287.19	-24.94
83/10/14	2445621.5	23.11214	-52.37903	-26.15940	0.91317	0.33106	0.06382	62.94480	0.97342	293.81	-24.56
83/10/14	2445622.0	29.15065	-49.83561	-25.57544	0.86833	0.41914	0.10839	63.14627	0.97027	300.32	-23.89
83/10/15	2445622.5	34.85310	-46.71392	-24.69477	0.81403	0.50170	0.15137	63.29898	0.96813	306.73	-22.96
83/10/15	2445623.0	40.15750	-43.05359	-23.52947	0.75090	0.57808	0.19238	63.40247	0.96697	313.01	-21.78
83/10/16	2445623.5	45.00621	-38.89873	-22.09407	0.67959	0.64763	0.23107	63.45722	0.96678	319.16	-20.38
83/10/16	2445624.0	49.34617	-34.29761	-20.40546	0.60078	0.70976	0.26709	63.46458	0.96749	325.20	-18.76
83/10/17	2445624.5	53.12906	-29.30249	-18.48282	0.51521	0.76389	0.30012	63.42671	0.96904	331.12	-16.94
83/10/17	2445625.0	56.31162	-23.96939	-16.34754	0.42364	0.80948	0.32983	63.34645	0.97134	336.94	-14.96
83/10/18	2445625.5	58.85596	-18.35786	-14.02317	0.32689	0.84602	0.35591	63.22724	0.97431	342.68	-12.81
83/10/18	2445626.0	60.72992	-12.53075	-11.53532	0.22584	0.87306	0.37806	63.07302	0.97784	348.34	-10.54
83/10/19	2445626.5	61.90752	-6.55391	-8.91158	0.12142	0.89017	0.39599	62.88808	0.98181	353.96	-8.15
83/10/19	2445627.0	62.36941	-0.49583	-6.18140	0.01467	0.89700	0.40944	62.67694	0.98613	359.54	-5.66
83/10/20	2445627.5	62.10340	5.57280	-3.37595	-0.09334	0.89324	0.41818	62.44425	0.99069	5.13	-3.10
83/10/20	2445628.0	61.10489	11.57961	-0.52790	-0.20143	0.87872	0.42199	62.19464	0.99539	10.73	-0.49
83/10/21	2445628.5	59.37741	17.45122	2.32880	-0.30838	0.85331	0.42071	61.93259	1.00012	16.38	2.15
83/10/21	2445629.0	56.93303	23.11396	5.15924	-0.41291	0.81705	0.41422	61.66233	1.00481	22.10	4.80
83/10/22	2445629.5	53.79269	28.49473	7.92790	-0.51367	0.77009	0.40246	61.38774	1.00939	27.91	7.42
83/10/22	2445630.0	49.98646	33.52196	10.59906	-0.60931	0.71272	0.38544	61.11226	1.01380	33.85	9.99
83/10/23	2445630.5	45.55368	38.12661	13.13726	-0.69846	0.64539	0.36322	60.83883	1.01799	39.93	12.47
83/10/23	2445631.0	40.54286	42.24329	15.50781	-0.77978	0.56874	0.33596	60.56989	1.02196	46.18	14.83
83/10/24	2445631.5	35.01149	45.81135	17.67731	-0.85197	0.48353	0.30390	60.30730	1.02567	52.61	17.04
83/10/24	2445632.0	29.02561	48.77599	19.61420	-0.91380	0.39072	0.26734	60.05248	1.02915	59.24	19.06
83/10/25	2445632.5	22.65924	51.08935	21.28935	-0.96415	0.29141	0.22668	59.80635	1.03242	66.08	20.85
83/10/25	2445633.0	15.99353	52.71155	22.67655	-1.00204	0.18685	0.18239	59.56951	1.03550	73.12	22.38
83/10/26	2445633.5	9.11583	53.61158	23.75307	-1.02662	0.07840	0.13503	59.34229	1.03843	80.35	23.60
83/10/26	2445634.0	2.11857	53.76812	24.50012	-1.03725	-0.03244	0.08521	59.12491	1.04125	87.74	24.48
83/10/27	2445634.5	-4.90207	53.17024	24.90332	-1.03346	-0.14411	0.03361	58.91757	1.04400	95.27	25.00
83/10/27	2445635.0	-11.84747	51.81793	24.95304	-1.01502	-0.25495	-0.01904	58.72065	1.04672	102.88	25.15

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
83/10/28	2445635.5	-18.61819	49.72241	24.64474	-0.98189	-0.36329	-0.07198	58.53476	1.04942	110.53	24.90
83/10/28	2445636.0	-25.11545	46.90639	23.97920	-0.93432	-0.46743	-0.12440	58.36092	1.05211	118.17	24.26
83/10/29	2445636.5	-31.24287	43.40398	22.96267	-0.87278	-0.56569	-0.17549	58.20057	1.05478	125.75	23.24
83/10/29	2445637.0	-36.90812	39.26052	21.60696	-0.79799	-0.65646	-0.22442	58.05565	1.05740	133.23	21.85
83/10/30	2445637.5	-42.02469	34.53213	19.92938	-0.71094	-0.73817	-0.27040	57.92860	1.05993	140.59	20.12
83/10/30	2445638.0	-46.51352	29.28504	17.95262	-0.61285	-0.80940	-0.31264	57.82229	1.06229	147.81	18.09
83/10/31	2445638.5	-50.30472	23.59465	15.70447	-0.50520	-0.86887	-0.35042	57.73996	1.06441	154.87	15.78
83/10/31	2445639.0	-53.33909	17.54439	13.21746	-0.38966	-0.91551	-0.38307	57.68505	1.06618	161.79	13.25
83/11/ 1	2445639.5	-55.56950	11.22423	10.52830	-0.26812	-0.94845	-0.41002	57.66105	1.06750	168.58	10.52
83/11/ 1	2445640.0	-56.96204	4.72910	7.67726	-0.14260	-0.96710	-0.43081	57.67130	1.06828	175.25	7.65
83/11/ 2	2445640.5	-57.49692	-1.84303	4.70740	-0.01522	-0.97116	-0.44507	57.71873	1.06840	181.84	4.68
83/11/ 2	2445641.0	-57.16891	-8.39314	1.66368	0.11184	-0.96062	-0.45259	57.80568	1.06777	188.35	1.65
83/11/ 3	2445641.5	-55.98750	-14.82321	-1.40795	0.23643	-0.93579	-0.45331	57.93367	1.06634	194.83	-1.39
83/11/ 3	2445642.0	-53.97655	-21.03831	-4.46156	0.35646	-0.89727	-0.44729	58.10322	1.06406	201.29	-4.40
83/11/ 4	2445642.5	-51.17358	-26.94851	-7.45219	0.47000	-0.84593	-0.43476	58.31374	1.06090	207.77	-7.34
83/11/ 4	2445643.0	-47.62858	-32.47072	-10.33678	0.57530	-0.78290	-0.41605	58.56346	1.05688	214.28	-10.17
83/11/ 5	2445643.5	-43.40261	-37.53010	-13.07499	0.67086	-0.70949	-0.39162	58.84939	1.05204	220.85	-12.84
83/11/ 5	2445644.0	-38.56600	-42.06126	-15.62991	0.75544	-0.62717	-0.36202	59.16739	1.04646	227.48	-15.32
83/11/ 6	2445644.5	-33.19654	-46.00905	-17.96859	0.82807	-0.53749	-0.32787	59.51229	1.04024	234.19	-17.57
83/11/ 6	2445645.0	-27.37755	-49.32895	-20.06245	0.88809	-0.44203	-0.28984	59.87802	1.03349	240.97	-19.58
83/11/ 7	2445645.5	-21.19598	-51.98724	-21.88746	0.93509	-0.34237	-0.24860	60.25781	1.02636	247.82	-21.30
83/11/ 7	2445646.0	-14.74068	-53.96071	-23.42428	0.96891	-0.24005	-0.20485	60.64439	1.01901	254.72	-22.72
83/11/ 8	2445646.5	-8.10084	-55.23625	-24.65816	0.98961	-0.13652	-0.15925	61.03026	1.01160	261.66	-23.83
83/11/ 8	2445647.0	-1.36466	-55.81025	-25.57880	0.99742	-0.03311	-0.11245	61.40783	1.00428	268.60	-24.62
83/11/ 9	2445647.5	5.38179	-55.68783	-26.18012	0.99272	0.06894	-0.06506	61.76970	0.99723	275.52	-25.08
83/11/ 9	2445648.0	12.05545	-54.88207	-26.45998	0.97601	0.16850	-0.01762	62.10883	0.99060	282.39	-25.22
83/11/10	2445648.5	18.57688	-53.41326	-26.41993	0.94787	0.26457	0.02933	62.41866	0.98454	289.18	-25.04
83/11/10	2445649.0	24.87081	-51.30809	-26.06486	0.90894	0.35627	0.07533	62.69334	0.97917	295.86	-24.57
83/11/11	2445649.5	30.86643	-48.59903	-25.40273	0.85990	0.44277	0.11993	62.92775	0.97460	302.42	-23.81
83/11/11	2445650.0	36.49763	-45.32368	-24.44435	0.80145	0.52337	0.16274	63.11767	0.97094	308.84	-22.79
83/11/12	2445650.5	41.70315	-41.52427	-23.20312	0.73432	0.59742	0.20340	63.25980	0.96825	315.12	-21.52
83/11/12	2445651.0	46.42665	-37.24722	-21.69484	0.65924	0.66432	0.24154	63.35184	0.96657	321.26	-20.03
83/11/13	2445651.5	50.61687	-32.54278	-19.93759	0.57697	0.72354	0.27686	63.39249	0.96595	327.26	-18.33
83/11/13	2445652.0	54.22768	-27.46475	-17.95159	0.48827	0.77456	0.30904	63.38148	0.96637	333.14	-16.45
83/11/14	2445652.5	57.21821	-22.07022	-15.75906	0.39394	0.81692	0.33780	63.31956	0.96781	338.91	-14.41
83/11/14	2445653.0	59.55312	-16.41938	-13.38423	0.29481	0.85018	0.36283	63.20844	0.97024	344.59	-12.22
83/11/15	2445653.5	61.20274	-10.57529	-10.85319	0.19173	0.87392	0.38388	63.05081	0.97358	350.20	-9.91
83/11/15	2445654.0	62.14350	-4.60371	-8.19389	0.08564	0.88777	0.40067	62.85021	0.97775	355.76	-7.49
83/11/16	2445654.5	62.35826	1.42722	-5.43600	-0.02248	0.89139	0.41295	62.61102	0.98265	1.31	-4.98
83/11/16	2445655.0	61.83677	7.44723	-2.61086	-0.13158	0.88450	0.42049	62.33830	0.98816	6.87	-2.40
83/11/17	2445655.5	60.57621	13.38437	0.24869	-0.24053	0.86689	0.42307	62.03773	0.99416	12.46	0.23
83/11/17	2445656.0	58.58172	19.16553	3.10847	-0.34810	0.83843	0.42053	61.71546	1.00049	18.12	2.89
83/11/18	2445656.5	55.86695	24.71708	5.93323	-0.45300	0.79909	0.41271	61.37795	1.00702	23.87	5.55
83/11/18	2445657.0	52.45455	29.96566	8.68695	-0.55387	0.74900	0.39954	61.03183	1.01361	29.74	8.18
83/11/19	2445657.5	48.37663	34.83917	11.33327	-0.64928	0.68840	0.38100	60.68368	1.02011	35.76	10.76

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
83/11/19	2445658.0	43.67505	39.26785	13.83592	-0.73779	0.61773	0.35714	60.33992	1.02638	41.96	13.26
83/11/20	2445658.5	38.40154	43.18549	16.15929	-0.81793	0.53761	0.32810	60.00656	1.03232	48.36	15.62
83/11/20	2445659.0	32.61765	46.53080	18.26910	-0.88827	0.44888	0.29412	59.68908	1.03780	54.97	17.82
83/11/21	2445659.5	26.39431	49.24876	20.13301	-0.94747	0.35255	0.25555	59.39224	1.04274	61.81	19.81
83/11/21	2445660.0	19.81124	51.29202	21.72132	-0.99430	0.24986	0.21282	59.11998	1.04707	68.88	21.56
83/11/22	2445660.5	12.95598	52.62218	23.00773	-1.02769	0.14223	0.16650	58.87535	1.05076	76.17	23.00
83/11/22	2445661.0	5.92257	53.21099	23.96995	-1.04678	0.03122	0.11721	58.66042	1.05379	83.65	24.12
83/11/23	2445661.5	-1.18990	53.04133	24.59032	-1.05096	-0.08145	0.06568	58.47634	1.05615	91.29	24.87
83/11/23	2445662.0	-8.27912	52.10793	24.85632	-1.03988	-0.19400	0.01270	58.32338	1.05790	99.03	25.23
83/11/24	2445662.5	-15.24140	50.41778	24.76097	-1.01349	-0.30461	-0.04089	58.20101	1.05907	106.82	25.18
83/11/24	2445663.0	-21.97372	47.99027	24.30304	-0.97204	-0.41144	-0.09422	58.10807	1.05973	114.60	24.72
83/11/25	2445663.5	-28.37569	44.85701	23.48721	-0.91606	-0.51272	-0.14643	58.04292	1.05995	122.32	23.87
83/11/25	2445664.0	-34.35153	41.06129	22.32400	-0.84636	-0.60679	-0.19666	58.00360	1.05981	129.92	22.64
83/11/26	2445664.5	-39.81187	36.65735	20.82959	-0.76403	-0.69208	-0.24410	57.98809	1.05939	137.36	21.05
83/11/26	2445665.0	-44.67544	31.70935	19.02554	-0.67037	-0.76723	-0.28797	57.99439	1.05876	144.63	19.15
83/11/27	2445665.5	-48.87049	26.29014	16.93839	-0.56689	-0.83104	-0.32759	58.02073	1.05798	151.72	16.97
83/11/27	2445666.0	-52.33604	20.47994	14.59909	-0.45525	-0.88254	-0.36233	58.06567	1.05708	158.63	14.56
83/11/28	2445666.5	-55.02287	14.36485	12.04249	-0.33725	-0.92097	-0.39168	58.12819	1.05610	165.37	11.96
83/11/28	2445667.0	-56.89428	8.03525	9.30663	-0.21478	-0.94582	-0.41520	58.20771	1.05503	171.96	9.20
83/11/29	2445667.5	-57.92654	1.58425	6.43212	-0.08978	-0.95680	-0.43258	58.30408	1.05387	178.43	6.33
83/11/29	2445668.0	-58.10919	-4.89402	3.46134	0.03578	-0.95388	-0.44360	58.41755	1.05259	184.81	3.40
83/11/30	2445668.5	-57.44499	-11.30594	0.43771	0.15996	-0.93726	-0.44817	58.54864	1.05115	191.13	0.43
83/11/30	2445669.0	-55.94972	-17.56008	-2.59503	0.28088	-0.90738	-0.44631	58.69806	1.04948	197.42	-2.53
83/12/ 1	2445669.5	-53.65164	-23.56867	-5.59362	0.39674	-0.86488	-0.43812	58.86654	1.04755	203.72	-5.45
83/12/ 1	2445670.0	-50.59077	-29.24902	-8.51598	0.50586	-0.81061	-0.42384	59.05466	1.04529	210.03	-8.29
83/12/ 2	2445670.5	-46.81795	-34.52487	-11.32192	0.60673	-0.74561	-0.40380	59.26275	1.04265	216.41	-11.01
83/12/ 2	2445671.0	-42.39369	-39.32746	-13.97374	0.69802	-0.67107	-0.37841	59.49066	1.03960	222.85	-13.59
83/12/ 3	2445671.5	-37.38683	-43.59646	-16.43684	0.77860	-0.58828	-0.34816	59.73773	1.03610	229.38	-15.97
83/12/ 3	2445672.0	-31.87312	-47.28076	-18.68017	0.84756	-0.49864	-0.31361	60.00262	1.03216	236.02	-18.14
83/12/ 4	2445672.5	-25.93368	-50.33884	-20.67655	0.90422	-0.40361	-0.27535	60.28328	1.02778	242.74	-20.06
83/12/ 4	2445673.0	-19.65346	-52.73909	-22.40304	0.94813	-0.30464	-0.23401	60.57695	1.02299	249.56	-21.71
83/12/ 5	2445673.5	-13.11974	-54.45980	-23.84099	0.97906	-0.20318	-0.19025	60.88013	1.01786	256.46	-23.05
83/12/ 5	2445674.0	-6.42062	-55.48895	-24.97617	0.99698	-0.10065	-0.14471	61.18870	1.01244	263.40	-24.09
83/12/ 6	2445674.5	0.35621	-55.82383	-25.79866	1.00205	0.00162	-0.09802	61.49795	1.00684	270.37	-24.80
83/12/ 6	2445675.0	7.12477	-55.47049	-26.30278	0.99460	0.10237	-0.05080	61.80270	1.00114	277.32	-25.19
83/12/ 7	2445675.5	13.80167	-54.44315	-26.48686	0.97508	0.20046	-0.00361	62.09747	0.99548	284.23	-25.25
83/12/ 7	2445676.0	20.30706	-52.76346	-26.35299	0.94405	0.29484	0.04300	62.37660	0.98996	291.05	-24.99
83/12/ 8	2445676.5	26.56523	-50.45981	-25.90681	0.90219	0.38457	0.08854	62.63439	0.98472	297.77	-24.43
83/12/ 8	2445677.0	32.50509	-47.56657	-25.15716	0.85019	0.46881	0.13254	62.86527	0.97988	304.35	-23.59
83/12/ 9	2445677.5	38.06062	-44.12345	-24.11583	0.78882	0.54683	0.17460	63.06396	0.97558	310.78	-22.48
83/12/ 9	2445678.0	43.17104	-40.17483	-22.79733	0.71888	0.61798	0.21433	63.22558	0.97192	317.06	-21.14
83/12/10	2445678.5	47.78098	-35.76925	-21.21857	0.64117	0.68168	0.25139	63.34579	0.96901	323.18	-19.57
83/12/10	2445679.0	51.84062	-30.95887	-19.39873	0.55652	0.73743	0.28547	63.42091	0.96696	329.15	-17.81
83/12/11	2445679.5	55.30575	-25.79910	-17.35900	0.46576	0.78478	0.31628	63.44804	0.96584	334.99	-15.88
83/12/11	2445680.0	58.13779	-20.34822	-15.12249	0.36972	0.82333	0.34354	63.42509	0.96570	340.71	-13.79

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
83/12/12	2445680.5	60.30397	-14.66710	-12.71406	0.26927	0.85271	0.36700	63.35093	0.96660	346.33	-11.58
83/12/12	2445681.0	61.77737	-8.81896	-10.16025	0.16530	0.87260	0.38643	63.22537	0.96854	351.88	-9.25
83/12/13	2445681.5	62.53713	-2.86914	-7.48916	0.05870	0.88269	0.40160	63.04928	0.97153	357.37	-6.82
83/12/13	2445682.0	62.56871	3.11514	-4.73039	-0.04957	0.88273	0.41229	62.82455	0.97553	2.85	-4.32
83/12/14	2445682.5	61.86420	9.06502	-1.91496	-0.15849	0.87250	0.41829	62.55414	0.98048	8.34	-1.75
83/12/14	2445683.0	60.42270	14.91027	0.92479	-0.26701	0.85181	0.41944	62.24206	0.98631	13.86	0.85
83/12/15	2445683.5	58.25080	20.57971	3.75536	-0.37398	0.82057	0.41556	61.89332	0.99291	19.46	3.48
83/12/15	2445684.0	55.36305	26.00166	6.54220	-0.47818	0.77873	0.40651	61.51385	1.00017	25.16	6.11
83/12/16	2445684.5	51.78256	31.10457	9.24999	-0.57832	0.72638	0.39220	61.11048	1.00792	30.99	8.71
83/12/16	2445685.0	47.54149	35.81781	11.84295	-0.67301	0.66371	0.37260	60.69072	1.01602	36.99	11.25
83/12/17	2445685.5	42.68153	40.07259	14.28521	-0.76083	0.59108	0.34771	60.26270	1.02427	43.19	13.71
83/12/17	2445686.0	37.25428	43.80315	16.54131	-0.84028	0.50902	0.31765	59.83488	1.03251	49.62	16.05
83/12/18	2445686.5	31.32145	46.94804	18.57680	-0.90988	0.41827	0.28261	59.41590	1.04053	56.29	18.22
83/12/18	2445687.0	24.95473	49.45162	20.35891	-0.96816	0.31982	0.24289	59.01429	1.04815	63.22	20.18
83/12/19	2445687.5	18.23548	51.26562	21.85735	-1.01376	0.21487	0.19892	58.63822	1.05520	70.42	21.89
83/12/19	2445688.0	11.25392	52.35074	23.04509	-1.04543	0.10485	0.15124	58.29517	1.06151	77.87	23.29
83/12/20	2445688.5	4.10796	52.67823	23.89919	-1.06216	-0.00856	0.10052	57.99174	1.06694	85.54	24.34
83/12/20	2445689.0	-3.09841	52.23121	24.40165	-1.06317	-0.12353	0.04754	57.73336	1.07138	93.39	25.00
83/12/21	2445689.5	-10.25710	51.00586	24.54005	-1.04803	-0.23806	-0.00683	57.52409	1.07475	101.37	25.25
83/12/21	2445690.0	-17.25824	49.01208	24.30815	-1.01666	-0.35010	-0.06164	57.36652	1.07702	109.40	25.07
83/12/22	2445690.5	-23.99274	46.27382	23.70629	-0.96937	-0.45756	-0.11591	57.26173	1.07819	117.41	24.46
83/12/22	2445691.0	-30.35484	42.82882	22.74149	-0.90685	-0.55846	-0.16865	57.20926	1.07828	125.33	23.42
83/12/23	2445691.5	-36.24475	38.72798	21.42746	-0.83014	-0.65093	-0.21888	57.20729	1.07739	133.10	22.00
83/12/23	2445692.0	-41.57093	34.03414	19.78420	-0.74064	-0.73332	-0.26572	57.25276	1.07560	140.69	20.22
83/12/24	2445692.5	-46.25216	28.82054	17.83756	-0.63999	-0.80420	-0.30834	57.34164	1.07303	148.07	18.12
83/12/24	2445693.0	-50.21917	23.16902	15.61856	-0.53006	-0.86247	-0.34604	57.46919	1.06984	155.23	15.77
83/12/25	2445693.5	-53.41583	17.16802	13.16251	-0.41285	-0.90729	-0.37825	57.63023	1.06616	162.18	13.20
83/12/25	2445694.0	-55.79986	10.91053	10.50822	-0.29045	-0.93815	-0.40452	57.81943	1.06213	168.94	10.47
83/12/26	2445694.5	-57.34319	4.49202	7.69706	-0.16495	-0.95482	-0.42454	58.03159	1.05788	175.52	7.62
83/12/26	2445695.0	-58.03186	-1.99141	4.77203	-0.03841	-0.95735	-0.43812	58.26177	1.05354	181.97	4.70
83/12/27	2445695.5	-57.86561	-8.44487	1.77696	0.08718	-0.94604	-0.44522	58.50557	1.04919	188.30	1.74
83/12/27	2445696.0	-56.85728	-14.77623	-1.24431	0.20995	-0.92140	-0.44588	58.75914	1.04492	194.57	-1.21
83/12/28	2445696.5	-55.03199	-20.89750	-4.24865	0.32815	-0.88413	-0.44025	59.01928	1.04077	200.79	-4.13
83/12/28	2445697.0	-52.42607	-26.72603	-7.19430	0.44021	-0.83511	-0.42859	59.28349	1.03677	207.01	-6.97
83/12/29	2445697.5	-49.08612	-32.18552	-10.04143	0.54469	-0.77533	-0.41122	59.54985	1.03292	213.25	-9.71
83/12/29	2445698.0	-45.06773	-37.20681	-12.75260	0.64035	-0.70591	-0.38852	59.81702	1.02922	219.54	-12.31
83/12/30	2445698.5	-40.43439	-41.72859	-15.29324	0.72611	-0.62803	-0.36094	60.08409	1.02564	225.90	-14.75
83/12/30	2445699.0	-35.25624	-45.69785	-17.63197	0.80109	-0.54297	-0.32898	60.35049	1.02215	232.35	-16.99
83/12/31	2445699.5	-29.60884	-49.07027	-19.74089	0.86458	-0.45201	-0.29317	60.61582	1.01870	238.89	-19.01
83/12/31	2445700.0	-23.57195	-51.81046	-21.59580	0.91603	-0.35650	-0.25407	60.87971	1.01526	245.54	-20.78
84/ 1/ 1	2445700.5	-17.22835	-53.89204	-23.17639	0.95510	-0.25775	-0.21226	61.14174	1.01179	252.27	-22.28
84/ 1/ 1	2445701.0	-10.66263	-55.29759	-24.46631	0.98161	-0.15709	-0.16834	61.40126	1.00825	259.09	-23.48
84/ 1/ 2	2445701.5	-3.96005	-56.01854	-25.45324	0.99552	-0.05580	-0.12289	61.65733	1.00463	265.96	-24.38
84/ 1/ 2	2445702.0	2.79450	-56.05490	-26.12887	0.99699	0.04486	-0.07651	61.90864	1.00093	272.85	-24.96
84/ 1/ 3	2445702.5	9.51754	-55.41488	-26.48881	0.98628	0.14374	-0.02977	62.15344	0.99714	279.75	-25.23

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 1/ 3	2445703.0	16.12791	-54.11443	-26.53250	0.96380	0.23970	0.01679	62.38954	0.99330	286.60	-25.17
84/ 1/ 4	2445703.5	22.54761	-52.17675	-26.26303	0.93007	0.33174	0.06263	62.61434	0.98944	293.37	-24.80
84/ 1/ 4	2445704.0	28.70246	-49.63167	-25.68692	0.88570	0.41892	0.10725	62.82478	0.98563	300.04	-24.13
84/ 1/ 5	2445704.5	34.52273	-46.51506	-24.81397	0.83139	0.50038	0.15021	63.01748	0.98191	306.58	-23.19
84/ 1/ 5	2445705.0	39.94361	-42.86818	-23.65692	0.76789	0.57538	0.19108	63.18879	0.97838	312.98	-21.99
84/ 1/ 6	2445705.5	44.90559	-38.73711	-22.23127	0.69602	0.64326	0.22946	63.33486	0.97513	319.22	-20.55
84/ 1/ 6	2445706.0	49.35475	-34.17210	-20.55502	0.61660	0.70343	0.26502	63.45181	0.97224	325.30	-18.90
84/ 1/ 7	2445706.5	53.24294	-29.22706	-18.64841	0.53052	0.75540	0.29744	63.53578	0.96982	331.24	-17.07
84/ 1/ 7	2445707.0	56.52798	-23.95902	-16.53372	0.43864	0.79874	0.32642	63.58311	0.96796	337.03	-15.07
84/ 1/ 8	2445707.5	59.17369	-18.42768	-14.23507	0.34188	0.83310	0.35172	63.59042	0.96677	342.70	-12.94
84/ 1/ 8	2445708.0	61.15001	-12.69498	-11.77820	0.24113	0.85816	0.37311	63.55480	0.96632	348.27	-10.68
84/ 1/ 9	2445708.5	62.43308	-6.82477	-9.19034	0.13732	0.87367	0.39037	63.47385	0.96671	353.76	-8.33
84/ 1/ 9	2445709.0	63.00530	-0.88243	-6.50007	0.03138	0.87942	0.40332	63.34585	0.96800	359.20	-5.89
84/ 1/10	2445709.5	62.85545	5.06536	-3.73717	-0.07574	0.87525	0.41179	63.16987	0.97025	4.61	-3.39
84/ 1/10	2445710.0	61.97889	10.95098	-0.93251	-0.18305	0.86104	0.41562	62.94582	0.97347	10.02	-0.85
84/ 1/11	2445710.5	60.37773	16.70607	1.88203	-0.28953	0.83671	0.41469	62.67460	0.97769	15.47	1.72
84/ 1/11	2445711.0	58.06116	22.26196	4.67376	-0.39413	0.80222	0.40887	62.35813	0.98288	20.98	4.30
84/ 1/12	2445711.5	55.04574	27.54997	7.40924	-0.49571	0.75761	0.39807	61.99944	0.98902	26.59	6.86
84/ 1/12	2445712.0	51.35585	32.50189	10.05453	-0.59309	0.70300	0.38222	61.60267	0.99602	32.33	9.39
84/ 1/13	2445712.5	47.02406	37.05061	12.57537	-0.68504	0.63859	0.36132	61.17312	1.00381	38.23	11.86
84/ 1/13	2445713.0	42.09163	41.13077	14.93749	-0.77024	0.56471	0.33536	60.71717	1.01224	44.34	14.24
84/ 1/14	2445713.5	36.60885	44.67971	17.10698	-0.84732	0.48182	0.30446	60.24229	1.02117	50.67	16.50
84/ 1/14	2445714.0	30.63540	47.63848	19.05077	-0.91489	0.39056	0.26875	59.75688	1.03043	57.26	18.59
84/ 1/15	2445714.5	24.24054	49.95313	20.73716	-0.97153	0.29177	0.22850	59.27013	1.03981	64.11	20.48
84/ 1/15	2445715.0	17.50300	51.57615	22.13654	-1.01585	0.18652	0.18407	58.79184	1.04911	71.25	22.12
84/ 1/16	2445715.5	10.51069	52.46804	23.22211	-1.04656	0.07611	0.13593	58.33212	1.05809	78.67	23.46
84/ 1/16	2445716.0	3.35988	52.59896	23.97076	-1.06248	-0.03791	0.08469	57.90110	1.06652	86.35	24.46
84/ 1/17	2445716.5	-3.84597	51.95038	24.36392	-1.06267	-0.15376	0.03108	57.50855	1.07419	94.23	25.07
84/ 1/17	2445717.0	-10.99790	50.51656	24.38842	-1.04648	-0.26944	-0.02402	57.16355	1.08087	102.28	25.25
84/ 1/18	2445717.5	-17.98370	48.30583	24.03729	-1.01359	-0.38281	-0.07967	56.87405	1.08640	110.42	25.00
84/ 1/18	2445718.0	-24.69046	45.34136	23.31038	-0.96413	-0.49164	-0.13481	56.64655	1.09061	118.57	24.30
84/ 1/19	2445718.5	-31.00756	41.66146	22.21478	-0.89866	-0.59370	-0.18836	56.48577	1.09341	126.66	23.16
84/ 1/19	2445719.0	-36.82971	37.31925	20.76496	-0.81819	-0.68687	-0.23923	56.39448	1.09474	134.62	21.61
84/ 1/20	2445719.5	-42.06004	32.38163	18.98257	-0.72417	-0.76922	-0.28639	56.37335	1.09460	142.41	19.68
84/ 1/20	2445720.0	-46.61282	26.92769	16.89600	-0.61845	-0.83909	-0.32891	56.42101	1.09304	149.99	17.43
84/ 1/21	2445720.5	-50.41580	21.04654	14.53959	-0.50314	-0.89519	-0.36596	56.53414	1.09015	157.34	14.90
84/ 1/21	2445721.0	-53.41189	14.83479	11.95261	-0.38058	-0.93660	-0.39690	56.70772	1.08609	164.48	12.17
84/ 1/22	2445721.5	-55.56026	8.39386	9.17812	-0.25322	-0.96281	-0.42126	56.93538	1.08101	171.41	9.28
84/ 1/22	2445722.0	-56.83662	1.82725	6.26175	-0.12349	-0.97372	-0.43876	57.20969	1.07513	178.16	6.28
84/ 1/23	2445722.5	-57.23298	-4.76204	3.25048	0.00626	-0.96958	-0.44928	57.52266	1.06863	184.76	3.24
84/ 1/23	2445723.0	-56.75685	-11.27377	0.19150	0.13380	-0.95094	-0.45287	57.86600	1.06173	191.23	0.19
84/ 1/24	2445723.5	-55.43003	-17.61240	-2.86882	0.25714	-0.91862	-0.44972	58.23157	1.05462	197.63	-2.82
84/ 1/24	2445724.0	-53.28717	-23.68867	-5.88575	0.37450	-0.87365	-0.44012	58.61158	1.04748	203.97	-5.76
84/ 1/25	2445724.5	-50.37412	-29.42076	-8.81694	0.48433	-0.81719	-0.42447	58.99891	1.04045	210.29	-8.59
84/ 1/25	2445725.0	-46.74636	-34.73508	-11.62292	0.58535	-0.75050	-0.40323	59.38721	1.03368	216.61	-11.29

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/ 1/26	2445725.5	-42.46731	-39.56688	-14.26755	0.67649	-0.67492	-0.37691	59.77101	1.02724	222.98	-13.81
84/ 1/26	2445726.0	-37.60689	-43.86044	-16.71827	0.75691	-0.59179	-0.34606	60.14579	1.02122	229.39	-16.14
84/ 1/27	2445726.5	-32.24004	-47.56923	-18.94628	0.82594	-0.50247	-0.31124	60.50796	1.01564	235.87	-18.25
84/ 1/27	2445727.0	-26.44550	-50.65587	-20.92665	0.88314	-0.40829	-0.27303	60.85480	1.01054	242.43	-20.11
84/ 1/28	2445727.5	-20.30456	-53.09192	-22.63838	0.92819	-0.31057	-0.23201	61.18434	1.00589	249.07	-21.72
84/ 1/28	2445728.0	-13.90009	-54.85771	-24.06437	0.96095	-0.21058	-0.18875	61.49532	1.00169	255.78	-23.04
84/ 1/29	2445728.5	-7.31552	-55.94202	-25.19141	0.98138	-0.10954	-0.14382	61.78700	0.99790	262.55	-24.06
84/ 1/29	2445729.0	-0.63400	-56.34181	-26.01009	0.98960	-0.00863	-0.09779	62.05905	0.99446	269.36	-24.78
84/ 1/30	2445729.5	6.06241	-56.06183	-26.51474	0.98582	0.09101	-0.05118	62.31142	0.99134	276.17	-25.18
84/ 1/30	2445730.0	12.69344	-55.11429	-26.70335	0.97036	0.18832	-0.00455	62.54420	0.98848	282.97	-25.27
84/ 1/31	2445730.5	19.18137	-53.51842	-26.57738	0.94364	0.28229	0.04162	62.75750	0.98584	289.72	-25.06
84/ 1/31	2445731.0	25.45158	-51.30009	-26.14172	0.90616	0.37198	0.08683	62.95134	0.98338	296.39	-24.54
84/ 2/ 1	2445731.5	31.43319	-48.49130	-25.40443	0.85852	0.45651	0.13061	63.12556	0.98108	302.95	-23.73
84/ 2/ 1	2445732.0	37.05954	-45.12976	-24.37667	0.80137	0.53508	0.17253	63.27975	0.97891	309.39	-22.66
84/ 2/ 2	2445732.5	42.26869	-41.25835	-23.07244	0.73545	0.60695	0.21219	63.41317	0.97688	315.69	-21.34
84/ 2/ 2	2445733.0	47.00381	-36.92461	-21.50841	0.66153	0.67149	0.24919	63.52477	0.97500	321.85	-19.79
84/ 2/ 3	2445733.5	51.21355	-32.18026	-19.70372	0.58045	0.72812	0.28320	63.61315	0.97328	327.86	-18.04
84/ 2/ 3	2445734.0	54.85231	-27.08063	-17.67976	0.49308	0.77633	0.31389	63.67661	0.97177	333.72	-16.12
84/ 2/ 4	2445734.5	57.88053	-21.68417	-15.45995	0.40031	0.81570	0.34098	63.71318	0.97051	339.46	-14.04
84/ 2/ 4	2445735.0	60.26483	-16.05197	-13.06954	0.30309	0.84589	0.36423	63.72071	0.96957	345.09	-11.84
84/ 2/ 5	2445735.5	61.97820	-10.24720	-10.53536	0.20235	0.86662	0.38340	63.69691	0.96900	350.61	-9.52
84/ 2/ 5	2445736.0	63.00010	-4.33475	-7.88566	0.09906	0.87766	0.39831	63.63951	0.96890	356.06	-7.12
84/ 2/ 6	2445736.5	63.31656	1.61932	-5.14988	-0.00580	0.87888	0.40879	63.54629	0.96932	1.47	-4.65
84/ 2/ 6	2445737.0	62.92026	7.54812	-2.35848	-0.11124	0.87019	0.41472	63.41527	0.97036	6.84	-2.13
84/ 2/ 7	2445737.5	61.81063	13.38435	0.45725	-0.21627	0.85155	0.41596	63.24479	0.97208	12.22	0.41
84/ 2/ 7	2445738.0	59.99393	19.06071	3.26535	-0.31986	0.82299	0.41245	63.03368	0.97455	17.63	2.97
84/ 2/ 8	2445738.5	57.48339	24.51029	6.03337	-0.42098	0.78460	0.40412	62.78133	0.97782	23.09	5.51
84/ 2/ 8	2445739.0	54.29934	29.66693	8.72856	-0.51856	0.73652	0.39094	62.48786	0.98194	28.65	8.03
84/ 2/ 9	2445739.5	50.46942	34.46575	11.31804	-0.61152	0.67898	0.37291	62.15423	0.98693	34.33	10.49
84/ 2/ 9	2445740.0	46.02875	38.84355	13.76902	-0.69872	0.61226	0.35005	61.78231	0.99278	40.16	12.88
84/ 2/10	2445740.5	41.02022	42.73949	16.04906	-0.77901	0.53676	0.32245	61.37503	0.99947	46.18	15.16
84/ 2/10	2445741.0	35.49465	46.09569	18.12638	-0.85120	0.45297	0.29021	60.93643	1.00695	52.40	17.31
84/ 2/11	2445741.5	29.51105	48.85811	19.97019	-0.91406	0.36153	0.25353	60.47169	1.01513	58.87	19.28
84/ 2/11	2445742.0	23.13672	50.97745	21.55114	-0.96637	0.26322	0.21264	59.98717	1.02390	65.59	21.05
84/ 2/12	2445742.5	16.44730	52.41028	22.84185	-1.00691	0.15899	0.16788	59.49035	1.03312	72.58	22.58
84/ 2/12	2445743.0	9.52651	53.12029	23.81749	-1.03450	0.04998	0.11968	58.98977	1.04260	79.83	23.81
84/ 2/13	2445743.5	2.46580	53.07966	24.45647	-1.04805	-0.06243	0.06857	58.49486	1.05215	87.34	24.71
84/ 2/13	2445744.0	-4.63646	52.27051	24.74121	-1.04663	-0.17667	0.01519	58.01577	1.06154	95.07	25.24
84/ 2/14	2445744.5	-11.67614	50.68640	24.65890	-1.02947	-0.29095	-0.03968	57.56305	1.07053	102.97	25.36
84/ 2/14	2445745.0	-18.54502	48.33369	24.20235	-0.99614	-0.40329	-0.09516	57.14732	1.07888	110.99	25.06
84/ 2/15	2445745.5	-25.13284	45.23267	23.37068	-0.94650	-0.51156	-0.15028	56.77889	1.08634	119.06	24.31
84/ 2/15	2445746.0	-31.32994	41.41836	22.16994	-0.88084	-0.61355	-0.20396	56.46727	1.09267	127.10	23.12
84/ 2/16	2445746.5	-37.03016	36.94082	20.61353	-0.79993	-0.70705	-0.25512	56.22076	1.09768	135.07	21.51
84/ 2/16	2445747.0	-42.13398	31.86472	18.72229	-0.70498	-0.78996	-0.30265	56.04602	1.10119	142.90	19.51
84/ 2/17	2445747.5	-46.55172	26.26835	16.52435	-0.59766	-0.86038	-0.34552	55.94768	1.10310	150.56	17.18

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 2/17	2445748.0	-50.20651	20.24185	14.05459	-0.48006	-0.91674	-0.38278	55.92815	1.10335	158.04	14.55
84/ 2/18	2445748.5	-53.03676	13.88482	11.35369	-0.35460	-0.95783	-0.41365	55.98743	1.10194	165.33	11.70
84/ 2/18	2445749.0	-54.99798	7.30343	8.46707	-0.22389	-0.98290	-0.43754	56.12316	1.09894	172.44	8.68
84/ 2/19	2445749.5	-56.06388	0.60732	5.44344	-0.09067	-0.99170	-0.45407	56.33079	1.09447	179.38	5.55
84/ 2/19	2445750.0	-56.22649	-6.09359	2.33337	0.04240	-0.98439	-0.46306	56.60384	1.08869	186.19	2.36
84/ 2/20	2445750.5	-55.49559	-12.69206	-0.81217	0.17278	-0.96158	-0.46456	56.93425	1.08181	192.88	-0.82
84/ 2/20	2445751.0	-53.89742	-19.08620	-3.94313	0.29814	-0.92423	-0.45881	57.31286	1.07406	199.50	-3.95
84/ 2/21	2445751.5	-51.47288	-25.18156	-7.01158	0.41649	-0.87358	-0.44618	57.72981	1.06568	206.07	-6.98
84/ 2/21	2445752.0	-48.27544	-30.89272	-9.97262	0.52612	-0.81103	-0.42718	58.17500	1.05691	212.62	-9.87
84/ 2/22	2445752.5	-44.36890	-36.14436	-12.78509	0.62568	-0.73815	-0.40241	58.63849	1.04798	219.17	-12.59
84/ 2/22	2445753.0	-39.82521	-40.87184	-15.41204	0.71412	-0.65652	-0.37251	59.11079	1.03911	225.74	-15.11
84/ 2/23	2445753.5	-34.72238	-45.02134	-17.82101	0.79069	-0.56774	-0.33816	59.58316	1.03047	232.36	-17.40
84/ 2/23	2445754.0	-29.14260	-48.54975	-19.98414	0.85489	-0.47337	-0.30003	60.04778	1.02222	239.03	-19.44
84/ 2/24	2445754.5	-23.17067	-51.42430	-21.87816	0.90646	-0.37490	-0.25880	60.49787	1.01449	245.74	-21.20
84/ 2/24	2445755.0	-16.89257	-53.62203	-23.48426	0.94530	-0.27374	-0.21512	60.92775	1.00737	252.51	-22.67
84/ 2/25	2445755.5	-10.39432	-55.12925	-24.78797	0.97149	-0.17121	-0.16961	61.33286	1.00093	259.32	-23.84
84/ 2/25	2445756.0	-3.76109	-55.94091	-25.77893	0.98521	-0.06854	-0.12286	61.70968	0.99520	266.15	-24.69
84/ 2/26	2445756.5	2.92366	-56.06000	-26.45070	0.98675	0.03312	-0.07544	62.05571	0.99019	272.99	-25.23
84/ 2/26	2445757.0	9.57873	-55.49694	-26.80055	0.97651	0.13272	-0.02788	62.36932	0.98588	279.79	-25.45
84/ 2/27	2445757.5	16.12575	-54.26910	-26.82925	0.95493	0.22927	0.01931	62.64969	0.98225	286.55	-25.36
84/ 2/27	2445758.0	22.48963	-52.40025	-26.54087	0.92252	0.32186	0.06567	62.89664	0.97926	293.23	-24.96
84/ 2/28	2445758.5	28.59894	-49.92013	-25.94265	0.87986	0.40964	0.11073	63.11053	0.97684	299.81	-24.27
84/ 2/28	2445759.0	34.38633	-46.86398	-25.04478	0.82757	0.49183	0.15408	63.29213	0.97494	306.27	-23.31
84/ 2/29	2445759.5	39.78885	-43.27217	-23.86026	0.76632	0.56770	0.19531	63.44246	0.97349	312.60	-22.09
84/ 2/29	2445760.0	44.74827	-39.18974	-22.40474	0.69685	0.63660	0.23405	63.56269	0.97244	318.79	-20.64
84/ 3/ 1	2445760.5	49.21141	-34.66601	-20.69634	0.61991	0.69792	0.26993	63.65402	0.97172	324.84	-18.97
84/ 3/ 1	2445761.0	53.13047	-29.75414	-18.75553	0.53632	0.75112	0.30262	63.71755	0.97129	330.75	-17.12
84/ 3/ 2	2445761.5	56.46327	-24.51077	-16.60491	0.44694	0.79574	0.33183	63.75423	0.97112	336.53	-15.10
84/ 3/ 2	2445762.0	59.17357	-18.99551	-14.26907	0.35265	0.83135	0.35728	63.76478	0.97116	342.20	-12.93
84/ 3/ 3	2445762.5	61.23132	-13.27054	-11.77436	0.25440	0.85761	0.37870	63.74965	0.97141	347.77	-10.64
84/ 3/ 3	2445763.0	62.61289	-7.40013	-9.14874	0.15315	0.87426	0.39590	63.70899	0.97186	353.26	-8.26
84/ 3/ 4	2445763.5	63.30127	-1.45013	-6.42156	0.04988	0.88109	0.40867	63.64268	0.97253	358.69	-5.79
84/ 3/ 4	2445764.0	63.28625	4.51251	-3.62330	-0.05439	0.87797	0.41686	63.55030	0.97343	4.08	-3.27
84/ 3/ 5	2445764.5	62.56454	10.42022	-0.78539	-0.15863	0.86487	0.42036	63.43122	0.97461	9.46	-0.71
84/ 3/ 5	2445765.0	61.13990	16.20538	2.06004	-0.26179	0.84179	0.41907	63.28464	0.97610	14.85	1.87
84/ 3/ 6	2445765.5	59.02320	21.80078	4.88038	-0.36281	0.80886	0.41295	63.10967	0.97796	20.27	4.44
84/ 3/ 6	2445766.0	56.23249	27.14017	7.64280	-0.46064	0.76623	0.40197	62.90544	0.98025	25.76	6.98
84/ 3/ 7	2445766.5	52.79303	32.15878	10.31450	-0.55421	0.71418	0.38616	62.67121	0.98302	31.35	9.47
84/ 3/ 7	2445767.0	48.73732	36.79387	12.86291	-0.64244	0.65304	0.36558	62.40649	0.98633	37.05	11.89
84/ 3/ 8	2445767.5	44.10511	40.98526	15.25603	-0.72427	0.58324	0.34032	62.11118	0.99023	42.90	14.22
84/ 3/ 8	2445768.0	38.94336	44.67596	17.46265	-0.79863	0.50528	0.31054	61.78568	0.99476	48.92	16.42
84/ 3/ 9	2445768.5	33.30627	47.81274	19.45268	-0.86446	0.41979	0.27640	61.43104	0.99995	55.14	18.46
84/ 3/ 9	2445769.0	27.25519	50.34689	21.19748	-0.92070	0.32746	0.23816	61.04906	1.00581	61.57	20.32
84/ 3/10	2445769.5	20.85851	52.23495	22.67022	-0.96634	0.22915	0.19612	60.64245	1.01231	68.23	21.95
84/ 3/10	2445770.0	14.19153	53.43953	23.84629	-1.00036	0.12581	0.15063	60.21485	1.01943	75.13	23.33

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/ 3/11	2445770.5	7.33609	53.93028	24.70380	-1.02183	0.01856	0.10213	59.77099	1.02709	82.25	24.41
84/ 3/11	2445771.0	0.38019	53.68488	25.22406	-1.02989	-0.09135	0.05113	59.31664	1.03520	89.59	25.17
84/ 3/12	2445771.5	-6.58271	52.69008	25.39218	-1.02379	-0.20248	-0.00175	58.85864	1.04362	97.12	25.56
84/ 3/12	2445772.0	-13.45461	50.94286	25.19763	-1.00294	-0.31326	-0.05583	58.40481	1.05220	104.79	25.56
84/ 3/13	2445772.5	-20.13418	48.45142	24.63491	-0.96695	-0.42194	-0.11033	57.96382	1.06076	112.57	25.15
84/ 3/13	2445773.0	-26.51833	45.23622	23.70409	-0.91571	-0.52666	-0.16438	57.54495	1.06907	120.38	24.33
84/ 3/14	2445773.5	-32.50419	41.33074	22.41143	-0.84940	-0.62545	-0.21702	57.15789	1.07692	128.18	23.09
84/ 3/14	2445774.0	-37.99138	36.78194	20.76980	-0.76858	-0.71629	-0.26726	56.81233	1.08407	135.93	21.44
84/ 3/15	2445774.5	-42.88464	31.65038	18.79892	-0.67421	-0.79721	-0.31407	56.51759	1.09029	143.57	19.43
84/ 3/15	2445775.0	-47.09663	26.00968	16.52544	-0.56767	-0.86634	-0.35645	56.28220	1.09537	151.09	17.07
84/ 3/16	2445775.5	-50.55077	19.94551	13.98268	-0.45075	-0.92200	-0.39344	56.11345	1.09912	158.47	14.43
84/ 3/16	2445776.0	-53.18392	13.55385	11.21005	-0.32563	-0.96284	-0.42420	56.01697	1.10138	165.70	11.54
84/ 3/17	2445776.5	-54.94868	6.93870	8.25223	-0.19476	-0.98787	-0.44803	55.99644	1.10206	172.80	8.47
84/ 3/17	2445777.0	-55.81511	0.20929	5.15795	-0.06081	-0.99653	-0.46442	56.05332	1.10112	179.79	5.28
84/ 3/18	2445777.5	-55.77172	-6.52300	1.97870	0.07345	-0.98875	-0.47309	56.18674	1.09856	186.67	2.02
84/ 3/18	2445778.0	-54.82562	-13.14787	-1.23286	0.20531	-0.96491	-0.47397	56.39357	1.09446	193.49	-1.25
84/ 3/19	2445778.5	-53.00179	-19.55912	-4.42431	0.33223	-0.92584	-0.46720	56.66854	1.08895	200.26	-4.48
84/ 3/19	2445779.0	-50.34172	-25.65741	-7.54497	0.45189	-0.87272	-0.45313	57.00455	1.08221	207.01	-7.61
84/ 3/20	2445779.5	-46.90137	-31.35248	-10.54709	0.56234	-0.80703	-0.43229	57.39301	1.07443	213.76	-10.59
84/ 3/20	2445780.0	-42.74875	-36.56478	-13.38685	0.66198	-0.73045	-0.40531	57.82427	1.06586	220.54	-13.39
84/ 3/21	2445780.5	-37.96142	-41.22650	-16.02508	0.74960	-0.64475	-0.37291	58.28805	1.05672	227.36	-15.96
84/ 3/21	2445781.0	-32.62388	-45.28206	-18.42775	0.82434	-0.55176	-0.33588	58.77384	1.04728	234.23	-18.27
84/ 3/22	2445781.5	-26.82522	-48.68808	-20.56614	0.88570	-0.45324	-0.29500	59.27130	1.03775	241.15	-20.30
84/ 3/22	2445782.0	-20.65699	-51.41296	-22.41685	0.93346	-0.35090	-0.25106	59.77055	1.02835	248.11	-22.03
84/ 3/23	2445782.5	-14.21139	-53.43628	-23.96171	0.96763	-0.24633	-0.20480	60.26245	1.01928	255.11	-23.43
84/ 3/23	2445783.0	-7.57976	-54.74795	-25.18748	0.98844	-0.14098	-0.15695	60.73878	1.01070	262.12	-24.50
84/ 3/24	2445783.5	-0.85146	-55.34730	-26.08557	0.99625	-0.03620	-0.10815	61.19237	1.00276	269.12	-25.23
84/ 3/24	2445784.0	5.88704	-55.24223	-26.65168	0.99154	0.06684	-0.05901	61.61715	0.99554	276.08	-25.63
84/ 3/25	2445784.5	12.55287	-54.44830	-26.88547	0.97489	0.16705	-0.01011	62.00823	0.98915	282.98	-25.69
84/ 3/25	2445785.0	19.06716	-52.98797	-26.79024	0.94690	0.26347	0.03806	62.36183	0.98361	289.79	-25.44
84/ 3/26	2445785.5	25.35542	-50.88985	-26.37258	0.90826	0.35525	0.08503	62.67525	0.97896	296.48	-24.88
84/ 3/26	2445786.0	31.34782	-48.18812	-25.64217	0.85965	0.44159	0.13035	62.94681	0.97519	303.05	-24.04
84/ 3/27	2445786.5	36.97931	-44.92195	-24.61148	0.80181	0.52181	0.17363	63.17575	0.97228	309.46	-22.93
84/ 3/27	2445787.0	42.18982	-41.13507	-23.29560	0.73547	0.59525	0.21451	63.36213	0.97018	315.73	-21.57
84/ 3/28	2445787.5	46.92443	-36.87529	-21.71204	0.66141	0.66136	0.25262	63.50671	0.96885	321.84	-19.99
84/ 3/28	2445788.0	51.13350	-32.19420	-19.88057	0.58041	0.71958	0.28766	63.61084	0.96821	327.81	-18.21
84/ 3/29	2445788.5	54.77285	-27.14676	-17.82311	0.49331	0.76946	0.31931	63.67633	0.96819	333.64	-16.25
84/ 3/29	2445789.0	57.80400	-21.79098	-15.56352	0.40096	0.81057	0.34730	63.70535	0.96871	339.34	-14.14
84/ 3/30	2445789.5	60.19430	-16.18755	-13.12752	0.30423	0.84253	0.37136	63.70026	0.96970	344.95	-11.89
84/ 3/30	2445790.0	61.91728	-10.39952	-10.54248	0.20405	0.86503	0.39127	63.66352	0.97109	350.47	-9.53
84/ 3/31	2445790.5	62.95278	-4.49188	-7.83734	0.10139	0.87781	0.40680	63.59759	0.97279	355.92	-7.08
84/ 3/31	2445791.0	63.28731	1.46885	-5.04235	-0.00277	0.88068	0.41777	63.50486	0.97475	1.33	-4.55
84/ 4/ 1	2445791.5	62.91422	7.41511	-2.18892	-0.10739	0.87353	0.42403	63.38750	0.97693	6.72	-1.98
84/ 4/ 1	2445792.0	61.83396	13.27878	0.69063	-0.21141	0.85630	0.42546	63.24746	0.97927	12.12	0.63
84/ 4/ 2	2445792.5	60.05425	18.99178	3.56329	-0.31375	0.82905	0.42199	63.08643	0.98175	17.55	3.24

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 4/ 2	2445793.0	57.59023	24.48660	6.39564	-0.41330	0.79190	0.41356	62.90574	0.98436	23.03	5.84
84/ 4/ 3	2445793.5	54.46458	29.69700	9.15414	-0.50894	0.74510	0.40019	62.70646	0.98709	28.60	8.39
84/ 4/ 3	2445794.0	50.70751	34.55862	11.80545	-0.59957	0.68897	0.38192	62.48934	0.98996	34.28	10.89
84/ 4/ 4	2445794.5	46.35675	39.00967	14.31674	-0.68407	0.62395	0.35886	62.25489	0.99300	40.08	13.30
84/ 4/ 4	2445795.0	41.45749	42.99166	16.65604	-0.76136	0.55056	0.33116	62.00346	0.99622	46.04	15.58
84/ 4/ 5	2445795.5	36.06214	46.45007	18.79259	-0.83038	0.46945	0.29903	61.73531	0.99967	52.18	17.72
84/ 4/ 5	2445796.0	30.23016	49.33509	20.69723	-0.89013	0.38138	0.26272	61.45070	1.00340	58.50	19.68
84/ 4/ 6	2445796.5	24.02770	51.60235	22.34270	-0.93963	0.28719	0.22256	61.15005	1.00743	65.03	21.43
84/ 4/ 6	2445797.0	17.52722	53.21363	23.70413	-0.97799	0.18784	0.17891	60.83403	1.01181	71.77	22.93
84/ 4/ 7	2445797.5	10.80702	54.13760	24.75935	-1.00438	0.08442	0.13222	60.50369	1.01656	78.71	24.16
84/ 4/ 7	2445798.0	3.95065	54.35056	25.48933	-1.01809	-0.02191	0.08296	60.16060	1.02170	85.84	25.07
84/ 4/ 8	2445798.5	-2.95379	53.83721	25.87860	-1.01848	-0.12984	0.03171	59.80695	1.02722	93.14	25.64
84/ 4/ 8	2445799.0	-9.81446	52.59130	25.91568	-1.00509	-0.23798	-0.02093	59.44570	1.03309	100.57	25.85
84/ 4/ 9	2445799.5	-16.53678	50.61643	25.59348	-0.97759	-0.34484	-0.07427	59.08057	1.03929	108.09	25.67
84/ 4/ 9	2445800.0	-23.02460	47.92661	24.90974	-0.93584	-0.44883	-0.12756	58.71616	1.04571	115.66	25.10
84/ 4/10	2445800.5	-29.18157	44.54688	23.86742	-0.87993	-0.54829	-0.18002	58.35788	1.05228	123.23	24.14
84/ 4/10	2445801.0	-34.91272	40.51368	22.47501	-0.81018	-0.64151	-0.23079	58.01192	1.05886	130.75	22.79
84/ 4/11	2445801.5	-40.12625	35.87509	20.74688	-0.72720	-0.72677	-0.27901	57.68510	1.06530	138.20	21.08
84/ 4/11	2445802.0	-44.73551	30.69081	18.70336	-0.63192	-0.80237	-0.32378	57.38473	1.07143	145.55	19.02
84/ 4/12	2445802.5	-48.66120	25.03173	16.37083	-0.52558	-0.86671	-0.36421	57.11833	1.07707	152.78	16.66
84/ 4/12	2445803.0	-51.83351	18.97922	13.78151	-0.40975	-0.91832	-0.39947	56.89335	1.08202	159.89	14.02
84/ 4/13	2445803.5	-54.19436	12.62389	10.97311	-0.28630	-0.95595	-0.42878	56.71685	1.08612	166.89	11.16
84/ 4/13	2445804.0	-55.69941	6.06388	7.98824	-0.15741	-0.97862	-0.45148	56.59511	1.08918	173.79	8.11
84/ 4/14	2445804.5	-56.31972	-0.59719	4.87350	-0.02546	-0.98572	-0.46705	56.53334	1.09106	180.61	4.95
84/ 4/14	2445805.0	-56.04302	-7.25274	1.67849	0.10704	-0.97698	-0.47514	56.53530	1.09166	187.37	1.70
84/ 4/15	2445805.5	-54.87434	-13.79591	-1.54549	0.23751	-0.95260	-0.47560	56.60308	1.09089	194.11	-1.56
84/ 4/15	2445806.0	-52.83594	-20.12241	-4.74671	0.36345	-0.91313	-0.46845	56.73693	1.08874	200.85	-4.80
84/ 4/16	2445806.5	-49.96661	-26.13319	-7.87445	0.48251	-0.85956	-0.45395	56.93516	1.08523	207.61	-7.95
84/ 4/16	2445807.0	-46.32025	-31.73692	-10.88023	0.59258	-0.79317	-0.43252	57.19421	1.08044	214.42	-10.97
84/ 4/17	2445807.5	-41.96401	-36.85199	-13.71898	0.69187	-0.71554	-0.40474	57.50876	1.07447	221.29	-13.80
84/ 4/17	2445808.0	-36.97589	-41.40809	-16.34999	0.77896	-0.62841	-0.37130	57.87200	1.06749	228.24	-16.41
84/ 4/18	2445808.5	-31.44230	-45.34714	-18.73758	0.85280	-0.53364	-0.33300	58.27589	1.05968	235.26	-18.76
84/ 4/18	2445809.0	-25.45546	-48.62374	-20.85158	0.91272	-0.43311	-0.29065	58.71147	1.05124	242.37	-20.80
84/ 4/19	2445809.5	-19.11098	-51.20509	-22.66750	0.95838	-0.32864	-0.24511	59.16930	1.04239	249.53	-22.53
84/ 4/19	2445810.0	-12.50569	-53.07054	-24.16650	0.98975	-0.22199	-0.19720	59.63970	1.03333	256.74	-23.90
84/ 4/20	2445810.5	-5.73571	-54.21084	-25.33524	1.00706	-0.11477	-0.14772	60.11312	1.02429	263.96	-24.93
84/ 4/20	2445811.0	1.10504	-54.62719	-26.16557	1.01074	-0.00844	-0.09739	60.58042	1.01545	271.16	-25.59
84/ 4/21	2445811.5	7.92610	-54.33020	-26.65411	1.00135	0.09567	-0.04690	61.03306	1.00701	278.30	-25.89
84/ 4/21	2445812.0	14.64132	-53.33881	-26.80188	0.97961	0.19643	0.00314	61.46331	0.99911	285.35	-25.85
84/ 4/22	2445812.5	21.16952	-51.67932	-26.61383	0.94626	0.29280	0.05218	61.86435	0.99190	292.28	-25.48
84/ 4/22	2445813.0	27.43488	-49.38441	-26.09847	0.90213	0.38393	0.09972	62.23040	0.98548	299.05	-24.80
84/ 4/23	2445813.5	33.36716	-46.49229	-25.26746	0.84805	0.46903	0.14532	62.55673	0.97995	305.67	-23.82
84/ 4/23	2445814.0	38.90190	-43.04602	-24.13531	0.78487	0.54746	0.18858	62.83972	0.97535	312.11	-22.59
84/ 4/24	2445814.5	43.98037	-39.09288	-22.71905	0.71346	0.61862	0.22915	63.07679	0.97172	318.37	-21.11
84/ 4/24	2445815.0	48.54970	-34.68379	-21.03804	0.63467	0.68201	0.26671	63.26641	0.96906	324.46	-19.42

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 4/25	2445815.5	52.56280	-29.87297	-19.11370	0.54935	0.73718	0.30096	63.40801	0.96737	330.39	-17.54
84/ 4/25	2445816.0	55.97843	-24.71747	-16.96938	0.45839	0.78373	0.33162	63.50195	0.96660	336.18	-15.50
84/ 4/26	2445816.5	58.76126	-19.27693	-14.63022	0.36264	0.82130	0.35846	63.54942	0.96671	341.84	-13.31
84/ 4/26	2445817.0	60.88195	-13.61320	-12.12296	0.26301	0.84959	0.38122	63.55231	0.96763	347.40	-11.00
84/ 4/27	2445817.5	62.31731	-7.79013	-9.47588	0.16042	0.86832	0.39971	63.51319	0.96927	352.87	-8.58
84/ 4/27	2445818.0	63.05048	-1.87317	-6.71863	0.05582	0.87727	0.41372	63.43510	0.97154	358.30	-6.08
84/ 4/28	2445818.5	63.07116	4.07088	-3.88212	-0.04980	0.87629	0.42309	63.32151	0.97436	3.69	-3.51
84/ 4/28	2445819.0	62.37584	9.97433	-0.99831	-0.15543	0.86527	0.42767	63.17618	0.97763	9.09	-0.91
84/ 4/29	2445819.5	60.96810	15.76897	1.89992	-0.26000	0.84417	0.42733	63.00302	0.98124	14.50	1.73
84/ 4/29	2445820.0	58.85885	21.38665	4.77901	-0.36240	0.81303	0.42201	62.80599	0.98511	19.97	4.36
84/ 4/30	2445820.5	56.06657	26.75982	7.60499	-0.46150	0.77199	0.41165	62.58901	0.98915	25.51	6.98
84/ 4/30	2445821.0	52.61751	31.82219	10.34377	-0.55614	0.72130	0.39626	62.35581	0.99328	31.16	9.55
84/ 5/ 1	2445821.5	48.54581	36.50949	12.96147	-0.64516	0.66131	0.37591	62.10989	0.99743	36.95	12.05
84/ 5/ 1	2445822.0	43.89356	40.76026	15.42480	-0.72739	0.59249	0.35070	61.85440	1.00156	42.88	14.44
84/ 5/ 2	2445822.5	38.71066	44.51665	17.70146	-0.80167	0.51544	0.32082	61.59212	1.00562	48.99	16.70
84/ 5/ 2	2445823.0	33.05470	47.72535	19.76061	-0.86690	0.43089	0.28652	61.32539	1.00959	55.29	18.80
84/ 5/ 3	2445823.5	26.99057	50.33844	21.57328	-0.92203	0.33971	0.24810	61.05617	1.01345	61.80	20.69
84/ 5/ 3	2445824.0	20.59002	52.31427	23.11287	-0.96609	0.24289	0.20595	60.78599	1.01722	68.52	22.35
84/ 5/ 4	2445824.5	13.93100	53.61833	24.35558	-0.99822	0.14154	0.16051	60.51605	1.02090	75.44	23.73
84/ 5/ 4	2445825.0	7.09693	54.22402	25.28090	-1.01767	0.03688	0.11231	60.24728	1.02451	82.54	24.81
84/ 5/ 5	2445825.5	0.17575	54.11337	25.87202	-1.02385	-0.06976	0.06193	59.98041	1.02809	89.81	25.55
84/ 5/ 5	2445826.0	-6.74110	53.27771	26.11622	-1.01633	-0.17697	0.00998	59.71611	1.03167	97.21	25.93
84/ 5/ 6	2445826.5	-13.55983	51.71817	26.00526	-0.99485	-0.28327	-0.04283	59.45512	1.03528	104.69	25.94
84/ 5/ 6	2445827.0	-20.18557	49.44607	25.53569	-0.95935	-0.38713	-0.09579	59.19833	1.03894	112.21	25.55
84/ 5/ 7	2445827.5	-26.52378	46.48324	24.70909	-0.90999	-0.48698	-0.14813	58.94694	1.04267	119.71	24.78
84/ 5/ 7	2445828.0	-32.48165	42.86214	23.53227	-0.84712	-0.58125	-0.19907	58.70254	1.04647	127.16	23.63
84/ 5/ 8	2445828.5	-37.96967	38.62580	22.01743	-0.77137	-0.66840	-0.24781	58.46722	1.05032	134.51	22.12
84/ 5/ 8	2445829.0	-42.90325	33.82761	20.18217	-0.68356	-0.74692	-0.29356	58.24359	1.05419	141.75	20.27
84/ 5/ 9	2445829.5	-47.20429	28.53089	18.04945	-0.58479	-0.81538	-0.33552	58.03481	1.05802	148.85	18.12
84/ 5/ 9	2445830.0	-50.80291	22.80822	15.64744	-0.47638	-0.87249	-0.37296	57.84455	1.06173	155.82	15.69
84/ 5/10	2445830.5	-53.63899	16.74057	13.00921	-0.35990	-0.91708	-0.40517	57.67692	1.06523	162.67	13.04
84/ 5/10	2445831.0	-55.66380	10.41606	10.17234	-0.23712	-0.94819	-0.43152	57.53633	1.06841	169.40	10.18
84/ 5/11	2445831.5	-56.84129	3.92857	7.17835	-0.11003	-0.96510	-0.45148	57.42730	1.07115	176.05	7.18
84/ 5/11	2445832.0	-57.14934	-2.62400	4.07198	0.01925	-0.96736	-0.46464	57.35428	1.07333	182.63	4.07
84/ 5/12	2445832.5	-56.58060	-9.14163	0.90038	0.14850	-0.95479	-0.47071	57.32142	1.07482	189.18	0.90
84/ 5/12	2445833.0	-55.14297	-15.52435	-2.28791	0.27545	-0.92757	-0.46956	57.33225	1.07552	195.72	-2.29
84/ 5/13	2445833.5	-52.85967	-21.67438	-5.44395	0.39785	-0.88619	-0.46121	57.38954	1.07533	202.30	-5.44
84/ 5/13	2445834.0	-49.76880	-27.49837	-8.51952	0.51357	-0.83145	-0.44584	57.49501	1.07417	208.92	-8.52
84/ 5/14	2445834.5	-45.92245	-32.90950	-11.46821	0.62063	-0.76448	-0.42381	57.64916	1.07202	215.63	-11.47
84/ 5/14	2445835.0	-41.38531	-37.82932	-14.24646	0.71729	-0.68662	-0.39560	57.85122	1.06886	222.43	-14.26
84/ 5/15	2445835.5	-36.23294	-42.18937	-16.81444	0.80209	-0.59946	-0.36183	58.09900	1.06471	229.34	-16.82
84/ 5/15	2445836.0	-30.54969	-45.93231	-19.13682	0.87389	-0.50469	-0.32321	58.38902	1.05965	236.37	-19.13
84/ 5/16	2445836.5	-24.42652	-49.01267	-21.18334	0.93189	-0.40410	-0.28051	58.71653	1.05375	243.51	-21.15
84/ 5/16	2445837.0	-17.95873	-51.39718	-22.92916	0.97560	-0.29951	-0.23455	59.07565	1.04715	250.74	-22.84
84/ 5/17	2445837.5	-11.24376	-53.06468	-24.35501	1.00487	-0.19266	-0.18616	59.45964	1.03997	258.04	-24.18

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 5/17	2445838.0	-4.37919	-54.00563	-25.44721	1.01982	-0.08523	-0.13615	59.86105	1.03239	265.36	-25.16
84/ 5/18	2445838.5	2.53903	-54.22143	-26.19744	1.02079	0.02122	-0.08530	60.27202	1.02457	272.68	-25.76
84/ 5/18	2445839.0	9.41806	-53.72350	-26.60245	1.00835	0.12531	-0.03433	60.68447	1.01669	279.94	-26.00
84/ 5/19	2445839.5	16.16932	-52.53224	-26.66371	0.98319	0.22577	0.01610	61.09040	1.00891	287.11	-25.88
84/ 5/19	2445840.0	22.70942	-50.67597	-26.38696	0.94614	0.32151	0.06539	61.48206	1.00141	294.14	-25.42
84/ 5/20	2445840.5	28.96075	-48.18988	-25.78176	0.89807	0.41160	0.11300	61.85215	0.99435	301.00	-24.63
84/ 5/20	2445841.0	34.85188	-45.11506	-24.86108	0.83993	0.49524	0.15848	62.19401	0.98786	307.69	-23.56
84/ 5/21	2445841.5	40.31778	-41.49756	-23.64085	0.77267	0.57174	0.20139	62.50169	0.98207	314.17	-22.22
84/ 5/21	2445842.0	45.29992	-37.38767	-22.13967	0.69724	0.64055	0.24139	62.77010	0.97710	320.47	-20.65
84/ 5/22	2445842.5	49.74624	-32.83919	-20.37838	0.61460	0.70118	0.27814	62.99507	0.97302	326.57	-18.87
84/ 5/22	2445843.0	53.61111	-27.90888	-18.37990	0.52570	0.75324	0.31139	63.17340	0.96989	332.50	-16.91
84/ 5/23	2445843.5	56.85528	-22.65603	-16.16890	0.43147	0.79638	0.34086	63.30286	0.96777	338.27	-14.80
84/ 5/23	2445844.0	59.44579	-17.14199	-13.77166	0.33283	0.83032	0.36634	63.38224	0.96665	343.91	-12.55
84/ 5/24	2445844.5	61.35597	-11.42992	-11.21591	0.23073	0.85482	0.38764	63.41132	0.96655	349.45	-10.19
84/ 5/24	2445845.0	62.56545	-5.58445	-8.53067	0.12608	0.86968	0.40455	63.39080	0.96742	354.90	-7.73
84/ 5/25	2445845.5	63.06024	0.32860	-5.74615	0.01984	0.87475	0.41693	63.32235	0.96923	0.30	-5.21
84/ 5/25	2445846.0	62.83283	6.24242	-2.89363	-0.08701	0.86990	0.42461	63.20843	0.97190	5.67	-2.62
84/ 5/26	2445846.5	61.88245	12.08961	-0.00529	-0.19348	0.85507	0.42748	63.05233	0.97535	11.05	-0.00
84/ 5/26	2445847.0	60.21523	17.80247	2.88586	-0.29852	0.83024	0.42543	62.85801	0.97949	16.47	2.63
84/ 5/27	2445847.5	57.84447	23.31345	5.74625	-0.40104	0.79547	0.41838	62.63002	0.98420	21.95	5.26
84/ 5/27	2445848.0	54.79098	28.55560	8.54186	-0.49993	0.75089	0.40630	62.37337	0.98936	27.53	7.87
84/ 5/28	2445848.5	51.08331	33.46322	11.23856	-0.59402	0.69673	0.38918	62.09345	0.99486	33.23	10.43
84/ 5/28	2445849.0	46.75797	37.97253	13.80238	-0.68212	0.63333	0.36707	61.79585	1.00057	39.08	12.91
84/ 5/29	2445849.5	41.85963	42.02247	16.19990	-0.76302	0.56117	0.34010	61.48620	1.00637	45.11	15.28
84/ 5/29	2445850.0	36.44114	45.55562	18.39866	-0.83552	0.48084	0.30842	61.17010	1.01214	51.34	17.50
84/ 5/30	2445850.5	30.56345	48.51915	20.36767	-0.89843	0.39311	0.27230	60.85289	1.01777	57.79	19.55
84/ 5/30	2445851.0	24.29536	50.86592	22.07789	-0.95062	0.29888	0.23206	60.53957	1.02316	64.47	21.39
84/ 5/31	2445851.5	17.71301	52.55548	23.50284	-0.99106	0.19923	0.18813	60.23464	1.02824	71.37	22.97
84/ 5/31	2445852.0	10.89922	53.55516	24.61910	-1.01882	0.09538	0.14100	59.94204	1.03295	78.50	24.25
84/ 6/ 1	2445852.5	3.94255	53.84108	25.40693	-1.03314	-0.01130	0.09126	59.66505	1.03722	85.81	25.20
84/ 6/ 1	2445853.0	-3.06383	53.39897	25.85080	-1.03342	-0.11934	0.03955	59.40624	1.04104	93.28	25.80
84/ 6/ 2	2445853.5	-10.02356	52.22497	25.93983	-1.01932	-0.22716	-0.01340	59.16751	1.04441	100.86	26.00
84/ 6/ 2	2445854.0	-16.83856	50.32612	25.66820	-0.99068	-0.33311	-0.06682	58.95008	1.04732	108.50	25.81
84/ 6/ 3	2445854.5	-23.41073	47.72067	25.03547	-0.94765	-0.43553	-0.11989	58.75457	1.04981	116.13	25.22
84/ 6/ 3	2445855.0	-29.64369	44.43817	24.04679	-0.89061	-0.53277	-0.17179	58.58112	1.05192	123.71	24.24
84/ 6/ 4	2445855.5	-35.44457	40.51924	22.71292	-0.82019	-0.62320	-0.22169	58.42947	1.05368	131.18	22.88
84/ 6/ 4	2445856.0	-40.72578	36.01512	21.05020	-0.73732	-0.70532	-0.26876	58.29914	1.05516	138.51	21.17
84/ 6/ 5	2445856.5	-45.40667	30.98702	19.08042	-0.64313	-0.77771	-0.31224	58.18955	1.05638	145.69	19.14
84/ 6/ 5	2445857.0	-49.41510	25.50513	16.83044	-0.53900	-0.83913	-0.35139	58.10015	1.05741	152.70	16.84
84/ 6/ 6	2445857.5	-52.68890	19.64754	14.33187	-0.42647	-0.88849	-0.38554	58.03058	1.05827	159.55	14.30
84/ 6/ 6	2445858.0	-55.17704	13.49896	11.62050	-0.30730	-0.92493	-0.41413	57.98072	1.05898	166.25	11.56
84/ 6/ 7	2445858.5	-56.84073	7.14922	8.73575	-0.18334	-0.94780	-0.43667	57.95078	1.05954	172.83	8.67
84/ 6/ 7	2445859.0	-57.65416	0.69175	5.71997	-0.05656	-0.95669	-0.45277	57.94133	1.05994	179.31	5.67
84/ 6/ 8	2445859.5	-57.60507	-5.77811	2.61767	0.07102	-0.95145	-0.46218	57.95328	1.06015	185.73	2.59
84/ 6/ 8	2445860.0	-56.69502	-12.16481	-0.52520	0.19733	-0.93217	-0.46474	57.98779	1.06013	192.11	-0.52

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/ 6/ 9	2445860.5	-54.93941	-18.37433	-3.66218	0.32037	-0.89922	-0.46045	58.04625	1.05983	198.49	-3.62
84/ 6/ 9	2445861.0	-52.36714	-24.31593	-6.74709	0.43817	-0.85318	-0.44939	58.13007	1.05918	204.91	-6.67
84/ 6/10	2445861.5	-49.02002	-29.90379	-9.73489	0.54888	-0.79492	-0.43182	58.24060	1.05813	211.38	-9.62
84/ 6/10	2445862.0	-44.95192	-35.05857	-12.58256	0.65080	-0.72549	-0.40808	58.37893	1.05661	217.95	-12.45
84/ 6/11	2445862.5	-40.22755	-39.70886	-15.24982	0.74244	-0.64617	-0.37863	58.54576	1.05456	224.63	-15.10
84/ 6/11	2445863.0	-34.92110	-43.79228	-17.69986	0.82250	-0.55835	-0.34404	58.74123	1.05196	231.43	-17.54
84/ 6/12	2445863.5	-29.11459	-47.25655	-19.89996	0.88995	-0.46360	-0.30494	58.96481	1.04877	238.36	-19.72
84/ 6/12	2445864.0	-22.89614	-50.06005	-21.82197	0.94404	-0.36351	-0.26204	59.21521	1.04499	245.42	-21.62
84/ 6/13	2445864.5	-16.35812	-52.17231	-23.44264	0.98426	-0.25975	-0.21609	59.49029	1.04064	252.59	-23.21
84/ 6/13	2445865.0	-9.59533	-53.57398	-24.74388	1.01039	-0.15395	-0.16784	59.78713	1.03575	259.85	-24.45
84/ 6/14	2445865.5	-2.70320	-54.25673	-25.71277	1.02248	-0.04771	-0.11807	60.10197	1.03038	267.15	-25.33
84/ 6/14	2445866.0	4.22385	-54.22273	-26.34154	1.02077	0.05746	-0.06753	60.43031	1.02461	274.45	-25.84
84/ 6/15	2445866.5	11.09388	-53.48403	-26.62740	1.00573	0.16016	-0.01693	60.76705	1.01854	281.72	-25.99
84/ 6/15	2445867.0	17.81869	-52.06171	-26.57223	0.97800	0.25912	0.03307	61.10656	1.01229	288.89	-25.78
84/ 6/16	2445867.5	24.31488	-49.98501	-26.18226	0.93836	0.35322	0.08184	61.44286	1.00597	295.94	-25.22
84/ 6/16	2445868.0	30.50461	-47.29032	-25.46767	0.88766	0.44146	0.12883	61.76979	0.99971	302.82	-24.35
84/ 6/17	2445868.5	36.31622	-44.02022	-24.44221	0.82686	0.52300	0.17356	62.08115	0.99366	309.52	-23.19
84/ 6/17	2445869.0	41.68460	-40.22258	-23.12274	0.75695	0.59713	0.21558	62.37085	0.98793	316.02	-21.76
84/ 6/18	2445869.5	46.55143	-35.94965	-21.52889	0.67893	0.66326	0.25453	62.63311	0.98267	322.32	-20.10
84/ 6/18	2445870.0	50.86524	-31.25730	-19.68266	0.59382	0.72091	0.29006	62.86254	0.97799	328.43	-18.25
84/ 6/19	2445870.5	54.58145	-26.20433	-17.60809	0.50263	0.76969	0.32191	63.05431	0.97401	334.35	-16.22
84/ 6/19	2445871.0	57.66228	-20.85185	-15.33097	0.40636	0.80930	0.34983	63.20424	0.97082	340.12	-14.04
84/ 6/20	2445871.5	60.07667	-15.26284	-12.87861	0.30599	0.83951	0.37363	63.30891	0.96850	345.75	-11.74
84/ 6/20	2445872.0	61.80017	-9.50167	-10.27962	0.20251	0.86012	0.39311	63.36571	0.96713	351.26	-9.34
84/ 6/21	2445872.5	62.81492	-3.63378	-7.56371	0.09686	0.87100	0.40813	63.37293	0.96674	356.69	-6.85
84/ 6/21	2445873.0	63.10954	2.27467	-4.76158	-0.00998	0.87208	0.41855	63.32977	0.96737	2.06	-4.31
84/ 6/22	2445873.5	62.67919	8.15700	-1.90474	-0.11705	0.86329	0.42426	63.23643	0.96900	7.41	-1.73
84/ 6/22	2445874.0	61.52566	13.94638	0.97458	-0.22337	0.84463	0.42517	63.09405	0.97163	12.77	0.89
84/ 6/23	2445874.5	59.65747	19.57606	3.84356	-0.32792	0.81614	0.42120	62.90476	0.97520	18.17	3.50
84/ 6/23	2445875.0	57.09005	24.97971	6.66896	-0.42967	0.77791	0.41230	62.67164	0.97966	23.63	6.11
84/ 6/24	2445875.5	53.84602	30.09183	9.41727	-0.52753	0.73008	0.39843	62.39869	0.98492	29.20	8.68
84/ 6/24	2445876.0	49.95543	34.84821	12.05489	-0.62040	0.67291	0.37962	62.09076	0.99086	34.90	11.20
84/ 6/25	2445876.5	45.45601	39.18654	14.54846	-0.70712	0.60670	0.35590	61.75347	0.99738	40.76	13.63
84/ 6/25	2445877.0	40.39344	43.04708	16.86508	-0.78650	0.53190	0.32739	61.39309	1.00433	46.82	15.94
84/ 6/26	2445877.5	34.82153	46.37353	18.97278	-0.85732	0.44909	0.29424	61.01647	1.01156	53.10	18.12
84/ 6/26	2445878.0	28.80228	49.11393	20.84090	-0.91839	0.35898	0.25669	60.63079	1.01892	59.61	20.10
84/ 6/27	2445878.5	22.40578	51.22180	22.44068	-0.96853	0.26247	0.21506	60.24347	1.02625	66.37	21.87
84/ 6/27	2445879.0	15.70990	52.65724	23.74578	-1.00662	0.16061	0.16975	59.86191	1.03339	73.39	23.37
84/ 6/28	2445879.5	8.79977	53.38819	24.73297	-1.03164	0.05466	0.12128	59.49332	1.04018	80.64	24.57
84/ 6/28	2445880.0	1.76690	53.39158	25.38276	-1.04273	-0.05398	0.07023	59.14446	1.04649	88.10	25.41
84/ 6/29	2445880.5	-5.29196	52.65453	25.68003	-1.03922	-0.16371	0.01731	58.82150	1.05218	95.74	25.89
84/ 6/29	2445881.0	-12.27632	51.17529	25.61470	-1.02068	-0.27285	-0.03671	58.52975	1.05716	103.49	25.95
84/ 6/30	2445881.5	-19.08374	48.96403	25.18220	-0.98697	-0.37957	-0.09097	58.27356	1.06135	111.29	25.60
84/ 6/30	2445882.0	-25.61178	46.04327	24.38390	-0.93824	-0.48204	-0.14457	58.05619	1.06469	119.09	24.83
84/ 7/ 1	2445882.5	-31.76026	42.44805	23.22737	-0.87500	-0.57843	-0.19660	57.87972	1.06717	126.80	23.66

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 7/ 1	2445883.0	-37.43341	38.22559	21.72647	-0.79805	-0.66698	-0.24612	57.74509	1.06879	134.40	22.10
84/ 7/ 2	2445883.5	-42.54218	33.43464	19.90116	-0.70855	-0.74605	-0.29225	57.65213	1.06960	141.84	20.19
84/ 7/ 2	2445884.0	-47.00618	28.14442	17.77727	-0.60792	-0.81419	-0.33416	57.59966	1.06964	149.09	17.98
84/ 7/ 3	2445884.5	-50.75559	22.43323	15.38593	-0.49783	-0.87017	-0.37111	57.58565	1.06900	156.16	15.50
84/ 7/ 3	2445885.0	-53.73262	16.38682	12.76296	-0.38016	-0.91304	-0.40246	57.60742	1.06777	163.04	12.80
84/ 7/ 4	2445885.5	-55.89262	10.09656	9.94810	-0.25692	-0.94209	-0.42770	57.66186	1.06605	169.76	9.93
84/ 7/ 4	2445886.0	-57.20489	3.65751	6.98413	-0.13018	-0.95693	-0.44644	57.74561	1.06394	176.34	6.95
84/ 7/ 5	2445886.5	-57.65300	-2.83353	3.91599	-0.00209	-0.95744	-0.45843	57.85527	1.06153	182.81	3.88
84/ 7/ 5	2445887.0	-57.23478	-9.27988	0.78987	0.12529	-0.94378	-0.46355	57.98758	1.05892	189.21	0.78
84/ 7/ 6	2445887.5	-55.96205	-15.58683	-2.34771	0.24992	-0.91637	-0.46182	58.13959	1.05616	195.56	-2.31
84/ 7/ 6	2445888.0	-53.85997	-21.66326	-5.45069	0.36988	-0.87584	-0.45337	58.30869	1.05330	201.91	-5.36
84/ 7/ 7	2445888.5	-50.96619	-27.42315	-8.47434	0.48342	-0.82305	-0.43844	58.49270	1.05040	208.28	-8.33
84/ 7/ 7	2445889.0	-47.32986	-32.78685	-11.37594	0.58890	-0.75904	-0.41739	58.68991	1.04745	214.71	-11.18
84/ 7/ 8	2445889.5	-43.01037	-37.68226	-14.11543	0.68493	-0.68497	-0.39065	58.89898	1.04447	221.22	-13.87
84/ 7/ 8	2445890.0	-38.07608	-42.04567	-16.65596	0.77026	-0.60217	-0.35873	59.11893	1.04144	227.84	-16.36
84/ 7/ 9	2445890.5	-32.60295	-45.82255	-18.96438	0.84389	-0.51201	-0.32221	59.34902	1.03833	234.57	-18.64
84/ 7/ 9	2445891.0	-26.67303	-48.96805	-21.01166	0.90503	-0.41597	-0.28173	59.58868	1.03513	241.42	-20.65
84/ 7/10	2445891.5	-20.37302	-51.44733	-22.77314	0.95310	-0.31554	-0.23793	59.83731	1.03178	248.40	-22.37
84/ 7/10	2445892.0	-13.79277	-53.23577	-24.22874	0.98775	-0.21222	-0.19152	60.09425	1.02828	255.47	-23.78
84/ 7/11	2445892.5	-7.02380	-54.31888	-25.36316	1.00882	-0.10750	-0.14320	60.35863	1.02459	262.63	-24.85
84/ 7/11	2445893.0	-0.15793	-54.69213	-26.16580	1.01639	-0.00284	-0.09367	60.62923	1.02070	269.83	-25.57
84/ 7/12	2445893.5	6.71410	-54.36062	-26.63082	1.01069	0.10039	-0.04362	60.90449	1.01660	277.04	-25.93
84/ 7/12	2445894.0	13.50383	-53.33851	-26.75693	0.99217	0.20088	0.00630	61.18238	1.01232	284.21	-25.93
84/ 7/13	2445894.5	20.12619	-51.64845	-26.54724	0.96138	0.29744	0.05544	61.46041	1.00787	291.29	-25.59
84/ 7/13	2445895.0	26.50047	-49.32084	-26.00898	0.91904	0.38897	0.10323	61.73562	1.00329	298.25	-24.92
84/ 7/14	2445895.5	32.55112	-46.39306	-25.15321	0.86596	0.47451	0.14912	62.00464	0.99864	305.05	-23.93
84/ 7/14	2445896.0	38.20838	-42.90864	-23.99448	0.80303	0.55321	0.19262	62.26368	0.99398	311.68	-22.67
84/ 7/15	2445896.5	43.40881	-38.91640	-22.55045	0.73122	0.62435	0.23329	62.50867	0.98941	318.12	-21.15
84/ 7/15	2445897.0	48.09561	-34.46968	-20.84159	0.65153	0.68733	0.27076	62.73530	0.98499	324.37	-19.40
84/ 7/16	2445897.5	52.21883	-29.62554	-18.89077	0.56497	0.74164	0.30469	62.93918	0.98085	330.43	-17.47
84/ 7/16	2445898.0	55.73553	-24.44400	-16.72293	0.47260	0.78690	0.33480	63.11589	0.97706	336.32	-15.36
84/ 7/17	2445898.5	58.60975	-18.98743	-14.36478	0.37543	0.82281	0.36085	63.26114	0.97374	342.05	-13.12
84/ 7/17	2445899.0	60.81249	-13.31993	-11.84451	0.27448	0.84915	0.38264	63.37091	0.97099	347.65	-10.77
84/ 7/18	2445899.5	62.32165	-7.50684	-9.19153	0.17078	0.86579	0.40001	63.44151	0.96890	353.13	-8.33
84/ 7/18	2445900.0	63.12190	-1.61423	-6.43624	0.06532	0.87262	0.41283	63.46972	0.96756	358.54	-5.82
84/ 7/19	2445900.5	63.20464	4.29141	-3.60984	-0.04093	0.86963	0.42100	63.45293	0.96705	3.88	-3.26
84/ 7/19	2445901.0	62.56790	10.14359	-0.74414	-0.14698	0.85684	0.42443	63.38918	0.96743	9.21	-0.67
84/ 7/20	2445901.5	61.21632	15.87606	2.12856	-0.25185	0.83430	0.42306	63.27731	0.96875	14.54	1.93
84/ 7/20	2445902.0	59.16117	21.42321	4.97565	-0.35457	0.80214	0.41686	63.11700	0.97104	19.91	4.52
84/ 7/21	2445902.5	56.42041	26.72029	7.76435	-0.45414	0.76049	0.40582	62.90884	0.97431	25.34	7.09
84/ 7/21	2445903.0	53.01881	31.70379	10.46186	-0.54955	0.70958	0.38993	62.65441	0.97854	30.88	9.61
84/ 7/22	2445903.5	48.98810	36.31182	13.03550	-0.63974	0.64967	0.36925	62.35629	0.98371	36.55	12.07
84/ 7/22	2445904.0	44.36718	40.48458	15.45299	-0.72365	0.58111	0.34384	62.01809	0.98974	42.38	14.43
84/ 7/23	2445904.5	39.20234	44.16492	17.68262	-0.80017	0.50434	0.31380	61.64445	0.99654	48.41	16.67
84/ 7/23	2445905.0	33.54743	47.29898	19.69364	-0.86817	0.41990	0.27931	61.24103	1.00402	54.65	18.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/ 7/24	2445905.5	27.46401	49.83707	21.45656	-0.92651	0.32848	0.24058	60.81439	1.01203	61.14	20.66
84/ 7/24	2445906.0	21.02140	51.73454	22.94365	-0.97405	0.23088	0.19792	60.37196	1.02042	67.89	22.34
84/ 7/25	2445906.5	14.29656	52.95289	24.12947	-1.00967	0.12812	0.15169	59.92188	1.02901	74.89	23.75
84/ 7/25	2445907.0	7.37375	53.46092	24.99143	-1.03234	0.02134	0.10237	59.47280	1.03762	82.15	24.85
84/ 7/26	2445907.5	0.34398	53.23604	25.51048	-1.04112	-0.08807	0.05054	59.03371	1.04606	89.63	25.60
84/ 7/26	2445908.0	-6.69596	52.26550	25.67181	-1.03523	-0.19857	-0.00314	58.61365	1.05411	97.30	25.98
84/ 7/27	2445908.5	-13.64479	50.54759	25.46553	-1.01414	-0.30846	-0.05788	58.22141	1.06159	105.11	25.94
84/ 7/27	2445909.0	-20.39839	48.09278	24.88734	-0.97756	-0.41586	-0.11281	57.86527	1.06831	112.98	25.47
84/ 7/28	2445909.5	-26.85185	44.92443	23.93913	-0.92555	-0.51883	-0.16698	57.55266	1.07411	120.87	24.58
84/ 7/28	2445910.0	-32.90189	41.07929	22.62933	-0.85853	-0.61538	-0.21941	57.28987	1.07885	128.69	23.27
84/ 7/29	2445910.5	-38.44936	36.60743	20.97320	-0.77732	-0.70358	-0.26909	57.08180	1.08243	136.41	21.56
84/ 7/29	2445911.0	-43.40196	31.57175	18.99278	-0.68311	-0.78159	-0.31502	56.93181	1.08478	143.97	19.49
84/ 7/30	2445911.5	-47.67680	26.04686	16.71658	-0.57747	-0.84778	-0.35628	56.84154	1.08588	151.35	17.10
84/ 7/30	2445912.0	-51.20275	20.11753	14.17909	-0.46230	-0.90081	-0.39205	56.81094	1.08576	158.55	14.45
84/ 7/31	2445912.5	-53.92235	13.87667	11.41991	-0.33974	-0.93963	-0.42164	56.83833	1.08449	165.57	11.59
84/ 7/31	2445913.0	-55.79329	7.42301	8.48281	-0.21209	-0.96357	-0.44451	56.92056	1.08215	172.42	8.57
84/ 8/ 1	2445913.5	-56.78923	0.85860	5.41460	-0.08175	-0.97232	-0.46031	57.05323	1.07887	179.13	5.45
84/ 8/ 1	2445914.0	-56.90004	-5.71368	2.26395	0.04889	-0.96593	-0.46884	57.23099	1.07481	185.73	2.27
84/ 8/ 2	2445914.5	-56.13152	-12.19251	-0.91982	0.17753	-0.94481	-0.47010	57.44781	1.07013	192.26	-0.92
84/ 8/ 2	2445915.0	-54.50461	-18.48031	-4.08784	0.30202	-0.90966	-0.46422	57.69735	1.06499	198.73	-4.06
84/ 8/ 3	2445915.5	-52.05419	-24.48509	-7.19265	0.42040	-0.86142	-0.45149	57.97320	1.05954	205.19	-7.13
84/ 8/ 3	2445916.0	-48.82765	-30.12201	-10.18915	0.53093	-0.80124	-0.43231	58.26915	1.05393	211.67	-10.07
84/ 8/ 4	2445916.5	-44.88329	-35.31456	-13.03527	0.63214	-0.73043	-0.40718	58.57940	1.04829	218.20	-12.86
84/ 8/ 4	2445917.0	-40.28859	-39.99541	-15.69253	0.72279	-0.65038	-0.37665	58.89872	1.04273	224.79	-15.45
84/ 8/ 5	2445917.5	-35.11856	-44.10697	-18.12649	0.80189	-0.56257	-0.34134	59.22253	1.03731	231.47	-17.82
84/ 8/ 5	2445918.0	-29.45407	-47.60171	-20.30703	0.86869	-0.46849	-0.30192	59.54696	1.03212	238.25	-19.94
84/ 8/ 6	2445918.5	-23.38030	-50.44225	-22.20853	0.92268	-0.36964	-0.25906	59.86884	1.02717	245.13	-21.77
84/ 8/ 6	2445919.0	-16.98531	-52.60132	-23.80999	0.96351	-0.26749	-0.21344	60.18567	1.02248	252.10	-23.30
84/ 8/ 7	2445919.5	-10.35863	-54.06151	-25.09505	0.99108	-0.16350	-0.16574	60.49553	1.01806	259.15	-24.51
84/ 8/ 7	2445920.0	-3.59013	-54.81499	-26.05193	1.00542	-0.05903	-0.11664	60.79700	1.01388	266.25	-25.37
84/ 8/ 8	2445920.5	3.23121	-54.86310	-26.67336	1.00673	0.04458	-0.06679	61.08902	1.00993	273.37	-25.89
84/ 8/ 8	2445921.0	10.01823	-54.21586	-26.95641	0.99535	0.14609	-0.01682	61.37078	1.00616	280.47	-26.06
84/ 8/ 9	2445921.5	16.68658	-52.89150	-26.90237	0.97177	0.24434	0.03265	61.64163	1.00255	287.51	-25.88
84/ 8/ 9	2445922.0	23.15549	-50.91582	-26.51653	0.93657	0.33825	0.08106	61.90092	0.99907	294.46	-25.36
84/ 8/10	2445922.5	29.34853	-48.32163	-25.80794	0.89043	0.42683	0.12787	62.14793	0.99569	301.27	-24.54
84/ 8/10	2445923.0	35.19426	-45.14807	-24.78915	0.83415	0.50919	0.17258	62.38178	0.99240	307.94	-23.41
84/ 8/11	2445923.5	40.62676	-41.43999	-23.47597	0.76856	0.58455	0.21473	62.60134	0.98919	314.43	-22.02
84/ 8/11	2445924.0	45.58612	-37.24720	-21.88714	0.69458	0.65222	0.25391	62.80521	0.98606	320.75	-20.40
84/ 8/12	2445924.5	50.01875	-32.62382	-20.04408	0.61318	0.71161	0.28975	62.99169	0.98302	326.89	-18.55
84/ 8/12	2445925.0	53.87769	-27.62761	-17.97051	0.52535	0.76224	0.32192	63.15877	0.98012	332.85	-16.53
84/ 8/13	2445925.5	57.12282	-22.31927	-15.69224	0.43210	0.80372	0.35016	63.30413	0.97739	338.66	-14.35
84/ 8/13	2445926.0	59.72095	-16.76181	-13.23678	0.33446	0.83576	0.37421	63.42525	0.97488	344.32	-12.05
84/ 8/14	2445926.5	61.64586	-11.01997	-10.63312	0.23348	0.85814	0.39389	63.51940	0.97266	349.86	-9.64
84/ 8/14	2445927.0	62.87833	-5.15962	-7.91142	0.13016	0.87074	0.40904	63.58378	0.97080	355.31	-7.15
84/ 8/15	2445927.5	63.40608	0.75275	-5.10275	0.02554	0.87350	0.41955	63.61553	0.96937	0.68	-4.60

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 8/15	2445928.0	63.22369	6.65049	-2.23889	-0.07937	0.86643	0.42533	63.61192	0.96845	6.00	-2.02
84/ 8/16	2445928.5	62.33250	12.46724	0.64793	-0.18359	0.84960	0.42632	63.57037	0.96813	11.31	0.58
84/ 8/16	2445929.0	60.74057	18.13734	3.52519	-0.28613	0.82315	0.42251	63.48863	0.96848	16.63	3.18
84/ 8/17	2445929.5	58.46257	23.59616	6.36031	-0.38602	0.78725	0.41388	63.36486	0.96957	21.98	5.76
84/ 8/17	2445930.0	55.51979	28.78050	9.12080	-0.48228	0.74214	0.40048	63.19773	0.97146	27.40	8.30
84/ 8/18	2445930.5	51.94006	33.62892	11.77444	-0.57394	0.68811	0.38234	62.98659	0.97421	32.92	10.77
84/ 8/18	2445931.0	47.75782	38.08212	14.28948	-0.66003	0.62550	0.35956	62.73154	0.97784	38.57	13.17
84/ 8/19	2445931.5	43.01414	42.08337	16.63480	-0.73956	0.55472	0.33225	62.43351	0.98238	44.37	15.45
84/ 8/19	2445932.0	37.75683	45.57896	18.78019	-0.81154	0.47626	0.30055	62.09441	0.98780	50.36	17.60
84/ 8/20	2445932.5	32.04045	48.51873	20.69652	-0.87495	0.39069	0.26465	61.71712	0.99410	56.56	19.59
84/ 8/20	2445933.0	25.92644	50.85671	22.35612	-0.92879	0.29868	0.22478	61.30563	1.00119	62.99	21.39
84/ 8/21	2445933.5	19.48311	52.55186	23.73311	-0.97203	0.20102	0.18125	60.86502	1.00901	69.66	22.95
84/ 8/21	2445934.0	12.78559	53.56895	24.80383	-1.00369	0.09862	0.13441	60.40143	1.01744	76.58	24.25
84/ 8/22	2445934.5	5.91562	53.87950	25.54731	-1.02280	-0.00743	0.08470	59.92212	1.02633	83.73	25.24
84/ 8/22	2445935.0	-1.03884	53.46291	25.94586	-1.02850	-0.11588	0.03265	59.43525	1.03552	91.11	25.88
84/ 8/23	2445935.5	-7.98426	52.30756	25.98570	-1.02002	-0.22532	-0.02112	58.94986	1.04482	98.68	26.16
84/ 8/23	2445936.0	-14.82247	50.41208	25.65757	-0.99676	-0.33416	-0.07588	58.47558	1.05401	106.38	26.03
84/ 8/24	2445936.5	-21.45201	47.78640	24.95746	-0.95836	-0.44064	-0.13081	58.02244	1.06288	114.18	25.48
84/ 8/24	2445937.0	-27.76982	44.45285	23.88722	-0.90472	-0.54286	-0.18502	57.60050	1.07119	121.99	24.50
84/ 8/25	2445937.5	-33.67337	40.44688	22.45513	-0.83610	-0.63887	-0.23750	57.21957	1.07871	129.78	23.11
84/ 8/25	2445938.0	-39.06314	35.81745	20.67628	-0.75314	-0.72664	-0.28724	56.88872	1.08523	137.48	21.31
84/ 8/26	2445938.5	-43.84533	30.62694	18.57279	-0.65690	-0.80423	-0.33319	56.61599	1.09056	145.06	19.15
84/ 8/26	2445939.0	-47.93476	24.95048	16.17370	-0.54886	-0.86985	-0.37436	56.40795	1.09455	152.50	16.66
84/ 8/27	2445939.5	-51.25763	18.87465	13.51462	-0.43088	-0.92193	-0.40982	56.26937	1.09707	159.78	13.90
84/ 8/27	2445940.0	-53.75404	12.49559	10.63699	-0.30520	-0.95922	-0.43878	56.20305	1.09808	166.91	10.91
84/ 8/28	2445940.5	-55.38007	5.91656	7.58711	-0.17429	-0.98087	-0.46060	56.20962	1.09756	173.90	7.76
84/ 8/28	2445941.0	-56.10912	-0.75488	4.41489	-0.04078	-0.98647	-0.47485	56.28761	1.09557	180.77	4.50
84/ 8/29	2445941.5	-55.93263	-7.40979	1.17244	0.09267	-0.97603	-0.48132	56.43349	1.09220	187.55	1.19
84/ 8/29	2445942.0	-54.85988	-13.94091	-2.08736	0.22346	-0.95002	-0.47999	56.64196	1.08760	194.26	-2.11
84/ 8/30	2445942.5	-52.91719	-20.24537	-5.31227	0.34917	-0.90927	-0.47106	56.90627	1.08194	200.94	-5.36
84/ 8/30	2445943.0	-50.14646	-26.22709	-8.45201	0.46764	-0.85494	-0.45492	57.21856	1.07543	207.61	-8.49
84/ 8/31	2445943.5	-46.60324	-31.79873	-11.45936	0.57699	-0.78843	-0.43206	57.57029	1.06828	214.31	-11.48
84/ 8/31	2445944.0	-42.35461	-36.88308	-14.29097	0.67572	-0.71132	-0.40314	57.95262	1.06070	221.05	-14.28
84/ 9/ 1	2445944.5	-37.47682	-41.41400	-16.90811	0.76261	-0.62528	-0.36885	58.35679	1.05290	227.86	-16.84
84/ 9/ 1	2445945.0	-32.05312	-45.33681	-19.27698	0.83680	-0.53203	-0.32996	58.77440	1.04507	234.74	-19.15
84/ 9/ 2	2445945.5	-26.17159	-48.60841	-21.36899	0.89773	-0.43327	-0.28723	59.19766	1.03737	241.70	-21.16
84/ 9/ 2	2445946.0	-19.92328	-51.19703	-23.16078	0.94508	-0.33062	-0.24143	59.61959	1.02994	248.74	-22.86
84/ 9/ 3	2445946.5	-13.40051	-53.08177	-24.63418	0.97878	-0.22567	-0.19333	60.03408	1.02289	255.83	-24.23
84/ 9/ 3	2445947.0	-6.69544	-54.25201	-25.77600	0.99894	-0.11987	-0.14364	60.43601	1.01631	262.96	-25.25
84/ 9/ 4	2445947.5	0.10109	-54.70674	-26.57787	1.00585	-0.01460	-0.09305	60.82122	1.01025	270.11	-25.91
84/ 9/ 4	2445948.0	6.90060	-54.45386	-27.03593	0.99990	0.08888	-0.04222	61.18646	1.00473	277.22	-26.22
84/ 9/ 5	2445948.5	13.61779	-53.50946	-27.15057	0.98163	0.18942	0.00826	61.52934	0.99977	284.28	-26.18
84/ 9/ 5	2445949.0	20.17117	-51.89708	-26.92615	0.95164	0.28596	0.05781	61.84821	0.99535	291.24	-25.81
84/ 9/ 6	2445949.5	26.48366	-49.64710	-26.37076	0.91062	0.37755	0.10591	62.14206	0.99145	298.08	-25.11
84/ 9/ 6	2445950.0	32.48304	-46.79603	-25.49587	0.85931	0.46332	0.15208	62.41038	0.98803	304.77	-24.11

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/ 9/ 7	2445950.5	38.10237	-43.38595	-24.31614	0.79853	0.54249	0.19586	62.65306	0.98504	311.29	-22.84
84/ 9/ 7	2445951.0	43.28030	-39.46391	-22.84914	0.72912	0.61439	0.23684	62.87024	0.98243	317.64	-21.31
84/ 9/ 8	2445951.5	47.96142	-35.08132	-21.11509	0.65197	0.67840	0.27465	63.06222	0.98017	323.82	-19.56
84/ 9/ 8	2445952.0	52.09650	-30.29343	-19.13663	0.56803	0.73399	0.30896	63.22933	0.97819	329.82	-17.62
84/ 9/ 9	2445952.5	55.64272	-25.15875	-16.93853	0.47825	0.78074	0.33946	63.37183	0.97648	335.67	-15.50
84/ 9/ 9	2445953.0	58.56384	-19.73848	-14.54747	0.38361	0.81827	0.36590	63.48984	0.97499	341.37	-13.25
84/ 9/10	2445953.5	60.83037	-14.09599	-11.99178	0.28512	0.84632	0.38805	63.58328	0.97372	346.95	-10.87
84/ 9/10	2445954.0	62.41967	-8.29627	-9.30117	0.18380	0.86467	0.40571	63.65183	0.97265	352.43	-8.40
84/ 9/11	2445954.5	63.31602	-2.40538	-6.50648	0.08067	0.87322	0.41876	63.69489	0.97179	357.82	-5.86
84/ 9/11	2445955.0	63.51065	3.51007	-3.63944	-0.02324	0.87193	0.42706	63.71161	0.97117	3.16	-3.27
84/ 9/12	2445955.5	63.00174	9.38345	-0.73240	-0.12691	0.86081	0.43056	63.70090	0.97082	8.47	-0.66
84/ 9/12	2445956.0	61.79437	15.14858	2.18191	-0.22932	0.83998	0.42921	63.66149	0.97076	13.77	1.96
84/ 9/13	2445956.5	59.90046	20.74023	5.07061	-0.32948	0.80962	0.42300	63.59193	0.97106	19.10	4.57
84/ 9/13	2445957.0	57.33865	26.09457	7.90091	-0.42638	0.76995	0.41197	63.49072	0.97178	24.47	7.15
84/ 9/14	2445957.5	54.13425	31.14962	10.64036	-0.51907	0.72130	0.39618	63.35640	0.97297	29.92	9.67
84/ 9/14	2445958.0	50.31911	35.84569	13.25703	-0.60657	0.66401	0.37573	63.18762	0.97469	35.46	12.11
84/ 9/15	2445958.5	45.93151	40.12578	15.71975	-0.68795	0.59854	0.35075	62.98327	0.97702	41.14	14.45
84/ 9/15	2445959.0	41.01609	43.93609	17.99836	-0.76228	0.52538	0.32140	62.74265	0.98000	46.97	16.67
84/ 9/16	2445959.5	35.62369	47.22642	20.06392	-0.82865	0.44509	0.28787	62.46553	0.98369	52.97	18.74
84/ 9/16	2445960.0	29.81134	49.95067	21.88896	-0.88615	0.35834	0.25042	62.15232	0.98812	59.17	20.62
84/ 9/17	2445960.5	23.64201	52.06740	23.44776	-0.93391	0.26583	0.20931	61.80418	0.99331	65.58	22.30
84/ 9/17	2445961.0	17.18460	53.54041	24.71666	-0.97108	0.16839	0.16487	61.42312	0.99927	72.21	23.73
84/ 9/18	2445961.5	10.51365	54.33936	25.67438	-0.99684	0.06695	0.11748	61.01210	1.00596	79.05	24.89
84/ 9/18	2445962.0	3.70912	54.44054	26.30238	-1.01040	-0.03747	0.06759	60.57512	1.01335	86.10	25.74
84/ 9/19	2445962.5	-3.14399	53.82767	26.58538	-1.01107	-0.14370	0.01569	60.11726	1.02135	93.34	26.25
84/ 9/19	2445963.0	-9.95618	52.49280	26.51174	-0.99823	-0.25045	-0.03762	59.64471	1.02985	100.74	26.39
84/ 9/20	2445963.5	-16.63424	50.43720	26.07404	-0.97139	-0.35628	-0.09169	59.16473	1.03872	108.25	26.15
84/ 9/20	2445964.0	-23.08221	47.67234	25.26963	-0.93025	-0.45961	-0.14578	58.68556	1.04779	115.84	25.51
84/ 9/21	2445964.5	-29.20271	44.22075	24.10114	-0.87470	-0.55877	-0.19906	58.21631	1.05686	123.44	24.46
84/ 9/21	2445965.0	-34.89858	40.11681	22.57703	-0.80491	-0.65195	-0.25064	57.76670	1.06571	131.02	23.01
84/ 9/22	2445965.5	-40.07487	35.40727	20.71203	-0.72138	-0.73729	-0.29956	57.34683	1.07411	138.54	21.17
84/ 9/22	2445966.0	-44.64119	30.15153	18.52743	-0.62496	-0.81293	-0.34484	56.96680	1.08183	145.96	18.98
84/ 9/23	2445966.5	-48.51422	24.42136	16.05125	-0.51690	-0.87709	-0.38550	56.63634	1.08862	153.28	16.46
84/ 9/23	2445967.0	-51.62049	18.30019	13.31801	-0.39885	-0.92813	-0.42060	56.36436	1.09426	160.48	13.67
84/ 9/24	2445967.5	-53.89898	11.88176	10.36839	-0.27283	-0.96466	-0.44927	56.15852	1.09857	167.57	10.64
84/ 9/24	2445968.0	-55.30361	5.26814	7.24843	-0.14122	-0.98563	-0.47079	56.02483	1.10139	174.56	7.43
84/ 9/25	2445968.5	-55.80519	-1.43278	4.00847	-0.00662	-0.99037	-0.48463	55.96731	1.10261	181.47	4.11
84/ 9/25	2445969.0	-55.39276	-8.11022	0.70184	0.12821	-0.97870	-0.49044	55.98773	1.10219	188.33	0.72
84/ 9/26	2445969.5	-54.07415	-14.65364	-2.61663	0.26051	-0.95089	-0.48813	56.08556	1.10015	195.16	-2.67
84/ 9/26	2445970.0	-51.87564	-20.95599	-5.89222	0.38762	-0.90767	-0.47782	56.25792	1.09655	202.00	-6.01
84/ 9/27	2445970.5	-48.84083	-26.91658	-9.07185	0.50708	-0.85019	-0.45987	56.49980	1.09153	208.86	-9.24
84/ 9/27	2445971.0	-45.02884	-32.44368	-12.10548	0.61679	-0.77993	-0.43481	56.80433	1.08525	215.77	-12.30
84/ 9/28	2445971.5	-40.51195	-37.45643	-14.94729	0.71498	-0.69861	-0.40335	57.16313	1.07794	222.76	-15.16
84/ 9/28	2445972.0	-35.37290	-41.88630	-17.55655	0.80031	-0.60813	-0.36628	57.56680	1.06980	229.82	-17.76
84/ 9/29	2445972.5	-29.70219	-45.67770	-19.89825	0.87185	-0.51041	-0.32449	58.00529	1.06110	236.97	-20.06

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/ 9/29	2445973.0	-23.59539	-48.78827	-21.94341	0.92902	-0.40740	-0.27887	58.46838	1.05206	244.19	-22.04
84/ 9/30	2445973.5	-17.15068	-51.18850	-23.66911	0.97162	-0.30095	-0.23030	58.94604	1.04291	251.48	-23.67
84/ 9/30	2445974.0	-10.46672	-52.86113	-25.05840	0.99971	-0.19282	-0.17967	59.42874	1.03386	258.80	-24.94
84/10/ 1	2445974.5	-3.64088	-53.80025	-26.10000	1.01359	-0.08461	-0.12776	59.90770	1.02510	266.13	-25.83
84/10/ 1	2445975.0	3.23220	-54.01028	-26.78791	1.01375	0.02224	-0.07535	60.37508	1.01679	273.42	-26.34
84/10/ 2	2445975.5	10.06168	-53.50495	-27.12103	1.00082	0.12643	-0.02311	60.82407	1.00904	280.65	-26.48
84/10/ 2	2445976.0	16.76133	-52.30621	-27.10271	0.97554	0.22682	0.02834	61.24899	1.00196	287.77	-26.26
84/10/ 3	2445976.5	23.25013	-50.44329	-26.74028	0.93870	0.32241	0.07842	61.64524	0.99562	294.75	-25.71
84/10/ 3	2445977.0	29.45266	-47.95177	-26.04469	0.89115	0.41230	0.12663	62.00934	0.99004	301.56	-24.84
84/10/ 4	2445977.5	35.29934	-44.87284	-25.03015	0.83377	0.49575	0.17253	62.33878	0.98524	308.19	-23.67
84/10/ 4	2445978.0	40.72664	-41.25250	-23.71374	0.76746	0.57207	0.21571	62.63202	0.98122	314.63	-22.25
84/10/ 5	2445978.5	45.67718	-37.14098	-22.11517	0.69314	0.64070	0.25580	62.88830	0.97794	320.88	-20.59
84/10/ 5	2445979.0	50.09982	-32.59218	-20.25648	0.61173	0.70112	0.29247	63.10759	0.97536	326.95	-18.72
84/10/ 6	2445979.5	53.94976	-27.66315	-18.16181	0.52418	0.75292	0.32543	63.29042	0.97342	332.85	-16.68
84/10/ 6	2445980.0	57.18860	-22.41360	-15.85717	0.43144	0.79571	0.35443	63.43781	0.97207	338.60	-14.48
84/10/ 7	2445980.5	59.78444	-16.90549	-13.37025	0.33447	0.82922	0.37922	63.55106	0.97123	344.21	-12.14
84/10/ 7	2445981.0	61.71194	-11.20259	-10.73018	0.23425	0.85320	0.39962	63.63174	0.97084	349.71	-9.71
84/10/ 8	2445981.5	62.95248	-5.36999	-7.96736	0.13178	0.86750	0.41545	63.68147	0.97083	355.12	-7.19
84/10/ 8	2445982.0	63.49417	0.52630	-5.11319	0.02806	0.87200	0.42657	63.70189	0.97115	0.47	-4.60
84/10/ 9	2445982.5	63.33198	6.41982	-2.19991	-0.07590	0.86668	0.43289	63.69453	0.97175	5.79	-1.98
84/10/ 9	2445983.0	62.46778	12.24417	0.73967	-0.17907	0.85159	0.43433	63.66075	0.97258	11.09	0.67
84/10/10	2445983.5	60.91039	17.93350	3.67239	-0.28043	0.82683	0.43086	63.60167	0.97362	16.41	3.31
84/10/10	2445984.0	58.67555	23.42299	6.56501	-0.37895	0.79262	0.42249	63.51816	0.97485	21.76	5.93
84/10/11	2445984.5	55.78594	28.64942	9.38446	-0.47361	0.74921	0.40927	63.41079	0.97628	27.18	8.51
84/10/11	2445985.0	52.27103	33.55167	12.09811	-0.56343	0.69695	0.39127	63.27985	0.97790	32.70	11.02
84/10/12	2445985.5	48.16701	38.07127	14.67405	-0.64741	0.63629	0.36863	63.12536	0.97974	38.32	13.44
84/10/12	2445986.0	43.51664	42.15293	17.08135	-0.72461	0.56772	0.34150	62.94712	0.98183	44.09	15.75
84/10/13	2445986.5	38.36900	45.74507	19.29037	-0.79410	0.49184	0.31011	62.74480	0.98421	50.01	17.91
84/10/13	2445987.0	32.77930	48.80037	21.27304	-0.85500	0.40932	0.27471	62.51801	0.98693	56.11	19.89
84/10/14	2445987.5	26.80857	51.27632	23.00313	-0.90648	0.32090	0.23558	62.26640	0.99004	62.40	21.68
84/10/14	2445988.0	20.52336	53.13573	24.45658	-0.94774	0.22740	0.19308	61.98982	0.99358	68.88	23.24
84/10/15	2445988.5	13.99533	54.34730	25.61175	-0.97806	0.12975	0.14757	61.68841	0.99761	75.56	24.53
84/10/15	2445989.0	7.30087	54.88617	26.44980	-0.99678	0.02893	0.09951	61.36274	1.00215	82.42	25.53
84/10/16	2445989.5	0.52059	54.73446	26.95493	-1.00331	-0.07398	0.04935	61.01394	1.00725	89.46	26.22
84/10/16	2445990.0	-6.26122	53.88190	27.11478	-0.99716	-0.17783	-0.00236	60.64382	1.01289	96.63	26.56
84/10/17	2445990.5	-12.95725	52.32636	26.92076	-0.97793	-0.28135	-0.05504	60.25500	1.01908	103.91	26.54
84/10/17	2445991.0	-19.47797	50.07450	26.36839	-0.94536	-0.38321	-0.10806	59.85097	1.02578	111.26	26.14
84/10/18	2445991.5	-25.73253	47.14237	25.45773	-0.89933	-0.48199	-0.16073	59.43620	1.03293	118.63	25.36
84/10/18	2445992.0	-31.62989	43.55590	24.19369	-0.83991	-0.57617	-0.21228	59.01611	1.04042	125.99	24.20
84/10/19	2445992.5	-37.08015	39.35147	22.58644	-0.76736	-0.66421	-0.26194	58.59712	1.04816	133.30	22.67
84/10/19	2445993.0	-41.99606	34.57617	20.65167	-0.68223	-0.74448	-0.30886	58.18653	1.05597	140.53	20.79
84/10/20	2445993.5	-46.29486	29.28801	18.41083	-0.58529	-0.81538	-0.35217	57.79239	1.06369	147.68	18.58
84/10/20	2445994.0	-49.90019	23.55578	15.89125	-0.47767	-0.87536	-0.39102	57.42331	1.07113	154.73	16.07
84/10/21	2445994.5	-52.74433	17.45856	13.12610	-0.36078	-0.92293	-0.42455	57.08818	1.07805	161.69	13.29
84/10/21	2445995.0	-54.77032	11.08486	10.15412	-0.23640	-0.95680	-0.45197	56.79585	1.08426	168.56	10.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/10/22	2445995.5	-55.93424	4.53122	7.01915	-0.10658	-0.97591	-0.47258	56.55474	1.08954	175.37	7.13
84/10/22	2445996.0	-56.20707	-2.09966	3.76936	0.02632	-0.97951	-0.48579	56.37244	1.09368	182.14	3.83
84/10/23	2445996.5	-55.57641	-8.70121	0.45625	0.15978	-0.96722	-0.49122	56.25528	1.09651	188.90	0.46
84/10/23	2445997.0	-54.04742	-15.16571	-2.86657	0.29115	-0.93909	-0.48865	56.20800	1.09792	195.67	-2.92
84/10/24	2445997.5	-51.64326	-21.38724	-6.14483	0.41778	-0.89559	-0.47808	56.23344	1.09781	202.50	-6.27
84/10/24	2445998.0	-48.40468	-27.26458	-9.32508	0.53714	-0.83764	-0.45976	56.33230	1.09615	209.39	-9.53
84/10/25	2445998.5	-44.38884	-32.70407	-12.35614	0.64694	-0.76654	-0.43412	56.50310	1.09297	216.38	-12.63
84/10/25	2445999.0	-39.66746	-37.62205	-15.19052	0.74518	-0.68393	-0.40180	56.74220	1.08835	223.48	-15.53
84/10/26	2445999.5	-34.32438	-41.94673	-17.78556	0.83029	-0.59167	-0.36359	57.04400	1.08243	230.71	-18.17
84/10/26	2446000.0	-28.45286	-45.61956	-20.10430	0.90107	-0.49179	-0.32037	57.40115	1.07537	238.05	-20.50
84/10/27	2446000.5	-22.15260	-48.59586	-22.11608	0.95680	-0.38634	-0.27310	57.80498	1.06738	245.49	-22.49
84/10/27	2446001.0	-15.52697	-50.84493	-23.79681	0.99713	-0.27737	-0.22277	58.24587	1.05869	253.02	-24.11
84/10/28	2446001.5	-8.68031	-52.34959	-25.12899	1.02210	-0.16683	-0.17034	58.71366	1.04954	260.59	-25.34
84/10/28	2446002.0	-1.71574	-53.10531	-26.10149	1.03203	-0.05650	-0.11671	59.19802	1.04014	268.15	-26.16
84/10/29	2446002.5	5.26681	-53.11913	-26.70913	1.02752	0.05199	-0.06273	59.68885	1.03075	275.66	-26.58
84/10/29	2446003.0	12.17202	-52.40837	-26.95224	1.00933	0.15724	-0.00918	60.17656	1.02155	283.08	-26.61
84/10/30	2446003.5	18.91024	-50.99930	-26.83602	0.97837	0.25801	0.04326	60.65227	1.01274	290.34	-26.26
84/10/30	2446004.0	25.39822	-48.92589	-26.37004	0.93561	0.35326	0.09401	61.10802	1.00448	297.43	-25.56
84/10/31	2446004.5	31.55953	-46.22859	-25.56766	0.88208	0.44210	0.14252	61.53691	0.99691	304.32	-24.55
84/10/31	2446005.0	37.32482	-42.95330	-24.44553	0.81884	0.52382	0.18835	61.93312	0.99013	310.99	-23.25
84/11/ 1	2446005.5	42.63181	-39.15042	-23.02316	0.74692	0.59781	0.23112	62.29199	0.98422	317.44	-21.69
84/11/ 1	2446006.0	47.42531	-34.87406	-21.32250	0.66738	0.66356	0.27048	62.60997	0.97922	323.67	-19.91
84/11/ 2	2446006.5	51.65711	-30.18140	-19.36759	0.58122	0.72068	0.30615	62.88463	0.97515	329.70	-17.94
84/11/ 2	2446007.0	55.28583	-25.13210	-17.18433	0.48946	0.76883	0.33787	63.11455	0.97202	335.55	-15.80
84/11/ 3	2446007.5	58.27688	-19.78782	-14.80018	0.39308	0.80774	0.36544	63.29927	0.96980	341.25	-13.52
84/11/ 3	2446008.0	60.60230	-14.21185	-12.24398	0.29307	0.83722	0.38865	63.43919	0.96844	346.80	-11.13
84/11/ 4	2446008.5	62.24075	-8.46868	-9.54575	0.19039	0.85709	0.40735	63.53543	0.96788	352.25	-8.64
84/11/ 4	2446009.0	63.17750	-2.62372	-6.73653	0.08602	0.86726	0.42141	63.58979	0.96805	357.62	-6.08
84/11/ 5	2446009.5	63.40443	3.25712	-3.84819	-0.01905	0.86768	0.43070	63.60456	0.96888	2.94	-3.47
84/11/ 5	2446010.0	62.92011	9.10769	-0.91330	-0.12384	0.85833	0.43514	63.58242	0.97027	8.24	-0.82
84/11/ 6	2446010.5	61.72985	14.86211	2.03511	-0.22734	0.83930	0.43468	63.52636	0.97214	13.54	1.84
84/11/ 6	2446011.0	59.84581	20.45508	4.96372	-0.32854	0.81069	0.42929	63.43950	0.97439	18.87	4.49
84/11/ 7	2446011.5	57.28704	25.82244	7.83915	-0.42641	0.77271	0.41898	63.32500	0.97696	24.26	7.11
84/11/ 7	2446012.0	54.07957	30.90161	10.62821	-0.51992	0.72564	0.40380	63.18598	0.97976	29.74	9.68
84/11/ 8	2446012.5	50.25637	35.63221	13.29816	-0.60806	0.66985	0.38383	63.02538	0.98273	35.34	12.18
84/11/ 8	2446013.0	45.85736	39.95659	15.81706	-0.68979	0.60578	0.35922	62.84589	0.98581	41.07	14.58
84/11/ 9	2446013.5	40.92925	43.82053	18.15403	-0.76413	0.53398	0.33014	62.64991	0.98895	46.95	16.84
84/11/ 9	2446014.0	35.52538	47.17385	20.27962	-0.83012	0.45511	0.29685	62.43948	0.99214	53.02	18.95
84/11/10	2446014.5	29.70543	49.97108	22.16617	-0.88685	0.36990	0.25961	62.21624	0.99535	59.27	20.87
84/11/10	2446015.0	23.53505	52.17214	23.78816	-0.93347	0.27921	0.21878	61.98151	0.99859	65.72	22.57
84/11/11	2446015.5	17.08537	53.74297	25.12258	-0.96920	0.18397	0.17476	61.73622	1.00187	72.36	24.01
84/11/11	2446016.0	10.43246	54.65619	26.14929	-0.99337	0.08520	0.12800	61.48106	1.00520	79.19	25.17
84/11/12	2446016.5	3.65666	54.89164	26.85134	-1.00541	-0.01598	0.07898	61.21648	1.00863	86.19	26.02
84/11/12	2446017.0	-3.15821	54.43695	27.21536	-1.00484	-0.11839	0.02827	60.94285	1.01219	93.32	26.52
84/11/13	2446017.5	-9.92566	53.28801	27.23181	-0.99136	-0.22077	-0.02355	60.66054	1.01592	100.55	26.67

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MCON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/11/13	2446018.0	-16.55747	51.44937	26.89529	-0.96477	-0.32183	-0.07585	60.37005	1.01986	107.84	26.46
84/11/14	2446018.5	-22.96468	48.93460	26.20480	-0.92505	-0.42020	-0.12796	60.07215	1.02404	115.14	25.86
84/11/14	2446019.0	-29.05873	45.76656	25.16398	-0.87233	-0.51450	-0.17918	59.76799	1.02849	122.41	24.90
84/11/15	2446019.5	-34.75257	41.97755	23.78126	-0.80694	-0.60333	-0.22879	59.45927	1.03321	129.62	23.58
84/11/15	2446020.0	-39.96201	37.60944	22.07007	-0.72939	-0.68528	-0.27606	59.14828	1.03818	136.74	21.91
84/11/16	2446020.5	-44.60699	32.71354	20.04886	-0.64040	-0.75895	-0.32021	58.83805	1.04339	143.74	19.92
84/11/16	2446021.0	-48.61312	27.35048	17.74119	-0.54092	-0.82301	-0.36052	58.53233	1.04877	150.64	17.64
84/11/17	2446021.5	-51.91312	21.58977	15.17563	-0.43210	-0.87617	-0.39625	58.23564	1.05423	157.42	15.11
84/11/17	2446022.0	-54.44845	15.50922	12.38562	-0.31537	-0.91727	-0.42669	57.95320	1.05967	164.10	12.34
84/11/18	2446022.5	-56.17086	9.19407	9.40918	-0.19235	-0.94529	-0.45120	57.69080	1.06496	170.70	9.39
84/11/18	2446023.0	-57.04396	2.73586	6.28845	-0.06490	-0.95940	-0.46920	57.45471	1.06996	177.25	6.28
84/11/19	2446023.5	-57.04466	-3.76904	3.06914	0.06491	-0.95900	-0.48024	57.25136	1.07449	183.78	3.07
84/11/19	2446024.0	-56.16434	-10.22116	-0.20026	0.19488	-0.94379	-0.48395	57.08717	1.07839	190.31	-0.20
84/11/20	2446024.5	-54.40980	-16.52000	-3.46943	0.32267	-0.91377	-0.48015	56.96818	1.08149	196.89	-3.49
84/11/20	2446025.0	-51.80373	-22.56628	-6.68726	0.44593	-0.86930	-0.46880	56.89976	1.08365	203.54	-6.75
84/11/21	2446025.5	-48.38468	-28.26433	-9.80305	0.56236	-0.81108	-0.45006	56.88628	1.08474	210.29	-9.92
84/11/21	2446026.0	-44.20648	-33.52449	-12.76775	0.66976	-0.74020	-0.42426	56.93083	1.08465	217.18	-12.96
84/11/22	2446026.5	-39.33704	-38.26539	-15.53522	0.76617	-0.65801	-0.39192	57.03495	1.08332	224.21	-15.81
84/11/22	2446027.0	-33.85668	-42.41597	-18.06333	0.84991	-0.56617	-0.35370	57.19854	1.08074	231.40	-18.41
84/11/23	2446027.5	-27.85592	-45.91704	-20.31494	0.91965	-0.46654	-0.31041	57.41971	1.07692	238.76	-20.72
84/11/23	2446028.0	-21.43299	-48.72246	-22.25869	0.97445	-0.36108	-0.26295	57.69489	1.07195	246.26	-22.69
84/11/24	2446028.5	-14.69117	-50.79964	-23.86954	1.01376	-0.25183	-0.21227	58.01887	1.06592	253.87	-24.29
84/11/24	2446029.0	-7.73614	-52.12967	-25.12897	1.03741	-0.14078	-0.15934	58.38506	1.05897	261.56	-25.49
84/11/25	2446029.5	-0.67347	-52.70683	-26.02500	1.04560	-0.02982	-0.10512	58.78575	1.05129	269.27	-26.28
84/11/25	2446030.0	6.39361	-52.53779	-26.55202	1.03882	0.07929	-0.05052	59.21239	1.04306	276.94	-26.64
84/11/26	2446030.5	13.36610	-51.64044	-26.71033	1.01781	0.18500	0.00363	59.65593	1.03449	284.51	-26.60
84/11/26	2446031.0	20.15065	-50.04265	-26.50565	0.98349	0.28592	0.05655	60.10712	1.02577	291.93	-26.17
84/11/27	2446031.5	26.66073	-47.78082	-25.94851	0.93694	0.38091	0.10760	60.55681	1.01712	299.16	-25.37
84/11/27	2446032.0	32.81727	-44.89854	-25.05368	0.87929	0.46899	0.15619	60.99622	1.00871	306.16	-24.25
84/11/28	2446032.5	38.54911	-41.44527	-23.83948	0.81173	0.54940	0.20183	61.41714	1.00074	312.93	-22.84
84/11/28	2446033.0	43.79313	-37.47518	-22.32730	0.73544	0.62151	0.24412	61.81210	0.99335	319.45	-21.17
84/11/29	2446033.5	48.49426	-33.04613	-20.54103	0.65161	0.68486	0.28272	62.17455	0.98669	325.73	-19.29
84/11/29	2446034.0	52.60528	-28.21878	-18.50663	0.56137	0.73908	0.31735	62.49888	0.98086	331.79	-17.22
84/11/30	2446034.5	56.08661	-23.05587	-16.25176	0.46585	0.78391	0.34778	62.78058	0.97595	337.65	-15.00
84/11/30	2446035.0	58.90606	-17.62165	-13.80547	0.36610	0.81917	0.37385	63.01617	0.97202	343.35	-12.65
84/12/ 1	2446035.5	61.03858	-11.98136	-11.19791	0.26317	0.84475	0.39538	63.20328	0.96911	348.89	-10.21
84/12/ 1	2446036.0	62.46605	-6.20085	-8.46015	0.15807	0.86057	0.41228	63.34060	0.96723	354.33	-7.68
84/12/ 2	2446036.5	63.17707	-0.34629	-5.62397	0.05178	0.86662	0.42443	63.42785	0.96636	359.69	-5.09
84/12/ 2	2446037.0	63.16690	5.51620	-2.72174	-0.05474	0.86291	0.43177	63.46569	0.96646	4.99	-2.46
84/12/ 3	2446037.5	62.43734	11.32074	0.21378	-0.16049	0.84952	0.43425	63.45570	0.96748	10.28	0.19
84/12/ 3	2446038.0	60.99676	17.00206	3.14950	-0.26453	0.82655	0.43183	63.40027	0.96935	15.58	2.85
84/12/ 4	2446038.5	58.86015	22.49574	6.05223	-0.36586	0.79414	0.42451	63.30249	0.97197	20.92	5.49
84/12/ 4	2446039.0	56.04919	27.73862	8.88882	-0.46350	0.75253	0.41230	63.16608	0.97525	26.33	8.09
84/12/ 5	2446039.5	52.59232	32.66920	11.62633	-0.55642	0.70198	0.39527	62.99524	0.97909	31.85	10.64
84/12/ 5	2446040.0	48.52486	37.22814	14.23233	-0.64363	0.64285	0.37349	62.79455	0.98336	37.50	13.10

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
84/12/ 6	2446040.5	43.88905	41.35877	16.67511	-0.72408	0.57558	0.34710	62.56881	0.98796	43.30	15.46
84/12/ 6	2446041.0	38.73408	45.00779	18.92404	-0.79676	0.50073	0.31628	62.32294	0.99277	49.28	17.68
84/12/ 7	2446041.5	33.11599	48.12593	20.94989	-0.86067	0.41894	0.28127	62.06184	0.99769	55.47	19.73
84/12/ 7	2446042.0	27.09751	50.66873	22.72525	-0.91484	0.33097	0.24236	61.79023	1.00261	61.86	21.58
84/12/ 8	2446042.5	20.74772	52.59733	24.22492	-0.95836	0.23772	0.19993	61.51255	1.00744	68.47	23.19
84/12/ 8	2446043.0	14.14161	53.87925	25.42641	-0.99040	0.14020	0.15439	61.23285	1.01212	75.29	24.53
84/12/ 9	2446043.5	7.35943	54.48927	26.31031	-1.01024	0.03951	0.10623	60.95469	1.01658	82.31	25.57
84/12/ 9	2446044.0	0.48591	54.41010	26.86081	-1.01728	-0.06310	0.05603	60.68112	1.02078	89.49	26.27
84/12/10	2446044.5	-6.39070	53.63309	27.06605	-1.01110	-0.16633	0.00439	60.41457	1.02469	96.80	26.62
84/12/10	2446045.0	-13.17978	52.15878	26.91854	-0.99141	-0.26877	-0.04802	60.15690	1.02832	104.18	26.58
84/12/11	2446045.5	-19.78957	49.99734	26.41545	-0.95816	-0.36899	-0.10049	59.90941	1.03166	111.59	26.16
84/12/11	2446046.0	-26.12854	47.16883	25.55890	-0.91148	-0.46551	-0.15227	59.67291	1.03474	118.98	25.36
84/12/12	2446046.5	-32.10686	43.70325	24.35606	-0.85173	-0.55687	-0.20262	59.44781	1.03760	126.30	24.19
84/12/12	2446047.0	-37.63779	39.64049	22.81926	-0.77949	-0.64162	-0.25076	59.23420	1.04027	133.52	22.66
84/12/13	2446047.5	-42.63929	35.02998	20.96600	-0.69554	-0.71839	-0.29594	59.03204	1.04281	140.60	20.80
84/12/13	2446048.0	-47.03537	29.93027	18.81876	-0.60090	-0.78587	-0.33745	58.84125	1.04525	147.53	18.65
84/12/14	2446048.5	-50.75759	24.40829	16.40489	-0.49677	-0.84289	-0.37457	58.66190	1.04764	154.32	16.24
84/12/14	2446049.0	-53.74635	18.53860	13.75621	-0.38456	-0.88839	-0.40668	58.49430	1.05001	160.97	13.60
84/12/15	2446049.5	-55.95211	12.40230	10.90868	-0.26584	-0.92148	-0.43320	58.33913	1.05236	167.50	10.78
84/12/15	2446050.0	-57.33652	6.08592	7.90192	-0.14232	-0.94146	-0.45363	58.19755	1.05470	173.94	7.80
84/12/16	2446050.5	-57.87337	-0.31989	4.77859	-0.01588	-0.94783	-0.46756	58.07120	1.05700	180.32	4.72
84/12/16	2446051.0	-57.54936	-6.72183	1.58378	0.11155	-0.94030	-0.47469	57.96223	1.05921	186.66	1.57
84/12/17	2446051.5	-56.36465	-13.02552	-1.63571	0.23794	-0.91883	-0.47483	57.87326	1.06128	193.01	-1.62
84/12/17	2446052.0	-54.33323	-19.13715	-4.83222	0.36124	-0.88364	-0.46790	57.80727	1.06313	199.40	-4.80
84/12/18	2446052.5	-51.48293	-24.96522	-7.95804	0.47941	-0.83520	-0.45398	57.76750	1.06465	205.87	-7.92
84/12/18	2446053.0	-47.85519	-30.42238	-10.96635	0.59049	-0.77425	-0.43325	57.75726	1.06576	212.44	-10.95
84/12/19	2446053.5	-43.50447	-35.42712	-13.81212	0.69261	-0.70179	-0.40605	57.77971	1.06634	219.16	-13.83
84/12/19	2446054.0	-38.49728	-39.90553	-16.45307	0.78407	-0.61905	-0.37285	57.83766	1.06631	226.03	-16.53
84/12/20	2446054.5	-32.91092	-43.79276	-18.85049	0.86341	-0.52748	-0.33424	57.93337	1.06556	233.07	-18.99
84/12/20	2446055.0	-26.83183	-47.03442	-20.97006	0.92939	-0.42870	-0.29093	58.06830	1.06404	240.30	-21.17
84/12/21	2446055.5	-20.35376	-49.58753	-22.78253	0.98110	-0.32446	-0.24370	58.24296	1.06170	247.68	-23.03
84/12/21	2446056.0	-13.57565	-51.42125	-24.26420	1.01792	-0.21658	-0.19339	58.45678	1.05852	255.21	-24.52
84/12/22	2446056.5	-6.59947	-52.51720	-25.39728	1.03956	-0.10690	-0.14091	58.70802	1.05450	262.84	-25.63
84/12/22	2446057.0	0.47194	-52.86937	-26.17007	1.04607	0.00276	-0.08715	58.99378	1.04970	270.51	-26.33
84/12/23	2446057.5	7.53699	-52.48373	-26.57689	1.03776	0.11069	-0.03299	59.31002	1.04417	278.17	-26.62
84/12/23	2446058.0	14.49722	-51.37745	-26.61789	1.01523	0.21531	0.02074	59.65169	1.03802	285.76	-26.50
84/12/24	2446058.5	21.25894	-49.57795	-26.29872	0.97930	0.31517	0.07325	60.01282	1.03137	293.21	-25.99
84/12/24	2446059.0	27.73460	-47.12172	-25.63004	0.93094	0.40904	0.12384	60.38678	1.02435	300.48	-25.11
84/12/25	2446059.5	33.84377	-44.05304	-24.62697	0.87127	0.49586	0.17189	60.76643	1.01712	307.53	-23.91
84/12/25	2446060.0	39.51389	-40.42274	-23.30858	0.80149	0.57476	0.21687	61.14438	1.00984	314.35	-22.41
84/12/26	2446060.5	44.68067	-36.28688	-21.69721	0.72285	0.64505	0.25834	61.51316	1.00266	320.92	-20.65
84/12/26	2446061.0	49.28830	-31.70562	-19.81797	0.63659	0.70621	0.29592	61.86546	0.99576	327.25	-18.68
84/12/27	2446061.5	53.28942	-26.74217	-17.69821	0.54395	0.75786	0.32932	62.19431	0.98928	333.35	-16.53
84/12/27	2446062.0	56.64494	-21.46186	-15.36702	0.44615	0.79974	0.35831	62.49325	0.98337	339.25	-14.23
84/12/28	2446062.5	59.32384	-15.93136	-12.85487	0.34434	0.83172	0.38273	62.75646	0.97816	344.97	-11.82

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
84/12/28	2446063.0	61.30279	-10.21807	-10.19322	0.23964	0.85372	0.40244	62.97891	0.97377	350.54	-9.31
84/12/29	2446063.5	62.56589	-4.38955	-7.41426	0.13313	0.86575	0.41736	63.15640	0.97027	355.99	-6.74
84/12/29	2446064.0	63.10434	1.48685	-4.55067	0.02583	0.86787	0.42743	63.28568	0.96776	1.35	-4.12
84/12/30	2446064.5	62.91618	7.34436	-1.63543	-0.08127	0.86019	0.43261	63.36450	0.96627	6.66	-1.48
84/12/30	2446065.0	62.00607	13.11705	1.29835	-0.18720	0.84285	0.43290	63.39161	0.96584	11.94	1.17
84/12/31	2446065.5	60.38518	18.74010	4.21756	-0.29101	0.81603	0.42831	63.36678	0.96646	17.24	3.82
84/12/31	2446066.0	58.07107	24.15004	7.08920	-0.39175	0.77996	0.41886	63.29084	0.96811	22.58	6.43
85/ 1/ 1	2446066.5	55.08769	29.28501	9.88055	-0.48848	0.73488	0.40461	63.16558	0.97076	28.00	9.00
85/ 1/ 1	2446067.0	51.46542	34.08506	12.55930	-0.58025	0.68112	0.38563	62.99379	0.97433	33.52	11.50
85/ 1/ 2	2446067.5	47.24112	38.49252	15.09375	-0.66609	0.61902	0.36201	62.77913	0.97873	39.17	13.91
85/ 1/ 2	2446068.0	42.45824	42.45241	17.45294	-0.74503	0.54903	0.33390	62.52611	0.98387	45.00	16.21
85/ 1/ 3	2446068.5	37.16688	45.91300	19.60702	-0.81607	0.47167	0.30148	62.23998	0.98962	51.01	18.36
85/ 1/ 3	2446069.0	31.42386	48.82637	21.52745	-0.87824	0.38756	0.26495	61.92660	0.99584	57.24	20.34
85/ 1/ 4	2446069.5	25.29266	51.14919	23.18742	-0.93054	0.29742	0.22462	61.59233	1.00240	63.69	22.11
85/ 1/ 4	2446070.0	18.84332	52.84350	24.56224	-0.97203	0.20211	0.18081	61.24386	1.00915	70.37	23.64
85/ 1/ 5	2446070.5	12.15211	53.87756	25.62982	-1.00182	0.10263	0.13396	60.88804	1.01593	77.29	24.89
85/ 1/ 5	2446071.0	5.30104	54.22685	26.37115	-1.01911	0.00010	0.08456	60.53172	1.02261	84.42	25.83
85/ 1/ 6	2446071.5	-1.62278	53.87494	26.77083	-1.02320	-0.10421	0.03318	60.18155	1.02903	91.73	26.41
85/ 1/ 6	2446072.0	-8.52818	52.81442	26.81762	-1.01359	-0.20890	-0.01953	59.84378	1.03508	99.17	26.62
85/ 1/ 7	2446072.5	-15.32103	51.04772	26.50491	-0.98993	-0.31248	-0.07285	59.52406	1.04063	106.71	26.44
85/ 1/ 7	2446073.0	-21.90572	48.58773	25.83117	-0.95213	-0.41335	-0.12600	59.22733	1.04560	114.27	25.86
85/ 1/ 8	2446073.5	-28.18683	45.45826	24.80032	-0.90033	-0.50990	-0.17817	58.95767	1.04992	121.80	24.88
85/ 1/ 8	2446074.0	-34.07091	41.69422	23.42193	-0.83498	-0.60047	-0.22848	58.71815	1.05355	129.25	23.51
85/ 1/ 9	2446074.5	-39.46838	37.34148	21.71137	-0.75679	-0.68347	-0.27611	58.51088	1.05646	136.59	21.78
85/ 1/ 9	2446075.0	-44.29550	32.45645	19.68972	-0.66675	-0.75741	-0.32021	58.33694	1.05866	143.77	19.73
85/ 1/10	2446075.5	-48.47623	27.10528	17.38354	-0.56614	-0.82091	-0.36001	58.19646	1.06019	150.79	17.38
85/ 1/10	2446076.0	-51.94390	21.36282	14.82446	-0.45646	-0.87277	-0.39478	58.08876	1.06110	157.64	14.79
85/ 1/11	2446076.5	-54.64279	15.31126	12.04870	-0.33942	-0.91204	-0.42390	58.01241	1.06147	164.35	11.99
85/ 1/11	2446077.0	-56.52927	9.03860	9.09635	-0.21689	-0.93796	-0.44684	57.96550	1.06136	170.92	9.03
85/ 1/12	2446077.5	-57.57281	2.63700	6.01066	-0.09084	-0.95006	-0.46322	57.94575	1.06086	177.38	5.95
85/ 1/12	2446078.0	-57.75648	-3.79904	2.83716	0.03668	-0.94811	-0.47274	57.95078	1.06007	183.76	2.81
85/ 1/13	2446078.5	-57.07726	-10.17440	-0.37716	0.16362	-0.93217	-0.47526	57.97822	1.05905	190.11	-0.37
85/ 1/13	2446079.0	-55.54598	-16.39517	-3.58475	0.28795	-0.90253	-0.47076	58.02592	1.05787	196.44	-3.54
85/ 1/14	2446079.5	-53.18699	-22.37025	-6.73837	0.40772	-0.85973	-0.45935	58.09207	1.05659	202.81	-6.66
85/ 1/14	2446080.0	-50.03753	-28.01298	-9.79189	0.52108	-0.80454	-0.44125	58.17527	1.05522	209.24	-9.69
85/ 1/15	2446080.5	-46.14692	-33.24257	-12.70113	0.62630	-0.73791	-0.41680	58.27457	1.05380	215.77	-12.59
85/ 1/15	2446081.0	-41.57555	-37.98539	-15.42453	0.72186	-0.66100	-0.38645	58.38948	1.05231	222.42	-15.32
85/ 1/16	2446081.5	-36.39363	-42.17611	-17.92386	0.80638	-0.57511	-0.35073	58.51995	1.05072	229.21	-17.84
85/ 1/16	2446082.0	-30.67987	-45.75864	-20.16478	0.87873	-0.48165	-0.31026	58.66622	1.04901	236.16	-20.10
85/ 1/17	2446082.5	-24.52000	-48.68691	-22.11735	0.93798	-0.38217	-0.26570	58.82876	1.04712	243.27	-22.08
85/ 1/17	2446083.0	-18.00520	-50.92544	-23.75645	0.98345	-0.27825	-0.21782	59.00810	1.04501	250.53	-23.74
85/ 1/18	2446083.5	-11.23042	-52.44966	-25.06208	1.01470	-0.17152	-0.16737	59.20471	1.04261	257.91	-25.04
85/ 1/18	2446084.0	-4.29277	-53.24611	-26.01957	1.03154	-0.06361	-0.11515	59.41880	1.03989	265.39	-25.97
85/ 1/19	2446084.5	2.71021	-53.31226	-26.61969	1.03402	0.04387	-0.06197	59.65023	1.03680	272.91	-26.50
85/ 1/19	2446085.0	9.68211	-52.65629	-26.85859	1.02243	0.14938	-0.00861	59.89835	1.03332	280.42	-26.64

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/ 1/20	2446085.5	16.52922	-51.29653	-26.73772	0.99727	0.25146	0.04415	60.16190	1.02943	287.86	-26.39
85/ 1/20	2446086.0	23.16191	-49.26076	-26.26355	0.95924	0.34879	0.09560	60.43898	1.02515	295.18	-25.76
85/ 1/21	2446086.5	29.49583	-46.58539	-25.44728	0.90920	0.44015	0.14506	60.72699	1.02050	302.34	-24.77
85/ 1/21	2446087.0	35.45300	-43.31446	-24.30445	0.84816	0.52449	0.19193	61.02265	1.01553	309.30	-23.47
85/ 1/22	2446087.5	40.96256	-39.49859	-22.85445	0.77722	0.60093	0.23568	61.32206	1.01031	316.04	-21.88
85/ 1/22	2446088.0	45.96141	-35.19391	-21.12005	0.69755	0.66872	0.27584	61.62077	1.00492	322.56	-20.04
85/ 1/23	2446088.5	50.39459	-30.46099	-19.12689	0.61039	0.72730	0.31203	61.91385	0.99945	328.85	-17.99
85/ 1/23	2446089.0	54.21549	-25.36375	-16.90301	0.51696	0.77624	0.34393	62.19607	0.99402	334.93	-15.77
85/ 1/24	2446089.5	57.38586	-19.96856	-14.47830	0.41849	0.81525	0.37129	62.46200	0.98875	340.81	-13.40
85/ 1/24	2446090.0	59.87571	-14.34333	-11.88415	0.31620	0.84415	0.39394	62.70618	0.98375	346.53	-10.92
85/ 1/25	2446090.5	61.66312	-8.55676	-9.15298	0.21126	0.86289	0.41174	62.92325	0.97915	352.10	-8.36
85/ 1/25	2446091.0	62.73391	-2.67764	-6.31790	0.10478	0.87149	0.42461	63.10808	0.97507	357.56	-5.75
85/ 1/26	2446091.5	63.08142	3.22567	-3.41243	-0.00215	0.87005	0.43252	63.25595	0.97163	2.93	-3.09
85/ 1/26	2446092.0	62.70610	9.08570	-0.47023	-0.10850	0.85874	0.43546	63.36266	0.96894	8.24	-0.43
85/ 1/27	2446092.5	61.61526	14.83628	2.47512	-0.21328	0.83777	0.43346	63.42461	0.96708	13.54	2.24
85/ 1/27	2446093.0	59.82278	20.41284	5.39031	-0.31553	0.80740	0.42656	63.43898	0.96613	18.84	4.87
85/ 1/28	2446093.5	57.34889	25.75268	8.24243	-0.41434	0.76792	0.41485	63.40373	0.96617	24.18	7.47
85/ 1/28	2446094.0	54.22003	30.79522	10.99913	-0.50879	0.71967	0.39841	63.31776	0.96722	29.60	10.00
85/ 1/29	2446094.5	50.46873	35.48227	13.62875	-0.59799	0.66301	0.37734	63.18091	0.96931	35.11	12.46
85/ 1/29	2446095.0	46.13355	39.75826	16.10046	-0.68106	0.59836	0.35180	62.99404	0.97244	40.76	14.81
85/ 1/30	2446095.5	41.25912	43.57062	18.38441	-0.75708	0.52618	0.32193	62.75906	0.97657	46.56	17.03
85/ 1/30	2446096.0	35.89611	46.87008	20.45196	-0.82518	0.44700	0.28793	62.47894	0.98165	52.55	19.11
85/ 1/31	2446096.5	30.10133	49.61123	22.27586	-0.88443	0.36142	0.25002	62.15769	0.98760	58.75	21.00
85/ 1/31	2446097.0	23.93772	51.75299	23.83055	-0.93394	0.27013	0.20849	61.80034	0.99433	65.18	22.68
85/ 2/ 1	2446097.5	17.47430	53.25932	25.09251	-0.97281	0.17393	0.16364	61.41287	1.00170	71.84	24.12
85/ 2/ 1	2446098.0	10.78610	54.09997	26.04064	-1.00018	0.07373	0.11588	61.00214	1.00956	78.72	25.27
85/ 2/ 2	2446098.5	3.95384	54.25137	26.65669	-1.01522	-0.02942	0.06567	60.57577	1.01777	85.83	26.11
85/ 2/ 2	2446099.0	-2.93651	53.69756	26.92584	-1.01722	-0.13431	0.01354	60.14193	1.02613	93.13	26.60
85/ 2/ 3	2446099.5	-9.79439	52.43117	26.83716	-1.00555	-0.23960	-0.03988	59.70922	1.03447	100.58	26.71
85/ 2/ 3	2446100.0	-16.52566	50.45443	26.38427	-0.97977	-0.34381	-0.09389	59.28640	1.04258	108.14	26.43
85/ 2/ 4	2446100.5	-23.03386	47.78007	25.56584	-0.93966	-0.44532	-0.14769	58.88213	1.05028	115.74	25.73
85/ 2/ 4	2446101.0	-29.22181	44.43206	24.38609	-0.88523	-0.54244	-0.20043	58.50473	1.05738	123.33	24.63
85/ 2/ 5	2446101.5	-34.99353	40.44613	22.85523	-0.81683	-0.63340	-0.25121	58.16183	1.06372	130.87	23.14
85/ 2/ 5	2446102.0	-40.25635	35.87000	20.98972	-0.73510	-0.71644	-0.29910	57.86016	1.06916	138.30	21.27
85/ 2/ 6	2446102.5	-44.92321	30.76309	18.81231	-0.64105	-0.78986	-0.34316	57.60526	1.07358	145.60	19.06
85/ 2/ 6	2446103.0	-48.91508	25.19592	16.35195	-0.53603	-0.85210	-0.38251	57.40127	1.07690	152.75	16.55
85/ 2/ 7	2446103.5	-52.16315	19.24897	13.64335	-0.42171	-0.90180	-0.41633	57.25083	1.07908	159.75	13.79
85/ 2/ 7	2446104.0	-54.61089	13.01110	10.72641	-0.30004	-0.93785	-0.44393	57.15500	1.08012	166.60	10.82
85/ 2/ 8	2446104.5	-56.21574	6.57761	7.64536	-0.17318	-0.95946	-0.46472	57.11328	1.08005	173.33	7.69
85/ 2/ 8	2446105.0	-56.95027	0.04803	4.44772	-0.04343	-0.96618	-0.47830	57.12371	1.07896	179.95	4.47
85/ 2/ 9	2446105.5	-56.80286	-6.47622	1.18324	0.08686	-0.95790	-0.48443	57.18310	1.07694	186.50	1.19
85/ 2/ 9	2446106.0	-55.77780	-12.89425	-2.09735	0.21535	-0.93488	-0.48306	57.28721	1.07411	193.02	-2.10
85/ 2/10	2446106.5	-53.89488	-19.10797	-5.34348	0.33982	-0.89769	-0.47428	57.43105	1.07064	199.52	-5.34
85/ 2/10	2446107.0	-51.18850	-25.02413	-8.50582	0.45818	-0.84718	-0.45837	57.60919	1.06665	206.05	-8.49
85/ 2/11	2446107.5	-47.70645	-30.55611	-11.53732	0.56857	-0.78444	-0.43572	57.81601	1.06230	212.64	-11.51

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 2/11	2446108.0	-43.50837	-35.62542	-14.39402	0.66937	-0.71078	-0.40685	58.04599	1.05773	219.31	-14.36
85/ 2/12	2446108.5	-38.66407	-40.16280	-17.03579	0.75919	-0.62762	-0.37236	58.29390	1.05306	226.09	-16.99
85/ 2/12	2446109.0	-33.25174	-44.10904	-19.42684	0.83694	-0.53648	-0.33293	58.55500	1.04839	232.99	-19.38
85/ 2/13	2446109.5	-27.35622	-47.41550	-21.53611	0.90175	-0.43896	-0.28928	58.82513	1.04380	240.02	-21.48
85/ 2/13	2446110.0	-21.06726	-50.04432	-23.33761	0.95304	-0.33665	-0.24217	59.10082	1.03936	247.17	-23.26
85/ 2/14	2446110.5	-14.47782	-51.96853	-24.81048	0.99044	-0.23116	-0.19237	59.37925	1.03509	254.43	-24.70
85/ 2/14	2446111.0	-7.68258	-53.17189	-25.93910	1.01381	-0.12404	-0.14065	59.65826	1.03100	261.78	-25.77
85/ 2/15	2446111.5	-0.77648	-53.64855	-26.71306	1.02320	-0.01682	-0.08777	59.93627	1.02710	269.17	-26.47
85/ 2/15	2446112.0	6.14664	-53.40271	-27.12702	1.01889	0.08907	-0.03447	60.21217	1.02335	276.57	-26.78
85/ 2/16	2446112.5	12.99520	-52.44808	-27.18062	1.00127	0.19226	0.01853	60.48523	1.01973	283.92	-26.70
85/ 2/16	2446113.0	19.68104	-50.80728	-26.87821	0.97094	0.29149	0.07055	60.75493	1.01621	291.17	-26.26
85/ 2/17	2446113.5	26.12035	-48.51114	-26.22862	0.92860	0.38559	0.12095	61.02084	1.01273	298.30	-25.46
85/ 2/17	2446114.0	32.23457	-45.59802	-25.24484	0.87509	0.47352	0.16914	61.28253	1.00926	305.26	-24.33
85/ 2/18	2446114.5	37.95114	-42.11300	-23.94372	0.81135	0.55433	0.21457	61.53938	1.00578	312.02	-22.90
85/ 2/18	2446115.0	43.20415	-38.10706	-22.34560	0.73838	0.62722	0.25676	61.79056	1.00227	318.59	-21.20
85/ 2/19	2446115.5	47.93483	-33.63622	-20.47390	0.65729	0.69151	0.29529	62.03486	0.99870	324.94	-19.27
85/ 2/19	2446116.0	52.09194	-28.76069	-18.35476	0.56921	0.74664	0.32978	62.27074	0.99510	331.10	-17.14
85/ 2/20	2446116.5	55.63206	-23.54398	-16.01657	0.47529	0.79219	0.35992	62.49621	0.99147	337.06	-14.85
85/ 2/20	2446117.0	58.51969	-18.05212	-13.48965	0.37673	0.82785	0.38548	62.70889	0.98785	342.86	-12.42
85/ 2/21	2446117.5	60.72733	-12.35279	-10.80575	0.27469	0.85343	0.40625	62.90599	0.98429	348.50	-9.89
85/ 2/21	2446118.0	62.23536	-6.51461	-7.99774	0.17033	0.86885	0.42211	63.08442	0.98086	354.02	-7.28
85/ 2/22	2446118.5	63.03194	-0.60642	-5.09924	0.06479	0.87411	0.43296	63.24078	0.97761	359.45	-4.62
85/ 2/22	2446119.0	63.11280	5.30333	-2.14423	-0.04084	0.86933	0.43879	63.37151	0.97465	4.80	-1.94
85/ 2/23	2446119.5	62.48094	11.14715	0.83316	-0.14550	0.85468	0.43958	63.47299	0.97205	10.12	0.75
85/ 2/23	2446120.0	61.14639	16.85897	3.79899	-0.24817	0.83040	0.43538	63.54163	0.96990	15.41	3.43
85/ 2/24	2446120.5	59.12591	22.37462	6.71971	-0.34789	0.79680	0.42627	63.57398	0.96832	20.73	6.07
85/ 2/24	2446121.0	56.44269	27.63215	9.56240	-0.44372	0.75424	0.41236	63.56691	0.96737	26.08	8.65
85/ 2/25	2446121.5	53.12611	32.57217	12.29490	-0.53477	0.70312	0.39376	63.51767	0.96716	31.51	11.16
85/ 2/25	2446122.0	49.21149	37.13816	14.88604	-0.62018	0.64387	0.37064	63.42403	0.96776	37.04	13.57
85/ 2/26	2446122.5	44.73991	41.27672	17.30577	-0.69910	0.57699	0.34318	63.28441	0.96924	42.69	15.87
85/ 2/26	2446123.0	39.75805	44.93788	19.52531	-0.77072	0.50299	0.31156	63.09796	0.97164	48.50	18.03
85/ 2/27	2446123.5	34.31808	48.07541	21.51732	-0.83424	0.42246	0.27603	62.86470	0.97500	54.48	20.02
85/ 2/27	2446124.0	28.47759	50.64715	23.25609	-0.88886	0.33603	0.23683	62.58556	0.97933	60.65	21.81
85/ 2/28	2446124.5	22.29949	52.61544	24.71777	-0.93381	0.24439	0.19426	62.26251	0.98461	67.03	23.39
85/ 2/28	2446125.0	15.85196	53.94761	25.88060	-0.96830	0.14832	0.14864	61.89859	0.99080	73.63	24.72
85/ 3/ 1	2446125.5	9.20833	54.61654	26.72520	-0.99159	0.04869	0.10036	61.49794	0.99785	80.43	25.76
85/ 3/ 1	2446126.0	2.44685	54.60134	27.23497	-1.00298	-0.05353	0.04984	61.06584	1.00564	87.43	26.49
85/ 3/ 2	2446126.5	-4.34956	53.88810	27.39646	-1.00180	-0.15724	-0.00240	60.60868	1.01407	94.61	26.87
85/ 3/ 2	2446127.0	-11.09380	52.47076	27.19983	-0.98749	-0.26123	-0.05580	60.13388	1.02298	101.94	26.89
85/ 3/ 3	2446127.5	-17.69526	50.35195	26.63938	-0.95958	-0.36414	-0.10972	59.64979	1.03220	109.36	26.53
85/ 3/ 3	2446128.0	-24.06078	47.54398	25.71408	-0.91778	-0.46448	-0.16342	59.16558	1.04152	116.84	25.76
85/ 3/ 4	2446128.5	-30.09587	44.06966	24.42809	-0.86201	-0.56063	-0.21609	58.69095	1.05074	124.33	24.60
85/ 3/ 4	2446129.0	-35.70629	39.96307	22.79127	-0.79244	-0.65089	-0.26686	58.23597	1.05964	131.78	23.04
85/ 3/ 5	2446129.5	-40.80001	35.27008	20.81959	-0.70954	-0.73349	-0.31481	57.81069	1.06797	139.16	21.11
85/ 3/ 5	2446130.0	-45.28939	30.04858	18.53544	-0.61415	-0.80667	-0.35897	57.42481	1.07552	146.44	18.83

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/ 3/ 6	2446130.5	-49.09366	24.36821	15.96766	-0.50746	-0.86871	-0.39841	57.08733	1.08209	153.60	16.24
85/ 3/ 6	2446131.0	-52.14144	18.30971	13.15138	-0.39106	-0.91809	-0.43221	56.80611	1.08748	160.65	13.39
85/ 3/ 7	2446131.5	-54.37330	11.96358	10.12762	-0.26688	-0.95345	-0.45955	56.58756	1.09155	167.59	10.31
85/ 3/ 7	2446132.0	-55.74399	5.42827	6.94248	-0.13716	-0.97381	-0.47976	56.43630	1.09420	174.44	7.07
85/ 3/ 8	2446132.5	-56.22429	-1.19210	3.64616	-0.00438	-0.97850	-0.49231	56.35500	1.09538	181.21	3.71
85/ 3/ 8	2446133.0	-55.80228	-7.79047	0.29168	0.12885	-0.96731	-0.49690	56.34422	1.09508	187.95	0.30
85/ 3/ 9	2446133.5	-54.48389	-14.25972	-3.06653	0.25988	-0.94044	-0.49341	56.40246	1.09335	194.67	-3.12
85/ 3/ 9	2446134.0	-52.29271	-20.49555	-6.37408	0.38617	-0.89852	-0.48198	56.52631	1.09031	201.40	-6.47
85/ 3/10	2446134.5	-49.26903	-26.39924	-9.57814	0.50534	-0.84256	-0.46292	56.71065	1.08608	208.18	-9.72
85/ 3/10	2446135.0	-45.46832	-31.88002	-12.62866	0.61529	-0.77388	-0.43674	56.94898	1.08084	215.04	-12.81
85/ 3/11	2446135.5	-40.95921	-36.85696	-15.47957	0.71426	-0.69406	-0.40410	57.23381	1.07479	221.98	-15.69
85/ 3/11	2446136.0	-35.82113	-41.26043	-18.08964	0.80082	-0.60484	-0.36576	57.55703	1.06814	229.04	-18.32
85/ 3/12	2446136.5	-30.14187	-45.03291	-20.42312	0.87392	-0.50804	-0.32256	57.91027	1.06108	236.20	-20.65
85/ 3/12	2446137.0	-24.01515	-48.12942	-22.45007	0.93286	-0.40553	-0.27539	58.28528	1.05381	243.48	-22.65
85/ 3/13	2446137.5	-17.53832	-50.51744	-24.14659	0.97726	-0.29913	-0.22514	58.67420	1.04652	250.85	-24.30
85/ 3/13	2446138.0	-10.81031	-52.17658	-25.49475	1.00704	-0.19058	-0.17267	59.06979	1.03936	258.29	-25.57
85/ 3/14	2446138.5	-3.92982	-53.09796	-26.48246	1.02234	-0.08154	-0.11883	59.46560	1.03244	265.77	-26.45
85/ 3/14	2446139.0	3.00623	-53.28347	-27.10317	1.02352	0.02647	-0.06443	59.85605	1.02588	273.23	-26.92
85/ 3/15	2446139.5	9.90391	-52.74489	-27.35557	1.01111	0.13205	-0.01019	60.23652	1.01974	280.63	-27.01
85/ 3/15	2446140.0	16.67338	-51.50305	-27.24322	0.98578	0.23394	0.04317	60.60329	1.01407	287.94	-26.71
85/ 3/16	2446140.5	23.22967	-49.58688	-26.77415	0.94829	0.33100	0.09504	60.95351	1.00889	295.10	-26.06
85/ 3/16	2446141.0	29.49336	-47.03259	-25.96050	0.89952	0.42222	0.14483	61.28515	1.00418	302.09	-25.06
85/ 3/17	2446141.5	35.39110	-43.88280	-24.81811	0.84039	0.50670	0.19203	61.59682	0.99994	308.89	-23.76
85/ 3/17	2446142.0	40.85604	-40.18578	-23.36617	0.77189	0.58369	0.23617	61.88772	0.99613	315.47	-22.18
85/ 3/18	2446142.5	45.82811	-35.99464	-21.62686	0.69503	0.65251	0.27683	62.15747	0.99271	321.85	-20.36
85/ 3/18	2446143.0	50.25435	-31.36663	-19.62500	0.61088	0.71261	0.31364	62.40598	0.98963	328.03	-18.33
85/ 3/19	2446143.5	54.08905	-26.36246	-17.38771	0.52053	0.76353	0.34630	62.63335	0.98684	334.02	-16.12
85/ 3/19	2446144.0	57.29390	-21.04553	-14.94406	0.42508	0.80491	0.37454	62.83972	0.98430	339.83	-13.76
85/ 3/20	2446144.5	59.83811	-15.48137	-12.32478	0.32563	0.83650	0.39813	63.02518	0.98198	345.49	-11.28
85/ 3/20	2446145.0	61.69840	-9.73691	-9.56190	0.22331	0.85813	0.41692	63.18964	0.97983	351.03	-8.70
85/ 3/21	2446145.5	62.85901	-3.87990	-6.68844	0.11921	0.86973	0.43077	63.33280	0.97786	356.47	-6.06
85/ 3/21	2446146.0	63.31161	2.02173	-3.73812	0.01442	0.87131	0.43960	63.45408	0.97604	1.83	-3.38
85/ 3/22	2446146.5	63.05521	7.90039	-0.74503	-0.08998	0.86297	0.44339	63.55258	0.97438	7.14	-0.67
85/ 3/22	2446147.0	62.09599	13.68946	2.25664	-0.19294	0.84489	0.44214	63.62709	0.97291	12.43	2.03
85/ 3/23	2446147.5	60.44714	19.32373	5.23288	-0.29346	0.81731	0.43590	63.67611	0.97166	17.73	4.71
85/ 3/23	2446148.0	58.12858	24.73994	8.15015	-0.39054	0.78056	0.42474	63.69789	0.97067	23.05	7.35
85/ 3/24	2446148.5	55.16676	29.87722	10.97557	-0.48326	0.73501	0.40880	63.69052	0.97000	28.44	9.92
85/ 3/24	2446149.0	51.59435	34.67750	13.67723	-0.57070	0.68112	0.38822	63.65196	0.96971	33.91	12.41
85/ 3/25	2446149.5	47.44999	39.08587	16.22434	-0.65201	0.61938	0.36320	63.58015	0.96987	39.48	14.78
85/ 3/25	2446150.0	42.77800	43.05098	18.58746	-0.72637	0.55033	0.33393	63.47312	0.97056	45.18	17.03
85/ 3/26	2446150.5	37.62811	46.52538	20.73870	-0.79300	0.47457	0.30067	63.32913	0.97184	51.04	19.12
85/ 3/26	2446151.0	32.05522	49.46580	22.65191	-0.85116	0.39276	0.26369	63.14674	0.97379	57.06	21.02
85/ 3/27	2446151.5	26.11913	51.83353	24.30284	-0.90014	0.30558	0.22328	62.92497	0.97646	63.26	22.72
85/ 3/27	2446152.0	19.88432	53.59478	25.66937	-0.93926	0.21380	0.17977	62.66341	0.97992	69.64	24.18
85/ 3/28	2446152.5	13.41970	54.72103	26.73173	-0.96790	0.11821	0.13352	62.36237	0.98419	76.22	25.38

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 3/28	2446153.0	6.79837	55.18947	27.47270	-0.98544	0.01970	0.08493	62.02293	0.98929	82.98	26.29
85/ 3/29	2446153.5	0.09734	54.98348	27.87790	-0.99134	-0.08078	0.03445	61.64714	0.99522	89.90	26.89
85/ 3/29	2446154.0	-6.60281	54.09318	27.93610	-0.98510	-0.18219	-0.01745	61.23802	1.00196	96.96	27.14
85/ 3/30	2446154.5	-13.21835	52.51604	27.63956	-0.96629	-0.28340	-0.07021	60.79971	1.00944	104.13	27.04
85/ 3/30	2446155.0	-19.66299	50.25752	26.98439	-0.93459	-0.38318	-0.12325	60.33746	1.01758	111.37	26.57
85/ 3/31	2446155.5	-25.84861	47.33177	25.97097	-0.88978	-0.48020	-0.17588	59.85765	1.02627	118.64	25.71
85/ 3/31	2446156.0	-31.68618	43.76231	24.60439	-0.83182	-0.57301	-0.22741	59.36776	1.03537	125.91	24.48
85/ 4/ 1	2446156.5	-37.08700	39.58276	22.89487	-0.76086	-0.66010	-0.27702	58.87627	1.04468	133.14	22.88
85/ 4/ 1	2446157.0	-41.96412	34.83728	20.85813	-0.67727	-0.73985	-0.32388	58.39251	1.05403	140.30	20.93
85/ 4/ 2	2446157.5	-46.23422	29.58106	18.51576	-0.58174	-0.81064	-0.36712	57.92647	1.06318	147.39	18.64
85/ 4/ 2	2446158.0	-49.81958	23.88032	15.89540	-0.47527	-0.87085	-0.40582	57.48847	1.07189	154.39	16.05
85/ 4/ 3	2446158.5	-52.65043	17.81207	13.03077	-0.35919	-0.91892	-0.43910	57.08887	1.07993	161.31	13.19
85/ 4/ 3	2446159.0	-54.66734	11.46336	9.96150	-0.23523	-0.95345	-0.46612	56.73763	1.08705	168.16	10.11
85/ 4/ 4	2446159.5	-55.82367	4.92995	6.73261	-0.10544	-0.97329	-0.48612	56.44390	1.09303	174.95	6.85
85/ 4/ 4	2446160.0	-56.08772	-1.68552	3.39378	0.02783	-0.97757	-0.49849	56.21558	1.09769	181.72	3.46
85/ 4/ 5	2446160.5	-55.44463	-8.27590	-0.00171	0.16199	-0.96583	-0.50280	56.05887	1.10086	188.49	-0.00
85/ 4/ 5	2446161.0	-53.89758	-14.73231	-3.39835	0.29431	-0.93805	-0.49881	55.97802	1.10244	195.29	-3.48
85/ 4/ 6	2446161.5	-51.46831	-20.94726	-6.73988	0.42205	-0.89464	-0.48655	55.97500	1.10238	202.15	-6.92
85/ 4/ 6	2446162.0	-48.19682	-26.81772	-9.97091	0.54259	-0.83651	-0.46625	56.04946	1.10070	209.09	-10.25
85/ 4/ 7	2446162.5	-44.14020	-32.24813	-13.03853	0.65352	-0.76494	-0.43839	56.19877	1.09746	216.15	-13.42
85/ 4/ 7	2446163.0	-39.37072	-37.15294	-15.89375	0.75278	-0.68160	-0.40366	56.41813	1.09279	223.34	-16.36
85/ 4/ 8	2446163.5	-33.97335	-41.45870	-18.49275	0.83869	-0.58838	-0.36288	56.70092	1.08686	230.67	-19.03
85/ 4/ 8	2446164.0	-28.04291	-45.10542	-20.79778	0.91002	-0.48734	-0.31701	57.03903	1.07988	238.13	-21.38
85/ 4/ 9	2446164.5	-21.68101	-48.04731	-22.77777	0.96600	-0.38060	-0.26707	57.42332	1.07207	245.71	-23.37
85/ 4/ 9	2446165.0	-14.99317	-50.25287	-24.40863	1.00624	-0.27025	-0.21409	57.84399	1.06367	253.39	-24.96
85/ 4/10	2446165.5	-8.08609	-51.70448	-25.67321	1.03077	-0.15829	-0.15908	58.29110	1.05491	261.11	-26.13
85/ 4/10	2446166.0	-1.06528	-52.39757	-26.56107	1.03990	-0.04656	-0.10300	58.75484	1.04603	268.84	-26.88
85/ 4/11	2446166.5	5.96685	-52.33951	-27.06808	1.03423	0.06326	-0.04676	59.22590	1.03722	276.50	-27.20
85/ 4/11	2446167.0	12.91257	-51.54834	-27.19589	1.01453	0.16969	0.00884	59.69574	1.02866	284.06	-27.10
85/ 4/12	2446167.5	19.67991	-50.05150	-26.95137	0.98172	0.27144	0.06308	60.15670	1.02051	291.46	-26.62
85/ 4/12	2446168.0	26.18355	-47.88455	-26.34602	0.93683	0.36740	0.11530	60.60216	1.01288	298.67	-25.77
85/ 4/13	2446168.5	32.34526	-45.08993	-25.39539	0.88094	0.45664	0.16495	61.02658	1.00587	305.65	-24.59
85/ 4/13	2446169.0	38.09429	-41.71587	-24.11854	0.81515	0.53838	0.21155	61.42550	0.99954	312.40	-23.12
85/ 4/14	2446169.5	43.36746	-37.81544	-22.53757	0.74061	0.61198	0.25469	61.79552	0.99392	318.91	-21.39
85/ 4/14	2446170.0	48.10924	-33.44565	-20.67719	0.65843	0.67691	0.29401	62.13418	0.98903	325.19	-19.44
85/ 4/15	2446170.5	52.27174	-28.66666	-18.56429	0.56973	0.73275	0.32921	62.43993	0.98483	331.26	-17.30
85/ 4/15	2446171.0	55.81459	-23.54117	-16.22762	0.47563	0.77918	0.36005	62.71196	0.98132	337.13	-15.00
85/ 4/16	2446171.5	58.70491	-18.13375	-13.69748	0.37723	0.81597	0.38631	62.95014	0.97844	342.83	-12.57
85/ 4/16	2446172.0	60.91720	-12.51034	-11.00543	0.27560	0.84294	0.40783	63.15483	0.97613	348.39	-10.04
85/ 4/17	2446172.5	62.43326	-6.73768	-8.18401	0.17181	0.86003	0.42449	63.32683	0.97435	353.84	-7.43
85/ 4/17	2446173.0	63.24210	-0.88289	-5.26650	0.06693	0.86720	0.43620	63.46715	0.97303	359.20	-4.76
85/ 4/18	2446173.5	63.33982	4.98706	-2.28665	-0.03800	0.86452	0.44289	63.57698	0.97211	4.50	-2.06
85/ 4/18	2446174.0	62.72953	10.80581	0.72152	-0.14197	0.85211	0.44456	63.65752	0.97153	9.77	0.65
85/ 4/19	2446174.5	61.42123	16.50803	3.72402	-0.24395	0.83015	0.44122	63.70990	0.97125	15.04	3.35
85/ 4/19	2446175.0	59.43169	22.02990	6.68707	-0.34297	0.79890	0.43293	63.73507	0.97123	20.34	6.02

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/ 4/20	2446175.5	56.78432	27.30959	9.57740	-0.43805	0.75869	0.41977	63.73381	0.97144	25.68	8.64
85/ 4/20	2446176.0	53.50895	32.28769	12.36249	-0.52826	0.70991	0.40187	63.70662	0.97187	31.11	11.19
85/ 4/21	2446176.5	49.64168	36.90768	15.01078	-0.61268	0.65303	0.37940	63.65373	0.97251	36.63	13.64
85/ 4/21	2446177.0	45.22460	41.11640	17.49198	-0.69047	0.58856	0.35256	63.57509	0.97337	42.28	15.97
85/ 4/22	2446177.5	40.30554	44.86446	19.77724	-0.76079	0.51710	0.32159	63.47043	0.97448	48.06	18.16
85/ 4/22	2446178.0	34.93771	48.10667	21.83946	-0.82286	0.43930	0.28675	63.33922	0.97586	54.01	20.17
85/ 4/23	2446178.5	29.17945	50.80247	23.65349	-0.87596	0.35587	0.24835	63.18084	0.97757	60.13	21.99
85/ 4/23	2446179.0	23.09379	52.91629	25.19635	-0.91943	0.26758	0.20674	62.99455	0.97964	66.42	23.58
85/ 4/24	2446179.5	16.74809	54.41798	26.44751	-0.95265	0.17526	0.16228	62.77967	0.98214	72.89	24.92
85/ 4/24	2446180.0	10.21368	55.28317	27.38904	-0.97507	0.07978	0.11538	62.53566	0.98511	79.53	25.97
85/ 4/25	2446180.5	3.56536	55.49365	28.00590	-0.98621	-0.01792	0.06648	62.26224	0.98861	86.32	26.73
85/ 4/25	2446181.0	-3.11903	55.03773	28.28613	-0.98566	-0.11683	0.01606	61.95955	0.99269	93.24	27.16
85/ 4/26	2446181.5	-9.75913	53.91069	28.22112	-0.97309	-0.21591	-0.03538	61.62820	0.99738	100.26	27.25
85/ 4/26	2446182.0	-16.27262	52.11513	27.80586	-0.94824	-0.31405	-0.08728	61.26949	1.00270	107.34	26.99
85/ 4/27	2446182.5	-22.57585	49.66139	27.03915	-0.91098	-0.41007	-0.13905	60.88546	1.00865	114.45	26.37
85/ 4/27	2446183.0	-28.58457	46.56802	25.92397	-0.86128	-0.50272	-0.19007	60.47901	1.01521	121.54	25.38
85/ 4/28	2446183.5	-34.21483	42.86216	24.46766	-0.79926	-0.59071	-0.23967	60.05402	1.02235	128.60	24.04
85/ 4/28	2446184.0	-39.38398	38.57993	22.68226	-0.72518	-0.67269	-0.28713	59.61538	1.02997	135.59	22.36
85/ 4/29	2446184.5	-44.01188	33.76676	20.58475	-0.63952	-0.74726	-0.33171	59.16901	1.03798	142.50	20.36
85/ 4/29	2446185.0	-48.02226	28.47760	18.19726	-0.54297	-0.81301	-0.37263	58.72181	1.04626	149.33	18.05
85/ 4/30	2446185.5	-51.34437	22.77694	15.54720	-0.43646	-0.86854	-0.40911	58.28163	1.05462	156.08	15.47
85/ 4/30	2446186.0	-53.91472	16.73862	12.66730	-0.32121	-0.91250	-0.44037	57.85706	1.06290	162.75	12.65
85/ 5/ 1	2446186.5	-55.67903	10.44532	9.59552	-0.19872	-0.94363	-0.46565	57.45722	1.07087	169.37	9.61
85/ 5/ 1	2446187.0	-56.59421	3.98768	6.37473	-0.07079	-0.96086	-0.48426	57.09154	1.07832	175.97	6.41
85/ 5/ 2	2446187.5	-56.63040	-2.53706	3.05219	0.06048	-0.96333	-0.49561	56.76931	1.08503	182.57	3.08
85/ 5/ 2	2446188.0	-55.77271	-9.02681	-0.32123	0.19276	-0.95047	-0.49922	56.49940	1.09076	189.19	-0.33
85/ 5/ 3	2446188.5	-54.02274	-15.37689	-3.69203	0.32353	-0.92208	-0.49480	56.28975	1.09533	195.89	-3.76
85/ 5/ 3	2446189.0	-51.39949	-21.48261	-7.00541	0.45019	-0.87838	-0.48226	56.14700	1.09855	202.68	-7.17
85/ 5/ 4	2446189.5	-47.93974	-27.24217	-10.20665	0.57012	-0.82001	-0.46173	56.07611	1.10029	209.61	-10.49
85/ 5/ 4	2446190.0	-43.69758	-32.55957	-13.24265	0.68083	-0.74803	-0.43355	56.08005	1.10047	216.69	-13.66
85/ 5/ 5	2446190.5	-38.74319	-37.34743	-16.06348	0.78008	-0.66391	-0.39830	56.15960	1.09907	223.95	-16.62
85/ 5/ 5	2446191.0	-33.16089	-41.52950	-18.62379	0.86596	-0.56946	-0.35676	56.31332	1.09611	231.39	-19.31
85/ 5/ 6	2446191.5	-27.04658	-45.04259	-20.88402	0.93697	-0.46673	-0.30985	56.53755	1.09168	239.02	-21.68
85/ 5/ 6	2446192.0	-20.50472	-47.83798	-22.81127	0.99208	-0.35790	-0.25862	56.82666	1.08591	246.80	-23.67
85/ 5/ 7	2446192.5	-13.64518	-49.88200	-24.37996	1.03072	-0.24523	-0.20416	57.17331	1.07898	254.70	-25.24
85/ 5/ 7	2446193.0	-6.58012	-51.15607	-25.57197	1.05279	-0.13090	-0.14757	57.56880	1.07111	262.67	-26.37
85/ 5/ 8	2446193.5	0.57894	-51.65604	-26.37662	1.05856	-0.01697	-0.08995	58.00352	1.06251	270.64	-27.05
85/ 5/ 8	2446194.0	7.72361	-51.39118	-26.79031	1.04867	0.09466	-0.03228	58.46733	1.05343	278.55	-27.27
85/ 5/ 9	2446194.5	14.75071	-50.38276	-26.81593	1.02401	0.20234	0.02450	58.94998	1.04409	286.32	-27.06
85/ 5/ 9	2446195.0	21.56379	-48.66248	-26.46223	0.98566	0.30464	0.07960	59.44143	1.03473	293.90	-26.43
85/ 5/10	2446195.5	28.07422	-46.27091	-25.74309	0.93485	0.40039	0.13231	59.93218	1.02555	301.25	-25.44
85/ 5/10	2446196.0	34.20192	-43.25591	-24.67674	0.87286	0.48860	0.18204	60.41346	1.01674	308.33	-24.11
85/ 5/11	2446196.5	39.87565	-39.67117	-23.28509	0.80101	0.56851	0.22829	60.87745	1.00844	315.15	-22.49
85/ 5/11	2446197.0	45.03308	-35.57498	-21.59306	0.72062	0.63954	0.27068	61.31735	1.00079	321.69	-20.62
85/ 5/12	2446197.5	49.62072	-31.02909	-19.62803	0.63297	0.70125	0.30886	61.72747	0.99388	327.98	-18.54

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 5/12	2446198.0	53.59369	-26.09776	-17.41932	0.53932	0.75332	0.34260	62.10322	0.98779	334.04	-16.29
85/ 5/13	2446198.5	56.91541	-20.84699	-14.99778	0.44086	0.79555	0.37168	62.44112	0.98255	339.88	-13.90
85/ 5/13	2446199.0	59.55728	-15.34385	-12.39541	0.33875	0.82782	0.39597	62.73874	0.97818	345.55	-11.40
85/ 5/14	2446199.5	61.49843	-9.65595	-9.64508	0.23412	0.85010	0.41536	62.99461	0.97468	351.08	-8.81
85/ 5/14	2446200.0	62.72535	-3.85098	-6.78027	0.12803	0.86241	0.42977	63.20816	0.97203	356.49	-6.16
85/ 5/15	2446200.5	63.23173	2.00373	-3.83484	0.02152	0.86481	0.43916	63.37959	0.97016	1.82	-3.47
85/ 5/15	2446201.0	63.01819	7.84154	-0.84282	-0.08439	0.85744	0.44352	63.50978	0.96904	7.09	-0.76
85/ 5/16	2446201.5	62.09213	13.59686	2.16178	-0.18872	0.84048	0.44288	63.60016	0.96859	12.35	1.95
85/ 5/16	2446202.0	60.46759	19.20551	5.14513	-0.29049	0.81417	0.43726	63.65260	0.96874	17.62	4.64
85/ 5/17	2446202.5	58.16510	24.60507	8.07384	-0.38876	0.77879	0.42675	63.66926	0.96942	22.93	7.29
85/ 5/17	2446203.0	55.21158	29.73526	10.91508	-0.48258	0.73469	0.41146	63.65252	0.97054	28.31	9.87
85/ 5/18	2446203.5	51.64020	34.53833	13.63687	-0.57105	0.68227	0.39150	63.60480	0.97204	33.78	12.38
85/ 5/18	2446204.0	47.49028	38.95948	16.20823	-0.65328	0.62200	0.36707	63.52853	0.97386	39.36	14.78
85/ 5/19	2446204.5	42.80706	42.94735	18.59950	-0.72839	0.55442	0.33836	63.42603	0.97592	45.09	17.05
85/ 5/19	2446205.0	37.64158	46.45442	20.78256	-0.79555	0.48013	0.30563	63.29942	0.97818	50.98	19.17
85/ 5/20	2446205.5	32.05031	49.43759	22.73107	-0.85399	0.39983	0.26916	63.15061	0.98061	57.04	21.10
85/ 5/20	2446206.0	26.09494	51.85858	24.42082	-0.90296	0.31426	0.22927	62.98122	0.98319	63.29	22.81
85/ 5/21	2446206.5	19.84187	53.68449	25.82993	-0.94179	0.22425	0.18635	62.79259	0.98589	69.72	24.29
85/ 5/21	2446207.0	13.36183	54.88823	26.93919	-0.96988	0.13069	0.14080	62.58575	0.98873	76.32	25.50
85/ 5/22	2446207.5	6.72936	55.44898	27.73228	-0.98672	0.03455	0.09307	62.36147	0.99170	83.08	26.40
85/ 5/22	2446208.0	0.02218	55.35263	28.19606	-0.99188	-0.06317	0.04364	62.12030	0.99485	89.98	26.99
85/ 5/23	2446208.5	-6.67944	54.59216	28.32083	-0.98504	-0.16138	-0.00695	61.86265	0.99819	96.98	27.25
85/ 5/23	2446209.0	-13.29340	53.16800	28.10054	-0.96597	-0.25896	-0.05815	61.58889	1.00177	104.04	27.15
85/ 5/24	2446209.5	-19.73655	51.08835	27.53302	-0.93459	-0.35475	-0.10938	61.29941	1.00562	111.12	26.69
85/ 5/24	2446210.0	-25.92550	48.36941	26.62018	-0.89093	-0.44754	-0.16002	60.99480	1.00978	118.19	25.88
85/ 5/25	2446210.5	-31.77758	45.03562	25.36819	-0.83515	-0.53610	-0.20942	60.67592	1.01427	125.21	24.71
85/ 5/25	2446211.0	-37.21177	41.11981	23.78760	-0.76759	-0.61919	-0.25694	60.34406	1.01913	132.14	23.22
85/ 5/26	2446211.5	-42.14976	36.66326	21.89352	-0.68872	-0.69557	-0.30188	60.00103	1.02435	138.98	21.40
85/ 5/26	2446212.0	-46.51708	31.71573	19.70565	-0.59920	-0.76397	-0.34358	59.64930	1.02993	145.71	19.29
85/ 5/27	2446212.5	-50.24433	26.33532	17.24835	-0.49988	-0.82319	-0.38133	59.29205	1.03583	152.34	16.91
85/ 5/27	2446213.0	-53.26852	20.58826	14.55059	-0.39178	-0.87205	-0.41447	58.93328	1.04199	158.87	14.29
85/ 5/28	2446213.5	-55.53440	14.54850	11.64589	-0.27618	-0.90945	-0.44233	58.57777	1.04835	165.32	11.47
85/ 5/28	2446214.0	-56.99595	8.29708	8.57208	-0.15453	-0.93440	-0.46431	58.23110	1.05478	171.72	8.47
85/ 5/29	2446214.5	-57.61785	1.92130	5.37100	-0.02853	-0.94605	-0.47983	57.89953	1.06116	178.09	5.32
85/ 5/29	2446215.0	-57.37690	-4.48643	2.08799	0.09993	-0.94374	-0.48843	57.58990	1.06733	184.47	2.08
85/ 5/30	2446215.5	-56.26338	-10.83002	-1.22866	0.22877	-0.92706	-0.48972	57.30939	1.07312	190.90	-1.23
85/ 5/30	2446216.0	-54.28214	-17.01144	-4.52860	0.35577	-0.89585	-0.48346	57.06530	1.07836	197.40	-4.55
85/ 5/31	2446216.5	-51.45351	-22.93274	-7.76033	0.47861	-0.85031	-0.46958	56.86472	1.08286	204.02	-7.84
85/ 5/31	2446217.0	-47.81362	-28.49834	-10.87238	0.59494	-0.79094	-0.44815	56.71425	1.08645	210.80	-11.05
85/ 6/ 1	2446217.5	-43.41436	-33.61743	-13.81448	0.70248	-0.71863	-0.41946	56.61959	1.08897	217.75	-14.12
85/ 6/ 1	2446218.0	-38.32262	-38.20642	-16.53895	0.79908	-0.63464	-0.38398	56.58526	1.09029	224.91	-16.99
85/ 6/ 2	2446218.5	-32.61904	-42.19127	-19.00190	0.88286	-0.54052	-0.34236	56.61428	1.09033	232.29	-19.61
85/ 6/ 2	2446219.0	-26.39604	-45.50948	-21.16445	0.95223	-0.43811	-0.29542	56.70801	1.08902	239.89	-21.91
85/ 6/ 3	2446219.5	-19.75546	-48.11177	-22.99375	1.00601	-0.32946	-0.24412	56.86592	1.08637	247.68	-23.85
85/ 6/ 3	2446220.0	-12.80576	-49.96311	-24.46370	1.04342	-0.21673	-0.18949	57.08566	1.08241	255.62	-25.38

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
85/ 6/ 4	2446220.5	-5.65909	-51.04326	-25.55548	1.06415	-0.10210	-0.13263	57.36308	1.07723	263.67	-26.46
85/ 6/ 4	2446221.0	1.57165	-51.34663	-26.25768	1.06830	0.01230	-0.07463	57.69239	1.07097	271.75	-27.07
85/ 6/ 5	2446221.5	8.77556	-50.88163	-26.56620	1.05634	0.12448	-0.01654	58.06646	1.06378	279.79	-27.23
85/ 6/ 5	2446222.0	15.84622	-49.66960	-26.48383	1.02911	0.23261	0.04064	58.47705	1.05585	287.69	-26.93
85/ 6/ 6	2446222.5	22.68361	-47.74337	-26.01976	0.98766	0.33514	0.09603	58.91522	1.04738	295.41	-26.21
85/ 6/ 6	2446223.0	29.19566	-45.14560	-25.18877	0.93326	0.43071	0.14887	59.37159	1.03858	302.89	-25.10
85/ 6/ 7	2446223.5	35.29935	-41.92714	-24.01052	0.86731	0.51826	0.19848	59.83673	1.02966	310.09	-23.66
85/ 6/ 7	2446224.0	40.92125	-38.14535	-22.50870	0.79124	0.59694	0.24433	60.30140	1.02083	317.01	-21.92
85/ 6/ 8	2446224.5	45.99786	-33.86255	-20.71032	0.70653	0.66612	0.28599	60.75683	1.01227	323.64	-19.93
85/ 6/ 8	2446225.0	50.47549	-29.14464	-18.64493	0.61461	0.72536	0.32313	61.19493	1.00414	330.00	-17.74
85/ 6/ 9	2446225.5	54.31011	-24.05992	-16.34405	0.51687	0.77440	0.35549	61.60840	0.99661	336.11	-15.38
85/ 6/ 9	2446226.0	57.46689	-18.67805	-13.84061	0.41466	0.81309	0.38292	61.99093	0.98979	341.99	-12.90
85/ 6/10	2446226.5	59.91979	-13.06930	-11.16850	0.30923	0.84140	0.40529	62.33718	0.98379	347.70	-10.32
85/ 6/10	2446227.0	61.65110	-7.30383	-8.36218	0.20177	0.85939	0.42254	62.64287	0.97867	353.24	-7.67
85/ 6/11	2446227.5	62.65091	-1.45120	-5.45640	0.09341	0.86717	0.43466	62.90481	0.97449	358.67	-4.98
85/ 6/11	2446228.0	62.91675	4.42008	-2.48596	-0.01479	0.86492	0.44164	63.12079	0.97127	4.02	-2.26
85/ 6/12	2446228.5	62.45319	10.24283	0.51452	-0.12181	0.85288	0.44354	63.28966	0.96900	9.31	0.47
85/ 6/12	2446229.0	61.27152	15.95154	3.51075	-0.22669	0.83130	0.44040	63.41117	0.96768	14.59	3.17
85/ 6/13	2446229.5	59.38951	21.48264	6.46896	-0.32846	0.80048	0.43232	63.48595	0.96725	19.89	5.85
85/ 6/13	2446230.0	56.83122	26.77471	9.35597	-0.42624	0.76078	0.41940	63.51541	0.96765	25.23	8.47
85/ 6/14	2446230.5	53.62684	31.76881	12.13945	-0.51911	0.71256	0.40177	63.50166	0.96883	30.64	11.02
85/ 6/14	2446231.0	49.81254	36.40875	14.78801	-0.60619	0.65627	0.37958	63.44739	0.97069	36.16	13.48
85/ 6/15	2446231.5	45.43042	40.64145	17.27139	-0.68664	0.59239	0.35303	63.35575	0.97316	41.82	15.82
85/ 6/15	2446232.0	40.52833	44.41734	19.56071	-0.75960	0.52147	0.32232	63.23026	0.97612	47.62	18.02
85/ 6/16	2446232.5	35.15977	47.69075	21.62867	-0.82425	0.44413	0.28771	63.07469	0.97949	53.60	20.05
85/ 6/16	2446233.0	29.38370	50.42045	23.44982	-0.87980	0.36104	0.24949	62.89291	0.98318	59.77	21.89
85/ 6/17	2446233.5	23.26431	52.57014	25.00085	-0.92551	0.27299	0.20800	62.68883	0.98710	66.13	23.50
85/ 6/17	2446234.0	16.87064	54.10898	26.26088	-0.96068	0.18081	0.16363	62.46626	0.99115	72.68	24.86
85/ 6/18	2446234.5	10.27620	55.01221	27.21181	-0.98470	0.08546	0.11680	62.22882	0.99528	79.42	25.93
85/ 6/18	2446235.0	3.55842	55.26167	27.83860	-0.99703	-0.01207	0.06800	61.97985	0.99941	86.32	26.69
85/ 6/19	2446235.5	-3.20202	54.84633	28.12963	-0.99723	-0.11066	0.01775	61.72236	1.00351	93.34	27.11
85/ 6/19	2446236.0	-9.92192	53.76282	28.07702	-0.98502	-0.20918	-0.03338	61.45896	1.00754	100.46	27.18
85/ 6/20	2446236.5	-16.51652	52.01581	27.67685	-0.96021	-0.30638	-0.08478	61.19189	1.01147	107.62	26.89
85/ 6/20	2446237.0	-22.90038	49.61836	26.92946	-0.92280	-0.40103	-0.13580	60.92294	1.01530	114.77	26.23
85/ 6/21	2446237.5	-28.98857	46.59219	25.83965	-0.87294	-0.49183	-0.18578	60.65357	1.01904	121.89	25.22
85/ 6/21	2446238.0	-34.69775	42.96772	24.41677	-0.81095	-0.57749	-0.23404	60.38491	1.02270	128.92	23.85
85/ 6/22	2446238.5	-39.94742	38.78413	22.67487	-0.73735	-0.65672	-0.27987	60.11785	1.02631	135.85	22.16
85/ 6/22	2446239.0	-44.66118	34.08916	20.63267	-0.65283	-0.72829	-0.32260	59.85315	1.02989	142.65	20.16
85/ 6/23	2446239.5	-48.76796	28.93882	18.31349	-0.55828	-0.79100	-0.36155	59.59155	1.03348	149.32	17.90
85/ 6/23	2446240.0	-52.20330	23.39691	15.74515	-0.45476	-0.84374	-0.39607	59.33388	1.03710	155.86	15.39
85/ 6/24	2446240.5	-54.91063	17.53448	12.95973	-0.34352	-0.88549	-0.42556	59.08121	1.04077	162.29	12.67
85/ 6/24	2446241.0	-56.84240	11.42899	9.99326	-0.22600	-0.91537	-0.44944	58.83490	1.04450	168.63	9.78
85/ 6/25	2446241.5	-57.96129	5.16346	6.88536	-0.10376	-0.93264	-0.46724	58.59676	1.04828	174.91	6.75
85/ 6/25	2446242.0	-58.24120	-1.17464	3.67874	0.02145	-0.93672	-0.47853	58.36908	1.05210	181.16	3.61
85/ 6/26	2446242.5	-57.66819	-7.49464	0.41865	0.14778	-0.92725	-0.48299	58.15467	1.05589	187.40	0.41

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 6/26	2446243.0	-56.24131	-13.70408	-2.84780	0.27326	-0.90406	-0.48038	57.95685	1.05961	193.69	-2.82
85/ 6/27	2446243.5	-53.97309	-19.71021	-6.07237	0.39588	-0.86725	-0.47061	57.77941	1.06317	200.06	-6.03
85/ 6/27	2446244.0	-50.88994	-25.42178	-9.20655	0.51356	-0.81716	-0.45371	57.62650	1.06646	206.54	-9.19
85/ 6/28	2446244.5	-47.03219	-30.75076	-12.20245	0.62428	-0.75440	-0.42982	57.50249	1.06939	213.18	-12.25
85/ 6/28	2446245.0	-42.45378	-35.61424	-15.01383	0.72605	-0.67988	-0.39928	57.41178	1.07182	219.99	-15.16
85/ 6/29	2446245.5	-37.22156	-39.93629	-17.59703	0.81705	-0.59474	-0.36253	57.35859	1.07364	227.02	-17.87
85/ 6/29	2446246.0	-31.41425	-43.64976	-19.91201	0.89562	-0.50042	-0.32019	57.34671	1.07474	234.26	-20.32
85/ 6/30	2446246.5	-25.12090	-46.69786	-21.92328	0.96036	-0.39855	-0.27298	57.37926	1.07501	241.72	-22.46
85/ 6/30	2446247.0	-18.43909	-49.03555	-23.60070	1.01017	-0.29096	-0.22176	57.45849	1.07437	249.39	-24.25
85/ 7/ 1	2446247.5	-11.47271	-50.63057	-24.92022	1.04429	-0.17958	-0.16746	57.58554	1.07277	257.23	-25.64
85/ 7/ 1	2446248.0	-4.32959	-51.46404	-25.86433	1.06232	-0.06641	-0.11107	57.76034	1.07018	265.19	-26.60
85/ 7/ 2	2446248.5	2.88099	-51.53070	-26.42232	1.06424	0.04653	-0.05361	57.98148	1.06660	273.20	-27.11
85/ 7/ 2	2446249.0	10.05076	-50.83854	-26.59040	1.05036	0.15734	0.00391	58.24624	1.06209	281.18	-27.16
85/ 7/ 3	2446249.5	17.07481	-49.40822	-26.37142	1.02134	0.26422	0.06053	58.55060	1.05670	289.06	-26.77
85/ 7/ 3	2446250.0	23.85363	-47.27196	-25.77457	0.97812	0.36555	0.11535	58.88941	1.05055	296.78	-25.96
85/ 7/ 4	2446250.5	30.29482	-44.47223	-24.81478	0.92185	0.45993	0.16757	59.25646	1.04376	304.26	-24.76
85/ 7/ 4	2446251.0	36.31447	-41.06024	-23.51209	0.85387	0.54617	0.21650	59.64480	1.03647	311.49	-23.22
85/ 7/ 5	2446251.5	41.83809	-37.09438	-21.89087	0.77562	0.62334	0.26154	60.04689	1.02886	318.44	-21.38
85/ 7/ 5	2446252.0	46.80115	-32.63863	-19.97908	0.68860	0.69073	0.30223	60.45487	1.02109	325.11	-19.30
85/ 7/ 6	2446252.5	51.14931	-27.76107	-17.80753	0.59430	0.74783	0.33820	60.86080	1.01332	331.51	-17.01
85/ 7/ 6	2446253.0	54.83838	-22.53250	-15.40917	0.49421	0.79434	0.36917	61.25686	1.00574	337.66	-14.57
85/ 7/ 7	2446253.5	57.83404	-17.02527	-12.81845	0.38977	0.83011	0.39498	61.63561	0.99850	343.60	-12.00
85/ 7/ 7	2446254.0	60.11141	-11.31227	-10.07080	0.28233	0.85511	0.41550	61.99008	0.99175	349.34	-9.35
85/ 7/ 8	2446254.5	61.65454	-5.46606	-7.20215	0.17316	0.86946	0.43070	62.31397	0.98563	354.93	-6.64
85/ 7/ 8	2446255.0	62.45589	0.44174	-4.24853	0.06348	0.87334	0.44059	62.60178	0.98024	0.41	-3.89
85/ 7/ 9	2446255.5	62.51574	6.34104	-1.24581	-0.04561	0.86700	0.44522	62.84885	0.97570	5.79	-1.14
85/ 7/ 9	2446256.0	61.84171	12.16363	1.77062	-0.15306	0.85075	0.44466	63.05146	0.97207	11.13	1.61
85/ 7/10	2446256.5	60.44831	17.84354	4.76597	-0.25788	0.82493	0.43901	63.20684	0.96940	16.45	4.32
85/ 7/10	2446257.0	58.35651	23.31726	7.70624	-0.35914	0.78993	0.42842	63.31321	0.96773	21.78	6.99
85/ 7/11	2446257.5	55.59347	28.52398	10.55839	-0.45595	0.74615	0.41301	63.36980	0.96707	27.16	9.59
85/ 7/11	2446258.0	52.19226	33.40578	13.29039	-0.54745	0.69406	0.39297	63.37676	0.96739	32.62	12.11
85/ 7/12	2446258.5	48.19168	37.90786	15.87144	-0.63280	0.63411	0.36847	63.33519	0.96866	38.19	14.51
85/ 7/12	2446259.0	43.63609	41.97879	18.27203	-0.71120	0.56683	0.33972	63.24708	0.97083	43.89	16.79
85/ 7/13	2446259.5	38.57532	45.57078	20.46414	-0.78185	0.49278	0.30695	63.11523	0.97382	49.75	18.92
85/ 7/13	2446260.0	33.06458	48.64006	22.42142	-0.84395	0.41259	0.27042	62.94316	0.97755	55.79	20.87
85/ 7/14	2446260.5	27.16427	51.14729	24.11940	-0.89676	0.32693	0.23043	62.73506	0.98191	62.03	22.61
85/ 7/14	2446261.0	20.93990	53.05799	25.53578	-0.93952	0.23657	0.18732	62.49565	0.98679	68.46	24.12
85/ 7/15	2446261.5	14.46181	54.34315	26.65068	-0.97157	0.14236	0.14148	62.23006	0.99208	75.10	25.36
85/ 7/15	2446262.0	7.80487	54.97976	27.44699	-0.99224	0.04522	0.09332	61.94374	0.99764	81.92	26.30
85/ 7/16	2446262.5	1.04801	54.95145	27.91071	-1.00098	-0.05381	0.04335	61.64226	1.00336	88.91	26.92
85/ 7/16	2446263.0	-5.72633	54.24917	28.03134	-0.99733	-0.15360	-0.00789	61.33123	1.00912	96.03	27.20
85/ 7/17	2446263.5	-12.43299	52.87173	27.80224	-0.98095	-0.25296	-0.05982	61.01609	1.01481	103.23	27.11
85/ 7/17	2446264.0	-18.98499	50.82644	27.22095	-0.95165	-0.35059	-0.11178	60.70204	1.02031	110.48	26.64
85/ 7/18	2446264.5	-25.29464	48.12957	26.28960	-0.90940	-0.44515	-0.16308	60.39385	1.02555	117.72	25.80
85/ 7/18	2446265.0	-31.27478	44.80665	25.01507	-0.85439	-0.53523	-0.21299	60.09577	1.03045	124.91	24.60

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/ 7/19	2446265.5	-36.84022	40.89272	23.40925	-0.78702	-0.61943	-0.26078	59.81145	1.03494	132.02	23.04
85/ 7/19	2446266.0	-41.90919	36.43225	21.48914	-0.70791	-0.69639	-0.30568	59.54387	1.03901	139.00	21.16
85/ 7/20	2446266.5	-46.40492	31.47894	19.27678	-0.61791	-0.76475	-0.34695	59.29531	1.04261	145.85	18.97
85/ 7/20	2446267.0	-50.25718	26.09519	16.79915	-0.51810	-0.82329	-0.38389	59.06737	1.04576	152.56	16.52
85/ 7/21	2446267.5	-53.40385	20.35142	14.08789	-0.40979	-0.87089	-0.41583	58.86102	1.04847	159.14	13.85
85/ 7/21	2446268.0	-55.79224	14.32508	11.17894	-0.29446	-0.90659	-0.44218	58.67666	1.05078	165.60	10.98
85/ 7/22	2446268.5	-57.38041	8.09952	8.11200	-0.17378	-0.92961	-0.46241	58.51426	1.05271	171.97	7.97
85/ 7/22	2446269.0	-58.13819	1.76260	4.92991	-0.04955	-0.93939	-0.47612	58.37345	1.05433	178.26	4.84
85/ 7/23	2446269.5	-58.04796	-4.59470	1.67799	0.07631	-0.93559	-0.48299	58.25369	1.05567	184.53	1.65
85/ 7/23	2446270.0	-57.10527	-10.87991	-1.59673	0.20184	-0.91811	-0.48283	58.15440	1.05678	190.79	-1.57
85/ 7/24	2446270.5	-55.31912	-17.00072	-4.84636	0.32505	-0.88709	-0.47558	58.07510	1.05771	197.08	-4.79
85/ 7/24	2446271.0	-52.71195	-22.86655	-8.02297	0.44395	-0.84291	-0.46129	58.01549	1.05848	203.45	-7.95
85/ 7/25	2446271.5	-49.31943	-28.39029	-11.07946	0.55664	-0.78619	-0.44015	57.97559	1.05909	209.93	-11.02
85/ 7/25	2446272.0	-45.18989	-33.48981	-13.97039	0.66129	-0.71780	-0.41246	57.95572	1.05956	216.54	-13.95
85/ 7/26	2446272.5	-40.38363	-38.08951	-16.65283	0.75621	-0.63879	-0.37867	57.95658	1.05986	223.33	-16.70
85/ 7/26	2446273.0	-34.97179	-42.12168	-19.08715	0.83988	-0.55044	-0.33929	57.97915	1.05995	230.30	-19.22
85/ 7/27	2446273.5	-29.03517	-45.52779	-21.23772	0.91097	-0.45417	-0.29499	58.02466	1.05979	237.47	-21.47
85/ 7/27	2446274.0	-22.66272	-48.25954	-23.07357	0.96841	-0.35157	-0.24649	58.09450	1.05933	244.85	-23.40
85/ 7/28	2446274.5	-15.94989	-50.27968	-24.56897	1.01137	-0.24433	-0.19460	58.19003	1.05851	252.40	-24.97
85/ 7/28	2446275.0	-8.99682	-51.56272	-25.70387	1.03929	-0.13421	-0.14018	58.31248	1.05725	260.10	-26.15
85/ 7/29	2446275.5	-1.90642	-52.09519	-26.46418	1.05190	-0.02299	-0.08414	58.46277	1.05551	267.90	-26.91
85/ 7/29	2446276.0	5.21757	-51.87575	-26.84200	1.04924	0.08753	-0.02739	58.64137	1.05324	275.74	-27.24
85/ 7/30	2446276.5	12.27259	-50.91500	-26.83559	1.03161	0.19563	0.02917	58.84813	1.05040	283.55	-27.13
85/ 7/30	2446277.0	19.15908	-49.23489	-26.44926	0.99959	0.29969	0.08466	59.08222	1.04697	291.26	-26.59
85/ 7/31	2446277.5	25.78225	-46.86804	-25.69312	0.95400	0.39819	0.13824	59.34201	1.04297	298.82	-25.66
85/ 7/31	2446278.0	32.05360	-43.85668	-24.58266	0.89589	0.48980	0.18917	59.62507	1.03841	306.16	-24.35
85/ 8/ 1	2446278.5	37.89224	-40.25149	-23.13822	0.82644	0.57336	0.23676	59.92813	1.03335	313.27	-22.71
85/ 8/ 1	2446279.0	43.22587	-36.11031	-21.38440	0.74699	0.64793	0.28043	60.24718	1.02784	320.13	-20.79
85/ 8/ 2	2446279.5	47.99150	-31.49678	-19.34946	0.65896	0.71274	0.31970	60.57749	1.02197	326.72	-18.63
85/ 8/ 2	2446280.0	52.13590	-26.47893	-17.06458	0.56379	0.76724	0.35418	60.91376	1.01586	333.07	-16.27
85/ 8/ 3	2446280.5	55.61579	-21.12796	-14.56324	0.46297	0.81106	0.38358	61.25026	1.00960	339.20	-13.75
85/ 8/ 3	2446281.0	58.39770	-15.51692	-11.88059	0.35792	0.84402	0.40769	61.58096	1.00334	345.12	-11.12
85/ 8/ 4	2446281.5	60.45779	-9.71968	-9.05287	0.25005	0.86605	0.42641	61.89969	0.99719	350.87	-8.41
85/ 8/ 4	2446282.0	61.78146	-3.80995	-6.11687	0.14068	0.87726	0.43966	62.20033	0.99130	356.47	-5.64
85/ 8/ 5	2446282.5	62.36281	2.13952	-3.10952	0.03105	0.87783	0.44748	62.47693	0.98579	1.96	-2.85
85/ 8/ 5	2446283.0	62.20416	8.05761	-0.06749	-0.07765	0.86804	0.44992	62.72390	0.98079	7.38	-0.06
85/ 8/ 6	2446283.5	61.31546	13.87533	2.97314	-0.18435	0.84825	0.44709	62.93608	0.97642	12.75	2.71
85/ 8/ 6	2446284.0	59.71378	19.52628	5.97707	-0.28803	0.81887	0.43911	63.10893	0.97279	18.11	5.43
85/ 8/ 7	2446284.5	57.42282	24.94693	8.91005	-0.38774	0.78033	0.42616	63.23858	0.96998	23.48	8.10
85/ 8/ 7	2446285.0	54.47243	30.07689	11.73900	-0.48261	0.73311	0.40842	63.32195	0.96808	28.91	10.68
85/ 8/ 8	2446285.5	50.89830	34.85915	14.43215	-0.57179	0.67774	0.38610	63.35680	0.96713	34.41	13.17
85/ 8/ 8	2446286.0	46.74161	39.24018	16.95916	-0.65450	0.61473	0.35940	63.34180	0.96718	40.01	15.53
85/ 8/ 9	2446286.5	42.04880	43.17023	19.29126	-0.72998	0.54466	0.32858	63.27656	0.96824	45.75	17.75
85/ 8/ 9	2446287.0	36.87137	46.60344	21.40133	-0.79749	0.46812	0.29388	63.16166	0.97030	51.65	19.81
85/ 8/10	2446287.5	31.26574	49.49815	23.26407	-0.85631	0.38575	0.25560	62.99865	0.97334	57.72	21.67

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 8/10	2446288.0	25.29312	51.81720	24.85617	-0.90574	0.29825	0.21402	62.79007	0.97730	63.98	23.32
85/ 8/11	2446288.5	19.01939	53.52826	26.15649	-0.94511	0.20635	0.16949	62.53937	0.98211	70.44	24.72
85/ 8/11	2446289.0	12.51492	54.60432	27.14632	-0.97377	0.11088	0.12240	62.25092	0.98768	77.09	25.85
85/ 8/12	2446289.5	5.85436	55.02420	27.80966	-0.99111	0.01274	0.07316	61.92991	0.99389	83.93	26.68
85/ 8/12	2446290.0	-0.88366	54.77313	28.13355	-0.99656	-0.08707	0.02225	61.58225	1.00060	90.92	27.18
85/ 8/13	2446290.5	-7.61701	53.84340	28.10842	-0.98965	-0.18747	-0.02981	61.21449	1.00769	98.05	27.33
85/ 8/13	2446291.0	-14.26060	52.23504	27.72849	-0.97001	-0.28726	-0.08242	60.83366	1.01500	105.27	27.12
85/ 8/14	2446291.5	-20.72727	49.95649	26.99218	-0.93738	-0.38515	-0.13493	60.44707	1.02236	112.53	26.52
85/ 8/14	2446292.0	-26.92873	47.02524	25.90250	-0.89169	-0.47976	-0.18665	60.06221	1.02962	119.80	25.55
85/ 8/15	2446292.5	-32.77681	43.46834	24.46739	-0.83307	-0.56965	-0.23681	59.68642	1.03662	127.02	24.20
85/ 8/15	2446293.0	-38.18498	39.32281	22.70004	-0.76187	-0.65333	-0.28462	59.32679	1.04321	134.16	22.50
85/ 8/16	2446293.5	-43.06994	34.63580	20.61908	-0.67870	-0.72930	-0.32928	58.98987	1.04925	141.19	20.46
85/ 8/16	2446294.0	-47.35348	29.46445	18.24863	-0.58444	-0.79612	-0.36997	58.68150	1.05463	148.11	18.12
85/ 8/17	2446294.5	-50.96433	23.87550	15.61823	-0.48028	-0.85240	-0.40591	58.40661	1.05925	154.90	15.51
85/ 8/17	2446295.0	-53.84008	17.94449	12.76255	-0.36763	-0.89693	-0.43638	58.16908	1.06305	161.57	12.67
85/ 8/18	2446295.5	-55.92893	11.75465	9.72095	-0.24821	-0.92868	-0.46072	57.97166	1.06598	168.13	9.65
85/ 8/18	2446296.0	-57.19126	5.39544	6.53680	-0.12390	-0.94683	-0.47839	57.81593	1.06804	174.61	6.49
85/ 8/19	2446296.5	-57.60092	-1.03916	3.25672	0.00323	-0.95088	-0.48899	57.70227	1.06925	181.03	3.24
85/ 8/19	2446297.0	-57.14606	-7.45262	-0.07036	0.13102	-0.94058	-0.49224	57.63002	1.06965	187.43	-0.07
85/ 8/20	2446297.5	-55.82966	-13.74789	-3.39428	0.25727	-0.91601	-0.48805	57.59753	1.06933	193.83	-3.38
85/ 8/20	2446298.0	-53.66949	-19.82945	-6.66464	0.37982	-0.87756	-0.47645	57.60242	1.06835	200.28	-6.64
85/ 8/21	2446298.5	-50.69775	-25.60536	-9.83193	0.49658	-0.82589	-0.45765	57.64168	1.06683	206.80	-9.82
85/ 8/21	2446299.0	-46.96027	-30.98908	-12.84849	0.60563	-0.76193	-0.43201	57.71199	1.06487	213.42	-12.86
85/ 8/22	2446299.5	-42.51535	-35.90115	-15.66945	0.70521	-0.68682	-0.39999	57.80985	1.06256	220.18	-15.73
85/ 8/22	2446300.0	-37.43240	-40.27057	-18.25359	0.79380	-0.60192	-0.36218	57.93183	1.06000	227.09	-18.37
85/ 8/23	2446300.5	-31.79037	-44.03597	-20.56396	0.87011	-0.50872	-0.31927	58.07470	1.05727	234.17	-20.74
85/ 8/23	2446301.0	-25.67600	-47.14644	-22.56851	0.93313	-0.40880	-0.27200	58.23557	1.05443	241.43	-22.80
85/ 8/24	2446301.5	-19.18210	-49.56213	-24.24047	0.98208	-0.30384	-0.22119	58.41197	1.05154	248.84	-24.52
85/ 8/24	2446302.0	-12.40572	-51.25459	-25.55866	1.01648	-0.19552	-0.16768	58.60188	1.04861	256.39	-25.86
85/ 8/25	2446302.5	-5.44642	-52.20690	-26.50767	1.03608	-0.08555	-0.11232	58.80375	1.04566	264.04	-26.79
85/ 8/25	2446303.0	1.59546	-52.41353	-27.07792	1.04089	0.02440	-0.05598	59.01641	1.04268	271.74	-27.31
85/ 8/26	2446303.5	8.62045	-51.88004	-27.26559	1.03115	0.13273	0.00051	59.23904	1.03965	279.43	-27.40
85/ 8/26	2446304.0	15.53141	-50.62267	-27.07255	1.00731	0.23791	0.05632	59.47102	1.03656	287.06	-27.08
85/ 8/27	2446304.5	22.23504	-48.66764	-26.50605	0.97005	0.33852	0.11066	59.71187	1.03336	294.55	-26.35
85/ 8/27	2446305.0	28.64310	-46.05044	-25.57848	0.92018	0.43324	0.16282	59.96106	1.03002	301.88	-25.25
85/ 8/28	2446305.5	34.67354	-42.81495	-24.30698	0.85872	0.52091	0.21212	60.21797	1.02652	309.00	-23.81
85/ 8/28	2446306.0	40.25150	-39.01244	-22.71299	0.78677	0.60052	0.25796	60.48168	1.02282	315.90	-22.06
85/ 8/29	2446306.5	45.31011	-34.70056	-20.82176	0.70557	0.67120	0.29981	60.75097	1.01893	322.55	-20.04
85/ 8/29	2446307.0	49.79107	-29.94222	-18.66186	0.61641	0.73225	0.33722	61.02420	1.01483	328.98	-17.81
85/ 8/30	2446307.5	53.64509	-24.80450	-16.26461	0.52066	0.78315	0.36984	61.29924	1.01054	335.19	-15.39
85/ 8/30	2446308.0	56.83213	-19.35753	-13.66353	0.41969	0.82352	0.39737	61.57351	1.00610	341.19	-12.82
85/ 8/31	2446308.5	59.32148	-13.67344	-10.89380	0.31487	0.85315	0.41961	61.84397	1.00154	347.02	-10.15
85/ 8/31	2446309.0	61.09165	-7.82532	-7.99173	0.20754	0.87196	0.43644	62.10711	0.99692	352.70	-7.39
85/ 9/ 1	2446309.5	62.13013	-1.88634	-4.99428	0.09902	0.88000	0.44778	62.35907	0.99233	358.26	-4.59
85/ 9/ 1	2446310.0	62.43309	4.07112	-1.93856	-0.00945	0.87745	0.45364	62.59571	0.98783	3.73	-1.77

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/ 9/ 2	2446310.5	62.00493	9.97618	1.13848	-0.11668	0.86458	0.45409	62.81267	0.98352	9.14	1.04
85/ 9/ 2	2446311.0	60.85780	15.76006	4.20052	-0.22158	0.84174	0.44923	63.00552	0.97950	14.52	3.82
85/ 9/ 3	2446311.5	59.01111	21.35666	7.21207	-0.32309	0.80935	0.43921	63.16987	0.97588	19.90	6.56
85/ 9/ 3	2446312.0	56.49103	26.70291	10.13879	-0.42027	0.76789	0.42421	63.30148	0.97275	25.30	9.22
85/ 9/ 4	2446312.5	53.32996	31.73916	12.94766	-0.51223	0.71790	0.40445	63.39638	0.97022	30.76	11.78
85/ 9/ 4	2446313.0	49.56613	36.40944	15.60717	-0.59813	0.65992	0.38015	63.45102	0.96839	36.30	14.24
85/ 9/ 5	2446313.5	45.24312	40.66166	18.08747	-0.67722	0.59455	0.35157	63.46232	0.96733	41.95	16.56
85/ 9/ 5	2446314.0	40.40956	44.44785	20.36048	-0.74878	0.52241	0.31899	63.42786	0.96713	47.72	18.72
85/ 9/ 6	2446314.5	35.11881	47.72431	22.40002	-0.81212	0.44414	0.28268	63.34589	0.96784	53.65	20.71
85/ 9/ 6	2446315.0	29.42868	50.45181	24.18194	-0.86661	0.36042	0.24296	63.21550	0.96951	59.74	22.49
85/ 9/ 7	2446315.5	23.40124	52.59583	25.68421	-0.91163	0.27196	0.20016	63.03664	0.97216	66.01	24.04
85/ 9/ 7	2446316.0	17.10262	54.12678	26.88712	-0.94659	0.17952	0.15462	62.81023	0.97579	72.46	25.35
85/ 9/ 8	2446316.5	10.60281	55.02038	27.77341	-0.97094	0.08389	0.10673	62.53818	0.98039	79.09	26.37
85/ 9/ 8	2446317.0	3.97549	55.25798	28.32854	-0.98416	-0.01404	0.05691	62.22343	0.98590	85.88	27.08
85/ 9/ 9	2446317.5	-2.70224	54.82710	28.54091	-0.98575	-0.11334	0.00560	61.86999	0.99226	92.82	27.47
85/ 9/ 9	2446318.0	-9.35017	53.72187	28.40214	-0.97529	-0.21299	-0.04669	61.48290	0.99937	99.87	27.51
85/ 9/10	2446318.5	-15.88545	51.94371	27.90749	-0.95243	-0.31186	-0.09940	61.06820	1.00711	107.00	27.19
85/ 9/10	2446319.0	-22.22316	49.50192	27.05612	-0.91692	-0.40875	-0.15192	60.63285	1.01533	114.18	26.50
85/ 9/11	2446319.5	-28.27715	46.41433	25.85159	-0.86865	-0.50233	-0.20357	60.18465	1.02388	121.35	25.44
85/ 9/11	2446320.0	-33.96101	42.70797	24.30219	-0.80765	-0.59123	-0.25363	59.73205	1.03256	128.49	24.01
85/ 9/12	2446320.5	-39.18941	38.41957	22.42132	-0.73421	-0.67396	-0.30132	59.28397	1.04119	135.57	22.22
85/ 9/12	2446321.0	-43.87957	33.59598	20.22781	-0.64882	-0.74901	-0.34581	58.84956	1.04956	142.56	20.10
85/ 9/13	2446321.5	-47.95309	28.29432	17.74611	-0.55228	-0.81487	-0.38628	58.43794	1.05747	149.46	17.68
85/ 9/13	2446322.0	-51.33794	22.58188	15.00635	-0.44567	-0.87008	-0.42188	58.05786	1.06472	156.26	14.98
85/ 9/14	2446322.5	-53.97051	16.53553	12.04421	-0.33040	-0.91326	-0.45181	57.71744	1.07114	162.97	12.04
85/ 9/14	2446323.0	-55.79782	10.24086	8.90060	-0.20819	-0.94322	-0.47535	57.42380	1.07656	169.60	8.92
85/ 9/15	2446323.5	-56.77946	3.79072	5.62101	-0.08104	-0.95903	-0.49187	57.18280	1.08085	176.18	5.64
85/ 9/15	2446324.0	-56.88938	-2.71658	2.25473	0.04884	-0.96002	-0.50089	56.99882	1.08394	182.73	2.27
85/ 9/16	2446324.5	-56.11717	-9.17950	-1.14625	0.17904	-0.94590	-0.50208	56.87454	1.08576	189.29	-1.15
85/ 9/16	2446325.0	-54.46890	-15.49567	-4.52844	0.30712	-0.91674	-0.49533	56.81095	1.08632	195.88	-4.57
85/ 9/17	2446325.5	-51.96726	-21.56456	-7.83818	0.43064	-0.87299	-0.48071	56.80725	1.08565	202.54	-7.93
85/ 9/17	2446326.0	-48.65113	-27.28995	-11.02299	0.54726	-0.81547	-0.45850	56.86105	1.08384	209.29	-11.18
85/ 9/18	2446326.5	-44.57448	-32.58235	-14.03289	0.65488	-0.74535	-0.42916	56.96855	1.08101	216.17	-14.26
85/ 9/18	2446327.0	-39.80483	-37.36105	-16.82155	0.75162	-0.66403	-0.39329	57.12475	1.07729	223.19	-17.13
85/ 9/19	2446327.5	-34.42126	-41.55572	-19.34729	0.83593	-0.57318	-0.35165	57.32380	1.07284	230.36	-19.73
85/ 9/19	2446328.0	-28.51215	-45.10770	-21.57384	0.90663	-0.47455	-0.30509	57.55934	1.06783	237.70	-22.01
85/ 9/20	2446328.5	-22.17289	-47.97063	-23.47087	0.96284	-0.37002	-0.25450	57.82474	1.06243	245.19	-23.95
85/ 9/20	2446329.0	-15.50353	-50.11087	-25.01433	1.00405	-0.26146	-0.20084	58.11347	1.05679	252.81	-25.50
85/ 9/21	2446329.5	-8.60655	-51.50735	-26.18655	1.03005	-0.15070	-0.14503	58.41930	1.05106	260.51	-26.63
85/ 9/21	2446330.0	-1.58485	-52.15124	-26.97617	1.04091	-0.03951	-0.08801	58.73651	1.04537	268.26	-27.34
85/ 9/22	2446330.5	5.46002	-52.04535	-27.37797	1.03696	0.07044	-0.03066	59.06000	1.03981	275.99	-27.62
85/ 9/22	2446331.0	12.42950	-51.20335	-27.39256	1.01875	0.17761	0.02620	59.38542	1.03445	283.64	-27.47
85/ 9/23	2446331.5	19.22925	-49.64890	-27.02602	0.98698	0.28060	0.08177	59.70915	1.02934	291.17	-26.91
85/ 9/23	2446332.0	25.77031	-47.41469	-26.28947	0.94252	0.37814	0.13534	60.02831	1.02452	298.52	-25.97
85/ 9/24	2446332.5	31.97002	-44.54150	-25.19865	0.88635	0.46911	0.18628	60.34069	1.01999	305.67	-24.68

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/ 9/24	2446333.0	37.75267	-41.07719	-23.77344	0.81955	0.55254	0.23400	60.64467	1.01574	312.59	-23.08
85/ 9/25	2446333.5	43.05017	-37.07575	-22.03740	0.74328	0.62760	0.27799	60.93911	1.01174	319.26	-21.20
85/ 9/25	2446334.0	47.80239	-32.59633	-20.01730	0.65874	0.69358	0.31781	61.22321	1.00797	325.71	-19.08
85/ 9/26	2446334.5	51.95755	-27.70231	-17.74267	0.56718	0.74994	0.35309	61.49640	1.00438	331.93	-16.77
85/ 9/26	2446335.0	55.47241	-22.46038	-15.24532	0.46988	0.79626	0.38353	61.75821	1.00095	337.96	-14.29
85/ 9/27	2446335.5	58.31238	-16.93969	-12.55892	0.36811	0.83222	0.40888	62.00818	0.99764	343.80	-11.69
85/ 9/27	2446336.0	60.45155	-11.21098	-9.71853	0.26315	0.85767	0.42898	62.24569	0.99441	349.49	-8.98
85/ 9/28	2446336.5	61.87261	-5.34575	-6.76019	0.15626	0.87253	0.44370	62.46997	0.99126	355.06	-6.21
85/ 9/28	2446337.0	62.56670	0.58450	-3.72049	0.04868	0.87688	0.45300	62.67994	0.98818	0.54	-3.40
85/ 9/29	2446337.5	62.53318	6.50899	-0.63621	-0.05840	0.87087	0.45687	62.87424	0.98517	5.94	-0.58
85/ 9/29	2446338.0	61.77935	12.35834	2.45610	-0.16384	0.85475	0.45538	63.05116	0.98224	11.31	2.23
85/ 9/30	2446338.5	60.32005	18.06520	5.52042	-0.26654	0.82885	0.44863	63.20866	0.97944	16.67	5.01
85/ 9/30	2446339.0	58.17730	23.56477	8.52158	-0.36549	0.79361	0.43676	63.34441	0.97681	22.05	7.73
85/10/ 1	2446339.5	55.37985	28.79530	11.42557	-0.45972	0.74949	0.41996	63.45581	0.97440	27.47	10.37
85/10/ 1	2446340.0	51.96270	33.69850	14.19974	-0.54834	0.69705	0.39846	63.54010	0.97227	32.96	12.91
85/10/ 2	2446340.5	47.96671	38.21990	16.81307	-0.63052	0.63685	0.37251	63.59438	0.97051	38.55	15.33
85/10/ 2	2446341.0	43.43805	42.30919	19.23629	-0.70550	0.56955	0.34238	63.61577	0.96920	44.25	17.60
85/10/ 3	2446341.5	38.42787	45.92040	21.44211	-0.77260	0.49580	0.30837	63.60148	0.96841	50.08	19.70
85/10/ 3	2446342.0	32.99181	49.01218	23.40535	-0.83116	0.41629	0.27080	63.54891	0.96822	56.05	21.61
85/10/ 4	2446342.5	27.18967	51.54801	25.10302	-0.88060	0.33175	0.23001	63.45579	0.96872	62.19	23.30
85/10/ 4	2446343.0	21.08505	53.49637	26.51452	-0.92039	0.24294	0.18635	63.32030	0.96998	68.49	24.75
85/10/ 5	2446343.5	14.74505	54.83095	27.62173	-0.95003	0.15064	0.14022	63.14119	0.97207	74.95	25.94
85/10/ 5	2446344.0	8.23996	55.53090	28.40916	-0.96907	0.05568	0.09199	62.91787	0.97502	81.56	26.84
85/10/ 6	2446344.5	1.64298	55.58110	28.86411	-0.97710	-0.04108	0.04211	62.65058	0.97887	88.31	27.43
85/10/ 6	2446345.0	-4.97011	54.97243	28.97683	-0.97377	-0.13872	-0.00898	62.34041	0.98364	95.17	27.70
85/10/ 7	2446345.5	-11.52123	53.70217	28.74078	-0.95876	-0.23628	-0.06080	61.98947	0.98931	102.11	27.62
85/10/ 7	2446346.0	-17.93043	51.77442	28.15281	-0.93183	-0.33270	-0.11281	61.60090	0.99585	109.10	27.19
85/10/ 8	2446346.5	-24.11637	49.20053	27.21350	-0.89282	-0.42688	-0.16445	61.17897	1.00319	116.11	26.41
85/10/ 8	2446347.0	-29.99696	45.99967	25.92743	-0.84166	-0.51764	-0.21510	60.72906	1.01124	123.11	25.27
85/10/ 9	2446347.5	-35.49010	42.19929	24.30354	-0.77843	-0.60370	-0.26409	60.25769	1.01987	130.06	23.79
85/10/ 9	2446348.0	-40.51469	37.83569	22.35540	-0.70335	-0.68372	-0.31072	59.77243	1.02895	136.96	21.96
85/10/10	2446348.5	-44.99185	32.95442	20.10159	-0.61687	-0.75632	-0.35423	59.28182	1.03828	143.78	19.82
85/10/10	2446349.0	-48.84640	27.61063	17.56594	-0.51963	-0.82007	-0.39382	58.79523	1.04767	150.52	17.38
85/10/11	2446349.5	-52.00852	21.86915	14.77766	-0.41258	-0.87352	-0.42869	58.32260	1.05690	157.19	14.68
85/10/11	2446350.0	-54.41577	15.80434	11.77146	-0.29695	-0.91532	-0.45804	57.87417	1.06573	163.80	11.74
85/10/12	2446350.5	-56.01510	9.49954	8.58732	-0.17429	-0.94419	-0.48111	57.46020	1.07394	170.37	8.59
85/10/12	2446351.0	-56.76507	3.04610	5.27016	-0.04648	-0.95905	-0.49721	57.09051	1.08128	176.93	5.30
85/10/13	2446351.5	-56.63787	-3.45813	1.86921	0.08434	-0.95908	-0.50577	56.77412	1.08754	183.49	1.89
85/10/13	2446352.0	-55.62118	-9.91075	-1.56293	0.21577	-0.94376	-0.50636	56.51886	1.09254	190.10	-1.58
85/10/14	2446352.5	-53.71951	-16.20722	-4.97142	0.34524	-0.91298	-0.49877	56.33094	1.09612	196.79	-5.06
85/10/14	2446353.0	-50.95500	-22.24361	-8.30060	0.47012	-0.86705	-0.48296	56.21468	1.09820	203.58	-8.49
85/10/15	2446353.5	-47.36746	-27.91955	-11.49551	0.58785	-0.80670	-0.45917	56.17228	1.09871	210.52	-11.81
85/10/15	2446354.0	-43.01366	-33.14111	-14.50342	0.69601	-0.73310	-0.42784	56.20371	1.09768	217.61	-14.95
85/10/16	2446354.5	-37.96581	-37.82347	-17.27536	0.79247	-0.64776	-0.38961	56.30680	1.09517	224.89	-17.87
85/10/16	2446355.0	-32.30942	-41.89317	-19.76739	0.87545	-0.55251	-0.34533	56.47730	1.09130	232.36	-20.49

