



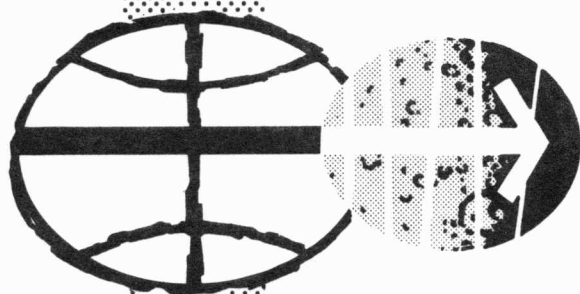
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

BASIC

SKYLAB SLM-1 CSM RENDEZVOUS BOOK

PREPARED BY

FLIGHT PROCEDURES BRANCH
CREW PROCEDURES DIVISION



MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MARCH 24, 1972

SKYLAB SLM-1

CSM RENDEZVOUS BOOK

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ACKNOWLEDGEMENT

<u>AREA</u>	<u>NAME/BRANCH</u>	<u>LOCATION</u>
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SKYLAB SLM-1
CSM RENDEZVOUS BOOK

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NOMINAL, M=5 CHECKLIST

0+00

SL-2 LIFT OFF

0+10

SL-2 INSERTION(31102)
(01111)

SEE INSERTION CHECKLIST

(11102)
(01111)

V48E (LOAD CSM CONFIGURATION)

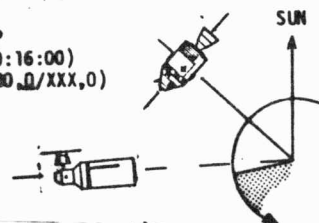
P47

(11002)
(01111)SL-2 SEPARATION

V48E (LOAD 2 JET X TRANSLATION)
 P31; BYPASS MINKEY OPT & AUTO MNVR
 LOAD PRELAUNCH DATA
 PRO (P31 COMP: RECORD PG 1-1)
 P00; V62E
 COPY TALIGN (PG 1-2)

R=2660.00 NM
 R=-1300.0 FPS

SEP
 (00:16:00)
 (180.0/XXX,0)



P52 (OPT 3) (RECORD DATA PG 1-2)

0+30

PRELAUNCH PAD

N95	HR	+						02
TIG NC1	MIN	+						20
	SEC	+			24	70		
N57	Half Revs							03
N37	HR	+						06
TIG TPI	MIN	+						47
	SEC	+			44	00		

P31 RECYCLE

N84	ΔV_{NC2}	+	0					
	ΔH_{NC2}	+	0	0				
	ΔV_{NCC}	+	0					
N81	ΔV_X	+	0					
ΔV_{NC1}	ΔV_Y	+	0	0	0	0	0	0
	ΔV_Z	+	0	0	0	0	0	0

0+30

(11002)
(01111)

0+40

0+50

1+00

P52 (OPT 2) (RECORD DATA PG 1-2)
ALIGN GDC
SCS DRIFT CHECK (START)

COAS LOS DTN (COPY N92 PG 1-2)

P20 OPT 5
(N78 = +0,+90,+180)
(TRK EARTH N70 = 47)

P52 GET ALIGN PAD

N34	HR	+	X	X	X	X			
GET	MIN	+	X	X	X	X			
ALIGN	SEC	+	X						

P52 (OPTION 3)

N71 1ST STAR	X	0	0	0		
N71 2ND STAR	X	0	0	0		
N05 (R1)*ERR	X					
N93	X					
GYRO	Y					
TORQUING						
ANGLES	Z					
HR	+	0	0	0		
TIME OF	MIN	+	0	0	0	
GYRO						
TORQUE	SEC	+	0			

P52 (OPTION 2)

N71 1ST STAR	X	0	0	0		
N71 2ND STAR	X	0	0	0		
N05 (R1)*ERR	X					
N93	X					
GYRO	Y					
TORQUING						
ANGLES	Z					
HR	+	0	0	0		
TIME OF	MIN	+	0	0	0	
GYRO						
TORQUE	SEC	+	0			

COAS ALIGN ANGLES

N92	R1 (SA)	+	X						(+000.00)
	R2 (TA)	+							(+57.450)

EMS ΔV TEST & NULL BIAS CHECK

1+00

(11002)
(01111)

1+10

1+20

1+30

1+30

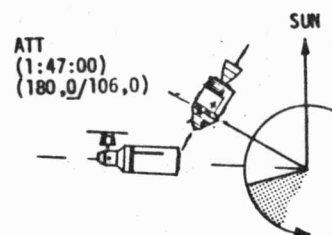
(11002)
(01111)T
E
X

NC1 PRELIMINARY PAD (PG 1-5)
TRANSMIT GYRO TORQUE ANGLES (PG 1-2)

SCS DRIFT CHECK (FINISH)

1+40

SET DET



1+50

M
A
D

MSFN UPLINK (P27) [CSM & SWS
STATE VECTORS, PIPA BIAS CHECK]
NC1 FINAL PAD (PG 1-5)
NPC ADVISORY (DECISION FOR P52 AT
POST NC1)

CMC - FREE
P31 MINKEY OPTION

[LOAD FINAL PAD DATA IF
NECESSARY (PG 1-5)]

2+00

2+00
(11002)
(01111)

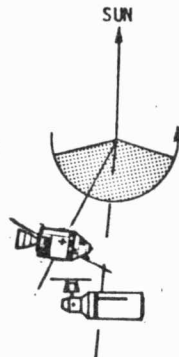
-12:00

2+10

2+20
0:00

2+30

MNVR TO NC1 BURN ATT
(2:15:00)
(180,340/330,0)

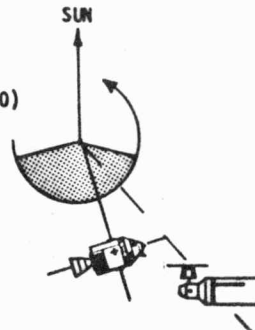


P31 (FINAL COMP)

GO TO SPS BURN CUE CARD

P40

NC1
(2:20:00)
(180,0/330,0)



XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X SPS GMBL TRIM X
X P = +1.2° X
X Y = +0.3° X
X ΔV TAILOFF = 14.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

ULLAGE AT -20 SEC (SCS -14 SEC)
NC1 (180,0/330,0)
COPY BURN STATUS (TRIM VGX ±0.2)

P32

XXXXX IF NPC ADVISED XXXXXXXXXXXXX
X P52 (OPT 3) & DRIFT CHECK X
X (RECORD PG 1-8) X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

R=1136.00 NM
R=-1240.0 FPS

NC1 PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N95	HR	+				0	2			+			
TIG NC1	MIN	+				2	0			+			
	SEC	+				2	4	7	0	+			
N81	ΔV _X	+				2	2	2	1	+			
ΔV _{NC1}	ΔV _Y	+				0	0	0	0	+			
	ΔV _Z	+				0	0	0	0	+			
N22	R					1	8	0					
NC1	P					3	2	9					
	Y					0	0	2					
	ΔV _C					2	0	8	3				
	BT					0	1	0					

NC1 ONBOARD DATA

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X N81 COMP LIMITS ±0.5 FPS X
X X CMC/MSFN WITHIN LIMITS GO CMC X
X IF NOT - GO MSFN X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

P31 FINAL COMP

N84	ΔV _{NC2}	+	0				
	ΔH _{NC2}	+	0	0			
	ΔV _{NCC}	+	0				
N81	ΔV _X	+	0				
ΔV _{NC1}	ΔV _Y	+	0	0	0	0	0
	ΔV _Z	+	0	0	0	0	0

