Deorbit Prep

Mission Operations Directorate
Operations Division

Generic, Rev H
July 5, 1996

NOTE
For STS-79 and subsequent flights

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Includes updates thru PCN-2, dated June 20, 1997
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NOMINAL DEORBIT PREP PROCEDURES
### NOMINAL DEORBIT PREP OVERVIEW OF CONFIGURATION MANAGEMENT

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<thead>
<tr>
<th>OPS</th>
<th>OPS 1 ASC C/L</th>
<th>OPS 2 ON-ORBIT</th>
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1-2
NOMINAL DEORBIT PREP

If Time to TIG < 4 hr and > 2 hr 40 min:

1. Accomplish Immediately:
   - MNVR (TRK) Biased -XSI (if not already in TAIL SUN)
   - CRTX TGT ID +4 (blanks OM)
   - BODY VECT +5
   - P +184
   - OM (blank)
   - Initiate TRK

2. Back out of PRIORITY PWRDN, as reqd (ORB PKT, PRIOR PWRDN)

3. If previous FC PURGE was not accomplished within last 6 hr:
   - accomplish FC PURGE (ORB OPS, EPS) during D/O Prep prior to DPS ENTRY CONFIG

4. MS accomplish CABIN CONFIG/STOW (FLIGHT PLAN) during D/O Prep timeframe

5. Begin Deorbit Prep timeline immediately and perform procedures as rapidly as possible

Verify that following activities have been accomplished:

- FCS CHECKOUT (ORB OPS, GNC)
- RCS HOT FIRE TEST (ORB OPS, RCS)
- CABIN CONFIG/STOW (FLIGHT PLAN)
- MNVR (TRK) Biased -XSI (FLIGHT PLAN, DETAILED TIMELINE)
- FC PURGE (ORB OPS, EPS)
- OPS 2 DAP CONFIG

Back out of PRIORITY PWRDN, as reqd (ORB PKT, PRIOR PWRDN)
A1(B1)
AUTO
VERN
RT 0.2
DB 1.0

**C, MS**

**TIG ~04:00**

**CRT TIMER SETUP 1**

- GNC UNIV PTG
- SM SYS SUMM

**P**

**CRT TIMER SETUP 1**

- YDAP: A1/AUTO/VERN
- B set to B1

**MS**

**COLDSOAK INITIATE 2**

- ENT STOWAGE MS MID ACTIVITIES 3 [1-27]
- ENT AIRLOCK CONFIG MS MID ACTIVITIES 3A [1-27]

**P**

- KU-BD ANT STOW, if deployed (ORB OPS, COMM/INST)

- RAD STOW, if reqd (ORB OPS, ECLS)

**S66**

- N2 QTY COMPUTE
  - Add N2 QTY 1 + 2
  - Then annotate CABIN PRESS LEAK NOMOGRAPH (ENT PKT, ECLS)

- DETERMINE H2 DEPLETED TANKS
  - Note all H2 tanks with Qty < 3%
  - Then annotate DEORBIT BURN FLIGHT RULES, ELEC section (steps 10 thru 13), for depleted tanks (ENT, BURN CARDS)

- SPECIALIST SEAT INSTALLATION

**C, MS**

**TIG ~03:55**

**ENT STOWAGE MS MID ACTIVITIES 3 [1-27]**

**ENT AIRLOCK CONFIG MS MID ACTIVITIES 3A [1-27]**

**COLDSOAK INITIATE 2**

- FES CONFIG
  - CC Lt FLASH EVAP CNTLR PAI A,B,SEC (three) - OFF
  - RAD CNTLR OUT TEMP - HI
  - When FREON EVAP OUT TEMP > 50 degF.
  - FLASH EVAP CNTLR PRI B(A) - ON
  - HI LOAD DUCT HTR - B

- SPLY H2O X0VR VLV - OP (lb-OP)

- H2O LOOP C/O AND CONFIG
  - SM 88 APU/ENVIRON THERM

**NOTE**

- INCR decreases ICH FLOW
- INCR decreases ICH FLOW

**L1**

- H2O PUMP LOOP 1 - ON
  - LOOP 1 BYP MODE - MAN
  - DECIR (hold 5 sec)

- V/H2O LOOP 1 ICH FLOW - increasing

- H2O LOOP 1 BYP MAN - INCR (Adjust until ICH FLOW ~950)

- PUMP LOOP 1 (two) - OFF.B

- LOOP 2 BYP MODE - MAN
  - INCR or DECR

  (Adjust until ICH FLOW ~950)
### APU/HYD CONFIG [5]

**APU STEAM VENT HTR ACT**

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<thead>
<tr>
<th>R2</th>
<th>✓BLR CNTRL/HTR (three) - B</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>PWR (three) - ON</td>
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**NOTE**

HTR reqd to be on 2 hr prior to APU act

<table>
<thead>
<tr>
<th>A12</th>
<th>✓HYD CIRC PUMP (three) - MNC</th>
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**HYD CIRC PUMP TERM**

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<tr>
<th>C3</th>
<th>✓FCS CH (four) - AUTO</th>
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**HYD REPRESS PREP**

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### DED DISP ENT CONFIG [6]

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<th>O14</th>
<th>RGA (four) - ON</th>
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<tr>
<td>O15</td>
<td>cb MNA,B,C ADTA (four) - cl</td>
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<td>O16</td>
<td>cb MNA,B ACCEL 1, 2 (two) - cl</td>
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<td></td>
<td>MNA,C DDU AFT (two) - op</td>
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<tr>
<td></td>
<td>MNB,C DDU R (two) - cl</td>
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<tr>
<td>O7</td>
<td>ASA (four) - ON</td>
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<td></td>
<td>ACCEL 4,3 (two) - ON</td>
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<tr>
<td>O8</td>
<td>TACAN MODE (three) - GPC</td>
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<td>ANT SEL (three) - AUTO</td>
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<tr>
<td>O6</td>
<td>RADAR ALTM (two) - ON</td>
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<td>MLS (three) - ON</td>
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<td>MLS CH tw (three) - See DEL PAD (ENT, PRPLT/DEL PADS)</td>
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<td>F6/F8</td>
<td>INST PWR - FLT (F6)</td>
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<td>F3</td>
<td>TRIM PNL (two) - ON</td>
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<td>F6/F8</td>
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<td>ADI: ✓Error needles &amp; rate pointers - visible</td>
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**D/O/ALL/GEN H.2**
DPS CONFIG FOR D/O PREP

1: GNC 0 GPC MEMORY
2: BFS, GNC 0 BFS MEMORY

NOTE
Do not perform any keyboard item entries or switch throws 10 sec before and after moding PASS GPCs to RUN or making OPS transition requests.

ACTIVATE GPC 2 (if in HALT)
Remove and stow GPC Mode Switch Guard

P/I Locker

Remove and stow GPC Mode Switch Guard

GPC MODE 2 - HALT (tb-bp)
OUTPUT 2 - NORM
PWR 2 - ON
MODE 2 - STBY (tb-RUN), RUN

TRANSITION GPCs 1 & 2 TO OPS 2
(if GPC 2 just activated)

1: GNC 0 GPC MEMORY

CONFIG - ITEM 1 + 2 EXEC
Modify MC 2 per table
GNC, OPS 201 PRO

1: GNC 22 S TRK/COAS CNTL
S TRK - Y, Z: STAR TRK - ITEM 3, 4 EXEC
RESUME

ENSURE BFS GPC CAN DRIVE A CRT
GPC PWR 5 - ON
MODE 5 - STBY (tb-RUN)

BFC CRT DISP - ON
SEL - 2, 4, 3

BFC CRT DISP - OFF
SEL - 3 + 1

PARTIAL ENT SWITCH LIST/VERIF (NID), 3-10 thru 3-12

NOTE
MCC for unaccounted for switch or config configuration discrepancies

PARTIAL ENT SWITCH LIST/VERIF (FWD), 3-4 thru 3-6

PARTIAL ENT SWITCH LIST/VERIF (FWD), 3-7 & 3-8
**NOTE**

Procedure applies for 1 or 2 STKR aligns. For 1 STKR, a 2nd Att mnvr is reqd between data takes. See DEORBIT IMU STAR PADS (ORB OPS FS, PTG) for Alt 8 stars.

**1.** GNC 22 S TRK/COAS CNTL
**2.** GNC 21 IMU ALIGN

**CRT1**

1. **REOQ ID - ITEM 11,12 - 0**
2. **STATUS (two) - NO BITE**
3. **SHUTTER (two) - OP**
   - If SHUTTER - CL:
     - **ATT, MET - correct**
     - Visually verify no bright object in FOV
   - If Att not collected and before changing Att, return shutter to AUTO
   - To open shutter:
     - MAN OP - ITEM 15(16) EXEC (*)
   - To return shutter to AUTO:
     - MAN OP - ITEM 15(16) EXEC (no *)

**CRT2**

1. **IMU 1,2,3:**
2. **STATUS - blank**
3. **OPER - ITEM 4,5,6 (*)**
4. **IMU ALIGN ATT (pad)**

**CRT1**

1. **S TABLE CLR - ITEM 20 EXEC**
2. **STAR TRK - ITEM 3,4 EXEC (*)**
3. **Verify S TABLE:**
   - TRK ID 1,2 = STAR ID (pad)
   - ANG ERR ≤ .08
   - (wait approx 1 min for new IMU Δ ANGS)
   - If after 3 min no data (or bad data) in S TABLE:
     - **STAR TRK - ITEM 3,4 (*)**
     - **ATT/STARS/TIME**
     - **S TRK: TRK ID = STAR ID (pad)**
   - Do S TRK SelL-Test
   - If neither tracker fails:
     - Mnvr to Verification Att - repeat steps 3,4,5,6
   - If one tracker fails:
     - **TERM/IDLE for failed tracker - ITEM 9(10) (*)**
     - Proceed with 1 S TRK ALIGN
   - If both trackers fail inform MCC

**For 1 S TRKR ALIGN:**

1. **STAR TRK for good tracker - ITEM 3(4) EXEC (*)**
2. **S TABLE CLR - ITEM 20 EXEC, reacquire star with good tracker**
3. **TERM/IDLE for good tracker during maneuvers - ITEM 9(10) EXEC (*)**

Mnvr to 2nd Att (Single S TRK):
- Do not clear S table
- Repeat steps 3,5,6, with 2nd Star ID

**CRT2**

1. **S TABLE SEL - ITEM 17,18 (*)**
2. **ALIGN IMU 1,2,3 - ITEM 10,11,12 EXEC (*)**
3. **STAR ALIGN - ITEM 13 (*)**
4. **IMU 1,2,3 - ANG ΔX,ΔY,ΔZ < 0.80**
   - If ANG ΔX,ΔY,ΔZ > 0.80 for two IMUs, do not torque:
   - Mnvr to Verification Att & repeat steps 3 thru 7 once
   - If still > 0.80, report to MCC

**CRT1**

1. **S TABLE SEL - ITEM 17,18 (*)**
2. **ALIGN IMU 1,2,3 - ITEM 10,11,12 EXEC (*)**
3. **STAR ALIGN - ITEM 13 (*)**
4. **IMU 1,2,3 - ANG ΔX,ΔY,ΔZ < 0.80**
   - If ANG ΔX,ΔY,ΔZ > 0.80, perform steps 8-11;
   - report to MCC

**IMU ALIGN VERIFICATION**

1. Mnvr to IMU VERIF ATT, DEORBIT IMU STAR PADS (ORB OPS FS, PTG)
   - DAP: B/AUTO/PRI
2. **IMU 1,2,3 ANG ΔX,ΔY,ΔZ < 0.1**
   - If ANG ΔX,ΔY,ΔZ > 0.1, perform steps 8-11;
   - report to MCC

**NOTE**

For alternate stars, see MCC or ref STAR PAIRS (ORB OPS FS, PTG)

12. **Report IMU ALIGN results**

**IMU ALIGN LOG**

**REOQ ID:** -Y____, -Z____  ANG ERR ______

**EXECUTE TIME ______:____:____ (TIG MINUS)**

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**IMU STAR ALIGN LOG**

**REOQ ID:** -Y____, -Z____  ANG ERR ______

**EXECUTE TIME ______:____:____ (TIG MINUS)**

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**IMU STAR ALIGN LOG**

**REOQ ID:** -Y____, -Z____  ANG ERR ______

**EXECUTE TIME ______:____:____ (TIG MINUS)**

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NOTE
See DEORBIT IMU STAR PADS (ORB OPS FS, PTG)

AUTO MNVR TO IMU ATT (Omit if BFS)
DAP: A/AUTO/PRI
Initiate MNVR
RAD BYPASS/FES C/O (ORB OPS, ECLS)
PAYLOAD DEACT. if reqd (PL OPS, DEORB PREP)

CONFIG FOR PLBD CLOSING MS AFT ACTIVITIES
When in IMU ATT:
DAP: B/AUTO/PRI
MCC: GO/NO-GO FOR PLBD CLOSING
IMU ALIGNMENT (Omit if BFS)
PLBD CLOSING
DPS ENTRY CONFIG

1. CHT CONFIG
   CRT 3 PWR - ON
   CRTX
   GPC/CRT 2/3 EXEC

2. VERIFY GPC CONFIG
   □ GPC MODE 3 - HALT (tb-bp)
   □ PWR 3 - ON
   □ OUTPUT 1,2 - NORM (tb-gray)
   □ 3,5 - NORM (tb-bp)
   □ 4 - TERM (tb-bp)
   □ MODE 1,2,4 - RUN (tb-RUN)
   □ 3 - STBY (tb-RUN)
   □ 5 - STBY (tb-RUN)

3. SM CHECKPOINT/UL CNTL ENA
   1: SM 60 SM TABLE MAINT
   2: SM 1 DPS UTILITY
   3: MMU ASSIGN 2 SM - ITEM 4 EXEC
   4: CKPT INITIATE - ITEM 18 EXEC
   5: Update of CKPT TIME and STATUS GOOD indicated
   6: MMU ASSIGN 1 SM - ITEM 3 EXEC
   7: CKPT INITIATE - ITEM 18 EXEC
   8: Update of CKPT TIME and STATUS GOOD indicated
   9: CKPT RETRVR ENA - ITEM 12 EXEC (*)
   10: UL CNTL ENA - ITEM 16 EXEC

4. LOAD ENTRY TFL/RECONFIG UPLK
   Perform LOAD PDI DECOM FORMAT and LOAD PCMMU FORMAT
   for entry config (ORB OPS FS, COMM/INST)
   C2
   Set event timer to count down to TIG

5. TRANSITION GPC 1 & 2 TO GNC OPS 3
   1: GNC 0 GPC MEMORY
   2: MODIFY - ITEM 1 +2 EXEC

6. TRANSITION BFS GPC TO GNC OPS 3
   BF/ CRT DISP - ON
   □ SEL 3 = 3+1
   □ 3: BFS, GNC BFS MEMORY
   □ GPC OUTPUT 5 - B/U (tb-bp)
   □ TIL ENA - ITEM 29 (*)
   □ BFS, GNC OPS 301 PRO
   □ 3: BFS, GNC DEORB MNVR COAST
   □ CRT 1
   □ PL 1/2
   □ CRT 1
   □ 2
   □ CRT 1
   □ 3
   □ CRT 1
   □ 4
   □ CRT 1
   □ 0
   □ CRT 1
   □ 2
   □ CRT 1
   □ 2

7. TRANSITION GPC 1,2,3,4 TO GNC OPS 3
   SM, OPS 000 PRO
   X: SM GPC MEMORY
   □ GPC OUTPUT 4 - NORM (tb-gray)
   □ MODE 3,5 (two) - RUN (tb-RUN)
   □ If no comm, sel best antena
   □ CONFIG - ITEM 1 +2 EXEC
   □ Modify MC 3 per table
   □ GNC OPS 301 PRO
   □ CRT 1
   □ 3
   □ CRT 1
   □ 2
   □ CRT 1
   □ 3
   □ CRT 1
   □ 2
   □ CRT 1
   □ 3