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
85/10/17	2446355.5	-26.14065	-45.28982	-21.94172	0.94358	-0.44936	-0.29597	56.70927	1.08622	240.01	-22.76
85/10/17	2446356.0	-19.56341	-47.96717	-23.76740	0.99595	-0.34046	-0.24256	56.99531	1.08013	247.81	-24.65
85/10/18	2446356.5	-12.68629	-49.89353	-25.22079	1.03208	-0.22796	-0.18621	57.32708	1.07324	255.73	-26.10
85/10/18	2446357.0	-5.61978	-51.05164	-26.28564	1.05190	-0.11394	-0.12801	57.69564	1.06577	263.72	-27.10
85/10/19	2446357.5	1.52642	-51.43805	-26.95299	1.05569	-0.00039	-0.06900	58.09188	1.05794	271.70	-27.64
85/10/19	2446358.0	8.64562	-51.06213	-27.22072	1.04405	0.11088	-0.01016	58.50688	1.04997	279.61	-27.73
85/10/20	2446358.5	15.63595	-49.94481	-27.09310	1.01780	0.21828	0.04760	58.93219	1.04203	287.38	-27.37
85/10/20	2446359.0	22.40185	-48.11727	-26.58014	0.97795	0.32039	0.10350	59.36007	1.03429	294.97	-26.60
85/10/21	2446359.5	28.85503	-45.61953	-25.69693	0.92565	0.41600	0.15682	59.78367	1.02688	302.31	-25.46
85/10/21	2446360.0	34.91527	-42.49910	-24.46302	0.86212	0.50411	0.20697	60.19708	1.01991	309.40	-23.98
85/10/22	2446360.5	40.51079	-38.80969	-22.90175	0.78864	0.58389	0.25341	60.59543	1.01346	316.23	-22.21
85/10/22	2446361.0	45.57856	-34.61009	-21.03965	0.70650	0.65467	0.29573	60.97483	1.00757	322.79	-20.19
85/10/23	2446361.5	50.06433	-29.96305	-18.90593	0.61700	0.71594	0.33357	61.33234	1.00226	329.10	-17.95
85/10/23	2446362.0	53.92263	-24.93439	-16.53198	0.52143	0.76731	0.36663	61.66587	0.99753	335.18	-15.55
85/10/24	2446362.5	57.11665	-19.59213	-13.95089	0.42105	0.80851	0.39470	61.97411	0.99336	341.07	-13.01
85/10/24	2446363.0	59.61811	-14.00573	-11.19706	0.31712	0.83939	0.41761	62.25635	0.98971	346.78	-10.36
85/10/25	2446363.5	61.40705	-8.24538	-8.30585	0.21085	0.85987	0.43526	62.51239	0.98655	352.35	-7.64
85/10/25	2446364.0	62.47165	-2.38143	-5.31320	0.10342	0.86999	0.44756	62.74239	0.98382	357.82	-4.86
85/10/26	2446364.5	62.80799	3.51628	-2.25533	-0.00401	0.86986	0.45451	62.94676	0.98146	3.20	-2.05
85/10/26	2446365.0	62.41986	9.37891	0.83156	-0.11033	0.85967	0.45614	63.12602	0.97942	8.55	0.75
85/10/27	2446365.5	61.31845	15.13919	3.91160	-0.21446	0.83969	0.45251	63.28070	0.97767	13.87	3.54
85/10/27	2446366.0	59.52208	20.73190	6.94955	-0.31537	0.81025	0.44373	63.41124	0.97615	19.20	6.29
85/10/28	2446366.5	57.05592	26.09438	9.91103	-0.41209	0.77178	0.42995	63.51790	0.97484	24.58	8.98
85/10/28	2446367.0	53.95162	31.16696	12.76279	-0.50366	0.72473	0.41137	63.60067	0.97372	30.01	11.58
85/10/29	2446367.5	50.24697	35.89339	15.47300	-0.58922	0.66966	0.38819	63.65931	0.97279	35.54	14.07
85/10/29	2446368.0	45.98551	40.22127	18.01141	-0.66795	0.60715	0.36068	63.69324	0.97205	41.17	16.43
85/10/30	2446368.5	41.21612	44.10237	20.34965	-0.73909	0.53784	0.32913	63.70162	0.97152	46.94	18.63
85/10/30	2446369.0	35.99260	47.49298	22.46136	-0.80194	0.46243	0.29385	63.68330	0.97124	52.84	20.65
85/10/31	2446369.5	30.37321	50.35425	24.32243	-0.85589	0.38165	0.25518	63.63696	0.97124	58.90	22.47
85/10/31	2446370.0	24.42025	52.65239	25.91113	-0.90036	0.29627	0.21348	63.56107	0.97159	65.12	24.06
85/11/ 1	2446370.5	18.19961	54.35898	27.20831	-0.93486	0.20711	0.16916	63.45405	0.97235	71.49	25.39
85/11/ 1	2446371.0	11.78031	55.45115	28.19750	-0.95895	0.11498	0.12261	63.31433	0.97357	78.01	26.45
85/11/ 2	2446371.5	5.23409	55.91182	28.86510	-0.97228	0.02078	0.07427	63.14049	0.97533	84.65	27.20
85/11/ 2	2446372.0	-1.36504	55.72990	29.20047	-0.97453	-0.07461	0.02458	62.93134	0.97769	91.40	27.65
85/11/ 3	2446372.5	-7.94127	54.90054	29.19613	-0.96548	-0.17025	-0.02597	62.68610	0.98072	98.23	27.76
85/11/ 3	2446373.0	-14.41739	53.42531	28.84787	-0.94495	-0.26517	-0.07689	62.40452	0.98446	105.10	27.53
85/11/ 4	2446373.5	-20.71532	51.31249	28.15492	-0.91285	-0.35836	-0.12767	62.08699	0.98895	111.98	26.97
85/11/ 4	2446374.0	-26.75663	48.57729	27.12010	-0.86918	-0.44877	-0.17775	61.73468	0.99421	118.85	26.06
85/11/ 5	2446374.5	-32.46311	45.24220	25.75006	-0.81400	-0.53532	-0.22656	61.34962	1.00025	125.66	24.82
85/11/ 5	2446375.0	-37.75749	41.33722	24.05545	-0.74753	-0.61686	-0.27349	60.93487	1.00703	132.41	23.25
85/11/ 6	2446375.5	-42.56420	36.90020	22.05110	-0.67007	-0.69223	-0.31791	60.49452	1.01451	139.08	21.38
85/11/ 6	2446376.0	-46.81037	31.97710	19.75629	-0.58210	-0.76019	-0.35915	60.03379	1.02260	145.66	19.21
85/11/ 7	2446376.5	-50.42693	26.62220	17.19487	-0.48427	-0.81953	-0.39652	59.55905	1.03120	152.17	16.78
85/11/ 7	2446377.0	-53.34992	20.89818	14.39545	-0.37745	-0.86898	-0.42931	59.07772	1.04015	158.61	14.10
85/11/ 8	2446377.5	-55.52203	14.87611	11.39142	-0.26274	-0.90734	-0.45682	58.59829	1.04928	165.00	11.21

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/11/ 8	2446378.0	-56.89424	8.63507	8.22091	-0.14150	-0.93346	-0.47836	58.13005	1.05839	171.37	8.13
85/11/ 9	2446378.5	-57.42766	2.26156	4.92660	-0.01535	-0.94630	-0.49328	57.68295	1.06726	177.74	4.90
85/11/ 9	2446379.0	-57.09540	-4.15149	1.55529	0.11379	-0.94501	-0.50101	57.26726	1.07564	184.16	1.56
85/11/10	2446379.5	-55.88438	-10.50616	-1.84271	0.24376	-0.92899	-0.50109	56.89323	1.08329	190.65	-1.86
85/11/10	2446380.0	-53.79695	-16.70144	-5.21445	0.37218	-0.89792	-0.49322	56.57066	1.08998	197.25	-5.29
85/11/11	2446380.5	-50.85209	-22.63550	-8.50550	0.49652	-0.85190	-0.47726	56.30848	1.09546	204.00	-8.69
85/11/11	2446381.0	-47.08616	-28.20843	-11.66128	0.61421	-0.79140	-0.45331	56.11424	1.09957	210.93	-11.99
85/11/12	2446381.5	-42.55288	-33.32507	-14.62858	0.72271	-0.71735	-0.42168	55.99378	1.10214	218.07	-15.14
85/11/12	2446382.0	-37.32251	-37.89796	-17.35715	0.81968	-0.63109	-0.38292	55.95083	1.10308	225.44	-18.07
85/11/13	2446382.5	-31.48031	-41.85007	-19.80118	0.90306	-0.53435	-0.33780	55.98683	1.10235	233.05	-20.71
85/11/13	2446383.0	-25.12418	-45.11714	-21.92074	0.97120	-0.42916	-0.28728	56.10080	1.09997	240.89	-23.00
85/11/14	2446383.5	-18.36172	-47.64944	-23.68286	1.02289	-0.31776	-0.23244	56.28943	1.09604	248.93	-24.88
85/11/14	2446384.0	-11.30698	-49.41281	-25.06226	1.05743	-0.20250	-0.17447	56.54724	1.09069	257.11	-26.31
85/11/15	2446384.5	-4.07709	-50.38896	-26.04179	1.07462	-0.08569	-0.11456	56.86691	1.08410	265.37	-27.25
85/11/15	2446385.0	3.21106	-50.57517	-26.61243	1.07471	0.03041	-0.05391	57.23967	1.07649	273.63	-27.71
85/11/16	2446385.5	10.44369	-49.98323	-26.77297	1.05837	0.14376	0.00636	57.65575	1.06811	281.80	-27.67
85/11/16	2446386.0	17.51266	-48.63814	-26.52944	1.02657	0.25253	0.06524	58.10485	1.05918	289.80	-27.17
85/11/17	2446386.5	24.31731	-46.57636	-25.89438	0.98054	0.35516	0.12184	58.57652	1.04997	297.57	-26.24
85/11/17	2446387.0	30.76594	-43.84404	-24.88597	0.92168	0.45034	0.17538	59.06060	1.04070	305.06	-24.92
85/11/18	2446387.5	36.77660	-40.49520	-23.52712	0.85147	0.53706	0.22522	59.54750	1.03158	312.24	-23.27
85/11/18	2446388.0	42.27761	-36.59002	-21.84465	0.77143	0.61451	0.27086	60.02845	1.02279	319.12	-21.34
85/11/19	2446388.5	47.20760	-32.19331	-19.86845	0.68310	0.68213	0.31190	60.49563	1.01450	325.71	-19.17
85/11/19	2446389.0	51.51540	-27.37314	-17.63081	0.58795	0.73951	0.34802	60.94236	1.00681	332.02	-16.82
85/11/20	2446389.5	55.15974	-22.19972	-15.16574	0.48742	0.78641	0.37903	61.36305	0.99984	338.08	-14.31
85/11/20	2446390.0	58.10880	-16.74442	-12.50849	0.38286	0.82273	0.40475	61.75330	0.99363	343.93	-11.69
85/11/21	2446390.5	60.33977	-11.07898	-9.69509	0.27558	0.84847	0.42512	62.10979	0.98822	349.60	-8.98
85/11/21	2446391.0	61.83839	-5.27485	-6.76198	0.16680	0.86371	0.44010	62.43024	0.98362	355.12	-6.22
85/11/22	2446391.5	62.59850	0.59734	-3.74568	0.05769	0.86860	0.44970	62.71331	0.97981	0.55	-3.42
85/11/22	2446392.0	62.62162	6.46827	-0.68252	-0.05065	0.86338	0.45395	62.95849	0.97676	5.90	-0.62
85/11/23	2446392.5	61.91657	12.27031	2.39156	-0.15716	0.84831	0.45294	63.16599	0.97441	11.21	2.17
85/11/23	2446393.0	60.49915	17.93790	5.44127	-0.26084	0.82373	0.44677	63.33659	0.97272	16.52	4.93
85/11/24	2446393.5	58.39181	23.40790	8.43217	-0.36073	0.79003	0.43559	63.47153	0.97161	21.84	7.63
85/11/24	2446394.0	55.62336	28.61994	11.33082	-0.45591	0.74763	0.41957	63.57238	0.97100	27.23	10.27
85/11/25	2446394.5	52.22872	33.51673	14.10505	-0.54550	0.69703	0.39889	63.64089	0.97084	32.69	12.81
85/11/25	2446395.0	48.24860	38.04448	16.72410	-0.62866	0.63875	0.37378	63.67892	0.97105	38.26	15.23
85/11/26	2446395.5	43.72922	42.15316	19.15887	-0.70461	0.57339	0.34452	63.68827	0.97157	43.95	17.51
85/11/26	2446396.0	38.72199	45.79696	21.38211	-0.77260	0.50158	0.31137	63.67063	0.97234	49.78	19.62
85/11/27	2446396.5	33.28320	48.93459	23.36863	-0.83194	0.42404	0.27467	63.62750	0.97333	55.78	21.55
85/11/27	2446397.0	27.47358	51.52964	25.09551	-0.88201	0.34150	0.23476	63.56010	0.97451	61.94	23.26
85/11/28	2446397.5	21.35789	53.55097	26.54233	-0.92223	0.25476	0.19204	63.46937	0.97585	68.26	24.72
85/11/28	2446398.0	15.00449	54.97299	27.69135	-0.95212	0.16467	0.14690	63.35594	0.97736	74.73	25.92
85/11/29	2446398.5	8.48482	55.77597	28.52771	-0.97127	0.07211	0.09978	63.22010	0.97904	81.35	26.82
85/11/29	2446399.0	1.87283	55.94636	29.03959	-0.97934	-0.02198	0.05116	63.06188	0.98092	88.08	27.42
85/11/30	2446399.5	-4.75555	55.47697	29.21842	-0.97607	-0.11664	0.00152	62.88104	0.98302	94.90	27.69
85/11/30	2446400.0	-11.32303	54.36724	29.05897	-0.96133	-0.21090	-0.04864	62.67720	0.98540	101.76	27.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
85/12/ 1	2446400.5	-17.75159	52.62343	28.55956	-0.93505	-0.30372	-0.09878	62.44992	0.98809	108.64	27.21
85/12/ 1	2446401.0	-23.96315	50.25872	27.72213	-0.89727	-0.39407	-0.14836	62.19878	0.99116	115.49	26.47
85/12/ 2	2446401.5	-29.88025	47.29340	26.55237	-0.84813	-0.48089	-0.19682	61.92353	0.99465	122.28	25.39
85/12/ 2	2446402.0	-35.42676	43.75495	25.05980	-0.78789	-0.56313	-0.24359	61.62422	0.99861	129.00	23.99
85/12/ 3	2446402.5	-40.52870	39.67807	23.25789	-0.71692	-0.63971	-0.28807	61.30134	1.00309	135.61	22.30
85/12/ 3	2446403.0	-45.11497	35.10476	21.16407	-0.63572	-0.70955	-0.32969	60.95591	1.00811	142.11	20.32
85/12/ 4	2446403.5	-49.11832	30.08428	18.79984	-0.54490	-0.77158	-0.36783	60.58966	1.01368	148.51	18.08
85/12/ 4	2446404.0	-52.47622	24.67309	16.19075	-0.44526	-0.82474	-0.40189	60.20511	1.01979	154.82	15.60
85/12/ 5	2446404.5	-55.13199	18.93474	13.36642	-0.33774	-0.86802	-0.43129	59.80570	1.02642	161.05	12.91
85/12/ 5	2446405.0	-57.03588	12.93959	10.36048	-0.22344	-0.90042	-0.45542	59.39582	1.03348	167.22	10.05
85/12/ 6	2446405.5	-58.14633	6.76441	7.21042	-0.10368	-0.92103	-0.47375	58.98087	1.04091	173.36	7.02
85/12/ 6	2446406.0	-58.43131	0.49185	3.95740	0.02005	-0.92905	-0.48575	58.56723	1.04857	179.52	3.87
85/12/ 7	2446406.5	-57.86964	-5.79045	0.64588	0.14603	-0.92381	-0.49096	58.16220	1.05631	185.71	0.64
85/12/ 7	2446407.0	-56.45234	-11.99088	-2.67686	0.27238	-0.90481	-0.48900	57.77381	1.06395	191.99	-2.66
85/12/ 8	2446407.5	-54.18394	-18.01528	-5.96135	0.39700	-0.87181	-0.47963	57.41069	1.07131	198.39	-5.96
85/12/ 8	2446408.0	-51.08351	-23.76870	-9.15678	0.51769	-0.82482	-0.46270	57.08172	1.07816	204.95	-9.23
85/12/ 9	2446408.5	-47.18548	-29.15741	-12.21203	0.63214	-0.76420	-0.43826	56.79576	1.08428	211.71	-12.42
85/12/ 9	2446409.0	-42.53997	-34.09118	-15.07685	0.73803	-0.69063	-0.40652	56.56120	1.08946	218.71	-15.46
85/12/10	2446409.5	-37.21255	-38.48585	-17.70314	0.83314	-0.60521	-0.36791	56.38560	1.09350	225.96	-18.30
85/12/10	2446410.0	-31.28346	-42.26574	-20.04636	0.91538	-0.50937	-0.32305	56.27525	1.09624	233.49	-20.87
85/12/11	2446410.5	-24.84599	-45.36613	-22.06684	0.98298	-0.40488	-0.27276	56.23482	1.09753	241.29	-23.10
85/12/11	2446411.0	-18.00438	-47.73530	-23.73105	1.03452	-0.29380	-0.21802	56.26703	1.09731	249.33	-24.95
85/12/12	2446411.5	-10.87099	-49.33612	-25.01254	1.06902	-0.17838	-0.15994	56.37250	1.09554	257.57	-26.34
85/12/12	2446412.0	-3.56320	-50.14708	-25.89273	1.08598	-0.06095	-0.09972	56.54962	1.09225	265.94	-27.25
85/12/13	2446412.5	3.79988	-50.16251	-26.36120	1.08539	0.05615	-0.03857	56.79462	1.08752	274.33	-27.66
85/12/13	2446413.0	11.10071	-49.39228	-26.41574	1.06771	0.17069	0.02232	57.10179	1.08150	282.67	-27.56
85/12/14	2446413.5	18.22628	-47.86074	-26.06199	1.03381	0.28064	0.08182	57.46368	1.07435	290.85	-26.97
85/12/14	2446414.0	25.07067	-45.60521	-25.31283	0.98490	0.38420	0.13892	57.87152	1.06628	298.80	-25.94
85/12/15	2446414.5	31.53703	-42.67421	-24.18756	0.92244	0.47988	0.19275	58.31561	1.05751	306.47	-24.50
85/12/15	2446415.0	37.53904	-39.12539	-22.71088	0.84806	0.56646	0.24258	58.78571	1.04830	313.81	-22.73
85/12/16	2446415.5	43.00170	-35.02354	-20.91199	0.76347	0.64306	0.28782	59.27146	1.03887	320.84	-20.66
85/12/16	2446416.0	47.86175	-30.43864	-18.82348	0.67040	0.70902	0.32804	59.76271	1.02944	327.54	-18.36
85/12/17	2446416.5	52.06755	-25.44412	-16.48051	0.57055	0.76397	0.36292	60.24982	1.02024	333.96	-15.87
85/12/17	2446417.0	55.57878	-20.11532	-13.91995	0.46556	0.80771	0.39226	60.72390	1.01144	340.10	-13.25
85/12/18	2446417.5	58.36582	-14.52827	-11.17970	0.35695	0.84024	0.41597	61.17700	1.00322	346.02	-10.53
85/12/18	2446418.0	60.40911	-8.75865	-8.29808	0.24616	0.86166	0.43401	61.60221	0.99570	351.75	-7.74
85/12/19	2446418.5	61.69838	-2.88096	-5.31343	0.13451	0.87219	0.44641	61.99373	0.98898	357.33	-4.92
85/12/19	2446419.0	62.23201	3.03203	-2.26367	0.02322	0.87214	0.45325	62.34693	0.98316	2.79	-2.08
85/12/20	2446419.5	62.01627	8.90979	0.81392	-0.08659	0.86185	0.45465	62.65832	0.97826	8.18	0.74
85/12/20	2446420.0	61.06482	14.68439	3.88298	-0.19387	0.84174	0.45075	62.92551	0.97432	13.52	3.54
85/12/21	2446420.5	59.39806	20.29073	6.90819	-0.29765	0.81224	0.44173	63.14718	0.97132	18.86	6.28
85/12/21	2446421.0	57.04278	25.66682	9.85548	-0.39704	0.77383	0.42778	63.32294	0.96925	24.23	8.95
85/12/22	2446421.5	54.03173	30.75393	12.69212	-0.49116	0.72700	0.40910	63.45330	0.96805	29.65	11.54
85/12/22	2446422.0	50.40326	35.49683	15.38687	-0.57922	0.67228	0.38592	63.53951	0.96767	35.16	14.01
85/12/23	2446422.5	46.20113	39.84400	17.91009	-0.66044	0.61024	0.35849	63.58349	0.96803	40.77	16.36

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
85/12/23	2446423.0	41.47415	43.74786	20.23390	-0.73408	0.54148	0.32708	63.58766	0.96905	46.53	18.55
85/12/24	2446423.5	36.27602	47.16504	22.33231	-0.79945	0.46664	0.29198	63.55489	0.97063	52.44	20.57
85/12/24	2446424.0	30.66504	50.05671	24.18147	-0.85589	0.38641	0.25353	63.48829	0.97270	58.51	22.39
85/12/25	2446424.5	24.70381	52.38888	25.75976	-0.90278	0.30155	0.21206	63.39116	0.97515	64.75	23.98
85/12/25	2446425.0	18.45893	54.13281	27.04810	-0.93956	0.21285	0.16797	63.26684	0.97790	71.17	25.31
85/12/26	2446425.5	12.00059	55.26534	28.03011	-0.96573	0.12116	0.12168	63.11861	0.98088	77.75	26.36
85/12/26	2446426.0	5.40215	55.76930	28.69236	-0.98087	0.02739	0.07363	62.94958	0.98401	84.47	27.12
85/12/27	2446426.5	-1.26044	55.63389	29.02459	-0.98463	-0.06748	0.02431	62.76261	0.98724	91.30	27.55
85/12/27	2446427.0	-7.90922	54.85500	29.01995	-0.97676	-0.16245	-0.02576	62.56025	0.99051	98.20	27.64
85/12/28	2446427.5	-14.46492	53.43555	28.67515	-0.95713	-0.25645	-0.07604	62.34466	0.99380	105.15	27.38
85/12/28	2446428.0	-20.84771	51.38572	27.99073	-0.92571	-0.34841	-0.12596	62.11763	0.99709	112.08	26.78
85/12/29	2446428.5	-26.97810	48.72314	26.97110	-0.88262	-0.43721	-0.17492	61.88055	1.00038	118.97	25.84
85/12/29	2446429.0	-32.77775	45.47303	25.62475	-0.82810	-0.52172	-0.22233	61.63445	1.00368	125.78	24.57
85/12/30	2446429.5	-38.17049	41.66817	23.96427	-0.76254	-0.60083	-0.26758	61.38003	1.00701	132.49	22.98
85/12/30	2446430.0	-43.08324	37.34889	22.00634	-0.68647	-0.67345	-0.31006	61.11779	1.01040	139.08	21.10
85/12/31	2446430.5	-47.44706	32.56285	19.77179	-0.60057	-0.73849	-0.34917	60.84806	1.01389	145.54	18.96
85/12/31	2446431.0	-51.19813	27.36480	17.28541	-0.50567	-0.79494	-0.38433	60.57117	1.01752	151.88	16.58
86/ 1/ 1	2446431.5	-54.27874	21.81620	14.57593	-0.40276	-0.84185	-0.41497	60.28753	1.02134	158.10	13.99
86/ 1/ 1	2446432.0	-56.63834	15.98475	11.67573	-0.29296	-0.87833	-0.44056	59.99780	1.02537	164.24	11.22
86/ 1/ 2	2446432.5	-58.23448	9.94383	8.62065	-0.17754	-0.90358	-0.46062	59.70301	1.02964	170.31	8.30
86/ 1/ 2	2446433.0	-59.03383	3.77177	5.44971	-0.05792	-0.91695	-0.47471	59.40470	1.03416	176.34	5.26
86/ 1/ 3	2446433.5	-59.01306	-2.44892	2.20465	0.06436	-0.91787	-0.48245	59.10498	1.03893	182.38	2.14
86/ 1/ 3	2446434.0	-58.15977	-8.63257	-1.07044	0.18763	-0.90595	-0.48353	58.80668	1.04392	188.44	-1.04
86/ 1/ 4	2446434.5	-56.47328	-14.69138	-4.32967	0.31009	-0.88098	-0.47774	58.51337	1.04906	194.58	-4.24
86/ 1/ 4	2446435.0	-53.96532	-20.53674	-7.52601	0.42988	-0.84294	-0.46495	58.22933	1.05429	200.83	-7.43
86/ 1/ 5	2446435.5	-50.66060	-26.08063	-10.61196	0.54505	-0.79202	-0.44515	57.95955	1.05949	207.24	-10.55
86/ 1/ 5	2446436.0	-46.59711	-31.23726	-13.54038	0.65361	-0.72867	-0.41846	57.70961	1.06456	213.84	-13.57
86/ 1/ 6	2446436.5	-41.82628	-35.92471	-16.26542	0.75360	-0.65362	-0.38514	57.48553	1.06933	220.66	-16.44
86/ 1/ 6	2446437.0	-36.41262	-40.06686	-18.74343	0.84312	-0.56784	-0.34560	57.29353	1.07365	227.74	-19.10
86/ 1/ 7	2446437.5	-30.43316	-43.59525	-20.93408	0.92039	-0.47261	-0.30039	57.13982	1.07737	235.08	-21.49
86/ 1/ 7	2446438.0	-23.97631	-46.45089	-22.80131	0.98385	-0.36946	-0.25023	57.03024	1.08031	242.70	-23.57
86/ 1/ 8	2446438.5	-17.14030	-48.58605	-24.31436	1.03216	-0.26017	-0.19596	56.97001	1.08234	250.57	-25.26
86/ 1/ 8	2446439.0	-10.03119	-49.96566	-25.44866	1.06436	-0.14669	-0.13855	56.96337	1.08331	258.65	-26.54
86/ 1/ 9	2446439.5	-2.76049	-50.56841	-26.18651	1.07981	-0.03113	-0.07907	57.01331	1.08315	266.88	-27.34
86/ 1/ 9	2446440.0	4.55748	-50.38745	-26.51760	1.07832	0.08437	-0.01863	57.12135	1.08178	275.17	-27.66
86/ 1/10	2446440.5	11.80848	-49.43044	-26.43925	1.06010	0.19768	0.04165	57.28737	1.07918	283.44	-27.49
86/ 1/10	2446441.0	18.88104	-47.71921	-25.95633	1.02577	0.30677	0.10066	57.50955	1.07537	291.59	-26.83
86/ 1/11	2446441.5	25.66917	-45.28880	-25.08095	0.97630	0.40976	0.15737	57.78439	1.07043	299.54	-25.72
86/ 1/11	2446442.0	32.07459	-42.18607	-23.83188	0.91299	0.50504	0.21086	58.10682	1.06446	307.25	-24.21
86/ 1/12	2446442.5	38.00860	-38.46809	-22.23377	0.83736	0.59124	0.26032	58.47040	1.05760	314.66	-22.35
86/ 1/12	2446443.0	43.39343	-34.20017	-20.31624	0.75111	0.66728	0.30508	58.86757	1.05000	321.76	-20.19
86/ 1/13	2446443.5	48.16309	-29.45395	-18.11293	0.65601	0.73237	0.34464	59.28994	1.04187	328.55	-17.79
86/ 1/13	2446444.0	52.26377	-24.30545	-15.66048	0.55386	0.78600	0.37860	59.72861	1.03339	335.06	-15.20
86/ 1/14	2446444.5	55.65370	-18.83332	-12.99761	0.44642	0.82791	0.40674	60.17447	1.02478	341.30	-12.47
86/ 1/14	2446445.0	58.30286	-13.11723	-10.16429	0.33539	0.85805	0.42892	60.61847	1.01622	347.32	-9.65

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
86/ 1/15	2446445.5	60.19231	-7.23659	-7.20098	0.22234	0.87654	0.44513	61.05192	1.00792	353.14	-6.77
86/ 1/15	2446446.0	61.31340	-1.26940	-4.14804	0.10873	0.88366	0.45541	61.46666	1.00004	358.81	-3.87
86/ 1/16	2446446.5	61.66696	4.70854	-1.04523	-0.00410	0.87979	0.45988	61.85529	0.99274	4.37	-0.97
86/ 1/16	2446447.0	61.26242	10.62428	2.06870	-0.11494	0.86538	0.45872	62.21124	0.98616	9.84	1.91
86/ 1/17	2446447.5	60.11700	16.40819	5.15624	-0.22270	0.84095	0.45213	62.52894	0.98041	15.27	4.73
86/ 1/17	2446448.0	58.25496	21.99426	8.18140	-0.32639	0.80705	0.44034	62.80384	0.97558	20.68	7.49
86/ 1/18	2446448.5	55.70695	27.32033	11.10980	-0.42512	0.76427	0.42360	63.03247	0.97173	26.12	10.15
86/ 1/18	2446449.0	52.50943	32.32822	13.90883	-0.51806	0.71319	0.40218	63.21242	0.96890	31.62	12.71
86/ 1/19	2446449.5	48.70422	36.96383	16.54771	-0.60445	0.65444	0.37635	63.34234	0.96710	37.20	15.14
86/ 1/19	2446450.0	44.33807	41.17729	18.99757	-0.68358	0.58864	0.34641	63.42193	0.96632	42.88	17.43
86/ 1/20	2446450.5	39.46242	44.92301	21.23154	-0.75479	0.51643	0.31265	63.45185	0.96652	48.70	19.55
86/ 1/20	2446451.0	34.13303	48.15985	23.22482	-0.81746	0.43849	0.27539	63.43365	0.96765	54.67	21.48
86/ 1/21	2446451.5	28.40986	50.85132	24.95484	-0.87098	0.35551	0.23497	63.36972	0.96964	60.81	23.19
86/ 1/21	2446452.0	22.35677	52.96579	26.40134	-0.91479	0.26823	0.19173	63.26319	0.97239	67.12	24.67
86/ 1/22	2446452.5	16.04132	54.47679	27.54655	-0.94837	0.17744	0.14607	63.11780	0.97582	73.59	25.88
86/ 1/22	2446453.0	9.53448	55.36335	28.37544	-0.97123	0.08398	0.09839	62.93785	0.97981	80.23	26.80
86/ 1/23	2446453.5	2.91031	55.61039	28.87585	-0.98295	-0.01125	0.04915	62.72798	0.98424	87.00	27.41
86/ 1/23	2446454.0	-3.75446	55.20910	29.03883	-0.98317	-0.10730	-0.00117	62.49315	0.98901	93.89	27.69
86/ 1/24	2446454.5	-10.38098	54.15742	28.85881	-0.97162	-0.20313	-0.05204	62.23842	0.99399	100.85	27.62
86/ 1/24	2446455.0	-16.88890	52.46040	28.33389	-0.94813	-0.29767	-0.10291	61.96885	0.99907	107.85	27.21
86/ 1/25	2446455.5	-23.19713	50.13064	27.46612	-0.91265	-0.38978	-0.15318	61.68935	1.00416	114.83	26.44
86/ 1/25	2446456.0	-29.22475	47.18857	26.26165	-0.86529	-0.47829	-0.20223	61.40457	1.00915	121.77	25.32
86/ 1/26	2446456.5	-34.89202	43.66270	24.73096	-0.80630	-0.56198	-0.24940	61.11878	1.01397	128.63	23.87
86/ 1/26	2446457.0	-40.12152	39.58972	22.88897	-0.73611	-0.63964	-0.29404	60.83574	1.01856	135.38	22.10
86/ 1/27	2446457.5	-44.83935	35.01447	20.75508	-0.65533	-0.71010	-0.33549	60.55868	1.02286	142.01	20.04
86/ 1/27	2446458.0	-48.97642	29.98974	18.35314	-0.56476	-0.77218	-0.37309	60.29023	1.02685	148.52	17.72
86/ 1/28	2446458.5	-52.46970	24.57589	15.71131	-0.46540	-0.82483	-0.40623	60.03240	1.03052	154.90	15.17
86/ 1/28	2446459.0	-55.26351	18.84025	12.86184	-0.35843	-0.86705	-0.43431	59.78660	1.03386	161.17	12.42
86/ 1/29	2446459.5	-57.31073	12.85642	9.84076	-0.24518	-0.89799	-0.45682	59.55374	1.03691	167.36	9.51
86/ 1/29	2446460.0	-58.57387	6.70329	6.68741	-0.12715	-0.91694	-0.47330	59.33425	1.03969	173.47	6.47
86/ 1/30	2446460.5	-59.02602	0.46398	3.44395	-0.00598	-0.92336	-0.48338	59.12823	1.04225	179.55	3.34
86/ 1/30	2446461.0	-58.65170	-5.77536	0.15478	0.11660	-0.91691	-0.48676	58.93556	1.04463	185.62	0.15
86/ 1/31	2446461.5	-57.44739	-11.92687	-3.13416	0.23880	-0.89742	-0.48328	58.75607	1.04688	191.73	-3.06
86/ 1/31	2446462.0	-55.42200	-17.90240	-6.37604	0.35875	-0.86497	-0.47287	58.58966	1.04903	197.90	-6.25
86/ 2/ 1	2446462.5	-52.59703	-23.61492	-9.52396	0.47460	-0.81982	-0.45555	58.43644	1.05113	204.18	-9.38
86/ 2/ 1	2446463.0	-49.00652	-28.98003	-12.53167	0.58451	-0.76248	-0.43150	58.29686	1.05319	210.60	-12.41
86/ 2/ 2	2446463.5	-44.69681	-33.91742	-15.35441	0.68668	-0.69365	-0.40099	58.17177	1.05522	217.19	-15.30
86/ 2/ 2	2446464.0	-39.72606	-38.35233	-17.94968	0.77944	-0.61427	-0.36440	58.06249	1.05719	223.99	-18.01
86/ 2/ 3	2446464.5	-34.16351	-42.21699	-20.27804	0.86119	-0.52547	-0.32226	57.97084	1.05907	231.02	-20.47
86/ 2/ 3	2446465.0	-28.08848	-45.45194	-22.30384	0.93055	-0.42856	-0.27518	57.89907	1.06080	238.28	-22.66
86/ 2/ 4	2446465.5	-21.58921	-48.00728	-23.99601	0.98628	-0.32505	-0.22387	57.84982	1.06232	245.79	-24.51
86/ 2/ 4	2446466.0	-14.76138	-49.84379	-25.32863	1.02742	-0.21658	-0.16915	57.82595	1.06354	253.50	-25.98
86/ 2/ 5	2446466.5	-7.70644	-50.93377	-26.28157	1.05325	-0.10491	-0.11191	57.83044	1.06436	261.40	-27.03
86/ 2/ 5	2446467.0	-0.52970	-51.26180	-26.84093	1.06334	0.00811	-0.05309	57.86612	1.06470	269.41	-27.64
86/ 2/ 6	2446467.5	6.66166	-50.82508	-26.99932	1.05758	0.12061	0.00633	57.93556	1.06445	277.47	-27.78

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/ 2/ 6	2446468.0	13.76076	-49.63351	-26.75609	1.03616	0.23070	0.06535	58.04078	1.06354	285.50	-27.45
86/ 2/ 7	2446468.5	20.66315	-47.70947	-26.11727	0.99960	0.33661	0.12298	58.18308	1.06190	293.42	-26.67
86/ 2/ 7	2446469.0	27.26891	-45.08719	-25.09538	0.94873	0.43662	0.17831	58.36288	1.05949	301.17	-25.47
86/ 2/ 8	2446469.5	33.48460	-41.81187	-23.70905	0.88462	0.52921	0.23046	58.57960	1.05628	308.69	-23.87
86/ 2/ 8	2446470.0	39.22496	-37.93841	-21.98250	0.80860	0.61304	0.27866	58.83155	1.05229	315.96	-21.94
86/ 2/ 9	2446470.5	44.41434	-33.53002	-19.94484	0.72218	0.68700	0.32223	59.11592	1.04755	322.95	-19.72
86/ 2/ 9	2446471.0	48.98773	-28.65662	-17.62927	0.62699	0.75023	0.36064	59.42887	1.04212	329.67	-17.26
86/ 2/10	2446471.5	52.89144	-23.39314	-15.07230	0.52472	0.80211	0.39346	59.76552	1.03611	336.14	-14.61
86/ 2/10	2446472.0	56.08345	-17.81788	-12.31282	0.41711	0.84225	0.42040	60.12018	1.02961	342.37	-11.82
86/ 2/11	2446472.5	58.53334	-12.01095	-9.39132	0.30585	0.87051	0.44128	60.48646	1.02277	348.40	-8.93
86/ 2/11	2446473.0	60.22197	-6.05280	-6.34912	0.19258	0.88693	0.45604	60.85748	1.01573	354.26	-5.99
86/ 2/12	2446473.5	61.14097	-0.02294	-3.22760	0.07883	0.89173	0.46471	61.22611	1.00864	359.98	-3.02
86/ 2/12	2446474.0	61.29199	6.00107	-0.06772	-0.03397	0.88527	0.46740	61.58511	1.00166	5.59	-0.06
86/ 2/13	2446474.5	60.68590	11.94451	3.09060	-0.14453	0.86803	0.46428	61.92739	0.99495	11.13	2.86
86/ 2/13	2446475.0	59.34191	17.73618	6.20879	-0.25168	0.84055	0.45559	62.24615	0.98865	16.64	5.72
86/ 2/14	2446475.5	57.28678	23.30881	9.24995	-0.35436	0.80346	0.44158	62.53508	0.98291	22.14	8.51
86/ 2/14	2446476.0	54.55395	28.59948	12.17909	-0.45165	0.75740	0.42256	62.78849	0.97786	27.67	11.18
86/ 2/15	2446476.5	51.18288	33.54981	14.96328	-0.54270	0.70307	0.39883	63.00140	0.97360	33.24	13.74
86/ 2/15	2446477.0	47.21834	38.10605	17.57176	-0.62678	0.64115	0.37073	63.16969	0.97024	38.90	16.15
86/ 2/16	2446477.5	42.70992	42.21922	19.97597	-0.70320	0.57235	0.33858	63.29012	0.96784	44.67	18.40
86/ 2/16	2446478.0	37.71153	45.84513	22.14969	-0.77136	0.49739	0.30272	63.36043	0.96645	50.56	20.46
86/ 2/17	2446478.5	32.28104	48.94445	24.06902	-0.83071	0.41697	0.26351	63.37935	0.96611	56.59	22.32
86/ 2/17	2446479.0	26.47999	51.48277	25.71245	-0.88070	0.33185	0.22131	63.34663	0.96682	62.78	23.95
86/ 2/18	2446479.5	20.37330	53.43074	27.06098	-0.92088	0.24277	0.17649	63.26304	0.96856	69.13	25.33
86/ 2/18	2446480.0	14.02907	54.76420	28.09816	-0.95078	0.15052	0.12944	63.13033	0.97128	75.63	26.43
86/ 2/19	2446480.5	7.51831	55.46442	28.81027	-0.96999	0.05592	0.08057	62.95124	0.97493	82.28	27.24
86/ 2/19	2446481.0	0.91473	55.51839	29.18646	-0.97813	-0.04016	0.03032	62.72940	0.97942	89.06	27.73
86/ 2/20	2446481.5	-5.70556	54.91916	29.21895	-0.97487	-0.13680	-0.02084	62.46931	0.98464	95.93	27.89
86/ 2/20	2446482.0	-12.26444	53.66622	28.90328	-0.95996	-0.23302	-0.07240	62.17619	0.99049	102.87	27.70
86/ 2/21	2446482.5	-18.68229	51.76595	28.23854	-0.93320	-0.32777	-0.12382	61.85594	0.99681	109.84	27.16
86/ 2/21	2446483.0	-24.87856	49.23210	27.22766	-0.89452	-0.41993	-0.17451	61.51494	1.00348	116.81	26.27
86/ 2/22	2446483.5	-30.77258	46.08615	25.87768	-0.84397	-0.50832	-0.22385	61.15995	1.01034	123.73	25.03
86/ 2/22	2446484.0	-36.28453	42.35777	24.20002	-0.78175	-0.59171	-0.27116	60.79793	1.01724	130.58	23.46
86/ 2/23	2446484.5	-41.33650	38.08507	22.21065	-0.70822	-0.66884	-0.31577	60.43585	1.02403	137.34	21.56
86/ 2/23	2446485.0	-45.85383	33.31477	19.93028	-0.62398	-0.73844	-0.35698	60.08047	1.03057	144.00	19.37
86/ 2/24	2446485.5	-49.76651	28.10215	17.38440	-0.52983	-0.79925	-0.39406	59.73821	1.03673	150.55	16.92
86/ 2/24	2446486.0	-53.01077	22.51080	14.60323	-0.42679	-0.85008	-0.42634	59.41491	1.04238	156.99	14.23
86/ 2/25	2446486.5	-55.53055	16.61207	11.62152	-0.31613	-0.88984	-0.45318	59.11567	1.04744	163.35	11.34
86/ 2/25	2446487.0	-57.27916	10.48430	8.47817	-0.19933	-0.91757	-0.47398	58.84473	1.05182	169.63	8.28
86/ 2/26	2446487.5	-58.22065	4.21167	5.21581	-0.07809	-0.93250	-0.48825	58.60535	1.05549	175.86	5.11
86/ 2/26	2446488.0	-58.33107	-2.11712	1.88005	0.04575	-0.93409	-0.49560	58.39975	1.05841	182.08	1.84
86/ 2/27	2446488.5	-57.59949	-8.41048	-1.48126	0.17021	-0.92201	-0.49576	58.22913	1.06059	188.31	-1.46
86/ 2/27	2446489.0	-56.02862	-14.57565	-4.81891	0.29324	-0.89625	-0.48861	58.09369	1.06207	194.58	-4.76
86/ 2/28	2446489.5	-53.63513	-20.52058	-8.08336	0.41278	-0.85704	-0.47416	57.99277	1.06289	200.94	-8.01
86/ 2/28	2446490.0	-50.44954	-26.15580	-11.22568	0.52681	-0.80490	-0.45258	57.92493	1.06312	207.40	-11.17

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
86/ 3/ 1	2446490.5	-46.51577	-31.39625	-14.19855	0.63341	-0.74062	-0.42418	57.88817	1.06285	214.02	-14.20
86/ 3/ 1	2446491.0	-41.89032	-36.16297	-16.95723	0.73078	-0.66520	-0.38941	57.88011	1.06216	220.80	-17.04
86/ 3/ 2	2446491.5	-36.64114	-40.38465	-19.46039	0.81734	-0.57989	-0.34884	57.89819	1.06113	227.78	-19.64
86/ 3/ 2	2446492.0	-30.84628	-43.99889	-21.67092	0.89171	-0.48608	-0.30312	57.93983	1.05986	234.97	-21.96
86/ 3/ 3	2446492.5	-24.59230	-46.95333	-23.55652	0.95274	-0.38532	-0.25302	58.00264	1.05840	242.36	-23.96
86/ 3/ 3	2446493.0	-17.97264	-49.20644	-25.09030	0.99957	-0.27926	-0.19937	58.08453	1.05682	249.94	-25.59
86/ 3/ 4	2446493.5	-11.08579	-50.72810	-26.25112	1.03156	-0.16962	-0.14304	58.18381	1.05515	257.67	-26.82
86/ 3/ 4	2446494.0	-4.03351	-51.49990	-27.02387	1.04838	-0.05813	-0.08493	58.29921	1.05342	265.52	-27.62
86/ 3/ 5	2446494.5	3.08099	-51.51530	-27.39964	1.04994	0.05346	-0.02597	58.42995	1.05162	273.42	-27.96
86/ 3/ 5	2446495.0	10.15482	-50.77944	-27.37574	1.03642	0.16343	0.03294	58.57562	1.04974	281.31	-27.86
86/ 3/ 6	2446495.5	17.08712	-49.30888	-26.95560	1.00824	0.27014	0.09089	58.73618	1.04776	289.11	-27.32
86/ 3/ 6	2446496.0	23.78072	-47.13098	-26.14859	0.96606	0.37205	0.14704	58.91181	1.04562	296.77	-26.35
86/ 3/ 7	2446496.5	30.14361	-44.28330	-24.96975	0.91075	0.46770	0.20056	59.10277	1.04328	304.24	-24.99
86/ 3/ 7	2446497.0	36.09037	-40.81266	-23.43938	0.84337	0.55580	0.25073	59.30930	1.04070	311.49	-23.28
86/ 3/ 8	2446497.5	41.54334	-36.77413	-21.58254	0.76515	0.63522	0.29686	59.53143	1.03783	318.48	-21.26
86/ 3/ 8	2446498.0	46.43366	-32.22990	-19.42855	0.67746	0.70498	0.33838	59.76888	1.03463	325.24	-18.97
86/ 3/ 9	2446498.5	50.70210	-27.24804	-17.01034	0.58177	0.76433	0.37481	60.02092	1.03109	331.75	-16.46
86/ 3/ 9	2446499.0	54.29963	-21.90119	-14.36383	0.47961	0.81268	0.40575	60.28625	1.02718	338.03	-13.78
86/ 3/10	2446499.5	57.18777	-16.26528	-11.52720	0.37255	0.84965	0.43091	60.56300	1.02293	344.12	-10.97
86/ 3/10	2446500.0	59.33871	-10.41816	-8.54024	0.26218	0.87503	0.45011	60.84864	1.01834	350.04	-8.07
86/ 3/11	2446500.5	60.73523	-4.43840	-5.44370	0.15003	0.88882	0.46326	61.14002	1.01347	355.82	-5.11
86/ 3/11	2446501.0	61.37038	1.59589	-2.27858	0.03759	0.89117	0.47037	61.43340	1.00839	1.49	-2.13
86/ 3/12	2446501.5	61.24700	7.60812	0.91436	-0.07373	0.88237	0.47150	61.72451	1.00316	7.08	0.85
86/ 3/12	2446502.0	60.37716	13.52414	4.09517	-0.18262	0.86284	0.46682	62.00867	0.99788	12.63	3.79
86/ 3/13	2446502.5	58.78142	19.27299	7.22516	-0.28789	0.83310	0.45653	62.28086	0.99265	18.15	6.66
86/ 3/13	2446503.0	56.48807	24.78755	10.26724	-0.38845	0.79376	0.44091	62.53592	0.98760	23.69	9.45
86/ 3/14	2446503.5	53.53241	30.00499	13.18625	-0.48331	0.74548	0.42024	62.76859	0.98282	29.27	12.13
86/ 3/14	2446504.0	49.95597	34.86717	15.94915	-0.57163	0.68897	0.39487	62.97376	0.97845	34.91	14.67
86/ 3/15	2446504.5	45.80577	39.32085	18.52522	-0.65262	0.62498	0.36513	63.14650	0.97460	40.64	17.06
86/ 3/15	2446505.0	41.13369	43.31786	20.88619	-0.72563	0.55425	0.33141	63.28231	0.97137	46.48	19.27
86/ 3/16	2446505.5	35.99587	46.81525	23.00630	-0.79006	0.47757	0.29407	63.37712	0.96889	52.44	21.28
86/ 3/16	2446506.0	30.45221	49.77526	24.86236	-0.84539	0.39570	0.25350	63.42752	0.96723	58.54	23.08
86/ 3/17	2446506.5	24.56593	52.16544	26.43382	-0.89116	0.30943	0.21010	63.43078	0.96647	64.78	24.63
86/ 3/17	2446507.0	18.40316	53.95865	27.70281	-0.92697	0.21956	0.16425	63.38500	0.96667	71.17	25.92
86/ 3/18	2446507.5	12.03267	55.13317	28.65417	-0.95244	0.12687	0.11637	63.28912	0.96788	77.69	26.92
86/ 3/18	2446508.0	5.52557	55.67278	29.27556	-0.96726	0.03221	0.06688	63.14308	0.97010	84.33	27.62
86/ 3/19	2446508.5	-1.04499	55.56693	29.55752	-0.97113	-0.06358	0.01622	62.94778	0.97335	91.08	28.01
86/ 3/19	2446509.0	-7.60404	54.81095	29.49366	-0.96382	-0.15962	-0.03516	62.70517	0.97758	97.90	28.06
86/ 3/20	2446509.5	-14.07511	53.40634	29.08075	-0.94513	-0.25496	-0.08677	62.41823	0.98275	104.76	27.77
86/ 3/20	2446510.0	-20.38062	51.36106	28.31897	-0.91492	-0.34863	-0.13809	62.09100	0.98878	111.64	27.13
86/ 3/21	2446510.5	-26.44232	48.68998	27.21212	-0.87313	-0.43958	-0.18857	61.72852	0.99556	118.51	26.16
86/ 3/21	2446511.0	-32.18189	45.41523	25.76786	-0.81981	-0.52670	-0.23762	61.33677	1.00298	125.32	24.84
86/ 3/22	2446511.5	-37.52170	41.56663	23.99800	-0.75512	-0.60883	-0.28461	60.92263	1.01088	132.07	23.20
86/ 3/22	2446512.0	-42.38569	37.18209	21.91871	-0.67937	-0.68475	-0.32888	60.49367	1.01911	138.74	21.24
86/ 3/23	2446512.5	-46.70054	32.30792	19.55078	-0.59306	-0.75321	-0.36972	60.05809	1.02749	145.32	19.00

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
86/ 3/23	2446513.0	-50.39696	26.99899	16.91979	-0.49689	-0.81292	-0.40644	59.62448	1.03583	151.82	16.49
86/ 3/24	2446513.5	-53.41125	21.31875	14.05614	-0.39181	-0.86265	-0.43831	59.20157	1.04393	158.24	13.73
86/ 3/24	2446514.0	-55.68694	15.33892	10.99503	-0.27901	-0.90120	-0.46464	58.79803	1.05161	164.60	10.78
86/ 3/25	2446514.5	-57.17655	9.13894	7.77622	-0.15995	-0.92749	-0.48477	58.42215	1.05869	170.92	7.65
86/ 3/25	2446515.0	-57.84335	2.80503	4.44365	-0.03635	-0.94061	-0.49814	58.08156	1.06499	177.22	4.39
86/ 3/26	2446515.5	-57.66306	-3.57114	1.04481	0.08985	-0.93987	-0.50427	57.78298	1.07039	183.54	1.04
86/ 3/26	2446516.0	-56.62519	-9.89410	-2.37008	0.21652	-0.92486	-0.50284	57.53193	1.07475	189.91	-2.36
86/ 3/27	2446516.5	-54.73419	-16.06661	-5.74907	0.34139	-0.89545	-0.49366	57.33253	1.07800	196.36	-5.76
86/ 3/27	2446517.0	-52.01001	-21.99185	-9.03963	0.46216	-0.85191	-0.47674	57.18739	1.08010	202.92	-9.09
86/ 3/28	2446517.5	-48.48823	-27.57582	-12.18993	0.57655	-0.79481	-0.45229	57.09754	1.08106	209.63	-12.33
86/ 3/28	2446518.0	-44.21952	-32.72966	-15.15007	0.68238	-0.72507	-0.42067	57.06243	1.08090	216.51	-15.40
86/ 3/29	2446518.5	-39.26858	-37.37186	-17.87335	0.77769	-0.64395	-0.38245	57.08007	1.07970	223.58	-18.25
86/ 3/29	2446519.0	-33.71264	-41.43024	-20.31736	0.86077	-0.55294	-0.33833	57.14719	1.07756	230.86	-20.83
86/ 3/30	2446519.5	-27.63946	-44.84347	-22.44493	0.93022	-0.45375	-0.28916	57.25951	1.07462	238.35	-23.08
86/ 3/30	2446520.0	-21.14512	-47.56231	-24.22489	0.98499	-0.34821	-0.23584	57.41197	1.07102	246.03	-24.96
86/ 3/31	2446520.5	-14.33167	-49.55028	-25.63252	1.02437	-0.23825	-0.17938	57.59907	1.06690	253.87	-26.42
86/ 3/31	2446521.0	-7.30474	-50.78396	-26.64991	1.04800	-0.12579	-0.12077	57.81511	1.06241	261.81	-27.45
86/ 4/ 1	2446521.5	-0.17127	-51.25293	-27.26595	1.05585	-0.01274	-0.06103	58.05449	1.05769	269.81	-28.01
86/ 4/ 1	2446522.0	6.96263	-50.95932	-27.47629	1.04819	0.09909	-0.00113	58.31190	1.05287	277.78	-28.11
86/ 4/ 2	2446522.5	13.99355	-49.91718	-27.28303	1.02555	0.20802	0.05800	58.58249	1.04804	285.66	-27.76
86/ 4/ 2	2446523.0	20.82245	-48.15156	-26.69436	0.98868	0.31248	0.11549	58.86201	1.04330	293.39	-26.97
86/ 4/ 3	2446523.5	27.35603	-45.69757	-25.72413	0.93852	0.41108	0.17055	59.14686	1.03869	300.91	-25.78
86/ 4/ 3	2446524.0	33.50792	-42.59925	-24.39129	0.87616	0.50255	0.22245	59.43410	1.03426	308.19	-24.23
86/ 4/ 4	2446524.5	39.19956	-38.90852	-22.71941	0.80282	0.58585	0.27057	59.72144	1.03002	315.21	-22.36
86/ 4/ 4	2446525.0	44.36100	-34.68396	-20.73602	0.71981	0.66005	0.31435	60.00715	1.02597	321.98	-20.22
86/ 4/ 5	2446525.5	48.93135	-29.98975	-18.47213	0.62851	0.72442	0.35333	60.28998	1.02209	328.50	-17.84
86/ 4/ 5	2446526.0	52.85926	-24.89450	-15.96161	0.53034	0.77839	0.38712	60.56905	1.01834	334.78	-15.28
86/ 4/ 6	2446526.5	56.10308	-19.47019	-13.24059	0.42675	0.82154	0.41544	60.84371	1.01471	340.86	-12.57
86/ 4/ 6	2446527.0	58.63099	-13.79108	-10.34697	0.31918	0.85360	0.43806	61.11340	1.01114	346.76	-9.75
86/ 4/ 7	2446527.5	60.42099	-7.93273	-7.31983	0.20908	0.87446	0.45485	61.37755	1.00761	352.52	-6.85
86/ 4/ 7	2446528.0	61.46070	-1.97101	-4.19891	0.09786	0.88414	0.46575	61.63549	1.00409	358.16	-3.91
86/ 4/ 8	2446528.5	61.74715	4.01883	-1.02413	-0.01312	0.88280	0.47077	61.88627	1.00056	3.72	-0.95
86/ 4/ 8	2446529.0	61.28642	9.96300	2.16491	-0.12257	0.87071	0.46998	62.12868	0.99701	9.23	2.00
86/ 4/ 9	2446529.5	60.09316	15.78995	5.32935	-0.22923	0.84826	0.46353	62.36115	0.99345	14.72	4.90
86/ 4/ 9	2446530.0	58.19012	21.43107	8.43148	-0.33198	0.81592	0.45162	62.58171	0.98990	20.22	7.74
86/ 4/10	2446530.5	55.60749	26.82131	11.43509	-0.42974	0.77427	0.43448	62.78803	0.98638	25.75	10.49
86/ 4/10	2446531.0	52.38233	31.89967	14.30578	-0.52156	0.72394	0.41242	62.97740	0.98295	31.34	13.13
86/ 4/11	2446531.5	48.55793	36.60968	17.01122	-0.60656	0.66562	0.38574	63.14683	0.97967	37.01	15.63
86/ 4/11	2446532.0	44.18308	40.89968	19.52137	-0.68398	0.60004	0.35481	63.29307	0.97661	42.79	17.96
86/ 4/12	2446532.5	39.31151	44.72312	21.80866	-0.75313	0.52798	0.32000	63.41270	0.97384	48.68	20.12
86/ 4/12	2446533.0	34.00123	48.03876	23.84812	-0.81344	0.45022	0.28169	63.50227	0.97146	54.71	22.06
86/ 4/13	2446533.5	28.31392	50.81079	25.61746	-0.86438	0.36759	0.24030	63.55839	0.96955	60.87	23.77
86/ 4/13	2446534.0	22.31449	53.00889	27.09719	-0.90554	0.28089	0.19624	63.57780	0.96820	67.17	25.23
86/ 4/14	2446534.5	16.07047	54.60838	28.27065	-0.93655	0.19096	0.14993	63.55757	0.96751	73.60	26.41
86/ 4/14	2446535.0	9.65168	55.59019	29.12407	-0.95711	0.09863	0.10181	63.49516	0.96755	80.15	27.30

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
86/ 4/15	2446535.5	3.12975	55.94096	29.64664	-0.96697	0.00476	0.05231	63.38856	0.96840	86.80	27.88
86/ 4/15	2446536.0	-3.42220	55.65312	29.83054	-0.96595	-0.08980	0.00188	63.23640	0.97011	93.52	28.15
86/ 4/16	2446536.5	-9.92993	54.72497	29.67102	-0.95389	-0.18417	-0.04902	63.03805	0.97274	100.28	28.08
86/ 4/16	2446537.0	-16.31840	53.16085	29.16652	-0.93072	-0.27745	-0.09991	62.79373	0.97632	107.06	27.68
86/ 4/17	2446537.5	-22.51217	50.97130	28.31876	-0.89640	-0.36869	-0.15030	62.50459	0.98084	113.83	26.94
86/ 4/17	2446538.0	-28.43575	48.17333	27.13289	-0.85095	-0.45694	-0.19966	62.17278	0.98629	120.55	25.88
86/ 4/18	2446538.5	-34.01413	44.79065	25.61769	-0.79449	-0.54118	-0.24746	61.80153	0.99263	127.21	24.49
86/ 4/18	2446539.0	-39.17336	40.85401	23.78573	-0.72722	-0.62034	-0.29310	61.39514	0.99979	133.80	22.79
86/ 4/19	2446539.5	-43.84124	36.40152	21.65359	-0.64946	-0.69332	-0.33599	60.95903	1.00766	140.30	20.81
86/ 4/19	2446540.0	-47.94825	31.47890	19.24206	-0.56169	-0.75897	-0.37550	60.49969	1.01613	146.71	18.55
86/ 4/20	2446540.5	-51.42856	26.13975	16.57631	-0.46452	-0.81612	-0.41095	60.02464	1.02505	153.06	16.03
86/ 4/20	2446541.0	-54.22130	20.44566	13.68603	-0.35881	-0.86359	-0.44169	59.54227	1.03422	159.34	13.29
86/ 4/21	2446541.5	-56.27204	14.46615	10.60547	-0.24561	-0.90022	-0.46703	59.06173	1.04347	165.58	10.34
86/ 4/21	2446542.0	-57.53439	8.27839	7.37337	-0.12625	-0.92491	-0.48633	58.59270	1.05257	171.81	7.23
86/ 4/22	2446542.5	-57.97176	1.96662	4.03273	-0.00229	-0.93669	-0.49898	58.14512	1.06131	178.06	3.98
86/ 4/22	2446543.0	-57.55914	-4.37886	0.63040	0.12442	-0.93475	-0.50447	57.72890	1.06945	184.35	0.63
86/ 4/23	2446543.5	-56.28481	-10.66305	-2.78361	0.25181	-0.91852	-0.50237	57.35354	1.07678	190.73	-2.78
86/ 4/23	2446544.0	-54.15181	-16.78804	-6.15695	0.37759	-0.88772	-0.49243	57.02775	1.08310	197.22	-6.20
86/ 4/24	2446544.5	-51.17908	-22.65519	-9.43608	0.49936	-0.84242	-0.47455	56.75910	1.08823	203.88	-9.57
86/ 4/24	2446545.0	-47.40207	-28.16763	-12.56754	0.61468	-0.78308	-0.44886	56.55365	1.09203	210.72	-12.84
86/ 4/25	2446545.5	-42.87268	-33.23294	-15.49942	0.72115	-0.71056	-0.41569	56.41566	1.09441	217.78	-15.95
86/ 4/25	2446546.0	-37.65858	-37.76579	-18.18274	0.81652	-0.62609	-0.37558	56.34746	1.09533	225.08	-18.83
86/ 4/26	2446546.5	-31.84171	-41.69049	-20.57297	0.89883	-0.53127	-0.32928	56.34926	1.09479	232.63	-21.41
86/ 4/26	2446547.0	-25.51627	-44.94314	-22.63120	0.96646	-0.42797	-0.27771	56.41930	1.09285	240.41	-23.65
86/ 4/27	2446547.5	-18.78604	-47.47328	-24.32522	1.01820	-0.31828	-0.22191	56.55390	1.08962	248.41	-25.48
86/ 4/27	2446548.0	-11.76151	-49.24501	-25.63021	1.05328	-0.20439	-0.16302	56.74779	1.08524	256.57	-26.85
86/ 4/28	2446548.5	-4.55680	-50.23742	-26.52917	1.07139	-0.08851	-0.10221	56.99438	1.07989	264.82	-27.74
86/ 4/28	2446549.0	2.71330	-50.44442	-27.01297	1.07264	0.02719	-0.04062	57.28614	1.07375	273.08	-28.13
86/ 4/29	2446549.5	9.93609	-49.87412	-27.08014	1.05753	0.14069	0.02064	57.61499	1.06705	281.27	-28.04
86/ 4/29	2446550.0	17.00332	-48.54771	-26.73642	1.02686	0.25017	0.08055	57.97266	1.05996	289.30	-27.46
86/ 4/30	2446550.5	23.81316	-46.49815	-25.99416	0.98172	0.35398	0.13818	58.35102	1.05270	297.12	-26.45
86/ 4/30	2446551.0	30.27170	-43.76862	-24.87156	0.92335	0.45075	0.19274	58.74234	1.04542	304.67	-25.05
86/ 5/ 1	2446551.5	36.29407	-40.41096	-23.39190	0.85316	0.53929	0.24352	59.13955	1.03828	311.93	-23.30
86/ 5/ 1	2446552.0	41.80513	-36.48412	-21.58276	0.77262	0.61868	0.28994	59.53634	1.03139	318.89	-21.25
86/ 5/ 2	2446552.5	46.73991	-32.05270	-19.47524	0.68324	0.68819	0.33156	59.92729	1.02487	325.56	-18.96
86/ 5/ 2	2446553.0	51.04374	-27.18558	-17.10326	0.58656	0.74727	0.36798	60.30788	1.01876	331.96	-16.48
86/ 5/ 3	2446553.5	54.67222	-21.95470	-14.50290	0.48407	0.79555	0.39896	60.67450	1.01311	338.12	-13.83
86/ 5/ 3	2446554.0	57.59106	-16.43396	-11.71180	0.37725	0.83284	0.42428	61.02435	1.00794	344.07	-11.06
86/ 5/ 4	2446554.5	59.77580	-10.69825	-8.76864	0.26752	0.85903	0.44385	61.35542	1.00325	349.85	-8.22
86/ 5/ 4	2446555.0	61.21147	-4.82259	-5.71265	0.15628	0.87418	0.45760	61.66633	0.99900	355.50	-5.32
86/ 5/ 5	2446555.5	61.89224	1.11867	-2.58315	0.04482	0.87843	0.46556	61.95623	0.99519	1.04	-2.39
86/ 5/ 5	2446556.0	61.82099	7.05253	0.58077	-0.06559	0.87204	0.46778	62.22467	0.99175	6.51	0.53
86/ 5/ 6	2446556.5	61.00887	12.90793	3.74069	-0.17376	0.85533	0.46440	62.47151	0.98866	11.95	3.43
86/ 5/ 6	2446557.0	59.47490	18.61639	6.85911	-0.27857	0.82873	0.45556	62.69674	0.98586	17.38	6.28
86/ 5/ 7	2446557.5	57.24543	24.11249	9.89983	-0.37896	0.79271	0.44149	62.90038	0.98332	22.84	9.06

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/ 5/ 7	2446558.0	54.35371	29.33435	12.82816	-0.47397	0.74784	0.42242	63.08242	0.98099	28.36	11.73
86/ 5/ 8	2446558.5	50.83934	34.22406	15.61122	-0.56268	0.69473	0.39864	63.24266	0.97887	33.95	14.29
86/ 5/ 8	2446559.0	46.74775	38.72804	18.21814	-0.64429	0.63406	0.37046	63.38070	0.97692	39.64	16.70
86/ 5/ 9	2446559.5	42.12967	42.79744	20.62029	-0.71803	0.56653	0.33823	63.49588	0.97515	45.45	18.95
86/ 5/ 9	2446560.0	37.04059	46.38835	22.79144	-0.78327	0.49289	0.30232	63.58722	0.97357	51.39	21.00
86/ 5/10	2446560.5	31.54019	49.46211	24.70797	-0.83940	0.41395	0.26311	63.65349	0.97220	57.48	22.84
86/ 5/10	2446561.0	25.69179	51.98547	26.34895	-0.88595	0.33050	0.22102	63.69321	0.97108	63.70	24.44
86/ 5/11	2446561.5	19.56182	53.93082	27.69629	-0.92249	0.24340	0.17647	63.70465	0.97024	70.06	25.77
86/ 5/11	2446562.0	13.21927	55.27623	28.73483	-0.94867	0.15349	0.12990	63.68596	0.96975	76.55	26.82
86/ 5/12	2446562.5	6.73517	56.00564	29.45241	-0.96425	0.06165	0.08177	63.63520	0.96967	83.14	27.57
86/ 5/12	2446563.0	0.18211	56.10887	29.83995	-0.96901	-0.03127	0.03252	63.55046	0.97006	89.81	28.00
86/ 5/13	2446563.5	-6.36627	55.58171	29.89149	-0.96285	-0.12435	-0.01737	63.42994	0.97100	96.53	28.12
86/ 5/13	2446564.0	-12.83568	54.42600	29.60427	-0.94569	-0.21672	-0.06743	63.27209	0.97255	103.27	27.90
86/ 5/14	2446564.5	-19.15173	52.64967	28.97876	-0.91756	-0.30747	-0.11718	63.07570	0.97478	109.99	27.35
86/ 5/14	2446565.0	-25.24028	50.26682	28.01877	-0.87854	-0.39567	-0.16612	62.84008	0.97774	116.66	26.48
86/ 5/15	2446565.5	-31.02799	47.29784	26.73146	-0.82876	-0.48039	-0.21375	62.56511	0.98148	123.27	25.29
86/ 5/15	2446566.0	-36.44278	43.76951	25.12749	-0.76846	-0.56068	-0.25954	62.25140	0.98603	129.78	23.81
86/ 5/16	2446566.5	-41.41438	39.71509	23.22106	-0.69795	-0.63557	-0.30297	61.90038	0.99140	136.20	22.03
86/ 5/16	2446567.0	-45.87496	35.17455	21.03007	-0.61764	-0.70407	-0.34348	61.51443	0.99758	142.52	19.99
86/ 5/17	2446567.5	-49.75984	30.19463	18.57618	-0.52805	-0.76515	-0.38051	61.09691	1.00453	148.75	17.70
86/ 5/17	2446568.0	-53.00837	24.82900	15.88496	-0.42985	-0.81779	-0.41347	60.65228	1.01218	154.90	15.18
86/ 5/18	2446568.5	-55.56490	19.13829	12.98592	-0.32385	-0.86097	-0.44178	60.18609	1.02045	160.99	12.46
86/ 5/18	2446569.0	-57.37989	13.19004	9.91257	-0.21106	-0.89367	-0.46484	59.70500	1.02921	167.05	9.56
86/ 5/19	2446569.5	-58.41125	7.05855	6.70237	-0.09267	-0.91493	-0.48209	59.21671	1.03831	173.11	6.50
86/ 5/19	2446570.0	-58.62575	0.82441	3.39661	0.02989	-0.92384	-0.49297	58.72985	1.04757	179.19	3.32
86/ 5/20	2446570.5	-58.00058	-5.42612	0.04008	0.15499	-0.91965	-0.49701	58.25385	1.05678	185.34	0.04
86/ 5/20	2446571.0	-56.52485	-11.60212	-3.31936	0.28072	-0.90176	-0.49377	57.79867	1.06573	191.60	-3.29
86/ 5/21	2446571.5	-54.20118	-17.60942	-6.63141	0.40501	-0.86980	-0.48298	57.37452	1.07417	198.00	-6.64
86/ 5/21	2446572.0	-51.04696	-23.35232	-9.84425	0.52559	-0.82370	-0.46447	56.99151	1.08187	204.58	-9.95
86/ 5/22	2446572.5	-47.09535	-28.73575	-12.90563	0.64008	-0.76373	-0.43827	56.65925	1.08860	211.39	-13.17
86/ 5/22	2446573.0	-42.39577	-33.66777	-15.76410	0.74606	-0.69054	-0.40461	56.38641	1.09415	218.45	-16.23
86/ 5/23	2446573.5	-37.01378	-38.06218	-18.37053	0.84121	-0.60518	-0.36393	56.18030	1.09833	225.80	-19.09
86/ 5/23	2446574.0	-31.03020	-41.84129	-20.67951	0.92337	-0.50911	-0.31690	56.04649	1.10101	233.44	-21.65
86/ 5/24	2446574.5	-24.53954	-44.93844	-22.65086	0.99067	-0.40413	-0.26439	55.98851	1.10211	241.36	-23.86
86/ 5/24	2446575.0	-17.64767	-47.30025	-24.25088	1.04163	-0.29234	-0.20744	56.00767	1.10159	249.54	-25.66
86/ 5/25	2446575.5	-10.46888	-48.88831	-25.45345	1.07526	-0.17605	-0.14723	56.10296	1.09948	257.91	-26.98
86/ 5/25	2446576.0	-3.12263	-49.68019	-26.24068	1.09104	-0.05764	-0.08501	56.27118	1.09587	266.40	-27.80
86/ 5/26	2446576.5	4.26995	-49.66972	-26.60329	1.08899	0.06049	-0.02205	56.50707	1.09089	274.91	-28.09
86/ 5/26	2446577.0	11.58941	-48.86661	-26.54050	1.06957	0.17606	0.04041	56.80368	1.08472	283.34	-27.85
86/ 5/27	2446577.5	18.72103	-47.29534	-26.05967	1.03370	0.28699	0.10121	57.15271	1.07756	291.60	-27.13
86/ 5/27	2446578.0	25.55741	-44.99369	-25.17556	0.98262	0.39146	0.15933	57.54496	1.06965	299.60	-25.94
86/ 5/28	2446578.5	32.00047	-42.01081	-23.90951	0.91782	0.48792	0.21386	57.97071	1.06122	307.30	-24.36
86/ 5/28	2446579.0	37.96287	-38.40529	-22.28837	0.84097	0.57514	0.26407	58.42018	1.05250	314.67	-22.43
86/ 5/29	2446579.5	43.36889	-34.24303	-20.34350	0.75382	0.65218	0.30937	58.88381	1.04370	321.71	-20.21
86/ 5/29	2446580.0	48.15479	-29.59541	-18.10974	0.65815	0.71837	0.34932	59.35263	1.03501	328.43	-17.77

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
86/ 5/30	2446580.5	52.26881	-24.53749	-15.62453	0.55571	0.77329	0.38359	59.81841	1.02661	334.85	-15.14
86/ 5/30	2446581.0	55.67085	-19.14647	-12.92699	0.44818	0.81671	0.41199	60.27386	1.01864	341.02	-12.38
86/ 5/31	2446581.5	58.33198	-13.50042	-10.05729	0.33718	0.84860	0.43442	60.71269	1.01121	346.97	-9.54
86/ 5/31	2446582.0	60.23383	-7.67720	-7.05599	0.22421	0.86906	0.45085	61.12970	1.00439	352.74	-6.63
86/ 6/ 1	2446582.5	61.36786	-1.75355	-3.96355	0.11068	0.87831	0.46134	61.52072	0.99825	358.36	-3.69
86/ 6/ 1	2446583.0	61.73474	4.19563	-0.81991	-0.00211	0.87666	0.46599	61.88258	0.99281	3.89	-0.76
86/ 6/ 2	2446583.5	61.34362	10.09783	2.33585	-0.11296	0.86450	0.46495	62.21304	0.98808	9.35	2.15
86/ 6/ 2	2446584.0	60.21154	15.88339	5.46580	-0.22074	0.84230	0.45840	62.51069	0.98403	14.78	5.02
86/ 6/ 3	2446584.5	58.36280	21.48594	8.53338	-0.32442	0.81055	0.44657	62.77485	0.98065	20.21	7.81
86/ 6/ 3	2446585.0	55.82846	26.84272	11.50364	-0.42304	0.76982	0.42971	63.00541	0.97787	25.68	10.52
86/ 6/ 4	2446585.5	52.64578	31.89484	14.34339	-0.51572	0.72069	0.40808	63.20278	0.97565	31.21	13.12
86/ 6/ 4	2446586.0	48.85779	36.58760	17.02141	-0.60165	0.66381	0.38200	63.36769	0.97394	36.83	15.58
86/ 6/ 5	2446586.5	44.51279	40.87077	19.50856	-0.68009	0.59985	0.35178	63.50112	0.97267	42.56	17.89
86/ 6/ 5	2446587.0	39.66391	44.69876	21.77800	-0.75034	0.52952	0.31777	63.60414	0.97179	48.42	20.02
86/ 6/ 6	2446587.5	34.36864	48.03094	23.80528	-0.81180	0.45357	0.28033	63.67783	0.97125	54.41	21.95
86/ 6/ 6	2446588.0	28.68841	50.83179	25.56851	-0.86393	0.37276	0.23986	63.72319	0.97101	60.56	23.66
86/ 6/ 7	2446588.5	22.68806	53.07119	27.04851	-0.90625	0.28791	0.19677	63.74105	0.97103	66.85	25.11
86/ 6/ 7	2446589.0	16.43545	54.72456	28.22892	-0.93837	0.19985	0.15147	63.73204	0.97130	73.28	26.29
86/ 6/ 8	2446589.5	10.00086	55.77310	29.09633	-0.95994	0.10945	0.10442	63.69656	0.97179	79.83	27.18
86/ 6/ 8	2446590.0	3.45653	56.20391	29.64043	-0.97074	0.01759	0.05607	63.63475	0.97251	86.48	27.76
86/ 6/ 9	2446590.5	-3.12388	56.01015	29.85403	-0.97058	-0.07482	0.00691	63.54651	0.97348	93.19	28.02
86/ 6/ 9	2446591.0	-9.66588	55.19116	29.73321	-0.95938	-0.16688	-0.04260	63.43152	0.97472	99.93	27.95
86/ 6/10	2446591.5	-16.09465	53.75248	29.27737	-0.93715	-0.25766	-0.09194	63.28926	0.97627	106.67	27.55
86/ 6/10	2446592.0	-22.33567	51.70597	28.48926	-0.90396	-0.34621	-0.14063	63.11915	0.97816	113.36	26.83
86/ 6/11	2446592.5	-28.31525	49.06982	27.37506	-0.85999	-0.43162	-0.18815	62.92054	0.98044	119.99	25.79
86/ 6/11	2446593.0	-33.96115	45.86858	25.94442	-0.80548	-0.51293	-0.23399	62.69290	0.98318	126.52	24.45
86/ 6/12	2446593.5	-39.20315	42.13314	24.21046	-0.74079	-0.58920	-0.27763	62.43585	0.98641	132.94	22.82
86/ 6/12	2446594.0	-43.97374	37.90075	22.18982	-0.66635	-0.65952	-0.31856	62.14937	0.99019	139.24	20.92
86/ 6/13	2446594.5	-48.20872	33.21492	19.90265	-0.58272	-0.72295	-0.35625	61.83386	0.99455	145.43	18.78
86/ 6/13	2446595.0	-51.84794	28.12543	17.37260	-0.49055	-0.77857	-0.39019	61.49029	0.99953	151.52	16.41
86/ 6/14	2446595.5	-54.83605	22.68819	14.62685	-0.39060	-0.82549	-0.41986	61.12030	1.00513	157.52	13.85
86/ 6/14	2446596.0	-57.12335	16.96509	11.69602	-0.28376	-0.86283	-0.44476	60.72634	1.01134	163.46	11.10
86/ 6/15	2446596.5	-58.66664	11.02384	8.61413	-0.17108	-0.88977	-0.46439	60.31172	1.01814	169.36	8.21
86/ 6/15	2446597.0	-59.43032	4.93763	5.41846	-0.05376	-0.90552	-0.47828	59.88073	1.02547	175.25	5.19
86/ 6/16	2446597.5	-59.38737	-1.21531	2.14941	0.06686	-0.90937	-0.48599	59.43868	1.03325	181.17	2.07
86/ 6/16	2446598.0	-58.52058	-7.35233	-1.14983	0.18925	-0.90072	-0.48713	58.99184	1.04135	187.16	-1.12
86/ 6/17	2446598.5	-56.82369	-13.38715	-4.43365	0.31169	-0.87913	-0.48139	58.54746	1.04964	193.26	-4.34
86/ 6/17	2446599.0	-54.30256	-19.23102	-7.65453	0.43232	-0.84431	-0.46852	58.11361	1.05795	199.50	-7.57
86/ 6/18	2446599.5	-50.97625	-24.79404	-10.76374	0.54911	-0.79621	-0.44840	57.69905	1.06608	205.94	-10.75
86/ 6/18	2446600.0	-46.87791	-29.98684	-13.71220	0.65993	-0.73505	-0.42106	57.31295	1.07382	212.61	-13.84
86/ 6/19	2446600.5	-42.05537	-34.72262	-16.45148	0.76259	-0.66136	-0.38668	56.96460	1.08096	219.54	-16.79
86/ 6/19	2446601.0	-36.57131	-38.91927	-18.93499	0.85491	-0.57603	-0.34561	56.66308	1.08726	226.78	-19.52
86/ 6/20	2446601.5	-30.50289	-42.50184	-21.11926	0.93482	-0.48027	-0.29842	56.41680	1.09252	234.33	-21.98
86/ 6/20	2446602.0	-23.94073	-45.40491	-22.96529	1.00041	-0.37567	-0.24587	56.23317	1.09654	242.20	-24.10
86/ 6/21	2446602.5	-16.98730	-47.57489	-24.43980	1.05012	-0.26413	-0.18889	56.11811	1.09918	250.35	-25.82

1.10 1 E.R.=6378.3255KM.

		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						MOON		
DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/ 6/21	2446603.0	-9.75452	-48.97198	-25.51644	1.08274	-0.14782	-0.12858	56.07579	1.10032	258.73	-27.07
86/ 6/22	2446603.5	-2.36094	-49.57169	-26.17667	1.09752	-0.02907	-0.06614	56.10833	1.09990	267.27	-27.81
86/ 6/22	2446604.0	5.07157	-49.36567	-26.41042	1.09424	0.08971	-0.00285	56.21566	1.09791	275.87	-28.02
86/ 6/23	2446604.5	12.42122	-48.36189	-26.21629	1.07315	0.20612	0.06000	56.39550	1.09441	284.40	-27.70
86/ 6/23	2446605.0	19.56973	-46.58408	-25.60143	1.03500	0.31791	0.12119	56.64349	1.08949	292.79	-26.87
86/ 6/24	2446605.5	26.40540	-44.07053	-24.58105	0.98099	0.42306	0.17957	56.95335	1.08331	300.93	-25.57
86/ 6/24	2446606.0	32.82568	-40.87233	-23.17760	0.91262	0.51982	0.23415	57.31731	1.07606	308.77	-23.85
86/ 6/25	2446606.5	38.73920	-37.05134	-21.41977	0.83166	0.60676	0.28409	57.72637	1.06795	316.28	-21.78
86/ 6/25	2446607.0	44.06712	-32.67786	-19.34133	0.74002	0.68281	0.32873	58.17079	1.05921	323.44	-19.42
86/ 6/26	2446607.5	48.74387	-27.82839	-16.97997	0.63970	0.74722	0.36757	58.64046	1.05007	330.28	-16.83
86/ 6/26	2446608.0	52.71726	-22.58348	-14.37615	0.53266	0.79953	0.40028	59.12527	1.04077	336.81	-14.07
86/ 6/27	2446608.5	55.94831	-17.02577	-11.57207	0.42080	0.83957	0.42668	59.61546	1.03151	343.07	-11.19
86/ 6/27	2446609.0	58.41051	-11.23834	-8.61074	0.30591	0.86739	0.44671	60.10185	1.02249	349.11	-8.24
86/ 6/28	2446609.5	60.08909	-5.30338	-5.53524	0.18967	0.88319	0.46041	60.57610	1.01389	354.96	-5.24
86/ 6/28	2446610.0	60.98005	0.69895	-2.38807	0.07357	0.88735	0.46790	61.03079	1.00585	0.66	-2.24
86/ 6/29	2446610.5	61.08914	6.69131	0.78932	-0.04100	0.88033	0.46937	61.45958	0.99848	6.25	0.74
86/ 6/29	2446611.0	60.43097	12.59976	3.95687	-0.15280	0.86267	0.46504	61.85719	0.99187	11.78	3.67
86/ 6/30	2446611.5	59.02804	18.35428	7.07626	-0.26074	0.83498	0.45519	62.21947	0.98609	17.27	6.53
86/ 6/30	2446612.0	56.91000	23.88900	10.11105	-0.36382	0.79788	0.44011	62.54331	0.98116	22.77	9.30
86/ 7/ 1	2446612.5	54.11283	29.14248	13.02685	-0.46114	0.75204	0.42011	62.82660	0.97709	28.30	11.97
86/ 7/ 1	2446613.0	50.67831	34.05780	15.79144	-0.55190	0.69814	0.39552	63.06817	0.97387	33.90	14.50
86/ 7/ 2	2446613.5	46.65339	38.58273	18.37487	-0.63536	0.63688	0.36667	63.26770	0.97147	39.59	16.88
86/ 7/ 2	2446614.0	42.08972	42.66984	20.74951	-0.71088	0.56897	0.33392	63.42556	0.96983	45.39	19.10
86/ 7/ 3	2446614.5	37.04325	46.27659	22.89017	-0.77784	0.49516	0.29764	63.54278	0.96892	51.32	21.11
86/ 7/ 3	2446615.0	31.57378	49.36551	24.77418	-0.83570	0.41618	0.25820	63.62088	0.96864	57.40	22.92
86/ 7/ 4	2446615.5	25.74461	51.90427	26.38147	-0.88398	0.33283	0.21599	63.66177	0.96894	63.62	24.48
86/ 7/ 4	2446616.0	19.62213	53.86595	27.69470	-0.92225	0.24591	0.17144	63.66761	0.96974	69.98	25.78
86/ 7/ 5	2446616.5	13.27543	55.22910	28.69936	-0.95013	0.15624	0.12495	63.64074	0.97097	76.48	26.81
86/ 7/ 5	2446617.0	6.77588	55.97803	29.38389	-0.96734	0.06468	0.07698	63.58353	0.97255	83.10	27.52
86/ 7/ 6	2446617.5	0.19667	56.10295	29.73983	-0.97362	-0.02788	0.02800	63.49832	0.97442	89.80	27.93
86/ 7/ 6	2446618.0	-6.38770	55.60017	29.76190	-0.96884	-0.12052	-0.02153	63.38731	0.97654	96.55	28.00
86/ 7/ 7	2446618.5	-12.90195	54.47228	29.44816	-0.95291	-0.21231	-0.07108	63.25254	0.97886	103.33	27.75
86/ 7/ 7	2446619.0	-19.27062	52.72832	28.80008	-0.92586	-0.30229	-0.12017	63.09578	0.98135	110.08	27.16
86/ 7/ 8	2446619.5	-25.41874	50.38381	27.82266	-0.88781	-0.38948	-0.16825	62.91853	0.98398	116.77	26.24
86/ 7/ 8	2446620.0	-31.27247	47.46091	26.52446	-0.83898	-0.47292	-0.21480	62.72203	0.98675	123.38	25.02
86/ 7/ 9	2446620.5	-36.75986	43.98836	24.91765	-0.77970	-0.55163	-0.25929	62.50722	0.98967	129.88	23.49
86/ 7/ 9	2446621.0	-41.81153	40.00147	23.01803	-0.71040	-0.62464	-0.30118	62.27481	0.99275	136.27	21.69
86/ 7/10	2446621.5	-46.36155	35.54203	20.84500	-0.63166	-0.69102	-0.33994	62.02534	0.99602	142.53	19.64
86/ 7/10	2446622.0	-50.34810	30.65812	18.42152	-0.54414	-0.74983	-0.37505	61.75924	0.99950	148.66	17.35
86/ 7/11	2446622.5	-53.71441	25.40390	15.77400	-0.44865	-0.80022	-0.40601	61.47695	1.00324	154.69	14.87
86/ 7/11	2446623.0	-56.40948	19.83930	12.93220	-0.34609	-0.84135	-0.43234	61.17899	1.00726	160.62	12.20
86/ 7/12	2446623.5	-58.38895	14.02965	9.92902	-0.23752	-0.87246	-0.45359	60.86613	1.01161	166.49	9.39
86/ 7/12	2446624.0	-59.61590	8.04520	6.80036	-0.12409	-0.89286	-0.46933	60.53946	1.01630	172.31	6.45
86/ 7/13	2446624.5	-60.06173	1.96063	3.58479	-0.00708	-0.90194	-0.47919	60.20055	1.02136	178.13	3.41
86/ 7/13	2446625.0	-59.70692	-4.14564	0.32331	0.11209	-0.89920	-0.48284	59.85154	1.02677	183.97	0.31

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
86/ 7/14	2446625.5	-58.54189	-10.19220	-2.94108	0.23191	-0.88425	-0.48001	59.49524	1.03252	189.88	-2.83
86/ 7/14	2446626.0	-56.56779	-16.09553	-6.16379	0.35072	-0.85687	-0.47051	59.13521	1.03857	195.88	-5.98
86/ 7/15	2446626.5	-53.79722	-21.77107	-9.29918	0.46680	-0.81699	-0.45422	58.77580	1.04484	202.03	-9.10
86/ 7/15	2446627.0	-50.25485	-27.13444	-12.30121	0.57832	-0.76473	-0.43113	58.42215	1.05125	208.37	-12.16
86/ 7/16	2446627.5	-45.97796	-32.10281	-15.12411	0.68339	-0.70043	-0.40135	58.08013	1.05769	214.92	-15.09
86/ 7/16	2446628.0	-41.01665	-36.59651	-17.72326	0.78010	-0.62468	-0.36511	57.75625	1.06400	221.74	-17.87
86/ 7/17	2446628.5	-35.43393	-40.54075	-20.05611	0.86658	-0.53834	-0.32279	57.45749	1.07003	228.85	-20.43
86/ 7/17	2446629.0	-29.30530	-43.86747	-22.08316	0.94101	-0.44255	-0.27491	57.19109	1.07561	236.26	-22.71
86/ 7/18	2446629.5	-22.71804	-46.51723	-23.76900	1.00175	-0.33870	-0.22216	56.96427	1.08055	243.97	-24.66
86/ 7/18	2446630.0	-15.76991	-48.44113	-25.08343	1.04735	-0.22850	-0.16538	56.78390	1.08467	251.97	-26.21
86/ 7/19	2446630.5	-8.56749	-49.60246	-26.00235	1.07668	-0.11386	-0.10555	56.65622	1.08782	260.20	-27.32
86/ 7/19	2446631.0	-1.22383	-49.97816	-26.50870	1.08896	0.00312	-0.04374	56.58644	1.08984	268.60	-27.93
86/ 7/20	2446631.5	6.14406	-49.55989	-26.59307	1.08382	0.12022	0.01886	56.57847	1.09063	277.07	-28.04
86/ 7/20	2446632.0	13.41822	-48.35446	-26.25413	1.06133	0.23519	0.08106	56.63463	1.09010	285.51	-27.62
86/ 7/21	2446632.5	20.48274	-46.38383	-25.49870	1.02204	0.34582	0.14165	56.75549	1.08822	293.83	-26.70
86/ 7/21	2446633.0	27.22681	-43.68443	-24.34152	0.96690	0.45007	0.19951	56.93978	1.08501	301.93	-25.31
86/ 7/22	2446633.5	33.54742	-40.30591	-22.80474	0.89724	0.54608	0.25358	57.18437	1.08053	309.77	-23.50
86/ 7/22	2446634.0	39.35172	-36.30944	-20.91709	0.81473	0.63230	0.30298	57.48441	1.07489	317.30	-21.34
86/ 7/23	2446634.5	44.55881	-31.76572	-18.71285	0.72122	0.70750	0.34696	57.83355	1.06822	324.52	-18.88
86/ 7/23	2446635.0	49.10101	-26.75268	-16.23077	0.61873	0.77077	0.38495	58.22417	1.06070	331.42	-16.19
86/ 7/24	2446635.5	52.92441	-21.35329	-13.51283	0.50931	0.82152	0.41655	58.64770	1.05252	338.03	-13.32
86/ 7/24	2446636.0	55.98899	-15.65335	-10.60312	0.39499	0.85949	0.44155	59.09501	1.04389	344.38	-10.34
86/ 7/25	2446636.5	58.26821	-9.73955	-7.54680	0.27771	0.88469	0.45985	59.55667	1.03502	350.51	-7.28
86/ 7/25	2446637.0	59.74830	-3.69779	-4.38913	0.15930	0.89734	0.47149	60.02331	1.02611	356.46	-4.19
86/ 7/26	2446637.5	60.42729	2.38822	-1.17469	0.04141	0.89784	0.47664	60.48587	1.01736	2.26	-1.11
86/ 7/26	2446638.0	60.31385	8.43803	2.05318	-0.07446	0.88675	0.47551	60.93584	1.00895	7.96	1.93
86/ 7/27	2446638.5	59.42622	14.37526	5.25296	-0.18699	0.86471	0.46839	61.36544	1.00104	13.60	4.91
86/ 7/27	2446639.0	57.79103	20.12815	8.38520	-0.29503	0.83244	0.45562	61.76776	0.99377	19.20	7.80
86/ 7/28	2446639.5	55.44228	25.62993	11.41283	-0.39754	0.79069	0.43756	62.13689	0.98726	24.81	10.58
86/ 7/28	2446640.0	52.42040	30.81904	14.30126	-0.49366	0.74024	0.41458	62.46790	0.98160	30.45	13.23
86/ 7/29	2446640.5	48.77141	35.63922	17.01851	-0.58261	0.68188	0.38708	62.75694	0.97684	36.16	15.73
86/ 7/29	2446641.0	44.54618	40.03956	19.53526	-0.66371	0.61639	0.35544	63.00122	0.97303	41.95	18.06
86/ 7/30	2446641.5	39.79989	43.97446	21.82484	-0.73638	0.54457	0.32007	63.19896	0.97018	47.85	20.20
86/ 7/30	2446642.0	34.59148	47.40370	23.86330	-0.80009	0.46720	0.28135	63.34934	0.96829	53.88	22.13
86/ 7/31	2446642.5	28.98323	50.29235	25.62939	-0.85438	0.38507	0.23971	63.45246	0.96732	60.05	23.82
86/ 7/31	2446643.0	23.04039	52.61089	27.10462	-0.89883	0.29898	0.19553	63.50925	0.96722	66.35	25.26
86/ 8/ 1	2446643.5	16.83082	54.33520	28.27330	-0.93308	0.20974	0.14925	63.52141	0.96794	72.79	26.43
86/ 8/ 1	2446644.0	10.42471	55.44672	29.12261	-0.95682	0.11817	0.10130	63.49126	0.96940	79.35	27.30
86/ 8/ 2	2446644.5	3.89417	55.93259	29.64271	-0.96979	0.02513	0.05212	63.42168	0.97151	86.02	27.87
86/ 8/ 2	2446645.0	-2.68709	55.78579	29.82682	-0.97177	-0.06850	0.00216	63.31598	0.97418	92.76	28.10
86/ 8/ 3	2446645.5	-9.24421	55.00535	29.67138	-0.96264	-0.16182	-0.04807	63.17780	0.97733	99.54	28.01
86/ 8/ 3	2446646.0	-15.70160	53.59658	29.17615	-0.94232	-0.25389	-0.09809	63.01097	0.98084	106.33	27.58
86/ 8/ 4	2446646.5	-21.98359	51.57127	28.34436	-0.91085	-0.34372	-0.14737	62.81940	0.98464	113.09	26.82
86/ 8/ 4	2446647.0	-28.01496	48.94784	27.18282	-0.86835	-0.43034	-0.19537	62.60699	0.98863	119.78	25.73
86/ 8/ 5	2446647.5	-33.72171	45.75153	25.70205	-0.81504	-0.51272	-0.24154	62.37749	0.99273	126.39	24.33

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/ 8/ 5	2446648.0	-39.03183	42.01446	23.91634	-0.75129	-0.58985	-0.28532	62.13445	0.99688	132.89	22.64
86/ 8/ 6	2446648.5	-43.87617	37.77565	21.84379	-0.67759	-0.66071	-0.32615	61.88109	1.00102	139.27	20.67
86/ 8/ 6	2446649.0	-48.18937	33.08093	19.50632	-0.59457	-0.72431	-0.36346	61.62029	1.00511	145.53	18.45
86/ 8/ 7	2446649.5	-51.91081	27.98275	16.92959	-0.50299	-0.77970	-0.39671	61.35452	1.00911	151.67	16.02
86/ 8/ 7	2446650.0	-54.98559	22.53986	14.14286	-0.40378	-0.82596	-0.42539	61.08585	1.01302	157.71	13.39
86/ 8/ 8	2446650.5	-57.36555	16.81688	11.17881	-0.29800	-0.86228	-0.44900	60.81595	1.01682	163.66	10.59
86/ 8/ 8	2446651.0	-59.01019	10.88371	8.07326	-0.18686	-0.88791	-0.46710	60.54614	1.02053	169.55	7.66
86/ 8/ 9	2446651.5	-59.88758	4.81485	4.86484	-0.07167	-0.90225	-0.47931	60.27746	1.02417	175.40	4.63
86/ 8/ 9	2446652.0	-59.97520	-1.31144	1.59459	0.04610	-0.90480	-0.48531	60.01073	1.02777	181.25	1.52
86/ 8/10	2446652.5	-59.26068	-7.41405	-1.69455	0.16493	-0.89521	-0.48485	59.74670	1.03136	187.13	-1.63
86/ 8/10	2446653.0	-57.74240	-13.41009	-4.95823	0.28317	-0.87331	-0.47777	59.48613	1.03495	193.07	-4.78
86/ 8/11	2446653.5	-55.43000	-19.21599	-8.15131	0.39914	-0.83908	-0.46400	59.22991	1.03859	199.12	-7.91
86/ 8/11	2446654.0	-52.34470	-24.74877	-11.22846	0.51111	-0.79270	-0.44356	58.97922	1.04228	205.30	-10.97
86/ 8/12	2446654.5	-48.51955	-29.92727	-14.14492	0.61733	-0.73455	-0.41658	58.73556	1.04604	211.67	-13.94
86/ 8/12	2446655.0	-43.99932	-34.67355	-16.85715	0.71607	-0.66519	-0.38330	58.50093	1.04983	218.24	-16.75
86/ 8/13	2446655.5	-38.84041	-38.91427	-19.32364	0.80565	-0.58541	-0.34408	58.27779	1.05365	225.05	-19.36
86/ 8/13	2446656.0	-33.11034	-42.58214	-21.50567	0.88447	-0.49621	-0.29939	58.06916	1.05743	232.13	-21.74
86/ 8/14	2446656.5	-26.88713	-45.61732	-23.36811	0.95104	-0.39880	-0.24982	57.87855	1.06110	239.48	-23.81
86/ 8/14	2446657.0	-20.25831	-47.96882	-24.88020	1.00404	-0.29458	-0.19606	57.70989	1.06457	247.10	-25.54
86/ 8/15	2446657.5	-13.31970	-49.59585	-26.01633	1.04235	-0.18515	-0.13894	57.56746	1.06775	254.97	-26.87
86/ 8/15	2446658.0	-6.17387	-50.46896	-26.75670	1.06511	-0.07226	-0.07936	57.45567	1.07050	263.03	-27.76
86/ 8/16	2446658.5	1.07171	-50.57106	-27.08795	1.07174	0.04221	-0.01830	57.37889	1.07272	271.21	-28.17
86/ 8/16	2446659.0	8.30674	-49.89812	-27.00362	1.06198	0.15628	0.04318	57.34125	1.07429	279.45	-28.09
86/ 8/17	2446659.5	15.42042	-48.45956	-26.50443	1.03595	0.26796	0.10402	57.34634	1.07508	287.65	-27.53
86/ 8/17	2446660.0	22.30380	-46.27825	-25.59841	0.99409	0.37528	0.16314	57.39699	1.07502	295.73	-26.49
86/ 8/18	2446660.5	28.85231	-43.39011	-24.30074	0.93722	0.47638	0.21951	57.49507	1.07401	303.62	-25.00
86/ 8/18	2446661.0	34.96802	-39.84327	-22.63342	0.86650	0.56952	0.27215	57.64131	1.07203	311.27	-23.12
86/ 8/19	2446661.5	40.56183	-35.69684	-20.62467	0.78337	0.65320	0.32019	57.83514	1.06905	318.65	-20.89
86/ 8/19	2446662.0	45.55520	-31.01935	-18.30819	0.68950	0.72615	0.36291	58.07466	1.06509	325.75	-18.38
86/ 8/20	2446662.5	49.88165	-25.88689	-15.72220	0.58675	0.78741	0.39969	58.35664	1.06020	332.57	-15.63
86/ 8/20	2446663.0	53.48757	-20.38122	-12.90847	0.47707	0.83627	0.43010	58.67660	1.05448	339.14	-12.71
86/ 8/21	2446663.5	56.33277	-14.58769	-9.91120	0.36244	0.87237	0.45385	59.02892	1.04803	345.48	-9.67
86/ 8/21	2446664.0	58.39042	-8.59331	-6.77605	0.24483	0.89558	0.47080	59.40708	1.04099	351.63	-6.55
86/ 8/22	2446664.5	59.64665	-2.48501	-3.54909	0.12609	0.90605	0.48097	59.80379	1.03352	357.61	-3.40
86/ 8/22	2446665.0	60.09985	3.65199	-0.27598	0.00798	0.90413	0.48446	60.21134	1.02578	3.48	-0.26
86/ 8/23	2446665.5	59.75972	9.73544	2.99876	-0.10793	0.89034	0.48150	60.62174	1.01794	9.25	2.84
86/ 8/23	2446666.0	58.64611	15.68715	6.23241	-0.22020	0.86535	0.47238	61.02701	1.01017	14.98	5.86
86/ 8/24	2446666.5	56.78795	21.43372	9.38443	-0.32760	0.82990	0.45746	61.41940	1.00266	20.68	8.79
86/ 8/24	2446667.0	54.22201	26.90709	12.41689	-0.42904	0.78482	0.43714	61.79156	0.99554	26.39	11.59
86/ 8/25	2446667.5	50.99184	32.04493	15.29460	-0.52359	0.73096	0.41184	62.13670	0.98897	32.15	14.25
86/ 8/25	2446668.0	47.14678	36.79073	17.98533	-0.61049	0.66920	0.38200	62.44877	0.98308	37.97	16.74
86/ 8/26	2446668.5	42.74104	41.09394	20.45982	-0.68906	0.60041	0.34806	62.72251	0.97798	43.87	19.04
86/ 8/26	2446669.0	37.83296	44.90991	22.69183	-0.75874	0.52546	0.31047	62.95357	0.97375	49.89	21.13
86/ 8/27	2446669.5	32.48434	48.19983	24.65812	-0.81907	0.44521	0.26966	63.13857	0.97047	56.02	22.99
86/ 8/27	2446670.0	26.75992	50.93066	26.33842	-0.86965	0.36051	0.22609	63.27509	0.96818	62.28	24.60

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
86/ 8/28	2446670.5	20.72690	53.07503	27.71542	-0.91015	0.27218	0.18018	63.36172	0.96691	68.67	25.94
86/ 8/28	2446671.0	14.45461	54.61123	28.77478	-0.94026	0.18106	0.13236	63.39803	0.96664	75.17	26.99
86/ 8/29	2446671.5	8.01416	55.52318	29.50512	-0.95977	0.08798	0.08309	63.38456	0.96737	81.79	27.74
86/ 8/29	2446672.0	1.47813	55.80050	29.89805	-0.96846	-0.00620	0.03281	63.32278	0.96904	88.48	28.17
86/ 8/30	2446672.5	-5.07973	55.43860	29.94827	-0.96619	-0.10063	-0.01803	63.21504	0.97158	95.24	28.28
86/ 8/30	2446673.0	-11.58480	54.43878	29.65363	-0.95286	-0.19442	-0.06895	63.06446	0.97493	102.01	28.05
86/ 8/31	2446673.5	-17.96199	52.80850	29.01525	-0.92843	-0.28665	-0.11945	62.87492	0.97899	108.78	27.48
86/ 8/31	2446674.0	-24.13619	50.56153	28.03766	-0.89293	-0.37636	-0.16902	62.65089	0.98364	115.52	26.58
86/ 9/ 1	2446674.5	-30.03278	47.71820	26.72896	-0.84648	-0.46258	-0.21713	62.39737	0.98877	122.19	25.36
86/ 9/ 1	2446675.0	-35.57830	44.30563	25.10094	-0.78931	-0.54429	-0.26323	62.11973	0.99426	128.77	23.83
86/ 9/ 2	2446675.5	-40.70119	40.35787	23.16920	-0.72175	-0.62044	-0.30672	61.82359	0.99997	135.24	22.01
86/ 9/ 2	2446676.0	-45.33265	35.91609	20.95327	-0.64428	-0.69000	-0.34704	61.51467	1.00580	141.61	19.91
86/ 9/ 3	2446676.5	-49.40763	31.02855	18.47668	-0.55754	-0.75190	-0.38360	61.19863	1.01161	147.87	17.57
86/ 9/ 3	2446677.0	-52.86593	25.75053	15.76690	-0.46233	-0.80514	-0.41581	60.88096	1.01730	154.03	15.01
86/ 9/ 4	2446677.5	-55.65335	20.14404	12.85526	-0.35962	-0.84874	-0.44311	60.56679	1.02275	160.10	12.25
86/ 9/ 4	2446678.0	-57.72288	14.27743	9.77679	-0.25055	-0.88181	-0.46499	60.26078	1.02790	166.11	9.34
86/ 9/ 5	2446678.5	-59.03587	8.22472	6.56988	-0.13645	-0.90357	-0.48097	59.96702	1.03266	172.07	6.29
86/ 9/ 5	2446679.0	-59.56320	2.06478	3.27590	-0.01881	-0.91338	-0.49064	59.68894	1.03699	178.01	3.15
86/ 9/ 6	2446679.5	-59.28627	-4.11974	-0.06134	0.10076	-0.91076	-0.49370	59.42926	1.04085	183.98	-0.06
86/ 9/ 6	2446680.0	-58.19783	-10.24358	-3.39620	0.22053	-0.89543	-0.48991	59.18997	1.04424	189.98	-3.29
86/ 9/ 7	2446680.5	-56.30271	-16.22028	-6.68193	0.33867	-0.86732	-0.47918	58.97237	1.04717	196.07	-6.51
86/ 9/ 7	2446681.0	-53.61810	-21.96367	-9.87146	0.45334	-0.82658	-0.46152	58.77711	1.04965	202.28	-9.67
86/ 9/ 8	2446681.5	-50.17376	-27.38939	-12.91824	0.56271	-0.77360	-0.43706	58.60431	1.05172	208.63	-12.73
86/ 9/ 8	2446682.0	-46.01182	-32.41648	-15.77708	0.66495	-0.70899	-0.40607	58.45367	1.05344	215.17	-15.66
86/ 9/ 9	2446682.5	-41.18631	-36.96894	-18.40501	0.75838	-0.63360	-0.36895	58.32460	1.05485	221.91	-18.39
86/ 9/ 9	2446683.0	-35.76248	-40.97716	-20.76207	0.84138	-0.54848	-0.32619	58.21638	1.05601	228.89	-20.89
86/ 9/10	2446683.5	-29.81578	-44.37933	-22.81214	0.91255	-0.45486	-0.27840	58.12830	1.05696	236.11	-23.11
86/ 9/10	2446684.0	-23.43067	-47.12259	-24.52358	0.97065	-0.35415	-0.22632	58.05980	1.05774	243.56	-24.99
86/ 9/11	2446684.5	-16.69925	-49.16414	-25.86988	1.01467	-0.24791	-0.17072	58.01058	1.05838	251.24	-26.48
86/ 9/11	2446685.0	-9.71963	-50.47206	-26.83015	1.04384	-0.13780	-0.11248	57.98066	1.05888	259.10	-27.56
86/ 9/12	2446685.5	-2.59428	-51.02597	-27.38960	1.05764	-0.02556	-0.05251	57.97042	1.05925	267.09	-28.20
86/ 9/12	2446686.0	4.57177	-50.81747	-27.53976	1.05584	0.08703	0.00822	57.98064	1.05945	275.14	-28.36
86/ 9/13	2446686.5	11.67285	-49.85030	-27.27871	1.03848	0.19817	0.06875	58.01238	1.05946	283.18	-28.05
86/ 9/13	2446687.0	18.60453	-48.14036	-26.61111	1.00589	0.30608	0.12811	58.06698	1.05921	291.13	-27.28
86/ 9/14	2446687.5	25.26551	-45.71532	-25.54811	0.95867	0.40906	0.18536	58.14587	1.05865	298.93	-26.06
86/ 9/14	2446688.0	31.55948	-42.61413	-24.10710	0.89768	0.50548	0.23959	58.25047	1.05771	306.52	-24.45
86/ 9/15	2446688.5	37.39686	-38.88621	-22.31138	0.82405	0.59389	0.28997	58.38202	1.05634	313.88	-22.47
86/ 9/15	2446689.0	42.69637	-34.59036	-20.18965	0.73910	0.67298	0.33574	58.54140	1.05446	320.99	-20.17
86/ 9/16	2446689.5	47.38643	-29.79360	-17.77534	0.64435	0.74165	0.37626	58.72899	1.05205	327.84	-17.62
86/ 9/16	2446690.0	51.40627	-24.56964	-15.10595	0.54147	0.79900	0.41099	58.94456	1.04905	334.45	-14.85
86/ 9/17	2446690.5	54.70675	-18.99741	-12.22220	0.43223	0.84440	0.43950	59.18709	1.04547	340.85	-11.92
86/ 9/17	2446691.0	57.25090	-13.15939	-9.16720	0.31843	0.87744	0.46152	59.45479	1.04130	347.06	-8.87
86/ 9/18	2446691.5	59.01406	-7.14000	-5.98555	0.20191	0.89795	0.47688	59.74501	1.03658	353.10	-5.75
86/ 9/18	2446692.0	59.98378	-1.02403	-2.72252	0.08443	0.90599	0.48555	60.05426	1.03136	359.02	-2.60
86/ 9/19	2446692.5	60.15935	5.10484	0.57678	-0.03232	0.90182	0.48762	60.37831	1.02572	4.85	0.55

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/ 9/19	2446693.0	59.55121	11.16534	3.86814	-0.14675	0.88589	0.48325	60.71222	1.01974	10.62	3.65
86/ 9/20	2446693.5	58.17999	17.07975	7.10884	-0.25742	0.85879	0.47271	61.05051	1.01353	16.36	6.69
86/ 9/20	2446694.0	56.07562	22.77478	10.25826	-0.36304	0.82123	0.45635	61.38727	1.00721	22.10	9.62
86/ 9/21	2446694.5	53.27621	28.18231	13.27820	-0.46248	0.77403	0.43455	61.71635	1.00092	27.88	12.42
86/ 9/21	2446695.0	49.82703	33.23988	16.13330	-0.55477	0.71804	0.40774	62.03149	0.99479	33.71	15.07
86/ 9/22	2446695.5	45.77942	37.89104	18.79118	-0.63907	0.65417	0.37639	62.32651	0.98895	39.61	17.55
86/ 9/22	2446696.0	41.18983	42.08552	21.22260	-0.71471	0.58334	0.34095	62.59546	0.98354	45.62	19.82
86/ 9/23	2446696.5	36.11895	45.77931	23.40156	-0.78111	0.50648	0.30192	62.83277	0.97868	51.73	21.87
86/ 9/23	2446697.0	30.63087	48.93462	25.30527	-0.83783	0.42449	0.25975	63.03336	0.97449	57.96	23.67
86/ 9/24	2446697.5	24.79245	51.51981	26.91416	-0.88451	0.33827	0.21494	63.19279	0.97107	64.30	25.21
86/ 9/24	2446698.0	18.67274	53.50928	28.21185	-0.92086	0.24872	0.16793	63.30737	0.96852	70.76	26.46
86/ 9/25	2446698.5	12.34246	54.88336	29.18507	-0.94666	0.15669	0.11920	63.37419	0.96691	77.33	27.42
86/ 9/25	2446699.0	5.87362	55.62820	29.82369	-0.96175	0.06305	0.06920	63.39123	0.96629	83.97	28.06
86/ 9/26	2446699.5	-0.66082	55.73575	30.12064	-0.96601	-0.03135	0.01839	63.35743	0.96670	90.68	28.39
86/ 9/26	2446700.0	-7.18726	55.20374	30.07195	-0.95938	-0.12566	-0.03279	63.27268	0.96813	97.42	28.38
86/ 9/27	2446700.5	-13.63178	54.03568	29.67678	-0.94182	-0.21902	-0.08385	63.13788	0.97058	104.16	28.04
86/ 9/27	2446701.0	-19.92040	52.24100	28.93747	-0.91335	-0.31055	-0.13432	62.95492	0.97401	110.87	27.36
86/ 9/28	2446701.5	-25.97946	49.83518	27.85967	-0.87405	-0.39934	-0.18372	62.72670	0.97836	117.53	26.37
86/ 9/28	2446702.0	-31.73605	46.83993	26.45238	-0.82406	-0.48445	-0.23153	62.45706	0.98355	124.12	25.06
86/ 9/29	2446702.5	-37.11845	43.28341	24.72817	-0.76360	-0.56491	-0.27722	62.15075	0.98948	130.62	23.45
86/ 9/29	2446703.0	-42.05680	39.20046	22.70329	-0.69300	-0.63973	-0.32023	61.81334	0.99601	137.01	21.55
86/ 9/30	2446703.5	-46.48382	34.63279	20.39777	-0.61270	-0.70787	-0.35999	61.45116	1.00303	143.31	19.39
86/ 9/30	2446704.0	-50.33571	29.62915	17.83559	-0.52328	-0.76830	-0.39592	61.07109	1.01037	149.52	16.98
86/10/ 1	2446704.5	-53.55318	24.24533	15.04472	-0.42550	-0.81996	-0.42742	60.68050	1.01788	155.64	14.36
86/10/ 1	2446705.0	-56.08265	18.54414	12.05713	-0.32029	-0.86185	-0.45391	60.28701	1.02538	161.70	11.54
86/10/ 2	2446705.5	-57.87749	12.59509	8.90865	-0.20877	-0.89300	-0.47484	59.89828	1.03272	167.72	8.55
86/10/ 2	2446706.0	-58.89943	6.47392	5.63881	-0.09229	-0.91254	-0.48967	59.52185	1.03972	173.73	5.44
86/10/ 3	2446706.5	-59.11992	0.26183	2.29044	0.02762	-0.91974	-0.49796	59.16485	1.04625	179.75	2.22
86/10/ 3	2446707.0	-58.52142	-5.95554	-1.09082	0.14925	-0.91402	-0.49933	58.83379	1.05216	185.81	-1.06
86/10/ 4	2446707.5	-57.09862	-12.08945	-4.45721	0.27071	-0.89505	-0.49353	58.53439	1.05734	191.95	-4.37
86/10/ 4	2446708.0	-54.85933	-18.04961	-7.75962	0.39001	-0.86272	-0.48043	58.27132	1.06170	198.21	-7.65
86/10/ 5	2446708.5	-51.82512	-23.74601	-10.94864	0.50510	-0.81722	-0.46006	58.04816	1.06519	204.62	-10.87
86/10/ 5	2446709.0	-48.03151	-29.09085	-13.97547	0.61392	-0.75901	-0.43259	57.86724	1.06777	211.20	-13.98
86/10/ 6	2446709.5	-43.52776	-34.00053	-16.79315	0.71447	-0.68887	-0.39836	57.72965	1.06944	217.99	-16.91
86/10/ 6	2446710.0	-38.37623	-38.39764	-19.35752	0.80491	-0.60785	-0.35788	57.63530	1.07025	225.02	-19.62
86/10/ 7	2446710.5	-32.65119	-42.21272	-21.62833	0.88356	-0.51724	-0.31179	57.58298	1.07025	232.28	-22.06
86/10/ 7	2446711.0	-26.43740	-45.38592	-23.57011	0.94902	-0.41857	-0.26086	57.57055	1.06953	239.78	-24.17
86/10/ 8	2446711.5	-19.82826	-47.86825	-25.15295	1.00015	-0.31353	-0.20595	57.59514	1.06818	247.50	-25.89
86/10/ 8	2446712.0	-12.92380	-49.62256	-26.35309	1.03611	-0.20390	-0.14802	57.65334	1.06631	255.40	-27.20
86/10/ 9	2446712.5	-5.82857	-50.62412	-27.15335	1.05642	-0.09156	-0.08804	57.74148	1.06403	263.43	-28.05
86/10/ 9	2446713.0	1.35056	-50.86093	-27.54331	1.06088	0.02162	-0.02703	57.85578	1.06145	271.52	-28.43
86/10/10	2446713.5	8.50651	-50.33358	-27.51937	1.04962	0.13379	0.03402	57.99263	1.05866	279.59	-28.33
86/10/10	2446714.0	15.53397	-49.05497	-27.08463	1.02303	0.24317	0.09412	58.14870	1.05574	287.57	-27.76
86/10/11	2446714.5	22.33127	-47.04962	-26.24865	0.98179	0.34812	0.15235	58.32105	1.05276	295.39	-26.75
86/10/11	2446715.0	28.80204	-44.35297	-25.02705	0.92678	0.44707	0.20785	58.50724	1.04976	303.00	-25.33

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
86/10/12	2446715.5	34.85665	-41.01033	-23.44104	0.85909	0.53865	0.25983	58.70533	1.04676	310.36	-23.53
86/10/12	2446716.0	40.41345	-37.07587	-21.51692	0.78000	0.62164	0.30759	58.91387	1.04377	317.47	-21.42
86/10/13	2446716.5	45.39982	-32.61141	-19.28546	0.69089	0.69500	0.35049	59.13185	1.04077	324.31	-19.03
86/10/13	2446717.0	49.75300	-27.68520	-16.78127	0.59328	0.75787	0.38804	59.35859	1.03775	330.91	-16.42
86/10/14	2446717.5	53.42072	-22.37065	-14.04213	0.48875	0.80958	0.41981	59.59363	1.03467	337.28	-13.63
86/10/14	2446718.0	56.36160	-16.74504	-11.10830	0.37893	0.84966	0.44549	59.83662	1.03149	343.45	-10.70
86/10/15	2446718.5	58.54540	-10.88821	-8.02186	0.26547	0.87782	0.46485	60.08717	1.02817	349.46	-7.67
86/10/15	2446719.0	59.95307	-4.88128	-4.82598	0.15001	0.89398	0.47780	60.34474	1.02469	355.35	-4.59
86/10/16	2446719.5	60.57655	1.19456	-1.56425	0.03416	0.89820	0.48430	60.60851	1.02102	1.13	-1.48
86/10/16	2446720.0	60.41846	7.25921	1.71991	-0.08053	0.89073	0.48444	60.87729	1.01714	6.85	1.62
86/10/17	2446720.5	59.49165	13.23477	4.98392	-0.19260	0.87197	0.47838	61.14945	1.01305	12.54	4.68
86/10/17	2446721.0	57.81851	19.04651	8.18653	-0.30070	0.84245	0.46636	61.42287	1.00878	18.23	7.66
86/10/18	2446721.5	55.43024	24.62367	11.28835	-0.40358	0.80282	0.44867	61.69492	1.00434	23.95	10.54
86/10/18	2446722.0	52.36602	29.90025	14.25226	-0.50012	0.75382	0.42570	61.96251	0.99979	29.73	13.30
86/10/19	2446722.5	48.67213	34.81553	17.04373	-0.58936	0.69627	0.39783	62.22207	0.99519	35.58	15.90
86/10/19	2446723.0	44.40097	39.31451	19.63114	-0.67045	0.63104	0.36551	62.46966	0.99062	41.52	18.32
86/10/20	2446723.5	39.61024	43.34826	21.98590	-0.74269	0.55904	0.32921	62.70106	0.98615	47.58	20.53
86/10/20	2446724.0	34.36198	46.87405	24.08267	-0.80547	0.48120	0.28941	62.91182	0.98189	53.76	22.51
86/10/21	2446724.5	28.72177	49.85551	25.89939	-0.85836	0.39846	0.24659	63.09746	0.97793	60.05	24.23
86/10/21	2446725.0	22.75798	52.26254	27.41730	-0.90097	0.31174	0.20126	63.25352	0.97439	66.47	25.69
86/10/22	2446725.5	16.54107	54.07136	28.62098	-0.93306	0.22196	0.15388	63.37570	0.97137	72.99	26.85
86/10/22	2446726.0	10.14299	55.26435	29.49829	-0.95445	0.13003	0.10496	63.46004	0.96897	79.60	27.70
86/10/23	2446726.5	3.63663	55.82992	30.04033	-0.96502	0.03684	0.05496	63.50297	0.96729	86.27	28.23
86/10/23	2446727.0	-2.90456	55.76248	30.24142	-0.96474	-0.05675	0.00436	63.50145	0.96641	92.98	28.44
86/10/24	2446727.5	-9.40707	55.06226	30.09903	-0.95360	-0.14987	-0.04639	63.45311	0.96642	99.70	28.32
86/10/24	2446728.0	-15.79758	53.73532	29.61377	-0.93168	-0.24168	-0.09681	63.35632	0.96737	106.38	27.87
86/10/25	2446728.5	-22.00337	51.79344	28.78941	-0.89908	-0.33131	-0.14645	63.21027	0.96930	113.02	27.09
86/10/25	2446729.0	-27.95258	49.25423	27.63288	-0.85595	-0.41792	-0.19482	63.01510	0.97224	119.58	26.01
86/10/26	2446729.5	-33.57463	46.14116	26.15432	-0.80250	-0.50062	-0.24146	62.77190	0.97619	126.04	24.62
86/10/26	2446730.0	-38.80053	42.48368	24.36717	-0.73902	-0.57853	-0.28586	62.48282	0.98110	132.41	22.95
86/10/27	2446730.5	-43.56342	38.31736	22.28826	-0.66585	-0.65073	-0.32752	62.15109	0.98695	138.67	21.02
86/10/27	2446731.0	-47.79913	33.68406	19.93793	-0.58343	-0.71627	-0.36592	61.78101	0.99364	144.83	18.83
86/10/28	2446731.5	-51.44684	28.63211	17.34011	-0.49232	-0.77419	-0.40051	61.37797	1.00108	150.90	16.41
86/10/28	2446732.0	-54.44997	23.21639	14.52245	-0.39322	-0.82352	-0.43075	60.94835	1.00913	156.91	13.78
86/10/29	2446732.5	-56.75714	17.49839	11.51635	-0.28696	-0.86329	-0.45607	60.49953	1.01765	162.87	10.97
86/10/29	2446733.0	-58.32332	11.54615	8.35696	-0.17460	-0.89254	-0.47592	60.03967	1.02645	168.80	8.00
86/10/30	2446733.5	-59.11114	5.43394	5.08311	-0.05734	-0.91038	-0.48978	59.57762	1.03536	174.75	4.89
86/10/30	2446734.0	-59.09226	-0.75817	1.73707	0.06336	-0.91601	-0.49716	59.12265	1.04416	180.74	1.68
86/10/31	2446734.5	-58.24885	-6.94513	-1.63584	0.18584	-0.90876	-0.49765	58.68423	1.05264	186.80	-1.60
86/10/31	2446735.0	-56.57499	-13.03798	-4.98774	0.30826	-0.88816	-0.49092	58.27174	1.06059	192.98	-4.91
86/11/ 1	2446735.5	-54.07796	-18.94534	-8.26897	0.42857	-0.85397	-0.47676	57.89411	1.06782	199.31	-8.21
86/11/ 1	2446736.0	-50.77930	-24.57514	-11.42900	0.54461	-0.80623	-0.45513	57.55951	1.07413	205.83	-11.45
86/11/ 2	2446736.5	-46.71543	-29.83674	-14.41755	0.65415	-0.74533	-0.42616	57.27503	1.07938	212.57	-14.58
86/11/ 2	2446737.0	-41.93785	-34.64323	-17.18578	0.75500	-0.67199	-0.39015	57.04637	1.08343	219.56	-17.53
86/11/ 3	2446737.5	-36.51270	-38.91377	-19.68767	0.84504	-0.58728	-0.34761	56.87761	1.08620	226.82	-20.25

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/11/ 3	2446738.0	-30.51971	-42.57597	-21.88124	0.92238	-0.49262	-0.29923	56.77107	1.08766	234.37	-22.67
86/11/ 4	2446738.5	-24.05059	-45.56802	-23.72979	0.98540	-0.38969	-0.24588	56.72723	1.08781	242.18	-24.73
86/11/ 4	2446739.0	-17.20685	-47.84038	-25.20296	1.03283	-0.28044	-0.18856	56.74475	1.08671	250.22	-26.37
86/11/ 5	2446739.5	-10.09721	-49.35717	-26.27745	1.06381	-0.16693	-0.12835	56.82067	1.08445	258.44	-27.55
86/11/ 5	2446740.0	-2.83482	-50.09687	-26.93762	1.07790	-0.05133	-0.06640	56.95058	1.08116	266.76	-28.23
86/11/ 6	2446740.5	4.46563	-50.05255	-27.17563	1.07507	0.06423	-0.00388	57.12893	1.07700	275.10	-28.40
86/11/ 6	2446741.0	11.69064	-49.23153	-26.99139	1.05571	0.17769	0.05810	57.34937	1.07214	283.36	-28.08
86/11/ 7	2446741.5	18.73043	-47.65464	-26.39225	1.02053	0.28713	0.11847	57.60507	1.06675	291.46	-27.27
86/11/ 7	2446742.0	25.48115	-45.35503	-25.39245	0.97054	0.39083	0.17626	57.88907	1.06102	299.33	-26.02
86/11/ 8	2446742.5	31.84660	-42.37691	-24.01246	0.90699	0.48727	0.23060	58.19456	1.05510	306.93	-24.37
86/11/ 8	2446743.0	37.73969	-38.77391	-22.27819	0.83130	0.57515	0.28076	58.51511	1.04914	314.23	-22.38
86/11/ 9	2446743.5	43.08338	-34.60762	-20.22018	0.74502	0.65345	0.32611	58.84489	1.04326	321.23	-20.10
86/11/ 9	2446744.0	47.81139	-29.94598	-17.87280	0.64977	0.72131	0.36613	59.17878	1.03756	327.94	-17.58
86/11/10	2446744.5	51.86850	-24.86181	-15.27346	0.54719	0.77813	0.40045	59.51243	1.03212	334.39	-14.87
86/11/10	2446745.0	55.21075	-19.43139	-12.46183	0.43894	0.82350	0.42878	59.84232	1.02697	340.61	-12.02
86/11/11	2446745.5	57.80528	-13.73326	-9.47920	0.32666	0.85716	0.45093	60.16567	1.02214	346.64	-9.06
86/11/11	2446746.0	59.63018	-7.84694	-6.36777	0.21194	0.87907	0.46681	60.48042	1.01764	352.50	-6.04
86/11/12	2446746.5	60.67414	-1.85194	-3.17011	0.09631	0.88928	0.47640	60.78512	1.01343	358.25	-2.99
86/11/12	2446747.0	60.93601	4.17324	0.07139	-0.01877	0.88802	0.47977	61.07879	1.00951	3.92	0.07
86/11/13	2446747.5	60.42432	10.15195	3.31501	-0.13190	0.87562	0.47705	61.36081	1.00583	9.54	3.10
86/11/13	2446748.0	59.15671	16.01019	6.52013	-0.24177	0.85253	0.46844	61.63079	1.00235	15.14	6.07
86/11/14	2446748.5	57.15938	21.67731	9.64766	-0.34718	0.81929	0.45418	61.88843	0.99902	20.77	8.97
86/11/14	2446749.0	54.46640	27.08663	12.66036	-0.44702	0.77652	0.43458	62.13339	0.99582	26.44	11.76
86/11/15	2446749.5	51.11906	32.17598	15.52321	-0.54025	0.72493	0.40999	62.36523	0.99272	32.19	14.41
86/11/15	2446750.0	47.16515	36.88822	18.20364	-0.62599	0.66529	0.38079	62.58326	0.98968	38.03	16.91
86/11/16	2446750.5	42.65823	41.17158	20.67183	-0.70343	0.59842	0.34739	62.78652	0.98671	43.98	19.22
86/11/16	2446751.0	37.65688	44.98000	22.90085	-0.77189	0.52519	0.31024	62.97372	0.98381	50.06	21.32
86/11/17	2446751.5	32.22395	48.27340	24.86687	-0.83078	0.44649	0.26980	63.14321	0.98099	56.28	23.19
86/11/17	2446752.0	26.42582	51.01782	26.54922	-0.87966	0.36323	0.22656	63.29299	0.97830	62.62	24.80
86/11/18	2446752.5	20.33166	53.18552	27.93055	-0.91815	0.27634	0.18099	63.42075	0.97577	69.08	26.13
86/11/18	2446753.0	14.01276	54.75503	28.99679	-0.94599	0.18675	0.13360	63.52389	0.97345	75.65	27.16
86/11/19	2446753.5	7.54188	55.71116	29.73723	-0.96301	0.09537	0.08487	63.59965	0.97143	82.29	27.88
86/11/19	2446754.0	0.99260	56.04487	30.14446	-0.96913	0.00311	0.03529	63.64512	0.96977	88.99	28.27
86/11/20	2446754.5	-5.56117	55.75327	30.21439	-0.96434	-0.08914	-0.01466	63.65739	0.96856	95.70	28.34
86/11/20	2446755.0	-12.04577	54.83948	29.94618	-0.94872	-0.18048	-0.06449	63.63366	0.96788	102.39	28.07
86/11/21	2446755.5	-18.38818	53.31249	29.34220	-0.92238	-0.27006	-0.11373	63.57131	0.96781	109.03	27.49
86/11/21	2446756.0	-24.51654	51.18711	28.40802	-0.88554	-0.35704	-0.16192	63.46808	0.96844	115.59	26.59
86/11/22	2446756.5	-30.36046	48.48388	27.15234	-0.83844	-0.44056	-0.20859	63.32214	0.96984	122.05	25.39
86/11/22	2446757.0	-35.85149	45.22898	25.58697	-0.78139	-0.51980	-0.25328	63.13226	0.97207	128.40	23.91
86/11/23	2446757.5	-40.92345	41.45423	23.72689	-0.71476	-0.59393	-0.29554	62.89790	0.97518	134.63	22.16
86/11/23	2446758.0	-45.51289	37.19707	21.59016	-0.63899	-0.66212	-0.33489	62.61933	0.97921	140.74	20.17
86/11/24	2446758.5	-49.55958	32.50061	19.19805	-0.55458	-0.72352	-0.37088	62.29772	0.98416	146.74	17.95
86/11/24	2446759.0	-53.00699	27.41364	16.57501	-0.46213	-0.77729	-0.40301	61.93528	0.99003	152.65	15.52
86/11/25	2446759.5	-55.80299	21.99066	13.74870	-0.36235	-0.82259	-0.43082	61.53527	0.99677	158.49	12.91
86/11/25	2446760.0	-57.90058	16.29191	10.75008	-0.25604	-0.85858	-0.45381	61.10211	1.00433	164.28	10.13

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
86/11/26	2446760.5	-59.25875	10.38329	7.61336	-0.14418	-0.88443	-0.47152	60.64137	1.01259	170.06	7.21
86/11/26	2446761.0	-59.84352	4.33621	4.37594	-0.02786	-0.89934	-0.48347	60.15978	1.02144	175.86	4.17
86/11/27	2446761.5	-59.62907	-1.77269	1.07833	0.09160	-0.90257	-0.48922	59.66516	1.03071	181.70	1.04
86/11/27	2446762.0	-58.59899	-7.86209	-2.23614	0.21272	-0.89348	-0.48839	59.16632	1.04023	187.64	-2.17
86/11/28	2446762.5	-56.74760	-13.84671	-5.52165	0.33382	-0.87156	-0.48062	58.67291	1.04979	193.71	-5.40
86/11/28	2446763.0	-54.08130	-19.63842	-8.73043	0.45303	-0.83648	-0.46570	58.19515	1.05916	199.96	-8.63
86/11/29	2446763.5	-50.61975	-25.14760	-11.81347	0.56830	-0.78814	-0.44349	57.74356	1.06809	206.42	-11.81
86/11/29	2446764.0	-46.39691	-30.28494	-14.72148	0.67747	-0.72673	-0.41403	57.32864	1.07635	213.13	-14.88
86/11/30	2446764.5	-41.46171	-34.96351	-17.40596	0.77829	-0.65279	-0.37753	56.96041	1.08369	220.14	-17.79
86/11/30	2446765.0	-35.87819	-39.10118	-19.82049	0.86855	-0.56719	-0.33440	56.64802	1.08991	227.46	-20.48
86/12/ 1	2446765.5	-29.72508	-42.62308	-21.92209	0.94615	-0.47120	-0.28525	56.39934	1.09480	235.11	-22.87
86/12/ 1	2446766.0	-23.09463	-45.46417	-23.67265	1.00921	-0.36645	-0.23089	56.22052	1.09823	243.07	-24.90
86/12/ 2	2446766.5	-16.09078	-47.57154	-25.04019	1.05619	-0.25488	-0.17233	56.11574	1.10009	251.31	-26.50
86/12/ 2	2446767.0	-8.82659	-48.90637	-26.00007	1.08594	-0.13870	-0.11071	56.08694	1.10034	259.77	-27.62
86/12/ 3	2446767.5	-1.42123	-49.44529	-26.53574	1.09780	-0.02026	-0.04728	56.13379	1.09901	268.35	-28.21
86/12/ 3	2446768.0	6.00338	-49.18112	-26.63933	1.09164	0.09804	0.01667	56.25369	1.09616	276.96	-28.27
86/12/ 4	2446768.5	13.32607	-48.12285	-26.31169	1.06780	0.21385	0.07985	56.44199	1.09193	285.48	-27.79
86/12/ 4	2446769.0	20.42964	-46.29491	-25.56216	1.02711	0.32497	0.14106	56.69227	1.08649	293.81	-26.80
86/12/ 5	2446769.5	27.20384	-43.73590	-24.40794	0.97077	0.42943	0.19918	56.99671	1.08004	301.88	-25.36
86/12/ 5	2446770.0	33.54771	-40.49683	-22.87321	0.90031	0.52553	0.25327	57.34654	1.07280	309.64	-23.51
86/12/ 6	2446770.5	39.37142	-36.63908	-20.98815	0.81748	0.61191	0.30251	57.73243	1.06500	317.06	-21.32
86/12/ 6	2446771.0	44.59747	-32.23229	-18.78777	0.72415	0.68751	0.34629	58.14494	1.05687	324.14	-18.85
86/12/ 7	2446771.5	49.16128	-27.35218	-16.31084	0.62225	0.75158	0.38411	58.57488	1.04862	330.91	-16.17
86/12/ 7	2446772.0	53.01142	-22.07863	-13.59875	0.51372	0.80364	0.41568	59.01358	1.04045	337.39	-13.32
86/12/ 8	2446772.5	56.10931	-16.49383	-10.69459	0.40042	0.84347	0.44081	59.45313	1.03251	343.62	-10.36
86/12/ 8	2446773.0	58.42874	-10.68081	-7.64230	0.28413	0.87105	0.45942	59.88657	1.02495	349.64	-7.33
86/12/ 9	2446773.5	59.95520	-4.72204	-4.48593	0.16653	0.88654	0.47156	60.30794	1.01787	355.50	-4.27
86/12/ 9	2446774.0	60.68510	1.30154	-1.26900	0.04916	0.89025	0.47733	60.71232	1.01134	1.23	-1.20
86/12/10	2446774.5	60.62492	7.31148	1.96593	-0.06655	0.88259	0.47691	61.09585	1.00540	6.88	1.84
86/12/10	2446775.0	59.79037	13.23245	5.17772	-0.17929	0.86407	0.47054	61.45564	1.00008	12.48	4.83
86/12/11	2446775.5	58.20564	18.99286	8.32695	-0.28788	0.83528	0.45849	61.78967	0.99538	18.07	7.74
86/12/11	2446776.0	55.90254	24.52528	11.37621	-0.39125	0.79686	0.44107	62.09671	0.99126	23.69	10.56
86/12/12	2446776.5	52.91986	29.76681	14.29031	-0.48841	0.74950	0.41864	62.37617	0.98770	29.36	13.24
86/12/12	2446777.0	49.30262	34.65939	17.03650	-0.57849	0.69394	0.39155	62.62798	0.98464	35.11	15.78
86/12/13	2446777.5	45.10150	39.15008	19.58458	-0.66070	0.63096	0.36020	62.85244	0.98203	40.96	18.16
86/12/13	2446778.0	40.37214	43.19128	21.90710	-0.73436	0.56135	0.32501	63.05012	0.97981	46.93	20.33
86/12/14	2446778.5	35.17459	46.74093	23.97948	-0.79886	0.48595	0.28641	63.22168	0.97794	53.04	22.29
86/12/14	2446779.0	29.57267	49.76270	25.78009	-0.85369	0.40561	0.24484	63.36783	0.97635	59.28	24.01
86/12/15	2446779.5	23.63341	52.22614	27.29039	-0.89842	0.32122	0.20076	63.48916	0.97501	65.65	25.46
86/12/15	2446780.0	17.42643	54.10677	28.49501	-0.93270	0.23366	0.15465	63.58608	0.97388	72.15	26.62
86/12/16	2446780.5	11.02336	55.38621	29.38178	-0.95629	0.14384	0.10699	63.65874	0.97294	78.74	27.49
86/12/16	2446781.0	4.49723	56.05220	29.94183	-0.96902	0.05267	0.05826	63.70705	0.97219	85.41	28.03
86/12/17	2446781.5	-2.07810	56.09867	30.16960	-0.97081	-0.03895	0.00895	63.73056	0.97163	92.12	28.25
86/12/17	2446782.0	-8.62854	55.52569	30.06285	-0.96167	-0.13010	-0.04045	63.72855	0.97128	98.83	28.15
86/12/18	2446782.5	-15.08032	54.33944	29.62265	-0.94170	-0.21989	-0.08943	63.70002	0.97116	105.51	27.71

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/12/18	2446783.0	-21.36059	52.55216	28.85338	-0.91106	-0.30743	-0.13754	63.64371	0.97132	112.12	26.96
86/12/19	2446783.5	-27.39792	50.18201	27.76268	-0.87001	-0.39186	-0.18427	63.55821	0.97182	118.63	25.90
86/12/19	2446784.0	-33.12284	47.25299	26.36138	-0.81887	-0.47232	-0.22917	63.44202	0.97270	125.03	24.55
86/12/20	2446784.5	-38.46832	43.79480	24.66349	-0.75804	-0.54799	-0.27178	63.29364	0.97405	131.30	22.93
86/12/20	2446785.0	-43.37032	39.84268	22.68612	-0.68799	-0.61804	-0.31163	63.11168	0.97592	137.43	21.07
86/12/21	2446785.5	-47.76821	35.43731	20.44940	-0.60928	-0.68170	-0.34829	62.89502	0.97839	143.43	18.97
86/12/21	2446786.0	-51.60534	30.62466	17.97645	-0.52251	-0.73819	-0.38132	62.64290	0.98150	149.31	16.68
86/12/22	2446786.5	-54.82949	25.45580	15.29328	-0.42840	-0.78676	-0.41029	62.35508	0.98532	155.10	14.20
86/12/22	2446787.0	-57.39350	19.98684	12.42878	-0.32771	-0.82669	-0.43480	62.03195	0.98988	160.80	11.56
86/12/23	2446787.5	-59.25580	14.27867	9.41458	-0.22134	-0.85728	-0.45443	61.67467	0.99520	166.45	8.78
86/12/23	2446788.0	-60.38110	8.39682	6.28501	-0.11026	-0.87787	-0.46880	61.28527	1.00129	172.08	5.89
86/12/24	2446788.5	-60.74114	2.41118	3.07694	0.00444	-0.88783	-0.47755	60.86680	1.00812	177.73	2.90
86/12/24	2446789.0	-60.31551	-3.60431	-0.17032	0.12153	-0.88660	-0.48032	60.42335	1.01564	183.42	-0.16
86/12/25	2446789.5	-59.09254	-9.57215	-3.41529	0.23965	-0.87368	-0.47683	59.96014	1.02377	189.20	-3.27
86/12/25	2446790.0	-57.07028	-15.41181	-6.61460	0.35729	-0.84869	-0.46680	59.48356	1.03240	195.11	-6.38
86/12/26	2446790.5	-54.25750	-21.04062	-9.72338	0.47280	-0.81139	-0.45007	59.00108	1.04137	201.20	-9.49
86/12/26	2446791.0	-50.67465	-26.37475	-12.69584	0.58438	-0.76168	-0.42654	58.52121	1.05052	207.50	-12.53
86/12/27	2446791.5	-46.35481	-31.33057	-15.48591	0.69010	-0.69972	-0.39623	58.05330	1.05964	214.05	-15.47
86/12/27	2446792.0	-41.34439	-35.82621	-18.04809	0.78796	-0.62588	-0.35929	57.60737	1.06850	220.91	-18.26
86/12/28	2446792.5	-35.70359	-39.78348	-20.33850	0.87591	-0.54088	-0.31604	57.19376	1.07687	228.09	-20.83
86/12/28	2446793.0	-29.50639	-43.12999	-22.31597	0.95193	-0.44573	-0.26698	56.82276	1.08449	235.62	-23.12
86/12/29	2446793.5	-22.84011	-45.80146	-23.94336	1.01412	-0.34180	-0.21279	56.50424	1.09113	243.50	-25.07
86/12/29	2446794.0	-15.80422	-47.74403	-25.18877	1.06082	-0.23080	-0.15434	56.24713	1.09655	251.68	-26.60
86/12/30	2446794.5	-8.50855	-48.91646	-26.02683	1.09064	-0.11475	-0.09269	56.05900	1.10057	260.13	-27.66
86/12/30	2446795.0	-1.07083	-49.29206	-26.43980	1.10264	0.00411	-0.02902	55.94565	1.10303	268.76	-28.20
86/12/31	2446795.5	6.38639	-48.85998	-26.41833	1.09636	0.12334	0.03537	55.91075	1.10385	277.45	-28.20
86/12/31	2446796.0	13.73919	-47.62603	-25.96203	1.07186	0.24048	0.09916	55.95562	1.10297	286.09	-27.64

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
86/12/16	2446780.5	11.02336	55.38621	29.38178	-0.95629	0.14384	0.10699	63.65874	0.97294	78.74	27.49
86/12/16	2446781.0	4.49723	56.05220	29.94183	-0.96902	0.05267	0.05826	63.70705	0.97219	85.41	28.03
86/12/17	2446781.5	-2.07810	56.09867	30.16960	-0.97081	-0.03895	0.00895	63.73056	0.97163	92.12	28.25
86/12/17	2446782.0	-8.62854	55.52569	30.06285	-0.96167	-0.13010	-0.04045	63.72855	0.97128	98.83	28.15
86/12/18	2446782.5	-15.08032	54.33944	29.62265	-0.94170	-0.21989	-0.08943	63.70002	0.97116	105.51	27.71
86/12/18	2446783.0	-21.36059	52.55216	28.85338	-0.91106	-0.30743	-0.13754	63.64371	0.97132	112.12	26.96
86/12/19	2446783.5	-27.39792	50.18201	27.76268	-0.87001	-0.39186	-0.18427	63.55821	0.97182	118.63	25.90
86/12/19	2446784.0	-33.12284	47.25299	26.36138	-0.81887	-0.47232	-0.22917	63.44202	0.97270	125.03	24.55
86/12/20	2446784.5	-38.46832	43.79480	24.66349	-0.75804	-0.54799	-0.27178	63.29364	0.97405	131.30	22.93
86/12/20	2446785.0	-43.37032	39.84268	22.68612	-0.68799	-0.61804	-0.31163	63.11168	0.97592	137.43	21.07
86/12/21	2446785.5	-47.76821	35.43731	20.44940	-0.60928	-0.68170	-0.34829	62.89502	0.97839	143.43	18.97
86/12/21	2446786.0	-51.60534	30.62466	17.97645	-0.52251	-0.73819	-0.38132	62.64290	0.98150	149.31	16.68
86/12/22	2446786.5	-54.82949	25.45580	15.29328	-0.42840	-0.78676	-0.41029	62.35508	0.98532	155.10	14.20
86/12/22	2446787.0	-57.39350	19.98684	12.42878	-0.32771	-0.82669	-0.43480	62.03195	0.98988	160.80	11.56
86/12/23	2446787.5	-59.25580	14.27867	9.41458	-0.22134	-0.85728	-0.45443	61.67467	0.99520	166.45	8.78
86/12/23	2446788.0	-60.38110	8.39682	6.28501	-0.11026	-0.87787	-0.46880	61.28527	1.00129	172.08	5.89
86/12/24	2446788.5	-60.74114	2.41118	3.07694	0.00444	-0.88783	-0.47755	60.86680	1.00812	177.73	2.90
86/12/24	2446789.0	-60.31551	-3.60431	-0.17032	0.12153	-0.88660	-0.48032	60.42335	1.01564	183.42	-0.16
86/12/25	2446789.5	-59.09254	-9.57215	-3.41529	0.23965	-0.87368	-0.47683	59.96014	1.02377	189.20	-3.27
86/12/25	2446790.0	-57.07028	-15.41181	-6.61460	0.35729	-0.84869	-0.46680	59.48356	1.03240	195.11	-6.38
86/12/26	2446790.5	-54.25750	-21.04062	-9.72338	0.47280	-0.81139	-0.45007	59.00108	1.04137	201.20	-9.49
86/12/26	2446791.0	-50.67465	-26.37475	-12.69584	0.58438	-0.76168	-0.42654	58.52121	1.05052	207.50	-12.53
86/12/27	2446791.5	-46.35481	-31.33057	-15.48591	0.69010	-0.69972	-0.39623	58.05330	1.05964	214.05	-15.47
86/12/27	2446792.0	-41.34439	-35.82621	-18.04809	0.78796	-0.62588	-0.35929	57.60737	1.06850	220.91	-18.26
86/12/28	2446792.5	-35.70359	-39.78348	-20.33850	0.87591	-0.54088	-0.31604	57.19376	1.07687	228.09	-20.83
86/12/28	2446793.0	-29.50639	-43.12999	-22.31597	0.95193	-0.44573	-0.26698	56.82276	1.08449	235.62	-23.12
86/12/29	2446793.5	-22.84011	-45.80146	-23.94336	1.01412	-0.34180	-0.21279	56.50424	1.09113	243.50	-25.07
86/12/29	2446794.0	-15.80422	-47.74403	-25.18877	1.06082	-0.23080	-0.15434	56.24713	1.09655	251.68	-26.60
86/12/30	2446794.5	-8.50855	-48.91646	-26.02683	1.09064	-0.11475	-0.09269	56.05900	1.10057	260.13	-27.66
86/12/30	2446795.0	-1.07083	-49.29206	-26.43980	1.10264	0.00411	-0.02902	55.94565	1.10303	268.76	-28.20
86/12/31	2446795.5	6.38639	-48.85998	-26.41833	1.09636	0.12334	0.03537	55.91075	1.10385	277.45	-28.20
86/12/31	2446796.0	13.73919	-47.62603	-25.96203	1.07186	0.24048	0.09916	55.95562	1.10297	286.09	-27.64
87/ 1/ 1	2446796.5	20.86584	-45.61258	-25.07948	1.02973	0.35313	0.16102	56.07915	1.10044	294.58	-26.57
87/ 1/ 1	2446797.0	27.65036	-42.85778	-23.78798	0.97105	0.45905	0.21973	56.27788	1.09633	302.83	-25.00
87/ 1/ 2	2446797.5	33.98566	-39.41407	-22.11276	0.89736	0.55626	0.27416	56.54616	1.09080	310.77	-23.02
87/ 1/ 2	2446798.0	39.77609	-35.34616	-20.08599	0.81049	0.64313	0.32339	56.87649	1.08402	318.37	-20.68
87/ 1/ 3	2446798.5	44.93938	-30.72858	-17.74555	0.71253	0.71839	0.36668	57.25992	1.07621	325.64	-18.05
87/ 1/ 3	2446799.0	49.40782	-25.64318	-15.13364	0.60567	0.78116	0.40348	57.68650	1.06763	332.57	-15.21
87/ 1/ 4	2446799.5	53.12865	-20.17657	-12.29548	0.49213	0.83090	0.43345	58.14573	1.05852	339.20	-12.21
87/ 1/ 4	2446800.0	56.06400	-14.41777	-9.27803	0.37408	0.86743	0.45641	58.62701	1.04913	345.58	-9.11
87/ 1/ 5	2446800.5	58.19025	-8.45618	-6.12886	0.25354	0.89082	0.47236	59.12000	1.03969	351.73	-5.95
87/ 1/ 5	2446801.0	59.49704	-2.37985	-2.89515	0.13240	0.90138	0.48140	59.61496	1.03042	357.71	-2.78
87/ 1/ 6	2446801.5	59.98617	3.72593	0.37699	0.01236	0.89960	0.48375	60.10296	1.02149	3.55	0.36
87/ 1/ 6	2446802.0	59.67033	9.77960	3.64320	-0.10507	0.88610	0.47970	60.57608	1.01308	9.31	3.45
87/ 1/ 7	2446802.5	58.57184	15.70413	6.86129	-0.21855	0.86160	0.46960	61.02751	1.00530	15.01	6.46

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 1/ 7	2446803.0	56.72151	21.42755	9.99154	-0.32690	0.82685	0.45383	61.45161	0.99825	20.69	9.36
87/ 1/ 8	2446803.5	54.15752	26.88326	12.99692	-0.42913	0.78268	0.43280	61.84388	0.99199	26.40	12.13
87/ 1/ 8	2446804.0	50.92444	32.01021	15.84325	-0.52434	0.72991	0.40693	62.20097	0.98656	32.15	14.76
87/ 1/ 9	2446804.5	47.07241	36.75306	18.49924	-0.61178	0.66940	0.37667	62.52056	0.98196	37.98	17.21
87/ 1/ 9	2446805.0	42.65632	41.06218	20.93657	-0.69080	0.60198	0.34244	62.80131	0.97818	43.91	19.47
87/ 1/10	2446805.5	37.73525	44.89369	23.12991	-0.76082	0.52850	0.30469	63.04272	0.97519	49.95	21.52
87/ 1/10	2446806.0	32.37178	48.20945	25.05696	-0.82136	0.44982	0.26388	63.24503	0.97293	56.12	23.34
87/ 1/11	2446806.5	26.63156	50.97712	26.69843	-0.87201	0.36679	0.22044	63.40909	0.97135	62.42	24.90
87/ 1/11	2446807.0	20.58278	53.17013	28.03812	-0.91242	0.28028	0.17484	63.53621	0.97038	68.84	26.19
87/ 1/12	2446807.5	14.29572	54.76777	29.06294	-0.94233	0.19113	0.12754	63.62807	0.96994	75.37	27.18
87/ 1/12	2446808.0	7.84225	55.75521	29.76294	-0.96153	0.10023	0.07900	63.68655	0.96996	81.99	27.86
87/ 1/13	2446808.5	1.29543	56.12356	30.13134	-0.96988	0.00847	0.02970	63.71366	0.97038	88.68	28.22
87/ 1/13	2446809.0	-5.27105	55.86994	30.16462	-0.96733	-0.08328	-0.01988	63.71137	0.97111	95.39	28.26
87/ 1/14	2446809.5	-11.78334	54.99749	29.86253	-0.95389	-0.17412	-0.06925	63.68156	0.97212	102.09	27.97
87/ 1/14	2446810.0	-18.16795	53.51546	29.22811	-0.92965	-0.26314	-0.11793	63.62595	0.97335	108.75	27.35
87/ 1/15	2446810.5	-24.35236	51.43916	28.26775	-0.89481	-0.34945	-0.16542	63.54597	0.97476	115.33	26.41
87/ 1/15	2446811.0	-30.26558	48.78997	26.99113	-0.84963	-0.43216	-0.21124	63.44279	0.97634	121.81	25.18
87/ 1/16	2446811.5	-35.83875	45.59526	25.41126	-0.79446	-0.51040	-0.25489	63.31726	0.97808	128.17	23.66
87/ 1/16	2446812.0	-41.00576	41.88827	23.54439	-0.72977	-0.58329	-0.29590	63.16991	0.97998	134.39	21.88
87/ 1/17	2446812.5	-45.70388	37.70796	21.40999	-0.65610	-0.65003	-0.33382	63.00097	0.98206	140.48	19.87
87/ 1/17	2446813.0	-49.87439	33.09883	19.03059	-0.57408	-0.70979	-0.36817	62.81043	0.98434	146.43	17.64
87/ 1/18	2446813.5	-53.46315	28.11064	16.43173	-0.48445	-0.76183	-0.39855	62.59807	0.98688	152.26	15.22
87/ 1/18	2446814.0	-56.42132	22.79817	13.64180	-0.38801	-0.80544	-0.42453	62.36361	0.98970	158.00	12.64
87/ 1/19	2446814.5	-58.70585	17.22086	10.69185	-0.28569	-0.83993	-0.44574	62.10677	0.99287	163.65	9.91
87/ 1/19	2446815.0	-60.28019	11.44246	7.61544	-0.17847	-0.86472	-0.46182	61.82739	0.99643	169.25	7.08
87/ 1/20	2446815.5	-61.11484	5.53056	4.44841	-0.06745	-0.87927	-0.47245	61.52559	1.00043	174.83	4.15
87/ 1/20	2446816.0	-61.18793	-0.44380	1.22862	0.04620	-0.88310	-0.47735	61.20187	1.00492	180.42	1.15
87/ 1/21	2446816.5	-60.48589	-6.40671	-2.00426	0.16122	-0.87583	-0.47628	60.85726	1.00991	186.05	-1.89
87/ 1/21	2446817.0	-59.00401	-12.28200	-5.20914	0.27625	-0.85718	-0.46905	60.49344	1.01542	191.76	-4.94
87/ 1/22	2446817.5	-56.74707	-17.99188	-8.34379	0.38984	-0.82697	-0.45553	60.11287	1.02145	197.59	-7.98
87/ 1/22	2446818.0	-53.72995	-23.45777	-11.36534	0.50047	-0.78514	-0.43565	59.71888	1.02796	203.59	-10.97
87/ 1/23	2446818.5	-49.97817	-28.60123	-14.23072	0.60651	-0.73179	-0.40942	59.31578	1.03489	209.78	-13.88
87/ 1/23	2446819.0	-45.52843	-33.34506	-16.89723	0.70628	-0.66719	-0.37695	58.90881	1.04215	216.22	-16.67
87/ 1/24	2446819.5	-40.42896	-37.61452	-19.32326	0.79808	-0.59181	-0.33845	58.50420	1.04963	222.93	-19.29
87/ 1/24	2446820.0	-34.73973	-41.33878	-21.46902	0.88015	-0.50633	-0.29426	58.10906	1.05717	229.96	-21.68
87/ 1/25	2446820.5	-28.53245	-44.45253	-23.29739	0.95077	-0.41170	-0.24483	57.73125	1.06462	237.31	-23.80
87/ 1/25	2446821.0	-21.89019	-46.89768	-24.77494	1.00833	-0.30912	-0.19077	57.37918	1.07176	244.98	-25.58
87/ 1/26	2446821.5	-14.90665	-48.62517	-25.87283	1.05132	-0.20005	-0.13286	57.06153	1.07840	252.96	-26.96
87/ 1/26	2446822.0	-7.68489	-49.59682	-26.56792	1.07848	-0.08624	-0.07199	56.78694	1.08432	261.19	-27.90
87/ 1/27	2446822.5	-0.33562	-49.78701	-26.84365	1.08884	0.03036	-0.00921	56.56360	1.08930	269.61	-28.33
87/ 1/27	2446823.0	7.02505	-49.18408	-26.69093	1.08179	0.14759	0.05433	56.39885	1.09316	278.13	-28.25
87/ 1/28	2446823.5	14.27837	-47.79143	-26.10872	1.05715	0.26318	0.11741	56.29882	1.09572	286.63	-27.63
87/ 1/28	2446824.0	21.30596	-45.62798	-25.10442	1.01522	0.37482	0.17876	56.26801	1.09687	295.03	-26.50
87/ 1/29	2446824.5	27.99309	-42.72812	-23.69388	0.95678	0.48028	0.23717	56.30901	1.09651	303.23	-24.88
87/ 1/29	2446825.0	34.23182	-39.14089	-21.90105	0.88306	0.57747	0.29147	56.42236	1.09463	311.17	-22.84

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 1/30	2446825.5	39.92403	-34.92859	-19.75728	0.79569	0.66458	0.34064	56.60640	1.09125	318.82	-20.43
87/ 1/30	2446826.0	44.98378	-30.16480	-17.30035	0.69665	0.74010	0.38382	56.85735	1.08645	326.16	-17.71
87/ 1/31	2446826.5	49.33930	-24.93207	-14.57321	0.58811	0.80290	0.42034	57.16951	1.08037	333.19	-14.77
87/ 1/31	2446827.0	52.93405	-19.31929	-11.62261	0.47239	0.85223	0.44974	57.53549	1.07318	339.95	-11.65
87/ 2/ 1	2446827.5	55.72723	-13.41910	-8.49772	0.35180	0.88773	0.47177	57.94660	1.06508	346.46	-8.43
87/ 2/ 1	2446828.0	57.69359	-7.32546	-5.24881	0.22860	0.90938	0.48637	58.39318	1.05631	352.76	-5.16
87/ 2/ 2	2446828.5	58.82267	-1.13142	-1.92600	0.10489	0.91745	0.49363	58.86507	1.04708	358.90	-1.87
87/ 2/ 2	2446829.0	59.11768	5.07271	1.42174	-0.01739	0.91246	0.49378	59.35195	1.03765	4.90	1.37
87/ 2/ 3	2446829.5	58.59414	11.20081	4.74739	-0.13655	0.89513	0.48717	59.84371	1.02822	10.82	4.55
87/ 2/ 3	2446830.0	57.27837	17.17205	8.00655	-0.25111	0.86629	0.47422	60.33072	1.01902	16.69	7.63
87/ 2/ 4	2446830.5	55.20597	22.91160	11.15783	-0.35979	0.82687	0.45540	60.80410	1.01022	22.54	10.57
87/ 2/ 4	2446831.0	52.42042	28.35110	14.16318	-0.46154	0.77785	0.43121	61.25586	1.00200	28.41	13.37
87/ 2/ 5	2446831.5	48.97172	33.42886	16.98796	-0.55548	0.72022	0.40217	61.67908	0.99449	34.32	15.99
87/ 2/ 5	2446832.0	44.91527	38.08993	19.60109	-0.64089	0.65497	0.36879	62.06792	0.98779	40.30	18.41
87/ 2/ 6	2446832.5	40.31087	42.28599	21.97496	-0.71719	0.58307	0.33160	62.41771	0.98199	46.37	20.61
87/ 2/ 6	2446833.0	35.22188	45.97527	24.08542	-0.78392	0.50548	0.29109	62.72491	0.97712	52.54	22.58
87/ 2/ 7	2446833.5	29.71450	49.12234	25.91171	-0.84069	0.42311	0.24777	62.98708	0.97322	58.83	24.29
87/ 2/ 7	2446834.0	23.85721	51.69797	27.43636	-0.88720	0.33688	0.20210	63.20286	0.97029	65.23	25.73
87/ 2/ 8	2446834.5	17.72026	53.67899	28.64515	-0.92323	0.24767	0.15457	63.37182	0.96829	71.73	26.87
87/ 2/ 8	2446835.0	11.37529	55.04815	29.52705	-0.94861	0.15635	0.10565	63.49443	0.96719	78.32	27.71
87/ 2/ 9	2446835.5	4.89488	55.79407	30.07418	-0.96321	0.06378	0.05580	63.57196	0.96693	84.99	28.23
87/ 2/ 9	2446836.0	-1.64773	55.91118	30.28182	-0.96697	-0.02919	0.00548	63.60632	0.96743	91.69	28.43
87/ 2/10	2446836.5	-8.17908	55.39977	30.14843	-0.95988	-0.12168	-0.04483	63.59999	0.96860	98.40	28.30
87/ 2/10	2446837.0	-14.62582	54.26596	29.67563	-0.94200	-0.21283	-0.09466	63.55589	0.97037	105.08	27.83
87/ 2/11	2446837.5	-20.91516	52.52179	28.86829	-0.91343	-0.30177	-0.14354	63.47724	0.97264	111.71	27.05
87/ 2/11	2446838.0	-26.97534	50.18528	27.73455	-0.87437	-0.38760	-0.19097	63.36748	0.97531	118.26	25.96
87/ 2/12	2446838.5	-32.73618	47.28045	26.28585	-0.82509	-0.46944	-0.23646	63.23009	0.97829	124.70	24.56
87/ 2/12	2446839.0	-38.12963	43.83734	24.53697	-0.76595	-0.54640	-0.27953	63.06856	0.98151	131.02	22.90
87/ 2/13	2446839.5	-43.09045	39.89199	22.50599	-0.69742	-0.61760	-0.31968	62.88622	0.98490	137.21	20.97
87/ 2/13	2446840.0	-47.55686	35.48636	20.21432	-0.62006	-0.68217	-0.35643	62.68616	0.98837	143.27	18.81
87/ 2/14	2446840.5	-51.47131	30.66819	17.68658	-0.53455	-0.73929	-0.38931	62.47119	0.99189	149.21	16.45
87/ 2/14	2446841.0	-54.78125	25.49074	14.95055	-0.44169	-0.78814	-0.41787	62.24373	0.99542	155.05	13.90
87/ 2/15	2446841.5	-57.43985	20.01248	12.03694	-0.34238	-0.82799	-0.44168	62.00584	0.99894	160.79	11.19
87/ 2/15	2446842.0	-59.40684	14.29669	8.97924	-0.23764	-0.85818	-0.46035	61.75916	1.00243	166.47	8.36
87/ 2/16	2446842.5	-60.64918	8.41092	5.81342	-0.12860	-0.87810	-0.47355	61.50497	1.00590	172.10	5.42
87/ 2/16	2446843.0	-61.14181	2.42639	2.57764	-0.01647	-0.88726	-0.48097	61.24421	1.00938	177.73	2.41
87/ 2/17	2446843.5	-60.86831	-3.58268	-0.68814	0.09741	-0.88529	-0.48237	60.97754	1.01287	183.37	-0.65
87/ 2/17	2446844.0	-59.82142	-9.53991	-3.94255	0.21167	-0.87192	-0.47759	60.70548	1.01643	189.06	-3.72
87/ 2/18	2446844.5	-58.00355	-15.36756	-7.14328	0.32483	-0.84702	-0.46651	60.42847	1.02009	194.84	-6.79
87/ 2/18	2446845.0	-55.42720	-20.98751	-10.24759	0.43539	-0.81060	-0.44912	60.14702	1.02389	200.74	-9.81
87/ 2/19	2446845.5	-52.11521	-26.32224	-13.21283	0.54180	-0.76284	-0.42546	59.86180	1.02785	206.80	-12.75
87/ 2/19	2446846.0	-48.10098	-31.29589	-15.99703	0.64249	-0.70405	-0.39569	59.57384	1.03201	213.05	-15.58
87/ 2/20	2446846.5	-43.42848	-35.83539	-18.55950	0.73592	-0.63473	-0.36003	59.28460	1.03638	219.53	-18.24
87/ 2/20	2446847.0	-38.15224	-39.87162	-20.86148	0.82053	-0.55556	-0.31883	58.99611	1.04095	226.26	-20.71
87/ 2/21	2446847.5	-32.33700	-43.34067	-22.86679	0.89483	-0.46740	-0.27251	58.71103	1.04569	233.27	-22.92

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 2/21	2446848.0	-26.05736	-46.18504	-24.54257	0.95743	-0.37130	-0.22162	58.43271	1.05055	240.57	-24.84
87/ 2/22	2446848.5	-19.39708	-48.35502	-25.85995	1.00703	-0.26848	-0.16680	58.16521	1.05547	248.14	-26.40
87/ 2/22	2446849.0	-12.44821	-49.80985	-26.79479	1.04248	-0.16037	-0.10879	57.91322	1.06034	255.97	-27.56
87/ 2/23	2446849.5	-5.30990	-50.51906	-27.32838	1.06283	-0.04858	-0.04846	57.68198	1.06504	264.00	-28.28
87/ 2/23	2446850.0	1.91307	-50.46353	-27.44807	1.06738	0.06515	0.01327	57.47716	1.06945	272.17	-28.53
87/ 2/24	2446850.5	9.11205	-49.63650	-27.14784	1.05570	0.17892	0.07536	57.30459	1.07340	280.40	-28.28
87/ 2/24	2446851.0	16.17659	-48.04431	-26.42878	1.02770	0.29076	0.13676	57.17008	1.07676	288.61	-27.53
87/ 2/25	2446851.5	22.99679	-45.70681	-25.29934	0.98362	0.39867	0.19636	57.07907	1.07935	296.71	-26.31
87/ 2/25	2446852.0	29.46571	-42.65739	-23.77538	0.92411	0.50066	0.25308	57.03639	1.08105	304.63	-24.64
87/ 2/26	2446852.5	35.48201	-38.94260	-21.88008	0.85016	0.59485	0.30585	57.04591	1.08174	312.34	-22.55
87/ 2/26	2446853.0	40.95237	-34.62122	-19.64341	0.76315	0.67951	0.35373	57.11032	1.08132	319.79	-20.12
87/ 2/27	2446853.5	45.79384	-29.76297	-17.10156	0.66476	0.75315	0.39584	57.23088	1.07974	326.98	-17.39
87/ 2/27	2446854.0	49.93573	-24.44676	-14.29593	0.55691	0.81457	0.43151	57.40727	1.07697	333.92	-14.42
87/ 2/28	2446854.5	53.32115	-18.75860	-11.27213	0.44174	0.86286	0.46020	57.63758	1.07306	340.62	-11.28
87/ 2/28	2446855.0	55.90788	-12.78938	-8.07871	0.32144	0.89750	0.48156	57.91826	1.06805	347.11	-8.02
87/ 3/ 1	2446855.5	57.66881	-6.63255	-4.76593	0.19825	0.91826	0.49543	58.24428	1.06205	353.44	-4.69
87/ 3/ 1	2446856.0	58.59170	-0.38187	-1.38456	0.07433	0.92526	0.50183	58.60930	1.05520	359.63	-1.35
87/ 3/ 2	2446856.5	58.67855	5.87064	2.01526	-0.04830	0.91888	0.50092	59.00592	1.04766	5.71	1.96
87/ 3/ 2	2446857.0	57.94450	12.03643	5.38505	-0.16779	0.89977	0.49302	59.42592	1.03962	11.73	5.20
87/ 3/ 3	2446857.5	56.41652	18.03189	8.67871	-0.28249	0.86874	0.47852	59.86061	1.03125	17.72	8.34
87/ 3/ 3	2446858.0	54.13188	23.77943	11.85321	-0.39101	0.82673	0.45792	60.30108	1.02277	23.72	11.34
87/ 3/ 4	2446858.5	51.13666	29.20824	14.86903	-0.49215	0.77479	0.43175	60.73852	1.01436	29.73	14.17
87/ 3/ 4	2446859.0	47.48419	34.25470	17.69041	-0.58494	0.71401	0.40060	61.16440	1.00620	35.81	16.81
87/ 3/ 5	2446859.5	43.23368	38.86264	20.28551	-0.66863	0.64548	0.36503	61.57075	0.99848	41.95	19.24
87/ 3/ 5	2446860.0	38.44893	42.98333	22.62642	-0.74261	0.57031	0.32564	61.95032	0.99134	48.19	21.42
87/ 3/ 6	2446860.5	33.19728	46.57532	24.68916	-0.80644	0.48954	0.28298	62.29667	0.98492	54.52	23.35
87/ 3/ 6	2446861.0	27.54867	49.60428	26.45355	-0.85979	0.40421	0.23762	62.60434	0.97933	60.95	25.00
87/ 3/ 7	2446861.5	21.57483	52.04268	27.90306	-0.90244	0.31531	0.19009	62.86887	0.97466	67.48	26.35
87/ 3/ 7	2446862.0	15.34876	53.86955	29.02473	-0.93426	0.22379	0.14090	63.08683	0.97096	74.10	27.39
87/ 3/ 8	2446862.5	8.94414	55.07022	29.80901	-0.95516	0.13055	0.09054	63.25586	0.96828	80.77	28.12
87/ 3/ 8	2446863.0	2.43495	55.63610	30.24966	-0.96514	0.03649	0.03950	63.37465	0.96663	87.49	28.51
87/ 3/ 9	2446863.5	-4.10488	55.56452	30.34366	-0.96421	-0.05755	-0.01175	63.44291	0.96600	94.23	28.57
87/ 3/ 9	2446864.0	-10.60174	54.85857	30.09114	-0.95247	-0.15070	-0.06274	63.46130	0.96635	100.94	28.31
87/ 3/10	2446864.5	-16.98272	53.52710	29.49538	-0.93002	-0.24212	-0.11302	63.43139	0.96764	107.60	27.71
87/ 3/10	2446865.0	-23.17584	51.58466	28.56282	-0.89703	-0.33097	-0.16212	63.35559	0.96979	114.19	26.80
87/ 3/11	2446865.5	-29.11045	49.05152	27.30302	-0.85372	-0.41640	-0.20957	63.23705	0.97271	120.69	25.58
87/ 3/11	2446866.0	-34.71764	45.95377	25.72875	-0.80040	-0.49756	-0.25490	63.07957	0.97630	127.07	24.07
87/ 3/12	2446866.5	-39.93069	42.32332	23.85604	-0.73741	-0.57356	-0.29762	62.88747	0.98047	133.33	22.29
87/ 3/12	2446867.0	-44.68566	38.19799	21.70416	-0.66521	-0.64354	-0.33725	62.66550	0.98509	139.48	20.26
87/ 3/13	2446867.5	-48.92202	33.62151	19.29571	-0.58437	-0.70664	-0.37331	62.41870	0.99004	145.50	18.01
87/ 3/13	2446868.0	-52.58339	28.64345	16.65655	-0.49554	-0.76198	-0.40530	62.15224	0.99521	151.42	15.55
87/ 3/14	2446868.5	-55.61836	23.31915	13.81579	-0.39954	-0.80875	-0.43276	61.87132	1.00049	157.25	12.90
87/ 3/14	2446869.0	-57.98134	17.70942	10.80567	-0.29728	-0.84614	-0.45524	61.58102	1.00577	163.02	10.11
87/ 3/15	2446869.5	-59.63351	11.88024	7.66135	-0.18983	-0.87344	-0.47232	61.28615	1.01095	168.73	7.18
87/ 3/15	2446870.0	-60.54372	5.90218	4.42070	-0.07839	-0.89000	-0.48363	60.99115	1.01595	174.43	4.16

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 3/16	2446870.5	-60.68941	-0.15021	1.12392	0.03570	-0.89531	-0.48885	60.70000	1.02070	180.14	1.06
87/ 3/16	2446871.0	-60.05741	-6.19923	-2.18688	0.15100	-0.88896	-0.48773	60.41610	1.02515	185.89	-2.07
87/ 3/17	2446871.5	-58.64474	-12.16502	-5.46819	0.26596	-0.87071	-0.48012	60.14228	1.02926	191.72	-5.22
87/ 3/17	2446872.0	-56.45912	-17.96667	-8.67572	0.37897	-0.84049	-0.46594	59.88073	1.03303	197.65	-8.33
87/ 3/18	2446872.5	-53.51943	-23.52345	-11.76504	0.48836	-0.79843	-0.44523	59.63303	1.03644	203.73	-11.38
87/ 3/18	2446873.0	-49.85588	-28.75612	-14.69229	0.59244	-0.74485	-0.41812	59.40023	1.03953	209.98	-14.32
87/ 3/19	2446873.5	-45.50998	-33.58829	-17.41494	0.68958	-0.68027	-0.38486	59.18286	1.04231	216.43	-17.11
87/ 3/19	2446874.0	-40.53425	-37.94778	-19.89255	0.77816	-0.60541	-0.34583	58.98113	1.04483	223.11	-19.71
87/ 3/20	2446874.5	-34.99176	-41.76800	-22.08750	0.85670	-0.52120	-0.30148	58.79495	1.04713	230.04	-22.07
87/ 3/20	2446875.0	-28.95532	-44.98920	-23.96569	0.92381	-0.42873	-0.25240	58.62417	1.04925	237.23	-24.13
87/ 3/21	2446875.5	-22.50659	-47.55970	-25.49726	0.97826	-0.32927	-0.19925	58.46864	1.05124	244.68	-25.85
87/ 3/21	2446876.0	-15.73486	-49.43694	-26.65717	1.01903	-0.22426	-0.14278	58.32840	1.05314	252.34	-27.19
87/ 3/22	2446876.5	-8.73576	-50.58844	-27.42575	1.04528	-0.11524	-0.08383	58.20375	1.05495	260.20	-28.11
87/ 3/22	2446877.0	-1.60975	-50.99259	-27.78916	1.05642	-0.00385	-0.02329	58.09538	1.05669	268.19	-28.58
87/ 3/23	2446877.5	5.53952	-50.63922	-27.73975	1.05211	0.10816	0.03791	58.00440	1.05834	276.24	-28.57
87/ 3/23	2446878.0	12.60697	-49.53004	-27.27631	1.03227	0.21903	0.09881	57.93235	1.05987	284.28	-28.09
87/ 3/24	2446878.5	19.48791	-47.67883	-26.40423	0.99710	0.32698	0.15842	57.88119	1.06123	292.23	-27.14
87/ 3/24	2446879.0	26.07998	-45.11136	-25.13552	0.94707	0.43025	0.21577	57.85321	1.06236	300.03	-25.75
87/ 3/25	2446879.5	32.28501	-41.86513	-23.48863	0.88296	0.52714	0.26993	57.85090	1.06318	307.64	-23.96
87/ 3/25	2446880.0	38.01097	-37.98878	-21.48826	0.80580	0.61607	0.32001	57.87682	1.06361	315.02	-21.79
87/ 3/26	2446880.5	43.17376	-33.54123	-19.16485	0.71690	0.69558	0.36519	57.93341	1.06355	322.16	-19.32
87/ 3/26	2446881.0	47.69888	-28.59062	-16.55409	0.61777	0.76443	0.40476	58.02280	1.06293	329.06	-16.58
87/ 3/27	2446881.5	51.52286	-23.21287	-13.69614	0.51016	0.82156	0.43810	58.14659	1.06167	335.75	-13.62
87/ 3/27	2446882.0	54.59444	-17.49018	-10.63481	0.39592	0.86617	0.46474	58.30573	1.05972	342.24	-10.51
87/ 3/28	2446882.5	56.87542	-11.50925	-7.41665	0.27703	0.89775	0.48436	58.50028	1.05703	348.56	-7.28
87/ 3/28	2446883.0	58.34113	-5.35945	-4.08995	0.15551	0.91602	0.49678	58.72937	1.05360	354.75	-3.99
87/ 3/29	2446883.5	58.98051	0.86901	-0.70373	0.03335	0.92100	0.50195	58.99110	1.04943	0.84	-0.68
87/ 3/29	2446884.0	58.79576	7.08686	2.69326	-0.08753	0.91295	0.49998	59.28254	1.04457	6.87	2.60
87/ 3/30	2446884.5	57.80179	13.20745	6.05341	-0.20532	0.89238	0.49112	59.59973	1.03909	12.87	5.83
87/ 3/30	2446885.0	56.02518	19.14821	9.33111	-0.31838	0.85998	0.47570	59.93784	1.03306	18.87	8.96
87/ 3/31	2446885.5	53.50306	24.83182	12.48341	-0.42524	0.81660	0.45417	60.29123	1.02662	24.90	11.95
87/ 3/31	2446886.0	50.28178	30.18722	15.47061	-0.52464	0.76323	0.42704	60.65366	1.01987	30.98	14.78
87/ 4/ 1	2446886.5	46.41552	35.15031	18.25660	-0.61554	0.70093	0.39485	61.01843	1.01297	37.14	17.41
87/ 4/ 1	2446887.0	41.96492	39.66433	20.80920	-0.69707	0.63081	0.35822	61.37863	1.00606	43.39	19.82
87/ 4/ 2	2446887.5	36.99570	43.68012	23.10024	-0.76858	0.55400	0.31772	61.72727	0.99929	49.74	21.98
87/ 4/ 2	2446888.0	31.57752	47.15615	25.10566	-0.82958	0.47161	0.27397	62.05753	0.99282	56.19	23.86
87/ 4/ 3	2446888.5	25.78280	50.05841	26.80545	-0.87973	0.38475	0.22756	62.36289	0.98678	62.75	25.46
87/ 4/ 3	2446889.0	19.68583	52.36018	28.18352	-0.91881	0.29446	0.17907	62.63730	0.98132	69.40	26.74
87/ 4/ 4	2446889.5	13.36194	54.04176	29.22761	-0.94672	0.20178	0.12904	62.87532	0.97655	76.11	27.70
87/ 4/ 4	2446890.0	6.88687	55.09017	29.92914	-0.96346	0.10765	0.07800	63.07225	0.97258	82.87	28.33
87/ 4/ 5	2446890.5	0.33620	55.49886	30.28301	-0.96906	0.01302	0.02646	63.22418	0.96951	89.65	28.62
87/ 4/ 5	2446891.0	-6.21506	55.26742	30.28752	-0.96366	-0.08123	-0.02509	63.32810	0.96740	96.42	28.57
87/ 4/ 6	2446891.5	-12.69285	54.40136	29.94418	-0.94740	-0.17424	-0.07618	63.38194	0.96629	103.13	28.19
87/ 4/ 6	2446892.0	-19.02434	52.91191	29.25769	-0.92049	-0.26517	-0.12635	63.38461	0.96622	109.78	27.49
87/ 4/ 7	2446892.5	-25.13824	50.81592	28.23582	-0.88319	-0.35321	-0.17514	63.33601	0.96719	116.32	26.48

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 4/ 7	2446893.0	-30.96506	48.13575	26.88941	-0.83577	-0.43754	-0.22211	63.23706	0.96917	122.75	25.16
87/ 4/ 8	2446893.5	-36.43742	44.89927	25.23235	-0.77858	-0.51735	-0.26680	63.08963	0.97212	129.06	23.57
87/ 4/ 8	2446894.0	-41.49043	41.13990	23.28157	-0.71201	-0.59181	-0.30876	62.89657	0.97598	135.24	21.73
87/ 4/ 9	2446894.5	-46.06210	36.89661	21.05714	-0.63653	-0.66011	-0.34753	62.66163	0.98066	141.30	19.64
87/ 4/ 9	2446895.0	-50.09386	32.21395	18.58222	-0.55268	-0.72141	-0.38265	62.38936	0.98606	147.26	17.33
87/ 4/10	2446895.5	-53.53120	27.14215	15.88314	-0.46111	-0.77488	-0.41364	62.08510	0.99205	153.11	14.82
87/ 4/10	2446896.0	-56.32434	21.73702	12.98940	-0.36259	-0.81970	-0.44005	61.75479	0.99852	158.90	12.14
87/ 4/11	2446896.5	-58.42913	16.05987	9.93359	-0.25801	-0.85508	-0.46143	61.40488	1.00530	164.63	9.31
87/ 4/11	2446897.0	-59.80794	10.17732	6.75134	-0.14840	-0.88024	-0.47732	61.04218	1.01227	170.34	6.35
87/ 4/12	2446897.5	-60.43068	4.16089	3.48108	-0.03496	-0.89450	-0.48735	60.67371	1.01925	176.06	3.29
87/ 4/12	2446898.0	-60.27585	-1.91356	0.16382	0.08098	-0.89728	-0.49115	60.30644	1.02611	181.82	0.16
87/ 4/13	2446898.5	-59.33153	-7.96651	-3.15731	0.19791	-0.88809	-0.48845	59.94718	1.03269	187.65	-3.02
87/ 4/13	2446899.0	-57.59644	-13.91583	-6.43749	0.31421	-0.86664	-0.47904	59.60236	1.03888	193.58	-6.20
87/ 4/14	2446899.5	-55.08071	-19.67796	-9.63092	0.42813	-0.83281	-0.46282	59.27783	1.04455	199.66	-9.35
87/ 4/14	2446900.0	-51.80654	-25.16928	-12.69154	0.53786	-0.78671	-0.43983	58.97869	1.04960	205.91	-12.43
87/ 4/15	2446900.5	-47.80862	-30.30771	-15.57387	0.64154	-0.72869	-0.41022	58.70917	1.05396	212.37	-15.38
87/ 4/15	2446901.0	-43.13411	-35.01439	-18.23396	0.73735	-0.65934	-0.37427	58.47252	1.05759	219.07	-18.17
87/ 4/16	2446901.5	-37.84236	-39.21544	-20.63033	0.82352	-0.57954	-0.33242	58.27096	1.06045	226.02	-20.73
87/ 4/16	2446902.0	-32.00420	-42.84364	-22.72492	0.89844	-0.49039	-0.28526	58.10566	1.06257	233.24	-23.02
87/ 4/17	2446902.5	-25.70086	-45.84005	-24.48398	0.96067	-0.39322	-0.23347	57.97681	1.06396	240.72	-24.98
87/ 4/17	2446903.0	-19.02255	-48.15545	-25.87890	1.00899	-0.28956	-0.17787	57.88370	1.06468	248.44	-26.56
87/ 4/18	2446903.5	-12.06677	-49.75146	-26.88683	1.04247	-0.18108	-0.11935	57.82487	1.06479	256.37	-27.71
87/ 4/18	2446904.0	-4.93636	-50.60146	-27.49125	1.06047	-0.06957	-0.05888	57.79830	1.06438	264.43	-28.40
87/ 4/19	2446904.5	2.26252	-50.69116	-27.68229	1.06266	0.04312	0.00254	57.80157	1.06353	272.56	-28.61
87/ 4/19	2446905.0	9.42248	-50.01882	-27.45692	1.04900	0.15515	0.06391	57.83206	1.06234	280.67	-28.34
87/ 4/20	2446905.5	16.43701	-48.59518	-26.81893	1.01978	0.26468	0.12422	57.88715	1.06087	288.69	-27.60
87/ 4/20	2446906.0	23.20247	-46.44315	-25.77882	0.97557	0.36995	0.18250	57.96437	1.05920	296.55	-26.41
87/ 4/21	2446906.5	29.61994	-43.59715	-24.35344	0.91718	0.46934	0.23784	58.06154	1.05739	304.19	-24.80
87/ 4/21	2446907.0	35.59692	-40.10230	-22.56563	0.84569	0.56131	0.28939	58.17683	1.05547	311.59	-22.82
87/ 4/22	2446907.5	41.04886	-36.01344	-20.44367	0.76237	0.64453	0.33639	58.30884	1.05347	318.74	-20.52
87/ 4/22	2446908.0	45.90043	-31.39394	-18.02067	0.66866	0.71783	0.37818	58.45659	1.05138	325.63	-17.96
87/ 4/23	2446908.5	50.08657	-26.31442	-15.33392	0.56615	0.78023	0.41419	58.61947	1.04921	332.28	-15.16
87/ 4/23	2446909.0	53.55340	-20.85144	-12.42414	0.45654	0.83095	0.44397	58.79718	1.04691	338.73	-12.20
87/ 4/24	2446909.5	56.25876	-15.08603	-9.33474	0.34159	0.86946	0.46719	58.98961	1.04447	344.99	-9.10
87/ 4/24	2446910.0	58.17264	-9.10226	-6.11099	0.22312	0.89539	0.48362	59.19672	1.04183	351.11	-5.93
87/ 4/25	2446910.5	59.27730	-2.98580	-2.79929	0.10294	0.90864	0.49315	59.41842	1.03895	357.12	-2.70
87/ 4/25	2446911.0	59.56718	3.17756	0.55366	-0.01718	0.90927	0.49581	59.65444	1.03581	3.05	0.53
87/ 4/26	2446911.5	59.04859	9.30324	3.90160	-0.13552	0.89757	0.49170	59.90416	1.03236	8.95	3.73
87/ 4/26	2446912.0	57.73918	15.30917	7.19943	-0.25044	0.87400	0.48106	60.16656	1.02860	14.85	6.87
87/ 4/27	2446912.5	55.66721	21.11699	10.40387	-0.36046	0.83919	0.46418	60.44011	1.02452	20.77	9.91
87/ 4/27	2446913.0	52.87068	26.65308	13.47404	-0.46419	0.79390	0.44148	60.72269	1.02013	26.75	12.82
87/ 4/28	2446913.5	49.39627	31.84943	16.37195	-0.56044	0.73902	0.41340	61.01162	1.01545	32.81	15.57
87/ 4/28	2446914.0	45.29829	36.64435	19.06293	-0.64817	0.67553	0.38046	61.30366	1.01055	38.97	18.12
87/ 4/29	2446914.5	40.63747	40.98300	21.51592	-0.72651	0.60447	0.34322	61.59501	1.00548	45.24	20.45
87/ 4/29	2446915.0	35.47983	44.81772	23.70368	-0.79478	0.52691	0.30224	61.88143	1.00032	51.63	22.52

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM					MOON		
87/ 4/30	2446915.5	29.89550	48.10823	25.60293	-0.85243	0.44395	0.25812	62.15829	0.99517	58.14	24.32
87/ 4/30	2446916.0	23.95767	50.82168	27.19436	-0.85911	0.35668	0.21144	62.42072	0.99012	64.76	25.83
87/ 5/ 1	2446916.5	17.74162	52.93254	28.46265	-0.93456	0.26619	0.16279	62.66372	0.98528	71.47	27.01
87/ 5/ 1	2446917.0	11.32377	54.42246	29.39637	-0.95869	0.17350	0.11274	62.88226	0.98076	78.25	27.87
87/ 5/ 2	2446917.5	4.78097	55.28001	29.98786	-0.97147	0.07962	0.06182	63.07146	0.97669	85.06	28.39
87/ 5/ 2	2446918.0	-1.81023	55.50044	30.23310	-0.97300	-0.01449	0.01058	63.22670	0.97316	91.87	28.57
87/ 5/ 3	2446918.5	-8.37407	55.08535	30.13156	-0.96343	-0.10790	-0.04049	63.34376	0.97029	98.64	28.40
87/ 5/ 3	2446919.0	-14.83612	54.04242	29.68608	-0.94298	-0.19974	-0.09091	63.41890	0.96818	105.35	27.91
87/ 5/ 4	2446919.5	-21.12362	52.38518	28.90269	-0.91193	-0.28916	-0.14020	63.44903	0.96690	111.96	27.10
87/ 5/ 4	2446920.0	-27.16585	50.13274	27.79052	-0.87061	-0.37536	-0.18792	63.43176	0.96653	118.45	25.98
87/ 5/ 5	2446920.5	-32.89443	47.30965	26.36171	-0.81938	-0.45754	-0.23363	63.36550	0.96711	124.81	24.58
87/ 5/ 5	2446921.0	-38.24362	43.94576	24.63133	-0.75865	-0.53493	-0.27690	63.24956	0.96870	131.03	22.92
87/ 5/ 6	2446921.5	-43.15058	40.07610	22.61734	-0.68887	-0.60676	-0.31730	63.08415	0.97128	137.12	21.01
87/ 5/ 6	2446922.0	-47.55576	35.74088	20.34059	-0.61057	-0.67228	-0.35442	62.87050	0.97487	143.07	18.88
87/ 5/ 7	2446922.5	-51.40326	30.98547	17.82478	-0.52430	-0.73072	-0.38782	62.61084	0.97941	148.92	16.54
87/ 5/ 7	2446923.0	-54.64134	25.86037	15.09652	-0.43072	-0.78132	-0.41709	62.30842	0.98486	154.67	14.02
87/ 5/ 8	2446923.5	-57.22295	20.42122	12.18527	-0.33058	-0.82333	-0.44179	61.96751	0.99112	160.36	11.34
87/ 5/ 8	2446924.0	-59.10644	14.72876	9.12339	-0.22473	-0.85600	-0.46150	61.59337	0.99811	166.01	8.52
87/ 5/ 9	2446924.5	-60.25634	8.84868	5.94601	-0.11413	-0.87861	-0.47582	61.19216	1.00568	171.65	5.58
87/ 5/ 9	2446925.0	-60.64430	2.85146	2.69103	0.00008	-0.89048	-0.48436	60.77091	1.01369	177.31	2.54
87/ 5/10	2446925.5	-60.25002	-3.18807	-0.60116	0.11663	-0.89101	-0.48675	60.33730	1.02197	183.03	-0.57
87/ 5/10	2446926.0	-59.06239	-9.19126	-3.88792	0.23409	-0.87967	-0.48271	59.89959	1.03036	188.85	-3.72
87/ 5/11	2446926.5	-57.08055	-15.07639	-7.12478	0.35088	-0.85610	-0.47199	59.46637	1.03865	194.80	-6.88
87/ 5/11	2446927.0	-54.31492	-20.75977	-10.26598	0.46524	-0.82008	-0.45445	59.04633	1.04666	200.92	-10.01
87/ 5/12	2446927.5	-50.78815	-26.15703	-13.26519	0.57532	-0.77163	-0.43006	58.64803	1.05421	207.25	-13.07
87/ 5/12	2446928.0	-46.53577	-31.18467	-16.07633	0.67917	-0.71100	-0.39894	58.27959	1.06111	213.83	-16.01
87/ 5/13	2446928.5	-41.60663	-35.76190	-18.65457	0.77484	-0.63874	-0.36134	57.94841	1.06721	220.68	-18.78
87/ 5/13	2446929.0	-36.06282	-39.81262	-20.95738	0.86037	-0.55569	-0.31769	57.66093	1.07236	227.83	-21.31
87/ 5/14	2446929.5	-29.97916	-43.26746	-22.94568	0.93396	-0.46300	-0.26859	57.42236	1.07647	235.28	-23.55
87/ 5/14	2446930.0	-23.44221	-46.06578	-24.58497	0.99397	-0.36209	-0.21477	57.23648	1.07945	243.03	-25.44
87/ 5/15	2446930.5	-16.54868	-48.15759	-25.84633	1.03905	-0.25467	-0.15714	57.10556	1.08128	251.04	-26.91
87/ 5/15	2446931.0	-9.40345	-49.50503	-26.70731	1.06816	-0.14262	-0.09672	57.03029	1.08197	259.24	-27.92
87/ 5/16	2446931.5	-2.11712	-50.08364	-27.15267	1.08064	-0.02798	-0.03460	57.00983	1.08155	267.58	-28.44
87/ 5/16	2446932.0	5.19657	-49.88297	-27.17474	1.07623	0.08714	0.02808	57.04193	1.08011	275.95	-28.45
87/ 5/17	2446932.5	12.42348	-48.90687	-26.77360	1.05507	0.20065	0.09018	57.12312	1.07776	284.25	-27.95
87/ 5/17	2446933.0	19.45178	-47.17315	-25.95701	1.01770	0.31054	0.15058	57.24897	1.07462	292.41	-26.96
87/ 5/18	2446933.5	26.17441	-44.71284	-24.74000	0.96498	0.41491	0.20825	57.41433	1.07084	300.34	-25.52
87/ 5/18	2446934.0	32.49126	-41.56914	-23.14433	0.89809	0.51207	0.26225	57.61367	1.06657	308.01	-23.69
87/ 5/19	2446934.5	38.31106	-37.79598	-21.19776	0.81845	0.60056	0.31174	57.84132	1.06194	315.39	-21.50
87/ 5/19	2446935.0	43.55275	-33.45648	-18.93325	0.72766	0.67912	0.35603	58.09170	1.05710	322.47	-19.02
87/ 5/20	2446935.5	48.14659	-28.62129	-16.38803	0.62744	0.74679	0.39455	58.35957	1.05216	329.27	-16.31
87/ 5/20	2446936.0	52.03481	-23.36692	-13.60276	0.51960	0.80280	0.42686	58.64017	1.04723	335.82	-13.41
87/ 5/21	2446936.5	55.17197	-17.77410	-10.62057	0.40597	0.84666	0.45265	58.92929	1.04237	342.14	-10.38
87/ 5/21	2446937.0	57.52502	-11.92623	-7.48631	0.28836	0.87808	0.47175	59.22337	1.03766	348.29	-7.26
87/ 5/22	2446937.5	59.07318	-5.90797	-4.24566	0.16858	0.89698	0.48406	59.51950	1.03311	354.29	-4.09

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 5/22	2446938.0	59.80756	0.19612	-0.94450	0.04834	0.90346	0.48963	59.81534	1.02874	0.19	-0.90
87/ 5/23	2446938.5	59.73069	6.30277	2.37180	-0.07071	0.89779	0.48856	60.10911	1.02456	6.02	2.26
87/ 5/23	2446939.0	58.85590	12.33103	5.65899	-0.18703	0.88040	0.48107	60.39947	1.02054	11.83	5.38
87/ 5/24	2446939.5	57.20665	18.20328	8.87442	-0.29918	0.85183	0.46743	60.68538	1.01666	17.65	8.41
87/ 5/24	2446940.0	54.81570	23.84604	11.97755	-0.40584	0.81275	0.44797	60.96603	1.01289	23.51	11.33
87/ 5/25	2446940.5	51.72434	29.19071	14.93039	-0.50582	0.76394	0.42311	61.24068	1.00920	29.44	14.11
87/ 5/25	2446941.0	47.98145	34.17420	17.69777	-0.59806	0.70624	0.39329	61.50858	1.00555	35.46	16.72
87/ 5/26	2446941.5	43.64262	38.73940	20.24771	-0.68165	0.64058	0.35899	61.76884	1.00193	41.59	19.14
87/ 5/26	2446942.0	38.76919	42.83566	22.55165	-0.75581	0.56793	0.32073	62.02033	0.99833	47.85	21.32
87/ 5/27	2446942.5	33.42733	46.41903	24.58458	-0.81988	0.48930	0.27905	62.26166	0.99473	54.24	23.26
87/ 5/27	2446943.0	27.68705	49.45250	26.32522	-0.87338	0.40572	0.23451	62.49112	0.99116	60.76	24.91
87/ 5/28	2446943.5	21.62133	51.90606	27.75606	-0.91593	0.31823	0.18767	62.70662	0.98764	67.39	26.27
87/ 5/28	2446944.0	15.30521	53.75675	28.86340	-0.94729	0.22787	0.13908	62.90575	0.98419	74.11	27.31
87/ 5/29	2446944.5	8.81496	54.98858	29.63731	-0.96734	0.13565	0.08930	63.08579	0.98088	80.89	28.02
87/ 5/29	2446945.0	2.22733	55.59237	30.07157	-0.97606	0.04258	0.03887	63.24375	0.97776	87.71	28.39
87/ 5/30	2446945.5	-4.38117	55.56560	30.16361	-0.97353	-0.05039	-0.01167	63.37645	0.97490	94.51	28.42
87/ 5/30	2446946.0	-10.93492	54.91217	29.91434	-0.95992	-0.14232	-0.06183	63.48060	0.97238	101.26	28.11
87/ 5/31	2446946.5	-17.35971	53.64213	29.32809	-0.93549	-0.23232	-0.11110	63.55292	0.97029	107.93	27.48
87/ 5/31	2446947.0	-23.58326	51.77144	28.41240	-0.90055	-0.31955	-0.15903	63.59022	0.96871	114.49	26.54
87/ 6/ 1	2446947.5	-29.53564	49.32171	27.17796	-0.85549	-0.40317	-0.20516	63.58952	0.96773	120.91	25.30
87/ 6/ 1	2446948.0	-35.14966	46.31998	25.63844	-0.80072	-0.48242	-0.24905	63.54816	0.96742	127.19	23.79
87/ 6/ 2	2446948.5	-40.36123	42.79844	23.81038	-0.73673	-0.55654	-0.29029	63.46393	0.96787	133.32	22.04
87/ 6/ 2	2446949.0	-45.10969	38.79434	21.71312	-0.66406	-0.62480	-0.32848	63.33518	0.96915	139.30	20.05
87/ 6/ 3	2446949.5	-49.33813	34.34974	19.36867	-0.58327	-0.68650	-0.36321	63.16091	0.97130	145.15	17.86
87/ 6/ 3	2446950.0	-52.99374	29.51143	16.80171	-0.49501	-0.74095	-0.39412	62.94091	0.97436	150.89	15.48
87/ 6/ 4	2446950.5	-56.02820	24.33083	14.03948	-0.39997	-0.78747	-0.42082	62.67580	0.97835	156.53	12.94
87/ 6/ 4	2446951.0	-58.39815	18.86387	11.11175	-0.29892	-0.82540	-0.44293	62.36714	0.98327	162.10	10.26
87/ 6/ 5	2446951.5	-60.06566	13.17092	8.05079	-0.19270	-0.85410	-0.46010	62.01751	0.98909	167.63	7.46
87/ 6/ 5	2446952.0	-60.99888	7.31664	4.89129	-0.08226	-0.87294	-0.47197	61.63053	0.99576	173.16	4.55
87/ 6/ 6	2446952.5	-61.17277	1.36982	1.67028	0.03134	-0.88133	-0.47821	61.21090	1.00320	178.72	1.56
87/ 6/ 6	2446953.0	-60.56985	-4.59692	-1.57303	0.14692	-0.87873	-0.47850	60.76441	1.01130	184.34	-1.48
87/ 6/ 7	2446953.5	-59.18117	-10.50753	-4.79742	0.26314	-0.86468	-0.47258	60.29788	1.01993	190.07	-4.56
87/ 6/ 7	2446954.0	-57.00722	-16.28307	-7.96000	0.37854	-0.83880	-0.46022	59.81909	1.02892	195.94	-7.65
87/ 6/ 8	2446954.5	-54.05900	-21.84259	-11.01663	0.49150	-0.80086	-0.44128	59.33668	1.03811	202.00	-10.70
87/ 6/ 8	2446955.0	-50.35894	-27.10410	-13.92245	0.60025	-0.75081	-0.41569	58.85991	1.04729	208.29	-13.68
87/ 6/ 9	2446955.5	-45.94175	-31.98592	-16.63261	0.70294	-0.68879	-0.38352	58.39852	1.05624	214.85	-16.55
87/ 6/ 9	2446956.0	-40.85517	-36.40830	-19.10311	0.79760	-0.61523	-0.34496	57.96238	1.06474	221.71	-19.24
87/ 6/10	2446956.5	-35.16018	-40.29529	-21.29184	0.88226	-0.53084	-0.30039	57.56119	1.07257	228.89	-21.71
87/ 6/10	2446957.0	-28.93104	-43.57678	-23.15969	0.95502	-0.43663	-0.25032	57.20413	1.07952	236.42	-23.88
87/ 6/11	2446957.5	-22.25457	-46.19075	-24.67178	1.01407	-0.33397	-0.19546	56.89946	1.08540	244.28	-25.70
87/ 6/11	2446958.0	-15.22898	-48.08540	-25.79860	1.05787	-0.22453	-0.13671	56.65418	1.09004	252.43	-27.09
87/ 6/12	2446958.5	-7.96205	-49.22118	-26.51716	1.08517	-0.11023	-0.07509	56.47370	1.09333	260.81	-28.01
87/ 6/12	2446959.0	-0.56869	-49.57244	-26.81195	1.09510	0.00676	-0.01177	56.36160	1.09518	269.34	-28.41
87/ 6/13	2446959.5	6.83190	-49.12863	-26.67557	1.08727	0.12416	0.05202	56.31947	1.09558	277.92	-28.27
87/ 6/13	2446960.0	14.11944	-47.89489	-26.10916	1.06177	0.23964	0.11500	56.34685	1.09453	286.43	-27.60

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
87/ 6/14	2446960.5	21.17577	-45.89199	-25.12236	1.01914	0.35092	0.17595	56.44131	1.09213	294.77	-26.43
87/ 6/14	2446961.0	27.88809	-43.15563	-23.73298	0.96038	0.45589	0.23370	56.59866	1.08848	302.87	-24.79
87/ 6/15	2446961.5	34.15170	-39.73510	-21.96635	0.88690	0.55266	0.28719	56.81318	1.08374	310.68	-22.75
87/ 6/15	2446962.0	39.87243	-35.69158	-19.85441	0.80037	0.63961	0.33553	57.07798	1.07809	318.17	-20.36
87/ 6/16	2446962.5	44.96835	-31.09606	-17.43456	0.70273	0.71547	0.37800	57.38537	1.07173	325.34	-17.69
87/ 6/16	2446963.0	49.37104	-26.02714	-14.74856	0.59601	0.77927	0.41405	57.72722	1.06486	332.20	-14.80
87/ 6/17	2446963.5	53.02614	-20.56881	-11.84127	0.48232	0.83038	0.44330	58.09529	1.05768	338.80	-11.76
87/ 6/17	2446964.0	55.89350	-14.80834	-8.75954	0.36374	0.86846	0.46554	58.48162	1.05036	345.16	-8.61
87/ 6/18	2446964.5	57.94685	-8.83434	-5.55113	0.24228	0.89344	0.48070	58.87867	1.04308	351.33	-5.41
87/ 6/18	2446965.0	59.17321	-2.73514	-2.26385	0.11984	0.90548	0.48885	59.27963	1.03597	357.35	-2.19
87/ 6/19	2446965.5	59.57201	3.40269	1.05529	-0.00181	0.90492	0.49015	59.67844	1.02914	3.27	1.01
87/ 6/19	2446966.0	59.15419	9.49548	4.36069	-0.12104	0.89227	0.48484	60.06994	1.02268	9.12	4.16
87/ 6/20	2446966.5	57.94114	15.46344	7.60872	-0.23640	0.86817	0.47326	60.44987	1.01665	14.94	7.23
87/ 6/20	2446967.0	55.96367	21.23138	10.75813	-0.34657	0.83334	0.45579	60.81481	1.01109	20.78	10.19
87/ 6/21	2446967.5	53.26097	26.72932	13.77036	-0.45037	0.78858	0.43283	61.16217	1.00600	26.65	13.01
87/ 6/21	2446968.0	49.87965	31.89291	16.60986	-0.54680	0.73476	0.40486	61.49004	1.00138	32.59	15.67
87/ 6/22	2446968.5	45.87279	36.66380	19.24423	-0.63495	0.67277	0.37234	61.79715	0.99721	38.63	18.14
87/ 6/22	2446969.0	41.29903	40.98988	21.64438	-0.71408	0.60356	0.33578	62.08268	0.99345	44.78	20.40
87/ 6/23	2446969.5	36.22178	44.82545	23.78468	-0.78354	0.52809	0.29569	62.34621	0.99007	51.06	22.43
87/ 6/23	2446970.0	30.70837	48.13140	25.64301	-0.84280	0.44733	0.25260	62.58753	0.98703	57.46	24.19
87/ 6/24	2446970.5	24.82929	50.87523	27.20083	-0.89146	0.36227	0.20704	62.80659	0.98428	63.99	25.66
87/ 6/24	2446971.0	18.65745	53.03115	28.44320	-0.92921	0.27389	0.15954	63.00332	0.98178	70.62	26.84
87/ 6/25	2446971.5	12.26745	54.58003	29.35880	-0.95585	0.18318	0.11064	63.17760	0.97952	77.33	27.69
87/ 6/25	2446972.0	5.73488	55.50937	29.93992	-0.97130	0.09111	0.06086	63.32912	0.97746	84.10	28.21
87/ 6/26	2446972.5	-0.86432	55.81323	30.18238	-0.97554	-0.00137	0.01072	63.45739	0.97560	90.89	28.40
87/ 6/26	2446973.0	-7.45451	55.49208	30.08554	-0.96866	-0.09330	-0.03925	63.56163	0.97393	97.65	28.25
87/ 6/27	2446973.5	-13.96095	54.55267	29.65218	-0.95084	-0.18378	-0.08857	63.64082	0.97248	104.35	27.77
87/ 6/27	2446974.0	-20.31038	53.00786	28.88841	-0.92235	-0.27193	-0.13674	63.69368	0.97127	110.96	26.97
87/ 6/28	2446974.5	-26.43157	50.87639	27.80359	-0.88351	-0.35688	-0.18329	63.71872	0.97033	117.45	25.87
87/ 6/28	2446975.0	-32.25581	48.18267	26.41020	-0.83473	-0.43782	-0.22778	63.71425	0.96972	123.80	24.49
87/ 6/29	2446975.5	-37.71737	44.95653	24.72370	-0.77649	-0.51397	-0.26978	63.67849	0.96948	130.00	22.85
87/ 6/29	2446976.0	-42.75393	41.23297	22.76241	-0.70933	-0.58458	-0.30886	63.60962	0.96968	136.04	20.97
87/ 6/30	2446976.5	-47.30703	37.05193	20.54739	-0.63383	-0.64895	-0.34464	63.50587	0.97039	141.93	18.88
87/ 6/30	2446977.0	-51.32239	32.45802	18.10230	-0.55065	-0.70639	-0.37674	63.36564	0.97167	147.69	16.60
87/ 7/ 1	2446977.5	-54.75037	27.50032	15.45328	-0.46050	-0.75627	-0.40480	63.18761	0.97359	153.33	14.16
87/ 7/ 1	2446978.0	-57.54629	22.23215	12.62884	-0.36415	-0.79797	-0.42848	62.97088	0.97620	158.88	11.57
87/ 7/ 2	2446978.5	-59.67090	16.71081	9.65971	-0.26241	-0.83093	-0.44747	62.71505	0.97956	164.36	8.86
87/ 7/ 2	2446979.0	-61.09074	10.99744	6.57879	-0.15619	-0.85460	-0.46145	62.42037	0.98370	169.80	6.05
87/ 7/ 3	2446979.5	-61.77870	5.15668	3.42093	-0.04646	-0.86847	-0.47014	62.08785	0.98865	175.23	3.16
87/ 7/ 3	2446980.0	-61.71449	-0.74353	0.22289	0.06574	-0.87208	-0.47328	61.71937	0.99440	180.69	0.21
87/ 7/ 4	2446980.5	-60.88527	-6.63227	-2.97693	0.17925	-0.86502	-0.47062	61.31774	1.00093	186.22	-2.78
87/ 7/ 4	2446981.0	-59.28629	-12.43604	-6.13860	0.29282	-0.84694	-0.46198	60.88679	1.00820	191.85	-5.79
87/ 7/ 5	2446981.5	-56.92165	-18.07929	-9.22100	0.40510	-0.81758	-0.44719	60.43146	1.01613	197.62	-8.78
87/ 7/ 5	2446982.0	-53.80504	-23.48502	-12.18212	0.51462	-0.77678	-0.42616	59.95776	1.02462	203.58	-11.72
87/ 7/ 6	2446982.5	-49.96053	-28.57564	-14.97956	0.61977	-0.72454	-0.39886	59.47276	1.03352	209.77	-14.59

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 7/ 6	2446983.0	-45.42331	-33.27400	-17.57101	0.71888	-0.66099	-0.36536	58.98454	1.04268	216.22	-17.33
87/ 7/ 7	2446983.5	-40.24033	-37.50466	-19.91501	0.81016	-0.58651	-0.32583	58.50207	1.05191	222.98	-19.90
87/ 7/ 7	2446984.0	-34.47074	-41.19545	-21.97176	0.89180	-0.50169	-0.28059	58.03495	1.06100	230.08	-22.25
87/ 7/ 8	2446984.5	-28.18608	-44.27917	-23.70403	0.96196	-0.40742	-0.23011	57.59323	1.06972	237.52	-24.30
87/ 7/ 8	2446985.0	-21.47000	-46.69560	-25.07830	1.01890	-0.30487	-0.17500	57.18707	1.07784	245.31	-26.01
87/ 7/ 9	2446985.5	-14.41761	-48.39356	-26.06584	1.06102	-0.19553	-0.11605	56.82633	1.08511	253.41	-27.30
87/ 7/ 9	2446986.0	-7.13411	-49.33299	-26.64386	1.08695	-0.08120	-0.05424	56.52021	1.09133	261.77	-28.13
87/ 7/10	2446986.5	0.26711	-49.48685	-26.79659	1.09564	0.03607	0.00934	56.27679	1.09628	270.31	-28.43
87/ 7/10	2446987.0	7.66700	-48.84277	-26.51618	1.08649	0.15404	0.07345	56.10264	1.09981	278.92	-28.21
87/ 7/11	2446987.5	14.94383	-47.40411	-25.80328	1.05933	0.27030	0.13682	56.00247	1.10180	287.50	-27.44
87/ 7/11	2446988.0	21.97663	-45.19050	-24.66743	1.01453	0.38248	0.19814	55.97888	1.10218	295.93	-26.15
87/ 7/12	2446988.5	28.64860	-42.23758	-23.12688	0.95296	0.48825	0.25612	56.03220	1.10096	304.15	-24.38
87/ 7/12	2446989.0	34.85053	-38.59605	-21.20815	0.87599	0.58549	0.30962	56.16049	1.09819	312.08	-22.19
87/ 7/13	2446989.5	40.48380	-34.33007	-18.94518	0.78536	0.67236	0.35762	56.35966	1.09397	319.70	-19.64
87/ 7/13	2446990.0	45.46277	-29.51507	-16.37816	0.68315	0.74739	0.39929	56.62373	1.08845	327.01	-16.81
87/ 7/14	2446990.5	49.71658	-24.23528	-13.55220	0.57162	0.80946	0.43400	56.94514	1.08182	334.01	-13.77
87/ 7/14	2446991.0	53.19013	-18.58105	-10.51587	0.45314	0.85788	0.46135	57.31518	1.07431	340.74	-10.57
87/ 7/15	2446991.5	55.84439	-12.64622	-7.31983	0.33007	0.89229	0.48115	57.72437	1.06613	347.24	-7.29
87/ 7/15	2446992.0	57.65604	-6.52573	-4.01545	0.20469	0.91273	0.49336	58.16294	1.05753	353.54	-3.96
87/ 7/16	2446992.5	58.61668	-0.31342	-0.65367	0.07912	0.91948	0.49813	58.62117	1.04873	359.69	-0.64
87/ 7/16	2446993.0	58.73167	5.89968	2.71599	-0.04472	0.91307	0.49574	59.08969	1.03993	5.74	2.63
87/ 7/17	2446993.5	58.01871	12.02681	6.04617	-0.16510	0.89422	0.48655	59.55981	1.03132	11.71	5.83
87/ 7/17	2446994.0	56.50645	17.98649	9.29233	-0.28052	0.86377	0.47100	60.02366	1.02305	17.66	8.91
87/ 7/18	2446994.5	54.23298	23.70329	12.41308	-0.38968	0.82266	0.44960	60.47434	1.01526	23.61	11.84
87/ 7/18	2446995.0	51.24446	29.10828	15.37052	-0.49150	0.77187	0.42287	60.90600	1.00805	29.60	14.62
87/ 7/19	2446995.5	47.59388	34.13937	18.13040	-0.58505	0.71242	0.39135	61.31382	1.00149	35.65	17.20
87/ 7/19	2446996.0	43.33981	38.74134	20.66214	-0.66959	0.64533	0.35560	61.69404	0.99561	41.79	19.57
87/ 7/20	2446996.5	38.54550	42.86596	22.93893	-0.74449	0.57163	0.31616	62.04386	0.99044	48.04	21.70
87/ 7/20	2446997.0	33.27787	46.47187	24.93768	-0.80928	0.49232	0.27358	62.36136	0.98598	54.39	23.57
87/ 7/21	2446997.5	27.60683	49.52450	26.63897	-0.86357	0.40841	0.22841	62.64541	0.98220	60.86	25.17
87/ 7/21	2446998.0	21.60447	51.99602	28.02700	-0.90707	0.32088	0.18117	62.89557	0.97907	67.44	26.46
87/ 7/22	2446998.5	15.34451	53.86517	29.08957	-0.93961	0.23070	0.13239	63.11191	0.97653	74.10	27.45
87/ 7/22	2446999.0	8.90170	55.11716	29.81801	-0.96106	0.13880	0.08259	63.29499	0.97454	80.83	28.11
87/ 7/23	2446999.5	2.35123	55.74361	30.20711	-0.97140	0.04613	0.03227	63.44563	0.97303	87.58	28.43
87/ 7/23	2447000.0	-4.23176	55.74240	30.25508	-0.97068	-0.04639	-0.01806	63.56487	0.97195	94.34	28.42
87/ 7/24	2447000.5	-10.77271	55.11755	29.96352	-0.95901	-0.13787	-0.06791	63.65381	0.97125	101.06	28.08
87/ 7/24	2447001.0	-17.19815	53.87913	29.33730	-0.93660	-0.22743	-0.11680	63.71353	0.97087	107.70	27.42
87/ 7/25	2447001.5	-23.43620	52.04313	28.38456	-0.90373	-0.31419	-0.16426	63.74500	0.97079	114.24	26.44
87/ 7/25	2447002.0	-29.41709	49.63130	27.11658	-0.86073	-0.39733	-0.20981	63.74904	0.97096	120.66	25.17
87/ 7/26	2447002.5	-35.07368	46.67098	25.54775	-0.80804	-0.47602	-0.25302	63.72621	0.97136	126.93	23.63
87/ 7/26	2447003.0	-40.34192	43.19494	23.69542	-0.74615	-0.54949	-0.29346	63.67689	0.97200	133.04	21.85
87/ 7/27	2447003.5	-45.16140	39.24114	21.57980	-0.67562	-0.61698	-0.33070	63.60115	0.97288	139.01	19.83
87/ 7/27	2447004.0	-49.47581	34.85247	19.22385	-0.59712	-0.67779	-0.36436	63.49888	0.97402	144.84	17.62
87/ 7/28	2447004.5	-53.23343	30.07650	16.65312	-0.51133	-0.73124	-0.39407	63.36971	0.97543	150.53	15.24
87/ 7/28	2447005.0	-56.38755	24.96517	13.89556	-0.41905	-0.77672	-0.41947	63.21315	0.97716	156.12	12.70

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 7/29	2447005.5	-58.89699	19.57446	10.98142	-0.32110	-0.81365	-0.44026	63.02861	0.97926	161.62	10.03
87/ 7/29	2447006.0	-60.72646	13.96410	7.94299	-0.21842	-0.84150	-0.45613	62.81553	0.98177	167.05	7.26
87/ 7/30	2447006.5	-61.84709	8.19717	4.81446	-0.11195	-0.85981	-0.46682	62.57344	0.98475	172.45	4.41
87/ 7/30	2447007.0	-62.23680	2.33971	1.63169	-0.00276	-0.86817	-0.47211	62.30214	0.98824	177.85	1.50
87/ 7/31	2447007.5	-61.88078	-3.53967	-1.56801	0.10806	-0.86623	-0.47179	62.00177	0.99228	183.27	-1.45
87/ 7/31	2447008.0	-60.77193	-9.37027	-4.74613	0.21935	-0.85372	-0.46571	61.67297	0.99692	188.77	-4.41
87/ 8/ 1	2447008.5	-58.91132	-15.07978	-7.86324	0.32984	-0.83045	-0.45376	61.31700	1.00217	194.36	-7.37
87/ 8/ 1	2447009.0	-56.30867	-20.59488	-10.87928	0.43824	-0.79631	-0.43586	60.93582	1.00804	200.09	-10.28
87/ 8/ 2	2447009.5	-52.98280	-25.84188	-13.75393	0.54316	-0.75129	-0.41201	60.53223	1.01450	206.00	-13.13
87/ 8/ 2	2447010.0	-48.96218	-30.74749	-16.44703	0.64315	-0.69553	-0.38227	60.10997	1.02153	212.13	-15.88
87/ 8/ 3	2447010.5	-44.28528	-35.23970	-18.91906	0.73670	-0.62927	-0.34676	59.67372	1.02905	218.51	-18.48
87/ 8/ 3	2447011.0	-39.00101	-39.24883	-21.13169	0.82224	-0.55296	-0.30572	59.22919	1.03697	225.18	-20.90
87/ 8/ 4	2447011.5	-33.16897	-42.70875	-23.04848	0.89819	-0.46722	-0.25947	58.78308	1.04516	232.17	-23.08
87/ 8/ 4	2447012.0	-26.85949	-45.55828	-24.63561	0.96296	-0.37288	-0.20846	58.34297	1.05346	239.48	-24.98
87/ 8/ 5	2447012.5	-20.15350	-47.74267	-25.86274	1.01503	-0.27101	-0.15326	57.91724	1.06170	247.11	-26.52
87/ 8/ 5	2447013.0	-13.14199	-49.21533	-26.70388	1.05295	-0.16295	-0.09461	57.51485	1.06968	255.05	-27.66
87/ 8/ 6	2447013.5	-5.92510	-49.93953	-27.13839	1.07548	-0.05028	-0.03334	57.14505	1.07717	263.23	-28.35
87/ 8/ 6	2447014.0	1.38927	-49.89011	-27.15191	1.08159	0.06517	0.02953	56.81707	1.08396	271.60	-28.55
87/ 8/ 7	2447014.5	8.68739	-49.05503	-26.73718	1.07060	0.18136	0.09292	56.53975	1.08982	280.04	-28.22
87/ 8/ 7	2447015.0	15.85213	-47.43669	-25.89481	1.04219	0.29609	0.15561	56.32114	1.09455	288.48	-27.37
87/ 8/ 8	2447015.5	22.76579	-45.05272	-24.63371	0.99652	0.40706	0.21635	56.16804	1.09798	296.81	-26.01
87/ 8/ 8	2447016.0	29.31328	-41.93631	-22.97132	0.93421	0.51200	0.27391	56.08568	1.09996	304.95	-24.18
87/ 8/ 9	2447016.5	35.38543	-38.13580	-20.93334	0.85638	0.60872	0.32707	56.07739	1.10041	312.86	-21.92
87/ 8/ 9	2447017.0	40.88217	-33.71368	-18.55327	0.76459	0.69525	0.37475	56.14435	1.09928	320.49	-19.30
87/ 8/10	2447017.5	45.71539	-28.74480	-15.87143	0.66080	0.76992	0.41604	56.28555	1.09660	327.84	-16.38
87/ 8/10	2447018.0	49.81127	-23.31421	-12.93377	0.54726	0.83141	0.45019	56.49777	1.09243	334.92	-13.23
87/ 8/11	2447018.5	53.11195	-17.51445	-9.79045	0.42640	0.87881	0.47670	56.77577	1.08691	341.75	-9.93
87/ 8/11	2447019.0	55.57633	-11.44284	-6.49430	0.30073	0.91164	0.49529	57.11255	1.08020	348.37	-6.53
87/ 8/12	2447019.5	57.18027	-5.19865	-3.09934	0.17272	0.92979	0.50589	57.49970	1.07251	354.81	-3.09
87/ 8/12	2447020.0	57.91597	1.11947	0.34066	0.04472	0.93354	0.50863	57.92779	1.06405	1.11	0.34
87/ 8/13	2447020.5	57.79091	7.41569	3.77337	-0.08112	0.92344	0.50380	58.38681	1.05506	7.31	3.71
87/ 8/13	2447021.0	56.82633	13.59889	7.14895	-0.20289	0.90032	0.49184	58.86653	1.04577	13.46	6.98
87/ 8/14	2447021.5	55.05557	19.58403	10.42081	-0.31893	0.86513	0.47326	59.35691	1.03641	19.58	10.11
87/ 8/14	2447022.0	52.52222	25.29313	13.54614	-0.42786	0.81899	0.44867	59.84834	1.02719	25.71	13.08
87/ 8/15	2447022.5	49.27840	30.65589	16.48628	-0.52856	0.76306	0.41868	60.33193	1.01830	31.89	15.86
87/ 8/15	2447023.0	45.38311	35.60998	19.20685	-0.62011	0.69851	0.38395	60.79968	1.00989	38.12	18.42
87/ 8/16	2447023.5	40.90073	40.10111	21.67787	-0.70182	0.62654	0.34510	61.24458	1.00210	44.43	20.73
87/ 8/16	2447024.0	35.89976	44.08292	23.87361	-0.77317	0.54830	0.30276	61.66073	0.99503	50.84	22.78
87/ 8/17	2447024.5	30.45173	47.51673	25.77256	-0.83378	0.46491	0.25755	62.04331	0.98877	57.35	24.54
87/ 8/17	2447025.0	24.63027	50.37132	27.35724	-0.88341	0.37744	0.21006	62.38862	0.98336	63.94	26.01
87/ 8/18	2447025.5	18.51035	52.62259	28.61407	-0.92190	0.28692	0.16083	62.69398	0.97882	70.62	27.16
87/ 8/18	2447026.0	12.16767	54.25324	29.53318	-0.94919	0.19434	0.11042	62.95772	0.97515	77.36	27.98
87/ 8/19	2447026.5	5.67809	55.25257	30.10829	-0.96528	0.10065	0.05934	63.17908	0.97233	84.13	28.46
87/ 8/19	2447027.0	-0.88281	55.61616	30.33658	-0.97026	0.00676	0.00809	63.35806	0.97032	90.91	28.61
87/ 8/20	2447027.5	-7.44011	55.34572	30.21858	-0.96425	-0.08643	-0.04284	63.49541	0.96906	97.66	28.42

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 8/20	2447028.0	-13.92001	54.44893	29.75808	-0.94744	-0.17806	-0.09297	63.59242	0.96850	104.34	27.90
87/ 8/21	2447028.5	-20.25019	52.93924	28.96205	-0.92008	-0.26727	-0.14184	63.65087	0.96856	110.93	27.07
87/ 8/21	2447029.0	-26.36017	50.83580	27.84059	-0.88248	-0.35325	-0.18899	63.67288	0.96916	117.41	25.93
87/ 8/22	2447029.5	-32.18180	48.16333	26.40686	-0.83500	-0.43517	-0.23398	63.66080	0.97023	123.75	24.51
87/ 8/22	2447030.0	-37.64966	44.95201	24.67700	-0.77809	-0.51224	-0.27636	63.61709	0.97169	129.95	22.82
87/ 8/23	2447030.5	-42.70153	41.23731	22.67011	-0.71225	-0.58368	-0.31572	63.54424	0.97348	136.00	20.90
87/ 8/23	2447031.0	-47.27892	37.05988	20.40810	-0.63808	-0.64876	-0.35163	63.44464	0.97554	141.91	18.76
87/ 8/24	2447031.5	-51.32758	32.46533	17.91566	-0.55624	-0.70674	-0.38370	63.32052	0.97781	147.69	16.44
87/ 8/24	2447032.0	-54.79801	27.50398	15.22006	-0.46747	-0.75696	-0.41156	63.17390	0.98025	153.35	13.94
87/ 8/25	2447032.5	-57.64608	22.23062	12.35106	-0.37260	-0.79878	-0.43485	63.00650	0.98284	158.91	11.30
87/ 8/25	2447033.0	-59.83351	16.70411	9.34067	-0.27255	-0.83162	-0.45326	62.81978	0.98556	164.40	8.55
87/ 8/26	2447033.5	-61.32847	10.98699	6.22297	-0.16829	-0.85498	-0.46650	62.61486	0.98840	169.84	5.70
87/ 8/26	2447034.0	-62.10605	5.14506	3.03382	-0.06089	-0.86841	-0.47432	62.39261	0.99138	175.26	2.79
87/ 8/27	2447034.5	-62.14878	-0.75320	-0.18938	0.04851	-0.87156	-0.47652	62.15364	0.99451	180.69	-0.17
87/ 8/27	2447035.0	-61.44708	-6.63720	-3.40804	0.15873	-0.86416	-0.47296	61.89839	0.99783	186.16	-3.16
87/ 8/28	2447035.5	-59.99968	-12.43482	-6.58272	0.26850	-0.84604	-0.46352	61.62725	1.00136	191.71	-6.13
87/ 8/28	2447036.0	-57.81396	-18.07318	-9.67348	0.37653	-0.81713	-0.44817	61.34060	1.00515	197.36	-9.07
87/ 8/29	2447036.5	-54.90629	-23.47932	-12.64033	0.48146	-0.77749	-0.42694	61.03897	1.00924	203.15	-11.95
87/ 8/29	2447037.0	-51.30225	-28.58104	-15.44363	0.58193	-0.72728	-0.39990	60.72316	1.01365	209.12	-14.73
87/ 8/30	2447037.5	-47.03684	-33.30773	-18.04458	0.67653	-0.66680	-0.36722	60.39433	1.01841	215.30	-17.38
87/ 8/30	2447038.0	-42.15453	-37.59131	-20.40571	0.76385	-0.59651	-0.32913	60.05417	1.02354	221.72	-19.86
87/ 8/31	2447038.5	-36.70935	-41.36718	-22.49142	0.84251	-0.51700	-0.28595	59.70497	1.02902	228.41	-22.13
87/ 8/31	2447039.0	-30.76471	-44.57532	-24.26858	0.91111	-0.42901	-0.23809	59.34974	1.03482	235.39	-24.14
87/ 9/ 1	2447039.5	-24.39323	-47.16140	-25.70714	0.96834	-0.33347	-0.18605	58.99225	1.04091	242.65	-25.83
87/ 9/ 1	2447040.0	-17.67627	-49.07797	-26.78077	1.01293	-0.23151	-0.13044	58.63708	1.04720	250.19	-27.18
87/ 9/ 2	2447040.5	-10.70330	-50.28572	-27.46757	1.04376	-0.12439	-0.07195	58.28963	1.05360	257.98	-28.11
87/ 9/ 2	2447041.0	-3.57101	-50.75471	-27.75074	1.05983	-0.01362	-0.01140	57.95599	1.05998	265.98	-28.61
87/ 9/ 3	2447041.5	3.61791	-50.46565	-27.61931	1.06037	0.09916	0.05032	57.64284	1.06618	274.10	-28.63
87/ 9/ 3	2447042.0	10.75629	-49.41103	-27.06870	1.04484	0.21213	0.11221	57.35732	1.07205	282.28	-28.16
87/ 9/ 4	2447042.5	17.73441	-47.59608	-26.10133	1.01303	0.32335	0.17320	57.10671	1.07740	290.44	-27.20
87/ 9/ 4	2447043.0	24.44216	-45.03951	-24.72701	0.96506	0.43079	0.23220	56.89817	1.08205	298.49	-25.76
87/ 9/ 5	2447043.5	30.77162	-41.77386	-22.96309	0.90144	0.53240	0.28806	56.73845	1.08583	306.38	-23.87
87/ 9/ 5	2447044.0	36.61966	-37.84541	-20.83451	0.82309	0.62618	0.33970	56.63348	1.08857	314.06	-21.59
87/ 9/ 6	2447044.5	41.89075	-33.31358	-18.37341	0.73132	0.71027	0.38609	56.58809	1.09013	321.51	-18.95
87/ 9/ 6	2447045.0	46.49958	-28.24980	-15.61856	0.62784	0.78301	0.42630	56.60567	1.09042	328.72	-16.02
87/ 9/ 7	2447045.5	50.37342	-22.73584	-12.61444	0.51464	0.84300	0.45958	56.68795	1.08937	335.71	-12.86
87/ 9/ 7	2447046.0	53.45401	-16.86172	-9.41012	0.39399	0.88922	0.48534	56.83484	1.08697	342.49	-9.53
87/ 9/ 8	2447046.5	55.69897	-10.72324	-6.05788	0.26829	0.92098	0.50321	57.04438	1.08324	349.10	-6.10
87/ 9/ 8	2447047.0	57.08238	-4.41945	-2.61186	0.13999	0.93802	0.51303	57.31275	1.07828	355.57	-2.61
87/ 9/ 9	2447047.5	57.59486	1.95001	0.87343	0.01150	0.94042	0.51483	57.63448	1.07218	1.94	0.87
87/ 9/ 9	2447048.0	57.24293	8.28733	4.34438	-0.11490	0.92863	0.50885	58.00264	1.06512	8.24	4.30
87/ 9/10	2447048.5	56.04782	14.49872	7.74955	-0.23715	0.90338	0.49548	58.40913	1.05727	14.50	7.62
87/ 9/10	2447049.0	54.04402	20.49612	11.04059	-0.35343	0.86562	0.47524	58.84506	1.04884	20.77	10.81
87/ 9/11	2447049.5	51.27737	26.19866	14.17303	-0.46218	0.81650	0.44876	59.30103	1.04003	27.06	13.83
87/ 9/11	2447050.0	47.80325	31.53354	17.10678	-0.56215	0.75727	0.41669	59.76752	1.03106	33.41	16.63

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/ 9/12	2447050.5	43.68470	36.43659	19.80645	-0.65234	0.68921	0.37975	60.23515	1.02214	39.83	19.20
87/ 9/12	2447051.0	38.99057	40.85251	22.24149	-0.73200	0.61364	0.33866	60.69494	1.01345	46.34	21.50
87/ 9/13	2447051.5	33.79403	44.73484	24.38615	-0.80062	0.53185	0.29412	61.13858	1.00517	52.93	23.51
87/ 9/13	2447052.0	28.17112	48.04566	26.21936	-0.85786	0.44508	0.24681	61.55853	0.99747	59.62	25.21
87/ 9/14	2447052.5	22.19963	50.75531	27.72458	-0.90354	0.35452	0.19737	61.94818	0.99047	66.38	26.59
87/ 9/14	2447053.0	15.95813	52.84190	28.88951	-0.93759	0.26128	0.14642	62.30194	0.98427	73.20	27.63
87/ 9/15	2447053.5	9.52523	54.29092	29.70588	-0.96007	0.16642	0.09454	62.61528	0.97897	80.05	28.32
87/ 9/15	2447054.0	2.97894	55.09477	30.16924	-0.97110	0.07092	0.04227	62.88474	0.97461	86.91	28.67
87/ 9/16	2447054.5	-3.60377	55.25235	30.27870	-0.97087	-0.02427	-0.00988	63.10791	0.97122	93.73	28.67
87/ 9/16	2447055.0	-10.14739	54.76877	30.03675	-0.95960	-0.11826	-0.06142	63.28344	0.96881	100.50	28.34
87/ 9/17	2447055.5	-16.57815	53.65500	29.44914	-0.93759	-0.21022	-0.11188	63.41092	0.96736	107.17	27.67
87/ 9/17	2447056.0	-22.82439	51.92765	28.52469	-0.90517	-0.29931	-0.16081	63.49087	0.96684	113.73	26.70
87/ 9/18	2447056.5	-28.81674	49.60880	27.27524	-0.86269	-0.38475	-0.20778	63.52462	0.96718	120.15	25.43
87/ 9/18	2447057.0	-34.48852	46.72587	25.71558	-0.81058	-0.46576	-0.25235	63.51422	0.96832	126.43	23.88
87/ 9/19	2447057.5	-39.77602	43.31146	23.86333	-0.74930	-0.54157	-0.29411	63.46237	0.97017	132.56	22.09
87/ 9/19	2447058.0	-44.61889	39.40330	21.73894	-0.67937	-0.61143	-0.33264	63.37229	0.97265	138.55	20.06
87/ 9/20	2447058.5	-48.96057	35.04412	19.36564	-0.60141	-0.67463	-0.36754	63.24757	0.97565	144.41	17.83
87/ 9/20	2447059.0	-52.74880	30.28153	16.76932	-0.51606	-0.73044	-0.39843	63.09213	0.97908	150.14	15.41
87/ 9/21	2447059.5	-55.93610	25.16788	13.97850	-0.42409	-0.77819	-0.42492	62.91000	0.98284	155.78	12.84
87/ 9/21	2447060.0	-58.48044	19.75999	11.02419	-0.32635	-0.81722	-0.44665	62.70528	0.98684	161.33	10.13
87/ 9/22	2447060.5	-60.34579	14.11893	7.93972	-0.22376	-0.84695	-0.46330	62.48198	0.99098	166.83	7.30
87/ 9/22	2447061.0	-61.50280	8.30957	4.76055	-0.11736	-0.86683	-0.47457	62.24393	0.99518	172.31	4.39
87/ 9/23	2447061.5	-61.92944	2.40019	1.52403	-0.00828	-0.87642	-0.48020	61.99467	0.99938	177.78	1.41
87/ 9/23	2447062.0	-61.61161	-3.53819	-1.73096	0.10227	-0.87534	-0.47999	61.73739	1.00353	183.29	-1.61
87/ 9/24	2447062.5	-60.54375	-9.43244	-4.96436	0.21298	-0.86335	-0.47380	61.47488	1.00758	188.86	-4.63
87/ 9/24	2447063.0	-58.72930	-15.20811	-8.13535	0.32250	-0.84032	-0.46156	61.20948	1.01152	194.52	-7.64
87/ 9/25	2447063.5	-56.18113	-20.79032	-11.20284	0.42940	-0.80624	-0.44325	60.94310	1.01532	200.31	-10.59
87/ 9/25	2447064.0	-52.92183	-26.10474	-14.12602	0.53225	-0.76128	-0.41896	60.67719	1.01900	206.26	-13.46
87/ 9/26	2447064.5	-48.98382	-31.07860	-16.86487	0.62958	-0.70574	-0.38885	60.41289	1.02257	212.39	-16.21
87/ 9/26	2447065.0	-44.40936	-35.64175	-19.38083	0.71995	-0.64009	-0.35319	60.15099	1.02605	218.75	-18.80
87/ 9/27	2447065.5	-39.25041	-39.72781	-21.63731	0.80194	-0.56497	-0.31230	59.89212	1.02949	225.35	-21.18
87/ 9/27	2447066.0	-33.56826	-43.27522	-23.60037	0.87423	-0.48118	-0.26662	59.63682	1.03290	232.20	-23.31
87/ 9/28	2447066.5	-27.43305	-46.22836	-25.23930	0.93553	-0.38966	-0.21668	59.38565	1.03634	239.31	-25.15
87/ 9/28	2447067.0	-20.92310	-48.53863	-26.52719	0.98470	-0.29154	-0.16307	59.13938	1.03982	246.68	-26.65
87/ 9/29	2447067.5	-14.12408	-50.16544	-27.44152	1.02073	-0.18807	-0.10649	58.89905	1.04336	254.28	-27.77
87/ 9/29	2447068.0	-7.12798	-51.07723	-27.96467	1.04277	-0.08064	-0.04769	58.66612	1.04697	262.06	-28.47
87/ 9/30	2447068.5	-0.03195	-51.25226	-28.08442	1.05015	0.02923	0.01249	58.44253	1.05063	269.96	-28.72
87/ 9/30	2447069.0	7.06309	-50.67946	-27.79437	1.04242	0.13991	0.07317	58.23076	1.05431	277.93	-28.51
87/10/ 1	2447069.5	14.05393	-49.35903	-27.09430	1.01937	0.24971	0.13341	58.03386	1.05795	285.89	-27.83
87/10/ 1	2447070.0	20.83681	-47.30294	-25.99043	0.98104	0.35685	0.19224	57.85537	1.06148	293.77	-26.69
87/10/ 2	2447070.5	27.30924	-44.53517	-24.49556	0.92777	0.45956	0.24870	57.69929	1.06481	301.52	-25.12
87/10/ 2	2447071.0	33.37197	-41.09174	-22.62913	0.86019	0.55608	0.30180	57.56993	1.06782	309.08	-23.15
87/10/ 3	2447071.5	38.93106	-37.02048	-20.41705	0.77923	0.64468	0.35062	57.47172	1.07040	316.44	-20.81
87/10/ 3	2447072.0	43.89993	-32.38042	-17.89138	0.68613	0.72378	0.39426	57.40903	1.07242	323.59	-18.16
87/10/ 4	2447072.5	48.20137	-27.24088	-15.08988	0.58242	0.79195	0.43195	57.38590	1.07377	330.53	-15.25

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/10/ 4	2447073.0	51.76936	-21.68020	-12.05526	0.46987	0.84796	0.46300	57.40581	1.07433	337.28	-12.12
87/10/ 5	2447073.5	54.55070	-15.78414	-8.83436	0.35048	0.89085	0.48688	57.47142	1.07401	343.86	-8.84
87/10/ 5	2447074.0	56.50624	-9.64402	-5.47709	0.22638	0.91995	0.50322	57.58438	1.07274	350.31	-5.46
87/10/ 6	2447074.5	57.61168	-3.35462	-2.03534	0.09982	0.93490	0.51181	57.74514	1.07049	356.67	-2.02
87/10/ 6	2447075.0	57.85789	2.98794	1.43827	-0.02697	0.93567	0.51263	57.95284	1.06724	2.96	1.42
87/10/ 7	2447075.5	57.25075	9.28844	4.89153	-0.15181	0.92255	0.50584	58.20525	1.06302	9.22	4.82
87/10/ 7	2447076.0	55.81051	15.45455	8.27377	-0.27265	0.89610	0.49173	58.49882	1.05789	15.48	8.13
87/10/ 8	2447076.5	53.57066	21.39871	11.53692	-0.38764	0.85716	0.47075	58.82874	1.05195	21.77	11.31
87/10/ 8	2447077.0	50.57655	27.03968	14.63631	-0.49513	0.80676	0.44348	59.18913	1.04532	28.13	14.32
87/10/ 9	2447077.5	46.88373	32.30374	17.53139	-0.59375	0.74607	0.41053	59.57319	1.03813	34.57	17.11
87/10/ 9	2447078.0	42.55618	37.12556	20.18616	-0.68240	0.67639	0.37263	59.97347	1.03055	41.10	19.67
87/10/10	2447078.5	37.66454	41.44872	22.56950	-0.76021	0.59904	0.33050	60.38208	1.02274	47.74	21.95
87/10/10	2447079.0	32.28437	45.22589	24.65524	-0.82657	0.51539	0.28488	60.79097	1.01489	54.48	23.93
87/10/11	2447079.5	26.49461	48.41880	26.42218	-0.88111	0.42674	0.23649	61.19213	1.00716	61.31	25.58
87/10/11	2447080.0	20.37616	50.99801	27.85396	-0.92361	0.33437	0.18602	61.57782	0.99973	68.22	26.89
87/10/12	2447080.5	14.01071	52.94246	28.93880	-0.95405	0.23949	0.13415	61.94077	0.99276	75.18	27.85
87/10/12	2447081.0	7.47975	54.23907	29.66931	-0.97251	0.14325	0.08149	62.27432	0.98638	82.15	28.45
87/10/13	2447081.5	0.86379	54.88214	30.04213	-0.97919	0.04668	0.02862	62.57256	0.98072	89.10	28.69
87/10/13	2447082.0	-5.75826	54.87293	30.05775	-0.97436	-0.04921	-0.02391	62.83044	0.97589	95.99	28.58
87/10/14	2447082.5	-12.30954	54.21913	29.72017	-0.95835	-0.14351	-0.07560	63.04385	0.97199	102.79	28.13
87/10/14	2447083.0	-18.71564	52.93444	29.03669	-0.93156	-0.23537	-0.12597	63.20965	0.96905	109.47	27.35
87/10/15	2447083.5	-24.90488	51.03821	28.01773	-0.89439	-0.32397	-0.17459	63.32570	0.96714	116.01	26.26
87/10/15	2447084.0	-30.80851	48.55513	26.67665	-0.84730	-0.40853	-0.22103	63.39092	0.96626	122.40	24.89
87/10/16	2447084.5	-36.36098	45.51501	25.02960	-0.79078	-0.48833	-0.26487	63.40519	0.96641	128.62	23.25
87/10/16	2447085.0	-41.50014	41.95260	23.09545	-0.72534	-0.56265	-0.30574	63.36941	0.96756	134.69	21.37
87/10/17	2447085.5	-46.16750	37.90743	20.89573	-0.65156	-0.63077	-0.34323	63.28541	0.96965	140.61	19.28
87/10/17	2447086.0	-50.30857	33.42372	18.45451	-0.57004	-0.69203	-0.37699	63.15589	0.97261	146.40	16.99
87/10/18	2447086.5	-53.87319	28.55032	15.79842	-0.48145	-0.74574	-0.40662	62.98437	0.97635	152.08	14.53
87/10/18	2447087.0	-56.81600	23.34054	12.95656	-0.38655	-0.79125	-0.43178	62.77508	0.98078	157.67	11.91
87/10/19	2447087.5	-59.09695	17.85211	9.96043	-0.28616	-0.82792	-0.45212	62.53285	0.98578	163.19	9.17
87/10/19	2447088.0	-60.68194	12.14691	6.84383	-0.18120	-0.85516	-0.46730	62.26302	0.99121	168.68	6.31
87/10/20	2447088.5	-61.54344	6.29075	3.64274	-0.07270	-0.87241	-0.47702	61.97127	0.99696	174.16	3.37
87/10/20	2447089.0	-61.66121	0.35299	0.39507	0.03822	-0.87918	-0.48101	61.66349	1.00290	179.67	0.37
87/10/21	2447089.5	-61.02309	-5.59399	-2.85958	0.15030	-0.87507	-0.47905	61.34564	1.00888	185.24	-2.67
87/10/21	2447090.0	-59.62567	-11.47541	-6.08030	0.26220	-0.85979	-0.47097	61.02356	1.01479	190.89	-5.72
87/10/22	2447090.5	-57.47502	-17.21492	-9.22530	0.37248	-0.83316	-0.45668	60.70286	1.02051	196.67	-8.74
87/10/22	2447091.0	-54.58725	-22.73559	-12.25242	0.47961	-0.79517	-0.43617	60.38871	1.02595	202.61	-11.71
87/10/23	2447091.5	-50.98897	-27.96095	-15.11979	0.58202	-0.74600	-0.40953	60.08576	1.03101	208.74	-14.57
87/10/23	2447092.0	-46.71754	-32.81635	-17.78647	0.67812	-0.68600	-0.37695	59.79799	1.03563	215.09	-17.30
87/10/24	2447092.5	-41.82107	-37.23018	-20.21317	0.76633	-0.61572	-0.33873	59.52865	1.03976	221.68	-19.85
87/10/24	2447093.0	-36.35823	-41.13538	-22.36308	0.84512	-0.53594	-0.29529	59.28024	1.04339	228.53	-22.16
87/10/25	2447093.5	-30.39768	-44.47072	-24.20257	0.91307	-0.44763	-0.24716	59.05445	1.04650	235.65	-24.19
87/10/25	2447094.0	-24.01730	-47.18225	-25.70195	0.96889	-0.35194	-0.19497	58.85224	1.04911	243.02	-25.89
87/10/26	2447094.5	-17.30310	-49.22446	-26.83615	1.01147	-0.25022	-0.13946	58.67387	1.05126	250.63	-27.22
87/10/26	2447095.0	-10.34794	-50.56140	-27.58532	1.03992	-0.14394	-0.08142	58.51910	1.05298	258.43	-28.12