SPS BURN STATUS

		BEFORE TRIM			
ΔTIG					
BT					
ΔVC					
N85	VGX	0	0		

AFTER TRIM

FDAI	R	+					
	P	+					
	Y	+					
N85	VGX		0	0			
	VGY		0	0			
	VGZ		0	0			

2+30

(11002)
(01111)

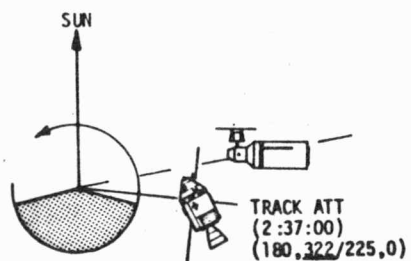
H
S
K

2+40

2+50

3+00

NC1 BURN STATUS TO MSFN (PG 1-5)



H2 PURG LINE HTR - on (up)
(20 MIN PRIOR TO FUEL CELL PURGE)

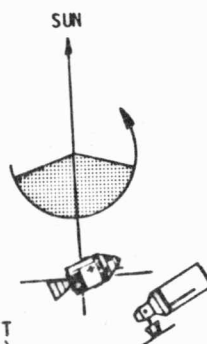
3+30
(11002)
(01111)

*
*
* GDC ALIGN AFTER MNVR AND
* IMU TORQUE
* V48E (LOAD 0.5°/SEC MNVR RATE)
*

CMC - AUTO
P52 (OPT 3) & DRIFT CHECK (RECORD
DATA PG 1-8)

3+40

SWS MNVRS TO Z-LV
PERFORM VHF SWITCH LIST
(PG 1-8)
P32



3+50

S
X
T

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 1.00 NM, 6.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

4+00

XXXXXXXXXXXXXXXXXXXX
X VHF SWITCH LIST X
X
X VHF AM A - OFF X
X VHF AM B - DUPLEX X
X VHF RING - on (up) X
X EMS MODE - BACKUP/VHF RING X
X EMS FUNC - VHF RING/DV SET X
X VHF ANT - RIGHT X
X VHF RING RESET - RESET X
X PANEL 6, 9, 10: X
X VHF AM - RCV X
X
XXXXXXXXXXXXXXXXXXXX

P52. (OPTION 3)

N71 1ST STAR	X	0	0	0		
N71 2ND STAR	X	0	0	0		
N05 (R1)*ERR	X					
N93	X					
GYRO	Y					
TORQUING	Z					
ANGLES						
HR	+	0	0	0		
TIME OF	MIN	+	0	0	0	
GYRO						
TORQUE	SEC	+	0			

P52 (OPTION 3)

N71 1ST STAR	X	0	0	0		
N71 2ND STAR	X	0	0	0		
N05 (R1)*ERR	X					
N93	X					
GYRO	Y					
TORQUING	Z					
ANGLES						
HR	+	0	0	0		
TIME OF	MIN	+	0	0	0	
GYRO						
TORQUE	SEC	+	0			

4+00
(11002)
(01111)

S
X
T

TRANSMIT GYRO TORQUING ANGLES
NC2 FINAL PAD (PG 1-10)
NCC PRELIMINARY PAD (PG 1-11)
NSR PRELIMINARY PAD (PG 1-12)

4+10

S
U
N
S
H
A
F
T

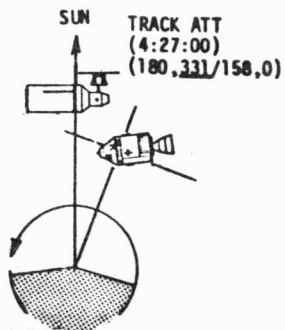
* IF GYRO COMP & PIPA BIAS UPDATE *
* REQ *
* P00, MSFN UPLINK (P27) *

V16N28E Compare, load pad value
V32E (P32 RECYCLE: RECORD PG 1-10)

R=300.00 NM
R=594.0 FPS

4+20

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 1.00 NM. 6.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXX



-12:00

30

P32 (FINAL COMP)
(RECORD PG 1-10)

GO TO SPS BURN CUE CARD

4+30

H
A
W

5+00

S
X
T

R CHART DATA FOR NCC-28
(R=190.97 NM)

SUN

ΔV_C	X	X	X	1	5	1	3	X	X	X	X	.	.	X	X	X	X	.	.
BT	X	X	X	0	0	7	X	X	X	X	.	.	X	X	X	X	.	.	

N84	ΔV_{NCC}	+	0				.		+	0				.
	ΔH_{NCC}	+	0	0			.		+	0	0			.
	ΔV_{NSR}	+	0	0			.		+	0	0			.
N81	ΔV_X	+	0				.		+	0				.
ΔV_{NC2}	ΔV_Y	+	0	0	0	0	0	0	+	0	0	0	0	0
	ΔV_Z	+	0	0	0	0	0	0	+	0	0	0	0	0

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X N81 COMP LIMITS +0.5 FPS          X
X                                     X
X CMC/MSFN WITHIN LIMITS GO CMC     X
X IF NOT - GO MSFN                  X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

SPS BURN STATUS

BEFORE TRIM

BEFORE TRIM				
Δ TIG				
BT				
Δ VC				
N85	VGX	0	0	

AFTER TRIM

AFTER TRIM									
FDAI	R	+							
	P	+							
	Y	+							
N85	VGX		0	0					
	VGY		0	0					
	VGZ		0	0					

5+00

(11002)
(01111)

-20:00

-16:00

5+10

-12:00

5+20

0:00

5+30

C
Y
I
S
X
T
A
C
N
6
S
X
T

R CHART DATA FOR NCC-20
(R=168.52 NM)

XXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 1.00 NM, 6.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXX

R CHART DATA FOR NCC-16
(R=155.83 NM)

NCC FINAL PAD (PG 1-11)
NSR FINAL PAD (PG 1-12)

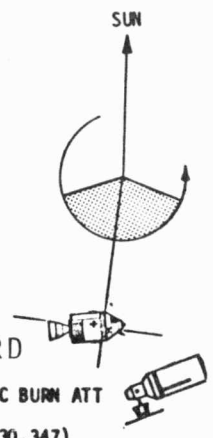
R CHART DATA FOR NCC-12
(R=148.32 NM)

V77E; P33 (FINAL COMP)

GO TO SPS BURN CUE CARD

P40

MNVR TO NCC BURN ATT
(5:17:00)
(180,336/330,347)



ULLAGE AT -20 SEC (SCS -14 SEC)
NCC (180,0/330,347) (TRIM VG'S +0.2)

COPY BURN STATUS

P34

R=113.00 NM,
R=-205.0 FPS

V76E, LOAD N72 WITH TIG NSR-28

N13 (TIG NSR) : : .

