Deorbit Prep

Mission Operations Directorate
Operations Division

Generic, Rev Q
July 1, 2009

NOTE
For STS-128 and subsequent flights

Lyndon B. Johnson Space Center
Houston, Texas

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List of Implemented Change Requests (482s):
D/O-888
D/O-889

Incorporate the following:
1. Replace iii thru vi
2. Replace 1-31 and 1-32
3. Replace 5-3 and 5-4, 5-7 thru 5-10
4. Replace 8-1 and CC 8-2

Prepared by: [Signature]  
Publication Manager

Approved by: [Signature]  
Manager, Flight Procedures

Accepted by: [Signature]  
FDF Manager

Encl: 14 pages

File this PCN immediately behind the front cover as a permanent record
MISSION OPERATIONS DIRECTORATE

DEORBIT PREP

GENERIC, REVISION Q
July 1, 2009

PREPARED BY:

Anita Valle
Publication Manager

APPROVED BY:

Manager, Flight Procedures

ACCEPTED BY:

Michael T. Hurt
FDF Manager

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| 482#: | PI-00866 |

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## DEORBIT PREP

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† – MS pullout page. Add in MS2 copy only, in back of book
‡ – Prelift – off information reqd
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‡ – Add extra copies in back of all books
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Note: *TACAN not available on OV105
*Three-string GPS available only on OV105
**NOMINAL DEORBIT PREP SUMMARY TIMELINE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>-04:00</td>
<td>P CRT TIMER SETUP</td>
</tr>
<tr>
<td></td>
<td>C,MS COLD SOAK INITIATE</td>
</tr>
<tr>
<td>-03:50</td>
<td>MS ENT STOWAGE</td>
</tr>
<tr>
<td></td>
<td>P KU-BD ANT STOW (if reqd)</td>
</tr>
<tr>
<td></td>
<td>RAD STOW (if reqd)</td>
</tr>
<tr>
<td></td>
<td>N2 QTY COMPUTE</td>
</tr>
<tr>
<td>-03:40</td>
<td>MS,PS SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>-03:30</td>
<td>C DPS CONFIG FOR D/O PREP</td>
</tr>
<tr>
<td></td>
<td>C,P HYD/MPS CONFIG</td>
</tr>
<tr>
<td>-03:20</td>
<td>DED DISP ENT CONFIG</td>
</tr>
<tr>
<td>-03:10</td>
<td>PARTIAL ENTRY SWITCH LIST/VERIFY (ALL)</td>
</tr>
<tr>
<td>-03:00</td>
<td>TIG</td>
</tr>
<tr>
<td>-03:00</td>
<td>C RAD BYPASS/FES C/O</td>
</tr>
<tr>
<td></td>
<td>MS CONFIG FOR PLBD CLOSING</td>
</tr>
<tr>
<td>-02:50</td>
<td>MS PAYLOAD DEACT</td>
</tr>
<tr>
<td></td>
<td>MCC GO FOR PLBD CLOSING</td>
</tr>
<tr>
<td>-02:40</td>
<td>TIG PLBD CLOSING (P,MS)</td>
</tr>
<tr>
<td>-02:30</td>
<td>MCC GO FOR OPS 3</td>
</tr>
<tr>
<td></td>
<td>MS POST CLOSING CONFIG</td>
</tr>
<tr>
<td></td>
<td>C AUTO MNVR TO COMM ATT</td>
</tr>
<tr>
<td>-02:20</td>
<td>TIG TRANSITION TO ENT PKT</td>
</tr>
<tr>
<td>-02:10</td>
<td>TIG DPS ENTRY CONFIG (C,P)</td>
</tr>
<tr>
<td>-02:00</td>
<td>TIG</td>
</tr>
</tbody>
</table>
NOMINAL DEORBIT PREP SUMMARY TIMELINE (Cont)

-02:00
MS DEACT S TRKR

-01:50
FINAL ENTRY SWITCH LIST/VERIF (ALL)
DEORB PAD UPDATE (C)
RESET C/W (MS)
ENTRY REVIEW (ALL)

-01:40
DSO 603 (if reqd)

-01:30
CLOTHING CONFIG (C,P)

-01:20
C IMU/IMU ALIGN

-01:10
CLOTHING CONFIG (MS,PS)

-01:00
SEAT INGRESS (C,P)
CLOTHING CONFIG (MS,PS)

-00:50
FLIGHT DECK, transition to ENT FINAL DEORBIT UPDATE/UPLINK

-00:40
OMS TVC GIMBAL CHECK
APU PRESTART

-00:30
MS GALLEY DEACT
WCS DEACT

-00:20
OMS BURN PREP
VENT DOOR CLOSE
OPS 302 PRO
MCC GO FOR BURN

-00:10
MNVR TO D/O BURN ATT

-00:00
SEAT INGRESS (MS)

00:00:00
C,P SINGLE APU START
DEORBIT BURN
NOMINAL DEORBIT PREP

For cabin temperature management, use maximum of 25% on backlit panel lighting unless reqd for visibility

* 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 procedure 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)
  IMU ALIGN – S TRK (ORB OPS, GNC)
  MNVR (TRK) BIASED – XSI (FLIGHT PLAN, DETAILED TIMELINE)
  FC PURGE (ORB OPS, EPS)
  Back out of PRIORITY PWRDN as reqd (ORB PKT, PRIOR PWRDN)
1: CRT TIMER SETUP

-04:00
P
CRT TIMER SETUP

-03:55
C, MS
COLD SOAK INITIATE

-03:50
Verify in ATT:
DAP: A5/AUTO/VERN(ALT)
\(\sqrt{A6/AUTO/ALT}\)
\(\sqrt{B}\) set to B1

-03:45
MS
ENT STOWAGE, 1-31
ENT AIRLOCK CONFIG, 3A, 1-32

-03:40
P
KU-BD ANT STOW, if deployed (ORB OPS, COMM/INST)

-03:35
RAD STOW, if reqd (ORB OPS, ECLS)

-03:30
S66
N2 QTY COMPUTE
Add N2 QTY 1 + 2
Then annotate CABIN PRESS LEAK NOMOGRAPH
(ENT PKT, ECLS)

-03:25
S68
DETERMINE H2 DEPLETED TANKS
Note all H2 tanks with Qty < 3%
168 Then annotate DEORBIT BURN FLIGHT RULES, ELEC
section (step 8) for depleted tanks (ENT,
BURN CARDS)

-03:30
MS, PS
SPECIALIST SEAT INSTALLATION

1: GNC UNIV PTG

2: SM SYS SUMM 1
### HYD/MPS CONFIG

**W/B STEAM VENT HTR ACT**

<table>
<thead>
<tr>
<th>R2</th>
<th>√BLR CNTLR/HTR (three) – B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PWR (three) – ON</td>
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</tbody>
</table>

**NOTE**
HTR reqd to be on 2 hr prior to APU act

<table>
<thead>
<tr>
<th>R2</th>
<th>HYD CIRC PUMP TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HYD CIRC PUMP (three) – OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C3</th>
<th>SSME HYD REPRESS PREP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>√FCS CH (four) – AUTO</td>
</tr>
</tbody>
</table>

| O17 | ATVC (four) – ON |

### DED DISP ENT CONFIG

<table>
<thead>
<tr>
<th>O14, RGA (four) – ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>O15, cb MNA,B,C ADTA (four) – cl</td>
</tr>
<tr>
<td>O16, MNA,B ACCEL 1, 2 (two) – cl</td>
</tr>
<tr>
<td>DDU L (two) – cl</td>
</tr>
<tr>
<td>√MNA, C DDU AFT (two) – op</td>
</tr>
<tr>
<td>MNB, C DDU R (two) – cl</td>
</tr>
<tr>
<td>ASA (four) – ON</td>
</tr>
<tr>
<td>ACCEL 4,3 (two) – ON</td>
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</tbody>
</table>

| MDU, AFD1 – OFF |

<table>
<thead>
<tr>
<th>O7</th>
<th>If OV105:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>GPS 1,3 PRE AMPL (four) – ON</td>
</tr>
<tr>
<td></td>
<td>GPS 1,3 PWR (two) – ON</td>
</tr>
<tr>
<td></td>
<td>Wait at least 30 sec</td>
</tr>
<tr>
<td></td>
<td>GNC I/O RESET</td>
</tr>
<tr>
<td>1:</td>
<td>GNC 55 GPS STATUS</td>
</tr>
<tr>
<td></td>
<td>√NAV – ITEM 17,19 EXEC (*)</td>
</tr>
<tr>
<td></td>
<td>INIT – ITEM 14,16 EXEC (*)</td>
</tr>
<tr>
<td></td>
<td>√MODE – INIT</td>
</tr>
<tr>
<td></td>
<td>NAV – ITEM 17,19 EXEC (*)</td>
</tr>
<tr>
<td></td>
<td>√MODE – INS</td>
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</table>

If OV103,4:

<table>
<thead>
<tr>
<th>O8</th>
<th>RADAR ALTM (two) – ON</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>MLS (three) – ON</td>
</tr>
<tr>
<td></td>
<td>CH tw (three) – See DEL PAD (ENT), PRPLT/DEL PADS</td>
</tr>
</tbody>
</table>

| F3 | TRIM PNL (two) – ON |

| 1-8 | D/O/ALL/GEN Q |
1: GNC 0 GPC MEMORY

2: BFS, GNC 0 BFS MEMORY

C If single G2: DPS CONFIG FOR D/O PREP

ENSURE BFS GPC CAN COMMAND AN IDP

C,P HYD/MPS CONFIG

DED DISP ENT CONFIG

NOTE

√MCC for unaccounted-for sw or cb config discrepancies

C P

PARTIAL ENT SWITCH LIST/VERIF (FWD), 3-4 thru 3-6
PARTIAL ENT SWITCH LIST/VERIF (AFT), 3-9
PARTIAL ENT SWITCH LIST/VERIF (MID), 3-10 thru 3-12

O6 √G/PW 2 – ON
√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

1: GNC 21 IMU ALIGN

RESUME

1: GNC 0 GPC MEMORY

2: BFS, GNC BFS MEMORY or SM THERMAL

1-9 D/O/ALL/GEN Q
Block 8 deleted
DAP: A/AUTO/ALT

RAD BYPASS/FES C/O (ORB OPS, ECLS)

MS

CONFIG FOR PLBD CLOSING

If reqd, PAYLOAD DEACT (PL OPS, DEORBIT PREP) or PAYLOAD DEACTIVATION (SODF: ASSY OPS: DEORBIT PREP)

If SSPTS (OV103,105 only):

A15

PTU/MAIN BUS A,B (two) – OFF (tb-OFF)

cb CNTL PWR PTU 1,2 (two) – op

OPCU 1,2 V-ADJ (two) – OFF

MCC: GO/NO-GO FOR PLBD CLOSING

P,MS

DETAILED PLBD CLOSING PROCEDURES

P,MS

PLBD CLOSING
If IMU or RHC dilemma, do not proceed with OPS 3 transition.

√ Att mnvr complete
√ RGA, AA, ASA, IMU (all) – ON

NOTE
No keyboard entries or sw throws 10 sec:
Before and after moding PASS GPCs to RUN
Before OPS transition or set expansion/contraction requests until new OPS base page is displayed

1. MEDS CONFIG
C2  IDP/CRT 3 PWR – ON
CRTX GPC/CRT 2/3 EXEC
F6,F7,F8 √ All forward MDUs ON and selected to primary port

2. VERIFY GPC CONFIG
O6 √ GPC MODE 3 – HALT (tb-bp)
PWR 3 – ON
OUTPUT 1,2 – NORM (tb-bp)
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

CRT2 MMU ASSIGN 2 SM – ITEM 4 EXEC
CRT1 CKPT INITIATE – ITEM 18 EXEC
√ Update of CKPT TIME and STATUS GOOD indicated
CRT2 MMU ASSIGN 1 SM – ITEM 3 EXEC
CRT1 CKPT INITIATE – ITEM 18 EXEC
√ Update of CKPT TIME and STATUS GOOD indicated
CRT2 CKPT RETRY ENA – ITEM 12 EXEC (∗)
UL CNTL ENA – ITEM 36 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
CONFIG – ITEM 1 +3 EXEC

Modify MC 3 per table
GNC, OPS 301 PRO
1: GNC DEORB MNVR COAST
3 2 1 1

C3

6. TRANSITION BFS GPC TO GNC OPS 3
BFC CRT DISP – ON
SEL = 3+1

√ C3

O6 GPC OUTPUT 5 – B/U (tb-bp)
TFL ENA – ITEM 29 (∗)
BFS, GNC OPS 301 PRO
2 0

CRT3

3: BFS, GNC DEORB MNVR COAST


7. TRANSITION GPC 1,2,3,4 TO GNC OPS 3
SM, OPS 000 PRO
X: SM GPC MEMORY

O6 GPC OUTPUT 4 – NORM (tb-gray)
MODE 3,5 (two) – RUN (tb-RUN)
If no comm, sel best antenna

