Deorbit Prep

Mission Operations Directorate
Operations Division

Generic, Rev P
April 16, 2007

NOTE
For STS-117 and subsequent flights

Verify this is the correct version for the pending operation (training, simulation or flight).
Electronic copies of FDF books are available. URL: http://mod.jsc.nasa.gov/do3/FDF/index.html
List of Implemented Change Requests (482s):

D/O-841A (R)       MULTI-1788
D/O-842             MULTI-1793B
D/O-846             MULTI-1795
D/O-847
D/O-848
D/O-849
D/O-851

R – Remainder

Incorporate the following:

1. Replace iii thru vi
2. Replace 1-17 and 1-18 with A1-17 thru B1-18 (4 pages)
   Replace 1-31 and 1-32
3. Replace 2-17 and 2-18
4. Replace (OV103) A3-9 and (OV103) A3-10, (OV103) A3-29 thru (OV103) A3-32,
   (OV104) B3-9 and (OV104) B3-10, (OV104) B3-31 and (OV104) B3-32,
   (OV105) C3-9 and (OV105) C3-10, (OV105) C3-19 and (OV105) C3-20,
   (OV105) C3-29 thru (OV105) C3-32

5. Replace 5-7 and 5-8
6. Replace 6-3 and 6-4
7. Replace 7-3 and 7-4
8. Replace section 8 (6 pages)

Prepared by: 

Publication Manager

Approved by: 
Manager, Shuttle Procedures Management

Accepted by: 

PDF Manager

Encl: 42 pages

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

DEORBIT PREP

GENERIC, REVISION P
April 16, 2007

PREPARED BY:

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Book Manager

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Manager, Shuttle Procedures Management

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Michael T. Hurt
FDF Manager

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* TACAN not available on OV105
* Three-string GPS available only on OV105

1-3 D/O/ALL/GEN P
NOMINAL DEORBIT PREP SUMMARY TIMELINE

P  CRT TIMER SETUP
C,MS  COLDSOAK INITIATE
MS  ENT STOWAGE
P  KU-BD ANT STOW (if reqd)
    RAD STOW (if reqd)
    N2 QTY COMPUTE
MS,PS  SPECIALIST SEAT INSTALLATION
C  DPS CONFIG FOR D/O PREP
C,P  HYD/MPS CONFIG
P  DED DISP ENT CONFIG
P  PARTIAL ENTRY SWITCH
    LIST/VERIFY (ALL)
C  RAD BYPASS/FES C/O
MS  CONFIG FOR PLBD CLOSING
C  AUTO MNVR TO COMM ATT
PLBD CLOSING (P,MS)
MCC GO FOR OPS 3
MS  POST CLOSING CONFIG
    AUTO MNVR TO COMM ATT
TRANSITION TO ENT PKT
DPS ENTRY CONFIG (C,P)
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. ACHIEVE IMMEDIATELY:

* MNVR (TRK) BIASED -XSI (if not already in TAIL SUN)

* CRTX TGT ID +4 (blanks OM)
* BODY VECT +5
* P +184
* \( \sqrt{OM} \) (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

* 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)
### CRT TIMER SETUP

1. **GNC 2 TIME**
   - Set CRT timer to count down to TIG (perform for GNC & SM)
   - **ENTRY DAY (HR:MIN:SEC – MET)**
   - **ITEM 17**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>GNC 2 TIME</td>
</tr>
<tr>
<td>1:05</td>
<td><strong>SET CRT TIMER TO COUNT DOWN TO TIG</strong> (perform for GNC &amp; SM)</td>
</tr>
<tr>
<td>1:10</td>
<td><strong>ENTRY DAY (HR:MIN:SEC – MET)</strong></td>
</tr>
<tr>
<td>1:15</td>
<td><strong>ITEM 17</strong></td>
</tr>
</tbody>
</table>

2. **24 HR LATE DELAYED DEORBIT**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td><strong>GNC 2 TIME</strong></td>
</tr>
<tr>
<td>1:05</td>
<td><strong>SET CRT TIMER TO COUNT DOWN TO TIG</strong> (perform for GNC &amp; SM)</td>
</tr>
<tr>
<td>1:10</td>
<td><strong>ENTRY DAY (HR:MIN:SEC – MET)</strong></td>
</tr>
<tr>
<td>1:15</td>
<td><strong>ITEM 17</strong></td>
</tr>
</tbody>
</table>

### COLDSOAK INITIATE

1. **COLDSOAK INITIATE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
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<tbody>
<tr>
<td>03:55</td>
<td><strong>COLDSOAK INITIATE</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>COLDSOAK INITIATE</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>COLDSOAK INITIATE</strong></td>
</tr>
<tr>
<td>03:40</td>
<td><strong>COLDSOAK INITIATE</strong></td>
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<tr>
<td>03:35</td>
<td><strong>COLDSOAK INITIATE</strong></td>
</tr>
<tr>
<td>03:30</td>
<td><strong>COLDSOAK INITIATE</strong></td>
</tr>
</tbody>
</table>

#### 1: GNC UNIV PTG

1. **GNC UNIV PTG**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:40</td>
<td><strong>Determine H2 depleted tanks</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>RAD STOW, if reqd (ORB OPS, ECLS)</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>ENT STOWAGE 3</strong>, 1-31</td>
</tr>
<tr>
<td>03:55</td>
<td><strong>ENT AIRLOCK CONFIG 3A</strong>, 1-32</td>
</tr>
</tbody>
</table>

#### 2: SM SYS SUMM 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:40</td>
<td><strong>SPECIALIST SEAT INSTALLATION</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>KU-BD ANT STOW, if deployed (ORB OPS, COMM/INST)</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>COLD SOAK INITIATE</strong></td>
</tr>
<tr>
<td>03:55</td>
<td><strong>COLD SOAK INITIATE</strong></td>
</tr>
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</table>

#### 3: MS

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:40</td>
<td><strong>SPECIALIST SEAT INSTALLATION</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>KU-BD ANT STOW, if deployed (ORB OPS, COMM/INST)</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>ENT STOWAGE 3</strong>, 1-31</td>
</tr>
<tr>
<td>03:55</td>
<td><strong>ENT AIRLOCK CONFIG 3A</strong>, 1-32</td>
</tr>
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</table>

### N2 QTY COMPUTE

1. **N2 QTY COMPUTE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:40</td>
<td><strong>N2 QTY COMPUTE</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>Add N2 QTY 1 + 2</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>Then annotate CABIN PRESS LEAK NOMOGRAPH (ENT PKT, ECLS)</strong></td>
</tr>
</tbody>
</table>

### DETERMINE H2 DEPLETED TANKS

1. **DETERMINE H2 DEPLETED TANKS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:40</td>
<td><strong>DETERMINE H2 DEPLETED TANKS</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>Note all H2 tanks with Qty &lt; 3%</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>Then annotate DEORBIT BURN FLIGHT RULES, ELEC section (step 8) for depleted tanks (ENT, BURN CARDS)</strong></td>
</tr>
</tbody>
</table>

### SM 88 APU ENVIRON THERM

1. **SM 88 APU ENVIRON THERM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:55</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
<tr>
<td>03:55</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
<tr>
<td>03:55</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>H2O LOOP 2 BYP MODE – MAN</strong></td>
</tr>
</tbody>
</table>

### H2O LOOP 1 ICH FLOW – increasing

1. **H2O LOOP 1 ICH FLOW – increasing**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:35</td>
<td><strong>H2O LOOP 1 ICH FLOW – increasing</strong></td>
</tr>
</tbody>
</table>