NCC PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N11	HR	+				0	5			+			
TIG NCC	MIN	+				2	2			+			
	SEC	+				3	4	8	0	+			
N81	ΔV_X	+				0	2	3	3				
ΔV_{NCC}	ΔV_Y	-				0	0	7	1				
	ΔV_Z	-				0	0	5	7				
	ΔV_C					0	1	6	6				
N22	R					1	8	2					
NCC	P					3	4	0					
	Y					3	4	8					

NCC ONBOARD DATA

		P33 FINAL COMP			
N82	ΔV_X	0			
ΔV_{NSR}	ΔV_Y	0			
	ΔV_Z	0			
N81	ΔV_X	0			
ΔV_{NCC}	ΔV_Y	0			
	ΔV_Z	0			

XXX
X N81 COMP LIMITS ± 1.5 , ± 5.0 , ± 15.0 FPS X
X
X CMC/CHART WITHIN LIMITS GO CMC X
X IF NOT CMC/MSFN WITHIN LIMITS GO CMC X
X IF NOT CHART/MSFN WITHIN LIMITS GO CHART X
X NO AGREEMENT GO MSFN X
XXX

NCC CHART SOLN

ΔV_X									
ΔV_Y									
ΔV_Z									

SPS BURN STATUS

		BEFORE TRIM			
ΔTIG					
BT					
ΔVC					
N85	VGX	0	0		

		AFTER TRIM			
FDAI	R	+			
	P	+			
	Y	+			
N85	VGX	0	0		
	VGX	0	0		
	VGZ	0	0		

5+30

(11002)

(01111)

-28:00

-24:00

-20:00

5+40

-12:00

5+50

0:00

6+00

S
X
T

12

C
R
OS
H
A
F
TH
S
K

R CHART DATA FOR NSR-28
(R=104.77 NM)

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 1.00 NM, 6.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

R CHART DATA FOR NSR-24
(R=97.40 NM)

R CHART DATA FOR NSR-20
(R=91.25 NM)
V32E (P34 RECYCLE)

NCC BURN STATUS TO MSFN (PG 1-11)

R CHART DATA FOR NSR-12
(R=80.50 NM)
V77E; P34 (FINAL COMP)

GO TO SPS BURN CUE
CARD

P40

ULLAGE AT -20 SEC (SCS -14 SEC)
NSR (180, 352/176, 347) (TRIM VG'S ± 0.2)

SUN

TRACK ATT
(5:37:00)
(180, 334/248, 0)

MIVR TO NSR BURN ATT
(5:54:00)
(180, 326/176, 0)

SUN

NSR PAD DATA

TIG NSR(N13) = TIG NCC(N11) + 00:37:00

NOMINAL			PRELIMINARY			FINAL		
N81	ΔV_x	+	0	1	9.1			
ΔV_{NSR}	ΔV_y	-	0	0	4.6			
	ΔV_z	-	0	0	1.8			
	ΔV_c		0	0	7.0			
N22	R		1	8	1			
NSR	P		1	9	1			
	Y		3	4	8			

NSR ONBOARD DATA

P34 RECYCLE			P34 FINAL COMP		
N75	ΔH_{NSR}	+	0	0	
	$\Delta T(NSR/TPI)$	+		B	
	$\Delta T(TPI/TPI)$			B	
N81	ΔV_x	0			
ΔV_{NSR}	ΔV_y	0			
	ΔV_z	0			

XX
X N81 COMP LIMITS $\pm 1.0, \pm 5.0, \pm 3.0$ FPS X
X
X CMC/CHART WITHIN LIMITS GO CMC X
X IF NOT CMC/MSFN WITHIN LIMITS GO CMC X
X IF NOT CHART/MSFN WITHIN LIMITS GO CHART X
X NO AGREEMENT GO MSFN X
XX

NSR CHART SOLN

ΔV_x					
ΔV_y					
ΔV_z					

SPS BURN STATUS

BEFORE TRIM					
ΔTIG					
BT					
ΔVC					
N85	VGX	0	0		

AFTER TRIM

FDAI	R	+			
	P	+			
	Y	+			
N85	VGX	0	0		
	VGy	0	0		
	VGz	0	0		

6+00
(11002)
(01111)

(11103)
(01111)

6+10

-32:00

-28:00

6+20

-24:00

-22:00

6+30

P35
KEY ENTR (BYPASS P20 MNVR)
UPLINK ACTY LT ON
V48E; 4 JET, 2°/SEC
KEY V23N78E; LOAD +OE
KEY V58E; MNVR HEADS UP
RECORD N37 (PG 1-13)
NSR BURN STATUS TO MSFN (PG 1-12)

V83E
SET ORDEAL (FDAI #1) R=62.00NM
R=-103.0 FPS

SET DET
V76E, LOAD N72 WITH TIG TPI-32
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 0.50 NM, 3.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

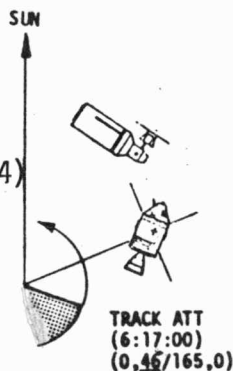
R CHART DATA FOR TPI-32
(R=53.90NM) *52.56*
TPI PRELIMINARY PAD (PG 1-14)

R CHART DATA FOR TPI-28
(R=49.86NM)

R CHART DATA FOR TPI-24
(R=45.82 NM)
V32E (P35 RECYCLE: RECORD PG 1-14)

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 0.50 NM, 3.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

TPI FINAL PAD (PG 1-14)



P35 (INITIAL CALL) FOR CHART DATA

N37 (TPI1) 6:30:26.55 (PG 42 IN CHARTS)

MC-1
58 sec from 1640
tid PRO only 85
2+45 take MKS
3+20 1st MARK
4+00 2nd MARK

32.55

at burn + 52 sec
TPI burn + 52 sec

Adu

DATE 3/24/72

6+30

-16:00
(11103)
(01111)

-12:00

6+40

0:00

6+50

+3:00

+4:30

+7:30

+8:30

+9:00

+12:00

7+00

R CHART DATA FOR TPI-16
(R=37.79 NM)

S
X
T

V77E
P35 (FINAL COMP) 24 MKS

GO TO SPS BURN CUE CARD

P40

ULLAGE AT -14 SEC
TPI (0,27/27,0) (TRIM VG'S +0.2)

P36 AUTO MNVR

V83E, SET ORDEAL (FDAI #1) H=231 NM

V87E

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X UNREASONABLE UPDATE X
X 0.50 NM, 3.0 FPS X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

SWS MNVRS TO SI
POINT SXT AT SWS (Op, TA FOR TPI +4:30)
CALCULATE 04:30
READ R (FOR TPI +7:30)
POINT SXT AT SWS (R, Op, TA FOR TPI +8:30)
CALCULATE 08:30/COMPUTE CHART SOLUTION
PRO; P41

TPM1

V83 SET ORDEAL IF REQUIRED H=235 NM

TPI PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N37	HR	+			06	+			06	+			06
TIG TPI	MIN	+			47	+			48	+			49
	SEC	+			44.00	+			55.02	+			11.04
N81	ΔV_X	+			18.5	+			8.6	+			18.6
	ΔV_{TPI}	+			00.7	-			.6	-			.3
	ΔV_Z	-			09.6	-			.9	-			8.6
N59	VF/BT	+			208.46				206	+			204
	$\Delta V_{(LOS)} V_R/BT$	+			00.703				/	-			.3
	VD/BT	-			00.301				/	-			.8

649.09 650.38

TPI ONBOARD DATA

TIG TPI IS N37
OF P35 FINAL COMP

Ed sol
+17.2
-2.3

B:11
+19.8
-9.1

+1.5

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X N81 COMP LIMITS +1.0,+3.0,+3.0 FPS X
X
X CMC/CHART WITHIN LIMITS GO CMC X
X IF NOT CMC/MSFN WITHIN LIMITS GO CMC X
X ***** X
X IF NOT N81 COMP LIMITS +3.0 FPS X
X
X CHART/MSFN WITHIN LIMITS GO CHART X
X NO AGREEMENT GO MSFN X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