8. MNVR BACK TO COMM ATT
   □ GPC 301 PRO
   □ CRT 1
   □ 1
   □ CRT 1
   □ 2
   □ CRT 1
   □ 3

9. LOAD TG Ts
   1: GNC DEORB MNVR COAST
   □ MCC for TGT and SV UPLINK
   □ LOAD - ITEM 18 EXEC
   □ TIMER - ITEM 18 EXEC
   □ PL 1/2
   □ CRT 1
   □ 4
   □ CRT 1
   □ 4

10. VERIFY MC 9 TABLE (GNC) FOR POST LANDING
    2: GNC 0 GPC MEMORY
    □ CONFIG - ITEM 1 +2 EXEC
    □ Modify MC 9 per table
    □ CONFIG - ITEM 1 +3 EXEC
    □ CRT 1
    □ 2
    □ CRT 1
    □ 2
    □ CRT 1
    □ 2
MCC: GO/NO-GO for OPS 3 transition

MS POST CLOSING CONFIG
MS AFT ACTIVITIES 10, 1-25

C AUTO MNVR TO COMM ATT
MNVR per MCC

\[ \begin{align*}
R & \quad \text{---}
\end{align*} \]

\[ \begin{align*}
P & \quad \text{---}
\end{align*} \]

\[ \begin{align*}
Y & \quad \text{---}
\end{align*} \]

\( \sqrt{DAP} \): B/AUTO/PRI
MNVR when IMU verif complete

MS SPACELAB FINAL DEACT, if reqd
MS AFT ACTIVITIES 11, 1-25
Transition to ENT PKT

C.P DPS ENTRY CONFIG 12

MCC uplink:
PASS and BFS SV, TGT
DEORB PAD UPDATE

MCC Update:
OMS PRPLT PAD, DEL PAD (ENT, PRPLT/DEL PADS)
& DEORBIT MNVR PAD (ENT, MNVR PADS)
* If MCC cannot provide DEORB TGT, use PGSC *

LANDING SITE UPDATE

1: GNC 50 HORIZ SIT
SEL SITE see DEL PAD (ENT, PRPLT/DEL PADS)

CHECK TGTs

1: GNC DEORB MNVR COAST
PASS and BFS TGT per DEORBIT MNVR PAD
(ENT, MNVR PADS)
PASS and BFS solution per DEORBIT MNVR PAD
(ENT, MNVR PADS):
BURN ATT, HA HP
AVTOT
TGO
NOTE
See DEORBIT IMU STAR PADS (ORB OPS FS, PTG)

AUTO MNVR TO IMU ATT (Omit if BFS)
DAP: A/AUTO/PRI
Initiate MNVR
BAD BYPASS/FES C/O (ORB OPS, ECLS)

PAYLOAD DEACT if reqd (PL OPS, DEORP PREP)

CONFIG FOR PLBD CLOSING MS AFT ACTIVITIES 7, 1-25
When in IMU ATT:
DAP: B/AUTO/PRI

MCC: GO/NO-GO FOR PLBD CLOSING

IMU ALIGNMENT (Omit if BFS) 8

PLBD CLOSING 9, 1-21 and 1-22

A1-11
### DPS ENTRY CONFIG

<table>
<thead>
<tr>
<th>Steps</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CRT 3 PWR - ON</td>
</tr>
<tr>
<td>2.</td>
<td>VERIFY GPC CONFIG</td>
</tr>
<tr>
<td></td>
<td>GPC MODE 3 - HALT (tb-bp)</td>
</tr>
<tr>
<td></td>
<td>PWR 3 - ON</td>
</tr>
<tr>
<td></td>
<td>OUTPUT 1.2 - NORM (tb-gray)</td>
</tr>
<tr>
<td></td>
<td>OUTPUT 3.5 - NORM (tb-bp)</td>
</tr>
<tr>
<td></td>
<td>MODE 1.2,4 - RUN (tb-RUN)</td>
</tr>
<tr>
<td></td>
<td>MODE 3 - STBY (tb-RUN)</td>
</tr>
<tr>
<td></td>
<td>MODE 5 - STBY (tb-RUN)</td>
</tr>
<tr>
<td>3.</td>
<td>SM CHECKPOINT/UL CNTL ENA</td>
</tr>
<tr>
<td></td>
<td>SM 60 SM TABLE MAINT</td>
</tr>
<tr>
<td></td>
<td>SM 1 DPS UTILITY</td>
</tr>
<tr>
<td>4.</td>
<td>LOAD ENTRY TFL/RECONFIG UPLK</td>
</tr>
<tr>
<td></td>
<td>Perform LOAD PDI DECOM FORMAT and LOAD PCMMU FORMAT for entry config (ORB OPS FS, COMM/INST)</td>
</tr>
<tr>
<td>5.</td>
<td>TRANSITION GPC 1 &amp; 2 TO GNC OPS 3</td>
</tr>
<tr>
<td></td>
<td>GNC 0 GPC MEMORY</td>
</tr>
<tr>
<td></td>
<td>CONFIG - ITEM 1 +3 EXEC</td>
</tr>
</tbody>
</table>

### Notes
- If IMU or RHC dilemma, do not proceed with OPS 3 transition
- Att mnvr complete
- RGA, AA, ASA, IMU (all) - ON
- Do not perform any keyboard item entries or switch throws 10 sec before and after making PASS GPCs to RUN or making OPS transition requests

### CONFIG

<table>
<thead>
<tr>
<th>CONFIG PARAMETER</th>
<th>GPC</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: GNC DEORB MNVR COAST</td>
<td>STR</td>
<td>1</td>
</tr>
<tr>
<td>2: BFS, GNC BFS MEMORY</td>
<td>CRT</td>
<td>1</td>
</tr>
<tr>
<td>3: GPC OUTPUT 5 - B/U (tb-bp)</td>
<td>L</td>
<td>0</td>
</tr>
<tr>
<td>4: GNC OUTPUT 4 - NORM (tb-gray)</td>
<td>MM</td>
<td>1</td>
</tr>
<tr>
<td>5: GNC OUTPUT 4 - RUN (tb-run)</td>
<td>MM</td>
<td>1</td>
</tr>
<tr>
<td>6: BCM MNVR COAST</td>
<td>MM</td>
<td>1</td>
</tr>
</tbody>
</table>

### Transition
- TRANSITION BFS GPC TO GNC OPS 3
- TRANSITION GPC 1,2,3,4 TO GNC OPS 3
- MNVR BACK TO COMM ATT
- LOAD IN TGTs
- VERIFY MC 9 TABLE (GNC) FOR POST LANDING
-02:30 — GNC 22 S TRK/COAS CNTL

-02:25 — POST CLOSING CONFIG
   MS AFT ACTIVITIES [10], 1-25
   AUTO MNVR TO COMM ATT
   MNVR per MCC
   Y

-02:20 — VALIDATION: B/AUTO/PRI
   MNVR when IMU verif complete

-02:15 — Transition to ENT PKT
   DPS ENTRY CONFIG [12]

-02:10 — TRANS DAP
   AUTO
   RT 0.5
   DB 3.5

-02:05 — MCC uplink:
   PASS and BFS SV, TGT

-02:00 — MCC: GO/NO-GO for OPS 3 transition

-02:25 — MS POST CLOSING CONFIG
   MS AFT ACTIVITIES [10], 1-25
   AUTO MNVR TO COMM ATT
   MNVR per MCC
   Y

-02:20 — VALIDATION: B/AUTO/PRI
   MNVR when IMU verif complete

-02:15 — Transition to ENT PKT
   DPS ENTRY CONFIG [12]

-02:10 — TRANS DAP
   AUTO
   RT 0.5
   DB 3.5

-02:05 — MCC uplink:
   PASS and BFS SV, TGT
DEORB PAD UPDATE

MCC update:
OMS PRPLT PAD, DEL PAD (ENT, PRPLT/DEL PADS)
& DEORBIT MNVR PAD (ENT, MNVR PADS)
* If MCC cannot provide DEORB TGT, use PGSC *

LANDING SITE UPDATE
1: GNC 50 HORIZ SIT
SEL SITE see DEL PAD (ENT, PRPLT/DEL PADS)

CHECK TGTs
1: GNC DEORB MNVR COAST
✓ PASS and BFS TGT per DEORBIT MNVR PAD
   (ENT, MNVR PADS)
✓ PASS and BFS solution per DEORBIT MNVR PAD
   (ENT, MNVR PADS):
   BURN ATT, HA HP
   AVTOT
   TGO
Begin FLUID LOADING per individual prescription. Fluid loading should be completed by E1.

For 1 rev waveoff, repeat half the protocol.
If > 1 rev waveoff, repeat entire protocol.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01:00</td>
<td>C, P SEAT INGRESS</td>
<td>Auto</td>
</tr>
<tr>
<td></td>
<td>C, P HUD SETUP [23]</td>
<td>MS, PS CLOTHING</td>
</tr>
<tr>
<td></td>
<td>C, P Adjust Seat</td>
<td>CONFIG</td>
</tr>
<tr>
<td></td>
<td>Exercise Brake Pedals</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure Cloth Cover does not obscure light sensor</td>
</tr>
<tr>
<td>-00:55</td>
<td>C, P LEH O2 lv (four) - OP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C, P LES PRESS INTEGRITY CHECK</td>
<td></td>
</tr>
<tr>
<td>-00:50</td>
<td>MS WIRELESS STOW MS AFT ACTIVITIES [24], 1-26</td>
<td></td>
</tr>
<tr>
<td>-00:50</td>
<td>MS CO2 RMVL SYS DEACT, if flown, MS MID ACTIVITIES [25], 1-28</td>
<td></td>
</tr>
<tr>
<td>-00:45</td>
<td>C, P Stow all unnecessary FDF articles FLIGHT DECK, Go to ENT, DEORBIT BURN</td>
<td></td>
</tr>
<tr>
<td>-00:40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-00:35</td>
<td>MS GALLEY DEACT MS MID ACTIVITIES [26], 1-26</td>
<td></td>
</tr>
<tr>
<td>-00:30</td>
<td>MS WCS DEACT MS MID ACTIVITIES [27], 1-28</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**
WCS must be deactivated prior to E1.
# AUTO PLBD CLOSING

## DETAILED PLBD CLOSING PROCEDURES

<table>
<thead>
<tr>
<th>CAUTION</th>
<th>Verify no obstructions when closing and latching PLBD (Ku ANT, RMS, RAD, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>* If no motion determined visually or ‘OP/CL’</td>
<td></td>
</tr>
<tr>
<td>* not blank within 10 sec after cmd,</td>
<td></td>
</tr>
<tr>
<td>* PL BAY DR - STOP</td>
<td></td>
</tr>
<tr>
<td>* MCC</td>
<td></td>
</tr>
<tr>
<td>* If door motion stops and not ‘RDY’ or ‘CL’,</td>
<td></td>
</tr>
<tr>
<td>* PL BAY DR - STOP</td>
<td></td>
</tr>
<tr>
<td>* MCC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R13L</th>
<th>If SM GPC fails during this operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* PL BAY DR SYS 1.2 (two) - DSBL</td>
<td></td>
</tr>
<tr>
<td>* Perform PASS SM GPC FAIL (ORE PKT, DPS)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRT4</th>
<th>SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>SM PL BAY DOORS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R13L</th>
<th>PL BAY DR - STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT4</td>
<td>PBBD SW - STOP</td>
</tr>
<tr>
<td>* MAN SEL (ten) - (no *)</td>
<td></td>
</tr>
<tr>
<td>* PBBD SW BYPASS - (no *)</td>
<td></td>
</tr>
<tr>
<td>* AC POWER ON - ITEM 1 EXEC (*)</td>
<td></td>
</tr>
<tr>
<td>* AUTO MODE SEL - ITEM 3 EXEC (*)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R13L</th>
<th>PL BAY DR SYS 1.2 (two) - ENA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT4</td>
<td>OP/CL STATUS (ten) - OP</td>
</tr>
</tbody>
</table>

**NOTE**

- Note any single mtr operations (continue ops) (single mtr times = 2x listed dual mtr times)

- * If PORT(STBD) DOOR not ‘CL’ within 6 sec of ‘RDY’ then: *
  - PL BAY DR - STOP |
  - PBBD BLKHD LAT GO/NO-GO DIAGRAM, 1-22 |
  - * If NO-GO: Go to MAL, MECCH SSR-2 (CONTINGENCY PLBD CLOSURE) |
  - * If GO: PL BAY DR - CL |

<table>
<thead>
<tr>
<th>R13L</th>
<th>PL BAY DR - CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT4</td>
<td>PORT DOOR - blank,RDY,CL (~ 63 sec)</td>
</tr>
<tr>
<td>* FWD,AFT LATCHES - blank,CL (~ 30 sec)</td>
<td></td>
</tr>
<tr>
<td>* STBD DOOR - blank</td>
<td></td>
</tr>
</tbody>
</table>

When STBD DOOR as close as possible to PORT DOOR before contacting it:

<table>
<thead>
<tr>
<th>R13L</th>
<th>PL BAY DR - STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine C/L Latch clearance on C/L NO-GO DIAGRAM, 1-22</td>
<td></td>
</tr>
</tbody>
</table>
| * If NO-GO for PLBD CLOSE and no waveoff capability, *
| * perform MAL, MECCH SSR-3 (SIMULTANEOUS PLBD CL) |
| * If waveoff OK, contact MCC |

| PL BAY DR - CL |
| --- | --- |
| * If (S63) PLBD CONFIG' msg occurs at this time and *
| PORT DOOR and LATCHES are ‘CL’ and CENTER LATCHES are ‘OP’ then: *
| * PL BAY DR - STOP |
| * Deselect AUTO MODE - ITEM 3 EXEC (no *) |
| * AC POWER ON - ITEM 1 EXEC (*) |
| * CLOSE STBD FWD,AFT LATCHES, & DOOR |
| * in MANUAL Mode, 1-23 |
| * Continue using AUTO Mode |

<table>
<thead>
<tr>
<th>CRT4</th>
<th>STBD DOOR - CL (~ 63 sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>* FWD,AFT LATCHES - blank,CL (~ 30 sec)</td>
<td></td>
</tr>
<tr>
<td>* CENTER LATCHES 1-4, 13-16 (two) - blank,CL (~ 20 sec)</td>
<td></td>
</tr>
<tr>
<td>* 5-8, 9-12 (two) - blank,CL (20 sec)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R13L</th>
<th>PL BAY DR - STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT4</td>
<td>SYS 1.2 (two) - DSBL</td>
</tr>
<tr>
<td>* OP/CL STATUS (ten) - CL</td>
<td></td>
</tr>
<tr>
<td>* AC POWER OFF - ITEM 2 EXEC (*)</td>
<td></td>
</tr>
<tr>
<td>GPC/CRT 04 EXEC</td>
<td></td>
</tr>
</tbody>
</table>

| R11L | CRT4 PWR - OFF |

---

D/O/ALL/GEN H
### AUTO PLBD CLOSING

**PLBD CONTROL**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PLBD DISPLAY PL MDM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC/ MCA</td>
</tr>
<tr>
<td>LATCH</td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>1/MID3</td>
</tr>
<tr>
<td>9-12</td>
<td>1/MID1</td>
</tr>
<tr>
<td>1-4</td>
<td>1/MID3</td>
</tr>
<tr>
<td>13-16</td>
<td>3/MID4</td>
</tr>
<tr>
<td>S FWD</td>
<td>1/MID1</td>
</tr>
<tr>
<td>S AFT</td>
<td>3/MID4</td>
</tr>
<tr>
<td>S DOOR</td>
<td>1/MID1</td>
</tr>
</tbody>
</table>

