

# STS-1 Flight Data File Entry Checklist

Orbital Flight Test

Flight Operations Directorate  
Crew Training and Procedures Division

Final, PCN-1  
March 2, 1981

**NOTE:** This is a Page Change Notice  
to be incorporated into the previous  
edition. Discard only the changed out  
pages.

**NASA**

National Aeronautics and  
Space Administration

Lyndon B. Johnson Space Center  
Houston, Texas

JSC-12794

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

TIG-43 \*\*\*\*\* MIL AOS (UPLINK BLK - NONE) \*\*\*\*\*

## B FINAL DEORB UPDATE/UPLINK

MCC UPDATE:  
DEL PAD  
OMS PRPLT PAD  
MCC UPLINK:  
PASS SV  
BFS SV  
PASS TGT  
BFS TGT  
IMU GYRO BIAS (if reqd)

On MCC GO,

C CRT1 LOAD - ITEM 39 EXEC  
ST CRT TMR - ITEM 40 EXEC  
CRT1,3 ✓PASS & BFS TGTs per DEL PAD:  
BURN ATT  
HA HP  
ΔVTOT  
TGO

TIG-32 \*\*\*\*\* BDA LOS (UPLINK BLK - ALL) \*\*\*\*\*

DEORBIT  
BURN

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

## P OMS BURN PREP

CRT2 OMS ENG TRIMS  
2 ENG BURN:  
TRIM L,R - ITEM 12 +0.1 -5.7  
+5.7 EXEC

.....1 ENG BURN.....  
TRIM P - ITEM 12 +0.1 EXEC  
Good eng Y,  
L - ITEM 13 +5.2 EXEC  
R - ITEM 14 -5.2 EXEC

08 L,R OMS  
✓He PRESS/VAP ISOL (four) - CL  
✓TK ISOL (four) - OP (tb-OP)  
✓XFEED (four) - CL (tb-CL)  
07 AFT L,R RCS  
He PRESS (four) - OP (tb-OP)  
TK ISOL (six) - GPC (tb-OP)  
XFEED (four) - GPC (tb-CL)  
✓MSTR RCS XFEED - OFF

.....RCS BURN PREP.....  
P 08 L,R OMS  
✓He PRESS/VAP ISOL (four) - CL  
✓TK ISOL (four) - OP (tb-OP)  
L OMS XFEED (two) - OP (tb-OP)  
✓R OMS XFEED (two) - CL (tb-CL)  
07 AFT L,R RCS  
XFEED (four) - OP (tb-OP)  
TK ISOL (six) - CL (tb-CL)

P CRT2 **GNC, OPS 302 PRO**

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, GNC DEORB MNVR EXEC

C OMS TVC GIMBAL CHECK

CRT1 SECONDARY CHECK  
Perform SEC L,R then PRI L,R GMBL CK  
  
\* If down arrow(s) or M's: \*  
\* Select good GMBL \*

P APU PRE START

R4 ✓HYD LG RET/CIRC VLV - CL  
R2 BLR N2 SPLY (three) - ON  
✓CNTLR (three) - ON  
✓CNTLR PWR/HTR (three) - A  
✓APU FUEL TK VLV (three) - CL  
CNTLR PWR (three) - ON  
HYD MN PUMP PRESS (three) - LO  
✓APU AUTO SHUT DN - ENA  
✓SPEED SEL (three) - NORM  
✓CNTL (three) - OFF

3: BFS, SM SYS SUMM 2

TIG-22 \*\*\*\*\* ACN AOS (UPLINK BLK - NONE) \*\*\*\*\*

P R2 APU FUEL TK VLV (three) - OP  
✓APU/HYD RDY tb (three) - gray  
APU FUEL TK VLV (three) - CL

TIG-21 B DEORB UPDATE/UPLINK (if reqd)

MCC UPDATE:  
DEL PAD  
OMS PRPLT PAD  
MCC UPLINK:  
PASS SV  
BFS SV  
PASS TGT  
BFS TGT

3-4 DATE 01/26/81

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, SM SYS SUMM 2

On MCC GO,  
CRT1 LOAD - ITEM 39 EXEC  
ST CRT TMR - ITEM 40 EXEC  
CRT1,3 ✓PASS & BFS TGTs per DEL PAD:  
BURN ATT  
HA HP  
ΔVTOT  
TGO

TIG-17 MCC/CREW GO/NO GO for DEORBIT BURN

\* If NO GO for DEORBIT BURN: \*  
\* P R2 BLR N2 SPLY (three) - OFF \*  
\* APU CNTLR PWR (three) - OFF \*  
\* HYD MN PUMP PRESS (three) - NORM \*  
\* CRT2 GNC, OPS 301 PRO \*

TIG-16 \*\*\*\*\* ACN LOS (UPLINK BLK - ALL) \*\*\*\*\*

3-5 DATE 01/26/81

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, SM SYS SUMM 2

.....REHEARSAL DAY ONLY.....  
\* If NO GO for DEORBIT BURN: \*  
P 07 AFT L,R RCS  
He PRESS A (two) - GPC (tb-OP)  
B (two) - CL (tb-CL)  
TK ISOL (six) - OP (tb-OP)  
XFEED (four) - CL (tb-CL)  
C6 Stow ENT PKT C/L  
Unstow ORBIT PKT C/L  
Terminate Deorbit Procedures,  
go to PDP, D/O PREP BACKOUT/  
POST REHEARSAL, 4-1

TIG-15 ► MNVR to DEORBIT BURN ATT

C F6 FLT CNTLR PWR - ON  
B F6/F8 ✓ADI ATT (two) - INRTL  
✓ERR (two) - MED  
✓RATE (two) - MED  
C RHC Mnv to BURN ATT  
(✓ADI ATT with CRT BURN ATT)

TIG-11 \*\*\*\*\* BOT AOS (UHF) \*\*\*\*\*

B Copy last DEL PAD and OMS PRPLT PAD  
data on DEORBIT BURN Cue Cards  
  
F6/F8 ✓DEORBIT BURN and DEORBIT BURN  
MONITOR Cue Cards installed

TIG-7 NNNNNNNNNNNNNNNN NIGHT NNNNNNNNNNNNNNNNNNNNNNN  
TIG-5 \*\*\*\*\* BOT LOS (UHF) \*\*\*\*\*

TIG-4 ► C C3 DFI RCDRS PCM - CONT RCD (tb-gray)

P 07/08 Terminate RCS/RCS XFEED or  
terminate OMS/RCS Interconnect  
unless RCS deorbit

3-6 DATE 01/26/81

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, SM SYS SUMM 2

TIG-3 ▶ P APU START

NOTE

If three APUs OK, start APUs 2,3 pre-deorbit and run depressurized, except for SSME REPRESS, until EI-5 then repress and start APU 1. If one APU inoperable, delay other APU starts until EI-5.

- R2 APU FUEL TK VLV (three) - OP
- ✓APU/HYD RDY tb (three) - gray
- \* If tb - bp, start other APUs \*
- APU CNTL 2 - START/RUN
- F8 ✓HYD PRESS 2 ind - LO green
- R2 ✓RDY 2 tb - bp

- \* If no start, \*
- \* APU CNTL - OFF \*
- \* Start other APUs (two only) \*
- \* If first two APUs do not start, \*
- \* ● Do not start third APU \*
- \* ● Do not execute Deorbit Burn \*

Repeat for APU 3

- \* If APU did not start normally, \*
- \* APU CNTL - START ORIDE/RUN \*
- \* (Wait 3.5 min for APU start) \*
- \* If no APU start: \*
- \* APU AUTO SHUT DN - INH \*
- \* If OIL OUT P < 25 and OIL GUT \*
- \* TEMP not increasing after APU \*
- \* start or no start: \*
- \* APU CNTL - OFF \*
- \* FUEL TK VLV - CL \*

- R2 APU AUTO SHUT DN - INH
- ✓HYD CIRC PUMP (three) - OFF
- R4 ✓LG HYD ISOL VLV (three) - CL (tb-CL)

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, GNC SYS SUMM 2

C ✓BURN ATT +50

B Go to DEORBIT BURN Cue Card

- \* If no OMS IGNITION at TIG: \*
- \* OMS ENG (two) - OFF \*
- \* ✓APUs - SHUT DN \*
- \* DFI RCDRS WB MSN - STBY (tb-bp) \*
- \* GNC, OPS 301 PRO \*
- \* Consult with MCC at next STDN \*

\* If Burn Terminated with HP > SAFE HP:\*

- \* ✓OMS ENG (two) - OFF \*
- \* ✓APUs - SHUT DN \*
- \* DFI RCDRS WB MSN - STBY (tb-bp) \*
- \* GNC, OPS 301 PRO \*
- \*07 AFT L,R RCS \*
- \* He PRESS A (two) - GPC (tb-OP) \*
- \* B (two) - CL (tb-CL) \*
- \* TK ISOL (six) - OP (tb-OP) \*
- \* XFEED (four) - CL (tb-CL) \*
- \* Consult with MCC at next STDN on \*
- \* DEORBIT DELAY of 24 HR \*

OMS/RCS POST BURN RECONFIGURATION

- P 07 AFT L,R RCS
- He PRESS (four) - OP (tb-OP)
- TK ISOL (six) - GPC (tb-OP)
- XFEED (four) - GPC (tb-CL)
- 08 L,R OMS
- He PRESS/VAP ISOL (four) - CL
- TK ISOL (four) - OP (tb-OP)
- \* If OMS PRPLT FAIL, \*
- \* ✓affected TK ISOL (two) - CL \*
- XFEED (four) - CL (tb-CL)
- F8 FLT CNTLR PWR - OFF

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, GNC SYS SUMM 2

C C3 DFI RCDRS WB MSN - STBY (tb-bp)

\* UNDERBURN \*

- \* Determine ΔHP \*
- \* (CUR HP - TGT HP) \*
- \* If ΔHP > 2: \*
- \* Use PREBANK TABLE \*

PREBANK TABLE (NOMINAL)

ΔHP	4	7	10	11			
PREBANK (deg)	50	65	75	80			
Continue to EDW							

ΔHP	12	18	22	25	28	29	30
PREBANK (deg)	55	75	95	105	120	135	180
Redesignate to NOR							
TACAN MODE (three) - T/R							
CH tw (three) - 92X							

PREBANK TABLE

ΔHP							
PREBANK (deg)							
Continue to EDW							

ΔHP							
PREBANK (deg)							
Redesignate to NOR							
TACAN MODE (three) - T/R							
CH tw (three) - 92X							

\* Record UNDERBURN prebank on pg 4-3 \*

1: GNC DEORB MNVR EXEC 2: GNC DEORB MNVR EXEC  
3: BFS, GNC SYS SUMM 2

**POST BURN STATUS**

NOMINAL

Δ TIG  
 :

P CRT2 **GNC, OPS 303 PRO**

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST

C CRT1 Verify or load INRTL EI-5 MM303  
ATT from DEL PAD:

R - ITEM 8 +

P - ITEM 9 +

Y - ITEM 10 +

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC SYS SUMM 2

RHC Mnv to EI-5 ATT

\* If UNDERBURN, ignore INRTL ATT ERR \*  
\* needles and Mnv to LVLH R 001, \*  
\* Y 358 and P per table below \*

TIME to EI (min)	LVLH PITCH (deg)
20	339
	343
	347
	351
	355
15	359
	3
	7
	11
	15
10	19
	23
	27
	31
	35
5	39

EI-20 \*\*\*\*\* YAR AOS (UHF) \*\*\*\*\*

**BURN REPORT (from 3-10)**

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC SYS SUMM 2

**P SSME HYD REPRESS**

R2 HYD MN PUMP PRESS 2,3 (two) - NORM  
MPS ENG PWR L,CTR,R (three) - ON  
R4 HYD MPS/TVC ISOL VLV SYS 2 - OP  
wait 10 sec - CL  
HYD MPS/TVC ISOL VLV SYS 3 - OP  
wait 10 sec - CL

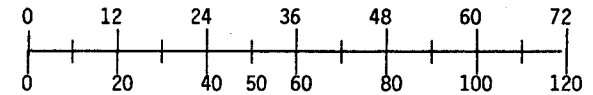
\* If SYS 2 or SYS 3 failed, \*  
\* cycle SYS 1 \*

R2 HYD MN PUMP PRESS 2,3 (two) - LO  
MPS ENG PWR L,CTR,R (three) - OFF

EI-15 \*\*\*\*\* YAR LOS (UHF) \*\*\*\*\*

EI-12 ► P **FORWARD RCS DUMP** (use for off nominal  
X cg entry)  
Determine FWD RCS 'DUMP TO %' (calculator,  
cg wheel, or DEL PAD)

F RCS PRPLT TO BE DUMPED (%)



DUMP DURATION (sec) Max single dump

**NOTE**

Dump 50 sec ON, 40 sec OFF until  
dump complete

CRT2 F RCS ARM - ITEM 24 EXEC  
DUMP - ITEM 25 EXEC  
(Start Watch)

When required:  
OFF - ITEM 26 EXEC  
Wait 40 sec

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC SYS SUMM 2

**ENTRY SW CHECK**

- P 07 ✓TACAN MODE (three) - GPC (EDW, NOR)  
- T/R (Redesignate to NOR)  
- T/R (Other sites)
- 08 ✓ANT SEL (three) - AUTO  
✓RADAR ALTM (two) - ON  
✓MLS (three) - ON (PASS)  
✓MLS CH (three) - 8 (EDW23, NOR17, KSC15)  
- 6 (KSC33)
- C L2 ✓CAB RELIEF A,B - ENA (tb-ENA)  
✓ANTISKID - ON  
✓NWS - OFF  
✓ENTRY R MODE - AUTO
- B L2/C3 ✓SBTC - full fwd
- P C3 ✓SRB SEP - AUTO  
✓ET SEP - AUTO
- B F6/F8 ✓AIR DATA - NAV  
ADI ERR - MED  
RATE - MED  
✓HSI SEL MODE - ENTRY
- C F6 ✓SOURCE (two) - NAV, 1
- P F8 ✓SOURCE (two) - NAV, 2
- C F6 ✓CNTL EFF - NOM  
✓ALPHA BIAS - ZERO  
✓GAIN P - LO FWD  
✓R/Y - NOM
- B F6/F8 ✓TRIM RHC/PNL - INH  
✓PNL - ON
- C F6 ✓RADAR ALTM - 1
- P F8 - 2

1: GNC DEORB MNVR COAST 2: GNC 50 HORIZ SIT  
3: BFS, GNC 50 HORIZ SIT

**STATE VECTOR CHANGE (if reqd)**

CRT2 ΔT - ITEM 16 ( ) .  
LOAD - ITEM 14 EXEC  
CRT3 PASS/BFS SV XFER - ITEM 15 EXEC  
LOAD - ITEM 14 EXEC

**HORIZ SIT CONFIG**

ALTM - ITEM 1 + .  