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/10/27	2447095.5	-3.24997	-51.16758	-27.93532	1.05355	-0.03471	-0.02174	58.38721	1.05435	266.37	-28.58
87/10/27	2447096.0	3.88900	-51.02867	-27.87810	1.05198	0.07580	0.03867	58.27725	1.05541	274.36	-28.58
87/10/28	2447096.5	10.96529	-50.14189	-27.41195	1.03505	0.18584	0.09886	58.18816	1.05623	282.34	-28.11
87/10/28	2447097.0	17.87521	-48.51628	-26.54160	1.00289	0.29368	0.15787	58.11892	1.05686	290.23	-27.17
87/10/29	2447097.5	24.51686	-46.17262	-25.27822	0.95592	0.39759	0.21476	58.06871	1.05735	297.97	-25.81
87/10/29	2447098.0	30.79199	-43.14318	-23.63927	0.89480	0.49591	0.26863	58.03702	1.05771	305.52	-24.04
87/10/30	2447098.5	36.60776	-39.47121	-21.64821	0.82044	0.58707	0.31860	58.02370	1.05797	312.84	-21.91
87/10/30	2447099.0	41.87837	-35.21022	-19.33416	0.73403	0.66962	0.36388	58.02902	1.05811	319.94	-19.46
87/10/31	2447099.5	46.52662	-30.42307	-16.73134	0.63691	0.74224	0.40376	58.05366	1.05811	326.82	-16.75
87/10/31	2447100.0	50.48528	-25.18087	-13.87851	0.53067	0.80382	0.43761	58.09864	1.05794	333.49	-13.82
87/11/ 1	2447100.5	53.69825	-19.56172	-10.81825	0.41702	0.85342	0.46493	58.16526	1.05754	339.98	-10.72
87/11/ 1	2447101.0	56.12159	-13.64928	-7.59624	0.29781	0.89033	0.48533	58.25495	1.05684	346.33	-7.49
87/11/ 2	2447101.5	57.72420	-7.53120	-4.26033	0.17499	0.91408	0.49853	58.36911	1.05579	352.57	-4.19
87/11/ 2	2447102.0	58.48827	-1.29755	-0.85973	0.05053	0.92444	0.50442	58.50897	1.05431	358.73	-0.84
87/11/ 3	2447102.5	58.40945	4.96089	2.55596	-0.07358	0.92142	0.50300	58.67544	1.05235	4.85	2.50
87/11/ 3	2447103.0	57.49669	11.15435	5.93765	-0.19541	0.90531	0.49441	58.86888	1.04986	10.98	5.79
87/11/ 4	2447103.5	55.77178	17.19560	9.23763	-0.31311	0.87658	0.47893	59.08904	1.04681	17.14	8.99
87/11/ 4	2447104.0	53.26856	23.00157	12.41045	-0.42497	0.83596	0.45693	59.33491	1.04318	23.35	12.07
87/11/ 5	2447104.5	50.03191	28.49463	15.41362	-0.52944	0.78435	0.42892	59.60466	1.03898	29.66	14.99
87/11/ 5	2447105.0	46.11651	33.60376	18.20824	-0.62519	0.72278	0.39546	59.89562	1.03425	36.08	17.70
87/11/ 6	2447105.5	41.58543	38.26552	20.75955	-0.71108	0.65244	0.35718	60.20430	1.02902	42.62	20.17
87/11/ 6	2447106.0	36.50864	42.42465	23.03727	-0.78620	0.57457	0.31478	60.52642	1.02339	49.29	22.37
87/11/ 7	2447106.5	30.96147	46.03451	25.01580	-0.84988	0.49046	0.26896	60.85704	1.01745	56.08	24.27
87/11/ 7	2447107.0	25.02313	49.05728	26.67438	-0.90165	0.40142	0.22042	61.19066	1.01129	62.97	25.84
87/11/ 8	2447107.5	18.77530	51.46390	27.99703	-0.94124	0.30873	0.16987	61.52136	1.00504	69.96	27.07
87/11/ 8	2447108.0	12.30085	53.23385	28.97245	-0.96857	0.21362	0.11800	61.84300	0.99884	76.99	27.94
87/11/ 9	2447108.5	5.68273	54.35485	29.59385	-0.98369	0.11729	0.06544	62.14933	0.99282	84.03	28.44
87/11/ 9	2447109.0	-0.99701	54.82240	29.85868	-0.98681	0.02084	0.01280	62.43421	0.98711	91.04	28.57
87/11/10	2447109.5	-7.65802	54.63926	29.76839	-0.97822	-0.07468	-0.03934	62.69171	0.98185	97.98	28.35
87/11/10	2447110.0	-14.22225	53.81499	29.32812	-0.95830	-0.16833	-0.09046	62.91633	0.97717	104.80	27.78
87/11/11	2447110.5	-20.61452	52.36541	28.54648	-0.92751	-0.25919	-0.14007	63.10306	0.97318	111.49	26.90
87/11/11	2447111.0	-26.76281	50.31216	27.43524	-0.88635	-0.34645	-0.18771	63.24756	0.96999	118.01	25.71
87/11/12	2447111.5	-32.59865	47.68224	26.00912	-0.83534	-0.42935	-0.23298	63.34621	0.96769	124.36	24.24
87/11/12	2447112.0	-38.05730	44.50771	24.28559	-0.77506	-0.50716	-0.27547	63.39625	0.96634	130.53	22.52
87/11/13	2447112.5	-43.07794	40.82535	22.28473	-0.70610	-0.57920	-0.31481	63.39580	0.96600	136.54	20.58
87/11/13	2447113.0	-47.60392	36.67641	20.02906	-0.62910	-0.64483	-0.35066	63.34394	0.96671	142.39	18.43
87/11/14	2447113.5	-51.58289	32.10649	17.54346	-0.54469	-0.70341	-0.38265	63.24077	0.96846	148.10	16.11
87/11/14	2447114.0	-54.96715	27.16534	14.85509	-0.45360	-0.75435	-0.41048	63.08737	0.97123	153.70	13.62
87/11/15	2447114.5	-57.71386	21.90675	11.99333	-0.35656	-0.79705	-0.43380	62.88589	0.97499	159.21	10.99
87/11/15	2447115.0	-59.78548	16.38848	8.98971	-0.25439	-0.83094	-0.45232	62.63945	0.97968	164.67	8.25
87/11/16	2447115.5	-61.15025	10.67210	5.87784	-0.14799	-0.85546	-0.46572	62.35219	0.98520	170.10	5.41
87/11/16	2447116.0	-61.78270	4.82283	2.69331	-0.03832	-0.87010	-0.47373	62.02915	0.99144	175.54	2.49
87/11/17	2447116.5	-61.66433	-1.09071	-0.52642	0.07354	-0.87436	-0.47608	61.67622	0.99828	181.01	-0.49
87/11/17	2447117.0	-60.78431	-6.99684	-3.74225	0.18638	-0.86785	-0.47254	61.30002	1.00558	186.57	-3.50
87/11/18	2447117.5	-59.14030	-12.82132	-6.91368	0.29891	-0.85020	-0.46294	60.90780	1.01317	192.23	-6.52

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
87/11/18	2447118.0	-56.73918	-18.48799	-9.99918	0.40971	-0.82122	-0.44715	60.50722	1.02088	198.05	-9.51
87/11/19	2447118.5	-53.59785	-23.91965	-12.95665	0.51723	-0.78081	-0.42513	60.10619	1.02855	204.05	-12.45
87/11/19	2447119.0	-49.74391	-29.03912	-15.74401	0.61986	-0.72906	-0.39694	59.71265	1.03601	210.28	-15.29
87/11/20	2447119.5	-45.21619	-33.77044	-18.31989	0.71591	-0.66626	-0.36272	59.33435	1.04307	216.75	-17.98
87/11/20	2447120.0	-40.06502	-38.04044	-20.64441	0.80367	-0.59294	-0.32277	58.97858	1.04959	223.52	-20.49
87/11/21	2447120.5	-34.35224	-41.78022	-22.68007	0.88147	-0.50985	-0.27750	58.65193	1.05544	230.57	-22.75
87/11/21	2447121.0	-28.15081	-44.92697	-24.39266	0.94771	-0.41801	-0.22747	58.36011	1.06048	237.93	-24.71
87/11/22	2447121.5	-21.54408	-47.42557	-25.75220	1.00093	-0.31868	-0.17338	58.10773	1.06465	245.57	-26.31
87/11/22	2447122.0	-14.62455	-49.23029	-26.73384	1.03989	-0.21337	-0.11603	57.89816	1.06788	253.46	-27.50
87/11/23	2447122.5	-7.49226	-50.30620	-27.31860	1.06361	-0.10377	-0.05634	57.73347	1.07015	261.53	-28.24
87/11/23	2447123.0	-0.25290	-50.63036	-27.49407	1.07143	0.00830	0.00466	57.61442	1.07147	269.71	-28.50
87/11/24	2447123.5	6.98449	-50.19264	-27.25480	1.06301	0.12089	0.06595	57.54049	1.07189	277.92	-28.27
87/11/24	2447124.0	14.10983	-48.99612	-26.60257	1.03838	0.23204	0.12643	57.51003	1.07147	286.07	-27.55
87/11/25	2447124.5	21.01445	-47.05714	-25.54637	0.99792	0.33981	0.18506	57.52042	1.07031	294.06	-26.37
87/11/25	2447125.0	27.59346	-44.40488	-24.10220	0.94237	0.44236	0.24084	57.56829	1.06853	301.86	-24.75
87/11/26	2447125.5	33.74787	-41.08062	-22.29262	0.87274	0.53798	0.29282	57.64978	1.06623	309.40	-22.75
87/11/26	2447126.0	39.38660	-37.13665	-20.14622	0.79032	0.62512	0.34017	57.76075	1.06353	316.68	-20.41
87/11/27	2447126.5	44.42801	-32.63498	-17.69687	0.69662	0.70246	0.38216	57.89706	1.06056	323.70	-17.80
87/11/27	2447127.0	48.80127	-27.64591	-14.98294	0.59332	0.76888	0.41820	58.05471	1.05740	330.47	-14.96
87/11/28	2447127.5	52.44733	-22.24641	-12.04644	0.48219	0.82353	0.44782	58.23008	1.05416	337.01	-11.94
87/11/28	2447128.0	55.31953	-16.51856	-8.93214	0.36511	0.86576	0.47066	58.42000	1.05089	343.37	-8.79
87/11/29	2447128.5	57.38397	-10.54796	-5.68670	0.24398	0.89516	0.48652	58.62182	1.04764	349.58	-5.57
87/11/29	2447129.0	58.61965	-4.42216	-2.35784	0.12070	0.91157	0.49529	58.83348	1.04443	355.69	-2.30
87/11/30	2447129.5	59.01828	1.77080	1.00645	-0.00288	0.91502	0.49699	59.05342	1.04128	1.72	0.98
87/11/30	2447130.0	58.58401	7.94377	4.35871	-0.12496	0.90573	0.49177	59.28058	1.03817	7.72	4.22
87/12/ 1	2447130.5	57.33284	14.01182	7.65271	-0.24383	0.88412	0.47983	59.51428	1.03506	13.73	7.39
87/12/ 1	2447131.0	55.29204	19.89342	10.84408	-0.35788	0.85078	0.46152	59.75409	1.03194	19.79	10.46
87/12/ 2	2447131.5	52.49926	25.51151	13.89089	-0.46565	0.80644	0.43722	59.99972	1.02876	25.92	13.39
87/12/ 2	2447132.0	49.00166	30.79449	16.75423	-0.56580	0.75197	0.40743	60.25087	1.02547	32.15	16.15
87/12/ 3	2447132.5	44.85485	35.67700	19.39860	-0.65717	0.68836	0.37266	60.50712	1.02205	38.50	18.70
87/12/ 3	2447133.0	40.12177	40.10064	21.79231	-0.73877	0.61666	0.33351	60.76777	1.01846	44.98	21.02
87/12/ 4	2447133.5	34.87154	44.01448	23.90773	-0.80976	0.53801	0.29059	61.03178	1.01470	51.61	23.06
87/12/ 4	2447134.0	29.17826	47.37547	25.72158	-0.86951	0.45360	0.24456	61.29768	1.01075	58.37	24.81
87/12/ 5	2447134.5	23.11977	50.14865	27.21497	-0.91754	0.36464	0.19607	61.56351	1.00662	65.25	26.24
87/12/ 5	2447135.0	16.77650	52.30725	28.37350	-0.95357	0.27232	0.14579	61.82681	1.00235	72.22	27.32
87/12/ 6	2447135.5	10.23028	53.83263	29.18719	-0.97746	0.17785	0.09435	62.08464	0.99798	79.24	28.04
87/12/ 6	2447136.0	3.56336	54.71409	29.65042	-0.98923	0.08237	0.04240	62.33359	0.99356	86.27	28.40
87/12/ 7	2447136.5	-3.14265	54.94864	29.76174	-0.98903	-0.01300	-0.00946	62.56988	0.98917	93.27	28.40
87/12/ 7	2447137.0	-9.80758	54.54055	29.52371	-0.97715	-0.10722	-0.06067	62.78940	0.98489	100.19	28.05
87/12/ 8	2447137.5	-16.35347	53.50102	28.94261	-0.95395	-0.19931	-0.11068	62.98785	0.98082	107.00	27.35
87/12/ 8	2447138.0	-22.70520	51.84768	28.02827	-0.91990	-0.28833	-0.15900	63.16084	0.97705	113.65	26.34
87/12/ 9	2447138.5	-28.79099	49.60413	26.79376	-0.87552	-0.37345	-0.20515	63.30399	0.97370	120.13	25.04
87/12/ 9	2447139.0	-34.54286	46.79950	25.25513	-0.82140	-0.45389	-0.24873	63.41312	0.97086	126.43	23.47
87/12/10	2447139.5	-39.89694	43.46800	23.43124	-0.75816	-0.52892	-0.28933	63.48430	0.96865	132.55	21.66
87/12/10	2447140.0	-44.79376	39.64854	21.34346	-0.68648	-0.59788	-0.32659	63.51403	0.96715	138.49	19.64

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
87/12/11	2447140.5	-49.17845	35.38436	19.01554	-0.60705	-0.66014	-0.36019	63.49932	0.96646	144.26	17.43
87/12/11	2447141.0	-53.00096	30.72271	16.47340	-0.52060	-0.71515	-0.38980	63.43784	0.96665	149.90	15.05
87/12/12	2447141.5	-56.21625	25.71465	13.74502	-0.42787	-0.76235	-0.41514	63.32800	0.96778	155.42	12.54
87/12/12	2447142.0	-58.78451	20.41477	10.86028	-0.32967	-0.80124	-0.43593	63.16904	0.96989	160.85	9.90
87/12/13	2447142.5	-60.67142	14.88104	7.85089	-0.22682	-0.83133	-0.45190	62.96112	0.97302	166.22	7.16
87/12/13	2447143.0	-61.84845	9.17464	4.75029	-0.12020	-0.85215	-0.46282	62.70542	0.97715	171.56	4.34
87/12/14	2447143.5	-62.29327	3.35976	1.59353	-0.01076	-0.86329	-0.46845	62.40415	0.98226	176.91	1.46
87/12/14	2447144.0	-61.99019	-2.49656	-1.58282	0.10047	-0.86433	-0.46857	62.06063	0.98829	182.31	-1.46
87/12/15	2447144.5	-60.93075	-8.32474	-4.74084	0.21239	-0.85492	-0.46301	61.67928	0.99518	187.78	-4.41
87/12/15	2447145.0	-59.11431	-14.05295	-7.84142	0.32380	-0.83477	-0.45159	61.26561	1.00280	193.37	-7.35
87/12/16	2447145.5	-56.54877	-19.60763	-10.84456	0.43337	-0.80365	-0.43422	60.82620	1.01104	199.12	-10.27
87/12/16	2447146.0	-53.25129	-24.91407	-13.70967	0.53968	-0.76146	-0.41083	60.36858	1.01973	205.07	-13.13
87/12/17	2447146.5	-49.24907	-29.89725	-16.39606	0.64121	-0.70821	-0.38145	59.90115	1.02870	211.26	-15.89
87/12/17	2447147.0	-44.57997	-34.48291	-18.86349	0.73633	-0.64411	-0.34620	59.43295	1.03775	217.72	-18.51
87/12/18	2447147.5	-39.29309	-38.59872	-21.07285	0.82335	-0.56956	-0.30529	58.97349	1.04667	224.49	-20.94
87/12/18	2447148.0	-33.44913	-42.17588	-22.98701	0.90055	-0.48518	-0.25910	58.53248	1.05524	231.58	-23.12
87/12/19	2447148.5	-27.12038	-45.15077	-24.57172	0.96623	-0.39189	-0.20811	58.11950	1.06324	239.01	-25.01
87/12/19	2447149.0	-20.39035	-47.46681	-25.79662	1.01879	-0.29085	-0.15297	57.74366	1.07048	246.75	-26.53
87/12/20	2447149.5	-13.35292	-49.07640	-26.63630	1.05678	-0.18354	-0.09450	57.41329	1.07675	254.78	-27.64
87/12/20	2447150.0	-6.11097	-49.94271	-27.07125	1.07901	-0.07167	-0.03363	57.13554	1.08191	263.02	-28.28
87/12/21	2447150.5	1.22558	-50.04140	-27.08881	1.08460	0.04279	0.02857	56.91614	1.08582	271.40	-28.42
87/12/21	2447151.0	8.54213	-49.36194	-26.68381	1.07306	0.15775	0.09095	56.75910	1.08840	279.82	-28.04
87/12/22	2447151.5	15.72222	-47.90842	-25.85911	1.04433	0.27100	0.15231	56.66656	1.08961	288.17	-27.15
87/12/22	2447152.0	22.65047	-45.69991	-24.62567	0.99879	0.38033	0.21145	56.63876	1.08947	296.36	-25.77
87/12/23	2447152.5	29.21568	-42.77014	-23.00240	0.93729	0.48364	0.26724	56.67408	1.08804	304.34	-23.95
87/12/23	2447153.0	35.31366	-39.16662	-21.01571	0.86106	0.57898	0.31861	56.76917	1.08543	312.04	-21.73
87/12/24	2447153.5	40.84983	-34.94925	-18.69864	0.77168	0.66464	0.36465	56.91922	1.08176	319.45	-19.18
87/12/24	2447154.0	45.74124	-30.18851	-16.08999	0.67100	0.73922	0.40460	57.11826	1.07721	326.58	-16.36
87/12/25	2447154.5	49.91819	-24.96339	-13.23308	0.56105	0.80161	0.43787	57.35949	1.07196	333.43	-13.34
87/12/25	2447155.0	53.32511	-19.35922	-10.17461	0.44398	0.85105	0.46406	57.63566	1.06619	340.05	-10.17
87/12/26	2447155.5	55.92110	-13.46546	-6.96345	0.32195	0.88708	0.48293	57.93943	1.06009	346.46	-6.90
87/12/26	2447156.0	57.67979	-7.37362	-3.64954	0.19708	0.90954	0.49441	58.26360	1.05382	352.71	-3.59
87/12/27	2447156.5	58.58898	-1.17541	-0.28281	0.07143	0.91853	0.49855	58.60145	1.04754	358.85	-0.28
87/12/27	2447157.0	58.64986	5.03895	3.08766	-0.05311	0.91438	0.49555	58.94685	1.04138	4.91	3.00
87/12/28	2447157.5	57.87614	11.18212	6.41444	-0.17475	0.89760	0.48571	59.29446	1.03544	10.94	6.21
87/12/28	2447158.0	56.29294	17.17080	9.65237	-0.29189	0.86888	0.46939	59.63975	1.02980	16.96	9.31
87/12/29	2447158.5	53.93570	22.92671	12.75907	-0.40309	0.82901	0.44703	59.97906	1.02449	23.03	12.28
87/12/29	2447159.0	50.84903	28.37732	15.69532	-0.50708	0.77888	0.41914	60.30952	1.01955	29.16	15.08
87/12/30	2447159.5	47.08557	33.45643	18.42544	-0.60277	0.71948	0.38625	60.62904	1.01497	35.40	17.69
87/12/30	2447160.0	42.70491	38.10464	20.91746	-0.68920	0.65182	0.34893	60.93614	1.01075	41.74	20.08
87/12/31	2447160.5	37.77247	42.26968	23.14333	-0.76559	0.57698	0.30776	61.22988	1.00685	48.22	22.21
87/12/31	2447161.0	32.35851	45.90661	25.07903	-0.83129	0.49606	0.26335	61.50974	1.00323	54.82	24.06
88/ 1/ 1	2447161.5	26.53713	48.97799	26.70467	-0.88582	0.41016	0.21630	61.77542	0.99985	61.55	25.61
88/ 1/ 1	2447162.0	20.38531	51.45394	28.00448	-0.92882	0.32042	0.16724	62.02677	0.99667	68.39	26.84
88/ 1/ 2	2447162.5	13.98196	53.31218	28.96683	-0.96007	0.22794	0.11676	62.26365	0.99364	75.30	27.73

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 1/ 2	2447163.0	7.40708	54.53792	29.58421	-0.97947	0.13383	0.06547	62.48580	0.99073	82.27	28.26
88/ 1/ 3	2447163.5	0.74091	55.12374	29.85311	-0.98705	0.03916	0.01395	62.69277	0.98792	89.23	28.44
88/ 1/ 3	2447164.0	-5.93694	55.06944	29.77397	-0.98295	-0.05503	-0.03722	62.88386	0.98519	96.15	28.26
88/ 1/ 4	2447164.5	-12.54816	54.38175	29.35099	-0.96742	-0.14771	-0.08749	63.05800	0.98254	102.99	27.74
88/ 1/ 4	2447165.0	-19.01652	53.07406	28.59199	-0.94082	-0.23795	-0.13636	63.21381	0.97998	109.71	26.89
88/ 1/ 5	2447165.5	-25.26844	51.16608	27.50824	-0.90359	-0.32483	-0.18331	63.34954	0.97755	116.28	25.74
88/ 1/ 5	2447166.0	-31.23361	48.68344	26.11419	-0.85624	-0.40751	-0.22791	63.46311	0.97527	122.68	24.30
88/ 1/ 6	2447166.5	-36.84548	45.65734	24.42734	-0.79937	-0.48518	-0.26971	63.55216	0.97321	128.90	22.60
88/ 1/ 6	2447167.0	-42.04172	42.12412	22.46792	-0.73362	-0.55714	-0.30833	63.61411	0.97143	134.94	20.68
88/ 1/ 7	2447167.5	-46.76456	38.12485	20.25876	-0.65970	-0.62270	-0.34340	63.64625	0.96999	140.81	18.56
88/ 1/ 7	2447168.0	-50.96117	33.70491	17.82498	-0.57835	-0.68126	-0.37460	63.64583	0.96899	146.52	16.26
88/ 1/ 8	2447168.5	-54.58388	28.91366	15.19384	-0.49037	-0.73226	-0.40164	63.61015	0.96849	152.09	13.82
88/ 1/ 8	2447169.0	-57.59047	23.80399	12.39450	-0.39656	-0.77520	-0.42423	63.53672	0.96859	157.54	11.25
88/ 1/ 9	2447169.5	-59.94437	18.43206	9.45786	-0.29778	-0.80963	-0.44214	63.42334	0.96937	162.91	8.58
88/ 1/ 9	2447170.0	-61.61491	12.85694	6.41635	-0.19491	-0.83514	-0.45516	63.26822	0.97089	168.21	5.82
88/ 1/10	2447170.5	-62.57752	7.14033	3.30381	-0.08889	-0.85136	-0.46309	63.07017	0.97322	173.49	3.00
88/ 1/10	2447171.0	-62.81400	1.34629	0.15528	0.01934	-0.85796	-0.46576	62.82862	0.97642	178.77	0.14
88/ 1/11	2447171.5	-62.31285	-4.45909	-2.99311	0.12876	-0.85466	-0.46302	62.54385	0.98052	184.09	-2.74
88/ 1/11	2447172.0	-61.06956	-10.20792	-6.10431	0.23830	-0.84122	-0.45476	62.21700	0.98552	189.49	-5.63
88/ 1/12	2447172.5	-59.08710	-15.83089	-9.14059	0.34684	-0.81747	-0.44089	61.85024	0.99143	195.00	-8.50
88/ 1/12	2447173.0	-56.37633	-21.25767	-12.06370	0.45316	-0.78327	-0.42134	61.44682	0.99820	200.66	-11.32
88/ 1/13	2447173.5	-52.95654	-26.41738	-14.83520	0.55599	-0.73861	-0.39612	61.01111	1.00577	206.51	-14.07
88/ 1/13	2447174.0	-48.85600	-31.23924	-17.41676	0.65395	-0.68353	-0.36527	60.54868	1.01404	212.60	-16.72
88/ 1/14	2447174.5	-44.11251	-35.65332	-19.77062	0.74559	-0.61824	-0.32891	60.06622	1.02289	218.95	-19.22
88/ 1/14	2447175.0	-38.77394	-39.59151	-21.86010	0.82941	-0.54308	-0.28724	59.57155	1.03217	225.60	-21.53
88/ 1/15	2447175.5	-32.89860	-42.98868	-23.65025	0.90383	-0.45858	-0.24058	59.07350	1.04168	232.57	-23.60
88/ 1/15	2447176.0	-26.55552	-45.78405	-25.10861	0.96727	-0.36552	-0.18934	58.58171	1.05122	239.89	-25.38
88/ 1/16	2447176.5	-19.82442	-47.92279	-26.20604	1.01816	-0.26488	-0.13410	58.10644	1.06056	247.53	-26.81
88/ 1/16	2447177.0	-12.79532	-49.35778	-26.91772	1.05503	-0.15794	-0.07557	57.65825	1.06946	255.47	-27.83
88/ 1/17	2447177.5	-5.56770	-50.05142	-27.22412	1.07658	-0.04624	-0.01458	57.24767	1.07767	263.65	-28.40
88/ 1/17	2447178.0	1.75088	-49.97752	-27.11200	1.08174	0.06839	0.04784	56.88479	1.08496	272.01	-28.46
88/ 1/18	2447178.5	9.04674	-49.12298	-26.57532	1.06978	0.18392	0.11059	56.57878	1.09109	280.43	-28.02
88/ 1/18	2447179.0	16.20251	-47.48915	-25.61594	1.04036	0.29813	0.17245	56.33752	1.09589	288.84	-27.04
88/ 1/19	2447179.5	23.10016	-45.09276	-24.24412	0.99362	0.40871	0.23217	56.16718	1.09919	297.13	-25.57
88/ 1/19	2447180.0	29.62425	-41.96626	-22.47865	0.93019	0.51335	0.28849	56.07186	1.10091	305.22	-23.63
88/ 1/20	2447180.5	35.66530	-38.15743	-20.34662	0.85121	0.60985	0.34023	56.05343	1.10101	313.07	-21.28
88/ 1/20	2447181.0	41.12304	-33.72825	-17.88278	0.75825	0.69622	0.38631	56.11144	1.09950	320.64	-18.58
88/ 1/21	2447181.5	45.90934	-28.75325	-15.12857	0.65329	0.77078	0.42583	56.24313	1.09646	327.94	-15.60
88/ 1/21	2447182.0	49.95042	-23.31711	-12.13086	0.53859	0.83220	0.45811	56.44369	1.09202	334.98	-12.41
88/ 1/22	2447182.5	53.18851	-17.51211	-8.94048	0.41659	0.87958	0.48267	56.70647	1.08636	341.78	-9.07
88/ 1/22	2447183.0	55.58263	-11.43533	-5.61071	0.28979	0.91241	0.49925	57.02346	1.07968	348.37	-5.65
88/ 1/23	2447183.5	57.10865	-5.18592	-2.19581	0.16065	0.93057	0.50782	57.38565	1.07221	354.81	-2.19
88/ 1/23	2447184.0	57.75878	1.13743	1.25037	0.03152	0.93430	0.50853	57.78351	1.06420	1.13	1.24
88/ 1/24	2447184.5	57.54046	7.43863	4.67555	-0.09546	0.92414	0.50168	58.20737	1.05585	7.37	4.61
88/ 1/24	2447185.0	56.47494	13.62601	8.03000	-0.21835	0.90084	0.48772	58.64783	1.04740	13.56	7.87

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 1/25	2447185.5	54.59572	19.61372	11.26725	-0.33548	0.86534	0.46717	59.09604	1.03904	19.76	10.99
88/ 1/25	2447186.0	51.94679	25.32270	14.34465	-0.44542	0.81871	0.44062	59.54391	1.03094	25.99	13.94
88/ 1/26	2447186.5	48.58103	30.68136	17.22372	-0.54698	0.76209	0.40871	59.98432	1.02324	32.27	16.69
88/ 1/26	2447187.0	44.55862	35.62598	19.87033	-0.63918	0.69665	0.37209	60.41118	1.01603	38.64	19.20
88/ 1/27	2447187.5	39.94560	40.10090	22.25479	-0.72127	0.62359	0.33141	60.81948	1.00941	45.11	21.46
88/ 1/27	2447188.0	34.81264	44.05849	24.35185	-0.79264	0.54408	0.28733	61.20525	1.00342	51.69	23.45
88/ 1/28	2447188.5	29.23383	47.45909	26.14065	-0.85286	0.45931	0.24048	61.56554	0.99808	58.37	25.13
88/ 1/28	2447189.0	23.28576	50.27086	27.60459	-0.90164	0.37039	0.19150	61.89830	0.99338	65.15	26.49
88/ 1/29	2447189.5	17.04661	52.46953	28.73127	-0.93879	0.27845	0.14099	62.20228	0.98931	72.00	27.51
88/ 1/29	2447190.0	10.59539	54.03822	29.51227	-0.96426	0.18454	0.08953	62.47692	0.98583	78.91	28.19
88/ 1/30	2447190.5	4.01127	54.96721	29.94314	-0.97805	0.08972	0.03769	62.72221	0.98288	85.83	28.52
88/ 1/30	2447191.0	-2.62711	55.25369	30.02315	-0.98030	-0.00502	-0.01399	62.93855	0.98042	92.72	28.49
88/ 1/31	2447191.5	-9.24219	54.90153	29.75524	-0.97121	-0.09871	-0.06497	63.12662	0.97838	99.56	28.12
88/ 1/31	2447192.0	-15.75806	53.92106	29.14585	-0.95106	-0.19041	-0.11474	63.28726	0.97670	106.29	27.42
88/ 2/ 1	2447192.5	-22.10102	52.32880	28.20480	-0.92022	-0.27922	-0.16283	63.42136	0.97534	112.90	26.41
88/ 2/ 1	2447193.0	-28.20007	50.14721	26.94510	-0.87912	-0.36429	-0.20876	63.52972	0.97424	119.35	25.10
88/ 2/ 2	2447193.5	-33.98742	47.40441	25.38284	-0.82827	-0.44481	-0.25210	63.61298	0.97337	125.64	23.52
88/ 2/ 2	2447194.0	-39.39897	44.13386	23.53698	-0.76825	-0.52001	-0.29243	63.67155	0.97270	131.76	21.69
88/ 2/ 3	2447194.5	-44.37479	40.37406	21.42922	-0.69971	-0.58917	-0.32938	63.70556	0.97221	137.70	19.66
88/ 2/ 3	2447195.0	-48.85951	36.16822	19.08376	-0.62335	-0.65162	-0.36257	63.71485	0.97192	143.49	17.43
88/ 2/ 4	2447195.5	-52.80275	31.56388	16.52711	-0.53995	-0.70675	-0.39169	63.69893	0.97183	149.13	15.04
88/ 2/ 4	2447196.0	-56.15948	26.61250	13.78791	-0.45030	-0.75400	-0.41643	63.65704	0.97196	154.64	12.51
88/ 2/ 5	2447196.5	-58.89039	21.36914	10.89664	-0.35529	-0.79289	-0.43655	63.58817	0.97236	160.06	9.87
88/ 2/ 5	2447197.0	-60.96215	15.89195	7.88548	-0.25582	-0.82298	-0.45180	63.49109	0.97307	165.39	7.13
88/ 2/ 6	2447197.5	-62.34774	10.24185	4.78800	-0.15283	-0.84390	-0.46200	63.36451	0.97415	170.67	4.33
88/ 2/ 6	2447198.0	-63.02665	4.48205	1.63899	-0.04731	-0.85533	-0.46700	63.20707	0.97566	175.93	1.49
88/ 2/ 7	2447198.5	-62.98518	-1.32234	-1.52583	0.05972	-0.85703	-0.46665	63.01753	0.97766	181.20	-1.39
88/ 2/ 7	2447199.0	-62.21664	-7.10474	-4.66999	0.16721	-0.84881	-0.46088	62.79488	0.98023	186.51	-4.26
88/ 2/ 8	2447199.5	-60.72161	-12.79752	-7.75654	0.27407	-0.83055	-0.44964	62.53842	0.98341	191.90	-7.12
88/ 2/ 8	2447200.0	-58.50815	-18.33249	-10.74832	0.37917	-0.80220	-0.43290	62.24797	0.98727	197.40	-9.94
88/ 2/ 9	2447200.5	-55.59207	-23.64134	-13.60816	0.48135	-0.76379	-0.41069	61.92393	0.99183	203.04	-12.69
88/ 2/ 9	2447201.0	-51.99720	-28.65617	-16.29925	0.57940	-0.71541	-0.38308	61.56744	0.99713	208.86	-15.35
88/ 2/10	2447201.5	-47.75566	-33.31010	-18.78540	0.67209	-0.65726	-0.35020	61.18052	1.00316	214.90	-17.88
88/ 2/10	2447202.0	-42.90814	-37.53789	-21.03145	0.75813	-0.58963	-0.31222	60.76614	1.00990	221.18	-20.25
88/ 2/11	2447202.5	-37.50418	-41.27678	-23.00369	0.83619	-0.51297	-0.26939	60.32832	1.01731	227.74	-22.41
88/ 2/11	2447203.0	-31.60231	-44.46736	-24.67035	0.90493	-0.42783	-0.22204	59.87218	1.02530	234.60	-24.33
88/ 2/12	2447203.5	-25.27024	-47.05459	-26.00218	0.96300	-0.33495	-0.17059	59.40398	1.03376	241.76	-25.96
88/ 2/12	2447204.0	-18.58476	-48.98907	-26.97311	1.00907	-0.23524	-0.11557	58.93107	1.04255	249.22	-27.24
88/ 2/13	2447204.5	-11.63152	-50.22828	-27.56095	1.04186	-0.12985	-0.05759	58.46177	1.05150	256.96	-28.13
88/ 2/13	2447205.0	-4.50445	-50.73813	-27.74821	1.06021	-0.02011	0.00259	58.00527	1.06041	264.93	-28.58
88/ 2/14	2447205.5	2.69512	-50.49443	-27.52294	1.06312	0.09239	0.06408	57.57138	1.06905	273.06	-28.56
88/ 2/14	2447206.0	9.85983	-49.48445	-26.87949	1.04982	0.20585	0.12589	57.17022	1.07719	281.27	-28.05
88/ 2/15	2447206.5	16.87813	-47.70832	-25.81933	1.01984	0.31828	0.18694	56.81190	1.08458	289.48	-27.03
88/ 2/15	2447207.0	23.63656	-45.18015	-24.35159	0.97310	0.42755	0.24605	56.50605	1.09099	297.62	-25.53
88/ 2/16	2447207.5	30.02255	-41.92889	-22.49350	0.90995	0.53144	0.30201	56.26138	1.09620	305.60	-23.57

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 2/16	2447208.0	35.92745	-37.99848	-20.27044	0.83122	0.62774	0.35362	56.08526	1.10001	313.40	-21.19
88/ 2/17	2447208.5	41.24981	-33.44750	-17.71572	0.73819	0.71435	0.39977	55.98329	1.10229	320.96	-18.45
88/ 2/17	2447209.0	45.89855	-28.34808	-14.86991	0.63263	0.78940	0.43943	55.95895	1.10293	328.30	-15.41
88/ 2/18	2447209.5	49.79581	-22.78413	-11.77986	0.51667	0.85129	0.47177	56.01343	1.10191	335.41	-12.14
88/ 2/18	2447210.0	52.87933	-16.84901	-8.49737	0.39276	0.89884	0.49616	56.14550	1.09925	342.33	-8.70
88/ 2/19	2447210.5	55.10404	-10.64269	-5.07769	0.26352	0.93128	0.51224	56.35162	1.09504	349.07	-5.17
88/ 2/19	2447211.0	56.44291	-4.26881	-1.57779	0.13162	0.94830	0.51985	56.62609	1.08942	355.67	-1.60
88/ 2/20	2447211.5	56.88688	2.16834	1.94520	-0.00031	0.95002	0.51909	56.96141	1.08259	2.18	1.96
88/ 2/20	2447212.0	56.44411	8.56659	5.43552	-0.12984	0.93693	0.51027	57.34867	1.07474	8.63	5.44
88/ 2/21	2447212.5	55.13859	14.82832	8.84011	-0.25474	0.90987	0.49387	57.77794	1.06614	15.05	8.80
88/ 2/21	2447213.0	53.00826	20.86239	12.10963	-0.37310	0.86990	0.47049	58.23880	1.05702	21.48	12.00
88/ 2/22	2447213.5	50.10304	26.58556	15.19918	-0.48332	0.81828	0.44085	58.72071	1.04763	27.95	15.00
88/ 2/22	2447214.0	46.48259	31.92348	18.06889	-0.58411	0.75637	0.40570	59.21338	1.03821	34.48	17.77
88/ 2/23	2447214.5	42.21430	36.81117	20.68406	-0.67448	0.68557	0.36582	59.70712	1.02895	41.09	20.27
88/ 2/23	2447215.0	37.37137	41.19318	23.01531	-0.75370	0.60728	0.32199	60.19304	1.02006	47.78	22.48
88/ 2/24	2447215.5	32.03109	45.02351	25.03846	-0.82128	0.52288	0.27496	60.66326	1.01169	54.57	24.38
88/ 2/24	2447216.0	26.27338	48.26526	26.73436	-0.87693	0.43369	0.22547	61.11098	1.00395	61.44	25.94
88/ 2/25	2447216.5	20.17962	50.89029	28.08864	-0.92050	0.34097	0.17420	61.53056	0.99696	68.37	27.16
88/ 2/25	2447217.0	13.83162	52.87866	29.09146	-0.95201	0.24589	0.12179	61.91752	0.99077	75.34	28.02
88/ 2/26	2447217.5	7.31082	54.21822	29.73720	-0.97156	0.14956	0.06885	62.26849	0.98541	82.32	28.53
88/ 2/26	2447218.0	0.69763	54.90409	30.02424	-0.97933	0.05302	0.01596	62.58115	0.98090	89.27	28.67
88/ 2/27	2447218.5	-5.92911	54.93824	29.95466	-0.97560	-0.04273	-0.03637	62.85417	0.97722	96.16	28.46
88/ 2/27	2447219.0	-12.49256	54.32910	29.53405	-0.96070	-0.13679	-0.08762	63.08704	0.97434	102.95	27.91
88/ 2/28	2447219.5	-18.91829	53.09117	28.77132	-0.93501	-0.22826	-0.13732	63.28003	0.97221	109.61	27.04
88/ 2/28	2447220.0	-25.13463	51.24477	27.67851	-0.89895	-0.31633	-0.18501	63.43403	0.97078	116.13	25.87
88/ 2/29	2447220.5	-31.07305	48.81571	26.27062	-0.85302	-0.40019	-0.23028	63.55041	0.96996	122.48	24.42
88/ 2/29	2447221.0	-36.66845	45.83507	24.56552	-0.79775	-0.47909	-0.27272	63.63092	0.96970	128.66	22.71
88/ 3/ 1	2447221.5	-41.85957	42.33889	22.58372	-0.73374	-0.55230	-0.31193	63.67754	0.96990	134.67	20.77
88/ 3/ 1	2447222.0	-46.58932	38.36799	20.34830	-0.66163	-0.61916	-0.34755	63.69239	0.97051	140.53	18.63
88/ 3/ 2	2447222.5	-50.80520	33.96767	17.88476	-0.58212	-0.67901	-0.37924	63.67759	0.97146	146.23	16.31
88/ 3/ 2	2447223.0	-54.45966	29.18742	15.22079	-0.49598	-0.73125	-0.40668	63.63515	0.97268	151.81	13.84
88/ 3/ 3	2447223.5	-57.51053	24.08064	12.38619	-0.40403	-0.77534	-0.42958	63.56694	0.97413	157.28	11.24
88/ 3/ 3	2447224.0	-59.92142	18.70427	9.41260	-0.30715	-0.81078	-0.44768	63.47459	0.97577	162.66	8.53
88/ 3/ 4	2447224.5	-61.66210	13.11842	6.33332	-0.20628	-0.83713	-0.46075	63.35944	0.97757	167.99	5.74
88/ 3/ 4	2447225.0	-62.70888	7.38592	3.18305	-0.10241	-0.85403	-0.46861	63.22252	0.97952	173.28	2.89
88/ 3/ 5	2447225.5	-63.04497	1.57185	-0.00235	0.00341	-0.86118	-0.47111	63.06457	0.98162	178.57	-0.00
88/ 3/ 5	2447226.0	-62.66079	-4.25694	-3.18617	0.11009	-0.85835	-0.46813	62.88599	0.98389	183.89	-2.90
88/ 3/ 6	2447226.5	-61.55423	-10.03244	-6.33113	0.21653	-0.84542	-0.45963	62.68697	0.98635	189.26	-5.80
88/ 3/ 6	2447227.0	-59.73090	-15.68597	-9.39974	0.32155	-0.82234	-0.44559	62.46747	0.98903	194.71	-8.65
88/ 3/ 7	2447227.5	-57.20435	-21.14887	-12.35458	0.42399	-0.78914	-0.42605	62.22739	0.99198	200.29	-11.45
88/ 3/ 7	2447228.0	-53.99616	-26.35311	-15.15869	0.52263	-0.74599	-0.40110	61.96658	0.99525	206.01	-14.16
88/ 3/ 8	2447228.5	-50.13609	-31.23194	-17.77594	0.61628	-0.69310	-0.37090	61.68505	0.99888	211.92	-16.75
88/ 3/ 8	2447229.0	-45.66210	-35.72063	-20.17139	0.70372	-0.63084	-0.33564	61.38302	1.00292	218.04	-19.18
88/ 3/ 9	2447229.5	-40.62035	-39.75714	-22.31171	0.78373	-0.55967	-0.29561	61.06108	1.00740	224.38	-21.43
88/ 3/ 9	2447230.0	-35.06519	-43.28296	-24.16559	0.85513	-0.48015	-0.25112	60.72032	1.01235	230.99	-23.45

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 3/10	2447230.5	-29.05897	-46.24389	-25.70422	0.91673	-0.39299	-0.20259	60.36247	1.01778	237.86	-25.20
88/ 3/10	2447231.0	-22.67191	-48.59096	-26.90172	0.96741	-0.29903	-0.15048	59.98999	1.02369	244.99	-26.64
88/ 3/11	2447231.5	-15.98172	-50.28134	-27.73572	1.00607	-0.19925	-0.09534	59.60619	1.03003	252.37	-27.73
88/ 3/11	2447232.0	-9.07319	-51.27937	-28.18785	1.03172	-0.09478	-0.03782	59.21529	1.03676	259.97	-28.43
88/ 3/12	2447232.5	-2.03752	-51.55761	-28.24431	1.04348	0.01307	0.02136	58.82244	1.04378	267.74	-28.70
88/ 3/12	2447233.0	5.02855	-51.09791	-27.89650	1.04059	0.12287	0.08141	58.43370	1.05098	275.62	-28.52
88/ 3/13	2447233.5	12.02385	-49.89249	-27.14154	1.02250	0.23300	0.14144	58.05598	1.05821	283.55	-27.87
88/ 3/13	2447234.0	18.84421	-47.94495	-25.98280	0.98890	0.34171	0.20048	57.69687	1.06531	291.46	-26.77
88/ 3/14	2447234.5	25.38424	-45.27114	-24.43041	0.93975	0.44714	0.25751	57.36446	1.07209	299.28	-25.21
88/ 3/14	2447235.0	31.53942	-41.89984	-22.50154	0.87533	0.54735	0.31147	57.06707	1.07834	306.97	-23.22
88/ 3/15	2447235.5	37.20844	-37.87306	-20.22057	0.79633	0.64037	0.36130	56.81292	1.08386	314.49	-20.85
88/ 3/15	2447236.0	42.29585	-33.24600	-17.61902	0.70380	0.72429	0.40597	56.60977	1.08846	321.83	-18.13
88/ 3/16	2447236.5	46.71470	-28.08648	-14.73520	0.59919	0.79732	0.44451	56.46450	1.09194	328.98	-15.13
88/ 3/16	2447237.0	50.38921	-22.47376	-11.61355	0.48433	0.85787	0.47607	56.38277	1.09415	335.96	-11.89
88/ 3/17	2447237.5	53.25716	-16.49696	-8.30369	0.36140	0.90465	0.49999	56.36866	1.09498	342.79	-8.47
88/ 3/17	2447238.0	55.27188	-10.25281	-4.85920	0.23280	0.93669	0.51576	56.42440	1.09435	349.49	-4.94
88/ 3/18	2447238.5	56.40360	-3.84313	-1.33623	0.10109	0.95347	0.52314	56.55016	1.09224	356.10	-1.35
88/ 3/18	2447239.0	56.64016	2.62797	2.20807	-0.03110	0.95484	0.52207	56.74407	1.08869	2.66	2.23
88/ 3/19	2447239.5	55.98696	9.05691	5.71710	-0.16124	0.94110	0.51277	57.00222	1.08379	9.19	5.76
88/ 3/19	2447240.0	54.46614	15.34334	9.13622	-0.28693	0.91290	0.49561	57.31884	1.07766	15.73	9.17
88/ 3/20	2447240.5	52.11518	21.39253	12.41410	-0.40603	0.87123	0.47117	57.68659	1.07047	22.32	12.43
88/ 3/20	2447241.0	48.98507	27.11728	15.50373	-0.51673	0.81732	0.44014	58.09689	1.06243	28.97	15.48
88/ 3/21	2447241.5	45.13806	32.43942	18.36318	-0.61751	0.75259	0.40334	58.54030	1.05375	35.70	18.28
88/ 3/21	2447242.0	40.64545	37.29077	20.95611	-0.70720	0.67855	0.36159	59.00689	1.04466	42.54	20.80
88/ 3/22	2447242.5	35.58530	41.61354	23.25198	-0.78498	0.59677	0.31576	59.48659	1.03539	49.47	23.01
88/ 3/22	2447243.0	30.04031	45.36051	25.22609	-0.85030	0.50878	0.26671	59.96959	1.02616	56.49	24.88
88/ 3/23	2447243.5	24.09600	48.49472	26.85939	-0.90287	0.41607	0.21526	60.44652	1.01717	63.58	26.38
88/ 3/23	2447244.0	17.83909	50.98905	28.13826	-0.94262	0.32005	0.16217	60.90876	1.00859	70.72	27.51
88/ 3/24	2447244.5	11.35618	52.82561	29.05412	-0.96963	0.22204	0.10818	61.34859	1.00060	77.87	28.27
88/ 3/24	2447245.0	4.73277	53.99509	29.60305	-0.98416	0.12326	0.05393	61.75929	0.99331	84.99	28.64
88/ 3/25	2447245.5	-1.94764	54.49603	29.78545	-0.98653	0.02481	0.00004	62.13521	0.98684	92.05	28.64
88/ 3/25	2447246.0	-8.60407	54.33424	29.60561	-0.97715	-0.07228	-0.05295	62.47184	0.98125	99.00	28.29
88/ 3/26	2447246.5	-15.15855	53.52210	29.07141	-0.95651	-0.16708	-0.10452	62.76579	0.97660	105.81	27.59
88/ 3/26	2447247.0	-21.53649	52.07812	28.19405	-0.92511	-0.25872	-0.15421	63.01472	0.97290	112.47	26.58
88/ 3/27	2447247.5	-27.66688	50.02640	26.98770	-0.88350	-0.34641	-0.20160	63.21735	0.97016	118.94	25.27
88/ 3/27	2447248.0	-33.48256	47.39629	25.46937	-0.83227	-0.42940	-0.24627	63.37333	0.96835	125.24	23.70
88/ 3/28	2447248.5	-38.92036	44.22202	23.65869	-0.77202	-0.50698	-0.28786	63.48318	0.96743	131.35	21.88
88/ 3/28	2447249.0	-43.92139	40.54243	21.57774	-0.70340	-0.57851	-0.32602	63.54822	0.96734	137.29	19.85
88/ 3/29	2447249.5	-48.43121	36.40074	19.25096	-0.62709	-0.64334	-0.36041	63.57040	0.96799	143.07	17.63
88/ 3/29	2447250.0	-52.40008	31.84432	16.70494	-0.54379	-0.70088	-0.39071	63.55222	0.96933	148.71	15.24
88/ 3/30	2447250.5	-55.78335	26.92443	13.96838	-0.45429	-0.75057	-0.41662	63.49663	0.97125	154.24	12.71
88/ 3/30	2447251.0	-58.54169	21.69604	11.07191	-0.35940	-0.79190	-0.43788	63.40690	0.97366	159.66	10.06
88/ 3/31	2447251.5	-60.64157	16.21752	8.04794	-0.26000	-0.82436	-0.45424	63.28647	0.97647	165.03	7.31
88/ 3/31	2447252.0	-62.05560	10.55037	4.93049	-0.15704	-0.84753	-0.46545	63.13888	0.97960	170.35	4.48
88/ 4/ 1	2447252.5	-62.76302	4.75882	1.75499	-0.05152	-0.86103	-0.47135	62.96764	0.98296	175.66	1.60

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 4/ 1	2447253.0	-62.75009	-1.09058	-1.44199	0.05549	-0.86457	-0.47177	62.77613	0.98647	181.00	-1.32
88/ 4/ 2	2447253.5	-62.01050	-6.92950	-4.62298	0.16286	-0.85791	-0.46662	62.56750	0.99008	186.38	-4.24
88/ 4/ 2	2447254.0	-60.54582	-12.68837	-7.74997	0.26941	-0.84092	-0.45582	62.34463	0.99373	191.84	-7.14
88/ 4/ 3	2447254.5	-58.36576	-18.29709	-10.78479	0.37390	-0.81357	-0.43940	62.11004	0.99738	197.41	-10.00
88/ 4/ 3	2447255.0	-55.48848	-23.68572	-13.68945	0.47508	-0.77595	-0.41741	61.86587	1.00102	203.12	-12.78
88/ 4/ 4	2447255.5	-51.94074	-28.78531	-16.42665	0.57167	-0.72826	-0.38998	61.61387	1.00462	209.00	-15.46
88/ 4/ 4	2447256.0	-47.75798	-33.52871	-18.96021	0.66238	-0.67084	-0.35731	61.35543	1.00819	215.07	-18.00
88/ 4/ 5	2447256.5	-42.98432	-37.85150	-21.25555	0.74595	-0.60415	-0.31968	61.09162	1.01175	221.37	-20.36
88/ 4/ 5	2447257.0	-37.67234	-41.69288	-23.28019	0.82114	-0.52879	-0.27744	60.82325	1.01532	227.90	-22.50
88/ 4/ 6	2447257.5	-31.88280	-44.99658	-25.00429	0.88678	-0.44551	-0.23101	60.55096	1.01893	234.68	-24.39
88/ 4/ 6	2447258.0	-25.68426	-47.71181	-26.40108	0.94174	-0.35518	-0.18088	60.27533	1.02262	241.71	-25.98
88/ 4/ 7	2447258.5	-19.15248	-49.79418	-27.44741	0.98502	-0.25881	-0.12762	59.99698	1.02642	248.96	-27.22
88/ 4/ 7	2447259.0	-12.36977	-51.20653	-28.12417	1.01570	-0.15753	-0.07186	59.71674	1.03035	256.42	-28.10
88/ 4/ 8	2447259.5	-5.42412	-51.91983	-28.41680	1.03301	-0.05260	-0.01431	59.43572	1.03445	264.04	-28.56
88/ 4/ 8	2447260.0	1.59170	-51.91396	-28.31565	1.03633	0.05460	0.04428	59.15546	1.03872	271.76	-28.60
88/ 4/ 9	2447260.5	8.58132	-51.17845	-27.81641	1.02522	0.16260	0.10310	58.87805	1.04314	279.52	-28.19
88/ 4/ 9	2447261.0	15.44599	-49.71312	-26.92042	0.99942	0.26984	0.16129	58.60616	1.04769	287.26	-27.34
88/ 4/10	2447261.5	22.08605	-47.52864	-25.63498	0.95890	0.37468	0.21796	58.34310	1.05233	294.92	-26.06
88/ 4/10	2447262.0	28.40246	-44.64693	-23.97351	0.90390	0.47545	0.27218	58.09283	1.05696	302.46	-24.37
88/ 4/11	2447262.5	34.29858	-41.10137	-21.95564	0.83490	0.57043	0.32304	57.85988	1.06151	309.84	-22.30
88/ 4/11	2447263.0	39.68205	-36.93683	-19.60724	0.75267	0.65795	0.36964	57.64927	1.06585	317.05	-19.88
88/ 4/12	2447263.5	44.46671	-32.20939	-16.96020	0.65828	0.73639	0.41109	57.46635	1.06986	324.08	-17.17
88/ 4/12	2447264.0	48.57468	-26.98577	-14.05208	0.55310	0.80423	0.44660	57.31659	1.07339	330.95	-14.19
88/ 4/13	2447264.5	51.93827	-21.34239	-10.92561	0.43877	0.86013	0.47546	57.20534	1.07629	337.66	-11.01
88/ 4/13	2447265.0	54.50190	-15.36414	-7.62795	0.31721	0.90295	0.49707	57.13755	1.07843	344.26	-7.67
88/ 4/14	2447265.5	56.22365	-9.14267	-4.20977	0.19054	0.93183	0.51099	57.11750	1.07968	350.76	-4.23
88/ 4/14	2447266.0	57.07654	-2.77450	-0.72414	0.06104	0.94620	0.51695	57.14853	1.07994	357.22	-0.73
88/ 4/15	2447266.5	57.04937	3.64122	2.77465	-0.06894	0.94586	0.51488	57.23275	1.07912	3.65	2.78
88/ 4/15	2447267.0	56.14695	10.00502	6.23237	-0.19703	0.93092	0.50486	57.37093	1.07718	10.10	6.24
88/ 4/16	2447267.5	54.38990	16.21950	9.59615	-0.32094	0.90187	0.48720	57.56231	1.07412	16.60	9.60
88/ 4/16	2447268.0	51.81375	22.19153	12.81569	-0.43856	0.85949	0.46236	57.80459	1.06997	23.19	12.81
88/ 4/17	2447268.5	48.46771	27.83433	15.84435	-0.54799	0.80485	0.43095	58.09399	1.06479	29.87	15.83
88/ 4/17	2447269.0	44.41287	33.06909	18.64002	-0.64762	0.73923	0.39369	58.42532	1.05871	36.67	18.60
88/ 4/18	2447269.5	39.72028	37.82631	21.16583	-0.73612	0.66408	0.35140	58.79220	1.05184	43.60	21.10
88/ 4/18	2447270.0	34.46878	42.04663	23.39057	-0.81252	0.58095	0.30493	59.18729	1.04435	50.66	23.28
88/ 4/19	2447270.5	28.74289	45.68131	25.28888	-0.87612	0.49141	0.25515	59.60254	1.03642	57.82	25.11
88/ 4/19	2447271.0	22.63076	48.69224	26.84130	-0.92653	0.39702	0.20293	60.02950	1.02823	65.07	26.56
88/ 4/20	2447271.5	16.22234	51.05178	28.03411	-0.96361	0.29930	0.14909	60.45958	1.01998	72.37	27.63
88/ 4/20	2447272.0	9.60777	52.74224	28.85900	-0.98744	0.19967	0.09441	60.88427	1.01184	79.68	28.29
88/ 4/21	2447272.5	2.87602	53.75523	29.31276	-0.99826	0.09946	0.03961	61.29546	1.00399	86.94	28.57
88/ 4/21	2447273.0	-3.88612	54.09096	29.39682	-0.99649	-0.00012	-0.01465	61.68555	0.99659	94.11	28.46
88/ 4/22	2447273.5	-10.59493	53.75749	29.11687	-0.98261	-0.09798	-0.06778	62.04766	0.98980	101.15	27.99
88/ 4/22	2447274.0	-17.17035	52.76992	28.48238	-0.95720	-0.19311	-0.11926	62.37573	0.98374	108.02	27.17
88/ 4/23	2447274.5	-23.53639	51.14978	27.50626	-0.92089	-0.28463	-0.16859	62.66463	0.97850	114.71	26.04
88/ 4/23	2447275.0	-29.62145	48.92433	26.20451	-0.87434	-0.37173	-0.21535	62.91023	0.97418	121.19	24.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
88/ 4/24	2447275.5	-35.35853	46.12604	24.59587	-0.81825	-0.45367	-0.25915	63.10938	0.97082	127.47	22.94
88/ 4/24	2447276.0	-40.68534	42.79213	22.70164	-0.75331	-0.52979	-0.29963	63.26000	0.96847	133.55	21.03
88/ 4/25	2447276.5	-45.54446	38.96414	20.54536	-0.68026	-0.59947	-0.33647	63.36098	0.96712	139.45	18.92
88/ 4/25	2447277.0	-49.88339	34.68769	18.15275	-0.59983	-0.66213	-0.36937	63.41223	0.96677	145.19	16.63
88/ 4/26	2447277.5	-53.65474	30.01212	15.55147	-0.51279	-0.71723	-0.39805	63.41456	0.96737	150.78	14.20
88/ 4/26	2447278.0	-56.81638	24.99034	12.77102	-0.41992	-0.76428	-0.42223	63.36969	0.96889	156.26	11.63
88/ 4/27	2447278.5	-59.33169	19.67857	9.84264	-0.32207	-0.80279	-0.44169	63.28012	0.97123	161.65	8.95
88/ 4/27	2447279.0	-61.16982	14.13615	6.79917	-0.22010	-0.83232	-0.45618	63.14907	0.97432	166.99	6.18
88/ 4/28	2447279.5	-62.30602	8.42530	3.67492	-0.11496	-0.85246	-0.46551	62.98040	0.97806	172.30	3.35
88/ 4/28	2447280.0	-62.72210	2.61086	0.50551	-0.00763	-0.86285	-0.46949	62.77845	0.98234	177.62	0.46
88/ 4/29	2447280.5	-62.40681	-3.24009	-2.67233	0.10083	-0.86319	-0.46798	62.54798	0.98705	182.97	-2.45
88/ 4/29	2447281.0	-61.35632	-9.05861	-5.82099	0.20928	-0.85324	-0.46086	62.29398	0.99207	188.40	-5.36
88/ 4/30	2447281.5	-59.57472	-14.77445	-8.90226	0.31651	-0.83286	-0.44807	62.02162	0.99730	193.93	-8.25
88/ 4/30	2447282.0	-57.07444	-20.31667	-11.87773	0.42128	-0.80198	-0.42962	61.73604	1.00261	199.59	-11.09
88/ 5/ 1	2447282.5	-53.87665	-25.61440	-14.70914	0.52226	-0.76068	-0.40555	61.44225	1.00790	205.43	-13.85
88/ 5/ 1	2447283.0	-50.01162	-30.59769	-17.35891	0.61809	-0.70917	-0.37601	61.14501	1.01308	211.46	-16.49
88/ 5/ 2	2447283.5	-45.51882	-35.19847	-19.79063	0.70740	-0.64780	-0.34121	60.84870	1.01808	217.71	-18.98
88/ 5/ 2	2447284.0	-40.44703	-39.35161	-21.96964	0.78883	-0.57709	-0.30145	60.55722	1.02282	224.21	-21.27
88/ 5/ 3	2447284.5	-34.85419	-42.99603	-23.86366	0.86105	-0.49771	-0.25712	60.27394	1.02725	230.97	-23.32
88/ 5/ 3	2447285.0	-28.80698	-46.07590	-25.44340	0.92280	-0.41053	-0.20873	60.00164	1.03134	237.99	-25.09
88/ 5/ 4	2447285.5	-22.38030	-48.54170	-26.68315	0.97292	-0.31657	-0.15683	59.74249	1.03508	245.25	-26.53
88/ 5/ 4	2447286.0	-15.65646	-50.35142	-27.56140	1.01040	-0.21700	-0.10210	59.49808	1.03847	252.73	-27.60
88/ 5/ 5	2447286.5	-8.72413	-51.47152	-28.06138	1.03436	-0.11316	-0.04526	59.26946	1.04152	260.38	-28.26
88/ 5/ 5	2447287.0	-1.67715	-51.87782	-28.17150	1.04416	-0.00648	0.01289	59.05722	1.04426	268.15	-28.49
88/ 5/ 6	2447287.5	5.38687	-51.55632	-27.88576	1.03934	0.10150	0.07149	58.86160	1.04672	275.96	-28.28
88/ 5/ 6	2447288.0	12.36807	-50.50369	-27.20399	1.01969	0.20915	0.12968	58.68262	1.04896	283.76	-27.62
88/ 5/ 7	2447288.5	19.16601	-48.72769	-26.13211	0.98525	0.31483	0.18654	58.52017	1.05101	291.47	-26.52
88/ 5/ 7	2447289.0	25.68133	-46.24731	-24.68209	0.93630	0.41687	0.24119	58.37422	1.05291	299.04	-25.01
88/ 5/ 8	2447289.5	31.81749	-43.09274	-22.87197	0.87340	0.51364	0.29274	58.24486	1.05468	306.44	-23.12
88/ 5/ 8	2447290.0	37.48255	-39.30508	-20.72563	0.79734	0.60356	0.34033	58.13246	1.05634	313.64	-20.89
88/ 5/ 9	2447290.5	42.59079	-34.93589	-18.27255	0.70917	0.68513	0.38319	58.03772	1.05790	320.64	-18.35
88/ 5/ 9	2447291.0	47.06438	-30.04643	-15.54735	0.61017	0.75697	0.42058	57.96175	1.05933	327.45	-15.56
88/ 5/10	2447291.5	50.83492	-24.70681	-12.58928	0.50183	0.81787	0.45185	57.90600	1.06061	334.08	-12.56
88/ 5/10	2447292.0	53.84476	-18.99482	-9.44162	0.38583	0.86677	0.47648	57.87232	1.06169	340.57	-9.39
88/ 5/11	2447292.5	56.04826	-12.99465	-6.15090	0.26404	0.90284	0.49404	57.86279	1.06250	346.95	-6.10
88/ 5/11	2447293.0	57.41277	-6.79538	-2.76608	0.13842	0.92548	0.50423	57.87965	1.06298	353.25	-2.74
88/ 5/12	2447293.5	57.91928	-0.48934	0.66234	0.01103	0.93434	0.50690	57.92514	1.06304	359.52	0.66
88/ 5/12	2447294.0	57.56295	5.82966	4.08327	-0.11602	0.92931	0.50203	58.00130	1.06260	5.78	4.04
88/ 5/13	2447294.5	56.35309	12.06812	7.44607	-0.24066	0.91061	0.48977	58.10984	1.06160	12.09	7.36
88/ 5/13	2447295.0	54.31295	18.13470	10.70151	-0.36087	0.87866	0.47039	58.25192	1.05997	18.46	10.59
88/ 5/14	2447295.5	51.47908	23.94200	13.80272	-0.47475	0.83418	0.44430	58.42799	1.05766	24.94	13.66
88/ 5/14	2447296.0	47.90033	29.40819	16.70608	-0.58055	0.77811	0.41206	58.63767	1.05465	31.55	16.55
88/ 5/15	2447296.5	43.63662	34.45850	19.37199	-0.67678	0.71157	0.37430	58.87968	1.05094	38.30	19.21
88/ 5/15	2447297.0	38.75734	39.02640	21.76551	-0.76213	0.63588	0.33175	59.15174	1.04654	45.20	21.59
88/ 5/16	2447297.5	33.33972	43.05452	23.85682	-0.83560	0.55243	0.28520	59.45062	1.04151	52.25	23.66

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 5/16	2447298.0	27.46694	46.49534	25.62154	-0.89643	0.46270	0.23545	59.77217	1.03592	59.43	25.38
88/ 5/17	2447298.5	21.22637	49.31141	27.04086	-0.94415	0.36820	0.18334	60.11142	1.02985	66.71	26.73
88/ 5/17	2447299.0	14.70780	51.47545	28.10153	-0.97851	0.27040	0.12968	60.46269	1.02343	74.05	27.70
88/ 5/18	2447299.5	8.00179	52.97006	28.79570	-0.99951	0.17075	0.07524	60.81980	1.01678	81.41	28.26
88/ 5/18	2447300.0	1.19829	53.78735	29.12066	-1.00735	0.07061	0.02077	61.17620	1.01003	88.72	28.43
88/ 5/19	2447300.5	-5.61469	53.92830	29.07852	-1.00238	-0.02876	-0.03305	61.52517	1.00334	95.94	28.21
88/ 5/19	2447301.0	-12.35203	53.40211	28.67579	-0.98510	-0.12621	-0.08561	61.85999	0.99684	103.02	27.62
88/ 5/20	2447301.5	-18.93234	52.22547	27.92301	-0.95612	-0.22067	-0.13633	62.17417	0.99068	109.93	26.69
88/ 5/20	2447302.0	-25.27855	50.42181	26.83429	-0.91610	-0.31121	-0.18473	62.46154	0.98499	116.63	25.44
88/ 5/21	2447302.5	-31.31839	48.02060	25.42695	-0.86577	-0.39699	-0.23035	62.71642	0.97991	123.11	23.92
88/ 5/21	2447303.0	-36.98464	45.05667	23.72116	-0.80591	-0.47726	-0.27280	62.93378	0.97554	129.38	22.14
88/ 5/22	2447303.5	-42.21537	41.56966	21.73956	-0.73730	-0.55135	-0.31174	63.10929	0.97199	135.44	20.15
88/ 5/22	2447304.0	-46.95404	37.60347	19.50707	-0.66074	-0.61866	-0.34684	63.23946	0.96934	141.31	17.97
88/ 5/23	2447304.5	-51.14957	33.20586	17.05056	-0.57705	-0.67866	-0.37784	63.32163	0.96764	147.01	15.62
88/ 5/23	2447305.0	-54.75644	28.42805	14.39871	-0.48705	-0.73085	-0.40448	63.35412	0.96694	152.56	13.14
88/ 5/24	2447305.5	-57.73477	23.32443	11.58182	-0.39159	-0.77479	-0.42654	63.33618	0.96726	158.00	10.54
88/ 5/24	2447306.0	-60.05040	17.95234	8.63165	-0.29151	-0.81007	-0.44381	63.26802	0.96858	163.36	7.84
88/ 5/25	2447306.5	-61.67510	12.37180	5.58133	-0.18771	-0.83629	-0.45608	63.15085	0.97089	168.66	5.07
88/ 5/25	2447307.0	-62.58676	6.64529	2.46522	-0.08111	-0.85311	-0.46321	62.98682	0.97414	173.94	2.24
88/ 5/26	2447307.5	-62.76970	0.83759	-0.68122	0.02731	-0.86022	-0.46502	62.77899	0.97825	179.24	-0.62
88/ 5/26	2447308.0	-62.21505	-4.98457	-3.82161	0.13652	-0.85734	-0.46140	62.53129	0.98313	184.58	-3.50
88/ 5/27	2447308.5	-60.92110	-10.75275	-6.91877	0.24543	-0.84425	-0.45224	62.24846	0.98870	190.01	-6.38
88/ 5/27	2447309.0	-58.89383	-16.39729	-9.93502	0.35286	-0.82081	-0.43750	61.93593	0.99481	195.56	-9.23
88/ 5/28	2447309.5	-56.14738	-21.84776	-12.83243	0.45759	-0.78694	-0.41715	61.59971	1.00134	201.26	-12.02
88/ 5/28	2447310.0	-52.70452	-27.03363	-15.57319	0.55828	-0.74269	-0.39125	61.24628	1.00814	207.15	-14.73
88/ 5/29	2447310.5	-48.59710	-31.88507	-18.12005	0.65359	-0.68823	-0.35992	60.88244	1.01508	213.27	-17.31
88/ 5/29	2447311.0	-43.86643	-36.33389	-20.43684	0.74209	-0.62386	-0.32336	60.51512	1.02199	219.63	-19.74
88/ 5/30	2447311.5	-38.56345	-40.31460	-22.48906	0.82235	-0.55009	-0.28185	60.15118	1.02874	226.27	-21.95
88/ 5/30	2447312.0	-32.74881	-43.76564	-24.24454	0.89295	-0.46759	-0.23581	59.79727	1.03518	233.19	-23.92
88/ 5/31	2447312.5	-26.49261	-46.63072	-25.67415	0.95252	-0.37722	-0.18572	59.45960	1.04119	240.40	-25.58
88/ 5/31	2447313.0	-19.87391	-48.86016	-26.75255	0.99979	-0.28009	-0.13221	59.14378	1.04666	247.87	-26.89
88/ 6/ 1	2447313.5	-12.97995	-50.41232	-27.45890	1.03363	-0.17745	-0.07598	58.85467	1.05150	255.56	-27.81
88/ 6/ 1	2447314.0	-5.90494	-51.25481	-27.77753	1.05311	-0.07079	-0.01786	58.59620	1.05564	263.43	-28.30
88/ 6/ 2	2447314.5	1.25136	-51.36574	-27.69856	1.05754	0.03829	0.04127	58.37136	1.05904	271.40	-28.33
88/ 6/ 2	2447315.0	8.38543	-50.73460	-27.21839	1.04650	0.14804	0.10045	58.18209	1.06168	279.39	-27.89
88/ 6/ 3	2447315.5	15.39192	-49.36294	-26.33995	1.01988	0.25666	0.15871	58.02934	1.06358	287.32	-26.99
88/ 6/ 3	2447316.0	22.16579	-47.26469	-25.07293	0.97787	0.36229	0.21504	57.91308	1.06477	295.13	-25.65
88/ 6/ 4	2447316.5	28.60451	-44.46618	-23.43363	0.92102	0.46314	0.26848	57.83246	1.06530	302.75	-23.90
88/ 6/ 4	2447317.0	34.61018	-41.00571	-21.44480	0.85016	0.55748	0.31810	57.78592	1.06524	310.17	-21.78
88/ 6/ 5	2447317.5	40.09153	-36.93295	-19.13518	0.76641	0.64370	0.36307	57.77135	1.06468	317.35	-19.34
88/ 6/ 5	2447318.0	44.96580	-32.30788	-16.53895	0.67114	0.72035	0.40262	57.78632	1.06369	324.30	-16.63
88/ 6/ 6	2447318.5	49.16030	-27.19958	-13.69501	0.56595	0.78620	0.43612	57.82824	1.06236	331.04	-13.70
88/ 6/ 6	2447319.0	52.61372	-21.68484	-10.64621	0.45261	0.84022	0.46304	57.89454	1.06077	337.60	-10.60
88/ 6/ 7	2447319.5	55.27713	-15.84657	-7.43846	0.33299	0.88163	0.48300	57.98280	1.05898	344.00	-7.37
88/ 6/ 7	2447320.0	57.11467	-9.77218	-4.11984	0.20907	0.90987	0.49574	58.09091	1.05704	350.29	-4.07

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 6/ 8	2447320.5	58.10393	-3.55197	-0.73973	0.08284	0.92466	0.50115	58.21709	1.05499	356.50	-0.73
88/ 6/ 8	2447321.0	58.23608	2.72261	2.65215	-0.04370	0.92593	0.49923	58.35998	1.05285	2.68	2.60
88/ 6/ 9	2447321.5	57.51569	8.96048	6.00657	-0.16859	0.91387	0.49012	58.51857	1.05062	8.86	5.89
88/ 6/ 9	2447322.0	55.96034	15.07250	9.27560	-0.28995	0.88886	0.47407	58.69222	1.04828	15.07	9.09
88/ 6/10	2447322.5	53.59998	20.97294	12.41343	-0.40602	0.85150	0.45145	58.88052	1.04581	21.37	12.17
88/ 6/10	2447323.0	50.47612	26.58076	15.37702	-0.51515	0.80259	0.42270	59.08323	1.04318	27.77	15.09
88/ 6/11	2447323.5	46.64079	31.82080	18.12676	-0.61588	0.74308	0.38839	59.30013	1.04035	34.30	17.80
88/ 6/11	2447324.0	42.15540	36.62488	20.62698	-0.70691	0.67404	0.34913	59.53093	1.03728	40.98	20.27
88/ 6/12	2447324.5	37.08946	40.93256	22.84644	-0.78715	0.59671	0.30560	59.77510	1.03395	47.82	22.47
88/ 6/12	2447325.0	31.51914	44.69194	24.75861	-0.85572	0.51235	0.25852	60.03178	1.03033	54.81	24.36
88/ 6/13	2447325.5	25.52590	47.86004	26.34194	-0.91194	0.42233	0.20862	60.29969	1.02642	61.93	25.90
88/ 6/13	2447326.0	19.19495	50.40315	27.57997	-0.95538	0.32803	0.15668	60.57705	1.02221	69.15	27.08
88/ 6/14	2447326.5	12.61385	52.29691	28.46139	-0.98579	0.23081	0.10344	60.86154	1.01772	76.44	27.88
88/ 6/14	2447327.0	5.87110	53.52619	28.97988	-1.00313	0.13204	0.04963	61.15028	1.01299	83.74	28.29
88/ 6/15	2447327.5	-0.94515	54.08488	29.13403	-1.00753	0.03300	-0.00404	61.43988	1.00808	91.00	28.31
88/ 6/15	2447328.0	-7.74828	53.97542	28.92702	-0.99931	-0.06506	-0.05690	61.72645	1.00304	98.17	27.95
88/ 6/16	2447328.5	-14.45421	53.20837	28.36640	-0.97892	-0.16100	-0.10836	62.00571	0.99797	105.20	27.22
88/ 6/16	2447329.0	-20.98232	51.80175	27.46368	-0.94691	-0.25375	-0.15784	62.27305	0.99294	112.05	26.17
88/ 6/17	2447329.5	-27.25614	49.78042	26.23400	-0.90394	-0.34237	-0.20483	62.52368	0.98807	118.70	24.81
88/ 6/17	2447330.0	-33.20394	47.17542	24.69575	-0.85076	-0.42597	-0.24888	62.75271	0.98346	125.14	23.18
88/ 6/18	2447330.5	-38.75915	44.02331	22.87021	-0.78815	-0.50380	-0.28960	62.95530	0.97921	131.36	21.30
88/ 6/18	2447331.0	-43.86067	40.36556	20.78120	-0.71693	-0.57518	-0.32663	63.12682	0.97545	137.38	19.22
88/ 6/19	2447331.5	-48.45310	36.24795	18.45476	-0.63796	-0.63950	-0.35966	63.26290	0.97227	143.20	16.96
88/ 6/19	2447332.0	-52.48686	31.72003	15.91887	-0.55211	-0.69626	-0.38844	63.35961	0.96978	148.85	14.55
88/ 6/20	2447332.5	-55.91830	26.83471	13.20316	-0.46025	-0.74497	-0.41272	63.41357	0.96807	154.36	12.02
88/ 6/20	2447333.0	-58.70976	21.64780	10.33875	-0.36327	-0.78525	-0.43232	63.42202	0.96720	159.76	9.38
88/ 6/21	2447333.5	-60.82963	16.21772	7.35800	-0.26208	-0.81672	-0.44705	63.38295	0.96725	165.07	6.67
88/ 6/21	2447334.0	-62.25243	10.60514	4.29439	-0.15759	-0.83909	-0.45676	63.29515	0.96826	170.33	3.89
88/ 6/22	2447334.5	-62.95894	4.87276	1.18234	-0.05073	-0.85206	-0.46133	63.15829	0.97026	175.57	1.07
88/ 6/22	2447335.0	-62.93638	-0.91496	-1.94292	0.05754	-0.85539	-0.46065	62.97301	0.97324	180.83	-1.77
88/ 6/23	2447335.5	-62.17860	-6.69206	-5.04550	0.16621	-0.84889	-0.45462	62.74089	0.97720	186.14	-4.61
88/ 6/23	2447336.0	-60.68643	-12.39132	-8.08900	0.27422	-0.83238	-0.44319	62.46455	0.98208	191.54	-7.44
88/ 6/24	2447336.5	-58.46798	-17.94461	-11.03669	0.38048	-0.80577	-0.42633	62.14759	0.98782	197.06	-10.23
88/ 6/24	2447337.0	-55.53909	-23.28332	-13.85176	0.48381	-0.76902	-0.40404	61.79462	0.99434	202.74	-12.95
88/ 6/25	2447337.5	-51.92374	-28.33882	-16.49759	0.58297	-0.72216	-0.37637	61.41119	1.00151	208.62	-15.58
88/ 6/25	2447338.0	-47.65456	-33.04310	-18.93812	0.67666	-0.66534	-0.34344	61.00374	1.00921	214.74	-18.09
88/ 6/26	2447338.5	-42.77320	-37.32961	-21.13828	0.76351	-0.59885	-0.30543	60.57948	1.01728	221.11	-20.42
88/ 6/26	2447339.0	-37.33073	-41.13414	-23.06452	0.84212	-0.52311	-0.26260	60.14627	1.02555	227.78	-22.55
88/ 6/27	2447339.5	-31.38783	-44.39602	-24.68542	0.91105	-0.43872	-0.21533	59.71242	1.03386	234.74	-24.42
88/ 6/27	2447340.0	-25.01481	-47.05935	-25.97240	0.96890	-0.34651	-0.16409	59.28649	1.04199	242.01	-25.98
88/ 6/28	2447340.5	-18.29138	-49.07445	-26.90047	1.01430	-0.24750	-0.10946	58.87709	1.04978	249.56	-27.19
88/ 6/28	2447341.0	-11.30608	-50.39939	-27.44906	1.04603	-0.14294	-0.05216	58.49254	1.05704	257.36	-27.99
88/ 6/29	2447341.5	-4.15526	-51.00151	-27.60281	1.06302	-0.03432	0.00699	58.14065	1.06360	265.34	-28.34
88/ 6/29	2447342.0	3.05827	-50.85887	-27.35232	1.06443	0.07669	0.06705	57.82843	1.06930	273.44	-28.23
88/ 6/30	2447342.5	10.22704	-49.96154	-26.69482	1.04974	0.18821	0.12700	57.56180	1.07402	281.57	-27.63

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COURDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
88/ 6/30	2447343.0	17.24114	-48.31261	-25.63463	1.01876	0.29829	0.18578	57.34543	1.07767	289.64	-26.55
88/ 7/ 1	2447343.5	23.99066	-45.92874	-24.18345	0.97168	0.40489	0.24228	57.18252	1.08018	297.58	-25.02
88/ 7/ 1	2447344.0	30.36838	-42.84040	-22.36037	0.90910	0.50599	0.29542	57.07473	1.08156	305.33	-23.06
88/ 7/ 2	2447344.5	36.27241	-39.09143	-20.19159	0.83200	0.59966	0.34419	57.02217	1.08180	312.86	-20.74
88/ 7/ 2	2447345.0	41.60880	-34.73820	-17.70993	0.74173	0.68414	0.38767	57.02347	1.08097	320.14	-18.09
88/ 7/ 3	2447345.5	46.29380	-29.84835	-14.95402	0.63995	0.75789	0.42506	57.07594	1.07917	327.19	-15.19
88/ 7/ 3	2447346.0	50.25578	-24.49903	-11.96739	0.52856	0.81963	0.45571	57.17573	1.07650	334.01	-12.08
88/ 7/ 4	2447346.5	53.43668	-18.77499	-8.79734	0.40966	0.86841	0.47916	57.31816	1.07310	340.64	-8.83
88/ 7/ 4	2447347.0	55.79291	-12.76648	-5.49377	0.28542	0.90356	0.49510	57.49794	1.06911	347.11	-5.48
88/ 7/ 5	2447347.5	57.29584	-6.56708	-2.10806	0.15805	0.92474	0.50341	57.70947	1.06468	353.46	-2.09
88/ 7/ 5	2447348.0	57.93171	-0.27164	1.30812	0.02974	0.93193	0.50411	57.94711	1.05996	359.73	1.29
88/ 7/ 6	2447348.5	57.70126	6.02562	4.70377	-0.09743	0.92534	0.49739	58.20540	1.05506	5.96	4.64
88/ 7/ 6	2447349.0	56.61896	12.23290	8.02954	-0.22149	0.90545	0.48353	58.47926	1.05010	12.19	7.89
88/ 7/ 7	2447349.5	54.71205	18.26227	11.23850	-0.34065	0.87294	0.46297	58.76412	1.04518	18.46	11.03
88/ 7/ 7	2447350.0	52.01934	24.03096	14.28680	-0.45327	0.82863	0.43618	59.05600	1.04036	24.80	14.00
88/ 7/ 8	2447350.5	48.59005	29.46242	17.13420	-0.55794	0.77353	0.40374	59.35156	1.03569	31.23	16.78
88/ 7/ 8	2447351.0	44.48242	34.48714	19.74451	-0.65339	0.70871	0.36628	59.64808	1.03119	37.79	19.33
88/ 7/ 9	2447351.5	39.76240	39.04330	22.08589	-0.73861	0.63537	0.32444	59.94343	1.02689	44.48	21.62
88/ 7/ 9	2447352.0	34.50239	43.07723	24.13107	-0.81273	0.55471	0.27893	60.23596	1.02276	51.31	23.62
88/ 7/10	2447352.5	28.77987	46.54371	25.85750	-0.87509	0.46802	0.23044	60.52444	1.01879	58.27	25.29
88/ 7/10	2447353.0	22.67617	49.40619	27.24743	-0.92522	0.37657	0.17968	60.80791	1.01495	65.35	26.62
88/ 7/11	2447353.5	16.27529	51.63681	28.28787	-0.96281	0.28165	0.12735	61.08559	1.01121	72.51	27.59
88/ 7/11	2447354.0	9.66270	53.21640	28.97059	-0.98772	0.18453	0.07416	61.35673	1.00755	79.71	28.18
88/ 7/12	2447354.5	2.92428	54.13426	29.29197	-0.99998	0.08645	0.02076	61.62052	1.00393	86.91	28.38
88/ 7/12	2447355.0	-3.85475	54.38797	29.25284	-0.99975	-0.01139	-0.03219	61.87600	1.00034	94.05	28.21
88/ 7/13	2447355.5	-10.59075	53.98306	28.85834	-0.98734	-0.10785	-0.08408	62.12196	0.99676	101.10	27.68
88/ 7/13	2447356.0	-17.20255	52.93257	28.11760	-0.96316	-0.20185	-0.13434	62.35691	0.99321	108.00	26.80
88/ 7/14	2447356.5	-23.61223	51.25663	27.04351	-0.92775	-0.29238	-0.18243	62.57900	0.98969	114.73	25.60
88/ 7/14	2447357.0	-29.74581	48.98192	25.65245	-0.88174	-0.37852	-0.22786	62.78606	0.98624	121.27	24.11
88/ 7/15	2447357.5	-35.53382	46.14114	23.96391	-0.82583	-0.45941	-0.27020	62.97560	0.98288	127.60	22.37
88/ 7/15	2447358.0	-40.91180	42.77244	22.00023	-0.76079	-0.53429	-0.30905	63.14481	0.97968	133.73	20.39
88/ 7/16	2447358.5	-45.82070	38.91886	19.78629	-0.68746	-0.60248	-0.34405	63.29069	0.97670	139.66	18.22
88/ 7/16	2447359.0	-50.20720	34.62774	17.34912	-0.60668	-0.66339	-0.37491	63.41005	0.97402	145.41	15.88
88/ 7/17	2447359.5	-54.02390	29.95023	14.71768	-0.51935	-0.71650	-0.40138	63.49967	0.97170	151.00	13.40
88/ 7/17	2447360.0	-57.22953	24.94070	11.92255	-0.42639	-0.76137	-0.42322	63.55631	0.96984	156.45	10.81
88/ 7/18	2447360.5	-59.78905	19.65634	8.99565	-0.32871	-0.79760	-0.44026	63.57692	0.96853	161.80	8.13
88/ 7/18	2447361.0	-61.67373	14.15669	5.97005	-0.22727	-0.82489	-0.45235	63.55865	0.96784	167.07	5.39
88/ 7/19	2447361.5	-62.86121	8.50327	2.87968	-0.12300	-0.84297	-0.45936	63.49905	0.96785	172.30	2.60
88/ 7/19	2447362.0	-63.33561	2.75919	-0.24079	-0.01686	-0.85163	-0.46122	63.39614	0.96865	177.51	-0.22
88/ 7/20	2447362.5	-63.08758	-3.01114	-3.35618	0.09017	-0.85070	-0.45785	63.24851	0.97028	182.73	-3.04
88/ 7/20	2447363.0	-62.11447	-8.74235	-6.43094	0.19709	-0.84006	-0.44922	63.05547	0.97280	188.01	-5.85
88/ 7/21	2447363.5	-60.42043	-14.36841	-9.42939	0.30288	-0.81964	-0.43532	62.81714	0.97624	193.38	-8.63
88/ 7/21	2447364.0	-58.01669	-19.82296	-12.31580	0.40648	-0.78942	-0.41615	62.53451	0.98060	198.86	-11.36
88/ 7/22	2447364.5	-54.92173	-25.03968	-15.05471	0.50680	-0.74942	-0.39177	62.20953	0.98588	204.51	-14.00
88/ 7/22	2447365.0	-51.16165	-29.95271	-17.61106	0.60269	-0.69976	-0.36226	61.84520	0.99204	210.35	-16.54

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 7/23	2447365.5	-46.77048	-34.49716	-19.95059	0.69295	-0.64062	-0.32777	61.44556	0.99900	216.41	-18.95
88/ 7/23	2447366.0	-41.79050	-38.60972	-22.04009	0.77635	-0.57229	-0.28847	61.01576	1.00670	222.73	-21.18
88/ 7/24	2447366.5	-36.27262	-42.22946	-23.84788	0.85158	-0.49517	-0.24463	60.56197	1.01500	229.34	-23.19
88/ 7/24	2447367.0	-30.27659	-45.29872	-25.34431	0.91732	-0.40984	-0.19659	60.09143	1.02376	236.24	-24.95
88/ 7/25	2447367.5	-23.87113	-47.76416	-26.50233	0.97225	-0.31701	-0.14478	59.61224	1.03283	243.45	-26.40
88/ 7/25	2447368.0	-17.13397	-49.57808	-27.29818	1.01506	-0.21762	-0.08974	59.13332	1.04200	250.94	-27.49
88/ 7/26	2447368.5	-10.15147	-50.69975	-27.71214	1.04450	-0.11280	-0.03213	58.66412	1.05107	258.68	-28.19
88/ 7/26	2447369.0	-3.01801	-51.09695	-27.72932	1.05946	-0.00394	0.02728	58.21445	1.05982	266.62	-28.45
88/ 7/27	2447369.5	4.16501	-50.74749	-27.34050	1.05900	0.10739	0.08760	57.79410	1.06803	274.69	-28.23
88/ 7/27	2447370.0	11.29069	-49.64074	-26.54283	1.04244	0.21937	0.14784	57.41258	1.07548	282.81	-27.54
88/ 7/28	2447370.5	18.24860	-47.77888	-25.34058	1.00943	0.33003	0.20689	57.07870	1.08197	290.90	-26.36
88/ 7/28	2447371.0	24.92715	-45.17799	-23.74552	0.95999	0.43725	0.26363	56.80020	1.08732	298.89	-24.71
88/ 7/29	2447371.5	31.21637	-41.86855	-21.77725	0.89458	0.53890	0.31691	56.58344	1.09138	306.71	-22.64
88/ 7/29	2447372.0	37.01092	-37.89554	-19.46307	0.81410	0.63285	0.36560	56.43307	1.09404	314.32	-20.17
88/ 7/30	2447372.5	42.21309	-33.31781	-16.83762	0.71991	0.71715	0.40866	56.35182	1.09526	321.72	-17.39
88/ 7/30	2447373.0	46.73574	-28.20691	-13.94211	0.61376	0.79003	0.44521	56.34041	1.09501	328.89	-14.33
88/ 7/31	2447373.5	50.50474	-22.64528	-10.82331	0.49774	0.85003	0.47449	56.39753	1.09337	335.85	-11.06
88/ 7/31	2447374.0	53.46102	-16.72401	-7.53227	0.37418	0.89608	0.49600	56.51999	1.09040	342.63	-7.66
88/ 8/ 1	2447374.5	55.56186	-10.54028	-4.12289	0.24555	0.92745	0.50940	56.70287	1.08626	349.26	-4.17
88/ 8/ 1	2447375.0	56.78148	-4.19470	-0.65044	0.11438	0.94385	0.51462	56.93993	1.08110	355.77	-0.65
88/ 8/ 2	2447375.5	57.11104	2.21139	2.82984	-0.01688	0.94536	0.51175	57.22385	1.07512	2.22	2.83
88/ 8/ 2	2447376.0	56.55789	8.57832	6.26411	-0.14590	0.93239	0.50109	57.54669	1.06852	8.62	6.25
88/ 8/ 3	2447376.5	55.14447	14.81026	9.60099	-0.27058	0.90564	0.48308	57.90022	1.06149	15.03	9.54
88/ 8/ 3	2447377.0	52.90679	20.81699	12.79256	-0.38901	0.86605	0.45828	58.27628	1.05423	21.48	12.68
88/ 8/ 4	2447377.5	49.89269	26.51526	15.79499	-0.49960	0.81475	0.42735	58.66704	1.04692	27.99	15.62
88/ 8/ 4	2447378.0	46.16008	31.82983	18.56907	-0.60098	0.75296	0.39098	59.06523	1.03971	34.59	18.32
88/ 8/ 5	2447378.5	41.77516	36.69410	21.08052	-0.69206	0.68201	0.34992	59.46436	1.03273	41.30	20.76
88/ 8/ 5	2447379.0	36.81071	41.05052	23.30013	-0.77199	0.60322	0.30493	59.85875	1.02607	48.12	22.91
88/ 8/ 6	2447379.5	31.34451	44.85070	25.20384	-0.84013	0.51797	0.25676	60.24364	1.01983	55.05	24.73
88/ 8/ 6	2447380.0	25.45795	48.05538	26.77261	-0.89606	0.42760	0.20615	60.61517	1.01403	62.09	26.21
88/ 8/ 7	2447380.5	19.23474	50.63430	27.99237	-0.93952	0.33341	0.15381	60.97032	1.00872	69.20	27.33
88/ 8/ 7	2447381.0	12.75978	52.56592	28.85381	-0.97040	0.23667	0.10045	61.30685	1.00388	76.36	28.08
88/ 8/ 8	2447381.5	6.11813	53.83713	29.35219	-0.98875	0.13859	0.04671	61.62320	0.99951	83.52	28.45
88/ 8/ 8	2447382.0	-0.60580	54.44286	29.48715	-0.99474	0.04034	-0.00677	61.91837	0.99558	90.64	28.44
88/ 8/ 9	2447382.5	-7.32913	54.38576	29.26245	-0.98863	-0.05696	-0.05940	62.19178	0.99204	97.68	28.07
88/ 8/ 9	2447383.0	-13.97113	53.67574	28.68576	-0.97079	-0.15228	-0.11062	62.44318	0.98887	104.59	27.35
88/ 8/10	2447383.5	-20.45396	52.32966	27.76844	-0.94171	-0.24463	-0.15990	62.67251	0.98601	111.35	26.30
88/ 8/10	2447384.0	-26.70319	50.37082	26.52523	-0.90191	-0.33308	-0.20677	62.87979	0.98343	117.93	24.95
88/ 8/11	2447384.5	-32.64834	47.82857	24.97409	-0.85203	-0.41677	-0.25076	63.06498	0.98108	124.32	23.33
88/ 8/11	2447385.0	-38.22342	44.73787	23.13587	-0.79275	-0.49491	-0.29147	63.22797	0.97895	130.51	21.46
88/ 8/12	2447385.5	-43.36731	41.13879	21.03406	-0.72483	-0.56677	-0.32854	63.36841	0.97701	136.51	19.39
88/ 8/12	2447386.0	-48.02414	37.07606	18.69457	-0.64907	-0.63172	-0.36161	63.48574	0.97525	142.33	17.13
88/ 8/13	2447386.5	-52.14368	32.59859	16.14537	-0.56631	-0.68915	-0.39041	63.57912	0.97369	147.99	14.71
88/ 8/13	2447387.0	-55.68158	27.75897	13.41632	-0.47746	-0.73858	-0.41468	63.64743	0.97233	153.50	12.17
88/ 8/14	2447387.5	-58.59963	22.61300	10.53881	-0.38343	-0.77955	-0.43422	63.68933	0.97122	158.90	9.52

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 8/14	2447388.0	-60.86595	17.21919	7.54555	-0.28517	-0.81171	-0.44884	63.70322	0.97039	164.20	6.80
88/ 8/15	2447388.5	-62.45514	11.63831	4.47027	-0.18364	-0.83475	-0.45842	63.68735	0.96989	169.44	4.02
88/ 8/15	2447389.0	-63.34840	5.93287	1.34750	-0.07983	-0.84845	-0.46285	63.63988	0.96978	174.65	1.21
88/ 8/16	2447389.5	-63.53359	0.16676	-1.78771	0.02528	-0.85264	-0.46208	63.55895	0.97013	179.85	-1.61
88/ 8/16	2447390.0	-63.00533	-5.59523	-4.89999	0.13068	-0.84722	-0.45608	63.44279	0.97101	185.07	-4.43
88/ 8/17	2447390.5	-61.76507	-11.28778	-7.95388	0.23536	-0.83214	-0.44484	63.28983	0.97249	190.36	-7.22
88/ 8/17	2447391.0	-59.82117	-16.84548	-10.91407	0.33829	-0.80741	-0.42842	63.09881	0.97462	195.73	-9.96
88/ 8/18	2447391.5	-57.18898	-22.20320	-13.74562	0.43843	-0.77310	-0.40687	62.86894	0.97747	201.22	-12.63
88/ 8/18	2447392.0	-53.89096	-27.29651	-16.41415	0.53473	-0.72936	-0.38030	62.59999	0.98108	206.86	-15.20
88/ 8/19	2447392.5	-49.95677	-32.06214	-18.88615	0.62610	-0.67638	-0.34886	62.29243	0.98549	212.69	-17.65
88/ 8/19	2447393.0	-45.42347	-36.43847	-21.12919	0.71146	-0.61445	-0.31273	61.94753	0.99072	218.74	-19.94
88/ 8/20	2447393.5	-40.33561	-40.36602	-23.11225	0.78967	-0.54393	-0.27213	61.56747	0.99674	225.02	-22.05
88/ 8/20	2447394.0	-34.74542	-43.78814	-24.80606	0.85960	-0.46529	-0.22737	61.15542	1.00354	231.57	-23.93
88/ 8/21	2447394.5	-28.71292	-46.65170	-26.18348	0.92009	-0.37910	-0.17877	60.71562	1.01106	238.39	-25.55
88/ 8/21	2447395.0	-22.30596	-48.90797	-27.22000	0.96998	-0.28609	-0.12678	60.25341	1.01920	245.48	-26.86
88/ 8/22	2447395.5	-15.60022	-50.51356	-27.89426	1.00813	-0.18712	-0.07189	59.77521	1.02787	252.84	-27.82
88/ 8/22	2447396.0	-8.67895	-51.43157	-28.18864	1.03344	-0.08324	-0.01471	59.28853	1.03690	260.42	-28.39
88/ 8/23	2447396.5	-1.63259	-51.63281	-28.08991	1.04491	0.02432	0.04406	58.80183	1.04612	268.19	-28.54
88/ 8/23	2447397.0	5.44197	-51.09710	-27.58996	1.04164	0.13412	0.10363	58.32438	1.05534	276.08	-28.23
88/ 8/24	2447397.5	12.44246	-49.81465	-26.68646	1.02294	0.24453	0.16307	57.86607	1.06433	284.02	-27.46
88/ 8/24	2447398.0	19.26276	-47.78739	-25.38359	0.98838	0.35374	0.22139	57.43706	1.07286	291.95	-26.23
88/ 8/25	2447398.5	25.79478	-45.03010	-23.69255	0.93782	0.45977	0.27751	57.04750	1.08070	299.81	-24.54
88/ 8/25	2447399.0	31.93085	-41.57131	-21.63203	0.87154	0.56054	0.33030	56.70712	1.08760	307.53	-22.42
88/ 8/26	2447399.5	37.56649	-37.45378	-19.22835	0.79020	0.65394	0.37865	56.42478	1.09336	315.09	-19.92
88/ 8/26	2447400.0	42.60336	-32.73446	-16.51534	0.69495	0.73791	0.42147	56.20807	1.09777	322.46	-17.09
88/ 8/27	2447400.5	46.95239	-27.48375	-13.53389	0.58739	0.81055	0.45777	56.06291	1.10071	329.66	-13.97
88/ 8/27	2447401.0	50.53670	-21.78420	-10.33115	0.46950	0.87020	0.48670	55.99323	1.10207	336.68	-10.63
88/ 8/28	2447401.5	53.29417	-15.72847	-6.95929	0.34364	0.91554	0.50761	56.00076	1.10180	343.56	-7.14
88/ 8/28	2447402.0	55.17945	-9.41685	-3.47416	0.21239	0.94565	0.52009	56.08492	1.09994	350.32	-3.55
88/ 8/29	2447402.5	56.16518	-2.95433	0.06638	0.07847	0.96006	0.52396	56.24286	1.09654	356.99	0.07
88/ 8/29	2447403.0	56.24245	3.55243	3.60407	-0.05542	0.95874	0.51929	56.46966	1.09175	3.61	3.66
88/ 8/30	2447403.5	55.42042	9.99803	7.08193	-0.18667	0.94210	0.50636	56.75859	1.08573	10.23	7.17
88/ 8/30	2447404.0	53.72517	16.28114	10.44563	-0.31290	0.91091	0.48567	57.10149	1.07868	16.86	10.54
88/ 8/31	2447404.5	51.19803	22.30676	13.64476	-0.43200	0.86626	0.45788	57.48921	1.07084	23.54	13.73
88/ 8/31	2447405.0	47.89354	27.98802	16.63374	-0.54218	0.80946	0.42375	57.91201	1.06243	30.30	16.69
88/ 9/ 1	2447405.5	43.87712	33.24754	19.37243	-0.64201	0.74198	0.38412	58.36002	1.05369	37.15	19.39
88/ 9/ 1	2447406.0	39.22280	38.01818	21.82654	-0.73039	0.66536	0.33986	58.82353	1.04484	44.11	21.78
88/ 9/ 2	2447406.5	34.01097	42.24342	23.96774	-0.80653	0.58119	0.29186	59.29338	1.03608	51.16	23.84
88/ 9/ 2	2447407.0	28.32641	45.87736	25.77357	-0.86993	0.49101	0.24097	59.76114	1.02759	58.31	25.55
88/ 9/ 3	2447407.5	22.25646	48.88444	27.22730	-0.92031	0.39633	0.18802	60.21930	1.01951	65.52	26.88
88/ 9/ 3	2447408.0	15.88956	51.23900	28.31760	-0.95762	0.29856	0.13378	60.66135	1.01196	72.77	27.83
88/ 9/ 4	2447408.5	9.31399	52.92474	29.03823	-0.98196	0.19904	0.07898	61.08189	1.00504	80.02	28.39
88/ 9/ 4	2447409.0	2.61683	53.93408	29.38766	-0.99357	0.09902	0.02428	61.47656	0.99879	87.22	28.56
88/ 9/ 5	2447409.5	-4.11686	54.26757	29.36870	-0.99281	-0.00035	-0.02971	61.84204	0.99326	94.34	28.35
88/ 9/ 5	2447410.0	-10.80470	53.93326	28.98817	-0.98011	-0.09800	-0.08240	62.17598	0.98844	101.33	27.79

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
88/ 9/ 6	2447410.5	-17.36752	52.94615	28.25659	-0.95598	-0.19296	-0.13329	62.47688	0.98433	108.16	26.89
88/ 9/ 6	2447411.0	-23.72982	51.32763	27.18783	-0.92100	-0.28431	-0.18189	62.74399	0.98089	114.81	25.68
88/ 9/ 7	2447411.5	-29.82015	49.10504	25.79888	-0.87578	-0.37120	-0.22777	62.97720	0.97809	121.27	24.18
88/ 9/ 7	2447412.0	-35.57141	46.31118	24.10957	-0.82099	-0.45287	-0.27052	63.17691	0.97586	127.53	22.43
88/ 9/ 8	2447412.5	-40.92124	42.98391	22.14235	-0.75736	-0.52860	-0.30978	63.34389	0.97415	133.59	20.46
88/ 9/ 8	2447413.0	-45.81224	39.16576	19.92204	-0.68563	-0.59772	-0.34520	63.47918	0.97290	139.47	18.29
88/ 9/ 9	2447413.5	-50.19230	34.90350	17.47562	-0.60662	-0.65965	-0.37650	63.58395	0.97204	145.19	15.95
88/ 9/ 9	2447414.0	-54.01486	30.24777	14.83201	-0.52115	-0.71383	-0.40339	63.65942	0.97153	150.75	13.47
88/ 9/10	2447414.5	-57.23919	25.25265	12.02181	-0.43011	-0.75979	-0.42565	63.70671	0.97132	156.19	10.88
88/ 9/10	2447415.0	-59.83062	19.97527	9.07713	-0.33442	-0.79711	-0.44307	63.72683	0.97136	161.54	8.19
88/ 9/11	2447415.5	-61.76079	14.47538	6.03127	-0.23501	-0.82544	-0.45550	63.72054	0.97163	166.81	5.43
88/ 9/11	2447416.0	-63.00787	8.81489	2.91854	-0.13287	-0.84450	-0.46280	63.68839	0.97212	172.04	2.63
88/ 9/12	2447416.5	-63.55675	3.05740	-0.22604	-0.02901	-0.85405	-0.46489	63.63064	0.97282	177.25	-0.20
88/ 9/12	2447417.0	-63.39918	-2.73225	-3.36699	0.07557	-0.85397	-0.46173	63.54728	0.97374	182.47	-3.04
88/ 9/13	2447417.5	-62.53389	-8.48851	-6.46863	0.17980	-0.84419	-0.45329	63.43804	0.97491	187.73	-5.85
88/ 9/13	2447418.0	-60.96671	-14.14558	-9.49539	0.28266	-0.82469	-0.43962	63.30245	0.97636	193.06	-8.63
88/ 9/14	2447418.5	-58.71059	-19.63793	-12.41205	0.38307	-0.79557	-0.42079	63.13985	0.97813	198.49	-11.34
88/ 9/14	2447419.0	-55.78566	-24.90083	-15.18403	0.47997	-0.75697	-0.39692	62.94956	0.98027	204.05	-13.96
88/ 9/15	2447419.5	-52.21925	-29.87085	-17.77769	0.57232	-0.70913	-0.36817	62.73088	0.98283	209.77	-16.46
88/ 9/15	2447420.0	-48.04585	-34.48638	-20.16060	0.65903	-0.65235	-0.33473	62.48331	0.98587	215.67	-18.82
88/ 9/16	2447420.5	-43.30713	-38.68825	-22.30187	0.73908	-0.58704	-0.29685	62.20660	0.98943	221.78	-21.01
88/ 9/16	2447421.0	-38.05184	-42.42022	-24.17240	0.81140	-0.51368	-0.25484	61.90091	0.99357	228.11	-22.99
88/ 9/17	2447421.5	-32.33574	-45.62966	-25.74530	0.87498	-0.43285	-0.20903	61.56693	0.99832	234.68	-24.72
88/ 9/17	2447422.0	-26.22149	-48.26818	-26.99615	0.92881	-0.34522	-0.15981	61.20601	1.00369	241.49	-26.17
88/ 9/18	2447422.5	-19.77847	-50.29233	-27.90345	0.97190	-0.25157	-0.10766	60.82029	1.00969	248.53	-27.31
88/ 9/18	2447423.0	-13.08254	-51.66437	-28.44898	1.00334	-0.15282	-0.05308	60.41278	1.01629	255.79	-28.09
88/ 9/19	2447423.5	-6.21572	-52.35314	-28.61830	1.02223	-0.04999	0.00333	59.98744	1.02346	263.23	-28.49
88/ 9/19	2447424.0	0.73433	-52.33495	-28.40118	1.02779	0.05574	0.06092	59.54925	1.03110	270.80	-28.49
88/ 9/20	2447424.5	7.67491	-51.59459	-27.79214	1.01933	0.16303	0.11893	59.10422	1.03912	278.46	-28.05
88/ 9/20	2447425.0	14.50923	-50.12629	-26.79100	0.99634	0.27043	0.17656	58.65936	1.04737	286.14	-27.18
88/ 9/21	2447425.5	21.13755	-47.93478	-25.40330	0.95847	0.37631	0.23292	58.22256	1.05571	293.80	-25.87
88/ 9/21	2447426.0	27.45868	-45.03617	-23.64087	0.90563	0.47893	0.28706	57.80248	1.06393	301.37	-24.14
88/ 9/22	2447426.5	33.37179	-41.45879	-21.52213	0.83804	0.57643	0.33797	57.40828	1.07183	308.83	-22.02
88/ 9/22	2447427.0	38.77857	-37.24374	-19.07236	0.75624	0.66691	0.38464	57.04935	1.07918	316.16	-19.53
88/ 9/23	2447427.5	43.58570	-32.44503	-16.32371	0.66116	0.74846	0.42606	56.73497	1.08575	323.34	-16.72
88/ 9/23	2447428.0	47.70750	-27.12943	-13.31501	0.55412	0.81926	0.46128	56.47390	1.09133	330.37	-13.64
88/ 9/24	2447428.5	51.06865	-21.37559	-10.09124	0.43686	0.87761	0.48944	56.27394	1.09572	337.29	-10.33
88/ 9/24	2447429.0	53.60685	-15.27270	-6.70271	0.31148	0.92211	0.50983	56.14157	1.09875	344.10	-6.86
88/ 9/25	2447429.5	55.27507	-8.91853	-3.20391	0.18039	0.95166	0.52193	56.08153	1.10028	350.83	-3.28
88/ 9/25	2447430.0	56.04339	-2.41695	0.34787	0.04620	0.96556	0.52544	56.09657	1.10024	357.53	0.36
88/ 9/26	2447430.5	55.90011	4.12493	3.89412	-0.08834	0.96356	0.52031	56.18720	1.09862	4.22	3.97
88/ 9/26	2447431.0	54.85204	10.59976	7.37677	-0.22053	0.94584	0.50671	56.35173	1.09544	10.94	7.52
88/ 9/27	2447431.5	52.92397	16.90299	10.73982	-0.34778	0.91302	0.48507	56.58623	1.09081	17.71	10.94
88/ 9/27	2447432.0	50.15749	22.93562	13.93076	-0.46775	0.86612	0.45601	56.88482	1.08485	24.57	14.18
88/ 9/28	2447432.5	46.60900	28.60654	16.90186	-0.57839	0.80646	0.42030	57.23990	1.07776	31.54	17.17

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/ 9/28	2447433.0	42.34745	33.83444	19.61105	-0.67806	0.73557	0.37883	57.64259	1.06974	38.62	19.89
88/ 9/29	2447433.5	37.45174	38.54898	22.02255	-0.76548	0.65516	0.33256	58.08312	1.06103	45.83	22.28
88/ 9/29	2447434.0	32.00812	42.69158	24.10718	-0.83974	0.56698	0.28247	58.55124	1.05186	53.14	24.31
88/ 9/30	2447434.5	26.10771	46.21559	25.84239	-0.90030	0.47278	0.22953	59.03662	1.04247	60.54	25.96
88/ 9/30	2447435.0	19.84421	49.08604	27.21205	-0.94694	0.37426	0.17467	59.52922	1.03309	67.99	27.20
88/10/ 1	2447435.5	13.31201	51.27915	28.20612	-0.97967	0.27302	0.11876	60.01955	1.02392	75.45	28.03
88/10/ 1	2447436.0	6.60455	52.78157	28.82020	-0.99875	0.17054	0.06259	60.49890	1.01513	82.87	28.45
88/10/ 2	2447436.5	-0.18694	53.58951	29.05502	-1.00456	0.06816	0.00688	60.95953	1.00690	90.20	28.47
88/10/ 2	2447437.0	-6.97441	53.70791	28.91595	-0.99765	-0.03289	-0.04772	61.39474	0.99934	97.40	28.10
88/10/ 3	2447437.5	-13.67368	53.14951	28.41248	-0.97863	-0.13152	-0.10063	61.79894	0.99254	104.43	27.37
88/10/ 3	2447438.0	-20.20498	51.93409	27.55778	-0.94817	-0.22675	-0.15135	62.16769	0.98658	111.26	26.31
88/10/ 4	2447438.5	-26.49327	50.08769	26.36828	-0.90699	-0.31770	-0.19942	62.49765	0.98150	117.88	24.96
88/10/ 4	2447439.0	-32.46852	47.64200	24.86334	-0.85586	-0.40359	-0.24444	62.78655	0.97731	124.27	23.33
88/10/ 5	2447439.5	-38.06586	44.63375	23.06488	-0.79553	-0.48371	-0.28604	63.03309	0.97399	130.46	21.46
88/10/ 5	2447440.0	-43.22569	41.10424	20.99714	-0.72680	-0.55741	-0.32390	63.23685	0.97152	136.44	19.39
88/10/ 6	2447440.5	-47.89386	37.09891	18.68644	-0.65048	-0.62412	-0.35774	63.39821	0.96986	142.24	17.14
88/10/ 6	2447441.0	-52.02173	32.66693	16.16096	-0.56740	-0.68331	-0.38728	63.51823	0.96894	147.87	14.74
88/10/ 7	2447441.5	-55.56638	27.86091	13.45054	-0.47840	-0.73450	-0.41231	63.59850	0.96869	153.37	12.21
88/10/ 7	2447442.0	-58.49069	22.73651	10.58653	-0.38437	-0.77726	-0.43261	63.64106	0.96903	158.76	9.58
88/10/ 8	2447442.5	-60.76363	17.35212	7.60154	-0.28621	-0.81121	-0.44801	63.64824	0.96989	164.06	6.86
88/10/ 8	2447443.0	-62.36041	11.76855	4.52931	-0.18486	-0.83603	-0.45835	63.62259	0.97119	169.31	4.08
88/10/ 9	2447443.5	-63.26269	6.04862	1.40445	-0.08129	-0.85144	-0.46353	63.56671	0.97284	174.54	1.27
88/10/ 9	2447444.0	-63.45888	0.25676	-1.73774	0.02348	-0.85724	-0.46346	63.48318	0.97478	179.77	-1.57
88/10/10	2447444.5	-62.94428	-5.54141	-4.86157	0.12842	-0.85329	-0.45810	63.37448	0.97696	185.03	-4.40
88/10/10	2447445.0	-61.72135	-11.27958	-7.93119	0.23246	-0.83952	-0.44745	63.24284	0.97931	190.36	-7.20
88/10/11	2447445.5	-59.79983	-16.89129	-10.91089	0.33452	-0.81595	-0.43156	63.09028	0.98180	195.77	-9.96
88/10/11	2447446.0	-57.19691	-22.31050	-13.76543	0.43349	-0.78270	-0.41052	62.91846	0.98441	201.31	-12.64
88/10/12	2447446.5	-53.93727	-27.47218	-16.46037	0.52826	-0.73995	-0.38446	62.72873	0.98711	206.99	-15.21
88/10/12	2447447.0	-50.05311	-32.31298	-18.96239	0.61772	-0.68800	-0.35359	62.52211	0.98993	212.85	-17.66
88/10/13	2447447.5	-45.58410	-36.77188	-21.23970	0.70078	-0.62725	-0.31815	62.29933	0.99286	218.89	-19.93
88/10/13	2447448.0	-40.57724	-40.79089	-23.26238	0.77637	-0.55820	-0.27845	62.06084	0.99593	225.15	-22.01
88/10/14	2447448.5	-35.08667	-44.31575	-25.00274	0.84345	-0.48144	-0.23485	61.80694	0.99918	231.63	-23.86
88/10/14	2447449.0	-29.17338	-47.29664	-26.43573	0.90104	-0.39769	-0.18776	61.53784	1.00264	238.33	-25.44
88/10/15	2447449.5	-22.90484	-49.68888	-27.53929	0.94820	-0.30776	-0.13765	61.25381	1.00636	245.25	-26.72
88/10/15	2447450.0	-16.35458	-51.45365	-28.29471	0.98409	-0.21257	-0.08505	60.95524	1.01038	252.37	-27.66
88/10/16	2447450.5	-9.60163	-52.55869	-28.68702	1.00794	-0.11313	-0.03053	60.64283	1.01473	259.65	-28.23
88/10/16	2447451.0	-2.72990	-52.97899	-28.70533	1.01906	-0.01056	0.02528	60.31768	1.01943	267.05	-28.42
88/10/17	2447451.5	4.17253	-52.69750	-28.34317	1.01692	0.09390	0.08170	59.98143	1.02451	274.53	-28.20
88/10/17	2447452.0	11.01427	-51.70577	-27.59886	1.00109	0.19893	0.13800	59.63638	1.02995	282.03	-27.57
88/10/18	2447452.5	17.70163	-50.00465	-26.47579	0.97130	0.30313	0.19341	59.28558	1.03573	289.49	-26.52
88/10/18	2447453.0	24.13971	-47.60484	-24.98273	0.92748	0.40500	0.24712	58.93287	1.04178	296.89	-25.08
88/10/19	2447453.5	30.23375	-44.52745	-23.13410	0.86975	0.50295	0.29827	58.58293	1.04804	304.18	-23.26
88/10/19	2447454.0	35.89064	-40.80442	-20.95008	0.79847	0.59538	0.34601	58.24126	1.05440	311.33	-21.08
88/10/20	2447454.5	41.02058	-36.47876	-18.45675	0.71428	0.68063	0.38946	57.91407	1.06072	318.35	-18.58
88/10/20	2447455.0	45.53900	-31.60459	-15.68603	0.61807	0.75708	0.42778	57.60818	1.06686	325.24	-15.80

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/10/21	2447455.5	49.36854	-26.24688	-12.67548	0.51108	0.82316	0.46016	57.33078	1.07263	332.00	-12.77
88/10/21	2447456.0	52.44114	-20.48088	-9.46792	0.39484	0.87741	0.48585	57.08924	1.07787	338.67	-9.55
88/10/22	2447456.5	54.70016	-14.39112	-6.11080	0.27117	0.91857	0.50422	56.89072	1.08238	345.26	-6.17
88/10/22	2447457.0	56.10231	-8.07000	-2.65542	0.14218	0.94559	0.51479	56.74191	1.08598	351.81	-2.68
88/10/23	2447457.5	56.61932	-1.61593	0.84414	0.01020	0.95773	0.51723	56.64866	1.08852	358.37	0.85
88/10/23	2447458.0	56.23924	4.86886	4.33229	-0.12230	0.95463	0.51142	56.61561	1.08987	4.95	4.39
88/10/24	2447458.5	54.96716	11.28085	7.75324	-0.25278	0.93627	0.49742	56.64591	1.08992	11.60	7.87
88/10/24	2447459.0	52.82529	17.51785	11.05249	-0.37874	0.90305	0.47555	56.74103	1.08862	18.35	11.23
88/10/25	2447459.5	49.85238	23.48169	14.17822	-0.49781	0.85577	0.44628	56.90054	1.08596	25.22	14.43
88/10/25	2447460.0	46.10247	29.08068	17.08262	-0.60785	0.79553	0.41031	57.12214	1.08199	32.24	17.40
88/10/26	2447460.5	41.64311	34.23175	19.72294	-0.70703	0.72375	0.36845	57.40170	1.07678	39.42	20.10
88/10/26	2447461.0	36.55309	38.86219	22.06239	-0.79386	0.64207	0.32163	57.73341	1.07047	46.75	22.47
88/10/27	2447461.5	30.91997	42.91079	24.07070	-0.86725	0.55224	0.27083	58.11006	1.06322	54.22	24.47
88/10/27	2447462.0	24.83748	46.32855	25.72437	-0.92647	0.45610	0.21707	58.52332	1.05522	61.80	26.08
88/10/28	2447462.5	18.40299	49.07883	27.00670	-0.97116	0.35544	0.16134	58.96409	1.04667	69.45	27.26
88/10/28	2447463.0	11.71523	51.13705	27.90757	-1.00127	0.25202	0.10458	59.42287	1.03778	77.10	28.01
88/10/29	2447463.5	4.87230	52.49009	28.42302	-1.01704	0.14747	0.04767	59.89004	1.02878	84.70	28.33
88/10/29	2447464.0	-2.03004	53.13547	28.55477	-1.01891	0.04329	-0.00860	60.35623	1.01986	92.19	28.24
88/10/30	2447464.5	-8.89968	53.08031	28.30962	-1.00749	-0.05918	-0.06351	60.81249	1.01123	99.52	27.74
88/10/30	2447465.0	-15.64908	52.34033	27.69888	-0.98353	-0.15875	-0.11646	61.25057	1.00305	106.65	26.89
88/10/31	2447465.5	-22.19600	50.93880	26.73776	-0.94784	-0.25437	-0.16689	61.66305	0.99547	113.54	25.70
88/10/31	2447466.0	-28.46393	48.90559	25.44486	-0.90130	-0.34514	-0.21436	62.04348	0.98864	120.20	24.21
88/11/ 1	2447466.5	-34.38235	46.27628	23.84169	-0.84478	-0.43027	-0.25846	62.38642	0.98265	126.61	22.47
88/11/ 1	2447467.0	-39.88682	43.09142	21.95223	-0.77921	-0.50909	-0.29884	62.68755	0.97757	132.79	20.50
88/11/ 2	2447467.5	-44.91904	39.39588	19.80262	-0.70548	-0.58098	-0.33523	62.94362	0.97346	138.75	18.34
88/11/ 2	2447468.0	-49.42684	35.23828	17.42080	-0.62450	-0.64545	-0.36737	63.15246	0.97035	144.51	16.01
88/11/ 3	2447468.5	-53.36415	30.67052	14.83632	-0.53717	-0.70203	-0.39505	63.31295	0.96822	150.11	13.55
88/11/ 3	2447469.0	-56.69096	25.74742	12.08007	-0.44438	-0.75031	-0.41806	63.42494	0.96707	155.57	10.98
88/11/ 4	2447469.5	-59.37337	20.52639	9.18414	-0.34703	-0.78995	-0.43627	63.48920	0.96684	160.93	8.32
88/11/ 4	2447470.0	-61.38362	15.06709	6.18167	-0.24605	-0.82062	-0.44951	63.50731	0.96748	166.21	5.59
88/11/ 5	2447470.5	-62.70020	9.43122	3.10664	-0.14236	-0.84205	-0.45767	63.48160	0.96891	171.45	2.81
88/11/ 5	2447471.0	-63.30802	3.68215	-0.00626	-0.03692	-0.85401	-0.46067	63.41501	0.97104	176.67	-0.01
88/11/ 6	2447471.5	-63.19857	-2.11529	-3.12178	0.06928	-0.85631	-0.45844	63.31097	0.97378	181.92	-2.83
88/11/ 6	2447472.0	-62.37020	-7.89526	-6.20436	0.17520	-0.84883	-0.45094	63.17334	0.97702	187.21	-5.64
88/11/ 7	2447472.5	-60.82830	-13.59126	-9.21833	0.27979	-0.83151	-0.43818	63.00621	0.98066	192.60	-8.41
88/11/ 7	2447473.0	-58.58562	-19.13659	-12.12816	0.38195	-0.80435	-0.42020	62.81382	0.98460	198.09	-11.13
88/11/ 8	2447473.5	-55.66243	-24.46496	-14.89879	0.48055	-0.76747	-0.39710	62.60044	0.98875	203.73	-13.77
88/11/ 8	2447474.0	-52.08676	-29.51106	-17.49598	0.57444	-0.72104	-0.36902	62.37021	0.99300	209.53	-16.29
88/11/ 9	2447474.5	-47.89446	-34.21128	-19.88667	0.66244	-0.66539	-0.33616	62.12706	0.99729	215.54	-18.67
88/11/ 9	2447475.0	-43.12929	-38.50449	-22.03940	0.74341	-0.60094	-0.29880	61.87461	1.00153	221.76	-20.87
88/11/10	2447475.5	-37.84278	-42.33286	-23.92475	0.81620	-0.52823	-0.25727	61.61608	1.00568	228.21	-22.85
88/11/10	2447476.0	-32.09405	-45.64271	-25.51582	0.87972	-0.44795	-0.21197	61.35424	1.00970	234.89	-24.57
88/11/11	2447476.5	-25.94943	-48.38544	-26.78868	0.93294	-0.36091	-0.16339	61.09138	1.01357	241.80	-26.01
88/11/11	2447477.0	-19.48197	-50.51835	-27.72282	0.97491	-0.26804	-0.11205	60.82932	1.01727	248.91	-27.11
88/11/12	2447477.5	-12.77075	-52.00556	-28.30161	1.00479	-0.17042	-0.05856	60.56939	1.02082	256.20	-27.86

1.10 1 E.R.=6378.[illegible]KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/11/12	2447478.0	-5.90007	-52.81877	-28.51267	1.02189	-0.06922	-0.00358	60.31257	1.02424	263.63	-28.21
88/11/13	2447478.5	1.04150	-52.93799	-28.34826	1.02565	0.03429	0.05219	60.05946	1.02755	271.13	-28.16
88/11/13	2447479.0	7.96221	-52.35217	-27.80557	1.01568	0.13874	0.10800	59.81050	1.03079	278.65	-27.70
88/11/14	2447479.5	14.76835	-51.05975	-26.88694	0.99180	0.24270	0.16307	59.56601	1.03400	286.13	-26.83
88/11/14	2447480.0	21.36551	-49.06902	-25.60006	0.95399	0.34469	0.21661	59.32636	1.03722	293.53	-25.56
88/11/15	2447480.5	27.66000	-46.39840	-23.95803	0.90247	0.44321	0.26781	59.09208	1.04049	300.80	-23.92
88/11/15	2447481.0	33.56024	-43.07657	-21.97942	0.83766	0.53674	0.31587	58.86404	1.04381	307.92	-21.93
88/11/16	2447481.5	38.97833	-39.14240	-19.68814	0.76022	0.62378	0.36001	58.64350	1.04721	314.88	-19.62
88/11/16	2447482.0	43.83150	-34.64479	-17.11333	0.67101	0.70289	0.39948	58.43225	1.05066	321.68	-17.03
88/11/17	2447482.5	48.04373	-29.64222	-14.28904	0.57115	0.77267	0.43356	58.23261	1.05414	328.33	-14.20
88/11/17	2447483.0	51.54722	-24.20221	-11.25390	0.46197	0.83186	0.46164	58.04751	1.05760	334.85	-11.18
88/11/18	2447483.5	54.28395	-18.40049	-8.05063	0.34501	0.87930	0.48313	57.88037	1.06095	341.28	-8.00
88/11/18	2447484.0	56.20703	-12.31998	-4.72540	0.22202	0.91404	0.49758	57.73510	1.06412	347.64	-4.69
88/11/19	2447484.5	57.28207	-6.04951	-1.32715	0.09492	0.93529	0.50465	57.61591	1.06698	353.97	-1.32
88/11/19	2447485.0	57.48820	0.31768	2.09329	-0.03421	0.94253	0.50411	57.52717	1.06942	0.32	2.09
88/11/20	2447485.5	56.81894	6.68564	5.48415	-0.16321	0.93550	0.49591	57.47317	1.07132	6.71	5.48
88/11/20	2447486.0	55.28271	12.95768	8.79375	-0.28985	0.91423	0.48014	57.45789	1.07256	13.19	8.80
88/11/21	2447486.5	52.90293	19.03834	11.97162	-0.41194	0.87907	0.45707	57.48476	1.07302	19.79	12.02
88/11/21	2447487.0	49.71770	24.83551	14.96959	-0.52735	0.83065	0.42711	57.55641	1.07262	26.54	15.08
88/11/22	2447487.5	45.77899	30.26246	17.74288	-0.63412	0.76993	0.39083	57.67445	1.07128	33.47	17.92
88/11/22	2447488.0	41.15145	35.23973	20.25104	-0.73049	0.69809	0.34894	57.83930	1.06897	40.57	20.50
88/11/23	2447488.5	35.91074	39.69676	22.45881	-0.81496	0.61656	0.30227	58.05009	1.06568	47.87	22.76
88/11/23	2447489.0	30.14162	43.57326	24.33675	-0.88636	0.52693	0.25170	58.30457	1.06143	55.33	24.67
88/11/24	2447489.5	23.93574	46.82011	25.86166	-0.94382	0.43091	0.19818	58.59921	1.05629	62.92	26.19
88/11/24	2447490.0	17.38944	49.39989	27.01684	-0.98682	0.33025	0.14268	58.92920	1.05035	70.61	27.29
88/11/25	2447490.5	10.60148	51.28704	27.79199	-1.01517	0.22667	0.08612	59.28867	1.04373	78.32	27.95
88/11/25	2447491.0	3.67097	52.46758	28.18308	-1.02896	0.12186	0.02941	59.67084	1.03656	86.00	28.18
88/11/26	2447491.5	-3.30452	52.93856	28.19197	-1.02853	0.01740	-0.02661	60.06828	1.02902	93.57	27.99
88/11/26	2447492.0	-10.23054	52.70726	27.82587	-1.01445	-0.08529	-0.08119	60.47312	1.02127	100.98	27.40
88/11/27	2447492.5	-17.01702	51.79024	27.09689	-0.98746	-0.18489	-0.13367	60.87733	1.01348	108.19	26.43
88/11/27	2447493.0	-23.57933	50.21233	26.02133	-0.94841	-0.28027	-0.18344	61.27293	1.00582	115.15	25.13
88/11/28	2447493.5	-29.83891	48.00552	24.61919	-0.89823	-0.37044	-0.23003	61.65221	0.99848	121.86	23.54
88/11/28	2447494.0	-35.72375	45.20803	22.91356	-0.83792	-0.45457	-0.27300	62.00793	0.99160	128.32	21.69
88/11/29	2447494.5	-41.16862	41.86330	20.93010	-0.76848	-0.53193	-0.31201	62.33346	0.98532	134.52	19.62
88/11/29	2447495.0	-46.11518	38.01918	18.69663	-0.69094	-0.60194	-0.34679	62.62293	0.97979	140.50	17.37
88/11/30	2447495.5	-50.51192	33.72722	16.24267	-0.60629	-0.66410	-0.37709	62.87133	0.97510	146.27	14.97
88/11/30	2447496.0	-54.31415	29.04203	13.59918	-0.51554	-0.71800	-0.40273	63.07459	0.97133	151.87	12.45
88/12/ 1	2447496.5	-57.48379	24.02077	10.79825	-0.41966	-0.76329	-0.42355	63.22963	0.96856	157.32	9.83
88/12/ 1	2447497.0	-59.98933	18.72274	7.87289	-0.31960	-0.79968	-0.43945	63.33438	0.96682	162.67	7.14
88/12/ 2	2447497.5	-61.80573	13.20902	4.85682	-0.21631	-0.82694	-0.45033	63.38781	0.96613	167.94	4.39
88/12/ 2	2447498.0	-62.91434	7.54221	1.78435	-0.11075	-0.84486	-0.45610	63.38993	0.96648	173.16	1.61
88/12/ 3	2447498.5	-63.30298	1.78612	-1.30980	-0.00387	-0.85328	-0.45672	63.34172	0.96783	178.38	-1.18
88/12/ 3	2447499.0	-62.96597	-3.99446	-4.39063	0.10336	-0.85207	-0.45216	63.24513	0.97013	183.63	-3.98
88/12/ 4	2447499.5	-61.90427	-9.73403	-7.42298	0.20996	-0.84116	-0.44241	63.10302	0.97332	188.94	-6.76
88/12/ 4	2447500.0	-60.12570	-15.36665	-10.37175	0.31488	-0.82049	-0.42748	62.91905	0.97729	194.34	-9.49

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/12/ 5	2447500.5	-57.64514	-20.82635	-13.20208	0.41707	-0.79010	-0.40744	62.69764	0.98195	199.86	-12.16
88/12/ 5	2447501.0	-54.48482	-26.04754	-15.87957	0.51542	-0.75008	-0.38237	62.44382	0.98716	205.55	-14.73
88/12/ 6	2447501.5	-50.67457	-30.96552	-18.37062	0.60879	-0.70061	-0.35242	62.16313	0.99281	211.43	-17.19
88/12/ 6	2447502.0	-46.25205	-35.51715	-20.64275	0.69602	-0.64196	-0.31777	61.86149	0.99876	217.52	-19.49
88/12/ 7	2447502.5	-41.26296	-39.64157	-22.66503	0.77590	-0.57453	-0.27868	61.54502	1.00487	223.85	-21.61
88/12/ 7	2447503.0	-35.76105	-43.28104	-24.40848	0.84725	-0.49886	-0.23550	61.21989	1.01101	230.43	-23.50
88/12/ 8	2447503.5	-29.80813	-46.38193	-25.84668	0.90889	-0.41562	-0.18862	60.89219	1.01705	237.27	-25.12
88/12/ 8	2447504.0	-23.47377	-48.89570	-26.95622	0.95970	-0.32564	-0.13853	60.56770	1.02287	244.36	-26.43
88/12/ 9	2447504.5	-16.83490	-50.78004	-27.71730	0.99865	-0.22993	-0.08582	60.25177	1.02836	251.66	-27.39
88/12/ 9	2447505.0	-9.97508	-51.99988	-28.11429	1.02481	-0.12962	-0.03114	59.94917	1.03344	259.14	-27.97
88/12/10	2447505.5	-2.98361	-52.52849	-28.13624	1.03741	-0.02604	0.02480	59.66399	1.03803	266.75	-28.14
88/12/10	2447506.0	4.04565	-52.34840	-27.77733	1.03589	0.07940	0.08119	59.39951	1.04210	274.42	-27.88
88/12/11	2447506.5	11.01571	-51.45220	-27.03730	1.01989	0.18516	0.13720	59.15818	1.04560	282.08	-27.20
88/12/11	2447507.0	17.82801	-49.84320	-25.92165	0.98931	0.28962	0.19196	58.94162	1.04855	289.68	-26.09
88/12/12	2447507.5	24.38415	-47.53574	-24.44183	0.94430	0.39113	0.24459	58.75062	1.05096	297.16	-24.58
88/12/12	2447508.0	30.58774	-44.55535	-22.61519	0.88530	0.48805	0.29423	58.58529	1.05286	304.47	-22.71
88/12/13	2447508.5	36.34623	-40.93860	-20.46487	0.81300	0.57878	0.34004	58.44509	1.05432	311.60	-20.50
88/12/13	2447509.0	41.57267	-36.73267	-18.01948	0.72837	0.66179	0.38124	58.32904	1.05538	318.54	-17.99
88/12/14	2447509.5	46.18747	-31.99466	-15.31267	0.63261	0.73568	0.41712	58.23588	1.05613	325.29	-15.24
88/12/14	2447510.0	50.11992	-26.79069	-12.38259	0.52713	0.79919	0.44707	58.16421	1.05662	331.87	-12.29
88/12/15	2447510.5	53.30953	-21.19482	-9.27124	0.41353	0.85124	0.47057	58.11267	1.05691	338.32	-9.18
88/12/15	2447511.0	55.70724	-15.28774	-6.02375	0.29359	0.89096	0.48722	58.08010	1.05706	344.65	-5.95
88/12/16	2447511.5	57.27630	-9.15539	-2.68758	0.16916	0.91767	0.49672	58.06564	1.05710	350.92	-2.65
88/12/16	2447512.0	57.99293	-2.88745	0.68830	0.04220	0.93094	0.49893	58.06884	1.05705	357.15	0.68
88/12/17	2447512.5	57.84677	3.42421	4.05427	-0.08528	0.93057	0.49380	58.08968	1.05691	3.39	4.00
88/12/17	2447513.0	56.84106	9.68714	7.36092	-0.21128	0.91658	0.48144	58.12856	1.05667	9.67	7.27
88/12/18	2447513.5	54.99253	15.80993	10.55993	-0.33383	0.88925	0.46206	58.18630	1.05627	16.04	10.46
88/12/18	2447514.0	52.33109	21.70380	13.60489	-0.45102	0.84908	0.43602	58.26398	1.05568	22.53	13.50
88/12/19	2447514.5	48.89921	27.28412	16.45213	-0.56105	0.79680	0.40376	58.36290	1.05484	29.16	16.37
88/12/19	2447515.0	44.75106	32.47193	19.06143	-0.66227	0.73335	0.36586	58.48437	1.05369	35.97	19.02
88/12/20	2447515.5	39.95147	37.19526	21.39679	-0.75319	0.65984	0.32298	58.62959	1.05214	42.95	21.40
88/12/20	2447516.0	34.57456	41.39029	23.42690	-0.83255	0.57757	0.27585	58.79946	1.05016	50.13	23.48
88/12/21	2447516.5	28.70228	45.00240	25.12571	-0.89932	0.48796	0.22529	58.99439	1.04768	57.47	25.21
88/12/21	2447517.0	22.42273	47.98690	26.47272	-0.95271	0.39250	0.17212	59.21424	1.04467	64.95	26.56
88/12/22	2447517.5	15.82841	50.30954	27.45324	-0.99220	0.29278	0.11720	59.45812	1.04111	72.54	27.50
88/12/22	2447518.0	9.01447	51.94678	28.05837	-1.01754	0.19037	0.06141	59.72438	1.03702	80.16	28.02
88/12/23	2447518.5	2.07688	52.88579	28.28502	-1.02873	0.08685	0.00558	60.01052	1.03240	87.75	28.12
88/12/23	2447519.0	-4.88914	53.12410	28.13562	-1.02600	-0.01629	-0.04950	60.31324	1.02732	95.26	27.81
88/12/24	2447519.5	-11.79076	52.66920	27.61785	-1.00980	-0.11762	-0.10308	60.62848	1.02184	102.62	27.10
88/12/24	2447520.0	-18.53879	51.53780	26.74419	-0.98076	-0.21585	-0.15449	60.95148	1.01605	109.78	26.03
88/12/25	2447520.5	-25.04884	49.75503	25.53144	-0.93967	-0.30978	-0.20312	61.27693	1.01005	116.72	24.62
88/12/25	2447521.0	-31.24222	47.35356	24.00023	-0.88741	-0.39839	-0.24845	61.59908	1.00396	123.42	22.93
88/12/26	2447521.5	-37.04662	44.37261	22.17446	-0.82497	-0.48076	-0.29003	61.91193	0.99791	129.86	20.99
88/12/26	2447522.0	-42.39654	40.85707	20.08080	-0.75338	-0.55613	-0.32750	62.20937	0.99203	136.06	18.83
88/12/27	2447522.5	-47.23362	36.85653	17.74816	-0.67371	-0.62388	-0.36055	62.48532	0.98646	142.03	16.50

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
88/12/27	2447523.0	-51.50669	32.42452	15.20729	-0.58702	-0.68347	-0.38896	62.73396	0.98133	147.81	14.03
88/12/28	2447523.5	-55.17184	27.61770	12.49031	-0.49437	-0.73449	-0.41253	62.94980	0.97676	153.41	11.44
88/12/28	2447524.0	-58.19233	22.49524	9.63043	-0.39682	-0.77663	-0.43114	63.12787	0.97288	158.87	8.77
88/12/29	2447524.5	-60.53842	17.11823	6.66161	-0.29540	-0.80963	-0.44469	63.26382	0.96979	164.21	6.04
88/12/29	2447525.0	-62.18726	11.54921	3.61829	-0.19110	-0.83330	-0.45312	63.35402	0.96759	169.48	3.27
88/12/30	2447525.5	-63.12274	5.85181	0.53526	-0.08491	-0.84752	-0.45641	63.39566	0.96634	174.70	0.48
88/12/30	2447526.0	-63.33537	0.09039	-2.55259	0.02219	-0.85219	-0.45455	63.38685	0.96610	179.92	-2.31
88/12/31	2447526.5	-62.82223	-5.67026	-5.61040	0.12924	-0.84728	-0.44754	63.32662	0.96690	185.16	-5.08
88/12/31	2447527.0	-61.58697	-11.36513	-8.60345	0.23527	-0.83277	-0.43543	63.21504	0.96875	190.46	-7.82
89/ 1/ 1	2447527.5	-59.63985	-16.92931	-11.49735	0.33929	-0.80870	-0.41828	63.05317	0.97163	195.85	-10.51
89/ 1/ 1	2447528.0	-56.99785	-22.29822	-14.25816	0.44029	-0.77513	-0.39615	62.84314	0.97551	201.37	-13.11
89/ 1/ 2	2447528.5	-53.68488	-27.40795	-16.85260	0.53724	-0.73219	-0.36917	62.58812	0.98032	207.05	-15.62
89/ 1/ 2	2447529.0	-49.73196	-32.19567	-19.24826	0.62908	-0.68008	-0.33748	62.29225	0.98597	212.92	-18.00
89/ 1/ 3	2447529.5	-45.17748	-36.60007	-21.41386	0.71469	-0.61905	-0.30127	61.96065	0.99236	219.01	-20.22
89/ 1/ 3	2447530.0	-40.06742	-40.56199	-23.31957	0.79295	-0.54949	-0.26079	61.59931	0.99935	225.35	-22.25
89/ 1/ 4	2447530.5	-34.45556	-44.02513	-24.93746	0.86268	-0.47186	-0.21633	61.21499	1.00681	231.95	-24.04
89/ 1/ 4	2447531.0	-28.40359	-46.93687	-26.24189	0.92271	-0.38678	-0.16829	60.81505	1.01456	238.82	-25.56
89/ 1/ 5	2447531.5	-21.98108	-49.24930	-27.21008	0.97191	-0.29503	-0.11713	60.40737	1.02243	245.95	-26.77
89/ 1/ 5	2447532.0	-15.26527	-50.92029	-27.82268	1.00914	-0.19754	-0.06339	60.00005	1.03025	253.31	-27.63
89/ 1/ 6	2447532.5	-8.34064	-51.91469	-28.06439	1.03341	-0.09544	-0.00772	59.60127	1.03783	260.87	-28.09
89/ 1/ 6	2447533.0	-1.29816	-52.20557	-27.92458	1.04381	0.00997	0.04914	59.21900	1.04501	268.58	-28.13
89/ 1/ 7	2447533.5	5.76579	-51.77544	-27.39793	1.03965	0.11721	0.10637	58.86074	1.05163	276.35	-27.74
89/ 1/ 7	2447534.0	12.75081	-50.61735	-26.48495	1.02045	0.22465	0.16307	58.53333	1.05753	284.14	-26.90
89/ 1/ 8	2447534.5	19.55420	-48.73585	-25.19239	0.98601	0.33053	0.21829	58.24264	1.06260	291.86	-25.63
89/ 1/ 8	2447535.0	26.07303	-46.14766	-23.53354	0.93646	0.43302	0.27106	57.99342	1.06675	299.47	-23.94
89/ 1/ 9	2447535.5	32.20631	-42.88200	-21.52833	0.87227	0.53028	0.32041	57.78911	1.06991	306.91	-21.87
89/ 1/ 9	2447536.0	37.85740	-38.98053	-19.20315	0.79424	0.62048	0.36540	57.63180	1.07207	314.16	-19.46
89/ 1/10	2447536.5	42.93633	-34.49680	-16.59050	0.70353	0.70194	0.40516	57.52218	1.07323	321.22	-16.76
89/ 1/10	2447537.0	47.36201	-29.49539	-13.72840	0.60161	0.77311	0.43894	57.45961	1.07345	328.09	-13.82
89/ 1/11	2447537.5	51.06419	-24.05057	-10.65963	0.49020	0.83268	0.46610	57.44223	1.07280	334.78	-10.69
89/ 1/11	2447538.0	53.98510	-18.24468	-7.43074	0.37124	0.87958	0.48615	57.46717	1.07137	341.33	-7.43
89/ 1/12	2447538.5	56.08060	-12.16625	-4.09104	0.24682	0.91305	0.49878	57.53076	1.06928	347.76	-4.08
89/ 1/12	2447539.0	57.32097	-5.90808	-0.69151	0.11909	0.93260	0.50381	57.62879	1.06666	354.12	-0.69
89/ 1/13	2447539.5	57.69123	0.43484	2.71631	-0.00976	0.93807	0.50124	57.75678	1.06363	0.43	2.70
89/ 1/13	2447540.0	57.19102	6.76726	6.08138	-0.13761	0.92954	0.49122	57.91020	1.06032	6.75	6.03
89/ 1/14	2447540.5	55.83414	12.99552	9.35408	-0.26240	0.90739	0.47402	58.08471	1.05684	13.10	9.27
89/ 1/14	2447541.0	53.64783	19.02923	12.48714	-0.38222	0.87221	0.45006	58.27632	1.05328	19.53	12.37
89/ 1/15	2447541.5	50.67175	24.78273	15.43635	-0.49533	0.82480	0.41983	58.48155	1.04971	26.06	15.30
89/ 1/15	2447542.0	46.95684	30.17640	18.16122	-0.60015	0.76613	0.38391	58.69745	1.04620	32.73	18.02
89/ 1/16	2447542.5	42.56401	35.13772	20.62548	-0.69530	0.69732	0.34298	58.92168	1.04276	39.54	20.49
89/ 1/16	2447543.0	37.56282	39.60212	22.79748	-0.77962	0.61961	0.29774	59.15251	1.03941	46.51	22.67
89/ 1/17	2447543.5	32.03005	43.51368	24.65056	-0.85213	0.53430	0.24893	59.38868	1.03613	53.64	24.52
89/ 1/17	2447544.0	26.04828	46.82563	26.16317	-0.91210	0.44278	0.19733	59.62939	1.03292	60.91	26.02
89/ 1/18	2447544.5	19.70445	49.50069	27.31907	-0.95897	0.34647	0.14373	59.87416	1.02972	68.29	27.15
89/ 1/18	2447545.0	13.08845	51.51125	28.10731	-0.99243	0.24679	0.08890	60.12268	1.02651	75.74	27.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
89/ 1/19	2447545.5	6.29175	52.83938	28.52221	-1.01233	0.14519	0.03361	60.37469	1.02324	83.21	28.19
89/ 1/19	2447546.0	-0.59396	53.47676	28.56325	-1.01874	0.04305	-0.02138	60.62983	1.01987	90.64	28.11
89/ 1/20	2447546.5	-7.47804	53.42437	28.23487	-1.01190	-0.05827	-0.07536	60.88753	1.01638	97.97	27.63
89/ 1/20	2447547.0	-14.27207	52.69214	27.54620	-0.99223	-0.15749	-0.12766	61.14693	1.01273	105.16	26.78
89/ 1/21	2447547.5	-20.89096	51.29846	26.51077	-0.96029	-0.25340	-0.17766	61.40672	1.00893	112.16	25.58
89/ 1/21	2447548.0	-27.25391	49.26956	25.14614	-0.91678	-0.34489	-0.22479	61.66517	1.00497	118.95	24.07
89/ 1/22	2447548.5	-33.28525	46.63884	23.47348	-0.86251	-0.43096	-0.26854	61.92006	1.00088	125.51	22.28
89/ 1/22	2447549.0	-38.91515	43.44611	21.51717	-0.79839	-0.51071	-0.30848	62.16866	0.99670	131.85	20.25
89/ 1/23	2447549.5	-44.08017	39.73684	19.30435	-0.72540	-0.58337	-0.34423	62.40781	0.99248	137.97	18.02
89/ 1/23	2447550.0	-48.72366	35.56133	16.86445	-0.64457	-0.64828	-0.37548	62.63396	0.98829	143.88	15.62
89/ 1/24	2447550.5	-52.79604	30.97398	14.22879	-0.55694	-0.70491	-0.40200	62.84320	0.98421	149.60	13.09
89/ 1/24	2447551.0	-56.25497	26.03249	11.43018	-0.46360	-0.75280	-0.42358	63.03143	0.98033	155.17	10.45
89/ 1/25	2447551.5	-59.06539	20.79718	8.50249	-0.36561	-0.79162	-0.44009	63.19442	0.97674	160.60	7.73
89/ 1/25	2447552.0	-61.19946	15.33034	5.48036	-0.26406	-0.82113	-0.45146	63.32794	0.97355	165.94	4.96
89/ 1/26	2447552.5	-62.63654	9.69565	2.39886	-0.15997	-0.84116	-0.45762	63.42789	0.97086	171.20	2.17
89/ 1/26	2447553.0	-63.36301	3.95767	-0.70678	-0.05439	-0.85162	-0.45859	63.49042	0.96877	176.43	-0.64
89/ 1/27	2447553.5	-63.37213	-1.81861	-3.80139	0.05169	-0.85247	-0.45437	63.51208	0.96739	181.64	-3.43
89/ 1/27	2447554.0	-62.66393	-7.56817	-6.85008	0.15727	-0.84374	-0.44504	63.48991	0.96679	186.89	-6.19
89/ 1/28	2447554.5	-61.24508	-13.22627	-9.81840	0.26138	-0.82548	-0.43066	63.42157	0.96706	192.19	-8.91
89/ 1/28	2447555.0	-59.12881	-18.72881	-12.67254	0.36305	-0.79782	-0.41134	63.30543	0.96826	197.58	-11.55
89/ 1/29	2447555.5	-56.33487	-24.01259	-15.37944	0.46133	-0.76091	-0.38720	63.14071	0.97043	203.09	-14.10
89/ 1/29	2447556.0	-52.88957	-29.01563	-17.90699	0.55523	-0.71496	-0.35840	62.92753	0.97360	208.75	-16.53
89/ 1/30	2447556.5	-48.82583	-33.67748	-20.22422	0.64378	-0.66021	-0.32512	62.66700	0.97777	214.60	-18.83
89/ 1/30	2447557.0	-44.18330	-37.93962	-22.30144	0.72598	-0.59698	-0.28757	62.36131	0.98292	220.65	-20.95
89/ 1/31	2447557.5	-39.00849	-41.74588	-24.11059	0.80079	-0.52566	-0.24601	62.01371	0.98899	226.94	-22.88
89/ 1/31	2447558.0	-33.35492	-45.04299	-25.62543	0.86717	-0.44672	-0.20072	61.62860	0.99591	233.48	-24.57
89/ 2/ 1	2447558.5	-27.28327	-47.78123	-26.82197	0.92407	-0.36074	-0.15208	61.21145	1.00358	240.27	-25.99
89/ 2/ 1	2447559.0	-20.86140	-49.91524	-27.67888	0.97042	-0.26842	-0.10051	60.76882	1.01186	247.32	-27.10
89/ 2/ 2	2447559.5	-14.16433	-51.40487	-28.17795	1.00516	-0.17062	-0.04650	60.30826	1.02060	254.59	-27.85
89/ 2/ 2	2447560.0	-7.27407	-52.21627	-28.30466	1.02730	-0.06833	0.00934	59.83816	1.02962	262.07	-28.23
89/ 2/ 3	2447560.5	-0.27913	-52.32304	-28.04880	1.03593	0.03724	0.06635	59.36762	1.03872	269.69	-28.19
89/ 2/ 3	2447561.0	6.72613	-51.70748	-27.40506	1.03024	0.14472	0.12374	58.90621	1.04769	277.41	-27.73
89/ 2/ 4	2447561.5	13.64263	-50.36184	-26.37370	1.00963	0.25256	0.18066	58.46373	1.05630	285.16	-26.82
89/ 2/ 4	2447562.0	20.36797	-48.28949	-24.96111	0.97375	0.35901	0.23615	58.04986	1.06435	292.87	-25.47
89/ 2/ 5	2447562.5	26.79831	-45.50603	-23.18030	0.92254	0.46223	0.28922	57.67386	1.07162	300.49	-23.70
89/ 2/ 5	2447563.0	32.83055	-42.03994	-21.05116	0.85628	0.56026	0.33884	57.34416	1.07792	307.99	-21.54
89/ 2/ 6	2447563.5	38.36491	-37.93302	-18.60059	0.77566	0.65113	0.38397	57.06805	1.08308	315.32	-19.02
89/ 2/ 6	2447564.0	43.30761	-33.24025	-15.86229	0.68178	0.73295	0.42365	56.85134	1.08697	322.49	-16.20
89/ 2/ 7	2447564.5	47.57360	-28.02911	-12.87627	0.57612	0.80392	0.45698	56.69812	1.08951	329.49	-13.13
89/ 2/ 7	2447565.0	51.08919	-22.37835	-9.68810	0.46053	0.86253	0.48323	56.61055	1.09066	336.35	-9.85
89/ 2/ 8	2447565.5	53.79429	-16.37623	-6.34784	0.33717	0.90750	0.50181	56.58888	1.09044	343.07	-6.44
89/ 2/ 8	2447566.0	55.64419	-10.11830	-2.90874	0.20840	0.93795	0.51237	56.63141	1.08890	349.69	-2.94
89/ 2/ 9	2447566.5	56.61069	-3.70490	0.57407	0.07672	0.95336	0.51472	56.73470	1.08614	356.26	0.58
89/ 2/ 9	2447567.0	56.68259	2.76149	4.04510	-0.05535	0.95360	0.50891	56.89380	1.08232	2.79	4.08
89/ 2/10	2447567.5	55.86551	9.17882	7.44986	-0.18539	0.93894	0.49520	57.10259	1.07759	9.33	7.50

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 2/10	2447568.0	54.18107	15.44795	10.73610	-0.31111	0.90997	0.47400	57.35408	1.07215	15.91	10.79
89/ 2/11	2447568.5	51.66566	21.47477	13.85496	-0.43045	0.86756	0.44588	57.64083	1.06618	22.57	13.91
89/ 2/11	2447569.0	48.36882	27.17192	16.76180	-0.54159	0.81282	0.41151	57.95527	1.05988	29.33	16.81
89/ 2/12	2447569.5	44.35139	32.46023	19.41684	-0.64300	0.74705	0.37166	58.29001	1.05341	36.20	19.46
89/ 2/12	2447570.0	39.68360	37.26962	21.78565	-0.73345	0.67164	0.32713	58.63811	1.04693	43.20	21.81
89/ 2/13	2447570.5	34.44318	41.53980	23.83937	-0.81196	0.58807	0.27875	58.99325	1.04058	50.34	23.83
89/ 2/13	2447571.0	28.71351	45.22054	25.55478	-0.87782	0.49784	0.22737	59.34989	1.03446	57.59	25.50
89/ 2/14	2447571.5	22.58194	48.27179	26.91433	-0.93057	0.40244	0.17380	59.70335	1.02865	64.93	26.80
89/ 2/14	2447572.0	16.13827	50.66353	27.90595	-0.96996	0.30333	0.11885	60.04981	1.02321	72.33	27.69
89/ 2/15	2447572.5	9.47336	52.37557	28.52289	-0.99591	0.20196	0.06329	60.38626	1.01815	79.75	28.19
89/ 2/15	2447573.0	2.67789	53.39715	28.76346	-1.00854	0.09967	0.00783	60.71049	1.01348	87.13	28.28
89/ 2/16	2447573.5	-4.15869	53.72653	28.63078	-1.00811	-0.00223	-0.04682	61.02095	1.00920	94.43	27.98
89/ 2/16	2447574.0	-10.94916	53.37053	28.13243	-0.99500	-0.10252	-0.10004	61.31665	1.00526	101.59	27.31
89/ 2/17	2447574.5	-17.60934	52.34400	27.28018	-0.96973	-0.20005	-0.15123	61.59701	1.00163	108.59	26.29
89/ 2/17	2447575.0	-24.05888	50.66928	26.08965	-0.93291	-0.29376	-0.19985	61.86174	0.99827	115.40	24.94
89/ 2/18	2447575.5	-30.22189	48.37567	24.58000	-0.88524	-0.38265	-0.24539	62.11074	0.99514	121.99	23.31
89/ 2/18	2447576.0	-36.02758	45.49881	22.77355	-0.82753	-0.46584	-0.28742	62.34391	0.99218	128.37	21.43
89/ 2/19	2447576.5	-41.41075	42.08013	20.69549	-0.76062	-0.54252	-0.32554	62.56110	0.98937	134.54	19.32
89/ 2/19	2447577.0	-46.31223	38.16617	18.37347	-0.68545	-0.61198	-0.35941	62.76196	0.98668	140.51	17.02
89/ 2/20	2447577.5	-50.67928	33.80799	15.83729	-0.60297	-0.67360	-0.38873	62.94592	0.98409	146.29	14.57
89/ 2/20	2447578.0	-54.46581	29.06054	13.11851	-0.51420	-0.72686	-0.41329	63.11208	0.98159	151.92	12.00
89/ 2/21	2447578.5	-57.63268	23.98197	10.25015	-0.42017	-0.77131	-0.43288	63.25920	0.97921	157.41	9.32
89/ 2/21	2447579.0	-60.14780	18.63308	7.26627	-0.32192	-0.80663	-0.44738	63.38571	0.97695	162.79	6.58
89/ 2/22	2447579.5	-61.98620	13.07665	4.20172	-0.22051	-0.83256	-0.45669	63.48970	0.97486	168.09	3.79
89/ 2/22	2447580.0	-63.13006	7.37689	1.09176	-0.11700	-0.84893	-0.46078	63.56898	0.97299	173.34	0.98
89/ 2/23	2447580.5	-63.56870	1.59887	-2.02820	-0.01244	-0.85566	-0.45965	63.62114	0.97139	178.56	-1.83
89/ 2/23	2447581.0	-63.29846	-4.19202	-5.12289	0.09215	-0.85274	-0.45333	63.64363	0.97013	183.79	-4.62
89/ 2/24	2447581.5	-62.32262	-9.93051	-8.15743	0.19576	-0.84021	-0.44190	63.63385	0.96930	189.05	-7.37
89/ 2/24	2447582.0	-60.65125	-15.55194	-11.09757	0.29737	-0.81819	-0.42548	63.58925	0.96897	194.38	-10.05
89/ 2/25	2447582.5	-58.30111	-20.99264	-13.90992	0.39603	-0.78688	-0.40419	63.50745	0.96922	199.80	-12.65
89/ 2/25	2447583.0	-55.29550	-26.19037	-16.56212	0.49077	-0.74649	-0.37822	63.38636	0.97013	205.34	-15.15
89/ 2/26	2447583.5	-51.66415	-31.08462	-19.02306	0.58065	-0.69731	-0.34775	63.22432	0.97177	211.03	-17.51
89/ 2/26	2447584.0	-47.44316	-35.61704	-21.26306	0.66474	-0.63970	-0.31302	63.02019	0.97420	216.90	-19.72
89/ 2/27	2447584.5	-42.67489	-39.73178	-23.25409	0.74210	-0.57405	-0.27427	62.77351	0.97748	222.95	-21.74
89/ 2/27	2447585.0	-37.40797	-43.37590	-24.96994	0.81183	-0.50081	-0.23181	62.48458	0.98164	229.23	-23.55
89/ 2/28	2447585.5	-31.69722	-46.49980	-26.38652	0.87301	-0.42053	-0.18596	62.15459	0.98669	235.72	-25.12
89/ 2/28	2447586.0	-25.60371	-49.05776	-27.48207	0.92471	-0.33380	-0.13708	61.78575	0.99262	242.44	-26.41
89/ 3/ 1	2447586.5	-19.19465	-51.00852	-28.23752	0.96603	-0.24135	-0.08560	61.38128	0.99940	249.38	-27.39
89/ 3/ 1	2447587.0	-12.54336	-52.31596	-28.63683	0.99610	-0.14398	-0.03200	60.94558	1.00696	256.52	-28.03
89/ 3/ 2	2447587.5	-5.72903	-52.94989	-28.66742	1.01404	-0.04264	0.02318	60.48416	1.01520	263.82	-28.29
89/ 3/ 2	2447588.0	1.16351	-52.88697	-28.32065	1.01906	0.06160	0.07932	60.00370	1.02400	271.26	-28.16
89/ 3/ 3	2447588.5	8.04433	-52.11169	-27.59230	1.01047	0.16750	0.13574	59.51197	1.03321	278.78	-27.62
89/ 3/ 3	2447589.0	14.81912	-50.61745	-26.48314	0.98767	0.27366	0.19164	59.01770	1.04264	286.32	-26.66
89/ 3/ 4	2447589.5	21.39022	-48.40767	-24.99944	0.95027	0.37852	0.24618	58.53047	1.05209	293.84	-25.28
89/ 3/ 4	2447590.0	27.65802	-45.49683	-23.15354	0.89810	0.48038	0.29844	58.06043	1.06133	301.30	-23.50

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 3/ 5	2447590.5	33.52275	-41.91144	-20.96419	0.83129	0.57740	0.34743	57.61806	1.07011	308.65	-21.34
89/ 3/ 5	2447591.0	38.88659	-37.69074	-18.45689	0.75031	0.66766	0.39216	57.21377	1.07820	315.89	-18.82
89/ 3/ 6	2447591.5	43.65622	-32.88698	-15.66394	0.65600	0.74925	0.43162	56.85753	1.08536	323.01	-15.99
89/ 3/ 6	2447592.0	47.74548	-27.56536	-12.62423	0.54965	0.82028	0.46487	56.55839	1.09137	330.00	-12.90
89/ 3/ 7	2447592.5	51.07824	-21.80327	-9.38276	0.43292	0.87904	0.49107	56.32411	1.09604	336.88	-9.59
89/ 3/ 7	2447593.0	53.59106	-15.68901	-5.98975	0.30790	0.92405	0.50952	56.16070	1.09922	343.68	-6.12
89/ 3/ 8	2447593.5	55.23568	-9.31983	-2.49959	0.17697	0.95416	0.51970	56.07216	1.10083	350.42	-2.55
89/ 3/ 8	2447594.0	55.98081	-2.79949	1.03067	0.04274	0.96860	0.52133	56.06024	1.10082	357.14	1.05
89/ 3/ 9	2447594.5	55.81339	3.76462	4.54282	-0.09204	0.96707	0.51436	56.12437	1.09921	3.86	4.64
89/ 3/ 9	2447595.0	54.73895	10.26450	7.97922	-0.22465	0.94970	0.49901	56.26172	1.09609	10.62	8.15
89/ 3/10	2447595.5	52.78115	16.59463	11.28436	-0.35247	0.91707	0.47569	56.46741	1.09158	17.45	11.53
89/ 3/10	2447596.0	49.98057	22.65473	14.40632	-0.47314	0.87015	0.44504	56.73478	1.08586	24.38	14.71
89/ 3/11	2447596.5	46.39289	28.35219	17.29798	-0.58458	0.81022	0.40783	57.05583	1.07913	31.43	17.65
89/ 3/11	2447597.0	42.08662	33.60396	19.91796	-0.68509	0.73881	0.36497	57.42155	1.07163	38.61	20.30
89/ 3/12	2447597.5	37.14054	38.33787	22.23116	-0.77332	0.65759	0.31740	57.82246	1.06358	45.91	22.61
89/ 3/12	2447598.0	31.64123	42.49341	24.20910	-0.84832	0.56832	0.26613	58.24894	1.05521	53.33	24.56
89/ 3/13	2447598.5	25.68054	46.02204	25.82996	-0.90949	0.47276	0.21212	58.69162	1.04674	60.84	26.11
89/ 3/13	2447599.0	19.35341	48.88705	27.07840	-0.95650	0.37264	0.15631	59.14168	1.03836	68.40	27.25
89/ 3/14	2447599.5	12.75590	51.06314	27.94528	-0.98934	0.26959	0.09959	59.59107	1.03024	75.97	27.97
89/ 3/14	2447600.0	5.98354	52.53584	28.42720	-1.00818	0.16518	0.04277	60.03268	1.02252	83.50	28.26
89/ 3/15	2447600.5	-0.87002	53.30073	28.52610	-1.01339	0.06081	-0.01340	60.46042	1.01530	90.94	28.15
89/ 3/15	2447601.0	-7.71408	53.36261	28.24873	-1.00547	-0.04221	-0.06823	60.86925	1.00867	98.23	27.65
89/ 3/16	2447601.5	-14.46174	52.73476	27.60619	-0.98504	-0.14268	-0.12113	61.25519	1.00266	105.34	26.79
89/ 3/16	2447602.0	-21.03060	51.43805	26.61347	-0.95279	-0.23954	-0.17155	61.61523	0.99731	112.24	25.59
89/ 3/17	2447602.5	-27.34318	49.50030	25.28904	-0.90950	-0.33183	-0.21901	61.94727	0.99260	118.92	24.09
89/ 3/17	2447603.0	-33.32743	46.95548	23.65442	-0.85597	-0.41867	-0.26308	62.25003	0.98853	125.37	22.33
89/ 3/18	2447603.5	-38.91695	43.84314	21.73387	-0.79308	-0.49929	-0.30339	62.52288	0.98504	131.59	20.34
89/ 3/18	2447604.0	-44.05130	40.20778	19.55401	-0.72172	-0.57300	-0.33960	62.76577	0.98211	137.61	18.15
89/ 3/19	2447604.5	-48.67620	36.09828	17.14354	-0.64280	-0.63920	-0.37144	62.97904	0.97967	143.44	15.80
89/ 3/19	2447605.0	-52.74376	31.56740	14.53291	-0.55730	-0.69735	-0.39867	63.16336	0.97766	149.10	13.30
89/ 3/20	2447605.5	-56.21257	26.67121	11.75409	-0.46617	-0.74701	-0.42108	63.31955	0.97603	154.62	10.70
89/ 3/20	2447606.0	-59.04793	21.46861	8.84021	-0.37041	-0.78778	-0.43853	63.44847	0.97473	160.02	8.01
89/ 3/21	2447606.5	-61.22189	16.02081	5.82536	-0.27103	-0.81937	-0.45088	63.55093	0.97371	165.34	5.26
89/ 3/21	2447607.0	-62.71339	10.39084	2.74427	-0.16905	-0.84154	-0.45808	63.62758	0.97294	170.59	2.47
89/ 3/22	2447607.5	-63.50830	4.64303	-0.36796	-0.06551	-0.85414	-0.46008	63.67886	0.97238	175.82	-0.33
89/ 3/22	2447608.0	-63.59952	-1.15747	-3.47613	0.03858	-0.85709	-0.45688	63.70496	0.97203	181.04	-3.13
89/ 3/23	2447608.5	-62.98689	-6.94521	-6.54519	0.14216	-0.85038	-0.44854	63.70576	0.97188	186.29	-5.90
89/ 3/23	2447609.0	-61.67726	-12.65495	-9.54052	0.24422	-0.83408	-0.43513	63.68088	0.97194	191.60	-8.62
89/ 3/24	2447609.5	-59.68438	-18.22215	-12.42825	0.34375	-0.80832	-0.41678	63.62965	0.97224	196.98	-11.26
89/ 3/24	2447610.0	-57.02879	-23.58348	-15.17541	0.43975	-0.77332	-0.39365	63.55121	0.97282	202.47	-13.82
89/ 3/25	2447610.5	-53.73773	-28.67727	-17.75028	0.53124	-0.72937	-0.36594	63.44448	0.97371	208.09	-16.25
89/ 3/25	2447611.0	-49.84496	-33.44402	-20.12260	0.61728	-0.67681	-0.33388	63.30830	0.97498	213.86	-18.53
89/ 3/26	2447611.5	-45.39061	-37.82683	-22.26378	0.69692	-0.61607	-0.29774	63.14153	0.97668	219.81	-20.65
89/ 3/26	2447612.0	-40.42099	-41.77189	-24.14720	0.76929	-0.54764	-0.25782	62.94310	0.97886	225.94	-22.56
89/ 3/27	2447612.5	-34.98838	-45.22891	-25.74837	0.83350	-0.47206	-0.21446	62.71219	0.98160	232.28	-24.24

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO. V(KM/SEC)	RA	DEC
89/ 3/27	2447613.0	-29.15083	-48.15160	-27.04526	0.88872	-0.38996	-0.16803	62.44833	0.98495	238.81	-25.66
89/ 3/28	2447613.5	-22.97197	-50.49815	-28.01845	0.93416	-0.30205	-0.11894	62.15150	0.98895	245.54	-26.80
89/ 3/28	2447614.0	-16.52070	-52.23176	-28.65148	0.96904	-0.20910	-0.06766	61.82231	0.99365	252.45	-27.61
89/ 3/29	2447614.5	-9.87098	-53.32115	-28.93106	0.99264	-0.11197	-0.01466	61.46208	0.99904	259.51	-28.08
89/ 3/29	2447615.0	-3.10147	-53.74120	-28.84742	1.00430	-0.01162	0.03950	61.07298	1.00515	266.70	-28.19
89/ 3/30	2447615.5	3.70487	-53.47361	-28.39465	1.00342	0.09090	0.09424	60.65813	1.01193	273.96	-27.91
89/ 3/30	2447616.0	10.46129	-52.50761	-27.57101	0.98949	0.19441	0.14890	60.22166	1.01934	281.27	-27.25
89/ 3/31	2447616.5	17.07792	-50.84074	-26.37938	0.96209	0.29764	0.20279	59.76879	1.02729	288.57	-26.19
89/ 3/31	2447617.0	23.46263	-48.47964	-24.82758	0.92097	0.39917	0.25513	59.30581	1.03567	295.83	-24.75
89/ 4/ 1	2447617.5	29.52211	-45.44084	-22.92877	0.86606	0.49750	0.30511	58.84007	1.04434	303.01	-22.93
89/ 4/ 1	2447618.0	35.16325	-41.75151	-20.70179	0.79748	0.59099	0.35189	58.37985	1.05312	310.10	-20.77
89/ 4/ 2	2447618.5	40.29475	-37.45007	-18.17140	0.71566	0.67796	0.39456	57.93423	1.06182	317.10	-18.28
89/ 4/ 2	2447619.0	44.82911	-32.58663	-15.36841	0.62130	0.75666	0.43224	57.51283	1.07022	323.99	-15.50
89/ 4/ 3	2447619.5	48.68485	-27.22307	-12.32964	0.51547	0.82536	0.46404	57.12556	1.07808	330.79	-12.46
89/ 4/ 3	2447620.0	51.78888	-21.43278	-9.09766	0.39959	0.88240	0.48916	56.78221	1.08517	337.52	-9.22
89/ 4/ 4	2447620.5	54.07904	-15.29987	-5.72026	0.27547	0.92630	0.50687	56.49203	1.09125	344.20	-5.81
89/ 4/ 4	2447621.0	55.50654	-8.91784	-2.24962	0.14524	0.95578	0.51661	56.26335	1.09613	350.87	-2.29
89/ 4/ 5	2447621.5	56.03812	-2.38771	1.25879	0.01134	0.96991	0.51798	56.10309	1.09961	357.56	1.29
89/ 4/ 5	2447622.0	55.65776	4.18443	4.74761	-0.12360	0.96813	0.51081	56.01638	1.10158	4.30	4.86
89/ 4/ 6	2447622.5	54.36777	10.69019	8.15907	-0.25681	0.95032	0.49517	56.00630	1.10194	11.12	8.38
89/ 4/ 6	2447623.0	52.18912	17.02197	11.43673	-0.38557	0.91685	0.47137	56.07361	1.10066	18.06	11.77
89/ 4/ 7	2447623.5	49.16086	23.07603	14.52702	-0.50728	0.86848	0.43996	56.21680	1.09780	25.15	14.98
89/ 4/ 7	2447624.0	45.33884	28.75541	17.38081	-0.61960	0.80643	0.40167	56.43206	1.09343	32.38	17.94
89/ 4/ 8	2447624.5	40.79360	33.97243	19.95456	-0.72054	0.73223	0.35743	56.71356	1.08770	39.79	20.60
89/ 4/ 8	2447625.0	35.60786	38.65062	22.21132	-0.80850	0.64764	0.30824	57.05378	1.08080	47.35	22.91
89/ 4/ 9	2447625.5	29.87365	42.72611	24.12128	-0.88234	0.55458	0.25520	57.44381	1.07294	55.04	24.83
89/ 4/ 9	2447626.0	23.68939	46.14827	25.66201	-0.94131	0.45504	0.19939	57.87390	1.06437	62.83	26.32
89/ 4/10	2447626.5	17.15711	48.87985	26.81838	-0.98508	0.35098	0.14188	58.33379	1.05532	70.66	27.37
89/ 4/10	2447627.0	10.37988	50.89662	27.58227	-1.01367	0.24427	0.08366	58.81317	1.04603	78.47	27.97
89/ 4/11	2447627.5	3.45970	52.18660	27.95205	-1.02737	0.13664	0.02564	59.30201	1.03673	86.21	28.12
89/ 4/11	2447628.0	-3.50429	52.74913	27.93200	-1.02671	0.02970	-0.03133	59.79086	1.02762	93.80	27.85
89/ 4/12	2447628.5	-10.41719	52.59370	27.53162	-1.01241	-0.07514	-0.08655	60.27109	1.01888	101.20	27.18
89/ 4/12	2447629.0	-17.18929	51.73884	26.76501	-0.98529	-0.17664	-0.13938	60.73504	1.01065	108.38	26.15
89/ 4/13	2447629.5	-23.73685	50.21100	25.65020	-0.94626	-0.27370	-0.18929	61.17610	1.00307	115.30	24.79
89/ 4/13	2447630.0	-29.98245	48.04349	24.20862	-0.89628	-0.36538	-0.23581	61.58881	0.99621	121.97	23.15
89/ 4/14	2447630.5	-35.85533	45.27556	22.46451	-0.83636	-0.45088	-0.27856	61.96882	0.99014	128.38	21.25
89/ 4/14	2447631.0	-41.29149	41.95149	20.44452	-0.76749	-0.52950	-0.31722	62.31286	0.98490	134.55	19.15
89/ 4/15	2447631.5	-46.23371	38.11995	18.17729	-0.69067	-0.60064	-0.35153	62.61869	0.98050	140.49	16.88
89/ 4/15	2447632.0	-50.63160	33.83327	15.69312	-0.60692	-0.66382	-0.38125	62.88500	0.97691	146.25	14.45
89/ 4/16	2447632.5	-54.44150	29.14695	13.02364	-0.51721	-0.71859	-0.40622	63.11131	0.97411	151.84	11.91
89/ 4/16	2447633.0	-57.62651	24.11915	10.20160	-0.42255	-0.76460	-0.42628	63.29787	0.97205	157.29	9.27
89/ 4/17	2447633.5	-60.15643	18.81020	7.26060	-0.32393	-0.80156	-0.44133	63.44554	0.97067	162.64	6.57
89/ 4/17	2447634.0	-62.00779	13.28227	4.23487	-0.22235	-0.82923	-0.45129	63.55563	0.96991	167.91	3.82
89/ 4/18	2447634.5	-63.16384	7.59887	1.15904	-0.11878	-0.84744	-0.45612	63.62984	0.96970	173.14	1.04
89/ 4/18	2447635.0	-63.61460	1.82451	-1.93203	-0.01424	-0.85608	-0.45580	63.67008	0.96996	178.36	-1.74

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
					GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						
89/ 4/19	2447635.5	-63.35687	-3.97570	-5.00353	0.09026	-0.85508	-0.45034	63.67836	0.97063	183.59	-4.51
89/ 4/19	2447636.0	-62.39428	-9.73653	-8.02088	0.19372	-0.84445	-0.43982	63.65674	0.97163	188.87	-7.24
89/ 4/20	2447636.5	-60.73734	-15.39303	-10.95000	0.29513	-0.82429	-0.42431	63.60717	0.97293	194.22	-9.91
89/ 4/20	2447637.0	-58.40342	-20.88101	-13.75757	0.39346	-0.79473	-0.40395	63.53147	0.97446	199.67	-12.51
89/ 4/21	2447637.5	-55.41675	-26.13758	-16.41127	0.48772	-0.75600	-0.37890	63.43121	0.97620	205.25	-14.99
89/ 4/21	2447638.0	-51.80835	-31.10161	-18.88007	0.57689	-0.70840	-0.34939	63.30776	0.97811	210.98	-17.35
89/ 4/22	2447638.5	-47.61594	-35.71435	-21.13450	0.66001	-0.65233	-0.31565	63.16217	0.98019	216.87	-19.55
89/ 4/22	2447639.0	-42.88376	-39.91990	-23.14698	0.73613	-0.58825	-0.27799	62.99522	0.98244	222.95	-21.56
89/ 4/23	2447639.5	-37.66236	-43.66584	-24.89203	0.80432	-0.51671	-0.23674	62.80742	0.98487	229.22	-23.35
89/ 4/23	2447640.0	-32.00832	-46.90378	-26.34665	0.86374	-0.43835	-0.19229	62.59907	0.98751	235.69	-24.89
89/ 4/24	2447640.5	-25.98397	-49.58989	-27.49054	0.91355	-0.35389	-0.14506	62.37029	0.99038	242.35	-26.15
89/ 4/24	2447641.0	-19.65694	-51.68550	-28.30639	0.95300	-0.26412	-0.09551	62.12116	0.99352	249.18	-27.11
89/ 4/25	2447641.5	-13.09975	-53.15765	-28.78019	0.98140	-0.16994	-0.04414	61.85175	0.99698	256.16	-27.73
89/ 4/25	2447642.0	-6.38932	-53.97962	-28.90143	0.99815	-0.07229	0.00850	61.56228	1.00080	263.25	-28.00
89/ 4/26	2447642.5	0.39363	-54.13145	-28.66342	1.00274	0.02777	0.06184	61.25325	1.00502	270.42	-27.90
89/ 4/26	2447643.0	7.16518	-53.60053	-28.06350	0.99473	0.12913	0.11527	60.92550	1.00967	277.61	-27.43
89/ 4/27	2447643.5	13.83895	-52.38205	-27.10330	0.97382	0.23059	0.16812	60.58040	1.01477	284.80	-26.58
89/ 4/27	2447644.0	20.32689	-50.47957	-25.78898	0.93984	0.33089	0.21972	60.21994	1.02032	291.93	-25.36
89/ 4/28	2447644.5	26.54023	-47.90549	-24.13140	0.89274	0.42868	0.26936	59.84684	1.02631	298.99	-23.78
89/ 4/28	2447645.0	32.39051	-44.68152	-22.14637	0.83266	0.52256	0.31629	59.46465	1.03269	305.94	-21.87
89/ 4/29	2447645.5	37.79082	-40.83904	-19.85477	0.75994	0.61108	0.35976	59.07778	1.03940	312.78	-19.64
89/ 4/29	2447646.0	42.65714	-36.41944	-17.28262	0.67509	0.69273	0.39901	58.69154	1.04634	319.51	-17.13
89/ 4/30	2447646.5	46.90996	-31.47427	-14.46112	0.57892	0.76603	0.43327	58.31207	1.05341	326.14	-14.36
89/ 4/30	2447647.0	50.47589	-26.06515	-11.42653	0.47246	0.82949	0.46181	57.94630	1.06044	332.69	-11.37
89/ 5/ 1	2447647.5	53.28961	-20.26352	-8.21991	0.35704	0.88171	0.48396	57.60173	1.06729	339.18	-8.20
89/ 5/ 1	2447648.0	55.29573	-14.15000	-4.88672	0.23428	0.92138	0.49910	57.28630	1.07375	345.65	-4.89
89/ 5/ 2	2447648.5	56.45074	-7.81343	-1.47617	0.10606	0.94740	0.50673	57.00803	1.07963	352.12	-1.48
89/ 5/ 2	2447649.0	56.72487	-1.34943	1.95957	-0.02547	0.95889	0.50649	56.77475	1.08473	358.64	1.98
89/ 5/ 3	2447649.5	56.10363	5.14141	5.36645	-0.15793	0.95526	0.49819	56.59373	1.08888	5.24	5.44
89/ 5/ 3	2447650.0	54.58902	11.55570	8.68976	-0.28885	0.93628	0.48183	56.47129	1.09189	11.95	8.85
89/ 5/ 4	2447650.5	52.20020	17.78985	11.87549	-0.41566	0.90212	0.45762	56.41247	1.09362	18.82	12.15
89/ 5/ 4	2447651.0	48.97353	23.74273	14.87179	-0.53585	0.85335	0.42598	56.42068	1.09398	25.86	15.28
89/ 5/ 5	2447651.5	44.96188	29.31839	17.63037	-0.64708	0.79093	0.38754	56.49751	1.09292	33.11	18.18
89/ 5/ 5	2447652.0	40.23329	34.42870	20.10781	-0.74724	0.71619	0.34311	56.64254	1.09042	40.55	20.79
89/ 5/ 6	2447652.5	34.86895	38.99560	22.26669	-0.83455	0.63075	0.29364	56.85337	1.08653	48.20	23.06
89/ 5/ 6	2447653.0	28.96074	42.95286	24.07635	-0.90764	0.53649	0.24017	57.12568	1.08135	56.01	24.93
89/ 5/ 7	2447653.5	22.60844	46.24732	25.51350	-0.96556	0.43537	0.18382	57.45341	1.07501	63.95	26.36
89/ 5/ 7	2447654.0	15.91680	48.83955	26.56232	-1.00779	0.32946	0.12568	57.82908	1.06770	71.95	27.34
89/ 5/ 8	2447654.5	8.99277	50.70382	27.21440	-1.03420	0.22074	0.06684	58.24406	1.05960	79.94	27.86
89/ 5/ 8	2447655.0	1.94291	51.82773	27.46837	-1.04502	0.11114	0.00828	58.68900	1.05094	87.85	27.91
89/ 5/ 9	2447655.5	-5.12886	52.21128	27.32931	-1.04078	0.00240	-0.04908	59.15416	1.04193	95.61	27.52
89/ 5/ 9	2447656.0	-12.12302	51.86582	26.80811	-1.02224	-0.10389	-0.10444	59.62974	1.03280	103.16	26.72
89/ 5/10	2447656.5	-18.94587	50.81271	25.92068	-0.99035	-0.20635	-0.15711	60.10623	1.02375	110.45	25.55
89/ 5/10	2447657.0	-25.51048	49.08200	24.68723	-0.94617	-0.30379	-0.20653	60.57463	1.01498	117.46	24.05
89/ 5/11	2447657.5	-31.73732	46.71116	23.13153	-0.89081	-0.39522	-0.25220	61.02669	1.00665	124.19	22.27

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
89/ 5/11	2447658.0	-37.55464	43.74383	21.28025	-0.82543	-0.47981	-0.29375	61.45505	0.99892	130.65	20.26
89/ 5/12	2447658.5	-42.89852	40.22877	19.16239	-0.75120	-0.55687	-0.33088	61.85333	0.99191	136.84	18.05
89/ 5/12	2447659.0	-47.71289	36.21884	16.80875	-0.66926	-0.62585	-0.36334	62.21622	0.98571	142.80	15.67
89/ 5/13	2447659.5	-51.94936	31.77026	14.25152	-0.58073	-0.68633	-0.39097	62.53952	0.98039	148.55	13.17
89/ 5/13	2447660.0	-55.56703	26.94188	11.52392	-0.48671	-0.73796	-0.41363	62.82007	0.97599	154.13	10.57
89/ 5/14	2447660.5	-58.53231	21.79460	8.65989	-0.38826	-0.78046	-0.43124	63.05577	0.97254	159.58	7.89
89/ 5/14	2447661.0	-60.81867	16.39094	5.69387	-0.28640	-0.81364	-0.44374	63.24551	0.97002	164.92	5.17
89/ 5/15	2447661.5	-62.40652	10.79457	2.66059	-0.18216	-0.83734	-0.45111	63.38908	0.96841	170.19	2.41
89/ 5/15	2447662.0	-63.28305	5.07002	-0.40515	-0.07652	-0.85148	-0.45333	63.48711	0.96767	175.42	-0.37
89/ 5/16	2447662.5	-63.44217	-0.71771	-3.46860	0.02952	-0.85599	-0.45044	63.54098	0.96772	180.65	-3.13
89/ 5/16	2447663.0	-62.88447	-6.50344	-6.49527	0.13499	-0.85089	-0.44248	63.55265	0.96852	185.90	-5.87
89/ 5/17	2447663.5	-61.61719	-12.22216	-9.45111	0.23889	-0.83622	-0.42953	63.52466	0.96996	191.22	-8.56
89/ 5/17	2447664.0	-59.65427	-17.80936	-12.30266	0.34024	-0.81208	-0.41171	63.45992	0.97197	196.62	-11.18
89/ 5/18	2447664.5	-57.01638	-23.20147	-15.01731	0.43804	-0.77864	-0.38914	63.36163	0.97447	202.14	-13.71
89/ 5/18	2447665.0	-53.73095	-28.33626	-17.56353	0.53129	-0.73614	-0.36200	63.23319	0.97735	207.81	-16.13
89/ 5/19	2447665.5	-49.83216	-33.15334	-19.91110	0.61899	-0.68488	-0.33052	63.07805	0.98054	213.64	-18.40
89/ 5/19	2447666.0	-45.36098	-37.59474	-22.03142	0.70015	-0.62527	-0.29494	62.89965	0.98395	219.65	-20.50
89/ 5/20	2447666.5	-40.36502	-41.60542	-23.89781	0.77379	-0.55779	-0.25559	62.70128	0.98753	225.87	-22.40
89/ 5/20	2447667.0	-34.89841	-45.13400	-25.48585	0.83897	-0.48301	-0.21281	62.48604	0.99119	232.29	-24.07
89/ 5/21	2447667.5	-29.02156	-48.13335	-26.77369	0.89479	-0.40163	-0.16701	62.25673	0.99491	238.91	-25.47
89/ 5/21	2447668.0	-22.80080	-50.56130	-27.74243	0.94039	-0.31442	-0.11866	62.01584	0.99864	245.73	-26.57
89/ 5/22	2447668.5	-16.30796	-52.38133	-28.37644	0.97501	-0.22227	-0.06826	61.76549	1.00235	252.71	-27.35
89/ 5/22	2447669.0	-9.61975	-53.56324	-28.66367	0.99797	-0.12616	-0.01636	61.50745	1.00605	259.82	-27.78
89/ 5/23	2447669.5	-2.81716	-54.08380	-28.59600	1.00870	-0.02717	0.03644	61.24316	1.00973	267.02	-27.83
89/ 5/23	2447670.0	4.01539	-53.92733	-28.16948	1.00676	0.07356	0.08950	60.97376	1.01340	274.26	-27.52
89/ 5/24	2447670.5	10.79094	-53.08627	-27.38458	0.99183	0.17478	0.14215	60.70018	1.01709	281.49	-26.82
89/ 5/24	2447671.0	17.42092	-51.56164	-26.24638	0.96376	0.27519	0.19371	60.42320	1.02083	288.67	-25.75
89/ 5/25	2447671.5	23.81633	-49.36337	-24.76473	0.92258	0.37347	0.24345	60.14359	1.02464	295.76	-24.32
89/ 5/25	2447672.0	29.88884	-46.51064	-22.95431	0.86846	0.46822	0.29067	59.86220	1.02856	302.73	-22.55
89/ 5/26	2447672.5	35.55201	-43.03203	-20.83466	0.80179	0.55806	0.33465	59.58006	1.03261	309.56	-20.47
89/ 5/26	2447673.0	40.72268	-38.96553	-18.43014	0.72314	0.64159	0.37467	59.29856	1.03679	316.26	-18.11
89/ 5/27	2447673.5	45.32221	-34.35853	-15.76985	0.63328	0.71744	0.41007	59.01948	1.04112	322.83	-15.50
89/ 5/27	2447674.0	49.27801	-29.26752	-12.88735	0.53322	0.78429	0.44018	58.74516	1.04556	329.29	-12.67
89/ 5/28	2447674.5	52.52485	-23.75774	-9.82047	0.42416	0.84090	0.46442	58.47847	1.05010	335.66	-9.67
89/ 5/28	2447675.0	55.00640	-17.90252	-6.61084	0.30749	0.88611	0.48225	58.22291	1.05466	341.97	-6.52
89/ 5/29	2447675.5	56.67658	-11.78257	-3.30342	0.18485	0.91892	0.49323	57.98255	1.05918	348.26	-3.27
89/ 5/29	2447676.0	57.50097	-5.48483	0.05409	0.05805	0.93849	0.49700	57.76199	1.06355	354.55	0.05
89/ 5/30	2447676.5	57.45797	0.89871	3.41205	-0.07094	0.94418	0.49333	57.56620	1.06765	0.90	3.40
89/ 5/30	2447677.0	56.53991	7.27264	6.71969	-0.19999	0.93560	0.48214	57.40041	1.07136	7.33	6.72
89/ 5/31	2447677.5	54.75383	13.53982	9.92614	-0.32689	0.91266	0.46347	57.26986	1.07453	13.89	9.98
89/ 5/31	2447678.0	52.12186	19.60343	12.98147	-0.44939	0.87555	0.43756	57.17955	1.07703	20.61	13.12
89/ 6/ 1	2447678.5	48.68132	25.36905	15.83780	-0.56529	0.82478	0.40479	57.13401	1.07874	27.53	16.09
89/ 6/ 1	2447679.0	44.48425	30.74686	18.45047	-0.67245	0.76120	0.36572	57.13701	1.07952	34.65	18.84
89/ 6/ 2	2447679.5	39.59643	35.65381	20.77910	-0.76895	0.68595	0.32104	57.19128	1.07930	42.00	21.30
89/ 6/ 2	2447680.0	34.09600	40.01555	22.78854	-0.85310	0.60046	0.27161	57.29834	1.07801	49.57	23.44

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 6/ 3	2447680.5	28.07154	43.76820	24.44974	-0.92350	0.50638	0.21837	57.45830	1.07562	57.33	25.18
89/ 6/ 3	2447681.0	21.61985	46.85967	25.74028	-0.97911	0.40554	0.16233	57.66982	1.07214	65.23	26.51
89/ 6/ 4	2447681.5	14.84347	49.25059	26.64474	-1.01929	0.29984	0.10455	57.93005	1.06761	73.23	27.38
89/ 6/ 4	2447682.0	7.84815	50.91469	27.15483	-1.04375	0.19124	0.04605	58.23473	1.06212	81.24	27.79
89/ 6/ 5	2447682.5	0.74033	51.83882	27.26918	-1.05256	0.08164	-0.01215	58.57831	1.05579	89.18	27.74
89/ 6/ 5	2447683.0	-6.37518	52.02240	26.99298	-1.04611	-0.02715	-0.06913	58.95417	1.04874	96.99	27.25
89/ 6/ 6	2447683.5	-13.39724	51.47666	26.33746	-1.02509	-0.13346	-0.12403	59.35481	1.04116	104.59	26.34
89/ 6/ 6	2447684.0	-20.23005	50.22347	25.31920	-0.99039	-0.23582	-0.17613	59.77218	1.03320	111.94	25.06
89/ 6/ 7	2447684.5	-26.78447	48.29418	23.95941	-0.94307	-0.33292	-0.22479	60.19791	1.02506	119.01	23.45
89/ 6/ 7	2447685.0	-32.97896	45.72816	22.28319	-0.88431	-0.42367	-0.26949	60.62357	1.01692	125.80	21.57
89/ 6/ 8	2447685.5	-38.74016	42.57161	20.31876	-0.81534	-0.50716	-0.30983	61.04091	1.00895	132.30	19.44
89/ 6/ 8	2447686.0	-44.00320	38.87620	18.09681	-0.73742	-0.58268	-0.34549	61.44212	1.00133	138.54	17.13
89/ 6/ 9	2447686.5	-48.71177	34.69799	15.64991	-0.65181	-0.64965	-0.37623	61.81995	0.99421	144.54	14.66
89/ 6/ 9	2447687.0	-52.81802	30.09640	13.01194	-0.55976	-0.70764	-0.40189	62.16789	0.98772	150.32	12.08
89/ 6/10	2447687.5	-56.28231	25.13333	10.21767	-0.46244	-0.75635	-0.42237	62.48027	0.98199	155.94	9.41
89/ 6/10	2447688.0	-59.07296	19.87249	7.30240	-0.36102	-0.79555	-0.43761	62.75234	0.97711	161.41	6.68
89/ 6/11	2447688.5	-61.16593	14.37872	4.30164	-0.25660	-0.82511	-0.44761	62.98034	0.97314	166.77	3.92
89/ 6/11	2447689.0	-62.54449	8.71758	1.25087	-0.15024	-0.84496	-0.45239	63.16149	0.97015	172.07	1.13
89/ 6/12	2447689.5	-63.19897	2.95493	-1.81464	-0.04296	-0.85509	-0.45198	63.29403	0.96814	177.32	-1.64
89/ 6/12	2447690.0	-63.12654	-2.84343	-4.86002	0.06425	-0.85551	-0.44645	63.37717	0.96714	182.58	-4.40
89/ 6/13	2447690.5	-62.33107	-8.61200	-7.85091	0.17039	-0.84631	-0.43591	63.41109	0.96710	187.87	-7.11
89/ 6/13	2447691.0	-60.82296	-14.28591	-10.75365	0.27452	-0.82758	-0.42044	63.39685	0.96800	193.22	-9.77
89/ 6/14	2447691.5	-58.61916	-19.80117	-13.53539	0.37567	-0.79949	-0.40020	63.33640	0.96978	198.66	-12.34
89/ 6/14	2447692.0	-55.74311	-25.09500	-16.16428	0.47287	-0.76223	-0.37533	63.23240	0.97236	204.24	-14.81
89/ 6/15	2447692.5	-52.22480	-30.10613	-18.60962	0.56516	-0.71606	-0.34604	63.08825	0.97565	209.96	-17.16
89/ 6/15	2447693.0	-48.10081	-34.77527	-20.84213	0.65156	-0.66130	-0.31253	62.90788	0.97955	215.87	-19.35
89/ 6/16	2447693.5	-43.41432	-39.04554	-22.83415	0.73110	-0.59835	-0.27507	62.69573	0.98397	221.97	-21.36
89/ 6/16	2447694.0	-38.21512	-42.86302	-24.55996	0.80280	-0.52769	-0.23397	62.45659	0.98878	228.28	-23.16
89/ 6/17	2447694.5	-32.55960	-46.17739	-25.99610	0.86569	-0.44989	-0.18960	62.19547	0.99387	234.81	-24.71
89/ 6/17	2447695.0	-26.51054	-48.94260	-27.12171	0.91885	-0.36564	-0.14235	61.91748	0.99913	241.56	-25.98
89/ 6/18	2447695.5	-20.13691	-51.11762	-27.91895	0.96139	-0.27575	-0.09271	61.62770	1.00445	248.50	-26.94
89/ 6/18	2447696.0	-13.51347	-52.66724	-28.37334	0.99249	-0.18113	-0.04121	61.33106	1.00973	255.61	-27.56
89/ 6/19	2447696.5	-6.72020	-53.56291	-28.47422	1.01143	-0.08283	0.01158	61.03219	1.01488	262.85	-27.81
89/ 6/19	2447697.0	0.15838	-53.78350	-28.21509	1.01760	0.01801	0.06499	60.73533	1.01983	270.17	-27.68
89/ 6/20	2447697.5	7.03416	-53.31607	-27.59398	1.01054	0.12012	0.11835	60.44427	1.02451	277.52	-27.16
89/ 6/20	2447698.0	13.81650	-52.15656	-26.61372	0.98997	0.22214	0.17092	60.16222	1.02888	284.84	-26.25
89/ 6/21	2447698.5	20.41343	-50.31035	-25.28222	0.95580	0.32266	0.22194	59.89182	1.03291	292.08	-24.97
89/ 6/21	2447699.0	26.73313	-47.79265	-23.61254	0.90814	0.42018	0.27065	59.63513	1.03659	299.22	-23.33
89/ 6/22	2447699.5	32.68532	-44.62872	-21.62298	0.84735	0.51323	0.31627	59.39365	1.03992	306.22	-21.35
89/ 6/22	2447700.0	38.18289	-40.85391	-19.33698	0.77401	0.60032	0.35807	59.16835	1.04293	313.06	-19.08
89/ 6/23	2447700.5	43.14345	-36.51349	-16.78292	0.68893	0.68002	0.39532	58.95981	1.04563	319.76	-16.54
89/ 6/23	2447701.0	47.49093	-31.66217	-13.99384	0.59316	0.75097	0.42736	58.76826	1.04806	326.31	-13.78
89/ 6/24	2447701.5	51.15702	-26.36353	-11.00701	0.48795	0.81192	0.45362	58.59377	1.05027	332.74	-10.83
89/ 6/24	2447702.0	54.08262	-20.68918	-7.86343	0.37476	0.86174	0.47357	58.43633	1.05229	339.07	-7.73
89/ 6/25	2447702.5	56.21909	-14.71769	-4.60719	0.25521	0.89951	0.48682	58.29599	1.05416	345.33	-4.53

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 6/25	2447703.0	57.52934	-8.53349	-1.28480	0.13109	0.92445	0.49307	58.17298	1.05589	351.56	-1.27
89/ 6/26	2447703.5	57.98873	-2.22541	2.05556	0.00428	0.93602	0.49211	58.06781	1.05750	357.80	2.03
89/ 6/26	2447704.0	57.58576	4.11470	5.36488	-0.12322	0.93387	0.48390	57.98131	1.05899	4.09	5.31
89/ 6/27	2447704.5	56.32253	10.39356	8.59415	-0.24941	0.91794	0.46849	57.91470	1.06033	10.46	8.53
89/ 6/27	2447705.0	54.21490	16.51815	11.69525	-0.37223	0.88836	0.44610	57.86954	1.06148	16.94	11.66
89/ 6/28	2447705.5	51.29245	22.39736	14.62185	-0.48969	0.84557	0.41703	57.84769	1.06240	23.59	14.64
89/ 6/28	2447706.0	47.59805	27.94373	17.33027	-0.59987	0.79021	0.38176	57.85122	1.06302	30.42	17.43
89/ 6/29	2447706.5	43.18722	33.07510	19.78034	-0.70096	0.72319	0.34085	57.88230	1.06326	37.45	19.98
89/ 6/29	2447707.0	38.12714	37.71624	21.93618	-0.79133	0.64565	0.29499	57.94299	1.06306	44.69	22.25
89/ 6/30	2447707.5	32.49534	41.80027	23.76690	-0.86957	0.55892	0.24498	58.03512	1.06233	52.14	24.18
89/ 6/30	2447708.0	26.37818	45.26995	25.24719	-0.93448	0.46450	0.19166	58.16010	1.06102	59.77	25.73
89/ 7/ 1	2447708.5	19.86905	48.07872	26.35775	-0.98519	0.36404	0.13596	58.31872	1.05906	67.55	26.87
89/ 7/ 1	2447709.0	13.06645	50.19146	27.08560	-1.02107	0.25926	0.07881	58.51106	1.05642	75.41	27.58
89/ 7/ 2	2447709.5	6.07189	51.58490	27.42418	-1.04184	0.15193	0.02116	58.73632	1.05308	83.29	27.83
89/ 7/ 2	2447710.0	-1.01213	52.24774	27.37327	-1.04752	0.04381	-0.03605	58.99276	1.04905	91.11	27.65
89/ 7/ 3	2447710.5	-8.08417	52.18041	26.93880	-1.03838	-0.06340	-0.09196	59.27772	1.04437	98.81	27.03
89/ 7/ 3	2447711.0	-15.04567	51.39457	26.13244	-1.01499	-0.16811	-0.14574	59.58756	1.03909	106.32	26.01
89/ 7/ 4	2447711.5	-21.80263	49.91227	24.97110	-0.97813	-0.26883	-0.19667	59.91782	1.03328	113.60	24.63
89/ 7/ 4	2447712.0	-28.26699	47.76503	23.47632	-0.92876	-0.36425	-0.24410	60.26324	1.02706	120.62	22.93
89/ 7/ 5	2447712.5	-34.35773	44.99266	21.67363	-0.86799	-0.45325	-0.28751	60.61797	1.02054	127.37	20.95
89/ 7/ 5	2447713.0	-40.00165	41.64206	19.59188	-0.79703	-0.53485	-0.32644	60.97570	1.01385	133.85	18.74
89/ 7/ 6	2447713.5	-45.13397	37.76607	17.26254	-0.71713	-0.60828	-0.36057	61.32982	1.00712	140.08	16.35
89/ 7/ 6	2447714.0	-49.69852	33.42222	14.71910	-0.62958	-0.67292	-0.38963	61.67365	1.00050	146.08	13.81
89/ 7/ 7	2447714.5	-53.64785	28.67169	11.99648	-0.53567	-0.72830	-0.41346	62.00059	0.99414	151.88	11.16
89/ 7/ 7	2447715.0	-56.94313	23.57834	9.13052	-0.43665	-0.77411	-0.43195	62.30430	0.98817	157.51	8.43
89/ 7/ 8	2447715.5	-59.55391	18.20782	6.15755	-0.33374	-0.81013	-0.44506	62.57882	0.98273	163.00	5.65
89/ 7/ 8	2447716.0	-61.45781	12.62682	3.11397	-0.22811	-0.83625	-0.45280	62.81875	0.97794	168.39	2.84
89/ 7/ 9	2447716.5	-62.64019	6.90253	0.03603	-0.12086	-0.85244	-0.45521	63.01935	0.97390	173.71	0.03
89/ 7/ 9	2447717.0	-63.09381	1.10206	-3.04048	-0.01308	-0.85875	-0.45239	63.17664	0.97071	179.00	-2.76
89/ 7/10	2447717.5	-62.81850	-4.70792	-6.08041	0.09422	-0.85527	-0.44443	63.28744	0.96844	184.29	-5.51
89/ 7/10	2447718.0	-61.82090	-10.46153	-9.04941	0.20005	-0.84213	-0.43147	63.34950	0.96715	189.60	-8.21
89/ 7/11	2447718.5	-60.11419	-16.09398	-11.91408	0.30345	-0.81952	-0.41365	63.36148	0.96686	194.99	-10.84
89/ 7/11	2447719.0	-57.71797	-21.54180	-14.64209	0.40350	-0.78766	-0.39114	63.32302	0.96758	200.47	-13.37
89/ 7/12	2447719.5	-54.65815	-26.74315	-17.20231	0.49926	-0.74679	-0.36414	63.23471	0.96930	206.07	-15.79
89/ 7/12	2447720.0	-50.96687	-31.63803	-19.56494	0.58981	-0.69721	-0.33284	63.09813	0.97199	211.83	-18.06
89/ 7/13	2447720.5	-46.68252	-36.16866	-21.70174	0.67423	-0.63929	-0.29749	62.91578	0.97559	217.77	-20.18
89/ 7/13	2447721.0	-41.84975	-40.27979	-23.58614	0.75160	-0.57341	-0.25835	62.69106	0.98002	223.90	-22.10
89/ 7/14	2447721.5	-36.51953	-43.91917	-25.19352	0.82097	-0.50007	-0.21574	62.42822	0.98520	230.26	-23.80
89/ 7/14	2447722.0	-30.74911	-47.03809	-26.50151	0.88143	-0.41983	-0.17001	62.13227	0.99099	236.83	-25.25
89/ 7/15	2447722.5	-24.60203	-49.59197	-27.49026	0.93205	-0.33334	-0.12155	61.80889	0.99730	243.61	-26.41
89/ 7/15	2447723.0	-18.14796	-51.54112	-28.14287	0.97193	-0.24139	-0.07083	61.46427	1.00396	250.60	-27.25
89/ 7/16	2447723.5	-11.46249	-52.85148	-28.44575	1.00024	-0.14487	-0.01837	61.10506	1.01085	257.76	-27.74
89/ 7/16	2447724.0	-4.62668	-53.49553	-28.38908	1.01621	-0.04482	0.03524	60.73811	1.01780	265.06	-27.87
89/ 7/17	2447724.5	2.27352	-53.45320	-27.96725	1.01915	0.05761	0.08935	60.37036	1.02468	272.44	-27.60
89/ 7/17	2447725.0	9.14808	-52.71276	-27.17930	1.00856	0.16110	0.14323	60.00864	1.03134	279.85	-26.93

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 7/18	2447725.5	15.90401	-51.27171	-26.02929	0.98408	0.26425	0.19613	59.65945	1.03765	287.23	-25.87
89/ 7/18	2447726.0	22.44665	-49.13754	-24.52666	0.94558	0.36551	0.24722	59.32881	1.04347	294.55	-24.42
89/ 7/19	2447726.5	28.68125	-46.32834	-22.68644	0.89316	0.46331	0.29568	59.02206	1.04872	301.76	-22.60
89/ 7/19	2447727.0	34.51471	-42.87318	-20.52933	0.82721	0.55599	0.34065	58.74375	1.05330	308.84	-20.46
89/ 7/20	2447727.5	39.85749	-38.81218	-18.08169	0.74840	0.64194	0.38133	58.49745	1.05717	315.76	-18.01
89/ 7/20	2447728.0	44.62558	-34.19634	-15.37527	0.65769	0.71958	0.41695	58.28577	1.06028	322.54	-15.30
89/ 7/21	2447728.5	48.74247	-29.08695	-12.44681	0.55634	0.78745	0.44679	58.11026	1.06264	329.17	-12.37
89/ 7/21	2447729.0	52.14096	-23.55473	-9.33747	0.44583	0.84424	0.47027	57.97149	1.06426	335.69	-9.27
89/ 7/22	2447729.5	54.76484	-17.67857	-6.09210	0.32790	0.88884	0.48689	57.86910	1.06519	342.11	-6.04
89/ 7/22	2447730.0	56.57022	-11.54410	-2.75838	0.20446	0.92039	0.49631	57.80194	1.06548	348.47	-2.74
89/ 7/23	2447730.5	57.52661	-5.24201	0.61415	0.07755	0.93826	0.49833	57.76821	1.06521	354.79	0.61
89/ 7/23	2447731.0	57.61757	1.13378	3.97503	-0.05074	0.94212	0.49288	57.76565	1.06447	1.13	3.95
89/ 7/24	2447731.5	56.84105	7.48800	7.27394	-0.17826	0.93190	0.48005	57.79174	1.06333	7.50	7.23
89/ 7/24	2447732.0	55.20929	13.72588	10.46166	-0.30294	0.90782	0.46009	57.84386	1.06188	13.96	10.42
89/ 7/25	2447732.5	52.74845	19.75496	13.49100	-0.42276	0.87034	0.43336	57.91947	1.06020	20.53	13.47
89/ 7/25	2447733.0	49.49792	25.48680	16.31764	-0.53583	0.82018	0.40033	58.01626	1.05834	27.24	16.34
89/ 7/26	2447733.5	45.50933	30.83849	18.90093	-0.64043	0.75826	0.36160	58.13223	1.05634	34.12	18.97
89/ 7/26	2447734.0	40.84541	35.73406	21.20448	-0.73501	0.68569	0.31784	58.26578	1.05425	41.18	21.34
89/ 7/27	2447734.5	35.57865	40.10562	23.19675	-0.81824	0.60375	0.26981	58.41567	1.05206	48.42	23.40
89/ 7/27	2447735.0	29.78977	43.89435	24.85146	-0.88902	0.51383	0.21830	58.58105	1.04978	55.84	25.10
89/ 7/28	2447735.5	23.56624	47.05126	26.14792	-0.94647	0.41743	0.16416	58.76140	1.04738	63.40	26.42
89/ 7/28	2447736.0	17.00056	49.53775	27.07118	-0.98997	0.31612	0.10825	58.95639	1.04484	71.06	27.33
89/ 7/29	2447736.5	10.18864	51.32595	27.61217	-1.01913	0.21150	0.05143	59.16581	1.04212	78.77	27.82
89/ 7/29	2447737.0	3.22816	52.39887	27.76767	-1.03384	0.10517	-0.00545	59.38944	1.03919	86.47	27.88
89/ 7/30	2447737.5	-3.78313	52.75033	27.54012	-1.03417	-0.00128	-0.06155	59.62690	1.03600	94.10	27.51
89/ 7/30	2447738.0	-10.74892	52.38467	26.93748	-1.02047	-0.10634	-0.11609	59.87755	1.03255	101.60	26.74
89/ 7/31	2447738.5	-17.57583	51.31634	25.97281	-0.99327	-0.20854	-0.16833	60.14037	1.02879	108.91	25.59
89/ 7/31	2447739.0	-24.17473	49.56923	24.66394	-0.95328	-0.30656	-0.21762	60.41387	1.02473	116.00	24.09
89/ 8/ 1	2447739.5	-30.46192	47.17591	23.03295	-0.90138	-0.39917	-0.26336	60.69606	1.02038	122.85	22.30
89/ 8/ 1	2447740.0	-36.36012	44.17677	21.10566	-0.83859	-0.48529	-0.30504	60.98438	1.01577	129.46	20.25
89/ 8/ 2	2447740.5	-41.79928	40.61903	18.91107	-0.76602	-0.56398	-0.34223	61.27572	1.01093	135.82	17.98
89/ 8/ 2	2447741.0	-46.71714	36.55573	16.48079	-0.68486	-0.63446	-0.37459	61.56645	1.00593	141.96	15.53
89/ 8/ 3	2447741.5	-51.05967	32.04468	13.84848	-0.59634	-0.69610	-0.40185	61.85250	1.00083	147.89	12.94
89/ 8/ 3	2447742.0	-54.78126	27.14752	11.04929	-0.50171	-0.74841	-0.42384	62.12939	0.99572	153.64	10.24
89/ 8/ 4	2447742.5	-57.84480	21.92869	8.11939	-0.40222	-0.79104	-0.44044	62.39241	0.99071	159.24	7.48
89/ 8/ 4	2447743.0	-60.22154	16.45459	5.09547	-0.29911	-0.82376	-0.45160	62.63666	0.98589	164.72	4.67
89/ 8/ 5	2447743.5	-61.89096	10.79278	2.01435	-0.19355	-0.84646	-0.45733	62.85724	0.98138	170.11	1.84
89/ 8/ 5	2447744.0	-62.84045	5.01125	-1.08739	-0.08670	-0.85911	-0.45770	63.04932	0.97728	175.44	-0.99
89/ 8/ 6	2447744.5	-63.06502	-0.82214	-4.17368	0.02033	-0.86179	-0.45279	63.20832	0.97371	180.75	-3.79
89/ 8/ 6	2447745.0	-62.56696	-6.64023	-7.20923	0.12651	-0.85462	-0.44274	63.33000	0.97077	186.06	-6.54
89/ 8/ 7	2447745.5	-61.35550	-12.37691	-10.15974	0.23083	-0.83779	-0.42771	63.41061	0.96856	191.40	-9.22
89/ 8/ 7	2447746.0	-59.44652	-17.96756	-12.99209	0.33233	-0.81154	-0.40788	63.44695	0.96716	196.82	-11.82
89/ 8/ 8	2447746.5	-56.86226	-23.34932	-15.67443	0.43008	-0.77615	-0.38345	63.43654	0.96665	202.32	-14.31
89/ 8/ 8	2447747.0	-53.63112	-28.46133	-18.17638	0.52320	-0.73195	-0.35465	63.37764	0.96709	207.95	-16.67
89/ 8/ 9	2447747.5	-49.78751	-33.24508	-20.46909	0.61080	-0.67928	-0.32171	63.26938	0.96850	213.73	-18.88

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COURDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
89/ 8/ 9	2447748.0	-45.37169	-37.64458	-22.52545	0.69202	-0.61855	-0.28490	63.11181	0.97091	219.68	-20.91
89/ 8/10	2447748.5	-40.42975	-41.60672	-24.32018	0.76602	-0.55021	-0.24450	62.90593	0.97432	225.82	-22.74
89/ 8/10	2447749.0	-35.01358	-45.08161	-25.83004	0.83192	-0.47476	-0.20083	62.65375	0.97869	232.16	-24.35
89/ 8/11	2447749.5	-29.18078	-48.02295	-27.03404	0.88890	-0.39276	-0.15424	62.35833	0.98397	238.72	-25.69
89/ 8/11	2447750.0	-22.99474	-50.38855	-27.91369	0.93609	-0.30486	-0.10512	62.02369	0.99008	245.47	-26.75
89/ 8/12	2447750.5	-16.52451	-52.14090	-28.45331	0.97268	-0.21181	-0.05391	61.65488	0.99693	252.42	-27.48
89/ 8/12	2447751.0	-9.84468	-53.24789	-28.64038	0.99786	-0.11444	-0.00111	61.25788	1.00440	259.53	-27.87
89/ 8/13	2447751.5	-3.03513	-53.68355	-28.46596	1.01087	-0.01374	0.05274	60.83951	1.01233	266.76	-27.90
89/ 8/13	2447752.0	3.81937	-53.42893	-27.92508	1.01103	0.08920	0.10699	60.40735	1.02058	274.09	-27.53
89/ 8/14	2447752.5	10.62982	-52.47306	-27.01724	0.99777	0.19312	0.16098	59.96955	1.02896	281.45	-26.78
89/ 8/14	2447753.0	17.30379	-50.81389	-25.74685	0.97067	0.29664	0.21392	59.53463	1.03728	288.81	-25.62
89/ 8/15	2447753.5	23.74663	-48.45921	-24.12363	0.92950	0.39823	0.26502	59.11131	1.04537	296.11	-24.09
89/ 8/15	2447754.0	29.86293	-45.42752	-22.16300	0.87427	0.49627	0.31341	58.70820	1.05303	303.32	-22.18
89/ 8/16	2447754.5	35.55825	-41.74863	-19.88628	0.80526	0.58905	0.35821	58.33354	1.06007	310.42	-19.93
89/ 8/16	2447755.0	40.74115	-37.46409	-17.32082	0.72308	0.67483	0.39853	57.99492	1.06633	317.40	-17.38
89/ 8/17	2447755.5	45.32542	-32.62722	-14.49982	0.62868	0.75187	0.43353	57.69900	1.07168	324.25	-14.55
89/ 8/17	2447756.0	49.23242	-27.30270	-11.46206	0.52333	0.81857	0.46242	57.45126	1.07599	330.99	-11.51
89/ 8/18	2447756.5	52.39335	-21.56575	-8.25128	0.40866	0.87343	0.48452	57.25581	1.07919	337.63	-8.29
89/ 8/18	2447757.0	54.75137	-15.50083	-4.91535	0.28658	0.91523	0.49929	57.11522	1.08123	344.19	-4.94
89/ 8/19	2447757.5	56.26343	-9.19991	-1.50532	0.15923	0.94299	0.50636	57.03050	1.08212	350.71	-1.51
89/ 8/19	2447758.0	56.90164	-2.76039	1.92583	0.02893	0.95608	0.50551	57.00110	1.08188	357.22	1.94
89/ 8/20	2447758.5	56.65408	3.71725	5.32444	-0.10193	0.95422	0.49676	57.02501	1.08060	3.75	5.36
89/ 8/20	2447759.0	55.52507	10.13181	8.63742	-0.23096	0.93750	0.48028	57.09897	1.07838	10.34	8.70
89/ 8/21	2447759.5	53.53489	16.38380	11.81355	-0.35585	0.90632	0.45642	57.21865	1.07534	17.02	11.92
89/ 8/21	2447760.0	50.71896	22.37767	14.80459	-0.47446	0.86142	0.42572	57.37899	1.07163	23.81	14.95
89/ 8/22	2447760.5	47.12656	28.02380	17.56623	-0.58483	0.80382	0.38880	57.57446	1.06739	30.74	17.76
89/ 8/22	2447761.0	42.81928	33.24019	20.05893	-0.68530	0.73474	0.34643	57.79932	1.06278	37.82	20.31
89/ 8/23	2447761.5	37.86920	37.95376	22.24848	-0.77443	0.65559	0.29942	58.04790	1.05792	45.06	22.54
89/ 8/23	2447762.0	32.35702	42.10134	24.10638	-0.85112	0.56787	0.24865	58.31481	1.05295	52.46	24.42
89/ 8/24	2447762.5	26.37011	45.63034	25.61013	-0.91450	0.47319	0.19499	58.59513	1.04797	59.98	25.92
89/ 8/24	2447763.0	20.00065	48.49905	26.74324	-0.96401	0.37316	0.13935	58.88451	1.04306	67.59	27.01
89/ 8/25	2447763.5	13.34382	50.67677	27.49520	-0.99932	0.26941	0.08259	59.17921	1.03829	75.25	27.68
89/ 8/25	2447764.0	6.49620	52.14367	27.86132	-1.02036	0.16352	0.02555	59.47618	1.03369	82.90	27.93
89/ 8/26	2447764.5	-0.44582	52.89051	27.84248	-1.02723	0.05704	-0.03096	59.77297	1.02928	90.48	27.76
89/ 8/26	2447765.0	-7.38735	52.91824	27.44482	-1.02028	-0.04859	-0.08619	60.06772	1.02506	97.95	27.19
89/ 8/27	2447765.5	-14.23622	52.23744	26.67943	-0.99997	-0.15196	-0.13944	60.35902	1.02102	105.24	26.23
89/ 8/27	2447766.0	-20.90412	50.86772	25.56190	-0.96696	-0.25181	-0.19007	60.64584	1.01712	112.34	24.93
89/ 8/28	2447766.5	-27.30753	48.83703	24.11194	-0.92200	-0.34695	-0.23751	60.92736	1.01335	119.21	23.31
89/ 8/28	2447767.0	-33.36851	46.18096	22.35295	-0.86600	-0.43632	-0.28125	61.20289	1.00967	125.85	21.42
89/ 8/29	2447767.5	-39.01546	42.94192	20.31155	-0.79991	-0.51895	-0.32084	61.47173	1.00604	132.26	19.29
89/ 8/29	2447768.0	-44.18366	39.16835	18.01712	-0.72481	-0.59403	-0.35591	61.73307	1.00244	138.44	16.97
89/ 8/30	2447768.5	-48.81574	34.91393	15.50136	-0.64179	-0.66084	-0.38615	61.98589	0.99886	144.43	14.48
89/ 8/30	2447769.0	-52.86204	30.23670	12.79782	-0.55203	-0.71880	-0.41133	62.22891	0.99528	150.23	11.87
89/ 8/31	2447769.5	-56.28083	25.19823	9.94141	-0.45669	-0.76744	-0.43126	62.46050	0.99173	155.88	9.16
89/ 8/31	2447770.0	-59.03840	19.86284	6.96804	-0.35697	-0.80643	-0.44585	62.67870	0.98820	161.41	6.38

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/ 9/ 1	2447770.5	-61.10911	14.29678	3.91411	-0.25406	-0.83553	-0.45505	62.88117	0.98474	166.83	3.57
89/ 9/ 1	2447771.0	-62.47528	8.56748	0.81621	-0.14912	-0.85462	-0.45885	63.06527	0.98140	172.19	0.74
89/ 9/ 2	2447771.5	-63.12704	2.74290	-2.28930	-0.04329	-0.86367	-0.45731	63.22806	0.97823	177.51	-2.07
89/ 9/ 2	2447772.0	-63.06214	-3.10917	-5.36659	0.06233	-0.86275	-0.45053	63.36640	0.97530	182.82	-4.86
89/ 9/ 3	2447772.5	-62.28563	-8.92164	-8.38062	0.16667	-0.85201	-0.43866	63.47700	0.97268	188.15	-7.59
89/ 9/ 3	2447773.0	-60.80958	-14.62864	-11.29745	0.26873	-0.83165	-0.42186	63.55655	0.97047	193.53	-10.24
89/ 9/ 4	2447773.5	-58.65279	-20.16597	-14.08440	0.36753	-0.80195	-0.40034	63.60178	0.96875	198.97	-12.79
89/ 9/ 4	2447774.0	-55.84044	-25.47148	-16.71025	0.46216	-0.76325	-0.37433	63.60962	0.96761	204.52	-15.23
89/ 9/ 5	2447774.5	-52.40383	-30.48543	-19.14544	0.55173	-0.71592	-0.34408	63.57728	0.96713	210.19	-17.53
89/ 9/ 5	2447775.0	-48.38010	-35.15076	-21.36215	0.63540	-0.66039	-0.30986	63.50238	0.96739	216.00	-19.66
89/ 9/ 6	2447775.5	-43.81202	-39.41344	-23.33452	0.71234	-0.59710	-0.27198	63.38306	0.96847	221.97	-21.60
89/ 9/ 6	2447776.0	-38.74777	-43.22271	-25.03872	0.78178	-0.52659	-0.23073	63.21811	0.97042	228.12	-23.33
89/ 9/ 7	2447776.5	-33.24080	-46.53140	-26.45313	0.84294	-0.44938	-0.18646	63.00707	0.97328	234.46	-24.82
89/ 9/ 7	2447777.0	-27.34973	-49.29628	-27.55853	0.89508	-0.36610	-0.13954	62.75032	0.97708	240.98	-26.05
89/ 9/ 8	2447777.5	-21.13817	-51.47839	-28.33822	0.93746	-0.27741	-0.09036	62.44919	0.98181	247.68	-26.99
89/ 9/ 8	2447778.0	-14.67463	-53.04354	-28.77834	0.96937	-0.18405	-0.03934	62.10600	0.98747	254.54	-27.61
89/ 9/ 9	2447778.5	-8.03238	-53.96281	-28.86804	0.99012	-0.08683	0.01304	61.72413	0.99401	261.53	-27.88
89/ 9/ 9	2447779.0	-1.28925	-54.21315	-28.59987	0.99906	0.01332	0.06625	61.30807	1.00134	268.64	-27.81
89/ 9/10	2447779.5	5.47270	-53.77807	-27.97007	0.99558	0.11538	0.11972	60.86342	1.00937	275.81	-27.36
89/ 9/10	2447780.0	12.16761	-52.64847	-26.97899	0.97918	0.21821	0.17282	60.39684	1.01798	283.01	-26.53
89/ 9/11	2447780.5	18.70646	-50.82345	-25.63149	0.94944	0.32051	0.22485	59.91600	1.02700	290.21	-25.33
89/ 9/11	2447781.0	24.99793	-48.31118	-23.93732	0.90610	0.42090	0.27506	59.42947	1.03626	297.36	-23.75
89/ 9/12	2447781.5	30.94955	-45.12985	-21.91157	0.84910	0.51782	0.32262	58.94654	1.04556	304.44	-21.82
89/ 9/12	2447782.0	36.46917	-41.30837	-19.57496	0.77859	0.60964	0.36670	58.47701	1.05467	311.44	-19.56
89/ 9/13	2447782.5	41.46673	-36.88707	-16.95408	0.69504	0.69465	0.40642	58.03091	1.06339	318.35	-16.99
89/ 9/13	2447783.0	45.85633	-31.91806	-14.08145	0.59922	0.77109	0.44090	57.61816	1.07147	325.16	-14.15
89/ 9/14	2447783.5	49.55863	-26.46520	-10.99538	0.49230	0.83725	0.46931	57.24825	1.07870	331.90	-11.07
89/ 9/14	2447784.0	52.50324	-20.60368	-7.73960	0.37577	0.89151	0.49090	56.92981	1.08488	338.57	-7.81
89/ 9/15	2447784.5	54.63129	-14.41906	-4.36259	0.25151	0.93244	0.50502	56.67027	1.08984	345.21	-4.42
89/ 9/15	2447785.0	55.89766	-8.00569	-0.91663	0.12171	0.95889	0.51119	56.47548	1.09343	351.85	-0.93
89/ 9/16	2447785.5	56.27300	-1.46468	2.54339	-0.01118	0.97003	0.50914	56.34949	1.09558	358.51	2.59
89/ 9/16	2447786.0	55.74510	5.09863	5.96137	-0.14457	0.96543	0.49879	56.29432	1.09625	5.23	6.08
89/ 9/17	2447786.5	54.31963	11.57743	9.28153	-0.27579	0.94511	0.48030	56.30991	1.09544	12.03	9.49
89/ 9/17	2447787.0	52.02011	17.86639	12.44993	-0.40224	0.90949	0.45406	56.39415	1.09322	18.96	12.75
89/ 9/18	2447787.5	48.88714	23.86453	15.41591	-0.52151	0.85940	0.42064	56.54307	1.08971	26.02	15.82
89/ 9/18	2447788.0	44.97698	29.47771	18.13339	-0.63141	0.79604	0.38081	56.75107	1.08507	33.24	18.63
89/ 9/19	2447788.5	40.35949	34.62091	20.56186	-0.73010	0.72088	0.33546	57.01128	1.07946	40.62	21.14
89/ 9/19	2447789.0	35.11581	39.21982	22.66714	-0.81610	0.63561	0.28554	57.31591	1.07310	48.16	23.30
89/ 9/20	2447789.5	29.33584	43.21201	24.42180	-0.88831	0.54203	0.23209	57.65668	1.06619	55.83	25.06
89/ 9/20	2447790.0	23.11560	46.54753	25.80535	-0.94602	0.44201	0.17613	58.02516	1.05893	63.59	26.41
89/ 9/21	2447790.5	16.55488	49.18905	26.80417	-0.98882	0.33740	0.11864	58.41310	1.05152	71.40	27.31
89/ 9/21	2447791.0	9.75496	51.11164	27.41122	-1.01666	0.23001	0.06059	58.81270	1.04412	79.19	27.78
89/ 9/22	2447791.5	2.81667	52.30222	27.62568	-1.02973	0.12152	0.00286	59.21684	1.03688	86.92	27.81
89/ 9/22	2447792.0	-4.16120	52.75888	27.45247	-1.02844	0.01353	-0.05376	59.61924	1.02993	94.51	27.42
89/ 9/23	2447792.5	-11.08330	52.48997	26.90169	-1.01337	-0.09250	-0.10852	60.01448	1.02336	101.92	26.63

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
89/ 9/23	2447793.0	-17.85879	51.51322	25.98813	-0.98528	-0.19528	-0.16078	60.39811	1.01723	109.12	25.49
89/ 9/24	2447793.5	-24.40219	49.85484	24.73066	-0.94499	-0.29360	-0.20998	60.76658	1.01158	116.08	24.02
89/ 9/24	2447794.0	-30.63401	47.54855	23.15177	-0.89343	-0.38643	-0.25562	61.11720	1.00643	122.79	22.26
89/ 9/25	2447794.5	-36.48131	44.63476	21.27707	-0.83161	-0.47285	-0.29727	61.44804	1.00176	129.26	20.26
89/ 9/25	2447795.0	-41.87802	41.15969	19.13480	-0.76055	-0.55205	-0.33458	61.75783	0.99757	135.50	18.05
89/ 9/26	2447795.5	-46.76524	37.17459	16.75542	-0.68134	-0.62335	-0.36724	62.04580	0.99381	141.52	15.67
89/ 9/26	2447796.0	-51.09141	32.73504	14.17120	-0.59507	-0.68616	-0.39503	62.31162	0.99044	147.35	13.15
89/ 9/27	2447796.5	-54.81252	27.90017	11.41582	-0.50285	-0.74001	-0.41776	62.55520	0.98742	153.02	10.51
89/ 9/27	2447797.0	-57.89211	22.73203	8.52406	-0.40582	-0.78452	-0.43529	62.77660	0.98470	158.56	7.80
89/ 9/28	2447797.5	-60.30137	17.29492	5.53137	-0.30510	-0.81940	-0.44755	62.97591	0.98224	164.00	5.04
89/ 9/28	2447798.0	-62.01913	11.65475	2.47362	-0.20181	-0.84446	-0.45450	63.15319	0.98000	169.36	2.24
89/ 9/29	2447798.5	-63.03180	5.87842	-0.61330	-0.09707	-0.85959	-0.45616	63.30829	0.97796	174.67	-0.56
89/ 9/29	2447799.0	-63.33324	0.03323	-3.69370	0.00803	-0.86479	-0.45259	63.44087	0.97610	179.97	-3.34
89/ 9/30	2447799.5	-62.92469	-5.81370	-6.73248	0.11241	-0.86013	-0.44389	63.55031	0.97442	185.28	-6.08
89/ 9/30	2447800.0	-61.81455	-11.59596	-9.69534	0.21503	-0.84573	-0.43020	63.63572	0.97292	190.62	-8.76
89/10/ 1	2447800.5	-60.01816	-17.24843	-12.54905	0.31489	-0.82184	-0.41170	63.69590	0.97163	196.03	-11.36
89/10/ 1	2447801.0	-57.55758	-22.70769	-15.26173	0.41100	-0.78874	-0.38859	63.72939	0.97058	201.53	-13.86
89/10/ 2	2447801.5	-54.46128	-27.91255	-17.80303	0.50246	-0.74678	-0.36113	63.73452	0.96983	207.14	-16.22
89/10/ 2	2447802.0	-50.76386	-32.80443	-20.14436	0.58837	-0.69639	-0.32959	63.70946	0.96941	212.87	-18.43
89/10/ 3	2447802.5	-46.50575	-37.32774	-22.25905	0.66789	-0.63803	-0.29426	63.65226	0.96941	218.75	-20.47
89/10/ 3	2447803.0	-41.73292	-41.43029	-24.12255	0.74023	-0.57223	-0.25547	63.56102	0.96988	224.79	-22.30
89/10/ 4	2447803.5	-36.49654	-45.06359	-25.71259	0.80465	-0.49956	-0.21357	63.43392	0.97089	231.00	-23.91
89/10/ 4	2447804.0	-30.85274	-48.18320	-27.00930	0.86043	-0.42065	-0.16892	63.26938	0.97253	237.37	-25.27
89/10/ 5	2447804.5	-24.86234	-50.74905	-27.99542	0.90689	-0.33616	-0.12192	63.06620	0.97484	243.90	-26.35
89/10/ 5	2447805.0	-18.59054	-52.72582	-28.65641	0.94342	-0.24682	-0.07298	62.82364	0.97790	250.58	-27.14
89/10/ 6	2447805.5	-12.10667	-54.08326	-28.98068	0.96942	-0.15341	-0.02256	62.54159	0.98174	257.38	-27.61
89/10/ 6	2447806.0	-5.48395	-54.79663	-28.95973	0.98434	-0.05678	0.02887	62.22066	0.98640	264.28	-27.74
89/10/ 7	2447806.5	1.20090	-54.84714	-28.58840	0.98768	0.04217	0.08082	61.86233	0.99188	271.25	-27.52
89/10/ 7	2447807.0	7.86792	-54.22244	-27.86508	0.97901	0.14244	0.13272	61.46902	0.99818	278.26	-26.96
89/10/ 8	2447807.5	14.43443	-52.91716	-26.79201	0.95794	0.24295	0.18400	61.04417	1.00525	285.26	-26.03
89/10/ 8	2447808.0	20.81550	-50.93358	-25.37552	0.92421	0.34253	0.23402	60.59234	1.01304	292.23	-24.76
89/10/ 9	2447808.5	26.92468	-48.28224	-23.62639	0.87764	0.43991	0.28211	60.11921	1.02145	299.15	-23.14
89/10/ 9	2447809.0	32.67490	-44.98266	-21.56011	0.81822	0.53371	0.32755	59.63159	1.03035	305.99	-21.20
89/10/10	2447809.5	37.97956	-41.06399	-19.19717	0.74611	0.62247	0.36958	59.13738	1.03959	312.77	-18.94
89/10/10	2447810.0	42.75389	-36.56564	-16.56330	0.66171	0.70463	0.40742	58.64541	1.04898	319.46	-16.41
89/10/11	2447810.5	46.91669	-31.53767	-13.68961	0.56566	0.77859	0.44027	58.16533	1.05831	326.09	-13.61
89/10/11	2447811.0	50.39216	-26.04111	-10.61256	0.45894	0.84274	0.46734	57.70733	1.06735	332.67	-10.60
89/10/12	2447811.5	53.11217	-20.14780	-7.37381	0.34282	0.89549	0.48790	57.28184	1.07586	339.23	-7.40
89/10/12	2447812.0	55.01851	-13.93991	-4.01980	0.21897	0.93540	0.50127	56.89917	1.08360	345.78	-4.05
89/10/13	2447812.5	56.06528	-7.50893	-0.60108	0.08936	0.96118	0.50692	56.56908	1.09033	352.37	-0.61
89/10/13	2447813.0	56.22113	-0.95412	2.82861	-0.04371	0.97183	0.50447	56.30033	1.09583	359.03	2.88
89/10/14	2447813.5	55.47118	5.61966	6.21364	-0.17768	0.96670	0.49372	56.10028	1.09992	5.78	6.36
89/10/14	2447814.0	53.81835	12.10447	9.49782	-0.30986	0.94555	0.47472	55.97447	1.10247	12.68	9.77
89/10/15	2447814.5	51.28412	18.39232	12.62608	-0.43750	0.90861	0.44775	55.92634	1.10339	19.73	13.05
89/10/15	2447815.0	47.90832	24.37827	15.54608	-0.55794	0.85656	0.41332	55.95702	1.10264	26.97	16.13

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/10/16	2447815.5	43.74821	29.96353	18.20969	-0.66871	0.79051	0.37218	56.06525	1.10027	34.41	18.95
89/10/16	2447816.0	38.87666	35.05822	20.57445	-0.76770	0.71198	0.32523	56.24750	1.09638	42.04	21.46
89/10/17	2447816.5	33.37971	39.58374	22.60454	-0.85313	0.62276	0.27354	56.49817	1.09110	49.86	23.58
89/10/17	2447817.0	27.35374	43.47445	24.27156	-0.92374	0.52487	0.21821	56.80989	1.08462	57.82	25.29
89/10/18	2447817.5	20.90233	46.67872	25.55486	-0.97866	0.42041	0.16042	57.17395	1.07715	65.88	26.55
89/10/18	2447818.0	14.13322	49.15931	26.44157	-1.01752	0.31152	0.10129	57.58074	1.06895	73.96	27.34
89/10/19	2447818.5	7.15544	50.89319	26.92628	-1.04031	0.20025	0.04189	58.02018	1.06024	82.00	27.65
89/10/19	2447819.0	0.07677	51.87082	27.01060	-1.04739	0.08852	-0.01679	58.48214	1.05126	89.92	27.51
89/10/20	2447819.5	-6.99834	52.09517	26.70245	-1.03939	-0.02191	-0.07387	58.95680	1.04224	97.65	26.93
89/10/20	2447820.0	-13.97044	51.58047	26.01533	-1.01713	-0.12948	-0.12858	59.43497	1.03337	105.15	25.96
89/10/21	2447820.5	-20.74631	50.35089	24.96753	-0.98162	-0.23280	-0.18027	59.90826	1.02482	112.39	24.63
89/10/21	2447821.0	-27.23983	48.43921	23.58144	-0.93394	-0.33071	-0.22840	60.36928	1.01675	119.35	22.99
89/10/22	2447821.5	-33.37250	45.88555	21.88279	-0.87526	-0.42222	-0.27250	60.81171	1.00926	126.03	21.09
89/10/22	2447822.0	-39.07378	42.73620	19.90005	-0.80675	-0.50649	-0.31223	61.23035	1.00243	132.44	18.97
89/10/23	2447822.5	-44.28116	39.04258	17.66389	-0.72961	-0.58284	-0.34730	61.62108	0.99632	138.60	16.66
89/10/23	2447823.0	-48.94020	34.86030	15.20666	-0.64503	-0.65071	-0.37748	61.98085	0.99094	144.54	14.20
89/10/24	2447823.5	-53.00442	30.24833	12.56197	-0.55416	-0.70966	-0.40263	62.30756	0.98631	150.29	11.63
89/10/24	2447824.0	-56.43516	25.26832	9.76436	-0.45816	-0.75934	-0.42262	62.59999	0.98240	155.88	8.97
89/10/25	2447824.5	-59.20148	19.98394	6.84895	-0.35814	-0.79950	-0.43741	62.85763	0.97917	161.35	6.26
89/10/25	2447825.0	-61.27993	14.46037	3.85114	-0.25522	-0.82995	-0.44695	63.08061	0.97658	166.72	3.50
89/10/26	2447825.5	-62.65448	8.76371	0.80640	-0.15046	-0.85059	-0.45127	63.26955	0.97457	172.04	0.73
89/10/26	2447826.0	-63.31633	2.96061	-2.25001	-0.04494	-0.86138	-0.45041	63.42543	0.97307	177.32	-2.03
89/10/27	2447826.5	-63.26384	-2.88231	-5.28326	0.06031	-0.86236	-0.44445	63.54946	0.97202	182.61	-4.77
89/10/27	2447827.0	-62.50236	-8.69881	-8.25918	0.16425	-0.85361	-0.43350	63.64298	0.97136	187.92	-7.46
89/10/28	2447827.5	-61.04410	-14.42355	-11.14450	0.26589	-0.83529	-0.41772	63.70731	0.97103	193.29	-10.07
89/10/28	2447828.0	-58.90801	-19.99251	-13.90706	0.36425	-0.80765	-0.39729	63.74370	0.97099	198.75	-12.60
89/10/29	2447828.5	-56.11956	-25.34347	-16.51605	0.45837	-0.77097	-0.37241	63.75324	0.97118	204.30	-15.01
89/10/29	2447829.0	-52.71060	-30.41645	-18.94224	0.54733	-0.72563	-0.34335	63.73677	0.97160	209.99	-17.29
89/10/30	2447829.5	-48.71911	-35.15415	-21.15819	0.63025	-0.67205	-0.31038	63.69486	0.97221	215.81	-19.40
89/10/30	2447830.0	-44.18894	-39.50248	-23.13848	0.70627	-0.61073	-0.27381	63.62780	0.97303	221.79	-21.32
89/10/31	2447830.5	-39.16949	-43.41089	-24.85990	0.77459	-0.54225	-0.23400	63.53558	0.97406	227.94	-23.03
89/10/31	2447831.0	-33.71543	-46.83290	-26.30172	0.83448	-0.46721	-0.19131	63.41791	0.97532	234.25	-24.50
89/11/ 1	2447831.5	-27.88629	-49.72645	-27.44578	0.88524	-0.38631	-0.14615	63.27429	0.97686	240.72	-25.71
89/11/ 1	2447832.0	-21.74612	-52.05432	-28.27677	0.92623	-0.30030	-0.09893	63.10405	0.97871	247.33	-26.62
89/11/ 2	2447832.5	-15.36303	-53.78453	-28.78234	0.95688	-0.20997	-0.05013	62.90645	0.98093	254.06	-27.23
89/11/ 2	2447833.0	-8.80883	-54.89073	-28.95332	0.97668	-0.11618	-0.00021	62.68080	0.98357	260.88	-27.51
89/11/ 3	2447833.5	-2.15849	-55.35256	-28.78385	0.98520	-0.01985	0.05032	62.42656	0.98669	267.77	-27.46
89/11/ 3	2447834.0	4.51031	-55.15603	-28.27155	0.98208	0.07806	0.10093	62.14347	0.99033	274.67	-27.06
89/11/ 4	2447834.5	11.11772	-54.29388	-27.41770	0.96704	0.17653	0.15108	61.83171	0.99456	281.57	-26.32
89/11/ 4	2447835.0	17.58231	-52.76601	-26.22737	0.93988	0.27446	0.20019	61.49198	0.99939	288.43	-25.25
89/11/ 5	2447835.5	23.82169	-50.57978	-24.70960	0.90053	0.37074	0.24767	61.12570	1.00486	295.22	-23.84
89/11/ 5	2447836.0	29.75324	-47.75049	-22.87753	0.84900	0.46415	0.29290	60.73505	1.01095	301.93	-22.13
89/11/ 6	2447836.5	35.29494	-44.30171	-20.74860	0.78544	0.55345	0.33523	60.32312	1.01765	308.54	-20.12
89/11/ 6	2447837.0	40.36631	-40.26570	-18.34462	0.71018	0.63734	0.37400	59.89400	1.02490	315.07	-17.84
89/11/ 7	2447837.5	44.88955	-35.68372	-15.69193	0.62368	0.71445	0.40856	59.45280	1.03263	321.52	-15.30

