

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

REPLY TO
ATTN OF: FS66-72-48

APR 3 1972

MEMORANDUM

TO: PD/Systems Engineering Division
Attn: PD4/John R. Sevier

FROM: FS/Chief, Flight Support Division

SUBJECT: Final LM Guidance Computer (LGC) Prelaunch Erasable Load for
Apollo 16 - April 16 Launch

Enclosure 1 to this memorandum consists of the final values for the parameters in the Apollo 16 Prelaunch Erasable Load for the LGC.

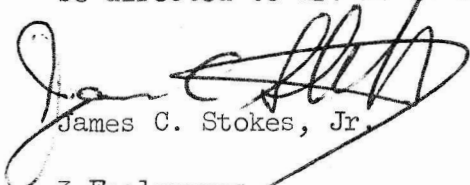
A single or double star (* or **) next to a parameter mnemonic denotes that it is also in the Inflight Erasable Load. These parameters would have to be verified or reloaded in order to completely initialize the LGC in orbit. A single star denotes loading by ground uplink; a double star denotes loading by the astronaut via the DSKY.

Enclosure 2 is the Inflight Erasable Load in uplink format. All values in the Inflight Erasable Load are consistent with the values in the Prelaunch Erasable Load.

Enclosure 3 is the LGC state vector for backup LOI ignition. Enclosure 3 also identifies the K-Start tape used to load the LGC memory.

For your information, the values given in enclosure 1 for the IMU compensation parameters (addresses 14528-14708) differ from the values contained on the K-Start tape identified by enclosure 3. The K-Start tape values correspond to IMU-39. The final values of enclosure 1 correspond to IMU-33, which replaced IMU-39 after KSC test data showed that the IMU was questionable. The final compensation values were hand-loaded after KSC performance testing of IMU-33 confirmed its flight worthiness.

Questions or comments regarding the Apollo 16 LGC erasable loads should be directed to Mr. R. W. Carl, extension 2308.


James C. Stokes, Jr.

3 Enclosures

FS66-/RWCarl:jvm:3/28/72:2308

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	FLAGWRD3+	0 0077	12000	0		
	FLAGWRD8+	0 0104	06000	0		
	FLGWRD10+	0 0106	00000	0		
**	CHANBKUP+	0 0374	00011	0		
1	MASS	+ 0 1243	10100	16	3.668520000D 04 LBS	1.664012681D 04 KG
	MASS	+ 1 1244	00000	2	0.0 LBS	0.0 KG
*	LRWH1	+ 0 1315	13146	0	3.500000000D-01 UNITLESS	3.500000000D-01 UNITLESS
1**	LEMMASS	+ 0 1326	10100	16	3.668520000D 04 LBS	1.664012681D 04 KG
1**	CSMMASS	+ 0 1327	10557	16	3.935410000D 04 LBS	1.785071949D 04 KG
*	E3J22R2M+	0 1347	12160	58	9.204790479D 16 M5/CS2	9.204790479D 16 M5/CS2
*	E32C31RM+	0 1350	03363	80	1.312892560D 23 M6/CS2	1.312892560D 23 M6/CS2
*	ELBIAS	+ 0 1353	00052	-1	4.600000000D-01 DEG	1.277777778D-03 REV
*	TOOFEW	+ 0 1354	00003	14	3.000000000D 00 UNITLESS	3.000000000D 00 UNITLESS