C3

Config – ITEM 1 +3 EXEC
Modify MC 3 per table
GNC OPS 301 PRO
1: GNC DEORB MNVR COAST
CRT 1 1

O6 BFS, GNC OPS 301 PRO
1: BFS, GNC DEORB MNVR COAST
C3 BFS, GNC OPS 000 PRO
2 2
BFS, GNC OPS 301 PRO
3 3

C3 BFC CRT DISP – OFF
(GPC 3 commanding IDP 3)
BFC CRT DISP – ON
L 0 1 1

If any IMU failed or not aligned:
√ 3: BFS, GNC 51 OVERRIDE
Aff IMU – desel

C3

If any IMU failed or not aligned:
√ 3: BFS, GNC 51 OVERRIDE
Aff IMU – desel

8. MNVR BACK TO COMM ATT
MCC: GO/NO-GO for OPS 3 transition

POST CLOSING CONFIG

AUTO MNVR TO COMM ATT

MNVR per MCC, Post PLBD Close

\DAP: A/AUTO/ALT

Transition to ENT PKT

DPS ENTRY CONFIG

MCC for TGTS, SV UPLINK, and GPS INCORPORATE
LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC

\GPS, INCORPORATE
DEORB PAD UPDATE

MCC update:
- OMS PRPLT PAD, DEL PAD (ENT, PRPLT/DEL PADS) and DEORBIT
  MNVR PAD (ENT, MNVR PADS)

* If MCC cannot provide DEORB TGT, use Deorbit Manager on 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
\(\checkmark\) PASS and BFS TGT per DEORBIT MNVR PAD (ENT, MNVR PADS)
\(\checkmark\) PASS and BFS solution per DEORBIT MNVR PAD (ENT, MNVR PADS)
  BURN ATT, HA HP
  \(\Delta\) VTOT
  TGO
ENTRY MONITORING, step B: AT ACES DONNING, if reqd (BIOMED)

C,P CLOTHING CONFIG 21, 1-30

IMU/IMU ALIGNMENT (Omit if BFS) 22

C
1. GNC 21 IMU ALIGN
2. REF IMU – ITEM 14 +1 EXEC
   \TYPE, ITEM 15 – TORQUE
3. ALIGN IMU 1 – ITEM 10 EXEC (*)
   \IMU 2,3 ITEM 11,12 – (no *)
4. \MCC
   If no comm: ITEM 16 EXEC (*)
   Rcd MET ____ / ____ : ____
5. \EXEC, ITEM 16 – (no *) (5-10 sec)

Begin Fluid Loading per individual prescription.
Fluid Loading should be completed by EI
For 1 rev waveoff, repeat half the protocol
If > 1 rev waveoff, repeat entire protocol
1: GNC DEORB MNVR COAST
2: GNC DEORB MNVR COAST

C,P SEATS
- CDR SEAT PWR BUS SEL – AC2 (up)
- PLT SEAT PWR BUS SEL – AC3 (dn)

C,P SEAT INGRESS

C,P HUD SETUP 23

C,P Adjust seat
Exercise brake pedals

C C6 LEH O2 vlv (four) – OP

C,P ACES PRESS INTEGRITY CHECK
Dual Suit Controller, Dial-To-Test Knob – full cw

MS AFD AUD SPKR CONFIG 28, 1-29

MS WIRELESS STOW, if flown 24

C,P Stow all unnecessary FDF articles
FLIGHT DECK, go to ENT, DEORBIT BURN

NOTE
Perform prior to seat ingress. Inform MCC when
blocks 26, 27, 29 complete

MS GALLEY DEACT 26, 1-31

NOTE
WCS must be deactivated prior to EI

MS WCS DEACT MS 27, 1-32

MS MD AUD SPKR CONFIG 29, 1-32

NOTE
- HUD SETUP 23
  Remove, stow HUD Covers (two)
  Ensure Cloth Cover does not obscure light sensor

- WIRELESS STOW, if flown 24
  Disconnect, stow Wireless Comm (if reqd)
  \Aft deck lts as reqd

1: GNC DEORB MNVR COAST
2: GNC DEORB MNVR COAST
DETAILED PLBD CLOSING PROCEDURES

**CAUTION**
Verify no obstructions before closing and latching PLBD (Ku ANT, RMS, RAD, etc).

Use MANUAL mode for subsequent BFS PLBD ops if BFS AUTO sequence has been interrupted by reversing latch/door drive direction or if MANUAL mode has already been used during mission.

*If no motion determined visually or 'OP/CL' not blank within 10 sec after cmd:
* PL BAY DR – STOP
* Perform MAL, MECH, 9.1a
* If Latch not 'CL' in single-motor time:
* PL BAY DR – STOP
* Perform MAL, MECH, 9.1e
* If door motion stops and not 'RDY' or 'CL':
* PL BAY DR – STOP
* Perform MAL, MECH, 9.1g

*If SM GPC fails during this operation:
* PL BAY DR SYS (two) – DSBL
* DR – STOP
* Perform PASS SM GPC FAIL (ORB PKT, DPS)

**NOTE**
Note any single-motor operations (continue ops)
(single-motor times = 2x listed dual-motor times)

RECORD MUXED PORT RAD RETRACT HOSE VIEWS (A and C)

L10 (VTR) 1. √ Muxed scene displayed on VTR LCD
   REC pb – push, hold
   PLAY pb – push
   Red dot displayed on LCD

CONFIGURE FOR AUTO MODE

CRT4 2. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS
   √ R13L (VTR) 4. SM PL BAY DOORS
   √ R13L
   √ CRT4
   √ PBD SW – STOP
   √ MAN SEL (ten) – (no *)
   √ PBD SW BYPASS – (no*)
   3. AC POWER ON – ITEM 1 EXEC (*)
   4. AUTO MODE SEL – ITEM 3 EXEC (*)
   R13L 5. PL BAY DR SYS (two) – ENA
   CRT4 √ OP/CL STATUS (ten) – OP

CLOSE PLBDs USING AUTO MODE

R13L 6. PL BAY DR – CL
   CRT4 * If PORT DOOR not ‘CL’ within 6 sec of ‘RDY’: *
   R13L * PL BAY DR – STOP
   * Go to PORT BKHD LATCH TROUBLESHOOTING *
   * AUTO MODE [9A, 1-23]
   CRT4 √ PORT DOOR – blank, RDY, CL (~63 sec)
   R13L
   A7 7. VID IN MUX 2 pb – push
   L10 (VTR) √ Muxed scene displayed on VTR LCD
   CRT4 √ PORT FWD, AFT LATCHES – blank, CL (~30 sec)
   √ STBD DOOR – blank

8. When Stbd Door as close as possible to Port Door before contact, perform PLBD fit check:
   R13L
   √ PL BAY DR – STOP
   Determine Cl Latch clearance on Cl LATCH EXTENDED GUIDE ROLLER TRAJECTORY NO-GO DIAGRAM, 1-22
   √ If NO-GO for PLBD CLOSE:
   √ If no waveoff capability:
     √ Perform MAL, MECH, SSR-3 (SIMULTANEOUS PLBD CL)
     * if waveoff OK:
     * √ MCC

9. PL BAY DR – CL
   CRT4 * If STBD DOOR not ‘CL’ within ~6 sec of ‘RDY’:
   R13L * PL BAY DR – STOP
   * Go to STBD BKHD LATCH TROUBLESHOOTING *
   * AUTO MODE [9B, 1-23]
   CRT4 √ STBD DOOR – CL (~63 sec)
   √ FWD, AFT LATCHES (two) – blank, CL (~30 sec)
   √ CENTER LATCHES 1-4, 13-16 (two) – blank, CL (~20 sec)
   √ 5-8, 9-12 (two) – blank, CL (~20 sec)
   R13L 10. PL BAY DR – STOP
   POST-PLBD CLOSING CLEANUP
   R13L
   11. PL BAY DR SYS (two) – DSBL
   √ CRT4
   √ OP/CL STATUS (ten) – CL
   12. AC POWER OFF – ITEM 2 EXEC (*)
   13. GPC/CRT 54 EXEC
   √ MARK AND STOW RAD RETRACT HOSE RECORDING
   L10 (VTR) 14. STOP pb – push, Eject tape, mark as PLBD Closure, stow in RTH bag (L10A1 foam)
AUTO PLBD CLOSING (Cont)

PORT AFT BULKHEAD LATCH GO/NO-GO DIAGRAM

PLBD CONTROL

Ref: MA73C:C&D for MCA (cb)

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PLBD DISPLAY PL MDM</th>
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<tbody>
<tr>
<td>AC/ MCA</td>
<td>CNTL</td>
</tr>
<tr>
<td>MTR 1</td>
<td>MTR 2</td>
</tr>
<tr>
<td>S LATCH</td>
<td>5-8</td>
</tr>
<tr>
<td>S-12</td>
<td>1-4</td>
</tr>
<tr>
<td>S 13-16</td>
<td>3/MID4 CA3/CA2 PL1 2</td>
</tr>
<tr>
<td>S AFT</td>
<td>3/MID4 CA3/CA2 PL1 2</td>
</tr>
<tr>
<td>S DOOR</td>
<td>1/MID1 AB3/AB1 PL1 2</td>
</tr>
<tr>
<td>P FWD</td>
<td>1/MID1 AB3/AB1 PL1 2</td>
</tr>
<tr>
<td>P AFT</td>
<td>1/MID3 AB3/AB2 PL1 2</td>
</tr>
<tr>
<td>P DOOR</td>
<td>3/MID4 CA3/CA2 PL1 2</td>
</tr>
</tbody>
</table>

C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY

NO-GO DIAGRAM
PORT BKHD LATCH TROUBLESHOOTING (AUTO MODE) 9A

CRT4
1. \*PORT DOOR FWD, AFT MICRO-SW STATs
   If PORT DOOR AFT 'C' = '0':
   2. \*PORT AFT BULKHEAD LATCH GO/NO DIAGRAM, 1-22
      If NO-GO:
      L Go to MAL, MECH, SSR-2 (CONTINGENCY PLBD CLOSURE)

   If PORT DOOR FWD 'C' = '0':
      NOTE
      Use PLB camera A to view port fwd bkhd latch
      hook/roller #3 as seen in figures 1-1 and 1-2, 1-24

R13L
3. PL BAY DR SYS 1 – DSBL
   During the following step, monitor latch hook #3 while driving to
   ensure hook motion and proper roller engagement
   * If latch hook #3 stops moving while commanded, or
     * it appears that the hook is going to miss or jam
     * into its roller:
     *PL BAY DR – STOP
     * Go to MAL, MECH, SSR-2 (CONTINGENCY
     * PLBD CLOSURE)

4. PL BAY DR – CL

5. When proper roller engagement verified for latch #3:
   L PL BAY DR – STOP
   SYS 1 – ENA

6. Go to step 6 of AUTO PLBD CLOSING [9] 1-21 ignoring the starred block

STBD BKHD LATCH TROUBLESHOOTING (AUTO MODE) 9B

CRT4
1. \*STBD DOOR FWD, AFT MICRO-SW STATs
   If STBD DOOR AFT (FWD) 'C' = '0':
      NOTE
      Use PLB camera C(D) to view stbd aft (fwd) bkhd latch
      hook/roller #3 as seen in figures 1-1 and 1-2, 1-24

R13L
2. PL BAY DR SYS 1(2) – DSBL
   During the following step, monitor latch hook #3 while driving to
   ensure hook motion and proper roller engagement
   * If at any point latch hook #3 stops moving while
     * commanded, or it appears that the hook is going
     * to miss or jam into its roller:
     * PL BAY DR – STOP
     * Go to MAL, MECH, SSR-2 (CONTINGENCY
     * PLBD CLOSURE)

3. PL BAY DR – CL

4. When proper roller engagement verified for latch #3:
   L PL BAY DR – STOP
   SYS 1(2) – ENA

5. Go to step 9 of AUTO PLBD CLOSING [9] 1-21 ignoring the starred block
Figure 1-1.- Latch hook/roller #3 typical view from PLB camera

Figure 1-2.- Typical latch hook/roller numbering
MANUAL PLBD CLOSING

DETAILED PLBD CLOSING PROCEDURES

Verifying no obstructions before closing and latching PLBD (Ku ANT, RMS, RAD, etc)

Use MANUAL mode for subsequent BFS PLBD ops if BFS AUTO sequence has been interrupted by reversing latch/door drive direction or if MANUAL mode has already been used during mission

*If no motion determined visually or ‘OP/CL’*
  * not blank within 10 sec after cmd:
  * PL BAY DR – STOP
  * Go to MAL, MECH, 9.1a
  * If Latch not ‘CL’ in single-motor time:
    * PL BAY DR – STOP
    * Go to MAL, MECH, 9.1e
  * If door motion stops and not ‘RDY’ or ‘CL’:
    * PL BAY DR – STOP
    * Go to MAL, MECH, 9.1g
*If SM GPC fails during this operation:
  * PL BAY DR SYS (two) – DSBL
  * PL BAY DR – STOP
  * Go to PASS SM GPC FAIL (ORB PKT, DPS)

