

UNITED STATES GOVERNMENT

Memorandum

#12 LOAD
COM 67

TO : Apollo Spacecraft Program Office
Attention: PD7/Richard H. Kohrs

FROM : FS/Chief, Flight Support Division

DATE: OCT 31 1969

In reply refer to:
69-FS55-68

SUBJECT: Final Apollo 12 (Mission H₁) prelaunch erasable load (COMMANCHE 67)

1. Enclosure 1 consists of the final values for the parameters in the Apollo 12 (Mission H₁) prelaunch erasable load for the CMC.
2. The number to the left of the parameter mnemonic denotes the number of revisions to the value of the corresponding parameter that have been incorporated in publications of the Apollo 12 erasable load. A solid stripe to the right of the parameter indicates a change from the last published memorandum.
3. A single or double star (* or **) next to a parameter mnemonic denotes that it is also in the inflight erasable load. These parameters would have to be verified or reloaded in order to completely initialize the CMC in orbit. A single star denotes loading by ground uplink; a double star denotes loading by the astronaut via the DSKY. All values for parameters in the inflight erasable load should be consistent with the prelaunch values unless there is a change to that parameter.
4. Enclosure 2 consists of planned changes to the Apollo 12 erasable load, with values when known.
5. Enclosure 3 consists of data dependent upon day of launch for launch on November 16, 1969.
6. Questions or comments regarding erasable loads should be directed to Mr. J. W. Jurgensen, extension 2111.


Lynwood C. Dunseith

Enclosures 3

FS55:JWJurgensen:sjm



H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	FLAGWRD1*	0	0075 00000	-0		
	FLAGWRD3*	0	0077 00000	-0		
	FLAGWRD8*	0	0104 00200	-0		
1 *	EMDOT	+ 0	0110 01156	3	6.695000000+001 LBS/SEC	3.036800917-001 KG/CS
1	PIPTIME	+ 0	1204 01566 1205 36640	28		1.453200000+007
	PADLONG	+ 0	1263 30653 1264 23562	0		7.760996295-001
PAD 39A						
*	PGNCSALT*	0	1272 00000 1273 00055	29	2.933070866+002 FT	8.940000000+001 M
*	CDUCHKWD*	0	1341 00005	14		5.000000000+000 CS

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* RTED1	+ 0	1345 06510 1346 07025	3		1.660263700+000
	* DVTHRESH+	0	1347 00620	-2	2.000000000+000 FT/SEC	6.096000000-003 M/CS
	* HORIZONTAL+	0	1350 00000 1351 27340	29	2.400000000+001	2.400000000+004
1	* ALTVAR	+ 0	1352 37723	-16		1.521687955-005
FOR MAXIMUM VALUE OF IMUVAR + ALTVAR						
	* PBIASX	+ 0	1452 77536	-6		-1.535415649-004
1	* PIPASCFX+	0	1453 74312	-9		-2.199411392-004
1	* PBIASY	+ 0	1454 77536	-6		-1.535415649-004
1	* PIPASCFY+	0	1455 72207	-9		-3.499984741-004
1	* PBIASZ	+ 0	1456 77340	-6		-2.737045288-004

H PRELAUNCH EKASARLF LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* PIPASCFZ	0	1457 71737	-9		-3.700256348-004
1	* NBDX	+ 0	1460 77762	-5		-2.479553223-005
1	* NRDY	+ 0	1461 77762	-5		-2.479553223-005
1	* NBDZ	+ 0	1462 00015	-5		2.479553223-005
1	* ADIAX	+ 0	1463 00367	-3		1.884460449-003
1	* ADIAY	+ 0	1464 00000	-3		0.000000000+000
1	* ADIAZ	+ 0	1465 77754	-3		-1.449584961-004
	* ADSRAX	+ 0	1466 77663	-3		-5.798339844-004
1	* ADSRAY	+ 0	1467 77663	-3		-5.798339844-004
	* ADSRAZ	+ 0	1470 77615	-3		-8.697509766-004
	* GCOMP SW	+ 0	1477 00000	-0		
1	* TEPHEM	+ 0	1706 00004 1707 13027 1710 15000	42		1.166400000+009