		P35 RECYCLE				P35 FINAL COMP			
N37	HR	+	0	0	0	+	0	0	0
TIG TPI	MIN	+	0	0	0	+	0	0	0
	SEC	+	0			+	0		
N58	ΔV_{TPI}	+	0	0		+	0	0	
	ΔV_{TPF}	+	0	0		+	0	0	
	$\Delta T(TPI/TPI_0)$				B				B
N81	ΔV_X		0	0			0	0	
	ΔV_{TPI}		0	0			0	0	
	ΔV_Z		0	0			0	0	
N59	ΔV_F		0	0			0	0	
	$\Delta V_{(LOS)}$		0	0			0	0	
	ΔV_D		0	0			0	0	

TPI CHART SOLN

ΔV_X								
ΔV_Y								
ΔV_Z								

PAGE 1-14

7+00

(11103)
(01111)

XXXXXXXXXXXXXXXXXXXXX
 X UNREASONABLE UPDATE X
 X 0.50 NM, 3.0 FPS X
 XXXXXXXXXXXXXXXXXXXXX

(11102)

(01111)

+16:30

P36

V48 0.5°/SEC

POINT SXT AT SWS (θ_p , TA FOR TPI +16:30)CALCULATE θ 16:30

+19:30

+20:30

7+10

+21:00

+24:00

READ R (FOR TPI + 19:30)

POINT SXT AT SWS (R, θ_p , TA FOR TPI +20:30)CALCULATE θ 20:30/COMPUTE CHART SOLUTION

PRO; P41

TPM2

P37

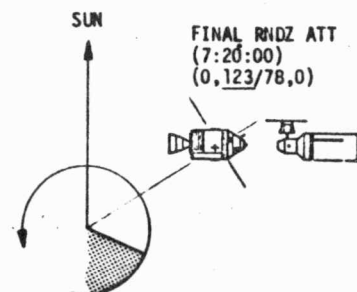
CMC - HOLD (MONITOR LOS RATES AND
 RANGE RATE); N54 (R, R, θ)

PRE-BRAKING CHECKLIST

PRO; P48 (NULL LOS RATES AND
 ADJUST R TO BRAKING GATES)

N77 (R, R, θ)N83 ($\Delta V_X, \Delta V_Y, \Delta V_Z$ CONT) (OPTIONAL)

STATION KEEP



TPM1 ONBOARD DATA

		P36 FINAL COMP					TPM1 CHART SOLN				
N59	V _F		0	0				0	0		
ΔV 'S(LOS)	V _R		0	0				0	0		
	V _D		0	0				0	0		

TPM2 ONBOARD DATA

		P36 FINAL COMP					TPM2 CHART SOLN				
N59	V _F		0	0				0	0		
ΔV 'S(LOS)	V _R		0	0				0	0		
	V _D		0	0				0	0		

BURN CMC SOLUTION IF REASONABLE
 IF NOT, BURN CHART SOLUTION IF REASONABLE
 IF BOTH SOLUTIONS UNREASONABLE, SKIP TPM BURN

PRE-BRAKING CHECKLIST

MAN ATT(3) - RATE CMD (VERIFY)
 LIMIT CYCLE - OFF (VERIFY)
 ATT DB - MIN
 RATE -- LOW (VERIFY)
 THC PWR - ON (UP)
 RHC PWR DIR(2) - MNA/MNB
 RHC PWR NORM(2) - AC/DC

BMAG MODE(3) - RATE 2
 SC CONT - CMC (VERIFY)
 CMC MODE - HOLD (VERIFY)
 AUTO RCS SEL(16) - MNA/MNB
 THC - ARMED (VERIFY)
 RHC(2) - ARMED (VERIFY)
 COAS PWR - ON (UP) (VERIFY)
 FDAI SOURCE - CMC (VERIFY)

BRAKING GATES

R(NM)	R(FPS)	SWS DIAMETER RETICLE ANG(DEG)	R(FT)
1.00	30	.2	6000
.50	20	.4	3000
.25	10	.8	1500
.08	5	2.5	500
.05		4.2	300
.03		6.3	200
.02		10.0	130

7+30

(11102)
(01111)G
W
M

7+40

PREDOCK CHECKLIST

V49E; LOAD DESIRED DOCKING ATT

BMAG MODE (3) ATT 1/RATE 2

CSM/SWS DOCKING
LOAD DAP

7+50

G
D
S

8+00

PRE-DOCKING CHECKLIST

CMC MODE - AUTO
 BMAG MODE(3) - RATE 2 (VERIFY)
 CB DOCK PROBE(2) - CLOSED
 PROBE RETR(2) - OFF (VERIFY)
 PROBE EXTD/REL - RETR
 PROBE EXTD/REL TB(2) - GRAY (VERIFY)
 CB SECS LOGIC(2) - CLOSED (VERIFY)

CB SECS ARM(2) - CLOSED
 EXT RNDZ LT - SPOT
 **AFTER MSFN AOS
 SECS LOGIC (BOTH) - ON (UP)
 **AFTER MSFN GO
 SECS PYRO ARM(2) - ON (UP)

DOCKING CHECKLIST

AT CAPTURE

PROBE EXTD/REL TB (2) - BP
 CMC MODE - FREE
 REPORT CAPTURE TO MSFN
 ALLOW PROBE TO DAMP SC MOTION (10 SEC)
 WHEN WITHIN +3 DEG OF DOCKING ATTITUDE
 PROBE RETRACT SEC - 1 (PRIM - 2 IF REQ'D)

AT DOCK LATCH

PROBE EXTD/REL TB (2) - GRAY

AFTER HARD DOCK

SECS PYRO ARM (2) - SAFE
 SECS LOGIC (BOTH) - OFF
 CB SECS ARM (2) - OPEN
 CB DOCK PROBE (2) - OPEN
 THC - LOCKED
 RHC - LOCKED
 BMAG MODE (3) - RATE 2
 PROBE EXTD/REL - OFF
 PROBE RETRACT (2) - OFF
 EXT RUN/EVA LIGHT - OFF
 EMS FUNC - OFF
 EMS MODE - STBY

EXT RNDZ LIGHT - OFF
 COAS PMR - OFF
 LIMIT CYCLE - OFF
 ATT DB - MIN
 SC CONT - SCS (VERIFY)
 CMC MODE - FREE (VERIFY)
 AUTO RCS SEL B/D ROLL (4) - OFF
 THC PWR - OFF
 RHC PWR DIR (2) - OFF
 RATE - LOW

DATE 3/24/72

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DATE 3/24/72

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TBS

NOV 1972 M-6

DATE 3/24/72

PAGE 3-1

TBS

DATE 3/24/72

PAGE 4-1

TBS

NOMINAL M=8

(I) WHEN CMC FAILURE OCCURS

- 1.) PERFORM CMC FAILURE SWITCH LIST (II)
 - 2.) PROCEED TO APPROPRIATE POINT IN TIMELINE
 - 3.) PERFORM IMU DRIFT CHECK (III, IV) AT 1ST AVAILABLE OPPORTUNITY
 - 4.) IF IMU DRIFT EXCEEDS +TBD LIMITS, PERFORM GDC/IMU ALIGN TO STARS (V)
- NOTE: RETAIN LAUNCH REFSMMAT UNLESS +TBD LIMITS EXCEEDED