Enc. 1

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1 *	PBIASX	+ 0	1452 04554	-3	1.840000000D 00 CM/SEC2	1.840000000D-02 PIPS/CS
1 *	PIPASCFX+	0	1453 61325	-9	-8.900000000D 02 PPM	-8.900000000D-04 PIPS/PIP
1 *	PBIASY	+ 0	1454 04061	-3	1.600000000D 00 CM/SEC2	1.600000000D-02 PIPS/CS
1 *	PIPASCFY+	0	1455 71344	-9	-4.000000000D 02 PPM	-4.000000000D-04 PIPS/PIP
1 *	PBIASZ	+ 0	1456 02760	-3	1.160000000D 00 CM/SEC2	1.160000000D-02 PIPS/CS
1 *	PIPASCFZ+	0	1457 70230	-9	-4.700000000D 02 PPM	-4.700000000D-04 PIPS/PIP
1 *	NBDX	+ 0	1460 77731	-5	-3.000000000D-01 MERU	-7.301713884D-05 G PUL/CS
1 *	NBDY	+ 0	1461 00114	-5	5.955800175D-01 MERU	1.449584961D-04 G PUL/CS
1 *	NBDZ	+ 0	1462 77264	-5	-2.593907708D 00 MERU	-6.313323975D-04 G PUL/CS
1 *	ADIAX	+ 0	1463 00522	-6	1.300000000D 01 MERU/G	3.226459610D-04 GPUL/PIP
1 *	ADIAY	+ 0	1464 77661	-6	-3.000000000D 00 MERU/G	-7.445676024D-05 GPUL/PIP
1 *	ADIAZ	+ 0	1465 00554	-6	1.400000000D 01 MERU/G	3.474648811D-04 GPUL/PIP
1 *	ADSRAX	+ 0	1466 77745	-6	-1.000000000D 00 MERU/G	-2.481892008D-05 GPUL/PIP

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1 *	ADSRAY	+ 0	1467 77627	-6	-4.000000000D 00 MERU/G	-9.927568032D-05 GPUL/PIP
1 *	ADSRAZ	+ 0	1470 00116	-6	3.000000000D 00 MERU/G	7.445676024D-05 GPUL/PIP
*	GCOMP SW	+ 0	1477 00000	14	0.0	UNITLESS 0.0 UNITLESS
	TETCSM	+ 0	1570 37777 1571 37777	28	2.684354550D 08 CS	2.684354550D 08 CS
	TETLEM	+ 0	1642 37777 1643 37777	28	2.684354550D 08 CS	2.684354550D 08 CS
*	X789	+ 0	1700 00000 1701 00000	3	0.0	RADIANS 0.0 RADIANS
*	X789	+ 2	1702 00000 1703 00000	3	0.0	RADIANS 0.0 RADIANS
*	X789	+ 4	1704 00000 1705 00000	3	0.0	RADIANS 0.0 RADIANS

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* TEPHEM	+ 0	1706	00011	42	6.977900000D 03 HR	2.512044000D 09 CS
			1707			
			1710			
* -AYO	+ 0	1711	00000	0	5.428865552D-05 RADIANS	5.428865552D-05 RADIANS
			1712			
* AXO	+ 0	1713	00000	0	2.460554242D-05 RADIANS	2.460554242D-05 RADIANS
			1714			
* REFSMMAT+	0	1731	12560	1	6.700080900D-01 UNITLESS	6.700080900D-01 UNITLESS
			1732			
* REFSMMAT+	2	1733	66316	1	-5.998490400D-01 UNITLESS	-5.998490400D-01 UNITLESS
			1734			
* REFSMMAT+	4	1735	71001	1	-4.373434700D-01 UNITLESS	-4.373434700D-01 UNITLESS
			1736			