NOTE

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

RECORD MUXED PORT RAD RETRACT HOSE VIEWS (A and C)

L10 (VTR) 1. Muxed scene displayed on VTR LCD
  * REC pb – push, hold
  * PLAY pb – push
  * Red dot displayed on LCD
  * CONFIGURE FOR MANUAL MODE

CRT4 2. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS

4. SM PL BAY DOORS

R13L 5. PL BAY DR – STOP
  * PBD SW – STOP
  * MAN SEL (ten) – (no *)
  * PBD SW BYPASS – (no *)

3. AC POWER ON – ITEM 1 EXEC (*)
  * AUTO MODE SEL – (no *)

R13L 4. PL BAY DR SYS (two) – ENA
  * OP/CL STATUS (ten) – OP

CLOSE PORT DOOR, FWD & AFT LATCHES

CRT4 5. Select PORT DOOR – ITEM 13 EXEC (*)
  * PL BAY DR – CL
  * If PORT DOOR not ‘CL’ within 6 sec of ‘RDY’:
    * PL BAY DR – STOP
    * Go to PORT BKHD LATCH TROUBLESHOOTING
    * (MANUAL MODE) 9C, 1-26

R13L 6. PL BAY DR – STOP

CRT4 8. Select PORT FWD,AFT LATCHES – ITEM 11, 12 EXEC (*)

R13L 9. PL BAY DR – CL
  * PORT DOOR – CL

CRT4 11. Deselect PORT FWD,AFT LATCHES, & DOOR – ITEM 11, 12, 13 EXEC (no *)
  * RECORD MUXED STBD RAD RETRACT HOSE VIEWS (D and B)

A7 12. VID IN MUX 2 pb – push

L10 (VTR) 13. Select STDB DOOR – ITEM 10 EXEC (*)

R13L 14. PL BAY DR – CL
  * STBD DOOR – blank

CRT4 15. When Stbd Door as close as possible to Port Door before contact, perform fit check:

R13L 16. PL BAY DR – CL
  * If STBD DOOR not ‘CL’ within 6 sec of ‘RDY’:
    * PL BAY DR – STOP
    * Go to STBD BKHD LATCH TROUBLESHOOTING

CRT4 17. PL BAY DR – STOP
  * Determine C/L Latch clearance on C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY NO-GO DIAGRAM, 1-26
  * If NO-GO for PLBD CLOSE:
    * If no waveoff capability:
      * Go to MAL, MECH
      * SSR-3 (SIMULTANEOUS PLBD CL)
    * If waveoff OK:
      * MCC

CRT4 18. Select STBD FWD,AFT LATCHES – ITEM 8,9 EXEC (*)

R13L 19. PL BAY DR – CL
  * STBD DR – CL

CRT4 20. Deselect STBD FWD,AFT LATCHES & DOOR – ITEM 8,9,10 EXEC (no *)

CLOSE CENTER LATCHES

CRT4 22. Select CENTER LATCHES 1-4,13-16 – ITEM 6,7 EXEC (*)

R13L 23. PL BAY DR – CL

CRT4 24. CENTER LATCHES 1-4,13-16 (two) – blank, CL (~30 sec)

R13L 25. PL BAY DR – STOP

CRT4 26. Deselect CENTER LATCHES 1-4,13-16 – ITEM 6,7 EXEC (no *)
  * SELECT CENTER LATCHES 5-8,9-12 – ITEM 4,5 EXEC (*)

R13L 27. PL BAY DR – CL

CRT4 28. CENTER LATCHES 5-8,9-12 – blank, CL (~30 sec)

R13L 29. PL BAY DR – STOP

CRT4 30. Deselect CENTER LATCHES 5-8,9-12 – ITEM 4,5 EXEC (no *)

POST-PLBD CLOSING CLEANUP

CRT4 31. AC POWER OFF – ITEM 2 EXEC (*)

R13L 32. GPC/CRT 54 EXEC

L10 (VTR) 33. STOP pb – push, Eject tape, mark as PLBD Closure, stow in RTH bag (L10A1 foam)
MANUAL PLBD CLOSING (Cont)
PORT AFT BULKHEAD LATCH GO/NO-GO DIAGRAM

Ref: MA73C:C&D for MCA (cb) PLBD DISPLAY PL MDM

C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY
NO-GO DIAGRAM

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>MTR1</th>
<th>MTR2</th>
<th>PLBD DISPLAY PL MDM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC/ MCA</td>
<td>CNTL</td>
<td>MDM</td>
</tr>
<tr>
<td>LATCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
<td>PL1</td>
</tr>
<tr>
<td>9-12</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
<td>PL1</td>
</tr>
<tr>
<td>1-4</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
<td>PL1</td>
</tr>
<tr>
<td>13-16</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
<td>PL2</td>
</tr>
<tr>
<td>S FWD</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
<td>PL1</td>
</tr>
<tr>
<td>S AFT</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
<td>PL2</td>
</tr>
<tr>
<td>S DOOR</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
<td>PL1</td>
</tr>
<tr>
<td>P FWD</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
<td>PL1</td>
</tr>
<tr>
<td>P AFT</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
<td>PL1</td>
</tr>
<tr>
<td>P DOOR</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
<td>PL2</td>
</tr>
</tbody>
</table>

1-26
PORT BKHD LATCH TROUBLESHOOTING (MANUAL MODE)

1. PORT DOOR FWD, AFT MICRO-SW STATs
   If PORT DOOR AFT 'C' = '0':
   2. PORT AFT BULKHEAD LATCH GO/NO DIAGRAM, 1-26
      If NO-GO:
      L Go to MAL, MECH, SSR-2 (CONTINGENCY PLBD CLOSURE)
   If PORT DOOR FWD 'C' = '0':
      NOTE
      Use PLB camera A to view port fwd bkhd latch
      hook/roller #3 as seen in figures 1-3 and 1-4, 1-28

R13L 3. PL BAY DR SYS 1 – DSBL
       During the following step, monitor latch hook #3 while driving to
       ensure hook motion and proper roller engagement
       * If at any point latch hook #3 stops moving while
       * commanded, or it appears that the hook is going
       * to miss or jam into its roller:
       * PL BAY DR – STOP
       * Go to MAL, MECH, SSR-2 (CONTINGENCY
       * PLBD CLOSURE)

CRT4 4. Select PORT FWD,AFT LATCHES – ITEM 11,12 EXEC (*)
R13L 5. PL BAY DR – CL
       6. When proper roller engagement verified for latch #3:
           PL BAY DR – STOP
           L SYS 1 – ENA
       L Go to step 9 of MANUAL PLBD CLOSING [9] 1-25

STBD BKHD LATCH TROUBLESHOOTING (MANUAL MODE)

1. STBD DOOR FWD, AFT MICRO-SW STATs
   If STBD DOOR AFT (FWD) 'C' = '0':
   NOTE
   Use PLB camera C(D) to view stbd aft (fwd) bkhd latch
   hook/roller #3 as seen in figures 1-3 and 1-4, 1-28

R13L 2. PL BAY DR SYS 1(2) – DSBL
       During the following step, monitor latch hook #3 while driving to
       ensure hook motion and proper roller engagement
       * If at any point latch hook #3 stops moving while
       * commanded, or it appears that the hook is going
       * to miss or jam into its roller:
       * PL BAY DR – STOP
       * Go to MAL, MECH, SSR-2 (CONTINGENCY
       * PLBD CLOSURE)

CRT4 3. Select STBD FWD,AFT LATCHES – ITEM 8,9 EXEC (*)
4. PL BAY DR – CL
       5. When proper roller engagement verified for latch #3:
           PL BAY DR – STOP
           L SYS 1(2) – ENA
Figure 1-3.- Latch hook/roller #3 typical view from PLB camera

Figure 1-4.- Typical latch hook/roller numbering
## 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 (TIB)</th>
<th>MS AFT DECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td></td>
<td>Verify Leg Attach Collars (four) – DOWN/LOCKED</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF (AFT)</td>
</tr>
<tr>
<td>2:55</td>
<td>CONFIG FOR PLBD CLOSING <strong>[7]</strong>, 1-33</td>
</tr>
<tr>
<td>2:51</td>
<td>If reqd, PAYLOAD DEACT, (PL OPS, DEORB PREP) or PAYLOAD DEACTIVATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td>2:40</td>
<td>DETAILED PLBD CLOSING PROCEDURES <strong>[9]</strong>, 1-21</td>
</tr>
<tr>
<td>2:25</td>
<td>POST CLOSING CONFIG <strong>[10]</strong>, 1-34</td>
</tr>
<tr>
<td>1:56</td>
<td>DEACT STAR TRKRS &amp; CLOSE DOORS <strong>[13]</strong>, 1-30</td>
</tr>
<tr>
<td></td>
<td>ENT AFT FLT DECK CONFIG <strong>[15]</strong>, 1-30</td>
</tr>
<tr>
<td>1:55</td>
<td>PAYLOAD ENT SW LIST/VERIF (PL OPS, DEORB PREP) or PAYLOAD ENTRY SWITCH LIST VERIFICATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST VERIF (AFT), 3-22 thru 3-33</td>
</tr>
<tr>
<td>1:41</td>
<td>RESET C/W <strong>[18]</strong>, 1-30</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 <strong>[21]</strong>, 1-30</td>
</tr>
<tr>
<td>1:00</td>
<td>Begin Fluid Loading per individual prescription. Fluid Loading should be completed by EL</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>0:53</td>
<td>AFT AUD SPKR CONFIG <strong>[28]</strong></td>
</tr>
<tr>
<td>0:52</td>
<td>WIRELESS STOW, if flown <strong>[24]</strong>, 1-19</td>
</tr>
</tbody>
</table>

**Block 11 deleted**

**AFT AUD SPKR CONFIG 28**

- Verify CDR, PLT on headsets

  **A13**

- OS AUD SPKR PWR – OFF
- MS COMM CCU PWR – OFF
- Disconnect and stow Handheld Mic
- Configure MHA to MS CCU per entry plug-in plan
- Connect Lightweight Headsets or ACES Comm Cap
- MS COMM CCU PWR – ON

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

DEACT STAR TRKR & CLOSE DOORS

- 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 (start timer)
  √POS tb (two) – bp
  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)

NOTE
Expect ‘MPS’ light and ‘HYD PRESS’ light and master alarm. ‘MPS’ light will extinguish at OPS 303 PRO

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

CLOTHING CONFIG

- STOW:
  QDMs
  Unstow, don:
  ACES Harness
  Boots
- Verify ACES Gloves (Spare) available. Relocate as reqd
- Remove radiation dosimeter from inflight garments and insert in ACES
- Connect flight deck cooling units per PWR/DATA/VIDEO: ASCENT/ENTRY CONFIG

ENT AFT FLT DECK CONFIG

- A6L
  SYS PWR MN A,MN B (two) – OFF (hold 5 sec)
  ∗SYS 1, SYS 2 tb (two) – OFF
  ∗cb ESS 1BC SYS PWR CNTL SYS 1 – op
  2CA SYS PWR CNTL SYS 2 – op
  MN A,B DOCK LIGHT (four) – op
  MN A,B,C LOG (six) – op
  MN A,B,C LOG (six) – op
  HYD HTR
- A12
  HYD HTR (eight) – OFF

ENTRY COMM

- A1L
  S-BD PM MODE – STDN LO
  NSP CODING (two) – OFF

S-BAND PAYLOAD

- S-BD PL CH SEL INTRG 1,2 tb (six) – 910,910
- PWR SYS – OFF
- SEL – PSP
- ANT POLAR – L CIRC
- PSP CMD OUTPUT – PL UMB
- A1R
  AUD CTR VOICE RCD SEL CH1 – ICOM A
  CH2 – ICOM B
  If WVS installed:
- A7
  ∗ WIRELESS VIDEO PWR – OFF
  ∗ WIRELESS VIDEO HTR – OFF
- R14:C
  cb MNB KU ANT HTR – op
  UHF EVA (two) – op
  ∗D
  Open all cbs except TV CABIN (14)
  ∗E
  Open all D CAMR and RMS CAMR cbs (6)
  ∗F
  ∗cb MN A ESS 1BC LDG GEAR ARM/DN RESET – op
  Review or mark cb location for ease of finding during post landing procedures