	PASS ITEM	BFS ITEM
RWY (DEL PAD)	2/	2/
GLD SLOPE	LO WND 5/	LO WND 5/
MEP (LH TURN) (DEL PAD)	MEP 7/	MEP 7/
TAC	INH 18/	INH 18/
DRAG H	AUT 20/	AUT 20/
ADTA H	INH 24/	INH 24/
ADTA TO G&C	INH 27/	AUT 26/
TAC	DELTA 33/	-
Failed TACANS deselected	✓	-

- \* If BFS engaged: \*
- \* Set HSD BFS ITEMS to PASS Config \*
- \* Any failed TACANS: \*
- \* 07 TACAN MODE (1,2,3) - OFF \*

2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

**SEAT PIN REMOVAL**

- B Remove, stow in pocket:  
Scramble Handle Safety Clip  
D-Ring Pin
  - C Panel Jettison T-Handle Pin
  - B Stow DEORBIT BURN and DEORBIT BURN MONITOR Cards (C6)
- ✓Entry Cue Cards installed

**B G SUIT INFLATION**

Load - 1.5  
Activation vlv - ON (if reqd)

EI-7 \*\*\*\*\* GWM AOS (UPLINK BLK - NONE) \*\*\*\*\*

2: GNC 50 HORIZ SIT  
3: BFS, GNC 50 HORIZ SIT

ENTRY PROCEDURES

AOA and EOM entry procedures have been combined and are contained in this section. AOA-unique procedures are prefaced by 'AOA' prior to a crew action.

All procedures in this section are published here for review purposes only; in-flight execution will be via cue card(s) that are identical in procedural content.

4-1

DATE 01/26/81

ENTRY

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

**PRE EI CHECKLIST**

**PRESSURIZE OPERATING APU/HYD SYS**

HYD MN PUMP PRESS - NORM  
PRESS ind - HI green

**EI-5 APU START**

R2 If no APU OVERSPEED or APU  
UNDERSPEED C/W lights,  
APU AUTO SHUT DN - ENA

For APUs not started, perform  
DEORBIT BURN, APU START, 3-7

R2 HYD MN PUMP PRESS X - NORM  
PRESS X ind - HI green  
APU AUTO SHUT DN - INH

- \* If only one APU running: \*
- \* Good HYD MAIN PUMP PRESS - LOW \*
- \* Delay MM304 transition to EI-2 \*
- \* Just prior to transition: \*
- \* Good HYD MAN PUMP PRESS - NORM \*
- \* APU SPEED SEL - HIGH \*

4-3

DATE 03/02/81

1: GNC DEORB MNVR COAST 2: GNC DEORB MNVR COAST  
3: BFS, GNC DEORB MNVR COAST

- \* If 3 PASS GPC configuration, \*
- \* FCS CH 4 - OFF \*

**NOTE**

If OMS/RCS He or TK PRESS leak,  
do not perform this procedure

2: GNC 51 OVERRIDE

EI-5 CRT2 VENT DOOR CNTL CLOSE - ITEM 23 EXEC

2: GNC DEORB MNVR EXEC

...If BFS.....

2: BFS, GNC 50 HORIZ SIT

CRT2 VENT DOOR CL - ITEM 38 EXEC

2: BFS, GNC DEORB MNVR EXEC

Go to ENT FLIP Cards

4-4

DATE 03/02/81

1: GNC DEORB MNVR COAST	2: GNC DEORB MNVR COAST
3: BFS, GNC DEORB MNVR COAST	

C ✓ADI ATT - LVLH  
Mnvr to R 001, P 039, Y 358  
P CRT2 **GNC, OPS 304 PRO**

1: GNC ENTRY TRAJ 1	2: GNC ENTRY TRAJ 1
3: BFS, GNC ENTRY TRAJ 1	

C ADI ✓ENTRY ATT (R 000, P 040, Y 000)  
F2 SPDBK/THROT pb - AUTO  
PITCH pb - AUTO (PASS)  
ROLL/YAW pb - AUTO (PASS)  
(CSS if PREBANK)  
P F8 FLT CNTLR PWR - ON

\* PREBANK: 

--	--	--

 (AOA 90° if \*  
\* (DEL PAD) 

--	--	--

 Shallow) \*  
\* or \*  
\* If UNDERBURN - Adjust Roll, 3-9 \*  
\* 

--	--	--

 (AOA 6-15) \*  
\* \*  
\* \*  
\* Roll toward PRI BRG Pointer at 10°/sec \*

2: GNC SYS SUMM 1
-------------------

C C3 **DFI RCDRS WB MSN - CONT RCD**  
**(tb-gray)**

EI-1 \*\*\*\*\* GWM LOS (UPLINK BLK - ALL) \*\*\*\*\*

P 08 FWD RCS  
MANF ISOL (five) - CL (tb-CL)  
He PRESS (two) - CL (tb-CL)  
07 AFT L,R RCS  
MANF ISOL 5 (two) - OP (tb-OP)

1: GNC ENTRY TRAJ 1	2: GNC SYS SUMM 1
3: BFS, GNC ENTRY TRAJ 1	

(V = 24.5 - 19.0K)

h = 400K EI \* If Prebank reqd: ✓Roll \*  
- (00:00)  
q = 0.5 ✓Auto elevon trim  
- (2:36) BDY FLP pb - AUTO  
q = 1 (AOA) **HYD MAIN PUMP PRESS (three) - NORM**  
q = 2 ✓Elevons active  
- (3:30)  
q = 10 Roll jets inactive  
- (4:57)  
D = 4 \* If PREBANK - R/Y to AUTO (TIME CRITICAL) \*

Closed loop guidance

		:			:		
--	--	---	--	--	---	--	--

\* If SHUTTLE SYMBOL is above TRAJ 1 upper \*  
\* limit line due to excess energy, fly CSS, \*  
\* Phugoid Damper, BIAS 0 to achieve a safe \*  
\* bail-out altitude \*  
\* If below lower limit line - fly CSS R/Y, \*  
\* Maintain ΔAZ = 0° \*

\* AUTO GUIDANCE FAILURE \*  
\* Fly CSS to maintain DRAG profile \*

\* Whenever returning from CSS to AUTO \*  
\* ZERO H BIAS if > 30 in CSS \*

\* LOW L/D \*  
\* If α 30° low, monitor ROL REF. If ROL \*  
\* REF ↓ before first roll reversal, perform \*  
\* Roll Reversal at ΔAZ = 50° \*  
\* Do not redesignate until TAEM \*

1: GNC ENTRY TRAJ 1	2: GNC SYS SUMM 1
3: BFS, GNC ENTRY TRAJ 1	

(V = 24.5 - 19.0K)

q = 20 Pitch jets inactive  
(8:12) (ADI yaw needle now displays scaled Ay)  
D = 11 ✓Drag H update active

\* If Drag H EDITING occurs: \*  
\* 

3: GNC 50 HORIZ SIT
---------------------

 \*  
\* DRAG H FOR - ITEM 22 EXEC \*

V = 20 - 15K Monitor BDY FLP. If δBF > 84%, manually adjust to < 84%. Do not allow δE to exceed 10° Down

q = 50 RCS activity lts reconfig  
(14:20) Roll lts - 3 or 4 Yaw jets  
Pitch lts - δE rate sat

ΔAZ = 10.50 First Roll Reversal  
ADI RATE - HI

VREL 

--	--	--	--	--

\* If two yaw jets failed (same \*  
\* side): \*  
\* Perform all remaining ROLL \*  
\* REVERSALS in CSS R/Y. \*

1: GNC ENTRY TRAJ 2      2: GNC SYS SUMM 1  
 3: BFS, GNC ENTRY TRAJ 2

(V = 19.0K - 14.0K)

V = 15K      \* If manual BDY FLP was required: \*  
 \* BDY FLP pb - AUTO \*  
 \* Power up prev powered down TACAN, \*  
 \* RADAR ALTM, FLT CNTLR/INST PWR \*  
 NAV DELTA PAD

ΔX 8	( )				
ΔY 9	( )				
ΔZ 10	( )				
ΔX 11	( )				
ΔY 12	( )				
ΔZ 13	( )				

ΔX 8	( )				
ΔY 9	( )				
ΔZ 10	( )				
ΔX 11	( )				
ΔY 12	( )				
ΔZ 13	( )				

1: GNC ENTRY TRAJ 3      2: GNC SYS SUMM 1  
 3: BFS, GNC ENTRY TRAJ 3

(V = 14.0 - 10.5K)

\*\*\*\*\* Exit S-Band blackout (UPLINK BLK - NONE) \*\*\*\*\*

V = 12K      S-BAND, two-way voice

1: GNC ENTRY TRAJ 4      2: GNC SYS SUMM 1  
 3: BFS, GNC ENTRY TRAJ 4  
 (V = 10.5 - 6.0K)

V = 10.0K      3: GNC 50 HORIZ SIT  
 UHF two-way voice  
 TACAN AOS  
 M = 8      ✓Aileron trim. If > 2.0, anticipate  
 lateral direction problems through  
 M = 2

**TACAN MGMT**

	RATIO <1	RATIO >1	ONE TACAN LOCKED
PRE-COMM	INH	INH	INH
COMM OK	MCC: AUTO or INH (if TACAN will degrade NAV state)	MCC: INH (+Δ STATE) or FORCE or ZERO Δ STATE or CHG TACAN CH	MCC: DESELECT MISSING TACAN(S) then - AUTO

**NO COMM TACAN MGMT**

V = 6.0K TACAN MODE (three) - T/R

* RATIO	RATIO >1	ONE TACAN LOCKED	NO LOCK
* < 1	TRUBLESHOOT	BELOW V = 5.5K	BELOW V = 5.5K
* IF BAD TACAN	IF BAD NAV STATE	DESELECT MISSING TACANS, then -	TAC (three) - LWR ANT
* AUTO	AUTO IF 1st acq-FORCE IF NOT - ZERO Δ STATE	AUTO	

1: GNC ENTRY TRAJ 5      2: GNC SYS SUMM 1  
 3: GNC 50 HORIZ SIT  
 (V = 6.0 - 2.5K)

OME = 132      Auto TACAN CH chg to Nav region  
 h = 120K      NH3 CNTLR A - PRI/GPC  
 M = 5      **MPS/H2 PURGE**  
 MPS PNEU L ENG He XOVR - OP  
 He ISOL - OP

M = 4      2: GNC 51 OVERRIDE

M = 3.8      AIR DATA PROBES (two) - DEPLOY  
 ✓AIR DATA R,L, then NAV  
 2: GNC SYS SUMM 1

h = 100K      Excessive H Avoidance  
 \* If sink rate > 486 fps, \*  
 \* fly R/Y - CSS to reduce \*  
 \* sink rate, then R/Y - AUTO \*

M = 3.5      RUD activation  
 \* If AIL and RUD trim to same \*  
 \* side, ZERO AIL TRIM and \*  
 \* maintain until M < 0.8 \*

M = 2.9      ✓HYD LG HYD ISOL VLV tb (three) - OP  
 h = 85K      16mm Camr (two) - on (AOA PLT only)  
 FLASH EVAP CNTLR PRI A - OFF

M = 2.7      P,R/Y - CSS, null ADI guidance  
 needles, return to AUTO after TAEM

4-10

DATE 03/02/81

4-11

DATE 03/02/81



1: GNC VERT SIT 1      2: GNC SYS SUMM 1  
 3: GNC 50 HORIZ SIT

(M = 2.5 to H = 30K)

M = 2.5

TAEM

- \* If one APU shutdown: \*
- \* APU SPEED SEL (two) - HIGH \*

ADTA - H NAV MGMT

COMM OK	MCC: AUTO or INH*	RATIO >1		
		IF BAD ADTA	IF BAD NAV STATE	
		MCC: INH	MCC: FORCE	
NO COMM	AUTO	NO TACAN		
		TACAN OK	ADTA ERRATIC	ADTA STEADY
		INH	AUTO	FORCE

\*(If ADTA H will degrade NAV state)

When ADTA - H AUTO/FORCE, ADTA to G&C - AUTO

M = 2.4

Fuselage vents open

- \* If no Air Data: \*
- \* M < 1.5,  $\checkmark$   $\theta$  within NOSE HI/LO limits \*
- \* Fly P,R/Y CSS as reqd, limit  $\phi$  < 50° \*
- \* SPD BK MAN at .9M if reqd for ranging \*

M = 1

Yaw jets inactive

M = 0.85

FLY P and R/Y - CSS (prior to HAC)

1: GNC VERT SIT 2      2: GNC SYS SUMM 1  
 3: GNC 50 HORIZ SIT

(H = 30K to TD)

50K /  
 40K /  
 30K /  
 20K /  
 7K /  
 SURF /

MLS LOCK

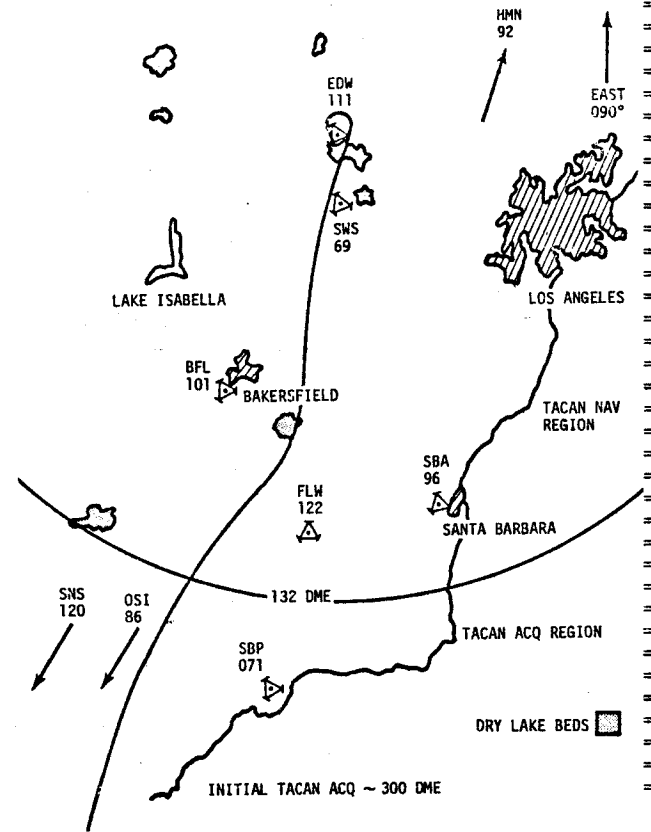
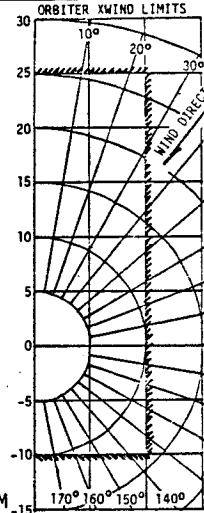
10K  
 2500'  
 1850'  
 KEAS = 270  
 KEAS = 185  
 KEAS = 165  
 NOSE WHEEL CONTACT  
 STOP

HSI SOURCE (PLT)  
 - MLS  
 - BDY FLP - MAN  
 - TRAIL

Nominal SPD BK RETRACT  
 PREFLARE  
 LDG GEAR pb - ARM  
 LDG GEAR pb - DN

TOUCHDOWN - main gear  
 SPD BK to 100%  
 Lower  $\theta$  to ~ 6°  
 PITCH down at ~ 20°/sec