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/11/ 7	2447838.0	48.79078	-30.60627	-12.82139	0.52664	0.78341	0.43822	59.00570	1.04073	327.90	-12.55
89/11/ 8	2447838.5	52.00158	-25.09325	-9.76840	0.41997	0.84284	0.46233	58.55986	1.04905	334.24	-9.60
89/11/ 8	2447839.0	54.46057	-19.21383	-6.57271	0.30486	0.89139	0.48026	58.12337	1.05743	340.57	-6.49
89/11/ 9	2447839.5	56.11528	-13.04614	-3.27815	0.18274	0.92776	0.49143	57.70505	1.06566	346.91	-3.26
89/11/ 9	2447840.0	56.92397	-6.67660	0.06784	0.05535	0.95081	0.49537	57.31422	1.07355	353.31	0.07
89/11/10	2447840.5	56.85761	-0.19884	3.41490	-0.07531	0.95958	0.49170	56.96041	1.08084	359.80	3.44
89/11/10	2447841.0	55.90161	6.28782	6.71063	-0.20696	0.95335	0.48019	56.65297	1.08733	6.42	6.80
89/11/11	2447841.5	54.05738	12.68032	9.90173	-0.33717	0.93174	0.46081	56.40067	1.09278	13.20	10.11
89/11/11	2447842.0	51.34342	18.87428	12.93529	-0.46336	0.89475	0.43372	56.21127	1.09699	20.18	13.30
89/11/12	2447842.5	47.79577	24.76674	15.76025	-0.58292	0.84281	0.39929	56.09111	1.09980	27.39	16.32
89/11/12	2447843.0	43.46784	30.25904	18.32888	-0.69336	0.77677	0.35814	56.04472	1.10109	34.84	19.09
89/11/13	2447843.5	38.42938	35.25978	20.59825	-0.79238	0.69790	0.31108	56.07457	1.10077	42.54	21.55
89/11/13	2447844.0	32.76468	39.68746	22.53151	-0.87799	0.60785	0.25907	56.18085	1.09885	50.46	23.64
89/11/14	2447844.5	26.57016	43.47283	24.09888	-0.94861	0.50857	0.20323	56.36147	1.09535	58.57	25.31
89/11/14	2447845.0	19.95137	46.56050	25.27839	-1.00312	0.40220	0.14473	56.61214	1.09040	66.80	26.52
89/11/15	2447845.5	13.01982	48.91004	26.05617	-1.04090	0.29098	0.08480	56.92654	1.08413	75.09	27.24
89/11/15	2447846.0	5.88967	50.49625	26.42645	-1.06178	0.17716	0.02459	57.29674	1.07673	83.35	27.47
89/11/16	2447846.5	-1.32528	51.30887	26.39112	-1.06602	0.06289	-0.03480	57.71350	1.06844	91.48	27.21
89/11/16	2447847.0	-8.51436	51.35168	25.95920	-1.05427	-0.04984	-0.09237	58.16674	1.05948	99.41	26.51
89/11/17	2447847.5	-15.57225	50.64124	25.14597	-1.02745	-0.15926	-0.14726	58.64597	1.05010	107.09	25.39
89/11/17	2447848.0	-22.40068	49.20537	23.97211	-0.98672	-0.26382	-0.19875	59.14068	1.04054	114.48	23.91
89/11/18	2447848.5	-28.90970	47.08149	22.46274	-0.93336	-0.36222	-0.24625	59.64069	1.03102	121.55	22.13
89/11/18	2447849.0	-35.01838	44.31502	20.64657	-0.86874	-0.45341	-0.28928	60.13642	1.02175	128.32	20.08
89/11/19	2447849.5	-40.65523	40.95782	18.55502	-0.79426	-0.53654	-0.32751	60.61914	1.01291	134.79	17.82
89/11/19	2447850.0	-45.75822	37.06678	16.22155	-0.71132	-0.61096	-0.36069	61.08109	1.00466	140.99	15.40
89/11/20	2447850.5	-50.27466	32.70263	13.68100	-0.62128	-0.67618	-0.38864	61.51563	0.99712	146.96	12.85
89/11/20	2447851.0	-54.16090	27.92889	10.96908	-0.52544	-0.73186	-0.41128	61.91726	0.99038	152.72	10.20
89/11/21	2447851.5	-57.38199	22.81103	8.12194	-0.42506	-0.77777	-0.42857	62.28163	0.98452	158.32	7.49
89/11/21	2447852.0	-59.91123	17.41571	5.17585	-0.32134	-0.81377	-0.44051	62.60552	0.97956	163.79	4.74
89/11/22	2447852.5	-61.72984	11.81027	2.16688	-0.21541	-0.83981	-0.44714	62.88681	0.97551	169.17	1.97
89/11/22	2447853.0	-62.82657	6.06216	-0.86929	-0.10835	-0.85590	-0.44855	63.12435	0.97237	174.49	-0.79
89/11/23	2447853.5	-63.19738	0.23863	-3.89758	-0.00122	-0.86210	-0.44484	63.31790	0.97011	179.78	-3.53
89/11/23	2447854.0	-62.84516	-5.59373	-6.88370	0.10499	-0.85853	-0.43612	63.46802	0.96866	185.09	-6.23
89/11/24	2447854.5	-61.77956	-11.36923	-9.79426	0.20928	-0.84535	-0.42255	63.57595	0.96797	190.43	-8.86
89/11/24	2447855.0	-60.01676	-17.02347	-12.59697	0.31071	-0.82276	-0.40430	63.64349	0.96796	195.84	-11.42
89/11/25	2447855.5	-57.57932	-22.49364	-15.26079	0.40834	-0.79104	-0.38158	63.67287	0.96855	201.34	-13.87
89/11/25	2447856.0	-54.49611	-27.71888	-17.75613	0.50125	-0.75050	-0.35459	63.66665	0.96966	206.96	-16.19
89/11/26	2447856.5	-50.80208	-32.64068	-20.05499	0.58856	-0.70150	-0.32360	63.62758	0.97120	212.72	-18.37
89/11/26	2447857.0	-46.53822	-37.20327	-22.13119	0.66938	-0.64450	-0.28889	63.55847	0.97309	218.64	-20.38
89/11/27	2447857.5	-41.75129	-41.35406	-23.96062	0.74288	-0.57999	-0.25078	63.46211	0.97527	224.73	-22.18
89/11/27	2447858.0	-36.49369	-45.04412	-25.52141	0.80824	-0.50855	-0.20963	63.34117	0.97766	230.99	-23.76
89/11/28	2447858.5	-30.82311	-48.22867	-26.79419	0.86470	-0.43083	-0.16581	63.19808	0.98021	237.42	-25.09
89/11/28	2447859.0	-24.80228	-50.86756	-27.76236	0.91155	-0.34755	-0.11975	63.03499	0.98288	244.01	-26.13
89/11/29	2447859.5	-18.49850	-52.92581	-28.41225	0.94815	-0.25951	-0.07190	62.85373	0.98565	250.73	-26.87
89/11/29	2447860.0	-11.98323	-54.37406	-28.73344	0.97392	-0.16757	-0.02277	62.65578	0.98849	257.57	-27.30

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/11/30	2447860.5	-5.33151	-55.18907	-28.71887	0.98837	-0.07268	0.02715	62.44223	0.99141	264.48	-27.38
89/11/30	2447861.0	1.37864	-55.35419	-28.36512	0.99111	0.02416	0.07730	62.21388	0.99442	271.43	-27.12
89/12/ 1	2447861.5	8.06692	-54.85975	-27.67252	0.98187	0.12190	0.12712	61.97125	0.99754	278.37	-26.52
89/12/ 1	2447862.0	14.65149	-53.70342	-26.64531	0.96047	0.21942	0.17601	61.71463	1.00081	285.26	-25.58
89/12/ 2	2447862.5	21.04978	-51.89056	-25.29174	0.92687	0.31557	0.22338	61.44425	1.00428	292.08	-24.31
89/12/ 2	2447863.0	27.17936	-49.43445	-23.62417	0.88115	0.40917	0.26863	61.16032	1.00797	298.80	-22.72
89/12/ 3	2447863.5	32.95884	-46.35652	-21.65908	0.82354	0.49899	0.31114	60.86318	1.01194	305.41	-20.85
89/12/ 3	2447864.0	38.30888	-42.68641	-19.41707	0.75441	0.58383	0.35030	60.55347	1.01622	311.91	-18.70
89/12/ 4	2447864.5	43.15317	-38.46213	-16.92286	0.67429	0.66243	0.38551	60.23217	1.02084	318.29	-16.32
89/12/ 4	2447865.0	47.41953	-33.73000	-14.20519	0.58388	0.73359	0.41619	59.90085	1.02581	324.58	-13.72
89/12/ 5	2447865.5	51.04105	-28.54452	-11.29668	0.48404	0.79610	0.44178	59.56167	1.03114	330.78	-10.93
89/12/ 5	2447866.0	53.95730	-22.96820	-8.23363	0.37581	0.84881	0.46174	59.21757	1.03678	336.94	-7.99
89/12/ 6	2447866.5	56.11559	-17.07121	-5.05577	0.26044	0.89062	0.47560	58.87229	1.04271	343.08	-4.93
89/12/ 6	2447867.0	57.47229	-10.93079	-1.80590	0.13936	0.92054	0.48294	58.53040	1.04883	349.23	-1.77
89/12/ 7	2447867.5	57.99412	-4.63060	1.47058	0.01420	0.93767	0.48341	58.19728	1.05504	355.43	1.45
89/12/ 7	2447868.0	57.65949	1.74027	4.72628	-0.11323	0.94130	0.47677	57.87904	1.06122	1.73	4.68
89/12/ 8	2447868.5	56.45974	8.08854	7.91249	-0.24092	0.93093	0.46288	57.58241	1.06721	8.15	7.90
89/12/ 8	2447869.0	54.40017	14.31823	10.98006	-0.36676	0.90627	0.44175	57.31450	1.07284	14.75	11.04
89/12/ 9	2447869.5	51.50090	20.33248	13.88040	-0.48850	0.86734	0.41354	57.08256	1.07792	21.54	14.07
89/12/ 9	2447870.0	47.79738	26.03559	16.56652	-0.60387	0.81447	0.37857	56.89369	1.08229	28.58	16.93
89/12/10	2447870.5	43.34036	31.33530	18.99430	-0.71064	0.74836	0.33734	56.75448	1.08575	35.87	19.55
89/12/10	2447871.0	38.19542	36.14517	21.12355	-0.80667	0.67003	0.29054	56.67069	1.08815	43.42	21.88
89/12/11	2447871.5	32.44190	40.38689	22.91926	-0.89005	0.58085	0.23900	56.64689	1.08936	51.23	23.87
89/12/11	2447872.0	26.17117	43.99251	24.35255	-0.95915	0.48249	0.18370	56.68613	1.08927	59.25	25.44
89/12/12	2447872.5	19.48450	46.90628	25.40150	-1.01270	0.37689	0.12570	56.78980	1.08784	67.44	26.57
89/12/12	2447873.0	12.49033	49.08609	26.05171	-1.04984	0.26612	0.06614	56.95739	1.08506	75.72	27.22
89/12/13	2447873.5	5.30146	50.50430	26.29656	-1.07016	0.15236	0.00618	57.18653	1.08097	84.01	27.38
89/12/13	2447874.0	-1.96802	51.14807	26.13711	-1.07368	0.03778	-0.05306	57.47301	1.07566	92.20	27.05
89/12/14	2447874.5	-9.20555	51.01898	25.58180	-1.06083	-0.07552	-0.11055	57.81095	1.06925	100.23	26.26
89/12/14	2447875.0	-16.30274	50.13225	24.64578	-1.03240	-0.18564	-0.16533	58.19310	1.06191	108.01	25.06
89/12/15	2447875.5	-23.15756	48.51547	23.35019	-0.98946	-0.29084	-0.21660	58.61105	1.05382	115.52	23.48
89/12/15	2447876.0	-29.67606	46.20706	21.72120	-0.93332	-0.38965	-0.26368	59.05566	1.04520	122.71	21.58
89/12/16	2447876.5	-35.77365	43.25456	19.78903	-0.86542	-0.48085	-0.30605	59.51737	1.03626	129.59	19.42
89/12/16	2447877.0	-41.37579	39.71296	17.58710	-0.78728	-0.56347	-0.34329	59.98651	1.02720	136.17	17.05
89/12/17	2447877.5	-46.41839	35.64295	15.15106	-0.70045	-0.63677	-0.37514	60.45363	1.01825	142.48	14.51
89/12/17	2447878.0	-50.84779	31.10950	12.51803	-0.60645	-0.70025	-0.40144	60.90977	1.00960	148.54	11.86
89/12/18	2447878.5	-54.62048	26.18043	9.72598	-0.50677	-0.75355	-0.42210	61.34661	1.00141	154.39	9.12
89/12/18	2447879.0	-57.70273	20.92534	6.81307	-0.40279	-0.79650	-0.43713	61.75672	0.99385	160.07	6.33
89/12/19	2447879.5	-60.06998	15.41461	3.81730	-0.29585	-0.82904	-0.44658	62.13360	0.98705	165.61	3.52
89/12/19	2447880.0	-61.70634	9.71872	0.77609	-0.18717	-0.85119	-0.45056	62.47182	0.98111	171.05	0.71
89/12/20	2447880.5	-62.60399	3.90762	-2.27394	-0.07790	-0.86309	-0.44921	62.76703	0.97610	176.43	-2.08
89/12/20	2447881.0	-62.76268	-1.94975	-5.29720	0.03087	-0.86489	-0.44269	63.01600	0.97209	181.78	-4.82
89/12/21	2447881.5	-62.18924	-7.78577	-8.25928	0.13813	-0.85682	-0.43118	63.21657	0.96909	187.14	-7.51
89/12/21	2447882.0	-60.89719	-13.53445	-11.12707	0.24291	-0.83915	-0.41488	63.36766	0.96711	192.53	-10.11
89/12/22	2447882.5	-58.90645	-19.13171	-13.86887	0.34430	-0.81216	-0.39401	63.46918	0.96612	197.99	-12.62

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
89/12/22	2447883.0	-56.24305	-24.51554	-16.45448	0.44140	-0.77618	-0.36880	63.52198	0.96608	203.55	-15.01
89/12/23	2447883.5	-52.93894	-29.62631	-18.85534	0.53335	-0.73159	-0.33950	63.52774	0.96692	209.23	-17.27
89/12/23	2447884.0	-49.03188	-34.40699	-21.04464	0.61931	-0.67878	-0.30637	63.48892	0.96858	215.06	-19.36
89/12/24	2447884.5	-44.56526	-38.80345	-22.99744	0.69845	-0.61821	-0.26971	63.40861	0.97096	221.05	-21.27
89/12/24	2447885.0	-39.58804	-42.76481	-24.69091	0.76995	-0.55039	-0.22985	63.29046	0.97395	227.21	-22.96
89/12/25	2447885.5	-34.15460	-46.24385	-26.10444	0.83304	-0.47589	-0.18711	63.13851	0.97746	233.55	-24.42
89/12/25	2447886.0	-28.32456	-49.19747	-27.21994	0.88694	-0.39535	-0.14191	62.95710	0.98138	240.07	-25.62
89/12/26	2447886.5	-22.16261	-51.58718	-28.02207	0.93093	-0.30950	-0.09465	62.75074	0.98559	246.75	-26.52
89/12/26	2447887.0	-15.73814	-53.37969	-28.49846	0.96435	-0.21914	-0.04580	62.52394	0.98999	253.57	-27.12
89/12/27	2447887.5	-9.12490	-54.54743	-28.64005	0.98658	-0.12517	0.00413	62.28113	0.99450	260.50	-27.38
89/12/27	2447888.0	-2.40045	-55.06921	-28.44130	0.99711	-0.02856	0.05460	62.02651	0.99901	267.50	-27.29
89/12/28	2447888.5	4.35449	-54.93076	-27.90049	0.99552	0.06961	0.10504	61.76396	1.00347	274.53	-26.85
89/12/28	2447889.0	11.05675	-54.12529	-27.01992	0.98152	0.16821	0.15483	61.49695	1.00779	281.55	-26.06
89/12/29	2447889.5	17.62168	-52.65401	-25.80612	0.95496	0.26602	0.20333	61.22846	1.01196	288.50	-24.93
89/12/29	2447890.0	23.96414	-50.52651	-24.26999	0.91584	0.36177	0.24990	60.96098	1.01592	295.37	-23.46
89/12/30	2447890.5	29.99961	-47.76104	-22.42685	0.86435	0.45418	0.29388	60.69644	1.01968	302.13	-21.68
89/12/30	2447891.0	35.64542	-44.38472	-20.29647	0.80085	0.54193	0.33462	60.43630	1.02324	308.77	-19.62
89/12/31	2447891.5	40.82197	-40.43352	-17.90294	0.72589	0.62373	0.37148	60.18154	1.02662	315.27	-17.31
89/12/31	2447892.0	45.45407	-35.95213	-15.27458	0.64022	0.69829	0.40386	59.93280	1.02985	321.66	-14.77
90/ 1/ 1	2447892.5	49.47217	-30.99367	-12.44365	0.54475	0.76440	0.43121	59.69043	1.03296	327.93	-12.03
90/ 1/ 1	2447893.0	52.81364	-25.61923	-9.44599	0.44062	0.82094	0.45301	59.45463	1.03601	334.12	-9.14
90/ 1/ 2	2447893.5	55.42401	-19.89723	-6.32072	0.32909	0.86687	0.46883	59.22560	1.03902	340.25	-6.13
90/ 1/ 2	2447894.0	57.25802	-13.90269	-3.10965	0.21162	0.90128	0.47829	59.00369	1.04205	346.35	-3.02
90/ 1/ 3	2447894.5	58.28073	-7.71628	0.14319	0.08980	0.92342	0.48112	58.78950	1.04510	352.46	0.14
90/ 1/ 3	2447895.0	58.46841	-1.42328	3.39219	-0.03466	0.93267	0.47714	58.58403	1.04821	358.61	3.32
90/ 1/ 4	2447895.5	57.80933	4.88761	6.59083	-0.15994	0.92865	0.46625	58.38876	1.05136	4.83	6.48
90/ 1/ 4	2447896.0	56.30439	11.12559	9.69239	-0.28412	0.91113	0.44848	58.20571	1.05452	11.18	9.59
90/ 1/ 5	2447896.5	53.96754	17.19921	12.65075	-0.40526	0.88014	0.42400	58.03749	1.05766	17.68	12.59
90/ 1/ 5	2447897.0	50.82608	23.01793	15.42119	-0.52139	0.83592	0.39305	57.88721	1.06071	24.36	15.45
90/ 1/ 6	2447897.5	46.92058	28.49374	17.96122	-0.63056	0.77898	0.35604	57.75846	1.06357	31.27	18.12
90/ 1/ 6	2447898.0	42.30461	33.54288	20.23150	-0.73088	0.71008	0.31349	57.65517	1.06615	38.41	20.54
90/ 1/ 7	2447898.5	37.04413	38.08758	22.19661	-0.82060	0.63021	0.26604	57.58143	1.06833	45.80	22.67
90/ 1/ 7	2447899.0	31.21651	42.05775	23.82593	-0.89810	0.54065	0.21446	57.54129	1.06999	53.42	24.46
90/ 1/ 8	2447899.5	24.90923	45.39260	25.09431	-0.96202	0.44287	0.15961	57.53853	1.07103	61.24	25.86
90/ 1/ 8	2447900.0	18.21825	48.04203	25.98275	-1.01125	0.33855	0.10243	57.57643	1.07132	69.23	26.83
90/ 1/ 9	2447900.5	11.24598	49.96784	26.47882	-1.04498	0.22950	0.04392	57.65748	1.07079	77.32	27.34
90/ 1/ 9	2447901.0	4.09915	51.14456	26.57694	-1.06275	0.11767	-0.01491	57.78324	1.06935	85.42	27.38
90/ 1/10	2447901.5	-3.11362	51.55991	26.27849	-1.06446	0.00501	-0.07302	57.95410	1.06697	93.46	26.96
90/ 1/10	2447902.0	-10.28415	51.21488	25.59162	-1.05035	-0.10655	-0.12944	58.16922	1.06365	101.35	26.10
90/ 1/11	2447902.5	-17.30710	50.12330	24.53094	-1.02100	-0.21514	-0.18326	58.42643	1.05940	109.05	24.83
90/ 1/11	2447903.0	-24.08209	48.31115	23.11693	-0.97730	-0.31906	-0.23365	58.72228	1.05428	116.50	23.18
90/ 1/12	2447903.5	-30.51554	45.81539	21.37527	-0.92035	-0.41677	-0.27991	59.05210	1.04838	123.67	21.22
90/ 1/12	2447904.0	-36.52220	42.68268	19.33604	-0.85150	-0.50695	-0.32144	59.41014	1.04181	130.55	18.99
90/ 1/13	2447904.5	-42.02629	38.96781	17.03283	-0.77220	-0.58851	-0.35779	59.78977	1.03472	137.16	16.55
90/ 1/13	2447905.0	-46.96221	34.73217	14.50192	-0.68399	-0.66060	-0.38863	60.18371	1.02726	143.51	13.94

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
90/ 1/13	2447905.0	-46.96221	34.73217	14.50192	-0.68399	-0.66060	-0.38863	60.18371	1.02726	143.51	13.94
90/ 1/14	2447905.5	-51.27488	30.04216	11.78143	-0.58842	-0.72260	-0.41375	60.58421	1.01960	149.63	11.21
90/ 1/14	2447906.0	-54.91982	24.96770	8.91054	-0.48706	-0.77407	-0.43303	60.98336	1.01190	155.55	8.40
90/ 1/15	2447906.5	-57.86288	19.58094	5.92884	-0.38141	-0.81479	-0.44647	61.37326	1.00434	161.30	5.54
90/ 1/15	2447907.0	-60.07986	13.95508	2.87577	-0.27289	-0.84468	-0.45413	61.74629	0.99709	166.92	2.67
90/ 1/16	2447907.5	-61.55595	8.16336	-0.20990	-0.16284	-0.86379	-0.45612	62.09524	0.99030	172.45	-0.19
90/ 1/16	2447908.0	-62.28508	2.27829	-3.29036	-0.05252	-0.87228	-0.45262	62.41353	0.98412	177.91	-3.02
90/ 1/17	2447908.5	-62.26935	-3.62899	-6.32911	0.05693	-0.87039	-0.44384	62.69529	0.97868	183.34	-5.79
90/ 1/17	2447909.0	-61.51836	-9.48919	-9.29113	0.16443	-0.85843	-0.43000	62.93551	0.97409	188.77	-8.49
90/ 1/18	2447909.5	-60.04870	-15.23525	-12.14305	0.26899	-0.83675	-0.41137	63.13012	0.97043	194.24	-11.09
90/ 1/18	2447910.0	-57.88338	-20.80259	-14.85324	0.36969	-0.80573	-0.38820	63.27601	0.96776	199.77	-13.58
90/ 1/19	2447910.5	-55.05153	-26.12938	-17.39191	0.46567	-0.76578	-0.36077	63.37108	0.96614	205.39	-15.93
90/ 1/19	2447911.0	-51.58795	-31.15667	-19.73118	0.55610	-0.71736	-0.32936	63.41431	0.96558	211.13	-18.13
90/ 1/20	2447911.5	-47.53293	-35.82861	-21.84513	0.64019	-0.66093	-0.29428	63.40567	0.96606	217.01	-20.15
90/ 1/20	2447912.0	-42.93202	-40.09261	-23.70992	0.71718	-0.59699	-0.25584	63.34616	0.96757	223.04	-21.98
90/ 1/21	2447912.5	-37.83586	-43.89959	-25.30390	0.78631	-0.52607	-0.21437	63.23775	0.97005	229.24	-23.59
90/ 1/21	2447913.0	-32.30011	-47.20427	-26.60771	0.84687	-0.44876	-0.17022	63.08336	0.97342	235.62	-24.95
90/ 1/22	2447913.5	-26.38531	-49.96547	-27.60448	0.89813	-0.36570	-0.12377	62.88672	0.97759	242.16	-26.04
90/ 1/22	2447914.0	-20.15673	-52.14658	-28.28000	0.93941	-0.27759	-0.07543	62.65236	0.98246	248.87	-26.83
90/ 1/23	2447914.5	-13.68423	-53.71600	-28.62302	0.97005	-0.18521	-0.02566	62.38545	0.98791	255.71	-27.31
90/ 1/23	2447915.0	-7.04196	-54.64771	-28.62545	0.98944	-0.08943	0.02506	62.09169	0.99379	262.66	-27.45
90/ 1/24	2447915.5	-0.30800	-54.92192	-28.28270	0.99704	0.00878	0.07618	61.77721	0.99998	269.68	-27.25
90/ 1/24	2447916.0	6.43612	-54.52567	-27.59397	0.99237	0.10836	0.12712	61.44835	1.00634	276.73	-26.68
90/ 1/25	2447916.5	13.10611	-53.45357	-26.56251	0.97510	0.20815	0.17727	61.11155	1.01271	283.78	-25.76
90/ 1/25	2447917.0	19.61581	-51.70839	-25.19597	0.94502	0.30690	0.22596	60.77314	1.01897	290.77	-24.49
90/ 1/26	2447917.5	25.87816	-49.30171	-23.50656	0.90207	0.40326	0.27249	60.43919	1.02499	297.69	-22.89
90/ 1/26	2447918.0	31.80650	-46.25436	-21.51126	0.84643	0.49585	0.31617	60.11533	1.03067	304.51	-20.97
90/ 1/27	2447918.5	37.31594	-42.59677	-19.23185	0.77846	0.58322	0.35627	59.80659	1.03589	311.22	-18.76
90/ 1/27	2447919.0	42.32489	-38.36913	-16.69490	0.69876	0.66395	0.39210	59.51728	1.04059	317.81	-16.29
90/ 1/28	2447919.5	46.75671	-33.62122	-13.93159	0.60819	0.73662	0.42301	59.25087	1.04472	324.28	-13.60
90/ 1/28	2447920.0	50.54133	-28.41212	-10.97738	0.50785	0.79992	0.44838	59.00997	1.04825	330.66	-10.72
90/ 1/29	2447920.5	53.61688	-22.80950	-7.87160	0.39905	0.85263	0.46769	58.79630	1.05117	336.95	-7.69
90/ 1/29	2447921.0	55.93118	-16.88875	-4.65684	0.28333	0.89370	0.48050	58.61069	1.05350	343.20	-4.56
90/ 1/30	2447921.5	57.44305	-10.73179	-1.37825	0.16240	0.92226	0.48649	58.45319	1.05527	349.42	-1.35
90/ 1/30	2447922.0	58.12343	-4.42572	1.91720	0.03811	0.93764	0.48546	58.32320	1.05655	355.65	1.88
90/ 1/31	2447922.5	57.95611	1.93874	5.18163	-0.08759	0.93945	0.47733	58.21957	1.05739	1.92	5.11
90/ 1/31	2447923.0	56.93833	8.26889	8.36709	-0.21269	0.92751	0.46216	58.14083	1.05787	8.26	8.27
90/ 2/ 1	2447923.5	55.08093	14.47175	11.42647	-0.33519	0.90190	0.44014	58.08532	1.05806	14.72	11.35
90/ 2/ 1	2447924.0	52.40822	20.45578	14.31439	-0.45312	0.86296	0.41159	58.05138	1.05803	21.32	14.28
90/ 2/ 2	2447924.5	48.95765	26.13253	16.98798	-0.56458	0.81128	0.37693	58.03751	1.05783	28.09	17.02
90/ 2/ 2	2447925.0	44.77909	31.41825	19.40772	-0.66780	0.74765	0.33672	58.04251	1.05751	35.05	19.53
90/ 2/ 3	2447925.5	39.93395	36.23535	21.53808	-0.76116	0.67308	0.29159	58.06556	1.05709	42.22	21.77
90/ 2/ 3	2447926.0	34.49405	40.51373	23.34815	-0.84321	0.58878	0.24227	58.10626	1.05658	49.59	23.69
90/ 2/ 4	2447926.5	28.54035	44.19201	24.81216	-0.91270	0.49611	0.18954	58.16466	1.05597	57.14	25.25
90/ 2/ 4	2447927.0	22.16144	47.21850	25.90991	-0.96862	0.39657	0.13426	58.24121	1.05523	64.86	26.42

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MCO:

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 2/ 5	2447927.5	15.45199	49.55206	26.62702	-1.01019	0.29177	0.07730	58.33669	1.05432	72.68	27.16
90/ 2/ 5	2447928.0	8.51102	51.16269	26.95523	-1.03692	0.18338	0.01957	58.45206	1.05319	80.56	27.46
90/ 2/ 6	2447928.5	1.44014	52.03197	26.89237	-1.04854	0.07314	-0.03803	58.58839	1.05177	88.41	27.32
90/ 2/ 6	2447929.0	-5.65829	52.15315	26.44238	-1.04508	-0.03723	-0.09460	58.74663	1.05001	96.19	26.75
90/ 2/ 7	2447929.5	-12.68295	51.53116	25.61511	-1.02682	-0.14604	-0.14930	58.92751	1.04785	103.83	25.77
90/ 2/ 7	2447930.0	-19.53533	50.18220	24.42603	-0.99432	-0.25164	-0.20132	59.13132	1.04523	111.27	24.40
90/ 2/ 8	2447930.5	-26.12139	48.13323	22.89581	-0.94833	-0.35250	-0.24992	59.35784	1.04214	118.49	22.69
90/ 2/ 8	2447931.0	-32.35306	45.42112	21.04982	-0.88985	-0.44723	-0.29446	59.60615	1.03853	125.46	20.68
90/ 2/ 9	2447931.5	-38.14954	42.09171	18.91749	-0.82003	-0.53459	-0.33439	59.87463	1.03443	132.19	18.42
90/ 2/ 9	2447932.0	-43.43841	38.19865	16.53169	-0.74018	-0.61351	-0.36924	60.16086	1.02986	138.67	15.95
90/ 2/10	2447932.5	-48.15638	33.80216	13.92800	-0.65169	-0.68312	-0.39868	60.46166	1.02484	144.93	13.32
90/ 2/10	2447933.0	-52.24993	28.96770	11.14400	-0.55603	-0.74274	-0.42246	60.77312	1.01947	151.00	10.57
90/ 2/11	2447933.5	-55.67551	23.76472	8.21858	-0.45469	-0.79188	-0.44042	61.09067	1.01380	156.89	7.73
90/ 2/11	2447934.0	-58.39962	18.26534	5.19130	-0.34914	-0.83023	-0.45253	61.40918	1.00795	162.63	4.85
90/ 2/12	2447934.5	-60.39865	12.54318	2.10177	-0.24082	-0.85765	-0.45882	61.72314	1.00204	168.27	1.95
90/ 2/12	2447935.0	-61.65853	6.67234	-1.01086	-0.13110	-0.87415	-0.45938	62.02674	0.99617	173.82	-0.93
90/ 2/13	2447935.5	-62.17424	0.72644	-4.10831	-0.02128	-0.87985	-0.45437	62.31406	0.99048	179.33	-3.78
90/ 2/13	2447936.0	-61.94930	-5.22220	-7.15363	0.08742	-0.87500	-0.44402	62.57924	0.98510	184.82	-6.56
90/ 2/14	2447936.5	-60.99513	-11.10315	-10.11138	0.19388	-0.85992	-0.42856	62.81661	0.98016	190.32	-9.26
90/ 2/14	2447937.0	-59.33049	-16.84842	-12.94795	0.29705	-0.83501	-0.40828	63.02084	0.97579	195.85	-11.86
90/ 2/15	2447937.5	-56.98086	-22.39287	-15.63164	0.39600	-0.80070	-0.38347	63.18708	0.97210	201.45	-14.32
90/ 2/15	2447938.0	-53.97793	-27.67450	-18.13285	0.48983	-0.75748	-0.35445	63.31109	0.96920	207.14	-16.64
90/ 2/16	2447938.5	-50.35909	-32.63471	-20.42415	0.57773	-0.70587	-0.32154	63.38934	0.96717	212.94	-18.80
90/ 2/16	2447939.0	-46.16709	-37.21846	-22.48032	0.65896	-0.64641	-0.28507	63.41907	0.96609	218.87	-20.76
90/ 2/17	2447939.5	-41.44965	-41.37448	-24.27842	0.73278	-0.57966	-0.24539	63.39845	0.96602	224.95	-22.52
90/ 2/17	2447940.0	-36.25919	-45.05541	-25.79792	0.79852	-0.50622	-0.20286	63.32654	0.96698	231.17	-24.04
90/ 2/18	2447940.5	-30.65265	-48.21799	-27.02067	0.85554	-0.42671	-0.15783	63.20345	0.96899	237.56	-25.31
90/ 2/18	2447941.0	-24.69129	-50.82330	-27.93112	0.90320	-0.34178	-0.11070	63.03028	0.97203	244.09	-26.30
90/ 2/19	2447941.5	-18.44055	-52.83705	-28.51636	0.94089	-0.25214	-0.06187	62.80916	0.97605	250.76	-27.00
90/ 2/19	2447942.0	-11.96989	-54.22991	-28.76636	0.96804	-0.15857	-0.01178	62.54330	0.98101	257.55	-27.38
90/ 2/20	2447942.5	-5.35262	-54.97795	-28.67411	0.98410	-0.06188	0.03911	62.23689	0.98682	264.44	-27.43
90/ 2/20	2447943.0	1.33437	-55.06316	-28.23594	0.98855	0.03700	0.09028	61.89508	0.99335	271.39	-27.14
90/ 2/21	2447943.5	8.01094	-54.47403	-27.45174	0.98095	0.13707	0.14119	61.52392	1.00050	278.37	-26.50
90/ 2/21	2447944.0	14.59417	-53.20617	-26.32526	0.96094	0.23723	0.19125	61.13024	1.00809	285.34	-25.51
90/ 2/22	2447944.5	20.99904	-51.26306	-24.86446	0.92825	0.33626	0.23981	60.72151	1.01599	292.28	-24.17
90/ 2/22	2447945.0	27.13925	-48.65667	-23.08174	0.88278	0.43286	0.28619	60.30570	1.02400	299.15	-22.50
90/ 2/23	2447945.5	32.92833	-45.40818	-20.99426	0.82459	0.52563	0.32968	59.89104	1.03195	305.95	-20.52
90/ 2/23	2447946.0	38.28094	-41.54851	-18.62409	0.75396	0.61309	0.36954	59.48585	1.03966	312.66	-18.25
90/ 2/24	2447946.5	43.11446	-37.11871	-15.99832	0.67141	0.69373	0.40504	59.09824	1.04696	319.27	-15.71
90/ 2/24	2447947.0	47.35071	-32.17013	-13.14900	0.57775	0.76603	0.43544	58.73588	1.05366	325.81	-12.94
90/ 2/25	2447947.5	50.91790	-26.76429	-10.11294	0.47405	0.82852	0.46007	58.40575	1.05964	332.27	-9.97
90/ 2/25	2447948.0	53.75255	-20.97237	-6.93131	0.36169	0.87982	0.47833	58.11385	1.06476	338.69	-6.85
90/ 2/26	2447948.5	55.80147	-14.87433	-3.64907	0.24233	0.91873	0.48971	57.86507	1.06892	345.07	-3.62
90/ 2/26	2447949.0	57.02352	-8.55766	-0.31415	0.11785	0.94424	0.49384	57.66293	1.07208	351.47	-0.31
90/ 2/27	2447949.5	57.39108	-2.11570	3.02349	-0.00964	0.95563	0.49049	57.50959	1.07419	357.89	3.01

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOO V(KM/SEC)	RA	DEC
90/ 2/28	2447950.5	55.52625	10.75317	9.50343	-0.26470	0.93466	0.46131	57.35077	1.07539	10.96	9.54
90/ 2/28	2447951.0	53.31404	16.98247	12.54566	-0.38773	0.90244	0.43588	57.34269	1.07459	17.67	12.64
90/ 3/ 1	2447951.5	50.28748	22.94630	15.39275	-0.50483	0.85639	0.40377	57.37857	1.07298	24.53	15.56
90/ 3/ 1	2447952.0	46.49372	28.55370	18.00137	-0.61396	0.79736	0.36557	57.45458	1.07069	31.56	18.26
90/ 3/ 2	2447952.5	41.99291	33.72039	20.33261	-0.71333	0.72646	0.32199	57.56635	1.06783	38.76	20.68
90/ 3/ 2	2447953.0	36.85662	38.37052	22.35267	-0.80137	0.64505	0.27382	57.70918	1.06455	46.15	22.79
90/ 3/ 3	2447953.5	31.16610	42.43785	24.03341	-0.87681	0.55463	0.22194	57.87833	1.06097	53.71	24.53
90/ 3/ 3	2447954.0	25.01027	45.86677	25.35271	-0.93863	0.45681	0.16725	58.06922	1.05720	61.40	25.89
90/ 3/ 4	2447954.5	18.48388	48.61293	26.29467	-0.98614	0.35330	0.11067	58.27761	1.05335	69.18	26.82
90/ 3/ 4	2447955.0	11.68547	50.64355	26.84958	-1.01890	0.24581	0.05311	58.49974	1.04948	77.01	27.32
90/ 3/ 5	2447955.5	4.71562	51.93754	27.01390	-1.03676	0.13606	-0.00453	58.73241	1.04566	84.81	27.38
90/ 3/ 5	2447956.0	-2.32488	52.48529	26.79002	-1.03980	0.02573	-0.06139	58.97301	1.04193	92.54	27.02
90/ 3/ 6	2447956.5	-9.33657	52.28840	26.18594	-1.02832	-0.08357	-0.11666	59.21952	1.03829	100.12	26.24
90/ 3/ 6	2447957.0	-16.22281	51.35911	25.21498	-1.00286	-0.19029	-0.16961	59.47044	1.03475	107.53	25.09
90/ 3/ 7	2447957.5	-22.89112	49.71975	23.89529	-0.96410	-0.29302	-0.21953	59.72471	1.03128	114.72	23.58
90/ 3/ 7	2447958.0	-29.25430	47.40193	22.24945	-0.91291	-0.39043	-0.26582	59.98162	1.02786	121.68	21.77
90/ 3/ 8	2447958.5	-35.23150	44.44579	20.30389	-0.85030	-0.48132	-0.30795	60.24064	1.02446	128.40	19.70
90/ 3/ 8	2447959.0	-40.74906	40.89905	18.08847	-0.77738	-0.56466	-0.34544	60.50133	1.02103	134.89	17.40
90/ 3/ 9	2447959.5	-45.74126	36.81605	15.63584	-0.69537	-0.63954	-0.37794	60.76318	1.01754	141.17	14.91
90/ 3/ 9	2447960.0	-50.15084	32.25682	12.98096	-0.60556	-0.70518	-0.40513	61.02552	1.01396	147.25	12.28
90/ 3/10	2447960.5	-53.92945	27.28596	10.16048	-0.50928	-0.76100	-0.42681	61.28739	1.01027	153.16	9.54
90/ 3/10	2447961.0	-57.03789	21.97168	7.21224	-0.40789	-0.80653	-0.44284	61.54748	1.00646	158.93	6.73
90/ 3/11	2447961.5	-59.44623	16.38476	4.17472	-0.30277	-0.84147	-0.45317	61.80407	1.00254	164.59	3.87
90/ 3/11	2447962.0	-61.13373	10.59755	1.08653	-0.19525	-0.86566	-0.45781	62.05499	0.99854	170.17	1.00
90/ 3/12	2447962.5	-62.08870	4.68303	-2.01404	-0.08667	-0.87907	-0.45684	62.29762	0.99447	175.69	-1.85
90/ 3/12	2447963.0	-62.30821	-1.28605	-5.08949	0.02172	-0.88179	-0.45042	62.52895	0.99041	181.18	-4.67
90/ 3/13	2447963.5	-61.79768	-7.23796	-8.10341	0.12871	-0.87404	-0.43872	62.74557	0.98640	186.68	-7.42
90/ 3/13	2447964.0	-60.57045	-13.10270	-11.02090	0.23317	-0.85611	-0.42198	62.94379	0.98253	192.21	-10.08
90/ 3/14	2447964.5	-58.64726	-18.81258	-13.80877	0.33405	-0.82838	-0.40049	63.11970	0.97887	197.78	-12.64
90/ 3/14	2447965.0	-56.05574	-24.30276	-16.43578	0.43037	-0.79131	-0.37454	63.26931	0.97554	203.44	-15.06
90/ 3/15	2447965.5	-52.82985	-29.51165	-18.87287	0.52123	-0.74541	-0.34446	63.38861	0.97261	209.19	-17.32
90/ 3/15	2447966.0	-49.00939	-34.38129	-21.09323	0.60581	-0.69123	-0.31060	63.47376	0.97019	215.05	-19.41
90/ 3/16	2447966.5	-44.63951	-38.85758	-23.07243	0.68335	-0.62936	-0.27331	63.52113	0.96838	221.04	-21.30
90/ 3/16	2447967.0	-39.77024	-42.89057	-24.78854	0.75317	-0.56043	-0.23297	63.52751	0.96727	227.16	-22.97
90/ 3/17	2447967.5	-34.45612	-46.43461	-26.22215	0.81461	-0.48509	-0.18995	63.49014	0.96695	233.42	-24.39
90/ 3/17	2447968.0	-28.75584	-49.44856	-27.35648	0.86710	-0.40401	-0.14466	63.40690	0.96748	239.82	-25.56
90/ 3/18	2447968.5	-22.73196	-51.89595	-28.17741	0.91008	-0.31791	-0.09748	63.27636	0.96893	246.35	-26.44
90/ 3/18	2447969.0	-16.45059	-53.74521	-28.67362	0.94305	-0.22751	-0.04884	63.09791	0.97133	252.98	-27.03
90/ 3/19	2447969.5	-9.98123	-54.96991	-28.83664	0.96552	-0.13361	0.00083	62.87184	0.97472	259.71	-27.30
90/ 3/19	2447970.0	-3.39647	-55.54902	-28.66101	0.97705	-0.03702	0.05108	62.59939	0.97909	266.50	-27.25
90/ 3/20	2447970.5	3.22820	-55.46733	-28.14444	0.97724	0.06137	0.10143	62.28287	0.98441	273.33	-26.86
90/ 3/20	2447971.0	9.81472	-54.71583	-27.28802	0.96573	0.16060	0.15135	61.92566	0.99063	280.17	-26.15
90/ 3/21	2447971.5	16.28284	-53.29222	-26.09642	0.94224	0.25966	0.20031	61.53223	0.99767	286.99	-25.09
90/ 3/21	2447972.0	22.55057	-51.20147	-24.57815	0.90653	0.35741	0.24771	61.10814	1.00544	293.77	-23.72
90/ 3/22	2447972.5	28.53485	-48.45644	-22.74583	0.85853	0.45265	0.29294	60.66001	1.01379	300.49	-22.02

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
90/ 3/22	2447973.0	34.15234	-45.07848	-20.61644	0.79825	0.54409	0.33532	60.19543	1.02258	307.15	-20.03
90/ 3/23	2447973.5	39.32052	-41.09806	-18.21155	0.72590	0.63032	0.37417	59.72282	1.03162	313.73	-17.75
90/ 3/23	2447974.0	43.95894	-36.55530	-15.55751	0.64190	0.70989	0.40878	59.25128	1.04071	320.25	-15.22
90/ 3/24	2447974.5	47.99077	-31.50035	-12.68553	0.54691	0.78131	0.43841	58.79038	1.04965	326.72	-12.46
90/ 3/24	2447975.0	51.34465	-25.99356	-9.63163	0.44188	0.84307	0.46238	58.34987	1.05822	333.15	-9.50
90/ 3/25	2447975.5	53.95662	-20.10538	-6.43642	0.32807	0.89370	0.48003	57.93937	1.06619	339.56	-6.38
90/ 3/25	2447976.0	55.77225	-13.91577	-3.14471	0.20702	0.93187	0.49079	57.56806	1.07336	345.99	-3.13
90/ 3/26	2447976.5	56.74874	-7.51326	0.19519	0.08061	0.95639	0.49420	57.24427	1.07955	352.46	0.20
90/ 3/26	2447977.0	56.85688	-0.99349	3.53233	-0.04902	0.96636	0.48994	56.97517	1.08457	359.00	3.55
90/ 3/27	2447977.5	56.08272	5.54273	6.81420	-0.17953	0.96118	0.47787	56.76642	1.08832	5.64	6.89
90/ 3/27	2447978.0	54.42871	11.99169	9.98803	-0.30841	0.94059	0.45806	56.62195	1.09071	12.42	10.16
90/ 3/28	2447978.5	51.91437	18.24947	13.00217	-0.43315	0.90478	0.43078	56.54380	1.09171	19.37	13.29
90/ 3/28	2447979.0	48.57619	24.21462	15.80749	-0.55129	0.85431	0.39649	56.53203	1.09132	26.50	16.24
90/ 3/29	2447979.5	44.46684	29.79095	18.35870	-0.66051	0.79016	0.35587	56.58483	1.08961	33.82	18.93
90/ 3/29	2447980.0	39.65377	34.89000	20.61553	-0.75878	0.71362	0.30972	56.69862	1.08670	41.34	21.32
90/ 3/30	2447980.5	34.21719	39.43319	22.54371	-0.84437	0.62630	0.25898	56.86836	1.08272	49.05	23.35
90/ 3/30	2447981.0	28.24774	43.35348	24.11559	-0.91594	0.53000	0.20468	57.08783	1.07784	56.91	24.99
90/ 3/31	2447981.5	21.84385	46.59657	25.31062	-0.97253	0.42665	0.14787	57.34999	1.07225	64.88	26.19
90/ 3/31	2447982.0	15.10913	49.12144	26.11539	-1.01357	0.31825	0.08961	57.64734	1.06613	72.90	26.94
90/ 4/ 1	2447982.5	8.14980	50.90053	26.52356	-1.03885	0.20675	0.03093	57.97226	1.05967	80.90	27.23
90/ 4/ 1	2447983.0	1.07235	51.91942	26.53552	-1.04849	0.09407	-0.02723	58.31732	1.05306	88.82	27.07
90/ 4/ 2	2447983.5	-6.01854	52.17623	26.15792	-1.04290	-0.01800	-0.08397	58.67553	1.04643	96.58	26.47
90/ 4/ 2	2447984.0	-13.02173	51.68075	25.40314	-1.02272	-0.12781	-0.13848	59.04054	1.03994	104.14	25.48
90/ 4/ 3	2447984.5	-19.84106	50.45349	24.28863	-0.98876	-0.23385	-0.19008	59.40673	1.03367	111.47	24.13
90/ 4/ 3	2447985.0	-26.38649	48.52452	22.83630	-0.94201	-0.33480	-0.23814	59.76933	1.02771	118.54	22.46
90/ 4/ 4	2447985.5	-32.57498	45.93246	21.07192	-0.88355	-0.42948	-0.28215	60.12442	1.02212	125.34	20.52
90/ 4/ 4	2447986.0	-38.33114	42.72330	19.02444	-0.81455	-0.51687	-0.32167	60.46888	1.01691	131.90	18.34
90/ 4/ 5	2447986.5	-43.58769	38.94942	16.72548	-0.73623	-0.59611	-0.35636	60.80038	1.01211	138.22	15.97
90/ 4/ 5	2447987.0	-48.28577	34.66854	14.20878	-0.64985	-0.66648	-0.38593	61.11720	1.00769	144.32	13.44
90/ 4/ 6	2447987.5	-52.37515	29.94275	11.50968	-0.55670	-0.72740	-0.41020	61.41821	1.00363	150.24	10.80
90/ 4/ 6	2447988.0	-55.81431	24.83765	8.66463	-0.45806	-0.77842	-0.42901	61.70269	0.99990	156.01	8.07
90/ 4/ 7	2447988.5	-58.57046	19.42147	5.71082	-0.35522	-0.81922	-0.44231	61.97020	0.99646	161.65	5.29
90/ 4/ 7	2447989.0	-60.61950	13.76423	2.68569	-0.24946	-0.84958	-0.45007	62.22050	0.99327	167.21	2.47
90/ 4/ 8	2447989.5	-61.94586	7.93701	-0.37341	-0.14203	-0.86940	-0.45235	62.45339	0.99028	172.70	-0.34
90/ 4/ 8	2447990.0	-62.54236	2.01120	-3.42960	-0.03414	-0.87870	-0.44923	62.66861	0.98747	178.16	-3.14
90/ 4/ 9	2447990.5	-62.40995	-3.94223	-6.44678	0.07302	-0.87758	-0.44086	62.86576	0.98480	183.61	-5.89
90/ 4/ 9	2447991.0	-61.55741	-9.85335	-9.38999	0.17833	-0.86625	-0.42742	63.04423	0.98228	189.09	-8.57
90/ 4/10	2447991.5	-60.00102	-15.65387	-12.22566	0.28069	-0.84498	-0.40915	63.20311	0.97989	194.62	-11.15
90/ 4/10	2447992.0	-57.76420	-21.27775	-14.92190	0.37909	-0.81415	-0.38629	63.34121	0.97764	200.22	-13.63
90/ 4/11	2447992.5	-54.87707	-26.66167	-17.44868	0.47257	-0.77420	-0.35916	63.45702	0.97555	205.91	-15.96
90/ 4/11	2447993.0	-51.37600	-31.74550	-19.77811	0.56023	-0.72563	-0.32807	63.54875	0.97367	211.71	-18.13
90/ 4/12	2447993.5	-47.30321	-36.47273	-21.88453	0.64126	-0.66900	-0.29337	63.61436	0.97203	217.63	-20.12
90/ 4/12	2447994.0	-42.70626	-40.79084	-23.74475	0.71489	-0.60492	-0.25543	63.65163	0.97069	223.69	-21.90
90/ 4/13	2447994.5	-37.63759	-44.65157	-25.33809	0.78045	-0.53405	-0.21463	63.65822	0.96973	229.87	-23.46
90/ 4/13	2447995.0	-32.15410	-48.01124	-26.64655	0.83729	-0.45708	-0.17137	63.63178	0.96920	236.19	-24.76

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 4/14	2447995.5	-26.31666	-50.83098	-27.65487	0.88487	-0.37474	-0.12607	63.57002	0.96919	242.63	-25.79
90/ 4/14	2447996.0	-20.18976	-53.07696	-28.35063	0.92269	-0.28778	-0.07915	63.47084	0.96976	249.17	-26.53
90/ 4/15	2447996.5	-13.84104	-54.72057	-28.72430	0.95030	-0.19700	-0.03103	63.33246	0.97100	255.81	-26.97
90/ 4/15	2447997.0	-7.34100	-55.73867	-28.76933	0.96732	-0.10321	0.01782	63.15350	0.97297	262.50	-27.10
90/ 4/16	2447997.5	-0.76257	-56.11379	-28.48227	0.97340	-0.00727	0.06695	62.93313	0.97572	269.22	-26.91
90/ 4/16	2447998.0	5.81919	-55.83437	-27.86282	0.96826	0.08992	0.11589	62.67118	0.97931	275.95	-26.40
90/ 4/17	2447998.5	12.32749	-54.89509	-26.91397	0.95167	0.18742	0.16414	62.36826	0.98374	282.66	-25.56
90/ 4/17	2447999.0	18.68424	-53.29715	-25.64212	0.92348	0.28424	0.21118	62.02584	0.98904	289.32	-24.42
90/ 4/18	2447999.5	24.81044	-51.04867	-24.05725	0.88359	0.37934	0.25648	61.64637	0.99519	295.92	-22.97
90/ 4/18	2448000.0	30.62680	-48.16509	-22.17311	0.83200	0.47159	0.29946	61.23335	1.00214	302.45	-21.23
90/ 4/19	2448000.5	36.05440	-44.66967	-20.00732	0.76882	0.55981	0.33954	60.79138	1.00983	308.91	-19.22
90/ 4/19	2448001.0	41.01549	-40.59386	-17.58163	0.69430	0.64276	0.37611	60.32617	1.01816	315.30	-16.94
90/ 4/20	2448001.5	45.43455	-35.97784	-14.92200	0.60884	0.71911	0.40852	59.84454	1.02699	321.63	-14.44
90/ 4/20	2448002.0	49.23946	-30.87078	-12.05871	0.51306	0.78752	0.43614	59.35438	1.03617	327.91	-11.72
90/ 4/21	2448002.5	52.36298	-25.33118	-9.02640	0.40779	0.84661	0.45832	58.86447	1.04552	334.18	-8.82
90/ 4/21	2448003.0	54.74438	-19.42688	-5.86395	0.29413	0.89500	0.47447	58.38438	1.05482	340.46	-5.76
90/ 4/22	2448003.5	56.33131	-13.23482	-2.61423	0.17345	0.93137	0.48401	57.92418	1.06386	346.78	-2.59
90/ 4/22	2448004.0	57.08177	-6.84050	0.67633	0.04743	0.95453	0.48646	57.49416	1.07239	353.17	0.67
90/ 4/23	2448004.5	56.96614	-0.33696	3.95842	-0.08196	0.96347	0.48145	57.10450	1.08018	359.66	3.97
90/ 4/23	2448005.0	55.96899	6.17672	7.18072	-0.21248	0.95743	0.46878	56.76480	1.08700	6.30	7.27
90/ 4/24	2448005.5	54.09077	12.59741	10.29103	-0.34171	0.93597	0.44840	56.48373	1.09264	13.11	10.50
90/ 4/24	2448006.0	51.34893	18.82031	13.23758	-0.46707	0.89905	0.42047	56.26855	1.09692	20.13	13.61
90/ 4/25	2448006.5	47.77846	24.74174	15.97048	-0.58597	0.84705	0.38539	56.12479	1.09972	27.38	16.53
90/ 4/25	2448007.0	43.43177	30.26211	18.44318	-0.69588	0.78079	0.34375	56.05590	1.10093	34.87	19.21
90/ 4/26	2448007.5	38.37761	35.28884	20.61392	-0.79451	0.70152	0.29637	56.06315	1.10055	42.60	21.57
90/ 4/26	2448008.0	32.69944	39.73912	22.44699	-0.87985	0.61087	0.24421	56.14551	1.09861	50.55	23.57
90/ 4/27	2448008.5	26.49293	43.54222	23.91367	-0.95030	0.51076	0.18837	56.29977	1.09518	58.68	25.14
90/ 4/27	2448009.0	19.86309	46.64123	24.99296	-1.00470	0.40332	0.13001	56.52075	1.09041	66.93	26.24
90/ 4/28	2448009.5	12.92110	48.99410	25.67184	-1.04240	0.29080	0.07033	56.80158	1.08448	75.23	26.87
90/ 4/28	2448010.0	5.78115	50.57404	25.94523	-1.06317	0.17545	0.01047	57.13414	1.07760	83.48	27.01
90/ 4/29	2448010.5	-1.44265	51.36930	25.81566	-1.06722	0.05944	-0.04849	57.50943	1.06998	91.61	26.67
90/ 4/29	2448011.0	-8.63888	51.38234	25.29267	-1.05515	-0.05521	-0.10556	57.91799	1.06185	99.54	25.89
90/ 4/30	2448011.5	-15.70111	50.62869	24.39204	-1.02782	-0.16667	-0.15987	58.35033	1.05345	107.23	24.71
90/ 4/30	2448012.0	-22.52964	49.13556	23.13497	-0.98634	-0.27332	-0.21070	58.79723	1.04497	114.63	23.17
90/ 5/ 1	2448012.5	-29.03280	46.94023	21.54717	-0.93196	-0.37381	-0.25744	59.25005	1.03661	121.74	21.33
90/ 5/ 1	2448013.0	-35.12781	44.08856	19.65801	-0.86605	-0.46697	-0.29962	59.70093	1.02852	128.55	19.22
90/ 5/ 2	2448013.5	-40.74130	40.63344	17.49976	-0.79001	-0.55186	-0.33685	60.14293	1.02085	135.08	16.92
90/ 5/ 2	2448014.0	-45.80951	36.63346	15.10681	-0.70527	-0.62775	-0.36888	60.57010	1.01368	141.35	14.44
90/ 5/ 3	2448014.5	-50.27834	32.15160	12.51509	-0.61325	-0.69408	-0.39552	60.97757	1.00710	147.40	11.84
90/ 5/ 3	2448015.0	-54.10315	27.25416	9.76149	-0.51532	-0.75041	-0.41667	61.36144	1.00115	153.26	9.15
90/ 5/ 4	2448015.5	-57.24856	22.00978	6.88339	-0.41284	-0.79649	-0.43229	61.71879	0.99584	158.97	6.40
90/ 5/ 4	2448016.0	-59.68813	16.48862	3.91824	-0.30710	-0.83213	-0.44238	62.04756	0.99119	164.56	3.62
90/ 5/ 5	2448016.5	-61.40402	10.76160	0.90328	-0.19935	-0.85727	-0.44701	62.34646	0.98716	170.06	0.83
90/ 5/ 5	2448017.0	-62.38669	4.89979	-2.12485	-0.09078	-0.87194	-0.44629	62.61487	0.98372	175.51	-1.94
90/ 5/ 6	2448017.5	-62.63454	-1.02620	-5.13033	0.01745	-0.87625	-0.44035	62.85267	0.98083	180.94	-4.68

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
90/ 5/ 6	2448018.0	-62.15359	-6.94673	-8.07840	0.12424	-0.87036	-0.42937	63.06018	0.97843	186.38	-7.36
90/ 5/ 7	2448018.5	-60.95719	-12.79362	-10.93561	0.22855	-0.85455	-0.41356	63.23799	0.97648	191.85	-9.96
90/ 5/ 7	2448019.0	-59.06563	-18.50061	-13.66999	0.32935	-0.82911	-0.39314	63.38683	0.97492	197.39	-12.45
90/ 5/ 8	2448019.5	-56.50587	-24.00382	-16.25132	0.42571	-0.79444	-0.36840	63.50750	0.97370	203.02	-14.83
90/ 5/ 8	2448020.0	-53.31117	-29.24217	-18.65123	0.51670	-0.75098	-0.33963	63.60074	0.97277	208.75	-17.05
90/ 5/ 9	2448020.5	-49.52076	-34.15773	-20.84345	0.60148	-0.69922	-0.30713	63.66715	0.97212	214.60	-19.11
90/ 5/ 9	2448021.0	-45.17947	-38.69621	-22.80396	0.67924	-0.63972	-0.27126	63.70715	0.97170	220.58	-20.97
90/ 5/10	2448021.5	-40.33735	-42.80724	-24.51112	0.74925	-0.57310	-0.23238	63.72093	0.97151	226.70	-22.62
90/ 5/10	2448022.0	-35.04927	-46.44480	-25.94589	0.81082	-0.50003	-0.19089	63.70840	0.97154	232.96	-24.03
90/ 5/11	2448022.5	-29.37451	-49.56755	-27.09189	0.86334	-0.42120	-0.14718	63.66926	0.97182	239.35	-25.18
90/ 5/11	2448023.0	-23.37628	-52.13911	-27.93560	0.90625	-0.33739	-0.10170	63.60295	0.97236	245.85	-26.05
90/ 5/12	2448023.5	-17.12127	-54.12840	-28.46641	0.93909	-0.24940	-0.05486	63.50872	0.97319	252.45	-26.63
90/ 5/12	2448024.0	-10.67919	-55.50985	-28.67676	0.96143	-0.15805	-0.00714	63.38569	0.97436	259.11	-26.90
90/ 5/13	2448024.5	-4.12229	-56.26372	-28.56220	0.97294	-0.06422	0.04100	63.23289	0.97592	265.81	-26.85
90/ 5/13	2448025.0	2.47515	-56.37625	-28.12148	0.97336	0.03118	0.08909	63.04939	0.97793	272.51	-26.49
90/ 5/14	2448025.5	9.03730	-55.83999	-27.35666	0.96250	0.12721	0.13663	62.83442	0.98044	279.19	-25.81
90/ 5/14	2448026.0	15.48733	-54.65391	-26.27311	0.94024	0.22289	0.18312	62.58741	0.98350	285.82	-24.82
90/ 5/15	2448026.5	21.74788	-52.82372	-24.87964	0.90655	0.31724	0.22806	62.30820	0.98716	292.38	-23.53
90/ 5/15	2448027.0	27.74170	-50.36202	-23.18854	0.86149	0.40920	0.27092	61.99712	0.99147	298.85	-21.96
90/ 5/16	2448027.5	33.39223	-47.28855	-21.21567	0.80521	0.49770	0.31118	61.65511	0.99645	305.23	-20.13
90/ 5/16	2448028.0	38.62427	-43.63046	-18.98047	0.73797	0.58165	0.34829	61.28385	1.00211	311.52	-18.04
90/ 5/17	2448028.5	43.36477	-39.42249	-16.50608	0.66014	0.65989	0.38172	60.88585	1.00844	317.73	-15.73
90/ 5/17	2448029.0	47.54369	-34.70720	-13.81934	0.57224	0.73126	0.41091	60.46459	1.01540	323.87	-13.21
90/ 5/18	2448029.5	51.09499	-29.53515	-10.95080	0.47493	0.79457	0.43531	60.02452	1.02294	329.97	-10.51
90/ 5/18	2448030.0	53.95779	-23.96497	-7.93467	0.36909	0.84862	0.45440	59.57115	1.03095	336.05	-7.65
90/ 5/19	2448030.5	56.07769	-18.06336	-4.80872	0.25575	0.89225	0.46766	59.11105	1.03933	342.15	-4.67
90/ 5/19	2448031.0	57.40816	-11.90484	-1.61406	0.13621	0.92431	0.47462	58.65174	1.04793	348.28	-1.58
90/ 5/20	2448031.5	57.91212	-5.57132	1.60524	0.01196	0.94375	0.47487	58.20163	1.05656	354.50	1.58
90/ 5/20	2448032.0	57.56357	0.84860	4.80257	-0.11522	0.94968	0.46809	57.76980	1.06502	0.84	4.77
90/ 5/21	2448032.5	56.34924	7.26077	7.92954	-0.24335	0.94136	0.45407	57.36578	1.07311	7.34	7.95
90/ 5/21	2448033.0	54.27005	13.56691	10.93679	-0.37022	0.91832	0.43274	56.99923	1.08057	14.04	11.06
90/ 5/22	2448033.5	51.34244	19.66661	13.77506	-0.49347	0.88040	0.40420	56.67958	1.08720	20.96	14.07
90/ 5/22	2448034.0	47.59922	25.45955	16.39643	-0.61065	0.82780	0.36875	56.41558	1.09276	28.14	16.90
90/ 5/23	2448034.5	43.08987	30.84812	18.75564	-0.71930	0.76113	0.32689	56.21492	1.09707	35.60	19.49
90/ 5/23	2448035.0	37.88022	35.74024	20.81147	-0.81707	0.68141	0.27930	56.08381	1.09997	43.34	21.78
90/ 5/24	2448035.5	32.05137	40.05215	22.52806	-0.90182	0.59007	0.22687	56.02659	1.10133	51.33	23.71
90/ 5/24	2448036.0	25.69783	43.71103	23.87609	-0.97174	0.48890	0.17065	56.04552	1.10110	59.55	25.21
90/ 5/25	2448036.5	18.92502	46.65722	24.83374	-1.02543	0.37998	0.11179	56.14060	1.09927	67.92	26.25
90/ 5/25	2448037.0	11.84625	48.84591	25.38724	-1.06197	0.26561	0.05151	56.30958	1.09589	76.37	26.80
90/ 5/26	2448037.5	4.57940	50.24810	25.53111	-1.08094	0.14813	-0.00896	56.54803	1.09108	84.79	26.84
90/ 5/26	2448038.0	-2.75651	50.85085	25.26808	-1.08241	0.02992	-0.06845	56.84965	1.08499	93.10	26.39
90/ 5/27	2448038.5	-10.04447	50.65685	24.60856	-1.06691	-0.08678	-0.12587	57.20655	1.07780	101.22	25.48
90/ 5/27	2448039.0	-17.17237	49.68340	23.56993	-1.03533	-0.19992	-0.18025	57.60965	1.06975	109.07	24.15
90/ 5/28	2448039.5	-24.03535	47.96089	22.17560	-0.98890	-0.30769	-0.23078	58.04913	1.06106	116.62	22.46
90/ 5/28	2448040.0	-30.53752	45.53108	20.45399	-0.92904	-0.40855	-0.27680	58.51483	1.05197	123.85	20.46

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 5/29	2448040.5	-36.59325	42.44516	18.43752	-0.85733	-0.50125	-0.31778	58.99661	1.04272	130.77	18.21
90/ 5/29	2448041.0	-42.12780	38.76191	16.16152	-0.77541	-0.58480	-0.35338	59.48472	1.03351	137.38	15.76
90/ 5/30	2448041.5	-47.07760	34.54587	13.66340	-0.68493	-0.65847	-0.38334	59.97004	1.02454	143.73	13.17
90/ 5/30	2448042.0	-51.39017	29.86577	10.98181	-0.58751	-0.72177	-0.40755	60.44430	1.01598	149.84	10.47
90/ 5/31	2448042.5	-55.02381	24.79308	8.15594	-0.48470	-0.77436	-0.42595	60.90021	1.00797	155.74	7.70
90/ 5/31	2448043.0	-57.94706	19.40090	5.22500	-0.37798	-0.81610	-0.43858	61.33154	1.00062	161.49	4.89
90/ 6/ 1	2448043.5	-60.13820	13.76291	2.22773	-0.26874	-0.84695	-0.44555	61.73316	0.99401	167.11	2.07
90/ 6/ 1	2448044.0	-61.58458	7.95258	-0.79793	-0.15827	-0.86701	-0.44699	62.10105	0.98821	172.64	-0.74
90/ 6/ 2	2448044.5	-62.28206	2.04257	-3.81511	-0.04779	-0.87642	-0.44308	62.43222	0.98322	178.12	-3.50
90/ 6/ 2	2448045.0	-62.23445	-3.89585	-6.78828	0.06157	-0.87544	-0.43403	62.72468	0.97906	183.58	-6.21
90/ 6/ 3	2448045.5	-61.45297	-9.79317	-9.68337	0.16875	-0.86434	-0.42007	62.97731	0.97572	189.05	-8.84
90/ 6/ 3	2448046.0	-59.95581	-15.58208	-12.46795	0.27274	-0.84348	-0.40144	63.18980	0.97314	194.57	-11.38
90/ 6/ 4	2448046.5	-57.76774	-21.19770	-15.11135	0.37262	-0.81324	-0.37843	63.36251	0.97130	200.15	-13.80
90/ 6/ 4	2448047.0	-54.91972	-26.57799	-17.58483	0.46748	-0.77406	-0.35131	63.49639	0.97012	205.82	-16.08
90/ 6/ 5	2448047.5	-51.44859	-31.66396	-19.86161	0.55648	-0.72642	-0.32040	63.59282	0.96954	211.61	-18.20
90/ 6/ 5	2448048.0	-47.39671	-36.40003	-21.91710	0.63883	-0.67083	-0.28602	63.65351	0.96950	217.52	-20.14
90/ 6/ 6	2448048.5	-42.81174	-40.73429	-23.72898	0.71378	-0.60787	-0.24852	63.68039	0.96992	223.58	-21.88
90/ 6/ 6	2448049.0	-37.74623	-44.61887	-25.27732	0.78062	-0.53815	-0.20827	63.67546	0.97074	229.77	-23.39
90/ 6/ 7	2448049.5	-32.25737	-48.01023	-26.54478	0.83869	-0.46234	-0.16564	63.64075	0.97190	236.10	-24.65
90/ 6/ 7	2448050.0	-26.40662	-50.86953	-27.51671	0.88739	-0.38116	-0.12107	63.57820	0.97334	242.57	-25.65
90/ 6/ 8	2448050.5	-20.25932	-53.16298	-28.18130	0.92617	-0.29538	-0.07497	63.48960	0.97502	249.14	-26.35
90/ 6/ 8	2448051.0	-13.88424	-54.86221	-28.52976	0.95457	-0.20583	-0.02779	63.37651	0.97691	255.80	-26.75
90/ 6/ 9	2448051.5	-7.35313	-55.94457	-28.55641	0.97219	-0.11337	0.01998	63.24027	0.97898	262.51	-26.84
90/ 6/ 9	2448052.0	-0.74021	-56.39347	-28.25882	0.97869	-0.01893	0.06787	63.08195	0.98122	269.25	-26.61
90/ 6/10	2448052.5	5.87846	-56.19871	-27.63790	0.97385	0.07653	0.11537	62.90235	0.98364	275.97	-26.06
90/ 6/10	2448053.0	12.42555	-55.35670	-26.69803	0.95754	0.17203	0.16197	62.70202	0.98626	282.65	-25.20
90/ 6/11	2448053.5	18.82311	-53.87072	-25.44705	0.92970	0.26652	0.20715	62.48133	0.98908	289.26	-24.03
90/ 6/11	2448054.0	24.99331	-51.75112	-23.89637	0.89042	0.35895	0.25038	62.24050	0.99216	295.78	-22.58
90/ 6/12	2448054.5	30.85911	-49.01548	-22.06096	0.83986	0.44825	0.29114	61.97974	0.99552	302.19	-20.85
90/ 6/12	2448055.0	36.34511	-45.68872	-19.95937	0.77832	0.53332	0.32890	61.69929	0.99920	308.50	-18.87
90/ 6/13	2448055.5	41.37829	-41.80317	-17.61366	0.70622	0.61307	0.36314	61.39958	1.00324	314.71	-16.67
90/ 6/13	2448056.0	45.88890	-37.39860	-15.04937	0.62411	0.68640	0.39336	61.08134	1.00767	320.82	-14.26
90/ 6/14	2448056.5	49.81134	-32.52217	-12.29542	0.53267	0.75223	0.41907	60.74569	1.01252	326.86	-11.68
90/ 6/14	2448057.0	53.08513	-27.22831	-9.38399	0.43272	0.80949	0.43979	60.39430	1.01781	332.85	-8.94
90/ 6/15	2448057.5	55.65588	-21.57859	-6.35033	0.32524	0.85715	0.45509	60.02949	1.02352	338.81	-6.07
90/ 6/15	2448058.0	57.47637	-15.64140	-3.23255	0.21138	0.89422	0.46457	59.65430	1.02963	344.78	-3.11
90/ 6/16	2448058.5	58.50768	-9.49154	-0.07129	0.09243	0.91980	0.46787	59.27261	1.03609	350.79	-0.07
90/ 6/16	2448059.0	58.72033	-3.20968	3.09059	-0.03010	0.93307	0.46471	58.88914	1.04283	356.87	3.01
90/ 6/17	2448059.5	58.09549	3.11841	6.20856	-0.15458	0.93335	0.45488	58.50946	1.04974	3.07	6.09
90/ 6/17	2448060.0	56.62611	9.40285	9.23698	-0.27918	0.92011	0.43826	58.13993	1.05670	9.43	9.14
90/ 6/18	2448060.5	54.31800	15.55091	12.12978	-0.40191	0.89304	0.41484	57.78761	1.06356	15.98	12.12
90/ 6/18	2448061.0	51.19076	21.46848	14.84136	-0.52070	0.85206	0.38477	57.46003	1.07014	22.75	14.97
90/ 6/19	2448061.5	47.27846	27.06191	17.32748	-0.63337	0.79739	0.34833	57.16504	1.07625	29.79	17.64
90/ 6/19	2448062.0	42.62997	32.24007	19.54638	-0.73773	0.72955	0.30595	56.91043	1.08171	37.10	20.09
90/ 6/20	2448062.5	37.30883	36.91657	21.45986	-0.83165	0.64943	0.25826	56.70368	1.08632	44.70	22.24

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 6/20	2448063.0	31.39262	41.01216	23.03440	-0.91314	0.55824	0.20601	56.55155	1.08991	52.57	24.04
90/ 6/21	2448063.5	24.97167	44.45701	24.24229	-0.98043	0.45756	0.15015	56.45971	1.09231	60.68	25.43
90/ 6/21	2448064.0	18.14723	47.19292	25.06249	-1.03207	0.34923	0.09171	56.43246	1.09341	68.97	26.37
90/ 6/22	2448064.5	11.02908	49.17508	25.48139	-1.06702	0.23535	0.03184	56.47239	1.09313	77.36	26.82
90/ 6/22	2448065.0	3.73270	50.37345	25.49323	-1.08464	0.11816	-0.02829	56.58023	1.09142	85.76	26.78
90/ 6/23	2448065.5	-3.62385	50.77348	25.10023	-1.08480	-0.00001	-0.08751	56.75473	1.08832	94.08	26.25
90/ 6/23	2448066.0	-10.92308	50.37620	24.31240	-1.06780	-0.11690	-0.14470	56.99271	1.08388	102.23	25.25
90/ 6/24	2448066.5	-18.05109	49.19776	23.14701	-1.03439	-0.23034	-0.19884	57.28913	1.07822	110.15	23.83
90/ 6/24	2448067.0	-24.90028	47.26821	21.62781	-0.98568	-0.33839	-0.24904	57.63740	1.07149	117.78	22.04
90/ 6/25	2448067.5	-31.37160	44.63009	19.78412	-0.92307	-0.43932	-0.29455	58.02959	1.06387	125.10	19.93
90/ 6/25	2448068.0	-37.37625	41.33648	17.64973	-0.84816	-0.53173	-0.33480	58.45683	1.05556	132.12	17.57
90/ 6/26	2448068.5	-42.83681	37.44908	15.26183	-0.76270	-0.61450	-0.36936	58.90967	1.04678	138.84	15.01
90/ 6/26	2448069.0	-47.68784	33.03616	12.65993	-0.66847	-0.68680	-0.39796	59.37838	1.03774	145.29	12.31
90/ 6/27	2448069.5	-51.87604	28.17070	9.88493	-0.56726	-0.74806	-0.42046	59.85335	1.02867	151.50	9.51
90/ 6/27	2448070.0	-55.35998	22.92863	6.97826	-0.46079	-0.79797	-0.43684	60.32534	1.01976	157.50	6.64
90/ 6/28	2448070.5	-58.10963	17.38739	3.98119	-0.35069	-0.83640	-0.44718	60.78569	1.01120	163.34	3.76
90/ 6/28	2448071.0	-60.10562	11.62462	0.93422	-0.23848	-0.86340	-0.45161	61.22655	1.00314	169.05	0.87
90/ 6/29	2448071.5	-61.33854	5.71724	-2.12333	-0.12558	-0.87915	-0.45033	61.64099	0.99573	174.67	-1.97
90/ 6/29	2448072.0	-61.80808	-0.25941	-5.15362	-0.01327	-0.88391	-0.44360	62.02311	0.98907	180.24	-4.77
90/ 6/30	2448072.5	-61.52226	-6.23213	-8.12060	0.09728	-0.87805	-0.43169	62.36804	0.98325	185.78	-7.48
90/ 6/30	2448073.0	-60.49672	-12.13030	-10.99012	0.20499	-0.86197	-0.41487	62.67201	0.97833	191.34	-10.10
90/ 7/ 1	2448073.5	-58.75406	-17.88624	-13.73008	0.30889	-0.83613	-0.39348	62.93228	0.97435	196.93	-12.60
90/ 7/ 1	2448074.0	-56.32326	-23.43549	-16.31049	0.40805	-0.80102	-0.36781	63.14716	0.97130	202.59	-14.97
90/ 7/ 2	2448074.5	-53.23922	-28.71694	-18.70355	0.50165	-0.75714	-0.33821	63.31587	0.96918	208.34	-17.18
90/ 7/ 2	2448075.0	-49.54233	-33.67310	-20.88370	0.58889	-0.70505	-0.30500	63.43854	0.96795	214.20	-19.22
90/ 7/ 3	2448075.5	-45.27813	-38.25023	-22.82770	0.66905	-0.64532	-0.26854	63.51609	0.96756	220.19	-21.06
90/ 7/ 3	2448076.0	-40.49702	-42.39858	-24.51470	0.74142	-0.57854	-0.22917	63.55012	0.96795	226.31	-22.69
90/ 7/ 4	2448076.5	-35.25394	-46.07255	-25.92631	0.80536	-0.50535	-0.18728	63.54285	0.96905	232.58	-24.08
90/ 7/ 4	2448077.0	-29.60814	-49.23105	-27.04676	0.86025	-0.42643	-0.14326	63.49697	0.97077	238.98	-25.21
90/ 7/ 5	2448077.5	-23.62288	-51.83767	-27.86296	0.90551	-0.34251	-0.09751	63.41553	0.97302	245.50	-26.06
90/ 7/ 5	2448078.0	-17.36512	-53.86113	-28.36468	0.94063	-0.25436	-0.05047	63.30185	0.97572	252.13	-26.62
90/ 7/ 6	2448078.5	-10.90518	-55.27554	-28.54469	0.96514	-0.16281	-0.00259	63.15939	0.97878	258.84	-26.87
90/ 7/ 6	2448079.0	-4.31630	-56.06082	-28.39893	0.97864	-0.06874	0.04565	62.99163	0.98211	265.60	-26.80
90/ 7/ 7	2448079.5	2.32579	-56.20308	-27.92661	0.98081	0.02691	0.09375	62.80200	0.98565	272.37	-26.40
90/ 7/ 7	2448080.0	8.94350	-55.69499	-27.13043	0.97141	0.12314	0.14120	62.59376	0.98931	279.12	-25.69
90/ 7/ 8	2448080.5	15.45799	-54.53616	-26.01665	0.95032	0.21889	0.18745	62.36994	0.99305	285.83	-24.65
90/ 7/ 8	2448081.0	21.78993	-52.73344	-24.59521	0.91751	0.31309	0.23196	62.13326	0.99682	292.45	-23.32
90/ 7/ 9	2448081.5	27.86030	-50.30119	-22.87979	0.87311	0.40460	0.27417	61.88611	1.00059	298.98	-21.70
90/ 7/ 9	2448082.0	33.59129	-47.26146	-20.88784	0.81735	0.49228	0.31352	61.63053	1.00434	305.40	-19.81
90/ 7/10	2448082.5	38.90730	-43.64411	-18.64052	0.75064	0.57497	0.34948	61.36819	1.00806	311.72	-17.68
90/ 7/10	2448083.0	43.73586	-39.48681	-16.16267	0.67352	0.65153	0.38151	61.10045	1.01177	317.92	-15.34
90/ 7/11	2448083.5	48.00877	-34.83492	-13.48264	0.58669	0.72084	0.40910	60.82841	1.01547	324.04	-12.81
90/ 7/11	2448084.0	51.66308	-29.74128	-10.63209	0.49101	0.78180	0.43179	60.55294	1.01919	330.07	-10.11
90/ 7/12	2448084.5	54.64220	-24.26587	-7.64574	0.38749	0.83341	0.44914	60.27487	1.02296	336.05	-7.29
90/ 7/12	2448085.0	56.89690	-18.47530	-4.56102	0.27730	0.87471	0.46078	59.99497	1.02681	342.01	-4.36

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 7/13	2448085.5	58.38634	-12.44229	-1.41775	0.16175	0.90487	0.46638	59.71420	1.03076	347.97	-1.36
90/ 7/13	2448086.0	59.07904	-6.24486	1.74238	0.04228	0.92315	0.46572	59.43372	1.03484	353.97	1.68
90/ 7/14	2448086.5	58.95372	0.03444	4.87623	-0.07953	0.92896	0.45861	59.15505	1.03905	0.03	4.73
90/ 7/14	2448087.0	58.00022	6.30960	7.93987	-0.20199	0.92187	0.44497	58.88020	1.04338	6.21	7.75
90/ 7/15	2448087.5	56.22009	12.49224	10.88911	-0.32332	0.90161	0.42484	58.61167	1.04782	12.53	10.71
90/ 7/15	2448088.0	53.62729	18.49286	13.68027	-0.44166	0.86813	0.39832	58.35256	1.05232	19.03	13.56
90/ 7/16	2448088.5	50.24850	24.22232	16.27086	-0.55510	0.82159	0.36566	58.10657	1.05681	25.74	16.26
90/ 7/16	2448089.0	46.12342	29.59334	18.62042	-0.66172	0.76237	0.32722	57.87794	1.06120	32.68	18.77
90/ 7/17	2448089.5	41.30463	34.52221	20.69132	-0.75963	0.69115	0.28347	57.67136	1.06540	39.89	21.03
90/ 7/17	2448090.0	35.85732	38.93048	22.44964	-0.84702	0.60882	0.23502	57.49188	1.06928	47.35	22.98
90/ 7/18	2448090.5	29.85852	42.74686	23.86598	-0.92221	0.51658	0.18262	57.34466	1.07270	55.07	24.59
90/ 7/18	2448091.0	23.39609	45.90888	24.91630	-0.98370	0.41586	0.12709	57.23482	1.07553	63.00	25.81
90/ 7/19	2448091.5	16.56715	48.36464	25.58260	-1.03025	0.30832	0.06938	57.16711	1.07764	71.09	26.58
90/ 7/19	2448092.0	9.47630	50.07421	25.85350	-1.06092	0.19584	0.01051	57.14569	1.07889	79.28	26.90
90/ 7/20	2448092.5	2.23332	51.01084	25.72466	-1.07510	0.08042	-0.04848	57.17387	1.07920	87.49	26.74
90/ 7/20	2448093.0	-5.04922	51.16170	25.19894	-1.07260	-0.03584	-0.10651	57.25383	1.07847	95.64	26.11
90/ 7/21	2448093.5	-12.25866	50.52825	24.28636	-1.05358	-0.15083	-0.16255	57.38646	1.07666	103.64	25.04
90/ 7/21	2448094.0	-19.28484	49.12601	23.00381	-1.01861	-0.26252	-0.21561	57.57122	1.07376	111.43	23.55
90/ 7/22	2448094.5	-26.02264	46.98401	21.37449	-0.96860	-0.36898	-0.26481	57.80609	1.06979	118.98	21.70
90/ 7/22	2448095.0	-32.37425	44.14363	19.42723	-0.90480	-0.46848	-0.30938	58.08760	1.06482	126.26	19.54
90/ 7/23	2448095.5	-38.25105	40.65715	17.19554	-0.82866	-0.55954	-0.34870	58.41090	1.05894	133.25	17.12
90/ 7/23	2448096.0	-43.57507	36.58607	14.71667	-0.74185	-0.64092	-0.38230	58.76995	1.05227	139.98	14.50
90/ 7/24	2448096.5	-48.27993	31.99924	12.03059	-0.64613	-0.71170	-0.40985	59.15774	1.04498	146.46	11.73
90/ 7/24	2448097.0	-52.31140	26.97096	9.17902	-0.54330	-0.77119	-0.43115	59.56651	1.03721	152.73	8.86
90/ 7/25	2448097.5	-55.62743	21.57917	6.20448	-0.43516	-0.81900	-0.44616	59.98806	1.02916	158.80	5.94
90/ 7/25	2448098.0	-58.19793	15.90376	3.14948	-0.32343	-0.85493	-0.45493	60.41397	1.02101	164.72	2.99
90/ 7/26	2448098.5	-60.00416	10.02515	0.05587	-0.20974	-0.87902	-0.45759	60.83589	1.01294	170.51	0.05
90/ 7/26	2448099.0	-61.03804	4.02303	-3.03576	-0.09560	-0.89145	-0.45438	61.24576	1.00513	176.23	-2.84
90/ 7/27	2448099.5	-61.30132	-2.02467	-6.08650	0.01760	-0.89254	-0.44557	61.63600	0.99773	181.89	-5.67
90/ 7/27	2448100.0	-60.80465	-8.04251	-9.05945	0.12861	-0.88271	-0.43147	61.99968	0.99090	187.53	-8.40
90/ 7/28	2448100.5	-59.56675	-13.95817	-11.91991	0.23630	-0.86245	-0.41241	62.33067	0.98476	193.19	-11.02
90/ 7/28	2448101.0	-57.61358	-19.70285	-14.63557	0.33966	-0.83231	-0.38877	62.62369	0.97942	198.88	-13.52
90/ 7/29	2448101.5	-54.97760	-25.21159	-17.17657	0.43778	-0.79288	-0.36090	62.87444	0.97496	204.64	-15.85
90/ 7/29	2448102.0	-51.69714	-30.42341	-19.51553	0.52984	-0.74474	-0.32917	63.07958	0.97145	210.48	-18.02
90/ 7/30	2448102.5	-47.81582	-35.28153	-21.62763	0.61509	-0.68854	-0.29397	63.23681	0.96893	216.42	-20.00
90/ 7/30	2448103.0	-43.38213	-39.73344	-23.49056	0.69284	-0.62490	-0.25566	63.34479	0.96741	222.49	-21.77
90/ 7/31	2448103.5	-38.44902	-43.73100	-25.08460	0.76247	-0.55448	-0.21463	63.40319	0.96689	228.68	-23.31
90/ 7/31	2448104.0	-33.07357	-47.23058	-26.39262	0.82337	-0.47796	-0.17126	63.41261	0.96732	235.00	-24.60
90/ 8/ 1	2448104.5	-27.31675	-50.19320	-27.40016	0.87499	-0.39604	-0.12596	63.37453	0.96867	241.44	-25.62
90/ 8/ 1	2448105.0	-21.24318	-52.58475	-28.09547	0.91682	-0.30945	-0.07914	63.29127	0.97087	248.00	-26.35
90/ 8/ 2	2448105.5	-14.92082	-54.37623	-28.46966	0.94838	-0.21897	-0.03121	63.16586	0.97383	254.66	-26.79
90/ 8/ 2	2448106.0	-8.42074	-55.54401	-28.51679	0.96923	-0.12542	0.01736	63.00201	0.97747	261.38	-26.91
90/ 8/ 3	2448106.5	-1.81680	-56.07026	-28.23404	0.97899	-0.02968	0.06612	62.80395	0.98167	268.14	-26.72
90/ 8/ 3	2448107.0	4.81475	-55.94325	-27.62187	0.97734	0.06731	0.11456	62.57633	0.98633	274.92	-26.19
90/ 8/ 4	2448107.5	11.39577	-55.15785	-26.68418	0.96403	0.16457	0.16215	62.32413	0.99133	281.67	-25.35

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 8/ 4	2448108.0	17.84677	-53.71589	-25.42847	0.93893	0.26101	0.20837	62.05249	0.99656	288.38	-24.19
90/ 8/ 5	2448108.5	24.08764	-51.62662	-23.86603	0.90199	0.35552	0.25264	61.76658	1.00190	295.01	-22.73
90/ 8/ 5	2448109.0	30.03851	-48.90708	-22.01200	0.85332	0.44692	0.29438	61.47148	1.00725	301.56	-20.98
90/ 8/ 6	2448109.5	35.62071	-45.58238	-19.88548	0.79318	0.53401	0.33300	61.17206	1.01252	308.01	-18.97
90/ 8/ 6	2448110.0	40.75781	-41.68596	-17.50954	0.72198	0.61555	0.36793	60.87284	1.01760	314.35	-16.72
90/ 8/ 7	2448110.5	45.37689	-37.25959	-14.91115	0.64032	0.69030	0.39860	60.57790	1.02245	320.61	-14.25
90/ 8/ 7	2448111.0	49.40973	-32.35335	-12.12102	0.54901	0.75705	0.42446	60.29079	1.02699	326.78	-11.60
90/ 8/ 8	2448111.5	52.79416	-27.02529	-9.17337	0.44903	0.81467	0.44503	60.01450	1.03120	332.89	-8.79
90/ 8/ 8	2448112.0	55.47533	-21.34100	-6.10559	0.34156	0.86208	0.45987	59.75139	1.03504	338.96	-5.86
90/ 8/ 9	2448112.5	57.40698	-15.37293	-2.95777	0.22794	0.89832	0.46862	59.50325	1.03853	345.01	-2.85
90/ 8/ 9	2448113.0	58.55256	-9.19947	0.22782	0.10970	0.92260	0.47098	59.27128	1.04166	351.07	0.22
90/ 8/10	2448113.5	58.88628	-2.90395	3.40733	-0.01151	0.93428	0.46680	59.05622	1.04447	357.18	3.31
90/ 8/10	2448114.0	58.39392	3.42665	6.53604	-0.13393	0.93290	0.45598	58.85840	1.04698	3.36	6.38
90/ 8/11	2448114.5	57.07347	9.70300	9.56908	-0.25573	0.91824	0.43856	58.67790	1.04924	9.65	9.39
90/ 8/11	2448115.0	54.93551	15.83493	12.46219	-0.37502	0.89027	0.41470	58.51462	1.05128	16.08	12.30
90/ 8/12	2448115.5	52.00342	21.73292	15.17252	-0.48992	0.84921	0.38464	58.36849	1.05315	22.68	15.07
90/ 8/12	2448116.0	48.31324	27.30972	17.65938	-0.59857	0.79552	0.34878	58.23953	1.05489	29.48	17.65
90/ 8/13	2448116.5	43.91333	32.48185	19.88500	-0.69920	0.72985	0.30759	58.12800	1.05649	36.49	20.00
90/ 8/13	2448117.0	38.86382	37.17117	21.81527	-0.79013	0.65312	0.26167	58.03446	1.05799	43.72	22.08
90/ 8/14	2448118.0	27.10989	44.82432	24.67546	-0.93690	0.47108	0.15844	57.90548	1.06057	58.83	25.22
90/ 8/15	2448118.5	20.57568	47.67136	25.56104	-0.99023	0.36857	0.10273	57.87300	1.06158	66.65	26.21
90/ 8/15	2448119.0	13.72946	49.80440	26.06356	-1.02890	0.26052	0.04547	57.86437	1.06234	74.59	26.77
90/ 8/16	2448119.5	6.67291	51.19179	26.17561	-1.05226	0.14869	-0.01241	57.88169	1.06279	82.57	26.89
90/ 8/16	2448120.0	-0.48891	51.81408	25.89617	-1.05995	0.03490	-0.06997	57.92710	1.06283	90.54	26.55
90/ 8/17	2448120.5	-7.64949	51.66436	25.23060	-1.05191	-0.07897	-0.12628	58.00262	1.06240	98.42	25.78
90/ 8/17	2448121.0	-14.70294	50.74843	24.19057	-1.02838	-0.19105	-0.18040	58.10993	1.06142	106.16	24.60
90/ 8/18	2448121.5	-21.54609	49.08458	22.79380	-0.98992	-0.29953	-0.23148	58.25022	1.05983	113.70	23.04
90/ 8/18	2448122.0	-28.08046	46.70310	21.06360	-0.93736	-0.40268	-0.27874	58.42403	1.05759	121.02	21.13
90/ 8/19	2448122.5	-34.21408	43.64546	19.02831	-0.87179	-0.49894	-0.32146	58.63110	1.05466	128.09	18.94
90/ 8/19	2448123.0	-39.86318	39.96320	16.72067	-0.79452	-0.58691	-0.35907	58.87029	1.05103	134.93	16.50
90/ 8/20	2448123.5	-44.95348	35.71662	14.17700	-0.70704	-0.66541	-0.39109	59.13949	1.04672	141.53	13.87
90/ 8/20	2448124.0	-49.42127	30.97327	11.43635	-0.61097	-0.73346	-0.41719	59.43564	1.04178	147.92	11.09
90/ 8/21	2448124.5	-53.21407	25.80638	8.53969	-0.50801	-0.79038	-0.43714	59.75477	1.03627	154.13	8.22
90/ 8/21	2448125.0	-56.29096	20.29320	5.52905	-0.39986	-0.83566	-0.45084	60.09207	1.03028	160.18	5.28
90/ 8/22	2448125.5	-58.62260	14.51346	2.44673	-0.28822	-0.86907	-0.45832	60.44201	1.02391	166.09	2.32
90/ 8/22	2448126.0	-60.19095	8.54789	-0.66543	-0.17473	-0.89054	-0.45967	60.79851	1.01730	171.92	-0.63
90/ 8/23	2448126.5	-60.98873	2.47690	-3.76660	-0.06093	-0.90023	-0.45511	61.15511	1.01057	177.67	-3.53
90/ 8/23	2448127.0	-61.01880	-3.62053	-6.81756	0.05175	-0.89841	-0.44489	61.50513	1.00387	183.40	-6.36
90/ 8/24	2448127.5	-60.29330	-9.66784	-9.78103	0.16198	-0.88551	-0.42934	61.84188	0.99734	189.11	-9.10
90/ 8/24	2448128.0	-58.83284	-15.59161	-12.62202	0.26859	-0.86202	-0.40879	62.15880	0.99113	194.84	-11.72
90/ 8/25	2448128.5	-56.66561	-21.32215	-15.30804	0.37051	-0.82855	-0.38364	62.44967	0.98537	200.62	-14.19
90/ 8/25	2448129.0	-53.82660	-26.79390	-17.80925	0.46681	-0.78572	-0.35428	62.70873	0.98019	206.46	-16.50
90/ 8/26	2448129.5	-50.35679	-31.94576	-20.09850	0.55665	-0.73420	-0.32112	62.93081	0.97572	212.39	-18.63
90/ 8/26	2448130.0	-46.30249	-36.72124	-22.15143	0.63929	-0.67469	-0.28456	63.11146	0.97205	218.42	-20.55
90/ 8/27	2448130.5	-41.71475	-41.06861	-23.94643	0.71407	-0.60790	-0.24502	63.24699	0.96927	224.55	-22.25

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO:

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 8/27	2448131.0	-36.64882	-44.94096	-25.46465	0.78040	-0.53454	-0.20290	63.33462	0.96744	230.80	-23.71
90/ 8/28	2448131.5	-31.16379	-48.29628	-26.69002	0.83775	-0.45535	-0.15861	63.37247	0.96661	237.17	-24.91
90/ 8/28	2448132.0	-25.32215	-51.09754	-27.60923	0.88563	-0.37106	-0.11257	63.35961	0.96679	243.64	-25.83
90/ 8/29	2448132.5	-19.18958	-53.31278	-28.21178	0.92359	-0.28243	-0.06517	63.29611	0.96800	250.20	-26.47
90/ 8/29	2448133.0	-12.83465	-54.91523	-28.49001	0.95123	-0.19024	-0.01687	63.18300	0.97021	256.85	-26.80
90/ 8/30	2448133.5	-6.32855	-55.88358	-28.43916	0.96817	-0.09532	0.03192	63.02230	0.97337	263.54	-26.82
90/ 8/30	2448134.0	0.25510	-56.20214	-28.05753	0.97408	0.00149	0.08074	62.81696	0.97742	270.26	-26.53
90/ 8/31	2448134.5	6.84063	-55.86124	-27.34655	0.96868	0.09926	0.12909	62.57081	0.98227	276.98	-25.92
90/ 8/31	2448135.0	13.35063	-54.85756	-26.31100	0.95174	0.19704	0.17650	62.28852	0.98782	283.68	-24.99
90/ 9/ 1	2448135.5	19.70641	-53.19455	-24.95911	0.92312	0.29378	0.22242	61.97548	0.99394	290.33	-23.75
90/ 9/ 1	2448136.0	25.82861	-50.88292	-23.30278	0.88277	0.38838	0.26630	61.63771	1.00052	296.91	-22.21
90/ 9/ 2	2448136.5	31.63790	-47.94103	-21.35776	0.83074	0.47969	0.30757	61.28175	1.00739	303.42	-20.40
90/ 9/ 2	2448137.0	37.05588	-44.39538	-19.14375	0.76726	0.56646	0.34563	60.91445	1.01441	309.85	-18.32
90/ 9/ 3	2448137.5	42.00613	-40.28092	-16.68449	0.69271	0.64744	0.37989	60.54287	1.02143	316.20	-16.00
90/ 9/ 3	2448138.0	46.41545	-35.64129	-14.00782	0.60764	0.72132	0.40973	60.17403	1.02831	322.48	-13.46
90/ 9/ 4	2448138.5	50.21522	-30.52894	-11.14553	0.51286	0.78682	0.43460	59.81477	1.03488	328.70	-10.74
90/ 9/ 4	2448139.0	53.34291	-25.00491	-8.13326	0.40937	0.84268	0.45394	59.47151	1.04104	334.88	-7.86
90/ 9/ 5	2448139.5	55.74361	-19.13851	-5.01007	0.29841	0.88773	0.46728	59.15009	1.04664	341.05	-4.86
90/ 9/ 5	2448140.0	57.37161	-13.00659	-1.81807	0.18146	0.92092	0.47420	58.85558	1.05161	347.23	-1.77
90/ 9/ 6	2448140.5	58.19186	-6.69261	1.39826	0.06018	0.94137	0.47442	58.59214	1.05587	353.44	1.37
90/ 9/ 6	2448141.0	58.18125	-0.28529	4.59278	-0.06357	0.94839	0.46774	58.36294	1.05937	359.72	4.51
90/ 9/ 7	2448141.5	57.32969	6.12286	7.71856	-0.18780	0.94156	0.45412	58.17009	1.06209	6.10	7.63
90/ 9/ 7	2448142.0	55.64085	12.43734	10.72880	-0.31046	0.92073	0.43365	58.01464	1.06404	12.60	10.66
90/ 9/ 8	2448142.5	53.13246	18.56356	13.57783	-0.42946	0.88601	0.40657	57.89664	1.06525	19.26	13.56
90/ 9/ 8	2448143.0	49.83631	24.40879	16.22206	-0.54275	0.83785	0.37325	57.81524	1.06578	26.09	16.30
90/ 9/ 9	2448143.5	45.79778	29.88411	18.62095	-0.64837	0.77692	0.33422	57.76882	1.06569	33.13	18.80
90/ 9/ 9	2448144.0	41.07503	34.90629	20.73782	-0.74451	0.70422	0.29009	57.75521	1.06507	40.36	21.04
90/ 9/10	2448144.5	35.73776	39.39943	22.54062	-0.82957	0.62092	0.24160	57.77182	1.06401	47.79	22.96
90/ 9/10	2448145.0	29.86587	43.29647	24.00254	-0.90217	0.52844	0.18957	57.81588	1.06259	55.40	24.53
90/ 9/11	2448145.5	23.54772	46.54034	25.10246	-0.96119	0.42832	0.13485	57.88464	1.06091	63.16	25.70
90/ 9/11	2448146.0	16.87839	49.08495	25.82525	-1.00576	0.32224	0.07836	57.97547	1.05902	71.02	26.45
90/ 9/12	2448146.5	9.95778	50.89579	26.16201	-1.03531	0.21194	0.02101	58.08605	1.05699	78.93	26.77
90/ 9/12	2448147.0	2.88873	51.95039	26.11000	-1.04956	0.09922	-0.03628	58.21443	1.05487	86.82	26.65
90/ 9/13	2448147.5	-4.22485	52.23835	25.67267	-1.04848	-0.01414	-0.09263	58.35906	1.05266	94.62	26.10
90/ 9/13	2448148.0	-11.27981	51.76131	24.85933	-1.03232	-0.12639	-0.14717	58.51883	1.05039	102.29	25.14
90/ 9/14	2448148.5	-18.17550	50.53261	23.68493	-1.00155	-0.23583	-0.19912	58.69301	1.04803	109.78	23.80
90/ 9/14	2448149.0	-24.81532	48.57671	22.16966	-0.95690	-0.34087	-0.24772	58.88116	1.04557	117.06	22.12
90/ 9/15	2448149.5	-31.10825	45.92856	20.33842	-0.89929	-0.44001	-0.29232	59.08306	1.04296	124.11	20.14
90/ 9/15	2448150.0	-36.97015	42.63269	18.22031	-0.82982	-0.53192	-0.33234	59.29855	1.04019	130.93	17.89
90/ 9/16	2448150.5	-42.32492	38.74221	15.84807	-0.74975	-0.61541	-0.36729	59.52746	1.03719	137.53	15.44
90/ 9/16	2448151.0	-47.10542	34.31768	13.25738	-0.66048	-0.68947	-0.39679	59.76940	1.03395	143.93	12.82
90/ 9/17	2448151.5	-51.25426	29.42591	10.48623	-0.56348	-0.75326	-0.42054	60.02370	1.03042	150.14	10.06
90/ 9/17	2448152.0	-54.72431	24.13870	7.57422	-0.46030	-0.80615	-0.43836	60.28927	1.02660	156.20	7.22
90/ 9/18	2448152.5	-57.47900	18.53149	4.56192	-0.35250	-0.84770	-0.45015	60.56453	1.02249	162.13	4.32
90/ 9/18	2448153.0	-59.49241	12.68213	1.49018	-0.24166	-0.87763	-0.45592	60.84738	1.01809	167.97	1.40

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/ 9/19	2448153.5	-60.74914	6.66958	-1.60046	-0.12932	-0.89589	-0.45575	61.13512	1.01343	173.73	-1.50
90/ 9/19	2448154.0	-61.24404	0.57275	-4.67032	-0.01694	-0.90255	-0.44982	61.42453	1.00857	179.46	-4.36
90/ 9/20	2448154.5	-60.98168	-5.53054	-7.68111	0.09407	-0.89785	-0.43835	61.71185	1.00356	185.18	-7.15
90/ 9/20	2448155.0	-59.97580	-11.56458	-10.59631	0.20241	-0.88217	-0.42164	61.99288	0.99848	190.91	-9.84
90/ 9/21	2448155.5	-58.24857	-17.45651	-13.38158	0.30689	-0.85597	-0.40004	62.26308	0.99343	196.68	-12.41
90/ 9/21	2448156.0	-55.82988	-23.13706	-16.00494	0.40642	-0.81984	-0.37390	62.51765	0.98850	202.51	-14.83
90/ 9/22	2448156.5	-52.75656	-28.54103	-18.43708	0.50005	-0.77442	-0.34364	62.75166	0.98380	208.41	-17.09
90/ 9/22	2448157.0	-49.07160	-33.60778	-20.65143	0.58690	-0.72038	-0.30966	62.96020	0.97944	214.41	-19.15
90/ 9/23	2448157.5	-44.82343	-38.28146	-22.62426	0.66624	-0.65847	-0.27239	63.13847	0.97553	220.50	-21.00
90/ 9/23	2448158.0	-40.06523	-42.51123	-24.33477	0.73741	-0.58943	-0.23227	63.28197	0.97219	226.70	-22.62
90/ 9/24	2448158.5	-34.85433	-46.25146	-25.76503	0.79983	-0.51404	-0.18971	63.38658	0.96951	233.00	-23.98
90/ 9/24	2448159.0	-29.25167	-49.46171	-26.90006	0.85302	-0.43307	-0.14516	63.44867	0.96760	239.40	-25.09
90/ 9/25	2448159.5	-23.32131	-52.10689	-27.72776	0.89653	-0.34731	-0.09903	63.46527	0.96654	245.89	-25.91
90/ 9/25	2448160.0	-17.13006	-54.15725	-28.23892	0.93000	-0.25755	-0.05176	63.43409	0.96639	252.45	-26.43
90/ 9/26	2448160.5	-10.74710	-55.58847	-28.42725	0.95309	-0.16461	-0.00377	63.35366	0.96721	259.06	-26.66
90/ 9/26	2448161.0	-4.24370	-56.38177	-28.28935	0.96552	-0.06932	0.04450	63.22342	0.96903	265.70	-26.58
90/ 9/27	2448161.5	2.30707	-56.52404	-27.82480	0.96704	0.02749	0.09261	63.04371	0.97186	272.34	-26.19
90/ 9/27	2448162.0	8.83065	-56.00804	-27.03621	0.95746	0.12491	0.14011	62.81590	0.97568	278.96	-25.49
90/ 9/28	2448162.5	15.25121	-54.83264	-25.92934	0.93660	0.22204	0.18652	62.54237	0.98047	285.54	-24.49
90/ 9/28	2448163.0	21.49213	-53.00317	-24.51320	0.90439	0.31789	0.23135	62.22656	0.98616	292.07	-23.20
90/ 9/29	2448163.5	27.47633	-50.53178	-22.80019	0.86080	0.41142	0.27409	61.87292	0.99266	298.53	-21.62
90/ 9/29	2448164.0	33.12690	-47.43781	-20.80631	0.80590	0.50154	0.31420	61.48691	0.99987	304.93	-19.78
90/ 9/30	2448164.5	38.36779	-43.74828	-18.55124	0.73986	0.58709	0.35112	61.07494	1.00765	311.25	-17.68
90/ 9/30	2448165.0	43.12462	-39.49828	-16.05852	0.66303	0.66684	0.38428	60.64424	1.01585	317.51	-15.36
90/10/ 1	2448165.5	47.32585	-34.73130	-13.35564	0.57589	0.73953	0.41309	60.20276	1.02430	323.73	-12.82
90/10/ 1	2448166.0	50.90392	-29.49956	-10.47403	0.47915	0.80387	0.43696	59.75900	1.03282	329.91	-10.09
90/10/ 2	2448166.5	53.79680	-23.86402	-7.44900	0.37373	0.85856	0.45535	59.32179	1.04122	336.08	-7.21
90/10/ 2	2448167.0	55.94951	-17.89428	-4.31955	0.26081	0.90235	0.46772	58.90002	1.04929	342.26	-4.21
90/10/ 3	2448167.5	57.31591	-11.66815	-1.12799	0.14180	0.93408	0.47362	58.50241	1.05685	348.49	-1.10
90/10/ 3	2448168.0	57.86039	-5.27085	2.08057	0.01840	0.95274	0.47269	58.13721	1.06371	354.79	2.05
90/10/ 4	2448168.5	57.55954	1.20616	5.25897	-0.10748	0.95750	0.46468	57.81187	1.06972	1.20	5.22
90/10/ 4	2448169.0	56.40365	7.66674	8.35886	-0.23372	0.94782	0.44950	57.53278	1.07473	7.74	8.35
90/10/ 5	2448169.5	54.39785	14.01199	11.33175	-0.35807	0.92343	0.42721	57.30506	1.07863	14.44	11.41
90/10/ 5	2448170.0	51.56277	20.14246	14.13020	-0.47821	0.88444	0.39804	57.13231	1.08137	21.34	14.32
90/10/ 6	2448170.5	47.93476	25.96060	16.70896	-0.59184	0.83131	0.36242	57.01652	1.08291	28.44	17.04
90/10/ 6	2448171.0	43.56543	31.37315	19.02624	-0.69677	0.76485	0.32093	56.95805	1.08327	35.76	19.51
90/10/ 7	2448171.5	38.52066	36.29363	21.04472	-0.79098	0.68622	0.27432	56.95568	1.08250	43.29	21.68
90/10/ 7	2448172.0	32.87903	40.64441	22.73255	-0.87275	0.59688	0.22345	57.00673	1.08069	51.03	23.50
90/10/ 8	2448172.5	26.72986	44.35854	24.06403	-0.94065	0.49852	0.16926	57.10729	1.07796	58.93	24.92
90/10/ 8	2448173.0	20.17090	47.38116	25.02017	-0.99361	0.39300	0.11278	57.25250	1.07444	66.94	25.91
90/10/ 9	2448173.5	13.30589	49.67039	25.58885	-1.03094	0.28229	0.05502	57.43678	1.07030	75.00	26.46
90/10/ 9	2448174.0	6.24203	51.19779	25.76493	-1.05230	0.16837	-0.00299	57.65421	1.06569	83.05	26.54
90/10/10	2448174.5	-0.91235	51.94837	25.54998	-1.05770	0.05322	-0.06029	57.89877	1.06075	91.01	26.19
90/10/10	2448175.0	-8.05009	51.92027	24.95199	-1.04746	-0.06126	-0.11596	58.16460	1.05564	98.81	25.40
90/10/11	2448175.5	-15.06709	51.12407	23.98481	-1.02217	-0.17330	-0.16917	58.44621	1.05046	106.42	24.23

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/10/11	2448176.0	-21.86406	49.58195	22.66767	-0.98264	-0.28127	-0.21918	58.73866	1.04534	113.80	22.70
90/10/12	2448176.5	-28.34792	47.32664	21.02446	-0.92988	-0.38367	-0.26535	59.03764	1.04034	120.92	20.86
90/10/12	2448177.0	-34.43290	44.40033	19.08314	-0.86506	-0.47920	-0.30713	59.33954	1.03552	127.79	18.76
90/10/13	2448177.5	-40.04152	40.85349	16.87509	-0.78944	-0.56673	-0.34405	59.64142	1.03091	134.42	16.44
90/10/13	2448178.0	-45.10518	36.74367	14.43444	-0.70437	-0.64530	-0.37576	59.94103	1.02652	140.83	13.93
90/10/14	2448178.5	-49.56469	32.13438	11.79746	-0.61128	-0.71411	-0.40199	60.23667	1.02235	147.04	11.29
90/10/14	2448179.0	-53.37060	27.09389	9.00198	-0.51161	-0.77254	-0.42254	60.52714	1.01838	153.09	8.55
90/10/15	2448179.5	-56.48329	21.69414	6.08682	-0.40682	-0.82013	-0.43732	60.81157	1.01458	158.99	5.74
90/10/15	2448180.0	-58.87310	16.00967	3.09122	-0.29838	-0.85658	-0.44629	61.08934	1.01091	164.79	2.90
90/10/16	2448180.5	-60.52016	10.11659	0.05441	-0.18773	-0.88172	-0.44950	61.35990	1.00733	170.51	0.05
90/10/16	2448181.0	-61.41423	4.09159	-2.98492	-0.07626	-0.89554	-0.44706	61.62271	1.00382	176.19	-2.78
90/10/17	2448181.5	-61.55442	-1.98893	-5.98901	0.03466	-0.89814	-0.43913	61.87706	1.00035	181.85	-5.55
90/10/17	2448182.0	-60.94881	-8.04978	-8.92146	0.14376	-0.88978	-0.42594	62.12204	0.99689	187.52	-8.26
90/10/18	2448182.5	-59.61397	-14.01774	-11.74755	0.24980	-0.87078	-0.40777	62.35645	0.99345	193.23	-10.86
90/10/18	2448183.0	-57.57445	-19.82228	-14.43456	0.35166	-0.84161	-0.38493	62.57872	0.99002	199.00	-13.34
90/10/19	2448183.5	-54.86218	-25.39623	-16.95206	0.44830	-0.80278	-0.35778	62.78694	0.98663	204.84	-15.66
90/10/19	2448184.0	-51.51583	-30.67629	-19.27210	0.53875	-0.75493	-0.32669	62.97880	0.98331	210.77	-17.82
90/10/20	2448184.5	-47.58019	-35.60351	-21.36939	0.62218	-0.69871	-0.29207	63.15168	0.98011	216.81	-19.78
90/10/20	2448185.0	-43.10547	-40.12368	-23.22146	0.69782	-0.63486	-0.25435	63.30267	0.97708	222.95	-21.52
90/10/21	2448185.5	-38.14667	-44.18766	-24.80871	0.76502	-0.56413	-0.21395	63.42861	0.97430	229.20	-23.02
90/10/21	2448186.0	-32.76292	-47.75153	-26.11449	0.82322	-0.48731	-0.17131	63.52625	0.97186	235.55	-24.27
90/10/22	2448186.5	-27.01692	-50.77684	-27.12517	0.87192	-0.40523	-0.12687	63.59227	0.96982	241.98	-25.25
90/10/22	2448187.0	-20.97433	-53.23069	-27.83006	0.91073	-0.31870	-0.08109	63.62343	0.96829	248.49	-25.94
90/10/23	2448187.5	-14.70331	-55.08579	-28.22151	0.93933	-0.22856	-0.03439	63.61670	0.96734	255.06	-26.33
90/10/23	2448188.0	-8.27403	-56.32056	-28.29482	0.95743	-0.13566	0.01278	63.56934	0.96708	261.64	-26.43
90/10/24	2448188.5	-1.75823	-56.91917	-28.04826	0.96484	-0.04086	0.05999	63.47904	0.96757	268.23	-26.22
90/10/24	2448189.0	4.77111	-56.87162	-27.48311	0.96141	0.05500	0.10679	63.34403	0.96888	274.80	-25.71
90/10/25	2448189.5	11.24018	-56.17383	-26.60359	0.94703	0.15101	0.15274	63.16322	0.97108	281.32	-24.91
90/10/25	2448190.0	17.57466	-54.82775	-25.41697	0.92166	0.24628	0.19740	62.93627	0.97421	287.77	-23.82
90/10/26	2448190.5	23.70011	-52.84157	-23.93358	0.88531	0.33987	0.24030	62.66373	0.97828	294.16	-22.45
90/10/26	2448191.0	29.54235	-50.22989	-22.16687	0.83805	0.43082	0.28098	62.34711	0.98330	300.46	-20.83
90/10/27	2448191.5	35.02791	-47.01400	-20.13353	0.78002	0.51811	0.31895	61.98895	0.98924	306.69	-18.95
90/10/27	2448192.0	40.08460	-43.22220	-17.85358	0.71145	0.60070	0.35372	61.59289	0.99606	312.84	-16.85
90/10/28	2448192.5	44.64217	-38.89007	-15.35044	0.63270	0.67748	0.38477	61.16368	1.00366	318.94	-14.54
90/10/28	2448193.0	48.63312	-34.06082	-12.65106	0.54423	0.74730	0.41158	60.70724	1.01195	324.99	-12.03
90/10/29	2448193.5	51.99370	-28.78558	-9.78593	0.44668	0.80898	0.43363	60.23055	1.02079	331.03	-9.35
90/10/29	2448194.0	54.66508	-23.12354	-6.78908	0.34087	0.86132	0.45040	59.74162	1.03001	337.07	-6.53
90/10/30	2448194.5	56.59472	-17.14203	-3.69799	0.22784	0.90312	0.46138	59.24936	1.03943	343.15	-3.58
90/10/30	2448195.0	57.73788	-10.91635	-0.55339	0.10886	0.93324	0.46613	58.76338	1.04883	349.29	-0.54
90/10/31	2448195.5	58.05932	-4.52933	2.60112	-0.01453	0.95060	0.46425	58.29378	1.05800	355.54	2.56
90/10/31	2448196.0	57.53504	1.92947	5.71960	-0.14056	0.95429	0.45544	57.85082	1.06671	1.92	5.67
90/11/ 1	2448196.5	56.15396	8.36493	8.75449	-0.26718	0.94361	0.43955	57.44458	1.07471	8.47	8.77
90/11/ 1	2448197.0	53.91947	14.67806	11.65755	-0.39218	0.91812	0.41653	57.08462	1.08178	15.23	11.78
90/11/ 2	2448197.5	50.85064	20.76804	14.38101	-0.51316	0.87773	0.38655	56.77950	1.08773	22.22	14.67
90/11/ 2	2448198.0	46.98293	26.53464	16.87875	-0.62767	0.82272	0.34995	56.53649	1.09238	29.46	17.37

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOD I

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/11/ 3	2448198.5	42.36834	31.88101	19.10773	-0.73331	0.75379	0.30729	56.36116	1.09561	36.96	19.82
90/11/ 3	2448199.0	37.07478	36.71640	21.02924	-0.82780	0.67205	0.25930	56.25711	1.09734	44.72	21.95
90/11/ 4	2448199.5	31.18478	40.95897	22.61018	-0.90913	0.57901	0.20689	56.22586	1.09753	52.72	23.71
90/11/ 4	2448200.0	24.79340	44.53817	23.82408	-0.97561	0.47649	0.15109	56.26676	1.09622	60.90	25.05
90/11/ 5	2448200.5	18.00567	47.39680	24.65180	-1.02599	0.36659	0.09305	56.37705	1.09349	69.20	25.93
90/11/ 5	2448201.0	10.93357	49.49233	25.08202	-1.05949	0.25154	0.03391	56.55211	1.08947	77.54	26.33
90/11/ 6	2448201.5	3.69289	50.79766	25.11130	-1.07576	0.13363	-0.02516	56.78572	1.08432	85.84	26.25
90/11/ 6	2448202.0	-3.59992	51.30120	24.74385	-1.07494	0.01514	-0.08307	57.07040	1.07825	94.01	25.69
90/11/ 7	2448202.5	-10.83064	51.00632	23.99102	-1.05754	-0.10179	-0.13880	57.39788	1.07146	101.99	24.71
90/11/ 7	2448203.0	-17.88980	49.93037	22.87062	-1.02444	-0.21519	-0.19147	57.75943	1.06417	109.71	23.33
90/11/ 8	2448203.5	-24.67474	48.10331	21.40605	-0.97678	-0.32331	-0.24031	58.14629	1.05659	117.16	21.60
90/11/ 8	2448204.0	-31.09121	45.56619	19.62544	-0.91588	-0.42464	-0.28470	58.54997	1.04891	124.31	19.58
90/11/ 9	2448204.5	-37.05451	42.36940	17.56068	-0.84321	-0.51791	-0.32415	58.96253	1.04130	131.17	17.33
90/11/ 9	2448205.0	-42.49016	38.57111	15.24660	-0.76033	-0.60211	-0.35827	59.37679	1.03392	137.77	14.88
90/11/10	2448205.5	-47.33432	34.23565	12.72014	-0.66881	-0.67642	-0.38683	59.78645	1.02688	144.12	12.28
90/11/10	2448206.0	-51.53385	29.43204	10.01965	-0.57023	-0.74026	-0.40965	60.18618	1.02028	150.27	9.58
90/11/11	2448206.5	-55.04620	24.23272	7.18422	-0.46615	-0.79322	-0.42667	60.57162	1.01417	156.24	6.81
90/11/11	2448207.0	-57.83916	18.71235	4.25317	-0.35805	-0.83504	-0.43789	60.93939	1.00858	162.07	4.00
90/11/12	2448207.5	-59.89050	12.94680	1.26554	-0.24739	-0.86561	-0.44339	61.28698	1.00353	167.80	1.18
90/11/12	2448208.0	-61.18756	7.01226	-1.74029	-0.13554	-0.88495	-0.44329	61.61265	0.99901	173.46	-1.62
90/11/13	2448208.5	-61.72680	0.98442	-4.72695	-0.02382	-0.89319	-0.43776	61.91535	0.99498	179.09	-4.38
90/11/13	2448209.0	-61.51331	-5.06220	-7.65842	0.08653	-0.89054	-0.42703	62.19457	0.99142	184.70	-7.07
90/11/14	2448209.5	-60.56038	-11.05491	-10.50025	0.19434	-0.87733	-0.41134	62.45019	0.98827	190.35	-9.68
90/11/14	2448210.0	-58.88900	-16.92336	-13.21984	0.29851	-0.85393	-0.39098	62.68236	0.98548	196.03	-12.18
90/11/15	2448210.5	-56.52737	-22.60013	-15.78661	0.39800	-0.82081	-0.36627	62.89139	0.98300	201.79	-14.54
90/11/15	2448211.0	-53.51045	-28.02114	-18.17224	0.49186	-0.77850	-0.33755	63.07760	0.98078	207.64	-16.74
90/11/16	2448211.5	-49.87942	-33.12617	-20.35082	0.57920	-0.72760	-0.30519	63.24125	0.97879	213.59	-18.77
90/11/16	2448212.0	-45.68115	-37.85920	-22.29900	0.65923	-0.66876	-0.26958	63.38243	0.97699	219.65	-20.60
90/11/17	2448212.5	-40.96770	-42.16879	-23.99612	0.73122	-0.60268	-0.23113	63.50097	0.97536	225.83	-22.20
90/11/17	2448213.0	-35.79572	-46.00842	-25.42436	0.79453	-0.53011	-0.19025	63.59643	0.97391	232.12	-23.56
90/11/18	2448213.5	-30.22596	-49.33676	-26.56876	0.84860	-0.45184	-0.14739	63.66807	0.97263	238.51	-24.66
90/11/18	2448214.0	-24.32263	-52.11792	-27.41734	0.89296	-0.36867	-0.10297	63.71482	0.97154	244.98	-25.49
90/11/19	2448214.5	-18.15290	-54.32162	-27.96113	0.92721	-0.28146	-0.05746	63.73532	0.97069	251.52	-26.02
90/11/19	2448215.0	-11.78634	-55.92338	-28.19422	0.95104	-0.19107	-0.01130	63.72799	0.97011	258.10	-26.26
90/11/20	2448215.5	-5.29432	-56.90462	-28.11374	0.96422	-0.09837	0.03506	63.69104	0.96986	264.68	-26.19
90/11/20	2448216.0	1.25043	-57.25276	-27.71988	0.96659	-0.00427	0.08117	63.62258	0.97000	271.25	-25.83
90/11/21	2448216.5	7.77438	-56.96127	-27.01586	0.95807	0.09035	0.12657	63.52073	0.97061	277.77	-25.17
90/11/21	2448217.0	14.20367	-56.02977	-26.00794	0.93864	0.18457	0.17083	63.38369	0.97175	284.22	-24.23
90/11/22	2448217.5	20.46458	-54.46406	-24.70540	0.90836	0.27747	0.21350	63.20989	0.97350	290.59	-23.01
90/11/22	2448218.0	26.48401	-52.27620	-23.12051	0.86736	0.36813	0.25413	62.99811	0.97592	296.87	-21.53
90/11/23	2448218.5	32.18992	-49.48457	-21.26855	0.81582	0.45561	0.29229	62.74763	0.97907	303.04	-19.81
90/11/23	2448219.0	37.51188	-46.11396	-19.16779	0.75403	0.53894	0.32753	62.45833	0.98300	309.13	-17.87
90/11/24	2448219.5	42.38156	-42.19568	-16.83947	0.68233	0.61717	0.35941	62.13083	0.98775	315.13	-15.73
90/11/24	2448220.0	46.73332	-37.76767	-14.30788	0.60117	0.68929	0.38748	61.76662	0.99332	321.06	-13.39
90/11/25	2448220.5	50.50487	-32.87462	-11.60027	0.51110	0.75432	0.41131	61.36814	0.99970	326.94	-10.90

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
90/11/25	2448221.0	53.63804	-27.56810	-8.74690	0.41279	0.81122	0.43045	60.93888	1.00686	332.80	-8.25
90/11/26	2448221.5	56.07968	-21.90663	-5.78098	0.30705	0.85896	0.44448	60.48348	1.01472	338.66	-5.48
90/11/26	2448222.0	57.78270	-15.95566	-2.73856	0.19486	0.89654	0.45298	60.00769	1.02320	344.56	-2.62
90/11/27	2448222.5	58.70720	-9.78749	0.34162	0.07737	0.92294	0.45557	59.51846	1.03215	350.53	0.33
90/11/27	2448223.0	58.82181	-3.48095	3.41837	-0.04405	0.93724	0.45191	59.02379	1.04144	356.61	3.32
90/11/28	2448223.5	58.10510	2.87908	6.44845	-0.16783	0.93861	0.44175	58.53267	1.05085	2.84	6.33
90/11/28	2448224.0	56.54705	9.20251	9.38710	-0.29218	0.92634	0.42489	58.05491	1.06019	9.24	9.31
90/11/29	2448224.5	54.15052	15.39522	12.18869	-0.41508	0.89994	0.40128	57.60083	1.06921	15.87	12.22
90/11/29	2448225.0	50.93256	21.36054	14.80766	-0.53436	0.85918	0.37099	57.18099	1.07767	22.75	15.01
90/11/30	2448225.5	46.92551	27.00131	17.19952	-0.64771	0.80414	0.33427	56.80579	1.08531	29.92	17.62
90/11/30	2448226.0	42.17758	32.22215	19.32209	-0.75274	0.73529	0.29155	56.48503	1.09191	37.38	20.00
90/12/ 1	2448226.5	36.75300	36.93214	21.13673	-0.84714	0.65347	0.24346	56.22746	1.09724	45.14	22.08
90/12/ 1	2448227.0	30.73136	41.04761	22.60970	-0.92870	0.55998	0.19081	56.04035	1.10112	53.18	23.79
90/12/ 2	2448227.5	24.20624	44.49489	23.71338	-0.99552	0.45647	0.13459	55.92908	1.10342	61.45	25.09
90/12/ 2	2448228.0	17.28310	47.21288	24.42731	-1.04601	0.34498	0.07592	55.89682	1.10405	69.89	25.91
90/12/ 3	2448228.5	10.07644	49.15512	24.73895	-1.07909	0.22780	0.01600	55.94440	1.10299	78.42	26.24
90/12/ 3	2448229.0	2.70654	50.29126	24.64412	-1.09416	0.10736	-0.04390	56.07021	1.10029	86.92	26.07
90/12/ 4	2448229.5	-4.70410	50.60772	24.14701	-1.09115	-0.01383	-0.10259	56.27031	1.09605	95.31	25.41
90/12/ 4	2448230.0	-12.03427	50.10769	23.25984	-1.07052	-0.13335	-0.15890	56.53869	1.09043	103.50	24.29
90/12/ 5	2448230.5	-19.16736	48.81023	22.00219	-1.03314	-0.24895	-0.21183	56.86758	1.08362	111.44	22.76
90/12/ 5	2448231.0	-25.99412	46.74895	20.40005	-0.98030	-0.35859	-0.26050	57.24789	1.07584	119.08	20.88
90/12/ 6	2448231.5	-32.41495	43.97015	18.48474	-0.91355	-0.46057	-0.30420	57.66965	1.06735	126.40	18.69
90/12/ 6	2448232.0	-38.34141	40.53071	16.29175	-0.83462	-0.55347	-0.34242	58.12249	1.05838	133.41	16.28
90/12/ 7	2448232.5	-43.69727	36.49594	13.85962	-0.74536	-0.63620	-0.37477	58.59603	1.04918	140.13	13.68
90/12/ 7	2448233.0	-48.41888	31.93749	11.22885	-0.64764	-0.70800	-0.40105	59.08027	1.03997	146.59	10.96
90/12/ 8	2448233.5	-52.45517	26.93137	8.44094	-0.54329	-0.76833	-0.42117	59.56588	1.03096	152.82	8.15
90/12/ 8	2448234.0	-55.76728	21.55627	5.53765	-0.43408	-0.81693	-0.43514	60.04438	1.02232	158.87	5.29
90/12/ 9	2448234.5	-58.32794	15.89205	2.56028	-0.32166	-0.85371	-0.44307	60.50835	1.01419	164.76	2.43
90/12/ 9	2448235.0	-60.12077	10.01858	-0.45084	-0.20759	-0.87874	-0.44514	60.95148	1.00669	170.54	-0.42
90/12/10	2448235.5	-61.13948	4.01474	-3.45674	-0.09330	-0.89225	-0.44157	61.36859	0.99990	176.24	-3.23
90/12/10	2448236.0	-61.38706	-2.04238	-6.42016	0.01991	-0.89453	-0.43264	61.75566	0.99386	181.91	-5.97
90/12/11	2448236.5	-60.87501	-8.07805	-9.30572	0.13082	-0.88599	-0.41863	62.10973	0.98860	187.56	-8.62
90/12/11	2448237.0	-59.62263	-14.02039	-12.08014	0.23835	-0.86706	-0.39987	62.42883	0.98412	193.23	-11.16
90/12/12	2448237.5	-57.65635	-19.80080	-14.71237	0.34147	-0.83825	-0.37670	62.71189	0.98039	198.95	-13.57
90/12/12	2448238.0	-55.00920	-25.35423	-17.17368	0.43926	-0.80013	-0.34946	62.95859	0.97738	204.75	-15.83
90/12/13	2448238.5	-51.72019	-30.61950	-19.43775	0.53087	-0.75326	-0.31852	63.16928	0.97503	210.63	-17.92
90/12/13	2448239.0	-47.83388	-35.53953	-21.48078	0.61551	-0.69829	-0.28425	63.34478	0.97327	216.61	-19.82
90/12/14	2448239.5	-43.39992	-40.06163	-23.28152	0.69247	-0.63587	-0.24704	63.48634	0.97205	222.71	-21.51
90/12/14	2448240.0	-38.47258	-44.13769	-24.82142	0.76110	-0.56670	-0.20729	63.59542	0.97128	228.92	-22.97
90/12/15	2448240.5	-33.11034	-47.72448	-26.08465	0.82080	-0.49152	-0.16541	63.67362	0.97091	235.25	-24.18
90/12/15	2448241.0	-27.37545	-50.78385	-27.05821	0.87106	-0.41109	-0.12183	63.72253	0.97087	241.67	-25.13
90/12/16	2448241.5	-21.33342	-53.28300	-27.73201	0.91142	-0.32622	-0.07697	63.74368	0.97110	248.18	-25.79
90/12/16	2448242.0	-15.05263	-55.19468	-28.09890	0.94151	-0.23776	-0.03127	63.73839	0.97157	254.75	-26.16
90/12/17	2448242.5	-8.60373	-56.49744	-28.15478	0.96102	-0.14656	0.01480	63.70775	0.97224	261.34	-26.23
90/12/17	2448243.0	-2.05922	-57.17580	-27.89862	0.96972	-0.05353	0.06079	63.65254	0.97309	267.94	-26.00

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
90/12/18	2448243.5	4.50720	-57.22042	-27.33250	0.96747	0.04042	0.10625	63.57324	0.97412	274.50	-25.46
90/12/18	2448244.0	11.02113	-56.62827	-26.46161	0.95421	0.13435	0.15071	63.47002	0.97534	281.01	-24.64
90/12/19	2448244.5	17.40808	-55.40268	-25.29430	0.92999	0.22731	0.19371	63.34271	0.97676	287.44	-23.54
90/12/19	2448245.0	23.59408	-53.55347	-23.84198	0.89490	0.31834	0.23479	63.19094	0.97843	293.78	-22.17
90/12/20	2448245.5	29.50626	-51.09696	-22.11916	0.84917	0.40648	0.27351	63.01409	0.98037	300.00	-20.55
90/12/20	2448246.0	35.07352	-48.05599	-20.14337	0.79310	0.49077	0.30942	62.81150	0.98266	306.12	-18.70
90/12/21	2448246.5	40.22708	-44.45989	-17.93505	0.72709	0.57025	0.34210	62.58247	0.98533	312.14	-16.65
90/12/21	2448247.0	44.90119	-40.34448	-15.51757	0.65161	0.64397	0.37112	62.32646	0.98845	318.06	-14.42
90/12/22	2448247.5	49.03374	-35.75191	-12.91702	0.56728	0.71099	0.39609	62.04318	0.99207	323.90	-12.02
90/12/22	2448248.0	52.56698	-30.73064	-10.16218	0.47476	0.77041	0.41662	61.73272	0.99624	329.69	-9.47
90/12/23	2448248.5	55.44814	-25.33527	-7.28437	0.37487	0.82132	0.43235	61.39572	1.00100	335.44	-6.81
90/12/23	2448249.0	57.63028	-19.62636	-4.31729	0.26851	0.86285	0.44293	61.03345	1.00637	341.19	-4.06
90/12/24	2448249.5	59.07302	-13.67026	-1.29683	0.15671	0.89418	0.44806	60.64799	1.01236	346.97	-1.23
90/12/24	2448250.0	59.74345	-7.53875	1.73913	0.04065	0.91452	0.44746	60.24232	1.01893	352.81	1.65
90/12/25	2448250.5	59.61705	-1.30870	4.75100	-0.07835	0.92317	0.44091	59.82037	1.02605	358.74	4.56
90/12/25	2448251.0	58.67869	4.93852	7.69786	-0.19886	0.91949	0.42824	59.38715	1.03364	4.81	7.45
90/12/26	2448251.5	56.92364	11.11769	10.53787	-0.31923	0.90300	0.40935	58.94871	1.04158	11.05	10.30
90/12/26	2448252.0	54.35862	17.14071	13.22882	-0.43773	0.87334	0.38423	58.51210	1.04975	17.50	13.07
90/12/27	2448252.5	51.00277	22.91777	15.72880	-0.55244	0.83036	0.35298	58.08529	1.05796	24.20	15.71
90/12/27	2448253.0	46.88845	28.35878	17.99696	-0.66135	0.77415	0.31583	57.67701	1.06604	31.17	18.18
90/12/28	2448253.5	42.06194	33.37516	19.99447	-0.76239	0.70506	0.27314	57.29648	1.07376	38.43	20.42
90/12/28	2448254.0	36.58366	37.88185	21.68547	-0.85347	0.62378	0.22542	56.95312	1.08089	46.00	22.38
90/12/29	2448254.5	30.52803	41.79959	23.03821	-0.93255	0.53134	0.17337	56.65620	1.08722	53.86	23.99
90/12/29	2448255.0	23.98276	45.05727	24.02609	-0.99776	0.42913	0.11784	56.41439	1.09251	61.97	25.21
90/12/30	2448255.5	17.04750	47.59436	24.62874	-1.04747	0.31887	0.05980	56.23536	1.09656	70.29	25.97
90/12/30	2448256.0	9.83181	49.36309	24.83291	-1.08039	0.20260	0.00036	56.12533	1.09922	78.74	26.26
90/12/31	2448256.5	2.45262	50.33033	24.63310	-1.09565	0.08259	-0.05929	56.08874	1.10035	87.21	26.05
90/12/31	2448257.0	-4.96890	50.47892	24.03197	-1.09287	-0.03873	-0.11795	56.12795	1.09990	95.62	25.35
91/ 1/ 1	2448257.5	-12.31074	49.80831	23.04033	-1.07218	-0.15890	-0.17442	56.24303	1.09783	103.88	24.18
91/ 1/ 1	2448258.0	-19.45347	48.33453	21.67680	-1.03422	-0.27551	-0.22759	56.43180	1.09421	111.92	22.59
91/ 1/ 2	2448258.5	-26.28353	46.08935	19.96713	-0.98007	-0.38633	-0.27648	56.68985	1.08914	119.69	20.62
91/ 1/ 2	2448259.0	-32.69612	43.11887	17.94320	-0.91121	-0.48939	-0.32026	57.01081	1.08276	127.17	18.34
91/ 1/ 3	2448259.5	-38.59751	39.48151	15.64192	-0.82943	-0.58301	-0.35829	57.38665	1.07528	134.35	15.82
91/ 1/ 3	2448260.0	-43.90667	35.24578	13.10391	-0.73667	-0.66589	-0.39010	57.80807	1.06690	141.24	13.10
91/ 1/ 4	2448260.5	-48.55627	30.48787	10.37230	-0.63501	-0.73708	-0.41543	58.26496	1.05787	147.88	10.25
91/ 1/ 4	2448261.0	-52.49297	25.28927	7.49152	-0.52650	-0.79595	-0.43415	58.74676	1.04844	154.28	7.33
91/ 1/ 5	2448261.5	-55.67732	19.73461	4.50623	-0.41317	-0.84219	-0.44630	59.24293	1.03883	160.48	4.36
91/ 1/ 5	2448262.0	-58.08307	13.90967	1.46052	-0.29689	-0.87577	-0.45203	59.74324	1.02929	166.53	1.40
91/ 1/ 6	2448262.5	-59.69632	7.89983	-1.60291	-0.17943	-0.89684	-0.45158	60.23809	1.02002	172.46	-1.52
91/ 1/ 6	2448263.0	-60.51449	1.78871	-4.64320	-0.06236	-0.90574	-0.44525	60.71872	1.01119	178.31	-4.39
91/ 1/ 7	2448263.5	-60.54517	-4.34281	-7.62175	0.05289	-0.90294	-0.43341	61.17735	1.00297	184.10	-7.16
91/ 1/ 7	2448264.0	-59.80503	-10.41730	-10.50246	0.16506	-0.88900	-0.41643	61.60733	0.99548	189.88	-9.82
91/ 1/ 8	2448264.5	-58.31882	-16.36134	-13.25194	0.27302	-0.86453	-0.39472	62.00316	0.98882	195.67	-12.34
91/ 1/ 8	2448265.0	-56.11840	-22.10584	-15.83951	0.37580	-0.83019	-0.36869	62.36051	0.98304	201.50	-14.71
91/ 1/ 9	2448265.5	-53.24192	-27.58628	-18.23732	0.47252	-0.78667	-0.33875	62.67618	0.97820	207.39	-16.92

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
91/ 1/ 9	2448266.0	-49.73310	-32.74283	-20.42029	0.56241	-0.73467	-0.30532	62.94810	0.97430	213.36	-18.93
91/ 1/10	2448266.5	-45.64065	-37.52051	-22.36615	0.64476	-0.67491	-0.26880	63.17517	0.97132	219.42	-20.73
91/ 1/10	2448267.0	-41.01769	-41.86918	-24.05539	0.71896	-0.60811	-0.22961	63.35725	0.96924	225.59	-22.31
91/ 1/11	2448267.5	-35.92134	-45.74370	-25.47130	0.78446	-0.53502	-0.18815	63.49500	0.96800	231.86	-23.65
91/ 1/11	2448268.0	-30.41233	-49.10395	-26.59992	0.84074	-0.45638	-0.14485	63.58981	0.96753	238.23	-24.73
91/ 1/12	2448268.5	-24.55458	-51.91504	-27.43014	0.88737	-0.37298	-0.10011	63.64362	0.96776	244.69	-25.53
91/ 1/12	2448269.0	-18.41489	-54.14736	-27.95367	0.92393	-0.28561	-0.05436	63.65887	0.96860	251.22	-26.05
91/ 1/13	2448269.5	-12.06256	-55.77682	-28.16516	0.95011	-0.19510	-0.00803	63.63831	0.96997	257.80	-26.27
91/ 1/13	2448270.0	-5.56896	-56.78504	-28.06218	0.96561	-0.10231	0.03843	63.58490	0.97177	264.40	-26.19
91/ 1/14	2448270.5	0.99283	-57.15955	-27.64536	0.97022	-0.00812	0.08457	63.50169	0.97393	271.00	-25.81
91/ 1/14	2448271.0	7.54857	-56.89401	-26.91840	0.96380	0.08653	0.12993	63.39171	0.97636	277.56	-25.13
91/ 1/15	2448271.5	14.02334	-55.98844	-25.88815	0.94630	0.18071	0.17405	63.25786	0.97900	284.06	-24.16
91/ 1/15	2448272.0	20.34215	-54.44940	-24.56466	0.91776	0.27343	0.21645	63.10279	0.98178	290.49	-22.91
91/ 1/16	2448272.5	26.43059	-52.29014	-22.96114	0.87831	0.36369	0.25666	62.92892	0.98467	296.81	-21.40
91/ 1/16	2448273.0	32.21552	-49.53071	-21.09403	0.82819	0.45048	0.29421	62.73826	0.98762	303.04	-19.65
91/ 1/17	2448273.5	37.62582	-46.19805	-18.98289	0.76775	0.53280	0.32864	62.53249	0.99062	309.16	-17.67
91/ 1/17	2448274.0	42.59318	-42.32592	-16.65037	0.69748	0.60962	0.35951	62.31290	0.99366	315.18	-15.50
91/ 1/18	2448274.5	47.05290	-37.95486	-14.12206	0.61796	0.67997	0.38639	62.08042	0.99675	321.11	-13.15
91/ 1/18	2448275.0	50.94470	-33.13198	-11.42633	0.52991	0.74288	0.40888	61.83568	0.99993	326.96	-10.65
91/ 1/19	2448275.5	54.21358	-27.91074	-8.59417	0.43416	0.79745	0.42662	61.57907	1.00321	332.76	-8.02
91/ 1/19	2448276.0	56.81061	-22.35060	-5.65890	0.33168	0.84282	0.43927	61.31083	1.00664	338.52	-5.30
91/ 1/20	2448276.5	58.69373	-16.51658	-2.65593	0.22354	0.87820	0.44657	61.03118	1.01026	344.28	-2.49
91/ 1/20	2448277.0	59.82851	-10.47878	0.37758	0.11091	0.90288	0.44826	60.74042	1.01412	350.07	0.36
91/ 1/21	2448277.5	60.18894	-4.31179	3.40305	-0.00490	0.91625	0.44417	60.43907	1.01825	355.90	3.23
91/ 1/21	2448278.0	59.75809	1.90598	6.38088	-0.12250	0.91780	0.43418	60.12801	1.02268	1.83	6.09
91/ 1/22	2448278.5	58.52884	8.09310	9.27091	-0.24041	0.90715	0.41824	59.80863	1.02744	7.87	8.92
91/ 1/22	2448279.0	56.50446	14.16597	12.03287	-0.35703	0.88404	0.39637	59.48293	1.03252	14.07	11.67
91/ 1/23	2448279.5	53.69924	20.03981	14.62694	-0.47070	0.84838	0.36868	59.15361	1.03790	20.46	14.32
91/ 1/23	2448280.0	50.13890	25.62983	17.01433	-0.57972	0.80025	0.33538	58.82419	1.04353	27.08	16.81
91/ 1/24	2448280.5	45.86097	30.85244	19.15793	-0.68230	0.73995	0.29675	58.49896	1.04935	33.93	19.12
91/ 1/24	2448281.0	40.91501	35.62672	21.02299	-0.77669	0.66797	0.25321	58.18305	1.05524	41.05	21.18
91/ 1/25	2448281.5	35.36251	39.87591	22.57792	-0.86112	0.58504	0.20527	57.88228	1.06110	48.43	22.96
91/ 1/25	2448282.0	29.27668	43.52914	23.79502	-0.93391	0.49217	0.15357	57.60306	1.06677	56.08	24.40
91/ 1/26	2448282.5	22.74173	46.52314	24.65130	-0.99349	0.39061	0.09886	57.35220	1.07209	63.95	25.46
91/ 1/26	2448283.0	15.85191	48.80404	25.12925	-1.03849	0.28187	0.04200	57.13665	1.07688	72.01	26.09
91/ 1/27	2448283.5	8.71004	50.32910	25.21754	-1.06776	0.16772	-0.01604	56.96321	1.08097	80.18	26.28
91/ 1/27	2448284.0	1.42562	51.06820	24.91156	-1.08047	0.05013	-0.07425	56.83818	1.08418	88.40	25.99
91/ 1/28	2448284.5	-5.88747	51.00516	24.21388	-1.07618	-0.06878	-0.13153	56.76708	1.08636	96.58	25.25
91/ 1/28	2448285.0	-13.11357	50.13858	23.13440	-1.05481	-0.18678	-0.18681	56.75424	1.08739	104.66	24.06
91/ 1/29	2448285.5	-20.13811	48.48218	21.69025	-1.01676	-0.30164	-0.23904	56.80257	1.08716	112.56	22.45
91/ 1/29	2448286.0	-26.85053	46.06462	19.90543	-0.96281	-0.41119	-0.28725	56.91332	1.08563	120.24	20.47
91/ 1/30	2448286.5	-33.14704	42.92874	17.81021	-0.89417	-0.51344	-0.33057	57.08596	1.08279	127.67	18.18
91/ 1/30	2448287.0	-38.93317	39.13020	15.44023	-0.81238	-0.60660	-0.36828	57.31810	1.07868	134.86	15.63
91/ 1/31	2448287.5	-44.12580	34.73574	12.83542	-0.71924	-0.68919	-0.39983	57.60561	1.07338	141.79	12.87
91/ 1/31	2448288.0	-48.65475	29.82104	10.03893	-0.61674	-0.76005	-0.42484	57.94272	1.06702	148.50	9.98

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
91/ 2/ 1	2448288.5	-52.46365	24.46848	7.09586	-0.50697	-0.81838	-0.44310	58.32232	1.05976	155.00	6.99
91/ 2/ 1	2448289.0	-55.51037	18.76486	4.05213	-0.39202	-0.86367	-0.45457	58.73619	1.05178	161.32	3.96
91/ 2/ 2	2448289.5	-57.76676	12.79915	0.95346	-0.27392	-0.89576	-0.45935	59.17538	1.04327	167.51	0.92
91/ 2/ 2	2448290.0	-59.21814	6.66059	-2.15553	-0.15461	-0.91475	-0.45766	59.63051	1.03447	173.58	-2.07
91/ 2/ 3	2448290.5	-59.86230	0.43698	-5.23209	-0.03584	-0.92095	-0.44983	60.09210	1.02556	179.58	-4.99
91/ 2/ 3	2448291.0	-59.70838	-5.78668	-8.23584	0.08081	-0.91486	-0.43623	60.55085	1.01676	185.54	-7.82
91/ 2/ 4	2448291.5	-58.77569	-11.92928	-11.12923	0.19391	-0.89712	-0.41731	60.99795	1.00826	191.47	-10.51
91/ 2/ 4	2448292.0	-57.09239	-17.91430	-13.87774	0.30227	-0.86846	-0.39353	61.42519	1.00023	197.42	-13.06
91/ 2/ 5	2448292.5	-54.69432	-23.67038	-16.45009	0.40482	-0.82965	-0.36537	61.82524	0.99282	203.40	-15.43
91/ 2/ 5	2448293.0	-51.62394	-29.13160	-18.81820	0.50066	-0.78153	-0.33331	62.19169	0.98617	209.44	-17.61
91/ 2/ 6	2448293.5	-47.92932	-34.23766	-20.95726	0.58903	-0.72491	-0.29781	62.51915	0.98038	215.54	-19.59
91/ 2/ 6	2448294.0	-43.66332	-38.93391	-22.84562	0.66928	-0.66065	-0.25935	62.80332	0.97553	221.72	-21.33
91/ 2/ 7	2448294.5	-38.88289	-43.17134	-24.46477	0.74085	-0.58956	-0.21839	63.04100	0.97167	227.99	-22.83
91/ 2/ 7	2448295.0	-33.64847	-46.90654	-25.79920	0.80327	-0.51248	-0.17535	63.23007	0.96883	234.35	-24.08
91/ 2/ 8	2448295.5	-28.02353	-50.10169	-26.83640	0.85611	-0.43022	-0.13069	63.36947	0.96700	240.78	-25.06
91/ 2/ 8	2448296.0	-22.07413	-52.72445	-27.56676	0.89902	-0.34360	-0.08482	63.45913	0.96618	247.28	-25.75
91/ 2/ 9	2448296.5	-15.86860	-54.74804	-27.98356	0.93170	-0.25343	-0.03817	63.49992	0.96630	253.84	-26.15
91/ 2/ 9	2448297.0	-9.47722	-56.15128	-28.08296	0.95386	-0.16055	0.00884	63.49359	0.96732	260.42	-26.25
91/ 2/10	2448297.5	-2.97189	-56.91864	-27.86405	0.96531	-0.06581	0.05576	63.44264	0.96916	267.01	-26.05
91/ 2/10	2448298.0	3.57416	-57.04045	-27.32882	0.96587	0.02993	0.10217	63.35023	0.97171	273.59	-25.56
91/ 2/11	2448298.5	10.08676	-56.51306	-26.48229	0.95542	0.12575	0.14761	63.22009	0.97490	280.12	-24.76
91/ 2/11	2448299.0	16.49120	-55.33904	-25.33255	0.93393	0.22071	0.19163	63.05638	0.97860	286.59	-23.69
91/ 2/12	2448299.5	22.71274	-53.52744	-23.89078	0.90142	0.31385	0.23376	62.86354	0.98270	292.99	-22.34
91/ 2/12	2448300.0	28.67716	-51.09402	-22.17140	0.85803	0.40416	0.27353	62.64622	0.98711	299.30	-20.73
91/ 2/13	2448300.5	34.31146	-48.06143	-20.19204	0.80399	0.49061	0.31045	62.40910	0.99170	305.52	-18.88
91/ 2/13	2448301.0	39.54460	-44.45941	-17.97356	0.73964	0.57213	0.34406	62.15677	0.99638	311.65	-16.81
91/ 2/14	2448301.5	44.30837	-40.32486	-15.54003	0.66548	0.64768	0.37388	61.89361	1.00107	317.69	-14.54
91/ 2/14	2448302.0	48.53829	-35.70184	-12.91865	0.58212	0.71620	0.39946	61.62368	1.00567	323.66	-12.10
91/ 2/15	2448302.5	52.17465	-30.64145	-10.13957	0.49034	0.77667	0.42038	61.35065	1.01013	329.57	-9.51
91/ 2/15	2448303.0	55.16348	-25.20155	-7.23570	0.39108	0.82811	0.43625	61.07768	1.01440	335.45	-6.80
91/ 2/16	2448303.5	57.45764	-19.44642	-4.24241	0.28540	0.86961	0.44673	60.80741	1.01845	341.30	-4.00
91/ 2/16	2448304.0	59.01776	-13.44614	-1.19718	0.17454	0.90037	0.45154	60.54195	1.02227	347.17	-1.13
91/ 2/17	2448304.5	59.81322	-7.27590	1.86085	0.05984	0.91970	0.45048	60.28285	1.02584	353.06	1.77
91/ 2/17	2448305.0	59.82299	-1.01511	4.89138	-0.05722	0.92703	0.44340	60.03121	1.02921	359.03	4.67
91/ 2/18	2448305.5	59.03637	5.25353	7.85346	-0.17506	0.92197	0.43027	59.78770	1.03238	5.09	7.55
91/ 2/18	2448306.0	57.45355	11.44525	10.70612	-0.29205	0.90429	0.41111	59.55270	1.03539	11.27	10.36
91/ 2/19	2448306.5	55.08602	17.47431	13.40900	-0.40650	0.87395	0.38607	59.32640	1.03830	17.60	13.06
91/ 2/19	2448307.0	51.95684	23.25539	15.92294	-0.51668	0.83110	0.35537	59.10893	1.04114	24.11	15.63
91/ 2/20	2448307.5	48.10066	28.70487	18.21069	-0.62089	0.77611	0.31934	58.90053	1.04394	30.83	18.01
91/ 2/20	2448308.0	43.56361	33.74224	20.23755	-0.71746	0.70952	0.27840	58.70166	1.04675	37.76	20.17
91/ 2/21	2448308.5	38.40288	38.29149	21.97200	-0.80479	0.63211	0.23308	58.51314	1.04956	44.92	22.06
91/ 2/21	2448309.0	32.68625	42.28245	23.38629	-0.88138	0.54484	0.18397	58.33622	1.05239	52.29	23.63
91/ 2/22	2448309.5	26.49125	45.65221	24.45708	-0.94584	0.44888	0.13177	58.17267	1.05521	59.87	24.86
91/ 2/22	2448310.0	19.90420	48.34636	25.16594	-0.99696	0.34558	0.07723	58.02476	1.05798	67.62	25.70
91/ 2/23	2448310.5	13.01900	50.32026	25.49984	-1.03373	0.23646	0.02119	57.89529	1.06064	75.49	26.13

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 2/23	2448311.0	5.93567	51.54008	25.45152	-1.05535	0.12320	-0.03548	57.78747	1.06311	83.43	26.13
91/ 2/24	2448311.5	-1.24126	51.98381	25.01985	-1.06131	0.00760	-0.09186	57.70485	1.06530	91.37	25.70
91/ 2/24	2448312.0	-8.40470	51.64194	24.20996	-1.05135	-0.10846	-0.14701	57.65112	1.06710	99.24	24.83
91/ 2/25	2448312.5	-15.44693	50.51797	23.03333	-1.02555	-0.22303	-0.20001	57.62991	1.06841	107.00	23.56
91/ 2/25	2448313.0	-22.26182	48.62855	21.50762	-0.98431	-0.33417	-0.24994	57.64462	1.06911	114.60	21.91
91/ 2/26	2448313.5	-28.74699	46.00336	19.65646	-0.92834	-0.43999	-0.29597	57.69814	1.06911	122.00	19.92
91/ 2/26	2448314.0	-34.80603	42.68453	17.50893	-0.85867	-0.53871	-0.33734	57.79266	1.06833	129.19	17.64
91/ 2/27	2448314.5	-40.35047	38.72572	15.09898	-0.77662	-0.62872	-0.37337	57.92945	1.06669	136.18	15.11
91/ 2/27	2448315.0	-45.30163	34.19090	12.46461	-0.68376	-0.70859	-0.40353	58.10871	1.06417	142.96	12.39
91/ 2/28	2448315.5	-49.59209	29.15278	9.64702	-0.58183	-0.77717	-0.42741	58.32945	1.06076	149.55	9.52
91/ 2/28	2448316.0	-53.16684	23.69099	6.68966	-0.47273	-0.83357	-0.44477	58.58948	1.05647	155.98	6.56
91/ 3/ 1	2448316.5	-55.98391	17.89023	3.63721	-0.35842	-0.87719	-0.45549	58.88538	1.05138	162.28	3.54
91/ 3/ 1	2448317.0	-58.01464	11.83827	0.53460	-0.24086	-0.90772	-0.45960	59.21257	1.04556	168.47	0.52
91/ 3/ 2	2448317.5	-59.24351	5.62408	-2.57383	-0.12195	-0.92511	-0.45724	59.56550	1.03912	174.58	-2.48
91/ 3/ 2	2448318.0	-59.66763	-0.66393	-5.64515	-0.00351	-0.92957	-0.44869	59.93776	1.03220	180.64	-5.40
91/ 3/ 3	2448318.5	-59.29589	-6.93944	-8.63855	0.11280	-0.92150	-0.43430	60.32232	1.02494	186.68	-8.23
91/ 3/ 3	2448319.0	-58.14792	-13.11952	-11.51581	0.22547	-0.90150	-0.41447	60.71175	1.01751	192.71	-10.93
91/ 3/ 4	2448319.5	-56.25298	-19.12567	-14.24172	0.33317	-0.87027	-0.38969	61.09841	1.01006	198.78	-13.48
91/ 3/ 4	2448320.0	-53.64872	-24.88456	-16.78437	0.43475	-0.82863	-0.36044	61.47472	1.00277	204.88	-15.84
91/ 3/ 5	2448320.5	-50.38000	-30.32862	-19.11524	0.52923	-0.77745	-0.32724	61.83334	0.99579	211.05	-18.01
91/ 3/ 5	2448321.0	-46.49775	-35.39635	-21.20933	0.61579	-0.71765	-0.29060	62.16734	0.98928	217.28	-19.95
91/ 3/ 6	2448321.5	-42.05797	-40.03246	-23.04509	0.69376	-0.65015	-0.25104	62.47036	0.98337	223.59	-21.65
91/ 3/ 6	2448322.0	-37.12080	-44.18795	-24.60437	0.76258	-0.57588	-0.20904	62.73678	0.97820	229.97	-23.09
91/ 3/ 7	2448322.5	-31.74977	-47.82004	-25.87236	0.82181	-0.49575	-0.16510	62.96176	0.97386	236.42	-24.26
91/ 3/ 7	2448323.0	-26.01112	-50.89212	-26.83745	0.87109	-0.41066	-0.11967	63.14139	0.97044	242.93	-25.15
91/ 3/ 8	2448323.5	-19.97327	-53.37358	-27.49112	0.91012	-0.32149	-0.07322	63.27268	0.96801	249.48	-25.75
91/ 3/ 8	2448324.0	-13.70638	-55.23975	-27.82789	0.93869	-0.22911	-0.02617	63.35366	0.96660	256.06	-26.06
91/ 3/ 9	2448324.5	-7.28198	-56.47182	-27.84522	0.95661	-0.13439	0.02104	63.38336	0.96623	262.65	-26.06
91/ 3/ 9	2448325.0	-0.77264	-57.05683	-27.54347	0.96375	-0.03818	0.06798	63.36183	0.96690	269.22	-25.77
91/ 3/10	2448325.5	5.74829	-56.98765	-26.92590	0.96002	0.05864	0.11423	63.29012	0.96857	275.76	-25.18
91/ 3/10	2448326.0	12.20704	-56.26309	-25.99865	0.94538	0.15519	0.15936	63.17023	0.97120	282.24	-24.30
91/ 3/11	2448326.5	18.52966	-54.88806	-24.77080	0.91983	0.25057	0.20292	63.00508	0.97471	288.65	-23.15
91/ 3/11	2448327.0	24.64247	-52.87367	-23.25440	0.88344	0.34383	0.24449	62.79844	0.97901	294.99	-21.73
91/ 3/12	2448327.5	30.47245	-50.23754	-21.46456	0.83634	0.43400	0.28359	62.55484	0.98400	301.24	-20.07
91/ 3/12	2448328.0	35.94777	-47.00398	-19.41948	0.77876	0.52008	0.31978	62.27947	0.98955	307.41	-18.17
91/ 3/13	2448328.5	40.99850	-43.20423	-17.14053	0.71103	0.60102	0.35257	61.97806	0.99553	313.50	-16.05
91/ 3/13	2448329.0	45.55733	-38.87667	-14.65226	0.63359	0.67576	0.38151	61.65674	1.00182	319.52	-13.75
91/ 3/14	2448329.5	49.56050	-34.06696	-11.98239	0.54705	0.74321	0.40613	61.32192	1.00825	325.50	-11.27
91/ 3/14	2448330.0	52.94880	-28.82804	-9.16171	0.45217	0.80232	0.42597	60.98006	1.01470	331.43	-8.64
91/ 3/15	2448330.5	55.66872	-23.22004	-6.22394	0.34985	0.85203	0.44063	60.63756	1.02103	337.36	-5.89
91/ 3/15	2448331.0	57.67360	-17.31000	-3.20549	0.24122	0.89135	0.44974	60.30055	1.02712	343.29	-3.05
91/ 3/16	2448331.5	58.92492	-11.17134	-0.14511	0.12756	0.91940	0.45297	59.97472	1.03283	349.26	-0.14
91/ 3/16	2448332.0	59.39345	-4.88318	2.91658	0.01033	0.93539	0.45009	59.66518	1.03809	355.30	2.80
91/ 3/17	2448332.5	59.06037	1.47067	5.93768	-0.10886	0.93871	0.44096	59.37631	1.04282	1.43	5.74
91/ 3/17	2448333.0	57.91832	7.80284	8.87558	-0.22826	0.92894	0.42553	59.11169	1.04695	7.67	8.64

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 3/18	2448333.5	55.97205	14.02389	11.68782	-0.34603	0.90588	0.40387	58.87398	1.05046	14.07	11.45
91/ 3/18	2448334.0	53.23901	20.04382	14.33279	-0.46027	0.86957	0.37618	58.66495	1.05334	20.63	14.14
91/ 3/19	2448334.5	49.74949	25.77378	16.77062	-0.56910	0.82032	0.34277	58.48549	1.05560	27.39	16.66
91/ 3/19	2448335.0	45.54644	31.12784	18.96399	-0.67067	0.75869	0.30408	58.33570	1.05729	34.35	18.97
91/ 3/20	2448335.5	40.68506	36.02470	20.87890	-0.76322	0.68547	0.26064	58.21496	1.05845	41.52	21.02
91/ 3/20	2448336.0	35.23191	40.38937	22.48541	-0.84516	0.60173	0.21312	58.12213	1.05915	48.90	22.76
91/ 3/21	2448336.5	29.26383	44.15468	23.75827	-0.91506	0.50871	0.16225	58.05569	1.05945	56.47	24.16
91/ 3/21	2448337.0	22.86659	47.26261	24.67742	-0.97171	0.40786	0.10882	58.01388	1.05944	64.18	25.17
91/ 3/22	2448337.5	16.13332	49.66546	25.22843	-1.01414	0.30078	0.05368	57.99496	1.05917	72.00	25.79
91/ 3/22	2448338.0	9.16281	51.32668	25.40272	-1.04167	0.18916	-0.00228	57.99727	1.05871	79.88	25.98
91/ 3/23	2448338.5	2.05768	52.22159	25.19774	-1.05384	0.07479	-0.05817	58.01943	1.05810	87.74	25.74
91/ 3/23	2448339.0	-5.07742	52.33769	24.61697	-1.05052	-0.04051	-0.11310	58.06039	1.05737	95.54	25.09
91/ 3/24	2448339.5	-12.13776	51.67485	23.66982	-1.03181	-0.15492	-0.16621	58.11950	1.05653	103.22	24.03
91/ 3/24	2448340.0	-19.02028	50.24522	22.37143	-0.99810	-0.26665	-0.21668	58.19651	1.05558	110.73	22.61
91/ 3/25	2448340.5	-25.62544	48.07284	20.74234	-0.95003	-0.37397	-0.26375	58.29156	1.05450	118.06	20.84
91/ 3/25	2448341.0	-31.85885	45.19317	18.80806	-0.88849	-0.47525	-0.30670	58.40507	1.05325	125.18	18.79
91/ 3/26	2448341.5	-37.63289	41.65226	16.59857	-0.81458	-0.56898	-0.34492	58.53766	1.05179	132.10	16.47
91/ 3/26	2448342.0	-42.86808	37.50586	14.14776	-0.72961	-0.65383	-0.37788	58.69004	1.05005	138.82	13.95
91/ 3/27	2448342.5	-47.49435	32.81822	11.49273	-0.63503	-0.72863	-0.40516	58.86282	1.04801	145.36	11.26
91/ 3/27	2448343.0	-51.45203	27.66084	8.67311	-0.53245	-0.79240	-0.42644	59.05638	1.04559	151.74	8.45
91/ 3/28	2448343.5	-54.69264	22.11105	5.73030	-0.42357	-0.84440	-0.44151	59.27074	1.04276	157.99	5.55
91/ 3/28	2448344.0	-57.17943	16.25055	2.70673	-0.31015	-0.88409	-0.45028	59.50541	1.03949	164.13	2.61
91/ 3/29	2448344.5	-58.88757	10.16382	-0.35493	-0.19394	-0.91117	-0.45277	59.75931	1.03578	170.21	-0.34
91/ 3/29	2448345.0	-59.80418	3.93664	-3.41247	-0.07670	-0.92556	-0.44909	60.03068	1.03162	176.23	-3.26
91/ 3/30	2448345.5	-59.92803	-2.34538	-6.42483	0.03989	-0.92740	-0.43947	60.31706	1.02703	182.24	-6.11
91/ 3/30	2448346.0	-59.26897	-8.59819	-9.35270	0.15423	-0.91701	-0.42420	60.61529	1.02207	188.25	-8.88
91/ 3/31	2448346.5	-57.84727	-14.74051	-12.15904	0.26485	-0.89487	-0.40365	60.92152	1.01680	194.30	-11.51
91/ 3/31	2448347.0	-55.69269	-20.69489	-14.80954	0.37043	-0.86163	-0.37825	61.23134	1.01128	200.38	-14.00
91/ 4/ 1	2448347.5	-52.84353	-26.38863	-17.27288	0.46978	-0.81803	-0.34847	61.53983	1.00563	206.54	-16.30
91/ 4/ 1	2448348.0	-49.34554	-31.75440	-19.52106	0.56187	-0.76493	-0.31480	61.84170	0.99995	212.76	-18.40
91/ 4/ 2	2448348.5	-45.25093	-36.73080	-21.52947	0.64583	-0.70321	-0.27775	62.13144	0.99435	219.07	-20.27
91/ 4/ 2	2448349.0	-40.61726	-41.26268	-23.27698	0.72094	-0.63382	-0.23784	62.40343	0.98896	225.45	-21.90
91/ 4/ 3	2448349.5	-35.50654	-45.30133	-24.74597	0.78661	-0.55772	-0.19559	62.65212	0.98390	231.91	-23.26
91/ 4/ 3	2448350.0	-29.98430	-48.80457	-25.92225	0.84239	-0.47588	-0.15149	62.87215	0.97930	238.43	-24.35
91/ 4/ 4	2448350.5	-24.11884	-51.73670	-26.79501	0.88791	-0.38924	-0.10604	63.05853	0.97526	245.01	-25.15
91/ 4/ 4	2448351.0	-17.98052	-54.06847	-27.35667	0.92292	-0.29875	-0.05971	63.20669	0.97191	251.61	-25.65
91/ 4/ 5	2448351.5	-11.64115	-55.77692	-27.60285	0.94725	-0.20533	-0.01295	63.31270	0.96934	258.21	-25.85
91/ 4/ 5	2448352.0	-5.17357	-56.84529	-27.53217	0.96077	-0.10989	0.03378	63.37329	0.96763	264.80	-25.75
91/ 4/ 6	2448352.5	1.34887	-57.26291	-27.14625	0.96344	-0.01331	0.08007	63.38595	0.96685	271.35	-25.36
91/ 4/ 6	2448353.0	7.85257	-57.02509	-26.44958	0.95525	0.08351	0.12547	63.34907	0.96706	277.84	-24.68
91/ 4/ 7	2448353.5	14.26408	-56.13315	-25.44950	0.93623	0.17970	0.16959	63.26193	0.96829	284.26	-23.72
91/ 4/ 7	2448354.0	20.51036	-54.59436	-24.15616	0.90647	0.27437	0.21200	63.12478	0.97052	290.59	-22.50
91/ 4/ 8	2448354.5	26.51911	-52.42204	-22.58251	0.86612	0.36662	0.25229	62.93889	0.97377	296.83	-21.03
91/ 4/ 8	2448355.0	32.21916	-49.63572	-20.74437	0.81535	0.45553	0.29004	62.70652	0.97797	302.99	-19.32
91/ 4/ 9	2448355.5	37.54083	-46.26120	-18.66041	0.75443	0.54015	0.32481	62.43095	0.98307	309.06	-17.39

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM								MOO		
91/ 4/ 9	2448356.0	42.41648	-42.33086	-16.35223	0.68371	0.61950	0.35618	62.11646	0.98899	315.06	-15.26
91/ 4/10	2448356.5	46.78109	-37.88376	-13.84438	0.60361	0.69257	0.38370	61.76825	0.99560	321.00	-12.95
91/ 4/10	2448357.0	50.57303	-32.96591	-11.16438	0.51471	0.75833	0.40694	61.39239	1.00279	326.90	-10.48
91/ 4/11	2448357.5	53.73493	-27.63032	-8.34272	0.41769	0.81575	0.42546	60.99573	1.01041	332.79	-7.86
91/ 4/11	2448358.0	56.21470	-21.93713	-5.41276	0.31344	0.86376	0.43885	60.58571	1.01829	338.68	-5.13
91/ 4/12	2448358.5	57.96670	-15.95341	-2.41059	0.20298	0.90137	0.44672	60.17026	1.02627	344.61	-2.30
91/ 4/12	2448359.0	58.95298	-9.75298	0.62523	0.08755	0.92761	0.44873	59.75756	1.03416	350.61	0.60
91/ 4/13	2448359.5	59.14468	-3.41578	3.65403	-0.03140	0.94162	0.44461	59.35582	1.04178	356.69	3.53
91/ 4/13	2448360.0	58.52333	2.97283	6.63356	-0.15225	0.94269	0.43416	58.97306	1.04897	2.91	6.46
91/ 4/14	2448360.5	57.08211	9.32328	9.52061	-0.27319	0.93028	0.41730	58.61683	1.05555	9.28	9.35
91/ 4/14	2448361.0	54.82700	15.54315	12.27181	-0.39225	0.90410	0.39406	58.29396	1.06139	15.83	12.15
91/ 4/15	2448361.5	51.77755	21.53892	14.84449	-0.50740	0.86412	0.36462	58.01033	1.06635	22.59	14.83
91/ 4/15	2448362.0	47.96741	27.21791	17.19769	-0.61653	0.81063	0.32931	57.77065	1.07036	29.57	17.32
91/ 4/16	2448362.5	43.44433	32.49042	19.29314	-0.71759	0.74422	0.28861	57.57832	1.07335	36.79	19.58
91/ 4/16	2448363.0	38.26969	37.27191	21.09630	-0.80862	0.66582	0.24311	57.43534	1.07531	44.24	21.55
91/ 4/17	2448363.5	32.51753	41.48515	22.57722	-0.88785	0.57665	0.19359	57.34230	1.07623	51.91	23.19
91/ 4/17	2448364.0	26.27317	45.06215	23.71141	-0.95374	0.47821	0.14088	57.29841	1.07617	59.76	24.45
91/ 4/18	2448364.5	19.63126	47.94585	24.48041	-1.00506	0.37222	0.08591	57.30167	1.07521	67.73	25.29
91/ 4/18	2448365.0	12.69372	50.09143	24.87225	-1.04091	0.26057	0.02967	57.34903	1.07344	75.78	25.70
91/ 4/19	2448365.5	5.56736	51.46721	24.88162	-1.06076	0.14524	-0.02686	57.43661	1.07099	83.83	25.67
91/ 4/19	2448366.0	-1.63854	52.05508	24.50992	-1.06440	0.02825	-0.08270	57.55999	1.06798	91.80	25.20
91/ 4/20	2448366.5	-8.81458	51.85059	23.76503	-1.05199	-0.08841	-0.13691	57.71444	1.06454	99.65	24.32
91/ 4/20	2448367.0	-15.85347	50.86256	22.66097	-1.02400	-0.20281	-0.18863	57.89518	1.06080	107.31	23.04
91/ 4/21	2448367.5	-22.65206	49.11249	21.21735	-0.98118	-0.31315	-0.23705	58.09758	1.05686	114.76	21.42
91/ 4/21	2448368.0	-29.11308	46.63362	19.45886	-0.92450	-0.41776	-0.28150	58.31735	1.05284	121.98	19.49
91/ 4/22	2448368.5	-35.14667	43.46981	17.41456	-0.85517	-0.51517	-0.32136	58.55066	1.04880	128.96	17.30
91/ 4/22	2448369.0	-40.67153	39.67440	15.11717	-0.77452	-0.60407	-0.35616	58.79422	1.04481	135.71	14.90
91/ 4/23	2448369.5	-45.61594	35.30882	12.60244	-0.68402	-0.68337	-0.38549	59.04530	1.04090	142.26	12.32
91/ 4/23	2448370.0	-49.91841	30.44135	9.90839	-0.58522	-0.75215	-0.40907	59.30176	1.03709	148.62	9.62
91/ 4/24	2448370.5	-53.52820	25.14571	7.07465	-0.47974	-0.80970	-0.42671	59.56194	1.03337	154.84	6.82
91/ 4/24	2448371.0	-56.40557	19.49978	4.14180	-0.36922	-0.85551	-0.43833	59.82462	1.02974	160.93	3.97
91/ 4/25	2448371.5	-58.52192	13.58428	1.15077	-0.25529	-0.88926	-0.44390	60.08887	1.02616	166.93	1.10
91/ 4/25	2448372.0	-59.85968	7.48153	-1.85780	-0.13957	-0.91080	-0.44352	60.35400	1.02262	172.88	-1.76
91/ 4/26	2448372.5	-60.41209	1.27425	-4.84406	-0.02364	-0.92015	-0.43735	60.61938	1.01907	178.79	-4.58
91/ 4/26	2448373.0	-60.18289	-4.95555	-7.76948	0.09099	-0.91749	-0.42560	60.88433	1.01548	184.71	-7.33
91/ 4/27	2448373.5	-59.18577	-11.12764	-10.59728	0.20288	-0.90317	-0.40858	61.14803	1.01184	190.65	-9.98
91/ 4/27	2448374.0	-57.44383	-17.16454	-13.29286	0.31071	-0.87766	-0.38662	61.40941	1.00812	196.64	-12.50
91/ 4/28	2448374.5	-54.98885	-22.99236	-15.82413	0.41325	-0.84154	-0.36012	61.66705	1.00432	202.69	-14.87
91/ 4/28	2448375.0	-51.86052	-28.54158	-18.16179	0.50937	-0.79551	-0.32952	61.91919	1.00045	208.83	-17.06
91/ 4/29	2448375.5	-48.10563	-33.74768	-20.27960	0.59811	-0.74036	-0.29528	62.16366	0.99652	215.05	-19.04
91/ 4/29	2448376.0	-43.77720	-38.55166	-22.15449	0.67861	-0.67692	-0.25787	62.39787	0.99258	221.37	-20.80
91/ 4/30	2448376.5	-38.93357	-42.90043	-23.76670	0.75013	-0.60609	-0.21780	62.61889	0.98868	227.78	-22.31
91/ 4/30	2448377.0	-33.63758	-46.74714	-25.09985	0.81210	-0.52882	-0.17555	62.82344	0.98487	234.26	-23.55
91/ 5/ 1	2448377.5	-27.95570	-50.05134	-26.14093	0.86402	-0.44605	-0.13163	63.00798	0.98123	240.81	-24.51
91/ 5/ 1	2448378.0	-21.95722	-52.77906	-26.88028	0.90553	-0.35875	-0.08653	63.16881	0.97784	247.41	-25.18

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOO

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 5/ 2	2448378.5	-15.71356	-54.90289	-27.31153	0.93638	-0.26788	-0.04073	63.30215	0.97480	254.03	-25.56
91/ 5/ 2	2448379.0	-9.29757	-56.40185	-27.43150	0.95640	-0.17439	0.00531	63.40426	0.97218	260.64	-25.64
91/ 5/ 3	2448379.5	-2.78293	-57.26140	-27.24015	0.96550	-0.07922	0.05113	63.47155	0.97010	267.22	-25.41
91/ 5/ 3	2448380.0	3.75636	-57.47327	-26.74045	0.96369	0.01671	0.09629	63.50069	0.96863	273.74	-24.90
91/ 5/ 4	2448380.5	10.24650	-57.03540	-25.93827	0.95100	0.11249	0.14037	63.48875	0.96787	280.18	-24.11
91/ 5/ 4	2448381.0	16.61423	-55.95181	-24.84234	0.92757	0.20724	0.18296	63.43327	0.96789	286.54	-23.06
91/ 5/ 5	2448381.5	22.78730	-54.23255	-23.46414	0.89355	0.30006	0.22366	63.33242	0.96876	292.79	-21.75
91/ 5/ 5	2448382.0	28.69475	-51.89363	-21.81785	0.84917	0.39007	0.26206	63.18509	0.97053	298.94	-20.20
91/ 5/ 6	2448382.5	34.26733	-48.95703	-19.92031	0.79471	0.47640	0.29778	62.99095	0.97324	304.99	-18.44
91/ 5/ 6	2448383.0	39.43784	-45.45075	-17.79104	0.73051	0.55815	0.33043	62.75058	0.97691	310.95	-16.47
91/ 5/ 7	2448383.5	44.14158	-41.40882	-15.45215	0.65695	0.63442	0.35962	62.46550	0.98152	316.83	-14.32
91/ 5/ 7	2448384.0	48.31680	-36.87149	-12.92842	0.57453	0.70428	0.38495	62.13826	0.98706	322.65	-12.01
91/ 5/ 8	2448384.5	51.90534	-31.88526	-10.24727	0.48381	0.76681	0.40604	61.77249	0.99345	328.44	-9.55
91/ 5/ 8	2448385.0	54.85327	-26.50306	-7.43871	0.38549	0.82105	0.42251	61.37286	1.00062	334.21	-6.96
91/ 5/ 9	2448385.5	57.11176	-20.78424	-4.53534	0.28037	0.86605	0.43398	60.94512	1.00846	340.00	-4.27
91/ 5/ 9	2448386.0	58.63800	-14.79459	-1.57222	0.16943	0.90087	0.44009	60.49601	1.01684	345.84	-1.49
91/ 5/10	2448386.5	59.39631	-8.60622	1.41329	0.05381	0.92459	0.44054	60.03321	1.02559	351.76	1.35
91/ 5/10	2448387.0	59.35936	-2.29721	4.38179	-0.06516	0.93636	0.43503	59.56518	1.03454	357.78	4.22
91/ 5/11	2448387.5	58.50947	4.04892	7.29223	-0.18597	0.93544	0.42336	59.10100	1.04348	3.96	7.09
91/ 5/11	2448388.0	56.83996	10.34405	10.10240	-0.30689	0.92121	0.40541	58.65014	1.05222	10.31	9.92
91/ 5/12	2448388.5	54.35641	16.49659	12.76963	-0.42602	0.89328	0.38116	58.22216	1.06053	16.88	12.67
91/ 5/12	2448389.0	51.07782	22.41303	15.25161	-0.54131	0.85149	0.35074	57.82646	1.06821	23.69	15.29
91/ 5/13	2448389.5	47.03744	27.99977	17.50732	-0.65061	0.79598	0.31440	57.47185	1.07504	30.76	17.74
91/ 5/13	2448390.0	42.28326	33.16530	19.49808	-0.75173	0.72722	0.27259	57.16630	1.08085	38.11	19.94
91/ 5/14	2448390.5	36.87791	37.82256	21.18872	-0.84254	0.64606	0.22589	56.91650	1.08549	45.72	21.86
91/ 5/14	2448391.0	30.89807	41.89146	22.54866	-0.92106	0.55371	0.17507	56.72765	1.08885	53.59	23.42
91/ 5/15	2448391.5	24.43312	45.30124	23.55291	-0.98552	0.45172	0.12102	56.60318	1.09085	61.66	24.59
91/ 5/15	2448392.0	17.58333	47.99276	24.18297	-1.03449	0.34194	0.06475	56.54462	1.09146	69.88	25.32
91/ 5/16	2448392.5	10.45736	49.92022	24.42744	-1.06693	0.22646	0.00734	56.55161	1.09073	78.17	25.59
91/ 5/16	2448393.0	3.16953	51.05255	24.28237	-1.08223	0.10752	-0.05009	56.62192	1.08871	86.45	25.39
91/ 5/17	2448393.5	-4.16327	51.37407	23.75132	-1.08022	-0.01258	-0.10646	56.75168	1.08553	94.63	24.74
91/ 5/17	2448394.0	-11.42452	50.88462	22.84511	-1.06118	-0.13158	-0.16070	56.93561	1.08132	102.65	23.66
91/ 5/18	2448394.5	-18.50100	49.59902	21.58136	-1.02580	-0.24733	-0.21189	57.16734	1.07626	110.46	22.18
91/ 5/18	2448395.0	-25.28530	47.54613	19.98370	-0.97510	-0.35785	-0.25917	57.43979	1.07054	118.00	20.36
91/ 5/19	2448395.5	-31.67794	44.76743	18.08103	-0.91039	-0.46138	-0.30185	57.74546	1.06433	125.28	18.25
91/ 5/19	2448396.0	-37.58909	41.31543	15.90649	-0.83318	-0.55644	-0.33937	58.07685	1.05783	132.30	15.90
91/ 5/20	2448396.5	-42.93968	37.25184	13.49659	-0.74515	-0.64180	-0.37130	58.42665	1.05119	139.06	13.36
91/ 5/20	2448397.0	-47.66221	32.64581	10.89025	-0.64802	-0.71648	-0.39734	58.78803	1.04458	145.59	10.68
91/ 5/21	2448397.5	-51.70109	27.57220	8.12795	-0.54356	-0.77978	-0.41733	59.15482	1.03811	151.93	7.90
91/ 5/21	2448398.0	-55.01272	22.10988	5.25095	-0.43355	-0.83120	-0.43121	59.52158	1.03189	158.10	5.06
91/ 5/22	2448398.5	-57.56527	16.34033	2.30063	-0.31970	-0.87047	-0.43900	59.88372	1.02599	164.15	2.20
91/ 5/22	2448399.0	-59.33836	10.34622	-0.68215	-0.20365	-0.89751	-0.44082	60.23746	1.02045	170.11	-0.65
91/ 5/23	2448399.5	-60.32254	4.21027	-3.65753	-0.08699	-0.91238	-0.43685	60.57981	1.01530	176.01	-3.46
91/ 5/23	2448400.0	-60.51870	-1.98577	-6.58709	0.02880	-0.91530	-0.42733	60.90851	1.01055	181.88	-6.21
91/ 5/24	2448400.5	-59.93747	-8.16207	-9.43421	0.14234	-0.90661	-0.41256	61.22192	1.00619	187.75	-8.86

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 5/24	2448401.0	-58.59852	-14.24145	-12.16442	0.25234	-0.88676	-0.39286	61.51893	1.00218	193.66	-11.40
91/ 5/25	2448401.5	-56.52994	-20.15010	-14.74560	0.35761	-0.85630	-0.36861	61.79881	0.99850	199.62	-13.80
91/ 5/25	2448402.0	-53.76747	-25.81819	-17.14823	0.45707	-0.81584	-0.34021	62.06111	0.99511	205.65	-16.04
91/ 5/26	2448402.5	-50.35388	-31.18038	-19.34559	0.54973	-0.76609	-0.30807	62.30555	0.99197	211.77	-18.09
91/ 5/26	2448403.0	-46.33819	-36.17628	-21.31388	0.63473	-0.70781	-0.27264	62.53186	0.98904	217.98	-19.93
91/ 5/27	2448403.5	-41.77502	-40.75087	-23.03235	0.71128	-0.64182	-0.23438	62.73973	0.98630	224.29	-21.54
91/ 5/27	2448404.0	-36.72380	-44.85477	-24.48339	0.77874	-0.56897	-0.19375	62.92872	0.98372	230.69	-22.90
91/ 5/28	2448404.5	-31.24812	-48.44456	-25.65257	0.83654	-0.49016	-0.15123	63.09814	0.98128	237.18	-23.99
91/ 5/28	2448405.0	-25.41500	-51.48296	-26.52870	0.88422	-0.40630	-0.10729	63.24705	0.97900	243.73	-24.80
91/ 5/29	2448405.5	-19.29416	-53.93897	-27.10381	0.92145	-0.31834	-0.06242	63.37424	0.97688	250.32	-25.32
91/ 5/29	2448406.0	-12.95742	-55.78798	-27.37312	0.94795	-0.22721	-0.01707	63.47820	0.97495	256.92	-25.55
91/ 5/30	2448406.5	-6.47796	-57.01180	-27.33504	0.96357	-0.13388	0.02828	63.55717	0.97324	263.52	-25.47
91/ 5/30	2448407.0	0.07022	-57.59865	-26.99105	0.96824	-0.03928	0.07319	63.60917	0.97179	270.07	-25.11
91/ 5/31	2448407.5	6.61295	-57.54315	-26.34567	0.96197	0.05565	0.11721	63.63206	0.97068	276.56	-24.46
91/ 5/31	2448408.0	13.07642	-56.84620	-25.40636	0.94485	0.14998	0.15991	63.62363	0.96995	282.95	-23.54
91/ 6/ 1	2448408.5	19.38767	-55.51491	-24.18342	0.91705	0.24281	0.20089	63.58164	0.96969	289.25	-22.36
91/ 6/ 1	2448409.0	25.47510	-53.56253	-22.68991	0.87880	0.33324	0.23975	63.50399	0.96996	295.44	-20.93
91/ 6/ 2	2448409.5	31.26889	-51.00830	-20.94152	0.83040	0.42039	0.27609	63.38878	0.97083	301.51	-19.29
91/ 6/ 2	2448410.0	36.70147	-47.87738	-18.95657	0.77220	0.50339	0.30954	63.23443	0.97238	307.47	-17.44
91/ 6/ 3	2448410.5	41.70792	-44.20081	-16.75583	0.70464	0.58137	0.33975	63.03983	0.97465	313.34	-15.41
91/ 6/ 3	2448411.0	46.22645	-40.01539	-14.36252	0.62821	0.65350	0.36635	62.80445	0.97771	319.12	-13.22
91/ 6/ 4	2448411.5	50.19881	-35.36367	-11.80223	0.54346	0.71893	0.38900	62.52841	0.98160	324.84	-10.88
91/ 6/ 4	2448412.0	53.57083	-30.29391	-9.10281	0.45105	0.77681	0.40737	62.21267	0.98632	330.51	-8.41
91/ 6/ 5	2448412.5	56.29299	-24.86003	-6.29438	0.35169	0.82631	0.42114	61.85904	0.99189	336.17	-5.84
91/ 6/ 5	2448413.0	58.32103	-19.12159	-3.40917	0.24623	0.86661	0.43000	61.47032	0.99826	341.85	-3.18
91/ 6/ 6	2448413.5	59.61677	-13.14372	-0.48144	0.13562	0.89688	0.43365	61.05038	1.00541	347.57	-0.45
91/ 6/ 6	2448414.0	60.14889	-6.99690	2.45267	0.02093	0.91637	0.43184	60.60413	1.01324	353.36	2.32
91/ 6/ 7	2448414.5	59.89391	-0.75677	5.35538	-0.09659	0.92432	0.42434	60.13762	1.02165	359.28	5.11
91/ 6/ 7	2448415.0	58.83727	5.49630	8.18754	-0.21555	0.92009	0.41098	59.65793	1.03050	5.34	7.89
91/ 6/ 8	2448415.5	56.97441	11.67786	10.90902	-0.33438	0.90312	0.39165	59.17316	1.03963	11.58	10.62
91/ 6/ 8	2448416.0	54.31198	17.70021	13.47928	-0.45136	0.87302	0.36633	58.69224	1.04885	18.05	13.28
91/ 6/ 9	2448416.5	50.86886	23.47357	15.85795	-0.56458	0.82958	0.33510	58.22477	1.05795	24.77	15.80
91/ 6/ 9	2448417.0	46.67724	28.90757	18.00569	-0.67204	0.77284	0.29818	57.78077	1.06669	31.77	18.16
91/ 6/10	2448417.5	41.78325	33.91311	19.88507	-0.77163	0.70314	0.25593	57.37033	1.07486	39.06	20.28
91/ 6/10	2448418.0	36.24737	38.40445	21.46164	-0.86124	0.62115	0.20887	57.00329	1.08221	46.66	22.12
91/ 6/11	2448418.5	30.14425	42.30163	22.70502	-0.93880	0.52789	0.15767	56.68881	1.08852	54.53	23.61
91/ 6/11	2448419.0	23.56193	45.53295	23.58999	-1.00244	0.42479	0.10319	56.43493	1.09361	62.64	24.71
91/ 6/12	2448419.5	16.60048	48.03745	24.09755	-1.05052	0.31359	0.04640	56.24824	1.09730	70.94	25.37
91/ 6/12	2448420.0	9.36981	49.76716	24.21574	-1.08176	0.19636	-0.01160	56.13347	1.09950	79.34	25.56
91/ 6/13	2448420.5	1.98707	50.68896	23.94024	-1.09532	0.07542	-0.06966	56.09327	1.10012	87.76	25.26
91/ 6/13	2448421.0	-5.42657	50.78585	23.27473	-1.09086	-0.04681	-0.12658	56.12810	1.09918	96.10	24.50
91/ 6/14	2448421.5	-12.74928	50.05752	22.23077	-1.06854	-0.16785	-0.18122	56.23617	1.09672	104.29	23.29
91/ 6/14	2448422.0	-19.86197	48.52027	20.82743	-1.02900	-0.28530	-0.23253	56.41362	1.09284	112.26	21.67
91/ 6/15	2448422.5	-26.65155	46.20609	19.09062	-0.97334	-0.39692	-0.27956	56.65474	1.08770	119.98	19.69
91/ 6/15	2448423.0	-33.01360	43.16121	17.05206	-0.90303	-0.50076	-0.32152	56.95227	1.08147	127.41	17.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM					MOON		
91/ 6/16	2448423.5	-38.85467	39.44424	14.74824	-0.81981	-0.59514	-0.35780	57.29785	1.07438	134.57	14.92
91/ 6/16	2448424.0	-44.09383	35.12388	12.21921	-0.72562	-0.67874	-0.38796	57.68242	1.06664	141.46	12.23
91/ 6/17	2448424.5	-48.66359	30.27668	9.50738	-0.62248	-0.75057	-0.41174	58.09658	1.05848	148.11	9.42
91/ 6/17	2448425.0	-52.51032	24.98478	6.65646	-0.51245	-0.80998	-0.42903	58.53103	1.05011	154.55	6.53
91/ 6/18	2448425.5	-55.59412	19.33373	3.71046	-0.39752	-0.85659	-0.43983	58.97683	1.04174	160.82	3.61
91/ 6/18	2448426.0	-57.88833	13.41071	0.71287	-0.27960	-0.89029	-0.44429	59.42570	1.03353	166.96	0.69
91/ 6/19	2448426.5	-59.37878	7.30286	-2.29405	-0.16047	-0.91120	-0.44263	59.87015	1.02565	172.99	-2.20
91/ 6/19	2448427.0	-60.06296	1.09599	-5.26977	-0.04177	-0.91959	-0.43514	60.30365	1.01820	178.95	-5.01
91/ 6/20	2448427.5	-59.94893	-5.12655	-8.17594	0.07500	-0.91590	-0.42215	60.72069	1.01129	184.89	-7.74
91/ 6/20	2448428.0	-59.05444	-11.28464	-10.97666	0.18849	-0.90066	-0.40406	61.11675	1.00498	190.82	-10.35
91/ 6/21	2448428.5	-57.40587	-17.30210	-13.63872	0.29748	-0.87449	-0.38128	61.48830	0.99930	196.77	-12.82
91/ 6/21	2448429.0	-55.03737	-23.10719	-16.13173	0.40091	-0.83807	-0.35422	61.83273	0.99426	202.77	-15.12
91/ 6/22	2448429.5	-51.99000	-28.63298	-18.42824	0.49780	-0.79214	-0.32332	62.14827	0.98986	208.84	-17.25
91/ 6/22	2448430.0	-48.31096	-33.81763	-20.50377	0.58730	-0.73747	-0.28904	62.43385	0.98607	214.99	-19.17
91/ 6/23	2448430.5	-44.05282	-38.60471	-22.33692	0.66868	-0.67487	-0.25182	62.68901	0.98285	221.23	-20.87
91/ 6/23	2448431.0	-39.27293	-42.94331	-23.90932	0.74127	-0.60518	-0.21212	62.91380	0.98016	227.56	-22.34
91/ 6/24	2448431.5	-34.03272	-46.78825	-25.20572	0.80452	-0.52924	-0.17040	63.10860	0.97795	233.97	-23.54
91/ 6/24	2448432.0	-28.39716	-50.10026	-26.21394	0.85795	-0.44795	-0.12710	63.27405	0.97616	240.46	-24.47
91/ 6/25	2448432.5	-22.43412	-52.84603	-26.92492	0.90117	-0.36219	-0.08270	63.41091	0.97474	247.00	-25.13
91/ 6/25	2448433.0	-16.21381	-54.99838	-27.33270	0.93387	-0.27287	-0.03764	63.51996	0.97365	253.57	-25.49
91/ 6/26	2448433.5	-9.80825	-56.53630	-27.43439	0.95584	-0.18091	0.00761	63.60190	0.97284	260.16	-25.55
91/ 6/26	2448434.0	-3.29067	-57.44507	-27.23015	0.96693	-0.08724	0.05262	63.65725	0.97229	266.72	-25.33
91/ 6/27	2448434.5	3.26504	-57.71625	-26.72319	0.96710	0.00721	0.09693	63.68638	0.97197	273.24	-24.81
91/ 6/27	2448435.0	9.78488	-57.34774	-25.91968	0.95635	0.10150	0.14011	63.68938	0.97188	279.68	-24.01
91/ 6/28	2448435.5	16.19532	-56.34377	-24.82874	0.93482	0.19471	0.18174	63.66612	0.97202	286.04	-22.95
91/ 6/28	2448436.0	22.42383	-54.71483	-23.46231	0.90267	0.28590	0.22139	63.61619	0.97241	292.29	-21.64
91/ 6/29	2448436.5	28.39949	-52.47764	-21.83511	0.86020	0.37417	0.25868	63.53901	0.97307	298.42	-20.10
91/ 6/29	2448437.0	34.05345	-49.65504	-19.96455	0.80775	0.45862	0.29320	63.43377	0.97404	304.44	-18.34
91/ 6/30	2448437.5	39.31954	-46.27586	-17.87055	0.74574	0.53838	0.32459	63.29959	0.97536	310.35	-16.40
91/ 6/30	2448438.0	44.13472	-42.37479	-15.57552	0.67469	0.61259	0.35251	63.13551	0.97710	316.17	-14.28
91/ 7/ 1	2448438.5	48.43963	-37.99226	-13.10417	0.59517	0.68041	0.37660	62.94067	0.97929	321.89	-12.02
91/ 7/ 1	2448439.0	52.17914	-33.17422	-10.48341	0.50784	0.74105	0.39657	62.71438	0.98201	327.55	-9.62
91/ 7/ 2	2448439.5	55.30285	-27.97202	-7.74221	0.41346	0.79373	0.41212	62.45623	0.98529	333.17	-7.12
91/ 7/ 2	2448440.0	57.76566	-22.44217	-4.91147	0.31283	0.83768	0.42297	62.16626	0.98918	338.77	-4.53
91/ 7/ 3	2448440.5	59.52830	-16.64614	-2.02383	0.20686	0.87221	0.42888	61.84504	0.99373	344.38	-1.88
91/ 7/ 3	2448441.0	60.55804	-10.65010	0.88650	0.09658	0.89664	0.42964	61.49379	0.99894	350.03	0.83
91/ 7/ 4	2448441.5	60.82924	-4.52462	3.78393	-0.01693	0.91034	0.42505	61.11454	1.00482	355.75	3.55
91/ 7/ 4	2448442.0	60.32413	1.65569	6.63173	-0.13245	0.91274	0.41497	60.71015	1.01135	1.57	6.27
91/ 7/ 5	2448442.5	59.03358	7.81265	9.39237	-0.24864	0.90337	0.39929	60.28447	1.01849	7.54	8.96
91/ 7/ 5	2448443.0	56.95787	13.86509	12.02780	-0.36405	0.88182	0.37799	59.84235	1.02617	13.68	11.59
91/ 7/ 6	2448443.5	54.10757	19.72961	14.49995	-0.47709	0.84784	0.35109	59.38969	1.03427	20.03	14.13
91/ 7/ 6	2448444.0	50.50435	25.32151	16.77120	-0.58609	0.80132	0.31870	58.93336	1.04268	26.63	16.53
91/ 7/ 7	2448444.5	46.18171	30.55603	18.80508	-0.68923	0.74234	0.28104	58.48121	1.05123	33.49	18.76
91/ 7/ 7	2448445.0	41.18563	35.34972	20.56691	-0.78463	0.67122	0.23843	58.04185	1.05973	40.64	20.75
91/ 7/ 8	2448445.5	35.57492	39.62216	22.02473	-0.87040	0.58854	0.19135	57.62447	1.06799	48.08	22.47

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 7/ 8	2448446.0	29.42134	43.29796	23.15015	-0.94463	0.49521	0.14039	57.23861	1.07577	55.80	23.86
91/ 7/ 9	2448446.5	22.80913	46.30883	23.91935	-1.00554	0.39242	0.08630	56.89376	1.08284	63.78	24.86
91/ 7/ 9	2448447.0	15.83420	48.59584	24.31401	-1.05149	0.28174	0.02995	56.59901	1.08900	71.95	25.44
91/ 7/10	2448447.5	8.60256	50.11162	24.32224	-1.08115	0.16502	-0.02764	56.36267	1.09402	80.26	25.56
91/ 7/10	2448448.0	1.22824	50.82240	23.93928	-1.09349	0.04440	-0.08538	56.19176	1.09772	88.62	25.22
91/ 7/11	2448448.5	-6.16940	50.70958	23.16803	-1.08798	-0.07777	-0.14211	56.09172	1.09997	96.94	24.40
91/ 7/11	2448449.0	-13.46879	49.77092	22.01923	-1.06451	-0.19905	-0.19667	56.06603	1.10067	105.14	23.12
91/ 7/12	2448449.5	-20.54952	48.02091	20.51140	-1.02352	-0.31695	-0.24795	56.11602	1.09979	113.17	21.44
91/ 7/12	2448450.0	-27.29577	45.49052	18.67029	-0.96593	-0.42911	-0.29492	56.24078	1.09733	120.97	19.39
91/ 7/13	2448450.5	-33.59953	42.22614	16.52815	-0.89312	-0.53335	-0.33671	56.43718	1.09339	128.51	17.03
91/ 7/13	2448451.0	-39.36341	38.28794	14.12265	-0.80682	-0.62780	-0.37259	56.70003	1.08808	135.79	14.42
91/ 7/14	2448451.5	-44.50278	33.74769	11.49565	-0.70906	-0.71091	-0.40204	57.02240	1.08157	142.83	11.63
91/ 7/14	2448452.0	-48.94733	28.68628	8.69190	-0.60202	-0.78153	-0.42474	57.39593	1.07407	149.63	8.71
91/ 7/15	2448452.5	-52.64186	23.19110	5.75773	-0.48796	-0.83890	-0.44055	57.81128	1.06581	156.22	5.72
91/ 7/15	2448453.0	-55.54641	17.35353	2.73984	-0.36911	-0.88260	-0.44948	58.25852	1.05700	162.65	2.70
91/ 7/16	2448453.5	-57.63583	11.26660	-0.31573	-0.24761	-0.91255	-0.45171	58.72755	1.04790	168.94	-0.31
91/ 7/16	2448454.0	-58.89899	5.02291	-3.36449	-0.12544	-0.92894	-0.44753	59.20845	1.03872	175.13	-3.26
91/ 7/17	2448454.5	-59.33759	-1.28700	-6.36419	-0.00441	-0.93219	-0.43729	59.69178	1.02967	181.24	-6.12
91/ 7/17	2448455.0	-58.96492	-7.57604	-9.27531	0.11387	-0.92289	-0.42144	60.16884	1.02093	187.32	-8.87
91/ 7/18	2448455.5	-57.80450	-13.76155	-12.06140	0.22799	-0.90174	-0.40045	60.63182	1.01266	193.39	-11.47
91/ 7/18	2448456.0	-55.88875	-19.76599	-14.68928	0.33672	-0.86956	-0.37481	61.07391	1.00499	199.48	-13.92
91/ 7/19	2448456.5	-53.25783	-25.51746	-17.12916	0.43902	-0.82719	-0.34502	61.48939	0.99801	205.60	-16.17
91/ 7/19	2448457.0	-49.95843	-30.94996	-19.35467	0.53398	-0.77551	-0.31159	61.87364	0.99179	211.78	-18.23
91/ 7/20	2448457.5	-46.04287	-36.00352	-21.34280	0.62085	-0.71544	-0.27501	62.22310	0.98638	218.02	-20.06
91/ 7/20	2448458.0	-41.56821	-40.62432	-23.07389	0.69898	-0.64788	-0.23577	62.53524	0.98179	224.34	-21.65
91/ 7/21	2448458.5	-36.59546	-44.76468	-24.53155	0.76785	-0.57372	-0.19434	62.80844	0.97802	230.73	-22.99
91/ 7/21	2448459.0	-31.18898	-48.38302	-25.70255	0.82699	-0.49388	-0.15120	63.04198	0.97503	237.19	-24.06
91/ 7/22	2448459.5	-25.41592	-51.44389	-26.57682	0.87604	-0.40925	-0.10680	63.23583	0.97280	243.71	-24.85
91/ 7/22	2448460.0	-19.34564	-53.91790	-27.14736	0.91471	-0.32074	-0.06158	63.39064	0.97127	250.26	-25.36
91/ 7/23	2448460.5	-13.04930	-55.78178	-27.41017	0.94277	-0.22923	-0.01600	63.50755	0.97037	256.83	-25.57
91/ 7/23	2448461.0	-6.59936	-57.01836	-27.36426	0.96005	-0.13565	0.02951	63.58811	0.97003	263.40	-25.49
91/ 7/24	2448461.5	-0.06912	-57.61661	-27.01160	0.96647	-0.04089	0.07451	63.63415	0.97020	269.93	-25.12
91/ 7/24	2448462.0	6.46771	-57.57165	-26.35707	0.96200	0.05413	0.11858	63.64763	0.97079	276.41	-24.46
91/ 7/25	2448462.5	12.93752	-56.88485	-25.40845	0.94669	0.14849	0.16128	63.63061	0.97175	282.81	-23.54
91/ 7/25	2448463.0	19.26732	-55.56378	-24.17641	0.92068	0.24127	0.20220	63.58508	0.97301	289.12	-22.35
91/ 7/26	2448463.5	25.38521	-53.62230	-22.67440	0.88416	0.33154	0.24093	63.51290	0.97453	295.33	-20.92
91/ 7/26	2448464.0	31.22098	-51.08052	-20.91866	0.83743	0.41838	0.27706	63.41576	0.97626	301.43	-19.26
91/ 7/27	2448464.5	36.70670	-47.96475	-18.92813	0.78086	0.50088	0.31020	63.29513	0.97819	307.43	-17.40
91/ 7/27	2448465.0	41.77730	-44.30748	-16.72430	0.71493	0.57814	0.33998	63.15218	0.98029	313.32	-15.36
91/ 7/28	2448465.5	46.37121	-40.14717	-14.33118	0.64020	0.64928	0.36604	62.98783	0.98255	319.11	-13.15
91/ 7/28	2448466.0	50.43097	-35.52814	-11.77507	0.55732	0.71346	0.38806	62.80274	0.98500	324.84	-10.81
91/ 7/29	2448466.5	53.90387	-30.50029	-9.08446	0.46704	0.76987	0.40571	62.59731	0.98764	330.50	-8.34
91/ 7/29	2448467.0	56.74258	-25.11887	-6.28978	0.37019	0.81774	0.41874	62.37178	0.99050	336.12	-5.79
91/ 7/30	2448467.5	58.90575	-19.44413	-3.42324	0.26772	0.85637	0.42690	62.12632	0.99362	341.73	-3.16

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
91/ 7/30	2448468.0	60.35864	-13.54092	-0.51855	0.16063	0.88511	0.42998	61.86106	0.99704	347.36	-0.48
91/ 7/31	2448468.5	61.07375	-7.47825	2.38935	0.05005	0.90337	0.42782	61.57626	1.00080	353.02	2.22
91/ 7/31	2448469.0	61.03136	-1.32878	5.26454	-0.06285	0.91066	0.42030	61.27241	1.00494	358.75	4.93
91/ 8/ 1	2448469.5	60.22013	4.83173	8.07049	-0.17677	0.90657	0.40737	60.95032	1.00949	4.59	7.61
91/ 8/ 1	2448470.0	58.63763	10.92509	10.77039	-0.29036	0.89079	0.38899	60.61131	1.01446	10.55	10.24
91/ 8/ 2	2448470.5	56.29093	16.87138	13.32755	-0.40219	0.86312	0.36523	60.25724	1.01987	16.68	12.78
91/ 8/ 2	2448471.0	53.19701	22.58983	15.70583	-0.51075	0.82351	0.33620	59.89070	1.02570	23.01	15.20
91/ 8/ 3	2448471.5	49.38333	27.99970	17.87014	-0.61447	0.77203	0.30208	59.51503	1.03192	29.55	17.47
91/ 8/ 3	2448472.0	44.88812	33.02141	19.78695	-0.71173	0.70894	0.26317	59.13442	1.03846	36.34	19.55
91/ 8/ 4	2448472.5	39.76068	37.57771	21.42493	-0.80088	0.63469	0.21981	58.75392	1.04526	43.38	21.39
91/ 8/ 4	2448473.0	34.06150	41.59512	22.75557	-0.88028	0.54994	0.17250	58.37941	1.05218	50.69	22.94
91/ 8/ 5	2448473.5	27.86216	45.00542	23.75390	-0.94831	0.45559	0.12179	58.01754	1.05910	58.24	24.17
91/ 8/ 5	2448474.0	21.24488	47.74731	24.39921	-1.00345	0.35278	0.06838	57.67558	1.06585	66.01	25.03
91/ 8/ 6	2448474.5	14.30183	49.76816	24.67581	-1.04429	0.24292	0.01305	57.36120	1.07226	73.97	25.48
91/ 8/ 6	2448475.0	7.13396	51.02574	24.57371	-1.06966	0.12769	-0.04329	57.08228	1.07812	82.04	25.50
91/ 8/ 7	2448475.5	-0.15061	51.48991	24.08928	-1.07863	0.00897	-0.09968	56.84652	1.08326	90.17	25.07
91/ 8/ 7	2448476.0	-7.43864	51.14410	23.22573	-1.07061	-0.11113	-0.15507	56.66116	1.08748	98.28	24.20
91/ 8/ 8	2448476.5	-14.61423	49.98645	21.99339	-1.04543	-0.23038	-0.20840	56.53256	1.09061	106.30	22.89
91/ 8/ 8	2448477.0	-21.56166	48.03056	20.40980	-1.00332	-0.34647	-0.25862	56.46591	1.09251	114.18	21.19
91/ 8/ 9	2448477.5	-28.16838	45.30554	18.49944	-0.94498	-0.45712	-0.30473	56.46485	1.09307	121.87	19.12
91/ 8/ 9	2448478.0	-34.32806	41.85565	16.29328	-0.87153	-0.56017	-0.34583	56.53125	1.09223	129.36	16.75
91/ 8/10	2448478.5	-39.94343	37.73912	13.82795	-0.78453	-0.65367	-0.38115	56.66507	1.08997	136.63	14.12
91/ 8/10	2448479.0	-44.92876	33.02649	11.14468	-0.68582	-0.73594	-0.41009	56.86428	1.08634	143.68	11.30
91/ 8/11	2448479.5	-49.21185	27.79849	8.28821	-0.57753	-0.80566	-0.43225	57.12492	1.08142	150.54	8.34
91/ 8/11	2448480.0	-52.73538	22.14360	5.30540	-0.46191	-0.86188	-0.44738	57.44133	1.07533	157.22	5.30
91/ 8/12	2448480.5	-55.45753	16.15541	2.24405	-0.34128	-0.90402	-0.45545	57.80632	1.06825	163.76	2.22
91/ 8/12	2448481.0	-57.35206	9.93014	-0.84834	-0.21789	-0.93188	-0.45658	58.21156	1.06035	170.18	-0.84
91/ 8/13	2448481.5	-58.40773	3.56425	-3.92564	-0.09391	-0.94559	-0.45104	58.64791	1.05186	176.51	-3.84
91/ 8/13	2448482.0	-58.62734	-2.84766	-6.94390	0.02868	-0.94555	-0.43922	59.10577	1.04298	182.78	-6.75
91/ 8/14	2448482.5	-58.02644	-9.21450	-9.86208	0.14810	-0.93241	-0.42157	59.57546	1.03394	189.02	-9.53
91/ 8/14	2448483.0	-56.63182	-15.45009	-12.64251	0.26282	-0.90694	-0.39863	60.04749	1.02495	195.26	-12.15
91/ 8/15	2448483.5	-54.48000	-21.47410	-15.25120	0.37149	-0.87009	-0.37095	60.51286	1.01620	201.51	-14.60
91/ 8/15	2448484.0	-51.61574	-27.21268	-17.65798	0.47303	-0.82283	-0.33911	60.96326	1.00787	207.80	-16.84
91/ 8/16	2448484.5	-48.09060	-32.59885	-19.83657	0.56651	-0.76620	-0.30366	61.39121	1.00010	214.13	-18.85
91/ 8/16	2448485.0	-43.96171	-37.57266	-21.76450	0.65120	-0.70123	-0.26518	61.79021	0.99303	220.52	-20.62
91/ 8/17	2448485.5	-39.29069	-42.08116	-23.42300	0.72651	-0.62897	-0.22419	62.15480	0.98675	226.96	-22.14
91/ 8/17	2448486.0	-34.14268	-46.07836	-24.79691	0.79199	-0.55041	-0.18122	62.48059	0.98135	233.46	-23.38
91/ 8/18	2448486.5	-28.58557	-49.52504	-25.87449	0.84726	-0.46656	-0.13677	62.76427	0.97685	240.01	-24.35
91/ 8/18	2448487.0	-22.68938	-52.38858	-26.64729	0.89208	-0.37838	-0.09130	63.00357	0.97330	246.58	-25.02
91/ 8/19	2448487.5	-16.52565	-54.64280	-27.11002	0.92624	-0.28679	-0.04528	63.19720	0.97068	253.17	-25.40
91/ 8/19	2448488.0	-10.16702	-56.26783	-27.26042	0.94961	-0.19273	0.00085	63.34483	0.96897	259.76	-25.49
91/ 8/20	2448488.5	-3.68684	-57.24995	-27.09919	0.96213	-0.09710	0.04667	63.44695	0.96814	266.32	-25.28
91/ 8/20	2448489.0	2.84126	-57.58158	-26.62991	0.96376	-0.00079	0.09175	63.50483	0.96812	272.82	-24.79
91/ 8/21	2448489.5	9.34367	-57.26123	-25.85897	0.95455	0.09528	0.13568	63.52038	0.96884	279.27	-24.02
91/ 8/21	2448490.0	15.74723	-56.29345	-24.79559	0.93459	0.19023	0.17804	63.49606	0.97023	285.63	-22.99

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/ 8/22	2448490.5	21.97963	-54.68897	-23.45171	0.90404	0.28315	0.21843	63.43477	0.97220	291.90	-21.70
91/ 8/22	2448491.0	27.96982	-52.46461	-21.84206	0.86312	0.37312	0.25646	63.33973	0.97466	298.06	-20.17
91/ 8/23	2448491.5	33.64856	-49.64342	-19.98403	0.81213	0.45924	0.29171	63.21437	0.97752	304.13	-18.43
91/ 8/23	2448492.0	38.94892	-46.25466	-17.89771	0.75146	0.54057	0.32381	63.06219	0.98069	310.10	-16.49
91/ 8/24	2448492.5	43.80692	-42.33378	-15.60578	0.68159	0.61621	0.35236	62.88668	0.98410	315.98	-14.37
91/ 8/24	2448493.0	48.16218	-37.92239	-13.13343	0.60311	0.68526	0.37702	62.69123	0.98766	321.78	-12.09
91/ 8/25	2448493.5	51.95863	-33.06814	-10.50825	0.51670	0.74684	0.39744	62.47899	0.99132	327.53	-9.68
91/ 8/25	2448494.0	55.14524	-27.82451	-7.76005	0.42317	0.80011	0.41330	62.25287	0.99502	333.23	-7.16
91/ 8/26	2448494.5	57.67680	-22.25050	-4.92064	0.32343	0.84427	0.42433	62.01541	0.99873	338.90	-4.55
91/ 8/26	2448495.0	59.51465	-16.41027	-2.02360	0.21850	0.87861	0.43028	61.76881	1.00242	344.58	-1.88
91/ 8/27	2448495.5	60.62745	-10.37265	0.89601	0.10952	0.90247	0.43097	61.51490	1.00607	350.29	0.83
91/ 8/27	2448496.0	60.99186	-4.21048	3.80206	-0.00228	0.91530	0.42626	61.25513	1.00969	356.05	3.56
91/ 8/28	2448496.5	60.59320	2.00001	6.65768	-0.11558	0.91667	0.41607	60.99066	1.01329	1.89	6.27
91/ 8/28	2448497.0	59.42602	8.18006	9.42569	-0.22898	0.90627	0.40039	60.72239	1.01690	7.84	8.93
91/ 8/29	2448497.5	57.49457	14.24927	12.06910	-0.34101	0.88393	0.37929	60.45106	1.02053	13.92	11.52
91/ 8/29	2448498.0	54.81317	20.12657	14.55159	-0.45018	0.84961	0.35290	60.17733	1.02422	20.16	13.99
91/ 8/30	2448498.5	51.40650	25.73125	16.83797	-0.55492	0.80346	0.32143	59.90194	1.02801	26.59	16.33
91/ 8/30	2448499.0	47.30969	30.98410	18.89478	-0.65371	0.74578	0.28517	59.62579	1.03192	33.22	18.47
91/ 8/31	2448499.5	42.56835	35.80860	20.69081	-0.74500	0.67706	0.24449	59.35006	1.03596	40.07	20.40
91/ 8/31	2448500.0	37.23837	40.13210	22.19765	-0.82728	0.59797	0.19985	59.07637	1.04015	47.14	22.07
91/ 9/ 1	2448500.5	31.38565	43.88712	23.39023	-0.89913	0.50935	0.15179	58.80681	1.04447	54.43	23.44
91/ 9/ 1	2448501.0	25.08556	47.01261	24.24740	-0.95917	0.41227	0.10092	58.54406	1.04889	61.92	24.47
91/ 9/ 2	2448501.5	18.42222	49.45528	24.75245	-1.00620	0.30795	0.04793	58.29139	1.05336	69.57	25.13
91/ 9/ 2	2448502.0	11.48757	51.17087	24.89359	-1.03912	0.19782	-0.00641	58.05268	1.05781	77.35	25.39
91/ 9/ 3	2448502.5	4.38019	52.12540	24.66448	-1.05708	0.08349	-0.06126	57.83234	1.06214	85.20	25.24
91/ 9/ 3	2448503.0	-2.79620	52.29626	24.06453	-1.05942	-0.03328	-0.11576	57.63523	1.06624	93.06	24.68
91/ 9/ 4	2448503.5	-9.93443	51.67328	23.09926	-1.04577	-0.15061	-0.16899	57.46648	1.06999	100.88	23.70
91/ 9/ 4	2448504.0	-16.92587	50.25941	21.78042	-1.01609	-0.26649	-0.22001	57.33132	1.07325	108.61	22.33
91/ 9/ 5	2448504.5	-23.66263	48.07125	20.12606	-0.97064	-0.37891	-0.26792	57.23481	1.07587	116.21	20.59
91/ 9/ 5	2448505.0	-30.03990	45.13918	18.16028	-0.91007	-0.48583	-0.31183	57.18161	1.07773	123.64	18.52
91/ 9/ 6	2448505.5	-35.95842	41.50699	15.91292	-0.83537	-0.58533	-0.35094	57.17568	1.07871	130.90	16.16
91/ 9/ 6	2448506.0	-41.32676	37.23119	13.41896	-0.74786	-0.67560	-0.38454	57.22003	1.07870	137.98	13.56
91/ 9/ 7	2448506.5	-46.06358	32.37983	10.71776	-0.64918	-0.75505	-0.41205	57.31646	1.07765	144.90	10.78
91/ 9/ 7	2448507.0	-50.09949	27.03082	7.85213	-0.54121	-0.82235	-0.43303	57.46547	1.07550	151.65	7.85
91/ 9/ 8	2448507.5	-53.37851	21.27008	4.86732	-0.42603	-0.87649	-0.44721	57.66604	1.07226	158.27	4.84
91/ 9/ 8	2448508.0	-55.85909	15.18928	1.80985	-0.30581	-0.91678	-0.45448	57.91569	1.06797	164.79	1.79
91/ 9/ 9	2448508.5	-57.51452	8.88361	-1.27354	-0.18274	-0.94287	-0.45489	58.21049	1.06269	171.22	-1.25
91/ 9/ 9	2448509.0	-58.33289	2.44943	-4.33698	-0.05898	-0.95475	-0.44864	58.54515	1.05655	177.60	-4.25
91/ 9/10	2448509.5	-58.31647	-4.01780	-7.33639	0.06344	-0.95270	-0.43605	58.91329	1.04966	183.94	-7.15
91/ 9/10	2448510.0	-57.48080	-10.42546	-10.23027	0.18265	-0.93727	-0.41755	59.30759	1.04220	190.28	-9.93
91/ 9/11	2448510.5	-55.85338	-16.68536	-12.98034	0.29698	-0.90921	-0.39367	59.72010	1.03433	196.63	-12.55
91/ 9/11	2448511.0	-53.47225	-22.71504	-15.55197	0.40499	-0.86945	-0.36496	60.14249	1.02623	203.02	-14.99
91/ 9/12	2448511.5	-50.38444	-28.43866	-17.91448	0.50548	-0.81901	-0.33202	60.56631	1.01810	209.44	-17.20
91/ 9/12	2448512.0	-46.64441	-33.78763	-20.04127	0.59744	-0.75900	-0.29545	60.98325	1.01010	215.92	-19.19
91/ 9/13	2448512.5	-42.31267	-38.70093	-21.90985	0.68009	-0.69055	-0.25587	61.38538	1.00242	222.45	-20.91

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
91/ 9/13	2448513.0	-37.45440	-43.12526	-23.50173	0.75283	-0.61480	-0.21384	61.76529	0.99522	229.03	-22.36
91/ 9/14	2448513.5	-32.13836	-47.01494	-24.80232	0.81521	-0.53286	-0.16995	62.11629	0.98863	235.64	-23.53
91/ 9/14	2448514.0	-26.43582	-50.33175	-25.80076	0.86691	-0.44581	-0.12471	62.43250	0.98277	242.29	-24.41
91/ 9/15	2448514.5	-20.41981	-53.04473	-26.48969	0.90775	-0.35472	-0.07863	62.70897	0.97776	248.95	-24.99
91/ 9/15	2448515.0	-14.16442	-55.12983	-26.86506	0.93759	-0.26057	-0.03220	62.94172	0.97366	255.59	-25.27
91/ 9/16	2448515.5	-7.74423	-56.56970	-26.92601	0.95641	-0.16435	0.01414	63.12776	0.97053	262.20	-25.25
91/ 9/16	2448516.0	-1.23388	-57.35346	-26.67465	0.96422	-0.06698	0.05996	63.26515	0.96840	268.77	-24.94
91/ 9/17	2448516.5	5.29228	-57.47645	-26.11596	0.96109	0.03063	0.10483	63.35293	0.96728	275.26	-24.34
91/ 9/17	2448517.0	11.76056	-56.94010	-25.25767	0.94715	0.12757	0.14836	63.39113	0.96715	281.67	-23.48
91/ 9/18	2448517.5	18.09818	-55.75186	-24.11021	0.92254	0.22298	0.19016	63.38073	0.96797	287.98	-22.36
91/ 9/18	2448518.0	24.23363	-53.92513	-22.68663	0.88749	0.31597	0.22983	63.32355	0.96969	294.20	-20.99
91/ 9/19	2448518.5	30.09701	-51.47925	-21.00258	0.84225	0.40566	0.26701	63.22224	0.97223	300.31	-19.40
91/ 9/19	2448519.0	35.62035	-48.43957	-19.07629	0.78714	0.49116	0.30130	63.08016	0.97551	306.33	-17.60
91/ 9/20	2448519.5	40.73816	-44.83747	-16.92854	0.72257	0.57159	0.33234	62.90129	0.97942	312.26	-15.61
91/ 9/20	2448520.0	45.38788	-40.71041	-14.58265	0.64900	0.64603	0.35975	62.69011	0.98386	318.11	-13.45
91/ 9/21	2448520.5	49.51049	-36.10198	-12.06439	0.56703	0.71358	0.38318	62.45151	0.98871	323.90	-11.14
91/ 9/21	2448521.0	53.05127	-31.06185	-9.40194	0.47732	0.77336	0.40227	62.19061	0.99385	329.65	-8.70
91/ 9/22	2448521.5	55.96050	-25.64568	-6.62577	0.38068	0.82448	0.41671	61.91267	0.99917	335.38	-6.14
91/ 9/22	2448522.0	58.19436	-19.91491	-3.76843	0.27805	0.86612	0.42619	61.62295	1.00455	341.11	-3.51
91/ 9/23	2448522.5	59.71576	-13.93647	-0.86435	0.17048	0.89750	0.43047	61.32654	1.00989	346.86	-0.81
91/ 9/23	2448523.0	60.49528	-7.78226	2.05046	0.05919	0.91792	0.42934	61.02824	1.01509	352.67	1.93
91/ 9/24	2448523.5	60.51204	-1.52856	4.93882	-0.05452	0.92679	0.42264	60.73249	1.02007	358.55	4.66
91/ 9/24	2448524.0	59.75455	4.74482	7.76281	-0.16920	0.92366	0.41032	60.44320	1.02476	4.54	7.38
91/ 9/25	2448524.5	58.22140	10.95545	10.48429	-0.28330	0.90823	0.39238	60.16372	1.02912	10.66	10.04
91/ 9/25	2448525.0	55.92187	17.01944	13.06544	-0.39523	0.88036	0.36891	59.89677	1.03312	16.93	12.60
91/ 9/26	2448525.5	52.87636	22.85272	15.46945	-0.50331	0.84012	0.34011	59.64444	1.03673	23.37	15.03
91/ 9/26	2448526.0	49.11651	28.37233	17.66109	-0.60589	0.78780	0.30626	59.40821	1.03996	30.01	17.29
91/ 9/27	2448526.5	44.68525	33.49793	19.60742	-0.70131	0.72387	0.26774	59.18897	1.04284	36.86	19.35
91/ 9/27	2448527.0	39.63642	38.15320	21.27841	-0.78799	0.64905	0.22504	58.98715	1.04539	43.91	21.15
91/ 9/28	2448527.5	34.03431	42.26729	22.64754	-0.86445	0.56423	0.17870	58.80280	1.04765	51.16	22.65
91/ 9/28	2448528.0	27.95283	45.77620	23.69237	-0.92933	0.47054	0.12939	58.63573	1.04967	58.59	23.83
91/ 9/29	2448528.5	21.47451	48.62406	24.39504	-0.98145	0.36926	0.07779	58.48566	1.05150	66.17	24.65
91/ 9/29	2448529.0	14.68930	50.76432	24.74268	-1.01981	0.26184	0.02468	58.35231	1.05317	73.86	25.09
91/ 9/30	2448529.5	7.69320	52.16070	24.72774	-1.04362	0.14988	-0.02914	58.23560	1.05473	81.61	25.13
91/ 9/30	2448530.0	0.58669	52.78806	24.34823	-1.05234	0.03505	-0.08283	58.13570	1.05617	89.36	24.76
91/10/ 1	2448530.5	-6.52690	52.63305	23.60786	-1.04568	-0.08085	-0.13556	58.05316	1.05753	97.07	24.00
91/10/ 1	2448531.0	-13.54319	51.69450	22.51606	-1.02362	-0.19601	-0.18647	57.98890	1.05877	104.68	22.85
91/10/ 2	2448531.5	-20.35851	49.98369	21.08789	-0.98640	-0.30859	-0.23475	57.94426	1.05987	112.16	21.34
91/10/ 2	2448532.0	-26.87185	47.52427	19.34388	-0.93455	-0.41678	-0.27961	57.92096	1.06079	119.49	19.51
91/10/ 3	2448532.5	-32.98661	44.35198	17.30970	-0.86887	-0.51881	-0.32032	57.92098	1.06146	126.64	17.39
91/10/ 3	2448533.0	-38.61251	40.51415	15.01573	-0.79040	-0.61304	-0.35622	57.94648	1.06181	133.62	15.02
91/10/ 4	2448533.5	-43.66729	36.06885	12.49655	-0.70045	-0.69795	-0.38674	57.99964	1.06176	140.44	12.44
91/10/ 4	2448534.0	-48.07826	31.08383	9.79026	-0.60056	-0.77221	-0.41140	58.08247	1.06124	147.12	9.70
91/10/ 5	2448534.5	-51.78372	25.63523	6.93777	-0.49242	-0.83468	-0.42986	58.19666	1.06016	153.66	6.85
91/10/ 5	2448535.0	-54.73405	19.80597	3.98195	-0.37789	-0.88449	-0.44189	58.34337	1.05848	160.11	3.91

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
91/10/ 6	2448535.5	-56.89252	13.68412	0.96681	-0.25892	-0.92100	-0.44737	58.52307	1.05613	166.48	0.95
91/10/ 6	2448536.0	-58.23577	7.36105	-2.06340	-0.13749	-0.94387	-0.44635	58.73540	1.05310	172.80	-2.01
91/10/ 7	2448536.5	-58.75387	0.92958	-5.06507	-0.01558	-0.95302	-0.43898	58.97912	1.04938	179.09	-4.93
91/10/ 7	2448537.0	-58.45011	-5.51787	-7.99601	0.10489	-0.94864	-0.42552	59.25199	1.04498	185.39	-7.76
91/10/ 8	2448537.5	-57.34034	-11.89097	-10.81624	0.22214	-0.93116	-0.40635	59.55083	1.03996	191.72	-10.46
91/10/ 8	2448538.0	-55.45211	-18.10307	-13.48854	0.33451	-0.90122	-0.38192	59.87151	1.03439	198.08	-13.02
91/10/ 9	2448538.5	-52.82351	-24.07249	-15.97903	0.44053	-0.85965	-0.35276	60.20911	1.02835	204.50	-15.39
91/10/ 9	2448539.0	-49.50191	-29.72365	-18.25751	0.53895	-0.80741	-0.31942	60.55800	1.02196	210.98	-17.55
91/10/10	2448539.5	-45.54256	-34.98785	-20.29771	0.62869	-0.74556	-0.28249	60.91200	1.01534	217.53	-19.46
91/10/10	2448540.0	-41.00723	-39.80382	-22.07740	0.70891	-0.67524	-0.24259	61.26458	1.00864	224.15	-21.12
91/10/11	2448540.5	-35.96280	-44.11810	-23.57843	0.77893	-0.59761	-0.20031	61.60903	1.00199	230.81	-22.50
91/10/11	2448541.0	-30.48007	-47.88510	-24.78667	0.83827	-0.51383	-0.15622	61.93865	0.99555	237.52	-23.59
91/10/12	2448541.5	-24.63258	-51.06706	-25.69182	0.88660	-0.42504	-0.11090	62.24691	0.98945	244.25	-24.38
91/10/12	2448542.0	-18.49562	-53.63390	-26.28731	0.92372	-0.33237	-0.06487	62.52764	0.98384	250.97	-24.86
91/10/13	2448542.5	-12.14541	-55.56295	-26.57006	0.94956	-0.23688	-0.01863	62.77516	0.97884	257.67	-25.04
91/10/13	2448543.0	-5.65839	-56.83864	-26.54027	0.96413	-0.13961	0.02734	62.98440	0.97457	264.31	-24.92
91/10/14	2448543.5	0.88939	-57.45221	-26.20124	0.96753	-0.04152	0.07261	63.15103	0.97113	270.89	-24.51
91/10/14	2448544.0	7.42269	-57.40141	-25.55919	0.95989	0.05643	0.11676	63.27156	0.96861	277.37	-23.83
91/10/15	2448544.5	13.86747	-56.69020	-24.62305	0.94142	0.15334	0.15939	63.34335	0.96706	283.75	-22.88
91/10/15	2448545.0	20.15122	-55.32858	-23.40440	0.91238	0.24834	0.20012	63.36473	0.96652	290.01	-21.68
91/10/16	2448545.5	26.20322	-53.33240	-21.91734	0.87304	0.34058	0.23859	63.33501	0.96702	296.17	-20.25
91/10/16	2448546.0	31.95484	-50.72329	-20.17838	0.82374	0.42920	0.27445	63.25449	0.96855	302.21	-18.60
91/10/17	2448546.5	37.33982	-47.52855	-18.20643	0.76484	0.51337	0.30733	63.12447	0.97107	308.15	-16.76
91/10/17	2448547.0	42.29459	-43.78121	-16.02275	0.69678	0.59224	0.33691	62.94724	0.97455	314.01	-14.75
91/10/18	2448547.5	46.75870	-39.52002	-13.65091	0.62004	0.66496	0.36284	62.72603	0.97892	319.80	-12.57
91/10/18	2448548.0	50.67525	-34.78952	-11.11680	0.53519	0.73068	0.38478	62.46499	0.98406	325.53	-10.25
91/10/19	2448548.5	53.99151	-29.64004	-8.44853	0.44290	0.78854	0.40240	62.16907	0.98989	331.23	-7.81
91/10/19	2448549.0	56.65957	-24.12774	-5.67642	0.34392	0.83768	0.41539	61.84397	0.99626	336.93	-5.27
91/10/20	2448549.5	58.63712	-18.31453	-2.83285	0.23915	0.87726	0.42345	61.49601	1.00304	342.65	-2.64
91/10/20	2448550.0	59.88837	-12.26785	0.04786	0.12963	0.90649	0.42632	61.13198	1.01009	348.42	0.04
91/10/21	2448550.5	60.38496	-6.06041	2.92976	0.01652	0.92462	0.42377	60.75899	1.01723	354.27	2.76
91/10/21	2448551.0	60.10702	0.23033	5.77553	-0.09885	0.93099	0.41563	60.38430	1.02433	0.22	5.49
91/10/22	2448551.5	59.04416	6.52285	8.54692	-0.21500	0.92507	0.40179	60.01509	1.03122	6.30	8.19
91/10/22	2448552.0	57.19645	12.73254	11.20529	-0.33033	0.90648	0.38225	59.65828	1.03776	12.55	10.83
91/10/23	2448552.5	54.57524	18.77281	13.71217	-0.44312	0.87503	0.35709	59.32031	1.04381	18.98	13.37
91/10/23	2448553.0	51.20386	24.55656	16.03005	-0.55155	0.83075	0.32648	59.00697	1.04926	25.62	15.76
91/10/24	2448553.5	47.11798	29.99772	18.12306	-0.65380	0.77393	0.29075	58.72318	1.05402	32.48	17.98
91/10/24	2448554.0	42.36571	35.01303	19.95783	-0.74803	0.70512	0.25031	58.47290	1.05801	39.57	19.96
91/10/25	2448554.5	37.00729	39.52387	21.50428	-0.83250	0.62513	0.20571	58.25899	1.06121	46.88	21.66
91/10/25	2448555.0	31.11443	43.45811	22.73640	-0.90559	0.53505	0.15760	58.08321	1.06359	54.40	23.04
91/10/26	2448555.5	24.76919	46.75182	23.63294	-0.96587	0.43622	0.10674	57.94620	1.06517	62.09	24.07
91/10/26	2448556.0	18.06256	49.35088	24.17797	-1.01213	0.33020	0.05395	57.84756	1.06600	69.90	24.71
91/10/27	2448556.5	11.09271	51.21229	24.36134	-1.04347	0.21870	0.00010	57.78600	1.06614	77.78	24.93
91/10/27	2448557.0	3.96303	52.30514	24.17893	-1.05925	0.10357	-0.05391	57.75945	1.06567	85.67	24.75
91/10/28	2448557.5	-3.21999	52.61136	23.63278	-1.05919	-0.01327	-0.10717	57.76532	1.06468	93.50	24.15

