

Massachusetts Institute of Technology
C. S. Draper Laboratory
Cambridge, Massachusetts

Luminary Project Memo No. 12

TO: Distribution
FROM: R. A. Larson
DATE: 18 November 1970
SUBJECT: Luminary Fixed Memory Constants
Date of expected reply: November 20, 1970

In reply to an action item by the MSC, the attached list of fixed memory constants was prepared by H. McOuat of 23S. You are requested to supply/check the numerical value for each constant given. The form should be the octal value plus scaling from the IE assembly.

Distribution:

D. Moore
P. White
W. Bernikowich
J. Dunbar
S. Albert
B. McCoy
P. Volante

D MOORE

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSO P REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
FAPS	1 736	CONTROLLED CONSTANTS	5.3-23	#3800(3)	4.367 B-7		
MDOTDPS	1 819	"	5.3-27	#3800(3)	0.148 B-3		
DT DECAY	—	"	5.3-27	#3800(3)	-38		
FAPS	2 740 758	"	5.3-30	#3820(2)	7.5569 B-7		
MDOTAPS	—	"	5.3-27	#3820(2)	0.05135 B-3		
AT DECAY	1 825	"	5.3-132	#3830(2) #3950(44)	-18		
100PCT TO	1 819	"		#3970(8)	24 B-17		
FRCS4	2 738 756	"	5.3-23	#3810(2)	.17792 B-7		
FRCS2	1 738	"	5.3-30	#3810(2)	.08896 B-7		
K1VAL	1 756	"	5.3-30	#3840(21)	140.12 B-23		
K2VAL	1 757	"	5.3-30	#3840(21)	31.138 B-24		
K3VAL	1 757	"	5.3-30	#3840(21)	1.5569 B-10		
S40.136	1 757	"	5.3-31	#3840(21)	0.4671 B-9		
S40.136-	1 758	"	5.3-31	#3840(22)	0.4671 B-11		
(1/DV) A	1 825	"	5.3-132	#3950(44)	15.20 B-7		
K(1/DV)	1 819	"	5.3-144	#3970(7)	436.770 B-9		
(AT) A	1 825	"	5.3-132	#3950(44)	3.7813 $\times 10^{-7}$ B-9		

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT. DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
(TBUP) A	1 825	CONTROLLED CONSTANTS	5.3-132	#3950(44)	91902 B-17		
AT/RLS	1 830	"	5.3-147 ¹⁵²	#3950(18)	10000785 B+10		
APSVEX	3 740 847	"	5.3-27, ³³ 152	#3820(2) #3950(44)	-3030 x 10 ⁻² B-5		
DPSVEX	2 736 819	"	5.3-27, ³³ 152	#3800(3) #3970(A)	-29.558868 B-5		
TRIMACCL	1 795	"	5.3-109	#3900(18)	3.50132708 x 10 ⁻⁵		
THRESH 1	1 735	"	5.3-44, ²⁷	#3800(3)	24 cm/sec		
THRESH 3	1 735	"	5.3-44, ²⁷	#3800(3)	309 cm/sec		
HIRTHROT	1 743	"		#3840(23)			
THRESH 2	3 740 823	"	5.3-44	#3850(8) #3950(2)	12 cm/sec		
FMAX ODD	1 777	"	5.3-114	#3900(38)	48145		
FMAX POS	1 777	"	11	#3900(38)	43445		
THROTLAG	1 779	"	11	#3900(40)	0.05		CHN 6
SCALE FAC	2 780 804	"	11	#3900(41)	0.079796		
DPSTHRSH	1 768	"	5.3-27, ⁴⁴	#3900(2)			
LVELBIAS	1 563	"	5.3-81	#3600(65)			
RDOTBIAS	1 565	"	5.2-60	#3600(91)	17000		
RDOTCONV	1 579	"	5.2-59	#3600(60)			

3

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
RANGCONV	1 579	CONTROLLED CONSTANTS	5.2-59	#3400(60)			
HBEAMNB	1 869	"	5.3-57, 74, 80	#3935(13)			
VZBEAMNB	1 872	"	"	#3935(22)			
VYBEAMNB	—	"	"	#3935(22)			
VXBEAMNB	—	"	"	#3935(22)			
HSCAL	1 869	"	5.3-81	#3935(13)			
VZSCAL	1 872	"	"	#3935(22)			
VYSCAL	—	"	"	#3935(22)			
VXSCAL	—	"	"	#3935(22)			
KPIP	1 847	"		#3850(9)			
KPIP1	4 802 865	"		#3850(18)			
KPIP2	1 867	"		#3850(15)			
LANAKPIP	3 879	"		#3930(14)			
MAXVEL	2 882 883	"		#3930(14)			
MAXDBITS	2 883	"		#3930(14)			
VELCONV	2 883	"	5.3-118	#3930(15)			
ALTCONV	1 881	"	"	#3930(14)			

