APOLLO 13	
LM DATA CARD BOOK	
PART NO.	S/N
SKB32100082 – 387	
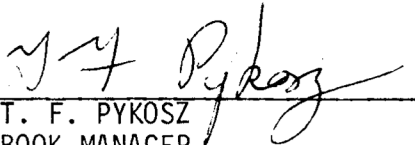
APOLLO 13

FINAL

LM DATA CARD BOOK

MARCH 30, 1970 CHANGE

PREPARED BY: *[signature: T. F. Pykosz]*   MARCH 30, 1970
T. F. PYKOSZ
BOOK MANAGER
TRW TASK 81

APPROVED BY: SIGNATURE AUTHORIZED BY TELECOM: MARCH 30, 1970
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It is requested that any organization having comments,
questions, or suggestions concerning this document
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Distribution of this document is controlled by
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Flight Crew Support Division.

APOLLO FLIGHT DATA FILE

LM DATA CARD BOOK

BASIC DATE 3/17/70   CHANGE 3/30/70

LIST OF EFFECTIVE PAGES

*Indicates Current Change

PAGE NUMBER   **ISSUE**

1 . . . . .3/24/70

2 thru 7. . . . . .3/17/70

8 . . . . .3/24/70

*9 thru 11 . . . . .3/30/70

12 thru 14. . . . . .3/17/70

This LOEP reflects changes incorporated
as a result of approved changes:

027, ΔR VALUES

LM DATA CARD BOOK

LM ACTIVATION CARD

DATE   MARCH 24, 1970

ACTIVATION GYRO DRIFT COMP

S-BD

P	(___ 97 ___)	AOS	•••• •••• 21
Y	(___ 99 ___)	AOS	•••• •••• 10
P	(___ ___)	AOS	•••• ••••
Y	(___ ___)		

P (+112)
Y (+34)
P (+130)
Y (+40)

AGS

224	+	6 0 4	2	7
225	+	2 9 4	0	2
226	+	6 0 4	6	9
305	-	0 1 7	1	8
662	-	5 4 5	0	0
673	-	3 1 7	0	1
540	(-00002)			
541	(+00001)			
542	(-00002)			
544	(-00006)			
545	(+00030)			
546	(+00047)			

K FACTOR + + + - -1 -

DAP PAD

LM WT	+	3 3 7 3 1
CSM WT	+	3 7 5 0 0
GMBL	+	0 0 4 7 6
	+	0 0 5 7 2

GYRO TORQUING

R1
R2
R3

V06 N20

GET 97 : ___
LM   R1 R2 R3
CSM R1 R2 R3

GET 98 : ___
LM   R1 R2 R3
CSM R1 R2 R3

GET ___ : ___
LM   R1 R2 R3
CSM R1 R2 R3

UNDOCK/SEP GET

(___ 99 ___ ••• 16 ••• 21)