VPU

- VPU POWER – OFF
- R10
  MS AUD A/G 1 – T/R
  A/G 2 – T/R
  A/G 3 – T/R
  ICOM (two) – T/R
  VOX SENS – R
  VOL tw (five) – R
  XM1/ICOM MODE – R
- L9
  PS AUD PWR – AUD TONE
  A/G 1 – T/R
  A/G 2 – T/R
  A/G 3 – T/R
  ICOM (two) – T/R
  AUD VOX SENS – R
  XM1/ICOM MODE – R
  VOL tw (five) – R
- O19
  TV PWR – ON
- L10 (MUX)
  VTR/CC PWR – ON (LED on)
  (VIP)
  PWR – ON (LED on, DATA FLOW LED flashes twice)
  (VTR)
  ∗ON/STANDBY LED – green
## 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><strong>ENT STOWAGE</strong> 3</td>
</tr>
<tr>
<td>3:50</td>
<td><strong>ENT AIRLOCK CONFIG</strong> 3A, 1-32</td>
</tr>
<tr>
<td>3:35</td>
<td><strong>SPECIALIST SEAT INSTALLATION</strong></td>
</tr>
<tr>
<td></td>
<td>Verify Leg Attach Collars (four) – DOWN/LOCKED</td>
</tr>
<tr>
<td></td>
<td>Verify LOH Door Latches (four) – ENGAGED</td>
</tr>
<tr>
<td>3:10</td>
<td><strong>PARTIAL ENT SWITCH LIST/VERIF (MID), 3-10 thru 3-12</strong></td>
</tr>
<tr>
<td>1:55</td>
<td><strong>ENT MIDDECK CONFIG</strong> 16</td>
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<tr>
<td>1:50</td>
<td><strong>FINAL ENT SWITCH LIST/VERIF (MID), 3-30 thru 3-32</strong></td>
</tr>
<tr>
<td>1:40</td>
<td><strong>ENTRY REVIEW</strong></td>
</tr>
<tr>
<td>1:28</td>
<td>DS0 603, if reqd (BIOMED, BIOMED DS0s)</td>
</tr>
<tr>
<td>1:10</td>
<td><strong>CLOTHING CONFIG</strong> 20, 1-32</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>0:55</td>
<td>Remove, stow Side Hatch UV Filter, Locking Device, and Pyro Box Safing Pin</td>
</tr>
<tr>
<td>0:35</td>
<td><strong>GALLEY DEACT</strong> 26</td>
</tr>
<tr>
<td>0:33</td>
<td><strong>WCS DEACT</strong> 27, 1-32</td>
</tr>
<tr>
<td>0:31</td>
<td><strong>MD AUD SPKR CONFIG</strong> 29, 1-32</td>
</tr>
</tbody>
</table>

### ENT MIDDECK CONFIG 16

#### ENTRY COMM
- **MIDDECK SPKR AUD A/G 1** – T/R
- **MIDDECK SPKR AUD A/G 2** – T/R
- **MIDDECK SPKR AUD A/A** – T/R
- **ICOM (two)** – T/R
- **VOX SENS** – R
- **VOL tw (five)** – R
- **XMIT/ICOM MODE** – R

#### 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
- **LEH O2 8 vlv – CL**
- **LEH O2 8 vlv – R**
- **SIDE HATCH NEG PRESS RLF VLV COVER (two)** – pull open to vent; push firmly to close
- **RMS PNL LTS** (if RMS onboard)

#### GALLEY DEACT 26

- **GALLEY OVEN/RHS** – OFF
- **H2O HTRS (two)** – OFF
- **O2 HYD STA lever** – cl (push in)
- **O2 HYD STA lever** – cl (push in)
- **O2 HYD STA lever** – cl (push in)
- **OVEN FAN** – OFF
- **REHYD STA lever** – cl (push in)
- **OVEN DOOR LATCH** – latched

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

#### EGREE ROUTE CONFIG
- **Tape Foot Loops in egress routes**
- **NOTE**
  - Chemlights are middeck carry-on items. Activate green chemlights after TIG.
  - Do not activate orange chemlights (slide ops only)
- **Install green chemlights (8 ea) near egress hdw and egress routes**
- **Install orange chemlights (2 ea) above side hatch**

### MO73C:F
- **cb RMS PRI 6A – op**
- **cb B/U 6A – op**
- **AC UTILITY OUTLET**
- **cb ACT MAR 3φ – op**

### MA73C/G
- **cb AC3 GALLEY FAN (three)** – op

### ML86B:A
- **MNC SPLY H2O GALLEY SPLY** – op
- **:B**
- **MNA GALLEY OVEN** – op
- **MNB GALLEY H2O HTR** – op
Back of MS MIDDECK ACTIVITIES

ENT AIRLOCK CONFIG

1. AIRLK FAN A(B) – OFF
2. Disconnect A/L Fan Inlet from aft middeck floor fitting and A/L Fan Inlet and strap to Tunnel Extension wall
3. cb AC1,2 ARLK TNL FAN A,B (six) – op
4. Unstow, install diffuser cap on aft middeck floor fitting
5. NEG PRESS RLF vlv cover (two) – pull open to vent; push firmly to close
6. LGT FLOOD 1(3,4) – OFF
7. Perform AIRLOCK ENTRY SWITCH LIST/VERIFICATION, 3-3
8. Close hatch:
   HATCH
   Position handle to preclosing posi per decal
   Hatch – rotate about hinge and push
   Handle – CCW to LATCH
   Lock lever to LOCKED
9. Equal vlv (two) – NORM, install caps
10. EMU O2 ISOL vlv – CL
11. AIRLK H2O S/O vlv – OP (tb-op)
12. cb MNB EXT ARLK HTR VEST Z1/2/3 – op
    If TNL ADAPT flown:
13. cb MNA FLOOD TNL ADAPT 1 – op
    cb MNB FLOOD TNL ADAPT 2 – op
    cb MNC FLOOD TNL ADAPT 3 – op
    cb MNB FLOOD TNL ADAPT 4 – op
14. cb MNA FLOODS AIRLK 1 – op
    cb MNC FLOODS MIDDECK 10 – op
    AIRLK 3 – op
15. cb MNB FLOODS MIDDECK 9 – op
    MIDDECK 9 – op
16. cb ESS 1BC FLOOD TNL ADAPT 1 – op
17. cb ESS 1BC FLOOD TNL ADAPT 2 – op

CLOTHING CONFIG

Unstow, don:
ACES
Harness
Boots

Verify ACES Gloves (Spare) available. Relocate as reqd
Remove radiation dosimeter from inflight garments and insert in ACES; if waveoff, remove radiation dosimeter from ACES and insert in inflight garments

NOTE
Refer to flight specific utility outlet plug-in plan if reqd

MO13Q, MO30F, MO52J, PDB J2(3,4), ML85E (MUP)

WCS DEACT

1. WCS
   VAC VLV – CL
   MODE sel – AUTO
   FAN SEP sel – OFF
   Unstow hose from cradle, attach hose to WCS housing via Velcro straps
   Sow:
   WCS Trash Can
   Mirror
   Privacy Curtain
   Foot/toe restrants – up, latched
   Close and latch door
2. ML31C
   VAC VENT ISOL VLV BUS SEL – MNB
   CNTL – CL (tb-CL)
   NOZ HTR – OFF

MD AUD SPKR CONFIG

1. MO42F
   MIDDECK AUD SPKR PWR – OFF
2. MO39M
   MIDDECK COMM CCU PWR – OFF
   Disconnect and slow Handheld Mic
   Configure MHA to MID CCU per entry plug-in plan
   Connect Lightweight Headsets or ACES Comm Cap
   MIDDECK COMM CCU PWR – ON

WCS

VAC VLV – CL
MODE sel – AUTO
FAN SEP sel – OFF
Unstow hose from cradle, attach hose to WCS housing via Velcro straps
Sow:
WCS Trash Can
Mirror
Privacy Curtain
Foot/toe restrants – up, latched
Close and latch door
CONFIG FOR PLBD CLOSING

CONFIG RMS/OBSS (if RMS/OBSS onboard)

1. Elbow Camr in aligned position
   - Pan 90° from X-axis
   - Tilt as per decal

2. RMS PWR – OFF (SM ALERT, BCE BYP MCIU)
   PORT RMS HTR (two) – OFF

SET UP LIGHTS

RMS/OBSS

3. IDP/CRT4 PWR – ON
   CRT 4 PWR – ON
   ANNUN BUS SEL – MNC

A8L 2. RMS PWR – OFF (SM ALERT, BCE BYP MCIU)
PORT RMS HTR (two) – OFF SET UP LIGHTS

A8U

NOTE
Minimum operating time for PLB Floodlights: 10 min ~3 min to full bright

A7U

PL BAY FLOOD AFT STBD – ON
PORT – ON
MID STBD – OFF
PORT – OFF
FWD STBD – ON
PORT – ON
BHD – OFF

Record MET: ___ / ___ / ____

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

TV ACT

4. Perform ACTIVATION, OPERATION (Cue Card, TV)
   to activate camrs A, B, C, D (ALC-AVG with Illuminators on)

5. MCC for rad hose camr pointing and composed MUX1(A,C) and MUX2(D,B) camr views (see fig 1-5)

Figure 1-5. RAD hose camera muxing

If camr pointing and muxing required for rad retract hose recording:

A7

Point Camrs A and C at PORT FWD and AFT rad retract hose:

6. VID OUT MON 1 pb – push
   IN A pb – push
   PAN/TILT, ZOOM, FOCUS as reqd to center PORT FWD rad retract hose in FOV

7. VID IN C pb – push
   PAN/TILT, ZOOM, FOCUS as reqd to center PORT AFT rad retract hose in FOV

Point Camrs D and B at STBD FWD and AFT rad retract hose:

8. VID OUT MON 2 pb – push
   IN D pb – push
   PAN/TILT, ZOOM, FOCUS as reqd to center STBD FWD rad retract hose in FOV

9. VID IN B pb – push
   PAN/TILT, ZOOM, FOCUS as reqd to center STBD AFT rad retract hose in FOV

MUX Camrs A and C:

10. VID OUT MON 1 pb – push
    IN MUX 1 pb – push
    OUT MUX 1 L pb – push
    IN A pb – push
    OUT MUX 1 R pb – push
    IN C pb – push

MON 1

11. Verify both rad retract hoses are centered in each MUX half views; adjust accordingly

A7

MUX Camrs D and B:

12. VID OUT MON 2 pb – push
    IN MUX 2 pb – push
    OUT MUX 2 L pb – push
    IN D pb – push
    OUT MUX 2 R pb – push
    IN B pb – push

MON 2

13. Verify both rad retract hoses are centered in each MUX half views; adjust accordingly

Route MUXED video to DTV

R1

14. PL AUX – ON
    VLC AC2 PL 3PB – cl

MA73C

15. Reinstall VIP OUT-to-VTR IN jumper cable
(VMP)

16. VTR/CC PWR – on (LED on)

(VTR)

17. ATU – REC
    CCTV VID IN – J3
    PWR – on (LED on, DATA FLOW flashes twice)

(VTR)

18. ON/STANDBY LED – green
    Switches set to white dot (seven)
    Insert new tape (tape icon LED on)

A7

19. VID OUT DTV pb – push
    IN MUX 1 pb – push

L10 (VTR)

20. MUX scene displayed on VTR LCD

P & I
If radiator hose exhibits bend, photograph bent radiator hose(s).

**RADIATOR HOSE STILL PHOTOS**

**Unstow, Configure Hardware**

**Vol 3B**
1. Unstow D2Xs, 400mm lens
2. 400mm lens attached to D2Xs
3. Aperture - Min, locked
4. Lens Focus Mode - M

**D2Xs**
1. Body Focus Mode - S
2. Flash Card installed
3. Pwr - ON Top LCD
4. Batt
5. Frames remaining sufficient
6. Exp Comp (    ) - 0.0
7. Exp Mode - A
8. f/stop - f/2.8
9. Meter - Matrix (    )
10. Diopter - Adjust
11. Frame Rate - S
12. BKT disabled - 0 F
13. Rear LCD
14. ISO - 800
15. QUAL - RAW
16. WB 0, A
17. AF Area Mode - [ ]
18. Focus Area - Center
19. Focus Selector Lock - L

**Vol 3B**
1. Batt installed
2. Flash Card installed
3. Pwr - ON Top LCD
4. Batt
5. Frames remaining sufficient
6. Exp Comp (    ) - 0.0
7. Exp Mode - A
8. f/stop - f/2.8
9. Meter - Matrix (    )
10. Diopter - Adjust
11. Frame Rate - S
12. BKT disabled - 0 F
13. Rear LCD
14. ISO - 800
15. QUAL - RAW
16. WB 0, A
17. AF Area Mode - [ ]
18. Focus Area - Center
19. Focus Selector Lock - L

**PLB Floodlights must be off for minimum of 10 min**

**UNBLOCKED, 16 min BLOCKED prior to reuse**

**After floodlights ON > 10 min:**
1. Install fresh 3-hr tape for entry video
2. Reconnect Mini-Cam AVIU J1 video output to VTR IN, as reqd
3. Perform DEACTIVATION (Cue Card, TV), then:
   - Stow Flight Deck Camrs, Accessories

**FOOT LOOP CONFIG**

Tape Foot Loops in egress routes
DEORBIT PREP BACKOUT PROCEDURES
DEORBIT PREP BACKOUT SUMMARY TIMELINES

MCC GO/NO-GO for 24 hr
Ref ENT, DEORBIT BURN
MS1,2 SEAT EGRESS

RAD ACT
APU/HYD CONFIG

VERNIER HTR ACT
MIDDECK SEAT EGRESS
RAD DEPLOY (if reqd)
OPEN VENT DOORS
C,P SEAT EGRESS

DPS CONFIG GNC 2/SM
RAD VERIF & FLASH EVAP CONFIG
KU-BD ANT DEPLOY (if reqd)
KU-BD ACTIVATION (if reqd)
On MCC GO for Verns:
CONFIG RJDs