(II) CMC FAILURE SWITCH LIST

FDAI SEL - 1/2
 FDAI SOURCE - ATT SET
 ATT SET - IMU
 LIMIT CYCLE - OFF
 ATT DB - MIN
 RATE - LOW
 SC CONT - SCS
 BMAG MODE (3) - ATT1/RATE2
 AUTO RCS SEL A/C ROLL(4) - OFF

(III) STAR ACQUISITION DATA

LAUNCH REFSMMAT

IMU ATTITUDE	R				1	8	0	0
	P				1	7	7	0
	Y				0	0	0	0
STAR		MENKENT / 30						
TPAC ANGLES	SA				1	9	3	6
	TA				0	3	2	4
STAR		PEACOCK / 42						
TPAC ANGLES	SA				3	4	3	2
	TA				0	3	2	8

TPI REFSMMAT

BEGIN DARKNESS

IMU ATTITUDE	R				1	8	0	0
	P				0	3	9	0
	Y				0	0	0	0
STAR		DENEbola / 23						
TPAC ANGLES	SA				1	7	6	8
	TA				0	3	1	2
STAR		MENKENT / 30						
TPAC ANGLES	SA				3	4	4	7
	TA				0	2	9	5

(IV) IMU DRIFT CHECK

GET ALIGN CHECK	HR	+						
	MIN	+						
	SEC	+						
IMU ATTITUDE	R							
	P							
	Y							

STAR								
TPAC ANGLES	SA							
	TA							
STAR								
TPAC ANGLES	SA							
	TA							

(V) GDC ALIGN DATA (PG G7-2 G&C CHECKLIST)

BEGIN DARKNESS

STAR PAIR								
GDC ATT SET ANGLES	R							
	P							
	Y							
TPAC ANGLES	SA							
	TA							

END DARKNESS

STAR PAIR								
GDC ATT SET ANGLES	R							
	P							
	Y							
TPAC ANGLES	SA							
	TA							

DEFINITIONS

θ_D = ORDEAL ANGLE TO PLACE EARTH HORIZON IN CTR OF COAS
 H = AVERAGE ALTITUDE

END DARKNESS

IMU ATTITUDE	R				1	8	0	0
	P				2	9	6	0
	Y				0	0	0	0
STAR		NUNKI / 37						
TPAC ANGLES	SA				1	2	8	9
	TA				0	3	0	7
STAR		Fomalhaut / 45						
TPAC ANGLES	SA				3	5	2	9
	TA				0	2	6	8

PRELAUNCH PAD

N95	HR	+						0	2
TIG NC1	MIN	+						2	0
	SEC	+						2	4
N57 Half Revs								0	3
N37	HR	+						0	6
TIG TPI	MIN	+						4	7
	SEC	+						4	4

0+00

SL-2 LIFT OFF

B
D
A

0+10

SL-2 INSERTION

XXXXXXXXXXXXXXXXX
X θ_D = 348 X
X H = 100 X
XXXXXXXXXXXXXXXXX

SL-2 SEPARATION

CMC FAILS

0+20

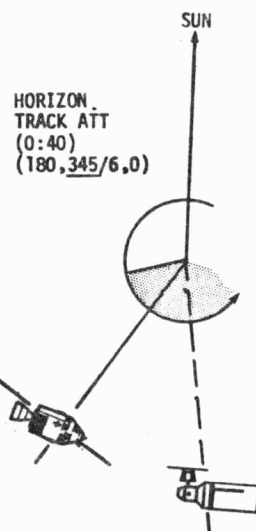
M
A
D

0+30

■

XXXXXXXXXXXXXXXXX
 X $\theta_D = 346$ X
 X H = 100 X
 XXXXXXXXXXXXXXXXXXX

INITIATE TRACK OF EARTH HORIZON



EMS ΔV TEST & NULL BIAS CHECK
 ALIGN GDC TO IMU

0+30

0+40

0+50

1+00

XXXXXXXXXXXXXXXXX
 X θ D = 346 X
 X H = 100 X
 XXXXXXXXXXXXXXXXX

1+00

1+10

1+20

1+30

GDC/IMU COMPARISON
 BMAG MODE (3) - RATE 1

```

XXXXXXXXXXXXXXXXX
X   $\Theta_D$  = 347    X
X  H  = 100      X
XXXXXXXXXXXXXXXXX

```

VOICE DOWN IMU
ORIENTATION
AND SYSTEM CHECK
DATA

```

XXXXXXXXXXXXXXXXX
X   $\Theta_D$  = 347  X
X  H  = 100  X
XXXXXXXXXXXXXXXXX

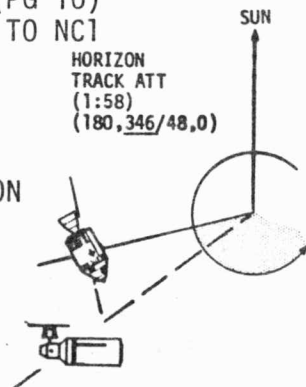
```

GDC/IMU COMPARISON

RECORD NC1 FINAL PAD (PG 10)
SET DET COUNTING DOWN TO NC1
RECIEVE STAR DATA
(RECORD PG 5-4)

HORIZON
TRACK ATT
(1:58)
(180,346/48,0)

IMU DRIFT DETERMINATION
(COPY PG 5-4)



R ACQUISITION PAD (UPDATE)

IMU ATTITUDE	R							.
	P							.
	Y							.
STAR								
TPAC ANGLES	SA							.
	TA							.
STAR								
TPAC ANGLES	SA							.
	TA							.

IMU DRIFT CHECK

GET ALIGN CHECK	HR			
	MIN			
	SEC			
IMU ATTITUDE	R			
	P			
	Y			
STAR				
TPAC ANGLES	SA			
	TA			
STAR				
TPAC ANGLES	SA			
	TA			

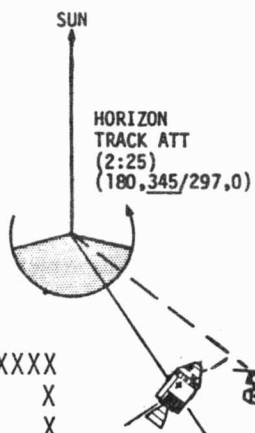
2+00

XXXXXXXXXXXXXXXXXXXX
 $X^{\theta}_D = 346$ X
 $X H = 100$ X
 XXXXXXXXXXXXXXXXXXXX

2+10

-12:00

FDAI SEL - 1
 ATT SET - IMU
 GO TO SPS BURN CUE
 CARD (SCS)



XXXXXXXXXXXXXXXXXXXX
 X SPS GMBL TRIM X
 X $P = +1.2^{\circ}$ X
 X $Y = +0.3^{\circ}$ X
 X ΔV TAILOFF = 14.0 fps X
 XXXXXXXXXXXXXXXXXXXX

2+20

ULLAGE AT -14 SEC
NC1 (180,0/330,0)

FDAI SEL - 1/2

XXXXXXXXXXXXXXXXXXXX
 $X^{\theta}_D = 345$ X
 $X H = 164$ X
 XXXXXXXXXXXXXXXXXXXX

INITIATE TRACK OF EARTH
 HORIZON

2+30

NC1 PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N95	HR	+	X	X	X	0	2	+	X	X	X	X	
TIG NC1	MIN	+	X	X	X	2	0	+	X	X	X	X	
	SEC	+	X	2	4	7	0	+	X				
N81	ΔV_X	+	X	2	2	2	1	+	X				
ΔV_{NC1}	ΔV_Y	+	X	0	0	0	0	+	X				
	ΔV_Z	+	X	0	0	0	0	+	X	0	0	0	0
N22	R		X	X	X	1	8	0		X	X	X	
NC1	P		X	X	X	3	2	9		X	X	X	
	Y		X	X	X	0	0	2		X	X	X	
	ΔV_C		X	X	X	2	0	8	3		X	X	
	BT		X	X	X	0	1	0		X	X	X	