ACTIVATION
GYRO DRIFT COMP

GYRO DRIFT COMPENSATION

DEC/HR	OCTAL + DRIFT	OCTAL − DRIFT	DEC/HR	OCTAL + DRIFT	OCTAL − DRIFT
000	00000	00000	.765	14532	63245
.015	00177	77600	.780	14731	63046
.030	00377	77400	.795	15131	62646
.045	00576	77201	.810	15330	62447
.060	00775	77002	.825	15527	62250
.075	01174	76603	.840	15726	62051
.090	01374	76403	.855	16126	61651
.105	01573	76204	.870	16325	61452
.120	01772	76005	.885	16524	61253
.135	02171	75606	.900	16723	61054
.150	02371	75406	.915	17123	60654
.165	02570	75207	.930	17322	60455
.180	02767	75010	.945	17521	60256
.195	03166	74611	.960	17721	60056
.210	03366	74411	.975	20120	57657
.225	03565	74212	.990	20317	57460
.240	03764	74013	1.005	20516	57261
.255	04163	73614	1.020	20716	57061
.270	04363	73414	1.035	21115	56662
.285	04562	73215	1.050	21314	56463
.300	04761	73016	1.065	21513	56264
.315	05160	72617	1.080	21713	56064
.330	05360	72417	1.095	22112	55665
.345	05557	72220	1.110	22311	55466
.360	05756	72021	1.125	22510	55267
.375	06155	71622	1.140	22710	55067
.390	06355	71422	1.155	23107	54670
.405	06554	71223	1.170	23306	54471
.420	06753	71024	1.185	23505	54272
.435	07152	70625	1.200	23705	54072
.450	07352	70425	1.215	24104	53673
.465	07551	70226	1.230	24303	53474
.480	07750	70027	1.245	24502	53275
.495	10150	67627	1.260	24702	53075
.510	10347	67430	1.275	25101	52676
.525	10546	67231	1.290	25300	52477
.540	10745	67032	1.305	25477	52300
.555	11145	66632	1.320	25677	52100
.570	11344	66433	1.335	26076	51701
.585	11543	66234	1.350	26275	51502
.600	11742	66035	1.365	26474	51303
.615	12142	65635	1.380	26674	51103
.630	12341	65436	1.395	27073	50704
.645	12540	65237	1.410	27272	50505
.660	12737	65040	1.425	27472	50305
.675	13137	64640	1.440	27671	50106
.690	13336	64441	1.455	30070	47707
.705	13535	64242	1.470	30267	47510
.720	13734	64043	1.485	30467	47310
.735	14134	63643	1.500	30666	47111
.750	14333	63444			

LM DATA CARD BOOK

ΔT COMPUTATION

N93 PRO TIME [. .]

PREVIOUS TORQ TIME [. .]

ΔT [. .] HRS

BIAS SHIFT

N93

$\dfrac{X}{\Delta T}$ = [.]   X DEG/HR

$\dfrac{Y}{\Delta T}$ = [.]   Y DEG/HR

$\dfrac{Z}{\Delta T}$ = [.]   Z DEG/HR

GYRO DRIFT

   X   Y   Z

0.0150   0.0030   0.0060   NBD (OLD)

− [.]

+ [.]   BIAS SHIFT

[.]   NBD (NEW)

[ ] OCTAL

PROCEDURES

V25N01E
1460E
NBDX XXXXXE
NBDY XXXXXE
NBDZ XXXXXE

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

DATE   MARCH 17, 1970

LM DATA CARD BOOK

ALTITUDE CHECK/PDI RULES CARD

DATE   MARCH 17, 1970

ALTITUDE DETERMINATION CHART

LM ATTITUDE (0,295/XXX,0)
AT PDI LANDMARK (0,295/310,0)

