Parker

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

*APOLLO 17

DECEMBER 6 LAUNCH

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BASIC
LM DATA
CARD BOOK

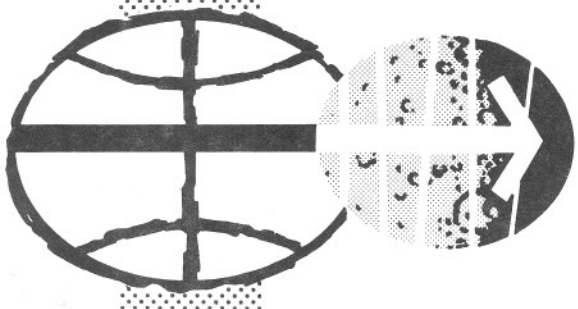
INDEXING DATA

DATE	OPR	#	T	PGM	SUBJECT	SIGNATOR	LOC
9-11-72	MSC	00	R	APO	*	Mitchell	080-44C

PREPARED BY

FLIGHT PLANNING BRANCH

CREW PROCEDURES DIVISION



MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEPTEMBER 11, 1972

APOLLO 17

LM DATA CARD BOOK

SEPTEMBER 11, 1972

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APOLLO 17

LM DATA CARD BOOK

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LM ACTIVATION CARD

DATE 9/11/72

PRIM EVAP ACTIVATION TIME
GET

DAP PAD	
+ + + +	LM WT (36744) N47
+ + + +	CSM WT (37831)
+ + + +	GMBL (00648) N48
+ + + +	(00646)

ED BATT VOLTAGE	
	BATT A
	BATT B
	GET

DOCKED P52 ALIGN	
	R_1 N93
	R_2
	R_3
	GET

V06 N20			
LM	CSM	R	GET
		R1	___:___:___
		R2	(109: 12: 00)
		R3	
		R1	___:___:___
		R2	(109: 22: 00)
		R3	
		R1	___:___:___
		R2	(110: 22: 00)
		R3	

S-BD	
P	AOS (108 47 04)
Y (+125)	
P (-22)	AOS (110 41 08)
Y (+9)	
P (-37)	AOS (112 35 41)
Y (-34)	
(+54)	

UNDOCK/SEP GET (110 27 55)

AGS		
K FACTOR (110 00 00)		
+ +	(+60457)	224
+ +	(+29364)	225
+ +	(+60366)	226
+ +	(+00643)	305
- -	(-33007)	662
- -	(-54456)	673
	(-00002)	540
	(+00007)	541
	(-00002)	542
	(-00005)	544
	(-00105)	545
	(-00023)	546

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ACTIVATION
PIPA/GYRO/DOI2

PIPA BIAS UPDATE

										PBIASX	V21N01E 1452E PBIASX XXXXXE E
										PBIASY	1454E PBIASY XXXXXE E
										PBIASZ	1456E PBIASZ XXXXXE E

GYRO DRIFT COMPENSATION

																NBDX
																NBDY
																NBDZ

PROCEDURES

V25N01E 1460E NBDX XXXXXE NBDY XXXXXE NBDZ XXXXXE	V21N01E 1460E NBDX XXXXXE E 1461E NBDY XXXXXE E 1462E NBDZ XXXXXE

CSM CIRC

P76

+	0	0				+	0	0				HRS (111)	N33
+	0	0	0			+	0	0	0			MIN (55)	TIG
+	0			•		+	0			•		SEC (22.67)	
					•						•	ΔVX (+70.1)	N84
					•						•	ΔVY (+0.0)	
					•						•	ΔVZ (-2.4)	

CSM HA/HP

CMC	LGC	
/	/	V82 OPT 2

DOI-2

+	0	0				+	0	0				HRS (112)	N33
+	0	0	0			+	0	0	0			MIN (00)	TIG
+	0			•		+	0			•		SEC (33.71)	
					•						•	ΔVX (-9.4)	N81
					•						•	ΔVY (0.0)	LOCAL
					•						•	ΔVZ (+0.8)	VERT
+						+	0	0				H_A (+60.0)	N42
						+	0	0				H_p (+ 7.2)	
+						+	0					ΔVR (+9.4)	
X	X	X	0	:		X	X	X	0	:		BT (0:27)	
X	X	X				X	X	X				R (000)	FDAI
X	X	X				X	X	X				P (085)	INER
+					•	+					•	TIG (120.6)	AGS 373
					•						•	ΔVX AGS (-9.4)	
					•						•	ΔVY AGS (0.0)	
					•						•	ΔVZ AGS (+0.8)	

DOI-2 RULES

RCS -X BURN LIMIT 30 SECONDS

NO CSM CIRC

+	0	0				+	0	0				HRS TIME
+	0	0	0			+	0	0	0			MIN CLOSEST
+	0					+	0					SEC APPROACH
												RANGE
												RDOT
	0						0					θ

PDI RULES

1. NO AUTO ULLAGE - BACKUP VIA +X OVERRIDE (+NO AUTO IGNITION - PDI NO-GO)
2. NO IGN (WITH AUTO ULL) DELAY 2 SEC, THEN START PB-PUSH; THEN DES OVRD - ON AT 5 SEC
3. T/W >1.6 AND DSKY CHANGES <18 fps/2 SEC
4. ATT/RATE <5°/SEC
5. DATA GOOD BY 6,000 ft
6. IF NO THROTTLE DOWN BY P64 + 15 SEC - ABORT
7. BINGO FUEL 1 MIN 31 SEC AFTER LOW LEVEL OR WHEN FUEL QTY <2% UNLESS LANDING IMMINENT

NOTE: FLASHING LR ALT OR VEL LTS PRECEDED BY STEADY LR LT WITH ALT LOCK-ON (<40K ft), CYCLE LR CB

NO PDI + 12

+	0	0				+	0	0				HRS (113) N33
+	0	0	0			+	0	0	0			MIN (01) TIG
+	0					+	0					SEC (08.20) E
												ΔVX (+107.9) N81
												ΔVY (+0.0) LV
												ΔVZ (-46.9) F
+						+						HA (+143.8) N42
												HP (+5.6)
+						+						ΔVR (+117.7)
X	X	X				X	X	X				BT (0:39)
X	X	X				X	X	X				R (000) FDAI
X	X	X				X	X	X				P (272) INER
+						+						TIG (+181.1) 373
												ΔVX (+107.9) N86
												ΔVY (0.0) AGS
												ΔVZ (-46.9)
+	0	0				+	0	0				HRS (113) N11
+	0	0	0			+	0	0	0			MIN (56) CSI
+	0					+	0					SEC (37.70) G
+	0	0				+	0	0				HRS (115) N37
+	0	0	0			+	0	0	0			MIN (37) TPI
+	0					+	0					SEC (08.20) H
+						+						ΔVX(98.0)NO DOI-2

PGNS			RESIDUALS			AGS	
		ΔVX	N85			ΔVX	500
		ΔVY				ΔVY	501
		ΔVZ				ΔVZ	502

CIRC/NO PDI +12
PDI1/PDI2 ABORT

PDI 1 ABORT CARD

PDI 1 PAD

+ 0 0 / + 0 0	HRS (112) N33
+ 0 0 0 / + 0 0 0	MIN (49) PDI
+ 0 / + 0	SEC (37.70) I
± / ±	TIG(169.6)AGS 373
X X : / X X :	TGO(11:33) N61
	X RANGE (+0.0)
X X X / X X X	R (000) FDAI
X X X / X X X	P (108) AT TIG
X X X / X X X	Y (290)
	DEDA 231 IF ROD

(0<PDI 1<10:00) ABORT PAD EARLY

LOG INSERTION GET = ___ ___ ___:___ ___:___ ___
+ 5 5 0 0
CSI GET = ___ ___ ___:___ ___:___ ___

+ 0 0 / + 0 0	HRS (115) N37
+ 0 0 0 / + 0 0 0	MIN (37) TPI
+ 0 / + 0	SEC (08.20) J
± / ±	TPI(337.1)AGS 275

T1-1 (10:00<PDI 1<17:10) ABORT PAD LATE

LOG INSERTION GET = ___ ___ ___:___ ___:___ ___
+ 5 0 0 0
BOOST GET = ___ ___ ___:___ ___:___ ___
+ 1 0 0 0 0
HAM GET = ___ ___ ___:___ ___:___ ___
+ 5 0 0 0
CSI GET = ___ ___ ___:___ ___:___ ___

+ 0 0 / + 0 0	HRS (117) N37
+ 0 0 0 / + 0 0 0	MIN (36) TPI
+ 0 / + 0	SEC (03.70) K
± / ±	TPI(456.1)AGS 275

T2-1(PDI 1 + 24:45 ___:___) ABORT PAD

LOG INSERTION GET = ___ ___ ___:___ ___:___ ___
+ 5 0 0 0
BOOST GET = ___ ___ ___:___ ___:___ ___
+ 3 0 0 0 0
HAM GET = ___ ___ ___:___ ___:___ ___
+ 5 0 0 0
CSI GET = ___ ___ ___:___ ___:___ ___

+ 0 0 / + 0 0	HRS (113) N33
+ 0 0 0 / + 0 0 0	MIN (14) TIG
+ 0 / + 0	SEC (22.60) L
± / ±	TIG(194.4)AGS 373
+ 0 0 / + 0 0	HRS (119) N37
+ 0 0 0 / + 0 0 0	MIN (34) TPI
+ 0 / + 0	SEC (59.10) M
± / ±	TPI(575.0)AGS 275

