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LUNAR ORBITER IV

APPENDICES

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Appendix A

CROSS REFERENCE OF LUNAR PHOTOS

Appendix A
CROSS REFERENCE OF LUNAR PHOTOS

The purpose of this appendix is to provide the reader with a method by which the photographs taken of the lunar surface may be identified with respect to readout periods and to actual photo sites on the lunar surface. As identified in Volume II of this report, the lunar photographs appear in the form of (1) 35-mm film (which is the output of the GRE at each DSIF site), and (2) hand-reassembled prints.

Separate numbers were assigned during the mission for each readout sequence from the spacecraft. This number has been incorporated in the GRE roll number, which also identifies the recording station and spacecraft number. Prior to the flight, edge data numbers were pre-exposed on the spacecraft film. These numbers run in sequence from 0 to 999 and then recycle again. The individual numbers appear at approximately 0.09-inch intervals along the 70-mm spacecraft film. These edge print numbers or framelet numbers are the key to finding a specific framelet read out from the spacecraft within any given photograph or subframe. Each readout sequence from the spacecraft was recorded at a specific DSIF site. Since there are two GRE's at each site, each readout sequence was recorded on two rolls of 35-mm film. The table includes a correlation of the individual framelet numbers with respect to the GRE roll number. It also indicates the GRE roll number of the backup GRE film, which provides identical coverage.

Definition Of Terms

Photo Site – The photo site identification is an alphanumerical symbol, e.g., IV6A, where the Roman numeral is the mission number, the Arabic number is the orbit number, and the letter represents a lunar zone.

A – South Temperate
B – South Equatorial
C – North Equatorial
E – North Temperate
F – Film set and/or lunar farside
G – Northern Recovery
H – Southern Recovery

Spacecraft Exposure Number – The spacecraft exposure number is a sequentially increasing number from 5 through 196; each number is followed by a T or W. Five through 196 are the actual exposure numbers taken. T represents a telephoto exposure; W, a wide-angle exposure. Numbers 1 through 5 were used to place live film in the camera from the supply spool.

Photo Sequence Number __ of Number __ – This represents the exposure number within the selected camera mode; i.e., single-frame mode, four-frame mode, or 16-frame mode.

Recording DSIF Site – Recording DSIF site is the station that accurately received the video signal from the spacecraft during the recording period – Goldstone, California; Woomera, Australia; or Madrid, Spain.

Readout Sequence – The readout sequence is a sequentially increasing number, representing the times that the readout system of the spacecraft was activated by command from the ground. Readout Sequence Numbers 001 and 002 were used to read out and transmit the Goldstone test film that was spliced onto the spacecraft film and read out prior to the actual start of lunar photography. The test film was read out by all three prime stations. Readout periods were divided into two areas. Priority readouts were made during the actual taking of photos. Readout sequences 003 through 124 were assigned to the priority readout area. Readout Sequences 125 through 153 were assigned to the final readout.

GRE Roll Number – The GRE roll number is an eight-digit number that is set into the end of each GRE and recorded outside of the sprocket holes on the 35-mm film. The first two digits identify the GRE by number and by station. The second two digits identify the spacecraft. The next three digits identify the readout sequence

number. The last digit identifies whether this represents transmissions from the spacecraft or test data.

Kodak Identification (K.I.) Number – This is a sequentially increasing assigned number given to the roll of GRE film as it is received at Eastman Kodak. The first of the four digits identifies the spacecraft or mission. The remaining three numbers identify the readout sequence number. To provide correlation between the film used for reassembly printing and the corresponding duplicate film which was not used for reassembly printing, the Kodak identification numbers of these two rolls of film covering identical radar periods will differ by exactly 500 numbers.

Framelet Number – The framelet numbers are the edge data numbers which define both ends of the photograph (either wide-angle or telephoto) and the individual reassembled sub-photographs. The numbers are arranged so that the first number represents that section of the picture which is to the north on the lunar surface and the last number represents the edge of the picture which is generally to the south on the lunar surface.

Arrangement of Data Within Tabulation

The arrangement of subframes and GRE film within the cross reference tables is in the following order.

The first entry of each exposure represents the final readout GRE roll used to make the reassembled negative and defines the complete photo. This is followed by a breakdown of the framelet and subframe numbers, arranged so that the first entry represents the northern edge and the last entry represents the southern edge of the photograph. If a picture is completely covered by one readout sequence, one such entry will be made; however, in many cases two readout sequences were required. In the latter cases, the second readout sequence GRE film completes the area covered by the original photo. The backup GRE film for these subframes is identified on the next lines.

In these areas where portions of the photo were read out in priority readout, they are the next entry in the tabulation and are arranged as described above.

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT* SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV6S	5 T	1 of 4	Goldstone	003	04 04 003 0	4003	017-049 050-081 082-113	ALL RECOVERED TELEPHOTO FRAMES WERE PRINTED IN THREE SECTIONS OF APPROXIMATELY 31 FRAMELETS EACH EXCEPT AS NOTED
			Goldstone Woomera Woomera	003 003 003	03 04 003 0 05 04 003 0 06 04 003 0	4503 4203 4703		
	6 T	2 of 4	Goldstone	003	04 04 003 0	4003	146-177 178-210 211-235	
			Goldstone Woomera Woomera	003 003 003	03 04 003 0 05 04 003 0 06 04 003 0	4503 4203 4703		
	8 T	4 of 4	Woomera	004	05 04 004 0	4004	448-480 481-506	1 of 2 60% RECOVERED 2 of 2
			Madrid Madrid Woomera	004 004 004	07 04 004 0 08 04 004 0 06 04 004 0	4204 4704 4504		
	8 W	4 of 4	Madrid Madrid	005 005	08 04 005 0 07 04 005 0	4005 4505	668-640	
IV6A	9 T	1 of 4	Madrid	005	08 04 005 0	4005	541-573 574-605 606-637	
			Madrid	005	07 04 005 0	4505		
	9 W	1 of 4	Madrid Madrid	006 006	08 04 006 0 07 04 006 0	4006 4506	800-771	
	10 T	2 of 4	Madrid	005	08 04 005 0	4005	671-701 702-733 734-759	
			Madrid	005	07 04 005 0	4505		
	10 W	2 of 4	Madrid Madrid	006 006	08 04 006 0 07 04 006 0	4006 4506	930-902	
	11 T	3 of 4	Madrid	006	08 04 006 0	4006	803-834 835-866 867-899	
			Madrid	006	07 04 006 0	4506		
	11 W	3 of 4	Goldstone Goldstone	007 007	04 04 007 0 03 04 007 0	4007 4507	062-034	
	12 T	4 of 4	Madrid	006	08 04 006 0	4006	933-964 965-997 998-031	
			Madrid	006	07 04 006 0	4506		
	12 W	4 of 4	Goldstone Goldstone	007 007	04 04 007 0 03 04 007 0	4007 4507	192-164	
IV6C	17 T	1 of 4	Goldstone	009	04 04 009 0	4009	589-620 621-653 654-686	
			Goldstone	009	03 04 009 0	4509		
	17 W	1 of 4	Goldstone Goldstone	009 009	04 04 009 0 03 04 009 0	4009 4509	828-820	32% RECOVERED
	18 T	2 of 4	Goldstone	009	04 04 009 0	4009	720-751 752-783 784-816	
			Goldstone	009	03 04 009 0	4509		
	19 W	3 of 4	Woomera Woomera	010 010	05 04 010 0 06 04 010 0	4010 4510	092-081	43% RECOVERED

*NOTE: Priority readout occurred up to Readout Sequence 124. All readout sequences above 124 were made in the final readout mode.

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV6C	20 T	4 of 4	Woomera	011	05 04 011 0	4011	027-059	1 of 2 54% RECOVERED
			Woomera	010	06 04 010 0	4010	060-079	2 of 2
			Madrid	011	07 04 011 0	4211		
			Madrid	011	08 04 011 0	4711		
			Woomera	011	05 04 011 0	4511		
			Woomera	010	06 04 010 0	4510		
IV6D	21 W	1 of 4	Madrid	012	07 04 012 0	4012	372-345	
			Madrid	012	08 04 012 0	4512		
			Woomera	012	05 04 012 0	4212		
			Woomera	012	06 04 012 0	4712		
	22 T	2 of 4	Madrid	012	07 04 012 0	4012	308-340	
			Woomera	012	05 04 012 0	4212		1 of 1 33% RECOVERED
			Woomera	012	06 04 012 0	4712		
			Madrid	012	08 04 012 0	4512		
	23 T	3 of 4	Madrid	012	07 04 012 0	4012	375	1 FRAMELET RECOVERED
			Madrid	012	08 04 012 0	4512		
			Woomera	012	05 04 012 0	4212		
			Woomera	012	06 04 012 0	4712		
	23 W	3 of 4	Madrid	013	07 04 013 0	4013	633-606	
			Madrid	013	08 04 013 0	4513		
			Woomera	012	05 04 012 0	4212		
			Woomera	012	06 04 012 0	4712		
	24 T	4 of 4	Madrid	013	07 04 013 0	4013	595-603	1 of 1 8% RECOVERED
			Madrid	013	08 04 013 0	4513		
IV6F	25 W	1 of 1	Goldstone	014	03 04 014 0	4014	897-868	
			Goldstone	014	04 04 014 0	4514		
IV7A	26 T	1 of 1	Goldstone	014	03 04 014 0	4014	856-865	1 of 1 9% RECOVERED
			Goldstone	014	04 04 014 0	4514		
	26 W	1 of 1	Goldstone	014	03 04 014 0	4014	027-999	
			Goldstone	015	03 04 015 0	4015	027-024	
			Goldstone	014	04 04 014 0	4514		
			Goldstone	015	04 04 015 0	4515		
IV7B	27 T	1 of 1	Goldstone	014	03 04 014 0	4014	900-931 932-963 964-996	
			Goldstone	014	04 04 014 0	4514		
	27 W	1 of 1	Goldstone	015	03 04 015 0	4015	158-129	
			Goldstone	015	04 04 015 0	4515		
IV7C	28 T	1 of 1	Goldstone	014	03 04 014 0	4014	031-034	
			Goldstone	015	03 04 015 0	4015	031-063 063-095 096-127	
			Goldstone	014	04 04 014 0	4514		
			Goldstone	015	04 04 015 0	4515		
	28 W	1 of 1	Goldstone	015	03 04 015 0	4015	284-261	85% RECOVERED
			Goldstone	015	04 04 015 0	4515		
IV7D	29 T	1 of 1	Goldstone	015	03 04 015 0	4015	162-193 194-226 227-259	
			Goldstone	015	04 04 015 0	4515		
	29 W	1 of 1	Goldstone	016	03 04 016 0	4016	421-393	
		1 of 1	Goldstone	016	04 04 016 0	4516		
IV7N	30 T	1 of 1	Goldstone	016	03 04 016 0	4016	386-390	1 of 1 5% RECOVERED
			Goldstone	016	04 04 016 0	4516		
	30 W	1 of 1	Goldstone	016	03 04 016 0	4016	552-524	
			Goldstone	016	04 04 016 0	4516		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV7F	31 W	1 of 1	Goldstone	016	03 04 016 0	4016		BLANK
			Goldstone	016	04 04 016 0	4516		
IV8S	32 T	1 of 1	Goldstone	016	03 04 016 0	4016	556-588	
							589-620	
							621-652	
			Goldstone	016	04 04 016 0	4516		
	32 W	1 of 1	Woomera	017	05 04 017 0	4017	816-786	
			Woomera	017	06 04 017 0	4517		
IV8A	33 T		Woomera	017	05 04 017 0	4017	687-718	
							719-751	
							752-783	
			Woomera	017	06 04 017 0	4517		
	33 W		Woomera	017	05 04 017 0	4017	946-917	
			Madrid	018	08 04 018 0	4218		
			Madrid	018	07 04 018 0	4718		
			Woomera	017	06 04 017 0	4517		
	34 T		Woomera	017	05 04 017 0	4017	819-850	
							851-882	
							883-915	
			Woomera	017	06 04 017 0	4517		
	34 W		Woomera	018	05 04 018 0	4018	080-051	
			Woomera	018	06 04 018 0	4518		
			Madrid	018	08 04 018 0	4218		
			Madrid	018	07 04 018 0	4718		
IV8C	35 T		Woomera	018	05 04 018 0	4018	949-980	
							981-013	
							014-045	
			Woomera	018	06 04 018 0	4518		
			Madrid	018	08 04 018 0	4218		
			Madrid	018	07 04 018 0	4718		
	35 W		Woomera	018	05 04 018 0	4018	199-180	71% RECOVERED
			Woomera	018	06 04 018 0	4518		
IV8D	36 T		Woomera	018	05 04 018 0	4018	081-112	
							113-145	
							146-177	
			Madrid	018	08 04 018 0	4218		
			Madrid	018	07 04 018 0	4718		
			Woomera	018	06 04 018 0	4518		
	36 W		Madrid	019	08 04 019 0	4019	339-335	18% RECOVERED
			Madrid	019	07 04 019 0	4519		
IV8F	37 W		Madrid	019	08 04 019 0	4019		BLANK
			Madrid	019	07 04 019 0	4519		
IV9A	38 T		Madrid	019	08 04 019 0	4019	343-374	
							375-406	
							407-440	
			Madrid	019	07 04 019 0	4519		
	38 W		Goldstone	020	03 04 020 0	4020	602-574	
			Madrid	020	08 04 020 0	4220		
			Goldstone	020	04 04 020 0	4520		
			Madrid	020	07 04 020 0	4720		
IV9B	39 T	1 of 1	Goldstone	020	03 04 020 0	4020	474-505	
							506-537	
							538-571	
			Madrid	020	08 04 020 0	4220		
			Goldstone	020	04 04 020 0	4520		
			Madrid	020	07 04 020 0	4720		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV9B	39 W	1 of 1	Goldstone	020	03 04 020 0	4020	733-705	
			Madrid	020	08 04 020 0	4220		
			Goldstone	020	04 04 020 0	4520		
			Madrid	020	07 04 020 0	4720		
			Goldstone	021	03 04 021 0	4021	733-722	
			Goldstone	021	04 04 021 0	4521		
IV9C	40 T		Goldstone	020	03 04 020 0	4020	606-637 638-669 670-703	
			Madrid	020	08 04 020 0	4220		
			Goldstone	020	04 04 020 0	4520		
			Madrid	020	07 04 020 0	4720		
	40 W		Goldstone	021	03 04 021 0	4021	865-836	
			Goldstone	021	04 04 021 0			
IV9D	41 T		Goldstone	021	03 04 021 0	4021	736-767 768-811 812-832	
			Goldstone	021	04 04 021 0	4521		
	41 W		Goldstone	021	03 04 021 0	4021	984-966	68% RECOVERED
			Goldstone	021	04 04 021 0	4521		
IV9N	42 T		Goldstone	021	03 04 021 0	4021	868-899 900-932 933-964	
			Goldstone	021	04 04 021 0	4521		
	42 W		Goldstone	022	03 04 022 0	4022	127-099	
			Goldstone	022	04 04 022 0	4522		
IV9F	43 T		Goldstone	022	03 04 022 0	4022		BLANK
			Goldstone	022	04 04 022 0	4522		
	43 W		Goldstone	022	03 04 022 0	4022		BLANK
			Goldstone	022	04 04 022 0	4522		
IV10S	44 T		Goldstone	022	03 04 022 0	4022	131-162 163-194 195-227	
			Goldstone	022	04 04 022 0	4522		
	44 W		Woomera	023	05 04 023 0	4023	388-361	
			Woomera	023	06 04 023 0	4523		
IV10A	45 T		Woomera	023	05 04 023 0	4023	353-357	1 of 1 4% RECOVERED
			Woomera	023	06 04 023 0	4523		
	45 W		Woomera	023	05 04 023 0	4023	501-491	39% RECOVERED
			Woomera	023	06 04 023 0	4523		
IV10B	46 T		Woomera	023	05 04 023 0	4023	392-423 424-456 457-489	
			Woomera	023	06 04 023 0	4523		
	46 W		Woomera	024	05 04 024 0	4024	654-624	
			Woomera	024	06 04 024 0	4524		
IV10C	47 T		Woomera	024	05 04 024 0	4024	523-554 555-587 588-619	
			Woomera	024	06 04 024 0	4524		
	47 W		Woomera	024	05 04 024 0	4024	755-754	7% RECOVERED
			Woomera	024	06 04 024 0	4524		
IV10D	48 T	1 of 1	Woomera	024	05 04 024 0	4024	655-686 687-719 719-751	
			Woomera	024	06 04 024 0	4524		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV10D	48 W	1 of 1	Madrid	025	08 04 025 0	4025	914-885	
			Madrid	025	07 04 025 0	4525		
IV10F	49 T		Madrid	025	08 04 025 0	4025		BLANK
			Madrid	025	07 04 025 0	4525		
	49 W		Madrid	025	08 04 025 0	4025		BLANK
			Madrid	025	07 04 025 0	4525		
IV10F	50 T		Madrid	025	08 04 025 0	4025	013-045 046-077 078-917	
			Madrid	025	07 04 025 0	4525		
	51 W		Madrid	026	07 04 026 0	4026		BLANK
			Goldstone	026	04 04 026 0	4226		
			Goldstone	027	04 04 027 0	4027		
			Madrid	026	08 04 026 0	4526		
			Goldstone	026	03 04 026 0	4726		
			Goldstone	027	03 04 027 0	4027		
IV11A	52 T		Madrid	026	07 04 026 0	4026	206-211 212-243 244-276	74% RECOVERED
			Goldstone	026	04 04 026 0	4226		
			Goldstone	027	04 04 027 0	4027		
			Madrid	026	08 04 026 0	4526		
			Goldstone	026	03 04 026 0	4726		
			Goldstone	027	03 04 027 0	4527		
	52 W		Goldstone	027	04 04 027 0	4027	439-411	
			Goldstone	027	03 04 027 0	4527		
IV11B	53 T		Goldstone	027	04 04 027 0	4027	310-343 343-374 375-406	
			Goldstone	027	03 04 027 0	4527		
	53 W		Goldstone	027	04 04 027 0	4027	543-540	
			Goldstone	028	03 04 028 0	4028	569-540	
			Goldstone	027	03 04 027 0	4527		
			Goldstone	028	04 04 028 0	4528		
IV11C	54 T		Goldstone	027	04 04 027 0	4027	441-472 473-506 507-538	
			Goldstone	028	03 04 028 0	4028		
			Goldstone	027	03 04 027 0	4527		
			Goldstone	028	04 04 028 0	4528		
	54 W		Goldstone	028	03 04 028 0	4028	700-672	
			Goldstone	028	04 04 028 0	4528		
IV11D	55 T		Goldstone	028	03 04 028 0	4028	572-603 604-635 636-669	
			Goldstone	028	04 04 028 0	4528		
	55 W		Woomera	029	06 04 029 0	4029	830-802	
			Woomera	029	05 04 029 0	4529		
IV11N	56 T		Goldstone	028	03 04 028 0	4028	704-736 737-768 769-798	
			Woomera	029	06 04 029 0	4029		
			Goldstone	028	04 04 028 0	4528		
			Woomera	029	05 04 029 0	4529		
	56 W		Woomera	029	06 04 029 0	4029	963-935	
			Woomera	029	05 04 029 0	4529		
IV11F	57 T	1 of 1	Woomera	029	06 04 029 0	4029		BLANK
			Woomera	029	05 04 029 0	4529		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV11F	57 W	1 of 1	Woomera	030	06 04 030 0	4030		BLANK
			Woomera	030	05 04 030 0	4030		
IV12S	58 T		Woomera	029	06 04 029 0	4029	965-997 998-029 030-063	
			Woomera	030	06 04 030 0	4030		
			Woomera	029	05 04 029 0	4529		
			Woomera	030	05 04 030 0	4530		
	58 W		Woomera	030	06 04 030 0	4030	227-199	
			Woomera	030	05 04 030 0	4530		
IV12A	59 T		Woomera	030	06 04 030 0	4030	097-129 130-161 162-193	
			Woomera	030	05 04 030 0	4530		
	59 W		Woomera	030	06 04 030 0	4030	356-330	96% RECOVERED
			Madrid	031	07 04 031 0	4031		
			Woomera	030	05 04 030 0	4530		
			Madrid	031	08 04 031 0	4531		
IV12B	60 T		Woomera	030	06 04 030 0	4030	229-260 261-293 294-325	
			Woomera	030	05 04 030 0	4530		
	60 W		Woomera	031	05 04 031 0	4231	487-459	
			Woomera	031	06 04 031 0	4731		
			Madrid	031	07 04 031 0	4031		
			Madrid	031	08 04 031 0	4531		
IV12C	61 T		Madrid	031	07 04 031 0	4031	360-392 392-424 424-456	
			Madrid	031	08 04 031 0	4531		
	61 W		Madrid	031	07 04 031 0	4031	608-590	68% RECOVERED
			Woomera	031	05 04 031 0	4231		
			Woomera	031	06 04 031 0	4731		
			Madrid	031	08 04 031 0	4531		
IV12D	62 T		Madrid	031	07 04 031 0	4031	491-522 523-554 555-588	
			Woomera	031	05 04 031 0	4231		
			Woomera	031	06 04 031 0	4731		
			Madrid	031	08 04 031 0	4531		
	62 W		Madrid	032	07 04 032 0	4032	750-722	
			Madrid	032	08 04 032 0	4532		
IV12F	63 T		Madrid	032	07 04 032 0	4032	719-652	BLANK
			Madrid	032	08 04 032 0	4532		
	63 W		Madrid	032	07 04 032 0	4032	869-853	BLANK
			Goldstone	033	04 04 033 0	4033		
			Madrid	032	08 04 032 0	4532		
			Goldstone	033	03 04 033 0	4533		
IV13A	64 T		Madrid	032	07 04 032 0	4032	753-785 786-817 818-850	
			Madrid	032	08 04 032 0	4532		
	64 W		Goldstone	033	04 04 033 0	4033	012-985	
			Goldstone	033	03 04 033 0	4533		
IV13B	65 T		Goldstone	033	04 04 033 0	4033	884-915 916-948 949-980	
			Goldstone	033	03 04 033 0	4533		
	65 W	1 of 1	Goldstone	033	04 04 033 0	4033	126-114	
			Goldstone	034	03 04 034 0	4034	143-118	
			Goldstone	033	03 04 033 0	4533		
			Goldstone	034	04 04 034 0	4534		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV13C	66 T	1 of 1	Goldstone	033	04 04 033 0	4033	016-047 048-080 081-113	
			Goldstone	033	03 04 033 0	4533		
	66 W		Goldstone Goldstone	034 034	03 04 034 0 04 04 034 0	4034 4534	275-247	
IV13D	67 T		Goldstone	034	03 04 034 0	4034	146-178 179-210 211-243	
			Goldstone	034	04 04 034 0	4534		
	67 W		Goldstone Goldstone	034 034	03 04 034 0 04 04 034 0	4034 4534	387-377	39% RECOVERED
IV13N	68 T		Goldstone	034	03 04 034 0	4034	278-309 310-342 343-375	
			Goldstone	034	04 04 034 0	4534		
	68 W		Woomera Woomera	035 035	06 04 035 0 05 04 035 0	4035 4535	538-510	
IV13F	69 T		Woomera Woomera	035 035	06 04 035 0 05 04 035 0	4035 4535		BLANK
	69 W		Woomera Goldstone Woomera Goldstone	035 035 035 035	06 04 035 0 04 04 035 0 05 04 035 0 03 03 035 0	4035 4235 4535 4735		BLANK
IV14S	70 T		Woomera	035	06 04 035 0	4035	540-572 573-604 605-636	
			Goldstone Woomera Goldstone	035 035 035	04 04 035 0 05 04 035 0 03 04 035 0	5235 4535 4735		
	70 W		Woomera Woomera	036 036	06 04 036 0 05 04 036 0	4036 4536	801-771	
IV14A	71 T		Woomera	036	06 04 036 0	4036	672-703 704-735 736-768	
			Woomera	036	05 04 036 0	4536		
	71 W		Woomera Madrid Woomera Woomera Madrid Woomera	036 037 037 036 037 037	06 04 036 0 07 04 037 0 06 04 037 0 05 04 036 0 08 04 037 0 05 04 037 0	4036 4037 4237 4536 4537 4737	926-903 930-921	
IV14B	72 T		Woomera	036	06 04 036 0	4036	803-834 835-866 867-899	
			Woomera	036	05 04 036 0	4536		
	72 W		Madrid Woomera Madrid Woomera	037 037 037 037	07 04 037 0 06 04 037 0 08 04 037 0 05 04 037 0	4037 4237 4537 4737	062-033	
IV14C	73 T	1 of 1	Madrid	037	07 04 037 0	4037	934-965 966-997 998-031	
			Woomera Madrid Woomera	037 037 037	06 04 037 0 08 04 037 0 05 04 037 0	4237 4537 4737		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REASSEMBLY NO.	SUBFRAME LOCATION (% OF S/C PHOTO)
IV14C	73 W	1 of 1	Madrid	037	07 04 037 0	4037	168-165		
			Madrid	038	07 04 038 0	4038	193-165		
			Woomera	037	06 04 037 0	4237			
			Madrid	037	08 04 037 0	4537			
			Woomera	037	05 04 037 0	4737			
			Madrid	038	08 04 038 0	4538			
IV14D	74 T		Madrid	037	07 04 037 0	4037	065-097		
							098-129		
							130-161		
			Woomera	037	06 04 037 0	4237			
			Madrid	038	07 04 038 0	4038			
			Madrid	037	08 04 037 0	4537			
			Woomera	037	05 04 037 0	4737			
			Madrid	038	08 04 038 0	4538			
	74 W		Madrid	038	07 04 038 0	4038	325-296		
			Madrid	038	08 04 038 0	4538			
IV14F	75 T		Madrid	038	07 04 038 0	4038	196-227		
							228-259		
							260-292		
			Madrid	038	08 04 038 0	4538			
	75 W		Madrid	038	07 04 038 0	4038	428-425		
			Goldstone	039	04 04 039 0	4039	456-425		
			Madrid	039	07 04 039 0	4239			
			Madrid	038	08 04 038 0	4538			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
IV15A	76 T		Madrid	038	07 04 038 0	4038	327-358		
							359-391		
							392-423		
			Goldstone	039	04 04 039 0	4039			
			Madrid	039	07 04 039 0	4239			
			Madrid	038	08 04 038 0	4538			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
	76 W		Goldstone	039	04 04 039 0	4039	586-558		
			Madrid	039	07 04 039 0	4239			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
IV15B	77 T		Goldstone	039	04 04 039 0	4039	458-489		
							490-522		
							522-555		
			Madrid	039	07 04 039 0	4239			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
	77 W		Goldstone	039	04 04 039 0	4039	691-688		
			Goldstone	040	03 04 040 0	4040	717-688		
			Madrid	039	07 04 039 0	4239			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
			Goldstone	040	04 04 040 0	4540			
IV15C	78 T		Goldstone	039	04 04 039 0	4039	590-621		
							622-653		
							654-686		
			Madrid	039	07 04 039 0	4239			
			Goldstone	039	03 04 039 0	4539			
			Madrid	039	08 04 039 0	4739			
	78 W		Goldstone	040	03 04 040 0	4040	849-820		
			Goldstone	040	04 04 040 0	4540			
IV15D	79 T	1 of 1	Goldstone	040	03 04 040 0	4040	721-752		
							753-784		
							785-818		
			Goldstone	040	04 04 040 0	4540			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV15D	79 W	1 of 1	Goldstone	040	03 04 040 0	4040	954-952	
			Woomera	041	06 04 041 0	4041	982-952	
			Goldstone	041	04 04 041 0	4241		
			Goldstone	040	04 04 040 0	4540		
			Woomera	041	05 04 041 0	4541		
			Goldstone	041	03 04 041 0	4741		
IV15N	80 T		Goldstone	040	03 04 040 0	4040	852-884	
							885-916	
							917-949	
			Woomera	041	06 04 041 0	4041		
			Goldstone	041	04 04 041 0	4241		
			Goldstone	040	04 04 040 0	4540		
			Woomera	041	05 04 041 0	4541		
			Goldstone	041	03 04 041 0	4741		
	80 W		Woomera	041	06 04 041 0	4041	112-083	
			Goldstone	041	04 04 041 0	4241		
			Woomera	041	05 04 041 0	4541		
			Goldstone	041	03 04 041 0	4741		
IV1[illegible]	81 T		Woomera	041	06 04 041 0	4041		BLANK
			Goldstone	041	04 04 041 0	4241		
			Woomera	041	05 04 041 0	4541		
			Goldstone	041	03 04 041 0	4741		
IV16S	82 T		Woomera	041	06 04 041 0	4041	114-145	
							146-178	
							179-211	
			Goldstone	041	04 04 041 0	4241		
			Woomera	041	05 04 041 0	4541		
			Goldstone	041	03 04 041 0	4741		
	82 W		Woomera	042	06 04 042 0	4042	371-347	
			Woomera	043	06 04 043 0	4043	346-345	
			Woomera	042	05 04 042 0	4542		
			Woomera	043	05 04 043 0	4543		
IV16A	83 T		Woomera	043	06 04 043 0	4043	245-276	
							277-309	
							310-341	
			Woomera	043	05 04 043 0	4543		
	83 W		Madrid	044	07 04 044 0	4044	503-476	
			Woomera	042	06 04 042 0	4042		
			Madrid	044	08 04 044 0	4544		
			Woomera	042	05 04 042 0	4542		
IV16B	84 T		Woomera	042	06 04 042 0	4042	376-407	
							408-439	
							440-473	
			Woomera	042	05 04 042 0	4542		
	84 W		Madrid	044	07 04 044 0	4044	635-606	
			Madrid	044	08 04 044 0	4544		
IV16C	85 T		Madrid	044	07 04 044 0	4044	507-538	
							539-571	
							572-603	
			Madrid	044	08 04 044 0	4544		
	85 W		Madrid	044	07 04 044 0	4044	750-737	50% RECOVERED
			Woomera	044	06 04 044 0	4244		
			Madrid	044	08 04 044 0	4544		
			Woomera	044	05 04 044 0	4744		
IV16D	86 T	1 of 1	Madrid	044	07 04 044 0	4044	638-669	
							670-701	
							702-735	
			Woomera	044	06 04 044 0	4244		
			Madrid	044	08 04 044 0	4544		
			Woomera	044	05 04 044 0	4744		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV16D	86 W	1 of 1	Madrid	045	07 04 045 0	4045	897-869	
			Madrid	045	08 04 045 0	4545		
IV17A	88 T		Madrid	045	07 04 045 0	4045	900-931 932-964 965-997	
			Madrid	045	08 04 045 0	4545		
	88 W		Madrid	046	07 04 046 0	4046	159-132	
			Madrid	046	08 04 046 0	4546		
IV17B	89 T		Goldstone	047	03 04 047 0	4047	030-068 069-094 095-127	
			Madrid	046	07 04 046 0	4046		
			Goldstone	047	04 04 047 0	4547		
			Madrid	046	08 04 046 0	4546		
	89 W		Goldstone	048	03 04 048 0	4048	290-284	
			Madrid	046	07 04 046 0	4046	289-262	
			Goldstone	048	04 04 048 0	4548		
			Madrid	046	08 04 046 0	4546		
IV17C	90 T		Madrid	046	07 04 046 0	4046	162-193 194-226 227-259	
			Madrid	046	08 04 046 0	4546		
	90 W		Goldstone	048	03 04 048 0	4048	421-393	
			Goldstone	048	04 04 048 0	4548		
IV17D	91 T		Goldstone	048	03 04 048 0	4048	294-326 327-359 360-390	
			Goldstone	048	04 04 048 0	4548		
	91 W		Goldstone	049	04 04 049 0	4049	554-528	
			Goldstone	048	03 04 048 0	4048	532-524	
			Woomera	049	06 04 049 0	4249		
			Goldstone	049	03 04 049 0	4549		
			Goldstone	048	04 04 048 0	4548		
			Woomera	049	05 04 049 0	4749		
IV17N	92 T		Goldstone	048	03 04 048 0	4048	426-457 458-489 490-522	
			Goldstone	048	04 04 048 0	4548		
	92 W		Goldstone	049	04 04 049 0	4049	683-657	
			Woomera	049	06 04 049 0	4249		
			Goldstone	049	03 04 049 0	4549		
			Woomera	049	05 04 049 0	4749		
IV17F	93 T		Goldstone	049	04 04 049 0	4049		BLANK
			Woomera	049	06 04 049 0	4249		
			Goldstone	049	03 04 049 0	4549		
			Woomera	049	05 04 049 0	4749		
IV18S	94 T		Goldstone	049	04 04 049 0	4049	688-719 720-751 752-784	
			Woomera	049	06 04 049 0	4249		
			Goldstone	049	03 04 049 0	4549		
			Woomera	049	05 04 049 0	4749		
	94 W		Woomera	050	06 04 050 0	4050	948-920	
			Woomera	050	05 04 050 0	4550		
IV18A	95 T	1 of 1	Woomera	051	06 04 051 0	4051	818-850 851-881 882-914	
			Woomera	050	06 04 050 0	4050		
			Woomera	051	05 04 051 0	4551		
			Woomera	050	05 04 050 0	4550		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV18A	95 W	1 of 1	Woomera	052	06 04 052 0	4052	078-051		
			Woomera	050	06 04 050 0	4050	052-049		
			Madrid	052	07 04 052 0	4252			
			Goldstone	050	03 04 050 0	4250			
			Woomera	052	05 04 052 0	4552			
			Woomera	050	05 04 050 0	4550			
			Madrid	052	08 04 052 0	4752			
			Goldstone	050	04 04 050 0	4750			
IV18B	96 T		Woomera	050	06 04 050 0	4050	950-981		
							982-014		
							015-046		
			Goldstone	050	03 04 050 0	4250			
			Woomera	052	06 04 052 0	4052	046-046		
			Madrid	052	07 04 052 0	4252			
			Woomera	050	05 04 050 0	4550			
			Goldstone	050	04 04 050 0	4750			
			Woomera	052	05 04 052 0	4552			
			Madrid	052	08 04 052 0	4752			
	96 W		Woomera	052	06 04 052 0	4052	209-180		
			Woomera	052	05 04 052 0	4552			
IV18C	97 T		Woomera	052	06 04 052 0	4052	081-112		
							113-145		
							146-177		
			Madrid	052	07 04 052 0	4252			
			Woomera	052	05 04 052 0	4552			
			Madrid	052	08 04 052 0	4752			
	97 W		Madrid	053	07 04 053 0	4053	340-311		
			Woomera	052	06 04 052 0	4052			
			Madrid	053	08 04 053 0	4553			
			Woomera	052	05 04 052 0	4552			
IV18D	98 T		Woomera	052	06 04 052 0	4052	212-243		
							244-275		
							276-308		
			Woomera	052	05 04 052 0	4552			
	98 W		Madrid	053	07 04 053 0	4053	471-442		
			Madrid	053	08 04 053 0	4553			
IV18F	99 T		Madrid	053	07 04 053 0	4053	343-374		
							375-406		
							407-439		
			Madrid	053	08 04 053 0	4553			
	99W		Madrid	054	07 04 054 0	4054	601-573		
			Madrid	053	07 04 053 0	4053	576-573		
			Goldstone	054	03 04 054 0	4254			
			Madrid	054	08 04 054 0	4554			
			Madrid	053	08 04 053 0	4553			
			Goldstone	054	04 04 054 0	4754			
IV19A	100 T		Madrid	053	07 04 053 0	4053	474-505		
							506-538		
							539-570		
			Madrid	054	07 04 054 0	4054	568-570		
			Goldstone	054	03 04 054 0	4254			
			Madrid	053	08 04 053 0	4553			
			Madrid	054	08 04 054 0	4554			
			Goldstone	054	04 04 054 0	4754			
	100 W		Madrid	054	07 04 054 0	4054	733-705		
			Madrid	054	08 04 054 0	4554			
IV19B	101 T	1 of 1	Madrid	054	07 04 054 0	4054	606-637		
							638-670		
							671-702		
			Goldstone	054	03 04 054 0	4254			
			Madrid	054	08 04 054 0	4554			
			Goldstone	054	04 04 054 0	4754			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV19B	101 W	1 of 1	Goldstone	055	04 04 055 0	4055	837-836		
			Madrid	054	07 04 054 0	4054	864-836		
			Goldstone	055	03 04 055 0	4555			
			Madrid	054	08 04 054 0	4554			
IV19C	102 T		Madrid	054	07 04 054 0	4054	737-768		
							769-800		
							801-834		
			Madrid	054	08 04 054 0	4554			
	102 W		Goldstone	055	04 04 055 0	4055	996-967		
			Goldstone	055	03 04 055 0	4555			
IV19D	103 T		Goldstone	055	04 04 055 0	4055	867-899		
							900-931		
							932-965		
			Goldstone	055	03 04 055 0	4555			
	103 W		Goldstone	056	03 04 056 0	4056	128-098		
			Goldstone	055	04 04 055 0	4055	099-098		
			Goldstone	056	04 04 056 0	4556			
			Goldstone	055	03 04 055 0	4555			
IV19N	104 T		Goldstone	055	04 04 055 0	4055	999-030		
							031-063		
							064-095		
			Goldstone	055	03 04 055 0	4555			
	104 W		Goldstone	056	03 04 056 0	4056	255-230		
			Goldstone	056	04 04 056 0	4556			
IV19F	105 T		Goldstone	056	03 04 056 0	4056		BLANK	
			Goldstone	056	04 04 056 0	4556			
IV20S	106 T		Goldstone	056	03 04 056 0	4056	261-293		
							294-325		
							326-357		
			Goldstone	056	04 04 056 0	4556			
	106 W		Woomera	057	06 04 057 0	4057	522-492		
			Woomera	057	05 04 057 0	4557			
IV20A	107 T		Woomera	057	06 04 057 0	4057	392-424		
							425-456		
							457-488		
			Woomera	057	05 04 057 0	4557			
	107 W		Madrid	153	07 04 153 0	4153	652-624		
			Madrid	153	08 04 153 0	4653			
IV20B	108 T		Woomera	057	06 04 057 0	4057	524-556		
							557-588		
							589-620		
			Goldstone	057	03 04 057 0	4257			
			Woomera	057	05 04 057 0	4557			
			Goldstone	057	04 04 057 0	4757			
	108 W		Madrid	153	07 04 153 0	4153	782-754		
			Madrid	153	08 04 053 0	4653			
IV20C	109 T		Madrid	153	07 04 153 0	4153	655-686		
							687-719		
							720-751		
			Madrid	153	08 04 153 0	4653			
	109 W	1 of 1	Madrid	153	07 04 153 0	4153	914-885		
			Woomera	058	06 04 058 0	4058	903-885		
			Madrid	153	08 04 153 0	4653			
			Woomera	058	05 04 058 0	4558			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV20D	110 T	1 of 1	Madrid	153	07 04 153 0	4153	786-817 818-849 850-883		
			Woomera	058	06 04 058 0	4058			
			Madrid	153	08 04 153 0	4653			
			Woomera	058	05 04 058 0	4558			
	110 W		Madrid	152	07 04 152 0	4152	047-016		
			Madrid	060	07 04 060 0	4060			
			Madrid	152	08 04 152 0	4652			
			Madrid	060	08 04 060 0	4560			
IV20F	111 T		Madrid	153	07 04 153 0	4153		BLANK	
			Madrid	060	07 04 060 0	4060			
			Madrid	153	08 04 153 0	4653			
			Madrid	060	08 04 060 0	4560			
	111 W		Madrid	152	07 04 152 0	4152		BLANK	
			Madrid	060	07 04 060 0	4060			
			Madrid	152	08 04 152 0	4652			
			Madrid	060	08 04 060 0	4560			
IV21A	112 T		Madrid	152	07 04 152 0	4152	048-080 081-112 113-144		
			Madrid	060	07 04 060 0	4060			
			Madrid	152	08 04 152 0	4652			
			Madrid	060	08 04 060 0	4560			
	112 W		Madrid	152	07 04 152 0	4152	307-279		
			Madrid	062	07 04 062 0	4062	307-287		
			Madrid	061	07 04 061 0	4061	299-279		
			Madrid	152	08 04 152 0	4652			
			Madrid	062	08 04 062 0	4562			
			Madrid	061	08 04 061 0	4561			
IV21B	113 T		Madrid	152	07 04 152 0	4152	180-211 212-243 244-276		
			Madrid	060	07 04 060 0	4060	180-186		
			Madrid	061	07 04 061 0	4061	179-276		
			Madrid	152	08 04 152 0	4652			
			Madrid	060	08 04 060 0	4560			
			Madrid	061	08 04 061 0	4561			
	113 W		Madrid	152	07 04 152 0	4152	438-410		
			Goldstone	063	04 04 063 0	4063	438-416		
			Madrid	062	07 04 062 0	4062	426-410		
			Madrid	063	07 04 063 0	4263			
			Madrid	152	08 04 152 0	4652			
			Goldstone	063	03 04 063 0	4563			
			Madrid	062	08 04 062 0	4562			
			Madrid	063	08 04 063 0	4763			
IV21C	114 T		Madrid	152	07 04 152 0	4152	310-342 343-374 375-407		
			Madrid	062	07 04 062 0	4062			
			Madrid	152	08 04 152 0	4652			
			Madrid	062	08 04 062 0	4562			
	114 W	1 of 1	Woomera	151	05 04 151 0	4151	570-541		
			Goldstone	064	04 04 064 0	4064	570-541		
			Goldstone	063	04 04 063 0	4063	548-541		
			Madrid	063	07 04 063 0	4263			
			Woomera	151	06 04 151 0	4651			
			Goldstone	064	03 04 064 0	4564			
			Goldstone	063	03 04 063 0	4563			
			Madrid	063	08 04 063 0	4763			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV21D	115 T	1 of 1	Woomera	151	05 04 151 0	4151	442-473 474-505 506-538	
			Goldstone	063	04 04 063 0	4063		
			Madrid	063	07 04 063 0	4263		
			Woomera	151	06 04 151 0	4651		
			Goldstone	063	03 04 063 0	4563		
			Madrid	063	08 04 063 0	4763		
	115 W		Woomera	151	05 04 151 0	4151	700-672	
			Goldstone	064	04 04 064 0	4064	678-672	
			Goldstone	065	04 04 065 0	4065	700-670	
			Woomera	151	06 04 151 0	4651		
			Goldstone	064	03 04 064 0	4564		
			Goldstone	065	03 04 065 0	4565		
IV21N	116 T		Woomera	151	05 04 151 0	4151	573-604 605-637 638-669	
			Goldstone	064	04 04 064 0	4064		
			Woomera	151	06 04 151 0	4651		
			Goldstone	064	03 04 064 0	4564		
	116 W		Woomera	150	05 04 150 0	4150	832-805	
			Goldstone	066	04 04 066 0	4066	832-805	
			Goldstone	065	04 04 065 0	4065	807-805	
			Woomera	066	06 04 066 0	4266		
			Woomera	150	06 04 150 0	4650		
			Goldstone	066	03 04 066 0	4566		
			Goldstone	065	03 04 065 0	4565		
			Woomera	066	05 04 066 0	4766		
IV21F	117 T		Goldstone	065	04 04 065 0	4065		BLANK
			Goldstone	065	03 04 065 0	4565		
	117 W		Goldstone	066	04 04 066 0	4066		BLANK
			Goldstone	066	03 04 066 0	4566		
IV22S	118 T		Woomera	150	05 04 150 0	4150	836-867 868-899 900-933	
			Goldstone	066	04 04 066 0	4066	836-913	
			Woomera	066	06 04 066 0	4266		
			Woomera	150	06 04 150 0	4650		
			Goldstone	066	03 04 066 0	4566		
			Woomera	066	05 04 066 0	4766		
	118 W		Woomera	150	05 04 150 0	4150	094-067	
			Woomera	068	05 04 068 0	4068	094-066	
			Woomera	067	06 04 067 0	4067	074-066	
			Goldstone	067	04 04 067 0	4267		
			Woomera	150	06 04 150 0	4650		
			Woomera	068	06 04 068 0	4568		
			Woomera	067	05 04 067 0	4567		
			Goldstone	067	03 04 067 0	4767		
IV22A	119 T		Woomera	150	05 04 150 0	4150	966-997 998-030 031-062	
			Woomera	067	06 04 067 0	4067	984-062	
			Goldstone	067	04 04 067 0	4267		
			Woomera	150	06 04 150 0	4650		
			Woomera	067	05 04 067 0	4567		
			Goldstone	067	03 04 067 0	4767		
	119 W	1 of 1	Woomera	149	05 04 149 0	4149	225-197	
			Woomera	068	05 04 068 0	4068	205-197	
			Woomera	149	06 04 149 0	4649		
			Woomera	068	06 04 068 0	4568		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV22B	120 T	1 of 1	Woomera	149	05 04 149 0	4149	098-129 130-162 163-194		
			Woomera	068	05 04 068 0	4068			
			Woomera	149	06 04 149 0	4649			
			Woomera	068	06 04 068 0	4568			
	120 W		Woomera	149	05 04 149 0	4149	357-328		
			Woomera	069	06 04 069 0	4069	336-328		
			Woomera	149	06 04 149 0	4749			
			Woomera	069	05 04 069 0	4569			
IV22C	121 T		Woomera	149	05 04 149 0	4149	229-260 261-292 293-326		
			Woomera	069	06 04 069 0	4069			
			Woomera	149	06 04 149 0	4649			
			Woomera	069	05 04 069 0	4569			
	121 W		Woomera	149	05 04 149 0	4149	488-460		
			Woomera	070	06 04 070 0	4070	479-460		
			Woomera	149	06 04 149 0	4649			
			Woomera	070	05 04 070 0	4570			
IV22D	122 T		Woomera	149	05 04 149 0	4149	360-392 393-424 425-456		
			Woomera	149	06 04 149 0	4649			
	122 W		Woomera	148	05 04 148 0	4148	618-590		
			Madrid	071	07 04 071 0	4071	618-590		
			Madrid	072	07 04 072 0	4072	618-604		
			Woomera	148	06 04 148 0	4648			
			Madrid	071	08 04 071 0	4571			
			Madrid	072	08 04 072 0	4572			
IV22F	123 T		Woomera	148	05 04 148 0	4148	493-522 523-554 555-587		
			Woomera	148	06 04 148 0	4648			
	123 W		Woomera	148	05 04 148 0	4148	751-722		
			Madrid	072	07 04 072 0	4072	746-722		
			Woomera	148	06 04 148 0	4748			
			Madrid	072	08 04 072 0	4572			
IV23A	124 T		Woomera	148	05 04 148 0	4148	623-654 655-687 688-719		
			Madrid	072	07 04 072 0	4072			
			Woomera	148	06 04 148 0	4648			
			Madrid	072	08 04 072 0	4572			
	124 W		Goldstone	147	04 04 147 0	4147	882-854		
			Madrid	073	07 04 073 0	4073	878-854		
			Goldstone	147	03 04 147 0	4647			
			Madrid	073	08 04 073 0	4573			
IV23B	125 T	1 of 1	Woomera	148	05 04 148 0	4148	753-785 786-817 818-850		
			Goldstone	147	04 04 147 0	4147	719-850		
			Madrid	073	07 04 073 0	4073	772-850		
			Woomera	148	06 04 148 0	4648	753-790		
			Goldstone	147	03 04 147 0	4647			
			Madrid	073	08 04 073 0	4573			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV23B	125 W	1 of 1	Goldstone	147	04 04 147 0	4147	013-984	
			Madrid	074	07 04 074 0	4074	013-984	
			Goldstone	074	03 04 074 0	4274	985-984	
			Goldstone	147	03 04 147 0	4647		
			Madrid	074	08 04 074 0	4574		
			Goldstone	074	04 04 074 0	4774		
IV23C	126 T		Goldstone	147	04 04 147 0	4147	885-917	
							918-949	
							950-981	
			Madrid	074	07 04 074 0	4074	960-981	
			Goldstone	074	03 04 074 0	4274	960-981	
			Goldstone	147	03 04 147 0	4647		
			Madrid	074	08 04 074 0	4574		
			Goldstone	074	04 04 074 0	4774		
	126 W		Goldstone	147	04 04 147 0	4147	145-115	
			Goldstone	075	03 04 075 0	4075	136-115	
			Madrid	075	07 04 075 0	4275	136-115	
			Goldstone	147	03 04 147 0	4647		
			Goldstone	075	04 04 075 0	4575		
			Madrid	075	08 04 075 0	4775		
IV23D	127 T		Goldstone	147	04 04 147 0	4147	016-047	
							048-080	
							081-112	
			Madrid	074	07 04 074 0	4074	016-019	
			Goldstone	075	03 04 075 0	4075	098-112	
			Goldstone	147	03 04 147 0	4647		
			Madrid	074	08 04 074 0	4574		
			Goldstone	075	04 04 075 0	4575		
	127 W		Goldstone	147	04 04 147 0	4147	275-245	
			Goldstone	076	03 04 076 0	4076	275-255	
			Goldstone	147	03 04 147 0	4647		
			Goldstone	076	04 04 076 0	4576		
IV23N	128 T		Goldstone	147	04 04 147 0	4147	147-178	
							179-211	
							212-244	
			Goldstone	076	03 04 076 0	4076	225-244	
			Goldstone	147	03 04 147 0	4647		
			Goldstone	076	04 04 076 0	4576		
	128 W		Goldstone	146	04 04 146 0	4146	405-379	
			Goldstone	077	04 04 077 0	4077	388-379	
			Goldstone	146	03 04 046 0	4646		
			Goldstone	077	03 04 077 0	4577		
IV23F	129 T		Goldstone	077	04 04 077 0	4077		BLANK
			Goldstone	077	03 04 077 0	4577		
	129 W		Goldstone	078	04 04 078 0	4078		BLANK
			Goldstone	078	03 04 078 0	4578		
IV24S	130 T		Goldstone	146	04 04 146 0	4146	409-441	
							442-473	
							474-505	
			Goldstone	078	04 04 078 0	4078	504-505	
			Goldstone	146	03 04 146 0	4646		
			Goldstone	078	03 04 078 0	4578		
	130 W	1 of 1	Goldstone	146	04 04 146 0	4146	668-640	
			Goldstone	079	03 04 079 0	4079	664-640	
			Woomera	079	06 04 079 0	4279	664-640	
			Woomera	080	06 04 080 0	4080	668-654	
			Goldstone	146	03 04 146 0	4646		
			Goldstone	079	04 04 079 0	4579		
			Woomera	079	05 04 079 0	4779		
			Woomera	080	05 04 080 0	4580		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV24A	131 T	1 of 1	Goldstone	146	04 04 146 0	4146	540-571 572-603 604-636		
			Goldstone	079	03 04 079 0	4079	543-636		
			Woomera	079	06 04 079 0	4279	543-636		
			Goldstone	146	03 04 146 0	4646			
			Goldstone	079	04 04 079 0	4579			
			Woomera	079	05 04 079 0	4779			
	131 W		Goldstone	145	04 04 145 0	4145	799-771		
			Woomera	080	06 04 080 0	4080	794-771		
			Woomera	081	06 04 081 0	4081	799-788		
			Goldstone	145	03 04 145 0	4645			
			Woomera	080	05 04 080 0	4580			
			Woomera	081	05 04 081 0	4581			
IV24B	132 T		Goldstone	145	04 04 145 0	4145	672-703 704-735 736-768		
			Woomera	080	06 04 080 0	4080			
			Goldstone	145	03 04 145 0	4645			
			Woomera	080	05 04 080 0	4580			
	132 W		Goldstone	145	04 04 145 0	4145	931-902		
			Woomera	082	06 04 082 0	4082	931-912		
			Woomera	081	06 04 081 0	4081	925-902		
			Goldstone	145	03 04 145 0	4645			
			Woomera	082	05 04 082 0	4582			
			Woomera	081	05 04 081 0	4581			
IV24C	133 T		Goldstone	145	04 04 145 0	4145	802-834 835-866 867-899		
			Woomera	081	06 04 081 0	4081			
			Goldstone	145	03 04 145 0	4645			
			Woomera	081	05 04 081 0	4581			
	133 W		Goldstone	145	04 04 145 0	4145	061-033		
			Madrid	083	07 04 083 0	4083	061-033		
			Woomera	082	06 04 082 0	4082	055-033		
			Goldstone	145	03 04 145 0	4645			
			Madrid	083	08 04 083 0	4583			
			Woomera	082	05 04 082 0	4582			
IV24D	134 T		Goldstone	145	04 04 145 0	4145	934-965 966-998 999-031		
			Woomera	082	06 04 082 0	4082			
			Goldstone	145	03 04 145 0	4645			
			Woomera	082	05 04 082 0	4582			
	134 W		Madrid	144	07 04 144 0	4144	194-165		
			Madrid	084	07 04 084 0	4084	194-179		
			Madrid	083	07 04 083 0	4083	185-165		
			Woomera	083	06 04 083 0	4283	185-165		
			Madrid	144	08 04 144 0	4644			
			Madrid	084	08 04 084 0	8584			
			Madrid	083	08 04 083 0	4583			
			Woomera	083	05 04 083 0	4783			
IV24F	135 T		Madrid	144	07 04 144 0	4144		BLANK	
			Madrid	083	07 04 083 0	4083			
			Woomera	083	06 04 083 0	4283			
			Madrid	144	08 04 144 0	4644			
			Madrid	083	08 04 083 0	4583			
			Woomera	083	05 04 083 0	4783			
	135 W	1 of 1	Madrid	144	07 04 144 0	4144		BLANK	
			Madrid	084	07 04 084 0	4084			
			Madrid	144	08 04 144 0	4644			
			Madrid	084	08 04 084 0	4584			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV25A	136 T	1 of 1	Madrid	144	07 04 144 0	4144	197-228		
							229-261		
							262-293		
			Madrid	084	07 04 084 0	4084			
			Madrid	144	08 04 144 0	4644			
			Madrid	084	08 04 084 0	4584			
	136 W		Madrid	144	07 04 144 0	4144	456-428		
			Madrid	085	07 04 085 0	4085			
			Madrid	144	08 04 144 0	4644			
			Madrid	085	08 04 085 0	4585			
IV25B	137 T		Madrid	144	07 04 144 0	4144	327-359		
							360-391		
							392-424		
			Madrid	085	07 04 085 0	4085	328-424		
			Madrid	084	07 04 084 0	4084	327-341		
			Madrid	144	08 04 144 0	4644			
			Madrid	085	08 04 085 0	4585			
			Madrid	084	08 04 084 0	4584			
	137 W		Madrid	144	07 04 144 0	4144	586-558		
			Madrid	086	07 04 086 0	4086			
			Madrid	144	08 04 144 0	4644			
			Madrid	086	08 04 086 0	4586			
IV25C	138 T		Madrid	144	07 04 144 0	4144	459-490		
							491-523		
							524-556		
			Madrid	086	07 04 086 0	4086	455-556		
			Madrid	085	07 04 085 0	4085	459-465		
			Madrid	144	08 04 144 0	4644			
			Madrid	086	08 04 086 0	4586			
			Madrid	085	08 04 085 0	4585			
	138 W		Madrid	143	07 04 143 0	4143	718-687		
			Madrid	087	07 04 087 0	4087			
			Goldstone	087	04 04 087 0	4287			
			Madrid	143	08 04 143 0	4643			
			Madrid	087	08 04 087 0	4587			
			Goldstone	087	03 04 087 0	4787			
IV25D	139 T		Madrid	144	07 04 144 0	4144	591-607		
			Madrid	143	07 04 143 0	4143	608-622		
							623-655		
							656-687		
			Madrid	086	07 04 086 0	4086	591-594		
			Madrid	087	07 04 087 0	4087	664-687		
			Goldstone	087	04 04 087 0	4287			
			Madrid	144	08 04 144 0	4644			
			Madrid	143	08 04 143 0	4643			
			Madrid	086	08 04 086 0	4586			
			Madrid	087	08 04 087 0	4587			
			Goldstone	087	03 04 087 0	4787			
	139 W		Madrid	143	07 04 143 0	4143	849-820		
			Madrid	143	08 04 143 0	4643			
			Goldstone	088	03 04 088 0	4088	849-840		
			Goldstone	088	04 04 088 0	4588			
IV25N	140 T		Madrid	143	07 04 143 0	4143	721-752		
							753-784		
							785-818		
			Goldstone	087	04 04 087 0	4287	721-723		
			Madrid	143	08 04 143 0	4643			
			Goldstone	087	03 04 087 0	4787			
	140 W	1 of 1	Madrid	142	07 04 142 0	4142	982-951		
			Goldstone	089	04 04 089 0	4089			
			Madrid	142	08 04 142 0	4642			
			Goldstone	089	03 04 089 0	4589			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV25F	141 T	1 of 1	Madrid	143	07 04 143 0	4143		BLANK	
			Madrid	142	07 04 142 0	4142			
			Goldstone	089	04 04 089 0	4089			
			Madrid	143	08 04 143 0	4643			
			Madrid	142	08 04 142 0	4642			
			Goldstone	089	03 04 089 0	4589			
	141 W		Madrid	142	07 04 142 0	4142		BLANK	
			Woomera	091	05 04 091 0	4091			
			Madrid	142	08 04 142 0	4642			
			Woomera	091	06 04 091 0	4591			
IV26A	142 T		Madrid	142	07 04 142 0	4142	983-014		
							015-047		
							048-079		
			Goldstone	089	04 04 089 0	4089	983-990		
			Woomera	091	05 04 091 0	4091	029-079		
			Madrid	142	08 04 142 0	4642			
			Goldstone	089	03 04 089 0	4589			
			Woomera	091	06 04 091 0	4591			
	142 W		Woomera	141	05 04 141 0	4141	242-228		
			Madrid	142	07 04 142 0	4142	225-214		
			Woomera	141	06 04 141 0	4641			
			Madrid	142	08 04 142 0	4642			
			Woomera	142	05 04 142 0	4342			
			Woomera	142	06 04 142 0	4842			
IV26B	143 T		Woomera	091	05 04 091 0	4091	115-193		
			Madrid	142	07 04 142 0	4142	115-146		
							147-179		
							180-211		
			Goldstone	090	03 04 090 0	4090	194-204		
			Woomera	090	06 04 090 0	4290	194-200		
			Madrid	142	08 04 142 0	4642			
			Woomera	091	06 04 091 0	4591			
			Goldstone	090	04 04 090 0	4590			
			Woomera	090	05 04 090 0	4790			
	143 W		Woomera	141	05 04 141 0	4141	345-374		
			Woomera	092	06 04 092 0	4092	355-356		
			Woomera	141	06 04 141 0	4641			
			Woomera	092	05 04 092 0	4592			
IV26C	144 T		Woomera	141	05 04 141 0	4141	246-277		
							278-309		
							310-342		
			Woomera	141	06 04 141 0	4641			
	144 W		Woomera	141	05 04 141 0	4141	505-476		
			Woomera	141	06 04 141 0	4641			
IV26D	145 T		Woomera	141	05 04 141 0	4141	378-409		
							410-441		
							442-474		
			Woomera	092	06 04 092 0	4092	421-421		
			Woomera	141	06 04 141 0	4641			
			Woomera	092	05 04 092 0	4592			
	145 W		Woomera	141	05 04 141 0	4141	638-607		
			Woomera	141	06 04 141 0	4641			
IV26F	146 T		Woomera	141	05 04 141 0	4141	508-539		
							540-571		
							572-604		
			Woomera	141	06 04 141 0	4641			
	146 W	1 of 1	Woomera	140	05 04 140 0	4140	767-738		
			Woomera	140	06 04 140 0	4640			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV26F	147 T	1 of 1	Woomera	140	05 04 140 0	4140	639-670 671-703 704-735		
			Woomera	140	06 04 140 0	4640			
	147 W		Woomera Woomera	140 140	05 04 140 0 06 04 140 0	4140 4640	897-868		
IV27A	148 T		Woomera	140	05 04 140 0	4140	771-802 803-834 835-867		
			Madrid Woomera Madrid	093 140 093	07 04 093 0 06 04 140 0 08 04 093 0	4093 4640 4593	816-817		
	148 W		Woomera Woomera	140 140	05 04 140 0 06 04 140 0	4140 4640	030-002		
IV27B	149 T		Woomera	140	05 04 140 0	4140	900-932 933-964 965-997		
			Woomera	140	06 04 140 0	4640			
	149 W		Woomera Woomera	139 139	05 04 139 0 06 04 139 0	4139 4639	160-131		
IV27C	150 T		Woomera	139	05 04 139 0	4139	032-063 064-097 098-129		
			Woomera	139	06 04 139 0	4639			
	150 W		Woomera Woomera	139 139	05 04 139 0 06 04 139 0	4139 4639	291-263		
IV27D	151 T		Woomera	139	05 04 139 0	4139	164-195 196-227 228-260		
			Woomera	139	06 04 139 0	4639			
	151 W		Woomera Woomera	139 139	05 04 139 0 06 04 139 0	4139 4639	424-395		
IV27N	152 T		Woomera	139	05 04 139 0	4139	295-326 327-359 360-391		
			Woomera	139	06 04 139 0	4639			
	152 W		Goldstone Goldstone	138 138	04 04 138 0 03 04 138 0	4138 4638	553-526		
IV27F	153 W		Goldstone Goldstone	094 094	04 04 094 0 03 04 094 0	4094 4594		BLANK	
IV28S	154 T		Goldstone	138	04 04 138 0	4138	557-589 590-621 622-654		
			Goldstone	138	03 04 138 0	4638			
	154 W		Goldstone Goldstone	137 137	04 04 137 0 03 04 137 0	4137 4637	815-790		
IV28A	155 T		Goldstone	137	04 04 137 0	4137	689-720 721-752 753-786		
			Goldstone	137	03 04 137 0	4637			
	155 W		Goldstone Goldstone	137 137	04 04 137 0 03 04 137 0	4137 4637	947-920		
IV28B	156 T	1 of 1	Goldstone	137	04 04 137 0	4137	820-851 852-884 885-916		
			Goldstone	137	03 04 137 0	4637			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV28B	156 W	1 of 1	Goldstone	137	04 04 137 0	4137	079-050		
			Goldstone	137	03 04 137 0	4637			
IV28C	157 T		Goldstone	137	04 04 137 0	4137	951-982 983-015 016-047		
			Goldstone	137	03 04 137 0	4637			
	157 W		Goldstone	137	04 04 137 0	4137	210-181		
			Goldstone	095	04 04 095 0	4095			
			Goldstone	137	03 04 137 0	4637			
			Goldstone	095	03 04 095 0	4595			
IV28D	158 T		Goldstone	137	04 04 137 0	4137	081-113 114-145 146-179		
			Goldstone	137	03 04 137 0	4637			
	158 W		Goldstone	137	04 04 137 0	4137	342-313		
			Goldstone	137	03 04 137 0	4637			
IV29	159 W		Woomera	096	06 04 096 0	4096		BLANK	
			Woomera	096	05 04 096 0	4596			
IV29A	160 T		Goldstone	136	03 04 136 0	4136	344-375 376-408 409-441		
			Woomera	096	06 04 096 0	4096	407-441		
			Goldstone	136	04 04 136 0	4636			
			Woomera	096	05 04 096 0	4596			
	160 W		Goldstone	136	03 04 136 0	4136	603-576		
			Goldstone	136	04 04 136 0	4636			
IV29B	161 T		Goldstone	136	03 04 136 0	4136	475-506 507-538 539-571		
			Woomera	096	06 04 096 0	4096			
			Goldstone	136	04 04 136 0	4636			
			Woomera	096	05 04 096 0	4596			
	161 W		Goldstone	136	03 04 136 0	4136	734-705		
			Madrid	136	08 04 136 0	4836			
			Madrid	136	07 04 136 0	4336			
			Madrid	098	07 04 098 0	4098			
			Goldstone	136	04 04 136 0	4636			
			Madrid	098	08 04 098 0	4598			
IV29C	162 T		Goldstone	136	03 04 136 0	4136	606-638 639-670 671-704		
			Madrid	136	07 04 136 0	4336			
			Madrid	136	08 04 136 0	4836			
			Goldstone	136	04 04 136 0	4636			
	162 W		Madrid	135	07 04 135 0	4135	866-837		
			Madrid	098	07 04 098 0	4098			
			Madrid	135	08 04 135 0	4635			
			Madrid	098	08 04 098 0	4598			
IV29D	163 T		Madrid	135	07 04 135 0	4135	737-769 770-802 803-834		
			Madrid	098	07 04 098 0	4098			
			Madrid	135	08 04 135 0	4635			
			Madrid	098	08 04 098 0	4598			
	163 W	1 of 1	Madrid	135	07 04 135 0	4135	996-968		
			Madrid	098	07 04 098 0	4098			
			Madrid	135	08 04 135 0	4635			
			Madrid	098	08 04 098 0	4598			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV29N	164 T	1 of 1	Madrid	135	07 04 135 0	4135	869-900 901-932 933-965		
			Madrid	098	07 04 098 0	4098			
			Madrid	135	08 04 135 0	4635			
			Madrid	098	08 04 098 0	4598			
	164 W		Madrid	135	07 04 135 0	4135	128-100		
			Woomera	097	06 04 097 0	4097			
			Madrid	135	08 04 135 0	4635			
			Woomera	097	05 04 097 0	4597			
IV29G	165 T		Madrid	135	07 04 135 0	4135	000-031 032-063 064-096		
			Madrid	098	07 04 098 0	4098	000-064		
			Woomera	097	06 04 097 0	4097	064-096		
			Madrid	135	08 04 135 0	4635			
			Madrid	098	08 04 098 0	4598			
			Woomera	097	05 04 097 0	4597			
	165 W		Madrid	135	07 04 135 0	4135	260-230		
			Woomera	097	06 04 097 0	4097	243-230		
			Madrid	099	07 04 099 0	4099	260-230		
			Madrid	135	08 04 135 0	4635			
			Woomera	097	05 04 097 0	4597			
			Madrid	099	08 04 099 0	4599			
IV30S	166 T		Madrid	135	07 04 135 0	4135	130-162 163-195 196-227		
			Woomera	097	06 04 097 0	4097	130-227		
			Madrid	099	07 04 099 0	4099	217-227		
			Madrid	135	08 04 135 0	4635			
			Woomera	097	05 04 097 0	4597			
			Madrid	099	08 04 099 0	4599			
	166 W		Madrid	134	07 04 134 0	4134	391-363		
			Madrid	099	07 04 099 0	4099			
			Madrid	134	08 04 134 0	4634			
			Madrid	099	08 04 099 0	4599			
IV30A	167 T		Madrid	135	07 04 135 0	4135	263-294 295-326 327-359		
			Madrid	134	07 04 134 0	4134			
			Madrid	099	07 04 099 0	4099			
			Madrid	135	08 04 135 0	4635			
			Madrid	134	08 04 134 0	4634			
			Madrid	099	08 04 099 0	4599			
	167 W		Madrid	134	07 04 134 0	4134	521-493		
			Madrid	099	07 04 099 0	4099	497-493		
			Madrid	134	08 04 134 0	4634			
			Madrid	099	08 04 099 0	4599			
IV30B	168 T		Madrid	134	07 04 134 0	4134	393-425 426-457 458-489		
			Madrid	099	07 04 099 0	4099			
			Madrid	134	08 04 134 0	4634			
			Madrid	099	08 04 099 0	4599			
	168 W		Madrid	134	07 04 134 0	4134	652-624		
			Madrid	134	08 04 134 0	4634			
IV30C	169 T	1 of 1	Madrid	134	07 04 134 0	4134	525-556 557-588 589-621		
			Madrid	134	08 04 134 0	4634			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV30C	169 W	1 of 1	Madrid	133	07 04 133 0	4133	784-755		
			Madrid	133	08 04 133 0	4633			
IV30D	170 T		Madrid	133	07 04 133 0	4133	655-687 688-719 720-751		
			Madrid	133	08 04 133 0	4633			
	170 W		Madrid	133	07 04 133 0	4133	917-885		
			Madrid	133	08 04 133 0	4633			
			Woomera	133	05 04 133 0	4333			
			Woomera	133	06 04 133 0	4833			
IV30H	171 T		Madrid	133	07 04 133 0	4133	786-881		
			Woomera	133	05 04 133 0	4333			
			Woomera	133	06 04 133 0	4833			
			Madrid	133	08 04 133 0	4633			
	171 W		Woomera	132	05 04 132 0	4132	045-018		
			Goldstone	100	04 04 100 0	4100			
			Woomera	132	06 04 132 0	4632			
			Goldstone	100	03 04 100 0	4600			
IV31A	172 T		Woomera	132	05 04 132 0	4132	918-949 950-982 983-014		
			Goldstone	100	04 04 100 0	4100	932-014		
			Woomera	132	06 04 132 0	4632			
			Goldstone	100	03 04 100 0	4600			
	172 W		Woomera	132	05 04 132 0	4132	176-149		
			Woomera	101	06 04 101 0	4101			
			Woomera	132	06 04 132 0	4632			
			Woomera	101	05 04 101 0	4601			
IV31B	173 T		Woomera	132	05 04 132 0	4132	050-081 082-113 114-146		
			Goldstone	100	04 04 100 0	4100	050-142		
			Woomera	101	06 04 101 0	4101	145-146		
			Woomera	132	06 04 132 0	4632			
			Goldstone	100	03 04 100 0	4600			
			Woomera	101	05 04 101 0	4601			
	173 W		Woomera	131	05 04 131 0	4131	309-280		
			Woomera	101	06 04 101 0	4101			
			Woomera	131	06 04 131 0	4631			
			Woomera	101	05 04 101 0	4601			
IV31C	174 T		Woomera	131	05 04 131 0	4131	180-212 213-244 245-276		
			Woomera	101	06 04 101 0	4101			
			Woomera	131	06 04 131 0	4631			
			Woomera	101	05 04 101 0	4601			
	174 W		Woomera	131	05 04 131 0	4131	439-410		
			Woomera	131	06 04 131 0	4631			
IV31D	175 T		Woomera	131	05 04 131 0	4131	311-343 344-375 376-408		
			Woomera	101	06 04 101 0	4101	311-403		
			Goldstone	101	04 04 101 0	4201	311-403		
			Woomera	131	06 04 131 0	4631			
			Woomera	101	05 04 101 0	4601			
			Goldstone	101	03 04 101 0	4701			
	175 W	1 of 1	Woomera	131	05 04 131 0	4131	571-542		
			Madrid	103	07 04 103 0	4103			
			Woomera	131	06 04 131 0	4631			
			Madrid	103	08 04 103 0	4603			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. OF	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV31N	176 T	1 of 1	Woomera	131	05 04 131 0	4131	443-474 475-507 508-539	
			Madrid	103	07 04 103 0	4103	529-539	
			Woomera	131	06 04 131 0	4631		
			Madrid	103	08 04 103 0	4603		
	176 W		Woomera	130	05 04 130 0	4130	702-673	
			Madrid	103	07 04 103 0	4103		
			Woomera	130	06 04 130 0	4630		
			Madrid	103	08 04 103 0	4603		
IV31G	177 T		Woomera	130	05 04 130 0	4130	574-605 606-637 638-670	
			Madrid	103	07 04 103 0	4103		
			Woomera	130	06 04 130 0	4630		
			Madrid	103	08 04 103 0	4603		
	177 W		Woomera	130	05 04 130 0	4130	835-805	
			Madrid	103	07 04 103 0	4103		
			Woomera	130	06 04 130 0	4630		
			Madrid	103	08 04 103 0	4603		
IV31G	178 T		Woomera	130	05 04 130 0	4130	704-736 737-768 769-801	
			Madrid	103	07 04 103 0	4103		
			Woomera	130	06 04 130 0	4630		
			Madrid	103	08 04 103 0	4603		
	178 W		Woomera	130	05 04 130 0	4130	965-936	
			Woomera	102	06 04 102 0	4102		
			Woomera	130	06 04 130 0	4630		
			Woomera	102	05 04 102 0	4602		
IV32S	179 T		Woomera	130	05 04 130 0	4130	836-867 868-900 901-932	
			Woomera	102	06 04 102 0	4102		
			Woomera	130	06 04 130 0	4630		
			Woomera	102	05 04 102 0	4602		
	179 W		Woomera	130	05 04 130 0	4130	096-066	
			Madrid	104	07 04 104 0	4104		
			Woomera	130	06 04 130 0	4630		
			Madrid	104	08 04 104 0	4604		
IV32A	180 T		Woomera	130	05 04 130 0	4130	967-998 999-031 032-064	
			Woomera	102	06 04 102 0	4102	967-059	
			Madrid	104	07 04 104 0	4104	009-064	
			Woomera	130	06 04 130 0	4630		
			Woomera	102	05 04 102 0	4602		
			Madrid	104	08 04 104 0	4604		
	180 W		Goldstone	129	04 04 129 0	4129	226-199	
			Madrid	104	07 04 104 0	4104		
			Goldstone	129	03 04 129 0	4629		
			Madrid	104	08 04 104 0	4604		
IV32B	181 T		Goldstone	129	04 04 120 0	4129	098-129 130-161 162-194	
			Madrid	104	07 04 104 0	4104		
			Goldstone	129	03 04 129 0	4629		
			Madrid	104	08 04 104 0	4604		
	181 W	1 of 1	Goldstone	129	04 04 129 0	4129	356-328	
			Goldstone	128	04 04 128 0	4128		
			Goldstone	129	03 04 129 0	4629		
			Goldstone	128	03 04 128 0	4628		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV32C	182 T	1 of 1	Goldstone	129	04 04 129 0	4129	228-260 261-292 293-324		
			Goldstone	128	04 04 128 0	4128	323-324		
			Madrid	104	07 04 104 0	4104	228-323		
			Goldstone	129	03 04 129 0	4629			
			Goldstone	128	03 04 128 0	4628			
			Madrid	104	08 04 104 0	4604			
	182 W		Goldstone	128	04 04 128 0	4128	488-459		
			Goldstone	128	03 04 128 0	4628			
IV32D	183 T		Goldstone	129	04 04 129 0	4129	360-391		
			Goldstone	128	04 04 128 0	4128	360-392 393-424 425-456		
			Goldstone	129	03 04 129 0	4629			
			Goldstone	128	03 04 128 0	4628			
	183 W		Goldstone	128	04 04 128 0	4128	618-590		
			Goldstone	128	03 04 128 0	4628			
IV32H	184 T		Goldstone	128	04 04 128 0	4128	491-522 523-555 556-588		
			Goldstone	128	03 04 128 0	4628			
	184 W		Goldstone	128	04 04 128 0	4128	747-722		
			Goldstone	128	03 04 128 0	4628			
IV32H	185 T		Goldstone	128	04 04 128 0	4128	622-653 654-685 686-718		
			Goldstone	128	03 04 128 0	4628			
	185 W		Goldstone	127	04 04 127 0	4127	880-853		
			Goldstone	127	03 04 127 0	4627			
IV33A	186 T		Goldstone	128	04 04 128 0	4128	754-776 777-818 819-851		
			Goldstone	127	04 04 127 0				
			Goldstone	128	03 04 128 0	4628			
			Goldstone	127	03 04 127 0	4627			
	186 W		Goldstone	127	04 04 127 0	4127	013-986		
			Goldstone	127	03 04 127 0	4627			
IV33B	187 T		Goldstone	127	04 04 127 0	4127	884-916 917-948 949-981		
			Goldstone	127	03 04 127 0	4627			
	187 W		Goldstone	127	04 04 127 0	4127	143-114		
			Goldstone	127	03 04 127 0	4627			
IV33C	188 T		Goldstone	127	04 04 127 0	4127	015-046 047-079 080-112		
			Goldstone	120	04 04 120 0	4120	103-112		
			Goldstone	127	03 04 127 0	4627			
			Goldstone	120	03 04 120 0	4620			
	188 W		Madrid	126	08 04 126 0	4126	274-246		
			Goldstone	120	04 04 120 0	4120			
			Madrid	126	07 04 126 0	4626			
			Goldstone	120	03 04 120 0	4620			
IV33D	189 T	1 of 1	Goldstone	127	04 04 127 0	4127	145-178 179-210 211-243		
			Goldstone	120	04 04 120 0	4120			
			Goldstone	127	03 04 127 0	4627			
			Goldstone	120	03 04 120 0	4620			

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. __ OF __	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS
IV33D	189 W	1 of 1	Madrid	126	08 04 126 0	4126	405-377	
			Goldstone	120	04 04 120 0	4120		
			Madrid	126	07 04 126 0	4626		
			Goldstone	120	03 04 120 0	4620		
IV33N	190 T		Madrid	126	08 04 126 0	4126	278-310	
							311-342	
							343-375	
			Goldstone	120	04 04 120 0	4120		
			Madrid	126	07 04 126 0	4626		
			Goldstone	120	03 04 120 0	4620		
	190 W		Madrid	126	08 04 126 0	4126	538-510	
			Woomera	122	05 04 122 0	4122		
			Madrid	126	07 04 126 0	4626		
			Woomera	122	06 04 122 0	4622		
IV33G	191 T		Madrid	126	08 04 126 0	4126	409-441	
							442-473	
							474-506	
			Woomera	120	06 04 120 0	4320	409-454	
			Woomera	120	05 04 120 0	4820	409-454	
			Goldstone	120	04 04 120 0	4120	409-454	
			Woomera	121	06 04 121 0	4121	449-486	
			Woomera	122	05 04 122 0	4122	442-506	
			Madrid	126	07 04 126 0	4626		
			Goldstone	120	03 04 120 0	4620		
			Woomera	121	05 04 121 0	4621		
			Woomera	122	06 04 122 0	4622		
	191 W		Madrid	126	08 04 126 0	4126	670-642	
			Woomera	122	05 04 122 0	4122	662-642	
			Woomera	123	05 04 123 0	4123	670-652	
			Madrid	126	07 04 126 0	4626		
			Woomera	122	06 04 122 0	4622		
			Woomera	123	06 04 123 0	4623		
IV33G	192 T		Madrid	126	08 04 126 0	4126	540-571	
							572-604	
							605-637	
			Woomera	122	05 04 122 0	4122		
			Madrid	126	07 04 126 0	4626		
			Woomera	122	06 04 122 0	4622		
	192 W		Madrid	125	07 04 125 0	4125	799-771	
			Woomera	123	05 04 123 0	4123		
			Madrid	125	08 04 125 0	4625		
			Woomera	123	06 04 123 0	4623		
IV34S	193 T		Madrid	126	08 04 126 0	4126	672-703	
							704-735	
							737-768	
			Madrid	125	07 04 125 0	4125	767-768	
			Woomera	123	05 04 123 0	4123	672-703	
			Madrid	126	07 04 126 0	4626		
			Madrid	125	08 04 125 0	4625		
			Woomera	123	06 04 123 0	4623		
	193 W		Madrid	125	07 04 125 0	4125	928-902	
			Woomera	123	05 04 123 0	4123		
			Madrid	125	08 04 125 0	4625		
			Woomera	123	06 04 123 0	4623		
IV34A	194 T		Madrid	125	07 04 125 0	4125	802-834	
							835-866	
							867-898	
			Woomera	123	05 04 123 0	4123		
			Madrid	125	08 04 125 0	4625		
			Woomera	123	06 04 123 0	4623		
	194 W	1 of 1	Madrid	125	07 04 125 0	4125	061-032	
			Madrid	124	07 04 124 0	4124		
			Madrid	125	08 04 125 0	4625		
			Madrid	124	08 04 124 0	4624		

PHOTO SITE	S/C EXPOSURE NO.	PHOTO SEQUENCE NO. ___ OF ___	RECORDING DSIF	READOUT SEQUENCE	GRE ROLL NO.	K.I. NO.	FRAMELET NO.	REMARKS	
IV34B	195 T	1 of 1	Madrid	125	07 04 125 0	4125	933-965 966-997 998-029		
			Woomera	124	05 04 124 0	4324	938-961		
			Woomera	124	06 04 124 0	4824	938-961		
			Madrid	124	07 04 124 0	4124	938-029		
			Woomera	123	05 04 123 0	4123	933-941		
			Madrid	125	08 04 125 0	4625			
			Madrid	124	08 04 124 0	4624			
			Woomera	123	06 04 123 0	4623			
IV34C	196 T	1 of 1	Madrid	125	07 04 125 0	4125	065-096 097-100	1 of 2 2 of 2	37% RECOVERED
			Madrid	124	07 04 124 0	4124	065-085		
			Madrid	125	08 04 125 0	4625			
			Madrid	124	08 04 124 0	4624			

Appendix B

FPAC SUPPORTING DATA

SPACECRAFT MANEUVERS

This section contains a tabulation of the spacecraft maneuvers for Mission IV. The data is identified by column as follows.