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* REFSMMAT+ 6		1737	02044	1	1.295115500D-01 UNITLESS	1.295115500D-01 UNITLESS
		1740	36532			
* REFSMMAT+ 8		1741	70165	1	-4.856443700D-01 UNITLESS	-4.856443700D-01 UNITLESS
		1742	63173			
* REFSMMAT+10		1743	15652	1	8.645092800D-01 UNITLESS	8.645092800D-01 UNITLESS
		1744	01727			
* REFSMMAT+12		1745	64233	1	-7.309691600D-01 UNITLESS	-7.309691600D-01 UNITLESS
		1746	74643			
* REFSMMAT+14		1747	65646	1	-6.358692600D-01 UNITLESS	-6.358692600D-01 UNITLESS
		1750	76540			
* REFSMMAT+16		1751	74022	1	-2.476981900D-01 UNITLESS	-2.476981900D-01 UNITLESS
		1752	73317			
* RANGEVAR+ 0		1766	01351	-12	1.111111111D-05 UNITLESS	1.111111111C-05 UNITLESS
		1767	24734			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	RATEVAR +	0 1770	02354	-12	1.877777778D-05 UNITLESS	1.877777778D-05 UNITLESS
		1771	04761			
*	RVARMIN +	0 1772	00410	12	7.104180875D 02 FT2	6.600000000D 01 M2
*	VVARMIN +	0 1773	00165	-12	1.877764172D-01 FT2/SEC2	1.744500000D-06 M2/CS2
*	WRENDPOS+	0 2000	05750	14	1.000000000D 04 FT	3.048000000D 03 M
*	WRENDVEL+	0 2001	00763	0	1.000000000D 01 FT/SEC	3.048000000D-02 M/CS
*	WSHAFT +	0 2002	17270	-5	1.500000000D 01 MILLIRAD	1.500000000D-02 RADIANS
*	WTRUN +	0 2003	17270	-5	1.500000000D 01 MILLIRAD	1.500000000D-02 RADIANS
*	RMAX +	0 2004	00023	19	2.000000000D 03 FT	6.096000000D 02 M
*	VMAX +	0 2005	00001	7	2.000000000D 00 FT/SEC	6.096000000D-03 M/CS
*	WSURFPOS+	0 2006	00000	14	0.0 FT	0.0 M
*	WSURFVEL+	0 2007	00000	0	0.0 FT/SEC	0.0 M/CS
*	SHAFTVAR+	0 2010	00103	-12	1.000000000D 00 MILLIRAD2	1.000000000D-06 RADIANS2

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* TRUNVAR	+ 0	2011	00103	-12	1.000000000D 00 MILIRAD2	1.000000000D-06 RADIANS2
* 504LM	+ 0	2012	77777	0	-4.820525646D-06 RADIANS	-4.820525646D-06 RADIANS
		2013	75361			
* 504LM	+ 2	2014	00013	0	6.953775883D-04 RADIANS	6.953775883D-04 RADIANS
		2015	14450			
* 504LM	+ 4	2016	00004	0	2.514459193D-04 RADIANS	2.514459193D-04 RADIANS
		2017	03651			
* RLS	+ 0	2020	00311	27	5.426102172D 06 FT	1.653875942D 06 M
		2021	34350			
* RLS	+ 2	2022	00070	27	1.506462909D 06 FT	4.591698947D 05 M
		2023	01504			
* RLS	+ 4	2024	77736	27	-8.919449813D 05 FT	-2.718648303D 05 M
		2025	72015			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* TLAND	+ 0	2026	04172	28	9.877840000D 01 HR	3.556022400D 07 CS
		2027	15440			
* N26/PRI	+ 0	2371	00000	14	0.0 MIN	0.0 CS
* N26/2CAD+	0	2372	00000	0		0.0
		2373	00000			
* VELBIAS	+ 0	2400	00001	6	2.500000000D 00 FT/SEC	7.620000000D-03 M/CS
		2401	36331			
* RBREGX	+ 0	2402	77777	24	-3.118358800D 03 FT	-9.504757622D 02 M
		2403	42227			
* RAPFGX	+ 0	2404	00000	24	1.585000000D 02 FT	4.831080000D 01 M
		2405	01405			
* RBREGZ	+ 0	2406	77774	24	-1.174144100D 04 FT	-3.578791217D 03 M
		2407	60122			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* RAPFGZ	+ 0	2410	77777	24	-2.735540000D 01 FT	-8.337925920D 00 M
		2411	77572			
* VBRFGX	+ 0	2412	77766	10	-1.964691600D 02 FT/SEC	-5.988379997D-01 M/CS
		2413	55311			
* VAPFGX	+ 0	2414	77777	10	-3.534760000D 00 FT/SEC	-1.077394848D-02 M/CS
		2415	72367			
* VBRFGZ	+ 0	2416	77767	10	-1.667599700D 02 FT/SEC	-5.082843886D-01 M/CS
		2417	73603			
* VAPFGZ	+ 0	2420	00000	10	2.495050000D-02 FT/SEC	7.604912400D-05 M/CS
		2421	00024			
* ABRFGX	+ 0	2422	77772	-4	-7.182481400D-01 FT/SEC ²	-2.189220331D-05 M/CS ²
		2423	50265			
* AAPFGX	+ 0	2424	00000	-4	7.717830000D-02 FT/SEC ²	2.352394584D-06 M/CS ²
		2425	23567			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* ABRFGZ	+ 0	2426	77675	-4	-8.302450300D 00 FT/SEC2	-2.530586851D-04 M/CS2
		2427	65140			
* AAPFGZ	+ 0	2430	77773	-4	-5.896270000D-01 FT/SEC2	-1.797183096D-05 M/CS2
		2431	51173			
* VBRFG*	+ 0	2432	77755	13	-3.001680000D 03 FT/SEC	-9.149120640D 00 M/CS
		2433	66351			
* VAPFG*	+ 0	2434	00000	13	4.491090000D-01 FT/SEC	1.368884232D-03 M/CS
		2435	00055			
* ABRFG*	+ 0	2436	77161	-4	-4.981470200D 01 FT/SEC2	-1.518352117D-03 M/CS2
		2437	77106			
* AAPFG*	+ 0	2440	77743	-4	-3.537762000D 00 FT/SEC2	-1.078309858D-04 M/CS2
		2441	67344			
* JBRFG*	+ 0	2442	77541	-21	-1.512365900D-02 FT/SEC3	-4.609691263D-09 M/CS3
		2443	63456			