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
91/10/28	2448558.0	-10.34891	52.12596	22.73098	-1.04330	-0.12987	-0.15878	57.80063	1.06328	101.23	23.16
91/10/29	2448558.5	-17.31744	50.85705	21.48750	-1.01191	-0.24432	-0.20793	57.86230	1.06155	108.80	21.80
91/10/29	2448559.0	-24.02250	48.82549	19.92181	-0.96563	-0.35478	-0.25381	57.94728	1.05959	116.20	20.11
91/10/30	2448559.5	-30.36607	46.06425	18.05841	-0.90533	-0.45951	-0.29572	58.05273	1.05746	123.39	18.12
91/10/30	2448560.0	-36.25687	42.61759	15.92633	-0.83213	-0.55692	-0.33306	58.17618	1.05524	130.39	15.89
91/10/31	2448560.5	-41.61180	38.54001	13.55842	-0.74733	-0.64559	-0.36528	58.31556	1.05296	137.19	13.44
91/10/31	2448561.0	-46.35719	33.89504	10.99081	-0.65239	-0.72428	-0.39197	58.46931	1.05064	143.83	10.83
91/11/ 1	2448561.5	-50.42980	28.75397	8.26209	-0.54894	-0.79193	-0.41281	58.63632	1.04828	150.31	8.10
91/11/ 1	2448562.0	-53.77758	23.19445	5.41270	-0.43865	-0.84772	-0.42757	58.81588	1.04588	156.67	5.28
91/11/ 2	2448562.5	-56.36024	17.29904	2.48417	-0.32330	-0.89103	-0.43616	59.00767	1.04340	162.94	2.41
91/11/ 2	2448563.0	-58.14955	11.15379	-0.48154	-0.20468	-0.92145	-0.43856	59.21156	1.04082	169.14	-0.47
91/11/ 3	2448563.5	-59.12944	4.84670	-3.44277	-0.08458	-0.93880	-0.43486	59.42755	1.03808	175.31	-3.32
91/11/ 3	2448564.0	-59.29590	-1.53364	-6.35878	0.03524	-0.94311	-0.42525	59.65559	1.03514	181.48	-6.12
91/11/ 4	2448564.5	-58.65663	-7.89952	-9.19035	0.15307	-0.93459	-0.40998	59.89545	1.03197	187.67	-8.83
91/11/ 4	2448565.0	-57.23055	-14.16543	-11.90037	0.26732	-0.91367	-0.38941	60.14660	1.02854	193.90	-11.41
91/11/ 5	2448565.5	-55.04708	-20.24924	-14.45427	0.37648	-0.88093	-0.36396	60.40810	1.02481	200.20	-13.84
91/11/ 5	2448566.0	-52.14528	-26.07335	-16.82052	0.47922	-0.83711	-0.33408	60.67849	1.02080	206.57	-16.09
91/11/ 6	2448566.5	-48.57286	-31.56563	-18.97090	0.57433	-0.78310	-0.30030	60.95578	1.01650	213.02	-18.13
91/11/ 6	2448567.0	-44.38512	-36.66021	-20.88079	0.66076	-0.71984	-0.26316	61.23738	1.01195	219.56	-19.94
91/11/ 7	2448567.5	-39.64375	-41.29807	-22.52932	0.73768	-0.64841	-0.22322	61.52014	1.00719	226.17	-21.48
91/11/ 7	2448568.0	-34.41573	-45.42750	-23.89948	0.80437	-0.56990	-0.18105	61.80036	1.00228	232.85	-22.75
91/11/ 8	2448568.5	-28.77213	-49.00438	-24.97810	0.86032	-0.48543	-0.13723	62.07391	0.99731	239.58	-23.73
91/11/ 8	2448569.0	-22.78704	-51.99228	-25.75584	0.90516	-0.39616	-0.09229	62.33626	0.99236	246.33	-24.40
91/11/ 9	2448569.5	-16.53655	-54.36242	-26.22701	0.93867	-0.30320	-0.04679	62.58263	0.98753	253.08	-24.78
91/11/ 9	2448570.0	-10.09781	-56.09356	-26.38949	0.96074	-0.20765	-0.00122	62.80811	0.98293	259.80	-24.84
91/11/10	2448570.5	-3.54819	-57.17181	-26.24451	0.97142	-0.11058	0.04392	63.00777	0.97868	266.45	-24.62
91/11/10	2448571.0	3.03536	-57.59029	-25.79646	0.97079	-0.01299	0.08820	63.17683	0.97488	273.02	-24.10
91/11/11	2448571.5	9.57699	-57.34889	-25.05273	0.95907	0.08412	0.13117	63.31076	0.97165	279.48	-23.31
91/11/11	2448572.0	16.00239	-56.45394	-24.02348	0.93652	0.17984	0.17245	63.40545	0.96910	285.83	-22.26
91/11/12	2448572.5	22.23924	-54.91790	-22.72145	0.90345	0.27328	0.21166	63.45726	0.96732	292.05	-20.98
91/11/12	2448573.0	28.21752	-52.75915	-21.16187	0.86023	0.36359	0.24844	63.46322	0.96640	298.14	-19.48
91/11/13	2448573.5	33.86988	-50.00167	-19.36227	0.80728	0.44994	0.28248	63.42108	0.96641	304.11	-17.78
91/11/13	2448574.0	39.13182	-46.67499	-17.34240	0.74503	0.53154	0.31344	63.32940	0.96739	309.98	-15.89
91/11/14	2448574.5	43.94206	-42.81397	-15.12413	0.67398	0.60760	0.34101	63.18766	0.96939	315.74	-13.85
91/11/14	2448575.0	48.24281	-38.45877	-12.73138	0.59467	0.67734	0.36491	62.99630	0.97241	321.44	-11.66
91/11/15	2448575.5	51.98009	-33.65479	-10.19010	0.50770	0.73999	0.38483	62.75677	0.97644	327.08	-9.34
91/11/15	2448576.0	55.10421	-28.45268	-7.52820	0.41372	0.79478	0.40048	62.47162	0.98144	332.69	-6.92
91/11/16	2448576.5	57.57023	-22.90833	-4.77547	0.31350	0.84093	0.41160	62.14441	0.98735	338.30	-4.41
91/11/16	2448577.0	59.33858	-17.08284	-1.96355	0.20786	0.87767	0.41792	61.77982	0.99407	343.94	-1.82
91/11/17	2448577.5	60.37580	-11.04242	0.87420	0.09777	0.90427	0.41919	61.38352	1.00149	349.64	0.82
91/11/17	2448578.0	60.65534	-4.85826	3.70285	-0.01568	0.92000	0.41520	60.96216	1.00948	355.42	3.48
91/11/18	2448578.5	60.15854	1.39380	6.48616	-0.13126	0.92422	0.40577	60.52324	1.01787	1.33	6.15
91/11/18	2448579.0	58.87558	7.63373	9.18684	-0.24759	0.91633	0.39079	60.07500	1.02649	7.39	8.80
91/11/19	2448579.5	56.80658	13.77800	11.76701	-0.36311	0.89591	0.37019	59.62620	1.03515	13.63	11.38
91/11/19	2448580.0	53.96262	19.74055	14.18875	-0.47613	0.86264	0.34401	59.18592	1.04364	20.09	13.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
91/11/20	2448580.5	50.36665	25.43398	16.41468	-0.58485	0.81644	0.31240	58.76332	1.05177	26.79	16.22
91/11/20	2448581.0	46.05428	30.77115	18.40879	-0.68736	0.75748	0.27561	58.36732	1.05934	33.75	18.38
91/11/21	2448581.5	41.07420	35.66691	20.13731	-0.78170	0.68620	0.23405	58.00629	1.06616	40.97	20.31
91/11/21	2448582.0	35.48827	40.04016	21.56955	-0.86595	0.60334	0.18823	57.68775	1.07206	48.45	21.96
91/11/22	2448582.5	29.37109	43.81601	22.67894	-0.93828	0.51000	0.13883	57.41810	1.07691	56.16	23.26
91/11/22	2448583.0	22.80911	46.92797	23.44387	-0.99704	0.40756	0.08665	57.20231	1.08060	64.08	24.19
91/11/23	2448583.5	15.89912	49.32000	23.84849	-1.04084	0.29771	0.03259	57.04380	1.08307	72.13	24.71
91/11/23	2448584.0	8.74625	50.94837	23.88336	-1.06861	0.18239	-0.02236	56.94425	1.08429	80.26	24.80
91/11/24	2448584.5	1.46161	51.78305	23.54583	-1.07967	0.06370	-0.07720	56.90366	1.08430	88.38	24.44
91/11/24	2448585.0	-5.84045	51.80869	22.84024	-1.07375	-0.05614	-0.13088	56.92036	1.08315	96.43	23.66
91/11/25	2448585.5	-13.04518	51.02499	21.77777	-1.05098	-0.17492	-0.18242	56.99120	1.08095	104.34	22.47
91/11/25	2448586.0	-20.04016	49.44655	20.37616	-1.01193	-0.29047	-0.23088	57.11179	1.07782	112.06	20.90
91/11/26	2448586.5	-26.71794	47.10221	18.65906	-0.95750	-0.40076	-0.27545	57.27675	1.07391	119.56	19.01
91/11/26	2448587.0	-32.97836	44.03392	16.65539	-0.88891	-0.50396	-0.31540	57.48008	1.06940	126.83	16.84
91/11/27	2448587.5	-38.73038	40.29534	14.39844	-0.80764	-0.59845	-0.35015	57.71544	1.06444	133.87	14.45
91/11/27	2448588.0	-43.89363	35.95010	11.92500	-0.71534	-0.68289	-0.37927	57.97643	1.05920	140.68	11.87
91/11/28	2448588.5	-48.39940	31.07011	9.27442	-0.61379	-0.75620	-0.40242	58.25691	1.05381	147.30	9.16
91/11/28	2448589.0	-52.19126	25.73368	6.48777	-0.50484	-0.81756	-0.41943	58.55118	1.04842	153.75	6.36
91/11/29	2448589.5	-55.22540	20.02384	3.60699	-0.39035	-0.86640	-0.43021	58.85413	1.04312	160.07	3.51
91/11/29	2448590.0	-57.47057	14.02663	0.67415	-0.27217	-0.90238	-0.43481	59.16137	1.03799	166.28	0.65
91/11/30	2448590.5	-58.90788	7.82960	-2.26923	-0.15209	-0.92540	-0.43335	59.46924	1.03309	172.43	-2.19
91/11/30	2448591.0	-59.53034	1.52043	-5.18273	-0.03183	-0.93552	-0.42603	59.77486	1.02845	178.54	-4.97
91/12/ 1	2448591.5	-59.34232	-4.81432	-8.02758	0.08698	-0.93301	-0.41313	60.07604	1.02408	184.64	-7.68
91/12/ 1	2448592.0	-58.35887	-11.09033	-10.76709	0.20281	-0.91826	-0.39498	60.37122	1.01997	190.76	-10.27
91/12/ 2	2448592.5	-56.60501	-17.22648	-13.36699	0.31425	-0.89181	-0.37197	60.65934	1.01609	196.93	-12.73
91/12/ 2	2448593.0	-54.11489	-23.14569	-15.79576	0.42002	-0.85431	-0.34453	60.93973	1.01241	203.16	-15.02
91/12/ 3	2448593.5	-50.93099	-28.77570	-18.02491	0.51894	-0.80654	-0.31310	61.21196	1.00888	209.47	-17.13
91/12/ 3	2448594.0	-47.10323	-34.04973	-20.02914	0.60998	-0.74934	-0.27819	61.47573	1.00547	215.86	-19.01
91/12/ 4	2448594.5	-42.68810	-38.90696	-21.78653	0.69225	-0.68363	-0.24030	61.73069	1.00214	222.35	-20.67
91/12/ 4	2448595.0	-37.74772	-43.29304	-23.27864	0.76497	-0.61038	-0.19995	61.97639	0.99886	228.91	-22.06
91/12/ 5	2448595.5	-32.34894	-47.16043	-24.49060	0.82751	-0.53063	-0.15766	62.21214	0.99559	235.55	-23.18
91/12/ 5	2448596.0	-26.56241	-50.46863	-25.41110	0.87939	-0.44544	-0.11397	62.43692	0.99234	242.24	-24.02
91/12/ 6	2448596.5	-20.46168	-53.18439	-26.03241	0.92025	-0.35587	-0.06940	62.64939	0.98910	248.96	-24.55
91/12/ 6	2448597.0	-14.12229	-55.28172	-26.35029	0.94984	-0.26300	-0.02445	62.84779	0.98588	255.67	-24.79
91/12/ 7	2448597.5	-7.62094	-56.74192	-26.36391	0.96806	-0.16790	0.02037	63.03000	0.98273	262.35	-24.73
91/12/ 7	2448598.0	-1.03469	-57.55347	-26.07575	0.97492	-0.07163	0.06459	63.19349	0.97968	268.97	-24.37
91/12/ 8	2448598.5	5.55976	-57.71186	-25.49141	0.97051	0.02480	0.10776	63.33547	0.97679	275.50	-23.73
91/12/ 8	2448599.0	12.08678	-57.21936	-24.61945	0.95505	0.12041	0.14945	63.45284	0.97414	281.93	-22.83
91/12/ 9	2448599.5	18.47236	-56.08481	-23.47128	0.92880	0.21424	0.18926	63.54238	0.97180	288.23	-21.68
91/12/ 9	2448600.0	24.64466	-54.32329	-22.06089	0.89213	0.30540	0.22682	63.60080	0.96985	294.40	-20.30
91/12/10	2448600.5	30.53449	-51.95588	-20.40473	0.84546	0.39302	0.26177	63.62485	0.96840	300.44	-18.71
91/12/10	2448601.0	36.07568	-49.00935	-18.52153	0.78926	0.47628	0.29381	63.61146	0.96752	306.36	-16.93
91/12/11	2448601.5	41.20544	-45.51588	-16.43214	0.72406	0.55440	0.32261	63.55784	0.96732	312.15	-14.98
91/12/11	2448602.0	45.86471	-41.51287	-14.15938	0.65043	0.62662	0.34791	63.46162	0.96786	317.85	-12.89
91/12/12	2448602.5	49.99842	-37.04270	-11.72794	0.56898	0.69223	0.36943	63.32099	0.96922	323.47	-10.67

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
91/12/12	2448603.0	53.55588	-32.15253	-9.16424	0.48038	0.75052	0.38692	63.13478	0.97147	329.02	-8.35
91/12/13	2448603.5	56.49104	-26.89423	-6.49633	0.38534	0.80083	0.40016	62.90262	0.97465	334.54	-5.93
91/12/13	2448604.0	58.76289	-21.32416	-3.75382	0.28465	0.84248	0.40892	62.62498	0.97878	340.05	-3.44
91/12/14	2448604.5	60.33595	-15.50312	-0.96777	0.17914	0.87483	0.41299	62.30337	0.98386	345.59	-0.89
91/12/14	2448605.0	61.18068	-9.49620	1.82944	0.06974	0.89727	0.41218	61.94030	0.98987	351.18	1.69
91/12/15	2448605.5	61.27420	-3.37261	4.60419	-0.04251	0.90918	0.40633	61.53942	0.99676	356.85	4.29
91/12/15	2448606.0	60.60089	2.79450	7.32187	-0.15650	0.91003	0.39531	61.10554	1.00445	2.64	6.88
91/12/16	2448606.5	59.15327	8.92844	9.94705	-0.27094	0.89931	0.37901	60.64462	1.01283	8.58	9.44
91/12/16	2448607.0	56.93278	14.94942	12.44381	-0.38447	0.87661	0.35738	60.16374	1.02176	14.71	11.94
91/12/17	2448607.5	53.95080	20.77523	14.77611	-0.49555	0.84164	0.33045	59.67103	1.03108	21.06	14.34
91/12/17	2448608.0	50.22947	26.32210	16.90835	-0.60250	0.79424	0.29833	59.17554	1.04059	27.66	16.60
91/12/18	2448608.5	45.80265	31.50596	18.80590	-0.70357	0.73447	0.26120	58.68705	1.05008	34.52	18.69
91/12/18	2448609.0	40.71659	36.24384	20.43592	-0.79686	0.66262	0.21939	58.21584	1.05933	41.67	20.55
91/12/19	2448609.5	35.03039	40.45567	21.76817	-0.88046	0.57925	0.17335	57.77234	1.06808	49.11	22.14
91/12/19	2448610.0	28.81611	44.06634	22.77593	-0.95249	0.48527	0.12368	57.36684	1.07611	56.82	23.39
91/12/20	2448610.5	22.15836	47.00792	23.43701	-1.01113	0.38191	0.07111	57.00904	1.08319	64.76	24.27
91/12/20	2448611.0	15.15332	49.22195	23.73465	-1.05479	0.27073	0.01652	56.70764	1.08910	72.89	24.74
91/12/21	2448611.5	7.90717	50.66176	23.65843	-1.08214	0.15363	-0.03911	56.46998	1.09369	81.13	24.77
91/12/21	2448612.0	0.53386	51.29445	23.20491	-1.09222	0.03277	-0.09471	56.30163	1.09680	89.40	24.34
91/12/22	2448612.5	-6.84768	51.10244	22.37810	-1.08452	-0.08950	-0.14916	56.20613	1.09838	97.63	23.46
91/12/22	2448613.0	-14.11668	50.08453	21.18957	-1.05902	-0.21070	-0.20134	56.18486	1.09839	105.74	22.16
91/12/23	2448613.5	-21.15392	48.25618	19.65829	-1.01620	-0.32841	-0.25020	56.23696	1.09687	113.67	20.46
91/12/23	2448614.0	-27.84503	45.64910	17.81005	-0.95701	-0.44028	-0.29478	56.35942	1.09390	121.38	18.42
91/12/24	2448614.5	-34.08361	42.31012	15.67669	-0.88283	-0.54420	-0.33427	56.54731	1.08963	128.85	16.10
91/12/24	2448615.0	-39.77379	38.29952	13.29507	-0.79538	-0.63833	-0.36800	56.79407	1.08422	136.08	13.54
91/12/25	2448615.5	-44.83228	33.68884	10.70588	-0.69664	-0.72118	-0.39550	57.09192	1.07788	143.08	10.81
91/12/25	2448616.0	-49.18971	28.55859	7.95243	-0.58873	-0.79160	-0.41647	57.43223	1.07083	149.86	7.96
91/12/26	2448616.5	-52.79137	22.99572	5.07949	-0.47384	-0.84883	-0.43078	57.80599	1.06330	156.46	5.04
91/12/26	2448617.0	-55.59736	17.09127	2.13219	-0.35413	-0.89242	-0.43844	58.20416	1.05549	162.91	2.10
91/12/27	2448617.5	-57.58222	10.93823	-0.84491	-0.23170	-0.92224	-0.43961	58.61801	1.04760	169.24	-0.83
91/12/27	2448618.0	-58.73426	4.62956	-3.80867	-0.10852	-0.93842	-0.43455	59.03941	1.03982	175.49	-3.70
91/12/28	2448618.5	-59.05457	-1.74340	-6.71793	0.01361	-0.94130	-0.42358	59.46102	1.03230	181.69	-6.49
91/12/28	2448619.0	-58.55600	-8.09226	-9.53408	0.13304	-0.93140	-0.40712	59.87644	1.02516	187.87	-9.16
91/12/29	2448619.5	-57.26191	-14.33263	-12.22134	0.24829	-0.90938	-0.38560	60.28028	1.01848	194.05	-11.70
91/12/29	2448620.0	-55.20511	-20.38492	-14.74709	0.35806	-0.87600	-0.35951	60.66816	1.01233	200.27	-14.07
91/12/30	2448620.5	-52.42665	-26.17500	-17.08196	0.46121	-0.83209	-0.32932	61.03669	1.00675	206.53	-16.25
91/12/30	2448621.0	-48.97485	-31.63459	-19.19999	0.55674	-0.77856	-0.29556	61.38341	1.00173	212.86	-18.23
91/12/31	2448621.5	-44.90426	-36.70165	-21.07865	0.64380	-0.71634	-0.25872	61.70667	0.99728	219.26	-19.97
91/12/31	2448622.0	-40.27476	-41.32057	-22.69885	0.72167	-0.64639	-0.21932	62.00552	0.99334	225.73	-21.47
92/ 1/ 1	2448622.5	-35.15072	-45.44237	-24.04495	0.78974	-0.56971	-0.17787	62.27955	0.98990	232.28	-22.71
92/ 1/ 1	2448623.0	-29.60022	-49.02480	-25.10473	0.84753	-0.48729	-0.13486	62.52881	0.98689	238.88	-23.67
92/ 1/ 2	2448623.5	-23.69428	-52.03244	-25.86933	0.89465	-0.40015	-0.09079	62.75362	0.98425	245.52	-24.35
92/ 1/ 2	2448624.0	-17.50616	-54.43675	-26.33324	0.93082	-0.30930	-0.04615	62.95447	0.98194	252.17	-24.73
92/ 1/ 3	2448624.5	-11.11067	-56.21606	-26.49421	0.95586	-0.21576	-0.00141	63.13189	0.97991	258.82	-24.81
92/ 1/ 3	2448625.0	-4.58350	-57.35558	-26.35317	0.96970	-0.12054	0.04296	63.28634	0.97810	265.43	-24.61

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
92/ 1/ 4	2448625.5	1.99944	-57.84733	-25.91415	0.97234	-0.02464	0.08651	63.41809	0.97649	271.98	-24.12
92/ 1/ 4	2448626.0	8.56267	-57.69004	-25.18419	0.96390	0.07095	0.12880	63.52719	0.97505	278.44	-23.36
92/ 1/ 5	2448626.5	15.03174	-56.88906	-24.17318	0.94457	0.16528	0.16943	63.61337	0.97378	284.80	-22.33
92/ 1/ 5	2448627.0	21.33378	-55.45614	-22.89377	0.91464	0.25741	0.20800	63.67604	0.97267	291.04	-21.07
92/ 1/ 6	2448627.5	27.39813	-53.40929	-21.36118	0.87445	0.34642	0.24413	63.71429	0.97174	297.16	-19.59
92/ 1/ 6	2448628.0	33.15683	-50.77254	-19.59309	0.82446	0.43146	0.27748	63.72688	0.97102	303.15	-17.91
92/ 1/ 7	2448628.5	38.54512	-47.57565	-17.60945	0.76516	0.51169	0.30773	63.71233	0.97056	309.01	-16.04
92/ 1/ 7	2448629.0	43.50189	-43.85389	-15.43231	0.69713	0.58632	0.33457	63.66894	0.97042	314.77	-14.03
92/ 1/ 8	2448629.5	47.97012	-39.64771	-13.08565	0.62101	0.65462	0.35774	63.59487	0.97065	320.43	-11.87
92/ 1/ 8	2448630.0	51.89728	-35.00247	-10.59524	0.53748	0.71586	0.37699	63.48826	0.97132	326.00	-9.61
92/ 1/ 9	2448630.5	55.23568	-29.96816	-7.98841	0.44728	0.76940	0.39208	63.34734	0.97250	331.52	-7.24
92/ 1/ 9	2448631.0	57.94285	-24.59910	-5.29393	0.35122	0.81461	0.40284	63.17053	0.97428	337.00	-4.81
92/ 1/10	2448631.5	59.98191	-18.95368	-2.54183	0.25014	0.85091	0.40907	62.95659	0.97671	342.46	-2.31
92/ 1/10	2448632.0	61.32191	-13.09404	0.23673	0.14495	0.87778	0.41063	62.70476	0.97986	347.95	0.22
92/ 1/11	2448632.5	61.93826	-7.08583	3.00969	0.03661	0.89471	0.40740	62.41486	0.98378	353.47	2.76
92/ 1/11	2448633.0	61.81311	-0.99790	5.74421	-0.07383	0.90125	0.39927	62.08745	0.98849	359.08	5.31
92/ 1/12	2448633.5	60.93587	5.09804	8.40688	-0.18528	0.89701	0.38617	61.72395	0.99402	4.78	7.83
92/ 1/12	2448634.0	59.30370	11.12775	10.96396	-0.29655	0.88164	0.36808	61.32670	1.00036	10.63	10.30
92/ 1/13	2448634.5	56.92213	17.01496	13.38161	-0.40636	0.85489	0.34500	60.89914	1.00747	16.64	12.69
92/ 1/13	2448635.0	53.80565	22.68191	15.62621	-0.51333	0.81658	0.31700	60.44581	1.01528	22.86	14.98
92/ 1/14	2448635.5	49.97838	28.05005	17.66479	-0.61599	0.76666	0.28419	59.97240	1.02371	29.30	17.13
92/ 1/14	2448636.0	45.47473	33.04095	19.46544	-0.71279	0.70521	0.24678	59.48579	1.03262	36.00	19.10
92/ 1/15	2448636.5	40.33996	37.57738	20.99788	-0.80208	0.63252	0.20505	58.99392	1.04185	42.97	20.85
92/ 1/15	2448637.0	34.63069	41.58464	22.23412	-0.88215	0.54906	0.15939	58.50575	1.05122	50.21	22.34
92/ 1/16	2448637.5	28.41513	44.99218	23.14920	-0.95130	0.45557	0.11031	58.03104	1.06051	57.73	23.51
92/ 1/16	2448638.0	21.77304	47.73541	23.72199	-1.00783	0.35309	0.05843	57.58010	1.06948	65.48	24.33
92/ 1/17	2448638.5	14.79531	49.75769	23.93607	-1.05016	0.24293	0.00452	57.16349	1.07790	73.44	24.75
92/ 1/17	2448639.0	7.58297	51.01246	23.78058	-1.07689	0.12674	-0.05055	56.79162	1.08550	81.54	24.75
92/ 1/18	2448639.5	0.24563	51.46531	23.25099	-1.08691	0.00648	-0.10578	56.47430	1.09206	89.73	24.31
92/ 1/18	2448640.0	-7.10059	51.09591	22.34979	-1.07942	-0.11567	-0.16010	56.22031	1.09735	97.91	23.42
92/ 1/19	2448640.5	-14.33583	49.89955	21.08685	-1.05412	-0.23731	-0.21241	56.03692	1.10118	106.03	22.10
92/ 1/19	2448641.0	-21.33965	47.88813	19.47960	-1.01116	-0.35594	-0.26159	55.92950	1.10343	114.02	20.38
92/ 1/20	2448641.5	-27.99447	45.09051	17.55285	-0.95122	-0.46906	-0.30659	55.90122	1.10401	121.83	18.30
92/ 1/20	2448642.0	-34.18908	41.55205	15.33816	-0.87550	-0.57432	-0.34647	55.95288	1.10290	129.45	15.91
92/ 1/21	2448642.5	-39.82193	37.33341	12.87304	-0.78565	-0.66959	-0.38042	56.08284	1.10014	136.85	13.27
92/ 1/21	2448643.0	-44.80397	32.50857	10.19975	-0.68368	-0.75306	-0.40785	56.28710	1.09584	144.04	10.44
92/ 1/22	2448643.5	-49.06083	27.16242	7.36400	-0.57190	-0.82333	-0.42835	56.55962	1.09015	151.03	7.48
92/ 1/22	2448644.0	-52.53420	21.38792	4.41351	-0.45274	-0.87942	-0.44172	56.89257	1.08326	157.85	4.45
92/ 1/23	2448644.5	-55.18247	15.28320	1.39667	-0.32866	-0.92078	-0.44796	57.27680	1.07542	164.52	1.40
92/ 1/23	2448645.0	-56.98062	8.94875	-1.63874	-0.20209	-0.94726	-0.44724	57.70231	1.06685	171.07	-1.63
92/ 1/24	2448645.5	-57.91945	2.48486	-4.64661	-0.07528	-0.95906	-0.43989	58.15864	1.05781	177.54	-4.58
92/ 1/24	2448646.0	-58.00444	-4.01055	-7.58337	0.04972	-0.95667	-0.42632	58.63538	1.04855	183.96	-7.43
92/ 1/25	2448646.5	-57.25426	-10.44371	-10.40868	0.17106	-0.94082	-0.40706	59.12243	1.03928	190.34	-10.14
92/ 1/25	2448647.0	-55.69912	-16.72635	-13.08577	0.28717	-0.91238	-0.38266	59.61040	1.03021	196.71	-12.68
92/ 1/26	2448647.5	-53.37913	-22.77659	-15.58181	0.39671	-0.87237	-0.35370	60.09075	1.02152	203.11	-15.03

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/ 1/26	2448648.0	-50.34275	-28.51964	-17.86796	0.49855	-0.82185	-0.32078	60.55597	1.01336	209.53	-17.16
92/ 1/27	2448648.5	-46.64526	-33.88806	-19.91940	0.59179	-0.76193	-0.28449	60.99970	1.00583	216.00	-19.06
92/ 1/27	2448649.0	-42.34755	-38.82198	-21.71527	0.67569	-0.69373	-0.24540	61.41672	0.99902	222.51	-20.71
92/ 1/28	2448649.5	-37.51489	-43.26901	-23.23854	0.74967	-0.61834	-0.20408	61.80294	0.99297	229.07	-22.09
92/ 1/28	2448650.0	-32.21602	-47.18422	-24.47585	0.81329	-0.53687	-0.16105	62.15537	0.98773	235.68	-23.19
92/ 1/29	2448650.5	-26.52228	-50.52997	-25.41742	0.86623	-0.45036	-0.11683	62.47203	0.98327	242.31	-24.01
92/ 1/29	2448651.0	-20.50684	-53.27572	-26.05683	0.90825	-0.35986	-0.07190	62.75182	0.97959	248.95	-24.53
92/ 1/30	2448651.5	-14.24417	-55.39787	-26.39091	0.93922	-0.26638	-0.02675	62.99444	0.97663	255.58	-24.77
92/ 1/30	2448652.0	-7.80937	-56.87962	-26.41962	0.95907	-0.17092	0.01819	63.20027	0.97436	262.18	-24.71
92/ 1/31	2448652.5	-1.27774	-57.71082	-26.14592	0.96782	-0.07444	0.06248	63.37018	0.97269	268.73	-24.37
92/ 1/31	2448653.0	5.27575	-57.88780	-25.57566	0.96555	0.02211	0.10570	63.50548	0.97157	275.21	-23.75
92/ 2/ 1	2448653.5	11.77694	-57.41332	-24.71750	0.95241	0.11778	0.14743	63.60770	0.97092	281.59	-22.87
92/ 2/ 1	2448654.0	18.15292	-56.29639	-23.58277	0.92862	0.21167	0.18730	63.67856	0.97068	287.87	-21.74
92/ 2/ 2	2448654.5	24.33255	-54.55218	-22.18540	0.89448	0.30286	0.22493	63.71975	0.97078	294.04	-20.38
92/ 2/ 2	2448655.0	30.24693	-52.20191	-20.54182	0.85036	0.39049	0.25995	63.73289	0.97117	300.09	-18.80
92/ 2/ 3	2448655.5	35.82985	-49.27265	-18.67079	0.79669	0.47369	0.29203	63.71946	0.97179	306.02	-17.04
92/ 2/ 3	2448656.0	41.01836	-45.79719	-16.59333	0.73398	0.55164	0.32085	63.68067	0.97262	311.85	-15.10
92/ 2/ 4	2448656.5	45.75324	-41.81384	-14.33257	0.66284	0.62354	0.34612	63.61744	0.97363	317.58	-13.02
92/ 2/ 4	2448657.0	49.97951	-37.36615	-11.91353	0.58391	0.68864	0.36755	63.53041	0.97481	323.22	-10.81
92/ 2/ 5	2448657.5	53.64691	-32.50264	-9.36302	0.49794	0.74621	0.38490	63.41987	0.97618	328.79	-8.49
92/ 2/ 5	2448658.0	56.71040	-27.27652	-6.70943	0.40572	0.79561	0.39796	63.28582	0.97774	334.31	-6.09
92/ 2/ 6	2448658.5	59.13060	-21.74528	-3.98248	0.30813	0.83622	0.40653	63.12800	0.97952	339.81	-3.62
92/ 2/ 6	2448659.0	60.87423	-15.97033	-1.21305	0.20610	0.86749	0.41048	62.94597	0.98158	345.30	-1.10
92/ 2/ 7	2448659.5	61.91457	-10.01659	1.56704	0.10062	0.88894	0.40967	62.73916	0.98395	350.81	1.43
92/ 2/ 7	2448660.0	62.23179	-3.95202	4.32534	-0.00725	0.90015	0.40403	62.50698	0.98669	356.37	3.97
92/ 2/ 8	2448660.5	61.81340	2.15286	7.02895	-0.11641	0.90079	0.39351	62.24899	0.98986	1.99	6.48
92/ 2/ 8	2448661.0	60.65456	8.22547	9.64482	-0.22570	0.89058	0.37812	61.96496	0.99351	7.72	8.95
92/ 2/ 9	2448661.5	58.75847	14.19171	12.14004	-0.33391	0.86936	0.35790	61.65503	0.99768	13.58	11.36
92/ 2/ 9	2448662.0	56.13670	19.97659	14.48210	-0.43978	0.83702	0.33292	61.31985	1.00242	19.59	13.66
92/ 2/10	2448662.5	52.80952	25.50482	16.63925	-0.54199	0.79359	0.30332	60.96069	1.00774	25.78	15.84
92/ 2/10	2448663.0	48.80626	30.70162	18.58085	-0.63919	0.73918	0.26930	60.57961	1.01364	32.17	17.86
92/ 2/11	2448663.5	44.16559	35.49346	20.27777	-0.72998	0.67406	0.23111	60.17950	1.02012	38.79	19.69
92/ 2/11	2448664.0	38.93576	39.80907	21.70282	-0.81292	0.59863	0.18908	59.76426	1.02711	45.64	21.29
92/ 2/12	2448664.5	33.17479	43.58047	22.83126	-0.88658	0.51347	0.14360	59.33878	1.03455	52.72	22.63
92/ 2/12	2448665.0	26.95053	46.74424	23.64136	-0.94950	0.41934	0.09517	58.90898	1.04233	60.03	23.66
92/ 2/13	2448665.5	20.34045	49.24279	24.11498	-1.00028	0.31722	0.04434	58.48178	1.05031	67.56	24.35
92/ 2/13	2448666.0	13.43131	51.02598	24.23818	-1.03759	0.20832	-0.00819	58.06496	1.05833	75.25	24.67
92/ 2/14	2448666.5	6.31846	52.05261	24.00193	-1.06025	0.09408	-0.06166	57.66706	1.06620	83.08	24.60
92/ 2/14	2448667.0	-0.89531	52.29213	23.40267	-1.06724	-0.02380	-0.11523	57.29707	1.07371	90.98	24.11
92/ 2/15	2448667.5	-8.10121	51.72624	22.44294	-1.05783	-0.14342	-0.16795	56.96419	1.08064	98.90	23.20
92/ 2/15	2448668.0	-15.18651	50.35028	21.13176	-1.03159	-0.26264	-0.21884	56.67744	1.08676	106.78	21.89
92/ 2/16	2448668.5	-22.03692	48.17445	19.48497	-0.98850	-0.37923	-0.26689	56.44526	1.09187	114.58	20.19
92/ 2/16	2448669.0	-28.53941	45.22448	17.52525	-0.92896	-0.49085	-0.31108	56.27509	1.09575	122.25	18.14
92/ 2/17	2448669.5	-34.58530	41.54180	15.28187	-0.85385	-0.59522	-0.35049	56.17295	1.09827	129.78	15.79
92/ 2/17	2448670.0	-40.07339	37.18307	12.79021	-0.76450	-0.69014	-0.38427	56.14310	1.09929	137.14	13.17

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
92/ 2/18	2448670.5	-44.91298	32.21897	10.09087	-0.66268	-0.77368	-0.41172	56.18775	1.09874	144.35	10.35
92/ 2/18	2448671.0	-49.02651	26.73236	7.22861	-0.55048	-0.84419	-0.43231	56.30693	1.09662	151.40	7.38
92/ 2/19	2448671.5	-52.35167	20.81589	4.25109	-0.43029	-0.90044	-0.44572	56.49841	1.09298	158.32	4.32
92/ 2/19	2448672.0	-54.84277	14.56923	1.20745	-0.30462	-0.94160	-0.45183	56.75781	1.08791	165.12	1.22
92/ 2/20	2448672.5	-56.47138	8.09610	-1.85303	-0.17602	-0.96728	-0.45072	57.07887	1.08156	171.84	-1.86
92/ 2/20	2448673.0	-57.22616	1.50138	-4.88227	-0.04698	-0.97754	-0.44266	57.45367	1.07413	178.50	-4.87
92/ 2/21	2448673.5	-57.11205	-5.11164	-7.83448	0.08019	-0.97278	-0.42806	57.87308	1.06582	185.11	-7.78
92/ 2/21	2448674.0	-56.14889	-11.64352	-10.66708	0.20341	-0.95373	-0.40744	58.32715	1.05687	191.72	-10.54
92/ 2/22	2448674.5	-54.36977	-18.00061	-13.34141	0.32086	-0.92135	-0.38142	58.80550	1.04753	198.32	-13.11
92/ 2/22	2448675.0	-51.81905	-24.09642	-15.82310	0.43102	-0.87677	-0.35067	59.29774	1.03802	204.94	-15.48
92/ 2/23	2448675.5	-48.55048	-29.85257	-18.08237	0.53265	-0.82126	-0.31586	59.79379	1.02857	211.59	-17.60
92/ 2/23	2448676.0	-44.62528	-35.19933	-20.09404	0.62478	-0.75610	-0.27767	60.28415	1.01938	218.27	-19.47
92/ 2/24	2448676.5	-40.11044	-40.07584	-21.83750	0.70667	-0.68262	-0.23676	60.76016	1.01064	224.98	-21.06
92/ 2/24	2448677.0	-35.07719	-44.43007	-23.29647	0.77779	-0.60209	-0.19377	61.21410	1.00250	231.71	-22.37
92/ 2/25	2448677.5	-29.59976	-48.21856	-24.45885	0.83779	-0.51576	-0.14928	61.63936	0.99508	238.46	-23.38
92/ 2/25	2448678.0	-23.75421	-51.40615	-25.31642	0.88646	-0.42484	-0.10385	62.03045	0.98848	245.20	-24.09
92/ 2/26	2448678.5	-17.61764	-53.96558	-25.86461	0.92372	-0.33046	-0.05800	62.38304	0.98276	251.92	-24.49
92/ 2/26	2448679.0	-11.26741	-55.87709	-26.10221	0.94956	-0.23369	-0.01221	62.69393	0.97797	258.60	-24.60
92/ 2/27	2448679.5	-4.78060	-57.12801	-26.03117	0.96407	-0.13556	0.03307	62.96098	0.97411	265.22	-24.42
92/ 2/27	2448680.0	1.76647	-57.71249	-25.65641	0.96738	-0.03705	0.07741	63.18309	0.97118	271.75	-23.96
92/ 2/28	2448680.5	8.29864	-57.63114	-24.98562	0.95971	0.06090	0.12042	63.36006	0.96915	278.19	-23.23
92/ 2/28	2448681.0	14.74225	-56.89081	-24.02912	0.94128	0.15739	0.16171	63.49249	0.96795	284.53	-22.24
92/ 2/29	2448681.5	21.02550	-55.50439	-22.79974	0.91240	0.25154	0.20094	63.58174	0.96754	290.75	-21.01
92/ 2/29	2448682.0	27.07874	-53.49064	-21.31274	0.87342	0.34250	0.23773	63.62970	0.96783	296.85	-19.57
92/ 3/ 1	2448682.5	32.83487	-50.87405	-19.58566	0.82474	0.42942	0.27178	63.63879	0.96874	302.84	-17.92
92/ 3/ 1	2448683.0	38.22970	-47.68474	-17.63826	0.76681	0.51148	0.30274	63.61173	0.97019	308.72	-16.10
92/ 3/ 2	2448683.5	43.20233	-43.95832	-15.49243	0.70016	0.58789	0.33032	63.55148	0.97209	314.50	-14.11
92/ 3/ 2	2448684.0	47.69567	-39.73578	-13.17206	0.62539	0.65786	0.35423	63.46111	0.97435	320.20	-11.98
92/ 3/ 3	2448684.5	51.65688	-35.06332	-10.70296	0.54315	0.72063	0.37420	63.34369	0.97690	325.83	-9.73
92/ 3/ 3	2448685.0	55.03791	-29.99211	-8.11265	0.45420	0.77548	0.38998	63.20217	0.97967	331.41	-7.37
92/ 3/ 4	2448685.5	57.79605	-24.57811	-5.43026	0.35936	0.82175	0.40136	63.03931	0.98259	336.96	-4.94
92/ 3/ 4	2448686.0	59.89447	-18.88167	-2.68631	0.25954	0.85879	0.40813	62.85763	0.98562	342.50	-2.45
92/ 3/ 5	2448686.5	61.30279	-12.96717	0.08756	0.15574	0.88605	0.41017	62.65929	0.98872	348.06	0.08
92/ 3/ 5	2448687.0	61.99758	-6.90254	2.85878	0.04903	0.90304	0.40734	62.44612	0.99188	353.65	2.62
92/ 3/ 6	2448687.5	61.96292	-0.75873	5.59422	-0.05946	0.90937	0.39959	62.21957	0.99507	359.30	5.16
92/ 3/ 6	2448688.0	61.19083	5.39093	8.26044	-0.16852	0.90473	0.38690	61.98076	0.99831	5.03	7.66
92/ 3/ 7	2448688.5	59.68167	11.47142	10.82409	-0.27690	0.88892	0.36932	61.73051	1.00162	10.88	10.10
92/ 3/ 7	2448689.0	57.44447	17.40677	13.25227	-0.38329	0.86187	0.34692	61.46939	1.00503	16.86	12.45
92/ 3/ 8	2448689.5	54.49721	23.12091	15.51290	-0.48635	0.82362	0.31987	61.19782	1.00856	22.99	14.68
92/ 3/ 8	2448690.0	50.86699	28.53850	17.57512	-0.58474	0.77434	0.28837	60.91618	1.01226	29.29	16.77
92/ 3/ 9	2448690.5	46.59009	33.58587	19.40972	-0.67708	0.71436	0.25271	60.62494	1.01617	35.79	18.67
92/ 3/ 9	2448691.0	41.71197	38.19196	20.98958	-0.76205	0.64413	0.21321	60.32475	1.02033	42.48	20.36
92/ 3/10	2448691.5	36.28719	42.28934	22.29004	-0.83829	0.56425	0.17028	60.01661	1.02475	49.37	21.80
92/ 3/10	2448692.0	30.37914	45.81524	23.28941	-0.90454	0.47551	0.12438	59.70197	1.02946	56.45	22.96
92/ 3/11	2448692.5	24.05972	48.71266	23.96939	-0.95957	0.37883	0.07605	59.38287	1.03444	63.71	23.81

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
92/ 3/11	2448693.0	17.40885	50.93143	24.31550	-1.00224	0.27531	0.02590	59.06202	1.03969	71.13	24.31
92/ 3/12	2448693.5	10.51374	52.42943	24.31754	-1.03153	0.16622	-0.02543	58.74288	1.04515	78.66	24.45
92/ 3/12	2448694.0	3.46808	53.17366	23.97000	-1.04656	0.05299	-0.07721	58.42967	1.05074	86.27	24.22
92/ 3/13	2448694.5	-3.62910	53.14141	23.27246	-1.04665	-0.06279	-0.12865	58.12734	1.05639	93.91	23.60
92/ 3/13	2448695.0	-10.67479	52.32131	22.22990	-1.03130	-0.17936	-0.17894	57.84150	1.06196	101.53	22.60
92/ 3/14	2448695.5	-17.56356	50.71422	20.85301	-1.00030	-0.29486	-0.22723	57.57829	1.06732	109.10	21.23
92/ 3/14	2448696.0	-24.18952	48.33408	19.15829	-0.95373	-0.40731	-0.27266	57.34419	1.07231	116.59	19.52
92/ 3/15	2448696.5	-30.44842	45.20831	17.16806	-0.89200	-0.51470	-0.31435	57.14577	1.07676	123.96	17.48
92/ 3/15	2448697.0	-36.23998	41.37802	14.91036	-0.81589	-0.61502	-0.35151	56.98944	1.08050	131.21	15.17
92/ 3/16	2448697.5	-41.47039	36.89774	12.41850	-0.72652	-0.70633	-0.38338	56.88106	1.08338	138.34	12.61
92/ 3/16	2448698.0	-46.05471	31.83462	9.73057	-0.62538	-0.78684	-0.40931	56.82572	1.08524	145.35	9.86
92/ 3/17	2448698.5	-49.91920	26.26725	6.88861	-0.51429	-0.85499	-0.42879	56.82735	1.08598	152.25	6.96
92/ 3/17	2448699.0	-53.00337	20.28390	3.93769	-0.39532	-0.90949	-0.44144	56.88848	1.08550	159.06	3.97
92/ 3/18	2448699.5	-55.26155	13.98042	0.92475	-0.27077	-0.94940	-0.44708	57.01006	1.08377	165.80	0.93
92/ 3/18	2448700.0	-56.66398	7.45773	-2.10253	-0.14303	-0.97415	-0.44569	57.19130	1.08077	172.50	-2.11
92/ 3/19	2448700.5	-57.19720	0.81929	-5.09694	-0.01450	-0.98358	-0.43742	57.42970	1.07656	179.18	-5.09
92/ 3/19	2448701.0	-56.86391	-5.83157	-8.01294	0.11247	-0.97789	-0.42259	57.72104	1.07121	185.86	-7.98
92/ 3/20	2448701.5	-55.68215	-12.39410	-10.80758	0.23570	-0.95761	-0.40167	58.05962	1.06486	192.55	-10.73
92/ 3/20	2448702.0	-53.68405	-18.77229	-13.44144	0.35322	-0.92361	-0.37522	58.43842	1.05765	199.27	-13.30
92/ 3/21	2448702.5	-50.91420	-24.87669	-15.87918	0.46333	-0.87696	-0.34387	58.84941	1.04976	206.04	-15.65
92/ 3/21	2448703.0	-47.42773	-30.62579	-18.09005	0.56462	-0.81892	-0.30834	59.28388	1.04139	212.85	-17.77
92/ 3/22	2448703.5	-43.28841	-35.94695	-20.04807	0.65595	-0.75083	-0.26933	59.73270	1.03274	219.71	-19.61
92/ 3/22	2448704.0	-38.56670	-40.77696	-21.73209	0.73648	-0.67412	-0.22755	60.18666	1.02402	226.60	-21.17
92/ 3/23	2448704.5	-33.33795	-45.06219	-23.12571	0.80560	-0.59020	-0.18369	60.63677	1.01541	233.51	-22.42
92/ 3/23	2448705.0	-27.68078	-48.75856	-24.21707	0.86294	-0.50046	-0.13840	61.07446	1.00711	240.42	-23.36
92/ 3/24	2448705.5	-21.67571	-51.83120	-24.99858	0.90831	-0.40623	-0.09229	61.49178	0.99929	247.31	-23.99
92/ 3/24	2448706.0	-15.40399	-54.25404	-25.46665	0.94169	-0.30878	-0.04593	61.88162	0.99208	254.15	-24.30
92/ 3/25	2448706.5	-8.94665	-56.00930	-25.62133	0.96315	-0.20929	0.00017	62.23774	0.98562	260.92	-24.31
92/ 3/25	2448707.0	-2.38379	-57.08696	-25.46602	0.97288	-0.10887	0.04553	62.55495	0.98001	267.61	-24.02
92/ 3/26	2448707.5	4.20603	-57.48426	-25.00718	0.97116	-0.00855	0.08973	62.82906	0.97533	274.18	-23.45
92/ 3/26	2448708.0	10.74622	-57.20522	-24.25411	0.95828	0.09069	0.13236	63.05696	0.97162	280.64	-22.62
92/ 3/27	2448708.5	17.16247	-56.26021	-23.21866	0.93463	0.18796	0.17305	63.23660	0.96892	286.96	-21.54
92/ 3/27	2448709.0	23.38310	-54.66561	-21.91511	0.90058	0.28237	0.21147	63.36695	0.96722	293.16	-20.23
92/ 3/28	2448709.5	29.33921	-52.44353	-20.35999	0.85659	0.37311	0.24729	63.44795	0.96650	299.22	-18.72
92/ 3/28	2448710.0	34.96500	-49.62159	-18.57195	0.80312	0.45938	0.28020	63.48048	0.96672	305.17	-17.01
92/ 3/29	2448710.5	40.19798	-46.23272	-16.57169	0.74069	0.54039	0.30991	63.46623	0.96783	311.01	-15.14
92/ 3/29	2448711.0	44.97926	-42.31506	-14.38181	0.66984	0.61540	0.33614	63.40768	0.96974	316.75	-13.11
92/ 3/30	2448711.5	49.25390	-37.91183	-12.02680	0.59119	0.68366	0.35863	63.30795	0.97237	322.41	-10.95
92/ 3/30	2448712.0	52.97131	-33.07120	-9.53289	0.50541	0.74444	0.37712	63.17072	0.97563	328.02	-8.68
92/ 3/31	2448712.5	56.08567	-27.84621	-6.92797	0.41324	0.79704	0.39137	63.00008	0.97940	333.60	-6.31
92/ 3/31	2448713.0	58.55649	-22.29455	-4.24148	0.31552	0.84079	0.40117	62.80048	0.98358	339.16	-3.87
92/ 4/ 1	2448713.5	60.34916	-16.47836	-1.50420	0.21315	0.87505	0.40634	62.57651	0.98806	344.73	-1.38
92/ 4/ 1	2448714.0	61.43553	-10.46392	1.25187	0.10713	0.89924	0.40670	62.33286	0.99274	350.33	1.15
92/ 4/ 2	2448714.5	61.79460	-4.32120	3.99382	-0.00143	0.91285	0.40215	62.07412	0.99751	356.00	3.69
92/ 4/ 2	2448715.0	61.41312	1.87658	6.68809	-0.11134	0.91544	0.39261	61.80472	1.00229	1.75	6.21

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
92/ 4/ 3	2448715.5	60.28618	8.05369	9.30082	-0.22134	0.90670	0.37807	61.52878	1.00699	7.61	8.69
92/ 4/ 3	2448716.0	58.41778	14.13259	11.79824	-0.33006	0.88642	0.35858	61.25002	1.01156	13.60	11.11
92/ 4/ 4	2448716.5	55.82128	20.03485	14.14711	-0.43610	0.85454	0.33423	60.97173	1.01594	19.74	13.42
92/ 4/ 4	2448717.0	52.51975	25.68216	16.31520	-0.53801	0.81117	0.30523	60.69665	1.02010	26.06	15.59
92/ 4/ 5	2448717.5	48.54613	30.99742	18.27180	-0.63432	0.75655	0.27183	60.42702	1.02402	32.56	17.60
92/ 4/ 5	2448718.0	43.94327	35.90594	19.98821	-0.72358	0.69114	0.23437	60.16457	1.02770	39.25	19.40
92/ 4/ 6	2448718.5	38.76378	40.33661	21.43828	-0.80436	0.61557	0.19326	59.91054	1.03115	46.14	20.97
92/ 4/ 6	2448719.0	33.06964	44.22321	22.59895	-0.87533	0.53063	0.14899	59.66578	1.03440	53.21	22.26
92/ 4/ 7	2448719.5	26.93163	47.50555	23.45065	-0.93523	0.43732	0.10212	59.43082	1.03747	60.45	23.24
92/ 4/ 7	2448720.0	20.42861	50.13073	23.97782	-0.98294	0.33678	0.05327	59.20603	1.04040	67.83	23.89
92/ 4/ 8	2448720.5	13.64653	52.05417	24.16927	-1.01749	0.23033	0.00310	58.99168	1.04324	75.31	24.19
92/ 4/ 8	2448721.0	6.67737	53.24067	24.01850	-1.03807	0.11942	-0.04766	58.78813	1.04601	82.85	24.11
92/ 4/ 9	2448721.5	-0.38221	53.66526	23.52401	-1.04411	0.00561	-0.09827	58.59594	1.04874	90.41	23.67
92/ 4/ 9	2448722.0	-7.43224	53.31396	22.68942	-1.03521	-0.10941	-0.14796	58.41597	1.05144	97.94	22.86
92/ 4/10	2448722.5	-14.37098	52.18439	21.52363	-1.01124	-0.22391	-0.19594	58.24948	1.05411	105.40	21.69
92/ 4/10	2448723.0	-21.09664	50.28612	20.04081	-0.97233	-0.33610	-0.24145	58.09816	1.05673	112.76	20.18
92/ 4/11	2448723.5	-27.50907	47.64095	18.26033	-0.91883	-0.44417	-0.28372	57.96420	1.05926	120.00	18.36
92/ 4/11	2448724.0	-33.51159	44.28282	16.20657	-0.85141	-0.54634	-0.32203	57.85021	1.06165	127.12	16.27
92/ 4/12	2448724.5	-39.01284	40.25757	13.90859	-0.77099	-0.64088	-0.35572	57.75918	1.06381	134.10	13.93
92/ 4/12	2448725.0	-43.92863	35.62244	11.39978	-0.67875	-0.72617	-0.38420	57.69435	1.06566	140.96	11.40
92/ 4/13	2448725.5	-48.18369	30.44516	8.71725	-0.57614	-0.80074	-0.40694	57.65905	1.06711	147.71	8.70
92/ 4/13	2448726.0	-51.71334	24.80291	5.90122	-0.46484	-0.86328	-0.42356	57.65655	1.06805	154.38	5.87
92/ 4/14	2448726.5	-54.46492	18.78086	2.99424	-0.34671	-0.91273	-0.43376	57.68981	1.06838	160.97	2.98
92/ 4/14	2448727.0	-56.39902	12.47051	0.04035	-0.22379	-0.94830	-0.43740	57.76127	1.06802	167.53	0.04
92/ 4/15	2448727.5	-57.49027	5.96781	-2.91585	-0.09818	-0.96947	-0.43445	57.87269	1.06690	174.07	-2.89
92/ 4/15	2448728.0	-57.72784	-0.62887	-5.83012	0.02794	-0.97605	-0.42505	58.02491	1.06495	180.62	-5.77
92/ 4/16	2448728.5	-57.11548	-7.22088	-8.65953	0.15245	-0.96814	-0.40945	58.21775	1.06216	187.21	-8.55
92/ 4/16	2448729.0	-55.67107	-13.71132	-11.36330	0.27330	-0.94615	-0.38802	58.44992	1.05852	193.84	-11.21
92/ 4/17	2448729.5	-53.42587	-20.00704	-13.90360	0.38862	-0.91077	-0.36127	58.71895	1.05406	200.53	-13.70
92/ 4/17	2448730.0	-50.42329	-26.02036	-16.24623	0.49668	-0.86293	-0.32975	59.02125	1.04885	207.30	-15.98
92/ 4/18	2448730.5	-46.71752	-31.67057	-18.36107	0.59604	-0.80375	-0.29411	59.35217	1.04297	214.13	-18.02
92/ 4/18	2448731.0	-42.37180	-36.88505	-20.22246	0.68548	-0.73448	-0.25503	59.70615	1.03652	221.04	-19.80
92/ 4/19	2448731.5	-37.45675	-41.60012	-21.80939	0.76402	-0.65651	-0.21318	60.07685	1.02965	228.00	-21.29
92/ 4/19	2448732.0	-32.04859	-45.76152	-23.10553	0.83099	-0.57123	-0.16927	60.45738	1.02249	234.99	-22.47
92/ 4/20	2448732.5	-26.22751	-49.32458	-24.09917	0.88590	-0.48006	-0.12396	60.84050	1.01520	242.00	-23.33
92/ 4/20	2448733.0	-20.07610	-52.25418	-24.78300	0.92851	-0.38439	-0.07789	61.21883	1.00794	248.98	-23.88
92/ 4/21	2448733.5	-13.67803	-54.52442	-25.15390	0.95874	-0.28557	-0.03165	61.58506	1.00087	255.92	-24.11
92/ 4/21	2448734.0	-7.11688	-56.11828	-25.21262	0.97669	-0.18487	0.01421	61.93213	0.99413	262.77	-24.02
92/ 4/22	2448734.5	-0.47519	-57.02706	-24.96347	0.98257	-0.08346	0.05918	62.25340	0.98788	269.52	-23.64
92/ 4/22	2448735.0	6.16633	-57.24980	-24.41397	0.97670	0.01753	0.10282	62.54283	0.98225	276.15	-22.98
92/ 4/23	2448735.5	12.72935	-56.79279	-23.57459	0.95946	0.11710	0.14472	62.79506	0.97735	282.63	-22.05
92/ 4/23	2448736.0	19.13842	-55.66898	-22.45846	0.93131	0.21428	0.18449	63.00553	0.97329	288.97	-20.88
92/ 4/24	2448736.5	25.32129	-53.89752	-21.08109	0.89275	0.30820	0.22180	63.17058	0.97015	295.16	-19.49
92/ 4/24	2448737.0	31.20915	-51.50331	-19.46018	0.84429	0.39804	0.25635	63.28745	0.96798	301.21	-17.91
92/ 4/25	2448737.5	36.73689	-48.51672	-17.61547	0.78650	0.48301	0.28785	63.35436	0.96682	307.13	-16.14

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
92/ 4/24	2448737.0	31.20915	-51.50331	-19.46018	0.84429	0.39804	0.25635	63.28745	0.96798	301.21	-17.91
92/ 4/25	2448737.5	36.73689	-48.51672	-17.61547	0.78650	0.48301	0.28785	63.35436	0.96682	307.13	-16.14
92/ 4/25	2448738.0	41.84324	-44.97320	-15.56853	0.71996	0.56237	0.31602	63.37053	0.96668	312.94	-14.22
92/ 4/26	2448738.5	46.47101	-40.91315	-13.34272	0.64528	0.63542	0.34063	63.33616	0.96756	318.64	-12.16
92/ 4/26	2448739.0	50.56729	-36.38170	-10.96302	0.56313	0.70146	0.36143	63.25240	0.96943	324.27	-9.98
92/ 4/27	2448739.5	54.08373	-31.42857	-8.45597	0.47418	0.75983	0.37820	63.12137	0.97222	329.84	-7.70
92/ 4/27	2448740.0	56.97687	-26.10797	-5.84959	0.37920	0.80987	0.39072	62.94607	0.97588	335.38	-5.33
92/ 4/28	2448740.5	59.20858	-20.47846	-3.17329	0.27900	0.85094	0.39882	62.73032	0.98031	340.92	-2.90
92/ 4/28	2448741.0	60.74647	-14.60282	-0.45770	0.17448	0.88245	0.40229	62.47868	0.98539	346.48	-0.42
92/ 4/29	2448741.5	61.56452	-8.54782	2.26539	0.06661	0.90382	0.40101	62.19636	0.99103	352.10	2.09
92/ 4/29	2448742.0	61.64367	-2.38391	4.96330	-0.04352	0.91452	0.39484	61.88909	0.99707	357.79	4.60
92/ 4/30	2448742.5	60.97252	3.81513	7.60266	-0.15474	0.91412	0.38371	61.56300	1.00339	3.58	7.09
92/ 4/30	2448743.0	59.54797	9.97276	10.14973	-0.26577	0.90225	0.36759	61.22445	1.00985	9.51	9.54
92/ 5/ 1	2448743.5	57.37597	16.01040	12.57075	-0.37522	0.87866	0.34650	60.87987	1.01631	15.59	11.92
92/ 5/ 1	2448744.0	54.47212	21.84825	14.83244	-0.48163	0.84325	0.32056	60.53560	1.02264	21.86	14.18
92/ 5/ 2	2448744.5	50.86220	27.40638	16.90243	-0.58346	0.79608	0.28993	60.19772	1.02871	28.32	16.31
92/ 5/ 2	2448745.0	46.58254	32.60593	18.74989	-0.67913	0.73742	0.25490	59.87185	1.03440	34.99	18.25
92/ 5/ 3	2448745.5	41.68020	37.37048	20.34613	-0.76707	0.66773	0.21582	59.56305	1.03963	41.88	19.97
92/ 5/ 3	2448746.0	36.21284	41.62752	21.66521	-0.84573	0.58769	0.17314	59.27564	1.04432	48.98	21.44
92/ 5/ 4	2448746.5	30.24839	45.30998	22.68459	-0.91363	0.49823	0.12742	59.01313	1.04842	56.27	22.61
92/ 5/ 4	2448747.0	23.86431	48.35778	23.38573	-0.96943	0.40049	0.07928	58.77817	1.05189	63.73	23.44
92/ 5/ 5	2448747.5	17.14660	50.71930	23.75464	-1.01196	0.29582	0.02943	58.57249	1.05473	71.32	23.93
92/ 5/ 5	2448748.0	10.18850	52.35269	23.78229	-1.04028	0.18575	-0.02136	58.39698	1.05695	78.99	24.03
92/ 5/ 6	2448748.5	3.08886	53.22705	23.46502	-1.05366	0.07197	-0.07229	58.25175	1.05859	86.68	23.75
92/ 5/ 6	2448749.0	-4.04954	53.32325	22.80466	-1.05168	-0.04373	-0.12253	58.13622	1.05969	94.34	23.10
92/ 5/ 7	2448749.5	-11.12199	52.63460	21.80868	-1.03419	-0.15948	-0.17126	58.04927	1.06033	101.93	22.07
92/ 5/ 7	2448750.0	-18.02382	51.16710	20.49009	-1.00134	-0.27340	-0.21766	57.98943	1.06057	109.41	20.69
92/ 5/ 8	2448750.5	-24.65234	48.93947	18.86724	-0.95358	-0.38363	-0.26098	57.95500	1.06047	116.74	19.00
92/ 5/ 8	2448751.0	-30.90889	45.98282	16.96349	-0.89164	-0.48838	-0.30050	57.94428	1.06011	123.91	17.02
92/ 5/ 9	2448751.5	-36.70057	42.34010	14.80678	-0.81650	-0.58596	-0.33558	57.95564	1.05954	130.92	14.80
92/ 5/ 9	2448752.0	-41.94198	38.06522	12.42911	-0.72937	-0.67481	-0.36566	57.98771	1.05880	137.77	12.38
92/ 5/10	2448752.5	-46.55673	33.22212	9.86592	-0.63170	-0.75354	-0.39029	58.03942	1.05792	144.49	9.79
92/ 5/10	2448753.0	-50.47868	27.88342	7.15545	-0.52507	-0.82097	-0.40910	58.11009	1.05691	151.08	7.07
92/ 5/11	2448753.5	-53.65305	22.12915	4.33804	-0.41125	-0.87611	-0.42184	58.19938	1.05576	157.59	4.27
92/ 5/11	2448754.0	-56.03726	16.04521	1.45534	-0.29206	-0.91821	-0.42836	58.30730	1.05447	164.02	1.43
92/ 5/12	2448754.5	-57.60146	9.72182	-1.45036	-0.16943	-0.94675	-0.42863	58.43411	1.05298	170.42	-1.42
92/ 5/12	2448755.0	-58.32890	3.25186	-4.33691	-0.04529	-0.96147	-0.42273	58.58024	1.05127	176.81	-4.25
92/ 5/13	2448755.5	-58.21598	-3.27078	-7.16303	0.07841	-0.96232	-0.41083	58.74613	1.04928	183.22	-7.00
92/ 5/13	2448756.0	-57.27202	-9.75283	-9.88902	0.19980	-0.94954	-0.39321	58.93212	1.04697	189.66	-9.66
92/ 5/14	2448756.5	-55.51882	-16.10325	-12.47737	0.31708	-0.92355	-0.37025	59.13830	1.04430	196.17	-12.18
92/ 5/14	2448757.0	-52.98996	-22.23472	-14.89339	0.42858	-0.88501	-0.34240	59.36439	1.04123	202.76	-14.53
92/ 5/15	2448757.5	-49.72984	-28.06501	-17.10566	0.53278	-0.83477	-0.31018	59.60961	1.03774	209.44	-16.68
92/ 5/15	2448758.0	-45.79256	-33.51822	-19.08652	0.62833	-0.77384	-0.27417	59.87257	1.03382	216.20	-18.59
92/ 5/16	2448758.5	-41.24067	-38.52573	-20.81230	0.71410	-0.70336	-0.23497	60.15128	1.02949	223.05	-20.24
92/ 5/16	2448759.0	-36.14373	-43.02704	-22.26357	0.78914	-0.62457	-0.19321	60.44305	1.02478	229.97	-21.61

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
92/ 5/18	2448760.5	-18.35368	-53.02035	-24.84106	0.94380	-0.35160	-0.05904	61.36036	1.00889	250.91	-23.88
92/ 5/18	2448761.0	-11.86293	-55.06867	-25.08624	0.97081	-0.25286	-0.01339	61.66528	1.00329	257.84	-24.00
92/ 5/19	2448761.5	-5.23108	-56.44170	-25.02357	0.98548	-0.15240	0.03177	61.96135	0.99770	264.70	-23.82
92/ 5/19	2448762.0	1.45883	-57.13195	-24.65807	0.98800	-0.05144	0.07595	62.24314	0.99224	271.46	-23.34
92/ 5/20	2448762.5	8.12542	-57.13989	-23.99809	0.97866	0.04889	0.11866	62.50518	0.98703	278.09	-22.58
92/ 5/20	2448763.0	14.68973	-56.47347	-23.05498	0.95786	0.14753	0.15949	62.74211	0.98219	284.58	-21.56
92/ 5/21	2448763.5	21.07577	-55.14757	-21.84282	0.92610	0.24348	0.19805	62.94880	0.97784	290.92	-20.30
92/ 5/21	2448764.0	27.21108	-53.18350	-20.37813	0.88392	0.33583	0.23400	63.12049	0.97409	297.10	-18.84
92/ 5/22	2448764.5	33.02699	-50.60847	-18.67964	0.83189	0.42375	0.26704	63.25289	0.97104	303.13	-17.18
92/ 5/22	2448765.0	38.45897	-47.45516	-16.76804	0.77065	0.50647	0.29689	63.34234	0.96879	309.02	-15.35
92/ 5/23	2448765.5	43.44682	-43.76135	-14.66580	0.70085	0.58324	0.32330	63.38586	0.96741	314.79	-13.38
92/ 5/23	2448766.0	47.93487	-39.56953	-12.39699	0.62318	0.65341	0.34604	63.38127	0.96698	320.46	-11.28
92/ 5/24	2448766.5	51.87217	-34.92667	-9.98716	0.53834	0.71633	0.36490	63.32723	0.96752	326.05	-9.07
92/ 5/24	2448767.0	55.21268	-29.88397	-7.46321	0.44708	0.77139	0.37971	63.22334	0.96907	331.58	-6.78
92/ 5/25	2448767.5	57.91549	-24.49665	-4.85328	0.35017	0.81800	0.39027	63.07015	0.97162	337.07	-4.41
92/ 5/25	2448768.0	59.94512	-18.82385	-2.18665	0.24844	0.85560	0.39642	62.86920	0.97515	342.57	-1.99
92/ 5/26	2448768.5	61.27187	-12.92841	0.50635	0.14277	0.88365	0.39803	62.62302	0.97962	348.09	0.46
92/ 5/26	2448769.0	61.87225	-6.87674	3.19449	0.03411	0.90165	0.39497	62.33514	0.98495	353.66	2.94
92/ 5/27	2448769.5	61.72949	-0.73861	5.84575	-0.07650	0.90911	0.38713	62.01007	0.99106	359.31	5.41
92/ 5/27	2448770.0	60.83413	5.41319	8.42751	-0.18793	0.90562	0.37444	61.65320	0.99783	5.08	7.86
92/ 5/28	2448770.5	59.18466	11.50321	10.90682	-0.29897	0.89081	0.35687	61.27076	1.00513	11.00	10.25
92/ 5/28	2448771.0	56.78825	17.45387	13.25069	-0.40827	0.86443	0.33445	60.86973	1.01281	17.08	12.57
92/ 5/29	2448771.5	53.66142	23.18621	15.42645	-0.51441	0.82633	0.30725	60.45761	1.02071	23.37	14.78
92/ 5/29	2448772.0	49.83072	28.62077	17.40224	-0.61586	0.77651	0.27543	60.04238	1.02865	29.87	16.85
92/ 5/30	2448772.5	45.33331	33.67873	19.14755	-0.71101	0.71517	0.23924	59.63216	1.03646	36.61	18.73
92/ 5/30	2448773.0	40.21736	38.28325	20.63382	-0.79823	0.64270	0.19901	59.23510	1.04396	43.59	20.39
92/ 5/31	2448773.5	34.54218	42.36098	21.83515	-0.87587	0.55974	0.15518	58.85906	1.05098	50.81	21.78
92/ 5/31	2448774.0	28.37812	45.84379	22.72902	-0.94234	0.46720	0.10832	58.51135	1.05736	58.24	22.86
92/ 6/ 1	2448774.5	21.80601	48.67054	23.29699	-0.99613	0.36623	0.05907	58.19857	1.06296	65.87	23.60
92/ 6/ 1	2448775.0	14.91622	50.78889	23.52542	-1.03594	0.25827	0.00818	57.92625	1.06768	73.63	23.96
92/ 6/ 2	2448775.5	7.80730	52.15700	23.40604	-1.06068	0.14498	-0.04349	57.69878	1.07143	81.49	23.93
92/ 6/ 2	2448776.0	0.58414	52.74502	22.93645	-1.06957	0.02824	-0.09508	57.51921	1.07416	89.37	23.50
92/ 6/ 3	2448776.5	-6.64411	52.53629	22.12039	-1.06214	-0.08994	-0.14565	57.38918	1.07585	97.21	22.67
92/ 6/ 3	2448777.0	-13.76650	51.52813	20.96786	-1.03833	-0.20747	-0.19429	57.30896	1.07653	104.96	21.46
92/ 6/ 4	2448777.5	-20.67281	49.73217	19.49501	-0.99842	-0.32223	-0.24010	57.27747	1.07625	112.57	19.90
92/ 6/ 4	2448778.0	-27.25606	47.17419	17.72379	-0.94307	-0.43216	-0.28226	57.29249	1.07509	120.02	18.02
92/ 6/ 5	2448778.5	-33.41499	43.89354	15.68149	-0.87331	-0.53532	-0.32003	57.35079	1.07315	127.28	15.87
92/ 6/ 5	2448779.0	-39.05621	39.94208	13.40004	-0.79044	-0.62996	-0.35278	57.44840	1.07056	134.36	13.49
92/ 6/ 6	2448779.5	-44.09610	35.38286	10.91523	-0.69602	-0.71455	-0.38001	57.58085	1.06744	141.26	10.93
92/ 6/ 6	2448780.0	-48.46226	30.28846	8.26586	-0.59180	-0.78781	-0.40132	57.74345	1.06392	148.00	8.23
92/ 6/ 7	2448780.5	-52.09466	24.73924	5.49289	-0.47967	-0.84871	-0.41648	57.93147	1.06012	154.60	5.44
92/ 6/ 7	2448781.0	-54.94632	18.82149	2.63851	-0.36158	-0.89653	-0.42535	58.14042	1.05614	161.09	2.60
92/ 6/ 8	2448781.5	-56.98362	12.62559	-0.25466	-0.23953	-0.93079	-0.42794	58.36612	1.05208	167.51	-0.25
92/ 6/ 8	2448782.0	-58.18639	6.24423	-3.14433	-0.11547	-0.95128	-0.42434	58.60489	1.04801	173.87	-3.08
92/ 6/ 9	2448782.5	-58.54759	-0.22927	-5.98927	0.00867	-0.95802	-0.41477	58.85358	1.04399	180.22	-5.84

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/ 6/ 9	2448783.0	-58.07287	-6.70253	-8.74996	0.13107	-0.95127	-0.39952	59.10959	1.04005	186.58	-8.51
92/ 6/10	2448783.5	-56.77990	-13.08549	-11.38905	0.25002	-0.93145	-0.37894	59.37084	1.03619	192.98	-11.06
92/ 6/10	2448784.0	-54.69756	-19.29167	-13.87193	0.36391	-0.89918	-0.35346	59.63575	1.03242	199.43	-13.45
92/ 6/11	2448784.5	-51.86505	-25.23931	-16.16704	0.47131	-0.85524	-0.32357	59.90308	1.02872	205.95	-15.66
92/ 6/11	2448785.0	-48.33082	-30.85229	-18.24623	0.57092	-0.80052	-0.28979	60.17189	1.02507	212.55	-17.65
92/ 6/12	2448785.5	-44.15156	-36.06102	-20.08500	0.66161	-0.73604	-0.25267	60.44141	1.02143	219.24	-19.41
92/ 6/12	2448786.0	-39.39104	-40.80303	-21.66267	0.74242	-0.66289	-0.21279	60.71089	1.01779	226.01	-20.90
92/ 6/13	2448786.5	-34.11897	-45.02355	-22.96249	0.81255	-0.58225	-0.17073	60.97950	1.01410	232.85	-22.12
92/ 6/13	2448787.0	-28.40983	-48.67590	-23.97171	0.87139	-0.49532	-0.12707	61.24626	1.01035	239.73	-23.04
92/ 6/14	2448787.5	-22.34170	-51.72171	-24.68156	0.91850	-0.40335	-0.08242	61.50989	1.00654	246.64	-23.66
92/ 6/14	2448788.0	-15.99513	-54.13108	-25.08718	0.95358	-0.30759	-0.03733	61.76880	1.00266	253.54	-23.96
92/ 6/15	2448788.5	-9.45207	-55.88252	-25.18751	0.97651	-0.20927	0.00764	62.02103	0.99872	260.40	-23.96
92/ 6/15	2448789.0	-2.79478	-56.96286	-24.98515	0.98732	-0.10962	0.05197	62.26424	0.99475	267.19	-23.66
92/ 6/16	2448789.5	3.89507	-57.36699	-24.48610	0.98616	-0.00979	0.09517	62.49570	0.99079	273.88	-23.07
92/ 6/16	2448790.0	10.53727	-57.09756	-23.69962	0.97331	0.08910	0.13677	62.71234	0.98691	280.46	-22.20
92/ 6/17	2448790.5	17.05389	-56.16456	-22.63792	0.94915	0.18599	0.17637	62.91080	0.98315	286.89	-21.09
92/ 6/17	2448791.0	23.36985	-54.58493	-21.31591	0.91415	0.27989	0.21358	63.08750	0.97960	293.18	-19.75
92/ 6/18	2448791.5	29.41355	-52.38206	-19.75098	0.86885	0.36988	0.24805	63.23874	0.97634	299.32	-18.20
92/ 6/18	2448792.0	35.11734	-49.58532	-17.96271	0.81388	0.45512	0.27948	63.36079	0.97347	305.31	-16.47
92/ 6/19	2448792.5	40.41784	-46.22960	-15.97263	0.74988	0.53482	0.30760	63.45000	0.97106	311.16	-14.58
92/ 6/19	2448793.0	45.25628	-42.35488	-13.80403	0.67756	0.60826	0.33216	63.50290	0.96922	316.90	-12.55
92/ 6/20	2448793.5	49.57879	-38.00581	-11.48170	0.59765	0.67479	0.35296	63.51635	0.96804	322.53	-10.41
92/ 6/20	2448794.0	53.33652	-33.23132	-9.03183	0.51091	0.73378	0.36980	63.48763	0.96759	328.08	-8.18
92/ 6/21	2448794.5	56.48595	-28.08432	-6.48175	0.41815	0.78469	0.38252	63.41454	0.96795	333.56	-5.87
92/ 6/21	2448795.0	58.98900	-22.62141	-3.85985	0.32018	0.82699	0.39098	63.29556	0.96917	339.02	-3.50
92/ 6/22	2448795.5	60.81330	-16.90257	-1.19543	0.21787	0.86019	0.39506	63.12989	0.97132	344.47	-1.09
92/ 6/22	2448796.0	61.93241	-10.99099	1.48143	0.11210	0.88383	0.39464	62.91756	0.97441	349.94	1.35
92/ 6/23	2448796.5	62.32613	-4.95282	4.14002	0.00383	0.89750	0.38965	62.65953	0.97845	355.46	3.79
92/ 6/23	2448797.0	61.98088	1.14310	6.74909	-0.10594	0.90082	0.38001	62.35773	0.98342	1.06	6.21
92/ 6/24	2448797.5	60.89009	7.22544	9.27706	-0.21614	0.89344	0.36570	62.01511	0.98929	6.77	8.60
92/ 6/24	2448798.0	59.05473	13.22076	11.69217	-0.32561	0.87508	0.34669	61.63567	0.99598	12.62	10.94
92/ 6/25	2448798.5	56.48390	19.05390	13.96275	-0.43311	0.84553	0.32303	61.22450	1.00341	18.64	13.18
92/ 6/25	2448799.0	53.19538	24.64859	16.05751	-0.53730	0.80465	0.29479	60.78771	1.01147	24.86	15.32
92/ 6/26	2448799.5	49.21634	29.92808	17.94594	-0.63677	0.75246	0.26212	60.33236	1.01999	31.30	17.30
92/ 6/26	2448800.0	44.58385	34.81611	19.59870	-0.73000	0.68910	0.22524	59.86644	1.02883	37.99	19.11
92/ 6/27	2448800.5	39.34550	39.23800	20.98822	-0.81541	0.61489	0.18445	59.39860	1.03779	44.92	20.69
92/ 6/27	2448801.0	33.55968	43.12202	22.08930	-0.89139	0.53038	0.14014	58.93809	1.04667	52.11	22.01
92/ 6/28	2448801.5	27.29577	46.40096	22.87979	-0.95632	0.43636	0.09283	58.49438	1.05526	59.53	23.03
92/ 6/28	2448802.0	20.63394	49.01388	23.34135	-1.00865	0.33391	0.04313	58.07700	1.06335	67.17	23.70
92/ 6/29	2448802.5	13.66450	50.90801	23.46024	-1.04693	0.22436	-0.00823	57.69512	1.07073	74.98	23.99
92/ 6/29	2448803.0	6.48687	52.04071	23.22798	-1.06994	0.10936	-0.06042	57.35724	1.07721	82.89	23.89
92/ 6/30	2448803.5	-0.79203	52.38125	22.64204	-1.07670	-0.00922	-0.11251	57.07088	1.08260	90.87	23.37
92/ 6/30	2448804.0	-8.05991	51.91248	21.70631	-1.06661	-0.12926	-0.16354	56.84217	1.08679	98.83	22.45
92/ 7/ 1	2448804.5	-15.20161	50.63202	20.43137	-1.03944	-0.24852	-0.21251	56.67567	1.08966	106.71	21.13
92/ 7/ 1	2448805.0	-22.10199	48.55300	18.83453	-0.99543	-0.36468	-0.25844	56.57412	1.09117	114.48	19.45

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
92/ 7/ 2	2448805.5	-28.64897	45.70422	16.93958	-0.93524	-0.47545	-0.30040	56.53839	1.09131	122.08	17.43
92/ 7/ 2	2448806.0	-34.73656	42.12964	14.77625	-0.85999	-0.57866	-0.33756	56.56742	1.09013	129.51	15.14
92/ 7/ 3	2448806.5	-40.26761	37.88724	12.37948	-0.77117	-0.67235	-0.36923	56.65840	1.08770	136.74	12.62
92/ 7/ 3	2448807.0	-45.15626	33.04740	9.78842	-0.67062	-0.75483	-0.39485	56.80697	1.08416	143.80	9.92
92/ 7/ 4	2448807.5	-49.32983	27.69080	7.04538	-0.56037	-0.82475	-0.41406	57.00745	1.07966	150.69	7.10
92/ 7/ 4	2448808.0	-52.73008	21.90610	4.19466	-0.44264	-0.88111	-0.42663	57.25324	1.07438	157.44	4.20
92/ 7/ 5	2448808.5	-55.31394	15.78752	1.28143	-0.31968	-0.92326	-0.43252	57.53712	1.06850	164.07	1.28
92/ 7/ 5	2448809.0	-57.05366	9.43242	-1.64932	-0.19373	-0.95093	-0.43183	57.85163	1.06220	170.61	-1.63
92/ 7/ 6	2448809.5	-57.93639	2.93911	-4.55369	-0.06697	-0.96411	-0.42478	58.18934	1.05566	177.10	-4.49
92/ 7/ 6	2448810.0	-57.96352	-3.59522	-7.38971	0.05859	-0.96311	-0.41171	58.54317	1.04905	183.55	-7.25
92/ 7/ 7	2448810.5	-57.14964	-10.07615	-10.11793	0.18108	-0.94844	-0.39302	58.90656	1.04250	190.00	-9.89
92/ 7/ 7	2448811.0	-55.52134	-16.41349	-12.70196	0.29882	-0.92084	-0.36921	59.27362	1.03612	196.47	-12.37
92/ 7/ 8	2448811.5	-53.11595	-22.52244	-15.10881	0.41032	-0.88115	-0.34079	59.63925	1.03002	202.98	-14.68
92/ 7/ 8	2448812.0	-49.98020	-28.32443	-17.30917	0.51429	-0.83037	-0.30833	59.99918	1.02424	209.54	-16.77
92/ 7/ 9	2448812.5	-46.16897	-33.74783	-19.27752	0.60962	-0.76954	-0.27238	60.34992	1.01883	216.17	-18.63
92/ 7/ 9	2448813.0	-41.74400	-38.72841	-20.99226	0.69538	-0.69980	-0.23354	60.68876	1.01381	222.85	-20.24
92/ 7/10	2448813.5	-36.77269	-43.20968	-22.43572	0.77083	-0.62229	-0.19237	61.01367	1.00918	229.60	-21.57
92/ 7/10	2448814.0	-31.32705	-47.14305	-23.59411	0.83537	-0.53821	-0.14945	61.32318	1.00491	236.40	-22.63
92/ 7/11	2448814.5	-25.48259	-50.48799	-24.45748	0.88854	-0.44873	-0.10534	61.61630	1.00098	243.22	-23.39
92/ 7/11	2448815.0	-19.31735	-53.21204	-25.01964	0.93005	-0.35506	-0.06059	61.89235	0.99736	250.05	-23.84
92/ 7/12	2448815.5	-12.91101	-55.29073	-25.27801	0.95972	-0.25836	-0.01572	62.15092	0.99401	256.86	-24.00
92/ 7/12	2448816.0	-6.34399	-56.70751	-25.23352	0.97750	-0.15979	0.02876	62.39165	0.99089	263.62	-23.86
92/ 7/13	2448816.5	0.30335	-57.45359	-24.89046	0.98346	-0.06049	0.07236	62.61423	0.98797	270.30	-23.42
92/ 7/13	2448817.0	6.95150	-57.52771	-24.25628	0.97777	0.03845	0.11465	62.81821	0.98522	276.89	-22.71
92/ 7/14	2448817.5	13.52251	-56.93591	-23.34143	0.96073	0.13598	0.15518	63.00300	0.98264	283.36	-21.75
92/ 7/14	2448818.0	19.94063	-55.69118	-22.15916	0.93270	0.23109	0.19355	63.16775	0.98020	289.70	-20.54
92/ 7/15	2448818.5	26.13295	-53.81318	-20.72530	0.89414	0.32283	0.22941	63.31135	0.97792	295.90	-19.11
92/ 7/15	2448819.0	32.02994	-51.32781	-19.05806	0.84559	0.41030	0.26241	63.43241	0.97582	301.97	-17.48
92/ 7/16	2448819.5	37.56595	-48.26689	-17.17781	0.78765	0.49265	0.29226	63.52929	0.97392	307.89	-15.69
92/ 7/16	2448820.0	42.67964	-44.66768	-15.10682	0.72099	0.56912	0.31869	63.60008	0.97227	313.70	-13.74
92/ 7/17	2448820.5	47.31439	-40.57250	-12.86911	0.64634	0.63900	0.34146	63.64270	0.97091	319.39	-11.67
92/ 7/17	2448821.0	51.41860	-36.02830	-10.49015	0.56446	0.70162	0.36037	63.65496	0.96992	324.98	-9.49
92/ 7/18	2448821.5	54.94599	-31.08623	-7.99673	0.47615	0.75639	0.37524	63.63460	0.96935	330.50	-7.22
92/ 7/18	2448822.0	57.85584	-25.80127	-5.41671	0.38225	0.80278	0.38592	63.57944	0.96928	335.97	-4.89
92/ 7/19	2448822.5	60.11325	-20.23183	-2.77886	0.28363	0.84032	0.39230	63.48741	0.96978	341.40	-2.51
92/ 7/19	2448823.0	61.68929	-14.43941	-0.11265	0.18120	0.86856	0.39427	63.35675	0.97092	346.83	-0.10
92/ 7/20	2448823.5	62.56131	-8.48824	2.55185	0.07590	0.88714	0.39178	63.18607	0.97276	352.27	2.31
92/ 7/20	2448824.0	62.71308	-2.44494	5.18422	-0.03131	0.89572	0.38478	62.97447	0.97537	357.77	4.72
92/ 7/21	2448824.5	62.13511	3.62180	7.75382	-0.13942	0.89401	0.37325	62.72170	0.97878	3.34	7.10
92/ 7/21	2448825.0	60.82493	9.64154	10.22994	-0.24735	0.88181	0.35718	62.42822	0.98303	9.01	9.43
92/ 7/22	2448825.5	58.78737	15.54253	12.58205	-0.35401	0.85892	0.33663	62.09535	0.98813	14.81	11.69
92/ 7/22	2448826.0	56.03500	21.25202	14.77997	-0.45823	0.82525	0.31167	61.72534	0.99406	20.77	13.85
92/ 7/23	2448826.5	52.58850	26.69687	16.79414	-0.55878	0.78078	0.28240	61.32142	1.00079	26.91	15.89
92/ 7/23	2448827.0	48.47712	31.80407	18.59594	-0.65434	0.72557	0.24899	60.88792	1.00827	33.27	17.78
92/ 7/24	2448827.5	43.73914	36.50148	20.15801	-0.74358	0.65981	0.21165	60.43025	1.01639	39.85	19.49

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
92/ 7/24	2448828.0	38.42226	40.71877	21.45471	-0.82504	0.58386	0.17068	59.95492	1.02504	46.66	20.97
92/ 7/25	2448828.5	32.58402	44.38841	22.46262	-0.89729	0.49820	0.12644	59.46948	1.03408	53.72	22.19
92/ 7/25	2448829.0	26.29191	47.44707	23.16109	-0.95882	0.40357	0.07939	58.98241	1.04332	61.01	23.12
92/ 7/26	2448829.5	19.62344	49.83697	23.53288	-1.00818	0.30091	0.03008	58.50299	1.05256	68.51	23.72
92/ 7/26	2448830.0	12.66584	51.50766	23.56488	-1.04398	0.19141	-0.02083	58.04108	1.06159	76.18	23.95
92/ 7/27	2448830.5	5.51531	52.41773	23.24879	-1.06496	0.07657	-0.07258	57.60679	1.07017	83.99	23.80
92/ 7/27	2448831.0	-1.72408	52.53666	22.58177	-1.07006	-0.04189	-0.12431	57.21022	1.07807	91.88	23.25
92/ 7/28	2448831.5	-8.94204	51.84664	21.56710	-1.05853	-0.16196	-0.17508	56.86101	1.08507	99.79	22.29
92/ 7/28	2448832.0	-16.02429	50.34405	20.21460	-1.02995	-0.28145	-0.22390	56.56794	1.09094	107.66	20.94
92/ 7/29	2448832.5	-22.85518	48.04068	18.54087	-0.98435	-0.39803	-0.26977	56.33853	1.09551	115.44	19.21
92/ 7/29	2448833.0	-29.32078	44.96439	16.56926	-0.92220	-0.50930	-0.31170	56.17868	1.09864	123.11	17.15
92/ 7/30	2448833.5	-35.31206	41.15908	14.32960	-0.84449	-0.61292	-0.34878	56.09233	1.10022	130.63	14.80
92/ 7/30	2448834.0	-40.72822	36.68401	11.85752	-0.75265	-0.70673	-0.38021	56.08124	1.10023	137.99	12.21
92/ 7/31	2448834.5	-45.47960	31.61239	9.19356	-0.64853	-0.78879	-0.40535	56.14498	1.09867	145.20	9.42
92/ 7/31	2448835.0	-49.49027	26.02927	6.38201	-0.53431	-0.85754	-0.42373	56.28091	1.09563	152.26	6.51
92/ 8/ 1	2448835.5	-52.69992	20.02903	3.46964	-0.41240	-0.91180	-0.43509	56.48435	1.09122	159.19	3.52
92/ 8/ 1	2448836.0	-55.06500	13.71251	0.50433	-0.28534	-0.95085	-0.43936	56.74893	1.08562	166.02	0.51
92/ 8/ 2	2448836.5	-56.55914	7.18410	-2.46620	-0.15564	-0.97435	-0.43667	57.06688	1.07901	172.76	-2.48
92/ 8/ 2	2448837.0	-57.17284	0.54892	-5.39561	-0.02574	-0.98242	-0.42728	57.42950	1.07163	179.45	-5.39
92/ 8/ 3	2448837.5	-56.91255	-6.08975	-8.23993	0.10208	-0.97548	-0.41162	57.82750	1.06368	186.11	-8.19
92/ 8/ 3	2448838.0	-55.79935	-12.63261	-10.95839	0.22580	-0.95427	-0.39021	58.25149	1.05540	192.76	-10.84
92/ 8/ 4	2448838.5	-53.86727	-18.98609	-13.51398	0.34361	-0.91974	-0.36363	58.69226	1.04700	199.42	-13.31
92/ 8/ 4	2448839.0	-51.16155	-25.06367	-15.87383	0.45402	-0.87300	-0.33252	59.14110	1.03866	206.10	-15.57
92/ 8/ 5	2448839.5	-47.73680	-30.78680	-18.00946	0.55575	-0.81528	-0.29753	59.59002	1.03056	212.82	-17.59
92/ 8/ 5	2448840.0	-43.65533	-36.08543	-19.89684	0.64780	-0.74786	-0.25932	60.03190	1.02283	219.58	-19.36
92/ 8/ 6	2448840.5	-38.98547	-40.89828	-21.51630	0.72938	-0.67205	-0.21852	60.46063	1.01558	226.37	-20.85
92/ 8/ 6	2448841.0	-33.80023	-45.17295	-22.85250	0.79991	-0.58916	-0.17577	60.87108	1.00888	233.19	-22.05
92/ 8/ 7	2448841.5	-28.17595	-48.86580	-23.89419	0.85897	-0.50045	-0.13165	61.25915	1.00280	240.03	-22.96
92/ 8/ 7	2448842.0	-22.19124	-51.94176	-24.63404	0.90631	-0.40720	-0.08673	61.62169	0.99736	246.87	-23.56
92/ 8/ 8	2448842.5	-15.92600	-54.37405	-25.06847	0.94179	-0.31058	-0.04155	61.95646	0.99255	253.67	-23.87
92/ 8/ 8	2448843.0	-9.46063	-56.14395	-25.19736	0.96541	-0.21178	0.00341	62.26198	0.98838	260.44	-23.87
92/ 8/ 9	2448843.5	-2.87523	-57.24042	-25.02394	0.97725	-0.11191	0.04765	62.53743	0.98479	267.12	-23.59
92/ 8/ 9	2448844.0	3.75092	-57.65986	-24.55450	0.97749	-0.01203	0.09074	62.78258	0.98176	273.72	-23.02
92/ 8/10	2448844.5	10.34007	-57.40577	-23.79827	0.96637	0.08681	0.13227	62.99760	0.97924	280.21	-22.20
92/ 8/10	2448845.0	16.81644	-56.48848	-22.76722	0.94425	0.18364	0.17183	63.18297	0.97717	286.58	-21.12
92/ 8/11	2448845.5	23.10679	-54.92486	-21.47587	0.91152	0.27752	0.20908	63.33938	0.97549	292.82	-19.82
92/ 8/11	2448846.0	29.14084	-52.73797	-19.94113	0.86865	0.36754	0.24365	63.46756	0.97417	298.92	-18.31
92/ 8/12	2448846.5	34.85179	-49.95683	-18.18210	0.81620	0.45286	0.27525	63.56824	0.97315	304.90	-16.62
92/ 8/12	2448847.0	40.17668	-46.61604	-16.21993	0.75476	0.53267	0.30360	63.64202	0.97241	310.76	-14.77
92/ 8/13	2448847.5	45.05691	-42.75548	-14.07757	0.68501	0.60622	0.32842	63.68935	0.97190	316.50	-12.77
92/ 8/13	2448848.0	49.43853	-38.41994	-11.77964	0.60765	0.67281	0.34950	63.71044	0.97163	322.15	-10.65
92/ 8/14	2448848.5	53.27270	-33.65878	-9.35222	0.52348	0.73180	0.36663	63.70525	0.97159	327.71	-8.44
92/ 8/14	2448849.0	56.51602	-28.52552	-6.82262	0.43332	0.78260	0.37965	63.67350	0.97178	333.22	-6.15
92/ 8/15	2448849.5	59.13085	-23.07743	-4.21919	0.33804	0.82469	0.38841	63.61468	0.97224	338.68	-3.80
92/ 8/15	2448850.0	61.08561	-17.37512	-1.57113	0.23856	0.85760	0.39281	63.52806	0.97298	344.12	-1.42

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
92/ 8/16	2448850.5	62.35503	-11.48210	1.09178	0.13583	0.88094	0.39278	63.41277	0.97406	349.57	0.99
92/ 8/16	2448851.0	62.92042	-5.46435	3.73930	0.03084	0.89438	0.38827	63.26785	0.97551	355.04	3.39
92/ 8/17	2448851.5	62.76991	0.61014	6.34106	-0.07540	0.89766	0.37926	63.09234	0.97740	0.56	5.77
92/ 8/17	2448852.0	61.89863	6.67182	8.86667	-0.18183	0.89057	0.36579	62.88538	0.97978	6.15	8.11
92/ 8/18	2448852.5	60.30895	12.65001	11.28601	-0.28735	0.87299	0.34789	62.64636	0.98271	11.85	10.38
92/ 8/18	2448853.0	58.01071	18.47345	13.56943	-0.39087	0.84487	0.32567	62.37499	0.98623	17.66	12.56
92/ 8/19	2448853.5	55.02140	24.07080	15.68800	-0.49123	0.80624	0.29924	62.07150	0.99039	23.63	14.64
92/ 8/19	2448854.0	51.36639	29.37117	17.61378	-0.58725	0.75720	0.26877	61.73668	0.99521	29.76	16.58
92/ 8/20	2448854.5	47.07915	34.30475	19.32007	-0.67772	0.69797	0.23447	61.37204	1.00072	36.08	18.35
92/ 8/20	2448855.0	42.20142	38.80349	20.78176	-0.76141	0.62886	0.19659	60.97994	1.00690	42.60	19.93
92/ 8/21	2448855.5	36.78342	42.80191	21.97566	-0.83705	0.55031	0.15545	60.56363	1.01373	49.32	21.28
92/ 8/21	2448856.0	30.88397	46.23793	22.88089	-0.90336	0.46290	0.11141	60.12737	1.02115	56.26	22.37
92/ 8/22	2448856.5	24.57055	49.05394	23.47933	-0.95907	0.36736	0.06494	59.67646	1.02908	63.39	23.17
92/ 8/22	2448857.0	17.91922	51.19793	23.75613	-1.00294	0.26463	0.01653	59.21723	1.03739	70.71	23.65
92/ 8/23	2448857.5	11.01434	52.62484	23.70019	-1.03376	0.15582	-0.03321	58.75702	1.04596	78.18	23.79
92/ 8/23	2448858.0	3.94803	53.29791	23.30476	-1.05044	0.04227	-0.08360	58.30408	1.05460	85.76	23.56
92/ 8/24	2448858.5	-3.18067	53.19025	22.56799	-1.05204	-0.07445	-0.13388	57.86737	1.06313	93.42	22.95
92/ 8/24	2448859.0	-10.26701	52.28628	21.49342	-1.03783	-0.19256	-0.18320	57.45637	1.07132	101.11	21.97
92/ 8/25	2448859.5	-17.20222	50.58326	20.09050	-1.00736	-0.31006	-0.23069	57.08074	1.07895	108.78	20.61
92/ 8/25	2448860.0	-23.87560	48.09243	18.37485	-0.96053	-0.42482	-0.27539	56.74999	1.08578	116.40	18.89
92/ 8/26	2448860.5	-30.17706	44.84001	16.36847	-0.89762	-0.53457	-0.31638	56.47308	1.09160	123.94	16.85
92/ 8/26	2448861.0	-35.99998	40.86761	14.09960	-0.81938	-0.63705	-0.35276	56.25796	1.09620	131.38	14.51
92/ 8/27	2448861.5	-41.24429	36.23205	11.60236	-0.72700	-0.73004	-0.38369	56.11121	1.09941	138.70	11.93
92/ 8/27	2448862.0	-45.81956	31.00457	8.91614	-0.62212	-0.81152	-0.40846	56.03760	1.10111	145.92	9.16
92/ 8/28	2448862.5	-49.64785	25.26927	6.08459	-0.50679	-0.87973	-0.42652	56.03987	1.10122	153.03	6.23
92/ 8/28	2448863.0	-52.66619	19.12094	3.15450	-0.38336	-0.93329	-0.43751	56.11853	1.09973	160.05	3.22
92/ 8/29	2448863.5	-54.82834	12.66239	0.17446	-0.25440	-0.97122	-0.44126	56.27178	1.09668	167.00	0.18
92/ 8/29	2448864.0	-56.10586	6.00140	-2.80654	-0.12258	-0.99302	-0.43782	56.49567	1.09216	173.89	-2.85
92/ 8/30	2448864.5	-56.48832	-0.75241	-5.74049	0.00947	-0.99865	-0.42742	56.78424	1.08632	180.76	-5.80
92/ 8/30	2448865.0	-55.98277	-7.49053	-8.58157	0.13924	-0.98849	-0.41048	57.12987	1.07934	187.62	-8.64
92/ 8/31	2448865.5	-54.61252	-14.10833	-11.28720	0.26445	-0.96328	-0.38753	57.52367	1.07145	194.48	-11.32
92/ 8/31	2448866.0	-52.41543	-20.50734	-13.81886	0.38309	-0.92407	-0.35922	57.95593	1.06288	201.37	-13.79
92/ 9/ 1	2448866.5	-49.44189	-26.59696	-16.14265	0.49348	-0.87214	-0.32626	58.41647	1.05385	208.28	-16.04
92/ 9/ 1	2448867.0	-45.75261	-32.29575	-18.22959	0.59424	-0.80891	-0.28940	58.89512	1.04461	215.22	-18.03
92/ 9/ 2	2448867.5	-41.41647	-37.53217	-20.05575	0.68434	-0.73586	-0.24938	59.38199	1.03538	222.18	-19.74
92/ 9/ 2	2448868.0	-36.50847	-42.24491	-21.60218	0.76300	-0.65452	-0.20692	59.86781	1.02635	229.17	-21.15
92/ 9/ 3	2448868.5	-31.10789	-46.38287	-22.85475	0.82973	-0.56638	-0.16272	60.34411	1.01770	236.15	-22.26
92/ 9/ 3	2448869.0	-25.29672	-49.90492	-23.80385	0.88422	-0.47288	-0.11741	60.80336	1.00958	243.12	-23.05
92/ 9/ 4	2448869.5	-19.15829	-52.77952	-24.44411	0.92636	-0.37541	-0.07161	61.23914	1.00210	250.05	-23.53
92/ 9/ 4	2448870.0	-12.77619	-54.98414	-24.77404	0.95619	-0.27526	-0.02587	61.64609	0.99535	256.92	-23.70
92/ 9/ 5	2448870.5	-6.23337	-56.50480	-24.79576	0.97385	-0.17364	0.01932	62.01997	0.98940	263.70	-23.57
92/ 9/ 5	2448871.0	0.38859	-57.33545	-24.51466	0.97960	-0.07169	0.06348	62.35762	0.98427	270.39	-23.15
92/ 9/ 6	2448871.5	7.01001	-57.47749	-23.93912	0.97375	0.02953	0.10620	62.65688	0.97997	276.95	-22.46
92/ 9/ 6	2448872.0	13.55362	-56.93931	-23.08028	0.95669	0.12902	0.14708	62.91649	0.97649	283.39	-21.52
92/ 9/ 7	2448872.5	19.94491	-55.73581	-21.95179	0.92885	0.22585	0.18577	63.13605	0.97380	289.69	-20.35

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/ 9/ 7	2448873.0	26.11251	-53.88804	-20.56962	0.89072	0.31912	0.22193	63.31582	0.97184	295.85	-18.96
92/ 9/ 8	2448873.5	31.98846	-51.42291	-18.95189	0.84283	0.40802	0.25527	63.45669	0.97057	301.88	-17.38
92/ 9/ 8	2448874.0	37.50858	-48.37281	-17.11872	0.78575	0.49173	0.28551	63.55999	0.96990	307.79	-15.62
92/ 9/ 9	2448874.5	42.61276	-44.77538	-15.09204	0.72011	0.56952	0.31237	63.62745	0.96978	313.58	-13.72
92/ 9/ 9	2448875.0	47.24528	-40.67323	-12.89548	0.64659	0.64066	0.33564	63.66099	0.97014	319.28	-11.69
92/ 9/10	2448875.5	51.35516	-36.11360	-10.55417	0.56590	0.70449	0.35508	63.66266	0.97090	324.88	-9.54
92/ 9/10	2448876.0	54.89651	-31.14815	-8.09463	0.47884	0.76040	0.37052	63.63456	0.97199	330.43	-7.31
92/ 9/11	2448876.5	57.82893	-25.83259	-5.54457	0.38623	0.80779	0.38179	63.57869	0.97338	335.93	-5.00
92/ 9/11	2448877.0	60.11781	-20.22632	-2.93268	0.28896	0.84616	0.38876	63.49689	0.97499	341.40	-2.65
92/ 9/12	2448877.5	61.73477	-14.39207	-0.28847	0.18798	0.87504	0.39132	63.39083	0.97681	346.88	-0.26
92/ 9/12	2448878.0	62.65797	-8.39545	2.35796	0.08427	0.89405	0.38941	63.26187	0.97880	352.37	2.14
92/ 9/13	2448878.5	62.87244	-2.30445	4.97619	-0.02113	0.90286	0.38299	63.11114	0.98096	357.90	4.52
92/ 9/13	2448879.0	62.37038	3.81103	7.53568	-0.12713	0.90125	0.37207	62.93946	0.98328	3.50	6.88
92/ 9/14	2448879.5	61.15144	9.87981	10.00609	-0.23263	0.88905	0.35669	62.74736	0.98578	9.18	9.18
92/ 9/14	2448880.0	59.22292	15.82998	12.35749	-0.33648	0.86622	0.33695	62.53519	0.98847	14.97	11.40
92/ 9/15	2448880.5	56.59994	21.58953	14.56073	-0.43750	0.83278	0.31296	62.30310	0.99140	20.88	13.52
92/ 9/15	2448881.0	53.30562	27.08707	16.58766	-0.53452	0.78888	0.28491	62.05118	0.99460	26.94	15.50
92/ 9/16	2448881.5	49.37110	32.25250	18.41147	-0.62635	0.73476	0.25303	61.77954	0.99810	33.16	17.34
92/ 9/16	2448882.0	44.83563	37.01776	20.00703	-0.71178	0.67078	0.21756	61.48845	1.00196	39.54	18.99
92/ 9/17	2448882.5	39.74645	41.31761	21.35118	-0.78965	0.59742	0.17884	61.17841	1.00620	46.11	20.43
92/ 9/17	2448883.0	34.15878	45.09042	22.42307	-0.85879	0.51526	0.13723	60.85033	1.01087	52.85	21.62
92/ 9/18	2448883.5	28.13561	48.27906	23.20452	-0.91807	0.42505	0.09315	60.50562	1.01597	59.77	22.55
92/ 9/18	2448884.0	21.74742	50.83179	23.68038	-0.96640	0.32763	0.04707	60.14633	1.02152	66.84	23.19
92/ 9/19	2448884.5	15.07187	52.70317	23.83886	-1.00276	0.22403	-0.00047	59.77522	1.02748	74.04	23.50
92/ 9/19	2448885.0	8.19331	53.85516	23.67198	-1.02621	0.11541	-0.04890	59.39588	1.03383	81.35	23.49
92/ 9/20	2448885.5	1.20206	54.25810	23.17588	-1.03591	0.00308	-0.09758	59.01277	1.04050	88.73	23.12
92/ 9/20	2448886.0	-5.80637	53.89181	22.35125	-1.03118	-0.11148	-0.14580	58.63122	1.04738	96.15	22.41
92/ 9/21	2448886.5	-12.73244	52.74670	21.20364	-1.01152	-0.22662	-0.19282	58.25739	1.05437	103.57	21.34
92/ 9/21	2448887.0	-19.47389	50.82471	19.74377	-0.97664	-0.34057	-0.23787	57.89819	1.06132	110.96	19.94
92/ 9/22	2448887.5	-25.92748	48.14031	17.98776	-0.92653	-0.45143	-0.28013	57.56113	1.06805	118.31	18.21
92/ 9/22	2448888.0	-31.99086	44.72112	15.95724	-0.86149	-0.55721	-0.31880	57.25406	1.07438	125.58	16.18
92/ 9/23	2448888.5	-37.56490	40.60839	13.67929	-0.78217	-0.65590	-0.35307	56.98496	1.08011	132.77	13.89
92/ 9/23	2448889.0	-42.55607	35.85697	11.18623	-0.68958	-0.74549	-0.38220	56.76155	1.08506	139.88	11.37
92/ 9/24	2448889.5	-46.87906	30.53493	8.51518	-0.58513	-0.82410	-0.40553	56.59095	1.08902	146.92	8.65
92/ 9/24	2448890.0	-50.45930	24.72249	5.70737	-0.47058	-0.89003	-0.42250	56.47935	1.09184	153.90	5.80
92/ 9/25	2448890.5	-53.23534	18.51054	2.80732	-0.34802	-0.94186	-0.43271	56.43157	1.09337	160.83	2.85
92/ 9/25	2448891.0	-55.16081	11.99852	-0.13832	-0.21982	-0.97849	-0.43594	56.45086	1.09353	167.73	-0.14
92/ 9/26	2448891.5	-56.20592	5.29193	-3.08191	-0.08849	-0.99923	-0.43212	56.53856	1.09226	174.62	-3.12
92/ 9/26	2448892.0	-56.35824	-1.50050	-5.97614	0.04338	-1.00383	-0.42140	56.69406	1.08956	181.53	-6.05
92/ 9/27	2448892.5	-55.62278	-8.26976	-8.77525	0.17325	-0.99245	-0.40410	56.91474	1.08548	188.46	-8.87
92/ 9/27	2448893.0	-54.02142	-14.90937	-11.43621	0.29870	-0.96568	-0.38069	57.19606	1.08013	195.43	-11.53
92/ 9/28	2448893.5	-51.59156	-21.31807	-13.91966	0.41756	-0.92445	-0.35179	57.53179	1.07365	202.45	-14.00
92/ 9/28	2448894.0	-48.38443	-27.40193	-16.19076	0.52794	-0.86999	-0.31811	57.91424	1.06620	209.52	-16.23
92/ 9/29	2448894.5	-44.46289	-33.07616	-18.21960	0.62828	-0.80374	-0.28039	58.33468	1.05800	216.65	-18.20
92/ 9/29	2448895.0	-39.89919	-38.26626	-19.98159	0.71739	-0.72729	-0.23944	58.78363	1.04925	223.80	-19.87

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
92/ 9/30	2448895.5	-34.77264	-42.90870	-21.45748	0.79437	-0.64230	-0.19603	59.25130	1.04019	230.98	-21.23
92/ 9/30	2448896.0	-29.16744	-46.95118	-22.63323	0.85866	-0.55041	-0.15094	59.72785	1.03103	238.15	-22.27
92/10/ 1	2448896.5	-23.17067	-50.35249	-23.49982	0.90997	-0.45323	-0.10485	60.20377	1.02198	245.29	-22.98
92/10/ 1	2448897.0	-16.87065	-53.08205	-24.05284	0.94822	-0.35229	-0.05845	60.67011	1.01323	252.37	-23.36
92/10/ 2	2448897.5	-10.35545	-55.11938	-24.29214	0.97354	-0.24904	-0.01231	61.11865	1.00496	259.36	-23.42
92/10/ 2	2448898.0	-3.71185	-56.45329	-24.22140	0.98619	-0.14479	0.03302	61.54208	0.99731	266.24	-23.18
92/10/ 3	2448898.5	2.97560	-57.08124	-23.84774	0.98656	-0.04077	0.07707	61.93413	0.99040	272.98	-22.65
92/10/ 3	2448899.0	9.62520	-57.00853	-23.18133	0.97510	0.06193	0.11940	62.28958	0.98433	279.58	-21.85
92/10/ 4	2448899.5	16.15860	-56.24766	-22.23508	0.95233	0.16228	0.15964	62.60430	0.97916	286.03	-20.80
92/10/ 4	2448900.0	22.50111	-54.81769	-21.02430	0.91883	0.25936	0.19746	62.87528	0.97494	292.32	-19.53
92/10/ 5	2448900.5	28.58202	-52.74372	-19.56648	0.87518	0.35231	0.23254	63.10054	0.97167	298.45	-18.06
92/10/ 5	2448901.0	34.33472	-50.05639	-17.88108	0.82202	0.44035	0.26462	63.27913	0.96936	304.45	-16.41
92/10/ 6	2448901.5	39.69698	-46.79153	-15.98928	0.75999	0.52274	0.29345	63.41099	0.96796	310.31	-14.60
92/10/ 6	2448902.0	44.61100	-42.98980	-13.91391	0.68978	0.59877	0.31880	63.49694	0.96745	316.06	-12.66
92/10/ 7	2448902.5	49.02370	-38.69643	-11.67924	0.61208	0.66781	0.34045	63.53851	0.96774	321.71	-10.59
92/10/ 7	2448903.0	52.88689	-33.96095	-9.31090	0.52764	0.72922	0.35824	63.53788	0.96877	327.29	-8.43
92/10/ 8	2448903.5	56.15756	-28.83696	-6.83571	0.43724	0.78244	0.37198	63.49779	0.97044	332.82	-6.18
92/10/ 8	2448904.0	58.79815	-23.38189	-4.28157	0.34172	0.82691	0.38153	63.42135	0.97268	338.31	-3.87
92/10/ 9	2448904.5	60.77694	-17.65670	-1.67732	0.24197	0.86212	0.38676	63.31200	0.97539	343.80	-1.52
92/10/ 9	2448905.0	62.06837	-11.72563	0.94745	0.13892	0.88763	0.38757	63.17334	0.97847	349.30	0.86
92/10/10	2448905.5	62.65350	-5.65576	3.56258	0.03357	0.90304	0.38391	63.00905	0.98183	354.84	3.24
92/10/10	2448906.0	62.52036	0.48335	6.13758	-0.07300	0.90803	0.37572	62.82276	0.98540	0.44	5.61
92/10/11	2448906.5	61.66438	6.62023	8.64186	-0.17969	0.90235	0.36303	62.61793	0.98910	6.13	7.93
92/10/11	2448907.0	60.08875	12.68207	11.04502	-0.28531	0.88585	0.34587	62.39780	0.99286	11.92	10.20
92/10/12	2448907.5	57.80475	18.59536	13.31718	-0.38866	0.85849	0.32436	62.16529	0.99663	17.83	12.37
92/10/12	2448908.0	54.83198	24.28670	15.42931	-0.48849	0.82033	0.29865	61.92296	1.00038	23.89	14.43
92/10/13	2448908.5	51.19856	29.68357	17.35360	-0.58353	0.77158	0.26893	61.67297	1.00408	30.10	16.34
92/10/13	2448909.0	46.94119	34.71527	19.06383	-0.67253	0.71257	0.23549	61.41706	1.00772	36.48	18.08
92/10/14	2448909.5	42.10507	39.31382	20.53578	-0.75423	0.64377	0.19863	61.15661	1.01131	43.04	19.62
92/10/14	2448910.0	36.74375	43.41495	21.74757	-0.82742	0.56580	0.15873	60.89267	1.01486	49.76	20.93
92/10/15	2448910.5	30.91882	46.95905	22.68010	-0.89094	0.47942	0.11624	60.62601	1.01840	56.64	21.97
92/10/15	2448911.0	24.69945	49.89221	23.31741	-0.94372	0.38555	0.07164	60.35725	1.02195	63.66	22.73
92/10/16	2448911.5	18.16178	52.16711	23.64699	-0.98478	0.28523	0.02547	60.08692	1.02557	70.80	23.18
92/10/16	2448912.0	11.38824	53.74399	23.66012	-1.01324	0.17964	-0.02170	59.81564	1.02927	78.04	23.30
92/10/17	2448912.5	4.46667	54.59154	23.35217	-1.02838	0.07009	-0.06924	59.54420	1.03309	85.32	23.09
92/10/17	2448913.0	-2.51068	54.68767	22.72283	-1.02963	-0.04200	-0.11650	59.27371	1.03705	92.63	22.54
92/10/18	2448913.5	-9.44824	54.02034	21.77632	-1.01658	-0.15510	-0.16278	59.00571	1.04115	99.92	21.66
92/10/18	2448914.0	-16.24843	52.58812	20.52154	-0.98905	-0.26759	-0.20741	58.74228	1.04539	107.17	20.45
92/10/19	2448914.5	-22.81303	50.40083	18.97216	-0.94704	-0.37778	-0.24966	58.48607	1.04973	114.35	18.93
92/10/19	2448915.0	-29.04474	47.47986	17.14663	-0.89081	-0.48394	-0.28883	58.24038	1.05412	121.46	17.12
92/10/20	2448915.5	-34.84881	43.85847	15.06816	-0.82087	-0.58432	-0.32424	58.00909	1.05848	128.47	15.06
92/10/20	2448916.0	-40.13488	39.58176	12.76448	-0.73800	-0.67717	-0.35523	57.79668	1.06272	135.40	12.76
92/10/21	2448916.5	-44.81879	34.70646	10.26761	-0.64325	-0.76081	-0.38119	57.60804	1.06673	142.25	10.27
92/10/21	2448917.0	-48.82453	29.30037	7.61343	-0.53798	-0.83365	-0.40160	57.44833	1.07036	149.03	7.62
92/10/22	2448917.5	-52.08610	23.44154	4.84115	-0.42380	-0.89427	-0.41600	57.32281	1.07349	155.77	4.84

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/10/22	2448918.0	-54.54928	17.21701	1.99260	-0.30256	-0.94146	-0.42408	57.23652	1.07598	162.48	2.00
92/10/23	2448918.5	-56.17322	10.72120	-0.88859	-0.17633	-0.97424	-0.42562	57.19410	1.07768	169.19	-0.89
92/10/23	2448919.0	-56.93167	4.05407	-3.75789	-0.04736	-0.99197	-0.42057	57.19941	1.07848	175.93	-3.77
92/10/24	2448919.5	-56.81381	-2.68113	-6.57088	0.08204	-0.99432	-0.40902	57.25534	1.07829	182.70	-6.59
92/10/24	2448920.0	-55.82465	-9.38020	-9.28431	0.20954	-0.98134	-0.39122	57.36356	1.07702	189.54	-9.31
92/10/25	2448920.5	-53.98485	-15.94045	-11.85706	0.33286	-0.95342	-0.36756	57.52436	1.07467	196.45	-11.90
92/10/25	2448921.0	-51.32999	-22.26305	-14.25110	0.44988	-0.91131	-0.33855	57.73651	1.07121	203.45	-14.29
92/10/26	2448921.5	-47.90937	-28.25524	-16.43228	0.55869	-0.85605	-0.30481	57.99729	1.06670	210.53	-16.46
92/10/26	2448922.0	-43.78439	-33.83218	-18.37099	0.65762	-0.78893	-0.26706	58.30251	1.06122	217.69	-18.37
92/10/27	2448922.5	-39.02662	-38.91852	-20.04253	0.74535	-0.71143	-0.22605	58.64667	1.05488	224.92	-19.98
92/10/27	2448923.0	-33.71566	-43.44939	-21.42745	0.82083	-0.62517	-0.18255	59.02314	1.04782	232.19	-21.29
92/10/28	2448923.5	-27.93699	-47.37104	-22.51152	0.88337	-0.53182	-0.13734	59.42440	1.04021	239.47	-22.26
92/10/28	2448924.0	-21.77988	-50.64109	-23.28563	0.93254	-0.43304	-0.09115	59.84232	1.03221	246.73	-22.90
92/10/29	2448924.5	-15.33546	-53.22832	-23.74559	0.96820	-0.33045	-0.04468	60.26842	1.02402	253.93	-23.20
92/10/29	2448925.0	-8.69504	-55.11228	-23.89170	0.99045	-0.22562	0.00142	60.69416	1.01582	261.03	-23.18
92/10/30	2448925.5	-1.94866	-56.28264	-23.72844	0.99955	-0.11996	0.04659	61.11115	1.00780	268.02	-22.85
92/10/30	2448926.0	4.81602	-56.73842	-23.26394	0.99594	-0.01481	0.09030	61.51141	1.00013	274.85	-22.22
92/10/31	2448926.5	11.51465	-56.48716	-22.50961	0.98014	0.08863	0.13210	61.88755	0.99297	281.52	-21.33
92/10/31	2448927.0	18.06683	-55.54408	-21.47969	0.95280	0.18930	0.17161	62.23289	0.98646	288.02	-20.19
92/11/ 1	2448927.5	24.39654	-53.93135	-20.19092	0.91457	0.28623	0.20849	62.54163	0.98073	294.34	-18.83
92/11/ 1	2448928.0	30.43248	-51.67732	-18.66217	0.86617	0.37854	0.24243	62.80890	0.97587	300.49	-17.29
92/11/ 2	2448928.5	36.10824	-48.81589	-16.91414	0.80833	0.46546	0.27320	63.03083	0.97195	306.49	-15.57
92/11/ 2	2448929.0	41.36244	-45.38602	-14.96920	0.74181	0.54629	0.30055	63.20458	0.96904	312.34	-13.70
92/11/ 3	2448929.5	46.13879	-41.43120	-12.85108	0.66735	0.62037	0.32430	63.32837	0.96716	318.08	-11.71
92/11/ 3	2448930.0	50.38618	-36.99916	-10.58480	0.58574	0.68711	0.34427	63.40145	0.96630	323.71	-9.61
92/11/ 4	2448930.5	54.05876	-32.14151	-8.19649	0.49775	0.74596	0.36031	63.42404	0.96646	329.27	-7.43
92/11/ 4	2448931.0	57.11609	-26.91347	-5.71327	0.40420	0.79640	0.37228	63.39735	0.96758	334.77	-5.17
92/11/ 5	2448931.5	59.52329	-21.37371	-3.16311	0.30591	0.83793	0.38006	63.32347	0.96962	340.25	-2.86
92/11/ 5	2448932.0	61.25127	-15.58409	-0.57479	0.20378	0.87011	0.38353	63.20531	0.97248	345.73	-0.52
92/11/ 6	2448932.5	62.27705	-9.60943	2.02230	0.09872	0.89250	0.38263	63.04651	0.97607	351.23	1.84
92/11/ 6	2448933.0	62.58414	-3.51726	4.59826	-0.00828	0.90475	0.37729	62.85133	0.98030	356.78	4.20
92/11/ 7	2448933.5	62.16286	2.62250	7.12288	-0.11618	0.90651	0.36747	62.62455	0.98503	2.42	6.53
92/11/ 7	2448934.0	61.01087	8.73796	9.56585	-0.22386	0.89754	0.35318	62.37134	0.99016	8.15	8.82
92/11/ 8	2448934.5	59.13358	14.75576	11.89701	-0.33015	0.87765	0.33446	62.09711	0.99556	14.01	11.05
92/11/ 8	2448935.0	56.54461	20.60169	14.08665	-0.43381	0.84678	0.31141	61.80741	1.00110	20.02	13.17
92/11/ 9	2448935.5	53.26618	26.20143	16.10589	-0.53353	0.80497	0.28417	61.50773	1.00667	26.19	15.18
92/11/ 9	2448936.0	49.32944	31.48142	17.92703	-0.62798	0.75241	0.25295	61.20336	1.01215	32.55	17.03
92/11/10	2448936.5	44.77466	36.36990	19.52401	-0.71580	0.68943	0.21803	60.89932	1.01746	39.09	18.70
92/11/10	2448937.0	39.65131	40.79794	20.87290	-0.79565	0.61654	0.17976	60.60013	1.02249	45.82	20.15
92/11/11	2448937.5	34.01788	44.70067	21.95234	-0.86621	0.53444	0.13854	60.30979	1.02720	52.73	21.35
92/11/11	2448938.0	27.94159	48.01851	22.74403	-0.92622	0.44399	0.09488	60.03167	1.03151	59.81	22.26
92/11/12	2448938.5	21.49775	50.69841	23.23322	-0.97456	0.34625	0.04931	59.76842	1.03542	67.02	22.87
92/11/12	2448939.0	14.76898	52.69503	23.40909	-1.01021	0.24244	0.00246	59.52205	1.03889	74.34	23.16
92/11/13	2448939.5	7.84417	53.97186	23.26513	-1.03233	0.13394	-0.04502	59.29384	1.04195	81.73	23.10
92/11/13	2448940.0	0.81719	54.50224	22.79944	-1.04029	0.02228	-0.09243	59.08449	1.04462	89.14	22.70

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/11/14	2448940.5	-6.21450	54.27012	22.01491	-1.03367	-0.09094	-0.13905	58.89416	1.04693	96.53	21.95
92/11/14	2448941.0	-13.15141	53.27072	20.91934	-1.01229	-0.20401	-0.18416	58.72264	1.04894	103.87	20.87
92/11/15	2448941.5	-19.89376	51.51090	19.52541	-0.97625	-0.31519	-0.22703	58.56942	1.05069	111.12	19.47
92/11/15	2448942.0	-26.34312	49.00934	17.85062	-0.92585	-0.42275	-0.26698	58.43390	1.05224	118.26	17.79
92/11/16	2448942.5	-32.40419	45.79646	15.91705	-0.86170	-0.52496	-0.30334	58.31552	1.05363	125.28	15.84
92/11/16	2448943.0	-37.98647	41.91411	13.75109	-0.78463	-0.62017	-0.33550	58.21390	1.05490	132.19	13.66
92/11/17	2448943.5	-43.00597	37.41507	11.38305	-0.69571	-0.70682	-0.36293	58.12895	1.05609	138.98	11.29
92/11/17	2448944.0	-47.38670	32.36225	8.84669	-0.59624	-0.78347	-0.38514	58.06099	1.05719	145.67	8.76
92/11/18	2448944.5	-51.06211	26.82778	6.17866	-0.48771	-0.84884	-0.40175	58.01073	1.05821	152.28	6.11
92/11/18	2448945.0	-53.97643	20.89185	3.41795	-0.37179	-0.90185	-0.41247	57.97936	1.05910	158.84	3.38
92/11/19	2448945.5	-56.08570	14.64137	0.60516	-0.25030	-0.94160	-0.41711	57.96845	1.05983	165.37	0.60
92/11/19	2448946.0	-57.35874	8.16848	-2.21818	-0.12518	-0.96744	-0.41558	57.97991	1.06033	171.89	-2.19
92/11/20	2448946.5	-57.77777	1.56894	-5.01035	0.00155	-0.97896	-0.40792	58.01583	1.06054	178.44	-4.95
92/11/20	2448947.0	-57.33880	-5.05967	-7.73022	0.12784	-0.97602	-0.39426	58.07835	1.06038	185.04	-7.65
92/11/21	2448947.5	-56.05173	-11.61973	-10.33805	0.25165	-0.95876	-0.37488	58.16949	1.05975	191.71	-10.24
92/11/21	2448948.0	-53.94011	-18.01545	-12.79617	0.37100	-0.92758	-0.35013	58.29094	1.05860	198.47	-12.68
92/11/22	2448948.5	-51.04057	-24.15469	-15.06976	0.48401	-0.88315	-0.32047	58.44388	1.05685	205.33	-14.94
92/11/22	2448949.0	-47.40196	-29.95069	-17.12743	0.58897	-0.82639	-0.28647	58.62882	1.05445	212.29	-16.99
92/11/23	2448949.5	-43.08410	-35.32359	-18.94176	0.68435	-0.75842	-0.24873	58.84544	1.05138	219.35	-18.78
92/11/23	2448950.0	-38.15641	-40.20182	-20.48974	0.76886	-0.68055	-0.20793	59.09254	1.04763	226.50	-20.29
92/11/24	2448950.5	-32.69619	-44.52316	-21.75305	0.84145	-0.59422	-0.16478	59.36790	1.04321	233.71	-21.49
92/11/24	2448951.0	-26.78690	-48.23549	-22.71816	0.90136	-0.50097	-0.12000	59.66837	1.03818	240.96	-22.38
92/11/25	2448951.5	-20.51634	-51.29724	-23.37642	0.94807	-0.40238	-0.07429	59.98986	1.03260	248.20	-22.93
92/11/25	2448952.0	-13.97488	-53.67756	-23.72388	0.98133	-0.30002	-0.02833	60.32744	1.02656	255.41	-23.16
92/11/26	2448952.5	-7.25376	-55.35619	-23.76109	1.00113	-0.19542	0.01722	60.67549	1.02017	262.53	-23.05
92/11/26	2448953.0	-0.44361	-56.32305	-23.49280	1.00767	-0.09007	0.06179	61.02781	1.01357	269.55	-22.64
92/11/27	2448953.5	6.36688	-56.57768	-22.92758	1.00131	0.01467	0.10482	61.37788	1.00689	276.42	-21.93
92/11/27	2448954.0	13.09205	-56.12855	-22.07743	0.98257	0.11754	0.14585	61.71895	1.00027	283.13	-20.96
92/11/28	2448954.5	19.65018	-54.99232	-20.95737	0.95209	0.21739	0.18446	62.04430	0.99386	289.66	-19.74
92/11/28	2448955.0	25.96407	-53.19295	-19.58503	0.91058	0.31320	0.22029	62.34738	0.98782	296.02	-18.31
92/11/29	2448955.5	31.96163	-50.76097	-17.98027	0.85881	0.40405	0.25304	62.62198	0.98227	302.20	-16.69
92/11/29	2448956.0	37.57610	-47.73274	-16.16486	0.79760	0.48914	0.28246	62.86239	0.97735	308.21	-14.90
92/11/30	2448956.5	42.74631	-44.14972	-14.16213	0.72777	0.56777	0.30832	63.06354	0.97317	314.07	-12.98
92/11/30	2448957.0	47.41677	-40.05789	-11.99675	0.65016	0.63929	0.33046	63.22109	0.96985	319.81	-10.94
92/12/ 1	2448957.5	51.53768	-35.50728	-9.69450	0.56563	0.70315	0.34872	63.33153	0.96746	325.43	-8.81
92/12/ 1	2448958.0	55.06502	-30.55147	-7.28209	0.47503	0.75886	0.36297	63.39225	0.96606	330.98	-6.60
92/12/ 2	2448958.5	57.96056	-25.24729	-4.78698	0.37921	0.80595	0.37312	63.40163	0.96570	336.46	-4.33
92/12/ 2	2448959.0	60.19187	-19.65451	-2.23730	0.27903	0.84402	0.37908	63.35903	0.96640	341.92	-2.02
92/12/ 3	2448959.5	61.73250	-13.83558	0.33830	0.17540	0.87267	0.38076	63.26483	0.96815	347.37	0.31
92/12/ 3	2448960.0	62.56207	-7.85542	2.91074	0.06922	0.89157	0.37814	63.12047	0.97092	352.84	2.64
92/12/ 4	2448960.5	62.66654	-1.78121	5.45064	-0.03855	0.90039	0.37115	62.92835	0.97465	358.37	4.97
92/12/ 4	2448961.0	62.03848	4.31785	7.92843	-0.14692	0.89887	0.35979	62.69192	0.97929	3.98	7.27
92/12/ 5	2448961.5	60.67743	10.37085	10.31451	-0.25482	0.88676	0.34408	62.41550	0.98472	9.70	9.51
92/12/ 5	2448962.0	58.59036	16.30554	12.57947	-0.36112	0.86391	0.32404	62.10430	0.99083	15.55	11.69
92/12/ 6	2448962.5	55.79209	22.04875	14.69431	-0.46462	0.83021	0.29976	61.76429	0.99749	21.56	13.76

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
92/12/ 6	2448963.0	52.30577	27.52706	16.63073	-0.56407	0.78569	0.27138	61.40207	1.00456	27.76	15.71
92/12/ 7	2448963.5	48.16337	32.66748	18.36149	-0.65813	0.73047	0.23907	61.02474	1.01187	34.15	17.51
92/12/ 7	2448964.0	43.40603	37.39840	19.86086	-0.74543	0.66483	0.20310	60.63974	1.01927	40.75	19.12
92/12/ 8	2448964.5	38.08435	41.65069	21.10505	-0.82455	0.58922	0.16378	60.25464	1.02659	47.56	20.50
92/12/ 8	2448965.0	32.25848	45.35890	22.07276	-0.89408	0.50429	0.12153	59.87692	1.03367	54.58	21.63
92/12/ 9	2448965.5	25.99796	48.46266	22.74575	-0.95267	0.41090	0.07684	59.51380	1.04035	61.79	22.47
92/12/ 9	2448966.0	19.38133	50.90816	23.10939	-0.99903	0.31011	0.03028	59.17196	1.04650	69.16	22.99
92/12/10	2448966.5	12.49538	52.64963	23.15322	-1.03202	0.20323	-0.01748	58.85737	1.05199	76.65	23.16
92/12/10	2448967.0	5.43402	53.65078	22.87145	-1.05069	0.09177	-0.06574	58.57507	1.05673	84.22	22.98
92/12/11	2448967.5	-1.70310	53.88619	22.26334	-1.05430	-0.02259	-0.11371	58.32906	1.06066	91.81	22.44
92/12/11	2448968.0	-8.81243	53.34236	21.33355	-1.04243	-0.13802	-0.16060	58.12217	1.06372	99.38	21.53
92/12/12	2448968.5	-15.78845	52.01854	20.09221	-1.01494	-0.25259	-0.20558	57.95602	1.06591	106.88	20.28
92/12/12	2448969.0	-22.52594	49.92723	18.55496	-0.97205	-0.36433	-0.24785	57.83107	1.06726	114.28	18.71
92/12/13	2448969.5	-28.92217	47.09420	16.74270	-0.91429	-0.47129	-0.28666	57.74663	1.06781	121.56	16.85
92/12/13	2448970.0	-34.87921	43.55820	14.68125	-0.84253	-0.57161	-0.32132	57.70109	1.06764	128.69	14.74
92/12/14	2448970.5	-40.30599	39.37019	12.40085	-0.75793	-0.66355	-0.35122	57.69199	1.06682	135.67	12.41
92/12/14	2448971.0	-45.12021	34.59229	9.93551	-0.66190	-0.74556	-0.37586	57.71633	1.06548	142.52	9.91
92/12/15	2448971.5	-49.24996	29.29645	7.32231	-0.55610	-0.81629	-0.39483	57.77073	1.06370	149.25	7.28
92/12/15	2448972.0	-52.63500	23.56288	4.60060	-0.44231	-0.87465	-0.40787	57.85168	1.06161	155.88	4.56
92/12/16	2448972.5	-55.22769	17.47833	1.81119	-0.32245	-0.91981	-0.41480	57.95576	1.05929	162.44	1.79
92/12/16	2448973.0	-56.99366	11.13438	-1.00438	-0.19851	-0.95118	-0.41560	58.07977	1.05682	168.95	-0.99
92/12/17	2448973.5	-57.91203	4.62561	-3.80469	-0.07250	-0.96845	-0.41031	58.22091	1.05428	175.43	-3.75
92/12/17	2448974.0	-57.97548	-1.95212	-6.54912	0.05361	-0.97155	-0.39913	58.37686	1.05171	181.93	-6.44
92/12/18	2448974.5	-57.18995	-8.50334	-9.19852	0.17788	-0.96067	-0.38231	58.54580	1.04914	188.46	-9.04
92/12/18	2448975.0	-55.57422	-14.93454	-11.71584	0.29847	-0.93620	-0.36019	58.72644	1.04656	195.04	-11.51
92/12/19	2448975.5	-53.15914	-21.15568	-14.06668	0.41364	-0.89876	-0.33322	58.91798	1.04398	201.70	-13.81
92/12/19	2448976.0	-49.98687	-27.08146	-16.21971	0.52181	-0.84913	-0.30187	59.11997	1.04136	208.45	-15.92
92/12/20	2448976.5	-46.10981	-32.63258	-18.14712	0.62154	-0.78829	-0.26669	59.33227	1.03867	215.29	-17.81
92/12/20	2448977.0	-41.58954	-37.73676	-19.82494	0.71156	-0.71735	-0.22827	59.55486	1.03586	222.22	-19.44
92/12/21	2448977.5	-36.49549	-42.32964	-21.23327	0.79080	-0.63752	-0.18722	59.78772	1.03289	229.23	-20.80
92/12/21	2448978.0	-30.90371	-46.35552	-22.35645	0.85841	-0.55014	-0.14417	60.03069	1.02971	236.31	-21.86
92/12/22	2448978.5	-24.89541	-49.76786	-23.18317	0.91370	-0.45659	-0.09978	60.28333	1.02630	243.42	-22.62
92/12/22	2448979.0	-18.55562	-52.52968	-23.70645	0.95624	-0.35829	-0.05468	60.54481	1.02262	250.54	-23.05
92/12/23	2448979.5	-11.97176	-54.61369	-23.92360	0.98575	-0.25668	-0.00948	60.81379	1.01867	257.64	-23.17
92/12/23	2448980.0	-5.23226	-56.00231	-23.83606	1.00220	-0.15318	0.03520	61.08840	1.01445	264.66	-22.97
92/12/24	2448980.5	1.57471	-56.68746	-23.44919	1.00571	-0.04917	0.07882	61.36622	1.00999	271.59	-22.46
92/12/24	2448981.0	8.36245	-56.67022	-22.77201	0.99659	0.05402	0.12084	61.64421	1.00534	278.39	-21.68
92/12/25	2448981.5	15.04682	-55.96033	-21.81691	0.97527	0.15516	0.16081	61.91884	1.00055	285.05	-20.63
92/12/25	2448982.0	21.54714	-54.57562	-20.59926	0.94234	0.25311	0.19830	62.18607	0.99569	291.54	-19.34
92/12/26	2448982.5	27.78697	-52.54137	-19.13715	0.89847	0.34680	0.23295	62.44151	0.99085	297.87	-17.85
92/12/26	2448983.0	33.69476	-49.88957	-17.45094	0.84442	0.43532	0.26443	62.68047	0.98614	304.03	-16.17
92/12/27	2448983.5	39.20431	-46.65822	-15.56298	0.78102	0.51781	0.29248	62.89812	0.98166	310.04	-14.33
92/12/27	2448984.0	44.25511	-42.89062	-13.49725	0.70911	0.59355	0.31689	63.08959	0.97752	315.90	-12.35
92/12/28	2448984.5	48.79259	-38.63476	-11.27909	0.62959	0.66190	0.33747	63.25013	0.97384	321.63	-10.27
92/12/28	2448985.0	52.76827	-33.94262	-8.93490	0.54336	0.72229	0.35408	63.37526	0.97073	327.25	-8.10

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
92/12/29	2448985.5	56.13978	-28.86971	-6.49194	0.45133	0.77426	0.36662	63.46085	0.96829	332.79	-5.87
92/12/29	2448986.0	58.87096	-23.47453	-3.97808	0.35443	0.81739	0.37501	63.50329	0.96663	338.26	-3.59
92/12/30	2448986.5	60.93185	-17.81817	-1.42166	0.25356	0.85133	0.37918	63.49960	0.96583	343.70	-1.28
92/12/30	2448987.0	62.29872	-11.96396	1.14864	0.14964	0.87577	0.37910	63.44750	0.96596	349.13	1.04
92/12/31	2448987.5	62.95408	-5.97716	3.70401	0.04361	0.89044	0.37477	63.34558	0.96708	354.58	3.35
92/12/31	2448988.0	62.88683	0.07533	6.21555	-0.06358	0.89513	0.36616	63.19329	0.96922	0.07	5.64
93/ 1/ 1	2448988.5	62.09235	6.12522	8.65444	-0.17097	0.88965	0.35332	62.99109	0.97239	5.63	7.90
93/ 1/ 1	2448989.0	60.57275	12.10308	10.99204	-0.27754	0.87384	0.33626	62.74048	0.97657	11.30	10.09
93/ 1/ 2	2448989.5	58.33710	17.93863	13.20005	-0.38223	0.84761	0.31506	62.44400	0.98174	17.09	12.20
93/ 1/ 2	2448990.0	55.40181	23.56113	15.25070	-0.48395	0.81093	0.28981	62.10532	0.98783	23.04	14.22
93/ 1/ 3	2448990.5	51.79096	28.89978	17.11697	-0.58152	0.76381	0.26064	61.72918	0.99474	29.16	16.10
93/ 1/ 3	2448991.0	47.53678	33.88431	18.77281	-0.67371	0.70639	0.22771	61.32137	1.00236	35.48	17.83
93/ 1/ 4	2448991.5	42.68001	38.44566	20.19356	-0.75924	0.63890	0.19126	60.88868	1.01055	42.01	19.37
93/ 1/ 4	2448992.0	37.27032	42.51683	21.35627	-0.83676	0.56172	0.15157	60.43880	1.01915	48.76	20.69
93/ 1/ 5	2448992.5	31.36658	46.03398	22.24021	-0.90490	0.47540	0.10901	59.98014	1.02797	55.73	21.76
93/ 1/ 5	2448993.0	25.03697	48.93765	22.82737	-0.96228	0.38070	0.06401	59.52170	1.03683	62.91	22.55
93/ 1/ 6	2448993.5	18.35893	51.17417	23.10306	-1.00757	0.27858	0.01713	59.07282	1.04551	70.26	23.02
93/ 1/ 6	2448994.0	11.41871	52.69725	23.05652	-1.03951	0.17025	-0.03103	58.64290	1.05381	77.77	23.15
93/ 1/ 7	2448994.5	4.31059	53.46960	22.68150	-1.05698	0.05716	-0.07974	58.24113	1.06152	85.39	22.92
93/ 1/ 7	2448995.0	-2.86425	53.46457	21.97687	-1.05908	-0.05900	-0.12822	57.87614	1.06845	93.07	22.32
93/ 1/ 8	2448995.5	-9.99946	52.66771	20.94703	-1.04520	-0.17633	-0.17563	57.55567	1.07442	100.75	21.34
93/ 1/ 8	2448996.0	-16.98554	51.07798	19.60230	-1.01503	-0.29278	-0.22106	57.28628	1.07929	108.39	20.01
93/ 1/ 9	2448996.5	-23.71231	48.70871	17.95900	-0.96867	-0.40616	-0.26364	57.07309	1.08296	115.96	18.34
93/ 1/ 9	2448997.0	-30.07160	45.58803	16.03942	-0.90663	-0.51430	-0.30251	56.91953	1.08535	123.41	16.37
93/ 1/10	2448997.5	-35.96008	41.75877	13.87146	-0.82983	-0.61506	-0.33686	56.82728	1.08646	130.73	14.13
93/ 1/10	2448998.0	-41.28204	37.27771	11.48808	-0.73959	-0.70645	-0.36601	56.79622	1.08630	137.92	11.67
93/ 1/11	2448998.5	-45.95189	32.21435	8.92651	-0.63758	-0.78673	-0.38940	56.82449	1.08493	144.97	9.04
93/ 1/11	2448999.0	-49.89636	26.64913	6.22734	-0.52573	-0.85443	-0.40659	56.90872	1.08248	151.89	6.28
93/ 1/12	2448999.5	-53.05609	20.67134	3.43344	-0.40622	-0.90841	-0.41734	57.04421	1.07907	158.71	3.45
93/ 1/12	2449000.0	-55.38677	14.37671	0.58890	-0.28130	-0.94789	-0.42154	57.22526	1.07486	165.45	0.59
93/ 1/13	2449000.5	-56.85959	7.86502	-2.26203	-0.15328	-0.97247	-0.41925	57.44552	1.07003	172.12	-2.26
93/ 1/13	2449001.0	-57.46125	1.23767	-5.07596	-0.02443	-0.98205	-0.41066	57.69829	1.06474	178.77	-5.05
93/ 1/14	2449001.5	-57.19344	-5.40446	-7.81119	0.10311	-0.97690	-0.39607	57.97683	1.05916	185.40	-7.74
93/ 1/14	2449002.0	-56.07200	-11.96306	-10.42844	0.22733	-0.95749	-0.37590	58.27467	1.05346	192.04	-10.31
93/ 1/15	2449002.5	-54.12576	-18.34406	-12.89151	0.34638	-0.92459	-0.35062	58.58578	1.04775	198.72	-12.71
93/ 1/15	2449003.0	-51.39526	-24.45902	-15.16765	0.45866	-0.87910	-0.32079	58.90479	1.04216	205.45	-14.92
93/ 1/16	2449003.5	-47.93134	-30.22626	-17.22795	0.56274	-0.82210	-0.28699	59.22704	1.03676	212.24	-16.91
93/ 1/16	2449004.0	-43.79372	-35.57170	-19.04751	0.65741	-0.75475	-0.24981	59.54867	1.03162	219.09	-18.65
93/ 1/17	2449004.5	-39.04961	-40.42954	-20.60560	0.74168	-0.67832	-0.20988	59.86661	1.02677	225.99	-20.13
93/ 1/17	2449005.0	-33.77229	-44.74262	-21.88568	0.81475	-0.59411	-0.16782	60.17851	1.02222	232.95	-21.33
93/ 1/18	2449005.5	-28.03986	-48.46276	-22.87538	0.87599	-0.50346	-0.12423	60.48269	1.01797	239.95	-22.22
93/ 1/18	2449006.0	-21.93395	-51.55085	-23.56646	0.92497	-0.40770	-0.07973	60.77801	1.01398	246.95	-22.81
93/ 1/19	2449006.5	-15.53858	-53.97690	-23.95470	0.96143	-0.30818	-0.03490	61.06375	1.01022	253.94	-23.10
93/ 1/19	2449007.0	-8.93902	-55.71995	-24.03972	0.98526	-0.20623	0.00971	61.33944	1.00666	260.89	-23.07
93/ 1/20	2449007.5	-2.22079	-56.76792	-23.82486	0.99650	-0.10314	0.05357	61.60481	1.00325	267.76	-22.75

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/ 1/20	2449008.0	4.53136	-57.11735	-23.31694	0.99532	-0.00016	0.09617	61.85955	0.99995	274.54	-22.14
93/ 1/21	2449008.5	11.23430	-56.77310	-22.52609	0.98203	0.10150	0.13704	62.10329	0.99673	281.19	-21.27
93/ 1/21	2449009.0	17.80742	-55.74798	-21.46547	0.95706	0.20071	0.17576	62.33545	0.99355	287.71	-20.14
93/ 1/22	2449009.5	24.17338	-54.06229	-20.15101	0.92095	0.29639	0.21193	62.55515	0.99041	294.09	-18.79
93/ 1/22	2449010.0	30.25877	-51.74331	-18.60118	0.87433	0.38756	0.24521	62.76119	0.98731	300.32	-17.24
93/ 1/23	2449010.5	35.99475	-48.82477	-16.83665	0.81790	0.47329	0.27529	62.95199	0.98425	306.40	-15.51
93/ 1/23	2449011.0	41.31753	-45.34629	-14.88002	0.75245	0.55277	0.30190	63.12558	0.98126	312.34	-13.63
93/ 1/24	2449011.5	46.16883	-41.35274	-12.75555	0.67881	0.62527	0.32482	63.27965	0.97840	318.15	-11.63
93/ 1/24	2449012.0	50.49617	-36.89369	-10.48884	0.59788	0.69013	0.34387	63.41154	0.97570	323.85	-9.52
93/ 1/25	2449012.5	54.25317	-32.02278	-8.10663	0.51055	0.74680	0.35891	63.51836	0.97324	329.45	-7.33
93/ 1/25	2449013.0	57.39970	-26.79715	-5.63644	0.41777	0.79480	0.36983	63.59703	0.97109	334.97	-5.08
93/ 1/26	2449013.5	59.90203	-21.27695	-3.10642	0.32048	0.83373	0.37656	63.64441	0.96934	340.45	-2.80
93/ 1/26	2449014.0	61.73290	-15.52475	-0.54512	0.21965	0.86326	0.37906	63.65741	0.96807	345.88	-0.49
93/ 1/27	2449014.5	62.87157	-9.60511	2.01875	0.11624	0.88313	0.37732	63.63307	0.96737	351.31	1.82
93/ 1/27	2449015.0	63.30383	-3.58419	4.55648	0.01122	0.89315	0.37135	63.56872	0.96733	356.76	4.11
93/ 1/28	2449015.5	63.02205	2.47074	7.03949	-0.09445	0.89315	0.36117	63.46210	0.96803	2.25	6.37
93/ 1/28	2449016.0	62.02522	8.49157	9.43954	-0.19977	0.88307	0.34686	63.31145	0.96955	7.80	8.57
93/ 1/29	2449016.5	60.31902	14.40974	11.72885	-0.30375	0.86284	0.32849	63.11569	0.97193	13.44	10.71
93/ 1/29	2449017.0	57.91591	20.15656	13.88023	-0.40539	0.83248	0.30615	62.87448	0.97524	19.19	12.75
93/ 1/30	2449017.5	54.83530	25.66361	15.86729	-0.50364	0.79205	0.27998	62.58835	0.97948	25.08	14.69
93/ 1/30	2449018.0	51.10375	30.86306	17.66456	-0.59743	0.74167	0.25014	62.25880	0.98466	31.13	16.48
93/ 1/31	2449018.5	46.75519	35.68818	19.24777	-0.68565	0.68155	0.21680	61.88837	0.99077	37.35	18.12
93/ 1/31	2449019.0	41.83122	40.07389	20.59401	-0.76715	0.61197	0.18021	61.48074	0.99775	43.77	19.57
93/ 2/ 1	2449019.5	36.38133	43.95738	21.68212	-0.84075	0.53332	0.14063	61.04069	1.00552	50.39	20.81
93/ 2/ 1	2449020.0	30.46317	47.27893	22.49297	-0.90522	0.44613	0.09840	60.57421	1.01397	57.21	21.80
93/ 2/ 2	2449020.5	24.14275	49.98287	23.00991	-0.95933	0.35108	0.05391	60.08840	1.02297	64.22	22.52
93/ 2/ 2	2449021.0	17.49442	52.01873	23.21924	-1.00184	0.24901	0.00765	59.59141	1.03235	71.41	22.93
93/ 2/ 3	2449021.5	10.60081	53.34248	23.11069	-1.03157	0.14099	-0.03985	59.09232	1.04192	78.76	23.02
93/ 2/ 3	2449022.0	3.55234	53.91807	22.67804	-1.04739	0.02832	-0.08795	58.60095	1.05146	86.23	22.77
93/ 2/ 4	2449022.5	-3.55349	53.71893	21.91966	-1.04836	-0.08751	-0.13591	58.12764	1.06075	93.78	22.15
93/ 2/ 4	2449023.0	-10.61328	52.72959	20.83904	-1.03369	-0.20471	-0.18296	57.68290	1.06953	101.38	21.18
93/ 2/ 5	2449023.5	-17.51935	50.94720	19.44532	-1.00291	-0.32134	-0.22823	57.27709	1.07758	108.98	19.85
93/ 2/ 5	2449024.0	-24.16189	48.38284	17.75355	-0.95588	-0.43525	-0.27082	56.91999	1.08466	116.54	18.17
93/ 2/ 6	2449024.5	-30.43145	45.06250	15.78494	-0.89286	-0.54420	-0.30983	56.62037	1.09057	124.03	16.19
93/ 2/ 6	2449025.0	-36.22189	41.02753	13.56668	-0.81455	-0.64590	-0.34439	56.38563	1.09512	131.44	13.92
93/ 2/ 7	2449025.5	-41.43343	36.33451	11.13168	-0.72214	-0.73816	-0.37371	56.22134	1.09820	138.75	11.42
93/ 2/ 7	2449026.0	-45.97574	31.05441	8.51785	-0.61724	-0.81894	-0.39710	56.13109	1.09970	145.96	8.73
93/ 2/ 8	2449026.5	-49.77086	25.27108	5.76724	-0.50187	-0.88650	-0.41403	56.11619	1.09962	153.08	5.90
93/ 2/ 8	2449027.0	-52.75557	19.07903	2.92490	-0.37834	-0.93944	-0.42414	56.17574	1.09799	160.12	2.98
93/ 2/ 9	2449027.5	-54.88315	12.58081	0.03762	-0.24920	-0.97679	-0.42729	56.30664	1.09489	167.09	0.04
93/ 2/ 9	2449028.0	-56.12447	5.88402	-2.84743	-0.11708	-0.99803	-0.42350	56.50386	1.09047	174.02	-2.89
93/ 2/10	2449028.5	-56.46820	-0.90176	-5.68394	0.01543	-1.00309	-0.41301	56.76070	1.08489	180.91	-5.75
93/ 2/10	2449029.0	-55.92028	-7.66787	-8.42765	0.14582	-0.99231	-0.39618	57.06925	1.07838	187.81	-8.49
93/ 2/11	2449029.5	-54.50286	-14.30925	-11.03733	0.27182	-0.96640	-0.37352	57.42072	1.07113	194.71	-11.08
93/ 2/11	2449030.0	-52.25268	-20.72665	-13.47552	0.39142	-0.92636	-0.34565	57.80593	1.06340	201.64	-13.48

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
93/ 2/12	2449030.5	-49.21915	-26.82840	-15.70914	0.50288	-0.87341	-0.31323	58.21568	1.05538	208.59	-15.65
93/ 2/12	2449031.0	-45.46238	-32.53167	-17.70975	0.60478	-0.80893	-0.27696	58.64105	1.04729	215.59	-17.58
93/ 2/13	2449031.5	-41.05109	-37.76331	-19.45376	0.69599	-0.73439	-0.23757	59.07375	1.03931	222.61	-19.23
93/ 2/13	2449032.0	-36.06066	-42.46031	-20.92239	0.77567	-0.65130	-0.19576	59.50626	1.03159	229.66	-20.59
93/ 2/14	2449032.5	-30.57139	-46.56992	-22.10154	0.84321	-0.56119	-0.15220	59.93201	1.02426	236.72	-21.64
93/ 2/14	2449033.0	-24.66691	-50.04955	-22.98165	0.89823	-0.46552	-0.10756	60.34543	1.01740	243.76	-22.39
93/ 2/15	2449033.5	-18.43274	-52.86653	-23.55742	0.94055	-0.36574	-0.06243	60.74198	1.01109	250.78	-22.82
93/ 2/15	2449034.0	-11.95514	-54.99770	-23.82755	0.97012	-0.26323	-0.01739	61.11812	1.00535	257.74	-22.95
93/ 2/16	2449034.5	-5.32009	-56.42901	-23.79444	0.98707	-0.15929	0.02703	61.47123	1.00021	264.61	-22.77
93/ 2/16	2449035.0	1.38762	-57.15505	-23.46396	0.99162	-0.05517	0.07034	61.79953	0.99564	271.39	-22.31
93/ 2/17	2449035.5	8.08507	-57.17853	-22.84513	0.98411	0.04798	0.11210	62.10195	0.99164	278.05	-21.58
93/ 2/17	2449036.0	14.69195	-56.50986	-21.94990	0.96495	0.14904	0.15190	62.37801	0.98814	284.57	-20.60
93/ 2/18	2449036.5	21.13103	-55.16667	-20.79287	0.93465	0.24699	0.18935	62.62767	0.98511	290.96	-19.39
93/ 2/18	2449037.0	27.32876	-53.17333	-19.39106	0.89378	0.34087	0.22412	62.85123	0.98248	297.20	-17.97
93/ 2/19	2449037.5	33.21571	-50.56051	-17.76373	0.84299	0.42977	0.25590	63.04918	0.98022	303.30	-16.36
93/ 2/19	2449038.0	38.72699	-47.36476	-15.93206	0.78297	0.51288	0.28442	63.22207	0.97826	309.27	-14.60
93/ 2/20	2449038.5	43.80267	-43.62796	-13.91898	0.71449	0.58942	0.30943	63.37043	0.97656	315.11	-12.69
93/ 2/20	2449039.0	48.38813	-39.39693	-11.74892	0.63835	0.65871	0.33074	63.49461	0.97508	320.85	-10.66
93/ 2/21	2449039.5	52.43435	-34.72287	-9.44760	0.55541	0.72014	0.34817	63.59478	0.97381	326.49	-8.54
93/ 2/21	2449040.0	55.89823	-29.66096	-7.04175	0.46654	0.77316	0.36158	63.67080	0.97272	332.05	-6.35
93/ 2/22	2449040.5	58.74284	-24.26976	-4.55895	0.37269	0.81730	0.37088	63.72226	0.97182	337.55	-4.10
93/ 2/22	2449041.0	60.93758	-18.61081	-2.02735	0.27481	0.85217	0.37598	63.74842	0.97112	343.02	-1.82
93/ 2/23	2449041.5	62.45842	-12.74803	0.52454	0.17386	0.87744	0.37686	63.74827	0.97065	348.46	0.47
93/ 2/23	2449042.0	63.28797	-6.74729	3.06804	0.07084	0.89288	0.37351	63.72053	0.97044	353.91	2.76
93/ 2/24	2449042.5	63.41559	-0.67584	5.57457	-0.03325	0.89830	0.36595	63.66372	0.97055	359.39	5.02
93/ 2/24	2449043.0	62.83748	5.39813	8.01580	-0.13739	0.89361	0.35424	63.57626	0.97103	4.91	7.24
93/ 2/25	2449043.5	61.55667	11.40598	10.36389	-0.24058	0.87878	0.33846	63.45652	0.97195	10.50	9.40
93/ 2/25	2449044.0	59.58311	17.27912	12.59167	-0.34179	0.85384	0.31873	63.30296	0.97337	16.17	11.47
93/ 2/26	2449044.5	56.93362	22.94943	14.67283	-0.44000	0.81891	0.29519	63.11422	0.97537	21.95	13.44
93/ 2/26	2449045.0	53.63197	28.34972	16.58209	-0.53420	0.77415	0.26801	62.88927	0.97801	27.86	15.29
93/ 2/27	2449045.5	49.70887	33.41426	18.29544	-0.62334	0.71980	0.23738	62.62753	0.98134	33.91	16.99
93/ 2/27	2449046.0	45.20201	38.07919	19.79031	-0.70640	0.65620	0.20353	62.32899	0.98541	40.11	18.51
93/ 2/28	2449046.5	40.15613	42.28307	21.04577	-0.78234	0.58374	0.16673	61.99433	0.99025	46.48	19.85
93/ 2/28	2449047.0	34.62301	45.96751	22.04281	-0.85010	0.50290	0.12727	61.62508	0.99588	53.01	20.96
93/ 3/ 1	2449047.5	28.66158	49.07776	22.76459	-0.90864	0.41429	0.08551	61.22368	1.00229	59.71	21.83
93/ 3/ 1	2449048.0	22.33785	51.56350	23.19675	-0.95691	0.31862	0.04182	60.79362	1.00943	66.58	22.43
93/ 3/ 2	2449048.5	15.72488	53.37972	23.32775	-0.99388	0.21674	-0.00334	60.33945	1.01725	73.59	22.74
93/ 3/ 2	2449049.0	8.90259	54.48764	23.14924	-1.01856	0.10965	-0.04948	59.86691	1.02564	80.72	22.75
93/ 3/ 3	2449049.5	1.95744	54.85589	22.65652	-1.03002	-0.00147	-0.09603	59.38281	1.03448	87.96	22.43
93/ 3/ 3	2449050.0	-5.01815	54.46165	21.84895	-1.02742	-0.11526	-0.14235	58.89507	1.04362	95.26	21.78
93/ 3/ 4	2449050.5	-11.92664	53.29198	20.73036	-1.01010	-0.23018	-0.18775	58.41257	1.05287	102.61	20.79
93/ 3/ 4	2449051.0	-18.66649	51.34509	19.30956	-0.97757	-0.34447	-0.23146	57.94494	1.06201	109.98	19.47
93/ 3/ 5	2449051.5	-25.13376	48.63160	17.60061	-0.92960	-0.45622	-0.27270	57.50235	1.07082	117.33	17.82
93/ 3/ 5	2449052.0	-31.22407	45.17561	15.62314	-0.86630	-0.56337	-0.31062	57.09519	1.07904	124.65	15.88
93/ 3/ 6	2449052.5	-36.83494	41.01550	13.40241	-0.78814	-0.66378	-0.34439	56.73366	1.08645	131.93	13.66

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/ 3/ 6	2449053.0	-41.86854	36.20427	10.96923	-0.69602	-0.75528	-0.37322	56.42736	1.09279	139.15	11.21
93/ 3/ 7	2449053.5	-46.23458	30.80933	8.35957	-0.59127	-0.83581	-0.39639	56.18481	1.09786	146.32	8.56
93/ 3/ 7	2449054.0	-49.85331	24.91165	5.61397	-0.47567	-0.90344	-0.41328	56.01303	1.10148	153.45	5.75
93/ 3/ 8	2449054.5	-52.65835	18.60423	2.77661	-0.35138	-0.95656	-0.42342	55.91716	1.10353	160.54	2.85
93/ 3/ 8	2449055.0	-54.59906	11.98980	-0.10580	-0.22088	-0.99392	-0.42655	55.90013	1.10391	167.61	-0.11
93/ 3/ 9	2449055.5	-55.64242	5.17812	-2.98538	-0.08686	-1.01472	-0.42259	55.96253	1.10262	174.68	-3.06
93/ 3/ 9	2449056.0	-55.77400	-1.71724	-5.81438	0.04790	-1.01862	-0.41166	56.10254	1.09970	181.76	-5.95
93/ 3/10	2449056.5	-54.99819	-8.58224	-8.54665	0.18064	-1.00581	-0.39409	56.31608	1.09526	188.87	-8.73
93/ 3/10	2449057.0	-53.33748	-15.30554	-11.13884	0.30879	-0.97692	-0.37039	56.59700	1.08946	196.01	-11.35
93/ 3/11	2449057.5	-50.83107	-21.78149	-13.55146	0.43001	-0.93297	-0.34119	56.93745	1.08248	203.20	-13.77
93/ 3/11	2449058.0	-47.53283	-27.91253	-15.74973	0.54230	-0.87532	-0.30722	57.32830	1.07455	210.42	-15.95
93/ 3/12	2449058.5	-43.50897	-33.61104	-17.70407	0.64404	-0.80553	-0.26929	57.75956	1.06592	217.69	-17.85
93/ 3/12	2449059.0	-38.83544	-38.80064	-19.39039	0.73397	-0.72533	-0.22821	58.22086	1.05683	224.97	-19.45
93/ 3/13	2449059.5	-33.59546	-43.41679	-20.79014	0.81119	-0.63649	-0.18480	58.70181	1.04752	232.27	-20.74
93/ 3/13	2449060.0	-27.87713	-47.40703	-21.89016	0.87515	-0.54080	-0.13983	59.19240	1.03822	239.54	-21.70
93/ 3/14	2449060.5	-21.77134	-50.73075	-22.68239	0.92558	-0.43996	-0.09403	59.68326	1.02913	246.77	-22.34
93/ 3/14	2449061.0	-15.36997	-53.35869	-23.16349	0.96245	-0.33560	-0.04806	60.16588	1.02041	253.93	-22.64
93/ 3/15	2449061.5	-8.76442	-55.27228	-23.33445	0.98592	-0.22925	-0.00254	60.63280	1.01222	260.99	-22.63
93/ 3/15	2449062.0	-2.04441	-56.46282	-23.20013	0.99631	-0.12232	0.04200	61.07762	1.00467	267.93	-22.32
93/ 3/16	2449062.5	4.70297	-56.93074	-22.76888	0.99408	-0.01607	0.08507	61.49511	0.99784	274.72	-21.73
93/ 3/16	2449063.0	11.39391	-56.68476	-22.05208	0.97974	0.08831	0.12625	61.88116	0.99178	281.37	-20.88
93/ 3/17	2449063.5	17.94846	-55.74114	-21.06388	0.95391	0.18976	0.16516	62.23270	0.98652	287.85	-19.78
93/ 3/17	2449064.0	24.29094	-54.12303	-19.82079	0.91723	0.28733	0.20146	62.54770	0.98206	294.17	-18.47
93/ 3/18	2449064.5	30.35018	-51.85980	-18.34145	0.87039	0.38012	0.23487	62.82500	0.97839	300.34	-16.97
93/ 3/18	2449065.0	36.05986	-48.98654	-16.64637	0.81413	0.46734	0.26513	63.06422	0.97545	306.36	-15.31
93/ 3/19	2449065.5	41.35868	-45.54356	-14.75770	0.74919	0.54824	0.29200	63.26568	0.97320	312.24	-13.49
93/ 3/19	2449066.0	46.19056	-41.57591	-12.69905	0.67638	0.62216	0.31529	63.43020	0.97159	318.01	-11.55
93/ 3/20	2449066.5	50.50488	-37.13298	-10.49525	0.59650	0.68849	0.33483	63.55904	0.97054	323.68	-9.50
93/ 3/20	2449067.0	54.25663	-32.26810	-8.17221	0.51040	0.74667	0.35048	63.65373	0.96998	329.26	-7.38
93/ 3/21	2449067.5	57.40665	-27.03812	-5.75674	0.41896	0.79622	0.36211	63.71596	0.96986	334.78	-5.18
93/ 3/21	2449068.0	59.92181	-21.50305	-3.27631	0.32309	0.83670	0.36965	63.74746	0.97010	340.26	-2.95
93/ 3/22	2449068.5	61.77524	-15.72560	-0.75894	0.22371	0.86774	0.37302	63.74991	0.97065	345.72	-0.68
93/ 3/22	2449069.0	62.94651	-9.77080	1.76707	0.12181	0.88903	0.37219	63.72483	0.97146	351.18	1.59
93/ 3/23	2449069.5	63.42184	-3.70550	4.27326	0.01838	0.90033	0.36717	63.67355	0.97250	356.66	3.85
93/ 3/23	2449070.0	63.19427	2.40208	6.73130	-0.08558	0.90149	0.35798	63.59714	0.97373	2.18	6.08
93/ 3/24	2449070.5	62.26382	8.48287	9.11316	-0.18901	0.89242	0.34469	63.49639	0.97516	7.76	8.25
93/ 3/24	2449071.0	60.63755	14.46751	11.39136	-0.29087	0.87310	0.32739	63.37180	0.97678	13.42	10.36
93/ 3/25	2449071.5	58.32970	20.28687	13.53921	-0.39010	0.84363	0.30622	63.22358	0.97860	19.18	12.37
93/ 3/25	2449072.0	55.36164	25.87266	15.53101	-0.48564	0.80417	0.28134	63.05171	0.98066	25.05	14.26
93/ 3/26	2449072.5	51.76194	31.15800	17.34233	-0.57644	0.75496	0.25296	62.85600	0.98298	31.05	16.02
93/ 3/26	2449073.0	47.56627	36.07804	18.95024	-0.66146	0.69636	0.22132	62.63614	0.98561	37.18	17.61
93/ 3/27	2449073.5	42.81729	40.57053	20.33351	-0.73966	0.62879	0.18668	62.39183	0.98860	43.46	19.02
93/ 3/27	2449074.0	37.56459	44.57653	21.47290	-0.81004	0.55279	0.14936	62.12287	0.99199	49.88	20.22
93/ 3/28	2449074.5	31.86445	48.04096	22.35140	-0.87163	0.46899	0.10970	61.82930	0.99585	56.44	21.19
93/ 3/28	2449075.0	25.77964	50.91335	22.95443	-0.92348	0.37809	0.06808	61.51150	1.00020	63.14	21.91

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/ 3/29	2449075.5	19.37918	53.14846	23.27015	-0.96469	0.28095	0.02493	61.17035	1.00508	69.97	22.36
93/ 3/29	2449076.0	12.73799	54.70708	23.28971	-0.99443	0.17850	-0.01929	60.80733	1.01050	76.89	22.52
93/ 3/30	2449076.5	5.93650	55.55676	23.00750	-1.01190	0.07179	-0.06409	60.42467	1.01647	83.90	22.38
93/ 3/30	2449077.0	-0.93989	55.67267	22.42146	-1.01643	-0.03797	-0.10892	60.02542	1.02296	90.97	21.93
93/ 3/31	2449077.5	-7.80141	55.03847	21.53335	-1.00743	-0.14948	-0.15319	59.61359	1.02991	98.07	21.17
93/ 3/31	2449078.0	-14.55478	53.64717	20.34907	-0.98444	-0.26128	-0.19627	59.19413	1.03726	105.18	20.11
93/ 4/ 1	2449078.5	-21.10426	51.50205	18.87887	-0.94718	-0.37180	-0.23750	58.77297	1.04489	112.28	18.74
93/ 4/ 1	2449079.0	-27.35284	48.61751	17.13764	-0.89559	-0.47934	-0.27619	58.35699	1.05268	119.36	17.08
93/ 4/ 2	2449079.5	-33.20383	45.01982	15.14500	-0.82983	-0.58208	-0.31162	57.95386	1.06045	126.41	15.15
93/ 4/ 2	2449080.0	-38.56268	40.74774	12.92543	-0.75037	-0.67816	-0.34308	57.57192	1.06802	133.42	12.97
93/ 4/ 3	2449080.5	-43.33902	35.85282	10.50820	-0.65798	-0.76569	-0.36988	57.21991	1.07518	140.40	10.58
93/ 4/ 3	2449081.0	-47.44898	30.39942	7.92711	-0.55381	-0.84278	-0.39136	56.90667	1.08173	147.35	8.01
93/ 4/ 4	2449081.5	-50.81767	24.46422	5.22012	-0.43937	-0.90767	-0.40697	56.64082	1.08745	154.29	5.29
93/ 4/ 4	2449082.0	-53.38159	18.13527	2.42871	-0.31651	-0.95881	-0.41623	56.43032	1.09212	161.24	2.47
93/ 4/ 5	2449082.5	-55.09101	11.51042	-0.40299	-0.18743	-0.99486	-0.41882	56.28207	1.09558	168.20	-0.41
93/ 4/ 5	2449083.0	-55.91193	4.69519	-3.22918	-0.05457	-1.01489	-0.41459	56.20157	1.09767	175.20	-3.29
93/ 4/ 6	2449083.5	-55.82758	-2.19977	-6.00364	0.07945	-1.01835	-0.40356	56.19254	1.09828	182.26	-6.13
93/ 4/ 6	2449084.0	-54.83923	-9.06166	-8.68093	0.21193	-1.00515	-0.38595	56.25668	1.09736	189.38	-8.88
93/ 4/ 7	2449084.5	-52.96630	-15.77867	-11.21773	0.34023	-0.97567	-0.36216	56.39356	1.09492	196.59	-11.47
93/ 4/ 7	2449085.0	-50.24562	-22.24302	-13.57395	0.46187	-0.93072	-0.33274	56.60059	1.09100	203.88	-13.88
93/ 4/ 8	2449085.5	-46.72997	-28.35384	-15.71379	0.57463	-0.87150	-0.29839	56.87314	1.08570	211.25	-16.04
93/ 4/ 8	2449086.0	-42.48608	-34.01953	-17.60650	0.67663	-0.79955	-0.25990	57.20475	1.07919	218.69	-17.93
93/ 4/ 9	2449086.5	-37.59210	-39.15965	-19.22687	0.76638	-0.71661	-0.21811	57.58747	1.07165	226.17	-19.50
93/ 4/ 9	2449087.0	-32.13498	-43.70612	-20.55553	0.84277	-0.62457	-0.17390	58.01217	1.06330	233.67	-20.75
93/ 4/10	2449087.5	-26.20776	-47.60389	-21.57895	0.90511	-0.52538	-0.12811	58.46903	1.05435	241.17	-21.66
93/ 4/10	2449088.0	-19.90697	-50.81096	-22.28917	0.95305	-0.42093	-0.08155	58.94784	1.04506	248.61	-22.22
93/ 4/11	2449088.5	-13.33044	-53.29808	-22.68351	0.98656	-0.31307	-0.03495	59.43843	1.03563	255.96	-22.43
93/ 4/11	2449089.0	-6.57527	-55.04799	-22.76408	1.00586	-0.20352	0.01100	59.93095	1.02630	263.19	-22.32
93/ 4/12	2449089.5	0.26367	-56.05458	-22.53726	1.01138	-0.09382	0.05572	60.41617	1.01725	270.27	-21.90
93/ 4/12	2449090.0	7.09501	-56.32178	-22.01319	1.00372	0.01460	0.09870	60.88566	1.00867	277.18	-21.20
93/ 4/13	2449090.5	13.83174	-55.86258	-21.20523	0.98357	0.12048	0.13949	61.33194	1.00069	283.91	-20.23
93/ 4/13	2449091.0	20.39188	-54.69796	-20.12952	0.95171	0.22273	0.17771	61.74863	0.99345	290.45	-19.03
93/ 4/14	2449091.5	26.69883	-52.85595	-18.80450	0.90895	0.32036	0.21305	62.13041	0.98702	296.80	-17.62
93/ 4/14	2449092.0	32.68168	-50.37076	-17.25064	0.85614	0.41252	0.24525	62.47312	0.98148	302.98	-16.03
93/ 4/15	2449092.5	38.27530	-47.28208	-15.49000	0.79415	0.49845	0.27408	62.77367	0.97686	308.99	-14.29
93/ 4/15	2449093.0	43.42041	-43.63438	-13.54607	0.72385	0.57749	0.29934	63.03005	0.97317	314.86	-12.41
93/ 4/16	2449093.5	48.06363	-39.47638	-11.44350	0.64609	0.64905	0.32090	63.24121	0.97040	320.60	-10.43
93/ 4/16	2449094.0	52.15747	-34.86058	-9.20788	0.56177	0.71259	0.33861	63.40699	0.96852	326.24	-8.35
93/ 4/17	2449094.5	55.66042	-29.84288	-6.86562	0.47175	0.76765	0.35237	63.52808	0.96748	331.80	-6.20
93/ 4/17	2449095.0	58.53696	-24.48216	-4.44377	0.37694	0.81381	0.36210	63.60581	0.96721	337.30	-4.01
93/ 4/18	2449095.5	60.75767	-18.83999	-1.96989	0.27825	0.85070	0.36773	63.64213	0.96765	342.77	-1.77
93/ 4/18	2449096.0	62.29936	-12.98027	0.52812	0.17659	0.87800	0.36922	63.63942	0.96871	348.23	0.48
93/ 4/19	2449096.5	63.14522	-6.96892	3.02218	0.07293	0.89544	0.36656	63.60045	0.97031	353.70	2.72
93/ 4/19	2449097.0	63.28500	-0.87345	5.48414	-0.03174	0.90281	0.35975	63.52818	0.97237	359.21	4.95
93/ 4/20	2449097.5	62.71522	5.23736	7.88602	-0.13642	0.89996	0.34883	63.42569	0.97479	4.77	7.14

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/ 4/20	2449098.0	61.43935	11.29399	10.20019	-0.24007	0.88680	0.33386	63.29606	0.97751	10.42	9.27
93/ 4/21	2449098.5	59.46800	17.22665	12.39959	-0.34161	0.86335	0.31496	63.14231	0.98045	16.16	11.33
93/ 4/21	2449099.0	56.81911	22.96582	14.45795	-0.43996	0.82969	0.29224	62.96723	0.98355	22.01	13.27
93/ 4/22	2449099.5	53.51799	28.44294	16.35010	-0.53402	0.78601	0.26591	62.77342	0.98676	27.99	15.10
93/ 4/22	2449100.0	49.59745	33.59101	18.05221	-0.62269	0.73259	0.23617	62.56314	0.99005	34.11	16.77
93/ 4/23	2449100.5	45.09773	38.34539	19.54208	-0.70487	0.66983	0.20328	62.33832	0.99340	40.37	18.27
93/ 4/23	2449101.0	40.06637	42.64447	20.79943	-0.77950	0.59824	0.16756	62.10057	0.99679	46.79	19.57
93/ 4/24	2449101.5	34.55810	46.43051	21.80622	-0.84554	0.51845	0.12935	61.85116	1.00023	53.34	20.64
93/ 4/24	2449102.0	28.63445	49.65043	22.54692	-0.90200	0.43120	0.08905	61.59107	1.00373	60.03	21.47
93/ 4/25	2449102.5	22.36339	52.25657	23.00879	-0.94798	0.33736	0.04709	61.32108	1.00732	66.83	22.04
93/ 4/25	2449103.0	15.81886	54.20751	23.18216	-0.98263	0.23790	0.00394	61.04181	1.01102	73.73	22.32
93/ 4/26	2449103.5	9.08010	55.46883	23.06065	-1.00522	0.13391	-0.03989	60.75387	1.01488	80.70	22.31
93/ 4/26	2449104.0	2.23099	56.01384	22.64146	-1.01512	0.02658	-0.08387	60.45794	1.01892	87.72	21.99
93/ 4/27	2449104.5	-4.64078	55.82427	21.92548	-1.01184	-0.08279	-0.12743	60.15491	1.02318	94.75	21.38
93/ 4/27	2449105.0	-11.44463	54.89095	20.91757	-0.99502	-0.19281	-0.16998	59.84597	1.02768	101.78	20.46
93/ 4/28	2449105.5	-18.08813	53.21439	19.62661	-0.96447	-0.30201	-0.21091	59.53281	1.03242	108.77	19.25
93/ 4/28	2449106.0	-24.47816	50.80531	18.06567	-0.92018	-0.40885	-0.24960	59.21763	1.03740	115.72	17.76
93/ 4/29	2449106.5	-30.52220	47.68509	16.25200	-0.86235	-0.51173	-0.28543	58.90331	1.04259	122.62	16.02
93/ 4/29	2449107.0	-36.12973	43.88608	14.20710	-0.79137	-0.60902	-0.31778	58.59340	1.04793	129.46	14.03
93/ 4/30	2449107.5	-41.21382	39.45174	11.95655	-0.70791	-0.69906	-0.34606	58.29218	1.05336	136.25	11.84
93/ 4/30	2449108.0	-45.69274	34.43667	9.52994	-0.61284	-0.78024	-0.36969	58.00457	1.05878	143.00	9.46
93/ 5/ 1	2449108.5	-49.49178	28.90628	6.96049	-0.50736	-0.85098	-0.38815	57.73611	1.06407	149.71	6.92
93/ 5/ 1	2449109.0	-52.54507	22.93629	4.28477	-0.39289	-0.90982	-0.40100	57.49275	1.06908	156.42	4.27
93/ 5/ 2	2449109.5	-54.79736	16.61183	1.54207	-0.27114	-0.95545	-0.40788	57.28072	1.07367	163.14	1.54
93/ 5/ 2	2449110.0	-56.20581	10.02619	-1.22619	-0.14406	-0.98678	-0.40852	57.10623	1.07767	169.89	-1.23
93/ 5/ 3	2449110.5	-56.74155	3.27919	-3.97729	-0.01380	-1.00298	-0.40280	56.97522	1.08093	176.69	-4.00
93/ 5/ 3	2449111.0	-56.39088	-3.52477	-6.66813	0.11730	-1.00355	-0.39074	56.89305	1.08330	183.58	-6.73
93/ 5/ 4	2449111.5	-55.15614	-10.27905	-9.25618	0.24685	-0.98832	-0.37249	56.86418	1.08465	190.56	-9.37
93/ 5/ 4	2449112.0	-53.05607	-16.87725	-11.70058	0.37243	-0.95753	-0.34838	56.89193	1.08487	197.65	-11.87
93/ 5/ 5	2449112.5	-50.12553	-23.21583	-13.96314	0.49170	-0.91179	-0.31888	56.97818	1.08389	204.85	-14.19
93/ 5/ 5	2449113.0	-46.41467	-29.19669	-16.00927	0.60251	-0.85209	-0.28458	57.12325	1.08169	212.17	-16.28
93/ 5/ 6	2449113.5	-41.98753	-34.72951	-17.80880	0.70292	-0.77973	-0.24619	57.32578	1.07828	219.60	-18.10
93/ 5/ 6	2449114.0	-36.92012	-39.73377	-19.33663	0.79133	-0.69629	-0.20449	57.58275	1.07371	227.10	-19.62
93/ 5/ 7	2449114.5	-31.29819	-44.14037	-20.57315	0.86649	-0.60355	-0.16030	57.88958	1.06807	234.66	-20.82
93/ 5/ 7	2449115.0	-25.21473	-47.89264	-21.50439	0.92750	-0.50340	-0.11448	58.24025	1.06150	242.23	-21.67
93/ 5/ 8	2449115.5	-18.76747	-50.94693	-22.12208	0.97386	-0.39776	-0.06785	58.62759	1.05414	249.78	-22.17
93/ 5/ 8	2449116.0	-12.05646	-53.27263	-22.42337	1.00539	-0.28856	-0.02118	59.04353	1.04619	257.25	-22.32
93/ 5/ 9	2449116.5	-5.18183	-54.85179	-22.41048	1.02222	-0.17761	0.02481	59.47941	1.03783	264.60	-22.13
93/ 5/ 9	2449117.0	1.75808	-55.67841	-22.09026	1.02475	-0.06661	0.06947	59.92625	1.02926	271.81	-21.63
93/ 5/10	2449117.5	8.66832	-55.75747	-21.47366	1.01357	0.04290	0.11225	60.37510	1.02067	278.84	-20.83
93/ 5/10	2449118.0	15.45856	-55.10384	-20.57513	0.98945	0.14953	0.15265	60.81723	1.01226	285.67	-19.77
93/ 5/11	2449118.5	22.04395	-53.74115	-19.41213	0.95323	0.25209	0.19028	61.24441	1.00420	292.30	-18.48
93/ 5/11	2449119.0	28.34575	-51.70067	-18.00458	0.90587	0.34952	0.22481	61.64905	0.99664	298.73	-16.98
93/ 5/12	2449119.5	34.29172	-49.02021	-16.37445	0.84832	0.44093	0.25597	62.02439	0.98974	304.97	-15.31
93/ 5/12	2449120.0	39.81626	-45.74321	-14.54529	0.78159	0.52556	0.28355	62.36458	0.98361	311.04	-13.49

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/ 5/13	2449120.5	44.86046	-41.91786	-12.54197	0.70665	0.60275	0.30738	62.66473	0.97834	316.94	-11.55
93/ 5/13	2449121.0	49.37210	-37.59642	-10.39032	0.62449	0.67197	0.32733	62.92102	0.97399	322.71	-9.50
93/ 5/14	2449121.5	53.30554	-32.83459	-8.11694	0.53607	0.73273	0.34331	63.13062	0.97063	328.37	-7.39
93/ 5/14	2449122.0	56.62160	-27.69098	-5.74900	0.44234	0.78464	0.35525	63.29176	0.96826	333.94	-5.21
93/ 5/15	2449122.5	59.28755	-22.22676	-3.31406	0.34425	0.82735	0.36309	63.40367	0.96688	339.45	-3.00
93/ 5/15	2449123.0	61.27700	-16.50523	-0.83994	0.24273	0.86057	0.36681	63.46651	0.96646	344.92	-0.76
93/ 5/16	2449123.5	62.56992	-10.59155	1.64538	0.13873	0.88405	0.36640	63.48136	0.96698	350.39	1.49
93/ 5/16	2449124.0	63.15271	-4.55243	4.11394	0.03319	0.89758	0.36186	63.45009	0.96835	355.88	3.72
93/ 5/17	2449124.5	63.01827	1.54416	6.53787	-0.07290	0.90100	0.35323	63.37531	0.97051	1.40	5.92
93/ 5/17	2449125.0	62.16616	7.62932	8.88958	-0.17856	0.89419	0.34054	63.26028	0.97336	7.00	8.08
93/ 5/18	2449125.5	60.60280	13.63358	11.14188	-0.28276	0.87711	0.32389	63.10875	0.97682	12.68	10.17
93/ 5/18	2449126.0	58.34163	19.48731	13.26819	-0.38444	0.84975	0.30336	62.92492	0.98076	18.47	12.17
93/ 5/19	2449126.5	55.40337	25.12121	15.24278	-0.48251	0.81222	0.27911	62.71324	0.98510	24.39	14.07
93/ 5/19	2449127.0	51.81619	30.46692	17.04097	-0.57587	0.76469	0.25131	62.47836	0.98971	30.45	15.83
93/ 5/20	2449127.5	47.61589	35.45763	18.63943	-0.66338	0.70745	0.22017	62.22495	0.99450	36.67	17.43
93/ 5/20	2449128.0	42.84591	40.02889	20.01651	-0.74390	0.64090	0.18598	61.95761	0.99937	43.05	18.85
93/ 5/21	2449128.5	37.55742	44.11940	21.15254	-0.81631	0.56559	0.14905	61.68072	1.00422	49.59	20.06
93/ 5/21	2449129.0	31.80909	47.67195	22.03019	-0.87951	0.48217	0.10975	61.39839	1.00899	56.29	21.03
93/ 5/22	2449129.5	25.66686	50.63432	22.63483	-0.93246	0.39146	0.06851	61.11430	1.01361	63.12	21.74
93/ 5/22	2449130.0	19.20346	52.96032	22.95488	-0.97419	0.29442	0.02580	60.83169	1.01804	70.07	22.17
93/ 5/23	2449130.5	12.49784	54.61071	22.98212	-1.00385	0.19215	-0.01787	60.55331	1.02223	77.11	22.30
93/ 5/23	2449131.0	5.63434	55.55414	22.71199	-1.02071	0.08588	-0.06192	60.28137	1.02618	84.21	22.13
93/ 5/24	2449131.5	-1.29830	55.76805	22.14387	-1.02418	-0.02304	-0.10576	60.01759	1.02989	91.33	21.65
93/ 5/24	2449132.0	-8.20799	55.23934	21.28123	-1.01388	-0.13316	-0.14878	59.76325	1.03335	98.45	20.86
93/ 5/25	2449132.5	-15.00064	53.96510	20.13180	-0.98961	-0.24293	-0.19034	59.51924	1.03661	105.53	19.77
93/ 5/25	2449133.0	-21.58153	51.95299	18.70759	-0.95137	-0.35077	-0.22981	59.28616	1.03969	112.56	18.39
93/ 5/26	2449133.5	-27.85673	49.22159	17.02492	-0.89940	-0.45506	-0.26657	59.06446	1.04262	119.51	16.75
93/ 5/26	2449134.0	-33.73474	45.80048	15.10424	-0.83417	-0.55417	-0.30000	58.85452	1.04544	126.37	14.87
93/ 5/27	2449134.5	-39.12793	41.73016	12.97001	-0.75638	-0.64651	-0.32953	58.65682	1.04818	133.16	12.77
93/ 5/27	2449135.0	-43.95425	37.06173	10.65040	-0.66695	-0.73054	-0.35465	58.47203	1.05085	139.86	10.49
93/ 5/28	2449135.5	-48.13864	31.85642	8.17696	-0.56703	-0.80481	-0.37489	58.30113	1.05347	146.50	8.06
93/ 5/28	2449136.0	-51.61461	26.18484	5.58418	-0.45800	-0.86801	-0.38983	58.14548	1.05602	153.10	5.51
93/ 5/29	2449136.5	-54.32562	20.12608	2.90899	-0.34142	-0.91896	-0.39917	58.00685	1.05849	159.67	2.87
93/ 5/29	2449137.0	-56.22634	13.76658	0.19020	-0.21903	-0.95668	-0.40268	57.88744	1.06083	166.24	0.19
93/ 5/30	2449137.5	-57.28381	7.19873	-2.53218	-0.09274	-0.98037	-0.40022	57.78986	1.06297	172.84	-2.51
93/ 5/30	2449138.0	-57.47834	0.51941	-5.21761	0.03544	-0.98953	-0.39177	57.71700	1.06485	179.48	-5.19
93/ 5/31	2449138.5	-56.80422	-6.17183	-7.82578	0.16341	-0.98387	-0.37743	57.67195	1.06638	186.20	-7.80
93/ 5/31	2449139.0	-55.27009	-12.77457	-10.31741	0.28904	-0.96342	-0.35741	57.65780	1.06746	193.01	-10.31
93/ 6/ 1	2449139.5	-52.89901	-19.18951	-12.65504	0.41021	-0.92849	-0.33202	57.67749	1.06799	199.94	-12.67
93/ 6/ 1	2449140.0	-49.72813	-25.32051	-14.80377	0.52488	-0.87970	-0.30171	57.73358	1.06790	206.98	-14.86
93/ 6/ 2	2449140.5	-45.80800	-31.07656	-16.73206	0.63115	-0.81795	-0.26702	57.82808	1.06709	214.15	-16.82
93/ 6/ 2	2449141.0	-41.20148	-36.37365	-18.41230	0.72730	-0.74439	-0.22857	57.96220	1.06552	221.44	-18.52
93/ 6/ 3	2449141.5	-35.98231	-41.13650	-19.82139	0.81184	-0.66044	-0.18707	58.13627	1.06313	228.82	-19.93
93/ 6/ 3	2449142.0	-30.23337	-45.29991	-20.94113	0.88356	-0.56766	-0.14326	58.34955	1.05992	236.28	-21.03
93/ 6/ 4	2449142.5	-24.04474	-48.80988	-21.75849	0.94155	-0.46777	-0.09791	58.60022	1.05590	243.77	-21.80

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM						MOON			
93/ 6/ 4	2449143.0	-17.51154	-51.62433	-22.26563	0.98523	-0.36258	-0.05178	58.88534	1.05111	251.26	-22.22
93/ 6/ 5	2449143.5	-10.73188	-53.71338	-22.45991	1.01431	-0.25387	-0.00564	59.20091	1.04561	258.70	-22.30
93/ 6/ 5	2449144.0	-3.80476	-55.05934	-22.34361	1.02880	-0.14344	0.03981	59.54195	1.03951	266.05	-22.04
93/ 6/ 6	2449144.5	3.17181	-55.65628	-21.92363	1.02898	-0.03297	0.08393	59.90265	1.03292	273.26	-21.47
93/ 6/ 6	2449145.0	10.10250	-55.50939	-21.21104	1.01536	0.07596	0.12613	60.27654	1.02598	280.31	-20.60
93/ 6/ 7	2449145.5	16.89610	-54.63409	-20.22061	0.98862	0.18190	0.16590	60.65670	1.01882	287.18	-19.47
93/ 6/ 7	2449146.0	23.46658	-53.05499	-18.97029	0.94962	0.28358	0.20280	61.03593	1.01160	293.86	-18.11
93/ 6/ 8	2449146.5	29.73399	-50.80485	-17.48071	0.89929	0.37988	0.23650	61.40699	1.00448	300.34	-16.54
93/ 6/ 8	2449147.0	35.62503	-47.92346	-15.77467	0.83866	0.46984	0.26668	61.76278	0.99761	306.63	-14.80
93/ 6/ 9	2449147.5	41.07342	-44.45658	-13.87669	0.76876	0.55265	0.29314	62.09650	0.99113	312.73	-12.91
93/ 6/ 9	2449148.0	46.02006	-40.45501	-11.81262	0.69067	0.62763	0.31570	62.40186	0.98520	318.68	-10.91
93/ 6/10	2449148.5	50.41308	-35.97369	-9.60929	0.60545	0.69423	0.33425	62.67314	0.97993	324.49	-8.82
93/ 6/10	2449149.0	54.20773	-31.07096	-7.29419	0.51415	0.75200	0.34870	62.90539	0.97542	330.18	-6.66
93/ 6/11	2449149.5	57.36634	-25.80791	-4.89525	0.41780	0.80058	0.35900	63.09444	0.97179	335.78	-4.45
93/ 6/11	2449150.0	59.85808	-20.24782	-2.44063	0.31740	0.83967	0.36514	63.23702	0.96908	341.31	-2.21
93/ 6/12	2449150.5	61.65889	-14.45577	0.04143	0.21394	0.86905	0.36711	63.33079	0.96736	346.81	0.04
93/ 6/12	2449151.0	62.75133	-8.49818	2.52279	0.10838	0.88853	0.36493	63.37438	0.96664	352.29	2.28
93/ 6/13	2449151.5	63.12452	-2.44257	4.97549	0.00171	0.89797	0.35865	63.36739	0.96695	357.78	4.50
93/ 6/13	2449152.0	62.77413	3.64278	7.37189	-0.10512	0.89729	0.34832	63.31040	0.96825	3.32	6.69
93/ 6/14	2449152.5	61.70243	9.68908	9.68476	-0.21113	0.88644	0.33400	63.20492	0.97052	8.92	8.81
93/ 6/14	2449153.0	59.91834	15.62734	11.88742	-0.31531	0.86540	0.31579	63.05341	0.97368	14.62	10.87
93/ 6/15	2449153.5	57.43766	21.38872	13.95390	-0.41665	0.83422	0.29381	62.85916	0.97767	20.42	12.83
93/ 6/15	2449154.0	54.28320	26.90488	15.85910	-0.51410	0.79301	0.26819	62.62626	0.98239	26.36	14.67
93/ 6/16	2449154.5	50.48500	32.10847	17.57898	-0.60656	0.74196	0.23912	62.35952	0.98772	32.46	16.37
93/ 6/16	2449155.0	46.08059	36.93373	19.09085	-0.69292	0.68134	0.20681	62.06434	0.99355	38.71	17.91
93/ 6/17	2449155.5	41.11508	41.31713	20.37362	-0.77206	0.61155	0.17151	61.74657	0.99974	45.14	19.27
93/ 6/17	2449156.0	35.64134	45.19818	21.40814	-0.84281	0.53310	0.13356	61.41245	1.00616	51.74	20.40
93/ 6/18	2449156.5	29.71999	48.52034	22.17756	-0.90405	0.44664	0.09330	61.06836	1.01266	58.51	21.29
93/ 6/18	2449157.0	23.41921	51.23203	22.66772	-0.95467	0.35298	0.05117	60.72072	1.01912	65.43	21.92
93/ 6/19	2449157.5	16.81448	53.28774	22.86758	-0.99364	0.25311	0.00766	60.37579	1.02540	72.49	22.26
93/ 6/19	2449158.0	9.98796	54.64916	22.76957	-1.02001	0.14817	-0.03669	60.03952	1.03137	79.64	22.29
93/ 6/20	2449158.5	3.02774	55.28632	22.37001	-1.03300	0.03947	-0.08128	59.71735	1.03694	86.87	22.00
93/ 6/20	2449159.0	-3.97322	55.17867	21.66945	-1.03196	-0.07151	-0.12547	59.41412	1.04202	94.12	21.39
93/ 6/21	2449159.5	-10.91844	54.31608	20.67290	-1.01649	-0.18318	-0.16857	59.13390	1.04653	101.37	20.46
93/ 6/21	2449160.0	-17.70942	52.69960	19.39004	-0.98641	-0.29384	-0.20990	58.87992	1.05042	108.57	19.23
93/ 6/22	2449160.5	-24.24739	50.34208	17.83526	-0.94182	-0.40171	-0.24875	58.65456	1.05369	115.72	17.70
93/ 6/22	2449161.0	-30.43524	47.26840	16.02759	-0.88310	-0.50502	-0.28446	58.45929	1.05633	122.78	15.91
93/ 6/23	2449161.5	-36.17937	43.51549	13.99054	-0.81093	-0.60200	-0.31638	58.29477	1.05835	129.74	13.89
93/ 6/23	2449162.0	-41.39174	39.13193	11.75175	-0.72625	-0.69097	-0.34394	58.16087	1.05980	136.61	11.66
93/ 6/24	2449162.5	-45.99161	34.17732	9.34256	-0.63029	-0.77037	-0.36662	58.05687	1.06073	143.38	9.26
93/ 6/24	2449163.0	-49.90733	28.72130	6.79746	-0.52449	-0.83882	-0.38401	57.98155	1.06121	150.08	6.73
93/ 6/25	2449163.5	-53.07779	22.84231	4.15345	-0.41051	-0.89509	-0.39579	57.93335	1.06130	156.72	4.11
93/ 6/25	2449164.0	-55.45366	16.62614	1.44936	-0.29017	-0.93824	-0.40173	57.91060	1.06107	163.31	1.43
93/ 6/26	2449164.5	-56.99837	10.16438	-1.27487	-0.16540	-0.96752	-0.40172	57.91160	1.06058	169.89	-1.26
93/ 6/26	2449165.0	-57.68872	3.55263	-3.97894	-0.03822	-0.98247	-0.39578	57.93481	1.05988	176.48	-3.94

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/ 6/27	2449165.5	-57.51533	-3.11121	-6.62295	0.08932	-0.98289	-0.38402	57.97893	1.05902	183.10	-6.56
93/ 6/27	2449166.0	-56.48261	-9.72877	-9.16809	0.21519	-0.96883	-0.36663	58.04298	1.05800	189.77	-9.09
93/ 6/28	2449166.5	-54.60864	-16.20295	-11.57735	0.33741	-0.94062	-0.34395	58.12637	1.05685	196.53	-11.49
93/ 6/28	2449167.0	-51.92464	-22.43964	-13.81615	0.45408	-0.89882	-0.31637	58.22879	1.05554	203.37	-13.73
93/ 6/29	2449167.5	-48.47425	-28.34936	-15.85288	0.56343	-0.84422	-0.28437	58.35026	1.05406	210.32	-15.76
93/ 6/29	2449168.0	-44.31261	-33.84870	-17.65948	0.66386	-0.77782	-0.24851	58.49101	1.05237	217.37	-17.57
93/ 6/30	2449168.5	-39.50513	-38.86171	-19.21178	0.75392	-0.70082	-0.20939	58.65135	1.05043	224.53	-19.12
93/ 6/30	2449169.0	-34.12624	-43.32106	-20.48992	0.83241	-0.61457	-0.16766	58.83156	1.04819	231.77	-20.38
93/ 7/ 1	2449169.5	-28.25783	-47.16900	-21.47854	0.89833	-0.52053	-0.12401	59.03175	1.04562	239.08	-21.34
93/ 7/ 1	2449170.0	-21.98768	-50.35811	-22.16694	0.95094	-0.42029	-0.07912	59.25175	1.04268	246.41	-21.97
93/ 7/ 2	2449170.5	-15.40776	-52.85179	-22.54914	0.98974	-0.31545	-0.03370	59.49096	1.03934	253.75	-22.27
93/ 7/ 2	2449171.0	-8.61258	-54.62454	-22.62380	1.01448	-0.20767	0.01158	59.74824	1.03558	261.04	-22.25
93/ 7/ 3	2449171.5	-1.69748	-55.66193	-22.39409	1.02517	-0.09857	0.05607	60.02189	1.03142	268.25	-21.91
93/ 7/ 3	2449172.0	5.24295	-55.96040	-21.86743	1.02202	0.01027	0.09917	60.30953	1.02687	275.35	-21.26
93/ 7/ 4	2449172.5	12.11635	-55.52680	-21.05516	1.00546	0.11736	0.14032	60.60817	1.02196	282.31	-20.33
93/ 7/ 4	2449173.0	18.83387	-54.37772	-19.97218	0.97610	0.22132	0.17903	60.91420	1.01677	289.10	-19.14
93/ 7/ 5	2449173.5	25.31135	-52.53875	-18.63655	0.93471	0.32088	0.21486	61.22341	1.01135	295.72	-17.72
93/ 7/ 5	2449174.0	31.47021	-50.04357	-17.06901	0.88217	0.41492	0.24745	61.53116	1.00579	302.16	-16.11
93/ 7/ 6	2449174.5	37.23814	-46.93298	-15.29256	0.81945	0.50245	0.27651	61.83240	1.00020	308.43	-14.32
93/ 7/ 6	2449175.0	42.54967	-43.25401	-13.33202	0.74758	0.58264	0.30178	62.12187	0.99469	314.53	-12.39
93/ 7/ 7	2449175.5	47.34649	-39.05887	-11.21362	0.66763	0.65476	0.32309	62.39415	0.98936	320.48	-10.35
93/ 7/ 7	2449176.0	51.57758	-34.40414	-8.96465	0.58071	0.71826	0.34032	62.64389	0.98435	326.30	-8.23
93/ 7/ 8	2449176.5	55.19934	-29.34990	-6.61307	0.48788	0.77267	0.35338	62.86586	0.97976	332.00	-6.04
93/ 7/ 8	2449177.0	58.17548	-23.95897	-4.18727	0.39024	0.81763	0.36223	63.05515	0.97571	337.62	-3.81
93/ 7/ 9	2449177.5	60.47692	-18.29633	-1.71582	0.28882	0.85287	0.36687	63.20726	0.97232	343.17	-1.56
93/ 7/ 9	2449178.0	62.08166	-12.42848	0.77278	0.18468	0.87820	0.36730	63.31822	0.96967	348.68	0.70
93/ 7/10	2449178.5	62.97463	-6.42302	3.25024	0.07881	0.89349	0.36358	63.38473	0.96785	354.18	2.94
93/ 7/10	2449179.0	63.14751	-0.34819	5.68862	-0.02780	0.89867	0.35578	63.40418	0.96694	359.68	5.15
93/ 7/11	2449179.5	62.59865	5.72743	8.06050	-0.13416	0.89372	0.34396	63.37480	0.96698	5.23	7.31
93/ 7/11	2449180.0	61.33298	11.73525	10.33905	-0.23930	0.87866	0.32824	63.29571	0.96801	10.83	9.40
93/ 7/12	2449180.5	59.36203	17.60697	12.49819	-0.34226	0.85355	0.30872	63.16693	0.97005	16.52	11.41
93/ 7/12	2449181.0	56.70392	23.27489	14.51266	-0.44205	0.81850	0.28554	62.98946	0.97308	22.32	13.32
93/ 7/13	2449181.5	53.38350	28.67221	16.35820	-0.53767	0.77367	0.25886	62.76531	0.97707	28.24	15.11
93/ 7/13	2449182.0	49.43247	33.73341	18.01169	-0.62809	0.71929	0.22887	62.49746	0.98197	34.31	16.75
93/ 7/14	2449182.5	44.88954	38.39472	19.45137	-0.71227	0.65565	0.19576	62.18988	0.98769	40.54	18.23
93/ 7/14	2449183.0	39.80062	42.59467	20.65702	-0.78913	0.58313	0.15981	61.84746	0.99414	46.94	19.51
93/ 7/15	2449183.5	34.21902	46.27474	21.61030	-0.85758	0.50222	0.12129	61.47599	1.00119	53.52	20.58
93/ 7/15	2449184.0	28.20547	49.38015	22.29505	-0.91650	0.41355	0.08057	61.08205	1.00871	60.27	21.41
93/ 7/16	2449184.5	21.82820	51.86081	22.69762	-0.96480	0.31788	0.03804	60.67286	1.01653	67.17	21.97
93/ 7/16	2449185.0	15.16276	53.67237	22.80734	-1.00142	0.21614	-0.00582	60.25618	1.02450	74.22	22.24
93/ 7/17	2449185.5	8.29166	54.77735	22.61692	-1.02537	0.10943	-0.05049	59.84007	1.03243	81.39	22.21
93/ 7/17	2449186.0	1.30378	55.14642	22.12288	-1.03577	-0.00094	-0.09538	59.43273	1.04016	88.65	21.85
93/ 7/18	2449186.5	-5.70655	54.75968	21.32596	-1.03190	-0.11350	-0.13982	59.04222	1.04749	95.95	21.17
93/ 7/18	2449187.0	-12.64074	53.60779	20.23152	-1.01323	-0.22659	-0.18311	58.67621	1.05428	103.27	20.17
93/ 7/19	2449187.5	-19.39756	51.69313	18.84981	-0.97950	-0.33843	-0.22452	58.34175	1.06036	110.57	18.85

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/ 7/19	2449188.0	-25.87499	49.03064	17.19612	-0.93076	-0.44710	-0.26330	58.04503	1.06561	117.82	17.23
93/ 7/20	2449188.5	-31.97236	45.64836	15.29085	-0.86736	-0.55065	-0.29869	57.79113	1.06993	125.01	15.34
93/ 7/20	2449189.0	-37.59272	41.58754	13.15929	-0.79005	-0.64714	-0.33000	57.58388	1.07325	132.11	13.21
93/ 7/21	2449189.5	-42.64518	36.90240	10.83133	-0.69987	-0.73471	-0.35659	57.42575	1.07553	139.13	10.87
93/ 7/21	2449190.0	-47.04728	31.65932	8.34092	-0.59826	-0.81163	-0.37789	57.31780	1.07678	146.06	8.37
93/ 7/22	2449190.5	-50.72711	25.93560	5.72537	-0.48690	-0.87641	-0.39348	57.25972	1.07703	152.92	5.74
93/ 7/22	2449191.0	-53.62518	19.81782	3.02456	-0.36775	-0.92781	-0.40303	57.24992	1.07634	159.72	3.03
93/ 7/23	2449191.5	-55.69577	13.39989	0.27998	-0.24292	-0.96491	-0.40638	57.28572	1.07481	166.47	0.28
93/ 7/23	2449192.0	-56.90793	6.78088	-2.46614	-0.11464	-0.98712	-0.40350	57.36353	1.07255	173.20	-2.46
93/ 7/24	2449192.5	-57.24595	0.06275	-5.17187	0.01484	-0.99417	-0.39448	57.47913	1.06967	179.94	-5.16
93/ 7/24	2449193.0	-56.70928	-6.65190	-7.79637	0.14328	-0.98613	-0.37956	57.62789	1.06632	186.69	-7.78
93/ 7/25	2449193.5	-55.31218	-13.26197	-10.30080	0.26857	-0.96337	-0.35908	57.80505	1.06262	193.48	-10.26
93/ 7/25	2449194.0	-53.08286	-19.66980	-12.64892	0.38872	-0.92654	-0.33349	58.00591	1.05867	200.33	-12.60
93/ 7/26	2449194.5	-50.06241	-25.78294	-14.80779	0.50190	-0.87651	-0.30329	58.22607	1.05459	207.25	-14.73
93/ 7/26	2449195.0	-46.30351	-31.51558	-16.74813	0.60652	-0.81437	-0.26906	58.46150	1.05046	214.24	-16.65
93/ 7/27	2449195.5	-41.86900	-36.78978	-18.44473	0.70119	-0.74136	-0.23142	58.70868	1.04634	221.31	-18.31
93/ 7/27	2449196.0	-36.83034	-41.53641	-19.87668	0.78475	-0.65882	-0.19102	58.96464	1.04229	228.44	-19.70
93/ 7/28	2449196.5	-31.26610	-45.69584	-21.02748	0.85626	-0.56821	-0.14851	59.22697	1.03831	235.62	-20.80
93/ 7/28	2449197.0	-25.26041	-49.21848	-21.88513	0.91501	-0.47103	-0.10456	59.49375	1.03443	242.83	-21.58
93/ 7/29	2449197.5	-18.90144	-52.06499	-22.44206	0.96052	-0.36881	-0.05982	59.76348	1.03063	250.05	-22.06
93/ 7/29	2449198.0	-12.27993	-54.20648	-22.69508	0.99250	-0.26310	-0.01492	60.03504	1.02689	257.24	-22.21
93/ 7/30	2449198.5	-5.48785	-55.62439	-22.64524	1.01089	-0.15540	0.02952	60.30751	1.02319	264.37	-22.05
93/ 7/30	2449199.0	1.38299	-56.31033	-22.29757	1.01579	-0.04719	0.07293	60.58009	1.01950	271.41	-21.60
93/ 7/31	2449199.5	8.24214	-56.26575	-21.66090	1.00750	0.06009	0.11477	60.85197	1.01579	278.33	-20.85
93/ 7/31	2449200.0	15.00162	-55.50150	-20.74756	0.98645	0.16510	0.15455	61.12222	1.01204	285.13	-19.84
93/ 8/ 1	2449200.5	21.57701	-54.03727	-19.57304	0.95324	0.26659	0.19182	61.38972	1.00823	291.77	-18.59
93/ 8/ 1	2449201.0	27.88830	-51.90097	-18.15571	0.90859	0.36338	0.22619	61.65304	1.00436	298.25	-17.13
93/ 8/ 2	2449201.5	33.86072	-49.12799	-16.51641	0.85332	0.45442	0.25732	61.91042	1.00044	304.58	-15.47
93/ 8/ 2	2449202.0	39.42539	-45.76049	-14.67811	0.78835	0.53879	0.28491	62.15972	0.99647	310.75	-13.66
93/ 8/ 3	2449202.5	44.51984	-41.84654	-12.66555	0.71464	0.61566	0.30874	62.39844	0.99250	316.77	-11.71
93/ 8/ 3	2449203.0	49.08838	-37.43934	-10.50489	0.63323	0.68434	0.32862	62.62369	0.98858	322.67	-9.66
93/ 8/ 4	2449203.5	53.08244	-32.59643	-8.22333	0.54517	0.74424	0.34442	62.83228	0.98475	328.45	-7.52
93/ 8/ 4	2449204.0	56.46067	-27.37888	-5.84882	0.45156	0.79490	0.35606	63.02078	0.98109	334.13	-5.33
93/ 8/ 5	2449204.5	59.18903	-21.85057	-3.40975	0.35345	0.83595	0.36348	63.18556	0.97768	339.74	-3.09
93/ 8/ 5	2449205.0	61.24078	-16.07749	-0.93469	0.25193	0.86714	0.36669	63.32292	0.97461	345.29	-0.85
93/ 8/ 6	2449205.5	62.59639	-10.12713	1.54788	0.14806	0.88828	0.36570	63.42919	0.97196	350.81	1.40
93/ 8/ 6	2449206.0	63.24340	-4.06791	4.00975	0.04286	0.89927	0.36059	63.50081	0.96982	356.32	3.62
93/ 8/ 7	2449206.5	63.17633	2.03135	6.42318	-0.06264	0.90010	0.35142	63.53449	0.96829	1.84	5.80
93/ 8/ 7	2449207.0	62.39647	8.10181	8.76107	-0.16745	0.89078	0.33830	63.52728	0.96746	7.40	7.93
93/ 8/ 8	2449207.5	60.91179	14.07507	10.99709	-0.27060	0.87141	0.32136	63.47669	0.96740	13.01	9.98
93/ 8/ 8	2449208.0	58.73684	19.88347	13.10579	-0.37113	0.84213	0.30073	63.38084	0.96817	18.70	11.93
93/ 8/ 9	2449208.5	55.89262	25.46048	15.06278	-0.46807	0.80312	0.27658	63.23851	0.96984	24.49	13.78
93/ 8/ 9	2449209.0	52.40661	30.74100	16.84481	-0.56048	0.75462	0.24910	63.04926	0.97244	30.40	15.50
93/ 8/10	2449209.5	48.31277	35.66171	18.42991	-0.64740	0.69692	0.21847	62.81355	0.97599	36.43	17.06
93/ 8/10	2449210.0	43.65154	40.16146	19.79757	-0.72786	0.63038	0.18493	62.53274	0.98049	42.62	18.46

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/ 8/11	2449210.5	38.46999	44.18175	20.92892	-0.80089	0.55542	0.14873	62.20922	0.98592	48.95	19.66
93/ 8/11	2449211.0	32.82187	47.66721	21.80692	-0.86547	0.47254	0.11017	61.84642	0.99221	55.45	20.65
93/ 8/12	2449211.5	26.76768	50.56623	22.41663	-0.92063	0.38236	0.06957	61.44883	0.99930	62.11	21.40
93/ 8/12	2449212.0	20.37475	52.83177	22.74551	-0.96534	0.28561	0.02731	61.02200	1.00707	68.91	21.88
93/ 8/13	2449212.5	13.71712	54.42217	22.78377	-0.99863	0.18315	-0.01618	60.57254	1.01541	75.85	22.09
93/ 8/13	2449213.0	6.87541	55.30219	22.52471	-1.01954	0.07602	-0.06040	60.10795	1.02416	82.91	22.01
93/ 8/14	2449213.5	-0.06361	55.44414	21.96518	-1.02722	-0.03458	-0.10481	59.63661	1.03313	90.07	21.61
93/ 8/14	2449214.0	-7.00762	54.82908	21.10595	-1.02091	-0.14727	-0.14879	59.16752	1.04215	97.28	20.90
93/ 8/15	2449214.5	-13.85972	53.44810	19.95218	-1.00000	-0.26047	-0.19167	58.71014	1.05099	104.54	19.87
93/ 8/15	2449215.0	-20.51971	51.30353	18.51374	-0.96413	-0.37245	-0.23273	58.27408	1.05945	111.80	18.52
93/ 8/16	2449215.5	-26.88575	48.41005	16.80551	-0.91321	-0.48129	-0.27121	57.86883	1.06731	119.05	16.88
93/ 8/16	2449216.0	-32.85641	44.79561	14.84758	-0.84745	-0.58500	-0.30634	57.50340	1.07436	126.26	14.96
93/ 8/17	2449216.5	-38.33306	40.50190	12.66519	-0.76746	-0.68153	-0.33736	57.18596	1.08042	133.42	12.80
93/ 8/17	2449217.0	-43.22245	35.58445	10.28858	-0.67424	-0.76886	-0.36358	56.92353	1.08532	140.54	10.41
93/ 8/18	2449217.5	-47.43943	30.11218	7.75253	-0.56917	-0.84507	-0.38435	56.72164	1.08895	147.59	7.86
93/ 8/18	2449218.0	-50.90960	24.16626	5.09570	-0.45403	-0.90846	-0.39917	56.58411	1.09122	154.61	5.17
93/ 8/19	2449218.5	-53.57166	17.83852	2.35977	-0.33092	-0.95761	-0.40766	56.51287	1.09211	161.58	2.39
93/ 8/19	2449219.0	-55.37944	11.22920	-0.41158	-0.20217	-0.99146	-0.40961	56.50794	1.09162	168.54	-0.42
93/ 8/20	2449219.5	-56.30320	4.44443	-3.17383	-0.07030	-1.00934	-0.40498	56.56745	1.08983	175.49	-3.22
93/ 8/20	2449220.0	-56.33036	-2.40660	-5.88280	0.06216	-1.01102	-0.39391	56.68781	1.08683	182.45	-5.96
93/ 8/21	2449220.5	-55.46554	-9.21452	-8.49574	0.19269	-0.99667	-0.37669	56.86398	1.08277	189.43	-8.59
93/ 8/21	2449221.0	-53.72994	-15.87249	-10.97242	0.31892	-0.96686	-0.35375	57.08972	1.07781	196.46	-11.08
93/ 8/22	2449221.5	-51.16007	-22.27865	-13.27590	0.43870	-0.92249	-0.32564	57.35801	1.07214	203.53	-13.38
93/ 8/22	2449222.0	-47.80625	-28.33823	-15.37330	0.55013	-0.86474	-0.29300	57.66135	1.06596	210.66	-15.46
93/ 8/23	2449222.5	-43.73062	-33.96519	-17.23623	0.65160	-0.79499	-0.25652	57.99214	1.05943	217.84	-17.29
93/ 8/23	2449223.0	-39.00514	-39.08339	-18.84107	0.74183	-0.71477	-0.21692	58.34294	1.05274	225.06	-18.84
93/ 8/24	2449223.5	-33.70956	-43.62743	-20.16915	0.81981	-0.62571	-0.17492	58.70674	1.04604	232.31	-20.09
93/ 8/24	2449224.0	-27.92938	-47.54301	-21.20667	0.88483	-0.52947	-0.13124	59.07716	1.03946	239.57	-21.04
93/ 8/25	2449224.5	-21.75406	-50.78706	-21.94462	0.93644	-0.42769	-0.08657	59.44856	1.03311	246.81	-21.66
93/ 8/25	2449225.0	-15.27532	-53.32759	-22.37856	0.97441	-0.32199	-0.04157	59.81611	1.02707	254.02	-21.97
93/ 8/26	2449225.5	-8.58566	-55.14337	-22.50835	0.99873	-0.21393	0.00315	60.17583	1.02139	261.15	-21.97
93/ 8/26	2449226.0	-1.77707	-56.22350	-22.33788	1.00957	-0.10500	0.04700	60.52455	1.01610	268.19	-21.66
93/ 8/27	2449226.5	5.06013	-56.56686	-21.87475	1.00724	0.00341	0.08948	60.85983	1.01122	275.11	-21.07
93/ 8/27	2449227.0	11.83823	-56.18152	-21.12994	0.99220	0.10997	0.13011	61.17991	1.00672	281.90	-20.20
93/ 8/28	2449227.5	18.47297	-55.08414	-20.11749	0.96502	0.21347	0.16845	61.48355	1.00260	288.54	-19.10
93/ 8/28	2449228.0	24.88431	-53.29930	-18.85421	0.92635	0.31279	0.20412	61.76995	0.99881	295.03	-17.77
93/ 8/29	2449228.5	30.99699	-50.85889	-17.35933	0.87696	0.40690	0.23678	62.03859	0.99533	301.36	-16.25
93/ 8/29	2449229.0	36.74108	-47.80143	-15.65420	0.81766	0.49485	0.26616	62.28915	0.99211	307.55	-14.56
93/ 8/30	2449229.5	42.05249	-44.17142	-13.76203	0.74934	0.57583	0.29198	62.52135	0.98911	313.59	-12.72
93/ 8/30	2449230.0	46.87329	-40.01870	-11.70753	0.67295	0.64909	0.31406	62.73490	0.98631	319.51	-10.76
93/ 8/31	2449230.5	51.15210	-35.39775	-9.51670	0.58946	0.71400	0.33222	62.92937	0.98368	325.32	-8.70
93/ 8/31	2449231.0	54.84427	-30.36704	-7.21646	0.49989	0.77001	0.34635	63.10411	0.98120	331.03	-6.57
93/ 9/ 1	2449231.5	57.91212	-24.98841	-4.83443	0.40527	0.81668	0.35636	63.25825	0.97888	336.66	-4.38
93/ 9/ 1	2449232.0	60.32504	-19.32634	-2.39867	0.30667	0.85365	0.36221	63.39062	0.97671	342.24	-2.17
93/ 9/ 2	2449232.5	62.05954	-13.44739	0.06261	0.20512	0.88068	0.36390	63.49979	0.97473	347.77	0.06

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
93/ 9/ 2	2449233.0	63.09931	-7.41957	2.52129	0.10169	0.89759	0.36145	63.58404	0.97296	353.29	2.27
93/ 9/ 3	2449233.5	63.43512	-1.31173	4.94953	-0.00258	0.90430	0.35492	63.64144	0.97146	358.82	4.46
93/ 9/ 3	2449234.0	63.06478	4.80695	7.31999	-0.10666	0.90080	0.34441	63.66989	0.97028	4.36	6.60
93/ 9/ 4	2449234.5	61.99299	10.86752	9.60606	-0.20955	0.88716	0.33002	63.66719	0.96947	9.94	8.68
93/ 9/ 4	2449235.0	60.23125	16.80171	11.78199	-0.31024	0.86351	0.31191	63.63109	0.96911	15.59	10.67
93/ 9/ 5	2449235.5	57.79765	22.54237	13.82308	-0.40778	0.83005	0.29023	63.55946	0.96928	21.31	12.56
93/ 9/ 5	2449236.0	54.71682	28.02393	15.70581	-0.50121	0.78705	0.26518	63.45032	0.97004	27.12	14.33
93/ 9/ 6	2449236.5	51.01971	33.18276	17.40801	-0.58960	0.73481	0.23696	63.30202	0.97146	33.04	15.96
93/ 9/ 6	2449237.0	46.74355	37.95759	18.90899	-0.67205	0.67372	0.20580	63.11329	0.97361	39.08	17.43
93/ 9/ 7	2449237.5	41.93170	42.28994	20.18967	-0.74764	0.60422	0.17195	62.88346	0.97653	45.24	18.73
93/ 9/ 7	2449238.0	36.63362	46.12448	21.23278	-0.81548	0.52682	0.13569	62.61247	0.98028	51.54	19.82
93/ 9/ 8	2449238.5	30.90478	49.40955	22.02301	-0.87469	0.44207	0.09733	62.30106	0.98488	57.97	20.70
93/ 9/ 8	2449239.0	24.80659	52.09767	22.54719	-0.92440	0.35066	0.05719	61.95086	0.99033	64.54	21.34
93/ 9/ 9	2449239.5	18.40631	54.14610	22.79453	-0.96375	0.25331	0.01565	61.56446	0.99661	71.23	21.73
93/ 9/ 9	2449240.0	11.77696	55.51754	22.75690	-0.99191	0.15090	-0.02689	61.14549	1.00368	78.02	21.85
93/ 9/10	2449240.5	4.99712	56.18093	22.42906	-1.00807	0.04440	-0.06997	60.69869	1.01147	84.92	21.69
93/ 9/10	2449241.0	-1.84942	56.11229	21.80901	-1.01149	-0.06506	-0.11309	60.22992	1.01987	91.89	21.23
93/ 9/11	2449241.5	-8.67412	55.29573	20.89833	-1.00151	-0.17623	-0.15569	59.74612	1.02875	98.92	20.47
93/ 9/11	2449242.0	-15.38436	53.72450	19.70251	-0.97761	-0.28766	-0.19718	59.25529	1.03796	105.98	19.42
93/ 9/12	2449242.5	-21.88445	51.40206	18.23132	-0.93941	-0.39778	-0.23690	58.76633	1.04730	113.06	18.07
93/ 9/12	2449243.0	-28.07688	48.34317	16.49907	-0.88676	-0.50483	-0.27415	58.28888	1.05657	120.15	16.44
93/ 9/13	2449243.5	-33.86397	44.57488	14.52487	-0.81976	-0.60694	-0.30822	57.83304	1.06555	127.22	14.55
93/ 9/13	2449244.0	-39.14986	40.13723	12.33277	-0.73886	-0.70215	-0.33838	57.40911	1.07398	134.29	12.41
93/ 9/14	2449244.5	-43.84286	35.08374	9.95169	-0.64485	-0.78846	-0.36391	57.02720	1.08163	141.33	10.05
93/ 9/14	2449245.0	-47.85801	29.48140	7.41521	-0.53893	-0.86391	-0.38416	56.69681	1.08828	148.37	7.52
93/ 9/15	2449245.5	-51.11988	23.41006	4.76110	-0.42271	-0.92666	-0.39856	56.42642	1.09372	155.39	4.84
93/ 9/15	2449246.0	-53.56519	16.96129	2.03064	-0.29817	-0.97512	-0.40665	56.22311	1.09778	162.43	2.07
93/ 9/16	2449246.5	-55.14532	10.23647	-0.73233	-0.16764	-1.00799	-0.40812	56.09214	1.10032	169.48	-0.75
93/ 9/16	2449247.0	-55.82828	3.34442	-3.48256	-0.03369	-1.02439	-0.40288	56.03668	1.10128	176.57	-3.56
93/ 9/17	2449247.5	-55.60008	-3.60155	-6.17460	0.10096	-1.02388	-0.39097	56.05770	1.10063	183.71	-6.32
93/ 9/17	2449248.0	-54.46533	-10.48685	-8.76413	0.23356	-1.00652	-0.37266	56.15386	1.09841	190.90	-8.98
93/ 9/18	2449248.5	-52.44694	-17.19883	-11.20918	0.36146	-0.97282	-0.34840	56.32163	1.09472	198.16	-11.48
93/ 9/18	2449249.0	-49.58510	-23.62986	-13.47130	0.48224	-0.92375	-0.31875	56.55553	1.08971	205.48	-13.78
93/ 9/19	2449249.5	-45.93557	-29.68010	-15.51638	0.59374	-0.86062	-0.28443	56.84842	1.08356	212.87	-15.84
93/ 9/19	2449250.0	-41.56744	-35.25964	-17.31540	0.69417	-0.78504	-0.24622	57.19193	1.07647	220.31	-17.62
93/ 9/20	2449250.5	-36.56056	-40.29012	-18.84477	0.78215	-0.69880	-0.20495	57.57685	1.06868	227.78	-19.10
93/ 9/20	2449251.0	-31.00297	-44.70575	-20.08653	0.85666	-0.60380	-0.16143	57.99360	1.06042	235.26	-20.26
93/ 9/21	2449251.5	-24.98828	-48.45372	-21.02826	0.91705	-0.50197	-0.11648	58.43257	1.05191	242.72	-21.09
93/ 9/21	2449252.0	-18.61330	-51.49417	-21.66291	0.96302	-0.39519	-0.07087	58.88452	1.04336	250.13	-21.59
93/ 9/22	2449252.5	-11.97595	-53.79980	-21.98839	0.99455	-0.28527	-0.02530	59.34080	1.03496	257.45	-21.75
93/ 9/22	2449253.0	-5.17346	-55.35514	-22.00718	1.01184	-0.17391	0.01959	59.79358	1.02686	264.66	-21.60
93/ 9/23	2449253.5	1.69904	-56.15580	-21.72591	1.01530	-0.06266	0.06322	60.23600	1.01920	271.73	-21.14
93/ 9/23	2449254.0	8.54973	-56.20746	-21.15484	1.00550	0.04704	0.10508	60.66221	1.01207	278.65	-20.41
93/ 9/24	2449254.5	15.29096	-55.52500	-20.30743	0.98310	0.15392	0.14475	61.06742	1.00555	285.40	-19.42
93/ 9/24	2449255.0	21.83994	-54.13152	-19.19995	0.94886	0.25681	0.18182	61.44789	0.99968	291.97	-18.21

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/ 9/25	2449255.5	28.11926	-52.05754	-17.85108	0.90361	0.35471	0.21598	61.80082	0.99447	298.38	-16.79
93/ 9/25	2449256.0	34.05722	-49.34010	-16.28152	0.84821	0.44668	0.24694	62.12429	0.98993	304.62	-15.19
93/ 9/26	2449256.5	39.58813	-46.02212	-14.51376	0.78356	0.53192	0.27448	62.41718	0.98603	310.70	-13.45
93/ 9/26	2449257.0	44.65252	-42.15163	-12.57170	0.71061	0.60971	0.29838	62.67898	0.98272	316.65	-11.57
93/ 9/27	2449257.5	49.19729	-37.78122	-10.48047	0.63029	0.67944	0.31850	62.90973	0.97997	322.48	-9.59
93/ 9/27	2449258.0	53.17589	-32.96741	-8.26613	0.54358	0.74056	0.33471	63.10986	0.97773	328.20	-7.53
93/ 9/28	2449258.5	56.54838	-27.77012	-5.95551	0.45148	0.79261	0.34693	63.28007	0.97592	333.84	-5.40
93/ 9/28	2449259.0	59.28159	-22.25214	-3.57590	0.35497	0.83521	0.35507	63.42123	0.97450	339.43	-3.23
93/ 9/29	2449259.5	61.34918	-16.47857	-1.15494	0.25509	0.86804	0.35913	63.53423	0.97342	344.97	-1.04
93/ 9/29	2449260.0	62.73170	-10.51633	1.27966	0.15285	0.89089	0.35911	63.61994	0.97263	350.48	1.15
93/ 9/30	2449260.5	63.41667	-4.43362	3.70032	0.04928	0.90359	0.35502	63.67907	0.97209	356.00	3.33
93/ 9/30	2449261.0	63.39857	1.70058	6.07975	-0.05459	0.90609	0.34695	63.71212	0.97178	1.54	5.48
93/10/ 1	2449261.5	62.67885	7.81710	8.39123	-0.15773	0.89838	0.33497	63.71937	0.97168	7.11	7.57
93/10/ 1	2449262.0	61.26589	13.84702	10.60873	-0.25913	0.88054	0.31922	63.70082	0.97180	12.74	9.59
93/10/ 2	2449262.5	59.17493	19.72228	12.70718	-0.35778	0.85274	0.29985	63.65621	0.97215	18.43	11.51
93/10/ 2	2449263.0	56.42794	25.37615	14.66261	-0.45269	0.81521	0.27702	63.58501	0.97275	24.21	13.33
93/10/ 3	2449263.5	53.05350	30.74375	16.45238	-0.54290	0.76826	0.25096	63.48648	0.97363	30.09	15.02
93/10/ 3	2449264.0	49.08665	35.76255	18.05531	-0.62747	0.71228	0.22189	63.35972	0.97483	36.08	16.56
93/10/ 4	2449264.5	44.56867	40.37288	19.45190	-0.70549	0.64773	0.19007	63.20373	0.97642	42.17	17.92
93/10/ 4	2449265.0	39.54689	44.51838	20.62446	-0.77609	0.57512	0.15579	63.01754	0.97844	48.38	19.10
93/10/ 5	2449265.5	34.07450	48.14652	21.55730	-0.83842	0.49506	0.11934	62.80029	0.98096	54.71	20.08
93/10/ 5	2449266.0	28.21026	51.20910	22.23691	-0.89167	0.40823	0.08107	62.55134	0.98402	61.15	20.82
93/10/ 6	2449266.5	22.01830	53.66273	22.65211	-0.93507	0.31537	0.04132	62.27048	0.98768	67.69	21.33
93/10/ 6	2449267.0	15.56781	55.46939	22.79423	-0.96789	0.21733	0.00050	61.95794	0.99199	74.32	21.59
93/10/ 7	2449267.5	8.93274	56.59694	22.65734	-0.98947	0.11500	-0.04100	61.61463	0.99697	81.03	21.58
93/10/ 7	2449268.0	2.19140	57.01979	22.23838	-0.99917	0.00941	-0.08272	61.24218	1.00264	87.80	21.29
93/10/ 8	2449268.5	-4.57391	56.71948	21.53743	-0.99646	-0.09835	-0.12418	60.84309	1.00898	94.61	20.73
93/10/ 8	2449269.0	-11.27746	55.68541	20.55792	-0.98087	-0.20705	-0.16489	60.42081	1.01595	101.45	19.89
93/10/ 9	2449269.5	-17.83075	53.91560	19.30683	-0.95204	-0.31538	-0.20429	59.97984	1.02351	108.30	18.78
93/10/ 9	2449270.0	-24.14331	51.41743	17.79494	-0.90976	-0.42188	-0.24180	59.52572	1.03156	115.15	17.39
93/10/10	2449270.5	-30.12377	48.20844	16.03703	-0.85398	-0.52501	-0.27683	59.06506	1.03998	122.00	15.75
93/10/10	2449271.0	-35.68109	44.31706	14.05209	-0.78486	-0.62310	-0.30874	58.60549	1.04861	128.84	13.87
93/10/11	2449271.5	-40.72614	39.78324	11.86334	-0.70280	-0.71442	-0.33690	58.15551	1.05728	135.67	11.77
93/10/11	2449272.0	-45.17347	34.65889	9.49832	-0.60850	-0.79719	-0.36069	57.72434	1.06577	142.50	9.47
93/10/12	2449272.5	-48.94345	29.00803	6.98874	-0.50298	-0.86960	-0.37949	57.32163	1.07388	149.35	7.00
93/10/12	2449273.0	-51.96449	22.90659	4.37021	-0.38761	-0.92996	-0.39278	56.95717	1.08136	156.21	4.40
93/10/13	2449273.5	-54.17552	16.44177	1.68175	-0.26410	-0.97666	-0.40008	56.64051	1.08797	163.12	1.70
93/10/13	2449274.0	-55.52829	9.71071	-1.03488	-0.13454	-1.00837	-0.40105	56.38049	1.09351	170.08	-1.05
93/10/14	2449274.5	-55.98962	2.81876	-3.73609	-0.00128	-1.02403	-0.39550	56.18489	1.09776	177.12	-3.81
93/10/14	2449275.0	-55.54315	-4.12298	-6.37753	0.13308	-1.02300	-0.38341	56.05991	1.10056	184.25	-6.53
93/10/15	2449275.5	-54.19056	-11.00042	-8.91528	0.26583	-1.00506	-0.36493	56.00989	1.10181	191.47	-9.16
93/10/15	2449276.0	-51.95205	-17.69976	-11.30713	0.39424	-0.97049	-0.34040	56.03703	1.10143	198.81	-11.64
93/10/16	2449276.5	-48.86600	-24.11065	-13.51384	0.51569	-0.92005	-0.31035	56.14119	1.09942	206.26	-13.93
93/10/16	2449277.0	-44.98774	-30.12941	-15.50018	0.62780	-0.85493	-0.27545	56.31993	1.09586	213.81	-15.97
93/10/17	2449277.5	-40.38771	-35.66178	-17.23592	0.72851	-0.77670	-0.23649	56.56860	1.09084	221.44	-17.74

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
93/10/17	2449278.0	-35.14891	-40.62515	-18.69640	0.81618	-0.68723	-0.19432	56.88061	1.08453	229.13	-19.19
93/10/18	2449278.5	-29.36410	-44.95018	-19.86296	0.88958	-0.58856	-0.14985	57.24776	1.07713	236.85	-20.30
93/10/18	2449279.0	-23.13282	-48.58171	-20.72301	0.94792	-0.48281	-0.10396	57.66067	1.06886	244.54	-21.06
93/10/19	2449279.5	-16.55850	-51.47903	-21.26987	0.99085	-0.37210	-0.05750	58.10922	1.05997	252.17	-21.47
93/10/19	2449280.0	-9.74578	-53.61557	-21.50241	1.01835	-0.25849	-0.01127	58.58296	1.05070	259.70	-21.53
93/10/20	2449280.5	-2.79822	-54.97820	-21.42464	1.03074	-0.14387	0.03403	59.07154	1.04129	267.09	-21.27
93/10/20	2449281.0	4.18359	-55.56613	-21.04504	1.02857	-0.03000	0.07776	59.56502	1.03194	274.31	-20.69
93/10/21	2449281.5	11.10353	-55.38976	-20.37605	1.01260	0.08158	0.11940	60.05412	1.02288	281.34	-19.83
93/10/21	2449282.0	17.87100	-54.46934	-19.43341	0.98371	0.18950	0.15850	60.53048	1.01425	288.16	-18.73
93/10/22	2449282.5	24.40170	-52.83371	-18.23565	0.94285	0.29259	0.19468	60.98674	1.00622	294.79	-17.40
93/10/22	2449283.0	30.61805	-50.51915	-16.80356	0.89105	0.38983	0.22765	61.41668	0.99889	301.22	-15.88
93/10/23	2449283.5	36.44947	-47.56822	-15.15977	0.82936	0.48037	0.25716	61.81520	0.99233	307.46	-14.20
93/10/23	2449284.0	41.83248	-44.02890	-13.32833	0.75881	0.56347	0.28303	62.17833	0.98661	313.53	-12.38
93/10/24	2449284.5	46.71066	-39.95365	-11.33446	0.68046	0.63853	0.30511	62.50320	0.98176	319.46	-10.45
93/10/24	2449285.0	51.03468	-35.39879	-9.20419	0.59534	0.70502	0.32329	62.78798	0.97776	325.25	-8.43
93/10/25	2449285.5	54.76212	-30.42381	-6.96419	0.50447	0.76252	0.33750	63.03172	0.97460	330.95	-6.34
93/10/25	2449286.0	57.85746	-25.09085	-4.64155	0.40886	0.81068	0.34769	63.23433	0.97224	336.56	-4.21
93/10/26	2449286.5	60.29198	-19.46426	-2.26360	0.30950	0.84919	0.35383	63.39641	0.97062	342.11	-2.05
93/10/26	2449287.0	62.04374	-13.61012	0.14227	0.20741	0.87784	0.35593	63.51914	0.96969	347.63	0.13
93/10/27	2449287.5	63.09753	-7.59584	2.54875	0.10356	0.89645	0.35401	63.60418	0.96937	353.14	2.30
93/10/27	2449288.0	63.44492	-1.48977	4.92874	-0.00102	0.90493	0.34812	63.65351	0.96958	358.65	4.44
93/10/28	2449288.5	63.08423	4.63924	7.25559	-0.10536	0.90322	0.33833	63.66935	0.97025	4.21	6.54
93/10/28	2449289.0	62.02059	10.72226	9.50319	-0.20843	0.89136	0.32474	63.65400	0.97130	9.81	8.59
93/10/29	2449289.5	60.26596	16.69079	11.64622	-0.30924	0.86944	0.30748	63.60977	0.97267	15.48	10.55
93/10/29	2449290.0	57.83908	22.47719	13.66027	-0.40677	0.83762	0.28669	63.53886	0.97430	21.24	12.41
93/10/30	2449290.5	54.76553	28.01525	15.52210	-0.50003	0.79615	0.26256	63.44330	0.97613	27.09	14.16
93/10/30	2449291.0	51.07756	33.24071	17.20982	-0.58804	0.74537	0.23531	63.32488	0.97813	33.06	15.77
93/10/31	2449291.5	46.81408	38.09184	18.70310	-0.66982	0.68569	0.20519	63.18506	0.98027	39.13	17.22
93/10/31	2449292.0	42.02039	42.51005	19.98338	-0.74445	0.61762	0.17246	63.02502	0.98255	45.33	18.49
93/11/ 1	2449292.5	36.74805	46.44048	21.03408	-0.81102	0.54176	0.13745	62.84560	0.98496	51.65	19.55
93/11/ 1	2449293.0	31.05453	49.83256	21.84083	-0.86869	0.45878	0.10048	62.64735	0.98752	58.07	20.40
93/11/ 2	2449293.5	25.00285	52.64071	22.39162	-0.91665	0.36946	0.06193	62.43053	0.99024	64.59	21.02
93/11/ 2	2449294.0	18.66124	54.82482	22.67705	-0.95419	0.27466	0.02219	62.19527	0.99318	71.20	21.38
93/11/ 3	2449294.5	12.10258	56.35092	22.69047	-0.98064	0.17532	-0.01832	61.94155	0.99636	77.88	21.49
93/11/ 3	2449295.0	5.40390	57.19172	22.42814	-0.99545	0.07247	-0.05916	61.66942	0.99983	84.60	21.33
93/11/ 4	2449295.5	-1.35422	57.32713	21.88945	-0.99812	-0.03279	-0.09985	61.37900	1.00364	91.35	20.89
93/11/ 4	2449296.0	-8.08834	56.74481	21.07700	-0.98831	-0.13927	-0.13992	61.07073	1.00783	98.11	20.19
93/11/ 5	2449296.5	-14.71290	55.44065	19.99674	-0.96574	-0.24573	-0.17885	60.74540	1.01243	104.86	19.22
93/11/ 5	2449297.0	-21.14102	53.41926	18.65809	-0.93029	-0.35083	-0.21613	60.40435	1.01747	111.59	17.99
93/11/ 6	2449297.5	-27.28544	50.69445	17.07404	-0.88198	-0.45321	-0.25122	60.04953	1.02294	118.29	16.52
93/11/ 6	2449298.0	-33.05952	47.28957	15.26120	-0.82098	-0.55141	-0.28360	59.68366	1.02883	124.96	14.82
93/11/ 7	2449298.5	-38.37842	43.23792	13.23983	-0.74764	-0.64395	-0.31271	59.31032	1.03509	131.59	12.90
93/11/ 7	2449299.0	-43.16037	38.58298	11.03382	-0.66253	-0.72930	-0.33803	58.93394	1.04168	138.21	10.79
93/11/ 8	2449299.5	-47.32811	33.37854	8.67066	-0.56642	-0.80595	-0.35904	58.55986	1.04847	144.81	8.51
93/11/ 8	2449300.0	-50.81047	27.68867	6.18120	-0.46033	-0.87240	-0.37524	58.19427	1.05537	151.41	6.10

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/11/ 9	2449300.5	-53.54410	21.58741	3.59947	-0.34556	-0.92720	-0.38622	57.84413	1.06220	158.04	3.57
93/11/ 9	2449301.0	-55.47525	15.15823	0.96225	-0.22365	-0.96902	-0.39157	57.51696	1.06881	164.72	0.96
93/11/10	2449301.5	-56.56156	8.49308	-1.69143	-0.09641	-0.99671	-0.39103	57.22066	1.07500	171.46	-1.69
93/11/10	2449302.0	-56.77388	1.69104	-4.32093	0.03408	-1.00931	-0.38442	56.96317	1.08058	178.29	-4.35
93/11/11	2449302.5	-56.09775	-5.14338	-6.88486	0.16554	-1.00619	-0.37168	56.75221	1.08534	185.24	-6.97
93/11/11	2449303.0	-54.53471	-11.90242	-9.34198	0.29556	-0.98703	-0.35291	56.59483	1.08910	192.31	-9.50
93/11/12	2449303.5	-52.10300	-18.47760	-11.65224	0.42164	-0.95194	-0.32836	56.49707	1.09169	199.53	-11.90
93/11/12	2449304.0	-48.83781	-24.76246	-13.77784	0.54128	-0.90142	-0.29846	56.46361	1.09299	206.89	-14.12
93/11/13	2449304.5	-44.79077	-30.65537	-15.68432	0.65213	-0.83640	-0.26376	56.49746	1.09289	214.39	-16.12
93/11/13	2449305.0	-40.02880	-36.06239	-17.34150	0.75206	-0.75819	-0.22497	56.59972	1.09135	222.02	-17.84
93/11/14	2449305.5	-34.63227	-40.89967	-18.72425	0.83924	-0.66846	-0.18287	56.76948	1.08839	229.74	-19.26
93/11/14	2449306.0	-28.69268	-45.09553	-19.81310	0.91222	-0.56912	-0.13833	57.00382	1.08406	237.53	-20.34
93/11/15	2449306.5	-22.30989	-48.59198	-20.59458	0.96997	-0.46228	-0.09225	57.29789	1.07845	245.34	-21.07
93/11/15	2449307.0	-15.58927	-51.34552	-21.06126	1.01192	-0.35011	-0.04552	57.64516	1.07174	253.11	-21.43
93/11/16	2449307.5	-8.63875	-53.32742	-21.21161	1.03786	-0.23478	0.00102	58.03769	1.06409	260.80	-21.44
93/11/16	2449308.0	-1.56617	-54.52333	-21.04959	1.04802	-0.11835	0.04660	58.46650	1.05571	268.35	-21.10
93/11/17	2449308.5	5.52309	-54.93251	-20.58420	1.04290	-0.00277	0.09050	58.92193	1.04682	275.74	-20.45
93/11/17	2449309.0	12.52811	-54.56663	-19.82879	1.02329	0.11024	0.13214	59.39403	1.03766	282.93	-19.50
93/11/18	2449309.5	19.35389	-53.44842	-18.80043	0.99015	0.21916	0.17102	59.87289	1.02843	289.91	-18.30
93/11/18	2449310.0	25.91250	-51.61019	-17.51927	0.94459	0.32266	0.20674	60.34893	1.01936	296.66	-16.88
93/11/19	2449310.5	32.12374	-49.09235	-16.00786	0.88777	0.41967	0.23897	60.81320	1.01063	303.20	-15.26
93/11/19	2449311.0	37.91552	-45.94205	-14.29066	0.82093	0.50929	0.26748	61.25750	1.00242	309.53	-13.49
93/11/20	2449311.5	43.22399	-42.21193	-12.39347	0.74526	0.59079	0.29209	61.67461	0.99486	315.68	-11.59
93/11/20	2449312.0	47.99347	-37.95898	-10.34307	0.66196	0.66359	0.31270	62.05833	0.98809	321.66	-9.59
93/11/21	2449312.5	52.17629	-33.24370	-8.16686	0.57221	0.72725	0.32923	62.40357	0.98220	327.50	-7.52
93/11/21	2449313.0	55.73252	-28.12921	-5.89258	0.47712	0.78142	0.34166	62.70637	0.97724	333.22	-5.39
93/11/22	2449313.5	58.62973	-22.68070	-3.54809	0.37778	0.82585	0.34997	62.96386	0.97325	338.85	-3.23
93/11/22	2449314.0	60.84271	-16.96484	-1.16119	0.27525	0.86034	0.35419	63.17428	0.97025	344.42	-1.05
93/11/23	2449314.5	62.35329	-11.04937	1.24054	0.17053	0.88477	0.35436	63.33688	0.96823	349.95	1.12
93/11/23	2449315.0	63.15008	-5.00272	3.62986	0.06464	0.89907	0.35053	63.45183	0.96715	355.47	3.28
93/11/24	2449315.5	63.22842	1.10636	5.97996	-0.04146	0.90320	0.34279	63.52021	0.96695	1.00	5.40
93/11/24	2449316.0	62.59026	7.20905	8.26465	-0.14678	0.89719	0.33123	63.54381	0.96758	6.57	7.47
93/11/25	2449316.5	61.24416	13.23686	10.45839	-0.25035	0.88111	0.31596	63.52511	0.96894	12.20	9.48
93/11/25	2449317.0	59.20524	19.12192	12.53651	-0.35119	0.85507	0.29711	63.46710	0.97095	17.90	11.39
93/11/26	2449317.5	56.49529	24.79744	14.47528	-0.44834	0.81926	0.27484	63.37321	0.97352	23.70	13.20
93/11/26	2449318.0	53.14270	30.19807	16.25217	-0.54079	0.77394	0.24934	63.24716	0.97653	29.61	14.89
93/11/27	2449318.5	49.18259	35.26046	17.84598	-0.62757	0.71945	0.22082	63.09284	0.97990	35.64	16.43
93/11/27	2449319.0	44.65669	39.92381	19.23705	-0.70770	0.65619	0.18952	62.91419	0.98353	41.80	17.80
93/11/28	2449319.5	39.61334	44.13046	20.40753	-0.78021	0.58468	0.15573	62.71508	0.98734	48.09	18.99
93/11/28	2449320.0	34.10732	47.82656	21.34159	-0.84417	0.50554	0.11976	62.49922	0.99123	54.51	19.97
93/11/29	2449320.5	28.19960	50.96280	22.02570	-0.89869	0.41949	0.08198	62.27002	0.99515	61.04	20.71
93/11/29	2449321.0	21.95703	53.49514	22.44884	-0.94292	0.32736	0.04277	62.03057	0.99904	67.68	21.22
93/11/30	2449321.5	15.45186	55.38554	22.60278	-0.97611	0.23009	0.00256	61.78352	1.00287	74.41	21.46
93/11/30	2449322.0	8.76118	56.60270	22.48229	-0.99760	0.12874	-0.03819	61.53111	1.00660	81.20	21.43
93/12/ 1	2449322.5	1.96618	57.12275	22.08535	-1.00683	0.02444	-0.07899	61.27509	1.01022	88.03	21.13