Column
1 Day
2 Hour
3 Minute
4 Second
5 & 6 Items pertinent to the computer program for which the input deck is used.
7 Comment pertaining to maneuver or program input.
8 Command sequence number.

```
124 23 10 19.0   7  360.0   $ ROM 360  SUN ACQ BACKUP
125 00 32 0.0    8  0.0     $ PIP .011  DRIFT TEST
125 05 17 27.0   12 0.0     $ ASU
125 05 20 28.0   7  360.0   $ ROP 360 DEG  STAR MAP
125 06 30 25.0   8  0.0     $ PIP .011  CONTINUE DRIFT TEST
125 07 12 0.0    12 0.0     $ ASU
125 07 25 0.0    7  360.0   $ ROP 360 DEG  2ND STAR MAP
125 08 14 28.0   7  84.0    $ ROP 84 DEG
125 14 25 48.0   7  360.0   $ ROP 360 DEG
125 16 29 47.0   7  78.2    $ ROP 78.2 FIRST MIDCOURSE
125 16 33 09.0   8  67.6    $ PIP 67.6 FIRST MIDCOURSE
125 16 44 23.8   2  0.0     $ 2.0 DEGREE DEADZONE
125 16 45 24.0   3  52.7    $ BURN 199.6 FIRST MIDCOURSE
125 16 47 30.0   1  0.0     $ 0.2 DEAD BAND
125 16 51 17.0   8  67.6    $ PIM 67.6
125 16 54 48.0   7  78.2    $ ROM 78.2
$CARD NUMBER 16 WAS OMITTED FROM SEQ OF EVENTS
126 04 22 0.0    8  0.0     $ PIP .011  DRIFT TEST
126 08 30 37.0   2  0.0     $ OPEN DEAD BAND
126 08 34 27.0   12 0.0     $ ACQUIRE SUN NO GAS USED
126 18 25 29.0   7  4.7     $ ROLL +4.7 GLINT PROBLEM WDR
127 03 07 31.4   8  51.5    $ PIM 51.5  SS CALIBRATION WDR
127 03 40 26.6   8  102.0   $ PIP 102  SS CALIBRATION WDR
127 04 30 28.4   8  52.0    $ PIM 52.0  SS  CALIBRATION WDR
127 04 58 23.0   12 0.0     $ ASU
127 21 43 57.0   1  0.0     $ NARROW DEADZONE
128 12 15 24.0   7  0.6     $ ROLL -0.57 UPDATE FOR INJ.
128 14 54 14.0   7  29.46   $ ROLL -29.46 PRIOR TO INJECTION
128 14 56 06.0   8  96.13   $ PITCH -96.13 PRIOR TO INJECTION
128 15 00 00.0   2  0.0     $ OPEN DEADZONE
128 15 09 11.5   3  501.69  $ ORB INJECT BURN.VEL =2164.1F/S
128 15 18 48.0   1  0.0     $ CLOSE DEADZONE
128 15 19 32.0   8  96.13   $ PITCH +96.13 AFTER BURN
128 15 23 33.0   7  29.46   $ ROLL +29.46 AFTER BURN
128 15 25 20.0   12 0.0     $ ACQUIRE SUN
128 23 07 17.0   8  0.0     $ PIP .011  START DRIFT TEST
129 11 06 51.0   9  15.0    $ YAW -15.0 DEG  BOS TEST
129 11 11 5.0    9  15.0    $ YAW +15.0 DEG
129 11 23 25.0   12 0       $ ASU
130 00 27 13.0   8  27.0    $ PIM PAINT DEGRADATION -27.0
131 10 30 27.8   8  31.0    $ PIP 31  TO SUN
131 10 47 44.8   7  3.7     $ ROP 3.7  CANOPUS UPDATE
131 11 13 26.0   12 0.0     $ ASU
131 11 19 31.2   7  360.0   $ ROP 360  ANTENA MAP
131 15 00 23.0   7  1.0     $ ROM 1  CANOPUS UPDATE
131 15 38 41.1   7  48.4    $ ROP 48.4  PHOTO SITE ORBIT 6
131 15 41 9.3    8  15.8    $ PIP 15.83  PHOTO SITE ORBIT 6
131 15 42 32.5   9  27.4    $ YAP 27.4  PHOTO SITE ORBIT 6
131 15 48 6.6    8  30.6    $ PIP 30.6  PHOTO SITE ORBIT 6
131 15 49 59.4   9  36.8    $ YAM 36.8  PHOTO SITE ORBIT 6
131 15 52 4.6    8  35.7    $ PIM 35.7  PHOTO SITE ORBIT 6
131 16 28 26.8   7  28.2    $ ROM 28.16
131 16 30 14.6   8  12.4    $ PIM 12.4
131 17 00 36.1   7  30.4    $ ROM 30.44
131 17 02 28.6   8  3.5     $ PIM 3.5

131 17 32 12.0   7  30.1    $ ROM 30.06
131 17 34 7.0    8  5.7     $ PIP 5.72
131 18 04 56.0   8  3.1     $ PIP 3.11 RETURN TO SUN LINE
131 18 06 3.0    9  6.2     $ YAP 6.16 RETURN TO SUN LINE
131 18 07 0.0    7  58.1    $ ROP 58.06 RETURN TO SUN LINE
131 22 11 36.0   12 0.0     $ ASU
131 22 41 19.0   7  167.1   $ ROP 167.08
131 22 47 39.0   8  45.0    $ PIP 45.00
131 23 14 44.0   8  45.0    $ PIM 45.00
131 23 17 5.0    7  167.1   $ ROM 167.08
131 23 40 31.0   8  28.0    $ PIM 28.0 THERMAL.
132 03 24 11.0   12 0.0     $ ASU
132 03 40 42.0   7  1.2     $ ROLL UPDATE -1.2
132 04 09 15.0   7  29.8    $ ROP29.8SITE FRONT SIDE ORB 7
132 04 11 25.0   9  0.5     $ YAM 0.5
132 04 12 02.0   8  6.8     $ PIP 6.86
132 04 29 13.0   7  28.2    $ ROLL-28.2
132 04 31 03.0   8  12.5    $ PITCH-12.5
132 05 13 28.0   7  30.4    $ ROLL-30.4
132 05 15 29.0   8  3.6     $ PITCH-3.6
132 05 32 29.0   7  30.0    $ ROLL-30.0
132 05 34 24.0   8  5.7     $ PITCH+5.7
132 06 06 11.0   7  22.0    $ ROLL-22.0
132 06 07 46.0   8  3.0     $ PITCH+3.0
132 06 08 43.0   9  23.7    $ YAW-23.7
132 06 32 05.0   9  30.2    $ YAW+30.2 RETURN
```

132	06	33	56.0	8	3.3	$ PITCH-3.3 RETURN	81C
132	06	34	59.0	7	79.8	$ ROLL+79.8 RETURN END P/5 ORB 7	82C
132	06	40	24.0	12	0.0	$ ASU	83C
132	06	43	37.0	8	28.0	$ PITCH+28.0 THERMAL	84C
132	08	05	19.0	8	13.0	$ PITCH +13.0 MORE THERMAL	85C
132	08	55	42.0	8	8.0	$ PITCH -8.0 FILM PROCESS	86C
132	11	22	25.7	8	8.2	$ PIP 8.2	87C
132	14	40	08.0	12	0.0	$ ASU	88C
132	15	00	45.0	7	0.8	$ ROP 0.8 ROLL UPDATE	89C
132	15	13	58.7	7	48.7	$ ROP 48.7 ORBIT 8 PHOTO	90C
132	15	16	30.0	8	16.4	$ PIP 16.43 ORBIT 8 PHOTO	91C
132	15	17	50.0	9	26.5	$ YAP 26.51 ORBIT 8 PHOTO	92C
132	15	49	35.0	7	20.5	$ ROM 20.5 ORBIT 8 PHOTO	93C
132	15	51	27.0	8	0.7	$ PIP 0.71 ORBIT 8 PHOTO	94C
132	15	52	10.0	9	31.1	$ YAM 31.1 ORBIT 8 PHOTO	95C
132	16	41	42.0	7	28.2	$ ROM 28.17	96C
132	16	43	37.0	8	12.5	$ PIM 12.53	97C
132	17	02	3.0	7	30.4	$ ROM 30.4	98C
132	17	03	47.0	8	3.6	$ PIM 3.6	99C
132	17	33	9.0	7	30.0	$ ROM 30.03 SITE 5 PHOTO	100C
132	17	35	4.0	8	5.7	$ PIP 5.66 SITE 5 PHOTO	101C
132	18	05	48.0	8	2.6	$ PIP 2.61 SITE 5 PHOTO	102C
132	18	06	57.0	9	5.4	$ YAP 5.40 SITE 5 PHOTO	103C
132	18	07	55.0	7	58.0	$ ROP 58.01 SITE 5 PHOTO	104C
132	18	19	31.0	8	40.0	$ PIP 40.0 THERMAL	105C
132	23	17	39.0	12	0.0	$ ASU	106C
132	23	35	28.0	8	40.0	$ PIP 40.0 THERMAL	107C
133	04	12	57.0	12	0.0	$ ASU ORB 9 FRONT PHOTOS	108C
133	04	23	22.0	7	29.2	$ ROLL +29.2	109C
133	04	25	14.0	9	1.2	$ YAW -1.2	110C
133	04	26	14.0	8	7.6	$ PITCH 47.6	111C
133	04	30	34.0	7	28.2	$ ROLL -28.2	112C
133	04	32	29.0	8	12.5	$ PITCH -12.5	113C
133	05	27	36.0	7	30.4	$ ROLL -30.4	114C
133	05	29	31.0	8	3.6	$ PITCH -3.6	115C
133	05	33	46.0	7	30.0	$ ROLL -30.0	116C
133	05	35	42.0	8	5.7	$ PITCH +5.7	117C
133	06	07	46.0	7	22.0	$ ROLL -22.0	118C
133	06	09	04.0	8	3.9	$ PITCH +3.9	119C
133	06	10	07.0	9	23.7	$ YAW -23.7	120C
133	06	46	10.0	9	29.2	$ YAW +29.2 RETURN TO CELESTIAL	121C
133	06	47	41.0	8	3.8	$ PITCH -3.8	122C
133	06	48	59.0	7	79.9	$ ROLL +79.7	123C
133	06	54	14.2	8	40.0	$ PITCH +40.0	124C
133	11	12	40.0	12	0.0	$ ASU	125C
133	11	39	29.0	8	40.0	$ PIP 40.0 THERMAL	126C
133	15	33	47.0	12	0.0	$ ASU ORB 10 PHOTOS	127C
133	15	42	10.0	7	49.2	$ ROP 49.16 PHOTO 10-1	128C
133	15	44	43.5	8	16.9	$ PIP 16.86	129C
133	15	46	12.6	9	25.6	$ YAP 25.56	130C
133	15	51	12.6	7	20.4	$ ROM 20.44 PHOTO 10-2	131C
133	15	52	47.5	8	0.7	$ PIP 0.71	132C
133	15	53	20.0	9	31.1	$ YAM 31.13	133C
133	16	56	19.0	7	28.2	$ ROM 28.18 PHOTO 10-3	134C
133	16	58	12.2	8	12.5	$ PIM 12.53	135C
133	17	03	29.0	7	30.4	$ ROM 30.43 PHOTO 10-4	136C
133	17	05	21.0	8	3.6	$ PIM 3.59	137C
133	17	34	33.0	7	30.0	$ ROM 30.01 PHOTO 10-5	138C
133	17	36	26.0	8	5.7	$ PIP 5.66	139C
133	18	07	20.0	9	1.8	$ YAP 1.76	140C
133	18	08	9.0	7	58.0	$ ROP 57.97	141C
133	18	11	2.0	8	45.5	$ PIP 45.5 (OFF-SUN=42.0) THERMAL	142C
133	23	03	4.0	12	0.0	$ ASU	143C
133	23	07	17.0	7	167.4	$ ROP 167.39	144C
133	23	13	40.0	8	45.0	$ PIP 45.00	145C
133	23	45	27.0	8	45.0	$ PIM 45.00	146C
133	23	47	50.0	7	167.4	$ ROM 167.39	147C
133	23	54	31.0	12	0.0	$ ASU	148C
134	00	07	31.0	8	42.0	$ PIP 42.0 THERMAL	149C
134	04	18	19.0	12	0.0	$ ASU	150C
134	04	24	59.0	7	28.9	$ ROLL+28.92 ORB. 11 FIRST MAN.	151C
134	04	26	49.0	9	2.0	$ YAW -2.0	152C
134	04	27	46.0	8	8.3	$ PITCH +8.3	153C
134	04	57	53.0	7	28.2	$ ROLL -28.2 PHOTO 11-2	154C
134	04	59	45.0	8	12.5	$ PITCH -12.5	155C
134	05	29	08.0	7	30.4	$ ROLL -30.4 PHOTO 11-3	156C
134	05	31	05.0	8	3.6	$ PITCH -3.6	157C
134	05	35	27.0	7	30.0	$ ROLL -30.0 PHOTO 11-4	158C
134	05	37	17.0	8	5.7	$ PITCH 5.7	159C
134	06	08	55.0	7	23.7	$ ROLL -23.7 PHOTO 11-5	160C
134	06	10	38.0	9	23.6	$ YAW -23.6	161C

134	06	12	19.0	8	4.3	$ PITCH +4.3	162C
134	06	47	39.0	7	82.7	$ ROLL +82.7 RETURN TO CELESTIAL	163C
134	06	51	12.0	9	8.7	$ YAW +8.65	164C
134	06	52	29.0	8	47.4	$ PITCH +47.4 THERMAL OF +20	165C
134	08	55	34.0	8	60.0	$ PIM 60.0 CAMERA WINDOW TEST	166C
134	09	32	23.0	8	60.0	$ PIP 60.0 CAMERA WINDOW TEST	167C
134	11	16	7.0	12	0.0	$ ASU	168C
134	11	42	28.4	8	20.0	$ PIP 20.0 THERMAL	169C
134	15	28	0.0	12	0.0	$ ASU	170C
134	15	44	18.0	7	49.7	$ ROP 49.7 PHOTO 12-1	171C
134	15	46	50.0	8	17.2	$ PIP 17.2	172C
134	15	48	22.0	9	24.6	$ YAP 24.6	173C
134	15	53	7.0	7	20.4	$ ROM 20.4 PHOTO 12-2	174C
134	15	54	54.0	8	0.7	$ PIP 0.7	175C
134	15	55	37.0	9	31.1	$ YAM 31.1	176C
134	16	58	43.0	7	28.2	$ ROM 28.2 PHOTO 12-3	177C
134	17	00	34.0	8	12.6	$ PIM 12.6	178C
134	17	05	14.0	7	30.4	$ ROM 30.4 PHOTO 12-4	179C
134	17	07	9.0	8	3.6	$ PIM 3.6	180C
134	17	36	13.0	7	30.0	$ ROM 29.97 PHOTO 12-5	181C
134	17	38	9.0	8	5.7	$ PIP 5.66	182C
134	18	08	55.0	9	2.4	$ YAP 2.44	183C
134	18	10	1.0	7	57.8	$ ROP 57.75	184C
134	18	12	42.0	8	22.0	$ PIP 21.97	185C
134	20	17	45.0	8	59.2	$ PIM 59.2 THERMAL	186C
135	04	16	47.0	12	0.0	$ ASU ORBIT 13 PHOTOS	187C
135	04	21	01.0	7	30.6	$ ROLL + 30.6 SITE 13-1	188C
135	04	22	56.0	9	2.8	$ YAW -2.8	189C
135	04	23	53.0	8	8.9	$ PITCH +8.9	190C
135	04	34	15.0	7	28.2	$ ROLL -28.2 SITE 13-2	191C
135	04	36	07.0	8	12.6	$ PITCH -12.6	192C
135	05	25	11.0	7	30.4	$ ROLL -30.4 SITE 13-3	193C
135	05	27	07.0	8	3.6	$ PITCH -3.6	194C
135	05	37	23.0	7	30.0	$ ROLL -30.0 SITE 13-4	195C
135	05	39	18.0	8	5.7	$ PITCH +5.7	196C
135	06	10	47.0	7	23.7	$ ROLL -23.7 SITE 13-5	197C
135	06	12	30.0	9	23.7	$ YAW -23.7	198C
135	06	14	14.0	8	4.3	$ PITCH +4.3	199C
135	06	49	22.0	7	82.6	$ ROLL +82.6 RETURN TO CELESTIAL	200C
135	06	53	01.0	9	9.1	$ YAW +9.1	201C
135	06	54	11.0	8	13.6	$ PITCH -13.6 +40 DEG. THERMAL	202C
135	11	16	7.0	12	0.0	$ ASU	203C
135	11	55	40.0	7	1.4	$ ROP 1.4 CANOPUS UPDATE	204C
135	12	02	32.0	8	40.0	$ PIM 40.0 THERMAL	205C
135	15	36	5.0	12	0.0	$ ASU	206C
135	15	40	18.0	9	30.2	$ YAP 30.2 PHOTO 14-1	207C
135	15	42	14.0	8	9.3	$ PIM 9.3	208C
135	15	43	31.0	7	50.9	$ ROP 50.9	209C
135	15	55	17.0	7	19.5	$ ROM 19.5 PHOTO 14-2	210C
135	15	56	56.0	8	1.2	$ PIP 1.2	211C
135	15	57	55.0	9	33.7	$ YAM 33.7	212C
135	16	53	16.0	7	28.3	$ ROM 28.3 PHOTO 14-3	213C
135	16	55	11.0	8	12.6	$ PIM 12.6	214C
135	17	08	32.0	7	30.4	$ ROM 30.4 PHOTO 14-4	215C
135	17	09	28.0	8	3.6	$ PIM 3.6	216C
135	17	38	35.0	7	29.9	$ ROM 29.94 PHOTO 14-5	217C
135	17	40	27.0	8	5.7	$ PIP 5.69	218C
135	18	11	4.0	9	3.2	$ YAP 3.16	219C
135	18	11	59.0	7	57.5	$ ROP 57.46	220C
135	18	14	49.0	8	39.6	$ PIM 39.61	221C
135	22	58	4.0	12	0.0	$ ASU	222C
135	23	05	59.0	7	192.3	$ ROM 192.29 BACKSIDE	223C
135	23	19	11.0	8	45.0	$ PIP 45.00	224C
135	23	22	1.0	8	45.0	$ PIM 45.00	225C
135	23	24	25.0	7	192.3	$ ROP 192.29	226C
135	23	31	28.0	12	0.0	$ ASU	227C
135	23	41	13.0	8	40.0	$ PIM 40.0 THERMAL	228C
136	04	19	05.0	12	0.0	$ ASU START ORIBIT 15 PHOTOS	229C
136	04	23	39.0	7	32.4	$ ROLL +32.4 SITE 15-1	230C
136	04	25	40.0	9	3.6	$ YAW -3.6	231C
136	04	26	43.0	8	9.5	$ PITCH +9.5	232C
136	04	37	05.0	7	28.3	$ ROLL -28.3 SITE 15-2	233C
136	04	38	48.0	8	2.6	$ PITCH -12.6	234C
136	05	27	53.0	7	30.4	$ ROLL -30.4 SITE 15-3	235C
136	05	29	48.0	8	3.6	$ PITCH -3.6	236C
136	05	39	58.0	7	29.9	$ ROLL -29.9 SITE 15-4	237C
136	05	41	53.0	8	5.7	$ PITCH +5.7	238C
136	06	13	16.0	7	22.7	$ ROLL -22.7 SITE 15-5	239C
136	06	15	00.0	9	28.0	$ YAW -28.0	240C

136	06	16	44.0	8	4.5	$ PITCH +4.5	241C
136	06	52	03.0	7	82.1	$ ROLL +82.1 RETURN TO CELESTIAL	242C
136	06	55	37.0	9	10.8	$ YAW +10.8	243C
136	06	56	52.0	8	5.3	$ PITCH -5.3 -35 DEG. THERMAL	244C
136	11	21	06.0	12	0.0	$ ASU	245C
136	11	42	28.4	8	35.0	$ PIM 35.0 THERMAL	246C
136	15	39	09.0	12	0.0	$ ASU START PRHIT 16 PHOTOS	247C
136	15	43	23.0	7	51.4	$ ROP 51.45 SITE 16-1	248C
136	15	46	0.0	8	17.8	$ PIP 17.84	249C
136	15	47	30.0	9	25.4	$ YAP 25.45	250C
136	15	58	20.0	7	19.5	$ ROM 19.49 SITE 16-2	251C
136	15	59	53.0	8	1.2	$ PIP 1.21	252C
136	16	00	53.0	9	33.7	$ YAM 33.73	253C
136	16	57	54.0	7	28.3	$ ROM 28.3 SITE 16-3	254C
136	16	59	47.0	8	12.6	$ PIM 12.56	255C
136	17	10	36.0	7	30.4	$ ROM 30.43 SITE 16-4	256C
136	17	12	31.0	8	3.6	$ PIM 3.56	257C
136	17	41	36.0	7	29.9	$ ROM 29.9 SITE 16-5	258C
136	17	43	31.0	8	5.7	$ PIP 5.7	259C
136	18	13	52.0	7	57.2	$ ROP 57.25 RETURN SEQ.	260C
136	18	16	38.0		2.1	$ YAP 2.11	261C
136	18	17	40.0	8	32.9	$ PIM 32.09	262C
136	23	19	11.0	12	0.0	$ ASU	263C
136	23	38	32.0	8	35.0	$ PIM 35.0 THERMAL	264C
137	04	26	0.0	12	0.0	$ ASU	265C
137	04	30	25.0	7	33.2	$ ROP 33.16 SITE 17-1	266C
137	04	32	29.0	9	4.4	$ YAM 4.37	267C
137	04	33	30.0	8	10.2	$ PIP 10.15	268C
137	04	40	25.0	7	28.3	$ ROM 28.31 SITE 17-2	269C
137	04	42	17.0	8	12.6	$ PIM 12.56	270C
137	05	34	35.0	7	30.4	$ ROM 30.43 SITE 17-3	271C
137	05	36	30.0	8	3.6	$ PIM 3.56	272C
137	05	43	23.0	7	29.9	$ ROM 29.89 SITE 17-4	273C
137	05	45	18.0	8	5.7	$ PIP 5.71	274C
137	06	45	27.0	7	22.7	$ ROLL -22.7 SITE SITE 17-5	275C
137	06	47	04.0	9	28.0	$ YAW -28.0	276C
137	06	48	54.0	8	4.5	$ PITCH +4.5	277C
137	06	54	51.0	7	82.0	$ ROLL +82.0 RETURN SEQ.	278C
137	06	58	27.0	9	11.2	$ YAW +11.2	279C
137	06	59	44.0	8	6.2	$ PITCH -6.2 THERMAL -35	280C
137	11	26	06.0	12	0.0	$ ASU	281C
137	11	48	30.0	8	35.0	$ PITCH -35.0 THERMAL	282C
137	15	45	18.0	12	0.0	$ ASV	283C
137	15	49	28.0	7	51.2	$ ROP 51.2 PHOTO 18-1	284C
137	15	52	9.0	8	18.2	$ PIP 18.2	285C
137	15	53	36.0	9	24.5	$ YAP 24.5	286C
137	16	01	5.0	7	19.5	$ ROM 19.5 PHOTO 18-2	287C
137	16	02	38.0	8	1.2	$ PIP 1.2	288C
137	16	03	41.0	9	33.7	$ YAM 33.7	289C
137	17	02	49.0	7	28.3	$ ROM 28.3 PHOTO 18-3	290C
137	17	04	33.0	8	12.6	$ PIM 12.6	291C
137	17	14	31.6	7	30.4	$ ROM 30.4 PHOTO 18-4	292C
137	17	16	20.0	8	3.6	$ PIM 3.6	293C
137	17	45	17.5	7	29.9	$ ROM 29.9 PHOTO 18-5	294C
137	17	47	9.6	8	5.7	$ PIP 5.7	295C
137	18	17	23.0	7	57.0	$ ROP 57.0 PHOTO 18-RETURN	296C
137	18	20	11.6	9	2.5	$ YAP 2.5	297C
137	18	21	9.0	8	33.8	$ PIM 33.8	298C
137	23	07	0.0	12	0.0	$ ASU	299C
137	23	12	0.0	7	192.0	$ ROM 191.95 BACKSIDE PHOTO	300C
137	23	22	15.0	8	45.0	$ PIP 45.0	301C
137	23	26	6.0	8	45.0	$ PIM 45.0	302C
137	23	28	32.6	7	192.0	$ ROP 191.95	303C
137	23	35	52.0	12	0.0	$ ASU	304C
138	00	02	32.0	8	35.0	$ PIM 35.0 THERMAL	305C
138	04	29	50.0	12	0.0	$ ASU	306C
138	04	34	24.0	7	30.7	$ ROP 30.72 19-1 OVERSTORED	307C
138	04	36	19.0	9	5.1	$ YAM 5.11	308C
138	04	37	20.0	8	10.8	$ PIP 10.80	309C
138	04	57	15.0	7	28.3	$ ROM 28.34 19-2	310C
138	04	59	1.0	8	12.6	$ PIM 12.56	311C
138	05	38	32.0	7	30.4	$ ROM 30.43	312C
138	05	40	27.0	8	3.6	$ PIM 3.56	313C
138	06	08	41.0	7	29.9	$ ROM 29.86 19-4	314C
138	06	10	27.0	8	5.7	$ PIP 5.72	315C
138	06	48	25.0	7	22.7	$ ROLL -22.71 19-5	316C
138	06	50	09.0	9	28.0	$ YAW -28.05	317C
138	06	51	55.0	8	4.5	$ PITCH +4.47	318C
138	06	58	04.0	7	81.9	$ ROLL +81.92 RETURN SEQ.	319C
138	07	01	40.0	9	11.6	$ YAW +11.62	320C
138	07	02	54.0	8	7.2	$ PITCH -7.20	321C

138	11	40	34.0	12	0.0	$ ASU	322C
138	12	03	29.0	8	35.0	$ PITCH -35.0 THERMAL	323C
138	15	49	54.0	12	0.0	$ ASU ORBIT 20 PHOTOS	324C
138	15	54	16.0	7	52.3	$ ROLL +52.3 SITE 20-1	325C
138	15	56	49.0	8	18.6	$ PITCH +18.3 SITE 20-1	326C
138	15	58	29.0	9	23.5	$ YAW +23.5 SITE 20-1	327C
138	16	21	31.0	7	19.5	$ ROLL -19.5 SITE 20-2	328C
138	16	23	4.0	8	1.2	$ PITCH +1.2 SITE 20-2	329C
138	16	24	2.0	9	33.7	$ YAW -33.7 SITE 20-2	330C
138	17	09	37.4	7	28.3	$ ROM 28.3 SITE 20-3	331C
138	17	11	31.0	8	12.6	$ PIM 12.6 SITE 20-3	332C
138	17	31	25.6	7	30.4	$ ROM 30.4 SITE 20-4	333C
138	17	33	20.6	8	3.6	$ PIM 3.6 SITE 20-4	334C
138	18	12	22.5	7	29.9	$ ROM 29.9 SITE 20-5	335C
138	18	14	17.7	8	5.7	$ PIP 5.7 SITE 20-5	336C
138	18	21	10.0	7	56.8	$ ROP 56.8 REVERSE MAN.	337C
138	18	23	52.0	9	2.7	$ YAP 2.7	338C
138	18	24	53.0	8	34.8	$ PIM 34.8	339C
139	04	34	04.0	12	0.0	$ ASU ORBIT 21 PHOTO	340C
139	04	38	37.0	7	31.7	$ ROP 31.75 PHOTO 21-1	341C
139	04	40	27.0	9	5.8	$ YAM 5.77 PHOTO 21-1	342C
139	04	41	37.0	8	11.5	$ PIP 11.53 PHOTO 21-1	343C
139	05	01	29.0	7	28.3	$ ROM 28.34 PHOTO 21-2	344C
139	05	03	15.0	8	12.6	$ PIM 12.60 PHOTO 21-2	345C
139	05	42	40.0	7	30.4	$ ROM 30.43 PHOTO 21-3	346C
139	05	44	35.0	8	3.6	$ PIM 3.57 PHOTO 21-3	347C
139	06	06	22.0	7	29.9	$ ROM 29.86 PHOTO 21-4	348C
139	06	08	17.0	8	5.7	$ PIP 5.72 PHOTO 21-4	349C
139	06	52	15.0	7	22.7	$ ROM 22.70 PHOTO 21-5	350C
139	06	53	47.0	9	28.0	$ YAM 28.03 PHOTO 21-5	351C
139	06	55	43.0	8	4.5	$ PIP 4.45 PHOTO 21-5	352C
139	07	01	40.0	7	81.8	$ ROP 81.83 TO CRUISE	353C
139	07	05	14.0	9	11.9	$ YAP 11.85 TO CRUISE	354C
139	07	06	28.0	8	13.2	$ PIM 13.18 TO CRUISE-40 OFF SUN	355C
139	11	42	57.0	12	0.0	$ ASU	356C
139	12	05	27.0	8	35.0	$ PITCH -35 THERMAL	357C
139	15	54	8.0	12	0.0	$ ASU	358C
139	15	58	18.0	7	53.2	$ ROP 53.15 PHOTO 22-1	359C
139	16	00	59.0	8	19.1	$ PIP 19.1	360C
139	16	02	31.0	9	22.6	$ YAP 22.6	361C
139	16	26	43.0	7	19.5	$ ROM 19.5 PHOTO 22-2	362C
139	16	28	21.0	8	1.2	$ PIP 1.2	363C
139	16	29	7.0	9	33.7	$ YAM 33.7	364C
139	17	13	57.0	7	28.3	$ ROM 28.3 PHOTO 22-3	365C
139	17	15	52.0	8	12.5	$ PIM 12.5	366C
139	17	35	21.4	7	30.4	$ ROM 30.4 PHOTO 22-4	367C
139	17	37	48.0	8	3.6	$ PIM 3.6	368C
139	18	06	13.0	7	29.9	$ ROM 29.9 PHOTO 22-5	369C
139	18	08	9.0	8	5.7	$ PIP 5.7	370C
139	18	25	10.0	7	56.7	$ ROP 56.7 22-RETURN	371C
139	18	27	52.0	9	2.8	$ YAP 2.8	372C
139	18	28	50.0	8	40.8	$ PIM 40.8	373C
139	23	11	7.0	12	0.0	$ ASU	374C
139	23	15	35.0	7	161.2	$ ROP 161.2 BACKSIDE (22-6)	375C
139	23	21	43.0	9	18.3	$ YAM 18.3	376C
139	23	25	54.0	8	42.0	$ PIP 42.0	377C
139	23	28	47.0	8	42.0	$ PIM 42.0 REVERSE	378C
139	23	31	5.0	9	18.3	$ YAP 18.3	379C
139	23	32	37.0	7	161.2	$ ROM 161.2	380C
139	23	38	44.0	12	0.0	$ ASU	381C
140	00	04	30.0	8	40.0	$ PIM 40.0	382C
140	04	38	17.0	12	0.0	$ ASU PRE PHOTO ORB 23	383C
140	04	42	40.0	7	31.3	$ ROP 31.27 PHOTO SITE 23-1	384C
140	04	44	35.0	9	6.4	$ YAM 6.39 PHOTO SITE 23-1	385C
140	04	45	44.0	8	12.3	$ PIP 12.26 PHOTO SITE 23-1	386C
140	05	05	33.0	7	28.3	$ ROM 28.34 PHOTO SITE 23-2	387C
140	05	07	25.0	8	12.5	$ PIM 12.53 PHOTO SITE 23-2	388C
140	05	46	47.0	7	30.4	$ ROM 30.43 PHOTO SITE 23-3	389C
140	05	48	42.0	8	3.6	$ PIM 3.59 PHOTO SITE 23-3	390C
140	06	08	29.0	7	29.9	$ ROM 29.86 PHOTO SITE 23-4	391C
140	06	10	19.0	8	5.7	$ PIP 5.74 PHOTO SITE 23-4	392C
140	06	55	45.0	7	22.7	$ ROM 22.71 PHOTO SITE 23-5	393C
140	06	57	27.0	9	28.0	$ YAM 28.02 PHOTO SITE 23-5	394C
140	06	59	13.0	8	4.4	$ PIP 4.42 PHOTO SITE 23-5	395C
140	07	05	19.0	7	81.8	$ ROP 81.76 RETURN TO CRUISE	396C
140	07	08	49.0	9	12.0	$ YAP 12.02 RETURN TO CRUISE	397C
140	07	10	10.0	8	14.2	$ PIM 14.16 RETURN TO CRUISE	398C
140	11	42	59.0	12	0.0	$ ASU	399C
140	12	01	28.0	8	40.0	$ PITCH -40 THERMAL	400C

140	15	57	35.0	12	0.0	$ ASU ORB 24 PHOTOS	401C
140	16	01	51.0	7	52.8	$ ROP 52.8 SITE 24-1	402C
140	16	04	27.0	8	19.7	$ PIP 19.7	403C
140	16	05	27.0	9	24.4	$ YPA 24.4	404C
140	16	31	25.0	7	18.7	$ ROM 18.7 SITE 24-2	405C
140	16	32	58.0	8	1.6	$ PIP 1.6	406C
140	16	34	01.0	9	36.0	$ YAM 36.0	407C
140	17	17	57.0	7	28.3	$ ROM 28.3 SITE 24-3	408C
140	17	19	46.0	8	12.5	$ PIM 12.5	409C
140	17	39	41.2	7	30.4	$ ROM 30.4 SITE 24-4	410C
140	17	41	36.2	8	3.6	$ PIM 3.6	411C
140	18	10	17.4	7	29.9	$ ROM 29.9 SITE 24-5	412C
140	18	12	7.6	8	5.7	$ PIP 5.7	413C
140	18	28	54.0	7	56.6	$ ROP 56.6 RETURN SEQ	414C
140	18	31	41.0	9	2.9	$ YAP 2.9	415C
140	18	32	41.0	8	41.8	$ PIM 41.8	416C
140	23	36	5.0	12	0.0	$ ASU	417C
140	23	58	29.0	8	40.0	$ PIM 40.0 THERMAL	418C
141	04	40	58.0	12	0.0	$ ASU	419C
141	04	45	21.0	7	32.4	$ ROP 32.35 25-1 OVERSTORED	420C
141	04	47	19.0	9	6.9	$ YAM 6.86	421C
141	04	48	28.0	8	13.2	$ PIP 13.19	422C
141	05	09	12.0	7	28.3	$ ROM 28.29 25-2	423C
141	05	11	5.0	8	12.5	$ PIM 12.53	424C
141	05	49	40.0	7	30.4	$ ROM 30.43 25-3	425C
141	05	51	27.0	8	3.6	$ PIM 3.61	426C
141	06	11	59.0	7	29.9	$ ROM 29.91 25-4	427C
141	06	13	51.0	8	5.7	$ PIP 5.74	428C
141	06	58	36.0	7	19.4	$ ROM 19.43 25-5	429C
141	07	00	11.0	8	3.9	$ PIP 3.90	430C
141	07	01	8.0	9	32.4	$ YAM 32.39	431C
141	07	08	58.0	7	81.6	$ ROP 81.58 REVERSE	432C
141	07	12	30.0	9	13.2	$ YAP 13.18	433C
141	07	13	48.0	8	11.0	$ PIM 11.02	434C
141	11	38	0.0	12	0.0	$ ASU UPDATE ORB 26	435C
141	11	54	28.0	8	40.0	$ PITCH -40.0 THERMAL	436C
141	16	18	42.0	12	0.0	$ ASU	437C
141	16	24	59.0	7	61.5	$ ROP 61.53 PHOTO 26-1	438C
141	16	27	52.0	9	22.0	$ YAP 22.0	439C
141	16	29	30.0	8	22.1	$ PIP 22.1	440C
141	16	34	27.0	7	18.7	$ ROM 18.7 PHOTO 26-2	441C
141	16	36	2.0	8	1.6	$ PIP 1.6	442C
141	16	36	53.0	9	36.0	$ YAM 36.0	443C
141	17	21	15.0	7	28.3	$ ROM 28.3 PHOTO 26-3	444C
141	17	22	58.0	8	12.5	$ PIM 12.5	445C
141	17	42	56.0	7	30.4	$ ROM 30.4 PHOTO 26-4	446C
141	17	44	51.0	8	3.6	$ PIM 3.6	447C
141	18	13	31.0	7	29.9	$ ROM 29.9 PHOTO 26-5	448C
141	18	15	23.0	8	5.7	$ PIP 5.7	449C
141	18	32	5.6	7	56.5	$ ROP 56.5 PHOTO 26-RETURN	450C
141	18	34	52.0	9	2.8	$ YAP 2.8	451C
141	18	35	47.0	8	42.8	$ PIM 42.8 TO -40	452C
141	23	14	11.0	12	0.0	$ ASU	453C
141	23	18	39.5	7	162.0	$ ROP 162 PHOTO 26-BACKSIDE	454C
141	23	24	44.5	9	19.1	$ YAM 19.1	455C
141	23	28	55.6	8	39.9	$ PIP 39.9	456C
141	23	31	51.0	8	39.9	$ PIM 39.9 BACKSIDE RETURN	457C
141	23	33	46.0	9	19.1	$ YAP 19.1	458C
141	23	35	39.2	7	162.0	$ ROM 162	459C
141	23	41	50.0	12	0.0	$ ASU	460C
142	00	03	28.6	8	40.0	$ PIM 40 THERMAL	461C
142	04	44	26.0	12	0.0	$ ASU	462C
142	04	48	59.0	7	31.8	$ ROP 31.76 PHOTO SITE 27-1	463C
142	04	50	54.0	9	7.3	$ YAM 7.33 PHOTO SITE 27-1	464C
142	04	52	3.0	8	14.1	$ PIP 14.12 PHOTO SITE 27-1	465C
142	05	12	2.0	7	28.3	$ ROM 28.25 PHOTO SITE 27-2	466C
142	05	13	51.0	8	12.5	$ PIM 12.50 PHOTO SITE 27-2	467C
142	05	53	19.0	7	30.4	$ ROM 30.43 PHOTO SITE 27-3	468C
142	05	55	14.0	8	3.6	$ PIM 3.63 PHOTO SITE 27-3	469C
142	06	14	49.0	7	30.0	$ ROM 29.96 PHOTO SITE 27-4	470C
142	06	16	44.0	8	5.7	$ PIP 5.74 PHOTO SITE 27-4	471C
142	07	02	14.0	7	19.5	$ ROM 19.47 PHOTO SITE 27-5	472C
142	07	03	46.0	8	3.9	$ PIP 3.92 PHOTO SITE 27-5	473C
142	07	04	44.0	9	32.4	$ YAM 32.39 PHOTO SITE 27-5	474C
142	07	11	39.0	7	81.5	$ ROP 81.53 RET TO CRUISE P=-40	475C
142	07	15	11.0	9	13.1	$ YAP 13.11 RET TO CRUISE P=-40	476C
142	07	16	30.0	8	12.1	$ PIM 12.08 RET TO CRUISE P=-40	477C
142	11	41	27.0	12	0.	$ ACQUIRE SUN ORB 27/28	478C
142	11	56	29.0	8	40.0	$ PITCH -40 THERMAL	479C
142	16	01	25.0	12	0.0	$ ASV PHOTOS ORB 28	480C
142	16	05	42.0	7	62.4	$ ROLL +62.4 SITE 28-1	481C

142	16	08	40.0	9	21.1	$ YAW +21.1 SITE 28-1	482C
142	16	10	18.0	8	24.4	$ PITCH +24.4 SITE 28-1	483C
142	16	38	08.0	7	18.3	$ ROLL -18.3 SITE 28-2	484C
142	16	39	40.0	8	.5	$ PITCH +0.5 SITE 28-2	485C
142	16	40	32.0	9	36.7	$ YAW -36.7 SITE 28-2	486C
142	17	23	33.0	7	28.2	$ ROLL -28.2 SITE 28-3	487C
142	17	25	22.0	8	12.5	$ PITCH -12.5 SITE 28-3	488C
142	17	45	19.4	7	30.4	$ ROM 30.4 SITE 28-4	489C
142	17	47	12.0	8	3.6	$ PIM 3.6 SITE 28-4	490C
142	18	15	51.0	7	30.0	$ ROM 30.0 SITE 28-5	491C
142	18	17	45.0	8	5.7	$ PIP 5.7 SITE 28-5	492C
142	18	34	29.0	7	56.5	$ ROP 56.5 RETURN MANUEVER	493C
142	18	37	14.0	9	2.7	$ YAP 2.7 RETURN MANUEVER	494C
142	18	38	13.5	8	43.9	$ PIM 43.9 RETURN MANUEVER	495C
142	23	36	28.0	12	0.0	$ ASU	496C
142	23	54	27.2	8	40.0	$ PIM 40.0 THERMAL	497C
143	04	45	35.0	12	0.0	$ ASU	498C
143	04	50	0.0	7	32.1	$ ROP 32.06 29-1	499C
143	04	51	55.0	9	7.8	$ YAM 7.81	500C
143	04	53	5.0	8	15.1	$ PIP 15.09	501C
143	05	13	57.0	7	28.2	$ ROM 28.20 29-2	502C
143	05	15	44.0	8	12.5	$ PIM 12.48	503C
143	05	46	12.0	7	30.4	$ ROM 30.43 29-3	504C
143	05	48	7.0	8	3.6	$ PIM 3.64	505C
143	06	26	31.0	7	30.0	$ ROM 30.00 29-4	506C
143	06	28	27.0	8	5.7	$ PIP 5.72	507C
143	07	03	23.0	7	19.5	$ ROM 19.52 29-5	508C
143	07	04	55.0	8	3.9	$ PIP 3.93	509C
143	07	05	56.0	9	32.4	$ YAM 32.42	510C
143	07	13	45.0	7	81.5	$ ROP 81.50 REVERSE	511C
143	07	17	16.0	9	13.1	$ YAP 13.06	512C
143	07	18	37.0	8	13.1	$ PIM 13.14 -40.0 OFF SUN-LINE	513C
143	09	28	58.0	12	0.0	$ ASU APOLUNE PHOTO	514C
143	09	33	12.0	7	156.3	$ ROM 156.27 SITE 29.6	515C
143	09	41	53.0	8	39.0	$ PIP 38.97	516C
143	09	44	46.0	8	39.0	$ PIM 38.97 REVERSE	517C
143	09	47	04.0	7	156.3	$ ROP 156.27	518C
143	09	53	10.0	12	0.0	$ ASU FOR ROLL ERROR	519C
143	10	05	30.0	8	40.0	$ PIM 40.0 THERMAL	520C
143	16	04	06.0	12	0.0	$ ASU FOR ORB. 30	521C
143	16	08	34.0	7	62.0	$ ROP 61.97 SITE 30.1	522C
143	16	11	32.0	9	20.2	$ YAP 20.2	523C
143	16	15	04.0	8	23.2	$ PIP 23.0	524C
143	16	35	44.0	7	18.7	$ ROM 18.7 SITE 30.2	525C
143	16	37	16.0	8	1.7	$ PIP 1.65	526C
143	16	38	08.0	9	36.0	$ YAM 36.0	527C
143	17	25	16.0	7	28.2	$ ROM 28.2 SITE 30.3	528C
143	17	27	06.0	8	12.5	$ PIM 12.5	529C
143	17	46	41.0	7	30.4	$ ROM 30.4 SITE 30.4	530C
143	17	48	36.0	8	3.6	$ PIM 3.6	531C
143	18	17	18.0	7	30.0	$ ROM 30.0 SITE 30.5	532C
143	18	19	17.0	8	5.7	$ PIP 5.7	533C
143	18	35	55.0	7	56.2	$ ROP 56.2 RETURN SEQUENCE	539C
143	18	38	37.0	9	3.0	$ YAP 3.0	535C
143	18	39	53.0	8	44.8	$ PIM 44.8	536C
144	01	14	46.0	12	0.0	$ ASU	537C
144	01	19	7.6	7	0.7	$ ROP 0.7 PROG HALT MODE	538C
144	01	22	27.0	8	43.6	$ PIP 43.6 PHOTO 31-A1	539C
144	01	29	29.6	8	43.6	$ PIM 43.6	540C
144	01	38	34.0	12	0.0	$ ASU	541C
144	02	00	28.0	8	40.0	$ PIM 40.0 THERMAL	542C
144	04	47	30.0	12	0.0	$ AUS	543C
144	04	51	57.4	7	33.0	$ ROP 32.97 PHOTO 31-1	544C
144	04	53	59.0	9	8.4	$ YAM 8.4	545C
144	04	55	8.2	8	16.0	$ PIP 16.0	546C
144	05	14	43.0	7	28.2	$ ROM 28.2 PHOTO 31-2	547C
144	05	16	32.4	8	12.5	$ PIM 12.5	548C
144	05	46	58.2	7	30.4	$ ROM 30.4 PHOTO 31-3	549C
144	05	48	53.2	8	3.6	$ PIM 3.6 PHOTO 31-3	550C
144	06	28	41.0	7	30.0	$ ROM 30.0 PHOTO SITE 31-4	151C
144	06	30	33.6	8	5.7	$ PIP 5.7 PHOTO SITE 31-4	552C
144	07	05	41.0	7	19.6	$ ROM 19.6 PHOTO SITE 31-5	553C
144	07	07	14.0	8	4.0	$ PIP 4.0 PHOTO SITE 31-5	554C
144	07	08	15.0	9	32.4	$ YAM 32.4 PHOTO SITE 31-5	555C
144	07	14	46.0	7	81.5	$ ROP 81.5 TO CRUISE COND	556C
144	07	18	22.0	9	13.1	$ YAP 13.1 TO CRUISE COND	557C
144	07	19	43.0	8	14.3	$ PIM 14.3 TO CRUISE COND	558C
144	09	30	31.0	12	0.0	$ ASU	559C
144	09	34	56.0	7	156.3	$ ROM 156.30 APOLUNE PHOTO 31-A2	560C

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144 09 43 34.0  8  37.9    $ PIP 37.95 APOLUNE PHOTO 31-A2 561C
144 09 46 01.0  8  37.9    $ PIM 37.95 APOLUNE PHOTO 31-A2 562C
144 09 48 10.0  7  156.3   $ ROP 156.30 APOLUNE PHOTO 31-A2563C
144 09 54 19.0  12  0.0    $ ASU                           564C
144 10 03 55.0  8  40.0    $ PIM 40.0                      565C
144 13 15 09.0  12  0.0    $ ASU                           566C
144 13 19 34.0  7  134.1   $ ROP 134.05 MAKE UP PHOTO 31-7 567C
144 13 27 26.0  8  42.0    $ PIP 41.98 MAKE UP PHOTO 31-7  568C
144 13 30 07.0  8  42.0    $ PIM 41.98 MAKE UP PHOTO 31-7  569C
144 13 32 26.0  7  134.1   $ ROM 134.05 MAKE UP PHOTO 31-7 570C
144 13 37 48.0  12  0.0    $ ASU                           571C
144 13 49 05.0  8  40.0    $ PIM 40 THERMAL                572C
144 16 01 25.0  12  0.0    $ ASU                           573C
144 16 05 39.0  7  61.8    $ ROP 61.77 PHOTO SITE 32-1     574C
144 16 08 34.0  9  21.4    $ YAP 21.39 PHOTO SITE 32-1     575C
144 16 10 12.0  8  24.2    $ PIP 24.23 PHOTO SITE 32-1     576C
144 16 42 55.0  7  19.6    $ ROM 19.55 PHOTO SITE 32-2     577C
144 16 44 35.0  9  38.0    $ YAM 38.00 PHOTO SITE 32-2     578C
144 16 47 0.0   8  2.5     $ PIP 2.53 PHOTO SITE 32-2      579C
144 17 25 54.0  7  28.2    $ ROM 28.16 PHOTO SITE 32-3     580C
144 17 27 46.0  8  12.5    $ PIM 12.48 PHOTO SITE 32-3     581C
144 17 47 21.0  7  30.4    $ ROM 30.43 PHOTO SITE 32-4     582C
144 17 49 16.0  8  3.6     $ PIM 3.64 PHOTO SITE 32-4      583C
144 18 17 56.0  7  30.0    $ ROM 30.03 PHOTO SITE 32-5     584C
144 18 19 48.0  8  5.7     $ PIP 5.72 PHOTO SITE 32-5      585C
144 18 36 42.0  7  56.2    $ ROP 56.23 RETURN              586C
144 18 39 26.0  9  2.7     $ YAP 2.73 RETURN               587C
144 18 40 27.0  8  26.0    $ PIM 26.01 RETURN              588C
145 01 16 18.0  12  0.0    $ ASU                           589C
145 01 20 34.0  7  134.0   $ ROP 134.0 SITE 32-6           590C
145 01 28 26.0  8  43.0    $ PIP 43.0 SITE 32-6            591C
145 01 31 08.0  8  43.0    $ PIM 43.0 REVERSE              592C
145 01 33 32.0  7  134.0   $ ROM 134.0 REVERSE             593C
145 01 38 57.0  12  0.0    $ ASU                           594C
145 01 53 29.0  8  40.0    $ PIM  40.0  THERMAL            595C
145 04 48 19.0  12  0.0    $ ASU                           596C
145 04 52 12.4  7  31.3    $ ROP 31.3 SITE 33-1            597C
145 04 54 44.2  9  9.0     $ YAM 9.0                       598C
145 04 55 54.2  8  16.9    $ PIP 16.9                      599C
145 05 15 34.0  7  28.2    $ ROM 28.2 SITE 33-2            600C
145 05 17 24.2  8  12.5    $ PIM 12.5                      601C
145 05 47 47.0  7  30.4    $ ROM 30.4 SITE 33-3            602C
145 05 49 39.2  8  3.6     $ PIM 3.6                       603C
145 06 29 36.0  7  30.0    $ ROM 30.0 SITE 33-4            604C

145 06 31 29.0  8  5.7     $ PIP 5.7                       605C
145 07 07 16.0  7  18.6    $ ROM 18.6 SITE 33-5            606C
145 07 08 45.6  8  3.9     $ PIP 3.9                       607C
145 07 09 47.4  9  36.7    $ YAM 36.7                      608C
145 07 17 20.6  7  81.5    $ ROP 81.5 REVERSE              609C
145 07 20 51.0  9  14.4    $ YAP 14.4                      610C
145 07 22 13.0  8  11.0    $ PIM 11.0                      611C
145 09 32 3.0   12  0.0    $ ASU                           612C
145 09 36 30.4  7  156.3   $ ROM 156.3  BACKSIDE           613C
145 09 45 11.6  8  37.0    $ PIP 37.0                      614C
145 09 47 44.0  8  37.0    $ PIM 37.0                      615C
145 09 49 51.0  7  156.3   $ ROP 156.3                     616C
145 09 55 51.0  12  0.0    $ ASU                           617C
145 10 17 30.0  8  40.0    $ PIM 40.0  THERMAL             618C
145 16 05 16.0  12  0.0    $ ASU ORB 34 PHOTO              619C
145 16 10 12.0  7  63.4    $ ROP 63.45  34-1               620C
145 16 13 10.0  9  20.4    $ YAP 20.40                     621C
145 16 14 38.0  8  24.6    $ PIP 24.61                     622C
145 16 34 36.0  7  19.6    $ ROM 19.55  34-2               623C
145 16 36 8.0   9  38.0    $ YAM 38.02                     624C
145 16 38 17.0  8  2.5     $ PIP 2.53                      625C
145 17 16 4.0   7  28.2    $ ROM 28.16  34-3               626C
145 17 17 50.0  8  12.5    $ PIM 12.48                     627C
145 17 48 13.0  7  30.4    $ ROM 30.43  34-4               628C
145 17 50 02.0  8  3.6     $ PIM 3.63                      629C
145 18 18 44.0  7  30.0    $ ROM 30.03  34-5               630C
145 18 20 37.0  8  5.7     $ PIP 5.72                      631C
145 18 38 25.0  7  56.0    $ ROP 56.02 RETURN              632C
145 18 41 13.0  9  2.9     $ YAP 2.88                      633C
145 18 42 07.0  8  47.1    $ PIM 47.06                     634C
146 01 17 50.0  12  0.0    $ ACQUIRE SUN  ORB 35 APOLUNE   635C
146 01 22 15.0  7  134.0   $ ROP 134.0                     636C
146 01 30 10.0  8  42.1    $ PIP 42.1                      637C
146 01 32 52.0  8  42.1    $ PIM 42.1                      638C
146 01 35 10.0  7  134.0   $ ROM 134.0                     639C
146 01 40 29.0  12  0.0    $ ASU  ROLL UPDATE SEQ.         640C
146 02 08 29.0  8  40.0    $ PIM 40.0 THERMAL              641C
```

146	05	23	13.0	12	0.0	$ ASU ORBIT 35 PHOTOS	642C
146	05	27	23.0	7	6.7	$ ROP 6.7 35-1	643C
146	05	28	37.0	9	0.5	$ YAM 0.5	644C
146	05	29	23.0	8	7.6	$ PIP 7.6	645C
146	05	58	5.3	7	30.4	$ ROM 30.4 35-2	646C
146	05	59	58.2	8	3.7	$ PIM 3.7	647C
146	06	06	30.0	7	25.9	$ ROP 25.9 RETURN	648C
146	06	08	10.0	9	1.7	$ YAM 1.7	649C
146	06	09	8.4	8	48.3	$ RIM 48.3	650C
146	09	33	58.0	12	0.0	$ ASU	651C
146	09	38	08.0	7	156.3	$ ROM 156.3 BACKSIDE 35-A2	652C
146	09	46	43.0	8	36.1	$ PIP 36.10 BACKSIDE 35-A2	653C
146	09	49	16.0	8	36.1	$ PIM 36.10 BACKSIDE 35-A2	654C
146	09	51	24.0	7	156.3	$ ROP 156.3 BACKSIDE 35-A2	655C
146	09	57	23.0	12	0.0	$ ASU	656C
146	10	32	32.0	8	44.0	$ PIM 44.0 THERMAL	657C
146	16	35	10.0	8	5.0	$ PIP 5.0 POWER FOR BIMAT CUT.	658C
146	23	43	22.0	12	0.0	$ ASU ROLL UPDATE FINAL READOUT	659C
146	23	55	28.0	8	30.0	$ PIM 30.0	660C
147	00	08	05.0	7	3.5	$ ROM 3.45	661C
149	08	36	43.0	7	2.5	$ ROP 2.5 ANTENNA POINTING	662C
149	11	34	29.0	8	35.4	$ PIP 35.4 RETURN TO SUNLINE	663C
149	11	40	41.0	12	0.0	$ ASU	664C
149	11	47	33.0	7	7.0	$ ROP 7.0	665C
149	12	09	15.0	9	3.0	$ YAP 3.0	666C
149	12	16	24.0	12	0.0	$ ASU	667C
149	12	20	46.0	8	40.0	$ PIP 40.0 THERMAL	668C
149	12	26	43.0	7	7.2	$ ROP 7.24	669C
151	20	12	42.0	8	7.8	$ PIP 7.8 THERMAL	C

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TRACKING DATA EDITING

This section contains information regarding editing of the tracking data for Mission IV. The tracking data was edited with the TDPX and ODGX programs for the purpose of orbit determination. The following information is listed in this section.

- Benchmark E.1 source deck;
- TDPX/ODGX input deck listing;
- Data file summaries;
- B1 and B2 save tape listing;
- TDPX Link 1 and 2 deck listings.

The following discussion of tracking data editing is divided into the cislunar and photo orbit phase of the mission.

Cislunar

Launch to Injection

The ETR tracking data obtained during this mission phase were used by the DSN to determine the parking orbit and lunar injection trajectories. The data were not processed by the project (TBC). However, the initial state vector at cislunar injection used by the project was determined from these data.

All the ETR data are on the B1 (TDPX) master file tapes for the cislunar phase. However, they were "ignored" when ODGX was run during the phase; so of the two "save" B2 ODP file tapes, only one contains these data (see Appendix C). This tape, B2 = 11293, was produced using the standard input deck minus all IGNORE cards.

The following list contains the station identity and the external-internal station numbers for the ETR stations.

Identity	External No.	Internal No.
Antigua	74	6
Ascension	79	7
RIS Twin Falls (ship) corrected	77	8
Pretoria	76	9
Carnavan	83	10

Injection to Midcourse

Angle and doppler data were received at 10- and 60-second sample rates during this mission phase. The 10-second sample rate was employed for a short period after injection and during the midcourse maneuver. Ranging data were received from all the prime S-band stations at various times. These data were received from stations:

Identity	External No.	Internal No.
Madrid	62	1
Woomera	41	4
Johannesburg (no ranging-receiving only)	51	5
Goldstone	12	12

Unlike Missions I through III, Station 51 did not provide the first usable data after injection. Azimuth/elevation constraints made it impossible for the station to acquire lock, although 8 minutes of C1 (one-way) data were received. Station 41 acquired the spacecraft at 23:10, Day 124 (GMT), and provided all data used for the first orbit determination after injection.

Two mission-independent DSS hardware changes resulted in the use of tracking data editing procedures different than in previous missions. These changes were:

1) DSIF-51 converting from L/S to S-Band capability;
2) Installation of Mark 1-A ranging systems at Stations 12, 41, and 62.

The first change made it necessary to "inform" ODGX of the conversion. This was done via TDPX with the control card "CHANGE S BAND STATION 5." The latter change made it necessary to input the control card "CHANGE USE REMAINING RANGE" in the ODGX deck. The Mark 1-A system generates each ranging point as an independent point while ODGX nominally accepts only the first independent

point after a reset. No problems were encountered with the new procedures; better and more data were received.

A new tracking data format, 13, was introduced during this phase. This format is the same as the nominal S-Band format, 02, with the exception of the range unit field. Format 13 identifies this field as decimal – rather than octal – RU data and was employed when the VCO frequency was placed in the field. "FORMAT-ASSIGN" cards were entered via Link 2 of TDPX to handle this new format.

Midcourse to Deboost

The following unusual events occurred during this phase.

1) Inability to restore the ODP file from the B2 tape via ODGX or to read the B2 tape by ODPL command was noticed on several occasions. In lieu of these procedures, it was deemed advisable to use the more tedious procedure of initializing the master file from tape and continue with normal processing from there until this anomaly was corrected.
2) Approximately 2 hours and 10 minutes of data were lost from Station 12 on Day 127 (GMT) due to transmitter problems. The station continued to "receive only," so C-1 data appears on the master file during this period (refer to "Tracking Data Bar Charts" in this appendix).
3) The frequent track synthesizer frequency changes, plus the lack of accurate predicts, made the ratio of valid to invalid ODGX runs much less than experienced in previous missions. The numerous changes were due to frequency biasing procedures necessary to prevent "locking on" to either Lunar Orbiter II and Lunar Orbiter III. Therefore, a small amount of data was lost due to side-band lock.

Photo Ellipse

Angle and doppler data were received at 60- and 20-second intervals throughout the phase. Angle data were "ignored" by ODGX and a "count time" of 60 seconds was employed at all times so that the amount of data used by ODPL was much less than what actually was received. Ranging data were received in intervals from all stations until Day 131, 12:30 GMT, at which time photo command activity took precedence.

Shortly after the injection maneuver, all stations began using the same track synthesizer frequency, which virtually eliminated the frequency problems described in (3) above. This standardized frequency was changed only twice during the remainder of the mission, except for a short interval on Days 141 and 142 when Station 41 locked on a side-band and changed its frequency to correct the problem.

Unusual occurrences and problem areas were as follows:

1) "ADJUST" type control cards were used to correct the constant C3 doppler bias that was characteristic of Station 62. This "adjusting" was stopped at the end of Day 134 with the thought that a better estimate of the bias could be established. This did not materialize, however, so doppler bias was solved for by ODPL.
2) Shifted data fields (a random error encountered quite often) plus the nature of format acceptability tests resulted in the acceptance by TDP and ODGX of faulty range unit data. These spurious data points show up on the data files but should not influence ODPL running because of their erroneous nature. One data point appeared as a planetary range unit (PRU) and proved to be detrimental to ODPL program operation. This point was removed from the data files.
3) Two SFOF power failures occurred during this phase, but no data was lost.
4) Because Station 12 data between Day 133, 22:30 GMT and Day 134, 00:30 GMT was garbled during transmission, the data lines were punched on cards

and read into TDPX. Station paper tapes still contain the original errors.

5) Station 12 data lines between Day 140, 07:33 and 08:10 GMT, had double zeroes in the hour field, which was corrected by reading in punched cards. If paper tapes are used to generate a master file, this time span should be left out and the corrected data read in on cards. Use of the paper tape data will result in the loss of 37 good data lines and the placement of 43 faulty data lines on the master file.

6) Station 41 ended tracking 1 hour and 10 minutes early on Day 131 (pass 7) to fix a maser problem. None of their data during the pass proved unusable.

7) The editor program, EDTX, was not running properly during a string switch at the end of Day 136, resulting in a shifting of bits in the TOUTS buffer. TDPX printed out only error comments until the system went nonshared and the TOUTS buffer was cleared. No data was lost although the orbit-guidance work schedule was delayed by 4 hours.

In general, data editing was nominal, aided by procedures that protected against the loss of any lengthy spans of data from the current master file.

TDPX AND ODGX BENCHMARK E-1 SOURCE DECKS

The source decks were not re-entered or changed at any time during the cislunar phase.

TDPX SOURCE DECK - MISSION 4

```
*       DECK     TDPX
*       TDPLK1   *
FILE1=9 MICODE=(LO/TBC)
*       TDPLK2
EXTERN-1=0000010000076/8
  BAT2+6=734601007346/8      $FORMAT BY FORMAT NUMBER DC6 OCTAL
  BAT3+6=734601007346/8      $FORMAT BY FORMAT NUMBER DC6 OCTAL
MAT1= 740374430273/8,012234730443/8,017301227303/8,430273012273/8
MAT1+4=430373012273/8,430100730122/8,734201007342/8,017302740122/8
MAT1+8=732606330334/8,346060606060/8
MAT4= 740374430273/8,012234730443/8,017301227303/8,430273012273/8
MAT4+4=430373012273/8,430100730122/8,734201007342/8,017302740122/8
MAT4+8=732606330334/8,346060606060/8
MAT12=740374430273/8,012234730443/8,017301227303/8,430273012273/8
MAT12+4=430373012273/8,430100730122/8,734201007342/8,017302740122/8
MAT12+8=732606330334/8,346060606060/8
MAT13=740374430273/8,012234730443/8,017301227303/8,430273012273/8
MAT13+4=430373012273/8,430100730122/8,734201007342/8,017302740122/8
MAT13+8=732606330334/8,346060606060/8
ASN1= 76167/8,76172/8,76177/8,76174/8,76175/8,76176/8,76200/8,76203/8
ASN1+8=76204/8,76205/8,76202/8,76201/8,76171/8,76170/8,76211/8,76210/8,0
ASN4= 76167/8,76172/8,76177/8,76174/8,76175/8,76176/8,76200/8,76203/8
ASN4+8=76204/8,76205/8,76202/8,76201/8,76171/8,76170/8,76211/8,76210/8,0
ASN12=76167/8,76172/8,76177/8,76174/8,76175/8,76176/8,76200/8,76203/8
ASN12+8=76204/8,76205/8,76202/8,76201/8,76171/8,76170/8,76211/8,76210/8
ASN12+16=0
ASN13=76167/8,76172/8,76177/8,76174/8,76175/8,76176/8,76200/8,76203/8
ASN13+8=76204/8,76205/8,76202/8,76201/8,76171/8,76170/8,76211/8,76210/8
ASN13+16=0
50666/=322000051047/8        $ ERA    REJSAV+3
50667/=-320000051103/8       $ ANA    =077777
*       END
```

ODGX SOURCE DECK - MISSION 4

```
*       DECK     ODGX
*       ODGLK1   *
                 FILE1=9
* A     ODGLK2   B,B
* B     ODGLK1
*       WANT     A,RETURN
*       GO       A
*       END
```

```
*THIS DECK IS FOR CISLUNAR PHASE MISSION 4 ODGX  -  WITH IGNORES
*THE L/O LIBRARY SAVE B1 TAPES ARE 9816,9738, AND 9666
*THE L/O LIBRARY SAVE B2 TAPES ARE 11293 (W/O IGNORES) AND 10793 ,WITH IG
*LAUNCH AT 124,223500571,  M/C AT 125,164500000,  DEBOOST AT 128,15084667
CHANGE NEW ODP FILE
REMOVE ALL CONTROLS
CHANGE EXECUTE
IGNORE STATIONS 2,6,7,8,9,10,11
IGNORE FROM 223000,124,67 TO 020000,125,67 STATION 5
IGNORE CC3 FROM 002100,125,67 TO 002200,125,67 STATION 4
IGNORE RU AT 004202,125,67 STATION 4
IGNORE CC3 AT 010202,125,67,STATION 4
IGNORE CC3 FROM 051202,125,67 TO 051302,125,67 STATION 4
IGNORE CC3 FROM 053302,125,67 TO 053402,125,67 STATION 4
IGNORE C3 FROM 053400,125,67 TO 053600,125,67 STATION 5
IGNORE CC3 FROM 054402,125,67 TO 054502,125,67 STATION 4
IGNORE C3 FROM 055800,125,67 TO 060000,125,67 STATION 5
IGNORE FROM 062200,125,67 TO 062400,125,67 STATION 1
IGNORE C3 FROM 063602,125,67 TO 063702,125,67 STATION 4
IGNORE FROM 070400,125,67 TO 070800,125,67 STATION 1
IGNORE FROM 072600,125,67 TO 073700,125,67 STATION 1
IGNORE FROM 081500,125,67 TO 081800,125,67 STATION 1
IGNORE CC3 FROM 120500,125,67 TO 120600,125,67 STATION 1
IGNORE CC3 FROM 122400,125,67 TO 122500,125,67 STATION 1
IGNORE CC3 FROM 124800,125,67 TO 130000,125,67 STATION 12
IGNORE CC3 FROM 191700,125,67 TO 194000,125,67 STATION 12  $SIDE BAND
IGNORE C3 FROM 201000,125,67 TO 202500,125,67 STATION 4
IGNORE C3 FROM 222000,125,67 TO 223500,125,67 STATION 12
IGNORE RU FROM 001900,126,67 TO 002000,126,67 STATION 4
IGNORE RU FROM 005100,126,67 TO 005200,126,67 STATION 4
IGNORE RU FROM 031500,126,67 TO 031600,126,67 STATION 4
IGNORE C3 FROM 044500,126,67 TO 050900,126,67 STATION 1
IGNORE C3 FROM 071700,126,67 TO 071800,126,67 STATION 4
IGNORE RU AT 103502,126,67 STATION 1
IGNORE RU AT 103702,126,67 STATION 1
IGNORE RU AT 104202,126,67 STATION 1
IGNORE RU AT 104302,126,67 STATION 1
IGNORE RU AT 105002,126,67 STATION 1
IGNORE RU AT 112502,126,67 STATION 1
IGNORE RU AT 114002,126,67 STATION 1
IGNORE RU AT 114202,126,67 STATION 1
IGNORE RU AT 115202,126,67 STATION 1
IGNORE RU AT 121002,126,67 STATION 1
IGNORE RU AT 121702,126,67 STATION 1
IGNORE RU AT 122202,126,67 STATION 1
IGNORE CC3 AT 123202,126,67 STATION 1
IGNORE RU AT 123402,126,67 STATION 1
IGNORE RU AT 125502,126,67 STATION 1
IGNORE RU AT 125702,126,67 STATION 1
IGNORE RU AT 125802,126,67 STATION 1
IGNORE CC3 AT 131102,126,67 STATION 1
IGNORE RU AT 132502,126,67 STATION 1
IGNORE RU AT 133702,126,67 STATION 1
IGNORE RU AT 133802,126,67 STATION 1
IGNORE RU FROM 150200,126,67 TO 150300,126,67 STATION 12
IGNORE C3 FROM 214900,126,67 TO 215300,126,67 STATION 4
IGNORE CC3 AT 053402,127,67 STATION 1
IGNORE CC3 AT 054902,127,67 STATION 1
IGNORE CC3 AT 055302,127,67 STATION 1
IGNORE CC3 AT 084702,127,67 STATION 1
```

```
IGNORE CC3 AT 090402,127,67 STATION 1
IGNORE FROM 171200,127,67 TO 202200,127,67 STATION 12  $ C1 DATA
IGNORE CC3 AT 093902,127,67 STATION 1
IGNORE CC3 AT 070302,128,67 STATION 1
IGNORE CC3 AT 075702,128,67 STATION 1
IGNORE CC3 AT 083802,128,67 STATION 1
IGNORE CC3 AT 101702,128,67 STATION 1
IGNORE CC3 AT 104402,128,67 STATION 1
IGNORE CC3 AT 105102,128,67 STATION 1
 GNORE CC3 AT 112202,128,67 STATION 1
IGNORE CC3 AT 125502,128,67 STATION 1
IGNORE CC3 AT 132002,128,67 STATION 1
IGNORE C3 FROM 153400,128,67 TO 153500,128,67 STATION 1
IGNORE C3 FROM 165000,128,67 TO 165200,128,67 STATION 1
IGNORE C3 FROM 165700,128,67 TO 165900,128,67 STATION 1
CHANGE EXECUTE
CHANGE USE REMAINING RANGE
PASSID 01/124 AFTER 231000,124,67 STATION 4
PASSID 01/125 AFTER 044902,125,67 STATION 1
PASSID 01/125 AFTER 123002,125,67 STATION 12
PASSID 02/125 AFTER 201100,125,67 STATION 4
PASSID 02/126 AFTER 051000,126,67 STATION 1
PASSID 02/126 AFTER 140002,126,67 STATION 12
PASSID 03/126 AFTER  203400,126,67,STATION 4
PASSID 03/127 AFTER 055400,127,67 STATION 1
PASSID 03/127 AFTER 140000,127,67 STATION 12
PASSID 04/127 AFTER 204400,127,67 STATION 4
PASSID 04/128 AFTER 070400,128,67 STATION 1
PASSID 04/128 AFTER 133602,128,67 STATION 12
ADJUST RU BY -445.0 FROM 004300,125,67 TO 070000,125,67 STATION 4
ADJUST RU BY -457.0 FROM 195000,125,67 TO 220000,125,67 STATION 12
ADJUST RU BY -436.0 FROM 225400,125,67 TO 060000,126,67 STATION 4
ADJUST RU BY -434.0 FROM 060000,126,67 TO 150000,126,67 STATION 1
ADJUST RU BY -452.0 FROM 140000,126,67 TO 230000,126,67 STATION 12
ADJUST RU BY  -443.3 FROM 210200,126,67 TO 080000,127,67,STATION 4
ADJUST RU BY -449.0 FROM 055400,127,67 TO 143302,127,67 STATION 1
ADJUST RU BY -455.2 FROM 143302,127,67 TO 224000,127,67 STATION 12
ADJUST RU BY -445.5 FROM 230000,127,67  TO 080000,128,67 STATION 4
ADJUST RU BY -449.3 FROM 070000,128,67 TO 150000,128,67 STATION 1
ADJUST RU BY -454.1 FROM 140000,128,67 TO 020000,129,67 STATION 12
ADJUST C3 BY -0.37 FROM 151700,128,67 TO 160000,129,67 STATION 1
ADJUST C3 BY +0.37 FROM 151700,128,67 TO 160000,129,67 STATION 4
TRANSMITTER ON AT 231000,124,67 STATION 4
FREQ  20457200 AFTER 231000,124,67 STATION 4
FREQ  20459900 AFTER 233410,124,67,STATION 4
FREQ  20458800 AFTER 024500,125,67,STATION 5
FREQ  20458500 AFTER 032800,125,67 STATION 5
FREQ  20458300 AFTER 044900,125,67 STATION 1
FREQ  20458800 AFTER 053700,125,67 STATION 4
TRANSMITTER ON AT 060000,125,67 STATION 1
FREQ  20458900 AFTER 044700,125,67 STATION 1
FREQ  20457900 AFTER 120000,125,67 STATION 12
FREQ  20457900 AFTER 123200,125,67 STATION 12
TRANSMITTER ON AT 124800,125,67 STATION 12
FREQ  20457830 AFTER 162000,125,67 STATION 12
FREQ  20458210 AFTER 162000,125,67 STATION 1
FREQ  20457900 AFTER 171300,125,67 STATION 12
FREQ  20461650 AFTER 190100,125,67 STATION 12
FREQ  20461350 AFTER 201200,125,67 STATION 4
TRANSMITTER ON AT 222200,125,67 STATION 4
FREQ  20457600 AFTER 223500,125,67 STATION 4
```

```
FREQ  20461350 AFTER 050500,126,67 STATION 4
FREQ  20460950 AFTER 051000,126,67 STATION 1
TRANSMITTER ON AT 060000,126,67 STATION 1
FREQ  20457200 AFTER 074500,126,67 STATION 1
FREQ  20461000 AFTER 133000,126,67,STATION 1
FREQ  20460900 AFTER 140002,126,67 STATION 12
TRANSMITTER ON AT 143302,126,67 STATION 12
FREQ  20460800 AFTER 203400,126,67 STATION 4
TRANSMITTER ON AT 215400,126,67 STATION 4
FREQ  20460800 AFTER 050500,127,67 STATION 1
TRANSMITTER ON AT 055400,127,67 STATION 1
FREQ  20460900 AFTER 140102,127,67 STATION 12
TRANSMITTER ON AT 143302,127,67 STATION 12
FREQ  20460800 AFTER 204400,127,67 STATION 4
TRANSMITTER ON AT 230000,127,67 STATION 4
TRANSMITTER ON AT 070400,128,67 STATION 1
FREQ  20460600 AFTER 130400,128,67 STATION 12
TRANSMITTER ON AT 133502,128,67 STATION 12
FREQ  20457000 AFTER 140000,128,67 STATION 1
FREQ  20456600 AFTER 140000,128,67 STATION 12
FREQ  20460800 AFTER 160000,128,67 STATION 1
FREQ  20460600 AFTER 160700,128,67 STATION 12
CHANGE EXECUTE
PRINT ALL CONTROLS
      END DATA                                                    10

*THIS IS THE ODG DECK FOR MISSION 4 PHOTO ELLIPSE - PART 1
*THE TIME SPAN COVERED IS 1300/128/67 TO 1024/138/67 GMT
*  MAY X  =  DAY 120 PLUS X
*THE L/O LIBRARY SAVE B1 TAPES ARE 9972,9827, AND 10809
*THE THREE L/O LIBRARY SAVE B2 TAPES ARE 9863, 8178, AND 10864
*B2=9863 WAS MADE USING THIS DECK AND THE CARD IGNORE AFTER 030000,135,
*67 STATIONS 1,4,12
B2=8178 WAS MADE USING THIS DECK AND THE CONTROL CARD IGNORE BEFORE
*030000,135,67 STATIONS 1,4,12
B2=10864 WAS MADE USING THIS DECK MINUS ALL IGNORE CARDS EXCEPT IGNORE
*ALL ANGLES AND MINUS ALL THE ADJUST C3 CARDS
*THE KING IS A FINK
CHANGE NEW ODP FILE
REMOVE ALL CONTROLS
CHANGE EXECUTE
IGNORE ANGLES STATIONS 1,4,12
IGNORE C3 FROM 153400,128,67 TO 153500,128,67 STATION 1  $  00
IGNORE C3 FROM 165000,128,67 TO 165200,128,67 STATION 1  $  00
IGNORE C3 FROM 165700,128,67 TO 165900,128,67 STATION 1  $  00
IGNORE CC3 AT 093502,129,67 STATION 1                     $  00
IGNORE CC3 AT 100102,129,67 STATION 1                     $  00
IGNORE CC3 AT 102902,129,67 STATION 1                     $  00
IGNORE RU FROM 113600,129,67 TO 122500,129,67 STATION 1 $6 POINTS
IGNORE CC3 FROM 115500,129,67 TO 115600,129,67 STATION 1 $ BLUNDER
IGNORE RU FROM 160900,129,67 TO 163100,129,67 STATION 12 $ BAD RU
IGNORE CC3 AT 162002,129,67 STATION 12                    $ BAD POINT
IGNORE C3 FROM 231000,129,67 TO 231100,129,67 STATION 4   $ BLUNDER
IGNORE CC3 FROM 043900,130,67 TO 044000,130,67 STATION 4 $ COUNTER BLIP
IGNORE CC3 FROM 062200,130,67 TO 062300,130,67 STATION 4 $ BLUNDER
IGNORE C3 AT 070902,130,67 STATION 1                      $ 00
IGNORE CC3 FROM 080000,130,67 TO 080100,130,67 STATION 1 $ $ 00
IGNORE CC3 FROM 081500,130,67 TO 081600,130,67 STATION 1 $ 00
IGNORE CC3 AT 091802,130,67 STATION 1                     $ 00
IGNORE CC3 FROM 102400,130,67 TO 102600,130,67 STATION 1 $ 00
```

```
IGNORE CC3 AT 114102,130,67 STATION 1                          $ 00
IGNORE CC3 AT 115502,130,67 STATION 1                          $ 00
IGNORE CC3 FROM 122800,130,67 TO 123000,130,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 124400,130,67 TO 124600,130,67 STATION 1 $ BLUNDERS
IGNORE CC3 AT 141302,130,67 STATION 1                          $ 00
IGNORE AT 153802,130,67 STATIONS 1,12                          $ 00
IGNORE  C3 AT 154702,130,67 STATION 12                         $ BAD POINT
IGNORE CC3 AT 160302,130,67 STATION 1                          $ 00
IGNORE  C3 AT 162402,130,67 STATION 1                          $ 00
IGNORE CC3 FROM 165600,130,67 TO 165700,130,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 035200,132,67 TO 035400,132,67 STATION 4 $ BLUNDER
IGNORE CC3 FROM 035800,132,67 TO 040000,132,67 STATION 4 $ BLUNDER
```

```
IGNORE CC3 FROM 041500,132,67 TO 041700,132,67 STATION 4 $ BLUNDER
IGNORE CC3 FROM 051500,132,67 TO 051600,132,67 STATION 4 $ ROLL
IGNORE CC3 FROM 053200,132,67 TO 053300,132,67 STATION 4 $ ROLL
IGNORE CC3 FROM 054200,132,67 TO 054500,132,67 STATION 4 $ BLUNDER
IGNORE CC3 FROM 081600,132,67 TO 082200,132,67 STATION 4 $ BLUNDERS
IGNORE C3 FROM 082400,132,67 TO 082600,132,67 STATION 1  $ 00
IGNORE CC3 FROM 083700,132,67 TO 084300,132,67 STATION 4 $ BAD POINTS
IGNORE C3 FROM 084100,132,67 TO 084400,132,67 STATION 1  $ BAD POINTS
IGNORE C3 FROM  085400,132,67 TO 085900,132,67 STATION 4 $COUNT. RESET
IGNORE CC3 FROM 092800,132,67 TO 093000,132,67 STATION 1 $ 00
IGNORE CC3 FROM 100900,132,67 TO 101100,132,67 STATION 1 $ 00
IGNORE CC3 FROM 114600,132,67 TO 115300,132,67 STATION 1 $ 00'S
IGNORE CC3 FROM 120700,132,67 TO 120900,132,67 STATION 1 $ 00
IGNORE C3 FROM 163100,132,67 TO 163400,132,67 STATION 12 $ HANDOVER
IGNORE CC3 FROM 164100,132,67 TO 164200,132,67 STATION 1 $ ROLL
IGNORE C3 FROM 165700,132,67 TO 165800,132,67 STATION 12 $ BAD POINT
IGNORE CC3 FROM 173200,132,67 TO 173300,132,67 STATION 12 $ROLL
IGNORE CC3 FROM 174500,132,67 TO 174600,132,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 180600,132,67 TO 180700,132,67 STATION 12 $COUNT. RESET
IGNORE CC3 FROM 183452,132,67 TO 184412,132,67 STATION 12 $BAD DATA
IGNORE RU AT 200802,132,67 STATION 12  $  OOPS
IGNORE CC3 FROM 041700,133,67 TO 041800,133,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 042300,133,67 TO 042500,133,67 STATION 4 $ ROLL
IGNORE CC3 FROM 043000,133,67 TO 043200,133,67 STATION 4 $ ROLL
IGNORE CC3 FROM 052700,133,67 TO 052900,133,67 STATION 4 $ ROLL
IGNORE CC3 FROM 053300,133,67 TO 053600,133,67 STATION 4 $ ROLL
IGNORE CC3 FROM 060700,133,67 TO 061000,133,67 STATION 4 $ ROLL
IGNORE CC3 FROM 064600,133,67 TO 065200,133,67 STATION 4 $ MANEUVERS
IGNORE C3 FROM 085600,133,67 TO 085700,133,67 STATION 1  $ BLUNDER
IGNORE C3 FROM 090100,133,67 TO 090200,133,67 STATION 1  $ 00
IGNORE C3 FROM 093000,133,67 TO 093100,133,67 STATION 4  $ BAD POINT
IGNORE CC3 FROM 093100,133,67 TO 094300,133,67 STATION 1 $ SIDE BAND
IGNORE CC3 FROM 094750,133,67 TO 094800,133,67 STATION 1 $ 00
IGNORE C3 AT 095602,133,67 STATION 4                          $COUNTER BLIP
IGNORE C3 FROM 095900,133,67 TO 100000,133,67 STATION 4  $ BAD POINT
IGNORE AT 101532,133,67 STATION 1                             $ 00
IGNORE CC3 FROM 101700,133,67 TO 101900,133,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 104400,133,67 TO 104600,133,67 STATION 1 $ 00
IGNORE AT 104502,133,67 STATION 1                             $ 00
IGNORE AT 150432,133,67 STATION 1                             $ 00
IGNORE CC3 FROM 154200,133,67 TO 154300,133,67 STATION 1 $ ROLL
IGNORE CC3 FROM 165600,133,67 TO 165700,133,67 STATION 1 $ ROLL
IGNORE CC3 FROM 170300,133,67 TO 170400,133,67 STATION 1 $ ROLL
IGNORE C3 FROM 174200,133,67 TO 174300,133,67 STATION 12 $ BLUNDER
IGNORE FROM 180700,133,67 TO 180900,133,67 STATIONS 1,12 $ ROLL
IGNORE CC3 FROM 210300,133,67 TO 210400,133,67 STATION 12 $BAD POINT
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IGNORE CC3 FROM 212300,133,67 TO 212400,133,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 224000,133,67 TO 224100,133,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 230300,133,67 TO 230400,133,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 230700,133,67 TO 231500,133,67 STATION 12 $ROLL
IGNORE CC3 FROM 234500,133,67 TO 235300,133,67 STATION 12 $ROLL
IGNORE CC3 FROM 000700,134,67 TO 000800,134,67 STATION 12 $PITCH
IGNORE CC3 FROM 013700,134,67 TO 013800,134,67 STATION 12 $BAD POINT
IGNORE CC3 FROM 022500,134,67 TO 022600,134,67 STATION 12 $PATCHBOARD
IGNORE CC3 FROM 061000,134,67 TO 061100,134,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 194302,134,67 TO 194322,134,67 STATION 12 $COUNT.RESET
IGNORE C3 FROM 195900,134,67 TO 200000,134,67 STATION 1  $ BLUNDER
IGNORE C3 FROM 030600,135,67 TO 030800,135,67 STATION 4  $COUNT. REPEAT
IGNORE CC3 FROM 040500,135,67 TO 040600,135,67 STATION 4 $COUNTER BLIP
IGNORE CC3 FROM 041600,135,67 TO 042600,135,67 STATION 4 $COUNT. RESET
IGNORE CC3 FROM 043300,135,67 TO 043700,135,67 STATION 4 $ROLL-PITCH
IGNORE CC3 FROM 052500,135,67 TO 052700,135,67 STATION 4 $ ROLL
IGNORE CC3 FROM 053700,135,67 TO 053900,135,67 STATION 4 $ ROLL
IGNORE CC3 FROM 061000,135,67 TO 061200,135,67 STATION 4 $ ROLL
IGNORE CC3 FROM 064900,135,67 TO 065900,135,67 STATION 4 $MANEUVERS
IGNORE CC3 FROM 082100,135,67 TO 082300,135,67 STATION 4 $NEW SAMP TIME
IGNORE CC3 FROM 122400,135,67 TO 122500,135,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 122600,135,67 TO 122620,135,67 STATION 1 $ 00
IGNORE CC3 FROM 123040,135,67 TO 123100,135,67 STATION 1 $  00 PT.
IGNORE CC3 FROM 123440,135,67 TO 123500,135,67 STATION 1 $ 00 PT.
IGNORE CC3 FROM 125820,135,67 TO 125840,135,67 STATION 1 $ 00 PT.
IGNORE CC3 FROM 140312,135,67 TO 140332,135,67 STATION 1 $ 00
IGNORE CC3 FROM 163052,135,67 TO 163112,135,67 STATION 1 $ 00
IGNORE CC3 FROM 165300,135,67 TO 165400,135,67 STATION 1 $ ROLL
IGNORE CC3 FROM 170632,135,67 TO  170732,135,67 STATION 1 $00
IGNORE CC3 FROM 181332,135,67 TO 181432,135,67 STATION 1 $ ROLL
IGNORE CC3 FROM 182642,135,67 TO 182702,135,67 STATION 1 $ 00
IGNORE CC3 FROM 191000,135,67 TO 191100,135,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 191922,135,67 TO 191942,135,67 STATION 1 $ 00
IGNORE FROM 193000,135,67 TO 193100,135,67 STATIONS 1,12 $ 00
IGNORE CC3 FROM 202542,135,67 TO 202602,135,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 220700,135,67 TO 220800,135,67 STATION 12 $BLUNDER
IGNORE CC3 FROM 230500,135,67 TO 231200,135,67 STATION 12 $ROLL
IGNORE CC3 FROM 232400,135,67 TO 233000,135,67 STATION 12 $ROLL
IGNORE CC3 FROM 025000,136,67 TO 025100,136,67 STATION 12 $COUNT. RESET
IGNORE CC3 FROM 040200,136,67 TO 040300,136,67 STATION 12 $SKIPPED PT.
IGNORE CC3 FROM 042400,136,67 TO 042600,136,67 STATION 12 $ROLL
IGNORE CC3 FROM 043600,136,67 TO 043800,136,67 STATION 12  $ ROLL
IGNORE CC3 FROM 052700,136,67 TO 052900,136,67 STATION 12  $ ROLL
IGNORE CC3 FROM 053900,136,67 TO 054100,136,67 STATION 12  $ ROLL
IGNORE     FROM 061300,136,67 TO 061500,136,67 STATION 4,12 $ROLL
IGNORE    FROM 065000,136,67 TO 065500,136,67 STATION 4,12 $ROLL
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IGNORE CC3 FROM 082500,136,67 TO 082600,136,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 094100,136,67 TO 094200,136,67 STATION 4 $ BAD POINT
IGNORE C3 AT 114402,136,67 STATION 1      $ 00 PT.
IGNORE C3  FROM 115100,136,67 TO 115200,136,67 STATION 1 $ BLUNDER
IGNORE C3  FROM 115500,136,67 TO 115600,136,67 STATION 1 $ BLUNDER
IGNORE C3 AT 115702,136,67 STATION 1                     $ 00
IGNORE CC3 FROM 121000,136,67 TO 121200,136,67 STATION 1 $ BLUNDER
IGNORE C3  FROM 122300,136,67 TO 122500,136,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 125200,136,67 TO 125300,136,67 STATION 1 $ 00
IGNORE C3  FROM 125300,136,67 TO 125600,136,67 STATION 4 $ COUNT. RESET
IGNORE C3  FROM 130400,136,67 TO 130500,136,67 STATION 4 $ BAD POINT
IGNORE C3  FROM 133400,136,67 TO 133600,136,67 STATION 4 $MID-COUNTER
IGNORE CC3 AT 134212,136,67 STATION 1                    $ 00
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IGNORE CC3 FROM 134500,136,67 TO 134600,136,67 STATION 1 $ BLUNDER
IGNORE CC3 AT 135732,136,67 STATION 1                    $ 00
IGNORE CC3 FROM 140600,136,67 TO 140800,136,67 STATION 1 $ 00
IGNORE CC3 FROM 141200,136,67 TO 141300,136,67 STATION 1 $ COUNT. RESET
IGNORE CC3 FROM 151732,136,67 TO 151832,136,67 STATION 1 $ 00
IGNORE CC3 FROM 152732,136,67 TO 152832,136,67 STATION 1 $ 00
IGNORE CC3 FROM 154632,136,67 TO 154732,136,67 STATION 1 $ 00
IGNORE CC3 FROM 184932,136,67 TO 185032,136,67 STATION 1 $ 00
IGNORE CC3 FROM 193602,136,67 TO 193622,136,67 STATION 1 $ 00
IGNORE CC3 FROM 200042,136,67 TO 200102,136,67 STATION 1 $ 00
IGNORE CC3 FROM 044000,137,67 TO 044100,137,67 STATION 12 $ROLL
IGNORE CC3 FROM 053400,137,67 TO 053500,137,67 STATION 12 $ROLL
IGNORE C3 FROM 062900,137,67 TO 063000,137,67 STATION 4  $START OF PASS
IGNORE CC3 FROM 072100,137,67 TO 072200,137,67 STATION 4 $COUNTER BLIP
IGNORE CC3 FROM 073000,137,67 TO 073400,137,67 STATION 4 $PATCHBOARD
IGNORE CC3 FROM 074632,137,67 TO 074732,137,67 STATION 4 $COUNTER BLIP
IGNORE CC3 FROM 132100,137,67 TO 132300,137,67 STATION 1 $ 00
IGNORE CC3 FROM 143600,137,67 TO 143700,137,67 STATION 1 $ BLUNDER
IGNORE CC3 FROM 154432,137,67 TO 154532,137,67 STATION 1 $ 00
IGNORE CC3 FROM 160432,137,67 TO 160532,137,67 STATION 1 $ 00
IGNORE CC3 FROM 172832,137,67 TO 172932,137,67 STATION 1 $ 00
IGNORE CC3 FROM 194412,137,67 TO 194432,137,67 STATION 1 $ 00
IGNORE CC3 FROM 194852,137,67 TO 194902,137,67 STATION 1 $ 00
IGNORE CC3 FROM 195812,137,67 TO 195832,137,67 STATION 1 $ 00
IGNORE CC3 FROM 201532,137,67 TO 201552,137,67 STATION 1 $ 00
IGNORE CC3 FROM 202552,137,67 TO 202612,137,67 STATION 1 $ 00
IGNORE CC3 FROM 213702,137,67 TO 213722,137,67 STATION 1 $ 00
IGNORE CC3 FROM 214122,137,67 TO 214142,137,67 STATION 1 $ 00
IGNORE C3 FROM 224142,137,67 TO 224602,137,67 STATION 12 $ BAD DATA
IGNORE CC3 FROM 231321,137,67 TO 231841,137,67 STATION 1 $ ROLL
IGNORE C3 FROM 232822,137,67 TO 233142,137,67 STATION 12 $ ROLL
IGNORE CC3 FROM 072400,138,67 TO 072500,138,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 102300,138,67 TO 102400,138,67 STATION 4 $CHANGESAMPTIME