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* JAPFG*	+ 0	2444 00704 2445 04643	-21	4.317360000D-02 FT/SEC3	1.315931328D-08 M/CS3
	* GAINBRAK+	0	2446 37777 2447 37777	0	9.999999963D-01 UNITLESS	9.999999963D-01 UNITLESS
	* GAINAPPR+	0	2450 00000 2451 00000	0	0.0 UNITLESS	0.0 UNITLESS
	* TCGFBRAK+	0	2452 00567	17	3.000000000D 01 SEC	3.000000000D 03 CS
	* TCGIBRAK+	0	2453 25762	17	9.000000000D 02 SEC	9.000000000D 04 CS
	* TCGFAPPR+	0	2454 00113	17	6.000000000D 00 SEC	6.000000000D 02 CS
	* TCGIAPPR+	0	2455 04704	17	2.000000000D 02 SEC	2.000000000D 04 CS
1	* VIGN	+ 0	2456 00416 2457 12774	10	5.543460500D 03 FT/SEC	1.689646760D 01 M/CS
1	* RIGNX	+ 0	2460 77720 2461 60230	24	-1.595487200D 05 FT	-4.863044986D 04 M

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1 *	RIGNZ	+ 0	2462 77063 2463 52706	24	-1.547623300D 06 FT	-4.717155818D 05 M
*	KIGNX/B4+	0	2464 77251 2465 77371	4	-3.340000000D-01 UNITLESS	-3.340000000D-01 UNITLESS
*	KIGNY/B8+	0	2466 76366 2467 60601	-16	-2.207000000D-07 FT/FT2	-7.240813648D-07 M-1
*	KIGNV/B4+	0	2470 71727 2471 57777	18	-4.980000000D 02 SEC	-4.980000000D 04 CS
*	LOWCRIT	+ 0	2472 04114	14	5.985000000D 03 LBF	2.124374401D 03 DPSTROTP
*	HIGHCRIT+	0	2473 04454	14	6.615000000D 03 LBF	2.347992759D 03 DPSTROTP
*	TAUHZ	+ 0	2474 07640	11	5.000000000D 00 SEC	5.000000000D 02 CS
*	QHZ	+ 0	2475 14632	0	4.000000000D-01 UNITLESS	4.000000000D-01 UNITLESS
*	AHZLIM	+ 0	2476 00017	-4	1.938980000D 00 FT/SEC2	5.910011040D-05 M/CS2