NOMINAL PDI 0

X-axis: ALTITUDE (KFT) — 30, 40, 50, 60, 70, 80

Y-axis: TIME TO TRANSVERSE 0° TO 50° ON LPD (SEC) — 14.0, 13.0, 12.0, 11.0, 10.0, 9.0, 8.0, 7.0, 6.0, 5.0
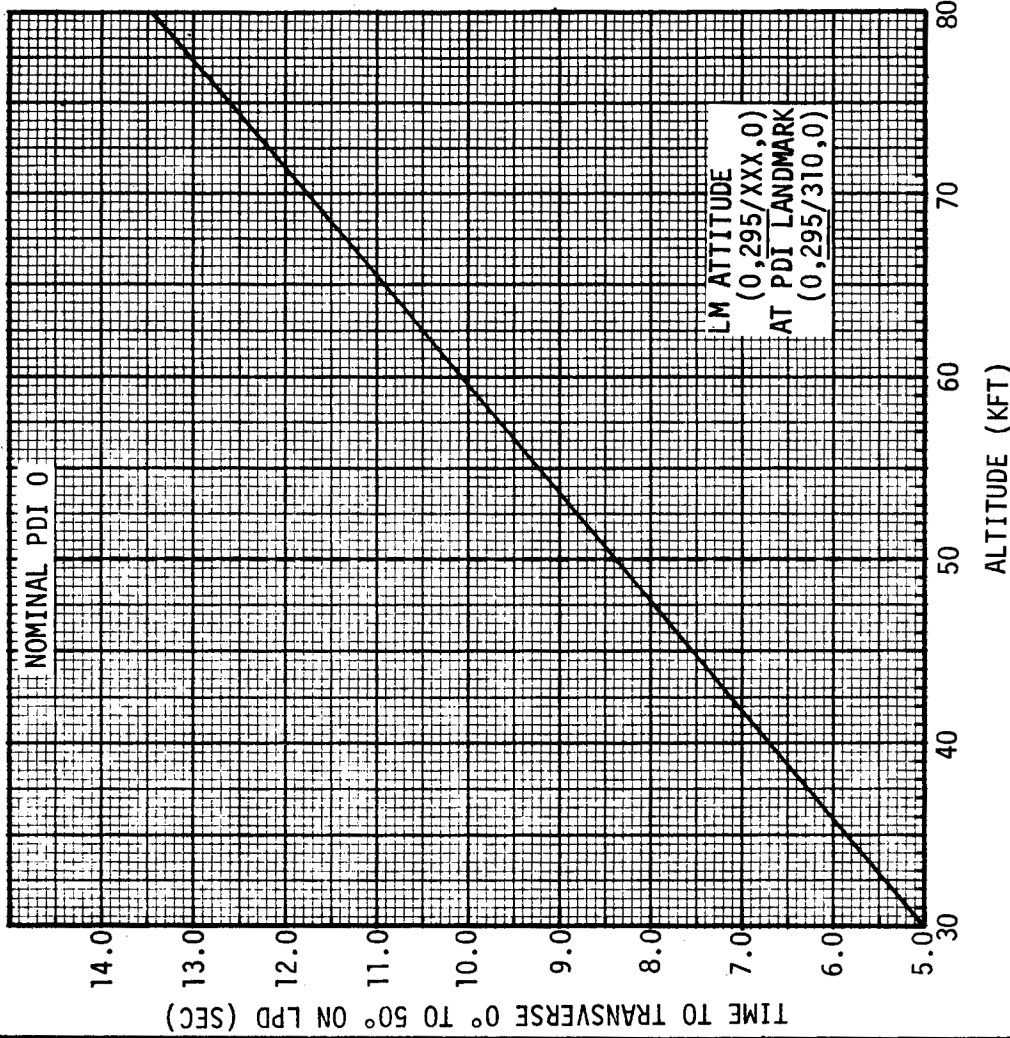
PREPARED BY FPRB/OPS
MISSION APOLLO 13, FEBRUARY 3, 1970

ALT CK/PDI RULES
PDI 0/NO.PDI +12

PDI RULES

1. NO ULLAGE-NO GO FOR PDI.
2. NO IGNITION DELAY 2 SEC THEN START PB-PUSH; THEN SET DES ENG OVRD-ON AT 5 SEC.
3. T/W >1.6 AND DSKY CHANGES >18 fps/2 SEC.
4. ATT/RATE <5°/SEC.
5. ΔH WITHIN LIMITS >10 SEC AND NOT OUT OF LIMITS >60 SEC.
6. DATA GOOD AT >10,000 FT.
7. IF NO THROTTLE DOWN BY P64 +15 SEC-ABORT.
8. BINGO FUEL 1 MIN 34 SEC AFTER LOW LEVEL OR WHEN FUEL QTY <2% UNLESS LANDING IMMINENT.

NOTE: FOR FLASHING LR ALT OR VEL LIGHTS THAT ARE PRECEDED BY A STEADY LR LIGHT, CYCLE THE RADAR TEST SWITCH.