1.1664 E*9 CS GMT OF NOV 13

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1	* AZO	+ 0	1711 30623 1712 37457	0	2.788766728+002	7.746574251-001
	* UNITW	+ 0	1713 77777 1714 73551	0		-8.188188076-006
	* UNITW	+ 2	1715 00000 1716 26073	0		4.218146205-005
	* UNITW	+ 4	1717 37777 1720 37777	0		9.999999963-001
1	REFSMMAT+	0	1735 12704 1736 06263	1		6.802000000-001

REV 2 OF E.LOAD TAPE

1	REFSMMAT+	2	1737 01617 1740 30501	1		1.113000001-001
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H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1	* EK1VAL	+ 0	1767 00001 1770 25506	23	1.929300000+004 LBF SEC	8.581953962+002 KG M/CS
	* EK2VAL	+ 0	1771 00000 1772 15514	23	4.969100000+003 LBF SEC	2.183676473+002 KG M/CS
	* EK3VAL	+ 0	1773 00552	9	2.545450000+004 LBF	1.132272571+001 KG M/CS2
1	* FANG	+ 0	1774 02201 1775 21431	7	2.526000000+004 LBF	9.012096992+000 KG M/CS2
	* E3J22R2M+	0	1776 12160	58		9.204790479+016 M5/CS2
	* E32C31RM+	0	1777 03363	80		1.312892560+023 M4/CS2
	* WRENDPOS+	0	2000 00137	19	1.500000000+004 FT	3.048000000+003 M
	* WRENDVEL+	0	2001 00763	0	1.500000000+001 FT/SEC	3.048000000-002 M/CS
	* RMAX	+ 0	2002 00023	19	2.500000000+003 FT	6.096000000+002 M
	* VMAX	+ 0	2003 00001	7	2.500000000+000 FT/SEC	6.096000000-003 M/CS

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	WORBPOS	+ 0	2004 00000	19	0.000000000+000 FT	0.000000000+000 M
*	WORVEL	+ 0	2005 00000	0	0.000000000+000 FT/SEC	0.000000000+000 M/CS
*	S22WSUBL	+ 0	2006 00471	19	3.280839895+004 FT	1.000000000+004 M
*	RPVAR	+ 0	2007 00364 2010 04400	28		4.000000000+006 M2
1 *	504LM	+ 0	2011 77775 2012 43470	0		-1.762174070-004 RAD
1 *	504LM	+ 2	2013 77767 2014 67426	0		-5.044080317-004 RAD
1 *	504LM	+ 4	2015 77771 2016 55522	0		-4.011876881-004 RAD
2 *	EMSALT	+ 0	2017 00002 2020 32511	29	3.045192000+005 FT	9.281745216+004 M

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* ATIGINC	+ 0	2021 00001 2022 03120	28	3.000000000+000 MIN	1.800000000+004 CS
	* PTIGINC	+ 0	2023 00001 2024 03120	28	3.000000000+000 MIN	1.800000000+004 CS
1	* RLS	+ 0	2025 00302 2026 06357	27	5.219499642+006 FT	1.590903491+006 M
1	* RLS	+ 2	2027 77653 2030 77630	27	-2.257806755+006 FT	-6.881794989+005 M
1	* RLS	+ 4	2031 77764 2032 77202	27	-2.962680431+005 FT	-9.030249953+004 M
	* TIMEMO	+ 0	2033 00004 2034 24035 2035 15335	42		1.241995997+009 CS