2+30

XXXXXXXXXXXXXXXXX
X^θ_D = 344 X
X H - 164 X
XXXXXXXXXXXXXXXXX

VOICE IMU DRIFT TO MSFN(PG 5-4)

H
S
K

2+40

H2 PURG LINE HTR - on (up)

2+50

3+00

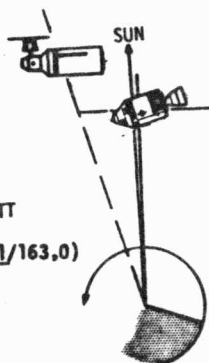
3+00

NPC PAD (PG 5-7)
 NC2 PRELIMINARY PAD
 (PG 5-10)

XXXXXXXXXXXXXXXXX
 $X^{\theta}_D = 341$ X
 $X_H = 164$ X
 XXXXXXXXXXXXXXXXXXX

RECIEVE STAR DATA
 (COPY PG 5-8)

HORIZON
 TRACK ATT
 (3:02)
 (180,341/163,0)



FUEL CELL PURGE
 (AFTER MSFN LOS)

3+20

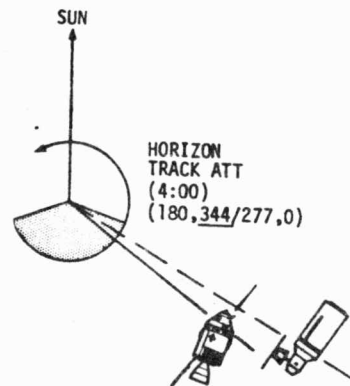
 * ATT SET - IMU *
 * FDAI SEL - 1 *
 * MNVR TO NPC BURN ATT *
 * *
 * RCS BURN PREPARATION (IF *
 * NPC NECESSARY *
 * *
 * **NPC** (BURN IF NECESSARY) *
 * *
 * FDAI SEL - 1/2 *

3+30

NPC PAD DATA

TIG NPC	HR	+	X	X	X	X				
	MIN	+	X	X	X	X				
	SEC	+	X							
NPC ΔV	ΔV_X	+	X		0	0	0	0		
	ΔV_Y		X							
	ΔV_Z	+	X		0	0	0	0		
IMU ATTITUDE	R		X	X	X	X	1	8	0	
	P		X	X	X	X				
	Y		X	X	X	X	0	0	0	
BURN TIME			M		S					

4+00



IMU ATTITUDE	R				
	P				
	Y				
STAR		/			
TPAC ANGLES	SA				
	TA				
STAR		/			
TPAC ANGLES	SA				
	TA				

GET ALIGN CHECK	HR						
	MIN						
	SEC						
IMU ATTITUDE	R						
	P						
	Y						
STAR							
TPAC ANGLES	SA						
	TA						
STAR							
TPAC ANGLES	SA						
	TA						

4+00

PERFORM VHF SWITCH LIST (PG 5-9)

XXXXXXXXXXXXXXXXX
 X Θ_D = 344 X
 X H = 164 X
 XXXXXXXXXXXXXXXXX

NC2 FINAL PAD (PG 5-10)
 NCC, NSR PRELIMINARY PADS (PG 5-11;
 PG 5-12)
 VOICE IMU DRIFT TO MSFN (PG 16)

4+10

XXXXXXXXXXXXXXXXX
 X R = 300. NM X
 X R = -594. FPS X
 XXXXXXXXXXXXXXXXX

4+20

-12:00

FDAI SEL - 1
 ATT SET - IMU
 GO TO SPS BURN CUE
 CARD (SCS)

4+30

```

XXXXXXXXXXXXXXXXX
X  VHF SWITCH LIST  X
X  VHF AM A - OFF   X
X  VHF AM B - DUPLEX X
X  VHF RNG - on (up) X
X  EMS MODE - BACKUP/VHF RNG X
X  EMS FUNC - VHF RNG/DV SET X
X  VHF ANT - RIGHT   X
X  VHF RNG RESET - RESET X
X  PANEL 6, 9, 10:  X
X    VHF AM - RCV    X
XXXXXXXXXXXXXXXXX
  
```

H
S
K

V
H
F

H
A
W

4+30

0:00

4+40

-36:00

4+50

-32:00

-28:00

5+00

XXXXXXXXXXXXXXXXX
 $X^{\odot}D = 342$ X
 $XH = 164$ X
 XXXXXXXXXXXXXXXXXXX

ULLAGE AT -14 SEC

NC2 (180,0/150,0)

FDAI SEL - 1/2

XXXXXXXXXXXXXXXXX
 $X^{\odot}D = 341$ X
 $XH = 211$ X
 XXXXXXXXXXXXXXXXXXX

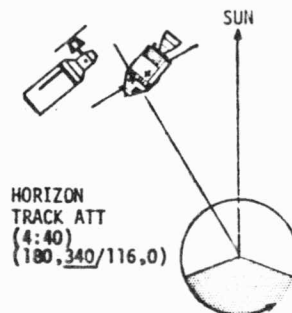
INITIATE TRACK OF EARTH HORIZON
 REACQUIRE VHF RNG

CHART DATA NCC - 36:00
 (R = 215.11 NM)

CHART DATA NCC - 32:00
 (R = 203.03 NM)

CHART DATA NCC - 28:00
 (R = 190.97 NM)

SET ORDEAL FDAI 1



NC2 PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N28	HR	+	X	X	X	0	4	+	X	X	X	X	
TIG NC2	MIN	+	X	X	X	3	6	+	X	X	X	X	
	SEC	+	X	X	X	2	1.90	+	X	X	X	X	
N81	ΔV_X	+	X	X	X	1	6	5.4	+	X	X	X	
ΔV_{NC2}	ΔV_Y	+	X	X	X	0	0	0.0	+	X	X	X	
	ΔV_Z	+	X	X	X	0	0	0.0	+	X	X	X	
N22	R	X	X	X	X	1	80	X	X	X	X	X	
NC2	P	X	X	X	X	1	49	X	X	X	X	X	
	Y	X	X	X	X	0	01	X	X	X	X	X	
	ΔV_C	X	X	X	X	1	51.3	X	X	X	X	X	
	BT	X	X	X	X	0	07	X	X	X	X	X	

5+00

XXXXXXXXXXXXXXXXXX

X $\Theta_D = 340$ X

X H = 211 X

-20:00

CHART DATA NCC -20:00XXXXXXXXXXXXXXXXXX
(R = 168.52 NM)

-16:00

CHART DATA NCC -16:00
(R = 155.83 NM)

NCC; NSR FINAL PADS (PG 5-11; PG 5-12)

5+10

-12:00

CHART DATA NCC -12:00
(R = 148.32 NM)ATT SET - IMU
FDAI SEL - 1
GO TO SPS BURN CUE
CARD (SCS)