CSM CIRC BURN

P76

N33			
HRS	+	0 0 1 0
MIN	+	0 0 3 5 0
SEC	+	0 0 5 0

TIG

N84			
ΔVX	+	0 6 9 0
ΔVY	+	0 0 0 0
ΔVZ	+	0 0 1 4 0

CSM HA/HP

CMC	LGC	V82
/	/	OPT 2

ALT CK/PDI RULES
PDI 0/NO PDI +12

PDI 0/NO PDI + 12 CARD

NO PDI + 12 ABORT PAD

E	N33 TIG	HRS	3	0	1	0	0	+
		MIN	2	4	0	0	0	+
		SEC	0	6	5	0	0	+
F	N81	ΔVX	2	0	1	0	1	+
	LV	ΔVY	0	0	0	0	0	+
		ΔVZ	6	8	4	0	0	–
	N42	HA	9	3	4	1	0	+
		HP	9	0	8	0	0	+
		ΔVR	4	2	0	2	1	+
G		BT	8	3	0	X	X	
	FDAI	R	2	8	1	X	X	X
	INER	P	2	0	0	X	X	X
	N86	ΔVX	2	1	2	0	1	+
	AGS	ΔVY	0	0	0	0	0	+
		ΔVZ	6	1	4	0	0	–
	N11	HRS	6	0	1	0	0	+
	CSI	MIN	7	3	0	0	0	+
		SEC	0	4	0	2	1	+
H	N37	HRS	8	0	1	0	0	+
	TPI	MIN	8	1	0	0	0	+
		SEC	0	5	4	4	0	+

RESIDUALS

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

BURN TIME IF > 1 SEC ____ : ____

LM DATA CARD BOOK

PDI 0 ABORT PAD

A	N33 TIG	HRS	1	0	1	0	0	+
		MIN	6	3	0	0	0	+
		SEC	0	4	3	5	0	+
B	N81	ΔVX	0	0	0	1	0	+
	LV	ΔVY	0	0	0	0	0	+
		ΔVZ	4	1	0	1	0	+
	N42	HA	3	6	1	0	0	+
		HP	4	8	0	0	0	+
		ΔVR	0	0	0	1	0	+
C		BT	6	3	0	X	X	
	FDAI	R	1	8	1	X	X	X
	INER	P	3	0	0	X	X	X
	N86	ΔVX	0	0	0	1	0	+
	AGS	ΔVY	0	0	0	0	0	+
		ΔVZ	4	3	0	0	0	+
	N11	HRS	2	0	1	0	0	+
	CSI	MIN	7	3	0	0	0	+
		SEC	0	6	8	2	0	+
D	N37	HRS	4	0	1	0	0	+
	TPI	MIN	2	2	0	0	0	+
		SEC	0	3	1	1	0	+

RESIDUALS

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

BURN TIME IF > 1 SEC ____ : ____

DATE MARCH 17, 1970

LM DATA CARD BOOK

PDI 1 ABORT CARD

DATE   MARCH 17, 1970

PDI 1/PDI 1 ABORT
PDI 2/PDI 2 ABORT

PDI 1/PDI 1 ABORT
PDI 2/PDI 2 ABORT

PDI 2 ABORT CARD

I — PDI 2 PAD

Label		Value
N33 PDI	HRS	0 0 1 0 5 +
	MIN	0 0 0 2 4 +
	SEC	0 0 1 7 0 +
N61	TGO	X X X
	CROSSRANGE	X X X
FDAI	R	X X X X X
	P	X X X X X
AT TIG	Y	X X X X X
DEDA 231 IF RQD		

J — (1 < PDI2 ≤ 8:30) ABORT PAD EARLY

Label	Value
LOG INSERTION GET=	__ __ : __ 0 : 0 0 . 0
BOOST GET=	__ __ : 1 0 : 0 0 . 0
HAM GET=	__ __ : 1 0 : 0 0 . 0
CSI GET=	__ __ : __ 0 : 0 0 . 0