N69 TARGET UPDATE

	ΔDN RNG
	ΔX RNG V25
	ΔRLS
	ΔDN RNG V21
	ΔDN RNG
	ΔX RNG V24
	ΔRLS V23

THROTTLE DOWN ___:___

T3-1 (1 REV) ABORT TIME

+ 0 0 / + 0 0	HRS (114) N33
+ 0 0 0 / + 0 0 0	MIN (57) TIG
+ 0 / + 0	SEC (30.00) N
± / ±	TIG(297.5)AGS 373

PDI 2 ABORT CARD

PDI 2 PAD		
+ 0 0 : :	+ 0 0 : :	HRS (114) N33
+ 0 0 0 :	+ 0 0 0 :	MIN (43) PDI
+ 0 .	+ 0 .	SEC (09.70)
+	+	TIG(283.2)AGS 373
X X : :	X X : :	TGO(11:33) N61
.	.	X RANGE (+0.0)
X X X .	X X X .	R ( ) FDAI
X X X .	X X X .	P ( ) AT TIG
X X X .	X X X .	Y ( )
		DEDA 231 IF RQD

(0<PDI 2<6:20) ABORT PAD EARLY

LOG INSERTION GET = ___ ___ ___ : ___ ___ : ___ ___
+ 1 0 0 0 0
BOOST GET = ___ ___ ___ : ___ ___ : ___ ___
+ 1 0 0 0 0
HAM GET = ___ ___ ___ : ___ ___ : ___ ___
+ 1 0 0 0 0
CSI GET = ___ ___ ___ : ___ ___ : ___ ___

+ 0 0 0 :	+ 0 0 : :	HRS (119) N37
+ 0 0 0 :	+ 0 0 0 :	MIN (34) TPI
+ 0 .	+ 0 .	SEC (59.10)
+	+	TPI(575.0)AGS 275

T1-2(6:20≤PDI 2≤15:40) ABORT PAD LATE

LOG INSERTION GET = ___ ___ ___ : ___ ___ : ___ ___
+ 5 5 0 0
CSI TIG = ___ ___ ___ : ___ ___ : ___ ___

+ 0 0 : :	+ 0 0 : :	HRS (117) N37
+ 0 0 0 :	+ 0 0 0 :	MIN (36) TPI
+ 0 .	+ 0 .	SEC (03.70)
+	+	TPI(456.6)AGS 275

T2-2(PDI 2 + 22:19 ___ : ___) ABORT PAD

LOG INSERTION GET = ___ ___ ___ : ___ ___ : ___ ___
+ 5 0 0 0
BOOST GET = ___ ___ ___ : ___ ___ : ___ ___
+ 1 0 0 0 0
HAM GET = ___ ___ ___ : ___ ___ : ___ ___
+ 5 0 0 0
CSI GET = ___ ___ ___ : ___ ___ : ___ ___

+ 0 0 : :	+ 0 0 : :	HRS (115) N33
+ 0 0 0 :	+ 0 0 0 :	MIN (05) TIG
+ 0 .	+ 0 .	SEC (29.00)
+	+	TIG(305.5)AGS 373
+ 0 0 : :	+ 0 0 : :	HRS (119) N37
+ 0 0 0 :	+ 0 0 0 :	MIN (34) TPI
+ 0 .	+ 0 .	SEC (59.10)
+	+	TPI(575.0)AGS 275

N69 TARGET UPDATE

	ΔDN RNG
	ΔX RNG V25
	ΔRLS
	ΔDN RNG V21
	ΔDN RNG
	ΔX RNG V24
	ΔRLS V23

THROTTLE DOWN ___ : ___

T3-2 (1 REV) ABORT TIME

+ 0 0 : :	+ 0 0 : :	HRS (116) N33
+ 0 0 0 :	+ 0 0 0 :	MIN (51) TIG
+ 0 .	+ 0 .	SEC (00.00)
+	+	TIG(411.0)AGS 373

PDI2/PDI2 ABORT
LUNAR SURFACE

DATE 9/11/72

LUNAR SURFACE CARD

FIRST REV ACTIVITY

LAUNCH PREP

N20 (EMERGENCY LIFTOFF)
_____OG_____IG_____MG

P57, A/T 3, REFSMMAT
NO4 _____, _____ GRAV ERR
STAR _____ (N71)
NO5 _____ ANGLE DIFF
N93 _____ X
_____ Y
_____ Z

N20 (PARKING)
_____OG 0.00 IG_____MG

NO VOICE LGC CLOCK SYNCH

CST ZERO = : :

+(i)·(24) = _____ : : (1)

Latest CST = : : (2)

+CST(Watch)= _____ : : (3)

GET = : :

NOTES:
(1) i=1, 2, 3, -----
(2) Latest CST not exceeding NOM TIG for this REV
(3) Must be in 24 hour day

LM SHADOW LENGTH

GET	LENGTH (ft)
110	110
130	60
150	40
160	32
180	22

N43
LAT(+N) ___:___
LONG(+E) ___:___
ALT :

047 _____ 053 _____

544 _____ +5:02 _____
545 _____ _____
546 _____ _____

P57, A/T 3, LANDING SITE
NO4 _____, _____ GRAV ERR
ALIGN STAR _____ (N71)
NO5 _____ ANGLE DIFF
N93 _____ X
_____ Y
_____ Z

DATA STAR 1 _____
DATA STAR 2 _____
DATA STAR 3 _____
DATA STAR 4 _____

LIFT-OFF TABLE

NOMINAL = (M=2) (M=1) ~ (M=2) -2:30

REV	NEW TIG	NOM TIG	REV	NEW TIG	NOM TIG
15		116:56:11	32		150:32:16
16		118:54:47	33		152:30:51
17		120:53:22	34		154:29:27
18		122:51:58	35		156:28:02
19		124:50:34	36		158:26:38
20		126:49:09	37		160:25:13
21		128:47:46	38		162:23:48
22		130:46:20	39		164:22:24
23		132:44:56	40		166:20:59
24		134:43:32	41		168:19:34
25		136:42:07	42		170:18:09
26		138:40:43	43		172:16:45
27		140:39:18	44		174:15:20
28		142:37:54	45		176:13:55
29		144:36:29	46		178:12:30
30		146:35:05	47		180:11:05
31		148:33:40	48		182:09:40
			49		184:08:30
			50		186:07:05

P57, A/T 3, LANDING SITE
NO4 _____, _____ GRAV ERR
STAR _____ (N71)
NO5 _____ ANGLE DIFF
N 93 _____ X
_____ Y
_____ Z

P22 ACQ ___:___:___
(185: 54 : 00)

REV 50 TIG ___:___:___
(188: 03 : 15)

544 _____ +5:02 _____
545 _____ _____
546 _____ _____
377 _____ _____

K FACTOR :___:___
(180: 00 : 00)

047 _____
053 _____

PIPA BIAS UPDATE*

					PBIASX
					PBIASY
					PBIASZ

GYRO DRIFT UPDATE*

					NBDX
					NBDY
					NBDZ

*PROCEDURES ON PAGE 2

ABORT/ASCENT CARD

ASCENT RULES

UNDERBURN

ΔV(FPS)	TIME(SEC)	PGNS	AGS
<400	<20	NULL RESIDUALS	AUTO,A/H 15fps
>400	>20	A/H BURN HA,HP Ḣ CONTROL	AUTO,A/H 15fps

INSERTION

WITH VOICE-GROUND RECOMMENDS TRIM SOURCE AT T_{GO}= 1 MIN

- DIRECT ASCENT RNDZ
  TRIM X-AXIS ONLY TO <2 FPS AND STANDBY FOR TWEAK AT INSERTION ATTITUDE
- COELLIPTIC RNDZ
  TRIM X-AXIS ONLY TO <2 FPS AND STANDBY FOR TWEAK (10° OHW OR 257° FDAI)
- TWEAK AT INSERTION PLUS 3 MINUTES

FOR NO VOICE (TRIM TO <2 fps)

PGNS,AGS DIFFER <10FPS, TRIM ACTIVE SYSTEM
PGNS,AGS DIFFER >10FPS, TRIM SYSTEM WHICH AGREES WITH RR

ATT/RATE ERROR >10°/SEC , SWITCH GUIDANCE

T3 (1 REV) ABORT PAD

LOG INSERTION GET= ___ ___ ___:___ ___:___ ___
+ 5 0 0 0
CSI TIG= ___ ___ ___:___ ___:___ ___
+ 1 3 3 0 0
TPI TIG= ___ ___ ___:___ ___:___ ___

			HRS (114) N33
+ 0 0	+ 0 0		
+ 0 0 0	+ 0 0 0		MIN (57) TIG
+ 0	+ 0		SEC (30:00)

ONE REV LATE ___:___:___
(190 : 04 : 20)

LM ASCENT PAD

+ 0 0	+ 0 0	+ 0 0	HRS (188) N33
+ 0 0 0	+ 0 0 0	+ 0 0 0	MIN (03) TIG
+ 0	+ 0	+ 0	SEC (14.64)
+	+	+	V(H) (5539.2)
+	+	+	V(V) (32.0)N76
0	0	0	X RANGE(+0.0)*
+	+	+	047 (+37153)
+	+	+	053 (+07045)
+	+	+	224/226(+58624)
+	+	+	231 (+56906)
+	+	+	465 (+32.0)
+	+	+	373 TPI(+537.5)
+ 0 0	+ 0 0	+ 0 0	HRS (188) N37
+ 0 0 0	+ 0 0 0	+ 0 0 0	MIN (57) TPI
+ 0	+ 0	+ 0	SEC (32.30)
+	+	+	LM WT (10917)
+	+	+	HA (62.0) CSM
+	+	+	HP (62.0)
+	HA V82	+	HA 315
+	HP	+	HP 403

RESIDUALS

PGNS		AGS	
ΔVX	N85	ΔVX	500
ΔVY		ΔVY	501
ΔVZ		ΔVZ	502

*NOTE: LOAD 8 NM CROSSRANGE IF GREATER THAN 8 NM

ABORT/ASCENT
DIRECT TPI

DATE 9/11/72

DIRECT TPI CARD

IF TWO OF THREE SOLUTIONS AGREE,
BURN PRIORITY SOLUTION.

