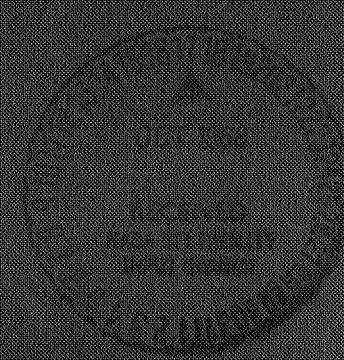




SUPPLEMENT TO REPORT No. OR 8751,
dated February 1967, ACSP Phase IV,
under Contract No. NAS8-11684

OR 8751 Sup

March 1967



MARTIN COMPANY

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OR 8751 Sup

March 1967

Martin Marietta Corporation
Orlando Division
Orlando, Florida

Channel No. 1

Inverter No. 1		Frequency		Power Supply No. 1	
Spin Motor (Vrms)	M Syn (Vrms)	(Hz)		Output Voltage (Vdc)	
24.5 ± 1.1	1.75 ± 0.035	800 ± 8	+29.00 ± 0.725	-29.00 ± 0.300	-12.00 ± 0.300
+25°C	1.746	800.9	29.014	29.030	11.965
+125°C	1.730	797.4	28.866	28.908	11.932
-55°C	1.782	795.3	29.145	29.176	11.970

Wheel Speed No. 1

Yaw		Pitch		Roll	
HI	LO	HI	LO	HI	LO
1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10
+25°C	1652	1652	1552	1651	1552
+125°C	1656	1656	1547	1653	1548
-55°C	1645	1645	1550	1643	1552

Comparator No. 1

0φ		180φ	
Reference	Command	Reference	Command
7.400 ± 0.050	7.400 ± 0.050	7.400 ± 0.050	7.400 ± 0.050
+25°C	7.409	7.409	7.404
+125°C	7.403	7.407	7.401
-55°C	7.385	7.402	7.396

Channel No. 1 (Cont)

Buffer Amp

	Spec (Vdc)	Input (Vdc)	No. 4 Output (Vdc) 0φ	180φ	No. 3 Output (Vdc) 0φ	180φ	No. 1 Output (Vdc) 0φ	180φ
+25°C	0.000 ± 0.035	0.000	0.000	0.000	0.001	0.001	0.000	0.000
	22.50 ± 0.225	0.675	22.500	22.498	22.500	22.524	22.500	22.496
	45.00 ± 0.450	1.350	45.000	44.977	45.025	45.034	45.000	44.983
+125°C	0.000 ± 0.035	0.000	0.013	0.013	0.006	0.006	0.015	0.015
	22.50 ± 0.225	0.675	22.480	22.475	22.460	22.483	22.470	22.480
	45.00 ± 0.450	1.350	44.928	44.900	45.164	44.975	44.938	44.949
-55°C	0.000 ± 0.035	0.000	0.021	0.021	0.008	0.008	0.018	0.018
	22.50 ± 0.225	0.675	22.571	22.499	22.644	22.607	22.563	22.530
	45.00 ± 0.450	1.350	45.080	45.080	45.164	45.170	45.110	45.089

Demodulator and Power Amp

	Spec (Vdc)	Input (Vrms)	No. 1 Output (Vdc) 0φ	180φ	No. 3 Output (Vdc) 0φ	180φ	No. 2 Output (Vdc) 0φ	180φ
+25°C	0.000 ± 0.060	0.000	0.000	0.000	0.002	0.003	0.000	0.000
	1.350 ± 0.110	0.245	1.376	1.378	1.342	1.344	1.344	1.344
	2.700 ± 0.220	0.490	2.759	2.759	2.686	2.687	2.685	2.687
+125°C	0.000 ± 0.060	0.000	0.026	0.026	0.011	0.011	0.024	0.024
	1.350 ± 0.110	0.245	1.308	1.356	1.294	1.314	1.277	1.327
	2.700 ± 0.220	0.490	2.698	2.646	2.599	2.616	2.580	2.630
-55°C	0.000 ± 0.060	0.000	0.038	0.038	0.054	0.054	0.009	0.009
	1.350 ± 0.110	0.245	1.364	1.442	1.424	1.317	1.378	1.360
	2.700 ± 0.220	0.490	2.537	2.616	2.796	2.687	2.746	2.728

Channel No. 1 (Cont)

Rate Switch No. 3

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015	-0.500 ± 0.015		1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.501	0.501	1.350	2.710	2.713
+125°C	0.500	0.500	1.360	2.744	2.748
-55°C	0.498	0.499	1.341	2.696	2.704

Rate Switch No. 6

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015	-0.500 ± 0.015		1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.495	0.495	1.346	2.708	2.714
+125°C	0.496	0.496	1.350	2.739	2.731
-55°C	0.499	0.496	1.343	2.693	2.700