RHC FULL FWD, Aileron into wind  
 SRB SEP - MAN/AUTO  
 ET SEP - MAN  
 ET/SRB SEP pb (two) - push  
 BRAKING - Light/moderate as reqd  
 Go immediately to POST LANDING, 5-3  
 (AOA 6-34)



**B POST LANDING**

- 00:00 After Orbiter stops:  
ESTABLISH COMM WITH CONVOY 1
- C L1 ✓RAD BYP VLV MODE (two) - MAN  
CNTLR LOOP (two) - AUTO A  
BYP VLV MAN SEL (two) -  
RAD FLOW (3 sec) (tb-RAD)  
NH3 CNTLR B - PRI/GPC  
L2 SBTC - full fwd
- P R2 APU AUTO SHUT DN - ENA
- P C3 ✓DFI RCDRS PCM - CONT RCD
- B C2 Doff, stow Gloves  
Seat Raise Helmet Visor  
Install  
D-RING PIN  
SCRAMBLE HANDLE CLIP  
C PANEL JETTISON T HANDLE PIN
- B Disconnect  
Shoulder harness straps (two)  
Lap belt  
Seat Kit straps (two)  
Foot spurs (two)
- L5,R6 Doff Helmet  
L,R COMM PWR - OFF (ctr)  
Disconnect O2, comm, restraint  
strap  
Stow Helmet/Gloves in Bag  
Don Mini Headset, connect comm  
L,R COMM PWR - CCU (up)

5-3

DATE 03/02/81

**CDR**

**NOTE**

CDR activities are now on even numbered pages and PLT activities on odd numbered pages

**RCS, OMS SAFING (RJDs)**

- C3 ✓OMS ENG (two) - OFF  
014:F RJD (six) - OFF  
✓L OMS ENG VLV - OFF  
015:F RJD (four) - OFF  
016:F RJD (six) - OFF  
✓R OMS ENG VLV - OFF

Ck with PLT. REPORT OMS/RCS SAFING COMPLETE

**DEACTIVATE LEFT FWD SWITCHES**

- W1 Camr - off  
L2 ANTISKID - OFF  
✓NWS - OFF  
C3 ✓FCS CH (four) - AUTO  
F6 FLT CNTLR PWR - OFF

Obtain Handheld Radio from Pilot, establish comm with Convoy 1 on 282.8

Disconnect  
Biomed Cable  
Vent Hose (controller remains with Hose)

**After Load Test Complete**

- F6 INST PWR - OFF  
✓TRIM RHC - INH  
✓PNL - OFF

5-4

DATE 03/02/81

**PLT**

**ET UMBILICAL DOOR OPENING**

- R2 ADVISE CONVOY 1 'ET UMBILICAL DOORS ARE COMING OPEN'  
ET UMB DR  
MODE - GPC/MAN  
L,R LAT (two) - REL (tb-bp)  
After 6 sec, L,R LAT tb - REL  
L,R LAT (two) - OFF (tb-REL)  
L,R DR (two) - OP (tb-bp)  
After 12 sec, L,R DR - OFF (tb-bp)

**RCS, OMS SAFING (VALVES)**

- 07 AFT L,R RCS  
MANF ISOL (ten) - CL (tb-CL)  
TK ISOL (six) - OP (tb-OP)  
He PRESS (four) - CL (tb-CL)  
XFEED (four) - CL (tb-CL)  
✓MSTR RCS XFEED - OFF
- 08 L,R OMS  
✓He PRESS/VAP ISOL (four) - CL  
✓TK ISOL (four) - OP (tb-OP)  
XFEED (four) - OP (tb-OP)  
FWD RCS  
✓MANF ISOL (five) - CL (tb-CL)  
✓TK ISOL (two) - OP (tb-OP)  
✓He PRESS (two) - CL (tb-CL)

5-5

DATE 03/02/81

1: GNC VERT SIT 2	2: GNC SYS SUMM 1
3: GNC 50 HORIZ SIT	

- CDR**
- L5 L COMM PWR - OFF (ctr)  
Disconnect Comm  
Egress Seat
  - A16 Unstow, hook up Vent Hose Extensions  
(for CDR & PLT) (optional)

**PS AUDIO STATION ACTIVATION**

- L9 PS AUD PWR - AUD/TONE  
XMIT/ICOM MODE - PTT/PTT
- A15 Connect Comm

**LRU DEACTIVATION**

- 014:A BRAKES MNA - OFF
- RGA 1 - OFF
- IMU 1 - OFF
- :E cb MNA ADTA 1 - op
- cb MNA ACCEL 1 - op
- cb MNA DDU L - op
- cb MNA NWS - op
- :F ✓ASA 1 - ON
  
- 015:A BRAKES MNB - OFF
- RGA (two) - OFF
- IMU 2 - OFF
- :E cb MNB ADTA 2 - op
- cb MNB ACCEL 2 - op
- cb MNB DDU (two) - op
- :F ✓ASA 2 - ON
- ACCEL 4 - OFF
  
- 016:A BRAKES MNC - OFF
- RGA 3 - OFF
- IMU 3 - OFF
- :E cb MNC ADTA (two) - op
- cb MNC DDU R - op
- :F ✓ASA (two) - ON
- ACCEL 3 - OFF

1: GNC VERT SIT 2	2: GNC SYS SUMM 1
3: GNC 50 HORIZ SIT	

**PLT**

**HYDRAULIC LOAD TEST**

- R2 HYD MN PUMP PRESS 1 - LO (MA)
- C3 Run Full Load Test  
BDY FLP - 35%  
RHC - Forward ctr  
Rudder full left

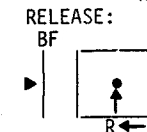
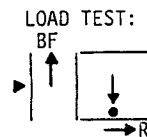
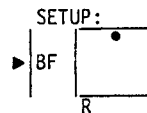
When set, do following  
simultaneously:  
BDY FLP - UP (to 6% limit)  
RHC - move to aft ctr  
Rudder full right

RHC - release  
Rudder - neutral

- R2 HYD MN PUMP PRESS 1 - NORM  
3 - LO (MA)
- C3 Repeat Load Test
- R2 HYD MN PUMP PRESS 3 - NORM

**APU/HYD SHUTDOWN**

- C3 BDY FLP -18%
- R2 MPS ENG PWR (six) - ON
- R4 HYD MPS/TVS ISOL VLV SYS  
(three) - OP (tb-OP)
- R2 APU CNTL (three) - OFF
- FUEL TK VLV (three) - CL
- CNTLR PWR (three) - OFF
- HYD CIRC PUMP (three) - ON
- MPS ENG PWR (six) - OFF
- REPORT 'APU/HYD SHUTDOWN'



1: GNC VERT SIT 2	2: GNC SYS SUMM 1
3: GNC 50 HORIZ SIT	

**CDR**

- 017 ATVC (four) - OFF
- MEC 1 - OFF (wait 2 sec, then)
- 2 - OFF
- L1 IMU FAN (three) - OFF

(AFTER OPS 9 and BFS TRANSITION)

**GPC 2, 3, 4 PWRDN**

- 06 GPC MODE 2,3,4 (three) - STBY  
(tb-bp)  
- HALT
- PWR (three) - OFF
- LTG (five) - OFF
- C2 CRT 1,2 PWR (two) - OFF

After Convoy 1 reports 'GROUND COOLING  
ACTIVATED', perform RAD BYPASS and NH3  
DEACTIVATION

- L1 RAD BYP MAN SEL (two) - BYP
- CNTRLR LOOP (two) - OFF

**C3 DFI RCDRS PCM - HI SAMP**

- L1 NH3 CNTLR (two) - OFF

+14

1: GNC VERT SIT 2      2: GNC SYS SUMM 1  
 3: GNC 50 HORIZ SIT

PLT

**DPS TRANSITION - GNC 9** (if PASS)

3: GNC 0 GPC MEMORY

Verify:

CONFIG	9
GPC	10000
STR 1	1
2	1
3	1
4	1
PL 1/2	1
CRT 1	1
2	1
3	1
4	0
MM 1	1
2	1

CRT3 **GNC, OPS 901 PRO**  
 ✓BFC CRT DISP - ON

**BFS, GNC, OPS 000 PRO**

3: BFS, GNC BFS MEMORY

BFC CRT DISP - OFF

3: GNC 105 TCS CONTROL

**VENT DOOR PURGE POSITIONING (PASS)**

CRT3 CLEAR MSG - ITEM 8 EXEC (if reqd)  
 SELECT ID - ITEM 1 +0 3 EXEC  
 ✓NAME 'VFB89'  
 MM READ - ITEM 2 EXEC  
 After 'VFB89 - ENTERING 30 MIN  
 DELAY', then  
 REPORT 'VENT DOOR PURGE POSITIONING  
 INITIATED'

NOTE

Do not release SPEC 105 until  
 'VFB89 - COMPLETE VENT DOOR PURGE'

5-9

DATE 03/02/81

+40

3: GNC 105 TCS CONTROL

CDR

**APU HEATER DEACTIVATION**

A12 APU HTR  
 TK/FU LINE (six) - OFF  
 GAS GEN/FUEL PUMP (three) - OFF  
 LUBE OIL LINE (three) - OFF

**DFI WB AUTO CAL**

R11 ✓DFI WB MSN RCDR - FWD CNTL  
 C3 RCDRS WB MSN - CONT RCD  
 R11 FDM CNTL - AUTO CALBR (hold 2 sec)  
 Wait 10 sec minimum  
 ✓DFI FDM CNTL - DATA

Disconnect Vent Hose Extension  
 Descend to middeck

**MIDDECK SPEAKER AUDIO STATION  
 ACTIVATION** (Optional)

M042F MIDDECK SPKR AUD PWR - AUD/TONE  
 ✓SPKR PWR - SPKR MIC  
 M029J ✓Comm as reqd

**HATCH OPENING**

Notify Convoy 1 'READY FOR EGRESS'  
 Wait until Ground Crew opens hatch

\* If requested by Convoy 1, open \*  
 \* hatch from inside per decal \*

After hatch open, Astronaut Support  
 Crewman comes aboard and estab-  
 lishes comm at CDR station with  
 Convoy 1

**ORBITER UNAIDED EGRESS**

Stow Comm equipment in pocket  
 Egress Orbiter, step into Egress  
 Vehicle

5-10

DATE 03/02/81

PLT

3: GNC 105 TCS CONTROL

**NAV AID PWR DN**

07 TACAN MODE (three) - OFF  
 08 RADAR ALTM (two) - OFF  
 MLS (three) - OFF  
 LTG (five) - OFF

**DEACTIVATE RIGHT FWD SWITCHES**

W6 Camr - off  
 F8 INST PWR - OFF  
 FLT CNTLR PWR - OFF  
 ✓TRIM RHC - INH  
 ✓PNL - OFF

**EJECTION SEAT EGRESS** (when desired  
 after Astronaut Support Crewman  
 establishes comm at CDR station)

R6 R COMM PWR - OFF (ctr)  
 Disconnect comm, stow comm equip  
 in pocket  
 Disconnect Vent Hose (controller  
 remains with Hose)  
 Egress Seat

When no longer required,  
 L,R suit fan (two) - OFF

**ORBITER UNAIDED EGRESS**

A15 Disconnect CDR comm  
 Descend to middeck, egress  
 Orbiter, step into Egress Vehicle

5-11

DATE 03/02/81

1: GNC DEORB MNVR COAST	2: GNC DEORB MNVR COAST
3: BFS, GNC DEORB MNVR COAST	

TRANS DAP B These procedures assume:  
1. All PDP completed

2. DEORBIT BURN completed up to but not including APU START, 3-7. If activities not complete, do them during troubleshooting time

P C3 ✓DFI RCDRS WB MSN - STBY  
          ✓PCM - LO SAMP

R2 ✓APU/HYD SHUTDOWN COMPLETE  
      ✓HYD MN. PUMP PRESS (three) - NORM

\*\*\*\*\* GWM AOS (UPLINK BLK - NONE) \*\*\*\*\*  
(TIG-1:15)

C MCC UPDATE:  
   DEL PAD  
   PRPLT PAD

C MCC UPLINK:  
   PASS TGT  
   BFS TGT

\*\*\*\*\* GWM LOS (UPLINK BLK - ALL) \*\*\*\*\*

1: GNC DEORB MNVR EXEC	2: GNC DEORB MNVR EXEC
3: BFS, GNC DEORB MNVR EXEC	

\*\*\*\*\* GDS AOS (UPLINK BLK - NONE) \*\*\*\*\*  
(TIG-51)

#### FINAL DEORB UPDATE/UPLINK

C MCC UPDATE:  
   DEL PAD  
   PRPLT PAD  
MCC UPLINK:  
   PASS SV  
   BFS SV  
   PASS TGT  
   BFS TGT

On MCC GO,  
CRT1 LOAD - ITEM 39 EXEC  
      ST CRT TMR - ITEM 40 EXEC  
CRT ✓PASS & BFS TGTS per DEL PAD:  
1,3 BURN ATT  
      HA HP  
      ΔVTOT  
      TGO

\*\*\*\*\* GDS LOS (UPLINK BLK - ALL) \*\*\*\*\*  
(TIG-44)

\*\*\*\*\* MIL AOS (UPLINK BLK - NONE) \*\*\*\*\*  
(TIG-43)

MCC/CREW GO/NO GO for DEORBIT BURN  
(TIG-41)

\*\*\*\*\* MIL LOS (UPLINK BLK - ALL) \*\*\*\*\*  
(TIG-36)

1: GNC DEORB MNVR EXEC	2: GNC DEORB MNVR EXEC
3: BFS, GNC DEORB MNVR EXEC	

#### MNVR TO 1-ORBIT LATE DEORBIT ATT

B F6/F8 ✓FLT CNTLR PWR (two) - ON  
          ✓ADI ATT (two) - INRTL  
          ✓ERR (two) - MED  
          ✓RATE (two) - LO

RHC Mnvr to 1-ORBIT LATE BURN ATTITUDE  
(✓ADI ATT with CRT BURN ATT)

(TIG-10)

Return to DEORBIT BURN, APU start,  
3-7. Next coverage is BOT (UHF)

LOSS OF FLASH EVAPORATOR SYSTEM DEORBIT BURN

SUMMARY

This is a stand alone section. It returns to the nominal section ENTRY, 4-4, at  $\bar{q} = 10$

All activities are tagged to the Event of TIG regardless if TIG is slipped or if TIG is one orbit late. The AOS/LOS times are deleted and sites noted sequentially where they would occur if TIG were slipped 7 minutes