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	2LATE466+	0 2477	00000 2500 00226	28	1.500000000D 00 SEC	1.500000000D 02 CS
*	DELQFIX +	0 2503	00000 2504 C0750	24	1.000000000D 02 FT	3.048000000D 01 M
*	LRVMAX	+ 0 2511	01717	7	2.500000000D 03 FT/SEC	7.620000000D 00 M/CS
*	LRVF	+ 0 2512	00116	7	2.000000000D 02 FT/SEC	6.096000000D-01 M/CS
*	LRWVZ	+ 0 2513	11463	0	3.000000000D-01 UNITLESS	3.000000000D-01 UNITLESS
*	LRWVY	+ 0 2514	11463	0	3.000000000D-01 UNITLESS	3.000000000D-01 UNITLESS
*	LRWVX	+ 0 2515	11463	0	3.000000000D-01 UNITLESS	3.000000000D-01 UNITLESS
*	LRWVFZ	+ 0 2516	06315	0	2.000000000D-01 UNITLESS	2.000000000D-01 UNITLESS
*	LRWVfy	+ 0 2517	06315	0	2.000000000D-01 UNITLESS	2.000000000D-01 UNITLESS
*	LRWVFX	+ 0 2520	06315	0	2.000000000D-01 UNITLESS	2.000000000D-01 UNITLESS
*	LRWVFF	+ 0 2521	03146	0	1.000000000D-01 UNITLESS	1.000000000D-01 UNITLESS

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	ABSCO	+ 0 2522	46200	18	-6.920000000D 05 FT	-2.109216000D 05 M
*	ABSC1	+ 0 2523	54401	18	-5.240000000D 05 FT	-1.597152000D 05 M
*	ABSC2	+ 0 2524	67225	18	-2.340000000D 05 FT	-7.132320000D 04 M
*	ABSC3	+ 0 2525	71713	18	-1.640000000D 05 FT	-4.998720000D 04 M
*	ABSC4	+ 0 2526	74216	18	-1.000000000D 05 FT	-3.048000000D 04 M
*	SLOPE0	+ 0 2527	00031	6	9.821428000D-02 RADIANS	9.821428000D-02 RADIANS
*	SLOPE1	+ 0 2530	77776	6	-5.172410000D-03 RADIANS	-5.172410000D-03 RADIANS
*	SLOPE2	+ 0 2531	77757	6	-6.428571000D-02 RADIANS	-6.428571000D-02 RADIANS
*	SLOPE3	+ 0 2532	00004	6	1.562500000D-02 RADIANS	1.562500000D-02 RADIANS
*	SLOPE4	+ 0 2533	00000	6	0.0 RADIANS	0.0 RADIANS
*	RODSCALE	+ 0 2534	14370	-7	1.000000000D 00 FT/SEC	3.048000000D-03 M/CS
*	TAUROD	+ 0 2535	11300	9	1.500000000D 00 SEC	1.500000000D 02 CS
		2536	00000			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* LAG/TAU + 0	2537	07356	0	2.333300000D-01 UNITLESS	2.333300000D-01 UNITLESS
		2540	34075			
	* MINFORCE+ 0	2541	00001	12	9.800000000D 02 LBF	4.359257183D-01 KG M/CS2
		2542	27631			
	* MAXFORCE+ 0	2543	00013	12	6.300000000D 03 LBF	2.802379617D 00 KG M/CS2
		2544	06551			
	* J1PARM + 0	2545	07022	23	6.051373000D 06 FT	1.844458490D 06 M
		2546	16520			
	* K1PARM + 0	2547	73446	23	-6.055552000D 05 FT/RAD	-1.159707775D 06 M/REV
		2550	76206			
	* J2PARM + 0	2551	07012	23	6.038380100D 06 FT	1.840498254D 06 M
		2552	27110			
	* K2PARM + 0	2553	75536	23	-3.169623600D 05 FT/RAD	-6.070193324D 05 M/REV
		2554	55224			

