

# Systems AOA Procedures

**Mission Operations Directorate  
Systems Division**

**Generic, Rev F  
May 15, 1998**

**NOTE**

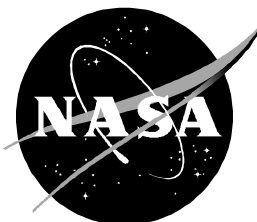
For flights flown subsequent to STS-91

**REPRINT**

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Houston, Texas



*United Space Alliance*



SYSTEMS AOA PROCEDURES

GENERIC, REV F (May 15, 1998)

## PCN-14 (Dec 5, 2001) Sheet 1 of 1

List of Implemented Change Requests (482s):

SYS AOA-191            MULTI-1567  
 SYS AOA-192

**NOTE**  
 For STS-109 and subsequent flights

Incorporate the following:

1. Replace iii & iv
2. Replace E2-3 & E2-4  
 Delete F2-3 & F2-4, G2-3 & G2-4  
 Replace E2-9 & E2-10  
 Delete F2-9 & F2-10, G2-9 & G2-10
3. Replace A3-1 & A3-2, B3-1 & B3-2, C3-1 & C3-2, D3-1 & D3-2, E3-1 & E3-2,  
 H3-1 & H3-2  
 Delete F3-1 & F3-2, G3-1 & G3-2
4. Replace 5-1 & 5-2
5. Replace E8-7 & E8-8  
 Delete F8-7 & F8-8, G8-7 & G8-8  
 Replace E8-11 & E8-12  
 Delete F8-11 & F8-12, G8-11 & G8-12
6. Replace D9-1 & D9-2, E9-1 & E9-2  
 Delete F9-1 & F9-2, G9-1 & G9-2
7. Replace 11-1 & 11-2

**Prepared by:** \_\_\_\_\_  
 Book Manager

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**Accepted by:** \_\_\_\_\_  
 FDF Subsystem Manager (NASA)

Encl: 30 pages

**Verify this is the correct version for the pending operation (training, simulation or flight).**  
 Electronic copies of FDF books are available. URL: <http://fltproc.jsc.nasa.gov/fdf>

**File this PCN immediately behind the front cover as a permanent record**

MISSION OPERATIONS DIRECTORATE

**SYSTEMS ABORT-ONCE-AROUND PROCEDURES**

GENERIC, REVISION F  
May 15, 1998

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Incorporates the following:	
482#:	SYS AOA-159 SYS AOA-160

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DO3/D. Floyd	483-1960
Loss of 2 Freon Loops (AOA)	DF7/C. Sweitzer	483-6355
Loss of 2 H2O Loops (AOA)	DF7/C. Sweitzer	483-6355

SYSTEMS AOA PROCEDURES

**LIST OF EFFECTIVE PAGES**

GENERIC	06/16/88	PCN-5	09/29/99	PCN-11	01/24/01
REV F	05/15/98	PCN-6	12/10/99	PCN-12	05/10/01
PCN-1	07/17/98	PCN-7	03/23/00	PCN-13	08/29/01
PCN-2	02/01/99	PCN-8	07/19/00	PCN-14	12/05/01
PCN-3	02/25/99	PCN-9	09/13/00		
PCN-4	08/13/99	PCN-10	11/27/00		

Sign Off	* ALL/GEN F	E2-9	110/GEN F,14
ii	* ALL/GEN F	E2-10	ALL/GEN F,14
iii	* ALL/GEN F,14	F2-9	deleted
iv	* ALL/GEN F,14	F2-10	deleted
v	ALL/GEN F	G2-9	deleted
vi	ALL/GEN F	G2-10	deleted
1-1	ALL/GEN F,10	H2-9	104/GEN F,12
1-2	ALL/GEN F	H2-10	ALL/GEN F,12
1-3	ALL/GEN F	A3-1	NOM/GEN F,14
1-4	ALL/GEN F	A3-2	105/GEN F,12
A2-1	MEDS/GEN F,6	B3-1	MEDS/GEN F,14
A2-2	ALL/GEN F,7	B3-2	107/GEN F,13
B2-1	NOM/GEN F,6	C3-1	MEDS/GEN F,14
B2-2	ALL/GEN F,7	C3-2	109/GEN F,13
A2-3	105/GEN F,12	D3-1	NOM/GEN F,14
A2-4	105/GEN F,12	D3-2	108/GEN F,13
B2-3	107/GEN F,13	E3-1	MEDS/GEN F,14
B2-4	107/GEN F,13	E3-2	110/GEN F,14
C2-3	109/GEN F,13	F3-1	deleted
C2-4	109/GEN F,13	F3-2	deleted
D2-3	108/GEN F,13	G3-1	deleted
D2-4	108/GEN F,13	G3-2	deleted
E2-3	110/GEN F,14	H3-1	MEDS/GEN F,14
E2-4	110/GEN F,14	H3-2	104/GEN F,12
F2-3	deleted	3-3	ALL/GEN F
F2-4	deleted	3-4	ALL/GEN F
G2-3	deleted	A3-5	MEDS/GEN F,1
G2-4	deleted	A3-6	MEDS/GEN F,13
H2-3	104/GEN F,12	B3-5	NOM/GEN F,1
H2-4	104/GEN F,12	B3-6	NOM/GEN F,13
A2-5	MEDS/GEN F,1	A4-1	MEDS/GEN F,10
A2-6	ALL/GEN F,8	A4-2	ALL/GEN F,1
B2-5	NOM/GEN F,1	B4-1	NOM/GEN F,10
B2-6	ALL/GEN F,8	B4-2	ALL/GEN F,1
2-7	ALL/GEN F,12	5-1	ALL/GEN F,14
2-8	ALL/GEN F	5-2	ALL/GEN F,14
A2-9	105/GEN F,12	6-1	ALL/GEN F
A2-10	ALL/GEN F,12	6-2	ALL/GEN F
B2-9	107/GEN F,13	6-3	ALL/GEN F
B2-10	ALL/GEN F,13	6-4	ALL/GEN F
C2-9	109/GEN F,13	7-1	ALL/GEN F,10
C2-10	ALL/GEN F,13	7-2	ALL/GEN F
D2-9	108/GEN F,13	TEMP 7-1	109/GEN F,13
D2-10	ALL/GEN F,13	TEMP 7-2	ALL/GEN F,13

\* - Omit from flight book

7-3 .....	ALL/GEN F	D9-1 .....	108/GEN F,13
7-4 .....	ALL/GEN F	D9-2 .....	ALL/GEN F,14
A8-1 .....	MEDS/GEN F,2	E9-1 .....	110/GEN F,14
A8-2 .....	ALL/GEN F,1	E9-2 .....	ALL/GEN F,14
A8-3 .....	MEDS/GEN F,2	F9-1 .....	deleted
A8-4 .....	MEDS/GEN F,1	F9-2 .....	deleted
A8-5 .....	ALL/GEN F,3	G9-1 .....	deleted
A8-6 .....	MEDS/GEN F,1	G9-2 .....	deleted
B8-1 .....	NOM/GEN F,2	H9-1 .....	104/GEN F,12
B8-2 .....	ALL/GEN F,1	H9-2 .....	ALL/GEN F,12
B8-3 .....	NOM/GEN F,2	9-3 .....	ALL/GEN F
B8-4 .....	NOM/GEN F,1	9-4 .....	ALL/GEN F
B8-5 .....	ALL/GEN F,3	A9-5 .....	ALL/GEN F,1
B8-6 .....	NOM/GEN F,1	A9-6 .....	MEDS/GEN F,1
A8-7 .....	NOM/GEN F,12	A9-7 .....	MEDS/GEN F,1
A8-8 .....	105/GEN F,12	A9-8 .....	MEDS/GEN F,9
B8-7 .....	MEDS/GEN F,13	B9-5 .....	ALL/GEN F,1
B8-8 .....	107/GEN F,13	B9-6 .....	NOM/GEN F,1
C8-7 .....	MEDS/GEN F,13	B9-7 .....	NOM/GEN F,1
C8-8 .....	109/GEN F,13	B9-8 .....	NOM/GEN F,9
D8-7 .....	NOM/GEN F,13	A10-1 .....	MEDS/GEN F,10
D8-8 .....	108/GEN F,13	A10-2 .....	ALL/GEN F,1
E8-7 .....	MEDS/GEN F,14	B10-1 .....	NOM/GEN F,10
E8-8 .....	110/GEN F,14	B10-2 .....	ALL/GEN F,1
F8-7 .....	deleted	11-1 .....	ALL/GEN F,14
F8-8 .....	deleted	11-2 .....	ALL/GEN F
G8-7 .....	deleted	12-1 .....	ALL/GEN F,2
G8-8 .....	deleted	12-2 .....	ALL/GEN F
H8-7 .....	MEDS/GEN F,12	12-3 .....	ALL/GEN F
H8-8 .....	104/GEN F,12	12-4 .....	ALL/GEN F
8-9 .....	ALL/GEN F		
8-10 .....	ALL/GEN F,4		
A8-11 .....	105/GEN F,12		
A8-12 .....	ALL/GEN F,12		
B8-11 .....	107/GEN F,13		
B8-12 .....	ALL/GEN F,13		
C8-11 .....	109/GEN F,13		
C8-12 .....	ALL/GEN F,13		
D8-11 .....	108/GEN F,13		
D8-12 .....	ALL/GEN F,13		
E8-11 .....	110/GEN F,14		
E8-12 .....	ALL/GEN F,14		
F8-11 .....	deleted		
F8-12 .....	deleted		
G8-11 .....	deleted		
G8-12 .....	deleted		
H8-11 .....	104/GEN F,12		
H8-12 .....	ALL/GEN F,12		
A9-1 .....	105/GEN F,12		
A9-2 .....	ALL/GEN F,12		
B9-1 .....	107/GEN F,13		
B9-2 .....	ALL/GEN F,13		
C9-1 .....	109/GEN F,13		
C9-2 .....	ALL/GEN F,13		

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## LOSS OF 2 FREON LOOPS (AOA) STAND-ALONE PROCEDURES

### IMMEDIATE AOA DEORBIT BURN STEPS

2 FREON  
LOOPS (AOA)

If time to AOA TIG greater than 15 min, proceed to next page, 1-2

If time to AOA TIG less than 15 min, perform the following:

1. FC PURGE HTR – ON  
VLVS (three) – OP
2. In MM105 select any AOA I\_TGT (3-12) to set AOA flag; but do not load until OPS 3
3. OPS 301 PRO; 302 PRO; PASS, BFS I/O RESET
4. Have MS perform MS OVHD & AFT PNL PWRDN (MS OVHD, AFT PNL PWRDN), 5-1
5. Have another MS perform COMM PWRDN (COMM), 6-1
6. GNC 50 ✓LDG site: ITEM 41 + \_\_\_  
1 = KSC 15/33  
24 = NOR 17/23  
25 = EDW 22/04
7. ✓Or enter target from OMS TARGETS, AOA PADS, COMM COVERAGE, LAND SITES (ASC, OMS TGTS and AOA PADS), or MCC
8. LOAD TGTs

#### NOTE

If < 6 min to TIG, manual mnvr may be reqd

9. MNVR TO ATT: MNVR – ITEM 27 EXEC
10. Fill-in AOA DEORBIT BURN CARDS from AOA DEL PAD (ASC)
11. CDR/PLT: Perform CDR AND PLT PWRDNS (CDR/PLT PWRDNS), 2-1, as time permits
12. Perform AOA DEORBIT BURN (DEORBIT BURN), 2-7
13. POST BURN: Go to CDR AND PLT PWRDNS (CDR/PLT PWRDNS), 2-1; execute steps not yet performed, and catch up to AOA timeline of this procedure

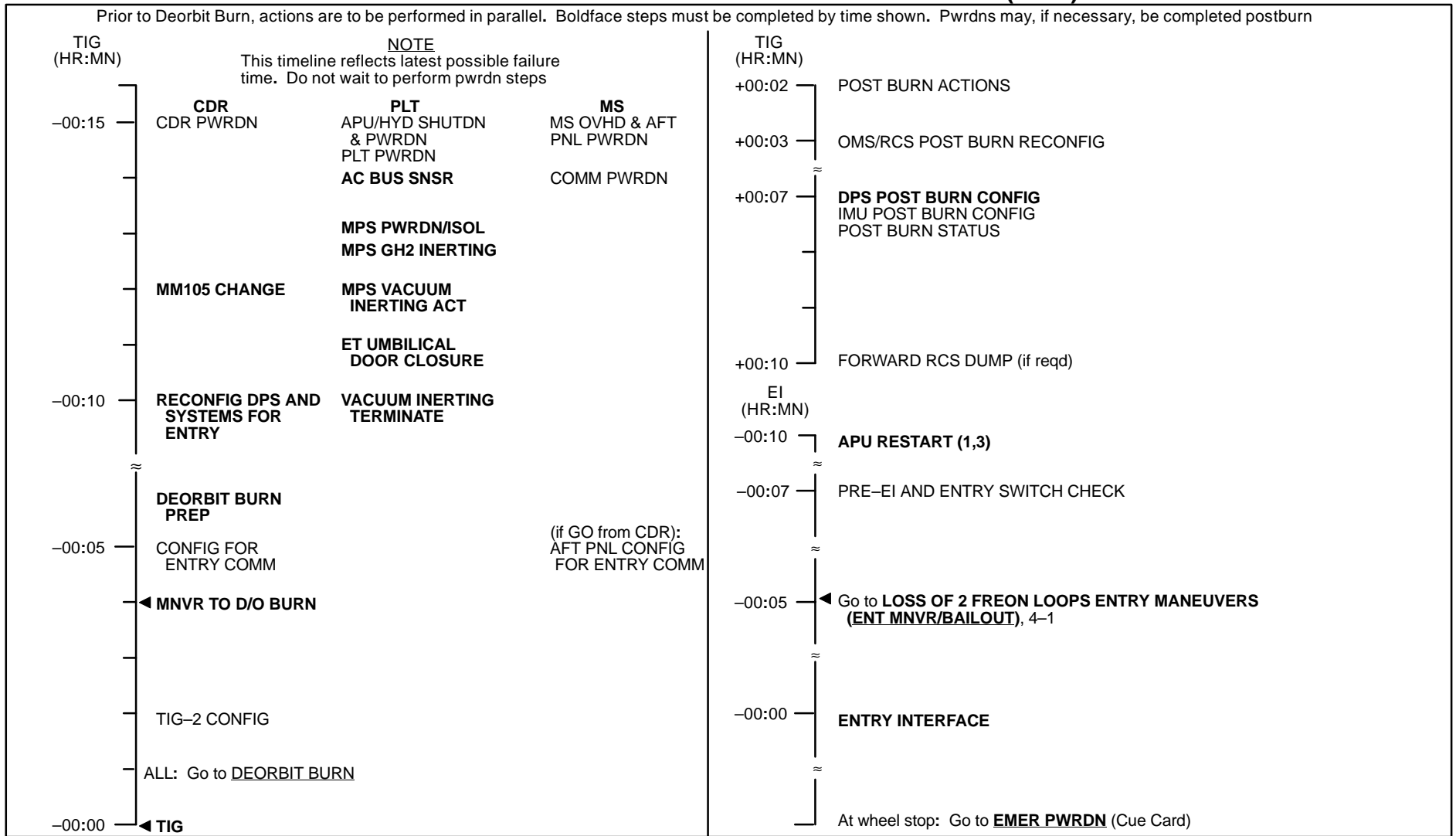
NOTES

- Fuel Cell flooding and excessive stack temperatures caused by loss of cooling are of primary concern. Begin Fuel Cell Purge ASAP, MS OVHD & AFT PNL PWRDN (MS OVHD,AFT PNL PWRDN), 5-1
- Procedure is zero-fault tolerant and assumes no other failures. Actions taken for previous failures should be integrated carefully with this procedure
- Perform pwrdn in parallel ASAP after failure. The Summary Timeline, 1-3, is provided as an overview showing latest completion times for pwrdn procedures
- This procedure pwrs dn comm. If comm reqd, preferred comm config (in order of least heat production):
  1. UHF
  2. STDN LO PWR – If reqd
  3. TDRS – Only if mandatory

CAUTION

TDRS or STDN – HI may be limited to 10 min (pwr amp will overheat)

## SUMMARY TIMELINE FOR LOSS OF 2 FREON LOOPS (AOA) PWRDN



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**CDR AND PLT PWRDNS  
TIME CRITICAL PROCEDURES**

1. MS perform MS OVHD & AFT PNL PWRDN, 5-1, ASAP (✓Fuel Cell Purge)
2. MS perform COMM PWRDN (COMM), 6-1, ASAP
3. Perform CDR AND PLT PWRDNS in parallel ASAP

**CDR**

**PLT**

**NOTE**

**Time reqd to execute deorbit burn  
using these procedures is 15 min**

**CDR PWRDN**

- |    |   |
|----|---|
| C3 | 1. MSTR MADS PWR – OFF, use only one IDP/CRT with two MDUs, one FLT CNTLR PWR as reqd<br>✓DAP: AUTO   |
| L1 | 2. Minimize Itg<br>3. HUM SEP (two) – OFF<br>✓IMU FAN B – ON<br>✓A,C (two) – OFF<br>✓H2O PUMP LOOP 1 – OFF<br>✓2 – ON<br>✓CAB TEMP CNTLR – OFF<br>✓FAN (two) – OFF<br>✓AV BAY 1 FAN B – ON<br>✓2,3 FAN (four) – OFF<br>FREON PUMP LOOP (two) – OFF<br>(one – ON, if any flow)<br>✓RAD CNTLR LOOP (two) – OFF<br>✓NH3 CNTLR (two) – OFF<br>If no FREON PUMPS ON, then:<br>FLASH EVAP CNTLR PRI (two) – OFF<br>TOP EVAP HTR NOZ (two) – OFF<br>DUCT sel – OFF<br>HI LOAD DUCT HTR sel – OFF<br>FLASH EVAP FDLN HTR SPLY (two) – OFF<br>If one FREON PUMP ON, then:<br>FLASH EVAP CNTLR PRI A – ON<br>TOP EVAP HTR NOZ (two) – OFF<br>✓DUCT sel – ON |
| L2 | FLASH EVAP FDLN HTR B SPLY – OFF  |

**APU/HYD SHUTDN AND PWRDN**

- |    |  |
|----|--|
| F4 | 1. If MPS dump <u>not</u> complete: Perform PLT PWRDN then APU/HYD SHUTDN when MPS dump complete<br>If MPS dump complete: continue   |
| R4 | 2. ✓BDY FLP pb – It off (dump complete) (~2 min)   |
| R2 | 3. ✓HYD MPS/TVC ISOL VLV SYS (three) – CL<br>4. ✓APU AUTO SHUTDN (three) – ENA<br>BLR PWR (three) – OFF<br>APU OPER (three) – OFF<br>FUEL TK VLV (three) – CL<br>CNTLR PWR (three) – OFF<br>BLR N2 SPLY (three) – OFF<br>CNTLR/HTR (three) – OFF |

**PLT PWRDN**

- |    |  |
|----|--|
| C3 | 1. Use only one IDP/CRT with two MDUs, one FLT CNTLR PWR as reqd<br>✓DAP: AUTO   |
| O7 | 2. Minimize Itg  |
| O8 | 3. Perform PL PWRDN (ASC PKT, <u>PWRDN</u> )<br>4. AFT L,R RCS MANF ISOL 1,4 (four) – CL (tb-CL)<br>TACAN MODE sel (three) – OFF |
| C3 | 5. RADAR ALTM (two) – OFF<br>FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb-CL)   |
| R4 | 6. ✓FCS CH (four) – AUTO<br>7. ✓MPS ENG CNTLR HTR (three) – OFF  |

**AC BUS SNSR**

- |    |   |
|----|---|
| R1 | AC BUS SNSR (three) – OFF<br>(1 sec) then AUTO TRIP |
|----|---|

**MEDS**

SYS AOA/MEDS/GEN F,6

CDR

PLT

- L2 4. ANTISKID – OFF  
NWS – OFF  
O2 SYS 1,2 SPLY (two) – OP (tb–OP)

- C3 5. BFC CRT DISP – OFF

**GNC 0 GPC MEMORY**

6. Restraining to GPC 1  
CONFIG – ITEM 1 +1 EXEC

Modify MC1 per →  
CONFIG – ITEM 1 +3 EXEC  
Modify MC3 per →

CONFIG GPC	1 12340	3 10000
STR 1	1	1
2	1	1
3	1	1
4	1	1
PL 1/2	1	1
CRT 1	1	1
2	1	1
3	1	1
4	0	0
L 1	1	0
2	1	0
MM 1	1	1
2	1	1

NOTE  
The following must be  
an OPS mode recall:

GNC, OPS 10X PRO  
For any CRT that is OFF:  
GPC/CRT1/X EXEC

- O6 7. GPC MODE 2,3,4 (three) – STBY (tb–bp)  
– HALT  
– STBY (tb–RUN)  
– HALT (tb–bp)

PWR 2,3,4 (three) – OFF  
BFS GNC, OPS 105 PRO  
106 PRO  
000 PRO  
GPC MODE 5 – STBY (tb–RUN)  
– HALT (tb–bp)

- OUTPUT 5 – NORM  
PWR 5 – OFF  
8. MDM FF 1,4 (two) – OFF  
FA 1,4 (two) – OFF

**MPS PWRDN/ISOL**

- R2 1. MPS ENG PWR L (two) – OFF  
CTR (two) – OFF  
R (two) – OFF  
He ISOL (six) – CL  
PNEU L ENG He XOVR – CL  
✓He I'CONNECT (three) – GPC

NOTE  
Expect multiple MAs for MPS He P  
as regs bleed dn

- R4 2. MPS MANF PRESS (two) – CL  
O17:B 3. EIU (three) – OFF  
:D 4. MEC 1 – OFF, wait 2 sec, then  
2 – OFF

**MPS GH2 INERTING**

- R4 1. MPS H2 PRESS LINE VENT – OP  
(Start watch)  
After 1 min:  
2. MPS H2 PRESS LINE VENT – GND

**MPS VACUUM INERTING ACT (✓MCC)**

- If not reqd:  
R2 1. MPS PNEU He ISOL – CL  
If reqd:  
R4 2. ✓MPS PNEU He ISOL – OP  
3. FILL/DRAIN LO2,LH2 (four) – CL  
Wait 15 sec, then  
4. MPS FILL/DRAIN LO2,LH2 (four) – OP  
Wait 15 sec  
5. MPS FILL/DRAIN LO2,LH2 (four) – GND  
R2 6. PNEU He ISOL – CL

**CDR AND PLT PWRDNS  
TIME CRITICAL PROCEDURES**

1. MS perform MS OVHD & AFT PNL PWRDN, 5-1, ASAP (✓Fuel Cell Purge)
2. MS perform COMM PWRDN (COMM), 6-1, ASAP
3. Perform CDR AND PLT PWRDNS in parallel ASAP

**CDR**

**PLT**

- NOTE**  
Time reqd to execute deorbit burn using these procedures is 15 min
- CDR PWRDN**
- C3 1. MSTR MADS PWR – OFF, use only one CRT, one FLT CNTLR PWR, one INST PWR as reqd  
✓DAP: AUTO
- L1 2. Minimize Itg  
3. HUM SEP (two) – OFF  
✓IMU FAN B – ON  
    ✓A,C (two) – OFF  
✓H2O PUMP LOOP 1 – OFF  
    ✓2 – ON  
✓CAB TEMP CNTLR – OFF  
    ✓FAN (two) – OFF  
✓AV BAY 1 FAN B – ON  
    ✓2,3 FAN (four) – OFF  
FREON PUMP LOOP (two) – OFF  
    (one – ON, if any flow)  
✓RAD CNTLR LOOP (two) – OFF  
✓NH3 CNTLR (two) – OFF  
If no FREON PUMPS ON, then:  
    FLASH EVAP CNTLR PRI (two) – OFF  
    TOP EVAP HTR NOZ (two) – OFF  
        DUCT sel – OFF  
    HI LOAD DUCT HTR sel – OFF  
L2 FLASH EVAP FDLN HTR SPLY (two) – OFF  
If one FREON PUMP ON, then:  
L1 FLASH EVAP CNTLR PRI A – ON  
    TOP EVAP HTR NOZ (two) – OFF  
        ✓DUCT sel – ON  
L2 FLASH EVAP FDLN HTR B SPLY – OFF

**APU/HYD SHUTDN AND PWRDN**

1. If MPS dump not complete: Perform PLT PWRDN then APU/HYD SHUTDN when MPS dump complete  
If MPS dump complete: continue
- F4 2. ✓BDY FLP pb – It off (dump complete) (~2 min)
- F4 3. ✓HYD MPS/TVC ISOL VLV SYS (three) – CL
- R2 4. ✓APU AUTO SHUTDN (three) – ENA  
BLR PWR (three) – OFF  
APU OPER (three) – OFF  
FUEL TK VLV (three) – CL  
CNTLR PWR (three) – OFF  
BLR N2 SPLY (three) – OFF  
CNTLR/HTR (three) – OFF