PRIORITY OF SOLUTION: PGNS, AGS, CMC, CHARTS.
GUIDE VALUES: $\dot{X}$=3 fps, $\dot{Y}$=7 fps, $\dot{Z}$=9 fps

RR AGREES WITH VHF WHERE
$\Delta R = 0.01R + 0.5$ NM, ΔR IS ALWAYS $\geq$ 1 NM
RR DOES NOT AGREE WITH VHF,
MSFN ISOLATES FAILED SYSTEM.

APS FOR $\Delta V > 40$fps, DPS FOR $\Delta V > 6$fps(DPS FULL)

AGS RECOVERY FROM BAD RADAR MARKS, PAGE 9

TPI SOLUTIONS

		PGNS	AGS	CMC	CHARTS
TIG		N37	373	N37	
θ LOS	(+26.6)	N55	303	N55	
HP	(+46.7)	N58	402	N58	
ΔV TPI	(+76.5)		370		
ΔV TPF	(+31.7)**		371		
ΔVX		N81	450	N81*	ΔVX
ΔVY			451	*	
ΔVZ			452	*	ΔVZ

** { IF ΔV TPF>100 fps, OR / 1 RCS LOST AND ΔV TPF>55 fps } DO TPI 2 PAGE 9

*CHANGE SIGN BIAS; ΔVX = -1.0, ΔVZ = +2.0

TPI PAD

+	0	0				+	0	0				HRS (188) N37
+	0	0	0			+	0	0	0			MIN (57) TPI
+	0		•			+	0		•			SEC (32.30)
R1(+00000), R2(+000.00), R3(+130.00)												N55
	0			•			0			•		ΔVX (+75.1) N81
	0			•			0			•		ΔVY (-0.3) LV
	0			•			0			•		ΔVZ (+14.7)
+	0		•			+	0		•			R (+36.74) N54 TPI
-	0			•		-	0			•		R (-101.7) TIG-5
X	X		•			X	X		•			BT (00:03)

		PGNS	AGS	CMC	CHARTS
TIG		N37	373	N37	
θ LOS		N55	303	N55	
HP		N58	402	N58	
ΔV TPI			370		
ΔV TPF	**		371		
ΔVX		N81	450	N81*	ΔVX
ΔVY			451	*	
ΔVZ			452	*	ΔVZ

RESIDUALS

PGNS		AGS	
ΔVX	N85	ΔVX	500
ΔVY		ΔVY	501
ΔVZ		ΔVZ	502

AGS RECOVERY FROM BAD RADAR MARKS

PRE TPI

ASSUMED STEADY STATE BEFORE N49
411+0
✓ ANGLE, RANGE AND RANGE RATE
606R -XXXXX RANGE AND ANGLES USED IN LAST UPDATE
+00000 RANGE RATE USED IN LAST UPDATE
DO AN IMMEDIATE V47 FOR THE FOLLOWING:
1) LESS THAN 10 MIN OF TRACKING LEFT (AND ANOTHER AT TIG -5 MIN)
2) FOR θ,R, OR Ṙ GREATER THAN 5°, 5NM, OR 15FPS: ALSO REINITIALIZE FILTER, AND CONTINUE MANUAL UPDATING.

DON'T DO A V47 FOR THE FOLLOWING:
1) FOR θ,R, OR Ṙ LESS THAN 5°, 5NM, OR 15FPS: DO REINITIALIZE FILTER, AND CONTINUE MANUAL UPDATING.

POST TPI

N49 ON FIRST PGNCS UPDATE
1) DO NOT INCORPORATE INTO PGNCS, WAIT FOR SECOND UPDATE.
2) AT SECOND UPDATE:
IF N49 REPEATS: KEEP AGS AUTO UPDATING
IF N49 DOES NOT REPEAT: DO V47 AND NO UPDATES

N49 AFTER STEADY-STATE
DO V47 WITH NO FURTHER UPDATES

TPI 2 PROCEDURE

PERFORM MCC-1

PGNS

P34

LOG N37
+ 37

GET TPI 2 = [ ][ ][ ][ ][ ][ ][ ][ ]

N55 (ω_t) = $\frac{(\Delta V\ TPF)}{2}$ = [ ][ ][ ][ ][ ]

V93

AGS

410 + 4

LOG TIG TPI
+ 37.0 (373)

GET TPI 2 = [ ][ ][ ][ ][ ]

307 = $\frac{(\Delta V\ TPF)}{6}$ = [ ][ ][ ][ ][ ]

417 + 1

411 + 1

CSI CARD

BURN RULES

IF TWO OF THREE SOLUTIONS AGREE
BURN PRIORITY SOLUTION.

PRIORITY OF SOLUTIONS: PGNS, AGS, CMC, CHARTS.

GUIDE VALUE: $\dot{X}$ = 3 fps.

RR AGREES WITH VHF WHERE
$\Delta R = 0.01R + 0.5$ NM, ΔR IS ALWAYS $\geq$ 1 NM
RR DOES NOT AGREE WITH VHF,
MSFN ISOLATES FAILED SYSTEM.

V90 < 5 fps - NO BURN

APS FOR ΔV>40fps, DPS FOR ΔV>6 fps (DPS FULL)

CSI PAD

+ 0 0 . . . + 0 0 . . .	HRS(189) N11
+ 0 0 0 . . + 0 0 0 . .	MIN(02) CSI
+ 0 . . . . + 0	SEC(38.40)
R1(+00001),R2(+026.60),R3(+130.00)	N55
+ 0 0 . . . + 0 0 . . .	HRS(190) N37
+ 0 0 0 . . + 0 0 0 . .	MIN(56) TPI
+ 0 . . . . + 0	SEC(06.60)
0 . . . . 0	ΔVX(+54.8)N81
0 . . . . 0	ΔVY(+0.0)LV
410+1, 605+00777, 416+1, 623+0	
+ . . . . + ...	373(542.6)
+ . . . . + ...	275(656.1)
0 . . . . 0	ΔVX(+54.7)N86
0 . . . . 0	ΔVY(+0.0)AGS
0 . . . . 0	ΔVZ(+1.2)

CSI SOLUTIONS

	PGNS	AGS	CMC	CHARTS
ΔH (+15.0)	N75 _____	402 _____		
CSI/CDH(58:35)	_____	372 _____		
CDH/TPI(54:53)	_____			
ΔVX (ΔVG)	N81 _____	370 _____	N81* _____	ΔV _____
ΔVY	_____	263 _____	* _____	
CDH ΔVX(0.0)	N82 _____			
CDH ΔVX(0.0)	_____			

*CHANGE SIGN BIAS; ΔVX = -1.0

ΔH	N75 _____	402 _____		
CSI/CDH	_____	372 _____		
CDH/TPI	_____			
ΔVX (ΔVG)	N81 _____	370 _____	N81* _____	ΔV _____
ΔVY	_____	263 _____	* _____	
CDH ΔVX	N82 _____			
CDH ΔVZ	_____			

RESIDUALS

PGNS		AGS	
ΔVX	N85	ΔVX	500
ΔVY		ΔVY	501
ΔVZ		ΔVZ	502

IF TWO OF THREE SOLUTIONS AGREE, BURN PRIORITY SOLUTION.
PRIORITY OF SOLUTION: PGNS, AGS, CMC, CHARTS.
GUIDE VALUES: X=3fps, Z=9fps
RR AGREES WITH VHF WHERE ΔR=0.01 + 0.5 NM, ΔR IS ALWAYS >1 NM
RR DOES NOT AGREE WITH VHF, MSFN ISOLATES FAILED SYSTEM.
V90 <5fps - NO BURN
APS FOR ΔV>40fps, DPS FOR ΔV>6fps(DPS FULL)

CDH/PLANE CHANGE CARD

DATE 9/11/72

CDH PAD

+	0	0				+	0	0				HRS(190) N13
+	0	0	0			+	0	0	0			MIN(01) CDH
+	0		•			+	0		•			SEC(13.20)
	0			•			0			•		ΔVX(+0.0) N81
	0			•			0			•		ΔVY(+0.0) LV
	0			•			0			•		ΔVZ(+0.0)
X	X	X				X	X	X				PLM FDAI
+				•		+				•		373(601.2)
	0			•			0			•		ΔVX(+0.0) N86
	0			•			0			•		ΔVY(+0.0) AGS
	0			•			0			•		ΔVZ(+0.0)

PLANE CHANGE P30

TIG CDH ___ ___ ___ : ___ ___ : ___ ___ . ___ ___

- : 30 : 00 . 00

TIG PC ___ ___ ___ : ___ ___ : ___ ___ . ___ ___

YDOT AND Y

CSM(N90)		PGNS(N90)		AGS(270)
YDOT	Y	YDOT	Y	YDOT
(-) ___ •	___ •	(-) ___ •	___ •	( ) ___ •	___ •
(-) ___ •	___ •	(-) ___ •	___ •	( ) ___ •	___ •

CDH SOLUTIONS

		PGNS	AGS	CMC	CHARTS
ΔH	(14.7) N75		402		
CDH/TPI	(54:53)				
ΔT SLIP	(00:00)				
ΔVX	N81		450	N81*	ΔVX
ΔVY			263	*	
ΔVZ			452	*	ΔVY

*CHANGE SIGN
NO BIAS

ΔH	N75		402		
CDH/TPI					
ΔT SLIP					
ΔVX	N81		450	N81*	ΔVX
ΔVY			263	*	
ΔVZ			452	*	ΔVY

RESIDUALS

PGNS		AGS	
ΔVX	N85	ΔVX	500
ΔVY		ΔVY	501
ΔVZ		ΔVZ	502

PAGE 11

CDH/PLANE CHANGE
COELLIPTIC TPI

COELLIPTIC TPI CARD

BURN RULES

IF TWO OF THREE SOLUTIONS AGREE,
BURN PRIORITY SOLUTION.