### H2O PUMP LOOP 1 (two) – OFF, B

1. **H2O PUMP LOOP 1 (two) – OFF, B**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:30</td>
<td><strong>H2O PUMP LOOP 1 (two) – OFF, B</strong></td>
</tr>
</tbody>
</table>

### H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)

1. **H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:35</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
<tr>
<td>03:40</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
<tr>
<td>03:45</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
<tr>
<td>03:50</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
<tr>
<td>03:55</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
<tr>
<td>04:00</td>
<td><strong>H2O LOOP 1 BYP MAN – INCR (Adjust until ICH FLOW ~950 ± 50)</strong></td>
</tr>
</tbody>
</table>
**HYD/MPS CONFIG**

W/B STEAM VENT HTR ACT

- R2 √BLR CNTLR/HTR (three) – B
  - PWR (three) – ON

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

HYD CIRC PUMP TERM

- R2 HYD CIRC PUMP (three) – OFF

**SSME HYD REPRESS PREP**

- C3 √FCS CH (four) – AUTO
- O17 ATVC (four) – ON

**DED DISP ENT CONFIG**

- O14, RGA (four) – ON
- O15, cb MNA,B,C ADTA (four) – cl
- O16 MNA,B ACCEL 1, 2 (two) – cl
  - DDU L (two) – cl
  - MNA, C DDU AFT (two) – op
  - MNB, C DDU R (two) – cl
  - ASA (four) – ON
  - ACCEL 4,3 (two) – ON
- MDU AFD1 – OFF
- O7 If OV105:
  - GPS 1,3 PWR (two) – ON
  - GPS PWRUP (ORB OPS, GNC) if reqd
  - If OV103,4:
    - TACAN MODE (three) – GPC
    - ANT SEL (three) – AUTO
- O8 RADAR ALTM (two) – ON
  - MLS (three) – ON
  - CH tw (three) – See DEL PAD (ENT), PRPLT/DEL PADS
- F3 TRIM PNL (two) – ON
C If single G2: DPS CONFIG FOR D/O PREP 4a
ENSURE BFS GPC CAN COMMAND AN IDP 4b

C,P HYD/MPS CONFIG 5, 1-8

DED DISP ENT CONFIG 6, 1-8

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 (FWD), 3-7 and 3-8
PARTIAL ENT SWITCH LIST/VERIF (AFT), 3-9
PARTIAL ENT SWITCH LIST/VERIF (MID), 3-10 thru 3-12

C3 BFC CRT DISP – ON
SEL – 2+3

C3 BFC CRT DISP – OFF
SEL – 3+1

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

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

P/I Locker

O6
√GPC MODE 2 – HALT (tb-bp)
√OUTPUT 2 – NORM
√PWR 2 – ON
MODE 2 – STBY (tb-RUN), RUN

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

1: GNC 0 GPC MEMORY
CONFIG – ITEM 1 & 2 EXEC
Modify MC 2 per table
GNC, OPS 201 PRO

2: BFS, GNC 0 BFS MEMORY

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

1: GNC 21 IMU ALIGN
RESUME

ENSURE BFS GPC CAN COMMAND AN IDP 4b

O6
√GPC PWR 5 – ON
MODE 5 – STBY (tb-RUN)
1: GNC UNIV PTG
2: SM SYS SUMM 1

DAP: A/AUTO/ALT

RAD BYPASS/FES C/O (ORB OPS, ECLS)
CONFIG FOR PLBD CLOSING 7, 1-29

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 9, 1-21

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-gray)
   3,5 – NORM (tb-bp)
   4 – TERM (tb-bp)
   1,2,4 – RUN (tb-RUN)
   3 – STBY (tb-RUN)
   5 – STBY (tb-RUN)

3. SM CHECKPOINT/UL CNTL ENA
   CRT2 MMU ASSIGN 2 SM – ITEM 4 EXEC
   CRT1 CKPT INITIATE – ITEM 18 EXEC
   Update of CKPT TIME and STATUS GOOD indicated
   CRT2 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

6. TRANSITION BFS GPC TO GNC OPS 3
   C3
   BFC CRT DISP – ON
   √SEL = 3+1
   O6
   GPC OUTPUT 5 – B/U (tb-bp)
   √TFL ENA – ITEM 29 (*)
   BFS, GNC OPS 301 PRO
   CRT3
   MM 1

7. TRANSITION GPC 1,2,3,4 TO GNC OPS 3
   CRT3 BFS, GNC 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
   CRT3

8. MNVR BACK TO COMM ATT
   Set event timer to count down to TIG

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

1. GNC DEORB MNVR COAST

O6
BFS, GNC OPS 301 PRO
CRT3
BFS, GNC OPS 000 PRO
C3
BFS, GNC OPS 000 PRO

If any IMU failed or not aligned:

3: BFS, GNC 51 OVERRIDE

Aff IMU – desel
MCC: GO/NO-GO for OPS 3 transition

POST CLOSING CONFIG 10 , 1-29

AUTO MNVR TO COMM ATT
MNVR per MCC, Post PLBD Close

√

DAP: A/AUTO/ALT

Transition to ENT PKT

DPS ENTRY CONFIG 12 , 1-12

GNC DEORB MNVR COAST

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

G50,850 \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
√PASS and BFS TGT per DEORBIT MNVR PAD (ENT, MNVR PADS)
√PASS and BFS solution per DEORBIT MNVR PAD (ENT, MNVR PADS)
BURN ATT, HA HP
△VTOT
TGO
DAP: A/AUTO/ALT

RAD BYPASS/FES C/O (ORB OPS, ECLS)
CONFIG FOR PLBD CLOSING 7, 1-29

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

MCC: GO/NO-GO FOR PLBD CLOSING

DETAILED PLBD CLOSING PROCEDURES 9, 1-21

P,MS
**DPS ENTRY CONFIG**

1. **MEDS CONFIG**
   - C2 IDP/CRT 3 PWR – ON
   - CRTX GPC/CRT 2/3 EXEC
   - F6,F7,F8

2. **VERIFY GPC CONFIG**
   - GPC MODE 3 – HALT (tb-bp)
   - PWR 3 – ON
   - OUTPUT 1,2 – NORM (tb-bp)
   - 3,5 – NORM (tb-bp)
   - 4 – TERMIN (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

4. **LOAD ENTRY TFL/RECONFIG UPLK**
   - Perform LOAD PDI DECOM FORMAT and LOAD PCMMU FORMAT for entry config (ORB OPS FS, COMM/INST)