**PLT PWRDN**

1. Use only one CRT, one FLT CNTLR PWR, one INST PWR as reqd
- C3 ✓DAP: AUTO
- 07 2. Minimize Itg  
3. Perform PL PWRDN (ASC PKT, PWRDN)
- 08 4. AFT L,R RCS MANF ISOL 1,4 (four) – CL (tb-CL)  
TACAN MODE sel (three) – OFF
5. RADAR ALTM (two) – OFF  
FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb-CL)
- C3 6. ✓FCS CH (four) – AUTO
- R4 7. ✓MPS ENG CNTLR HTR (three) – OFF

**AC BUS SNSR**

- R1 AC BUS SNSR (three) – OFF  
(1 sec) then AUTO TRIP

**NOM**

SYS AOA/NOM/GEN F,6

CDR

PLT

- L2 4. ANTISKID – OFF  
NWS – OFF  
O2 SYS 1,2 SPLY (two) – OP (tb–OP)

- C3 5. BFC CRT DISP – OFF

**GNC 0 GPC MEMORY**

6. Restrting to GPC 1  
CONFIG – ITEM 1 +1 EXEC

Modify MC1 per →  
CONFIG – ITEM 1 +3 EXEC  
Modify MC3 per →

CONFIG GPC	1 12340	3 10000
STR 1	1	1
2	1	1
3	1	1
4	1	1
PL 1/2	1	1
CRT 1	1	1
2	1	1
3	1	1
4	0	0
L 1	1	0
2	1	0
MM 1	1	1
2	1	1

NOTE  
The following must be  
an OPS mode recall:

GNC, OPS 10X PRO  
For any CRT that is OFF:  
GPC/CRT1/X EXEC

- O6 7. GPC MODE 2,3,4 (three) – STBY (tb–bp)  
– HALT  
– STBY (tb–RUN)  
– HALT (tb–bp)

PWR 2,3,4 (three) – OFF  
BFS GNC, OPS 105 PRO  
106 PRO  
000 PRO  
GPC MODE 5 – STBY (tb–RUN)  
– HALT (tb–bp)

- OUTPUT 5 – NORM  
PWR 5 – OFF  
8. MDM FF 1,4 (two) – OFF  
FA 1,4 (two) – OFF

**MPS PWRDN/ISOL**

- R2 1. MPS ENG PWR L (two) – OFF  
CTR (two) – OFF  
R (two) – OFF  
He ISOL (six) – CL  
PNEU L ENG He XOVR – CL  
✓He I'CONNECT (three) – GPC

NOTE  
Expect multiple MAs for MPS He P  
as regs bleed dn

- R4 2. MPS MANF PRESS (two) – CL  
O17:B 3. EIU (three) – OFF  
:D 4. MEC 1 – OFF, wait 2 sec, then  
2 – OFF

**MPS GH2 INERTING**

- R4 1. MPS H2 PRESS LINE VENT – OP  
(Start watch)  
After 1 min:  
2. MPS H2 PRESS LINE VENT – GND

**MPS VACUUM INERTING ACT (✓MCC)**

- If not reqd:  
R2 1. MPS PNEU He ISOL – CL  
If reqd:  
R4 2. ✓MPS PNEU He ISOL – OP  
3. FILL/DRAIN LO2,LH2 (four) – CL  
Wait 15 sec, then  
4. MPS FILL/DRAIN LO2,LH2 (four) – OP  
Wait 15 sec  
5. MPS FILL/DRAIN LO2,LH2 (four) – GND  
R2 6. PNEU He ISOL – CL



## CDR

9. **GNC 51 OVERRIDE**  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 CRT 10. CDR disp – green dot
11. L,R OMS – sel SEC GMBL

### MM105 CHANGE

- CRT 1. GNC, OPS 105 PRO
- C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards
- C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

### RECONFIG DPS AND SYSTEMS FOR ENTRY

1. Select any AOA I\_TGT (3–12) to set AOA flag, but do not LOAD until OPS 3

#### NOTE

Manually entered tgt data will be carried over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

2. ✓G3 NBAT – ALL STRINGS TO GPC 1
3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- L1 4. IMU FAN (three) – OFF
- C3 5. ✓FCS CH (four) – AUTO
- MS/O14:F, 6. ✓ASA 1,4 – OFF
- O15:F, 7. ✓2,3 – ON
- O16:F
- CRT 8. GNC, OPS 301 PRO (✓DAP)
- MS/O15:F 9. MMU 2 – OFF
10. ASA 2 – OFF
- MS/O16:F 11. 3 – OFF

## PLT

### ET UMBILICAL DOOR CLOSURE

#### WARNING

ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

#### NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

### DFD CONFIG

- R3A C1 Post MM105:  
Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6

GNC 50 HORIZ SIT

## AOA RWY OPTIONS

ALL INCLINATIONS				
SITE	RWY	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6
24	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6
25	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

† MSBLS Jr. Channel 8 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

- L1
12. ✓RWY selection
  13. CAB FAN A – ON

## DEORBIT BURN PREP

1. GNC, OPS 302 PRO  
GNC DEORB MNVR EXEC
2. TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

## DEORBIT BURN PREP

- O8
1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)

## CDR

9. **GNC 51 OVERRIDE**  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 CRT 10. CDR disp – green dot
11. L,R OMS – sel SEC GMBL

### MM105 CHANGE

- CRT 1. GNC, OPS 105 PRO
- C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards
- C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

### RECONFIG DPS AND SYSTEMS FOR ENTRY

1. Select any AOA I\_TGT (3–12) to set AOA flag, but do not LOAD until OPS 3

#### NOTE

Manually entered tgt data will be carried over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

2. ✓G3 NBAT – ALL STRINGS TO GPC 1
3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- L1 4. IMU FAN (three) – OFF
- C3 5. ✓FCS CH (four) – AUTO
- MS/O14:F, 6. ✓ASA 1,4 – OFF
- O15:F, 7. ✓2,3 – ON
- O16:F
- CRT 8. GNC, OPS 301 PRO (✓DAP)
- MS/O15:F 9. MMU 2 – OFF
10. ASA 2 – OFF
- MS/O16:F 11. 3 – OFF

## PLT

### ET UMBILICAL DOOR CLOSURE

#### WARNING

ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

#### NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

### DFD CONFIG

- R3A C1 Post MM105:  
Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6

GNC 50 HORIZ SIT

AOA RWY OPTIONS

ALL INCLINATIONS				
SITE	RWY	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6
24	NOR 17 NOR 23	SNG 121Y	HMN 92	# #
25	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

# MSBLS Jr. Channel 6 – Requires Uplink

† MSBLS Jr. Channel 8 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

12. ✓RWY selection

L1 13. CAB FAN A – ON

DEORBIT BURN PREP

1. GNC, OPS 302 PRO

GNC DEORB MNVR EXEC

2. TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

DEORBIT BURN PREP

O8

1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)

## CDR

9. **GNC 51 OVERRIDE**  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 CRT 10. CDR disp – green dot
11. L,R OMS – sel SEC GMBL

### MM105 CHANGE

- CRT 1. GNC, OPS 105 PRO
- C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards
- C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

### RECONFIG DPS AND SYSTEMS FOR ENTRY

1. Select any AOA I\_TGT (3–12) to set AOA flag, but do not LOAD until OPS 3

#### NOTE

Manually entered tgt data will be carried over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

2. ✓G3 NBAT – ALL STRINGS TO GPC 1
3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- L1 4. IMU FAN (three) – OFF
- C3 5. ✓FCS CH (four) – AUTO
- MS/O14:F, 6. ✓ASA 1,4 – OFF
- O15:F, 7. ✓2,3 – ON
- O16:F
- CRT 8. GNC, OPS 301 PRO (✓DAP)
- MS/O15:F 9. MMU 2 – OFF
10. ASA 2 – OFF
- MS/O16:F 11. 3 – OFF

## PLT

### ET UMBILICAL DOOR CLOSURE

#### WARNING

ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

#### NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

### DFD CONFIG

- R3A C1 Post MM105:  
Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6

GNC 50 HORIZ SIT

**AOA RWY OPTIONS**

28.45° to 30.9° INCLINATION				
SITE	RWY	TACANS	ITEM 5	MLS
22	EDW 15 EDW 33	EDW 111	LHS 21	6 #
25	KSC 15 KSC 33	COF97	LAL 107	8 6
20	NOR 17 NOR 23	SNG121Y	HMN 92	6 6

# MSBLS Jr. Channel 6 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

- L1
- 12. ✓RWY selection
  - 13. CAB FAN A – ON

**DEORBIT BURN PREP**

- 1. GNC, OPS 302 PRO  
GNC DEORB MNVR EXEC
- 2. TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

**DEORBIT BURN PREP**

- O8
- 1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)

**CDR**

**PLT**

- 9. GNC 51 OVERRIDE  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 CRT 10. CDR disp – green dot
- 11. L,R OMS – sel SEC GMBL

**MM105 CHANGE**

- CRT 1. GNC, OPS 105 PRO
- C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards
- C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

**RECONFIG DPS AND SYSTEMS FOR ENTRY**

- 1. Select any AOA I\_TGT (3–12) to set AOA flag, but do not LOAD until OPS 3

NOTE

Manually entered tgt data will be carried over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

- 2. ✓G3 NBAT – ALL STRINGS TO GPC 1
- 3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- L1 4. IMU FAN (three) – OFF
- C3 5. ✓FCS CH (four) – AUTO
- MS/O14:F 6. ✓ASA 1,4 – OFF
- O15:F 7. ✓2,3 – ON
- O16:F
- CRT 8. GNC, OPS 301 PRO (✓DAP)
- MS/O15:F 9. MMU 2 – OFF
- 10. ASA 2 – OFF
- MS/O16:F 11. 3 – OFF

**ET UMBILICAL DOOR CLOSURE**

WARNING  
ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

**DFD CONFIG**

- Post MM105:  
Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6
- R3A C1

GNC 50 HORIZ SIT

## AOA RWY OPTIONS

ALL INCLINATIONS				
SITE	RWY	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6
24	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6
25	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

† MSBLS Jr. Channel 8 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

- L1 12. ✓RWY selection  
13. CAB FAN A – ON

## DEORBIT BURN PREP

- GNC, OPS 302 PRO  
GNC DEORB MNVR EXEC
- TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

## DEORBIT BURN PREP

- O8 1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)



## CDR

9. **GNC 51 OVERRIDE**  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 CRT 10. CDR disp – green dot
11. L,R OMS – sel SEC GMBL

### MM105 CHANGE

- CRT 1. GNC, OPS 105 PRO
- C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards
- C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

### RECONFIG DPS AND SYSTEMS FOR ENTRY

1. Select any AOA I\_TGT (3–12) to set AOA flag, but do not LOAD until OPS 3

#### NOTE

Manually entered tgt data will be carried over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

2. ✓G3 NBAT – ALL STRINGS TO GPC 1
3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- L1 4. IMU FAN (three) – OFF
- C3 5. ✓FCS CH (four) – AUTO
- MS/O14:F, 6. ✓ASA 1,4 – OFF
- O15:F, 7. ✓2,3 – ON
- O16:F
- CRT 8. GNC, OPS 301 PRO (✓DAP)
- MS/O15:F 9. MMU 2 – OFF
10. ASA 2 – OFF
- MS/O16:F 11. 3 – OFF

## PLT

### ET UMBILICAL DOOR CLOSURE

#### WARNING

ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

#### NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

### FDf CONFIG

Post MM105:

- R3A Fill-in AOA DEORBIT BURN CARDS from  
C1 AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6

GNC 50 HORIZ SIT

AOA RWY OPTIONS

ALL INCLINATIONS				
SITE	RWY	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6
24	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6
25	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

† MSBLS Jr. Channel 8 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

- L1
- 12. ✓RWY selection
  - 13. CAB FAN A – ON

**DEORBIT BURN PREP**

- 1. GNC, OPS 302 PRO  
GNC DEORB MNVR EXEC
- 2. TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

**DEORBIT BURN PREP**

- O8
- 1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)

## CDR

9. **GNC 51 OVERRIDE**  
IMU 1,2 (two) – desel  
Confirm IMUs 1,2 PWR – OFF with MS
- F6 10. CDR disp – green dot  
CRT 11. L,R OMS – sel SEC GMBL

### MM105 CHANGE

- CRT 1. GNC, OPS 105 PRO  
C4F 2. Unstow ENT PKT  
Stow ASC PKT
- R3A 3. Stow ASC Cue Cards  
C1 Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN), 2–6

### RECONFIG DPS AND SYSTEMS FOR ENTRY

1. Select any AOA I\_TGT (3–12) to set AOA flag, but  
do not LOAD until OPS 3

#### NOTE

Manually entered tgt data will be carried  
over to OPS 3 except:  
PASS, BFS ITEMS 5,18 (ILL ENTRY)

- L1 2. ✓G3 NBAT – ALL STRINGS TO GPC 1  
C3 3. ✓MS OVHD & AFT PNL PWRDN, 5–1, complete
- MS/O14:F 4. IMU FAN (three) – OFF  
O15:F 5. ✓FCS CH (four) – AUTO  
O16:F 6. ✓ASA 1,4 – OFF  
7. ✓2,3 – ON
- CRT 8. GNC, OPS 301 PRO (✓DAP)  
MS/O15:F 9. MMU 2 – OFF  
10. ASA 2 – OFF  
MS/O16:F 11. 3 – OFF

## PLT

### ET UMBILICAL DOOR CLOSURE

#### WARNING

ET CTRLINE LATCHES must be stowed  
prior to L,R DR closure to prevent door  
drive damage

#### NOTE

Double times for single mtr ops

- R2 ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO

✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)

After 24 sec:  
ET UMB L,R DR tb – CL  
LAT (two) – LAT (tb–bp)

After 6 sec:  
ET UMB L,R LAT tb – LAT  
DR MODE – GPC  
CTRLINE LAT – GND  
L,R DR (two) – OFF  
LAT (two) – OFF

### FDf CONFIG

- Post MM105:  
Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)  
Stow ASC Cue Cards  
Use DEORBIT BURN MONITOR (LOSS OF 2  
FREON LOOPS AOA) (DEORBIT BURN),  
2–6
- R3A  
C1

GNC 50 HORIZ SIT
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## AOA RWY OPTIONS

ALL INCLINATIONS				
SITE	RWY	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6
24	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6
25	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

† MSBLS Jr. Channel 8 – Requires Uplink

If other runways reqd, use AOA RWY OPTIONS  
(ASC, AOA)

- L1
12. ✓RWY selection
  13. CAB FAN A – ON

**DEORBIT BURN PREP**

1. GNC, OPS 302 PRO  

GNC DEORB MNVR EXEC
---------------------
2. TRIM LOAD ITEM 6 +0.4 -5.7 +5.7 EXEC

**DEORBIT BURN PREP**

- O8
1. ✓L,R OMS He PRESS/VAP ISOL A,B (four) – GPC  
✓TK ISOL (four) – OP (tb-OP)  
XFEED (four) – CL (tb-CL)

**CDR**

**PLT**

CRT

- 3. ✓Or enter Target from OMS TGTS and AOA PADS (ASC, OMS TGTS and AOA PADS)
- 4. LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC
- 5. DEORBIT BURN TIG ADJUST (if reqd)  
LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC  
Determine delta TIG (if REI-REF > 50) from OMS TGTS (ASC, OMS TGTS):  
Enter new TIG  
LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC  
Repeat until delta RANGE < 50

**MNVR TO DEORBIT BURN ATTITUDE**

NOTE

If < 6 min to TIG, manual mnvr may be reqd

MNVR – ITEM 27 EXEC

F8

- ✓ADI ATT – INRTL
- ✓ERR – MED
- ✓RATE – MED

TIG-10 min

**VACUUM INERTING TERMINATE (If manual activation performed)**

R2

1. MPS PNEU He ISOL – OP

R4

2. FILL/DRAIN LO2,LH2 OUTBD (two) – OP  
Wait 15 sec

3. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
Wait 15 sec

4. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND

R2

5. PNEU He ISOL – CL

TIG-5 min

**CONFIG FOR ENTRY COMM**

Give MS "GO" to perform AFT PNL CONFIG FOR ENTRY COMM (COMM), 6-2

TIG-2 min

**TIG-2 CONFIG**

O6

- 1. MDM FA 4 – ON
- 2. GNC I/O RESET  
Use one IDP/CRT with two MDUs, one CNTLR PWR

MS/O14:E

3. cb MNA DDU L – cl

MS/O15:E

4. MNB DDU L – cl

**GO TO DEORBIT BURN**

A2-5

**DEORBIT BURN**

**MEDS**

SYS AOA/MEDS/GEN F,1

**DEORBIT BURN MONITOR  
(LOSS OF 2 FREON LOOPS)**

<b>OMS PC &amp; OMS ↓</b>	OMS PRPLT FAIL
<b>OMS OX/FU TK P (✓<u>O/S/MPS</u>)</b> OX/FU LOW	He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72: OMS PRPLT FAIL
OX & FU HIGH	He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284
<b>OMS GMBL</b>	If high RCS usage: OMS ENG FAIL
<b>I/O ERROR FA</b>	I/O RESET (if recov: >>) If high RCS usage: OMS ENG FAIL ✓MAN SHUTDN
<b>BCE STRG D</b>	I/O RESET (if recov: >>) If high RCS usage: OMS ENG FAIL

DEORBIT  
BURN

**CDR**

**PLT**

CRT

- 3. ✓Or enter Target from OMS TGTS and AOA PADS (ASC, OMS TGTS and AOA PADS)
- 4. LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC
- 5. DEORBIT BURN TIG ADJUST (if reqd)  
LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC  
Determine delta TIG (if REI-REF > 50) from OMS TGTS (ASC, OMS TGTS):  
Enter new TIG  
LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC  
Repeat until delta RANGE < 50

**MNVR TO DEORBIT BURN ATTITUDE**

NOTE

If < 6 min to TIG, manual mnvr may be reqd

- MS/O16:E      cb MNC DDU R – cl  
                  MNVR – ITEM 27 EXEC
- F8              ✓ADI ATT – INRTL  
                  ✓ERR – MED  
                  ✓RATE – MED
- MS/O16:E      cb MNC DDU R – op

TIG-5 min

**CONFIG FOR ENTRY COMM**

Give MS "GO" to perform AFT PNL CONFIG FOR ENTRY COMM (COMM), 6-2

TIG-2 min

**TIG-2 CONFIG**

- O6            1. MDM FA 4 – ON
- 2. GNC I/O RESET  
              Use one CRT, one CNTLR PWR
- MS/O14:E    3. cb MNA DDU L – cl
- MS/O15:E    4.    MNB DDU L,R (two) – cl
- MS/O16:E    5.    MNC DDU R – cl

TIG-10 min

**VACUUM INERTING TERMINATE (If manual activation performed)**

- R2            1. MPS PNEU He ISOL – OP
- R4            2.    FILL/DRAIN LO2,LH2 OUTBD (two) – OP  
                  Wait 15 sec
- 3.    MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
                  Wait 15 sec
- 4.    MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND
- R2            5.    PNEU He ISOL – CL

**GO TO DEORBIT BURN**

B2-5

**DEORBIT  
BURN**

**NOM |**

SYS AOA/NOM/GEN F,1

**DEORBIT BURN MONITOR  
(LOSS OF 2 FREON LOOPS)**

<b>OMS PC &amp; OMS</b> ↓	OMS PRPLT FAIL
<b>OMS OX/FU TK P</b> (monitor meter) OX/FU LOW	He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72: OMS PRPLT FAIL
OX & FU HIGH	He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284
<b>OMS GMBL</b>	If high RCS usage: OMS ENG FAIL
<b>I/O ERROR FA</b>	I/O RESET (if recov: >>) If high RCS usage: OMS ENG FAIL ✓MAN SHUTDN
<b>BCE STRG D</b>	I/O RESET (if recov: >>) If high RCS usage: OMS ENG FAIL

DEORBIT  
BURN



**AOA DEORBIT  
BURN (2 ENG)  
(LOSS OF 2 FREON LOOPS)**

- ✓MM302 ✓OMS BOTH
- Enter TGO + 5 sec
- ✓TRIM: P +0.4, LY -5.7, RY +5.7
- L,R OMS He PRESS/VAP ISOL A (two) – GPC
- B (two) – OP
- ✓DAP – AUTO(PASS)/DISC
- ADI – LVLH(REF)/HI/MED
- FLT CNTLR PWR (one) – ON

- TIG-2 OMS ENG (two) – ARM/PRESS
- :15 EXEC
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
- :00 TIG Start watch (✓Pc, ΔVTOT, ENG VLVs)

- \* **OMS PRPLT FAIL (CONTINUE BURN):** \*
- \* Failed OMS ENG – OFF \*
- \* ITEM 18 +0 EXEC \*
- \* When good OMS QTY: \*
- \* 5%: L,R OMS XFEED (four) – OP \*
- \* 4%: Good OMS TK ISOL (two) – CL \*
- \* If OMS Pc < 80 or OMS TEMP, \*
- \* OMS ENG – OFF \*
- \* ✓ADI – LVLH, center needles \*
- \* RCS COMPLETION \*
- \* **OMS ENG FAIL:** \*
- \* Failed OMS ENG – OFF \*
- \* OMS XFEED at 1/2 ΔVTOT at fail 

--	--	--

 \*
- \* or OMS QTY 

--	--

 %L or 

--	--

 %R \*
- \* **2nd OMS FAIL (ENG or PRPLT):** \*
- \* Failed OMS ENG – OFF \*
- \* If PRPLT FAIL: \*
- \* Secure aff OMS \*
- \* ITEM 18 +0 EXEC \*
- \* ✓ADI – LVLH, center needles \*
- \* Interconnect good OMS to RCS \*
- \* THC +X (✓OMS% vs RCS Burn Time) \*
- \* RCS I'CNCT TK SW (N/A for OMS PRPLT FAIL) \*
- \* THC +X (✓OMS% vs RCS Burn Time) \*
- \* AFT RCS RECONFIG \*
- \* RCS COMPLETION \*
- \* \_\_\_\_\_ \*

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* RCS COMPLETION:
* If DIRECT INSERTION:
*   THC +X to ΔVTOT = 0 or TOT AFT QTY 1    %
*
*   At AFT QTY 1           THC +X to FLIP ΔV or
*   if CUR ΔVTOT:         TOT AFT QTY 2   % then
*                           FRCS COMPLETION
*
*   FLIP   -----
*   ΔV           FRCS COMPLETION
*
*   AFT   -----
*   ΔV           THC +X to TGT ΔV
*
*   TGT   -----
*   ΔV
*
* If w/OMS 1:
*   THC +X to TGT HP or TOT AFT QTY 1    %
*
*   At AFT QTY 1           THC +X to FLIP HP or
*   if CUR HP:             TOT AFT QTY 2   % then
*                           FRCS COMPLETION
*
*   FLIP   -----
*   HP           FRCS COMPLETION
*
*   AFT   -----
*   HP           THC +X to TGT HP
*
*   TGT   -----
*   HP
*
* FRCS COMPLETION:
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +¼ ΔVTOT)
*   THC -X to ΔVTOT = 0 or FRCS depletion (JETS FAIL OFF)

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2  % then *
*                       FRCS COMPLETION *
* *
*   FLIP  ----- *
*    $\Delta V$                        FRCS COMPLETION *
* *
*   AFT  ----- *
*    $\Delta V$                        THC +X to TGT  $\Delta V$  *
* *
*   TGT  ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2  % then *
*                       FRCS COMPLETION *
* *
*   FLIP  ----- *
*   HP                       FRCS COMPLETION *
* *
*   AFT  ----- *
*   HP                       THC +X to TGT HP *
* *
*   TGT  ----- *
*   HP *
* *
* FRCS COMPLETION: *
* Mnv r to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
* THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02 OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2  % then *
*                           FRCS COMPLETION *
* *
*   FLIP  ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT  ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT  ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2  % then *
*                           FRCS COMPLETION *
* *
*   FLIP  ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT  ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT  ----- *
*   HP *
* *
* FRCS COMPLETION: *
* Mnv r to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
* THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02 OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2   % then *
*                       FRCS COMPLETION *
* *
*   FLIP   ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT   ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT   ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2   % then *
*                       FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :   )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2  % then *
*                       FRCS COMPLETION *
* *
*   FLIP  ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT  ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT  ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2  % then *
*                       FRCS COMPLETION *
* *
*   FLIP  ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT  ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT  ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2  % then *
*                           FRCS COMPLETION *
* *
*   FLIP  ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT  ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT  ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1  % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2  % then *
*                           FRCS COMPLETION *
* *
*   FLIP  ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT  ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT  ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