CHANGE EXECUTE
CHANGE USE ANGLES NOT IN AUTO TRACK
CHANGE USE REMAINING RANGE
COUNT TIME 60 AFTER 020000,132,67 STATIONS 1,4,12
PASSID 04/128 AFTER 062000,128,67 STATION 1
PASSID 04/128 AFTER 131002,128,67 STATION 12
PASSID 05/128 AFTER 212500,128,67 STATION 4
PASSID 05/129 AFTER 060000,129,67 STATION 1
PASSID 05/129 AFTER 153002,129,67 STATION 12
PASSID 06/129 AFTER 221900,129,67 STATION 4
PASSID 06/130 AFTER 060000,130,67 STATION 1
PASSID 06/130 AFTER 130000,130,67 STATION 12
PASSID 07/130 AFTER 232004,130,67 STATION 4
PASSID 07/131 AFTER 063000,131,67 STATION 1
PASSID 07/131 AFTER 154000,131,67 STATION 12
PASSID 08/132 AFTER 003800,132,67 STATION 4
PASSID 08/132 AFTER 072700,132,67 STATION 1
PASSID 08/132 AFTER 164000,132,67 STATION 12
PASSID 09/133 AFTER 022100,133,67 STATION 4
PASSID 09/133 AFTER 082900,133,67 STATION 1
PASSID 09/133 AFTER 160000,133,67 STATION 12
PASSID 10/134 AFTER 021600,134,67 STATION 4
PASSID 10/134 AFTER 102900,134,67 STATION 1
PASSID 10/134 AFTER 180400,134,67 STATION 12
PASSID 11/135 AFTER 030000,135,67 STATION 4
PASSID 11/135 AFTER 102000,135,67 STATION 1
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PASSID 11/135 AFTER 185500,135,67 STATION 12
PASSID 12/136 AFTER 055800,136,67 STATION 4
PASSID 12/136 AFTER 113000,136,67 STATION 1
PASSID 12/136 AFTER 203000,136,67 STATION 12
PASSID 13/137 AFTER 040400,137,67 STATION 4
PASSID 13/137 AFTER 123100,137,67 STATION 1
PASSID 13/137 AFTER 204500,137,67 STATION 12
PASSID 14/138 AFTER 065500,138,67 STATION 4
SHIFT TIME -.00075 AFTER 153000,128,67 STATION 4
SHIFT TIME -.000362 AFTER 153000,128,67 STATION 1
ADJUST RU BY -454.1 FROM 140000,128,67 TO 020000,129,67 STATION 12
ADJUST RU BY -439.6 FROM 220000,128,67 TO 070000,129,67 STATION 4
ADJUST RU BY -448.4 FROM 070000,129,67 TO 150000,129,67 STATION 1
ADJUST RU BY -467.4 FROM 153000,129,67 TO 010000,130,67 STATION 12
ADJUST RU BY -438.5 FROM 003000,130,67 TO 100000,130,67 STATION 4
ADJUST RU BY -446.6 FROM 070000,130,67 TO 160000,130,67 STATION 1
ADJUST RU BY -458.8 FROM 140000,130,67 TO 230000,130,67 STATION 12
ADJUST RU BY -447.6 FROM 000100,131,67 TO 100000,131,67 STATION 4
ADJUST RU BY -429.5 FROM 070000,131,67 TO 160000,131,67 STATION 1
ADJUST C3 BY -0.37 FROM 151700,128,67 TO 210000,134,67 STATION 1

ADJUST C3 BY +0.37 FROM 040000,129,67 TO 090000,129,67 STATION 4
ADJUST C3 BY +0.37 FROM 130000,129,67 TO 190000,129,67 STATION 12
ADJUST C3 BY +0.37 FROM 040000,130,67 TO 090000,130,67 STATION 4
ADJUST C3 BY +0.37 FROM 130000,130,67 TO 190000,130,67 STATION 12
ADJUST C3 BY +0.37 FROM 040000,131,67 TO 090000,131,67 STATION 4
ADJUST C3 BY +0.37 FROM 130000,131,67 TO 190000,131,67 STATION 12
ADJUST C3 BY +0.37 FROM 040000,132,67 TO 090000,132,67 STATION 4
ADJUST C3 BY +0.37 FROM 130000,132,67 TO 190000,132,67 STATION 12
ADJUST C3 BY +0.37 FROM 070000,133,67 TO 110000,133,67 STATION 4
ADJUST C3 BY +0.37 FROM 150000,133,67 TO 210000,133,67 STATION 12
ADJUST C3 BY +0.37 FROM 080000,134,67 TO 120000,134,67 STATION 4
ADJUST C3 BY +0.37 FROM 160000,134,67 TO 220000,134,67 STATION 12
FREQ  20460800 AFTER 070200,128,67 STATION 1
FREQ  20457000 AFTER 140000,128,67 STATION 1
FREQ  20460800 AFTER 160000,128,67 STATION 1
FREQ  20460600 AFTER 130400,128,67 STATION 12
TRANSMITTER ON AT 133200,128,67 STATION 12
FREQ  20456600 AFTER 140000,128,67 STATION 12
FREQ  20460600 AFTER 160000,128,67 STATION 12
FREQ  20459500 AFTER 221100,128,67 STATION 12
FREQ  20460800 AFTER 213300,128,67 STATION 4
TRANSMITTER ON AT 220000,128,67 STATION 4
FREQ  20459500 AFTER 220300,128,67 STATION 4
FREQ  20459500 AFTER 060000,129,67 STATION 1
TRANSMITTER ON AT 070000,129,67 STATION 1
FREQ  20459500 AFTER 153002,129,67 STATION 12
TRANSMITTER ON AT 160002,129,67 STATION 12
FREQ  20459500 AFTER 221900,129,67 STATION 4
TRANSMITTER ON AT 004300,130,67 STATION 4
FREQ  20459500 AFTER 062902,130,67 STATION 1
TRANSMITTER ON AT 072402,130,67 STATION 1
FREQ  20459500 AFTER 133002,130,67 STATION 12
TRANSMITTER ON AT 161000,130,67 STATION 12
FREQ  20459700 AFTER 210902,130,67 STATION 12
FREQ  20459700 AFTER 232004,130,67 STATION 4
TRANSMITTER ON AT 000902,131,67 STATION 4
FREQ  20459700 AFTER 063000,131,67 STATION 1
TRANSMITTER ON AT 070300,131,67 STATION 1
FREQ  20459700 AFTER 154000,131,67 STATION 12
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TRANSMITTER ON AT 161100,131,67 STATION 12
FREQ  20459700 AFTER 003800,132,67 STATION 4
TRANSMITTER ON AT 022300,132,67 STATION 4
FREQ  20459700 AFTER 072700,132,67 STATION 1
TRANSMITTER ON AT 085400,132,67 STATION 1
FREQ  20459700 AFTER 164000,132,67 STATION 12
TRANSMITTER ON AT 171500,132,67 STATION 12


FREQ  20459700 AFTER 021000,133,67 STATION 4
TRANSMITTER ON AT 023300,133,67 STATION 4
FREQ  20459700 AFTER 082900,133,67 STATION 1
TRANSMITTER ON AT 092400,133,67 STATION 1
FREQ  20459700 AFTER 171102,133,67 STATION 12
TRANSMITTER ON AT 174602,133,67 STATION 12
FREQ  20459700 AFTER 021600,134,67 STATION 4
TRANSMITTER ON AT 023300,134,67 STATION 4
FREQ  20459700 AFTER 102900,134,67 STATION 1
TRANSMITTER ON AT 112500,134,67 STATION 1
FREQ  20459700 AFTER 180400,134,67 STATION 12
TRANSMITTER ON AT 181602,134,67 STATION 12
FREQ  20459700 AFTER 030000,135,67 STATION 4
TRANSMITTER ON AT 031000,135,67 STATION 4
FREQ  20459700 AFTER 102000,135,67 STATION 1
TRANSMITTER ON AT 113000,135,67 STATION 1
FREQ  20459700 AFTER 185900,135,67 STATION 12
TRANSMITTER ON AT 203000,135,67 STATION 12
FREQ  20459700 AFTER 055800,136,67 STATION 4
TRANSMITTER ON AT 065900,136,67 STATION 4
FREQ  20459700 AFTER 113000,136,67 STATION 1
TRANSMITTER ON AT 120000,136,67 STATION 1
FREQ  20459700 AFTER 203000,136,67 STATION 12
TRANSMITTER ON AT 210602,136,67 STATION 12
FREQ  20459700 AFTER 040400,137,67 STATION 4
TRANSMITTER ON AT 063800,137,67 STATION 4
FREQ  20459700 AFTER 123100,137,67 STATION 1
TRANSMITTER ON AT 130100,137,67 STATION 1
FREQ  20459700 AFTER 204500,137,67 STATION 12
TRANSMITTER ON AT 234500,137,67 STATION 12
FREQ  20459700 AFTER 065802,138,67 STATION 4
TRANSMITTER ON AT 071402,138,67 STATION 4
CHANGE EXECUTE
PRINT ALL CONTROLS
      END DATA                                                    (0

*THIS IS THE ODG DECK FOR L/O MISSION 4 PHOTO ELLIPSE
*PART 2 THROUGH PHOTO READOUT
*L/O LIBRARY B1 TAPES ARE 9918, 9896, AND 9581
*THE L/O LIBRARY B2 TAPE MADE WITH NO IGNORE CARDS EXCEPT IGNORE
*ANGLES FOR ALL STATIONS IS 11052
*THE L/O LIBRARY B2 MADE WITH THE ENTIRE ODG DECK IS 11055
CHANGE NEW ODG FILE
REMOVE ALL CONTROLS
CHANGE EXECUTE
IGNORE ANGLES STATIONS 1,4,12
IGNORE CC3 AT 072400,138,67 STATION 4                    $DROPPED BIT
IGNORE CC3 AT 102402,138,67 STATION 4                    $OCCULTATION
IGNORE CC3 FROM 043800,139,67 TO 044200,139,67 STATION 12    $  ROLL
IGNORE CC3 FROM 081042,139,67 TO 081122,139,67 STATION 12 $ OC
IGNORE C3 FROM 094700,139,67 TO 095200,139,67 STATION 12 SEND OF PASS
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IGNORE CC3 AT 103229,139,67 STATION 4                          $BAD SAMP TIME
IGNORE CC3 AT 103627,139,67 STATION 4                          $ BAD SAMP TIME
IGNORE CC3 AT 115002,139,67 STATION 4                          $START OF DATA
IGNORE CC3 AT 122202,139,67 STATION 4                          $ BAD POINT
IGNORE C3 FROM 152100,139,67 TO 152200,139,67 STATION 1        $COUNT. BLIP
IGNORE CC3 FROM 152600,139,67 TO 152602,139,67 STATION 4       $COUNT. BLIPS
IGNORE C3 FROM 155900,139,67 TO 160000,139,67 STATION 4        $ ROLL
IGNORE CC3 FROM 191100,139,67 TO 191300,139,67 STATION 1       $COUNT. RESET
IGNORE CC3 FROM 223042,139,67 TO 223122,139,67 STATION 1       $ OO
IGNORE CC3 FROM 231032,139,67 TO 231132,139,67 STATION 1       $ OO
IGNORE CC3 FROM 231532,139,67 TO 232232,139,67 STATION 1       $ ROLL
IGNORE CC3 FROM 233200,139,67 TO 233400,139,67 STATION 1       $ ROLL
IGNORE C3 FROM 012600,140,67 TO 013300,140,67 STATION 1        $STUCK COUNTER
IGNORE CC3 FROM 033100,140,67 TO 033124,140,67 STATION 12      $ OO
IGNORE CC3 AT 115902,140,67 STATION 4                          $ COUNTER BLIP
IGNORE CC3 AT 173743,140,67 STATION 1                          $ COUNT. BLIP
IGNORE CC3 AT 180602,140,67 STATION 1                          $ OO
IGNORE CC3 AT 183002,140,67 STATION 1                          $ BAD POINT
IGNORE RU FROM 190100,140,67 TO 190200,140,67 STATION 1        $MISREAD PT.
IGNORE CC3 FROM 191202,140,67 TO 191222,140,67 STATION 1       $ OO
IGNORE CC3 FROM 192502,140,67 TO 192522,140,67 STATION 1       $ OO
IGNORE CC3 FROM 221132,140,67 TO 221232,140,67 STATION 1       $ OO
IGNORE CC3 FROM 232132,140,67 TO 232300,140,67 STATION 1       $ PATCHBOARD
IGNORE CC3 FROM 023752,141,67 TO 023812,141,67 STATION 12      $ OO
IGNORE CC3 FROM 041200,141,67 TO 042100,141,67 STATION 12      $HANDOVER
IGNORE CC3 FROM 073600,141,67 TO 073700,141,67 STATION 12      $COUNT. BLIP
IGNORE CC3 FROM 113800,141,67 TO 113900,141,67 STATION 4       $ ASU MAYBE
IGNORE CC3 FROM 115400,141,67 TO 115500,141,67 STATION 4       $ PITCH MAYBE
IGNORE CC3 FROM 150002,141,67 TO 150022,141,67 STATION 4       $ 1ST PART OO
IGNORE CC3 AT 225402,141,67 STATION 1                          $ BLUNDER
IGNORE CC3 FROM 232200,141,67 TO 232500,141,67 STATION 1       $ ROLL

IGNORE CC3 FROM 003542,142,67 TO 003612,142,67 STATION 1       $ BAD POINT
IGNORE C3 FROM 004200,142,67 TO 004303,142,67 STATION 12       $ BLUNDER
IGNORE FROM 010250,142,67 TO 010540,142,67 STATIONS 1,12       $ BAD DATA
IGNORE CC3 AT 013902,142,67 STATION 12                         $ MISSED TAG
IGNORE C3 FROM 014122,142,67 TO 014240,142,67 STATION 1        $ COUNT. STICK
IGNORE CC3 FROM 044900,142,67 TO 045200,142,67 STATION 12      $ROLL
IGNORE CC3 FROM 051100,142,67 TO 051400,142,67 STATION 12      $ROLL
IGNORE C3 FROM 110351,142,67 TO 110503,142,67 STATION 4        $ BLUNDER
IGNORE CC3 FROM 113100,142,67 TO 113200,142,67 STATION 4       $CHANGE SAMPTIM
IGNORE CC3 FROM 114000,142,67 TO 114200,142,67 STATION 4       $ BLUNDER
IGNORE CC3 FROM 115500,142,67 TO 115700,142,67 STATION 4       $ BLUNDER
IGNORE CC3 FROM 120930,142,67 TO 121000,142,67 STATION 4       $NEW SAMP TIME
IGNORE RU AT 130112,142,67 STATION 4                           $NEW FORMAT
IGNORE CC3 AT 160202,142,67 STATION 4                          $ BLUNDER
IGNORE CC3 AT 160802,142,67 STATION 4                          $ BLUNDER
IGNORE CC3 AT 162500,142,67 STATION 4                          $ COUNT. BLIP
IGNORE CC3 FROM 164101,142,67 TO 164203,142,67 STATION 4       $ BAD PTS.
IGNORE C3 FROM 183201,142,67 TO 183503,142,67 STATION 1        $START OF PASS
IGNORE CC3 AT 231535,142,67 STATION 1                          $ COUNT. BLIP
IGNORE CC3 FROM 233601,142,67 TO 233703,142,67 STATION 1       $ NOISY
IGNORE CC3 AT 010252,143,67 STATION 1                          $ OO
IGNORE C3 FROM 023802,143,67 TO 023902,143,67 STATION 12       $ NOISY
IGNORE C3 FROM 025922,143,67 TO 030002,143,67 STATION 12       $LAST OF OO
IGNORE CC3 FROM 051400,143,67 TO 051600,143,67 STATION 12      $ROLL
IGNORE CC3 FROM 070500,143,67 TO 070700,143,67 STATION 12      $ YAW
IGNORE CC3 FROM 071400,143,67 TO 071700,143,67 STATION 12      $ ROLL
IGNORE CC3 FROM 092800,143,67 TO 093000,143,67 STATION 12      $ ASU
IGNORE CC3 FROM 093300,143,67 TO 093800,143,67 STATION 12      $ ROLL
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IGNORE FROM 094201,143,67 TO 094303,143,67 STATION 12      $ COUNT. STICK
IGNORE CC3 FROM 094700,143,67 TO 095200,143,67 STATION 12 $ ROLL
IGNORE C3 AT 105612,143,67 STATION 4                       $ START OF PASS
IGNORE C3 FROM 114800,143,67 TO 114900,143,67 STATION 12   SEND OF PASS
IGNORE CC3 FROM 150700,143,67 TO 150803,143,67 STATION 4 $ COUNT. RESET
IGNORE CC3 FROM 160401,143,67 TO 160503,143,67 STATION 4 $ ASU
IGNORE CC3 FROM 163800,143,67 TO 163903,143,67 STATION 4 $ YAW
IGNORE CC3 FROM 172600,143,67 TO 173100,143,67 STATION 4 $ ROLL
IGNORE CC3 FROM 183901,143,67 TO 184103,143,67 STATION 4 $ PITCH
IGNORE CC3 FROM 185300,143,67 TO 185400,143,67 STATION 4 $ BAD POINT
IGNORE C3 AT 200502,143,67 STATION 1                       $ 00
IGNORE CC3 AT 214402,143,67 STATION 1                      $  00
IGNORE CC3 FROM 220200,143,67 TO 220300,143,67 STATION 1 $ BAD POINT
IGNORE C3 FROM 031402,144,67 TO 031903,144,67 STATION 12   $START OF PASS
IGNORE C3 FROM 033001,144,67 TO 033103,144,67 STATION 12 $ BAD POINT
IGNORE C3 FROM 042441,144,67 TO 042543,144,67 STATION 1  $ BAD POINT
IGNORE C3 FROM 042741,144,67 TO 042943,144,67 STATION 1  $ BAD POINTS
IGNORE C3 AT 043942,144,67 STATION 1                       $COUNT. GLITCH

IGNORE CC3 FROM 045452,144,67 TO 045552,144,67 STATION 12 $PATCHBOARD
IGNORE CC3 FROM 051401,144,67 TO 051703,144,67 STATION 12 $ ROLL
IGNORE CC3 FROM 072801,144,67 TO 072903,144,67 STATION 12 $ BAD POINT
IGNORE CC3 FROM 093001,144,67 TO 093203,144,67 STATION 12 $COUNT. STICK
IGNORE CC3 FROM 094300,144,67 TO 095100,144,67 STATION 12 $MANEUVERS
IGNORE CC3 FROM 100401,144,67 TO 100503,144,67 STATION 12 $ PITCH
IGNORE CC3 FROM 105101,144,67 TO 105203,144,67 STATION 12 $ BAD POINT
IGNORE CC3 AT 110702,144,67 STATION 12                     $ BAD POINT
IGNORE CC3 FROM 131201,144,67 TO 131901,144,67 STATION 4 $RESET AND ROLL
IGNORE CC3 FROM 150601,144,67 TO 150703,144,67 STATION 4 $ COUNT. GLITCH
IGNORE ANGLES STATIONS 1,4,12
IGNORE CC3 FROM 161001,144,67 TO 161103,144,67 STATION 4 $ PITCH
IGNORE CC3 FROM 164401,144,67 TO 164603,144,67 STATION 4 $ MANEUVERS
IGNORE CC3 FROM 172501,144,67 TO 172803,144,67 STATION 4 $ ROLL
IGNORE CC3 AT 183226,144,67 STATION 4                      $ COUNT GLITCH
IGNORE CC3 FROM 184001,144,67 TO 184103,144,67 STATION 4 $ MANEUVERS
IGNORE CC3 FROM 230102,144,67 TO 230232,144,67 STATION 1 $COUNT. STICK
IGNORE CC3 FROM 232103,144,67 TO 232201,144,67 STATION 1 $ 00
IGNORE CC3 FROM 012801,145,67 TO 013203,145,67 STATION 1 $ MANEUVERS
IGNORE CC3 FROM 015301,145,67 TO 015403,145,67 STATION 1 $ PITCH
IGNORE CC3 FROM 031941,145,67 TO 032341,145,67 STATION 1 $ BAD DATA
IGNORE CC3 FROM 035641,145,67 TO 035941,145,67 STATION 1 $ BAD DATA
IGNORE C3 FROM 043001,145,67 TO 043803,145,67 STATION 12 $ TOO FEW C3 PT
IGNORE CC3 FROM 044701,145,67 TO 045003,145,67 STATION 12 $START OF PASS
IGNORE CC3 FROM 045401,145,67 TO 045603,145,67 STATION 12 $COUNT. STICK
IGNORE CC3 FROM 051701,145,67 TO 051803,145,67 STATION 12 $PITCH
IGNORE C3 FROM 052601,145,67 TO 052901,145,67 STATION 1  $BAD DATA
IGNORE CC3 FROM 053901,145,67 TO 054103,145,67 STATION 12 $00 AND BAD PT
IGNORE CC3 FROM 054602,145,67 TO 054902,145,67 STATION 12 $ ROLL
IGNORE CC3 FROM 093002,145,67 TO 095502,145,67 STATION 12 $BIG ROLLS
IGNORE CC3 FROM 101602,145,67 TO 101902,145,67 STATION 12 $ PITCH
IGNORE CC3 FROM 113602,145,67 TO 114302,145,67 STATION 12 $HANDOVER
IGNORE C3 FROM 121502,145,67 TO 122002,145,67 STATION 12  $BAD DATA
IGNORE CC3 FROM 131501,145,67 TO 131601,145,67 STATION 4 $ BAD POINT
IGNORE CC3 FROM 131701,145,67 TO 131801,145,67 STATION 4 $COUNT. GLITCH
IGNORE CC3 FROM 175100,145,67 TO 175200,145,67 STATION 4
IGNORE CC3 FROM 192200,145,67 TO 192300,145,67 STATION 4
IGNORE CC3 FROM 201100,145,67 TO 201200,145,67 STATION 4
IGNORE CC3 FROM 052300,146,67 TO 052400,146,67 STATION 1
IGNORE CC3 FROM 055700,146,67 TO 055910,146,67 STATION 1
IGNORE C3 FROM 053600,146,67 TO 053910,146,67 STATION 12
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IGNORE CC3 AT 082812,146,67 STATION 12
IGNORE CC3 FROM 093332,146,67 TO 095732,146,67 STATION 12
IGNORE CC3 FROM 034201,149,67 TO 034303,149,67 STATION 1
IGNORE CC3 FROM 072401,149,67 TO 072903,149,67 STATION 1
IGNORE C3 FROM 074601,149,67 TO 075103,149,67 STATION 12

IGNORE CC3 FROM 033801,151,67 TO 034003,151,67 STATION 1
IGNORE C3 FROM 094701,151,67 TO 094903,151,67 STATION 1
IGNORE C3 FROM 095701,151,67 TO 095903,151,67 STATION 1
CHANGE EXECUTE
CHANGE USE REMAINING RANGE
CHANGE USE ANGLES NOT IN AUTO TRACK
COUNT TIME 60 AFTER 020000,132,67 STATIONS 1,4,12
PASSID 13/137 AFTER 204500,137,67 STATION 12
PASSID 14/138 AFTER 065500,138,67 STATION 4
PASSID 14/138 AFTER 132900,138,67 STATION 1
PASSID 14/138 AFTER 232000,138,67 STATION 12
PASSID 15/139 AFTER 080250,139,67 STATION 4
PASSID 15/139 AFTER 150000,139,67 STATION 1
PASSID 15/139 AFTER 222000,139,67 STATION 12
PASSID 16/140 AFTER 085800,140,67 STATION 4
PASSID 16/140 AFTER 155100,140,67 STATION 1
PASSID 16/140 AFTER 233000,140,67 STATION 12
PASSID 17/141 AFTER 085800,141,67 STATION 4
PASSID 17/141 AFTER 174500,141,67 STATION 1
PASSID 17/142 AFTER 004000,142,67 STATION 12
PASSID 18/142 AFTER 095500,142,67 STATION 4
PASSID 18/142 AFTER 153000,142,67 STATION 1
PASSID 18/143 AFTER 023500,143,67 STATION 12
PASSID 19/143 AFTER 105612,143,67 STATION 4
PASSID 19/143 AFTER 200000,143,67 STATION 1
PASSID 19/144 AFTER 030000,144,67 STATION 12
PASSID 20/144 AFTER 102500,144,67 STATION 4
PASSID 20/144 AFTER 210100,144,67 STATION 1
PASSID 20/145 AFTER 042900,145,67 STATION 12
PASSID 21/145 AFTER 115302,145,67 STATION 4
PASSID 21/145 AFTER 220800,145,67 STATION 1
PASSID 21/146 AFTER 053500,146,67 STATION 12
PASSID 22/146 AFTER 122502,146,67 STATION 4
PASSID 22/146 AFTER 231000,146,67 STATION 1
PASSID 22/147 AFTER 062700,147,67 STATION 12
PASSID 23/147 AFTER 135200,147,67 STATION 4
PASSID 23/148 AFTER 000001,148,67 STATION 1
PASSID 23/148 AFTER 071200,148,67 STATION 12
PASSID 24/148 AFTER 154800,148,67 STATION 4
PASSID 24/149 AFTER 004500,149,67 STATION 1
PASSID 24/149 AFTER 074600,149,67 STATION 12
PASSID 25/149 AFTER 162900,149,67 STATION 4
PASSID 25/150 AFTER 011400,150,67 STATION 1
PASSID 25/150 AFTER 081900,150,67 STATION 12
PASSID 26/150 AFTER 181800,150,67 STATION 4
PASSID 26/151 AFTER 011000,151,67 STATION 1

PASSID 26/151 AFTER 094800,151,67 STATION 12
PASSID 27/151 AFTER 182800,151,67 STATION 4
PASSID 27/152 AFTER 020000,152,67 STATION 1
PASSID 27/152 AFTER 091600,152,67 STATION 12
SHIFT TIME -.000362 AFTER 153000,128,67 STATION 1
SHIFT TIME -.00075 AFTER 153000,128,67 STATION 4
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FREQ 20459700 AFTER 234500,137,67 STATION 12
TRANSMITTER ON AT 234500,137,67 STATION 12
FREQ 20459700 AFTER 065802,138,67 STATION 4
TRANSMITTER ON AT 071402,138,67 STATION 4
FREQ 20459700 AFTER 132900,138,67 STATION 1
TRANSMITTER ON AT 134300,138,67 STATION 1
FREQ 20459700 AFTER 232000,138,67 STATION 12
TRANSMITTER ON AT 235830,138,67 STATION 12
FREQ 20459700 AFTER 080250,139,67 STATION 4
TRANSMITTER ON AT 091600,139,67 STATION 4
FREQ 20459700 AFTER 150000,139,67 STATION 1
TRANSMITTER ON AT 154400,139,67 STATION 1
FREQ 20459700 AFTER 222000,139,67 STATION 12
TRANSMITTER ON AT 010000,140,67 STATION 12
FREQ 20459700 AFTER 085800,140,67 STATION 4
TRANSMITTER ON AT 093100,140,67 STATION 4
FREQ 20459700 AFTER 155100,140,67 STATION 1
TRANSMITTER ON AT 170400,140,67 STATION 1
FREQ 20459700 AFTER 233000,140,67 STATION 12
TRANSMITTER ON AT 013000,141,67 STATION 12
FREQ 20459700 AFTER 085822,141,67 STATION 4
TRANSMITTER ON AT 095100,141,67 STATION 4
FREQ 20456500 AFTER 171800,141,67 STATION 4
FREQ 20456300 AFTER 174500,141,67 STATION 1
TRANSMITTER ON AT 180200,141,67 STATION 1
FREQ 20456300 AFTER 004000,142,67 STATION 12
TRANSMITTER ON AT 013000,142,67 STATION 12
FREQ 20459700 AFTER 013000,142,67 STATION 12
FREQ 20459700 AFTER 013000,142,67 STATION 1
FREQ 20459700 AFTER 095500,142,67 STATION 4
TRANSMITTER ON AT 111300,142,67 STATION 4
FREQ 20459700 AFTER 183000,142,67 STATION 1
TRANSMITTER ON AT 190000,142,67 STATION 1
FREQ 20459700 AFTER 023500,143,67 STATION 12
TRANSMITTER ON AT 033300,143,67 STATION 12
FREQ 20459700 AFTER 105612,143,67 STATION 4
TRANSMITTER ON AT 113800,143,67 STATION 4
FREQ 20459700 AFTER 200000,143,67 STATION 1
TRANSMITTER ON AT 201000,143,67 STATION 1
FREQ 20459700 AFTER 030000,144,67 STATION 12

TRANSMITTER ON AT 034500,144,67 STATION 12
FREQ 20459700 AFTER 102500,144,67 STATION 4
TRANSMITTER ON AT 120100,144,67 STATION 4
FREQ 20459700 AFTER 210100,144,67 STATION 1
TRANSMITTER ON AT 212200,144,67 STATION 1
FREQ 20459700 AFTER 042900,145,67 STATION 12
TRANSMITTER ON AT 044000,145,67 STATION 12
FREQ 20459700 AFTER 115302,145,67 STATION 4
TRANSMITTER ON AT 115302,145,67 STATION 4
FREQ 20459700 AFTER 220800,145,67 STATION 1
TRANSMITTER ON AT 221800,145,67 STATION 1
FREQ 20459700 AFTER 053500,146,67 STATION 12
TRANSMITTER ON AT 062000,146,67 STATION 12
FREQ 20459700 AFTER 122502,146,67 STATION 4
TRANSMITTER ON AT 124302,146,67 STATION 4
FREQ 20459700 AFTER 231000,146,67 STATION 1
TRANSMITTER ON AT 233200,146,67 STATION 1
FREQ 20459700 AFTER 062700,147,67 STATION 12
TRANSMITTER ON AT 070400,147,67 STATION 12

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FREQ  20459700 AFTER 135200,147,67 STATION 4
TRANSMITTER ON AT 140700,147,67 STATION 4
FREQ  20459700 AFTER 000001,148,67 STATION 1
TRANSMITTER ON AT 001200,148,67 STATION 1
FREQ  20459300 AFTER 043300,148,67 STATION 1
FREQ  20459300 AFTER 071200,148,67 STATION 12
TRANSMITTER ON AT 075500,148,67 STATION 12
FREQ  20459300 AFTER 154800,148,67 STATION 4
TRANSMITTER ON AT 163200,148,67 STATION 4
FREQ  20459300 AFTER 004500,149,67 STATION 1
TRANSMITTER ON AT 010300,149,67 STATION 1
FREQ  20459300 AFTER 074600,149,67 STATION 12
TRANSMITTER ON AT 083300,149,67 STATION 12
FREQ  20459300 AFTER 162900,149,67 STATION 4
TRANSMITTER ON AT 174200,149,67 STATION 4
FREQ  20459300 AFTER 011400,150,67 STATION 1
TRANSMITTER ON AT 012600,150,67 STATION 1
FREQ  20459300 AFTER 081900,150,67 STATION 12
TRANSMITTER ON AT 093000,150,67 STATION 12
FREQ  20459300 AFTER 181800,150,67 STATION 4
TRANSMITTER ON AT 181800,150,67 STATION 4
FREQ  20459309 AFTER 011000,151,67 STATION 1
TRANSMITTER ON AT 015000,151,67 STATION 1
FREQ  20459300 AFTER 084800,151,67 STATION 12
TRANSMITTER ON AT 093400,151,67 STATION 12
FREQ  20459300 AFTER 182800,151,67 STATION 4
TRANSMITTER ON AT 182800,151,67 STATION 4


FREQ  20459300 AFTER 020000,152,67 STATION 1
TRANSMITTER ON AT 022500,152,67 STATION 1
FREQ  20459300 AFTER 091600,152,67 STATION 12
TRANSMITTER ON AT 094300,152,67 STATION 12
CHANGE EXECUTE
PRINT ALL CONTROLS
        END DATA                                                    (0
```

FILE SUMMARIES

Master file and ODP file summaries for each mission phase are contained in this appendix section. Also listed is a corresponding tabulation of the B-1 and B-2 saved tapes.

These tapes should not be altered in any way (i.e., they may be "read" but not "written"). If it is desired to alter the ODP file, the corresponding B-1 may be "read" and a new B-2 tape used when running ODGX.

Master File Summary (L/O Library B1 tapes: 9816, 9738,9666)

TIME POINTS SENT TO MASTER FILES— ACCEPTED 8497 REPLACED 1843

MASTER FILE DATA SUMMARY

STA	COUNT	HHMMSS,DAY	TO HHMMSS,DAY	ELAPSED HHMMSS,DAYS		TIMES IN SECONDS		ELAPSED
1	2775	044802 125	174402 128	125600	3	24482.0	330242.0	305760.0
4	2540	230920 124	073102 128	082142	3	4160.0	293462.0	289302.0
5	289	225709 124	070102 125	080353	0	3429.0	32462.0	29033.0
6	65	223124 124	223748 124	000624	0	1884.0	2268.0	384.0
7	62	224500 124	225112 124	000612	0	2700.0	3072.0	372.0
8	140	223025 124	235828 124	012803	0	1825.0	7108.0	5283.0
9	139	225600 124	231000 124	001400	0	3360.0	4200.0	840.0
10	243	231112 124	233542 124	002430	0	4272.0	5742.0	1470.0
12	2244	013402 125	184202 128	170800	3	12842.0	333722.0	320880.0

ODP File Summary (Entire deck, I/O Library B2 tape: 10793)

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITON CODE	1	0	0	1	0	0	0	0	0	0	0	3
LOGICAL TRANSMITTER ERRORS	49	0	0	110	5	0	0	0	0	0	0	248
ELEVATION ANGLE CONSTRAINTS	2	0	0	1	0	0	0	0	0	0	0	14
BAD ANGLES NOT IN AUTO TRACK	321	0	0	53	44	0	0	0	0	0	0	469
DSIF DATA IN MANUAL MODE	72	0	0	40	5	2	3	2	13	7	0	38
GOOD DOPPLER IGNORED BY INPUT	64	0	0	36	43	126	118	276	252	472	0	34
GOOD ANGLES IGNORED BY INPUT	38	0	0	0	0	126	116	275	252	472	0	0

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP CATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	044932.000,125	174402.000,128	0	0	0	0	2284	2284	0	1558	934	0	796
4	231610.000,124	072302.000,128	0	0	0	0	2485	2485	0	1989	363	0	1162
5	024502.000,125	070102.000,125	0	0	0	0	245	245	0	0	228	0	0
12	013402.000,125	184202.000,128	0	0	0	0	1616	1616	0	1628	270	0	533

ODP File Summary (No IGNORE cards, I/O Library B2 tape: 11293

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	1	0	0	1	0	0	0	0	0	0	0	3
LOGICAL TRANSMITTER ERRORS	49	0	0	110	44	0	0	0	0	0	0	248
ELEVATION ANGLE CONSTRAINTS	2	0	0	1	0	0	0	0	0	0	0	14
BAD ANGLES NOT IN AUTO TRACK	321	0	0	53	44	0	0	0	0	0	0	469
DSIF DATA IN MANUAL MODE	72	0	0	40	5	2	3	2	13	7	0	38

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME		R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	044932.000,125	174402.000,128	0	0	0	0	2303	2303	0	1606	947	0	814
4	231610.000,124	072302.000,128	0	0	0	0	2485	2485	0	2000	385	0	1188
5	024502.000,125	070102.000,125	0	0	0	0	245	245	0	0	232	0	0
6	223124.000,124	223736.000,124	63	0	63	63	0	0	0	0	0	0	0
7	224500.000,124	225054.000,124	59	0	57	59	0	0	0	0	0	0	0
8	225933.000,124	235828.000,124	138	0	137	138	0	0	0	0	0	0	0
9	225600.000,124	230842.000,124	126	0	126	126	0	0	0	0	0	0	0
10	231112.000,124	233542.000,124	236	0	236	236	0	0	0	0	0	0	0
12	013402.000,125	184202.000,128	0	0	0	0	1616	1616	0	1651	274	0	534

MISSION IV - PHOTO ELLIPSE - Part 1

L/O LIBRARY B1 Tapes = 9827, 9972, 10809 TBC SAVE B1 = 10015

TIME POINTS SENT TO MASTER FILES- ACCEPTED 26547 REPLACED 2063

MASTER FILE DATA SUMMARY.	STA	COUNT	HHMMSS,DAY	TO HHMMSS,DAY	ELAPSED HHMMSS,DAYS		TIMES IN SECONDS		ELAPSED
	1	8026	130002 128	000002 138	110000	9	313202.0	1130402.0	817200.0
	4	7063	212902 128	102402 138	125500	9	343742.0	1167842.0	82[illegible]0.0
	12	11458	130802 128	090522 138	195720	9	313682.0	1163122.0	8[illegible].0

MISSION IV - PHOTO ELLIPSE (Part 1)

ODP FILE SUMMARY MADE WITH NO IGNORE CARDS EXCEPT IGNORE ALL ANGLES

L/O LIBRARY B2 = 10864 TBC B2 = 10771

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	2739	0	0	2508	0	0	0	0	0	0	0	4828
LOGICAL TRANSMITTER ERRORS	120	0	0	47	0	0	0	0	0	0	0	83
BAD ANGLES NOT IN AUTO TRACK	108	0	0	92	0	0	0	0	0	0	0	105
DSIF DATA IN MANUAL MODE	108	0	0	92	0	0	0	0	0	0	0	105
GOOD ANGLES IGNORED BY INPUT	15491	0	0	13925	0	0	0	0	0	0	0	19168

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	133732.000,128	000002.000,138	0	0	0	0	0	0	0	4238	1116	0	731
4	213332.000,128	102402.000,138	0	0	0	0	0	0	0	3736	975	0	631
12	133632.000,128	090522.000,138	0	0	0	0	0	0	0	6994	723	0	789

MISSION IV - PHOTO ELLIPSE (Part 1-A)

ODP FILE SUMMARY USED ENTIRE ODGX DECK BUT IGNORED BEFORE 0300, DAY 135 (GMT)

L/O LIBRARY B2 = 9863 TBC B2 = 10456

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	1506	0	0	1046	0	0	0	0	0	0	0	3017
LOGICAL TRANSMITTER ERRORS	118	0	0	47	0	0	0	0	0	0	0	79
BAD ANGLES NOT IN AUTO TRACK	108	0	0	92	0	0	0	0	0	0	0	105
DSIF DATA IN MANUAL MODE	108	0	0	92	0	0	0	0	0	0	0	105
GOOD DOPPLER IGNORED BY INPUT	4337	0	0	4730	0	0	0	0	0	0	0	5623
GOOD ANGLES IGNORED BY INPUT	15491	0	0	13925	0	0	0	0	0	0	0	19168

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	133732.000,128	195852.000,134	0	0	0	0	0	0	0	2650	1015	0	725
4	213332.000,128	113302.000,134	0	0	0	0	0	0	0	2435	694	0	630
12	133632.000,128	025902.000,135	0	0	0	0	0	0	0	5427	319	0	772

MISSION IV - PHOTO ELLIPSE (Part 1-B)

ODP FILE SUMMARY USED ENTIRE ODG DECK BUT IGNORED BEFORE 0300, DAY 135 (GMT)

L/O LIBRARY B2 = 8178 TBC B2 = 10467

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	1228	0	0	1462	0	0	0	0	0	0	0	1808
LOGICAL TRANSMITTER ERRORS	2	0	0	0	0	0	0	0	0	0	0	4
BAD ANGLES NOT IN AUTO TRACK	108	0	0	92	0	0	0	0	0	0	0	105
DSIF DATA IN MANUAL MODE	108	0	0	92	0	0	0	0	0	0	0	105
GOOD DOPPLER IGNORED BY INPUT	7302	0	0	5553	0	0	0	0	0	0	0	11548
GOOD ANGLES IGNORED BY INPUT	15491	0	0	13925	0	0	0	0	0	0	0	19168

PLEASE NOTE -DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	110132.000,135	000002.000,138	0	0	0	0	0	0	0	1483	73	0	0
4	030232.000,135	101532.000,138	0	0	0	0	0	0	0	1194	251	0	1
12	030032.000,135	090522.000,138	0	0	0	0	0	0	0	1483	383	0	0

MISSION IV - PHOTO ELLIPSE (Part 2)

OPD FILE SUMMARY MADE WITH ENTIRE ODGX DECK

L/O LIBRARY B2 = 11055 TBC B2 = 10928

DATA NOT USED BECAUSE. STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	8065	0	0	10454	0	0	0	0	0	0	0	6974
LOGICAL TRANSMITTER ERRORS	26	0	0	6	0	0	0	0	0	0	0	7
ELEVATION ANGLE CONSTRAINTS	0	0	0	0	0	0	0	0	0	0	0	9
BAD ANGLES NOT IN AUTO TRACK	119	0	0	145	0	0	0	0	0	0	0	121
DSIF DATA IN MANUAL MODE	119	0	0	145	0	0	0	0	0	0	0	121
GOOD DOPPLER IGNORED BY INPUT	50	0	0	22	0	0	0	0	0	0	0	90
GOOD ANGLES IGNORED BY INPUT	21211	0	0	26587	0	0	0	0	0	0	0	22159

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	133132.000,138	101402.000,152	0	0	0	0	2	2	0	5793	599	0	1
4	065932.000,138	023002.000,152	0	0	0	0	2	2	0	6395	818	0	2
12	030232.000,138	132302.000,152	0	0	0	0	0	0	0	6292	1073	0	3

MISSION IV - PHOTO ELLIPSE (Part 2)

ODP FILE SUMMARY NO IGNORE CARDS IN ODG DECK EXCEPT IGNORE ALL ANGLES

L/O LIBRARY B2 = 11052 TBC B2 = 10878

DATA NOT USED BECAUSE, STATION=	1	2	3	4	5	6	7	8	9	10	11	12
RANGE DATA CONDITION CODE	8065	0	0	10454	0	0	0	0	0	0	0	6974
LOGICAL TRANSMITTER ERRORS	26	0	0	6	0	0	0	0	0	0	0	7
BAD ANGLES NOT IN AUTO TRACK	119	0	0	145	0	0	0	0	0	0	0	121
DSIF DATA IN MANUAL MODE	119	0	0	145	0	0	0	0	0	0	0	121
GOOD ANGLES IGNORED BY INPUT	21215	0	0	26591	0	0	0	0	0	0	0	22177

PLEASE NOTE - DATA VALUES ADJUSTED BY POLY

SUMMARY OF DATA TYPES ON THE ODP DATA FILE

PLEASE NOTE - END TIMES MAY BE IN ERROR BY TC/2

STA	START TIME	END TIME	R	DR	EL	AZ	DEC	HA	C1	CC3	C3	PRU	RU
1	133132.000,138	101402.000,152	0	0	0	0	0	0	0	5829	609	0	1
4	065932.000,138	023002.000,152	0	0	0	0	0	0	0	6415	818	0	2
12	030232.000,138	132302.000,152	0	0	0	0	0	0	0	6370	1088	0	3

B1 AND B2 TAPE LISTING – CISLUNAR

L/O Library Tapes	TBC Tapes	Langley Tapes	Time Span (GMT) From	To
B1 = 9816	To be added	To be added	223025/124	184202/128
B1 = 9738		"	"	"
B1 = 9666		"	"	"
B2 = 11293	To be added		231610/124	184202/128
B2 = 10793	"		223124/124	184202/128

B1 AND B2 SAVE TAPE LISTING – PHOTO ELLIPSE

L/O Library Tapes	TBC Tapes	Langley Tape (B1)	Time Span (GMT) From – To
B1 = 9972	10015		130002/128 – 102402/138
B1 = 9827	--		130002/128 – 102402/138
B1 = 10809	--		130002/128 – 102402/138
B2 = 9863(1)	10456		133632/128 – 025902/135
B2 = 8178(2)	10467		030002/135 – 101532/138
B2 = 10864(3)	10771		133632/128 – 102402/138
B1 = 9918	10179		030002/138 – 132302/152
B1 = 9896	--		030002/138 – 132302/152
B1 = 9581	--		030002/138 – 132302/152
B2 = 11052(4)	10878		030232/138 – 132302/152
B2 = 11055(5)	10928		030232/138 – 132302/152
		400	2230/124 – 2320/125
		401	2230/124 – 2257/126
		402	2230/124 – 0116/128
		403	2230/124 – 1842/128
		404	1300/128 – 0101/130
		405	1300/128 – 0100/131

B1 AND B2 SAVE TAPE LISTING – PHOTO ELLIPSE (Continued)

L/O Library Tapes	TBC Tapes	Langley Tapes (B1)	Time Span (GMT) From – To
		406	1300/128 – 0303/132
		407	1300/128 – 0300/133
		408	1300/128 – 0140/134
		409	1300/128 – 0100/135
		410	1300/128 – 1213/137
		411	1300/128 – 1000/138
		412	0300/138 – 1431/139
		413	0300/138 – 1315/140
		414	0300/138 – 1350/141
		415	0300/138 – 1344/142
		416	0300/138 – 1156/143
		417	0300/138 – 1225/144
		418	0300/138 – 0918/145
		419	0300/138 – 0129/146
		420	0300/138 – 2348/147
		421	0300/138 – 0227/149
		422	0300/138 – 0046/150

NOTE: For more detailed information concerning data on the above tapes, refer to the photo ellipse section of the file summaries.

(1) Used an IGNORE AFTER 030000,135,67 STATIONS 1, 4, 12 control card in the ODGX deck.

(2) Used an IGNORE BEFORE 030000,135,67 STATIONS 1, 4, 12 control card in the ODGX deck.

(3) Removed all IGNORE control cards from ODGX deck except for IGNORE ALL ANGLES STATIONS 1, 4, 12.

(4) Same as (3).

(5) Used the entire ODGX deck (Part 2).

TDPX LINK DECKS – CISLUNAR

The first TDPX Link 1 deck listed established the epoch to be used for all master files for Mission IV. No data can be added to a master file prior to this epoch. The second Link 1 deck was used for reading the B1 tape onto disk, and the deck that should be used by postmission analysts. The first TDPX Link 2 deck was used to place ETR data on the master file, while the second deck was nominal throughout the cislunar phase.

The ODGX deck listing contains all inputs necessary for processing the entire cislunar master file. For postmission analysis of segregated time spans, IGNORE BEFORE and/or IGNORE AFTER control cards (with the appropriate time fields specified) should be used.

TDPX LINK 1 DECKS - MISSION 4

```
FILE DISPOSITION                                                    (1
(NEW EPOCH - DESTROY MASTER                                         )
EPOCH                                                               (2
670500422,0000000
        END DATA                                                    (0
```

```
FILE DISPOSITION                                                    (1
(INITIALIZE MASTER FROM TAPE                                        )
        END DATA                                                    (0
```

TDPX LINK 2 DECKS - MISSION 4

```
CHANGE DAY RESET 124
CHANGE EXTERNAL 74 STATION 6
CHANGE EXTERNAL 79 STATION 7
CHANGE EXTERNAL 77 STATION 8
CHANGE EXTERNAL 76 STATION 9
CHANGE EXTERNAL 83 STATION 10
        END DATA                                                    (0
```

```
CHANGE NOSORT
CHANGE SELECT DISC
CHANGE S BAND STATION 5
FORMAT(3(L2,1B),4L1,1B,3L2,1B,L3,1B,L10,1B,11X,2(1B,F6.3))NUMBER 13
ASSIGN(ID,DC7,DC4,DC1,DC2,DC3,DC5,HR,MIN,SEC,DAY,DP,HA,DEC)NUMBER 13
FORMAT(2X,1B,2(L2,1B),4L1,1B,3L2,1B,L3,2(1B,L10),L1,2(1B,F6.3))STATION 5
ASSIGN(DC7,DC4,DC1,DC2,DC3,DC5,HR,MIN,SEC,DAY,DP,RU,DC6,HA,DEC)STATION 5
        END DATA                                                    (0
```

TDPX LINK DECKS – PHOTO ELLIPSE

The first TDPX link 1 deck listed established the epoch used for all Mission IV master files. No data can be added to a master file prior to this epoch. The second Link 1 deck was used for reading the B1 tape onto disk, and the deck which should be used by postmission analysts using the saved B1 tapes listed for the photo ellipse. The TDPX Link 2 deck established the nominal conditions for processing data.

The photo ellipse phase of the mission was broken into two parts for editing purposes because of disk data handling limitations. Therefore, there are two ODGX decks listed. Each deck is complete, although not necessarily in the form used to make the save B2 tapes listed for the photo ellipse. The decks may be altered to suit the user's purpose, but it must be kept in mind that frequency and transmitter type control cards must be input for ODGX to run successfully.

Most IGNORE cards have an abbreviated explanation of their purpose following a "dollar" sign. Roll maneuvers, station handovers, and counter "glitches" were the errors most frequently encountered. A "00" indicates that the last two digits of the doppler field were set equal to zero – a station counter error most frequently encountered with Station 62 data. "Bad data" and "blunder" notations indicate data that ODP residuals showed as being bad but there were no obvious reasons for the errors.

TDPX LINK 1 DECKS - MISSION 4

```
                                                                    (1
FILE DISPOSITION                                                )
(NEW EPOCH - DESTROY MASTER                                         (2
EPOCH
670500422,0000000                                                   (0
      END DATA
```