5. **TRANSITION GPC 1&2 TO GNC OPS 3**
   - GNC 0 GPC MEMORY
   - CONFG – ITEM 1 +3 EXEC

6. **TRANSITION BFS GPC TO GNC OPS 3**
   - BFC CRT DISP – ON
   - SEL = 3+1
   - 3: BFS, GNC BFS MEMORY

7. **TRANSITION GPC 1,2,3,4 TO GNC OPS 3**
   - SM, OPS 000 PRO

8. **MNVR BACK TO COMM ATT**

9. **LOAD IN TGTs**
   - MCC for TGT and 5V UPLINK
   - LOAD – ITEM 22 EXEC
   - TIMER – ITEM 23 EXEC

**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

- If IMU or RHC dilemma, do not proceed with OPS 3 transition

- Att mnvr complete

- RGA,AA,ASA,IMU (all) – ON

- All forward MDUs ON and selected to primary port

- Update of CKPT TIME and STATUS GOOD indicated

- Aff IMU – desel
MCC: GO/NO-GO for OPS 3 transition

POST CLOSING CONFIG 10, 1-29

AUTO MNVR TO COMM ATT
MNVR per MCC, Post PLBD Close
R
P
Y

DAP: A/AUTO/ALT

Transition to ENT PKT

DPS ENTRY CONFIG 12, 1-12

MCC uplink:
PASS and BFS SV,TGT
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
PASS and BFS TGT per DEORBIT MNVR PAD (ENT, MNVR PADS)
PASS and BFS solution per DEORBIT MNVR PAD (ENT, MNVR PADS)
BURN ATT, HA HP
ΔVTOT
TGO
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIG -02:00</td>
<td>TRANS DAP AUTO RT 0.5 DB 3.5</td>
<td></td>
</tr>
<tr>
<td>-01:55</td>
<td>MS DEACT STAR TRKRS &amp; CLOSE DOORS</td>
<td>13, 1-30</td>
</tr>
<tr>
<td>-01:50</td>
<td>C,P ENT FWD FLT DECK CONFIG</td>
<td>14</td>
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<tr>
<td>-01:50</td>
<td>MS ENT AFT FLT DECK CONFIG</td>
<td>15, 1-30</td>
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<tr>
<td></td>
<td>ENT MIDDECK CONFIG</td>
<td>16, 1-31</td>
</tr>
<tr>
<td></td>
<td>PAYLOAD ENT SW LIST/VERIF (PL OPS, DEORB PREP) or</td>
<td>PAYLOAD ENTRY SWITCH LIST VERIFICATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td></td>
<td>NOTE √MCC for unaccounted-for sw or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cb config discrepancies</td>
<td></td>
</tr>
<tr>
<td>-01:45</td>
<td>C,F,UPLINK TMBU</td>
<td></td>
</tr>
<tr>
<td>-01:15</td>
<td>P FINAL ENT SWITCH LIST/VERIF (FWD), 3-13 thru 3-19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FINAL ENT SWITCH LIST/VERIF (FWD), 3-20 and 3-21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FINAL ENT SWITCH LIST/VERIF (AFT), 3-22 thru 3-29</td>
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<tr>
<td></td>
<td>FINAL ENT SWITCH LIST/VERIF (MID), 3-30 thru 3-32</td>
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</tr>
<tr>
<td>-01:40</td>
<td>C DEORB PAD UPDATE</td>
<td>17, 1-14</td>
</tr>
<tr>
<td>-01:35</td>
<td>MS RESET CW</td>
<td>18, 1-30</td>
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<tr>
<td>-01:30</td>
<td>ALL ENTRY REVIEW</td>
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<tr>
<td>-01:30</td>
<td>ENTRY REVIEW</td>
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<td>END</td>
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</table>

**ENT FWD FLT DECK CONFIG 14**

<table>
<thead>
<tr>
<th>C,P</th>
<th>BRAKE/ANTISKID/NWS</th>
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</thead>
<tbody>
<tr>
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<td>HYD BRAKE HTR (three) – AUTO</td>
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ENTRY MONITORING, step B: AT ACES DONNING, if reqd (BIOMED)

C,P CLOTHING CONFIG 21, 1-30

IMU/IMU ALIGNMENT (Omit if BFS) 22

1. GNC 0 GPC MEMORY
2. SM 1 DPS UTILITY
3. BFS, GNC DEORB MNVR COAST

MS, CLOTHING CONFIG 20, 1-32

C, P CLOTHING CONFIG

C,P CLOTHING CONFIG

IMU/IMU ALIGNMENT

C

1. GNC 21 IMU ALIGN
2. IMU/IMU – ITEM 14 + 1 EXEC
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)

ALL
Begin Fluid Loading per individual prescription.
Fluid Loading should be completed by El
For 1 rev waveoff, repeat half the protocol
If > 1 rev waveoff, repeat entire protocol
ENTRY MONITORING, step B: AT ACES DONNING, if reqd (BIOMED)

C, P CLOTHING CONFIG 21, 1-30

IMU/IMU ALIGNMENT (Omit if BFS) 22

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

Begin Fluid Loading per individual prescription. Fluid Loading should be completed by El
For 1 rev waveoff, repeat half the protocol
If > 1 rev waveoff, repeat entire protocol
This Page Intentionally Blank
C,P  SEAT INGRESS
C,P  HUD SETUP
C,P  Adjust seat
Exercise brake pedals
C  C6  LEH O2 viv (four) – OP
C,P  ACES PRESS INTEGRITY CHECK
MS  AFD AUD SPKR CONFIG
MS  WIRELESS STOW, if flown
MS  CO2 RMVL SYS DEACT, if flown

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
NOTE
WCS must be deactivated prior to EI
MS  WCS DEACT MS
MS  MD AUD SPKR CONFIG
AUTO PLBD CLOSING

### DETAILED PLBD CLOSING PROCEDURES

<table>
<thead>
<tr>
<th>R13L</th>
<th>5. PL BAY DR – CL</th>
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<tr>
<td>CRT4</td>
<td>* If PORT DOOR not ‘CL’ within 6 sec of ‘RDY’: *</td>
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<tr>
<td>R13L</td>
<td>* PL BAY DR – STOP *</td>
</tr>
<tr>
<td>CRT4</td>
<td>* Go to PORT BKHD LATCH TROUBLESHOOTING *</td>
</tr>
<tr>
<td>R13L</td>
<td>* (AUTO MODE) 9A, 1-23</td>
</tr>
</tbody>
</table>

| CRT4 | √PORT DOOR – blank, RDY, CL (~63 sec) |
| R13L | √FWD, AFT LATCHES – blank, CL (~30 sec) |
| CRT4 | √STBD DOOR – blank |

| R13L | 6. When Stbd Door as close as possible to Port Door before contact, perform PLBD fit check: |

| R13L | PL BAY DR – STOP |
| R13L | Determine C/L Latch clearance on C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY NO-GO DIAGRAM, 1-22 |

| CRT4 | * If NO-GO for PLBD CLOSE: * |
| R13L | * If no waveoff capability: * |
| CRT4 | * Perform MAL, MECH, SSR-3 (SIMULTANEOUS * |
| R13L | * PLBD CL) * |
| CRT4 | * If waveoff OK: * |
| R13L | * √MCC * |

| R13L | 7. PL BAY DR – CL |
| CRT4 | * If STBD DOOR not ‘CL’ within ~6 sec of ‘RDY’: * |
| R13L | * PL BAY DR – STOP * |
| CRT4 | * Go to STBD BKHD LATCH TROUBLESHOOTING * |
| R13L | * (AUTO MODE) 9B, 1-23 |

| CRT4 | √STBD DOOR – CL (~63 sec) |
| R13L | √FWD, AFT LATCHES (two) – blank, CL (~30 sec) |
| CRT4 | √CENTER LATCHES 1-4, 13-16 (two) – blank, CL (~20 sec) |
| R13L | √5-8, 9-12 (two) – blank, CL (~20 sec) |

| R13L | 8. PL BAY DR – STOP |

**POST-PLBD CLOSING CLEANUP**

| CRT4 | 9. PL BAY DR SYS (two) – DSBL |
| R13L | √OP/CL STATUS (ten) – CL |

| CRT4 | 10. AC POWER OFF – ITEM 2 EXEC (*) |
| CRT4 | 11. GPC/CRT 54 EXEC |

---

**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)

**CONFIGURE FOR AUTO MODE**

| CRT4 | 1. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS |
| R13L | 4: SM PL BAY DOORS |
| CRT4 | √PL BAY DR – STOP |
| R13L | √PBD SW – STOP |
| CRT4 | √MAN SEL (ten) – (no *) |
| R13L | √PBD SW BYPASS – (no*) |
| CRT4 | √PBD SYS (two) – ENA |
| R13L | √OP/CL STATUS (ten) – OP |

---

1-21

D/O/ALL/GEN P
AUTO PLBD CLOSING (Cont)

PORT AFT BULKHEAD LATCH GO/NO-GO DIAGRAM

PLBD CONTROL

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

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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 1-24
   