N37 TPI		Value
	HRS	0 0 1 1 0 +
	MIN	0 0 0 1 7 +
	SEC	0 0 5 7 0 +

K — T1-2 (8:30 < PDI 2 ≤ 15) ABORT PAD LATE

Label	Value
LOG INSERTION GET=	__ __ : 5 5 : 0 0 . 0
CSI TIG=	__ __ : __ __ : __ . __

N37 TPI		Value
	HRS	0 0 1 0 8 +
	MIN	0 0 0 1 8 +
	SEC	0 4 7 6 0 +

L — T2-2 (PDI 2+18:56) ABORT PAD

Label	Value
LOG INSERTION GET=	__ __ : __ 5 : 0 0 . 0
CSI GET=	__ __ : __ __ : 0 . 0

N33 TIG		Value
	HRS	0 0 1 0 5 +
	MIN	0 0 0 4 3 +
	SEC	0 0 9 3 0 +

N37 TPI		Value
	HRS	0 0 1 0 8 +
	MIN	0 0 0 7 8 +
	SEC	0 4 4 8 0 +

M

T2-2 AT PDI + ____ 18:56

N69		
ΔDN RNG		
ΔX RNG		
ΔRLS		

THROTTLE DOWN

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

LM DATA CARD BOOK

DATE MARCH 17, 1970

G&N LUNAR SURFACE CARD

FIRST REV ACTIVITY

N20 _____ OG
    _____ IG
    _____ MG

P57, A/T 1, REFSMMAT _____, _____ TILT
N04
N05 _____ X _____ Y _____ Z
N93

P57 A/T 2, REFSMMAT
STAR1 _____
CURS _____ SPIR _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
STAR2 _____
CURS _____ SPIR _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
N05 _____ ANGLE DIFF
N93 _____ X
    _____ Y
    _____ Z
N89 _____ LAT
    _____ LONG/2
    _____ ALT

047 _____
053 _____
P22 ACQ TIME ____:____:____

(FIRST REV ACTIVITY — continued)

047 _____
544 _____
545 _____
546 _____

232 _____   465 _____

P57, A/T 2, REFSMMAT
STAR1 _____
CURS _____ SPIR _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
STAR2 _____
CURS _____ SPIR _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
N05 _____ ANGLE DIFF
N93 _____ X
    _____ Y
    _____ Z
N89 _____ LAT
    _____ LONG/2
    _____ ALT

053 _____   +5:02 _____

LAUNCH PREP

377 _____
544 _____
545 _____
546 _____   +5:02 _____
514 _____
515 _____
516 _____
047 _____
053 _____

P57, A/T 3 LANDING SITE
N04 _____, _____ TILT
STAR _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
N05 _____ ANGLE DIFF
N93 _____ X
    _____ Y
    _____ Z

P22 ACQ TIME ____:____:____

P57, A/T 3, LANDING SITE
N04 _____, _____ TILT
STAR1 _____
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
V32
CURS _____ SPIR _____
N05 _____ ANGLE DIFF
N93 _____ X
    _____ Y
    _____ Z

NOTES:

LUNAR SURFACE
ABORT/ASCENT

LUNAR SURFACE
ABORT/ASCENT

ABORT/ASCENT CARD

LM ASCENT PAD

Item		Sign	Value
N33 TIG	HRS	+	0 0 1 3 7
	MIN	+	0 0 0 0 9
	SEC	+	0 1 5 8 1
V (HOR) N76		+	5 5 3 3 8
V (VERT)		+	0 0 3 6 3
*CROSSRANGE		+	0 0 0 0 0
047		+	0 0 0 0 0
053		+	4 0 0 0 0
224/226		+	5 8 5 8 1
231		+	5 6 9 7 8
465		+	0 0 3 6 5
N37 TPI	HRS	+	0 0 1 3 9
	MIN	+	0 0 0 4 5
	SEC	+	0 4 0 6 0
LM WT		+	1 0 6 8 9
CSM WT		+	3 5 6 7 1