- TIG-40 Freon Loop 1 off 20 min prior to L PLBD closing
- TIG-25 Activate 1 Hyd Circ Pump for a heat sink
- TIG-24 No OMS TVC GIMBAL CHECK. DPS config for GPC 1,3, and 5
- TIG-20 Close L PLBD
- TIG-19 Mnv to Deorbit Burn Att
- TIG-11 Freon Loop 1 back on. Freon Loop 2 off so R PLBD will be cool at closing
- TIG-7 Close R PLBD. APU start delayed to EI-5. Turn on 2nd CRT
- TIG-5 Switch Hyd Circ Pumps
- TIG TIG moved forward as much as possible (max 7 min) with 1 OMS downmoding maintained in order to minimize freefall time. No RCS downmoding available
- TIG+5 (EI-16 if 7 min slip) Freon Loop 2 back on (Two loop flow). Switch Hyd Circ Pumps
- EI-12 Fwd RCS dump may be reqd
- EI-5 FCS CHs to ORIDE. Circ Pumps off. PLT's Instr on. Start APUs.
- EI-2 OPS 304 PRO
- EI Activate NH3 Controller
- $\bar{q} = 10$  Return to Nominal ENT C/L, ENTRY, 4-4, with following P&I changes already made:
- V = 15K Activate two TACANS, one RA
- V = 9k Bypass Rads (when heat sink used up)
- M = 5 MPS He Press omitted, H2 Purge done

7-1

DATE 03/02/81

1: OFF	2: OFF
3: GNC DEORB MNVR COAST	

B Use two CRTs to verify TGTs, return to one ASAP, CRT 3 preferred

1: GNC DEORB MNVR COAST
3: BFS GNC DEORB MNVR COAST

\*\*\*\*\* MIL AOS (UPLINK BLK - NONE) \*\*\*\*\*

**FINAL DEORB UPDATE/UPLINK**

MCC UPDATE:  
 DEL PAD  
 OMS PRPLT PAD  
 MCC UPLINK:  
 PASS SV  
 BFS SV  
 PASS TGT  
 BFS TGT  
 IMU GYRO BIAS (if reqd)  
 On MCC GO,  
 C CRT1 LOAD - ITEM 39 EXEC  
 ST CRT TMR - ITEM 40 EXEC

**NOTE**

Time change of TIG (REH, ENT, or 1 ORB LATE TIG) by plus ~ 7 min in order to minimize freefall

CRT1,3 ✓PASS & BFS TGTs per DEL PAD:  
 BURN ATT  
 HA HP  
 ΔVTOT  
 TGO

TIG-40 ▶ C L1 FREON LOOP 1 - OFF

\*\*\*\*\* BDA LOS (UPLINK BLK - ALL) \*\*\*\*\*

7-2

DATE 01/26/81

1: OFF	2: OFF
3: GNC DEORB MNVR COAST	

**C OMS BURN PREP**

CRT2 OMS ENG TRIMS  
 2 ENG BURN:  
 TRIM L,R - ITEM 12 +0.1 -5.7  
 +5.7 EXEC

...1 ENG BURN.....  
 . TRIM P - ITEM 12 +0.1 EXEC .  
 . Good eng Y, .  
 . L - ITEM 13 +5.2 EXEC .  
 . R - ITEM 14 -5.2 EXEC .  
 .....

P 08 L,R OMS  
 ✓He PRESS/VAP ISOL (four) - CL  
 ✓TK ISOL (four) - OP (tb-OP)  
 ✓XFEED (four) - CL (tb-CL)

07 AFT L,R RCS  
 He PRESS (four) - OP (tb-OP)  
 TK ISOL (six) - GPC (tb-OP)  
 XFEED (four) - GPC (tb-CL)  
 ✓MSTR RCS XFEED - OFF

.....RCS BURN PREP.....  
 . P 08 L,R OMS .  
 . ✓He PRESS/VAP ISOL (four) - CL .  
 . ✓TK ISOL (four) - OP (tb-OP) .  
 . L OMS XFEED (two) - OP (tb-OP) .  
 . ✓R OMS XFEED (two) - CL (tb-CL) .  
 . 07 AFT L,R RCS .  
 . XFEED (four) - OP (tb-OP) .  
 . TK ISOL (six) - CL (tb-CL) .  
 .....

7-3

DATE 03/02/81

1: OFF | 2: OFF  
 | 3: GNC DEORB MNVR COAST

\*\*\*\*\* ACN AOS (UPLINK BLK - NONE) \*\*\*\*\*

**MCC/CREW GO/NO GO for DEORBIT BURN**

TIG-25 ► **ACTIVATE HYD CIRC PUMP**

P R2 HYD CIRC PUMP 1 - ON

TIG-24 ► **NO FES DPS ENTRY CONFIG**

1. **ACTIVATE GPC 3**

C 06 GPC PWR 3 - ON  
 ✓OUTPUT 3 - NORM  
 MODE 3 - STBY (tb-bp), then  
 - RUN (tb-RUN)

2. **REASSIGN GPC 1 & TRANSITION GPC 3 TO OPS 3**

P CRT3 | 3: GNC O GPC MEMORY  
 CONFIG - ITEM 1 +3 EXEC

Modify MC3 per Table

Config	3
GPC	10300
STR 1	1
2	3
3	3
4	1
PL 1/2	1
CRT 1	1
2	3
3	3
4	0
MM 1	1
2	3

1: OFF | 2: OFF  
 | 3: GNC DEORB MNVR COAST

**GNC, OPS 301 PRO**

C3 | 3: GNC DEORB MNVR COAST  
 BFC CRT DISP - ON  
 | 3: BFS, DEORB MNVR COAST

CRT 3 BFS, GNC I/O RESET EXEC

B Use two CRTs from now on

1: GNC DEORB MNVR COAST |  
 | 3: BFS, DEORB MNVR COAST

P CRT1 **GNC, OPS 302 PRO**

1: GNC DEORB MNVR EXEC | 2: OFF  
 | 3: BFS, GNC DEORB MNVR EXEC

\*\*\*\*\* ACN LOS (UPLINK BLK - ALL) \*\*\*\*\*

TIG-20 ► **CLOSE L PL BAY DOORS**

| 3: BFS, SM 63 PL BAY DOORS

✓PBD SW - STOP  
 AC PWR ON - ITEM 1 EXEC  
 ✓OP/CL STATUS (ten) - OP  
 PBD SW BYP - ITEM 14 EXEC

CLOSE LEFT DOOR TO 'RDY'

CLOSE LEFT FWD/AFT LATCH GROUPS & DOOR

PBD SW BYP - ITEM 16 (STOP) EXEC  
 AC PWR OFF - ITEM 2 EXEC

\*\*\*\*\* BOT AOS (UHF) \*\*\*\*\*

1: GNC DEORB MNVR EXEC | 2: OFF  
 | 3: BFS, GNC DEORB MNVR EXEC

TIG-19 ► **MNVR to DEORBIT BURN ATT**

B F6/F8 FLT CNTLR PWR (two) - ON  
 ✓ADI ATT (two) - INRTL  
 ✓ERR (two) - MED  
 ✓RATE (two) - MED  
 C RHC Mnvr to BURN ATT  
 (✓ADI ATT with CRT BURN ATT)

TIG-17 B Copy last DEL PAD and OMS PRPLT  
 PAD data on DEORBIT BURN Cue  
 Card  
 F6/F8 ✓DEORBIT BURN and DEORBIT BURN  
MONITOR Cue Cards installed

\*\*\*\*\* BOT LOS (UHF) \*\*\*\*\*

TIG-11 **SWITCH LOOPS**

B Unplug Vent hose  
 C L1 FREON PUMP LOOP 1 - A  
 2 - OFF

Set Event Timer to count down  
 16 min  
 When 16 min elapsed, perform  
 TWO LOOP FLOW/SWITCH CIRC  
 PUMPS, 7-12

1: GNC DEORB MNVR EXEC 2: OFF  
3: BFS, GNC DEORB MNVR EXEC

1: GNC DEORB MNVR EXEC 2: OFF  
3: BFS, GNC SYS SUMM 2

1: GNC DEORB MNVR EXEC 2: OFF  
3: BFS, GNC SYS SUMM 2

TIG-7 ► **CLOSE R PL BAY DOOR**

P C3 BFC CRT DISP - ON  
3: BFS, SM 63 PL BAY DOORS

✓PBD SW - STOP  
AC PWR ON - ITEM 1 EXEC

✓L DOOR, LATCHES (three) - CL  
PBD SW BYP - ITEM 14 EXEC

CLOSE RIGHT DOOR TO 'RDY'

CLOSE RIGHT FWD/AFT LATCH GROUPS  
& DOOR

CLOSE c/1 LATCH GROUPS  
(1-4 & 13-16, then 5-8 & 9-12)

PBD SW BYP - ITEM 16 (STOP) EXEC  
AC PWR OFF - ITEM 2 EXEC

Ref PDP, NOMINAL DEORBIT PREP,  
DETAILED PLBD CLOSING PROCEDURES,  
3-41, if reqd

\* NOTE \*  
\* If R door does not close prop- \*  
\* erly, open R door, Pwr down \*  
\* GPC 3, use one CRT, turn off \*  
\* circ pump; go to 1-ORBIT LATE \*  
\* DEORBIT, 6-1, and return to \*  
\* these procedures at TIG-24 or \*  
\* call MCC on Deorbit Delay of \*  
\* 24 hr \*

3: BFS, GNC SYS SUMM 2

TIG-5 ► P R2 HYD CIRC PUMP 1 - OFF  
PUMP 2 - ON

7-7 DATE 03/02/81

.....  
.P 07/08 Terminate RCS/RCS XFEED or  
. terminate OMS/RCS Interconnect  
. unless RCS Deorbit  
.....

C ✓BURN ATT + 5°  
B Go to DEORBIT BURN Cue Card

\*\*\*\*\* YAR AOS (UHF) \*\*\*\*\*

\* **If no OMS IGNITION at TIG:** \*  
\* OMS ENG (two) - OFF \*  
\* ✓APUs - SHUT DN \*  
\* GNC, OPS 301 PRO \*  
\* Consult with MCC at next STDN \*

\* **If Burn terminated with HP > SAFE HP:** \*  
\* ✓OMS ENG (two) - OFF \*  
\* ✓APUs - SHUT DN \*  
\* GNC, OPS 301 PRO \*  
\* 07 AFT L,R RCS \*  
\* He PRESS A (two) - GPC (tb-OP) \*  
\* B (two) - CL (tb-CL) \*  
\* TK ISOL (six) - OP (tb-OP) \*  
\* XFEED (four) - CL (tb-CL) \*  
\* Consult with MCC at next STDN on \*  
\* DEORBIT DELAY of 24 HR \*

**OMS/RCS POST BURN RECONFIGURATION**

P 07 AFT L,R RCS  
He PRESS (four) - OP (tb-OP)  
TK ISOL (six) - GPC (tb-OP)  
XFEED (four) - GPC (tb-CL)

08 L,R OMS  
He PRESS/VAP ISOL (four) - CL  
TK ISOL (four) - OP (tb-OP)

\* If OMS PRPLT FAIL, \*  
\* ✓affected TK ISOL (two) - CL \*

F8 XFEED (four) - CL (tb-CL)  
FLT CNTLR PWR - OFF

\* **UNDERBURN** \*  
\* \* \*  
\* Determine ΔHP \*  
\* (CUR HP - TGT HP) \*  
\* If ΔHP > 2: \*  
\* Use PREBANK TABLE \*

7-9 DATE 03/02/81



1: GNC DEORB MNVR EXEC 2: OFF  
3: BFS, GNC SYS SUMM 2

**PREBANK TABLE (7 MIN TIG SLIP)**

ΔHP	4	7	10	11			
PREBANK (deg)	50	65	75	80			
Continue to EDW							

ΔHP	12	18	22	25	28	29	30
PREBANK (deg)	55	75	95	105	120	135	180
Redesignate to NOR							
TACAN MODE (three) - T/R							
CH tw (three) - 92X							

**PREBANK TABLE**

ΔHP							
PREBANK (deg)							
Continue to EDW							

ΔHP							
PREBANK (deg)							
Redesignate to NOR							
TACAN MODE (three) - T/R							
CH tw (three) - 92X							

\* Record UNDERBURN prebank on 7-17

**POST BURN STATUS**

NOMINAL	Δ TIG
<input type="text"/>	<input type="text"/> : <input type="text"/>

P CRT1 GNC, OPS 303 PRO

1: GNC DEORB MNVR COAST

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, GNC SYS SUMM 2

C CRT1 Verify or load INRTL EI-2 MM303 ATT from DEL PAD:

R - ITEM 8 +	1	9	4		
P - ITEM 9 +	2	9	8		
Y - ITEM 10 +	0	4	0		

RHC Mnv to EI-2 ATT

\* If UNDERBURN, ignore INRTL ATT ERR \*  
\* needles and Mnv to LVLH R 001, \*  
\* Y 358 and P per table below \*

TIME to EI | LVLH PITCH  
(min) | (deg)

20	327
	331
	335
	339
	343
15	347
	351
	355
	359
	3
10	7
	11
	15
	19
	23
5	27
	31
	35
2	39

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, GNC SYS SUMM 2

**TWO LOOP FLOW/SWITCH CIRC PUMPS**

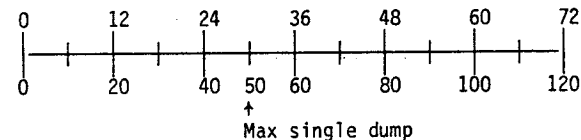
EVENT ▶ C L1 FREON PUMP LOOP 2 - A  
TIMER P R2 HYD CIRC PUMP 2 - OFF  
ZERO PUMP 3 - ON

\*\*\*\*\* YAR LOS (UHF) \*\*\*\*\*

EI-12 ▶ P **FORWARD RCS DUMP** (use for off nominal X cg entry)

Determine FWD RCS 'DUMP TO %' (Calculator, cg wheel, or DEL PAD)

F RCS PRPLT TO BE DUMPED (%)



DUMP DURATION (sec)

**NOTE**  
Dump 50 sec ON, 40 sec OFF until dump complete

CRT2 F RCS ARM - ITEM 24 EXEC  
DUMP - ITEM 25 EXEC  
(Start Watch)

When required:  
OFF - ITEM 26 EXEC  
Wait 40 sec

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, GNC SYS SUMM 2

**ENTRY SW CHECK**

- P 07 ✓TACAN MODE (three) - OFF  
      ✓ANT SEL (three) - AUTO
- 08 ✓RADAR ALTM (two) - OFF  
      ✓MLS (three) - OFF
  
- C L2 ✓CAB RELIEF A,B - ENA (tb-ENA)  
      ANTISKID - ON  
      ✓NWS - OFF  
      ✓ENTRY R MODE - AUTO
- B L2/C3 ✓SBTC - full fwd
- P C3 ✓SRB SEP - AUTO  
      ✓ET SEP - AUTO
  
- B F6/F8 ✓AIR DATA - NAV  
      ADI ERR - MED  
      RATE - MED  
      ✓HSI SEL MODE - ENTRY
- C F6 ✓SOURCE (two) - NAV,1
- P F8 ✓SOURCE (two) - NAV,2
- C F6 ✓CNTL EFF - NOM  
      ✓ALPHA BIAS - ZERO  
      ✓GAIN P - LO FWD  
      ✓R/Y - NOM
  
- B F6/F8 ✓TRIM RHC/PNL - INH  
      ✓PNL - ON
- C F6 ✓RADAR ALTM - 1
- P F8 ALTM - 1 (due to pwrdown)

\*\*\*\*\* GMM AOS (UPLINK BLK - NONE) \*\*\*\*\*

7-13

DATE 01/26/81

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, GNC SYS SUMM 2

**BURN REPORT (from 7-10)**

1: GNC 50 HORIZ SIT  
3: BFS, GNC 50 HORIZ SIT

**STATE VECTOR CHANGE (if reqd)**

CRT1 ΔT - ITEM 16 ( ) .