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* VECOEM	+ 0	2036	77775	-203		-1.161995761-065 M/CS9
		2037	61534			
* VECOEM	+ 2	2040	00002	-203		9.824180227-066 M/CS9
		2041	02156			
* VECOEM	+ 4	2042	00001	-203		4.985984455-066 M/CS9
		2043	01466			
* VECOEM	+ 6	2044	77777	-177		-3.377930480-059 M/CS8
		2045	74466			
* VECOEM	+ 8	2046	00012	-177		3.397357956-057 M/CS8
		2047	25153			
* VECOEM	+10	2050	00005	-177		1.847593789-057 M/CS8
		2051	31437			
* VECOEM	+12	2052	00060	-151		1.036866965-048 M/CS7
		2053	17601			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	VECOEM	+14	2054 77772-151 2055 53251			-1.207207428-049 M/CS7
*	VFCOEM	+16	2056 77775-151 2057 76740			-4.347288342-050 M/CS7
*	VECOEM	+18	2060 77725-125 2061 55172			-6.110826134-041 M/CS6
*	VFCOEM	+20	2062 77576-125 2063 61363			-1.857571754-040 M/CS6
*	VECOEM	+22	2064 77670-125 2065 67016			-1.022822638-040 M/CS6
*	VECOEM	+24	2066 77174 -99 2067 51531			-3.733392393-032 M/CS5
*	VECOEM	+26	2070 00327 -99 2071 07470			2.072664553-032 M/CS5

H PRELAUNCH ERASARLF LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	VECOEM	+28	2072 00154 2073 37424	-99		1.049493111-032 M/CS5
*	VFCOEM	+30	2074 01525 2075 05317	-73		5.513474690-024 M/CS4
*	VECOEM	+32	2076 01355 2077 23214	-73		4.844191293-024 M/CS4
*	VECOEM	+34	2100 00650 2101 36601	-73		2.746246086-024 M/CS4
*	VECOEM	+36	2102 03202 2103 02752	-47		7.225524030-016 M/CS3
*	VECOEM	+38	2104 74205 2105 40446	-47		-8.304910555-016 M/CS3
*	VECOEM	+40	2106 76024 2107 46343	-47		-4.353282422-016 M/CS3

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	VECOEM	+42	2110 70350 2111 55411	-21		-1.124449049-007 M/CS2
*	VECOEM	+44	2112 73651 2113 76766	-21		-6.210849968-008 M/CS2
*	VECOEM	+46	2114 75454 2115 54751	-21		-3.596055009-008 M/CS2
*	VECOEM	+48	2116 72624 2117 75100	5		-5.209159732+000 M/CS
*	VECOEM	+50	2120 07574 2121 37103	5		7.744087577+000 M/CS
*	VECOEM	+52	2122 04051 2123 14643	5		4.080860496+000 M/CS
*	VECOEM	+54	2124 04657 2125 22074	31		3.250016960+008 M

H PRELAUNCH ERASARLF LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* VECOEM	+56	2126	02561 2127 01431	31		1.825896400+008 M
* VECOEM	+58	2130	01441 2131 07705	31		1.050209680+008 M
* RESO	+ 0	2132	67153 2133 60566	38	-2.477213799+011 FT	-7.550547661+010 M
* RESO	+ 2	2134	62336 2135 73452	38	-3.822837283+011 FT	-1.165200804+011 M
* RESO	+ 4	2136	72074 2137 53552	38	-1.657704584+011 FT	-5.052683571+010 M
* VESO	+ 0	2140	20235 2141 12030	9	8.560238235+004 FT/SEC	2.609160614+002 M/CS
* VESO	+ 2	2142	67251 2143 74225	9	-4.550233601+004 FT/SEC	-1.386911201+002 M/CS

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* VESO	+ 4	2144 74173 2145 57370	9	-1.973134076+004 FT/SEC	-6.014112663+001 M/CS
	* OMEGAES	+ 0	2146 00545 2147 02750	-26		3.247735414-010 REV/CS
	* INTVAR	+ 0	2377 00142	15		1.960000000+002 M2
1	AZIMUTH	+ 0	2400 70004 2401 75222	0	-8.989200000+001 DEG	-2.497000000-001 REV
					89.892 DEGREES WEST OF NORTH	
	LATITUDE	+ 0	2402 02426 2403 00022	0	2.860842218+001 DEG	7.946783940-002 REV