	HA 315	
V82	HA	+
	HP	+

	HP 403

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

COMMENTS:

RESIDUALS

	PGNS N85	AGS
ΔVX		500
ΔVY		501
ΔVZ		502

LM DATA CARD BOOK

ASCENT RULES

UNDERBURN

ΔV FPS	TIME SEC	PGNS	AGS
<400	20	NULL RESIDUALS	AUTO, A/H 15fps
>400	20	A/H BURN Hp	AUTO, A/H 15fps

INSERTION

AGS AND PGNS RESIDUALS AGREE WITHIN 10FPS, TRIM TO LESS THAN 2FPS (AGS X-AXIS ONLY) AND STANDBY FOR TWEAK. TWEAK AT INSERTION PLUS 4 MINUTES (10° OHW OR 250° FDAI)

FOR NO VOICE

PGNS, AGS DIFFER <10FPS, TRIM ACTIVE SYSTEM
PGNS, AGS DIFFER >10FPS, TRIM SYSTEM WHICH AGREES WITH RR
ATT/RATE ERROR >10°/SEC

T3 (1 REV) ABORT PAD

LOG INSERTION GET= _____ 5 0 0 . 0 0

CSI TIG= _____ 1 3 3 . 0 0

TPI TIG= _____

Sign	Value
+	0 0 1 0 0
+	0 0 0 4 3
+	0 3 7 5 0

N33 TIG	Value
HRS	0 5
MIN	1 3
SEC	0 0

N

P22 ACQUISITION TIME _____ . _ . _ _

LM DATA CARD BOOK

DATE   MARCH 30, 1970

CSI CARD

BURN RULES

CRITERIA IS $\dot{X}$=3fps

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

A. RR AGREES WITH VHF WHERE

$$\Delta R = \frac{R}{100} + 0.5NM, \quad \Delta R \text{ IS ALWAYS} \geq 1NM$$

IF TWO OF THREE SOLUTIONS AGREE, BURN THE PRIORITY SOLUTION.

B. RR DOES NOT AGREE WITH VHF. MSFN ISOLATES FAILED SYSTEM.

C. V90 5fps-NO BURN.

CSI Register Data

N11 CSI	HRS	0 0 + 1 3 8		
	MIN	0 0 + 0 0 6		
	SEC	0 0 + 0 9 0		

R1(+00001), R2(+02660), R3(+13000)

N55		
N37 TPI	HRS	0 0 + 1 3 9
	MIN	0 0 + 0 4 5
	SEC	0 0 + 4 0 6 0
N81 LV	ΔVX	0 0 + 4 9 6
	ΔVY	0 0 + 0 0 0

410+1, 605+00777, 416+1, 623+0

373		0 4 8 6 0
275		0 5 8 5 0
N86 AGS	ΔVX	0 4 9 6
	ΔVY	0 0 0 0
	ΔVZ	0 0 0 0

MAX N49 (2.0,12.0)

	PGNS	AGS
HA		
HP		

RESIDUALS

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

PGNS

N81 CSI			N82 CDH		
ΔVX (49.6)	YDOT (N90) (+0.0)		ΔVX (+0.0)	ΔVY (+0.0)	ΔVZ (+0.0)

263 YDOT CSI

371 ΔV CDH

CSM SOLUTION (CHANGE SIGN)

ΔVX CSI   ΔVY CSI

BIAS ΔVX= -1.0

AGS

N75 CSI					
CSI/CDH (58:13)	CDH/TPI (41:27)	ΔH (15.0)			

372 CSI/CDH   267/450 ΔVG (CSI)   402 ΔH

CSI

CDH/PLANE CHANGE

PGNS   AGS

CDH/PLANE CHANGE CARD

CSI
CDH/PLANE CHANGE

PLANE CHANGE P30, V90, 410+5

TIG CDH			- 3	0	0:0	0 0 0
TIG PC						

YDOT

	AGS (270)	( ) ( )
	PGNS (N90)	(-) (-)
	CSM (N90)	(-) (-)

RESIDUALS

AGS	500 501 502
ΔVX	
ΔVY	
ΔVZ	

PGNS N85	
ΔVX	
ΔVY	
ΔVZ	

NOTES

CRITERIA IS $\dot{X}$=2fps, $\dot{Z}$=6fps
PRIORITY OF SOLUTIONS-PGNS,AGS,CMC CHARTS.