```
                                                                    (1
FILE DISPOSITION                                                )
(INITIALIZE MASTER FROM TAPE                                        (0
      END DATA
```

TDPX LINK 2 DECK - MISSION 4 - PHOTO ELLIPSE PHASE

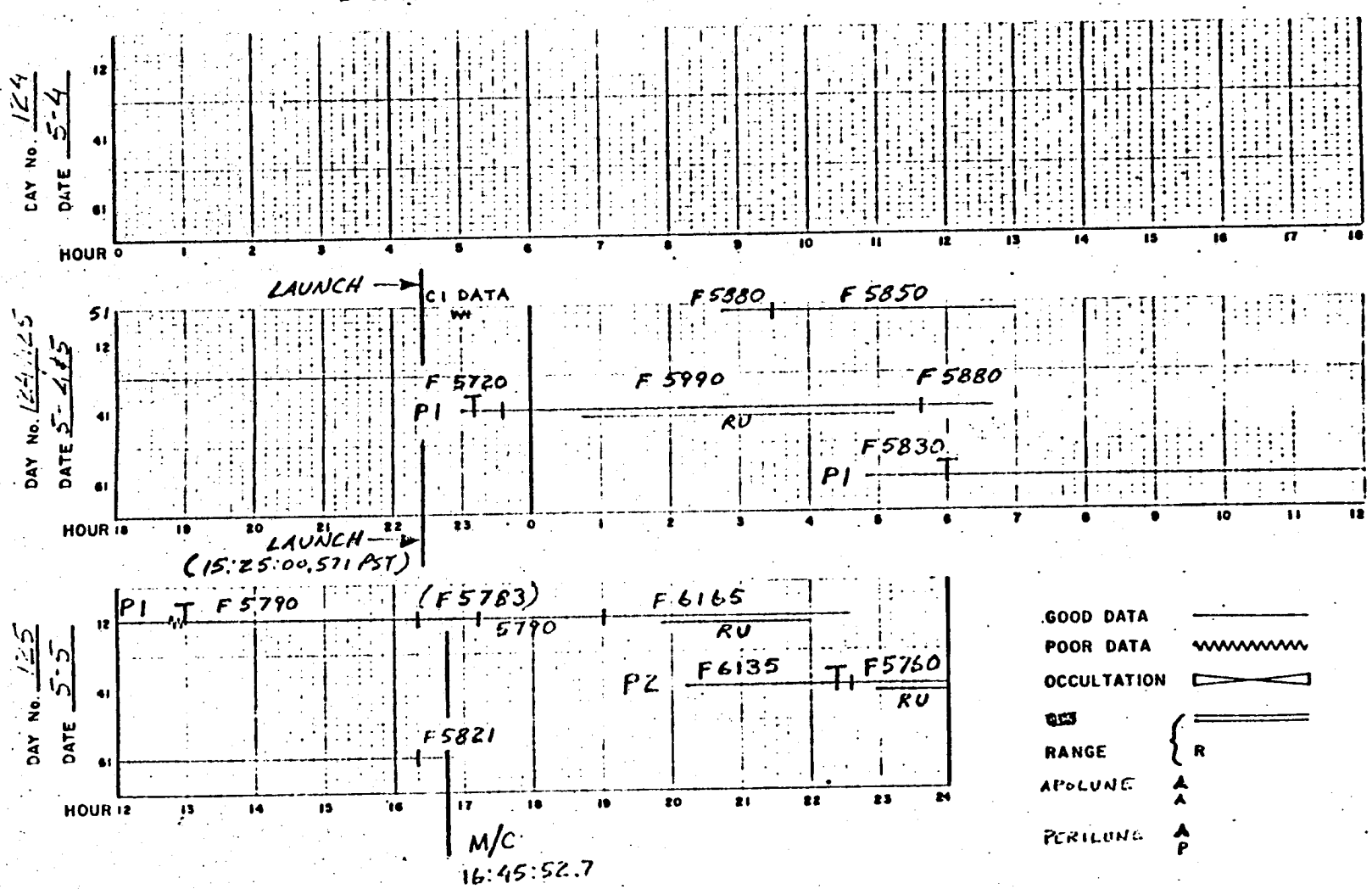
```
CHANGE NOSORT
CHANGE SELECT DISC
FORMAT(3(L2,1B),4L1,1B,3L2,1B,L3,1B,L10,1B,11X,2(1B,F6.3))NUMBER 13
ASSIGN(ID,DC7,DC4,DC1,DC2,DC3,DC5,HR,MIN,SEC,DAY,DP,HA,DEC)NUMBER 13   (0
      END DATA
```

TRACKING DATA BAR CHARTS – CISLUNAR

The tracking data bar charts presented here show, in graphic form, when and in what form tracking data was received. Frequencies, transmitter-on times, apolune-perilune times, and pass numbers are also shown.

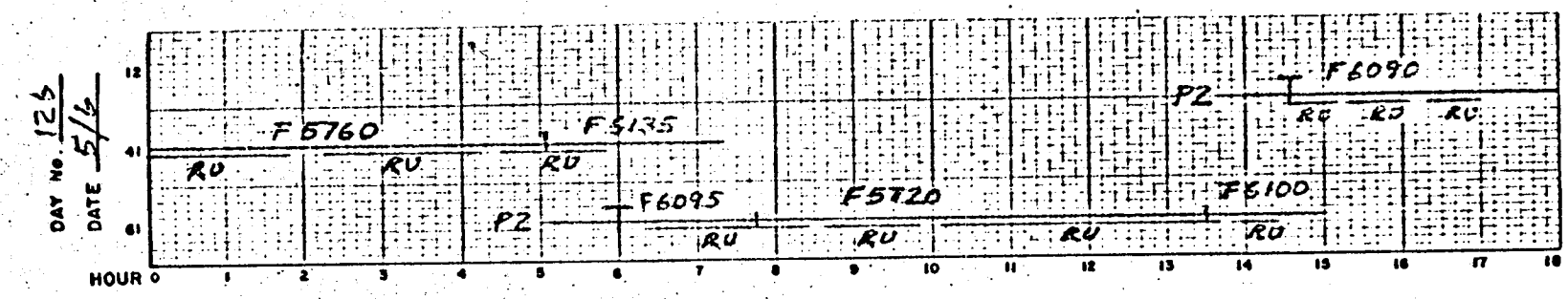
LUNAR ORBITER TRACKING PATTERN

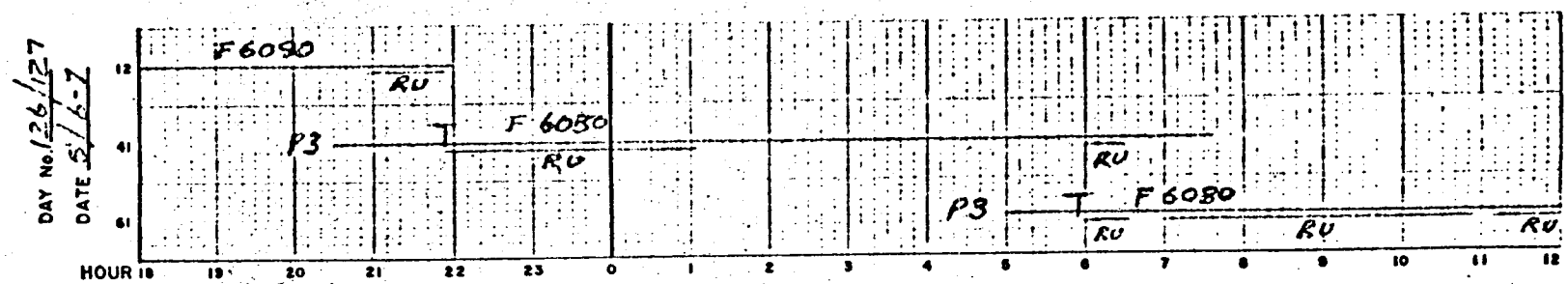
L. O. No. IV MISSION PHASE 1 OD ARC No. ____

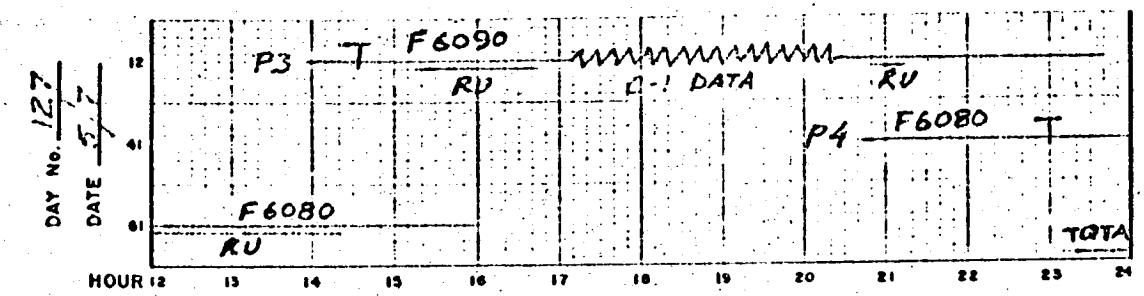


LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE I OD ARC No. ____







GOOD DATA

POOR DATA

OCCULTATION

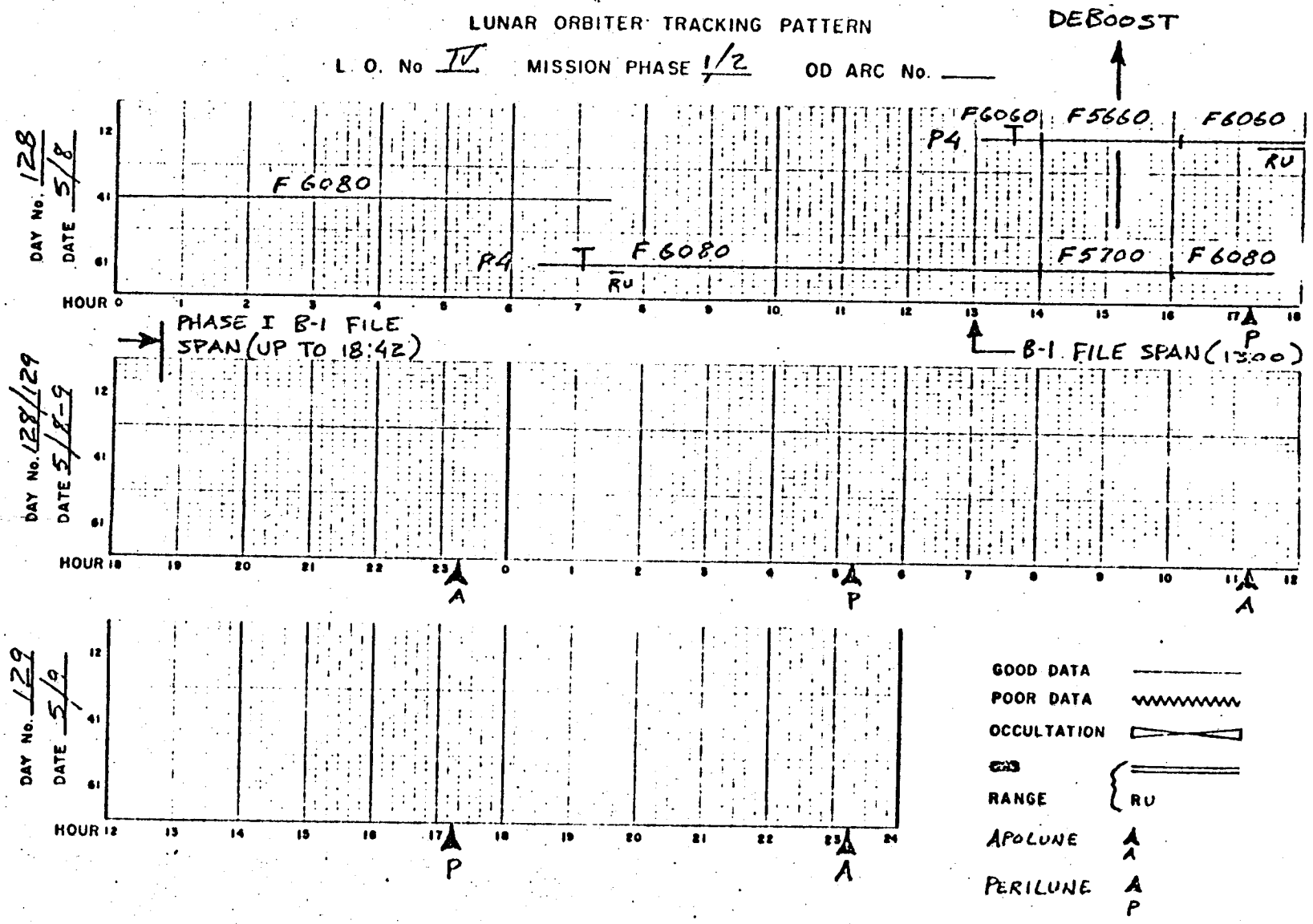
RANGE R

APOLUNE A

PERILUNE P

LUNAR ORBITER TRACKING PATTERN

L. O. No IV MISSION PHASE 1/2 OD ARC No. ____

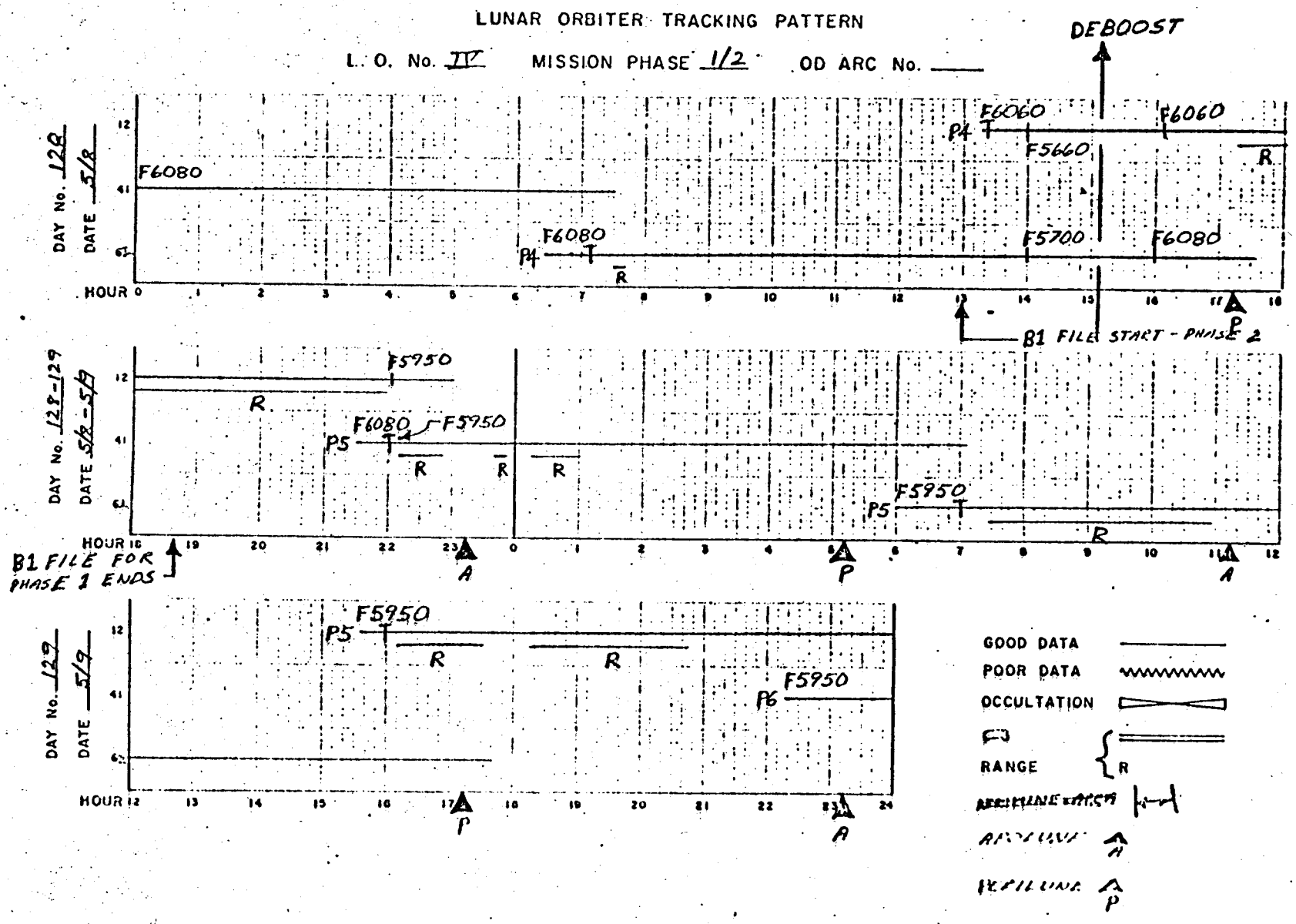


TRACKING DATA BAR CHARTS – PHOTO ELLIPSE

These charts show station tracking periods, frequencies, transmitter-on times, occultations, perilune and apolune times, pass numbers, bad data areas, and other notations for the photo ellipse. A usable ODGX input deck could be assembled from the collective information presented if all other sources of information were unavailable.

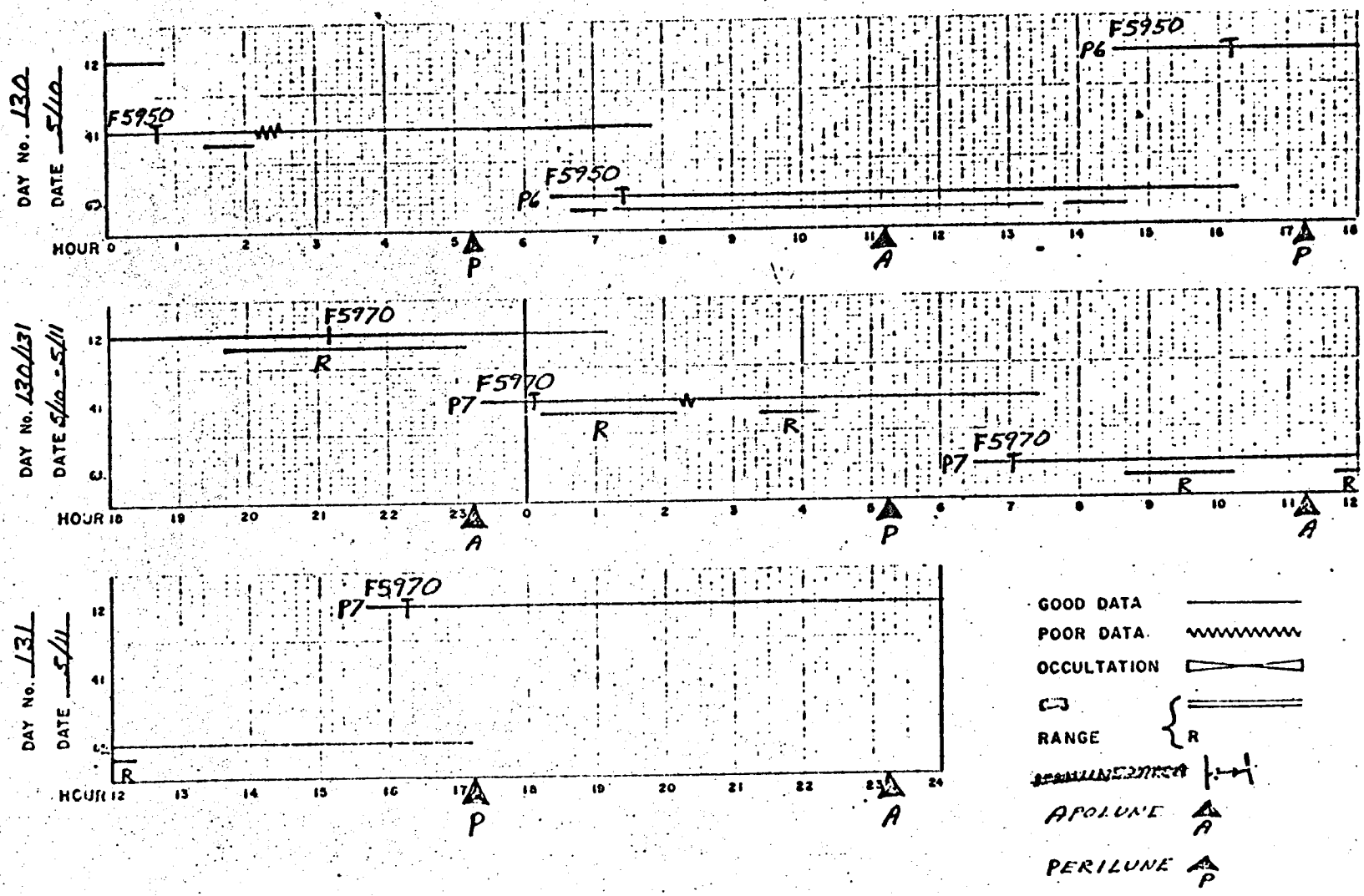
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 1/2 OD ARC No. ____



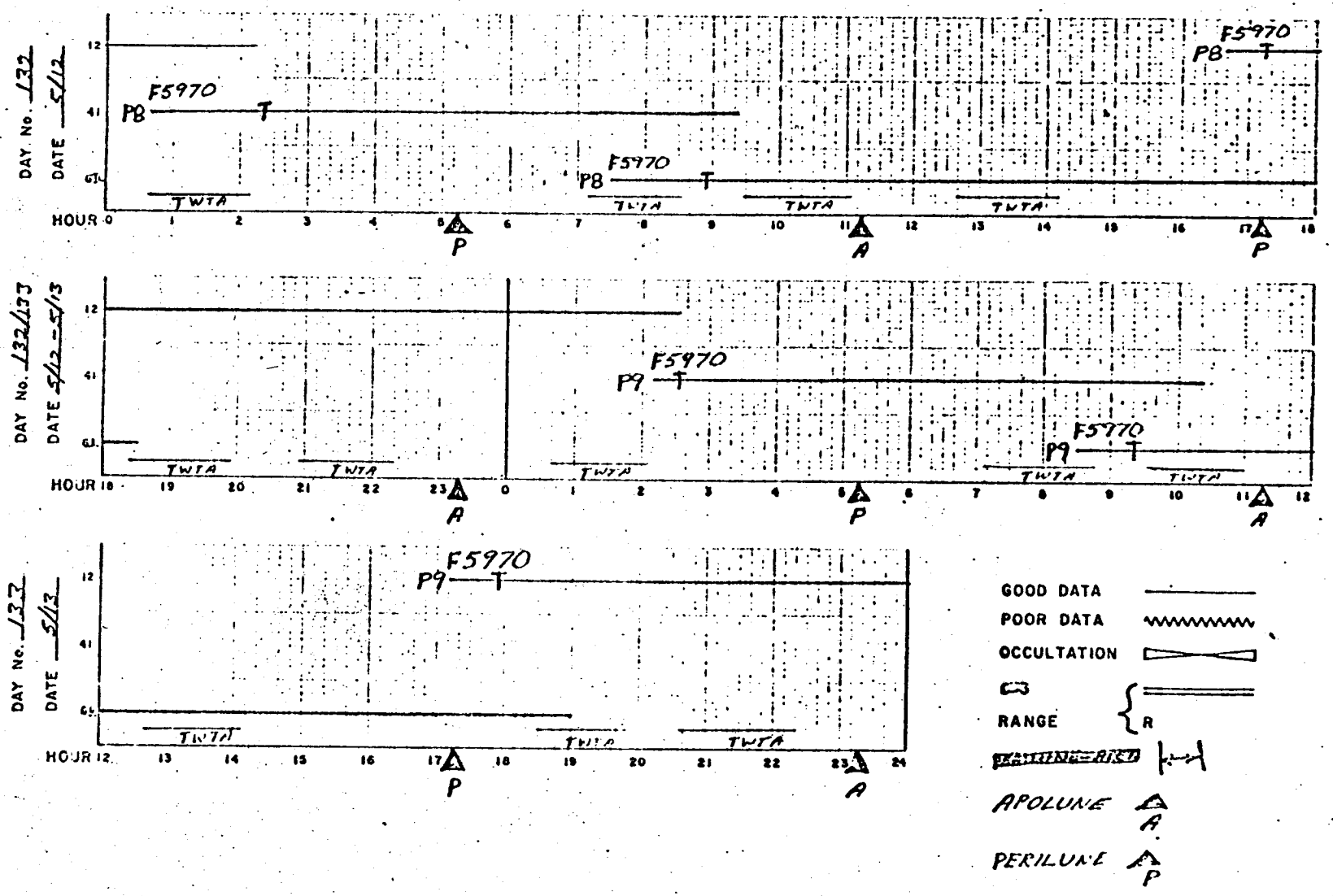
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



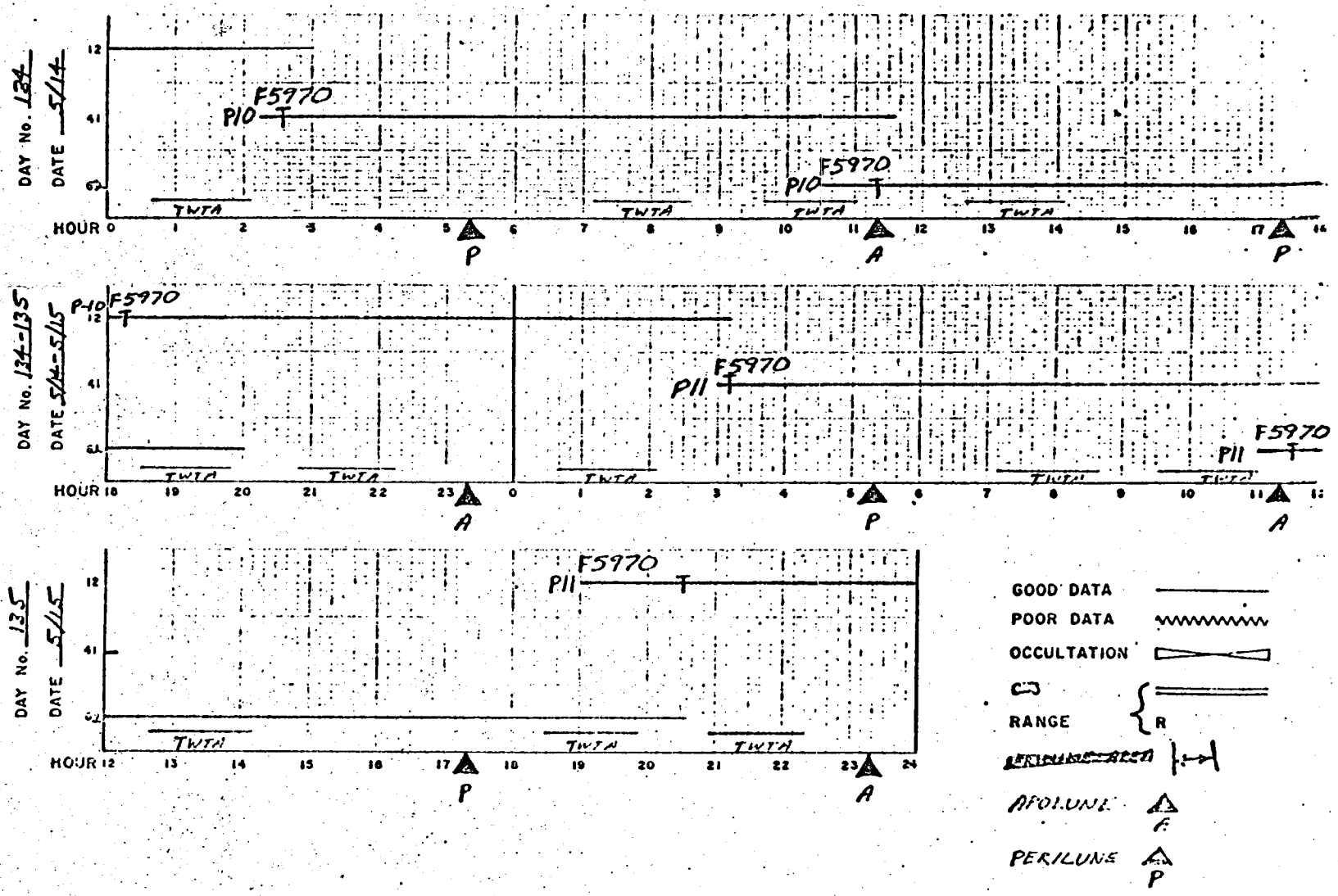
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



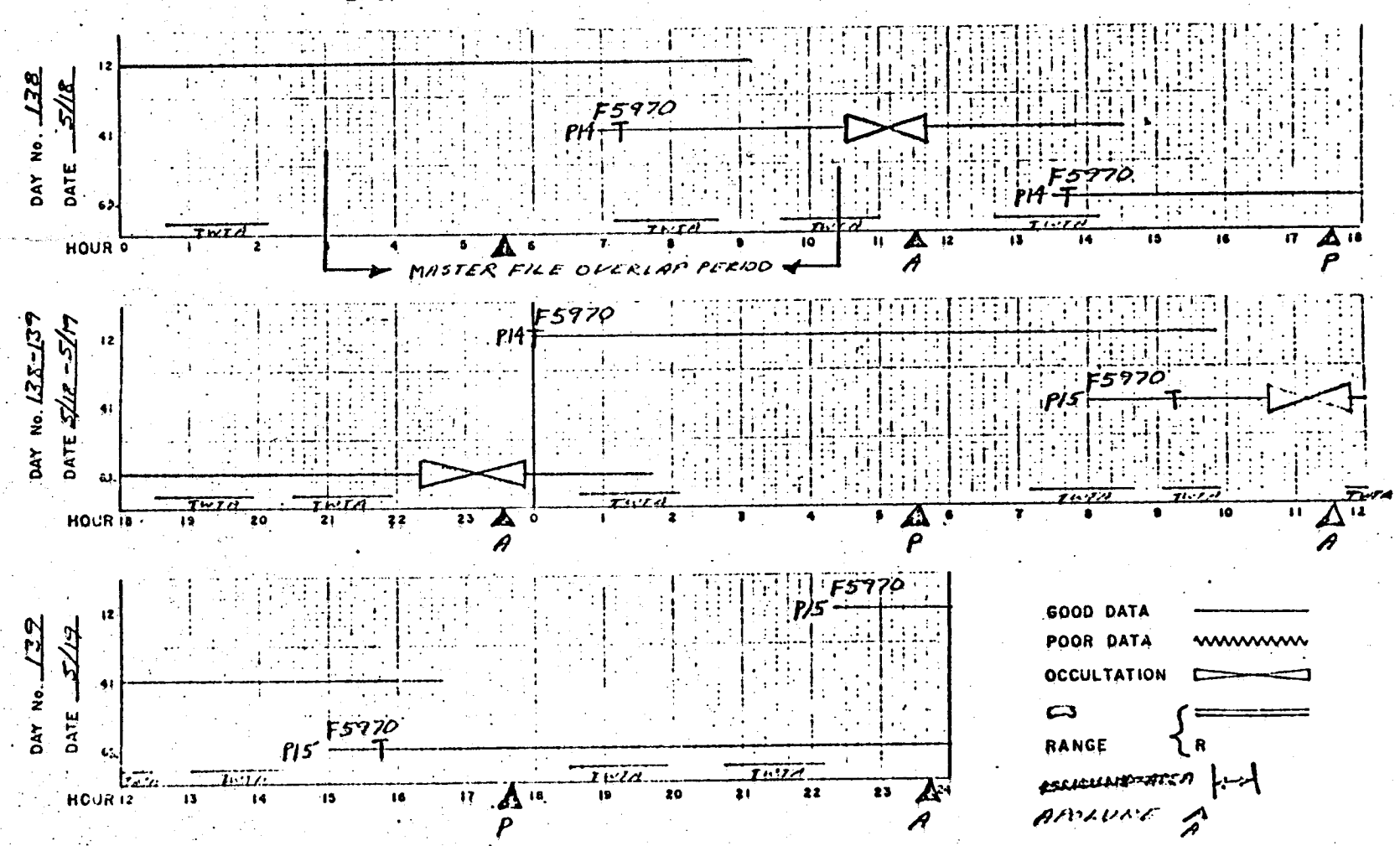
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



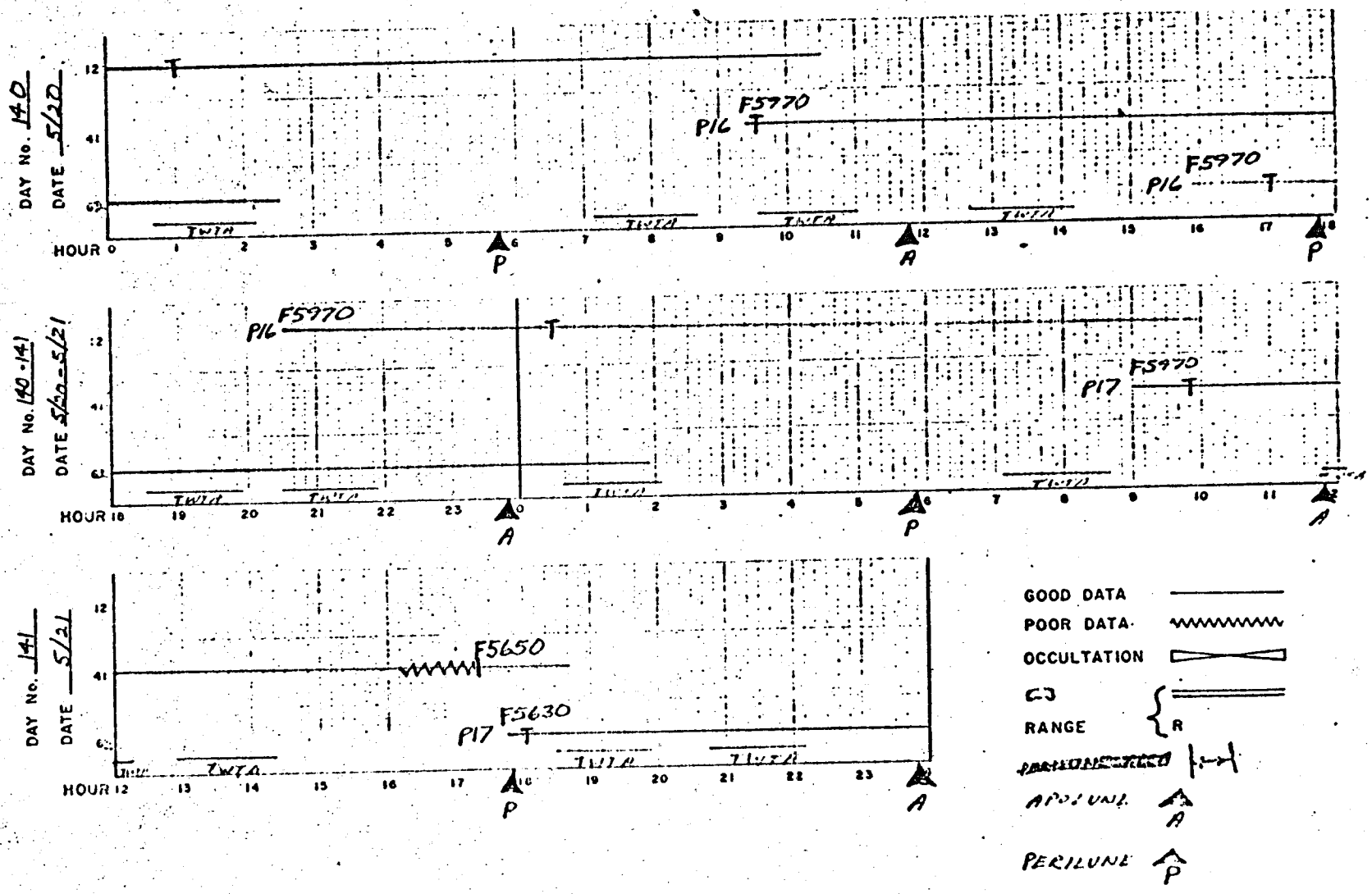
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



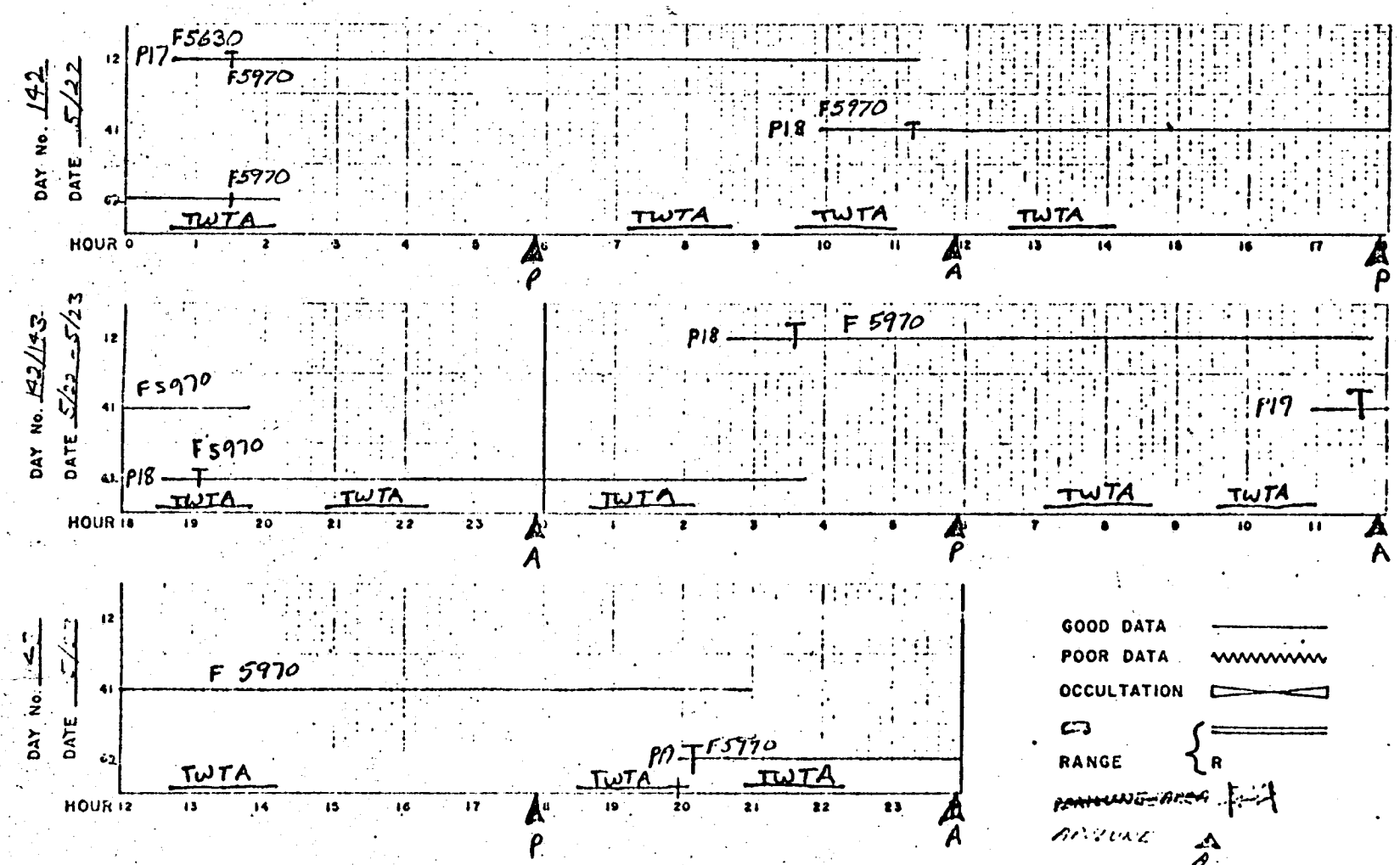
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



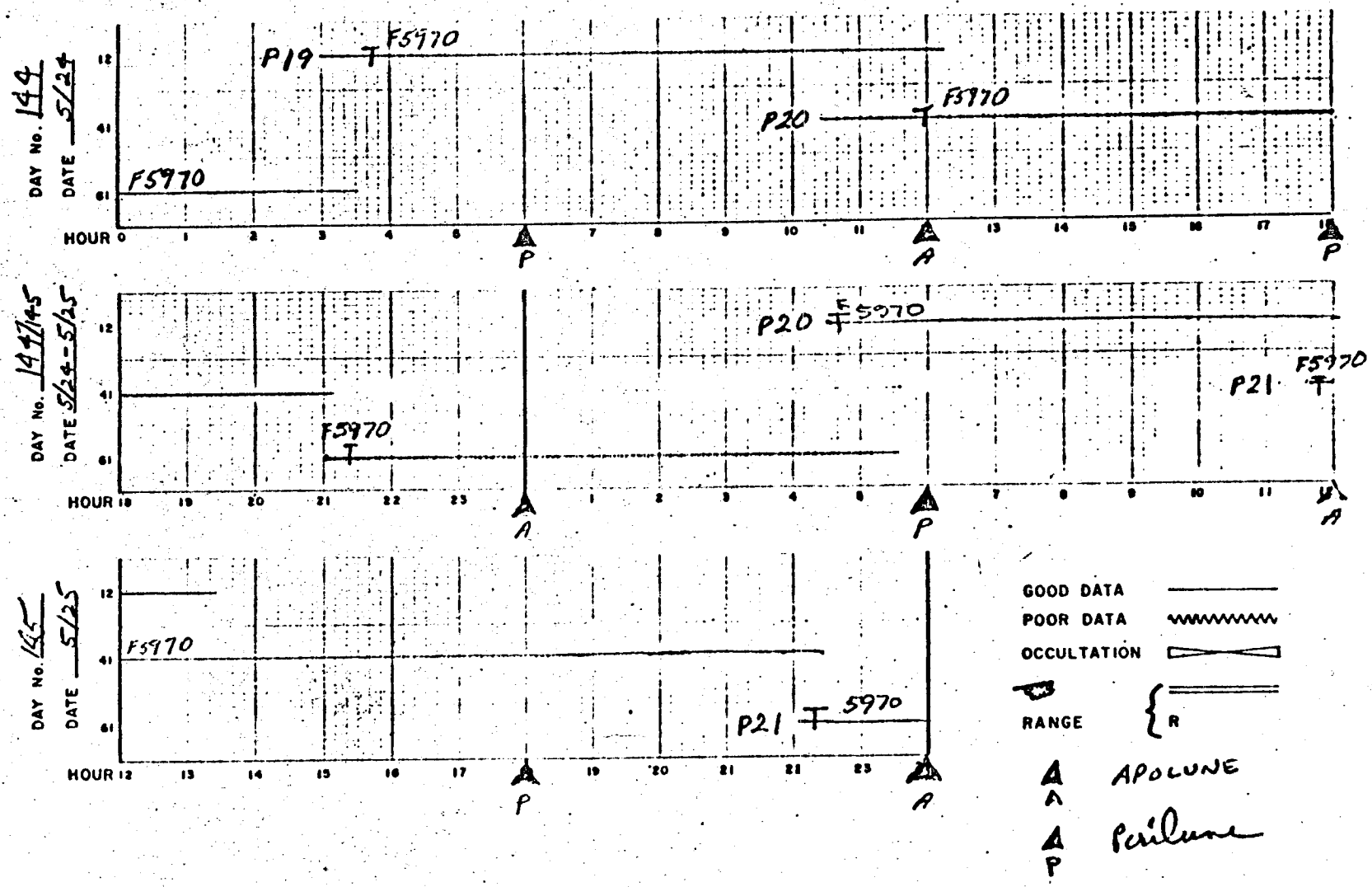
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



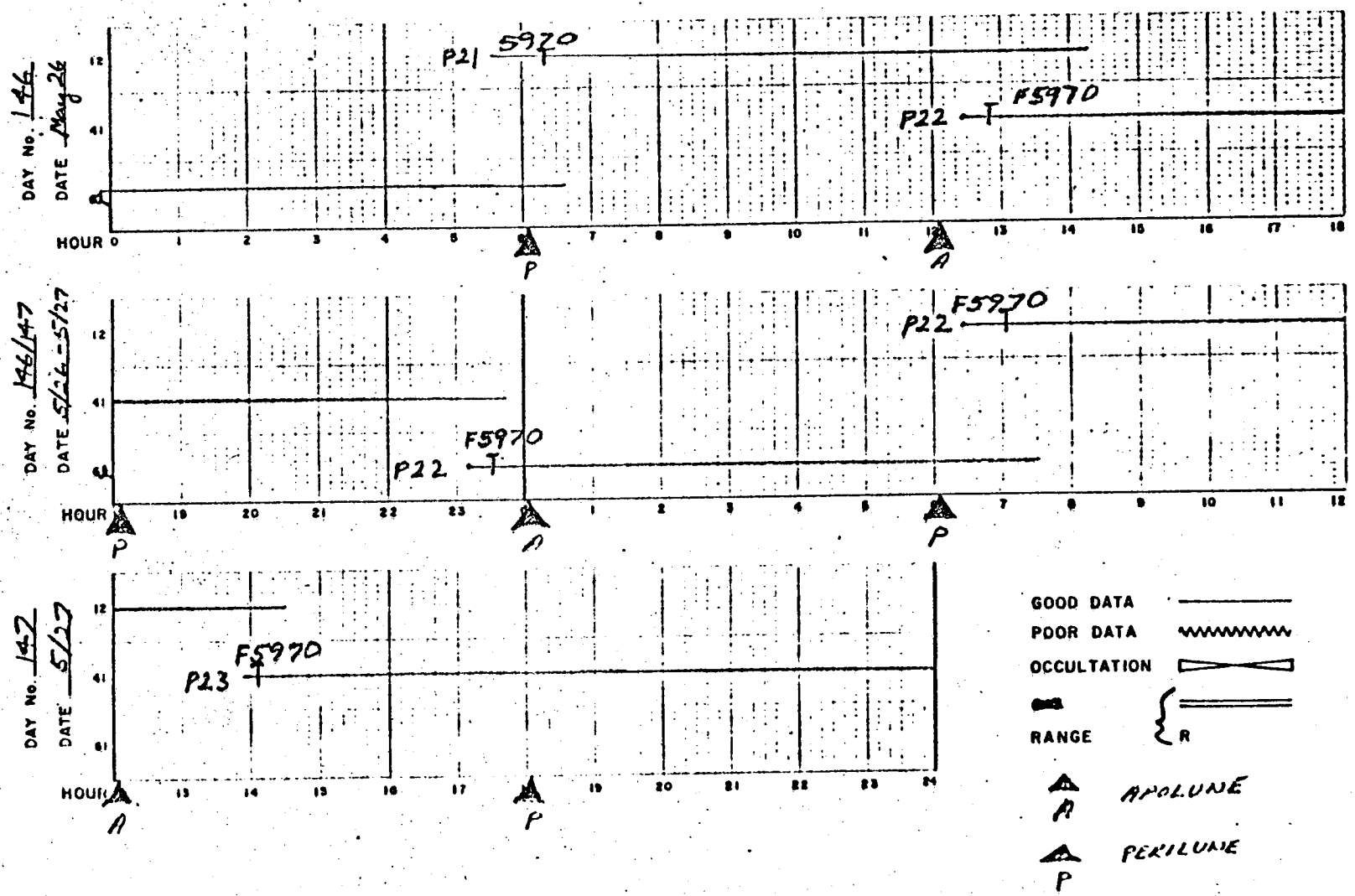
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



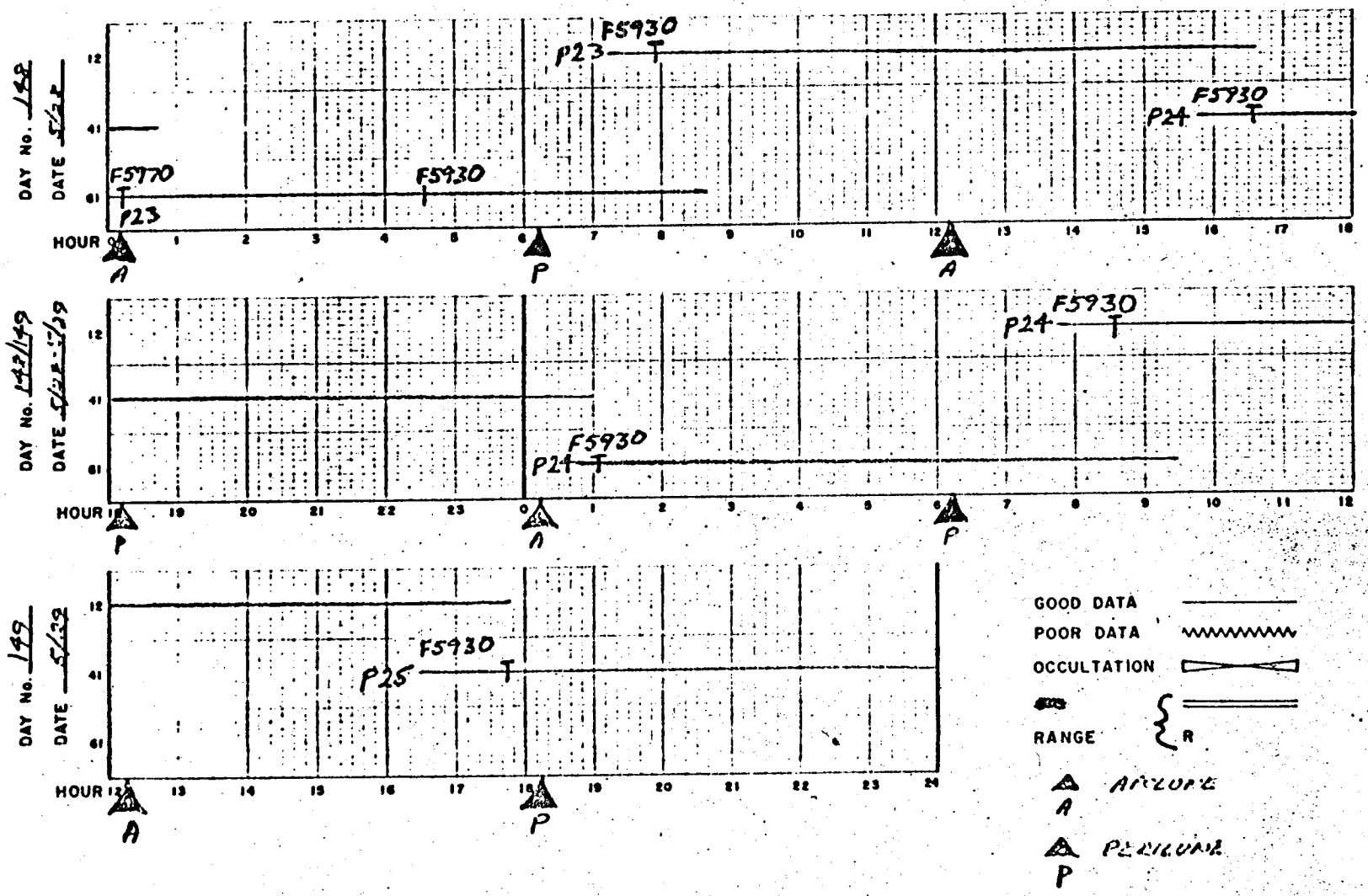
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



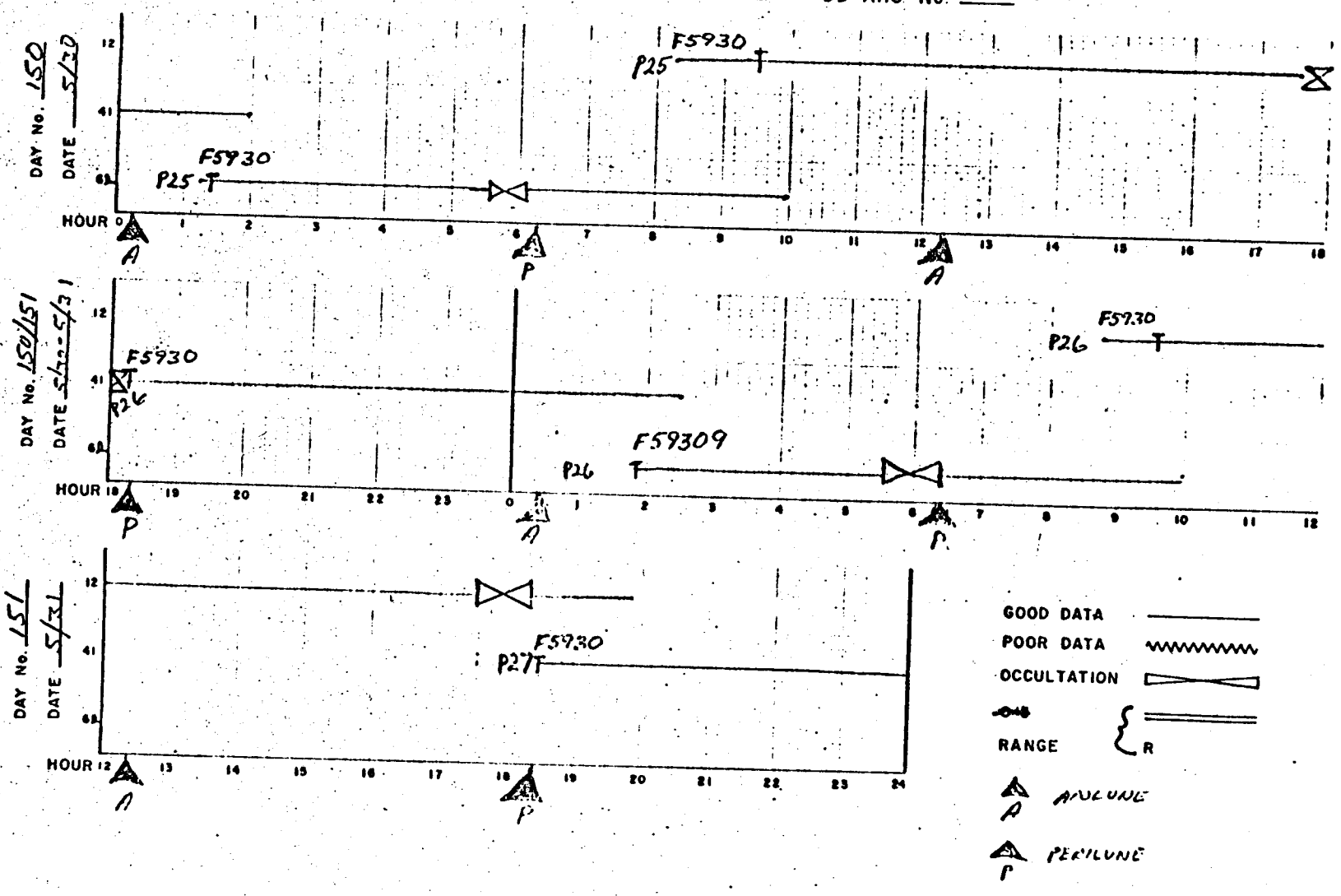
LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE 2 OD ARC No. ____



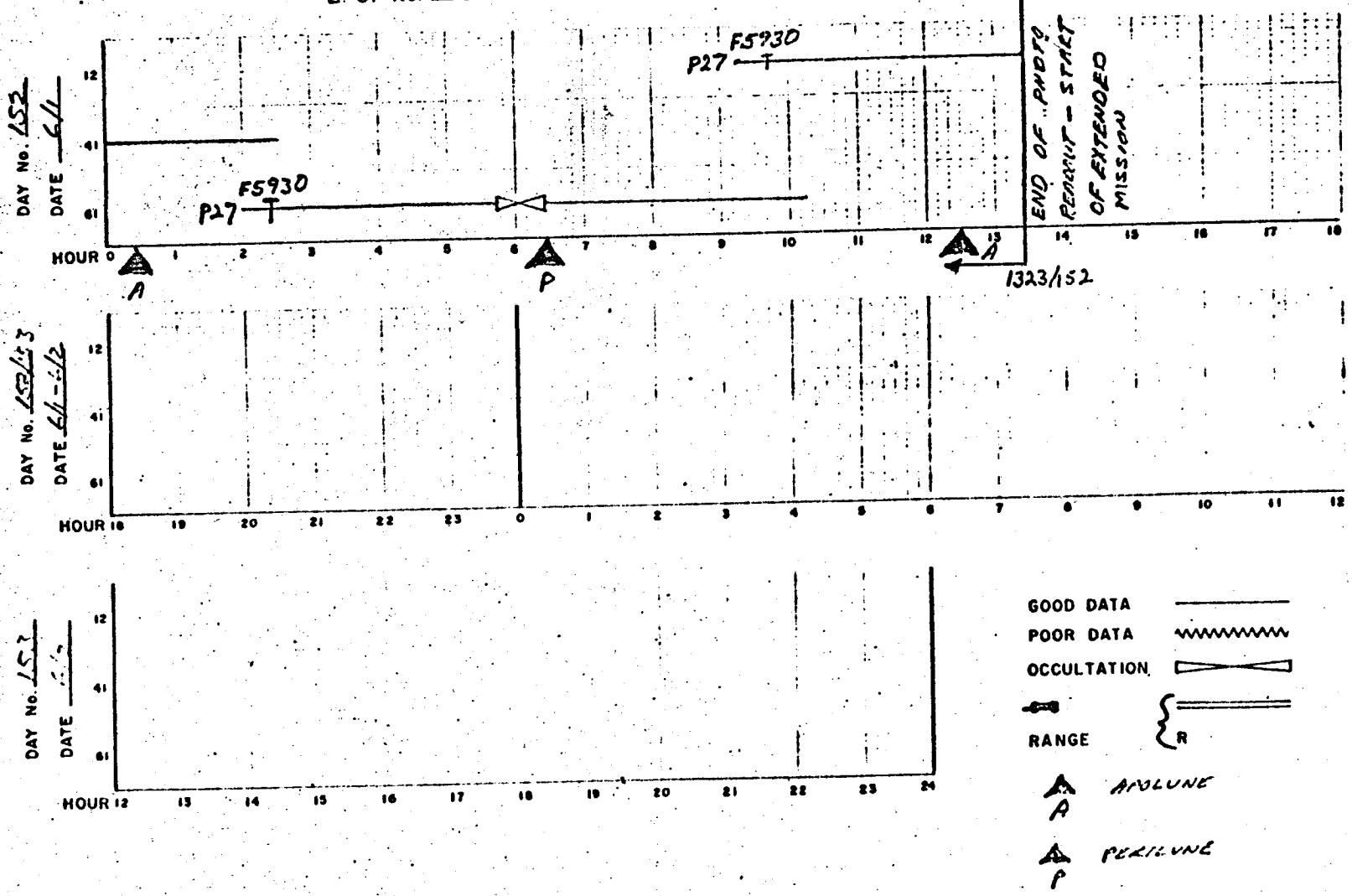
LUNAR ORBITER TRACKING PATTERN

L. O. No. ____ MISSION PHASE ____ OD ARC No. ____



LUNAR ORBITER TRACKING PATTERN

L. O. No. IV MISSION PHASE READOUT OD ARC No. —



DSIF VIEW PERIODS

STATION	EVENT	YY	MM	DD	HH	MM	SS	AZ	EL	HA	DEC
DSIF 62	SET	67	5	8	18	26	32	289.583	-.986	152.996	14.776
DSIF 41	RISE	67	5	8	21	6	23	70.409	1.371	281.698	15.887
DSIF 12	SET	67	5	9	1	18	38	282.138	8.467	90.000	14.763
DSIF 62	RISE	67	5	9	4	56	36	68.711	-.000	255.813	16.038
DSIF 41	SET	67	5	9	7	41	53	291.995	1.122	77.134	18.030
DSIF 12	RISE	67	5	9	13	45	55	75.973	9.737	270.000	17.019
DSIF 62	SET	67	5	9	19	32	30	296.552	-.000	107.933	19.806
DSIF 41	RISE	67	5	9	22	6	28	64.842	1.547	285.114	20.411
DSIF 12	SET	67	5	10	2	2	36	285.797	10.905	90.000	19.113
DSIF 62	RISE	67	5	10	5	22	10	62.346	-.000	251.224	20.682
DSIF 41	SET	67	5	10	8	14	27	297.413	1.295	73.720	22.408
DSIF 12	RISE	67	5	10	14	31	26	72.587	11.962	270.000	21.020
DSIF 62	SET	67	5	10	20	39	24	302.144	-.000	112.180	23.883
DSIF 41	RISE	67	5	10	23	6	38	60.465	1.599	287.873	23.964
DSIF 12	SET	67	5	11	2	49	9	288.853	12.287	90.000	22.703
DSIF 62	RISE	67	5	11	5	53	27	56.886	.000	247.063	24.565
DSIF 41	SET	67	5	11	8	53	14	301.641	1.415	70.931	25.777
DSIF 12	RISE	67	5	11	15	19	37	69.880	13.680	270.000	24.174
DSIF 62	SET	67	5	11	21	44	28	305.923	-.000	116.176	26.317
DSIF 41	RISE	67	5	12	0	5	52	57.520	1.616	289.804	26.334
DSIF 12	SET	67	5	12	3	38	31	291.142	14.324	90.000	25.354
DSIF 62	RISE	67	5	12	6	33	7	52.895	-.000	243.859	27.328
DSIF 41	SET	67	5	12	9	39	39	304.222	1.479	69.149	27.811
DSIF 12	RISE	67	5	12	16	10	45	68.003	14.952	270.000	26.333
DSIF 62	SET	67	5	12	22	44	41	307.572	-.000	116.526	27.646
DSIF 41	RISE	67	5	13	1	2	35	56.221	1.624	290.691	27.370
DSIF 12	SET	67	5	13	4	30	56	292.517	15.170	90.000	26.928
DSIF 62	RISE	67	5	13	7	23	43	51.119	-.000	242.383	28.533
DSIF 41	SET	67	5	13	10	32	18	304.795	1.492	68.745	28.359
DSIF 12	RISE	67	5	13	17	5	10	67.144	15.376	270.000	27.314
DSIF 62	SET	67	5	13	23	37	52	306.965	.000	116.026	27.232
DSIF 41	RISE	67	5	14	1	55	16	56.691	1.621	290.361	26.995
DSIF 12	SET	67	5	14	5	26	37	292.728	15.304	90.000	27.179
DSIF 41	IN VIEW	67	5	14	6	0	0	9.431	29.302	350.628	28.656
DSIF 62	RISE	67	5	14	8	25	10	52.114	.000	243.212	27.058
DSIF 41	SET	67	5	14	11	33	13	303.269	1.456	69.814	27.062
DSIF 12	RISE	67	5	14	18	2	17	67.699	15.038	270.000	26.691
DSIF 62	SET	67	5	15	0	23	21	304.214	.000	113.806	25.332
DSIF 41	RISE	67	5	15	2	43	11	58.938	1.609	288.865	25.196
DSIF 12	SET	67	5	15	6	24	6	291.392	14.480	90.000	25.639
DSIF 62	RISE	67	5	15	9	34	23	55.856	-.000	246.249	25.283
DSIF 41	SET	67	5	15	12	37	6	299.748	1.363	72.201	24.275
DSIF 12	RISE	67	5	15	18	59	27	69.892	13.680	270.000	24.159
DSIF 62	SET	67	5	16	1	1	25	299.511	-.000	110.166	22.013
DSIF 41	RISE	67	5	16	3	26	1	62.862	1.577	286.350	22.021
DSIF 12	SET	67	5	16	7	20	25	288.456	12.633	90.000	22.240
DSIF 62	RISE	67	5	16	10	46	44	61.783	-.000	250.804	21.086
DSIF 41	SET	67	5	16	13	42	47	294.579	1.206	75.534	20.126
DSIF 12	RISE	67	5	16	19	53	51	73.541	11.343	270.000	19.899
DSIF 62	SET	67	5	17	1	33	37	293.220	.000	105.554	17.457
DSIF 41	RISE	67	5	17	4	4	9	68.312	1.455	282.978	17.589
DSIF 12	SET	67	5	17	8	13	36	284.263	9.895	90.000	17.300
DSIF 62	RISE	67	5	17	11	59	26	69.264	.000	256.200	15.629
DSIF 41	SET	67	5	17	14	49	16	288.133	.993	79.455	14.871
DSIF 12	RISE	67	5	17	20	44	55	78.204	8.235	270.000	14.352
DSIF 12	OCCULT	67	5	17	22	43	27	95.545	30.988	298.748	13.291
DSIF 62	EMERGE	67	5	17	23	2	19	258.128	33.328	57.069	13.043
DSIF 12	EMERGE	67	5	17	23	21	55	102.190	38.390	308.181	12.930

STATION	EVENT	YY	MM	DD	HH	MM	SS	AZ	EL	HA	DEC
DSIF 62	SET	67	5	18	2	1	36	285.686	.000	100.326	11.871
DSIF 41	RISE	67	5	18	4	37	53	75.114	1.113	278.845	12.074
DSIF 12	SET	67	5	18	9	3	52	279.246	6.490	90.000	11.280
DSIF 41	OCCULT	67	5	18	10	24	2	356.362	46.926	2.536	11.622
DSIF 41	EMERGE	67	5	18	11	44	13	329.461	42.691	22.347	10.798
DSIF 62	RISE	67	5	18	13	12	1	77.822	-.000	262.030	9.236
DSIF 41	SET	67	5	18	15	56	27	280.807	.765	83.665	8.808
DSIF 12	RISE	67	5	18	21	33	23	83.496	4.584	270.000	7.951
DSIF 12	OCCULT	67	5	18	22	26	47	91.383	14.755	282.896	7.361
DSIF 62	OCCULT	67	5	18	22	27	46	234.791	43.428	36.745	7.320
DSIF 12	EMERGE	67	5	18	23	55	6	105.915	31.663	304.534	6.478
DSIF 62	EMERGE	67	5	18	23	57	29	253.647	27.638	58.799	6.383
DSIF 62	SET	67	5	19	2	27	5	277.249	-.000	94.716	5.508
DSIF 41	RISE	67	5	19	5	9	8	82.845	.668	274.313	5.756
DSIF 12	SET	67	5	19	9	52	36	273.762	2.659	90.000	4.605
DSIF 41	OCCULT	67	5	19	10	37	16	10.010	53.067	353.981	5.100
DSIF 41	EMERGE	67	5	19	11	46	49	341.383	52.687	11.191	4.372
DSIF 62	RISE	67	5	19	14	25	26	87.080	-.000	268.106	2.220
DSIF 41	SET	67	5	19	17	4	23	273.075	.596	87.080	2.216
DSIF 12	RISE	67	5	19	22	19	58	89.035	.682	270.000	1.100
DSIF 62	SET	67	5	20	2	51	40	268.250	.000	88.863	358.666
DSIF 41	RISE	67	5	20	5	41	29	90.818	.498	270.000	359.044
DSIF 12	SET	67	5	20	10	25	14	265.910	1.748	86.207	357.875
DSIF 62	RISE	67	5	20	15	41	6	96.564	.000	274.285	354.992
DSIF 41	SET	67	5	20	18	3	22	266.444	2.166	90.000	355.838
DSIF 12	RISE	67	5	20	23	31	16	98.319	.875	275.547	353.726
DSIF 62	SET	67	5	21	3	17	4	259.078	-.000	82.862	351.708
DSIF 41	RISE	67	5	21	6	34	5	96.289	3.823	270.000	352.645
DSIF 12	SET	67	5	21	10	50	11	256.870	2.410	80.348	350.738
DSIF 62	RISE	67	5	21	16	59	17	105.565	-.000	280.247	348.216
DSIF 41	SET	67	5	21	18	54	27	260.973	5.467	90.000	349.459
DSIF 12	RISE	67	5	22	0	39	1	106.497	.087	279.786	346.649
DSIF 62	SET	67	5	22	3	45	17	250.225	-.000	76.867	345.079
DSIF 41	RISE	67	5	22	7	26	48	101.644	7.019	270.000	346.430
DSIF 12	SET	67	5	22	11	15	34	247.098	3.416	73.973	344.210
DSIF 62	RISE	67	5	22	18	17	1	113.171	.000	285.523	342.575
DSIF 41	SET	67	5	22	19	47	25	255.856	8.478	90.000	343.555
DSIF 12	RISE	67	5	23	1	52	57	114.280	-.300	284.361	340.204
DSIF 62	SET	67	5	23	4	18	51	242.356	.000	71.227	339.323
DSIF 41	RISE	67	5	23	8	21	25	106.466	9.809	270.000	340.904
DSIF 12	SET	67	5	23	11	46	6	239.873	4.217	67.957	338.528
DSIF 62	RISE	67	5	23	19	32	26	119.475	-.000	290.142	338.009
DSIF 41	SET	67	5	23	20	43	1	251.471	10.971	90.000	338.565
DSIF 12	RISE	67	5	24	3	12	45	120.873	-.209	288.884	335.106
DSIF 62	SET	67	5	24	5	0	48	236.368	.000	66.651	335.071
DSIF 41	RISE	67	5	24	9	18	55	110.354	11.979	270.000	336.513
DSIF 12	SET	67	5	24	12	26	12	233.740	4.480	63.290	334.144
DSIF 62	RISE	67	5	24	20	46	5	124.374	-.000	293.937	334.554
DSIF 41	SET	67	5	24	21	41	39	248.218	12.754	90.000	334.916
DSIF 12	RISE	67	5	25	4	25	34	124.696	-.079	291.740	332.263
DSIF 62	SET	67	5	25	5	52	53	233.179	.000	64.080	332.866
DSIF 41	RISE	67	5	25	10	19	8	112.906	13.356	270.000	333.667
DSIF 12	SET	67	5	25	13	16	44	230.017	4.525	60.365	331.497
DSIF 62	RISE	67	5	25	21	55	24	127.150	.000	296.182	332.641
DSIF 41	SET	67	5	25	22	42	31	246.464	13.690	90.000	332.970
DSIF 12	RISE	67	5	26	5	34	41	125.147	-.064	292.087	331.331
DSIF 62	SET	67	5	26	6	52	26	232.857	-.000	63.823	332.645

STATION	EVENT	YY	MM	DD	HH	MM	SS	AZ	EL	HA	DEC
DSIF 41	RISE	67	5	26	11	20	32	113.815	13.837	270.000	332.661
DSIF 12	SET	67	5	26	14	17	34	229.179	4.529	59.690	330.907
DSIF 62	RISE	67	5	26	22	56	4	127.246	.000	296.262	332.575
DSIF 41	SET	67	5	26	23	43	34	246.418	13.714	90.000	332.919
DSIF 12	RISE	67	5	27	6	26	54	123.050	-.136	290.492	333.479
DSIF 62	SET	67	5	27	7	55	49	234.692	.000	65.315	333.906
DSIF 41	RISE	67	5	27	12	20	34	112.999	13.405	270.000	333.564
DSIF 12	SET	67	5	27	15	26	10	231.386	4.516	61.453	332.467
DSIF 62	RISE	67	5	27	23	45	31	124.713	-.000	294.207	334.319
DSIF 41	SET	67	5	28	0	42	10	248.020	12.861	90.000	334.697
DSIF 12	RISE	67	5	28	7	9	24	119.274	-.254	287.737	336.316
DSIF 62	SET	67	5	28	9	1	24	238.270	.000	68.136	336.407
DSIF 41	RISE	67	5	28	13	16	48	110.661	12.146	270.000	336.169
DSIF 12	SET	67	5	28	16	37	36	236.271	4.406	65.230	335.955
DSIF 62	RISE	67	5	29	0	24	27	120.123	.000	290.633	337.547
DSIF 41	SET	67	5	29	1	36	22	250.963	11.253	90.000	337.993
DSIF 12	RISE	67	5	29	7	45	17	114.359	-.301	284.412	340.141
DSIF 62	SET	67	5	29	10	7	33	243.298	-.000	71.922	340.003
DSIF 41	RISE	67	5	29	14	8	0	107.188	10.218	270.000	340.084
DSIF 12	SET	67	5	29	17	47	54	243.137	3.947	70.413	340.844
DSIF 62	RISE	67	5	30	0	55	18	114.173	-.000	286.240	341.842
DSIF 41	SET	67	5	30	2	25	35	254.034	9.067	90.000	342.386
DSIF 62	OCCULT	67	5	30	5	38	52	173.864	32.007	354.552	342.682
DSIF 62	EMERGE	67	5	30	6	7	33	181.897	32.587	1.671	343.061
DSIF 12	RISE	67	5	30	8	17	29	108.799	-.091	281.055	344.695
DSIF 62	SET	67	5	30	11	12	38	249.412	.000	76.300	344.477
DSIF 41	RISE	67	5	30	14	54	15	102.988	7.806	270.000	344.881
DSIF 41	OCCULT	67	5	30	17	35	41	81.328	40.467	309.219	346.110
DSIF 12	OCCULT	67	5	30	17	36	7	237.587	16.506	56.840	345.210
DSIF 12	EMERGE	67	5	30	18	16	42	244.740	9.773	66.825	345.810
DSIF 41	EMERGE	67	5	30	18	18	14	73.194	48.975	319.774	346.653
DSIF 12	SET	67	5	30	18	55	21	250.963	3.035	76.224	346.394
DSIF 62	RISE	67	5	31	1	20	42	107.419	.000	281.509	346.830
DSIF 41	SET	67	5	31	3	10	21	259.261	6.484	90.000	347.476
DSIF 62	OCCULT	67	5	31	5	35	0	159.758	34.877	343.105	347.602
DSIF 62	EMERGE	67	5	31	6	22	41	173.791	37.566	354.976	348.226
DSIF 12	RISE	67	5	31	8	47	51	102.920	.439	277.913	349.741
DSIF 62	SET	67	5	31	12	15	44	256.236	.000	80.967	349.567
DSIF 41	RISE	67	5	31	15	36	28	98.387	5.084	270.000	350.203
DSIF 12	OCCULT	67	5	31	17	37	13	233.898	26.873	46.977	350.342
DSIF 41	OCCULT	67	5	31	17	37	46	81.695	29.740	299.636	351.300
DSIF 12	EMERGE	67	5	31	18	27	1	243.775	18.738	59.321	351.030
DSIF 41	EMERGE	67	5	31	18	27	39	72.958	39.695	312.013	351.946
DSIF 12	SET	67	5	31	19	58	6	258.624	2.283	81.499	352.077
DSIF 62	RISE	67	6	1	1	42	44	100.239	-.000	276.687	352.224
DSIF 41	SET	67	6	1	3	51	52	263.969	3.667	90.000	352.946
DSIF 62	OCCULT	67	6	1	5	40	15	147.667	37.042	334.523	352.972
DSIF 62	EMERGE	67	6	1	6	29	10	162.219	41.592	346.713	353.615
DSIF 12	RISE	67	6	1	9	15	39	96.662	.967	274.652	355.127
DSIF 62	SET	67	6	1	13	16	46	263.448	-.000	85.736	355.017
DSIF 41	RISE	67	6	1	16	15	40	93.621	2.206	270.000	355.762
DSIF 12	OCCULT	67	6	1	17	45	23	231.360	35.983	39.326	355.821
DSIF 41	OCCULT	67	6	1	17	46	46	80.836	20.601	292.243	356.792
DSIF 41	EMERGE	67	6	1	18	30	32	73.686	29.304	303.091	357.377
DSIF 12	EMERGE	67	6	1	18	30	42	241.610	28.761	50.597	356.437
DSIF 12	SET	67	6	1	20	58	13	266.090	1.721	86.334	357.806
DSIF 62	RISE	67	6	2	2	3	3	92.884	-.000	271.874	357.003

STATION	EVENT	YY	MM	DD	HH	MM	SS	AZ	EL	HA	DEC
DSIF 41	SET	67	6	2	4	31	58	268.727	.775	90.000	358.511
DSIF 62	OCCULT	67	6	2	5	52	51	137.151	39.043	328.106	358.591
DSIF 62	EMERGE	67	6	2	6	28	39	147.372	43.626	337.024	359.069
DSIF 12	RISE	67	6	2	9	35	57	89.354	.456	270.000	.789
DSIF 62	SET	67	6	2	14	16	15	270.799	-.000	90.517	.606
DSIF 41	RISE	67	6	2	16	59	10	88.004	.524	271.488	1.432
DSIF 12	OCCULT	67	6	2	18	4	7	231.275	43.459	34.507	1.539
DSIF 41	OCCULT	67	6	2	18	9	22	77.966	14.266	288.416	2.532
DSIF 12	SET	67	6	2	21	53	16	272.814	1.990	90.000	3.446
DSIF 62	RISE	67	6	3	2	22	55	85.542	.000	267.106	3.389
DSIF 41	SET	67	6	3	4	57	4	275.245	.632	86.722	4.147
DSIF 12	RISE	67	6	3	10	17	27	84.970	3.552	270.000	6.154
DSIF 62	SET	67	6	3	15	15	3	278.108	-.000	95.280	6.159
DSIF 41	RISE	67	6	3	17	53	42	80.828	.764	275.463	7.420
DSIF 12	SET	67	6	3	22	33	19	277.229	5.091	90.000	8.833
DSIF 62	RISE	67	6	4	2	43	33	78.381	.000	262.402	8.814
DSIF 41	SET	67	6	4	5	21	0	281.859	.795	83.073	9.685
DSIF 12	RISE	67	6	4	10	59	19	80.623	6.580	270.000	11.438
DSIF 62	SET	67	6	4	16	14	13	285.251	-.000	100.031	11.545
DSIF 41	RISE	67	6	4	18	51	46	73.497	1.210	279.821	13.384
DSIF 12	SET	67	6	4	23	15	24	281.460	8.007	90.000	13.949
DSIF 62	RISE	67	6	5	3	6	8	71.588	.000	257.813	13.906
DSIF 41	SET	67	6	5	5	46	29	288.242	.997	79.391	14.961
DSIF 12	RISE	67	6	5	11	43	7	76.571	9.337	270.000	16.306
DSIF 62	SET	67	6	5	17	15	0	292.167	-.000	104.807	16.684

ORBIT DETERMINATION RESULTS – CISLUNAR

This section documents the real-time orbit determination results for the Mission IV cislunar phase. These results are in the form of summaries of the orbit determination solutions performed by the project OD team. The summaries contain the converged cartesian state vectors, lunar encounter parameter statistics, the tracking data used for each solution, and a brief discussion of the important aspects of each solution.

Also included are: (1) a tabulation of OD solutions and associated time spans plus supplementary notes; and (2) pre- and post-midcourse aim-point dispersion and TCA graphs (Figures B-1 and B-2).

The numbering system used to identify OD solutions is a four-digit number and may be interpreted in the following way.

First Digit – Mission Phase

1 Launch to 1st midcourse
2 Post-midcourse
3 Post-second midcourse (not used this mission)
4 First ellipse (to Bimat cut)
5 Bimat cut to end of photo readout
6 Extended mission

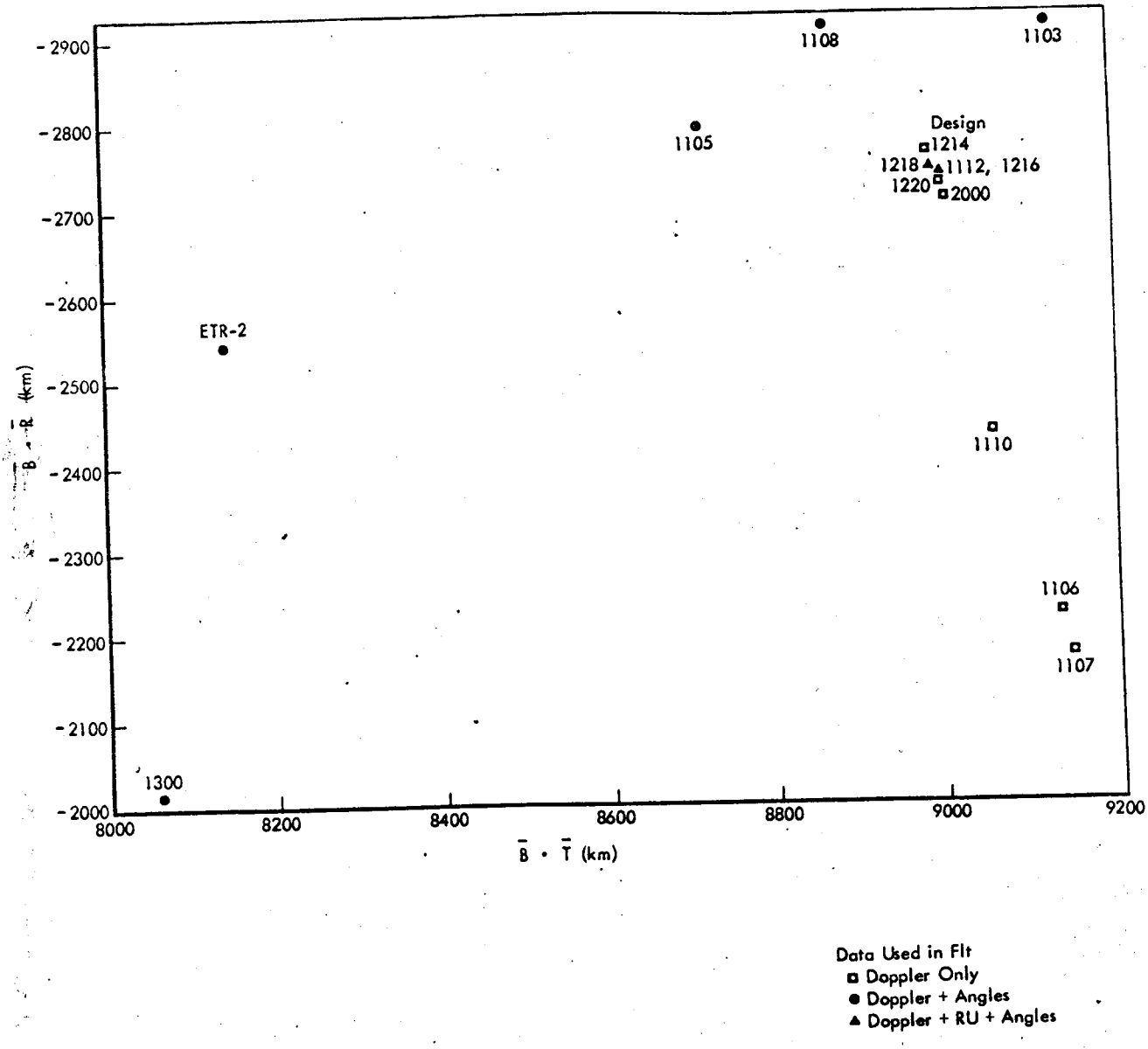
Second Digit – Team Identification

1 Red
2 White
3 Blue

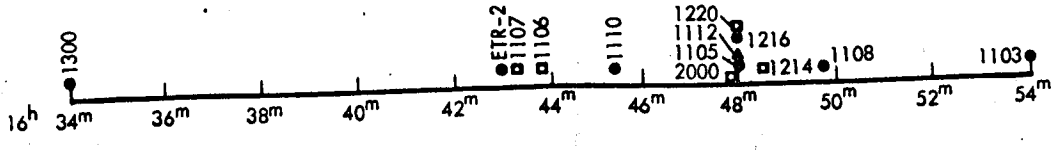
Third and Fourth Digits – Run number during each mission phase

Odd Numbers – used by DSN OD group
Even Numbers – used by project (Boeing) OD group

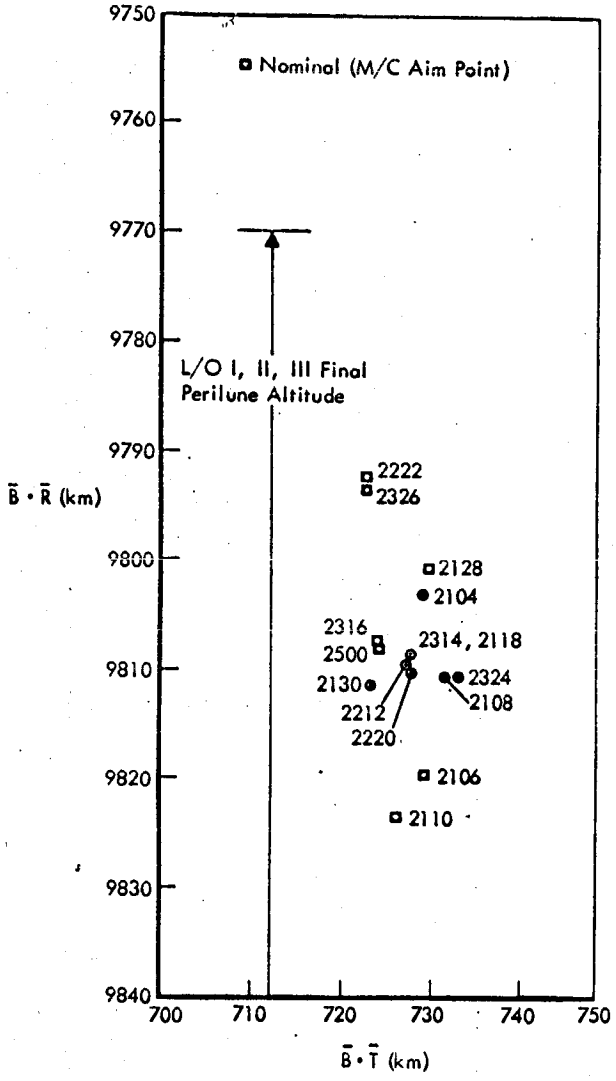
Aim Point Dispersion — Pre-Midcourse



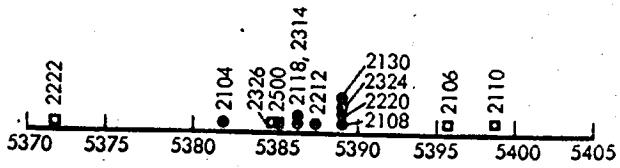
Time of Closest Approach



Aim-Point Dispersion Post Midcourse

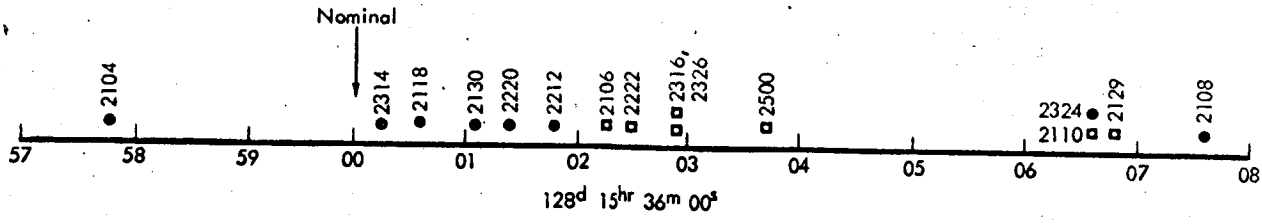


Perilune Radius (km)



● Solution 1, Doppler + Ranging
□ Solution 2, Doppler With A-Priori Cov. Matrix

Time of Closest Approach



5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 9626

5.1 O. D. IDENTIFICATION NO. 1300 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC, 1950.0):

X 5977.4327	km	$\dot{X}$ 8.2531141	km/sec
Y -7987.9162	km	$\dot{Y}$ -.59905370	km/sec
Z -5020.1768	km	$\dot{Z}$ -1.0281758	km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX 1887.6 m	σẋ .2882 m/sec	σX	m	σẋ	m/sec
σY 1044.0 m	σẏ 2.346 m/sec	σY	m	σẏ	m/sec
σZ 2882.3 m	σż 2.695 m/sec	σZ	m	σż	m/sec

5.5 APPROACH HYPERBOLA: 5.6 APPROACH HYPERBOLA STATISTICS

B 8308.2429	km	σB 322.71611	km
B·T 8059.7187	km	σB·T 210.77[illegible]	km
B·R -2016.8976	km	σB·R 244.37[illegible]	km
Rp 3998.0558	km	σRp 194.11820	km
TCA 67/05/08 163400.150	gmt	σTCA 168.42969	sec

5.7 DATA ARC LENGTH: 25 min. ~~hrs~~

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	124/231625	124/234115	129	.0[illegible]	.000114
41	HA	124/231620	124/234120	131	.0133	-.00367
41	DEC	124/231620	124/234120	131	.0062	-.0023

5.9 RESIDUAL PLOTS: TAPE NO. 9750 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

PREPARED BY: [signature] R W (B)
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 1106

5.2 EPOCH: DAY 124, 23 : 16 : 10 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	5966.6216 km	$\dot{X}$	7.2532433 km/sec
Y	−7993.8656 km	$\dot{Y}$	−.61365514 km/sec
Z	−5012.8833 km	$\dot{Z}$	−1.0256633 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI			
σX	1.8 Km	σẋ	.6 m/sec	σX	m	σẋ	m/sec
σY	4.2 Km	σẏ	3.1 m/sec	σY	m	σẏ	m/sec
σZ	10.2 Km	σż	1.2 m/sec	σZ	m	σż	m/sec

5.5 APPROACH HYPERBOLA:

B	9407.3	km	
B·T	9137.8	km	
B·R	−2235.8	km	
Rp	4863.7	km	
TCA	124 16:17:16	gmt	

5.6 APPROACH HYPERBOLA STATISTICS

σB	364.1	km
σB·T	110.4	km
σB·R	347.3	km
σRp	34.6	km
σTCA	191.8	sec

5.7 DATA ARC LENGTH: 3 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CCI	124/2315	125/0208	341	.3455	.0004

5.9 RESIDUAL PLOTS: TAPE NO. 9794 ITEM NO. 41-E

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: The range residuals showed a negative 2000 bias.

PREPARED BY: [signature] (R) W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 1108 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 5971.1037 km $\dot{X}$ 8.2528492 km/sec
Y -7985.7866 km $\dot{Y}$ -.60676625 km/sec
Z -5030.9920 km $\dot{Z}$ -1.0224569 km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX 574.4 m $\sigma\dot{x}$ .1312 m/sec σX ___ m $\sigma\dot{x}$ ___ m/sec
σY 861.3 m $\sigma\dot{y}$ .7446 m/sec σY ___ m $\sigma\dot{y}$ ___ m/sec
σZ 2087.5 m $\sigma\dot{z}$ .4847 m/sec σZ ___ m $\sigma\dot{z}$ ___ m/sec

5.5 APPROACH HYPERBOLA: 5.6 APPROACH HYPERBOLA STATISTICS

B 9323.6363 km σB 82.913730 km
B.T 8860.7198 km $\sigma B.T$ 40.9 km
B.R -2901.3655 km $\sigma B.R$ 72.1 km
Rp 4793.6051 km σRp 28.01 km
TCA 128/164945.846 gmt σTCA 45.957 sec

5.7 DATA ARC LENGTH: 3 hrs SOS = 57.437

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	124/231625	125/020232	341	.0562	-.00188
41	HA	124/231620	125/020902	348	.00944	-.0508
41	DEC	124/231620	125/020902	348	.0295	.00974

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____
ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: RU's show +750 m bias

PREPARED BY: G.L. Clark (R) W B
OD ANALYST for Paul Hunters (Makeup)

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 9224

ITEM NO. 0009

5.1 O. D. IDENTIFICATION NO. 1110

5.2 EPOCH: DAY 24, 23 : 16 : 10 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	5967.7991 km	$\dot{X}$	3.2535[illegible] km/sec
Y	−7991.4274 km	$\dot{Y}$	−.6117[illegible] km/sec
Z	−[illegible]018.[illegible]721 km	$\dot{Z}$	−1.02[illegible] km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI			
σX	875 m	σ$\dot{x}$	.41 m/sec	σX	/ m	σ$\dot{x}$	/ m/sec
σY	2640 m	σ$\dot{y}$	1.71 m/sec	σY	/ m	σ$\dot{y}$	/ m/sec
σZ	6572 m	σ$\dot{z}$	.58 m/sec	σZ	/ m	σ$\dot{z}$	/ m/sec

5.5 APPROACH HYPERBOLA:

B	9379.4	km
B.T	9056.9	km
B.R	−2438.5	km
Rp	4[illegible].3	km
TCA	[illegible] 16:45:21.6	gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB	221.5	km
σB.T	42.5	km
σB.R	216.1	km
σRp	15.0	km
σTCA	110.2	sec

5.7 DATA ARC LENGTH: 5 3/4 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	003	24/2316	1[illegible]/[illegible]	503	.0[illegible]	−.0001

5.9 RESIDUAL PLOTS: TAPE NO. 9676 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Range [illegible] show a −1200 [illegible].

PREPARED BY: [illegible] E Y B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 9825

5.1 O. D. IDENTIFICATION NO. 1112 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10. (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	5969.0002	km	$\dot{X}$	8.2529706	km/sec
Y	−7987.7707	km	$\dot{Y}$	−.60935245	km/sec
Z	−5027.1704	km	$\dot{Z}$	−1.0240209	km/sec

5.4 STANDARD DEVIATIONS:

					APRIORI				
σX	150	m	σẋ	.026	m/sec	σX	/	m	σẋ / m/sec
σY	91	m	σẏ	.115	m/sec	σY	/	m	σẏ / m/sec
σZ	206	m	σż	.262	m/sec	σZ	/	m	σż / m/sec

5.5 APPROACH HYPERBOLA:

B	9399.1	km	σB	18.4	km
B·T	8991.7	km	σB·T	15.1	km
B·R	−2737.4	km	σB·R	10.4	km
Rp	4855.1	km	σRp	12.1	km
TCA	128/16:48:02.8	gmt	σTCA	17.8	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 5 3/4 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	RU	125/0042	125/0459	253	28.1	.037
	CCS	124/2316	125/0458	503	.041	.001
	HA	"	"	515	.009	−.075
	DEC	"	"	515	.020	.014
51	HA	125/0245	125/0459	130	.017	.051
1	DEC	"	"	130	.007	−.047
62	HA	125/0451	"	8	.016	.012
	DEC	"	"	8	.030	−.093

5.9 RESIDUAL PLOTS: TAPE NO. 9829 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: RU's weighted 200, CCS weighted 1, angles weighted .36 The solution looks pretty good.

PREPARED BY: [signature] (R) W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 9679

5.1 O. D. IDENTIFICATION NO. 1214 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10.0 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	5969.1893	km	$\dot{X}$	8.2529504	km/sec
Y	-7987.5275	km	$\dot{Y}$	-.60911033	km/sec
Z	-5027.6916	km	$\dot{Z}$	-1.02390051	km/sec

5.4 STANDARD DEVIATIONS:

						APRIORI					
σX	151	m	σẋ	.044	m/sec	σX		m	σẋ		m/sec
σY	302	m	σẏ	.215	m/sec	σY		m	σẏ		m/sec
σZ	739	m	σż	.261	m/sec	σZ		m	σż		m/sec

5.5 APPROACH HYPERBOLA:

B	9394.4018	km	σB	30.67	km
B·T	8979.9121	km	σB·T	13.90	km
B·R	-2759.7182	km	σB·R	27.34	km
Rp	4851.2046	km	σRp	11.17	km
TCA	128/164815.09	gmt	σTCA	23.36	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 10 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	124 2316	125 0558	544	.0543	.0005
62	CC3	125 0602	125 0921	172	.0557	-.0003

5.9 RESIDUAL PLOTS: TAPE NO. 9062 ITEM NO. 59

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: a good OD although some blunder pts were noted in 62 doppler data. 41 RU residuals were ~80 → 90 meters. C3 data had very consistent bias.

PREPARED BY: G S Goodwin R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO._____

5.1 O. D. IDENTIFICATION NO. 1216 ITEM NO._____

5.2 EPOCH: DAY_____, _____ : _____ : _____ (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X _____ km $\dot{X}$ _____ km/sec

Y _____ km $\dot{Y}$ _____ km/sec

Z _____ km $\dot{Z}$ _____ km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX _____ m $\sigma\dot{x}$ _____ m/sec σX _____ m $\sigma\dot{x}$ _____ m/sec

σY _____ m $\sigma\dot{y}$ _____ m/sec σY _____ m $\sigma\dot{y}$ _____ m/sec

σZ _____ m $\sigma\dot{z}$ _____ m/sec σZ _____ m $\sigma\dot{z}$ _____ m/sec

5.5 APPROACH HYPERBOLA:

B _____ km

B·T _____ km

B·R _____ km

Rp _____ km

TCA _____ gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB _____ km

σB·T _____ km

σB·R _____ km

σRp _____ km

σTCA _____ sec

5.7 DATA ARC LENGTH: _____ hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: NO GOOD angles app. weighted too heavily

PREPARED BY: G B Goodrich R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 1218 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10.0 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 5965.2058 km $\dot{X}$ 8.2529753 km/sec
Y -7990.3361 km $\dot{Y}$ -.61240493 km/sec
Z -5021.1241 km $\dot{Z}$ -1.0310135 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI			
σX	49.5 m	$\sigma\dot{x}$	.008 m/sec	σX	m	$\sigma\dot{x}$	m/sec
σY	39.6 m	$\sigma\dot{y}$	.041 m/sec	σY	m	$\sigma\dot{y}$	m/sec
σZ	96.6 m	$\sigma\dot{z}$	.109 m/sec	σZ	m	$\sigma\dot{z}$	m/sec

5.5 APPROACH HYPERBOLA: 5.6 APPROACH HYPERBOLA STATISTICS

B	9398.6607	km	σB	16.07	km
B·T	8992.4145	km	$\sigma B\cdot T$	12.77	km
B·R	-2733.3790	km	$\sigma B\cdot R$	9.76	km
Rp	4854.7696	km	σRp	10.32	km
TCA	128/16:47:58.87	gmt	σTCA	16.60	sec

5.7 DATA ARC LENGTH: 10:07 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	RU	125:0042	125:0504	257	5.49	8.17
41	C3	125:0603	125:0637	34	.036	-.029
41	CC3	124 2316	125 0558	544	.055	.002
41	HA DEC	124 2316	125 0637	601	.0141 .0349	-.075 .036
51	C3	125 0245	125 0700	209	.0176	.0003
51	HA DEC	125 0245	125 0701	245	.0131 .007	.048 -.047
62	C3	125 0449	125 0558	38	.021	-.0003
62	CC3	125 0602	125 0921	172	.055	-.0041
62	HA DEC	125 0451	125 0922	244	.033 .020	-.030 -.055

5.9 RESIDUAL PLOTS: TAPE NO. 9928 ITEM NO. 62

(ATTACHED) DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: very good OD fits all data well agrees with CC3 only fit 1214

PREPARED BY: G S Goodwin R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 1220

5.2 EPOCH: DAY 124, 23 : 16 : 10.0 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 5968.9054 km $\dot{X}$ 8.2529598 km/sec
Y -7987.8036 km $\dot{Y}$ -.60941961 km/sec
Z -5027.1086 km $\dot{Z}$ -1.0242950 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI	
σX 31 m	σẋ .004 m/sec	σX	m	σẋ	m/sec
σY 47 m	σẏ .039 m/sec	σY	m	σẏ	m/sec
σZ 118 m	σż .069 m/sec	σZ	m	σż	m/sec

5.5 APPROACH HYPERBOLA:

B 9400.7780 km
B·T 8997.3082 km
B·R -2724.5456 km
Rp 4856.5209 km
TCA 128 16 47 53.613 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 21.25 km
σB·T 13.77 km
σB·R 16.18 km
σRp 10.34 km
σTCA 15.96 sec

5.7 DATA ARC LENGTH: 14:55 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	124 2316	125 0558	540	.0566	.0053
62	CC3	125 0602	125 1238	342	.0854	-.0015
12	CC3	125 1311	125 1412	32	.0064	-.0313

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Very good orbit. Clustered well. Sta 41 ranging residuals ~ 0 ⇒ -15 m. C3 residuals very constant.

PREPARED BY: G S Goodwin R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. A3 - 9935

5.1 O. D. IDENTIFICATION NO. 2000 ITEM NO. _____

5.2 EPOCH: DAY 124, 23 : 16 : 10 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 5968.9292 km $\dot{X}$ 8.2529939 km/sec
Y -7989.0118 km $\dot{Y}$ -.6095154 km/sec
Z -5026.5475 km $\dot{Z}$ -1.0242548 km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX 265 m $\sigma\dot{x}$ .04 m/sec σX _____ m $\sigma\dot{x}$ _____ m/sec
σY 227 m $\sigma\dot{y}$ .15 m/sec σY _____ m $\sigma\dot{y}$ _____ m/sec
σZ 564 m $\sigma\dot{z}$ .31 m/sec σZ _____ m $\sigma\dot{z}$ _____ m/sec

5.5 APPROACH HYPERBOLA:

B 9403.6219 km
B.T 9004.845 km
B.R -2709.4149 km
Rp 4858.692 km
TCA ~~[illegible]~~ 128, 16:47:50.987 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 18.8 km
$\sigma B.T$ 5.62 km
$\sigma B.R$ 17.94 km
σRp 2.157 km
σTCA 10.05 sec

5.7 DATA ARC LENGTH: 16 1/2 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	CC3	5/05-060232	5/05-[illegible]	320	.0567	.0737
41	CC3	5/04-235650	5/05-055500	326	.0269	.230
12	CC3	5/05-130800	5/05-162900	165	.0111	.113

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____
ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: This run was a Restart from iteration 4 of OD 2000, which converged to the best fit I ever saw. Note, my (AGINS + parameter output was fouled up - see the log + the glitch sheet)

PREPARED BY: [illegible] R W (B)
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 2302

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154678.76 km	$\dot{X}$	1.3262604 km/sec
Y	66,060.96 km	$\dot{Y}$	0.99864055 km/sec
Z	24,838.51 km	$\dot{Z}$	0.39412498 km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX	2198. m	σ$\dot{x}$	.04 m/sec	σX	_____ m	σ$\dot{x}$	_____ m/sec
σY	1261. m	σ$\dot{y}$	.117 m/sec	σY	_____ m	σ$\dot{y}$	_____ m/sec
σZ	7152. m	σ$\dot{z}$	.130 m/sec	σZ	_____ m	σ$\dot{z}$	_____ m/sec

COV MATRIX FROM 2000

5.5 APPROACH HYPERBOLA:

B	9681.29	km
B.T	801.29	km
B.R	9648.08	km
Rp	5258.46	km
TCA	67/05/08-153333.3	gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB	39.59	km
σB.T		km
σB.R		km
σRp	30.18	km
σTCA	11.97	sec

5.7 DATA ARC LENGTH: 7 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	5/05-2222	5/05-2341	79	.0398	-.0104
12	CC3	5/05-1646	5/05-2219	329	.141	.0277

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: SOLN # 2 - Later discovered had bad frequencies in OD GX. This solution is in error. SOLUTION 2.

PREPARED BY: [signature] R W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 2104 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 154,675.67 km $\dot{X}$ 1.3260287 km/sec
Y 66,053.499 km $\dot{Y}$ .99932571 km/sec
Z 24,828.627 km $\dot{Z}$ .39372598 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI			
σX	400 m	$\sigma\dot{x}$	.031 m/sec	σX	0 m	$\sigma\dot{x}$	0 m/sec
σY	1140 m	$\sigma\dot{y}$	.098 m/sec	σY	0 m	$\sigma\dot{y}$	0 m/sec
σZ	1653 m	$\sigma\dot{z}$	.082 m/sec	σZ	0 m	$\sigma\dot{z}$	0 m/sec

5.5 APPROACH HYPERBOLA:

B 983027 km
B·T 728.37 km
B·R 9803.25 km
Rp 5381.9 km
TCA 128 - 15h 35m 57.8 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 28.92 km
σB·T 10.67 km
σB·R 26.87 km
σRp 21.93 km
σTCA 6.78 sec

MAPPED STATE VECTOR COV MATRIX ONLY

5.7 DATA ARC LENGTH: 7h 04m hrs SOS = 1.70

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	RU	5/05-2254	5/06-0004	104	5.55	-.212
	CC3	5/05-2222	5/06-0004	120	.0115	-.00038
12	RU	5/05-1953	5/05-2115	82	3.01	-.610
	CC3	5/05-1656	5/05-2219	226	.0056	.0000886

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: Looks like excellent fit. Largest change from post maneuver state was 3.7 km (Z). RU data included in fit - weighted @ 200 RU. SOLUTION 1.

DAY 126 05h 19m

PREPARED BY: M M Grogan R W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 2106

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154676.10	km	$\dot{X}$	1.32260325	km/sec
Y	66053.224	km	$\dot{Y}$	.99934711	km/sec
Z	24826.659	km	$\dot{Z}$	.39365724	km/sec

5.4 STANDARD DEVIATIONS:

					APRIORI						
σX	1.7	Km	σẋ	.027	m/sec	σX	_____	m	σẋ	_____	m/sec
σY	1.2	Km	σẏ	.074	m/sec	σY	_____	m	σẏ	_____	m/sec
σZ	5.8	Km	σż	.112	m/sec	σZ	_____	m	σż	_____	m/sec

COV MATRIX FROM OD 2000

5.5 APPROACH HYPERBOLA:

B	9846.7	km	σB	30.2	km
B·T	729.4	km	σB·T	8.8	km
B·R	9819.7	km	σB·R	28.9	km
Rp	5395.8	km	σRp	24.1	km
TCA	128/ 15:36:02.2	gmt	σTCA	10.0	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 11 hrs

SOS = 3.86

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	125/2222	126/0401	456	.011	-.00004
12	CC3	125/1656	125/2219	275	.0061	.00009

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Final solution, Solution 2.

PREPARED BY: [signature] (R) W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 9997

5.1 O. D. IDENTIFICATION NO. 2210 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 hr : 45 min : 52.7 sec (GMT)

5.3 STATE VECTOR (GEOC. 1950.0):

X 154676.12 km $\dot{X}$ 1.3260217 km/sec

Y 66053.052 km $\dot{Y}$ .99937009 km/sec

Z 24828.369 km $\dot{Z}$ .39364955 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI	
σX 1427 m	σẋ .0133 m/sec	σX 2395 m	σẋ 100 m/sec
σY 1135 m	σẏ .0327 m/sec	σY 1343 m	σẏ 100 m/sec
σZ 5430 m	σż .1000 m/sec	σZ 7444 m	σż 100 m/sec

5.5 APPROACH HYPERBOLA:

B 9850.3131 km

B·T 725.88027 km

B·R 9823.5340 km

Rp 5398.6925 km

TCA 128/153606.743 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 23.71 km

σB·T 3.01 km

σB·R 23.51 km

σRp 19.89 km

σTCA 8.16 sec

5.7 DATA ARC LENGTH: 12 hrs 505 = 12.6

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	CC3	125 1646	125 2219	323	.0629	.0064
41	CC3	125 2222	126 0558	556	.0105	-.0002
62	CC3	126 0602	126 1021	232	.0079	.0007

5.9 RESIDUAL PLOTS: TAPE NO. 9663 ITEM NO. 98c

(ATTACHED) DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good orbit good agreement with previous orbits

PREPARED BY: G S Goodwin R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 2212

5.2 EPOCH: DAY 125, 06 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154675.67	km	$\dot{X}$	1.3260235	km/sec
Y	66053.350	km	$\dot{Y}$	.99934475	km/sec
Z	24828.854	km	$\dot{Z}$	.39370378	km/sec

5.4 STANDARD DEVIATIONS:

						APRIORI					
σX	183	m	$\sigma\dot{x}$	.003	m/sec	σX	0	m	$\sigma\dot{x}$	0	m/sec
σY	444	m	$\sigma\dot{y}$	.008	m/sec	σY	↓	m	$\sigma\dot{y}$	↓	m/sec
σZ	493	m	$\sigma\dot{z}$	.010	m/sec	σZ		m	$\sigma\dot{z}$		m/sec

5.5 APPROACH HYPERBOLA:

B	9836.6369	km	σB	2.9	km
B·T	726.8058	km	$\sigma B \cdot T$	.913	km
B·R	9809.7517	km	$\sigma B \cdot R$	2.76	km
Rp	5387.2557	km	σRp	23.0	km
TCA	128/153601.82	gmt	σTCA	.95	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 12 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	RU	25 1951	2159	126	3.92	1.06
12	CC3	1656	2219	275	.0064	-.0002
41	RU	2254	126 0549	498	6.10	-1.1
41	CC3	2222	126 0558	556	.011	.0014
62	RU	126 0634	126 1022	161	9.14	2.84
62	CC3	0602	1021	232	.0083	-.0016

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good Orbit Everything Okay

PREPARED BY: G.S. Goodwin R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. A3 : 9951

5.1 O. D. IDENTIFICATION NO. 2314 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154675.59	km	$\dot{X}$	1.3260267	km/sec
Y	66053.614	km	$\dot{Y}$	.99933712	km/sec
Z	24828.628	km	$\dot{Z}$	.39370657	km/sec

5.4 STANDARD DEVIATIONS:

					APRIORI				
σX	164	m	σẋ	.0024	m/sec	σX	/	m	σẋ / m/sec
σY	397	m	σẏ	.0066	m/sec	σY	/	m	σẏ / m/sec
σZ	467	m	σż	.0101	m/sec	σZ	/	m	σż / m/sec

5.5 APPROACH HYPERBOLA:

B	9835.509	km	σB	2.6425872	km
B·T	727.82284	km	σB·T	0.6506	km
B·R	9808.5468	km	σB·R	2.56125	km
Rp	5386.2149	km	σRp	2.14454	km
TCA	123d, 15h 36m, 0.243s	gmt	σTCA	0.7578	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 25 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	RU	125,175102	125,215902	126	3.13	-1.37
12	RU	126,143602	126,170302	111	4.55	-20.3
12	CC3	125,165632	125,241932	275	.006	-.004
12	CC3	126,143332	126,170232	134	.0076	-.001
62	RU	126,063402	126,142302	357	7.67	10.3
62	CC3	126,060232	126,142532	449	.009	.001
41	CC3	125,222232	126,055032	593	.0596	-.0024

5.9 RESIDUAL PLOTS: TAPE NO. 9635 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Post M/C determination, method 1

PREPARED BY: [illegible] R W (B)
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____
SEQ ~~ITEM~~ NO. 0036

5.1 O. D. IDENTIFICATION NO. 2316

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154675.30	km	$\dot{X}$	1.3260178	km/sec
Y	66053.007	km	$\dot{Y}$	.99934854	km/sec
Z	24832.284	km	$\dot{Z}$	.39371997	km/sec

5.4 STANDARD DEVIATIONS:

					APRIORI				
σX	654.0	m	σẋ	.0097	m/sec	σX		m	σẋ		m/sec
σY	1072.0	m	σẏ	.018	m/sec	σY		m	σẏ		m/sec
σZ	4459.5	m	σż	.044	m/sec	σZ		m	σż		m/sec

5.5 APPROACH HYPERBOLA:

B	9833.6907	km	
B·T	725.67295	km	
B·R	9806.8806	km	
Rp	5384.6	km	
TCA	128/15:36:2.965	gmt	

5.6 APPROACH HYPERBOLA STATISTICS

σB	10.8	km
σB·T	2.17	km
σB·R	10.6	km
σRp	8.99	km
σTCA	4.0	sec

5.7 DATA ARC LENGTH: 33 hrs SOS = 10.1

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	CC3	125/1656	125/2219	275	.00626	-.0015
12	CC3	126/1433	126/2144	388	.00700	.00055
41	CC3	125/2222	126/0358	556	.01010	.0017
	CC3	126/2154	127/0155	231	.00408	-.0032
62	CC3	126/0602	126/1428	449	.00811	.00074
	CC3					

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____
ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good Fit Solution 2

PREPARED BY: J Griggs R W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 2118 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 154675.54 km $\dot{X}$ 1.3260254 km/sec
Y 66053.628 km $\dot{Y}$ .9993389 km/sec
Z 21888.37 km $\dot{Z}$ .39370798 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI	
σX 152 m	σẋ .0019 m/sec	σX / m	σẋ / m/sec
σY 376 m	σẏ .0058 m/sec	σY / m	σẏ / m/sec
σZ 410 m	σż .0079 m/sec	σZ / m	σż / m/sec

5.5 APPROACH HYPERBOLA:

B 9835.4 km
B·T 727.5 km
B·R 9808.4 km
Rp 5386.1 km
TCA 128/15:36:00.7 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 2.2 km
σB·T .5 km
σB·R 2.1 km
σRp 1.8 km
σTCA .5 sec

5.7 DATA ARC LENGTH: 33 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	RU	125/1951	125/2159	126	3.37	6.9
	CC3	125/1956	125/2219	275	.006	-.0005
	RU	126/1436	126/2139	181	4.3	-24.
	CC3	126/1435	126/2144	388	.007	-.001
41	RU	125/2254	126/0549	493	6.4	-4.2
	CC3	125/2222	126/0558	556	.011	.003
	RU	126/2155	127/0109	189	5.8	7.6
	CC3	126/2154	127/0155	231	.006	-.003
62	RU	126/0634	126/1423	357	7.6	12.5
62	CC3	126/0602	126/1428	447	.009	.0009

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

PREPARED BY: [illegible] (R) W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 2220

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 154675.37 km $\dot{X}$ 1.3260250 km/sec
Y 66053.756 km $\dot{Y}$ .99934157 km/sec
Z 24829.455 km $\dot{Z}$ .39370118 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI	
σX 109 m	σẋ .001 m/sec	σX ↓ m	σẋ ↓ m/sec
σY 260 m	σẏ .002 m/sec	σY ↓ m	σẏ ↓ m/sec
σZ 357 m	σż .005 m/sec	σZ ↓ m	σż ↓ m/sec

5.5 APPROACH HYPERBOLA:

B 98369689 km
B·T 727.49516 km
B·R 9810.0337 km
Rp 5387.4513 km
TCA 128/ 15 36 01.4 gmt

5.6 APPROACH HYPERBOLA STATISTICS

σB 1.303 km
σB·T .283 km
σB·R 1.27 km
σRp 1.071 km
σTCA .41 sec

5.7 DATA ARC LENGTH: _____ hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
	RU	126° 06:34:02	126° 14:23:02	357	8.87	11.9
62	CC3	126 06:02:32	126 14:28:32	419	0.00790	0.00473
	RU	127 06:04:02	127 10:53:02	240	8.73	4.20
62	CC3	127 05:54:32	127 11:05:32	281	0.0115	-0.0236
	RU	125° 22:34:02	126° 05:49:02	493	13.3	-10.1
41	CC3	125 22:22:32	126 05:58:32	556	-0.0143	-0.00554
	RU	126 21:55:02	127 01:04:02	189	15.2	13.4
41	CC3	126 21:54:32	127 05:48:32	456	-0.0183	-0.00269
	RU	125° 19:48:02	125° 21:59:02	126	3.23	(27.9)
12	CC3	125 16:56:32	125 22:19:32	275	0.00717	-0.00481
	RU	126 14:36:02	126 21:39:02	181	5.83	-26.1
12	CC3	126 14:33:32	126 21:44:32	358	0.00740	0.00468

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good OD fine correlation with previous OD's. Station 12 [illegible] very well.

PREPARED BY: G. L. Goodson R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 2222 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154674.06 km	$\dot{X}$	1.3259999 km/sec
Y	66054.341 km	$\dot{Y}$	.99934033 km/sec
Z	24837.430 km	$\dot{Z}$	.39378564 km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX	449 m	σ$\dot{x}$	.0069 m/sec	σX _____ m	σ$\dot{x}$ _____ m/sec
σY	976 m	σ$\dot{y}$	.0136 m/sec	σY _____ m	σ$\dot{y}$ _____ m/sec
σZ	3728 m	σ$\dot{z}$	.0320 m/sec	σZ _____ m	σ$\dot{z}$ _____ m/sec

5.5 APPROACH HYPERBOLA: 5.6 APPROACH HYPERBOLA STATISTICS

B	9818.6538 km	σB	8.1 km
B·T	722.30506 km	σB·T	1.569 km
B·R	9792.0528 km	σB·R	7.95 km
Rp	5371.7344 km	σRp	6.72 km
TCA	128/15 36 02.46 gmt	σTCA	2.72 sec

5.7 DATA ARC LENGTH: 41 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	CC3	126 [illegible]:02:32	126 14:08:32	[illegible]	0.00320	[illegible]
12	CC3	127 05:54:32	127 [illegible]:05:32	281	0.00899	-0.007[illegible]
41	CC3	125 22:22:32	126 05:[illegible]:32	[illegible]	[illegible]	0.00117
41	CC3	126 21:54:32	127 05:48:32	45[illegible]	0.00822	-0.00134
12	CC3	125 [illegible]:32	125 22:19:32	[illegible]	0.00603	-0.00500
12	CC3	126 [illegible]:32	126 21:44:32	388	[illegible]	0.00367

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good ØD Surprized by S Loc Changes and KE

PREPARED BY: [signature] R (W) B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. A3 10868

5.1 O. D. IDENTIFICATION NO. 2324 ITEM NO. _____

5.2 EPOCH: DAY 125, 14 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	154675.21	km	$\dot{X}$	1.3260247	km/sec
Y	66053.976	km	$\dot{Y}$	.99934117	km/sec
Z	24729.739	km	$\dot{Z}$	.39370124	km/sec

5.4 STANDARD DEVIATIONS:

						APRIORI					
σX	101	m	σẋ	.0011	m/sec	σX	/	m	σẋ	/	m/sec
σY	244	m	σẏ	.0026	m/sec	σY	/	m	σẏ	/	m/sec
σZ	339	m	σż	.0049	m/sec	σZ	/	m	σż	/	m/sec

5.5 APPROACH HYPERBOLA:

B	9837.672	km	σB
B·T	733.19732	km	σB·T
B·R	9810.3146	km	σB·R
Rp	5328.2725	km	σRp
TCA	127, 153606.66 (H M S)	gmt	σTCA

5.6 APPROACH HYPERBOLA STATISTICS

σB	—	km	
σB·T	—	km	
σB·R	—	km	
σRp	—	km	
σTCA	—	sec	

5.7 DATA ARC LENGTH: 46 3/4 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	RU	125-195102	127-154502	351	~6 m.	~-25
12	CC3	125-165632	127-154432	374	~.007	~-.008
41	RU	125-225402	127-010902	682	8.77	-1.6
41	CC3	125-222232	127-054732	444	.0014	.0075
62	RU	126-063402	127-142502	786	11.7	10.5
62	CC3	126-060232	127-142832	474	.0095	.007

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: No uncertainties, as a point to REND MATRIX FROM WORK-SOLUTION 1

PREPARED BY: [illegible] R N (B)
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 2326 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC, 1950.0):

X	154674.12	km	$\dot{X}$	1.3260003	km/sec
Y	66054.312	km	$\dot{Y}$	.99934232	km/sec
Z	28537.128	km	$\dot{Z}$	.39377955	km/sec

5.4 STANDARD DEVIATIONS:

					APRIORI				
σX	353	m	σ$\dot{X}$	.0049	m/sec	σX		m	σ$\dot{X}$		m/sec
σY	900	m	σ$\dot{Y}$	.0128	m/sec	σY		m	σ$\dot{Y}$		m/sec
σZ	3316	m	σ$\dot{Z}$	.0270	m/sec	σZ		m	σ$\dot{Z}$		m/sec

5.5 APPROACH HYPERBOLA:

B	9820.1	km	σB	7.0	km
B·T	722.4	km	σB·T	1.1	km
B·R	9793.5	km	σB·R	6.9	km
Rp	5373.2	km	σRp	5.8	km
TCA	128/15:36:02.8	gmt	σTCA	2.0	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 48 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	CC3	125/1656	125/2219	275	.006	-.005
41		125/2222	126/0558	556	.010	.001
62		126/0602	126/1428	449	.008	.006
12		126/1433	126/2144	388	.008	.004
41		126/2154	127/0548	456	.008	-.002
62		127/0554	127/1428	477	.010	-.004
12		127/1433	127/1707	140	.007	-.0004

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

PREPARED BY Paul Huntsinger (R) W D
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

ITEM NO. _____

5.1 O. D. IDENTIFICATION NO. 2328

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (G.M.T)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 154674.67 km $\dot{X}$ 1.3260085 km/sec

Y 66054.322 km $\dot{Y}$ .99933925 km/sec

Z 24836.346 km $\dot{Z}$ .39374672 km/sec

5.4 STANDARD DEVIATIONS:

				APRIORI			
σX	242.2 m	$\sigma\dot{x}$	.0023 m/sec	σX	/ m	$\sigma\dot{x}$	/ m/sec
σY	831.9 m	$\sigma\dot{y}$	.0110 m/sec	σY	/ m	$\sigma\dot{y}$	/ m/sec
σZ	3166.5 m	$\sigma\dot{z}$	.0234 m/sec	σZ	/ m	$\sigma\dot{z}$	/ m/sec

5.5 APPROACH HYPERBOLA:

B 9927.2945 km

B·T 729.81570 km

2000.1594 km

5.6 APPROACH HYPERBOLA STATISTICS

σB 6.1994891 km

$\sigma B \cdot T$ .5957.8360 km

$\sigma B \cdot R$ 6.1707947 km

σR_n 5.1962112 km

.0724 sec

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. 11360

5.1 O. D. IDENTIFICATION NO. 2130 ITEM NO. _____

5.2 EPOCH: DAY 125, 16 : 45 : 52.7 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X 154,675.16 km $\dot{X}$ 1.3260224 km/sec
Y 66,053.766 km $\dot{Y}$ .99934686 km/sec
Z 24,830.68 km $\dot{Z}$ .39369621 km/sec

5.4 STANDARD DEVIATIONS: APRIORI

σX 97.3 m $\sigma\dot{x}$ .000886 m/sec σX 0 m $\sigma\dot{x}$ 0 m/sec
σY 228 m $\sigma\dot{y}$ .00210 m/sec σY | m $\sigma\dot{y}$ | m/sec
σZ 296 m $\sigma\dot{z}$ .00449 m/sec σZ | m $\sigma\dot{z}$ | m/sec

5.5 APPROACH HYPERBOLA: 5.6 APPROACH HYPERBOLA STATISTICS

B 9837.7 km σB 1.07 km
B·T 723.2 km $\sigma B{\cdot}T$ .203 km
B·R 9811.1 km $\sigma B{\cdot}R$ 1.05 km
Rp 5388.2 km σRp .89 km
TCA 128-15h36m01.100 gmt σTCA .337 sec

5.7 DATA ARC LENGTH: 57.1 hrs

SOS = 140.87

5.8 DATA SUMMARY

PASS	STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
02/126	62	RU	5/06-0634	5/06-1423	357	10.9	20.7
		CC3	5/06-0602	5/06-1427	231	.00887	.0091
02/127		RU	5/07-0604	5/07-1425	429	9.72	13.0
		CC3	5/07-0554	5/07-1428	243	.0097	-.0134
02/125	41	RU	5/05-2254	5/06-0541	493	12.5	-22.2
		CC3	5/05-2222	5/06-0557	212	.0101	.0175
03/126		RU	5/06-2155	5/07-0104	189	9.04	12.4
		CC3	5/06-2154	5/07-0517	232	.0167	.0149
04/127		RU	5/08-0114	5/08-0154	40	6.63	-50.7
		CC3	5/07-2303	5/08-0220	25	.00824	-.0213
01/125	12	RU	5/05-1951	5/05-2159	126	3.81	52.2
		CC3	5/05-1656	5/05-2218	139	.00992	-.00299
02/126		RU	5/06-1436	5/06-2139	181	9.29	-17.8
		CC3	5/06-1433	5/06-2143	199	.00968	.0164
03/127		RU	5/07-1437	5/07-2114	120	10.4	-43.3
		CC3	5/07-1433	5/07-2257	132	.0077	-.0195

5.9 RESIDUAL PLOTS: TAPE NO. 11243 ITEM NO. 148-A

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: SOLUTION 1 - CC3 + RU. Good fit. B.T, B.R clusters well with other solutions.

TIME: 128d 04h 36m

PREPARED BY: M M Grogan R W B
OD ANALYST

5. ORBIT DETERMINATION REPORT (TRANSLUNAR)

TAPE NO. _____

5.1 O. D. IDENTIFICATION NO. 2234 ITEM NO. _____

5.2 EPOCH: DAY 128, 05 : 34. : 17.218 (GMT)
hr min sec

5.3 STATE VECTOR (GEOC. 1950.0):

X	653491.94	km	$\dot{X}$	-.10502772	km/sec
Y	405309.45	km	$\dot{Y}$	1.1265612	km/sec
Z	163091.42	km	$\dot{Z}$	.57640843	km/sec

5.4 STANDARD DEVIATIONS:

						APRIORI					
σX	3103	m	σẋ	.257	m/sec	σX	0	m	σẋ	0	m/sec
σY	2555	m	σẏ	.188	m/sec	σY	↓	m	σẏ	↓	m/sec
σZ	6264	m	σż	.469	m/sec	σZ	↓	m	σż	↓	m/sec

5.5 APPROACH HYPERBOLA:

B	9836.2587	km	σB	11.47	km
B·T	726.40318	km	σB·T	3.90	km
B·R	9809.4035	km	σB·R	10.79	km
Rp	5387.1544	km	σRp	9.91	km
TCA	128 15 36 03.2	gmt	σTCA	7.45	sec

5.6 APPROACH HYPERBOLA STATISTICS

5.7 DATA ARC LENGTH: 4.5 hrs

5.8 DATA SUMMARY

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	RU	128 0733	128 0742	7	7.62	13.1
62	CC3	0704	1001	131	.0081	.00008
41	RU	0535	0604	30	10.8	-2.4
41	RO3	0534	0659	85	.012	-.0013

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. (NOT AVAILABLE)

5.10 REMARKS: This was the middle of 3 OD's run pre injection maneuver! looked very good

PREPARED BY: H S Goodwin R (W) B
OD ANALYST

ORBIT DETERMINATION RESULTS – PHOTO ELLIPSE

This section documents the real-time orbit determination results for the photo ellipse phase. These results are in the form of summaries of the orbit determination solutions performed by the project OD team. The summaries contain the converged cartesian state vectors, orbital parameter statistics, tracking data used to determine each, and a brief discussion of the important aspects of each solution.

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4302 ITEM NO. 169A

TAPE NO. 9926

5.2 EPOCH: DAY 128, 15 (hr) : 19 (min) : 08.565 (sec) (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

X	457.71376 km	$\dot{X}$	.90423729 km/sec
Y	1614.7920 km	$\dot{Y}$	-.26667346 km/sec
Z	-5321.3748 km	$\dot{Z}$	.26625713 km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X	1037 m	$\dot{X}$	.0699 m/s	X	m	$\dot{X}$	m/sec
Y	1403 m	$\dot{Y}$	.0216 m/s	Y	m	$\dot{Y}$	m/sec
Z	444 m	$\dot{Z}$	.2503 m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6146.5886 km	e	.27695617	ω	1.1687653 deg.
Ω	131.03253 deg	i	85.481013 deg	Tp	-6677.3534 sec
r_p	4444.2530 km	h_p	2706.1630 km	P	720.72152 min
r_a	7848.9242 km	h_a	6110.8342 km	Tan	273.53648 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: -83.48 LONG: 87.29

5.7 DATA ARC LENGTH: 1 hrs 56 min. SOS = 149.5

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	128,152015	128,170100	105	.134	-.00304
12	CC3	128,152015	128,171400	129	.0327	.00246

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: Very near nominal

TIME OF REPORT: DAY , hr min GMT

Prepared by: D. Van Zandt R W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4304 ITEM NO. _____

5.2 EPOCH: DAY 128, 15 : 19 : 8.565 (GMT) TAPE NO. _____
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	457.16787	km	$\dot{X}$	.90425050	km/sec
Y	1616.0738	km	$\dot{Y}$	-.26669342	km/sec
Z	-5321.6822	km	$\dot{Z}$	.26627235	km/sec

5.4 STANDARD DEVIATIONS:

X	1009.	m	$\dot{X}$	.0614	m/s	A PRIORI X	/	m	$\dot{X}$ / m/sec
Y	1332.	m	$\dot{Y}$	.02239	m/s	Y	/	m	$\dot{Y}$ / m/sec
Z	289.	m	$\dot{Z}$	.2146	m/s	Z	/	m	$\dot{Z}$ / m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.4280	km	e	.27715249		ω	1.1480679	deg.
Ω	131.03551	deg	i	85.491215	deg	Tp	-6676.5662	sec
r_p	4444.3758	km	h_p	2306.2858	km	P	721.24507	min
r_a	7852.4800	km	h_a	6114.3900	km	Tan	273.54869	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 5 hrs 18 min. SOS=18.817

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	128/152515	128/174232	108	.0367	.00145
12	CC3	128/152515	128/204332	290	.0202	.00226

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Very Good Fit. Not much change in parameters from 4302.

TIME OF REPORT:
DAY 129, 22 hr 80 min GMT

Prepared by: G L Clark R.M.B.

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

ITEM NO. _____

5.1 O.D. IDENTIFICATION NO. 4106 TAPE NO. ?

5.2 EPOCH: DAY 128, 15 hr : 19 min : 04.565 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

X 458.49555	km	$\dot{X}$ 0.90416844	km/sec
Y 1614.3146	km	$\dot{Y}$ -0.76669065	km/sec
Z -5322.0802	km	$\dot{Z}$ 0.26655985	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 72.95	m	$\dot{X}$ .00508	m/s	X /	m	$\dot{X}$ /	m/sec
Y 94.51	m	$\dot{Y}$ .00054	m/s	Y /	m	$\dot{Y}$ /	m/sec
Z 24.33	m	$\dot{Z}$ .01563	m/s	Z /	m	$\dot{Z}$ /	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.3965	km	e	0.27715231		ω	1.16532632	deg.
Ω	131.03442	deg	i	85.475592	deg	Tp	-6676.5374	sec
r_p	4444.3542	km	h_p	2706.2,42	km	P	721.03953	min
r_a	7852.4388	km	h_a	6114.3-37	km	Tan	273.54852	deg

5.6 LUNAR HARMONICS USED: LRC 11-4 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 11 hrs 48 min. SOS = 300.1

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	128° 15:30:32	128° 17:42:32	44	.0314	-.00234
12	C3	128 22:03:32	128 23:23:[illegible]	70	.00099	-.0545
12	CC3	128 15:21:32	128 21:58:32	35	.0198	-.00532
41	C3	128 21:33:32	128 21:58:32	20	.00651	.416
41	CC3	128 22:03:[illegible]	128 23:19:32	2[illegible]	.00758	.0141

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 129, 17 hr 06 min GMT

Prepared by: [illegible] R B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4208 ITEM NO. _____

TAPE NO. 6066 (GMT)

5.2 EPOCH: DAY 128, 20 : 19 : 08.66
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -3778.7577	km	$\dot{X}$ -0.75324370	km/sec
Y -089.91384	km	$\dot{Y}$ 0.22089455	km/sec
Z 5456.0194	km	$\dot{Z}$ -0.21843113	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 173.16	m	$\dot{X}$ .007948	m/s	X	m	$\dot{X}$	m/sec
Y 284.36	m	$\dot{Y}$ .002241	m/s	Y	m	$\dot{Y}$	m/sec
Z 92.786	m	$\dot{Z}$ .03334	m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6148.6334	km	e 0.27701972		ω 1.1239056	deg.
Ω 128.29054	deg	i 85.456270	deg	Tp 11325.[illegible]	sec
r_p 4445.3407	km	h_p 2707.2507	km	P 721.08120	min
r_a 7851.9260	km	h_a 6113.8359	km	Tan 123.77615	deg

5.6 LUNAR HARMONICS USED: 11-11 LRC LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 11 hrs 59 min. SOS = 179.6

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	129° 06:[illegible]:32	129° 06:[illegible]:32	29	.0291	-.0283
62	CC3	129 07:03:32	129 05:18:32	75	.0289	-.0171
12	C3	128 23:[illegible]:32	128 23:23:32	76	.00960	.04[illegible]
12	CC3	128 [illegible]:19:32	128 21:58:32	97	.0456	-.00537
41	C3	128 21:33:32	128 21:58:32	20	.00863	.214
41	C3	129 [illegible]:32	129 07:41:54	32	.0263	-.0599
41	CC3	128 [illegible]:03:32	129 06:58:32	494	.0332	-.0156

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: High C3 resid. for 41 due to [illegible] input to ODGX. Affected data arc is short so [illegible] not rerun.

TIME OF REPORT:
DAY 129, 16 h 42 min GMT

Prepared by: [signature] R(W)B
O.D. Analyst for C.S. Goodwin

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4310 ITEM NO. 2048

TAPE NO. 9623

5.2 EPOCH: DAY 129, 11 : 30 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

AGINT

X	-7649.9017 km	$\dot{X}$	.09784051 km/sec
Y	1659.3476 km	$\dot{Y}$	.18384702 km/sec
Z	-404.30797 km	$\dot{Z}$	-.64067078 km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X	42.7 m	$\dot{X}$	.02 m/s	X	50 Km	$\dot{X}$	1 Km/sec
Y	84.8 m	$\dot{Y}$	.02 m/s	Y	50 Km	$\dot{Y}$	1 Km/sec
Z	263 m	$\dot{Z}$	.003 m/s	Z	50 Km	$\dot{Z}$	1 Km/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6150.4543 km	e	.27646180	ω	1.1933818 deg.
Ω	119.96 ~~248.68293~~ deg	i	85.316262 deg	Tp	-20572.004 sec
r_p	4450.0882 km	h_p	~~6112.7301~~ 2711.4982 km	P	721.40152 min
r_a	7850.0201 km	h_a	6112.7301 km	Tan	185.25482 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: 17.776 LONG: 5.732

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 34.7

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	129/153732	129/155732	21	.0256	-.0385
12	CC3	129/160332	129/232942	445	.0195	.0027
62	C3	129/160731	129/172731	78	.0224	-.0073
62	CC3	129/113131	129/155831	249	.019	.0047

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: good fit, follows LIFL pattern for orbital elements

TIME OF REPORT:
DAY , hr min GMT

Prepared by: D Van Zandt R W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4112 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 130, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-756.47871	km	$\dot{X}$	.89955371	km/sec
Y	1903.2294	km	$\dot{Y}$	-.20520637	km/sec
Z	-5560.5756	km	$\dot{Z}$	.078203064	km/sec

5.4 STANDARD DEVIATIONS:

X	11.5	m	$\dot{X}$	.0006	m/s	X	—	m	$\dot{X}$ — m/sec
Y	6.6	m	$\dot{Y}$	.0006	m/s	Y	—	m	$\dot{Y}$ — m/sec
Z	3.5	m	$\dot{Z}$	.0013	m/s	Z	—	m	$\dot{Z}$ — m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.3866	km	e	.27666438		ω	1.1755418	deg.
Ω	111.41144	deg	i	85.183481	deg	Tp	-8021.3930	sec
r_p	4448.0703	km	h_p	2709.9803	km	P	721.21371	min
r_a	7850.7029	km	h_a	6112.6128	km	Tan	261.33268	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs _____ min. SOS = 143.08

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	130/072431	130/075531	32	.0298	-.0618
41	CC3	130/030031	130/071831	249	.0578	-.0218
62	C3	130/062931	130/071331	43	.0243	-.0321
62	CC3	130/072431	130/151631	393	.0318	-.00829
12	C3	130/143732	130/145832	20	.0295	-.000531

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good fit - R.U.'s around +170 meters
(This is within accuracy of lunar ephemeris)

TIME OF REPORT:
DAY 130, 16 hr 47 min GMT

Prepared by: [signature] (R) W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4314 ITEM NO. 231 B

TAPE NO. 9938

5.2 EPOCH: DAY 130, 15 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-805.87048 km	$\dot{X}$	.89891790 km/sec
Y	1906.4715 km	$\dot{Y}$	-.20292064 km/sec
Z	-5564.7544 km	$\dot{Z}$	.07102013 km/sec

5.4 STANDARD DEVIATIONS:

X	335 m	$\dot{X}$	.0094 m/s	X	/ m	$\dot{X}$	/ m/sec
Y	162 m	$\dot{Y}$	.0203 m/s	Y	/ m	$\dot{Y}$	/ m/sec
Z	116 m	$\dot{Z}$	.0556 m/s	Z	/ m	$\dot{Z}$	/ m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.7494 km	e	.27652963	ω	1.0813466 deg		
Ω	104.80622 deg	i	85.106978 deg	Tp	-8066.366 sec		
r_p	4449.1615 km	h_p	2711.0718 km	P	721.2776 min		
r_a	7850.3377 km	h_a	6112.2476 km	Tan	260.9684 deg		

5.6 LUNAR HARMONICS USED: 11/11 LAT: -80.67 LONG: 316.22

5.7 DATA ARC LENGTH: 6 hrs 0 min. SOS = 27.3

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	130/153632	130/160632	31	.0223	-.0111
12	CC3	130/161332	130/205932	335	.0185	.0066
62	C3	130/161331	130/172831	132	.0461	-.0096
62	CC3	130/150031	130/160831	60	.0157	.0124

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: BAD DATA POINT SLIPPED THROUGH TDP-CDG ONTO THE ODP FILE AT 6HR 5MIN, CAUSING ODP TO LOOP AND TIME OUT (BUMP) IN LINK LA6.

TIME OF REPORT:
DAY , hr min GMT

Prepared by: D. V. Zandt RWB
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4116 ITEM NO. _____

5.2 EPOCH: DAY 11, 03 : 00 : 00 (GMT) TAPE NO. _____
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-851.47002 km	$\dot{X}$	.89844527 km/sec
Y	1910.0479 km	$\dot{Y}$	-.20094297 km/sec
Z	-5566.5986 km	$\dot{Z}$	.064316283 km/sec

5.4 STANDARD DEVIATIONS:

X	90.5 m	$\dot{X}$	.0037 m/s	X	— m	$\dot{X}$	— m/sec
Y	28.0 m	$\dot{Y}$	.0059 m/s	Y	— m	$\dot{Y}$	— m/sec
Z	31.0 m	$\dot{Z}$	.0142 m/s	Z	— m	$\dot{Z}$	— m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.8 km	e	.2764			ω	.9549 deg.
Ω	98.2 deg	i	85.0 deg			Tp	-8103.1 sec
r_p	4450.0 km	h_p	2711.9 km			P	721.3 min
r_a	7849.7 km	h_a	6111.6 km			Tan	260.7 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 152,56

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	131/063031	131/054731	18	.0248	-.0169
62	CC3	131/070331	131/145931	401	.0578	.00527
41	C3	131/070331	131/072731	23	.0185	-.00904
41	CC3	131/030031	131/064831	218	.0280	.00476

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Good fit

TIME OF REPORT:
DAY 131, 16 hr 48 min GMT

Prepared by: E. J. Hamilton (R) W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4318 ITEM NO. 267F TAPE NO. 9865

5.2 EPOCH: DAY 131, 15 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-896.25138	km	$\dot{X}$	.89808147	km/sec
Y	1915.5549	km	$\dot{Y}$	-.19908974	km/sec
Z	-5566.2455	km	$\dot{Z}$	.05767223	km/sec

5.4 STANDARD DEVIATIONS:

X	108	m	$\dot{X}$	.0036	m/s	X		m	$\dot{X}$		m/sec
Y	23	m	$\dot{Y}$	.0076	m/s	Y		m	$\dot{Y}$		m/sec
Z	31	m	$\dot{Z}$	.0169	m/s	Z		m	$\dot{Z}$		m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.9341	km	e	.27633856		ω	.79259653	deg.
Ω	91.586801	deg	i	85.011072	deg	Tp	-.81348160	sec
r_p	4450.4701	km	h_p	2712.3801	km	P	721.31003	min
r_a	7849.3980	km	h_a	6111.3080	km	Tan	260.40871	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: -79.895 LONG: 300.915

5.7 DATA ARC LENGTH: 12 hrs min. SOS = 211.

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	132/003842	132/021632	267	.0425	-.00942
62	C3	131/161332	131/165832	41	.0320	.0539
	CC3	131/150032	131/160832	67	.0718	-.00854
12	C3	131/154432	131/155932	14	.0511	.136
	C3	131/160032	131/160632	5	.0297	.0879
	CC3	131/161332	132/021432	767	.0412	-.00557

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED (DISPLAYED) AT CONF. NOT AVAILABLE

5.10 REMARKS: PLOTS SHOW MARKED EFFECT OF ATTITUDE MANEUVERS ON DOPPLER RESIDUALS. COMPARITIVELY HIGH S.O.S. DUE TO MANEUVERS.

TIME OF REPORT: DAY 132, 6 hr 7 min GMT

Prepared by: D Van Zandt R W (S)
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4120 ITEM NO. 9662 9633 9548

TAPE NO.

5.2 EPOCH: DAY 132, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-938.77329	km	$\dot{X}$	.89768703	km/sec
Y	1922.8086	km	$\dot{Y}$	-.19744321	km/sec
Z	-5564.6758	km	$\dot{Z}$	+.051336325	km/sec

5.4 STANDARD DEVIATIONS:

X	111	m	$\dot{X}$	.0052	m/s	X	/	m	$\dot{X}$ / m/sec
Y	7	m	$\dot{Y}$	.0076	m/s	Y	/	m	$\dot{Y}$ / m/sec
Z	42	m	$\dot{Z}$	.0178	m/s	Z	/	m	$\dot{Z}$ / m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.9	km	e	.2763		ω	.6381	deg.	
Ω	84973	deg	i	85.0	deg	Tp	-8164.2	sec	
r_p	4450.5	km	h_p	2712.4	km	P	721.3	min	
r_a	7849.4	km	h_a	6111.3	km	Tan	260.2	deg	

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 57.3

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	132/07273	132/09243	30	.131	-.0155
	CC3	132/03003	132/08483	309	.0229	.00328
62	CC3	132/08543	132/14593	319	.0162	.00526

5.9 RESIDUAL PLOTS: TAPE NO. 596 X ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: GOOD FIT

TIME OF REPORT: DAY 132, 17 hr 54 min GMT

Prepared by: [signature] (R) B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4322 ITEM NO. _____ TAPE NO. 9858

5.2 EPOCH: DAY 132, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-981.88667 km	$\dot{X}$	.89723911 km/sec
Y	1932.7323 km	$\dot{Y}$	-.19582638 km/sec
Z	-5561.7625 km	$\dot{Z}$	.04488 3452 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X	307.4 m	$\dot{X}$	.0063 m/s	X	/ m	$\dot{X}$	/ m/sec
Y	7.86 m	$\dot{Y}$	.0205 m/s	Y	/ m	$\dot{Y}$	/ m/sec
Z	59.8 m	$\dot{Z}$	.0441 m/s	Z	/ m	$\dot{Z}$	/ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.8065 km	e	.27639902			ω	.48098958 deg.
Ω	78.352694 deg	i	85.012273 deg	Tp	-8193.5560 sec		
r_p	4450.0056 km	h_p	2711.9156 km	P	721.28756 min		
r_a	7849.6072 km	h_a	6111.5171 km	Tan	259.90018 deg		

5.6 LUNAR HARMONICS USED: 11/11 LAT: -79.176 LONG: 285.516

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS: 25.279

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	132/1717	132/1825	60	.0262	-.00194
62	CC3	132/1519	132/1708	93	.0206	.00555
41	C3	133/0222	133/0226	5	.00644	.0379
41	CC3	133/0233	133/0254	22	.0128	.0250
12	C3	132/1647	133/0259	43	.0162	.00116
12	CC3	132/1716	133/0229	508	.0164	.00270

5.9 RESIDUAL PLOTS: TAPE NO. 10878 ITEM NO. 303 A

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 133, 05 hr 00 min GMT

Prepared by: M L Clark R W
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4124 ITEM NO. 0891

TAPE NO. 9292, 9896

5.2 EPOCH: DAY 133, 03 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-1026.7303	km	$\dot{X}$	.89662198	km/sec
Y	1945.5596	km	$\dot{Y}$	-.19415994	km/sec
Z	-5558.1130	km	$\dot{Z}$	.038218637	km/sec

5.4 STANDARD DEVIATIONS:

					A PRIORI						
X	322	m	$\dot{X}$	.0081	m/s	X		m	$\dot{X}$		m/sec
Y	49	m	$\dot{Y}$	.0237	m/s	Y		m	$\dot{Y}$		m/sec
Z	57	m	$\dot{Z}$	.0459	m/s	Z		m	$\dot{Z}$		m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.59	km	e	.276562		ω	.345	deg.		
Ω	71.74	deg	i	85.05	deg	Tp	-8226.11	sec		
r_p	4448.85	km	h_p	2710.78	km	P	721.25	min		
r_a	7850.33	km	h_a	6112.24	km	Tan	259.6	deg		

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 20.2

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	CC3	133/0924	133/1459	307	.0165	.0033
41	C3	133/0842	133/1023	42	.0286	.0005
	CC3	133/0300	133/0918	338	.0176	.0021

5.9 RESIDUAL PLOTS: TAPE NO. 311Y ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 133, 17 hr 52 min GMT

Prepared by: [signature] (R) W P
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4326 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 133, 15 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -1074.6880	km	$\dot{X}$ .89576199	km/sec
Y 1961.3351	km	$\dot{Y}$ -.19233595	km/sec
Z -5554.0782	km	$\dot{Z}$ .031147736	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 553	m	$\dot{X}$ .009	m/s	X	m	$\dot{X}$	m/sec
Y 125	m	$\dot{Y}$ .039	m/s	Y	m	$\dot{Y}$	m/sec
Z 58	m	$\dot{Z}$ .073	m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6149.2437	km	e .27679427				ω .23642128	deg.
Ω 65.126314	deg	i 85.111861	deg			Tp -8264.5948	sec
r_p 4447.1683	km	h_p 2709.0783	km			P 721.18857	min
r_a 7851.3192	km	h_a 6113.2292	km			Tan 259.24269	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs _____ min. SOS = 23

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	133/175031	133/185901	61	.024	.0004
13	CC3	133/154431	133/174331	101	.0177	-.00036
12	C3	133/171132	134/025732	49	.0175	.00053
12	CC3	133/174932	134/022522	468	.0181	.00133
41	CC3	134/023331	134/025931	27	.00627	.0143

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: SEVERAL MANEUVERS SEEMED TO CAUSE TROUBLE IN THE FIT.

TIME OF REPORT:
DAY 134, 9 hr 5 min GMT

Prepared by: [signature] R W O
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4128 ITEM NO. _____

5.2 EPOCH: DAY 134, 03 : 00 : 00 (GMT) TAPE NO. _____
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-1125.7434 km	$\dot{X}$	0.89452950 km/sec
Y	1980.2595 km	$\dot{Y}$	-0.19034498 km/sec
Z	-5550.3999 km	$\dot{Z}$	.02373675 km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X	312 m	$\dot{X}$	.0064 m/s	X	m	$\dot{X}$	m/sec
Y	116 m	$\dot{Y}$	.0235 m/s	Y	m	$\dot{Y}$	m/sec
Z	29 m	$\dot{Z}$	.0406 m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.87 km	e	0.27712			ω	0.18406 deg.
Ω	58.51 deg	i	85.19 deg	Tp	-8312.00 sec		
r_p	4444.88 km	h_p	2706.79 km	P	721.12 min		
r_a	7852.86 km	h_a	6114.48 km	Tan	258.80 deg		

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 40.55

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	134/030031	134/111831	476	.0262	-.00333
62	C3	134/103101	134/111631	43	.0224	-.000361
	CC3	134/112631	134/145931	198	.0201	.00810

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: This solution fits very good. The uncertainties in position are better than the two previous O.D.'s, showing a better orbital geometry for tracking. (P.H.)

TIME OF REPORT: DAY 134, 17 hr 29 min GMT

Prepared by: G. J. Hinkler (R) W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4330 ITEM NO. 197-C

TAPE NO. 9965

5.2 EPOCH: DAY 134, 15 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELG. 1950.0):

X	-1182.6162	km	$\dot{X}$	.89287943	km/sec
Y	2001.6223	km	$\dot{Y}$	-.18798436	km/sec
Z	-5547.2454	km	$\dot{Z}$	.01563898 5	km/sec

5.4 STANDARD DEVIATIONS:

					A PRIORI						
X	454.	m	$\dot{X}$	.0068	m/s	X		m	$\dot{X}$		m/sec
Y	212.	m	$\dot{Y}$	.0330	m/s	Y		m	$\dot{Y}$		m/sec
Z	182	m	$\dot{Z}$	.0560	m/s	Z		m	$\dot{Z}$		m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.4051	km	e	.27751711		ω	.18066150	deg.
Ω	51.898456	deg	i	85.286425	deg	Tp	-8370.692	sec
r_p	4442.1174	km	h_p	2704.0274	km	P	721.0411	min
r_a	7854.6927	km	h_a	6116.6027	km	Tan	258.25231	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: -77.52 LONG: 253.77

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 24.6

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	134/181841	134/195921	100	.029	.00036
62	CC3	134/150031	134/181331	174	.016	.00117
12	C3	134/181232	134/181232	1	0	.0432
12	CC3	134/181732	135/025932	494	.0156	.0008

5.9 RESIDUAL PLOTS: TAPE NO. 11350 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY , hr min GMT

Prepared by: D. Van Zandt R W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4132 ITEM NO. _____

TAPE NO. _____

5.2 EPOCH: DAY 135, 03 hr : 00 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

X	-1242.1123	km	$\dot{X}$	.89067017	km/sec
Y	2027.0439	km	$\dot{Y}$	-.18548461	km/sec
Z	-5545.1203	km	$\dot{Z}$	.00728591	km/sec

5.4 STANDARD DEVIATIONS:

X	253	m	$\dot{X}$	.004	m/s	A PRIORI X		m	$\dot{X}$ m/sec
Y	161	m	$\dot{Y}$	.019	m/s	Y		m	$\dot{Y}$ m/sec
Z	5.8	m	$\dot{Z}$	.030	m/s	Z		m	$\dot{Z}$ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6147.9279	km	e	.27797904		ω	.3695	deg.	
Ω	45.28	deg	i	85.41	deg	Tp	-8443	sec	
r_p	4438.9328	km	h_p	2700.84	km	P	720.76	min	
r_a	7856.9230	km	h_a	6118.83	km	Tan	257.59	deg	

5.6 LUNAR HARMONICS USED: LRC 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS=54.8

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	CC3	135 03:00	135 03:08	9		.112
41	C3	135 03:02	135 12:08	35	.0283	.0044
41	CC3	135 03:13	135 11:28	401	.0299	.0076
62	C3	135 11:01	11:26	17	.0308	.0076
62	CC3	11:33	14:59	181	.0140	-.0120

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Very Good orbit

TIME OF REPORT: DAY 135, 18 hr 52 min GMT

Prepared by: Huntress RWB

by BSG O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4334 ITEM NO. 226 C

TAPE NO. 11485

5.2 EPOCH: DAY 135, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -1309.5746 km $\dot{X}$ .8829 1369 km/sec
Y 2053.4459 km $\dot{Y}$ -.1824 1376 km/sec
Z -5544.2364 km $\dot{Z}$ -.001922 1532 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 300.7 m $\dot{X}$ .00392 m/s X / m $\dot{X}$ / m/sec
Y 231.2 m $\dot{Y}$ .02213 m/s Y / m $\dot{Y}$ / m/sec
Z 16.18 m $\dot{Z}$ .03379 m/s Z / m $\dot{Z}$ / m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6147.3496 km e .2785 0486 ω .4197 4948 deg.
Ω 38.673408 deg i 85.5178 07 deg Tp -8529.2832 sec
r_p 4435.2828 km h_p 2697.1928 km P 720.8553 9 min
r_a 7859.4163 km h_a 6121.3262 km Tan 256.80196 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: -76.47 LONG: 237.69

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 50.085

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	CC3	5/15 150021	5/15 202841	272	.0302	.00257
12	C3	5/15 190052	5/15 202722	86	.0285	-.000309
12	CC3	5/15 203222	5/16 025512	339	.0246	.00373

5.9 RESIDUAL PLOTS: TAPE NO. 10866 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 136, 07 hr 30 min GMT

Prepared by: [illegible] R WB7
O.D. Analyst [illegible]

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4136 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 136, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -1380.9027	km	$\dot{X}$ 0.88452505	km/sec
Y 2082.7794	km	$\dot{Y}$ -0.17913858	km/sec
Z -5544.7890	km	$\dot{Z}$ -0.011474137	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 196	m	$\dot{X}$ .0025	m/s	X	m	$\dot{X}$	m/sec
Y 180	m	$\dot{Y}$ .0142	m/s	Y	m	$\dot{Y}$	m/sec
Z 18	m	$\dot{Z}$ .0210	m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6146.8	km	e .2791		ω .66512	deg.
Ω 32.1	deg	i 85.64	deg	Tp -8631.4	sec
r_p 4431.4	km	h_p 2693.3	km	P 720.8	min
r_a 7862.3	km	h_a 6124.2	km	Tan 255.9	deg

5.6 LUNAR HARMONICS USED: "/" LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 56

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	136/070332	136/070832	6	.00363	.00498
	CC3	136/030032	136/065632	193	.0379	.0153
62	C3	136/113131	136/115331	16	.0225	-.0111
	CC3	136/120331	136/145931	152	.0104	-.0141
41	C3	136/055931	136/133921	131	.0315	-.0000177
	CC3	136/070331	136/115831	272	.0168	.00992

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 136, 19 hr 44 min GMT

Prepared by: E. J. Hamilton R W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4238 ITEM NO. 257 H

TAPE NO. 9570

5.2 EPOCH: DAY 136, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -1458.5671	km	$\dot{X}$ 0.88051992	km/sec
Y 2112.4872	km	$\dot{Y}$ -0.17539318	km/sec
Z -5546.9922	km	$\dot{Z}$ -0.021589170	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 187.8	m	$\dot{X}$ 0.0016	m/s	X	m	$\dot{X}$	m/sec
Y 223.9	m	$\dot{Y}$ 0.0132	m/s	Y	m	$\dot{Y}$	m/sec
Z 36.5	m	$\dot{Z}$ 0.0184	m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6146.2986	km	e	.27969908		ω	.98715118 deg.
Ω	25.458033	deg	i	85.756125	deg	Tp	-8749.1151 sec
r_p	4427.1845	km	h_p	2689.0945	km	P	720.67051 min
r_a	7865.4125	km	h_a	6127.3225	km	Tan	254.85156 deg

5.6 LUNAR HARMONICS USED: LRC 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs min. SOS=

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	CC3	136/150031	136/205331	314	.0279	.00181
12	C3	136/203152	136/205312	11	.0192	-.000233
	CC3	136/210812	137/025932	332	.0106	.00109

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 137, 06 hr 17 min GMT

Prepared by: D. S. McKillop RWB
O.D. Analyst for Goodman

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4340 ITEM NO. _____

5.2 EPOCH: DAY 137, 03 : 00 : 00 (GMT)
hr min sec

TAPE NO. _____

5.3 STATE VECTOR (SELC. 1950.0):

X	-1541.1913	km	$\dot{X}$	.87592247	km/sec
Y	2142.1665	km	$\dot{Y}$	-.17129134	km/sec
Z	-5550.8345	km	$\dot{Z}$	-.032078359	km/sec

5.4 STANDARD DEVIATIONS:

X	205.0	m	$\dot{X}$	.00192	m/s	X		m	$\dot{X}$		m/sec
Y	294.4	m	$\dot{Y}$	.01385	m/s	Y		m	$\dot{Y}$		m/sec
Z	54.7	m	$\dot{Z}$	.01855	m/s	Z		m	$\dot{Z}$		m/sec

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6145.8	km	e	.28034		ω	1.384	deg.
Ω	18.86	deg	i	85.85	deg	Tp	-8880.9	sec
r_p	4422.9	km	h_p	2684.8	km	P	720.6	min
r_a	7868.8	km	h_a	6130.7	km	Tan	253.7	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 41

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	137/123131	137/125731	27	.0259	-.00667
	CC3	137/130431	137/145931	103	.0137	-.0174
12	C3	137/063832	137/080252	78	.0187	.000507
	CC3	137/030032	137/063332	192	.0310	.0125
41	C3	137/063031	137/142241	82	.0235	-.000214
	CC3	137/063831	137/125831	302	.0160	.00645

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 137, 21 hr 10 min GMT

Prepared by: E. J. Hamel Jr. for R W B
O.D. Analyst D. VANZANDT

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4242 ITEM NO. - TAPE NO. _____

5.2 EPOCH: DAY 137, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -1627.1808	km	$\dot{X}$ .0.87077542	km/sec
Y 2172.2839	km	$\dot{Y}$ -0.16695707	km/sec
Z -5555.9581	km	$\dot{Z}$ -0.04274 9654	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X 131.6	m	$\dot{X}$ .00088	m/s	X	m	$\dot{X}$	m/sec
Y 259.6	m	$\dot{Y}$ .00742	m/s	Y	m	$\dot{Y}$	m/sec
Z 62.03	m	$\dot{Z}$ .01027	m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6145.4688	km	e	0.28100875		ω	1.8533358 deg.
Ω	12.254490	deg	i	85.946777	deg	Tp	-9026.2245 sec
r_p	4418.5383	km	h_p	2680.4483	km	P	720.52458 min
r_a	7872.3992	km	h_a	6131.3092	km	Tan	252.47347 deg

5.6 LUNAR HARMONICS USED: LRC 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS=

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	137/234631	137/235931	11	.0338	-.00859
	CC3	137/150031	137/233831	466	.0738	.00263
12	C3	137/211552	137/233632	98	.0778	-.000998
	CC3	137/234532	138/025932	172	.00950	-.000784

5.9 RESIDUAL PLOTS: TAPE NO. 9995 ITEM NO. 291A

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 138, 07 hr 10 min GMT

Prepared by: D.S. Miller RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. OD 4344 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 138, 23 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-1717.9113	km	$\dot{X}$	.86519214	km/sec
Y	2196.5814	km	$\dot{Y}$	-.16234674	km/sec
Z	-5563.4408	km	$\dot{Z}$	-.053644111	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI					
X	183	m	$\dot{X}$	.0008	m/s	X		m	$\dot{X}$	m/sec
Y	466	m	$\dot{Y}$	.0082	m/s	Y		m	$\dot{Y}$	m/sec
Z	125	m	$\dot{Z}$	.0115	m/s	Z		m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6145.1744	km	e	.28167337		ω	2.3648294	deg.
Ω	5.6574965	deg	i	85.971785	deg	Tp	-9121.3259	sec
r_p	4414.2424	km	h_p	2676.1524	km	P	720.47231	min
r_a	7876.1065	km	h_a	6138.0164	km	Tan	251.1769	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS= 50

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	137/071832	138/070502	100	.017	.0018
12	CC3	137/030232	138/071232	230	.029	.0076
41	C3	138/065931	138/142901	46	.025	.0024
41	CC3	138/071831	138/133331	273	.017	.012
62	C3	138/133131	138/133331	3	.025	-.013
62	CC3	138/134331	138/145951	74	.026	-.05

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 138, 17 hr 10 min GMT

Prepared by: [signature] R W (B)
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4246 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 138, 15 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-1806.4008	km	$\dot{X}$	0.85935162	km/sec
Y	2230.3046	km	$\dot{Y}$	-0.15741654	km/sec
Z	-5568.4424	km	$\dot{Z}$	-0.064167611	km/sec

5.4 STANDARD DEVIATIONS:

X	59.12	m	$\dot{X}$	.003966	m/s	A PRIORI X		m	$\dot{X}$ m/sec
Y	248.3	m	$\dot{Y}$	.019534	m/s	Y		m	$\dot{Y}$ m/sec
Z	77.51	m	$\dot{Z}$	.007838	m/s	Z		m	$\dot{Z}$ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6145.1778	km	e	0.28234972		ω	2.9191334	deg.
Ω	359.08194	deg	i	86.098896	deg	Tp	-9342.9402	sec
r_p	4410.0885	km	h_p	2671.9985	km	P	720.47339	min
r_a	7880.2670	km	h_a	6142.1770	km	Tan	249.95056	deg

5.6 LUNAR HARMONICS USED: LRC 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS=

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	137/000031	137/002531	18	.0254	.000352
	CC3	137/150051	138/222631	355	.0817	.0105
12	CC3	137/000632	139/025952	167	.0763	.0019

5.9 RESIDUAL PLOTS: TAPE NO. 741Y ITEM NO. 318A

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: NO SWEAT. ITNO 3 WAS GOOD BUT THE PLOT SCALE WAS BAD.

TIME OF REPORT:
DAY 139, 05 hr 08 min GMT

Prepared by: D. S. McKellar RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. OD 4348 ITEM NO. _____ TAPE NO. 11291

5.2 EPOCH: DAY 139, 03 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-1897.4838	km	$\dot{X}$	.85326641	km/sec
Y	2247.1653	km	$\dot{Y}$	-.15284706	km/sec
Z	-5578.1731	km	$\dot{Z}$	-.07473665 2	km/sec

5.4 STANDARD DEVIATIONS:

					A PRIORI						
X	33	m	$\dot{X}$	.0009	m/s	X		m	$\dot{X}$		m/sec
Y	263	m	$\dot{Y}$	.004	m/s	Y		m	$\dot{Y}$		m/sec
Z	94	m	$\dot{Z}$	.004	m/s	Z		m	$\dot{Z}$		m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6145.1468	km	e	.28297174		ω	3.4795975	deg.
Ω	352.4822	deg	i	86.047667	deg	Tp	-7507.2633	sec
r_p	4406.2439	km	h_p	2668.1539	km	P	720.46794	min
r_a	7884.0495	km	h_a	6145.9595	km	Tan	248.52649	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 22.5

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	139-081121	139-091331	63	.01	-.005
41	CC3	139-091641	139-145711	242	.0096	.0022
12	C3	139-091732	139-095132	34	.02[illegible]	-.025[illegible]
12	CC3	139-030032	139-091432	337	.00[illegible]7	-.00309

5.9 RESIDUAL PLOTS: TAPE NO. 11056. ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 139, 16 hr 0 min GMT

Prepared by: Clark Vaughnt R W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4352 ITEM NO. 9994

TAPE NO. _____

5.2 EPOCH: DAY 140, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -2072.9518 km $\dot{X}$ .84137022 km/sec
Y 2276.1604 km $\dot{Y}$ -.14410052 km/sec
Z -5575.4344 km $\dot{Z}$ -.094[illegible]1069 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 34.3 m $\dot{X}$ .000521 m/s X ____ m $\dot{X}$ ____ m/sec
Y 225 m $\dot{Y}$ .00404 m/s Y ____ m $\dot{Y}$ ____ m/sec
Z 102.7 m $\dot{Z}$ .01053 m/s Z ____ m $\dot{Z}$ ____ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6145.6139 km e .28405845 ω 4.5450041 deg.
Ω 339.29795 deg i 85.933696 deg Tp -9824.7607 sec
r_p 4399.9003 km h_p 2661.8103 km P 720.55010 min
r_a 7891.3274 km h_a 6153.2374 km Tan 246.03934 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS= 31,294

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	5/20 [illegible]	5/20 [illegible]21	28	.0106	-.0203
41	CC3	5/20 [illegible]31	5/20 145[illegible]31	320	.0193	-.000511
12	C3	5/20 093632	5/20 [illegible]42	46	.0238	-.0366
12	CC3	5/20 030032	5/20 [illegible]	355	.0228	-.00114

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 140, 16 hr 30 min GMT

Prepared by: [illegible] R W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4254 ITEM NO. 382D

TAPE NO. 10869

5.2 EPOCH: DAY 140, 15 : 00 : 00.0 (GMT)
hr min sec

5.3 STATE VECTOR (SELG. 1950.0):

X	-2152.6313	km	$\dot{X}$	.82570782	km/sec
Y	2283.6194	km	$\dot{Y}$	-.14023277	km/sec
Z	-5603.3935	km	$\dot{Z}$	-.10311636	km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI					
X	42.58	m	$\dot{X}$	.000597	m/s	X	/	m	$\dot{X}$ / m/sec
Y	154.46	m	$\dot{Y}$	.004279	m/s	Y	/	m	$\dot{Y}$ / m/sec
Z	77.31	m	$\dot{Z}$	.009732	m/s	Z	/	m	$\dot{Z}$ / m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6146.0508	km	e	.28446248		ω	5.0045276	deg.	
Ω	332.70610	deg	i	85.831043	deg	Tp	-9768.6461	sec	
r_p	4397.7300	km	h_p	2659.6400	km	P	720.62694	min	
r_a	7894.3717	km	h_a	6156.2717	km	Tan	244.94620	deg	

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 335.69

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	5/20 155131	5/21 015531	24	.0553	.0072
62	CC3	5/20 170931	5/21 012321	465	.0726	-.0165
41	C3	5/20 170931	5/20 175931	46	.0320	.0132
41	CC3	5/20 150031	5/20 170231	118	.0641	-.0166
12	C3	5/20 233132	5/21 012732	109	.0271	.0115
12	CC3	5/21 013232	5/21 025952	87	.0417	.0212

5.9 RESIDUAL PLOTS: TAPE NO. 447X ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 141, 06 hr 02 min GMT

Prepared by: [illegible] R W B
O.D. Analyst

i. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4356 ITEM NO. _____

TAPE NO. _____

5.2 EPOCH: DAY 141, 3 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -2225.6525 km $\dot{X}$ .83097745 km/sec
Y 2286.6882 km $\dot{Y}$ -.13681753 km/sec
Z -5610.1128 km $\dot{Z}$ -.11114088 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 86 m $\dot{X}$ .0008 m/s X ___ m $\dot{X}$ ___ m/sec
Y 177 m $\dot{Y}$ .0077 m/s Y ___ m $\dot{Y}$ ___ m/sec
Z 104 m $\dot{Z}$ .0153 m/s Z ___ m $\dot{Z}$ ___ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6146.5761 km e .28475259 ω .53868176 deg.
-33.887 Ω ~~[illegible]~~ deg i 95.70548 deg Tp -10097.205 sec
r_p 4396.3226 km h_p 2658.2326 km P 720.71432 min
r_a 7896.8294 km h_a 6158.7394 km Tan 243.98979 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 77.

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	141/075632	141/104012	41	.0111	-.[illegible]
~~12~~	~~C3~~	~~141/[illegible]~~			~~[illegible]~~	~~-.[illegible]~~
12	CC3	141/030032	141/094132	354	.0360	-.[illegible]
41	C3	141/025911	141/044911	50	.0149	-.0255
41	CC3	141/045151	141/145911	303	.0281	.000087

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 141, 17 hr 0 min GMT

Prepared by: [signature] R W B
O.D. Analyst

1. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4258 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 141, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -2270.6729 km $\dot{X}$ .82669565 km/sec
Y 2285.6270 km $\dot{Y}$ -.13392383 km/sec
Z -5615.3999 km $\dot{Z}$ -.11831767 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 86.06 m $\dot{X}$ .000753 m/s X ____ m $\dot{X}$ ____ m/sec
Y 139.80 m $\dot{Y}$ .007719 m/s Y ____ m $\dot{Y}$ ____ m/sec
Z 90.79 m $\dot{Z}$ .014627 m/s Z ____ m $\dot{Z}$ ____ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6147.1635 km e .28491295 ω 5.6813779 deg.
Ω 319.51686 deg i 85.561284 deg Tp -10207.490 sec
r_p 4395.7570 km h_p 2657.6670 km P 720.82265 min
r_a 7878.5700 km h_a 6160.4799 km Tan 243.18859 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 170.59

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	5/21 174631	5/22 020201	35	.0394	.0116
13	CC3	5/21 180231	5/22 012701	424	.0504	-.0143
41	C3	5/21 180231	5/21 185331	49	.0306	-.00469
41	CC3	5/21 150011	5/21 175831	89	.0611	-.00804
12	C3	5/22 004212	5/22 012712	42	.0481	.0638
12	CC3	5/22 013252	5/22 025732	83	.0533	.0132

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 142, 07 hr 11 min GMT

Prepared by: W L France R W B
O.D. Analyst

1. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4262 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 142, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -2396.8283 km $\dot{X}$ .82027973 km/sec
Y 2276.0836 km $\dot{Y}$ -.12961373 km/sec
Z -5619.1213 km $\dot{Z}$ -.13035855 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 78.286 m $\dot{X}$ .000811 m/s X ____ m $\dot{X}$ ____ m/sec
Y 64.673 m $\dot{Y}$ .006449 m/s Y ____ m $\dot{Y}$ ____ m/sec
Z 57.368 m $\dot{Z}$ .011523 m/s Z ____ m $\dot{Z}$ ____ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6148.2322 km e .28488213 ω 5.9710097 deg.
Ω 306.31361 deg i 85.266917 deg Tp -10367.554 sec
r_p 4396.7107 km h_p 2658.6207 km P 721.01063 min
r_a 7899.7537 km h_a 6161.6637 km Tan 242.06867 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 00 min. SOS = 54.242

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	5/22 183131	5/22 185631	26	.0275	.0355
13	CC3	5/22 190531	5/23 025951	444	.0280	.824-05
41	C3	5/22 190531	5/22 194651	42	.0301	.00733
41	CC3	5/22 150101	5/22 185831	212	.0281	.000913
12	C3	5/23 023552	5/23 025952	25	.0348	.00165

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 143, 05 hr 59 min GMT

Prepared by: W. E. [illegible] R W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4364 ITEM NO. 452A

TAPE NO. 9738

5.2 EPOCH: DAY 143, 03 : 0 : 0 (GMT)
hr min sec

5.3 STATE VECTOR (SELG. 1950.0):

X	-2437.8491	km	$\dot{X}$	.81810801	km/sec
Y	2269.4008	km	$\dot{Y}$	-.12817835	km/sec
Z	-5617.6949	km	$\dot{Z}$	-.135[illegible]3691	km/sec

5.4 STANDARD DEVIATIONS:

X	121	m	$\dot{X}$	.0015	m/s	A PRIORI X		m	$\dot{X}$ m/sec
Y	65	m	$\dot{Y}$	.0091	m/s	Y		m	$\dot{Y}$ m/sec
Z	74	m	$\dot{Z}$	.0162	m/s	Z		m	$\dot{Z}$ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.6314	km	e	.28473491		ω	5.9218204	deg.
Ω	299.70475	deg	i	75.131054	deg	Tp	-10418.319	sec
r_p	4397.7013	km	h_p	2459.8113	km	P	721.05[illegible]	min
r_a	7899.3614	km	h_a	6161.2714	km	Tan	241.73142	deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: -67.2 LONG: 131.4

5.7 DATA ARC LENGTH: 12 hrs 0 min. 0 SOS = 49.5

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	C3	105701	112231	26	.0103	-.0060
41	CC3	113331	145931	176	.0050	.0011
12	C3	030032	[illegible]	40	.1460	-.0209
12	CC3	033332	112332	422	.0309	-.0007
62	C3	033331	[illegible]4431	13	.0096	.0332
62	CC3	030031	[illegible]	28	.0140	.0117

5.9 RESIDUAL PLOTS: TAPE NO. 11481 ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 143, 18 hr 15 min GMT

Prepared by: [signature] RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4166 ITEM NO. _____

5.2 EPOCH: DAY 143, 15 : 00 : 00 (GMT) TAPE NO. _____
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-2474.7226	km	$\dot{X}$	.21648199	km/sec
Y	2264.5315	km	$\dot{Y}$	-.12692553	km/sec
Z	-5612.3962	km	$\dot{Z}$	-.13985246	km/sec

5.4 STANDARD DEVIATIONS:

X	74	m	$\dot{X}$	.0011	m/s	A PRIORI X		m	$\dot{X}$ m/sec
Y	29	m	$\dot{Y}$	.0057	m/s	Y		m	$\dot{Y}$ m/sec
Z	45	m	$\dot{Z}$	.0103	m/s	Z		m	$\dot{Z}$ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.0179	km	e	.224555		ω	5.990131	deg.	
Ω	293.09452	deg	i	85.0225	deg	Tp	-1045.2610	sec	
r_p	4799.2817	km	h_p	2661.1917	km	P	721.1456	min	
r_a	7898.7540	km	h_a	6160.6640	km	Tan	241.5145	deg	

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: _____ hrs _____ min. SOS = 478

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	143/200131	143/200631	6	.105	-.0412
	CC3	143/201431	144/025831	325	.0299	.00453
11	C3	143/201531	143/204231	25	.0264	-.00516
	CC3	143/150031	143/200831	288	.0238	-.00162

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: [illegible] hr [illegible] min GMT

Prepared by: E. J. Hamilton RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4268 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 124, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X -2505.6060 km $\dot{X}$ .81528231 km/sec
Y 2260.7617 km $\dot{Y}$ -.12603914 km/sec
Z -5605.6397 km $\dot{Z}$ -.14285919 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X 86.429 m $\dot{X}$ .001749 m/s X ____ m $\dot{X}$ ____ m/sec
Y 17.769 m $\dot{Y}$ .006118 m/s Y ____ m $\dot{Y}$ ____ m/sec
Z 43.601 m $\dot{Z}$ .010792 m/s Z ____ m $\dot{Z}$ ____ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a 6149.1272 km e .28438521 ω 5.7592177 deg.
Ω 286.47710 deg i 84.947991 deg Tp -10474.513 sec
r_p 4400.4067 km h_p 2662.3167 km P 721.16815 min
r_a 7897.8486 km h_a 6159.7586 km Tan 241.38032 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 00 min. SQS=

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
12	C3	144/032032	144/12[illegible]	39	.0365	.0163
12	CC3	144/034832	144/115832	447	.0339	.0104
41	C3	144/102831	144/115931	89	.0235	.006872
41	CC3	144/120331	144/14[illegible]31	164	.0445	.00465
13	C3	144/034931	144/044911	52	.0341	.00618
13	CC3	144/030131	144/034331	43	.0750	.0528

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 144, 17 hr 51 min GMT

Prepared by: W. T. Runac RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4170 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 144, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-2535.6092	km	$\dot{X}$	.81431561	km/sec
Y	2260.2066	km	$\dot{Y}$	-.12513789	km/sec
Z	-5595.6369	km	$\dot{Z}$	-.14787802	km/sec

5.4 STANDARD DEVIATIONS:

					A PRIORI						
X	290	m	$\dot{X}$	.0022	m/s	X		m	$\dot{X}$		m/sec
Y	12	m	$\dot{Y}$	.0189	m/s	Y		m	$\dot{Y}$		m/sec
Z	170	m	$\dot{Z}$	.0409	m/s	Z		m	$\dot{Z}$		m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6149.2253	km	e	.28428		ω	5.56817	deg.			
Ω	279.85957	deg	i	84.905	deg	Tp	-10487.7	sec			
r_p	4401.1293	km	h_p	2663.0393	km	P	721.185	min			
r_a	7897.3212	km	h_a	6159.2311	km	Tan	241.3	deg			

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs _____ min. SOS-77

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	144/150031	144/210911	345	.0234	.0149
62	CC3	144/212231	145/025911	300	.0414	.0177

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT:
DAY 145, 05 hr 48 min GMT

Prepared by: E. J. Hamilton RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4272 ITEM NO. _____

TAPE NO. _____

5.2 EPOCH: DAY 145, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-2566.0335 km	$\dot{X}$	.213[illegible]418 km/sec
Y	[illegible].9120 km	$\dot{Y}$	-.1[illegible]414291 km/sec
Z	-5583.0392 km	$\dot{Z}$	-.15[illegible]04569 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X	159.[illegible] m	$\dot{X}$	.0019241047 m/s	X / m	$\dot{X}$ / m/sec
Y	21.00[illegible] m	$\dot{Y}$	.010771501 m/s	Y / m	$\dot{Y}$ / m/sec
Z	39.15[illegible]51 m	$\dot{Z}$	.022669119 m/s	Z / m	$\dot{Z}$ / m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.8409 km	e	[illegible]	ω	[illegible] deg.
Ω	[illegible].24154 deg	i	84.[illegible] deg	Tp	-[illegible] sec
r_p	4401.2739 km	h_p	[illegible] km	P	[illegible] min
r_a	7896.4078 km	h_a	[illegible] km	Tan	241.[illegible] deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 11 hrs 56 min. SOS =

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	145/044431	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	CC3	145/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	[illegible]	145/[illegible]	145/[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	145/115332	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	145/044432	[illegible]	320	.0317	[illegible]

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: Prepared by: [illegible] R W B
DAY 145, 17 hr 30 min GMT O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 474 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 145, 15 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-2595.5033	km	$\dot{X}$	.8123521	km/sec
Y	2269.6978	km	$\dot{Y}$	-.12317295	km/sec
Z	-5570.1868	km	$\dot{Z}$	-.15599706	km/sec

5.4 STANDARD DEVIATIONS:

X	271	m	$\dot{X}$	.0042	m/s	A PRIORI X		m	$\dot{X}$ m/sec
Y	55	m	$\dot{Y}$	.0175	m/s	Y		m	$\dot{Y}$ m/sec
Z	114	m	$\dot{Z}$	.0354	m/s	Z		m	$\dot{Z}$ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.7646	km	e	.28431		ω	5.1673	deg.	
Ω	266.62	deg	i	84.927	deg	Tp	-10510.04	sec	
r_p	4400.62	km	h_p	2662.53	km	P	721.104	min	
r_a	7896.91	km	h_a	6158.82	km	Tan	241.13	deg	

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 00 min. SOS=61

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
41	CC3	145/150031	145/221331	404	.0204	-.000327
62	C3	145/220831	145/221131	4	.0263	-.00136
	CC3	145/221831	146/023741	256	.0438	.00724

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 146, 03 hr 56 min GMT

Prepared by: E. J. Hamilton (R) W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 4276 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 146, 03 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

X	-2633.5756 km	$\dot{X}$	.81091310 km/sec
Y	2278.8921 km	$\dot{Y}$	-.12162297 km/sec
Z	-5554.1330 km	$\dot{Z}$	-.16092938 km/sec

5.4 STANDARD DEVIATIONS: A PRIORI

X	248.869 m	$\dot{X}$	.003946 m/s	X	/ m	$\dot{X}$	/ m/sec
Y	76.852 m	$\dot{Y}$	.015365 m/s	Y	/ m	$\dot{Y}$	/ m/sec
Z	93.412 m	$\dot{Z}$	.030719 m/s	Z	/ m	$\dot{Z}$	/ m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6148.2497 km	e	.28449173	ω	4.9660835 deg.
Ω	260.00780 deg	i	84.973694 deg	Tp	-10529.223 sec
r_p	4399.1235 km	h_p	2661.0335 km	P	721.01370 min
r_a	7897.3758 km	h_a	6159.2858 km	Tan	240.96877 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 00 min. SOS = 144.87

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
13	C3	146/062431	146/063531	12	.0334	-.00771
13	CC3	146/030021	146/061831	188	.0466	.0198
41	C3	146/122731	146/123731	11	.00728	-.0134
41	CC3	146/124331	146/145731	134	.0618	-.00586
12	C3	146/054032	146/133232	86	.0412	-.0137
12	CC3	146/062432	146/123732	306	.0439	-.00737

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 146, 17 hr 21 min GMT

Prepared by: W.L. Burnes R W B
O.D. Analyst

1. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5002 ITEM NO. _____ TAPE NO. 11375, 9897 (GMT)

5.2 EPOCH: DAY 149, 03 : 00 : 00 (hr, min, sec)

5.3 STATE VECTOR (SELC. 1950.0):

X	-2929.6979 km	$\dot{X}$	.79150388 km/sec
Y	2403.0608 km	$\dot{Y}$	-.10743889 km/sec
Z	-5470.6576 km	$\dot{Z}$	-.19431441 km/sec

5.4 STANDARD DEVIATIONS:

				A PRIORI			
X	270.0 m	$\dot{X}$	.0055 m/s	X	m	$\dot{X}$	m/sec
Y	320.0 m	$\dot{Y}$	.0098 m/s	Y	m	$\dot{Y}$	m/sec
Z	7.811 m	$\dot{Z}$	.0265 m/s	Z	m	$\dot{Z}$	m/sec

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

a	6146.4771 km	e	.28793861	ω	5.3661039 deg.
Ω	220.32798 deg	i	85.694775 deg	Tp	-10917.176 sec
r_p	4376.6690 km	h_p	2638.5790 km	P	720.70191 min
r_a	7916.2851 km	h_a	6178.1951 km	Tan	237.91274 deg

5.6 LUNAR HARMONICS USED: 11/11 LAT: _____ LONG: _____

5.7 DATA ARC LENGTH: 12 hrs 0 min. SOS = 51.335

5.8 DATA SUMMARY:

STA #	DATA TYPE	START TIME	STOP TIME	NUMBER OF POINTS	STANDARD DEVIATIONS	MEAN
62	C3	149/083431	149/082831	51	.0244	.0157
62	CC3	149/030031	149/082831	297	.0315	.00816
12	C3	149/074632	149/082732	30	.0206	.0649
12	CC3	149/083332	149/145732	372	.0197	-.00614

5.9 RESIDUAL PLOTS: TAPE NO. 11090 ITEM NO. —

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 149, 19 hr 45 min GMT

Prepared by: [signature] RWB
O.D. Analyst

PRE-MIDCOURSE OD SOLUTIONS

O.D. No.	Solution Type*	Time Span (GMT) From	To
1300	B	124/231610	124/234120
1302	Number Not Used		
1304	Number Not Used		
1106	A	124/231610	125/020832
1108(1)	B	124/231610	125/020902
1110	A	124/231610	125/045800
1112	B	124/231610	125/045900
1214(2)	A	124/231610	125/092100
1216		No Good	
1218	B	124/231610	125/0922
1220	A	124/231610	125/1412
POST-MIDCOURSE SOLUTIONS			
2000	2	124/231610	125/1629
2302	2	125/164552.7	125/2341
2104	1	125/164552.7	126/0004
2106	2	125/164552.7	126/0401
2108	Not Completed		
2210	2	125/164552.7	126/1021
2212	1	125/164552.7	126/1022
2314	1	125/164552.7	126/170302
2316	2	125/164552.7	126/2144
2118	1	125/164552.7	127/0155
2220	1	125/164552.7	127/110532
2222	2	125/164552.7	127/110532

POST-MIDCOURSE SOLUTIONS (Continued)

O.D. No.	Solution Type*	Time Span (GMT) From	To
TDPQ Report 1			
2324(3)	1	125/164552.7	127/154502
2326	2	125/164552.7	127/1707
2328	2	125/164552.7	128/0205
2130(4)	1	125/164552.7	128/0205
2232	Not Completed		
2234	1	128/053417.218	128/1001
2500(5)	1	128/050846.68	128/1508

*Solution types are as follows:
A = CC3 data only used in fit
B = CC3, C3, and angle data used in fit
1 = CC3 and RU data used in fit
2 = CC3 data only used in fit

(1) O.D. 1108 used for midcourse preliminary command conference.

(2) O.D. 1214 used for midcourse final command conference.

(3) O.D. 2324 used for injection preliminary command conference.

(4) O.D. 2130 used for injection final command conference.

(5) O.D. 2500 was run after injection using the last 10 hours of data before the maneuver.

LUNAR ELLIPSE ORBIT DETERMINATION REPORTS

O.D. No.	Time Span (GMT) From	To	Used for Design of Photo Frames	in Orbit No.
4302	128/151908	128/171400		
4304	128/151908	128/204332		
4106	128/151908	129/031832		
4208	128/201908	129/081832		
4310	129/113000	129/232942		
4112	130/030000	130/151631	5, 9, 13, 17, 21, 22	6
TDPQ Report of May 9, 1967				
4314	130/150000	130/205932	26, 27, 28, 29, 30	7
4116	131/030031	131/145931	32, 33, 34, 35, 36	8
4318	131/150032	132/021632	38, 39, 40, 41, 42	9
4120	132/030031	132/145931	44, 45, 46, 47, 48	10
4322	132/151931	133/025931	50, 51, 52, 53, 54	11
4124	133/030031	133/145931	58, 59, 60, 61, 62	12
4326	133/154431	134/025931	64, 65, 66, 67, 68	13
4128	134/030031	134/145931	70, 71, 72, 73, 74	14
4330	134/150031	135/025932	76, 77, 78, 79, 80	15
4132	135/030031	135/145932	82, 83, 84, 85, 86	16
4334	135/150031	136/025512	88, 89, 90, 91, 92	17
4136	136/030032	136/145931	94, 95, 96, 97, 98	18
4238	136/150031	137/025932	100, 101, 102, 103, 104	19
4340	137/030032	137/145931	106, 107, 108, 109, 110	20
4242	137/150031	138/025932	112, 113, 114, 115, 116	21
4344	138/030232	138/145951	118, 119, 120, 121, 122	22
4246	138/150000	139/025932	124, 125, 126, 127, 128	23

LUNAR ELLIPSE ORBIT DETERMINATION REPORTS (Continued)

O.D. No.	Time Span (GMT) From	To	Used for Design of Photo Frames	in Orbit No.
4348	139/030032	139/145911	130, 131, 132, 133, 134	24
4250	139/150011	140/025912	136, 137, 138, 139, 140	25
4352	140/030032	140/145931	142, 143, 144, 145, 146	26
4254	140/150031	141/025952	148, 149, 150, 151, 152	27
4356	141/030032	141/145911	154, 155, 156, 157, 158	28
4258	141/150011	142/025932	160, 161, 162, 163, 164	29
4360	142/030032	142/145901	166, 167, 168, 169, 170	30
4262	142/150101	143/025952	172, 173, 174, 175, 176	31
4364	143/145931	143/145931	179, 180, 181, 182, 183	32
			184, 185	33
4166	143/150031	144/025831	186, 187, 188, 189, 190	33
4268	144/030131	144/145931	193, 194, 195, 196, 197	34
			198, 199	35
4170	144/150031	145/025911	200, 201, 202, 203	35
4272	145/030011	145/145621	204, 205	36
			206, 207	37
4174	145/150031	146/023741	208, 209, 210, 211	37
4276	146/030021	146/145931		
5002*	149/030031	149/145932		
5004*	151/030031	151/145932		

*O.D.s 5002 and 5004 were run between Bimat cut and end of photo readout.

NOTE: All O.Ds from 4112 on – with the exception of 4314 and the 5000 series – used 12-hour, consecutive data arcs. O.D. 4314 used only 6 hours of data due to a special problem occurring and the lack of time necessary to correct it.

POSTFLIGHT PHOTO EVALUATION DATA

This section contains a tabulation of state vectors using a 12-hour tracking data arc encompassing the photo site. This was mapped to a time approximately 1 minute before the first photo in the sequence. Also listed is the design photo times used for the state vector calculations.