CRT3 LOAD - ITEM 14 EXEC  
PASS/BFS SV XFER - ITEM 15 EXEC  
LOAD - ITEM 14 EXEC

3: GNC 50 HORIZ SIT

**HORIZ SIT CONFIG**

ALTM - ITEM 1 + .

	PASS ITEM	BFS ITEM
RWY (DEL PAD)	27	27
GLD SLOPE	LO WND 5/	LO WND 5/
MEP (LH TURN) (DEL PAD)	MEP 7/	MEP 7/
TAC	INH 18/	INH 18/
DRAG H	AUT 20/	AUT 20/
ADTA H	INH 24/	INH 24/
ADTA TO G&C	INH 27/	AUT 26/
TAC	DELTA 33/	-
Failed TACANS deselected	✓	-

- \* If BFS engaged: \*
- \* Set HSD BFS ITEMS to PASS Config \*
- \* Any failed TACANS: leave OFF at \*
- \* V = 15K activation time \*

1: GNC DEORB MNVR COAST  
3: BFS, GNC SYS SUMM 2

7-14

DATE 01/26/81

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, GNC SYS SUMM 2

**SEAT PIN REMOVAL**

- B Remove, stow in pocket:  
Scramble Handle Safety Clip  
D-Ring Pin
- C Panel Jettison T-Handle Pin
  
- B Stow DEORBIT BURN and DEORBIT BURN  
MONITOR Cards (C6)

C6 ✓Entry Cue Cards installed

**B G SUIT INFLATION**

Load - 1.5  
Activation vlv - ON (if reqd)

**FCS, INST PWR ON/CIRC PUMPS OFF**

- P C3 ▶ ASAP within 3 sec:  
FCS CH 4,3,2,1 (four) - ORIDE
  
- R2 HYD CIRC PUMP 3 - OFF  
      ✓PUMP 1,2 (two) - OFF
- F8 INST PWR - ON

EI-6 ▶

**APU PRE START**

- R4 ✓HYD LG RET/CIRC VLV - CL
- R2 BLR N2 SPLY (three) - ON  
      ✓CNTLR (three) - ON  
      ✓CNTLR PWR/HTR (three) - A
- ✓APU FUEL TK VLV (three) - CL  
      CNTLR PWR (three) - ON
- HYD MN PUMP PRESS (three) - LO
- ✓APU AUTO SHUT DN - ENA  
      ✓SPEED SEL (three) - NORM  
      ✓CNTL (three) - OFF

3: BFS, SM SYS SUMM 2

7-15

DATE 01/26/81

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, SM SYS SUMM 2

EI-5 **APU START**

P R2 APU FUEL TK VLV (three) - OP  
✓APU/HYD RDY tb (three) - gray

\* If tb - bp, start other APUs \*

F8 APU CNTL 1 - START/RUN  
R2 ✓HYD PRESS 1 ind - LO green  
R2 ✓APU/HYD RDY 1 tb - bp

\* If no start, \*  
\* APU CNTL - OFF \*  
\* Start other APUs \*

F8 HYD MN PUMP PRESS 1 - NORM  
✓PRESS 1 ind - HI green

Repeat for APU 2, then APU 3

\* If APU did not start normally, \*  
\* APU CNTL - START ORIDE/RUN \*  
\* (Wait 3.5 min for APU start) \*  
\* If no APU start: \*  
\* APU AUTO SHUT DN - INH \*  
\* If OIL OUT P < 25 and OIL OUT \*  
\* TEMP not increasing after APU \*  
\* start or no start: \*  
\* APU CNTL - OFF \*  
\* FUEL TK VLV - CL \*

R2 ✓HYD CIRC PUMP (three) - OFF  
R4 ✓LG HYD ISOL VLV (three) - CL  
(tb-CL)

\* If only one APU running: \*  
\* Just prior to transition \*  
\* Good HYD MAIN PUMP PRESS - NORM \*  
\* APU SPEED SEL - HIGH \*

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, SM SYS SUMM 2

**NOTE**

If OMS/RCS He or TK PRESS leak,  
do not perform this procedure

2: GNC 51 OVERRIDE

EI-5 CRT2 VENT DOOR CNTL CLOSE - ITEM 23 EXEC

2: GNC DEORB MNVR EXEC

...If BFS.....

2: BFS, GNC 50 HORIZ SIT  
CRT2 VENT DOOR CL - ITEM 38 EXEC  
2: BFS, GNC DEORB MNVR EXEC

1: GNC DEORB MNVR COAST 2: OFF  
3: BFS, SM SYS SUMM 2

**PRE EI CHECKLIST**

EI-2 ✓ADI ATT - LVLH  
Mnvr to R 001, P 039, Y 358  
C CRT1 **GNC, OPS 304 PRO**

1: GNC ENTRY TRAJ 1  
3: BFS, GNC ENTRY TRAJ 1

ADI ✓ENTRY ATT (R 000, P 040, Y 000)  
F2 SPDBK/THROT pb - AUTO  
PITCH pb - AUTO (PASS)  
ROLL/YAW pb - AUTO (PASS)  
(CSS if PREBANK)

\* PREBANK    \*  
\* (DEL PAD)    \*  
\* or    \*  
\* If UNDERBURN - Adjust Roll, 7-10 \*  
\*    \*  
\*    \*  
\* Roll toward PRI BRG Pointer at \*  
\* 10/sec \*

1: GNC ENTRY TRAJ 1 | 2: OFF

3: BFS, GNC ENTRY TRAJ 1

\*\*\*\*\* GWM LOS (UPLINK BLK - ALL) \*\*\*\*\*

P 08 FWD RCS  
MANF ISOL (five) - CL (tb-CL)  
He PRESS (two) - CL (tb-CL)

07 AFT L,R RCS  
MANF ISOL 5 (two) - OP (tb-OP)

h = 400K  
(00:00)  
C

**EI NH3 ACT**

NH3 CNTLR B - SEC/ON  
A - PRI/GPC

\* If Prebank reqd: ✓Roll \*

q̄ = 0.5  
(2:36) ✓Auto elevon trim  
BDY FLP pb - AUTO

q̄ = 2  
(3:30) ✓Elevons active

B Use 2 INST, FLT CNTLR PWR from  
now on

✓P&I Accomplished  
At V = 15K: Activate two TACANS,  
one RA  
At V = 9K: Bypass Rads

q̄ = 10  
(4:57) ▶ Roll jets inactive  
Go to ENTRY, q̄ = 10, 4-4

1: GNC VERT SIT 2 | 2: GNC SYS SUMM 1

3: GNC 50 HORIZ SIT

**CLS POST LANDING**

After Orbiter stops:  
C L1 ✓RAD BYP VLV MODE (two) - MAN  
CNTLR LOOP (two) - AUTO A  
BYP VLV MAN SEL (two) -  
RAD FLOW (3 sec) (tb-RAD)  
NH3 CNTLR B - PRI/GPC

P C3 ✓DFI RCDRS PCM - CONT RCD

B 16 mm Camr (two) - OFF

C L2 ANTISKID - OFF  
✓NWS - OFF  
SBTC - full fwd

B C2 Doff, stow Gloves  
Seat Raise Helmet Visor  
Install  
D-RING PIN  
SCRAMBLE HANDLE CLIP  
C PANEL JETTISON T-HANDLE PIN

B Disconnect  
Shoulder harness straps (two)  
Lap belt  
Seat Kit straps (two)  
Foot spurs (two)  
Doff Helmet

1: GNC VERT SIT 2 | 2: GNC SYS SUMM 1

3: GNC 50 HORIZ SIT

L5,R6 L,R COMM PWR - OFF (center)  
Disconnect O2, comm, restraint  
strap  
Stow Helmet/Gloves in Bag  
Don Mini Headset, connect comm  
L,R COMM PWR - CCU (up)

C Unstow Handheld Radio, establish  
comm with ground support  
commander on 282.8

**APU/HYD SHUTDOWN**

P R2 MPS ENG PWR (six) - ON  
R4 HYD MPS/TVC ISOL VLV SYS (three) -  
OP (tb-OP)

R2 APU CNTL (three) - OFF  
FUEL TK VLV (three) - CL  
CNTLR PWR (three) - OFF  
HYD CIRC PUMP (three) - ON  
MPS ENG PWR (six) - OFF  
REPORT APU SHUTDOWN

**RCS, OMS SAFING**

C C3 ✓OMS ENG (two) - OFF  
014:F RJD (six) - OFF  
✓L OMS ENG VLV - OFF  
015:F RJD (four) - OFF  
016:F RJD (six) - OFF  
✓R OMS ENG VLV - OFF

P 07 AFT L,R RCS  
MANF ISOL (ten) - CL (tb-CL)  
TK ISOL (six) - OP (tb-OP)  
He PRESS (four) - CL (tb-CL)  
XFEEED (four) - CL (tb-CL)  
✓MSTR RCS XFEEED - OFF

CLS  
POST LANDING

7-19

DATE 03/02/81

8-2

DATE 01/26/81

8-3

DATE 01/26/81

1: GNC VERT SIT 2	2: GNC SYS SUMM 1
3: GNC 50 HORIZ SIT	

P 08 L,R OMS  
 ✓He PRESS/VAP ISOL (four) - CL  
 ✓TK ISOL (four) - OP (tb-OP)  
 XFEED (four) - OP (tb-OP)

FWD RCS  
 ✓MANF ISOL (five) - CL (tb-CL)  
 ✓TK ISOL (two) - OP (tb-OP)  
 ✓He PRESS (two) - CL (tb-CL)

C REPORT OMS/RCS SAFING COMPLETE

L1 RAD BYP MAN SEL (two) - BYP  
 CNTLR LOOP (two) - OFF

C3 DFI RCDRS PCM - HI SAMP

P ET UMBILICAL DOOR OPENING

ADVISE GND COMMANDER 'ET UMBILICAL  
 DOORS ARE COMING OPEN'

R2 ET UMB DR  
 MODE - GPC/MAN  
 L,R LAT (two) - REL (tb-bp)  
 After 6 sec, L,R LAT tb - REL  
 L,R LAT (two) - OFF (tb-REL)  
 L,R DR (two) - OP (tb-bp)  
 After 12 sec, L,R DR - OFF  
 (tb-bp)

1: GNC VERT SIT 2	2: GNC SYS SUMM 1
3: GNC 50 HORIZ SIT	

P NAV AID POWERDOWN

07 TACAN MODE (three) - OFF  
 08 RADAR ALTM (two) - OFF  
 MLS (three) - OFF

P DEACTIVATE RIGHT FWD SWITCHES

F8 INST PWR - OFF  
 FLT CNTLR PWR - OFF  
 ✓TRIM RHC - INH  
 ✓PNL - OFF  
 08 LTG (five) - OFF

C DEACTIVATE LEFT FWD SWITCHES

F6 INST PWR - OFF  
 FLT CNTLR PWR - OFF  
 ✓TRIM RHC - INH  
 ✓PNL - OFF  
 C3 FCS CH (four) - OFF

C GPC DEACTIVATION

06 GPC MODE 1(2,3,4,5) - STBY (tb-bp)  
 1(2,3,4,5) - HALT  
 PWR 1(2,3,4,5) - OFF  
 LTG (five) - OFF  
 C2 CRT 1,2,3 PWR (three) - OFF

C EJECTION SEAT EGRESS

L5 L COMM PWR - OFF (center)  
 Seat Disconnect  
 Biomed Cable  
 Comm Cable (stow in pocket)  
 Vent Hose (controller remains  
 with hose)

C LRU DEACTIVATION

014:A RGA 1 - OFF  
 BRAKES MNA - OFF  
 IMU 1 - OFF  
 :E cb MNA ADTA 1 - op  
 cb MNA ACCEL 1 - op  
 cb MNA DDU L - op  
 cb MNA NWS - op  
 :F ASA L - OFF  
 015:A RGA (two) - OFF  
 BRAKES MNB - OFF  
 IMU 2 - OFF  
 :E cb MNB ADTA 2 - op  
 cb MNB ACCEL 2 - op  
 cb MNB DDU (two) - op  
 :F ASA 2 - OFF  
 ACCEL 4 - OFF

016:A RGA 3 - OFF  
 BRAKES MNC - OFF  
 IMU 3 - OFF  
 :E cb MNC ADTA (two) - op  
 cb MNC DDU R - op  
 :F ASA (two) - OFF  
 ACCEL 3 - OFF

017 ATVC (four) - OFF  
 L1 IMU FAN (three) - OFF

HOLD FOR NH3 DEPLETION

C NH3 SYSTEM DEACTIVATION

L1 NH3 BOILER (two) - OFF (at system  
 depletion, EVAP OUT T > 50°F)

C MIDDECK SPEAKER AUDIO STATION

(Optional)  
 Unstow POS  
 Descend to middeck  
 M042F MIDDECK SPKR AUD PWR - AUD/TONE  
 SPKR PWR - SPKR  
 M029J ✓Comm as reqd

**P VEHICLE POWERDOWN**

R1 FC/MN BUS A - OFF (verify tb-OFF)  
 B - OFF (verify tb-OFF)  
 C - OFF (verify tb-OFF)  
 ESS BUS SOURCE FC1 - OFF  
 FC2 - OFF  
 FC3 - OFF  
 ALL POWER IS OFF

**P EJECTION SEAT EGRESS**

R6 R COMM PWR - OFF (ctr)  
 Disconnect  
 Biomed Cable  
 Comm Cable (stow in pocket)  
 Vent Hose (controller remains  
 with hose)  
 L,R Suit Fan (two) - OFF

**ORBITER UNAIDED EGRESS**

P Unstow POS  
 Descend to middeck  
 B Don POS  
 POS INTERNAL OXYGEN - ON  
 ISOL VLV - OP  
 C ADVISE GND COMMANDER 'HATCH IS  
 COMING OPEN'  
 Open hatch, deploy egress bar  
 Descend to ground