Rate Switch No. 8

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015	-0.500 ± 0.015		1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.499	0.500	1.357	2.706	2.697
+125°C	0.503	0.503	1.367	2.735	2.730
-55°C	0.500	0.500	1.361	2.718	2.702

Channel No. 2			Power Supply No. 3		
Spin Motor (Vrms)	Inverter No. 2		Output Voltage (Vdc)		
	M Syn (Vrms)	Frequency (Hz)			
24.5 ± 1.1	1.75 ± 0.035	800 ± 8	+29.00 ± 0.725	-29.00 ± 0.725	+12.00 ± 0.300
+25°C	24.669	799.8	29.133	29.203	11.976
+125°C	24.850	796.9	28.917	28.949	11.916
-55°C	24.145	794.5	29.386	29.428	12.019
					12.040
					11.990
					12.061

Wheel Speed No. 3						
	Yaw		Pitch		Roll	
	HI	LO	HI	LO	HI	LO
	1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10
+25°C	1652	1550	1650	1554	1651	1552
+125°C	1656	1548	1655	1548	1656	1546
-55°C	1642	1550	1642	1549	1642	1548

Comparator No. 3			
	0φ		180φ
	Reference	Command	Reference Command
	7.400 ± 0.050	7.400 ± 0.050	7.400 ± 0.050
+25°C	7.396	7.400	7.396
+125°C	7.378	7.380	7.388
-55°C	7.362	7.371	7.397
			7.400
			7.385
			7.393

Buffer Amp

	Spec (Vdc)	Input (Vdc)	No. 6 Output (Vdc) 0 ϕ	No. 6 Output (Vdc) 180 ϕ	No. 7 Output (Vdc) 0 ϕ	No. 7 Output (Vdc) 180 ϕ	No. 8 Output (Vdc) 0 ϕ	No. 8 Output (Vdc) 180 ϕ
+25°C	0.000 $\pm$ 0.035	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	22.50 $\pm$ 0.225	0.675	22.516	22.500	22.485	22.513	22.517	22.503
	45.00 $\pm$ 0.450	1.350	45.029	45.012	44.967	45.086	45.026	45.021
+125°C	0.000 $\pm$ 0.035	0.000	0.003	0.003	0.014	0.014	0.010	0.010
	22.50 $\pm$ 0.225	0.675	22.502	22.466	22.498	22.478	22.507	22.523
	45.00 $\pm$ 0.450	1.350	45.055	44.838	44.833	45.014	45.052	44.977
-55°C	0.000 $\pm$ 0.035	0.000	0.008	0.008	0.031	0.031	0.019	0.019
	22.50 $\pm$ 0.225	0.675	22.616	22.600	22.562	22.650	22.535	22.567
	45.00 $\pm$ 0.450	1.350	45.242	45.225	45.147	45.276	45.099	45.110

Demodulator and Power Amp

	Spec (Vdc)	Input (Vrms)	No. 4 Output (Vdc) 0 ϕ	No. 4 Output (Vdc) 180 ϕ	No. 6 Output (Vdc) 0 ϕ	No. 6 Output (Vdc) 180 ϕ	No. 7 Output (Vdc) 0 ϕ	No. 7 Output (Vdc) 180 ϕ
+25°C	0.000 $\pm$ 0.060	0.000	0.002	0.002	0.001	0.002	0.001	0.002
	1.350 $\pm$ 0.110	0.245	1.349	1.346	1.345	1.348	1.344	1.348
	2.700 $\pm$ 0.220	0.490	2.683	2.688	2.693	2.693	2.689	2.693
+125°C	0.000 $\pm$ 0.060	0.000	0.010	0.009	0.001	0.000	0.015	0.015
	1.350 $\pm$ 0.110	0.245	1.302	1.286	1.302	1.301	1.290	1.326
	2.700 $\pm$ 0.220	0.490	2.605	2.558	2.604	2.600	2.601	2.627
-55°C	0.000 $\pm$ 0.060	0.000	0.007	0.007	0.047	0.047	0.027	0.027
	1.350 $\pm$ 0.110	0.245	1.379	1.367	1.422	1.378	1.396	1.345
	2.700 $\pm$ 0.220	0.490	2.750	2.734	2.796	2.700	2.764	2.712

Channel No. 2 (Cont)

Rate Switch No. 2

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015			
			0φ	180φ	0φ 180φ
			1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.500	0.501	1.346	1.356	2.681
+125°C	0.503	0.506	1.361	1.375	2.712
-55°C	0.498	0.498	1.341	1.348	2.668
					2.675

Rate Switch No. 5

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015			
			0φ	180φ	0φ 180φ
			1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.506	0.506	1.351	1.356	2.678
+125°C	0.508	0.506	1.361	1.367	2.708
-55°C	0.505	0.505	1.342	1.346	2.656
					2.661

Rate Switch No. 7

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015			
			0φ	180φ	0φ 180φ
			1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.502	0.502	1.345	1.359	2.680
+125°C	0.504	0.505	1.355	1.371	2.711
-55°C	0.500	0.498	1.338	1.350	2.668
					2.677