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
* THETCRIT+	0	2555	00400	0	5.630400730D 00 DEG	1.564000203D-02 REV
		2556	07673			
* RAMIN	+ 0	2557	03327	24	5.883824672D 06 FT	1.793389760D 06 M
		2560	13334			
* YLIM	+ 0	2561	00016	24	8.200000000D 00 N.MI.	1.518640000D 04 M
		2562	32446			
* ABTRDOT	+ 0	2563	00007	7	1.950000000D 01 FT/SEC	5.943600000D-02 M/CS
		2564	23346			
* COSTHET1+	0	2565	00000	2	0.0	UNITLESS 0.0
		2566	00000			UNITLESS
* COSTHET2+	0	2567	06733	2	8.660254037D-01 UNITLESS	8.660254037D-01 UNITLESS
		2570	07535			
* DLAND	+ 0	2631	00000	24	0.0	FT 0.0
		2632	00000			M

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REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	DLAND	+ 2	2633 00000 2634 00000	24	0.0 FT	0.0 M
*	DLAND	+ 4	2635 00000 2636 00000	24	0.0 FT	0.0 M
*	HIASCENT+	0	3000 02324	16	1.090000000D 04 LBS	4.944156833D 03 KG
1**	ROLLTIME+	0	3001 06236	14	3.230000000D 01 SEC	3.230000000D 03 CS
1**	PITTIME	+ 0	3002 06251	14	3.241000000D 01 SEC	3.241000000D 03 CS
*	DKTRAP	+ 0	3003 77001	-3	-3.888888889D-03 REV/SEC	-3.888888889D-03 REV/SEC
*	DKOMEGAN+	0	3004 00012	14	1.000000000D 01 UNITLESS	1.000000000D 01 UNITLESS
*	DKKAOSN	+ 0	3005 00074	14	6.000000000D 01 UNITLESS	6.000000000D 01 UNITLESS
*	LMTRAP	+ 0	3006 77001	-3	-3.888888889D-03 REV/SEC	-3.888888889D-03 REV/SEC
*	LMOMEGAN+	0	3007 00000	14	0.0 UNITLESS	0.0 UNITLESS
*	LMKAOSN	+ 0	3010 00074	14	6.000000000D 01 UNITLESS	6.000000000D 01 UNITLESS

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
*	DKDB	+ 0 3011	00200	15	2.560000000D 02 REV-1	2.560000000D 02 REV-1
1 *	IGNAOSQ	+ 0 3012	01737	-2	5.442000000D 00 DEG/SEC2	1.511666667D-02 REV/SEC2
1 *	IGNAOSR	+ 0 3013	00021	-2	9.400000000D-02 DEG/SEC2	2.611111111D-04 REV/SEC2
*	DOWNTORK+	0 3113	00000	5	0.0	JET SEC 0.0 JET SEC
*	DOWNTORK+	1 3114	00000	5	0.0	JET SEC 0.0 JET SEC
*	DOWNTORK+	2 3115	00000	5	0.0	JET SEC 0.0 JET SEC
*	DOWNTORK+	3 3116	00000	5	0.0	JET SEC 0.0 JET SEC
*	DOWNTORK+	4 3117	00000	5	0.0	JET SEC 0.0 JET SEC
*	DOWNTORK+	5 3120	00000	5	0.0	JET SEC 0.0 JET SEC
*	AGSK	+ 0 3371	04225 3372 10400	28	1.000000000D 02 HR	3.600000000D 07 CS
*	AZBIAS	+ 0 3373	00000	-1	0.0	DEG 0.0 REV
*	ATIGINC	+ 0 3400	00001 3401 03120	28	3.000000000D 00 MIN	1.800000000D 04 CS