PAD 39A

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H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	TAZEL1	+ 0	2432 55006	-1	-1.068090820 +002 DEG	-2.966918945-001 REV
	TAZEL1	+ 1	2433 77221	-2	-2.010611111+000 DEG	-5.585030864-003 REV
	TAZEL1	+ 2	2434 63610	-1	-6.881319440+001 DEG	-1.911477622-001 REV
	TAZEL1	+ 3	2435 77220	-2	-2.015277778+000 DEG	-5.597993828-003 REV
1	LAUNCHAZ	+ 0	2633 06316 2634 04254	0	7.202934496+001 DEG	2.000815138-001 REV

72.029345 DEGREES

* WMIDPOS + 0 3000 00436 19 3.000000000+004 FT 9.144000000+003 M

30,000 FEET

* WMIDVEL + 0 3001 02732 0 3.000000000+001 FT/SEC 9.144000000-002 M/CS

30 FT/SEC

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* RVAR	+ 0	3002 00000 3003 00000	-16		0.000000000+000
	* RVARMIN	+ 0	3004 77777 3005 77777 3006 42757	40	-4.700000000+004 FT2	-3.716121600+003 M2
(200FT)2 (A NEGATIVE NUMBER FOR CODING EASE)						
	* LADPAD	+ 0	3007 10510	0		2.700195313-001
	* LODPAD	+ 0	3010 06477	0		2.069702148-001
2	* ALFAPAD	+ 0	3011 74265	-1	-2.550000000+001	-5.694444445-002
1	* ETDECAY	+ 0	3012 00077	14	6.300000000-001 SEC	6.300000000+001 CS
	* ESTROKER	+ 0	3013 00005	14		5.000000000+000 CDU OPUL
	* EKPRIME	+ 0	3014 00123	-5		1.583099000-004 R/CS/RAD

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	EKPRIME	+ 1	3015 00175	-5		2.384186000-004 R/CS/RAD
*	EKTLX/I	+ 0	3016 17433	18		1.274000000+005
*	EKTLX/I	+ 1	3017 04500	16		9.472000000+003
*	EKTLX/I	+ 2	3020 00334	16		8.800000000+002
*	EREPRAC	+ 0	3021 01000	2		1.250000000-001

THIS VALUE IS DOUBLED BEFORE IT IS USED

*	EREPRAC	+ 1	3022 00232	2		3.750000000-002
**	PACTOFF	+ 0	3023 77676	14	-1.541000000+000 DEG	-6.495258166+001 CDU PULS
**	YACTOFF	+ 0	3024 00070	14	1.321000000+000 DEG	5.567966280+001 CDU PULS
*	HBN10	+ 0	3025 37777	0		9.999389648-001
*	HBN11/2	+ 0	3026 00000	1		0.000000000+000
*	HBN12	+ 0	3027 00000	0		0.000000000+000

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	HBD11/2 + 0	3030	54360	1		-1.220581055+000
*	HBD12 + 0	3031	21075	0		5.349731445-001
*	HBN20 + 0	3032	37777	0		9.999389648-001
*	HBN21/2 + 0	3033	60465	1		-9.621582031-001
*	HBN22 + 0	3034	00000	0		0.000000000+000
*	HBD21/2 + 0	3035	54360	1		-1.220581055+000
*	HBD22 + 0	3036	21075	0		5.349731445-001
*	HBN30 + 0	3037	37777	0		9.999389648-001
*	HBN31/2 + 0	3040	57142	1		-1.050415039+000
*	HBN32 + 0	3041	33106	0		8.480224609-001
*	HBD31/2 + 0	3042	50741	1		-1.441162109+000
*	HBD32 + 0	3043	31162	0		7.882080078-001
**	DAPDATR1 + 0	3066	31102	-0		