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## POST BURN ACTIONS

### NOTE

Time critical APU RESTART,  
3-5, at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize CRT and MDU use     |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
| CM | O6    | 5. MNB DDU L,R (two) – op       |
|    | F6    | 6. ✓MNC DDU R – op              |
|    | F8    | 7. MDM FA 4 – OFF               |
|    | C3    | 8. FLT CNTLR PWR – OFF          |
|    |       | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |   |
|----|----|---|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN   |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>  |
|    | 2. | GNC, OPS 301 PRO<br>GNC 0 GPC MEMORY<br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table →                                     |
|    |    | GNC, OPS 301 PRO (push DAP AUTO pbi)  |
|    |    | GNC 50 HORIZ SIT  |
|    |    | ✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any CRT that is OFF:<br>GPC/CRT3/X EXEC<br>GNC 0 GPC MEMORY |
|    |    | DOWNLIST GPC – ITEM 44 +3 EXEC  |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF  |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON  |

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

POST BURN  
ACTIONS

## IMU POST BURN CONFIG

### GNC 21 IMU ALIGN

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3  
     When align complete:

### GNC 50 HORIZ SIT

4. NAV DELTA zero update

### GNC 21 IMU ALIGN

5. IMU 2 – sel
6.     3 – desel  
     – OFF

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

## POST BURN STATUS

C CRT1 ✓ Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 + \_\_\_\_\_ \*
- \* P – ITEM 25 + \_\_\_\_\_ \*
- \* Y – ITEM 26 + \_\_\_\_\_ \*

## RECOVERY PREBANK TABLES

\* NOTE: Applicable ONLY if OMS 1 reqd

\* (ATO/AOA steep entries)

\* **KSC**

ΔHP	0	2	4	7	11	15	19	22	27
PREBANK	0	25	50	75	90	100	115	130	180

\* (ATO/AOA shallow entries)

\* **KSC**

ΔHP	0	1	2	3	4	5	6	7	9
PREBANK	90	100	110	120	125	130	135	145	180

POST BURN ACTIONS



## POST BURN ACTIONS

### NOTE

Time critical APU RESTART, 3-5,  
at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize IDP and MDU use     |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
|    |       | 5. MNB DDU L,R (two) – op       |
| CM | O6    | 6. ✓MNC DDU R – op              |
|    | F6    | 7. MDM FA 4 – OFF               |
|    | F8    | 8. FLT CNTLR PWR – OFF          |
|    | C3    | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |   |
|----|----|---|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN   |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>  |
|    | 2. | GNC, OPS 301 PRO<br><u>GNC 0 GPC MEMORY</u><br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table →  |
|    |    | GNC, OPS 301 PRO (push DAP AUTO pbi)  |
|    |    | <u>GNC 50 HORIZ SIT</u><br>✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any IDP that is OFF:<br>GPC/CRT3/X EXEC<br><u>GNC 0 GPC MEMORY</u><br>DOWNLIST GPC – ITEM 44 +3 EXEC |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF  |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON  |

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

POST BURN ACTIONS

## IMU POST BURN CONFIG

### GNC 21 IMU ALIGN

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3

When align complete:

### GNC 50 HORIZ SIT

4. NAV DELTA zero update

### GNC 21 IMU ALIGN

5. IMU 2 – sel
6. 3 – desel

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

## POST BURN STATUS

C CRT1 ✓Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 +\_\_\_\_\_ \*
- \* P – ITEM 25 +\_\_\_\_\_ \*
- \* Y – ITEM 26 +\_\_\_\_\_ \*

POST BURN ACTIONS

\* **RECOVERY PREBANK TABLES (EDW)** \*

\* NOTE: APPLICABLE ONLY IF OMS 1 REQD \*

				<b>EDW</b>					
(ATO/AOA steep entries)									
ΔHP	0	(4)	RED	9	14	16	20	25	27
PREBANK	0	45	NOR	80	95	100	115	150	175
				NOR N/A					
(ATO/AOA steep entries)				<b>Redesignate NOR</b>					
ΔHP			5	(12)	15	20	27	30	32
PREBANK			35	75	85	95	125	150	175
(ATO/AOA shallow entries)				<b>EDW</b>					
ΔHP	0	(1)	RED	3	4	5	6	8	9
PREBANK	90	95	NOR	110	120	125	135	160	175
				NOR N/A					
(ATO/AOA shallow entries)				<b>Redesignate NOR</b>					
ΔHP			2	3	(5)	7	8	10	12
PREBANK			95	100	105	120	130	150	175

## POST BURN ACTIONS

### NOTE

Time critical APU RESTART, 3-5,  
at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize IDP and MDU use     |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
|    |       | 5. MNB DDU L,R (two) – op       |
| CM | O6    | 6. ✓MNC DDU R – op              |
|    | F6    | 7. MDM FA 4 – OFF               |
|    | F8    | 8. FLT CNTLR PWR – OFF          |
|    | C3    | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |  |
|----|----|--|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN  |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>   |
|    | 2. | GNC, OPS 301 PRO<br>GNC 0 GPC MEMORY<br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table<br>GNC, OPS 301 PRO (push DAP AUTO pbi)<br>GNC 50 HORIZ SIT<br>✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any IDP that is OFF:<br>GPC/CRT3/X EXEC<br>GNC 0 GPC MEMORY<br>DOWNLIST GPC – ITEM 44 +3 EXEC |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF   |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON   |

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

POST BURN ACTIONS

## IMU POST BURN CONFIG

### GNC 21 IMU ALIGN

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3

When align complete:

### GNC 50 HORIZ SIT

4. NAV DELTA zero update

### GNC 21 IMU ALIGN

5. IMU 2 – sel
6.     3 – desel

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

## POST BURN STATUS

- C CRT1 ✓ Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 + \_\_\_\_\_ \*
- \* P – ITEM 25 + \_\_\_\_\_ \*
- \* Y – ITEM 26 + \_\_\_\_\_ \*

**RECOVERY PREBANK TABLES (EDW)**

**NOTE: APPLICABLE ONLY IF OMS 1 REQD**

(ATO/AOA steep entries) **EDW**

ΔHP	0	5	(11)		17	21	25	29	33
PREBANK	0	45	70	RED NOR	90	100	115	140	175
					NOR N/A				

↓

(ATO/AOA steep entries) **Redesignate NOR**

ΔHP					12	18	(24)	31	37	41
PREBANK				RED NOR	35	70	85	105	140	180

↓

(ATO/AOA shallow entries) **EDW**

ΔHP	0	3	(5)		7	9	10	11	12
PREBANK	90	100	110	RED NOR	120	135	145	155	170
					NOR N/A				

↓

(ATO/AOA shallow entries) **Redesignate NOR**

ΔHP					6	8	(10)	12	13	16
PREBANK				RED NOR	95	105	115	130	140	180

109 OCF

POST BURN ACTIONS

## POST BURN ACTIONS

### NOTE

Time critical APU RESTART, 3-5,  
at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize CRT use             |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
|    |       | 5. MNB DDU L,R (two) – op       |
| CM | O6    | 6. ✓MNC DDU R – op              |
|    | F6    | 7. MDM FA 4 – OFF               |
|    | F8    | 8. FLT CNTLR PWR – OFF          |
|    | C3    | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |   |
|----|----|---|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN   |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>  |
|    | 2. | GNC, OPS 301 PRO<br>GNC 0 GPC MEMORY<br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table →                                     |
|    |    | GNC, OPS 301 PRO (push DAP AUTO pbi)  |
|    |    | GNC 50 HORIZ SIT  |
|    |    | ✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any CRT that is OFF:<br>GPC/CRT3/X EXEC<br>GNC 0 GPC MEMORY |
|    |    | DOWNLIST GPC – ITEM 44 +3 EXEC  |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF  |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON  |

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

POST BURN ACTIONS

**IMU POST BURN CONFIG**

**GNC 21 IMU ALIGN**

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3  
     When align complete:

**GNC 50 HORIZ SIT**

4. NAV DELTA zero update

**GNC 21 IMU ALIGN**

5. IMU 2 – sel
6.     3 – desel  
     – OFF

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

**POST BURN STATUS**

C CRT1 ✓ Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 +\_\_\_\_\_ \*
- \* P – ITEM 25 +\_\_\_\_\_ \*
- \* Y – ITEM 26 +\_\_\_\_\_ \*

**RECOVERY PREBANK TABLES (KSC)**

**NOTE:** Applicable ONLY if OMS 1 reqd

(ATO/AOA steep entries)

**KSC**

ΔHP	0	③	4	8	12	17	22	26	27
PREBK	0	40	50	80	95	105	125	160	175

(ATO/AOA shallow entries)

**KSC**

ΔHP	0	①	2	3	5	6	7	8	9
PREBANK	90	100	110	115	130	135	145	155	170

**POST BURN ACTIONS**

## POST BURN ACTIONS

### NOTE

Time critical APU RESTART, 3-5,  
at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize IDP and MDU use     |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
|    |       | 5. MNB DDU L,R (two) – op       |
| CM | O6    | 6. ✓MNC DDU R – op              |
|    | F6    | 7. MDM FA 4 – OFF               |
|    | F8    | 8. FLT CNTLR PWR – OFF          |
|    | C3    | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |  |
|----|----|--|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN  |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>   |
|    | 2. | GNC, OPS 301 PRO<br><u>GNC 0 GPC MEMORY</u><br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table →   |
|    |    | GNC, OPS 301 PRO (push DAP AUTO pbi)   |
|    |    | <u>GNC 50 HORIZ SIT</u>  |
|    |    | ✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any IDP that is OFF:<br>GPC/CRT3/X EXEC<br><u>GNC 0 GPC MEMORY</u><br>DOWNLIST GPC – ITEM 44 +3 EXEC |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF   |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON   |

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

POST BURN ACTIONS

**IMU POST BURN CONFIG**

**GNC 21 IMU ALIGN**

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3

When align complete:

**GNC 50 HORIZ SIT**

4. NAV DELTA zero update

**GNC 21 IMU ALIGN**

5. IMU 2 – sel
6.     3 – desel  
     – OFF

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

**POST BURN STATUS**

C CRT1 ✓ Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 + \_\_\_\_\_ \*
- \* P – ITEM 25 + \_\_\_\_\_ \*
- \* Y – ITEM 26 + \_\_\_\_\_ \*

**RECOVERY PREBANK TABLES**

**NOTE:** Applicable ONLY if OMS 1 reqd

(ATO/AOA steep entries)

**KSC**

ΔHP	0	④	7	10	14	18	22	24	26
PREBANK	0	50	75	90	100	110	130	145	170

(ATO/AOA shallow entries)

**KSC**

ΔHP	0	①	2	3	4	5	6	7	8
PREBANK	90	105	115	120	130	140	150	160	175

**POST BURN ACTIONS**



## POST BURN ACTIONS

### NOTE

Time critical APU RESTART, 3-5,  
at EI-10

- |    |       |                                 |
|----|-------|---------------------------------|
| CM | O15:A | 1. ✓CDR AND PLT PWRDNS complete |
| MS | O14:E | 2. Minimize IDP and MDU use     |
|    | O15:E | 3. IMU 2 – ON                   |
|    | O16:E | 4. cb MNA DDU L – op            |
|    |       | 5. MNB DDU L,R (two) – op       |
| CM | O6    | 6. ✓MNC DDU R – op              |
|    | F6    | 7. MDM FA 4 – OFF               |
|    | F8    | 8. FLT CNTLR PWR – OFF          |
|    | C3    | 9. ✓DAP: AUTO                   |

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- |    |     |   |
|----|-----|---|
| R2 | 10. | Determine PREBANK<br>Determine ΔHP (CUR HP – TGT HP)<br>Use RECOVERY PREBANK TABLES, 3-2<br>Record PREBANK on LOSS OF 2 FREON LOOPS ENTRY<br>MANEUVERS ( <u>ENT MNVR/BAILOUT</u> ), 4-1 |
|    | 11. | BLR CNTLR/HTR 1,3 (two) – A   |

## OMS/RCS POST BURN RECONFIG

- |    |    |  |
|----|----|--|
| O7 | 1. | ✓AFT L,R RCS He PRESS (four) – OP (tb-OP)<br>✓TK ISOL (six) – GPC (tb-OP)<br>✓XFEED (four) – GPC (tb-CL) |
| O8 | 2. | L,R OMS He PRESS/VAP ISOL (four) – CL<br>✓TK ISOL (four) – OP (tb-OP)<br>✓XFEED (four) – CL (tb-CL)      |

## DPS POST BURN CONFIG

- |    |    |   |
|----|----|---|
| O6 | 1. | GPC PWR 3 – ON<br>MODE 3 – STBY (tb-RUN)<br>– RUN   |
|    |    | <u>EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3</u>  |
|    | 2. | GNC, OPS 301 PRO<br><u>GNC 0 GPC MEMORY</u><br>CONFIG – ITEM 1 +3 EXEC<br>Modify MC3 per table →  |
|    |    | GNC, OPS 301 PRO (push DAP AUTO pbi)  |
|    |    | <u>GNC 50 HORIZ SIT</u><br>✓RWY selection<br>Reselect AOA RWY<br>GNC, OPS 302,303 PRO<br>For any IDP that is OFF:<br>GPC/CRT3/X EXEC<br><u>GNC 0 GPC MEMORY</u><br>DOWNLIST GPC – ITEM 44 +3 EXEC |
| O6 | 3. | GPC MODE 1 – STBY (tb-bp)<br>– HALT<br>PWR 1 – OFF  |
| L1 | 4. | AV BAY 1 FAN B – OFF<br>3 FAN B – ON  |

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

POST BURN ACTIONS

**IMU POST BURN CONFIG**

**GNC 21 IMU ALIGN**

1. ✓ IMU 2 DES – ITEM 8 (\*)  
     ✓ OPER – ITEM 5 (\*) within 90 sec of PWR – ON
2. GNC I/O RESET
3. IMU/IMU ALIGN – IMU 2 to IMU 3  
     When align complete:

**GNC 50 HORIZ SIT**

4. NAV DELTA zero update

**GNC 21 IMU ALIGN**

5. IMU 2 – sel
6. 3 – desel  
     – OFF

O16:A

7. Pwr up R DDU as reqd to achieve/maintain EI-5 ATT

**POST BURN STATUS**

C CRT1 ✓Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R – ITEM 24 +\_\_\_\_\_ \*
- \* P – ITEM 25 +\_\_\_\_\_ \*
- \* Y – ITEM 26 +\_\_\_\_\_ \*

**RECOVERY PREBANK TABLES**

**NOTE:** Applicable ONLY if OMS 1 reqd

(ATO/AOA steep entries)

**KSC**

ΔHP	0	②	4	8	12	17	22	26	28
PREBANK	0	25	50	80	95	105	120	150	170

(ATO/AOA shallow entries)

**KSC**

ΔHP	0	①	2	3	5	6	7	8	9
PREBANK	90	100	110	115	130	140	150	160	175

**POST BURN ACTIONS**

## MNVR TO EI-5 ATT - ITEM 27 EXEC

- \* If UNDERBURN or no DEL PAD, manually mnvr \*
- \* to LVLH R001, Y358, P per table below \*

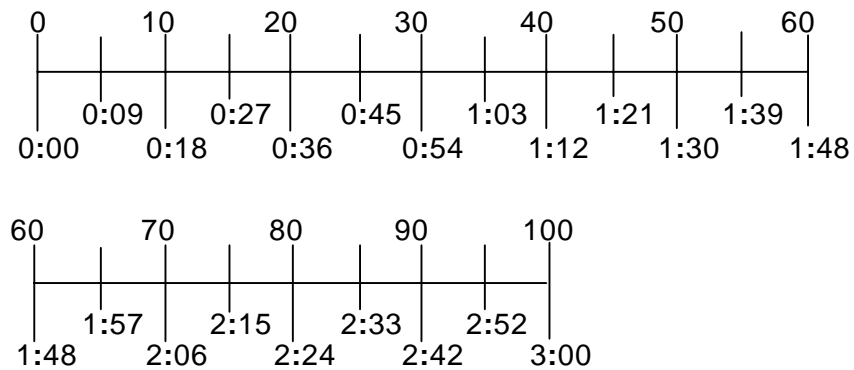
TIME to EI (min)	LVLH PITCH (deg)
20	339
	343
	347
	351
	355
15	359
	3
	7
	11
10	15
	19
	23
	27
	31
5	35
	39

### FORWARD RCS DUMP (If reqd for Cg)

- FRCS REACTIVATION (if reqd)
- |     |             |   |
|-----|-------------|---|
| MS  | O14:B<br>:F | 1. ✓cb MNA OI SIG CONDR OF 1/4 A - cl<br>2. RJDF 1B F1 DRIVER - ON<br>LOGIC - ON  |
| MS  | O15:B<br>:F | 3. ✓cb MNB OI SIG CONDR OF 2/3 A - cl<br>4. RJDF 1A F2 DRIVER - ON<br>LOGIC - ON  |
| MS  | O16:F       | 5. 2A F3 DRIVER - ON<br>LOGIC - ON<br>6. 2B F4 DRIVER - ON<br>F4/F5 LOGIC - ON  |
| CM  | O6<br>O8    | 7. MDM FF1,2,3,4 (four) - ON<br>GNC I/O RESET<br>8. Reopen FRCS<br><span style="border: 1px solid black; padding: 2px;">GNC 23 RCS</span>   |
| CRT |             | 9. JET RESET - ITEM 45 EXEC<br>10. Reselect deselected FRCS jets<br>11. JET RESET - ITEM 45 EXEC<br>12. Determine FWD RCS 'DUMP TO %' using lowest of Ox or Fu<br>qty (calculator or DEL PAD)<br>Use FOUR JET DUMP, 3-4 |

FOUR JET DUMP:

FRCS PRPLT TO BE DUMPED (%)

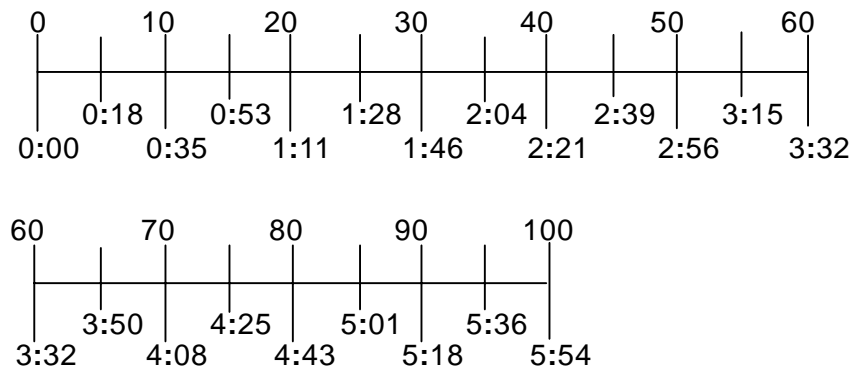


TIME FROM DUMP INITIATION (M:S)

NOTE  
During dump, disregard  
FRCS QTY

TWO JET DUMP:

FRCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

NOTE  
During dump, disregard  
FRCS QTY

CRT2 FWD RCS ARM – ITEM 36 EXEC  
DUMP – ITEM 37 EXEC  
(Start watch)

When dump time achieved:  
FWD RCS OFF – ITEM 38 EXEC

ISOLATE FRCS

When dump complete:

- O8 FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb-CL)
- O6 MDM FF 1,4 (two) – OFF
- MS O14:F RJDF 1B F1 DRIVER – OFF  
LOGIC – OFF
- MS O15:F 1A F2 DRIVER – OFF  
LOGIC – OFF
- MS O16:F 2A F3 DRIVER – OFF  
LOGIC – OFF  
2B F4 DRIVER – OFF  
F4/F5 LOGIC – OFF

**APU RESTART (APUs 1,3) (EI-14)**

- R2 1. BLR N2 SPLY (two) – ON  
PWR (two) – ON  
✓CNTLR/HTR (two) – A
- 2. ✓APU AUTO SHUTDN (three) – ENA
- 3. CNTLR PWR (two) – ON
- 4. HYD MN PUMP PRESS (two) – LO  
APU SPEED SEL (three) – NORM  
OPER (three) – OFF  
FUEL TK VLV (three) – CL  
cb APU FU TK VLV ENA (six) – cl
- 5. APU FUEL TK VLV (two) – OP  
OPER (two) – INJ COOL (start watch)

At 3.5 min:

- MDU 6. APU OPER (two) – START/RUN
- 7. ✓HYD PRESS ind (two) – LO green

- R2 \* If APU 1(3) does not start: \*
- \* BLR CNTLR/HTR 2 – A \*
- \* N2 SPLY 2 – ON \*
- \* PWR 2 – ON \*
- \* APU CNTLR PWR 2 – ON \*
- \* HYD MN PUMP PRESS 2 – LO \*
- \* APU FUEL TK VLV 2 – OP \*
- \* OPER 2 – INJ COOL (start watch) \*
- \* At 3.5 min: \*
- \* APU OPER 2 – START/RUN \*
- MDU \* ✓HYD PRESS 2 ind – LO green \*
- \* If less than two APUs operating: \*
- R2 \* (Good) APU AUTO SHUTDN (one) – INH \*
- \* If any APU does not start: \*
- \* Aff APU: \*
- \* BLR CNTLR/HTR – OFF \*
- \* APU OPER – OFF \*
- \* FUEL TK VLV – CL \*
- \* CNTLR PWR – OFF \*
- \* HYD MN PUMP PRESS – NORM \*

NOTE

Running HYD MN PUMP PRESS switches will be taken to NORM at  $\bar{q}$  bar = 1

## EI-7: PRE-EI AND ENTRY SWITCH CHECK

- |          |     |   |  |
|----------|-----|---|--|
| C3       | 1.  | FCS CH 1 – OFF  |  |
|          |     | 2 – ORIDE   |  |
|          |     | 3 – ORIDE   |  |
|          |     | 4 – OFF   |  |
| MS O14:F | 2.  | ASA 1 – ON  |  |
| MS O15:F |     | 2 – ON  |  |
| MS O16:F |     | 3 – ON  |  |
|          |     | 4 – ON  |  |
|          | 3.  | GNC I/O RESET   |  |
|          |     | <u>GNC 53 ENTRY CONTROLS</u>                            |  |
|          | 4.  | DES SURF FDBK 1,4 – ITEM 18,21 EXEC (*)                 |  |
|          |     | √2,3 – ITEM 19,20 (no *)                                |  |
| MA73C:A  | 5.  | MCA LOGIC MID,AFT (eleven) – OFF                        |  |
| :B       |     | √FWD (three) – ON                                       |  |
| :C       | 6.  | cb MCA PWR AC1 3Φ FWD 1 – op                            |  |
|          |     | AC3 3Φ FWD 3 – op                                       |  |
| O7       | 7.  | √TACAN MODE sel (three) – OFF                           |  |
|          |     | ANT SEL (three) – AUTO                                  |  |
|          |     | CH tw (three) – <u>111</u> (EDW)                        |  |
|          |     | <u>59Y</u> (KSC)  |  |
|          |     | <u>121Y</u> (NOR)                                       |  |
| O8       | 8.  | √RADAR ALTM (two) – OFF                                 |  |
|          |     | √MLS (three) – OFF                                      |  |
|          |     | √CH tw (three) – 8 <u>EDW22</u> <u>KSC15</u>            |  |
|          |     | – 6 <u>EDW15</u> <u>KSC33</u> <u>NOR17</u> <u>EDW04</u> |  |
| L2       | 9.  | √CAB RELIEF (two) – ENA (tb-ENA)                        |  |
|          |     | √ANTISKID – OFF   |  |
|          |     | √NWS – OFF  |  |
|          |     | √ENTRY MODE – AUTO                                      |  |
|          | 10. | <u>GNC 51 OVERRIDE</u>                                  |  |
|          |     | SSME REPOS – ITEM 19 EXEC (INH)                         |  |
|          |     | √ROLL MODE – AUTO                                       |  |
| L2/C3    | 11. | √SBTC – FULL FWD  |  |
| C3       |     | √SRB SEP – AUTO   |  |
|          |     | √ET SEP – AUTO  |  |
| F6/F8    | 12. | √AIR DATA (two) – NAV                                   |  |
|          |     | √ADI ERR (two) – 5                                      |  |
|          |     | √RATE (two) – 5   |  |
|          | 13. | √HSI SEL MODE (two) – ENTRY                             |  |
| F6       |     | √SOURCE (two) – NAV, 1                                  |  |
| F8       |     | – NAV, 2  |  |
| F3       | 14. | L TRIM RHC/PNL – INH                                    |  |
|          |     | PNL – ON  |  |
| F6/F8    | 15. | L(R) HUD DATA BUS – 2(3)                                |  |
| C3       |     | √DAP: AUTO  |  |
|          | 16. | MS/PS INGRESS SEATS                                     |  |
|          | 17. | Go to LOSS OF 2 FREON LOOPS ENTRY MANEUVERS             |  |
|          |     | <u>(ENT MNVR/BAILOUT)</u> , 4-1                         |  |

ISOLATE FRCS

When dump complete:

- O8 FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb–CL)
- O6 MDM FF 1,4 (two) – OFF
- MS O14:F RJDF 1B F1 DRIVER – OFF  
LOGIC – OFF
- MS O15:F 1A F2 DRIVER – OFF  
LOGIC – OFF
- MS O16:F 2A F3 DRIVER – OFF  
LOGIC – OFF  
2B F4 DRIVER – OFF  
F4/F5 LOGIC – OFF

**APU RESTART (APUs 1,3) (EI-14)**

- F8 1. INST PWR – ON
- R2 2. BLR N2 SPLY (two) – ON  
PWR (two) – ON  
✓CNTLR/HTR (two) – A
- 3. ✓APU AUTO SHUTDN (three) – ENA
- 4. CNTLR PWR (two) – ON
- 5. HYD MN PUMP PRESS (two) – LO  
APU SPEED SEL (three) – NORM  
OPER (three) – OFF  
FUEL TK VLV (three) – CL  
cb APU FU TK VLV ENA (six) – cl
- 6. APU FUEL TK VLV (two) – OP  
OPER (two) – INJ COOL (start watch)

At 3.5 min:

- F8 7. APU OPER (two) – START/RUN
- 8. ✓HYD PRESS ind (two) – LO green

- R2 \* If APU 1(3) does not start: \*
- \* BLR CNTLR/HTR 2 – A \*
- \* N2 SPLY 2 – ON \*
- \* PWR 2 – ON \*
- \* APU CNTLR PWR 2 – ON \*
- \* HYD MN PUMP PRESS 2 – LO \*
- \* APU FUEL TK VLV 2 – OP \*
- \* OPER 2 – INJ COOL (start watch) \*
- \* At 3.5 min: \*
- \* APU OPER 2 – START/RUN \*
- F8 \* ✓HYD PRESS 2 ind – LO green \*
- \* If less than two APUs operating: \*
- R2 \* (Good) APU AUTO SHUTDN (one) – INH \*
- \* If any APU does not start: \*
- \* Aff APU: \*
- \* BLR CNTLR/HTR – OFF \*
- \* APU OPER – OFF \*
- \* FUEL TK VLV – CL \*
- \* CNTLR PWR – OFF \*
- \* HYD MN PUMP PRESS – NORM \*

Cont next page

F8 9. INST PWR – OFF

NOTE

Running HYD MN PUMP PRESS switches will be taken to NORM at q bar = 1

**EI-7: PRE-EI AND ENTRY SWITCH CHECK**

- C3 1. FCS CH 1 – OFF
  - 2 – ORIDE
  - 3 – ORIDE
  - 4 – OFF
- MS O14:F 2. ASA 1 – ON
- MS O15:F 2 – ON
- MS O16:F 3 – ON
- 4 – ON
- 3. GNC I/O RESET
- |                       |
|-----------------------|
| GNC 53 ENTRY CONTROLS |
|-----------------------|
- 4. DES SURF FDBK 1,4 – ITEM 18,21 EXEC (\*)
  - √2,3 – ITEM 19,20 (no \*)
- MA73C:A 5. MCA LOGIC MID,AFT (eleven) – OFF
- :B √FWD (three) – ON
- :C 6. cb MCA PWR AC1 3Φ FWD 1 – op
- AC3 3Φ FWD 3 – op
- O7 7. √TACAN MODE sel (three) – OFF
- ANT SEL (three) – AUTO
- CH tw (three) – 

111
-----

 (EDW)
- |     |
|-----|
| 59Y |
|-----|

 (KSC)
- |      |
|------|
| 121Y |
|------|

 (NOR)
- O8 8. √RADAR ALTM (two) – OFF
- √MLS (three) – OFF
- √CH tw (three) – 8 

EDW22	KSC15
-------	-------
- 6 

EDW15	KSC33	NOR17	EDW04
-------	-------	-------	-------
- L2 9. √CAB RELIEF (two) – ENA (tb-ENA)
- √ANTISKID – OFF
- √NWS – OFF
- √ENTRY MODE – AUTO
- 10. 