**ENTRY DAY NO-GO DIAGRAM**

**CA LATCH EXTENDED GUIDE ROLLER TRAJECTORY**

---

*Ref: MA73C:C&D for MCA (cb)*
## DETAILED PLBD CLOSING PROCEDURES

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verify no obstructions when closing and latching PLBD</td>
</tr>
<tr>
<td>2</td>
<td>If no motion determined visually or 'OP/CL' not blank within 10 sec after cmd, PL BAY DR - STOP</td>
</tr>
<tr>
<td>3</td>
<td>If door motion stops not 'RDY' or 'CL', PL BAY DR - STOP</td>
</tr>
<tr>
<td>4</td>
<td>If latch not 'CL' in single mtr time, PL BAY DR - STOP</td>
</tr>
<tr>
<td>5</td>
<td>If SM GPC fails during this operation, PL BAY DR SYS 1,2 (two) - DSBL</td>
</tr>
<tr>
<td>6</td>
<td>Perform PASS SM GPC FAIL (ORB P'T, DPS)</td>
</tr>
<tr>
<td>7</td>
<td>SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS</td>
</tr>
<tr>
<td>8</td>
<td>Select PORT FWD, AFT LATCHES &amp; DOOR</td>
</tr>
<tr>
<td>9</td>
<td>Deselect PORT FWD, AFT LATCHES &amp; DOOR</td>
</tr>
<tr>
<td>10</td>
<td>Select STBD DOOR</td>
</tr>
<tr>
<td>11</td>
<td>Deselect STBD DOOR</td>
</tr>
</tbody>
</table>

### CAUTION
- Verify no obstructions when closing and latching PLBD (Ku ANT, RMS, RAD, etc).

### NOTE
- Note any single mtr operations (continue ops) (single mtr times = 2x listed dual mtr times)
- Perform PASS SM GPC FAIL (ORB P’T, DPS)

### CLOSE PORT FWD, AFT LATCHES & DOOR
- Select PORT FWD, AFT LATCHES
- Deselect PORT FWD, AFT LATCHES & DOOR

### CLOSE STBD DOOR
- Select STBD DOOR
- Deselect STBD DOOR

### CLOSE CENTER LATCHES
- Select CENTER LATCHES 1-4 & 13-16
- Deselect CENTER LATCHES 1-4 & 13-16
- Select CENTER LATCHES 5-8 & 9-12
- Deselect CENTER LATCHES 5-8 & 9-12

### CLOSE PORT DOOR
- Select PORT DOOR
- Deselect PORT DOOR

### CLOSE STBD DOOR
- Select STBD DOOR
- Deselect STBD DOOR
**MS AFT FLIGHT DECK ACTIVITIES**

**NOTE**
Wait for go from CDR or PLT before starting any activity on this page.

<table>
<thead>
<tr>
<th>TIME (TIG-)</th>
<th>MS AFT DECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF, 3-9</td>
</tr>
<tr>
<td>2:55</td>
<td>PAYLOAD DEACT, if reqd (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td>2:51</td>
<td>CONFIG FOR PLBD CLOSING 7</td>
</tr>
<tr>
<td>2:40</td>
<td>CLOSE PLBD 9, 1-21 and 1-22</td>
</tr>
<tr>
<td>2:25</td>
<td>POST CLOSING CONFIG 10</td>
</tr>
<tr>
<td>2:20</td>
<td>SPACELAB FINAL DEACT, if reqd 11</td>
</tr>
<tr>
<td>1:56</td>
<td>DEACT STAR TKRS &amp; CLOSE DOORS 13</td>
</tr>
<tr>
<td>1:55</td>
<td>PAYLOAD ENT SWITCH LIST/VERIF (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST VERIF, 3-22 thru 3-27</td>
</tr>
<tr>
<td>1:41</td>
<td>RESET C/W 16</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG 21</td>
</tr>
</tbody>
</table>
| 1:00        | Begin FLUID LOADING per individual prescription. Fluid loading should be completed by El 
For 1 rev waveoff, repeat half the protocol 
If > 1 rev waveoff, repeat entire protocol |
| 0:52        | WIRELESS STOW 24 |

**SPACELAB FINAL DEACT 11**

**NOTE**
Reqd only for Spacelab Module flights, if module will be unpowered for entry. Accomplish only after PLBDs are closed.

<table>
<thead>
<tr>
<th>SM 224 S/L COOLING LOOPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECS MASTER OFF - ITEM 7 + EXEC</td>
</tr>
<tr>
<td>Expect '225 AV FAN DP' and '224 H2O PUMP DP' msgs</td>
</tr>
<tr>
<td>R7 SS INV - OFF (lt off)</td>
</tr>
<tr>
<td>SS AC/DC PWR - OFF (lt off)</td>
</tr>
<tr>
<td>R1 PRI PL MNC - OFF (lt-off)</td>
</tr>
<tr>
<td>PL AUX - OFF</td>
</tr>
<tr>
<td>Expect '226 SOV P/C' and '224 H2O PUMP P' msgs</td>
</tr>
<tr>
<td>If OARE flown:</td>
</tr>
<tr>
<td>L12L OARE PWR - OFF</td>
</tr>
<tr>
<td>R1 PL CAB - OFF</td>
</tr>
<tr>
<td>R7 Remove fuse and stow</td>
</tr>
<tr>
<td>R1 PL CAB - MNA</td>
</tr>
<tr>
<td>L12L OARE PWR - ON</td>
</tr>
<tr>
<td>If OARE not flown:</td>
</tr>
<tr>
<td>R1 PL CAB - OFF</td>
</tr>
</tbody>
</table>

**CONFIG FOR PLBD CLOSING 7**

<table>
<thead>
<tr>
<th>CONFIG RMS (if RMS onboard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elbow Camr in aligned position</td>
</tr>
<tr>
<td>Pan 90 deg from X-Axis</td>
</tr>
<tr>
<td>Tilt per DECAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A8L RMS PWR - OFF (SM ALERT, BCE BYP MCIU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT RMS HTR (two) - OFF</td>
</tr>
</tbody>
</table>

**SET UP LIGHTS**

<table>
<thead>
<tr>
<th>R11L CRT4 PWR - ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6U ANNUN BUS SEL - MNC</td>
</tr>
</tbody>
</table>

**NOTE**
Minimum operating time for PLB Floodlights: 25 min 
~3 min to full bright

<table>
<thead>
<tr>
<th>A7U PL BAY FLOOD AFT STBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT</td>
</tr>
<tr>
<td>MID STBD</td>
</tr>
<tr>
<td>PORT</td>
</tr>
<tr>
<td>FWD STBD</td>
</tr>
<tr>
<td>PORT</td>
</tr>
<tr>
<td>BHD</td>
</tr>
</tbody>
</table>

Record MET __ / __ : __ : __ :

* If PLB floodlight not ON to full bright within 5 min: *
  * (All) PL BAY FLOOD - OFF *

**TV/VT ACT**

Activate TV/VTR per Cue Card

**POST CLOSING CONFIG 10**

**NOTE**
PLB Floodlights must be off for minimum of 10 min UNBLOCKED, 16 min BLOCKED prior to reuse.

<table>
<thead>
<tr>
<th>A7U PL BAY FLOOD (all) - OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>After floodlights ON &gt; 25 min:</td>
</tr>
<tr>
<td>PL BAY FLOOD (all) - OFF</td>
</tr>
<tr>
<td>Stow Flt Deck Camrs &amp; Accessories</td>
</tr>
<tr>
<td>Deact TV/VTR per Cue Card</td>
</tr>
<tr>
<td>FOOT LOOP CONFIG</td>
</tr>
<tr>
<td>Tape foot loops in egress routes</td>
</tr>
<tr>
<td>ED0 PALLEI DEACT, if flown (ORB OPS, EPS)</td>
</tr>
</tbody>
</table>

(Cont next page)
Back of MS AFT FLIGHT DECK ACTIVITIES

DEACT STAR TRKRS & CLOSE DOORS [13]
O6  STAR TRKR PWR (two)  - OFF
O14:E, O15:E  cb STAR TRKR -Z,-Y (two)  - op
O6  STAR TRKR DR CNTL SYS (two)  - CL
- POS tb (two)  - bp (start timer)
When both tb  - cl (-8-24 sec) or either tb  - bp > 24 sec:
STAR TRKR DR CNTL SYS (two)  - OFF
* If tb  - bp > 8 sec, notify MCC*

RESET C/W (Contact CDR for additional parameters) [18]
NOTE
Expect 'MPS' light and master alarm.
'MPS' light will extinguish at OPS 303 PRO

R13U

<table>
<thead>
<tr>
<th>PARAMETER NAME</th>
<th>C/W</th>
<th>ENA</th>
<th>INH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS He REG P C</td>
<td>39</td>
<td>ENA</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>49</td>
<td>ENA</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>59</td>
<td>ENA</td>
<td></td>
</tr>
<tr>
<td>MANF P LO2</td>
<td>69</td>
<td>INH</td>
<td></td>
</tr>
<tr>
<td>LH2</td>
<td>79</td>
<td>INH</td>
<td></td>
</tr>
<tr>
<td>HYD P 1</td>
<td>99</td>
<td>ENA</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>109</td>
<td>ENA</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>119</td>
<td>ENA</td>
<td></td>
</tr>
</tbody>
</table>

CLOTHING CONFIG [21]
Unstow, don:
- LES
- Harness
- Boots

O19  Connect MS1 suit fan
DC UTIL PWR MNA  - ON

A15  Connect MS2 suit fan
DC UTIL PWR MNC  - ON

WIRELESS STOW [24]
Disconnect, stow Wireless comm (if reqd)
- Alt deck its as reqd

ENTRY AFT FLT DECK CONFIG [15]

<table>
<thead>
<tr>
<th>ENTRY AFT FLT DECK CONFIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7L  DSP (OV104)</td>
</tr>
<tr>
<td>A7L  SYS PWR SYS1,SYS2 (two)  - OFF (hold 5 sec, tb-OFF)</td>
</tr>
<tr>
<td>cb SYS PWR CNTL (two)  - op</td>
</tr>
<tr>
<td>DOCK LT MNA.B (four)  - op</td>
</tr>
<tr>
<td>MN A,B,C LOG (six)  - op</td>
</tr>
<tr>
<td>MADS (OV103,OV105)</td>
</tr>
<tr>
<td>MADS STRAIN GAGE  - PCM ENA</td>
</tr>
<tr>
<td>MADS (OV104)</td>
</tr>
<tr>
<td>A6L  MADS STRAIN GAGE  - PCM ENA</td>
</tr>
<tr>
<td>A7L  OEX EQUIP  - ON</td>
</tr>
<tr>
<td>A7L  OEX EQUIP  - ON</td>
</tr>
<tr>
<td>A12  HYD HTR (eight)  - OFF</td>
</tr>
<tr>
<td>A1L  ENTRY COMM</td>
</tr>
<tr>
<td>A1L  S-BD PM MODE  - STDN LO</td>
</tr>
<tr>
<td>NSP CODING (two)  - OFF</td>
</tr>
<tr>
<td>S-BAND PAYLOAD</td>
</tr>
<tr>
<td>S-BD PL CH SEL INTRG 1.2 tw (six)  - 910,910</td>
</tr>
<tr>
<td>PWR SYS  - OFF</td>
</tr>
<tr>
<td>SEL  - PSP</td>
</tr>
<tr>
<td>ANT POLAR  - L CIRC</td>
</tr>
<tr>
<td>PSP CMD OUTPUT  - PL UMB</td>
</tr>
<tr>
<td>A1R  AUD CTR VOICE RCD SEL CH1  - ICOM A</td>
</tr>
<tr>
<td>CH2  - ICOM B</td>
</tr>
<tr>
<td>A13  OS AUD SPKR PWR  - OFF (OV103,OV104,OV105)</td>
</tr>
<tr>
<td>PWR  - OFF (OV102)</td>
</tr>
<tr>
<td>R14:C  cb MNB KU ANT HTR  - op</td>
</tr>
<tr>
<td>R14:F  cb ESS 1BC LDG GEAR ARM/DN RESET  - op</td>
</tr>
</tbody>
</table>

NOTE
Review or mark cb location for ease of
finding during post landing procedures

R10  MS AUD A/G 2  - T/R
A/A  - T/R
VOX SENS  - R
VOL tw (five)  - R
XMIT/ICOM MODE  - R

L9  PS AUD PWR  - AUD TONE
A/G 1  - T/R
A/A  - T/R
ICOM (two)  - T/R
VOX SENS  - R
XMIT/ICOM MODE  - R
VOL tw (five)  - R

ICOM RECORDER OPS, if reqd (ORB OPS, COMM/INST)

1-26
### MS AFT FLIGHT DECK ACTIVITIES

**NOTE**

WAIT FOR GO FROM CDR OR PLT BEFORE STARTING ANY ACTIVITY ON THIS PAGE

#### TIME (TIG-)

<table>
<thead>
<tr>
<th>TIME (TIG-)</th>
<th>MS AFT DECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIFY, 3-9</td>
</tr>
<tr>
<td>2:58</td>
<td>PAYLOAD DEACT, if reqd (PL OPS, DEORB PFEP)</td>
</tr>
<tr>
<td>2:51</td>
<td>CONFIG FOR PLBD CLOSING</td>
</tr>
<tr>
<td>2:40</td>
<td>CLOSE PLBD, 1-21 and 1-22</td>
</tr>
<tr>
<td>2:25</td>
<td>POST CLOSING CONFIG</td>
</tr>
<tr>
<td>1:56</td>
<td>DEACT STAR TRKRS &amp; CLOSE DOORS</td>
</tr>
<tr>
<td>1:55</td>
<td>PAYLOAD ENT SWITCH LIST/VERIFY (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST VERIF, 3-22 thru 3-27</td>
</tr>
<tr>
<td>1:41</td>
<td>RESET C/W</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG</td>
</tr>
</tbody>
</table>
| 1:00        | Begin FLUID LOADING per individual prescription. Fluid loading should be completed by E1
|             | For 1 rev waveoff, repeat half the protocol                   |
|             | If > 1 rev waveoff, repeat entire protocol                    |
| 0:52        | WIRELESS STOW                                                 |

**SPACELAB FINAL DEACT 11**

**NOTE**

Read for SL Pallet flights to ensure proper thermal environment. Accomplish only after PLBDs are closed and before DPS ENTRY CONFIG

- **SM 224** SL COOLING LOOPS
- FDEN LOOP PUMP 1,2 (two) OFF - ITEM 5 EXEC (*)
  - Expect 224 FRN PUMP P msg
- SS INV - OFF (ft off)
- SS AC/DC PWR - OFF (ft off)
- L12U FMDM 1,2 (two) - OFF (lb-bp)
- L12L cb FMDM - op
  - PRI PL MNC - OFF (lb-off)
  - PL AUX - OFF
  - CAB - OFF

### CONFIG FOR PLBD CLOSING

- **CONFIG RMS** (if RMS onboard)
  - Elbow Camr in aligned position
  - Pan 90 deg from X-axis
  - Tilt per DECAL
- **A8L**
  - RMS PWR - OFF (SM ALERT, BCE BYP MCIU)
  - PORT RMS HTR (two) - OFF
- **R11L**
  - CRT4 PWR - ON
- **A6U**
  - ANNUN BUS SEL - MNC

**NOTE**

Minimum operating time for PLB Floodlights: 25 min - 3 min to full bright

- **A7U**
  - PL BAY FLOOD AFT STBD -
  - PORT -
  - MID STBD -
  - PORT -
  - FWD STBD -
  - PORT -
  - BHD -

**TV/VTR ACT**

Activate TV/VTR per Cue Card

**POST CLOSING CONFIG 10**

**NOTE**

PLB Floodlights must be off for minimum of 10 min UNBLOCKED, 16 min BLOCKED prior to reuse