PRIORITY OF SOLUTIONS: PGNS, AGS, CMC, CHARTS.
GUIDE VALUES: $\dot{X}$=3 fps, $\dot{Y}$=7 fps, $\dot{Z}$=9 fps

RR AGREES WITH VHF WHERE
$\Delta R = 0.01R + 0.5$ NM, ΔR IS ALWAYS $\geq$ 1 NM
RR DOES NOT AGREE WITH VHF,
MSFN ISOLATES FAILED SYSTEM.

IF TIG TPI $\geq$ 8 min EARLY - RECYCLE P34
WITH TIG EQUAL TO NOMINAL TIG-8 min

DPS FOR ΔV > 6 fps (DPS FULL)

TPI SOLUTIONS

		PGNS	AGS	CMC	CHARTS
TIG		N37	373	N37	
θ LOS	(+26.6)	N55	303	N55	
HP	(+46.8)	N58	402	N58	
ΔV TPI	(+24.3)		370		
ΔV TPF	(+31.1)		371		
ΔVX		N81	450	N81*	ΔVX
ΔVY			451	*	
ΔVZ			452	*	ΔVZ

*CHANGE SIGN
NO BIAS

TPI PAD

+	0	0				+	0	0				HRS(190) N37
+	0	0	0			+	0	0	0			MIN(56) TPI
+	0			.		+	0			.		SEC(06.60)
R1(+00000),R2(+026.60),R3(+130.00)												N55
	0			.			0			.		ΔVX(+21.6)N81
	0			.			0			.		ΔVY(-0.8) LV
	0			.			0			.		ΔVZ(-10.8)
+	0		.			+	0		.			R(+37.34) N54 TPI
-	0			.		-	0			.		R(-109.9)TIG-5
X	X		.			X	X		.			BT(00:22)

TIG		N37			373			N37				
θ LOS		N55			303			N55				
HP		N58			402			N58				
ΔV TPI					370							
ΔV TPF					371							
ΔVX		N81			450			N81*			ΔVX	
ΔVY					451			*				
ΔVZ					452			*			ΔVZ	

RESIDUALS

PGNS				AGS			
		ΔVX	N85			ΔVX	500
		ΔVY				ΔVY	501
		ΔVZ				ΔVZ	502

P76/77 PADS

												PURPOSE	
+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0					+	0					SEC	
												ΔVX	N84/N81
												ΔVY	
												ΔVZ	
												PURPOSE	
+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0					+	0					SEC	
												ΔVX	N84/N81
												ΔVY	
												ΔVZ	
												PURPOSE	
+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0					+	0					SEC	
												ΔVX	N84/N81
												ΔVY	
												ΔVZ	
												PURPOSE	
+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0					+	0					SEC	
												ΔVX	N84/N81
												ΔVY	
												ΔVZ	

AGS SV PADS

						LM INSERTION						PURP	LOAD
						+	5	6	6	0	2	240	
						+	0	0	0	0	3	241	
						+	1	0	1	5	6	242	
						-	0	9	4	6	5	260	
						-	0	0	0	0	1	261	
						+	5	4	5	7	8	262	
						+	0	4	9	0	5	254	414+2
						+	5	7	3	0	2	244	
						+	0	0	0	0	2	245	
						+	2	0	0	2	0	246	
						-	1	7	6	2	3	264	
						-	0	0	0	0	4	265	
						+	5	0	4	1	5	266	
						+	0	4	9	0	5	272	414+3
												PURP	LOAD
												240	
												241	
												242	
												260	
												261	
												262	
												254	414+2
												244	
												245	
												246	
												264	
												265	
												266	
												272	414+3

P27 PADS

V			V			V			PURP	
: :			: :			: :			GET	
INDEX			INDEX			INDEX			01	1173
									02	1174
									03	1175
									04	1176
									05	1177
									06	1200
									07	1201
									10	1202
									11	1203
									12	1204
									13	1205
									14	1206
									15	1207
									16	1210
									17	1211
									20	1212
									21	1213
									22	1214
									23	1215
									24	1216

X	X	X				X	X	X				HRS
X	X	X	X			X	X	X	X			MIN
X	X					X	X					SEC NAV CHECK
	0						0					LAT N43
												LONG
+	0					+	0					ALT

V			V			V			PURP	
: :			: :			: :			GET	
INDEX			INDEX			INDEX			01	1173
									02	1174
									03	1175
									04	1176
									05	1177
									06	1200
									07	1201
									10	1202
									11	1203
									12	1204
									13	1205
									14	1206
									15	1207
									16	1210
									17	1211
									20	1212
									21	1213
									22	1214
									23	1215
									24	1216

X	X	X				X	X	X				HRS
X	X	X	X			X	X	X	X			MIN
X	X					X	X					SEC NAV CHECK
	0						0					LAT N43
												LONG
+	0					+	0					ALT

P30 PADS

+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0			•		+	0			•		SEC	
					•						•	ΔVX	N81
					•						•	ΔVY	LV
					•						•	ΔVZ	
+					•	+					•	HA	N42
					•						•	HP	
+					•	+					•	ΔVR	
X	X	X		•		X	X	X		•		BT	
X	X	X				X	X	X				R	FDAI
X	X	X				X	X	X				P	INER
+					•	+					•	TIG	373
					•						•	ΔVX	N86
					•						•	ΔVY	AGS
					•						•	ΔVZ	
X	X	X				X	X	X				BSS	
X	X	□			•	X	X	□			•	SPA	
X	X	X	□		•	X	X	X	□		•	SXP	

RESIDUALS

PGNS				AGS			
		•	ΔVX N85			•	ΔVX 500
		•	ΔVY			•	ΔVY 501
		•	ΔVZ			•	ΔVZ 502

+	0	0				+	0	0				HRS	N33
+	0	0	0			+	0	0	0			MIN	TIG
+	0			•		+	0			•		SEC	
					•						•	ΔVX	N81
					•						•	ΔVY	LV
					•						•	ΔVZ	
+					•	+					•	HA	N42
					•						•	HP	
+					•	+					•	ΔVR	
X	X	X		•		X	X	X		•		BT	
X	X	X				X	X	X				R	FDAI
X	X	X				X	X	X				P	INER
+					•	+					•	TIG	373
					•						•	ΔVX	N86
					•						•	ΔVY	AGS
					•						•	ΔVZ	
X	X	X				X	X	X				BSS	
X	X	□			•	X	X	□			•	SPA	
X	X	X	□		•	X	X	X	□		•	SXP	

RESIDUALS

PGNS				AGS			
		•	ΔVX N85			•	ΔVX 500
		•	ΔVY			•	ΔVY 501
		•	ΔVZ			•	ΔVZ 502

ASCENT

+00000	HRS	N33
+00000	MIN	TIG
+00.00	SEC	
+	V(H)	
+	V(V)N76	
0	*CROSSRANGE	
+	047	
+	053	
+	224/226	
+	231	
+	465	
+	373	
+00000	HRS	N37
+00000	MIN	TPI
+00.00	SEC	
+	LM WT	

*NOTE: LOAD 8 NM CROSSRANGE IF GREATER THAN 8 NM

CSI

+00000	HRS	N11
+00000	MIN	CSI
+00.00	SEC	
R_1(+00001), R_2(+026.60), R_3(+130.00)		N55
+00000	HRS	N37
+00000	MIN	TPI
+00.00	SEC	
0	ΔVX	N81
0	ΔVY	LV
410+1, 605+00777, 416+1, 623+0		
+	373	
+	275	
0	ΔVX	
0	ΔVY	AGS
0	ΔVZ	

LM JETTISON PADS

+	0	0				+	0	0				HRS (195) N33
+	0	0	0			+	0	0	0			MIN (41) TIG
+	0			•		+	0			•		SEC (46.10)
					•						•	ΔVX (-309.0) N81
					•						•	ΔVY (+62.0) LV
					•						•	ΔVZ (+168.0)
+					•	+					•	H_A (+64.9) N42
					•						•	H_P (-141.8)
+					•	+					•	ΔVR (+357.1)
X	X	X		•		X	X	X		•		BT (1:27)
X	X	X				X	X	X				R (049) FDAI
X	X	X				X	X	X				P (139) INER
X	X	X				X	X	X				Y (075)
+					•	+					•	TIG (941.8) 373
					•						•	ΔVX (-318.7) N86
					•						•	ΔVY (+ 61.9) AGS
					•						•	ΔVZ (+148.8)

MISSION RULES
TELMU

TBS

LM TELMU MISSION RULES (CONTINUED)