GNC 51 OVERRIDE
-----------------
- SSME REPOS – ITEM 19 EXEC (INH)
- √ROLL MODE – AUTO
- L2/C3 11. √SBTC – FULL FWD
- C3 √SRB SEP – AUTO
- √ET SEP – AUTO
- F6/F8 12. √AIR DATA (two) – NAV
- √ADI ERR (two) – 5
- √RATE (two) – 5
- 13. √HSI SEL MODE (two) – ENTRY
- √SOURCE (two) – NAV, 1
- F6 – NAV, 2
- F8
- F3 14. L TRIM RHC/PNL – INH
- PNL – ON
- F7 15. FLT CNTLR PWR – ON
- C3 √DAP: AUTO
- 16. MS/PS INGRESS SEATS
- 17. Go to LOSS OF 2 FREON LOOPS ENTRY
- MANEUVERS (ENT MNVR/BAILOUT), 4-1



## LOSS OF 2 FREON LOOPS ENTRY MANEUVERS

FLIGHT CONDITIONS	MANEUVER
EI-5	AV BAY 3 FAN B - ON CAB FAN A - ON Use up to one IDP/CRT and three MDUs if reqd cb MNA DDU L - cl MNB ADTA 2 - cl ACCEL 2 - cl DDU L - cl MNC ADTA 3 - cl ACCEL 3 - ON GNC I/O RESET ✓ FWD RCS MANF ISOL 1,2,3,4 - CL ✓ LVLH ATT GNC, OPS 304 PRO * If PREBANK, R/Y - CSS * * Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> * * Maintain PREBANK ± 5° *
$\bar{q} = 1$	HYD MN PUMP PRESS (two) - NORM
'Guidance Box' @ $\bar{q} \sim 8$ or D - 3	CLOSED LOOP GUIDANCE <input type="text"/> : <input type="text"/> : <input type="text"/> * If PREBANK: P, R/Y - AUTO * Begin AIL trim monitoring
D = 11	✓ DRAG H (FORCE if editing)
V = 19K	✓ MPS/TVC ISOL VLV - CL
V = 12K	BRAKES MNB - ON MNC - ON UHF MODE - SPLX (G T/R if ELS) AUD CTR - 1 ✓ OI PCMMU FORMAT - FXD ✓ L AUD PWR - AUD ✓ R AUD PWR - AUD PS,MS AUD PWR - AUD (if reqd) If command or data reqd: OI PCMMU PWR - 2 MDM PL2 - ON S-BD PM CNTL - PNL,CMD CRTX GNC I/O RESET ANT SW - select best ANT On MCC call: MDM PL2 - OFF OI PCMMU PWR - OFF
V = 10K	✓ SPDBK to 81% TACAN 3 - GPC
V = 7K	✓ TACAN status
$\Delta Az = 10.5$	FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)

FLIGHT CONDITIONS	MANEUVER
V = 5K	ADTA PROBES - DEPLOY (✓ HEAT, only 1 side if reqd) Begin AIL and RUD trim monitoring
M = 2.9	MDM FF1 - ON (if NWS reqd) GNC I/O RESET RADAR ALTM 2 - ON CAB FAN (two) - OFF Use no landing aids (HUD, MLS) unless reqd to safely land the vehicle
M = 2.7	✓ APU APU SPEED SEL (two) - HI * If M < 2.5, P CSS for ADTA to G&C incorp *
M = 2.0	Ensure ADTA to G&C else ✓ Theta Limits
M = 0.9	cb MNB DDU R - cl (if NWS reqd) MNC DDU R - cl (if NWS reqd) L FLT CNTLR PWR - ON P,R/Y - CSS as reqd ✓ SPDBK CMD vs POS MAX N <sub>z</sub> <input type="text"/> <input type="text"/> <input type="text"/> R FLT CNTLR - ON (if NWS reqd) NWS - 1 ANTISKID - ON LOCK INERTIA REELS
M = 0.7	LG EXTEND ISOL VLV - OP HYD BRAKE ISOL VLV 1,3 - OP
h = 15K	✓ MLS (If on)
h = 10K	✓ A/L, ✓ TABS/VISORS - CL/LES O2 - ON (KSC)
MAIN GEAR TD	✓ SPDBK - 100%
DEROTATION INIT	DRAG CHUTE pb (two) - ARM, DPY (simo)
NOSE GEAR TD	SRB SEP - MAN/AUTO and depress pb ✓ Auto Load Relief
V = 60 KGS	DRAG CHUTE JETT pb - JETT
STOP	Go to EMER PWRDN (Cue Card)

For BAILOUT see 4-2

## BAILOUT MODE 8

REPORT POSITION  
MACH < .95, OPS 305/603  
SB – AUTO, BF – AUTO  
FLY 185–195 KEAS,  $\phi$  – 0°  
ABORT MODE – ATO  
ABORT PBI – PUSH  
P, R/Y – AUTO  
FLT CNTLR PWR (two) – OFF

### ~50K FT

TABS – RELEASE  
VISOR – CLOSE/LOCK  
LES O2 – ON  
GREEN APPLE – PULL

### ~40K FT

MS3 – VENT CABIN  
CDR, PLT SEATS – LOWER  
KNEEBOARDS – REMOVE  
COOLING – DISCONNECT  
RESTRAINT – RELEASE  
D-RING – UNCOVER

### ~30K FT

MS3 – JETTISON HATCH  
COMM – DISCONNECT  
(G-SUIT CLIP – PULL)  
LES O2 – DISCONNECT  
EGRESS SEAT  
POLE – DEPLOY  
D-RING – HOOK UP  
BAILOUT

## LOSS OF 2 FREON LOOPS ENTRY MANEUVERS

FLIGHT CONDITIONS	MANEUVER
EI-5	AV BAY 3 FAN B - ON CAB FAN A - ON L INST PWR - FLT cb MNA DDU L - cl MNB ADTA 2 - cl ACCEL 2 - cl DDU L - cl MNC ADTA 3 - cl ACCEL 3 - ON GNC I/O RESET ✓ FWD RCS MANF ISOL 1,2,3,4 - CL ✓ LVLH ATT GNC, OPS 304 PRO * If PREBANK, R/Y - CSS * * Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> * * Maintain PREBANK ± 5° *
$\bar{q} = 1$	HYD MN PUMP PRESS (two) - NORM
'Guidance Box' @ $\bar{q} \sim 8$ or D - 3	CLOSED LOOP GUIDANCE ___:___:___ * If PREBANK: P, R/Y - AUTO *  Begin AIL trim monitoring
D = 11	✓ DRAG H (FORCE if editing)
V = 19K	✓ MPS/TVC ISOL VLV - CL
V = 12K	BRAKES MNB - ON MNC - ON UHF MODE - SPLX (G T/R if ELS) AUD CTR - 1 ✓ OI PCMMU FORMAT - FXD ✓ L AUD PWR - AUD ✓ R AUD PWR - AUD PS,MS AUD PWR - AUD (if reqd) If command or data reqd: OI PCMMU PWR - 2 MDM PL2 - ON S-BD PM CNTL - PNL,CMD CRTX GNC I/O RESET ANT SW - select best ANT On MCC call: MDM PL2 - OFF OI PCMMU PWR - OFF
V = 10K	✓ SPDBK to 81% TACAN 3 - GPC
V = 7K	✓ TACAN status
$\Delta A_z = 10.5$	FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)

FLIGHT CONDITIONS	MANEUVER
V = 5K	ADTA PROBES - DEPLOY (✓ HEAT, only 1 side if reqd) Begin AIL and RUD trim monitoring
M = 2.9	MDM FF1 - ON (if NWS reqd) GNC I/O RESET RADAR ALTM 2 - ON CAB FAN (two) - OFF Use no landing aids (HUD, MLS) unless reqd to safely land the vehicle
M = 2.7	R INST PWR - ON ✓ APUs APU SPEED SEL (two) - HI R INST PWR - OFF
	* If M < 2.5, P CSS for ADTA to G&C incorp *
M = 2.0	Ensure ADTA to G&C else ✓ Theta Limits
M = 0.9	cb MNB DDU R - cl (if NWS reqd) MNC DDU R - cl (if NWS reqd) L FLT CNTLR PWR - ON P,R/Y - CSS as reqd ✓ SPDBK CMD vs POS R FLT CNTLR - ON (if NWS reqd) NWS - 1 ANTISKID - ON LOCK INERTIA REELS
M = 0.7	LG EXTEND ISOL VLV - OP HYD BRAKE ISOL VLV 1,3 - OP
h = 15K	✓ MLS (If on)
h = 10K	✓ A/L, ✓ TABS/VISORS - CL/LES O2 - ON (KSC)
MAIN GEAR TD	✓ SPDBK - 100%
DEROTATION INIT	DRAG CHUTE pb (two) - ARM, DPY (simo)
NOSE GEAR TD	SRB SEP - MAN/AUTO and depress pb ✓ Auto Load Relief
NWTD ≤ 140 KGS LKBED	5K' REMAINING
140 KGS CONCRETE	< 140 KGS
	> 140 KGS
40 KGS	STOP
V = 60 KGS	DRAG CHUTE JETT pb - JETT
STOP	Go to EMER PWRDN (Cue Card)

For **BAILOUT** see 4-2

## BAILOUT MODE 8

REPORT POSITION  
MACH < .95, OPS 305/603  
SB – AUTO, BF – AUTO  
FLY 185–195 KEAS,  $\phi$  – 0°  
ABORT MODE – ATO  
ABORT PBI – PUSH  
P, R/Y – AUTO  
FLT CNTLR PWR (two) – OFF

### ~50K FT

TABS – RELEASE  
VISOR – CLOSE/LOCK  
LES O2 – ON  
GREEN APPLE – PULL

### ~40K FT

MS3 – VENT CABIN  
CDR, PLT SEATS – LOWER  
KNEEBOARDS – REMOVE  
COOLING – DISCONNECT  
RESTRAINT – RELEASE  
D-RING – UNCOVER

### ~30K FT

MS3 – JETTISON HATCH  
COMM – DISCONNECT  
(G-SUIT CLIP – PULL)  
LES O2 – DISCONNECT  
EGRESS SEAT  
POLE – DEPLOY  
D-RING – HOOK UP  
BAILOUT

## MS PULLOUT SECTION

Pull this section for MS use. Complete MS OVHD & AFT PNL PWRDN, ASAP.  
If STDN LOS, have another MS perform COMM PWRDN (COMM), 6-1, at the same time

MS OVHD, AFT  
PNL PWRDN

### MS OVHD & AFT PNL PWRDN

- R11U 1. FC PURGE HTR – ON  
VLVS (three) – OP
- O6 2. Minimize Itg on AFT Flt Deck
- O13:A 3. ANNUN BUS SEL ACA 2/3 – OFF
4. cb ESS 1BC C/W A – op (MA)  
MTU A – op (leave closed for SMS)
- :B CRYO QTY (two) – op
- :C 2CA C/W B – op (All SM tones and C/W Its and  
tones lost, CRT FAULT SUMM and  
SM ALERT It remains)
- 2CA MTU B – op
- :E 3AB GPC STAT – op
- O14:A 5. BRAKES MNA – OFF  
RGA 1 – OFF
- ✓IMU 1 desel  
IMU 1 – OFF
- :B cb MNA OI MDM OF 1/2 A – op  
3/4 A – op  
H2O BYP LOOP 1 SNSR – op  
MSN TIMER FWD – op  
EVENT TIMER AFT – op
- :C UTIL PWR O19/MO52J – op
- :D FREON RAD CNTLR (two) – op  
If OV103/105, cb MNA GPS PRE AMPL (two) – op  
cb MNA O2/N2 CNTLR 1 – op  
CAB VENT – op  
ISOL – op
- :E ADTA 1 – op  
ACCEL 1 – op  
DDU L – op (close if TIG < 10 min)  
AFT – op
- :F MMU 1 – OFF  
Verify with PLT:
- O8 FWD RCS MANF ISOL 1,2,3,4 (four) – CL, then:
- O14:F RJDA 2A L4/R4 LOGIC – OFF  
DRIVER – OFF  
RJDF 1B F1 LOGIC – OFF  
DRIVER – OFF
- ASA 1 – OFF
- O15:A 6. BRAKES MNB – OFF  
RGA 4 – OFF
- ✓IMU 2 desel  
IMU 2 – OFF
- :B cb MNB OI MDM OF 1/2 B – op  
H2O BYP LOOP 2 SNSR – op  
MSN TIMER AFT – op
- O15:C If OV104, cb MNB GPS 2 PRE AMPL UPPER – op
- O15:D LOWER – op
- :B cb MNB EVENT TIMER FWD – op
- :D FREON RAD CNTLR (two) – op  
O2/N2 CNTLR 2 – op

Cont next page

O15:E           cb MNB ADTA 2 – op  
                   DDU L – op (leave cl if TIG < 10 min)  
                   R – op  
       :F           RJDA 1B L1/L5/R1 LOGIC – OFF  
                   DRIVER – OFF  
                   RJDF 1A F2 LOGIC – OFF  
                   DRIVER – OFF  
                   ACCEL 4 – OFF  
 O16:A       7. BRAKES MNC – OFF  
       :B           cb MNC OI MDM OF 3/4 B – op  
                   AUX TIMING BUFF – op  
       :D           If OV103/105, cb MNC GPS PRE AMPL (two) – op  
                   √cb MNC O2 EMER – op  
       :E           ADTA 3,4 – op  
                   DDU R – op  
                   AFT – op  
       :F           RJDF 2A F3 LOGIC – OFF  
                   DRIVER – OFF  
                   2B F4/F5 LOGIC – OFF  
                   F4 DRIVER – OFF  
                   ASA 4 – OFF  
                   √RJD MANF L5/F5/R5 DRIVER – OFF  
       8. Verify w/PLT:  
       R4           HYD MPS/TVC ISOL VLV SYS (three) – CL  
 O17:A           ATVC (four) – OFF  
       :C           SIG CONDR FREON (two) – OFF (AC2,AC3 if any flow)  
       :D           MDM OA 1/2/3 – OFF  
 A11           9. √CRYO TK4/5 HTR O2,H2 (four) – OFF  
 A12           10. HYD HTR (eight) – OFF  
                   APU HTR TK/FU LINE/H2O/SYS 1B,3B (two) – AUTO  
 A14           11. RCS/OMS HTR FWD RCS – OFF  
                   OMS CRSFD LINES (two) – OFF  
                   FWD RCS JET (five) – OFF  
                   AFT RCS JET (five) – OFF  
 A15           12. √CRYO TK5 HTR O2,H2 (four) – OFF

## MS PULLOUT SECTION

### COMM PWRDN

- MS/CDR As soon as possible after BDA/WLP LOS, perform following pwrdn: |
- CM A1L
1. S-BD PM ANT SW ELEC – OFF  
PRE AMP – OFF  
PWR AMPL STBY – OFF  
OPER – OFF  
MODE – STDN LO  
XPNDR – OFF
  2. NSP PWR – OFF  
ENCRYPTION PWR – OFF  
(Encryption disabled for rest of flight)  
ENCRYPTION MODE – SEL  
SEL – BYP
  3. S-BD PM CNTL – PNL  
OI PCMMU FORMAT – FXD  
PWR – OFF  
AUD CTR – OFF (pwr up as reqd for cockpit audio)
  4. ✓S-BD PL CNTL – PNL  
✓PWR SYS – OFF  
PL DATA INTLVR PWR – OFF
  5. OPS RCDRS PWR (two) – OFF  
S-BD FM CNTL – PNL  
PWR – OFF  
PL RCDR PWR – OFF
  6. UHF MODE sel – OFF  
MDM PL1, PL2 (two) – OFF
  7. cb MNA, MNC GCILC (two) – op
- If after TIG-5:
8. Perform AFT PNL CONFIG FOR ENTRY COMM, 6-2

Contact MCC at first available AOS using COMM PWRUP, 6-3.  
Preferred comm config in order of least heat production:

1. UHF
2. STDN LOW PWR – if reqd
3. TDRS – only if mandatory

#### CAUTION

TDRS or STDN HI may be limited to  
10 min (pwr amp will overheat)

COMM

## AFT PNL CONFIG FOR ENTRY COMM

1. On GO from CDR at TIG-5 min:  
R14:B           cb MNA,MNC GCILC (two) - cl  
C3               S-BD PM CNTL - CMD  
A1L              ANT SW ELEC - 2  
                  MODE - STDN LO (SGLS)  
                  XPNDR - 2  
                  NSP PWR - 2  
                  DATA RATE XMIT - HI  
                  RCV - HI  
                  ✓UPLK DATA - S-BD  
                  ✓CODING XMIT - OFF  
                  ✓RCV - OFF

COMM



## MS PULLOUT SECTION

### COMM PWRUP (If COMM reqd prior to landing site coverage)

- Pwr up audio system
- C3 1. AUD CTR – 1  
O5 ✓L AUD PWR – AUD  
O9 ✓R AUD PWR – AUD
- If UHF available:
- O6 Config for UHF comm (voice only):  
2. UHF MODE sel – SPLX  
✓SPLX PWR AMP – ON
- After comm with MCC complete:
3. UHF MODE sel – OFF
- If cockpit audio not reqd:
- C3 4. AUD CTR – OFF >>
- If UHF site unavailable or if MCC requests data:  
Config for GSTDN(SGLS) S–BD:
- C3 5. ✓S–BD PM CNTL – PNL  
A1L ANT SW ELEC – 2  
MODE – STDN LO (SGLS)  
XPNDR – 2
6. NSP PWR – 2  
DATA RATE XMIT – HI  
RCV – HI  
CODING XMIT – OFF  
RCV – OFF  
✓UPLK DATA – S–BD
- C3/F9 7. Select best S–BD PM ANT
- If MCC requests data:
- O14:B 8. cb MNA OI MDM OF 1/2,3/4 A (two) – cl  
O17:D SIG CONDR OA 1/2/3 – ON  
MDM OA 1/2/3 – ON
- C3 OI PCMMU PWR – 1  
O6 MDM PL2 – ON  
GNC I/O RESET
- At end of data transmission:
- O14:B 9. cb MNA OI MDM OF 1/2,3/4 A (two) – op  
O17:D SIG CONDR OA 1/2/3 – OFF  
MDM OA 1/2/3 – OFF
10. After comm/data complete, go to COMM PWRDN,  
6–1 >>
- If UHF site and GSTDN unavailable and comm/data critical:  
Config for TDRS S–BD

#### CAUTION

This is a High Pwr Mode. On–time should be limited to 10–min max due to Pwr Amp Thermal constraints. A 3–min delay occurs after S–BD PM PNL/CMD before Pwr Amp is active. Uplink not affected. Proceed with selection of best antenna

Cont next page

C3  
A1L

11. ✓S-BD PM CNTL – PNL  
 ANT SW ELEC – 2  
 PRE AMP – 2  
 PWR AMPL OPER – 2  
 MODE – TDRS DATA  
 XPNDR – 2

12. NSP PWR – 2  
 ✓DATA RATE XMIT – HI  
 ✓RCV – HI  
 CODING XMIT – ON  
 RCV – ON  
 ✓UPLK DATA – S-BD

C3/F9  
 Select best S-BD PM ANT

If MCC requests data:

O14:B  
O17:D

13. cb MNA OI MDM OF 1/2,3/4 A (two) – cl  
 SIG CONDR OA 1/2/3 – ON  
 MDM OA 1/2/3 – ON

C3  
O6

OI PCMMU PWR – 1  
 MDM PL2 – ON  
 GNC I/O RESET

At end of data transmission:

O14:B  
O17:D

14. cb MNA OI MDM OF 1/2,3/4 A (two) – op  
 SIG CONDR OA 1/2/3 – OFF  
 MDM OA 1/2/3 – OFF

15. After comm/data complete, go to COMM PWRDN, 6-1

# LOSS OF 2 H2O LOOPS (AOA) STAND-ALONE PROCEDURES

## IMMEDIATE AOA DEORBIT BURN STEPS

If time to AOA TIG greater than 15 min, proceed to next page, 7-2

If time to AOA TIG less than 15 min, perform the following:

1. In MM105 select any AOA I\_TGT to set AOA flag; but do not load until OPS 3
2. OPS 301 PRO; 302 PRO; PASS, BFS I/O RESET
3. Have MS perform MS OVHD PNL PWRDN, 11-1
4. Have another MS perform COMM PWRDN (COMM), 12-1
5. GNC 50 ✓LDG site: ITEM 41 + \_\_\_  
1 = KSC 15/33  
24 = NOR 17/23  
25 = EDW 22/04
6. ✓Or enter target from OMS TARGETS, AOA PADS, COMM COVERAGE, LAND SITES (ASC, OMS TGTS and AOA PADS), or MCC
7. LOAD TGTs

### NOTE

Disregard jet msgs during maneuver.  
If < 6 min to TIG, manual mnvr may be reqd

8. MNVR TO ATT: MNVR – ITEM 27 EXEC
9. Fill-in AOA DEORBIT BURN CARDS from AOA DEL PAD (ASC)
10. CDR/PLT: Perform CDR AND PLT PWRDNS (CDR/PLT PWRDNS), 8-1, only as time permits
11. Perform AOA DEORBIT BURN (DEORBIT BURN), 8-10
12. Perform these procedural blocks/steps in CDR AND PLT PWRDNS (if not yet performed):  
CDR PWRDN, 8-1  
PLT PWRDN, 8-1  
Reassign all strings to GPC 1 in MC3 with target set 12340  
GNC, OPS 302 PRO  
Turn off GPCs 2,3,4  
Operate AV BAY FANS 1A and 2A only  
CDR SYSTEMS PWRDN (steps 8-12 only), 8-3  
CDR POST OMS-1 ACTIVITIES (FES ACTIVATION/PL MDM CONFIG only), 8-4  
DEACTIVATE FRCS, 8-4
13. Go to POST BURN ACTIONS, 9-1, and catch up with timeline