**SWITCH LIST AT WHEELS STOP [EGRESS]**

LEFT SEAT	AFT	MIDDECK - FWD
L5.....9-2	O19.....9-9	MO42F.....9-14
L4.....9-2	C6.....9-9	MO58F.....9-14
W1 16mm Camr.....9-2	C9.....9-9	MO32M.....9-14
L1.....9-2		MO39M.....9-14
L2.....9-2	L SUIT fan.....9-9	MO69M.....9-14
	R SUIT fan.....9-9	MO29J.....9-14
F1.....9-3		MO52J.....9-14
F2.....9-3	R10.....9-9	MO30F.....9-14
F6.....9-3	R11U.....9-9	ML86B.....9-14
F7.....9-3	R11L.....9-9	MO24K.....9-14
	R12U.....9-9	MO44F.....9-14
	R12L.....9-9	
C2.....9-3	R13U.....9-10	MIDDECK - AFT
C3.....9-3	R13L.....9-10	
O1.....9-4	R15.....9-10	MA73C.....9-15
O2.....9-4	A1U.....9-10	MO13Q.....9-15
L side OVHD	A1L.....9-11	ML18F.....9-15
flood.....9-4	A1R.....9-11	ML26C.....9-15
O5.....9-4	A2.....9-11	ML31C.....9-15
O6.....9-4	A4.....9-11	MO10W.....9-15
O7.....9-5	A3.....9-11	WCS.....9-15
O13.....9-5	A6U.....9-11	
O14.....9-5	A7U.....9-12	AIRLOCK
O15.....9-5	A11.....9-12	
	A12.....9-12	AW18A.....9-16
RIGHT SEAT	A13.....9-12	AW18D.....9-16
	A14.....9-13	AW18H.....9-16
O16.....9-6	A15.....9-13	AW82B.....9-16
O17.....9-6		AW82D.....9-16
O8.....9-6		
O9.....9-6	L9.....9-13	
R side OVHD	L12.....9-13	
flood.....9-7		
O3.....9-7		NOTES
		• denotes a physical break in panel structure
F4.....9-7		• Switch list at WHEELS STOP [EGRESS]
F8.....9-7		
F9.....9-7		
W6 16mm Camr.....9-7		
R1.....9-7		
R2.....9-8		
R4.....9-8		
R6.....9-8		

SW LIST

NOT FOR FLIGHT

9-1

DATE 01/26/81

LEFT SEAT SWITCH LIST AT WHEELS STOP EGRESS

L5 L COMM PWR - SUIT OFF

---

L4 All cb's close

---

W1 16mm Camr - on OFF  
controls - as reqd

---

L1 HUMIDITY SEP A - OFF  
B - ON  
CAB TEMP - as reqd  
TEMP CNTLR - OFF  
FAN A - ON  
B - OFF  
IMU FAN A - OFF  
B - ON OFF  
C - OFF  
H2O PUMP LOOP 1 (two) - OFF, B  
LOOP 2 - ON  
LOOP 1 BYP MAN - ctr  
MODE - MAN  
LOOP 2 BYP MAN - ctr  
MODE - MAN  
AV BAY 1 FAN A - OFF  
B - ON  
2 FAN A - ON  
B - OFF  
3 FAN A - OFF  
B - ON  
FLOW PROP VLV (two) - ctr (tb-ICH)  
FREQ PUMP (two) - A  
RAD CNTLR OUT TEMP - NORM

L1 RAD CNTLR LOOP 1,2 (two) - OFF  
BYP VLV MAN SEL (two) - ctr (tb-BYP)  
MODE (two) - MAN  
NH3 CNTLR (two) - PRI/GPC OFF  
H2O ALT PRESS - CL  
FLASH EVAP CNTLR PRI A - OFF  
B - OFF  
SEC (two) - A SPLY, OFF  
HI LOAD EVAP - ENA  
TOP EVAP HTR NOZ L,R (two) - B AUTO  
DUCT - B  
HI LOAD DUCT HTR - B

---

FIRE SUPPR (three) - SAFE  
pb (three) - 1t off  
SMOKE DETN SNSR - dn  
CKT TEST - OFF

L2 CAB RELIEF (two) - ctr (tb-ENA)  
VENT (two) - ctr (tb-bp)  
FLASH EVAP FOLN HTR (two) - 2  
ANTISKID - ON OFF  
NWS - OFF  
BDY FLP - AUTO/OFF  
ENTRY & MODE - AUTO  
TRIM R,P,Y (three) - ctr  
SBTC - as reqd full forward  
O2 SYS 1,2 SPLY (two) - ctr (tb-OP)  
EMER - ctr (tb-OP)  
XOVR (two) - OP

NOT FOR FLIGHT

9-2

DATE 03/02/81

LEFT SEAT SWITCH LIST AT WHEELS STOP EGRESS

L2 N2 SYS 1,2 (four) - ctr (tb-OP)  
O2/N2 CNTLR VLV (two) - AUTO  
PPO2 SNSR/VLV - NORM

---

F1 DC UTIL PWR MNB - ON  
AC UTIL PWR AC1 - OFF

---

F2 All pb lts - TBD TE OFF

---

F6 INST PWR - FLT OFF  
DATA BUS - 3  
AIR DATA - NAV  
ADI ATT - LV/LH  
ERR - as reqd  
RATE - as reqd  
LDG GEAR ARM pb - ARM  
DN pb - DN  
L tb - DN  
NOSE tb - DN  
R tb - DN  
HSI SEL MODE - ENTRY  
SOURCE (two) - NAV, 1  
BFC DISENGAGE - dn  
CNTL EFF - NOM  
ALPHA BIAS - ZERO  
GAIN P - LO FWD  
R/Y - NOM  
FLT CNTLR PWR - ON OFF  
TRIM RHC/PNL - as reqd INH  
PNL - as reqd OFF  
RADAR ALTM - 1

F6 ABORT MODE - OFF  
pb - 1t off

---

F7 OMS PRESS N2/He TK sel - He  
MPS PRESS He sel - TK

C2 CRT 3 PWR - ON  
1,2 PWR (two) - ON OFF  
CRT 1,2,3 MAJ FUNC (three) - GNC  
L CRT SEL - as reqd  
R CRT SEL - as reqd  
EVENT TIMER MODE - as reqd  
CNTL - ctr  
TIMER SET tw (four) - as reqd  
TIMER - ctr

C3 OMS ENG (two) - OFF  
BFC CRT DISP - OFF  
SEL - 3 + 1  
FCS CH (four) - AUTO  
BDY FLP - AUTO/OFF  
AIR DATA PROBE STOW (two) - INH  
MN ENG VIB SHUT DN - INH  
LIMIT SHUT DN - AUTO  
TRIM R,P,Y (three) - ctr  
SBTC - full forward  
DAP - off  
SRB SEP - MAN/AUTO  
ET SEP - MAN  
AUD CTR - 1  
OI PCMMU PWR - 1

NOT FOR FLIGHT

9-3

DATE 03/02/81

LEFT SEAT SWITCH LIST AT WHEELS STOP EGRESS

C3 OI PCMMU FORMAT - GPC  
S-BD PM CNTL - CMD  
ANT - GPC  
AIR DATA PROBE (two) - DPY  
DFI RCDRS PCM - CONT RCD HI SAMP  
(tb-bp or gray)  
DFI RCDRS WB ASC - STBY (tb-bp)  
WB MSN - CONT RCD (tb-gray)  
UPLK BLK - NONE  
MSTR DFI PWR - ON  
C/W MEM - ctr  
MODE - NORM  
PL SAFING (five) - SAFE  
EMER LTG - OFF/ON (as reqd)

---

O1 COAS - OFF  
AIR TEMP sel - CAB HX OUT  
H2O PUMP OUT PRESS sel - LOOP 2  
FREQ sel - LOOP 1  
O2/N2 FLOW sel - SYS 1 O2  
PPO2 sel - SNSR A

---

O2 CRYO O2 HTR ASSY TEMP sel - TK1 1  
O2/H2 sel - TK1  
FC STACK TEMP sel - 1

---

L side OVHD flood - as reqd

O5 L AUD MSTR VOL - as reqd  
TACAN ID (two) - OFF, 1  
VOX SENS - as reqd  
A/G (two) - T/R  
A/A - T/R  
ICOM (two) - T/R  
PWR - AUD/TONE  
CNTL - NORM  
XMIT/ICOM MODE - PTT/VOX  
VOL tw (six) - as reqd  
PAGE - dn

O6 LTG PNL (two) - BRT, as reqd OFF  
INST (two) - BRT, as reqd OFF  
L GLRSHLD FLOOD - as reqd  
L SEAT/CTR CNSL FLOOD (two) - BRT, as reqd OFF  
STAR TRKR DR CNTL (two) - CL (tb-CL)  
PWR (two) - OFF  
UHF XMIT FREQ - 296.8  
SPLX PWR AMP - ON  
SQUELCH - ON  
MODE - SPLX  
ANNUN LAMP TEST - ctr  
BUS SEL ACA 1 - MNA  
ACA 2/3 - MNB  
INTEN (two) - VAR, as reqd  
MTU - AUTO  
DEU (four) - dn  
MDM PL1,2 (two) - ON  
PL3 - OFF

NOT FOR FLIGHT

9-4

DATE 03/02/81

LEFT SEAT SWITCH LIST AT WHEELS STOP **EGRESS**

06 MDM FA1,2,3,4 (four) - ON  
 FF1,2,3,4 (four) - ON  
 GPC PWR 1,5 - ON  
 2,3,4 - ON **OFF**  
 OUTPUT 1 - NORM (tb-gray)  
 2,3,4 - NORM (tb-gray) **bp**  
 5 - BACKUP (tb-gray)  
 IPL SOURCE - OFF  
 GPC MODE 1,5 - RUN (tb-RUN)  
 2,3,4 - RUN (tb-RUN) **HALT (tb-bp)**

---

07 TACAN 1,2,3 MODE (three) - GPC **OFF**  
 ANT SEL (three) - AUTO  
 CH tw (twelve) - 069X  
 (if Edw landing)  
 AFT L RCS He PRESS (two) - OP (tb-OP)  
 TK ISOL (three) - GPC (tb-OP)  
 MANF ISOL (five) - OP (tb-OP)  
 XFEED (two) - GPC (tb-CL)  
 MSTR RCS XFEED - OFF  
 AFT R RCS He PRESS (two) - OP (tb-OP)  
 TK ISOL (three) - GPC (tb-OP)  
 MANF ISOL (five) - OP (tb-OP)  
 XFEED (two) - GPC (tb-CL)

013 All cb's - c1

---

014:A BRAKES MNA - ON **OFF**  
 RGA 1 - ON **OFF**  
 IMU 1 - ON **OFF**  
 FC1 CNTLR - ON **OFF**  
 : All cb's closed except:  
 :D cb MNA CAB VENT - op  
 VENT ISOL - op  
 :E ADTA 1 - c1 **OP**  
 ACCEL 1 - c1 **OP**  
 DDU (two) - c1 **OP**  
 :F MMU 1 - ON  
 RJD (six) - ON **OFF**  
 L OMS ENG VLV - ON **OFF**  
 ASA 1 - ON

---

015:A BRAKES MNB - ON **OFF**  
 RGA (two) - ON **OFF**  
 IMU 2 - ON **OFF**  
 FC2 CNTLR - ON **OFF**  
 : All cb's closed except:  
 :E cb MNB ADTA 2 - c1 **OP**  
 ACCEL 2 - c1 **OP**  
 DDU (two) - c1 **OP**  
 :F MMU 2 - ON  
 RJD (four) - ON **OFF**  
 ASA 2 - ON  
 ACCEL 4 - ON **OFF**

NOT FOR FLIGHT

9-5

DATE 03/02/81

RIGHT SEAT SWITCH LIST AT WHEELS STOP **EGRESS**

016:A BRAKES MNC - ON **OFF**  
 RGA 3 - ON **OFF**  
 IMU 3 - ON **OFF**  
 FC3 CNTLR - ON **OFF**  
 : All cb's closed except:  
 :E cb MNC ADTA (two) - c1 **OP**  
 DDU (two) - c1 **OP**  
 :F RJD (six) - ON **OFF**  
 R OMS ENG VLV - ON **OFF**  
 ASA 3,4 (two) - ON  
 ACCEL 3 - ON **OFF**

---

017:A ATVC (four) - ON **OFF**  
 :B EIU (three) - OFF  
 :C SIG CONDR FREON A - AC2  
 B - AC3  
 SIG CONDR OL 1/2 - ON  
 OR 1/2 - ON  
 :D SIG CONDR OA 1/2/3 - ON  
 MDM OA 1/2/3 - ON  
 MEC (two) - ON **OFF**

08 OMS KIT He PRESS/VAP ISOL (two) - CL  
 TK ISOL (two) - OP (tb-OP)  
 L OMS He PRESS/VAP ISOL (two) - CL  
 TK ISOL (two) - OP (tb-OP)  
 XFEED (two) - CL (tb-CL)  
 R OMS He PRESS/VAP ISOL (two) - CL  
 TK ISOL (two) - OP (tb-OP)  
 XFEED (two) - CL (tb-CL)  
 FWD RCS He PRESS (two) - CL (tb-CL)  
 TK ISOL (two) - OP (tb-OP)  
 MANF ISOL (five) - CL (tb-CL)  
 ANNUN LAMP TEST - ctr

09 R AUD PWR - AUD/TONE  
 A/G (two) - T/R  
 A/A - T/R  
 ICOM (two) - T/R  
 VOX SENS - as reqd  
 TACAN ID (two) - OFF, 1  
 MSTR VOL - as reqd  
 PAGE - dn  
 VOL tw (six) - as reqd  
 XMIT/ICOM MODE - PTT/VOX  
 CNTL - NORM

NOT FOR FLIGHT

9-6

DATE 03/02/81

RIGHT SEAT SWITCH LIST AT WHEELS STOP **EGRESS**

R side OVHD flood - OFF

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03 RCS/OMS PRESS sel - OMS PRPLT  
 PRPLT QTY sel - OMS FUEL  
 MSN TIME sel - MET

---

F4 All pb lts - 1t off

---

F8 INST PWR - ON **OFF**  
 DATA BUS - 4  
 AIR DATA - NAV  
 ADI ATT - LV/LH  
 ERR - as reqd  
 RATE - as reqd  
 LDG GEAR ARM pb - ARM  
 DN pb - DN  
 tb (three) - DN  
 HSI SEL MODE - ENTRY  
 SOURCE (two) - NAV, 2  
 FLT CNTLR PWR - ON **OFF**  
 TRIM RHC/PNL - as reqd **INH**  
 PNL - as reqd **OFF**  
 RADAR ALTM - 2  
 APU sel (two) - FUEL, 1

---

F9 AC Volts sel - as reqd  
 DC Volt/Amp sel - VOLTS MNA

W6 16mm Camr - on **off**  
 controls - as reqd

---

R1 CNTL BUS PWR (three) - dn  
 ESS BUS SOURCE MN (three) - ON  
 SOURCE FC (three) - ON  
 FC/MN BUS (three) - ctr (tb-ON)  
 MN BUS TIE (three) - ctr (tb-OFF)  
 PL CAB - MNA  
 PRI (three) - ctr (tb-OFF)  
 AUX - OFF  
 AFT MNB - OFF  
 MNC - OFF  
 INV PWR (three) - ctr (tb-ON)  
 INV/AC BUS (three) - ctr (tb-ON)  
 cb AC CONTR (nine) - c1  
 AC BUS SNSR (three) - AUTO TRIP

---

02 MANF VLV (two) - ctr (tb-OP)  
 TK1 HTR A - AUTO  
 B - OFF  
 RESET/TEST - ctr  
 TK2 HTR A - AUTO  
 B - OFF  
 RESET/TEST - ctr  
 TK3 HTRS (two) - OFF  
 RESET/TEST - ctr  
 FC1,3,2 REAC (three) - ctr  
 tb (six) - OP  
 FC (three) - ctr  
 RDY tb (three) - gray