A. RR AGREES WITH VHF WHERE
$\Delta R= \dfrac{R}{100} +0.5NM$, ΔR IS ALWAYS ≥1
IF TWO OF THREE SOLUTIONS AGREE, BURN THE PRIORITY SOLUTION.

B. RR DOES NOT AGREE WITH VHF. MSFN ISOLATES FAILED SYSTEM.

C. V90<5fps-NO BURN.

CDH/PLANE CHANGE

N13 CDH										
HRS			3	9					+	
MIN		0	0	4					+	
SEC	0	1	4	0					+	

N81 LV								
ΔVX	0	0	0				+	
ΔVY	0	0.	0				+	
ΔVZ	0	0	0				+	

FDAI								
PLM	X	X	4	2			X	
373	X	0	5	4	0	0	+	

N86 AGS								
ΔVX	0	0	0				+	
ΔVY	X	0	0	0			+	
ΔVZ	0	0	0				+	

MAX N49 (0.8,5.0)

	PGNS	AGS
HA		
HP		

RESIDUALS

AGS	500 501 502
ΔVX	
ΔVY	
ΔVZ	

PGNS N85	
ΔVX	
ΔVY	
ΔVZ	

N75 CDH

ΔH (15.0)	
ΔT TPI/CDH (41:27)	
TPI SLIP (0:00)	

N81 CDH

ΔVX (+0.0)	
YDOT N90 (+0.0)	(-) (-)
ΔVZ (+0.0)	

CSM SOLUTION (CHANGE SIGN)

ΔVX	ΔVY	ΔVZ

402 / ΔH   450 / ΔVX   452 / ΔVZ

263 / ΔVY (CDH)   270 / ΔVY (NOW)

PGNCS   AGS

LM DATA CARD BOOK

DATE   MARCH 30, 1970

LM DATA CARD BOOK

DATE   MARCH 30, 1970

TPI CARD

BURN RULES

CRITERIA IS $\dot{X}$=2fps, $\dot{Y}$=5fps, $\dot{Z}$=6fps.
PRIORITY OF SOLUTIONS—PGNS, AGS, CMC, CHARTS.

A. RR AGREES WITH VHF WHERE
$\Delta R = \dfrac{R}{100} + 0.5$NM, ΔR IS ALWAYS $\geq$1NM
IF TWO OF THREE SOLUTIONS AGREE.
BURN THE PRIORITY SOLUTION.

B. RR DOES NOT AGREE WITH VHF.
MSFN ISOLATES FAILED SYSTEM.

Load Data

Sign						Label	
0		0	1	3	9	HRS	N37
0	0	0	4	5		MIN	TPI
0		0	4 0.	6	0	SEC	

R1(+00000), R2(+02660), R3(+13000)

Sign						Label	
						N55	
+	0	0	2	1	9	ΔVX	N81
+	0	0	0	0	1	ΔVY	LV
−	0	0	1	1	0	ΔVZ	
+	0	3	7	7		R	N54
−	0	1	1	5		Ṙ	TIG−5
+	0	0	2	4	5	ΔVF⁺/A⁻	N59
+	0	0	0	0	1	ΔVR⁺/L⁻	LOS
−	0	0	1	0	2	ΔVD⁺/U⁻	
X	X	0	0	2	2	BT	

307+043.00

RESIDUALS

		ΔVX	500
AGS		ΔVY	501
		ΔVZ	502

PGNS	N85
ΔVX	
ΔVY	
ΔVZ	

MAX N49 (0.8, 5.0)