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
	* PTIGINC	+ 0	3402 000C1 3403 03120	28	3.000000000D 00 MIN	1.800000000D 04 CS
1	* AOTAZ	+ 0	3404 65271	-1	-5.984300000D 01 DEG	-1.662305556D-01 REV
1	* AOTAZ	+ 1	3405 00011	-1	1.010000000D-01 DEG	2.805555556D-04 REV
1	* AOTAZ	+ 2	3406 12532	-1	6.004900000D 01 DEG	1.668027778D-01 REV
1	* AOTAZ	+ 3	3407 25267	-1	1.201390000D 02 DEG	3.337194445D-01 REV
1	* AOTAZ	+ 4	3410 40012	-1	-1.798950000D 02 DEG	-4.997083334D-01 REV
1	* AOTAZ	+ 5	3411 52534	-1	-1.199310000D 02 DEG	-3.331416667D-01 REV
1	* AOTEL	+ 0	3412 10001	-1	4.501400000D 01 DEG	1.250388889D-01 REV
1	* AOTEL	+ 1	3413 10003	-1	4.503600000D 01 DEG	1.251000000D-01 REV
1	* AOTEL	+ 2	3414 10002	-1	4.501700000D 01 DEG	1.250472222D-01 REV
1	* AOTEL	+ 3	3415 C7776	-1	4.497600000D 01 DEG	1.249333333D-01 REV
1	* AOTEL	+ 4	3416 C7774	-1	4.495500000D 01 DEG	1.248750000D-01 REV

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

REV	MNEMONIC	ADDR	OCTAL	SF	ENGINEERING VALUE	VALUE IN AGC UNITS
1 *	AOTEL	+ 5	3417 07776	-1	4.497300000D 01 DEG	1.249250000D-01 REV
*	LRHMAX	+ 0	3420 35610	14	5.000000000D 04 FT	1.524000000D 04 M
*	LRWH	+ 0	3421 13146	0	3.500000000D-01 UNITLESS	3.500000000D-01 UNITLESS
*	ZOOMTIME+	0	3422 05050	14	2.600000000D 01 SEC	2.600000000D 03 CS
*	TENDBRAK+	0	3423 01407	17	6.200000000D 01 SEC	6.200000000D 03 CS
*	TENDAPPR+	0	3424 00226	17	1.200000000D 01 SEC	1.200000000D 03 CS
*	DELTTFAP+	0	3425 76224	17	-7.000000000D 01 SEC	-7.000000000D 03 CS
*	LEADTIME+	0	3426 77743	17	-2.200000000D 00 SEC	-2.200000000D 02 CS
*	RPCRTIME+	0	3427 01407	17	6.200000000D 01 SEC	6.200000000D 03 CS
*	RPCRTQSW+	0	3430 57777	1	-1.000000000D 00 UNITLESS	-1.000000000D 00 UNITLESS
*	TNEWA	+ 0	3431 20000 3432 00000	28	1.342177280D 08 CS	1.342177280D 08 CS

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

A	B	C	D	E	F	G	H	I	J	K	L	ID
ID V71	V71	V71	V71	ID V71	V71	V71	V71	ID V71	V71	V71	V71	ID
01 00021	00017	00010	00022	01 00012	00024	00024	00024	01 00015	00024	00023	00016	01
02 01452	01700	01766	02000	02 02020	02400	02422	02444	02 02466	02512	02534	02555	02
03 04554	00000	01351	05750	03 00311	00001	77772	00704	03 76366	00116	14370	00400	03
04 61325	00000	24734	00763	04 34350	36331	50265	04643	04 60601	11463	11300	07673	04
05 04061	00000	02354	17270	05 00070	77777	00000	37777	05 71727	11463	00000	03327	05
06 71344	00000	04761	17270	06 01504	42227	23567	37777	06 57777	11463	07356	13334	06
07 02760	00000	00410	00023	07 77736	00000	77675	00000	07 04114	06315	34075	00016	07
10 70230	00000	00165	00001	10 72015	01405	65140	00000	10 04454	06315	00001	32446	10
11 77731	00011		00000	11 04172	77774	77773	00567	11 07640	06315	27631	00007	11
12 00114	13352		00000	12 15440	60122	51173	25762	12 14632	03146	00013	23346	12
13 77264	37740		00103	13	77777	77755	00113	13 00017	46200	06551	00000	13
14 00522	00000		00103	14	77572	66351	04704	14 00000	54401	07022	00000	14
15 77661	34355		77777	15	77766	00000	00416	15 00226	67225	16520	06733	15
16 00554	00000		75361	16	55311	00055	12774	16	71713	73446	07535	16
17 77745	14715		00013	17	77777	77161	77720	17	74216	76206		17
20 77627			14450	20	72367	77106	60230	20	00031	07012		20
21 00116			00004	21	77767	77743	77063	21	77776	27110		21
22			03651	22	73603	67344	52706	22	77757	75536		22
23				23	00000	77541	77251	23	00004	55224		23
24				24	00024	63456	77371	24	00000			24