- **A7U**
  - PL BAY FLOOD (all) - OFF
  - Stow Flt Deck Camrs & Accessories
  - Deact TV/VTR per Cue Card
  - FOOT LOOP CONFIG
  - Tape foot loops in egress routes
  - ED0 PALLET DEACT, if flown (ORB OPS, EPS)

---

(Cont next page)
### Back of MS AFT FLIGHT DECK ACTIVITIES

#### DEACT STAR TRKRS & CLOSE DOORS [13]
- 06: STAR TRKR PWR (two) - OFF
- 014E, 015E: cb STAR TRKR -Z, -Y (two) - op
- 06: STAR TRKR DR CNTL SYS (two) - CL
  - POS tb (two) - bp (start timer)
  - When both tb - cl (~8-24 sec) or either tb - bp > 24 sec:
    - STAR TRKR DR CNTL SYS (two) - OFF

*If tb - bp > 8 sec, notify MCC*

#### ENTRY AFT FLT DECK CONFIG [15]
- 01: MADS (OV103, OV105)
  - MADS STRAIN GAGE - PCM ENA
- 06: MADS (OV104)
  - MADS STRAIN GAGE - PCM ENA
- 07L: MADS/OEX (OV102)
  - OEX EQUIP - ON
- 12: HYD HTR - OFF
- 12: HYD HTR (eight) - OFF

#### ENTRY COMM
- 01: S-BD PM MODE - STDN LO
  - NSP CODING (two) - OFF
- 01: S-BAND PAYLOAD
  - S-BD PL CH SEL INTRG 1.2 tw (six) - 910,910
  - PWR SYS - OFF
  - SEL - PSP
  - ANT POLAR - L CIRC
  - PSP CMD OUTPUT - PL UMB
- 01: AUD CTR VOICE RCD SEL CH1 - ICOM A
  - CH2 - ICOM B
- 01: OS AUD SPKR PWR - OFF (OV103, OV104, OV105)
  - PWR - OFF (OV102)
- 01: cb MNB KU ANT HTR - op
- 01: cb ESS 1BC LDG GEAR ARM/DN RESET - op

#### CLOTHING CONFIG [21]
- Unstow, don:
  - LES
  - Harness
  - Boots
- Connect MS1 suit fan
- Connect MS2 suit fan
- Connect MS1 suit fan
- Connect MS2 suit fan

#### WIRELESS STOW [24]
- Disconnect, stow Wireless comm (if reqd)
  - Aft deck lbs as reqd

#### REMARKS
- Expect 'MPS' light and master alarm.
- 'MPS' light will extinguish at OPS 303 PRO

#### R13U

<table>
<thead>
<tr>
<th>PARAMETER NAME</th>
<th>C/W CH</th>
<th>ENA/ INH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS He REG PC</td>
<td>39</td>
<td>ENA</td>
</tr>
<tr>
<td>L</td>
<td>49</td>
<td>ENA</td>
</tr>
<tr>
<td>R</td>
<td>59</td>
<td>ENA</td>
</tr>
<tr>
<td>MANF P LO2</td>
<td>69</td>
<td>INH</td>
</tr>
<tr>
<td>LH2</td>
<td>79</td>
<td>INH</td>
</tr>
<tr>
<td>HYD P 1</td>
<td>99</td>
<td>ENA</td>
</tr>
<tr>
<td>2</td>
<td>109</td>
<td>ENA</td>
</tr>
<tr>
<td>3</td>
<td>119</td>
<td>ENA</td>
</tr>
</tbody>
</table>

**NOTE**
Review or mark cb location for ease of finding during post landing procedures.
**MS MIDDECK ACTIVITIES**

**NOTE**
WAIT FOR GO FROM CDR OR PLT BEFORE STARTING ANY ACTIVITY ON THIS PAGE

<table>
<thead>
<tr>
<th>TIME (TIG-)</th>
<th>MS MIDDECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:50</td>
<td>ENTRY STOWAGE (3)</td>
</tr>
<tr>
<td>3:50</td>
<td>ENT AIRLOCK CONFIG (3A)</td>
</tr>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF. 3-10 thru 3-12</td>
</tr>
<tr>
<td>1:55</td>
<td>ENT MIDDECK CONFIG (16)</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST/VERIF. 3-28 thru 3-30</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG (20)</td>
</tr>
<tr>
<td>1:00</td>
<td>Begin FLUID LOADING per individual prescription. Fluid loading should be completed by EI</td>
</tr>
<tr>
<td></td>
<td>For 1 rev waveoff, repeat half the protocol</td>
</tr>
<tr>
<td></td>
<td>If &gt; 1 rev waveoff, repeat entire protocol</td>
</tr>
<tr>
<td>0:50</td>
<td>CO2 RMVL SYS DEACT; if flown (23)</td>
</tr>
<tr>
<td>0:35</td>
<td>GALLEY DEACT (26)</td>
</tr>
<tr>
<td>0:33</td>
<td>WCS DEACT (27)</td>
</tr>
</tbody>
</table>

---

**ENTRY MIDDECK CONFIG (16)**

- **ENTRY COMM**
  - MO42F: MIDDECK SPKR AUD A/G 2 - T/R
  - A/A - T/R
  - VOX SENS - R
  - VOL tw (five) - R
  - XMIT/COM MODE - R

- **TIPS DEACTIVATION (ORB OPS, COMM/INST)**
  - steps 2 & 3

- **MIDDECK PCS**
  - MO10W: 14.7 CAB REG INLET vlv (two) - CL
  - H2O TK N2 REG INLET vlv (two) - OP
  - O2 REG INLET vlv (two) - CL

- **MO32M**: LEH O2 vlv (two) - R

- **MO69M**: LEH O2 8 vlv - CL
  - Remove and stow O2 Bleed Orifice
  - LEH O2 8 vlv - R
  - LEH O2 7 vlv - R

- **RMS PNL LTS** (if RMS onboard)
  - db RMS PRI E/A - op
  - Bi/U PRI A - op

---

**ENTRY STOWAGE (3)**

- **PERSONAL HYGIENE SYS STOWAGE**
  - Stow:
    - Personal Hygiene Kits
    - Hose

- **AIRLOCK CLOSEOUT**
  - Tether soft goods to EVA tether point or A/L Stowage Bag. Gray Tape to floor
  - Airlock ENT SW VERIF, 3-3

- **POLE SETUP**
  - Reinstall Stbd Pip Pin:
    - Retract and hold Locking Pin (Ring)
    - Release Locking Pin (Ring)
  - Slide forward Sailing Latch
  - Pole Straps secure

- **EFD STOWAGE**
  - Stow FLIGHT PLAN

- **CABIN CONFIG**
  - Stow:
    - Backup PGSC
    - Middeck Camrs, Accessories
    - FWD/AFT Shades, Filters
    - Exercise Equipment
    - Quick Don Masks
    - Retention net is in ASC/ENT config

- **EGRESS ROUTE CONFIG**
  - Tape foot loops in egress routes

---

**ENT AIRLOCK CONFIG (3A)**

- **ENT**
  - If Mir docking mission:
    1. Complete ODS SYSTEM STOW FOR ENTRY (MSJOC, GEN NON-JOINT), continue:

- **INNER HATCH**
  - 2. Close hatch per decal
  - 3. Equal vlv (two) - NORM, install caps >>

- **If Booster Fan flown:**
  - 4. ARlk FAN A(B) - OFF
  - 5. Remove, stow flex duct from booster fan outlet and external airlock duct inlet
  - 6. Remove, stow flex duct from booster fan inlet and cabin middeck floor air fitting

---

(Cont next page)
**Back of MS MIDDECK ACTIVITIES**

<table>
<thead>
<tr>
<th>7.</th>
<th>Unstow, install booster fan inlet and outlet caps</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>cb AC 1,2 ARLK TNL FAN A, B (six) - op</td>
</tr>
<tr>
<td>9.</td>
<td>Go to step 11</td>
</tr>
<tr>
<td>10.</td>
<td>Remove, stow flex duct from cabin middeck floor air fitting</td>
</tr>
<tr>
<td>11.</td>
<td>Unstow, reinstall diffuser cap on cabin middeck floor air fitting</td>
</tr>
<tr>
<td>MO13Q</td>
<td>ARLK 3/4 S/O vlv - OP (tb-op)</td>
</tr>
<tr>
<td>MIDDECK</td>
<td>EMU 02 ISOL vlv - CL</td>
</tr>
<tr>
<td>FLR</td>
<td>Close hatch per decal</td>
</tr>
<tr>
<td>INNER</td>
<td>Equal vlv (two) - NORM, install caps</td>
</tr>
</tbody>
</table>

**CLOTHING CONFIG**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>Unstow, don: LES, Harness, Boots</td>
</tr>
<tr>
<td></td>
<td>NOTE: Refer to flight specific utility outlet plug-in plan if reqd</td>
</tr>
<tr>
<td>MOS2J</td>
<td>Connect suit fans</td>
</tr>
<tr>
<td>PDB J4(2,3)</td>
<td>DC UTIL PWR MNA - ON</td>
</tr>
<tr>
<td>OUTLET</td>
<td></td>
</tr>
<tr>
<td>MO30F</td>
<td>DC UTIL PWR MNC - as reqd</td>
</tr>
</tbody>
</table>

**GALLEY DEACT**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>OVEN/RHS - OFF</td>
</tr>
<tr>
<td></td>
<td>H2O HTRS (two) - OFF</td>
</tr>
<tr>
<td></td>
<td>V/ OPEN FAN - OFF</td>
</tr>
<tr>
<td></td>
<td>V/ REHYD STA lever - cl (push in)</td>
</tr>
<tr>
<td></td>
<td>V/ OVEN DOOR LATCH - latched</td>
</tr>
<tr>
<td>MA73C:G</td>
<td>cb AC3 GALLEY FAN (three) - op</td>
</tr>
<tr>
<td>ML86B:A :B</td>
<td>cb MNC SPLY H2O GALLEY SPLY - op</td>
</tr>
<tr>
<td></td>
<td>cb MNA GALLEY OVEN - op</td>
</tr>
<tr>
<td></td>
<td>cb MNB GALLEY H2O HTS - op</td>
</tr>
</tbody>
</table>

**CO2 RMVL SYS DEACT**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.</td>
<td>MOSIF</td>
</tr>
<tr>
<td></td>
<td>Wait 6 sec</td>
</tr>
<tr>
<td></td>
<td>√ CNTLR 2(1) OPER II - off</td>
</tr>
<tr>
<td></td>
<td>√ CNTLR 2(1) FAIL II - on</td>
</tr>
<tr>
<td></td>
<td>MNC(A) - ON</td>
</tr>
<tr>
<td></td>
<td>√ CNTLR 2(1) FAIL II - off</td>
</tr>
<tr>
<td></td>
<td>AC 3(1) - OFF (hold 3 sec)</td>
</tr>
<tr>
<td></td>
<td>AC 3(1) cbs (three) - op</td>
</tr>
<tr>
<td></td>
<td>COM INSTR - OFF</td>
</tr>
<tr>
<td></td>
<td>Remove and replace LiOH canister in position A with one fresh LiOH canister</td>
</tr>
</tbody>
</table>

**WCS DEACT**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>WCS (EDO WCS)</td>
</tr>
<tr>
<td></td>
<td>Stow: WCS Trash Can, Mirror, Privacy Curtain</td>
</tr>
<tr>
<td></td>
<td>Foot/toe restraints - up, latched</td>
</tr>
<tr>
<td>EDO WCS</td>
<td>Secure urinal hose with Velcro strap</td>
</tr>
<tr>
<td>URINAL SEL</td>
<td>OFF</td>
</tr>
<tr>
<td>WCS PWR SEL (two)</td>
<td>OFF 1, OFF 2</td>
</tr>
<tr>
<td>Commode lid lock - lock</td>
<td></td>
</tr>
<tr>
<td>√ COMPACTOR - stowed</td>
<td></td>
</tr>
<tr>
<td>COMPACTOR CLEANING LATCH PIN - disengaged</td>
<td></td>
</tr>
<tr>
<td>LOCK PINS (three) - tighten (snug)</td>
<td></td>
</tr>
<tr>
<td>Stow thigh restraints</td>
<td></td>
</tr>
<tr>
<td>Close and latch door</td>
<td></td>
</tr>
<tr>
<td>ML31C</td>
<td>VAC VENT ISOL VLV BUS SEL - MNB</td>
</tr>
<tr>
<td></td>
<td>NOZ HTR - OFF</td>
</tr>
<tr>
<td></td>
<td>Middeck lts as reqd</td>
</tr>
</tbody>
</table>

**D/O/ALL/GEN H,2**
DEORBIT PREP BACKOUT PROCEDURES
DEORBVIT PREP BACKOUT SUMMARY TIMELINES

00:00:00
- Ref ENT, DEORBIT BURN
- MS1,2 SEAT EGRESS
- RAD ACT
- APU/HYD CONFIG

00:10
- MCC GO/NO-GO for 24 hr
- RAD DEPLOY (if reqd)
- VERNIER HTR ACT
- MIDDECK SEAT EGRESS
- OPEN VENT DOORS
- C,P SEAT EGRESS

00:20
- MPS CONFIG GNC 2/SM
- RAD VERIF & FLASH EVAP CONFIG
- KU-BD ANT DEPLOY (if reqd)
- KU-BD ACTIVATION (if reqd)

00:30
- On MCC GO for Verns: CONFIG RJDs
- CLOTHING CONFIG (P,MS,PS)

00:40
- BRKES, FCS & DED DISP CONFIG
- EDO PALLET ACTIVATION (if flown)

00:50
- On MCC GO for Verns: CONFIG RJDs
- CLOTHING CONFIG (C,MS)

01:00
- CLOTHING CONFIG (C,MS)

01:10
- ON-ORBIT HTR/MADS CONFIG (MS)

01:20
- MNVR -ZLV,+XVV

01:30
- SPACELAB DEACT (if reqd)

01:40
- PCS CONFIG (MS)
- STAR TRKR ACT
- SEAT STOWAGE
- HYD THERM COND ENA

01:50
- PRIORITY PWRDN GROUP C (if reqd)
- Continue per MCC direction

D/O/ALL/GEN H
ET
000:00:00
MCC/CREW
GO/NO-GO
FOR
24 HRS
TRANS DAP
AUTO
RT 0.5
DB 3.5
00:05

MS1,2 C6
Ref ENT, DEORBIT BURN
LEH O2 vlv (four) - CL
FLT DECK SPECIALIST SEAT EGRESS (all others remain seated)
CONFIG FOR PLBD OPENING MS AFT ACTIVITIES 4, 2-15

C, P
APU/HYD CONFIG 2

MS
SPACELAB PARTIAL REACT, if reqd MS AFT ACTIVITIES 5, 2-16
PLBD OPENING 9, 2-13

MCC: GO/NO-GO for PRIORITY PWRDN GROUP C
scheduled at ET 02:00
C, P O5,09
L R AUD A/G 2 (two) - RCV
XMIT/COM MODE - PTT/VOX (recommended)
O6
UHF MODE - OFF

MS
RAD DEPLOY, if reqd (ORB OPS, ECLS)
CAB TEMP CNTLR - 2
CAB TEMP - adj rotary as reqd
L4:J
cb SIG COND HUM SEP - cl
IMU FAN - cl