TBS

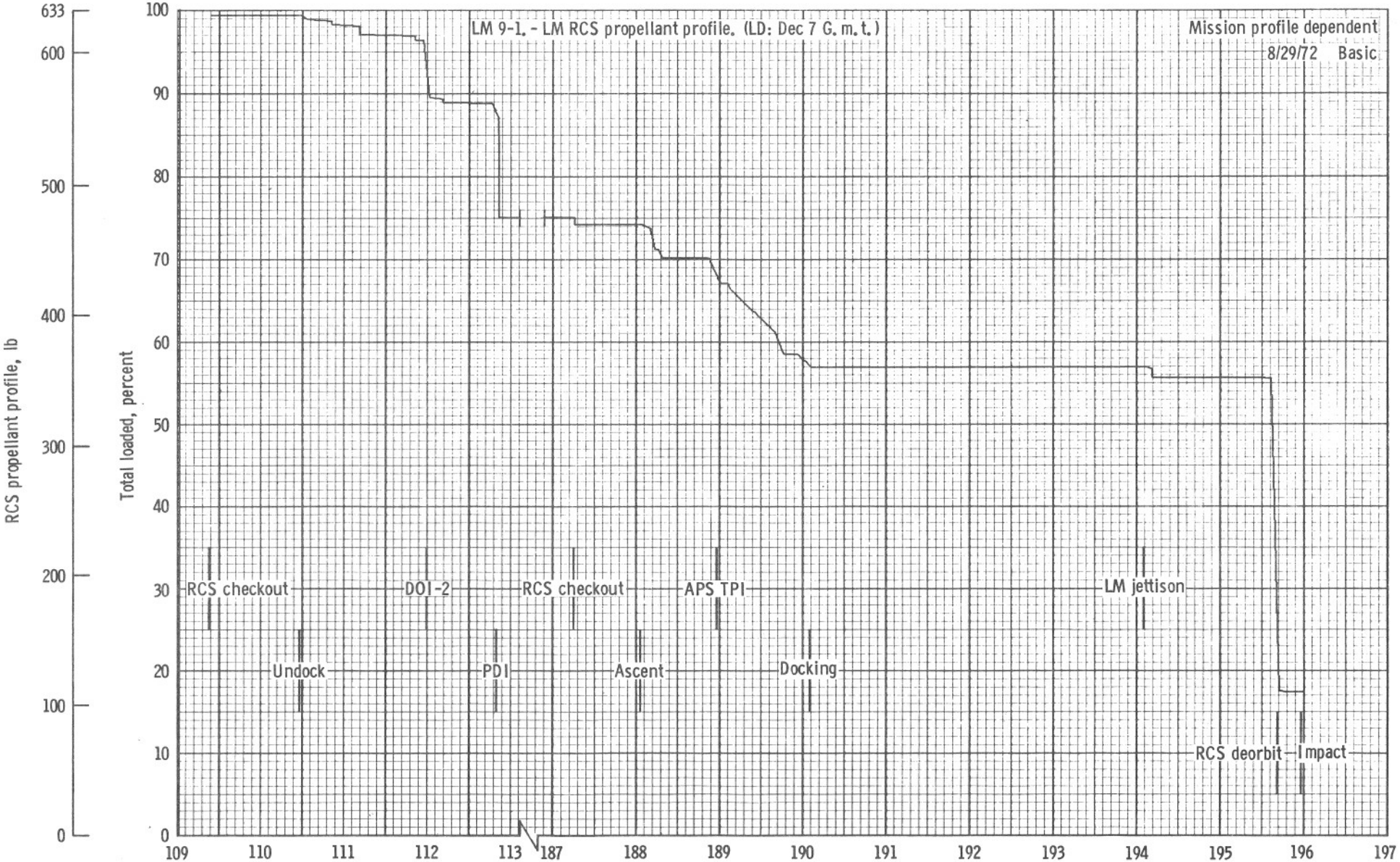
MISSION RULES
TELMU/CONTROL

TBS

TBS

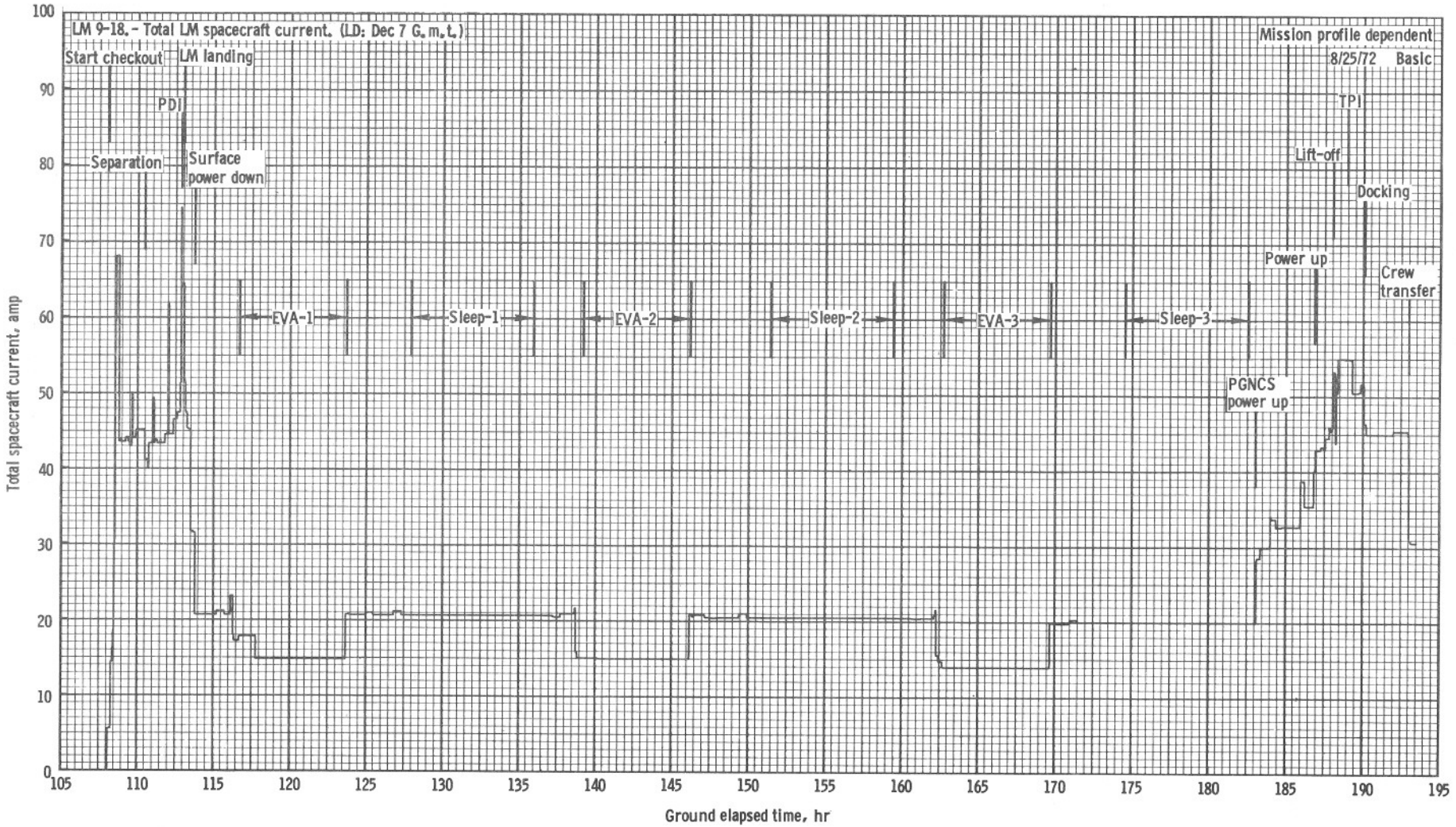
MISSION RULES
EVA/COMM/INSTR

TBS

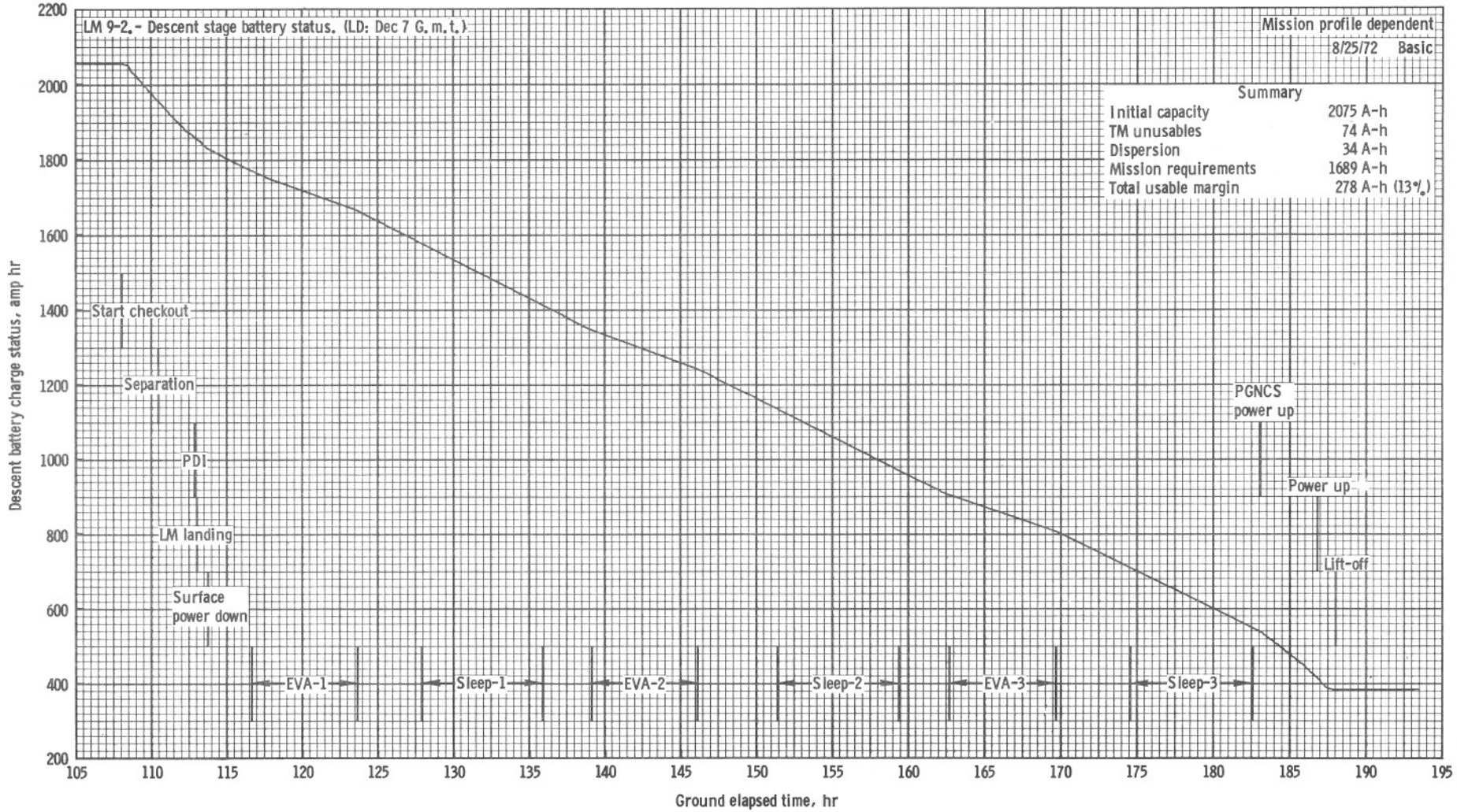


LM RCS propellant profile.