BRAKES, FCS & DED DISP CONFIG
CLOTHING CONFIG (C,MS)
ON-ORBIT HTR CONFIG (MS)
MNVR -ZLV, -XVV
PCS CONFIG (MS)
STAR TRKR ACT
SEAT STOWAGE
HYD THERM COND ENA
AIRLOCK SETUP FOR INGRESS
PRIORITY PWRDN GROUP C (if reqd)
Continue per MCC direction
**Ref ENT, DEORBIT BURN**

- LEH O2 vlv (four) – CL
- FLT DECK SPECIALIST SEAT EGRESS (all others remain seated)
- CONFIG FOR PLBD OPENING
- C6

**MS1,2 C6**

- RAD ACT
- APU/HYD CONFIG

**MS PLBD OPENING**

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

**MCC/CREW GO/NO-GO FOR 24 HR**

- TRANS DAP AUTO RT 0.5 DB 3.5

**APU/HYD CONFIG 3**

- APU SHUTDOWN (EPCL, APU/HYD)

**VERNIER HTR ACT 6**

- 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

---

**MS1,2 C6**

- RAD ACT

**MS PLBD OPENING**

1. 2-15
2. 2-13

**C L1**

- RAD CNTLR OUT TEMP – NORM
- BYP VLV MODE (two) – AUTO
- CNTLR LOOP (two) – AUTO A(B)
- After ~90 sec,
- RAD BYP VLV tb (two) – RAD
- * If tb(s) remain in BYP or return to BYP: *
- * Use alternate RAD CNTLR *
- * Do not drive BYP VLV(s) manually *
- * If tb(s) bp: *
- * Do not select alternate RAD CNTLR *
- * Do not drive BYP 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 tb-BYP) *

**APU HYD CONFIG 3**

- APU SHUTDOWN (EPCL, APU/HYD)

**VERNIER HTR ACT 6**

- 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
Doff/Stow:
Harness, Boots, ACES, UCD (if not used)
Remove radiation dosimeter from ACES and insert in inflight garments
Doff/Stow in Wet Trash (if used):
UCD (clamp)
Emesis Bag (unstow new Bag)

NOTE
No keyboard entries or sw throws 10 sec:
Before and after moding PASS GPCs to RUN
Before OPS transition or set expansion/contraction requests until new OPS base page is displayed

1. TRANSITION TO GNC OPS 201

**Config for single G2 GPC ops unless directed otherwise by MCC:**
Modify MC 2 per table

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CRT</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

**If single G2 GPC ops:**

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT</td>
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<td>1</td>
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</tbody>
</table>

**X: PL GPC MEMORY**

<table>
<thead>
<tr>
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<th>Dual G2</th>
<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>STR</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>PL</td>
<td>1/2</td>
<td>0</td>
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</table>

**UC1 DPS UTILITY**

<table>
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<tbody>
<tr>
<td>CRT</td>
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<td>1</td>
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</table>

**If single G2 GPC ops:**

<table>
<thead>
<tr>
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<th>Single G2</th>
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<tbody>
<tr>
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<td>2</td>
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**MM**

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<tr>
<td>MM</td>
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</tr>
<tr>
<td>2</td>
<td>2</td>
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2. FREEZE DRY GPC 3

**C3**

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<tbody>
<tr>
<td>CRT</td>
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<td>1</td>
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</tbody>
</table>

**C3 BFC CRT DISP – OFF**

**MAJ FUNC – PL**

**GPC/CRT 3/X EXEC**

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X: PL GPC MEMORY</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>STORE ITEM 47 EXEC</td>
<td>2</td>
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</table>

**CONFIG – ITEM 45 +2 EXEC**

<table>
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<tr>
<td>GPC</td>
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**GPC – ITEM 46 +3 EXEC**

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<tbody>
<tr>
<td>STORE ITEM 47 EXEC</td>
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<td>2</td>
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</table>

**GPC MODE 3 – STBY (tb-bp)**

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
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</thead>
<tbody>
<tr>
<td>– HALT (tb-bp)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>– STBY (tb-bp)</td>
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<td>0</td>
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</tbody>
</table>

**HALT (tb-bp)**

<table>
<thead>
<tr>
<th>Conf.</th>
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<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>– STBY (tb-RUN)</td>
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<td>0</td>
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</table>

**3. TRANSITION GPC 4 TO SM OPS 201(401)**

**C3**

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<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>CRT</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**C3 BFC CRT DISP – OFF**

**MAJ FUNC – SM**

**GPC/CRT 4/X EXEC**

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X: SM GPC MEMORY</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CONFIG – ITEM 1 +4 EXEC</td>
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<td>2</td>
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</tbody>
</table>

**MC 4(5) per table**

<table>
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<tr>
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<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>STR</td>
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**CRTX**

<table>
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<tbody>
<tr>
<td>SM, OPS 201(401) PRO</td>
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<td>2</td>
</tr>
<tr>
<td>X: SM ANTENNA</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DAP: B/AUTO/PRI</td>
<td>4</td>
<td>4</td>
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</table>

**SM 1 DPS UTILITY**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>PL</td>
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**UL CNTL AUTO – ITEM 35 EXEC**

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<table>
<thead>
<tr>
<th>Conf.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>L</td>
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</table>

**3: BFS, GNC OPS 000 PRO**

<table>
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<th>Dual G2</th>
<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>CRT3</td>
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<td>2</td>
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**C3 BFC CRT DISP – ON**

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**BFS**

<table>
<thead>
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<td>1</td>
<td>4</td>
<td>4</td>
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**4. RECONFIG GPCs**

<table>
<thead>
<tr>
<th>Conf.</th>
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</thead>
<tbody>
<tr>
<td>O6</td>
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</tbody>
</table>

**C2 IDP/CRT3 PWR – OFF**

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/I Locker</td>
<td>0</td>
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</tbody>
</table>

**Unstow and install GPC Mode Switch Guard**

5. MEDS RECONFIG

**GPC/CRT 03 EXEC**

<table>
<thead>
<tr>
<th>Conf.</th>
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</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>IDP/CRT3</td>
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**TERMINATE**

<table>
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<tr>
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<th>Single G2</th>
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</thead>
<tbody>
<tr>
<td>OUTPUT 4 – TERM (tb-bp)</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conf.</th>
<th>Dual G2</th>
<th>Single G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – NORM (tb-bp)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
1: GNC 51 OVERRIDE
2: GNC DEORB MNVR COAST
3: BFS, GNC DEORB MNVR COAST

1: 2-7 D/O/ALL/GEN Q
2: 00:30
3: ET
4: 00:35
5: 00:40
6: P
7: CLOTHING CONFIG 9, 2-6
8: MS, PS
9: CLOTHING CONFIG 10, 2-15
10: C
11: If reqd, PAYLOAD REACT (PL OPS, DEORB PREP) or PAYLOAD REACTIVATION (SODF: ASSY OPS, DEORB PREP)
12: DPS CONFIG TO GNC2/SM 11, 2-6 and 2-7
13: P
14: RAD VERIF & FLASH EVAP CONFIG 12
15: MS
16: RMS PNL LT, TEMP MON, HTR ACT, OBSS, C/W 13, 2-16
17: C
18: KU-BD ANT DEPLOY, if reqd (ORB OPS, COMM/INST)
19: KU-BD ACTIVATION, if reqd (ORB OPS, COMM/INST)
20: MS
21: MIDDECK CONFIG 14, 2-17 and 2-18
22: C, P
23: If MCC GO for use of verniers:
24: CONFIG RJDs
25: O16:F
26: RJD MANF L5/F5/R5 DRIVER – ON, wait 5 sec
27: DAP: A/AUTO/VERN
28: Else, load DAP A5 (Nose and Tail) or A6 (Tail)
29: GNC 20 DAP CONFIG
30: ITEM 10 +0.1 EXEC
31: 11 +1.0 EXEC
32: 22 +1 EXEC
33: DAP: A/AUTO/ALT
34: 6. TFL/DFL FOR ON-ORBIT OPS
35: √MCC for TFL/DFL config
36: Perform LOAD PCMMU FORMAT (ORB OPS FS, COMM/INST) and LOAD PDI DECOM FORMAT (ORB OPS FS, COMM/INST)
37: 7. ERROR LOG RESET
38: After MCC GO:
39: 2: SM 0 GPC MEMORY
40: ERR LOG RESET – ITEM 48 EXEC
41: GNC 0 GPC MEMORY
42: ERR LOG RESET – ITEM 48 EXEC
43: RAD VERIF & FLASH EVAP CONFIG 12
44: L1
45: SM 88 APU/ENVIRON THERM
46: L1
47: RAD BYP VLV tb (two) – RAD FLOW
48: CRT2 When FREON LOOP RAD OUT T < 60 degF:
49: L1
50: HI LOAD EVAP – OFF
51: L2
52: FLASH EVAP CNTLR PRI B(A) – OFF
53: L2
54: FREON ISOL MODE – AUTO
55: TRANS DAP
56: AUTO
57: RT 0.5
58: DB 3.5
59: 2: SM SYS SUM 1
60: A1 (B1)
61: AUTO
62: VERN
63: RT 0.2
64: DB 1.0
65: 01:00
66: D/O/ALL/GEN Q
1: GNC 0 GPC MEMORY
2: SM SYS SUMM 1

CLOTHING CONFIG 9, 2-6
CLOTHING CONFIG 15, 2-18

C,MS

BRAKES, FCS & DED DISP ON-ORBIT CONFIG 16

C,P

BRAKES (three) – OFF
RGA (four) – OFF
cb MNA,B,C ADTA (four) – op
MNA,B ACCEL 1,2 (two) – op
DDU L (two) – op
\textsc{v}MNA,C DDU AFT (two) – op
MNB,C DDU R (two) – op
ASA (four) – OFF
ACCEL 4,3 (two) – OFF

O14,
O15,
O16

O17:A

ATVC (four) – OFF

O7

If OV105:

GNC 55 GPS STATUS

\textsc{v}NAV – ITEM (17,19) (*)
GPS 1,3 PWR (two) – OFF
PRE-AMPL (four) – OFF

If OV103,4:

TACAN MODE (three) – OFF

O8

Radar ALTM (two) – OFF
MLS (three) – OFF

L2

ANTISKID – OFF
NWS – OFF

Remove, stow (on pnl L2/FDF flight deck locker) NWS sw flex extension

C3

\textsc{v}FCS CH (four) – AUTO

F6,F8

FLT CNTLR PWR (two) – OFF

F3

\textsc{v}TRIM RHC/PNL – INH
PNL (two) – OFF

CLOTHING CONFIG (C,MS)

MS

ON-ORBIT HTR CONFIG 17, 2-16

C, L1

H2O LOOP 2 BYP MODE – AUTO
PUMP LOOP 1 – GPC

AUTO

VERN

RT 0.2

DB 1.0
2-11 D/O/ALL/GEN Q

C AUTO MNVR -ZLV, -XVV
\nTGT ID +2
BODY VECT +3
OM +0
DAP: A/AUTO/VERN
Initiate TRK

01:30
C

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

STAR TRKR ACT

014:E, cb STAR TRKR -Z,-Y (two) – cl
015:E
O6
STAR TRKR PWR (two) – ON
C2
GNC I/O RESET
O6
STAR TRKR DR CNTL SYS (two) – OP (start timer)
\nPOS tb (two) – bp
When both tb – OP (~8-24 sec)
or either tb – bp > 24 sec:
STAR TRKR DR CNTL SYS (two) – OFF
X: GNC 22 S TRK/COAS CNTL
S TRK -Y,-Z: STAR TRK – ITEM 3,4 (*)
X: GNC 21 IMU ALIGN
RESUME
* If tb – bp > 8 sec, notify MCC *

1: GNC 0 GPC MEMORY
2: SM SYS SUMM

19, 2-18

ON-ORBIT PCS2(1) CONFIG

20

STAR TRKR ACT

2:18

STAR TRKR ACT

19

ON-ORBIT PCS2(1) CONFIG

20

STAR TRKR ACT

19

ON-ORBIT PCS2(1) CONFIG

20

STAR TRKR ACT

19

ON-ORBIT PCS2(1) CONFIG

20
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PLBD OPENING

DETAILED PLBD OPENING PROCEDURES

**CAUTION**
Use MANUAL mode for subsequent BFS PLBD ops if BFS AUTO sequence has been interrupted by reversing latch/door drive direction or if MANUAL mode has already been used during mission.