2 H2O  
LOOPS (AOA)

NOTES

- Perform pwr dns in parallel ASAP after failure. The Summary Timeline, 7–3, are provided as an overview showing latest possible completion times for pwr dn procedures
- Loss of H<sub>2</sub>O loop cooling affects both water and air cooled equipment
- This procedure pwr dn comm. If comm reqd, preferred comm config in order of least heat production:
  1. UHF
  2. STDN LO PWR – If reqd
  3. TDRS – Only if mandatory

CAUTION

TDRS or STDN – HI may be limited to 10 min (pwr amp will overheat)

## LOSS OF 2 H2O LOOPS (AOA) STAND-ALONE PROCEDURES

### IMMEDIATE AOA DEORBIT BURN STEPS

If time to AOA TIG greater than 15 min, proceed to next page, 7-2

If time to AOA TIG less than 15 min, perform the following:

1. In MM105 select any AOA I\_TGT to set AOA flag; but do not load until OPS 3
2. OPS 301 PRO; 302 PRO; PASS, BFS I/O RESET
3. Have MS perform MS OVHD PNL PWRDN, 11-1
4. Have another MS perform COMM PWRDN (COMM), 12-1
5. GNC 50 ✓LDG site: ITEM 41 +\_\_\_\_  
22 = EDW 15/33  
25 = KSC 15/33  
20 = NOR 17/23
6. ✓Or enter target from OMS TARGETS, AOA PADS, COMM COVERAGE, LAND SITES (ASC, OMS TGTS and AOA PADS), or MCC
7. LOAD TGTs

#### NOTE

Disregard jet msgs during maneuver.  
If < 6 min to TIG, manual mnvr may be reqd

8. MNVR TO ATT: MNVR – ITEM 27 EXEC
9. Fill-in AOA DEORBIT BURN CARDS from AOA DEL PAD (ASC)
10. CDR/PLT: Perform CDR AND PLT PWRDNS (CDR/PLT PWRDNS), 8-1, only as time permits
11. Perform AOA DEORBIT BURN (DEORBIT BURN), 8-10
12. Perform these procedural blocks/steps in CDR AND PLT PWRDNS (if not yet performed):  
CDR PWRDN, 8-1  
PLT PWRDN, 8-1  
Reassign all strings to GPC 1 in MC3 with target set 12340  
GNC, OPS 302 PRO  
Turn off GPCs 2,3,4  
Operate AV BAY FANS 1A and 2A only  
CDR SYSTEMS PWRDN (steps 8-12 only), 8-3  
CDR POST OMS-1 ACTIVITIES (FES ACTIVATION/PL MDM CONFIG only), 8-4  
DEACTIVATE FRCS, 8-4
13. Go to POST BURN ACTIONS, 9-1, and catch up with timeline

2 H2O  
LOOPS (AOA)

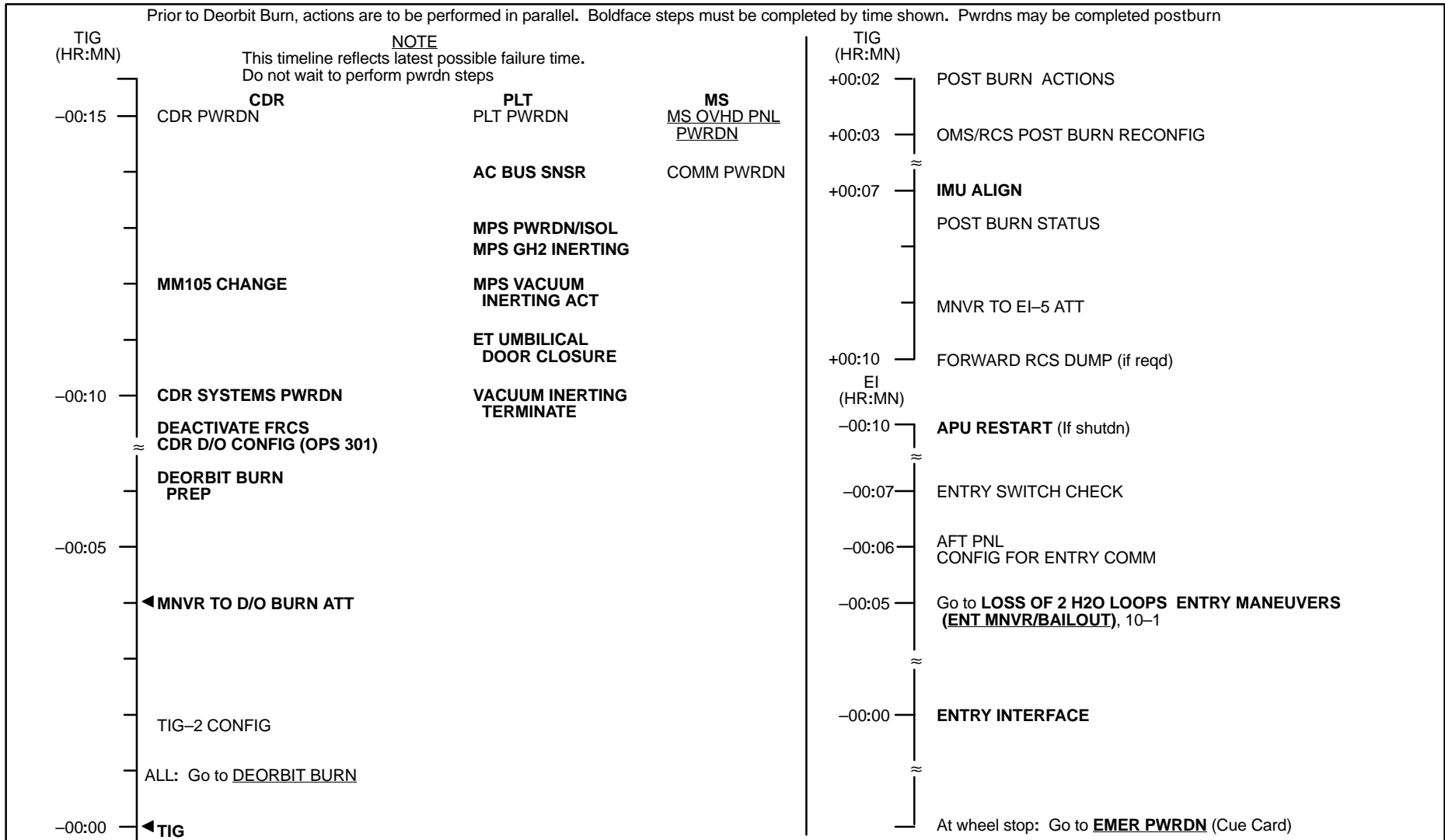
NOTES

- Perform pwr dns in parallel ASAP after failure. The Summary Timeline, 7–3, is provided as an overview showing latest possible completion times for pwr dn procedures
- Loss of H2O loop cooling affects both water and air cooled equipment
- This procedure pwr s dn comm. If comm reqd, preferred comm config in order of least heat production:
  1. UHF
  2. STDN LO PWR – If reqd
  3. TDRS – Only if mandatory

CAUTION

TDRS or STDN – HI may be limited to 10 min (pwr amp will overheat)

## SUMMARY TIMELINE FOR LOSS OF 2 H2O LOOPS (AOA) PWRDN



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**CDR AND PLT PWRDNS  
TIME CRITICAL PROCEDURES**

1. MS perform MS OVHD PNL PWRDN, 11-1, ASAP
2. MS perform COMM PWRDN (COMM), 12-1, ASAP
3. Perform CDR AND PLT PWRDNS in parallel ASAP

**CDR**

**PLT**

**NOTE**

Time reqd to execute deorbit burn  
using these procedures is 15 min

**CDR PWRDN**

1. Minimize Itg
2. Use only one IDP/CRT with two MDUs and one FLT CNTLR PWR as reqd
- C3 L1 3. ✓DAP: AUTO
4. ✓H2O PUMP LOOP (two) – OFF  
(Leave one ON if any flow)  
HUM SEP (two) – OFF  
(Leave one ON if either H2O Pump ON)  
CAB FAN (two) – OFF  
All AV BAY FANS (except AV BAY 1 FAN B) – OFF  
FREON PUMP LOOP 1 – OFF
- L2 5. O2 SYS 1 SPLY – CL (tb-CL)  
ANTISKID – OFF  
NWS – OFF

**OMS 1 BURN**

If OMS 1 scheduled:

1. Perform OMS 1 BURN (ASC, OMS 1 TGTING), then:

**DIRECT INSERTION (If no OMS 1)**

- C3 1. ✓OMS ENG (two) – OFF

**PLT PWRDN (Perform ASAP)**

- C3 1. ✓MSTR MADS PWR – OFF
2. Minimize Itg
3. Use only one IDP/CRT with two MDUs and one FLT CNTLR PWR as reqd
4. ✓DAP: AUTO
5. Perform PL PWRDN (ASC PKT, PWRDN), then:
- O7 6. ✓TACAN MODE sel (three) – OFF
- O8 7. ✓RADAR ALTM (two) – OFF

CDR

PLT

MAJOR MODE CHANGE

CRT GNC, OPS 105 PRO

CDR SYSTEMS PWRDN (Perform ASAP)

Reassign strings to GPC 1 in MC 1,3:

GNC 0 GPC MEMORY

- O6 1. CONFIG – ITEM 1 +1 EXEC  
Modify MC 1 per table

CONFIG GPC	1	12340
STR	1	1
	2	1
	3	1
	4	1
PL	1/2	1
CRT	1	1
	2	1
	3	1
	4	0
L	1	1
	2	1
MM	1	1
	2	1

NOTE

The following must be  
OPS mode recall:  
GNC, OPS 10X PRO

2. CONFIG – ITEM 1 +3 EXEC  
Modify MC 3 per table

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

3. For any CRT that is off:  
GPC/CRT1/X EXEC
4. Select any AOA I\_TGT (3–12) to  
set AOA flag, but do not LOAD  
until OPS 3

NOTE

Manually entered tgt data will  
be carried over to OPS 3  
except:  
PASS, BFS ITEMS 5,18  
(ILL ENTRY)

PLT POST OMS–1 ACTIVITIES (If not yet performed)

HYD DEPRESS

- F4 1. ✓BDY FLP pb – It off (dump complete)  
(–2 min)
- R4 2. HYD MPS/TVC ISOL VLV SYS (three) – CL  
(tb–CL)
- R2 3. ✓APU SPEED SEL (three) – NORM  
✓AUTO SHUTDN (three) – ENA  
HYD MN PUMP PRESS (three) – LO (MA)

HTR ACTIVATION

- R1 4. O2 TK1,TK2 HTRS B (two) – AUTO  
H2 TK1,TK2 HTRS B (two) – AUTO

AC BUS SNSR

- R1 1. AC BUS SNSR (three) – OFF (1 sec)  
– AUTO TRIP

MPS PWRDN/ISOL

- R2 1. MPS ENG PWR L (two) – OFF  
CTR (two) – OFF  
R (two) – OFF  
He ISOL (six) – GPC  
✓I'CONNECT (three) – GPC

NOTE

Expect multiple MAs for MPS He P  
as regs bleed dn

Cont next page

**CDR**

**PLT**

- O6 5. GPC MODE 2,3,4 (three) – STBY (tb–bp)
  - HALT
  - STBY (tb–RUN)
  - HALT (tb–bp)
- PWR 2,4 (two) – OFF
- If TIG < 25 min, go to step 8
- O6 6. BFS: GNC, OPS 106 PRO
  - 000 PRO
- O6 7. GPC MODE 5 – STBY (tb–RUN)
  - HALT (tb–bp)
- OUTPUT 5 – NORM
- CRT 8. MDM FF4 – OFF
- O6 9. R OMS – sel SEC GMBL
- O6 10. ANNUN BUS SEL ACA 2/3 – OFF
- C3 11. C/W MODE – ACK
- MS O14:E, 12. cb DDU L (two) – op (use as reqd)
- O15:E

NOTE

For F7 lts, hold F2 or F4 MA in

**CDR POST OMS–1 ACTIVITIES  
(Perform as time permits)**

POST BURN STATUS

NOMINAL	TIG
_ : _ : _	_ : _ : _ : _ : _

- 1. MnvR to minimize Earth/Sun in windows or install window shades as time permits
- C3 2. ✓DAP – AUTO
  - ✓Only one IDP/CRT with two MDUs, and FLT CNTLR PWR

GNC OMS 2 MNVR EXEC

**MPS GH2 INERTING**

- R4 1. MPS H2 PRESS LINE VENT – OP  
(Start watch)
- After 1 min:
- 2. MPS H2 PRESS LINE VENT – GND

**MPS VACUUM INERTING ACT (✓MCC)**

- If not reqd:
- R2 1. MPS PNEU He ISOL – GPC
- If reqd:
- R4 2. ✓MPS PNEU He ISOL – OP
- 3. FILL/DRAIN LO2,LH2 (four) – CL  
Wait 15 sec
- 4. MPS FILL/DRAIN LO2,LH2 (four) – OP

**ET UMBILICAL DOOR CLOSURE**

WARNING  
ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

NOTE

Double times for single mtr ops

- R2 1. ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO
- ✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)
- ✓After 24 sec:  
ET UMB L,R DR tb (two) – CL

Cont next page

**CDR**

**PLT**

FES ACTIVATION/PL MDM CONFIG

- O6 1. MDM PL 1,2 (two) – OFF
- L1 2. FLASH EVAP CNTLR PRI A – ON
- L2 3. FDLN HTR SPLY (two) – 1

**DEACTIVATE FRCS (After mnvr to shade cabin)**

- MS O14:E, 1. Use only one DDU (two cbs) as reqd  
O15:E,  
O16:E
- MS O14:F 2. RJDF 1B F1 LOGIC – OFF  
DRIVER – OFF
- MS O15:F 3. 1A F2 LOGIC – OFF  
DRIVER – OFF
- MS O16:F 4. 2A F3 LOGIC – OFF  
DRIVER – OFF
- 5. 2B F4/F5 LOGIC – OFF  
F4 DRIVER – OFF

NOTES

For F7 lts, hold-in F2 or F4 MA.

Cycle MDUs. If ON at loss of cooling, turn OFF within 15 min. Allow 3 min OFF prior to each 1 min ON (30 min max ON time). Save two MDUs that interface with a single IDP for entry.

Possible cabin air OVBD RLF due to loss of cabin cooling.

Expect high cabin humidity during entry

- \* If ET UMB L(R) DR tb not CL: \*
- \* Contact MCC before \*
- \* attempting door latching \*

R2

- ET UMB L,R LAT (two) – LAT (tb-bp)
- ✓After 6 sec:
- ET UMB L,R LAT tb (two) – LAT
- DR MODE – GPC

- \* If doors not closed: \*
- \* GNC 51 OVERRIDE \*
- \* ET UMB DR CLOSE – \*
- \* ITEM 40(30) EXEC \*

R2

- 2. ET UMB DR CTRLINE LAT – GND
- L,R DR (two) – OFF
- LAT (two) – OFF

O8

- 3. FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb-CL)

NOTES

For F7 lts, hold-in F2 or F4 MA.

Cycle MDUs. If ON at loss of cooling, turn OFF within 15 min. Allow 3 min OFF prior to each 1 min ON (30 min max ON time). Save two MDUs that interface with a single IDP for entry.

Possible cabin air OVBD RLF due to loss of cabin cooling.

Expect high cabin humidity during entry

Cont next page

**CDR**

**PLT**

**CDR DEORBIT CONFIG (Complete by TIG-15)**

**PLT DEORBIT CONFIG (Complete by TIG-15)**

NOTE

Steps 1-4 may be done as early as desired

NOTE

Steps 1-4 may be done as early as desired

- 1. Verify with MS: MS OVHD PNL PWRDN, 11-1, complete
- C4F/ 2. Stow ASC PKT
- R3F 3. Unstow ENT PKT
- F8 4. Stow ASC Cue Cards (R3A)
- L1 5. CAB FAN A – ON  
AV BAY 2 FAN A – ON
- CRT 6. GNC, OPS 301 PRO (✓DAP)  
If GPC 5 is in RUN, go to step 8
- O6 7. ✓GPC PWR 5 – ON  
MODE 5 – STBY (tb-RUN)  
– RUN  
OUTPUT 5 – B/U
- CRT 8. BFS: GNC, OPS 301 PRO  
**BFS, GNC 51 OVERRIDE**  
  
**GNC 51 OVERRIDE**  
IMU 1 – desel (PASS and BFS)  
– OFF
- MS O14:A 9. VENT DOOR CNTL CLOSE – ITEM 44 EXEC (\*)
- CRT 10. GNC, OPS 302 PRO
- MS O15:F 11. MMU 2 – OFF  
**GNC 50 HORIZ SIT**  
✓Rwy selection (PASS and BFS)  
Reselect AOA Runway → SITE, RWY, TACAN, MLS  
(Use AOA RWY OPTIONS (ASC, AOA))

- C4F/ 1. Stow ASC PKT
- R3F 2. Unstow ENT PKT
- F6 3. Stow ASC Cue Cards (R3A)
- 4. Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)

Cont next page

**CDR**

**PLT**

**CDR DEORBIT BURN PREP**

- 1. Use two IDP/CRTs with three MDUs for burn

**GNC DEORB MNVR EXEC**

- 2. TRIM LOAD – ITEM 6 +0.4, -5.7, +5.7 EXEC

- \* If single engine burn: \*
- \* TRIM LOAD LY – ITEM 7 +5.2 EXEC \*
- \* RY – ITEM 8 -5.2 EXEC \*
- \* OMS L – ITEM 2 EXEC \*
- \* R – ITEM 3 EXEC \*
- \* If RCS burn: \*
- \* RCS SEL – ITEM 4 EXEC \*

- 3. ✓Or enter Target from OMS TGTS and AOA PADS (ASC, OMS TGTS and AOA PADS)

NOTE

Onboard computed TIG or θT may vary slightly and are acceptable if REI is correct

- 4. LOAD – ITEM 22 EXEC
- TIMER – ITEM 23 EXEC
- ✓BFS TGT

**MNVR TO DEORBIT BURN ATTITUDE**

NOTE

If < 6 min to TIG, manual mnvr may be reqd

MNVR – ITEM 27 EXEC

**PLT DEORBIT BURN PREP**

OMS GMBL CHECK

- CRT 1. Perform L,R SEC GMBL CK, then:  
L PRI GMBL CK

- \* If R SEC TVC problem, repower \*
- \* MDM FF4 and select R PRI \*
- \* TVC \*

- O8 2. ✓L,R OMS He PRESS/VAP ISOL A (two) – GPC  
B (two) – CL
- 3. TK ISOL (four) – OP (tb–OP)  
XFEED (four) – CL (tb–CL)

Cont next page

**CDR AND PLT PWRDNS  
TIME CRITICAL PROCEDURES**

1. MS perform MS OVHD PNL PWRDN, 11-1, ASAP
2. MS perform COMM PWRDN (COMM), 12-1, ASAP
3. Perform CDR AND PLT PWRDNS in parallel ASAP

**CDR**

**PLT**

**NOTE**

Time reqd to execute deorbit burn  
using these procedures is 15 min

**CDR PWRDN**

1. Minimize Itg
2. Use only one CRT, one INST PWR, and one FLT CNTLR PWR as reqd
- C3 L1 3. ✓DAP: AUTO
4. ✓H2O PUMP LOOP (two) – OFF  
(Leave one ON if any flow)  
HUM SEP (two) – OFF  
(Leave one ON if either H2O Pump ON)  
CAB FAN (two) – OFF  
All AV BAY FANS (except AV BAY 1 FAN B) – OFF
- L2 5. FREON PUMP LOOP 1 – OFF
5. O2 SYS 1 SPLY – CL (tb-CL)  
ANTISKID – OFF  
NWS – OFF

**OMS 1 BURN**

If OMS 1 scheduled:

1. Perform OMS 1 BURN (ASC, OMS 1 TGTING), then:

**DIRECT INSERTION (If no OMS 1)**

- C3 1. ✓OMS ENG (two) – OFF

**PLT PWRDN (Perform ASAP)**

- C3 1. ✓MSTR MADS PWR – OFF
2. Minimize Itg
3. Use only one CRT, one INST PWR, and one FLT CNTLR PWR as reqd
4. ✓DAP: AUTO
5. Perform PL PWRDN (ASC PKT, PWRDN), then:
- O7 6. ✓TACAN MODE sel (three) – OFF
- O8 7. ✓RADAR ALTM (two) – OFF

CDR

PLT

MAJOR MODE CHANGE

CRT GNC, OPS 105 PRO

CDR SYSTEMS PWRDN (Perform ASAP)

Reassign strings to GPC 1 in MC 1,3:

GNC 0 GPC MEMORY

- O6 1. CONFIG – ITEM 1 +1 EXEC  
Modify MC 1 per table

CONFIG GPC	1	12340
STR	1	1
	2	1
	3	1
	4	1
PL	1/2	1
CRT	1	1
	2	1
	3	1
	4	0
L	1	1
	2	1
MM	1	1
	2	1

NOTE

The following must be  
OPS mode recall:  
GNC, OPS 10X PRO

2. CONFIG – ITEM 1 +3 EXEC  
Modify MC 3 per table

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

3. For any CRT that is off:  
GPC/CRT1/X EXEC
4. Select any AOA I\_TGT (3–12) to  
set AOA flag, but do not LOAD  
until OPS 3

NOTE

Manually entered tgt data will  
be carried over to OPS 3  
except:  
PASS, BFS ITEMS 5,18  
(ILL ENTRY)

PLT POST OMS–1 ACTIVITIES (If not yet performed)

HYD DEPRESS

- F4 1. ✓BDY FLP pb – It off (dump complete)  
(–2 min)
- R4 2. HYD MPS/TVC ISOL VLV SYS (three) – CL  
(tb–CL)
- R2 3. ✓APU SPEED SEL (three) – NORM  
✓AUTO SHUTDN (three) – ENA  
HYD MN PUMP PRESS (three) – LO (MA)

HTR ACTIVATION

- R1 4. O2 TK1,TK2 HTRS B (two) – AUTO  
H2 TK1,TK2 HTRS B (two) – AUTO

AC BUS SNSR

- R1 1. AC BUS SNSR (three) – OFF (1 sec)  
– AUTO TRIP

MPS PWRDN/ISOL

- R2 1. MPS ENG PWR L (two) – OFF  
CTR (two) – OFF  
R (two) – OFF  
He ISOL (six) – GPC  
✓I'CONNECT (three) – GPC

NOTE

Expect multiple MAs for MPS He P  
as regs bleed dn

Cont next page



**CDR**

**PLT**

- O6 5. GPC MODE 2,3,4 (three) – STBY (tb–bp)
  - HALT
  - STBY (tb–RUN)
  - HALT (tb–bp)
- PWR 2,4 (two) – OFF
- If TIG < 25 min, go to step 8
- O6 6. BFS: GNC, OPS 106 PRO
  - 000 PRO
- O6 7. GPC MODE 5 – STBY (tb–RUN)
  - HALT (tb–bp)
- OUTPUT 5 – NORM
- CRT 8. MDM FF4 – OFF
- O6 9. R OMS – sel SEC GMBL
- O6 10. ANNUN BUS SEL ACA 2/3 – OFF
- C3 11. C/W MODE – ACK
- MS O14:E, 12. cb DDU L (two) – op (use as reqd)
- O15:E

NOTE

For F7 lts, hold F2 or F4 MA in

**CDR POST OMS–1 ACTIVITIES  
(Perform as time permits)**

POST BURN STATUS

NOMINAL	TIG
_ _ _ : _ _ _ : _ _ _	_ _ _ : _ _ _ : _ _ _ : _ _ _

- 1. MnvR to minimize Earth/Sun in windows or install window shades as time permits
- C3 2. ✓DAP – AUTO
  - ✓Only one CRT, FLT CNTLR PWR, and INST PWR

GNC OMS 2 MNVR EXEC

**MPS GH2 INERTING**

- R4 1. MPS H2 PRESS LINE VENT – OP  
(Start watch)
- After 1 min:
- 2. MPS H2 PRESS LINE VENT – GND

**MPS VACUUM INERTING ACT (✓MCC)**

- If not reqd:
- R2 1. MPS PNEU He ISOL – GPC
- If reqd:
- R4 2. ✓MPS PNEU He ISOL – OP
- 3. FILL/DRAIN LO2,LH2 (four) – CL
- Wait 15 sec
- 4. MPS FILL/DRAIN LO2,LH2 (four) – OP

**ET UMBILICAL DOOR CLOSURE**

WARNING  
ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

NOTE

Double times for single mtr ops

- R2 1. ET UMB DR MODE – GPC/MAN  
CTRLINE LAT – STO
- ✓After 6 sec:  
ET UMB DR CTRLINE LAT tb – STO  
L,R DR (two) – CL (tb–bp)
- ✓After 24 sec:  
ET UMB L,R DR tb (two) – CL

Cont next page

**CDR**

**PLT**

FES ACTIVATION/PL MDM CONFIG

- O6 1. MDM PL 1,2 (two) – OFF
- L1 2. FLASH EVAP CNTLR PRI A – ON
- L2 3. FDLN HTR SPLY (two) – 1

**DEACTIVATE FRCS (After mnvr to shade cabin)**

- MS O14:E, 1. Use only one DDU (two cbs) as reqd  
O15:E,  
O16:E
- MS O14:F 2. RJDF 1B F1 LOGIC – OFF  
DRIVER – OFF
- MS O15:F 3. 1A F2 LOGIC – OFF  
DRIVER – OFF
- MS O16:F 4. 2A F3 LOGIC – OFF  
DRIVER – OFF
- 5. 2B F4/F5 LOGIC – OFF  
F4 DRIVER – OFF

NOTES

For F7 lts, hold-in F2 or F4 MA.