MS
VERNIER HTR ACT 6

Vernier HTR ACT COMPLETE
OPEN VENT DOORS

1: GNC DEORB MVR COAST
2: GNC DEORB MVR COAST
3: BFS, GNC DEORR MVR COAST

RAD ACT 1
C L1
RAD CNTRL OUT TEMP - NORM
BYP VLV MODE (two) - AUTO
CNTRL LOOP (two) - AUTO A(B)
After ~90 sec.
BYP VLV lb (two) - RAD
* If lb(s) remain in BYP or return to BYP:
  * Use alternate RAD CNTRL
  * Do not drive BYP VLV(s) manually
  * If lb(s) bp:
    * Do not select alternate RAD CNTRL
    * Do not drive BYP VLV(s) manually
  * If EVAP OUT T low or H20 ICH OUT T low:
    * RAD BYP VLV MODE (two) - MAN
    * MAN SEL (two) - BYP
    (after ~3 sec lb-BYP)

APU/HYD CONFIG 2

DEACTIVATE APUs (APU SHUTDOWN Cue Card)
P R2
BLR N2 SPLY (three) - OFF
HYD MN PUMP PRESS (three) - NORM

VERNIER HTR ACT 6

A14
RCS/OMS HTR FWD RCS JET 5 - AUTO
AFT RCS JET 5 - AUTO

NOTE
Delay use of verniers until MCC GO in GNC OPS 2
CLOTHING CONFIG

Doff/Stow:
Harness, Boots, LES, UCD (if not used)
Doff/Stow in Wet Trash (if used):
UCD (clamp)
Emesis Bag (unstow new Bag)

DPS CONFIG TO GNC2/SM

NOTE
Do not perform any keyboard item entries or switch throws 10 sec before and after modeling PASS GPCs to RUN or making ops transition requests

1. TRANSITION TO GNC OPS 201
GNC 0 GPC MEMORY
CONFIG - ITEM 1 +2 EXEC

Config for single G2 GPC ops unless directed otherwise by MCC:
Modify MC 2 per table
BFC CRT DISP - OFF
GNC, OPS 201 PRO
GNC UNIV PGD
DAP: B/AUTO/PRI

GNC 1 DPS UTILITY
CKPT RETRVA - ITEM 12 EXEC (*)

C3
BFC CRT DISP - ON
GNC, OPS 201 PRO
BFS, GPC/CRT 04 EXEC
CRTX
MAJ FUNC - PL
GPC/CRT 2X EXEC
X: PL GPC MEMORY

O6
GPC MODE 2 - STBY (tb-bp)
- HALT (tb-bp)
- STBY (tb-RUN)
- HALT (tb-bp)

2. FREEZE DRY GPC 3
C3
BFC CRT DISP - OFF
CRTX
MAJ FUNC - PL
GPC/CRT 3X EXEC
X: PL GPC MEMORY
CONFIG - ITEM 45 +2 EXEC
GPC - ITEM 46 +3 EXEC
STORE - ITEM 47 EXEC
Store complete when MC = 02 (~16 sec)
O6
GPC MODE 3 - STBY (tb-bp)
HALT (tb-up)
STBY (tb-RUN)
HALT (tb-bp)

C3
RTX
MAJ FUNC - PL
GPC/CRT 4X EXEC
X: PL GPC MEMORY
CONFIG - ITEM 1 +4 EXEC
MC 4(5) per table
SM, OPS 201(401) PRO
X: SM ANTENNA
DAP: B/AUTO/PRI
SM 1 DPS UTILITY
UL CNTL AUTO - ITEM 35 EXEC

C3
BFC CRT DISP - OFF
O6
GPC MODE 3 - STBY (tb-bp)
(releases payload buses 1,2)
then HALT (tb-bp)

OUTPUT 4 - TERM (tb-bp)
5 - NORM (tb-bp)
P/I Locker
Unstow and install GPC Mode Switch Guard

3. TRANSITION GPC 4 TO SM OPS 201(401)
C3
BFC CRT DISP - ON
CRTY
SM, OPS 201(401) PRO
X: SM ANTENNA
DAP: B/AUTO/PRI

O6
GPC MODE 5 - STBY (tb-RUN)
(releases payload buses 1,2)
then HALT (tb-bp)

OUTPUT 4 - TERM (tb-bp)
5 - NORM (tb-bp)
P/I Locker
Unstow and install GPC Mode Switch Guard

4. RECONFIG GPCs
C3
BFC CRT DISP - ON
CRT3
BFS, GNC OPS 000 PRO

O6
GPC MODE 5 - STBY (tb-RUN)
(releases payload buses 1,2)
then HALT (tb-bp)

OUTPUT 4 - TERM (tb-bp)
5 - NORM (tb-bp)
P/I Locker
Unstow and install GPC Mode Switch Guard

5. RECONFIG CRTs
C3
GPC/CRT 03 EXEC
04 EXEC
44 EXEC
C2
CRT3 PWR - OFF

D/O/ALL/GEN H,1
6. MCC for TFL/DFL contig
TRANS DAP
00:30
Perf LOAD PCMU FORMAT (ORB OPS FS, COMM/INST) and LOAD PDI DECOM FORMAT (ORB OPS FS, COMM/INST)

7. ERROR LOG RESET
After MCC GO:
SM 0 GPC MEMORY
ERR LOG RESET - ITEM 48 EXEC
GNC 0 GPC MEMORY
ERR LOG RESET - ITEM 48 EXEC
SM SYS SUMM 1

RAD VERIF & FLASH EVAP CONFIG
L1
RAD BYP VLV lb (two) - RAD FLOW
CRT2
When FREON LOOP RAD OUT T < 60 degF:
L1
HI LOAD EVAP - OFF
R11L
FLASH EVAP CONT R PRI B(A) - OFF
SPly H2O TKC INLET - OP (lb-OP)
OUTLET - OP (lb-OP)

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

MCC/CREW GO/NO-GO FOR 4 24HR TRANS DAP AUTO

00:00
MCC/CREW GO/NO-GO FOR 4 24HR

00:05
TRANS DAP AUTO

00:10

ET

00:10

C

00:15

C

00:20

C

00:25

C

00:30

MCC: GO/NO-GO for PRIORITY PWRDN GROUP C scheduled at ET 02:00

C,P 05,09 L,R AUS A2G (two) - RCV

06 UHF MODE - OFF

RAD DEPLOY, if reqd (ORB OPS, ECLS)

CAB TEMP CNTLR - 2

CAB TEMP - adj rotary as reqd

L4,J cb SIG COND HUM SEP - cl

IMU FAN - cl

MS VERNIER HTR ACT

WHEN PLBD OPENING COMPLETE:

SEAT EGRESS, (all Middeck)

LEH O2 lvl (two) - CL

LEH O2 lvl (two) - CL

PRELIM MIDDECK CONFIG MS MID ACTIVITIES

OPEN VENT DOORS

VENT DOOR CNTL OPEN - ITEM 43 EXEC (*)

Unslow/install HUD covers (two)

SEAT EGRESS

SPACELAB PARTIAL REACT, if reqd MS AFT ACTIVITIES

FDF/COMM CONFIG MS AFT ACTIVITIES

MS VERNIER HTR ACT

P A14 RCS/OMS HTR FWD RCS JET 5 - AUTO

AFT RCS JET 5 - AUTO

NOTE: Delay use of verniers until MCC GO in GNC OPS 2

RAD ACT

C L1 RAD CNTLR OUT TEMP - NORM

BYP VLV MODE (two) - AUTO

CNTLR LOOP (two) - AUTO A(B)

After ~90 sec,

RAD BYP VLV lb (two) - RAD

* If bd(s) remain in BYP or return to BYP:
  * Use alternate RAD CNTLR
  * Do not drive RAD VLV(s) manually
  * If bd(s) bp:
  * Do not select alternate RAD CNTLR
  * Do not drive RAD VLV(s) manually
  * If EVAP OUT T low or H2O ICH OUT T low:
  * RAD BYP VLV MODE (two) - MAN
  * MAN SEL (two) - BYP
  * (after ~3 sec bd-BYP)*

APU/HYD CONFIG

DEACTIVATE APUs (APU SHUTDOWN Cue Card)

P R2 BLR N2 SPLY (three) - OFF

HYD MN PUMP PRESS (three) - NORM

VERNIER HTR ACT

P A14 RCS/OMS HTR FWD RCS JET 5 - AUTO

AFT RCS JET 5 - AUTO

NOTE

Delay use of verniers until MCC GO in GNC OPS 2

MS FDF/COMM CONFIG MS AFT ACTIVITIES

1: GNC 51 OVERRIDE

VENT DOOR CNTL OPEN - ITEM 43 EXEC (*)

Unslow/install HUD covers (two)

SEAT EGRESS

SPACECAB PARTIAL REACT, if reqd MS AFT ACTIVITIES

FDF/COMM CONFIG MS AFT ACTIVITIES

SLP D/O/SLP/GEN H

A2-5
11: GNC 51 OVERRIDE
2: GNC DEORB MNVR COAST
3: BFS, GNC DEORB MNVR COAST

00:30
TRANS DAP
AUTO
RT 0.5
DB 3.5

00:35

00:40
CLOTHING CONFIG
CLOTHING CONFIG MS AFT ACTIVITIES
MS, CLOTHING CONFIG MS AFT ACTIVITIES
PAYLOAD REACT, if reqd (PL OPS, DEORB PREP)
OPS CONFIG TO GNC2/SM

00:45
P
RAD VERIF & FLASH EVAP CONFIG
MS, RMS PNL LT, TEMP MON, HTR ACT, C/W,
MS AFT ACTIVITIES
C
KU-BD ANT DEPLOY, if reqd (ORB OPS,
COMM/INST)
KU-BD ACTIVATION, if reqd (ORB OPS,
COMM/INST)

00:50
MS
MIDDECK CONFIG MS MID ACTIVITIES

00:55
C, P
If MCC GO for use of Verniers:
COMMAND RJDs
CONFIG RJDs
O16:F
RD MANF LS/FS/RS DRIVER - ON,
Wait 5 sec
DAP: A/AUTO/VERN

01:00
SLP
D/O/SLP/GEN H

6. TFL/DFL FOR ON-ORBIT OPS
MCC for TFL/DFL config
Perform LOAD PCMMU FORMAT (ORB OPS FS,
COMM/INST) and LOAD PDI DECOM FORMAT (ORB
OPS FS, COMM/INST)

7. ERROR LOG RESET
After MCC GO:
SM 0 GPC MEMORY
ERR LOG RESET - ITEM 48 EXEC
GNC 0 GPC MEMORY
ERR LOG RESET - ITEM 48 EXEC
SM SYS SUM 1

10: RAD VERIF & FLASH EVAP CONFIG
13: CLOTHING CONFIG
12: RMS PNL LT, TEMP MON, HTR ACT, C/W
11: MS AFT ACTIVITIES
2: SM 89 APU/ENVIRON THERM
1: RAD BYP VL V (two) - RAD FLOW
L1
When FREON LOOP RAD OUT T < 60 degF:
HI LOAD EVAP - OFF
FLASH EVAP CNTLR PRI B(A) - ON
SPLY H2O 1KC INLET - OP (lb-OP)
OUTLET - OP (lb-OP)

8: MIDDECK CONFIG MS MID ACTIVITIES
2: SM SYS SUM 1

A2-7
01:00
A1(B1) AUTO - VERN
AT 02 DB 1.0

01:05
— MS

01:20
CLOTHING CONFIG MS MID ACTIVITIES 15, 2-18

01:25
H2O LOOP 2 BYP MODE - AUTO
PUMP LOOP 1 - GPC

01:30
On MCC call:
- Priority PWRDN GROUP C, if reqd (ORB PKT, PRIORITY PWRDN)
- Continue per MCC direction

---

**ON-OBJECT PCS 2(1) CONFIG**

C
- L2: O2 XOVR SYS (two) - OP
- O2/N2 CNTRL VLV SYS 1(2): CL
- 2(1): AUTO

O1: O2/N2 FLOW sel - SYS 2(1) O2

C7
- LEH O2 SPLV VLV (two) - OP
- Expect possible 'S66 CAB O2(N2) FLO 2(1)' msg

MS
- MO10W: 14.7 CAB REG INLET SYS 2(1) vlv - OP
- H2O TK N2 REG INLET SYS 1(2) vlv - CL
- O2 REG INLET SYS 2(1) vlv - OP

MO69M
- LEH O2 8 vlv - CL
- Insert O2 Bled Orifice Assembly into LEH O2 8 OD
- LEH O2 8 vlv - OP

---

**STAR TRKR ACT**

P
- STAR TRKR ACT

---

**EXTERNAL AIRLOCK SETUP FOR INGRESS**

- MS

---

On MCC call:
- Priority PWRDN GROUP C, if reqd (ORB PKT, PRIORITY PWRDN)
- Continue per MCC direction

---
01:30 — AUTO
0.2
DB: 1.0

01:35 —

01:40 —

01:45 —

01:50 —

01:55 —

02:00 —

On MCC call:
PRIORITY PWRDN GROUP C, if reqd (ORB PKT, PRIORITY PWRDN)
Continue per MCC direction

ON-ORBIT PCS 2(1) CONFIG

L2
O2 X0VR SYS (two) - OP
O2/N2 CNTLR VLV SYS 1(2) - CL
2(1) - AUTO

O1
O2/N2 FLOW sel - SYS 2(1) O2

C7
LEH O2 SPLV vlv (two) - OP
Expect possible 'S66 CAB O2/N2 FLO 2(1)' msg

MS
MO10W
14.7 CAB REG INLET SYS 2(1) vlv - OP
H2O TK N2 REG INLET SYS 1(2) vlv - CL
O2 REG INLET SYS 2(1) vlv - OP

MO69M
LEH O2 8 vlv - CL
Insert O2 Bleed Orifice Assembly into LEH O2 8 QD
LEH O2 8 vlv - OP

ON-ORBIT PCS CONFIG MS MID ACTIVITIES

START TRKR ACT

SPECIALIST SEAT REMOVAL STOWAGE

HYD THERM COND ENA
H2O TIE for PRI PL

HYD CIRC PUMP PWR 3 - MNA
A12

HYD CIRC PUMP (three) - GPC
R2

EXTERNAL AIRLOCK SETUP FOR INGRESS

STAR TRKR ACT

HYD THERM COND ENA
H2O TIE for PRI PL

HYD CIRC PUMP PWR 3 - MNA
A12

HYD CIRC PUMP (three) - GPC
R2

GNC 0 GPC MEMORY

1: GNC 0 GPC MEMORY
2: SM SYS SUMM

On MCC call:
PRIORITY PWRDN GROUP C, if reqd (ORB PKT, PRIORITY PWRDN)
Continue per MCC direction

A2-11

D/O/SLP/GEN H,1
PLBD OPENING

DETAILED PLBD OPENING PROCEDURES

- When opening and unlatching PLBD:
  - If no motion determined visually or 'OP/CL'*
  - not blank within 10 sec after cmd, CRT4
  - PL BAY DR - STOP, ✓ MCC
  - If door motion stops and not 'OP', CRT4
  - PL BAY DR - STOP, ✓ MCC

- MANUAL MODE
  - If latch not 'OP' in single mtr time, ✓ MCC

NOTE
Note any single mtr operations (continue ops) (single mtr times = 2× listed dual mtr times).
If one mtr in each of two separate latch gangs fails, contact MCC for mission length determination.