CONSUMABLES
RCS/CURRENT

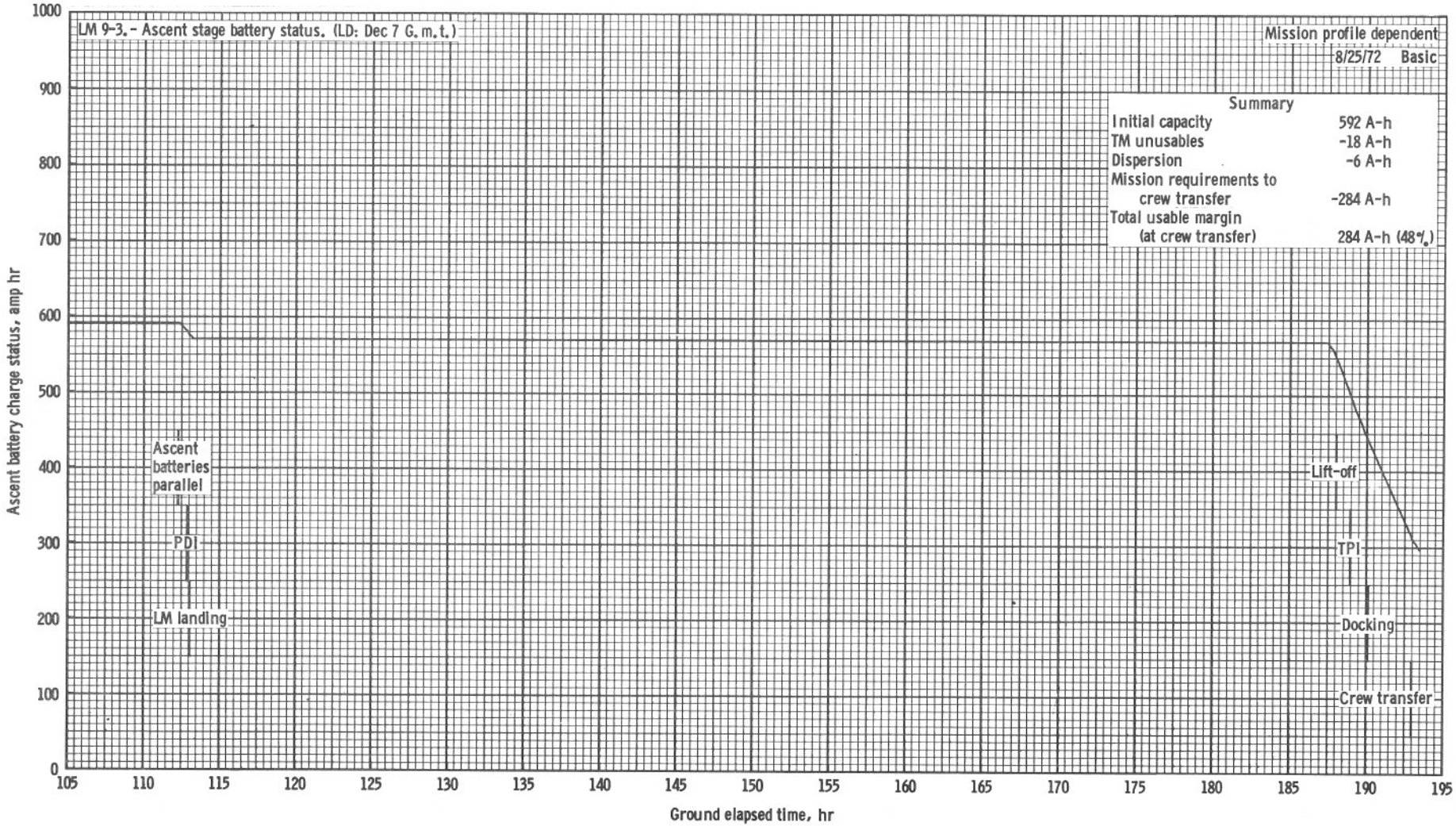


Apollo 17 total LM spacecraft current.

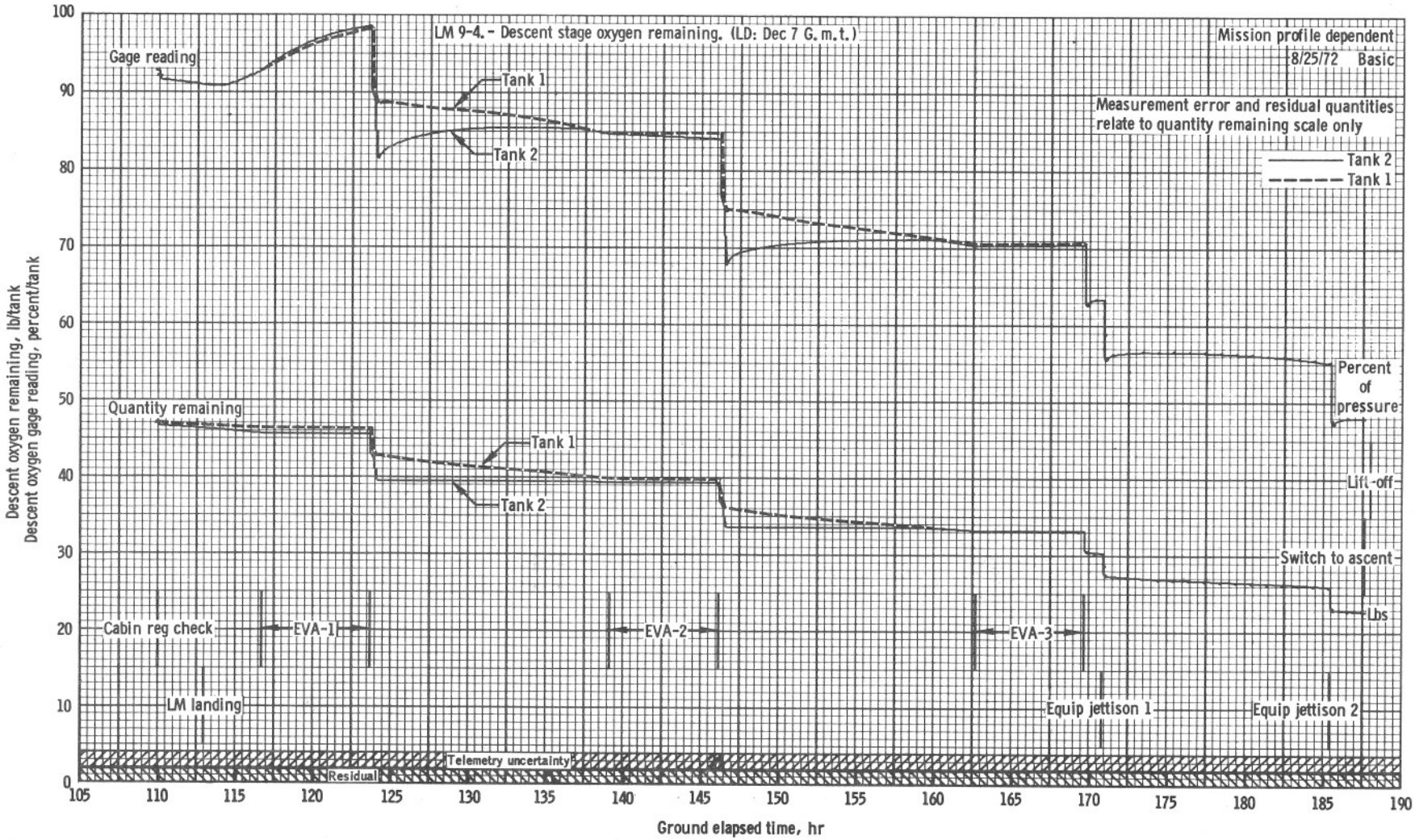


Apollo 17 descent electrical energy remaining.