5+20

XXXXXXXXXXXXXXXXXX

X $\Theta_D = 340$ X

X H = 220 X

XXXXXXXXXXXXXXXXXX

0:00

ULLAGE AT -14 SEC
NCC (180,0/330,347)
FDAI SEL - 1/2SET ORDEAL FDAI 1
INITIATE TRACK OF EARTH HORIZON
REACQUIRE VHF RNG

5+30

NCC PAD DATA

		NOMINAL					PRELIMINARY					FINAL				
N11	HR	+				05	+					+				
TIG NCC	MIN	+				22	+					+				
	SEC	+				34.80	+					+				
N81	ΔV_X	+				029.3										
ΔV_{NCC}	ΔV_Y	-				007.1										
	ΔV_Z	-				005.7										
	ΔV_C					016.6										
N22	R					182										
NCC	P					340										
	Y					348										

CHART	ΔV_H															
BURN	ΔV_V															
SOLUTION	ΔV_Z															

ORDEAL PITCH = $360^\circ + \text{CHART ANGLE}$
(+ IF ΔV_Z IS NEGATIVE)

ORDEAL PITCH																
ΔV_T (IN PLANE)	+															

XX
X
X ΔV COMP LIMITS ± 2.0 , N/A, ± 20.0 FPS
X CHART/MSFN WITHIN LIMITS GO CHART (USE MSFN ΔV_T)
X NO AGREEMENT GO MSFN
X
XX

5+30

-28:00

-24:00

-20:00

5+40

-12:00

5+50

0:00

6+00

C
R
O

H
S
K

XXXXXXXXXXXXXXXXXXXX
 X $\Theta_D = 340$ X
 CHART DATA NSR -28:00X H = 220 X
 (R = 104.77 NM) XXXXXXXXXXXXXXXXXXXX

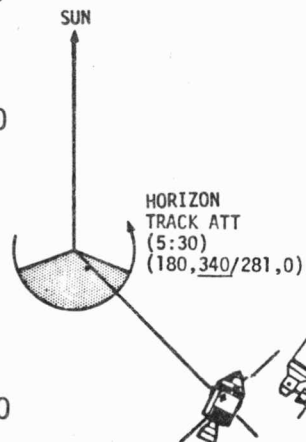
CHART DATA NSR -24:00
 (R = 97.40 NM)

CHART DATA NSR -20:00
 (R = 91.25 NM)

CHART DATA NSR -12:00
 (R = 80.50 NM)

ATT SET - IMU
 FDAI SEL - 1
 GO TO SPS BURN CUE
 CARD (SCS)

XXXXXXXXXXXXXXXXXXXX
 ULLAGE TO -14 SEC X $\Theta_D = 340$ X
 NSR (180,350/176,347) X H = 225 X
 XXXXXXXXXXXXXXXXXXXX



NSR PAD DATA

TIG NSR(N13) = TIG NCC(N11) + 00:37:00

		NOMINAL	PRELIMINARY	FINAL
N81	ΔV_X	+ 019.1		
ΔV_{NSR}	ΔV_Y	- 004.6		
	ΔV_Z	- 001.8		
	ΔV_C	007.0		
N22	R	181		
NSR	P	191		
	Y_i	348		

CHART	ΔV_X								
BURN	ΔV_Y								
SOLUTION	ΔV_Z								

ORDEAL PITCH = $360^\circ + \text{CHART ANGLE}$
 (+ IF ΔV_Z IS NEGATIVE)

ORDEAL PITCH									
ΔV_T (IN PLANE)	+								

XXX
 X
 X ΔV COMP LIMITS +1.5, N/A, +4.0 FPS X
 X CHART/MSFN WITHIN LIMITS GO CHART (USE MSFN ΔV_Y) X
 X NO AGREEMENT GO MSFN X
 X
 XXX

DATE 3/24/72

PAGE 5-12

6+00

FDAI SEL - 1/2 XXXXXXXXXXXXXXXX
 X Θ_D = 340 X
 X H = 225 X
 XXXXXXXXXXXXXXXX

MNVR HEADS UP (2°/SEC)
 SET ORDEAL
 TRACK SWS IN BOTTOM OF CDR WINDOW

REACQUIRE VHF RNG

CALC TIG TPI 1 (CHART PG 55)

TIG TPI1 : : .

6+10

-32:00

CHART DATA TPI -32:00
 (R = 53.90 NM)

TPI PRELIMINARY PAD (PG 5-14)

-28:00

CHART DATA TPI -28:00
 (R = 49.86 NM)

6+20

-24:00

CHART DATA TPI -24:00
 (R = 45.82 NM)

TPI FINAL PAD (PG 5-14)

CALC TIG TPI 2 (CHART PG 56)

TIG TPI2 : : .

6+30

6+30

-16:00

-12:00

6+40

0:00

6+50

+4:30

+7:30

+8:30

7+00

CHART DATA TPI XXXXXXXXXXXXXXXX
 -16:00 X θ_D = 340 X
 (R = 37.79 NM) X H = 225 X
 CHART DELTA V's XXXXXXXXXXXXXXXX

SET DET COUNTING UP TO TPI
 ATT SET - IMU
 FDAI SEL - 1
 GO TO SPS BURN CUE
 CARD (SCS)

ULLAGE AT -14 SEC XXXXXXXXXXXXXXXX
 TPI (0,27/27,0) X θ_D = 339 X
 X H = 231 X
 SET ORDEAL XXXXXXXXXXXXXXXX

TRACK SWS IN COAS
 REACQUIRE VHF RNG

CHART DATA (θ = 33.1)

CHART DATA (R=14.11) XXXXXXXXXXXXXXXX
 X RCS X AXIS X
 CHART DATA (R=13.15, X 1 FPS=2.5 SEC X
 θ =39.8) X RCS Y&Z AXIS X
 TPM 1 (BURN ASAP) X 1 FPS=5 SEC X
 XXXXXXXXXXXXXXXX

SET ORDEAL

TPI PAD DATA

		NOMINAL				PRELIMINARY				FINAL			
N37	HR	+	X	X	X	0	6	+	X	X	X	X	
TIG TPI	MIN	+	X	X	X	4	7	+	X	X	X	X	
	SEC	+	X	4	4.00	+		+					
N81	ΔV_X	+	X	X	X	1	8.5		X	X	X	X	
ΔV_{TPI}	ΔV_Y	+	X	X	X	0	0.7		X	X	X	X	
	ΔV_Z	-	X	X	X	0	9.6		X	X	X	X	
N59	V _F /BT	+	2	0.8	4	6			X	X	X	X	
$\Delta V_{(LOS)}$	V _R /BT	+	0	0.7	0	3			X	X	X	X	
	V _D /BT	-	0	0.2	0	1			X	X	X	X	

CHART	ΔV_X	X	X	X	X	X	X	X	X	X	X	X	X
BURN	ΔV_Y	X	X	X	X	X	X	X	X	X	X	X	X
SOLUTION	ΔV_Z	X	X	X	X	X	X	X	X	X	X	X	X

ORDEAL PITCH = 360° + CHART ANGLE
 (+ IF ΔV_Z IS NEGATIVE)

ORDEAL PITCH	X	X	X	X	X	X	X	X	X	X	X	X	X
ΔV_T (IN PLANE)	+	X	X	X	X	X	X	X	X	X	X	X	X

XXX
 X
 X ΔV COMP LIMITS +TBD, N/A +TBD FPS X
 X CHART/MSFN WITHIN LIMITS GO CHART (USE MSFN ΔV_Y) X
 X NO AGREEMENT GO MSFN X
 X
 XXX