Channel No. 3

Inverter No. 3		Power Supply No. 2	
Spin Motor (Vrms)	M Syn (Vrms)	Frequency (Hz)	Output Voltage (Vdc)
24.5 ± 1.1	1.75 ± 0.035	800 ± 8	-29.00 ± 0.725 +12.00 ± 0.300 -12.00 ± 0.300
+25°C	1.753	800.7	29.273 11.960 12.025
+125°C	1.736	803.4	29.042 11.908 11.999
-55°C	1.763	794.8	29.591 12.048 12.087

Wheel Speed No. 2

Yaw		Pitch		Roll	
HI	LO	HI	LO	HI	LO
1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10	1650 ± 10	1550 ± 10
+25°C	1648	1648	1550	1648	1550
+125°C	1654	1654	1548	1657	1545
-55°C	1643	1642	1550	1642	1549

Comparator No. 2

0φ		180φ	
Reference	Command	Reference	Command
7.400 ± 0.050	7.400 ± 0.050	7.400 ± 0.050	7.400 ± 0.050
+25°C	7.410	7.408	7.403
+125°C	7.406	7.411	7.409
-55°C	7.419	7.411	7.409

Channel No. 3 (Cont)

Buffer Amp

	Spec (Vdc)	Input (Vdc)	No. 2 Output (Vdc) 0 ϕ	180 ϕ	No. 5 Output (Vdc) 0 ϕ	180 ϕ	No. 9 Output (Vdc) 0 ϕ	180 ϕ
+25°C	0.000 $\pm$ 0.035	0.000	0.001	0.001	0.001	0.001	0.001	0.001
	22.50 $\pm$ 0.225	0.675	22.490	22.497	22.501	22.490	22.470	22.500
	45.00 $\pm$ 0.450	1.350	44.978	44.990	44.900	44.990	44.960	44.970
+125°C	0.000 $\pm$ 0.035	0.000	0.006	0.006	0.002	0.002	0.004	0.004
	22.50 $\pm$ 0.225	0.675	22.458	22.450	22.480	22.494	22.470	22.465
	45.00 $\pm$ 0.450	1.350	44.910	44.900	44.965	44.973	44.958	44.948
-55°C	0.000 $\pm$ 0.035	0.000	0.007	0.007	0.014	0.014	0.027	0.027
	22.50 $\pm$ 0.225	0.675	22.527	22.578	22.505	22.575	22.507	22.527
	45.00 $\pm$ 0.450	1.350	45.086	45.088	45.075	45.095	45.137	44.977

Demodulator and Power Amp

	Spec (Vdc)	Input (Vrms)	No. 5 Output (Vdc) 0 ϕ	180 ϕ	No. 8 Output (Vdc) 0 ϕ	180 ϕ	No. 9 Output (Vdc) 0 ϕ	180 ϕ
+25°C	0.000 $\pm$ 0.060	0.000	0.001	0.001	0.000	0.001	0.001	0.003
	1.350 $\pm$ 0.110	0.245	1.348	1.347	1.351	1.347	1.343	1.356
	2.700 $\pm$ 0.220	0.490	2.692	2.691	2.699	2.692	2.693	2.704
+125°C	0.000 $\pm$ 0.060	0.000	0.010	0.010	0.041	0.041	0.002	0.002
	1.350 $\pm$ 0.110	0.245	1.293	1.317	1.400	1.312	1.301	1.310
	2.700 $\pm$ 0.220	0.490	2.599	2.621	2.754	2.662	2.609	2.616
-55°C	0.000 $\pm$ 0.060	0.000	0.031	0.031	0.026	0.026	0.057	0.057
	1.350 $\pm$ 0.110	0.245	1.396	1.334	1.430	1.373	1.428	1.318
	2.700 $\pm$ 0.220	0.490	2.758	2.695	2.828	2.788	2.799	2.691

Channel No. 3 (Cont)

Rate Switch No. 4

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015	1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.498	0.500	1.344	2.694	2.701
+125°C	0.498	0.499	1.340	2.709	2.710
-55°C	0.498	0.500	1.337	2.681	2.685

Rate Switch No. 1

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015	1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.498	0.498	1.355	2.691	2.689
+125°C	0.497	0.498	1.348	2.718	2.716
-55°C	0.494	0.494	1.337	2.700	2.695

Rate Switch No. 9

Input (Vdc) 0φ and 180φ 1.350	T/M Output		LO (Threshold)		HI 180φ
	0φ	180φ	0φ	180φ	
+0.500 ± 0.015		-0.500 ± 0.015	1.350 ± 0.027	2.700 ± 0.054	
+25°C	0.498	0.502	1.345	2.701	2.693
+125°C	0.497	0.500	1.366	2.732	2.725
-55°C	0.498	0.501	1.349	2.689	2.681