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
**	DAPDATR2	0	3067 01111	-0		
1**	LEMMASS	+ 0	3073 07336	16	3.255930000+004 LBS	1.522224242+004 KG
1**	CSMASS	+ 0	3074 16036	16	6.347700000+004 LBS	2.879268287+004 KG
	POLYNUM	+ 0	3261 00005	14		5.000000000+000
1	POLYNUM	+ 1	3262 00000 3263 05336	5	1.194027200-001 DEG	3.316742223-004 REV
1	POLYNUM	+ 3	3264 00022 3265 32145	-9	8.576105700-002 DEG/SEC	2.243362695-006 REV/CS
1	POLYNUM	+ 5	3266 01055 3267 27611	-23	1.460920500-002 DEG/SEC2	4.058112500-009 REV/CS2
1	POLYNUM	+ 7	3270 75446 3271 76042	-37	-1.984109500-004 DEG/SEC3	-5.511415278-013 REV/CS3
1	POLYNUM	+ 9	3272 03461 3273 10752	-51	1.796687700-006 DEG/SEC4	4.990799167-017 REV/CS4

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1	POLYNUM +11	3274 74255 3275 56442	-65	-1.116422700-008 DEG/SEC5	-3.101174167-021 REV/CS5
1	POLYNUM +13	3276 01453 3277 14467	-79	2.049474700-011 DEG/SEC6	8.192985278-026 REV-CS6
	SATRLRT + 0	3300 00000 3301 16441	0	1.000000000+000 DEG/SEC	2.777777778-005 REV/CS
1	RPSTART + 0	3302 02354	14	1.260000000+001 SEC	1.260000000+003 CS
1	POLYSTOP+ 0	3303 43463	14	1.454000000+002 SEC	-1.454000000+004 CS
	SATRATE + 0	3321 00000	12		0.000000000+000 OUTPTPUL
	SATRATE + 1	3322 00344	12		5.700000000+001 OUTPTPUL
2.5 DEGREE ATTITUDE ERROR, 0.75 VOLTS					
	SATRATE + 2	3323 77433	12		-5.700000000+001 OUTPTPUL

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	SATRATE + 3	3324	00000	12		0.000000000+000 OUTPUTPUL
	SATSCALE+ 0	3331	10000	2		1.000000000+000
					0.3 VOLTS/DEG	
2 *	P37RANGE+ 0	3376	01623	0	1.205800000+003 N.MI.	5.582407408-002 #REV#
					1205.8 N.M. REV = N.MI./21600	
	LAT(SPL)+ 0	3400	02265	0	2.648000016+001 DEG	7.35555600-002 REV
		3401	04227			
					26.48 DEG NORTH GEODETIC	
	LNG(SPL)+ 0	3402	76370	0	-1.704999999+001 DEG	-4.736111110-002 REV
		3403	41106			
					-17.05 DEG WEST GEODETIC	

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	ECSTEER	+ 0	3424 10000	2		1.000000000+000
	TR6JOB	+ 0	3513 00004	-0		
	TR6JOB	+ 1	3514 00006	-0		
	TR6JOB	+ 2	3515 31413	-0		
	TR6JOB	+ 3	3516 53140	-0		
	TR6JOB	+ 4	3517 00006	-0		
	TR6JOB	+ 5	3520 40025	-0		
	TR6JOB	+ 6	3521 21140	-0		
	TR6JOB	+ 7	3522 05357	-0		
	TR6JOB	+ 8	3523 01550	-0		
	TR6JOB	+ 9	3524 10067	-0		
	TR6JOB	+10	3525 11573	-0		
	TR6JOB	+11	3526 04106	-0		