```
(     ODPL 4318    L/O MISS 4                  $ ORBIT 6
(     ITERATION    NUMBER     8
TRANST     1.     67.      5.     11.     15.     45.     17.889
TRANSF+2     1547.08035278    1209.94630432   -4883.48126221
                .86702728       -.31855682        .46093501

(     ODPL 4120    L/O MISS 4                  $ ORBIT 7
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     12.      4.     26.     23.300
TRANSF+2     3398.16195679     333.72823715   -3277.88861084
                .61954200       -.39258384        .85820862

(     ODPL 4322    L/O MISS 4                  $ ORBIT 8
(     ITERATION    NUMBER    11
TRANST     1.     67.      5.     12.     15.     37.     46.861
TRANSF+2     1069.25973511    1373.58145142   -5101.70507813
                .89132208       -.29697647        .37306452

      ODPL 4324   L/O MISS 4                  $ ORBIT 9
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     13.      4.     28.      0.000
TRANSF+2     3400.87872314     328.85942078   -3264.98736572
                .61897285       -.39452537        .85959364

(     ODPL 4326    L/O MISS 4                  $ ORBIT 10
(     ITERATION    NUMBER    12
TRANST     1.     67.      5.     13.     15.     48.     30.000
TRANSF+2     1547.19020081    1210.85264587   -4865.40423584
                .86902867       -.32185556        .46119535

(     ODPL 4128    L/O MISS 4                  $ ORBIT 11
(     ITERATION    NUMBER    10
TRANST     1.     67.      5.     14.      4.     30.      0.000
TRANSF+2     3408.22698975     326.05260468   -3244.63830566
                .61659253       -.39797882        .86197755

(     ODPL 4330    L/O MISS 4                  $ ORBIT 12
(     ITERATION    NUMBER     6
TRANST     1.     67.      5.     14.     15.     50.     30.000
TRANSF+2     1547.22380066    1223.00079346   -4856.74694824
                .86917189       -.32443627        .46104210

          4132
(     ODPL ~~4334~~   L/O MISS 4                  $ ORBIT 13
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     15.      4.     32.      0.000
TRANSF+2     3399.58587646     338.53234482   -3248.68920898
                .61754718       -.40192895        .86009473

(     ODPL 4334    L/O MISS 4                  $ ORBIT 14
(     ITERATION    NUMBER     6
TRANST     1.     67.      5.     15.     15.     53.      0.000
TRANSF+2     1550.61724854    1240.67477417   -4850.91918945
                .86794456       -.32737073        .46125491

      ODPL 4136   L/O MISS 4                  $ ORBIT 15
      ITERATION NUMBER 2
TRANST     1.     67.      5.     16.      4.     35.      0.
TRANSF+2     3407.0944     343.8012    -3234.3316
            .61349870    -.40634327     .86192831
```

```
(     MAP TO TRANSF TIMES      ODPL 4238 $ ORBIT 16
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     16.     15.     56.      0.000
TRANSF+2     1553.06529236    1261.80145264   -4852.44433594
                 .86549063       -.32986596        .46118570

(     MAP TO TRANSF TIMES      ODPL 4340 $ ORBIT 17
      ITERATION NUMBER 0
TRANST     1.     67.      5.     17.      4.     38.      0.000
TRANSF+2     3393.50064087     364.16960144   -3255.47167969
                 .61419231       -.40936206        .85835405

(     MAP TO TRANSF TIMES      ODPL 4242 $ ORBIT 18
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     17.     15.     59.      0.000
TRANSF+2     1530.13136292    1291.13990784   -4875.46527100
                 .86339506       -.33019355        .45639708

(     ODPL 4344    L/O MISS 4              $ ORBIT 19
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     18.      4.     42.      0.000
TRANSF+2     3399.27053833     368.67615128   -3255.79534912
                 .60939439       -.41105193        .85971938

(     ODPL 4246    L/O MISS 4              $ ORBIT 20
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     18.     16.      3.      5.800
TRANSF+2     1547.65225220    1304.35435486   -4883.35852051
                 .85811623       -.33148896        .45930186

(     ODPL 4348    L/O MISS 4              $ ORBIT 21
(     ITERATION    NUMBER     2

TRANST     1.     67.      5.     19.      4.     46.      0.000
TRANSF+2     3397.75521851     378.66377640   -3271.38644409
                 .60643426       -.41140025        .85895735

(     ODPL 4250    L/O MISS 4              $ ORBIT 22
(     ITERATION    NUMBER     3
TRANST     1.     67.      5.     19.     16.      7.      5.000
TRANSF+2     1553.30661011    1300.82043457   -4904.78881836
                 .85340781       -.33040032        .46099575

(     ODPL 4352    L/O MISS 4              $ ORBIT 23
(     ITERATION    NUMBER     7
TRANST     1.     67.      5.     20.      4.     50.      0.000
TRANSF+2     3399.15835571     375.31617737   -3285.51608276
                 .60307388       -.40893929        .85981497

(     ODPL 4254    L/O MISS 4              $ ORBIT 24
(     ITERATION    NUMBER     3
TRANST     1.     67.      5.     20.     16.     10.     36.800
TRANSF+2     1550.72534180    1292.40827942   -4931.19842529
                 .84974678       -.32802853        .46137015

(     ODPL 4356    L/O MISS 4              $ ORBIT 25
(     ITERATION    NUMBER     0
TRANST     1.     67.      5.     21.      4.     53.     30.000
TRANSF+2     3400.23812866     364.86659622   -3299.81369019
                 .60066372       -.40477523        .86098585
```

```
(     ODPL 4258    L/O MISS 4                $ ORBIT 26
(     ITERATION    NUMBER     3
TRANST     1.     67.      5.     21.     16.     13.     40.600
TRANSF+2     1554.26664734    1271.26953125   -4950.94042969
                 .84692160       -.32547892        .46317036

(     ODPL 4360    L/O MISS 4                $ ORBIT 27
(     ITERATION    NUMBER     3
TRANST     1.     67.      5.     22.      4.     56.     30.000
TRANSF+2     3410.97811890     342.66608047   -3298.41830444
                 .59708302       -.40008200        .86431274

      ODPL 4262    L/O MISS 4                $ ORBIT 28
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     22.     16.     14.     55.334
TRANSF+2     .15034274E+04    .12654273E+04   -.49926155E+04
                 .84876277E+00   -.32065326E+00    .45480794E+00

(     ODPL 4364    L/O MISS 4                $ ORBIT 29
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     23.      4.     58.     30.000
TRANSF+2     3415.12240601     321.09802246   -3296.84017944
                 .59575041       -.39604492        .86712488

(     ODPL 4166    L/O MISS 4                $ ORBIT 30
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     23.     16.     18.      0.000
TRANSF+2     1580.68013000    1212.65504456   -4954.76885986
                 .84461063       -.32289571        .47027667

(     ODPL 4268    L/O MISS 4                $ ORBIT 31
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     24.      4.     59.     29.204
TRANSF+2     3405.27062988     312.11130524   -3309.61944580
                 .59888905       -.39358317        .86580817

(     ODPL 4170    L/O MISS 4                $ ORBIT 32
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     24.     16.     19.      0.000
TRANSF+2     1574.30136108    1199.47346497   -4953.55438232
                 .84622520       -.32271215        .46976339

(     ODPL 4272    L/O MISS 4                $ ORBIT 33
(     ITERATION    NUMBER     6
TRANST     1.     67.      5.     25.      5.      0.     22.882
TRANSF+2     3400.53311157     305.09692001   -3307.54891968
                 .60073978       -.39369981        .86579350

(     ODPL 4174    L/O MISS 4                $ ORBIT 34
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     25.     16.     20.      0.000
TRANSF+2     1570.05693054    1197.16606140   -4944.69970703
                 .84796408       -.32411601        .46931725