NOT FOR FLIGHT

9-7

DATE 03/02/81



RIGHT SEAT SWITCH LIST AT WHEELS STOP **EGRESS**

R1 FC COOL PUMP ΔP tb (three) - gray |  
 H2 MANF VLV (two) - ctr (tb-OP) |  
 TK1 HTR A - AUTO |  
 B - AUTO |  
 TK2 HTR A - AUTO |  
 B - AUTO |  
 TK3 HTRS (two) - OFF |

---

R2 MPS PRPLT DUMP SEQ (two) - GPC  
 ENG PWR (six) - OFF  
 He ISOL A L - OP  
 CTR - CL  
 R - CL  
 He ISOL B L - OP  
 CTR - CL  
 R - CL  
 PNEU L ENG He XOVR - OP  
 PNEU He ISOL - OP  
 He I'CONNECT L - IN OP  
 CTR - IN CL  
 R - IN CL  
 LH2 ULL PRESS - AUTO  
 APU/HYD RDY tb (three) - bp  
 APU CNTL (three) - START/RUN **OFF**  
 SPEED SEL (three) - NORM  
 AUTO SHUT DN - ENA  
 HYD MN PUMP PRESS (three) - NORM  
 CIRC PUMP (three) - OFF **ON**  
 APU CNTLR PWR (three) - ON **OFF**  
 FUEL TK VLV (three) - OP **CL**  
 PUMP/VLV COOL (two) - OFF

R2 BLR CNTLR PWR/HTR (three) - A  
 CNTLR (three) - ON  
 N2 SPLY (three) - ON  
 ET UMB DR MODE - GPC/MAN  
 CTRLINE LAT - STOW (tb-STO)  
 L DR - CL (tb-CL)  
 | OP (tb-bp) |  
 L LAT - LAT (tb-LAT)  
 | REL (tb-REL) |  
 R DR - CL (tb-CL)  
 | OP (tb-bp) |  
 R LAT - LAT (tb-LAT)  
 | REL (tb-REL) |

R4 HYD BRAKE HTR (three) - OFF  
 LG HYD ISOL VLV (three) - GPC (tb-OP)  
 MPS/TVC ISOL VLV (three) - ctr (tb-OP)  
 LG RET/CIRC VLV - CL  
 MPS ENG CNTLR HTR (three) - AUTO  
 MANF PRESS (two) - OP  
 FILL/DRAIN LO2 (two) - GND  
 LH2 OUTBD - GND  
 INBD - OP  
 H2 PRESS LINE VENT - GND  
 LO2 PREVLV (three) - GPC  
 LH2 PREVLV (three) - GPC  
 FDLN RLF ISOL (two) - GPC

R6 R COMM PWR - SUIT **OFF**

NOT FOR FLIGHT

9-8

DATE 03/02/81

AFT FLIGHT DECK SWITCH LIST AT WHEELS STOP **EGRESS**

O19 TV PWR - OFF  
 DC UTIL PWR MNA - OFF  
 COAS PWR - OFF

---

C6 POS 1,2,3,4 vlv (four) - CL

---

C9 SEAT O2 vlv - OP  
 L SUIT fan - on **OFF**  
 R SUIT fan - on **OFF**

---

R10 MS AUD PWR - AUD TONE  
 A/G (two) - T/R  
 A/A - OFF  
 ICOM A - RCV  
 B - OFF  
 VOX SENS - as reqd  
 PAGE - dn  
 VOL tw (five) - as reqd  
 XMIT/ICOM MODE - PTT/PTT  
 MS LTG PNL - OFF  
 FLOOD (two) - OFF  
 BIOMED CH 1 - MS  
 2 - PS

R11: E DFI PCMMU - 1  
 :F FDM CNTL - DATA  
 MAN CALBR - DC O  
 :E WB ASC PWR - OFF  
 RCDR (two) - FWD CNTL, dn  
 :F cb DFI WB ASC EQUIP MNC - c1  
 RCDR MNC - c1  
 :E DFI WB MSN PWR - OFF  
 RCDR - FWD CNTL  
 :F cb DFI WB MSN EQUIP MNC - c1  
 RCDR MNC - c1  
 :G DFI PCM RCDR (two) - FWD CNTL, dn  
 PRESS XDCRS - AUTO  
 cb DFI PCM FWD CONT (five) - c1  
 :H DFI PCM CONT (nine) - ON  
 :G cb DFI ECLS SIG CONDOR (two) - c1  
 :H SEAT ACTR/SUIT FAN (four) - c1

R12U FC GPC PURGE SEQ - dn (tb-bp)  
 PURGE HTR - GPC  
 PURGE VLVs (three) - GPC  
 STARTUP HTR (three) - ENA  
 H2O LINE HTR - A AUTO  
 RELIEF HTR - A AUTO

R12L CRT4 PWR - OFF  
 MAJ FUNC - SM  
 ENCRYPTOR - NORM  
 MS AUD CNTL - NORM  
 SPLY H2O TKA INLET - ctr (tb-OP)

R11U: A cb DFI FREON PUMPS AC1 (three) - c1  
 :B DFI FREON PUMPS SEL - 1  
 :C ACIP HTR - ON  
 :A IECM - POS 2

NOT FOR FLIGHT

9-9

DATE 03/02/81

AFT FLIGHT DECK SWITCH LIST AT WHEELS STOP **EGRESS**

R12L SPLY H2O TKA OUTLET - ctr (tb-CL)  
 DUMP ISOL VLV - ctr (tb-CL)  
 DUMP VLV - ctr (tb-CL)  
 DUMP VLV ENA/NOZ HTR - OFF  
 TKB INLET - ctr (tb-OP)  
 OUTLET - ctr (tb-OP)  
 XOVR VLV - ctr (tb-OP) |  
 GALLEY SPLY VLV - ctr (tb-OP) |  
 TKC INLET - ctr (tb-OP) |  
 OUTLET - ctr (tb-OP) |  
 B SPLY ISOL VLV - ctr (tb-OP)

R15: A11 cb's closed except:  
 :C cb MNA KU B (three) - op  
 cb MNB KU A (three) - op  
 cb MNC KU SIG PROC - op  
 :D cb MNC TV KEEL/EVA CAMR/PAN-TILT - op  
 CAMR HTR - op  
 PAN-TILT HTR - op  
 :E cb MNB OS FLOOD PORT RMS TV CAMR/PAN TILT - op  
 CAMR HTR - op  
 PAN-TILT HTR - op  
 :F cb ESS IBC LDG GEAR ARM/DN RESET - op

R13U C/W TONE VOL (two) - as reqd  
 PARAM STATUS - ctr  
 MEM - ctr  
 LAMP TEST - ctr  
 PARAM SEL tw (three) - 120  
 dp/dt SNSR - CAB  
 LIMIT SET VALUE tw (three) - as reqd  
 LIMIT - as reqd  
 FUNC - ctr  
 PARAM - ctr

A1U SLEW AZM - ctr  
 ELEV - ctr  
 RATE - SLOW  
 SIG STRENGTH sel - S-BD PM  
 DISP/SLEW sel - OFF  
 KU A tb (three) - bp  
 KU A (two) - MAN SLEW, dn  
 KU A PWR - OFF  
 KU A MODE - COMM  
 RADAR OUTPUT - LO  
 KU CNTL - CMD  
 KU SIG PROC DATA - KU A  
 HDR - OFF  
 LDR - OFF  
 KU B tb (three) - bp  
 KU B (two) - MAN SLEW, dn  
 KU B PWR - OFF

R13L PL BAY MECH PWR (two) - OFF  
 DR - STOP (tb-CL)  
 RAD LAT CNTL (two) - OFF (tb-LAT)  
 CNTL (two) - OFF (tb-STO)  
 KU ANT (two) - GND (tb-bp)

NOT FOR FLIGHT

9-10

DATE 03/02/81

AFT FLIGHT DECK SWITCH LIST AT WHEELS STOP EGRESS

A1L	S-BD PL CNTL	- PNL	A1R	S-BD FM CNTL tb	- CMD CNTL
	ANT POLAR	- R CIRC		ANT	- GPC
	RCVR SENS	- LO		PWR	- 1
	XMTR PWR	- LO		DATA SOURCE	- OPS RCDR
	CH SEL tw (six)	- 000	PL RCDR	PNL CNTL tb	- bp
	FREQ SWEEP	- OFF		FUNC	- OPERATE
	MOD	- OFF		MODE	- SERIAL (tb-RCD)
	PWR SYS	- OFF		PWR	- ON
	PWR SEL	- BOTH		SPEED	- 1
	PSP CMD OUTPUT	- PL LMB	AUD CTR	VOICE RCD SEL CH 1	- A/G 1
PL DATA	INTLVR PWR	- OFF		CH 2	- ICOM A
S-BD PM	ANT SW ELEC	- 1		DOCK RING (seven)	- OFF
	PRE AMPL	- OFF		SL (seven)	- OFF
	PWR AMPL STBY	- OFF		UHF A/G (two)	- OFF
	OPER	- OFF		A/A	- T/R
	MODE	- STDN LO		PL BAY OUTLETS (two)	- OFF
	XPNDR	- 1			
	NSP DATA RATE (two)	- HI	A2	PTT sw	- ctr
	UPLK DATA	- S-BD		MIC LEVEL	- as reqd
	CODING (two)	- OFF	A4	MSN TIMER sel	- as reqd
	PWR	- 1	A3	MON 1 PWR	- OFF
	ENCRYPTOR PWR	- OFF		controls	- as reqd
	ENCRYPTION	- OFF		MON 2 PWR	- OFF
				controls	- as reqd
A1R	OPS RCDRS 1	PNL CNTL tb - bp	A6U	DAP	- off
		MODE - RCD (tb-as reqd)		SENSE	- as reqd
		2 PNL CNTL tb - bp		FLT CNTLR PWR	- OFF
		MODE - as reqd		DATA BUS	- 1
		rotary sw - MAN			
		PWR (two) - ON			
		ANOM SEQ - OFF (tb-bp)			

NOT FOR FLIGHT

9-11

DATE 03/02/81

AFT FLIGHT DECK SWITCH LIST AT WHEELS STOP EGRESS

A6U	ADI ATT	- INRTL	A7U	CAMR CMD FOCUS	- ctr
	ADI ERR	- MED		ZOOM	- ctr
	RATE	- MED		IRIS	- ctr
OS LTG FLOOD (two)		- OFF		TILT	- ctr
	PNL	- as reqd		PAN	- ctr
	INST	- OFF		ALC pb (three)	- lt off
	NUMERIC	- OFF		GAMMA pb (three)	- lt off
ANNUN BUS SEL		- OFF	A11	CRYO TK4 HTR O2 (two)	- OFF
LAMP TEST		- ctr		RESET/TEST	- ctr
INTEN (two)		- VAR, as reqd		H2 (two)	- OFF
EVENT TIMER tw (four)		- as reqd		MS COMM CCU PWR	- OFF
	MODE	- as reqd		OS COMM CCU PWR	- OFF
	CNTL	- ctr		DC UTIL PWR MNC	- OFF
	TIMER	- ctr	A12	APU HTR GAS GEN/FUEL PUMP (three)	- B AUTO
PL RETEN LAT		- ctr (tb-bp)		LUBE OIL LINE (three)	- B AUTO
	RDY tb (three)	- bp		TK/FU LINE H2O SYS (six)	- AUTO <u>OFF</u>
	PL SEL	- 1		LG ARM/DN RESET	- dn
A7U	MSTR ALARM pb	- 1t off		FC3 STRUCT RTN	- ctr (tb-ON)
	PL BAY FLOOD (eight)	- OFF		HYD HTR (eight)	- OFF
	RMS SPOT (two)	- OFF		CIRC PUMP PWR 1	- MNA
	CAMR (two)	- as reqd		2	- MNB
TV CAMR PWR (five)		- ctr (tb-OFF)		3	- MNC
	PWR CNTL	- CMD	A13	OS AUD PWR	- OFF <u>AUD TONE</u>
	CONTR UNIT	- OFF		A/G (two)	- T/R
	DNLK	- INH		A/A	- OFF
	SYNC	- NORM			
VID IN pb (thirteen)		- 1t off			
	OUT pb (eight)	- 1t off			
CAMR CMD PAN/TILT		- LO RATE			

NOT FOR FLIGHT

9-12

DATE 03/02/81

AFT FLIGHT DECK SWITCH LIST AT WHEELS STOP EGRESS

A13	OS AUD ICOM (two) A	- T/R	L9	PS AUD ICOM A	- T/R
	B	- as reqd		B	- as reqd
	VOX SENS	- as reqd		VOX SENS	- as reqd
	MSTR SPKR VOL	- as reqd		PAGE	- dn
	PAGE	- dn		PS AUD VOL tw (five)	- as reqd
	VOL tw (five)	- as reqd		XMIT/ICOM MODE	- PTT/PTT
	XMIT/ICOM MODE	- PTT/PTT	A14	RCS/OMS HTR FWD RCS	- OFF
	SPKR PWR	- SPKR/MIC		L POD (two)	- OFF
				R POD (two)	- OFF
A14	RCS/OMS HTR FWD RCS	- OFF		OMS KIT	- OFF
	L POD (two)	- OFF		CRSFD LINE A	- AUTO
	R POD (two)	- OFF		B	- AUTO
	OMS KIT	- OFF		FWD RCS JET 1,2,3,4 (four)	- AUTO
	CRSFD LINE A	- AUTO		5	- OFF
	B	- AUTO		AFT RCS JET 1,2,3,4 (four)	- AUTO
	FWD RCS JET 1,2,3,4 (four)	- AUTO		5	- OFF
	5	- OFF			
	AFT RCS JET 1,2,3,4 (four)	- AUTO			
	5	- OFF			
	PYRO (fourteen)	- SAFE	A15	PS COMM CCU PWR	- OFF
	RMS JETT DEADFACE	- dn		DC UTIL PWR MNC	- OFF
				AC UTIL PWR AC3	- OFF
A15	PS COMM CCU PWR	- OFF	L9	PS FLOOD (two)	- OFF, as reqd
	DC UTIL PWR MNC	- OFF		AUD PWR	- OFF
	AC UTIL PWR AC3	- OFF		A/G (two)	- T/R
				A/A	- OFF

NOT FOR FLIGHT

9-13

DATE 03/02/81

MIDDECK - FORWARD SWITCH LIST AT WHEELS STOP **EGRESS**

M042F MIDDECK SPKR AUD PWR - OFF |AUD/TONE|  
 A/G (two) - T/R  
 A/A - as reqd  
 ICOM (two) - T/R  
 VOX SENS - as reqd  
 MSTR SPKR VOL - OFF  
 PAGE - dn  
 VOL tw (five) - as reqd  
 XMIT/ICOM MODE - PTT/PTT  
 TONES - ACCU  
 SPKR PWR - OFF |SPKR|  
 GPC MEM DUMP - OFF  
 BYP TONE VOL - as reqd

M058F MIDDECK CCU AUD PWR - OFF  
 A/G (two) - T/R  
 A/A - OFF  
 ICOM A - T/R  
 B - OFF  
 VOX SENS - as reqd  
 PAGE - dn  
 VOL tw (five) - as reqd  
 XMIT/ICOM MODE - PTT/PIT  
 TV PWR - OFF