   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 5 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 1-24
   
   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 7 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

**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: *
  - Go to MAL, MECH, 9.1a
- If Latch not ‘CL’ in single-motor time:
  - Go to MAL, MECH, 9.1e
- If door motion stops and not ‘RDY’ or ‘CL’:
  - Go to MAL, MECH, 9.1g
- If SM GPC fails during this operation:
  - 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)

CONFIGURE FOR MANUAL MODE

**CRT4**
1. SM, OPS 202 Pro or BFS, SM 63 PL BAY DOORS

**R13L**
3. PL BAY DR SYS (two) – ENA

**CRT4**
5. PL BAY DR – CL

**R13L**
6. PL BAY DR – STOP

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

**R13L**
8. PL BAY DR – CL

**CRT4**
9. PORT DOOR – CL

**R13L**
10. PL BAY DR – STOP

**CRT4**
11. Deselect PORT FWD,AFT LATCHES, & DOOR – ITEM 11,12,13 EXEC (no *)

**R13L**
12. PL BAY DR – CL

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

**R13L**
14. PL BAY DR – STOP

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

**R13L**
16. PL BAY DR – CL

**CRT4**
17. STBD DOOR – CL

**R13L**
18. PL BAY DR – STOP

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

**R13L**
20. Select CENTER LATCHES 1-4,13-16 – ITEM 6,7 EXEC (*)

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

**R13L**
22. PL BAY DR – CL

**CRT4**
23. Deselect CENTER LATCHES 1-4,13-16 – ITEM 6,7 EXEC (no *)

**R13L**
24. Select CENTER LATCHES 5-8,9-12 – ITEM 4,5 EXEC (*)

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

**R13L**
26. PL BAY DR – CL

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

**R13L**
28. PL BAY DR SYS (two) – DSBL

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

**R13L**
30. GPC/CRT 54 EXEC

**POST-PLBD CLOSING CLEANUP**

**R13L**
31. PL BAY DR SYS (two) – DSBL

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

**R13L**
33. GPC/CRT 54 EXEC

**D/O/ALL/GEN P**

1-25
MANUAL PLBD CLOSING (Cont)

PORT AFT BULKHEAD LATCH GO/NO-GO DIAGRAM

PLBD CONTROL

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C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY

NO-GO DIAGRAM
PORT BKHD LATCH TROUBLESHOOTING (MANUAL MODE)  

CRT4
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
   Go to step 7 of MANUAL PLBD CLOSING [9] 1-25

STBD BKHD LATCH TROUBLESHOOTING (MANUAL MODE)  

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 1-3 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

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<tr>
<th>TIME (TIG-)</th>
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<td>3:35</td>
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<td>Verify Leg Attach Collars (four) – DOWN/LOCKED</td>
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<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF (AFT)</td>
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<tr>
<td>2:55</td>
<td>CONFIG FOR PLBD CLOSING</td>
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<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</td>
</tr>
<tr>
<td>2:25</td>
<td>POST CLOSING CONFIG</td>
</tr>
<tr>
<td>1:56</td>
<td>DEACT STAR TRKRS &amp; CLOSE DOORS</td>
</tr>
<tr>
<td>1:55</td>
<td>PAYLOAD ENT 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</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG</td>
</tr>
<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>
</tbody>
</table>

**TIME (TIG-)**

<table>
<thead>
<tr>
<th>TIME (TIG-)</th>
<th>MS AFT DECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:53</td>
<td>AFT AUD SPKR CONFIG</td>
</tr>
<tr>
<td>0:52</td>
<td>WIRELESS STOW, if flown</td>
</tr>
</tbody>
</table>

**Block 11 deleted**

**AFT AUD SPKR CONFIG**

- Verify CDR, PLT on headsets
- 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

---

**CONFIG FOR PLBD CLOSING**

**A8L**

RMS PWR – OFF (SM ALERT, BCE BYP MCIU)

PORT RMS HTR (two) – OFF

**R11L**

IDP/CR4T4 PWR – ON

**MDU**

CRT 4 PWR – ON

**A6U**

ANNUN BUS SEL – MNC

**A7U**

PL BAY FLOOD AFT STBD – OFF

PORT – OFF

MID STBD – OFF

FWD STBD – OFF

BHD – OFF

**POST CLOSING CONFIG**

- **CONFIG STBD RMS/OBSS**
  
  - STBD RMS HTR (two) – OFF
  - RSC PWR – OFF
  - OBSS SW PWR – OFF
  - CB OBSS SW PWR CB1 – op
  
  **NOTE**
  
  - PLB Floodlights must be off for minimum of 10 min UNBLOCKED, 16 min BLOCKED prior to reuse
  
  After floodlights ON > 10 min:
  
  - **A7U**
    
  - PL BAY FLOOD (all) – OFF
  
  - **L10 (VTR)**
    
  - Install fresh 3-hr tape for entry video
  
  - Reconnect Mini-Cam AVIU J1 video output to VTR IN, as reqd
  
  - Perform DEACTIVATION (Cue Card, TV), then:
    
    - Stow Flight Deck Camrs, Accessories
    
    - FOOT LOOP CONFIG
      
      - Tape Foot Loops in egress routes

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

**DEACT STAR TRKR & CLOSE DOORS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>O6</td>
<td>STAR TRKR PWR (two) – OFF</td>
</tr>
<tr>
<td>O14:E, O15:E</td>
<td>cb STAR TRKR -Z,-Y (two) – op</td>
</tr>
</tbody>
</table>
| 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/</th>
<th>INH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS He REG P</td>
<td>39</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPS He REG L</td>
<td>49</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPS He REG R</td>
<td>59</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MANF P LO2</td>
<td>69</td>
<td>INH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MANF P LH2</td>
<td>79</td>
<td>INH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYD P 1</td>
<td>99</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYD P 2</td>
<td>109</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYD P 3</td>
<td>119</td>
<td>ENA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CLOTHING CONFIG**

Unstow, don:
ACES
Harness
Boots

Remove radiation dosimeter from inflight garments and insert in ACES

Connect flight deck cooling units per
PWR/DATA/VIDEO: ASCENT/ENTRY CONFIG (REF FS, UTIL PWR)

A11,A15, F1,O19
DC UTIL PWR MNA(B,C) – ON as reqd
Cooling units – Hose Jumper Plug installed
Pre-chill cooling units 10 min prior to seat ingress

**ENT AFT FLT DECK CONFIG**

**ENT AFT FLT DECK CONFIG**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 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 |
| HYD HTR |
| A12 | HYD HTR (eight) – OFF |
| A1L | S-BD PM MODE – STDN LO 
NSP CODING (two) – OFF |
| S-BAND PAYLOAD |
| S-BD PL CH SEL INTRG 1,2 tw (six) – 910,910 |
| PWR SYS – OFF |
| SEL – PSP |
| ANT POLAR – L CIRC |
| PSP CMD OUTPUT – PL UMB |
| A1R | AUD CTR VOICE RCD SEL CH1 – ICOM A 
CH2 – ICOM B |
| If WVS installed: |
\WIRELESS VIDEO PWR – OFF |
\WIRELESS VIDEO HTR – OFF |
| R14:C | cb MNB KU ANT HTR – op |
| UHF EVA (two) – op |
| Open all cbs except TV CABIN (14) |
| Open all D CAMR and RMS CAMR cbs (6) |
| \cb MN A ESS 1BC LDG GEAR ARM/DN RESET – op |
| NOTE |
| 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/A – 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/A – T/R |
| ICOM (two) – T/R |
| AUD VOX SENS – R |
| XM1/ICOM MODE – R |
| VOL tw (five) – R |
| ICOM RECORDER OPS, if reqd (ORB OPS, COMM/INST) |
| 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