Cycle CRTs. If CRT PWR – ON at loss of cooling, turn off within 30 min. Allow 3 min OFF prior to each 1 min ON (MAX ON time = 1 hr). Save at least one FWD CRT for entry.

Possible cabin air OVBD RLF due to loss of cabin cooling.

Expect high cabin humidity during entry

- \* If ET UMB L(R) DR tb not CL: \*
- \* Contact MCC before \*
- \* attempting door latching \*

- R2 ET UMB L,R LAT (two) – LAT (tb–bp)
- ✓After 6 sec:
- ET UMB L,R LAT tb (two) – LAT
- DR MODE – GPC

- \* If doors not closed: \*
- \* GNC 51 OVERRIDE \*
- \* ET UMB DR CLOSE – \*
- \* ITEM 40(30) EXEC \*

- R2 2. ET UMB DR CTRLINE LAT – GND
- L,R DR (two) – OFF
- LAT (two) – OFF

- O8 3. FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb–CL)

NOTES

For F7 lts, hold-in F2 or F4 MA.

Cycle CRTs. If CRT PWR – ON at loss of cooling, turn off within 30 min. Allow 3 min OFF prior to each 1 min ON (MAX ON time = 1 hr). Save at least one FWD CRT for entry.

Possible cabin air OVBD RLF due to loss of cabin cooling.

Expect high cabin humidity during entry

Cont next page

**CDR**

**PLT**

**CDR DEORBIT CONFIG (Complete by TIG-15)**

**PLT DEORBIT CONFIG (Complete by TIG-15)**

NOTE

Steps 1-4 may be done as early as desired

NOTE

Steps 1-4 may be done as early as desired

- 1. Verify with MS: MS OVHD PNL PWRDN, 11-1, complete
- C4F/ 2. Stow ASC PKT
- R3F 3. Unstow ENT PKT
- F8 4. Stow ASC Cue Cards (R3A)
- L1 5. CAB FAN A - ON  
AV BAY 2 FAN A - ON
- CRT 6. GNC, OPS 301 PRO (✓DAP)  
If GPC 5 is in RUN, go to step 8
- O6 7. ✓GPC PWR 5 - ON  
MODE 5 - STBY (tb-RUN)  
- RUN  
OUTPUT 5 - B/U
- CRT 8. BFS: GNC, OPS 301 PRO  
**BFS, GNC 51 OVERRIDE**  
  
**GNC 51 OVERRIDE**  
IMU 1 - desel (PASS and BFS)  
- OFF
- MS O14:A 9. VENT DOOR CNTL CLOSE - ITEM 44 EXEC (\*)
- CRT 10. GNC, OPS 302 PRO
- MS O15:F 11. MMU 2 - OFF  
**GNC 50 HORIZ SIT**  
✓Rwy selection (PASS and BFS)  
Reselect AOA Runway → SITE, RWY, TACAN, MLS  
(Use AOA RWY OPTIONS (ASC, AOA))

- C4F/ 1. Stow ASC PKT
- R3F 2. Unstow ENT PKT
- F6 3. Stow ASC Cue Cards (R3A)
- 4. Fill-in AOA DEORBIT BURN CARDS from  
AOA DEL PAD (ASC)

Cont next page

**CDR**

**PLT**

**CDR DEORBIT BURN PREP**

1. Use two CRTs for burn  

GNC DEORB MNVR EXEC
2. TRIM LOAD – ITEM 6 +0.4, -5.7, +5.7 EXEC
  - \* If single engine burn: \*
  - \* TRIM LOAD LY – ITEM 7 +5.2 EXEC \*
  - \* RY – ITEM 8 -5.2 EXEC \*
  - \* OMS L – ITEM 2 EXEC \*
  - \* R – ITEM 3 EXEC \*
  - \* If RCS burn: \*
  - \* RCS SEL – ITEM 4 EXEC \*
3. ✓Or enter Target from OMS TGTS and AOA PADS  
 (ASC, OMS TGTS and AOA PADS)

NOTE

Onboard computed TIG or θT may vary slightly and are acceptable if REI is correct

4. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 ✓BFS TGT

**MNVR TO DEORBIT BURN ATTITUDE**

NOTE

If < 6 min to TIG, manual mnvr may be reqd

MNVR – ITEM 27 EXEC

**PLT DEORBIT BURN PREP**

- OMS GMBL CHECK
- CRT 1. Perform L,R SEC GMBL CK, then:  
 L PRI GMBL CK
- \* If R SEC TVC problem, repower \*
  - \* MDM FF4 and select R PRI \*
  - \* TVC \*
- O8 2. ✓L,R OMS He PRESS/VAP ISOL A (two) – GPC  
 B (two) – CL
3. TK ISOL (four) – OP (tb-OP)  
 XFEED (four) – CL (tb-CL)

Cont next page

**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine  $\Delta$ TIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until  $\Delta$ RANGE < 50

CRT 2.  BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L,R (two) – cl  
 F6 2.  ADI ATT – INRTL  
 ERR – 5  
 RATE – 5  
 ( ADI ATT w/CRT BURN ATT)  
 INRTL BURN ATT

At TIG–2

3. Use only two CRTs, L FLT CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*

\* O8 L,R OMS He PRESS/VAP ISOL \*

\* (four) – CL \*

\*  L,R OMS TK ISOL (four) – OP \*

\* (tb–OP) \*

\* L OMS XFEED (two) – OP (tb–OP) \*

\* R OMS XFEED (two) – CL (tb–CL) \*

\* O7 AFT L,R RCS XFEED (four) – OP \*

\* (tb–OP) \*

\* AFT L,R RCS TK ISOL (six) – CL \*

\* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two CRTs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">219</td><td style="text-align: center;">220</td></tr></table>	L	R	219	220		OMS ENG FAIL
	L	R				
219	220					
$\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">201</td><td style="text-align: center;">204</td></tr></table> or No FU IN P	201	204		OMS PRPLT FAIL		
201	204					
<b>OMS PC* &amp; OMS</b> ↓ (BFS: $\checkmark$ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227		OMS ENG FAIL				
	OX IN P $\leq$ 227 or No OX IN P		OMS PRPLT FAIL			
<b>OMS OX/FU TK P</b> ( $\checkmark$ ENG IN P) OX/FU LOW		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL				
	OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284			
<b>OMS GMBL</b>	PRI fail		L(R) OMS GMBL – SEC (twice)			
	SEC fail		If high RCS usage: OMS ENG FAIL			
<b>GPC 1</b>			BFS Engage			
<b>I/O ERROR FA</b>	1		L OMS GMBL – SEC			
	2 FAs lost		I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL  $\checkmark$ MAN SHUTDN			
<b>BCE STRG D</b>			I/O RESET (if recov: >>)			
	1		If high RCS usage: L OMS GMBL – SEC (twice)			
	3		If high RCS usage: R OMS ENG FAIL			
<b>RM DLMA IMU</b>			After C/O: $\checkmark$ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS ( $\checkmark$ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21		
G21						
<b>I/O ERROR PCM</b>			OI PCMMU PWR – 1			

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine ΔTIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until ΔRANGE < 50

CRT 2. ✓BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L – cl  
 F6 2. ✓ADI ATT – INRTL  
 ✓ERR – 5  
 ✓RATE – 5  
 (✓ADI ATT w/CRT BURN ATT)  
 ✓INRTL BURN ATT

At TIG–2

3. Use only two IDP/CRTs, with three MDUs, L FLT  
 CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*

\* O8 L,R OMS He PRESS/VAP ISOL \*

\* (four) – CL \*

\* ✓L,R OMS TK ISOL (four) – OP \*

\* (tb–OP) \*

\* L OMS XFEED (two) – OP (tb–OP) \*

\* R OMS XFEED (two) – CL (tb–CL) \*

\* O7 AFT L,R RCS XFEED (four) – OP \*

\* (tb–OP) \*

\* AFT L,R RCS TK ISOL (six) – CL \*

\* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two IDP/CRTs with three MDUs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">225</td><td style="text-align: center;">221</td></tr></table>	L	R	225	221		OMS ENG FAIL
	L	R				
225	221					
$\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">211</td><td style="text-align: center;">200</td></tr></table> or No FU IN P	211	200		OMS PRPLT FAIL		
211	200					
<b>OMS PC* &amp; OMS</b> ↓ (BFS: ✓ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227		OMS ENG FAIL				
	OX IN P $\leq$ 227 or No OX IN P		OMS PRPLT FAIL			
<b>OMS OX/FU TK P</b> (✓ ENG IN P) OX/FU LOW		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL				
	OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284			
<b>OMS GMBL</b>	PRI fail		L(R) OMS GMBL – SEC (twice)			
	SEC fail		If high RCS usage: OMS ENG FAIL			
<b>GPC 1</b>			BFS Engage			
<b>I/O ERROR FA</b>	1		L OMS GMBL – SEC			
			I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL			
	2 FAs lost	✓	MAN SHUTDN			
<b>BCE STRG D</b>			I/O RESET (if recov: >>)			
	1		If high RCS usage: L OMS GMBL – SEC (twice)			
	3		If high RCS usage: R OMS ENG FAIL			
<b>RM DLMA IMU</b>			After C/O: ✓ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS (✓ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21		
G21						
<b>I/O ERROR PCM</b>			OI PCMMU PWR – 1			

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance



**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine  $\Delta$ TIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until  $\Delta$ RANGE < 50

CRT 2.  BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L – cl  
 F6 2.  ADI ATT – INRTL  
 ERR – 5  
 RATE – 5  
 ( ADI ATT w/CRT BURN ATT)  
 INRTL BURN ATT

At TIG–2

3. Use only two IDP/CRTs, with three MDUs, L FLT  
 CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*  
 \* O8 L,R OMS He PRESS/VAP ISOL \*  
 \* (four) – CL \*  
 \*  L,R OMS TK ISOL (four) – OP \*  
 \* (tb–OP) \*  
 \* L OMS XFEED (two) – OP (tb–OP) \*  
 \* R OMS XFEED (two) – CL (tb–CL) \*  
 \* O7 AFT L,R RCS XFEED (four) – OP \*  
 \* (tb–OP) \*  
 \* AFT L,R RCS TK ISOL (six) – CL \*  
 \* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two IDP/CRTs with three MDUs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">225</td><td style="text-align: center;">221</td></tr></table>	L	R	225	221		OMS ENG FAIL
	L	R				
225	221					
$\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">211</td><td style="text-align: center;">200</td></tr></table> or No FU IN P	211	200		OMS PRPLT FAIL		
211	200					
<b>OMS PC* &amp; OMS</b> ↓ (BFS: ✓ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227		OMS ENG FAIL				
	OX IN P $\leq$ 227 or No OX IN P		OMS PRPLT FAIL			
<b>OMS OX/FU TK P</b> (✓ ENG IN P) OX/FU LOW		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL				
	OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284			
<b>OMS GMBL</b>	PRI fail		L(R) OMS GMBL – SEC (twice)			
	SEC fail		If high RCS usage: OMS ENG FAIL			
<b>GPC 1</b>			BFS Engage			
<b>I/O ERROR FA</b>	1		L OMS GMBL – SEC			
	2 FAs lost	✓	I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL MAN SHUTDN			
<b>BCE STRG D</b>			I/O RESET (if recov: >>)			
	1		If high RCS usage: L OMS GMBL – SEC (twice)			
	3		If high RCS usage: R OMS ENG FAIL			
<b>RM DLMA IMU</b>			After C/O: ✓ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS (✓ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21		
G21						
<b>I/O ERROR PCM</b>			OI PCMMU PWR – 1			

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine ΔTIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until ΔRANGE < 50

CRT 2. ✓BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L, R (two) – cl  
 F6 2. ✓ADI ATT – INRTL  
 ✓ERR – 5  
 ✓RATE – 5  
 (✓ADI ATT w/CRT BURN ATT)  
 ✓INRTL BURN ATT

At TIG–2

3. Use only two CRTs, L FLT CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*  
 \* O8 L,R OMS He PRESS/VAP ISOL \*  
 \* (four) – CL \*  
 \* ✓L,R OMS TK ISOL (four) – OP \*  
 \* (tb–OP) \*  
 \* L OMS XFEED (two) – OP (tb–OP) \*  
 \* R OMS XFEED (two) – CL (tb–CL) \*  
 \* O7 AFT L,R RCS XFEED (four) – OP \*  
 \* (tb–OP) \*  
 \* AFT L,R RCS TK ISOL (six) – CL \*  
 \* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two CRTs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">227</td><td style="text-align: center;">230</td></tr></table>	L	R	227	230		OMS ENG FAIL
	L	R				
227	230					
$\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">209</td><td style="text-align: center;">212</td></tr></table> or No FU IN P	209	212		OMS PRPLT FAIL		
209	212					
<b>OMS PC* &amp; OMS</b> ↓ (BFS: ✓ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227		OMS ENG FAIL				
	OX IN P $\leq$ 227 or No OX IN P		OMS PRPLT FAIL			
<b>OMS OX/FU TK P</b> (✓ ENG IN P) OX/FU LOW		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL				
	OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284			
<b>OMS GMBL</b>	PRI fail		L(R) OMS GMBL – SEC (twice)			
	SEC fail		If high RCS usage: OMS ENG FAIL			
<b>GPC 1</b>			BFS Engage			
<b>I/O ERROR FA</b>	1		L OMS GMBL – SEC			
			I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL			
	2 FAs lost		✓ MAN SHUTDN			
<b>BCE STRG D</b>			I/O RESET (if recov: >>)			
	1		If high RCS usage: L OMS GMBL – SEC (twice)			
	3		If high RCS usage: R OMS ENG FAIL			
<b>RM DLMA IMU</b>			After C/O: ✓ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS (✓ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21		
G21						
<b>I/O ERROR PCM</b>			OI PCMMU PWR – 1			

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine ΔTIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until ΔRANGE < 50

CRT 2. ✓BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L – cl  
 F6 2. ✓ADI ATT – INRTL  
 ✓ERR – 5  
 ✓RATE – 5  
 (✓ADI ATT w/CRT BURN ATT)  
 ✓INRTL BURN ATT

At TIG–2

3. Use only two IDP/CRTs, with three MDUs, L FLT  
 CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*  
 \* O8 L,R OMS He PRESS/VAP ISOL \*  
 \* (four) – CL \*  
 \* ✓L,R OMS TK ISOL (four) – OP \*  
 \* (tb–OP) \*  
 \* L OMS XFEED (two) – OP (tb–OP) \*  
 \* R OMS XFEED (two) – CL (tb–CL) \*  
 \* O7 AFT L,R RCS XFEED (four) – OP \*  
 \* (tb–OP) \*  
 \* AFT L,R RCS TK ISOL (six) – CL \*  
 \* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two IDP/CRTs with three MDUs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">224</td><td style="text-align: center;">217</td></tr></table>	L	R	224	217		OMS ENG FAIL
	L	R				
224	217					
$\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">209</td><td style="text-align: center;">201</td></tr></table> or No FU IN P	209	201		OMS PRPLT FAIL		
209	201					
<b>OMS PC* &amp; OMS</b> ↓ (BFS: ✓ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227		OMS ENG FAIL				
	OX IN P $\leq$ 227 or No OX IN P		OMS PRPLT FAIL			
<b>OMS OX/FU TK P</b> (✓ ENG IN P) OX/FU LOW		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL				
	OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284			
<b>OMS GMBL</b>	PRI fail		L(R) OMS GMBL – SEC (twice)			
	SEC fail		If high RCS usage: OMS ENG FAIL			
<b>GPC 1</b>			BFS Engage			
<b>I/O ERROR FA</b>	1		L OMS GMBL – SEC			
			I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL			
	2 FAs lost		✓ MAN SHUTDN			
<b>BCE STRG D</b>			I/O RESET (if recov: >>)			
	1		If high RCS usage: L OMS GMBL – SEC (twice)			
	3		If high RCS usage: R OMS ENG FAIL			
<b>RM DLMA IMU</b>			After C/O: ✓ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS (✓ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21		
G21						
<b>I/O ERROR PCM</b>			OI PCMMU PWR – 1			

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

**CDR**

**PLT**

CRT OMS BURN TIG ADJUST (if reqd)  
 1. LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC

Determine ΔTIG (if REI – REF > 50) from  
OMS TGTS (ASC)  
 Enter new TIG  
 LOAD – ITEM 22 EXEC  
 TIMER – ITEM 23 EXEC  
 Repeat until ΔRANGE < 50

CRT 2. ✓BFS TGT

EQUIP PWRUP

At TIG–10

O14:E 1. cb MNA DDU L – cl  
 O15:E MNB DDU L – cl  
 F6 2. ✓ADI ATT – INRTL  
 ✓ERR – 5  
 ✓RATE – 5  
 (✓ADI ATT w/CRT BURN ATT)  
 ✓INRTL BURN ATT

At TIG–2

3. Use only two IDP/CRTs, with three MDUs, L FLT  
 CNTLR PWR for burn  
BFS, GNC SYS SUMM 2

C3 OI PCMMU PWR – 2

\* If RCS BURN (I'CNCT OMS to RCS): \*  
 \* O8 L,R OMS He PRESS/VAP ISOL \*  
 \* (four) – CL \*  
 \* ✓L,R OMS TK ISOL (four) – OP \*  
 \* (tb–OP) \*  
 \* L OMS XFEED (two) – OP (tb–OP) \*  
 \* R OMS XFEED (two) – CL (tb–CL) \*  
 \* O7 AFT L,R RCS XFEED (four) – OP \*  
 \* (tb–OP) \*  
 \* AFT L,R RCS TK ISOL (six) – CL \*  
 \* (tb–CL) \*

At TIG–10

**VACUUM INERTING TERMINATE (If manual activation performed)**

R4 1. MPS FILL/DRAIN LO2,LH2 OUTBD (two) – CL  
 Wait 15 sec, then:  
 MPS FILL/DRAIN LO2,LH2 OUTBD (two) – GND  
 INBD (two) – GND

R2 2. PNEU He ISOL – GPC

At TIG–2

3. Use only two IDP/CRTs with three MDUs for burn  
BFS, GNC SYS SUMM 2

**GO TO DEORBIT BURN**

## DEORBIT BURN MONITOR (LOSS OF 2 H2O LOOPS AOA)

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td><td style="text-align: center;">R</td></tr><tr><td style="text-align: center;">224</td><td style="text-align: center;">217</td></tr></table> $\leq$ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">209</td><td style="text-align: center;">201</td></tr></table> or No FU IN P	L	R	224	217	209	201		OMS ENG FAIL
	L	R						
224	217							
209	201							
		OMS PRPLT FAIL						
<b>OMS PC* &amp; OMS</b> ↓ (BFS: ✓ accel) ENG VLV 1 or 2 < 70 or OX IN P > 227  OX IN P $\leq$ 227 or No OX IN P		OMS ENG FAIL						
		OMS PRPLT FAIL						
<b>OMS OX/FU TK P</b> (✓ ENG IN P) OX/FU LOW  OX & FU HIGH		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL						
		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234–284						
<b>OMS GMBL</b>	PRI fail	L(R) OMS GMBL – SEC (twice)						
	SEC fail	If high RCS usage: OMS ENG FAIL						
<b>GPC 1</b>		BFS Engage						
<b>I/O ERROR FA</b>	1	L OMS GMBL – SEC						
	2 FAs lost	I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL  ✓ MAN SHUTDN						
<b>BCE STRG D</b>		I/O RESET (if recov: >>)						
	1	If high RCS usage: L OMS GMBL – SEC (twice)						
	3	If high RCS usage: R OMS ENG FAIL						
<b>RM DLMA IMU</b>		After C/O: ✓ timer <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">G21</td></tr></table> If any IMU ACC > 0.03: aff IMU – desel l'cnct OMS to RCS (✓ RCS Burn Time) THC + X (3.5 X timer at C/O)	G21					
G21								
<b>I/O ERROR PCM</b>		OI PCMMU PWR – 1						

\*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance



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**AOA DEORBIT  
BURN (2 ENG)  
(LOSS OF 2 H2O LOOPS)**

- ✓MM302 ✓OMS BOTH  
Enter TGO + 5 sec
- ✓TRIM: P +0.4, LY -5.7, RY +5.7  
L,R OMS He PRESS/VAP ISOL A (two) – GPC  
B (two) – OP
- ✓DAP – AUTO(PASS)/DISC  
ADI – LVLH(REF)/HI/MED  
FLT CNTLR PWR (two) – ON

- TIG-2 OMS ENG (two) – ARM/PRESS
- :15 EXEC
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
- :00 TIG Start watch (✓Pc, ΔVTOT, ENG VLVs)

- \* **OMS PRPLT FAIL (CONTINUE BURN):** \*
- \* Failed OMS ENG – OFF \*
- \* ITEM 18 +0 EXEC \*
- \* When good OMS QTY: \*
- \* 5%: L, R OMS XFEED (four) – OP \*
- \* 4%: good OMS TK ISOL (two) – CL \*
- \* If OMS Pc < 80 or OMS TEMP, OMS ENG – OFF \*
- \* ✓ADI – LVLH, center needles \*
- \* RCS COMPLETION \*
- \* **OMS ENG FAIL:** \*
- \* Failed OMS ENG – OFF \*
- \* OMS XFEED at 1/2 ΔVTOT at fail  \*
- \* or OMS QTY  %L or  %R \*
- \* **2nd OMS FAIL (ENG or PRPLT):** \*
- \* Failed OMS ENG – OFF \*
- \* If PRPLT FAIL: \*
- \* Secure aff OMS \*
- \* ITEM 18 +0 EXEC \*
- \* ✓ADI – LVLH, center needles \*
- \* Interconnect good OMS to RCS \*
- \* THC +X (✓OMS% vs RCS Burn Time) \*
- \* RCS I'CNCT TK SW (N/A for OMS PRPLT FAIL) \*
- \* THC +X (✓OMS% vs RCS Burn Time) \*
- \* AFT RCS RECONFIG \*
- \* RCS COMPLETION \*
- \* ----- \*

```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT   ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT   ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :       TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*    $\Delta V$                                FRCS COMPLETION *
* *
*   AFT   ----- *
*    $\Delta V$                                THC +X to TGT  $\Delta V$  *
* *
*   TGT   ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP                               FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP                               THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to ΔVTOT = 0 or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP ΔV or *
*   if CUR ΔVTOT:         TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*   ΔV           FRCS COMPLETION *
* *
*   AFT   ----- *
*   ΔV           THC +X to TGT ΔV *
* *
*   TGT   ----- *
*   ΔV *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2    % then *
*   FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP           FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP           THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +¼ ΔVTOT) *
*   THC -X to ΔVTOT = 0 or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1          THC +X to FLIP  $\Delta V$  or *
*   if CUR  $\Delta VTOT$ :      TOT AFT QTY 2    % then *
*                       FRCS COMPLETION *
* *
*   FLIP   ----- *
*    $\Delta V$                                 FRCS COMPLETION *
* *
*   AFT   ----- *
*    $\Delta V$                                 THC +X to TGT  $\Delta V$  *
* *
*   TGT   ----- *
*    $\Delta V$  *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1          THC +X to FLIP HP or *
*   if CUR HP:           TOT AFT QTY 2    % then *
*                       FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP                                FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP                                THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4  $\Delta VTOT$ ) *
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* -----
* RCS COMPLETION:
* If DIRECT INSERTION:
*   THC +X to  $\Delta VTOT = 0$  or TOT AFT QTY 1    %
*
*   At AFT QTY 1          THC +X to FLIP  $\Delta V$  or
*   if CUR  $\Delta VTOT$ :      TOT AFT QTY 2    % then
*                       FRCS COMPLETION
*
*   FLIP   -----
*    $\Delta V$                                FRCS COMPLETION
*
*   AFT   -----
*    $\Delta V$                                THC +X to TGT  $\Delta V$ 
*
*   TGT   -----
*    $\Delta V$ 
*
* If w/OMS 1:
*   THC +X to TGT HP or TOT AFT QTY 1    %
*
*   At AFT QTY 1          THC +X to FLIP HP or
*   if CUR HP:            TOT AFT QTY 2    % then
*                       FRCS COMPLETION
*
*   FLIP   -----
*   HP                               FRCS COMPLETION
*
*   AFT   -----
*   HP                               THC +X to TGT HP
*
*   TGT   -----
*   HP
*
* FRCS COMPLETION:
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +¼  $\Delta VTOT$ )
*   THC -X to  $\Delta VTOT = 0$  or FRCS depletion (JETS FAIL OFF)

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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```

* ----- *
* RCS COMPLETION: *
* If DIRECT INSERTION: *
*   THC +X to ΔVTOT = 0 or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP ΔV or *
*   if CUR ΔVTOT:         TOT AFT QTY 2    % then *
*                           FRCS COMPLETION *
* *
*   FLIP   ----- *
*   ΔV           FRCS COMPLETION *
* *
*   AFT   ----- *
*   ΔV           THC +X to TGT ΔV *
* *
*   TGT   ----- *
*   ΔV *
* *
* If w/OMS 1: *
*   THC +X to TGT HP or TOT AFT QTY 1    % *
* *
*   At AFT QTY 1           THC +X to FLIP HP or *
*   if CUR HP:             TOT AFT QTY 2    % then *
*                           FRCS COMPLETION *
* *
*   FLIP   ----- *
*   HP           FRCS COMPLETION *
* *
*   AFT   ----- *
*   HP           THC +X to TGT HP *
* *
*   TGT   ----- *
*   HP *
* *
* FRCS COMPLETION: *
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +¼ ΔVTOT) *
*   THC -X to ΔVTOT = 0 or FRCS depletion (JETS FAIL OFF) *