TPM1 CHART SOLN

FWD/AFT					
	0	0	0		
UP/DWN					

7+00

TRACK SWS IN COAS
REACQUIRE VHF RNG

XXXXXXXXXXXXXXXXX
X $\theta_D = 339$ X
X H = 231 X
XXXXXXXXXXXXXXXXX

+16:30

CHART DATA ($\theta=58.1$)

+19:30

CHART DATA (R=5.05)

+20:30

CHART DATA (R=4.53,
 $\theta=70.8$)

TPM 2 (BURN ASAP)XXXXXXXXXXXXXXXXX

X RCS X AXIS X
X 1 FPS=2.5 SEC X
X RCS Y&Z AXIS X
X 1 FPS=5 SEC X
XXXXXXXXXXXXXXXXX

MONITOR EMS FOR BRAKING GATES
CALCULATE AVG RDOT AT R = 1.5 NM

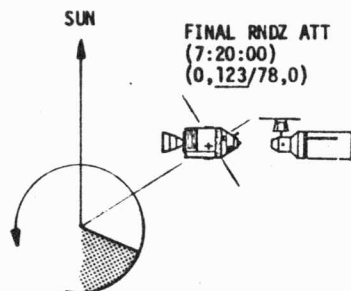
PRE-BRAKING CHECKLIST

NULL LOS RATES

PERFORM TIMED BRAKING MNVRS

7+20

STATION KEEP



7+30

TPM2 CHART SOLN

FWD/AFT			
	0	0	0
UP/DWN			

PRE-BRAKING CHECKLIST

MAN ATT (3) - RATE CMD (VERIFY)
LIMIT CYCLE - OFF (VERIFY)
ATT DB - MIN
RATE - LOW (VERIFY)
THC PWR - ON (UP)
RHC PWR DIRECT (BOTH) - MNA/MNB
BMAG MODE (3) - ATT 1/RATE 2
SC CONT - SCS (VERIFY)
CMC MODE - FREE (VERIFY)
AUTO RCS SEL (16) - MNA/MNB (VERIFY)
THC - ARMED (VERIFY)
RHC (BOTH) - ARMED (VERIFY)

BRAKING GATES

R(NM)	R(FPS)	SWS DIAMETER RETICLE ANG(DEG)	R(FT)
1.00	30	.2	6000
.50	20	.4	3000
.25	10	.8	1500
.08	5	2.5	500
.05		4.2	300
.03		6.3	200
.02		10.0	130

7+30

G
W
M

XXXXXXXXXXXXXXXXX
 X Θ_D = 339 X
 X H = 234 X
 XXXXXXXXXXXXXXXXXXX

7+40

7+50

PRE DOCKING CHECKLIST

CSM/SWS DOCKING

8+00

G
D
S

PRE-DOCKING CHECKLIST

CB DOCK PROBE (2) - CLOSED
 PROBE RETR (2) - OFF (VERIFY)
 PROBE EXTD/REL - RETR
 PROBE EXTD/REL TB (2) - GRAY (VERIFY)
 CB SECS LOGIC (2) - CLOSED (VERIFY)
 CB SECS ARM (2) - CLOSED
 EXT LIGHTS RUN/EVA - ON (UP)
 EXT RNDZ LT - SPOT
 COAS PWR - ON (UP) (VERIFY)
 **AFTER MSFN AOS
 SECS LOGIC (BOTH) - ON (UP)
 **AFTER MSFN GO
 SECS PYRO ARM (2) - ON (UP)

DOCKING CHECKLIST

AT CAPTURE

PROBE EXTD/REL TB (2) - BP
 BMAG MODE (2) - RATE 2
 REPORT CAPTURE TO MSFN
 ALLOW PROBE TO DAMP SC MOTION (10 SEC)
 WHEN WITHIN +3 DEG OF DOCKING ATTITUDE
 PROBE RETRACT SEC - 1 (PRIM - 2 IF REQ'D)

AT DOCK LATCH

PROBE EXTD/REL TB (2) - GRAY

AFTER HARD DOCK

SECS PYRO ARM (2) - SAFE	EXT RNDZ LIGHT - OFF
SECS LOGIC (BOTH) - OFF	COAS PWR - OFF
CB SECS ARM (2) - OPEN	LIMIT CYCLE - OFF (VERIFY)
CB DOCK PROBE (2) - OPEN	ATT DB - MIN
THC - LOCKED	SC CONT - CMC (VERIFY)
RHC - LOCKED	CMC MODE - FREE (VERIFY)
BMAG MODE (3) - RATE 2	AUTO RCS SEL (16) - OFF
PROBE EXTD/REL - OFF	THC PWR - OFF
PROBE RETRACT (2) - OFF	RHC PWR DIR (2) - OFF
EMS MODE - STBY	
EMS FUNC - OFF	

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DATE 3/24/72

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TBS

NO VHF RANGING

NOTE: CHART SOLUTIONS NOT POSSIBLE

IMMEDIATELY - V77E, V88E, V57E, V22E, 1E, PRO

AFTER TPM-1 (PG 1-14) - BEFORE 1ST MARK V93E

BEFORE THRUSTING (PG 1-15) - V37E 47E, V83E, N83 AS REQD

AC BUS 1 FAILED

NOTE: 1. CMC SOLUTIONS NOT AFFECTED BY BUS LOSS

2. NO EMS CUTOFF FOR SCS BURNS

FOR CHART RANGE DATA - V76E, V25E, LOAD TIME OF NEXT
RANGE MARK, PRO, N77E, READ R.

SWS TRACKER LITES FAILED

NOTE: 1. PERFORM NOMINAL RENDEZVOUS TIMELINE (SXT)
MARKS NOT POSSIBLE WHEN SWS IN DARKNESS)

2. CHART SOLUTIONS NOT POSSIBLE FOR TPM-1
AND TPM-2

IMMEDIATELY - V57E, V22E, 1E, PRO

OPTICS FROZEN

IMMEDIATELY - V16 N91E

IF N91 AND TPAC ANGLES AGREE

V64E, V24E, LOAD N94 WITH N91, PRO, F06 78,
PRO, SC CONT-CMC/FREE, CTR SWS IN SXT WITH MIC
(LEB), CONTINUE TO MARK WITH MARK BUTTON

IF N91 $\neq$ TPAC

V64E, V24E, LOAD N94 WITH TPAC ANGLES, PRO,
F06 78, PRO

BEFORE EACH MARKING PERIOD - V54E, F06 94, PRO,
F53 45, SC CONT-CMC/FREE, CTR SWS IN SXT WITH
MIC (LEB), ENTR TO MARK, (V86E TO REJECT)

MARK BUTTON FAILED

IMMEDIATELY - OHC DRIVE TRUN $< 10^\circ$, OPTICS ZERO-ZERO

PERFORM OPTICS FROZEN (N91 $\neq$ TPAC) PROCEDURE.

NOTE: LOAD N94 WITH ZEROS

CANNOT SEE THROUGH OPTICS

NOTE: VHF MARKS REQUIRED TO UPDATE SV

IMMEDIATELY WHEN VHF LOCK-ON ESTABLISHED - V87E

POST TPI (PG 1-14) - PERFORM COAS MARKING BEFORE TPM1,
TPM2. [V54E, V24E, LOAD N94
R1 = +00000, R2 = +57470, PRO,
F53 45, CTR SWS IN COAS, ENTR TO
MARK (V86E TO REJECT)]. READ θ
FOR TPM CHART SOLUTIONS FROM
ORDEAL FDAI WHILE CENTERING SWS
IN COAS.

*take values
from COAS
cal if
you*

DATE 3/24/72

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