### TIME (TIG-)

<table>
<thead>
<tr>
<th>TIME</th>
<th>ACTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:50</td>
<td>ENT STOWAGE</td>
<td>3</td>
</tr>
<tr>
<td>3:50</td>
<td>ENT AIRLOCK CONFIG</td>
<td>3A, 1-32</td>
</tr>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
<td>Verify Leg Attach Collars (four) – DOWN/LOCKED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verify LOH Door Latches (four) – ENGAGED</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIF (MID)</td>
<td>3-10 thru 3-12</td>
</tr>
<tr>
<td>1:55</td>
<td>ENT MIDDECK CONFIG</td>
<td>16</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST/VERIF (MID)</td>
<td>3-30 thru 3-32</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
<td></td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
<td></td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG</td>
<td>20, 1-32</td>
</tr>
<tr>
<td>1:00</td>
<td>Begin Fluid Loading per individual prescription. Fluid Loading should be completed by EI. If &gt; 1 rev waveoff, repeat protocol.</td>
<td></td>
</tr>
<tr>
<td>0:55</td>
<td>Remove, stow Side Hatch UV Filter, Locking Device, and Pyro Box Safing Pin</td>
<td></td>
</tr>
<tr>
<td>0:51</td>
<td>MD AUD SPKR CONFIG</td>
<td>29, 1-32</td>
</tr>
<tr>
<td>0:50</td>
<td>CO2 RMVL SYS DEACT. if flown</td>
<td>25, 1-32</td>
</tr>
<tr>
<td>0:35</td>
<td>GALLEY DEACT</td>
<td>26</td>
</tr>
<tr>
<td>0:33</td>
<td>WCS DEACT</td>
<td>27, 1-32</td>
</tr>
</tbody>
</table>

### ENT MIDDECK CONFIG

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTRY COMM</td>
<td></td>
</tr>
<tr>
<td>MO42F</td>
<td>MIDDECK SPPR AUD A/G 1 – T/R</td>
</tr>
<tr>
<td></td>
<td>A/G 2 – T/R</td>
</tr>
<tr>
<td></td>
<td>A/A – T/R</td>
</tr>
<tr>
<td></td>
<td>ICOM (two) – T/R</td>
</tr>
<tr>
<td></td>
<td>VOX SENS – R</td>
</tr>
<tr>
<td></td>
<td>VOL tw (five) – R</td>
</tr>
<tr>
<td></td>
<td>XMIT/ICOM MODE – R</td>
</tr>
<tr>
<td>MIDDECK PCS</td>
<td></td>
</tr>
<tr>
<td>MO10W</td>
<td>14.7 CAB REG INLET vlv (two) – CL</td>
</tr>
<tr>
<td></td>
<td>H2O TK N2 REG INLET vlv (two) – OP</td>
</tr>
<tr>
<td></td>
<td>O2 REG INLET vlv (two) – CL</td>
</tr>
<tr>
<td>MO32M</td>
<td>LEH O2 vlv (two) – R</td>
</tr>
<tr>
<td>MO69M</td>
<td>LEH O2 8 vlv – CL</td>
</tr>
<tr>
<td></td>
<td>Remove, stow O2 Bleed Orifice</td>
</tr>
<tr>
<td></td>
<td>LEH O2 8 vlv – R</td>
</tr>
<tr>
<td></td>
<td>7 vlv – R</td>
</tr>
<tr>
<td>SIDE HATCH</td>
<td>NEG PRESS RLF VLV COVER (two) – pull open to vent; push firmly to close</td>
</tr>
<tr>
<td></td>
<td>RMS PNL LTS (if RMS onboard)</td>
</tr>
<tr>
<td>MA73C:F</td>
<td>cb RMS PRI 6A – op</td>
</tr>
<tr>
<td></td>
<td>B/U 6A – op</td>
</tr>
<tr>
<td></td>
<td>AC UTILITY OUTLET</td>
</tr>
<tr>
<td></td>
<td>cb ACT MAR 3Φ – op</td>
</tr>
</tbody>
</table>

### PERSONAL HYGIENE SYS STOWAGE

Stow:
- Personal Hygiene Kits
- Hose

### AIRLOCK CLOSEOUT

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

### 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

### FDF STOWAGE

- Stow FLIGHT PLAN

### CABIN CONFIG

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

### EGRESS ROUTE CONFIG

- Tape Foot Loops in egress routes

- 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

### GALLEY DEACT

- GALLEY
  - OVEN/RH – OFF
  - H2O HTRS (two) – OFF
  - OVEN FAN – OFF
  - REHYD STA lever – cl (push in)
  - OVEN DOOR LATCH – latched
  - AC UTILITY OUTLET
  - cb AC3 GALLEY FAN (three) – op
  - ML86B:A MNC SPLY H2O GALLEY SPLY – op
  - :B MNA GALLEY OVEN – op
  - MNB GALLEY H2O HTR – op

### (Continued next page)
ENT AIRLOCK CONFIG

MO13Q 1. √AILRLK FAN A(B) – OFF
   TNL EXT 2. √Inlet flex duct stowed and bypass duct strapped to Tunnel Extension wall. Unstow, install cap on Airlock Fan outlet
   MA73C:G 3. cb AC1,2 ARLK TNL FAN A,B (six) – op
   EXT A/L 4. Unstow, install diffuser cap on middeck floor air fitting
   AW18A 5. NEG PRESS RLF vlv cover (two) – pull open to vent; push firmly to close
   INNER 6. LTG FLOOD 1(3,4) – OFF
   √HATCH 7. Perform AIRLOCK ENTRY SWITCH LIST/VERIFICATION, 3-3
   MO73C 8. Close hatch:  
   HATCH – rotate about hinge and push
   Handle – CCW to LATCH
   Lock lever to LOCKED

CLOTHING CONFIG

Unstow, don:
   ACES
   Harness
   Boots

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

Connect middeck cooling units per PWR/DATA/VIDEO:
   ASCENT/ENTRY CONFIG (REF FS, UTIL PWR)

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

MD 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

D/O/ALL/GEN P,1
DEORBIT PREP BACKOUT PROCEDURES
This Page Intentionally Blank
DEORBIT PREP BACKOUT SUMMARY TIMELINES

00:00:00
MCC GO/NO-GO for 24 hr
Ref ENT, DEORBIT BURN
MS1,2 SEAT EGRESS
RAD ACT
APU/HYD CONFIG

00:10
MS1,2 FLBD OPENING

00:20
VERNIER HTR ACT
MIDDECK SEAT EGRESS
RAD DEPLOY (if reqd)
OPEN VENT DOORS
C,P SEAT EGRESS

00:30
DPS CONFIG GNC 2/SM

00:40
RAD VERIF & FLASH EVAP CONFIG

00:50
KU-BD ANT DEPLOY (if reqd)
KU-BD ACTIVATION (if reqd)
On MCC GO for Verns:
CONFIG RJDs

01:00
BRAKES, FCS & DED DISP CONFIG
CLOTHING CONFIG (C,MS)

01:10
ON-ORBIT HTR CONFIG (MS)

01:20
MNVR -ZLV, -XVV

01:30
PCS CONFIG (MS)
STAR TRKR ACT
SEAT STOWAGE
HYD THERM COND ENA

01:40
AIRLOCK SETUP FOR INGRESS

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

D/O/ALL/GEN P
Ref ENT, DEORBIT BURN

FLT DECK SPECIALIST SEAT EGRESS (all others remain seated)