```

```

CUTOFF
+ :02  OMS ENG(s) - OFF (If < 3 IMU, at  :  )
      * AFT RCS RECONFIG if INTERCONNECT *
      TRIM X,Z residuals < 2 fps (< 0.5 fps if shallow)

```

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## POST BURN ACTIONS

- MS O14:E 1. cb MNA DDU L – op  
 O15:E MNB DDU L,R (two) – op  
 O16:E ✓MNC DDU R – op  
 CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT  
 BURN STEPS performed)  
 3. Use only one CRT  
 C3 OI PCMMU PWR – OFF  
 F6 4. FLT CNTLR PWR – OFF  
 C3 5. ✓DAP: AUTO

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

6. Determine PREBANK  
 Determine  $\Delta$ HP (CUR HP – TGT HP)  
 Use RECOVERY PREBANK TABLES  
 Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY  
 MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

## OMS/RCS POST BURN RECONFIG

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)  
 ✓TK ISOL (six) – GPC (tb–OP)  
 ✓XFEED (four) – GPC (tb–CL)  
 O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL  
 ✓TK ISOL (four) – OP (tb–OP)  
 ✓XFEED (four) – CL (tb–CL)

### RECOVERY PREBANK TABLES

\* NOTE: Applicable ONLY if OMS 1 reqd \*

\* (ATO/AOA steep entries) \*

\* **KSC** \*

$\Delta$ HP	0	2	4	7	11	15	19	22	27
PREBANK	0	25	50	75	90	100	115	130	180

\* (ATO/AOA shallow entries) \*

\* **KSC** \*

$\Delta$ HP	0	1	2	3	4	5	6	7	9
PREBANK	90	100	110	120	125	130	135	145	180

## C POST BURN STATUS

NOMINAL

Δ TIG

	:		
--	---	--	--

GNC, OPS 303 PRO

~EI-23

### IMU ALIGN

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
– OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√ IMU 1 DES – ITEM 7 (\*)  
OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear (≤ 4 min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
3 – desel (PASS and BFS)  
– OFF



## POST BURN ACTIONS

- MS O14:E 1. cb MNA DDU L – op  
 O15:E MNB DDU L,R (two) – op  
 O16:E ✓MNC DDU R – op  
 CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT  
 BURN STEPS performed)  
 3. Use only one IDP/CRT with one MDU  
 C3 OI PCMMU PWR – OFF  
 F6 4. FLT CNTLR PWR – OFF  
 C3 5. ✓DAP: AUTO

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

6. Determine PREBANK  
 Determine  $\Delta$ HP (CUR HP – TGT HP)  
 Use RECOVERY PREBANK TABLES  
 Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY  
 MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

## OMS/RCS POST BURN RECONFIG

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)  
 ✓TK ISOL (six) – GPC (tb–OP)  
 ✓XFEED (four) – GPC (tb–CL)  
 O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL  
 ✓TK ISOL (four) – OP (tb–OP)  
 ✓XFEED (four) – CL (tb–CL)

**RECOVERY PREBANK TABLES (EDW)**

\* NOTE: APPLICABLE ONLY IF OMS 1 REQD

(ATO/AOA steep entries) **EDW**

$\Delta$ HP	0	④	RED	9	14	16	20	25	27
PREBANK	0	45	NOR	80	95	100	115	150	175
				NOR N/A					

↓

(ATO/AOA steep entries) **Redesignate NOR**

$\Delta$ HP			5	⑫	15	20	27	30	32
PREBANK			35	75	85	95	125	150	175

(ATO/AOA shallow entries) **EDW**

$\Delta$ HP	0	①	RED	3	4	5	6	8	9
PREBANK	90	95	NOR	110	120	125	135	160	175
				NOR N/A					

↓

(ATO/AOA shallow entries) **Redesignate NOR**

$\Delta$ HP			2	3	⑤	7	8	10	12
PREBANK			95	100	105	120	130	150	175

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C **POST BURN STATUS**

NOMINAL

Δ TIG

	:		
--	---	--	--

GNC, OPS 303 PRO

~EI-23

**IMU ALIGN**

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
    – OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√IMU 1 DES – ITEM 7 (\*)  
    OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear (≤ 4 min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
    3 – desel (PASS and BFS)  
    – OFF

## POST BURN ACTIONS

- MS O14:E 1. cb MNA DDU L – op  
 O15:E MNB DDU L,R (two) – op  
 O16:E ✓MNC DDU R – op  
 CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT  
 BURN STEPS performed)  
 3. Use only one IDP/CRT with one MDU  
 C3 OI PCMMU PWR – OFF  
 F6 4. FLT CNTLR PWR – OFF  
 C3 5. ✓DAP: AUTO

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

6. Determine PREBANK  
 Determine  $\Delta$ HP (CUR HP – TGT HP)  
 Use RECOVERY PREBANK TABLES  
 Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY  
 MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

## OMS/RCS POST BURN RECONFIG

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)  
 ✓TK ISOL (six) – GPC (tb–OP)  
 ✓XFEED (four) – GPC (tb–CL)  
 O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL  
 ✓TK ISOL (four) – OP (tb–OP)  
 ✓XFEED (four) – CL (tb–CL)

**RECOVERY PREBANK TABLES (EDW)**

\* **NOTE:** APPLICABLE ONLY IF OMS 1 REQD

(ATO/AOA steep entries)				<b>EDW</b>					
$\Delta$ HP	0	5	(11)	RED	17	21	25	29	33
PREBANK	0	45	70	NOR	90	100	115	140	175
					NOR N/A				
(ATO/AOA steep entries)				<b>Redesignate NOR</b>					
$\Delta$ HP				12	18	(24)	31	37	41
PREBANK				35	70	85	105	140	180
(ATO/AOA shallow entries)				<b>EDW</b>					
$\Delta$ HP	0	3	(5)	RED	7	9	10	11	12
PREBANK	90	100	110	NOR	120	135	145	155	170
					NOR N/A				
(ATO/AOA shallow entries)				<b>Redesignate NOR</b>					
$\Delta$ HP				6	8	(10)	12	13	16
PREBANK				95	105	115	130	140	180

109 OCF

## C POST BURN STATUS

NOMINAL

Δ TIG

	:		
--	---	--	--

GNC, OPS 303 PRO

~EI-23

### IMU ALIGN

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
– OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√ IMU 1 DES – ITEM 7 (\*)  
OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear (≤ 4 min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
3 – desel (PASS and BFS)  
– OFF

## POST BURN ACTIONS

- MS O14:E 1. cb MNA DDU L – op  
 O15:E MNB DDU L,R (two) – op  
 O16:E ✓MNC DDU R – op  
 CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT  
 BURN STEPS performed)  
 3. Use only one IDP/CRT with one MDU  
 C3 OI PCMMU PWR – OFF  
 F6 4. FLT CNTLR PWR – OFF  
 C3 5. ✓DAP: AUTO

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

6. Determine PREBANK  
 Determine  $\Delta$ HP (CUR HP – TGT HP)  
 Use RECOVERY PREBANK TABLES  
 Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY  
 MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

## OMS/RCS POST BURN RECONFIG

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)  
 ✓TK ISOL (six) – GPC (tb–OP)  
 ✓XFEED (four) – GPC (tb–CL)  
 O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL  
 ✓TK ISOL (four) – OP (tb–OP)  
 ✓XFEED (four) – CL (tb–CL)

### RECOVERY PREBANK TABLES

\* NOTE: Applicable ONLY if OMS 1 reqd \*

\* (ATO/AOA steep entries) \*

\* **KSC** \*

$\Delta$ HP	0	③	4	8	12	17	22	26	27
PREBANK	0	40	50	80	95	105	125	160	175

\* (ATO/AOA shallow entries) \*

\* **KSC** \*

$\Delta$ HP	0	①	2	3	5	6	7	8	9
PREBANK	90	100	110	115	130	135	145	155	170

## C POST BURN STATUS

NOMINAL

Δ TIG

	:		
--	---	--	--

GNC, OPS 303 PRO

~EI-23

### IMU ALIGN

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
– OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√IMU 1 DES – ITEM 7 (\*)  
OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear (≤ 4 min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
3 – desel (PASS and BFS)  
– OFF

**POST BURN ACTIONS**

- MS O14:E 1. cb MNA DDU L – op
- O15:E MNB DDU L,R (two) – op
- O16:E ✓MNC DDU R – op
- CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT BURN STEPS performed)
- 3. Use only one IDP/CRT with one MDU
- C3 OI PCMMU PWR – OFF
- F6 4. FLT CNTLR PWR – OFF
- C3 5. ✓DAP: AUTO

**NOTE**

Prebank is applicable ONLY if OMS 1 reqd

- 6. Determine PREBANK
- Determine ΔHP (CUR HP – TGT HP)
- Use RECOVERY PREBANK TABLES
- Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

**OMS/RCS POST BURN RECONFIG**

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)
- ✓TK ISOL (six) – GPC (tb–OP)
- ✓XFEED (four) – GPC (tb–CL)
- O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL
- ✓TK ISOL (four) – OP (tb–OP)
- ✓XFEED (four) – CL (tb–CL)

**RECOVERY PREBANK TABLES**

NOTE: Applicable ONLY if OMS 1 reqd

(ATO/AOA steep entries)

**KSC**

ΔHP	0	4	7	10	14	18	22	24	26
PREBANK	0	50	75	90	100	110	130	145	170

(ATO/AOA shallow entries)

**KSC**

ΔHP	0	1	2	3	4	5	6	7	8
PREBANK	90	105	115	120	130	140	150	160	175

## C POST BURN STATUS

NOMINAL

Δ TIG

<input type="checkbox"/>	:	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	---	--------------------------	--------------------------

GNC, OPS 303 PRO

~EI-23

### IMU ALIGN

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
– OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√ IMU 1 DES – ITEM 7 (\*)  
OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear (≤ 4 min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
3 – desel (PASS and BFS)  
– OFF



## POST BURN ACTIONS

- MS O14:E 1. cb MNA DDU L – op
- O15:E MNB DDU L,R (two) – op
- O16:E ✓MNC DDU R – op
- CM O14:A 2. IMU 1 – ON (already ON if IMMEDIATE AOA DEORBIT BURN STEPS performed)
- 3. Use only one IDP/CRT with one MDU
- C3 OI PCMMU PWR – OFF
- F6 4. FLT CNTLR PWR – OFF
- C3 5. ✓DAP: AUTO

### NOTE

Prebank is applicable ONLY if OMS 1 reqd

- 6. Determine PREBANK
- Determine  $\Delta$ HP (CUR HP – TGT HP)
- Use RECOVERY PREBANK TABLES
- Record PREBANK on LOSS OF 2 H2O LOOPS ENTRY MANEUVERS (ENT MNVR/BAILOUT), 10–1, then:

## OMS/RCS POST BURN RECONFIG

- O7 1. ✓AFT L,R RCS He PRESS (four) – OP (tb–OP)
- ✓TK ISOL (six) – GPC (tb–OP)
- ✓XFEED (four) – GPC (tb–CL)
- O8 2. L,R OMS He PRESS/VAP ISOL (four) – CL
- ✓TK ISOL (four) – OP (tb–OP)
- ✓XFEED (four) – CL (tb–CL)

### RECOVERY PREBANK TABLES

\* NOTE: Applicable ONLY if OMS 1 reqd \*

\* (ATO/AOA steep entries) \*

\* **KSC** \*

$\Delta$ HP	0	②	4	8	12	17	22	26	28
PREBANK	0	25	50	80	95	105	120	150	170

\* (ATO/AOA shallow entries) \*

\* **KSC** \*

$\Delta$ HP	0	①	2	3	5	6	7	8	9
PREBANK	90	100	110	115	130	140	150	160	175

## C POST BURN STATUS

NOMINAL

$\Delta$  TIG

<input type="checkbox"/>	:	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	---	--------------------------	--------------------------

GNC, OPS 303 PRO

~EI-23

### IMU ALIGN

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, performed:

O16:A

1. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 3 – desel (PASS and BFS)  
– OFF
2. Go to FRCS REACTIVATION >>

If IMMEDIATE AOA DEORBIT BURN STEPS, 7-1, NOT performed:

O16:A

3. 

GNC 21 IMU ALIGN
------------------

  
√IMU 1 DES – ITEM 7 (\*)  
OPER – ITEM 4 EXEC (\*)  
Wait for asterisk (\*) to appear ( $\leq 4$  min), then  
GNC I/O RESET
4. IMU/IMU ALIGN – IMU 1,2 TO IMU 3  
When align complete:
  5. 

GNC 50 HORIZ SIT
------------------

  
NAV DELTA zero update
  6. 

GNC 21 IMU ALIGN
BFS, GNC 51 OVERRIDE

  
IMU 1 – sel (PASS and BFS)  
3 – desel (PASS and BFS)  
– OFF

~EI-17

FRCS REACTIVATION

If forward RCS dump reqd:

- O14:B      1.   cb MNA OI SIG CONDR OF 1/4 A - cl
- :F      2.   RJDF 1B F1 DRIVER - ON
- LOGIC - ON
- O15:B      3.   cb MNB OI SIG CONDR OF 2/3 A - cl
- :F      4.   RJDF 1A F2 DRIVER - ON
- LOGIC - ON
- O16:F      5.           2A F3, 2B F4 DRIVER (two) - ON
- F4/F5 LOGIC (two) - ON
- O6           6.   ✓MDM FF1,2,3 (three) - ON
- FF4 - ON
- CRT           GNC I/O RESET
- O8           7.   FWD RCS MANF ISOL 1,2,3,4 (four) - OP (tb-OP)
- GNC 23 RCS
- 8.   JET RESET - ITEM 45 EXEC
- 9.   Reselect deselected FRCS jets
- 10. JET RESET - ITEM 45 EXEC
- O15:E       11. Pwr either DDU as reqd to achieve/maintain EI-5 ATT

C CRT1   ✓Uplinked INRTL EI-5 MM303 ATT w/DEL PAD

- \* If no Deorbit TGT uplink, enter INRTL EI-5 \*
- \* MM303 ATT from DEL PAD \*
- \* R - ITEM 24 +\_\_\_\_\_ \*
- \* P - ITEM 25 +\_\_\_\_\_ \*
- \* Y - ITEM 26 +\_\_\_\_\_ \*

MNVR TO EI-5 ATT - ITEM 27 EXEC

- \* If UNDERBURN or no DEL PAD, manually mnvr \*
- \* to LVLH R001, Y358, 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

**OMS GMBL PWRDN (PASS only)**

CRT      Verify GMBL positions:

	L	R
P	+5.9	+5.9
Y	+6.4	-6.4

- GMBL OFF – ITEM 32 EXEC
- ITEM 33 EXEC

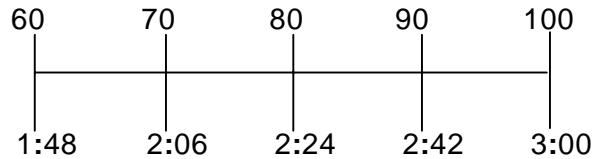
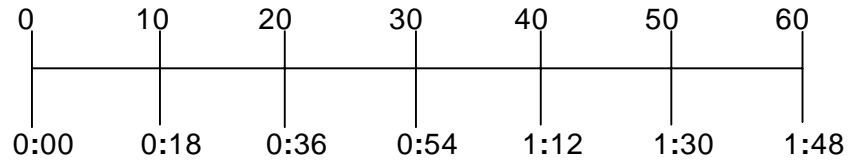
**FORWARD RCS DUMP** (if reqd) — FOUR JETS

O6      1. ✓MDM FF4 – ON

NOTE

Use BFS qtys for all calculations.  
Determine FWD RCS 'DUMP TO %' using lowest of  
Ox or Fu qty (calculator or DEL PAD)

FOUR JET DUMP:  
F RCS PRPLT TO BE DUMPED (%)

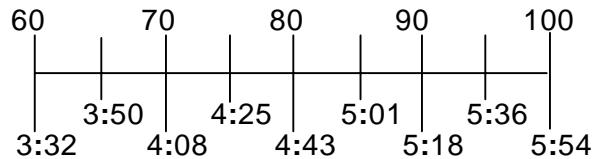
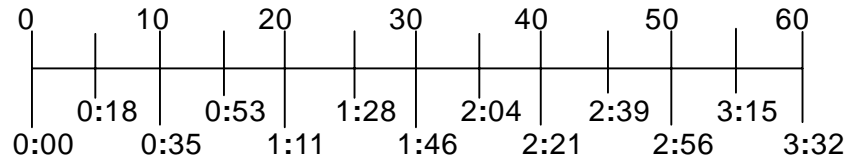


TIME FROM DUMP INITIATION (M:S)

NOTE

During dump, disregard FRCS QTY

TWO JET DUMP:  
F RCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

NOTE

During dump, disregard FRCS QTY

Cont next page

- CRT
2. FWD RCS ARM – ITEM 36 EXEC
  3. DUMP – ITEM 37 EXEC
- When dump time achieved:
4. FWD RCS OFF – ITEM 38 EXEC

### ISOLATE FRCS

When dump complete:

- |       |    |                                  |              |
|-------|----|----------------------------------|--------------|
| O8    | 1. | FWD RCS MANF ISOL 1,2,3,4 (four) | – CL (tb–CL) |
| O6    | 2. | MDM FF4                          | – OFF        |
| O14:B | 3. | cb MNA OI SIG CONDR OF 1/4 A     | – op         |
| :F    | 4. | RJDF 1B F1 DRIVER                | – OFF        |
|       |    | LOGIC                            | – OFF        |
| O15:B | 5. | cb MNB OI SIG CONDR OF 2/3 A     | – op         |
| :F    | 6. | RJDF 1A F2 DRIVER                | – OFF        |
|       |    | LOGIC                            | – OFF        |
| O16:F | 7. | 2A F3, 2B F4 DRIVER (two)        | – OFF        |
|       |    | F4/F5 LOGIC (two)                | – OFF        |

**APU RESTART (if APUs shutdn)**

- 1. Use additional MDU, if reqd  
BFS, SM SYS SUMM 2 |
- R2 2. BLR N2 SPLY (three) – ON  
     PWR (three) – ON  
     CNTLR/HTR (three) – A  
     APU AUTO SHUTDN (three) – ENA  
     CNTLR PWR (three) – ON  
     HYD MN PUMP PRESS (three) – LO  
     APU SPEED SEL (three) – NORM  
     OPER (three) – OFF  
     FUEL TK VLV (three) – CL  
     cb APU FU TK VLV ENA (six) – cl  
     APU FUEL TK VLV (three) – OP  
     OPER (three) – INJ COOL (start watch)
- C3 OI PCMMU PWR – 2  
     If after 1.5 min APU INJ TEMP not decr:  
     3. OI PCMMU PWR – OFF  
     Go to step 6
- 4. OI PCMMU PWR – OFF  
     At 3.5 min:
- R2 5. APU OPER (three) – START/RUN  
     MDU ✓HYD PRESS ind (three) – LO green |
- R2 \* If APU does not start: \*  
     \* 6. APU OPER – OFF \*  
     \* FUEL TK VLV – CL \*  
     \* CNTLR PWR – OFF \*  
     \* HYD MN PUMP PRESS – NORM \*
- 7. Pwr off additional MDU if used |

**DPS ENTRY CONFIG**

- O6 1. GPC PWR 3 – ON  
     MODE 3 – STBY (tb–RUN)  
     – RUN
- EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3
- 2. GNC, OPS 301 PRO  
GNC 0 GPC MEMORY  
     CONFIG ITEM 1 +3 EXEC

Cont next page

- Modify MC 3 per table →
3. GNC, OPS 301 PRO (✓DAP)  
 GNC 50 HORIZ SIT  
 GNC, OPS 302,303 PRO  
 For any IDP that is off:  
 GPC/CRT3/X EXEC  
 BFS: GNC I/O RESET  
 GNC 0 GPC MEMORY  
 DOWNLIST GPC – ITEM 44 +3 EXEC
- O6 4. GPC MODE 1 – STBY (tb-bp)  
 – HALT  
 PWR 1 – OFF
- C3 5. ✓FCS CH (four) – AUTO
- | CONFIG GPC | 3 | 10300 |
|------------|---|-------|
| STR 1      | 3 |       |
| 2          | 3 |       |
| 3          | 3 |       |
| 4          | 3 |       |
| PL 1/2     | 3 |       |
| CRT 1      | 3 |       |
| 2          | 3 |       |
| 3          | 3 |       |
| 4          | 0 |       |
| L 1        | 0 |       |
| 2          | 0 |       |
| MM 1       | 3 |       |
| 2          | 3 |       |

### HORIZ SIT CONFIG

ALTM – ITEM 9+   .