CONSUMABLES
DESC/ASC A-H

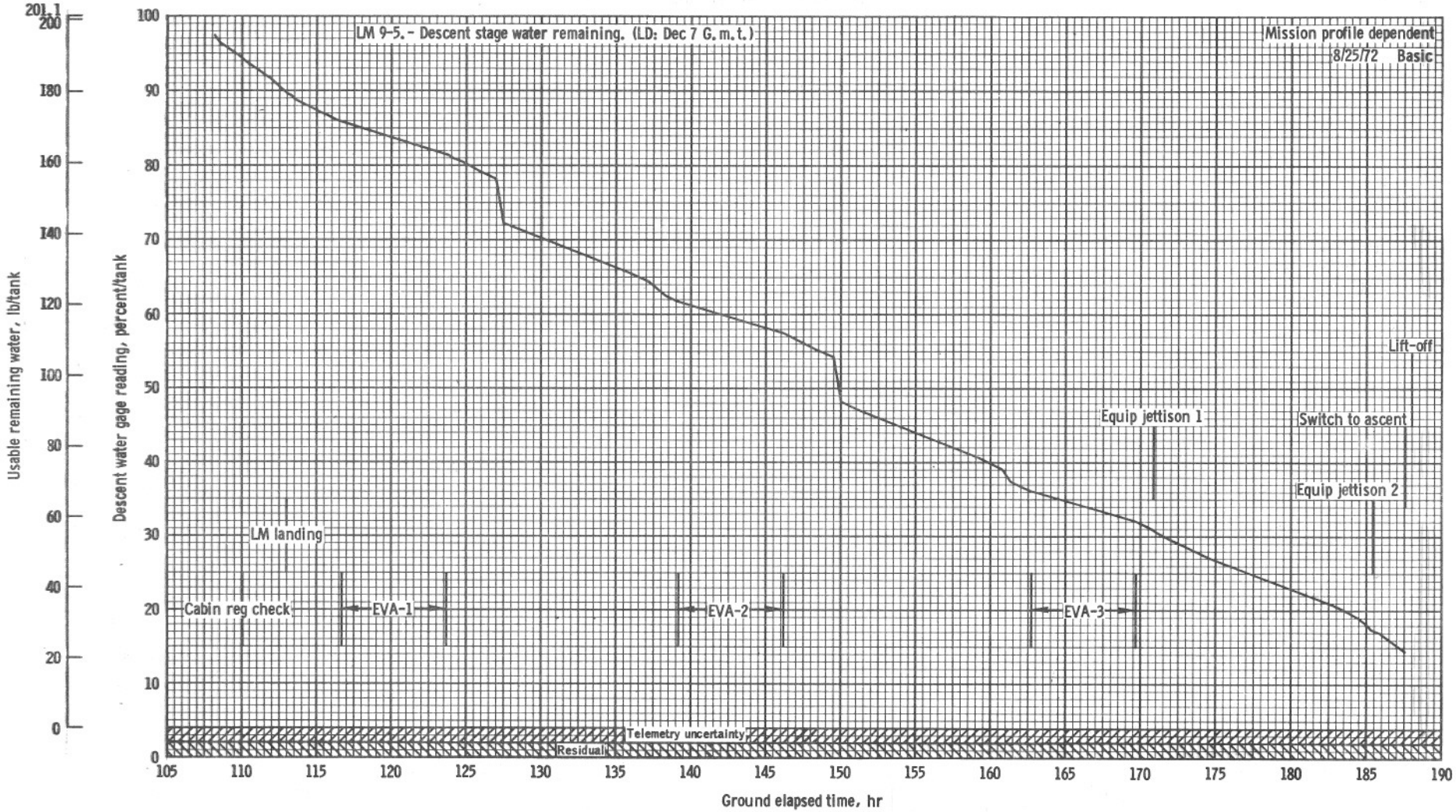


Apollo 17 ascent electrical energy remaining.

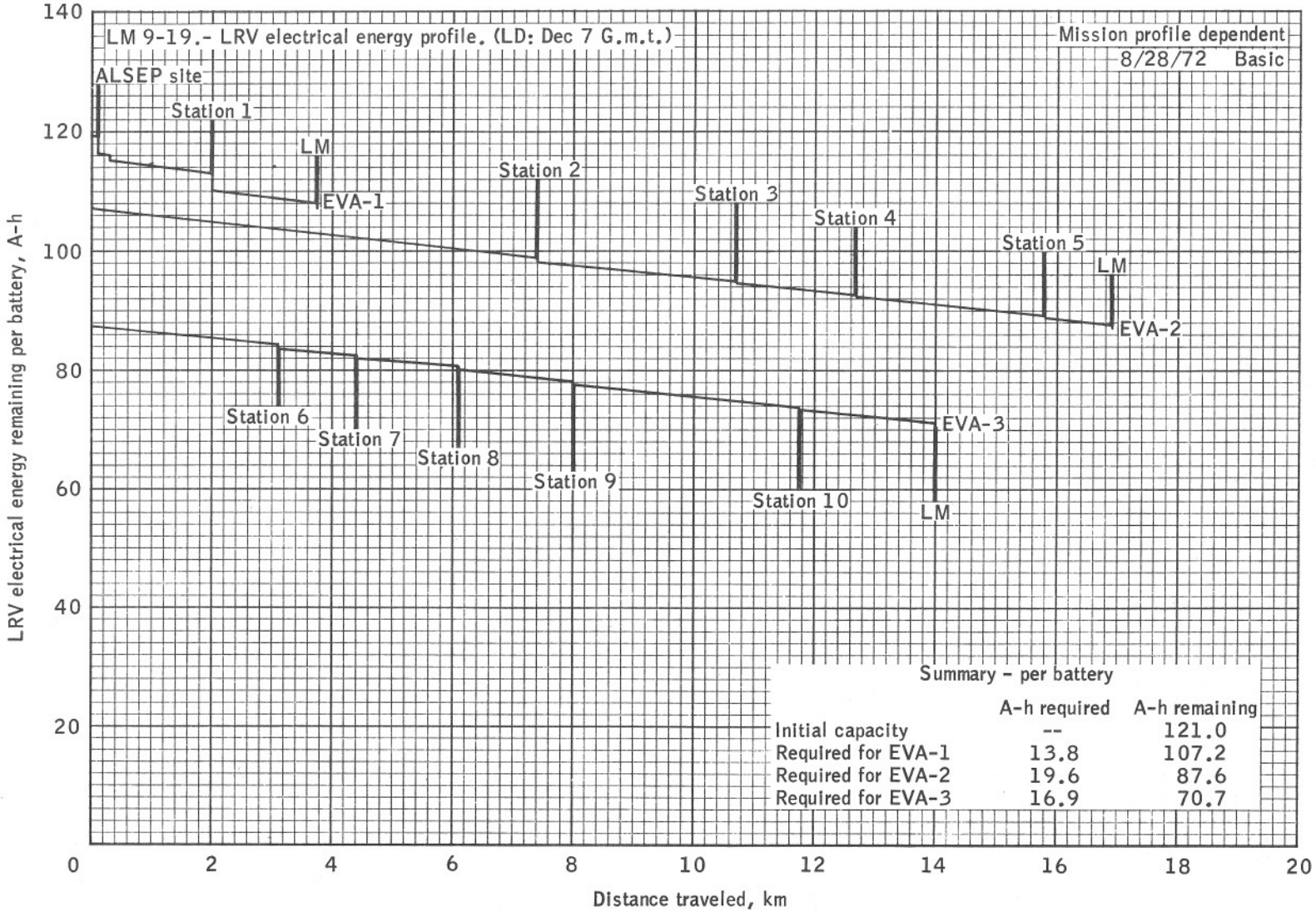


Descent stage oxygen remaining.

CONSUMABLES
DESC O2/H2O



Descent stage water remaining.



LRV electrical energy profile.

EARTH UNIT VECTORS
8/23/72 BASIC

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
112.00	-.82535	.53880	.16883
112.50	-.82792	.53541	.16700
113.00	-.83048	.53201	.16517
113.50	-.83302	.52860	.16333
114.00	-.83554	.52518	.16149
114.50	-.83804	.52174	.15965
115.00	-.84053	.51829	.15780
115.50	-.84300	.51483	.15594
116.00	-.84545	.51135	.15409
116.50	-.84789	.50786	.15222
117.00	-.85031	.50436	.15036
117.50	-.85271	.50085	.14849
118.00	-.85510	.49732	.14661
118.50	-.85746	.49379	.14473
119.00	-.85981	.49024	.14285
119.50	-.86214	.48667	.14096
120.00	-.86446	.48310	.13907
120.50	-.86676	.47951	.13718
121.00	-.86904	.47591	.13528
121.50	-.87130	.47230	.13338
122.00	-.87354	.46868	.13147
122.50	-.87577	.46504	.12956
123.00	-.87797	.46139	.12765
123.50	-.88016	.45773	.12573
124.00	-.88233	.45406	.12381
124.50	-.88449	.45038	.12188
125.00	-.88662	.44668	.11995
125.50	-.88874	.44298	.11802
126.00	-.89084	.43926	.11608
126.50	-.89292	.43553	.11414
127.00	-.89498	.43179	.11220
127.50	-.89702	.42804	.11025
128.00	-.89904	.42428	.10830
128.50	-.90105	.42050	.10635
129.00	-.90303	.41671	.10439
129.50	-.90500	.41292	.10243
130.00	-.90695	.40911	.10047
130.50	-.90887	.40529	.09850
131.00	-.91078	.40146	.09653
131.50	-.91267	.39762	.09456
132.00	-.91454	.39377	.09258
132.50	-.91640	.38990	.09060
133.00	-.91823	.38603	.08862
133.50	-.92004	.38215	.08663
134.00	-.92183	.37825	.08464
134.50	-.92360	.37435	.08265
135.00	-.92536	.37043	.08066
135.50	-.92709	.36651	.07866
136.00	-.92881	.36257	.07666
136.50	-.93050	.35862	.07466