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	TR6JOB	+12	3527 35055	-0		
	TR6JOB	+13	3530 05251	-0		
	TR6JOB	+14	3531 01543	-0		
	TR6JOB	+15	3532 00006	-0		
	TR6JOB	+16	3533 41413	-0		
	TR6JOB	+17	3534 53046	-0		
	TR6JOB	+18	3535 01574	-0		
	TR6JOB	+20	3537 21046	-0		
	TR6JOB	+21	3540 33300	-0		
	TR6JOB	+22	3541 04676	-0		
	TR6JOB	+23	3542 20707	-0		
	TR6JOB	+24	3543 37663	-0		
	TR6JOB	+25	3544 05150	-0		

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	TR6JOB	+26	3545 01525	-0		
	TR6JOB	+27	3546 10067	-0		
	TR6JOB	+28	3547 05340	-0		
	TR6JOB	+29	3550 35017	-0		
	TR6JOB	+30	3551 00006	-0		
	TR6JOB	+31	3552 05012	-0		
	TR6JOB	+32	3553 35031	-0		
	TR6JOB	+33	3554 00006	-0		
	TR6JOB	+34	3555 05011	-0		
	TR6JOB	+35	3556 00006	-0		
	TR6JOB	+36	3557 30025	-0		
	TR6JOB	+37	3560 21337	-0		
	TR6JOB	+38	3561 05303	-0		

H PRELAUNCH ERASABLE LOAD (COMANCHE 67)

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	TR6JOB	+39	3562 01750	-0		
	TR6JOB	+40	3563 45017	-0		
	TR6JOB	+41	3564 00006	-0		
	TR6JOB	+42	3565 03012	-0		
	TR6JOB	+43	3566 45031	-0		
	TR6JOB	+44	3567 00006	-0		
	TR6JOB	+45	3570 03011	-0		
	TR6JOB	+46	3571 25573	-0		
	TR6JOB	+47	3572 05340	-0		
	TR6JOB	+48	3573 00000	-0		
	TR6JOB	+49	3574 00006	-0		
	TR6JOB	+50	3575 30025	-0		
	TR6JOB	+51	3576 01537	-0		

W MATRIX DIAGONAL FOR REINITIALIZATIONS

LUMINARY

	W_{rr} (Meters)	W_{rv} (M/CS)	W_{β} (Rad)	W_{θ} (Rad)
DECIMAL	609.6	.006096	.005	.005
OCTAL	01142	00144	05075	05075

COMANCHE 55

	W_{rr} (Meters)	W_{rv}
DECIMAL	609.6	.006096
OCTAL	00023	00144

LGC and CMC TEPHEM updated to reflect time of lift-off

LMC HORIZALT

MSC/TRW TASK A-164 ON BOARD DATA LOAD PROGRAM, RUN 31 JUL 69

LAUNCH DATE 16 NOV. 1969

PAGE ONE OF TWO

START TIME (EJD) = 2440542.0000+000 (TO)
 EPH. CENTER(EJD) = 2440549.2500+000 (TMO)
 AGC ZERO (UJD) = 2440403.5000+000
 E.T. - U.T. (CS) = 4004.00

EPHEMERIS SPAN (DAYS) = 14.500
 UNITW COMPUTED, TO + -.50 DAYS
 504LM COMPUTED, TO + 4.50 DAYS
 BRCS FOR NBY 1970

 DECIMAL = .12592759960+010
 TIMEMO (CS)
 OCTAL (SCALED B42) = 4 26074 3334

 EARTH ORIENTATION ANGLES
 UNITW = UNITW + 2 =
 -AYO (RAD) AXO (RAD) UNITW + 4 AZO (REV)
 DECIMAL -.72792172432-005 .42445957661-004 .99999999627+000 .77465742081+000
 OCTAL 77777 74135 0 26202 37777 37777 30623 37456

 LUNAR LIBRATION VECTOR (SELENOGRAPHIC COORDINATES) *****
 504LM 504LM + 2 504LM + 4
 (RADIANS)-DECIMAL -.19060075283-003 -.57224184275-003 -.39693713188-003
 (RADIANS)-OCTAL 77774 74043 77766 63765 77771 57707