*If no motion determined visually or 'OP/CL' not blank within 10 sec after cmd:*
  * PL BAY DR – STOP
  * Go to MAL, MECH, 9.1a

*If Latch not 'OP' in single-motor time:*
  * PL BAY DR – STOP
  * Go to MAL, MECH, 9.1d

*If door motion stops and not 'OP':*
  * PL BAY DR – STOP
  * Go to MAL, MECH, 9.1f

*If BFS GPC fails during operation:*
  * PL BAY DR SYS (two) – DSBL
  * PL BAY DR – STOP
  * MDM PL1,2 (two) – OFF
  * GPC MODE 5 – STBY, HALT
  * MDM PL1,2 (two) – ON
  * Proceed with DPS CONFIG TO GNC2/SM, then continue in MANUAL PLBD OPENING PROCEDURE, as reqd

*If SM GPC fails during this operation:*
  * PL BAY DR SYS (two) – DSBL
  * DR – STOP
  * Go to PASS SM GPC FAIL (ORB PKT, DPS)

**NOTE**
Note any single-motor ops (continue ops) (single-motor times = 2x listed dual-motor times)

### AUTO PLBD OPENING PROCEDURE

<table>
<thead>
<tr>
<th>MS</th>
<th>CRTX</th>
<th>1. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>R13L</td>
<td>CRTX</td>
<td>PL BAY DR – STOP</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>PBD SW – STOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAN SEL (ten) – (no *)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PBD SW BYPASS – (no *)</td>
</tr>
<tr>
<td>2.</td>
<td>AC POWER ON – ITEM 1 EXEC (*)</td>
<td></td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>AUTO MODE SEL – (no *)</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>OP/CL STATUS (ten) – CL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OPEN CL LATCHES 5-8 (MANUAL MODE)</td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>SELECT CENTER LATCHES 5-8 – ITEM 4 EXEC (*)</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>PL BAY DR – OP</td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>CENTER LATCHES 5-8 – blank, OP (~20 sec)</td>
</tr>
</tbody>
</table>

### MANUAL PLBD OPENING PROCEDURE

<table>
<thead>
<tr>
<th>MS</th>
<th>CRTX</th>
<th>1. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>R13L</td>
<td>CRTX</td>
<td>PL BAY DR – STOP</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>PBD SW – STOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAN SEL (ten) – (no *)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PBD SW BYPASS – (no *)</td>
</tr>
<tr>
<td>2.</td>
<td>AC POWER ON – ITEM 1 EXEC (*)</td>
<td></td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>AUTO MODE SEL – (no *)</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>OP/CL STATUS (ten) – CL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OPEN CL LATCHES</td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>SELECT CENTER LATCHES 5-8 – ITEM 4 EXEC (*)</td>
</tr>
<tr>
<td>CRTX</td>
<td></td>
<td>PL BAY DR – OP</td>
</tr>
<tr>
<td>R13L</td>
<td></td>
<td>CENTER LATCHES 5-8 – blank, OP (~20 sec)</td>
</tr>
</tbody>
</table>

2-13

D/O/ALL/GEN Q
PLBD OPENING (Cont)

16. Select STBD FWD, AFT LATCHES – ITEM 8,9 EXEC (*)
R13L
17. PL BAY DR – OP
CRTX
18. STBD FWD, AFT LATCHES (two) – blank, OP (~30 sec)
R13L
19. Select STBD DOOR – ITEM 10 EXEC (*)
R13L
20. PL BAY DR – OP
crtx
21. Deselect STBD FWD, AFT LATCHES – ITEM 8,9 EXEC (*)
R13L
22. PL BAY DR – STOP
crtx
23. Deselect STBD DOOR – ITEM 10 EXEC (*)

OPEN PORT FWD, AFT LATCHES & DOOR

24. Select PORT FWD, AFT LATCHES – ITEM 11,12 EXEC (*)
R13L
25. PL BAY DR – OP
crtx
26. PORT FWD, AFT LATCHES (two) – blank, OP (~30 sec)
R13L
27. Deselect PORT FWD, AFT LATCHES – ITEM 11,12 EXEC (no *)
R13L
28. PL BAY DR – OP
crtx
29. Deselect PORT FWD, AFT LATCHES – ITEM 11,12 EXEC (no *)
R13L
30. PL BAY DR – STOP
crtx
31. Deselect PORT DOOR – ITEM 13 EXEC (no *)

POST-PLBD OPENING CLEANUP

32. PL BAY DR SYS (two) – DSBL
crtx
33. AC POWER OFF – ITEM 2 EXEC (*)
R13L
34. SM, OPS 201 PRO (if PASS SM)
A7U
35. After floodlights ON > 10 min:
   PL BAY FLOOD (all) – OFF

PLBD CONTROL

Ref: MA73C:C&D for MCA cbs

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PLBD CONTROL</th>
<th>PLBD DISPLAY PL MDM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTR 1</td>
<td>MTR 2</td>
</tr>
<tr>
<td></td>
<td>AC/ MCA</td>
<td>CNTRL</td>
</tr>
<tr>
<td>LATCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
</tr>
<tr>
<td>9-12</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
</tr>
<tr>
<td>1-4</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
</tr>
<tr>
<td>13-16</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
</tr>
<tr>
<td>S FWD</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
</tr>
<tr>
<td>S AFT</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
</tr>
<tr>
<td>S DOOR</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
</tr>
<tr>
<td>P FWD</td>
<td>1/MID1</td>
<td>AB3/AB1</td>
</tr>
<tr>
<td>P AFT</td>
<td>1/MID3</td>
<td>AB3/AB2</td>
</tr>
<tr>
<td>P DOOR</td>
<td>3/MID4</td>
<td>CA3/CA2</td>
</tr>
</tbody>
</table>
### 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>00:01</td>
<td>C6 LEH O2 vlv (four) – CL</td>
</tr>
<tr>
<td>00:02</td>
<td>CONFIG FOR PLBD OPENING</td>
</tr>
<tr>
<td>00:20</td>
<td>SPECIALIST SEAT EGRESS</td>
</tr>
<tr>
<td>00:30</td>
<td>FDF/COMM CONFIG</td>
</tr>
<tr>
<td>00:38</td>
<td>CLOTHING CONFIG</td>
</tr>
<tr>
<td>00:40</td>
<td>If reqd. PAYLOAD REACT (PL OPS, DEORBIT PREP) or PAYLOAD REACTIVATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td>00:47</td>
<td>RMS PNL LT, TEMP MON, HTR ACT, OBSS, C/W</td>
</tr>
<tr>
<td>01:20</td>
<td>ON-ORBIT HTR CONFIG</td>
</tr>
<tr>
<td>01:42</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
</tbody>
</table>

#### FDF/COMM CONFIG

**COMM CONFIG**

Unstow: Headsets, Handheld Mics and/or Wireless Comm if flown
If WCCS, perform STD WCCS CONFIG (ORB OPS, COMM/INST) or see WCCS COMM PLAN (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/ICOM MODE** – PTT/PTT

- **A13**
  - **OS AUD SPKR PWR** – SPKR/MIC
  - **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
  - **OCA SETUP** (ORB OPS, PGSC) A/G 2 MODE
  - **OCA S-BAND MODEM (MFx) ACTIVATION** (ORB OPS, PGSC)
  - COLOR PRINTER UNSTOW AND ASSEMBLE (ORB OPS, PGSC)
  - **O19 TV PWR** – OFF

- **L10 (VTR)**
  - **ON/STANDBY** – PRESS (red LED on)
  - **(VIP)**
  - **PWR** – OFF (LED off)
  - **(MUX)**
  - **VTR/CC PWR** – OFF (LED off)

**FDF CONFIG**

- **Stow:**
  - **ENT**
  - **ENT PKT**
  - **ENT Cue Cards**
  - Unstow (if reqd): Deploy Orbit Cue Cards

#### CLOTHING CONFIG

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

Remove radiation dosimeter from ACES and insert in inflight garments
Doff, 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 on board)

MA73C:F
cb RMS PRI φA – cl

A8L
RMS PWR – PRI (MA tone)

SM 94 PDRT CONTROL (MA, GPC DATA it on)

I/O ON – ITEM 5 EXEC (*)

A8U
SAFING – CANCEL (tb-bp) (√GPC DATA it off)

A8L
PORT RMS HTR A – AUTO

C/W

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

ON-ORBIT HTR CONFIG

R2
BLR PWR (three) – OFF

R4
HYD BK HTR (three) – OFF

L1
√HI LOAD EVAP – OFF

DUCT HTR sel – OFF

A12
HYD HTR RUD SPD BK B – AUTO

√A – OFF

BDY FLP 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

:D Close left to right all cbs

:E Close left to right all cbs

Block 4 deleted

Block 18 deleted
# 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>00:20</td>
<td>SPECIALIST SEAT EGRESS</td>
</tr>
<tr>
<td>00:21</td>
<td>MO32M LEH O2 vlv (two) – CL</td>
</tr>
<tr>
<td></td>
<td>MO69M LEH O2 vlv (two) – CL</td>
</tr>
<tr>
<td>00:22</td>
<td>PRELIM MIDDECK CONFIG 7</td>
</tr>
<tr>
<td>00:40</td>
<td>If reqd, PAYLOAD REACT, (PL OPS, DEORB PREP) or PAYLOAD REACTIVATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td>00:52</td>
<td>MIDDECK CONFIG 14</td>
</tr>
<tr>
<td>01:00</td>
<td>CLOTHING CONFIG 15 , 2-18</td>
</tr>
<tr>
<td>01:40</td>
<td>ON-ORBIT PCS 2(1) CONFIG 19 , 2-18</td>
</tr>
<tr>
<td>01:42</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
<tr>
<td>01:50</td>
<td>AIRLOCK SETUP FOR INGRESS 21 , 2-18</td>
</tr>
</tbody>
</table>

## PRELIM MIDDECK CONFIG 7

**INSTALL FILTERS**
Unstow, install: Side Hatch UV Filter and Locking Device Pyro Box Safing Pin

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

- If WCCS perform STD WCCS CONFIG (ORB OPS, COMM/INST) or see WCCS COMM PLAN (Cue Card)
- If middeck Handheld Mic/speaker operation:

**MO42F**

<table>
<thead>
<tr>
<th>MIDDECK SPKR AUD SPKR PWR – SPKR/MIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/G 1 – T/R, tw-2</td>
</tr>
<tr>
<td>A/G 2 – RCV, tw-2</td>
</tr>
<tr>
<td>A/A – RCV, tw-2</td>
</tr>
<tr>
<td>ICOM A – T/R, tw-2</td>
</tr>
<tr>
<td>ICOM B – RCV, tw-2</td>
</tr>
<tr>
<td>XMIT/ICOM MODE – PTT/PTT</td>
</tr>
<tr>
<td>MSTR SPKR VOL – 8</td>
</tr>
</tbody>
</table>

**MO39M**

<table>
<thead>
<tr>
<th>MIDDECK COMM CCU PWR – OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect Handheld Mic to CCU</td>
</tr>
<tr>
<td>MIDDECK COMM CCU PWR – ON</td>
</tr>
</tbody>
</table>

**HTR CONFIG**

**ML31C**

<table>
<thead>
<tr>
<th>VAC VENT ISOL VLV BUS SEL – MNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOZ HTR – ON</td>
</tr>
<tr>
<td>ISOL VLV CNTL – OP (tb-OP)</td>
</tr>
</tbody>
</table>

* 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 *

## MIDDECK CONFIG 14

**GALLEY ACTIVATION**

- ML86B:A cb MNC SPLY H2O GALLEY SPLY – cl
- .B cb MNA GALLEY OVEN – cl
- cb MNB GALLEY H2O HTR – cl
- R11L:G √SPLY H2O GALLEY SPLY VLV – OP (tb-OP)
- GALLEY H2O HTRS (two) – ON
- OVEN/RHS – ON
- MA73C:G cb AC3 GALLEY FAN (three) – cl
- Unstow, install Personal Hygiene Hose

**WCS ACTIVATION**

- VAC VLV – OP

Unstow Urinal Hose from Velcro strap, install hose in cradle

| MODE – AUTO |
| CRADLE – AUTO |
| FAN SEP SEL sw – 1 |

Unstow hose from cradle (√airflow)

- WCS ON lt – ON
- Stow hose in cradle
- WCS ON lt – 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

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 Pip Pin
Stow Pole

FLOODLIGHT CONFIG
If TNL ADAPT flown:
ML86B:E   cb MNA FLOOD TNL ADAPT 2 – cl
cb MNB FLOOD TNL ADAPT 3 – cl
cb MNC FLOOD TNL ADAPT 4 – cl
ML86B:F   cb MNA FLOODS AIRLK 1 – cl
cb MNB FLOODS MIDDECK 10 – cl
cb MNC FLOODS AIRLK 4 – cl
ML86B:G   cb ESS 1BC FLOOD AIRLK 2 – cl
If TNL ADAPT flown:
  cb ESS 1BC FLOOD TNL ADAPT 1 – cl

CLOTHING CONFIG
Doff/stow:
  Harness, Boots, ACES, UCD (if not used)
Remove radiation dosimeter from ACES and insert in inflight garments
Doff, stow in Wet Trash (if used):
  UCD (clamp)
  Emesis Bag (unstow new bag)

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 ‘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