AUTO PLBD OPENING PROCEDURE

- If BFS GPC fails during this operation:
  - PL BAY DR SYS 1,2 (two) - DSBL
  - MMD PL 1,2 (two) - OFF
  - GPC MODE 5 - STBY,HALT
  - Proceed with DPS CONFIG TO GNC2/SM, then*
    - continue in AUTO
  - If SM GPC fails during this operation:
    - PL BAY DR SYS 1,2 (two) - DSBL
    - Perform PASS SM GPC FAIL (ORB PKT, DPS)

P
CRT4
SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS

4: SM PL BAY DOORS

R13L
PL BAY DR - STOP
CRT4
✓ PBD SW - STOP
✓ PBD SW BYPASS - (no *)
✓ AC POWER ON - ITEM 1 EXEC (*)
R13L
PL BAY DR SYS 1,2 (two) - ENA
CRT4
✓ OP/CICL STATUS (ten) - CL
✓ AOS

OPEN CL LATCHES 5-8 9-12 (MANUAL MODE)

- Select CENTER LATCHES 5-8
R13L
PL BAY DR - OP
CRT4
✓ CENTER LATCHES 5-8 - blank, OP (-20 sec)
R13L
PL BAY DR - STOP
CRT4
Desellect CENTER LATCHES 5-8
R13L
PL BAY DR - OP

MANUAL PLBD OPENING PROCEDURE

- If BFS GPC fails during this operation:
  - PL BAY DR SYS 1,2 (two) - DSBL
  - MMD PL 1,2 (two) - OFF
  - GPC MODE 5 - STBY,HALT
  - Proceed with DPS CONFIG TO GNC2/SM, then*
  - if SM GPC fails during this operation:
    - PL BAY DR SYS 1,2 (two) - DSBL
    - Perform PASS SM GPC FAIL (ORB PKT, DPS)

P
CRT4
SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS

4: SM PL BAY DOORS

R13L
PL BAY DR - STOP
CRT4
✓ PBD SW - STOP
✓ PBD SW BYPASS - (no *)
✓ AC POWER ON - ITEM 1 EXEC (*)
R13L
PL BAY DR SYS 1,2 (two) - ENA
CRT4
✓ OP/CICL STATUS (ten) - CL
✓ AOS

OPEN CL LATCHES 5-8 9-12 (MANUAL MODE)

- Select CENTER LATCHES 5-8
R13L
PL BAY DR - OP
CRT4
✓ CENTER LATCHES 5-8 - blank, OP (-20 sec)

D/O/ALL/GEN H.2
PLBD OPENING

PLBD CONTROL

Ref: MA73C:C&D for MCA obs

FUNCTION

LATCH

5-8 1/MID3 AB3/AB2 PL1 2 3/MID2 CA3/CA1 PL2 1 1 2 1
9-12 1/MID1 AB3/AB1 PL1 1 3/MID4 CA3/CA2 PL2 2 1 2 1
1-4 1/MID3 AB3/AB2 PL2 2 3/MID2 CA3/CA1 PL2 1 1 2 1
13-16 3/MID4 CA3/CA2 PL2 2 2/MID2 BC3/BC1 PL1 1 2 1 2

S FWD

1/MID1 AB3/AB1 PL1 1 2/MID4 BC3/BC2 PL2 2 1 2 1

S AFT

3/MID4 CA3/CA2 PL2 2 2/MID2 BC3/BC1 PL1 1 2 1 2

S DOOR

1/MID1 AB3/AB1 PL1 1 2/MID4 BC3/BC2 PL2 2 1 2 1

P FWD

1/MID1 AB3/AB1 PL1 1 2/MID4 BC3/BC2 PL2 2 1 2 1

P AFT

3/MID4 CA3/CA2 PL2 2 2/MID2 BC3/BC1 PL1 1 2 1 2

P DOOR

3/MID4 CA3/CA2 PL2 2 2/MID2 BC3/BC1 PL1 1 2 1 2

PLBD DISPLAY PL MDM

2-14
NOTE

WAIT FOR GO FROM CDR OR PLT BEFORE STARTING ANY ACTIVITY ON THIS PAGE

<table>
<thead>
<tr>
<th>TIME (ET)</th>
<th>MS AFT ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:07</td>
<td>C6 LEH O2 liv (four) - CL</td>
</tr>
<tr>
<td>00:08</td>
<td>SPECIALIST SEAT EGRESS</td>
</tr>
<tr>
<td>00:12</td>
<td>CONFIG FOR PLBD OPENING</td>
</tr>
<tr>
<td>00:15</td>
<td>SPACELAB PARTIAL REACT, if reqd</td>
</tr>
<tr>
<td>00:18</td>
<td>FDF/COMM CONFIG</td>
</tr>
<tr>
<td>00:30</td>
<td>CLOTHING CONFIG</td>
</tr>
<tr>
<td>00:40</td>
<td>PAYLOAD REACT, if reqd (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td>00:47</td>
<td>RMS PNL LT, TEMP MON, HTR ACT, C/W</td>
</tr>
<tr>
<td>01:20</td>
<td>ORBIT HTR/MADS CONFIG</td>
</tr>
<tr>
<td>01:36</td>
<td>SPACELAB DEACT. if reqd</td>
</tr>
<tr>
<td>01:45</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
</tbody>
</table>

**CONFIG FOR PLBD OPENING**

R11L
- CRT4 PWR - ON
- GPC/CRT 54 EXEC
- BFS, SM 63 PL BAY DOORS

A6U
- SET UP LIGHTS
- ANNUN BUS SEL - MNC

**NOTE**

Minimum operating time for PLB Floodlights: 25 min. Lights must be off for minimum of 10 min UNBLOCKED, 16 min BLOCKED prior to reuse. ~3 min to full brightness.

A7U
- PL BAY FLOOD AFT STBD
- PORT
- MID STBD
- PORT
- FWD STBD
- PORT
- BHD

Record MET _______/_______:________:________

*If PLB Floodlight not ON to full bright within 5 min:*

* (All) PL BAY FLOOD - OFF

**FDF/COMM CONFIG**

**COMM CONFIG**

Unstow: Headsets, Handheld Mics and/or Wireless Comm if flown

If WCWS, perform STD WCWS CONFIG (ORB OPS, COMM/INST) or see WCWS Cue Card

If flight deck Handheld Mic/speaker operation:

- MS AUD PWR - AUD/TONE
- A/G 1 - T/R, tw-2
- A/G 2 - RCV, tw-2
- A/A - RCV, tw-2
- ICOM A - T/R, tw-2
- ICOM B - RCV, tw-2
- XMIT/ICOM MODE - PTT/PTT

**A13**
- OS AUD SPKR - SPKR
- MSTR SPKR VOL - 8

**A11**
- MS COMM CCU PWR - OFF
- Connect Handheld Mic to CCU
- MS COMM CCU PWR - ON

**R6,L5**
- CCU PWR - OFF

**A1L**
- S-BD PM MODE - TDRS DATA
- NSP CODING (two) - ON

**TIPS ACTIVATION** (ORB OPS, COMM/INST), steps 1 & 3

**ICOM RECORDER OPS, if reqd (ORB OPS, COMM/INST)**

**FDF CONFIG**

Stow:
- ENT
- ENT PKT
- Entry cue cards

Unstow (if reqd):
- Deploy Orbit Cue Cards

**CLOTHING CONFIG**

Doll/stow:
- Harness, Boots, LES, UCD (if not used)

Doll, stow in Wet Trash (if used):
- UCD (clamp)
- Emesis Bag (unstow new bag)

(Cont next page)
Back of MS AFT DECK BACKOUT ACTIVITIES

RMS PNL LTS, TEMP MON, HTR ACT, C/W

RMS PNL LTS, TEMP MON, HTR ACT (if RMS onboard)
MA73C:F cb RMS PRI QA - cl
A8L RMS PWR - PRI (MA tone)
SM94 PDRS CONTROL (MA, GPC DATA It on)
A8U IO/ON - ITEM 5 EXEC (*)
A8L SAFING - CANCEL (tb-bp), (<GPC DATA It off)
C/W PORT RMS HTRA A - AUTO

<table>
<thead>
<tr>
<th>PARAMETER NAME</th>
<th>C/W CH</th>
<th>ENA/INH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS He REG PC</td>
<td>39</td>
<td>INH</td>
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<tr>
<td>L</td>
<td>49</td>
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<td>2</td>
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<td>INH</td>
</tr>
<tr>
<td>3</td>
<td>119</td>
<td>INH</td>
</tr>
</tbody>
</table>

NOTE
Reqd only for Spacelab Module flights, if module will be unpowered for entry. Accomplish prior to PLB opening

ON-ORBIT HTR/MADS CONFIG
R2 BLR PWR (three) - OFF
R4 HYD BRAKE HTR (three) - OFF
L1 /HI LOAD EVAP - OFF
DUCT HTR - OFF
A12 HYD HTR RUD SPD BK B - AUTO
√A - OFF
BDY FLB B - AUTO
√A - OFF
ELEV B - AUTO
√A - OFF
AFT FUS B - AUTO
√A - OFF
A14 RCS/OMS HTR FWD RCS - B AUTO
√L POD - A OFF
L POD - B AUTO
√R POD - A OFF
R POD - B AUTO
√OMS CRSFD LINES - A OFF
√OMS CRSFD LINES - B AUTO
R14:C cb KU ANT HTR - cl
MADS CONFIG (OV103,OV105)
A7L MADS STRAIN GAGE - PCM ENA
MADS/EX (OV102)
A7L OEX EQUIP - OFF

SPACELAB PARIAL REACT

NOTE
Reqd only for Spacelab Module flights, if module will be unpowered for entry. Accomplish prior to PLB opening

SPACELAB DEACT

NOTE
Reqd only for Spacelab Module flights, if module will be unpowered for entry. Accomplish only on MCC call

SM 224/5/L COOLING LOOPS
ECS MASTER OFF - ITEM 7 +1 EXEC
Expect '225 AV FAN DP' and '224 H2O PUMP DP' msgs
R7 SS INV - OFF (It off)
R1 PL PRI MNC - OFF (It on)
PL AUX - OFF
Expect '220 SOV P/C' and '224 H2O PUMP DP' msgs
If OARE flown:
L12L OARE PWR - OFF
R1 PL CAB - OFF
R7 Unstow fuse and install
R1 PL CAB - MNA
L12L OARE PWR - ON
If OARE not flown:
R1 PL CAB - MNA
PL AUX - OFF
F9 DC VOL/AMP sel - VOLTS MNC
√DC VOL/AMP ind > 28 and < 32 VDC
R1 PL PRI MNC - ON (tb-on)
R7 SS INV - ON (It on)
EPDS VOLTS/AMPS sel - VOLTS SS
√SS AC/DC PWR - ON (It on)
H2O LOOP PUMP 1(2) - ON (It on)
AV FAN 1(2) ON - LOW (It on)
**MS AFT DECK BACKOUT ACTIVITIES**

**NOTE**
Wait for GO from CDR or PLT before starting any activity on this page.

<table>
<thead>
<tr>
<th>TIME (ET)</th>
<th>MS AFT ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:07</td>
<td>C6 LEH O2тив (four) - CL</td>
</tr>
<tr>
<td>00:08</td>
<td>SPECIALIST SEAT EGRESS</td>
</tr>
<tr>
<td>00:12</td>
<td>CONFIG FOR PLBD OPENING 4</td>
</tr>
<tr>
<td>00:18</td>
<td>DFC/COMM CONEIG [7]</td>
</tr>
<tr>
<td>00:30</td>
<td>CLOTHING CONEIG [11]</td>
</tr>
<tr>
<td>00:47</td>
<td>RSM PNLT TEMP MON HTR ACT C/W 14</td>
</tr>
<tr>
<td>00:51</td>
<td>SPACECAB PARTIAL REACT, if reqd 5</td>
</tr>
<tr>
<td>00:54</td>
<td>PAYLOAD REACT, if reqd (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td>01:20</td>
<td>ON ORBIT HTR/MADS CONEIG [17]</td>
</tr>
<tr>
<td>01:45</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
</tbody>
</table>

**CONFIG FOR PLBD OPENING**

**R11L**
- CRT4 PWR - ON
- GPC/CRT 54 EXEC
  - 4: BFS, SM 63 PL BAY DOORS

**A6U**
- SET UP LIGHTS
- ANNUN BUS SEL - MNC

**A7U**
- PL BAY FLOOD AFT STBD -
  - PORT -
  - MID STBD -
  - PORT -
  - FWD STBD -
  - PORT -
  - BHD -

**Minimum operating time for PLB Floodlights:** 25 min. Lights must be off for minimum of 10 min UNBLOCKED, 16 min BLOCKED prior to reuse. ~ 3 min to full bright

**Note:**
If PLB Floodlight not ON to full bright within 5 min:

- (Aft) PL BAY FLOOD - OFF

**DFC/COMM CONEIG [7]**

**COMM CONEIG**
- Unstow: Headsets, Handheld Mics and/or Wireless Comm if flown
- If WCCS perform STD WCCS CONEIG (ORB OPS, COMM/INST) or see WCCS Cue Card

**R10**
- MS AUD PWR - AUD/TONE
  - A/G 1 - T/R, tw-2
  - A/G 2 - RCV, tw-2
  - A/A - RCV, tw-2
  - ICOM A - T/R, tw-2
  - ICOM B - RCV, tw-2
  - XMIT/COM MODE - PTT/PTT

**A13**
- OS AUD SPKR - SPKR
  - MSTR SPKR VOL - 8

**A11**
- MS COMM CCU PWR - OFF
  - Connect Handheld Mic to CCU
- MS COMM CCU PWR - ON

**R6.5**
- CCU PWR - OFF

**A1L**
- S-8D PM MODE - TDRS DATA
  - NSP CODING (two) - ON

**TIPS ACTIVATION** (ORB OPS, COMM/INST), steps 1 & 3

**ICOM RECORDER OPS**, if reqd (ORB OPS, COMM/INST)

**EFD CONEIG**
- Stow:
  - ENT
  - ENT PKT
  - Entry cue cards
- Unstow (if reqd):
  - Deploy Orbit Cue Cards

**CLOTHING CONEIG [11]**

**Doff/stow:**
- Harness, Boots, LES, UCD (if not used)

**Doff, stow in Wet Trash (if used):**
- UCD (clamp)
- Emesis Bag (unstow new bag)

**SLP**

(Cont. next page)
RMS PNLTTS. TEMP MON. HTR ACT. C/W [14]

MA73C:F
cb RMS PRI 8A - cl
RMS PWR - PRI (MA tone)
SM 94 PDRS CONTROL (MA, GPC DATA lit on)

AMS PNL LTS, TEMP MON, HTR ACT (if RMS onboard)
A8U
SAFING - CANCEL (tb-bp). (v/GPC DATA lit off)
A8L
PORT RMS HTR A - AUTO

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<td>R</td>
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</tr>
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<td>HYD P 1</td>
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<td>INH</td>
</tr>
<tr>
<td>2</td>
<td>109</td>
<td>INH</td>
</tr>
<tr>
<td>3</td>
<td>119</td>
<td>INH</td>
</tr>
</tbody>
</table>

ON-ORBIT HTR/MADS CONFIG [17]
R2
BLR PWR (three) - OFF
R4
HYD BRAKE HTR (three) - OFF
L1
Hi LOAD EVAP - OFF
DUCT HTR - OFF
A12
HYD HTR RUD SPD BK B - AUTO
BDY FLP B - AUTO
ELEV B - AUTO
AFT FUS B - AUTO

SPACELAB PARTIAL REACT [5]

NOTE
Reqd for SL Pallet flights to ensure proper thermal environment. Accomplish after DPS Config to GNC2/SM

R1
PL CAB - MNA
PL AUX - ON
F9
DC VOLT/AMP sel - VOLTS MNC
DC VOLT ind > 28 and < 32 VDC
R1
PL PRI MNC - ON (tb-on)
L12L
cb FMDM - cl
L12U
FMDM 1,2 (two) - ON (tb-UP)
CRT
SM I/O RESET
R7
SS INV - ON (lit on)
EPDS VOLTS/AMPS sel - VOLTS SS
SS AC 9A,8B,4C ind > 110 and < 122 VAC
SS AC/DC PWR - ON (lit on)
SM 224 SL COOLING LOOPS
SL FREON PUMP 1 ON - ITEM 4 EXEC (*)
FREON FLOW > 1500
AP STATUS - "blank"