P. WHITE

4

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
ALTCONV	2 882	CONTROLLED CONSTANTS	5.3-118 5.2-60	#3930(14)			
TORKJET	2 1468	"					
FULLAPS	1 216	"		#3010(5)			
MINLMP	1 298	"		#3440(9)			
MINMINLM	1 298	"		#3440(9)			
MINCSM	1 298	"		#3440(9)			
LOASCNT	1 1465	"	3.6-8	#3490(4)			
HIDESCNT	1 1465	"	"	#3490(11)			
LODESCNT	1 1465	"	"	#3490(11)			
HIASCNT	4 216 1465	"		#3490(11)			
-70 DEGS	1 173	T4 RUPT		#3210(53)			
-15 DEGS	1 173	"		#3210(53)			
90 SECS	2 168	"		#3210(42)			
20 SEC	213	AGS INITIAL	5.6-68	#3250(3)			
AGSPMD	213	"		#3250(4)			

5

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
ABOUTONE	255	ADT MARK		3530(16)			
DP 1/12	255	"		#3530(16)			
1SEC+1	2 279 281	EXTENDED VERBS		#3280(2)			
2SOMS+1	1 281	"		#3280(2)			
ATTSCALE	1 285	"					
NORMAL	1 297	"		#3440(7)			
FINE	" "	"		#3440(7)			
1/10	" "	"		#3440(8)			
-0.6D/5	" "	"		#3440(7)			
-0.3D/5	" "	"		#3440(8)			
MINANG	4 — 355	ATT. MANU. ROUTINE		#3430(2)			
MAXANG	" "			#3430(2)			
LOCKANG2	" 354			#3430(2)			

6

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
ARATE	3 367	GIMBAL LOCK AVOIDANCE		#3430(9)			
ANGLTIME	1 "	"		#3430(9)			
DT/TAU	1 368	KOLLMANU		#3430(11)			
ONE SEC	3 369 370	"		#3430(10)			
BIASCALE	1 370	"		#3430(10)			
3990 DEC	1 379	IMU PREP. TEST #2					
DRC SF	1 378						
1 SEC X							
DEC SF5	1 379	IMU PREP TEST #4					
SOUPLY							
77DRCML	1 386						
PIPA SC	1 388						
VEL SC	" "						
ALSK	" 389						

7

W. BERNIKOWICH

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
GEOPBES	2 390 391						
GEORGER							
SINGIMLC	1 487	R60.62		#3420(7)			
SINVEC 1							
SINVEC 2	1 488			#3420(7)			
VECANG1	" "			#3420(8)			
VECANG2	" "			#3420(8)			
1500DEC	2 506 514	P20-P25	5.2-36	#3600(19)			
250DEC	2 505	"	5.2-36	#3600(18)			
MAXTRIES	2 516 517	"	5.2-41	#3600(84)			
500DEC	1 503	"		#3600(98)			
60SCNDS	1 510	"	5.2-41	#3620(4)			
TENSEC	1 517	"	5.2-76	#3600(84)			
HALFSEC	1 516	"	5.2-42	#3600(31)			
COS15DEG	1 525	"	5.2-78	#3600(25)			
DEC(-30555)		"	5.2-44	#3600(29)			

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
-35833		P20-P25	5.2-44	#3600(29)			
-31667		"	"	#3600(29)			
-69444		"	"	#3600(29)			
5.5DEGS	2 530 531	"	"	#3600(29)			
85 DEGS	1 530	"	"	#3600(29)			
DEC 100		"					
DEC 2		"					
DEC 1000		"					
DEC -1.5		"					
-45 DEGR	1 538	"	5.2-44	#3600(45)			
-50 DEGR	1 539	"	5.2-44	#3600(45)			
-80 DEGR	1 "	"	5.2-44	#3600(45)			
DEC 50		"		#3600(47)			
DEC -.00555		"		#3600(47)			
RRSPGAIN	1 541	"		#3600(47)			
-RRLIMIT	2 543	"		#3600(48)			
MAXTRY5	1 550	"		#3600(32)			

9

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
DEC-.30555		P20-P25		#3600(34)			
DEC-.35833		"		"			
30.5 DEGS	1 551	"		"			
DEC 50		"		#3600(39)			
ROESGAIN	2 557	"		#3600(41)			
COS 1/2 DEG	1 "	"	5.2-42	#3600(42)			
MCTOMS	2 555 558	"		#3600(43)			
90MSCALR	1 568	"					
-DTSCALR	1 569	"					
DEC100		"					
6SECS	1 756	"	5.2-52,78				
FHNM	1 575	"	5.2-36	#3600(16)			
THPFEDEG	1 580	"	5.2-56	#3600(61)			
30DEG	1 581	"	5.2-56	#3600(56)			
IMUVAR	2 590 591	"	5.2-68	#3600(78)			
W SIZE	1 593	"		#3600(81)			
SINGODEGS	2 598	"	5.2-51	#3600(51)			