CONFIG FOR PLBD OPENING

MS1,2 C6 LEH O2 vlv (four) – CL

C, MS RAD ACT

APU/HYD CONFIG

PLBD OPENING

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

C, P O5, O9 L, R AUD A/G 2 (two) – RCV

O6 UHF MODE – OFF

C L1 CAB TEMP CNTLR – 2

TEMP – adj rotary as reqd

C L4: J cb SIG COND HUM SEP – cl

IMU FAN – cl

MS VERNIER HTR ACT

WHEN PLBD OPENING COMPLETE:

SEAT EGRESS (all middeck)

MS MO32M LEH O2 vlv (two) – CL

MO69M – CL

MS RAD DEPLOY, if reqd (ORB OPS, ECLS)

P OPEN VENT DOORS

1: GNC 51 OVERRIDE

VENT DOOR CNTL OPEN – ITEM 43 EXEC (*)

C, P Unstow/install HUD covers (two)

SEAT EGRESS

MS FDF/COMM CONFIG MS AFT ACTIVITIES

APU/HYD CONFIG

APU SHUTDOWN (EPCL, APU/HYD)

P R2 BLR N2 SPLY (three) – OFF

HYD MN PUMP PRESS (three) – NORM

MS A12 APU HTR GAS GEN/FUEL PUMP (three) – A AUTO

VERNIER HTR ACT

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

AFT RCS JET 5 – AUTO

NOTE

Delay use of verniers until MCC GO in GNC OPS 2
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)

DPS CONFIG TO GNC2/SM

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
   - GNC 0 GPC MEMORY
   - CONFIG – ITEM 1 +2 EXEC
     - Config for single G2 GPC ops unless directed otherwise by MCC:
       - Modify MC 2 per table
       - STR
       - GNC, OPS 201 PRO
       - GNC UNIV PTG
       - DAP: B/AUTO/PRI
       - GNC 1 DPS UTILITY
       - CKPT RETRV ENA – ITEM 12 EXEC (*)
       - CRT
       - BFC CRT DISP – OFF
       - GNC, OPS 201 PRO
       - GNC UNIV PTG
       - DAP: B/AUTO/PRI
     - PL
     - BFC CRT 04 EXEC
   - If single G2 GPC ops:
   - CRTX
   - MAJ FUNC – PL
   - GPC/CRT 2/X EXEC
     - X: PL GPC MEMORY
   - STORE ITEM 47 EXEC
     - Store complete when MC = 02 (~16 sec)
   - All IDPs deassigned from FD GPC
     - O6
     - GPC MODE 2 – STBY (tb-bp)
       - HALT (tb-bp)
       - STBY (tb-RUN)
       - HALT (tb-bp)

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

3. TRANSITION GPC 4 TO SM OPS 201(401)
   - C3
   - BFC CRT DISP – OFF
   - CRTX
   - MAJ FUNC – SM
   - GPC/CRT 4/X EXEC
     - X: SM GPC MEMORY
     - CONFIG – ITEM 1 +4 EXEC
     - MC 4(5) per table
     - SM, OPS 201(401) PRO
       - X: SM ANTENNA
       - DAP: B/AUTO/PRI
       - UL CNTL AUTO – ITEM 35 EXEC
     - PL
     - L
     - MM
     - CRT
   - BFC CRT DISP – ON
     - C3
     - BFS, GNC OPS 000 PRO
     - CRT3
     - BFS, GNC 401 PRO
     - C3
     - BFC CRT DISP – OFF
     - MM
     - CRT
     - 3: BFS, GNC GPC MEMORY
     - OUTPUT 4 – TERM (tb-bp)
     - OUTPUT 5 – NORM (tb-bp)
     - P/I Locker
     - Unstow and install GPC Mode Switch Guard

4. RECONFIG GPCs
   - C3
   - BFC CRT DISP – ON
   - CRT3
   - BFS, GNC OPS 000 PRO
   - C3
   - BFC CRT DISP – OFF
     - Releases payload buses 1,2
   - O6
     - GPC MODE 5 – STBY (tb-RUN)
     - then HALT (tb-bp)
       - OUTPUT 4 – TERM (tb-bp)
       - OUTPUT 5 – NORM (tb-bp)

5. MEDS RECONFIG
   - C2
   - IDP/CRT3 PWR – OFF
   - GPC/CRT 03 EXEC
   - 44 EXEC

D/O/ALL/GEN P
<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:30</td>
<td>EPS 00:30 MCR 00:35</td>
</tr>
<tr>
<td>00:35</td>
<td>EPS 00:30 MCR 00:35</td>
</tr>
<tr>
<td>00:40</td>
<td>EPS 00:40 MCR 00:40</td>
</tr>
<tr>
<td>00:45</td>
<td>EPS 00:45 MCR 00:45</td>
</tr>
<tr>
<td>00:50</td>
<td>EPS 00:50 MCR 00:50</td>
</tr>
<tr>
<td>00:55</td>
<td>EPS 00:55 MCR 00:55</td>
</tr>
</tbody>
</table>

**CLOTHING CONFIG**

- P, MS, PS

**CLOTHING CONFIG**

- P, MS, PS

**DPS CONFIG TO GNC2/SM**

- 11, 2-6 and 2-7

**CLOTHING CONFIG**

- P, MS, PS

**RAD VERIF & FLASH EVAP CONFIG**

- 12

**KU-BD ANT DEPLOY**, if reqd (ORB OPS, COMM/INST)

**KU-BD ACTIVATION**, if reqd (ORB OPS, COMM/INST)

**MIDDECK CONFIG**

- 14, 2-17 and 2-18

**CONFIG RJDs**

- RJD MANF L5/F5/R5 DRIVER – ON, wait 5 sec

**GNC 20 DAP CONFIG**

- ITEM 10 +0.1 EXEC

**ERROR LOG RESET**

- After MCC GO:
  - SM 0 GPC MEMORY
  - ERR LOG RESET – ITEM 48 EXEC
  - GNC 0 GPC MEMORY
  - ERR LOG RESET – ITEM 48 EXEC

**TFL/DFL FOR ON-ORBIT OPS**

- MCC for TFL/DFL config

**TRANS DAP AUTO**

- RT 0.5

**DB 3.5**

**LOAD PDI DECOM FORMAT** (ORB OPS FS, COMM/INST)

**LOAD PCMMU FORMAT** (ORB OPS FS, COMM/INST)

**ERROR LOG RESET**

- After MCC GO:
  - SM 88 APU/ENVIRON THERM
  - RAD BYP VLV tb (two) – RAD FLOW
  - CRT2 When FREON LOOP RAD OUT T < 60 degF:
    - L1 HI LOAD EVAP – OFF
    - L2 FREON ISOL MODE – AUTO
  - FLASH EVAP CNTLR PRI B(A) – OFF

**GNC DEORB MNVR COAST**

- BFS, GNC DEORB MNVR COAST

**GNC 51 OVERRIDE**

- 2: GNC DEORB MNVR COAST

**GNC DEORB MNVR COAST**

- 3

**BFS, GNC DEORB MNVR COAST**

- 3

**RAD VERIF & FLASH EVAP CONFIG**

- 12

**MCC GO: LOAD PCMMU FORMAT** (ORB OPS FS, COMM/INST)

**LOAD PDI DECOM FORMAT** (ORB OPS FS, COMM/INST)

**ERROR LOG RESET**

- ITEM 48 EXEC

**MCC GO:**

- SM 0 GPC MEMORY

**ERR LOG RESET – ITEM 48 EXEC**

**GNC 0 GPC MEMORY**

**ERR LOG RESET – ITEM 48 EXEC**
This Page Intentionally Blank
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) – off
MNA, B ACCEL 1, 2 (two) – op
DDU L (two) – op
\^MNA, C DDU AFT (two) – op
MN, B, C DDU R (two) – op
ASA (four) – OFF
ACCEL 4, 3 (two) – OFF