	AGS	
	HA	
	HP	
PGNS		

PGNS

N59 TPI

$\dfrac{\Delta VF^*/A^-}{(24.5)}$	$\dfrac{\Delta VR^+/L^-}{(+0.1)}$	$\dfrac{\Delta VD^+/U^-}{(-0.1)}$
• • •	• • •	• • •

N81 TPI

$\dfrac{\Delta VX}{(+21.9)}$	$\dfrac{\Delta VY}{(+0.1)}$	$\dfrac{\Delta VZ}{(-11.0)}$
• • •	• • •	• • •

N58 TPI

$\dfrac{HP}{(43.3)}$	$\dfrac{\Delta V}{(24.7)}$	$\dfrac{\Delta V\ TPF}{(31.5)}$
• • •	• • •	• • •

N37 TPI

$\dfrac{TIG}{(139:45:41)}$

• • • • • •

• • • • • •

$\dfrac{373}{TIG}$ (+0585.8)

AGS

CSM SOLUTION

$\dfrac{\ }{\Delta VX}$	$\dfrac{\ }{-\Delta VY}$	$\dfrac{\ }{\Delta VZ}$
• • •	• • •	• • •

CSM SOLUTION (CHANGE SIGN)

$\dfrac{\ }{\Delta VX}$	$\dfrac{\ }{\Delta VY}$	$\dfrac{\ }{\Delta VZ}$
• • •	• • •	• • •

$\dfrac{267}{\Delta V}$ $\dfrac{371}{\Delta V\ TPI+TPF}$

P76/P27 PADS

TPI
P76/P27

P27 PAD

PURP		1173															1213			1216
		01	02	03	04	05	06	07	10	11	12	13	14	15	16	17	20	21	22	23	24

V	..																					NAV CHECK N43
	..	INDEX																				HRS / MIN / SEC / LAT / LONG / ALT

NAV CHECK column:

	HRS	MIN	SEC	LAT	LONG	ALT
						●
		●	●			
	X	X				
	X	X	X			
	X	X	X	0		0
	X	X	X		+	0
						●
		●	●			
	X	X	X			
	X	X	X			
	X	X	X	0		0
	X	X	X		+	0

P76 PAD

PURPOSE	N33		TIG		N84			
	HRS	0	MIN	0	SEC	ΔVX	ΔVY	ΔVZ

(repeated four blocks, each:)

	HRS	MIN	SEC			
N33		0	0	ΔVX		
TIG	0	0	0	ΔVY		
	0	0	0	ΔVZ		
	+	+	+			
N84						
	0	0				
	0	0	0			
	+	+	+			

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AGS SV/IMPACT CARD

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IMPACT CARD

							Sign				Sign
N33	HRS	4	4	1	0	0	+	0	0		+
TIG	MIN	2	3	0	0	0	+	0	0		+
	SEC	0	2	0	2	0	+	0	0		+
N81	ΔVX	0	0	8	1	0	−				
LV	ΔVY	0	5	4	0	0	+				+
	ΔVZ	0	0	0	0	0	+				
N42	HA	0	8	5	0	0	+				+
	HP	1	3	6	0	0	−				
	ΔVR	5	5	8	1	0	+				+
	BT	5	1	1	X	X					
FDAI	R	X	X	X				X	X	X	
INER	P	X	X	X				X	X	X	
N86	ΔVX							X	X	X	
AGS	ΔVY										
	ΔVZ										

AGS STATE VECTOR PAD

PURP	LOAD
240	
241	
242	
260	
261	
262	
254	414+2
244	
245	
246	
264	
265	
266	
272	414+3

AGS STATE VECTOR PAD

PURP	LOAD
240	
241	
242	
260	
261	
262	
254	414+2
244	
245	
246	
264	
265	
266	
272	414+3

AGS SV
IMPACT PAD

AGS SV
IMPACT PAD

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