(     ODPL 4276    L/O MISS 4                $ ORBIT 35
(     ITERATION    NUMBER     4
TRANST     1.     67.      5.     26.      5.     33.     28.600
TRANSF+2     4212.29040527    -459.96160889   -1392.90028381
                 .22258300       -.38709262       1.09623142
```

Attachment B

DESIGN PHOTO TIMES

ORBIT/EXPOSURE	FRAME	GMT D	H	M	S
6/1	5	131	15	46	17.689
6/2	9		16	26	38.026
6/3	13		16	58	47.350
6/4	17		17	29	56.688
6/5	21		18	03	33.649
6/6	25		23	13	42.212
7/1	26	132	04	27	23.3
7/2	27		04	59	32.4
7/3	28		05	30	40.2
7/4	29		06	04	15.5
7/5	30		06	31	3.5
	31	Film Set			
8/1	32	132	15	47	46.861
8/2	33		16	28	1.100
8/3	34		17	00	8.889
8/4	35		17	31	16.338
8/5	36		18	04	52.390
9/1	38	133	04	28	45.8
9/2	39		05	00	52.2
9/3	40		05	31	59.0
9/4	41		06	05	35.2
9/5	42		06	45	6.2
10/1	44	133	15	49	23.8
10/2	45		16	29	31.8
10/3	46		17	01	37.1
10/4	47		17	32	42.8
10/5	48		18	06	18.2
10/6	50		23	17	39.5
11/1	52	134	04	30	24.3
11/2	53		05	02	28.6
11/3	54		05	33	33.1
11/4	55		06	07	06.6
11/5	56		06	46	37.6

ORBIT/EXPOSURE	FRAME	GMT D	H	M	S
12/1	58	134	15	51	18.2
12/2	59		16	31	21.8
12/3	60		17	03	25.5
12/4	61		17	34	28.2
12/5	62		18	07	58.9
13/1	64	135	04	32	29.7
13/2	65		05	04	33.0
13/3	66		05	35	33.6
13/4	67		06	09	00.8
13/5	68		06	48	26.7
14/1	70	135	15	53	35.3
14/2	71		16	33	44.2
14/3	72		17	05	47.6
14/4	73		17	36	45.8
14/5	74		18	10	8.3
14/6	75		23	21	4.2
15/1	76	136	04	35	13.9
15/2	77		05	05	17.6
15/3	78		05	38	13.4
15/4	79		06	11	30.6
15/5	80		06	51	7.1
	81	Film Set			
16/1	82	136	15	56	38.0
16/2	83		16	36	52.2
16/3	84		17	08	56.9
16/4	85		17	39	49.8
16/5	86		18	13	0.4
17/1	88	137	04	38	38.3
17/2	89		05	10	44.3
17/3	90		05	41	34.6
17/4	91		06	14	39.0
17/5	92		06	53	55.9

DESIGN PHOTO TIMES

ORBIT/EXPOSURE	FRAME	GMT D	GMT H	GMT M	GMT S
18/1	94	137	16	00	08.1
18/2	95		16	40	32.9
18/3	96		17	12	40.5
18/4	97		17	43	28.0
18/5	98		18	16	25.4
18/6	99		23	24	21.2
19/1	100	138	04	42	36.6
19/2	101		05	14	43.9
19/3	102		05	45	27.3
19/4	103		06	18	15.4
19/5	104		06	57	07.9
20/1	106	138	16	04	5.8
20/2	107			44	42.4
20/3	108		17	16	51.1
20/4	109			47	31.8
20/5	110		18	20	12.8
21/1	112	139	4	46	49.6
21/2	113		5	19	0.1
21/3	114		5	49	38.3
21/4	115		6	22	12.4
21/5	116		7	0	41.0
22/1	118	139	16	08	05.0
22/2	119		16	48	55.1
22/3	120		17	21	06.8
22/4	121		17	51	42.9
22/5	122		18	24	11.4
22/6	123		23	27	53.6
23/1	124	140	04	50	59.2
23/2	125		05	23	13.4
23/3	126		05	53	47.7
23/4	127		06	26	10.2
3/5	128		07	04	16.9

ORBIT/EXPOSURE	FRAME	GMT D	GMT H	GMT M	GMT S
24/1	130	140	16	11	36.8
24/2	131		16	52	51.8
24/3	132		17	25	06.7
24/4	133		17	55	39.8
24/5	134		18	27	59.0
25/1	136	141	04	54	35.3
25/2	137		05	26	51.2
25/3	138		05	57	23.8
25/4	139		06	29	40.1
25/5	140		07	08	0.8
26/1	141 (Missed)		16	14	40.6
26/2	142	141	16	56	5.3
26/3	143		17	28	21.7
26/4	144		17	58	53.7
26/5	145		18	31	9.3
Extra Film Set					
26/6	147		23	30	56.6
27/1	148	142	04	57	22.8
27/2	149		05	29	39.6
27/3	150		06	00	11.9
27/4	151		06	32	27.6
27/5	152		07	10	43.8
28/1	154	142	16	15	55.33
28/2	155		16	58	26.52
28/3	156		17	30	32.07
28/4	157		18	01	16.08
28/5	158		18	33	32.98
29/1	160	143	04	59	17.733
29/2	161		5	31	34.114
29/3	162		6	02	7.519
29/4	163		6	34	26.147
29/5	164		7	12	46.889
APO	165		9	43	50.94

Attachment B

DESIGN PHOTO TIMES

ORBIT/EXPOSURE	FRAME	GMT D	H	M	S
30/1	166	143	16	18	43.8
30/2	167		17	0	11.6
30/3	168		17	32	28.9
30/4	169		18	3	2.1
30/5	170		18	35	18.4
APO	171	144	1	28	56.7
31/1	172		05	00	29.204
31/2	173		5	32	43.124
31/3	174		6	03	17.798
31/4	175		6	35	41.19
31/5	176		7	14	12.846
APO	177		9	45	28.490
APO	178		13	29	33.3
32/1	179	144	16	19	23.9
32/2	180		17	00	54.4
32/3	181		17	33	06.8
32/4	182		18	03	41.8
32/5	183		18	36	07.4
APO	184	145	01	30	32.1
APO	185	(immediately after)			
33/1	186		05	01	22.882
33/2	187		05	33	33.612
33/3	188		06	04	8.625
33/4	189		06	36	35.912
33/5	190		07	15	53.376
APO	191	145	09	47	5.607
APO	192	(immediately after)			
34/1	193		16	20	24.506
34/2	194		17	01	47.319
34/3	195		17	33	56.442
34/4	196		18	04	30.931
34/5	197		18	36	58.905

ORBIT/EXPOSURE	FRAME	GMT D	H	M	S
APO	198	146	01	32	14.986
APO	199	(immediately after)			
35/1	200		05	34	28.6
35/2	201		06	05	02.4
APO	202		09	45	38.9
APO	203	(immediately after)			

DOPPLER DATA – MIDCOURSE AND INJECTION MANEUVERS

This section presents the midcourse and injection maneuver doppler shifts that occurred during the mission.

Figures B-3 and B-4 show the predicted doppler shift versus time for each maneuver obtained from the latest PRDL run prior to each maneuver. A number of points of the observed doppler shift are plotted on each graph to give a rough estimate of the accuracy of the maneuvers.

Figures B-5 and B-6 show the beginning and end of the TDM (tracking data monitoring program) residuals versus time for the midcourse maneuver. These graphs give a good indication of the burn start and stop times and the actual doppler shift.

Figures B-7 and B-8 show the beginning and end of the doppler shift versus time for the deboost maneuver. In this case, the doppler shift was obtained from the 1-second raw doppler data received from Station 12. The 1-megacycle doppler bias has been stripped from the doppler shift.

Table B-1 summarizes the important parameters of each burn as estimated from Figures B-5, B-6, B-7, and B-8.

Table B-2 shows the ODPL runs used for the calculations concerned with the maneuvers.

Table B-1: Burn Parameters

Maneuver	Prime Station	Ignition (GMT)	Shutdown (GMT)	Burn Time (sec)	Predicted Doppler Shift	Actual Doppler Shift
Midcourse	12	125/16:45:00.0 ±0.5 sec.*	125/16:45:52.7 ±0.5 sec.	52.7	366 Hz	365.9 Hz ±°.1
Deboost	12	128/15:08:47.1 ±0.5 sec.*	128/15:17:08.9 ±0.5 sec.	501.5	2600 Hz	2563.5 Hz

*The commanded ignition time was 128/15:08:46.68 GMT for the deboost maneuver and 125/16:45:00.0 GMT for the midcourse maneuver.

Table B-2: ODPL Runs Used For Maneuver Calculations

Maneuver	Preliminary Command Conference	Final Command Conference	Predicts
Midcourse	1108	1214	1218
Deboost	2324	2130	2130

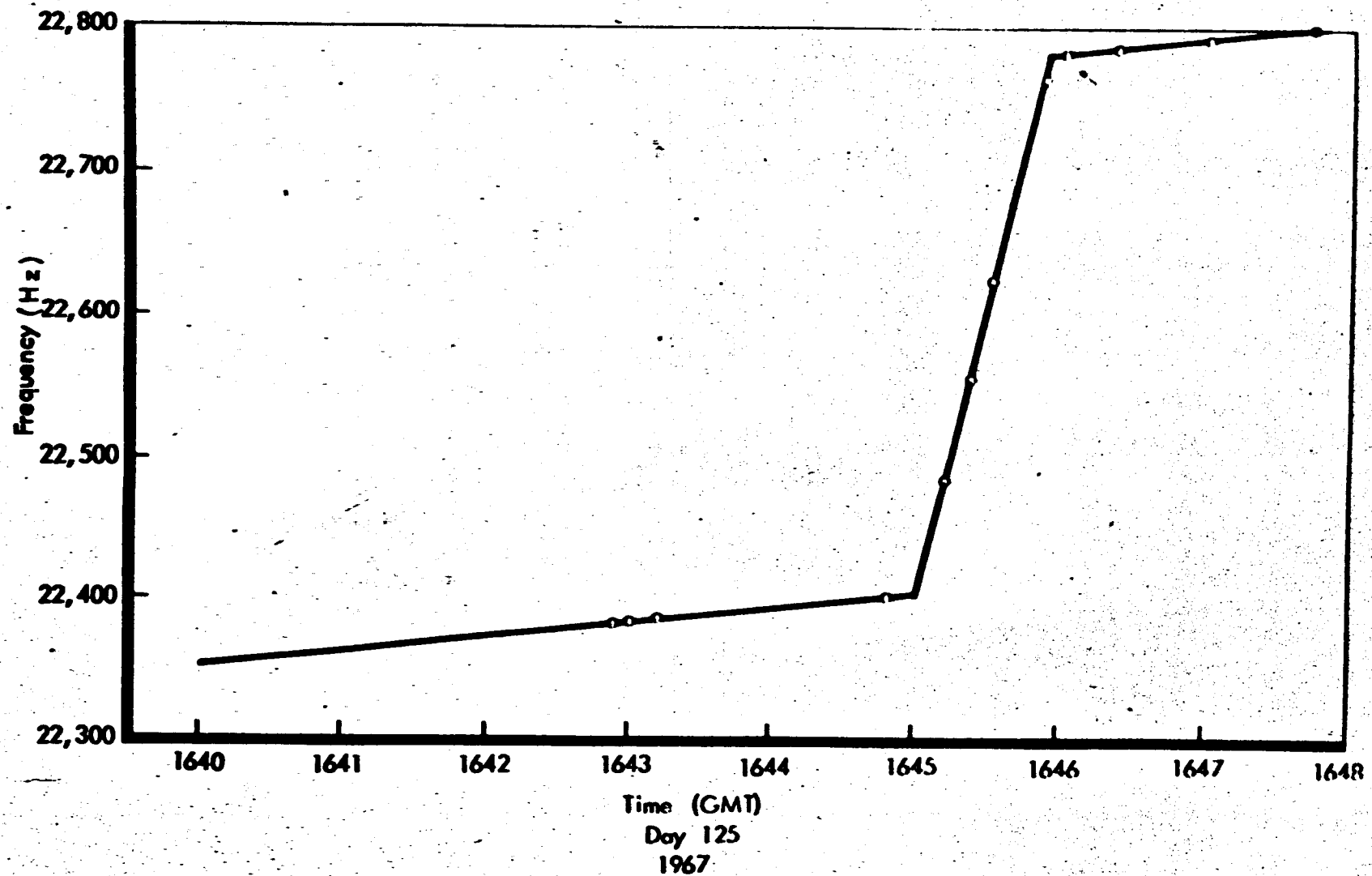


Figure B-3 Orbit Injection Engine Shutdown – Station 12 Doppler

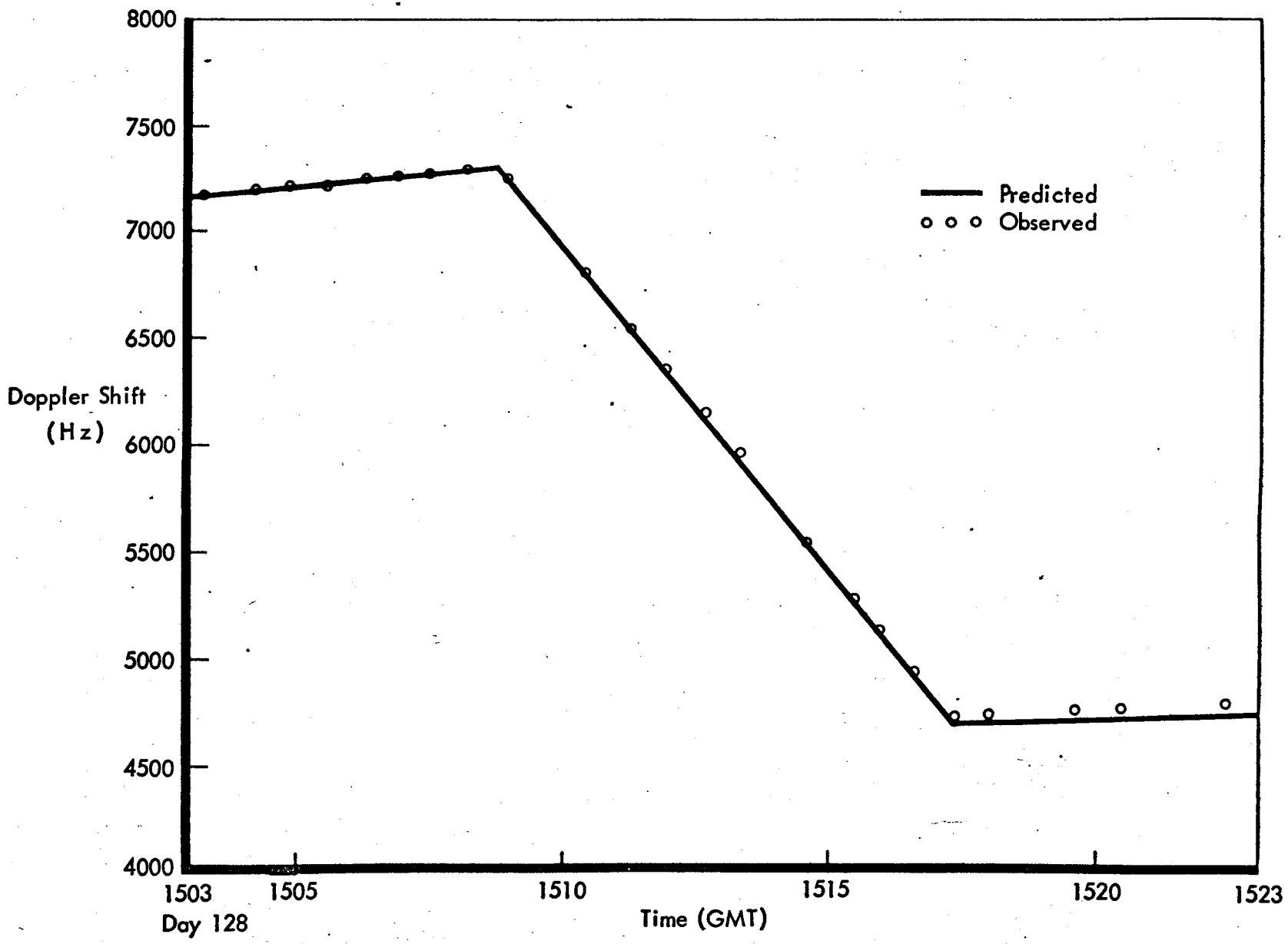


Figure B-4 Orbit Injection Engine Ignition – Station 12 Doppler

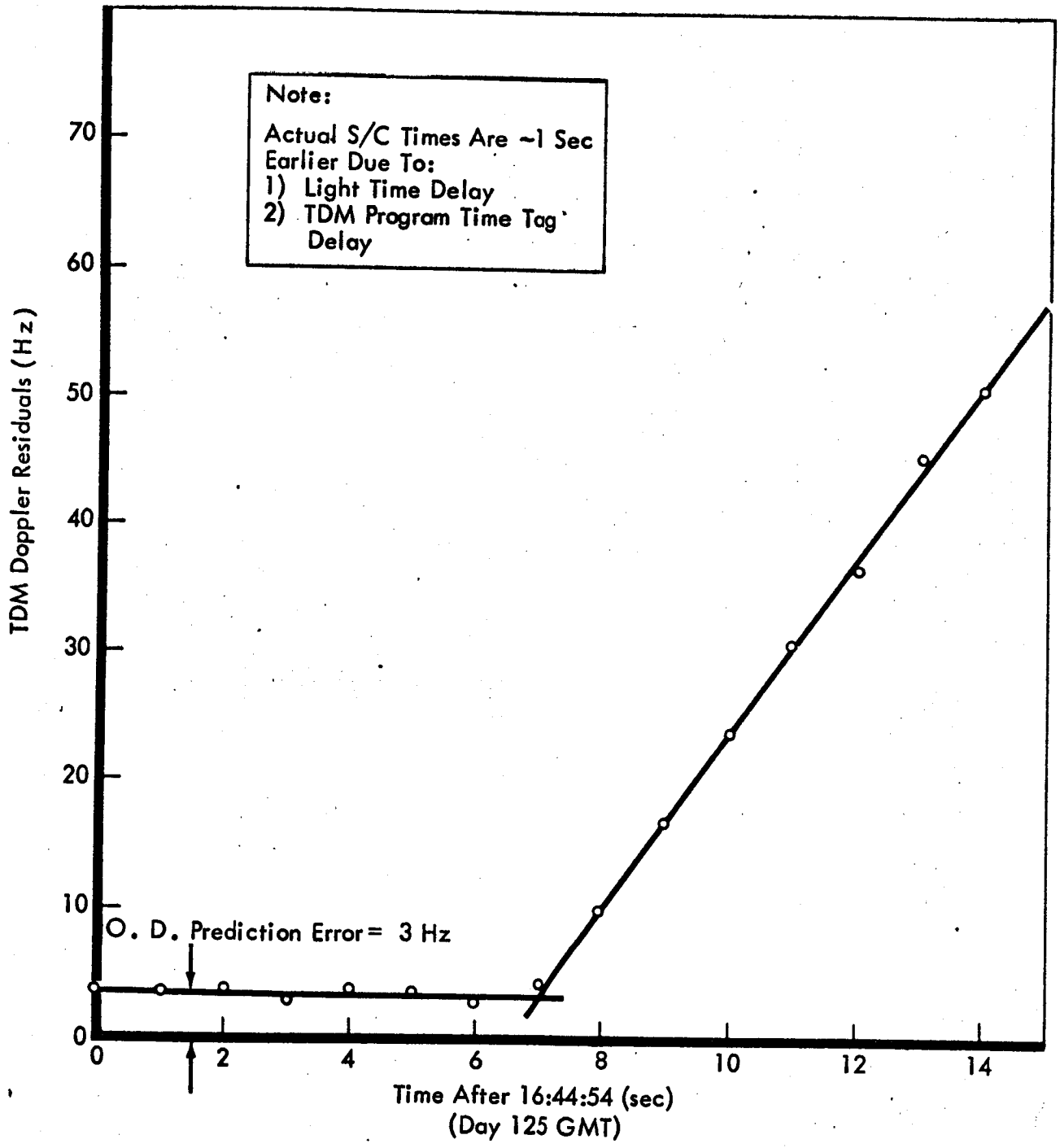


Figure B-5 Midcourse Engine Shutdown Doppler Plot – Station 12

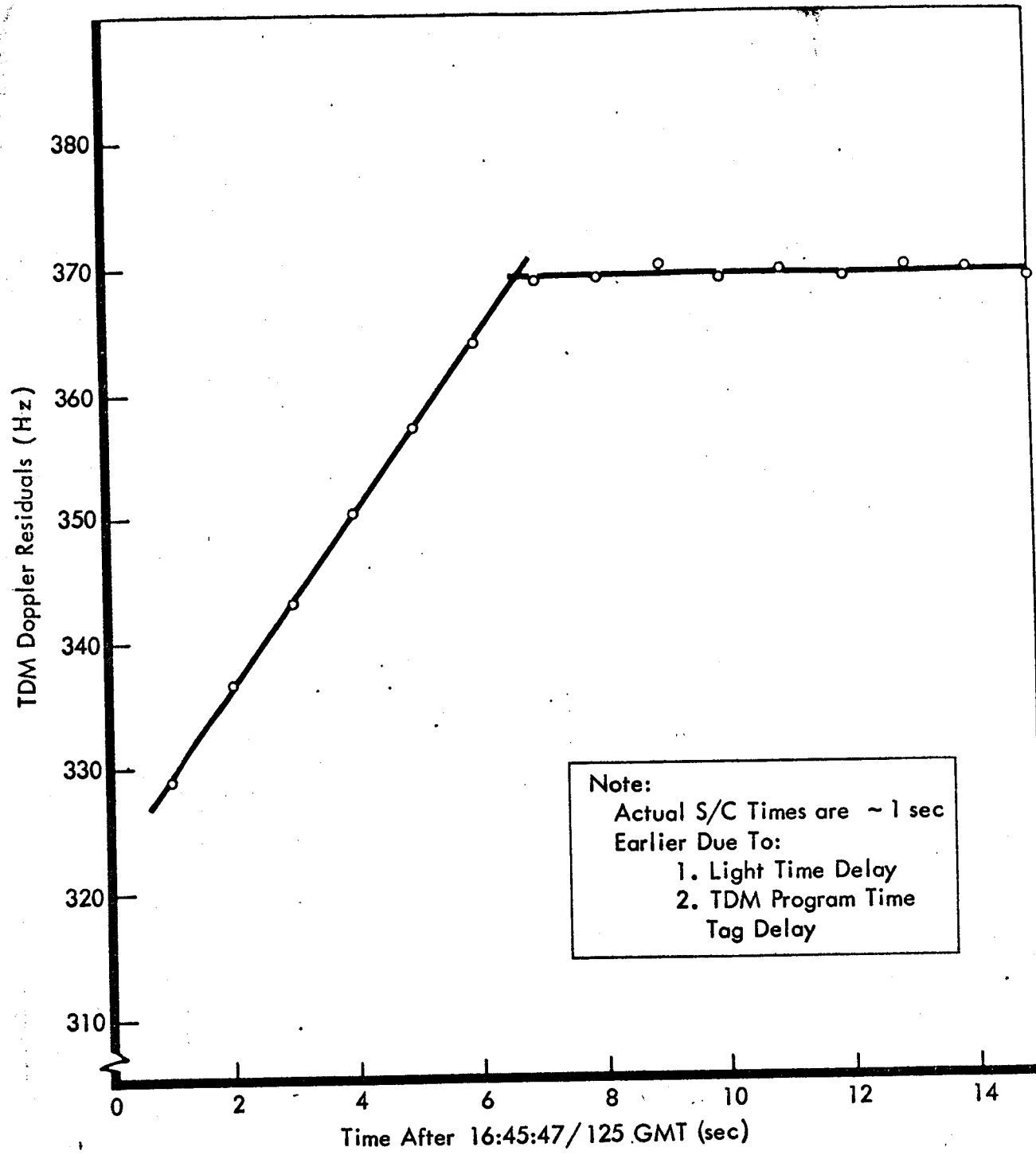


Figure B-6 Midcourse Engine Ignition Doppler Plot – Station 12

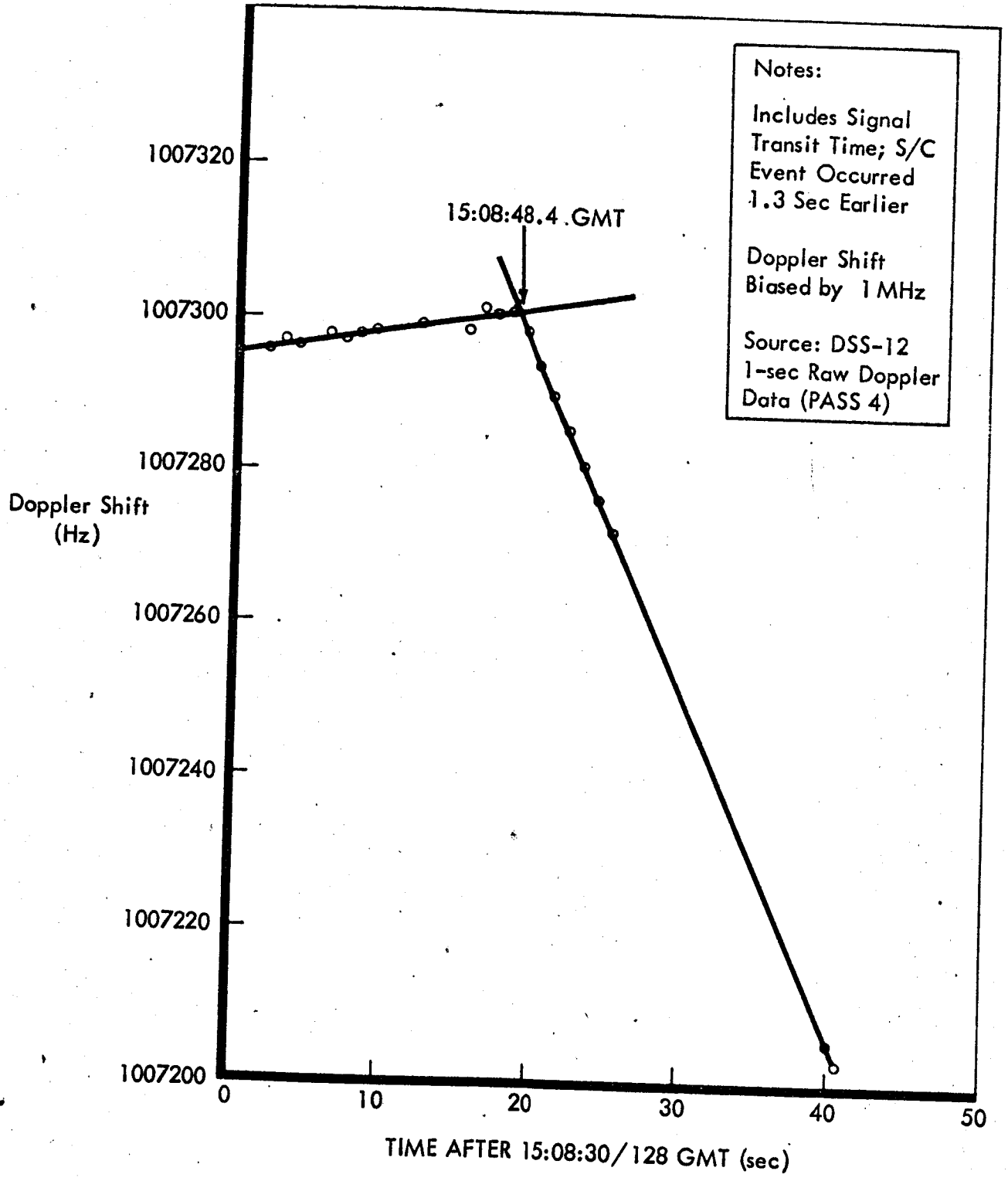


Figure B-7 Deboost Doppler Shift – Station 12 "Prime"

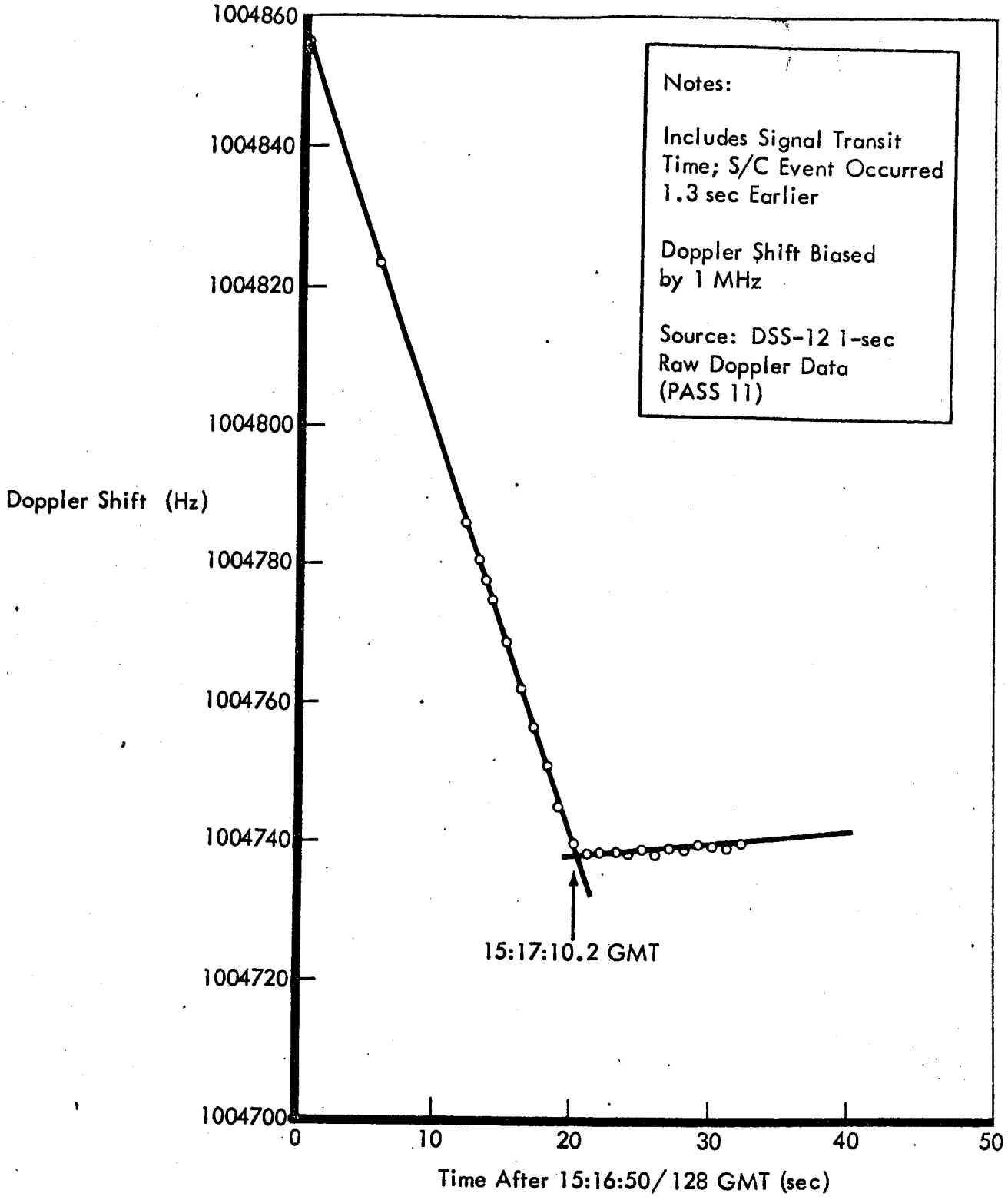


Figure B-8 Midcourse Doppler – Station 12

Appendix C

SEQUENCE OF EVENTS

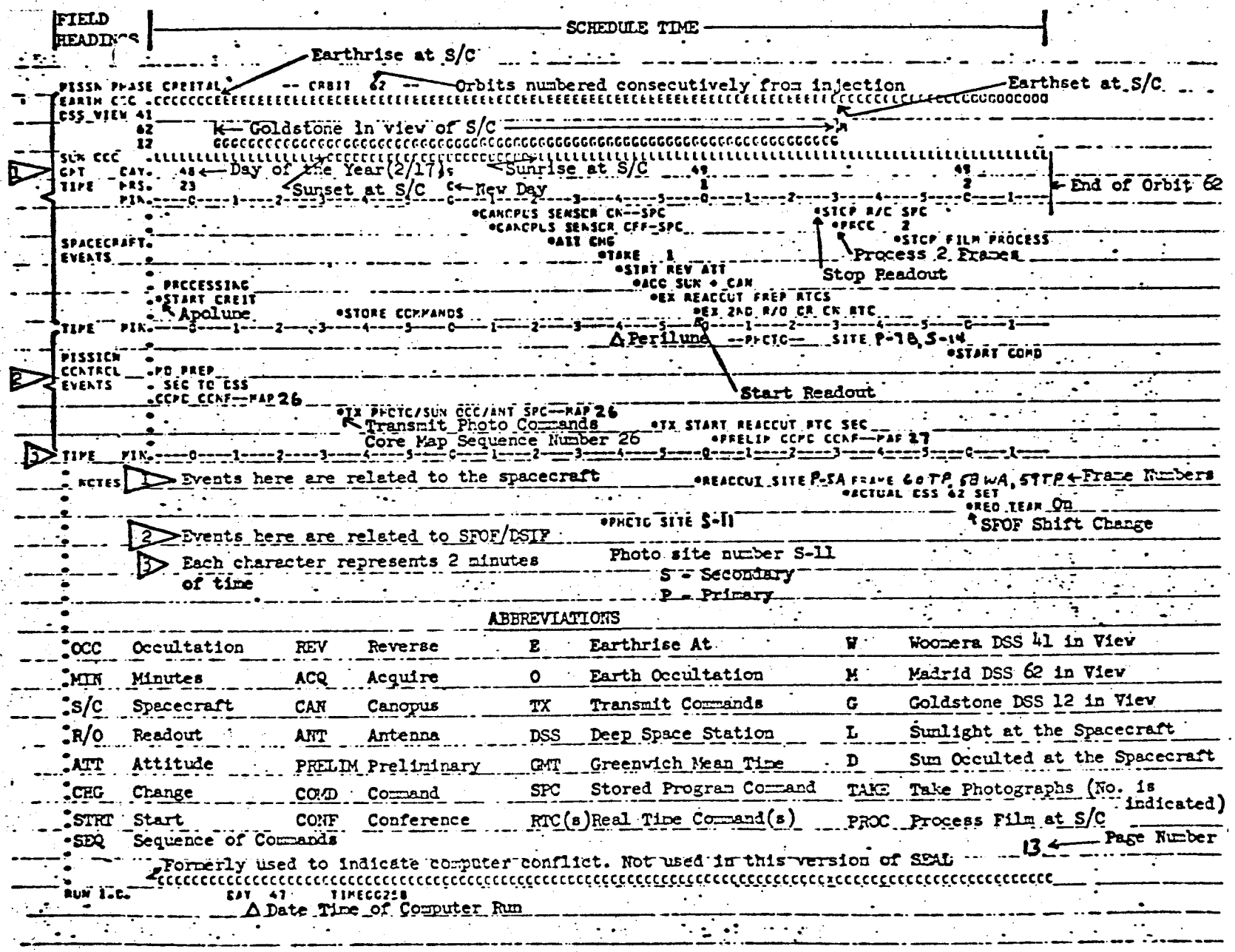
Appendix C

SEQUENCE OF EVENTS

The Mission Sequence of Events program (SEAL) is a computer program designed to generate a complete integrated schedule of operational activities and significant spacecraft events for Lunar Orbiter missions. It is included as an integral part of the flight plan for a particular mission and functions as a guide to both operational team members and team leaders. It serves as a vehicle to identify schedule conflicts and – by its graphical presentation in a time-phased bar chart format – facilitates rescheduling activities and trade-off decisions.

During flight operations, the complete mission SEAL portion of the flight plan serves as a model for segmented versions that are generated each day or two or when unscheduled events (such as the occurrence of an anomaly) necessitate a schedule change. In addition to providing up-to-date operational schedules for those team members at the SFOF site, there is also the capability to generate and transmit by teletype, using the data handling system, DSIF scripts containing all mission activities and spacecraft events of significance to the prime Deep Space Stations.

The format contains numerous symbols, abbreviations, and certain machine-generated conventions that render a verbal description difficult to present. Accordingly the attached sheet, depicting an actual orbit from Lunar Orbiter Mission III, has been annotated to explain the symbology as it is presented in the machine output. In addition, a complete explanation of abbreviations used has been added in the notes section at the lower half of the page.


FIELD HEADINGS
SCHEDULE TIME
Earthrise at S/C
MISSN PHASE ORBITAL -- ORBIT 62 -- Orbits numbered consecutively from injection
Earthset at S/C
EARTH OCC
DSS VIEW 41
62
12
Goldstone in view of S/C
SUN OCC
GMT DAY. 48 Day of the Year(2/17)
Sunrise at S/C
TIME HRS. 23
Sunset at S/C
New Day
End of Orbit 62
MIN.
SPACECRAFT EVENTS
CANOPUS SENSOR ON--SPC
CANOPUS SENSOR OFF-SPC
ATT CHG
TAKE 1
STRT REV ATT
ACQ SUN + CAN
EX READOUT PREP RTCS
EX 2ND R/O OR ON RTC
STOP R/C SPC
PROC 2
STOP FILM PROCESS
Process 2 Frames
Stop Readout
PROCESSING
START ORBIT
Apolune
STORE COMMANDS
Perilune
PHOTO SITE P-7B, S-14
START COMD
MISSION CONTROL EVENTS
MD PREP
SEQ TO DSS
COMD CONF--MAP 26
Start Readout
TX PHOTO/SUN OCC/ANT SPC--MAP 26
Transmit Photo Commands
Core Map Sequence Number 26
TX START READOUT RTC SEQ
PRELIM COMD CONF--MAP 27
TIME MIN.
NOTES
1 Events here are related to the spacecraft
READOUT SITE P-5A FRAME 60TP, 58WA, 59TP
Frame Numbers
ACTUAL DSS 62 SET
RED TEAM On
SFOF Shift Change
PHOTO SITE S-11
2 Events here are related to SFOF/DSIF
3 Each character represents 2 minutes of time
Photo site number S-11
S - Secondary
P - Primary
ABBREVIATIONS
OCC Occultation
MIN Minutes
S/C Spacecraft
R/O Readout
ATT Attitude
CHG Change
STRT Start
SEQ Sequence of Commands
REV Reverse
ACQ Acquire
CAN Canopus
ANT Antenna
PRELIM Preliminary
COMD Command
CONF Conference
E Earthrise At
O Earth Occultation
TX Transmit Commands
DSS Deep Space Station
GMT Greenwich Mean Time
SPC Stored Program Command
RTC(s) Real Time Command(s)
W Woomera DSS 41 in View
M Madrid DSS 62 in View
G Goldstone DSS 12 in View
L Sunlight at the Spacecraft
D Sun Occulted at the Spacecraft
TAKE Take Photographs (No. is indicated)
PROC Process Film at S/C
13 Page Number
Formerly used to indicate computer conflict. Not used in this version of SEAL
RUN I.D. DAY 47 TIME00258
Date Time of Computer Run

```
MISSN PHASE   LAUNCH
EARTH CCC .    EEEEEEEEEEEE
DSS VIEW 41
         62
         12
CAN CCC   .---------------
GPT    DAY.
TIME   HRS.
       MIN.---3----4----5-
          .*LIFTOFF
          .  *BECO
SPACECRAFT.    *SECO-VECO
EVENTS    .     *AGENA ON 1
          .     *AGENA OFF
          .                *
          .
          .
TIME   MIN.---3----4----5-
          .
MISSION   .
CONTROL   .
EVENTS    .
          .
          .
          .
          .
TIME   MIN.---3----4----5-
          .
FPAC      .
EVENTS    .
TIME   MIN.---3----4----5-
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. NOTES
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TIME   MIN.---3----4----5-
          .
S/C 5     .
EVENTS    .
          .---------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCC
RUN I.D.   5       DAY 135
```

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MISSN PHASE  CISLUNAR
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                   WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
          62
          12
CAN OCC  .------------------------------------------------------------------------------------------------------------------
GMT    DAY. 124                        125                          125                          125
TIME   HRS.  23                         0                            1                            2
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .    •DEPLOY ANT/PANELS GSPC                       •EX PITCH PLUS X DEG RTC  X= .011
          .     •PRESSURIZE N2 GSPC
SPACECRAFT.       •START SUN ACC GSPC
EVENTS    .             •SWITCH TO MOD MODE 4 GSPC
          .                   •COMPLETE SUN ACC GSPC
          .AGENA ON 2             •EX SWITCH TO MOD MODE 3 RTC
          .•AGENA OFF-INJ-                          •EX SWITCH TO MOD MODE 1 RTC
          .   •S/C SEP-AGENA MANEUVER
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MISSION   .•ACE-2 BRIEF RISING DSS
CONTROL   .              •PREDICTED DSS 41 RISE
EVENTS    .                        •START YAW SUN SENSOR CALIBRATION
          .                                       •START PITCH SUN SENSOR CALIBRATION
          .
          .
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.       1  DAY 135     TIME01722                                                                                2.
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MISSN PHASE  CISLUNAR
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
         62                                   M                  MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC  .--------------------------------------------------------------------------------------------------
GMT    DAY. 125               125                125                125
TIME   HRS.  3                  4                  5                  6
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                                                                               •EX CANOPUS SENSO
                                                  •CANOPUS SENSOR ON GSPC                      •EX PITCH PL
SPACECRAFT.                                               •EX 0.2 DEG DEAD ZONE RTC
EVENTS    .                                                •EX ROLL 360 RTC
          .                                                  •EX ACQUIRE SUN RTC
          .                                                    •EX ROLL 360 RTC
          .                                                              •EX CANOPUS SENSOR OFF RTC
          .                                                               •EX CANOPUS SENSOR ON RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                                 •ACE-2 BRIEF RISING DSS
MISSION   .                                                         •END ROLL MANEUVER-BEGIN STAR ID
CONTROL   .                                                                    •DSS HANDOVER PER ACE-2
EVENTS    .                                                                                          •PRED
          .       •S/C STATUS MSG TO RISING DSS
          .                                      •PREDICTED DSS 62 RISE
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN ID.          DAY 135     TIME01722                                                                    3.
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MISSN PHASE   CISLUNAR
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
GSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN CCC   .------------------------------------------------------------------------------------------------------
GMT    DAY. 125                        125                          125                          125
TIME   HRS.   7                          8                            9                           10
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .R OFF RTC                                     •EX CANOPUS SENSOR ON RTC
          .US X DEG RTC X=.04°                                                                     ▷ •EX ROT ANT 1 DEG L R
SPACECRAFT.        •EX ACQUIRE SUN RTC
EVENTS    .         •EX CANOPUS SENSOR ON RTC                                                                   •EX JUMP
          .              •EX ROLL 360 RTC
          .                                •EX ROLL X DEG RTC X= +84.0°
          .
          .                                             •EX CANOPUS SENSOR OFF RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MISSION   .
CONTROL   .
EVENTS    .ICTEC GSS 41 SET
          .                                                                          •PRELIM COMD CONF--MAP 2
          .                                                                            --1ST MIDCOURSE--
          .                                                                                                        •S/C ST
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MMAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
  .                                                                                       ▷ PERFORMED 18 TIMES
  . NOTES
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------
          .
S/C 2     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.C.          DAY 135      TIMEC1722                                                                      4.
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MISSN PHASE  CISLUNAR
EARTH LCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
            62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
            12                                              G     GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN LCC    .--------->
GMT   DAY. 125                     125                     125                     125
TIME  HRS.  11                      12                      13                      14
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                                                       •CLCSE PRCP VALVES                                           •
           .TC                                                        •EX ARM VEL CONTROL S/S RTCS
SPACECRAFT.                                                                                             •EX THTA ON RTC
EVENTS     .                                                                                             •EX ROLL 360 RT
           .TC INF JUMP RIC-LOC 024                                                                            •EX CA
           .                                                                                                    •EX R
           .             ▷1 •EX ROT ANT 1 DEG RT RTC                                                            •EX R
           .                                                      •BLEED PROPELLANT LINES                       •EX
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                                    •ACE-2 BRIEF RISING DSS
MISSION    .                                          •PREDICTED DSS 12 RISE
CONTROL    .                                                                     •SEND SPC SEQ TO DSS
EVENTS     .                                                                      •FINAL COMD CONF--MAP2
           .                                                                        --1ST MIDCOURSE--
           .                                                                                                    •DS
           .ATUS MSG TC RISING DSS
           .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAC       .
EVENTS     .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES                ▷1 PERFORMED 4 TIMES
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TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .--------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 135     TIME01722                                                                              6.
```

```
MISSN PHASE  CISLUNAR
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
CSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM              M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
MAN OCC   .
GMT    DAY. 125                       125                        125                        125
TIME   HRS.  15                        16                         17                         18
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .EX CANOPUS SENSOR OFF RTC                                 .END THRUST-REV ATT      .EX CANOPUS SENSOR OFF RTC
          ..STORE COMMANDS                                           .EX JUMP TO LOC 137
SPACECRAFT.          .EX CANOPUS SENSOR ON RTC
EVENTS    .C                       .EX TWTA OFF RTC                       .ACQ SUN
          .ACPUS SENSOR OFF RTC         .STORE COMMANDS                    .PITCH OFF-SUN
          .CLL UPDATE PTC                   .EX REL PS INHIBIT RTC      .EX ___ PS INHIBIT RTC
          .INIPCM ROLL PTC                        .START ATT CHANGE         .EX CANOPUS SENSOR OFF RTC
          .CANOPUS SENSOR ON RTC                            .START THRUST   .EX CANOPUS SENSOR ON RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          . .SEND SPC SEQ TO CSS
MISSION   .
CONTROL   .
EVENTS    .                         .TX JUMP RTC TO 011
          .
          .S HANDOVER PER ACE-2                                              .PREDICTED CSS 62 SET
          ..TX 1ST MIDCRS SPC--MAP 2                                                                   .S/C STATUS MSG TO
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES                                               .1ST MIDCOURSE MANEUVER
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 135     TIME01722                                                                                  6.
```

```
MISSN PHASE  CISLUNAR
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                           W  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           22
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN CCC   .
GMT    DAY. 125                        125                          125                          125
TIME   HRS.  19                         20                           21                           22
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

           .         *EX CANOPUS SENSOR ON RTC
SPACECRAFT.            *EX CANOPUS SENSOR OFF RTC                                                *EX CANOPUS SENSOR ON RT
EVENTS    .                                                                                         *EX CANOPUS SENSOR O

TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                   *ACE-2 BRIEF RISING DSS
MISSION   .                                  *PREDICTED DSS 41 RISE
CONTROL   .                                               *END CAT 1 COMPUTER SUPPORT
EVENTS    .                                                                   *DSS HANDOVER PER ACE-2

          . RISING DSS
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------------

S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 135    TIME01722                                                                                   7
```

```
MISSN PHASE  CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW  41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
          62
          12                                        6
CAN OCC   .-------------------------------------------------------------------------------------------------------------------
GMT    DAY. 125                    126                     126                     126
TIME   HRS.  23                     0                       1                       2
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
          .
SPACECRAFT.
EVENTS    .C
          .FF RTC
          .                                                                                            *EX CANOPUS SENSOR ON RTC
          .                                                                                                *EX CANOPUS SENSOR OFF
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MISSION   .
CONTROL   .
EVENTS    .
          .                                          *PREDICTED DSS 12 SET
          .
          .
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------------------
          .
S/C 6     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 135     TIME01722
```

8.

MISSN PHASE CISLUNAR

EARTH ECC

DSS VIEW

CAN ECC

GPT DAY. 126 126 126 126

TIME HRS. 3 4 5 6

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

•EX CANOPUS SENSOR O

•EX CANOPUS SEN

SPACECRAFT EVENTS

RTC

•EX PITCH PLUS X DEG RTC X=.011°

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

•ACE-2 BRIEF RISING DSS

•DSS HANDOVER PER

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

•PREDICTED DSS 62 RISE

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAC EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 135 TIME01722

```
MISSN PHASE  CISLUNAR
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWW
         62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN CCC   .--------------------------------------------------------------------------------------------------------------------
GMT    DAY. 126                     126                         126                         126
TIME   HRS.   7                      8                            9                          10
       MIN.---0----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .N PTC
          .SCR OFF RTC
SPACECRAFT.                                            .EX 2 DEG DEAD ZONE RTC
EVENTS    .                                              .EX ACQUIRE SUN RTC
          .                                                                                          .EX CANOPUS SENSOR ON RTC
          .                                                                                              .EX CANOPUS SENSOR OFF
          .
          .
TIME   MIN.---C----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MISSION   . ACE-2
CONTROL   .                 .PREDICTED DSS 41 SET
EVENTS    .
          .
          .
          .
          .
TIME   MIN.---0----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----C----1----2----3----4----5-
          .
EPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
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TIME   MIN.---0----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 135      TIME1722                                                                                 10.
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MISSN PHASE   CISLUNAR
EARTH OCC  ,EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
           12                                                           G                                GGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .--------------------------------------------------------------------------------------------------------------------
GPT    DAY. 126                          126                           126                           126
TIME   HRS.  11                           12                            13                            14
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
           .
SPACECRAFT.
EVENTS     .
           .
           . RTC                                                                        •EX CANOPUS SENSOR ON RTC
           .                                                                                •EX CANOPUS SENSOR OFF RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
MISSION    .
CONTROL    .
EVENTS     .                            •S/C STATUS MSG TO RISING DSS
           .                                                    •PREDICTED DSS 12 RISE
           .                                                                        •ACE-2 BRIEF RISING DSS
           .
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAC       .
EVENTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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. NOTES
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .--------------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.             DAY 135     TIME1722                                                                                  11.
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MISSN PHASE  CISLUNAR
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM                                              M
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .------------------------------------------------------------------------------------------------------------------
GMT   DAY. 126                      126                         126                         126
TIME  HRS. 15                       16                          17                          18
      MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
          .     *EX PROP HEATERS ON RTC                                                                   *EX ROLL X DEG
          .                                *EX PROP HEATERS OFF RTC                                        *EX CANOPUS
SPACECRAFT.                                                                                                 *EX CANOP
EVENTS    .                                                                                                  *EX CAN
          .                                                                                                   *EX CA
          .
          .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
          .
MISSION   .
CONTROL   .
EVENTS    .     *DSS HANDOVER PER ACE-2
          .                                                                                 *PREDICTED DSS 62 SET
          .                                                                                                *S/C STA
          .
          .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
          .
FPAC      .
EVENTS    .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
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. NOTES
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TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 145     TIME01457
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12

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MISSN PHASE   CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                     WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .----------------------------------------------------------------------------------------------------------------------
GMT     DAY. 126                      126                      126                      126
TIME    HRS.  19                       20                       21                       22
        MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .RTC X= 47°                                      •EX CANOPUS SENSOR ON RTC
           .SENSOR ON RTC                                       •EX CANOPUS SENSOR OFF RTC
SPACECRAFT.US SENSOR OFF RTC
EVENTS     .OPUS SENSOR ON RTC
           .NOPUS SENSOR OFF RTC
           . •EX CANOPUS SENSOR ON RTC
           .       •EX CANOPUS SENSOR OFF RTC
           .                                         •STORE COMMANDS
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .            •FINAL COMD CONF PUD--MAP 3
MISSION    .                                 •ACE-2 BRIEF RISING DSS
CONTROL    .                                       •TX PROGRAMMER UPDATE SPC--MAP 3
EVENTS     .                                               •PREDICTED DSS 41 RISE
           .                                                                                                          •DS
           .TUS MSG TO RISING DSS
           .           •SEND SPC SEQ TO DSS
           .
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAC       .
EVENTS     .
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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. NOTES
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TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 9      .
EVENTS     .
           .----------------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 145    TIME 01457                                                                                    13.
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MISSN PHASE CISLUNAR

EARTH OCC

DSS VIEW 61

62

12

CAN OCC

GMT DAY. 126 127 127 127

TIME HRS. 23 0 1 2

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

*EX FINE

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC

*EX CANOPUS SENSOR OFF RTC

*EX PROP HEATERS ON RTC

*EX PROP HEA

*EX REL PS

*EX COARS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

MISSION CONTROL EVENTS

S HANDOVER PER ACE-2

*PREDICTED DSS 12 SET

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

EPAC EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C S EVENTS

S/C R EVENTS

RUN I.D. DAY 145 TIME01457

14.

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MISSN PHASE   CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW  41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
            62                                                                          MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
            12
CAN OCC    .-----------------------------------------------------------------------------------------------------------------
GMT   DAY. 127                          127                          127                          127
TIME  HRS.  3                            4                            5                            6
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           . S/S OFF RTC Y+P                                                                                            *EX C
           .      *EX PITCH MINUS X DEG RTC X= 54.5°
SPACECRAFT.                  *EX PITCH PLUS X DEG RTC X=102.0
EVENTS     .                                         *EX PITCH MINUS X DEG RTC X= 52.0°
           .                                                    *EX FINE S/S ON RTC Y+P
           .TERS OFF RTC                                         *EX COARSE S/S OFF RTC Y+P
           .INHIBIT RTC                                           *EX ACQUIRE SUN RTC
           .E S/S ON RTC Y+P                                       *EX REL PS INHIBIT RTC
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                                                 *ACE-2 BRIEF RISING DSS
MISSION    .                                                                *PREDICTED DSS 62 RISE
CONTROL    .                                                                           *DSS HANDOVER PER ACE-2
EVENTS     .
           .
           .
           .       *S/C STATUS MSG TO RISING DSS
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAC       .
EVENTS     .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .----------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 145     TIME01457                                                                                     15
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MISSN PHASE  CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                W
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           12
CAN OCC    .
GMT   DAY. 127                    127                      127                      127
TIME  HRS.  7                      8                        9                        10
      MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
           .ANOPUS SENSOR ON RTC
           .*EX CANOPUS SENSOR OFF RTC
SPACECRAFT.
EVENTS     .
           .
           .
           .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
           .
MISSION    .
CONTROL    .
EVENTS     .          *PREDICTED DSS 41 SET
           .
           .
           .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
           .
FPAC       .
EVENTS     .
TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
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. NOTES
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TIME  MIN.---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5-
           .
S/C 5      .
EVENTS     .
           .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 145     TIME01457
```

16.

MISSN PHASE CISLUNAR
EARTH OCC
DSS VIEW 41
62
12
CAN OCC
GMT DAY. 127 127 127 127
TIME HRS. 11 12 13 14
MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS
*EX CANOPUS SENSOR ON RTC
*EX CANOPUS SENSOR OFF RTC

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

MISSION CONTROL EVENTS
*S/C STATUS MSG TO RISING DSS
*PREDICTED DSS 12 RISE
*ACE-2 BRIEF RISING DSS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FRAC EVENTS
TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C S EVENTS

S/C R EVENTS

RUN I.D. DAY 145 TIME 01457

17.

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MISSN PHASE  CISLUNAR
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          6.MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM                           M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .
GMT   DAY. 127                   127                    127                    127
TIME  HRS.  15                    16                     17                     18
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
SPACECRAFT.
EVENTS     .
           .   *EX CANOPUS SENSOR ON RTC
           .        *EX CANOPUS SENSOR OFF RTC
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                 *DSS HANDOVER PER ACE-2
MISSION    .                                                                               *PREDICTED DSS 62 SET
CONTROL    .                                                                                                        *S/
EVENTS     .
           .
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
TPAC       .
EV.NTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----7----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES
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.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EV.NTS     .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 145     TIME01457                                                                        18.
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```
MISSN PHASE  CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                  HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         62
         12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC     .
GMT    DAY. 127                       127                       127                       127
TIME   HRS.  19                        20                        21                        22
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .                                                                      *EX CANOPUS SENSOR ON RTC
            .                                                                            *EX 0.2 DEG DEAD ZONE RTC
SPACECRAFT  .                                                                                *EX CANOPUS SENSOR OFF RTC
EVENTS      .
            .
            .
            .                                                                 *EX CANOPUS SENSOR ON RTC
            .                                                                   *EX CANOPUS SENSOR OFF RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .                                                                                         *FINAL COMD CONF PUD--MAP4
MISSION     .                                                                                                          *DSS HA
CONTROL     .C STATUS MSG TO RISING DSS
EVENTS      .       *START CAT I COMPUTER SUPPORT
            .                                  *ACE-2 BRIEF RISING DSS
            .                                                *PREDICTED DSS 41 RISE
            .                                                                                     *SEND SPC SEQ TO DSS
            .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .
IPAC        .
EVENTS      .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
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.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .
S/C 5       .
EVENTS      .
            .
            .
S/C 8       .
EVENTS      .
            .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.           DAY 145     TIME01457                                                                              19.
```

```
MISSN PHASE  CISLUNAR
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG                G
CAN OCC    .
GMT    DAY. 127                            128                  128                  128
TIME   HRS.  23                              0                    1                    2
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
SPACECRAFT.
EVENTS     .     *STORE COMMANDS
           .                        *EX CANOPUS SENSOR ON RTC
           .                           *EX CANOPUS SENSOR OFF RTC
           .                                                                                       *EX CANOPUS SENSOR ON RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                                                                                      *EX CANOPUS SENSOR OFF
MISSION    .NOUVER PER ACF-2
CONTROL    .   *IX PROGRAMMER UPDATE SPC--MAP 4
EVENTS     .
           .                                                        *PRELIM COMD CONF--MAP 5
           .                                                          --INJECTION--
           .                                                         *PREDICTED DSS 12 SET
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC       .
EVENTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES
.
.
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.
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.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5      .
EVENTS     .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 145     TIME01457
```

20.

MISSN PHASE CISLUNAR

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 128 128 128 128

TIME HRS. 3 4 5 6

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

•EX CANOPUS SENSOR ON RTC

•EX CANOPUS SENSOR OFF RTC

•EX CANOPUS SENSOR ON

•EX CANOPUS SENS

•STORE CORNA

SPACECRAFT EVENTS

RTC

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

•PREDICTED DSS 62 RISE

•SEND SPC SEQ TO DSS

•FINAL COND CONF—MAP5

—INJECTION—

•ACE-2 BRIEF RISING DSS

•TX INJECTIO

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

EPAC EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C A EVENTS

S/C B EVENTS

RUN I.D. DAY 145 TIME01457

21.

MISSN PHASE C1SLUNAR
EARTH OCC
DSS VIEW 41
62
12
CAN OCC

GMT DAY. 128 128 128 128
TIME HRS. 7 8 9 10
MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS
RTC
OR OFF RTC
NDS
•EX CANOPUS SENSOR ON RTC
•EX ROLL UPDATE RTC
•EX MINIMUM ROLL RTC
•EX CANOPUS SENSOR OFF
•EX CANOPUS SENSOR ON RTC
•EX CANOPUS SENSOR OFF RTC
•EX REL PS INHIBIT RTC

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

MISSION CONTROL EVENTS
•PREDICTED DSS 41 SET
•TX JUMP RTC
TO OII

N SPC--MAP 5
•DSS HANDOVER PER ACE-2

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

EPAC EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 145 TIME01457

22.

```
MISSN PHASE  CISLUNAR
EARTH OCC   .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
           12                                                          GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC     .
GMT    DAY. 128                     128                     120                     128
TIME   HRS.  11                      12                      13                      14
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                                 *EX PROP HEATERS ON RTC.
                                                              *EX CANOPUS SENSOR ON RTC
                                                                  *EX CANOPUS SENSOR OFF RTC
                                                                        *EX CANOPUS SENSOR ON RTC
SPACECRAFT.                                                                                                    *EX PROP HEA
EVENTS    . RTC                                                                                                     *EX C
                      ▷ *EX ROT ANT 1 DEG RT RTC                                                                     *ST
                                 *EX CANOPUS SENSOR ON RTC
                                       *EX ROLL X DEG RTC X = -0.57°
                                         *EX CANOPUS SENSOR OFF RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION     .
CONTROL     .     *S/C STATUS MSG TO RISING DSS
EVENTS      .                                         *ACE-2 BRIEF RISING DSS
                                                                  *PREDICTED DSS 12 RISE
                                                                                                            *TX JUMP R
                                                                                                              TO 035
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC        .
EVENTS      .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES               ▷ PERFORM 10 TIMES
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5       .
EVENTS      .
S/C 9       .
EVENTS      .
            .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 145    TIME01457                                                                                  23.
```

```
I MISSN PHASE  CISLUNAR
 EARTH OCC .EEEEEEEEEEE
 DSS VIEW 41
            62HHHHHHHHHHH
            12GGGGGGGGGGG
 CAN OCC    .-----------
 GMT     DAY. 120
 TIME    HRS.  15
         MIN.---0----1--
            .
            .
 SPACECRAFT.
 EVENTS     .
            .TERS OFF RT
            .ANOPUS SENS
            .ART ATT CHA
            .        *STA
 TIME    MIN.---0----1--
            .
 MISSION    .
 CONTROL    .
 EVENTS     .
            .
            .TC
            .
            .
 TIME    MIN.---0----1--
            .
 FPAC       .
 EVENTS     .
 TIME    MIN.---0----1--
.
. NOTES
.
.
.
.
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.
.
.
.
.
.
.
.
.
 TIME    MIN.---0----1--
            .
 S/C 4      .
 EVENTS     .
            .-----------
            .
 S/C B      .
 EVENTS     .
            .CCCCCCCCCCC
 RUN I.D.           DAY
```

24.

MISSN PHASE PARTIAL ORBITS

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 128 128 128 128

TIME HRS. 16 17 18 19

MIN. --2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

*EX JUMP TO LOC 137

*END THRUST-REV ATT

SPACECRAFT EVENTS

*ACQ SUN

C *PITCH OFF-SUN

OR OFF RTC *EX PROP HEATERS OFF RTC

NGT

RT THRUST

TIME MIN. --2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

*PREDICTED DSS 62 SET

MISSION CONTROL EVENTS

*DSS HANDOVER PER ACE-2

TIME MIN. --2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

SPAC EVENTS

TIME MIN. --2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

NOTES *INJECTION MANEUVER

TIME MIN. --2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. 145 DAY 145 TIME 01457

```
MISSN PHASE
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE...
DSS VIEW 41                                                       HHHHHHHHHHHHHHHHHHHHHHHHHHHH
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...
CAN OCC    .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC--------------------
CMT   DAY.            128                  128                  128                  128
TIMG  HRS.            20                   21                   22                   23
      MIN.--2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

SPACECRAFT.
EVENTS    .                                                                                   *FX C
          .                                                                                    *FX
          .                                                                                     *F

TIME  MIN.--2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
MISSION   .                                                          *ACE-2 BRIEF RISING DSS
CONTROL   .
EVENTS    .
          .                 *S/C STATUS MSG TO RISING DSS
          .                                                *PREDICTED DSS 41 RISE
TIME  MIN.--2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
FRAO      .
EVENTS    .
TIME  MIN.--2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
  NOTES

TIME  MIN.--2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
S/C 5     .
EVENTS    .
          .--------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1303         DAY 14C      TIME CC209
```

26.

MISSN PHASE CRUISE CRUIS 1 PAGE 1

EARTH CCC

DSS VIEW

CAN CCC

GMT DAY.

TIME HRS.

MIN. 1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----

•EX CANOPUS SENSOR OFF RTC

•EX CANOPUS SENSOR ON RTC

•EX CANOPUS SENSOR OFF RTC

SPACECRAFT EVENTS

•CANOPUS SENSOR ON RTC

•CANOPUS SENSOR OFF RTC

•X PITCH PLUS X DEG RTC X= .011°

•START CRUIS

•EX CANOPUS SENSOR ON RTC

TIME MIN. 1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----

MISSION CONTROL EVENTS

•DSS HANDOVER PER ACT-2

•PREDICTED DSS 12 SET

TIME MIN. 1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----

FRAG EVENTS

TIME MIN. 1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----

NOTES

•APOLUNE

TIME MIN. 1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----

S/C 5 EVENTS

S/C 8 EVENTS

RUN NO. DAY 146 TIME 00209

27.

MISSN PHASE CRPTIAL CRBIT 1 PAGE 2

EARTH ECC

DSS VIEW 41

62

12

CAN ECC

GMT DAY 129 129 129 129

TIME HRS. 4 5 6 7

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

•EX CANOPUS SENSOR OFF RTC

SPACECRAFT EVENTS

•EX CANOPUS SENSOR ON RTC

•EX CANOPUS SENSOR OFF RTC

•EX CANOPUS SENSOR ON RTC

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

•PREDICTED DSS 62 RISE

•ACE-2 DRIFT RISING DSS

•DSS HANDO

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAO EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

•PERILUNE

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN TJD: DAY 146 TIME 0205

20.

MISSN PHASE CRBITAL CRBIT 1 PAGE 2

EARTH CCC

DSS VIEW 41

62

12

CAN COC

GMT DAY. 129 129 129

TIME HRS. 6 9 12 15

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

•EX C

•E

SPACECRAFT EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

•PRELIMINARY DSS 41 SLE

MISSION CONTROL EVENTS

•VIR PER ACI-2

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAO EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN DOC. DAY 146 TIME 0209

29.

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MISSN PHASE ORBITAL          ORBIT   2  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
                                                                        C                 GGGGGGGGGGGGGGGGGGGG
          12
CAN OCC   .
GMT   DAY.          129                  129                  129                  129
TIME  HRS.           12                   13                   14                   15
      MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
                  *EX CANOPUS SENSOR OFF RTC                                                                          *EX C
           .ACOPUS SENSOR ON RTC
SPACECRAFT.X YAW -15.0 DEG
EVENTS    .*EX YAW +15.0 DEG
          .*START ORBIT
          .   *EX ACQUIRE SUN RTC
          .     *EX CANOPUS SENSOR OFF RTC
          .       *EX CANOPUS SENSOR ON RTC
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION   .                              *S/C STATUS MSG TO RISING DSS
CONTROL   .                                                            *PREDICTED DSS 12 RISE
EVENTS    .                                                                 *ACE-2 BRIEF RISING DSS

TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
FPAG      .
EVENTS    .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
 NOTES    *APOLUNE

TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
S/C 5     .
EVENTS    .
S/C 8     .
EVENTS    .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 146     TIME0205
```

30.

MISSN PHASE CRUISE TRPIT 2 PAGE 2

EARTH COC

DSS VIEW 41

CAN COC

GMT DAY. 129 129 129 129

TIME HRS. 17 17 18 19

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

SPACECRAFT EVENTS

*CANOPUS SENSOR ON RTC

*EX CANOPUS SENSOR OFF RTC

*EX CANOPUS SENSOR ON RTC

*EX CANOPUS SENSOR OFF RTC

*LX RCT ANT 1 DEG RT RTC

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS

*DSS HANDOVER PER ACE-2

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

EPAC EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

PERFORM 16 TIMES

*PERTURB

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJD. DAY 146 TIME 0205

31.

MISSN PHASE CRPITAL CRBIT 2 PAGE 3
EARTH CCC
DSS VIEW 41

CAN CCC
GMT DAY.
TIME HRS.
MIN.

SPACECRAFT EVENTS

•STORE COMPARES

TIME MIN.

•SEND SPC SEQ TO DSS
•FINAL CCMC CCNF PUC--MAP 6
•END CAT 1 COMPUTER SUPPORT
•TX PROGRAMMER UPDATE SPC--MAP 6
•ACE-2 BRIEF RISING DSS
•START CAT 3 COMPUTER SUPPORT
•PREDICTED DSS 42 SET
•S/C STATES MSG TO RISING DSS
•PREDICTED DSS 41 RISE

MISSION CONTROL EVENTS

TIME MIN.

EPAO EVENTS

TIME MIN.

J NOTES

TIME MIN.

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1202 DAY 146 TIME 0705

32.

MISSN PHASE CRPITAL CRPIT 3 PAGE 1

EARTH OCC

DSS VIEW

CAN OCC

GMT DAY

TIME HRS

MIN

SPACECRAFT EVENTS

- EX SOLAR ECLIPSE OFF
- EX BEACOUT PREP RICS
- EX 2ND R/G ON ON RTC
- STOP BEACOUT
- EX SWITCH TO MOD MODE 3 RTC
- EX SOLAR ECLIPSE ON
- EX CANOPUS SENSOR ON RTC
- EX CANOPUS SENSOR OFF RTC
- EX CANOPUS SENSOR ON RTC
- EX PITCH PINCS X DEG RTC X= 27.0°
- EX CANOPUS SENSOR OFF RTC
- EX COARSE S/S ON RTC Y+P
- EX FINE S/S OFF RTC Y+P

TIME MIN

- START CRPIT
- DSS HANDOVER PER ACF-2
- PREDICTED DSS 12 SET

MISSION CONTROL EVENTS

TIME MIN

SPAC EVENTS

TIME MIN

NOTES

- APOLUNE

TIME MIN

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1.0J DAY 146 TIME 0205

33

MISSN PHASE CRITICAL CREW 3 PAGE 2

EARTH CCC

CSS VIEW

CAN CCC

GMT DAY 130 130 130 130

TIME HRS 4 5 6 7

MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC

*EX CANOPUS SENSOR OFF RTC

*EX RGT ANT 1 DEG E RTC

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS

*S/C STATES MSG TO RISING CSS

*PREDICTED CSS 22 RISE

*ACE-2 PRIOR RISING CSS

*CSS START TIME CODE CORRELATION

*CSS HA

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAO EVENTS

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

*PERILUNE

PERFORMED 22 TIMES

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1302 DAY 142 TIME 0705

34.

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MISSN PHASE CRUITAL          CRBIT   3  PAGE 3
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWW              W
          62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
          12
CAN COG   .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC------------------------------
GMT   DAY.                    13C                          13C                          13C                          13C
TIME  HRS.                     8                            9                           10                           11
      MIN.1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----
          .
SPACECRAFT.
EVENTS    .
          .
          .
TIME  MIN.1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----
          .                               *PREDICTED DSS 41 SET
MISSION   .
CONTROL   .
EVENTS    .
          .
          .RECVER PER ACE-2
          .
TIME  MIN.1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----C----
          .
FPAC      .
EVENTS    .
TIME  PIN.1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----
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. NOTES
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.
TIME  MIN.1----2----3----4----5----C----1----2----3----4----5----C----1----2----3----4----5----0----1----2----3----4----5----0----
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN TJC.          DAY 146     TIMECC2CS
```

35.

```
MISSN PHASE ORBITAL            ORBIT   4  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           .62PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
            12                                                                                         GGGGGGGGGGGGGGGGGGG
CAN OCC   .----------------------------------------------------------------------------------------------------------
GMT   DAY.                    130                    130                    130                    130
TIME  HRS.                    12                     13                     14                     15
      MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0---
          .*START ORBIT
          . *IX CANOPUS SENSOR ON RTC
SPACECRAFT.     *IX CANOPUS SENSOR OFF RTC
EVENTS    .
          .

TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0---

MISSION   .                                      *S/C STATUS MSC TO RISING DSS
CONTROL   .                                                                                    *DSS START TIME CODE CORRELATION
EVENTS    .                                                                                    *ACE-2 UPTIF RISING DSS
          .                                                                                               *PREDICTED DSS 12 RI

TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0---
                                                                                                  *START CLP FOR PREDIC ORBIT 6
FPAQ      .
EVENTS    .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0---
 . NOTES
 .          *AFELUNE
 .

TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0---
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 120.          DAY 144      TIME 00205
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36.

MISSN PHASE ORBITAL ORBIT 4 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY 130 130 130 130

TIME HRS 16 17 18 19

MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

*EX READOUT PREP RTCS

*EX 2ND R/O OR ON RTC

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC

*STOP READOUT

*EX CANOPUS SENSOR OFF RTC

*EX SOLAR ECLIPSE ON

*EX ROT ANT 1 DEG L RTC

*EX RANGING ON RTC

*EX RANGING OFF RTC

*EX SOLAR ECLIPSE OFF

*EX SOLAR ECLIPSE OFF

*EX REL PS INHIBIT RTC

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS

SE

*DSS HANDOVER PER ACE-2

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAC EVENTS

*START GCPL FOR PHOTO ORBIT 6

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

PERFORMED 3 TIMES

*PERILUNE

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJD. DAY 146 TIME00604

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MISSN PHASE ORBITAL          ORBIT   4  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                                                              M
          62                                   M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG2
CAN OCC   .000000000000000000000000000000000000000000000000000000000000000000000000000000000000000-------------------------
GMT   DAY.                     130                      130                      130                      130
TIME  HRS.                     20                       21                       22                       23
      MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .
          .
SPACECRAFT.
EVENTS    .
          .
          .
          .
          .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .                                                                                                              *P
MISSION   .
CONTROL   .
EVENTS    .
          .                                          *PREDICTED DSS 62 SET
          .                                                    *S/C STATUS MSG TO RISING DSS
          .                                                                                                        *ACE-2 BR.
          .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .
FPAC      .
EVENTS    .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
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. NOTES
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TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 146      TIME00604                                                                              38.
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MISSN PHASE ORBITAL          ORBIT  5  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41         HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG                                          5
CAN OCC    .
GMT   DAY.                    131                 131                 131                 131
TIME  HRS.                     0                   1                   2                   3
      MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           .*EX CANOPUS SENSOR ON RTC
           .*START ORBIT
SPACECRAFT.    *EX CANOPUS SENSOR OFF RTC
EVENTS     .
           .
           .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .REDICTED DSS 41 RISE
MISSION    .                          *DSS HANDOVER PER ACE-2
CONTROL    .                                     *PRELIM COMP CONF--MAP 10
EVENTS     .                                       --PHOTO--                                                   *PREDICTED
           .
          .IEF RISING DSS
           .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
FPAC       .
EVENTS     .                                                                          *START ODP FOR PHOTO ORBIT 7
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
.
. NOTES
.
.      *APOLUNE
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TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           .
S/C 5      .
EVENTS     .
           .------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 146     TIML00604                                                                          39.
```

MISSN PHASE ORBITAL ORBIT 5 PAGE 2

EARTH OCC

DSS VIEW 41 62 12

CAN OCC

GMT DAY 131 4 131 5 131 6 131 7

TIME HRS.

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC

*EX CANOPUS SENSOR OFF RTC

*EX ROT ANT 1 DEG L RTC

*STORE COMMANDS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

*S/C STATUS MSG TO RISING DSS

*PREDICTED DSS 62 RISE

MISSION CONTROL EVENTS

*TX PHOTO SPC--MAP 10

*ACE-

DSS 12 SET

*SEND SPC SEQ TO DSS

*FINAL COMD CONF--MAP 10

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

*START GCPL FOR PHOTO ORBIT 7

FPAC EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

*PERILUNE

PERFORMED 3 TIMES

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 146 TIME00604

40.

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MISSN PHASE ORBITAL          ORBIT   5  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH               H
         62          HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         12
CAN OCC    .000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000---------
GMT   DAY.                      131                     131                     131                     131
TIME  HRS.                       8                       9                       10                      11
      MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .                                                                              ▷ •EX PITCH PLUS X DEG
          .                                                                                  •EX CANOPUS SENSO
SPACECRAFT.                                                                                   •EX CANOPUS SENS
EVENTS    .                                                                                 ▷ •EX ROLL X D
          .                                                                                        •EX CANOP
          .                                                                                         •EX CANO
          .                                                                                              •E
          .                                                                               •EX CANOPUS SENSOR ON R
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
MISSION   .
CONTROL   .
EVENTS    .2 BRIEF RISING DSS
          .                    •DSS HANDOVER PER ACE-2
          .                                           •PREDICTED DSS 41 SET
          .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
FPAC      .
EVENTS    .
TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
.                                                                                   ▷ X = 31.0°
. NOTES                                                                                  ▷ X = 3.7°
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TIME  MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.             DAY 146      TIME00604                                                                          41.
```

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MISSN PHASE ORBITAL           ORBIT   6  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH.
          12
CAN OCC   .
GMT    DAY.                      131                        131                         131                        131
TIME   HRS.                       12                         13                          14                         15
       MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .*START ORBIT                                                     *TAKE  12                                     *E
          .R*EX ACQUIRE SUN RTC                                              *PROC  12
SPACECRAFT.OR *EX CANOPUS SENSOR OFF RTC                                        *EX CANOPUS SENSOR ON RTC
EVENTS    .EG R*EX ROLL 360 RTC                                                    *EX CANOPUS SENSOR OFF RTC
          .US SENSOR OFF RTC                   *EX CANOPUS SENSOR ON RTC
          .PUS SENSOR ON RTC                       *EX CANOPUS SENSOR OFF RTC                                  *STOP FILM PROCES
          .X FINE S/S ON RTC Y+P                          *EX RANGING OFF RTC                                     *EX CANOPUS
          .*EX COARSE S/S OFF RTC Y+P                                                                                *EX R
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .
MISSION   .
CONTROL   .                                                                       *S/C STATUS MSG TO RISING DSS
EVENTS    .                                                                          *TX JUMP RTC
          .
          .
          .                                                         *PRELIM COMD CONF--MAP//
                                                                      --PHOTO--
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
FPAC      .
EVENTS    .                                                                          *START ODP FOR PHOTO ORBIT*
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
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. NOTES
.         *APOLUNE
.                                                                   *LEADER
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TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
          .
S/C 5     .
EVENTS    .
          .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.       DAY 146     TIME00604
```

42.

MISSN PHASE ORBITAL ORBIT 6 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 131 131 131 131

TIME HRS. 16 17 18 19

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

SPACECRAFT EVENTS

- X CANOPUS SENSOR OFF RTC
- *EX THTA OFF RTC
- *ATT CHG
- *TAKE 4
- *ATT CHG
- *TAKE 4
- $TNG
- SENSOR ON RTC
- OLL X DEG RTC X=-1.0°
- *ATT CHG
- *TAKE 4
- *ATT CHG
- *TAKE 4
- *EX REL PS INHIBIT RTC
- *ATT CHG
- *TAKE 4
- *REVERSE ATT
- *PITCH OFF-SUN
- *STO
- *PROC
- *FINAL COMD CONF--MAP II
- *TX

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS

- *PREDICTED DSS 12 RISE
- *ACE-2 BRIEF RISING DSS
- *DSS HANDOVER PER ACE-2
- *SEND SPC SEQ TO DSS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAC EVENTS

- *START GCPL FOR PHOTO ORBIT 8

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

NOTES

- *FRAMES 5-8
- *PERILUNE
- *FRAMES 9-12
- *FRAMES 17-20
- *FRAMES 13-16
- *FRAMES 21-24

PROBLEM: CAMERA DOOR FAILED TO OPEN

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 146 TIME00604

43.

MISSN PHASE ORBITAL ORBIT 6 PAGE 3

EARTH OCC

DSS VIEW 41 62 12

CAN OCC

GMT DAY 131 131 131 131

TIME HRS 20 21 22 23

MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

•ATT

•RE COMMANDS

•STOP FILM PROCESSING

SPACECRAFT EVENTS •PROC 8

•STOP FILM PROCESSING

•EX 2ND R/O OR ON RTC

•EX ROT ANT 1 DEG RT RTC

•EX CANOPUS SENSOR ON RTC

•EX CANOPUS SENSOR OFF

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

MISSION CONTROL EVENTS •PHOTO SPC--MAPII

•PREDICTED DSS 62 SET

•S/C

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

FPAC EVENTS

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

PERFORMED 22 TIMES

NOTES

TIME MIN 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 146 TIME00604

44.