SLP
D/O/SLP/GEN H,2
MS MIDDECK BACKOUT ACTIVITIES

NOTE: WAIT FOR GO FROM CDR OR PLT BEFORE STARTING ANY ACTIVITY ON THIS PAGE

<table>
<thead>
<tr>
<th>TIME (ET)</th>
<th>MS MIDDECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:08</td>
<td>SPECIALIST SEAT EGRESS</td>
</tr>
<tr>
<td>00:10</td>
<td>MO32M LEH O2 vlv (lwo) - CL</td>
</tr>
<tr>
<td></td>
<td>MO69M LEH O2 vlv (lwo) - CL</td>
</tr>
<tr>
<td>00:11</td>
<td>PRELIM MIDDECK CONFIG</td>
</tr>
<tr>
<td>00:22</td>
<td>MIDDECK CONFIG</td>
</tr>
<tr>
<td>00:40</td>
<td>PAYLOAD REACT, if reqd (PL OPS, DEORB PREP)</td>
</tr>
<tr>
<td></td>
<td>If SL Pallet perform at 00:50</td>
</tr>
<tr>
<td>00:50</td>
<td>CLOTHING CONFIG</td>
</tr>
<tr>
<td>01:40</td>
<td>ON-ORBIT PCS 2(1) CONFIG</td>
</tr>
<tr>
<td>01:45</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
<tr>
<td>01:50</td>
<td>EXTERNAL AIRLOCK SETUP FOR INGRESS</td>
</tr>
</tbody>
</table>

PRELIM MIDDECK CONFIG

INSTALL FILTERS
Unstow, Install: Side Hatch UV Filter and Locking Device Pyro Box Sating Pin

COMM CONFIG
Unstow: Headsets, Handheld Mics and/or Wireless
Comm if flown (see WCCS Cue Card)

If WCCS perform STD WCCS CONFIG (ORB OPS, COMM/INST) or see WCCS Cue Card

MO42F MIDDECK SPKR AUD A/G 1 - T/R, tw-2
A/G 2 - RCV, tw-2
A/V - RCV, tw-2
ICOM A - T/R, tw-2
ICOM B - RCV, tw-2
XM1T/ICOM MODE - PTT/PTT
MSTR SPKR VOL - 8

MO39M MIDDECK COMM CCU PWR - OFF
Connect Handheld Mic to CCU
MIDDECK COMM CCU PWR - ON

HTB CONFIG
ML31C VAC VENT ISOL VLV BUS SEL - MNA
NO2 HTR - ON
ISOL VLV CNTL - OP (tb-OP)

* If VAC VENT ISOL VLV CNTL tb - CL or bp:
  * VAC VENT ISOL VLV BUS SEL - MNB
  * CNTL - OP (tb-OP)*
* If VAC VENT ISOL VLV CNTL tb still CL or bp:
  * MCC for further actions

<table>
<thead>
<tr>
<th>MIDDECK CONFIG</th>
<th>8</th>
</tr>
</thead>
</table>

GALLEY ACTIVATION
ML66B:A cb MNC SPLY H2O GALLEY SPLY - cl
cb MNA GALLEY OVEN - cl
cb MNB GALLEY H2O HTR - cl
R11L:G - SPLY H2O GALLEY SPLY VLV - OP (tb-OP)

GALLEY
H2O HTRS (lwo) - ON
OVEN/RHS - ON

MA73C:G cb AC3 GALLEY FAN (three) - cl
Unstow, install Personal Hygiene Hose

WCS ACTIVATION
VAC VLV - OP

(EDO WCS)

If EDO WCS:
- CANISTER - LOCK
- URINAL SEL - SEP1
- WCS PWR SEL (two) - AUTO 1, OFF 2
- FAN PWR - AUTO
- URN DIV VLV - FAN SEP 1
- Open commode lid
- Commode airflow
- Fecal Bag installed
- Close commode lid
- Unstrap urinal hose Velcro strap
- Unstow urinal hose
- Urinal airflow
- URINAL READY II - on (5-15 sec)
- Slow urinal hose
- COMPACTOR LOCK PINS (three) - loosen
  (use 1/4-in Hex Wrench, if reqd)
- COMPACTOR ARM LOCK PIN - raised
- COMPACTOR CLEANING LATCH PIN - engaged
  Install Fecal Bag and Lid Dispensers

If WCS:
- MODE - WCS/EMU, Airflow, MODE - OFF

Unstow, install:
- WCS Trash Can
- Mirror
- Urine Collection Cue Card

Foot/Toe Restraint - down, locked

(Cont next page)
Back of MS MIDDECK BACKOUT ACTIVITIES

CO2 RMVL SYS ACT (if flown)
- MCC prior to CO2 RMVL system activation
- cb AG3 (three) - cl
- AG3 - ON (hold 3 sec)
- MNC - ON
- CNTRL2 MODE - OPER (hold 3 sec)
- Wait 6 sec
- CNTLR2 OPER II - on
- COM INSTR - ON

If PRIORITY PWRDN GROUP C not reqd:
- PGSC ACTIVATION
  (backup PGSC) PGSC ACTIVATION (ORB OPS, PGSC)

POLE STOWAGE:
- Remove large Port Pin:
  Slide back Safing Latch
  Retract and hold Locking Pin (Ring)
  Remove large Pin
  Release Locking Pin (Ring)
  Remove STBD Pipe Pin
  Stow Pole

EXTERNAL AIRLOCK SETUP FOR INGRESS

If Mir docking mission:
1. SYS PWR SYS 1, SYS 2 (two) - ON (hold 5 sec) (lb-ON)
2. LTS AIRLK - ON (as reqd)
3. Open hatch per decal
4. Remove, stow diffuser cap on cabin middeck floor air fitting (mark stowage location will be reused)

If Booster Fan flown:
5. cb AC1, 2 ARLK TNL FAN A, B (six) - cl
6. Remove, stow booster fan muffler inlet cap
7. Unstow fwd flex duct
8. Attach one end to booster fan muffler inlet
9. Attach free end to cabin middeck floor air fitting

If tunnel adapter flown:
10. Disconnect tunnel adapter flex duct from PL ISOL
    vlv, remove cap, slow
11. Reconnect flex duct to PL ISOL vlv
12. PL ISOL vlv - OP

If tunnel adapter hatch flown:
13. Equal vlv cap (two) - remove, stow
14. Open hatch per decal

If Mir docking mission:
15. ARLK/TNL FAN A(B) - ON
16. Go to step 27
17. Go to step 26

ON-ORBIT PCS 2(1) CONFIG

C
- L2: O2 XOVR SYS (two) - OP
- O2/N2 CNTLR VLV SYS 1(2) - CL
- 2(1) - AUTO
- O1: O2/N2 FLOW sel - SYS 2(1) O2
- C7: LEH O2 SPLY vlv (two) - OP
    Expect possible '066 CAB O2(N2) FLO 2(1)' msg

MS
- MO10W: 14.7 CAB REG INLET SYS 2(1) vlv - OP
- H2O TK N2 REG INLET SYS 1(2) vlv - CL
- 02 REG INLET SYS 2(1) vlv - OP
- MO69M: LEH O2 8 vlv - CL

Insert O2 Bleed Orifice Assembly into LEH O2 8 OD

CLOTHING CONFIG

Doff/stow:
- Harness, Boots, LES, UCD (if not used)
- UCD (clamp)
- Emesis Bag (unstow new bag)

Doff, stow in Wet Trash (if used):
AIRLOCK ENTRY SWITCH LIST/VERIFICATION (TIG-3:50)

AIRLOCK
AW18A ............ 3-3
AW18D ............ 3-3
AW18H ............ 3-3
AW82B ............ 3-3

PARTIAL ENTRY SWITCH LIST/VERIFICATION (TIG-3:10)

LEFT SEAT
F3 .................. 3-4
F7 .................. 3-4
L,R HUD ......... 3-4
F2 .................. 3-5
O7 .................. 3-5
O13 ................. 3-5
L side OVHD flood. 3-5
F1 .................. 3-6
F6 .................. 3-6
L5 .................. 3-6

AFT
O19 .................. 3-9
C5 .................. 3-9
C7 .................. 3-9
A11 .................. 3-9

MIDDECK–AFT
MO13Q ............. 3-12
ML18F ............. 3-12
ML26C ............. 3-12
ML31C ............. 3-12

MIDDECK–FWD
MO58F ............. 3-10
MO39M ............. 3-10
MO52J ............. 3-10
MO30F ............. 3-10
MD44F ............. 3-10
MD24K ............. 3-10
ML86B ............. 3-11

RIGHT SEAT
O8 .................. 3-7
R side OVHD flood. 3-7
F4 .................. 3-7
F8 .................. 3-7
R2 .................. 3-8
R6 .................. 3-8
O17 .................. 3-8

LEGEND
\[\text{up} \quad \text{R - as reqd}\]
\[\text{center} \quad \bullet - \text{cb close}\]
\[\text{down} \quad \bigcirc - \text{cb open}\]
\[\text{indicates switch/display} \quad \text{not checked during ENTRY SWITCH LIST/VERIFICATION}\]

CIRCUIT BREAKER SNAP RING
COLOR CODES

<table>
<thead>
<tr>
<th>COLOR</th>
<th>CONFIGURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Open at all times</td>
</tr>
<tr>
<td>Green</td>
<td>Open on orbit only</td>
</tr>
<tr>
<td>Yellow</td>
<td>Open ascent, close per procedure</td>
</tr>
<tr>
<td>Orange</td>
<td>Open orbit through entry</td>
</tr>
<tr>
<td>Blank</td>
<td>Always closed or as reqd</td>
</tr>
</tbody>
</table>

3-1
D/O/ALL/GEN H,2

ENT SWITCH LIST/VERIF
### ENT SWITCH LIST/VERIF

**FINAL ENTRY SWITCH LIST/VERIFICATION (TIG-1:50)**

**LEFT SEAT**

<table>
<thead>
<tr>
<th>Switch</th>
</tr>
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<tbody>
<tr>
<td>L4</td>
</tr>
<tr>
<td>L1</td>
</tr>
<tr>
<td>L2</td>
</tr>
<tr>
<td>C2</td>
</tr>
<tr>
<td>C3</td>
</tr>
<tr>
<td>O1</td>
</tr>
<tr>
<td>O5</td>
</tr>
<tr>
<td>O6</td>
</tr>
<tr>
<td>O14</td>
</tr>
<tr>
<td>O15</td>
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**AFT**

<table>
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<tbody>
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<td>3-13</td>
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</tr>
<tr>
<td>3-19</td>
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<tr>
<td>3-19</td>
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</table>

**MIDDECK-AFT**

<table>
<thead>
<tr>
<th>Switch</th>
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<tbody>
<tr>
<td>3-22</td>
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</tr>
<tr>
<td>3-23</td>
</tr>
<tr>
<td>3-23</td>
</tr>
</tbody>
</table>

**LEGEND**

- ▼ up R - as reqd
- ◆ center ● - cb close
- ▲ down ○ - cb open

- - indicates switch/display not checked during ENTRY SWITCH LIST/VERIFICATION

**CIRCUIT BREAKER SNAP RING COLOR CODES**

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**RIGHT SEAT**

<table>
<thead>
<tr>
<th>Switch</th>
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<tbody>
<tr>
<td>O16</td>
</tr>
<tr>
<td>O9</td>
</tr>
<tr>
<td>R1</td>
</tr>
<tr>
<td>R4</td>
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**MIDDECK-FWD**

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<tr>
<td>3-20</td>
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<tr>
<td>MO32M</td>
</tr>
<tr>
<td>MO69M</td>
</tr>
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</table>

**COLOR CONFIGURATION**

- Red: Open at all times
- Green: Open on orbit only
- Yellow: Open ascent, close per procedure
- Orange: Open orbit through entry
- Blank: Always closed or as reqd
AIRLOCK ENTRY SWITCH LIST/VERIFICATION (TIG-3:50)

AIRLOCK
AW18A ............ 3-3
AW18D ............ 3-3
AW18H ............ 3-3
AW82B ............ 3-3

PARTIAL ENTRY SWITCH LIST/VERIFICATION (TIG-3:10)

LEFT SEAT
F3 .................. 3-4
F7 .................. 3-4
L,R HUD ............. 3-4
F2 .................. 3-5
O7 .................. 3-5
O13 ................. 3-5
L side OVHD flood .. 3-5
F1 .................. 3-6
F6 .................. 3-6
L5 .................. 3-6

RIGHT SEAT
O8 .................. 3-7
R side OVHD flood .. 3-7
F4 .................. 3-7
F8 .................. 3-7
R2 .................. 3-8
R6 .................. 3-8
O17 .................. 3-8

MIDDECK-AFT
O19 ................. 3-9
MO13Q .............. 3-12
ML18F .............. 3-12
ML26C .............. 3-12
ML31C .............. 3-12

MIDDECK-FWD
MO58F .............. 3-10
MO39M .............. 3-10
MO52J .............. 3-10
MO39F .............. 3-10
MD44F .............. 3-10
MD24K .............. 3-10
ML66B .............. 3-11

LEGEND
\( \uparrow \) up \( R \) - as reqd
\( \bullet \) center \( \bullet \) - cb close
\( \downarrow \) down \( \bigcirc \) - cb open
\( \Box \) - indicates switch/display not checked during ENTRY SWITCH LIST/VERIFICATION

CIRCUIT BREAKER SNAP RING
COLOR CODES

COLOR
Red
Green
Yellow
Orange
Blank
(no ring)

CONFIGURATION
Open at all times
Open on orbit only
Open ascent, close per procedure
Open orbit through entry
Always closed or as reqd

ODS
D/O/ALL/GEN H,2

ENT SWITCH LIST/VERIF
### FINAL ENTRY SWITCH LIST/VERIFICATION (TIG-1:50)

**LEFT SEAT**

<table>
<thead>
<tr>
<th>L4</th>
<th>3-13 R7</th>
<th>3-14 R10</th>
<th>3-15 R11U,L</th>
<th>3-16 R13L</th>
<th>3-17 A1L,R</th>
<th>3-18 A12</th>
<th>3-19 A13</th>
<th>3-19 L9</th>
<th>3-17 A7U</th>
<th>3-18 A12</th>
<th>3-19 A13</th>
<th>3-19 L9</th>
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**AFT**

<table>
<thead>
<tr>
<th>3-13 R7</th>
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<th>3-15 R11U,L</th>
<th>3-16 R13L</th>
<th>3-17 A1L,R</th>
<th>3-18 A12</th>
<th>3-19 A13</th>
<th>3-19 L9</th>
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<th>3-18 A12</th>
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<th>3-19 L9</th>
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**MIDDECK-AFT**

<table>
<thead>
<tr>
<th>MA73C</th>
<th>MO10W</th>
<th>WCS</th>
<th>EDO WCS</th>
<th>3-29</th>
<th>3-30</th>
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**RIGHT SEAT**

<table>
<thead>
<tr>
<th>O16</th>
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<table>
<thead>
<tr>
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<table>
<thead>
<tr>
<th>R1</th>
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<table>
<thead>
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<th>R4</th>
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**MIDDECK-FWD**

<table>
<thead>
<tr>
<th>MO42F</th>
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<table>
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<th>MO32M</th>
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</table>