10

G. D W N B A R

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
COS CODEGS	2 598	P20-P35	5.2-51	#3600(S1)			
OFFSTFAC	1 "	"	5.2-51	"			
3SECONDS	1 777	"					
6SECONDS	2 758	"	5.2-52, 78	#3600(49)			
1.5SACS	1 597	"	5.2-51	#3600(50)			
-FOURDT	1 754	P40-P47	5.3-31	#3810(19)			
FOURSECS	1 754	"	"	"			
1SEC 2D	1 757	"	"	#3840(21)			
3.5 SEC	1 757	"	"	"			
5 SEC	2 717 719	"	"	"	5 SECS		
6 SEC	2 758	"	"	#3840(22)	6 SECS		
89 SECS	1 "	"	"	"	79 SECS		
6.5SECS	1 756	"		"	6.5 SECS		
DEC 6000		"					

11

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
GUIDDORN	1 769	LUNAR LAND	S.3-106	#3900 (3)			
HLROFF	2 769 860	" "	S.3-60	#3900 (3)			
FEVTRA	1 777	THROT. CNTL	S.3-114	#3900 (39)			
IAF/CNST	1 776	" "	"	"			
4MAXNOM	1 776	" "	"	"			
SHFTFACT	1 804	LUNAR LAND GUIDANCE		#3900 (32)			
RIMU 2	1 805	"		#3900 (35)			
±ELBIT	1 807	"	S.3-100				
±AZBIT	1 806	"					
ALL4BITS	2 805 806	"					
AZFACH	2 806	"					
ELFACH	2 807	"					
-DEC102	1 811	"		#3900 (34)			
PG4DB	1 785	"		#3900 (7)			
+DEC99	1 811	"		#3900 (34)			

12

LISTING NME MONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSD.P REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
TREDASCL	1 811	LUNAR LAND GUDANAR	5.3-86	#3900 (34)			
180 DEGS	1 790	"		#3900 (11)			
1/2 DEG	" "	"		"			
PROSMAX	1 795	"	5.3-81	#3900 (25)			
PROSMIN	1 "	"	5.3-81	"			
HIGHSTF	1 792	"		#3900 (14)			
GSCALP	2 792 803	"	5.3-111	"			
DEPRCPIT	2 786	"	5.3-110	#3900 (10)			
10SECS	1 835	P70-P71	5.3-154	#3950 (30)			
HINJECT	1 826	"	5.3-135	#3950 (45)			
(TGO)A	1 823	"	5.3-135	#3950 (5)			
K(AT)	1 819	"	5.3-136	#3970 (8)			
49FPS	1 824	P12	5.3-136	#3950 (8)			
VININDM	1 "	"	"	#3950 (7)			
PDOTPNOM	1 "	"	"	"			

13

S. ALBERT

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
BIT 3H	1 827	P12		#3950(13)			
40 FPS	1 836	"	5.3-154	#3950(29)			
4 SEC(17)	1 831	"		#3950(19)			
2 SEC(17)	1 841	"					
T3	1 831	"		#3950(51)			
6 SEC(18)	1 827	"		#3950(13)			
2 SEC(9)	1 827	"		"			
PRLIMIT	2 832	"		#3950(23)			
MINABDV	1 827	"		#3950(12)			
1.75 SEC	1 844	SERVICAR	5.3-69	#3850(4)			
ALT 37771	1 844	"		#3850(3)			
EIGHTHRAIN	1 854	"		#3850(8)			
GSCALE 4	1 862	"		#3850(17)			
BIASFACT	1 854	"		#3850(8)			
DPI/20	1 865	"		#3850(18)			
1-30 KFT	1 860	"		#3935(9)			

124

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SGLT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
GAIN FLTR	1 900	FINDCMQ	5.3-166	#3960(23)			
DUNFULIM	"	"	5.3-165	"			
UNFULIM	"	"	"	#3960(24)			
DOTSW FMX	"	"	5.3-167	#3960(26)			
DAXMAX	2 897 906	"	5.3-170	#3960(16)			
DAY/2MAX	"	"	"	"			
DAZMAX	1 897	"	"	#3960(15)			
CDOZLIM	1 894	"	"	#3960(12)			
DELAPLIM	1 899	"	5.3-173	#3960(11)			
CSS 5	2 916 917	PS1-PS3	5.6-57,58	#3510(3V)			
CSSUN	1 917	"		#3510(33)			
SDRBPRA5	2 917 951	"		#3510(31)			
CSS40	1 919	"		#3510(36)			
CSS33	2 919	"		#3510(35)			
TS/64T #	1 922	"		#3510(23)			
DRGPR #	1 928	"	5.6-6	#3510(10)			