AIRLOCK SETUP FOR INGRESS

INNER 1. Equal vlv caps (two) – remove, stow
HATCH 2. \Equal vlv (two) – NORM
3. Open hatch per decal
AW18A 4. LTG FLOOD 1(3,4) – ON (as reqd)
MO13Q 5. AIRLK 2 – ON/OFF
6. \AIRLK H2O S/O vlv – OP (tb-op)
MIDDECK FLR 7. \EMU O2 ISOL vlv – CL
  Remove, stow diffuser cap on middeck floor air fitting (mark)
9. Unstow, install bypass duct to middeck floor fitting
10. \Airflow at top of external airlock halo
If Spacehab flown and reingress desired:
11. Go to SPACEHAB INGRESS AFTER WAVEOFF
(SH OPS, ON-ORBIT)
If orbiter only and Spacehab reingress not desired:
12. Unstow bypass duct from Tunnel Extension wall and
    install on middeck floor fitting
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

LEGEND
– left  – right
– up  R – as reqd
– center  ● – cb close
– down  ○ – cb open

– indicates switch/display not checked during ENT SWITCH LIST/VERIFICATION.
Switch/display pictorials are generic representations and are not intended to depict actual switch positions. «MCC if additional clarification reqd

CIRCUIT BREAKER SNAP RING

<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>
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</table>

MIDDECK-FWD
C5 ............................. 3-9
C7 ............................. 3-9
A11 .......................... 3-9

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

MO58F ........................ 3-10
MO39M ........................ 3-10
MO52J ........................ 3-10
MO30F ........................ 3-10
MD44F ........................ 3-10
MD24K ........................ 3-10
A/L HATCH ................... 3-10
MO63P ........................ 3-10
(OV103,OV104) ................ 3-10
ML86B ........................ 3-11

ML86B ........................ 3-11
# FINAL ENTRY SWITCH LIST/VERIFICATION (TIG-1:50)

## LEFT SEAT
- **L4** .......................... 3-13
- **L1** .......................... 3-14
- **L2** .......................... 3-15
- **C2/C3** .......................... 3-16
- **O1** .......................... 3-17
- **O5** .......................... 3-17
- **O6** .......................... 3-18
- **O14** .......................... 3-19
- **O15** .......................... 3-19

## RIGHT SEAT
- **O19** .......................... 3-20
- **O16** .......................... 3-20
- **O9** .......................... 3-20
- **R1** .......................... 3-21
- **R4** .......................... 3-21

## AFT
- **R10** .......................... 3-22
- **R12U** .......................... 3-22
- **R11L** .......................... 3-22
- **R13L** .......................... 3-23
- **R14** .......................... 3-23
- **A1L,R** .......................... 3-24
- **A12** .......................... 3-25
- **A13** .......................... 3-25
- **A9** .......................... 3-26
- **A6L** .......................... 3-27
- **A7L** .......................... 3-27
- **(APDS CNTL PNL)** .......................... 3-28
- **A15** .......................... 3-29

## MIDDECK-AFT
- **MA73C** .......................... 3-31
- **MO10W** .......................... 3-32
- **WCS** .......................... 3-32

## MIDDECK-FWD
- **MO42F** .......................... 3-30
- **MO32M** .......................... 3-30
- **MO69M** .......................... 3-30
- **MO51F** .......................... 3-30

## LEGEND
- ◀ – left
- ▶ – right
- ▼ – up
- R – as reqd
- ◆ – center
- ● – cb close
- ▲ – down
- ○ – cb open
- □ – indicates switch/display not checked during ENT SWITCH LIST/VERIFICATION.

Switch/display pictorials are generic representations and are not intended to depict actual switch positions. \(\text{\textbackslash MCC}\) if additional clarification reqd

## CIRCUIT BREAKER SNAP RING COLOR CODES

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</table>
OV104

AIRLOCK HATCH
ACTUATOR HANDLE - LATCHED
LOCK LEVER - LOCKED
EQUALIZATION VALVE (TM) - NORM
CAPS INSTALLED

MNC-DC UTILITY POWER

PNL MO58F

PNL MO30F

PNL MO52J

PNL MD44F

CAB TEMP CTL ACT LINKAGE - SECONDARY ACTUATOR

PNL MD24K

NOTCH NOT VISIBLE IF HAT FLOW

PNL MO39M

PNL ML85E

48015F310118, PNL 1

(OV104) B3-10

D/O/4/GEN Q
L9 ALL SWITCHES - AS REQD
AIS PS COMM SEL/SEL PWR - ON
NOTES:

\( \Delta \) CLOSED IF CO2 RMVL SYS FLOWN

\( \Delta \) ON IF CO2 RMVL SYS FLOWN
OV105

PNL R10

ACTIVATION
R10 MS AUD PWR - AUD/TONE
All other sws - as reqd
R12 MS AUD CONTL - NORM
All MS COMM CCU PWR - ON

PNL R11U

OV105

48015G322_118, PNL 2

(OV105) C3-22

D/O/5/GEN Q
BFS DEORBIT PREP NOTES
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 moding 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
   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
   HSI SEL SOURCE TACAN (OV103,4),
      GPS (OV105), MLS, NAV
      (slaved to CDRs)

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 entry
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 IDPs, MDUs, FLT_CNTL_PWRS, 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 IDP/CRT 4 when possible. Use one IDP/CRT with two MDUs as reqd. Use two IDP/CRTs with two MDUs for DPS ENTRY CONFIG. Save two forward IDP/CRTs with four MDUs that interface with those IDPs for entry
5. In DED DISP ENT CONFIG, do not power DDUs unless reqd. Minimize use
6. In DPS ENTRY CONFIG, skip SM CHKPT except UL_CNTL_ENA – ITEM 36 EXEC. Skip MC9 RECONFIG
7. In CLOTHING CONFIG, prepare ACESs for donning. Don QDM if cabin temp > 90 degF and discomfort occurs. If cabin temp > 95 degF and no evaporative cooling, don ACES, activate O2, and close visor. Inflate Anti-G Suit as needed for circulatory support
8. ENTRY SWITCH LIST/VER will not reflect pwrdn items
9. FLUID LOADING: Continue drinking 8 oz container of water every 15 min with salt tablets every other 8 oz container through entry
10. Maintain tail Sun attitude/leave window shades installed until 15 min

For ENTRY C/L deltas, go to LOSS OF 2 CAB FANS (ENT PKT, PWRDN)
LOSS OF AV BAY AIR COOLING

Assumes MAL, DPS, GPC FRP-7 accomplished

1. For Av Bay 1 or 2 loss, skip **DPS CONFIG FOR D/O PREP** 4a, but perform **ENSURE BFS GPC CAN COMMAND AN IDP** 4b

   If Av Bay 3 loss, perform both **DPS CONFIG FOR D/O PREP** 4a and **ENSURE BFS GPC CAN COMMAND AN IDP** 4b

2. In **HYD/MPS CONFIG** 5:
   - 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
     - FCS CH 4 – OFF

3. In **DED DISP ENT CONFIG** 6, delay activation of affected GPS, TACANs, MLSs, AAs, ADTAs (EQUIP COOLING MATRIX, ORB PKT, ECLS); deactivate if already activated

4. During **DPS ENTRY CONFIG** 12
   a. If loss of AV BAY 3, do not activate GPC 3
   b. In all cases, substitute appropriate NBAT in following activities:

<table>
<thead>
<tr>
<th>LOSS OF</th>
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</thead>
<tbody>
<tr>
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<td>4</td>
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</tbody>
</table>

Cont next page

5-4
LOSS OF AV BAY AIR COOLING (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:

- O14:A □ BRAKES MNA – OFF
- O15:A □ MNB – ON
- O16:A □ MNC – OFF

If AV BAY 2 air cooling lost:

- O14:A □ BRAKES MNA – ON
- O15:A □ MNB – OFF
- O16:A □ MNC – ON

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

7. Incorporate following pen and inks to ENT MNVR

Cue Cards:

EI: Power up affected air-cooled equipment except affected TACAN (OV103,4) (EQUIP COOLING MATRIX, ENT PKT, ECLS)

If OV103,4:

- V = 10K: If unaffected TACAN failed,
- Affected TACAN MODE – GPC

O7

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)
8 PSI DEORBIT PREP
 Assumes LOSS OF CABIN PRESS (ORB PKT, PWRDN) accomplished

If TIG < 4 hr: Begin NOMINAL DEORBIT PREP timeline at TIG-4 hr immediately and perform procedures as rapidly as possible with all following CONTINGENCY DELTAS except step 7
If TIG > 4 hr: Perform steps 1, 2, 3, and 4;
   At TIG-4 hr, perform NOMINAL DEORBIT PREP with all remaining CONTINGENCY DELTAS

1. Back out of PRIORITY PWRDN, as reqd (ORB PKT, PRIOR PWRDN)
2. If previous FC PURGE was not accomplished within last 6 hr: Accomplish FC PURGE (ORB OPS, EPS) anytime prior to DPS ENTRY CONFIG
3. MS accomplish CABIN CONFIG/STOW (FLIGHT PLAN) as time permits
4. Perform IMU ALIGN-S TRK (ORB OPS, GNC)
   √MCC for align attitudes or use STAR PAIRS PAD (ORB OPS FS, PTG)
5. Leave shades in until SEAT INGRESS
6. Minimize IDP/MDU use until TIG-20
7. Delay blocks 4a and 4b until immediately prior to DPS ENTRY CONFIG block 12. In block 4a activate GPC 1 stringing 1212
8. Replace RAD BYPASS/FES C/O with following:
   \DAP: A/AUTO/ALT (PRI)
   ML86B:A cb MNC SPLY H2O XOVR VLV – cl
   R11L SPLY H2O TK A OUTLET – CL (tb-CL)
   XOVR VLV – OP (tb-OP)
   L1 HI LOAD DUCT HTR – B
   EVAP – ENA
   RAD BYP VLV 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 VLV LOOP 1,2 tb (two) – ICH
   RAD CNTLR OUT TEMP – NORM

Cont next page
8 PSI DEORBIT PREP (Cont)

9. In DED DISP ENT CONFIG, delay activation of ADTAs, GPS, TACANs, MLS, RAs, and DDUs

10. In ENT FWD FLT DECK CONFIG block 14, skip panel L2 actions under PCS/ARS CONFIG

11. In ENT MIDDECK CONFIG block 16, skip all of MIDDECK PCS

12. Continue to manage cabin atmosphere per O2(N2) FLOW HIGH/CABIN P LOW/dP/dT (OPCL, ECLS) as reqd until just prior to WCS DEACT block 27. When ready to perform WCS DEACT, config PCS as follows:

   MO10W  
   14.7 CABIN REG INLET SYS 1,2 – CL
   O2 REG INLET SYS 1,2 – CL
   H2O TK N2 REG INLET 1,2 VLV – OP

   MO69M  
   LEH O2 8 VLV – CL
   Remove, stow Bleed Orifice

   L2  
   O2/N2 CNTRL VLV SYS 1,2 – OP
   O2 XOVR SYS 1,2 – OP

   C5  
   DIRECT O2 VLV – CL
   When PPO2 < 2.2
   DON ACES, open LEH O2 vlv
   check tabs, visors – CL, Suit O2 – ON

13. ENTRY SWITCH LIST/VER will not reflect pwrdn items

IN ENT CL

14. At TIG-4, activate DDUs

15. At EI-15, activate unpowered GPS. Work star block in step 2a of GPS TROUBLESHOOTING (EPCL, GNC) (any vehicle)

16. At EI, activate ADTAs

17. At V=15K, activate TACANs (except OV105), MLSs, 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 DPS CONFIG FOR D/O PREP [4a], but perform ENSURE BFS GPC CAN COMMAND AN IDP [4b]. If Av Bay 3 loss, perform both DPS CONFIG FOR D/O PREP [4a] and ENSURE BFS GPC CAN COMMAND AN IDP [4b].

2. In HYD/MPS CONFIG [5]:
   - 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
     - FCS CH 4–OFF

3. During DED DISP ENT CONFIG [6], power up only three ADTAs, three AAs, two MLSs, and two GPS (OV105) or two TACANs (OV103,4)
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>
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5. ENT SWITCH LIST/VERIF pictorials will not reflect pwrdn items
PLBD CONTINGENCY EVA TIMELINE
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### FLIGHT: PLBD EVA

#### EDITION: FROM D/O PREP TO EOM+1

#### PUB. DATE: 3/07

| MET | Day | -16 | -15 | -14 | -13 | -12 | -11 | -10 | -09 | -08 | -07 | -06 | -05 | -04 | -03 | -02 | -01 | -001/00 | -23 | -22 | -21 | -20 | -19 | -18 | -17 | -16 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| FD  | PRE SLEEP |
|     | SLEEP |
|     | POST SLEEP |
|     | DEORBIT PREP |
|     | DEORBIT PREP BACOUT |
|     | EMU C/O |
|     | PRE SLEEP |
|     | SLEEP (7:00) |

### NOTES

**ASSUMPTIONS:**
- EOM+1 LANDING TIME IS NEOM +24 HRS
- MINIMUM EMU C/O
- 3 HR MINIMUM D/O PREP
- 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
- MINIMUM PRE/POST SLEEPS NOT MET

---

### FLIGHT: PLBD EVA

#### EDITION: FROM D/O PREP TO EOM+1

#### PUB. DATE: 3/07

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### NOTES

**LATEST 10.2 DEPRESS**
- SAFER C/O
- EVA PROC REVW

---

### FLIGHT: PLBD EVA

#### EDITION: FROM D/O PREP TO EOM+1

#### PUB. DATE: 3/07

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### NOTES

**POST SLEEP CONT'D**
- EARLIEST PLBD CLOSE
- 14.7 CAB REPRESS
- EOM+1 TIG

---

D/O/ALL/GEN Q
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 in real time.