```
MISSN PHASE ORBITAL           ORBIT   7  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41.                                 W                          WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
            62
            12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC     .
GMT    DAY.                      132                        132                        132                        132
TIME   HRS.                       0                          1                          2                        , 3
       MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           . CHG       •EX CANOPUS SENSOR OFF RTC                                               •STOP READOUT
           .•START ORBIT •EX IWIA ON RTC                                                          •EX SWITCH TO MOD MODE 3 RTC
SPACECRAFT. •TAKE   1     •EX PITCH PLUS X DEG RTC X=20.0°
EVENTS     .   •REVERSE ATT         •EX REL PS INHIBIT RTC
           .     •PITCH OFF-SUN            •PROC   2
           .       •EX CANOPUS SENSOR ON RTC        •STOP FILM PROCESSING
           .             •EX CANOPUS SENSOR OFF RTC        •EX READOUT PREP RTCS
           .RTC            •EX CANOPUS SENSOR ON RTC              •EX 2ND R/D OR ON RTC
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           .
MISSION    .                                                                                   •DSS HANDOVER PER ACE-2
CONTROL    .
EVENTS     .STATUS MSG TO RISING DSS
           .                       •PREDICTED DSS 41 RISE
           .                                       •ACE-2 BRIEF RISING DSS
           .                                                                   •PRELIM COMD CONF--MAP 12
           .                                                                     --PHOTO--
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           .                                                                                        •START ODP FOR PHOTO ORBIT 9
FPAC       .
EVENTS     .
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
.
. NOTES     •APOLUNE
.             •FRAME 25
.              BACKSIDE PHOTO
.
.
.
.
.
.
.
.
.
.
.
.
TIME   MIN.1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----
           .
S/C 5      .
EVENTS     .
           .-------------------------------------------------------------------------------------------------------------------
           .
S/C 0      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.           DAY 146     TIME00604                                                                              45.
```

MISSN PHASE ORBITAL ORBIT 7 PAGE 2

EARTH OCC

DSS VIEW

CAM OCC

GMT DAY. 132 132 132 132

TIME HRS. 4 5 6 7

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC
*EX ROLL X DEG RTC X=-1.2°
*EX CANOPUS SENSOR OFF RTC
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*PROC 2
*STOP FILM PROCESSING
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*REVERSE ATT
*EX ACQUIRE SUN
*PITCH OFF-SUN
*EX PITCH PLUS
*EX PROP HE
*EX PROP

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

MISSION CONTROL EVENTS

*SEND SPC SEQ TO DSS
*FINAL COMD CONF--MAP 12
*TX JUMP RTC TO 171
*PREDICTED DSS 62 R
*ACE-2 BRIEF
*PREDICTED DSS 12 SET
*S/C STATUS MSG TO RISING DSS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

PROC EVENTS

*START GCPL FOR PHOTO ORBIT 9

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

FRAMES

*PERILUNE
*FRAME 26
*FRAME 27
*FRAME 28
*FRAME 29
*FRAME 30

PROBLEM: CAMERA DOOR FAILED TO OPEN

DECISION: LEAVE CTD OPEN CONTINUOUSLY

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

S/C 5 EVENTS

S/C 9 EVENTS

RUN I.D. DAY 147 TIME00125

MISSN PHASE ORBITAL ORBIT 7 PAGE 3

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 132 132 132

TIME HRS. 8 9 10 11

MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

•EX PITCH PLUS X DEG RTC X=13.0°

•STOP FILM PROCESSING

•EX READOUT PREP RTCS

•EX READOUT PREP RTCS

•RTC

•EX ROT ANT 1 DEG RT RTC

•EX 2ND R/O OR ON RTC

SPACECRAFT EVENTS

• X DEG RTC X= 20.0°

•EX 2ND R/O OR ON RTC

•STOP REA

•STOP READOUT

•AFERS ON RTC

•EX PITCH MINUS X DEG RTC X=0.0°

• HEATERS OFF RTC

•PROC 2

•STORE COMMANDS

•EX ROT ANT 1 DEG RT RTC

•EX ROT ANT 1 DEG L RTC

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

•PREDICTED DSS 41 SET

MISSION CONTROL EVENTS

•ISE

•RISING DSS

•TX PHOTO SPC--MAP 12

•DSS HANDOVER PER ACE-2

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

FPAC EVENTS

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

• NOTES

PERFORMED 70 TIMES

PERFORMED 7 TIMES

TIME MIN. 1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

S/C 5 EVENTS

S/C 8 EVENTS

AVN 1.2. DAY 147 TIME00325

MISSN PHAST DIGITAL DIGIT 8 PAGE 1

EARTH OCC

DSS VIEW 51

CAM OCC

SMI DAY 132 132 132 132

TIME HRS 12 13 14 15

MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*EX CHANGE SHUTTER SPEED

*PROC 2

*EX. C

SPACECRAFT EVENTS

*STOP FILM PROCESSING

*EX READOUT PREP RTCS

ROT ANT 1 DEG RT RTC ◁

*EX 200 R/O DR ON RTC

*START ORBIT

*STOP READOUT

*TAKE 1

*EX CANOPUS SENSO

*EX PITCH PLUS X DEG RTC X= 8.2°

*EX ROLL

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

MISSION CONTROL EVENTS

*PRELIM COMD CONF--MAP13

--PHOTO--

*TX JUMP RTC TO 010

*S/C STATUS MSG TO RISING DSS

*TX JUMP RTC TO 012

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

PAGE EVENTS

*START OPP FOR PHOTO ORBIT 10

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*AP RUN

*TAKE 31 (FILM SET)

▷PERFORMED 10 TIMES

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 147 TIME00325

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MISSN PHASE ORBITAL ORBIT 6 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 132 132 132 132

TIME HRS. 16 17 18 19

MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

SPACECRAFT EVENTS

- ANJPUS SENSOR OFF RTC
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *PROC 2
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *EX COARSE S/S OFF RTC Y*P
- *EX PITCH PLUS X DEG RTC X=40.0°
- *EX READOUT PHLP RTCS
- *EX ROT ANT 1 DEG RT RTC
- *EX 2ND R/O OR ON RTC
- *REVERSE ATT
- *EX COARSE S/S ON R
- *EX FINE S/S O*EX FINE S/S OFF RT
- *PITCH OFF-SUN
- *STORE COMMA

R ON RTC

X DEG RTC X=0.0°

*STOP FILM PROCESSING

*ATT CHG

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*PREDICTED DSS 12 RISE

MISSION CONTROL EVENTS

*DSS HANDOVER PER ACL-2

*SEND SPC SEQ TO DSS

*FINAL COND CONF--MAP13

*TX PHOTO SP

*ACL-2 BRIEF RISING DSS

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*START GCPL FOR PHOTO ORBIT 10

EPAC EVENTS

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

PERFORMED 2 TIMES

NOTES

*FRAME 32

*PERILUNE

*FRAME 33

*FRAME 35

*FRAME 34

*FRAME 36

PHOTOS ORBIT #8 AT LOW TEMP'S. (50'S)

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

S/C 2 EVENTS

S/C 3 EVENTS

RUN I.D. DAY 147 TIME00325

MISSN PHASE ORBITAL ORBIT 8 PAGE 3

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 132 132 132 132

TIME HRS. 20 21 22 23

MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*STOP READOUT

*PROC 2

SPACECRAFT EVENTS

*EX READOUT PREP RTCS

*STOP FILM PROCESSING

*EX 2ND R/O DR ON RTC

*STOP READOUT

*TC V*P

*C V*P

*DOS

*TAKE 1

*E

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

MISSION CONTROL EVENTS

*C--MAP 13

*PREDICTED DSS 62

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

FMAS EVENTS

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

*FRAME 37 (FILM SOT)

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1--

S/C 5 EVENTS

S/C 3 EVENTS

MJD I.D. DAY 147 TIME 00325

MISSN PHASE ORBITAL ORBIT 9 PAGE 1

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 133 133 133 133

TIME HRS. 0 1 2 3

MIN. -2----1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

EX ACQUIRE SUN RTC

*PROC 2

*START ORBIT

*EX ROT ANT 1 DEG RT RTC

SPACECRAFT EVENTS

*EX COARSE S/S OFF RTC Y+P

*STOP FILM PROCESSING

*EX CANOPUS SENSOR ON RTC

*EX READOUT PREP RTCS

*EX CANOPUS SENSOR OFF RTC

*EX 2ND R/O DR ON RTC

*EX PITCH PLUS X DEG RTC X= 40.0

*STOP READOUT

*EX COARSE S/S ON RTC Y+P

X FIN. S/S ON *EX FINE S/S OFF RTC Y+P

TIME MIN. -2----1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

*ACE-2 BRIEF RISING DSS

*PREDICTED DSS 41 RISE

MISSION CONTROL EVENTS

*PRELIM CORD CONF--MAP 14

--PHOTO--

*DSS HANDOVER PER ACE-2

S/C

*S/C STATUS MSG TO RISING DSS

TIME MIN. -2----1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

*START ODP FOR PHOTO ORBIT 11

EPA EVENTS

TIME MIN. -2----1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

NOTES

PERFORMED 3 TIMES

*APOLUNE

TIME MIN. -2----1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

S/C 5 EVENTS

S/C 9 EVENTS

RUN I.D. DAY 147 TIME 00325

MISSN PHASE ORBITAL ORBIT 9 PAGE 2

EARTH OCC

DSS VIEW

CAN OCC

GMT DAY. 133 133 133 133

TIME HRS. 4 5 6 7

MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

SPACECRAFT EVENTS

*EX CANOPUS SENSOR ON RTC *TAKE 1 *EX PITCH PL

*EX CANOPUS SENSOR OFF RTC *ATT CHG *PITCH OFF-S

*TAKE 1 *TAKE 1 *EX COARS

*ATT CHG *EX CHANGE SHUTTER SPEED *EX FIN

*TAKE 1 *EX ROT ANT 1 DEG RT RTC

*PROC 2 *ATT CHG

*STOP FILM PROCESSING *TAKE 1

*ATT CHG *ATT CHG *REVERSE ATT

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

MISSION CONTROL EVENTS

*FINAL COMD CONF—MAP14

*S/C STAT

*PREDICTED DSS 12 SET

*SEND SPC SEQ TO DSS

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

FPAC EVENTS

*START GCPL FOR PHOTO ORBIT 11

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

NOTES

*FRAME 37 *FRAME 41

*PERILUN *FRAME 42

*FRAME 38 *FRAME 40

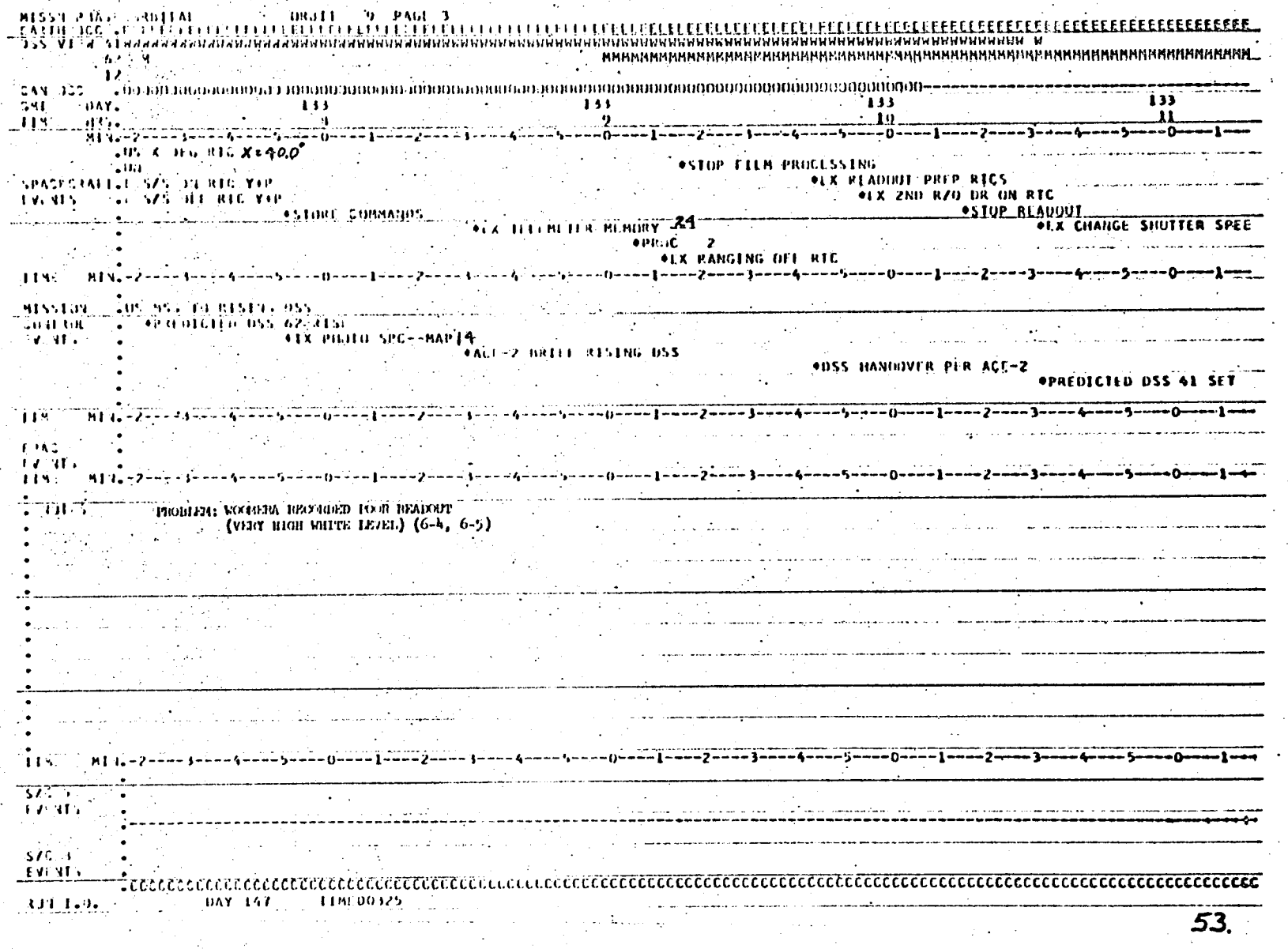
PERFORMED 3 TIMES

TIME MIN. -2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1—

S/C 5 EVENTS

S/C 3 EVENTS

RUN I.D. DAY 147 TIME 00325


MISSN PHASE ORBITAL ORBIT 9 PAGE 3
EARTH OCC
DSS VIEW
CAN OCC
GMT DAY
TIME HRS
MIN
US X DEG RTC X=40.0°
STOP FILM PROCESSING
LX READOUT PREP RTCS
LX 2ND R/O DR ON RTC
STOP READOUT
LX CHANGE SHUTTER SPEE
STORE COMMANDS
LX TELEMETER MEMORY 24
PROC 2
LX RANGING OFF RTC
MISSION
CONTROL
EVENTS
PREDICTED DSS 62-RISE
LX PHOTO SPC--MAP 14
ACE-2 BRIEF RISING DSS
DSS HANDOVER PER ACE-2
PREDICTED DSS 41 SET
PROBLEM: WOOMERA RECORDED POOR READOUT
(VERY HIGH WHITE LEVEL) (6-4, 6-5)
RUN I.D.
DAY 147
TIME 00325

53.

MISSN PLAN ORBITAL ORBIT 10 PAGE 1

EARTH OCC

DSS VIEW 41

12

CAT OCC

SAT DAY. 133 133 133 133

TIME HRS. 12 13 14 15

MIN. 2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---

•EX 2N

SPACECRAFT EVENTS

•EX CANOPUS SENSOR ON RTC

•EX CANOPUS SENSOR OFF RTC

•EX PITCH PLUS X DEG RTC X= 40.0°

•EX COARSE S/S ON RTC Y•P

•EX FINE S/S OFF RTC Y•P

•PROC 2

•START ORBIT •STOP ITEM PROCESSING •EX READOUT

•TAXI 1

TIME MIN. 2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---

•PRELIM COMD CONF--MAPIS

--PHOTO--

MISSION CONTROL EVENTS

•S/C STA

TIME MIN. 2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---

•START ODP FOR PHOTO ORBIT 12

EPAS EVENTS

TIME MIN. 2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---

NOTES •TRANS 43 (FILM SET)

•APOLUNE

TIME MIN. 2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---2---3---4---5---0---1---

S/C A EVENTS

S/C B EVENTS

RUN I.D. DAY 147 TIME00325

54.

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MISSN PHASE ORBITAL DORIT 10 PAGE 2

DSS VIEW 41

GMT DAY 133 133 133 133
HRS 16 17 18 19
MIN 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1

SPACECRAFT EVENTS
- R/O OF ON RTC
- STOP READOUT
- EX CANOPUS SENSOR ON RTC
- ATT CHG
- EX CANOPUS SENSOR OFF RTC
- TAKE 1
- PREP RTCS
- TAKE 1
- PROC 2
- STOP FILM PROCESSING
- EX CHANGE SHUTTER SPEED
- ATT CHG
- ATT CHG
- TAKE 1
- ATT CHG
- TAKE 1
- STOP FILM PROCESSING
- EX READOU
- TAKE 1
- EX 2
- REVERSE ATT
- ST
- EX CHANGE SHUTTER SPEED
- PITCH OFF-SUN
- EX ROT ANT 1 DEG RT RTC
- PROC 1

TIME MIN 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1

MISSION CONTROL EVENTS
- TOS MSG TO RISING DSS
- ACE-2 BRIEF RISING DSS
- PREDICTED DSS 12 RISE
- FINAL COND CONF--MAP16
- TX
- DSS HANDOVER PER ACE-2
- SEND SPC SEQ TO DSS

TIME MIN 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1

PHAS EVENTS
- START GCPL FOR PHOTO ORBIT 12

TIME MIN 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1

NOTES
- FRAME 44
- FRAME 45
- FRAME 46
- PERILUNE
- FRAME 47
- FRAME 48
- PERFORMED 8 TIMES

PROBLEM: GOLDSTONE R/O OF F(7-1) SHOWED A WASHOUT OF FRAME CENTER BUT EDGE DATA UNAFFECTED - SUSPECT GLARE FROM LIGHT LEAK FROM SUN.

TIME MIN 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1

S/C 5 EVENTS

S/C 1 EVENTS

SPE 1,9. DAY 147 TIME 00:25

MISSN PHASE ORBITAL ORBIT 10 PAGE 3

EARTH OBS

DSS VIEW 41

CAN OBS

GMT DAY. 133 133 133 133

TIME HRS. 20 21 22 23

MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

SPACECRAFT EVENTS

*EX COARSE S/S ON RTC Y+P

*EX FINE S/S OFF RTC Y+P

*PROC 2

*STOP FILM PROCESSING

*EX TWTA OFF RTC

*ATT CHG

*F

*PREP RTCS

*EX READOUT PREP RTCS

NO R/O DR ON RTC

*EX 2GO R/O DR ON RTC

OFF COMMANDS

*STOP READOUT

*STOP READOUT

*EX SWITCH TO MOD MODE 3

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

MISSION CONTROL EVENTS

PHOTO SPC--MAP15

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

EPAC EVENTS

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

NOTES

*F

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME00301

56.

MISSN PHASE ORBITAL ORBIT 11 PAGE 1

EARTH-DEG

DSS VIEW 41

62 M

CAN DEC

GMT DAY. 134 134 134 134

TIME HRS. 0 1 2 3

MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

•EX INIA ON RTC •EX READOUT PREP RTCS

•EX CANOPUS SENSOR OFF R•EX 2ND R/O DR ON RTC

SPACECRAFT EVENTS •EX PITCH PLUS X DEG RTC X=42.0°

•REVERSE ATT •EX FINE S/S OFF RTC Y•P

•START ORBIT •EX COARSE S/S ON RTC Y•P •STOP READOUT

•PITCH OFF-SUN •PROC 1 •EX CHANGE SHUTTER SPE

•EX ROT ANT 1 DEG RT RT•STOP FILM PROCESSING

RTC •EX CANOPUS SCN

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

•PRELIM COMD CONF--MAP15 •TX JUMP R

MISSION CONTROL EVENTS PHOTO •DSS H

•ACF-2 BRIEF RISING DSS •TX

•PREDICTED DSS 41-RISE

•TX JUMP RTC TO 028

•TX JUMP RTC TO 104

•PREDICTED DSS 62 SET •TX JUMP RTC TO 023

•S/C STATUS MSG TO RISING DSS

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

FPAC EVENTS

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

NOTES •APOLOGY

PAFIS49,50,51 TOOK 2 EXTRA PHOTOS (FR 50,51) TO CONTROL READOUT OF (8-1).

PERFORMED 3 TIMES

SPECIAL CTD TESTS TO DETERMINE NEW DOOR CLOSURE PROCEDURE - TEST UNSUCCESSFUL BY SFC AND/OR FTC.

TIME MIN. 2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME00101

57.

MISSN PHASE ORBITAL ORBIT 11 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY 134 134 134 134

TIME HRS 4 5 6 7

MIN 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1

SPACECRAFT EVENTS

*EX CHANGE SHUTTER SPEED *ATT CHG *TAKE 1 *PITCH OFF-S *EX COARSE *EX FINE *EX ROT

*ATT CHG *TAKE 1 *PROC 2 *STOP FILM PROCESSING *EX ROT ANT 1 D *EX READ *EX

*ATT CHG *ATT CHG *TAKE 1 *TAKE 1 *REVERSE ATT

*EO *ATT CHG *TAKE 1 *EX CHANGE SHUTTER SPEED

TIME MIN 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1

MISSION CONTROL EVENTS

*TC TO 104 *ANDOVER PER ACE 2 *JUMP RTC TO 023 *TX JUMP RTC TO 104 *TX JUMP RTC TO 012 *FINAL COMD CONF--MAP 16 *TX JUMP RTC TO 026 *TX JUMP RTC TO 164

*PREDICTED DSS 12 SET *SEND SPC SEQ TO DSS

TIME MIN 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1

FPAC EVENTS

TIME MIN 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1

NOTES

*FRAME 52 *FRAME 53 *PERILUNE *FRAME 54 *FRAME 55 *FRAME 56

PERFORMED 17 TIMES (LEFT)

PERFORMED 2 TIMES

PHOTO (11-1) ONWARD TAKEN WITH THE CTD CYCLED OPEN AND NEARLY CLOSED, ADDED SINGLE PULSES REQ'D. TO CLOSE

PROBLEM:

ALL READOUTS OF PHOTOS (8-1) THRU (9-5) SHOW FOGGING FLARE

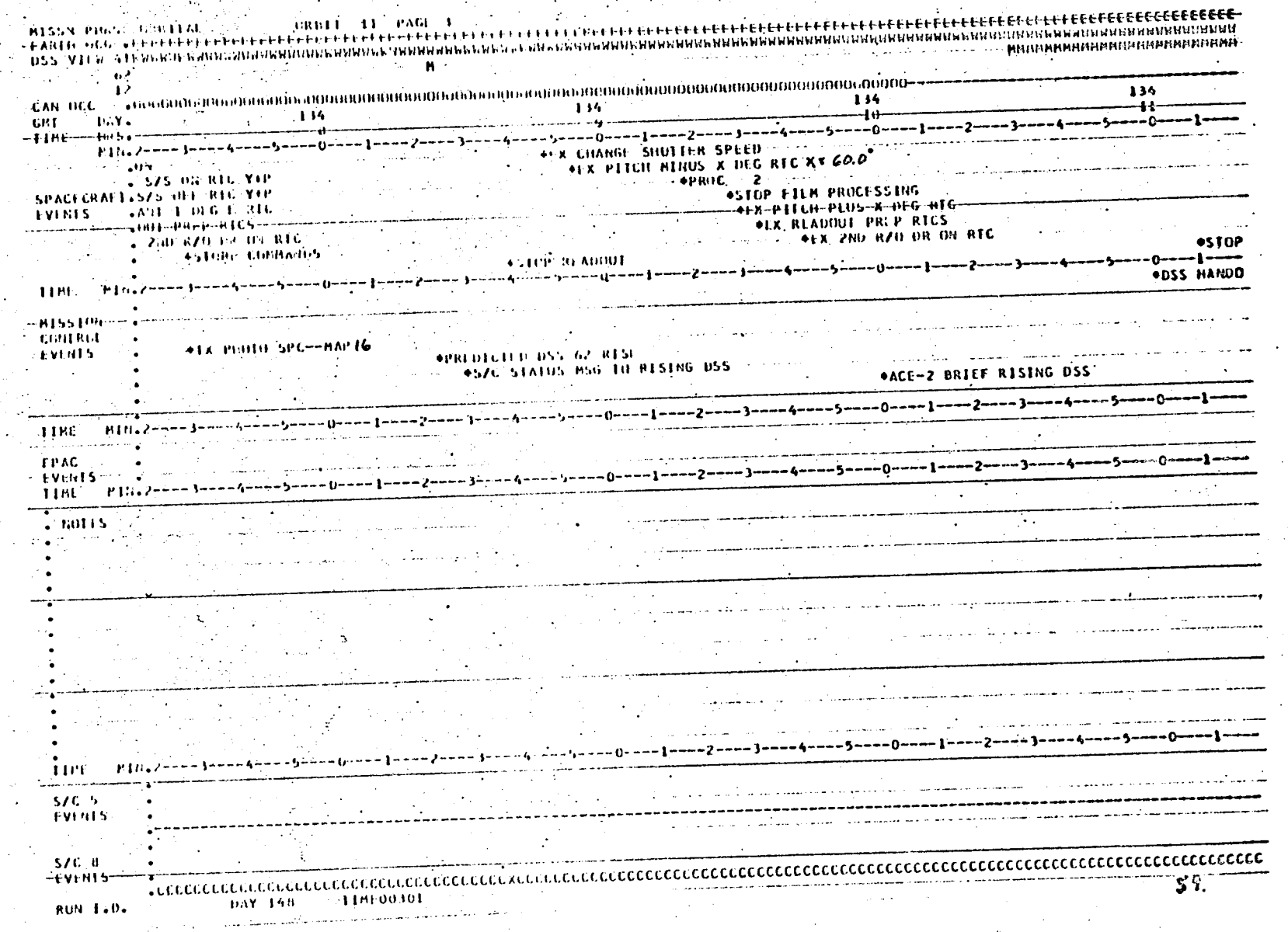
TIME MIN 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME 00301

58.


MISSN PHASE ORBITAL ORBIT 11 PAGE 1
FARTH OCC
DSS VIEW
CAN OCC
GMT DAY
TIME HRS
MIN
SPACECRAFT EVENTS
ON
S/S ON RTC Y+P
S/S OFF RTC Y+P
ANT 1 DEG E RTC
OUT PREP RTCS
2ND R/O DR ON RTC
STORE COMMANDS
STOP READOUT
EX CHANGE SHUTTER SPEED
EX PITCH MINUS X DEG RTC X= 60.0
PROC 2
STOP FILM PROCESSING
EX PITCH PLUS X DEG RTC
EX READOUT PREP RTCS
EX 2ND R/O DR ON RTC
STOP
DSS HANDO
TIME MIN
MISSION CONTROL EVENTS
EX PHOTO SPC--MAP 16
PREDICTED DSS 62 RISE
S/C STATUS MSG TO RISING DSS
ACE-2 BRIEF RISING DSS
TIME MIN
EPAC EVENTS
TIME MIN
NOTES
TIME MIN
S/C 5 EVENTS
S/C 8 EVENTS
RUN I.D.
DAY 148 TIME00301

MISSN PHASE ORBITAL ORBIT 12 PAGE 1

EARTH OGC

DSS VIEW

CAN OGC

GMT DAY 134 134 134 134

TIME HRS 12 13 14 15

MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

*TAKE 1 *TX READOUT PREP RTCS

*START ORBIT *STOP TIME PROCESSING

SPACECRAFT EVENTS *TX CANOPUS SENSOR ON RTC *TX 2ND P/O OR ON RTC

*TX CANOPUS SENSOR OFF RTC *STOP READOUT

*X PITCH PLUS X DEG RTC X= 20.0°

*TX COARSE S/S ON RTC Y*P

*TX FINE S/S OFF RTC Y*P

*READOUT *PROC 2

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

*TX JUMP RTC TO 026

*TX PTP ACT-2

*TX JUMP RTC TO 064

MISSION CONTROL EVENTS *PREDICTED DSS 41 SET

*PRELIM COND CONF--RAP17 *TX JUMP RTC TO 025

--PRIED--

*TX JUMP RTC TO 064

*TX JUMP RTC TO 025

*TX JUMP RTC TO 064

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

EPAC EVENTS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

*FRAME 57

*APOLOGIA

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME 00301

60.

MISSN PHASE INITIAL ORBIT 12 PAGE 2

EARTH OBS

DSS VIEW 41

CAN OBS

GMT DAY 134 134 134 134

TIME HRS 16 17 18 19

MIN 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

SPACECRAFT EVENTS

- ♦TAKE 1
- ♦PROC 2
- ♦STOP FILM PROCESSING
- ♦ATT CHG
- ♦EX CHANGE SHUTTER SPEED
- ♦ATT CHG
- ♦EX FINE S/S OFF RTC Y+P
- ♦EX ROT AN
- ♦STO
- ♦TAKE 1
- ♦REVERSE ATT
- ♦PITCH OFF SUN
- ♦EX READOUT PREP RTCS
- ♦EX 2ND R/O OR ON RTC
- ♦EX COARSE S/S ON RTC Y+P
- ♦ATT CHG
- ♦TAKE 1
- ♦EX CHANGE SHUTTER SPEED
- ♦ATT CHG
- ♦TAKE 1
- ♦EX CHANGE SHUTTER SPEED
- ♦ATT CHG
- ♦TAKE 1

TIME MIN 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

MISSION CONTROL EVENTS

- ♦PREDICTED DSS 12 RISE
- ♦DSS HANDOV
- ♦TX
- ♦S/C STATUS MSG TO RISING DSS
- ♦ACE-2 BRIEF RISING DSS
- ♦SEND SPG SEQ TO DSS
- ♦FINAL CMD CONF--HAP17

TIME MIN 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

IPAC EVENTS

TIME MIN 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

- ♦FRAME 50
- ♦FRAME 59
- ♦FRAME 60
- ♦PERILUNE
- ♦FRAME 61
- ♦FRAME 62
- PERFORMED 6 TIMES

TIME MIN 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C 5 EVENTS

S/C 6 EVENTS

RUN INFO DAY 148 TIME 00:01

61.

MISSN PHASE ORBITAL ORBIT 12 PAGE 3

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 134 134 134 134

TIME HRS. 20 21 22 23

MIN. ----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2

SPACECRAFT EVENTS

*T 1 DEG RT RTC

*EX READOUT PREP RTCS

*EX 2ND R/O DR ON RTC

*STOP READOUT

*STOP READOUT

*EX CAND

*TAKE

*EX

*E

*EX PITCH MINUS X-OFG RTG X=59.2°

*PROC 2

*EX ROL AND 1 DEG L RTC

*STOP FILM PROCESSING

TIME MIN. ----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2

MISSION CONTROL EVENTS

*P-PER ACT-7

PHOTO SPC--MAP 17

*IX JUMP RTC TO 072

*IX JUMP RTC TO 076

*IX JUMP RTC TO 012

TIME MIN. ----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2

EPAC EVENTS

TIME MIN. ----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2

NOTES

PERFORMED 57 TIMES

*FRAME 63

TIME MIN. ----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2

S/C 5 EVENTS

S/C 6 EVENTS

RUN END. DAY 148 TIME00301

62.

```
MISSN PHASE ORBITAL              ORBIT  13  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                                        W          WWWWWWWW
          62                        M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .----------------------------------------------------------------------------------------------------------
GMT   DAY.              135                  135                  135                  135
TIME  HRS.               0                    1                    2                    3
      MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .US SENSOR ON RTC                 *STOP FILM PROCESSING
           .  1                               *EX ROT ANT 1 DEG RT RTC
SPACECRAFT.ANOPUS SENSOR OFF RTC               *EX READOUT PREP RTCS
EVENTS     . PITCH MINUS X DEG RTC X= 40.0         *EX 2ND R/O DR ON RTC
           .EX COARSE S/S ON RTC Y+P
           .*EX FINE S/S OFF RTC Y+P
           .*START ORBIT                                                      *STOP READOUT
           .                         *PROC   2
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .                          *PREDICTED DSS 62 SET
MISSION    .                                              *S/C STATUS MSG TO RISING DSS
CONTROL    .                                              *PRELIM COMD CONF--HAP/8
EVENTS     .                                                 --PHOTO--
           .
           .                                                                                 *ACE-2 BRIEF RISING DSS
           .                                                                                   *PREDICTED DSS 41 RIS
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
FPAC       .
EVENTS     .
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
.
. NOTES
.           *APOLUNE
.
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .
S/C 5      .
EVENTS     .
           .----------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 148     TIME 02020
```

63.

MISSN PHASE ORBITAL ORBIT 13 PAGE 2

EARTH OCC

DSS VIEW

CAN OCC

GMT DAY 135 135 135 135

TIME HRS 4 5 6 7

MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

SPACECRAFT EVENTS

*TAKE 1

*LX CHANGE SHUTTER SPEED

*ATT CHG

*TAKE 1

*PROC 2

*STOP FILM PROCESSING

*ATT CHG

*TAKE 1

*ATT CHG

*TAKE 1

*EX ROT ANT 1 DEG RT RTC

*ATT CHG

*TAKE 1

*REVERSE ATT

*PITCH OFF-SUN

*EX JU

*EX JUN

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

*ATT CHG

*SEND SPC SEQ TO DSS

*FINAL COMD CONF--MAP18

MISSION CONTROL EVENTS

*PREDICTED DSS 12 SET

*DSS HANDOVER PER ACE-2

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

EPAC EVENTS

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

NOTES

*FRAME 65

*FRAME 67

*FRAME 68

*PERILUNE

*FRAME 64

*FRAME 66

PERFORMED 2 TIMES

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME 02020

64.

MISSN PHASE ORBITAL ORBIT 13 PAGE 4

EARTH OCC

DSS VIEW 62 12

CAM OCC

GMT DAY 135 135 135 135

TIME HRS 8 9 10 11

MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

SPACECRAFT EVENTS

- MP 026 RTC
- *IX JUMP 023 RTC
- *STOP READOUT
- *PROC 7
- *STOP FILM PROCESSING
- *EX READOUT PREP RTCS
- *EX 2ND R/O DR ON RTC
- *STORE COMMANDS
- *EX READOUT PREP RTCS
- *EX 2ND R/O DR ON RTC
- P 032 RTC
- *STOP READOU

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

MISSION CONTROL EVENTS

- *IX PHOTO SPC--MAP18
- *S/C STATUS MSG TO RISING DSS
- *PREDICTED DSS 62 RISE
- *ACE-2 BRIEF RISING DSS

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

EPAC EVENTS

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

NOTES

TIME MIN ---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME 02020

65

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MISSN PHASE ORBITAL          ORBIT  14  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWW             W
           62HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
           12
CAN OCC    .
GMT   DAY.              135                       135                        135                        135
TIME  HRS.               12                        13                         14                         15
      MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .        *EX CANOPUS SENSOR ON R*EX ROT ANT 1 DEG RT RTC ∇2
           .            ∇*EX ROLL X DEG R*EX READOUT PREP RTCS
SPACECRAFT.                 *EX CANOPUS SENSOR *EX 2ND R/O DR ON RTC
EVENTS     .                  *EX PITCH MINUS X DEG RTC X=40.0        *STOP READOUT
           .                   *EX COARSE S/S ON RTC Y+P                          *EX JUMP 107 RTC
           .T                   *EX FINE S/S OFF RTC Y+P
           .TAKE   1              *PROC   2                                                                       *TX JUMP ON RT
           .*START ORBIT               *STOP FILM PROCESSING
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .     *DSS HANDOVER PER ACE-2
MISSION    .                                 *PREDICTED DSS 41 SET
CONTROL    .                                              *PRELIM COMD CONF--MAP19
EVENTS     .                                                 --PHOTO--
           .
           .
           .
           .
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
           .
FPAC       .
EVENTS     .
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
.
. NOTES    *APOLUNE
.
.          FRAME 69 (FILM SET)                               ∇3 PERFORMED 5 TIMES
.                  ∇ X=1.4°
.
.
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.
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.
.
.
.
.
.
.
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
S/C 5      .
EVENTS     .
           .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 148      TIME02020
                                                                                                                      66.
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MISSN PHASE ORBITAL ORBIT 14 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY 135 135 135 135

TIME HRS. 16 17 18 19

MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

SPACECRAFT EVENTS

*TAKE 1
*EX CHANGE SHUTTER SPEED
*ATT CHG
*TAKE 1
*PROC 2
*STOP FILM PROCESSING
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*REVERSE ATT
*PITCH OFF-SUN
*EX JUMP 707

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

MISSION CONTROL EVENTS

*ACE-2 BRIEF RISING DSS
*PREDICTED DS
*S/C STATUS MSG TO RISING DSS
*SEND SPC SEQ TO DSS
*FINAL COMD CONF--MAP19

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

FPAC EVENTS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

*FRAME 70
*FRAME 71
*FRAME 72
*PERILUNE
*FRAME 73
*FRAME 74

PROBLEM:

ALL READOUTS OF PHOTOS (10-1) THRU (10-5) SHOW FOGGING FLARE

ETR TESTS OF P/S WITH SIMULATED SUN AT 20° ANGLE TO WINDOW CAUSED FOG ON FILM PROVING LIGHT LEAK THEORY.

S/C BEING PITCHED TO -40° TO PLACE CTD IN SHADOW OF S/C - ELIMINATE LIGHT LEAK

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C 5 EVENTS

S/C 6 EVENTS

RUN I.D. DAY 148 TIME 02020

67.

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MISSN PHASE ORBITAL          ORBIT  14  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAM OCC   .0000000000000000000000000000000000000000000000000000000000000000000000000000000-----------------------------
GMT.  DAY.             135                        135                         135                     135
TIME  HRS.              20                         21                          22                      23
      MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
          .  RTC                                  *EX CAMERA DOOR OFF                                                      *ATT CHG
          .     *STORE COMMANDS                                                                                                 *T
SPACECRAFT.            *EX READOUT PREP RTCS
EVENTS    .                 *EX 2ND R/D DR ON RTC    *EX READOUT PREP RTCS
          .                         *STOP READOUT  *EX JUMP 1/5 RTC
          .                            *PROC   2          *EX 2ND R/D DR ON RTC
          .                                 *STOP FILM PROCESSING                                     *STOP READOUT
          .                                   *EX CAMERA DOOR CLOSE                                           *EX JUMP 8/2 RT
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
          .
MISSION   .S 12 RISE
CONTROL   .    *EX PHOTO SPC--MAP19
EVENTS    .            *DSS HANDOVER PER ACE-2
          .
          .
          .
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
          .
FPAC      .
EVENTS    .
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
. NOTES                                                                                                                     *F
.
.
.
.
.
.
.
.
.
.
.
.
.
.
TIME  MIN.---3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2-
          .
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------------------
          .
S/C 9     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 140     TIME 02020
                                                                                                                       68.
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MISSN PHASE ORBITAL ORBIT 15 PAGE 1

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 136 136 136 136

TIME HRS. 0 1 2 3

MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

*EX PITCH MINUS X DEG RTC X=40.0° *EX RDT ANT 1 DEG RT RTC *DX JUMP 023 RTC

KF 1 *EX COARSE S/S ON RTC Y+P *EX READOUT PREP RTCS *EX CHANGE SHUTTER SPEED

SPACECRAFT. REVERSE A*EX FINE S/S OFF RTC Y+P *EX 2ND R/O DR ON RTC *EX READOUT

EVENTS *START ORBIT *EX JUMP 115 RTC *STOP READOUT *EX 2ND

*PITCH OFF-SUN *EX JUMP 012 RTC *EX

*EX CANOPUS SENSOR ON RTC*PROC 2 *EX CAMERA DOOR OFF *E

*EX CANOPUS SENSOR OFF RTC *STOP FILM PROCESSING

*EX TWTA ON RTC *EX JUMP 115 RTC

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

*PRELIM COMD CONT--MAP 20

MISSION --PHOTO--

CONTROL

EVENTS

*PREDICTED DSS 62 SET

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

FPAC

EVENTS

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

NOTES

PERFORMED 6 TIMES

AME 75

*APOLUNE

PROBLEM:

COLDSTONE R/O OF PHOTOS (11-3, 11-9, 11-5) INDICED FOGGED FILM - SUSPECT CONDENSATION ON LENS WINDOW AT TEMP'S LESS THAN 51°F. THE TELEPHOTOS OK AT 59°F BUT WIDE ANGLE FOGGED. AT 51° BOTH FOGGED.

DECISION

NEVER PHOTO WITH PTO3 LESS THAN 60°

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

S/C 5

EVENTS

S/C 8

EVENTS

RUN I.D. DAY 148 TIME 02020

69.

MISSN PHASE ORBITAL ORBIT 15 PAGE 7

EARTH DCC

DSS VIEW 41W

CAN DCC

GMT DAY: 136 136 136 136

TIME HRS: 4 5 6 7

MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

SPACECRAFT EVENTS

- PREP RTCS
- R/D DR ON RTC
- *EX JUMP 012 RTC
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *TAKE 1
- *REVERSE ATT
- *PITCH OFF-SU
- *EX JUMP 023 RTC 22 TIMES
- *EX TELEMETER MEMORY 011
- *STOP READOUT
- *PROC 2
- *STOP FILM PROCESSING
- *ATT CHG
- *EX CHANGE SHUTTER SPEED
- *EX ROT ANT 1 DEG RT RTC
- *ATT CHG

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

MISSION CONTROL EVENTS

- *ACE-2 BRIEF RISING DSS
- *DSS HANDOVER PER ACE-2
- *PR
- *SEND SPC SEQ TO DCS
- *FINAL COMD CONF--MAP 20
- *PREDICTED DSS 41 RISE
- *S/C STATUS MSG TO RISING DSS

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

IPAC EVENTS

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

NOTES

- *FRAME 76
- *FRAME 77
- *FRAME 78
- *PERILUNE
- *FRAME 79
- *FRAME 80
- PERFORMED 7 TIMES

PROBLEM: ALL READOUTS OF PHOTOS (12-1) THRU (13-5) SHOW TELEPHOTO LIGHT FOGGING AND WIDE ANGLE HEAVY FOGGING

TIME MIN. --3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 148 TIME02020

70.

MISSN PHAS: ORBITAL ORBIT 15 PAGE 3

EARTH OCC

DSS VIEW

CAN OCC

GMT DAY. 136 136 136 136

TIME HRS. 8 9 10 11

MIN. 1 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

SPACECRAFT EVENTS

•EX READOUT PREP RTCS
•LX 2ND R/O DR ON RTC
•STORE COMMANDS
•STOP READOUT
•LX JUMP 012 RTC
•PROC 2
•EX READOUT PREP RTCS
•STOP FILM PROCESSING
•LX 2ND R/O DR ON RTC
•STO

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

MISSION CONTROL EVENTS

PREDICTED DSS 12 SET
•TX PHOTO SPC--MAP 20
•S/C STATUS MSG TO RISING DSS
•PREDICTED DSS 62 RI
•ACE-2 BRIEF

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

EPAC EVENTS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

PROBLEM: ALL READOUTS OF FRAME (14-1) THRU (15-5) SHOW GRADUAL IMPROVEMENT OF TELEPHOTO BUT NO CHANGE OF WIDE ANGLE

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01702

71.

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MISSN PHASE ORBITAL          ORBIT  16  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH H
         62 HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         12
CAN OCC  .
GMT   DAY.          136                136                136                136
TIME  HRS.          12                 13                 14                 15
      MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--
                •EX COARSE S/S ON RTC Y+P
                •EX FINE S/S OFF RTC Y+P
SPACECRAFT. READOUT                    •PROC   2
EVENTS     .FACE   1                      •STOP FILM PROCESSING
           .•START ORBIT                    •EX READOUT PREP RTCS
           . •EX CANOPUS SENSOR ON RTC         •EX 2ND R/O DR ON RTC
           .     •EX CANOPUS SENSOR OFF RTC                                   •STOP READOUT
           .       •EX PITCH MINUS X DEG RTC X=35.0                                          •EX ROT
TIME  MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--
                          •DSS HANDOVER PER ACE-2
MISSION    .                                      •PRELIM COND CONF--MAP 21
CONTROL    .                                         --PHOTO--
EVENTS     .                                           •PREDICTED DSS 41 SET
           .
           .
           .ISING DSS
TIME  MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--
EPAC       .
EVENTS     .
TIME  MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--
NOTES    •ADJ..ENT                                                             PERFORMED
                                                                                7 TIMES
          FRAME 81(FILM SET)

TIME  MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--
S/C 5     .
EVENTS    .
S/C 0     .
EVENTS    .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 139      TIME 01902                                                        72
```

MISSN PHASE ORBITAL ORBIT 16 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 136 136 136 136

TIME HRS. 16 17 18 19

MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

SPACECRAFT EVENTS

*ATT CHG *TAKE 1 *TAKE 1 *ATT CHG *EX REA *E

*EX CHANGE SHUTTER SPEED *TAKE 1

*ATT CHG *ATT CHG

*TAKE 1 *TAKE 1

*PROG 2 *REVERSE ATT

*STOP FILM PROCESSING *PITCH OFF-SUN

ANT 1 DEG RT RTC *ATT CHG *EX JUMP 175 RTC 20 TIMES

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

MISSION CONTROL EVENTS

*SEND SPC SEQ TO DSS

*FINAL COMD CONF--MAP 21

*S/C STATUS MSG TO RISING DSS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

FPAC EVENTS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

*FRAME 82 *FRAME 84 *FRAME 86

*FRAME 83 *PERILUNE *FRAME 85

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C A EVENTS

S/C B EVENTS

RUN I.D. DAY 149 TIME 01902

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MISSN PHASE ORBITAL          ORBIT  16  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12          G                GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY.          136                  136                  136                  136
TIME   HRS.           20                   21                   22                   23
       MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2---
          .DOUT PREP RTCS                                                          *STOP READOUT
          .X 2ND R/O DR ON RTC                                                                              *T
SPACECRAFT.*STORE COMMANDS
EVENTS    .                      *STOP READOUT
          .                        *PROC  ?
          .                            *STOP FILM PROCESSING
          .                                   *EX READOUT PREP RTCS
          .                                      *EX 2ND R/O DR ON RTC
TIME   MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2---
          .*TX PHOTO SPC--MAP 21
MISSION   .           *PREDICTED DSS 12 RISE
CONTROL   .              *ACE-2 BRIEF RISING DSS
EVENTS    .                         *DSS HANDOVER PER ACE-2
          .
          .
          .
TIME   MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2---
          .
FPAC      .
EVENTS    .
TIME   MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2---
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. NOTES
.                                                                                                            *F
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.
TIME   MIN.-3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2---
          .
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 149     TIME01902
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MISSN PHASE ORBITAL ORBIT 17 PAGE 1

EARTH DEG

DS VIEW 31

CAM DEG

GMT DAY. 137 137 137 137

TIME HRS. 0 1 2 3

MIN. -1----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

*PROC

AKE 1 *STOP FILM PROCESSING

SPACECRAFT EVENTS *EX CANOPUS SENSOR ON RTC

*START ORBIT

*EX CANOPUS SENSOR OFF RTC

*EX PITCH MINUS X DEG RTC X=35.0°

*EX COARSE S/S ON RTC Y+P

*EX FINE S/S OFF RTC Y+P

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

MISSION CONTROL EVENTS

*PRELIM COMD CONF--MAP 22

--PHOTO--

*PREDICTED DSS 62 SET

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

*PAC EVENTS

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

NOTES

RAME 87 (FILM SET)

*APOLUNE

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2--

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01902

MISSN PHASE ORBITAL ORBIT 17 PAGE 2

EARTH OCC

DSS VIEW 41 W

CAN OCC

GMT DAY. 137 137 137 137

TIME HRS. 4 5 6 7

MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

SPACECRAFT EVENTS

- ♦PROG 2
- ♦STOP FILM PROCESSING
- ♦LX CHANGE SHUTTER SPEED
- ♦ATT CHG
- ♦LX JUMP 110 RIC
- ♦ATT CHG
- ♦TAKE 1
- ♦REVERSE ATT
- ♦LX JUMP 012 RIC
- ♦PITCH OFF-SU
- ♦ATT CHG
- ♦LX JUMP 110 RIC
- ♦TAKE 1
- ♦ATT CHG
- ♦LX JUMP 157 RIC
- ♦EX R
- ♦TAKE 1
- ♦TAKE 1
- ♦E

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

- ♦PREDICTED DSS 41 RISE
- ♦S/C STATUS MSG TO RISING DSS

MISSION CONTROL EVENTS

- ♦SEND SPC SEQ TO DSS
- ♦FINAL COMD CONF--MAP22
- ♦ACE-2 BRIEF RISING DSS
- ♦DS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

EPAC EVENTS

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

NOTES

- ♦FRAME 88
- ♦FRAME 90
- ♦FRAME 89
- ♦FRAME 91
- ♦PERILUNE
- ♦FRAME 92

TIME MIN. 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01902

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MISSN PHASE ORBITAL ORBIT 17 PAGE 3

EARTH DCC

DSS VIEW

CAN DCC

GMT DAY. 137 137 137 137

TIME HRS. 3 9 10 11

MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

.X READOUT PREP RTCS

.*EX 2ND R/O DR ON RTC

*EX 2ND R/O DR ON RTC

*STOP READ..

SPACECRAFT EVENTS

*STOP READOUT

*STORE COMMANDS

*EX JUMP 012 RTC

*PROC 2

.RTC 2 TIMES.

.01 AND 1 DEG RT RTC 6 TIMES

*EX READOUT PREP RTCS

*STOP FILM PROCESSING

.X JUMP 112 RTC

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

*TX PHOTO SPC--MAP 22

*S/C STATUS MSG TO RISING DSS

MISSION CONTROL EVENTS

.S HANDOVER PER ACI-2

*PREDICTED DSS 12 SET

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

TRACKING EVENTS

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

NOTES

TIME MIN. -3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2—

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01902

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MISSN PHASE ORBITAL          ORBIT  10  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH          H
         62          M            MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC   .
GMT   DAY.          137                        137                        137                        137
TIME  HRS.           12                         13                         14                         15
      MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
                    *EX FINE S/S OFF RTC Y+P
          .UT                         *PROC   2
SPACECRAFT.*START ORBIT                   *STOP FILM PROCESSING
EVENTS    .  *TAKE   1                                  *EX READOUT PREP RTCS
          .    *EX CANOPUS SENSOR ON RTC                    *EX 2ND R/O DR ON RTC
          .      *EX CANOPUS SENSOR OFF RTC                                                    *STOP READOUT
          .         *EX PITCH MINUS X DEG RTC X= 35.0°
          .           *EX COARSE S/S ON RTC Y+P
TIME  MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
                                                                                          *PREDICTED DSS 41 SET
MISSION   .
CONTROL   .          *PREDICTED DSS 62 RISE
EVENTS    .           *ACE-2 BRIEF RISING DSS
          .                                                        *DSS HANDOVER PER AGE-2
          .                                                        *PRELIM COMD CONF--MAP23
          .                                                           --PHOTO--
          .
TIME  MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
          .
FPAC      .
EVENTS    .
TIME  MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
 .
 . NOTES    *APOLUNE
              *FRAME 93(FILM SET)
 .
 .
 .
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 .
 .
 .
 .
 .
 .
TIME  MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
          .
S/C A     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------------
          .
S/C B     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 149     TIME01902                                                                         78.
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MISSN PHASE ORBITAL ORBIT 18 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 137 137 137 137

TIME HRS. 16 17 18 19

MIN. 3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----

SPACECRAFT EVENTS

•EX CHANGE SHUTTER SPEED
•EX JUMP 054 RTC 2 TIMES
•ATT CHG
•EX JUMP 157 RTC
•TAKE 1
•PROC 7
•TAKE 1
•ATT CHG
•TAKE 1
•ATT CHG
•TAKE 1
•REVERSE ATT
•PITCH OFF-SUN
•EX JUMP 054 RTC 4 TIMES
•EX READOUT PREP
•EX 2ND R/O
•STORE COM

TIME MIN. 3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----

MISSION CONTROL EVENTS

•ATT CHG
•TAKE 1
•STOP FILM PROCESSING
•ATT CHG
•SEND SPC SEQ TO DSS
•FINAL COND CONF--MAP23
•EX CHANGE SHUTTER SPEED
•S/C STATUS MSG TO RIST
•TX PHOTO

TIME MIN. 3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----

EPAC EVENTS

TIME MIN. 3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----

NOTES

•FRAME 94
•FRAME 95
•FRAME 96
•PERILUNE
•FRAME 97
•FRAME 98

NEW CTD CHANGE SPC SEQUENCE OF 4.7 SEC'S. INITIATED TO SPEED TEMP. CONTROL (ADDED SINGLE PULSE GROUPS REQUIRED ALSO)

TIME MIN. 3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----

S/C 5 EVENTS

S/C 8 EVENTS

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RUN I.D. DAY 149 TIME 01902

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MISSN PHASE ORBITAL          ORBIT  18  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           12                                   GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY.            137                    137                    137                    137
TIME   HRS.             20                     21                     22                     23
       MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
                                                   •STOP FILM PROCESSING
          .RTCS                                     •EX 2ND R/O DR ON RTC
SPACECRAFT.DR ON RTC                                                                         •STOP READOUT
EVENTS    .MANDS                                                                                •EX TUTA OFF RTC
          .                          •STOP READOUT                                                          •ATT CAG
          .                              •EX ROT ANT 1 DEG RT RTC 6 TIMES                                         •TA
          .                                   •PROC  2                                                            •
          .                                     •EX READOUT PREP RTCS
TIME   MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
          .                                                                             •DSS HANDOVER PER ACE-2
MISSION   .
CONTROL   .
EVENTS    .NO DSS
          .SPC--MAP23
          .                   •ACE-2 BRIEF RISING DSS
          .                             •PREDICTED DSS 12 RISE
          .
TIME   MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
          .
FPAC      .
EVENTS    .
TIME   MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
 .                                                                                                                        •FR
 . NOTES
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 .
TIME   MIN.3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----
          .
S/C 5     .
EVENTS    .
          .
          .
S/C 9     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149    TIME01902
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80.

MISSN PHASE ORBITAL   ORBIT 19 PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
62MMMMMMMMMMMMMM   M
12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

CAN OCC .
GMT DAY. 138 138 138 138
TIME HRS. 0 1 2 3
MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3

*EX PITCH MINUS X DEG RTC X=35.0
*EX COARSE S/S ON RTC Y+P
*EX 2ND R/O DR ON RTC
*STOP READOUT

SPACECRAFT. *EX FINE S/S OFF RTC Y+P
EVENTS .*PITCH OFF SUN *EX ROT ANT 1 DEG RT RTC 4 TIMES
.*START ORBIT *EX JUMP 111 RTC 5 TIMES
.KE 1 *EX CANOPUS SENSOR ON RTC *PROC 2
.REVERSE ATT *EX THTA ON RTC *STOP FILM PROCESSING
*EX CANOPUS SENSOR OFF RTC *EX READOUT PREP RTCS

TIME MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3

MISSION *PRELIM COMD CONF--MAP 24
CONTROL --PHOTO--
EVENTS *PREDICTED DSS 62 SET

TIME MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3

FPAC
EVENTS
TIME MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3

NOTES AME 99

*APOLUNE

ALL READOUTS OF PHOTOS (16-1) THRU (17-3) ARE EXCELLENT QUALITY.

DECISION: REPHOTOGRAPH FROM 90°E TO 35°E AT END OF MISSION (ORBITS 29 THRU 39) AT NEAR APOLUNE ALTITUDE TO RECOVER THE AREAS AFFECTED BY FLARE AND WINDOW CONDENSATION.

TIME MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3

S/C 5
EVENTS

S/C 8
EVENTS .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

RUN I.D. DAY 149 TIME01902 81.

MISSN PHASE ORBITAL ORBIT 19 PAGE 2

EARTH OCC

DSS VIEW 41

CAM OCC

GMT DAY 138 138 138 138

TIME HRS 4 5 6 7

MIN 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3

SPACECRAFT EVENTS

*ATT CHG
*TAKE 1
*ATT CHG
*TAKE 1
*PRIO 2
*ATT CHG
*TAKE 1
*EX JUMP 111 RTC 2 TIMES
*ATT CHG
*EX JUMP 153 RTC
*TAKE 1
*EX CHANGE SHUTTER SPEED
*STOP FILM PROCESSING
*ATT CHG
*TAKE 1
*REVERSE ATT
*PITCH OFF-SUN
*E

TIME MIN 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3

MISSION CONTROL EVENTS

*EX JUMP 111
*FINAL COMD CONF--MAP 24
*ACE-2 BRIEF RISING DSS
*PREDICTED DSS 41 RISE
*S/C STATUS MSG TO RISING DSS
*SEND SPC SEQ TO DSS

TIME MIN 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3

EPAC EVENTS

TIME MIN 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3

NODES

*FRAME 100
*FRAME 101
*FRAME 102
*FRAME 103
*FRAME 104
*PERILUNE

TIME MIN 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01902

82.

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MISSN PHASE ORBITAL          ORBIT  19  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE0000000000000000000000000000000000
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .0000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY.          138                        138                        138                   138
TIME  HRS.            8                          9                         10                    11
      MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3
          .X READOUT PREP RTCS                                                              *STOP READOUT
          .  *EX 2ND R/O DR ON RTC
SPACECRAFT.          *STORE COMMANDS
EVENTS    .                                          *STOP READOUT
          .                                            *PROC   2
          .                                              *EX READOUT PREP RTCS
          .                                                 *STOP FILM PROCESSING
          .RTC 4 TIMES                                        *EX 2ND R/O DR ON RTC
TIME  MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3
MISSION   .
CONTROL   .          *EX PHOTO SPC--MAP 24
EVENTS    .              *DSS HANDOVER PER ACT-2
          .                                      *PREDICTED DSS 12 SET
          .
          .
          .
TIME  MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3
          .
FPAC      .
EVENTS    .
TIME  MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3
. NOTES
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TIME  MIN.----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3
S/C 5     .
EVENTS    .
          .---------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 149       TIME 01902                                                                    83.
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MISSN PHASE ORBITAL              ORBIT  20  PAGE 1
EARTH OCC  .DDDDDEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41      HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12                                            H             HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
CAN OCC    .--------------------------------------------------------------------------------------------------------------
GMT   DAY.          139                          139                         138                          138
TIME  HRS.          12                           13                          14                           15
      MIN.---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-
           .                          *EX READOUT PREP RTCS                                                                   *S
           .*START ORBIT                   *EX 2ND R/O DR ON RTC
SPACECRAFT.        *TAKE   1                          *STOP READOUT
EVENTS     .          *EX CANOPUS SENSOR ON RTC                   *PROC   2
           .            *EX CANOPUS SENSOR OFF RTC                        *STOP FILM PROCESSING
           .              *EX PITCH MINUS X DEG RTC X= 35.0°                        *EX ROT ANT 1 DEG RT RTC 6 TIMES
           .                *EX COARSE S/S ON RTC Y+P                                 *EX READOUT PREP RTCS
           .                  *EX FINE S/S OFF RTC Y+P                                     *EX 2ND R/O DR ON RTC
TIME  MIN.---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-
           .                                                *PREDICTED DSS 62 RISE
MISSION    .                                                       *PRELIM COMD CONF--MAP26
CONTROL    .                                                          --PHOTO--
EVENTS     .                                                                   *DSS HANDOVER PER ACE-2
           ./C STATUS MSG TO RISING DSS
           .                                         *ACE-2 BRIEF RISING DSS
           .
TIME  MIN.---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-
FPAC       .
EVENTS     .
TIME  MIN.---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-
. NOTES          *FRAME 105 (FILM SET)
.
.          *APOLUNE
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TIME  MIN.---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-
S/C 5      .
EVENTS     .
           .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149      TIME 01902
                                                                                                                  P4.
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MISSN PHASE ORBITAL ORBIT 20 PAGE 2

EARTH OCC

DSS VIEW 41 W

62
12

CAN OCC

GMT DAY. 138 138 138 138

TIME HRS. 16 17 18 19

MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

SPACECRAFT EVENTS

- TOP READOUT
- ATT CHG
- TAKE 1
- EX CHANGE SHUTTER SPEED
- EX JUMP 114 RTC
- EX JUMP 151 RTC
- ATT CHG
- TAKE 1
- PROC 2
- STOP FILM PROCESSING
- ATT CHG
- TAKE 1
- ATT CHG
- TAKE 1
- EX JUMP 153 RTC
- TAKE 1
- REVERSE ATT
- PITCH OFF-SUN
- EX JUMP 114 RTC 4 TIMES
- EX READOUT PREP
- EX JUMP 114 RTC 10 TIMES
- EX 2ND R/O
- ATT CHG

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

MISSION CONTROL EVENTS

- PREDICTED DSS 41 SET
- SEND SPC SEQ TO DSS
- FINAL COMD CONF--MAP 25

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

FILM EVENTS

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

NOTES

- FRAME 106
- FRAME 107
- FRAME 108
- PERILUNE
- FRAME 109
- FRAME 110

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 01902

85.

MISSN PHASE ORBITAL ORBIT 20 PAGE 3

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 138 138 138 138

TIME HRS. 20 21 22 23

MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

SPACECRAFT EVENTS

•STOP READOUT

•PROC 2

•TX READOUT PREP RTCS

•STOP FILM PROCESSING

•TX 2ND R/O DR ON RTC

•STOP READOUT

RTCS

DR ON RTC

STORE COMMANDS

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

TX PHOTO SPC--MAP 26

MISSION CONTROL EVENTS

•PREDICTED DSS 12 RISE

•S/C STATUS MSG TO RISING DSS

•ACE-

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

FRAC EVENTS

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

NOTES

DURING EARTH OCCULT (2227-2357) a 2nd micrometeoroid REGISTERED.

TIME MIN. ---4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3-

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME01902

86.

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MISSN PHASE ORBITAL          ORBIT  21  PAGE 1
EARTH OCC .OOOOOOOOOEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
         62               MMMMMMMMMMMMMMMMMM                                                              M
         12               GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .-------------------------------------------------------------------------------------------------------
GMT    DAY.          139                           139                           139                           139
TIME   HRS.           0                             1                             2                             3
       MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .                     *EX PITCH MINUS X DEG RTC X=35.0°        *EX READOUT PREP RTCS
          .                        *EX COARSE S/S ON RTC Y+P             *STOP FILM PROCESSING
SPACECRAFT.                        *EX FINE S/S OFF RTC Y+P                   *EX 2ND R/O DR ON RTC                    *STOP REA
EVENTS    .                         *EX ROT ANT 1 DEG RT RTC 7 TIMES
          .                          *EX READOUT PREP RTCS
          .                               *EX 2ND R/O DR ON RTC
          .*START ORBIT                                 *STOP READOUT
          .               *TAKE   1                                *PROC   2
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
MISSION   .
CONTROL   . BRIEF RISING DSS
EVENTS    .                *DSS HANDOVER PER ACE-2
          .                                                        *PRELIM COMD CONF--MAP26
          .                                                           --PHOTO--
          .                                                                                *PREDICTED DSS 62 SET
          .
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
FPAC      .
EVENTS    .
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
. NOTES     *APOLUNE
.                          *FRAME111 (FILM SET)
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TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
S/C 5     .
EVENTS    .
          .-------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.  .           DAY 149      TIME00036                                                                                 87.
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MISSN PHASE ORBITAL          ORBIT  21  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                   W
         62
         12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .------------------------------------------0000000000000000000000000000000000000000000000000000000000000000000000
GMT    DAY.           139                         139                         139                         139
TIME   HRS.            4                           5                           6                           7
       MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .                                                          *PROC   2                                  *ATT CHG
          .                                                              *STOP FILM PROCESSING                       *TAKE   1
SPACECRAFT.                                                                *ATT CHG                                    *REVERSE ATT
EVENTS    .DOUT                                                                 *TAKE   1                                *EX JUMP 114 R
          .                                  *ATT CHG                               *EX JUMP 114  RTC 2 TIMES           *PITCH OFF-SU
          .                                        *TAKE   1                           *EX JUMP 153 RTC                         *EX
          .                                                 *ATT CHG                     *ATT CHG
          .                                                      *TAKE   1                     *TAKE   1
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .                                               *PREDICTED DSS 41 RISE
MISSION   .                                                                     *SEND SPC SEQ TO DSS
CONTROL   .                                                                      *S/C STATUS MSG TO RISING DSS
EVENTS    .                                                                       *FINAL COND CONF--MAP26
          .                                                                                                          *AC
          .
          .
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
FPAC      .
EVENTS    .
TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
 . NOTES                                                     *FRAME 113                 *FRAME 115
 .                                                                 *PERILUNE                        *FRAME 116
 .                                        *FRAME 112                     *FRAME 114
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TIME   MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 149     TIME00036                                                                                  88.
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MISSN PHASE ORBITAL          ORBIT  21  PAGE  3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
DSS VIEW 41           WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW.
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO-----------------------------------------------
GMT   DAY.        139                        139                        139                        139
TIME  HRS.         8                          9                          10                         11
      MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .                                    *STOP READOUT
          .                                       *PROC   2
SPACECRAFT.                                         *EX READOUT PREP RTCS
EVENTS    .TC 7 TIMES                                  *STOP FILM PROCESSING
          .N                                             *EX 2ND R/O DR ON RTC
          .READOUT PREP RTCS                                                                  *STOP READOUT
          .  *EX 2ND R/O DR ON RTC
          .    *STORE COMMANDS
TIME  MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .                                                              *PREDICTED DSS 12 SET
MISSION   .
CONTROL   .
EVENTS    .
          .E-2 BRIEF RISING DSS
          .   *TX PHOTO SPC--MAP 26
          .                                *DSS HANDOVER PER ACE-2
          .
TIME  MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
FPAC      .
EVENTS    .
TIME  MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
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. NOTES
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TIME  MIN.--4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 149      TIME00036                                                                                      88
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MISSN PHASE ORBITAL          ORBIT  22  PAGE 1
EARTH OCC .DOOOFEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41     WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
         62                                                                              M           MMMMMMMMMMMMMMMMMM
         12
CAN OCC   .------------------------------------------------------------------------------------------------------------
GMT   DAY.        139                        139                        139                        139
TIME  HRS.         12                         13                         14                         15
      MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
          .          *EX CANOPUS SENSOR ON RTC*STOP READOUT
          .            *EX CANOPUS SENSOR OFF RTC                   *PROC   2
SPACECRAFT.              *EX PITCH MINUS X DEG RTC X= 35.0              *STOP FILM PROCESSING
EVENTS    .                 *EX COARSE S/S ON RTC Y+P                     *EX CHANGE SHUTTER SPEED
          .                   *EX FINE S/S OFF RTC Y+P                      *EX READOUT PREP RTCS
          .                     *EX ROT ANT 1 DEG RT RTC 7 TIMES                 *EX 2ND R/O OR ON RTC
          .*START ORBIT          *EX READOUT PREP RTCS                                                                 *STOP RE
          .      *TAKE   1            *EX 2ND R/D OR ON RTC
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
          .
MISSION   .                                       *S/C STATUS MSG TO RISING DSS
CONTROL   .                                                 *PRELIM COND CONF--MAP 27
EVENTS    .                                                   --PHOTO--
          .                                                                            *PREDICTED DSS 62 RISE
          .                                                                              *ACE-2 BRIEF RISING DSS
          .
          .
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
FPAC      .
EVENTS    .
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
.
. NOTES          *FRAME 117 (FILM SET)
.
.      *APOLUNE
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TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149     TIME00036                                                                              90.
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MISSN PHASE ORBITAL          ORBIT  22  PAGE 2
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW              W
         62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC   .------------------------------------0000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY.          139                        139                        139                        139
TIME  HRS.           16                         17                         18                         19
      MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
          .              *EX CAMERA DOOR OPEN  *TAKE   1                                      *ATT CHG
          .                *EX CAMERA DOOR OFF     *PROC   2                                        *TAKE   1
SPACECRAFT.                *EX CAMERA DOOR OPEN         *STOP FILM PROCESSING                       *REVERSE ATT
EVENTS    .                 *TAKE   1                    *ATT CHG                                     *PITCH OFF-SUN
          .                 *EX CHANGE SHUTTER SPEED          *TAKE   1                                 *EX JUMP /14 RTC 9 TIMES
          .                      *EX JUMP /14 RTC                       *ATT CHG                                              *EX READ
          .ADJUT                      *EX JUMP /51 RTC                     *TAKE   1                                                *EX
          .          *ATT CHG              *ATT CHG                         *EX CHANGE SHUTTER SPEED
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
          .                                       *PREDICTED DSS 41 SET
MISSION   .                                                                 *SEND SPC SEQ TO DSS
CONTROL   .                                                                  *FINAL COMD CONF--MAP 27
EVENTS    .
          .
          .
          .     *DSS HANDOVER PER ACE-2
          .
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
FPAC      .
EVENTS    .
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
 . NOTES                                                *FRAME /20                     *FRAME /22
 .                  *FRAME /18                             *PERILUNE
 .                                     *FRAME /19             *FRAME /21
 .
 .
 .                                                                        PROBLEM:
 .                                                                        FOLLOWING PHOTO (22-5) THE CTD DID NOT RESPOND WITH
 .                                                                        SPC 4.7 SEC CLOSURE - 50 ADDITIONAL SINGLE PULSES
 .                                                                        REQUIRED.
 .
 .
 .
 .
TIME  MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3---
S/C 5     .
EVENTS    .
          .
S/C 0     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.       DAY 149     TIME00036                                                                              91.
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MISSN PHASE ORBITAL          ORBIT  22  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
                                                                                       GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
          12
CAN OCC    .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO-----------------------------------------
GMT    DAY.         139                        139                        139                        139
TIME   HRS.          20                         21                         22                         23
       MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
           .                                   *STOP READOUT                                                       *TAKE
           .                                      *PROC   2                                                          *REV
SPACECRAFT.                                            *EX READOUT PREP RTCS                                           *
EVENTS     .                                           *STOP FILM PROCESSING
           .                                               *EX 2ND R/O DR ON RTC
           .OUT PREP RTCS                                                                           *STOP READOUT
           . 2ND R/O DR ON RTC                                                                          *EX TWTA OFF RTC
           . *STORE COMMANDS                                                                                  *ATT CHG
TIME   MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
           .
MISSION    .
CONTROL    .
EVENTS     . *TX PHOTO SPC--MAP 27
           .                  *S/C STATUS MSG TO RISING DSS
           .                                                         *ACE-2 BRIEF RISING DSS
           .                                                                      *PREDICTED DSS 12 RISE
           .
TIME   MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
FPAC       .
EVENTS     .
TIME   MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
.
. NOTES                                                                                                                *FRAME
.                                                                                                                        123
.
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.
.
TIME   MIN.-4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3--
S/C 5      .
EVENTS     .
           .-----------------------------------------------------------------------------------------------------------------------
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149     TIME00036                                                                                  94
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MISSN PHASE ORBITAL           ORBIT  23  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                                          M
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .-----------------------------------------------------------------------------------------------------
                                                                   140                          140
GMT    DAY.        140                   140                        2                            3
TIME   HRS.         0                     1
       MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
          . 1              *EX COARSE S/S ON RTC Y+P                  *EX READOUT PREP RTCS
          .RSL ATT         *EX FINE S/S OFF RTC Y+P                       *EX 2ND R/D DR ON RTC                      *ST
SPACECRAFT.ITCH OFF-SUN          *EX JUMP 1/5 RTC 9 TIMES
EVENTS    .*START ORBIT                *PROC   2
          .   *EX CANOPUS SENSOR ON RTC    *STOP FILM PROCESSING
          .     *EX THTA ON RTC             *EX CHANGE SHUTTER SPEED
          .      *EX CANOPUS SENSOR OFF RTC        *PROC   2
          .        *EX PITCH MINUS X DEG RTC X=40.0°   *STOP FILM PROCESSING
TIME   MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
                       *DSS HANDOVER PER ACE-2
                                                          *PRELIM COMD CONF--MAP28
MISSION   .                                                 --PHOTO--                     *PREDICTED DSS 62 SET
CONTROL   .
EVENTS    .
          .
          .
TIME   MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
FPAC      .
EVENTS    .
TIME   MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
. NOTES
.
.        *APOLUNE
.
.
.
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.
.
.
TIME   MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149    TIME00036                                                                          93.
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MISSN PHASE ORBITAL          ORBIT  23  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                          W
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .-----------------------------------00000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY.       140                     140                     140                     140
TIME  HRS.        4                       5                       6                       7
      MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
          .                                                  *PROC   2                                   *REVERSE ATT
          .                                                      *STOP FILM PROCESSING                    *EX ROT ANT 1 D
SPACECRAFT.OP READOUT                                              *ATT CHG                                 *PITCH OFF-SUN
EVENTS    .                          *ATT CHG                          *TAKE   1                               *EX JUMP65
          .                               *TAKE   1                              *ATT CHG                      *EX JUMP/76
          .                                      *EX CHANGE SHUTTER SPEED               *TAKE   1                     *EX
          .                                       *ATT CHG                                         *ATT CHG
          .                                            *TAKE   1                                         *TAKE   1
TIME  MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
          .                                                                                        *S/C STATUS MSG TO R
MISSION   .
CONTROL   .
EVENTS    .
          .                                                    *PREDICTED DSS 41 RISE
          .                                                            *SEND SPC SEQ TO DSS
          .                                                              *FINAL COMD CONF--MAP 28
TIME  MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
FPAC      .
EVENTS    .
TIME  MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
 .NOTES                           *FRAME/24                       *FRAME/26
 .                                            *FRAME/25                         *FRAME/27
 .                                                 *PERILUNE                                  *FRAME/28
 .
 .
 .
 .
 .
 .
 .
 .
 .
TIME  MIN.4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----
          .
S/C 5     .
EVENTS    .
          .--------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 149     TIME00036                                                                       94
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MISSN PHASE ORBITAL ORBIT 23 PAGE 3

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 140 140 140 140

TIME HRS. 8 9 10 11

MIN. 4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----

SPACECRAFT EVENTS

- EG RT RTC 5 TIMES
- *STOP READOUT
- *PROC 2
- *STOP FILM PROCESSING
- RTC
- RTC
- *EX CHANGE SHUTTER SPEED
- *EX READOUT PREP RTCS
- READOUT PREP RTCS
- *EX 2ND R/O DR ON RTC
- *EX 2ND R/O DR ON RTC
- *STOP READ
- *EX
- *STORE COMMANDS

TIME MIN. 4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----

MISSION CONTROL EVENTS

- ISING DSS
- *TX PHOTO SPC--MAP 28
- *ACE-2 BRIEF RISING DSS
- *DSS HANDOVER PER ACE-2
- *PREDICTED DSS 12 SET

TIME MIN. 4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----

FPAC EVENTS

TIME MIN. 4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----

NOTES

TIME MIN. 4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 149 TIME 00036

95.

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MISSN PHASE ORBITAL            ORBIT  24  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         62                                                                                                                   M
         12
CAN OCC  .----------------------------------------------------------------------------------------------------------------------
GMT   DAY.      140                          140                          140                          140
TIME  HRS.      12                           13                           14                           15
      MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
         .*START ORBIT                     *STOP FILM PROCESSING                                       *EX SOLAR ECLIPSE ON
             *TAKE  1                                         *EX READOUT PREP RTCS                     *EX CHANGE SHUTTER
SPACECRAFT.   *EX CANOPUS SENSOR ON RTC                            *EX 2ND R/O OR ON RTC
EVENTS   .       *EX CANOPUS SENSOR OFF RTC                                        *STOP READOUT
         .        *EX PITCH MINUS X DEG RTC X=40.0                                  *EX SOLAR ECLIPSE ON
         .          *EX COARSE S/S ON RTC Y+P                                         *EX CHANGE SHUTTER SPEED
         .T           *EX FINE S/S OFF RTC Y+P                                                *EX TELEMETER MEMORY 213
         .T ANT 1 DEG RT RTC 4 TIMES    *PROC    2                                              *EX SOLAR ECLIPSE OFF
TIME  MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
         .                                                                 *S/C STATUS MSG TO RISING DSS
MISSION  .                                                                                                            *A
CONTROL  .                                                                                                            *P
EVENTS   .
         .
         .                                                 *PRELIM COMD CONF--MAP 29
         .                                                     --PHOTO--
         .
TIME  MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
         .
FPAC     .
EVENTS   .
TIME  MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
.
. NOTES     *APOLUNE
.              *FRAME 129 (FILM SET)
.                                                          PROBLEM:
.
.                                                          FIRST READOUT DROP-OUT, SPURIOUSLY DURING R/O
.                                                          AT DSS 41 (WOOMERA) -                     PROBLEM:
.
.                                                                                         READOUT DROPOUT REPEATED
.                                                                                         READOUT TERMINATED AFTER
.                                                                                         2 FRAMELETS.
.
.
.
.
.
.
TIME  MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
         .
S/C 5    .
EVENTS   .
         .----------------------------------------------------------------------------------------------------------------------
         .
S/C 8    .
EVENTS   .
         .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 149     TIME00036                                                                                  96.
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MISSN PHASE ORBITAL          ORBIT  24  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW W
         62               MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC   .-------------------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY.      140                            140                            140                            140
TIME   HRS.      16                             17                             18                             19
       MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
                                       *TAKE   1                                              *TAKE   1
          .SPEED                           *PROC   2                                            *REVERSE ATT
SPACECRAFT.       *ATT CHG                      *STOP FILM PROCESSING                             *EX JUMP /14 RTC 3 TIMES
EVENTS    .             *TAKE   1                *ATT CHG                                          *PITCH OFF-SUN
          .               *EX CHANGE SHUTTER SPEED      *TAKE   1                                         *EX READOUT PREP RTCS
          .                *EX JUMP /20 RTC 4 TIMES              *ATT CHG                                       *EX 2ND R/O OR ON RTC
          .                       *EX JUMP /51 RTC                     *TAKE   1                                        *STORE COMMA
          .                            *ATT CHG                                  *ATT CHG
TIME   MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
                                                                                                                *TX PHOTO SP
MISSION   .CE-2 BRIEF RISING DSS
CONTROL   .REDICTED DSS 62 RISE
EVENTS    .                                   *DSS HANDOVER PER ACE-2
          .                                                          *PREDICTED DSS 41 SET
          .                                                            *SEND SPC SEQ TO DSS
          .                                                              *FINAL COMD CONF--MAP 29
          .
TIME   MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
          .
FPAC      .
EVENTS    .
TIME   MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
.
. NOTES                                *FRAME/31                       *FRAME/33
.                                                     *FRAME/32                       *FRAME/34
.                      *FRAME/30                                *PERILUNE
.
.
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.
.
.
TIME   MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
          .
S/C 5     .
EVENTS    .
          .--------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149      TIME 00036                                                                           97.
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MISSN PHASE ORBITAL          ORBIT  24  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
            62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           .12
CAN OCC     .0000000000000000000000000000000000000000000000000000000000000000000000                       GGGGGGG
GMT     DAY.     140                         140                          140                          140
TIME    HRS.     20                          21                           22                           23
        MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
            .        *EX SOLAR ECLIPSE OFF                                                   *STOP FILM PROCESSING
            .                          *STOP READOUT                                                          *EX READOUT PREP
SPACECRAFT.                                    *PROC    1                                                    *EX 2ND R/O
EVENTS      .                                  *EX READOUT PREP RTCS
            .                                     *STOP FILM PROCESSING
            .                                       *LX 2ND R/O DR ON RTC
            .NDS                                                      *STOP READOUT
            .      *EX SOLAR ECLIPSE ON                                             *PROC    1
TIME    MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
            .C--MAP 29
MISSION     .
CONTROL     .                                                  *S/C STATUS MSG TO RISING DSS
EVENTS      .                                                                                            *ACE-2 BRIEF RISING DS
            .                                                                                                     *PREDIC
            .
            .
            .
TIME    MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
            .
FPAC        .
EVENTS      .
TIME    MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
. NOTES
.           PROBLEM:
.           READOUT STOP AT 15.59" OF R/O LOOPER CONTENT
.
.
.                          PROBLEM:
.                          READOUT STOPS AND RTC RESTARTS
.                           (LOST M109 AND M110 (20-4, 20-5) READOUT
.
.                                          DECISION:
.                                                CHANGE FLIGHT PLAN TO PROCESS 1 FRAME AND
.                                                READOUT 1 FRAME IN ATTEMPT TO AVOID THE
.                                                LOOPER HANGUP OF THE ENCODER "ELECTRICAL
.                                                FULL" SIGNAL.
.
TIME    MIN.---5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4-
S/C 5       .
EVENTS      .
            .
S/C 8       .
EVENTS      .
            .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 149     TIME00036                                                                           98
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MISSN PHASE ORBITAL           ORBIT  25  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
            62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM               M
            12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .
GMT   DAY.      141                         141                         141                         141
TIME  HRS.       0                           1                           2                           3
      MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
                 •EX COARSE S/S ON RTC Y+P                        •EX ROT ANT 1 DEG RT RTC 7 TIMES
           .TCS  •EX FINE S/S OFF RTC Y+P                               •PROC  1
SPACECRAFT.R ON RTC          •STOP READOUT                                •STOP FILM PROCESSING
EVENTS     .AKE  1               •EX READOUT PREP RTCS                          •EX READOUT PREP RTCS
           .•EX CANOPUS SENSOR ON •PROC  1                                           •EX 2ND R/O OR ON RTC
           .•START ORBIT               •STOP FILM PROCESSING                                             •STOP READOUT
           .    •EX CANOPUS SENSOR OFF •EX 2ND R/O OR ON RTC
           .      •EX PITCH MINUS X DEG RTC X=40.0°          •STOP READOUT
TIME  MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
                                                                                                          •PREDICTED DSS
MISSION    .
CONTROL    .
EVENTS     .ED DSS 12 RISE
           .                                    •DSS HANDOVER PER ACE-2
           .                                                •PRELIM COMD CONF--MAP 30
           .                                                  --PHOTO--
           .
TIME  MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
           .
FPAC       .
EVENTS     .
TIME  MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
 NOTES       •APOLUNE

             RAML 135 (FILM SET)

TIME  MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
S/C 5      .
EVENTS     .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 149    TIME00036                                                                              99
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MISSN PHASE ORBITAL ORBIT 25 PAGE 2

EARTH OCC

DSS VIEW 41

62

62

CAN OCC

GMT DAY 141 141 141 141

TIME HRS 4 5 6 7

MIN 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4

SPACECRAFT EVENTS

*EX CHANGE SHUTTER SPEED

*PROC 1

*STOP FILM PROCESSING

*ATT CHG

*TAKE 1

*ATT CHG

*TAKE 1

*ATT CHG

*TAKE 1

*ATT CHG

*TAKE 1

*REVERSE ATT

*PITCH OFF-SUN

*EX JUMP 117

*EX JUMP 176

*EX REACQU

*EX 2

TIME MIN 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4

MISSION CONTROL EVENTS

*SEND SPC SEQ TO DSS

*FINAL COMD CONF--MAP 30

*PREDICTED DSS 41 RISE

*S/C STATUS MSG TO RISI

62 SET

TIME MIN 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4

FPAC EVENTS

TIME MIN 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4

NOTES

*FRAME 136

*FRAME 137

*PERILUNE

*FRAME 138

*FRAME 139

*FRAME 140

TIME MIN 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 150 TIME00244

100.