LISTING MEMORIC	LISTING REFERENCE(S)	LISTING LOG SET DEFINITION	GSO P REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
DEG 359	1 928	PS1-PS3	S.G-6	#3510(10)			
DEG 30	2 255 939	"	S.G-41	#3520(28)			
DEG .5	1 939	"	"	#3520(29)			
42 DEG	1 944	"	S.G-49	#3520(11)			
35 DEG	1 "	"	"	"			
166000	1 1231	INFLITE ALIGN		#3310(6)			
DEC 150		IMU MODE SWITCH					
-GYRO MIN	2 1301 1304	"		#3220(27)			
GYRO FRAC	"	"		"			
NARROW DB	1 1385	DAP INTERFACE		#3440(18)			
WIDE DB	1 "			"			
POWER DB	"			"			

16

B. McCoy

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
MS100	2 1390 1399	DAPIDLAR	3.6-4	7/3440(16)			
DACLIMIT	3 1397	"		#3440(27)			
ONE TANTH	1 "	"		"			
		"					
-OCT630	1 1400	P-AXIS PCS		#3440(36)			
KADS		"					
1/10 SEC		"					
40 CYC	1 1413	"		#3470(29)			
-160 MSTG	1 1417	"		#3470(39)			
-FOUR DEG	"	"		#3470(38)			
+150 MSTG	1 1415	"		#3470(41)			
NAPMSCL		"					
-100MS	2 1448	"	3.4-22	#3470(5)			
200MS	2 1405	"	3.4-22	#3470(17)			
25/32	1 1414	"		#3470(33)			
1/40	4 1401 1403	"		#3470(7)			
MIN TIMES	1 1415	"		#3470(41)			

17

LISTING NMEMONIC	LISTING REFERENCES	LISTING LOG SALT DEFINITION	GSDP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
60MS	2 1423	Q, P AXIS-RCS		#3470 (58)			
14 MS	6 "	"		#3470 (56)			
40 CYCL	1 1426	"		#3470 (52)			
LINRAT	2 1424	"		#3470 (51)			
-150MS	1 1431	"		#3470 (64)			
SCLNORM		"					
SENSOR	2 1439	TSET LAW		#3470 (86)			
-3DEG	1 1440	"	3.4-20	#3470 (88)			
-0.012A5	1 1442	"		#3470 (99)			
.1AT4	1 1443	"		"			
.1AT2	1 1445	"		#3470 (94)			
.037SAT4	1 "	"		"			
-.02SAT2	1 "	"		"			
-.02SAT4	1 1443	"		"			
-.05AT2	1 1447	"	3.4-15	#3470 (99)			
-.15AT2	1 "	"	3.4-15	"			

P VOLANTE

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SECT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
.00375A8	1 1443	TSETLAW		#3470 (99)			
-TJMAX	1 1442	"		#3470 (97)			
TJMIN	"	"		#3470 (99)			
PUFPAIR	1 1443	"	3.4-6.11	#3470 (100)			
-100MSTB	3 1448	KALMAN		#3470 (5)			
NEG 1/3	2 1453	TRIM GIMB CONTROL		#3480 (6)			
OCT23146	1 1457	"	3.5-4	#3480 (14)			
OCT00240	"	"	3.5-4	#3480 (15)			
OCT11276	1 1460	"		#3480 (12)			
INERCON A	1 1466	AOSTASK	3.3-3	#3490 (5)			
INERCON B	"	"	"	"			
INERCON C	"	"	"	"			
DGRF	2 1468	"	3.3-7	#3490 (12)			
O.35356	2 1466	"	3.4-5	#3490 (7)			

19

LISTING NMEMONIC	LISTING REFERENCE(S)	LISTING LOG SALT DEFINITION	GSOP REFERENCE(S)	FLOW CHART REFERENCE(S)	NUMERICAL VALUE	SOURCE	REMARK
Z.7071	2 1466 1473	AOSTASK	3.4-5	#3490(7)			
-BPSMAX	4 1466 1467	"	3.4-5	"			
TORQ PWS	1 1473	"	3.3-7	#3490(10)			
ISACCON	"	"	"	#3490(9)			
COEFF	4 1472 1473	"	3.3-9	"			
ZONE3 MAX	1 1475	"	3.4-8.15	#3490(15)			
FLATVAL		"	"	"			
-.03R/S2	6 1476 1483	"		#3490(17)			
.023P/S2	1 1478	"		#3490(29)			
±1.03		"		"			
PATELIM2	2 1488	SPS BACKUP		#3470(81)			
UTIME	1 1486			#3470(84)			
PATELIM ±	1 1487			#3470(80)			
PATRDS ±	1 1489			#3470(85)			