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 reqd to perform A/L PREP during Mask Pre-Breathe prior to cabin depress.

7. Due to necessity of performing the EVA on the same day as landing, the crew is reqd 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 Non-Entry team sleep with Entry team 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
<table>
<thead>
<tr>
<th>FLIGHT: HW EVA 14.7</th>
<th>EDITION: FROM D/O PREP TO EOM+1</th>
<th>PUB. DATE: 3/07</th>
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**MET**

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<tbody>
<tr>
<td>FD</td>
<td>PRE SLEEP</td>
<td>SLEEP</td>
<td>POST SLEEP</td>
<td>PRE SLEEP</td>
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</tbody>
</table>

**NOTES**

- PREFERRED HW STOW (SINGLE SHIFT)

---

**MET**

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<tr>
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<th>001</th>
<th>002</th>
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<tbody>
<tr>
<td>FD</td>
<td>PRE SLEEP</td>
<td>SLEEP</td>
<td>POST SLEEP</td>
<td>EVA PREP</td>
<td>PURGE/PRE BREATHE</td>
<td>EVA HARDWARE STOW (3:00)</td>
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</tbody>
</table>

**NOTES**

- LATEST HW STOW FAIL
- NEOM TIG

---

**MET**

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<thead>
<tr>
<th>Day</th>
<th>000</th>
<th>001</th>
<th>002</th>
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<tr>
<td>FD</td>
<td>POST EVA</td>
<td>PRE SLEEP (6:30)</td>
<td>POST SLEEP</td>
<td>DEORBIT PREP</td>
<td>LAND</td>
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</tbody>
</table>

**NOTES**

- POST EVA ENTRY PREP

---

**ASSUMPTIONS:**
- EOM+1 LANDING TIME IS NEOM +24 HRS
- MINIMUM EMI C/O
- TEMPLATE SIMILAR TO ENTRY TEAM ON DUAL SHIFT

**IMPACTS:**
- COMBINED 2 HR LATE AND 7 HR SLEEP
- DUAL SHIFT NON-ENTRY TEAM MAY LATE SHIFT AS MUCH AS 6 HRS
- MINIMUM PRE SLEEP NOT MET
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 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 in real time.

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 reqd to shorten their sleep to 7 hr and shift the sleep late by 2 hr.

7. This template can be adapted for dual-shift timelines by scheduling Non-Entry team sleep with Entry team 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.
CUE CARD CONFIGURATION

MS MIDDECK ACTIVITIES (Front) ................................................................................ CC 8-2
(Back) .................................................................................................................. CC 8-3

MS MIDDECK BACKOUT ACTIVITIES (Front) ............................................................. CC 8-4
(Back) .................................................................................................................. CC 8-5
### 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>ENT STOWAGE 3</td>
</tr>
<tr>
<td>3:50</td>
<td>ENT AIRLOCK CONFIG 3A, 1-32</td>
</tr>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF (MID), 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 (MID), 3-30 thru 3-32</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW 128</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, 1-32</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>
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<tr>
<td></td>
<td>If &gt; 1 rev waveoff, repeat entire protocol</td>
</tr>
<tr>
<td>0:55</td>
<td>Remove, stow Side Hatch UV Filter, Locking Device, and Pyro Box Safing Pin</td>
</tr>
<tr>
<td>0:35</td>
<td>GALLEY DEACT 26</td>
</tr>
<tr>
<td>0:33</td>
<td>WCS DEACT 27, 1-32</td>
</tr>
<tr>
<td>0:31</td>
<td>MSD AUD SPRK CONFIG 29, 1-32</td>
</tr>
</tbody>
</table>

### TOP

**ENT STOWAGE**

**PERSONAL HYGIENE SYS STOWAGE**

- Personal Hygiene Kits
- Hose

**AIRLOCK CLOSEOUT**

- Tether soft goods to EVA tether point or A/L Stowage Bag. Gray Tape to floor

**POLE SETUP**

- Reinstall Stbd Pip Pin
- Reinstall large Port Pin:
  - Retract and hold Locking Pin (Ring)
- Release Locking Pin (Ring)
- Slide forward Safing Latch
- Pole Straps secure

**FD STOWAGE**

- Slow FLIGHT PLAN

**CABIN CONFIG**

- Backup PGSC
- Middeck Camrs, Accessories
- FWD/AFT Shades, Filters
- Exercise Equipment
- Quick Don Masks
- Retention net in ASC/ENT config

**EGRESS ROUTE CONFIG**

- Tape Foot Loops in egress routes

**GALLEY DEACT**

- OVENRHS – OFF
- H2O HTRS (two) – OFF
- OVEN FAN – OFF
- OVEN DOOR LATCH – latched

**SIDE HATCH**

- **NEG PRESS RLF VLV COVER (two) – pull open to vent; push firmly to close**
- **RMS PNLS, LTS (if RMS onboard)**

**MA73C:F**

- **RMS PNLS, LTS (if RMS onboard)**
- **B/J 6A – op**
- **AC UTILITY OUTLET**
- **cb ACT MAR 30 – op**
### ENT AIRLOCK CONFIG

- **MO13Q**
  1. AILRK FAN A(B) – OFF
  2. TNL EXT
- **NA73C G**
  3. cb AC1.2 AILRK TNL FAN A.B (sic) – op
  4. Unslow, install diffuser cap on aft middeck floor fitting
- **EXT A/L**
  5. NEG PRESS RLF lv/cover (two) – pull open to vent; push firmly to close
- **AW18A**
  6. LTG FLOOD 1/3 (4) – OFF
- **INNER**
  7. Perform AIRLOCK ENTRY SWITCH LIST/VERIFICATION, 3-3
  8. Close hatch:
    - Position handle to preclosing posn per decal
    - Hatch – rotate about hinge and push
    - Handle – CCW to LATCH
    - Lock lever to LOCKED
  9. Equal lv/ (two) – NORM. install caps

### MIDDECK FLR

- **MO13Q**
  10. VEMU 02 ISOL lv/ – CL
- **MO13Q**
  11. AILRK 2 – OFF/ON
- **ML86C**
  12. cb MNB EXT AILRK HTR VEST Z1/2/3 – op
  13. if TNL ADAPT flown:
      - **E**
        - cb MNA FLOOD TNL ADAPT 2 – op
  14. if TNL ADAPT flown:
      - **F**
        - cb MNA FLOODS AILRK 1 – op
        - cb MNB FLOODS MIDDECK 10 – op
  15. if TNL ADAPT flown:
      - **G**
        - cb ESS 18C FLOOD AILRK 2 – op

### CLOTHING CONFIG

- Unslow, don:
  - ACES
  - Harness
  - Boots
- Verify ACES Gloves (Spares) available. Relocate as reqd
- Remove radiation dosimeter from inflight garments and insert in ACES. If waveoff, remove radiation dosimeter from ACES and insert in inflight garments
- **NOTE**
  - Refer to flight specific utility output plug-in plan if reqd

### MID AUD SPKR CONFIG

- **MO42F**
  - MIDDECK AUD SPKR PWR – OFF
- **MO39M**
  - MIDDECK COMM CCU PWR – OFF
  - Disconnect and stow Handheld Mic
  - Configure MHA to MID CCU per entry plug-in plan
  - Connect Lightweight Headsets or ACES Comm Cap
  - MIDDECK COMM CCU PWR – ON
# 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>
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<td>00:20</td>
<td>SPECIALIST SEAT EGRESS</td>
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<tr>
<td>00:21</td>
<td>MO02M LEH OZ liv (two) – CL</td>
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<tr>
<td></td>
<td>MO06M LEH OZ liv (two) – CL</td>
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<tr>
<td>00:22</td>
<td>PRELIM MIDDECK CONFIG 17</td>
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<tr>
<td>00:40</td>
<td>If reqd. PAYLOAD REACT. (PL OPS, DEORB PREP) or PAYLOAD REACTIONS (SOOF, ASSY OPS, DEORB PREP)</td>
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<tr>
<td>00:52</td>
<td>MIDDECK CONFIG 14</td>
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<tr>
<td>01:00</td>
<td>CLOTHING CONFIG 15, 2-18</td>
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<tr>
<td>01:40</td>
<td>ON-ORBIT PCS 2(1) CONFIG 19, 2-18</td>
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<tr>
<td>01:42</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
<tr>
<td>01:50</td>
<td>AIRLOCK SETUP FOR INGRESS 21, 2-18</td>
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</table>

## PRELIM MIDDECK CONFIG 7

- **INSTALL FILTERS**
  - Unstow, install: Side Hatch UV Filter and Locking Device Pyro Box
- **COMM CONFIG**
  - Unstow: Headsets, Handheld Mics and/or Wireless Comm if flown (see WCCS COMM PLAN (Cue Card))
  - If WCCS perform STD WCCS CONFIG (ORB OPS, COMM/INST) or see WCCS COMM PLAN (Cue Card)
- If middeck handheld Mic/speaker operation:
  - MIDDECK SPKR AUD SPKR PWR – SPKR/MIC
    - AVG 1 – T/R, tw-2
    - AVG 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
    - MSTR SPKR VOL – 8
- **MO39M**
  - MIDDECK COMM CCU PWR – OFF
  - Connect Handheld Mic to CCU
  - MIDDECK COMM CCU PWR – ON
- **HTR CONFIG**
  - ML31C
    - VAC VENT ISOL VLV BUS SEL – MNA
    - NOZ HTR – ON
    - ISOL VLV CNTL – OP (lb-OP)
- If VAC VENT ISOL VLV CNTL lb – CL or lb:
  - VAC VENT ISOL VLV BUS SEL – MNB
  - CNTL – OP (lb-OP)
- If VAC VENT ISOL VLV CNTL lb still CL or lb:
  - MCC for further actions

## MIDDECK CONFIG 14

- ML46B A
  - cb MNC SPLY H2O GALLEY SPLY – cl
  - cb MNA GALLEY OVEN – cl
  - cb MNB GALLEY H2O HTR – cl
- R11 G
  - SPLY H2O GALLEY SPLY VLV – OP (lb-OP)
- **GALLEY**
  - H2O HTR (two) – ON
  - OVEN/RHS – ON
- MA73C G
  - cb AC3 GALLEY FAN (three) – cl
  - Unstow, install Personal Hygiene Hose
- **WCS**
  - VAC VLV – OP
  - Unstow Urinal Hose from Velcro strap, install hose in cradle
  - MODE – AUTO
  - CRADLE – AUTO
  - FAN SEP SEL sw – 1
  - Unstow hose from cradle (airflow)
  - WCS ON II – ON
  - Stow hose in cradle
  - WCS ON II – OFF
  - Unstow, install
    - WCS Trash Can
    - Mirror
    - Urine Collection Cue Card
    - Foot/Tie Restraint – down/locked

(Cont next page)
TOP
BACK OF "MS MIDDECK BACKOUT ACTIVITIES"

ON-ORBIT PCS 2(1) CONFIG

C
L2
\02 XOVRSYS (two) – OP
\02/N2 CNTRLVLV SYS 1(2) – CL
2(1) – AUTO

O1
\02/N2 FLOW sel – SYS 2(1) O2

C7
\=EH O2 SPLY 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
\=EH O2 8 vlv – CL
Insert O2 Bleed Orifice Assembly into LEH O2 8 QD
LEH O2 8 vlv – OP

AIRLOCK SETUP FOR INGRESS

INNER
1. Equal vlv caps (two) – remove, stow

HATCH
2. \=Equal vlv (two) – NORM
3. Open hatch per decal

AW18A
4. LGT FLOOD 1(3,4) – ON (as reqd)

MO13Q
5. AIRLK 2 – ON/OFF
6. AIRLK H2O S/O vlv – OP (lb-op)

MIDDECK FLR
7. \=EMU O2 ISOL vlv – CL

8. Remove stow diffuser cap on middeck floor air fitting (mark)
9. Unstow, install bypass duct to middeck floor fitting
10. Airflow at top of external airlock halo
If Spacehab flown and reingress desired
11. Go to SPACEHAB INGRESS AFTER WAVEOFF
   (SH OPS, ON-ORBIT)
If orbiter only and Spacehab reingress not desired:
12. Unstow bypass duct from Tunnel Extension wall and install on middeck floor fitting

CLOTHING CONFIG

Doff/strip:
- Harness, Boots, ACES, UCD (if not used)
- Remove radiation dosimeter from ACES and insert in inflight garments
- Doff, stow in Wet Trash (if used):
  - UCD (clamp)
  - Emesis Bag (unstow new bag)