ENC. 2

LGC FINAL E-LOAD LUMINARY 210 APOLLO 16-APRIL 16 LAUNCH 03-24-72

	M	N	O	P	Q	R	S	
ID	V71	V71	V71	V71	ID V71	V72	V72	
01	00010	00013	00010	00022	01 00015	00023	00017	
02	02631	03003	03113	03400	02 03420	01347	01315	02
03	00000	77001	00000	00001	03 35610	12160	13146	03
04	00000	00012	00000	03120	04 13146	01350	02371	04
05	00000	00074	00000	00001	05 05050	03363	00000	05
06	00000	77001	00000	03120	06 01407	01353	02372	06
07	00000	00000	00000	65271	07 00226	00052	00000	07
10	00000	00074	00000	00011	10 76224	01354	02373	10
11		00200		12532	11 77743	00003	00000	11
12		01737		25267	12 01407	01477	03371	12
13		00021		40012	13 57777	00000	04225	13
14				52534	14 20000	02503	03372	14
15				10001	15 00000	00000	10400	15
16				10003	16	02504	03373	16
17				10002	17	00750	00000	17
20				07776	20	02511		20
21				07774	21	01717		21
22				07776	22	03000		22
23					23	02324		23
24					24			24



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

REPLY TO
ATTN OF: FS66-72-46

MAR 24 1972

MEMORANDUM

TO: PE/Chief, LM Project Engineering Division

FROM: FS/Chief, Flight Support Division

SUBJECT: K-Start Tape to be used for Final Loading of the LGC
Erasable Memory

K-Start tape F10I2100-K00068-5 dated March 16, 1972, should be used to initialize the LGC erasable memory during the Apollo 16 Countdown Demonstration Test (CDDT) to support the launch date of April 16, 1972. The manual entries required for initializing the LGC state vector are as follows:

V71E
00021E
01501E
77775E
77626E
66144E
00257E
36310E
00157E
36377E
27354E
37767E
07363E
07316E
01740E
21522E
37777E
37777E
V33E

The above octal load corresponds to a state vector with the following components:

X = -2830281.03 ft.
Y = 4728937.58 ft.
Z = 3008921.62 ft.

Enc. 3

$$\dot{X} = 7697.798 \text{ ft/sec}$$

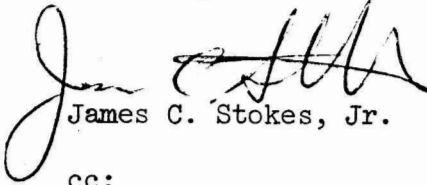
$$\dot{Y} = 2452.448 \text{ ft/sec}$$

$$\dot{Z} = 636.016 \text{ ft/sec}$$

T = POSMAX (37777, 37777)

Initiation of vector loading should be done after the loading of the K-Start tape and prior to the V7⁴E erasable memory dump.

Flight Support Division has coordinated this matter with Mr. J. J. Tadich of KSC. Any changes to the Apollo 16 IGC erasable load will be forwarded to KSC by Mr. R. W. Carl or Mr. J. R. Garman, FS66, extension 2308.



James C. Stokes, Jr.

cc:

KSC/J. J. Tadich, LS-ENG-62

FA/H. W. Tindall, Jr.

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