M032M POS 5,6 vlv (two) - CL

M039M MIDDECK COMM CCU PWR - OFF

M069M POS 7,8 vlv (two) - CL

M029J PTT sw - ctr

M029J MIC LEVEL - as reqd

M052J DC UTIL PWR MNA - OFF  
 AC UTIL PWR AC1 - OFF  
 MSTR ALARM pb - 1t off

M030F DC UTIL PWR MNC - OFF

ML86B: All cb's closed except:  
 :A cb MNA H2O LINE HTR A - op  
 :B GALLEY OVEN - op  
 :D All cb's open  
 :F cb MNA CRYO O2 HTR TK3 SNSR 1 - op  
 MNB CRYO O2 HTR TK3 SNSR 2 - op  
 TK4 SNSR 1 - op  
 MNC CRYO O2 HTR TK4 SNSR 2 - op  
 :G cb ESS IBC CRYO CNTLR O2 TK4 - op  
 H2 TK4 - op  
 QTY O2 TK4 - op  
 H2 TK4 - op  
 3AB CRYO CNTLR O2 TK3 - op  
 H2 TK3 - op  
 QTY O2 TK3 - op  
 H2 TK3 - op

M024K CONT H2O X-TIE ISOL VLV - CL  
 SPLY H2O TK F,E INLET vlv (two) - OP  
 OUTLET vlv (two) - OP

M044F CAB TEMP CNTL vlv - FULL COOL

NOT FOR FLIGHT

9-14

DATE 01/26/81

MIDDECK - AFT SWITCH LIST AT WHEELS STOP **EGRESS**

MA73C:A,B MCA LOGIC MNA (four) - ON  
 MNB (six) - ON  
 MNC (four) - ON

:C,D All cb's closed

:E thru G All cb's closed except:

:E cb AC2 PL 3# - op  
 AC3 PL 3# - op  
 :F cb AC1 RMS PRI #A - op  
 OPS INST HYD ACTR #C - op  
 AC2 RMS B/U #A - op  
 :G cb AC1 OMS KIT VLV #A - op  
 #B - op  
 #C - op  
 OMS KIT VLV LOGIC - OFF  
 AC2 OMS KIT VLV #A - op  
 #B - op  
 #C - op  
 AC3 GALLEY FAN #A - op  
 #B - op  
 #C - op  
 :I AFT POD VLV LOGIC (three) - ON

M013Q MIDDECK FLOODS (eight) - OFF  
 M013Q LTG - OFF  
 AIRLK 2 - OFF/ON  
 DC UTIL PWR MNB - OFF  
 AC UTIL PWR AC3 - OFF

ML18F EMER LTG - ON/OFF  
 MNC FLOOD - OFF

ML26C SPLY H2O TKA PRESS CNTL vlv - PRESS

ML31C WASTE H2O TK1 DRAIN VLV - ctr (tb-CL)  
 TK1 VLV - ctr (tb-OP)  
 DUMP ISOL VLV - ctr (tb-CL)  
 DUMP VLV - ctr (tb-bp)  
 DUMP VLV ENA/NOZ HTR - OFF  
 SPLY H2O TKD INLET - ctr (tb-OP)  
 OUTLET - ctr (tb-OP)  
 VAC VENT ISOL VLV MODE - MAN A  
 CNTL - ctr (tb-CL)  
 NOZ HTR - OFF

M010W 14.5 CAB REG INLET vlv (two) - CL  
 PPO2 CNTLR (two) - EMER  
 O2 REG INLET vlv (two) - OP  
 H2O TK N2 REG INLET vlv (two) - OP  
 O2 EMER vlv - OP  
 N2 XOVR vlv - CL  
 H2O TK N2 ISOL vlv (two) - OP  
 PL O2 vlv (two) - CL

WCS COMMODE CNTL - DN/OFF  
 MODE (two) - OFF, FECEs  
 VAC VLV - CL  
 FAN SEP - 1

NOT FOR FLIGHT

9-15

DATE 03/02/81

AIRLOCK SWITCH LIST AT WHEELS STOP **EGRESS**

AW18A LTG FLOOD 1,3,4 (three) - OFF  
 2 - ON/OFF

AW18D AIRLK AUD PWR - OFF  
 A/G (two) - T/R  
 A/A - OFF  
 ICOM A - T/R  
 B - OFF  
 PAGE - dn  
 VOL tw (five) - as reqd  
 CNTL - NORM  
 VOX SENS - as reqd  
 MSTR VOL 1 - as reqd  
 XMIT/ICOM MODE - PTT/PTT  
 MSTR VOL 2 - as reqd

AW18H PWR/BATT CHGR EMU 1 BUS SEL - OFF  
 MODE - OFF  
 2 BUS SEL - OFF  
 MODE - OFF  
 INPUT sel - EMU 1

AW82B AIRLK DEPRESS vlv - CL  
 EV-1, EV-2 O2 vlv (two) - CL

AW82D EMU 1 H2O (two) - ctr (tb-CL)  
 EMU 2 H2O (two) - ctr (tb-CL)  
 CCU 1,2 PWR (two) - OFF

NOT FOR FLIGHT

9-16

DATE 03/02/81  
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## ENTRY MONITORING

### √GUID

#### NOTE

Do NOT use PHUGOID DAMPER until D = 4  
(closed loop guidance active)

If  $|D-D_{cmd}| > 3 \text{ fps}^2$  - fly R/Y CSS to converge drag  
 If  $|\phi - \phi_C| > 5^\circ$  - fly R/Y CSS to control  $\phi$  to  $\phi_C$   
 If  $|\alpha - \alpha_C| > 1^\circ$  - fly P CSS to control  $\alpha$  to  $\alpha_C$

### MANEUVER RATE AND ATTITUDE LIMITS

- ROLL RATE (p)
  - $|p| < 60^\circ/\text{SEC}$  (M > 1.5)
  - $|p| < 20^\circ/\text{SEC}$  (M < 1.5) AUTO
  - $|p| < 27^\circ/\text{SEC}$  (M < 1.5) CSS
- PITCH RATE (q)
  - $|q| < 0.7^\circ/\text{SEC}$  (M > 23) AUTO
  - $|q| < 1.4^\circ/\text{SEC}$  (M < 23) AUTO
  - $|q| < 3^\circ/\text{SEC}$  (M > 2.5) CSS
  - $|q| < 10^\circ/\text{SEC}$  (M < 2.5) CSS
- YAW RATE (r)
  - $|r| < 6^\circ/\text{SEC}$  (M > 1.5)
- $\alpha$  - Maintain within limits per Cue Card
- $\beta$  - Maintain within 2 JET ' $\beta$  ESTIMATOR' capability
- Nz LIMITS  
 PITCH MANEUVERS
  - $-.3 \leq N_z \leq 2.0 \text{ g}$  (M < 5)
  - $+3 \leq N_z \leq 2.0 \text{ g}$  (M > 5)
 ABRUPT ROLL MANEUVER INITIATION
  - $.8 \leq N_z \leq 1.6 \text{ g}$
- $\dot{q}$  LIMITS
  - $\dot{q} < 300 \text{ psf}$  (M > 5)
  - $\dot{q} < 342 \text{ psf}$  (M  $\leq$  5)

## ENTRY FCS PROCEDURES

If controllability in doubt, confirm the following:

### CONTROL PROBLEM IDENTIFICATION

1. Fly CSS (P and R/Y)  
 AUTO (SB,BF)
2. √ $\delta_E$  on trim sched  
 √ $\delta_A$  trim < 3° sat  
 √ $\delta_R$  trim < 6° sat  
 √ $\delta_{SB}$  on sched  
 √ $\delta_{BF}$  not sat  
 √No surf osc  
 √No surf rate limiting
3. TRIM: Resid rates trimmed out  
 $\delta_A/\delta_R$  trimmed to prevent excessive RCS firing
4. TRAJECTORY:  $\alpha$  within  $\alpha$  - mod limits  
 $\dot{q}$  within 50 psf of nom  
 (no excess g-loads)
5. C/W: √RCS fail, low prplt, leaks  
 √HM (HM $\delta_E$  > 80% allowable)  
 APU failures  
 FCS sat (surf positions)

Control prob (e.g. R/Y osc) encountered in AUTO during mnvrs should diminish in CSS. If prob persists, the above checks should provide cues to the nature of off-nom response

The following procedures suggest actions for situations in which pilot intervention is desired:

## OFF-NOM CONTROL PROCEDURES

REGIME	PROBLEM	POTENTIAL ACTION
$\bar{q} < 2$ psf	Excessive pitch jet firings, slow AUTO $\delta_E$ /BF trim rate	BF - MANUAL P PNL TRIM - trim elevs in same direction as RCS activity lts Resel AUTO BF and retrim elevs to sched at $\bar{q} = 2$
M > 5	Off-nom R rates/ accel's during bank reversals ● Y jets fire other than roll reversal initiation ● $a_y$ tend toward sat ● Possible $\alpha$ bias	$\dot{\phi} > 6^\circ/\text{sec}$ : CSS - R/Y R at 5°/sec  $\dot{\phi} < 3^\circ/\text{sec}$ : CSS - R/Y Attempt R at 5°/sec, or within 2-jet capability (ADI scaled $a_y$ needle)

REGIME	PROBLEM	POTENTIAL ACTION
M < 7	Trends becoming evident for increasing $\delta_A$ trim and Y jets firings tending toward sat	<ul style="list-style-type: none"> <li>● Be alert for <math>\delta_A</math> reqd for trim to chg sign</li> <li>- Trim R PNL TRIM sw toward the most active Y RCS jet lt</li> <li>If lt activity increases and/or saturates, go back to orig trim</li> </ul> <p>Aero case either requires excessive AIL trim and/or opposite AIL trim not yet reqd</p> <ul style="list-style-type: none"> <li>- If jet lt activity decreases, continue R trimming 'toward the lt' as reqd to keep RCS from firing</li> <li>● Maintain dn <math>\delta_E</math> trim with BF and SB</li> </ul>
M 4-2	Assym R rates in CSS bank mnvrs; untrimmed resid rates	<ul style="list-style-type: none"> <li>- Trim out resid R rates with RHC rate trim to obtain symmetric R rates</li> <li>- Be alert to remove rate trim near M-1</li> </ul>

10-5

DATE 01/26/81

REGIME	PROBLEM	POTENTIAL ACTION
M < 3.5	R accel very poor or control reversal in CSS bank cmd, $\delta_A/\delta_R$ sat in same direction	<ul style="list-style-type: none"> <li>- Release R cmd, trim <math>\delta_A</math> to 0° with R PNL TRIM sw, and maintain while attempting reqd R cmds. <math>\delta_R</math> should retrim, and R control be regained.</li> <li>Decrease <math>\bar{q} &lt; 300</math>, maintain <math>\alpha &gt; 5^\circ</math></li> </ul>
M 4-3	Sluggish, poorly damped osc response to bank cmd; may tend toward R/Y divergence	<ul style="list-style-type: none"> <li>- If BF not sat, trim to drive <math>\delta_E</math> further down than <math>+5^\circ</math> (increase <math>\delta_A</math> effectiveness)</li> <li>- If BF sat, maintain 100%</li> <li>- Increase <math>\alpha \sim 2-3^\circ</math> (Hi <math>\bar{q}</math>, Lo <math>\alpha</math> most adverse)</li> <li>- If low freq R osc occur: R/Y - CSS/GAIN ENA R/Y GAIN sw - HI FWD</li> </ul>
M 2-0.9	High Elev HM	<ul style="list-style-type: none"> <li>- Watch HM trends with respect to AIL deflections</li> <li>- P trim w/BF if not sat to drive <math>\delta_E</math> away from HM sat</li> <li>- Reduce <math>\bar{q}</math> if nec</li> </ul>

10-6

DATE 01/26/81

**FCS DOWNMODING PROCEDURES**LOW FREQ OSC ( $\tau > 3$  sec), SLUGGISH ROLL RESPONSE

1. ROLL/YAW pb - GAIN ENA
2. GAIN R/Y - HI FWD  
ALPHA BIAS - NEG

HIGH FREQ or R/Y OSC ( $\tau < 3$  sec)

1. PITCH (ROLL/YAW) pb - GAIN ENA
2. GAIN P(R/Y) - LO FWD

BENDING INSTABILITY

1. PITCH, ROLL/YAW pb (two) - GAIN ENA  
GAIN P(R/Y) - LO FWD
2. If osc continue, momentarily  
CNTL EFF - NO AIL/RUD  
GAIN P - MIN FB
3. After osc stop  
CNTL EFF - NOM  
GAIN P - LO FWD
4. After flt conditions change, try reselecting nominal gains  
PITCH(ROLL/YAW) pb - GAIN ENA

ROLL RATE (SS) > 6 deg/sec DURING BANK REVERSAL,10 > M > 1.5 (ALPHA ERROR)

1. PITCH(ROLL/YAW) pb - CSS  
Maintain p < 6 deg/sec

NOTE

If p > 6 deg/sec, YJET opp  $\phi_c$ ,  
 $\Delta\beta$  opp  $\phi_c$ , then  $\alpha$  error

2. ROLL/YAW pb - GAIN ENA  
ALPHA BIAS - NEG
3. After  $\phi = \phi_c$ , return to CSS  
ROLL/YAW pb - GAIN ENA  
PITCH(ROLL/YAW) pb - as desired

10-7

DATE 01/26/81

LOW RCS FUEL (BELOW REDLINE)

1. After transition to MM304  
PITCH pb - AUTO  
ROLL/YAW pb - CSS
2. Maintain  $\phi = \phi_C + 30^\circ$
3. After reaching initial  $\phi_C$   
ROLL/YAW pb - GAIN ENA  
CNTL EFF - NO YJET
4. If sustained  $\phi_S$  oscillations  
ALPHA BIAS - POS
5. Fly in NO YJET mode to M5 or to point  
where  $\phi_S$  oscillations  $> \pm 5$  deg/sec, then

If SUFFICIENT fuel available,

6. Return to CSS  
ROLL/YAW pb - GAIN ENA

If INSUFFICIENT fuel to return to CSS, then

7. Continue to use NO YJET mode for  $\phi$  control
8. If roll divergence tendency (no  $\phi$  osc) with  
 $\delta_A$  Trim saturated ( $\sim 3$  deg)  
ALPHA BIAS - NEG
9. After  $\delta_R$  active (M 3.5), use  $\delta_R$  TRIM to stop  
roll tendency while attempting to zero  $\delta_A$  Trim
10. Use  $\delta_R$  as primary roll control. Try to  
avoid RHC roll inputs
11. M < 3.5, as hdg passes az to WPI, level wings  
and maintain to M < 1
12. At M  $\sim 3$   
PITCH pb - CSS  
Fly high side of  $\alpha$  corridor (cue card),  
 $\sim 200$  KEAS
13. M  $\sim 2$ , try selecting AILERON ROLL MODE:  
ENTRY R MODE - AIL  
ROLL/YAW pb - GAIN ENA  
If control not acceptable, return to NO YJET  
ROLL/YAW pb - GAIN ENA  
Repeat until acceptable control with  
AILERON ROLL MODE