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
93/12/ 1	2449323.0	-4.84864	56.92991	21.41332	-1.00340	-0.08156	-0.11933	61.01683	1.01375	94.87	20.54
93/12/ 2	2449323.5	-11.59645	56.01700	20.47109	-0.98701	-0.18796	-0.15869	60.75729	1.01720	101.70	19.69
93/12/ 2	2449324.0	-18.18907	54.38600	19.26715	-0.95757	-0.29338	-0.19653	60.49712	1.02060	108.49	18.57
93/12/ 3	2449324.5	-24.53817	52.04829	17.81361	-0.91512	-0.39641	-0.23230	60.23678	1.02399	115.24	17.20
93/12/ 3	2449325.0	-30.55638	49.02498	16.12623	-0.85992	-0.49559	-0.26549	59.97663	1.02740	121.93	15.60
93/12/ 4	2449325.5	-36.15860	45.34701	14.22432	-0.79237	-0.58949	-0.29557	59.71706	1.03088	128.57	13.78
93/12/ 4	2449326.0	-41.26325	41.05507	12.13065	-0.71310	-0.67665	-0.32204	59.45862	1.03445	135.14	11.77
93/12/ 5	2449326.5	-45.79359	36.19951	9.87123	-0.62293	-0.75569	-0.34444	59.20219	1.03815	141.67	9.60
93/12/ 5	2449327.0	-49.67907	30.83997	7.47510	-0.52287	-0.82526	-0.36234	58.94905	1.04198	148.17	7.29
93/12/ 6	2449327.5	-52.85662	25.04492	4.97404	-0.41411	-0.88409	-0.37537	58.70104	1.04595	154.65	4.86
93/12/ 6	2449328.0	-55.27203	18.89101	2.40217	-0.29806	-0.93104	-0.38320	58.46057	1.05001	161.13	2.35
93/12/ 7	2449328.5	-56.88116	12.46222	-0.20447	-0.17630	-0.96511	-0.38560	58.23070	1.05413	167.64	-0.20
93/12/ 7	2449329.0	-57.65120	5.84883	-2.80841	-0.05059	-0.98544	-0.38238	58.01514	1.05823	174.21	-2.77
93/12/ 8	2449329.5	-57.56175	-0.85391	-5.37136	0.07717	-0.99140	-0.37349	57.81813	1.06223	180.85	-5.33
93/12/ 8	2449330.0	-56.60579	-7.54720	-7.85484	0.20494	-0.98260	-0.35893	57.64438	1.06599	187.59	-7.83
93/12/ 9	2449330.5	-54.79039	-14.13045	-10.22093	0.33060	-0.95891	-0.33886	57.49890	1.06940	194.46	-10.24
93/12/ 9	2449331.0	-52.13715	-20.50319	-12.43303	0.45199	-0.92049	-0.31351	57.38679	1.07233	201.47	-12.51
93/12/10	2449331.5	-48.68232	-26.56714	-14.45665	0.56695	-0.86783	-0.28327	57.31297	1.07462	208.62	-14.61
93/12/10	2449332.0	-44.47645	-32.22840	-16.26022	0.67343	-0.80174	-0.24862	57.28193	1.07616	215.93	-16.49
93/12/11	2449332.5	-39.58362	-37.39958	-17.81588	0.76950	-0.72333	-0.21017	57.29745	1.07681	223.37	-18.12
93/12/11	2449333.0	-34.08021	-42.00193	-19.10012	0.85347	-0.63402	-0.16860	57.36233	1.07649	230.94	-19.45
93/12/12	2449333.5	-28.05321	-45.96712	-20.09438	0.92390	-0.53548	-0.12467	57.47819	1.07512	238.60	-20.46
93/12/12	2449334.0	-21.59817	-49.23881	-20.78543	0.97971	-0.42956	-0.07920	57.64525	1.07268	246.32	-21.14
93/12/13	2449334.5	-14.81686	-51.77376	-21.16558	1.02016	-0.31826	-0.03301	57.86228	1.06916	254.03	-21.46
93/12/13	2449335.0	-7.81479	-53.54243	-21.23275	1.04487	-0.20363	0.01309	58.12652	1.06461	261.70	-21.43
93/12/14	2449335.5	-0.69868	-54.52918	-20.99028	1.05386	-0.08770	0.05830	58.43382	1.05911	269.27	-21.05
93/12/14	2449336.0	6.42590	-54.73189	-20.44657	1.04746	0.02758	0.10193	58.77869	1.05277	276.70	-20.36
93/12/15	2449336.5	13.45672	-54.16125	-19.61466	1.02630	0.14038	0.14331	59.15453	1.04572	283.95	-19.36
93/12/15	2449337.0	20.29668	-52.83966	-18.51159	0.99126	0.24907	0.18191	59.55387	1.03814	291.01	-18.11
93/12/16	2449337.5	26.85530	-50.79996	-17.15785	0.94341	0.35221	0.21727	59.96862	1.03019	297.86	-16.63
93/12/16	2449338.0	33.04983	-48.08400	-15.57669	0.88395	0.44858	0.24902	60.39035	1.02206	304.50	-14.95
93/12/17	2449338.5	38.80587	-44.74112	-13.79349	0.81415	0.53718	0.27689	60.81056	1.01394	310.94	-13.11
93/12/17	2449339.0	44.05788	-40.82685	-11.83523	0.73533	0.61719	0.30068	61.22092	1.00601	317.18	-11.15
93/12/18	2449339.5	48.74919	-36.40147	-9.72994	0.64880	0.68801	0.32029	61.61349	0.99844	323.25	-9.09
93/12/18	2449340.0	52.83196	-31.52894	-7.50627	0.55585	0.74917	0.33563	61.98092	0.99140	329.17	-6.96
93/12/19	2449340.5	56.26694	-26.27582	-5.19312	0.45772	0.80035	0.34671	62.31658	0.98502	334.97	-4.78
93/12/19	2449341.0	59.02313	-20.71049	-2.81937	0.35560	0.84134	0.35354	62.61472	0.97944	340.66	-2.58
93/12/20	2449341.5	61.07740	-14.90237	-0.41360	0.25063	0.87203	0.35618	62.87051	0.97474	346.29	-0.38
93/12/20	2449342.0	62.41416	-8.92144	1.99606	0.14390	0.89237	0.35470	63.08013	0.97100	351.87	1.81
93/12/21	2449342.5	63.02497	-2.83775	4.38207	0.03644	0.90238	0.34921	63.24083	0.96828	357.42	3.97
93/12/21	2449343.0	62.90831	3.27896	6.71760	-0.07076	0.90213	0.33982	63.35087	0.96661	2.98	6.09
93/12/22	2449343.5	62.06929	9.35951	8.97665	-0.17671	0.89173	0.32665	63.40960	0.96597	8.58	8.14
93/12/22	2449344.0	60.51951	15.33563	11.13409	-0.28048	0.87132	0.30984	63.41735	0.96637	14.22	10.11
93/12/23	2449344.5	58.27695	21.14013	13.16578	-0.38113	0.84109	0.28954	63.37544	0.96774	19.94	11.99
93/12/23	2449345.0	55.36596	26.70728	15.04869	-0.47771	0.80127	0.26593	63.28611	0.97003	25.75	13.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
93/12/24	2449345.5	51.81720	31.97306	16.76099	-0.56930	0.75215	0.23919	63.15243	0.97316	31.68	15.39
93/12/24	2449346.0	47.66770	36.87557	18.28219	-0.65495	0.69406	0.20954	62.97821	0.97703	37.73	16.88
93/12/25	2449346.5	42.96092	41.35546	19.59336	-0.73370	0.62743	0.17721	62.76795	0.98153	43.91	18.19
93/12/25	2449347.0	37.74675	45.35649	20.67730	-0.80462	0.55275	0.14249	62.52663	0.98653	50.23	19.31
93/12/26	2449347.5	32.08148	48.82610	21.51876	-0.86675	0.47061	0.10567	62.25967	0.99192	56.69	20.22
93/12/26	2449348.0	26.02772	51.71614	22.10473	-0.91919	0.38174	0.06711	61.97274	0.99756	63.28	20.90
93/12/27	2449348.5	19.65418	53.98366	22.42471	-0.96104	0.28694	0.02719	61.67163	1.00333	69.99	21.32
93/12/27	2449349.0	13.03534	55.59174	22.47100	-0.99149	0.18717	-0.01364	61.36210	1.00910	76.80	21.48
93/12/28	2449349.5	6.25093	56.51034	22.23898	-1.00982	0.08353	-0.05491	61.04970	1.01475	83.69	21.36
93/12/28	2449350.0	-0.61474	56.71725	21.72740	-1.01540	-0.02277	-0.09610	60.73964	1.02019	90.62	20.96
93/12/29	2449350.5	-7.47368	56.19884	20.93863	-1.00777	-0.13041	-0.13667	60.43668	1.02532	97.58	20.27
93/12/29	2449351.0	-14.23530	54.95091	19.87886	-0.98663	-0.23795	-0.17603	60.14495	1.03007	104.52	19.30
93/12/30	2449351.5	-20.80769	52.97927	18.55819	-0.95189	-0.34386	-0.21360	59.86793	1.03439	111.44	18.06
93/12/30	2449352.0	-27.09901	50.30024	16.99078	-0.90367	-0.44657	-0.24880	59.60836	1.03824	118.31	16.56
93/12/31	2449352.5	-33.01906	46.94090	15.19472	-0.84234	-0.54449	-0.28103	59.36822	1.04162	125.12	14.83
93/12/31	2449353.0	-38.48092	42.93909	13.19195	-0.76849	-0.63603	-0.30975	59.14875	1.04453	131.87	12.89
94/ 1/ 1	2449353.5	-43.40259	38.34323	11.00802	-0.68298	-0.71966	-0.33444	58.95053	1.04701	138.54	10.76
94/ 1/ 1	2449354.0	-47.70858	33.21178	8.67178	-0.58688	-0.79395	-0.35465	58.77355	1.04908	145.16	8.48
94/ 1/ 2	2449354.5	-51.33146	27.61253	6.21492	-0.48150	-0.85759	-0.37000	58.61737	1.05081	151.72	6.09
94/ 1/ 2	2449355.0	-54.21326	21.62164	3.67155	-0.36831	-0.90942	-0.38016	58.48122	1.05225	158.26	3.60
94/ 1/ 3	2449355.5	-56.30667	15.32245	1.07759	-0.24898	-0.94848	-0.38491	58.36420	1.05345	164.78	1.06
94/ 1/ 3	2449356.0	-57.57610	8.80415	-1.52981	-0.12530	-0.97402	-0.38411	58.26543	1.05449	171.31	-1.50
94/ 1/ 4	2449356.5	-57.99841	2.16032	-4.11287	0.00084	-0.98548	-0.37772	58.18418	1.05539	177.87	-4.05
94/ 1/ 4	2449357.0	-57.56355	-4.51265	-6.63388	0.12749	-0.98259	-0.36580	58.12000	1.05620	184.48	-6.55
94/ 1/ 5	2449357.5	-56.27481	-11.11721	-9.05583	0.25265	-0.96530	-0.34850	58.07284	1.05692	191.18	-8.97
94/ 1/ 5	2449358.0	-54.14894	-17.55635	-11.34305	0.37436	-0.93380	-0.32607	58.04307	1.05756	197.96	-11.27
94/ 1/ 6	2449358.5	-51.21595	-23.73526	-13.46184	0.49068	-0.88855	-0.29883	58.03152	1.05810	204.86	-13.41
94/ 1/ 6	2449359.0	-47.51867	-29.56304	-15.38113	0.59975	-0.83025	-0.26723	58.03944	1.05850	211.89	-15.37
94/ 1/ 7	2449359.5	-43.11208	-34.95430	-17.07295	0.69985	-0.75983	-0.23176	58.06841	1.05870	219.03	-17.10
94/ 1/ 7	2449360.0	-38.06237	-39.83076	-18.51303	0.78941	-0.67844	-0.19299	58.12027	1.05863	226.30	-18.57
94/ 1/ 8	2449360.5	-32.44571	-44.12263	-19.68120	0.86705	-0.58744	-0.15157	58.19691	1.05823	233.67	-19.77
94/ 1/ 8	2449361.0	-26.34690	-47.76989	-20.56172	0.93162	-0.48836	-0.10817	58.30014	1.05741	241.12	-20.65
94/ 1/ 9	2449361.5	-19.85769	-50.72336	-21.14364	0.98221	-0.38285	-0.06351	58.43150	1.05610	248.62	-21.21
94/ 1/ 9	2449362.0	-13.07503	-52.94547	-21.42083	1.01819	-0.27269	-0.01831	58.59207	1.05424	256.13	-21.44
94/ 1/10	2449362.5	-6.09911	-54.41082	-21.39214	1.03924	-0.15969	0.02670	58.78231	1.05178	263.60	-21.34
94/ 1/10	2449363.0	0.96852	-55.10638	-21.06122	1.04529	-0.04568	0.07082	59.00192	1.04869	271.01	-20.91
94/ 1/11	2449363.5	8.02696	-55.03138	-20.43636	1.03658	0.06756	0.11339	59.24972	1.04495	278.30	-20.18
94/ 1/11	2449364.0	14.97774	-54.19689	-19.53017	1.01361	0.17831	0.15380	59.52363	1.04060	285.45	-19.15
94/ 1/12	2449364.5	21.72655	-52.62516	-18.35915	0.97708	0.28501	0.19150	59.82064	1.03566	292.43	-17.87
94/ 1/12	2449365.0	28.18470	-50.34864	-16.94325	0.92794	0.38621	0.22604	60.13681	1.03021	299.24	-16.36
94/ 1/13	2449365.5	34.27030	-47.40892	-15.30531	0.86727	0.48065	0.25701	60.46744	1.02432	305.86	-14.66
94/ 1/13	2449366.0	39.90924	-43.85548	-13.47050	0.79625	0.56727	0.28413	60.80711	1.01811	312.30	-12.80
94/ 1/14	2449366.5	45.03581	-39.74439	-11.46582	0.71618	0.64519	0.30715	61.14986	1.01169	318.57	-10.81
94/ 1/14	2449367.0	49.59309	-35.13707	-9.31954	0.62837	0.71370	0.32592	61.48936	1.00521	324.68	-8.72
94/ 1/15	2449367.5	53.53310	-30.09904	-7.06073	0.53413	0.77230	0.34036	61.81909	0.99879	330.65	-6.56

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 1/15	2449368.0	56.81679	-24.69882	-4.71886	0.43477	0.82061	0.35045	62.13249	0.99259	336.50	-4.36
94/ 1/16	2449368.5	59.41376	-19.00690	-2.32338	0.33156	0.85841	0.35620	62.42320	0.98675	342.26	-2.13
94/ 1/16	2449369.0	61.30205	-13.09487	0.09652	0.22570	0.88560	0.35768	62.68514	0.98140	347.94	0.09
94/ 1/17	2449369.5	62.46770	-7.03472	2.51222	0.11835	0.90216	0.35498	62.91274	0.97668	353.57	2.29
94/ 1/17	2449370.0	62.90438	-0.89820	4.89582	0.01062	0.90817	0.34822	63.10101	0.97270	359.18	4.45
94/ 1/18	2449370.5	62.61299	5.24368	7.22033	-0.09647	0.90377	0.33755	63.24568	0.96956	4.79	6.56
94/ 1/18	2449371.0	61.60132	11.32101	9.45976	-0.20192	0.88914	0.32312	63.34331	0.96734	10.41	8.59
94/ 1/19	2449371.5	59.88373	17.26532	11.58924	-0.30477	0.86453	0.30511	63.39134	0.96612	16.08	10.53
94/ 1/19	2449372.0	57.48088	23.00987	13.58507	-0.40411	0.83020	0.28369	63.38817	0.96593	21.82	12.38
94/ 1/20	2449372.5	54.41959	28.48987	15.42484	-0.49905	0.78646	0.25906	63.33317	0.96679	27.63	14.10
94/ 1/20	2449373.0	50.73270	33.64275	17.08747	-0.58870	0.73367	0.23142	63.22676	0.96871	33.55	15.68
94/ 1/21	2449373.5	46.45900	38.40843	18.55334	-0.67219	0.67220	0.20100	63.07038	0.97164	39.58	17.11
94/ 1/21	2449374.0	41.64320	42.72965	19.80441	-0.74863	0.60250	0.16803	62.86648	0.97555	45.74	18.36
94/ 1/22	2449374.5	36.33601	46.55235	20.82433	-0.81715	0.52508	0.13279	62.61853	0.98035	52.03	19.42
94/ 1/22	2449375.0	30.59404	49.82615	21.59867	-0.87687	0.44051	0.09556	62.33092	0.98594	58.45	20.27
94/ 1/23	2449375.5	24.47989	52.50491	22.11508	-0.92691	0.34949	0.05668	62.00892	0.99223	65.00	20.89
94/ 1/23	2449376.0	18.06202	54.54739	22.36360	-0.96641	0.25277	0.01652	61.65862	0.99906	71.68	21.27
94/ 1/24	2449376.5	11.41460	55.91808	22.33687	-0.99456	0.15127	-0.02452	61.28671	1.00630	78.46	21.37
94/ 1/24	2449377.0	4.61722	56.58802	22.03052	-1.01058	0.04603	-0.06597	60.90046	1.01377	85.34	21.21
94/ 1/25	2449377.5	-2.24564	56.53575	21.44339	-1.01379	-0.06178	-0.10734	60.50746	1.02133	92.27	20.76
94/ 1/25	2449378.0	-9.08531	55.74830	20.57794	-1.00365	-0.17083	-0.14807	60.11545	1.02879	99.26	20.02
94/ 1/26	2449378.5	-15.80986	54.22218	19.44045	-0.97975	-0.27966	-0.18757	59.73213	1.03600	106.26	18.99
94/ 1/26	2449379.0	-22.32534	51.96422	18.04133	-0.94190	-0.38666	-0.22522	59.36489	1.04279	113.25	17.69
94/ 1/27	2449379.5	-28.53730	48.99236	16.39524	-0.89015	-0.49018	-0.26039	59.02061	1.04902	120.22	16.13
94/ 1/27	2449380.0	-34.35250	45.33620	14.52116	-0.82481	-0.58844	-0.29244	58.70544	1.05456	127.15	14.32
94/ 1/28	2449380.5	-39.68084	41.03720	12.44233	-0.74651	-0.67971	-0.32075	58.42458	1.05932	134.04	12.30
94/ 1/28	2449381.0	-44.43741	36.14862	10.18604	-0.65616	-0.76226	-0.34475	58.18214	1.06322	140.87	10.08
94/ 1/29	2449381.5	-48.54461	30.73501	7.78326	-0.55498	-0.83449	-0.36393	57.98102	1.06622	147.66	7.71
94/ 1/29	2449382.0	-51.93408	24.87132	5.26817	-0.44449	-0.89494	-0.37786	57.82287	1.06830	154.41	5.23
94/ 1/30	2449382.5	-54.54856	18.64161	2.67747	-0.32645	-0.94239	-0.38621	57.70809	1.06950	161.13	2.66
94/ 1/30	2449383.0	-56.34341	12.13742	0.04968	-0.20280	-0.97586	-0.38878	57.63592	1.06985	167.84	0.05
94/ 1/31	2449383.5	-57.28774	5.45590	-2.57570	-0.07565	-0.99467	-0.38549	57.60457	1.06943	174.56	-2.56
94/ 1/31	2449384.0	-57.36516	-1.30226	-5.15902	0.05283	-0.99845	-0.37638	57.61139	1.06835	181.30	-5.14
94/ 2/ 1	2449384.5	-56.57408	-8.03499	-7.66133	0.18045	-0.98717	-0.36161	57.65313	1.06669	188.08	-7.64
94/ 2/ 1	2449385.0	-54.92761	-14.64095	-10.04517	0.30507	-0.96109	-0.34145	57.72612	1.06459	194.93	-10.02
94/ 2/ 2	2449385.5	-52.45302	-21.02156	-12.27531	0.42466	-0.92074	-0.31629	57.82653	1.06214	201.84	-12.26
94/ 2/ 2	2449386.0	-49.19092	-27.08283	-14.31938	0.53731	-0.86695	-0.28659	57.95059	1.05945	208.84	-14.31
94/ 2/ 3	2449386.5	-45.19417	-32.73709	-16.14839	0.64133	-0.80074	-0.25288	58.09475	1.05662	215.92	-16.14
94/ 2/ 3	2449387.0	-40.52652	-37.90432	-17.73718	0.73519	-0.72335	-0.21576	58.25584	1.05371	223.09	-17.73
94/ 2/ 4	2449387.5	-35.26120	-42.51337	-19.06475	0.81762	-0.63616	-0.17585	58.43118	1.05077	230.33	-19.04
94/ 2/ 4	2449388.0	-29.47934	-46.50290	-20.11446	0.88756	-0.54067	-0.13382	58.61862	1.04786	237.63	-20.07
94/ 2/ 5	2449388.5	-23.26839	-49.82202	-20.87417	0.94421	-0.43846	-0.09033	58.81652	1.04496	244.97	-20.79
94/ 2/ 5	2449389.0	-16.72050	-52.43082	-21.33631	0.98699	-0.33119	-0.04606	59.02376	1.04209	252.31	-21.19
94/ 2/ 6	2449389.5	-9.93091	-54.30059	-21.49781	1.01555	-0.22051	-0.00166	59.23963	1.03921	259.64	-21.28
94/ 2/ 6	2449390.0	-2.99637	-55.41395	-21.36000	1.02979	-0.10810	0.04222	59.46372	1.03631	266.90	-21.05

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/ 2/ 7	2449390.5	3.98637	-55.76468	-20.92849	1.02982	0.00442	0.08497	59.69584	1.03333	274.09	-20.52
94/ 2/ 7	2449391.0	10.92203	-55.35747	-20.21286	1.01596	0.11546	0.12602	59.93580	1.03023	281.16	-19.71
94/ 2/ 8	2449391.5	17.71817	-54.20745	-19.22646	0.98872	0.22352	0.16484	60.18337	1.02698	288.10	-18.63
94/ 2/ 8	2449392.0	24.28640	-52.33960	-17.98602	0.94879	0.32720	0.20096	60.43806	1.02354	294.89	-17.31
94/ 2/ 9	2449392.5	30.54355	-49.78800	-16.51128	0.89701	0.42522	0.23396	60.69906	1.01989	301.53	-15.78
94/ 2/ 9	2449393.0	36.41266	-46.59501	-14.82462	0.83437	0.51642	0.26349	60.96512	1.01602	308.01	-14.07
94/ 2/10	2449393.5	41.82375	-42.81030	-12.95061	0.76195	0.59980	0.28924	61.23452	1.01192	314.33	-12.21
94/ 2/10	2449394.0	46.71449	-38.48985	-10.91559	0.68092	0.67449	0.31100	61.50497	1.00762	320.51	-10.22
94/ 2/11	2449394.5	51.03067	-33.69491	-8.74722	0.59249	0.73981	0.32860	61.77370	1.00317	326.56	-8.14
94/ 2/11	2449395.0	54.72650	-28.49096	-6.47405	0.49794	0.79519	0.34193	62.03739	0.99860	332.50	-5.99
94/ 2/12	2449395.5	57.76472	-22.94667	-4.12517	0.39852	0.84025	0.35096	62.29230	0.99398	338.33	-3.80
94/ 2/12	2449396.0	60.11661	-17.13296	-1.72978	0.29548	0.87472	0.35567	62.53429	0.98941	344.09	-1.59
94/ 2/13	2449396.5	61.76181	-11.12206	0.68310	0.19004	0.89846	0.35613	62.75897	0.98498	349.79	0.62
94/ 2/13	2449397.0	62.68812	-4.98673	3.08491	0.08339	0.91147	0.35242	62.96177	0.98078	355.45	2.81
94/ 2/14	2449397.5	62.89118	1.20045	5.44785	-0.02335	0.91380	0.34467	63.13811	0.97692	1.09	4.95
94/ 2/14	2449398.0	62.37411	7.36773	7.74500	-0.12909	0.90562	0.33303	63.28348	0.97351	6.74	7.03
94/ 2/15	2449398.5	61.14716	13.44469	9.95058	-0.23281	0.88717	0.31766	63.39360	0.97066	12.40	9.03
94/ 2/15	2449399.0	59.22731	19.36270	12.04001	-0.33353	0.85874	0.29876	63.46456	0.96847	18.10	10.94
94/ 2/16	2449399.5	56.63797	25.05528	13.99007	-0.43035	0.82066	0.27654	63.49291	0.96704	23.86	12.73
94/ 2/16	2449400.0	53.40866	30.45843	15.77897	-0.52237	0.77334	0.25121	63.47580	0.96645	29.70	14.39
94/ 2/17	2449400.5	49.57474	35.51087	17.38645	-0.60875	0.71718	0.22301	63.41108	0.96677	35.61	15.91
94/ 2/17	2449401.0	45.17721	40.15436	18.79384	-0.68866	0.65266	0.19217	63.29741	0.96806	41.63	17.27
94/ 2/18	2449401.5	40.26258	44.33393	19.98416	-0.76131	0.58028	0.15895	63.13430	0.97035	47.76	18.45
94/ 2/18	2449402.0	34.88273	47.99821	20.94224	-0.82591	0.50059	0.12363	62.92225	0.97365	53.99	19.44
94/ 2/19	2449402.5	29.09486	51.09973	21.65479	-0.88167	0.41421	0.08650	62.66277	0.97795	60.34	20.22
94/ 2/19	2449403.0	22.96141	53.59540	22.11062	-0.92783	0.32181	0.04788	62.35843	0.98322	66.81	20.77
94/ 2/20	2449403.5	16.55001	55.44699	22.30078	-0.96362	0.22414	0.00811	62.01287	0.98938	73.38	21.08
94/ 2/20	2449404.0	9.93334	56.62168	22.21875	-0.98832	0.12208	-0.03242	61.63083	0.99636	80.05	21.13
94/ 2/21	2449404.5	3.18899	57.09285	21.86077	-1.00122	0.01657	-0.07331	61.21811	1.00403	86.80	20.92
94/ 2/21	2449405.0	-3.60091	56.84081	21.22602	-1.00167	-0.09129	-0.11407	60.78148	1.01227	93.62	20.44
94/ 2/22	2449405.5	-10.35012	55.85371	20.31700	-0.98911	-0.20027	-0.15421	60.32862	1.02090	100.50	19.68
94/ 2/22	2449406.0	-16.96895	54.12851	19.13976	-0.96311	-0.30900	-0.19317	59.86795	1.02975	107.41	18.64
94/ 2/23	2449406.5	-23.36528	51.67196	17.70426	-0.92338	-0.41597	-0.23037	59.40849	1.03862	114.33	17.34
94/ 2/23	2449407.0	-29.44570	48.50149	16.02457	-0.86983	-0.51953	-0.26518	58.95957	1.04730	121.26	15.77
94/ 2/24	2449407.5	-35.11715	44.64609	14.11907	-0.80266	-0.61793	-0.29694	58.53064	1.05559	128.19	13.96
94/ 2/24	2449408.0	-40.28870	40.14684	12.01054	-0.72232	-0.70935	-0.32502	58.13090	1.06328	135.10	11.92
94/ 2/25	2449408.5	-44.87372	35.05725	9.72607	-0.62963	-0.79195	-0.34879	57.76901	1.07017	142.00	9.69
94/ 2/25	2449409.0	-48.79219	29.44311	7.29687	-0.52572	-0.86396	-0.36767	57.45275	1.07610	148.89	7.30
94/ 2/26	2449409.5	-51.97307	23.38188	4.75779	-0.41210	-0.92371	-0.38116	57.18871	1.08090	155.78	4.77
94/ 2/26	2449410.0	-54.35664	16.96159	2.14679	-0.29061	-0.96977	-0.38886	56.98200	1.08449	162.67	2.16
94/ 2/27	2449410.5	-55.89662	10.27914	-0.49595	-0.16337	-1.00096	-0.39050	56.83607	1.08678	169.58	-0.50
94/ 2/27	2449411.0	-56.56184	3.43819	-3.12888	-0.03270	-1.01646	-0.38595	56.75256	1.08776	176.52	-3.16
94/ 2/28	2449411.5	-56.33743	-3.45332	-5.71016	0.09892	-1.01585	-0.37527	56.73128	1.08746	183.51	-5.78
94/ 2/28	2449412.0	-55.22543	-10.28595	-8.19874	0.22899	-0.99910	-0.35862	56.77031	1.08593	190.55	-8.30
94/ 3/ 1	2449412.5	-53.24465	-16.95147	-10.55537	0.35506	-0.96661	-0.33637	56.86616	1.08330	197.66	-10.70

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 3/ 1	2449413.0	-50.42998	-23.34560	-12.74356	0.47486	-0.91912	-0.30898	57.01402	1.07969	204.84	-12.92
94/ 3/ 2	2449413.5	-46.83114	-29.37037	-14.73042	0.58630	-0.85775	-0.27702	57.20804	1.07527	212.09	-14.92
94/ 3/ 2	2449414.0	-42.51095	-34.93622	-16.48723	0.68759	-0.78385	-0.24116	57.44170	1.07022	219.41	-16.68
94/ 3/ 3	2449414.5	-37.54336	-39.96356	-17.98994	0.77725	-0.69900	-0.20211	57.70812	1.06470	226.79	-18.16
94/ 3/ 3	2449415.0	-32.01128	-44.38397	-19.21943	0.85412	-0.60492	-0.16060	58.00039	1.05888	234.20	-19.35
94/ 3/ 4	2449415.5	-26.00444	-48.14090	-20.16160	0.91733	-0.50339	-0.11739	58.31181	1.05294	241.62	-20.23
94/ 3/ 4	2449416.0	-19.61725	-51.19004	-20.80730	0.96636	-0.39621	-0.07318	58.63617	1.04699	249.03	-20.78
94/ 3/ 5	2449416.5	-12.94686	-53.49926	-21.15222	1.00094	-0.28519	-0.02868	58.96786	1.04117	256.40	-21.02
94/ 3/ 5	2449417.0	-6.09136	-55.04844	-21.19663	1.02104	-0.17206	0.01546	59.30204	1.03555	263.69	-20.94
94/ 3/ 6	2449417.5	0.85179	-55.82891	-20.94504	1.02687	-0.05847	0.05862	59.63462	1.03020	270.87	-20.56
94/ 3/ 6	2449418.0	7.78714	-55.84297	-20.40596	1.01882	0.05401	0.10026	59.96232	1.02516	277.94	-19.90
94/ 3/ 7	2449418.5	14.62243	-55.10311	-19.59145	0.99743	0.16392	0.13988	60.28261	1.02044	284.86	-18.97
94/ 3/ 7	2449419.0	21.26965	-53.63131	-18.51681	0.96340	0.26993	0.17701	60.59363	1.01604	291.63	-17.79
94/ 3/ 8	2449419.5	27.64586	-51.45822	-17.20017	0.91754	0.37081	0.21127	60.89407	1.01194	298.25	-16.41
94/ 3/ 8	2449420.0	33.67391	-48.62237	-15.66217	0.86076	0.46547	0.24233	61.18309	1.00811	304.70	-14.83
94/ 3/ 9	2449420.5	39.28309	-45.16930	-13.92556	0.79403	0.55292	0.26988	61.46013	1.00451	311.01	-13.10
94/ 3/ 9	2449421.0	44.40961	-41.15080	-12.01487	0.71841	0.63231	0.29369	61.72486	1.00109	317.18	-11.22
94/ 3/10	2449421.5	48.99698	-36.62398	-9.95608	0.63501	0.70291	0.31359	61.97696	0.99782	323.22	-9.24
94/ 3/10	2449422.0	52.99637	-31.65053	-7.77621	0.54497	0.76411	0.32942	62.21608	0.99467	329.15	-7.18
94/ 3/11	2449422.5	56.36676	-26.29583	-5.50309	0.44947	0.81542	0.34112	62.44171	0.99161	334.99	-5.06
94/ 3/11	2449423.0	59.07512	-20.62814	-3.16495	0.34968	0.85648	0.34862	62.65307	0.98862	340.75	-2.90
94/ 3/12	2449423.5	61.09641	-14.71782	-0.79019	0.24678	0.88703	0.35194	62.84911	0.98569	346.46	-0.72
94/ 3/12	2449424.0	62.41356	-8.63652	1.59298	0.14194	0.90695	0.35111	63.02840	0.98285	352.12	1.45
94/ 3/13	2449424.5	63.01734	-2.45649	3.95674	0.03631	0.91619	0.34622	63.18920	0.98010	357.77	3.59
94/ 3/13	2449425.0	62.90617	3.75013	6.27394	-0.06899	0.91482	0.33738	63.32939	0.97749	3.41	5.69
94/ 3/14	2449425.5	62.08591	9.91197	8.51830	-0.17290	0.90300	0.32474	63.44658	0.97507	9.07	7.72
94/ 3/14	2449426.0	60.56954	15.95897	10.66462	-0.27438	0.88096	0.30847	63.53812	0.97289	14.76	9.66
94/ 3/15	2449426.5	58.37689	21.82294	12.68897	-0.37245	0.84901	0.28876	63.60120	0.97104	20.50	11.51
94/ 3/15	2449427.0	55.53427	27.43805	14.56879	-0.46616	0.80753	0.26583	63.63294	0.96958	26.29	13.24
94/ 3/16	2449427.5	52.07416	32.74117	16.28307	-0.55464	0.75696	0.23991	63.63050	0.96860	32.16	14.83
94/ 3/16	2449428.0	48.03490	37.67234	17.81243	-0.63705	0.69778	0.21126	63.59119	0.96818	38.11	16.27
94/ 3/17	2449428.5	43.46033	42.17505	19.13924	-0.71258	0.63053	0.18014	63.51256	0.96840	44.14	17.54
94/ 3/17	2449429.0	38.39957	46.19655	20.24769	-0.78049	0.55579	0.14683	63.39257	0.96934	50.27	18.63
94/ 3/18	2449429.5	32.90674	49.68819	21.12392	-0.84005	0.47418	0.11162	63.22966	0.97108	56.48	19.52
94/ 3/18	2449430.0	27.04071	52.60572	21.75609	-0.89058	0.38637	0.07481	63.02292	0.97366	62.80	20.19
94/ 3/19	2449430.5	20.86493	54.90961	22.13447	-0.93141	0.29310	0.03674	62.77217	0.97713	69.19	20.65
94/ 3/19	2449431.0	14.44724	56.56544	22.25164	-0.96191	0.19515	-0.00226	62.47806	0.98151	75.67	20.86
94/ 3/20	2449431.5	7.85964	57.54439	22.10254	-0.98149	0.09337	-0.04182	62.14220	0.98680	82.22	20.83
94/ 3/20	2449432.0	1.17810	57.82365	21.68471	-0.98956	-0.01130	-0.08155	61.76722	0.99298	88.83	20.55
94/ 3/21	2449432.5	-5.51775	57.38712	20.99848	-0.98563	-0.11782	-0.12101	61.35685	1.00000	95.49	20.01
94/ 3/21	2449433.0	-12.14501	56.22600	20.04713	-0.96924	-0.22507	-0.15975	60.91594	1.00777	102.19	19.21
94/ 3/22	2449433.5	-18.61800	54.33959	18.83721	-0.94003	-0.33178	-0.19728	60.45048	1.01619	108.91	18.16
94/ 3/22	2449434.0	-24.84900	51.73603	17.37871	-0.89775	-0.43659	-0.23307	59.96757	1.02513	115.66	16.85
94/ 3/23	2449434.5	-30.74911	48.43320	15.68533	-0.84232	-0.53801	-0.26654	59.47531	1.03441	122.41	15.29
94/ 3/23	2449435.0	-36.22950	44.45944	13.77469	-0.77384	-0.63444	-0.29712	58.98272	1.04385	129.18	13.51

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM					MOON		
94/ 3/24	2449435.5	-41.20281	39.85434	11.66845	-0.69267	-0.72416	-0.32420	58.49951	1.05323	135.95	11.51
94/ 3/24	2449436.0	-45.58502	34.66919	9.39237	-0.59943	-0.80542	-0.34717	58.03588	1.06233	142.75	9.31
94/ 3/25	2449436.5	-49.29745	28.96727	6.97628	-0.49507	-0.87646	-0.36546	57.60217	1.07091	149.56	6.96
94/ 3/25	2449437.0	-52.26907	22.82373	4.45376	-0.38092	-0.93556	-0.37851	57.20852	1.07872	156.41	4.47
94/ 3/26	2449437.5	-54.43896	16.32486	1.86181	-0.25863	-0.98114	-0.38589	56.86447	1.08556	163.31	1.88
94/ 3/26	2449438.0	-55.75865	9.56698	-0.75987	-0.13022	-1.01184	-0.38724	56.57855	1.09121	170.26	-0.77
94/ 3/27	2449438.5	-56.19434	2.65464	-3.36966	0.00200	-1.02660	-0.38236	56.35784	1.09550	177.30	-3.43
94/ 3/27	2449439.0	-55.72872	-4.30176	-5.92506	0.13549	-1.02477	-0.37119	56.20767	1.09831	184.41	-6.05
94/ 3/28	2449439.5	-54.36219	-11.18874	-8.38384	0.26758	-1.00611	-0.35386	56.13131	1.09958	191.63	-8.59
94/ 3/28	2449440.0	-52.11338	-17.89286	-10.70521	0.39557	-0.97085	-0.33068	56.12985	1.09926	198.95	-10.99
94/ 3/29	2449440.5	-49.01889	-24.30389	-12.85100	0.51689	-0.91972	-0.30211	56.20212	1.09742	206.37	-13.22
94/ 3/29	2449441.0	-45.13220	-30.31798	-14.78674	0.62913	-0.85386	-0.26877	56.34486	1.09413	213.89	-15.21
94/ 3/30	2449441.5	-40.52191	-35.84031	-16.48255	0.73025	-0.77479	-0.23138	56.55287	1.08954	221.49	-16.95
94/ 3/30	2449442.0	-35.26937	-40.78739	-17.91374	0.81853	-0.68431	-0.19077	56.81938	1.08382	229.15	-18.38
94/ 3/31	2449442.5	-29.46603	-45.08868	-19.06127	0.89272	-0.58444	-0.14776	57.13640	1.07719	236.83	-19.49
94/ 3/31	2449443.0	-23.21058	-48.68758	-19.91183	0.95193	-0.47725	-0.10322	57.49516	1.06986	244.51	-20.26
94/ 4/ 1	2449443.5	-16.60617	-51.54180	-20.45784	0.99572	-0.36488	-0.05796	57.88648	1.06205	252.14	-20.70
94/ 4/ 1	2449444.0	-9.75782	-53.62319	-20.69711	1.02398	-0.24938	-0.01276	58.30122	1.05398	259.69	-20.79
94/ 4/ 2	2449444.5	-2.77012	-54.91721	-20.63248	1.03692	-0.13269	0.03167	58.73051	1.04586	267.11	-20.57
94/ 4/ 2	2449445.0	4.25467	-55.42201	-20.27134	1.03503	-0.01662	0.07469	59.16611	1.03785	274.39	-20.04
94/ 4/ 3	2449445.5	11.21822	-55.14740	-19.62511	1.01896	0.09721	0.11576	59.60058	1.03012	281.50	-19.22
94/ 4/ 3	2449446.0	18.02733	-54.11363	-18.70871	0.98957	0.20733	0.15440	60.02737	1.02278	288.42	-18.16
94/ 4/ 4	2449446.5	24.59483	-52.35027	-17.54003	0.94779	0.31245	0.19020	60.44096	1.01592	295.16	-16.87
94/ 4/ 4	2449447.0	30.84026	-49.89504	-16.13945	0.89464	0.41146	0.22283	60.83682	1.00962	301.72	-15.38
94/ 4/ 5	2449447.5	36.69029	-46.79270	-14.52944	0.83121	0.50339	0.25201	61.21142	1.00390	308.10	-13.73
94/ 4/ 5	2449448.0	42.07901	-43.09404	-12.73409	0.75861	0.58742	0.27752	61.56214	0.99878	314.32	-11.94
94/ 4/ 6	2449448.5	46.94813	-38.85499	-10.77882	0.67796	0.66286	0.29920	61.88716	0.99425	320.39	-10.03
94/ 4/ 6	2449449.0	51.24701	-34.13576	-8.69003	0.59041	0.72913	0.31693	62.18539	0.99028	326.33	-8.03
94/ 4/ 7	2449449.5	54.93276	-29.00007	-6.49480	0.49710	0.78577	0.33063	62.45634	0.98684	332.17	-5.97
94/ 4/ 7	2449450.0	57.97019	-23.51441	-4.22062	0.39916	0.83242	0.34024	62.69995	0.98387	337.92	-3.86
94/ 4/ 8	2449450.5	60.33179	-17.74741	-1.89520	0.29772	0.86881	0.34576	62.91651	0.98133	343.61	-1.73
94/ 4/ 8	2449451.0	61.99768	-11.76921	0.45384	0.19390	0.89477	0.34722	63.10652	0.97917	349.25	0.41
94/ 4/ 9	2449451.5	62.95549	-5.65079	2.79915	0.08881	0.91020	0.34467	63.27054	0.97732	354.87	2.54
94/ 4/ 9	2449452.0	63.20028	0.53654	5.11386	-0.01647	0.91512	0.33820	63.40911	0.97576	0.49	4.63
94/ 4/10	2449452.5	62.73436	6.72177	7.37177	-0.12088	0.90960	0.32792	63.52264	0.97443	6.12	6.66
94/ 4/10	2449453.0	61.56717	12.83470	9.54758	-0.22338	0.89381	0.31398	63.61133	0.97333	11.78	8.63
94/ 4/11	2449453.5	59.71504	18.80649	11.61703	-0.32297	0.86797	0.29655	63.67516	0.97243	17.48	10.51
94/ 4/11	2449454.0	57.20103	24.57018	13.55711	-0.41867	0.83241	0.27581	63.71378	0.97174	23.25	12.29
94/ 4/12	2449454.5	54.05462	30.06117	15.34618	-0.50956	0.78752	0.25199	63.72661	0.97125	29.08	13.93
94/ 4/12	2449455.0	50.31147	35.21773	16.96416	-0.59474	0.73374	0.22533	63.71276	0.97101	34.99	15.44
94/ 4/13	2449455.5	46.01311	39.98142	18.39269	-0.67338	0.67160	0.19609	63.67112	0.97105	40.99	16.79
94/ 4/13	2449456.0	41.20659	44.29753	19.61520	-0.74467	0.60167	0.16455	63.60040	0.97140	47.07	17.96
94/ 4/14	2449456.5	35.94418	48.11549	20.61709	-0.80788	0.52461	0.13099	63.49921	0.97213	53.24	18.95
94/ 4/14	2449457.0	30.28298	51.38923	21.38581	-0.86231	0.44109	0.09575	63.36612	0.97330	59.49	19.72
94/ 4/15	2449457.5	24.28463	54.07755	21.91098	-0.90734	0.35187	0.05913	63.19981	0.97497	65.82	20.29

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 4/15	2449458.0	18.01490	56.14448	22.18450	-0.94236	0.25774	0.02149	62.99914	0.97720	72.21	20.62
94/ 4/16	2449458.5	11.54337	57.55967	22.20064	-0.96684	0.15956	-0.01681	62.76331	0.98006	78.66	20.72
94/ 4/16	2449459.0	4.94306	58.29871	21.95615	-0.98031	0.05823	-0.05540	62.49196	0.98360	85.15	20.57
94/ 4/17	2449459.5	-1.70995	58.34355	21.45038	-0.98234	-0.04527	-0.09389	62.18531	0.98785	91.68	20.18
94/ 4/17	2449460.0	-8.33694	57.68295	20.68543	-0.97257	-0.14990	-0.13187	61.84428	0.99285	98.22	19.54
94/ 4/18	2449460.5	-14.85700	56.31290	19.66621	-0.95072	-0.25457	-0.16890	61.47058	0.99860	104.78	18.66
94/ 4/18	2449461.0	-21.18759	54.23712	18.40067	-0.91660	-0.35809	-0.20453	61.06688	1.00509	111.34	17.54
94/ 4/19	2449461.5	-27.24515	51.46768	16.89989	-0.87009	-0.45919	-0.23829	60.63684	1.01228	117.90	16.18
94/ 4/19	2449462.0	-32.94590	48.02546	15.17823	-0.81125	-0.55653	-0.26967	60.18518	1.02008	124.45	14.61
94/ 4/20	2449462.5	-38.20682	43.94078	13.25350	-0.74026	-0.64866	-0.29817	59.71774	1.02842	131.01	12.82
94/ 4/20	2449463.0	-42.94675	39.25389	11.14702	-0.65749	-0.73410	-0.32325	59.24143	1.03715	137.57	10.85
94/ 4/21	2449463.5	-47.08784	34.01538	8.88367	-0.56354	-0.81129	-0.34440	58.76419	1.04612	144.16	8.70
94/ 4/21	2449464.0	-50.55708	28.28649	6.49189	-0.45927	-0.87865	-0.36109	58.29484	1.05515	150.77	6.39
94/ 4/22	2449464.5	-53.28823	22.13907	4.00352	-0.34580	-0.93462	-0.37285	57.84290	1.06400	157.44	3.97
94/ 4/22	2449465.0	-55.22376	15.65531	1.45351	-0.22460	-0.97772	-0.37923	57.41834	1.07247	164.17	1.45
94/ 4/23	2449465.5	-56.31707	8.92702	-1.12049	-0.09742	-1.00662	-0.37988	57.03122	1.08032	170.99	-1.13
94/ 4/23	2449466.0	-56.53456	2.05437	-3.67877	0.03366	-1.02019	-0.37455	56.69136	1.08730	177.92	-3.72
94/ 4/24	2449466.5	-55.85762	-4.85587	-6.18037	0.16629	-1.01761	-0.36313	56.40789	1.09319	184.97	-6.29
94/ 4/24	2449467.0	-54.28420	-11.69261	-8.58404	0.29794	-0.99845	-0.34566	56.18877	1.09779	192.16	-8.79
94/ 4/25	2449467.5	-51.83000	-18.34318	-10.84937	0.42594	-0.96268	-0.32233	56.04044	1.10094	199.49	-11.16
94/ 4/25	2449468.0	-48.52880	-24.69648	-12.93793	0.54761	-0.91078	-0.29354	55.96741	1.10252	206.97	-13.37
94/ 4/26	2449468.5	-44.43214	-30.64611	-14.81447	0.66042	-0.84368	-0.25983	55.97202	1.10248	214.60	-15.35
94/ 4/26	2449469.0	-39.60809	-36.09363	-16.44796	0.76204	-0.76277	-0.22189	56.05431	1.10080	222.34	-17.06
94/ 4/27	2449469.5	-34.13932	-40.95130	-17.81249	0.85051	-0.66982	-0.18055	56.21198	1.09755	230.18	-18.47
94/ 4/27	2449470.0	-28.12049	-45.14443	-18.88795	0.92425	-0.56690	-0.13668	56.44055	1.09284	238.08	-19.55
94/ 4/28	2449470.5	-21.65524	-48.61303	-19.66033	0.98219	-0.45626	-0.09121	56.73363	1.08683	245.99	-20.28
94/ 4/28	2449471.0	-14.85295	-51.31270	-20.12187	1.02371	-0.34023	-0.04504	57.08321	1.07971	253.86	-20.64
94/ 4/29	2449471.5	-7.82562	-53.21483	-20.27086	1.04865	-0.22113	0.00095	57.48014	1.07171	261.63	-20.65
94/ 4/29	2449472.0	-0.68495	-54.30618	-20.11123	1.05725	-0.10117	0.04597	57.91452	1.06308	269.28	-20.32
94/ 4/30	2449472.5	6.46022	-54.58789	-19.65202	1.05010	0.01762	0.08930	58.37614	1.05404	276.75	-19.67
94/ 4/30	2449473.0	13.50593	-54.07422	-18.90672	1.02805	0.13342	0.13035	58.85487	1.04483	284.02	-18.74
94/ 5/ 1	2449473.5	20.35474	-52.79100	-17.89260	0.99214	0.24462	0.16861	59.34096	1.03567	291.09	-17.55
94/ 5/ 1	2449474.0	26.91677	-50.77407	-16.63000	0.94357	0.34987	0.20366	59.82537	1.02675	297.93	-16.14
94/ 5/ 2	2449474.5	33.11048	-48.06770	-15.14174	0.88360	0.44804	0.23520	60.29991	1.01823	304.56	-14.54
94/ 5/ 2	2449475.0	38.86304	-44.72310	-13.45254	0.81352	0.53819	0.26297	60.75741	1.01026	310.99	-12.79
94/ 5/ 3	2449475.5	44.11046	-40.79716	-11.58845	0.73465	0.61960	0.28681	61.19177	1.00293	317.23	-10.92
94/ 5/ 3	2449476.0	48.79751	-36.35119	-9.57652	0.64826	0.69167	0.30661	61.59802	0.99632	323.32	-8.94
94/ 5/ 4	2449476.5	52.87762	-31.44996	-7.44437	0.55563	0.75397	0.32231	61.97226	0.99049	329.26	-6.90
94/ 5/ 4	2449477.0	56.31258	-26.16081	-5.21990	0.45795	0.80617	0.33387	62.31166	0.98545	335.08	-4.81
94/ 5/ 5	2449477.5	59.07231	-20.55292	-2.93105	0.35643	0.84806	0.34132	62.61431	0.98120	340.82	-2.68
94/ 5/ 5	2449478.0	61.13457	-14.69666	-0.60560	0.25218	0.87950	0.34469	62.87920	0.97772	346.48	-0.55
94/ 5/ 6	2449478.5	62.48470	-8.66305	1.72907	0.14632	0.90043	0.34406	63.10607	0.97497	352.11	1.57
94/ 5/ 6	2449479.0	63.11542	-2.52326	4.04608	0.03992	0.91086	0.33950	63.29529	0.97289	357.71	3.67
94/ 5/ 7	2449479.5	63.02657	3.65184	6.31925	-0.06599	0.91088	0.33113	63.44776	0.97144	3.32	5.72
94/ 5/ 7	2449480.0	62.22497	9.79213	8.52320	-0.17039	0.90061	0.31908	63.56475	0.97054	8.94	7.71

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/ 5/ 8	2449480.5	60.72417	15.82866	10.63356	-0.27229	0.88027	0.30352	63.64782	0.97013	14.61	9.62
94/ 5/ 8	2449481.0	58.54435	21.69407	12.62705	-0.37074	0.85013	0.28460	63.69863	0.97014	20.33	11.43
94/ 5/ 9	2449481.5	55.71208	27.32299	14.48163	-0.46480	0.81051	0.26254	63.71891	0.97051	26.12	13.14
94/ 5/ 9	2449482.0	52.26018	32.65256	16.17670	-0.55356	0.76180	0.23754	63.71029	0.97118	32.00	14.71
94/ 5/10	2449482.5	48.22750	37.62280	17.69319	-0.63616	0.70448	0.20984	63.67429	0.97212	37.96	16.13
94/ 5/10	2449483.0	43.65872	42.17710	19.01373	-0.71174	0.63908	0.17972	63.61222	0.97329	44.01	17.39
94/ 5/11	2449483.5	38.60403	46.26274	20.12284	-0.77951	0.56619	0.14746	63.52512	0.97466	50.16	18.47
94/ 5/11	2449484.0	33.11886	49.83128	21.00701	-0.83874	0.48650	0.11336	63.41380	0.97622	56.39	19.35
94/ 5/12	2449484.5	27.26350	52.83909	21.65493	-0.88872	0.40074	0.07775	63.27878	0.97798	62.71	20.01
94/ 5/12	2449485.0	21.10271	55.24776	22.05753	-0.92883	0.30972	0.04098	63.12032	0.97996	69.09	20.45
94/ 5/13	2449485.5	14.70529	57.02456	22.20817	-0.95850	0.21430	0.00341	62.93846	0.98218	75.54	20.66
94/ 5/13	2449486.0	8.14358	58.14285	22.10276	-0.97726	0.11542	-0.03457	62.73309	0.98466	82.03	20.63
94/ 5/14	2449486.5	1.49297	58.58248	21.73981	-0.98470	0.01407	-0.07257	62.50404	0.98747	88.54	20.35
94/ 5/14	2449487.0	-5.16870	58.33017	21.12059	-0.98048	-0.08872	-0.11018	62.25113	0.99063	95.06	19.83
94/ 5/15	2449487.5	-11.76169	57.37990	20.24918	-0.96439	-0.19185	-0.14697	61.97434	0.99421	101.58	19.07
94/ 5/15	2449488.0	-18.20503	55.73323	19.13257	-0.93628	-0.29417	-0.18251	61.67391	0.99823	108.09	18.07
94/ 5/16	2449488.5	-24.41723	53.39966	17.78069	-0.89614	-0.39448	-0.21637	61.35045	1.00274	114.57	16.85
94/ 5/16	2449489.0	-30.31701	50.39690	16.20652	-0.84405	-0.49156	-0.24808	61.00508	1.00777	121.03	15.41
94/ 5/17	2449489.5	-35.82411	46.75122	14.42607	-0.78023	-0.58412	-0.27720	60.63955	1.01331	127.46	13.76
94/ 5/17	2449490.0	-40.86030	42.49764	12.45848	-0.70506	-0.67085	-0.30327	60.25634	1.01937	133.87	11.93
94/ 5/18	2449490.5	-45.35032	37.68023	10.32592	-0.61906	-0.75039	-0.32584	59.85880	1.02591	140.28	9.93
94/ 5/18	2449491.0	-49.22313	32.35216	8.05363	-0.52294	-0.82141	-0.34446	59.45116	1.03288	146.68	7.79
94/ 5/19	2449491.5	-52.41313	26.57578	5.66980	-0.41760	-0.88256	-0.35871	59.03859	1.04018	153.11	5.51
94/ 5/19	2449492.0	-54.86165	20.42242	3.20538	-0.30419	-0.93252	-0.36819	58.62721	1.04770	159.58	3.13
94/ 5/20	2449492.5	-56.51843	13.97209	0.69384	-0.18406	-0.97005	-0.37257	58.22400	1.05531	166.11	0.68
94/ 5/20	2449493.0	-57.34331	7.31280	-1.82917	-0.05882	-0.99405	-0.37154	57.83665	1.06284	172.73	-1.81
94/ 5/21	2449493.5	-57.30783	0.53962	-4.32632	0.06967	-1.00354	-0.36491	57.47343	1.07010	179.46	-4.32
94/ 5/21	2449494.0	-56.39682	-6.24664	-6.75923	0.19935	-0.99781	-0.35256	57.14289	1.07688	186.32	-6.79
94/ 5/22	2449494.5	-54.60987	-12.94120	-9.08920	0.32794	-0.97642	-0.33452	56.85355	1.08298	193.33	-9.20
94/ 5/22	2449495.0	-51.96238	-19.43744	-11.27811	0.45305	-0.93926	-0.31094	56.61359	1.08819	200.51	-11.49
94/ 5/23	2449495.5	-48.48627	-25.62937	-13.28939	0.57222	-0.88664	-0.28213	56.43041	1.09232	207.86	-13.62
94/ 5/23	2449496.0	-44.23007	-31.41444	-15.08901	0.68301	-0.81927	-0.24853	56.31025	1.09521	215.38	-15.54
94/ 5/24	2449496.5	-39.25835	-36.69633	-16.64656	0.78314	-0.73828	-0.21076	56.25786	1.09672	223.07	-17.21
94/ 5/24	2449497.0	-33.65047	-41.38782	-17.93609	0.87055	-0.64521	-0.16952	56.27618	1.09677	230.89	-18.59
94/ 5/25	2449497.5	-27.49861	-45.41323	-18.93696	0.94352	-0.54193	-0.12566	56.36616	1.09532	238.80	-19.63
94/ 5/25	2449498.0	-20.90525	-48.71057	-19.63438	1.00074	-0.43059	-0.08007	56.52661	1.09238	246.77	-20.33
94/ 5/26	2449498.5	-13.98022	-51.23298	-20.01972	1.04136	-0.31350	-0.03366	56.75433	1.08804	254.74	-20.66
94/ 5/26	2449499.0	-6.83754	-52.94952	-20.09055	1.06499	-0.19302	0.01266	57.04414	1.08241	262.64	-20.62
94/ 5/27	2449499.5	0.40773	-53.84529	-19.85044	1.07170	-0.07151	0.05802	57.38921	1.07565	270.43	-20.24
94/ 5/27	2449500.0	7.64241	-53.92086	-19.30852	1.06197	0.04882	0.10166	57.78135	1.06794	278.07	-19.52
94/ 5/28	2449500.5	14.75781	-53.19120	-18.47887	1.03664	0.16595	0.14288	58.21139	1.05951	285.51	-18.51
94/ 5/28	2449501.0	21.65179	-51.68421	-17.37984	0.99679	0.27809	0.18112	58.66955	1.05059	292.73	-17.23
94/ 5/29	2449501.5	28.23037	-49.43897	-16.03324	0.94373	0.38372	0.21592	59.14584	1.04138	299.73	-15.73
94/ 5/29	2449502.0	34.40876	-46.50400	-14.46363	0.87886	0.48158	0.24692	59.63037	1.03213	306.50	-14.04
94/ 5/30	2449502.5	40.11205	-42.93540	-12.69761	0.80368	0.57067	0.27388	60.11368	1.02303	313.05	-12.19

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 5/30	2449503.0	45.27539	-38.79526	-10.76317	0.71967	0.65024	0.29663	60.58695	1.01426	319.41	-10.23
94/ 5/31	2449503.5	49.84397	-34.15008	-8.68915	0.62829	0.71973	0.31509	61.04221	1.00600	325.58	-8.18
94/ 5/31	2449504.0	53.77275	-29.06956	-6.50479	0.53097	0.77875	0.32922	61.47243	0.99838	331.60	-6.07
94/ 6/ 1	2449504.5	57.02605	-23.62543	-4.23934	0.42905	0.82707	0.33904	61.87167	0.99150	337.50	-3.93
94/ 6/ 1	2449505.0	59.57714	-17.89058	-1.92177	0.32382	0.86458	0.34462	62.23505	0.98546	343.29	-1.77
94/ 6/ 2	2449505.5	61.40768	-11.93833	0.41945	0.21648	0.89127	0.34604	62.55880	0.98029	349.00	0.38
94/ 6/ 2	2449506.0	62.50732	-5.84180	2.75655	0.10817	0.90720	0.34342	62.84020	0.97604	354.66	2.51
94/ 6/ 3	2449506.5	62.87322	0.32653	5.06259	-0.00002	0.91250	0.33689	63.07755	0.97271	0.30	4.60
94/ 6/ 3	2449507.0	62.50967	6.49525	7.31158	-0.10706	0.90735	0.32660	63.27010	0.97027	5.93	6.64
94/ 6/ 4	2449507.5	61.42780	12.59437	9.47860	-0.21197	0.89199	0.31272	63.41795	0.96869	11.59	8.60
94/ 6/ 4	2449508.0	59.64527	18.55560	11.53986	-0.31380	0.86669	0.29541	63.52194	0.96793	17.28	10.47
94/ 6/ 5	2449508.5	57.18608	24.31274	13.47284	-0.41164	0.83178	0.27487	63.58360	0.96791	23.03	12.23
94/ 6/ 5	2449509.0	54.08033	29.80191	15.25636	-0.50458	0.78763	0.25131	63.60497	0.96856	28.86	13.88
94/ 6/ 6	2449509.5	50.36409	34.96196	16.87070	-0.59177	0.73467	0.22495	63.58853	0.96981	34.77	15.39
94/ 6/ 6	2449510.0	46.07922	39.73481	18.29772	-0.67236	0.67338	0.19604	63.53704	0.97156	40.77	16.74
94/ 6/ 7	2449510.5	41.27319	44.06584	19.52103	-0.74553	0.60430	0.16484	63.45349	0.97374	46.87	17.92
94/ 6/ 7	2449511.0	35.99890	47.90438	20.52607	-0.81050	0.52805	0.13163	63.34090	0.97626	53.08	18.91
94/ 6/ 8	2449511.5	30.31444	51.20413	21.30032	-0.86653	0.44532	0.09674	63.20231	0.97905	59.37	19.70
94/ 6/ 8	2449512.0	24.28281	53.92370	21.83343	-0.91291	0.35687	0.06049	63.04062	0.98205	65.76	20.26
94/ 6/ 9	2449512.5	17.97152	56.02715	22.11742	-0.94901	0.26353	0.02324	62.85855	0.98519	72.22	20.60
94/ 6/ 9	2449513.0	11.45220	57.48446	22.14682	-0.97425	0.16622	-0.01463	62.65858	0.98844	78.73	20.70
94/ 6/10	2449513.5	4.80003	58.27209	21.91879	-0.98816	0.06595	-0.05271	62.44286	0.99176	85.29	20.55
94/ 6/10	2449514.0	-1.90681	58.37348	21.43333	-0.99034	-0.03624	-0.09058	62.21324	0.99514	91.87	20.15
94/ 6/11	2449514.5	-8.58790	57.77948	20.69331	-0.98052	-0.13920	-0.12780	61.97123	0.99856	98.45	19.51
94/ 6/11	2449515.0	-15.16127	56.48875	19.70463	-0.95852	-0.24177	-0.16393	61.71804	1.00204	105.02	18.62
94/ 6/12	2449515.5	-21.54430	54.50819	18.47624	-0.92431	-0.34270	-0.19851	61.45462	1.00559	111.57	17.50
94/ 6/12	2449516.0	-27.65460	51.85310	17.02019	-0.87801	-0.44074	-0.23108	61.18176	1.00923	118.07	16.15
94/ 6/13	2449516.5	-33.41100	48.54747	15.35162	-0.81987	-0.53459	-0.26119	60.90011	1.01301	124.54	14.60
94/ 6/13	2449517.0	-38.73458	44.62404	13.48873	-0.75028	-0.62295	-0.28839	60.61038	1.01694	130.96	12.86
94/ 6/14	2449517.5	-43.54971	40.12432	11.45267	-0.66983	-0.70455	-0.31225	60.31337	1.02106	137.34	10.95
94/ 6/14	2449518.0	-47.78519	35.09850	9.26747	-0.57925	-0.77810	-0.33236	60.01013	1.02540	143.70	8.88
94/ 6/15	2449518.5	-51.37537	29.60523	6.95983	-0.47945	-0.84238	-0.34835	59.70208	1.02996	150.05	6.69
94/ 6/15	2449519.0	-54.26137	23.71130	4.55893	-0.37151	-0.89622	-0.35985	59.39112	1.03476	156.40	4.40
94/ 6/16	2449519.5	-56.39221	17.49113	2.09616	-0.25668	-0.93854	-0.36657	59.07973	1.03977	162.77	2.03
94/ 6/16	2449520.0	-57.72608	11.02619	-0.39524	-0.13642	-0.96835	-0.36826	58.77103	1.04496	169.19	-0.39
94/ 6/17	2449520.5	-58.23150	4.40409	-2.88051	-0.01233	-0.98482	-0.36474	58.46880	1.05026	175.67	-2.82
94/ 6/17	2449521.0	-57.88845	-2.28238	-5.32392	0.11382	-0.98727	-0.35589	58.17754	1.05561	182.26	-5.25
94/ 6/18	2449521.5	-56.68943	-8.93657	-7.68924	0.24010	-0.97523	-0.34169	57.90232	1.06088	188.96	-7.63
94/ 6/18	2449522.0	-54.64037	-15.45945	-9.94043	0.36448	-0.94847	-0.32221	57.64874	1.06596	195.80	-9.93
94/ 6/19	2449522.5	-51.76132	-21.75135	-12.04229	0.48483	-0.90706	-0.29763	57.42275	1.07070	202.79	-12.11
94/ 6/19	2449523.0	-48.08683	-27.71398	-13.96126	0.59901	-0.85133	-0.26826	57.23045	1.07495	209.96	-14.12
94/ 6/20	2449523.5	-43.66601	-33.25249	-15.66614	0.70487	-0.78196	-0.23450	57.07782	1.07856	217.29	-15.93
94/ 6/20	2449524.0	-38.56208	-38.27782	-17.12899	0.80040	-0.69998	-0.19688	56.97042	1.08138	224.79	-17.50
94/ 6/21	2449524.5	-32.85149	-42.70889	-18.32580	0.88372	-0.60673	-0.15605	56.91313	1.08325	232.43	-18.78
94/ 6/21	2449525.0	-26.62249	-46.47476	-19.23724	0.95324	-0.50385	-0.11274	56.90985	1.08408	240.19	-19.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/ 6/22	2449525.5	-19.97322	-49.51656	-19.84914	1.00764	-0.39325	-0.06774	56.96322	1.08377	248.03	-20.39
94/ 6/22	2449526.0	-13.00943	-51.78901	-20.15298	1.04599	-0.27703	-0.02191	57.07442	1.08228	255.90	-20.68
94/ 6/23	2449526.5	-5.84180	-53.26144	-20.14596	1.06778	-0.15739	0.02391	57.24305	1.07958	263.74	-20.61
94/ 6/23	2449527.0	1.41683	-53.91833	-19.83105	1.07288	-0.03658	0.06887	57.46707	1.07571	271.51	-20.19
94/ 6/24	2449527.5	8.65421	-53.75925	-19.21674	1.06158	0.08321	0.11219	57.74284	1.07073	279.15	-19.44
94/ 6/24	2449528.0	15.76136	-52.79824	-18.31659	1.03456	0.19990	0.15317	58.06524	1.06477	286.62	-18.39
94/ 6/25	2449528.5	22.63483	-51.06273	-17.14866	0.99277	0.31161	0.19117	58.42785	1.05794	293.91	-17.07
94/ 6/25	2449529.0	29.17867	-48.59211	-15.73486	0.93744	0.41671	0.22570	58.82324	1.05042	300.98	-15.52
94/ 6/26	2449529.5	35.30586	-45.43607	-14.10018	0.86998	0.51381	0.25634	59.24319	1.04239	307.85	-13.77
94/ 6/26	2449530.0	40.93935	-41.65280	-12.27200	0.79191	0.60177	0.28280	59.67904	1.03403	314.51	-11.87
94/ 6/27	2449530.5	46.01259	-37.30717	-10.27931	0.70481	0.67974	0.30489	60.12194	1.02555	320.96	-9.84
94/ 6/27	2449531.0	50.46975	-32.46909	-8.15218	0.61025	0.74710	0.32249	60.56315	1.01713	327.25	-7.74
94/ 6/28	2449531.5	54.26558	-27.21193	-5.92109	0.50977	0.80344	0.33558	60.99427	1.00896	333.37	-5.57
94/ 6/28	2449532.0	57.36507	-21.61117	-3.61653	0.40486	0.84854	0.34419	61.40744	1.00120	339.36	-3.38
94/ 6/29	2449532.5	59.74297	-15.74328	-1.26861	0.29692	0.88232	0.34841	61.79549	0.99400	345.24	-1.18
94/ 6/29	2449533.0	61.38319	-9.68477	1.09328	0.18724	0.90484	0.34834	62.15212	0.98749	351.03	1.01
94/ 6/30	2449533.5	62.27820	-3.51145	3.44065	0.07706	0.91626	0.34415	62.47193	0.98178	356.77	3.16
94/ 6/30	2449534.0	62.42844	2.70214	5.74610	-0.03250	0.91678	0.33599	62.75053	0.97695	2.48	5.25
94/ 7/ 1	2449534.5	61.84177	8.88323	7.98344	-0.14038	0.90671	0.32407	62.98453	0.97306	8.17	7.28
94/ 7/ 1	2449535.0	60.53297	14.96114	10.12779	-0.24558	0.88637	0.30857	63.17157	0.97014	13.88	9.23
94/ 7/ 2	2449535.5	58.52332	20.86755	12.15565	-0.34718	0.85613	0.28970	63.31030	0.96821	19.62	11.07
94/ 7/ 2	2449536.0	55.84029	26.53680	14.04493	-0.44428	0.81641	0.26768	63.40031	0.96725	25.42	12.80
94/ 7/ 3	2449536.5	52.51720	31.90607	15.77508	-0.53604	0.76763	0.24275	63.44215	0.96722	31.28	14.40
94/ 7/ 3	2449537.0	48.59305	36.91564	17.32708	-0.62164	0.71028	0.21512	63.43719	0.96809	37.22	15.85
94/ 7/ 4	2449537.5	44.11231	41.50918	18.68360	-0.70027	0.64487	0.18506	63.38758	0.96978	43.26	17.14
94/ 7/ 4	2449538.0	39.12479	45.63404	19.82905	-0.77116	0.57197	0.15284	63.29618	0.97221	49.39	18.26
94/ 7/ 5	2449538.5	33.68545	49.24158	20.74972	-0.83356	0.49222	0.11874	63.16639	0.97530	55.62	19.18
94/ 7/ 5	2449539.0	27.85425	52.28764	21.43389	-0.88675	0.40629	0.08306	63.00213	0.97893	61.96	19.89
94/ 7/ 6	2449539.5	21.69595	54.73299	21.87206	-0.93004	0.31497	0.04615	62.80765	0.98301	68.38	20.38
94/ 7/ 6	2449540.0	15.27981	56.54383	22.05701	-0.96279	0.21908	0.00835	62.58745	0.98743	74.88	20.64
94/ 7/ 7	2449540.5	8.67928	57.69239	21.98408	-0.98440	0.11956	-0.02994	62.34614	0.99209	81.44	20.65
94/ 7/ 7	2449541.0	1.97149	58.15751	21.65130	-0.99438	0.01744	-0.06831	62.08833	0.99688	88.06	20.41
94/ 7/ 8	2449541.5	-4.76332	57.92522	21.05959	-0.99232	-0.08618	-0.10632	61.81850	1.00171	94.70	19.92
94/ 7/ 8	2449542.0	-11.44247	56.98938	20.21290	-0.97791	-0.19011	-0.14352	61.54089	1.00651	101.35	19.17
94/ 7/ 9	2449542.5	-17.98176	55.35213	19.11836	-0.95100	-0.29309	-0.17943	61.25939	1.01119	108.00	18.19
94/ 7/ 9	2449543.0	-24.29639	53.02441	17.78635	-0.91158	-0.39378	-0.21356	60.97751	1.01570	114.62	16.96
94/ 7/10	2449543.5	-30.30208	50.02631	16.23059	-0.85982	-0.49082	-0.24542	60.69827	1.02001	121.20	15.51
94/ 7/10	2449544.0	-35.91628	46.38723	14.46808	-0.79605	-0.58282	-0.27453	60.42417	1.02408	127.75	13.85
94/ 7/11	2449544.5	-41.05945	42.14601	12.51907	-0.72083	-0.66840	-0.30042	60.15723	1.02791	134.25	12.01
94/ 7/11	2449545.0	-45.65639	37.35078	10.40688	-0.63489	-0.74620	-0.32265	59.89899	1.03150	140.71	10.01
94/ 7/12	2449545.5	-49.63755	32.05864	8.15771	-0.53917	-0.81492	-0.34081	59.65058	1.03487	147.14	7.86
94/ 7/12	2449546.0	-52.94043	26.33519	5.80035	-0.43480	-0.87336	-0.35454	59.41275	1.03804	153.55	5.60
94/ 7/13	2449546.5	-55.51076	20.25384	3.36586	-0.32309	-0.92044	-0.36354	59.18607	1.04103	159.95	3.26
94/ 7/13	2449547.0	-57.30374	13.89490	0.88710	-0.20552	-0.95519	-0.36757	58.97096	1.04390	166.37	0.86
94/ 7/14	2449547.5	-58.28509	7.34460	-1.60166	-0.08370	-0.97683	-0.36647	58.76785	1.04667	172.82	-1.56

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 7/14	2449548.0	-58.43194	0.69382	-4.06532	0.04060	-0.98478	-0.36015	58.57729	1.04935	179.32	-3.98
94/ 7/15	2449548.5	-57.73362	-5.96324	-6.46843	0.16555	-0.97864	-0.34860	58.40010	1.05198	185.90	-6.36
94/ 7/15	2449549.0	-56.19223	-12.53048	-8.77584	0.28924	-0.95825	-0.33191	58.23740	1.05454	192.57	-8.67
94/ 7/16	2449549.5	-53.82295	-18.91155	-10.95326	0.40970	-0.92369	-0.31025	58.09071	1.05703	199.36	-10.87
94/ 7/16	2449550.0	-50.65422	-25.01147	-12.96788	0.52498	-0.87530	-0.28389	57.96197	1.05941	206.28	-12.93
94/ 7/17	2449550.5	-46.72759	-30.73837	-14.78902	0.63319	-0.81366	-0.25319	57.85352	1.06164	213.34	-14.81
94/ 7/17	2449551.0	-42.09731	-36.00522	-16.38873	0.73247	-0.73962	-0.21859	57.76806	1.06364	220.54	-16.48
94/ 7/18	2449551.5	-36.82963	-40.73158	-17.74235	0.82113	-0.65426	-0.18062	57.70853	1.06534	227.88	-17.91
94/ 7/18	2449552.0	-31.00184	-44.84528	-18.82910	0.89763	-0.55894	-0.13989	57.67797	1.06664	235.34	-19.05
94/ 7/19	2449552.5	-24.70092	-48.28396	-19.63250	0.96064	-0.45521	-0.09706	57.67939	1.06746	242.91	-19.90
94/ 7/19	2449553.0	-18.02193	-50.99646	-20.14080	1.00912	-0.34481	-0.05287	57.71551	1.06771	250.54	-20.42
94/ 7/20	2449553.5	-11.06617	-52.94390	-20.34722	1.04227	-0.22962	-0.00805	57.78864	1.06730	258.19	-20.62
94/ 7/20	2449554.0	-3.93909	-54.10058	-20.25012	1.05966	-0.11164	0.03663	57.90040	1.06615	265.84	-20.47
94/ 7/21	2449554.5	3.25192	-54.45434	-19.85298	1.06116	0.00713	0.08043	58.05163	1.06423	273.42	-20.00
94/ 7/21	2449555.0	10.39982	-54.00670	-19.16428	1.04699	0.12468	0.12261	58.24216	1.06149	280.90	-19.21
94/ 7/22	2449555.5	17.40007	-52.77250	-18.19720	1.01767	0.23909	0.16253	58.47082	1.05794	288.25	-18.13
94/ 7/22	2449556.0	24.15277	-50.77918	-16.96920	0.97405	0.34856	0.19957	58.73530	1.05361	295.44	-16.79
94/ 7/23	2449556.5	30.56446	-48.06578	-15.50153	0.91717	0.45147	0.23322	59.03222	1.04854	302.45	-15.22
94/ 7/23	2449557.0	36.54966	-44.68160	-13.81860	0.84833	0.54642	0.26307	59.35719	1.04281	309.28	-13.46
94/ 7/24	2449557.5	42.03207	-40.68467	-11.94735	0.76895	0.63223	0.28878	59.70491	1.03653	315.93	-11.54
94/ 7/24	2449558.0	46.94540	-36.14020	-9.91664	0.68054	0.70797	0.31013	60.06933	1.02983	322.41	-9.50
94/ 7/25	2449558.5	51.23380	-31.11896	-7.75653	0.58468	0.77293	0.32697	60.44382	1.02283	328.73	-7.37
94/ 7/25	2449559.0	54.85206	-25.69567	-5.49782	0.48292	0.82663	0.33925	60.82139	1.01568	334.90	-5.19
94/ 7/26	2449559.5	57.76545	-19.94761	-3.17140	0.37679	0.86880	0.34697	61.19487	1.00855	340.95	-2.97
94/ 7/26	2449560.0	59.94941	-13.95332	-0.80791	0.26775	0.89934	0.35021	61.55712	1.00157	346.90	-0.75
94/ 7/27	2449560.5	61.38901	-7.79147	1.56270	0.15721	0.91830	0.34910	61.90121	0.99491	352.77	1.45
94/ 7/27	2449561.0	62.07842	-1.53995	3.91143	0.04644	0.92585	0.34378	62.22058	0.98871	358.58	3.60
94/ 7/28	2449561.5	62.02024	4.72487	6.21047	-0.06336	0.92228	0.33446	62.50923	0.98309	4.36	5.70
94/ 7/28	2449562.0	61.22487	10.92874	8.43337	-0.17107	0.90792	0.32134	62.76180	0.97818	10.12	7.72
94/ 7/29	2449562.5	59.70990	16.99999	10.55517	-0.27569	0.88319	0.30464	62.97367	0.97408	15.89	9.65
94/ 7/29	2449563.0	57.49960	22.86987	12.55245	-0.37625	0.84853	0.28461	63.14110	0.97086	21.69	11.47
94/ 7/30	2449563.5	54.62437	28.47282	14.40342	-0.47189	0.80445	0.26148	63.26122	0.96860	27.53	13.16
94/ 7/30	2449564.0	51.12041	33.74668	16.08798	-0.56178	0.75144	0.23551	63.33212	0.96733	33.43	14.72
94/ 7/31	2449564.5	47.02931	38.63287	17.58773	-0.64514	0.69007	0.20695	63.35284	0.96707	39.40	16.12
94/ 7/31	2449565.0	42.39784	43.07661	18.88604	-0.72122	0.62089	0.17607	63.32340	0.96782	45.45	17.35
94/ 8/ 1	2449565.5	37.27774	47.02711	19.96809	-0.78932	0.54452	0.14314	63.24479	0.96954	51.60	18.40
94/ 8/ 1	2449566.0	31.72549	50.43786	20.82099	-0.84872	0.46161	0.10845	63.11892	0.97220	57.83	19.26
94/ 8/ 2	2449566.5	25.80220	53.26690	21.43384	-0.89877	0.37287	0.07230	62.94859	0.97573	64.15	19.91
94/ 8/ 2	2449567.0	19.57345	55.47721	21.79786	-0.93882	0.27904	0.03503	62.73745	0.98003	70.57	20.33
94/ 8/ 3	2449567.5	13.10908	57.03718	21.90657	-0.96825	0.18097	-0.00303	62.48988	0.98502	77.06	20.52
94/ 8/ 3	2449568.0	6.48294	57.92110	21.75592	-0.98650	0.07957	-0.04149	62.21095	0.99057	83.61	20.47
94/ 8/ 4	2449568.5	-0.22746	58.10976	21.34451	-0.99305	-0.02416	-0.07996	61.90625	0.99655	90.22	20.17
94/ 8/ 4	2449569.0	-6.94138	57.59109	20.67377	-0.98747	-0.12911	-0.11800	61.58182	1.00284	96.87	19.62
94/ 8/ 5	2449569.5	-13.57549	56.36081	19.74814	-0.96944	-0.23409	-0.15515	61.24397	1.00930	103.54	18.81
94/ 8/ 5	2449570.0	-20.04467	54.42306	18.57529	-0.93875	-0.33779	-0.19092	60.89909	1.01577	110.22	17.76

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/ 8/ 6	2449570.5	-26.26292	51.79107	17.16625	-0.89535	-0.43886	-0.22481	60.55358	1.02214	116.89	16.47
94/ 8/ 6	2449571.0	-32.14454	48.48761	15.53552	-0.83938	-0.53583	-0.25629	60.21356	1.02828	123.54	14.95
94/ 8/ 7	2449571.5	-37.60545	44.54544	13.70112	-0.77119	-0.62722	-0.28486	59.88478	1.03406	130.17	13.23
94/ 8/ 7	2449572.0	-42.56468	40.00742	11.68453	-0.69135	-0.71152	-0.31001	59.57243	1.03939	136.77	11.31
94/ 8/ 8	2449572.5	-46.94597	34.92655	9.51060	-0.60068	-0.78727	-0.33125	59.28102	1.04420	143.35	9.23
94/ 8/ 8	2449573.0	-50.67939	29.36560	7.20727	-0.50024	-0.85306	-0.34815	59.01427	1.04841	149.91	7.01
94/ 8/ 9	2449573.5	-53.70303	23.39648	4.80528	-0.39133	-0.90760	-0.36033	58.77501	1.05200	156.46	4.69
94/ 8/ 9	2449574.0	-55.96453	17.09940	2.33768	-0.27546	-0.94974	-0.36748	58.56521	1.05495	163.01	2.29
94/ 8/10	2449574.5	-57.42251	10.56159	-0.16071	-0.15435	-0.97854	-0.36939	58.38594	1.05727	169.58	-0.16
94/ 8/10	2449575.0	-58.04773	3.87588	-2.65387	-0.02987	-0.99331	-0.36592	58.23748	1.05899	176.18	-2.61
94/ 8/11	2449575.5	-57.82400	-2.86097	-5.10530	0.09600	-0.99359	-0.35707	58.11939	1.06016	182.83	-5.04
94/ 8/11	2449576.0	-56.74877	-9.55008	-7.47871	0.22123	-0.97921	-0.34291	58.03066	1.06084	189.55	-7.40
94/ 8/12	2449576.5	-54.83337	-16.09234	-9.73872	0.34376	-0.95027	-0.32362	57.96986	1.06109	196.36	-9.67
94/ 8/12	2449577.0	-52.10292	-22.39030	-11.85153	0.46158	-0.90716	-0.29950	57.93530	1.06098	203.25	-11.80
94/ 8/13	2449577.5	-48.59590	-28.35006	-13.78561	0.57276	-0.85053	-0.27091	57.92521	1.06059	210.26	-13.77
94/ 8/13	2449578.0	-44.36344	-33.88298	-15.51224	0.67551	-0.78129	-0.23833	57.93791	1.05996	217.37	-15.53
94/ 8/14	2449578.5	-39.46833	-38.90736	-17.00608	0.76818	-0.70057	-0.20226	57.97188	1.05915	224.59	-17.06
94/ 8/14	2449579.0	-33.98380	-43.34983	-18.24557	0.84933	-0.60969	-0.16332	58.02592	1.05819	231.91	-18.33
94/ 8/15	2449579.5	-27.99213	-47.14661	-19.21330	0.91775	-0.51016	-0.12212	58.09916	1.05709	239.30	-19.31
94/ 8/15	2449580.0	-21.58306	-50.24456	-19.89626	0.97244	-0.40361	-0.07934	58.19111	1.05586	246.75	-19.99
94/ 8/16	2449580.5	-14.85217	-52.60195	-20.28604	1.01268	-0.29178	-0.03566	58.30159	1.05448	254.23	-20.36
94/ 8/16	2449581.0	-7.89908	-54.18907	-20.37887	1.03800	-0.17646	0.00823	58.43072	1.05293	261.71	-20.41
94/ 8/17	2449581.5	-0.82568	-54.98849	-20.17567	1.04820	-0.05948	0.05164	58.57878	1.05115	269.14	-20.15
94/ 8/17	2449582.0	6.26568	-54.99518	-19.68186	1.04334	0.05733	0.09393	58.74610	1.04913	276.50	-19.57
94/ 8/18	2449582.5	13.27396	-54.21633	-18.90726	1.02374	0.17219	0.13446	58.93296	1.04679	283.76	-18.71
94/ 8/18	2449583.0	20.10114	-52.67095	-17.86576	0.98997	0.28341	0.17265	59.13941	1.04412	290.89	-17.58
94/ 8/19	2449583.5	26.65381	-50.38917	-16.57498	0.94283	0.38939	0.20799	59.36518	1.04106	297.88	-16.21
94/ 8/19	2449584.0	32.84460	-47.41147	-15.05587	0.88329	0.48868	0.24001	59.60952	1.03760	304.71	-14.63
94/ 8/20	2449584.5	38.59345	-43.78757	-13.33224	0.81253	0.58001	0.26832	59.87114	1.03374	311.39	-12.87
94/ 8/20	2449585.0	43.82860	-39.57527	-11.43024	0.73183	0.66226	0.29263	60.14814	1.02947	317.92	-10.95
94/ 8/21	2449585.5	48.48746	-34.83921	-9.37787	0.64259	0.73454	0.31270	60.43798	1.02482	324.30	-8.93
94/ 8/21	2449586.0	52.51710	-29.64944	-7.20439	0.54627	0.79614	0.32837	60.73745	1.01984	330.55	-6.81
94/ 8/22	2449586.5	55.87455	-24.08013	-4.93986	0.44435	0.84654	0.33958	61.04278	1.01459	336.69	-4.64
94/ 8/22	2449587.0	58.52689	-18.20825	-2.61466	0.33830	0.88544	0.34630	61.34961	1.00915	342.72	-2.44
94/ 8/23	2449587.5	60.45111	-12.11233	-0.25898	0.22957	0.91269	0.34859	61.65316	1.00361	348.67	-0.24
94/ 8/23	2449588.0	61.63377	-5.87132	2.09747	0.11955	0.92830	0.34655	61.94831	0.99806	354.56	1.94
94/ 8/24	2449588.5	62.07062	0.43638	4.42587	0.00955	0.93242	0.34033	62.22974	0.99264	0.40	4.08
94/ 8/24	2449589.0	61.76602	6.73380	6.69853	-0.09919	0.92532	0.33012	62.49205	0.98744	6.22	6.15
94/ 8/25	2449589.5	60.73238	12.94612	8.88912	-0.20554	0.90736	0.31613	62.72990	0.98259	12.03	8.15
94/ 8/25	2449590.0	58.98953	19.00124	10.97282	-0.30845	0.87898	0.29860	62.93818	0.97821	17.85	10.04
94/ 8/26	2449590.5	56.56416	24.83022	12.92647	-0.40694	0.84067	0.27777	63.11210	0.97442	23.70	11.82
94/ 8/26	2449591.0	53.48920	30.36771	14.72865	-0.50012	0.79299	0.25391	63.24734	0.97130	29.59	13.47
94/ 8/27	2449591.5	49.80340	35.55213	16.35973	-0.58719	0.73652	0.22729	63.34014	0.96897	35.52	14.97
94/ 8/27	2449592.0	45.55078	40.32599	17.80194	-0.66738	0.67186	0.19819	63.38744	0.96750	41.52	16.31
94/ 8/28	2449592.5	40.78031	44.63598	19.03939	-0.73999	0.59965	0.16688	63.38693	0.96696	47.58	17.48

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/ 8/28	2449593.0	35.54556	48.43323	20.05813	-0.80437	0.52056	0.13365	63.33713	0.96739	53.72	18.46
94/ 8/29	2449593.5	29.90445	51.67342	20.84615	-0.85988	0.43527	0.09880	63.23749	0.96883	59.94	19.25
94/ 8/29	2449594.0	23.91903	54.31705	21.39351	-0.90594	0.34452	0.06264	63.08838	0.97127	66.23	19.82
94/ 8/30	2449594.5	17.65527	56.32971	21.69236	-0.94198	0.24908	0.02547	62.89120	0.97469	72.60	20.18
94/ 8/30	2449595.0	11.18287	57.68234	21.73708	-0.96746	0.14977	-0.01235	62.64830	0.97907	79.03	20.30
94/ 8/31	2449595.5	4.57510	58.35170	21.52439	-0.98188	0.04747	-0.05047	62.36307	0.98432	85.52	20.19
94/ 8/31	2449596.0	-2.09152	58.32083	21.05353	-0.98477	-0.05684	-0.08852	62.03986	0.99037	92.05	19.84
94/ 9/ 1	2449596.5	-8.73751	57.57957	20.32637	-0.97573	-0.16212	-0.12608	61.68397	0.99711	98.63	19.24
94/ 9/ 1	2449597.0	-15.28091	56.12522	19.34769	-0.95443	-0.26721	-0.16272	61.30154	1.00440	105.23	18.40
94/ 9/ 2	2449597.5	-21.63787	53.96316	18.12530	-0.92065	-0.37088	-0.19797	60.89948	1.01209	111.85	17.32
94/ 9/ 2	2449598.0	-27.72347	51.10758	16.67028	-0.87429	-0.47177	-0.23133	60.48532	1.02004	118.48	16.00
94/ 9/ 3	2449598.5	-33.45268	47.58206	14.99710	-0.81544	-0.56846	-0.26230	60.06702	1.02805	125.11	14.46
94/ 9/ 3	2449599.0	-38.74163	43.42020	13.12378	-0.74435	-0.65943	-0.29035	59.65284	1.03595	131.74	12.71
94/ 9/ 4	2449599.5	-43.50905	38.66597	11.07191	-0.66154	-0.74312	-0.31494	59.25100	1.04357	138.37	10.77
94/ 9/ 4	2449600.0	-47.67794	33.37397	8.86660	-0.56776	-0.81797	-0.33557	58.86956	1.05073	145.01	8.66
94/ 9/ 5	2449600.5	-51.17742	27.60930	6.53636	-0.46406	-0.88245	-0.35176	58.51603	1.05726	151.65	6.41
94/ 9/ 5	2449601.0	-53.94463	21.44713	4.11277	-0.35177	-0.93512	-0.36307	58.19723	1.06302	158.32	4.05
94/ 9/ 6	2449601.5	-55.92666	14.97185	1.63003	-0.23249	-0.97471	-0.36917	57.91895	1.06789	165.01	1.61
94/ 9/ 6	2449602.0	-57.08238	8.27585	-0.87556	-0.10810	-1.00014	-0.36979	57.68583	1.07178	171.75	-0.87
94/ 9/ 7	2449602.5	-57.38401	1.45780	-3.36637	0.01935	-1.01064	-0.36479	57.50115	1.07463	178.54	-3.36
94/ 9/ 7	2449603.0	-56.81833	-5.37933	-5.80423	0.14764	-1.00572	-0.35416	57.36679	1.07643	185.41	-5.81
94/ 9/ 8	2449603.5	-55.38745	-12.13050	-8.15129	0.27445	-0.98527	-0.33801	57.28318	1.07719	192.35	-8.18
94/ 9/ 8	2449604.0	-53.10910	-18.69110	-10.37093	0.39751	-0.94952	-0.31659	57.24937	1.07695	199.39	-10.44
94/ 9/ 9	2449604.5	-50.01634	-24.95933	-12.42864	0.51458	-0.89906	-0.29026	57.26319	1.07581	206.52	-12.54
94/ 9/ 9	2449605.0	-46.15679	-30.83853	-14.29275	0.62361	-0.83482	-0.25951	57.32143	1.07385	213.75	-14.44
94/ 9/10	2449605.5	-41.59139	-36.23931	-15.93517	0.72273	-0.75801	-0.22490	57.42004	1.07121	221.07	-16.11
94/ 9/10	2449606.0	-36.39283	-41.08139	-17.33192	0.81033	-0.67010	-0.18707	57.55445	1.06802	228.46	-17.53
94/ 9/11	2449606.5	-30.64369	-45.29498	-18.46349	0.88511	-0.57271	-0.14671	57.71977	1.06440	235.92	-18.66
94/ 9/11	2449607.0	-24.43444	-48.82191	-19.31512	0.94606	-0.46763	-0.10453	57.91109	1.06049	243.41	-19.48
94/ 9/12	2449607.5	-17.86136	-51.61630	-19.87691	0.99246	-0.35671	-0.06124	58.12368	1.05639	250.91	-20.00
94/ 9/12	2449608.0	-11.02450	-53.64491	-20.14378	1.02390	-0.24182	-0.01756	58.35313	1.05222	258.39	-20.19
94/ 9/13	2449608.5	-4.02576	-54.88718	-20.11536	1.04026	-0.12482	0.02585	58.59554	1.04804	265.81	-20.08
94/ 9/13	2449609.0	3.03296	-55.33498	-19.79578	1.04166	-0.00751	0.06832	58.84753	1.04392	273.14	-19.66
94/ 9/14	2449609.5	10.05139	-54.99221	-19.19340	1.02844	0.10835	0.10926	59.10635	1.03989	280.36	-18.95
94/ 9/14	2449610.0	16.93242	-53.87414	-18.32047	1.00119	0.22116	0.14812	59.36977	1.03598	287.45	-17.97
94/ 9/15	2449610.5	23.58343	-52.00671	-17.19276	0.96066	0.32940	0.18441	59.63612	1.03217	294.39	-16.76
94/ 9/15	2449611.0	29.91740	-49.42562	-15.82922	0.90774	0.43168	0.21770	59.90415	1.02846	301.19	-15.32
94/ 9/16	2449611.5	35.85392	-46.17544	-14.25148	0.84348	0.52678	0.24760	60.17291	1.02482	307.83	-13.70
94/ 9/16	2449612.0	41.32003	-42.30857	-12.48354	0.76903	0.61362	0.27382	60.44169	1.02123	314.32	-11.92
94/ 9/17	2449612.5	46.25085	-37.88425	-10.55126	0.68563	0.69125	0.29610	60.70986	1.01764	320.68	-10.01
94/ 9/17	2449613.0	50.59016	-32.96742	-8.48197	0.59458	0.75893	0.31425	60.97671	1.01403	326.91	-8.00
94/ 9/18	2449613.5	54.29071	-27.62771	-6.30406	0.49723	0.81604	0.32816	61.24143	1.01037	333.03	-5.91
94/ 9/18	2449614.0	57.31448	-21.93827	-4.04657	0.39496	0.86214	0.33775	61.50294	1.00665	339.05	-3.77
94/ 9/19	2449614.5	59.63273	-15.97479	-1.73876	0.28913	0.89693	0.34301	61.75986	1.00286	345.00	-1.61
94/ 9/19	2449615.0	61.22597	-9.81442	0.59019	0.18109	0.92027	0.34400	62.01041	0.99902	350.89	0.55

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/ 9/20	2449615.5	62.08378	-3.53477	2.91157	0.07217	0.93216	0.34080	62.25245	0.99513	356.74	2.68
94/ 9/20	2449616.0	62.20448	2.78693	5.19746	-0.03636	0.93272	0.33354	62.48342	0.99123	2.57	4.77
94/ 9/21	2449616.5	61.59481	9.07472	7.42093	-0.14331	0.92220	0.32240	62.70041	0.98738	8.38	6.80
94/ 9/21	2449617.0	60.26941	15.25463	9.55636	-0.24753	0.90093	0.30758	62.90016	0.98364	14.20	8.74
94/ 9/22	2449617.5	58.25038	21.25532	11.57958	-0.34796	0.86935	0.28931	63.07917	0.98008	20.05	10.58
94/ 9/22	2449618.0	55.56668	27.00864	13.46805	-0.44364	0.82797	0.26783	63.23378	0.97678	25.92	12.30
94/ 9/23	2449618.5	52.25364	32.45008	15.20101	-0.53366	0.77736	0.24343	63.36025	0.97382	31.84	13.88
94/ 9/23	2449619.0	48.35240	37.51913	16.75952	-0.61720	0.71812	0.21637	63.45488	0.97131	37.81	15.31
94/ 9/24	2449619.5	43.90939	42.15964	18.12660	-0.69352	0.65092	0.18695	63.51411	0.96934	43.84	16.58
94/ 9/24	2449620.0	38.97586	46.31997	19.28723	-0.76194	0.57645	0.15546	63.53467	0.96799	49.92	17.67
94/ 9/25	2449620.5	33.60748	49.95332	20.22842	-0.82184	0.49542	0.12220	63.51366	0.96736	56.07	18.57
94/ 9/25	2449621.0	27.86390	53.01779	20.93926	-0.87264	0.40859	0.08749	63.44868	0.96752	62.28	19.27
94/ 9/26	2449621.5	21.80847	55.47664	21.41093	-0.91384	0.31672	0.05163	63.33794	0.96855	68.54	19.76
94/ 9/26	2449622.0	15.50789	57.29849	21.63676	-0.94496	0.22062	0.01495	63.18038	0.97048	74.86	20.03
94/ 9/27	2449622.5	9.03199	58.45747	21.61230	-0.96554	0.12113	-0.02222	62.97574	0.97337	81.22	20.07
94/ 9/27	2449623.0	2.45341	58.93358	21.33539	-0.97521	0.01912	-0.05954	62.72467	0.97721	87.62	19.89
94/ 9/28	2449623.5	-4.15261	58.71296	20.80626	-0.97359	-0.08445	-0.09664	62.42881	0.98202	94.05	19.47
94/ 9/28	2449624.0	-10.70858	57.78832	20.02766	-0.96038	-0.18860	-0.13314	62.09083	0.98774	100.50	18.82
94/ 9/29	2449624.5	-17.13509	56.15937	19.00497	-0.93533	-0.29224	-0.16865	61.71447	0.99433	106.97	17.94
94/ 9/29	2449625.0	-23.35131	53.83339	17.74640	-0.89827	-0.39423	-0.20273	61.30459	1.00170	113.45	16.83
94/ 9/30	2449625.5	-29.27559	50.82574	16.26310	-0.84912	-0.49332	-0.23493	60.86711	1.00973	119.94	15.50
94/ 9/30	2449626.0	-34.82620	47.16054	14.56936	-0.78795	-0.58817	-0.26479	60.40900	1.01829	126.44	13.96
94/10/ 1	2449626.5	-39.92233	42.87119	12.68275	-0.71497	-0.67738	-0.29180	59.93816	1.02722	132.96	12.22
94/10/ 1	2449627.0	-44.48531	38.00091	10.62421	-0.63060	-0.75946	-0.31547	59.46332	1.03632	139.49	10.29
94/10/ 2	2449627.5	-48.44003	32.60318	8.41808	-0.53548	-0.83288	-0.33530	58.99379	1.04540	146.06	8.20
94/10/ 2	2449628.0	-51.71662	26.74184	6.09208	-0.43053	-0.89610	-0.35079	58.53928	1.05423	152.66	5.97
94/10/ 3	2449628.5	-54.25237	20.49107	3.67712	-0.31694	-0.94763	-0.36149	58.10959	1.06261	159.31	3.63
94/10/ 3	2449629.0	-55.99375	13.93486	1.20702	-0.19623	-0.98608	-0.36702	57.71427	1.07031	166.02	1.20
94/10/ 4	2449629.5	-56.89846	7.16612	-1.28201	-0.07020	-1.01021	-0.36704	57.36228	1.07712	172.82	-1.28
94/10/ 4	2449630.0	-56.93742	0.28517	-3.75200	0.05905	-1.01907	-0.36137	57.06162	1.08285	179.71	-3.77
94/10/ 5	2449630.5	-56.09648	-6.60206	-6.16400	0.18922	-1.01199	-0.34992	56.81899	1.08737	186.71	-6.23
94/10/ 5	2449631.0	-54.37770	-13.38650	-8.47907	0.31785	-0.98870	-0.33277	56.63945	1.09055	193.83	-8.61
94/10/ 6	2449631.5	-51.80014	-19.95863	-10.65924	0.44240	-0.94935	-0.31014	56.52628	1.09233	201.07	-10.87
94/10/ 6	2449632.0	-48.39986	-26.21135	-12.66861	0.56038	-0.89452	-0.28241	56.48075	1.09268	208.44	-12.96
94/10/ 7	2449632.5	-44.22935	-32.04299	-14.47434	0.66947	-0.82521	-0.25010	56.50217	1.09165	215.92	-14.84
94/10/ 7	2449633.0	-39.35617	-37.35992	-16.04752	0.76755	-0.74280	-0.21385	56.58794	1.08932	223.51	-16.47
94/10/ 8	2449633.5	-33.86103	-42.07905	-17.36392	0.85286	-0.64899	-0.17440	56.73378	1.08581	231.18	-17.82
94/10/ 8	2449634.0	-27.83541	-46.12964	-18.40447	0.92400	-0.54572	-0.13253	56.93398	1.08127	238.89	-18.86
94/10/ 9	2449634.5	-21.37895	-49.45461	-19.15558	0.97996	-0.43507	-0.08907	57.18176	1.07589	246.62	-19.57
94/10/ 9	2449635.0	-14.59667	-52.01131	-19.60917	1.02014	-0.31921	-0.04481	57.46963	1.06986	254.32	-19.95
94/10/10	2449635.5	-7.59633	-53.77167	-19.76259	1.04434	-0.20027	-0.00055	57.78977	1.06337	261.96	-20.00
94/10/10	2449636.0	-0.48595	-54.72190	-19.61833	1.05269	-0.08032	0.04298	58.13434	1.05662	269.49	-19.72
94/10/11	2449636.5	6.62838	-54.86178	-19.18360	1.04560	0.03871	0.08511	58.49582	1.04978	276.89	-19.14
94/10/11	2449637.0	13.64434	-54.20371	-18.46988	1.02377	0.15502	0.12527	58.86720	1.04299	284.13	-18.29
94/10/12	2449637.5	20.46488	-52.77160	-17.49240	0.98806	0.26703	0.16292	59.24219	1.03639	291.20	-17.17

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/10/12	2449638.0	26.99942	-50.59958	-16.26963	0.93950	0.37329	0.19764	59.61532	1.03008	298.08	-15.84
94/10/13	2449638.5	33.16472	-47.73079	-14.82272	0.87922	0.47259	0.22905	59.98200	1.02412	304.79	-14.31
94/10/13	2449639.0	38.88553	-44.21613	-13.17510	0.80845	0.56385	0.25686	60.33849	1.01858	311.33	-12.61
94/10/14	2449639.5	44.09504	-40.11308	-11.35193	0.72845	0.64620	0.28085	60.68194	1.01346	317.71	-10.78
94/10/14	2449640.0	48.73512	-35.48456	-9.37974	0.64052	0.71891	0.30084	61.01021	1.00876	323.94	-8.84
94/10/15	2449640.5	52.75651	-30.39792	-7.28604	0.54597	0.78140	0.31672	61.32185	1.00448	330.05	-6.82
94/10/15	2449641.0	56.11884	-24.92389	-5.09892	0.44612	0.83324	0.32842	61.61593	1.00058	336.05	-4.75
94/10/16	2449641.5	58.79056	-19.13575	-2.84677	0.34226	0.87411	0.33592	61.89193	0.99703	341.97	-2.64
94/10/16	2449642.0	60.74892	-13.10841	-0.55797	0.23568	0.90385	0.33925	62.14960	0.99377	347.82	-0.51
94/10/17	2449642.5	61.97976	-6.91763	1.73940	0.12764	0.92237	0.33847	62.38886	0.99077	353.63	1.60
94/10/17	2449643.0	62.47732	-0.63926	4.01781	0.01935	0.92973	0.33367	62.60964	0.98799	359.41	3.68
94/10/18	2449643.5	62.24400	5.65152	6.25053	-0.08799	0.92607	0.32500	62.81181	0.98538	5.19	5.71
94/10/18	2449644.0	61.29005	11.88081	8.41184	-0.19326	0.91163	0.31262	62.99510	0.98293	10.97	7.67
94/10/19	2449644.5	59.63322	17.97672	10.47725	-0.29537	0.88674	0.29672	63.15897	0.98061	16.78	9.55
94/10/19	2449645.0	57.29837	23.86987	12.42367	-0.39331	0.85183	0.27752	63.30262	0.97843	22.62	11.32
94/10/20	2449645.5	54.31708	29.49400	14.22958	-0.48611	0.80739	0.25527	63.42493	0.97640	28.50	12.96
94/10/20	2449646.0	50.72713	34.78643	15.87517	-0.57290	0.75398	0.23022	63.52447	0.97453	34.44	14.47
94/10/21	2449646.5	46.57210	39.68850	17.34248	-0.65285	0.69223	0.20267	63.59952	0.97286	40.44	15.82
94/10/21	2449647.0	41.90085	44.14594	18.61548	-0.72522	0.62280	0.17289	63.64811	0.97145	46.49	17.01
94/10/22	2449647.5	36.76705	48.10923	19.68016	-0.78933	0.54643	0.14121	63.66807	0.97034	52.61	18.01
94/10/22	2449648.0	31.22868	51.53386	20.52463	-0.84459	0.46387	0.10792	63.65712	0.96961	58.78	18.81
94/10/23	2449648.5	25.34757	54.38059	21.13912	-0.89046	0.37592	0.07335	63.61297	0.96933	65.01	19.41
94/10/23	2449649.0	19.18895	56.61567	21.51608	-0.92646	0.28339	0.03783	63.53339	0.96957	71.28	19.80
94/10/24	2449649.5	12.82105	58.21102	21.65017	-0.95219	0.18715	0.00169	63.41634	0.97041	77.58	19.96
94/10/24	2449650.0	6.31466	59.14445	21.53834	-0.96730	0.08808	-0.03473	63.26010	0.97192	83.91	19.91
94/10/25	2449650.5	-0.25722	59.39984	21.17988	-0.97149	-0.01291	-0.07108	63.06341	0.97417	90.25	19.62
94/10/25	2449651.0	-6.81981	58.96738	20.57641	-0.96452	-0.11487	-0.10701	62.82556	0.97721	96.60	19.12
94/10/26	2449651.5	-13.29687	57.84383	19.73204	-0.94621	-0.21682	-0.14216	62.54653	0.98109	102.95	18.39
94/10/26	2449652.0	-19.61120	56.03274	18.65336	-0.91645	-0.31772	-0.17614	62.22713	0.98583	109.29	17.44
94/10/27	2449652.5	-25.68503	53.54487	17.34954	-0.87519	-0.41649	-0.20857	61.86906	0.99142	115.63	16.29
94/10/27	2449653.0	-31.44056	50.39847	15.83248	-0.82248	-0.51198	-0.23905	61.47505	0.99786	121.96	14.92
94/10/28	2449653.5	-36.80062	46.61972	14.11682	-0.75845	-0.60301	-0.26714	61.04890	1.00510	128.29	13.37
94/10/28	2449654.0	-41.68941	42.24315	12.22011	-0.68337	-0.68830	-0.29244	60.59556	1.01305	134.62	11.63
94/10/29	2449654.5	-46.03344	37.31203	10.16284	-0.59766	-0.76654	-0.31448	60.12111	1.02161	140.97	9.73
94/10/29	2449655.0	-49.76262	31.87871	7.96853	-0.50193	-0.83636	-0.33283	59.63277	1.03064	147.36	7.68
94/10/30	2449655.5	-52.81163	26.00488	5.66367	-0.39697	-0.89639	-0.34705	59.13881	1.03997	153.78	5.50
94/10/30	2449656.0	-55.12142	19.76164	3.27770	-0.28384	-0.94522	-0.35672	58.64841	1.04941	160.28	3.20
94/10/31	2449656.5	-56.64095	13.22928	0.84276	-0.16385	-0.98154	-0.36145	58.17148	1.05874	166.85	0.83
94/10/31	2449657.0	-57.32907	6.49680	-1.60655	-0.03862	-1.00413	-0.36092	57.71838	1.06772	173.53	-1.59
94/11/ 1	2449657.5	-57.15644	-0.33907	-4.03371	0.08998	-1.01192	-0.35487	57.29960	1.07611	180.34	-4.04
94/11/ 1	2449658.0	-56.10742	-7.17524	-6.40086	0.21980	-1.00411	-0.34318	56.92537	1.08366	187.29	-6.46
94/11/ 2	2449658.5	-54.18174	-13.90426	-8.66966	0.34844	-0.98022	-0.32584	56.60523	1.09015	194.39	-8.81
94/11/ 2	2449659.0	-51.39577	-20.41668	-10.80218	0.47340	-0.94017	-0.30298	56.34761	1.09536	201.67	-11.05
94/11/ 3	2449659.5	-47.78325	-26.60388	-12.76199	0.59209	-0.88429	-0.27490	56.15936	1.09914	209.11	-13.13
94/11/ 3	2449660.0	-43.39533	-32.36118	-14.51526	0.70196	-0.81339	-0.24208	56.04546	1.10135	216.71	-15.01

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/11/ 4	2449660.5	-38.29978	-37.59096	-16.03180	0.80067	-0.72876	-0.20512	56.00868	1.10193	224.46	-16.63
94/11/ 4	2449661.0	-32.57943	-42.20565	-17.28607	0.88615	-0.63207	-0.16476	56.04948	1.10087	232.33	-17.96
94/11/ 5	2449661.5	-26.32988	-46.13029	-18.25790	0.95670	-0.52536	-0.12186	56.16598	1.09824	240.28	-18.97
94/11/ 5	2449662.0	-19.65662	-49.30455	-18.93299	1.01110	-0.41089	-0.07729	56.35406	1.09413	248.26	-19.63
94/11/ 6	2449662.5	-12.67188	-51.68401	-19.30321	1.04859	-0.29106	-0.03198	56.60766	1.08871	256.22	-19.94
94/11/ 6	2449663.0	-5.49131	-53.24069	-19.36651	1.06892	-0.16833	0.01319	56.91913	1.08217	264.11	-19.89
94/11/ 7	2449663.5	1.76921	-53.96288	-19.12668	1.07227	-0.04503	0.05740	57.27960	1.07474	271.88	-19.51
94/11/ 7	2449664.0	8.99640	-53.85439	-18.59283	1.05920	0.07662	0.09990	57.67949	1.06666	279.48	-18.80
94/11/ 8	2449664.5	16.08202	-52.93324	-17.77882	1.03063	0.19463	0.14003	58.10891	1.05815	286.90	-17.82
94/11/ 8	2449665.0	22.92475	-51.23015	-16.70255	0.98769	0.30725	0.17726	58.55807	1.04946	294.11	-16.57
94/11/ 9	2449665.5	29.43166	-48.78676	-15.38523	0.93170	0.41301	0.21114	59.01759	1.04078	301.10	-15.11
94/11/ 9	2449666.0	35.51912	-45.65389	-13.85073	0.86407	0.51067	0.24134	59.47881	1.03230	307.88	-13.47
94/11/10	2449666.5	41.11332	-41.88985	-12.12489	0.78629	0.59925	0.26761	59.93394	1.02419	314.46	-11.67
94/11/10	2449667.0	46.15051	-37.55881	-10.23498	0.69984	0.67798	0.28977	60.37623	1.01656	320.86	-9.76
94/11/11	2449667.5	50.57696	-32.72947	-8.20916	0.60618	0.74631	0.30773	60.79998	1.00952	327.09	-7.76
94/11/11	2449668.0	54.34875	-27.47376	-6.07609	0.50676	0.80383	0.32144	61.20060	1.00313	333.18	-5.70
94/11/12	2449668.5	57.43151	-21.86581	-3.86457	0.40294	0.85030	0.33090	61.57456	0.99743	339.16	-3.60
94/11/12	2449669.0	59.79999	-15.98103	-1.60319	0.29605	0.88557	0.33617	61.91932	0.99242	345.04	-1.48
94/11/13	2449669.5	61.43774	-9.89530	0.67984	0.18736	0.90964	0.33732	62.23323	0.98809	350.85	0.63
94/11/13	2449670.0	62.33666	-3.68434	2.95699	0.07808	0.92257	0.33445	62.51542	0.98442	356.62	2.71
94/11/14	2449670.5	62.49665	2.57693	5.20155	-0.03065	0.92452	0.32772	62.76566	0.98137	2.36	4.75
94/11/14	2449671.0	61.92525	8.81489	7.38779	-0.13772	0.91573	0.31726	62.98427	0.97887	8.10	6.74
94/11/15	2449671.5	60.63725	14.95774	9.49112	-0.24208	0.89649	0.30327	63.17192	0.97687	13.86	8.64
94/11/15	2449672.0	58.65444	20.93593	11.48826	-0.34273	0.86718	0.28594	63.32959	0.97531	19.64	10.45
94/11/16	2449672.5	56.00519	26.68266	13.35732	-0.43872	0.82822	0.26549	63.45836	0.97412	25.47	12.15
94/11/16	2449673.0	52.72414	32.13426	15.07799	-0.52915	0.78012	0.24216	63.55935	0.97325	31.36	13.72
94/11/17	2449673.5	48.85185	37.23064	16.63162	-0.61317	0.72343	0.21620	63.63360	0.97266	37.31	15.15
94/11/17	2449674.0	44.43443	41.91569	18.00135	-0.69000	0.65876	0.18790	63.68196	0.97230	43.33	16.42
94/11/18	2449674.5	39.52313	46.13766	19.17226	-0.75890	0.58680	0.15754	63.70508	0.97215	49.42	17.51
94/11/18	2449675.0	34.17393	49.84958	20.13141	-0.81920	0.50827	0.12542	63.70330	0.97219	55.57	18.42
94/11/19	2449675.5	28.44711	53.00954	20.86798	-0.87031	0.42395	0.09187	63.67670	0.97242	61.78	19.13
94/11/19	2449676.0	22.40680	55.58110	21.37335	-0.91169	0.33466	0.05721	63.62502	0.97286	68.04	19.63
94/11/20	2449676.5	16.12041	57.53353	21.64118	-0.94290	0.24127	0.02178	63.54774	0.97352	74.35	19.91
94/11/20	2449677.0	9.65825	58.84209	21.66742	-0.96354	0.14468	-0.01407	63.44407	0.97445	80.68	19.97
94/11/21	2449677.5	3.09290	59.48829	21.45045	-0.97332	0.04584	-0.04998	63.31307	0.97568	87.02	19.80
94/11/21	2449678.0	-3.50124	59.46011	20.99102	-0.97201	-0.05430	-0.08560	63.15367	0.97728	93.37	19.41
94/11/22	2449678.5	-10.04848	58.75215	20.29236	-0.95946	-0.15472	-0.12056	62.96480	0.97931	99.71	18.80
94/11/22	2449679.0	-16.47245	57.36588	19.36019	-0.93560	-0.25442	-0.15450	62.74554	0.98181	106.02	17.97
94/11/23	2449679.5	-22.69658	55.30978	18.20273	-0.90046	-0.35234	-0.18703	62.49517	0.98486	112.31	16.93
94/11/23	2449680.0	-28.64473	52.59953	16.83072	-0.85414	-0.44741	-0.21779	62.21338	0.98851	118.57	15.70
94/11/24	2449680.5	-34.24178	49.25812	15.25747	-0.79682	-0.53853	-0.24639	61.90034	0.99280	124.81	14.27
94/11/24	2449681.0	-39.41429	45.31607	13.49883	-0.72883	-0.62459	-0.27247	61.55689	0.99777	131.02	12.67
94/11/25	2449681.5	-44.09121	40.81156	11.57323	-0.65056	-0.70443	-0.29563	61.18462	1.00342	137.21	10.90
94/11/25	2449682.0	-48.20467	35.79056	9.50163	-0.56255	-0.77691	-0.31551	60.78598	1.00975	143.41	8.99
94/11/26	2449682.5	-51.69094	30.30693	7.30758	-0.46548	-0.84084	-0.33174	60.36443	1.01673	149.62	6.95

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
94/11/26	2449683.0	-54.49138	24.42252	5.01707	-0.36018	-0.89507	-0.34394	59.92446	1.02429	155.86	4.80
94/11/27	2449683.5	-56.55365	18.20702	2.65849	-0.24768	-0.93842	-0.35178	59.47166	1.03234	162.15	2.56
94/11/27	2449684.0	-57.83297	11.73784	0.26246	-0.12921	-0.96980	-0.35495	59.01269	1.04076	168.53	0.25
94/11/28	2449684.5	-58.29356	5.09967	-2.13841	-0.00618	-0.98816	-0.35317	58.55526	1.04939	175.00	-2.09
94/11/28	2449685.0	-57.91015	-1.61622	-4.50987	0.11973	-0.99261	-0.34623	58.10797	1.05805	181.60	-4.45
94/11/29	2449685.5	-56.66946	-8.31295	-6.81649	0.24664	-0.98240	-0.33401	57.68013	1.06654	188.35	-6.79
94/11/29	2449686.0	-54.57173	-14.88945	-9.02226	0.37244	-0.95704	-0.31645	57.28150	1.07461	195.26	-9.06
94/11/30	2449686.5	-51.63197	-21.24221	-11.09128	0.49489	-0.91633	-0.29365	56.92195	1.08204	202.36	-11.24
94/11/30	2449687.0	-47.88100	-27.26756	-12.98868	0.61159	-0.86041	-0.26582	56.61109	1.08858	209.66	-13.26
94/12/ 1	2449687.5	-43.36592	-32.86417	-14.68149	0.72012	-0.78985	-0.23332	56.35781	1.09402	217.16	-15.10
94/12/ 1	2449688.0	-38.15004	-37.93592	-16.13974	0.81814	-0.70563	-0.19665	56.16984	1.09815	224.84	-16.70
94/12/ 2	2449688.5	-32.31212	-42.39480	-17.33734	0.90347	-0.60915	-0.15647	56.05333	1.10082	232.69	-18.02
94/12/ 2	2449689.0	-25.94477	-46.16376	-18.25306	0.97419	-0.50223	-0.11355	56.01249	1.10190	240.66	-19.02
94/12/ 3	2449689.5	-19.15223	-49.17920	-18.87127	1.02881	-0.38702	-0.06876	56.04932	1.10134	248.72	-19.68
94/12/ 3	2449690.0	-12.04749	-51.39291	-19.18239	1.06625	-0.26590	-0.02303	56.16349	1.09915	256.81	-19.97
94/12/ 4	2449690.5	-4.74895	-52.77342	-19.18318	1.08598	-0.14140	0.02272	56.35230	1.09538	264.86	-19.90
94/12/ 4	2449691.0	2.62294	-53.30646	-18.87666	1.08795	-0.01607	0.06757	56.61084	1.09016	272.82	-19.48
94/12/ 5	2449691.5	9.94915	-52.99470	-18.27182	1.07260	0.10766	0.11068	56.93227	1.08366	280.63	-18.72
94/12/ 5	2449692.0	17.11513	-51.85680	-17.38301	1.04081	0.22753	0.15131	57.30815	1.07608	288.27	-17.66
94/12/ 6	2449692.5	24.01337	-49.92587	-16.22929	0.99377	0.34153	0.18881	57.72889	1.06765	295.69	-16.33
94/12/ 6	2449693.0	30.54548	-47.24761	-14.83355	0.93295	0.44796	0.22270	58.18417	1.05861	302.88	-14.77
94/12/ 7	2449693.5	36.62360	-43.87816	-13.22172	0.85999	0.54543	0.25257	58.66341	1.04922	309.85	-13.03
94/12/ 7	2449694.0	42.17125	-39.88199	-11.42192	0.77660	0.63287	0.27817	59.15613	1.03971	316.60	-11.13
94/12/ 8	2449694.5	47.12365	-35.32983	-9.46369	0.68451	0.70950	0.29933	59.65230	1.03031	323.14	-9.13
94/12/ 8	2449695.0	51.42773	-30.29684	-7.37740	0.58543	0.77479	0.31598	60.14263	1.02121	329.50	-7.05
94/12/ 9	2449695.5	55.04171	-24.86094	-5.19361	0.48099	0.82644	0.32813	60.61872	1.01259	335.69	-4.91
94/12/ 9	2449696.0	57.93458	-19.10148	-2.94267	0.37274	0.87033	0.33583	61.07324	1.00458	341.75	-2.76
94/12/10	2449696.5	60.08545	-13.09811	-0.65436	0.26212	0.90048	0.33918	61.50000	0.99730	347.70	-0.61
94/12/10	2449697.0	61.48285	-6.92988	1.64240	0.15046	0.91904	0.33835	61.89395	0.99083	353.57	1.52
94/12/11	2449697.5	62.12404	-0.67453	3.91972	0.03901	0.92625	0.33348	62.25123	0.98522	359.38	3.61
94/12/11	2449698.0	62.01438	5.59206	6.15095	-0.07108	0.92242	0.32477	62.56907	0.98050	5.15	5.64
94/12/12	2449698.5	61.16671	11.79630	8.31074	-0.17874	0.90791	0.31241	62.84574	0.97665	10.92	7.60
94/12/12	2449699.0	59.60085	17.86730	10.37515	-0.28299	0.88314	0.29664	63.08047	0.97366	16.69	9.47
94/12/13	2449699.5	57.34312	23.73710	12.32175	-0.38290	0.84858	0.27766	63.27329	0.97149	22.49	11.23
94/12/13	2449700.0	54.42597	29.34101	14.12967	-0.47758	0.80471	0.25573	63.42499	0.97007	28.33	12.87
94/12/14	2449700.5	50.88758	34.61786	15.77966	-0.56621	0.75209	0.23107	63.53692	0.96934	34.23	14.38
94/12/14	2449701.0	46.77158	39.51027	17.25418	-0.64801	0.69129	0.20396	63.61092	0.96923	40.19	15.74
94/12/15	2449701.5	42.12673	43.96495	18.53752	-0.72226	0.62294	0.17466	63.64918	0.96965	46.22	16.93
94/12/15	2449702.0	37.00658	47.93302	19.61580	-0.78825	0.54771	0.14346	63.65407	0.97052	52.33	17.95
94/12/16	2449702.5	31.46920	51.37032	20.47717	-0.84536	0.46633	0.11066	63.62810	0.97178	58.51	18.77
94/12/16	2449703.0	25.57682	54.23779	21.11183	-0.89299	0.37958	0.07657	63.57374	0.97333	64.75	19.40
94/12/17	2449703.5	19.39542	56.50179	21.51216	-0.93062	0.28828	0.04152	63.49337	0.97514	71.05	19.80
94/12/17	2449704.0	12.99432	58.13450	21.67283	-0.95780	0.19331	0.00585	63.38915	0.97713	77.40	19.99
94/12/18	2449704.5	6.44572	59.11424	21.59088	-0.97413	0.09562	-0.03006	63.26299	0.97927	83.78	19.96
94/12/18	2449705.0	-0.17590	59.42582	21.26582	-0.97931	-0.00382	-0.06587	63.11651	0.98153	90.17	19.69

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
94/12/19	2449705.5	-6.79430	59.06086	20.69967	-0.97315	-0.10398	-0.10119	62.95097	0.98391	96.56	19.20
94/12/19	2449706.0	-13.33216	58.01803	19.89703	-0.95552	-0.20381	-0.13564	62.76728	0.98639	102.94	18.48
94/12/20	2449706.5	-19.71178	56.30329	18.86513	-0.92643	-0.30221	-0.16883	62.56603	0.98899	109.30	17.55
94/12/20	2449707.0	-25.85575	53.93005	17.61382	-0.88596	-0.39807	-0.20037	62.34754	0.99174	115.61	16.41
94/12/21	2449707.5	-31.68777	50.91930	16.15556	-0.83436	-0.49027	-0.22987	62.11194	0.99467	121.89	15.08
94/12/21	2449708.0	-37.13344	47.29969	14.50542	-0.77194	-0.57768	-0.25697	61.85920	0.99782	128.13	13.56
94/12/22	2449708.5	-42.12103	43.10747	12.68100	-0.69918	-0.65917	-0.28128	61.58931	1.00124	134.34	11.88
94/12/22	2449709.0	-46.58239	38.38647	10.70234	-0.61666	-0.73364	-0.30245	61.30237	1.00498	140.51	10.05
94/12/23	2449709.5	-50.45376	33.18794	8.59186	-0.52509	-0.80000	-0.32015	60.99870	1.00907	146.66	8.10
94/12/23	2449710.0	-53.67668	27.57038	6.37420	-0.42533	-0.85721	-0.33405	60.67901	1.01356	152.81	6.03
94/12/24	2449710.5	-56.19893	21.59923	4.07605	-0.31836	-0.90425	-0.34387	60.34452	1.01847	158.98	3.87
94/12/24	2449711.0	-57.97544	15.34654	1.72601	-0.20532	-0.94020	-0.34934	59.99706	1.02380	165.17	1.65
94/12/25	2449711.5	-58.96931	8.89046	-0.64571	-0.08748	-0.96418	-0.35023	59.63922	1.02954	171.43	-0.62
94/12/25	2449712.0	-59.15281	2.31468	-3.00749	0.03373	-0.97543	-0.34638	59.27443	1.03565	177.76	-2.91
94/12/26	2449712.5	-58.50841	-4.29238	-5.32671	0.15672	-0.97332	-0.33765	58.90698	1.04207	184.20	-5.19
94/12/26	2449713.0	-57.02980	-10.83848	-7.57011	0.27977	-0.95736	-0.32399	58.54209	1.04871	190.76	-7.43
94/12/27	2449713.5	-54.72279	-17.22880	-9.70430	0.40101	-0.92728	-0.30541	58.18581	1.05543	197.48	-9.60
94/12/27	2449714.0	-51.60625	-23.36729	-11.69627	0.51848	-0.88301	-0.28202	57.84494	1.06211	204.36	-11.67
94/12/28	2449714.5	-47.71267	-29.15840	-13.51412	0.63012	-0.82477	-0.25403	57.52689	1.06856	211.43	-13.59
94/12/28	2449715.0	-43.08864	-34.50902	-15.12766	0.73383	-0.75305	-0.22175	57.23941	1.07460	218.69	-15.32
94/12/29	2449715.5	-37.79483	-39.33056	-16.50926	0.82756	-0.66870	-0.18562	56.99033	1.08003	226.14	-16.84
94/12/29	2449716.0	-31.90559	-43.54131	-17.63461	0.90934	-0.57291	-0.14619	56.78725	1.08467	233.77	-18.09
94/12/30	2449716.5	-25.50797	-47.06873	-18.48348	0.97740	-0.46720	-0.10410	56.63710	1.08831	241.55	-19.05
94/12/30	2449717.0	-18.70026	-49.85173	-19.04044	1.03022	-0.35342	-0.06012	56.54585	1.09081	249.44	-19.68
94/12/31	2449717.5	-11.58986	-51.84261	-19.29541	1.06662	-0.23367	-0.01507	56.51809	1.09202	257.40	-19.96
94/12/31	2449718.0	-4.29072	-53.00870	-19.24409	1.08586	-0.11026	0.03018	56.55676	1.09186	265.37	-19.89
95/ 1/ 1	2449718.5	3.07954	-53.33334	-18.88811	1.08761	0.01440	0.07475	56.66294	1.09027	273.30	-19.47
95/ 1/ 1	2449719.0	10.40282	-52.81633	-18.23499	1.07205	0.13788	0.11779	56.83571	1.08728	281.14	-18.71
95/ 1/ 2	2449719.5	17.56362	-51.47362	-17.29785	1.03977	0.25784	0.15850	57.07214	1.08292	288.84	-17.64
95/ 1/ 2	2449720.0	24.45193	-49.33642	-16.09486	0.99179	0.37215	0.19618	57.36744	1.07732	296.36	-16.29
95/ 1/ 3	2449720.5	30.96579	-46.44969	-14.64858	0.92945	0.47888	0.23025	57.71512	1.07061	303.69	-14.70
95/ 1/ 3	2449721.0	37.01327	-42.87030	-12.98517	0.85435	0.57645	0.26023	58.10731	1.06298	310.81	-12.91
95/ 1/ 4	2449721.5	42.51390	-38.66484	-11.13350	0.76827	0.66357	0.28579	58.53509	1.05463	317.71	-10.96
95/ 1/ 4	2449722.0	47.39956	-33.90746	-9.12434	0.67306	0.73929	0.30671	58.98888	1.04577	324.42	-8.90
95/ 1/ 5	2449722.5	51.61478	-28.67765	-6.98954	0.57060	0.80299	0.32288	59.45878	1.03665	330.94	-6.75
95/ 1/ 5	2449723.0	55.11662	-23.05825	-4.76134	0.46271	0.85430	0.33430	59.93492	1.02746	337.30	-4.56
95/ 1/ 6	2449723.5	57.87422	-17.13370	-2.47175	0.35111	0.89310	0.34103	60.40777	1.01843	343.51	-2.35
95/ 1/ 6	2449724.0	59.86808	-10.98852	-0.15210	0.23744	0.91947	0.34320	60.86836	1.00975	349.60	-0.14
95/ 1/ 7	2449724.5	61.08922	-4.70616	2.16736	0.12317	0.93366	0.34101	61.30855	1.00159	355.59	2.03
95/ 1/ 7	2449725.0	61.53825	1.63202	4.45772	0.00966	0.93602	0.33465	61.72108	0.99409	1.52	4.14
95/ 1/ 8	2449725.5	61.22452	7.94734	6.69163	-0.10188	0.92700	0.32437	62.09976	0.98738	7.40	6.19
95/ 1/ 8	2449726.0	60.16522	14.16443	8.84337	-0.21033	0.90710	0.31043	62.43949	0.98155	13.25	8.14
95/ 1/ 9	2449726.5	58.38465	20.21151	10.88899	-0.31470	0.87689	0.29308	62.73629	0.97666	19.09	10.00
95/ 1/ 9	2449727.0	55.91354	26.02067	12.80631	-0.41410	0.83694	0.27259	62.98731	0.97276	24.96	11.73
95/ 1/10	2449727.5	52.78848	31.52806	14.57496	-0.50768	0.78788	0.24923	63.19076	0.96985	30.85	13.34

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/ 1/10	2449728.0	49.05142	36.67403	16.17643	-0.59469	0.73033	0.22327	63.34591	0.96793	36.78	14.80
95/ 1/11	2449728.5	44.74927	41.40325	17.59404	-0.67443	0.66493	0.19498	63.45295	0.96696	42.78	16.10
95/ 1/11	2449729.0	39.93356	45.66486	18.81298	-0.74624	0.59236	0.16465	63.51297	0.96688	48.83	17.23
95/ 1/12	2449729.5	34.66016	49.41265	19.82037	-0.80949	0.51332	0.13256	63.52782	0.96764	54.95	18.18
95/ 1/12	2449730.0	28.98898	52.60525	20.60531	-0.86360	0.42854	0.09901	63.50002	0.96915	61.14	18.93
95/ 1/13	2449730.5	22.98375	55.20642	21.15893	-0.90804	0.33880	0.06431	63.43266	0.97132	67.40	19.49
95/ 1/13	2449731.0	16.71169	57.18530	21.47451	-0.94232	0.24493	0.02877	63.32925	0.97405	73.71	19.82
95/ 1/14	2449731.5	10.24322	58.51678	21.54756	-0.96597	0.14778	-0.00725	63.19362	0.97724	80.07	19.94
95/ 1/14	2449732.0	3.65156	59.18187	21.37592	-0.97863	0.04831	-0.04342	63.02982	0.98079	86.47	19.82
95/ 1/15	2449732.5	-2.98770	59.16810	20.95989	-0.97999	-0.05251	-0.07936	62.84192	0.98459	92.89	19.48
95/ 1/15	2449733.0	-9.59716	58.46989	20.30230	-0.96980	-0.15363	-0.11468	62.63399	0.98857	99.32	18.91
95/ 1/16	2449733.5	-16.09823	57.08892	19.40866	-0.94797	-0.25393	-0.14900	62.40989	0.99263	105.75	18.12
95/ 1/16	2449734.0	-22.41185	55.03453	18.28720	-0.91446	-0.35229	-0.18189	62.17324	0.99671	112.16	17.11
95/ 1/17	2449734.5	-28.45935	52.32392	16.94889	-0.86941	-0.44751	-0.21296	61.92731	1.00075	118.54	15.88
95/ 1/17	2449735.0	-34.16330	48.98241	15.40753	-0.81307	-0.53839	-0.24179	61.67495	1.00469	124.89	14.47
95/ 1/18	2449735.5	-39.44854	45.04351	13.67966	-0.74585	-0.62371	-0.26797	61.41855	1.00852	131.21	12.87
95/ 1/18	2449736.0	-44.24320	40.54892	11.78450	-0.66832	-0.70228	-0.29112	61.16004	1.01222	137.49	11.11
95/ 1/19	2449736.5	-48.47979	35.54836	9.74386	-0.58119	-0.77293	-0.31087	60.90089	1.01580	143.75	9.21
95/ 1/19	2449737.0	-52.09627	30.09929	7.58194	-0.48536	-0.83455	-0.32688	60.64218	1.01926	149.98	7.18
95/ 1/20	2449737.5	-55.03713	24.26647	5.32513	-0.38187	-0.88608	-0.33884	60.38463	1.02264	156.21	5.06
95/ 1/20	2449738.0	-57.25442	18.12138	3.00173	-0.27191	-0.92661	-0.34650	60.12873	1.02596	162.44	2.86
95/ 1/21	2449738.5	-58.70875	11.74152	0.64165	-0.15681	-0.95528	-0.34965	59.87481	1.02928	168.69	0.61
95/ 1/21	2449739.0	-59.37017	5.20954	-1.72398	-0.03802	-0.97143	-0.34812	59.62322	1.03262	174.99	-1.66
95/ 1/22	2449739.5	-59.21898	-1.38775	-4.06316	0.08288	-0.97449	-0.34183	59.37443	1.03602	181.34	-3.92
95/ 1/22	2449740.0	-58.24648	-7.96042	-6.34348	0.20423	-0.96411	-0.33074	59.12918	1.03952	187.78	-6.16
95/ 1/23	2449740.5	-56.45547	-14.41668	-8.53257	0.32428	-0.94010	-0.31490	58.88859	1.04312	194.33	-8.33
95/ 1/23	2449741.0	-53.86080	-20.66417	-10.59860	0.44124	-0.90248	-0.29442	58.65427	1.04683	200.99	-10.41
95/ 1/24	2449741.5	-50.48955	-26.61138	-12.51078	0.55329	-0.85149	-0.26951	58.42842	1.05062	207.79	-12.36
95/ 1/24	2449742.0	-46.38121	-32.16919	-14.23993	0.65860	-0.78759	-0.24043	58.21382	1.05445	214.74	-14.16
95/ 1/25	2449742.5	-41.58751	-37.25242	-15.75902	0.75538	-0.71149	-0.20755	58.01388	1.05825	221.85	-15.76
95/ 1/25	2449743.0	-36.17207	-41.78152	-17.04372	0.84192	-0.62414	-0.17130	57.83254	1.06194	229.12	-17.14
95/ 1/26	2449743.5	-30.20978	-45.68421	-18.07299	0.91660	-0.52674	-0.13221	57.67418	1.06541	236.52	-18.26
95/ 1/26	2449744.0	-23.78587	-48.89718	-18.82955	0.97801	-0.42073	-0.09088	57.54349	1.06854	244.06	-19.10
95/ 1/27	2449744.5	-16.99457	-51.36764	-19.30044	1.02491	-0.30778	-0.04797	57.44525	1.07120	251.69	-19.63
95/ 1/27	2449745.0	-9.93755	-53.05479	-19.47736	1.05634	-0.18974	-0.00419	57.38408	1.07325	259.39	-19.84
95/ 1/28	2449745.5	-2.72195	-53.93098	-19.35701	1.07165	-0.06865	0.03969	57.36422	1.07458	267.11	-19.72
95/ 1/28	2449746.0	4.54180	-53.98260	-18.94128	1.07054	0.05338	0.08290	57.38921	1.07507	274.81	-19.27
95/ 1/29	2449746.5	11.74243	-53.21058	-18.23722	1.05305	0.17421	0.12470	57.46169	1.07462	282.44	-18.50
95/ 1/29	2449747.0	18.77025	-51.63038	-17.25695	1.01961	0.29168	0.16435	57.58317	1.07317	289.98	-17.44
95/ 1/30	2449747.5	25.51973	-49.27162	-16.01734	0.97101	0.40379	0.20118	57.75382	1.07069	297.38	-16.10
95/ 1/30	2449748.0	31.89172	-46.17710	-14.53954	0.90836	0.50865	0.23459	57.97245	1.06718	304.63	-14.52
95/ 1/31	2449748.5	37.79558	-42.40152	-12.84842	0.83303	0.60464	0.26410	58.23639	1.06267	311.71	-12.75
95/ 2/ 1	2449749.5	47.88829	-33.07536	-8.93988	0.65092	0.76477	0.30993	58.88284	1.05101	325.37	-8.73
95/ 2/ 1	2449750.0	51.95112	-27.67771	-6.78421	0.54771	0.82704	0.32582	59.25369	1.04410	331.95	-6.57
95/ 2/ 2	2449750.5	55.29483	-21.90092	-4.53724	0.43887	0.87667	0.33689	59.64692	1.03666	338.39	-4.36

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 2/ 2	2449751.0	57.88739	-15.83145	-2.23150	0.32620	0.91345	0.34319	60.05468	1.02887	344.70	-2.13
95/ 2/ 3	2449751.5	59.70875	-9.55651	0.10094	0.21142	0.93737	0.34480	60.46876	1.02090	350.91	0.10
95/ 2/ 3	2449752.0	60.75014	-3.16258	2.42898	0.09614	0.94863	0.34192	60.88088	1.01294	357.02	2.29
95/ 2/ 4	2449752.5	61.01327	3.26583	4.72283	-0.01816	0.94762	0.33475	61.28287	1.00517	3.06	4.42
95/ 2/ 4	2449753.0	60.50937	9.64716	6.95434	-0.13015	0.93482	0.32355	61.66696	0.99776	9.06	6.48
95/ 2/ 5	2449753.5	59.25818	15.90353	9.09716	-0.23864	0.91083	0.30861	62.02590	0.99085	15.02	8.43
95/ 2/ 5	2449754.0	57.28708	21.96127	11.12692	-0.34257	0.87628	0.29022	62.35316	0.98461	20.97	10.28
95/ 2/ 6	2449754.5	54.63021	27.75131	13.02127	-0.44100	0.83189	0.26867	62.64302	0.97914	26.93	12.00
95/ 2/ 6	2449755.0	51.32763	33.20934	14.75991	-0.53311	0.77837	0.24429	62.89071	0.97454	32.90	13.57
95/ 2/ 7	2449755.5	47.42473	38.27601	16.32461	-0.61816	0.71645	0.21736	63.09240	0.97091	38.91	15.00
95/ 2/ 7	2449756.0	42.97161	42.89695	17.69920	-0.69548	0.64687	0.18820	63.24532	0.96827	44.95	16.25
95/ 2/ 8	2449756.5	38.02263	47.02289	18.86954	-0.76449	0.57040	0.15710	63.34770	0.96668	51.04	17.33
95/ 2/ 8	2449757.0	32.63598	50.60963	19.82353	-0.82463	0.48778	0.12436	63.39885	0.96613	57.18	18.22
95/ 2/ 9	2449757.5	26.87344	53.61818	20.55111	-0.87541	0.39979	0.09029	63.39904	0.96660	63.38	18.91
95/ 2/ 9	2449758.0	20.80002	56.01486	21.04429	-0.91635	0.30723	0.05520	63.34956	0.96806	69.63	19.40
95/ 2/10	2449758.5	14.48378	57.77146	21.29719	-0.94704	0.21092	0.01939	63.25260	0.97044	75.93	19.68
95/ 2/10	2449759.0	7.99552	58.86548	21.30607	-0.96709	0.11173	-0.01680	63.11118	0.97366	82.27	19.73
95/ 2/11	2449759.5	1.40855	59.28042	21.06950	-0.97614	0.01055	-0.05304	62.92913	0.97764	88.64	19.56
95/ 2/11	2449760.0	-5.20165	59.00612	20.58835	-0.97391	-0.09164	-0.08896	62.71092	0.98224	95.04	19.17
95/ 2/12	2449760.5	-11.75786	58.03916	19.86601	-0.96016	-0.19381	-0.12420	62.46158	0.98737	101.45	18.55
95/ 2/12	2449761.0	-18.18161	56.38328	18.90841	-0.93477	-0.29488	-0.15836	62.18660	0.99289	107.87	17.70
95/ 2/13	2449761.5	-24.39377	54.04980	17.72423	-0.89769	-0.39370	-0.19104	61.89172	0.99867	114.29	16.64
95/ 2/13	2449762.0	-30.31539	51.05803	16.32490	-0.84900	-0.48906	-0.22182	61.58286	1.00459	120.70	15.37
95/ 2/14	2449762.5	-35.86854	47.43565	14.72475	-0.78893	-0.57971	-0.25027	61.26591	1.01050	127.09	13.91
95/ 2/14	2449763.0	-40.97737	43.21890	12.94099	-0.71788	-0.66436	-0.27597	60.94659	1.01630	133.47	12.26
95/ 2/15	2449763.5	-45.56926	38.45278	10.99373	-0.63640	-0.74172	-0.29849	60.63032	1.02188	139.84	10.45
95/ 2/15	2449764.0	-49.57614	33.19097	8.90582	-0.54527	-0.81052	-0.31743	60.32203	1.02715	146.20	8.49
95/ 2/16	2449764.5	-52.93576	27.49559	6.70278	-0.44545	-0.86955	-0.33243	60.02607	1.03201	152.55	6.41
95/ 2/16	2449765.0	-55.59311	21.43675	4.41248	-0.33810	-0.91767	-0.34315	59.74611	1.03643	158.91	4.24
95/ 2/17	2449765.5	-57.50172	15.09183	2.06484	-0.22459	-0.95388	-0.34931	59.48508	1.04036	165.29	1.99
95/ 2/17	2449766.0	-58.62492	8.54452	-0.30854	-0.10644	-0.97731	-0.35072	59.24513	1.04378	171.71	-0.30
95/ 2/18	2449766.5	-58.93689	1.88366	-2.67493	0.01467	-0.98731	-0.34723	59.02763	1.04670	178.17	-2.60
95/ 2/18	2449767.0	-58.42363	-4.79815	-5.00095	0.13694	-0.98344	-0.33880	58.83326	1.04914	184.69	-4.88
95/ 2/19	2449767.5	-57.08355	-11.40608	-7.25317	0.25850	-0.96548	-0.32545	58.66208	1.05114	191.30	-7.10
95/ 2/19	2449768.0	-54.92792	-17.84473	-9.39868	0.37745	-0.93348	-0.30732	58.51364	1.05276	198.00	-9.24
95/ 2/20	2449768.5	-51.98090	-24.01982	-11.40577	0.49187	-0.88772	-0.28462	58.38713	1.05404	204.80	-11.27
95/ 2/20	2449769.0	-48.27945	-29.83991	-13.24445	0.59992	-0.82877	-0.25765	58.28156	1.05506	211.72	-13.14
95/ 2/21	2449769.5	-43.87279	-35.21813	-14.88703	0.69983	-0.75739	-0.22678	58.19590	1.05586	218.76	-14.82
95/ 2/21	2449770.0	-38.82175	-40.07371	-16.30867	0.78995	-0.67462	-0.19249	58.12919	1.05650	225.91	-16.29
95/ 2/22	2449770.5	-33.19774	-44.33353	-17.48783	0.86879	-0.58169	-0.15527	58.08077	1.05701	233.17	-17.52
95/ 2/22	2449771.0	-27.08164	-47.93345	-18.40665	0.93506	-0.48001	-0.11571	58.05029	1.05742	240.53	-18.49
95/ 2/23	2449771.5	-20.56240	-50.81948	-19.05134	0.98767	-0.37116	-0.07443	58.03779	1.05773	247.97	-19.16
95/ 2/23	2449772.0	-13.73553	-52.94879	-19.41237	1.02578	-0.25685	-0.03206	58.04377	1.05793	255.46	-19.54
95/ 2/24	2449772.5	-6.70148	-54.29050	-19.48473	1.04878	-0.13889	0.01071	58.06912	1.05799	262.96	-19.61
95/ 2/24	2449773.0	0.43619	-54.82623	-19.26794	1.05634	-0.01917	0.05320	58.11505	1.05785	270.46	-19.36

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 2/25	2449773.5	7.57261	-54.55046	-18.76615	1.04842	0.10042	0.09476	58.18304	1.05747	277.90	-18.82
95/ 2/25	2449774.0	14.60352	-53.47058	-17.98797	1.02525	0.21797	0.13471	58.27463	1.05678	285.28	-17.98
95/ 2/26	2449774.5	21.42712	-51.60666	-16.94634	0.98731	0.33164	0.17245	58.39133	1.05570	292.55	-16.87
95/ 2/26	2449775.0	27.94594	-48.99102	-15.65822	0.93539	0.43967	0.20741	58.53439	1.05418	299.70	-15.52
95/ 2/27	2449775.5	34.06856	-45.66741	-14.14425	0.87050	0.54043	0.23907	58.70467	1.05214	306.72	-13.94
95/ 2/27	2449776.0	39.71117	-41.69005	-12.42829	0.79387	0.63249	0.26699	58.90246	1.04955	313.61	-12.18
95/ 2/28	2449776.5	44.79896	-37.12237	-10.53690	0.70692	0.71456	0.29082	59.12735	1.04638	320.35	-10.27
95/ 2/28	2449777.0	49.26719	-32.03554	-8.49879	0.61119	0.78563	0.31028	59.37812	1.04261	326.97	-8.23
95/ 3/ 1	2449777.5	53.06202	-26.50698	-6.34420	0.50835	0.84489	0.32519	59.65272	1.03827	333.46	-6.11
95/ 3/ 1	2449778.0	56.14103	-20.61863	-4.10433	0.40010	0.89180	0.33545	59.94822	1.03340	339.83	-3.93
95/ 3/ 2	2449778.5	58.47334	-14.45543	-1.81073	0.28814	0.92603	0.34106	60.26084	1.02804	346.11	-1.72
95/ 3/ 2	2449779.0	60.03954	-8.10364	0.50525	0.17415	0.94749	0.34208	60.58606	1.02229	352.31	0.48
95/ 3/ 3	2449779.5	60.83135	-1.64946	2.81292	0.05972	0.95630	0.33863	60.91869	1.01624	358.45	2.65
95/ 3/ 3	2449780.0	60.85099	4.82235	5.08270	-0.05363	0.95275	0.33092	61.25301	1.01001	4.53	4.76
95/ 3/ 4	2449780.5	60.11046	11.22952	7.28648	-0.16453	0.93730	0.31918	61.58297	1.00373	10.58	6.80
95/ 3/ 4	2449781.0	58.63070	17.49326	9.39784	-0.27172	0.91050	0.30368	61.90228	0.99753	16.61	8.73
95/ 3/ 5	2449781.5	56.44072	23.53893	11.39234	-0.37408	0.87302	0.28472	62.20468	0.99155	22.64	10.55
95/ 3/ 5	2449782.0	53.57666	29.29663	13.24757	-0.47061	0.82559	0.26262	62.48399	0.98592	28.67	12.24
95/ 3/ 6	2449782.5	50.08096	34.70157	14.94332	-0.56046	0.76899	0.23768	62.73439	0.98079	34.72	13.78
95/ 3/ 6	2449783.0	46.00154	39.69431	16.46155	-0.64286	0.70401	0.21025	62.95047	0.97627	40.79	15.16
95/ 3/ 7	2449783.5	41.39110	44.22092	17.78643	-0.71716	0.63148	0.18064	63.12741	0.97248	46.89	16.36
95/ 3/ 7	2449784.0	36.30649	48.23305	18.90431	-0.78279	0.55222	0.14918	63.26106	0.96952	53.03	17.39
95/ 3/ 8	2449784.5	30.80817	51.68797	19.80376	-0.83925	0.46708	0.11619	63.34808	0.96748	59.20	18.22
95/ 3/ 8	2449785.0	24.95975	54.54858	20.47545	-0.88611	0.37687	0.08198	63.38597	0.96640	65.41	18.85
95/ 3/ 9	2449785.5	18.82764	56.78343	20.91223	-0.92297	0.28243	0.04687	63.37318	0.96635	71.66	19.27
95/ 3/ 9	2449786.0	12.48072	58.36679	21.10906	-0.94949	0.18463	0.01118	63.30911	0.96733	77.93	19.48
95/ 3/10	2449786.5	5.99007	59.27875	21.06308	-0.96536	0.08432	-0.02477	63.19418	0.96935	84.23	19.47
95/ 3/10	2449787.0	-0.57133	59.50539	20.77362	-0.97033	-0.01759	-0.06066	63.02984	0.97239	90.55	19.24
95/ 3/11	2449787.5	-7.12880	59.03895	20.24224	-0.96417	-0.12018	-0.09615	62.81852	0.97638	96.88	18.80
95/ 3/11	2449788.0	-13.60633	57.87820	19.47289	-0.94670	-0.22245	-0.13088	62.56366	0.98126	103.23	18.13
95/ 3/12	2449788.5	-19.92695	56.02869	18.47191	-0.91782	-0.32338	-0.16449	62.26965	0.98693	109.58	17.26
95/ 3/12	2449789.0	-26.01316	53.50324	17.24819	-0.87749	-0.42187	-0.19659	61.94175	0.99328	115.93	16.17
95/ 3/13	2449789.5	-31.78755	50.32225	15.81328	-0.82577	-0.51675	-0.22678	61.58602	1.00018	122.28	14.88
95/ 3/13	2449790.0	-37.17357	46.51424	14.18150	-0.76284	-0.60682	-0.25465	61.20918	1.00747	128.63	13.40
95/ 3/14	2449790.5	-42.09636	42.11613	12.36999	-0.68905	-0.69079	-0.27978	60.81848	1.01501	134.99	11.74
95/ 3/14	2449791.0	-46.48389	37.17362	10.39879	-0.60489	-0.76736	-0.30174	60.42156	1.02263	141.35	9.91
95/ 3/15	2449791.5	-50.26822	31.74133	8.29081	-0.51106	-0.83520	-0.32010	60.02619	1.03015	147.73	7.94
95/ 3/15	2449792.0	-53.38688	25.88278	6.07174	-0.40849	-0.89301	-0.33448	59.64012	1.03741	154.14	5.84
95/ 3/16	2449792.5	-55.78441	19.67014	3.76988	-0.29833	-0.93956	-0.34449	59.27079	1.04424	160.58	3.65
95/ 3/16	2449793.0	-57.41397	13.18366	1.41588	-0.18196	-0.97370	-0.34983	58.92519	1.05051	167.07	1.38
95/ 3/17	2449793.5	-58.23888	6.51079	-0.95772	-0.06101	-0.99445	-0.35024	58.60951	1.05609	173.62	-0.94
95/ 3/17	2449794.0	-58.23412	-0.25506	-3.31695	0.06272	-1.00104	-0.34556	58.32907	1.06087	180.25	-3.26
95/ 3/18	2449794.5	-57.38756	-7.01606	-5.62704	0.18723	-0.99296	-0.33573	58.08804	1.06477	186.97	-5.56
95/ 3/18	2449795.0	-55.70093	-13.67186	-7.85312	0.31043	-0.96997	-0.32077	57.88942	1.06775	193.79	-7.80
95/ 3/19	2449795.5	-53.19039	-20.12164	-9.96098	0.43016	-0.93216	-0.30086	57.73490	1.06980	200.72	-9.93

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 3/19	2449796.0	-49.88665	-26.26632	-11.91786	0.54430	-0.87997	-0.27624	57.62494	1.07094	207.77	-11.94
95/ 3/20	2449796.5	-45.83467	-32.01082	-13.69319	0.65078	-0.81414	-0.24731	57.55878	1.07122	214.93	-13.76
95/ 3/20	2449797.0	-41.09282	-37.26619	-15.25928	0.74771	-0.73574	-0.21455	57.53463	1.07071	222.20	-15.38
95/ 3/21	2449797.5	-35.73166	-41.95159	-16.59199	0.83339	-0.64608	-0.17850	57.54982	1.06950	229.58	-16.76
95/ 3/21	2449798.0	-29.83244	-45.99599	-17.67117	0.90638	-0.54673	-0.13979	57.60100	1.06770	237.03	-17.87
95/ 3/22	2449798.5	-23.48521	-49.33952	-18.48108	0.96552	-0.43942	-0.09910	57.68443	1.06543	244.55	-18.69
95/ 3/22	2449799.0	-16.78689	-51.93451	-19.01060	1.00994	-0.32600	-0.05711	57.79615	1.06279	252.09	-19.20
95/ 3/23	2449799.5	-9.83915	-53.74611	-19.25336	1.03910	-0.20842	-0.01453	57.93224	1.05990	259.63	-19.41
95/ 3/23	2449800.0	-2.74637	-54.75264	-19.20771	1.05275	-0.08860	0.02794	58.08899	1.05684	267.13	-19.31
95/ 3/24	2449800.5	4.38635	-54.94556	-18.87664	1.05093	0.03152	0.06964	58.26304	1.05370	274.56	-18.90
95/ 3/24	2449801.0	11.45507	-54.32916	-18.26751	1.03393	0.15008	0.10994	58.45150	1.05053	281.91	-18.21
95/ 3/25	2449801.5	18.35878	-52.92009	-17.39184	1.00231	0.26531	0.14826	58.65200	1.04737	289.13	-17.25
95/ 3/25	2449802.0	25.00093	-50.74664	-16.26493	0.95684	0.37554	0.18405	58.86269	1.04424	296.23	-16.04
95/ 3/26	2449802.5	31.29085	-47.84785	-14.90550	0.89847	0.47925	0.21685	59.08221	1.04113	303.18	-14.61
95/ 3/26	2449803.0	37.14495	-44.27251	-13.33525	0.82834	0.57510	0.24624	59.30962	1.03804	310.00	-12.99
95/ 3/27	2449803.5	42.48774	-40.07811	-11.57844	0.74771	0.66188	0.27188	59.54430	1.03493	316.67	-11.21
95/ 3/27	2449804.0	47.25273	-35.32960	-9.66143	0.65795	0.73857	0.29350	59.78582	1.03176	323.22	-9.30
95/ 3/28	2449804.5	51.38300	-30.09820	-7.61221	0.56053	0.80435	0.31090	60.03383	1.02851	329.64	-7.28
95/ 3/28	2449805.0	54.83177	-24.46010	-5.45992	0.45697	0.85857	0.32392	60.28790	1.02513	335.96	-5.20
95/ 3/29	2449805.5	57.56263	-18.49519	-3.23440	0.34880	0.90079	0.33252	60.54742	1.02159	342.19	-3.06
95/ 3/29	2449806.0	59.54965	-12.28578	-0.96571	0.23758	0.93075	0.33667	60.81146	1.01788	348.34	-0.91
95/ 3/30	2449806.5	60.77737	-5.91530	1.31625	0.12483	0.94835	0.33645	61.07873	1.01398	354.44	1.23
95/ 3/30	2449807.0	61.24048	0.53279	3.58218	0.01204	0.95370	0.33196	61.34747	1.00989	0.50	3.35
95/ 3/31	2449807.5	60.94349	6.97622	5.80374	-0.09939	0.94703	0.32338	61.61542	1.00564	6.53	5.40
95/ 3/31	2449808.0	59.90021	13.33485	7.95387	-0.20813	0.92873	0.31091	61.87986	1.00126	12.55	7.39
95/ 4/ 1	2449808.5	58.13307	19.53160	10.00707	-0.31294	0.89932	0.29480	62.13758	0.99680	18.57	9.27
95/ 4/ 1	2449809.0	55.67248	25.49323	11.93959	-0.41272	0.85941	0.27533	62.38496	0.99234	24.60	11.03
95/ 4/ 2	2449809.5	52.55600	31.15093	13.72967	-0.50646	0.80970	0.25279	62.61803	0.98794	30.66	12.67
95/ 4/ 2	2449810.0	48.82764	36.44088	15.35763	-0.59327	0.75095	0.22751	62.83258	0.98369	36.73	14.15
95/ 4/ 3	2449810.5	44.53702	41.30457	16.80596	-0.67237	0.68397	0.19980	63.02424	0.97970	42.84	15.47
95/ 4/ 3	2449811.0	39.73869	45.68913	18.05940	-0.74309	0.60960	0.17001	63.18863	0.97607	48.98	16.61
95/ 4/ 4	2449811.5	34.49139	49.54748	19.10492	-0.80486	0.52872	0.13846	63.32145	0.97290	55.16	17.56
95/ 4/ 4	2449812.0	28.85742	52.83844	19.93176	-0.85720	0.44220	0.10549	63.41866	0.97029	61.36	18.32
95/ 4/ 5	2449812.5	22.90213	55.52679	20.53140	-0.89969	0.35093	0.07142	63.47653	0.96834	67.59	18.87
95/ 4/ 5	2449813.0	16.69334	57.58332	20.89752	-0.93200	0.25578	0.03659	63.49183	0.96716	73.83	19.22
95/ 4/ 6	2449813.5	10.30095	58.98482	21.02605	-0.95386	0.15765	0.00132	63.46190	0.96680	80.09	19.35
95/ 4/ 6	2449814.0	3.79656	59.71411	20.91507	-0.96504	0.05743	-0.03408	63.38477	0.96735	86.36	19.27
95/ 4/ 7	2449814.5	-2.74691	59.76015	20.56487	-0.96537	-0.04396	-0.06927	63.25926	0.96885	92.63	18.97
95/ 4/ 7	2449815.0	-9.25548	59.11805	19.97794	-0.95472	-0.14561	-0.10393	63.08507	0.97134	98.90	18.46
95/ 4/ 8	2449815.5	-15.65449	57.78930	19.15903	-0.93301	-0.24656	-0.13772	62.86283	0.97482	105.16	17.74
95/ 4/ 8	2449816.0	-21.86890	55.78192	18.11516	-0.90021	-0.34584	-0.17030	62.59417	0.97928	111.41	16.82
95/ 4/ 9	2449816.5	-27.82366	53.11075	16.85571	-0.85635	-0.44240	-0.20132	62.28180	0.98468	117.65	15.70
95/ 4/ 9	2449817.0	-33.44422	49.79774	15.39250	-0.80155	-0.53518	-0.23040	61.92947	0.99095	123.89	14.39
95/ 4/10	2449817.5	-38.65704	45.87229	13.73989	-0.73599	-0.62306	-0.25718	61.54200	0.99801	130.12	12.90
95/ 4/10	2449818.0	-43.39034	41.37164	11.91482	-0.66001	-0.70484	-0.28126	61.12526	1.00575	136.36	11.24

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/ 4/11	2449818.5	-47.57496	36.34115	9.93691	-0.57406	-0.77931	-0.30225	60.68606	1.01401	142.62	9.42
95/ 4/11	2449819.0	-51.14537	30.83462	7.82852	-0.47876	-0.84520	-0.31973	60.23212	1.02264	148.91	7.47
95/ 4/12	2449819.5	-54.04093	24.91444	5.61467	-0.37494	-0.90124	-0.33332	59.77187	1.03147	155.25	5.39
95/ 4/12	2449820.0	-56.20730	18.65154	3.32301	-0.26363	-0.94619	-0.34265	59.31427	1.04028	161.64	3.21
95/ 4/13	2449820.5	-57.59798	12.12518	0.98360	-0.14612	-0.97885	-0.34737	58.86863	1.04889	168.11	0.96
95/ 4/13	2449821.0	-58.17605	5.42232	-1.37132	-0.02394	-0.99814	-0.34719	58.44428	1.05707	174.68	-1.34
95/ 4/14	2449821.5	-57.91577	-1.36330	-3.70784	0.10112	-1.00316	-0.34190	58.05034	1.06464	181.35	-3.66
95/ 4/14	2449822.0	-56.80423	-8.13255	-5.99090	0.22707	-0.99322	-0.33139	57.69532	1.07138	188.15	-5.96
95/ 4/15	2449822.5	-54.84276	-14.78267	-8.18495	0.35173	-0.96794	-0.31563	57.38683	1.07715	195.09	-8.20
95/ 4/15	2449823.0	-52.04788	-21.20942	-10.25484	0.47278	-0.92729	-0.29475	57.13128	1.08179	202.17	-10.34
95/ 4/16	2449823.5	-48.45193	-27.30961	-12.16662	0.58789	-0.87160	-0.26900	56.93357	1.08520	209.41	-12.34
95/ 4/16	2449824.0	-44.10305	-32.98368	-13.88852	0.69475	-0.80161	-0.23876	56.79695	1.08732	216.79	-14.15
95/ 4/17	2449824.5	-39.06449	-38.13843	-15.39183	0.79120	-0.71847	-0.20454	56.72286	1.08813	224.31	-15.74
95/ 4/17	2449825.0	-33.41338	-42.68956	-16.65167	0.87533	-0.62365	-0.16698	56.71094	1.08767	231.95	-17.08
95/ 4/18	2449825.5	-27.23886	-46.56392	-17.64772	0.94552	-0.51894	-0.12677	56.75911	1.08600	239.67	-18.11
95/ 4/18	2449826.0	-20.63977	-49.70134	-18.36469	1.00053	-0.40638	-0.08470	56.86375	1.08323	247.45	-18.84
95/ 4/19	2449826.5	-13.72206	-52.05590	-18.79264	1.03950	-0.28814	-0.04156	57.01995	1.07950	255.23	-19.24
95/ 4/19	2449827.0	-6.59602	-53.59661	-18.92703	1.06201	-0.16644	0.00185	57.22182	1.07497	262.98	-19.32
95/ 4/20	2449827.5	0.62645	-54.30763	-18.76867	1.06800	-0.04350	0.04477	57.46281	1.06982	270.66	-19.06
95/ 4/20	2449828.0	7.83437	-54.18788	-18.32340	1.05779	0.07854	0.08646	57.73605	1.06422	278.23	-18.50
95/ 4/21	2449828.5	14.92000	-53.25027	-17.60176	1.03202	0.19769	0.12627	58.03464	1.05834	285.65	-17.66
95/ 4/21	2449829.0	21.78077	-51.52064	-16.61845	0.99156	0.31213	0.16364	58.35196	1.05233	292.92	-16.55
95/ 4/22	2449829.5	28.32090	-49.03645	-15.39183	0.93753	0.42025	0.19805	58.68181	1.04633	300.01	-15.21
95/ 4/22	2449830.0	34.45264	-45.84539	-13.94334	0.87119	0.52065	0.22909	59.01865	1.04044	306.92	-13.67
95/ 4/23	2449830.5	40.09718	-42.00394	-12.29696	0.79390	0.61213	0.25643	59.35765	1.03477	313.67	-11.96
95/ 4/23	2449831.0	45.18532	-37.57589	-10.47866	0.70713	0.69372	0.27982	59.69475	1.02936	320.25	-10.11
95/ 4/24	2449831.5	49.65783	-32.63100	-8.51592	0.61236	0.76464	0.29906	60.02668	1.02426	326.69	-8.16
95/ 4/24	2449832.0	53.46565	-27.24361	-6.43723	0.51111	0.82430	0.31404	60.35088	1.01947	333.00	-6.12
95/ 4/25	2449832.5	56.56998	-21.49150	-4.27170	0.40487	0.87229	0.32470	60.66543	1.01500	339.20	-4.04
95/ 4/25	2449833.0	58.94210	-15.45467	-2.04862	0.29514	0.90835	0.33104	60.96896	1.01084	345.31	-1.93
95/ 4/26	2449833.5	60.56327	-9.21429	0.20285	0.18336	0.93239	0.33310	61.26054	1.00694	351.35	0.19
95/ 4/26	2449834.0	61.42441	-2.85172	2.45404	0.07094	0.94445	0.33097	61.53952	1.00327	357.34	2.29
95/ 4/27	2449834.5	61.52575	3.55239	4.67705	-0.04078	0.94469	0.32480	61.80544	0.99980	3.30	4.34
95/ 4/27	2449835.0	60.87644	9.91895	6.84501	-0.15052	0.93342	0.31475	62.05788	0.99649	9.25	6.33
95/ 4/28	2449835.5	59.49405	16.17125	8.93237	-0.25706	0.91102	0.30103	62.29638	0.99331	15.21	8.24
95/ 4/28	2449836.0	57.40410	22.23558	10.91503	-0.35928	0.87801	0.28388	62.52031	0.99023	21.17	10.05
95/ 4/29	2449836.5	54.63943	28.04194	12.77062	-0.45613	0.83495	0.26355	62.72883	0.98725	27.17	11.75
95/ 4/29	2449837.0	51.23964	33.52455	14.47859	-0.54667	0.78252	0.24034	62.92079	0.98436	33.20	13.30
95/ 4/30	2449837.5	47.25047	38.62237	16.02038	-0.63004	0.72145	0.21453	63.09475	0.98156	39.26	14.71
95/ 4/30	2449838.0	42.72310	43.27948	17.37949	-0.70548	0.65252	0.18645	63.24890	0.97890	45.37	15.95
95/ 5/ 1	2449838.5	37.71357	47.44542	18.54162	-0.77232	0.57655	0.15642	63.38117	0.97640	51.52	17.01
95/ 5/ 1	2449839.0	32.28208	51.07547	19.49466	-0.82999	0.49442	0.12476	63.48920	0.97411	57.71	17.88
95/ 5/ 2	2449839.5	26.49241	54.13083	20.22874	-0.87801	0.40700	0.09182	63.57041	0.97211	63.92	18.55
95/ 5/ 2	2449840.0	20.41129	56.57878	20.73627	-0.91600	0.31520	0.05792	63.62210	0.97044	70.16	19.02
95/ 5/ 3	2449840.5	14.10784	58.39274	21.01193	-0.94362	0.21994	0.02340	63.64153	0.96920	76.42	19.28

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 5/ 3	2449841.0	7.65304	59.55238	21.05264	-0.96065	0.12214	-0.01140	63.62600	0.96845	82.68	19.32
95/ 5/ 4	2449841.5	1.11927	60.04363	20.85757	-0.96692	0.02273	-0.04616	63.57302	0.96829	88.93	19.15
95/ 5/ 4	2449842.0	-5.42020	59.85873	20.42813	-0.96232	-0.07737	-0.08056	63.48035	0.96878	95.17	18.77
95/ 5/ 5	2449842.5	-11.89158	58.99624	19.76794	-0.94681	-0.17720	-0.11425	63.34617	0.97000	101.40	18.18
95/ 5/ 5	2449843.0	-18.22101	57.46111	18.88282	-0.92041	-0.27583	-0.14692	63.16918	0.97202	107.59	17.39
95/ 5/ 6	2449843.5	-24.33494	55.26479	17.78085	-0.88319	-0.37229	-0.17823	62.94875	0.97488	113.77	16.41
95/ 5/ 6	2449844.0	-30.16054	52.42527	16.47230	-0.83530	-0.46559	-0.20786	62.68496	0.97863	119.91	15.24
95/ 5/ 7	2449844.5	-35.62614	48.96730	14.96973	-0.77693	-0.55474	-0.23547	62.37877	0.98326	126.04	13.89
95/ 5/ 7	2449845.0	-40.66173	44.92250	13.28798	-0.70838	-0.63870	-0.26072	62.03207	0.98879	132.15	12.37
95/ 5/ 8	2449845.5	-45.19956	40.32964	11.44422	-0.63001	-0.71640	-0.28325	61.64779	0.99518	138.26	10.70
95/ 5/ 8	2449846.0	-49.17478	35.23479	9.45801	-0.54233	-0.78675	-0.30272	61.22992	1.00237	144.38	8.89
95/ 5/ 9	2449846.5	-52.52631	29.69154	7.35130	-0.44596	-0.84862	-0.31878	60.78357	1.01028	150.52	6.95
95/ 5/ 9	2449847.0	-55.19779	23.76116	5.14839	-0.34166	-0.90088	-0.33107	60.31496	1.01879	156.71	4.90
95/ 5/10	2449847.5	-57.13869	17.51257	2.87597	-0.23040	-0.94240	-0.33925	59.83135	1.02776	162.96	2.76
95/ 5/10	2449848.0	-58.30564	11.02233	0.56293	-0.11333	-0.97206	-0.34301	59.34102	1.03702	169.29	0.54
95/ 5/11	2449848.5	-58.66387	4.37421	-1.75981	0.00816	-0.98885	-0.34207	58.85303	1.04638	175.74	-1.71
95/ 5/11	2449849.0	-58.18873	-2.34137	-4.05958	0.13246	-0.99185	-0.33620	58.37714	1.05562	182.30	-3.99
95/ 5/12	2449849.5	-56.86733	-9.02836	-6.30242	0.25773	-0.98030	-0.32524	57.92344	1.06452	189.02	-6.25
95/ 5/12	2449850.0	-54.70004	-15.58643	-8.45362	0.38189	-0.95371	-0.30914	57.50212	1.07284	195.90	-8.45
95/ 5/13	2449850.5	-51.70180	-21.91281	-10.47843	0.50271	-0.91188	-0.28794	57.12307	1.08035	202.97	-10.57
95/ 5/13	2449851.0	-47.90318	-27.90451	-12.34289	0.61784	-0.85494	-0.26183	56.79545	1.08684	210.22	-12.55
95/ 5/14	2449851.5	-43.35085	-33.46091	-14.01477	0.72488	-0.78347	-0.23113	56.52736	1.09211	217.66	-14.35
95/ 5/14	2449852.0	-38.10750	-38.48658	-15.46451	0.82152	-0.69842	-0.19632	56.32539	1.09601	225.28	-15.94
95/ 5/15	2449852.5	-32.25102	-42.89415	-16.66617	0.90560	-0.60122	-0.15799	56.19429	1.09842	233.06	-17.25
95/ 5/15	2449853.0	-25.87300	-46.60712	-17.59836	0.97524	-0.49364	-0.11688	56.13678	1.09929	240.96	-18.27
95/ 5/16	2449853.5	-19.07647	-49.56225	-18.24488	1.02896	-0.37781	-0.07378	56.15340	1.09861	248.95	-18.96
95/ 5/16	2449854.0	-11.97315	-51.71149	-18.59529	1.06570	-0.25607	-0.02958	56.24250	1.09644	256.96	-19.31
95/ 5/17	2449854.5	-4.68025	-53.02319	-18.64513	1.08489	-0.13091	0.01483	56.40039	1.09286	264.96	-19.30
95/ 5/17	2449855.0	2.68282	-53.48265	-18.39592	1.08645	-0.00482	0.05858	56.62156	1.08804	272.87	-18.96
95/ 5/18	2449855.5	9.99770	-53.09190	-17.85489	1.07076	0.11977	0.10087	56.89905	1.08215	280.66	-18.29
95/ 5/18	2449856.0	17.15005	-51.86880	-17.03457	1.03862	0.24061	0.14094	57.22476	1.07540	288.30	-17.32
95/ 5/19	2449856.5	24.03206	-49.84567	-15.95211	0.99115	0.35569	0.17818	57.58993	1.06800	295.74	-16.08
95/ 5/19	2449857.0	30.54449	-47.06760	-14.62859	0.92973	0.46327	0.21205	57.98552	1.06018	302.98	-14.61
95/ 5/20	2449857.5	36.59816	-43.59045	-13.08827	0.85595	0.56191	0.24214	58.40253	1.05215	310.02	-12.95
95/ 5/20	2449858.0	42.11486	-39.47889	-11.35786	0.77146	0.65044	0.26814	58.83235	1.04409	316.85	-11.13
95/ 5/21	2449858.5	47.02794	-34.80444	-9.46579	0.67799	0.72800	0.28985	59.26700	1.03618	323.50	-9.19
95/ 5/21	2449859.0	51.28238	-29.64369	-7.44161	0.57725	0.79396	0.30714	59.69931	1.02855	329.97	-7.16
95/ 5/22	2449859.5	54.83465	-24.07665	-5.31539	0.47092	0.84793	0.31997	60.12302	1.02133	336.29	-5.07
95/ 5/22	2449860.0	57.65241	-18.18535	-3.11731	0.36061	0.88969	0.32837	60.53285	1.01461	342.49	-2.95
95/ 5/23	2449860.5	59.71399	-12.05260	-0.87721	0.24787	0.91923	0.33240	60.92450	1.00842	348.59	-0.82
95/ 5/23	2449861.0	61.00779	-5.76093	1.37571	0.13413	0.93665	0.33218	61.29463	1.00282	354.61	1.29
95/ 5/24	2449861.5	61.53176	0.60822	3.61317	0.02076	0.94216	0.32786	61.64076	0.99779	0.57	3.36
95/ 5/24	2449862.0	61.29273	6.97535	5.80803	-0.09097	0.93611	0.31963	61.96118	0.99335	6.49	5.38
95/ 5/25	2449862.5	60.30583	13.26344	7.93448	-0.19989	0.91890	0.30770	62.25486	0.98945	12.40	7.32
95/ 5/25	2449863.0	58.59391	19.39855	9.96819	-0.30489	0.89102	0.29228	62.52131	0.98606	18.32	9.17

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/ 5/26	2449863.5	56.18699	25.31029	11.88644	-0.40495	0.85304	0.27365	62.76046	0.98313	24.25	10.92
95/ 5/26	2449864.0	53.12170	30.93226	13.66828	-0.49915	0.80556	0.25205	62.97254	0.98062	30.21	12.54
95/ 5/27	2449864.5	49.44075	36.20243	15.29456	-0.58662	0.74927	0.22776	63.15796	0.97847	36.21	14.01
95/ 5/27	2449865.0	45.19240	41.06349	16.74811	-0.66658	0.68488	0.20109	63.31716	0.97664	42.26	15.34
95/ 5/28	2449865.5	40.42989	45.46319	18.01374	-0.73833	0.61316	0.17232	63.45055	0.97509	48.35	16.49
95/ 5/28	2449866.0	35.21094	49.35460	19.07838	-0.80126	0.53492	0.14179	63.55842	0.97379	54.49	17.47
95/ 5/29	2449866.5	29.59723	52.69640	19.93109	-0.85482	0.45101	0.10980	63.64083	0.97272	60.68	18.25
95/ 5/29	2449867.0	23.65382	55.45306	20.56313	-0.89855	0.36229	0.07668	63.69763	0.97187	66.90	18.83
95/ 5/30	2449867.5	17.44861	57.59512	20.96797	-0.93207	0.26967	0.04276	63.72839	0.97124	73.15	19.21
95/ 5/30	2449868.0	11.05183	59.09927	21.14138	-0.95508	0.17408	0.00839	63.73244	0.97085	79.41	19.37
95/ 5/31	2449868.5	4.53544	59.94852	21.08137	-0.96736	0.07644	-0.02610	63.70887	0.97073	85.67	19.32
95/ 5/31	2449869.0	-2.02735	60.13231	20.78825	-0.96877	-0.02227	-0.06039	63.65655	0.97090	91.93	19.06
95/ 6/ 1	2449869.5	-8.56269	59.64653	20.26459	-0.95925	-0.12111	-0.09412	63.57423	0.97143	98.17	18.59
95/ 6/ 1	2449870.0	-14.99655	58.49362	19.51524	-0.93881	-0.21911	-0.12698	63.46057	0.97237	104.38	17.91
95/ 6/ 2	2449870.5	-21.25526	56.68255	18.54727	-0.90755	-0.31530	-0.15863	63.31428	0.97377	110.56	17.03
95/ 6/ 2	2449871.0	-27.26604	54.22888	17.36999	-0.86563	-0.40871	-0.18873	63.13418	0.97569	116.69	15.97
95/ 6/ 3	2449871.5	-32.95747	51.15476	15.99493	-0.81330	-0.49835	-0.21698	62.91933	0.97820	122.79	14.73
95/ 6/ 3	2449872.0	-38.26004	47.48898	14.43576	-0.75087	-0.58326	-0.24304	62.66917	0.98136	128.86	13.32
95/ 6/ 4	2449872.5	-43.10672	43.26693	12.70835	-0.67875	-0.66245	-0.26661	62.38364	0.98520	134.89	11.75
95/ 6/ 4	2449873.0	-47.43346	38.53069	10.83070	-0.59742	-0.73493	-0.28736	62.06328	0.98976	140.91	10.05
95/ 6/ 5	2449873.5	-51.17991	33.32898	8.82290	-0.50749	-0.79973	-0.30499	61.70937	0.99506	146.93	8.22
95/ 6/ 5	2449874.0	-54.29003	27.71721	6.70714	-0.40965	-0.85586	-0.31919	61.32403	1.00109	152.95	6.28
95/ 6/ 6	2449874.5	-56.71296	21.75743	4.50761	-0.30472	-0.90233	-0.32967	60.91030	1.00784	159.01	4.24
95/ 6/ 6	2449875.0	-58.40386	15.51825	2.25048	-0.19366	-0.93820	-0.33616	60.47224	1.01525	165.12	2.13
95/ 6/ 7	2449875.5	-59.32493	9.07467	-0.03629	-0.07759	-0.96255	-0.33838	60.01499	1.02324	171.30	-0.03
95/ 6/ 7	2449876.0	-59.44653	2.50771	-2.32305	0.04219	-0.97450	-0.33612	59.54473	1.03170	177.58	-2.24
95/ 6/ 8	2449876.5	-58.74837	-4.09604	-4.57872	0.16421	-0.97329	-0.32917	59.06872	1.04049	183.99	-4.45
95/ 6/ 8	2449877.0	-57.22082	-10.64521	-6.77114	0.28681	-0.95829	-0.31742	58.59515	1.04944	190.54	-6.64
95/ 6/ 9	2449877.5	-54.86616	-17.04467	-8.86748	0.40813	-0.92903	-0.30080	58.13302	1.05837	197.26	-8.77
95/ 6/ 9	2449878.0	-51.69979	-23.19695	-10.83480	0.52615	-0.88528	-0.27933	57.69194	1.06704	204.17	-10.82
95/ 6/10	2449878.5	-47.75133	-29.00399	-12.64068	0.63871	-0.82711	-0.25316	57.28183	1.07525	211.27	-12.75
95/ 6/10	2449879.0	-43.06528	-34.36925	-14.25403	0.74357	-0.75492	-0.22254	56.91258	1.08274	218.59	-14.50
95/ 6/11	2449879.5	-37.70141	-39.20013	-15.64596	0.83850	-0.66948	-0.18785	56.59366	1.08930	226.12	-16.05
95/ 6/11	2449880.0	-31.73442	-43.41069	-16.79063	0.92132	-0.57198	-0.14962	56.33371	1.09470	233.83	-17.34
95/ 6/12	2449880.5	-25.25311	-46.92436	-17.66622	0.99007	-0.46399	-0.10851	56.14009	1.09877	241.71	-18.34
95/ 6/12	2449881.0	-18.35868	-49.67656	-18.25572	1.04306	-0.34748	-0.06528	56.01850	1.10135	249.72	-19.02
95/ 6/13	2449881.5	-11.16243	-51.61708	-18.54765	1.07902	-0.22471	-0.02079	55.97266	1.10236	257.80	-19.35
95/ 6/13	2449882.0	-3.78285	-52.71191	-18.53647	1.09710	-0.09817	0.02407	56.00407	1.10175	265.90	-19.33
95/ 6/14	2449882.5	3.65771	-52.94430	-18.22289	1.09701	0.02952	0.06836	56.11196	1.09954	273.95	-18.95
95/ 6/14	2449883.0	11.03656	-52.31525	-17.61373	1.07896	0.15578	0.11121	56.29329	1.09580	281.91	-18.23
95/ 6/15	2449883.5	18.23413	-50.84300	-16.72165	1.04364	0.27812	0.15178	56.54297	1.09067	289.73	-17.20
95/ 6/15	2449884.0	25.13712	-48.56190	-15.56454	0.99219	0.39427	0.18935	56.85409	1.08432	297.37	-15.89
95/ 6/16	2449884.5	31.64115	-45.52069	-14.16482	0.92610	0.50227	0.22333	57.21833	1.07695	304.80	-14.33
95/ 6/16	2449885.0	37.65282	-41.78034	-12.54855	0.84711	0.60048	0.25323	57.62636	1.06878	312.03	-12.58
95/ 6/17	2449885.5	43.09112	-37.41168	-10.74455	0.75711	0.68762	0.27872	58.06827	1.06006	319.04	-10.66

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 6/17	2449886.0	47.88818	-32.49301	-8.78353	0.65809	0.76277	0.29957	58.53395	1.05102	325.84	-8.63
95/ 6/18	2449886.5	51.98952	-27.10778	-6.69727	0.55199	0.82532	0.31569	59.01351	1.04188	332.46	-6.52
95/ 6/18	2449887.0	55.35378	-21.34255	-4.51793	0.44074	0.87495	0.32706	59.49754	1.03284	338.92	-4.35
95/ 6/19	2449887.5	57.95221	-15.28515	-2.27746	0.32614	0.91160	0.33376	59.97734	1.02410	345.22	-2.18
95/ 6/19	2449888.0	59.76786	-9.02319	-0.00707	0.20986	0.93539	0.33592	60.44514	1.01579	351.41	-0.01
95/ 6/20	2449888.5	60.79470	-2.64286	2.26307	0.09346	0.94661	0.33373	60.89418	1.00806	357.51	2.13
95/ 6/20	2449889.0	61.03669	3.77207	4.50419	-0.02167	0.94569	0.32739	61.31879	1.00099	3.54	4.21
95/ 6/21	2449889.5	60.50686	10.14098	6.68905	-0.13426	0.93311	0.31716	61.71436	0.99464	9.51	6.22
95/ 6/21	2449890.0	59.22640	16.38691	8.79213	-0.24315	0.90947	0.30329	62.07736	0.98906	15.47	8.14
95/ 6/22	2449890.5	57.22390	22.43705	10.78973	-0.34731	0.87540	0.28605	62.40524	0.98427	21.41	9.96
95/ 6/22	2449891.0	54.53460	28.22299	12.66003	-0.44581	0.83157	0.26574	62.69638	0.98025	27.36	11.65
95/ 6/23	2449891.5	51.19972	33.68101	14.38313	-0.53781	0.77869	0.24264	62.94995	0.97697	33.34	13.21
95/ 6/23	2449892.0	47.26591	38.75228	15.94110	-0.62255	0.71749	0.21703	63.16584	0.97440	39.35	14.62
95/ 6/24	2449892.5	42.78472	43.38300	17.31801	-0.69934	0.64873	0.18922	63.34454	0.97249	45.40	15.87
95/ 6/24	2449893.0	37.81210	47.52464	18.49998	-0.76757	0.57320	0.15952	63.48697	0.97117	51.49	16.94
95/ 6/25	2449893.5	32.40792	51.13407	19.47520	-0.82669	0.49171	0.12822	63.59441	0.97038	57.63	17.83
95/ 6/25	2449894.0	26.63556	54.17376	20.23396	-0.87621	0.40510	0.09565	63.66838	0.97005	63.82	18.53
95/ 6/26	2449894.5	20.56145	56.61194	20.76872	-0.91573	0.31424	0.06213	63.71047	0.97014	70.04	19.03
95/ 6/26	2449895.0	14.25460	58.42278	21.07409	-0.94489	0.22001	0.02797	63.72230	0.97057	76.29	19.31
95/ 6/27	2449895.5	7.78613	59.58659	21.14693	-0.96341	0.12333	-0.00648	63.70540	0.97129	82.56	19.39
95/ 6/27	2449896.0	1.22883	60.08997	20.98634	-0.97110	0.02515	-0.04090	63.66115	0.97228	88.83	19.25
95/ 6/28	2449896.5	-5.34346	59.92600	20.59371	-0.96782	-0.07357	-0.07495	63.59072	0.97350	95.10	18.90
95/ 6/28	2449897.0	-11.85629	59.09434	19.97273	-0.95354	-0.17185	-0.10828	63.49506	0.97493	101.34	18.33
95/ 6/29	2449897.5	-18.23525	57.60134	19.12940	-0.92830	-0.26870	-0.14055	63.37486	0.97658	107.57	17.57
95/ 6/29	2449898.0	-24.40653	55.46012	18.07201	-0.89225	-0.36310	-0.17143	63.23054	0.97843	113.75	16.61
95/ 6/30	2449898.5	-30.29756	52.69060	16.81116	-0.84559	-0.45406	-0.20058	63.06232	0.98053	119.90	15.46
95/ 6/30	2449899.0	-35.83760	49.31947	15.35965	-0.78866	-0.54058	-0.22767	62.87020	0.98288	126.00	14.14
95/ 7/ 1	2449899.5	-40.95843	45.38019	13.73251	-0.72188	-0.62167	-0.25239	62.65410	0.98553	132.07	12.66
95/ 7/ 1	2449900.0	-45.59495	40.91287	11.94692	-0.64575	-0.69635	-0.27441	62.41387	0.98853	138.10	11.04
95/ 7/ 2	2449900.5	-49.68593	35.96420	10.02210	-0.56089	-0.76365	-0.29345	62.14948	0.99191	144.10	9.28
95/ 7/ 2	2449901.0	-53.17465	30.58724	7.97926	-0.46803	-0.82267	-0.30922	61.86107	0.99572	150.09	7.41
95/ 7/ 3	2449901.5	-56.00964	24.84123	5.84148	-0.36800	-0.87249	-0.32144	61.54908	0.99999	156.08	5.45
95/ 7/ 3	2449902.0	-58.14540	18.79134	3.63357	-0.26172	-0.91226	-0.32989	61.21442	1.00476	162.09	3.40
95/ 7/ 4	2449902.5	-59.54318	12.50834	1.38194	-0.15026	-0.94119	-0.33432	60.85851	1.01005	168.14	1.30
95/ 7/ 4	2449903.0	-60.17179	6.06821	-0.88557	-0.03480	-0.95855	-0.33455	60.48348	1.01585	174.24	-0.84
95/ 7/ 5	2449903.5	-60.00846	-0.44838	-3.13993	0.08336	-0.96367	-0.33041	60.09223	1.02214	180.43	-3.00
95/ 7/ 5	2449904.0	-59.03969	-6.95664	-5.35114	0.20279	-0.95600	-0.32179	59.68848	1.02889	186.72	-5.14
95/ 7/ 6	2449904.5	-57.26218	-13.36847	-7.48859	0.32191	-0.93513	-0.30862	59.27691	1.03602	193.14	-7.26
95/ 7/ 6	2449905.0	-54.68369	-19.59340	-9.52136	0.43902	-0.90079	-0.29089	58.86309	1.04344	199.71	-9.31
95/ 7/ 7	2449905.5	-51.32390	-25.53980	-11.41875	0.55231	-0.85289	-0.26866	58.45350	1.05102	206.46	-11.27
95/ 7/ 7	2449906.0	-47.21510	-31.11629	-13.15074	0.65987	-0.79160	-0.24208	58.05542	1.05861	213.39	-13.09
95/ 7/ 8	2449906.5	-42.40277	-36.23338	-14.68866	0.75973	-0.71733	-0.21140	57.67676	1.06604	220.51	-14.75
95/ 7/ 8	2449907.0	-36.94578	-40.80545	-16.00580	0.84990	-0.63080	-0.17695	57.32592	1.07311	227.84	-16.21
95/ 7/ 9	2449907.5	-30.91633	-44.75283	-17.07818	0.92846	-0.53307	-0.13921	57.01140	1.07962	235.36	-17.43
95/ 7/ 9	2449908.0	-24.39937	-48.00411	-17.88529	0.99358	-0.42551	-0.09873	56.74159	1.08536	243.06	-18.37

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 7/10	2449908.5	-17.49146	-50.49838	-18.41085	1.04365	-0.30984	-0.05619	56.52431	1.09013	250.90	-19.01
95/ 7/10	2449909.0	-10.29910	-52.18746	-18.64345	1.07738	-0.18810	-0.01235	56.36648	1.09375	258.84	-19.31
95/ 7/11	2449909.5	-2.93645	-53.03774	-18.57710	1.09382	-0.06255	0.03195	56.27373	1.09607	266.83	-19.28
95/ 7/11	2449910.0	4.47740	-53.03168	-18.21162	1.09246	0.06435	0.07584	56.25006	1.09698	274.83	-18.89
95/ 7/12	2449910.5	11.82163	-52.16865	-17.55274	1.07329	0.19009	0.11844	56.29758	1.09641	282.77	-18.17
95/ 7/12	2449911.0	18.97689	-50.46508	-16.61204	1.03678	0.31215	0.15892	56.41637	1.09435	290.61	-17.12
95/ 7/13	2449911.5	25.82864	-47.95392	-15.40655	0.98386	0.42818	0.19651	56.60441	1.09084	298.31	-15.79
95/ 7/13	2449912.0	32.27010	-44.68339	-13.95822	0.91588	0.53606	0.23053	56.85769	1.08597	305.84	-14.21
95/ 7/14	2449912.5	38.20479	-40.71514	-12.29312	0.83452	0.63394	0.26044	57.17036	1.07987	313.18	-12.42
95/ 7/14	2449913.0	43.54850	-36.12203	-10.44059	0.74170	0.72036	0.28582	57.53502	1.07272	320.33	-10.46
95/ 7/15	2449913.5	48.23061	-30.98559	-8.43230	0.63950	0.79423	0.30640	57.94309	1.06472	327.28	-8.37
95/ 7/15	2449914.0	52.19468	-25.39356	-6.30137	0.53003	0.85480	0.32202	58.38514	1.05609	334.06	-6.20
95/ 7/16	2449914.5	55.39862	-19.43740	-4.08147	0.41538	0.90171	0.33267	58.85132	1.04704	340.67	-3.98
95/ 7/16	2449915.0	57.81418	-13.21011	-1.80614	0.29755	0.93488	0.33841	59.33168	1.03781	347.13	-1.74
95/ 7/17	2449915.5	59.42622	-6.80430	0.49186	0.17840	0.95448	0.33940	59.81652	1.02861	353.47	0.47
95/ 7/17	2449916.0	60.23168	-0.31066	2.78104	0.05964	0.96089	0.33585	60.29664	1.01964	359.70	2.64
95/ 7/18	2449916.5	60.23840	6.18327	5.03156	-0.05722	0.95466	0.32803	60.76359	1.01107	5.86	4.75
95/ 7/18	2449917.0	59.46397	12.59403	7.21545	-0.17082	0.93645	0.31622	61.20977	1.00305	11.96	6.77
95/ 7/19	2449917.5	57.93458	18.84288	9.30680	-0.27997	0.90698	0.30075	61.62862	0.99571	18.02	8.69
95/ 7/19	2449918.0	55.68392	24.85623	11.28185	-0.38364	0.86704	0.28194	62.01460	0.98916	24.06	10.48
95/ 7/20	2449918.5	52.75222	30.56590	13.11904	-0.48093	0.81744	0.26010	62.36329	0.98344	30.09	12.14
95/ 7/20	2449919.0	49.18545	35.90930	14.79901	-0.57106	0.75902	0.23556	62.67134	0.97863	36.13	13.66
95/ 7/21	2449919.5	45.03451	40.82948	16.30459	-0.65333	0.69261	0.20866	62.93642	0.97472	42.20	15.01
95/ 7/21	2449920.0	40.35466	45.27515	17.62079	-0.72714	0.61904	0.17969	63.15719	0.97172	48.29	16.20
95/ 7/22	2449920.5	35.20499	49.20073	18.73474	-0.79198	0.53917	0.14899	63.33320	0.96961	54.41	17.21
95/ 7/22	2449921.0	29.64792	52.56636	19.63575	-0.84737	0.45384	0.11686	63.46483	0.96833	60.58	18.02
95/ 7/23	2449921.5	23.74882	55.33796	20.31521	-0.89292	0.36390	0.08362	63.55316	0.96784	66.77	18.64
95/ 7/23	2449922.0	17.57561	57.48729	20.76668	-0.92826	0.27023	0.04959	63.59989	0.96807	73.00	19.06
95/ 7/24	2449922.5	11.19838	58.99208	20.98585	-0.95312	0.17372	0.01508	63.60719	0.96894	79.25	19.26
95/ 7/24	2449923.0	4.68905	59.83613	20.97061	-0.96724	0.07528	-0.01958	63.57764	0.97036	85.52	19.26
95/ 7/25	2449923.5	-1.87911	60.00953	20.72105	-0.97046	-0.02416	-0.05406	63.51406	0.97227	91.79	19.04
95/ 7/25	2449924.0	-8.43186	59.50875	20.23953	-0.96268	-0.12364	-0.08802	63.41945	0.97457	98.06	18.61
95/ 7/26	2449924.5	-14.89450	58.33690	19.53066	-0.94386	-0.22216	-0.12113	63.29682	0.97719	104.32	17.97
95/ 7/26	2449925.0	-21.19243	56.50383	18.60140	-0.91406	-0.31872	-0.15304	63.14914	0.98005	110.56	17.13
95/ 7/27	2449925.5	-27.25176	54.02631	17.46105	-0.87343	-0.41229	-0.18341	62.97927	0.98311	116.77	16.10
95/ 7/27	2449926.0	-32.99992	50.92810	16.12122	-0.82223	-0.50183	-0.21189	62.78981	0.98630	122.94	14.88
95/ 7/28	2449926.5	-38.36644	47.24005	14.59588	-0.76080	-0.58629	-0.23814	62.58311	0.98958	129.08	13.49
95/ 7/28	2449927.0	-43.28369	43.00002	12.90125	-0.68965	-0.66465	-0.26182	62.36122	0.99294	135.19	11.94
95/ 7/29	2449927.5	-47.68765	38.25284	11.05579	-0.60934	-0.73589	-0.28262	62.12585	0.99635	141.27	10.25
95/ 7/29	2449928.0	-51.51875	33.05008	9.08005	-0.52062	-0.79902	-0.30024	61.87840	0.99981	147.32	8.44
95/ 7/30	2449928.5	-54.72274	27.44983	6.99658	-0.42431	-0.85311	-0.31439	61.61999	1.00334	153.36	6.52
95/ 7/30	2449929.0	-57.25147	21.51629	4.82971	-0.32139	-0.89730	-0.32483	61.35151	1.00695	159.40	4.52
95/ 7/31	2449929.5	-59.06376	15.31934	2.60543	-0.21294	-0.93077	-0.33132	61.07371	1.01067	165.46	2.45
95/ 7/31	2449930.0	-60.12616	8.93394	0.35108	-0.10016	-0.95284	-0.33368	60.78728	1.01453	171.55	0.33
95/ 8/ 1	2449930.5	-60.41375	2.43946	-1.90486	0.01563	-0.96289	-0.33177	60.49298	1.01856	177.69	-1.80

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 8/ 1	2449931.0	-59.91083	-4.08106	-4.13310	0.13303	-0.96046	-0.32548	60.19173	1.02280	183.90	-3.94
95/ 8/ 2	2449931.5	-58.61157	-10.54180	-6.30386	0.25052	-0.94520	-0.31479	59.88476	1.02725	190.20	-6.04
95/ 8/ 2	2449932.0	-56.52064	-16.85517	-8.38722	0.36653	-0.91692	-0.29968	59.57370	1.03194	196.61	-8.09
95/ 8/ 3	2449932.5	-53.65369	-22.93284	-10.35355	0.47940	-0.87561	-0.28024	59.26069	1.03685	203.14	-10.06
95/ 8/ 3	2449933.0	-50.03773	-28.68705	-12.17390	0.58742	-0.82144	-0.25661	58.94850	1.04196	209.83	-11.92
95/ 8/ 4	2449933.5	-45.71146	-34.03184	-13.82053	0.68886	-0.75480	-0.22899	58.64052	1.04722	216.67	-13.63
95/ 8/ 4	2449934.0	-40.72532	-38.88460	-15.26735	0.78199	-0.67627	-0.19766	58.34086	1.05258	223.68	-15.17
95/ 8/ 5	2449934.5	-35.14138	-43.16760	-16.49051	0.86510	-0.58671	-0.16301	58.05424	1.05792	230.85	-16.50
95/ 8/ 5	2449935.0	-29.03304	-46.80964	-17.46891	0.93658	-0.48720	-0.12547	57.78600	1.06315	238.19	-17.60
95/ 8/ 6	2449935.5	-22.48429	-49.74777	-18.18479	0.99491	-0.37910	-0.08558	57.54190	1.06813	245.68	-18.42
95/ 8/ 6	2449936.0	-15.58874	-51.92906	-18.62426	1.03878	-0.26400	-0.04395	57.32799	1.07270	253.29	-18.96
95/ 8/ 7	2449936.5	-8.44823	-53.31215	-18.77778	1.06709	-0.14372	-0.00126	57.15035	1.07673	261.00	-19.18
95/ 8/ 7	2449937.0	-1.17101	-53.86881	-18.64062	1.07904	-0.02031	0.04176	57.01485	1.08004	268.75	-19.08
95/ 8/ 8	2449937.5	6.13037	-53.58509	-18.21316	1.07418	0.10406	0.08433	56.92682	1.08250	276.53	-18.66
95/ 8/ 8	2449938.0	13.34158	-52.46217	-17.50104	1.05243	0.22712	0.12568	56.89080	1.08397	284.27	-17.92
95/ 8/ 9	2449938.5	20.34912	-50.51668	-16.51519	1.01413	0.34658	0.16504	56.91021	1.08435	291.94	-16.87
95/ 8/ 9	2449939.0	27.04316	-47.78056	-15.27160	0.96002	0.46023	0.20167	56.98716	1.08357	299.51	-15.54
95/ 8/10	2449939.5	33.32022	-44.30030	-13.79101	0.89122	0.56599	0.23492	57.12220	1.08158	306.95	-13.97
95/ 8/10	2449940.0	39.08564	-40.13566	-12.09828	0.80920	0.66204	0.26423	57.31428	1.07839	314.24	-12.19
95/ 8/11	2449940.5	44.25570	-35.35793	-10.22172	0.71573	0.74680	0.28914	57.56070	1.07405	321.38	-10.23
95/ 8/11	2449941.0	48.75929	-30.04785	-8.19234	0.61274	0.81906	0.30932	57.85720	1.06864	328.36	-8.14
95/ 8/12	2449941.5	52.53894	-24.29325	-6.04293	0.50230	0.87795	0.32456	58.19811	1.06228	335.18	-5.96
95/ 8/12	2449942.0	55.55139	-18.18671	-3.80728	0.38654	0.92293	0.33478	58.57652	1.05512	341.87	-3.73
95/ 8/13	2449942.5	57.76755	-11.82323	-1.51933	0.26750	0.95381	0.34001	58.98463	1.04734	348.43	-1.48
95/ 8/13	2449943.0	59.17203	-5.29813	0.78747	0.14717	0.97070	0.34038	59.41397	1.03912	354.88	0.76
95/ 8/14	2449943.5	59.76237	1.29485	3.08082	0.02738	0.97393	0.33608	59.85573	1.03065	1.24	2.95
95/ 8/14	2449944.0	59.54786	7.86503	5.33002	-0.09023	0.96407	0.32739	60.30104	1.02213	7.52	5.07
95/ 8/15	2449944.5	58.54841	14.32602	7.50633	-0.20418	0.94182	0.31461	60.74122	1.01375	13.75	7.10
95/ 8/15	2449945.0	56.79320	20.59661	9.58321	-0.31320	0.90799	0.29809	61.16802	1.00568	19.93	9.01
95/ 8/16	2449945.5	54.31948	26.60141	11.53651	-0.41619	0.86348	0.27817	61.57379	0.99809	26.09	10.80
95/ 8/16	2449946.0	51.17135	32.27114	13.34447	-0.51220	0.80921	0.25523	61.95167	0.99112	32.24	12.44
95/ 8/17	2449946.5	47.39875	37.54294	14.98781	-0.60047	0.74613	0.22962	62.29565	0.98488	38.38	13.92
95/ 8/17	2449947.0	43.05646	42.36034	16.44968	-0.68032	0.67518	0.20170	62.60072	0.97949	44.53	15.23
95/ 8/18	2449947.5	38.20339	46.67327	17.71559	-0.75122	0.59732	0.17182	62.86283	0.97501	50.70	16.37
95/ 8/18	2449948.0	32.90183	50.43798	18.77340	-0.81269	0.51345	0.14030	63.07901	0.97149	56.88	17.31
95/ 8/19	2449948.5	27.21693	53.61694	19.61321	-0.86436	0.42450	0.10750	63.24725	0.96895	63.09	18.07
95/ 8/19	2449949.0	21.21624	56.17875	20.22735	-0.90589	0.33136	0.07372	63.36660	0.96741	69.31	18.62
95/ 8/20	2449949.5	14.96931	58.09812	20.61030	-0.93703	0.23494	0.03928	63.43703	0.96683	75.55	18.96
95/ 8/20	2449950.0	8.54733	59.35584	20.75872	-0.95755	0.13613	0.00451	63.45941	0.96719	81.81	19.09
95/ 8/21	2449950.5	2.02282	59.93880	20.67141	-0.96728	0.03584	-0.03027	63.43547	0.96842	88.07	19.02
95/ 8/21	2449951.0	-4.53068	59.84010	20.34933	-0.96610	-0.06500	-0.06476	63.36765	0.97044	94.33	18.73
95/ 8/22	2449951.5	-11.03900	59.05917	19.79562	-0.95393	-0.16545	-0.09861	63.25909	0.97318	100.59	18.24
95/ 8/22	2449952.0	-17.42770	57.60196	19.01568	-0.93078	-0.26454	-0.13151	63.11344	0.97654	106.83	17.54
95/ 8/23	2449952.5	-23.62256	55.48107	18.01714	-0.89671	-0.36126	-0.16311	62.93482	0.98041	113.06	16.64
95/ 8/23	2449953.0	-29.55007	52.71602	16.80998	-0.85187	-0.45458	-0.19306	62.72768	0.98468	119.27	15.54

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/ 8/24	2449953.5	-35.13810	49.33337	15.40651	-0.79651	-0.54346	-0.22102	62.49662	0.98925	125.46	14.27
95/ 8/24	2449954.0	-40.31656	45.36687	13.82139	-0.73100	-0.62681	-0.24664	62.24636	0.99402	131.63	12.83
95/ 8/25	2449954.5	-45.01826	40.85757	12.07165	-0.65582	-0.70356	-0.26957	61.98153	0.99888	137.77	11.23
95/ 8/25	2449955.0	-49.17973	35.85378	10.17662	-0.57159	-0.77265	-0.28949	61.70659	1.00375	143.91	9.49
95/ 8/26	2449955.5	-52.74223	30.41096	8.15786	-0.47908	-0.83304	-0.30606	61.42573	1.00854	150.03	7.63
95/ 8/26	2449956.0	-55.65272	24.59145	6.03902	-0.37922	-0.88373	-0.31899	61.14274	1.01318	156.16	5.67
95/ 8/27	2449956.5	-57.86490	18.46409	3.84565	-0.27307	-0.92380	-0.32802	60.86098	1.01763	162.30	3.62
95/ 8/27	2449957.0	-59.34021	12.10359	1.60498	-0.16184	-0.95244	-0.33293	60.58328	1.02185	168.47	1.52
95/ 8/28	2449957.5	-60.04882	5.58984	-0.65440	-0.04690	-0.96895	-0.33352	60.31198	1.02582	174.68	-0.62
95/ 8/28	2449958.0	-59.97046	-0.99306	-2.90289	0.07028	-0.97278	-0.32969	60.04889	1.02953	180.95	-2.77
95/ 8/29	2449958.5	-59.09524	-7.55781	-5.11025	0.18814	-0.96354	-0.32137	59.79534	1.03300	187.29	-4.90
95/ 8/29	2449959.0	-57.42424	-14.01515	-7.24606	0.30499	-0.94105	-0.30857	59.55227	1.03625	193.72	-6.99
95/ 8/30	2449959.5	-54.96992	-20.27516	-9.28021	0.41915	-0.90529	-0.29137	59.32029	1.03930	200.25	-9.00
95/ 8/30	2449960.0	-51.75643	-26.24866	-11.18331	0.52889	-0.85650	-0.26991	59.09980	1.04219	206.89	-10.91
95/ 8/31	2449960.5	-47.81959	-31.84869	-12.92729	0.63247	-0.79510	-0.24442	58.89115	1.04496	213.66	-12.68
95/ 8/31	2449961.0	-43.20676	-36.99194	-14.48582	0.72823	-0.72174	-0.21520	58.69470	1.04764	220.57	-14.29
95/ 9/ 1	2449961.5	-37.97643	-41.60032	-15.83482	0.81456	-0.63731	-0.18262	58.51100	1.05025	227.61	-15.70
95/ 9/ 1	2449962.0	-32.19757	-45.60234	-16.95296	0.88996	-0.54289	-0.14711	58.34089	1.05280	234.78	-16.89
95/ 9/ 2	2449962.5	-25.94889	-48.93454	-17.82204	0.95308	-0.43975	-0.10917	58.18555	1.05530	242.06	-17.84
95/ 9/ 2	2449963.0	-19.31767	-51.54285	-18.42745	1.00274	-0.32939	-0.06935	58.04661	1.05773	249.45	-18.51
95/ 9/ 3	2449963.5	-12.39857	-53.38377	-18.75853	1.03794	-0.21343	-0.02826	57.92610	1.06004	256.92	-18.90
95/ 9/ 3	2449964.0	-5.29214	-54.42541	-18.80880	1.05795	-0.09368	0.01346	57.82649	1.06218	264.45	-18.98
95/ 9/ 4	2449964.5	1.89691	-54.64844	-18.57626	1.06228	0.02797	0.05514	57.75056	1.06408	271.99	-18.76
95/ 9/ 4	2449965.0	9.06151	-54.04668	-18.06348	1.05073	0.14954	0.09610	57.70134	1.06566	279.52	-18.24
95/ 9/ 5	2449965.5	16.09427	-52.62754	-17.27771	1.02339	0.26900	0.13565	57.68191	1.06682	287.00	-17.43
95/ 9/ 5	2449966.0	22.88958	-50.41206	-16.23070	0.98070	0.38437	0.17313	57.69527	1.06747	294.42	-16.34
95/ 9/ 6	2449966.5	29.34571	-47.43463	-14.93865	0.92339	0.49368	0.20791	57.74408	1.06752	301.74	-14.99
95/ 9/ 6	2449967.0	35.36695	-43.74244	-13.42180	0.85248	0.59514	0.23942	57.83050	1.06688	308.96	-13.42
95/ 9/ 7	2449967.5	40.86554	-39.39440	-11.70405	0.76929	0.68709	0.26715	57.95599	1.06549	316.05	-11.65
95/ 9/ 7	2449968.0	45.76346	-34.45991	-9.81246	0.67538	0.76810	0.29069	58.12111	1.06331	323.02	-9.72
95/ 9/ 8	2449968.5	49.99387	-29.01716	-7.77657	0.57249	0.83700	0.30972	58.32544	1.06030	329.87	-7.66
95/ 9/ 8	2449969.0	53.50224	-23.15136	-5.62778	0.46249	0.89290	0.32400	58.56746	1.05648	336.60	-5.51
95/ 9/ 9	2449969.5	56.24706	-16.95273	-3.39864	0.34734	0.93521	0.33343	58.84452	1.05188	343.23	-3.31
95/ 9/ 9	2449970.0	58.20010	-10.51450	-1.12211	0.22901	0.96363	0.33800	59.15290	1.04655	349.76	-1.09
95/ 9/10	2449970.5	59.34636	-3.93091	1.16904	0.10941	0.97815	0.33778	59.48789	1.04069	356.21	1.13
95/ 9/10	2449971.0	59.68350	2.70459	3.44291	-0.00962	0.97902	0.33293	59.84387	1.03412	2.59	3.30
95/ 9/11	2449971.5	59.22116	9.30097	5.66893	-0.12640	0.96670	0.32369	60.21453	1.02725	8.93	5.40
95/ 9/11	2449972.0	57.97989	15.77102	7.81830	-0.23939	0.94184	0.31035	60.59305	1.02014	15.22	7.41
95/ 9/12	2449972.5	55.99004	22.03244	9.86434	-0.34724	0.90523	0.29323	60.97227	1.01292	21.48	9.31
95/ 9/12	2449973.0	53.29053	28.00870	11.78271	-0.44877	0.85779	0.27271	61.34492	1.00576	27.73	11.07
95/ 9/13	2449973.5	49.92763	33.62960	13.55154	-0.54298	0.80046	0.24914	61.70383	0.99882	33.96	12.69
95/ 9/13	2449974.0	45.95382	38.83166	15.15152	-0.62904	0.73427	0.22291	62.04208	0.99224	40.20	14.14
95/ 9/14	2449974.5	41.42668	43.55826	16.56592	-0.70627	0.66024	0.19440	62.35321	0.98617	46.44	15.41
95/ 9/14	2449975.0	36.40795	47.75975	17.78053	-0.77412	0.57938	0.16398	62.63130	0.98073	52.68	16.49
95/ 9/15	2449975.5	30.96267	51.39330	18.78365	-0.83216	0.49270	0.13201	62.87117	0.97605	58.93	17.38

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/ 9/15	2449976.0	25.15853	54.42285	19.56595	-0.88005	0.40118	0.09883	63.06841	0.97221	65.19	18.07
95/ 9/16	2449976.5	19.06519	56.81894	20.12048	-0.91752	0.30580	0.06480	63.21952	0.96931	71.45	18.56
95/ 9/16	2449977.0	12.75387	58.55856	20.44251	-0.94439	0.20749	0.03023	63.32189	0.96738	77.71	18.83
95/ 9/17	2449977.5	6.29693	59.62499	20.52952	-0.96050	0.10717	-0.00455	63.37391	0.96647	83.97	18.90
95/ 9/17	2449978.0	-0.23252	60.00781	20.38116	-0.96578	0.00577	-0.03922	63.37494	0.96660	90.22	18.76
95/ 9/18	2449978.5	-6.76088	59.70279	19.99919	-0.96018	-0.09579	-0.07348	63.32535	0.96774	96.46	18.41
95/ 9/18	2449979.0	-13.21438	58.71192	19.38751	-0.94368	-0.19660	-0.10700	63.22646	0.96986	102.68	17.86
95/ 9/19	2449979.5	-19.51938	57.04356	18.55215	-0.91634	-0.29570	-0.13947	63.08055	0.97292	108.89	17.10
95/ 9/19	2449980.0	-25.60273	54.71249	17.50132	-0.87825	-0.39212	-0.17057	62.89080	0.97682	115.08	16.16
95/ 9/20	2449980.5	-31.39219	51.74017	16.24541	-0.82959	-0.48489	-0.19997	62.66121	0.98149	121.25	15.03
95/ 9/20	2449981.0	-36.81692	48.15485	14.79711	-0.77060	-0.57296	-0.22733	62.39655	0.98681	127.40	13.72
95/ 9/21	2449981.5	-41.80810	43.99184	13.17136	-0.70163	-0.65530	-0.25231	62.10220	0.99265	133.54	12.24
95/ 9/21	2449982.0	-46.29963	39.29366	11.38546	-0.62315	-0.73082	-0.27457	61.78411	0.99889	139.68	10.62
95/ 9/22	2449982.5	-50.22900	34.11015	9.45901	-0.53574	-0.79843	-0.29376	61.44858	1.00539	145.82	8.85
95/ 9/22	2449983.0	-53.53824	28.49849	7.41390	-0.44016	-0.85707	-0.30955	61.10215	1.01199	151.97	6.97
95/ 9/23	2449983.5	-56.17499	22.52309	5.27424	-0.33733	-0.90567	-0.32163	60.75143	1.01857	158.15	4.98
95/ 9/23	2449984.0	-58.09369	16.25527	3.06619	-0.22832	-0.94325	-0.32970	60.40291	1.02497	164.37	2.91
95/ 9/24	2449984.5	-59.25673	9.77283	0.81771	-0.11442	-0.96891	-0.33353	60.06278	1.03108	170.63	0.78
95/ 9/24	2449985.0	-59.63573	3.15920	-1.44166	0.00295	-0.98187	-0.33290	59.73674	1.03678	176.97	-1.38
95/ 9/25	2449985.5	-59.21257	-3.49745	-3.68127	0.12217	-0.98153	-0.32767	59.42989	1.04197	183.38	-3.55
95/ 9/25	2449986.0	-57.98050	-10.10549	-5.86978	0.24152	-0.96747	-0.31780	59.14654	1.04658	189.89	-5.70
95/ 9/26	2449986.5	-55.94489	-16.57128	-7.97567	0.35914	-0.93952	-0.30329	58.89014	1.05055	196.50	-7.78
95/ 9/26	2449987.0	-53.12377	-22.80086	-9.96789	0.47315	-0.89775	-0.28426	58.66322	1.05387	203.23	-9.78
95/ 9/27	2449987.5	-49.54811	-28.70171	-11.81642	0.58164	-0.84253	-0.26090	58.46735	1.05651	210.08	-11.66
95/ 9/27	2449988.0	-45.26167	-34.18462	-13.49291	0.68274	-0.77447	-0.23351	58.30322	1.05852	217.06	-13.38
95/ 9/28	2449988.5	-40.32055	-39.16559	-14.97131	0.77468	-0.69448	-0.20248	58.17070	1.05991	224.17	-14.91
95/ 9/28	2449989.0	-34.79236	-43.56754	-16.22840	0.85583	-0.60370	-0.16825	58.06893	1.06076	231.39	-16.23
95/ 9/29	2449989.5	-28.75512	-47.32200	-17.24436	0.92477	-0.50352	-0.13136	57.99652	1.06113	238.72	-17.30
95/ 9/29	2449990.0	-22.29583	-50.37049	-18.00309	0.98028	-0.39551	-0.09239	57.95171	1.06109	246.12	-18.10
95/ 9/30	2449990.5	-15.50887	-52.66571	-18.49263	1.02140	-0.28139	-0.05198	57.93254	1.06072	253.59	-18.62
95/ 9/30	2449991.0	-8.49420	-54.17246	-18.70535	1.04743	-0.16299	-0.01076	57.93701	1.06009	261.09	-18.84
95/10/ 1	2449991.5	-1.35550	-54.86826	-18.63809	1.05798	-0.04224	0.03059	57.96328	1.05926	268.58	-18.76
95/10/ 1	2449992.0	5.80174	-54.74366	-18.29216	1.05291	0.07894	0.07142	58.00975	1.05828	276.05	-18.38
95/10/ 2	2449992.5	12.87217	-53.80230	-17.67332	1.03239	0.19862	0.11107	58.07518	1.05717	283.46	-17.72
95/10/ 2	2449993.0	19.75240	-52.06075	-16.79161	0.99684	0.31493	0.14894	58.15872	1.05596	290.78	-16.78
95/10/ 3	2449993.5	26.34283	-49.54801	-15.66111	0.94695	0.42606	0.18444	58.25994	1.05464	298.00	-15.59
95/10/ 3	2449994.0	32.54932	-46.30484	-14.29968	0.88364	0.53035	0.21705	58.37874	1.05318	305.10	-14.18
95/10/ 4	2449994.5	38.28471	-42.38289	-12.72853	0.80804	0.62626	0.24630	58.51533	1.05157	312.09	-12.56
95/10/ 4	2449995.0	43.47019	-37.84364	-10.97183	0.72149	0.71242	0.27178	58.67010	1.04974	318.96	-10.78
95/10/ 5	2449995.5	48.03654	-32.75713	-9.05628	0.62547	0.78768	0.29316	58.84348	1.04767	325.71	-8.85
95/10/ 5	2449996.0	51.92504	-27.20059	-7.01053	0.52160	0.85108	0.31019	59.03583	1.04529	332.35	-6.82
95/10/ 6	2449996.5	55.08823	-21.25696	-4.86468	0.41159	0.90188	0.32270	59.24725	1.04256	338.90	-4.71
95/10/ 6	2449997.0	57.49044	-15.01333	-2.64974	0.29719	0.93960	0.33059	59.47749	1.03945	345.36	-2.55
95/10/ 7	2449997.5	59.10797	-8.55934	-0.39706	0.18017	0.96398	0.33385	59.72581	1.03594	351.76	-0.38
95/10/ 7	2449998.0	59.92908	-1.98561	1.86218	0.06230	0.97498	0.33254	59.99087	1.03201	358.10	1.78

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/10/ 8	2449998.5	59.95370	4.61780	4.09752	-0.05475	0.97279	0.32681	60.27072	1.02768	4.40	3.90
95/10/ 8	2449999.0	59.19292	11.16278	6.27960	-0.16937	0.95780	0.31686	60.56272	1.02297	10.68	5.95
95/10/ 9	2449999.5	57.66827	17.56446	8.38064	-0.28008	0.93058	0.30293	60.86358	1.01794	16.94	7.91
95/10/ 9	2450000.0	55.41083	23.74232	10.37472	-0.38555	0.89184	0.28532	61.16938	1.01264	23.19	9.76
95/10/10	2450000.5	52.46026	29.62108	12.23807	-0.48457	0.84241	0.26438	61.47566	1.00716	29.45	11.48
95/10/10	2450001.0	48.86372	35.13144	13.94926	-0.57614	0.78322	0.24046	61.77753	1.00159	35.71	13.05
95/10/11	2450001.5	44.67483	40.21061	15.48935	-0.65936	0.71525	0.21392	62.06975	0.99604	41.99	14.45
95/10/11	2450002.0	39.95258	44.80263	16.84193	-0.73353	0.63954	0.18515	62.34689	0.99063	48.28	15.67
95/10/12	2450002.5	34.76035	48.85857	17.99315	-0.79806	0.55712	0.15452	62.60348	0.98547	54.57	16.70
95/10/12	2450003.0	29.16499	52.33661	18.93174	-0.85250	0.46906	0.12242	62.83413	0.98070	60.87	17.54
95/10/13	2450003.5	23.23597	55.20196	19.64890	-0.89654	0.37638	0.08920	63.03369	0.97642	67.17	18.16
95/10/13	2450004.0	17.04467	57.42680	20.13827	-0.92992	0.28009	0.05521	63.19738	0.97275	73.47	18.58
95/10/14	2450004.5	10.66377	58.99007	20.39584	-0.95251	0.18118	0.02080	63.32089	0.96981	79.75	18.79
95/10/14	2450005.0	4.16671	59.87735	20.41987	-0.96421	0.08063	-0.01370	63.40055	0.96768	86.02	18.79
95/10/15	2450005.5	-2.37275	60.08066	20.21081	-0.96503	-0.02063	-0.04797	63.43337	0.96644	92.26	18.58
95/10/15	2450006.0	-8.88091	59.59837	19.77126	-0.95498	-0.12167	-0.08171	63.41718	0.96616	98.48	18.17
95/10/16	2450006.5	-15.28445	58.43508	19.10590	-0.93415	-0.22157	-0.11460	63.35067	0.96689	104.66	17.55
95/10/16	2450007.0	-21.51075	56.60158	18.22147	-0.90267	-0.31943	-0.14635	63.23348	0.96864	110.81	16.75
95/10/17	2450007.5	-27.48817	54.11489	17.12679	-0.86069	-0.41430	-0.17664	63.06622	0.97141	116.93	15.76
95/10/17	2450008.0	-33.14644	50.99832	15.83273	-0.80846	-0.50527	-0.20517	62.85054	0.97519	123.02	14.59
95/10/18	2450008.5	-38.41695	47.28158	14.35225	-0.74625	-0.59137	-0.23163	62.58911	0.97993	129.09	13.26
95/10/18	2450009.0	-43.23331	43.00095	12.70045	-0.67442	-0.67162	-0.25571	62.28565	0.98554	135.15	11.77
95/10/19	2450009.5	-47.53187	38.19944	10.89456	-0.59343	-0.74501	-0.27708	61.94487	0.99195	141.21	10.13
95/10/19	2450010.0	-51.25237	32.92696	8.95403	-0.50383	-0.81052	-0.29542	61.57243	0.99903	147.28	8.36
95/10/20	2450010.5	-54.33882	27.24044	6.90048	-0.40633	-0.86710	-0.31040	61.17488	1.00663	153.38	6.48
95/10/20	2450011.0	-56.74046	21.20386	4.75768	-0.30176	-0.91372	-0.32172	60.75952	1.01461	159.51	4.49
95/10/21	2450011.5	-58.41279	14.88815	2.55150	-0.19115	-0.94936	-0.32907	60.33424	1.02279	165.70	2.42
95/10/21	2450012.0	-59.31887	8.37089	0.30973	-0.07571	-0.97308	-0.33218	59.90739	1.03100	171.97	0.30
95/10/22	2450012.5	-59.43059	1.73584	-1.93814	0.04316	-0.98401	-0.33083	59.48751	1.03904	178.33	-1.87
95/10/22	2450013.0	-58.73001	-4.92792	-4.16123	0.16387	-0.98145	-0.32484	59.08311	1.04672	184.80	-4.04
95/10/23	2450013.5	-57.21063	-11.52707	-6.32773	0.28464	-0.96486	-0.31411	58.70238	1.05387	191.39	-6.19
95/10/23	2450014.0	-54.87856	-17.96549	-8.40542	0.40352	-0.93396	-0.29862	58.35295	1.06033	198.13	-8.28
95/10/24	2450014.5	-51.75342	-24.14603	-10.36230	0.51848	-0.88874	-0.27846	58.04158	1.06594	205.01	-10.28
95/10/24	2450015.0	-47.86889	-29.97259	-12.16732	0.62742	-0.82951	-0.25382	57.77395	1.07059	212.05	-12.16
95/10/25	2450015.5	-43.27282	-35.35227	-13.79111	0.72825	-0.75692	-0.22501	57.55445	1.07420	219.25	-13.86
95/10/25	2450016.0	-38.02692	-40.19776	-15.20678	0.81899	-0.67196	-0.19244	57.38600	1.07671	226.59	-15.37
95/10/26	2450016.5	-32.20580	-44.42961	-16.39065	0.89782	-0.57596	-0.15665	57.27003	1.07813	234.06	-16.63
95/10/26	2450017.0	-25.89556	-47.97832	-17.32286	0.96318	-0.47053	-0.11824	57.20648	1.07847	241.64	-17.63
95/10/27	2450017.5	-19.19200	-50.78617	-17.98797	1.01379	-0.35751	-0.07790	57.19384	1.07780	249.30	-18.33
95/10/27	2450018.0	-12.19832	-52.80863	-18.37530	1.04872	-0.23895	-0.03634	57.22938	1.07622	256.99	-18.73
95/10/28	2450018.5	-5.02279	-54.01529	-18.47916	1.06743	-0.11698	0.00569	57.30933	1.07383	264.69	-18.81
95/10/28	2450019.0	2.22383	-54.39037	-18.29889	1.06972	0.00625	0.04744	57.42915	1.07079	272.34	-18.58
95/10/29	2450019.5	9.43075	-53.93268	-17.83878	1.05576	0.12859	0.08821	57.58381	1.06721	279.92	-18.05
95/10/29	2450020.0	16.48947	-52.65519	-17.10780	1.02606	0.24800	0.12732	57.76806	1.06326	287.39	-17.23
95/10/30	2450020.5	23.29590	-50.58426	-16.11925	0.98141	0.36258	0.16417	57.97669	1.05905	294.73	-16.14

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/10/30	2450021.0	29.75217	-47.75855	-14.89034	0.92285	0.47060	0.19821	58.20475	1.05471	301.92	-14.82
95/10/31	2450021.5	35.76814	-44.22780	-13.44166	0.85162	0.57054	0.22899	58.44772	1.05034	308.96	-13.30
95/10/31	2450022.0	41.26266	-40.05137	-11.79672	0.76912	0.66106	0.25611	58.70163	1.04601	315.85	-11.59
95/11/ 1	2450022.5	46.16444	-35.29687	-9.98135	0.67685	0.74108	0.27927	58.96314	1.04178	322.60	-9.75
95/11/ 1	2450023.0	50.41276	-30.03861	-8.02324	0.57642	0.80969	0.29823	59.22952	1.03769	329.21	-7.79
95/11/ 2	2450023.5	53.95786	-24.35620	-5.95137	0.46947	0.86623	0.31284	59.49869	1.03374	335.71	-5.74
95/11/ 2	2450024.0	56.76120	-18.33311	-3.79558	0.35766	0.91023	0.32301	59.76908	1.02994	342.10	-3.64
95/11/ 3	2450024.5	58.79549	-12.05529	-1.58606	0.24265	0.94142	0.32871	60.03962	1.02625	348.41	-1.51
95/11/ 3	2450025.0	60.04455	-5.60990	0.64706	0.12606	0.95971	0.32999	60.30952	1.02266	354.66	0.61
95/11/ 4	2450025.5	60.50308	0.91596	2.87413	0.00947	0.96521	0.32694	60.57823	1.01912	0.87	2.72
95/11/ 4	2450026.0	60.17624	7.43637	5.06632	-0.10561	0.95816	0.31972	60.84527	1.01560	7.04	4.78
95/11/ 5	2450026.5	59.07918	13.86768	7.19602	-0.21774	0.93898	0.30852	61.11010	1.01207	13.21	6.76
95/11/ 5	2450027.0	57.23640	20.12947	9.23708	-0.32560	0.90820	0.29359	61.37202	1.00848	19.38	8.66
95/11/ 6	2450027.5	54.68108	26.14541	11.16510	-0.42796	0.86650	0.27519	61.63005	1.00484	25.55	10.44
95/11/ 6	2450028.0	51.45429	31.84408	12.95767	-0.52371	0.81465	0.25364	61.88288	1.00113	31.75	12.09
95/11/ 7	2450028.5	47.60417	37.15956	14.59454	-0.61187	0.75350	0.22927	62.12883	0.99735	37.98	13.59
95/11/ 7	2450029.0	43.18506	42.03199	16.05775	-0.69160	0.68398	0.20242	62.36576	0.99353	44.22	14.92
95/11/ 8	2450029.5	38.25657	46.40796	17.33175	-0.76217	0.60707	0.17346	62.59116	0.98971	50.50	16.08
95/11/ 8	2450030.0	32.88277	50.24082	18.40345	-0.82301	0.52377	0.14275	62.80210	0.98593	56.80	17.04
95/11/ 9	2450030.5	27.13126	53.49084	19.26224	-0.87364	0.43513	0.11065	62.99532	0.98226	63.11	17.80
95/11/ 9	2450031.0	21.07239	56.12530	19.90002	-0.91372	0.34217	0.07754	63.16728	0.97877	69.42	18.36
95/11/10	2450031.5	14.77847	58.11846	20.31108	-0.94302	0.24593	0.04377	63.31428	0.97554	75.73	18.71
95/11/10	2450032.0	8.32307	59.45155	20.49216	-0.96139	0.14742	0.00968	63.43255	0.97267	82.03	18.85
95/11/11	2450032.5	1.78041	60.11258	20.44228	-0.96878	0.04764	-0.02438	63.51834	0.97026	88.30	18.77
95/11/11	2450033.0	-4.77521	60.09626	20.16274	-0.96523	-0.05244	-0.05808	63.56807	0.96839	94.54	18.49
95/11/12	2450033.5	-11.26991	59.40377	19.65701	-0.95082	-0.15187	-0.09112	63.57843	0.96717	100.74	18.01
95/11/12	2450034.0	-17.63067	58.04265	18.93066	-0.92570	-0.24972	-0.12318	63.54652	0.96668	106.90	17.33
95/11/13	2450034.5	-23.78570	56.02667	17.99131	-0.89010	-0.34510	-0.15397	63.46995	0.96699	113.00	16.47
95/11/13	2450035.0	-29.66479	53.37567	16.84856	-0.84427	-0.43709	-0.18319	63.34695	0.96819	119.06	15.42
95/11/14	2450035.5	-35.19969	50.11556	15.51400	-0.78852	-0.52481	-0.21056	63.17652	0.97032	125.08	14.22
95/11/14	2450036.0	-40.32442	46.27828	14.00112	-0.72322	-0.60738	-0.23580	62.95847	0.97342	131.07	12.85
95/11/15	2450036.5	-44.97567	41.90176	12.32537	-0.64878	-0.68389	-0.25861	62.69356	0.97750	137.03	11.34
95/11/15	2450037.0	-49.09326	37.03006	10.50410	-0.56572	-0.75345	-0.27872	62.38357	0.98255	142.97	9.69
95/11/16	2450037.5	-52.62062	31.71340	8.55662	-0.47460	-0.81513	-0.29583	62.03133	0.98854	148.92	7.93
95/11/16	2450038.0	-55.50545	26.00822	6.50417	-0.37610	-0.86802	-0.30967	61.64079	0.99539	154.89	6.06
95/11/17	2450038.5	-57.70043	19.97726	4.36989	-0.27103	-0.91118	-0.31995	61.21704	1.00304	160.90	4.09
95/11/17	2450039.0	-59.16411	13.68950	2.17883	-0.16033	-0.94370	-0.32640	60.76629	1.01134	166.97	2.05
95/11/18	2450039.5	-59.86195	7.22007	-0.04221	-0.04508	-0.96469	-0.32876	60.29580	1.02016	173.12	-0.04
95/11/18	2450040.0	-59.76738	0.64990	-2.26474	0.07343	-0.97331	-0.32680	59.81381	1.02933	179.38	-2.17
95/11/19	2450040.5	-58.86315	-5.93470	-4.45888	0.19375	-0.96884	-0.32035	59.32935	1.03866	185.76	-4.31
95/11/19	2450041.0	-57.14253	-12.44292	-6.59363	0.31421	-0.95067	-0.30925	58.85211	1.04792	192.28	-6.43
95/11/20	2450041.5	-54.61071	-18.78052	-8.63729	0.43297	-0.91840	-0.29345	58.39212	1.05690	198.98	-8.51
95/11/20	2450042.0	-51.28588	-24.85127	-10.55807	0.54803	-0.87187	-0.27297	57.95947	1.06537	205.85	-10.50
95/11/21	2450042.5	-47.20027	-30.55887	-12.32467	0.65726	-0.81122	-0.24795	57.56395	1.07310	212.92	-12.36
95/11/21	2450043.0	-42.40074	-35.80907	-13.90711	0.75849	-0.73692	-0.21864	57.21469	1.07989	220.18	-14.07

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
95/11/22	2450043.5	-36.94889	-40.51217	-15.27754	0.84954	-0.64984	-0.18542	56.91977	1.08553	227.63	-15.57
95/11/22	2450044.0	-30.92062	-44.58560	-16.41111	0.92837	-0.55122	-0.14879	56.68584	1.08989	235.26	-16.83
95/11/23	2450044.5	-24.40501	-47.95656	-17.28678	0.99316	-0.44270	-0.10938	56.51787	1.09285	243.03	-17.81
95/11/23	2450045.0	-17.50257	-50.56441	-17.88814	1.04238	-0.32623	-0.06792	56.41884	1.09435	250.91	-18.49
95/11/24	2450045.5	-10.32282	-52.36271	-18.20391	1.07489	-0.20404	-0.02519	56.38969	1.09438	258.85	-18.83
95/11/24	2450046.0	-2.98153	-53.32074	-18.22841	1.09001	-0.07851	0.01796	56.42930	1.09298	266.80	-18.85
95/11/25	2450046.5	4.40249	-53.42430	-17.96165	1.08751	0.04787	0.06068	56.53458	1.09025	274.71	-18.52
95/11/25	2450047.0	11.71052	-52.67593	-17.40931	1.06765	0.17266	0.10215	56.70074	1.08633	282.53	-17.88
95/11/26	2450047.5	18.82701	-51.09431	-16.58242	1.03110	0.29354	0.14163	56.92154	1.08139	290.23	-16.94
95/11/26	2450048.0	25.64238	-48.71324	-15.49686	0.97893	0.40840	0.17843	57.18972	1.07561	297.76	-15.72
95/11/27	2450048.5	32.05524	-45.58000	-14.17274	0.91250	0.51537	0.21199	57.49732	1.06920	305.12	-14.27
95/11/27	2450049.0	37.97430	-41.75355	-12.63372	0.83339	0.61286	0.24182	57.83613	1.06237	312.29	-12.62
95/11/28	2450049.5	43.31957	-37.30247	-10.90624	0.74336	0.69963	0.26759	58.19799	1.05530	319.27	-10.80
95/11/28	2450050.0	48.02317	-32.30292	-9.01881	0.64422	0.77469	0.28902	58.57510	1.04819	326.07	-8.86
95/11/29	2450050.5	52.02971	-26.83663	-7.00135	0.53783	0.83736	0.30597	58.96028	1.04117	332.72	-6.82
95/11/29	2450051.0	55.29627	-20.98915	-4.88451	0.42601	0.88720	0.31836	59.34711	1.03439	339.21	-4.72
95/11/30	2450051.5	57.79211	-14.84810	-2.69920	0.31053	0.92403	0.32619	59.73006	1.02794	345.59	-2.59
95/11/30	2450052.0	59.49826	-8.50180	-0.47607	0.19309	0.94783	0.32954	60.10450	1.02189	351.87	-0.45
95/12/ 1	2450052.5	60.40691	-2.03798	1.75488	0.07529	0.95877	0.32853	60.46675	1.01629	358.07	1.66
95/12/ 1	2450053.0	60.52072	4.45725	3.96463	-0.04138	0.95717	0.32331	60.81400	1.01115	4.21	3.74
95/12/ 2	2450053.5	59.85213	10.90038	6.12542	-0.15552	0.94347	0.31410	61.14423	1.00647	10.32	5.75
95/12/ 2	2450054.0	58.42264	17.21122	8.21097	-0.26586	0.91820	0.30114	61.45609	1.00223	16.41	7.68
95/12/ 3	2450054.5	56.26203	23.31358	10.19670	-0.37123	0.88202	0.28467	61.74878	0.99840	22.51	9.50
95/12/ 3	2450055.0	53.40770	29.13584	12.05987	-0.47055	0.83562	0.26500	62.02193	0.99493	28.61	11.21
95/12/ 4	2450055.5	49.90389	34.61146	13.77973	-0.56286	0.77979	0.24241	62.27546	0.99179	34.74	12.78
95/12/ 4	2450056.0	45.80102	39.67936	15.33762	-0.64731	0.71537	0.21722	62.50942	0.98891	40.90	14.20
95/12/ 5	2450056.5	41.15494	44.28432	16.71708	-0.72315	0.64324	0.18977	62.72393	0.98626	47.10	15.46
95/12/ 5	2450057.0	36.02625	48.37726	17.90389	-0.78972	0.56433	0.16039	62.91900	0.98380	53.33	16.53
95/12/ 6	2450057.5	30.47957	51.91553	18.88619	-0.84650	0.47961	0.12944	63.09449	0.98150	59.58	17.42
95/12/ 6	2450058.0	24.58284	54.86304	19.65444	-0.89303	0.39005	0.09725	63.25003	0.97933	65.86	18.10
95/12/ 7	2450058.5	18.40662	57.19043	20.20148	-0.92898	0.29666	0.06418	63.38493	0.97731	72.16	18.58
95/12/ 7	2450059.0	12.02342	58.87513	20.52254	-0.95412	0.20044	0.03057	63.49818	0.97542	78.46	18.86
95/12/ 8	2450059.5	5.50701	59.90141	20.61518	-0.96830	0.10239	-0.00322	63.58845	0.97370	84.75	18.92
95/12/ 8	2450060.0	-1.06819	60.26030	20.47927	-0.97148	0.00353	-0.03686	63.65411	0.97218	91.02	18.77
95/12/ 9	2450060.5	-7.62775	59.94961	20.11698	-0.96369	-0.09517	-0.07002	63.69326	0.97091	97.25	18.41
95/12/ 9	2450061.0	-14.09779	58.97372	19.53266	-0.94507	-0.19274	-0.10237	63.70378	0.96994	103.44	17.86
95/12/10	2450061.5	-20.40552	57.34352	18.73282	-0.91580	-0.28823	-0.13361	63.68345	0.96934	109.59	17.11
95/12/10	2450062.0	-26.47972	55.07622	17.72604	-0.87616	-0.38071	-0.16343	63.63001	0.96918	115.68	16.18
95/12/11	2450062.5	-32.25125	52.19521	16.52291	-0.82649	-0.46930	-0.19154	63.54124	0.96954	121.71	15.07
95/12/11	2450063.0	-37.65345	48.72990	15.13595	-0.76717	-0.55311	-0.21767	63.41515	0.97050	127.69	13.81
95/12/12	2450063.5	-42.62257	44.71555	13.57953	-0.69869	-0.63129	-0.24153	63.25004	0.97212	133.63	12.40
95/12/12	2450064.0	-47.09822	40.19318	11.86984	-0.62155	-0.70299	-0.26288	63.04465	0.97448	139.52	10.85
95/12/13	2450064.5	-51.02374	35.20942	10.02483	-0.53634	-0.76740	-0.28145	62.79827	0.97764	145.39	9.19
95/12/13	2450065.0	-54.34672	29.81642	8.06415	-0.44373	-0.82370	-0.29700	62.51093	0.98163	151.25	7.41
95/12/14	2450065.5	-57.01946	24.07176	6.00909	-0.34446	-0.87111	-0.30928	62.18342	0.98648	157.11	5.55