O14:

O15:

O16:

O17:

ATVC (four) – OFF

If OV105:
GPS 1, 3 PWR (two) – OFF
GPS PWDRN (ORB OPS, GNC) if reqd
TACAN MODE (three) – OFF

If OV103, 4:
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
\^FCS CH (four) – AUTO

F6, F8
FLT CNTLR PWR (two) – OFF

F3
\^TRIM RHC/PNL – INH
PNL (two) – OFF

MS

ON-ORBIT HTR CONFIG 17, 2-16

GNC 0 GPC MEMORY

SM SYS SUMM 1

CLOTHING CONFIG (C, MS)
01:30
C
AUTO MNVR -ZLV, -XVV
\TGT ID +2
BODY VECT +3
OM +0
DAP: A/AUTO/VERN
Initiate TRK

01:35
C, MS
ON-ORBIT PCS2(1) CONFIG 19, 2-18

01:40
P
STAR TRKR ACT 20

01:45
P
HYD THERM COND ENA
R2
HYD CIRC PUMP (three) – GPC

01:50
MS
AIRLOCK SETUP FOR INGRESS 21, 2-18

01:55
MS

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

Continue per MCC direction

02:00

STAR TRKR ACT 20

<table>
<thead>
<tr>
<th>O14:E,</th>
<th>cb STAR TRKR -Z,-Y (two) – cl</th>
</tr>
</thead>
<tbody>
<tr>
<td>O15:E</td>
<td></td>
</tr>
<tr>
<td>O6</td>
<td>STAR TRKR PWR (two) – ON</td>
</tr>
<tr>
<td>C2</td>
<td>GNC I/O RESET</td>
</tr>
<tr>
<td>O6</td>
<td>STAR TRKR DR CNTL SYS (two) – OP (start timer)</td>
</tr>
<tr>
<td></td>
<td>\POS tb (two) – bp</td>
</tr>
<tr>
<td></td>
<td>When both tb – OP (~8-24 sec)</td>
</tr>
<tr>
<td></td>
<td>or either tb – bp &gt; 24 sec</td>
</tr>
<tr>
<td></td>
<td>STAR TRKR DR CNTL SYS (two) – OFF</td>
</tr>
</tbody>
</table>

O14:E, cb STAR TRKR -Z,-Y (two) – cl

O15:E

O6

STAR TRKR PWR (two) – ON

C2

GNC I/O RESET

O6

STAR TRKR DR CNTL SYS (two) – OP (start timer)
\POS 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 *
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.

R13L

* 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

O6

* If BFS GPC fails during operation:
  * PL BAY DR SYS (two) – DSBL
  * MDM PL1.2 (two) – OFF
  * GPC MODE 5 – STBY, HALT
  * MDM PL1.2 (two) – ON
  * Proceed with DPS CONFIG TO GNC2/SM
  * 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)
(same-motor times = 2x listed dual-motor times)

**AUTO PLBD OPENING PROCEDURE**

**MANUAL PLBD OPENING PROCEDURE**

**OPEN REMAINING LATCHES/DOORS (AUTO MODE)**

R13L

1. AUTO MODE SEL – ITEM 3 EXEC (*)
2. PL BAY DR – OP

CRTL

3. CENTER LATCHES 5-8 – ITEM 4 EXEC (*)
4. CENTER LATCHES 5-8 – blank, OP (~20 sec)
5. CENTER LATCHES 1-4,13-16 (two) – blank, OP (~20 sec)
6. STBD FWD,AFT LATCHES (two) – blank, OP (~30 sec)
7. DOOR – RDY, blank, OP (~63 sec)
8. PORT FWD,AFT LATCHES (two) – blank, OP (~30 sec)
9. PL BAY DR – STOP

**POST-PLBD OPENING CLEANUP**

R13L

10. PL BAY DR SYS (two) – DSBL
11. AC POWER OFF – ITEM 2 EXEC (*)
12. SM, OPS 201 PRO (if PASS SM)

**MANUAL PLBD OPENING PROCEDURE**

**OPEN REMAINING LATCHES/DOORS (MANUAL MODE)**

R13L

1. SM, OPS 202 PRO or BFS, SM 63 PL BAY DOORS
2. AUTO MODE SEL – ITEM 3 EXEC (*)
3. PL BAY DR – OP

CRTL

4. CENTER LATCHES 5-8 – ITEM 4 EXEC (*)
5. CENTER LATCHES 5-8 – blank, OP (~20 sec)
6. CENTER LATCHES 1-4,13-16 (two) – blank, OP (~20 sec)
7. STBD FWD,AFT LATCHES (two) – blank, OP (~30 sec)
8. DOOR – RDY, blank, OP (~63 sec)
9. PORT FWD,AFT LATCHES (two) – blank, OP (~30 sec)
10. PL BAY DR – STOP
11. POST-PLBD OPENING CLEANUP
12. PL BAY DR SYS (two) – DSBL
13. AC POWER OFF – ITEM 2 EXEC (*)

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

OPEN STBD FWD, AFT LATCHES & DOOR

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 (*)
CRTX 20. STBD FWD, AFT LATCHES – blank, OP (~30 sec)
R13L 21. PL BAY DR – OP
CRTX 22. Deselct 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. Select PORT DOOR – ITEM 13 EXEC (*)
CRTX 28. PORT FWD, AFT LATCHES (no *)
R13L 29. PL BAY DR – OP
CRTX 30. Deselct PORT DOOR – ITEM 13 EXEC (no *)

POST-PLBD OPENING CLEANUP

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

PL BAY FLOOD (all) – OFF

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PLBD CONTROL</th>
<th>PLBD DISPLAY PL MDM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ref: MA73C:C&amp;D for MCA cbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MTR 1</td>
<td>MTR 2</td>
</tr>
<tr>
<td></td>
<td>AC/ MCA</td>
<td>CNTL</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>

2-14
### 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: ASST 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)

<table>
<thead>
<tr>
<th>R10</th>
<th>MS AUD PWR – AUD/TONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/G 1</td>
<td>T/R, tw-2</td>
</tr>
<tr>
<td>A/G 2</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>A/A</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>ICOM A</td>
<td>T/R, tw-2</td>
</tr>
<tr>
<td>ICOM B</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>XMIT/ICOM MODE – PTT/PTT</td>
<td></td>
</tr>
</tbody>
</table>

If flight deck Handheld Mic/speaker operation:

<table>
<thead>
<tr>
<th>R10</th>
<th>MS AUD PWR – AUD/TONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/G 1</td>
<td>T/R, tw-2</td>
</tr>
<tr>
<td>A/G 2</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>A/A</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>ICOM A</td>
<td>T/R, tw-2</td>
</tr>
<tr>
<td>ICOM B</td>
<td>RCV, tw-2</td>
</tr>
<tr>
<td>XMIT/ICOM MODE – PTT/PTT</td>
<td></td>
</tr>
</tbody>
</table>

**OS AUD SPKR PWR – SPKR/MIC**

MSTR SPKR VOL – 8

**R6.L5**

CCU PWR – OFF

**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)

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

**O19**

TV PWR – OFF

**L10**

ON/STANDBY – PRESS (red LED on)

PWR – OFF (LED off)

VTR/CC PWR – OFF (LED off)

FDF CONFIG

Slow:

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)
## RMS PNL LTS, TEMP MON, HTR ACT, C/W [13]

- **MA73C:F**: cb RMS PRI φA – cl
- **A8L**: RMS PWR – PRI (MA tone)
- **SM 94 PDRS CONTROL**: (MA, GPC DATA lt on)
- **I/O ON – ITEM 5 EXEC (*)
- **A8U**: SAFING – CANCEL (tb-bp) (√GPC DATA lt off)
- **A8L**: PORT RMS HTR A – AUTO