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
137.00	-.93217	.35467	.07265
137.50	-.93383	.35070	.07064
138.00	-.93546	.34672	.06863
138.50	-.93707	.34274	.06661
139.00	-.93867	.33874	.06460
139.50	-.94024	.33474	.06258
140.00	-.94179	.33072	.06056
140.50	-.94332	.32669	.05853
141.00	-.94483	.32266	.05650
141.50	-.94632	.31861	.05447
142.00	-.94779	.31456	.05244
142.50	-.94924	.31050	.05041
143.00	-.95067	.30642	.04837
143.50	-.95208	.30234	.04633
144.00	-.95347	.29825	.04429
144.50	-.95483	.29415	.04225
145.00	-.95618	.29004	.04020
145.50	-.95750	.28592	.03816
146.00	-.95880	.28180	.03611
146.50	-.96008	.27766	.03406
147.00	-.96134	.27352	.03200
147.50	-.96258	.26936	.02995
148.00	-.96380	.26520	.02789
148.50	-.96499	.26103	.02583
149.00	-.96616	.25685	.02377
149.50	-.96732	.25267	.02171
150.00	-.96845	.24847	.01964
150.50	-.96955	.24427	.01758
151.00	-.97064	.24006	.01551
151.50	-.97171	.23584	.01344
152.00	-.97275	.23161	.01137
152.50	-.97377	.22738	.00930
153.00	-.97477	.22313	.00722
153.50	-.97574	.21888	.00515
154.00	-.97670	.21462	.00307
154.50	-.97763	.21036	.00099
155.00	-.97854	.20609	-.00110
155.50	-.97943	.20181	-.00318
156.00	-.98029	.19752	-.00526
156.50	-.98113	.19322	-.00734
157.00	-.98195	.18892	-.00943
157.50	-.98275	.18461	-.01151
158.00	-.98352	.18030	-.01360
158.50	-.98428	.17598	-.01568
159.00	-.98500	.17165	-.01777
159.50	-.98571	.16731	-.01986
160.00	-.98639	.16297	-.02195
160.50	-.98705	.15862	-.02404
161.00	-.98769	.15427	-.02613
161.50	-.98830	.14991	-.02822

EARTH UNIT VECTORS
8/23/72 BASIC

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
162.00	-.98889	.14554	-.03031
162.50	-.98946	.14117	-.03241
163.00	-.99001	.13679	-.03450
163.50	-.99053	.13240	-.03659
164.00	-.99102	.12801	-.03869
164.50	-.99150	.12361	-.04078
165.00	-.99195	.11921	-.04288
165.50	-.99238	.11480	-.04497
166.00	-.99278	.11039	-.04707
166.50	-.99316	.10597	-.04916
167.00	-.99352	.10155	-.05126
167.50	-.99385	.09712	-.05335
168.00	-.99416	.09268	-.05545
168.50	-.99444	.08825	-.05754
169.00	-.99470	.08380	-.05964
169.50	-.99494	.07935	-.06174
170.00	-.99515	.07490	-.06383
170.50	-.99534	.07044	-.06593
171.00	-.99551	.06598	-.06802
171.50	-.99565	.06151	-.07012
172.00	-.99576	.05704	-.07221
172.50	-.99585	.05257	-.07430
173.00	-.99592	.04809	-.07640
173.50	-.99597	.04361	-.07849
174.00	-.99599	.03912	-.08058
174.50	-.99598	.03463	-.08267
175.00	-.99595	.03014	-.08476
175.50	-.99590	.02564	-.08685
176.00	-.99582	.02114	-.08894
176.50	-.99571	.01663	-.09103
177.00	-.99559	.01213	-.09312
177.50	-.99543	.00762	-.09520
178.00	-.99526	.00310	-.09729
178.50	-.99505	-.00142	-.09937
179.00	-.99483	-.00594	-.10146
179.50	-.99458	-.01046	-.10354
180.00	-.99430	-.01499	-.10562
180.50	-.99400	-.01951	-.10770
181.00	-.99367	-.02404	-.10978
181.50	-.99332	-.02857	-.11185
182.00	-.99294	-.03311	-.11393
182.50	-.99254	-.03764	-.11600
183.00	-.99211	-.04218	-.11807
183.50	-.99166	-.04672	-.12015
184.00	-.99118	-.05126	-.12221
184.50	-.99068	-.05580	-.12428
185.00	-.99015	-.06035	-.12635
185.50	-.98960	-.06489	-.12841
186.00	-.98902	-.06944	-.13047
186.50	-.98842	-.07398	-.13253

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
187.00	-.98779	-.07853	-.13459
187.50	-.98714	-.08308	-.13664
188.00	-.98646	-.08763	-.13870
188.50	-.98575	-.09218	-.14075
189.00	-.98502	-.09673	-.14280
189.50	-.98426	-.10128	-.14484
190.00	-.98348	-.10584	-.14689
190.50	-.98267	-.11039	-.14893
191.00	-.98184	-.11494	-.15097
191.50	-.98098	-.11949	-.15301
192.00	-.98010	-.12404	-.15504
192.50	-.97919	-.12859	-.15707
193.00	-.97825	-.13314	-.15910
193.50	-.97729	-.13769	-.16113
194.00	-.97630	-.14224	-.16315
194.50	-.97529	-.14679	-.16517
195.00	-.97425	-.15134	-.16719
195.50	-.97318	-.15589	-.16920
196.00	-.97209	-.16043	-.17121
196.50	-.97097	-.16498	-.17322
197.00	-.96983	-.16952	-.17522
197.50	-.96866	-.17406	-.17723
198.00	-.96747	-.17860	-.17922
198.50	-.96625	-.18314	-.18122
199.00	-.96500	-.18767	-.18321
199.50	-.96373	-.19220	-.18520
200.00	-.96243	-.19674	-.18718

8/23/72 BASIC

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

VENUS UNIT VECTOR*

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
100.0	-.63197	-.72168	-.28247
104.0	-.62918	-.72374	-.28344
108.0	-.62637	-.72579	-.28440
112.0	-.62356	-.72783	-.28536
116.0	-.62074	-.72986	-.28631
120.0	-.61792	-.73188	-.28726
124.0	-.61509	-.73389	-.28821
128.0	-.61225	-.73589	-.28915
132.0	-.60941	-.73788	-.29009
136.0	-.60656	-.73986	-.29102
140.0	-.60371	-.74182	-.29195
144.0	-.60084	-.74378	-.29288
148.0	-.59798	-.74572	-.29380
152.0	-.59510	-.74766	-.29472
156.0	-.59222	-.74958	-.29564
160.0	-.58933	-.75150	-.29655
164.0	-.58644	-.75340	-.29745
168.0	-.58354	-.75529	-.29836
172.0	-.58064	-.75717	-.29926
176.0	-.57772	-.75904	-.30015
180.0	-.57481	-.76090	-.30105
184.0	-.57188	-.76275	-.30193
188.0	-.56895	-.76459	-.30282
192.0	-.56602	-.76641	-.30370
196.0	-.56308	-.76823	-.30458
200.0	-.56013	-.77004	-.30545

* PLANET vectors are less than 30 degrees from the sun.

0 Hours GET = 12:7:2:54
Liftoff = 12:7:_:__

MARS UNIT VECTOR*

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
100.0	-.68259	-.67371	-.28318
108.0	-.67974	-.67613	-.28428
116.0	-.67688	-.67853	-.28537
124.0	-.67401	-.68092	-.28645
132.0	-.67114	-.68330	-.28754
140.0	-.66826	-.68567	-.28861
148.0	-.66537	-.68802	-.28968
156.0	-.66248	-.69035	-.29075
164.0	-.65958	-.69268	-.29181
172.0	-.65667	-.69499	-.29286
180.0	-.65376	-.69729	-.29392
188.0	-.65084	-.69957	-.29496
196.0	-.64791	-.70185	-.29600

JUPITER UNIT VECTOR**

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
100.0	.22643	-.89265	-.38975
120.0	.22964	-.89195	-.38946
140.0	.23285	-.89125	-.38918
160.0	.23605	-.89053	-.38889
180.0	.23924	-.88981	-.38859
200.0	.24242	-.88908	-.38830

SATURN UNIT VECTOR

TIME (GET) HOURS	X(R1)	Y(R2)	Z(R3)
100.0	.22697	.90460	.36082
150.0	.22991	.90393	.36062
200.0	.23276	.90328	.36042

* PLANET vectors are less than 35 degrees from the sun.
**PLANET vectors are less than 25 degress from the sun.

CERNAN - RED

CHECK OFF AS EATEN - LOG ADDITIONAL SNACKS

DATE 9/11/72

DAY 6	DAY 7	DAY 8	DAY 9
MEAL B	MEAL A	MEAL A	MEAL A
MEAL C	MEAL B	MEAL B	

SCHMITT - BLUE

CHECK OFF AS EATEN - LOG ADDITIONAL SNACKS

DAY 6	DAY 7	DAY 8	DAY 9
MEAL B	MEAL A	MEAL A	MEAL A
MEAL C	MEAL B	MEAL B	

CERNAN

CDR CREW MEDICAL LOG		
DAYS	MEDICATION (TYPE & QTY)	SLEEP* (COMMENTS)
DAY 6 105:45- 131:15		
DAY 7 131:15- 154:35		
DAY 8 154:35- 179:40		
DAY 9 179:40- 206:30		

* REPORT QUANTITY & QUALITY ONLY

SCHMITT

LMP CREW MEDICAL LOG		
DAYS	MEDICATION (TYPE & QTY)	SLEEP* (COMMENTS)
DAY 6 105:45- 131:15		
DAY 7 131:15- 154:35		
DAY 8 154:35- 179:40		
DAY 9 179:40- 206:30		

* REPORT QUANTITY AND QUALITY ONLY

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