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
95/12/14	2450066.0	-58.99953	18.03835	3.88255	-0.23934	-0.90884	-0.31807	61.81748	0.99219	163.00	3.60
95/12/15	2450066.5	-60.25047	11.78427	1.70897	-0.12931	-0.93614	-0.32314	61.41587	0.99875	168.93	1.59
95/12/15	2450067.0	-60.74248	5.38269	-0.48577	-0.01542	-0.95228	-0.32428	60.98244	1.00610	174.94	-0.46
95/12/16	2450067.5	-60.45328	-1.08852	-2.67446	0.10116	-0.95659	-0.32132	60.52220	1.01417	181.03	-2.53
95/12/16	2450068.0	-59.36908	-7.54707	-4.82871	0.21911	-0.94845	-0.31409	60.04134	1.02285	187.24	-4.61
95/12/17	2450068.5	-57.48556	-13.90689	-6.91922	0.33693	-0.92736	-0.30248	59.54718	1.03200	193.60	-6.67
95/12/17	2450069.0	-54.80898	-20.07887	-8.91604	0.45300	-0.89294	-0.28642	59.04813	1.04144	200.12	-8.68
95/12/18	2450069.5	-51.35726	-25.97199	-10.78902	0.56552	-0.84500	-0.26592	58.55352	1.05097	206.83	-10.62
95/12/18	2450070.0	-47.16093	-31.49467	-12.50828	0.67255	-0.78358	-0.24105	58.07344	1.06039	213.74	-12.44
95/12/19	2450070.5	-42.26401	-36.55652	-14.04483	0.77205	-0.70900	-0.21201	57.61842	1.06943	220.86	-14.11
95/12/19	2450071.0	-36.72449	-41.07036	-15.37132	0.86195	-0.62190	-0.17908	57.19913	1.07786	228.20	-15.59
95/12/20	2450071.5	-30.61442	-44.95466	-16.46278	0.94019	-0.52329	-0.14269	56.82594	1.08543	235.74	-16.84
95/12/20	2450072.0	-24.01947	-48.13598	-17.29753	1.00483	-0.41458	-0.10338	56.50852	1.09190	243.48	-17.82
95/12/21	2450072.5	-17.03778	-50.55168	-17.85800	1.05413	-0.29753	-0.06181	56.25537	1.09706	251.37	-18.51
95/12/21	2450073.0	-9.77816	-52.15228	-18.13146	1.08670	-0.17427	-0.01876	56.07337	1.10074	259.38	-18.87
95/12/22	2450073.5	-2.35759	-52.90367	-18.11070	1.10153	-0.04719	0.02492	55.96744	1.10282	267.45	-18.88
95/12/22	2450074.0	5.10183	-52.78865	-17.79444	1.09813	0.08114	0.06835	55.94025	1.10324	275.52	-18.55
95/12/23	2450074.5	12.47631	-51.80778	-17.18746	1.07650	0.20805	0.11062	55.99208	1.10199	283.54	-17.88
95/12/23	2450075.0	19.64402	-49.97950	-16.30053	1.03720	0.33095	0.15088	56.12081	1.09913	291.46	-16.89
95/12/24	2450075.5	26.48851	-47.33933	-15.15001	0.98126	0.44741	0.18834	56.32207	1.09477	299.23	-15.60
95/12/24	2450076.0	32.90181	-43.93841	-13.75723	0.91015	0.55526	0.22231	56.58953	1.08909	306.83	-14.07
95/12/25	2450076.5	38.78706	-39.84140	-12.14769	0.82565	0.65269	0.25226	56.91520	1.08228	314.23	-12.32
95/12/25	2450077.0	44.06032	-35.12405	-10.35016	0.72978	0.73824	0.27777	57.28993	1.07458	321.44	-10.41
95/12/26	2450077.5	48.65177	-29.87057	-8.39578	0.62468	0.81086	0.29855	57.70386	1.06623	328.45	-8.37
95/12/26	2450078.0	52.50626	-24.17102	-6.31707	0.51252	0.86987	0.31446	58.14680	1.05747	335.28	-6.24
95/12/27	2450078.5	55.58319	-18.11886	-4.14720	0.39542	0.91495	0.32547	58.60873	1.04853	341.95	-4.06
95/12/27	2450079.0	57.85603	-11.80879	-1.91922	0.27541	0.94605	0.33164	59.08004	1.03964	348.46	-1.86
95/12/28	2450079.5	59.31151	-5.33487	0.33453	0.15436	0.96338	0.33311	59.55189	1.03097	354.86	0.32
95/12/28	2450080.0	59.94850	1.21092	2.58286	0.03399	0.96736	0.33008	60.01633	1.02269	1.16	2.47
95/12/29	2450080.5	59.77696	7.73994	4.79614	-0.08415	0.95853	0.32280	60.46647	1.01492	7.38	4.55
95/12/29	2450081.0	58.81674	14.16773	6.94650	-0.19868	0.93759	0.31155	60.89653	1.00777	13.54	6.55
95/12/30	2450081.5	57.09653	20.41470	9.00805	-0.30838	0.90527	0.29663	61.30186	1.00130	19.67	8.45
95/12/30	2450082.0	54.65274	26.40658	10.95698	-0.41218	0.86240	0.27835	61.67889	0.99554	25.79	10.23
95/12/31	2450082.5	51.52863	32.07478	12.77168	-0.50913	0.80984	0.25704	62.02505	0.99052	31.90	11.88
95/12/31	2450083.0	47.77338	37.35660	14.43271	-0.59842	0.74845	0.23303	62.33871	0.98620	38.02	13.39
96/ 1/ 1	2450083.5	43.44139	42.19539	15.92288	-0.67933	0.67916	0.20664	62.61903	0.98258	44.17	14.73
96/ 1/ 1	2450084.0	38.59153	46.54065	17.22725	-0.75125	0.60287	0.17822	62.86586	0.97959	50.33	15.90
96/ 1/ 2	2450084.5	33.28653	50.34814	18.33312	-0.81365	0.52052	0.14808	63.07957	0.97719	56.53	16.90
96/ 1/ 2	2450085.0	27.59240	53.57998	19.23005	-0.86609	0.43304	0.11657	63.26096	0.97531	62.75	17.70
96/ 1/ 3	2450085.5	21.57783	56.20466	19.90985	-0.90822	0.34139	0.08402	63.41111	0.97390	69.00	18.30
96/ 1/ 3	2450086.0	15.31369	58.19718	20.36662	-0.93975	0.24653	0.05077	63.53125	0.97288	75.26	18.70
96/ 1/ 4	2450086.5	8.87244	59.53906	20.59667	-0.96049	0.14942	0.01713	63.62266	0.97219	81.52	18.89
96/ 1/ 4	2450087.0	2.32764	60.21837	20.59861	-0.97032	0.05104	-0.01654	63.68652	0.97180	87.79	18.87
96/ 1/ 5	2450087.5	-4.24664	60.22981	20.37326	-0.96920	-0.04763	-0.04993	63.72389	0.97165	94.03	18.65
96/ 1/ 5	2450088.0	-10.77637	59.57468	19.92366	-0.95717	-0.14563	-0.08270	63.73558	0.97172	100.25	18.22

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/ 1/ 6	2450088.5	-17.18808	58.26083	19.25507	-0.93438	-0.24198	-0.11454	63.72215	0.97198	106.44	17.59
96/ 1/ 6	2450089.0	-23.40947	56.30267	18.37489	-0.90102	-0.33573	-0.14513	63.68383	0.97242	112.58	16.77
96/ 1/ 7	2450089.5	-29.36994	53.72104	17.29263	-0.85739	-0.42593	-0.17417	63.62059	0.97307	118.67	15.77
96/ 1/ 7	2450090.0	-35.00120	50.54310	16.01983	-0.80387	-0.51167	-0.20135	63.53206	0.97394	124.70	14.60
96/ 1/ 8	2450090.5	-40.23775	46.80212	14.57002	-0.74092	-0.59205	-0.22639	63.41767	0.97505	130.69	13.28
96/ 1/ 8	2450091.0	-45.01748	42.53738	12.95861	-0.66907	-0.66619	-0.24902	63.27660	0.97646	136.62	11.82
96/ 1/ 9	2450091.5	-49.28219	37.79387	11.20281	-0.58894	-0.73329	-0.26899	63.10795	0.97822	142.52	10.23
96/ 1/ 9	2450092.0	-52.97807	32.62210	9.32151	-0.50122	-0.79253	-0.28604	62.91079	0.98038	148.38	8.52
96/ 1/10	2450092.5	-56.05627	27.07780	7.33522	-0.40668	-0.84317	-0.29995	62.68428	0.98300	154.22	6.72
96/ 1/10	2450093.0	-58.47341	21.22168	5.26592	-0.30616	-0.88449	-0.31052	62.42779	0.98615	160.05	4.84
96/ 1/11	2450093.5	-60.19207	15.11911	3.13695	-0.20059	-0.91584	-0.31754	62.14107	0.98986	165.90	2.89
96/ 1/11	2450094.0	-61.18136	8.83975	0.97289	-0.09096	-0.93660	-0.32086	61.82432	0.99420	171.78	0.90
96/ 1/12	2450094.5	-61.41751	2.45725	-1.20061	0.02162	-0.94621	-0.32031	61.47837	0.99919	177.71	-1.12
96/ 1/12	2450095.0	-60.88442	-3.95124	-3.35695	0.13598	-0.94420	-0.31577	61.10478	1.00484	183.71	-3.15
96/ 1/13	2450095.5	-59.57436	-10.30554	-5.46880	0.25084	-0.93015	-0.30716	60.70598	1.01116	189.81	-5.17
96/ 1/13	2450096.0	-57.48862	-16.52301	-7.50831	0.36480	-0.90375	-0.29440	60.28537	1.01810	196.04	-7.15
96/ 1/14	2450096.5	-54.63822	-22.51934	-9.44738	0.47638	-0.86482	-0.27750	59.84738	1.02560	202.40	-9.08
96/ 1/14	2450097.0	-51.04464	-28.20937	-11.25799	0.58398	-0.81331	-0.25648	59.39753	1.03358	208.93	-10.93
96/ 1/15	2450097.5	-46.74045	-33.50825	-12.91257	0.68592	-0.74936	-0.23145	58.94241	1.04192	215.64	-12.65
96/ 1/15	2450098.0	-41.76994	-38.33270	-14.38448	0.78044	-0.67330	-0.20258	58.48963	1.05046	222.54	-14.24
96/ 1/16	2450098.5	-36.18949	-42.60261	-15.64854	0.86573	-0.58572	-0.17012	58.04772	1.05901	229.65	-15.64
96/ 1/16	2450099.0	-30.06777	-46.24279	-16.68165	0.93998	-0.48751	-0.13444	57.62590	1.06738	236.97	-16.83
96/ 1/17	2450099.5	-23.48557	-49.18503	-17.46345	1.00143	-0.37985	-0.09600	57.23383	1.07534	244.48	-17.77
96/ 1/17	2450100.0	-16.53517	-51.37020	-17.97703	1.04845	-0.26423	-0.05534	56.88131	1.08265	252.16	-18.42
96/ 1/18	2450100.5	-9.31921	-52.75048	-18.20960	1.07963	-0.14250	-0.01314	56.57783	1.08907	259.98	-18.77
96/ 1/18	2450101.0	-1.94897	-53.29145	-18.15323	1.09385	-0.01677	0.02985	56.33220	1.09439	267.91	-18.80
96/ 1/19	2450101.5	5.45800	-52.97390	-17.80529	1.09039	0.11060	0.07282	56.15205	1.09840	275.88	-18.49
96/ 1/19	2450102.0	12.78068	-51.79528	-17.16890	1.06896	0.23707	0.11489	56.04345	1.10094	283.86	-17.84
96/ 1/20	2450102.5	19.89788	-49.77038	-16.25303	1.02979	0.36007	0.15520	56.01051	1.10191	291.79	-16.87
96/ 1/20	2450103.0	26.69165	-46.93142	-15.07243	0.97362	0.47705	0.19292	56.05516	1.10124	299.63	-15.60
96/ 1/21	2450103.5	33.05073	-43.32729	-13.64727	0.90167	0.58565	0.22730	56.17698	1.09893	307.34	-14.06
96/ 1/21	2450104.0	38.87368	-39.02201	-12.00248	0.81561	0.68377	0.25768	56.37322	1.09506	314.89	-12.29
96/ 1/22	2450104.5	44.07150	-34.09257	-10.16697	0.71743	0.76970	0.28354	56.63893	1.08974	322.28	-10.34
96/ 1/22	2450105.0	48.56957	-28.62635	-8.17268	0.60936	0.84210	0.30452	56.96721	1.08314	329.49	-8.25
96/ 1/23	2450105.5	52.30887	-22.71816	-6.05356	0.49377	0.90009	0.32038	57.34962	1.07546	336.52	-6.06
96/ 1/23	2450106.0	55.24641	-16.46746	-3.84458	0.37300	0.94320	0.33105	57.77650	1.06693	343.40	-3.82
96/ 1/24	2450106.5	57.35503	-9.97554	-1.58081	0.24936	0.97134	0.33658	58.23753	1.05781	350.13	-1.56
96/ 1/24	2450107.0	58.62261	-3.34311	0.70335	0.12499	0.98475	0.33711	58.72207	1.04833	356.74	0.69
96/ 1/25	2450107.5	59.05089	3.33169	2.97487	0.00183	0.98396	0.33289	59.21957	1.03874	3.23	2.88
96/ 1/25	2450108.0	58.65413	9.95496	5.20253	-0.11837	0.96967	0.32421	59.71997	1.02926	9.63	5.00
96/ 1/26	2450108.5	57.45751	16.43817	7.35729	-0.23412	0.94275	0.31142	60.21386	1.02009	15.97	7.02
96/ 1/26	2450109.0	55.49569	22.69904	9.41254	-0.34413	0.90418	0.29489	60.69278	1.01140	22.25	8.92
96/ 1/27	2450109.5	52.81134	28.66203	11.34421	-0.44732	0.85496	0.27499	61.14933	1.00333	28.49	10.69
96/ 1/27	2450110.0	49.45384	34.25863	13.13081	-0.54277	0.79616	0.25211	61.57722	0.99601	34.71	12.31
96/ 1/28	2450110.5	45.47814	39.42744	14.75343	-0.62975	0.72882	0.22663	61.97135	0.98951	40.92	13.77

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 1/28	2450111.0	40.94378	44.11415	16.19571	-0.70765	0.65397	0.19892	62.32778	0.98388	47.13	15.06
96/ 1/29	2450111.5	35.91398	48.27143	17.44375	-0.77598	0.57265	0.16934	62.64367	0.97916	53.35	16.17
96/ 1/29	2450112.0	30.45500	51.85884	18.48608	-0.83433	0.48586	0.13823	62.91726	0.97533	59.58	17.09
96/ 1/30	2450112.5	24.63547	54.84263	19.31353	-0.88240	0.39457	0.10594	63.14771	0.97239	65.81	17.81
96/ 1/30	2450113.0	18.52591	57.19565	19.91925	-0.91994	0.29975	0.07281	63.33505	0.97028	72.05	18.33
96/ 1/31	2450113.5	12.19826	58.89726	20.29859	-0.94678	0.20237	0.03915	63.48006	0.96896	78.30	18.65
96/ 1/31	2450114.0	5.72540	59.93324	20.44911	-0.96280	0.10336	0.00529	63.58411	0.96835	84.54	18.76
96/ 2/ 1	2450114.5	-0.81916	60.29577	20.37050	-0.96795	0.00366	-0.02845	63.64910	0.96838	90.78	18.67
96/ 2/ 1	2450115.0	-7.36180	59.98341	20.06464	-0.96224	-0.09578	-0.06177	63.67728	0.96896	97.00	18.37
96/ 2/ 2	2450115.5	-13.82917	59.00112	19.53551	-0.94574	-0.19401	-0.09433	63.67114	0.97003	103.19	17.87
96/ 2/ 2	2450116.0	-20.14861	57.36024	18.78921	-0.91859	-0.29009	-0.12584	63.63331	0.97149	109.35	17.17
96/ 2/ 3	2450116.5	-26.24874	55.07854	17.83397	-0.88102	-0.38308	-0.15598	63.56644	0.97328	115.48	16.29
96/ 2/ 3	2450117.0	-32.05989	52.18018	16.68008	-0.83332	-0.47203	-0.18445	63.47308	0.97532	121.57	15.24
96/ 2/ 4	2450117.5	-37.51475	48.69566	15.33990	-0.77588	-0.55601	-0.21094	63.35564	0.97757	127.61	14.01
96/ 2/ 4	2450118.0	-42.54892	44.66178	13.82780	-0.70918	-0.63410	-0.23517	63.21624	0.97996	133.61	12.63
96/ 2/ 5	2450118.5	-47.10154	40.12147	12.16008	-0.63378	-0.70541	-0.25685	63.05676	0.98248	139.58	11.12
96/ 2/ 5	2450119.0	-51.11596	35.12358	10.35491	-0.55037	-0.76908	-0.27571	62.87871	0.98510	145.51	9.48
96/ 2/ 6	2450119.5	-54.54038	29.72265	8.43220	-0.45970	-0.82430	-0.29152	62.68326	0.98781	151.41	7.73
96/ 2/ 6	2450120.0	-57.32849	23.97855	6.41348	-0.36262	-0.87030	-0.30403	62.47127	0.99063	157.30	5.89
96/ 2/ 7	2450120.5	-59.44012	17.95610	4.32172	-0.26010	-0.90638	-0.31305	62.24329	0.99357	163.19	3.98
96/ 2/ 7	2450121.0	-60.84187	11.72459	2.18122	-0.15318	-0.93193	-0.31840	61.99965	0.99667	169.09	2.02
96/ 2/ 8	2450121.5	-61.50769	5.35724	0.01734	-0.04298	-0.94641	-0.31993	61.74055	0.99995	175.02	0.02
96/ 2/ 8	2450122.0	-61.41943	-1.06941	-2.14370	0.06928	-0.94938	-0.31754	61.46613	1.00347	181.00	-2.00
96/ 2/ 9	2450122.5	-60.56740	-7.47617	-4.27503	0.18234	-0.94049	-0.31115	61.17662	1.00727	187.04	-4.01
96/ 2/ 9	2450123.0	-58.95079	-13.78195	-6.34943	0.29483	-0.91953	-0.30073	60.87243	1.01139	193.16	-5.99
96/ 2/10	2450123.5	-56.57814	-19.90453	-8.33959	0.40535	-0.88639	-0.28628	60.55431	1.01585	199.38	-7.92
96/ 2/10	2450124.0	-53.46772	-25.76150	-10.21843	0.51244	-0.84112	-0.26787	60.22349	1.02070	205.73	-9.77
96/ 2/11	2450124.5	-49.64787	-31.27119	-11.95941	0.61459	-0.78389	-0.24560	59.88177	1.02592	212.21	-11.52
96/ 2/11	2450125.0	-45.15721	-36.35376	-13.53695	0.71026	-0.71506	-0.21964	59.53166	1.03152	218.84	-13.14
96/ 2/12	2450125.5	-40.04484	-40.93236	-14.92674	0.79792	-0.63518	-0.19020	59.17647	1.03745	225.63	-14.61
96/ 2/12	2450126.0	-34.37033	-44.93443	-16.10626	0.87601	-0.54496	-0.15760	58.82036	1.04365	232.59	-15.89
96/ 2/13	2450126.5	-28.20358	-48.29311	-17.05518	0.94303	-0.44536	-0.12218	58.46833	1.05003	239.71	-16.96
96/ 2/13	2450127.0	-21.62443	-50.94869	-17.75588	0.99755	-0.33755	-0.08438	58.12621	1.05649	247.00	-17.79
96/ 2/14	2450127.5	-14.72208	-52.85020	-18.19396	1.03826	-0.22294	-0.04472	57.80055	1.06287	254.43	-18.35
96/ 2/14	2450128.0	-7.59405	-53.95700	-18.35869	1.06402	-0.10318	-0.00377	57.49843	1.06901	261.99	-18.62
96/ 2/15	2450128.5	-0.34492	-54.24037	-18.24357	1.07389	0.01988	0.03781	57.22730	1.07474	269.64	-18.59
96/ 2/15	2450129.0	6.91544	-53.68486	-17.84669	1.06725	0.14418	0.07931	56.99466	1.07986	277.34	-18.25
96/ 2/16	2450129.5	14.07397	-52.28954	-17.17109	1.04380	0.26749	0.11999	56.80774	1.08419	285.06	-17.59
96/ 2/16	2450130.0	21.01691	-50.06881	-16.22498	1.00364	0.38753	0.15907	56.67315	1.08755	292.77	-16.64
96/ 2/17	2450130.5	27.63253	-47.05272	-15.02172	0.94727	0.50198	0.19579	56.59653	1.08979	300.42	-15.39
96/ 2/17	2450131.0	33.81401	-43.28679	-13.57974	0.87564	0.60859	0.22944	56.58218	1.09076	308.00	-13.89
96/ 2/18	2450131.5	39.46235	-38.83120	-11.92211	0.79009	0.70531	0.25937	56.63281	1.09040	315.46	-12.15
96/ 2/18	2450132.0	44.48896	-33.75930	-10.07604	0.69236	0.79030	0.28501	56.74931	1.08865	322.81	-10.23
96/ 2/19	2450132.5	48.81799	-28.15570	-8.07211	0.58446	0.86209	0.30592	56.93064	1.08553	330.03	-8.15
96/ 2/19	2450133.0	52.38800	-22.11382	-5.94341	0.46861	0.91957	0.32181	57.17384	1.08110	337.11	-5.97

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
96/ 2/20	2450133.5	55.15310	-15.73324	-3.72467	0.34717	0.96203	0.33250	57.47410	1.07544	344.08	-3.72
96/ 2/20	2450134.0	57.08335	-9.11692	-1.45124	0.22248	0.98917	0.33796	57.82503	1.06872	350.93	-1.44
96/ 2/21	2450134.5	58.16457	-2.36856	0.84171	0.09682	1.00106	0.33829	58.21886	1.06110	357.67	0.83
96/ 2/21	2450135.0	58.39751	4.40983	3.12007	-0.02767	0.99812	0.33369	58.64683	1.05279	4.32	3.05
96/ 2/22	2450135.5	57.79672	11.11996	5.35134	-0.14907	0.98104	0.32444	59.09950	1.04400	10.89	5.20
96/ 2/22	2450136.0	56.38903	17.66900	7.50525	-0.26568	0.95072	0.31090	59.56715	1.03494	17.40	7.24
96/ 2/23	2450136.5	54.21194	23.97070	9.55402	-0.37605	0.90819	0.29347	60.04005	1.02584	23.85	9.16
96/ 2/23	2450137.0	51.31189	29.94634	11.47269	-0.47898	0.85463	0.27256	60.50881	1.01690	30.27	10.93
96/ 2/24	2450137.5	47.74275	35.52513	13.23915	-0.57349	0.79121	0.24860	60.96458	1.00832	36.65	12.54
96/ 2/24	2450138.0	43.56428	40.64447	14.83423	-0.65880	0.71915	0.22202	61.39929	1.00025	43.01	13.98
96/ 2/25	2450138.5	38.84084	45.24991	16.24161	-0.73432	0.63966	0.19324	61.80578	0.99284	49.36	15.24
96/ 2/25	2450139.0	33.64030	49.29501	17.44776	-0.79962	0.55388	0.16266	62.17791	0.98622	55.69	16.30
96/ 2/26	2450139.5	28.03308	52.74107	18.44181	-0.85437	0.46295	0.13067	62.51059	0.98049	62.01	17.16
96/ 2/26	2450140.0	22.09136	55.55685	19.21544	-0.89837	0.36794	0.09763	62.79988	0.97569	68.32	17.82
96/ 2/27	2450140.5	15.88850	57.71826	19.76276	-0.93147	0.26989	0.06390	63.04291	0.97189	74.61	18.27
96/ 2/27	2450141.0	9.49850	59.20808	20.08019	-0.95362	0.16979	0.02980	63.23790	0.96908	80.89	18.51
96/ 2/28	2450141.5	2.99558	60.01571	20.16637	-0.96482	0.06860	-0.00434	63.38408	0.96726	87.14	18.55
96/ 2/28	2450142.0	-3.54616	60.13700	20.02208	-0.96510	-0.03273	-0.03820	63.48163	0.96641	93.37	18.38
96/ 2/29	2450142.5	-10.05308	59.57410	19.65020	-0.95456	-0.13328	-0.07149	63.53163	0.96646	99.58	18.02
96/ 2/29	2450143.0	-16.45232	58.33539	19.05566	-0.93333	-0.23214	-0.10390	63.53593	0.96736	105.75	17.45
96/ 3/ 1	2450143.5	-22.67214	56.43541	18.24539	-0.90161	-0.32840	-0.13514	63.49706	0.96902	111.89	16.70
96/ 3/ 1	2450144.0	-28.64228	53.89491	17.22837	-0.85965	-0.42113	-0.16491	63.41813	0.97136	117.99	15.76
96/ 3/ 2	2450144.5	-34.29437	50.74082	16.01558	-0.80775	-0.50943	-0.19290	63.30271	0.97427	124.05	14.66
96/ 3/ 2	2450145.0	-39.56243	47.00628	14.61996	-0.74632	-0.59238	-0.21884	63.15473	0.97765	130.09	13.39
96/ 3/ 3	2450145.5	-44.38343	42.73065	13.05649	-0.67582	-0.66906	-0.24243	62.97832	0.98140	136.09	11.97
96/ 3/ 3	2450146.0	-48.69784	37.95943	11.34205	-0.59683	-0.73857	-0.26337	62.77770	0.98542	142.06	10.41
96/ 3/ 4	2450146.5	-52.45037	32.74423	9.49545	-0.51002	-0.80003	-0.28141	62.55709	0.98962	148.02	8.73
96/ 3/ 4	2450147.0	-55.59068	27.14251	7.53729	-0.41619	-0.85257	-0.29627	62.32054	0.99391	153.98	6.95
96/ 3/ 5	2450147.5	-58.07412	21.21736	5.48988	-0.31622	-0.89540	-0.30772	62.07188	0.99822	159.93	5.07
96/ 3/ 5	2450148.0	-59.86255	15.03707	3.37708	-0.21113	-0.92779	-0.31555	61.81459	1.00247	165.90	3.13
96/ 3/ 6	2450148.5	-60.92511	8.67466	1.22412	-0.10207	-0.94908	-0.31956	61.55174	1.00663	171.90	1.14
96/ 3/ 6	2450149.0	-61.23897	2.20719	-0.94268	0.00974	-0.95873	-0.31961	61.28598	1.01065	177.94	-0.88
96/ 3/ 7	2450149.5	-60.79002	-4.28498	-3.09614	0.12295	-0.95632	-0.31561	61.01946	1.01453	184.03	-2.91
96/ 3/ 7	2450150.0	-59.57353	-10.71909	-5.20855	0.23615	-0.94155	-0.30749	60.75388	1.01825	190.20	-4.92
96/ 3/ 8	2450150.5	-57.59459	-17.01099	-7.25203	0.34784	-0.91432	-0.29526	60.49052	1.02183	196.45	-6.89
96/ 3/ 8	2450151.0	-54.86853	-23.07624	-9.19889	0.45651	-0.87465	-0.27897	60.23029	1.02530	202.81	-8.79
96/ 3/ 9	2450151.5	-51.42112	-28.83128	-11.02202	0.56059	-0.82277	-0.25875	59.97382	1.02867	209.28	-10.59
96/ 3/ 9	2450152.0	-47.28869	-34.19470	-12.69536	0.65854	-0.75909	-0.23477	59.72160	1.03199	215.87	-12.27
96/ 3/10	2450152.5	-42.51798	-39.08846	-14.19424	0.74882	-0.68420	-0.20728	59.47405	1.03529	222.59	-13.81
96/ 3/10	2450153.0	-37.16588	-43.43924	-15.49586	0.82997	-0.59889	-0.17658	59.23168	1.03861	229.45	-15.17
96/ 3/11	2450153.5	-31.29902	-47.17967	-16.57968	0.90060	-0.50415	-0.14303	58.99521	1.04197	236.44	-16.32
96/ 3/11	2450154.0	-24.99309	-50.24965	-17.42783	0.95942	-0.40112	-0.10706	58.76573	1.04540	243.56	-17.25
96/ 3/12	2450154.5	-18.33208	-52.59756	-18.02550	1.00528	-0.29116	-0.06915	58.54474	1.04888	250.78	-17.93
96/ 3/12	2450155.0	-11.40720	-54.18142	-18.36131	1.03719	-0.17577	-0.02982	58.33428	1.05240	258.11	-18.35
96/ 3/13	2450155.5	-4.31576	-54.97000	-18.42760	1.05435	-0.05661	0.01034	58.13693	1.05592	265.51	-18.48

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 3/13	2450156.0	2.84030	-54.94375	-18.22076	1.05619	0.06453	0.05073	57.95583	1.05938	272.96	-18.32
96/ 3/14	2450156.5	9.95599	-54.09566	-17.74140	1.04240	0.18575	0.09070	57.79463	1.06270	280.43	-17.88
96/ 3/14	2450157.0	16.92507	-52.43184	-16.99456	1.01292	0.30508	0.12960	57.65736	1.06577	287.89	-17.14
96/ 3/15	2450157.5	23.64200	-49.97192	-15.98974	0.96801	0.42050	0.16677	57.54831	1.06850	295.32	-16.13
96/ 3/15	2450158.0	30.00408	-46.74907	-14.74088	0.90825	0.53004	0.20156	57.47185	1.07074	302.69	-14.86
96/ 3/16	2450158.5	35.91357	-42.80976	-13.26618	0.83454	0.63176	0.23336	57.43215	1.07240	309.99	-13.36
96/ 3/16	2450159.0	41.27989	-38.21310	-11.58788	0.74809	0.72386	0.26160	57.43300	1.07333	317.21	-11.64
96/ 3/17	2450159.5	46.02165	-33.02976	-9.73175	0.65039	0.80475	0.28579	57.47751	1.07345	324.33	-9.75
96/ 3/17	2450160.0	50.06855	-27.34052	-7.72667	0.54321	0.87304	0.30553	57.56792	1.07267	331.36	-7.71
96/ 3/18	2450160.5	53.36290	-21.23450	-5.60389	0.42851	0.92766	0.32050	57.70534	1.07093	338.30	-5.57
96/ 3/18	2450161.0	55.86079	-14.80711	-3.39638	0.30838	0.96785	0.33052	57.88967	1.06821	345.15	-3.36
96/ 3/19	2450161.5	57.53284	-8.15774	-1.13804	0.18500	0.99317	0.33551	58.11946	1.06451	351.93	-1.12
96/ 3/19	2450162.0	58.36434	-1.38753	1.13707	0.06053	1.00354	0.33549	58.39190	1.05987	358.64	1.12
96/ 3/20	2450162.5	58.35504	5.40292	3.39550	-0.06294	0.99921	0.33061	58.70291	1.05437	5.29	3.32
96/ 3/20	2450163.0	57.51841	12.11562	5.60503	-0.18346	0.98070	0.32110	59.04720	1.04811	11.89	5.45
96/ 3/21	2450163.5	55.88055	18.65703	7.73528	-0.29926	0.94878	0.30726	59.41847	1.04122	18.46	7.48
96/ 3/21	2450164.0	53.47888	24.93954	9.75816	-0.40877	0.90442	0.28946	59.80964	1.03386	25.00	9.39
96/ 3/22	2450164.5	50.36060	30.88266	11.64824	-0.51067	0.84875	0.26811	60.21304	1.02618	31.52	11.15
96/ 3/22	2450165.0	46.58110	36.41383	13.38293	-0.60386	0.78298	0.24365	60.62069	1.01837	38.02	12.75
96/ 3/23	2450165.5	42.20242	41.46889	14.94264	-0.68747	0.70838	0.21652	61.02455	1.01059	44.50	14.17
96/ 3/23	2450166.0	37.29179	45.99233	16.31080	-0.76085	0.62621	0.18716	61.41673	1.00302	50.96	15.40
96/ 3/24	2450166.5	31.92027	49.93724	17.47382	-0.82351	0.53775	0.15601	61.78968	0.99583	57.41	16.43
96/ 3/24	2450167.0	26.16157	53.26516	18.42096	-0.87514	0.44422	0.12348	62.13643	0.98916	63.84	17.25
96/ 3/25	2450167.5	20.09112	55.94578	19.14426	-0.91555	0.34680	0.08998	62.45067	0.98315	70.25	17.85
96/ 3/25	2450168.0	13.78517	57.95659	19.63839	-0.94467	0.24661	0.05587	62.72690	0.97793	76.62	18.24
96/ 3/26	2450168.5	7.32019	59.28248	19.90046	-0.96252	0.14472	0.02151	62.96051	0.97358	82.96	18.43
96/ 3/26	2450169.0	0.77229	59.91541	19.92992	-0.96917	0.04215	-0.01277	63.14788	0.97017	89.26	18.40
96/ 3/27	2450169.5	-5.78318	59.85403	19.72845	-0.96478	-0.06014	-0.04664	63.28635	0.96778	95.52	18.16
96/ 3/27	2450170.0	-12.27196	59.10346	19.29980	-0.94952	-0.16122	-0.07980	63.37430	0.96641	101.73	17.73
96/ 3/28	2450170.5	-18.62122	57.67501	18.64979	-0.92362	-0.26017	-0.11196	63.41113	0.96607	107.89	17.10
96/ 3/28	2450171.0	-24.75981	55.58606	17.78616	-0.88736	-0.35611	-0.14283	63.39721	0.96676	114.01	16.29
96/ 3/29	2450171.5	-30.61854	52.85995	16.71861	-0.84104	-0.44817	-0.17213	63.33389	0.96841	120.08	15.31
96/ 3/29	2450172.0	-36.13047	49.52595	15.45872	-0.78501	-0.53547	-0.19958	63.22343	0.97098	126.11	14.15
96/ 3/30	2450172.5	-41.23129	45.61921	14.01996	-0.71971	-0.61715	-0.22490	63.06894	0.97439	132.11	12.84
96/ 3/30	2450173.0	-45.85974	41.18082	12.41769	-0.64561	-0.69232	-0.24782	62.87427	0.97854	138.08	11.39
96/ 3/31	2450173.5	-49.95809	36.25780	10.66911	-0.56328	-0.76011	-0.26806	62.64398	0.98331	144.03	9.81
96/ 3/31	2450174.0	-53.47275	30.90307	8.79330	-0.47337	-0.81965	-0.28534	62.38314	0.98860	149.98	8.10
96/ 4/ 1	2450174.5	-56.35497	25.17541	6.81113	-0.37666	-0.87009	-0.29942	62.09730	0.99428	155.93	6.30
96/ 4/ 1	2450175.0	-58.56156	19.13931	4.74521	-0.27403	-0.91060	-0.31004	61.79228	1.00021	161.90	4.40
96/ 4/ 2	2450175.5	-60.05579	12.86466	2.61976	-0.16648	-0.94041	-0.31696	61.47406	1.00626	167.91	2.44
96/ 4/ 2	2450176.0	-60.80824	6.42639	0.46048	-0.05519	-0.95881	-0.32000	61.14861	1.01230	173.97	0.43
96/ 4/ 3	2450176.5	-60.79773	-0.09613	-1.70569	0.05859	-0.96520	-0.31897	60.82173	1.01823	180.09	-1.61
96/ 4/ 3	2450177.0	-60.01223	-6.61987	-3.85085	0.17342	-0.95910	-0.31377	60.49892	1.02391	186.29	-3.65
96/ 4/ 4	2450177.5	-58.44963	-13.05904	-5.94646	0.28779	-0.94019	-0.30434	60.18520	1.02927	192.59	-5.67
96/ 4/ 4	2450178.0	-56.11851	-19.32633	-7.96376	0.40008	-0.90833	-0.29066	59.88502	1.03422	199.00	-7.64

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
96/ 4/ 5	2450178.5	-53.03864	-25.33413	-9.87422	0.50861	-0.86360	-0.27280	59.60215	1.03871	205.53	-9.54
96/ 4/ 5	2450179.0	-49.24130	-30.99609	-11.65003	0.61166	-0.80628	-0.25093	59.33959	1.04268	212.19	-11.32
96/ 4/ 6	2450179.5	-44.76934	-36.22865	-13.26463	0.70754	-0.73691	-0.22524	59.09958	1.04613	218.98	-12.97
96/ 4/ 6	2450180.0	-39.67697	-40.95268	-14.69325	0.79460	-0.65626	-0.19606	58.88358	1.04905	225.91	-14.45
96/ 4/ 7	2450180.5	-34.02920	-45.09510	-15.91341	0.87130	-0.56535	-0.16376	58.69234	1.05147	232.96	-15.73
96/ 4/ 7	2450181.0	-27.90104	-48.59041	-16.90544	0.93624	-0.46540	-0.12878	58.52597	1.05343	240.14	-16.79
96/ 4/ 8	2450181.5	-21.37640	-51.38214	-17.65290	0.98819	-0.35784	-0.09163	58.38407	1.05497	247.41	-17.60
96/ 4/ 8	2450182.0	-14.54675	-53.42409	-18.14297	1.02615	-0.24427	-0.05287	58.26584	1.05615	254.77	-18.14
96/ 4/ 9	2450182.5	-7.50958	-54.68136	-18.36676	1.04936	-0.12643	-0.01310	58.17029	1.05703	262.18	-18.41
96/ 4/ 9	2450183.0	-0.36672	-55.13118	-18.31949	1.05730	-0.00615	0.02707	58.09634	1.05767	269.62	-18.38
96/ 4/10	2450183.5	6.77749	-54.76342	-18.00069	1.04974	0.11468	0.06698	58.04301	1.05811	277.06	-18.07
96/ 4/10	2450184.0	13.81800	-53.58090	-17.41417	1.02671	0.23412	0.10601	58.00951	1.05839	284.46	-17.47
96/ 4/11	2450184.5	20.65098	-51.59943	-16.56803	0.98853	0.35029	0.14354	57.99537	1.05854	291.81	-16.60
96/ 4/11	2450185.0	27.17565	-48.84752	-15.47452	0.93579	0.46132	0.17897	58.00049	1.05856	299.09	-15.47
96/ 4/12	2450185.5	33.29608	-45.36597	-14.14980	0.86933	0.56546	0.21172	58.02514	1.05844	306.28	-14.11
96/ 4/12	2450186.0	38.92289	-41.20710	-12.61370	0.79023	0.66107	0.24130	58.06997	1.05816	313.37	-12.55
96/ 4/13	2450186.5	43.97485	-36.43379	-10.88932	0.69981	0.74667	0.26725	58.13592	1.05767	320.36	-10.80
96/ 4/13	2450187.0	48.38026	-31.11835	-9.00264	0.59958	0.82096	0.28917	58.22413	1.05693	327.25	-8.89
96/ 4/14	2450187.5	52.07825	-25.34113	-6.98199	0.49120	0.88287	0.30676	58.33579	1.05586	334.05	-6.87
96/ 4/14	2450188.0	55.01968	-19.18898	-4.85756	0.37648	0.93155	0.31979	58.47203	1.05442	340.77	-4.77
96/ 4/15	2450188.5	57.16797	-12.75364	-2.66081	0.25731	0.96642	0.32811	58.63371	1.05253	347.42	-2.60
96/ 4/15	2450189.0	58.49948	-6.12993	-0.42384	0.13562	0.98715	0.33166	58.82130	1.05017	354.02	-0.41
96/ 4/16	2450189.5	59.00370	0.58604	1.82112	0.01333	0.99367	0.33048	59.03470	1.04727	0.57	1.77
96/ 4/16	2450190.0	58.68304	7.29859	4.04240	-0.10765	0.98619	0.32469	59.27318	1.04383	7.09	3.91
96/ 4/17	2450190.5	57.55240	13.91424	6.20935	-0.22556	0.96515	0.31448	59.53521	1.03985	13.59	5.99
96/ 4/17	2450191.0	55.63841	20.34323	8.29292	-0.33871	0.93120	0.30011	59.81850	1.03534	20.08	7.97
96/ 4/18	2450191.5	52.97846	26.50092	10.26601	-0.44560	0.88519	0.28192	60.11994	1.03034	26.58	9.83
96/ 4/18	2450192.0	49.61949	32.30897	12.10391	-0.54492	0.82813	0.26026	60.43566	1.02492	33.07	11.55
96/ 4/19	2450192.5	45.61677	37.69625	13.78449	-0.63553	0.76114	0.23553	60.76108	1.01917	39.57	13.11
96/ 4/19	2450193.0	41.03247	42.59950	15.28846	-0.71651	0.68541	0.20817	61.09106	1.01317	46.07	14.49
96/ 4/20	2450193.5	35.93434	46.96379	16.59941	-0.78715	0.60219	0.17861	61.41999	1.00705	52.58	15.68
96/ 4/20	2450194.0	30.39442	50.74267	17.70388	-0.84690	0.51275	0.14727	61.74194	1.00092	59.08	16.66
96/ 4/21	2450194.5	24.48778	53.89824	18.59133	-0.89539	0.41834	0.11459	62.05086	0.99492	65.57	17.43
96/ 4/21	2450195.0	18.29142	56.40095	19.25403	-0.93243	0.32017	0.08098	62.34069	0.98918	72.03	17.99
96/ 4/22	2450195.5	11.88333	58.22941	19.68699	-0.95791	0.21943	0.04682	62.60556	0.98384	78.47	18.33
96/ 4/22	2450196.0	5.34165	59.37000	19.88781	-0.97189	0.11723	0.01248	62.83991	0.97901	84.86	18.45
96/ 4/23	2450196.5	-1.25601	59.81650	19.85651	-0.97447	0.01464	-0.02167	63.03865	0.97482	91.20	18.36
96/ 4/23	2450197.0	-7.83314	59.56975	19.59543	-0.96586	-0.08732	-0.05531	63.19726	0.97138	97.49	18.06
96/ 4/24	2450197.5	-14.31479	58.63725	19.10909	-0.94632	-0.18770	-0.08814	63.31191	0.96877	103.72	17.57
96/ 4/24	2450198.0	-20.62790	57.03287	18.40405	-0.91615	-0.28557	-0.11985	63.37955	0.96708	109.88	16.88
96/ 4/25	2450198.5	-26.70166	54.77652	17.48882	-0.87571	-0.38007	-0.15016	63.39799	0.96637	115.99	16.01
96/ 4/25	2450199.0	-32.46777	51.89399	16.37379	-0.82537	-0.47034	-0.17880	63.36595	0.96666	122.03	14.98
96/ 4/26	2450199.5	-37.86067	48.41674	15.07118	-0.76558	-0.55555	-0.20551	63.28311	0.96798	128.02	13.78
96/ 4/26	2450200.0	-42.81788	44.38183	13.59495	-0.69679	-0.63488	-0.23002	63.15014	0.97031	133.97	12.43
96/ 4/27	2450200.5	-47.28025	39.83183	11.96084	-0.61955	-0.70752	-0.25209	62.96871	0.97364	139.89	10.95

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/ 4/27	2450201.0	-51.19239	34.81483	10.18627	-0.53442	-0.77265	-0.27145	62.74148	0.97790	145.78	9.34
96/ 4/28	2450201.5	-54.50310	29.38437	8.29042	-0.44206	-0.82947	-0.28786	62.47207	0.98301	151.67	7.63
96/ 4/28	2450202.0	-57.16591	23.59947	6.29412	-0.34323	-0.87718	-0.30107	62.16504	0.98889	157.57	5.81
96/ 4/29	2450202.5	-59.13976	17.52452	4.21986	-0.23877	-0.91499	-0.31085	61.82578	0.99541	163.49	3.91
96/ 4/29	2450203.0	-60.38975	11.22917	2.09171	-0.12965	-0.94214	-0.31695	61.46048	1.00245	169.47	1.95
96/ 4/30	2450203.5	-60.88795	4.78803	-0.06479	-0.01697	-0.95793	-0.31919	61.07595	1.00985	175.50	-0.06
96/ 4/30	2450204.0	-60.61438	-1.71968	-2.22278	0.09803	-0.96170	-0.31737	60.67950	1.01745	181.63	-2.10
96/ 5/ 1	2450204.5	-59.55798	-8.21077	-4.35433	0.21395	-0.95294	-0.31136	60.27877	1.02509	187.85	-4.14
96/ 5/ 1	2450205.0	-57.71757	-14.59890	-6.43070	0.32927	-0.93125	-0.30106	59.88155	1.03261	194.19	-6.16
96/ 5/ 2	2450205.5	-55.10279	-20.79561	-8.42273	0.44233	-0.89640	-0.28645	59.49552	1.03983	200.68	-8.14
96/ 5/ 2	2450206.0	-51.73489	-26.71167	-10.30133	0.55136	-0.84839	-0.26758	59.12807	1.04660	207.31	-10.03
96/ 5/ 3	2450206.5	-47.64733	-32.25863	-12.03796	0.65453	-0.78747	-0.24456	58.78604	1.05277	214.10	-11.82
96/ 5/ 3	2450207.0	-42.88607	-37.35059	-13.60528	0.74999	-0.71415	-0.21763	58.47551	1.05823	221.05	-13.45
96/ 5/ 4	2450207.5	-37.50957	-41.90616	-14.97776	0.83592	-0.62923	-0.18709	58.20161	1.06287	228.17	-14.91
96/ 5/ 4	2450208.0	-31.58826	-45.85040	-16.13235	0.91060	-0.53383	-0.15336	57.96835	1.06662	235.44	-16.16
96/ 5/ 5	2450208.5	-25.20368	-49.11682	-17.04908	0.97247	-0.42933	-0.11694	57.77853	1.06944	242.84	-17.16
96/ 5/ 5	2450209.0	-18.44715	-51.64919	-17.71165	1.02023	-0.31737	-0.07841	57.63366	1.07133	250.35	-17.90
96/ 5/ 6	2450209.5	-11.41803	-53.40314	-18.10794	1.05282	-0.19979	-0.03842	57.53403	1.07230	257.93	-18.34
96/ 5/ 6	2450210.0	-4.22171	-54.34739	-18.23031	1.06951	-0.07861	0.00236	57.47874	1.07240	265.56	-18.49
96/ 5/ 7	2450210.5	3.03272	-54.46460	-18.07586	1.06994	0.04407	0.04320	57.46587	1.07172	273.19	-18.33
96/ 5/ 7	2450211.0	10.23480	-53.75179	-17.64651	1.05408	0.16613	0.08342	57.49266	1.07035	280.78	-17.87
96/ 5/ 8	2450211.5	17.27511	-52.22034	-16.94891	1.02226	0.28547	0.12230	57.55570	1.06839	288.30	-17.13
96/ 5/ 8	2450212.0	24.04756	-49.89549	-15.99424	0.97512	0.40009	0.15922	57.65120	1.06596	295.73	-16.11
96/ 5/ 9	2450212.5	30.45145	-46.81565	-14.79792	0.91360	0.50812	0.19357	57.77520	1.06317	303.04	-14.84
96/ 5/ 9	2450213.0	36.39336	-43.03122	-13.37916	0.83892	0.60789	0.22482	57.92378	1.06012	310.22	-13.35
96/ 5/10	2450213.5	41.78870	-38.60331	-11.76049	0.75246	0.69791	0.25253	58.09321	1.05690	317.27	-11.68
96/ 5/10	2450214.0	46.56301	-33.60231	-9.96728	0.65580	0.77693	0.27631	58.28015	1.05359	324.18	-9.85
96/ 5/11	2450214.5	50.65286	-28.10622	-8.02713	0.55063	0.84395	0.29588	58.48168	1.05023	330.98	-7.89
96/ 5/11	2450215.0	54.00661	-22.19914	-5.96936	0.43873	0.89819	0.31102	58.69539	1.04688	337.66	-5.84
96/ 5/12	2450215.5	56.58477	-15.96955	-3.82444	0.32191	0.93911	0.32160	58.91935	1.04354	344.24	-3.72
96/ 5/12	2450216.0	58.36021	-9.50880	-1.62345	0.20200	0.96642	0.32757	59.15207	1.04022	350.75	-1.57
96/ 5/13	2450216.5	59.31809	-2.90953	0.60239	0.08079	0.98002	0.32895	59.39246	1.03691	357.19	0.58
96/ 5/13	2450217.0	59.45564	3.73578	2.82226	-0.03995	0.98005	0.32582	59.63970	1.03357	3.60	2.71
96/ 5/14	2450217.5	58.78173	10.33620	5.00613	-0.15856	0.96684	0.31835	59.89316	1.03017	9.97	4.79
96/ 5/14	2450218.0	57.31628	16.80365	7.12522	-0.27343	0.94088	0.30673	60.15220	1.02670	16.34	6.80
96/ 5/15	2450218.5	55.08955	23.05402	9.15230	-0.38312	0.90286	0.29123	60.41615	1.02311	22.71	8.71
96/ 5/15	2450219.0	52.14130	29.00824	11.06212	-0.48629	0.85358	0.27215	60.68413	1.01938	29.09	10.50
96/ 5/16	2450219.5	48.51980	34.59316	12.83155	-0.58174	0.79397	0.24984	60.95496	1.01550	35.49	12.15
96/ 5/16	2450220.0	44.28084	39.74232	14.43993	-0.66846	0.72508	0.22466	61.22709	1.01146	41.91	13.64
96/ 5/17	2450220.5	39.48661	44.39651	15.86914	-0.74558	0.64800	0.19700	61.49855	1.00727	48.35	14.95
96/ 5/17	2450221.0	34.20464	48.50422	17.10377	-0.81239	0.56390	0.16727	61.76694	1.00296	54.81	16.08
96/ 5/18	2450221.5	28.50663	52.02191	18.13116	-0.86835	0.47398	0.13587	62.02940	0.99857	61.28	17.00
96/ 5/18	2450222.0	22.46740	54.91417	18.94142	-0.91309	0.37941	0.10322	62.28264	0.99416	67.75	17.71
96/ 5/19	2450222.5	16.16390	57.15364	19.52740	-0.94637	0.28141	0.06971	62.52303	0.98978	74.21	18.20
96/ 5/19	2450223.0	9.67418	58.72096	19.88464	-0.96807	0.18113	0.03574	62.74663	0.98552	80.64	18.48

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/ 5/20	2450223.5	3.07663	59.60455	20.01127	-0.97822	0.07969	0.00167	62.94933	0.98146	87.05	18.54
96/ 5/20	2450224.0	-3.55086	59.80029	19.90786	-0.97694	-0.02181	-0.03213	63.12691	0.97771	93.40	18.38
96/ 5/21	2450224.5	-10.13154	59.31126	19.57737	-0.96444	-0.12235	-0.06533	63.27517	0.97436	99.69	18.02
96/ 5/21	2450225.0	-16.59035	58.14732	19.02496	-0.94101	-0.22095	-0.09761	63.39006	0.97151	105.92	17.47
96/ 5/22	2450225.5	-22.85440	56.32483	18.25789	-0.90699	-0.31667	-0.12867	63.46779	0.96926	112.09	16.72
96/ 5/22	2450226.0	-28.85341	53.86629	17.28538	-0.86281	-0.40862	-0.15823	63.50497	0.96771	118.18	15.79
96/ 5/23	2450226.5	-34.52000	50.80005	16.11854	-0.80892	-0.49598	-0.18601	63.49868	0.96692	124.20	14.70
96/ 5/23	2450227.0	-39.79007	47.16001	14.77025	-0.74580	-0.57793	-0.21177	63.44664	0.96699	130.16	13.46
96/ 5/24	2450227.5	-44.60300	42.98545	13.25506	-0.67402	-0.65369	-0.23526	63.34724	0.96797	136.06	12.08
96/ 5/24	2450228.0	-48.90202	38.32082	11.58917	-0.59415	-0.72252	-0.25623	63.19970	0.96990	141.92	10.57
96/ 5/25	2450228.5	-52.63447	33.21563	9.79035	-0.50683	-0.78367	-0.27447	63.00410	0.97280	147.75	8.94
96/ 5/25	2450229.0	-55.75214	27.72431	7.87790	-0.41274	-0.83642	-0.28975	62.76146	0.97668	153.56	7.21
96/ 5/26	2450229.5	-58.21175	21.90617	5.87262	-0.31264	-0.88006	-0.30185	62.47380	0.98151	159.38	5.39
96/ 5/26	2450230.0	-59.97538	15.82526	3.79675	-0.20736	-0.91390	-0.31056	62.14419	0.98725	165.22	3.50
96/ 5/27	2450230.5	-61.01110	9.55028	1.67398	-0.09785	-0.93726	-0.31567	61.77673	0.99382	171.10	1.55
96/ 5/27	2450231.0	-61.29363	3.15442	-0.47073	0.01486	-0.94949	-0.31700	61.37655	1.00112	177.05	-0.44
96/ 5/28	2450231.5	-60.80518	-3.28499	-2.61116	0.12961	-0.95002	-0.31438	60.94981	1.00905	183.09	-2.46
96/ 5/28	2450232.0	-59.53629	-9.68684	-4.72005	0.24509	-0.93832	-0.30767	60.50358	1.01744	189.24	-4.47
96/ 5/29	2450232.5	-57.48677	-15.96688	-6.76931	0.35987	-0.91399	-0.29676	60.04576	1.02614	195.52	-6.47
96/ 5/29	2450233.0	-54.66668	-22.03853	-8.73033	0.47236	-0.87676	-0.28161	59.58491	1.03496	201.96	-8.43
96/ 5/30	2450233.5	-51.09725	-27.81401	-10.57433	0.58085	-0.82654	-0.26221	59.13007	1.04370	208.56	-10.30
96/ 5/30	2450234.0	-46.81168	-33.20567	-12.27288	0.68352	-0.76346	-0.23868	58.69049	1.05216	215.35	-12.07
96/ 5/31	2450234.5	-41.85577	-38.12769	-13.79844	0.77848	-0.68795	-0.21117	58.27541	1.06014	222.33	-13.70
96/ 5/31	2450235.0	-36.28819	-42.49801	-15.12504	0.86383	-0.60069	-0.17998	57.89370	1.06744	229.51	-15.14
96/ 6/ 1	2450235.5	-30.18040	-46.24042	-16.22895	0.93770	-0.50273	-0.14549	57.55356	1.07386	236.87	-16.38
96/ 6/ 1	2450236.0	-23.61605	-49.28683	-17.08944	0.99837	-0.39543	-0.10819	57.26219	1.07927	244.40	-17.36
96/ 6/ 2	2450236.5	-16.68981	-51.57948	-17.68948	1.04433	-0.28046	-0.06868	57.02553	1.08351	252.07	-18.07
96/ 6/ 2	2450237.0	-9.50572	-53.07296	-18.01639	1.07434	-0.15978	-0.02766	56.84794	1.08651	259.85	-18.48
96/ 6/ 3	2450237.5	-2.17493	-53.73596	-18.06236	1.08754	-0.03560	0.01415	56.73211	1.08821	267.68	-18.56
96/ 6/ 3	2450238.0	5.18691	-53.55255	-17.82480	1.08347	0.08976	0.05593	56.67895	1.08862	275.53	-18.33
96/ 6/ 4	2450238.5	12.46252	-52.52285	-17.30652	1.06211	0.21390	0.09691	56.68757	1.08776	283.35	-17.78
96/ 6/ 4	2450239.0	19.53604	-50.66315	-16.51570	1.02390	0.33447	0.13629	56.75544	1.08573	291.09	-16.92
96/ 6/ 5	2450239.5	26.29595	-48.00533	-15.46561	0.96967	0.44922	0.17335	56.87858	1.08264	298.71	-15.78
96/ 6/ 5	2450240.0	32.63767	-44.59578	-14.17418	0.90064	0.55613	0.20745	57.05180	1.07864	306.20	-14.39
96/ 6/ 6	2450240.5	38.46593	-40.49385	-12.66346	0.81832	0.65340	0.23802	57.26904	1.07389	313.53	-12.77
96/ 6/ 6	2450241.0	43.69650	-35.76994	-10.95892	0.72446	0.73957	0.26462	57.52365	1.06856	320.70	-10.98
96/ 6/ 7	2450241.5	48.25755	-30.50344	-9.08874	0.62095	0.81346	0.28689	57.80879	1.06283	327.70	-9.05
96/ 6/ 7	2450242.0	52.09045	-24.78055	-7.08304	0.50977	0.87423	0.30460	58.11763	1.05685	334.56	-7.00
96/ 6/ 8	2450242.5	55.15009	-18.69218	-4.97321	0.39294	0.92132	0.31762	58.44367	1.05077	341.28	-4.88
96/ 6/ 8	2450243.0	57.40491	-12.33200	-2.79124	0.27244	0.95447	0.32591	58.78089	1.04472	347.88	-2.72
96/ 6/ 9	2450243.5	58.83652	-5.79461	-0.56911	0.15016	0.97366	0.32949	59.12392	1.03881	354.38	-0.55
96/ 6/ 9	2450244.0	59.43913	0.82606	1.66170	0.02793	0.97911	0.32850	59.46809	1.03312	0.80	1.60
96/ 6/10	2450244.5	59.21885	7.43810	3.87069	-0.09256	0.97120	0.32308	59.80953	1.02770	7.16	3.71
96/ 6/10	2450245.0	58.19279	13.95285	6.02867	-0.20975	0.95048	0.31348	60.14505	1.02259	13.48	5.75
96/ 6/11	2450245.5	56.38821	20.28586	8.10811	-0.32223	0.91766	0.29994	60.47221	1.01778	19.79	7.71

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 6/11	2450246.0	53.84154	26.35775	10.08338	-0.42869	0.87352	0.28276	60.78912	1.01329	26.08	9.55
96/ 6/12	2450246.5	50.59742	32.09489	11.93093	-0.52800	0.81896	0.26228	61.09442	1.00909	32.39	11.26
96/ 6/12	2450247.0	46.70776	37.42994	13.62950	-0.61915	0.75495	0.23883	61.38712	1.00516	38.71	12.83
96/ 6/13	2450247.5	42.23080	42.30233	15.16021	-0.70129	0.68251	0.21277	61.66652	1.00145	45.05	14.23
96/ 6/13	2450248.0	37.23015	46.65857	16.50667	-0.77369	0.60272	0.18449	61.93202	0.99794	51.41	15.46
96/ 6/14	2450248.5	31.77389	50.45254	17.65504	-0.83574	0.51666	0.15434	62.18310	0.99460	57.80	16.49
96/ 6/14	2450249.0	25.93366	53.64565	18.59406	-0.88700	0.42548	0.12273	62.41914	0.99140	64.20	17.33
96/ 6/15	2450249.5	19.78381	56.20692	19.31508	-0.92713	0.33028	0.09003	62.63936	0.98831	70.61	17.96
96/ 6/15	2450250.0	13.40051	58.11303	19.81201	-0.95591	0.23219	0.05662	62.84277	0.98534	77.01	18.38
96/ 6/16	2450250.5	6.86097	59.34819	20.08132	-0.97326	0.13234	0.02288	63.02809	0.98248	83.41	18.58
96/ 6/16	2450251.0	0.24267	59.90408	20.12194	-0.97918	0.03179	-0.01085	63.19375	0.97976	89.77	18.57
96/ 6/17	2450251.5	-6.37736	59.77963	19.93523	-0.97380	-0.06839	-0.04420	63.33789	0.97720	96.09	18.35
96/ 6/17	2450252.0	-12.92320	58.98082	19.52483	-0.95731	-0.16718	-0.07684	63.45837	0.97484	102.36	17.92
96/ 6/18	2450252.5	-19.32063	57.52038	18.89663	-0.93003	-0.26360	-0.10847	63.55284	0.97273	108.57	17.30
96/ 6/18	2450253.0	-25.49770	55.41754	18.05857	-0.89231	-0.35673	-0.13876	63.61877	0.97094	114.71	16.49
96/ 6/19	2450253.5	-31.38519	52.69767	17.02064	-0.84460	-0.44566	-0.16744	63.65357	0.96954	120.78	15.51
96/ 6/19	2450254.0	-36.91708	49.39199	15.79464	-0.78739	-0.52957	-0.19425	63.65462	0.96859	126.78	14.37
96/ 6/20	2450254.5	-42.03090	45.53727	14.39418	-0.72124	-0.60766	-0.21892	63.61943	0.96818	132.71	13.08
96/ 6/20	2450255.0	-46.66810	41.17552	12.83451	-0.64675	-0.67918	-0.24123	63.54572	0.96838	138.58	11.65
96/ 6/21	2450255.5	-50.77438	36.35371	11.13242	-0.56458	-0.74340	-0.26094	63.43154	0.96927	144.40	10.11
96/ 6/21	2450256.0	-54.30002	31.12354	9.30621	-0.47542	-0.79965	-0.27785	63.27538	0.97090	150.18	8.46
96/ 6/22	2450256.5	-57.20022	25.54124	7.37554	-0.38002	-0.84728	-0.29175	63.07629	0.97335	155.94	6.71
96/ 6/22	2450257.0	-59.43540	19.66727	5.36140	-0.27918	-0.88567	-0.30246	62.83401	0.97665	161.69	4.89
96/ 6/23	2450257.5	-60.97167	13.56623	3.28603	-0.17378	-0.91424	-0.30981	62.54906	0.98082	167.46	3.01
96/ 6/23	2450258.0	-61.78121	7.30656	1.17280	-0.06475	-0.93242	-0.31361	62.22282	0.98588	173.26	1.08
96/ 6/24	2450258.5	-61.84284	0.96036	-0.95381	0.04690	-0.93971	-0.31373	61.85765	0.99180	179.11	-0.88
96/ 6/24	2450259.0	-61.14256	-5.39690	-3.06836	0.16004	-0.93562	-0.31003	61.45693	0.99855	185.04	-2.86
96/ 6/25	2450259.5	-59.67426	-11.68678	-5.14457	0.27348	-0.91974	-0.30240	61.02511	1.00606	191.08	-4.84
96/ 6/25	2450260.0	-57.44044	-17.82830	-7.15550	0.38586	-0.89176	-0.29074	60.56776	1.01423	197.24	-6.78
96/ 6/26	2450260.5	-54.45301	-23.73867	-9.07377	0.49576	-0.85146	-0.27503	60.09150	1.02294	203.55	-8.68
96/ 6/26	2450261.0	-50.73411	-29.33406	-10.87187	0.60159	-0.79876	-0.25527	59.60398	1.03203	210.04	-10.51
96/ 6/27	2450261.5	-46.31689	-34.53074	-12.52255	0.70168	-0.73376	-0.23151	59.11380	1.04132	216.71	-12.23
96/ 6/27	2450262.0	-41.24616	-39.24642	-13.99926	0.79427	-0.65679	-0.20392	58.63025	1.05063	223.58	-13.81
96/ 6/28	2450262.5	-35.57892	-43.40186	-15.27670	0.87752	-0.56845	-0.17272	58.16321	1.05972	230.66	-15.23
96/ 6/28	2450263.0	-29.38456	-46.92281	-16.33147	0.94962	-0.46960	-0.13823	57.72277	1.06837	237.94	-16.44
96/ 6/29	2450263.5	-22.74464	-49.74205	-17.14277	1.00881	-0.36147	-0.10091	57.31898	1.07635	245.43	-17.40
96/ 6/29	2450264.0	-15.75225	-51.80172	-17.69314	1.05345	-0.24559	-0.06128	56.96138	1.08343	253.09	-18.10
96/ 6/30	2450264.5	-8.51071	-53.05550	-17.96918	1.08217	-0.12383	-0.02001	56.65871	1.08941	260.89	-18.49
96/ 6/30	2450265.0	-1.13174	-53.47070	-17.96219	1.09389	0.00165	0.02216	56.41841	1.09411	268.79	-18.56
96/ 7/ 1	2450265.5	6.26703	-53.03008	-17.66874	1.08794	0.12848	0.06444	56.24633	1.09739	276.74	-18.31
96/ 7/ 1	2450266.0	13.56498	-51.73303	-17.09101	1.06412	0.25412	0.10597	56.14640	1.09916	284.69	-17.72
96/ 7/ 2	2450266.5	20.64178	-49.59621	-16.23695	1.02273	0.37603	0.14590	56.12045	1.09939	292.60	-16.82
96/ 7/ 2	2450267.0	27.38075	-46.65338	-15.12011	0.96454	0.49173	0.18343	56.16816	1.09808	300.41	-15.62
96/ 7/ 3	2450267.5	33.67222	-42.95453	-13.75935	0.89082	0.59892	0.21781	56.28703	1.09531	308.09	-14.15
96/ 7/ 3	2450268.0	39.41638	-38.56426	-12.17818	0.80323	0.69559	0.24842	56.47266	1.09121	315.63	-12.45

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
96/ 7/ 4	2450268.5	44.52576	-33.55964	-10.40405	0.70373	0.78009	0.27472	56.71893	1.08593	322.99	-10.57
96/ 7/ 4	2450269.0	48.92698	-28.02771	-8.46743	0.59449	0.85113	0.29634	57.01841	1.07966	330.19	-8.54
96/ 7/ 5	2450269.5	52.56185	-22.06273	-6.40094	0.47781	0.90785	0.31304	57.36274	1.07261	337.23	-6.41
96/ 7/ 5	2450270.0	55.38774	-15.76353	-4.23837	0.35599	0.94977	0.32470	57.74300	1.06500	344.11	-4.21
96/ 7/ 6	2450270.5	57.37747	-9.23094	-2.01390	0.23126	0.97678	0.33133	58.15016	1.05705	350.86	-1.98
96/ 7/ 6	2450271.0	58.51864	-2.56550	0.23868	0.10575	0.98905	0.33303	58.57533	1.04896	357.49	0.23
96/ 7/ 7	2450271.5	58.81260	4.13439	2.48659	-0.01860	0.98705	0.32999	59.01015	1.04091	4.02	2.42
96/ 7/ 7	2450272.0	58.27330	10.77412	4.69854	-0.14003	0.97141	0.32246	59.44691	1.03307	10.48	4.53
96/ 7/ 8	2450272.5	56.92597	17.26405	6.84512	-0.25696	0.94296	0.31074	59.87878	1.02555	16.87	6.56
96/ 7/ 8	2450273.0	54.80573	23.52044	8.89911	-0.36805	0.90261	0.29517	60.29986	1.01848	23.23	8.49
96/ 7/ 9	2450273.5	51.95632	29.46614	10.83562	-0.47210	0.85138	0.27611	60.70521	1.01191	29.56	10.28
96/ 7/ 9	2450274.0	48.42886	35.03097	12.63224	-0.56812	0.79032	0.25393	61.09089	1.00591	35.88	11.93
96/ 7/10	2450274.5	44.28069	40.15205	14.26913	-0.65526	0.72053	0.22901	61.45385	1.00049	42.20	13.43
96/ 7/10	2450275.0	39.57435	44.77392	15.72900	-0.73284	0.64310	0.20172	61.79186	0.99565	48.53	14.75
96/ 7/11	2450275.5	34.37658	48.84863	16.99715	-0.80029	0.55914	0.17245	62.10347	0.99138	54.86	15.88
96/ 7/11	2450276.0	28.75756	52.33569	18.06142	-0.85717	0.46976	0.14158	62.38779	0.98765	61.21	16.83
96/ 7/12	2450276.5	22.79003	55.20211	18.91220	-0.90316	0.37605	0.10947	62.64447	0.98442	67.57	17.57
96/ 7/12	2450277.0	16.54863	57.42227	19.54236	-0.93802	0.27910	0.07649	62.87351	0.98164	73.92	18.11
96/ 7/13	2450277.5	10.10920	58.97789	19.94723	-0.96162	0.17999	0.04300	63.07519	0.97927	80.27	18.44
96/ 7/13	2450278.0	3.54812	59.85785	20.12453	-0.97394	0.07976	0.00935	63.24989	0.97724	86.61	18.55
96/ 7/14	2450278.5	-3.05828	60.05814	20.07434	-0.97502	-0.02055	-0.02412	63.39804	0.97554	92.92	18.46
96/ 7/14	2450279.0	-9.63433	59.58163	19.79900	-0.96501	-0.11993	-0.05707	63.52001	0.97410	99.19	18.16
96/ 7/15	2450279.5	-16.10559	58.43795	19.30310	-0.94412	-0.21740	-0.08920	63.61598	0.97292	105.41	17.66
96/ 7/15	2450280.0	-22.39939	56.64327	18.59332	-0.91266	-0.31201	-0.12018	63.68598	0.97198	111.58	16.97
96/ 7/16	2450280.5	-28.44534	54.22009	17.67843	-0.87100	-0.40284	-0.14972	63.72976	0.97126	117.68	16.10
96/ 7/16	2450281.0	-34.17591	51.19701	16.56916	-0.81961	-0.48901	-0.17753	63.74687	0.97078	123.72	15.07
96/ 7/17	2450281.5	-39.52681	47.60841	15.27810	-0.75899	-0.56969	-0.20335	63.73656	0.97055	129.70	13.87
96/ 7/17	2450282.0	-44.43757	43.49422	13.81960	-0.68974	-0.64409	-0.22693	63.69793	0.97061	135.61	12.53
96/ 7/18	2450282.5	-48.85186	38.89957	12.20968	-0.61250	-0.71145	-0.24803	63.62984	0.97099	141.47	11.06
96/ 7/18	2450283.0	-52.71796	33.87451	10.46587	-0.52798	-0.77107	-0.26643	63.53110	0.97176	147.28	9.48
96/ 7/19	2450283.5	-55.98914	28.47362	8.60714	-0.43695	-0.82232	-0.28194	63.40042	0.97295	153.04	7.80
96/ 7/19	2450284.0	-58.62400	22.75574	6.65377	-0.34023	-0.86458	-0.29435	63.23662	0.97463	158.79	6.04
96/ 7/20	2450284.5	-60.58689	16.78362	4.62721	-0.23867	-0.89731	-0.30352	63.03866	0.97686	164.52	4.21
96/ 7/20	2450285.0	-61.84826	10.62358	2.55002	-0.13323	-0.92000	-0.30928	62.80581	0.97969	170.25	2.33
96/ 7/21	2450285.5	-62.38503	4.34514	0.44569	-0.02488	-0.93220	-0.31151	62.53776	0.98318	176.02	0.41
96/ 7/21	2450286.0	-62.18104	-1.97931	-1.66145	0.08533	-0.93352	-0.31010	62.23471	0.98737	181.82	-1.53
96/ 7/22	2450286.5	-61.22742	-8.27494	-3.74640	0.19629	-0.92364	-0.30494	61.89755	0.99229	187.70	-3.47
96/ 7/22	2450287.0	-59.52313	-14.46494	-5.78361	0.30680	-0.90229	-0.29599	61.52794	0.99793	193.66	-5.39
96/ 7/23	2450287.5	-57.07538	-20.47101	-7.74721	0.41561	-0.86931	-0.28320	61.12839	1.00430	199.73	-7.28
96/ 7/23	2450288.0	-53.90024	-26.21398	-9.61117	0.52136	-0.82460	-0.26657	60.70241	1.01136	205.94	-9.11
96/ 7/24	2450288.5	-50.02313	-31.61455	-11.34956	0.62265	-0.76822	-0.24614	60.25451	1.01903	212.29	-10.86
96/ 7/24	2450289.0	-45.47943	-36.59422	-12.93690	0.71795	-0.70035	-0.22199	59.79029	1.02724	218.82	-12.50
96/ 7/25	2450289.5	-40.31490	-41.07632	-14.34848	0.80571	-0.62137	-0.19427	59.31640	1.03586	225.54	-14.00
96/ 7/25	2450290.0	-34.58613	-44.98737	-15.56081	0.88430	-0.53184	-0.16319	58.84048	1.04473	232.45	-15.33
96/ 7/26	2450290.5	-28.36070	-48.25851	-16.55213	0.95209	-0.43257	-0.12906	58.37111	1.05368	239.56	-16.47

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 7/26	2450291.0	-21.71719	-50.82729	-17.30297	1.00749	-0.32464	-0.09225	57.91755	1.06251	246.86	-17.38
96/ 7/27	2450291.5	-14.74477	-52.63951	-17.79675	1.04898	-0.20941	-0.05324	57.48957	1.07100	254.35	-18.03
96/ 7/27	2450292.0	-7.54237	-53.65121	-18.02049	1.07519	-0.08855	-0.01261	57.09709	1.07891	262.00	-18.40
96/ 7/28	2450292.5	-0.21737	-53.83070	-17.96536	1.08502	0.03599	0.02899	56.74985	1.08600	269.77	-18.46
96/ 7/28	2450293.0	7.11633	-53.16039	-17.62737	1.07766	0.16200	0.07079	56.45700	1.09206	277.62	-18.19
96/ 7/29	2450293.5	14.34069	-51.63833	-17.00775	1.05270	0.28709	0.11201	56.22665	1.09688	285.52	-17.61
96/ 7/29	2450294.0	21.33651	-49.27932	-16.11333	1.01022	0.40873	0.15180	56.06547	1.10030	293.41	-16.70
96/ 7/30	2450294.5	27.98669	-46.11528	-14.95659	0.95077	0.52439	0.18933	55.97833	1.10218	301.25	-15.50
96/ 7/30	2450295.0	34.17958	-42.19505	-13.55554	0.87541	0.63164	0.22382	55.96801	1.10245	309.01	-14.02
96/ 7/31	2450295.5	39.81237	-37.58321	-11.93327	0.78567	0.72827	0.25455	56.03504	1.10111	316.65	-12.30
96/ 7/31	2450296.0	44.79401	-32.35833	-10.11734	0.68348	0.81238	0.28092	56.17763	1.09819	324.16	-10.38
96/ 8/ 1	2450296.5	49.04767	-26.61054	-8.13890	0.57109	0.88247	0.30247	56.39181	1.09379	331.52	-8.30
96/ 8/ 1	2450297.0	52.51242	-20.43864	-6.03176	0.45094	0.93747	0.31888	56.67164	1.08807	338.73	-6.11
96/ 8/ 2	2450297.5	55.14420	-13.94712	-3.83130	0.32554	0.97679	0.33001	57.00951	1.08120	345.81	-3.85
96/ 8/ 2	2450298.0	56.91598	-7.24307	-1.57352	0.19739	1.00024	0.33582	57.39657	1.07341	352.75	-1.57
96/ 8/ 3	2450298.5	57.81721	-0.43338	0.70589	0.06886	1.00804	0.33643	57.82314	1.06493	359.57	0.70
96/ 8/ 3	2450299.0	57.85280	6.37767	2.97240	-0.05788	1.00076	0.33205	58.27912	1.05599	6.29	2.92
96/ 8/ 4	2450299.5	57.04164	13.09052	5.19323	-0.18088	0.97920	0.32300	58.75440	1.04684	12.93	5.07
96/ 8/ 4	2450300.0	55.41496	19.61180	7.33790	-0.29844	0.94437	0.30962	59.23922	1.03767	19.49	7.12
96/ 8/ 5	2450300.5	53.01455	25.85549	9.37850	-0.40914	0.89743	0.29234	59.72440	1.02870	26.00	9.03
96/ 8/ 5	2450301.0	49.89100	31.74363	11.28996	-0.51180	0.83959	0.27156	60.20160	1.02009	32.47	10.81
96/ 8/ 6	2450301.5	46.10214	37.20671	13.05013	-0.60546	0.77212	0.24773	60.66343	1.01199	38.91	12.42
96/ 8/ 6	2450302.0	41.71152	42.18379	14.63979	-0.68938	0.69629	0.22128	61.10357	1.00450	45.32	13.86
96/ 8/ 7	2450302.5	36.78716	46.62246	16.04263	-0.76299	0.61334	0.19264	61.51679	0.99772	51.73	15.12
96/ 8/ 7	2450303.0	31.40040	50.47867	17.24516	-0.82587	0.52449	0.16220	61.89893	0.99169	58.12	16.18
96/ 8/ 8	2450303.5	25.62497	53.71649	18.23663	-0.87772	0.43092	0.13037	62.24689	0.98645	64.50	17.04
96/ 8/ 8	2450304.0	19.53619	56.30781	19.00890	-0.91837	0.33377	0.09753	62.55854	0.98200	70.87	17.69
96/ 8/ 9	2450304.5	13.21029	58.23207	19.55633	-0.94773	0.23412	0.06404	62.83260	0.97832	77.22	18.13
96/ 8/ 9	2450305.0	6.72381	59.47600	19.87572	-0.96580	0.13305	0.03025	63.06860	0.97539	83.55	18.37
96/ 8/10	2450305.5	0.15310	60.03337	19.96618	-0.97262	0.03155	-0.00350	63.26671	0.97314	89.85	18.40
96/ 8/10	2450306.0	-6.42618	59.90474	19.82907	-0.96835	-0.06936	-0.03690	63.42765	0.97154	96.12	18.22
96/ 8/11	2450306.5	-12.93950	59.09734	19.46792	-0.95318	-0.16873	-0.06961	63.55254	0.97050	102.35	17.84
96/ 8/11	2450307.0	-19.31389	57.62479	18.88834	-0.92738	-0.26562	-0.10134	63.64285	0.96998	108.53	17.26
96/ 8/12	2450307.5	-25.47840	55.50699	18.09802	-0.89127	-0.35912	-0.13180	63.70018	0.96989	114.66	16.51
96/ 8/12	2450308.0	-31.36453	52.76991	17.10657	-0.84525	-0.44834	-0.16069	63.72623	0.97019	120.73	15.57
96/ 8/13	2450308.5	-36.90670	49.44543	15.92553	-0.78978	-0.53243	-0.18774	63.72266	0.97082	126.74	14.47
96/ 8/13	2450309.0	-42.04269	45.57110	14.56826	-0.72540	-0.61057	-0.21268	63.69103	0.97172	132.69	13.22
96/ 8/14	2450309.5	-46.71416	41.18995	13.04987	-0.65272	-0.68196	-0.23527	63.63272	0.97287	138.60	11.83
96/ 8/14	2450310.0	-50.86706	36.35021	11.38711	-0.57239	-0.74587	-0.25528	63.54890	0.97423	144.45	10.32
96/ 8/15	2450310.5	-54.45219	31.10502	9.59828	-0.48519	-0.80158	-0.27247	63.44044	0.97579	150.26	8.70
96/ 8/15	2450311.0	-57.42560	25.51208	7.70311	-0.39190	-0.84845	-0.28665	63.30800	0.97756	156.05	6.99
96/ 8/16	2450311.5	-59.74909	19.63326	5.72259	-0.29342	-0.88590	-0.29764	63.15194	0.97954	161.81	5.20
96/ 8/16	2450312.0	-61.39066	13.53425	3.67891	-0.19069	-0.91340	-0.30528	62.97240	0.98176	167.57	3.35
96/ 8/17	2450312.5	-62.32488	7.28399	1.59522	-0.08472	-0.93049	-0.30943	62.76935	0.98424	173.33	1.46
96/ 8/17	2450313.0	-62.53336	0.95430	-0.50450	0.02343	-0.93680	-0.30999	62.54267	0.98703	179.13	-0.46

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 8/18	2450313.5	-62.00510	-5.38075	-2.59561	0.13264	-0.93203	-0.30688	62.29223	0.99017	184.96	-2.39
96/ 8/18	2450314.0	-60.73688	-11.64534	-4.65302	0.24173	-0.91597	-0.30004	62.01801	0.99371	190.85	-4.30
96/ 8/19	2450314.5	-58.73361	-17.76258	-6.65140	0.34949	-0.88850	-0.28945	61.72023	0.99768	196.83	-6.19
96/ 8/19	2450315.0	-56.00860	-23.65513	-8.56539	0.45464	-0.84962	-0.27512	61.39946	1.00213	202.90	-8.02
96/ 8/20	2450315.5	-52.58392	-29.24593	-10.36988	0.55588	-0.79943	-0.25712	61.05675	1.00707	209.08	-9.78
96/ 8/20	2450316.0	-48.49063	-34.45903	-12.04022	0.65185	-0.73814	-0.23553	60.69376	1.01254	215.40	-11.44
96/ 8/21	2450316.5	-43.76903	-39.22041	-13.55254	0.74118	-0.66611	-0.21049	60.31285	1.01851	221.86	-12.99
96/ 8/21	2450317.0	-38.46882	-43.45899	-14.88408	0.82248	-0.58386	-0.18218	59.91719	1.02496	228.49	-14.38
96/ 8/22	2450317.5	-32.64919	-47.10773	-16.01354	0.89433	-0.49206	-0.15086	59.51085	1.03185	235.28	-15.61
96/ 8/22	2450318.0	-26.37880	-50.10483	-16.92146	0.95535	-0.39159	-0.11682	59.09882	1.03908	242.23	-16.64
96/ 8/23	2450318.5	-19.73555	-52.39506	-17.59071	1.00421	-0.28353	-0.08045	58.68703	1.04657	249.36	-17.44
96/ 8/23	2450319.0	-12.80619	-53.93119	-18.00691	1.03964	-0.16915	-0.04218	58.28225	1.05416	256.64	-18.00
96/ 8/24	2450319.5	-5.68557	-54.67556	-18.15892	1.06051	-0.05000	-0.00253	57.89205	1.06170	264.06	-18.28
96/ 8/24	2450320.0	1.52439	-54.60158	-18.03937	1.06588	0.07219	0.03791	57.52456	1.06900	271.60	-18.28
96/ 8/25	2450320.5	8.71616	-53.69523	-17.64512	1.05505	0.19545	0.07848	57.18828	1.07587	279.22	-17.97
96/ 8/25	2450321.0	15.77847	-51.95642	-16.97764	1.02762	0.31764	0.11846	56.89174	1.08209	286.89	-17.36
96/ 8/26	2450321.5	22.59857	-49.40006	-16.04341	0.98356	0.43649	0.15712	56.64320	1.08747	294.58	-16.45
96/ 8/26	2450322.0	29.06489	-46.05666	-14.85402	0.92325	0.54966	0.19368	56.45020	1.09180	302.25	-15.26
96/ 8/27	2450322.5	35.06996	-41.97253	-13.42621	0.84753	0.65484	0.22740	56.31925	1.09491	309.88	-13.79
96/ 8/27	2450323.0	40.51341	-37.20923	-11.78165	0.75766	0.74986	0.25758	56.25540	1.09667	317.43	-12.09
96/ 8/28	2450323.5	45.30493	-31.84240	-9.94654	0.65533	0.83275	0.28358	56.26196	1.09697	324.90	-10.18
96/ 8/28	2450324.0	49.36688	-25.95998	-7.95095	0.54259	0.90187	0.30489	56.34028	1.09578	332.26	-8.11
96/ 8/29	2450324.5	52.63652	-19.65975	-5.82799	0.42177	0.95595	0.32113	56.48960	1.09310	339.52	-5.92
96/ 8/29	2450325.0	55.06745	-13.04661	-3.61289	0.29535	0.99417	0.33207	56.70706	1.08898	346.67	-3.65
96/ 8/30	2450325.5	56.63046	-6.22950	-1.34200	0.16590	1.01616	0.33761	56.98786	1.08355	353.72	-1.35
96/ 8/30	2450326.0	57.31353	0.68158	0.94824	0.03592	1.02197	0.33780	57.32543	1.07695	0.68	0.95
96/ 8/31	2450326.5	57.12120	7.57841	3.22218	-0.09222	1.01206	0.33284	57.71175	1.06937	7.56	3.20
96/ 8/31	2450327.0	56.07334	14.35705	5.44580	-0.21637	0.98722	0.32300	58.13778	1.06101	14.36	5.37
96/ 9/ 1	2450327.5	54.20350	20.91984	7.58734	-0.33465	0.94851	0.30867	58.59375	1.05212	21.10	7.44
96/ 9/ 1	2450328.0	51.55705	27.17700	9.61780	-0.44546	0.89719	0.29027	59.06963	1.04290	27.79	9.37
96/ 9/ 2	2450328.5	48.18916	33.04764	11.51125	-0.54750	0.83461	0.26829	59.55544	1.03359	34.44	11.14
96/ 9/ 2	2450329.0	44.16284	38.46040	13.24500	-0.63974	0.76222	0.24320	60.04156	1.02440	41.05	12.74
96/ 9/ 3	2450329.5	39.54714	43.35366	14.79966	-0.72143	0.68145	0.21549	60.51898	1.01552	47.63	14.15
96/ 9/ 3	2450330.0	34.41549	47.67553	16.15912	-0.79203	0.59372	0.18563	60.97950	1.00711	54.18	15.37
96/ 9/ 4	2450330.5	28.84431	51.38351	17.31042	-0.85118	0.50040	0.15409	61.41588	0.99932	60.69	16.37
96/ 9/ 4	2450331.0	22.91180	54.44419	18.24357	-0.89870	0.40279	0.12129	61.82191	0.99228	67.18	17.16
96/ 9/ 5	2450331.5	16.69701	56.83271	18.95147	-0.93453	0.30211	0.08764	62.19248	0.98605	73.63	17.74
96/ 9/ 5	2450332.0	10.27904	58.53229	19.42965	-0.95871	0.19954	0.05352	62.52359	0.98072	80.04	18.10
96/ 9/ 6	2450332.5	3.73644	59.53380	19.67616	-0.97137	0.09615	0.01928	62.81231	0.97630	86.41	18.26
96/ 9/ 6	2450333.0	-2.85335	59.83528	19.69138	-0.97268	-0.00701	-0.01472	63.05674	0.97282	92.73	18.20
96/ 9/ 7	2450333.5	-9.41432	59.44156	19.47795	-0.96290	-0.10897	-0.04819	63.25598	0.97025	99.00	17.93
96/ 9/ 7	2450334.0	-15.87231	58.36395	19.04056	-0.94233	-0.20880	-0.08080	63.40997	0.96856	105.21	17.47
96/ 9/ 8	2450334.5	-22.15533	56.61998	18.38596	-0.91129	-0.30560	-0.11228	63.51948	0.96770	111.37	16.83
96/ 9/ 8	2450335.0	-28.19382	54.23313	17.52281	-0.87019	-0.39850	-0.14234	63.58595	0.96762	117.47	16.00
96/ 9/ 9	2450335.5	-33.92102	51.23268	16.46163	-0.81945	-0.48665	-0.17071	63.61139	0.96823	123.51	15.00

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/ 9/ 9	2450336.0	-39.27329	47.65356	15.21477	-0.75956	-0.56924	-0.19713	63.59829	0.96945	129.49	13.84
96/ 9/10	2450336.5	-44.19052	43.53614	13.79630	-0.69108	-0.64548	-0.22134	63.54947	0.97120	135.43	12.54
96/ 9/10	2450337.0	-48.61654	38.92610	12.22201	-0.61462	-0.71458	-0.24311	63.46800	0.97339	141.32	11.10
96/ 9/11	2450337.5	-52.49957	33.87425	10.50929	-0.53086	-0.77582	-0.26218	63.35704	0.97594	147.17	9.55
96/ 9/11	2450338.0	-55.79269	28.43624	8.67708	-0.44056	-0.82850	-0.27835	63.21975	0.97876	152.99	7.89
96/ 9/12	2450338.5	-58.45443	22.67237	6.74575	-0.34456	-0.87194	-0.29142	63.05920	0.98180	158.80	6.14
96/ 9/12	2450339.0	-60.44923	16.64718	4.73701	-0.24377	-0.90557	-0.30119	62.87827	0.98498	164.60	4.32
96/ 9/13	2450339.5	-61.74801	10.42905	2.67371	-0.13920	-0.92884	-0.30750	62.67959	0.98827	170.41	2.44
96/ 9/13	2450340.0	-62.32874	4.08971	0.57974	-0.03192	-0.94129	-0.31023	62.46546	0.99161	176.25	0.53
96/ 9/14	2450340.5	-62.17688	-2.29634	-1.52022	0.07693	-0.94258	-0.30926	62.23784	0.99499	182.12	-1.40
96/ 9/14	2450341.0	-61.28591	-8.65252	-3.60090	0.18613	-0.93243	-0.30452	61.99835	0.99840	188.04	-3.33
96/ 9/15	2450341.5	-59.65769	-14.90084	-5.63667	0.29442	-0.91072	-0.29599	61.74825	1.00185	194.02	-5.24
96/ 9/15	2450342.0	-57.30281	-20.96279	-7.60186	0.40048	-0.87741	-0.28369	61.48853	1.00534	200.09	-7.10
96/ 9/16	2450342.5	-54.24087	-26.76018	-9.47101	0.50298	-0.83262	-0.26765	61.21992	1.00890	206.26	-8.90
96/ 9/16	2450343.0	-50.50062	-32.21604	-11.21920	0.60056	-0.77662	-0.24798	60.94305	1.01257	212.54	-10.61
96/ 9/17	2450343.5	-46.12000	-37.25568	-12.82234	0.69185	-0.70979	-0.22485	60.65849	1.01637	218.93	-12.20
96/ 9/17	2450344.0	-41.14616	-41.80762	-14.25755	0.77551	-0.63271	-0.19843	60.36689	1.02035	225.46	-13.66
96/ 9/18	2450344.5	-35.63520	-45.80471	-15.50347	0.85024	-0.54608	-0.16900	60.06910	1.02453	232.12	-14.96
96/ 9/18	2450345.0	-29.65199	-49.18514	-16.54062	0.91476	-0.45077	-0.13684	59.76630	1.02894	238.92	-16.07
96/ 9/19	2450345.5	-23.26968	-51.89360	-17.35176	0.96789	-0.34784	-0.10232	59.46013	1.03358	245.85	-16.97
96/ 9/19	2450346.0	-16.56920	-53.88234	-17.92222	1.00854	-0.23846	-0.06584	59.15277	1.03844	252.91	-17.64
96/ 9/20	2450346.5	-9.63849	-55.11232	-18.24029	1.03573	-0.12402	-0.02787	58.84706	1.04350	260.08	-18.06
96/ 9/20	2450347.0	-2.57158	-55.55429	-18.29755	1.04864	-0.00603	0.01108	58.54649	1.04871	267.35	-18.21
96/ 9/21	2450347.5	4.53249	-55.18982	-18.08920	1.04661	0.11382	0.05046	58.25529	1.05399	274.69	-18.09
96/ 9/21	2450348.0	11.57106	-54.01232	-17.61438	1.02924	0.23374	0.08967	57.97833	1.05925	282.09	-17.69
96/ 9/22	2450348.5	18.43943	-52.02781	-16.87639	0.99635	0.35180	0.12807	57.72104	1.06437	289.52	-17.00
96/ 9/22	2450349.0	25.03269	-49.25564	-15.88292	0.94805	0.46600	0.16500	57.48931	1.06920	296.94	-16.04
96/ 9/23	2450349.5	31.24780	-45.72879	-14.64611	0.88479	0.57431	0.19981	57.28923	1.07359	304.35	-14.81
96/ 9/23	2450350.0	36.98582	-41.49399	-13.18256	0.80733	0.67472	0.23185	57.12689	1.07740	311.71	-13.34
96/ 9/24	2450350.5	42.15425	-36.61130	-11.51318	0.71681	0.76531	0.26049	57.00808	1.08045	319.03	-11.65
96/ 9/24	2450351.0	46.66941	-31.15334	-9.66288	0.61469	0.84432	0.28518	56.93799	1.08261	326.28	-9.77
96/ 9/25	2450351.5	50.45864	-25.20395	-7.66014	0.50277	0.91019	0.30544	56.92092	1.08375	333.46	-7.73
96/ 9/25	2450352.0	53.46233	-18.85647	-5.53637	0.38309	0.96169	0.32087	56.95997	1.08377	340.57	-5.58
96/ 9/26	2450352.5	55.63546	-12.21154	-3.32522	0.25790	0.99791	0.33121	57.05684	1.08260	347.62	-3.34
96/ 9/26	2450353.0	56.94874	-5.37462	-1.06170	0.12958	1.01833	0.33632	57.21165	1.08023	354.61	-1.06
96/ 9/27	2450353.5	57.38909	1.54662	1.21864	0.00053	1.02282	0.33618	57.42286	1.07665	1.54	1.22
96/ 9/27	2450354.0	56.95954	8.44501	3.48063	-0.12691	1.01166	0.33093	57.68728	1.07194	8.43	3.46
96/ 9/28	2450354.5	55.67856	15.21639	5.69026	-0.25054	0.98544	0.32077	58.00017	1.06619	15.29	5.63
96/ 9/28	2450355.0	53.57887	21.76183	7.81544	-0.36836	0.94512	0.30605	58.35541	1.05953	22.11	7.70
96/ 9/29	2450355.5	50.70584	27.98957	9.82659	-0.47864	0.89184	0.28717	58.74572	1.05211	28.90	9.63
96/ 9/29	2450356.0	47.11567	33.81644	11.69708	-0.57991	0.82698	0.26459	59.16299	1.04413	35.67	11.40
96/ 9/30	2450356.5	42.87342	39.16885	13.40353	-0.67102	0.75199	0.23882	59.59852	1.03576	42.41	13.00
96/ 9/30	2450357.0	38.05105	43.98337	14.92601	-0.75109	0.66840	0.21035	60.04336	1.02720	49.14	14.39
96/10/ 1	2450357.5	32.72554	48.20693	16.24804	-0.81951	0.57774	0.17971	60.48857	1.01866	55.83	15.58
96/10/ 1	2450358.0	26.97722	51.79670	17.35654	-0.87590	0.48149	0.14738	60.92550	1.01032	62.49	16.55

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/10/ 2	2450358.5	20.88829	54.71974	18.24171	-0.92008	0.38109	0.11384	61.34599	1.00236	69.11	17.30
96/10/ 2	2450359.0	14.54159	56.95253	18.89686	-0.95203	0.27788	0.07953	61.74253	0.99493	75.68	17.82
96/10/ 3	2450359.5	8.01961	58.48037	19.31818	-0.97186	0.17312	0.04486	62.10845	0.98818	82.19	18.12
96/10/ 3	2450360.0	1.40369	59.29678	19.50455	-0.97981	0.06798	0.01021	62.43801	0.98222	88.64	18.20
96/10/ 4	2450360.5	-5.22660	59.40288	19.45732	-0.97616	-0.03645	-0.02407	62.72644	0.97714	95.03	18.07
96/10/ 4	2450361.0	-11.79392	58.80688	19.18014	-0.96128	-0.13918	-0.05764	62.97002	0.97301	101.34	17.73
96/10/ 5	2450361.5	-18.22351	57.52358	18.67879	-0.93556	-0.23926	-0.09021	63.16609	0.96987	107.58	17.20
96/10/ 5	2450362.0	-24.44345	55.57390	17.96102	-0.89945	-0.33581	-0.12150	63.31302	0.96775	113.74	16.48
96/10/ 6	2450362.5	-30.38493	52.98460	17.03649	-0.85342	-0.42800	-0.15123	63.41020	0.96663	119.83	15.59
96/10/ 6	2450363.0	-35.98247	49.78796	15.91658	-0.79797	-0.51502	-0.17915	63.45799	0.96649	125.86	14.53
96/10/ 7	2450363.5	-41.17411	46.02156	14.61440	-0.73365	-0.59611	-0.20501	63.45764	0.96728	131.82	13.31
96/10/ 7	2450364.0	-45.90170	41.72815	13.14472	-0.66104	-0.67052	-0.22858	63.41126	0.96893	137.73	11.96
96/10/ 8	2450364.5	-50.11119	36.95544	11.52385	-0.58077	-0.73753	-0.24961	63.32168	0.97137	143.59	10.49
96/10/ 8	2450365.0	-53.75302	31.75600	9.76968	-0.49353	-0.79642	-0.26790	63.19238	0.97449	149.43	8.89
96/10/ 9	2450365.5	-56.78250	26.18709	7.90155	-0.40008	-0.84652	-0.28323	63.02738	0.97820	155.24	7.20
96/10/ 9	2450366.0	-59.16035	20.31048	5.94025	-0.30125	-0.88718	-0.29539	62.83111	0.98239	161.05	5.43
96/10/10	2450366.5	-60.85317	14.19219	3.90787	-0.19796	-0.91779	-0.30419	62.60829	0.98694	166.87	3.58
96/10/10	2450367.0	-61.83413	7.90217	1.82771	-0.09122	-0.93780	-0.30947	62.36381	0.99175	172.72	1.68
96/10/11	2450367.5	-62.08348	1.51389	-0.27585	0.01788	-0.94673	-0.31108	62.10255	0.99669	178.60	-0.25
96/10/11	2450368.0	-61.58927	-4.89627	-2.37755	0.12815	-0.94420	-0.30890	61.82931	1.00168	184.55	-2.20
96/10/12	2450368.5	-60.34789	-11.24962	-4.45150	0.23829	-0.92992	-0.30287	61.54866	1.00661	190.56	-4.15
96/10/12	2450369.0	-58.36467	-17.46601	-6.47142	0.34697	-0.90375	-0.29295	61.26479	1.01142	196.66	-6.06
96/10/13	2450369.5	-55.65432	-23.46477	-8.41096	0.45277	-0.86567	-0.27915	60.98150	1.01603	202.86	-7.93
96/10/13	2450370.0	-52.24130	-29.16576	-10.24409	0.55422	-0.81586	-0.26154	60.70203	1.02039	209.17	-9.72
96/10/14	2450370.5	-48.15998	-34.49055	-11.94542	0.64987	-0.75465	-0.24025	60.42909	1.02448	215.61	-11.40
96/10/14	2450371.0	-43.45470	-39.36364	-13.49067	0.73824	-0.68258	-0.21549	60.16482	1.02827	222.17	-12.96
96/10/15	2450371.5	-38.17954	-43.71374	-14.85706	0.81792	-0.60036	-0.18748	59.91078	1.03178	228.87	-14.36
96/10/15	2450372.0	-32.39797	-47.47512	-16.02372	0.88756	-0.50890	-0.15657	59.66804	1.03501	235.69	-15.58
96/10/16	2450372.5	-26.18221	-50.58878	-16.97213	0.94593	-0.40929	-0.12310	59.43724	1.03801	242.64	-16.59
96/10/16	2450373.0	-19.61245	-53.00372	-17.68646	0.99192	-0.30279	-0.08752	59.21869	1.04079	249.69	-17.38
96/10/17	2450373.5	-12.77585	-54.67802	-18.15397	1.02459	-0.19083	-0.05030	59.01249	1.04342	256.85	-17.92
96/10/17	2450374.0	-5.76535	-55.57982	-18.36528	1.04316	-0.07495	-0.01196	58.81870	1.04592	264.08	-18.19
96/10/18	2450374.5	1.32165	-55.68820	-18.31467	1.04710	0.04318	0.02695	58.63744	1.04834	271.36	-18.20
96/10/18	2450375.0	8.38476	-54.99377	-18.00024	1.03607	0.16181	0.06585	58.46903	1.05070	278.67	-17.93
96/10/19	2450375.5	15.32218	-53.49925	-17.42407	1.00999	0.27914	0.10414	58.31412	1.05302	285.98	-17.39
96/10/19	2450376.0	22.03237	-51.21969	-16.59233	0.96902	0.39332	0.14122	58.17377	1.05530	293.28	-16.57
96/10/20	2450376.5	28.41577	-48.18261	-15.51522	0.91359	0.50253	0.17649	58.04948	1.05751	300.53	-15.50
96/10/20	2450377.0	34.37661	-44.42779	-14.20697	0.84438	0.60497	0.20938	57.94323	1.05963	307.73	-14.19
96/10/21	2450377.5	39.82466	-40.00692	-12.68562	0.76235	0.69893	0.23933	57.85743	1.06158	314.87	-12.67
96/10/21	2450378.0	44.67704	-34.98292	-10.97285	0.66870	0.78282	0.26583	57.79486	1.06331	321.94	-10.94
96/10/22	2450378.5	48.85986	-29.42901	-9.09361	0.56489	0.85518	0.28842	57.75851	1.06472	328.94	-9.06
96/10/22	2450379.0	52.30982	-23.42752	-7.07572	0.45259	0.91479	0.30671	57.75147	1.06572	335.87	-7.04
96/10/23	2450379.5	54.97561	-17.06842	-4.94937	0.33365	0.96064	0.32040	57.77668	1.06621	342.75	-4.91
96/10/23	2450380.0	56.81898	-10.44759	-2.74656	0.21008	0.99198	0.32926	57.83677	1.06610	349.58	-2.72
96/10/24	2450380.5	57.81565	-3.66492	-0.50043	0.08398	1.00838	0.33318	57.93385	1.06531	356.37	-0.49

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/10/24	2450381.0	57.95569	3.17774	1.75539	-0.04252	1.00970	0.33213	58.06928	1.06377	3.14	1.73
96/10/25	2450381.5	57.24363	9.97870	3.98751	-0.16729	0.99612	0.32620	58.24353	1.06144	9.89	3.93
96/10/25	2450382.0	55.69811	16.63854	6.16341	-0.28830	0.96813	0.31557	58.45604	1.05829	16.63	6.05
96/10/26	2450382.5	53.35109	23.06206	8.25215	-0.40366	0.92649	0.30051	58.70516	1.05434	23.38	8.08
96/10/26	2450383.0	50.24678	29.16008	10.22490	-0.51166	0.87220	0.28138	58.98811	1.04962	30.13	9.98
96/10/27	2450383.5	46.44020	34.85092	12.05541	-0.61081	0.80647	0.25858	59.30103	1.04420	36.89	11.73
96/10/27	2450384.0	41.99562	40.06164	13.72042	-0.69988	0.73066	0.23259	59.63905	1.03816	43.65	13.30
96/10/28	2450384.5	36.98476	44.72881	15.19987	-0.77788	0.64621	0.20387	59.99646	1.03163	50.41	14.68
96/10/28	2450385.0	31.48512	48.79906	16.47709	-0.84411	0.55464	0.17295	60.36683	1.02473	57.17	15.84
96/10/29	2450385.5	25.57818	52.22923	17.53880	-0.89809	0.45745	0.14032	60.74327	1.01761	63.91	16.78
96/10/29	2450386.0	19.34790	54.98630	18.37509	-0.93957	0.35612	0.10647	61.11856	1.01042	70.61	17.50
96/10/30	2450386.5	12.87929	57.04707	18.97928	-0.96848	0.25207	0.07186	61.48542	1.00332	77.28	17.98
96/10/30	2450387.0	6.25716	58.39766	19.34776	-0.98493	0.14663	0.03693	61.83667	0.99647	83.88	18.23
96/10/31	2450387.5	-0.43484	59.03297	19.47978	-0.98916	0.04105	0.00210	62.16544	0.99002	90.42	18.26
96/10/31	2450388.0	-7.11510	58.95603	19.37725	-0.98152	-0.06351	-0.03227	62.46532	0.98410	96.88	18.07
96/11/ 1	2450388.5	-13.70459	58.17735	19.04451	-0.96244	-0.16600	-0.06583	62.73048	0.97886	103.26	17.67
96/11/ 1	2450389.0	-20.12742	56.71435	18.48812	-0.93239	-0.26543	-0.09826	62.95586	0.97441	109.54	17.08
96/11/ 2	2450389.5	-26.31115	54.59073	17.71667	-0.89193	-0.36093	-0.12928	63.13719	0.97083	115.73	16.30
96/11/ 2	2450390.0	-32.18707	51.83607	16.74065	-0.84159	-0.45165	-0.15863	63.27112	0.96821	121.84	15.34
96/11/ 3	2450390.5	-37.69037	48.48532	15.57227	-0.78200	-0.53682	-0.18605	63.35523	0.96660	127.86	14.23
96/11/ 3	2450391.0	-42.76035	44.57853	14.22536	-0.71375	-0.61572	-0.21131	63.38812	0.96602	133.81	12.97
96/11/ 4	2450391.5	-47.34060	40.16054	12.71529	-0.63749	-0.68766	-0.23419	63.36939	0.96649	139.69	11.58
96/11/ 4	2450392.0	-51.37911	35.28079	11.05890	-0.55389	-0.75197	-0.25448	63.29965	0.96800	145.52	10.06
96/11/ 5	2450392.5	-54.82861	29.99311	9.27441	-0.46368	-0.80801	-0.27198	63.18052	0.97049	151.32	8.44
96/11/ 5	2450393.0	-57.64680	24.35563	7.38141	-0.36760	-0.85516	-0.28649	63.01456	0.97392	157.10	6.73
96/11/ 6	2450393.5	-59.79672	18.43059	5.40080	-0.26649	-0.89283	-0.29782	62.80528	0.97819	162.87	4.93
96/11/ 6	2450394.0	-61.24722	12.28419	3.35472	-0.16122	-0.92044	-0.30580	62.55699	0.98321	168.66	3.07
96/11/ 7	2450394.5	-61.97346	5.98638	1.26647	-0.05279	-0.93745	-0.31025	62.27480	0.98887	174.48	1.17
96/11/ 7	2450395.0	-61.95752	-0.38945	-0.83956	0.05775	-0.94340	-0.31103	61.96443	0.99503	180.36	-0.78
96/11/ 8	2450395.5	-61.18905	-6.76687	-2.93808	0.16923	-0.93786	-0.30801	61.63216	1.00154	186.31	-2.73
96/11/ 8	2450396.0	-59.66596	-13.06694	-5.00304	0.28037	-0.92052	-0.30110	61.28460	1.00828	192.35	-4.68
96/11/ 9	2450396.5	-57.39511	-19.20897	-7.00789	0.38980	-0.89117	-0.29026	60.92860	1.01507	198.50	-6.60
96/11/ 9	2450397.0	-54.39296	-25.11136	-8.92590	0.49606	-0.84976	-0.27546	60.57100	1.02179	204.78	-8.47
96/11/10	2450397.5	-50.68613	-30.69270	-10.73046	0.59762	-0.79640	-0.25677	60.21851	1.02827	211.20	-10.26
96/11/10	2450398.0	-46.31180	-35.87305	-12.39560	0.69290	-0.73142	-0.23431	59.87745	1.03440	217.76	-11.95
96/11/11	2450398.5	-41.31792	-40.57530	-13.89634	0.78031	-0.65533	-0.20827	59.55363	1.04006	224.48	-13.49
96/11/11	2450399.0	-35.76315	-44.72680	-15.20932	0.85828	-0.56893	-0.17892	59.25212	1.04515	231.35	-14.87
96/11/12	2450399.5	-29.71648	-48.26090	-16.31322	0.92532	-0.47321	-0.14660	58.97715	1.04959	238.38	-16.06
96/11/12	2450400.0	-23.25656	-51.11858	-17.18936	0.98009	-0.36942	-0.11174	58.73203	1.05334	245.54	-17.02
96/11/13	2450400.5	-16.47067	-53.25001	-17.82217	1.02140	-0.25901	-0.07483	58.51903	1.05638	252.81	-17.73
96/11/13	2450401.0	-9.45335	-54.61590	-18.19962	1.04829	-0.14364	-0.03643	58.33942	1.05871	260.18	-18.18
96/11/14	2450401.5	-2.30480	-55.18865	-18.31360	1.06006	-0.02511	0.00287	58.19353	1.06036	267.61	-18.34
96/11/14	2450402.0	4.87101	-54.95325	-18.16018	1.05630	0.09467	0.04242	58.08079	1.06138	275.07	-18.22
96/11/15	2450402.5	11.96831	-53.90782	-17.73980	1.03688	0.21375	0.08159	57.99995	1.06183	282.52	-17.81
96/11/15	2450403.0	18.88162	-52.06379	-17.05728	1.00202	0.33017	0.11973	57.94915	1.06179	289.93	-17.12

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/11/16	2450403.5	25.50784	-49.44579	-16.12175	0.95221	0.44199	0.15620	57.92622	1.06135	297.29	-16.16
96/11/16	2450404.0	31.74818	-46.09118	-14.94652	0.88823	0.54739	0.19041	57.92877	1.06059	304.56	-14.95
96/11/17	2450404.5	37.51007	-42.04930	-13.54880	0.81112	0.64466	0.22181	57.95445	1.05958	311.73	-13.52
96/11/17	2450405.0	42.70880	-37.38045	-11.94932	0.72217	0.73228	0.24991	58.00108	1.05840	318.81	-11.89
96/11/18	2450405.5	47.26899	-32.15473	-10.17196	0.62283	0.80890	0.27427	58.06680	1.05710	325.77	-10.09
96/11/18	2450406.0	51.12581	-26.45062	-8.24328	0.51475	0.87338	0.29454	58.15011	1.05571	332.64	-8.15
96/11/19	2450406.5	54.22599	-20.35349	-6.19199	0.39970	0.92482	0.31044	58.25000	1.05424	339.43	-6.10
96/11/19	2450407.0	56.52849	-13.95406	-4.04844	0.27952	0.96256	0.32176	58.36587	1.05270	346.13	-3.98
96/11/20	2450407.5	58.00507	-7.34671	-1.84408	0.15613	0.98617	0.32838	58.49755	1.05106	352.78	-1.81
96/11/20	2450408.0	58.64052	-0.62787	0.38908	0.03146	0.99547	0.33027	58.64517	1.04930	359.39	0.38
96/11/21	2450408.5	58.43261	6.10568	2.61906	-0.09259	0.99054	0.32745	58.80909	1.04736	5.97	2.55
96/11/21	2450409.0	57.39194	12.75841	4.81438	-0.21415	0.97168	0.32006	58.98974	1.04521	12.53	4.68
96/11/22	2450409.5	55.54140	19.23761	6.94464	-0.33145	0.93941	0.30828	59.18751	1.04277	19.10	6.74
96/11/22	2450410.0	52.91553	25.45489	8.98094	-0.44284	0.89447	0.29236	59.40254	1.04003	25.69	8.70
96/11/23	2450410.5	49.55958	31.32746	10.89634	-0.54680	0.83779	0.27264	59.63465	1.03692	32.30	10.53
96/11/23	2450411.0	45.52844	36.77936	12.66626	-0.64201	0.77044	0.24947	59.88317	1.03344	38.93	12.21
96/11/24	2450411.5	40.88541	41.74245	14.26875	-0.72731	0.69365	0.22327	60.14687	1.02956	45.59	13.72
96/11/24	2450412.0	35.70084	46.15714	15.68476	-0.80178	0.60873	0.19448	60.42386	1.02529	52.28	15.05
96/11/25	2450412.5	30.05073	49.97300	16.89832	-0.86468	0.51706	0.16356	60.71162	1.02067	58.98	16.16
96/11/25	2450413.0	24.01530	53.14908	17.89661	-0.91549	0.42004	0.13099	61.00695	1.01574	65.68	17.06
96/11/26	2450413.5	17.67759	55.65397	18.66999	-0.95391	0.31910	0.09723	61.30604	1.01055	72.38	17.73
96/11/26	2450414.0	11.12210	57.46578	19.21197	-0.97979	0.21561	0.06273	61.60452	1.00519	79.05	18.17
96/11/27	2450414.5	4.43362	58.57183	19.51911	-0.99320	0.11091	0.02795	61.89759	0.99976	85.67	18.38
96/11/27	2450415.0	-2.30389	58.96826	19.59086	-0.99432	0.00627	-0.00671	62.18010	0.99436	92.24	18.36
96/11/28	2450415.5	-9.00825	58.65953	19.42940	-0.98347	-0.09713	-0.04085	62.44670	0.98910	98.73	18.13
96/11/28	2450416.0	-15.59983	57.65788	19.03945	-0.96109	-0.19817	-0.07412	62.69200	0.98411	105.14	17.68
96/11/29	2450416.5	-22.00220	55.98269	18.42806	-0.92769	-0.29586	-0.10619	62.91067	0.97950	111.46	17.03
96/11/29	2450417.0	-28.14262	53.65993	17.60441	-0.88384	-0.38925	-0.13675	63.09762	0.97539	117.68	16.20
96/11/30	2450417.5	-33.95245	50.72154	16.57963	-0.83018	-0.47751	-0.16554	63.24814	0.97191	123.80	15.20
96/11/30	2450418.0	-39.36742	47.20495	15.36659	-0.76736	-0.55987	-0.19230	63.35798	0.96916	129.83	14.04
96/12/ 1	2450418.5	-44.32788	43.15260	13.97981	-0.69608	-0.63561	-0.21681	63.42352	0.96723	135.77	12.73
96/12/ 1	2450419.0	-48.77893	38.61151	12.43525	-0.61705	-0.70408	-0.23886	63.44185	0.96620	141.64	11.30
96/12/ 2	2450419.5	-52.67060	33.63296	10.75024	-0.53102	-0.76469	-0.25825	63.41085	0.96614	147.44	9.76
96/12/ 2	2450420.0	-55.95799	28.27222	8.94340	-0.43875	-0.81685	-0.27481	63.32929	0.96709	153.20	8.12
96/12/ 3	2450420.5	-58.60147	22.58827	7.03452	-0.34102	-0.86004	-0.28836	63.19689	0.96908	158.92	6.39
96/12/ 3	2450421.0	-60.56693	16.64368	5.04454	-0.23867	-0.89374	-0.29873	63.01438	0.97209	164.63	4.59
96/12/ 4	2450421.5	-61.82602	10.50436	2.99545	-0.13258	-0.91746	-0.30578	62.78353	0.97612	170.36	2.73
96/12/ 4	2450422.0	-62.35657	4.23943	0.91026	-0.02370	-0.93076	-0.30937	62.50715	0.98111	176.11	0.83
96/12/ 5	2450422.5	-62.14302	-2.07906	-1.18707	0.08697	-0.93321	-0.30935	62.18912	0.98698	181.92	-1.09
96/12/ 5	2450423.0	-61.17695	-8.37635	-3.27177	0.19832	-0.92444	-0.30562	61.83435	0.99364	187.80	-3.03
96/12/ 6	2450423.5	-59.45770	-14.57542	-5.31834	0.30917	-0.90416	-0.29808	61.44873	1.00097	193.77	-4.97
96/12/ 6	2450424.0	-56.99305	-20.59744	-7.30077	0.41821	-0.87214	-0.28667	61.03903	1.00881	199.87	-6.87
96/12/ 7	2450424.5	-53.79987	-26.36252	-9.19272	0.52406	-0.82828	-0.27136	60.61283	1.01701	206.11	-8.72
96/12/ 7	2450425.0	-49.90484	-31.79054	-10.96787	0.62521	-0.77263	-0.25218	60.17828	1.02540	212.50	-10.50
96/12/ 8	2450425.5	-45.34503	-36.80230	-12.60023	0.72009	-0.70541	-0.22922	59.74401	1.03377	219.06	-12.18

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
96/12/ 8	2450426.0	-40.16840	-41.32081	-14.06463	0.80708	-0.62706	-0.20262	59.31883	1.04194	225.81	-13.72
96/12/ 9	2450426.5	-34.43401	-45.27284	-15.33723	0.88452	-0.53827	-0.17263	58.91148	1.04972	232.74	-15.09
96/12/ 9	2450427.0	-28.21205	-48.59068	-16.39606	0.95079	-0.43998	-0.13956	58.53038	1.05691	239.86	-16.27
96/12/10	2450427.5	-21.58334	-51.21399	-17.22165	1.00438	-0.33341	-0.10383	58.18332	1.06336	247.15	-17.22
96/12/10	2450428.0	-14.63855	-53.09165	-17.79767	1.04392	-0.22006	-0.06595	57.87718	1.06890	254.59	-17.91
96/12/11	2450428.5	-7.47684	-54.18362	-18.11149	1.06827	-0.10171	-0.02651	57.61765	1.07343	262.14	-18.32
96/12/11	2450429.0	-0.20415	-54.46250	-18.15472	1.07658	0.01969	0.01384	57.40905	1.07685	269.79	-18.44
96/12/12	2450429.5	7.06903	-53.91488	-17.92363	1.06836	0.14199	0.05438	57.25418	1.07913	277.47	-18.24
96/12/12	2450430.0	14.23011	-52.54213	-17.41938	1.04349	0.26297	0.09437	57.15423	1.08025	285.15	-17.74
96/12/13	2450430.5	21.16708	-50.36079	-16.64817	1.00226	0.38039	0.13309	57.10881	1.08025	292.80	-16.95
96/12/13	2450431.0	27.77125	-47.40234	-15.62113	0.94536	0.49209	0.16980	57.11605	1.07921	300.36	-15.87
96/12/14	2450431.5	33.93979	-43.71248	-14.35404	0.87383	0.59605	0.20386	57.17280	1.07723	307.83	-14.54
96/12/14	2450432.0	39.57815	-39.34994	-12.86696	0.78905	0.69045	0.23467	57.27483	1.07443	315.17	-12.98
96/12/15	2450432.5	44.60197	-34.38486	-11.18365	0.69266	0.77374	0.26173	57.41714	1.07096	322.37	-11.23
96/12/15	2450433.0	48.93872	-28.89693	-9.33097	0.58648	0.84466	0.28463	57.59425	1.06697	329.44	-9.32
96/12/16	2450433.5	52.52874	-22.97338	-7.33820	0.47249	0.90224	0.30306	57.80047	1.06260	336.38	-7.29
96/12/16	2450434.0	55.32597	-16.70691	-5.23632	0.35272	0.94583	0.31682	58.03019	1.05801	343.20	-5.18
96/12/17	2450434.5	57.29817	-10.19363	-3.05737	0.22920	0.97508	0.32581	58.27811	1.05331	349.91	-3.01
96/12/17	2450435.0	58.42684	-3.53118	-0.83382	0.10396	0.98989	0.33000	58.53939	1.04862	356.54	-0.82
96/12/18	2450435.5	58.70685	3.18309	1.40205	-0.02108	0.99043	0.32946	58.80980	1.04400	3.10	1.37
96/12/18	2450436.0	58.14584	9.85367	3.61864	-0.14409	0.97707	0.32433	59.08577	1.03953	9.62	3.51
96/12/19	2450436.5	56.76344	16.38830	5.78550	-0.26336	0.95040	0.31481	59.36444	1.03524	16.10	5.59
96/12/19	2450437.0	54.59036	22.69919	7.87372	-0.37732	0.91114	0.30116	59.64357	1.03114	22.58	7.59
96/12/20	2450437.5	51.66744	28.70407	9.85629	-0.48456	0.86019	0.28367	59.92157	1.02722	29.05	9.47
96/12/20	2450438.0	48.04459	34.32705	11.70833	-0.58381	0.79854	0.26268	60.19729	1.02348	35.55	11.22
96/12/21	2450438.5	43.77971	39.49937	13.40740	-0.67398	0.72730	0.23856	60.47000	1.01987	42.06	12.81
96/12/21	2450439.0	38.93756	44.15998	14.93364	-0.75413	0.64764	0.21171	60.73920	1.01635	48.60	14.23
96/12/22	2450439.5	33.58866	48.25601	16.26989	-0.82351	0.56079	0.18253	61.00451	1.01290	55.16	15.47
96/12/22	2450440.0	27.80817	51.74305	17.40187	-0.88150	0.46803	0.15145	61.26551	1.00947	61.75	16.50
96/12/23	2450440.5	21.67473	54.58541	18.31815	-0.92767	0.37064	0.11891	61.52166	1.00602	68.34	17.32
96/12/23	2450441.0	15.26942	56.75615	19.01022	-0.96174	0.26992	0.08532	61.77219	1.00254	74.94	17.92
96/12/24	2450441.5	8.67465	58.23707	19.47248	-0.98361	0.16715	0.05112	62.01599	0.99902	81.53	18.30
96/12/24	2450442.0	1.97316	59.01857	19.70217	-0.99327	0.06359	0.01671	62.25159	0.99545	88.09	18.45
96/12/25	2450442.5	-4.75291	59.09938	19.69924	-0.99090	-0.03956	-0.01751	62.47709	0.99185	94.60	18.38
96/12/25	2450443.0	-11.42296	58.48622	19.46633	-0.97679	-0.14115	-0.05115	62.69019	0.98825	101.05	18.09
96/12/26	2450443.5	-17.95867	57.19342	19.00854	-0.95131	-0.24008	-0.08385	62.88820	0.98471	107.43	17.59
96/12/26	2450444.0	-24.28470	55.24242	18.33330	-0.91496	-0.33535	-0.11530	63.06807	0.98127	113.73	16.90
96/12/27	2450444.5	-30.32931	52.66127	17.45021	-0.86831	-0.42601	-0.14518	63.22647	0.97802	119.94	16.02
96/12/27	2450445.0	-36.02486	49.48412	16.37088	-0.81199	-0.51120	-0.17321	63.35988	0.97502	126.05	14.97
96/12/28	2450445.5	-41.30820	45.75067	15.10871	-0.74671	-0.59015	-0.19913	63.46467	0.97237	132.08	13.77
96/12/28	2450446.0	-46.12105	41.50569	13.67875	-0.67318	-0.66214	-0.22272	63.53725	0.97016	138.02	12.43
96/12/29	2450446.5	-50.41022	36.79852	12.09754	-0.59220	-0.72653	-0.24376	63.57414	0.96849	143.87	10.97
96/12/29	2450447.0	-54.12784	31.68261	10.38293	-0.50455	-0.78275	-0.26208	63.57213	0.96744	149.66	9.40
96/12/30	2450447.5	-57.23155	26.21512	8.55400	-0.41106	-0.83027	-0.27750	63.52837	0.96712	155.39	7.74
96/12/30	2450448.0	-59.68467	20.45657	6.63090	-0.31257	-0.86862	-0.28986	63.44053	0.96759	161.08	6.00

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
96/12/31	2450448.5	-61.45635	14.47051	4.63473	-0.20998	-0.89739	-0.29905	63.30686	0.96893	166.75	4.20
96/12/31	2450449.0	-62.52174	8.32320	2.58750	-0.10417	-0.91618	-0.30492	63.12637	0.97119	172.42	2.35
97/ 1/ 1	2450449.5	-62.86229	2.08340	0.51201	0.00391	-0.92465	-0.30738	62.89889	0.97441	178.10	0.47
97/ 1/ 1	2450450.0	-62.46596	-4.17796	-1.56825	0.11326	-0.92249	-0.30632	62.62516	0.97860	183.83	-1.43
97/ 1/ 2	2450450.5	-61.32760	-10.38802	-3.62918	0.22284	-0.90946	-0.30166	62.30695	0.98375	189.61	-3.34
97/ 1/ 2	2450451.0	-59.44938	-16.47233	-5.64616	0.33154	-0.88533	-0.29333	61.94712	0.98984	195.49	-5.23
97/ 1/ 3	2450451.5	-56.84124	-22.35527	-7.59422	0.43818	-0.84998	-0.28130	61.54963	0.99679	201.47	-7.09
97/ 1/ 3	2450452.0	-53.52143	-27.96058	-9.44818	0.54147	-0.80335	-0.26554	61.11960	1.00453	207.58	-8.89
97/ 1/ 4	2450452.5	-49.51711	-33.21194	-11.18288	0.64008	-0.74549	-0.24609	60.66328	1.01292	213.85	-10.62
97/ 1/ 4	2450453.0	-44.86487	-38.03391	-12.77346	0.73255	-0.67659	-0.22300	60.18800	1.02183	220.29	-12.25
97/ 1/ 5	2450453.5	-39.61132	-42.35285	-14.19568	0.81738	-0.59702	-0.19640	59.70208	1.03108	226.92	-13.76
97/ 1/ 5	2450454.0	-33.81349	-46.09828	-15.42636	0.89301	-0.50735	-0.16648	59.21466	1.04047	233.74	-15.10
97/ 1/ 6	2450454.5	-27.53905	-49.20430	-16.44385	0.95786	-0.40837	-0.13350	58.73553	1.04980	240.76	-16.26
97/ 1/ 6	2450455.0	-20.86630	-51.61134	-17.22863	1.01037	-0.30115	-0.09782	58.27486	1.05883	247.99	-17.20
97/ 1/ 7	2450455.5	-13.88380	-53.26802	-17.76389	1.04910	-0.18704	-0.05990	57.84287	1.06732	255.39	-17.88
97/ 1/ 7	2450456.0	-6.68945	-54.13309	-18.03619	1.07273	-0.06769	-0.02028	57.44950	1.07506	262.96	-18.30
97/ 1/ 8	2450456.5	0.61080	-54.17741	-18.03612	1.08022	0.05498	0.02042	57.10400	1.08181	270.65	-18.41
97/ 1/ 8	2450457.0	7.90495	-53.38564	-17.75884	1.07083	0.17882	0.06146	56.81453	1.08740	278.42	-18.21
97/ 1/ 9	2450457.5	15.07728	-51.75771	-17.20455	1.04423	0.30150	0.10208	56.58782	1.09167	286.24	-17.70
97/ 1/ 9	2450458.0	22.01126	-49.30972	-16.37884	1.00051	0.42058	0.14148	56.42881	1.09449	294.06	-16.87
97/ 1/10	2450458.5	28.59268	-46.07424	-15.29271	0.94025	0.53364	0.17885	56.34043	1.09583	301.82	-15.75
97/ 1/10	2450459.0	34.71284	-42.09995	-13.96249	0.86451	0.63837	0.21343	56.32351	1.09565	309.51	-14.35
97/ 1/11	2450459.5	40.27162	-37.45048	-12.40945	0.77477	0.73268	0.24454	56.37674	1.09402	317.08	-12.72
97/ 1/11	2450460.0	45.18026	-32.20270	-10.65920	0.67286	0.81478	0.27158	56.49680	1.09104	324.52	-10.88
97/ 1/12	2450460.5	49.36349	-26.44444	-8.74095	0.56093	0.88322	0.29408	56.67863	1.08683	331.82	-8.87
97/ 1/12	2450461.0	52.76113	-20.27185	-6.68664	0.44128	0.93699	0.31171	56.91569	1.08159	338.98	-6.75
97/ 1/13	2450461.5	55.32893	-13.78666	-4.53004	0.31629	0.97546	0.32427	57.20039	1.07550	346.01	-4.54
97/ 1/13	2450462.0	57.03884	-7.09344	-2.30580	0.18834	0.99841	0.33168	57.52445	1.06879	352.91	-2.30
97/ 1/14	2450462.5	57.87857	-0.29707	-0.04863	0.05970	1.00597	0.33400	57.87935	1.06165	359.71	-0.05
97/ 1/14	2450463.0	57.85081	6.49957	2.20741	-0.06749	0.99858	0.33138	58.25662	1.05430	6.41	2.17
97/ 1/15	2450463.5	56.97205	13.19743	4.42959	-0.19129	0.97694	0.32405	58.64817	1.04691	13.04	4.33
97/ 1/15	2450464.0	55.27120	19.70288	6.58698	-0.30998	0.94193	0.31231	59.04657	1.03964	19.62	6.41
97/ 1/16	2450464.5	52.78810	25.92886	8.65086	-0.42205	0.89460	0.29650	59.44516	1.03263	26.16	8.37
97/ 1/16	2450465.0	49.57208	31.79571	10.59497	-0.52621	0.83608	0.27700	59.83822	1.02599	32.68	10.20
97/ 1/17	2450465.5	45.68046	37.23180	12.39570	-0.62138	0.76760	0.25423	60.22096	1.01978	39.18	11.88
97/ 1/17	2450466.0	41.17720	42.17383	14.03223	-0.70669	0.69040	0.22859	60.58958	1.01406	45.69	13.39
97/ 1/18	2450466.5	36.13167	46.56709	15.48658	-0.78141	0.60576	0.20050	60.94116	1.00884	52.19	14.72
97/ 1/18	2450467.0	30.61744	50.36548	16.74361	-0.84501	0.51495	0.17039	61.27362	1.00412	58.70	15.86
97/ 1/19	2450467.5	24.71126	53.53148	17.79102	-0.89709	0.41923	0.13867	61.58560	0.99988	65.22	16.79
97/ 1/19	2450468.0	18.49211	56.03605	18.61933	-0.93740	0.31984	0.10576	61.87630	0.99609	71.74	17.51
97/ 1/20	2450468.5	12.04027	57.85851	19.22179	-0.96579	0.21801	0.07205	62.14542	0.99271	78.24	18.02
97/ 1/20	2450469.0	5.43654	58.98632	19.59435	-0.98226	0.11491	0.03793	62.39295	0.98968	84.73	18.30
97/ 1/21	2450469.5	-1.23853	59.41486	19.73558	-0.98688	0.01171	0.00380	62.61910	0.98696	91.19	18.37
97/ 1/21	2450470.0	-7.90538	59.14719	19.64656	-0.97987	-0.09049	-0.03000	62.82414	0.98450	97.61	18.22
97/ 1/22	2450470.5	-14.48611	58.19379	19.33083	-0.96151	-0.19061	-0.06309	63.00830	0.98225	103.98	17.87

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/ 1/22	2450471.0	-20.90509	56.57218	18.79422	-0.93218	-0.28764	-0.09516	63.17165	0.98018	110.28	17.31
97/ 1/23	2450471.5	-27.08961	54.30660	18.04481	-0.89236	-0.38061	-0.12588	63.31405	0.97827	116.51	16.56
97/ 1/23	2450472.0	-32.97039	51.42765	17.09272	-0.84259	-0.46862	-0.15496	63.43509	0.97651	122.66	15.63
97/ 1/24	2450472.5	-38.48212	47.97181	15.95003	-0.78349	-0.55083	-0.18212	63.53402	0.97490	128.74	14.54
97/ 1/24	2450473.0	-43.56388	43.98108	14.63063	-0.71574	-0.62645	-0.20710	63.60977	0.97346	134.73	13.30
97/ 1/25	2450473.5	-48.15961	39.50249	13.15006	-0.64009	-0.69478	-0.22968	63.66097	0.97221	140.64	11.92
97/ 1/25	2450474.0	-52.21842	34.58765	11.52534	-0.55733	-0.75517	-0.24964	63.68596	0.97119	146.48	10.43
97/ 1/26	2450474.5	-55.69493	29.29226	9.77486	-0.46829	-0.80706	-0.26679	63.68288	0.97047	152.26	8.83
97/ 1/26	2450475.0	-58.54955	23.67566	7.91819	-0.37383	-0.84994	-0.28097	63.64970	0.97010	157.98	7.15
97/ 1/27	2450475.5	-60.74867	17.80041	5.97594	-0.27488	-0.88337	-0.29204	63.58433	0.97015	163.67	5.39
97/ 1/27	2450476.0	-62.26491	11.73179	3.96962	-0.17234	-0.90698	-0.29987	63.48474	0.97069	169.33	3.58
97/ 1/28	2450476.5	-63.07730	5.53739	1.92150	-0.06719	-0.92046	-0.30436	63.34904	0.97181	174.98	1.74
97/ 1/28	2450477.0	-63.17144	-0.71326	-0.14551	0.03958	-0.92356	-0.30544	63.17563	0.97356	180.65	-0.13
97/ 1/29	2450477.5	-62.53970	-6.94912	-2.20803	0.14698	-0.91607	-0.30302	62.96333	0.97602	186.34	-2.01
97/ 1/29	2450478.0	-61.18146	-13.09807	-4.24228	0.25394	-0.89787	-0.29709	62.71146	0.97925	192.08	-3.88
97/ 1/30	2450478.5	-59.10328	-19.08726	-6.22429	0.35939	-0.86889	-0.28759	62.42005	0.98328	197.90	-5.72
97/ 1/30	2450479.0	-56.31922	-24.84360	-8.12997	0.46219	-0.82912	-0.27455	62.08990	0.98815	203.80	-7.52
97/ 1/31	2450479.5	-52.85112	-30.29424	-9.93533	0.56118	-0.77864	-0.25798	61.72271	0.99386	209.82	-9.26
97/ 1/31	2450480.0	-48.72893	-35.36713	-11.61663	0.65513	-0.71761	-0.23793	61.32119	1.00039	215.97	-10.92
97/ 2/ 1	2450480.5	-43.99104	-39.99170	-13.15060	0.74277	-0.64631	-0.21449	60.88913	1.00769	222.27	-12.47
97/ 2/ 1	2450481.0	-38.68466	-44.09969	-14.51474	0.82278	-0.56515	-0.18780	60.43147	1.01569	228.74	-13.90
97/ 2/ 2	2450481.5	-32.86608	-47.62606	-15.68758	0.89379	-0.47467	-0.15804	59.95432	1.02428	235.39	-15.17
97/ 2/ 2	2450482.0	-26.60089	-50.51017	-16.64909	0.95443	-0.37563	-0.12544	59.46492	1.03333	242.23	-16.26
97/ 2/ 3	2450482.5	-19.96405	-52.69705	-17.38112	1.00331	-0.26896	-0.09033	58.97157	1.04266	249.25	-17.14
97/ 2/ 3	2450483.0	-13.03968	-54.13896	-17.86785	1.03911	-0.15586	-0.05308	58.48350	1.05208	256.46	-17.79
97/ 2/ 4	2450483.5	-5.92068	-54.79697	-18.09637	1.06060	-0.03775	-0.01417	58.01069	1.06136	263.83	-18.18
97/ 2/ 4	2450484.0	1.29224	-54.64277	-18.05723	1.06668	0.08368	0.02586	57.56358	1.07027	271.35	-18.28
97/ 2/ 5	2450484.5	8.49181	-53.66037	-17.74505	1.05654	0.20647	0.06635	57.15272	1.07856	278.99	-18.09
97/ 2/ 5	2450485.0	15.56606	-51.84773	-17.15902	1.02962	0.32846	0.10660	56.78839	1.08599	286.71	-17.59
97/ 2/ 6	2450485.5	22.40067	-49.21810	-16.30334	0.98578	0.44732	0.14584	56.48018	1.09231	294.47	-16.78
97/ 2/ 6	2450486.0	28.88178	-45.80088	-15.18756	0.92532	0.56063	0.18327	56.23646	1.09732	302.24	-15.67
97/ 2/ 7	2450486.5	34.89915	-41.64194	-13.82661	0.84901	0.66595	0.21810	56.06404	1.10086	309.97	-14.28
97/ 2/ 7	2450487.0	40.34942	-36.80319	-12.24075	0.75811	0.76100	0.24957	55.96773	1.10279	317.63	-12.63
97/ 2/ 8	2450487.5	45.13939	-31.36140	-10.45511	0.65435	0.84371	0.27699	55.95008	1.10306	325.21	-10.77
97/ 2/ 8	2450488.0	49.18894	-25.40624	-8.49911	0.53985	0.91234	0.29979	56.01128	1.10167	332.68	-8.73
97/ 2/ 9	2450488.5	52.43335	-19.03776	-6.40560	0.41702	0.96558	0.31754	56.14912	1.09867	340.04	-6.55
97/ 2/ 9	2450489.0	54.82497	-12.36334	-4.20985	0.28847	1.00258	0.32995	56.35914	1.09419	347.29	-4.28
97/ 2/10	2450489.5	56.33405	-5.49449	-1.94854	0.15686	1.02297	0.33689	56.63489	1.08838	354.43	-1.97
97/ 2/10	2450490.0	56.94872	1.45636	0.34135	0.02478	1.02684	0.33840	56.96836	1.08145	1.46	0.34
97/ 2/11	2450490.5	56.67424	8.37883	2.62346	-0.10531	1.01471	0.33463	57.35030	1.07364	8.41	2.62
97/ 2/11	2450491.0	55.53173	15.16717	4.86297	-0.23120	0.98740	0.32587	57.77079	1.06518	15.28	4.83
97/ 2/12	2450491.5	53.55634	21.72231	7.02720	-0.35095	0.94605	0.31247	58.21960	1.05632	22.08	6.93
97/ 2/12	2450492.0	50.79535	27.95340	9.08620	-0.46293	0.89194	0.29487	58.68662	1.04729	28.82	8.91
97/ 2/13	2450492.5	47.30608	33.77889	11.01305	-0.56581	0.82652	0.27353	59.16220	1.03831	35.53	10.73
97/ 2/13	2450493.0	43.15390	39.12711	12.78406	-0.65853	0.75126	0.24894	59.63742	1.02957	42.20	12.38

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/ 2/14	2450493.5	38.41041	43.93647	14.37887	-0.74031	0.66765	0.22158	60.10428	1.02123	48.84	13.84
97/ 2/14	2450494.0	33.15172	48.15548	15.78041	-0.81059	0.57717	0.19195	60.55583	1.01342	55.46	15.11
97/ 2/15	2450494.5	27.45707	51.74246	16.97487	-0.86900	0.48125	0.16050	60.98622	1.00624	62.05	16.16
97/ 2/15	2450495.0	21.40758	54.66518	17.95151	-0.91535	0.38124	0.12770	61.39074	0.99976	68.61	17.00
97/ 2/16	2450495.5	15.08524	56.90044	18.70256	-0.94957	0.27846	0.09396	61.76577	0.99401	75.15	17.63
97/ 2/16	2450496.0	8.57201	58.43360	19.22309	-0.97173	0.17412	0.05969	62.10871	0.98901	81.65	18.03
97/ 2/17	2450496.5	1.94916	59.25811	19.51080	-0.98198	0.06938	0.02527	62.41790	0.98475	88.12	18.21
97/ 2/17	2450497.0	-4.70339	59.37507	19.56591	-0.98055	-0.03464	-0.00893	62.69247	0.98120	94.53	18.19
97/ 2/18	2450497.5	-11.30755	58.79286	19.39105	-0.96775	-0.13691	-0.04258	62.93229	0.97831	100.89	17.95
97/ 2/18	2450498.0	-17.78759	57.52669	18.99107	-0.94396	-0.23644	-0.07535	63.13778	0.97604	107.18	17.50
97/ 2/19	2450498.5	-24.07053	55.59832	18.37300	-0.90962	-0.33230	-0.10694	63.30980	0.97431	113.41	16.87
97/ 2/19	2450499.0	-30.08657	53.03567	17.54587	-0.86524	-0.42360	-0.13704	63.44952	0.97306	119.57	16.05
97/ 2/20	2450499.5	-35.76950	49.87252	16.52065	-0.81136	-0.50949	-0.16539	63.55830	0.97223	125.65	15.07
97/ 2/20	2450500.0	-41.05711	46.14815	15.31012	-0.74861	-0.58919	-0.19172	63.63755	0.97176	131.66	13.92
97/ 2/21	2450500.5	-45.89154	41.90701	13.92875	-0.67766	-0.66197	-0.21579	63.68863	0.97159	137.60	12.63
97/ 2/21	2450501.0	-50.21972	37.19838	12.39262	-0.59924	-0.72713	-0.23738	63.71277	0.97168	143.47	11.22
97/ 2/22	2450501.5	-53.99370	32.07599	10.71926	-0.51414	-0.78405	-0.25628	63.71100	0.97199	149.29	9.69
97/ 2/22	2450502.0	-57.17104	26.59761	8.92753	-0.42320	-0.83216	-0.27231	63.68408	0.97250	155.05	8.06
97/ 2/23	2450502.5	-59.71515	20.82462	7.03750	-0.32731	-0.87097	-0.28529	63.63246	0.97319	160.77	6.35
97/ 2/23	2450503.0	-61.59562	14.82158	5.07029	-0.22739	-0.90003	-0.29508	63.55633	0.97408	166.47	4.58
97/ 2/24	2450503.5	-62.78851	8.65571	3.04790	-0.12443	-0.91900	-0.30156	63.45556	0.97518	172.15	2.75
97/ 2/24	2450504.0	-63.27661	2.39643	0.99305	-0.01944	-0.92757	-0.30465	63.32976	0.97652	177.83	0.90
97/ 2/25	2450504.5	-63.04967	-3.88519	-1.07097	0.08653	-0.92557	-0.30426	63.17834	0.97813	183.53	-0.97
97/ 2/25	2450505.0	-62.10462	-10.11697	-3.12049	0.19243	-0.91284	-0.30036	63.00059	0.98006	189.25	-2.84
97/ 2/26	2450505.5	-60.44571	-16.22613	-5.13163	0.29714	-0.88936	-0.29293	62.79574	0.98238	195.03	-4.69
97/ 2/26	2450506.0	-58.08472	-22.13993	-7.08052	0.39956	-0.85516	-0.28198	62.56313	0.98512	200.87	-6.50
97/ 2/27	2450506.5	-55.04103	-27.78617	-8.94342	0.49855	-0.81038	-0.26755	62.30226	0.98836	206.79	-8.25
97/ 2/27	2450507.0	-51.34177	-33.09388	-10.69701	0.59295	-0.75524	-0.24971	62.01297	0.99214	212.81	-9.93
97/ 2/28	2450507.5	-47.02193	-37.99388	-12.31852	0.68161	-0.69005	-0.22857	61.69556	0.99650	218.94	-11.52
97/ 2/28	2450508.0	-42.12438	-42.41955	-13.78600	0.76335	-0.61525	-0.20425	61.35091	1.00148	225.20	-12.99
97/ 3/ 1	2450508.5	-36.69998	-46.30751	-15.07853	0.83699	-0.53137	-0.17694	60.98062	1.00708	231.60	-14.32
97/ 3/ 1	2450509.0	-30.80759	-49.59847	-16.17654	0.90135	-0.43909	-0.14685	60.58710	1.01331	238.15	-15.49
97/ 3/ 2	2450509.5	-24.51400	-52.23818	-17.06205	0.95527	-0.33921	-0.11424	60.17373	1.02012	244.86	-16.47
97/ 3/ 2	2450510.0	-17.89378	-54.17838	-17.71905	0.99761	-0.23270	-0.07943	59.74487	1.02747	251.72	-17.25
97/ 3/ 3	2450510.5	-11.02903	-55.37797	-18.13383	1.02730	-0.12072	-0.04278	59.30594	1.03526	258.74	-17.80
97/ 3/ 3	2450511.0	-4.00889	-55.80419	-18.29542	1.04334	-0.00457	-0.00474	58.86341	1.04336	265.89	-18.11
97/ 3/ 4	2450511.5	3.07116	-55.43395	-18.19597	1.04486	0.11421	0.03421	58.42472	1.05164	273.17	-18.15
97/ 3/ 4	2450512.0	10.11032	-54.25510	-17.83122	1.03117	0.23390	0.07350	57.99816	1.05992	280.56	-17.91
97/ 3/ 5	2450512.5	17.00380	-52.26775	-17.20092	1.00179	0.35262	0.11252	57.59270	1.06798	288.02	-17.38
97/ 3/ 5	2450513.0	23.64457	-49.48545	-16.30921	0.95654	0.46829	0.15058	57.21771	1.07561	295.54	-16.56
97/ 3/ 6	2450513.5	29.92551	-45.93609	-15.16490	0.89559	0.57876	0.18698	56.88264	1.08259	303.08	-15.46
97/ 3/ 6	2450514.0	35.74188	-41.66248	-13.78174	0.81949	0.68179	0.22099	56.59665	1.08868	310.63	-14.09
97/ 3/ 7	2450514.5	40.99415	-36.72243	-12.17838	0.72921	0.77519	0.25189	56.36817	1.09367	318.15	-12.48
97/ 3/ 7	2450515.0	45.59087	-31.18822	-10.37822	0.62618	0.85691	0.27900	56.20445	1.09738	325.62	-10.64
97/ 3/ 8	2450515.5	49.45162	-25.14540	-8.40908	0.51222	0.92510	0.30170	56.11120	1.09964	333.05	-8.62

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
97/ 3/ 8	2450516.0	52.50965	-18.69094	-6.30253	0.38953	0.97824	0.31950	56.09221	1.10035	340.41	-6.45
97/ 3/ 9	2450516.5	54.71405	-11.93076	-4.09314	0.26059	1.01523	0.33202	56.14912	1.09947	347.70	-4.18
97/ 3/ 9	2450517.0	56.03135	-4.97679	-1.81748	0.12803	1.03540	0.33904	56.28130	1.09699	354.92	-1.85
97/ 3/10	2450517.5	56.44628	2.05625	0.48689	-0.00543	1.03859	0.34050	56.48582	1.09299	2.09	0.49
97/ 3/10	2450518.0	55.96173	9.05410	2.78251	-0.13715	1.02509	0.33648	56.75768	1.08759	9.19	2.81
97/ 3/11	2450518.5	54.59792	15.90601	5.03302	-0.26468	0.99565	0.32723	57.08998	1.08095	16.24	5.06
97/ 3/11	2450519.0	52.39097	22.50746	7.20407	-0.38579	0.95134	0.31309	57.47432	1.07327	23.25	7.20
97/ 3/12	2450519.5	49.39086	28.76233	9.26400	-0.49860	0.89355	0.29450	57.90121	1.06478	30.21	9.21
97/ 3/12	2450520.0	45.65925	34.58449	11.18439	-0.60157	0.82384	0.27197	58.36046	1.05573	37.14	11.05
97/ 3/13	2450520.5	41.26703	39.89881	12.94042	-0.69350	0.74388	0.24605	58.84163	1.04635	44.03	12.70
97/ 3/13	2450521.0	36.29210	44.64173	14.51101	-0.77352	0.65539	0.21730	59.33439	1.03687	50.89	14.16
97/ 3/14	2450521.5	30.81714	48.76121	15.87886	-0.84108	0.56006	0.18628	59.82884	1.02752	57.71	15.39
97/ 3/14	2450522.0	24.92778	52.21653	17.03037	-0.89586	0.45953	0.15351	60.31578	1.01848	64.48	16.40
97/ 3/15	2450522.5	18.71096	54.97774	17.95545	-0.93778	0.35534	0.11950	60.78692	1.00994	71.20	17.18
97/ 3/15	2450523.0	12.25365	57.02499	18.64732	-0.96690	0.24894	0.08472	61.23499	1.00202	77.87	17.73
97/ 3/16	2450523.5	5.64178	58.34782	19.10230	-0.98346	0.14164	0.04961	61.65383	0.99485	84.48	18.05
97/ 3/16	2450524.0	-1.04059	58.94441	19.31951	-0.98778	0.03468	0.01457	62.03845	0.98850	91.01	18.14
97/ 3/17	2450524.5	-7.71188	58.82087	19.30071	-0.98026	-0.07083	-0.02002	62.38498	0.98302	97.47	18.02
97/ 3/17	2450525.0	-14.29344	57.99061	19.05003	-0.96137	-0.17385	-0.05384	62.69065	0.97845	103.85	17.69
97/ 3/18	2450525.5	-20.70997	56.47372	18.57381	-0.93162	-0.27343	-0.08657	62.95372	0.97477	110.14	17.16
97/ 3/18	2450526.0	-26.88979	54.29649	17.88044	-0.89156	-0.36870	-0.11792	63.17341	0.97197	116.35	16.44
97/ 3/19	2450526.5	-32.76506	51.49095	16.98019	-0.84179	-0.45883	-0.14762	63.34977	0.97002	122.47	15.55
97/ 3/19	2450527.0	-38.27206	48.09451	15.88511	-0.78292	-0.54306	-0.17541	63.48361	0.96884	128.51	14.49
97/ 3/20	2450527.5	-43.35140	44.14961	14.60891	-0.71562	-0.62067	-0.20107	63.57635	0.96839	134.48	13.28
97/ 3/20	2450528.0	-47.94828	39.70341	13.16685	-0.64058	-0.69099	-0.22435	63.62990	0.96857	140.37	11.94
97/ 3/21	2450528.5	-52.01277	34.80749	11.57566	-0.55853	-0.75337	-0.24507	63.64657	0.96932	146.21	10.48
97/ 3/21	2450529.0	-55.50008	29.51757	9.85345	-0.47028	-0.80724	-0.26301	63.62890	0.97055	151.99	8.91
97/ 3/22	2450529.5	-58.37092	23.89319	8.01959	-0.37664	-0.85205	-0.27801	63.57958	0.97218	157.74	7.25
97/ 3/22	2450530.0	-60.59182	17.99734	6.09459	-0.27851	-0.88732	-0.28990	63.50131	0.97414	163.46	5.51
97/ 3/23	2450530.5	-62.13549	11.89614	4.10003	-0.17682	-0.91262	-0.29853	63.39675	0.97635	169.16	3.71
97/ 3/23	2450531.0	-62.98121	5.65837	2.05836	-0.07257	-0.92760	-0.30379	63.26837	0.97877	174.87	1.86
97/ 3/24	2450531.5	-63.11513	-0.64502	-0.00722	0.03319	-0.93196	-0.30558	63.11842	0.98134	180.59	-0.01
97/ 3/24	2450532.0	-62.53064	-6.94144	-2.07295	0.13938	-0.92552	-0.30382	62.94888	0.98403	186.33	-1.89
97/ 3/25	2450532.5	-61.22865	-13.15728	-4.11471	0.24487	-0.90816	-0.29849	62.76140	0.98682	192.13	-3.76
97/ 3/25	2450533.0	-59.21782	-19.21855	-6.10822	0.34850	-0.87988	-0.28958	62.55728	0.98969	197.98	-5.60
97/ 3/26	2450533.5	-56.51474	-25.05157	-8.02929	0.44909	-0.84078	-0.27711	62.33752	0.99267	203.91	-7.40
97/ 3/26	2450534.0	-53.14410	-30.58376	-9.85405	0.54543	-0.79109	-0.26115	62.10285	0.99575	209.92	-9.13
97/ 3/27	2450534.5	-49.13868	-35.74438	-11.55920	0.63633	-0.73113	-0.24181	61.85374	0.99897	216.03	-10.77
97/ 3/27	2450535.0	-44.53936	-40.46538	-13.12230	0.72061	-0.66136	-0.21923	61.59055	1.00237	222.26	-12.30
97/ 3/28	2450535.5	-39.39499	-44.68223	-14.52203	0.79709	-0.58236	-0.19360	61.31359	1.00597	228.60	-13.70
97/ 3/28	2450536.0	-33.76222	-48.33473	-15.73847	0.86465	-0.49484	-0.16515	61.02321	1.00983	235.07	-14.95
97/ 3/29	2450536.5	-27.70519	-51.36794	-16.75336	0.92220	-0.39964	-0.13414	60.72000	1.01398	241.66	-16.02
97/ 3/29	2450537.0	-21.29518	-53.73303	-17.55045	0.96872	-0.29772	-0.10089	60.40482	1.01844	248.38	-16.89
97/ 3/30	2450537.5	-14.61012	-55.38817	-18.11574	1.00327	-0.19019	-0.06576	60.07899	1.02325	255.22	-17.55
97/ 3/30	2450538.0	-7.73402	-56.29945	-18.43782	1.02500	-0.07828	-0.02914	59.74442	1.02840	262.18	-17.98

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
97/ 3/31	2450538.5	-0.75622	-56.44178	-18.50812	1.03319	0.03663	0.00851	59.40368	1.03387	269.23	-18.15
97/ 3/31	2450539.0	6.22947	-55.79979	-18.32128	1.02724	0.15306	0.04671	59.06007	1.03963	276.37	-18.07
97/ 4/ 1	2450539.5	13.12583	-54.36871	-17.87535	1.00676	0.26937	0.08492	58.71773	1.04562	283.57	-17.72
97/ 4/ 1	2450540.0	19.83351	-52.15515	-17.17215	0.97151	0.38382	0.12258	58.38159	1.05175	290.82	-17.11
97/ 4/ 2	2450540.5	26.25248	-49.17780	-16.21743	0.92153	0.49460	0.15909	58.05733	1.05790	298.09	-16.22
97/ 4/ 2	2450541.0	32.28375	-45.46796	-15.02110	0.85710	0.59980	0.19383	57.75127	1.06393	305.38	-15.08
97/ 4/ 3	2450541.5	37.83132	-41.06985	-13.59728	0.77882	0.69752	0.22616	57.47023	1.06969	312.65	-13.69
97/ 4/ 3	2450542.0	42.80426	-36.04062	-11.96439	0.68760	0.78586	0.25547	57.22131	1.07500	319.90	-12.07
97/ 4/ 4	2450542.5	47.11899	-30.44993	-10.14496	0.58469	0.86303	0.28115	57.01156	1.07968	327.13	-10.25
97/ 4/ 4	2450543.0	50.70158	-24.37915	-8.16539	0.47169	0.92737	0.30267	56.84775	1.08357	334.32	-8.26
97/ 4/ 5	2450543.5	53.48991	-17.92004	-6.05554	0.35049	0.97748	0.31955	56.73595	1.08648	341.48	-6.13
97/ 4/ 5	2450544.0	55.43573	-11.17297	-3.84816	0.22328	1.01225	0.33142	56.68125	1.08827	348.60	-3.89
97/ 4/ 6	2450544.5	56.50624	-4.24465	-1.57810	0.09243	1.03091	0.33802	56.68741	1.08884	355.70	-1.60
97/ 4/ 6	2450545.0	56.68518	2.75445	0.71844	-0.03957	1.03312	0.33923	56.75661	1.08811	2.78	0.73
97/ 4/ 7	2450545.5	55.97338	9.71291	3.00493	-0.17018	1.01896	0.33506	56.88927	1.08605	9.84	3.03
97/ 4/ 7	2450546.0	54.38856	16.52124	5.24538	-0.29697	0.98891	0.32567	57.08398	1.08268	16.90	5.27
97/ 4/ 8	2450546.5	51.96452	23.07460	7.40528	-0.41764	0.94384	0.31133	57.33748	1.07805	23.94	7.42
97/ 4/ 8	2450547.0	48.74972	29.27526	9.45238	-0.53016	0.88498	0.29244	57.64480	1.07228	30.99	9.44
97/ 4/ 9	2450547.5	44.80540	35.03463	11.35738	-0.63280	0.81380	0.26946	57.99948	1.06551	38.02	11.29
97/ 4/ 9	2450548.0	40.20340	40.27478	13.09445	-0.72416	0.73195	0.24294	58.39380	1.05791	45.05	12.96
97/ 4/10	2450548.5	35.02382	44.92940	14.64152	-0.80321	0.64119	0.21345	58.81915	1.04968	52.06	14.41
97/ 4/10	2450549.0	29.35267	48.94429	15.98048	-0.86923	0.54334	0.18158	59.26633	1.04103	59.05	15.64
97/ 4/11	2450549.5	23.27968	52.27738	17.09716	-0.92182	0.44016	0.14791	59.72588	1.03217	66.00	16.63
97/ 4/11	2450550.0	16.89638	54.89839	17.98126	-0.96086	0.33334	0.11300	60.18843	1.02330	72.89	17.38
97/ 4/12	2450550.5	10.29432	56.78819	18.62615	-0.98645	0.22449	0.07736	60.64491	1.01462	79.73	17.89
97/ 4/12	2450551.0	3.56380	57.93803	19.02859	-0.99886	0.11507	0.04148	61.08685	1.00632	86.48	18.15
97/ 4/13	2450551.5	-3.20732	58.34869	19.18846	-0.99852	0.00643	0.00580	61.50653	0.99855	93.15	18.18
97/ 4/13	2450552.0	-9.93438	58.02954	19.10850	-0.98595	-0.10024	-0.02928	61.89713	0.99146	99.71	17.98
97/ 4/14	2450552.5	-16.53655	56.99771	18.79397	-0.96174	-0.20385	-0.06341	62.25279	0.98515	106.18	17.57
97/ 4/14	2450553.0	-22.93724	55.27727	18.25246	-0.92656	-0.30343	-0.09626	62.56873	0.97972	112.54	16.96
97/ 4/15	2450553.5	-29.06439	52.89855	17.49360	-0.88108	-0.39810	-0.12754	62.84124	0.97522	118.79	16.16
97/ 4/15	2450554.0	-34.85065	49.89748	16.52890	-0.82602	-0.48708	-0.15700	63.06767	0.97170	124.93	15.19
97/ 4/16	2450554.5	-40.23352	46.31509	15.37155	-0.76209	-0.56965	-0.18439	63.24641	0.96916	130.98	14.07
97/ 4/16	2450555.0	-45.15545	42.19707	14.03629	-0.69003	-0.64514	-0.20950	63.37685	0.96760	136.94	12.80
97/ 4/17	2450555.5	-49.56396	37.59339	12.53930	-0.61061	-0.71296	-0.23212	63.45930	0.96697	142.82	11.40
97/ 4/17	2450556.0	-53.41176	32.55798	10.89806	-0.52459	-0.77254	-0.25206	63.49493	0.96724	148.63	9.88
97/ 4/18	2450556.5	-56.65694	27.14847	9.13131	-0.43279	-0.82335	-0.26915	63.48566	0.96832	154.40	8.27
97/ 4/18	2450557.0	-59.26315	21.42592	7.25895	-0.33605	-0.86490	-0.28323	63.43408	0.97016	160.12	6.57
97/ 4/19	2450557.5	-61.19989	15.45453	5.30191	-0.23525	-0.89676	-0.29413	63.34334	0.97264	165.83	4.80
97/ 4/19	2450558.0	-62.44282	9.30139	3.28211	-0.13133	-0.91851	-0.30174	63.21704	0.97568	171.53	2.98
97/ 4/20	2450558.5	-62.97409	3.03608	1.22235	-0.02527	-0.92982	-0.30592	63.05908	0.97918	177.24	1.11
97/ 4/20	2450559.0	-62.78272	-3.26967	-0.85386	0.08188	-0.93041	-0.30658	62.87360	0.98304	182.98	-0.78
97/ 4/21	2450559.5	-61.86500	-9.54248	-2.92243	0.18902	-0.92007	-0.30365	62.66481	0.98715	188.77	-2.67
97/ 4/21	2450560.0	-60.22488	-15.70792	-4.95886	0.29500	-0.89869	-0.29708	62.43689	0.99143	194.62	-4.56
97/ 4/22	2450560.5	-57.87430	-21.69111	-6.93846	0.39861	-0.86626	-0.28687	62.19390	0.99579	200.55	-6.41

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
97/ 4/22	2450561.0	-54.83349	-27.41750	-8.83665	0.49861	-0.82289	-0.27305	61.93962	1.00016	206.57	-8.20
97/ 4/23	2450561.5	-51.13121	-32.81373	-10.62913	0.59373	-0.76882	-0.25568	61.67755	1.00447	212.69	-9.92
97/ 4/23	2450562.0	-46.80486	-37.80853	-12.29230	0.68268	-0.70443	-0.23489	61.41075	1.00869	218.93	-11.55
97/ 4/24	2450562.5	-41.90046	-42.33374	-13.80350	0.76421	-0.63025	-0.21084	61.14189	1.01276	225.29	-13.05
97/ 4/24	2450563.0	-36.47251	-46.32531	-15.14140	0.83708	-0.54698	-0.18375	60.87314	1.01669	231.79	-14.40
97/ 4/25	2450563.5	-30.58368	-49.72439	-16.28631	0.90011	-0.45545	-0.15390	60.60627	1.02045	238.41	-15.59
97/ 4/25	2450564.0	-24.30434	-52.47839	-17.22059	0.95222	-0.35667	-0.12161	60.34261	1.02407	245.15	-16.58
97/ 4/26	2450564.5	-17.71193	-54.54199	-17.92892	0.99241	-0.25178	-0.08725	60.08317	1.02756	252.01	-17.36
97/ 4/26	2450565.0	-10.89011	-55.87811	-18.39869	1.01983	-0.14208	-0.05123	59.82866	1.03095	258.97	-17.91
97/ 4/27	2450565.5	-3.92788	-56.45882	-18.62024	1.03377	-0.02896	-0.01403	59.57969	1.03427	266.02	-18.21
97/ 4/27	2450566.0	3.08162	-56.26612	-18.58719	1.03371	0.08605	0.02387	59.33680	1.03756	273.13	-18.26
97/ 4/28	2450566.5	10.04224	-55.29261	-18.29659	1.01930	0.20133	0.06193	59.10063	1.04084	280.29	-18.03
97/ 4/28	2450567.0	16.85628	-53.54201	-17.74918	0.99042	0.31523	0.09961	58.87202	1.04414	287.48	-17.55
97/ 4/29	2450567.5	23.42589	-51.02957	-16.94948	0.94716	0.42601	0.13633	58.65215	1.04746	294.66	-16.80
97/ 4/29	2450568.0	29.65462	-47.78227	-15.90587	0.88984	0.53194	0.17153	58.44261	1.05081	301.82	-15.79
97/ 4/30	2450568.5	35.44910	-43.83880	-14.63063	0.81904	0.63130	0.20464	58.24547	1.05415	308.96	-14.55
97/ 4/30	2450569.0	40.72066	-39.24945	-13.13985	0.73559	0.72239	0.23509	58.06331	1.05745	316.05	-13.08
97/ 5/ 1	2450569.5	45.38713	-34.07561	-11.45332	0.64056	0.80363	0.26235	57.89920	1.06065	323.10	-11.41
97/ 5/ 1	2450570.0	49.37447	-28.38912	-9.59435	0.53529	0.87354	0.28594	57.75666	1.06366	330.10	-9.56
97/ 5/ 2	2450570.5	52.61846	-22.27131	-7.58938	0.42134	0.93080	0.30540	57.63950	1.06638	337.06	-7.57
97/ 5/ 2	2450571.0	55.06629	-15.81178	-5.46767	0.30050	0.97429	0.32035	57.55175	1.06872	343.98	-5.45
97/ 5/ 3	2450571.5	56.67787	-9.10681	-3.26074	0.17475	1.00315	0.33052	57.49737	1.07055	350.87	-3.25
97/ 5/ 3	2450572.0	57.42705	-2.25765	-1.00182	0.04620	1.01679	0.33568	57.48014	1.07177	357.75	-1.00
97/ 5/ 4	2450572.5	57.30232	4.63158	1.27483	-0.08294	1.01496	0.33574	57.50333	1.07226	4.62	1.27
97/ 5/ 4	2450573.0	56.30733	11.45605	3.53462	-0.21041	0.99771	0.33071	57.56953	1.07195	11.50	3.52
97/ 5/ 5	2450573.5	54.46082	18.11249	5.74341	-0.33403	0.96544	0.32071	57.68041	1.07075	18.40	5.71
97/ 5/ 5	2450574.0	51.79613	24.50146	7.86822	-0.45168	0.91887	0.30596	57.83657	1.06862	25.32	7.82
97/ 5/ 6	2450574.5	48.36029	30.52944	9.87798	-0.56144	0.85904	0.28680	58.03739	1.06555	32.26	9.80
97/ 5/ 6	2450575.0	44.21267	36.11078	11.74409	-0.66160	0.78721	0.26362	58.28098	1.06156	39.24	11.63
97/ 5/ 7	2450575.5	39.42328	41.16923	13.44105	-0.75073	0.70489	0.23693	58.56417	1.05670	46.24	13.27
97/ 5/ 7	2450576.0	34.07084	45.63918	14.94676	-0.82770	0.61372	0.20724	58.88262	1.05104	53.26	14.70
97/ 5/ 8	2450576.5	28.24070	49.46643	16.24287	-0.89168	0.51540	0.17513	59.23087	1.04470	60.28	15.92
97/ 5/ 8	2450577.0	22.02282	52.60854	17.31488	-0.94214	0.41169	0.14116	59.60259	1.03780	67.28	16.89
97/ 5/ 9	2450577.5	15.50972	55.03487	18.15214	-0.97884	0.30431	0.10591	59.99073	1.03051	74.26	17.61
97/ 5/ 9	2450578.0	8.79468	56.72618	18.74780	-1.00179	0.19492	0.06990	60.38779	1.02296	81.19	18.09
97/ 5/10	2450578.5	1.97017	57.67413	19.09854	-1.01122	0.08505	0.03367	60.78603	1.01535	88.04	18.31
97/ 5/10	2450579.0	-4.87355	57.88046	19.20441	-1.00754	-0.02385	-0.00233	61.17768	1.00782	94.81	18.30
97/ 5/11	2450579.5	-11.64945	57.35613	19.06850	-0.99129	-0.13050	-0.03766	61.55520	1.00056	101.48	18.05
97/ 5/11	2450580.0	-18.27459	56.12041	18.69667	-0.96314	-0.23374	-0.07193	61.91144	0.99370	108.04	17.58
97/ 5/12	2450580.5	-24.67072	54.20000	18.09725	-0.92380	-0.33253	-0.10481	62.23982	0.98740	114.47	16.90
97/ 5/12	2450581.0	-30.76470	51.62812	17.28074	-0.87405	-0.42597	-0.13599	62.53442	0.98178	120.79	16.04
97/ 5/13	2450581.5	-36.48874	48.44381	16.25958	-0.81469	-0.51325	-0.16520	62.79017	0.97695	126.99	15.01
97/ 5/13	2450582.0	-41.78058	44.69116	15.04793	-0.74656	-0.59368	-0.19220	63.00284	0.97301	133.07	13.82
97/ 5/14	2450582.5	-46.58356	40.41881	13.66146	-0.67047	-0.66662	-0.21679	63.16917	0.97001	139.05	12.49
97/ 5/14	2450583.0	-50.84665	35.67938	12.11720	-0.58727	-0.73152	-0.23877	63.28685	0.96800	144.94	11.04

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/ 5/15	2450583.5	-54.52452	30.52908	10.43340	-0.49780	-0.78786	-0.25797	63.35459	0.96700	150.75	9.48
97/ 5/15	2450584.0	-57.57759	25.02741	8.62941	-0.40292	-0.83520	-0.27423	63.37206	0.96701	156.51	7.83
97/ 5/16	2450584.5	-59.97210	19.23680	6.72563	-0.30348	-0.87312	-0.28742	63.33988	0.96801	162.22	6.10
97/ 5/16	2450585.0	-61.68023	13.22241	4.74336	-0.20039	-0.90123	-0.29739	63.25965	0.96995	167.90	4.30
97/ 5/17	2450585.5	-62.68039	7.05182	2.70477	-0.09457	-0.91919	-0.30403	63.13379	0.97277	173.58	2.46
97/ 5/17	2450586.0	-62.95736	0.79482	0.63279	0.01299	-0.92670	-0.30723	62.96556	0.97639	179.28	0.58
97/ 5/18	2450586.5	-62.50271	-5.47696	-1.44898	0.12130	-0.92351	-0.30690	62.75894	0.98070	185.01	-1.32
97/ 5/18	2450587.0	-61.31509	-11.69039	-3.51638	0.22925	-0.90944	-0.30298	62.51856	0.98561	190.79	-3.22
97/ 5/19	2450587.5	-59.40070	-17.77127	-5.54486	0.33571	-0.88436	-0.29541	62.24955	0.99099	196.66	-5.11
97/ 5/19	2450588.0	-56.77363	-23.64497	-7.50964	0.43949	-0.84826	-0.28417	61.95744	0.99672	202.61	-6.96
97/ 5/20	2450588.5	-53.45634	-29.23705	-9.38596	0.53932	-0.80123	-0.26929	61.64804	1.00267	208.68	-8.76
97/ 5/20	2450589.0	-49.47993	-34.47408	-11.14931	0.63390	-0.74347	-0.25083	61.32726	1.00871	214.87	-10.47
97/ 5/21	2450589.5	-44.88447	-39.28465	-12.77577	0.72190	-0.67537	-0.22889	61.00098	1.01472	221.19	-12.09
97/ 5/21	2450590.0	-39.71909	-43.60035	-14.24235	0.80197	-0.59745	-0.20365	60.67488	1.02057	227.67	-13.58
97/ 5/22	2450590.5	-34.04198	-47.35701	-15.52739	0.87279	-0.51042	-0.17532	60.35431	1.02618	234.29	-14.91
97/ 5/22	2450591.0	-27.92013	-50.49596	-16.61096	0.93309	-0.41520	-0.14421	60.04415	1.03143	241.06	-16.06
97/ 5/23	2450591.5	-21.42886	-52.96527	-17.47532	0.98169	-0.31288	-0.11065	59.74867	1.03627	247.97	-17.01
97/ 5/23	2450592.0	-14.65111	-54.72110	-18.10531	1.01752	-0.20474	-0.07508	59.47147	1.04063	255.01	-17.72
97/ 5/24	2450592.5	-7.67643	-55.72883	-18.48879	1.03971	-0.09223	-0.03795	59.21541	1.04448	262.16	-18.19
97/ 5/24	2450593.0	-0.59972	-55.96421	-18.61700	1.04756	0.02305	0.00021	58.98259	1.04781	269.39	-18.40
97/ 5/25	2450593.5	6.48020	-55.41427	-18.48488	1.04060	0.13938	0.03883	58.77435	1.05061	276.67	-18.33
97/ 5/25	2450594.0	13.46229	-54.07791	-18.09128	1.01866	0.25496	0.07732	58.59136	1.05292	283.98	-17.99
97/ 5/26	2450594.5	20.24507	-51.96641	-17.43914	0.98178	0.36796	0.11507	58.43367	1.05477	291.28	-17.36
97/ 5/26	2450595.0	26.72850	-49.10351	-16.53553	0.93034	0.47654	0.15148	58.30087	1.05621	298.56	-16.48
97/ 5/27	2450595.5	32.81583	-45.52525	-15.39163	0.86495	0.57891	0.18594	58.19217	1.05728	305.79	-15.34
97/ 5/27	2450596.0	38.41549	-41.27951	-14.02256	0.78650	0.67337	0.21788	58.10662	1.05806	312.94	-13.96
97/ 5/28	2450596.5	43.44282	-36.42531	-12.44719	0.69615	0.75834	0.24677	58.04321	1.05858	320.02	-12.38
97/ 5/28	2450597.0	47.82168	-31.03184	-10.68782	0.59526	0.83239	0.27213	58.00102	1.05890	327.02	-10.62
97/ 5/29	2450597.5	51.48590	-25.17724	-8.76981	0.48540	0.89431	0.29355	57.97932	1.05905	333.94	-8.70
97/ 5/29	2450598.0	54.38051	-18.94729	-6.72112	0.36830	0.94308	0.31067	57.97770	1.05904	340.79	-6.66
97/ 5/30	2450598.5	56.46275	-12.43381	-4.57183	0.24583	0.97792	0.32322	57.99607	1.05889	347.58	-4.52
97/ 5/30	2450599.0	57.70283	-5.73310	-2.35359	0.11995	0.99831	0.33101	58.03468	1.05857	354.33	-2.32
97/ 5/31	2450599.5	58.08443	1.05585	-0.09906	-0.00733	1.00396	0.33392	58.09411	1.05806	1.04	-0.10
97/ 5/31	2450600.0	57.60498	7.83313	2.15866	-0.13398	0.99488	0.33196	58.17518	1.05732	7.74	2.13
97/ 6/ 1	2450600.5	56.27556	14.49969	4.38669	-0.25799	0.97133	0.32517	58.27883	1.05631	14.45	4.32
97/ 6/ 1	2450601.0	54.12058	20.95915	6.55286	-0.37744	0.93383	0.31372	58.40602	1.05495	21.17	6.44
97/ 6/ 2	2450601.5	51.17723	27.11948	8.62637	-0.49050	0.88315	0.29786	58.55758	1.05321	27.92	8.47
97/ 6/ 2	2450602.0	47.49453	32.89460	10.57829	-0.59550	0.82026	0.27788	58.73402	1.05103	34.71	10.38
97/ 6/ 3	2450602.5	43.13224	38.20581	12.38201	-0.69095	0.74637	0.25416	58.93546	1.04837	41.53	12.13
97/ 6/ 3	2450603.0	38.15948	42.98306	14.01373	-0.77557	0.66282	0.22716	59.16142	1.04520	48.40	13.70
97/ 6/ 4	2450603.5	32.65326	47.16587	15.45274	-0.84832	0.57110	0.19734	59.41079	1.04151	55.30	15.08
97/ 6/ 4	2450604.0	26.69680	50.70413	16.68171	-0.90841	0.47276	0.16522	59.68172	1.03731	62.23	16.23
97/ 6/ 5	2450604.5	20.37782	53.55850	17.68683	-0.95530	0.36942	0.13133	59.97160	1.03263	69.17	17.15
97/ 6/ 5	2450605.0	13.78688	55.70057	18.45787	-0.98869	0.26269	0.09619	60.27707	1.02751	76.10	17.83
97/ 6/ 6	2450605.5	7.01573	57.11276	18.98821	-1.00853	0.15415	0.06033	60.59406	1.02202	83.00	18.26

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
97/ 6/ 6	2450606.0	0.15579	57.78801	19.27467	-1.01495	0.04532	0.02426	60.91790	1.01626	89.85	18.45
97/ 6/ 7	2450606.5	-6.70320	57.72918	19.31740	-1.00831	-0.06239	-0.01156	61.24339	1.01031	96.62	18.39
97/ 6/ 7	2450607.0	-13.47432	56.94845	19.11964	-0.98910	-0.16765	-0.04669	61.56495	1.00430	103.31	18.09
97/ 6/ 8	2450607.5	-20.07449	55.46647	18.68746	-0.95794	-0.26927	-0.08072	61.87678	0.99834	109.90	17.58
97/ 6/ 8	2450608.0	-26.42517	53.31158	18.02952	-0.91556	-0.36619	-0.11330	62.17297	0.99256	116.37	16.86
97/ 6/ 9	2450608.5	-32.45303	50.51892	17.15678	-0.86275	-0.45745	-0.14410	62.44771	0.98710	122.72	15.95
97/ 6/ 9	2450609.0	-38.09028	47.12966	16.08224	-0.80036	-0.54223	-0.17284	62.69539	0.98207	128.95	14.86
97/ 6/10	2450609.5	-43.27498	43.19019	14.82066	-0.72927	-0.61981	-0.19929	62.91079	0.97760	135.06	13.63
97/ 6/10	2450610.0	-47.95120	38.75146	13.38838	-0.65036	-0.68956	-0.22322	63.08916	0.97380	141.06	12.25
97/ 6/11	2450610.5	-52.06911	33.86835	11.80309	-0.56455	-0.75095	-0.24444	63.22634	0.97077	146.96	10.76
97/ 6/11	2450611.0	-55.58501	28.59913	10.08366	-0.47274	-0.80351	-0.26280	63.31890	0.96859	152.77	9.16
97/ 6/12	2450611.5	-58.46133	23.00500	8.24999	-0.37584	-0.84683	-0.27816	63.36418	0.96734	158.52	7.48
97/ 6/12	2450612.0	-60.66668	17.14977	6.32288	-0.27476	-0.88056	-0.29037	63.36039	0.96705	164.22	5.73
97/ 6/13	2450612.5	-62.17584	11.09943	4.32394	-0.17042	-0.90439	-0.29935	63.30663	0.96777	169.88	3.92
97/ 6/13	2450613.0	-62.96992	4.92195	2.27550	-0.06376	-0.91806	-0.30498	63.20296	0.96949	175.53	2.06
97/ 6/14	2450613.5	-63.03642	-1.31303	0.20048	0.04426	-0.92134	-0.30718	63.05041	0.97220	181.19	0.18
97/ 6/14	2450614.0	-62.36950	-7.53447	-1.87765	0.15265	-0.91403	-0.30588	62.85100	0.97587	186.89	-1.71
97/ 6/15	2450614.5	-60.97020	-13.67023	-3.93495	0.26035	-0.89602	-0.30103	62.60770	0.98043	192.64	-3.60
97/ 6/15	2450615.0	-58.84677	-19.64745	-5.94721	0.36629	-0.86721	-0.29258	62.32442	0.98581	198.46	-5.48
97/ 6/16	2450615.5	-56.01507	-25.39293	-7.88999	0.46930	-0.82760	-0.28051	62.00598	0.99189	204.39	-7.31
97/ 6/16	2450616.0	-52.49895	-30.83376	-9.73887	0.56819	-0.77727	-0.26485	61.65798	0.99857	210.43	-9.09
97/ 6/17	2450616.5	-48.33064	-35.89797	-11.46961	0.66167	-0.71642	-0.24564	61.28676	1.00569	216.60	-10.79
97/ 6/17	2450617.0	-43.55115	-40.51533	-13.05849	0.74844	-0.64539	-0.22298	60.89925	1.01312	222.93	-12.38
97/ 6/18	2450617.5	-38.21052	-44.61840	-14.48259	0.82715	-0.56465	-0.19701	60.50281	1.02069	229.42	-13.85
97/ 6/18	2450618.0	-32.36800	-48.14363	-15.72015	0.89642	-0.47488	-0.16794	60.10507	1.02825	236.09	-15.16
97/ 6/19	2450618.5	-26.09202	-51.03269	-16.75106	0.95493	-0.37696	-0.13604	59.71371	1.03561	242.92	-16.29
97/ 6/19	2450619.0	-19.45986	-53.23388	-17.55728	1.00139	-0.27196	-0.10165	59.33625	1.04263	249.92	-17.21
97/ 6/20	2450619.5	-12.55714	-54.70359	-18.12338	1.03464	-0.16119	-0.06521	58.97984	1.04915	257.07	-17.90
97/ 6/20	2450620.0	-5.47684	-55.40779	-18.43700	1.05368	-0.04618	-0.02719	58.65101	1.05504	264.35	-18.32
97/ 6/21	2450620.5	1.68193	-55.32340	-18.48934	1.05770	0.07137	0.01185	58.35549	1.06018	271.74	-18.47
97/ 6/21	2450621.0	8.81559	-54.43954	-18.27560	1.04620	0.18958	0.05128	58.09798	1.06447	279.20	-18.33
97/ 6/22	2450621.5	15.81805	-52.75842	-17.79530	1.01895	0.30645	0.09045	57.88207	1.06787	286.69	-17.91
97/ 6/22	2450622.0	22.58285	-50.29596	-17.05247	0.97607	0.41996	0.12868	57.71010	1.07034	294.18	-17.19
97/ 6/23	2450622.5	29.00554	-47.08197	-16.05581	0.91804	0.52804	0.16530	57.58318	1.07189	301.64	-16.19
97/ 6/23	2450623.0	34.98608	-43.15984	-14.81855	0.84567	0.62875	0.19962	57.50119	1.07254	309.03	-14.93
97/ 6/24	2450623.5	40.43112	-38.58583	-13.35829	0.76013	0.72025	0.23105	57.46291	1.07235	316.34	-13.44
97/ 6/24	2450624.0	45.25615	-33.42795	-11.69659	0.66285	0.80091	0.25902	57.46614	1.07141	323.55	-11.74
97/ 6/25	2450624.5	49.38729	-27.76443	-9.85857	0.55553	0.86935	0.28304	57.50791	1.06981	330.66	-9.87
97/ 6/25	2450625.0	52.76282	-21.68201	-7.87229	0.44005	0.92445	0.30274	57.58470	1.06766	337.66	-7.86
97/ 6/26	2450625.5	55.33426	-15.27397	-5.76813	0.31843	0.96539	0.31781	57.69268	1.06507	344.57	-5.74
97/ 6/26	2450626.0	57.06703	-8.63808	-3.57816	0.19275	0.99167	0.32806	57.82790	1.06216	351.39	-3.55
97/ 6/27	2450626.5	57.94079	-1.87463	-1.33540	0.06512	1.00305	0.33339	57.98649	1.05901	358.15	-1.32
97/ 6/27	2450627.0	57.94936	4.91560	0.92676	-0.06240	0.99961	0.33380	58.16485	1.05571	4.85	0.91
97/ 6/28	2450627.5	57.10035	11.63316	3.17522	-0.18780	0.98166	0.32936	58.35976	1.05234	11.52	3.12
97/ 6/28	2450628.0	55.41453	18.18161	5.37773	-0.30920	0.94979	0.32026	58.56843	1.04893	18.16	5.27

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/ 6/29	2450628.5	52.92501	24.46910	7.50338	-0.42485	0.90475	0.30672	58.78855	1.04553	24.81	7.33
97/ 6/29	2450629.0	49.67620	30.40964	9.52312	-0.53316	0.84751	0.28904	59.01831	1.04214	31.47	9.29
97/ 6/30	2450629.5	45.72270	35.92426	11.41006	-0.63272	0.77918	0.26757	59.25628	1.03877	38.16	11.10
97/ 6/30	2450630.0	41.12801	40.94200	13.13989	-0.72231	0.70100	0.24271	59.50141	1.03539	44.87	12.76
97/ 7/ 1	2450630.5	35.96328	45.40066	14.69107	-0.80089	0.61431	0.21489	59.75286	1.03198	51.62	14.23
97/ 7/ 1	2450631.0	30.30591	49.24734	16.04511	-0.86766	0.52053	0.18457	60.00995	1.02852	58.39	15.51
97/ 7/ 2	2450631.5	24.23818	52.43890	17.18666	-0.92198	0.42110	0.15223	60.27196	1.02496	65.19	16.57
97/ 7/ 2	2450632.0	17.84591	54.94218	18.10365	-0.96344	0.31753	0.11834	60.53811	1.02130	72.01	17.40
97/ 7/ 3	2450632.5	11.21705	56.73403	18.78729	-0.99182	0.21127	0.08340	60.80735	1.01750	78.82	18.00
97/ 7/ 3	2450633.0	4.44041	57.80119	19.23206	-1.00709	0.10377	0.04788	61.07837	1.01356	85.61	18.35
97/ 7/ 4	2450633.5	-2.39560	58.14009	19.43565	-1.00939	-0.00356	0.01226	61.34944	1.00947	92.36	18.47
97/ 7/ 4	2450634.0	-9.20407	57.75641	19.39884	-0.99903	-0.10939	-0.02304	61.61845	1.00526	99.05	18.35
97/ 7/ 5	2450634.5	-15.90070	56.66458	19.12531	-0.97645	-0.21247	-0.05757	61.88283	1.00095	105.67	18.00
97/ 7/ 5	2450635.0	-22.40463	54.88717	18.62151	-0.94223	-0.31165	-0.09097	62.13959	0.99660	112.21	17.44
97/ 7/ 6	2450635.5	-28.63930	52.45421	17.89641	-0.89706	-0.40588	-0.12287	62.38538	0.99224	118.63	16.67
97/ 7/ 6	2450636.0	-34.53304	49.40253	16.96127	-0.84169	-0.49421	-0.15295	62.61650	0.98797	124.95	15.72
97/ 7/ 7	2450636.5	-40.01959	45.77494	15.82940	-0.77696	-0.57581	-0.18091	62.82900	0.98385	131.16	14.59
97/ 7/ 7	2450637.0	-45.03851	41.61957	14.51596	-0.70375	-0.64995	-0.20652	63.01880	0.97997	137.26	13.32
97/ 7/ 8	2450637.5	-49.53543	36.98913	13.03768	-0.62297	-0.71599	-0.22955	63.18176	0.97644	143.25	11.91
97/ 7/ 8	2450638.0	-53.46223	31.94027	11.41270	-0.53556	-0.77342	-0.24982	63.31383	0.97335	149.14	10.38
97/ 7/ 9	2450638.5	-56.77719	26.53299	9.66032	-0.44246	-0.82177	-0.26715	63.41113	0.97079	154.95	8.76
97/ 7/ 9	2450639.0	-59.44499	20.83003	7.80085	-0.34461	-0.86067	-0.28142	63.47007	0.96887	160.69	7.06
97/ 7/10	2450639.5	-61.43675	14.89647	5.85543	-0.24299	-0.88982	-0.29251	63.48752	0.96767	166.37	5.29
97/ 7/10	2450640.0	-62.73006	8.79923	3.84593	-0.13853	-0.90897	-0.30033	63.46084	0.96727	172.02	3.47
97/ 7/11	2450640.5	-63.30900	2.60676	1.79478	-0.03220	-0.91791	-0.30480	63.38806	0.96773	177.64	1.62
97/ 7/11	2450641.0	-63.16415	-3.61137	-0.27512	0.07504	-0.91652	-0.30585	63.26791	0.96912	183.27	-0.25
97/ 7/12	2450641.5	-62.29275	-9.78472	-2.34047	0.18219	-0.90468	-0.30345	63.09996	0.97145	188.93	-2.13
97/ 7/12	2450642.0	-60.69876	-15.84235	-4.37775	0.28824	-0.88234	-0.29756	62.88469	0.97476	194.63	-3.99
97/ 7/13	2450642.5	-58.39309	-21.71312	-6.36325	0.39216	-0.84951	-0.28816	62.62351	0.97902	200.40	-5.83
97/ 7/13	2450643.0	-55.39386	-27.32606	-8.27320	0.49286	-0.80622	-0.27526	62.31885	0.98421	206.26	-7.63
97/ 7/14	2450643.5	-51.72665	-32.61085	-10.08397	0.58922	-0.75263	-0.25888	61.97419	0.99028	212.23	-9.36
97/ 7/14	2450644.0	-47.42484	-37.49832	-11.77218	0.68005	-0.68894	-0.23907	61.59402	0.99713	218.33	-11.02
97/ 7/15	2450644.5	-42.52997	-41.92113	-13.31491	0.76414	-0.61549	-0.21594	61.18387	1.00467	224.59	-12.57
97/ 7/15	2450645.0	-37.09203	-45.81461	-14.69003	0.84020	-0.53272	-0.18960	60.75026	1.01276	231.01	-13.99
97/ 7/16	2450645.5	-31.16970	-49.11767	-15.87644	0.90696	-0.44126	-0.16025	60.30055	1.02125	237.60	-15.27
97/ 7/16	2450646.0	-24.83049	-51.77400	-16.85449	0.96309	-0.34190	-0.12812	59.84291	1.02997	244.38	-16.36
97/ 7/17	2450646.5	-18.15068	-53.73334	-17.60641	1.00732	-0.23563	-0.09353	59.38607	1.03874	251.34	-17.25
97/ 7/17	2450647.0	-11.21499	-54.95296	-18.11677	1.03845	-0.12368	-0.05686	58.93913	1.04734	258.47	-17.90
97/ 7/18	2450647.5	-4.11598	-55.39916	-18.37302	1.05539	-0.00751	-0.01858	58.51134	1.05558	265.75	-18.30
97/ 7/18	2450648.0	3.04701	-55.04890	-18.36602	1.05721	0.11121	0.02077	58.11175	1.06325	273.17	-18.42
97/ 7/19	2450648.5	10.16924	-53.89120	-18.09057	1.04326	0.23059	0.06058	57.74897	1.07016	280.69	-18.26
97/ 7/19	2450649.0	17.14250	-51.92853	-17.54584	1.01319	0.34856	0.10017	57.43078	1.07614	288.27	-17.79
97/ 7/20	2450649.5	23.85729	-49.17772	-16.73574	0.96698	0.46295	0.13882	57.16383	1.08104	295.88	-17.02
97/ 7/20	2450650.0	30.20550	-45.67053	-15.66914	0.90504	0.57155	0.17579	56.95342	1.08474	303.48	-15.97
97/ 7/21	2450650.5	36.08313	-41.45365	-14.35993	0.82819	0.67216	0.21035	56.80321	1.08717	311.04	-14.64

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/ 7/21	2450651.0	41.39312	-36.58810	-12.82684	0.73766	0.76277	0.24179	56.71515	1.08831	318.53	-13.07
97/ 7/22	2450651.5	46.04808	-31.14807	-11.09310	0.63506	0.84153	0.26950	56.68937	1.08816	325.92	-11.28
97/ 7/22	2450652.0	49.97262	-25.21912	-9.18591	0.52231	0.90691	0.29293	56.72431	1.08679	333.22	-9.32
97/ 7/23	2450652.5	53.10526	-18.89605	-7.13573	0.40160	0.95774	0.31166	56.81679	1.08429	340.41	-7.21
97/ 7/23	2450653.0	55.39982	-12.28038	-4.97546	0.27523	0.99321	0.32540	56.96230	1.08079	347.50	-5.01
97/ 7/24	2450653.5	56.82614	-5.47772	-2.73963	0.14561	1.01292	0.33396	57.15524	1.07645	354.49	-2.75
97/ 7/24	2450654.0	57.37019	1.40486	-0.46350	0.01509	1.01684	0.33730	57.38926	1.07143	1.40	-0.46
97/ 7/25	2450654.5	57.03373	8.26128	1.81780	-0.11404	1.00528	0.33550	57.65761	1.06590	8.24	1.81
97/ 7/25	2450655.0	55.83341	14.98871	4.06995	-0.23966	0.97888	0.32873	57.95339	1.06005	15.03	4.03
97/ 7/26	2450655.5	53.79957	21.48945	6.26012	-0.35986	0.93850	0.31725	58.26988	1.05401	21.77	6.17
97/ 7/26	2450656.0	50.97485	27.67247	8.35750	-0.47294	0.88525	0.30139	58.60075	1.04794	28.50	8.20
97/ 7/27	2450656.5	47.41260	33.45461	10.33375	-0.57743	0.82034	0.28155	58.94023	1.04195	35.21	10.10
97/ 7/27	2450657.0	43.17529	38.76148	12.16325	-0.67209	0.74514	0.25814	59.28324	1.03613	41.92	11.84
97/ 7/28	2450657.5	38.33294	43.52805	13.82340	-0.75594	0.66104	0.23161	59.62543	1.03056	48.63	13.41
97/ 7/28	2450658.0	32.96159	47.69900	15.29470	-0.82819	0.56950	0.20245	59.96323	1.02529	55.35	14.78
97/ 7/29	2450658.5	27.14184	51.22890	16.56084	-0.88827	0.47198	0.17111	60.29379	1.02033	62.08	15.94
97/ 7/29	2450659.0	20.95755	54.08219	17.60875	-0.93579	0.36994	0.13808	60.61493	1.01569	68.82	16.89
97/ 7/30	2450659.5	14.49459	56.23306	18.42853	-0.97054	0.26480	0.10383	60.92505	1.01136	75.55	17.61
97/ 7/30	2450660.0	7.83970	57.66525	19.01344	-0.99247	0.15794	0.06880	61.22298	1.00731	82.26	18.09
97/ 7/31	2450660.5	1.07945	58.37171	19.35978	-1.00168	0.05071	0.03345	61.50791	1.00352	88.94	18.35
97/ 7/31	2450661.0	-5.70070	58.35426	19.46680	-0.99840	-0.05561	-0.00180	61.77923	0.99995	95.58	18.37
97/ 8/ 1	2450661.5	-12.41729	57.62318	19.33655	-0.98298	-0.15982	-0.03654	62.03646	0.99656	102.16	18.16
97/ 8/ 1	2450662.0	-18.98964	56.19672	18.97380	-0.95589	-0.26077	-0.07040	62.27907	0.99332	108.67	17.74
97/ 8/ 2	2450662.5	-25.34057	54.10058	18.38579	-0.91770	-0.35740	-0.10300	62.50644	0.99021	115.10	17.11
97/ 8/ 2	2450663.0	-31.39708	51.36738	17.58214	-0.86906	-0.44873	-0.13402	62.71774	0.98721	121.43	16.28
97/ 8/ 3	2450663.5	-37.09084	48.03606	16.57461	-0.81071	-0.53388	-0.16316	62.91193	0.98433	127.67	15.28
97/ 8/ 3	2450664.0	-42.35875	44.15128	15.37694	-0.74345	-0.61204	-0.19012	63.08763	0.98156	133.81	14.11
97/ 8/ 4	2450664.5	-47.14330	39.76281	14.00465	-0.66813	-0.68251	-0.21468	63.24320	0.97893	139.85	12.79
97/ 8/ 4	2450665.0	-51.39292	34.92491	12.47482	-0.58564	-0.74466	-0.23661	63.37667	0.97646	145.80	11.35
97/ 8/ 5	2450665.5	-55.06224	29.69570	10.80591	-0.49693	-0.79798	-0.25572	63.48585	0.97421	151.66	9.80
97/ 8/ 5	2450666.0	-58.11230	24.13659	9.01757	-0.40293	-0.84201	-0.27185	63.56831	0.97224	157.44	8.16
97/ 8/ 6	2450666.5	-60.51063	18.31168	7.13043	-0.30464	-0.87641	-0.28488	63.62151	0.97060	163.16	6.43
97/ 8/ 6	2450667.0	-62.23139	12.28723	5.16595	-0.20302	-0.90089	-0.29468	63.64282	0.96936	168.83	4.66
97/ 8/ 7	2450667.5	-63.25540	6.13114	3.14622	-0.09906	-0.91525	-0.30118	63.62967	0.96861	174.46	2.83
97/ 8/ 7	2450668.0	-63.57014	-0.08749	1.09385	0.00626	-0.91935	-0.30431	63.57961	0.96842	180.08	0.99
97/ 8/ 8	2450668.5	-63.16979	-6.29885	-0.96823	0.11194	-0.91310	-0.30404	63.49044	0.96887	185.69	-0.87
97/ 8/ 8	2450669.0	-62.05527	-12.43277	-3.01684	0.21698	-0.89648	-0.30033	63.36033	0.97003	191.33	-2.73
97/ 8/ 9	2450669.5	-60.23425	-18.41915	-5.02872	0.32039	-0.86954	-0.29319	63.18796	0.97196	197.00	-4.56
97/ 8/ 9	2450670.0	-57.72124	-24.18832	-6.98064	0.42115	-0.83236	-0.28263	62.97258	0.97472	202.74	-6.36
97/ 8/10	2450670.5	-54.53767	-29.67148	-8.84953	0.51823	-0.78511	-0.26868	62.71418	0.97834	208.55	-8.11
97/ 8/10	2450671.0	-50.71206	-34.80109	-10.61262	0.61057	-0.72800	-0.25140	62.41359	0.98285	214.46	-9.79
97/ 8/11	2450671.5	-46.28012	-39.51134	-12.24761	0.69709	-0.66134	-0.23087	62.07253	0.98823	220.49	-11.38
97/ 8/11	2450672.0	-41.28498	-43.73874	-13.73281	0.77669	-0.58549	-0.20719	61.69374	0.99447	226.65	-12.86
97/ 8/12	2450672.5	-35.77738	-47.42275	-15.04739	0.84823	-0.50097	-0.18051	61.28100	1.00152	232.97	-14.21
97/ 8/12	2450673.0	-29.81579	-50.50652	-16.17159	0.91055	-0.40836	-0.15101	60.83922	1.00929	239.45	-15.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
97/ 8/13	2450673.5	-23.46659	-52.93785	-17.08705	0.96249	-0.30844	-0.11891	60.37437	1.01768	246.09	-16.44
97/ 8/13	2450674.0	-16.80401	-54.67021	-17.77715	1.00290	-0.20213	-0.08451	59.89352	1.02655	252.91	-17.27
97/ 8/14	2450674.5	-9.90997	-55.66396	-18.22740	1.03066	-0.09054	-0.04815	59.40473	1.03575	259.91	-17.87
97/ 8/14	2450675.0	-2.87377	-55.88768	-18.42587	1.04472	0.02502	-0.01024	58.91692	1.04507	267.06	-18.22
97/ 8/15	2450675.5	4.20868	-55.31959	-18.36373	1.04418	0.14300	0.02872	58.43968	1.05431	274.35	-18.31
97/ 8/15	2450676.0	11.23588	-53.94906	-18.03569	1.02830	0.26166	0.06818	57.98303	1.06326	281.76	-18.12
97/ 8/16	2450676.5	18.10218	-51.77801	-17.44054	0.99661	0.37905	0.10749	57.55713	1.07167	289.27	-17.64
97/ 8/16	2450677.0	24.69975	-48.82212	-16.58157	0.94894	0.49305	0.14596	57.17189	1.07931	296.84	-16.86
97/ 8/17	2450677.5	30.92084	-45.11182	-15.46693	0.88551	0.60145	0.18286	56.83662	1.08596	304.43	-15.79
97/ 8/17	2450678.0	36.66060	-40.69274	-14.10983	0.80695	0.70198	0.21743	56.55958	1.09143	312.02	-14.45
97/ 8/18	2450678.5	41.81995	-35.62561	-12.52856	0.71434	0.79246	0.24893	56.34764	1.09555	319.57	-12.85
97/ 8/18	2450679.0	46.30864	-29.98550	-10.74630	0.60920	0.87085	0.27667	56.20591	1.09821	327.08	-11.02
97/ 8/19	2450679.5	50.04817	-23.86041	-8.79070	0.49347	0.93541	0.30003	56.13747	1.09932	334.51	-9.01
97/ 8/19	2450680.0	52.97430	-17.34908	-6.69320	0.36941	0.98470	0.31850	56.14326	1.09889	341.87	-6.85
97/ 8/20	2450680.5	55.03901	-10.55841	-4.48822	0.23953	1.01777	0.33172	56.22203	1.09693	349.14	-4.58
97/ 8/20	2450681.0	56.21182	-3.60039	-2.21217	0.10648	1.03407	0.33946	56.37043	1.09356	356.34	-2.25
97/ 8/21	2450681.5	56.48026	3.41103	0.09759	-0.02708	1.03357	0.34167	56.58325	1.08891	3.46	0.10
97/ 8/21	2450682.0	55.84957	10.36305	2.40377	-0.15861	1.01663	0.33843	56.85372	1.08316	10.51	2.42
97/ 8/22	2450682.5	54.34179	17.14687	4.67009	-0.28571	0.98406	0.32995	57.17390	1.07650	17.51	4.69
97/ 8/22	2450683.0	51.99417	23.66011	6.86212	-0.40627	0.93694	0.31656	57.53506	1.06917	24.47	6.85
97/ 8/23	2450683.5	48.85737	29.80872	8.94795	-0.51847	0.87663	0.29866	57.92813	1.06136	31.39	8.89
97/ 8/23	2450684.0	44.99327	35.50844	10.89869	-0.62082	0.80465	0.27675	58.34402	1.05331	38.28	10.77
97/ 8/24	2450684.5	40.47285	40.68569	12.68882	-0.71211	0.72262	0.25132	58.77400	1.04520	45.15	12.47
97/ 8/24	2450685.0	35.37407	45.27802	14.29637	-0.79148	0.63221	0.22292	59.20988	1.03721	52.00	13.97
97/ 8/25	2450685.5	29.77995	49.23428	15.70300	-0.85830	0.53506	0.19208	59.64431	1.02950	58.83	15.26
97/ 8/25	2450686.0	23.77681	52.51438	16.89396	-0.91221	0.43281	0.15932	60.07081	1.02217	65.64	16.33
97/ 8/26	2450686.5	17.45274	55.08898	17.85802	-0.95306	0.32699	0.12516	60.48391	1.01533	72.42	17.17
97/ 8/26	2450687.0	10.89630	56.93899	18.58731	-0.98085	0.21908	0.09008	60.87911	1.00904	79.17	17.78
97/ 8/27	2450687.5	4.19544	58.05496	19.07716	-0.99574	0.11045	0.05453	61.25290	1.00333	85.87	18.15
97/ 8/27	2450688.0	-2.56344	58.43652	19.32591	-0.99804	0.00242	0.01895	61.60266	0.99822	92.51	18.28
97/ 8/28	2450688.5	-9.29627	58.09174	19.33472	-0.98812	-0.10383	-0.01626	61.92659	0.99369	99.09	18.19
97/ 8/28	2450689.0	-15.92191	57.03658	19.10740	-0.96647	-0.20718	-0.05072	62.22356	0.98973	105.60	17.88
97/ 8/29	2450689.5	-22.36279	55.29425	18.65022	-0.93366	-0.30658	-0.08408	62.49303	0.98629	112.02	17.36
97/ 8/29	2450690.0	-28.54530	52.89473	17.97174	-0.89029	-0.40109	-0.11601	62.73492	0.98334	118.35	16.65
97/ 8/30	2450690.5	-34.40032	49.87419	17.08264	-0.83707	-0.48982	-0.14622	62.94945	0.98081	124.60	15.75
97/ 8/30	2450691.0	-39.86352	46.27450	15.99557	-0.77472	-0.57198	-0.17443	63.13705	0.97866	130.74	14.68
97/ 8/31	2450691.5	-44.87578	42.14272	14.72495	-0.70404	-0.64683	-0.20038	63.29825	0.97684	136.80	13.45
97/ 8/31	2450692.0	-49.38350	37.53057	13.28688	-0.62587	-0.71373	-0.22384	63.43355	0.97531	142.77	12.09
97/ 9/ 1	2450692.5	-53.33885	32.49394	11.69889	-0.54109	-0.77209	-0.24461	63.54332	0.97403	148.65	10.61
97/ 9/ 1	2450693.0	-56.70010	27.09233	9.97984	-0.45059	-0.82142	-0.26252	63.62777	0.97298	154.46	9.02
97/ 9/ 2	2450693.5	-59.43177	21.38839	8.14973	-0.35534	-0.86130	-0.27739	63.68687	0.97214	160.21	7.35
97/ 9/ 2	2450694.0	-61.50490	15.44735	6.22952	-0.25629	-0.89139	-0.28910	63.72032	0.97151	165.90	5.61
97/ 9/ 3	2450694.5	-62.89712	9.33650	4.24096	-0.15444	-0.91141	-0.29755	63.72757	0.97111	171.56	3.82
97/ 9/ 3	2450695.0	-63.59286	3.12467	2.20645	-0.05079	-0.92118	-0.30266	63.70780	0.97096	177.19	1.98
97/ 9/ 4	2450695.5	-63.58338	-3.11831	0.14883	0.05364	-0.92059	-0.30437	63.65997	0.97109	182.81	0.13

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
97/ 9/ 4	2450696.0	-62.86680	-9.32211	-1.90880	0.15784	-0.90961	-0.30266	63.58286	0.97155	188.43	-1.72
97/ 9/ 5	2450696.5	-61.44818	-15.41643	-3.94317	0.26078	-0.88828	-0.29751	63.47514	0.97239	194.08	-3.56
97/ 9/ 5	2450697.0	-59.33948	-21.33146	-5.93109	0.36144	-0.85670	-0.28894	63.33547	0.97368	199.77	-5.37
97/ 9/ 6	2450697.5	-56.55957	-26.99839	-7.84956	0.45881	-0.81505	-0.27701	63.16260	0.97547	205.52	-7.14
97/ 9/ 6	2450698.0	-53.13427	-32.34991	-9.67594	0.55186	-0.76360	-0.26176	62.95547	0.97783	211.33	-8.84
97/ 9/ 7	2450698.5	-49.09626	-37.32067	-11.38811	0.63956	-0.70268	-0.24330	62.71335	0.98081	217.24	-10.46
97/ 9/ 7	2450699.0	-44.48516	-41.84784	-12.96466	0.72092	-0.63269	-0.22174	62.43600	0.98447	223.25	-11.98
97/ 9/ 8	2450699.5	-39.34746	-45.87162	-14.38504	0.79490	-0.55412	-0.19721	62.12373	0.98884	229.38	-13.39
97/ 9/ 8	2450700.0	-33.73651	-49.33587	-15.62979	0.86049	-0.46757	-0.16990	61.77759	0.99395	235.64	-14.66
97/ 9/ 9	2450700.5	-27.71250	-52.18871	-16.68072	0.91670	-0.37370	-0.14002	61.39944	0.99980	242.03	-15.76
97/ 9/ 9	2450701.0	-21.34241	-54.38329	-17.52117	0.96253	-0.27333	-0.10780	60.99207	1.00637	248.57	-16.69
97/ 9/10	2450701.5	-14.69983	-55.87858	-18.13628	0.99701	-0.16737	-0.07353	60.55927	1.01363	255.26	-17.43
97/ 9/10	2450702.0	-7.86478	-56.64031	-18.51329	1.01921	-0.05690	-0.03755	60.10592	1.02149	262.09	-17.94
97/ 9/11	2450702.5	-0.92334	-56.64197	-18.64189	1.02829	0.05685	-0.00024	59.63795	1.02986	269.07	-18.22
97/ 9/11	2450703.0	6.03292	-55.86595	-18.51458	1.02347	0.17249	0.03794	59.16241	1.03860	276.16	-18.24
97/ 9/12	2450703.5	12.90774	-54.30468	-18.12711	1.00415	0.28845	0.07650	58.68731	1.04755	283.37	-17.99
97/ 9/12	2450704.0	19.60123	-51.96181	-17.47882	0.96988	0.40299	0.11486	58.22154	1.05653	290.67	-17.47
97/ 9/13	2450704.5	26.01139	-48.85335	-16.57310	0.92047	0.51420	0.15240	57.77465	1.06531	298.03	-16.67
97/ 9/13	2450705.0	32.03587	-45.00864	-15.41773	0.85604	0.62005	0.18847	57.35661	1.07368	305.44	-15.59
97/ 9/14	2450705.5	37.57422	-40.47100	-14.02511	0.77703	0.71846	0.22234	56.97743	1.08138	312.87	-14.25
97/ 9/14	2450706.0	42.53040	-35.29811	-12.41246	0.68431	0.80729	0.25332	56.64681	1.08820	320.31	-12.66
97/ 9/15	2450706.5	46.81561	-29.56171	-10.60176	0.57914	0.88453	0.28071	56.37369	1.09389	327.73	-10.84
97/ 9/15	2450707.0	50.35111	-23.34678	-8.61955	0.46324	0.94831	0.30387	56.16585	1.09828	335.12	-8.83
97/ 9/16	2450707.5	53.07101	-16.75004	-6.49646	0.33868	0.99704	0.32223	56.02946	1.10119	342.48	-6.66
97/ 9/16	2450708.0	54.92474	-9.87774	-4.26655	0.20789	1.02951	0.33535	55.96874	1.10253	349.80	-4.37
97/ 9/17	2450708.5	55.87894	-2.84289	-1.96644	0.07351	1.04495	0.34292	55.98576	1.10223	357.09	-2.01
97/ 9/17	2450709.0	55.91868	4.23789	0.36575	-0.06168	1.04307	0.34481	56.08023	1.10031	4.33	0.37
97/ 9/18	2450709.5	55.04777	11.24773	2.69144	-0.19494	1.02408	0.34102	56.24956	1.09683	11.55	2.74
97/ 9/18	2450710.0	53.28837	18.07283	4.97275	-0.32363	0.98867	0.33174	56.48899	1.09190	18.73	5.05
97/ 9/19	2450710.5	50.67964	24.60550	7.17346	-0.44536	0.93794	0.31729	56.79186	1.08570	25.90	7.26
97/ 9/19	2450711.0	47.27593	30.74668	9.25995	-0.55807	0.87333	0.29809	57.14997	1.07843	33.04	9.32
97/ 9/20	2450711.5	43.14440	36.40796	11.20184	-0.66003	0.79653	0.27468	57.55398	1.07030	40.16	11.22
97/ 9/20	2450712.0	38.36248	41.51294	12.97252	-0.74993	0.70937	0.24763	57.99389	1.06157	47.26	12.93
97/ 9/21	2450712.5	33.01528	45.99794	14.54942	-0.82683	0.61377	0.21756	58.45942	1.05247	54.33	14.41
97/ 9/21	2450713.0	27.19307	49.81219	15.91414	-0.89013	0.51162	0.18508	58.94045	1.04323	61.37	15.66
97/ 9/22	2450713.5	20.98910	52.91763	17.05238	-0.93954	0.40476	0.15078	59.42728	1.03407	68.36	16.68
97/ 9/22	2450714.0	14.49758	55.28832	17.95385	-0.97505	0.29493	0.11525	59.91092	1.02518	75.31	17.44
97/ 9/23	2450714.5	7.81215	56.90966	18.61197	-0.99685	0.18374	0.07901	60.38331	1.01672	82.18	17.95
97/ 9/23	2450715.0	1.02452	57.77748	19.02367	-1.00530	0.07266	0.04256	60.83738	1.00882	88.98	18.22
97/ 9/24	2450715.5	-5.77647	57.89716	19.18904	-1.00089	-0.03697	0.00635	61.26719	1.00159	95.70	18.25
97/ 9/24	2450716.0	-12.50567	57.28266	19.11108	-0.98420	-0.14395	-0.02923	61.66789	0.99510	102.32	18.05
97/ 9/25	2450716.5	-19.08214	55.95569	18.79543	-0.95590	-0.24719	-0.06379	62.03576	0.98940	108.83	17.64
97/ 9/25	2450717.0	-25.42956	53.94491	18.25009	-0.91669	-0.34572	-0.09700	62.36811	0.98451	115.24	17.01
97/ 9/26	2450717.5	-31.47654	51.28520	17.48521	-0.86731	-0.43867	-0.12857	62.66320	0.98041	121.54	16.20
97/ 9/26	2450718.0	-37.15689	48.01706	16.51287	-0.80855	-0.52526	-0.15822	62.92017	0.97708	127.73	15.21

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	MOON R(ER)	V(KM/SEC)	RA	DEC
97/ 9/27	2450718.5	-42.40973	44.18603	15.34692	-0.74121	-0.60478	-0.18570	63.13889	0.97449	133.82	14.07
97/ 9/27	2450719.0	-47.17972	39.84219	14.00283	-0.66611	-0.67659	-0.21079	63.31987	0.97258	139.82	12.78
97/ 9/28	2450719.5	-51.41720	35.03968	12.49749	-0.58411	-0.74013	-0.23328	63.46412	0.97128	145.73	11.36
97/ 9/28	2450720.0	-55.07834	29.83631	10.84911	-0.49607	-0.79489	-0.25299	63.57305	0.97054	151.56	9.83
97/ 9/29	2450720.5	-58.12536	24.29308	9.07710	-0.40291	-0.84042	-0.26977	63.64829	0.97027	157.32	8.20
97/ 9/29	2450721.0	-60.52667	18.47380	7.20188	-0.30556	-0.87634	-0.28345	63.69165	0.97041	163.03	6.49
97/ 9/30	2450721.5	-62.25706	12.44462	5.24478	-0.20496	-0.90235	-0.29392	63.70493	0.97089	168.70	4.72
97/ 9/30	2450722.0	-63.29790	6.27362	3.22789	-0.10210	-0.91819	-0.30109	63.68989	0.97168	174.34	2.91
97/10/ 1	2450722.5	-63.63729	0.03029	1.17390	0.00201	-0.92369	-0.30487	63.64812	0.97270	179.97	1.06
97/10/ 1	2450723.0	-63.27020	-6.21497	-0.89406	0.10634	-0.91875	-0.30521	63.58100	0.97394	185.61	-0.81
97/10/ 2	2450723.5	-62.19866	-12.39133	-2.95260	0.20985	-0.90335	-0.30208	63.48965	0.97536	191.27	-2.67
97/10/ 2	2450724.0	-60.43177	-18.42816	-4.97824	0.31150	-0.87756	-0.29550	63.37490	0.97697	196.96	-4.51
97/10/ 3	2450724.5	-57.98579	-24.25557	-6.94762	0.41021	-0.84154	-0.28548	63.23728	0.97875	202.70	-6.31
97/10/ 3	2450725.0	-54.88414	-29.80498	-8.83766	0.50493	-0.79552	-0.27208	63.07702	0.98074	208.50	-8.05
97/10/ 4	2450725.5	-51.15738	-35.00979	-10.62580	0.59463	-0.73984	-0.25540	62.89413	0.98294	214.39	-9.73
97/10/ 4	2450726.0	-46.84312	-39.80595	-12.29017	0.67825	-0.67493	-0.23556	62.68843	0.98541	220.36	-11.31
97/10/ 5	2450726.5	-41.98587	-44.13258	-13.80982	0.75480	-0.60129	-0.21270	62.45966	0.98819	226.43	-12.77
97/10/ 5	2450727.0	-36.63693	-47.93266	-15.16495	0.82328	-0.51955	-0.18701	62.20756	0.99131	232.61	-14.11
97/10/ 6	2450727.5	-30.85414	-51.15366	-16.33707	0.88276	-0.43042	-0.15870	61.93202	0.99484	238.90	-15.30
97/10/ 6	2450728.0	-24.70161	-53.74817	-17.30931	0.93232	-0.33470	-0.12802	61.63317	0.99881	245.32	-16.31
97/10/ 7	2450728.5	-18.24941	-55.67462	-18.06658	0.97111	-0.23330	-0.09527	61.31154	1.00327	251.85	-17.14
97/10/ 7	2450729.0	-11.57321	-56.89794	-18.59583	0.99834	-0.12725	-0.06075	60.96818	1.00825	258.50	-17.76
97/10/ 8	2450729.5	-4.75380	-57.39030	-18.88630	1.01329	-0.01766	-0.02482	60.60477	1.01374	265.26	-18.16
97/10/ 8	2450730.0	2.12347	-57.13189	-18.92980	1.01532	0.09424	0.01211	60.22374	1.01976	272.13	-18.32
97/10/ 9	2450730.5	8.96931	-56.11164	-18.72094	1.00393	0.20707	0.04962	59.82840	1.02626	279.08	-18.23
97/10/ 9	2450731.0	15.69134	-54.32805	-18.25743	0.97871	0.31939	0.08722	59.42297	1.03320	286.11	-17.89
97/10/10	2450731.5	22.19508	-51.78999	-17.54036	0.93945	0.42959	0.12440	59.01262	1.04047	293.20	-17.29
97/10/10	2450732.0	28.38515	-48.51738	-16.57448	0.88610	0.53600	0.16060	58.60347	1.04798	300.33	-16.43
97/10/11	2450732.5	34.16673	-44.54190	-15.36841	0.81888	0.63685	0.19523	58.20253	1.05558	307.49	-15.31
97/10/11	2450733.0	39.44728	-39.90742	-13.93485	0.73825	0.73029	0.22767	57.81756	1.06310	314.67	-13.95
97/10/12	2450733.5	44.13844	-34.67028	-12.29072	0.64499	0.81450	0.25731	57.45687	1.07035	321.85	-12.35
97/10/12	2450734.0	48.15827	-28.89920	-10.45713	0.54022	0.88767	0.28352	57.12910	1.07712	329.03	-10.55
97/10/13	2450734.5	51.43349	-22.67475	-8.45932	0.42539	0.94811	0.30571	56.84284	1.08320	336.21	-8.56
97/10/13	2450735.0	53.90193	-16.08841	-6.32633	0.30231	0.99430	0.32335	56.60633	1.08839	343.38	-6.42
97/10/14	2450735.5	55.51470	-9.24101	-4.09053	0.17310	1.02502	0.33600	56.42703	1.09248	350.55	-4.16
97/10/14	2450736.0	56.23825	-2.24064	-1.78705	0.04015	1.03935	0.34329	56.31123	1.09532	357.72	-1.82
97/10/15	2450736.5	56.05591	4.79985	0.54714	-0.09396	1.03682	0.34504	56.26369	1.09676	4.89	0.56
97/10/15	2450737.0	54.96881	11.76584	2.87409	-0.22658	1.01739	0.34116	56.28735	1.09673	12.08	2.93
97/10/16	2450737.5	52.99611	18.54404	5.15595	-0.35504	0.98148	0.33175	56.38309	1.09518	19.29	5.25
97/10/16	2450738.0	50.17447	25.02555	7.35600	-0.47686	0.92996	0.31705	56.54968	1.09213	26.51	7.47
97/10/17	2450738.5	46.55673	31.10885	9.43962	-0.58977	0.86413	0.29744	56.78377	1.08767	33.75	9.57
97/10/17	2450739.0	42.21002	36.70221	11.37516	-0.69183	0.78558	0.27342	57.08005	1.08191	41.01	11.50
97/10/18	2450739.5	37.21332	41.72563	13.13461	-0.78148	0.69615	0.24555	57.43150	1.07501	48.27	13.22
97/10/18	2450740.0	31.65484	46.11218	14.69411	-0.85756	0.59785	0.21448	57.82974	1.06717	55.53	14.72
97/10/19	2450740.5	25.62924	49.80867	16.03419	-0.91932	0.49272	0.18087	58.26540	1.05861	62.77	15.97

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM							MOON		
97/10/19	2450741.0	19.23500	52.77572	17.13991	-0.96639	0.38279	0.14538	58.72851	1.04955	69.97	16.97
97/10/20	2450741.5	12.57201	54.98739	18.00070	-0.99870	0.26998	0.10865	59.20890	1.04024	77.12	17.70
97/10/20	2450742.0	5.73948	56.43044	18.61023	-1.01651	0.15610	0.07128	59.69655	1.03089	84.19	18.16
97/10/21	2450742.5	-1.16573	57.10327	18.96606	-1.02026	0.04280	0.03382	60.18184	1.02172	91.17	18.37
97/10/21	2450743.0	-8.05048	57.01480	19.06928	-1.01058	-0.06847	-0.00323	60.65587	1.01290	98.04	18.32
97/10/22	2450743.5	-14.82628	56.18328	18.92418	-0.98822	-0.17642	-0.03944	61.11059	1.00462	104.78	18.04
97/10/22	2450744.0	-21.41000	54.63515	18.53784	-0.95400	-0.27991	-0.07441	61.53893	0.99700	111.40	17.53
97/10/23	2450744.5	-27.72431	52.40396	17.91983	-0.90881	-0.37797	-0.10780	61.93491	0.99016	117.88	16.82
97/10/23	2450745.0	-33.69789	49.52943	17.08186	-0.85354	-0.46975	-0.13931	62.29368	0.98418	124.23	15.92
97/10/24	2450745.5	-39.26561	46.05660	16.03752	-0.78911	-0.55453	-0.16870	62.61150	0.97911	130.45	14.84
97/10/24	2450746.0	-44.36854	42.03510	14.80204	-0.71644	-0.63167	-0.19572	62.88575	0.97499	136.55	13.61
97/10/25	2450746.5	-48.95394	37.51858	13.39212	-0.63645	-0.70062	-0.22018	63.11482	0.97181	142.53	12.25
97/10/25	2450747.0	-52.97528	32.56414	11.82571	-0.55003	-0.76091	-0.24190	63.29811	0.96955	148.42	10.77
97/10/26	2450747.5	-56.39220	27.23191	10.12191	-0.45812	-0.81211	-0.26073	63.43588	0.96818	154.22	9.18
97/10/26	2450748.0	-59.17056	21.58467	8.30080	-0.36162	-0.85387	-0.27652	63.52917	0.96764	159.96	7.51
97/10/27	2450748.5	-61.28244	15.68748	6.38336	-0.26147	-0.88588	-0.28915	63.57972	0.96786	165.64	5.76
97/10/27	2450749.0	-62.70629	9.60732	4.39135	-0.15861	-0.90786	-0.29852	63.58981	0.96876	171.29	3.96
97/10/28	2450749.5	-63.42706	3.41277	2.34718	-0.05402	-0.91963	-0.30454	63.56216	0.97024	176.92	2.12
97/10/28	2450750.0	-63.43630	-2.82640	0.27380	0.05133	-0.92102	-0.30714	63.49983	0.97224	182.55	0.25
97/10/29	2450750.5	-62.73239	-9.03963	-1.80544	0.15640	-0.91196	-0.30626	63.40605	0.97464	188.20	-1.63
97/10/29	2450751.0	-61.32070	-15.15605	-3.86690	0.26016	-0.89243	-0.30189	63.28417	0.97737	193.88	-3.50
97/10/30	2450751.5	-59.21374	-21.10497	-5.88690	0.36153	-0.86252	-0.29402	63.13748	0.98035	199.62	-5.35
97/10/30	2450752.0	-56.43134	-26.81650	-7.84183	0.45943	-0.82237	-0.28268	62.96916	0.98350	205.42	-7.15
97/10/31	2450752.5	-53.00071	-32.22217	-9.70839	0.55276	-0.77225	-0.26794	62.78213	0.98677	211.30	-8.90
97/10/31	2450753.0	-48.95650	-37.25561	-11.46383	0.64043	-0.71252	-0.24989	62.57906	0.99009	217.27	-10.56
97/11/ 1	2450753.5	-44.34076	-41.85329	-13.08618	0.72135	-0.64366	-0.22866	62.36224	0.99345	223.35	-12.11
97/11/ 1	2450754.0	-39.20277	-45.95530	-14.55451	0.79447	-0.56626	-0.20444	62.13357	0.99681	229.53	-13.55
97/11/ 2	2450754.5	-33.59889	-49.50615	-15.84919	0.85876	-0.48104	-0.17743	61.89460	1.00018	235.84	-14.84
97/11/ 2	2450755.0	-27.59217	-52.45554	-16.95219	0.91327	-0.38881	-0.14788	61.64648	1.00355	242.26	-15.96
97/11/ 3	2450755.5	-21.25193	-54.75919	-17.84732	0.95711	-0.29052	-0.11610	61.39006	1.00694	248.79	-16.90
97/11/ 3	2450756.0	-14.65322	-56.37957	-18.52052	0.98947	-0.18723	-0.08241	61.12595	1.01040	255.43	-17.64
97/11/ 4	2450756.5	-7.87615	-57.28667	-18.96010	1.00967	-0.08009	-0.04718	60.85460	1.01394	262.17	-18.15
97/11/ 4	2450757.0	-1.00515	-57.45868	-19.15703	1.01712	0.02962	-0.01082	60.57641	1.01761	269.00	-18.44
97/11/ 5	2450757.5	5.87187	-56.88257	-19.10508	1.01139	0.14058	0.02623	60.29188	1.02145	275.89	-18.47
97/11/ 5	2450758.0	12.66454	-55.55475	-18.80114	0.99218	0.25136	0.06351	60.00170	1.02549	282.84	-18.26
97/11/ 6	2450758.5	19.28103	-53.48147	-18.24532	0.95935	0.36046	0.10053	59.70692	1.02976	289.83	-17.79
97/11/ 6	2450759.0	25.62920	-50.67927	-17.44114	0.91297	0.46634	0.13677	59.40907	1.03426	296.83	-17.07
97/11/ 7	2450759.5	31.61789	-47.17530	-16.39567	0.85326	0.56742	0.17169	59.11022	1.03899	303.83	-16.10
97/11/ 7	2450760.0	37.15830	-43.00749	-15.11962	0.78068	0.66211	0.20476	58.81314	1.04392	310.83	-14.90
97/11/ 8	2450760.5	42.16539	-38.22455	-13.62739	0.69591	0.74880	0.23544	58.52130	1.04901	317.81	-13.47
97/11/ 8	2450761.0	46.55953	-32.88591	-11.93701	0.59986	0.82595	0.26318	58.23886	1.05417	324.77	-11.83
97/11/ 9	2450761.5	50.26810	-27.06127	-10.07014	0.49368	0.89207	0.28747	57.97070	1.05931	331.70	-10.00
97/11/ 9	2450762.0	53.22718	-20.83007	-8.05182	0.37880	0.94579	0.30782	57.72224	1.06431	338.63	-8.02
97/11/10	2450762.5	55.38331	-14.28049	-5.91029	0.25687	0.98590	0.32379	57.49935	1.06903	345.54	-5.90
97/11/10	2450763.0	56.69505	-7.50826	-3.67651	0.12979	1.01139	0.33501	57.30811	1.07330	352.46	-3.68

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
97/11/11	2450763.5	57.13452	-0.61507	-1.38375	-0.00034	1.02152	0.34117	57.15459	1.07698	359.38	-1.39
97/11/11	2450764.0	56.68863	6.29341	0.93307	-0.13127	1.01585	0.34209	57.04453	1.07991	6.33	0.94
97/11/12	2450764.5	55.35992	13.10968	3.23809	-0.26063	0.99431	0.33768	56.98307	1.08194	13.32	3.26
97/11/12	2450765.0	53.16702	19.72693	5.49531	-0.38606	0.95716	0.32799	56.97440	1.08295	20.36	5.53
97/11/13	2450765.5	50.14452	26.04158	7.66946	-0.50523	0.90509	0.31319	57.02154	1.08284	27.44	7.73
97/11/13	2450766.0	46.34225	31.95579	9.72685	-0.61597	0.83912	0.29357	57.12607	1.08154	34.59	9.80
97/11/14	2450766.5	41.82409	37.37989	11.63621	-0.71633	0.76062	0.26955	57.28797	1.07904	41.79	11.72
97/11/14	2450767.0	36.66616	42.23439	13.36939	-0.80464	0.67121	0.24164	57.50558	1.07534	49.04	13.44
97/11/15	2450767.5	30.95469	46.45163	14.90194	-0.87960	0.57276	0.21041	57.77556	1.07052	56.32	14.95
97/11/15	2450768.0	24.78356	49.97696	16.21359	-0.94025	0.46723	0.17652	58.09305	1.06468	63.62	16.21
97/11/16	2450768.5	18.25177	52.76927	17.28847	-0.98603	0.35664	0.14061	58.45181	1.05793	70.92	17.20
97/11/16	2450769.0	11.46097	54.80108	18.11517	-1.01673	0.24299	0.10334	58.84447	1.05046	78.19	17.93
97/11/17	2450769.5	4.51314	56.05821	18.68672	-1.03245	0.12819	0.06536	59.26285	1.04243	85.40	18.38
97/11/17	2450770.0	-2.49150	56.53896	19.00032	-1.03358	0.01401	0.02727	59.69818	1.03404	92.52	18.56
97/11/18	2450770.5	-9.45611	56.25308	19.05709	-1.02075	-0.09793	-0.01039	60.14150	1.02549	99.54	18.47
97/11/18	2450771.0	-16.28868	55.22063	18.86164	-0.99473	-0.20622	-0.04713	60.58383	1.01698	106.43	18.14
97/11/19	2450771.5	-22.90293	53.47069	18.42175	-0.95644	-0.30962	-0.08251	61.01655	1.00869	113.19	17.57
97/11/19	2450772.0	-29.21908	51.04007	17.74788	-0.90687	-0.40706	-0.11616	61.43151	1.00080	119.79	16.79
97/11/20	2450772.5	-35.16416	47.97219	16.85287	-0.84705	-0.49766	-0.14777	61.82127	0.99347	126.24	15.82
97/11/20	2450773.0	-40.67232	44.31597	15.75151	-0.77802	-0.58068	-0.17705	62.17920	0.98684	132.55	14.67
97/11/21	2450773.5	-45.68478	40.12488	14.46030	-0.70085	-0.65551	-0.20379	62.49964	0.98102	138.71	13.38
97/11/21	2450774.0	-50.14981	35.45618	12.99712	-0.61654	-0.72164	-0.22780	62.77793	0.97611	144.74	11.95
97/11/22	2450774.5	-54.02259	30.37018	11.38106	-0.52613	-0.77867	-0.24892	63.01045	0.97216	150.66	10.41
97/11/22	2450775.0	-57.26511	24.92974	9.63218	-0.43059	-0.82625	-0.26700	63.19465	0.96922	156.47	8.77
97/11/23	2450775.5	-59.84598	19.19979	7.77139	-0.33091	-0.86412	-0.28194	63.32904	0.96731	162.21	7.05
97/11/23	2450776.0	-61.74036	13.24694	5.82032	-0.22804	-0.89204	-0.29365	63.41316	0.96642	167.89	5.27
97/11/24	2450776.5	-62.92990	7.13914	3.80120	-0.12294	-0.90985	-0.30203	63.44753	0.96652	173.53	3.43
97/11/24	2450777.0	-63.40275	0.94542	1.73675	-0.01656	-0.91740	-0.30702	63.43358	0.96755	179.15	1.57
97/11/25	2450777.5	-63.15358	-5.26445	-0.34987	0.09011	-0.91460	-0.30857	63.37358	0.96945	184.77	-0.32
97/11/25	2450778.0	-62.18371	-11.42024	-2.43522	0.19609	-0.90143	-0.30664	63.27058	0.97213	190.41	-2.21
97/11/26	2450778.5	-60.50128	-17.45164	-4.49565	0.30035	-0.87788	-0.30121	63.12825	0.97550	196.09	-4.08
97/11/26	2450779.0	-58.12141	-23.28864	-6.50742	0.40186	-0.84404	-0.29228	62.95082	0.97945	201.84	-5.93
97/11/27	2450779.5	-55.06639	-28.86204	-8.44693	0.49954	-0.80007	-0.27987	62.74293	0.98386	207.66	-7.74
97/11/27	2450780.0	-51.36591	-34.10402	-10.29079	0.59228	-0.74622	-0.26405	62.50953	0.98862	213.58	-9.48
97/11/28	2450780.5	-47.05716	-38.94877	-12.01616	0.67896	-0.68284	-0.24490	62.25569	0.99360	219.61	-11.13
97/11/28	2450781.0	-42.18495	-43.33329	-13.60090	0.75847	-0.61041	-0.22255	61.98652	0.99870	225.77	-12.67
97/11/29	2450781.5	-36.80170	-47.19820	-15.02390	0.82969	-0.52952	-0.19717	61.70699	1.00382	232.06	-14.09
97/11/29	2450782.0	-30.96731	-50.48866	-16.26538	0.89152	-0.44091	-0.16899	61.42183	1.00884	238.48	-15.36
97/11/30	2450782.5	-24.74884	-53.15532	-17.30722	0.94293	-0.34548	-0.13826	61.13537	1.01370	245.03	-16.45
97/11/30	2450783.0	-18.22013	-55.15535	-18.13329	0.98298	-0.24424	-0.10533	60.85148	1.01833	251.72	-17.34
97/12/ 1	2450783.5	-11.46114	-56.45337	-18.72980	1.01081	-0.13838	-0.07054	60.57347	1.02267	258.52	-18.01
97/12/ 1	2450784.0	-4.55709	-57.02238	-19.08563	1.02571	-0.02920	-0.03433	60.30406	1.02670	265.43	-18.45
97/12/ 2	2450784.5	2.40250	-56.84463	-19.19264	1.02713	0.08188	0.00285	60.04533	1.03039	272.42	-18.64
97/12/ 2	2450785.0	9.32499	-55.91234	-19.04593	1.01471	0.19335	0.04051	59.79876	1.03376	279.47	-18.57
97/12/ 3	2450785.5	16.11598	-54.22821	-18.64408	0.98829	0.30362	0.07810	59.56530	1.03682	286.55	-18.24