	<u>PASS ITEM</u>	<u>BFS ITEM</u>
PTI	INH ✓1	
LAND SITE (AOA DEL PAD)	✓41	✓41
RWY (AOA DEL PAD)	✓3	✓3
	✓4	✓4
TAC (per AOA RWY)	✓5	✓5
RA	blank ✓46	
TAEM TGT		
G&N	OVHD ✓6	blank
HSI	blank	blank
XEP	NEP ✓7	NEP ✓7
AIM (AOA DEL PAD)	NOM ✓8 (or CLSE)	NOM ✓8 (or CLSE)
SPDBK	NOM ✓39	
TAC	INH ✓20	INH ✓20
GPS	INH ✓43	INH ✓43
DRAG H	AUT ✓22	AUT ✓22
ADTA H	INH ✓26	INH ✓26
ADTA TO G&C	INH ✓29	AUT ✓28
TAC	DELTA ✓35	
DES any failed TACANs	✓	✓
AIF_G	INH ✓48	

- \* If BFS engaged: \*
- \* Set HSD BFS ITEMS to PASS config \*

### ECLSS ENTRY CONFIG

- L1 IMU FAN (three) – OFF  
 AV BAY 3 FAN B – ON  
 ✓2 FAN A – ON  
 ✓All other AV BAY FANS – OFF  
 NH3 CNTLR B – PRI/GPC  
 A – OFF

**ENTRY SWITCH CHECK**

- R3A 1. Install ENTRY Cue Cards  
O7 2. ✓TACAN MODE sel (three) – OFF  
✓ANT SEL (three) – AUTO  
CH tw (three) – 

111
-----

 (EDW)  

59Y
-----

 (KSC)  

121Y
------

 (NOR)
- O8 3. ✓RADAR ALTM (two) – OFF  
4. ✓MLS (three) – OFF  
✓CH tw (three) – 8 

EDW22	KSC15
-------	-------

  
– 6 

EDW15	KSC33	NOR17	EDW04
-------	-------	-------	-------
- L2 5. ✓CAB RELIEF (two) – ENA (tb–ENA)  
✓ANTISKID – OFF  
✓NWS – OFF  
✓ENTRY MODE – AUTO  

GNC 51 OVERRIDE
-----------------

  
✓ROLL MODE – AUTO
- L2/C3 6. ✓SBTC – full fwd  
C3 7. ✓SRB SEP – AUTO  
✓ET SEP – AUTO
- F6/F8 8. ✓AIR DATA (two) – NAV  
✓ADI ERR (two) – 5  
✓RATE (two) – 5  
✓HSI SEL MODE (two) – ENTRY  
F6 ✓SOURCE (two) – NAV, 1  
F8 – NAV, 2
- F3 9. L,R TRIM RHC/PNL (two) – INH  
PNL (two) – ON
- O14:A 10. BRAKES MNA – ON  
:E cb MNA ACCEL 1 – cl  
DDU L – cl
- O15:A 11. BRAKES MNB – ON  
:E cb MNB ACCEL 2 – cl  
DDU L – cl
- O16:A 12. BRAKES MNC – ON  
:F ACCEL 3 – ON
- F6 13. L FLT CNTLR PWR – ON  
C3 ✓DAP: AUTO
- O15:D 14. cb MNB O2/N2 CNTLR 2 – cl

Before OPS 304:

15. Have MS complete AFT PNL CONFIG FOR ENTRY COMM (COMM), 12–2 (Comm will be activated at V = 12K), then:
16. Go to LOSS OF 2 H2O LOOPS ENTRY MANEUVERS (ENT MNVR/BAILOUT), 10–1



- CRT
2. FWD RCS ARM – ITEM 36 EXEC
  3. DUMP – ITEM 37 EXEC
- When dump time achieved:
4. FWD RCS OFF – ITEM 38 EXEC

### ISOLATE FRCS

When dump complete:

- |       |    |  |
|-------|----|--|
| O8    | 1. | FWD RCS MANF ISOL 1,2,3,4 (four) – CL (tb-CL)              |
| O6    | 2. | MDM FF4 – OFF  |
| O14:B | 3. | cb MNA OI SIG CONDR OF 1/4 A – op                          |
| :F    | 4. | RJDF 1B F1 DRIVER – OFF<br>LOGIC – OFF                     |
| O15:B | 5. | cb MNB OI SIG CONDR OF 2/3 A – op                          |
| :F    | 6. | RJDF 1A F2 DRIVER – OFF<br>LOGIC – OFF                     |
| O16:F | 7. | 2A F3, 2B F4 DRIVER (two) – OFF<br>F4/F5 LOGIC (two) – OFF |

**APU RESTART (if APUs shutdn)**

- F8 1. INST PWR – ON  
BFS, SM SYS SUMM 2
- R2 2. BLR N2 SPLY (three) – ON  
PWR (three) – ON  
CNTLR/HTR (three) – A  
APU AUTO SHUTDN (three) – ENA  
CNTLR PWR (three) – ON  
HYD MN PUMP PRESS (three) – LO  
APU SPEED SEL (three) – NORM  
OPER (three) – OFF  
FUEL TK VLV (three) – CL  
cb APU FU TK VLV ENA (six) – cl  
APU FUEL TK VLV (three) – OP  
OPER (three) – INJ COOL (start watch)
- C3 OI PCMMU PWR – 2  
If after 1.5 min APU INJ TEMP not decr:  
3. OI PCMMU PWR – OFF  
Go to step 6
- 4. OI PCMMU PWR – OFF  
At 3.5 min:
- R2 5. APU OPER (three) – START/RUN  
F8 ✓HYD PRESS ind (three) – LO green
- \* If APU does not start: \*
- R2 \* 6. APU OPER – OFF \*
- \* FUEL TK VLV – CL \*
- \* CNTLR PWR – OFF \*
- \* HYD MN PUMP PRESS – NORM \*
- F8 7. INST PWR – OFF

**DPS ENTRY CONFIG**

- O6 1. GPC PWR 3 – ON  
MODE 3 – STBY (tb–RUN)  
– RUN
- EXPAND RS AND ASSIGN ALL STRINGS TO GPC 3
- 2. GNC, OPS 301 PRO  
GNC 0 GPC MEMORY  
CONFIG ITEM 1 +3 EXEC

Cont next page

- Modify MC 3 per table →
3. GNC, OPS 301 PRO (✓DAP)  
 GNC 50 HORIZ SIT  
 GNC, OPS 302,303 PRO  
 For any CRT that is off:  
 GPC/CRT3/X EXEC  
 BFS: GNC I/O RESET  
 GNC 0 GPC MEMORY  
 DOWNLIST GPC – ITEM 44 +3 EXEC
- O6 4. GPC MODE 1 – STBY (tb-bp)  
 – HALT  
 PWR 1 – OFF
- C3 5. ✓FCS CH (four) – AUTO

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

### HORIZ SIT CONFIG

ALTM – ITEM 9+   .

	<u>PASS ITEM</u>	<u>BFS ITEM</u>
PTI	INH ✓1	
LAND SITE (AOA DEL PAD)	✓41	✓41
RWY (AOA DEL PAD)	✓3	✓3
	✓4	✓4
TAC (per AOA RWY)	✓5	✓5
RA	blank ✓46	
TAEM TGT		
G&N	OVHD ✓6	blank
HSI	blank	blank
XEP	NEP ✓7	NEP ✓7
AIM (AOA DEL PAD)	NOM ✓8 (or CLSE)	NOM ✓8 (or CLSE)
SPDBK	NOM ✓39	
TAC	INH ✓20	INH ✓20
GPS	INH ✓43	INH ✓43
DRAG H	AUT ✓22	AUT ✓22
ADTA H	INH ✓26	INH ✓26
ADTA TO G&C	INH ✓29	AUT ✓28
TAC	DELTA ✓35	
DES any failed TACANs	✓	✓
AIF_G	INH ✓48	

- \* If BFS engaged: \*
- \* Set HSD BFS ITEMS to PASS config \*

### ECLSS ENTRY CONFIG

- L1 IMU FAN (three) – OFF  
 AV BAY 3 FAN B – ON  
 ✓2 FAN A – ON  
 ✓All other AV BAY FANS – OFF  
 NH3 CNTLR B – PRI/GPC  
 A – OFF

# NOM |

**ENTRY SWITCH CHECK**

- R3A 1. Install ENTRY Cue Cards  
O7 2. ✓TACAN MODE sel (three) – OFF  
✓ANT SEL (three) – AUTO  
CH tw (three) – 

111
-----

 (EDW)  

59Y
-----

 (KSC)  

121Y
------

 (NOR)
- O8 3. ✓RADAR ALTM (two) – OFF  
4. ✓MLS (three) – OFF  
✓CH tw (three) – 8 

EDW22	KSC15
-------	-------

  
– 6 

EDW15	KSC33	NOR17	EDW04
-------	-------	-------	-------
- L2 5. ✓CAB RELIEF (two) – ENA (tb–ENA)  
✓ANTISKID – OFF  
✓NWS – OFF  
✓ENTRY MODE – AUTO  

GNC 51 OVERRIDE
-----------------

  
✓ROLL MODE – AUTO
- L2/C3 6. ✓SBTC – full fwd  
C3 7. ✓SRB SEP – AUTO  
✓ET SEP – AUTO
- F6/F8 8. ✓AIR DATA (two) – NAV  
✓ADI ERR (two) – 5  
✓RATE (two) – 5  
✓HSI SEL MODE (two) – ENTRY  
F6 ✓SOURCE (two) – NAV, 1  
F8 – NAV, 2
- F3 9. L,R TRIM RHC/PNL (two) – INH  
PNL (two) – ON
- O14:A 10. BRAKES MNA – ON  
:E cb MNA ACCEL 1 – cl  
DDU L – cl
- O15:A 11. BRAKES MNB – ON  
:E cb MNB ACCEL 2 – cl  
DDU L – cl
- O16:A 12. BRAKES MNC – ON  
:F ACCEL 3 – ON
- F7 13. L FLT CNTLR PWR – ON  
C3 ✓DAP: AUTO
- O15:D 14. cb MNB O2/N2 CNTLR 2 – cl

Before OPS 304:

15. Have MS complete AFT PNL CONFIG FOR ENTRY COMM (COMM), 12–2 (Comm will be activated at V = 12K), then:
16. Go to LOSS OF 2 H2O LOOPS ENTRY MANEUVERS (ENT MNVR/BAILOUT), 10–1

## LOSS OF 2 H2O LOOPS ENTRY MANEUVERS

FLIGHT CONDITIONS	MANEUVER
EI-5	Use up to two IDP/CRTs and three MDUs, if reqd ✓LVLH ATT GNC, OPS 304 PRO * If PREBANK, R/Y - CSS * * Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> * * Maintain PREBANK ± 5° *
EI-3	✓FWD RCS MANF ISOL 1,2,3,4 - CL
EI	cb MNA ADTA 1 - cl MNB ADTA 2 - cl MNC ADTA 3 - cl GNC I/O RESET
$\bar{q} = 1$	HYD MN PUMP PRESS (three) - NORM
'Guidance Box' @ q ~ 8 or D ~ 3	CLOSED LOOP GUIDANCE ___:___:___ * If PREBANK: P, R/Y - AUTO * Begin AIL trim monitoring
D = 11	✓DRAG H (FORCE if editing)
V = 19K	✓MPS/TVC ISOL VLV - CL
V = 15K	TACAN 2,3 (two) - GPC
V = 12K	ACTIVATE ENTRY COMM ✓L,R AUD PWR - AUD ✓AUD CTR - 1 UHF MOD - SPLX S-BD PM CNTL - PNL,CMD GNC I/O RESET OI PCMMU PWR - 1 ✓FORMAT - FXD S-BD PM ANT - select best ANT MDM PL2 - ON BFS I/O RESET
V = 7K	✓TACAN status
V = 5K	ADTA PROBES - DEPLOY (✓HEAT) Begin AIL and RUD trim monitoring
$\Delta Az = 10.5$	FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)

FLIGHT CONDITIONS	MANEUVER
M = 2.9	CAB FAN A - OFF Pwr one HUD, one MLS, one RA for landing GNC I/O RESET
M = 2.7	cb MNB,MNC DDU R (two) - cl R FLT CNTLR PWR - ON Use additional MDU for FI, if reqd ✓APUs
h = 85K	FLASH EVAP CNTLR PRI A - OFF * If M < 2.5, P CSS for ADTA to G&C incorp *
M = 2.0	Ensure ADTA to G&C else ✓Theta Limits
M = 0.9	P,R/Y - CSS as reqd ✓SPDBK CMD vs POS MAX Nz <input type="text"/> <input type="text"/> <input type="text"/> NWS - 1 ANTISKID - ON LOCK INERTIA REELS
M = 0.7	✓LG EXTEND ISOL VLV - OP
h = 15K	✓MLS (If activated)
h = 10K	✓A/L, ✓TABS/VISORS - CL/LES O2 - ON (KSC)
MAIN GEAR TD	✓SPDBK - 100%
DEROTATION INIT	DRAG CHUTE pb (two) - ARM, DPY (simo)
NOSE GEAR TD	SRB SEP - MAN/AUTO and depress pb ✓Auto Load Relief ✓HYD BRAKE ISOL VLV (three) - OP
V = 60 KGS	DRAG CHUTE JETT pb - JETT
STOP	Go to EMER PWRDN (Cue Card)

For **BAILOUT** see 10-2

## BAILOUT MODE 8

REPORT POSITION  
MACH < .95, OPS 305/603  
SB – AUTO, BF – AUTO  
FLY 185–195 KEAS,  $\phi$  – 0°  
ABORT MODE – ATO  
ABORT PBI – PUSH  
P, R/Y – AUTO  
FLT CNTLR PWR (two) – OFF

### ~50K FT

TABS – RELEASE  
VISOR – CLOSE/LOCK  
LES O2 – ON  
GREEN APPLE – PULL

### ~40K FT

MS3 – VENT CABIN  
CDR, PLT SEATS – LOWER  
KNEEBOARDS – REMOVE  
COOLING – DISCONNECT  
RESTRAINT – RELEASE  
D-RING – UNCOVER

### ~30K FT

MS3 – JETTISON HATCH  
COMM – DISCONNECT  
(G-SUIT CLIP – PULL)  
LES O2 – DISCONNECT  
EGRESS SEAT  
POLE – DEPLOY  
D-RING – HOOK UP  
BAILOUT

## LOSS OF 2 H2O LOOPS ENTRY MANEUVERS

FLIGHT CONDITIONS	MANEUVER
EI-5	L INST PWR – ON ✓LVLH ATT GNC, OPS 304 PRO * If PREBANK, R/Y – CSS * * Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> * * Maintain PREBANK ± 5° *
EI-3	✓FWD RCS MANF ISOL 1,2,3,4 – CL
EI	Use two CRTs as reqd cb MNA ADTA 1 – cl MNB ADTA 2 – cl MNC ADTA 3 – cl GNC I/O RESET
$\bar{q} = 1$	HYD MN PUMP PRESS (three) – NORM
'Guidance Box' @ q ~ 8 or D ~ 3	CLOSED LOOP GUIDANCE ___:___:___ * If PREBANK: P, R/Y – AUTO * Begin AIL trim monitoring
D = 11	✓DRAG H (FORCE if editing)
V = 19K	✓MPS/TVC ISOL VLV – CL
V = 15K	TACAN 2,3 (two) – GPC
V = 12K	ACTIVATE ENTRY COMM ✓L,R AUD PWR – AUD ✓AUD CTR – 1 UHF MOD – SPLX S-BD PM CNTL – PNL,CMD GNC I/O RESET OI PCMMU PWR – 1 ✓FORMAT – FXD S-BD PM ANT – select best ANT MDM PL2 – ON BFS I/O RESET
V = 7K	✓TACAN status
V = 5K	ADTA PROBES – DEPLOY (✓HEAT) Begin AIL and RUD trim monitoring
$\Delta Az = 10.5$	FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)

FLIGHT CONDITIONS	MANEUVER
M = 2.9	CAB FAN A – OFF Pwr one HUD, one MLS, one RA for landing GNC I/O RESET
M = 2.7	cb MNB,MNC DDU R (two) – cl R FLT CNTLR PWR – ON R INST PWR – ON ✓APUs
h = 85K	FLASH EVAP CNTLR PRI A – OFF * If M < 2.5, P CSS for ADTA to G&C incorp *
M = 2.0	Ensure ADTA to G&C else ✓Theta Limits
M = 0.9	P,R/Y – CSS as reqd ✓SPDBK CMD vs POS NWS – 1 ANTISKID – ON LOCK INERTIA REELS MAX N <sub>z</sub> <input type="text"/> <input type="text"/> <input type="text"/>
M = 0.7	✓LG EXTEND ISOL VLV – OP
h = 15K	✓MLS (If activated)
h = 10K	✓A/L, ✓TABS/VISORS – CL/LES O2 – ON (KSC)
MAIN GEAR TD	✓SPDBK – 100%
DEROTATION INIT	DRAG CHUTE pb (two) – ARM, DPY (simo)
NOSE GEAR TD	SRB SEP – MAN/AUTO and depress pb ✓Auto Load Relief ✓HYD BRAKE ISOL VLV (three) – OP
V = 60 KGS	DRAG CHUTE JETT pb – JETT
STOP	Go to EMER PWRDN (Cue Card)

For **BAILOUT** see 10-2

## BAILOUT MODE 8

REPORT POSITION  
MACH < .95, OPS 305/603  
SB – AUTO, BF – AUTO  
FLY 185–195 KEAS,  $\phi$  – 0°  
ABORT MODE – ATO  
ABORT PBI – PUSH  
P, R/Y – AUTO  
FLT CNTLR PWR (two) – OFF

### ~50K FT

TABS – RELEASE  
VISOR – CLOSE/LOCK  
LES O2 – ON  
GREEN APPLE – PULL

### ~40K FT

MS3 – VENT CABIN  
CDR, PLT SEATS – LOWER  
KNEEBOARDS – REMOVE  
COOLING – DISCONNECT  
RESTRAINT – RELEASE  
D-RING – UNCOVER

### ~30K FT

MS3 – JETTISON HATCH  
COMM – DISCONNECT  
(G-SUIT CLIP – PULL)  
LES O2 – DISCONNECT  
EGRESS SEAT  
POLE – DEPLOY  
D-RING – HOOK UP  
BAILOUT



## MS PULLOUT SECTION

Pull this section for MS use. Complete MS OVHD PNL PWRDN, ASAP.  
If STDN LOS, have another MS perform COMM PWRDN (COMM), 12-1, at the same time

### MS OVHD PNL PWRDN

1. Minimize Itg on AFT FD & MIDDECK
- O13:A 2. cb ESS 1BC MTU A – op  
:C 2CA C/W B – op (Expect MA and two F7 lts)  
:E 3AB GPC STAT – op
- O14:A 3. BRAKES MNA – OFF  
:B 4. cb MNA OI SIG CONDR OF 1/4 A – op  
MDM OF 1/2 A,3/4 A (two) – op  
H2O BYP LOOP 1 SNSR – op  
MSN TIMER FWD – op  
EVENT TIMER AFT – op  
:D 5. If OV103/105, cb MNA GPS PRE AMPL (two) – op  
cb MNA GPS PRE AMPL (two) – op  
CAB VENT – op  
VENT ISOL – op  
:E 6. ADTA 1 – op  
ACCEL 1 – op  
√DDU AFT – op  
:F 7. MMU 1 – OFF
- O15:A 8. BRAKES MNB – OFF  
:B 9. cb MNB OI SIG CONDR OF 1/4 B,2/3 A (two) – op  
MDM OF 1/2 B – op  
H2O BYP LOOP 2 SNSR – op  
:C If OV104, cb MNB PRE AMPL UPPER – op  
:D LOWER – op  
:B cb MNB MSN TIMER AFT – op  
EVENT TIMER FWD – op  
:D 10. O2/N2 CNTLR 2 – op  
:E 11. ADTA 2 – op  
ACCEL 2 – op  
DDU R – op  
:F 12. ACCEL 4 – OFF
- O16:A 13. BRAKES MNC – OFF  
:B 14. cb MNC OI SIG CONDR OF 2/3 B – op  
MDM OF 3/4 B – op  
:D 15. If OV103/105, cb MNC GPS PRE AMPL (two) – op  
cb MNC O2 EMER – op  
:E 16. ADTA 3,4 (two) – op  
DDU R – op  
√AFT – op  
:F 17. ACCEL 3 – OFF

MS OVHD  
PNL PWRDN

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## MS PULLOUT SECTION

MS As soon as possible after BDA/WLP LOS, perform COMM PWRDN

### COMM PWRDN

- A1L 1. S-BD PM ANT SW ELEC – OFF  
PRE AMP – OFF  
PWR AMPL STBY – OFF  
OPER – OFF  
MODE – STDN LO  
XPNDR – OFF
- 2. NSP PWR – OFF  
ENCRYPTION PWR – OFF  
(Encryption disabled for rest of flight)  
ENCRYPTION MODE – SEL  
SEL – BYP
- C3 3. S-BD PM CNTL – PNL  
OI PCMMU FORMAT – FXD  
PWR – OFF
- O6 4. UHF MODE sel – OFF
- A1L 5. ✓S-BD PL CNTL – PNL  
✓PWR SYS – OFF  
PL DATA INTLVR PWR – OFF
- A1R 6. OPS RCDRS PWR (two) – OFF  
S-BD FM CNTL – PNL  
PWR – OFF  
PL RCDR PWR – OFF
- R14:B 7. cb MNA,MNC GCILC (two) – op  
If after EI-5:  
8. Perform AFT PNL CONFIG FOR ENTRY COMM, 12-2

Contact MCC at first available AOS using COMM PWRUP procedures. Preferred comm config in order of least heat production:

- 1. UHF
- 2. STDN LO PWR – if reqd
- 3. TDRS – only if mandatory

**CAUTION**

TDRS on STDN HI may be limited to  
10 min (pwr amp will overheat)

COMM

## MS PULLOUT SECTION

### AFT PNL CONFIG FOR ENTRY COMM

- On GO from CDR prior to MS/PS seat ingress:
- R14:B 1. cb MNA,MNC GCILC (two) – cl
  - C3 2. S-BD PM CNTL – CMD
  - A1L 3. ANT SW ELEC – 2  
MODE – STDN LO (SGLS)  
XPNDR – 2
  - 4. NSP PWR – 2
    - ✓DATA RATE XMIT – HI
    - RCV – HI
    - ✓UPLK DATA – S-BD
    - ✓CODING XMIT – OFF
    - ✓RCV – OFF

#### NOTE

CDR will activate COMM at V = 12K

COMM

## MS PULLOUT SECTION

### COMM PWRUP (If COMM reqd prior to landing site coverage)

Power up audio system

C3 1. ✓AUD CTR – 1  
O5 ✓L AUD PWR – AUD  
O9 ✓R AUD PWR – AUD

If UHF available:

O6 Config for UHF comm (voice only):  
2. UHF MODE sel – SPLX  
✓SPLX PWR AMP – ON  
After comm with MCC complete:  
3. UHF MODE sel – OFF >>

If UHF site unavailable or if MCC requests data:  
Config for GSTDN(SGLS) S–BD:

C3 4. ✓S–BD PMCNTL – PNL  
A1L ANT SW ELEC – 2  
MODE – STDN LO (SGLS)  
XPNDR – 2  
NSP PWR – 2  
DATA RATE XMIT – HI  
RCV – HI  
CODING XMIT – OFF  
RCV – OFF  
✓UPLK DATA – S–BD  
C3/F9 Select best S–BD PM ANT

If MCC requests data:

O14:B 5. cb MNA OI MDM OF 1/2,3/4 A (two) – cl  
SIG CONDR OF 1/4 A – cl  
O15:B MNB OI SIG CONDR OF 2/3 A – cl  
C3 OI PCMMU PWR – 1  
GNC I/O RESET  
O6 MDM PL2 – ON  
BFS I/O RESET

At end of data transmission:

O14:B 6. cb MNA OI MDM OF 1/2,3/4 A (two) – op  
SIG CONDR OF 1/4 A – op  
O15:B MNB OI SIG CONDR OF 2/3 A – op  
L1 ✓FLASH EVAP CNTLR PRI A – ON, then:  
O6 MDM PL2 – OFF

7. After comm/data complete, go to COMM PWRDN >>

If UHF site and GSTDN unavailable and comm/data critical:  
Config for TDRS S–BD

#### CAUTION

This is a High Pwr Mode. On–time should be limited to 10–min max due to Pwr Amp Thermal constraints. A 3–min delay occurs after S–BD PM PNL/CMD before Pwr Amp is active. Uplink not affected. Proceed with selection of best antenna

Cont next page

C3  
 A1L

8. ✓ S-BD PMCNTL – PNL
  - ANT SW ELEC – 2
  - PRE AMP – 2
  - PWR AMPL OPER – 2
  - MODE – TDRS DATA
  - XPNDR – 2
  - NSP PWR – 2
    - ✓DATA RATE XMIT – HI
      - ✓RCV – HI
    - CODING XMIT – ON
      - RCV – ON
    - ✓UPLK DATA – S-BD

C3/F9  
 Select best S-BD PM ANT

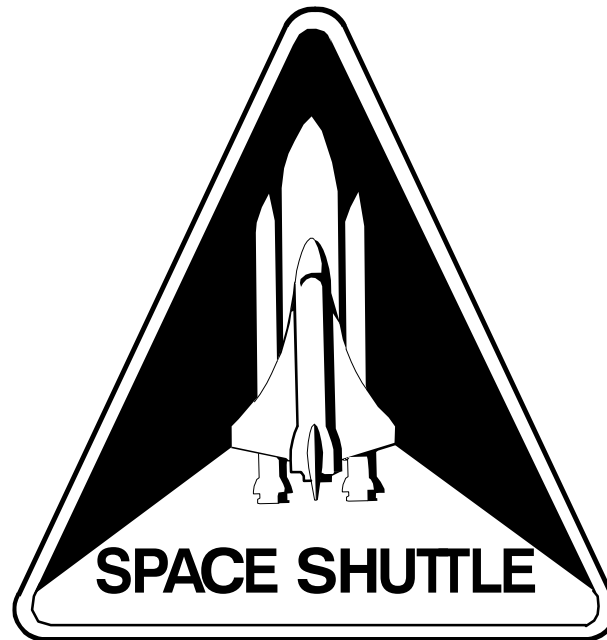
If MCC requests data:

- O14:B 9. cb MNA OI MDM OF 1/2,3/4 A (two) – cl
  - SIG CONDR OF 1/4 A – cl
- O15:B MNB OI SIG CONDR OF 2/3 A – cl
- C3 OI PCMMU PWR – 1
  - GNC I/O RESET
- O6 MDM PL2 – ON
  - BFS I/O RESET

At end of data transmission:

- O14:B 10. cb MNA OI MDM OF 1/2,3/4 A (two) – op
  - SIG CONDR OF 1/4 A – op
- O15:B MNB OI SIG CONDR OF 2/3 A – op
- L1 ✓FLASH EVAP CNTLR PRI A – ON, then:
- O6 MDM PL2 – OFF

11. After comm/data complete, go to COMM PWRDN, 12-1



**SYSTEMS AOA  
PROCEDURES**

**STS  
ALL**