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MISSN PHASE ORBITAL          ORBIT  25  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                      WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
         62
         12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY.      141                           141                           141                           141
TIME   HRS.       8                             9                             10                            11
       MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
           .                     *PROC   1                                      *STOP FILM PROCESSING
           .                       *STOP FILM PROCESSING                                  *EX READOUT PREP RTCS
SPACECRAFT.                        *EX READOUT PREP RTCS                                       *EX 2ND R/O DR ON RTC
EVENTS     .RTC                         *EX 2ND R/O DR ON RTC                                          *STOP READOUT
           . RTC                         *STORE COMMANDS                                                    *PROC   1
           .T PREP RTCS                                *EX JUMP DID RTC                                       *STOP FILM PROCESSING
           .NO R/O DR ON RTC                                    *STOP READOUT
           .                *STOP READOUT                                  *PROC   1
TIME   MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
                                                                                                    *PREDICTED DSS 12 SET
MISSION    .
CONTROL    .
EVENTS     .NO DSS
           .                     *ACE-2 BRIEF RISING DSS
           .                            *TX PHOTO SPC--MAP 30
           .                                                                *DSS HANDOVER PER ACE-2
           .
TIME   MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
FPAC       .
EVENTS     .
TIME   MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
.
. NOTES
.                                                                                  PROBLEM: READOUT PERIOD REQ'D 7 RESTARTS
.
.
.
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.
.
.
TIME   MIN.--5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
           .
S/C 5      .
EVENTS     .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 150      TIME00244                                                                             101.
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MISSN PHASE ORBITAL          ORBIT  26  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           62
           12
CAN OCC    .-------------------------------------------------------------------------------------------------------
GMT   DAY.     141                        141                        141                        141
TIME  HRS.      12                         13                         14                         15
      MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
          . *EX CANOPUS SENSOR OFF RTC            *STOP FILM PROCESSING
          .   *EX PITCH MINUS X DEG RTC X=40.0                            *EX ROT ANT 1 DEG RT RTC 5 TIMES
SPACECRAFT.    *EX COARSE S/S ON RTC Y+P                                                        *EX JUMP #17 RTC
EVENTS    .       *EX FINE S/S OFF RTC Y+P                                                      *PROC   1
          .           *EX READOUT PREP RTCS                                                      *EX JUMP #21 RTC
          .                 *EX 2ND R/O DR ON RTC                                                  *STOP FILM PROCESSING
          .EX CANOPUS SENSOR ON RTC*STOP READOUT
          .*START ORBIT                    *PROC   1
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
          .
MISSION   .                                                   *PRELIM COND CONF--MAP 31
CONTROL   .                                                      --PHOTO--
EVENTS    .
          .
          .
          .
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
          .
FPAC      .
EVENTS    .
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
. NOTES
.                                          PROBLEM:                                          PROBLEM:
.      *APOLUNE                            READOUT PERIOD REQ'D 24 RESTARTS                  READOUT PERIOD TERMINATED BY RTC AFTER 4
.                                                                                            RESTARTS WHEN DSS 41 REPORTED MOMENTARY
.                                                                                         LOSS OF VIDEO SIGNAL.
.
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.
.
.
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.           DAY 150     TIME00244
                                                                                                              102.
```

```
MISSN PHASE ORBITAL            ORBIT  26  PAGE 2
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         62                                      M                                      MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC    .-------------------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT   DAY.    141                           141                         141                         141
TIME  HRS.    16                            17                          18                          19
      MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
           .          *EX JUMP UIO RTC                          *TAKE   1                                     *EX FINE S/S OFF RTC Y+P
           .            *EX SOLAR ECLIPSE ON                            *ATT CHG                                          *STORE COMMANDS
SPACECRAFT.             *STOP FILM PROCESSING                                  *TAKE   1
EVENTS     .               *TAKE   1                                                    *ATT CHG
           .                               *ATT CHG                                           *TAKE   1
           .                                     *TAKE   1                                      *REVERSE ATT
           .         *ATT CHG                        *EX TELEMETER MEMORY LZ4                      *PITCH OFF-SUN
           .         *PROC   1                             *ATT CHG                                     *EX CCARSE S/S ON RTC Y+P
TIME   MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
           .                                                                          *FINAL COMD CONF--MAP 31
MISSION    .                                                                                *DSS HANDOVER PER ACE-2
CONTROL    .                                                                                        *PREDICTED DSS 41 SET
EVENTS     .        *S/C STATUS MSG TO RISING DSS                                                               *TX PHOTO SPC--M
           .                                   *PREDICTED DSS 62 RISE
           .                                                   *ACE-2 BRIEF RISING DSS
           .                                                                  *SEND SPC SEQ TO DSS
           .
TIME   MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
           .
FPAC       .
EVENTS     .
TIME   MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
. NOTES.               *FRAME                                          *PERILUNE
.                                         *FRAME                            *FRAME
.                                                           *FRAME                          *FRAME
.
.
.                      DECISION:
.                       APORTED PHOTO (26-1) TO EVALUATE THE S/C
.                       PROGRAMMER - PROVED O.K. - MISTAKE IN A JUMP
.                       MODIFY COMMAND IN EARLY MAP CAUSED THE FLIGHT
.                       PROBLEM.
.
.
.
.
.
TIME   MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4---
S/C 5      .
EVENTS     .
           .------------------------------------------------------------------------------------------------------------------
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN T.D.            DAY 150      TIME00244
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MISSN PHASE ORBITAL          ORBIT  26  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN OCC   .00000000000000000000000000000000000000000000000000000000000000000000-
GMT   DAY.    141                       141                       141                       141
TIME  HRS.     20                        21                        22                        23
      MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
          .                                                  *EX JUMP D/3 RTC                      *PRCC   1
          .                                                  *PROC    1                               *STOP FILM PROCESSI
SPACECRAFT.              *EX JUMP D/3 RTC                       *EX READOUT PREP RTCS                           *TAKE   1
EVENTS    .                *EX READOUT PREP RTCS                *STOP FILM PROCESSING
          .                 *PROC    1                               *EX 2ND R/O DR ON RTC
          .                   *STOP FILM PROCESSING                                              *STOP READOUT
          .                     *EX 2ND R/O DR ON RTC                                                  *EX THTA OFF RTC
          .                                                *STOP READOUT                                 *EX JUPP D/3 RTC
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
MISSION   .
CONTROL   .
EVENTS    .AP 3|
          .                                                                               *S/C STATUS MSG TO RISING DSS
          .
          .
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
FPAC      .
EVENTS    .
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
. NOTES.                                                                                                    *FRAME
.
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.
TIME  MIN.-5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4--
S/C 5     .
EVENTS    .
          .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 150     TIME00244
                                                                                                    104.
```

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MISSN PHASE ORBITAL          ORBIT  27  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           67MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM        M
           12                         GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .----------------------------------------------------------------------------------------------------------
GMT    DAY.  142                        142                        142                        142
TIME   HRS.   0                          1                          2                          3
       MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
          .        *EX COARSE S/S ON RTC Y+P        *PROC   1                         *STOP FILM PROCESSING
          .G        *EX FINE S/S OFF RTC Y+P          *STOP FILM PROCESSING                      *EX READOUT PREP RTCS
SPACECRAFT.          *EX JUMP 177 RTC                      *EX READOUT PREP RTCS                   *EX SOLAR ECLIPSE OFF
EVENTS    .*START ORBIT*EX JUMP 176 RTC                         *EX 2ND R/O DR ON RTC                   *EX 2ND R/O CR ON RTC
          .*EX CANOPUS SENSOR O*EX READOUT PREP RTCS                   *EX ROT ANT 1 DEG RT RTC 6 TIMES              *ST
          .  *EX TRIA ON RTC          *EX 2ND R/O DR ON RTC                         *STOP READOUT
          .    *EX CANOPUS SENSOR OFF RTC        *STOP READOUT                      *PROC   1
          .      *EX PITCH MINUS X DEG RTC X= 40.0°  *EX JUMP 013 RTC               *EX SOLAR ECLIPSE ON
TIME   MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
                                                          *PRELIM COMD CONF--MAP32
MISSION   .                                                  --PHOTO--
CONTROL   .                                                     *DSS HANDOVER PER ACE-2
EVENTS    .                                                                                                         *PR
          .
          .         *ACE-2 BRIEF RISING DSS
          .                      *PREDICTED DSS 12 RISE
          .
TIME   MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
FPAC      .
EVENTS    .
TIME   MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
.
. NOTES
.          *APOLUNE
.                          PROBLEM:                                            PROBLEM:
.                              READOUT TERMINATED AFTER 5 RESTARTS
.                                                                                 READOUT TERMINATED WHEN PROCESSING STARTED
.                                                                                 AUTOMATICALLY WITHOUT COMMAND AND R/O LOOPER
.                                                                                 EMPTIED - THIS INDICATED A R/O LOOPER ELECTRICALLY
.                                                                                 FULL SIGNAL GENERATED - THE RESULT WAS NORMAL FOR
.                                                                                 A LOOPER FULL CONDITION WITH SCANNER AT SPOT STOP.
.
.
TIME   MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 150     TIME00244                                                                     105.
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MISSN PHASE ORBITAL          ORBIT  27  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                                                            W
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .----------------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT   DAY.   142                           142                      *142                    142
TIME  HRS.    4                             5                         6                       7
      MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
          .                                          *ATT CHG                                   *TAKE   1
          .                                                *TAKE   1                                        *ATT CHG
SPACECRAFT.                                                  *PROC   1                                              *TAKE   1
EVENTS    .                                                    *STOP FILM PROCESSING                                 *REVERSE ATT
          .OP READOUT                                          *EX CHANGE SHUTTER SPEED                               *EX RCT ANT 1 DE
          .    *EX JUMP 011 RTC                                      *ATT CHG                                         *EX READCUT PRE
          .                            *ATT CHG                            *TAKE   1                                  *PITCH OFF-SUN
          .                                  *TAKE   1                                   *ATT CHG                          *EX 2ND R/
TIME  MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
MISSION   .
CONTROL   .
EVENTS    .EDICTED DSS 62 SLT
          .                                                                       *SEND SPC SEQ TO DSS
          .                                                                         *FINAL COMD CONF--MAP32
          .                                                                                                      *PREDICTED D
TIME  MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
EPAC      .
EVENTS    .
TIME  MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
.
. NOTES                                             *FRAME/49                          *FRAME/51
.                                                            *PERILUNE                                    *FRAME/52
.                                  *FRAME/48                      *FRAME/50
.
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.
.
TIME  MIN.5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----
          .
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 150      TIME00244
                                                                                                                   106.
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MISSN PHASE ORBITAL ORBIT 27 PAGE 3

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 142 142 142 142

TIME HRS. 8 9 10 11

MIN. 5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----

SPACECRAFT EVENTS

*STOP READOUT
*STORE COMMANDS
*PROC 1
*EX JUMP 017 RTC
*EX READOUT PREP RTCS
*STOP FILM PROCESSING
*EX 2ND R/O DR ON RTC
*STOP READOUT
*EX JUMP 017 RTC
*EX READOUT PREP RTCS
*EX 2ND R/O DR ON RTC
*STOP READOUT
*EX JUMP
*EX J
*E

.G RT RTC 5 TIMES

.P RTCS

.O DR ON RTC

TIME MIN. 5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----

MISSION CONTROL EVENTS

*S/C STATUS MSG TO RISING DSS
*TX PHOTO SPC--MAP 32
*ACE-2 BRIEF RISING DSS
*DSS HANDOVER PER ACE-2
*PREDICTED DSS 12

.SS 41 RISE

TIME MIN. 5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----

EPAC EVENTS

TIME MIN. 5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----

NOTES

PROBLEM:

READOUT #79 INTERRUPTED BY SPURIOUS PROCESSING OF 1" FILM.

TIME MIN. 5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 150 TIME00244

107.

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MISSN PHASE ORBITAL          ORBIT  20  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12
CAN OCC   .-----------------------------------------------------------------------------------------------------------------------------
GMT    DAY.  142                          142                          142                          142
TIME   HRS.   12                           13                           14                           15
       MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .*START ORBIT                        *EX CHANGE SHUTTER SPEED                                               *STOP READO
          .*EX CANOPUS SENSOR OFF RTC              *EX JUMP 0/7 RTC                                                       *EX RO
SPACECRAFT.  *EX PITCH MINUS X DEG RTC X=40.0°           *EX READOUT PREP RTCS
EVENTS    .    *EX COARSE S/S ON RTC Y+P                      *EX 2ND R/O DR ON RTC
          .ORBIC*EX FINE S/S OFF RTC Y+P                                           *STOP READOUT
          .MP142 *EX READOUT PREP RTCS                                                 *EX JUMP 0/7 RTC
          . CANOPUS SE*EX 2ND R/O DR ON RTC                                            *EX READOUT PREP RTCS
          .TAKE   1                       *STOP READOUT                                     *EX 2ND R/O DR ON RTC
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .
MISSION   .
CONTROL   .
EVENTS    .
          .SET
          .                                                          *PRELIM COMD CONF--MAP 33
          .                                                            --PHOTO--
          .
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

FPAC      .
EVENTS    .
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
.
. NOTES     *APOLUNE
.
.           FRAME 153 (FILM SET)
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.
.
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .
S/C 5     .
EVENTS    .
          .-----------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 150     TIME00244
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108.

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MISSN PHASE ORBITAL          ORBIT  28  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
         62
         12                                                                                          MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
CAN OCC   .-----------------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT   DAY.  142                              142                            142                           142
TIME  HRS.  16                               17                             18                            19
      MIN.-----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .UT                                               *ATT CHG                                                *EX READOUT PREP RTCS
          .T ANT 1 DEG RT RTC 8 TIMES                              *TAKE  1                                              *EX 2ND R/O DR ON
SPACECRAFT.     *ATT CHG                                                     *ATT CHG                                      *STORE COMMANDS
EVENTS    .          *TAKE   1                                                     *TAKE   1
          .               *EX JUMP 117 RTC 2 TIMES                                                 *ATT CHG
          .               *EX JUMP 176 RTC 2 TIMES                                                       *TAKE   1
          .                          *ATT CHG                                                              *REVERSE ATT
          .                                *TAKE   1                                                          *PITCH OFF-SUN
TIME  MIN.-----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .            *S/C STATUS MSG TO RISING DSS                                                                           *PR
MISSION   .                                                                   *ACE-2 BRIEF RISING DSS
CONTROL   .                                                                                 *SEND SPC SEQ TO DSS
EVENTS    .                                                                                  *PREDICTED DSS 62 RISE
          .                                                                                   *FINAL COMD CONF--MAP 33
          .                                                                                                       *DSS HANDOVER PER ACE-2
          .                                                                                                                *TX PHOTO SPC--M
          .
TIME  MIN.-----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .
FPAC      .
EVENTS    .
TIME  MIN.-----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
.
. NOTES                                                        *FRAME/56                     *FRAME/58
.                *FRAME/54                                                *PERILUNE
.                                     *FRAME/55                               *FRAME/57
.
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.
TIME  MIN.-----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
          .
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.        DAY 150     TIME00244
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109.

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MISSN PHASE ORBITAL          ORBIT  28  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           12
CAN OCC    .000000000000000000000000000000000000000000000000000000000000000000000---------------------------------------
GMT    DAY.  142                       142                       142                       142
TIME   HRS.   20                        21                        22                        23
       MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
           .              *PROC 1                               *PROC 1                          *STOP REACCUT *EX CA
           . RTC             *STOP FILM PROCESSING                *STOP FILM PROCESSING                          *TA
SPACECRAFT.                                                                                     *EX JUMP 0/3 RTC
EVENTS     .        *STOP READOUT                                                                    *PROC 1
           .         *EX JUMP 0/3 RTC                                                                 *STOP FILM
           .                                                   *EX JUMP 0/3 RTC                       *EX JUMP
           .                                                         *EX READOUT PREP RTCS            142 RTC
           .                                                            *EX 2ND R/O DR ON RTC          *
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
           .EDICTED DSS 41 SET
MISSION    .
CONTROL    .
EVENTS     .
           .
           .
           .AP 33
           .
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
           .
FPAC       .
EVENTS     .
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
.
. NOTES
.          PROBLEM:                                                                                             *FR
.                 R/O #04 INTERRUPTED BY PROCESSING, BUT COMPLETED
.                 AFTER USE OF NEW SPC FOR AUTOMATIC RECYCLE.
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.
TIME   MIN.----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5
           .
S/C 5      .
EVENTS     .
           .-----------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.         DAY 150      TIME 00244
                                                                                                          110.
```

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MISSN PHASE ORBITAL           ORBIT  29  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12                                                              GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .------------------------------------------------------------------------------------------------------------------------
GMT    DAY. 143                        143                        143                        143
TIME   HRS.  0                          1                          2                          3
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .  •EX READOUT PREP RTCS                     *<----•EX JUMP 013  RTC                                     •EX SOLAR E
          .PR•EX COARSE S/S ON RTC Y+P                               •EX READOUT PREP RTCS                           •EX READOU
SPACECRAFT.  •EX FINE S/S OFF RTC Y+P                                   •EX 2ND R/O DR ON RTC                          •EX 2
EVENTS    .NOPUS S•EX 2ND R/O DR ON RTC                                                  •STOP READOUT
          .E   1                             •STOP READOUT                               •PROC   1
          .X CANOPUS SENSOR OFF RTC                •EX ROT ANT 1 DEG BT RTC 4 TIMES          •EX SOLAR ECLIPSE ON
          .•EX PITCH MINUS X DEG RTC X=40.0              •PROC   1                           •STOP FILM PROCESSING
          .•START ORBIT                                   •STOP FILM PROCESSING                      •EX JUMP 011  RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .S/C STATUS MSG TO RISING DSS
MISSION   .                                  •ACE-2 BRIEF RISING DSS
CONTROL   .                                                     •PREDICTED DSS 12 RISE
EVENTS    .                                                       •PRELIM COMD CONF--MAP 34
          .                                                         --PHOTO--
          .                                                                              •DSS HANDOVER PER ACE-2
          .
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
  NOTES   ML 159 (FILM SET)
          •APOLUNE
```

PROBLEM:

READOUTS #83 THRU #93 WERE ALL ABORTED OR DID NOT START AT ALL FOR ENTIRE ORBITS #29 AND #30.

```
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.DJ          DAY 150      TIME00000                                                                              111.
```

MISSN PHASE ORBITAL ORBIT 29 PAGE 2

EARTH CGC

DSS VIEW 41

62 M

12

CAN OCC

GMT DAY. 143 143 143 143

TIME HRS. 4 5 6 7

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

SPACECRAFT EVENTS

- CLIPSE OFF
- T PREP RTCS
- ND R/O DR ON RTC
- STOP READOUT
- ATT CHG
- TAKE 1
- EX CHANGE SHUTTER SPEED
- ATT CHG
- TAKE 1
- ATT CHG
- TAKE 1
- PROC 1
- STOP FILM PROCESSING
- ATT CHG
- TAKE 1
- ATT CHG
- TAKE 1
- REVERSE ATT
- PITCH OFF-SUN
- EX ROT AN
- EX JU
- EX R
- EX J
- SEND SPC SEQ TO DSS
- FINAL COMD CONF--MAP 34

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

MISSION CONTROL EVENTS

- PREDICTED DSS 62 SET

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAO EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

- FRAME 160
- FRAME 161
- PERILUNE
- FRAME 162
- FRAME 163
- FRAME 164

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJDJ DAY 150 TIME00000

112.

MISSN PHASE ORBITAL ORBIT 29 PAGE 3

EARTH OCC

DSS VIEW 41 M

CAN OCC

GRI DAY. 143 143 143 143

TIME HRS. 8 9 10 11

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS

.UMP 176 RTC

.*EX 2ND R/O DR ON RTC

*EX JUMP 104 RTC

*PROC 2

*EX CANOPUS SENSO*EX JUMP 176 RTC

*EX SOLAR ECLIPSE ON *EX CANOPUS SENS*EX READOUT PREP RTCS

*STOP FILM PROCESSING *EX PITCH MINUS*EX TWTA ON RTC

*EX JUMP 013 R*EX SOLAR ECLIPSE OFF 400 *EX COARSE S/S *EX 2ND R/O DR ON RTC

*STOP READOUT *ATT CHG *EX FINE S/S OFF RTC Y+P *STORE COMMANDS

.T 1 DEG RT RTC 2 TIMES *EX SOLAR ECLIPSE U*TAKE 1 *EX JUMP 117 RTC

.PP 117 RTC *EX TWTA OFF RTC *REVERSE ATT *EX JUMP 176 RTC

.EADOUT PRLP RTCS *EX JUMP 017 RTC *PITCH OFF-SUN *EX JUMP 117 RTC

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

*PRE

MISSION CONTROL EVENTS

*PREDICTED DSS 41 RISE

*S/C STATUS MSG TO RISING DSS

*ACE-2 BRIEF RISING DSS

*TX PHOTO SPC—MA

*DSS HANDOVER PE

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAC EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

PROBLEM:

R/O #89 STOPPED AND PROCESSING STARTED. AUTOMATIC RESTART WAS SUCCESSFUL.

*FRAME 165

PROBLEM:

R/O #89 FAILED TO RECYCLE AND STOP PROCESSING - SOLAR ECLIPSE ON GIVEN TO SAFETY THE SYSTEM - LATER RESTART BY NORMAL MODE SUCCESSFUL.

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1JDJ DAY 150 TIME00000

113.

```
MISSN PHASE ORBITAL          ORBIT  30  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12
CAN OCC   .----------------------------------------------------------------------------------------------------------
GMT   DAY. 143                         143                         143                         143
TIMG  HRS.  12                          13                          14                          15
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                       *EX SOLAR ECLIPSE ON
                                       *STOP FILM PROCESSING
SPACECRAFT.                               *EX SOLAR ECLIPSE OFF
EVENTS    .                                   *EX SOLAR ECLIPSE ON
          .                                     *EX SOLAR ECLIPSE OFF
          .*START ORBIT                               *EX SOLAR ECLIPSE ON
                            *STOP READOUT             *EX CHANGE SHUTTER SPEED
                                     *PROC   1                                                          *EX JUMP
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .DICTED DSS 12 SET
MISSION   .                                                 *PRELIM COMD CONF--MAP 35
CONTROL   .                                                    --PHOTO--
EVENTS    .
          .P 34
          .R ACE-2
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAO      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
  NOTES   *APOLUNE                                                           DECISION:
                                                                              KEEP P/S IN SAFE CONDITION WITH "SOLAR ECLIPSE ON"
                                                                              EXCEPT FOR A 3.2-SECOND WAIT TIME AFTER PHOTOGRAPHY.
                                                                              PHOTOS (30-1) THRU (30-5) TAKEN IN "SECL-ON" MODE -
                                                                              PROCESSING OCCURRED DURING SHORT PERIODS OF "SECL-OFF"
                                                                              DURING PHOTOS.

                                                         PROBLEM:
                                                            DURING R/O #91 PROCESSING STARTED AND WOULD NOT
                                                            HALT UNLESS "SOLAR ECLIPSE ON"

TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.OJ         DAY 150      TIME00000                                                                            114.
```

MISSN PHASE ORBITAL ORBIT 30 PAGE 2

EARTH OCC

DSS VIEW

CAN OCC

GMT DAY. 143 143 143 143

TIME HRS. 16 17 18 19

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

SPACECRAFT EVENTS

- ATT CHG
- TAKE 1
- EX JUMP 117 RTC
- EX JUMP 176 RTC
- EX JUMP 151 RTC
- ATT CHG
- TAKE 1
- 011 RTC
- PROC 1
- EX SOLAR ECLIPSE ON
- STOP FILM PROCESSING
- EX CHANGE SHUTTER SPEED
- ATT CHG
- TAKE 1
- ATT CHG
- EX SOLAR ECLIPSE OFF
- TAKE 1
- ATT CHG
- TAKE 1
- REVERSE ATT
- EX JUMP 117 RTC
- PITCH OFF-SUN
- EX JUMP 176 RTC
- EX ROT ANT 1 DEG RT
- STO

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

- PREDICTED
- TX

MISSION CONTROL EVENTS

- S/C STATUS MSG TO RISING DSS
- SEND SPC SEQ TO DSS
- FINAL COMD CONF--MAP 35
- ACE-2 BRIEF

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAO EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

- FRAME 166
- FRAME 167
- FRAME 168
- PERILUNE
- FRAME 169
- FRAME 170

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1JBJ DAY 150 TIME00000

115.

```
MISSN PHASE CRBITAL          ORBIT  30  PAGE 3
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWW
         62   MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN CCC   .00000000000000000000000000000000000000000000000000000000000000000--------------------------------------------------
GMT    DAY. 143                              143                        143                        143
TIME   HRS.  20                               21                         22                         23
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                              •EX SOLAR ECLIPSE OFF
          .                                               •EX SOLAR ECLIPSE ON
SPACECRAFT.                                                                  •PROC   1
EVENTS    .                                                                    •STOP FILM PROCESSING
          .                                                                          •EX SOLAR ECLIPSE OFF
          .RTC 6 TIMES
          .RL COMMANDS
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .DSS 62 RISE
MISSION   .PHOTO SPC--MAP35
CONTROL   .            •DSS HANDOVER PER ACE-2
EVENTS    .                       •PREDICTED DSS 41 SET
          .
          . RISING DSS
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAQ      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES
.                                                PROBLEM:   UPON RELEASE OF "SECL-OFF" PROCESSING STARTED AUTO-
.                                                           MATICALLY - SECURED WITH "SECL-ON".
.
.
.
.
.
.
.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ         DAY 150      TIME00000
                                                                                                                        116.
```

```
MISSN PHASE ORBITAL          ORBIT  31  PAGE 1
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN OCC   .                                                                          GGGGGGGGGGGGGGGGGGGG
GMT    DAY. 144                144                    144                   144
TIME   HRS.   0                  1                      2                     3
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                        •EX TWTA OFF RTC            •EX CANOPUS SENSOR ON RTC                  •SOL.ECLPS.ON
          .                         •EX JUMP O/7 RTG            •EX TWTA ON RTC                           •SOL.ECLPS.OFF
SPACECRAFT.                         •PROC   1                    •EX CANOPUS SENSOR OFF RTC
EVENTS    .                           •STOP FILM PROCESSING       •EX PITCH MINUS X DEG RTC X=40.0°
          .                              •ATT CHG                  •EX COARSE S/S ON RTC Y+P
          .•START ORBIT                      •TAKE   1              •EX FINE S/S OFF RTC Y+P      •PROC   4
          .      •PROC   1                    •REVERSE ATT
          .        •STOP FILM PROCESSING        •PITCH OFF-SUN
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                                                    •ACE-2 BRIEF RISING DSS
MISSION   .                                                                             •PREDICTED DSS 12 RIS
CONTROL   .
EVENTS    .
          .                             •S/C STATUS MSG TO RISING DSS
          .                                        •PRELIM COND CONF--MAP 36
          .                                          --PHOTO--
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAG      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.  NOTES
.        •APOLUNE
.                                         •FRAME 171
.
.                                                    PROBLEM:   APOLUNE PHOTO #31-8 (FRAME 171) MISSED BECAUSE OF
.                                                               IMPROPER COT IN PROGRAMMER-ERROR IN MAP 39 PREPARATION.
.
.
.
.
.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ        DAY 150     TIME00000
                                                                                                  117.
```

MISSN PHASE ORBITAL ORBIT 31 PAGE 2

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 144 144 144 144

TIME HRS. 4 5 6 7

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

SPACECRAFT EVENTS

- *STOP FILM PROCESSING
- *EX ROT ANT 1 DEG RT RTC 7 TIMES
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *EX CHANGE SHUTTER SPEED
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *ATT CHG
- *TAKE 1
- *REVERSE ATT
- *PITCH OFF-SUN
- *PROC

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

MISSION CONTROL EVENTS

- *DSS HANDOVER PER ACE-2
- *PREDICTED DSS 62 SET
- *SEND SPC SEQ TO DSS
- *FINAL CUMD CONF--MAP36

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAC EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

- *FRAME 172
- *FRAME 173
- *PERILUNE
- *FRAME 174
- *FRAME 175
- *FRAME 176

DECISION:

PERFORM TEST TO EMPTY THE FILM OUT OF CAMERA STORAGE LOWER BY PROCESSING ALL EXPOSED FILM TO EXHIBIT FURTHER PROCESSING DURING READOUT - SUCCESSFUL.

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 150 TIME02242

118.

MISSN PHASE ORBITAL ORBIT 31 PAGE 3

EARTH OCC

DSS VIEW 41 W

62

12

CAN OCC

GMT DAY. 144 144 144 144

TIME HRS. 8 9 10 11

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS

- 5
- •STOP FILM PROCESSING
- •EX READOUT PRLP RTCS
- •EX 2ND R/O DR ON RTC
- •STOP READOUT
- •ATT CHG
- •TAKE 1
- •REVERSE ATT
- •PITCH OFF-SUN
- •EX CANOPUS SENSOR ON RTC
- •EX CANOPUS SENSOR OFF RTC
- •EX PITCH MINUS X DEG RTC X= 40.0°
- •EX COARSE S/S ON RTC Y+P
- •EX FINE S/S OFF RTC Y+P
- •STORE COMMANDS
- •EX ROT AHT 1 DE
- •E

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

MISSION CONTROL EVENTS

- •TX PHOTO SPC—MAP 34
- •DSS HANDOVER
- •S/C STATUS MSG TO RISING DSS
- •PREDICTED DSS 41 RISE
- •ACE-2 BRIEF RISING DSS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAO EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

- •FRAME 177

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN IIDJ DAY 150 TIME02242

119.

```
MISSN PHASE ORBITAL            ORBIT  32  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12GGGGGGGGGGGGGGGGG
CAN OCC   .------------------------------------------------------------------------------------------------------------------------
GMT    DAY. 144                         144                         144                         144
TIME   HRS.  12                          13                          14                          15
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .G RT RTC 5 TIMES                                          •EX THTA ON RTC      •STOP FILM PROCESSING
          .X TELEMETER MEMORY 852                              90.0° •EX CANOPUS SENSOR O•EX CHANGE SHUTTER SPEED
SPACECRAFT.•START ORBIT                                            →•EX PITCH MINUS X DEG RT•EX READOUT PREP RTCS
EVENTS    .                                   •ATT CHG           •EX JUMP 177 RTC          •EX 2ND R/O DR ON RTC
          .                                       •TAKE   1       •EX JUMP 176 RTC                                      •STO
          .                                         •REVERSE ATT •EX COARSE S/S ON RTC Y+P
          .                                           •PITCH OFF--•EX FINE S/S OFF RTC Y+P
          .                                           •LX CANOPUS SENSOR•PROC   2
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION   . PER ACE-2
CONTROL   .               •PREDICTED DSS 12 SET
EVENTS    .                                                    •PRELIM COMD CONF--MAP 37
          .                                                        --PHOTO--
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAQ      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES   •APOLUNE
                                            •FRAME 178

                                         OBTAINED PHOTO FRAME #178 NEAR APOLUNE
                                         TO RECOVER MISSED #171.

TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150     TIME02242                                                                                 120.
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MISSN PHASE ORBITAL          ORBIT  32  PAGE 2
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12
CAN CCC   .--------------------------------00000000000000000000000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY. 144                          144                          144                          144
TIME  HRS.  16                           17                           18                           19
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                  •EX JUMP 117 RTC 2 TIMES                 •TAKE   1                          •EX FINE S/S OFF RTC Y+P
          .                   •EX JUMP 176 RTC 2 TIMES                           •ATT CHG                    •PROC  5
SPACECRAFT.                         •ATT CHG                                          •TAKE   1              •STORE COMMANDS
EVENTS    .                               •TAKE   1                                    •REVERSE ATT               •STOP FILM PRO
          .P READOUT                                •ATT CHG                            •EX JUMP 117 RTC
          .     •ATT CHG                                     •TAKE   1                  •PITCH OFF-SUN
          .           •TAKE   1                               •EX CHANGE SHUTTER SPEED   •EX JUMP 176 RTC
          .             •EX CHANGE SHUTTER SPEED                    •ATT CHG                •EX COARSE S/S ON RTC Y+P
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                                                              •S/C STATUS MSG TO RISING DSS
MISSION   .                                                                                       •TX PHOTO SPC--MAP37
CONTROL   .
EVENTS    .
          .
          .                                                                     •SEND SPC SEQ TO DSS
          .                                                                       •FINAL COMD CONF--MAP37
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAO      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES                                   •FRAME 180                          •FRAME 182
.                                                       •FRAME 181                               •FRAME 183
.                •FRAME 179                                           •PERILUNE
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.
.
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .-------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D2         DAY 150     TIME02242                                                                                    121.
```

```
MISSN PHASE ORBITAL          ORBIT  32  PAGE 3
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW W
         62                       MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO-------------------------------------------------
GMT   DAY. 144                 144                      144                      144
TIME  HRS.  20                  21                       22                       23
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                               •EX READOUT PREP RTCS
          .                                                   •EX 2ND R/O DR ON RTC
SPACECRAFT.
EVENTS    .CESSING
          . •EX READOUT PREP RTCS
          .     •EX 2ND R/O DR ON RTC
          .                             •STOP READOUT
          .                                     •EX ROT ANT 1 DEG RT RTC 4 TIMES
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION   .
CONTROL   .          •ACE-2 BRIEF RISING DSS
EVENTS    .                      •PREDICTED DSS 62 RISE
          .                                 •DSS HANDOVER PER ACE-2
          .                                            •PREDICTED DSS 41 SET
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAQ      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 .
 . NOTES
 .
 .
 .
 .
 .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ        DAY 150     TIME02242                                                                              122.
```

```
MISSN PHASE ORBITAL           ORBIT  33  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN OCC   .-------------------------------------------------------------------------------------------------------------
GMT    DAY. 145                          145                          145                          145
TIME   HRS.  0                            1                            2                            3
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                                    . •EX CANOPUS SENSOR ON RTC
          .                                                        •EX CANOPUS SENSOR OFF RTC
SPACECRAFT.STOP READOUT                                                •EX COARSE S/S ON RTC Y+P
EVENTS    .•START ORBIT                                                  •EX FINE S/S OFF RTC Y+P
          .                                        •ATT CHG                  •PROC   2
          .                                              •TAKE   2            . •STOP FILM PROCESSING
          .                                                •REVERSE ATT                 •EX READOUT PREP RTCS
          .                                                  •PITCH OFF-SUN                  •EX 2ND R/O DR ON RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                                           --PHOTO--
MISSION   .                                                                            •S/C STATUS MSG TO RISING DSS
CONTROL   .
EVENTS    .
          .
          .
          .                                                         •PRELIM COMD CONF--MAP38
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAO      .
EVENTS    .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 .
 . NOTES                                                •FRAMES 184,188
 .
 .        •APOLUNE
 .
 .
 .
 .
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 .
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 .
 .
 .
 .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .-------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1303         DAY 150      TIME02242                                                                          /43.
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MISSN PHASE ORBITAL          ORBIT  33  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           12                  GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC     .------------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY. 145                      145                          145                          145
TIME   HRS.  4                        5                            6                            7
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .            •STOP READOUT                                      •ATT CHG                                        •PITCH OFF-SUN
            .                                 •ATT CHG                            •TAKE   1                                   •PROC   5
            .                                      •TAKE   1                            •EX CHANGE SHUTTER SPEED                  •EX ROT AN
SPACECRAFT. .                                              •EX CHANGE SHUTTER SPEED       •ATT CHG                                  •EX JU
EVENTS      .                                              •ATT CHG                             •TAKE   1                           •EX J
            .                                                •EX COARSE S/S ON RTC Y+P                        •ATT CHG
            .                                                •EX FINE S/S OFF RTC Y+P                              •TAKE   1
            .                                                    •TAKE   1                                           •REVERSE ATT
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .                                                                        •FINAL COMD CONF--MAP38
MISSION     .
CONTROL     .  •ACE-2 BRIEF RISING DSS
EVENTS      .               •PREDICTED DSS 12 RISE
            .                                  •DSS HANDOVER PER ACE-2
            .                                                      •PREDICTED DSS 62 SET
            .                                                                •SEND SPC SEQ TO DSS
            .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC        .
EVENTS      .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.                                                           •PERILUNE                                    •FRAME 190
. NOTES                                •FRAME 186                •FRAME 188
                                                     •FRAME 187                      •FRAME 189
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.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
            .
S/C 5       .
EVENTS      .
            .
S/C 8       .
EVENTS      .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150     TIME02242                                                                              124.
```

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MISSN PHASE ORBITAL            ORBIT  33  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                                                                        W
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN CCC   .OCCCOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOCOCOCOCO------------------------------------------------
GMT   DAY. 145                    145                      145                    145
TIME  HRS.  8                      9                        10                     11
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
                                                 •STOP READOUT                •EX COARSE S/S ON RTC Y+P
                                                      •ATT CHG                 •EX FINE S/S OFF RTC Y+P
SPACECRAFT.T 1 DEG RT RTC 5 TIMES                          •TAKE   2                •EX JUMP 010 RTC
EVENTS    .PP 117 RTC                                       •REVERSE ATT                •EX JUMP 117 RTC
          .UPP 176 RTC                                        •PITCH OFF-SUN            •EX JUMP 176 RTC
          .•STOP FILM PROCESSING                                •EX CANOPUS SENSOR•STORE COMMANDS
          .•EX READOUT PREP RTCS                                  •EX CANOPUS SENSOR OFF RTC
          .     •EX 2ND R/O OR ON RTC                                •EX PITCH MINUS X DEG RTC X=40.0°
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION   .                                                      •S/C STATUS MSG TO RISING DSS
CONTROL   .                                                            •PREDICTED DSS 41 RISE
EVENTS    .                                                                   •TX PHOTO SPC—MAP 38
          .                                                                                             •ACE-2 BRIEF
          .
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAO      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
.                                                      •FRAMES 191,192
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.
.
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1:DJ          DAY 150      TIME02242                                                                      125.
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MISSN PHASE ORBITAL          ORBIT  34  PAGE 1
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41   HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         62
         12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN CCC  .
GMT     DAY. 145                     145                     145                     145
TIME    HRS.  12                      13                      14                      15
        MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
             .        •STOP FILM PROCESSING
             .                 •EX READOUT PREP RTCS
SPACECRAFT.                        •EX 2ND R/O DR ON RTC
EVENTS       .                                                                    •STOP READOUT
             .                                                                                               •EX ROT ANT

             .•START ORBIT
             . •PRCC   2
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
             .                                                                      •PRELIM COMD CONF--MAP 31
MISSION      .                                                                          --PHOTO--
CONTROL      .
EVENTS       .
             . RISING DSS
             .                •DSS HANDOVER PER ACE-2
             .                                  •PREDICTED DSS 12 SET
             .
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAQ         .
EVENTS       .
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 .
 . NOTES
 .
 .          •APOLUNE
 .
 .
 .
 .
 .
 .
 .
 .
 .
 .
 .
 .
TIME    MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
             .
S/C 5        .
EVENTS       .
             .
             .
S/C 8        .
EVENTS       .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 150      TIME02242                                                                                  126.
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MISSN PHASE ORBITAL          ORBIT  34  PAGE 2
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW. 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
          62
          12
CAN CCC    .----4-----------------4-------------00000000000000000000000000000000000000000000000000000000000000000000000000
GMT    DAY. 145                             145                          145                         145
TIME   HRS.  16                              17                           18                          19
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                                •TAKE    1                                         •REVERSE ATT
           .                                           •ATT CHG                                   •PITCH OFF-SUN
SPACECRAFT.                                                •TAKE    1                                 •EX CHANGE SHUTTER SPEED
EVENTS     .                                                 •EX CHANGE SHUTTER SPEED                     •EX SOLAR ECLIPSE OFF
           .  1 DEG RT RTC 4 TIMES                                   •ATT CHG                             •PROC    5
           .           •ATT CHG                                           •TAKE    1                                    •STOP FILM PR
           .                •TAKE    1                                              •ATT CHG                                  •EX REA
           .                                •ATT CHG                                      •TAKE    1                              •E
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
MISSION    .                                                                                    •SEND SPC SEQ TO DSS
CONTROL    .                                                                                      •FINAL COMD CONF--MAP39
EVENTS     .
           .
           .
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAC       .
EVENTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 .
 . NOTES               •FRAME 193                                                 •PERILUNE
 .                                     •FRAME 194                                     •FRAME 196
 .                                                     •FRAME 195                                •FRAME 197
 .
 .                         RADIATION LEVEL IN CAMERA LOOPER RECORDS 52.5 RADS
 .                         FROM SOLAR FLARE SEVERAL HOURS PRIOR - RATE NOW
 .                         DECREASED TO 0.1 RAD PER HOUR.
 .
 .
 .                                          DECISION:
 .                                                PROCESS ALL PHOTOS TAKEN TO ALLOW CONTINUATION OF R/O
 .                                                BECAUSE FINAL R/O IS COMMITTED BY LOSS OF R/O OF SOME
 .                                                EARLIER PHOTOS.
 .
 .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .-----------------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1JDJ           DAY 150      TIME02242                                                                              127.
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MISSN PHASE ORBITAL          ORBIT  34  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
         62
         12                                                                         MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
CAN OCC    .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT    DAY. 145                        145                          145                          145
TIME   HRS.  20                         21                           22                           23
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .                                     •STOP READOUT
SPACECRAFT.                                          •STORE COMMANDS
EVENTS     .                                                                          •EX READOUT PREP RTCS
           .                                                                              •EX 2ND R/D DR ON RTC
           .OCESSING
           .DOUT PREP RTCS
           .X 2ND R/D DR ON RTC
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION    .                                                          •PREDICTED DSS 62 RISE
CONTROL    .                                                                      •DSS HANDOVER PER ACE-2
EVENTS     .                                                                              •PREDICTED DSS 41 SET
           .•S/G STATUS MSG TO RISING DSS
           .                                          •ACE-2 BRIEF RISING DSS
           .                                          •TX PHOTO SPC--MAP 39
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAG       .
EVENTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
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.
.
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150      TIME02242
```

128.

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MISSN PHASE ORBITAL          ORBIT  35  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN CCC   .------------------------------------------------------------------------------------------------------------------------
GMT    DAY. 146                         146                        146                        146
TIMG   HRS.  0                           1                          2                          3
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .                                               •REVERSE ATT     •EX COARSE S/S ON RTC Y+P
          .                                                 •PITCH OFF-SUN    •EX FINE S/S OFF RTC Y+P
SPACECRAFT.                                                        •EX SOLAR ECLIPSE OFF   •EX READOUT PREP RTCS
EVENTS    .                                                        •PROC    2                   •EX 2ND R/O DR ON RTC
          .•START ORBIT                                             •EX CANOPUS SENSOR ON RTC
          .          •STOP READOUT                                   •EX CANOPUS SENSOR OFF RTC
          .                                      •ATT CHG               •STOP FILM PROCESSING
          .                                           •TAKE    2        •EX PITCH MINUS X DEG RTC X= 40.0°
TIMG   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
MISSION   .
CONTROL   .
EVENTS    .                                                     •PRELIM COMD CONF--MAP40
          .                                                        --PHOTO--
          .                                                                                                       •S/C STAT
          .
          .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAC      .
EVENTS    .
TIMG   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 NOTES     •APOLUNE
                                                      •FRAMES 198, 199
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .----------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1303          DAY 150      TIME02242                                                                                   139.
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MISSN PHASE ORBITAL ORBIT 35 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY 146 146 146 146

TIME HRS. 4 5 6 7

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

SPACECRAFT EVENTS

- *EX SOLAR ECLIPSE OFF
- *ATT CHG
- *EX ROT ANT 1 DEG RT RTC 3 TIMES
- *TAKE 1
- *REVERSE ATT
- *EX CHANGE SHUTTER SPEED
- *EX SOLAR ECL
- *PITCH OFF-SUN
- *EX JUMP 013
- *EX JUMP 117 RTC
- *STOP READOUT
- *EX JUMP 176 RTC
- *EX JUMP 110 RTC
- *ATT CHG
- *PROC 2
- *TAKE 1
- *STOP FILM PROCESSING
- *EX CHANGE SHUTTER SPEED

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

MISSION CONTROL EVENTS

- *PREDICTED DSS 12 RISE
- *DSS HANDOVER PER ACE-2
- *SEND SPC SEQ TO DSS
- *FINAL COMD CONF--MAP40
- *PREDICTED DSS 62 SET
- *US MSG TO RISING DSS
- *ACE-2 BRIEF RISING DSS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAO EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

- *PERILUNE
- *FRAME 201
- *FRAME 200

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1JDJ DAY 150 TIME02242

130.

MISSN PHASE ORBITAL ORBIT 35 PAGE 3

EARTH GCC

DSS VIEW 41

CAN GCC

GMT DAY. 146 146 146 146

TIME HRS. 8 9 10 11

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

*EX SOLAR ECLIPSE OFF *TWTA OFF *ATT. CHG *EX JUMP 117 RTC *EX FINE S/S OFF RTC Y+P

*EX JUMP 011 RTC *TAKE 2 *TWTA ON

SPACECRAFT EVENTS: TPSE ON *REVERSE ATT *EX CANOPUS SENSOR ON

*PITCH OFF-SUN *EX CANOPUS SENSOR OFF

RTC *EX CHANGE SHUTTER SPEED *STORE COMMANDS

*EX COARSE S/S ON RTC Y+P

*EX SOLAR ECLIPSE ON *EX JUMP 176 RTC

*EX PITCH MINUS X DEG RTC X= 44.0°

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

*PREDICTED DSS 41

MISSION CONTROL EVENTS

*S/C STATUS MSG TO RISING DSS

*TX PHOTO SPC--MAP 40

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAO EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

*FRAMES 202, 203

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJDJ DAY 150 TIME02242

131.

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MISSN PHASE ORBITAL          ORBIT  36  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41 ..................HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .---------------------------------------------------------------------------------------------------
GMT    DAY. 146                        146                        146                        146
TIMG   HRS.  12                         13                         14                         15
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .  *EX SOLAR ECLIPSE OFF    *EX CHANGE SHUTTER SPEED                                        *EX INHIBIT P/S HEATERS
           .      *EX SOLAR ECLIPSE ON                                                                      *EX SOLAR
SPACECRAFT.             *EX JUMP 010 RTC                                                                     *EX SOLAR
EVENTS     .                                                                                                    *EX
           .
           .*START ORBIT
           .   *PROC   1
           .      *STOP FILM PROCESSING
TIMG   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           . RISE
MISSION    .   *ACL-2 BRIEF RISING DSS
CONTROL    .                                           *DSS HANDOVER PER ACE-2
EVENTS     .                                                              *PREDICTED DSS 12 SET
           .
           .
           .
TIMB   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
FPAG       .
EVENTS     .
TIMB   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
 .
 . NOTES    *APOLUNE
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 .
TIMB   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .---------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 150      TIME02242                                                                        132.
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MISSN PHASE ORBITAL ORBIT 36 PAGE 2

EARTH OCC

DSS VIEW

CAN CCC

GMT DAY. 146 146 146 146

TIME HRS. 16 17 18 19

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

*EXECUTE CUT BIMAT

*EX JUMP 165 MTC

SPACECRAFT EVENTS

ECLIPSE OFF

ECLIPSE ON

REL P/B INHIBIT

*BX PITCH PLUS X DEG MTC X = 5.0°

*EX SOLAR ECLIPSE OFF

*EX SOLAR ECLIPSE ON

*EX JUMP 040 MTC

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

MISSION CONTROL EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAG EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

*PERILUNE

PROBLEM:

ATTEMPTED R/O - OBTAINED 2 FRAMELETS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1JDJ DAY 150 TIME02242

/33.

MISSN PHASE ORBITAL ORBIT 36 PAGE 3

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 146 146 146 146

TIME HRS. 20 21 22 23

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

MISSION CONTROL EVENTS

•DSS HANDOVER PER •PRED

•S/C STATUS MSG TO RISING DSS

•ACE-2 BRIEF RISING DSS

•PREDICTED DSS 62 RISE

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAO EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

INITIATED "INCH-WORM" SEQ. TO MOVE FILM FROM R/O LOOPER TO THE TAKE-UP LOOPER AND THEN R/O BY SMALL INCREMENTS - IN ATTEMPT TO RECOVER DATA STORED IN THE R/O LOOPER (FRAME 103)

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1J0J DAY 150 TIME02242

134.

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MISSN PHASE ORBITAL          ORBIT  37  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
           12
CAN OCC    .-------------------------------------------------------------------------------------------------------------
GMT    DAY. 147                         147                      147                      147
TIME   HRS.  0                            1                        2                        3
       MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
           .*START ORBIT
SPACECRAFT.
EVENTS     .
           .
           .
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .ACE-2
MISSION    .ICTED DSS 41 SET
CONTROL    .
EVENTS     .
           .
           .
           .
           .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAC       .
EVENTS     .
TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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 . NOTES
 .
 .          *APOLUNE
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TIME   MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
           .
S/C 5      .
EVENTS     .
           .-------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJOJ           DAY 150     TIME02242
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135.

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MISSN PHASE ORBITAL          ORBIT  37  PAGE 2
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12                                                                                   GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN CCC  .---------------------------------000000000000000000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY. 147                          147                          147                          147
TIME  HRS.  4                            5                            6                            7
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
SPACECRAFT.
EVENTS    .
          .

TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION   .
CONTROL   .              *S/C STATUS MSG TO RISING DSS
EVENTS    .                                                    *ACE-2 BRIEF RISING DSS
          .                                                                 *PREDICTED DSS 12 RISE
          .                                                                              *DSS HANDOVER PER ACE-2
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAQ      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
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. NOTES                                                       *PERILUNE
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TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1JDJ             DAY 150      TIME02242
```

136.

MISSN PHASE ORBITAL ORBIT 37 PAGE 3

EARTH OCC

DSS VIEW 41

62

120

CAN OCC

GMT DAY. 147 147 147 147

TIME HRS. 8 9 10 11

MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

SPACECRAFT EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

MISSION CONTROL EVENTS

*PREDICTED DSS 62 SET

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

FPAO EVENTS

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

NOTES

TIME MIN. ---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-

S/C 5 EVENTS

S/C 8 EVENTS

RUN END. DAY 150 TIME02242

/37.

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MISSN PHASE ORBITAL          ORBIT  30  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41            W                                           WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .------------------------------------------------------------------------------------------------
GMT   DAY. 147                     147                     147                     147
TIME  HRS.  12                      13                      14                      15
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
SPACECRAFT.*START ORBIT
EVENTS    .
          .
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .  *S/C STATUS MSG TO RISING DSS
MISSION   .           *PREDICTED DSS 41 RISE
CONTROL   .                                            *ACE-2 BRIEF RISING DSS
EVENTS    .                                                                        *DSS HANDOVER PER ACE-2
          .                                                                                              *PREDICTED DSS
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
FPAG      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
. NOTES
.          *APOLUNE
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TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1303          DAY 150      TIME02242
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/38

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MISSN PHASE ORBITAL          ORBIT  38  PAGE 2
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
         62
         12
CAN OCC   .-------------------------------00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
GMT   DAY. 147                         147                         147                         147
TIME  HRS.  16                          17                          18                          19
      MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
          .
          .
SPACECRAFT.
EVENTS    .
          .
          .
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
MISSION   .
CONTROL   .
EVENTS    .
          . 12 SET
          .
          .
          .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
FPAO      .
EVENTS    .
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
.
. NOTES
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.                                                           *PERILUNE
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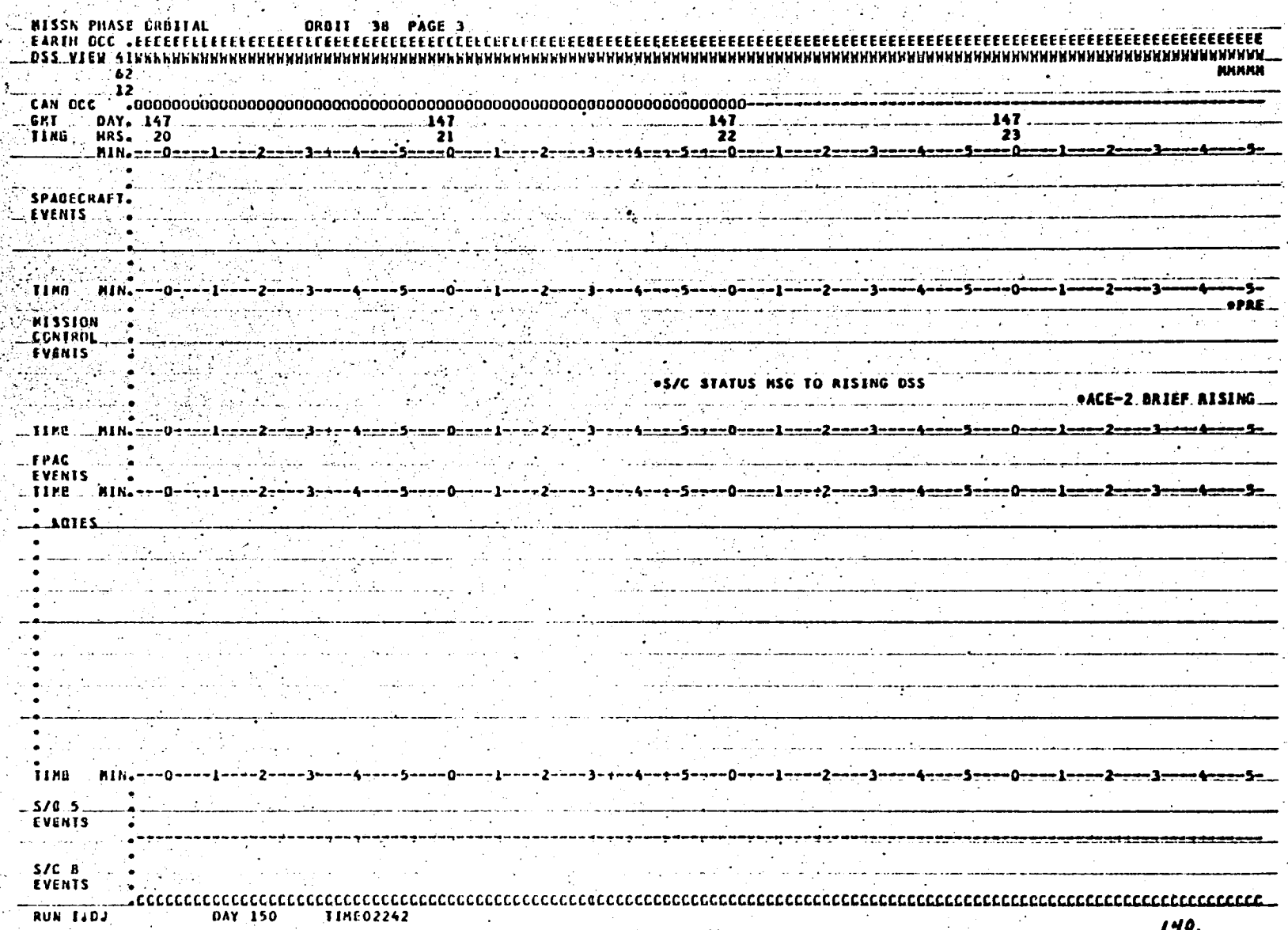
.
TIME  MIN.---0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5-
S/C 5     .
EVENTS    .
          .-------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ            DAY 150     TIME02242
```

139.


MISSN PHASE ORBITAL ORBIT 38 PAGE 3
EARTH OCC
DSS VIEW
62
12
CAN OCC
GMT DAY. 147 147 147 147
TIME HRS. 20 21 22 23
MIN.
SPACECRAFT EVENTS
TIME MIN.
•PRE
MISSION CONTROL EVENTS
•S/C STATUS MSG TO RISING DSS
•ACE-2 BRIEF RISING
TIME MIN.
FPAC EVENTS
TIME MIN.
NOTES
TIME MIN.
S/C 5 EVENTS
S/C B EVENTS
RUN ADJ DAY 150 TIME02242

140.

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MISSN PHASE ORBITAL          ORBIT  39  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHH
         62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
         12
CAN OCC   .
GMT    DAY.148                148                    148                    148
TIME   HRS.  0                  1                      2                      3
       MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

SPACECRAFT.
EVENTS    .*START ORBIT

TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
          .ICTED DSS 62 RISE
MISSION   .        *DSS HANDOVER PER ACE-2
CONTROL   .                            *PREDICTED DSS 41 SET
EVENTS    .

          .SS
TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

FPAG      .
EVENTS    .
TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
  NOTES   .*APOLUNE

TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
S/C 5     .
EVENTS    .

S/C 8     .
EVENTS    .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1.DJ          DAY 150      TIME02242                                                                     141.
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MISSN PHASE ORBITAL ORBIT 39 PAGE 2

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY 148 148 148 148

TIME HRS. 4 5 6 7

MIN. --0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

SPACECRAFT EVENTS

TIME MIN. --0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

•ACE-2 BRIEF RISING DSS

•PREDICTED DSS 12 RISE

•DSS

TIME MIN. --0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

FPAO EVENTS

TIME MIN. --0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

NOTES

•PERILUNE

TIME MIN. --0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.DJ DAY 150 TIME02242

142.

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MISSION PHASE ORBITAL          ORBIT  39  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMM                        M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO-----------------------------------------------
GMT    DAY.148                          148                          148                          148
TIME   HRS.  8                            9.                          10                           11
       MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
          .
SPACECRAFT.
EVENTS    .
          .
          .
TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
          .                              *PREDICTED DSS 62 SET
MISSION   .
CONTROL   .
EVENTS    .
          .
          . HANDOVER PER ACE-2
          .
TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
          .
FPAG      .
EVENTS    .
TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
. NOTES
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TIME   MIN.--0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5--
S/C 5     .
EVENTS    .
          .--------------------------------------------------------------------------------------------------------------------
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1303          DAY 150      TIME02242
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143.

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MISSN PHASE ORBITAL          ORBIT 40  PAGE 1
EARTH CCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41                          W
          62
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN GCC   .
GMT    DAY.48                 148                        148                        148                        1
TIME   HRS.12                  13                         14                         15
       MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
          .
SPACECRAFT.
EVENTS    .
          .*START ORBIT
          .
          .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
MISSION   .
CONTROL   .                            *PREDICTED DSS 41 RISE
EVENTS    .                                                *S/C STATUS MSG TO RISING DSS
          .                                                                                                  *ACE-2 BRIEF R
          .
          .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
ERAG      .
EVENTS    .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
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TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150     TIME02242
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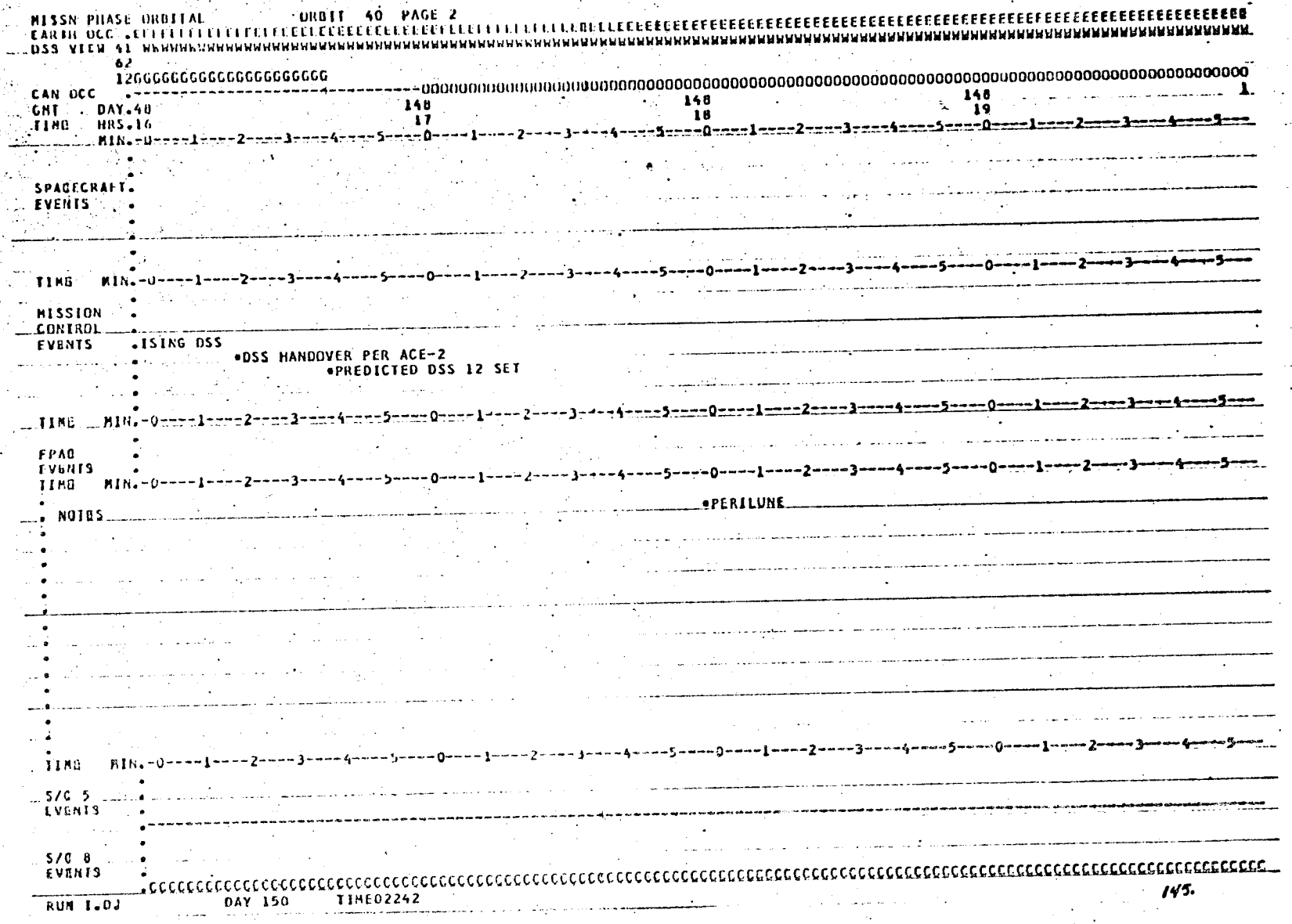
144.


MISSN PHASE ORBITAL ORBIT 40 PAGE 2
EARTH OCC
DSS VIEW 41
CAN OCC
GMT DAY.40
TIME HRS.16
MIN.
SPACECRAFT EVENTS
TIME MIN.
MISSION CONTROL EVENTS
ISING DSS
•DSS HANDOVER PER ACE-2
•PREDICTED DSS 12 SET
TIME MIN.
FPAO EVENTS
TIME MIN.
•PERILUNE
NOTES
TIME MIN.
S/C 5 EVENTS
S/C 8 EVENTS
RUN I.OJ DAY 150 TIME02242

145.

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MISSN PHASE ORBITAL          ORBIT  40  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           62
           12
CAN OCC   .OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT   DAY.48                        148                              148                              148                  1
TIME  HRS.20                         21                               22                               23
      MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
          .
SPACECRAFT.
EVENTS    .
          .
          .
TIME  MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
MISSION   .
CONTROL   .
EVENTS    .
          .
          .                                                                            *S/C STATUS MSG TO RISING DSS
TIME  MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
FPAG      .
EVENTS    .
TIME  MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
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. NOTES
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TIME  MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
          .
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1JOJ        DAY 150      TIME02242                                                                          146.
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MISSN PHASE ORBITAL ORBIT 41 PAGE 1

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY 49 149 149 149 1

TIME HRS. 0 1 2 3

MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

SPACECRAFT EVENTS

•START ORBIT

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

•ACE-2 BRIEF RISING DSS

MISSION CONTROL EVENTS

•PREDICTED DSS 62 RISE

•DSS HANDOVER PER ACE-2

•PREDICTED DSS 41 SET

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

FPAO EVENTS

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

NOTES

•APOLUNE

TIME MIN. 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1.02 DAY 150 TIME07242

147.

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MISSN PHASE ORBITAL          ORBIT  41  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
                                                                                                                   GGGGGGG
          12                                                                                 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
CAN OCC   .----------------------------OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
GMT       DAY.49                       149                          149                         149                      1
TIME      HRS. 4                        5                            6                           7
          MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
          .
SPACECRAFT.
EVENTS    .
          .
          .
          .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
MISSION   .
CONTROL   .
EVENTS    .                                        .S/C STATUS MSG TO RISING DSS                      .ACE-2 BRIEF RISING DS
          .                                                                                                         .PREDIC
          .
          .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
FPAQ      .
EVENTS    .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
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. NOTES
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.                                                         .PERILUNE
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TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.DJ          DAY 150      TIME02242                                                                          148.
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MISSN PHASE ORBITAL            ORBIT  41  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
           62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM                    M
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .000000000000000000000000000000000000000000000000000000000000000------------------------------------------------
GMT    DAY.49                        149                        149                        149                         1
TIME   HRS. 8                          9                         10                         11
       MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
           .
SPACECRAFT.
EVENTS     .
           .
           .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
           .                *DSS HANDOVER PER ACE-2
MISSION    .                                                      *PREDICTED DSS 62 SET
CONTROL    .
EVENTS     .
           .S
           .TED DSS 12 RISE
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
FRAG       .
EVENTS     .
TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
. NOTES
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TIME   MIN.-0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5---
S/C 5      .
EVENTS     .
           .---------------------------------------------------------------------------------------------------------------------
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150      TIME02242
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149.

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MISSN PHASE ORBITAL          ORBIT  42  PAGE 1
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41 ____________________________________________________________W
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC    .-----------------------------------------------------------------------------------------------------------
GMT    DAY.9                    149                         149                         149                         14
TIME   HRS.2                    13                          14                          15                          1
       MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
           .
SPACECRAFT.
EVENTS     .
           .
           .
           .*START ORBIT
           .
TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
           .
MISSION    .
CONTROL    .                                                 *PREDICTED DSS 41 RISE
EVENTS     .                                                           *S/C STATUS MSG TO RISING DSS
           .
           .
           .
           .
TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
           .
FPAO       .
EVENTS     .
TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
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. NOTES    *APOLUNE
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TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
           .
S/C 5      .
EVENTS     .
           .-----------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1J0J           DAY 150      TIME02242
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150.

MISSN PHASE ORBITAL ORBIT 42 PAGE 2

EARTH OCC

DSS VIEW 41 62 12

CAN OCC

GMT DAY.9 149 149 149 14

TIME HRS.6 17 18 19 2

MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

SPACECRAFT EVENTS

TIME MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

MISSION CONTROL EVENTS

•ACE-2 BRIEF RISING DSS

•DSS HANDOVER PER ACE-2

•PREDICTED DSS 12 SET

TIME MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

FRAC EVENTS

TIME MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

NOTES

•PERILUNE

COMPLETED INCHWORM READOUT.

COMMENCED NORMAL READOUT, TO FRAME 101

TIME MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1.DJ DAY 150 TIME02242

151.

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MISSN PHASE ORBITAL          ORBIT  42  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 4HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
           62
           12
CAN OCC   .0000000000000000000000000000000000000000000000000000000000000------------------------------------------------
GMT   DAY.?                    149                         149                        149                        15
TIMU  HRS.0                    21                          22                         23
      MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
          .
SPAGLCRAFT.
EVENTS    .
          .

          .
          .
TIME  MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
                                                                                              *S/C STATUS MSG TO RISING DSS
MISSION   .
CONTROL   .
EVENTS    .
          .
          .
          .
          .
TIME  MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
FPAQ      .
EVENTS    .
TIMU  MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
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. NOTES
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TIME  MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
          .
S/C 5     .
EVENTS    .
          .------------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ       DAY 150      TIME02242
                                                                                                                    /53.
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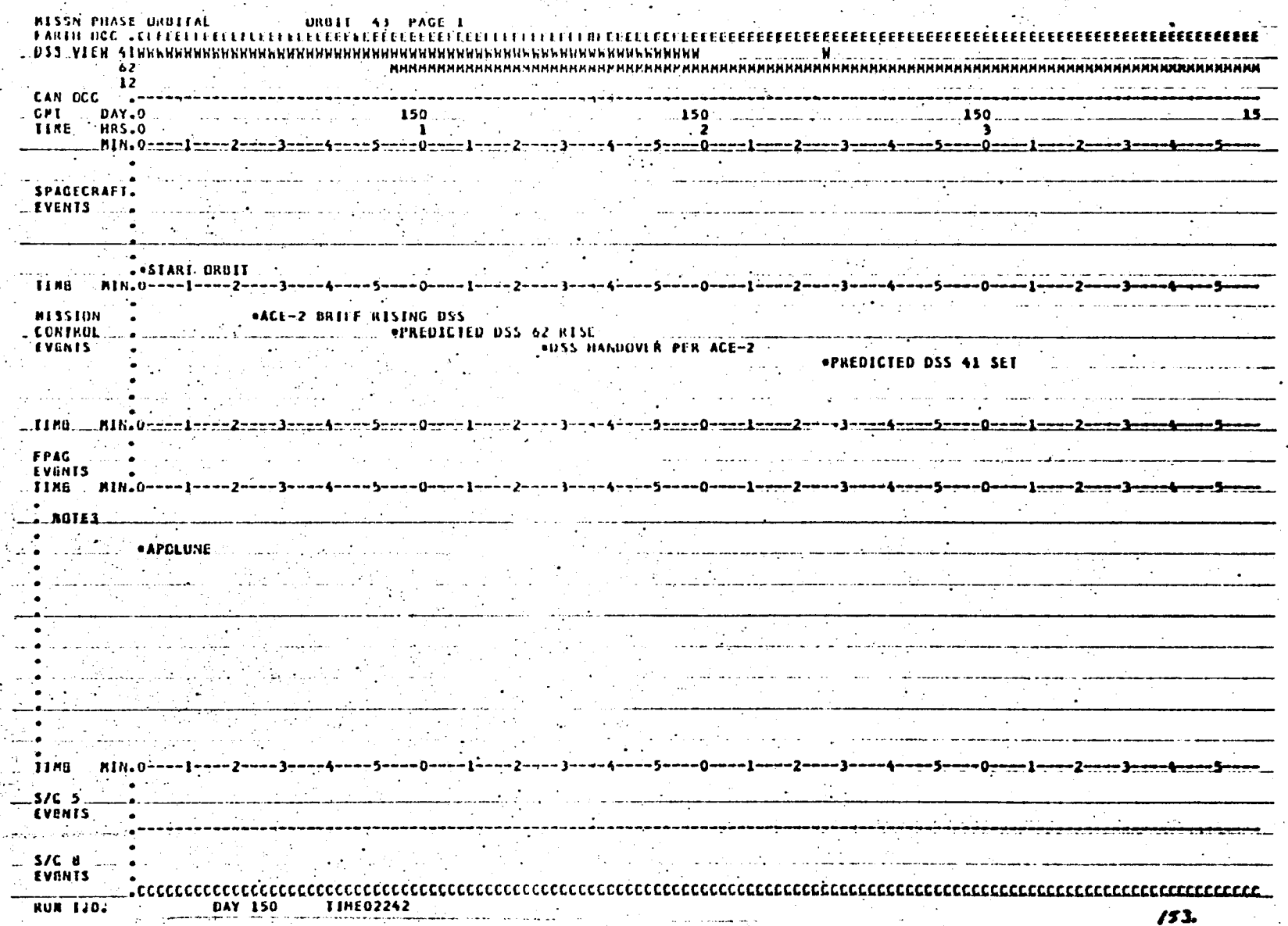
MISSN PHASE ORBITAL ORBIT 43 PAGE 1
EARTH OCC
DSS VIEW 41
62
12
CAN OCC
GMT DAY.0 150 150 150 15
TIME HRS.0 1 2 3
MIN.0
SPACECRAFT EVENTS
•START ORBIT
TIME MIN.0
MISSION CONTROL EVENTS
•ACE-2 BRIEF RISING DSS
•PREDICTED DSS 62 RISE
•DSS HANDOVER PER ACE-2
•PREDICTED DSS 41 SET
TIME MIN.0
FPAG EVENTS
TIME MIN.0
NOTES
•APOLUNE
TIME MIN.0
S/C 5 EVENTS
S/C 8 EVENTS
RUN IDO: DAY 150 TIME02242

153.

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MISSN PHASE ORBITAL          ORBIT  43  PAGE 2
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE000000000000000EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM                    MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN OCC   .-----------------------------0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
GMT    DAY.0                         150                            150                            150                            15
TIME   HRS.4                          5                              6                              7
       MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
SPACECRAFT.
EVENTS

TIMD   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
MISSION
CONTROL
EVENTS
                                                                      •S/C STATUS MSG TO RISING DSS
                                                                                                                            •ACE-2
TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
FPAO
EVENTS
TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
 NOTES                                                       •PERILUNE

TIME   MIN.0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----
S/C 5
EVENTS
S/C 8
EVENTS
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJOJ        DAY 150     TIME02242
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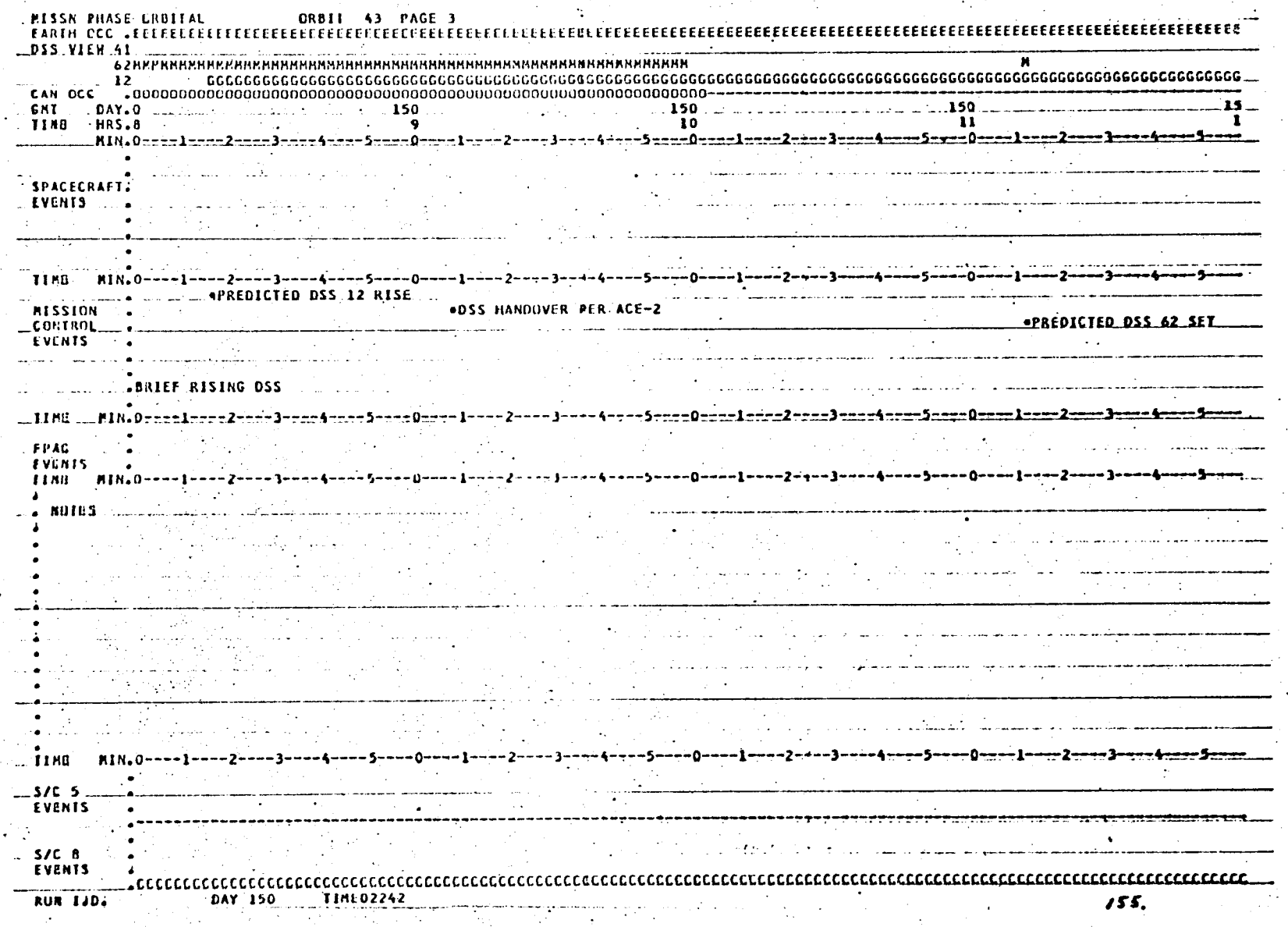
154.


MISSN PHASE ORBITAL ORBIT 43 PAGE 3
EARTH OCC
DSS VIEW 41
62
12
CAN OCC
GMT DAY 0 150 150 150 15
TIME HRS 8 9 10 11 1
MIN 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5
SPACECRAFT EVENTS
TIME MIN 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5
•PREDICTED DSS 12 RISE
MISSION CONTROL EVENTS
•DSS HANDOVER PER ACE-2
•PREDICTED DSS 62 SET
•BRIEF RISING DSS
TIME MIN 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5
FPAG EVENTS
TIME MIN 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5
NOTES
TIME MIN 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5
S/C 5 EVENTS
S/C 8 EVENTS
RUN IJD: DAY 150 TIME02242
155.

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MISSN PHASE ORBITAL          ORBIT  44  PAGE 1
EARTH CCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41 ______________________________________________________________________________________W______________________________
           62
           12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN DCC     .------------------------------------------------------------------------------------------------------------------------
GMT    DAY.                    150                         150                          150                         150
TIMD   HRS.                     13                          14                           15                          16
       MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
           .*START ORBIT
           .
SPACECRAFT.
EVENTS     .
           .
           .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
           .
MISSION    .
CONTROL    .
EVENTS     .                                                                                    *PREDICTED DSS 41 RISE
           .
           .
           .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
           .
FPAQ       .
EVENTS     .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
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.  NOTES
.          *APOLUNE
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TIMD   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
           .
S/C 5      .
EVENTS     .
           .------------------------------------------------------------------------------------------------------------------------
           .
S/C 8      .
EVENTS     .
           .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.          DAY 150     TIME02242
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156.

GMT DAY. 150 150 150 150
TIME HRS. 17 18 19 20
MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

SPACECRAFT EVENTS

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

•PREDICTED DSS 12 SET

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

•ACE-2 BRIEF RISING DSS

•DSS HANDOVER PER ACE-2

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

FPAG EVENTS

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

NOTES

•PERILUNE

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

S/C 5 EVENTS

S/C 8 EVENTS

RUN IDA DAY 150 TIME02242

157.

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MISSN PHASE ORBITAL          ORBIT  44  PAGE 3
EARTH OCC  .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
          62
          12
CAN OCC    .00000000000000000000000000000000000000000000000000000000000----------------------------------------------
GMT   DAY.                          150                         150                         150                      151
TIME  HRS.                          21                          22                          23                       0
      MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
          .
          .
SPACECRAFT.
EVENTS    .
          .
          .
          .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
                                                                                                    *S/C STATUS MSG TO RI
MISSION   .
CONTROL   .
EVENTS    .
          .
          .
          .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
FPAO      .
EVENTS    .
TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
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 . NOTES
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TIME   MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
S/C 5     .
EVENTS    .
          .--------------------------------------------------------------------------------------------------------------------
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN I.D.       DAY 150     TIME02242                                                                     158.
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MISSN PHASE ORBITAL            ORBIT  45  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW                   W
          62                                 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12
CAN OCC   .
GMT   DAY.                151                 151                 151                 151
TIME  HRS.                 1                   2                   3                   4
      MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
          .*START ORBIT
SPACECRAFT.
EVENTS    .
          .
          .
TIME  MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
MISSION   .SING DSS
CONTROL   .              *ACE-2 BRIEF RISING DSS
EVENTS    .                             *PREDICTED DSS 62 RISE
          .                                            *DSS HANDOVER PER ACE-2
          .                                                                           *PREDICTED DSS 41 SET
          .
TIME  MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
          .
EPAQ      .
EVENTS    .
TIME  MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
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. NOTES    *APOLUNE
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TIME  MIN.----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0
          .
S/C 5     .
EVENTS    .
          .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJBJ          DAY 150     TIME02242
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159.

MISSN PHASE ORBITAL ORBIT 45 PAGE 2

EARTH OCC

DSS VIEW 41

CAN CCC

GMT DAY. 151 151 151 151

TIME HRS. 5 6 7 8

MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

SPACECRAFT EVENTS

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

MISSION CONTROL EVENTS

•S/C STATUS MSG TO RISING DSS

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

FPAO EVENTS

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

NOTES

•PERILUNE

TIME MIN. ----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 150 TIME 02242

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MISSN PHASE ORBITAL ORBIT 45 PAGE 3

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 151 151 151 151

TIME HRS. 9 10 11 12

MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

SPACECRAFT EVENTS

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

*ACE-2 BRIEF RISING DSS

MISSION CONTROL EVENTS

*PREDICTED DSS 12 RISE

*DSS HANDOVER PER ACE-2

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

FPAG EVENTS

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

NOTES

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1.DJ DAY 150 TIME02242

161.

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MISSN PHASE ORBITAL            ORBIT  46  PAGE 1
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62     M                                                                                        M
          12GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .
GMT   DAY.                      151                     151                     151                     151
TIME  HRS.                       13                      14                      15                      16
      MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
          .
SPACECRAFT,.START ORBIT
EVENTS    .
          .
TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
MISSION   .
CONTROL   .
EVENTS    .     .PREDICTED DSS 62 SET
          .                                                                                          .PREDICTED DSS
TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
FPAO      .
EVENTS    .
TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
. NOTES
.
.      .APOLUNE
.
TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
S/C 5     .
EVENTS    .
          .
S/C 8     .
EVENTS    .
          .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN 1J0J          DAY 150      TIME02242
```

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MISSN PHASE ORBITAL ORBIT 46 PAGE 2

EARTH OCC

DSS VIEW 41

62

12

CAN OCC

GMT DAY. 151 151 151 151

TIME HRS. 17 18 19 20

MIN. ---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-

SPACECRAFT EVENTS

TIME MIN. ---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-

*DSS HANDOVER PER ACE-2

*PR

MISSION CONTROL EVENTS

41 RISE

*S/C STATUS MSG TO RISING DSS

*ACE-2 BRIEF RISING DSS

TIME MIN. ---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-

FPAO EVENTS

TIME MIN. ---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-

NOIRS

*PERILUNE

TIME MIN. ---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJDJ DAY 150 TIME02242

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MISSN PHASE ORBITAL   ORBIT 46 PAGE 3

EARTH OCC

DSS VIEW 41
62
12

CAN OCC

GMT DAY.	151	151	151	152
TIME HRS.	21	22	23	0

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

SPACECRAFT EVENTS

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

MISSION CONTROL EVENTS
EDICTED DSS 12 SET
S/C STATUS

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

FPAC EVENTS

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

NOTES

TIME MIN. 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

S/C 5 EVENTS

S/C 8 EVENTS

RUN 1.0J   DAY 150   TIME02242

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MISSN PHASE ORBITAL ORBIT 47 PAGE 1

EARTH OCC

DSS VIEW 41

62

12

CAN GCC

GMT DAY 152 152 152 152

TIME HRS 1 2 3 4

MIN 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

SPACECRAFT EVENTS

*START ORBIT

TIME MIN 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

MISSION CONTROL EVENTS

MSG TO RISING DSS

*ACE-2 BRIEF RISING DSS

*PREDICTED DSS 62 RISE

*DSS HANDOVER PER ACE-2

*PREDI

TIME MIN 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

FPAQ EVENTS

TIME MIN 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

NOTES

*APOLUNE

TIME MIN 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0 1 2 3 4 5 0

S/C 5 EVENTS

S/C 8 EVENTS

RUN I.D. DAY 150 TIME02242

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MISSN PHASE ORBITAL ORBIT 47 PAGE 2

EARTH OCC

DSS VIEW 41

CAN OCC

GMT DAY. 152 152 152 152

TIME HRS. 5 6 7 8

MIN.

SPACECRAFT EVENTS

TIME MIN.

•S/C STATUS MSG TO RISIN

MISSION CONTROL EVENTS

•CTED DSS 41 SCF

TIME MIN.

FPAQ EVENTS

TIME MIN.

NOTES

•PERILUNE

TIME MIN.

S/C 5 EVENTS

S/C 8 EVENTS

RUN IJDJ DAY 150 TIME02242

166.

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MISSN PHASE ORBITAL          ORBIT  47  PAGE 3
EARTH OCC .EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
DSS VIEW 41
          62MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
          12                                         GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
CAN OCC   .000000000000000000000000000000000000000000000000000000000000000000000000000--------------------------------------------
GMT   DAY.                      152                          152                          152                          152
TIME  HRS.                        9                           10                           11                           12
      MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
          .
SPACECRAFT.
EVENTS    .

TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
          .G DSS
MISSION   .                  •ACE-2 BRIEF RISING DSS
CONTROL   .                               •PREDICTED DSS 12 RISE
EVENTS    .                                         •DSS HANDOVER PER ACE-2

TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
FPAQ      .
EVENTS    .
TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
  NOTES   .
       0812  COMPLETED FINAL READOUT THROUGH FRAME 107.

TIME  MIN.---1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0----1----2----3----4----5----0-
S/C 5     .
EVENTS    .
S/C 8     .
EVENTS    .CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RUN IJDJ          DAY 150      TIME02242                                                                       167.
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