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
97/12/ 3	2450786.0	22.68072	-51.80585	-17.98928	0.94792	0.41107	0.11511	59.34539	1.03961	293.64	-17.65
97/12/ 4	2450786.5	28.92561	-48.66997	-17.08748	0.89391	0.51405	0.15095	59.13915	1.04217	300.72	-16.79
97/12/ 4	2450787.0	34.75984	-44.85630	-15.94837	0.82676	0.61095	0.18509	58.94645	1.04454	307.77	-15.70
97/12/ 5	2450787.5	40.09687	-40.41137	-14.58534	0.74724	0.70020	0.21698	58.76708	1.04677	314.78	-14.37
97/12/ 5	2450788.0	44.85604	-35.39207	-13.01544	0.65631	0.78032	0.24610	58.60089	1.04891	321.73	-12.83
97/12/ 6	2450788.5	48.96405	-29.86498	-11.25908	0.55517	0.84993	0.27196	58.44794	1.05098	328.62	-11.11
97/12/ 6	2450789.0	52.35635	-23.90549	-9.33989	0.44521	0.90781	0.29411	58.30861	1.05301	335.46	-9.22
97/12/ 7	2450789.5	54.97846	-17.59678	-7.28435	0.32801	0.95289	0.31216	58.18367	1.05501	342.25	-7.19
97/12/ 7	2450790.0	56.78712	-11.02857	-5.12138	0.20531	0.98431	0.32578	58.07439	1.05696	349.01	-5.06
97/12/ 8	2450790.5	57.75130	-4.29574	-2.88197	0.07896	1.00142	0.33470	57.98251	1.05882	355.75	-2.85
97/12/ 8	2450791.0	57.85298	2.50325	-0.59865	-0.04904	1.00380	0.33873	57.91021	1.06054	2.48	-0.59
97/12/ 9	2450791.5	57.08781	9.26798	1.69509	-0.17667	0.99130	0.33776	57.86006	1.06206	9.22	1.68
97/12/ 9	2450792.0	55.46537	15.89795	3.96534	-0.30184	0.96405	0.33180	57.83491	1.06329	15.99	3.93
97/12/10	2450792.5	53.00926	22.29440	6.17843	-0.42251	0.92244	0.32090	57.83766	1.06413	22.81	6.13
97/12/10	2450793.0	49.75681	28.36226	8.30156	-0.53667	0.86715	0.30527	57.87118	1.06450	29.68	8.25
97/12/11	2450793.5	45.75845	34.01202	10.30346	-0.64247	0.79916	0.28516	57.93802	1.06430	36.62	10.24
97/12/11	2450794.0	41.07675	39.16155	12.15501	-0.73819	0.71966	0.26094	58.04025	1.06345	43.63	12.09
97/12/12	2450794.5	35.78512	43.73767	13.82983	-0.82235	0.63009	0.23305	58.17923	1.06188	50.71	13.75
97/12/12	2450795.0	29.96621	47.67758	15.30473	-0.89371	0.53207	0.20200	58.35547	1.05954	57.85	15.20
97/12/13	2450795.5	23.71006	50.92996	16.56022	-0.95133	0.42736	0.16835	58.56849	1.05642	65.04	16.42
97/12/13	2450796.0	17.11206	53.45563	17.58069	-0.99457	0.31779	0.13270	58.81673	1.05251	72.25	17.39
97/12/14	2450796.5	10.27092	55.22800	18.35469	-1.02310	0.20523	0.09567	59.09753	1.04786	79.46	18.09
97/12/14	2450797.0	3.28656	56.23297	18.87491	-1.03688	0.09149	0.05787	59.40716	1.04252	86.66	18.53
97/12/15	2450797.5	-3.74181	56.46863	19.13812	-1.03616	-0.02166	0.01988	59.74090	1.03658	93.79	18.68
97/12/15	2450798.0	-10.71752	55.94455	19.14501	-1.02143	-0.13260	-0.01773	60.09317	1.03015	100.84	18.58
97/12/16	2450798.5	-17.54788	54.68086	18.89991	-0.99337	-0.23983	-0.05445	60.45768	1.02336	107.79	18.22
97/12/16	2450799.0	-24.14548	52.70725	18.41046	-0.95285	-0.34203	-0.08982	60.82766	1.01636	114.61	17.62
97/12/17	2450799.5	-30.42917	50.06172	17.68726	-0.90085	-0.43806	-0.12341	61.19599	1.00928	121.29	16.80
97/12/17	2450800.0	-36.32468	46.78944	16.74348	-0.83841	-0.52696	-0.15490	61.55549	1.00230	127.82	15.78
97/12/18	2450800.5	-41.76511	42.94159	15.59448	-0.76665	-0.60790	-0.18397	61.89905	0.99556	134.20	14.59
97/12/18	2450801.0	-46.69112	38.57427	14.25747	-0.68669	-0.68026	-0.21038	62.21985	0.98922	140.44	13.25
97/12/19	2450801.5	-51.05099	33.74750	12.75116	-0.59966	-0.74350	-0.23393	62.51151	0.98342	146.53	11.77
97/12/19	2450802.0	-54.80058	28.52438	11.09549	-0.50666	-0.79724	-0.25446	62.76825	0.97828	152.50	10.18
97/12/20	2450802.5	-57.90311	22.97039	9.31137	-0.40877	-0.84117	-0.27184	62.98500	0.97393	158.36	8.50
97/12/20	2450803.0	-60.32901	17.15268	7.42051	-0.30703	-0.87508	-0.28597	63.15749	0.97047	164.13	6.75
97/12/21	2450803.5	-62.05573	11.13968	5.44516	-0.20247	-0.89882	-0.29677	63.28235	0.96796	169.82	4.94
97/12/21	2450804.0	-63.06752	5.00061	3.40808	-0.09608	-0.91229	-0.30419	63.35719	0.96646	175.47	3.08
97/12/22	2450804.5	-63.35531	-1.19485	1.33231	0.01116	-0.91546	-0.30819	63.38058	0.96601	181.08	1.20
97/12/22	2450805.0	-62.91659	-7.37682	-0.75882	0.11829	-0.90831	-0.30873	63.35212	0.96661	186.69	-0.69
97/12/23	2450805.5	-61.75545	-13.47554	-2.84188	0.22433	-0.89089	-0.30580	63.27244	0.96826	192.31	-2.57
97/12/23	2450806.0	-59.88253	-19.42164	-4.89335	0.32831	-0.86326	-0.29941	63.14319	0.97090	197.97	-4.44
97/12/24	2450806.5	-57.31517	-25.14643	-6.88978	0.42922	-0.82556	-0.28955	62.96698	0.97449	203.69	-6.28
97/12/24	2450807.0	-54.07754	-30.58226	-8.80785	0.52606	-0.77797	-0.27628	62.74738	0.97893	209.49	-8.07
97/12/25	2450807.5	-50.20083	-35.66298	-10.62457	0.61776	-0.72075	-0.25963	62.48882	0.98413	215.39	-9.79
97/12/25	2450808.0	-45.72342	-40.32442	-12.31737	0.70326	-0.65423	-0.23970	62.19652	0.98997	221.41	-11.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
97/12/26	2450808.5	-40.69107	-44.50506	-13.86437	0.78144	-0.57885	-0.21660	61.87637	0.99632	227.56	-12.95
97/12/26	2450809.0	-35.15709	-48.14678	-15.24463	0.85120	-0.49519	-0.19049	61.53480	1.00302	233.86	-14.34
97/12/27	2450809.5	-29.18231	-51.19571	-16.43837	0.91142	-0.40394	-0.16157	61.17866	1.00993	240.32	-15.59
97/12/27	2450810.0	-22.83504	-53.60325	-17.42739	0.96102	-0.30595	-0.13008	60.81498	1.01690	246.93	-16.65
97/12/28	2450810.5	-16.19080	-55.32715	-18.19539	0.99895	-0.20225	-0.09635	60.45087	1.02377	253.69	-17.52
97/12/28	2450811.0	-9.33181	-56.33263	-18.72836	1.02429	-0.09402	-0.06075	60.09326	1.03038	260.59	-18.16
97/12/29	2450811.5	-2.34625	-56.59356	-19.01504	1.03620	0.01738	-0.02370	59.74870	1.03662	267.63	-18.56
97/12/29	2450812.0	4.67269	-56.09353	-19.04727	1.03406	0.13042	0.01430	59.42320	1.04235	274.76	-18.70
97/12/30	2450812.5	11.62820	-54.82692	-18.82036	1.01742	0.24346	0.05272	59.12201	1.04747	281.97	-18.56
97/12/30	2450813.0	18.42131	-52.79966	-18.33347	0.98609	0.35474	0.09097	58.84951	1.05190	289.23	-18.15
97/12/31	2450813.5	24.95275	-50.02980	-17.58979	0.94018	0.46243	0.12845	58.60905	1.05560	296.51	-17.46
97/12/31	2450814.0	31.12483	-46.54781	-16.59670	0.88007	0.56472	0.16452	58.40294	1.05854	303.77	-16.51
98/ 1/ 1	2450814.5	36.84353	-42.39645	-15.36581	0.80644	0.65980	0.19857	58.23241	1.06071	310.99	-15.30
98/ 1/ 1	2450815.0	42.02052	-37.63036	-13.91287	0.72029	0.74598	0.22999	58.09764	1.06217	318.15	-13.86
98/ 1/ 2	2450815.5	46.57511	-32.31517	-12.25756	0.62288	0.82170	0.25824	57.99792	1.06295	325.25	-12.20
98/ 1/ 2	2450816.0	50.43600	-26.52647	-10.42311	0.51572	0.88560	0.28281	57.93173	1.06312	332.26	-10.37
98/ 1/ 3	2450816.5	53.54287	-20.34827	-8.43593	0.40053	0.93654	0.30327	57.89694	1.06278	339.19	-8.38
98/ 1/ 3	2450817.0	55.84756	-13.87144	-6.32509	0.27917	0.97365	0.31928	57.89105	1.06201	346.05	-6.27
98/ 1/ 4	2450817.5	57.31499	-7.19192	-4.12168	0.15363	0.99632	0.33057	57.91131	1.06091	352.85	-4.08
98/ 1/ 4	2450818.0	57.92378	-0.40880	-1.85832	0.02596	1.00421	0.33697	57.95503	1.05956	359.60	-1.84
98/ 1/ 5	2450818.5	57.66644	6.37750	0.43158	-0.10179	0.99727	0.33840	58.01963	1.05803	6.31	0.43
98/ 1/ 5	2450819.0	56.54934	13.06711	2.71436	-0.22759	0.97572	0.33487	58.10288	1.05639	13.01	2.68
98/ 1/ 6	2450819.5	54.59237	19.56245	4.95674	-0.34948	0.94001	0.32649	58.20297	1.05468	19.71	4.89
98/ 1/ 6	2450820.0	51.82833	25.76992	7.12639	-0.46561	0.89084	0.31343	58.31852	1.05292	26.44	7.02
98/ 1/ 7	2450820.5	48.30216	31.60138	9.19244	-0.57426	0.82914	0.29595	58.44867	1.05111	33.19	9.05
98/ 1/ 7	2450821.0	44.06991	36.97555	11.12602	-0.67387	0.75601	0.27437	58.59298	1.04925	40.00	10.95
98/ 1/ 8	2450821.5	39.19760	41.81921	12.90064	-0.76305	0.67271	0.24908	58.75138	1.04730	46.85	12.68
98/ 1/ 8	2450822.0	33.75989	46.06823	14.49260	-0.84064	0.58066	0.22051	58.92409	1.04521	53.77	14.24
98/ 1/ 9	2450822.5	27.83869	49.66842	15.88132	-0.90568	0.48137	0.18914	59.11143	1.04296	60.73	15.58
98/ 1/ 9	2450823.0	21.52163	52.57614	17.04958	-0.95744	0.37645	0.15550	59.31374	1.04047	67.74	16.71
98/ 1/10	2450823.5	14.90048	54.75878	17.98371	-0.99541	0.26754	0.12010	59.53118	1.03771	74.78	17.58
98/ 1/10	2450824.0	8.06958	56.19490	18.67372	-1.01935	0.15629	0.08350	59.76364	1.03464	81.83	18.21
98/ 1/11	2450824.5	1.12421	56.87427	19.11335	-1.02923	0.04434	0.04625	60.01055	1.03122	88.87	18.57
98/ 1/11	2450825.0	-5.84093	56.79761	19.29999	-1.02524	-0.06670	0.00889	60.27084	1.02745	95.87	18.68
98/ 1/12	2450825.5	-12.73319	55.97613	19.23464	-1.00779	-0.17535	-0.02808	60.54282	1.02332	102.82	18.52
98/ 1/12	2450826.0	-19.46327	54.43096	18.92168	-0.97747	-0.28018	-0.06415	60.82416	1.01885	109.68	18.12
98/ 1/13	2450826.5	-25.94645	52.19233	18.36869	-0.93502	-0.37992	-0.09888	61.11191	1.01409	116.43	17.49
98/ 1/13	2450827.0	-32.10352	49.29865	17.58615	-0.88133	-0.47343	-0.13187	61.40249	1.00909	123.07	16.64
98/ 1/14	2450827.5	-37.86161	45.79563	16.58716	-0.81738	-0.55971	-0.16275	61.69178	1.00392	129.58	15.60
98/ 1/14	2450828.0	-43.15482	41.73514	15.38710	-0.74423	-0.63792	-0.19120	61.97518	0.99868	135.96	14.38
98/ 1/15	2450828.5	-47.92457	37.17429	14.00331	-0.66299	-0.70736	-0.21696	62.24777	0.99347	142.20	13.00
98/ 1/15	2450829.0	-52.11990	32.17443	12.45476	-0.57480	-0.76747	-0.23981	62.50439	0.98839	148.31	11.49
98/ 1/16	2450829.5	-55.69753	26.80020	10.76178	-0.48078	-0.81784	-0.25958	62.73979	0.98357	154.30	9.88
98/ 1/16	2450830.0	-58.62187	21.11872	8.94574	-0.38207	-0.85816	-0.27613	62.94879	0.97911	160.19	8.17
98/ 1/17	2450830.5	-60.86488	15.19884	7.02882	-0.27977	-0.88821	-0.28936	63.12640	0.97515	165.98	6.39

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM							
98/ 1/17	2450831.0	-62.40587	9.11050	5.03377	-0.17495	-0.90789	-0.29919	63.26795	0.97180	171.69	4.56
98/ 1/18	2450831.5	-63.23138	2.92417	2.98374	-0.06866	-0.91715	-0.30559	63.36924	0.96916	177.35	2.70
98/ 1/18	2450832.0	-63.33487	-3.28964	0.90211	0.03809	-0.91601	-0.30852	63.42666	0.96733	182.97	0.81
98/ 1/19	2450832.5	-62.71659	-9.46074	-1.18763	0.14431	-0.90455	-0.30799	63.43727	0.96639	188.58	-1.07
98/ 1/19	2450833.0	-61.38343	-15.51959	-3.26204	0.24903	-0.88289	-0.30400	63.39893	0.96640	194.19	-2.95
98/ 1/20	2450833.5	-59.34876	-21.39766	-5.29778	0.35130	-0.85120	-0.29658	63.31036	0.96742	199.83	-4.80
98/ 1/20	2450834.0	-56.63244	-27.02764	-7.27175	0.45016	-0.80968	-0.28576	63.17124	0.96948	205.51	-6.61
98/ 1/21	2450834.5	-53.26078	-32.34383	-9.16117	0.54466	-0.75858	-0.27162	62.98223	0.97256	211.27	-8.36
98/ 1/21	2450835.0	-49.26664	-37.28238	-10.94367	0.63381	-0.69822	-0.25421	62.74505	0.97665	217.12	-10.04
98/ 1/22	2450835.5	-44.68950	-41.78176	-12.59746	0.71665	-0.62897	-0.23363	62.46249	0.98171	223.07	-11.64
98/ 1/22	2450836.0	-39.57562	-45.78319	-14.10145	0.79214	-0.55126	-0.20999	62.13840	0.98766	229.16	-13.12
98/ 1/23	2450836.5	-33.97815	-49.23123	-15.43543	0.85927	-0.46565	-0.18345	61.77768	0.99440	235.39	-14.47
98/ 1/23	2450837.0	-27.95726	-52.07449	-16.58033	0.91700	-0.37279	-0.15419	61.38622	1.00182	241.77	-15.67
98/ 1/24	2450837.5	-21.58019	-54.26642	-17.51848	0.96428	-0.27346	-0.12244	60.97086	1.00976	248.31	-16.70
98/ 1/24	2450838.0	-14.92115	-55.76630	-18.23391	1.00010	-0.16860	-0.08848	60.53922	1.01806	255.02	-17.53
98/ 1/25	2450838.5	-8.06108	-56.54031	-18.71277	1.02348	-0.05932	-0.05264	60.09955	1.02655	261.89	-18.14
98/ 1/25	2450839.0	-1.08725	-56.56272	-18.94366	1.03355	0.05311	-0.01533	59.66059	1.03503	268.90	-18.51
98/ 1/26	2450839.5	5.90756	-55.81712	-18.91816	1.02956	0.16721	0.02299	59.23130	1.04331	276.04	-18.63
98/ 1/26	2450840.0	12.82606	-54.29764	-18.63121	1.01095	0.28134	0.06178	58.82061	1.05118	283.29	-18.47
98/ 1/27	2450840.5	19.56790	-52.01010	-18.08155	0.97736	0.39370	0.10046	58.43711	1.05846	290.62	-18.02
98/ 1/27	2450841.0	26.03141	-48.97291	-17.27210	0.92878	0.50238	0.13839	58.08878	1.06497	297.99	-17.30
98/ 1/28	2450841.5	32.11571	-45.21778	-16.21021	0.86546	0.60538	0.17489	57.78267	1.07055	305.38	-16.29
98/ 1/28	2450842.0	37.72300	-40.78989	-14.90787	0.78806	0.70071	0.20928	57.52464	1.07509	312.76	-15.02
98/ 1/29	2450842.5	42.76112	-35.74774	-13.38169	0.69759	0.78645	0.24088	57.31914	1.07850	320.10	-13.50
98/ 1/29	2450843.0	47.14596	-30.16238	-11.65271	0.59541	0.86084	0.26906	57.16902	1.08072	327.39	-11.76
98/ 1/30	2450843.5	50.80391	-24.11613	-9.74609	0.48324	0.92231	0.29324	57.07549	1.08175	334.61	-9.83
98/ 1/30	2450844.0	53.67383	-17.70088	-7.69060	0.36306	0.96962	0.31295	57.03812	1.08162	341.75	-7.75
98/ 1/31	2450844.5	55.70878	-11.01594	-5.51793	0.23706	1.00183	0.32779	57.05494	1.08042	348.81	-5.55
98/ 1/31	2450845.0	56.87710	-4.16563	-3.26193	0.10755	1.01839	0.33752	57.12265	1.07824	355.81	-3.27
98/ 2/ 1	2450845.5	57.16300	2.74322	-0.95781	-0.02312	1.01912	0.34199	57.23680	1.07521	2.75	-0.96
98/ 2/ 1	2450846.0	56.56659	9.60382	1.35872	-0.15261	1.00419	0.34119	57.39215	1.07150	9.64	1.36
98/ 2/ 2	2450846.5	55.10339	16.31173	3.65226	-0.27872	0.97414	0.33523	57.58294	1.06725	16.49	3.64
98/ 2/ 2	2450847.0	52.80339	22.76706	5.88844	-0.39939	0.92977	0.32430	57.80321	1.06261	23.32	5.85
98/ 2/ 3	2450847.5	49.70983	28.87625	8.03461	-0.51276	0.87212	0.30870	58.04705	1.05774	30.15	7.96
98/ 2/ 3	2450848.0	45.87769	34.55359	10.06033	-0.61723	0.80247	0.28880	58.30886	1.05277	36.99	9.94
98/ 2/ 4	2450848.5	41.37208	39.72237	11.93786	-0.71142	0.72219	0.26502	58.58352	1.04782	43.83	11.76
98/ 2/ 4	2450849.0	36.26661	44.31573	13.64249	-0.79420	0.63280	0.23782	58.86654	1.04296	50.70	13.40
98/ 2/ 5	2450849.5	30.64166	48.27722	15.15275	-0.86469	0.53587	0.20770	59.15410	1.03826	57.60	14.84
98/ 2/ 5	2450850.0	24.58282	51.56111	16.45058	-0.92224	0.43298	0.17518	59.44312	1.03377	64.51	16.07
98/ 2/ 6	2450850.5	18.17931	54.13250	17.52143	-0.96642	0.32574	0.14077	59.73119	1.02951	71.44	17.06
98/ 2/ 6	2450851.0	11.52257	55.96729	18.35430	-0.99700	0.21573	0.10499	60.01656	1.02546	78.37	17.81
98/ 2/ 7	2450851.5	4.70488	57.05195	18.94165	-1.01395	0.10448	0.06835	60.29798	1.02161	85.29	18.31
98/ 2/ 7	2450852.0	-2.18189	57.38319	19.27940	-1.01743	-0.00651	0.03137	60.57464	1.01794	92.18	18.56
98/ 2/ 8	2450852.5	-9.04743	56.96759	19.36683	-1.00775	-0.11583	-0.00549	60.84600	1.01440	99.02	18.56
98/ 2/ 8	2450853.0	-15.80405	55.82101	19.20636	-0.98536	-0.22214	-0.04176	61.11168	1.01095	105.81	18.32

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 2/ 9	2450853.5	-22.36768	53.96809	18.80350	-0.95087	-0.32421	-0.07700	61.37133	1.00756	112.51	17.84
98/ 2/ 9	2450854.0	-28.65866	51.44155	18.16657	-0.90498	-0.42088	-0.11081	61.62447	1.00420	119.12	17.15
98/ 2/10	2450854.5	-34.60258	48.28146	17.30653	-0.84853	-0.51112	-0.14782	61.87046	1.00082	125.63	16.24
98/ 2/10	2450855.0	-40.13090	44.53454	16.23675	-0.78241	-0.59402	-0.17270	62.10834	0.99743	132.02	15.15
98/ 2/11	2450855.5	-45.18149	40.25329	14.97273	-0.70763	-0.66878	-0.20013	62.33680	0.99401	138.30	13.90
98/ 2/11	2450856.0	-49.69907	35.49525	13.53186	-0.62520	-0.73472	-0.22488	62.55415	0.99058	144.47	12.49
98/ 2/12	2450856.5	-53.63555	30.32208	11.93317	-0.53621	-0.79128	-0.24670	62.75828	0.98717	150.52	10.96
98/ 2/12	2450857.0	-56.95020	24.79884	10.19704	-0.44176	-0.83803	-0.26543	62.94671	0.98382	156.47	9.32
98/ 2/13	2450857.5	-59.60978	18.99315	8.34495	-0.34296	-0.87464	-0.28092	63.11659	0.98058	162.33	7.60
98/ 2/13	2450858.0	-61.58853	12.97445	6.39924	-0.24090	-0.90090	-0.29306	63.26479	0.97752	168.10	5.81
98/ 2/14	2450858.5	-62.86816	6.81333	4.38287	-0.13669	-0.91668	-0.30178	63.38799	0.97471	173.81	3.96
98/ 2/14	2450859.0	-63.43769	0.58090	2.31921	-0.03139	-0.92196	-0.30702	63.48272	0.97225	179.48	2.09
98/ 2/15	2450859.5	-63.29328	-5.65184	0.23183	0.07395	-0.91679	-0.30878	63.54555	0.97021	185.10	0.21
98/ 2/15	2450860.0	-62.43811	-11.81443	-1.85564	0.17833	-0.90127	-0.30706	63.57312	0.96870	190.71	-1.67
98/ 2/16	2450860.5	-60.88210	-17.83745	-3.91973	0.28074	-0.87561	-0.30188	63.56233	0.96780	196.33	-3.54
98/ 2/16	2450861.0	-58.64181	-23.65294	-5.93719	0.38024	-0.84003	-0.29330	63.51042	0.96761	201.97	-5.36
98/ 2/17	2450861.5	-55.74019	-29.19472	-7.88519	0.47587	-0.79484	-0.28138	63.41512	0.96819	207.64	-7.14
98/ 2/17	2450862.0	-52.20655	-34.39875	-9.74139	0.56672	-0.74036	-0.26621	63.27473	0.96962	213.38	-8.86
98/ 2/18	2450862.5	-48.07635	-39.20349	-11.48408	0.65187	-0.67700	-0.24788	63.08829	0.97196	219.20	-10.49
98/ 2/18	2450863.0	-43.39124	-43.55025	-13.09230	0.73043	-0.60520	-0.22652	62.85564	0.97525	225.10	-12.02
98/ 2/19	2450863.5	-38.19901	-47.38354	-14.54595	0.80148	-0.52547	-0.20226	62.57754	0.97948	231.13	-13.44
98/ 2/19	2450864.0	-32.55355	-50.65157	-15.82595	0.86411	-0.43839	-0.17527	62.25573	0.98467	237.27	-14.73
98/ 2/20	2450864.5	-26.51496	-53.30674	-16.91444	0.91742	-0.34461	-0.14574	61.89305	0.99078	243.55	-15.86
98/ 2/20	2450865.0	-20.14946	-55.30628	-17.79494	0.96049	-0.24492	-0.11390	61.49345	0.99775	249.98	-16.82
98/ 2/21	2450865.5	-13.52935	-56.61295	-18.45261	0.99245	-0.14017	-0.07999	61.06200	1.00549	256.56	-17.59
98/ 2/21	2450866.0	-6.73294	-57.19594	-18.87457	1.01242	-0.03140	-0.04435	60.60493	1.01387	263.29	-18.15
98/ 2/22	2450866.5	0.15584	-57.03179	-19.05018	1.01959	0.08024	-0.00731	60.12952	1.02277	270.16	-18.47
98/ 2/22	2450867.0	7.04781	-56.10547	-18.97147	1.01325	0.19343	0.03068	59.64404	1.03200	277.16	-18.55
98/ 2/23	2450867.5	13.84933	-54.41152	-18.63347	0.99280	0.30665	0.06916	59.15761	1.04138	284.28	-18.36
98/ 2/23	2450868.0	20.46327	-51.95522	-18.03471	0.95781	0.41825	0.10759	58.67999	1.05067	291.50	-17.90
98/ 2/24	2450868.5	26.79046	-48.75370	-17.17759	0.90811	0.52640	0.14535	58.22131	1.05966	298.79	-17.16
98/ 2/24	2450869.0	32.73141	-44.83683	-16.06876	0.84380	0.62915	0.18180	57.79179	1.06812	306.13	-16.14
98/ 2/25	2450869.5	38.18842	-40.24798	-14.71942	0.76531	0.72450	0.21626	57.40136	1.07581	313.50	-14.86
98/ 2/25	2450870.0	43.06809	-35.04420	-13.14548	0.67348	0.81040	0.24801	57.05927	1.08252	320.86	-13.32
98/ 2/26	2450870.5	47.28393	-29.29604	-11.36761	0.56953	0.88494	0.27637	56.77367	1.08805	328.22	-11.55
98/ 2/26	2450871.0	50.75910	-23.08668	-9.41097	0.45507	0.94631	0.30069	56.55128	1.09225	335.54	-9.58
98/ 2/27	2450871.5	53.42906	-16.51052	-7.30492	0.33211	0.99303	0.32040	56.39702	1.09501	342.83	-7.44
98/ 2/27	2450872.0	55.24386	-9.67107	-5.08232	0.20295	1.02390	0.33504	56.31380	1.09627	350.07	-5.18
98/ 2/28	2450872.5	56.16996	-2.67838	-2.77878	0.07012	1.03819	0.34426	56.30239	1.09602	357.27	-2.83
98/ 2/28	2450873.0	56.19136	4.35391	-0.43170	-0.06375	1.03558	0.34788	56.36144	1.09431	4.43	-0.44
98/ 3/ 1	2450873.5	55.31006	11.31166	1.92078	-0.19601	1.01624	0.34586	56.48757	1.09123	11.56	1.95
98/ 3/ 1	2450874.0	53.54566	18.08335	4.24075	-0.32411	0.98077	0.33831	56.67564	1.08693	18.66	4.29
98/ 3/ 2	2450874.5	50.93432	24.56288	6.49161	-0.44573	0.93016	0.32550	56.91907	1.08159	25.75	6.55
98/ 3/ 2	2450875.0	47.52716	30.65202	8.63884	-0.55880	0.86574	0.30778	57.21020	1.07540	32.82	8.68
98/ 3/ 3	2450875.5	43.38818	36.26234	10.65078	-0.66157	0.78905	0.28563	57.54068	1.06858	39.89	10.67

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 3/ 3	2450876.0	38.59202	41.31659	12.49914	-0.75266	0.70183	0.25957	57.90192	1.06134	46.95	12.47
98/ 3/ 4	2450876.5	33.22159	45.74957	14.15938	-0.83100	0.60590	0.23018	58.28538	1.05387	54.01	14.06
98/ 3/ 4	2450877.0	27.36586	49.50853	15.61087	-0.89587	0.50310	0.19803	58.68291	1.04638	61.07	15.43
98/ 3/ 5	2450877.5	21.11765	52.55312	16.83706	-0.94684	0.39525	0.16374	59.08699	1.03901	68.11	16.56
98/ 3/ 5	2450878.0	14.57181	54.85514	17.82531	-0.98375	0.28411	0.12787	59.49089	1.03191	75.12	17.44
98/ 3/ 6	2450878.5	7.82353	56.39796	18.56689	-1.00665	0.17134	0.09099	59.88879	1.02517	82.10	18.06
98/ 3/ 6	2450879.0	0.96695	57.17590	19.05673	-1.01578	0.05849	0.05362	60.27584	1.01888	89.03	18.43
98/ 3/ 7	2450879.5	-5.90600	57.19343	19.29320	-1.01156	-0.05297	0.01625	60.64814	1.01308	95.90	18.55
98/ 3/ 7	2450880.0	-12.70659	56.46442	19.27796	-0.99451	-0.16174	-0.02064	61.00269	1.00779	102.68	18.42
98/ 3/ 8	2450880.5	-19.35005	55.01134	19.01564	-0.96528	-0.26660	-0.05664	61.33737	1.00302	109.38	18.06
98/ 3/ 8	2450881.0	-25.75630	52.86448	18.51364	-0.92459	-0.36644	-0.09135	61.65058	0.99874	115.98	17.48
98/ 3/ 9	2450881.5	-31.85039	50.06120	17.78190	-0.87325	-0.46027	-0.12442	61.94164	0.99493	122.47	16.68
98/ 3/ 9	2450882.0	-37.56307	46.64522	16.83269	-0.81211	-0.54722	-0.15552	62.21013	0.99154	128.84	15.70
98/ 3/10	2450882.5	-42.83107	42.66591	15.68034	-0.74209	-0.62650	-0.18436	62.45601	0.98853	135.11	14.54
98/ 3/10	2450883.0	-47.59749	38.17762	14.34108	-0.66416	-0.69742	-0.21067	62.67949	0.98584	141.27	13.23
98/ 3/11	2450883.5	-51.81203	33.23899	12.83279	-0.57930	-0.75939	-0.23424	62.88082	0.98343	147.32	11.78
98/ 3/11	2450884.0	-55.43126	27.91232	11.17479	-0.48854	-0.81193	-0.25485	63.06027	0.98125	153.27	10.21
98/ 3/12	2450884.5	-58.41872	22.26288	9.38766	-0.39292	-0.85464	-0.27235	63.21796	0.97927	159.14	8.54
98/ 3/12	2450885.0	-60.74509	16.35830	7.49297	-0.29350	-0.88723	-0.28659	63.35381	0.97747	164.93	6.79
98/ 3/13	2450885.5	-62.38825	10.26792	5.51314	-0.19135	-0.90948	-0.29747	63.46746	0.97584	170.65	4.98
98/ 3/13	2450886.0	-63.33328	4.06219	3.47119	-0.08752	-0.92128	-0.30492	63.55828	0.97437	176.33	3.13
98/ 3/14	2450886.5	-63.57247	-2.18795	1.39055	0.01691	-0.92260	-0.30889	63.62531	0.97308	181.97	1.25
98/ 3/14	2450887.0	-63.10522	-8.41165	-0.70514	0.12091	-0.91349	-0.30936	63.66728	0.97200	187.59	-0.63
98/ 3/15	2450887.5	-61.93799	-14.53869	-2.79219	0.22344	-0.89408	-0.30635	63.68268	0.97117	193.21	-2.51
98/ 3/15	2450888.0	-60.08408	-20.50003	-4.84709	0.32351	-0.86460	-0.29988	63.66979	0.97063	198.84	-4.37
98/ 3/16	2450888.5	-57.56354	-26.22830	-6.84663	0.42013	-0.82531	-0.29001	63.62673	0.97044	204.50	-6.18
98/ 3/16	2450889.0	-54.40294	-31.65824	-8.76810	0.51236	-0.77657	-0.27684	63.55159	0.97068	210.20	-7.93
98/ 3/17	2450889.5	-50.63520	-36.72722	-10.58946	0.59927	-0.71879	-0.26047	63.44248	0.97140	215.95	-9.61
98/ 3/17	2450890.0	-46.29936	-41.37557	-12.28942	0.67997	-0.65245	-0.24102	63.29769	0.97269	221.79	-11.20
98/ 3/18	2450890.5	-41.44045	-45.54708	-13.84765	0.75359	-0.57808	-0.21864	63.11580	0.97461	227.70	-12.67
98/ 3/18	2450891.0	-36.10925	-49.18935	-15.24492	0.81929	-0.49628	-0.19352	62.89577	0.97723	233.72	-14.03
98/ 3/19	2450891.5	-30.36215	-52.25428	-16.46320	0.87626	-0.40771	-0.16583	62.63711	0.98059	239.84	-15.24
98/ 3/19	2450892.0	-24.26099	-54.69846	-17.48587	0.92372	-0.31310	-0.13579	62.33997	0.98474	246.08	-16.29
98/ 3/20	2450892.5	-17.87284	-56.48369	-18.29787	0.96088	-0.21327	-0.10366	62.00530	0.98971	252.44	-17.16
98/ 3/20	2450893.0	-11.26985	-57.57757	-18.88589	0.98703	-0.10911	-0.06970	61.63492	0.99549	258.93	-17.84
98/ 3/21	2450893.5	-4.52903	-57.95408	-19.23860	1.00148	-0.00161	-0.03423	61.23162	1.00206	265.53	-18.31
98/ 3/21	2450894.0	2.26814	-57.59433	-19.34689	1.00357	0.10811	0.00241	60.79929	1.00938	272.26	-18.55
98/ 3/22	2450894.5	9.03607	-56.48733	-19.20415	0.99275	0.21884	0.03983	60.34292	1.01737	279.09	-18.56
98/ 3/22	2450895.0	15.68565	-54.63082	-18.80659	0.96856	0.32920	0.07758	59.86864	1.02591	286.02	-18.31
98/ 3/23	2450895.5	22.12508	-52.03221	-18.15353	0.93065	0.43771	0.11519	59.38368	1.03488	293.04	-17.80
98/ 3/23	2450896.0	28.26084	-48.70947	-17.24781	0.87888	0.54275	0.15210	58.89630	1.04410	300.12	-17.03
98/ 3/24	2450896.5	33.99905	-44.69196	-16.09603	0.81329	0.64257	0.18774	58.41566	1.05337	307.26	-15.99
98/ 3/24	2450897.0	39.24715	-40.02121	-14.70895	0.73423	0.73534	0.22148	57.95161	1.06248	314.44	-14.70
98/ 3/25	2450897.5	43.91581	-34.75137	-13.10164	0.64233	0.81916	0.25267	57.51442	1.07119	321.64	-13.17
98/ 3/25	2450898.0	47.92126	-28.94936	-11.29364	0.53859	0.89217	0.28063	57.11444	1.07926	328.86	-11.40

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
98/ 3/26	2450898.5	51.18779	-22.69459	-9.30897	0.42439	0.95257	0.30473	56.76171	1.08644	336.09	-9.44
98/ 3/26	2450899.0	53.65032	-16.07808	-7.17588	0.30149	0.99874	0.32436	56.46552	1.09252	343.32	-7.30
98/ 3/27	2450899.5	55.25694	-9.20095	-4.92645	0.17203	1.02933	0.33900	56.23395	1.09729	350.55	-5.03
98/ 3/27	2450900.0	55.97120	-2.17238	-2.59601	0.03841	1.04333	0.34823	56.07347	1.10058	357.78	-2.65
98/ 3/28	2450900.5	55.77391	4.89311	-0.22224	-0.09669	1.04017	0.35176	55.98858	1.10229	5.01	-0.23
98/ 3/28	2450901.0	54.66426	11.87872	2.15576	-0.23053	1.01977	0.34947	55.98154	1.10236	12.26	2.21
98/ 3/29	2450901.5	52.66022	18.66871	4.49862	-0.36035	0.98252	0.34141	56.05227	1.10080	19.52	4.60
98/ 3/29	2450902.0	49.79802	25.15174	6.76780	-0.48352	0.92931	0.32777	56.19836	1.09766	26.80	6.92
98/ 3/30	2450902.5	46.13082	31.22399	8.92671	-0.59769	0.86147	0.30891	56.41522	1.09306	34.09	9.10
98/ 3/30	2450903.0	41.72676	36.79177	10.94163	-0.70081	0.78065	0.28534	56.69634	1.08718	41.40	11.13
98/ 3/31	2450903.5	36.66635	41.77356	12.78250	-0.79126	0.68877	0.25762	57.03371	1.08022	48.73	12.95
98/ 3/31	2450904.0	31.03977	46.10142	14.42346	-0.86784	0.58790	0.22642	57.41815	1.07239	56.05	14.55
98/ 4/ 1	2450904.5	24.94390	49.72166	15.84322	-0.92974	0.48017	0.19241	57.83986	1.06395	63.36	15.90
98/ 4/ 1	2450905.0	18.47966	52.59492	17.02511	-0.97658	0.36767	0.15630	58.28875	1.05514	70.64	16.98
98/ 4/ 2	2450905.5	11.74945	54.69579	17.95712	-1.00830	0.25241	0.11873	58.75489	1.04617	77.88	17.80
98/ 4/ 2	2450906.0	4.85504	56.01199	18.63162	-1.02513	0.13626	0.08036	59.22881	1.03726	85.05	18.33
98/ 4/ 3	2450906.5	-2.10420	56.54336	19.04515	-1.02753	0.02092	0.04176	59.70174	1.02860	92.13	18.60
98/ 4/ 3	2450907.0	-9.03270	56.30074	19.19804	-1.01617	-0.09206	0.00348	60.16583	1.02033	99.11	18.61
98/ 4/ 4	2450907.5	-15.83972	55.30469	19.09406	-0.99180	-0.20134	-0.03402	60.61426	1.01260	105.98	18.36
98/ 4/ 4	2450908.0	-22.44012	53.58444	18.74003	-0.95531	-0.30573	-0.07029	61.04130	1.00550	112.72	17.88
98/ 4/ 5	2450908.5	-28.75489	51.17666	18.14555	-0.90761	-0.40420	-0.10496	61.44229	0.99908	119.33	17.18
98/ 4/ 5	2450909.0	-34.71145	48.12457	17.32255	-0.84970	-0.49586	-0.13771	61.81367	0.99339	125.80	16.27
98/ 4/ 6	2450909.5	-40.24393	44.47696	16.28513	-0.78255	-0.57994	-0.16824	62.15287	0.98844	132.14	15.19
98/ 4/ 6	2450910.0	-45.29321	40.28740	15.04918	-0.70718	-0.65579	-0.19630	62.45820	0.98422	138.35	13.94
98/ 4/ 7	2450910.5	-49.80705	35.61354	13.63222	-0.62461	-0.72286	-0.22166	62.72881	0.98071	144.43	12.55
98/ 4/ 7	2450911.0	-53.74007	30.51647	12.05317	-0.53584	-0.78069	-0.24413	62.96451	0.97786	150.41	11.04
98/ 4/ 8	2450911.5	-57.05384	25.06012	10.33213	-0.44191	-0.82890	-0.26356	63.16568	0.97561	156.29	9.41
98/ 4/ 8	2450912.0	-59.71680	19.31073	8.49022	-0.34384	-0.86718	-0.27980	63.33312	0.97392	162.08	7.70
98/ 4/ 9	2450912.5	-61.70437	13.33632	6.54942	-0.24264	-0.89531	-0.29275	63.46796	0.97271	167.80	5.92
98/ 4/ 9	2450913.0	-62.99889	7.20622	4.53236	-0.13936	-0.91314	-0.30231	63.57147	0.97192	173.47	4.09
98/ 4/10	2450913.5	-63.58966	0.99052	2.46221	-0.03500	-0.92058	-0.30842	63.64501	0.97150	179.11	2.22
98/ 4/10	2450914.0	-63.47290	-5.24037	0.36246	0.06940	-0.91763	-0.31104	63.68989	0.97139	184.72	0.33
98/ 4/11	2450914.5	-62.65180	-11.41625	-1.74320	0.17282	-0.90435	-0.31016	63.70728	0.97156	190.33	-1.57
98/ 4/11	2450915.0	-61.13642	-17.46764	-3.83108	0.27425	-0.88090	-0.30579	63.69817	0.97196	195.95	-3.45
98/ 4/12	2450915.5	-58.94367	-23.32629	-5.87766	0.37267	-0.84748	-0.29797	63.66333	0.97257	201.59	-5.30
98/ 4/12	2450916.0	-56.09722	-28.92571	-7.85975	0.46712	-0.80441	-0.28677	63.60322	0.97340	207.28	-7.10
98/ 4/13	2450916.5	-52.62733	-34.20170	-9.75472	0.55661	-0.75204	-0.27226	63.51808	0.97443	213.02	-8.83
98/ 4/13	2450917.0	-48.57074	-39.09287	-11.54062	0.64021	-0.69085	-0.25458	63.40785	0.97569	218.83	-10.49
98/ 4/14	2450917.5	-43.97042	-43.54119	-13.19643	0.71702	-0.62137	-0.23387	63.27226	0.97720	224.72	-12.04
98/ 4/14	2450918.0	-38.87533	-47.49245	-14.70218	0.78617	-0.54419	-0.21030	63.11084	0.97900	230.70	-13.47
98/ 4/15	2450918.5	-33.34019	-50.89682	-16.03918	0.84684	-0.45999	-0.18408	62.92305	0.98113	236.77	-14.77
98/ 4/15	2450919.0	-27.42511	-53.70935	-17.19016	0.89824	-0.36955	-0.15542	62.70831	0.98364	242.95	-15.91
98/ 4/16	2450919.5	-21.19531	-55.89042	-18.13950	0.93965	-0.27368	-0.12458	62.46616	0.98659	249.23	-16.88
98/ 4/16	2450920.0	-14.72073	-57.40630	-18.87336	0.97041	-0.17328	-0.09183	62.19635	0.99003	255.62	-17.66
98/ 4/17	2450920.5	-8.07562	-58.22960	-19.37986	0.98991	-0.06933	-0.05750	61.89896	0.99400	262.10	-18.25

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
98/ 4/17	2450921.0	-1.33812	-58.33984	-19.64935	0.99761	0.03711	-0.02190	61.57454	0.99854	268.69	-18.61
98/ 4/18	2450921.5	5.41026	-57.72390	-19.67449	0.99306	0.14490	0.01459	61.22422	1.00368	275.35	-18.74
98/ 4/18	2450922.0	12.08520	-56.37665	-19.45057	0.97587	0.25285	0.05158	60.84984	1.00942	282.10	-18.64
98/ 4/19	2450922.5	18.60022	-54.30149	-18.97564	0.94580	0.35963	0.08864	60.45407	1.01574	288.91	-18.29
98/ 4/19	2450923.0	24.86749	-51.51095	-18.25079	0.90271	0.46386	0.12530	60.04050	1.02261	295.77	-17.70
98/ 4/20	2450923.5	30.79876	-48.02724	-17.28036	0.84660	0.56406	0.16107	59.61367	1.02997	302.67	-16.85
98/ 4/20	2450924.0	36.30647	-43.88280	-16.07217	0.77768	0.65870	0.19542	59.17917	1.03772	309.60	-15.76
98/ 4/21	2450924.5	41.30507	-39.12076	-14.63771	0.69635	0.74616	0.22779	58.74356	1.04573	316.56	-14.43
98/ 4/21	2450925.0	45.71257	-33.79524	-12.99230	0.60326	0.82482	0.25761	58.31429	1.05386	323.52	-12.87
98/ 4/22	2450925.5	49.45229	-27.97145	-11.15522	0.49934	0.89303	0.28430	57.89965	1.06192	330.51	-11.11
98/ 4/22	2450926.0	52.45483	-21.72549	-9.14964	0.38581	0.94922	0.30727	57.50846	1.06971	337.50	-9.15
98/ 4/23	2450926.5	54.66017	-15.14385	-7.00263	0.26421	0.99193	0.32598	57.14987	1.07703	344.51	-7.04
98/ 4/23	2450927.0	56.01980	-8.32233	-4.74476	0.13641	1.01986	0.33992	56.83302	1.08364	351.55	-4.79
98/ 4/24	2450927.5	56.49883	-1.36459	-2.40978	0.00456	1.03201	0.34868	56.56665	1.08933	358.62	-2.44
98/ 4/24	2450928.0	56.07778	5.61989	-0.03395	-0.12895	1.02768	0.35194	56.35869	1.09390	5.72	-0.03
98/ 4/25	2450928.5	54.75413	12.51831	2.34475	-0.26154	1.00658	0.34951	56.21584	1.09717	12.88	2.39
98/ 4/25	2450929.0	52.54308	19.21743	4.68754	-0.39055	0.96889	0.34135	56.14319	1.09900	20.09	4.79
98/ 4/26	2450929.5	49.47784	25.60667	6.95591	-0.51335	0.91522	0.32757	56.14395	1.09930	27.36	7.12
98/ 4/26	2450930.0	45.60896	31.58127	9.11269	-0.62746	0.84667	0.30845	56.21917	1.09804	34.70	9.33
98/ 4/27	2450930.5	41.00300	37.04523	11.12307	-0.73066	0.76471	0.28442	56.36770	1.09524	42.10	11.38
98/ 4/27	2450931.0	35.74047	41.91388	12.95558	-0.82106	0.67120	0.25603	56.58624	1.09097	49.55	13.24
98/ 4/28	2450931.5	29.91321	46.11587	14.58285	-0.89721	0.56821	0.22393	56.86944	1.08536	57.03	14.86
98/ 4/28	2450932.0	23.62145	49.59447	15.98211	-0.95809	0.45797	0.18883	57.21024	1.07858	64.53	16.22
98/ 4/29	2450932.5	16.97081	52.30819	17.13559	-1.00313	0.34273	0.15147	57.60020	1.07083	72.02	17.31
98/ 4/29	2450933.0	10.06931	54.23078	18.03051	-1.03218	0.22471	0.11260	58.02988	1.06234	79.48	18.10
98/ 4/30	2450933.5	3.02472	55.35055	18.65907	-1.04545	0.10600	0.07293	58.48926	1.05333	86.87	18.60
98/ 4/30	2450934.0	-4.05774	55.66943	19.01813	-1.04347	-0.01149	0.03313	58.96813	1.04406	94.17	18.82
98/ 5/ 1	2450934.5	-11.07724	55.20160	19.10884	-1.02700	-0.12604	-0.00622	59.45645	1.03473	101.35	18.75
98/ 5/ 1	2450935.0	-17.93877	53.97204	18.93620	-0.99699	-0.23619	-0.04455	59.94464	1.02555	108.39	18.41
98/ 5/ 2	2450935.5	-24.55412	52.01508	18.50862	-0.95449	-0.34065	-0.08143	60.42386	1.01672	115.27	17.84
98/ 5/ 2	2450936.0	-30.84253	49.37292	17.83741	-0.90063	-0.43836	-0.11644	60.88612	1.00839	121.99	17.04
98/ 5/ 3	2450936.5	-36.73099	46.09431	16.93638	-0.83658	-0.52845	-0.14924	61.32448	1.00070	128.55	16.03
98/ 5/ 3	2450937.0	-42.15443	42.23338	15.82144	-0.76351	-0.61021	-0.17956	61.73307	0.99375	134.95	14.85
98/ 5/ 4	2450937.5	-47.05565	37.84859	14.51026	-0.68257	-0.68306	-0.20716	62.10715	0.98762	141.19	13.51
98/ 5/ 4	2450938.0	-51.38525	33.00183	13.02192	-0.59490	-0.74656	-0.23184	62.44305	0.98235	147.29	12.04
98/ 5/ 5	2450938.5	-55.10138	27.75770	11.37674	-0.50160	-0.80035	-0.25345	62.73820	0.97796	153.26	10.45
98/ 5/ 5	2450939.0	-58.16962	22.18286	9.59595	-0.40376	-0.84418	-0.27186	62.99100	0.97446	159.13	8.76
98/ 5/ 6	2450939.5	-60.56273	16.34550	7.70162	-0.30242	-0.87785	-0.28697	63.20074	0.97181	164.90	7.00
98/ 5/ 6	2450940.0	-62.26054	10.31488	5.71640	-0.19861	-0.90123	-0.29869	63.36757	0.96999	170.59	5.18
98/ 5/ 7	2450940.5	-63.24980	4.16090	3.66345	-0.09335	-0.91427	-0.30696	63.49229	0.96893	176.24	3.31
98/ 5/ 7	2450941.0	-63.52409	-2.04629	1.56624	0.01235	-0.91695	-0.31175	63.57634	0.96857	181.85	1.41
98/ 5/ 8	2450941.5	-63.08375	-8.23667	-0.55154	0.11751	-0.90932	-0.31303	63.62159	0.96884	187.44	-0.50
98/ 5/ 8	2450942.0	-61.93584	-14.34074	-2.66612	0.22113	-0.89149	-0.31080	63.63028	0.96966	193.04	-2.40
98/ 5/ 9	2450942.5	-60.09411	-20.28997	-4.75379	0.32222	-0.86362	-0.30509	63.60490	0.97096	198.66	-4.29
98/ 5/ 9	2450943.0	-57.57900	-26.01718	-6.79105	0.41981	-0.82597	-0.29593	63.54804	0.97265	204.32	-6.13

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
98/ 5/10	2450943.5	-54.41759	-31.45706	-8.75479	0.51291	-0.77884	-0.28339	63.46233	0.97466	210.03	-7.93
98/ 5/10	2450944.0	-50.64354	-36.54666	-10.62241	0.60055	-0.72261	-0.26757	63.35031	0.97694	215.82	-9.65
98/ 5/11	2450944.5	-46.29701	-41.22594	-12.37208	0.68180	-0.65776	-0.24858	63.21439	0.97943	221.68	-11.29
98/ 5/11	2450945.0	-41.42453	-45.43836	-13.98287	0.75571	-0.58485	-0.22659	63.05678	0.98208	227.65	-12.81
98/ 5/12	2450945.5	-36.07878	-49.13144	-15.43503	0.82141	-0.50452	-0.20177	62.87938	0.98487	233.71	-14.21
98/ 5/12	2450946.0	-30.31830	-52.25741	-16.71015	0.87804	-0.41751	-0.17435	62.68386	0.98776	239.88	-15.46
98/ 5/13	2450946.5	-24.20718	-54.77381	-17.79140	0.92483	-0.32466	-0.14457	62.47153	0.99076	246.16	-16.55
98/ 5/13	2450947.0	-17.81459	-56.64407	-18.66377	0.96104	-0.22687	-0.11272	62.24345	0.99387	252.54	-17.45
98/ 5/14	2450947.5	-11.21433	-57.83813	-19.31425	0.98605	-0.12516	-0.07910	62.00041	0.99711	259.03	-18.15
98/ 5/14	2450948.0	-4.48420	-58.33300	-19.73210	0.99931	-0.02059	-0.04408	61.74303	1.00049	265.60	-18.64
98/ 5/15	2450948.5	2.29463	-58.11327	-19.90898	1.00037	0.08566	-0.00801	61.47182	1.00406	272.26	-18.90
98/ 5/15	2450949.0	9.03836	-57.17163	-19.83922	0.98890	0.19237	0.02868	61.18727	1.00784	278.98	-18.92
98/ 5/16	2450949.5	15.66139	-55.50930	-19.51996	0.96470	0.29826	0.06559	60.88999	1.01188	285.76	-18.70
98/ 5/16	2450950.0	22.07716	-53.13640	-18.95132	0.92770	0.40197	0.10225	60.58078	1.01620	292.56	-18.23
98/ 5/17	2450950.5	28.19919	-50.07229	-18.13656	0.87799	0.50213	0.13819	60.26080	1.02083	299.39	-17.52
98/ 5/17	2450951.0	33.94206	-46.34586	-17.08221	0.81580	0.59731	0.17291	59.93166	1.02577	306.22	-16.56
98/ 5/18	2450951.5	39.22262	-41.99566	-15.79816	0.74155	0.68608	0.20593	59.59556	1.03103	313.04	-15.37
98/ 5/18	2450952.0	43.96116	-37.07000	-14.29776	0.65586	0.76700	0.23671	59.25533	1.03657	319.86	-13.96
98/ 5/19	2450952.5	48.08283	-31.62692	-12.59784	0.55955	0.83864	0.26476	58.91457	1.04236	326.66	-12.35
98/ 5/19	2450953.0	51.51903	-25.73393	-10.71871	0.45364	0.89963	0.28955	58.57761	1.04832	333.46	-10.54
98/ 5/20	2450953.5	54.20894	-19.46761	-8.68404	0.33940	0.94868	0.31061	58.24955	1.05435	340.25	-8.57
98/ 5/20	2450954.0	56.10111	-12.91292	-6.52074	0.21834	0.98460	0.32747	57.93616	1.06035	347.04	-6.46
98/ 5/21	2450954.5	57.15500	-6.16230	-4.25865	0.09217	1.00638	0.33971	57.64377	1.06616	353.85	-4.24
98/ 5/21	2450955.0	57.34254	0.68561	-1.93024	-0.03715	1.01322	0.34700	57.37912	1.07163	0.69	-1.93
98/ 5/22	2450955.5	56.64950	7.52762	0.42997	-0.16749	1.00457	0.34906	57.14907	1.07659	7.57	0.43
98/ 5/22	2450956.0	55.07664	14.25788	2.78593	-0.29656	0.98021	0.34573	56.96037	1.08087	14.51	2.80
98/ 5/23	2450956.5	52.64049	20.77016	5.10089	-0.42201	0.94025	0.33695	56.81936	1.08430	21.53	5.15
98/ 5/23	2450957.0	49.37370	26.96032	7.33814	-0.54145	0.88521	0.32281	56.73156	1.08672	28.64	7.43
98/ 5/24	2450957.5	45.32481	32.72896	9.46200	-0.65259	0.81596	0.30351	56.70143	1.08801	35.83	9.61
98/ 5/24	2450958.0	40.55746	37.98394	11.43864	-0.75327	0.73377	0.27941	56.73208	1.08808	43.12	11.63
98/ 5/25	2450958.5	35.14891	42.64287	13.23702	-0.84164	0.64024	0.25097	56.82499	1.08685	50.50	13.47
98/ 5/25	2450959.0	29.18814	46.63520	14.82969	-0.91611	0.53726	0.21876	56.97990	1.08433	57.96	15.09
98/ 5/26	2450959.5	22.77339	49.90380	16.19337	-0.97553	0.42689	0.18346	57.19477	1.08054	65.47	16.45
98/ 5/26	2450960.0	16.00946	52.40610	17.30949	-1.01913	0.31134	0.14578	57.46582	1.07555	73.01	17.53
98/ 5/27	2450960.5	9.00488	54.11450	18.16443	-1.04657	0.19283	0.10646	57.78766	1.06950	80.55	18.32
98/ 5/27	2450961.0	1.86914	55.01629	18.74959	-1.05790	0.07350	0.06624	58.15353	1.06252	88.05	18.81
98/ 5/28	2450961.5	-5.28985	55.11296	19.06126	-1.05353	-0.04459	0.02582	58.55555	1.05479	95.48	19.00
98/ 5/28	2450962.0	-12.36802	54.41918	19.10036	-1.03417	-0.15962	-0.01414	58.98507	1.04651	102.80	18.89
98/ 5/29	2450962.5	-19.26689	52.96143	18.87204	-1.00076	-0.26994	-0.05306	59.43298	1.03789	109.99	18.51
98/ 5/29	2450963.0	-25.89502	50.77644	18.38521	-0.95442	-0.37415	-0.09040	59.89002	1.02912	117.02	17.88
98/ 5/30	2450963.5	-32.16891	47.90964	17.65203	-0.89637	-0.47109	-0.12573	60.34705	1.02040	123.88	17.01
98/ 5/30	2450964.0	-38.01365	44.41361	16.68745	-0.82791	-0.55982	-0.15868	60.79537	1.01194	130.56	15.93
98/ 5/31	2450964.5	-43.36312	40.34661	15.50867	-0.75034	-0.63959	-0.18894	61.22686	1.00388	137.06	14.67
98/ 5/31	2450965.0	-48.16008	35.77134	14.13475	-0.66497	-0.70983	-0.21627	61.63419	0.99640	143.40	13.26
98/ 6/ 1	2450965.5	-52.35596	30.75377	12.58621	-0.57306	-0.77014	-0.24047	62.01091	0.98961	149.57	11.71

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 6/ 1	2450966.0	-55.91067	25.36222	10.88468	-0.47583	-0.82023	-0.26142	62.35160	0.98363	155.60	10.05
98/ 6/ 2	2450966.5	-58.79221	19.66659	9.05268	-0.37447	-0.85991	-0.27899	62.65181	0.97853	161.50	8.31
98/ 6/ 2	2450967.0	-60.97638	13.73766	7.11330	-0.27009	-0.88910	-0.29311	62.90819	0.97435	167.30	6.49
98/ 6/ 3	2450967.5	-62.44639	7.64666	5.09011	-0.16376	-0.90777	-0.30374	63.11840	0.97115	173.02	4.63
98/ 6/ 3	2450968.0	-63.19265	1.46474	3.00692	-0.05654	-0.91596	-0.31083	63.28111	0.96891	178.67	2.72
98/ 6/ 4	2450968.5	-63.21245	-4.73729	0.88771	0.05059	-0.91373	-0.31437	63.39593	0.96762	184.29	0.80
98/ 6/ 4	2450969.0	-62.50982	-10.88936	-1.24352	0.15663	-0.90123	-0.31438	63.46339	0.96726	189.88	-1.12
98/ 6/ 5	2450969.5	-61.09536	-16.92243	-3.36285	0.26062	-0.87862	-0.31086	63.48481	0.96775	195.48	-3.04
98/ 6/ 5	2450970.0	-58.98622	-22.76878	-5.44655	0.36161	-0.84613	-0.30386	63.46224	0.96904	201.11	-4.92
98/ 6/ 6	2450970.5	-56.20596	-28.36236	-7.47117	0.45864	-0.80404	-0.29343	63.39836	0.97104	206.78	-6.77
98/ 6/ 6	2450971.0	-52.78463	-33.63920	-9.41372	0.55076	-0.75266	-0.27964	63.29637	0.97367	212.51	-8.55
98/ 6/ 7	2450971.5	-48.75866	-38.53781	-11.25177	0.63703	-0.69242	-0.26259	63.15989	0.97683	218.32	-10.26
98/ 6/ 7	2450972.0	-44.17090	-42.99967	-12.96366	0.71650	-0.62378	-0.24241	62.99283	0.98042	224.23	-11.88
98/ 6/ 8	2450972.5	-39.07052	-46.96979	-14.52863	0.78824	-0.54732	-0.21924	62.79927	0.98435	230.25	-13.38
98/ 6/ 8	2450973.0	-33.51292	-50.39733	-15.92709	0.85136	-0.46368	-0.19327	62.58337	0.98852	236.38	-14.74
98/ 6/ 9	2450973.5	-27.55950	-53.23622	-17.14081	0.90498	-0.37363	-0.16473	62.34925	0.99284	242.63	-15.96
98/ 6/ 9	2450974.0	-21.27741	-55.44590	-18.15320	0.94828	-0.27803	-0.13386	62.10084	0.99723	249.01	-17.00
98/ 6/10	2450974.5	-14.73915	-56.99200	-18.94955	0.98051	-0.17785	-0.10098	61.84186	1.00162	255.50	-17.84
98/ 6/10	2450975.0	-8.02199	-57.84710	-19.51732	1.00101	-0.07417	-0.06642	61.57569	1.00595	262.10	-18.48
98/ 6/11	2450975.5	-1.20736	-57.99142	-19.84639	1.00921	0.03184	-0.03056	61.30532	1.01018	268.81	-18.89
98/ 6/11	2450976.0	5.61998	-57.41346	-19.92930	1.00470	0.13890	0.00619	61.03332	1.01428	275.59	-19.06
98/ 6/12	2450976.5	12.37286	-56.11056	-19.76153	0.98719	0.24567	0.04339	60.76184	1.01823	282.44	-18.98
98/ 6/12	2450977.0	18.96277	-54.08944	-19.34167	0.95657	0.35075	0.08055	60.49259	1.02203	289.32	-18.65
98/ 6/13	2450977.5	25.30100	-51.36646	-18.67161	0.91290	0.45268	0.11719	60.22693	1.02569	296.22	-18.06
98/ 6/13	2450978.0	31.29994	-47.96794	-17.75664	0.85644	0.54999	0.15278	59.96589	1.02923	303.13	-17.22
98/ 6/14	2450978.5	36.87433	-43.93012	-16.60558	0.78763	0.64121	0.18682	59.71027	1.03268	310.01	-16.15
98/ 6/14	2450979.0	41.94269	-39.29913	-15.23071	0.70714	0.72491	0.21878	59.46079	1.03606	316.86	-14.84
98/ 6/15	2450979.5	46.42868	-34.13064	-13.64785	0.61582	0.79971	0.24816	59.21813	1.03940	323.68	-13.32
98/ 6/15	2450980.0	50.26246	-28.48945	-11.87615	0.51474	0.86429	0.27446	58.98310	1.04273	330.45	-11.62
98/ 6/16	2450980.5	53.38205	-22.44882	-9.93800	0.40515	0.91747	0.29723	58.75676	1.04606	337.19	-9.74
98/ 6/16	2450981.0	55.73464	-16.08965	-7.85879	0.28850	0.95819	0.31605	58.54048	1.04940	343.90	-7.71
98/ 6/17	2450981.5	57.27778	-9.49949	-5.66658	0.16641	0.98555	0.33054	58.33605	1.05274	350.58	-5.57
98/ 6/17	2450982.0	57.98053	-2.77128	-3.39180	0.04065	0.99885	0.34039	58.14573	1.05604	357.26	-3.34
98/ 6/18	2450982.5	57.82440	3.99796	-1.06678	-0.08688	0.99760	0.34534	57.97226	1.05926	3.96	-1.05
98/ 6/18	2450983.0	56.80415	10.70870	1.27475	-0.21418	0.98156	0.34524	57.81880	1.06232	10.68	1.26
98/ 6/19	2450983.5	54.92842	17.26069	3.59819	-0.33916	0.95075	0.34000	57.68890	1.06515	17.44	3.58
98/ 6/19	2450984.0	52.21995	23.55471	5.86872	-0.45973	0.90546	0.32963	57.58637	1.06765	24.28	5.85
98/ 6/20	2450984.5	48.71565	29.49466	8.05196	-0.57382	0.84631	0.31425	57.51507	1.06970	31.19	8.05
98/ 6/20	2450985.0	44.46621	34.98945	10.11467	-0.67944	0.77419	0.29408	57.47880	1.07121	38.20	10.14
98/ 6/21	2450985.5	39.53535	39.95510	12.02546	-0.77475	0.69028	0.26945	57.48100	1.07206	45.30	12.08
98/ 6/21	2450986.0	33.99864	44.31652	13.75549	-0.85808	0.59603	0.24078	57.52456	1.07216	52.51	13.83
98/ 6/22	2450986.5	27.94205	48.00926	15.27909	-0.92806	0.49312	0.20858	57.61161	1.07143	59.80	15.38
98/ 6/22	2450987.0	21.46000	50.98087	16.57431	-0.98356	0.38341	0.17345	57.74330	1.06980	67.17	16.68
98/ 6/23	2450987.5	14.65326	53.19198	17.62342	-1.02384	0.26888	0.13602	57.91968	1.06726	74.60	17.71
98/ 6/23	2450988.0	7.62661	54.61685	18.41315	-1.04846	0.15158	0.09697	58.13957	1.06379	82.05	18.46

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 6/24	2450988.5	0.48650	55.24364	18.93490	-1.05736	0.03355	0.05700	58.40057	1.05943	89.50	18.92
98/ 6/24	2450989.0	-6.66133	55.07403	19.18471	-1.05081	-0.08327	0.01678	58.69902	1.05423	96.90	19.08
98/ 6/25	2450989.5	-13.71397	54.12264	19.16318	-1.02937	-0.19702	-0.02302	59.03017	1.04830	104.22	18.94
98/ 6/25	2450990.0	-20.57323	52.41598	18.87513	-0.99386	-0.30603	-0.06182	59.38824	1.04175	111.43	18.53
98/ 6/26	2450990.5	-27.14727	49.99117	18.32929	-0.94533	-0.40885	-0.09906	59.76666	1.03471	118.50	17.86
98/ 6/26	2450991.0	-33.35179	46.89456	17.53786	-0.88495	-0.50422	-0.13427	60.15827	1.02733	125.42	16.95
98/ 6/27	2450991.5	-39.11091	43.18020	16.51603	-0.81403	-0.59111	-0.16704	60.55553	1.01978	132.17	15.83
98/ 6/27	2450992.0	-44.35772	38.90840	15.28148	-0.73390	-0.66871	-0.19703	60.95076	1.01223	138.74	14.52
98/ 6/28	2450992.5	-49.03449	34.14429	13.85395	-0.64593	-0.73640	-0.22398	61.33633	1.00483	145.15	13.05
98/ 6/28	2450993.0	-53.09272	28.95655	12.25478	-0.55147	-0.79375	-0.24769	61.70493	0.99775	151.39	11.46
98/ 6/29	2450993.5	-56.49292	23.41631	10.50651	-0.45183	-0.84046	-0.26799	62.04966	0.99113	157.49	9.75
98/ 6/29	2450994.0	-59.20434	17.59616	8.63259	-0.34828	-0.87639	-0.28478	62.36426	0.98512	163.45	7.96
98/ 6/30	2450994.5	-61.20458	11.56934	6.65701	-0.24202	-0.90149	-0.29800	62.64316	0.97982	169.30	6.10
98/ 6/30	2450995.0	-62.47916	5.40911	4.60414	-0.13419	-0.91580	-0.30760	62.88165	0.97535	175.05	4.20
98/ 7/ 1	2450995.5	-63.02115	-0.81180	2.49847	-0.02587	-0.91943	-0.31359	63.07588	0.97178	180.74	2.27
98/ 7/ 1	2450996.0	-62.83079	-7.02159	0.36448	0.08191	-0.91255	-0.31596	63.22296	0.96917	186.38	0.33
98/ 7/ 2	2450996.5	-61.91514	-13.14977	-1.77346	0.18814	-0.89536	-0.31476	63.32098	0.96755	191.99	-1.60
98/ 7/ 2	2450997.0	-60.28787	-19.12740	-3.89127	0.29189	-0.86813	-0.31003	63.36897	0.96694	197.60	-3.52
98/ 7/ 3	2450997.5	-57.96903	-24.88739	-5.96518	0.39220	-0.83115	-0.30181	63.36698	0.96733	203.23	-5.40
98/ 7/ 3	2450998.0	-54.98492	-30.36476	-7.97189	0.48818	-0.78474	-0.29020	63.31597	0.96869	208.91	-7.23
98/ 7/ 4	2450998.5	-51.36802	-35.49694	-9.88864	0.57891	-0.72928	-0.27526	63.21781	0.97096	214.65	-9.00
98/ 7/ 4	2450999.0	-47.15692	-40.22408	-11.69330	0.66349	-0.66521	-0.25712	63.07523	0.97408	220.46	-10.68
98/ 7/ 5	2450999.5	-42.39635	-44.48943	-13.36456	0.74102	-0.59301	-0.23589	62.89174	0.97796	226.38	-12.27
98/ 7/ 5	2451000.0	-37.13711	-48.23984	-14.88203	0.81060	-0.51325	-0.21173	62.67154	0.98251	232.41	-13.74
98/ 7/ 6	2451000.5	-31.43607	-51.42626	-16.22646	0.87133	-0.42658	-0.18483	62.41943	0.98760	238.56	-15.07
98/ 7/ 6	2451001.0	-25.35604	-54.00436	-17.37995	0.92237	-0.33375	-0.15539	62.14067	0.99312	244.85	-16.24
98/ 7/ 7	2451001.5	-18.96563	-55.93526	-18.32616	0.96285	-0.23562	-0.12367	61.84090	0.99895	251.27	-17.24
98/ 7/ 7	2451002.0	-12.33893	-57.18624	-19.05063	0.99202	-0.13315	-0.08996	61.52594	1.00495	257.82	-18.04
98/ 7/ 8	2451002.5	-5.55509	-57.73161	-19.54107	1.00914	-0.02745	-0.05462	61.20172	1.01099	264.50	-18.62
98/ 7/ 8	2451003.0	1.30226	-57.55348	-19.78761	1.01363	0.08028	-0.01801	60.87404	1.01697	271.30	-18.97
98/ 7/ 9	2451003.5	8.14583	-56.64264	-19.78321	1.00501	0.18869	0.01941	60.54848	1.02275	278.18	-19.07
98/ 7/ 9	2451004.0	14.88567	-54.99925	-19.52387	0.98296	0.29635	0.05718	60.23024	1.02825	285.14	-18.91
98/ 7/10	2451004.5	21.43031	-52.63352	-19.00897	0.94737	0.40173	0.09479	59.92400	1.03338	292.15	-18.49
98/ 7/10	2451005.0	27.68819	-49.56617	-18.24147	0.89832	0.50326	0.13168	59.63382	1.03807	299.19	-17.81
98/ 7/11	2451005.5	33.56917	-45.82878	-17.22806	0.83615	0.59932	0.16731	59.36306	1.04227	306.22	-16.87
98/ 7/11	2451006.0	38.98618	-41.46375	-15.97930	0.76143	0.68833	0.20109	59.11433	1.04595	313.24	-15.68
98/ 7/12	2451006.5	43.85691	-36.52415	-14.50958	0.67499	0.76874	0.23246	58.88947	1.04910	320.21	-14.26
98/ 7/12	2451007.0	48.10553	-31.07315	-12.83703	0.57792	0.83911	0.26089	58.68962	1.05175	327.14	-12.63
98/ 7/13	2451007.5	51.66432	-25.18329	-10.98333	0.47153	0.89813	0.28587	58.51524	1.05390	334.01	-10.82
98/ 7/13	2451008.0	54.47518	-18.93538	-8.97345	0.35734	0.94467	0.30695	58.36623	1.05561	340.83	-8.84
98/ 7/14	2451008.5	56.49096	-12.41722	-6.83519	0.23704	0.97780	0.32372	58.24205	1.05692	347.60	-6.74
98/ 7/14	2451009.0	57.67655	-5.72212	-4.59882	0.11250	0.99682	0.33587	58.14186	1.05788	354.33	-4.54
98/ 7/15	2451009.5	58.00972	1.05272	-2.29649	-0.01434	1.00129	0.34316	58.06471	1.05856	1.04	-2.27
98/ 7/15	2451010.0	57.48171	7.80801	0.03832	-0.14146	0.99104	0.34544	58.00959	1.05901	7.74	0.04
98/ 7/16	2451010.5	56.09746	14.44409	2.37137	-0.26684	0.96613	0.34264	57.97568	1.05925	14.44	2.34

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 7/16	2451011.0	53.87565	20.86279	4.66832	-0.38845	0.92693	0.33479	57.96236	1.05933	21.17	4.62
98/ 7/17	2451011.5	50.84839	26.96919	6.89531	-0.50437	0.87403	0.32201	57.96931	1.05925	27.94	6.83
98/ 7/17	2451012.0	47.06064	32.67332	9.01960	-0.61272	0.80830	0.30451	57.99658	1.05901	34.77	8.95
98/ 7/18	2451012.5	42.56944	37.89177	11.01015	-0.71182	0.73081	0.28257	58.04452	1.05860	41.67	10.93
98/ 7/18	2451013.0	37.44277	42.54920	12.83813	-0.80013	0.64286	0.25657	58.11380	1.05798	48.65	12.76
98/ 7/19	2451013.5	31.75835	46.57961	14.47748	-0.87632	0.54592	0.22695	58.20524	1.05710	55.71	14.40
98/ 7/19	2451014.0	25.60213	49.92746	15.90535	-0.93929	0.44159	0.19421	58.31981	1.05593	62.85	15.83
98/ 7/20	2451014.5	19.06664	52.54857	17.10242	-0.98820	0.33161	0.15890	58.45838	1.05439	70.06	17.01
98/ 7/20	2451015.0	12.24923	54.41078	18.05327	-1.02246	0.21779	0.12160	58.62164	1.05245	77.31	17.94
98/ 7/21	2451015.5	5.25022	55.49425	18.74654	-1.04179	0.10197	0.08294	58.80994	1.05005	84.60	18.59
98/ 7/21	2451016.0	-1.82896	55.79160	19.17508	-1.04616	-0.01404	0.04353	59.02314	1.04716	91.88	18.96
98/ 7/22	2451016.5	-8.88766	55.30768	19.33593	-1.03581	-0.12845	0.00399	59.26051	1.04375	99.13	19.04
98/ 7/22	2451017.0	-15.82776	54.05905	19.23024	-1.01124	-0.23958	-0.03508	59.52060	1.03982	106.32	18.85
98/ 7/23	2451017.5	-22.55530	52.07332	18.86312	-0.97318	-0.34587	-0.07312	59.80125	1.03540	113.42	18.39
98/ 7/23	2451018.0	-28.98191	49.38808	18.24334	-0.92254	-0.44591	-0.10960	60.09953	1.03050	120.41	17.67
98/ 7/24	2451018.5	-35.02600	46.04989	17.38303	-0.86041	-0.53849	-0.14407	60.41178	1.02520	127.26	16.72
98/ 7/24	2451019.0	-40.61372	42.11297	16.29729	-0.78799	-0.62256	-0.17611	60.73367	1.01957	133.96	15.57
98/ 7/25	2451019.5	-45.67964	37.63793	15.00378	-0.70655	-0.69727	-0.20537	61.06027	1.01369	140.51	14.22
98/ 7/25	2451020.0	-50.16720	32.69048	13.52231	-0.61743	-0.76196	-0.23157	61.38623	1.00768	146.91	12.73
98/ 7/26	2451020.5	-54.02889	27.34019	11.87442	-0.52196	-0.81616	-0.25448	61.70582	1.00166	153.16	11.09
98/ 7/26	2451021.0	-57.22625	21.65932	10.08296	-0.42147	-0.85954	-0.27394	62.01319	0.99574	159.27	9.36
98/ 7/27	2451021.5	-59.72974	15.72178	8.17177	-0.31727	-0.89193	-0.28982	62.30244	0.99005	165.25	7.54
98/ 7/27	2451022.0	-61.51843	9.60220	6.16533	-0.21060	-0.91330	-0.30206	62.56781	0.98473	171.13	5.66
98/ 7/28	2451022.5	-62.57964	3.37517	4.08847	-0.10265	-0.92368	-0.31061	62.80381	0.97990	176.91	3.73
98/ 7/28	2451023.0	-62.90855	-2.88545	1.96615	0.00546	-0.92325	-0.31548	63.00538	0.97568	182.63	1.79
98/ 7/29	2451023.5	-62.50778	-9.10706	-0.17678	0.11265	-0.91220	-0.31670	63.16797	0.97217	188.29	-0.16
98/ 7/29	2451024.0	-61.38699	-15.21873	-2.31569	0.21791	-0.89083	-0.31431	63.28771	0.96946	193.92	-2.10
98/ 7/30	2451024.5	-59.56249	-21.15157	-4.42636	0.32029	-0.85945	-0.30837	63.36144	0.96765	199.55	-4.01
98/ 7/30	2451025.0	-57.05700	-26.83902	-6.48505	0.41886	-0.81843	-0.29898	63.38683	0.96678	205.19	-5.87
98/ 7/31	2451025.5	-53.89931	-32.21711	-8.46864	0.51273	-0.76817	-0.28621	63.36242	0.96690	210.87	-7.68
98/ 7/31	2451026.0	-50.12418	-37.22473	-10.35468	0.60104	-0.70911	-0.27019	63.28770	0.96804	216.60	-9.42
98/ 8/ 1	2451026.5	-45.77214	-41.80383	-12.12152	0.68295	-0.64172	-0.25103	63.16312	0.97018	222.41	-11.06
98/ 8/ 1	2451027.0	-40.88941	-45.89981	-13.74840	0.75761	-0.56654	-0.22888	62.99011	0.97330	228.30	-12.61
98/ 8/ 2	2451027.5	-35.52790	-49.46175	-15.21555	0.82419	-0.48413	-0.20390	62.77109	0.97737	234.31	-14.03
98/ 8/ 2	2451028.0	-29.74511	-52.44295	-16.50438	0.88187	-0.39516	-0.17626	62.50943	0.98230	240.44	-15.31
98/ 8/ 3	2451028.5	-23.60410	-54.80132	-17.59761	0.92984	-0.30035	-0.14618	62.20944	0.98801	246.70	-16.43
98/ 8/ 3	2451029.0	-17.17342	-56.50007	-18.47950	0.96728	-0.20052	-0.11389	61.87630	0.99439	253.09	-17.38
98/ 8/ 4	2451029.5	-10.52691	-57.50834	-19.13608	0.99344	-0.09662	-0.07969	61.51597	1.00131	259.63	-18.12
98/ 8/ 4	2451030.0	-3.74343	-57.80199	-19.55543	1.00761	0.01031	-0.04390	61.13508	1.00862	266.29	-18.66
98/ 8/ 5	2451030.5	3.09357	-57.36447	-19.72800	1.00915	0.11908	-0.00689	60.74082	1.01618	273.09	-18.95
98/ 8/ 5	2451031.0	9.89668	-56.18769	-19.64694	0.99753	0.22838	0.03092	60.34073	1.02381	279.99	-19.00
98/ 8/ 6	2451031.5	16.57540	-54.27292	-19.30842	0.97237	0.33676	0.06905	59.94254	1.03135	286.98	-18.79
98/ 8/ 6	2451032.0	23.03723	-51.63161	-18.71200	0.93347	0.44265	0.10699	59.55398	1.03863	294.05	-18.31
98/ 8/ 7	2451032.5	29.18909	-48.28614	-17.86093	0.88086	0.54441	0.14415	59.18249	1.04550	301.15	-17.57
98/ 8/ 7	2451033.0	34.93887	-44.27032	-16.76240	0.81481	0.64031	0.17996	58.83506	1.05181	308.28	-16.55

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
98/ 8/ 8	2451033.5	40.19733	-39.62967	-15.42771	0.73589	0.72863	0.21378	58.51795	1.05743	315.41	-15.29
98/ 8/ 8	2451034.0	44.88009	-34.42134	-13.87236	0.64498	0.80767	0.24502	58.23653	1.06224	322.51	-13.78
98/ 8/ 9	2451034.5	48.90971	-28.71364	-12.11598	0.54325	0.87583	0.27305	57.99509	1.06619	329.58	-12.06
98/ 8/ 9	2451035.0	52.21773	-22.58523	-10.18215	0.43217	0.93168	0.29733	57.79671	1.06921	336.61	-10.15
98/ 8/10	2451035.5	54.74659	-16.12376	-8.09802	0.31348	0.97400	0.31735	57.64323	1.07129	343.59	-8.08
98/ 8/10	2451036.0	56.45127	-9.42429	-5.89386	0.18914	1.00183	0.33271	57.53522	1.07244	350.52	-5.88
98/ 8/11	2451036.5	57.30064	-2.58732	-3.60244	0.06127	1.01452	0.34308	57.47204	1.07271	357.41	-3.59
98/ 8/11	2451037.0	57.27828	4.28339	-1.25834	-0.06790	1.01177	0.34824	57.45200	1.07217	4.28	-1.26
98/ 8/12	2451037.5	56.38296	11.08311	1.10280	-0.19614	0.99359	0.34810	57.47251	1.07092	11.12	1.10
98/ 8/12	2451038.0	54.62855	17.70836	3.44507	-0.32122	0.96033	0.34268	57.53027	1.06904	17.96	3.43
98/ 8/13	2451038.5	52.04359	24.05911	5.73304	-0.44105	0.91267	0.33210	57.62156	1.06667	24.81	5.71
98/ 8/13	2451039.0	48.67040	30.04081	7.93249	-0.55367	0.85153	0.31659	57.74238	1.06390	31.68	7.90
98/ 8/14	2451039.5	44.56390	35.56607	10.01106	-0.65732	0.77810	0.29646	57.88875	1.06085	38.59	9.96
98/ 8/14	2451040.0	39.79019	40.55619	11.93879	-0.75046	0.69375	0.27212	58.05686	1.05760	45.55	11.87
98/ 8/15	2451040.5	34.42496	44.94234	13.68867	-0.83180	0.60001	0.24402	58.24320	1.05425	52.55	13.59
98/ 8/15	2451041.0	28.55178	48.66638	15.23692	-0.90030	0.49852	0.21267	58.44472	1.05085	59.60	15.11
98/ 8/16	2451041.5	22.26042	51.68157	16.56338	-0.95518	0.39098	0.17862	58.65881	1.04744	66.70	16.40
98/ 8/16	2451042.0	15.64503	53.95283	17.65163	-0.99591	0.27913	0.14243	58.88340	1.04405	73.83	17.44
98/ 8/17	2451042.5	8.80255	55.45691	18.48917	-1.02221	0.16473	0.10468	59.11686	1.04068	80.98	18.23
98/ 8/17	2451043.0	1.83100	56.18229	19.06743	-1.03403	0.04947	0.06596	59.35797	1.03732	88.13	18.74
98/ 8/18	2451043.5	-5.17204	56.12890	19.38176	-1.03155	-0.06497	0.02684	59.60584	1.03395	95.26	18.98
98/ 8/18	2451044.0	-12.11085	55.30768	19.43136	-1.01515	-0.17701	-0.01212	59.85975	1.03054	102.35	18.94
98/ 8/19	2451044.5	-18.89297	53.73999	19.21912	-0.98539	-0.28516	-0.05039	60.11909	1.02706	109.37	18.64
98/ 8/19	2451045.0	-25.43033	51.45687	18.75144	-0.94301	-0.38805	-0.08747	60.38317	1.02348	116.30	18.09
98/ 8/20	2451045.5	-31.64042	48.49824	18.03800	-0.88891	-0.48444	-0.12289	60.65117	1.01977	123.12	17.30
98/ 8/20	2451046.0	-37.44714	44.91193	17.09150	-0.82408	-0.57322	-0.15623	60.92199	1.01592	129.82	16.29
98/ 8/21	2451046.5	-42.78156	40.75274	15.92733	-0.74964	-0.65346	-0.18711	61.19418	1.01192	136.39	15.09
98/ 8/21	2451047.0	-47.58261	36.08133	14.56325	-0.66678	-0.72436	-0.21521	61.46589	1.00777	142.83	13.71
98/ 8/22	2451047.5	-51.79741	30.96319	13.01907	-0.57673	-0.78528	-0.24025	61.73481	1.00350	149.13	12.17
98/ 8/22	2451048.0	-55.38160	25.46760	11.31629	-0.48078	-0.83575	-0.26201	61.99822	0.99914	155.30	10.52
98/ 8/23	2451048.5	-58.29946	19.66657	9.47772	-0.38018	-0.87544	-0.28032	62.25294	0.99474	161.36	8.76
98/ 8/23	2451049.0	-60.52387	13.63385	7.52723	-0.27621	-0.90414	-0.29504	62.49544	0.99036	167.31	6.92
98/ 8/24	2451049.5	-62.03616	7.44409	5.48935	-0.17010	-0.92181	-0.30611	62.72187	0.98609	173.16	5.02
98/ 8/24	2451050.0	-62.82590	1.17195	3.38904	-0.06304	-0.92849	-0.31348	62.92816	0.98200	178.93	3.09
98/ 8/25	2451050.5	-62.89058	-5.10858	1.25136	0.04382	-0.92432	-0.31714	63.11013	0.97820	184.64	1.14
98/ 8/25	2451051.0	-62.23521	-11.32481	-0.89866	0.14940	-0.90955	-0.31713	63.26358	0.97477	190.31	-0.81
98/ 8/26	2451051.5	-60.87201	-17.40594	-3.03632	0.25267	-0.88448	-0.31351	63.38445	0.97182	195.96	-2.75
98/ 8/26	2451052.0	-58.81995	-23.28343	-5.13737	0.35266	-0.84948	-0.30634	63.46887	0.96945	201.60	-4.64
98/ 8/27	2451052.5	-56.10441	-28.89144	-7.17816	0.44844	-0.80498	-0.29573	63.51336	0.96775	207.25	-6.49
98/ 8/27	2451053.0	-52.75685	-34.16710	-9.13578	0.53915	-0.75142	-0.28180	63.51487	0.96682	212.93	-8.27
98/ 8/28	2451053.5	-48.81448	-39.05085	-10.98815	0.62395	-0.68933	-0.26467	63.47095	0.96672	218.66	-9.97
98/ 8/28	2451054.0	-44.32006	-43.48663	-12.71411	0.70204	-0.61924	-0.24450	63.37984	0.96752	224.46	-11.57
98/ 8/29	2451054.5	-39.32166	-47.42220	-14.29358	0.77264	-0.54172	-0.22144	63.24053	0.96927	230.34	-13.06
98/ 8/29	2451055.0	-33.87250	-50.80937	-15.70760	0.83502	-0.45741	-0.19567	63.05289	0.97199	236.31	-14.43
98/ 8/30	2451055.5	-28.03086	-53.60436	-16.93844	0.88842	-0.36697	-0.16739	62.81773	0.97569	242.39	-15.64

1.10 1 E.R.=6378.3255KM.

		GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM							MOON		
DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 8/30	2451056.0	-21.85994	-55.76817	-17.96980	0.93214	-0.27115	-0.13680	62.53687	0.98036	248.60	-16.70
98/ 8/31	2451056.5	-15.42774	-57.26701	-18.78691	0.96546	-0.17075	-0.10416	62.21313	0.98596	254.92	-17.58
98/ 8/31	2451057.0	-8.80697	-58.07283	-19.37674	0.98771	-0.06667	-0.06974	61.85042	0.99241	261.38	-18.26
98/ 9/ 1	2451057.5	-2.07481	-58.16399	-19.72821	0.99825	0.04011	-0.03383	61.45369	0.99963	267.96	-18.72
98/ 9/ 1	2451058.0	4.68739	-57.52594	-19.83249	0.99649	0.14847	0.00320	61.02895	1.00749	274.66	-18.96
98/ 9/ 2	2451058.5	11.39454	-56.15203	-19.68324	0.98191	0.25719	0.04096	60.58313	1.01586	281.47	-18.96
98/ 9/ 2	2451059.0	17.95843	-54.04438	-19.27696	0.95413	0.36490	0.07902	60.12405	1.02458	288.38	-18.70
98/ 9/ 3	2451059.5	24.28864	-51.21475	-18.61334	0.91288	0.47013	0.11687	59.66025	1.03345	295.37	-18.18
98/ 9/ 3	2451060.0	30.29364	-47.68535	-17.69559	0.85810	0.57126	0.15397	59.20077	1.04230	302.43	-17.39
98/ 9/ 4	2451060.5	35.88220	-43.48964	-16.53075	0.78996	0.66659	0.18973	58.75498	1.05090	309.53	-16.34
98/ 9/ 4	2451061.0	40.96517	-38.67284	-15.12997	0.70890	0.75437	0.22353	58.33224	1.05905	316.65	-15.03
98/ 9/ 5	2451061.5	45.45743	-33.29218	-13.50871	0.61568	0.83280	0.25473	57.94163	1.06654	323.78	-13.48
98/ 9/ 5	2451062.0	49.28013	-27.41682	-11.68679	0.51140	0.90017	0.28268	57.59162	1.07319	330.91	-11.71
98/ 9/ 6	2451062.5	52.36304	-21.12725	-9.68830	0.39750	0.95486	0.30677	57.28971	1.07883	338.03	-9.74
98/ 9/ 6	2451063.0	54.64683	-14.51419	-7.54135	0.27575	0.99548	0.32643	57.04218	1.08331	345.13	-7.60
98/ 9/ 7	2451063.5	56.08529	-7.67700	-5.27762	0.14824	1.02089	0.34118	56.85375	1.08655	352.21	-5.33
98/ 9/ 7	2451064.0	56.64707	-0.72153	-2.93172	0.01728	1.03030	0.35064	56.72747	1.08847	359.27	-2.96
98/ 9/ 8	2451064.5	56.31708	6.24236	-0.54041	-0.11467	1.02334	0.35456	56.66456	1.08908	6.33	-0.55
98/ 9/ 8	2451065.0	55.09719	13.10356	1.85831	-0.24508	1.00002	0.35282	56.66442	1.08839	13.38	1.88
98/ 9/ 9	2451065.5	53.00633	19.75261	4.22621	-0.37146	0.96080	0.34547	56.72475	1.08650	20.44	4.27
98/ 9/ 9	2451066.0	50.07987	26.08446	6.52574	-0.49145	0.90653	0.33268	56.84169	1.08351	27.51	6.59
98/ 9/10	2451066.5	46.36847	32.00099	8.72102	-0.60291	0.83839	0.31475	57.01012	1.07957	34.61	8.80
98/ 9/10	2451067.0	41.93636	37.41318	10.77858	-0.70399	0.75787	0.29209	57.22396	1.07484	41.74	10.86
98/ 9/11	2451067.5	36.85933	42.24282	12.66811	-0.79312	0.66666	0.26522	57.47649	1.06950	48.89	12.73
98/ 9/11	2451068.0	31.22248	46.42370	14.36296	-0.86912	0.56661	0.23470	57.76069	1.06372	56.08	14.40
98/ 9/12	2451068.5	25.11794	49.90236	15.84045	-0.93112	0.45962	0.20114	58.06958	1.05768	63.28	15.83
98/ 9/12	2451069.0	18.64255	52.63836	17.08215	-0.97856	0.34763	0.16518	58.39642	1.05153	70.50	17.01
98/ 9/13	2451069.5	11.89585	54.60422	18.07390	-1.01122	0.23251	0.12744	58.73498	1.04540	77.71	17.92
98/ 9/13	2451070.0	4.97807	55.78501	18.80581	-1.02910	0.11610	0.08855	59.07967	1.03941	84.90	18.56
98/ 9/14	2451070.5	-2.01148	56.17782	19.27210	-1.03247	0.00010	0.04910	59.42564	1.03364	92.05	18.92
98/ 9/14	2451071.0	-8.97593	55.79093	19.47097	-1.02178	-0.11388	0.00967	59.76884	1.02815	99.14	19.01
98/ 9/15	2451071.5	-15.82205	54.64307	19.40432	-0.99765	-0.22438	-0.02922	60.10599	1.02298	106.15	18.83
98/ 9/15	2451072.0	-22.46128	52.76241	19.07752	-0.96083	-0.33006	-0.06707	60.43454	1.01815	113.06	18.40
98/ 9/16	2451072.5	-28.81062	50.18573	18.49914	-0.91220	-0.42972	-0.10344	60.75259	1.01364	119.86	17.73
98/ 9/16	2451073.0	-34.79331	46.95742	17.68063	-0.85272	-0.52231	-0.13791	61.05882	1.00944	126.54	16.83
98/ 9/17	2451073.5	-40.33939	43.12859	16.63609	-0.78345	-0.60691	-0.17013	61.35227	1.00552	133.09	15.73
98/ 9/17	2451074.0	-45.38615	38.75614	15.38192	-0.70547	-0.68272	-0.19976	61.63233	1.00185	139.51	14.45
98/ 9/18	2451074.5	-49.87849	33.90187	13.93657	-0.61993	-0.74909	-0.22654	61.89853	0.99838	145.80	13.01
98/ 9/18	2451075.0	-53.76916	28.63161	12.32026	-0.52800	-0.80548	-0.25021	62.15047	0.99508	151.97	11.43
98/ 9/19	2451075.5	-57.01893	23.01437	10.55465	-0.43087	-0.85149	-0.27059	62.38766	0.99192	158.02	9.74
98/ 9/19	2451076.0	-59.59666	17.12152	8.66264	-0.32975	-0.88683	-0.28752	62.60950	0.98887	163.97	7.95
98/ 9/20	2451076.5	-61.47934	11.02593	6.66800	-0.22582	-0.91134	-0.30088	62.81514	0.98593	169.83	6.09
98/ 9/20	2451077.0	-62.65195	4.80126	4.59519	-0.12027	-0.92495	-0.31059	63.00345	0.98309	175.62	4.18
98/ 9/21	2451077.5	-63.10741	-1.47879	2.46906	-0.01424	-0.92771	-0.31662	63.17300	0.98035	181.34	2.24
98/ 9/21	2451078.0	-62.84626	-7.74118	0.31458	0.09115	-0.91976	-0.31896	63.32201	0.97776	187.02	0.28

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/ 9/22	2451078.5	-61.87652	-13.91415	-1.84330	0.19483	-0.90135	-0.31764	63.44844	0.97534	192.67	-1.66
98/ 9/22	2451079.0	-60.21329	-19.92779	-3.97997	0.29577	-0.87277	-0.31271	63.54996	0.97314	198.31	-3.59
98/ 9/23	2451079.5	-57.87850	-25.71456	-6.07125	0.39298	-0.83443	-0.30426	63.62404	0.97122	203.95	-5.48
98/ 9/23	2451080.0	-54.90047	-31.20978	-8.09367	0.48556	-0.78676	-0.29239	63.66804	0.96966	209.62	-7.30
98/ 9/24	2451080.5	-51.31362	-36.35199	-10.02453	0.57262	-0.73027	-0.27724	63.67925	0.96853	215.31	-9.06
98/ 9/24	2451081.0	-47.15811	-41.08334	-11.84209	0.65335	-0.66553	-0.25896	63.65504	0.96791	221.06	-10.72
98/ 9/25	2451081.5	-42.47947	-45.34988	-13.52568	0.72697	-0.59312	-0.23771	63.59293	0.96788	226.87	-12.28
98/ 9/25	2451082.0	-37.32830	-49.10188	-15.05583	0.79276	-0.51370	-0.21368	63.49075	0.96852	232.76	-13.72
98/ 9/26	2451082.5	-31.76003	-52.29413	-16.41438	0.85003	-0.42795	-0.18707	63.34672	0.96989	238.73	-15.02
98/ 9/26	2451083.0	-25.83460	-54.88617	-17.58455	0.89812	-0.33659	-0.15810	63.15960	0.97207	244.79	-16.17
98/ 9/27	2451083.5	-19.61626	-56.84269	-18.55114	0.93642	-0.24042	-0.12699	62.92880	0.97510	250.96	-17.15
98/ 9/27	2451084.0	-13.17335	-58.13379	-19.30057	0.96435	-0.14024	-0.09402	62.65450	0.97902	257.23	-17.94
98/ 9/28	2451084.5	-6.57803	-58.73541	-19.82110	0.98134	-0.03697	-0.05945	62.33775	0.98383	263.61	-18.54
98/ 9/28	2451085.0	0.09392	-58.62979	-20.10296	0.98689	0.06843	-0.02359	61.98056	0.98955	270.09	-18.93
98/ 9/29	2451085.5	6.76345	-57.80595	-20.13856	0.98055	0.17493	0.01321	61.58599	0.99612	276.67	-19.09
98/ 9/29	2451086.0	13.34858	-56.26032	-19.92269	0.96191	0.28137	0.05060	61.15817	1.00350	283.35	-19.01
98/ 9/30	2451086.5	19.76491	-53.99741	-19.45278	0.93066	0.38653	0.08815	60.70241	1.01159	290.10	-18.69
98/ 9/30	2451087.0	25.92630	-51.03045	-18.72920	0.88660	0.48904	0.12543	60.22510	1.02027	296.93	-18.12
98/10/ 1	2451087.5	31.74568	-47.38221	-17.75554	0.82968	0.58745	0.16192	59.73375	1.02941	303.82	-17.29
98/10/ 1	2451088.0	37.13620	-43.08564	-16.53887	0.76000	0.68022	0.19709	59.23685	1.03882	310.76	-16.21
98/10/ 2	2451088.5	42.01256	-38.18453	-15.09007	0.67793	0.76569	0.23036	58.74371	1.04830	317.73	-14.88
98/10/ 2	2451089.0	46.29270	-32.73394	-13.42406	0.58407	0.84219	0.26113	58.26431	1.05764	324.74	-13.32
98/10/ 3	2451089.5	49.89973	-26.80042	-11.55993	0.47934	0.90802	0.28876	57.80898	1.06661	331.76	-11.54
98/10/ 3	2451090.0	52.76412	-20.46185	-9.52105	0.36501	0.96154	0.31263	57.38806	1.07495	338.80	-9.55
98/10/ 4	2451090.5	54.82601	-13.80679	-7.33490	0.24267	1.00124	0.33215	57.01158	1.08245	345.87	-7.39
98/10/ 4	2451091.0	56.03763	-6.93336	-5.03285	0.11428	1.02583	0.34677	56.68877	1.08887	352.95	-5.09
98/10/ 5	2451091.5	56.36546	0.05253	-2.64964	-0.01791	1.03431	0.35605	56.42772	1.09402	0.05	-2.69
98/10/ 5	2451092.0	55.79216	7.03944	-0.22266	-0.15138	1.02606	0.35965	56.23494	1.09775	7.19	-0.23
98/10/ 6	2451092.5	54.31795	13.91322	2.20886	-0.28349	1.00091	0.35738	56.11503	1.09996	14.37	2.26
98/10/ 6	2451093.0	51.96128	20.56010	4.60498	-0.41152	0.95915	0.34920	56.07047	1.10057	21.59	4.71
98/10/ 7	2451093.5	48.75874	26.86996	6.92611	-0.53284	0.90156	0.33527	56.10152	1.09960	28.86	7.09
98/10/ 7	2451094.0	44.76413	32.73946	9.13416	-0.64502	0.82935	0.31587	56.20616	1.09711	36.18	9.35
98/10/ 8	2451094.5	40.04681	38.07488	11.19358	-0.74593	0.74414	0.29147	56.38032	1.09321	43.55	11.45
98/10/ 8	2451095.0	34.68937	42.79448	13.07230	-0.83379	0.64784	0.26262	56.61806	1.08806	50.97	13.35
98/10/ 9	2451095.5	28.78495	46.83015	14.74241	-0.90726	0.54255	0.22998	56.91199	1.08184	58.42	15.01
98/10/ 9	2451096.0	22.43429	50.12849	16.18068	-0.96544	0.43049	0.19428	57.25362	1.07477	65.89	16.42
98/10/10	2451096.5	15.74284	52.65118	17.36880	-1.00785	0.31387	0.15624	57.63383	1.06709	73.35	17.54
98/10/10	2451097.0	8.81800	54.37470	18.29348	-1.03437	0.19485	0.11661	58.04323	1.05901	80.79	18.37
98/10/11	2451097.5	1.76667	55.28977	18.94633	-1.04526	0.07546	0.07608	58.47259	1.05074	88.17	18.91
98/10/11	2451098.0	-5.30684	55.40025	19.32358	-1.04103	-0.04244	0.03533	58.91309	1.04249	95.47	19.15
98/10/12	2451098.5	-12.30247	54.72198	19.42580	-1.02240	-0.15719	-0.00504	59.35661	1.03443	102.67	19.10
98/10/12	2451099.0	-19.12573	53.28140	19.25744	-0.99029	-0.26732	-0.04448	59.79591	1.02670	109.75	18.79
98/10/13	2451099.5	-25.68864	51.11429	18.82651	-0.94570	-0.37154	-0.08250	60.22470	1.01941	116.68	18.22
98/10/13	2451100.0	-31.91041	48.26440	18.14408	-0.88974	-0.46877	-0.11868	60.63773	1.01265	123.47	17.41
98/10/14	2451100.5	-37.71786	44.78230	17.22396	-0.82355	-0.55809	-0.15263	61.03078	1.00648	130.11	16.39

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COCRDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/10/14	2451101.0	-43.04570	40.72423	16.08226	-0.74831	-0.63873	-0.18405	61.40061	1.00091	136.59	15.18
98/10/15	2451101.5	-47.83665	36.15111	14.73713	-0.66521	-0.71008	-0.21267	61.74488	0.99596	142.92	13.81
98/10/15	2451102.0	-52.04144	31.12764	13.20836	-0.57542	-0.77165	-0.23824	62.06208	0.99162	149.12	12.29
98/10/16	2451102.5	-55.61880	25.72143	11.51718	-0.48013	-0.82304	-0.26060	62.35133	0.98784	155.18	10.64
98/10/16	2451103.0	-58.53540	20.00236	9.68598	-0.38050	-0.86400	-0.27957	62.61234	0.98460	161.13	8.90
98/10/17	2451103.5	-60.76574	14.04180	7.73803	-0.27767	-0.89433	-0.29505	62.84524	0.98183	166.99	7.07
98/10/17	2451104.0	-62.29203	7.91204	5.69734	-0.17278	-0.91395	-0.30695	63.05044	0.97948	172.76	5.18
98/10/18	2451104.5	-63.10410	1.68569	3.58839	-0.06695	-0.92286	-0.31520	63.22852	0.97750	178.47	3.25
98/10/18	2451105.0	-63.19921	-4.56494	1.43593	0.03875	-0.92114	-0.31979	63.38013	0.97584	184.13	1.30
98/10/19	2451105.5	-62.58193	-10.76832	-0.73520	0.14324	-0.90895	-0.32072	63.50587	0.97446	189.76	-0.66
98/10/19	2451106.0	-61.26390	-16.85433	-2.90026	0.24550	-0.88653	-0.31801	63.60617	0.97331	195.38	-2.61
98/10/20	2451106.5	-59.26365	-22.75472	-5.03483	0.34453	-0.85419	-0.31172	63.68129	0.97238	201.00	-4.53
98/10/20	2451107.0	-56.60637	-28.40360	-7.11496	0.43937	-0.81233	-0.30195	63.73122	0.97165	206.65	-6.41
98/10/21	2451107.5	-53.32358	-33.73800	-9.11738	0.52909	-0.76141	-0.28880	63.75565	0.97112	212.32	-8.22
98/10/21	2451108.0	-49.45287	-38.69824	-11.01964	0.61283	-0.70194	-0.27240	63.75400	0.97082	218.04	-9.95
98/10/22	2451108.5	-45.03758	-43.22842	-12.80032	0.68977	-0.63452	-0.25292	63.72541	0.97075	223.83	-11.59
98/10/22	2451109.0	-40.12642	-47.27681	-14.43914	0.75914	-0.55978	-0.23054	63.66880	0.97098	229.68	-13.11
98/10/23	2451109.5	-34.77313	-50.79623	-15.91713	0.82021	-0.47843	-0.20547	63.58288	0.97153	235.61	-14.50
98/10/23	2451110.0	-29.03611	-53.74436	-17.21677	0.87235	-0.39122	-0.17792	63.46628	0.97247	241.62	-15.74
98/10/24	2451110.5	-22.97801	-56.08414	-18.32214	0.91493	-0.29893	-0.14814	63.31761	0.97386	247.72	-16.82
98/10/24	2451111.0	-16.66541	-57.78406	-19.21900	0.94741	-0.20241	-0.11639	63.13559	0.97576	253.91	-17.72
98/10/25	2451111.5	-10.16842	-58.81848	-19.89498	0.96930	-0.10256	-0.08296	62.91916	0.97824	260.19	-18.43
98/10/25	2451112.0	-3.56024	-59.16797	-20.33968	0.98017	-0.00032	-0.04815	62.66759	0.98136	266.56	-18.94
98/10/26	2451112.5	3.08316	-58.81967	-20.54484	0.97965	0.10332	-0.01228	62.38068	0.98516	273.00	-19.23
98/10/26	2451113.0	9.68353	-57.76759	-20.50444	0.96742	0.20732	0.02430	62.05882	0.98969	279.52	-19.29
98/10/27	2451113.5	16.16083	-56.01307	-20.21491	0.94327	0.31056	0.06122	61.70315	0.99497	286.09	-19.12
98/10/27	2451114.0	22.43369	-53.56512	-19.67526	0.90704	0.41188	0.09809	61.31564	1.00099	292.72	-18.72
98/10/28	2451114.5	28.42010	-50.44092	-18.88730	0.85869	0.51004	0.13447	60.89925	1.00775	299.40	-18.07
98/10/28	2451115.0	34.03813	-46.66628	-17.85580	0.79828	0.60373	0.16992	60.45797	1.01519	306.11	-17.18
98/10/29	2451115.5	39.20680	-42.27607	-16.58875	0.72604	0.69158	0.20395	59.99688	1.02324	312.84	-16.05
98/10/29	2451116.0	43.84714	-37.31465	-15.09752	0.64236	0.77216	0.23604	59.52218	1.03178	319.60	-14.69
98/10/30	2451116.5	47.88354	-31.83625	-13.39704	0.54782	0.84399	0.26564	59.04118	1.04067	326.38	-13.12
98/10/30	2451117.0	51.24516	-25.90513	-11.50598	0.44326	0.90560	0.29222	58.56218	1.04975	333.18	-11.33
98/10/31	2451117.5	53.86768	-19.59553	-9.44681	0.32977	0.95551	0.31519	58.09436	1.05882	340.01	-9.36
98/10/31	2451118.0	55.69523	-12.99144	-7.24579	0.20876	0.99234	0.33402	57.64752	1.06766	346.87	-7.22
98/11/ 1	2451118.5	56.68236	-6.18578	-4.93281	0.08192	1.01484	0.34817	57.23186	1.07602	353.77	-4.94
98/11/ 1	2451119.0	56.79617	0.72070	-2.54112	-0.04876	1.02196	0.35719	56.85756	1.08368	0.73	-2.56
98/11/ 2	2451119.5	56.01827	7.62112	-0.10683	-0.18100	1.01295	0.36070	56.53441	1.09038	7.75	-0.11
98/11/ 2	2451120.0	54.34640	14.40471	2.33178	-0.31231	0.98743	0.35843	56.27135	1.09591	14.85	2.37
98/11/ 3	2451120.5	51.79577	20.95945	4.73511	-0.44005	0.94542	0.35027	56.07604	1.10007	22.03	4.84
98/11/ 3	2451121.0	48.39958	27.17515	7.06329	-0.56156	0.88744	0.33626	55.95443	1.10271	29.31	7.25
98/11/ 4	2451121.5	44.20889	32.94668	9.27728	-0.67425	0.81446	0.31660	55.91045	1.10372	36.70	9.55
98/11/ 4	2451122.0	39.29163	38.17713	11.34006	-0.77574	0.72794	0.29168	55.94571	1.10306	44.18	11.69
98/11/ 5	2451122.5	33.73078	42.78074	13.21768	-0.86398	0.62970	0.26203	56.05947	1.10075	51.75	13.64
98/11/ 5	2451123.0	27.62185	46.68531	14.88027	-0.93735	0.52189	0.22830	56.24862	1.09686	59.39	15.34

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/11/ 6	2451123.5	21.06990	49.83390	16.30278	-0.99465	0.40686	0.19126	56.50786	1.09154	67.08	16.77
98/11/ 6	2451124.0	14.18623	52.18583	17.46543	-1.03523	0.28705	0.15171	56.83002	1.08495	74.79	17.90
98/11/ 7	2451124.5	7.08509	53.71689	18.35405	-1.05887	0.16486	0.11048	57.20642	1.07731	82.49	18.71
98/11/ 7	2451125.0	-0.11938	54.41886	18.95999	-1.06582	0.04259	0.06837	57.62732	1.06886	90.13	19.21
98/11/ 8	2451125.5	-7.31596	54.29845	19.27992	-1.05667	-0.07765	0.02614	58.08236	1.05984	97.67	19.39
98/11/ 8	2451126.0	-14.39850	53.37592	19.31546	-1.03231	-0.19398	-0.01550	58.56101	1.05050	105.10	19.26
98/11/ 9	2451126.5	-21.26776	51.68334	19.07268	-0.99388	-0.30479	-0.05594	59.05296	1.04107	112.37	18.84
98/11/ 9	2451127.0	-27.83252	49.26288	18.56156	-0.94262	-0.40871	-0.09466	59.54840	1.03177	119.47	18.16
98/11/10	2451127.5	-34.01049	46.16502	17.79538	-0.87989	-0.50465	-0.13119	60.03830	1.02278	126.38	17.24
98/11/10	2451128.0	-39.72860	42.44697	16.79025	-0.80706	-0.59172	-0.16516	60.51462	1.01428	133.11	16.11
98/11/11	2451128.5	-44.92317	38.17116	15.56455	-0.72552	-0.66926	-0.19628	60.97035	1.00638	139.65	14.79
98/11/11	2451129.0	-49.53982	33.40399	14.13852	-0.63663	-0.73675	-0.22428	61.39966	0.99920	146.01	13.31
98/11/12	2451129.5	-53.53323	28.21472	12.53386	-0.54170	-0.79385	-0.24900	61.79785	0.99279	152.21	11.70
98/11/12	2451130.0	-56.86680	22.67456	10.77336	-0.44199	-0.84034	-0.27028	62.16135	0.98720	158.26	9.98
98/11/13	2451130.5	-59.51235	16.85589	8.88069	-0.33873	-0.87608	-0.28802	62.48766	0.98245	164.19	8.17
98/11/13	2451131.0	-61.44973	10.83161	6.88008	-0.23306	-0.90105	-0.30214	62.77522	0.97852	170.00	6.29
98/11/14	2451131.5	-62.66651	4.67462	4.79619	-0.12612	-0.91528	-0.31261	63.02339	0.97538	175.73	4.36
98/11/14	2451132.0	-63.15767	-1.54268	2.65386	-0.01897	-0.91888	-0.31939	63.23223	0.97299	181.40	2.41
98/11/15	2451132.5	-62.92534	-7.74882	0.47802	0.08735	-0.91202	-0.32251	63.40246	0.97130	187.02	0.43
98/11/15	2451133.0	-61.97858	-13.87364	-1.70651	0.19183	-0.89491	-0.32197	63.53530	0.97022	192.62	-1.54
98/11/16	2451133.5	-60.33313	-19.84870	-3.87515	0.29351	-0.86785	-0.31782	63.63234	0.96970	198.21	-3.49
98/11/16	2451134.0	-58.01129	-25.60767	-6.00370	0.39141	-0.83116	-0.31014	63.69542	0.96965	203.82	-5.41
98/11/17	2451134.5	-55.04166	-31.08674	-8.06850	0.48464	-0.78526	-0.29901	63.72653	0.97001	209.46	-7.27
98/11/17	2451135.0	-51.45898	-36.22501	-10.04657	0.57230	-0.73061	-0.28455	63.72764	0.97072	215.14	-9.07
98/11/18	2451135.5	-47.30393	-40.96497	-11.91579	0.65352	-0.66774	-0.26689	63.70067	0.97170	220.89	-10.78
98/11/18	2451136.0	-42.62282	-45.25289	-13.65504	0.72750	-0.59724	-0.24620	63.64738	0.97292	226.71	-12.39
98/11/19	2451136.5	-37.46738	-49.03932	-15.24441	0.79346	-0.51977	-0.22267	63.56927	0.97433	232.62	-13.88
98/11/19	2451137.0	-31.89441	-52.27950	-16.66532	0.85068	-0.43606	-0.19650	63.46757	0.97592	238.61	-15.22
98/11/20	2451137.5	-25.96541	-54.93379	-17.90074	0.89849	-0.34690	-0.16794	63.34320	0.97767	244.70	-16.42
98/11/20	2451138.0	-19.74614	-56.96817	-18.93535	0.93630	-0.25315	-0.13724	63.19676	0.97958	250.88	-17.44
98/11/21	2451138.5	-13.30622	-58.35457	-19.75567	0.96357	-0.15571	-0.10471	63.02855	0.98167	257.15	-18.27
98/11/21	2451139.0	-6.71855	-59.07128	-20.35027	0.97986	-0.05556	-0.07064	62.83859	0.98397	263.51	-18.90
98/11/22	2451139.5	-0.05883	-59.10335	-20.70990	0.98479	0.04629	-0.03538	62.62675	0.98651	269.94	-19.31
98/11/22	2451140.0	6.59506	-58.44286	-20.82766	0.97810	0.14876	0.00072	62.39274	0.98935	276.44	-19.50
98/11/23	2451140.5	13.16368	-57.08929	-20.69911	0.95959	0.25076	0.03729	62.13632	0.99251	282.98	-19.46
98/11/23	2451141.0	19.56670	-55.04976	-20.32242	0.92919	0.35113	0.07392	61.85736	0.99607	289.57	-19.18
98/11/24	2451141.5	25.72363	-52.33926	-19.69852	0.88694	0.44869	0.11022	61.55595	1.00006	296.17	-18.66
98/11/24	2451142.0	31.55455	-48.98091	-18.83115	0.83296	0.54223	0.14574	61.23261	1.00453	302.79	-17.91
98/11/25	2451142.5	36.98096	-45.00609	-17.72705	0.76754	0.63052	0.18005	60.88832	1.00950	309.41	-16.93
98/11/25	2451143.0	41.92663	-40.45462	-16.39599	0.69108	0.71231	0.21269	60.52476	1.01499	316.02	-15.72
98/11/26	2451143.5	46.31860	-35.37483	-14.85089	0.60414	0.78632	0.24318	60.14433	1.02099	322.63	-14.30
98/11/26	2451144.0	50.08826	-29.82361	-13.10788	0.50745	0.85131	0.27105	59.75030	1.02747	329.23	-12.67
98/11/27	2451144.5	53.17253	-23.86630	-11.18635	0.40192	0.90603	0.29581	59.34689	1.03438	335.83	-10.86
98/11/27	2451145.0	55.51515	-17.57649	-9.10893	0.28865	0.94930	0.31700	58.93927	1.04162	342.43	-8.89
98/11/28	2451145.5	57.06808	-11.03562	-6.90144	0.16897	0.97999	0.33415	58.53358	1.04909	349.06	-6.77

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/11/28	2451146.0	57.79300	-4.33231	-4.59274	0.04442	0.99711	0.34682	58.13685	1.05664	355.71	-4.53
98/11/29	2451146.5	57.66285	2.43852	-2.21449	-0.08321	0.99981	0.35462	57.75686	1.06409	2.42	-2.20
98/11/29	2451147.0	56.66328	9.17695	0.19921	-0.21196	0.98746	0.35724	57.40195	1.07127	9.20	0.20
98/11/30	2451147.5	54.79407	15.77968	2.61230	-0.33964	0.95970	0.35441	57.08076	1.07795	16.07	2.62
98/11/30	2451148.0	52.07026	22.14203	4.98740	-0.46392	0.91650	0.34601	56.80190	1.08393	23.04	5.04
98/12/ 1	2451148.5	48.52291	28.16031	7.28661	-0.58242	0.85819	0.33201	56.57358	1.08900	30.13	7.40
98/12/ 1	2451149.0	44.19938	33.73444	9.47241	-0.69273	0.78550	0.31255	56.40322	1.09296	37.35	9.67
98/12/ 2	2451149.5	39.16299	38.77070	11.50863	-0.79255	0.69959	0.28790	56.29703	1.09565	44.71	11.80
98/12/ 2	2451150.0	33.49202	43.18456	13.36146	-0.87979	0.60199	0.25848	56.25967	1.09692	52.20	13.74
98/12/ 3	2451150.5	27.27794	46.90314	15.00050	-0.95266	0.49462	0.22487	56.29392	1.09671	59.82	15.45
98/12/ 3	2451151.0	20.62308	49.86744	16.39956	-1.00975	0.37964	0.18774	56.40052	1.09497	67.53	16.90
98/12/ 4	2451151.5	13.63780	52.03387	17.53741	-1.05011	0.25942	0.14787	56.57803	1.09174	75.31	18.06
98/12/ 4	2451152.0	6.43732	53.37518	18.39826	-1.07326	0.13640	0.10608	56.82293	1.08708	83.12	18.89
98/12/ 5	2451152.5	-0.86153	53.88063	18.97199	-1.07919	0.01299	0.06323	57.12969	1.08112	90.92	19.40
98/12/ 5	2451153.0	-8.14341	53.55549	19.25416	-1.06835	-0.10850	0.02012	57.49111	1.07404	98.65	19.57
98/12/ 6	2451153.5	-15.29725	52.41991	19.24575	-1.04155	-0.22600	-0.02246	57.89863	1.06602	106.27	19.41
98/12/ 6	2451154.0	-22.21861	50.50739	18.95277	-0.99991	-0.33764	-0.06380	58.34270	1.05730	113.75	18.96
98/12/ 7	2451154.5	-28.81141	47.86295	18.38569	-0.94477	-0.44189	-0.10330	58.81320	1.04811	121.05	18.22
98/12/ 7	2451155.0	-34.98923	44.54111	17.55885	-0.87763	-0.53749	-0.14043	59.29983	1.03867	128.15	17.22
98/12/ 8	2451155.5	-40.67604	40.60397	16.48976	-0.80004	-0.62345	-0.17477	59.79243	1.02922	135.05	16.01
98/12/ 8	2451156.0	-45.80650	36.11935	15.19855	-0.71360	-0.69906	-0.20597	60.28133	1.01997	141.74	14.60
98/12/ 9	2451156.5	-50.32591	31.15910	13.70730	-0.61986	-0.76383	-0.23380	60.75753	1.01110	148.24	13.04
98/12/ 9	2451157.0	-54.18993	25.79772	12.03960	-0.52031	-0.81748	-0.25806	61.21293	1.00279	154.54	11.34
98/12/10	2451157.5	-57.36410	20.11112	10.22005	-0.41638	-0.85986	-0.27862	61.64046	0.99517	160.68	9.54
98/12/10	2451158.0	-59.82329	14.17563	8.27392	-0.30940	-0.89098	-0.29542	62.03413	0.98835	166.67	7.66
98/12/11	2451158.5	-61.55115	8.06729	6.22686	-0.20062	-0.91093	-0.30842	62.38909	0.98243	172.53	5.73
98/12/11	2451159.0	-62.53946	1.86117	4.10464	-0.09121	-0.91988	-0.31762	62.70165	0.97744	178.30	3.75
98/12/12	2451159.5	-62.78772	-4.36905	1.93293	0.01774	-0.91809	-0.32304	62.96922	0.97342	183.98	1.76
98/12/12	2451160.0	-62.30256	-10.55147	-0.26279	0.12520	-0.90582	-0.32472	63.19028	0.97038	189.61	-0.24
98/12/13	2451160.5	-61.09741	-16.61630	-2.45740	0.23019	-0.88342	-0.32272	63.36429	0.96828	195.21	-2.22
98/12/13	2451161.0	-59.19217	-22.49608	-4.62625	0.33178	-0.85124	-0.31713	63.49164	0.96709	200.81	-4.18
98/12/14	2451161.5	-56.61289	-28.12600	-6.74525	0.42908	-0.80971	-0.30802	63.57349	0.96675	206.42	-6.09
98/12/14	2451162.0	-53.39158	-33.44412	-8.79099	0.52122	-0.75925	-0.29551	63.61173	0.96719	212.06	-7.94
98/12/15	2451162.5	-49.56604	-38.39167	-10.74083	0.60737	-0.70037	-0.27973	63.60879	0.96833	217.76	-9.72
98/12/15	2451163.0	-45.17965	-42.91340	-12.57303	0.68670	-0.63360	-0.26080	63.56762	0.97006	223.53	-11.41
98/12/16	2451163.5	-40.28123	-46.95789	-14.26689	0.75844	-0.55955	-0.23890	63.49145	0.97231	229.38	-12.99
98/12/16	2451164.0	-34.92484	-50.47799	-15.80290	0.82181	-0.47887	-0.21422	63.38378	0.97498	235.32	-14.44
98/12/17	2451164.5	-29.16955	-53.43129	-17.16289	0.87611	-0.39230	-0.18697	63.24816	0.97797	241.37	-15.75
98/12/17	2451165.0	-23.07917	-55.78053	-18.33024	0.92065	-0.30064	-0.15738	63.08814	0.98120	247.52	-16.89
98/12/18	2451165.5	-16.72191	-57.49417	-19.29007	0.95482	-0.20476	-0.12573	62.90714	0.98459	253.78	-17.86
98/12/18	2451166.0	-10.16991	-58.54683	-20.02942	0.97807	-0.10562	-0.09233	62.70834	0.98808	260.15	-18.63
98/12/19	2451166.5	-3.49876	-58.91984	-20.53747	0.98994	-0.00424	-0.05749	62.49461	0.99161	266.60	-19.19
98/12/19	2451167.0	3.21311	-58.60170	-20.80573	0.99005	0.09828	-0.02158	62.26846	0.99515	273.14	-19.52
98/12/20	2451167.5	9.88516	-57.58850	-20.82825	0.97815	0.20081	0.01501	62.03199	0.99866	279.74	-19.62
98/12/20	2451168.0	16.43553	-55.88434	-20.60178	0.95410	0.30212	0.05187	61.78689	1.00214	286.39	-19.48

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
98/12/21	2451168.5	22.78190	-53.50157	-20.12596	0.91792	0.40098	0.08857	61.53444	1.00559	293.07	-19.09
98/12/21	2451169.0	28.84244	-50.46107	-19.40339	0.86974	0.49613	0.12466	61.27558	1.00902	299.75	-18.46
98/12/22	2451169.5	34.53685	-46.79230	-18.43978	0.80986	0.58629	0.15967	61.01097	1.01248	306.43	-17.59
98/12/22	2451170.0	39.78738	-42.53334	-17.24401	0.73875	0.67020	0.19314	60.74106	1.01599	313.09	-16.49
98/12/23	2451170.5	44.51992	-37.73078	-15.82810	0.65702	0.74661	0.22459	60.46622	1.01958	319.72	-15.17
98/12/23	2451171.0	48.66511	-32.43946	-14.20727	0.56546	0.81433	0.25357	60.18686	1.02332	326.31	-13.65
98/12/24	2451171.5	52.15945	-26.72218	-12.39982	0.46500	0.87221	0.27963	59.90358	1.02722	332.87	-11.95
98/12/24	2451172.0	54.94639	-20.64919	-10.42709	0.35677	0.91920	0.30231	59.61727	1.03131	339.40	-10.07
98/12/25	2451172.5	56.97745	-14.29759	-8.31327	0.24202	0.95433	0.32122	59.32926	1.03562	345.91	-8.05
98/12/25	2451173.0	58.21334	-7.75063	-6.08520	0.12221	0.97676	0.33599	59.04146	1.04014	352.42	-5.92
98/12/26	2451173.5	58.62493	-1.09677	-3.77218	-0.00111	0.98580	0.34626	58.75640	1.04484	358.93	-3.68
98/12/26	2451174.0	58.19434	5.57138	-1.40559	-0.12619	0.98091	0.35176	58.47732	1.04968	5.47	-1.38
98/12/27	2451174.5	56.91576	12.15827	0.98148	-0.25119	0.96176	0.35227	58.20817	1.05460	12.06	0.97
98/12/27	2451175.0	54.79627	18.56687	3.35463	-0.37417	0.92826	0.34764	57.95355	1.05949	18.72	3.32
98/12/28	2451175.5	51.85646	24.70031	5.67877	-0.49309	0.88056	0.33780	57.71868	1.06425	25.47	5.65
98/12/28	2451176.0	48.13073	30.46364	7.91867	-0.60590	0.81907	0.32277	57.50918	1.06872	32.33	7.91
98/12/29	2451176.5	43.66744	35.76585	10.03963	-0.71055	0.74454	0.30271	57.33093	1.07278	39.32	10.09
98/12/29	2451177.0	38.52854	40.52190	12.00831	-0.80508	0.65799	0.27785	57.18979	1.07625	46.44	12.12
98/12/30	2451177.5	32.78884	44.65484	13.79340	-0.88767	0.56078	0.24857	57.09134	1.07899	53.71	13.98
98/12/30	2451178.0	26.53486	48.09779	15.36645	-0.95670	0.45454	0.21533	57.04054	1.08086	61.12	15.63
98/12/31	2451178.5	19.86308	50.79580	16.70261	-1.01085	0.34114	0.17872	57.04150	1.08172	68.64	17.03
98/12/31	2451179.0	12.87796	52.70736	17.78127	-1.04910	0.22267	0.13941	57.09712	1.08149	76.27	18.14
99/ 1/ 1	2451179.5	5.68940	53.80551	18.58660	-1.07085	0.10132	0.09813	57.20894	1.08010	83.96	18.96
99/ 1/ 1	2451180.0	-1.58988	54.07841	19.10787	-1.07589	-0.02065	0.05566	57.37693	1.07752	91.68	19.45
99/ 1/ 2	2451180.5	-8.84709	53.52942	19.33971	-1.06440	-0.14102	0.01279	57.59943	1.07378	99.38	19.62
99/ 1/ 2	2451181.0	-15.97213	52.17660	19.28200	-1.03698	-0.25768	-0.02971	57.87315	1.06893	107.02	19.46
99/ 1/ 3	2451181.5	-22.85995	50.05165	18.93975	-0.99453	-0.36872	-0.07112	58.19329	1.06307	114.55	18.99
99/ 1/ 3	2451182.0	-29.41275	47.19857	18.32264	-0.93827	-0.47243	-0.11077	58.55368	1.05632	121.93	18.24
99/ 1/ 4	2451182.5	-35.54164	43.67187	17.44458	-0.86960	-0.56741	-0.14808	58.94704	1.04886	129.14	17.21
99/ 1/ 4	2451183.0	-41.16783	39.53478	16.32310	-0.79010	-0.65252	-0.18257	59.36524	1.04085	136.16	15.96
99/ 1/ 5	2451183.5	-46.22340	34.85724	14.97873	-0.70138	-0.72688	-0.21384	59.79960	1.03248	142.98	14.51
99/ 1/ 5	2451184.0	-50.65164	29.71413	13.43437	-0.60512	-0.78992	-0.24159	60.24119	1.02397	149.60	12.89
99/ 1/ 6	2451184.5	-54.40697	24.18350	11.71467	-0.50294	-0.84127	-0.26559	60.68108	1.01549	156.04	11.13
99/ 1/ 6	2451185.0	-57.45463	18.34515	9.84554	-0.39641	-0.88078	-0.28570	61.11067	1.00724	162.29	9.27
99/ 1/ 7	2451185.5	-59.77017	12.27926	7.85360	-0.28699	-0.90847	-0.30184	61.52180	0.99940	168.39	7.33
99/ 1/ 7	2451186.0	-61.33879	6.06542	5.76585	-0.17607	-0.92450	-0.31399	61.90704	0.99212	174.35	5.34
99/ 1/ 8	2451186.5	-62.15466	-0.21820	3.60929	-0.06491	-0.92913	-0.32217	62.25975	0.98554	180.20	3.32
99/ 1/ 8	2451187.0	-62.22021	-6.49550	1.41070	0.04531	-0.92270	-0.32641	62.57425	0.97978	185.96	1.29
99/ 1/ 9	2451187.5	-61.54545	-12.69291	-0.80359	0.15352	-0.90561	-0.32682	62.84583	0.97494	191.65	-0.73
99/ 1/ 9	2451188.0	-60.14740	-18.73971	-3.00784	0.25873	-0.87830	-0.32347	63.07086	0.97108	197.31	-2.73
99/ 1/10	2451188.5	-58.04955	-24.56832	-5.17701	0.36002	-0.84126	-0.31648	63.24677	0.96824	202.94	-4.70
99/ 1/10	2451189.0	-55.28144	-30.11444	-7.28689	0.45652	-0.79498	-0.30598	63.37204	0.96644	208.58	-6.60
99/ 1/11	2451189.5	-51.87831	-35.31729	-9.31412	0.54740	-0.73998	-0.29210	63.44622	0.96569	214.25	-8.44
99/ 1/11	2451190.0	-47.88079	-40.11975	-11.23633	0.63191	-0.67684	-0.27499	63.46983	0.96593	219.96	-10.20
99/ 1/12	2451190.5	-43.33472	-44.46853	-13.03216	0.70926	-0.60612	-0.25481	63.44435	0.96714	225.74	-11.85

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 1/12	2451191.0	-38.29096	-48.31443	-14.68139	0.77875	-0.52845	-0.23173	63.37211	0.96923	231.60	-13.40
99/ 1/13	2451191.5	-32.80519	-51.61263	-16.16504	0.83967	-0.44450	-0.20595	63.25624	0.97213	237.56	-14.81
99/ 1/13	2451192.0	-26.93786	-54.32301	-17.46548	0.89132	-0.35500	-0.17767	63.10056	0.97572	243.62	-16.07
99/ 1/14	2451192.5	-20.75389	-56.41058	-18.56663	0.93306	-0.26073	-0.14714	62.90944	0.97991	249.80	-17.17
99/ 1/14	2451193.0	-14.32252	-57.84596	-19.45406	0.96427	-0.16256	-0.11461	62.68771	0.98457	256.09	-18.08
99/ 1/15	2451193.5	-7.71697	-58.60585	-20.11528	0.98440	-0.06143	-0.08039	62.44055	0.98959	262.50	-18.79
99/ 1/15	2451194.0	-1.01406	-58.67367	-20.53990	0.99295	0.04163	-0.04480	62.17326	0.99483	269.01	-19.29
99/ 1/16	2451194.5	5.70637	-58.04007	-20.71987	0.98952	0.14550	-0.00821	61.89123	1.00019	275.62	-19.56
99/ 1/16	2451195.0	12.36208	-56.70354	-20.64976	0.97380	0.24900	0.02898	61.59971	1.00555	282.30	-19.59
99/ 1/17	2451195.5	18.86925	-54.67092	-20.32696	0.94564	0.35083	0.06633	61.30370	1.01080	289.04	-19.36
99/ 1/17	2451196.0	25.14347	-51.95790	-19.75188	0.90503	0.44969	0.10339	61.00782	1.01587	295.82	-18.89
99/ 1/18	2451196.5	31.10084	-48.58930	-18.92819	0.85212	0.54419	0.13966	60.71621	1.02066	302.62	-18.16
99/ 1/18	2451197.0	36.65917	-44.59931	-17.86294	0.78727	0.63295	0.17464	60.43243	1.02514	309.42	-17.19
99/ 1/19	2451197.5	41.73936	-40.03153	-16.56663	0.71103	0.71458	0.20781	60.15938	1.02926	316.20	-15.98
99/ 1/19	2451198.0	46.26673	-34.93877	-15.05326	0.62417	0.78775	0.23865	59.89932	1.03301	322.94	-14.56
99/ 1/20	2451198.5	50.17249	-29.38267	-13.34026	0.52765	0.85120	0.26667	59.65385	1.03638	329.65	-12.92
99/ 1/20	2451199.0	53.39506	-23.43308	-11.44839	0.42264	0.90377	0.29139	59.42397	1.03939	336.31	-11.11
99/ 1/21	2451199.5	55.88143	-17.16727	-9.40150	0.31050	0.94442	0.31238	59.21012	1.04208	342.92	-9.14
99/ 1/21	2451200.0	57.58831	-10.66886	-7.22626	0.19273	0.97232	0.32924	59.01234	1.04448	349.50	-7.03
99/ 1/22	2451200.5	58.48316	-4.02669	-4.95178	0.07100	0.98678	0.34163	58.83039	1.04666	356.06	-4.83
99/ 1/22	2451201.0	58.54512	2.66659	-2.60925	-0.05292	0.98735	0.34929	58.66387	1.04865	2.61	-2.55
99/ 1/23	2451201.5	57.76558	9.31592	-0.23142	-0.17717	0.97379	0.35203	58.51241	1.05051	9.16	-0.23
99/ 1/23	2451202.0	56.14868	15.82542	2.14791	-0.29986	0.94608	0.34972	58.37578	1.05228	15.74	2.11
99/ 1/24	2451202.5	53.71151	22.09996	4.49442	-0.41907	0.90446	0.34234	58.25405	1.05398	22.37	4.42
99/ 1/24	2451203.0	50.48409	28.04680	6.77383	-0.53291	0.84941	0.32993	58.14767	1.05562	29.05	6.69
99/ 1/25	2451203.5	46.50911	33.57724	8.95253	-0.63952	0.78164	0.31263	58.05753	1.05721	35.83	8.87
99/ 1/25	2451204.0	41.84143	38.60824	10.99814	-0.73717	0.70210	0.29067	57.98500	1.05871	42.70	10.93
99/ 1/26	2451204.5	36.54736	43.06392	12.88009	-0.82424	0.61197	0.26436	57.93192	1.06008	49.68	12.85
99/ 1/26	2451205.0	30.70363	46.87709	14.57024	-0.89926	0.51262	0.23410	57.90049	1.06125	56.78	14.57
99/ 1/27	2451205.5	24.39619	49.99057	16.04339	-0.96098	0.40563	0.20037	57.89319	1.06215	63.99	16.09
99/ 1/27	2451206.0	17.71868	52.35840	17.27778	-1.00838	0.29274	0.16370	57.91265	1.06270	71.30	17.36
99/ 1/28	2451206.5	10.77078	53.94677	18.25554	-1.04072	0.17578	0.12470	57.96144	1.06280	78.71	18.36
99/ 1/28	2451207.0	3.65628	54.73472	18.96308	-1.05753	0.05671	0.08401	58.04185	1.06237	86.18	19.07
99/ 1/29	2451207.5	-3.51891	54.71461	19.39131	-1.05864	-0.06251	0.04233	58.15577	1.06133	93.68	19.48
99/ 1/29	2451208.0	-10.64889	53.89212	19.53581	-1.04423	-0.17991	0.00035	58.30443	1.05962	101.18	19.58
99/ 1/30	2451208.5	-17.62989	52.28599	19.39686	-1.01475	-0.29360	-0.04126	58.48826	1.05718	108.63	19.37
99/ 1/30	2451209.0	-24.36224	49.92741	18.97934	-0.97095	-0.40182	-0.08181	58.70673	1.05399	116.01	18.86
99/ 1/31	2451209.5	-30.75225	46.85903	18.29250	-0.91385	-0.50295	-0.12068	58.95834	1.05007	123.28	18.07
99/ 1/31	2451210.0	-36.71385	43.13372	17.34965	-0.84467	-0.59559	-0.15732	59.24048	1.04543	130.40	17.03
99/ 2/ 1	2451210.5	-42.16986	38.81315	16.16767	-0.76480	-0.67855	-0.19122	59.54957	1.04015	137.37	15.75
99/ 2/ 1	2451211.0	-47.05299	33.96618	14.76661	-0.67576	-0.75089	-0.22195	59.88103	1.03429	144.18	14.28
99/ 2/ 2	2451211.5	-51.30648	28.66719	13.16906	-0.57914	-0.81193	-0.24919	60.22945	1.02797	150.81	12.63
99/ 2/ 2	2451212.0	-54.88439	22.99453	11.39964	-0.47653	-0.86118	-0.27266	60.58875	1.02130	157.27	10.84
99/ 2/ 3	2451212.5	-57.75162	17.02891	9.48448	-0.36953	-0.89841	-0.29220	60.95234	1.01444	163.57	8.95
99/ 2/ 3	2451213.0	-59.88358	10.85202	7.45069	-0.25967	-0.92357	-0.30768	61.31331	1.00751	169.73	6.98

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
		GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							MOON		
99/ 2/ 4	2451213.5	-61.26583	4.54532	5.32590	-0.14838	-0.93677	-0.31907	61.66464	1.00068	175.76	4.95
99/ 2/ 4	2451214.0	-61.89344	-1.81097	3.13788	-0.03704	-0.93827	-0.32636	61.99938	0.99410	181.68	2.90
99/ 2/ 5	2451214.5	-61.77027	-8.13880	0.91419	0.07311	-0.92843	-0.32961	62.31085	0.98792	187.51	0.84
99/ 2/ 5	2451215.0	-60.90836	-14.36285	-1.31808	0.18092	-0.90771	-0.32891	62.59279	0.98227	193.27	-1.21
99/ 2/ 6	2451215.5	-59.32715	-20.41111	-3.53255	0.28535	-0.87661	-0.32438	62.83950	0.97729	198.99	-3.22
99/ 2/ 6	2451216.0	-57.05284	-26.21517	-5.70368	0.38544	-0.83570	-0.31614	63.04597	0.97309	204.68	-5.19
99/ 2/ 7	2451216.5	-54.11784	-31.71057	-7.80693	0.48031	-0.78557	-0.30436	63.20798	0.96976	210.37	-7.09
99/ 2/ 7	2451217.0	-50.56021	-36.83691	-9.81884	0.56917	-0.72682	-0.28920	63.32221	0.96740	216.08	-8.92
99/ 2/ 8	2451217.5	-46.42325	-41.53802	-11.71714	0.65126	-0.66011	-0.27084	63.38625	0.96604	221.82	-10.65
99/ 2/ 8	2451218.0	-41.75514	-45.76212	-13.48074	0.72590	-0.58607	-0.24946	63.39869	0.96573	227.62	-12.28
99/ 2/ 9	2451218.5	-36.60866	-49.46191	-15.08989	0.79241	-0.50540	-0.22526	63.35913	0.96648	233.49	-13.78
99/ 2/ 9	2451219.0	-31.04099	-52.59475	-16.52618	0.85017	-0.41878	-0.19845	63.26821	0.96827	239.45	-15.14
99/ 2/10	2451219.5	-25.11348	-55.12291	-17.77265	0.89857	-0.32696	-0.16925	63.12757	0.97107	245.51	-16.35
99/ 2/10	2451220.0	-18.89153	-57.01379	-18.81391	0.93702	-0.23073	-0.13789	62.93986	0.97481	251.67	-17.39
99/ 2/11	2451220.5	-12.44439	-58.24030	-19.63624	0.96498	-0.13093	-0.10465	62.70867	0.97942	257.94	-18.25
99/ 2/11	2451221.0	-5.84496	-58.78128	-20.22781	0.98191	-0.02846	-0.06980	62.43850	0.98480	264.32	-18.90
99/ 2/12	2451221.5	0.83049	-58.62198	-20.57878	0.98735	0.07569	-0.03366	62.13463	0.99082	270.81	-19.34
99/ 2/12	2451222.0	7.50268	-57.75465	-20.68160	0.98089	0.18044	0.00342	61.80306	0.99735	277.40	-19.55
99/ 2/13	2451222.5	14.08983	-56.17909	-20.53122	0.96219	0.28462	0.04104	61.45035	1.00424	284.08	-19.52
99/ 2/13	2451223.0	20.50831	-53.90335	-20.12534	0.93105	0.38698	0.07879	61.08348	1.01135	290.83	-19.24
99/ 2/14	2451223.5	26.67351	-50.94423	-19.46468	0.88740	0.48618	0.11620	60.70968	1.01850	297.64	-18.70
99/ 2/14	2451224.0	32.50085	-47.32793	-18.55325	0.83132	0.58080	0.15276	60.33624	1.02555	304.48	-17.91
99/ 2/15	2451224.5	37.90706	-43.09039	-17.39854	0.76311	0.66938	0.18794	59.97029	1.03234	311.34	-16.87
99/ 2/15	2451225.0	42.81161	-38.27755	-16.01174	0.68329	0.75043	0.22120	59.61863	1.03873	318.20	-15.58
99/ 2/16	2451225.5	47.13829	-32.94541	-14.40779	0.59262	0.82249	0.25197	59.28745	1.04459	325.05	-14.06
99/ 2/16	2451226.0	50.81692	-27.15970	-12.60543	0.49212	0.88414	0.27970	58.98224	1.04982	331.88	-12.34
99/ 2/17	2451226.5	53.78511	-20.99533	-10.62709	0.38306	0.93410	0.30385	58.70755	1.05433	338.68	-10.43
99/ 2/17	2451227.0	55.98992	-14.53548	-8.49866	0.26697	0.97123	0.32394	58.46690	1.05806	345.45	-8.36
99/ 2/18	2451227.5	57.38946	-7.87028	-6.24916	0.14557	0.99460	0.33954	58.26271	1.06099	352.19	-6.16
99/ 2/18	2451228.0	57.95417	-1.09532	-3.91027	0.02078	1.00355	0.35029	58.09627	1.06313	358.92	-3.86
99/ 2/19	2451228.5	57.66793	5.69020	-1.51576	-0.10536	0.99768	0.35593	57.96780	1.06449	5.64	-1.50
99/ 2/19	2451229.0	56.52864	12.38543	0.89918	-0.23076	0.97690	0.35630	57.87654	1.06514	12.36	0.89
99/ 2/20	2451229.5	54.54856	18.88994	3.29860	-0.35329	0.94142	0.35135	57.82089	1.06515	19.10	3.27
99/ 2/20	2451230.0	51.75415	25.10580	5.64657	-0.47089	0.89177	0.34113	57.79859	1.06459	25.88	5.61
99/ 2/21	2451230.5	48.18558	30.93955	7.90790	-0.58158	0.82874	0.32580	57.80692	1.06358	32.70	7.86
99/ 2/21	2451231.0	43.89584	36.30404	10.04881	-0.68355	0.75340	0.30562	57.84295	1.06219	39.59	10.00
99/ 2/22	2451231.5	38.94962	41.12006	12.03758	-0.77518	0.66702	0.28094	57.90367	1.06054	46.55	12.00
99/ 2/22	2451232.0	33.42189	45.31772	13.84513	-0.85505	0.57106	0.25218	57.98626	1.05869	53.59	13.81
99/ 2/23	2451232.5	27.39638	48.83758	15.44552	-0.92200	0.46714	0.21985	58.08816	1.05671	60.71	15.42
99/ 2/23	2451233.0	20.96390	51.63148	16.81630	-0.97510	0.35698	0.18448	58.20724	1.05465	67.90	16.79
99/ 2/24	2451233.5	14.22056	53.66318	17.93889	-1.01370	0.24237	0.14666	58.34179	1.05254	75.16	17.91
99/ 2/24	2451234.0	7.26605	54.90868	18.79879	-1.03741	0.12513	0.10701	58.49063	1.05040	82.46	18.75
99/ 2/25	2451234.5	0.20186	55.35636	19.38569	-1.04609	0.00708	0.06615	58.65298	1.04820	89.79	19.30
99/ 2/25	2451235.0	-6.87044	55.00682	19.69360	-1.03984	-0.10999	0.02473	58.82849	1.04594	97.12	19.56
99/ 2/26	2451235.5	-13.85084	53.87261	19.72078	-1.01903	-0.22435	-0.01664	59.01705	1.04357	104.42	19.52

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 2/26	2451236.0	-20.64251	51.97766	19.46969	-0.98423	-0.33436	-0.05734	59.21874	1.04105	111.66	19.19
99/ 2/27	2451236.5	-27.15323	49.35664	18.94685	-0.93621	-0.43851	-0.09680	59.43365	1.03834	118.82	18.59
99/ 2/27	2451237.0	-33.29671	46.05405	18.16256	-0.87596	-0.53541	-0.13446	59.66175	1.03540	125.87	17.72
99/ 2/28	2451237.5	-38.99380	42.12320	17.13067	-0.80460	-0.62384	-0.16983	59.90275	1.03218	132.79	16.62
99/ 2/28	2451238.0	-44.17346	37.62510	15.86822	-0.72339	-0.70275	-0.20247	60.15599	1.02866	139.58	15.29
99/ 3/ 1	2451238.5	-48.77356	32.62724	14.39506	-0.63369	-0.77129	-0.23199	60.42032	1.02483	146.22	13.78
99/ 3/ 1	2451239.0	-52.74148	27.20226	12.73344	-0.53695	-0.82878	-0.25807	60.69404	1.02069	152.72	12.11
99/ 3/ 2	2451239.5	-56.03444	21.42667	10.90758	-0.43463	-0.87476	-0.28046	60.97488	1.01625	159.07	10.30
99/ 3/ 2	2451240.0	-58.61970	15.37956	8.94321	-0.32822	-0.90893	-0.29895	61.25995	1.01156	165.30	8.39
99/ 3/ 3	2451240.5	-60.47448	9.14135	6.86715	-0.21917	-0.93118	-0.31342	61.54580	1.00666	171.40	6.41
99/ 3/ 3	2451241.0	-61.58575	2.79264	4.70687	-0.10889	-0.94158	-0.32381	61.82846	1.00164	177.40	4.37
99/ 3/ 4	2451241.5	-61.94985	-3.58682	2.49013	0.00125	-0.94031	-0.33010	62.10354	0.99657	183.31	2.30
99/ 3/ 4	2451242.0	-61.57199	-9.91908	0.24459	0.11000	-0.92770	-0.33232	62.36631	0.99155	189.15	0.22
99/ 3/ 5	2451242.5	-60.46567	-16.12873	-2.00244	0.21617	-0.90419	-0.33056	62.61185	0.98669	194.94	-1.83
99/ 3/ 5	2451243.0	-58.65209	-22.14360	-4.22434	0.31867	-0.87027	-0.32492	62.83511	0.98209	200.68	-3.85
99/ 3/ 6	2451243.5	-56.15945	-27.89521	-6.39533	0.41653	-0.82655	-0.31555	63.03116	0.97788	206.41	-5.82
99/ 3/ 6	2451244.0	-53.02239	-33.31919	-8.49069	0.50883	-0.77364	-0.30262	63.19520	0.97417	212.15	-7.72
99/ 3/ 7	2451244.5	-49.28131	-38.35562	-10.48689	0.59476	-0.71222	-0.28630	63.32279	0.97106	217.89	-9.53
99/ 3/ 7	2451245.0	-44.98194	-42.94918	-12.36169	0.67357	-0.64298	-0.26680	63.40992	0.96867	223.68	-11.24
99/ 3/ 8	2451245.5	-40.17473	-47.04938	-14.09425	0.74461	-0.56665	-0.24433	63.45314	0.96708	229.51	-12.83
99/ 3/ 8	2451246.0	-34.91455	-50.61066	-15.66519	0.80724	-0.48397	-0.21911	63.44969	0.96637	235.40	-14.29
99/ 3/ 9	2451246.5	-29.26025	-53.59253	-17.05665	0.86090	-0.39569	-0.19138	63.39756	0.96661	241.37	-15.61
99/ 3/ 9	2451247.0	-23.27438	-55.95969	-18.25239	0.90506	-0.30258	-0.16136	63.29560	0.96785	247.42	-16.76
99/ 3/10	2451247.5	-17.02299	-57.68223	-19.23781	0.93923	-0.20547	-0.12931	63.14360	0.97010	253.56	-17.74
99/ 3/10	2451248.0	-10.57532	-58.73581	-20.00010	0.96294	-0.10519	-0.09551	62.94233	0.97337	259.79	-18.53
99/ 3/11	2451248.5	-4.00367	-59.10197	-20.52831	0.97577	-0.00263	-0.06024	62.69357	0.97763	266.12	-19.11
99/ 3/11	2451249.0	2.61692	-58.76848	-20.81352	0.97733	0.10125	-0.02381	62.40020	0.98285	272.55	-19.48
99/ 3/12	2451249.5	9.20889	-57.72971	-20.84897	0.96727	0.20545	0.01345	62.06611	0.98894	279.06	-19.63
99/ 3/12	2451250.0	15.69256	-55.98720	-20.63031	0.94531	0.30888	0.05117	61.69629	0.99581	285.66	-19.54
99/ 3/13	2451250.5	21.98663	-53.55013	-20.15575	0.91126	0.41035	0.08894	61.29667	1.00333	292.32	-19.20
99/ 3/13	2451251.0	28.00878	-50.43595	-19.42637	0.86501	0.50860	0.12634	60.87414	1.01137	299.04	-18.61
99/ 3/14	2451251.5	33.67649	-46.67096	-18.44635	0.80661	0.60230	0.16287	60.43634	1.01976	305.81	-17.77
99/ 3/14	2451252.0	38.90810	-42.29083	-17.22321	0.73628	0.69001	0.19804	59.99161	1.02832	312.61	-16.68
99/ 3/15	2451252.5	43.62408	-37.34107	-15.76809	0.65444	0.77025	0.23128	59.54871	1.03685	319.44	-15.35
99/ 3/15	2451253.0	47.74848	-31.87733	-14.09591	0.56173	0.84153	0.26204	59.11664	1.04517	326.27	-13.79
99/ 3/16	2451253.5	51.21071	-25.96539	-12.22549	0.45908	0.90236	0.28972	58.70435	1.05306	333.11	-12.02
99/ 3/16	2451254.0	53.94735	-19.68091	-10.17958	0.34769	0.95131	0.31377	58.32049	1.06035	339.96	-10.05
99/ 3/17	2451254.5	55.90418	-13.10876	-7.98474	0.22908	0.98711	0.33362	57.97304	1.06684	346.80	-7.92
99/ 3/17	2451255.0	57.03807	-6.34189	-5.67104	0.10500	1.00865	0.34878	57.66907	1.07240	353.66	-5.64
99/ 3/18	2451255.5	57.31878	0.52014	-3.27171	-0.02250	1.01509	0.35884	57.41443	1.07689	0.52	-3.27
99/ 3/18	2451256.0	56.73051	7.37319	-0.82245	-0.15122	1.00593	0.36348	57.21356	1.08023	7.41	-0.82
99/ 3/19	2451256.5	55.27296	14.11078	1.63925	-0.27880	0.98101	0.36250	57.06927	1.08236	14.32	1.65
99/ 3/19	2451257.0	52.96193	20.62670	4.07501	-0.40285	0.94054	0.35582	56.98273	1.08329	21.28	4.10
99/ 3/20	2451257.5	49.82928	26.81757	6.44644	-0.52103	0.88516	0.34352	56.95345	1.08305	28.29	6.50
99/ 3/20	2451258.0	45.92238	32.58550	8.71614	-0.63113	0.81585	0.32583	56.97939	1.08171	35.36	8.80

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 3/21	2451258.5	41.30287	37.84043	10.84859	-0.73115	0.73392	0.30306	57.05714	1.07938	42.49	10.96
99/ 3/21	2451259.0	36.04505	42.50217	12.81097	-0.81936	0.64097	0.27569	57.18218	1.07619	49.70	12.95
99/ 3/22	2451259.5	30.23384	46.50207	14.57387	-0.89435	0.53880	0.24425	57.34916	1.07230	56.97	14.72
99/ 3/22	2451260.0	23.96254	49.78417	16.11182	-0.95507	0.42933	0.20937	57.55221	1.06786	64.30	16.26
99/ 3/23	2451260.5	17.33049	52.30586	17.40369	-1.00079	0.31459	0.17170	57.78526	1.06303	71.67	17.53
99/ 3/23	2451261.0	10.44076	54.03816	18.43294	-1.03112	0.19657	0.13193	58.04228	1.05795	79.06	18.52
99/ 3/24	2451261.5	3.39798	54.96562	19.18767	-1.04600	0.07724	0.09075	58.31751	1.05276	86.46	19.21
99/ 3/24	2451262.0	-3.69372	55.08581	19.66062	-1.04562	-0.04151	0.04884	58.60572	1.04758	93.84	19.60
99/ 3/25	2451262.5	-10.73242	54.40868	19.84901	-1.03044	-0.15792	0.00683	58.90223	1.04250	101.16	19.69
99/ 3/25	2451263.0	-17.62003	52.95567	19.75436	-1.00113	-0.27036	-0.03464	59.20307	1.03757	108.40	19.49
99/ 3/26	2451263.5	-24.26357	50.75874	19.38221	-0.95852	-0.37736	-0.07502	59.50496	1.03285	115.55	19.01
99/ 3/26	2451264.0	-30.57623	47.85933	18.74181	-0.90360	-0.47759	-0.11377	59.80532	1.02836	122.57	18.26
99/ 3/27	2451264.5	-36.47832	44.30723	17.84583	-0.83747	-0.56991	-0.15042	60.10218	1.02410	129.46	17.27
99/ 3/27	2451265.0	-41.89793	40.15952	16.70994	-0.76133	-0.65332	-0.18455	60.39409	1.02006	136.21	16.06
99/ 3/28	2451265.5	-46.77151	35.47945	15.35254	-0.67645	-0.72699	-0.21577	60.68003	1.01620	142.82	14.66
99/ 3/28	2451266.0	-51.04428	30.33531	13.79435	-0.58414	-0.79025	-0.24379	60.95928	1.01250	149.28	13.08
99/ 3/29	2451266.5	-54.67046	24.79944	12.05808	-0.48575	-0.84260	-0.26832	61.23127	1.00892	155.60	11.36
99/ 3/29	2451267.0	-57.61349	18.94710	10.16802	-0.38264	-0.88366	-0.28917	61.49549	1.00542	161.80	9.52
99/ 3/30	2451267.5	-59.84602	12.85552	8.14976	-0.27617	-0.91322	-0.30616	61.75135	1.00198	167.88	7.58
99/ 3/30	2451268.0	-61.34987	6.60291	6.02979	-0.16768	-0.93121	-0.31919	61.99809	0.99857	173.86	5.58
99/ 3/31	2451268.5	-62.11583	0.26750	3.83519	-0.05849	-0.93768	-0.32819	62.23469	0.99518	179.75	3.53
99/ 3/31	2451269.0	-62.14344	-6.07325	1.59327	0.05014	-0.93283	-0.33316	62.45983	0.99181	185.58	1.46
99/ 4/ 1	2451269.5	-61.44060	-12.34354	-0.66869	0.15701	-0.91693	-0.33412	62.67182	0.98846	191.36	-0.61
99/ 4/ 1	2451270.0	-60.02315	-18.46990	-2.92373	0.26098	-0.89040	-0.33113	62.86862	0.98517	197.10	-2.67
99/ 4/ 2	2451270.5	-57.91442	-24.38182	-5.14549	0.36097	-0.85370	-0.32431	63.04783	0.98198	202.83	-4.68
99/ 4/ 2	2451271.0	-55.14471	-30.01237	-7.30843	0.45600	-0.80741	-0.31379	63.20676	0.97893	208.56	-6.64
99/ 4/ 3	2451271.5	-51.75070	-35.29862	-9.38800	0.54517	-0.75214	-0.29972	63.34242	0.97610	214.30	-8.52
99/ 4/ 3	2451272.0	-47.77498	-40.18208	-11.36087	0.62765	-0.68858	-0.28231	63.45170	0.97355	220.07	-10.31
99/ 4/ 4	2451272.5	-43.26543	-44.60900	-13.20504	0.70269	-0.61745	-0.26175	63.53136	0.97136	225.88	-12.00
99/ 4/ 4	2451273.0	-38.27474	-48.53064	-14.89996	0.76962	-0.53951	-0.23828	63.57820	0.96962	231.74	-13.55
99/ 4/ 5	2451273.5	-32.85989	-51.90347	-16.42669	0.82785	-0.45553	-0.21213	63.58914	0.96842	237.66	-14.97
99/ 4/ 5	2451274.0	-27.08171	-54.68936	-17.76791	0.87683	-0.36632	-0.18355	63.56134	0.96784	243.66	-16.23
99/ 4/ 6	2451274.5	-21.00445	-56.85572	-18.90808	0.91609	-0.27272	-0.15280	63.49233	0.96796	249.72	-17.33
99/ 4/ 6	2451275.0	-14.69539	-58.37565	-19.83345	0.94521	-0.17558	-0.12016	63.38010	0.96886	255.87	-18.24
99/ 4/ 7	2451275.5	-8.22448	-59.22808	-20.53220	0.96382	-0.07577	-0.08593	63.22325	0.97060	262.09	-18.95
99/ 4/ 7	2451276.0	-1.66407	-59.39797	-20.99444	0.97159	0.02582	-0.05038	63.02107	0.97324	268.40	-19.46
99/ 4/ 8	2451276.5	4.91147	-58.87651	-21.21240	0.96824	0.12823	-0.01384	62.77365	0.97680	274.77	-19.75
99/ 4/ 8	2451277.0	11.42603	-57.66137	-21.18050	0.95355	0.23048	0.02335	62.48201	0.98129	281.21	-19.82
99/ 4/ 9	2451277.5	17.80212	-55.75707	-20.89546	0.92733	0.33155	0.06084	62.14811	0.98670	287.71	-19.65
99/ 4/ 9	2451278.0	23.96132	-53.17532	-20.35654	0.88949	0.43034	0.09825	61.77498	0.99300	294.26	-19.24
99/ 4/10	2451278.5	29.82477	-49.93544	-19.56564	0.84001	0.52570	0.13518	61.36676	1.00012	300.85	-18.59
99/ 4/10	2451279.0	35.31382	-46.06483	-18.52755	0.77896	0.61638	0.17117	60.92868	1.00797	307.47	-17.70
99/ 4/11	2451279.5	40.35082	-41.59942	-17.25018	0.70657	0.70111	0.20576	60.46709	1.01643	314.13	-16.58
99/ 4/11	2451280.0	44.86013	-36.58412	-15.74472	0.62321	0.77853	0.23843	59.98938	1.02536	320.80	-15.22
99/ 4/12	2451280.5	48.76929	-31.07315	-14.02590	0.52946	0.84725	0.26867	59.50387	1.03457	327.50	-13.63

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/ 4/12	2451281.0	52.01048	-25.13027	-12.11212	0.42612	0.90584	0.29591	59.01969	1.04388	334.21	-11.84
99/ 4/13	2451281.5	54.52219	-18.82872	-10.02555	0.31425	0.95293	0.31960	58.54657	1.05307	340.95	-9.86
99/ 4/13	2451282.0	56.25098	-12.25100	-7.79217	0.19518	0.98719	0.33917	58.09456	1.06192	347.71	-7.71
99/ 4/14	2451282.5	57.15355	-5.48806	-5.44160	0.07056	1.00744	0.35412	57.67372	1.07019	354.52	-5.41
99/ 4/14	2451283.0	57.19860	1.36175	-3.00686	-0.05769	1.01270	0.36396	57.29377	1.07766	1.36	-3.01
99/ 4/15	2451283.5	56.36879	8.19437	-0.52386	-0.18740	1.00227	0.36831	56.96370	1.08412	8.27	-0.53
99/ 4/15	2451284.0	54.66224	14.90211	1.96922	-0.31617	0.97580	0.36690	56.69137	1.08938	15.25	1.99
99/ 4/16	2451284.5	52.09369	21.37622	4.43277	-0.44151	0.93332	0.35958	56.48314	1.09331	22.31	4.50
99/ 4/16	2451285.0	48.69508	27.50970	6.82674	-0.56087	0.87533	0.34637	56.34358	1.09578	29.46	6.96
99/ 4/17	2451285.5	44.51535	33.20035	9.11171	-0.67177	0.80274	0.32744	56.27524	1.09676	36.72	9.32
99/ 4/17	2451286.0	39.61959	38.35365	11.24997	-0.77195	0.71691	0.30312	56.27856	1.09624	44.07	11.53
99/ 4/18	2451286.5	34.08740	42.88554	13.20663	-0.85940	0.61956	0.27390	56.35188	1.09428	51.52	13.55
99/ 4/18	2451287.0	28.01062	46.72459	14.95052	-0.93252	0.51268	0.24040	56.49159	1.09098	59.06	15.35
99/ 4/19	2451287.5	21.49068	49.81375	16.45496	-0.99010	0.39850	0.20332	56.69237	1.08648	66.66	16.87
99/ 4/19	2451288.0	14.63563	52.11126	17.69834	-1.03139	0.27931	0.16344	56.94749	1.08097	74.31	18.11
99/ 4/20	2451288.5	7.55710	53.59111	18.66438	-1.05607	0.15742	0.12156	57.24924	1.07464	81.97	19.03
99/ 4/20	2451289.0	0.36751	54.24268	19.34226	-1.06424	0.03508	0.07848	57.58929	1.06770	89.61	19.63
99/ 4/21	2451289.5	-6.82260	54.07005	19.72646	-1.05633	-0.08562	0.03497	57.95905	1.06037	97.19	19.90
99/ 4/21	2451290.0	-13.90671	53.09083	19.81658	-1.03308	-0.20280	-0.00825	58.35006	1.05283	104.68	19.85
99/ 4/22	2451290.5	-20.78416	51.33479	19.61687	-0.99548	-0.31475	-0.05051	58.75426	1.04527	112.04	19.50
99/ 4/22	2451291.0	-27.36149	48.84231	19.13582	-0.94466	-0.42004	-0.09123	59.16420	1.03785	119.26	18.87
99/ 4/23	2451291.5	-33.55348	45.66290	18.38567	-0.88191	-0.51741	-0.12989	59.57323	1.03070	126.31	17.98
99/ 4/23	2451292.0	-39.28378	41.85363	17.38194	-0.80856	-0.60588	-0.16605	59.97561	1.02392	133.19	16.85
99/ 4/24	2451292.5	-44.48528	37.47775	16.14290	-0.72599	-0.68461	-0.19932	60.36651	1.01759	139.89	15.51
99/ 4/24	2451293.0	-49.10034	32.60338	14.68917	-0.63562	-0.75299	-0.22940	60.74204	1.01174	146.42	13.99
99/ 4/25	2451293.5	-53.08078	27.30233	13.04327	-0.53882	-0.81054	-0.25603	61.09920	1.00641	152.78	12.33
99/ 4/25	2451294.0	-56.38777	21.64903	11.22925	-0.43698	-0.85696	-0.27902	61.43579	1.00159	159.00	10.53
99/ 4/26	2451294.5	-58.99167	15.71957	9.27234	-0.33143	-0.89207	-0.29820	61.75029	0.99727	165.08	8.64
99/ 4/26	2451295.0	-60.87180	9.59089	7.19863	-0.22347	-0.91579	-0.31349	62.04178	0.99342	171.05	6.66
99/ 4/27	2451295.5	-62.01617	3.33997	5.03481	-0.11437	-0.92818	-0.32481	62.30979	0.99000	176.92	4.63
99/ 4/27	2451296.0	-62.42115	-2.95689	2.80785	-0.00533	-0.92939	-0.33213	62.55419	0.98696	182.71	2.57
99/ 4/28	2451296.5	-62.09121	-9.22465	0.54477	0.10246	-0.91964	-0.33548	62.77507	0.98427	188.45	0.50
99/ 4/28	2451297.0	-61.03854	-15.39024	-1.72759	0.20790	-0.89927	-0.33488	62.97259	0.98187	194.15	-1.57
99/ 4/29	2451297.5	-59.28268	-21.38302	-3.98279	0.30993	-0.86869	-0.33043	63.14691	0.97972	199.83	-3.62
99/ 4/29	2451298.0	-56.85017	-27.13537	-6.19501	0.40756	-0.82836	-0.32221	63.29809	0.97781	205.52	-5.62
99/ 4/30	2451298.5	-53.77406	-32.58314	-8.33926	0.49983	-0.77884	-0.31038	63.42597	0.97610	211.21	-7.56
99/ 4/30	2451299.0	-50.09357	-37.66610	-10.39152	0.58589	-0.72074	-0.29508	63.53019	0.97458	216.94	-9.41
99/ 5/ 1	2451299.5	-45.85358	-42.32836	-12.32897	0.66492	-0.65473	-0.27651	63.61009	0.97326	222.71	-11.18
99/ 5/ 1	2451300.0	-41.10420	-46.51870	-14.13009	0.73619	-0.58151	-0.25486	63.66478	0.97215	228.54	-12.82
99/ 5/ 2	2451300.5	-35.90029	-50.19094	-15.77488	0.79903	-0.50187	-0.23038	63.69307	0.97129	234.42	-14.34
99/ 5/ 2	2451301.0	-30.30097	-53.30419	-17.24491	0.85286	-0.41659	-0.20330	63.69358	0.97069	240.38	-15.71
99/ 5/ 3	2451301.5	-24.36912	-55.82315	-18.52352	0.89714	-0.32652	-0.17390	63.66474	0.97042	246.42	-16.92
99/ 5/ 3	2451302.0	-18.17093	-57.71827	-19.59588	0.93144	-0.23252	-0.14245	63.60488	0.97053	252.52	-17.94
99/ 5/ 4	2451302.5	-11.77540	-58.96597	-20.44910	0.95536	-0.13549	-0.10924	63.51229	0.97108	258.71	-18.78
99/ 5/ 4	2451303.0	-5.25389	-59.54880	-21.07233	0.96859	-0.03634	-0.07458	63.38537	0.97214	264.96	-19.42

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 5/ 5	2451303.5	1.32034	-59.45560	-21.45683	0.97089	0.06398	-0.03880	63.22268	0.97377	271.27	-19.84
99/ 5/ 5	2451304.0	7.87256	-58.68170	-21.59609	0.96207	0.16450	-0.00222	63.02309	0.97603	277.64	-20.04
99/ 5/ 6	2451304.5	14.32704	-57.22903	-21.48587	0.94201	0.26425	0.03481	62.78589	0.97899	284.05	-20.01
99/ 5/ 6	2451305.0	20.60749	-55.10634	-21.12436	0.91068	0.36218	0.07193	62.51093	0.98269	290.50	-19.75
99/ 5/ 7	2451305.5	26.63754	-52.32942	-20.51224	0.86808	0.45726	0.10875	62.19870	0.98716	296.98	-19.26
99/ 5/ 7	2451306.0	32.34129	-48.92127	-19.65279	0.81435	0.54839	0.14489	61.85048	0.99242	303.47	-18.53
99/ 5/ 8	2451306.5	37.64391	-44.91243	-18.55208	0.74968	0.63445	0.17992	61.46845	0.99846	309.97	-17.57
99/ 5/ 8	2451307.0	42.47232	-40.34116	-17.21905	0.67438	0.71427	0.21342	61.05574	1.00525	316.47	-16.38
99/ 5/ 9	2451307.5	46.75601	-35.25374	-15.66568	0.58891	0.78666	0.24491	60.61653	1.01274	322.98	-14.98
99/ 5/ 9	2451308.0	50.42801	-29.70466	-13.90714	0.49387	0.85039	0.27392	60.15613	1.02084	329.50	-13.37
99/ 5/10	2451308.5	53.42602	-23.75673	-11.96187	0.39003	0.90423	0.29996	59.68089	1.02944	336.03	-11.56
99/ 5/10	2451309.0	55.69369	-17.48114	-9.85171	0.27839	0.94695	0.32253	59.19826	1.03839	342.57	-9.58
99/ 5/11	2451309.5	57.18212	-10.95716	-7.60192	0.16015	0.97739	0.34112	58.71663	1.04752	349.15	-7.44
99/ 5/11	2451310.0	57.85145	-4.27178	-5.24109	0.03678	0.99444	0.35524	58.24523	1.05663	355.78	-5.16
99/ 5/12	2451310.5	57.67259	2.48112	-2.80099	-0.09001	0.99718	0.36445	57.79385	1.06550	2.46	-2.78
99/ 5/12	2451311.0	56.62897	9.20195	-0.31629	-0.21823	0.98487	0.36835	57.37261	1.07391	9.23	-0.32
99/ 5/13	2451311.5	54.71816	15.78702	2.17595	-0.34570	0.95704	0.36663	56.99159	1.08160	16.09	2.19
99/ 5/13	2451312.0	51.95324	22.13063	4.63694	-0.47003	0.91358	0.35910	56.66044	1.08835	23.07	4.69
99/ 5/14	2451312.5	48.36382	28.12756	7.02697	-0.58875	0.85475	0.34568	56.38792	1.09395	30.18	7.16
99/ 5/14	2451313.0	43.99644	33.67590	9.30640	-0.69935	0.78127	0.32647	56.18151	1.09820	37.43	9.53
99/ 5/15	2451313.5	38.91432	38.68002	11.43675	-0.79942	0.69428	0.30172	56.04702	1.10097	44.83	11.77
99/ 5/15	2451314.0	33.19632	43.05357	13.38185	-0.88678	0.59536	0.27185	55.98821	1.10215	52.37	13.83
99/ 5/16	2451314.5	26.93512	46.72221	15.10894	-0.95954	0.48648	0.23745	56.00665	1.10171	60.04	15.65
99/ 5/16	2451315.0	20.23475	49.62589	16.58963	-1.01626	0.36987	0.19922	56.10160	1.09967	67.82	17.20
99/ 5/17	2451315.5	13.20755	51.72052	17.80075	-1.05593	0.24799	0.15798	56.27005	1.09610	75.67	18.44
99/ 5/17	2451316.0	5.97086	52.97889	18.72480	-1.07808	0.12335	0.11460	56.50692	1.09115	83.57	19.35
99/ 5/18	2451316.5	-1.35639	53.39076	19.35034	-1.08271	-0.00157	0.06998	56.80536	1.08497	91.46	19.92
99/ 5/18	2451317.0	-8.65687	52.96236	19.67188	-1.07029	-0.12441	0.02498	57.15712	1.07778	99.28	20.13
99/ 5/19	2451317.5	-15.81773	51.71513	19.68975	-1.04165	-0.24303	-0.01957	57.55294	1.06981	107.01	20.01
99/ 5/19	2451318.0	-22.73297	49.68413	19.40956	-0.99797	-0.35555	-0.06291	57.98304	1.06128	114.59	19.56
99/ 5/20	2451318.5	-29.30522	46.91619	18.84174	-0.94061	-0.46040	-0.10440	58.43745	1.05244	121.99	18.81
99/ 5/20	2451319.0	-35.44701	43.46781	18.00084	-0.87112	-0.55629	-0.14347	58.90646	1.04350	129.20	17.79
99/ 5/21	2451319.5	-41.08152	39.40327	16.90488	-0.79109	-0.64221	-0.17965	59.38084	1.03466	136.19	16.54
99/ 5/21	2451320.0	-46.14294	34.79272	15.57472	-0.70216	-0.71742	-0.21257	59.85212	1.02611	142.98	15.08
99/ 5/22	2451320.5	-50.57641	29.71055	14.03345	-0.60593	-0.78141	-0.24194	60.31275	1.01798	149.57	13.45
99/ 5/22	2451321.0	-54.33784	24.23388	12.30587	-0.50396	-0.83387	-0.26756	60.75620	1.01040	155.96	11.69
99/ 5/23	2451321.5	-57.39347	18.44135	10.41799	-0.39775	-0.87467	-0.28926	61.17702	1.00346	162.19	9.80
99/ 5/23	2451322.0	-59.71937	12.41207	8.39664	-0.28871	-0.90379	-0.30696	61.57082	0.99721	168.26	7.84
99/ 5/24	2451322.5	-61.30089	6.22477	6.26913	-0.17816	-0.92136	-0.32060	61.93423	0.99168	174.20	5.81
99/ 5/24	2451323.0	-62.13214	-0.04293	4.06294	-0.06736	-0.92758	-0.33019	62.26486	0.98690	180.04	3.74
99/ 5/25	2451323.5	-62.21543	-6.31509	1.80553	0.04252	-0.92273	-0.33574	62.56116	0.98283	185.80	1.65
99/ 5/25	2451324.0	-61.56076	-12.51793	-0.47595	0.15037	-0.90717	-0.33731	62.82238	0.97946	191.49	-0.43
99/ 5/26	2451324.5	-60.18541	-18.58028	-2.75477	0.25516	-0.88132	-0.33497	63.04839	0.97675	197.16	-2.50
99/ 5/26	2451325.0	-58.11350	-24.43397	-5.00481	0.35591	-0.84564	-0.32883	63.23959	0.97463	202.80	-4.54
99/ 5/27	2451325.5	-55.37555	-30.01419	-7.20076	0.45169	-0.80065	-0.31902	63.39680	0.97306	208.46	-6.52

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/ 5/27	2451326.0	-52.00815	-35.25980	-9.31818	0.54164	-0.74693	-0.30567	63.52109	0.97197	214.14	-8.44
99/ 5/28	2451326.5	-48.05355	-40.11372	-11.33374	0.62495	-0.68510	-0.28896	63.61373	0.97130	219.85	-10.26
99/ 5/28	2451327.0	-43.55930	-44.52319	-13.22526	0.70087	-0.61581	-0.26908	63.67602	0.97100	225.63	-11.99
99/ 5/29	2451327.5	-38.57791	-48.44015	-14.97194	0.76869	-0.53978	-0.24623	63.70920	0.97102	231.47	-13.59
99/ 5/29	2451328.0	-33.16639	-51.82151	-16.55444	0.82778	-0.45778	-0.22064	63.71442	0.97132	237.38	-15.06
99/ 5/30	2451328.5	-27.38591	-54.62949	-17.95505	0.87756	-0.37060	-0.19256	63.69264	0.97187	243.38	-16.37
99/ 5/30	2451329.0	-21.30132	-56.83191	-19.15783	0.91750	-0.27911	-0.16226	63.64460	0.97265	249.45	-17.52
99/ 5/31	2451329.5	-14.98070	-58.40251	-20.14871	0.94718	-0.18418	-0.13004	63.57079	0.97365	255.61	-18.48
99/ 5/31	2451330.0	-8.49488	-59.32115	-20.91567	0.96623	-0.08675	-0.09619	63.47147	0.97488	261.85	-19.24
99/ 6/ 1	2451330.5	-1.91690	-59.57408	-21.44881	0.97436	0.01224	-0.06105	63.34664	0.97635	268.16	-19.79
99/ 6/ 1	2451331.0	4.67855	-59.15414	-21.74048	0.97136	0.11178	-0.02495	63.19612	0.97809	274.52	-20.12
99/ 6/ 2	2451331.5	11.21562	-58.06094	-21.78540	0.95711	0.21087	0.01175	63.01957	0.98014	280.93	-20.22
99/ 6/ 2	2451332.0	17.61796	-56.30101	-21.58072	0.93158	0.30849	0.04869	62.81659	0.98253	287.38	-20.09
99/ 6/ 3	2451332.5	23.80929	-53.88794	-21.12616	0.89481	0.40356	0.08548	62.58680	0.98532	293.84	-19.73
99/ 6/ 3	2451333.0	29.71399	-50.84250	-20.42402	0.84697	0.49504	0.12173	62.32994	0.98856	300.30	-19.13
99/ 6/ 4	2451333.5	35.25783	-47.19269	-19.47935	0.78830	0.58185	0.15703	62.04603	0.99229	306.76	-18.30
99/ 6/ 4	2451334.0	40.36861	-42.97384	-18.29993	0.71916	0.66290	0.19098	61.73543	0.99654	313.21	-17.24
99/ 6/ 5	2451334.5	44.97690	-38.22863	-16.89640	0.64001	0.73710	0.22314	61.39901	1.00136	319.64	-15.97
99/ 6/ 5	2451335.0	49.01684	-33.00711	-15.28227	0.55144	0.80337	0.25309	61.03825	1.00675	326.04	-14.50
99/ 6/ 6	2451335.5	52.42701	-27.36663	-13.47402	0.45418	0.86064	0.28039	60.65536	1.01272	332.44	-12.83
99/ 6/ 6	2451336.0	55.15138	-21.37174	-11.49106	0.34908	0.90785	0.30461	60.25338	1.01923	338.82	-10.99
99/ 6/ 7	2451336.5	57.14032	-15.09403	-9.35581	0.23720	0.94399	0.32529	59.83626	1.02625	345.20	-9.00
99/ 6/ 7	2451337.0	58.35182	-8.61177	-7.09360	0.11973	0.96810	0.34203	59.40889	1.03370	351.60	-6.86
99/ 6/ 8	2451337.5	58.75264	-2.00942	-4.73260	-0.00194	0.97931	0.35440	58.97718	1.04147	358.04	-4.60
99/ 6/ 8	2451338.0	58.31965	4.62310	-2.30367	-0.12621	0.97689	0.36203	58.54794	1.04943	4.53	-2.25
99/ 6/ 9	2451338.5	57.04112	11.19134	0.15994	-0.25131	0.96025	0.36459	58.12883	1.05743	11.10	0.16
99/ 6/ 9	2451339.0	54.91802	17.59763	2.62292	-0.37527	0.92903	0.36181	57.72820	1.06528	17.77	2.60
99/ 6/10	2451339.5	51.96516	23.74269	5.04843	-0.49597	0.88312	0.35350	57.35486	1.07278	24.56	5.05
99/ 6/10	2451340.0	48.21212	29.52759	7.39874	-0.61117	0.82274	0.33960	57.01780	1.07971	31.49	7.46
99/ 6/11	2451340.5	43.70383	34.85603	9.63600	-0.71861	0.74846	0.32014	56.72583	1.08585	38.57	9.78
99/ 6/11	2451341.0	38.50063	39.63682	11.72314	-0.81601	0.66122	0.29531	56.48723	1.09100	45.83	11.98
99/ 6/12	2451341.5	32.67780	43.78657	13.62487	-0.90124	0.56237	0.26546	56.30932	1.09497	53.27	14.00
99/ 6/12	2451342.0	26.32439	47.23232	15.30871	-0.97239	0.45365	0.23106	56.19806	1.09760	60.87	15.81
99/ 6/13	2451342.5	19.54137	49.91391	16.74599	-1.02787	0.33709	0.19276	56.15774	1.09877	68.62	17.35
99/ 6/13	2451343.0	12.43914	51.78602	17.91272	-1.06649	0.21501	0.15131	56.19065	1.09842	76.49	18.59
99/ 6/14	2451343.5	5.13461	52.81960	18.79036	-1.08753	0.08990	0.10754	56.29700	1.09652	84.45	19.50
99/ 6/14	2451344.0	-2.25212	53.00261	19.36625	-1.09076	-0.03573	0.06236	56.47477	1.09313	92.43	20.05
99/ 6/15	2451344.5	-9.60112	52.34001	19.63392	-1.07647	-0.15940	0.01667	56.71991	1.08833	100.39	20.25
99/ 6/15	2451345.0	-16.79583	50.85304	19.59298	-1.04536	-0.27879	-0.02863	57.02645	1.08228	108.28	20.09
99/ 6/16	2451345.5	-23.72596	48.57788	19.24887	-0.99855	-0.39183	-0.07272	57.38685	1.07514	116.03	19.60
99/ 6/16	2451346.0	-30.28981	45.56381	18.61236	-0.93746	-0.49672	-0.11486	57.79233	1.06712	123.62	18.79
99/ 6/17	2451346.5	-36.39611	41.87111	17.69888	-0.86373	-0.59201	-0.15441	58.23330	1.05846	131.00	17.69
99/ 6/17	2451347.0	-41.96517	37.56878	16.52784	-0.77912	-0.67657	-0.19084	58.69973	1.04938	138.16	16.35
99/ 6/18	2451347.5	-46.92950	32.73237	15.12184	-0.68546	-0.74961	-0.22373	59.18155	1.04011	145.11	14.80
99/ 6/18	2451348.0	-51.23398	27.44186	13.50593	-0.58456	-0.81060	-0.25278	59.66897	1.03087	151.83	13.08

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 6/19	2451348.5	-54.83555	21.77988	11.70694	-0.47818	-0.85928	-0.27776	60.15275	1.02185	158.34	11.22
99/ 6/19	2451349.0	-57.70275	15.83007	9.75287	-0.36798	-0.89560	-0.29855	60.62440	1.01323	164.66	9.26
99/ 6/20	2451349.5	-59.81502	9.67584	7.67241	-0.25550	-0.91968	-0.31508	61.07638	1.00517	170.81	7.22
99/ 6/20	2451350.0	-61.16187	3.39932	5.49445	-0.14219	-0.93176	-0.32734	61.50219	0.99778	176.82	5.13
99/ 6/21	2451350.5	-61.74213	-2.91945	3.24780	-0.02934	-0.93222	-0.33538	61.89638	0.99115	182.71	3.01
99/ 6/21	2451351.0	-61.56312	-9.20316	0.96086	0.08183	-0.92148	-0.33925	62.25463	0.98535	188.50	0.88
99/ 6/22	2451351.5	-60.63994	-15.37760	-1.33855	0.19023	-0.90004	-0.33908	62.57367	0.98043	194.23	-1.23
99/ 6/22	2451352.0	-58.99480	-21.37209	-3.62336	0.29486	-0.86844	-0.33497	62.85127	0.97639	199.91	-3.30
99/ 6/23	2451352.5	-56.65647	-27.11971	-5.86743	0.39478	-0.82724	-0.32707	63.08614	0.97322	205.58	-5.34
99/ 6/23	2451353.0	-53.65971	-32.55751	-8.04562	0.48915	-0.77705	-0.31554	63.27786	0.97090	211.25	-7.30
99/ 6/24	2451353.5	-50.04489	-37.62673	-10.13390	0.57716	-0.71851	-0.30055	63.42679	0.96938	216.94	-9.19
99/ 6/24	2451354.0	-45.85761	-42.27297	-12.10946	0.65808	-0.65227	-0.28229	63.53395	0.96861	222.67	-10.99
99/ 6/25	2451354.5	-41.14828	-46.44643	-13.95078	0.73120	-0.57902	-0.26095	63.60091	0.96851	228.46	-12.67
99/ 6/25	2451355.0	-35.97186	-50.10212	-15.63777	0.79590	-0.49949	-0.23675	63.62969	0.96902	234.32	-14.23
99/ 6/26	2451355.5	-30.38752	-53.20007	-17.15186	0.85157	-0.41446	-0.20993	63.62260	0.97006	240.27	-15.64
99/ 6/26	2451356.0	-24.45827	-55.70565	-18.47612	0.89766	-0.32471	-0.18074	63.58218	0.97154	246.30	-16.89
99/ 6/27	2451356.5	-18.25066	-57.58983	-19.59539	0.93369	-0.23111	-0.14945	63.51106	0.97341	252.42	-17.97
99/ 6/27	2451357.0	-11.83433	-58.82950	-20.49641	0.95923	-0.13454	-0.11634	63.41186	0.97558	258.63	-18.86
99/ 6/28	2451357.5	-5.28160	-59.40776	-21.16799	0.97391	-0.03596	-0.08175	63.28713	0.97800	264.92	-19.54
99/ 6/28	2451358.0	1.33301	-59.31423	-21.60111	0.97746	0.06366	-0.04599	63.13923	0.98061	271.29	-20.01
99/ 6/29	2451358.5	7.93337	-58.54535	-21.78911	0.96968	0.16330	-0.00942	62.97032	0.98338	277.72	-20.24
99/ 6/29	2451359.0	14.44237	-57.10461	-21.72779	0.95047	0.26188	0.02757	62.78228	0.98627	284.19	-20.25
99/ 6/30	2451359.5	20.78252	-55.00276	-21.41554	0.91983	0.35833	0.06461	62.57669	0.98928	290.70	-20.01
99/ 6/30	2451360.0	26.87678	-52.25799	-20.85348	0.87789	0.45155	0.10127	62.35484	0.99239	297.22	-19.54
99/ 7/ 1	2451360.5	32.64926	-48.89602	-20.04550	0.82486	0.54040	0.13715	62.11776	0.99561	303.73	-18.83
99/ 7/ 1	2451361.0	38.02606	-44.95011	-18.99837	0.76112	0.62379	0.17182	61.86624	0.99897	310.23	-17.88
99/ 7/ 2	2451361.5	42.93616	-40.46108	-17.72178	0.68714	0.70060	0.20484	61.60092	1.00248	316.70	-16.72
99/ 7/ 2	2451362.0	47.31225	-35.47710	-16.22835	0.60355	0.76976	0.23578	61.32237	1.00618	323.14	-15.35
99/ 7/ 3	2451362.5	51.09169	-30.05358	-14.53362	0.51109	0.83023	0.26421	61.03118	1.01010	329.53	-13.78
99/ 7/ 3	2451363.0	54.21741	-24.25279	-12.65603	0.41066	0.88101	0.28971	60.72808	1.01427	335.90	-12.03
99/ 7/ 4	2451363.5	56.63882	-18.14352	-10.61681	0.30330	0.92117	0.31187	60.41407	1.01873	342.24	-10.12
99/ 7/ 4	2451364.0	58.31282	-11.80060	-8.43991	0.19016	0.94987	0.33030	60.09052	1.02348	348.56	-8.07
99/ 7/ 5	2451364.5	59.20467	-5.30425	-6.15183	0.07257	0.96636	0.34464	59.75930	1.02854	354.88	-5.91
99/ 7/ 5	2451365.0	59.28901	1.26060	-3.78144	-0.04804	0.97001	0.35456	59.42285	1.03389	1.22	-3.65
99/ 7/ 6	2451365.5	58.55072	7.80521	-1.35971	-0.17007	0.96032	0.35976	59.08432	1.03950	7.59	-1.32
99/ 7/ 6	2451366.0	56.98586	14.23808	1.08059	-0.29183	0.93697	0.36000	58.74759	1.04531	14.03	1.05
99/ 7/ 7	2451366.5	54.60242	20.46614	3.50526	-0.41148	0.89983	0.35512	58.41724	1.05125	20.55	3.44
99/ 7/ 7	2451367.0	51.42107	26.39619	5.87916	-0.52712	0.84900	0.34500	58.09862	1.05721	27.17	5.81
99/ 7/ 8	2451367.5	47.47562	31.93648	8.16672	-0.63678	0.78483	0.32963	57.79765	1.06306	33.93	8.12
99/ 7/ 8	2451368.0	42.81333	36.99859	10.33261	-0.73847	0.70793	0.30909	57.52077	1.06866	40.83	10.35
99/ 7/ 9	2451368.5	37.49486	41.49929	12.34242	-0.83023	0.61923	0.28358	57.27470	1.07384	47.90	12.44
99/ 7/ 9	2451369.0	31.59382	45.36270	14.16347	-0.91019	0.51997	0.25341	57.06617	1.07844	55.14	14.37
99/ 7/10	2451369.5	25.19594	48.52230	15.76558	-0.97668	0.41168	0.21902	56.90169	1.08229	62.56	16.09
99/ 7/10	2451370.0	18.39762	50.92300	17.12193	-1.02822	0.29619	0.18095	56.78719	1.08522	70.14	17.55
99/ 7/11	2451370.5	11.30415	52.52283	18.20983	-1.06367	0.17555	0.13986	56.72768	1.08710	77.85	18.72

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MCON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/ 7/11	2451371.0	4.02732	53.29446	19.01138	-1.08227	0.05201	0.09652	56.72699	1.08781	85.68	19.58
99/ 7/12	2451371.5	-3.31718	53.22611	19.51404	-1.08364	-0.07209	0.05174	56.78750	1.08726	93.57	20.10
99/ 7/12	2451372.0	-10.61276	52.32194	19.71094	-1.06787	-0.19441	0.00638	56.90990	1.08544	101.47	20.26
99/ 7/13	2451372.5	-17.74478	50.60188	19.60107	-1.03546	-0.31265	-0.03870	57.09317	1.08233	109.32	20.08
99/ 7/13	2451373.0	-24.60352	48.10077	19.18916	-0.98735	-0.42471	-0.08268	57.33447	1.07799	117.09	19.55
99/ 7/14	2451373.5	-31.08663	44.86705	18.48535	-0.92478	-0.52870	-0.12477	57.62932	1.07252	124.72	18.71
99/ 7/14	2451374.0	-37.10130	40.96094	17.50477	-0.84930	-0.62302	-0.16430	57.97173	1.06605	132.17	17.57
99/ 7/15	2451374.5	-42.56589	36.45239	16.26683	-0.76265	-0.70641	-0.20068	58.35445	1.05873	139.42	16.19
99/ 7/15	2451375.0	-47.41098	31.41888	14.79455	-0.66668	-0.77791	-0.23343	58.76926	1.05076	146.47	14.58
99/ 7/16	2451375.5	-51.57987	25.94322	13.11377	-0.56329	-0.83689	-0.26220	59.20730	1.04232	153.30	12.80
99/ 7/16	2451376.0	-55.02869	20.11144	11.25244	-0.45435	-0.88303	-0.28672	59.65940	1.03363	159.92	10.87
99/ 7/17	2451376.5	-57.72603	14.01097	9.23990	-0.34167	-0.91624	-0.30683	60.11636	1.02488	166.36	8.84
99/ 7/17	2451377.0	-59.65232	7.72901	7.10624	-0.22694	-0.93666	-0.32247	60.56926	1.01628	172.62	6.74
99/ 7/18	2451377.5	-60.79899	1.35124	4.88181	-0.11171	-0.94460	-0.33364	61.00963	1.00800	178.73	4.59
99/ 7/18	2451378.0	-61.16759	-5.03924	2.59674	0.00260	-0.94050	-0.34039	61.42973	1.00021	184.71	2.42
99/ 7/19	2451378.5	-60.76878	-11.36267	0.28062	0.11470	-0.92490	-0.34283	61.82260	0.99304	190.59	0.26
99/ 7/19	2451379.0	-59.62145	-17.54320	-2.03781	0.22345	-0.89841	-0.34110	62.18226	0.98662	196.40	-1.88
99/ 7/20	2451379.5	-57.75180	-23.50928	-4.33078	0.32783	-0.86169	-0.33535	62.50370	0.98104	202.15	-3.97
99/ 7/20	2451380.0	-55.19266	-29.19392	-6.57176	0.42691	-0.81542	-0.32577	62.78298	0.97636	207.88	-6.01
99/ 7/21	2451380.5	-51.98269	-34.53484	-8.73543	0.51988	-0.76031	-0.31256	63.01717	0.97264	213.60	-7.97
99/ 7/21	2451381.0	-48.16593	-39.47458	-10.79789	0.60598	-0.69707	-0.29592	63.20438	0.96989	219.34	-9.84
99/ 7/22	2451381.5	-43.79120	-43.96061	-12.73662	0.68453	-0.62645	-0.27606	63.34371	0.96811	225.11	-11.60
99/ 7/22	2451382.0	-38.91177	-47.94535	-14.53060	0.75491	-0.54918	-0.25321	63.43518	0.96727	230.94	-13.24
99/ 7/23	2451382.5	-33.58500	-51.38637	-16.16036	0.81654	-0.46602	-0.22760	63.47967	0.96732	236.83	-14.75
99/ 7/23	2451383.0	-27.87201	-54.24644	-17.60803	0.86888	-0.37776	-0.19948	63.47887	0.96822	242.81	-16.10
99/ 7/24	2451383.5	-21.83738	-56.49374	-18.85745	0.91143	-0.28521	-0.16911	63.43514	0.96987	248.87	-17.29
99/ 7/24	2451384.0	-15.54893	-58.10208	-19.89426	0.94376	-0.18922	-0.13675	63.35142	0.97221	255.02	-18.30
99/ 7/25	2451384.5	-9.07733	-59.05118	-20.70603	0.96546	-0.09069	-0.10270	63.23116	0.97513	261.26	-19.12
99/ 7/25	2451385.0	-2.49577	-59.32694	-21.28236	0.97618	0.00945	-0.06728	63.07816	0.97854	267.59	-19.72
99/ 7/26	2451385.5	4.12044	-58.92178	-21.61507	0.97565	0.11021	-0.03082	62.89647	0.98234	274.00	-20.10
99/ 7/26	2451386.0	10.69438	-57.83497	-21.69831	0.96367	0.21056	0.00632	62.69027	0.98643	280.48	-20.25
99/ 7/27	2451386.5	17.14812	-56.07296	-21.52877	0.94014	0.30941	0.04376	62.46377	0.99071	287.00	-20.16
99/ 7/27	2451387.0	23.40333	-53.64970	-21.10582	0.90506	0.40563	0.08108	62.22107	0.99511	293.57	-19.83
99/ 7/28	2451387.5	29.38213	-50.58687	-20.43164	0.85855	0.49807	0.11787	61.96606	0.99954	300.15	-19.25
99/ 7/28	2451388.0	35.00794	-46.91409	-19.51139	0.80088	0.58555	0.15367	61.70237	1.00394	306.73	-18.43
99/ 7/29	2451388.5	40.20643	-42.66899	-18.35326	0.73245	0.66688	0.18803	61.43323	1.00825	313.30	-17.38
99/ 7/29	2451389.0	44.90655	-37.89719	-16.96860	0.65382	0.74089	0.22049	61.16150	1.01243	319.84	-16.11
99/ 7/30	2451389.5	49.04166	-32.65211	-15.37187	0.56574	0.80645	0.25058	60.88957	1.01647	326.34	-14.62
99/ 7/30	2451390.0	52.55059	-26.99469	-13.58066	0.46908	0.86248	0.27785	60.61940	1.02034	332.81	-12.95
99/ 7/31	2451390.5	55.37876	-20.99289	-11.61557	0.36490	0.90798	0.30185	60.35255	1.02406	339.24	-11.10
99/ 7/31	2451391.0	57.47930	-14.72109	-9.50007	0.25443	0.94207	0.32219	60.09020	1.02764	345.63	-9.10
99/ 8/ 1	2451391.5	58.81403	-8.25925	-7.26029	0.13900	0.96398	0.33849	59.83324	1.03109	352.01	-6.97
99/ 8/ 1	2451392.0	59.35441	-1.69204	-4.92477	0.02012	0.97310	0.35042	59.58240	1.03446	358.37	-4.74
99/ 8/ 2	2451392.5	59.08238	4.89228	-2.52408	-0.10062	0.96897	0.35769	59.33829	1.03777	4.73	-2.44
99/ 8/ 2	2451393.0	57.99107	11.40301	-0.09051	-0.22152	0.95134	0.36010	59.10161	1.04105	11.12	-0.09

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/ 8/ 3	2451393.5	56.08530	17.74836	2.34240	-0.34082	0.92014	0.35748	58.87319	1.04432	17.56	2.28
99/ 8/ 3	2451394.0	53.38205	23.83683	4.74035	-0.45671	0.87553	0.34977	58.65414	1.04760	24.06	4.64
99/ 8/ 4	2451394.5	49.91056	29.57867	7.06877	-0.56737	0.81787	0.33696	58.44595	1.05088	30.65	6.95
99/ 8/ 4	2451395.0	45.71242	34.88745	9.29340	-0.67099	0.74777	0.31914	58.25055	1.05415	37.35	9.18
99/ 8/ 5	2451395.5	40.84129	39.68161	11.38084	-0.76581	0.66606	0.29648	58.07034	1.05736	44.17	11.30
99/ 8/ 5	2451396.0	35.36242	43.88610	13.29922	-0.85018	0.57384	0.26927	57.90820	1.06047	51.14	13.28
99/ 8/ 6	2451396.5	29.35195	47.43390	15.01878	-0.92255	0.47239	0.23784	57.76742	1.06340	58.25	15.07
99/ 8/ 6	2451397.0	22.89585	50.26759	16.51251	-0.98156	0.36324	0.20266	57.65165	1.06605	65.51	16.64
99/ 8/ 7	2451397.5	16.08862	52.34072	17.75673	-1.02607	0.24810	0.16426	57.56472	1.06834	72.91	17.97
99/ 8/ 7	2451398.0	9.03167	53.61907	18.73171	-1.05518	0.12887	0.12326	57.51045	1.07014	80.44	19.01
99/ 8/ 8	2451398.5	1.83141	54.08159	19.42209	-1.06831	0.00754	0.08034	57.49252	1.07135	88.06	19.74
99/ 8/ 8	2451399.0	-5.40282	53.72114	19.81733	-1.06520	-0.11380	0.03624	57.51415	1.07187	95.74	20.16
99/ 8/ 9	2451399.5	-12.56108	52.54477	19.91198	-1.04592	-0.23305	-0.00829	57.57795	1.07160	103.44	20.23
99/ 8/ 9	2451400.0	-19.53518	50.57362	19.70582	-1.01092	-0.34816	-0.05246	57.68564	1.07048	111.12	19.97
99/ 8/10	2451400.5	-26.22104	47.84243	19.20383	-0.96096	-0.45717	-0.09552	57.83794	1.06844	118.73	19.39
99/ 8/10	2451401.0	-32.52087	44.39858	18.41603	-0.89713	-0.55832	-0.13675	58.03440	1.06549	126.22	18.50
99/ 8/11	2451401.5	-38.34519	40.30079	17.35715	-0.82079	-0.65004	-0.17547	58.27330	1.06162	133.58	17.33
99/ 8/11	2451402.0	-43.61447	35.61747	16.04612	-0.73351	-0.73103	-0.21111	58.55173	1.05688	140.76	15.91
99/ 8/12	2451402.5	-48.26038	30.42491	14.50557	-0.63701	-0.80027	-0.24317	58.86553	1.05135	147.77	14.27
99/ 8/12	2451403.0	-52.22658	24.80529	12.76112	-0.53310	-0.85704	-0.27126	59.20950	1.04513	154.59	12.45
99/ 8/13	2451403.5	-55.46918	18.84474	10.84073	-0.42364	-0.90089	-0.29509	59.57748	1.03834	161.24	10.48
99/ 8/13	2451404.0	-57.95669	12.63148	8.77401	-0.31043	-0.93166	-0.31445	59.96262	1.03113	167.70	8.41
99/ 8/14	2451404.5	-59.66969	6.25406	6.59156	-0.19521	-0.94940	-0.32925	60.35755	1.02365	174.02	6.27
99/ 8/14	2451405.0	-60.60018	-0.20011	4.32444	-0.07962	-0.95438	-0.33946	60.75461	1.01607	180.19	4.08
99/ 8/15	2451405.5	-60.75084	-6.64599	2.00359	0.03483	-0.94703	-0.34512	61.14612	1.00856	186.24	1.88
99/ 8/15	2451406.0	-60.13403	-13.00196	-0.34055	0.14679	-0.92793	-0.34636	61.52454	1.00128	192.20	-0.32
99/ 8/16	2451406.5	-58.77087	-19.19053	-2.67843	0.25503	-0.89772	-0.34330	61.88267	0.99438	198.08	-2.48
99/ 8/16	2451407.0	-56.69024	-25.13893	-4.98160	0.35848	-0.85713	-0.33614	62.21387	0.98802	203.91	-4.59
99/ 8/17	2451407.5	-53.92792	-30.77947	-7.22297	0.45618	-0.80694	-0.32509	62.51214	0.98231	209.72	-6.64
99/ 8/17	2451408.0	-50.52568	-36.04973	-9.37690	0.54731	-0.74793	-0.31036	62.77224	0.97738	215.51	-8.59
99/ 8/18	2451408.5	-46.53063	-40.89274	-11.41933	0.63112	-0.68091	-0.29220	62.98982	0.97331	221.31	-10.44
99/ 8/18	2451409.0	-41.99453	-45.25699	-13.32786	0.70698	-0.60669	-0.27086	63.16144	0.97018	227.14	-12.18
99/ 8/19	2451409.5	-36.97328	-49.09645	-15.08173	0.77430	-0.52608	-0.24658	63.28462	0.96804	233.02	-13.79
99/ 8/19	2451410.0	-31.52646	-52.37062	-16.66196	0.83256	-0.43990	-0.21962	63.35788	0.96690	238.95	-15.25
99/ 8/20	2451410.5	-25.71701	-55.04454	-18.05128	0.88131	-0.34897	-0.19025	63.38071	0.96679	244.96	-16.55
99/ 8/20	2451411.0	-19.61085	-57.08885	-19.23425	0.92011	-0.25412	-0.15874	63.35360	0.96766	251.04	-17.67
99/ 8/21	2451411.5	-13.27665	-58.47989	-20.19730	0.94858	-0.15621	-0.12536	63.27794	0.96950	257.21	-18.61
99/ 8/21	2451412.0	-6.78557	-59.19991	-20.92881	0.96638	-0.05612	-0.09041	63.15606	0.97223	263.46	-19.35
99/ 8/22	2451412.5	-0.21091	-59.23724	-21.41920	0.97321	0.04523	-0.05421	62.99109	0.97577	269.80	-19.88
99/ 8/22	2451413.0	6.37211	-58.58662	-21.66108	0.96882	0.14686	-0.01709	62.78693	0.98004	276.21	-20.18
99/ 8/23	2451413.5	12.88685	-57.24947	-21.64937	0.95302	0.24778	0.02061	62.54813	0.98492	282.69	-20.25
99/ 8/23	2451414.0	19.25562	-55.23430	-21.38150	0.92571	0.34690	0.05849	62.27981	0.99030	289.22	-20.08
99/ 8/24	2451414.5	25.40033	-52.55702	-20.85752	0.88686	0.44310	0.09616	61.98752	0.99605	295.79	-19.66
99/ 8/24	2451415.0	31.24316	-49.24132	-20.08035	0.83659	0.53522	0.13318	61.67709	1.00204	302.39	-19.00
99/ 8/25	2451415.5	36.70745	-45.31898	-19.05591	0.77513	0.62203	0.16910	61.35450	1.00814	309.01	-18.09

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/ 8/25	2451416.0	41.71863	-40.83009	-17.79329	0.70287	0.70231	0.20344	61.02575	1.01423	315.62	-16.95
99/ 8/26	2451416.5	46.20539	-35.82313	-16.30486	0.62038	0.77481	0.23570	60.69665	1.02018	322.21	-15.58
99/ 8/26	2451417.0	50.10087	-30.35492	-14.60635	0.52842	0.83831	0.26539	60.37270	1.02588	328.79	-14.00
99/ 8/27	2451417.5	53.34401	-24.49038	-12.71684	0.42793	0.89166	0.29202	60.05897	1.03124	335.34	-12.22
99/ 8/27	2451418.0	55.88089	-18.30202	-10.65868	0.32007	0.93376	0.31511	59.75989	1.03617	341.87	-10.27
99/ 8/28	2451418.5	57.66608	-11.86927	-8.45736	0.20620	0.96368	0.33422	59.47926	1.04063	348.37	-8.17
99/ 8/28	2451419.0	58.66391	-5.27746	-6.14121	0.08784	0.98062	0.34896	59.22010	1.04456	354.86	-5.95
99/ 8/29	2451419.5	58.84963	1.38339	-3.74107	-0.03332	0.98398	0.35897	58.98464	1.04795	1.35	-3.64
99/ 8/29	2451420.0	58.21032	8.01992	-1.28984	-0.15547	0.97340	0.36401	58.77435	1.05080	7.84	-1.26
99/ 8/30	2451420.5	56.74564	14.53710	1.17804	-0.27673	0.94874	0.36387	58.58995	1.05313	14.37	1.15
99/ 8/30	2451421.0	54.46821	20.83989	3.62718	-0.39515	0.91013	0.35847	58.43153	1.05498	20.94	3.56
99/ 8/31	2451421.5	51.40380	26.83502	6.02189	-0.50880	0.85798	0.34780	58.29865	1.05639	27.57	5.93
99/ 8/31	2451422.0	47.59107	32.43279	8.32682	-0.61581	0.79292	0.33198	58.19047	1.05743	34.27	8.23
99/ 9/ 1	2451422.5	43.08111	37.54876	10.50762	-0.71440	0.71588	0.31119	58.10595	1.05815	41.07	10.42
99/ 9/ 1	2451423.0	37.93666	42.10541	12.53160	-0.80291	0.62797	0.28573	58.04392	1.05861	47.98	12.47
99/ 9/ 2	2451423.5	32.23105	46.03363	14.36835	-0.87987	0.53054	0.25597	58.00332	1.05885	55.00	14.34
99/ 9/ 2	2451424.0	26.04697	49.27398	15.99029	-0.94401	0.42511	0.22238	57.98326	1.05893	62.14	16.01
99/ 9/ 3	2451424.5	19.47495	51.77783	17.37317	-0.99427	0.31335	0.18547	57.98314	1.05885	69.39	17.44
99/ 9/ 3	2451425.0	12.61182	53.50826	18.49655	-1.02986	0.19703	0.14585	58.00270	1.05864	76.74	18.60
99/ 9/ 4	2451425.5	5.55891	54.44066	19.34412	-1.05024	0.07801	0.10414	58.04207	1.05827	84.17	19.47
99/ 9/ 4	2451426.0	-1.57969	54.56318	19.90400	-1.05515	-0.04180	0.06101	58.10168	1.05774	91.66	20.03
99/ 9/ 5	2451426.5	-8.69909	53.87688	20.16892	-1.04460	-0.16051	0.01716	58.18228	1.05700	99.17	20.28
99/ 9/ 5	2451427.0	-15.69540	52.39558	20.13634	-1.01887	-0.27625	-0.02672	58.28477	1.05600	106.68	20.21
99/ 9/ 6	2451427.5	-22.46760	50.14555	19.80844	-0.97854	-0.38723	-0.06994	58.41013	1.05469	114.13	19.82
99/ 9/ 6	2451428.0	-28.91935	47.16485	19.19200	-0.92440	-0.49175	-0.11182	58.55924	1.05301	121.51	19.13
99/ 9/ 7	2451428.5	-34.96059	43.50246	18.29825	-0.85751	-0.58828	-0.15172	58.73272	1.05091	128.79	18.15
99/ 9/ 7	2451429.0	-40.50908	39.21720	17.14255	-0.77912	-0.67547	-0.18907	58.93082	1.04835	135.93	16.91
99/ 9/ 8	2451429.5	-45.49169	34.37641	15.74403	-0.69066	-0.75215	-0.22334	59.15324	1.04528	142.92	15.44
99/ 9/ 8	2451430.0	-49.84542	29.05453	14.12513	-0.59368	-0.81739	-0.25408	59.39908	1.04170	149.76	13.76
99/ 9/ 9	2451430.5	-53.51813	23.33152	12.31109	-0.48984	-0.87050	-0.28091	59.66668	1.03761	156.44	11.91
99/ 9/ 9	2451431.0	-56.46907	17.29123	10.32939	-0.38083	-0.91102	-0.30355	59.95364	1.03302	162.98	9.92
99/ 9/10	2451431.5	-58.66901	11.01985	8.20922	-0.26836	-0.93873	-0.32178	60.25679	1.02799	169.36	7.83
99/ 9/10	2451432.0	-60.10014	4.60432	5.98084	-0.15408	-0.95361	-0.33548	60.57225	1.02257	175.62	5.67
99/ 9/11	2451432.5	-60.75573	-1.86905	3.67515	-0.03960	-0.95586	-0.34461	60.89547	1.01685	181.76	3.46
99/ 9/11	2451433.0	-60.63950	-8.31588	1.32306	0.07359	-0.94584	-0.34919	61.22135	1.01092	187.81	1.24
99/ 9/12	2451433.5	-59.76500	-14.65478	-1.04484	0.18409	-0.92408	-0.34930	61.54437	1.00490	193.78	-0.97
99/ 9/12	2451434.0	-58.15469	-20.80825	-3.39874	0.29067	-0.89120	-0.34508	61.85874	0.99890	199.69	-3.15
99/ 9/13	2451434.5	-55.83909	-26.70342	-5.70993	0.39218	-0.84793	-0.33672	62.15851	0.99306	205.56	-5.27
99/ 9/13	2451435.0	-52.85588	-32.27253	-7.95102	0.48765	-0.79505	-0.32442	62.43780	0.98751	211.41	-7.32
99/ 9/14	2451435.5	-49.24900	-37.45332	-10.09614	0.57621	-0.73341	-0.30842	62.69088	0.98236	217.25	-9.27
99/ 9/14	2451436.0	-45.06785	-42.18928	-12.12113	0.65712	-0.66384	-0.28899	62.91238	0.97775	223.11	-11.11
99/ 9/15	2451436.5	-40.36654	-46.42973	-14.00359	0.72971	-0.58723	-0.26638	63.09737	0.97380	229.00	-12.82
99/ 9/15	2451437.0	-35.20324	-50.12991	-15.72298	0.79346	-0.50445	-0.24088	63.24150	0.97060	234.92	-14.40
99/ 9/16	2451437.5	-29.63956	-53.25096	-17.26064	0.84787	-0.41636	-0.21277	63.34112	0.96825	240.90	-15.81
99/ 9/16	2451438.0	-23.74014	-55.75992	-18.59983	0.89254	-0.32385	-0.18232	63.39335	0.96682	246.94	-17.06

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	GEOCENTRIC EQUATORIAL COORDINATE SYSTEM X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
99/ 9/17	2451438.5	-17.57217	-57.62972	-19.72578	0.92711	-0.22777	-0.14985	63.39616	0.96637	253.04	-18.13
99/ 9/17	2451439.0	-11.20510	-58.83920	-20.62569	0.95128	-0.12900	-0.11562	63.34843	0.96693	259.22	-19.00
99/ 9/18	2451439.5	-4.71030	-59.37312	-21.28877	0.96479	-0.02843	-0.07997	63.25003	0.96851	265.46	-19.67
99/ 9/18	2451440.0	1.83919	-59.22234	-21.70635	0.96740	0.07303	-0.04318	63.10178	0.97111	271.78	-20.12
99/ 9/19	2451440.5	8.36894	-58.38395	-21.87190	0.95893	0.17446	-0.00560	62.90552	0.97469	278.16	-20.35
99/ 9/19	2451441.0	14.80349	-56.86145	-21.78118	0.93926	0.27487	0.03244	62.66409	0.97920	284.59	-20.34
99/ 9/20	2451441.5	21.06663	-54.66513	-21.43234	0.90831	0.37326	0.07056	62.38129	0.98455	291.08	-20.09
99/ 9/20	2451442.0	27.08193	-51.81232	-20.82611	0.86608	0.46855	0.10837	62.06186	0.99065	297.60	-19.61
99/ 9/21	2451442.5	32.77324	-48.32776	-19.96595	0.81267	0.55962	0.14547	61.71140	0.99738	304.14	-18.88
99/ 9/21	2451443.0	38.06539	-44.24399	-18.85822	0.74826	0.64529	0.18140	61.33627	1.00459	310.71	-17.91
99/ 9/22	2451443.5	42.88509	-39.60166	-17.51239	0.67322	0.72435	0.21570	60.94347	1.01215	317.28	-16.70
99/ 9/22	2451444.0	47.16190	-34.44978	-15.94119	0.58805	0.79555	0.24787	60.54052	1.01987	323.85	-15.27
99/ 9/23	2451444.5	50.82948	-28.84582	-14.16077	0.49345	0.85763	0.27740	60.13522	1.02761	330.43	-13.62
99/ 9/23	2451445.0	53.82688	-22.85573	-12.19072	0.39033	0.90937	0.30377	59.73551	1.03518	336.99	-11.78
99/ 9/24	2451445.5	56.10010	-16.55357	-10.05417	0.27981	0.94960	0.32648	59.34921	1.04241	343.56	-9.75
99/ 9/24	2451446.0	57.60360	-10.02101	-7.77759	0.16328	0.97724	0.34504	58.98378	1.04915	350.13	-7.58
99/ 9/25	2451446.5	58.30185	-3.34641	-5.39067	0.04232	0.99141	0.35900	58.64608	1.05525	356.71	-5.27
99/ 9/25	2451447.0	58.17087	3.37642	-2.92593	-0.08127	0.99139	0.36796	58.34219	1.06059	3.32	-2.87
99/ 9/26	2451447.5	57.19948	10.04976	-0.41825	-0.20551	0.97674	0.37163	58.07713	1.06507	9.96	-0.41
99/ 9/26	2451448.0	55.39035	16.57385	2.09573	-0.32830	0.94732	0.36980	57.85478	1.06861	16.66	2.08
99/ 9/27	2451448.5	52.76059	22.84900	4.57832	-0.44747	0.90329	0.36236	57.67771	1.07120	23.42	4.55
99/ 9/27	2451449.0	49.34201	28.77781	6.99161	-0.56087	0.84516	0.34935	57.54719	1.07281	30.25	6.98
99/ 9/28	2451449.5	45.18078	34.26746	9.29830	-0.66643	0.77377	0.33092	57.46320	1.07348	37.18	9.31
99/ 9/28	2451450.0	40.33667	39.23185	11.46256	-0.76222	0.69027	0.30735	57.42452	1.07327	44.20	11.51
99/ 9/29	2451450.5	34.88183	43.59367	13.45086	-0.84651	0.59609	0.27903	57.42887	1.07227	51.33	13.55
99/ 9/29	2451451.0	28.89918	47.28600	15.23266	-0.91786	0.49287	0.24646	57.47315	1.07057	58.57	15.37
99/ 9/30	2451451.5	22.48053	50.25372	16.78112	-0.97509	0.38243	0.21023	57.55360	1.06830	65.90	16.95
99/ 9/30	2451452.0	15.72448	52.45447	18.07352	-1.01738	0.26671	0.17096	57.66613	1.06556	73.31	18.27
99/10/ 1	2451452.5	8.73426	53.85916	19.09169	-1.04418	0.14770	0.12936	57.80647	1.06248	80.79	19.29
99/10/ 1	2451453.0	1.61558	54.45222	19.82219	-1.05530	0.02738	0.08614	57.97046	1.05916	88.30	19.99
99/10/ 2	2451453.5	-5.52547	54.23146	20.25646	-1.05082	-0.09230	0.04201	58.15416	1.05571	95.82	20.38
99/10/ 2	2451454.0	-12.58436	53.20757	20.39077	-1.03112	-0.20948	-0.00232	58.35405	1.05219	103.31	20.45
99/10/ 3	2451454.5	-19.45989	51.40352	20.22609	-0.99680	-0.32240	-0.04617	58.56709	1.04866	110.74	20.20
99/10/ 3	2451455.0	-26.05579	48.85363	19.76796	-0.94870	-0.42946	-0.08888	58.79076	1.04517	118.07	19.65
99/10/ 4	2451455.5	-32.28207	45.60263	19.02612	-0.88784	-0.52920	-0.12984	59.02309	1.04172	125.29	18.81
99/10/ 4	2451456.0	-38.05620	41.70451	18.01430	-0.81539	-0.62035	-0.16851	59.26259	1.03832	132.38	17.70
99/10/ 5	2451456.5	-43.30409	37.22131	16.74977	-0.73267	-0.70181	-0.20439	59.50819	1.03495	139.32	16.35
99/10/ 5	2451457.0	-47.96088	32.22190	15.25300	-0.64109	-0.77265	-0.23703	59.75911	1.03158	146.11	14.79
99/10/ 6	2451457.5	-51.97154	26.78070	13.54718	-0.54213	-0.83216	-0.26606	60.01477	1.02819	152.74	13.05
99/10/ 6	2451458.0	-55.29125	20.97637	11.65783	-0.43732	-0.87981	-0.29118	60.27467	1.02474	159.22	11.15
99/10/ 7	2451458.5	-57.88567	14.89053	9.61233	-0.32821	-0.91525	-0.31214	60.53821	1.02119	165.57	9.14
99/10/ 7	2451459.0	-59.73095	8.60650	7.43944	-0.21636	-0.93832	-0.32877	60.80463	1.01752	171.80	7.03
99/10/ 8	2451459.5	-60.81367	2.20808	5.16887	-0.10328	-0.94904	-0.34097	61.07287	1.01371	177.92	4.86
99/10/ 8	2451460.0	-61.13055	-4.22158	2.83087	0.00955	-0.94759	-0.34868	61.34150	1.00975	183.95	2.65
99/10/ 9	2451460.5	-60.68804	-10.60106	0.45574	0.12073	-0.93429	-0.35194	61.60867	1.00565	189.91	0.42

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	RA	DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/10/ 9	2451461.0	-59.50179	-16.85165	-1.92651	0.22896	-0.90961	-0.35080	61.87207	1.00144	195.81	-1.78
99/10/10	2451461.5	-57.59604	-22.89815	-4.28652	0.33300	-0.87413	-0.34539	62.12893	0.99714	201.68	-3.96
99/10/10	2451462.0	-55.00289	-28.66964	-6.59592	0.43177	-0.82852	-0.33588	62.37606	0.99282	207.53	-6.07
99/10/11	2451462.5	-51.76155	-34.10006	-8.82757	0.52426	-0.77355	-0.32247	62.60989	0.98854	213.38	-8.11
99/10/11	2451463.0	-47.91753	-39.12868	-10.95583	0.60959	-0.71001	-0.30539	62.82654	0.98437	219.23	-10.04
99/10/12	2451463.5	-43.52193	-43.70044	-12.95671	0.68702	-0.63878	-0.28490	63.02192	0.98041	225.12	-11.86
99/10/12	2451464.0	-38.63060	-47.76618	-14.80803	0.75588	-0.56074	-0.26128	63.19184	0.97675	231.04	-13.55
99/10/13	2451464.5	-33.30350	-51.28283	-16.48955	0.81562	-0.47679	-0.23481	63.33212	0.97350	237.00	-15.09
99/10/13	2451465.0	-27.60401	-54.21346	-17.98300	0.86577	-0.38784	-0.20580	63.43870	0.97074	243.02	-16.47
99/10/14	2451465.5	-21.59833	-56.52730	-19.27217	0.90597	-0.29481	-0.17454	63.50779	0.96859	249.09	-17.67
99/10/14	2451466.0	-15.35499	-58.19975	-20.34292	0.93591	-0.19860	-0.14135	63.53598	0.96713	255.22	-18.67
99/10/15	2451466.5	-8.94435	-59.21234	-21.18323	0.95534	-0.10011	-0.10655	63.52033	0.96646	261.41	-19.48
99/10/15	2451467.0	-2.43822	-59.55275	-21.78324	0.96408	-0.00026	-0.07044	63.45852	0.96665	267.66	-20.08
99/10/16	2451467.5	4.09050	-59.21477	-22.13522	0.96199	0.10006	-0.03336	63.34895	0.96776	273.95	-20.45
99/10/16	2451468.0	10.56817	-58.19840	-22.23369	0.94899	0.19991	0.00436	63.19080	0.96983	280.29	-20.60
99/10/17	2451468.5	16.92070	-56.50991	-22.07543	0.92504	0.29837	0.04239	62.98417	0.97289	286.67	-20.52
99/10/17	2451469.0	23.07391	-54.16201	-21.65958	0.89014	0.39447	0.08037	62.73010	0.97694	293.07	-20.20
99/10/18	2451469.5	28.95389	-51.17399	-20.98775	0.84437	0.48722	0.11792	62.43069	0.98197	299.50	-19.64
99/10/18	2451470.0	34.48745	-47.57206	-20.06410	0.78787	0.57558	0.15466	62.08907	0.98791	305.94	-18.85
99/10/19	2451470.5	39.60263	-43.38952	-18.89555	0.72087	0.65849	0.19017	61.70949	0.99470	312.39	-17.83
99/10/19	2451471.0	44.22937	-38.66715	-17.49189	0.64371	0.73481	0.22401	61.29724	1.00224	318.84	-16.58
99/10/20	2451471.5	48.30034	-33.45341	-15.86595	0.55685	0.80339	0.25572	60.85871	1.01040	325.29	-15.11
99/10/20	2451472.0	51.75188	-27.80470	-14.03378	0.46092	0.86305	0.28483	60.40121	1.01903	331.75	-13.44
99/10/21	2451472.5	54.52519	-21.78546	-12.01475	0.35672	0.91261	0.31082	59.93294	1.02796	338.22	-11.56
99/10/21	2451473.0	56.56766	-15.46811	-9.83165	0.24529	0.95089	0.33319	59.46279	1.03700	344.71	-9.52
99/10/22	2451473.5	57.83436	-8.93277	-7.51069	0.12787	0.97680	0.35144	59.00015	1.04595	351.22	-7.31
99/10/22	2451474.0	58.28968	-2.26669	-5.08141	0.00597	0.98934	0.36510	58.55463	1.05458	357.77	-4.98
99/10/23	2451474.5	57.90898	4.43669	-2.57645	-0.11869	0.98770	0.37372	58.13581	1.06268	4.38	-2.54
99/10/23	2451475.0	56.68018	11.07910	-0.03120	-0.24412	0.97126	0.37694	57.75284	1.07006	11.06	-0.03
99/10/24	2451475.5	54.60523	17.55912	2.51675	-0.36818	0.93972	0.37448	57.41418	1.07651	17.83	2.51
99/10/24	2451476.0	51.70118	23.77438	5.02832	-0.48856	0.89311	0.36619	57.12720	1.08187	24.69	5.05
99/10/25	2451476.5	48.00084	29.62398	7.46381	-0.60292	0.83184	0.35202	56.89789	1.08600	31.68	7.54
99/10/25	2451477.0	43.55293	35.01113	9.78383	-0.70894	0.75672	0.33212	56.73059	1.08882	38.79	9.93
99/10/26	2451477.5	38.42145	39.84589	11.95037	-0.80442	0.66896	0.30676	56.62785	1.09028	46.04	12.18
99/10/26	2451478.0	32.68452	44.04770	13.92786	-0.88742	0.57011	0.27638	56.59031	1.09038	53.42	14.25
99/10/27	2451478.5	26.43255	47.54768	15.68409	-0.95627	0.46205	0.24153	56.61671	1.08916	60.93	16.08
99/10/27	2451479.0	19.76585	50.29047	17.19112	-1.00970	0.34688	0.20291	56.70410	1.08674	68.54	17.65
99/10/28	2451479.5	12.79202	52.23542	18.42589	-1.04686	0.22684	0.16127	56.84795	1.08322	76.24	18.91
99/10/28	2451480.0	5.62305	53.35734	19.37074	-1.06729	0.10422	0.11743	57.04252	1.07878	83.98	19.85
99/10/29	2451480.5	-1.62757	53.64646	20.01356	-1.07099	-0.01871	0.07223	57.28119	1.07359	91.74	20.45
99/10/29	2451481.0	-8.84746	53.10806	20.34790	-1.05831	-0.13980	0.02648	57.55676	1.06783	99.46	20.70
99/10/30	2451481.5	-15.92781	51.76145	20.37275	-1.02993	-0.25705	-0.01903	57.86184	1.06169	107.10	20.62
99/10/30	2451482.0	-22.76542	49.63883	20.09229	-0.98681	-0.36867	-0.06357	58.18916	1.05534	114.64	20.20
99/10/31	2451482.5	-29.26434	46.78374	19.51541	-0.93012	-0.47310	-0.10646	58.53180	1.04894	122.03	19.48
99/10/31	2451483.0	-35.33713	43.24956	18.65530	-0.86121	-0.56900	-0.14711	58.88343	1.04263	129.25	18.47

1.10 1 E.R.=6378.3255KM.

GEOCENTRIC EQUATORIAL COORDINATE SYSTEM — MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/11/ 1	2451483.5	-40.90578	39.09792	17.52887	-0.78150	-0.65527	-0.18502	59.23843	1.03651	136.29	17.21
99/11/ 1	2451484.0	-45.90229	34.39710	16.15628	-0.69251	-0.73103	-0.21974	59.59200	1.03067	143.15	15.73
99/11/ 2	2451484.5	-50.26901	29.22065	14.56037	-0.59579	-0.79563	-0.25090	59.94017	1.02515	149.83	14.06
99/11/ 2	2451485.0	-53.95876	23.64595	12.76623	-0.49287	-0.84857	-0.27823	60.27981	1.02000	156.34	12.23
99/11/ 3	2451485.5	-56.93479	17.75300	10.80066	-0.38528	-0.88957	-0.30149	60.60853	1.01522	162.68	10.27
99/11/ 3	2451486.0	-59.17063	11.62324	8.69179	-0.27454	-0.91849	-0.32053	60.92463	1.01081	168.89	8.20
99/11/ 4	2451486.5	-60.64979	5.33853	6.46865	-0.16208	-0.93534	-0.33522	61.22696	1.00673	174.97	6.06
99/11/ 4	2451487.0	-61.36546	-1.01979	4.16083	-0.04931	-0.94026	-0.34553	61.51481	1.00295	180.95	3.88
99/11/ 5	2451487.5	-61.32007	-7.37180	1.79808	0.06244	-0.93353	-0.35145	61.78776	0.99944	186.86	1.67
99/11/ 5	2451488.0	-60.52486	-13.63974	-0.58998	0.17190	-0.91551	-0.35301	62.04555	0.99615	192.70	-0.54
99/11/ 6	2451488.5	-58.99943	-19.74871	-2.97413	0.27788	-0.88667	-0.35031	62.28796	0.99304	198.51	-2.74
99/11/ 6	2451489.0	-56.77114	-25.62738	-5.32590	0.37927	-0.84760	-0.34347	62.51472	0.99007	204.30	-4.89
99/11/ 7	2451489.5	-53.87460	-31.20852	-7.61777	0.47504	-0.79893	-0.33265	62.72539	0.98722	210.08	-6.98
99/11/ 7	2451490.0	-50.35105	-36.42950	-9.82341	0.56427	-0.74137	-0.31804	62.91928	0.98448	215.89	-8.98
99/11/ 8	2451490.5	-46.24772	-41.23278	-11.91791	0.64612	-0.67572	-0.29987	63.09541	0.98183	221.72	-10.89
99/11/ 8	2451491.0	-41.61721	-45.56626	-13.87796	0.71983	-0.60278	-0.27839	63.25246	0.97929	227.59	-12.67
99/11/ 9	2451491.5	-36.51681	-49.38355	-15.68201	0.78477	-0.52344	-0.25385	63.38878	0.97688	233.52	-14.32
99/11/ 9	2451492.0	-31.00788	-52.64425	-17.31040	0.84038	-0.43858	-0.22656	63.50241	0.97464	239.50	-15.82
99/11/10	2451492.5	-25.15517	-55.31411	-18.74548	0.88621	-0.34912	-0.19682	63.59108	0.97262	245.55	-17.14
99/11/10	2451493.0	-19.02626	-57.36509	-19.97169	0.92189	-0.25599	-0.16494	63.65234	0.97089	251.65	-18.29
99/11/11	2451493.5	-12.69091	-58.77551	-20.97564	0.94713	-0.16012	-0.13124	63.68357	0.96950	257.82	-19.23
99/11/11	2451494.0	-6.22054	-59.52999	-21.74616	0.96173	-0.06245	-0.09606	63.68210	0.96853	264.03	-19.97
99/11/12	2451494.5	0.31229	-59.61951	-22.27431	0.96556	0.03608	-0.05973	63.64533	0.96808	270.30	-20.49
99/11/12	2451495.0	6.83435	-59.04136	-22.55345	0.95855	0.13455	-0.02259	63.57082	0.96821	276.60	-20.78
99/11/13	2451495.5	13.27220	-57.79913	-22.57927	0.94070	0.23203	0.01502	63.45639	0.96901	282.93	-20.84
99/11/13	2451496.0	19.55262	-55.90272	-22.34979	0.91207	0.32757	0.05274	63.30033	0.97055	289.28	-20.68
99/11/14	2451496.5	25.60296	-53.36834	-21.86541	0.87279	0.42026	0.09022	63.10141	0.97289	295.63	-20.27
99/11/14	2451497.0	31.35165	-50.21858	-21.12901	0.82303	0.50913	0.12710	62.85910	0.97609	301.98	-19.64
99/11/15	2451497.5	36.72852	-46.48245	-20.14592	0.76304	0.59325	0.16300	62.57364	0.98018	308.31	-18.78
99/11/15	2451498.0	41.66536	-42.19548	-18.92408	0.69315	0.67162	0.19754	62.24614	0.98517	314.64	-17.70
99/11/16	2451498.5	46.09641	-37.39990	-17.47409	0.61376	0.74327	0.23031	61.87872	0.99106	320.95	-16.40
99/11/16	2451499.0	49.95901	-32.14472	-15.80931	0.52539	0.80717	0.26089	61.47454	0.99781	327.24	-14.90
99/11/17	2451499.5	53.19433	-26.48585	-13.94597	0.42865	0.86230	0.28886	61.03792	1.00536	333.53	-13.21
99/11/17	2451500.0	55.74829	-20.48625	-11.90329	0.32432	0.90762	0.31378	60.57430	1.01361	339.82	-11.33
99/11/18	2451500.5	57.57254	-14.21583	-9.70353	0.21334	0.94210	0.33517	60.09031	1.02245	346.13	-9.29
99/11/18	2451501.0	58.62570	-7.75136	-7.37203	0.09683	0.96476	0.35260	59.59365	1.03173	352.47	-7.11
99/11/19	2451501.5	58.87469	-1.17615	-4.93725	-0.02388	0.97466	0.36560	59.09305	1.04125	358.86	-4.79
99/11/19	2451502.0	58.29619	5.42063	-2.43056	-0.14724	0.97100	0.37376	58.59810	1.05082	5.31	-2.38
99/11/20	2451502.5	56.87815	11.94478	0.11390	-0.27148	0.95312	0.37670	58.11897	1.06021	11.86	0.11
99/11/20	2451503.0	54.62132	18.29840	2.65959	-0.39459	0.92059	0.37408	57.66623	1.06917	18.52	2.64
99/11/21	2451503.5	51.54060	24.38162	5.16816	-0.51439	0.87328	0.36570	57.25039	1.07747	25.32	5.18
99/11/21	2451504.0	47.66613	30.09471	7.60011	-0.62858	0.81136	0.35145	56.88157	1.08487	32.27	7.68
99/11/22	2451504.5	43.04397	35.34056	9.91566	-0.73478	0.73544	0.33135	56.56906	1.09113	39.39	10.10
99/11/22	2451505.0	37.73617	40.02746	12.07582	-0.83066	0.64651	0.30561	56.32088	1.09607	46.69	12.38
99/11/23	2451505.5	31.82016	44.07195	14.04345	-0.91404	0.54601	0.27458	56.14337	1.09954	54.17	14.49

1.10 1 E.R.=6378.3255KM.

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	MOON V(KM/SEC)	MOON RA	MOON DEC
				GEOCENTRIC EQUATORIAL COORDINATE SYSTEM							
99/11/23	2451506.0	25.38739	47.40161	15.78445	-0.98296	0.43576	0.23879	56.04089	1.10142	61.83	16.36
99/11/24	2451506.5	18.54124	49.95752	17.26882	-1.03588	0.31791	0.19892	56.01557	1.10167	69.64	17.96
99/11/24	2451507.0	11.39425	51.69627	18.47160	-1.07165	0.19487	0.15578	56.06722	1.10031	77.57	19.24
99/11/25	2451507.5	4.06494	52.59117	19.37362	-1.08965	0.06916	0.11026	56.19335	1.09740	85.58	20.17
99/11/25	2451508.0	-3.32564	52.63287	19.96197	-1.08977	-0.05666	0.06331	56.38935	1.09307	93.62	20.73
99/11/26	2451508.5	-10.65730	51.82904	20.23014	-1.07236	-0.18012	0.01587	56.64879	1.08749	101.62	20.92
99/11/26	2451509.0	-17.81388	50.20344	20.17793	-1.03823	-0.29896	-0.03115	56.96375	1.08087	109.54	20.75
99/11/27	2451509.5	-24.68599	47.79445	19.81112	-0.98858	-0.41114	-0.07689	57.32529	1.07342	117.32	20.22
99/11/27	2451510.0	-31.17321	44.65311	19.14090	-0.92484	-0.51495	-0.12062	57.72386	1.06539	124.92	19.37
99/11/28	2451510.5	-37.18564	40.84104	18.18324	-0.84866	-0.60900	-0.16168	58.14975	1.05700	132.32	18.22
99/11/28	2451511.0	-42.64500	36.42826	16.95811	-0.76182	-0.69219	-0.19952	58.59344	1.04847	139.50	16.82
99/11/29	2451511.5	-47.48509	31.49105	15.48878	-0.66610	-0.76375	-0.23372	59.04593	1.04001	146.45	15.21
99/11/29	2451512.0	-51.65193	26.11007	13.80111	-0.56331	-0.82316	-0.26395	59.49898	1.03179	153.18	13.41
99/11/30	2451512.5	-55.10353	20.36861	11.92284	-0.45518	-0.87017	-0.28997	59.94526	1.02394	159.71	11.47
99/11/30	2451513.0	-57.80944	14.35110	9.88306	-0.34338	-0.90468	-0.31162	60.37848	1.01660	166.06	9.42
99/12/ 1	2451513.5	-59.75014	8.14188	7.71170	-0.22947	-0.92681	-0.32882	60.79342	1.00983	172.24	7.29
99/12/ 1	2451514.0	-60.91642	1.82417	5.43904	-0.11493	-0.93677	-0.34153	61.18595	1.00369	178.28	5.10
99/12/ 2	2451514.5	-61.30861	-4.52076	3.09540	-0.00111	-0.93491	-0.34979	61.55294	0.99820	184.22	2.88
99/12/ 2	2451515.0	-60.93594	-10.81429	0.71081	0.11072	-0.92167	-0.35364	61.89219	0.99337	190.06	0.66
99/12/ 3	2451515.5	-59.81586	-16.98102	-1.68523	0.21941	-0.89755	-0.35319	62.20235	0.98919	195.85	-1.55
99/12/ 3	2451516.0	-57.97337	-22.94920	-4.06402	0.32387	-0.86314	-0.34857	62.48275	0.98560	201.60	-3.73
99/12/ 4	2451516.5	-55.44048	-28.65117	-6.39781	0.42312	-0.81905	-0.33993	62.73331	0.98257	207.33	-5.85
99/12/ 4	2451517.0	-52.25560	-34.02370	-8.65998	0.51626	-0.76598	-0.32745	62.95439	0.98003	213.07	-7.91
99/12/ 5	2451517.5	-48.46302	-39.00831	-10.82522	0.60244	-0.70463	-0.31134	63.14664	0.97794	218.83	-9.87
99/12/ 5	2451518.0	-44.11243	-43.55154	-12.86967	0.68092	-0.63577	-0.29182	63.31091	0.97623	224.63	-11.73
99/12/ 6	2451518.5	-39.25830	-47.60528	-14.77107	0.75102	-0.56022	-0.26914	63.44810	0.97484	230.49	-13.46
99/12/ 6	2451519.0	-33.95948	-51.12696	-16.50886	0.81214	-0.47880	-0.24356	63.55906	0.97373	236.41	-15.05
99/12/ 7	2451519.5	-28.27857	-54.07979	-18.06436	0.86377	-0.39239	-0.21536	63.64450	0.97285	242.39	-16.49
99/12/ 7	2451520.0	-22.28144	-56.43297	-19.42083	0.90545	-0.30188	-0.18484	63.70487	0.97219	248.45	-17.75
99/12/ 8	2451520.5	-16.03666	-58.16186	-20.56363	0.93684	-0.20820	-0.15231	63.74041	0.97171	254.59	-18.82
99/12/ 8	2451521.0	-9.61497	-59.24812	-21.48027	0.95766	-0.11227	-0.11811	63.75100	0.97142	260.78	-19.69
99/12/ 9	2451521.5	-3.08869	-59.67980	-22.16053	0.96770	-0.01506	-0.08257	63.73623	0.97133	267.04	-20.35
99/12/ 9	2451522.0	3.46882	-59.45142	-22.59649	0.96687	0.08248	-0.04603	63.69541	0.97147	273.34	-20.78
99/12/10	2451522.5	9.98375	-58.56399	-22.78264	0.95513	0.17939	-0.00886	63.62754	0.97187	279.67	-20.98
99/12/10	2451523.0	16.38233	-57.02504	-22.71587	0.93253	0.27471	0.02859	63.53146	0.97257	286.03	-20.95
99/12/11	2451523.5	22.59144	-54.84859	-22.39556	0.89921	0.36748	0.06595	63.40585	0.97363	292.39	-20.68
99/12/11	2451524.0	28.53913	-52.05509	-21.82357	0.85537	0.45676	0.10285	63.24937	0.97512	298.73	-20.18
99/12/12	2451524.5	34.15512	-48.67141	-21.00428	0.80131	0.54160	0.13891	63.06075	0.97710	305.06	-19.46
99/12/12	2451525.0	39.37137	-44.73073	-19.94463	0.73740	0.62108	0.17376	62.83892	0.97964	311.35	-18.51
99/12/13	2451525.5	44.12259	-40.27251	-18.65409	0.66408	0.69427	0.20703	62.58317	0.98279	317.61	-17.34
99/12/13	2451526.0	48.34684	-35.34241	-17.14473	0.58188	0.76027	0.23831	62.29322	0.98661	323.83	-15.98
99/12/14	2451526.5	51.98610	-29.99221	-15.43123	0.49144	0.81818	0.26725	61.96942	0.99114	330.02	-14.42
99/12/14	2451527.0	54.98688	-24.27967	-13.53084	0.39348	0.86712	0.29343	61.61285	0.99641	336.18	-12.69
99/12/15	2451527.5	57.30098	-18.26849	-11.46349	0.28882	0.90623	0.31649	61.22541	1.00241	342.32	-10.79
99/12/15	2451528.0	58.88623	-12.02809	-9.25170	0.17843	0.93467	0.33602	60.81001	1.00914	348.46	-8.75

1.10 1 E.R.=6378.3255KM. GEOCENTRIC EQUATORIAL COORDINATE SYSTEM MOON

DATE	JUL. DATE	X(ER)	Y(ER)	Z(ER)	XD(KM/SEC)	YD(KM/SEC)	ZD(KM/SEC)	R(ER)	V(KM/SEC)	RA	DEC
99/12/16	2451528.5	59.70741	-5.63338	-6.92062	0.06339	0.95167	0.35165	60.37056	1.01654	354.61	-6.58
99/12/16	2451529.0	59.73719	0.83560	-4.49797	-0.05505	0.95649	0.36300	59.91212	1.02453	0.80	-4.31
99/12/17	2451529.5	58.95723	7.29416	-2.01392	-0.17548	0.94850	0.36972	59.44086	1.03302	7.05	-1.94
99/12/17	2451530.0	57.35928	13.65370	0.49907	-0.29632	0.92717	0.37149	58.96405	1.04186	13.39	0.48
99/12/18	2451530.5	54.94637	19.82264	3.00649	-0.41582	0.89217	0.36804	58.49000	1.05087	19.84	2.95
99/12/18	2451531.0	51.73398	25.70770	5.47223	-0.53207	0.84334	0.35915	58.02789	1.05987	26.42	5.41
99/12/19	2451531.5	47.75098	31.21546	7.85897	-0.64302	0.78080	0.34470	57.58754	1.06862	33.17	7.84
99/12/19	2451532.0	43.04052	36.25429	10.12896	-0.74652	0.70497	0.32468	57.17915	1.07689	40.11	10.20
99/12/20	2451532.5	37.66042	40.73657	12.24471	-0.84040	0.61662	0.29919	56.81292	1.08444	47.25	12.45
99/12/20	2451533.0	31.68313	44.58121	14.17001	-0.92252	0.51690	0.26850	56.49862	1.09102	54.60	14.53
99/12/21	2451533.5	25.19515	47.71623	15.87091	-0.99089	0.40736	0.23301	56.24518	1.09641	62.17	16.39
99/12/21	2451534.0	18.29560	50.08137	17.31681	-1.04379	0.28991	0.19331	56.06019	1.10041	69.93	17.99
99/12/22	2451534.5	11.09427	51.63040	18.48150	-1.07981	0.16677	0.15010	55.94951	1.10287	77.87	19.29
99/12/22	2451535.0	3.70887	52.33309	19.34411	-1.09802	0.04041	0.10425	55.91692	1.10370	85.95	20.24
99/12/23	2451535.5	-3.73816	52.17643	19.88983	-1.09798	-0.08655	0.05669	55.96391	1.10285	94.10	20.82
99/12/23	2451536.0	-11.12321	51.16521	20.11043	-1.07978	-0.21150	0.00841	56.08952	1.10033	102.27	21.01
99/12/24	2451536.5	-18.32508	49.32170	20.00438	-1.04403	-0.33192	-0.03960	56.29044	1.09624	110.38	20.82
99/12/24	2451537.0	-25.22833	46.68453	19.57677	-0.99182	-0.44550	-0.08639	56.56116	1.09071	118.39	20.25
99/12/25	2451537.5	-31.72629	43.30702	18.83889	-0.92462	-0.55023	-0.13109	56.89428	1.08391	126.23	19.34
99/12/25	2451538.0	-37.72334	39.25488	17.80755	-0.84422	-0.64447	-0.17293	57.28093	1.07608	133.86	18.11
99/12/26	2451538.5	-43.13662	34.60372	16.50433	-0.75258	-0.72694	-0.21128	57.71116	1.06745	141.26	16.62
99/12/26	2451539.0	-47.89697	29.43648	14.95464	-0.65176	-0.79675	-0.24564	58.17445	1.05827	148.43	14.90
99/12/27	2451539.5	-51.94928	23.84090	13.18684	-0.54384	-0.85336	-0.27563	58.66011	1.04879	155.35	12.99
99/12/27	2451540.0	-55.25229	17.90731	11.23138	-0.43083	-0.89655	-0.30102	59.15768	1.03924	162.04	10.94