<table>
<thead>
<tr>
<th>MO51F</th>
<th>3-28</th>
</tr>
</thead>
</table>

**LEGEND**

- **up**
- **center**
- **down**

- **R** - as reqd
- **cb close**
- **cb open**

- Indicates switch/display not checked during ENTRY SWITCH LIST/VERIFICATION

**CIRCUIT BREAKER SNAP RING COLOR CODES**

<table>
<thead>
<tr>
<th>COLOR</th>
<th>CONFIGURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Open at all times</td>
</tr>
<tr>
<td>Green</td>
<td>Open on orbit only</td>
</tr>
<tr>
<td>Yellow</td>
<td>Open ascent, close per procedure</td>
</tr>
<tr>
<td>Orange</td>
<td>Open orbit through entry</td>
</tr>
<tr>
<td>Blank (no ring)</td>
<td>Always closed or as reqd</td>
</tr>
</tbody>
</table>

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A3-2

ODSI

D/O/ODS/GEN
NOTE: Not visible if MAR flown
NOTE: Not visible if MAR flown
NOTES:  
- FOR SPACELAB MISSIONS ONLY
- FOR POWERED MODULE ENTRY
- FOR SPACELAB PALLETS
- FOR NOMINAL D/O PREP  
  - 1 REV WAVE-OFF OR EXTENSION DAY:  
    - SPLY H2O INLET - OP (10-CP)  
    - OUTLET - OP (15-CP)
NOTE! PNL AGL FOR OV104 ONLY

ENTRY (B25)
BFS DEORBIT PREP NOTES
1) BFS cannot support COAS Cal or an IMU Align

2) No AUTO DAP or AUTO TVC is available with BFS. After OPS 304 Transition, CSS must be used

3) BFS does not support MSN TIMER updates

4) BFS supports manual RCS to RCS Xfeed only

5) BFS follows PASS port mofing via BFS I/O RESET

6) BFS does not support the following switches:

**NOTE**
Boldface indicates items affected during Entry (MM 304)

LEFT SEAT

C L1 H2O PUMP LOOP 1 (GPC pos only)
F6 ADI ERR
  RATE
HSI SEL MODE
  SOURCE 1, 2, 3
F7 RDR ALTM
C, P C3 DAP pb (six)
  MAN MODE TRANSLATION pb (eight)
  jet option PRI, ALT, VERN pb
O7 MSTR RCS XFEED
  AFT L, R RCS TK ISOL (six) (GPC pos only)
  XFEED (four) (GPC pos only)

RIGHT SEAT

P F8 AIR DATA (slaved to CDRs)
  ADI ERR
  RATE
  ATT (slaved to CDRs)
  ATT REF pb
HSI SEL MODE
  SOURCE TACAN, MLS, NAV
  (slaved to CDRs)
RDR ALTM
F3 R TRIM RHC/PNL
R2 HYD CIRC PUMP (three) (GPC pos only)

AFT

MS R12U FC PURGE VLV (three) (GPC pos only)*
  HTR (GPC pos only)*
  GPC PURGE SEQ

*FC PURGE valve and heater functions can be
ground-commanded through BFS when switches are in
GPC position. Therefore, place these switches in GPC for
tentry.
CONTINGENCY DELTAS TO NOMINAL DEORBIT PREP
NOTE
Perform NOMINAL DEORBIT PREP procedure with
CONTINGENCY DELTAS for specific case

LOSS OF 2 CAB FANS ......................................................... 5-3
LOSS OF AV BAY AIR COOLING ......................................... 5-4
8 PSI DEORBIT PREP ...................................................... 5-6
AV BAY FIRE ............................................................... 5-8
**LOSS OF 2 CAB FANS** Assumes LOSS OF 2 CAB FANS (ORB PKT, PWRDN) accomplished

1. Minimize use of CRTs, FLT CNTLR PWR, INST PWR, DDUs to reduce cabin heat load and to save for use during entry
2. Minimize lighting
3. Wipe off any visible moisture with towels
4. Use CRT 4 when possible. Use one CRT as required. Use two CRTs for IMU ALIGN, two CRTs for DPS ENTRY CONFIG. Save two CRTs for entry
5. In DED DISP ENT CONFIG, do not power DDUs, INST PWR unless required. Minimize use
6. Replace SPACELAB FINAL DEACT with:
   - PL PRI MNC, FC3, MNB (three) - OFF (tb-OFF)
   - AUX - OFF
   - CAB - OFF
   - AFT MNB, MNC (two) - OFF
7. In DPS ENTRY CONFIG, skip SM CKPT except UL CNTL ENA - ITEM 36 EXEC. Skip MC9 RECONFIG
8. In CLOTHING CONFIG, prepare LESs for donning. Don QDM if cabin temp > 90 deg and discomfort occurs. If cabin temp > 95 deg and no evaporative cooling, don LES, activate O2, and close visor. Inflate anti-G Suit as needed for circulatory support
9. ENTRY SWITCH LIST/VER will not reflect powerdown items
10. **FLUID LOADING:** Continue drinking 8 oz container of water every 15 min with salt tablets every other 8 oz container through entry
11. Maintain tail Sun attitude/leave window shades installed until TIG-15 minutes

For ENTRY C/L deltas, go to LOSS OF 2 CAB FANS (ENT PKT, PWRDN)
LOSS OF AV BAY AIR COOLING Assures MAL, DPS, GPC FRP-7 accomplished

1. For Av Bay 1 or 2 loss, skip all of DPS CONFIG FOR D/O PREP except ENSURE BFS CAN DRIVE A CRT If Av Bay 3 loss, perform all of DPS CONFIG FOR

2 In APU/HYD CONFIG:
   If AV BAY 1 or 2 air cooling lost:
   | FCS CH (four) - ORID
   If AV BAY 3 air cooling lost:
   √FCS CH 1,2,3 (three) - AUTO
   4 - OFF

3. In DED DISP ENT CONFIG, delay activation of affected TACANS, MLS, AA, ADTAs (EQUIP COOLING MATRIX, ORB PKT, ECLS); deactivate if already activated

4. During DPS ENTRY CONFIG
   a. If loss of AV BAY 3, do not activate GPC 3
   b. In all cases, substitute appropriate NBAT in following activities:

   ![Table]

   ![Table]

Cont next page
5-4
LOSS OF AV BAY AIR COOLING (Cont)

4. Cont

**RECONFIG MC 9 TABLE (GNC 9) FOR POST LANDING**

5. In C P ENT FWD FLT DECK CONFIG:
   - If AV BAY 1 air cooling lost:
     - √BRAKES MNA - OFF
     - MNB - ON
     - √MNC - OFF
   - If AV BAY 2 air cooling lost:
     - BRAKES MNA - ON
     - √MNB - OFF
     - MNC - ON

6. ENT SWITCH LIST/VERIF will not reflect powerdown items

7. Incorporate following pen and inks to ENT MNVR Cue Cards:
   - EI: Power up affected air cooled equipment except affected TACAN (EQUIP COOLING MATRIX, ENT PKT, ECLS)
   - V = 10K: If unaffected TACAN failed, (O7) Affected TACAN MODE - GPC

8. If just prior to OPS 302 TRANSITION, affected GPCs have been in HALT for > 3.5 hr, add to RS as follows:
   a. Modify MC3 per table
   b. MODE affected GPCs to RUN
   c. BFC CRT DISP - OFF
      - OPS 301 PRO
      - BFC CRT DISP - ON
      - BFS GNC I/O RESET
   d. FCS CH (four) - AUTO

9. Update GPC/FCS CHANNEL CONFIGURATION Cue Card

<table>
<thead>
<tr>
<th>CONFIG GPC</th>
<th>LOSS OF</th>
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</thead>
<tbody>
<tr>
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<th>LOSS OF</th>
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<td>4</td>
<td>2</td>
</tr>
<tr>
<td>PL 1/2</td>
<td>2</td>
</tr>
</tbody>
</table>

D/O/ALL/GEN H
8 PSI DEORBIT PREP: Assumes LOSS OF CABIN PRESS (ORB PKT, PWRDN) accomplished

If TIG < 4 hr: Begin NOMINAL DEORBIT PREP timeline 1-7 immediately and perform procedures as rapidly as possible with all following CONTINGENCY DELTAS except steps 6 and 10.

If TIG > 4 hr: Perform steps 1, 2, and 3.

At TIG-4 hr, perform NOMINAL DEORBIT PREP with all remaining CONTINGENCY DELTAS.

1. Back out of PRIORITY PWRDN, as req'd (ORB PKT, PRIOR PWRDN).

2. If previous FC PURGE was not accomplished within last 6 hr: Accomplish FC PURGE (ORB OPS, EPS) any time prior to DPS ENTRY CONFIG.

3. MS accomplish CABIN CONFIG/STOW (FLIGHT PLAN) as time permits.

4. Leave shades in until SEAT INGRESS.

5. Minimize CRT use until TIG-20.

6. Do not perform DPS CONFIG FOR D/O PREP.

7. Replace RAD BYPASS/FES C/O with following:
   - R11L: SPLY H2O XOVR VLV - OP (tb-OP)
   - TKC INLET - OP (tb-OP)
   - OUTLET - OP (tb-OP)
   - L1: FLASH EVAP CNTLR PRI A - OFF
   - B - ON
   - HI LOAD DUCT HTR - B
   - EVAP - ENA
   - RAD BYP VLVL MODE (two) - MAN
   - MAN SEL (two) - BYP (tb-BYP ~3 sec)
   - RAD CNTLR LOOP (two) - OFF

   After 2.5 min:
   - O1: FREON EVAP OUT TEMP ind: 39 ± 1 degF
   - L1: FLOW PROP VLVL LOOP 1.2 (two) tb - ICH
   - RAD CNTLR OUT TEMP - NORM

8. In DED DISP ENT CONFIG, delay activation of ADTAs, TACANs, MLS, RAs, DDUs, and INST PWR.

9. Replace SPACELAB FINAL DEACT with:
   - R1: PL PRI MNC, FC3, MNB (three) - OFF (tb-OFF)
   - AUX - OFF
   - CAB - OFF
   - AFT MNB, MNC (two) - OFF

10. Immediately prior to DPS ENTRY CONFIG, activate GPCs 1 & 5; then proceed with nominal DPS ENTRY CONFIG.

11. ENTRY SWITCH LIST/VER will not reflect powered down items.

Cont next page

5-6
8 PSI DEORBIT PREP (Cont)

IN ENT C/L

1. At TIG-15, activate DDUs and INST PWR
2. At EI-5, activate ADTAs
3. At V = 15K, activate TACANs, MLS, RAs
AV BAY FIRE Assumes AV BAY FIRE (ORB PKT, PWRDN) and MAL, ECLS SSR-12, AV BAY FIRE RECOVERY/RECONFIG accomplished.

1. For Av Bay 1 or 2 loss, skip all of DPS CONFIG FOR D/O PREP except ENSURE BFS CAN DRIVE A CRT
   If Av Bay 3 loss, perform all of DPS CONFIG FOR D/O PREP.

2. In APU/HYD CONFIG:
   If AV BAY 1 or 2 air cooling lost:
   FCS CH (four) – ORIDE
   If AV BAY 3 air cooling lost:
   FCS CH 1, 2, 3 (three) – AUTO
   4 – OFF

3. During DED DISP ENT CONFIG, power up only 3 ADTAs, 3 AAs, 2 MLSs, and 2 TACANs
AV BAY FIRE (Cont)

4. During DPS ENTRY CONFIG
   a. If loss of Av Bay 3, do not pwrup GPC 3
   b. During SM CHECKPOINT, skip MMU 1 (if Av Bay 1) or MMU 2 (if Av Bay 2)
   c. Using column for affected Av Bay, substitute appropriate NBAT in following activities

<table>
<thead>
<tr>
<th>TRANSITION GPC 1 &amp; 2 TO OPS 3</th>
<th>TRANSITION GPC 1,2,3,4 TO OPS 3</th>
<th>RECONFIG MC 9 TABLE (GNC 9) FOR POST LANDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONFIG</strong></td>
<td><strong>LOSS OF</strong></td>
<td><strong>LOSS OF</strong></td>
</tr>
<tr>
<td><strong>GPC</strong></td>
<td><strong>BAY 1</strong></td>
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</tr>
<tr>
<td>PL 1/2</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>

5. ENT SWITCH LIST/VERIF pictorials will not reflect powerdown items
PLBD CONTINGENCY EVA TIMELINE
FLIGHT: PLBD EVA 102  EDITION: FROM D/O PREP TO EOM+1  PUB. DATE: 5/96

Assumptions:
- EOM+1 landing time is NEOM +24 hrs
- Minimum EMU C/O
- 3 hr minimum D/O prep
- SL remains deactivated
- Template similar to entry team on dual shift

Impacts:
- 4 hr early shift on sleep cycle and shortened sleep period
- Possible 7 hr early sleep shift for dual shift entry team

Notes:
- Template similar to entry team on dual shift

Timeline:
- MET: 000 - 16 - 15 - 14 - 13 - 12 - 11 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 - 0
- Pre Sleep
- Sleep
- Post Sleep
- DEORBIT Prep
- D/O Prep

Entry Prep:
- FD
- EOM
- EOM+1

Notes:
- Template similar to entry team on dual shift
- Template similar to entry team on dual shift
- Template similar to entry team on dual shift

6-2
PLBD CONTINGENCY EVA NOTES

1. This timeline is an overview template that covers a payload bay door contingency EVA with a 10.2 cabin depress. The scenario starts from a closure failure 1.5 hr into the deorbit prep followed by a D/O PREP BACKOUT and Cabin depress activities. The EVA and landing will occur on the EOM + 1 day.

2. The timeline assumes that a two-crewmember 3.5 hr EVA to repair the problem is immediately followed by an entry to the prime landing site.

3. Specific procedure block callouts for the EV and IV crewmembers during the EVA will be coordinated realtime.

4. RCS hot fire testing, FCS C/O, and CABIN STOW are assumed to be previously accomplished.

5. The timeline utilizes minimum activity durations for POST/PRE SLEEPS, EMU C/O, and DEORBIT PREP.

6. The crew will be required to perform A/L PREP curing the Mask Pre-Breathe prior to cabin depress.

7. Due to the necessity of performing the EVA on the same day as landing, the crew is required to start their sleep period 3.5 hr earlier than the previous day.

8. This template can be adapted for Dual Shift timelines by scheduling the Non-Entry team’s sleep with the Entry team’s sleep in order to modify the timeline to single shift operations.

9. The MET scale on this timeline is actually a PET scale counting down to nominal deorbit TIG.
HARDWARE CONTINGENCY EVA TIMELINE
### Assumptions:
- EOM+1 landing time is NEOM + 24 HRS
- Minimum EMU C/O
- SL remains deactivated
- Template similar to entry team on dual shift

### Impacts:
- Combined 2HR late and 7 HR sleep
- Dual shift non-entry team may late shift as much as 6 HRS

---

**NOTES:**

- Preferred HW stow (single shift)
HARDWARE CONTINGENCY EVA NOTES

1. This timeline is an overview template that covers KU antenna, RMS, and RAD stow contingency EVAs with a "no cabin depress" scenario starting from a stow failure as late as 30 min into the deorbit prep. The Pre-Breathe and EVA will be performed after D/O BACKOUT is complete and a landing will occur on the EOM + 1 day.

2. The timeline assumes a two-crewmember 3 hr EVA to repair the problem.

3. Specific procedure block callouts for the EV and IV crewmembers during the EVA will be coordinated realtime.

4. RCS hot fire testing, FCS C/O, and CABIN STOW are assumed to be previously accomplished.

5. The timeline utilizes minimum activity durations for EMU C/O, and PRE/POST SLEEP.

6. Due to the necessity of the timeline, the crew is required to shorten their sleep to 7 hr and shift the sleep late by 2 hr.

7. This template can be adapted for Dual Shift by scheduling the Non-Entry team's sleep with the Entry team's sleep in order to modify the timeline to single shift operations.

8. The MET scale on this timeline is actually a PET scale counting down to nominal deorbit TIG.