 SUN EPHEMERIS DATA *****
 SOLAR POSITION VECTOR (RESO)
 RESO RESO + 2 RESO + 4
 (METERS)-DECIMAL -.70951376896+011 -.11884457574+012 -.51534815232+011
 (2**38M)-DECIMAL -.25811960548+000 -.43235404789+000 -.18748256564+000
 (2**38M)-OCTAL 67572 76771 62124 51753 72000 51107

SOLAR VELOCITY VECTOR (VESO)
 VESO VESO + 2 VESO + 4
 (METERS/CS)-DECIMAL .26612583923+003 -.13031844902+003 -.56510463715+002
 (2**9 M/CS)-DECIMAL .51977702975+000 -.25452822074+000 -.11037199944+000
 (2**9 M/CS)-OCTAL 20504 670 67665 71720 74357 65221

 ANGULAR RATE OF RES AT TIMEMO (OMEGAES) *****
 (REV/CS)-DEC (REV/2**26CS)-DEC (REV/2**26CS)-OCT
 .32502572855-009 .21812107414-001 545 13647

***** LUNAR EPHEMERIS DATA (POLYNOMIAL COEFFICIENTS) *****

(METERS,CENTISECONDS)-DECIMAL

	0	1	2	3	4
0	.205572408+009	-.835120010+001	-.670807907-007	.988991566-015	.219021748-023
1	.294035312+009	.496114600+001	-.956572492-007	-.452906743-015	.579317992-023
2	.162812360+009	.250850308+001	-.532001287-007	-.224638908-015	.319341071-023
	5	6	7	8	9
0	-.372674967-031	.653889654-040	.929594875-048	-.334119524-056	-.247122962-064
1	.164008498-032	-.160269396-039	.558490369-048	.335725840-056	-.126026075-064
2	.119541898-033	-.858226120-040	.322400938-048	.175329566-056	-.736856984-065

(2**29M,2**26CS)-DECIMAL

	0	1	2	3	4
0	.382908449+000	-.104390001+001	-.562714458+000	.556752756+000	.827440768-001
1	.547683448+000	.620143250+000	-.802431166+000	-.254963830+000	.218860149+000
2	.303261653+000	.313562885+000	-.446275026+000	-.126460463+000	.120643646+000
	5	6	7	8	9
0	-.944843292-001	.111253560-001	.106140971-001	-.256018341-002	-.127075613-002
1	.415810943-002	-.272684246-001	.637683272-002	.257249177-002	-.648051500-003
2	.303074718-003	-.146019608-001	.368116796-002	.134345889-002	-.378906727-003

(2**29M,2**26CS)-OCTAL SCALED B2

	0	1	2	3	4
0	3040 14447	67514 45737	73377 43707	4350 16545	522 35335
1	4303 11756	4754 3325	71451 47573	75753 65302	1600 16340
2	2332 5071	2404 13241	74334 41655	76772 40445	756 5002
	5	6	7	8	9
0	77174 77577	55 22162	53 17154	77765 60334	77772 71340
1	21 1006	77620 51676	32 3646	12 21135	77775 53035
2	1 7563	77704 46056	17 2377	5 20056	77776 56253

Launch November 14

	R(LS)	SITE	007
LAT(DEC)	LONG(DEC)	ALT(N MI.)	
-2.982222199E 00	-2.339194417E 01	-1.280237570E 00	
X	Y	Z	
DECIMAL 1.590903491E 06	-6.881794989E 05	-9.030249953E 04	
OCTAL 302 6357	77653 77630	77764 77202	

Launch November 16

	R(LS)	SITE	005
LAT(DEC)	LONG(DEC)	ALT(N MI.)	
1.678055555E 00	-4.189816611E 01	-1.249460042E 00	
X	Y	Z	
DECIMAL 1.291420490E 06	-1.158691495E 06	5.082899388E 04	
OCTAL 235 24471	77562 81670	5 6432	

TEPHEM 1183680000 cs 00004,15066,03000

for clock align on GMT of November 15, 1969