### C/W

#### R13U

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

## ON-ORBIT HTR CONFIG [17]

- **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

### MS MIDDECK ACTIONS

<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></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

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

If middeck Handheld Mic/speaker operation:

**MO42F**

**MIDDECK SPKR AUD SPKR PWR – SPKR/MIC**

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
XM1T/COM MODE – PTT/PTT
MSTR SPKR VOL – 8

**MO39M**

**MIDDECK COMM CCU PWR – OFF**
Connect Handheld Mic to CCU

**HTR CONFIG**

**ML31C**

**VAC VENT ISOL VLV BUS SEL – MNA**

NOZ HTR – ON
ISOL VLV CNTL – OP (tb-OP)

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

### MIDDECK CONFIG 14

<table>
<thead>
<tr>
<th>GALLEY ACTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML86B:A</td>
</tr>
<tr>
<td>.B</td>
</tr>
<tr>
<td>cb MNC SPLY H2O GALLEY SPLY – cl</td>
</tr>
<tr>
<td>cb MNA GALLEY OVEN – cl</td>
</tr>
<tr>
<td>cb MNB GALLEY H2O HTR – cl</td>
</tr>
<tr>
<td>R11L.G</td>
</tr>
<tr>
<td>SPLY H2O GALLEY SPLY VLV – OP (tb-OP)</td>
</tr>
<tr>
<td>GALLEY</td>
</tr>
<tr>
<td>H2O HTRs (two) – ON</td>
</tr>
<tr>
<td>OVEN/RHS – ON</td>
</tr>
<tr>
<td>MA73C.G</td>
</tr>
<tr>
<td>cb AC3 GALLEY FAN (three) – cl</td>
</tr>
</tbody>
</table>

**WCS ACTIVATION**

**WCS (EDO WCS)**

If EDO WCS:

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

If WCS:

Unstow Urinal Hose from Velcro strap, install hose in cradle
MODE – AUTO
CRADLE – AUTO
URN 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

CO2 RMVL SYS ACT (if flown)
MCC prior to CO2 RMVL system activation
cb AC 3 (three) – cl
AC3 – ON (hold 3 sec)
MNC – ON
CNTRL 2 MODE – OPER (hold 3 sec)
Wait 6 sec
CNTRL 2 OPER lt – on
COM INSTR – ON

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

POLE STOWAGE
Remove large Port Pin:
Slide back Safing Latch
Retract and hold Locking Pin (Ring)
Remove large Pin
Release Locking Pin (Ring)
Remove Stbd Plp 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
MIDDECK 9 – cl
cb MNB FLOODS MIDDECK 10 – cl
AIRLK 3 – 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
2. Equal vlv (two) – NORM
3. Open hatch per decal

HATCH
4. LTG FLOOD 1(3,4) – ON (as reqd)

AW18A
5. AIRLK 2 – ON/OFF

MO13Q
6. AIRLK H2O S/O vlv – OP (tb-op)

MIDDECK FLR
7. \EMU O2 ISOL vlv – CL
8. Remove stow diffusion cap on middeck floor fitting (mark)
If Spacehab flown and reingress desired:
9. Unstow, install bypass duct to middeck floor fitting
10. Go to SPACEHAB INGRESS AFTER WAVEOFF
   (SH OPS, ON-ORBIT)
If Orbiter only or Spacehab reingress not desired:
11. Unstow bypass duct from Tunnel Extension wall and
    install on middeck floor fitting
12. Airflow at top of external airlock halo

2-18
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

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

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

CIRCUIT BREAKER SNAP RING
COLOR CODES

COLOR  CONFIGURATION
Red    Open at all times
Green  Open on orbit only
Yellow Open ascent, close per procedure
Orange Open orbit through entry
Blank  Always closed or as reqd

3-1

ENT SWITCH LIST/VERIF

D/O/ALL/GEN P
ENT SWITCH
LIST/VERIF

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

LEFT SEAT

<table>
<thead>
<tr>
<th>Switch</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>L4</td>
<td>3-13</td>
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<tr>
<td>L1</td>
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<tr>
<td>O15</td>
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AFT

<table>
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<tr>
<td>R10</td>
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<tr>
<td>R12U</td>
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<td>3-26</td>
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<td>A6L</td>
<td>3-27</td>
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<td>A7L</td>
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MIDDECK-AFT

<table>
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<tbody>
<tr>
<td>MA73C</td>
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<tr>
<td>MO10W</td>
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<tr>
<td>WCS</td>
<td>3-32</td>
</tr>
<tr>
<td>EDO WCS</td>
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RIGHT SEAT

<table>
<thead>
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<tbody>
<tr>
<td>O16</td>
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<td>3-21</td>
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MIDDECK-FWD

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<tr>
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<td>MO32M</td>
<td>3-30</td>
</tr>
<tr>
<td>MO69M</td>
<td>3-30</td>
</tr>
</tbody>
</table>

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 COLOR CODES

<table>
<thead>
<tr>
<th>COLOR</th>
<th>CONFIGURATION</th>
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</thead>
<tbody>
<tr>
<td>Red</td>
<td>Open at all times</td>
</tr>
<tr>
<td>Green</td>
<td>Open on orbit only</td>
</tr>
<tr>
<td>Yellow</td>
<td>Open ascent, close per procedure</td>
</tr>
<tr>
<td>Orange</td>
<td>Open orbit through entry</td>
</tr>
<tr>
<td>Blank</td>
<td>Always closed or as reqd</td>
</tr>
</tbody>
</table>
OV104

PNL MA73C

(A) MCA LOGIC

(B) MCA POWER AC 1 TO 2

(C) MCA POWER AC 2 TO 1

(D) MCA POWER AC 3 TO 1

(E) MCA POWER AC 3 TO 2

(F) MCA POWER AC 3 TO 2

(G) MCA POWER AC 3 TO 2

(H) MCA POWER AC 3 TO 2

(I) MCA POWER AC 3 TO 2

(OV104) B3-31

D/O/4/GEN P,1
PNL AW18A

PNL AW82B

PNL AW18H

PNL AW82B

PNL AW18H
OV105

PNL R10

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

PNL R11U

Fuel Cell

OFF PURGE SEE
ON

PURGE
ON

FIRE
ALARM
OPEN

START-UP
RELAY
ON

OV105

480150322_118, PNL 2

(OV105) C3-22

D/O/5/GEN P
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)
-   RDR ALTM
-   F3  R TRIM RHC/PNL
-   R2  HYD CIRC PUMP (three) (GPC pos only)
-   AFT  MS  R12U  FC PURGE VLV (three) (GPC pos only)*
-   HTR (GPC pos only)*
-   GPC PURGE SEQ

* FC PURGE valve and heater functions can be ground-commanded through BFS when switches are in GPC position. Therefore, place these switches in GPC for 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 CNTLR PWR, DDUs to reduce cabin heat load and to save for use during entry
2. Minimize lighting
3. Wipe off any visible moisture with towels
4. Use 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 CKPT 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 TIG-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 APU/HYD CONFIG:
   
   If AV BAY 1 or 2 air cooling lost:
   - FCS CH (four) – ORIDE
   
   If AV BAY 3 air cooling lost:
   - FCS CH 1,2,3 (three) – AUTO
     - 4 – OFF

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

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

<table>
<thead>
<tr>
<th>TRANSITION GPC 1 &amp; 2 TO GNC OPS 3</th>
<th>TRANSITION GPC 1,2,3,4 TO GNC OPS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONFIG</strong></td>
<td><strong>LOSS OF</strong></td>
</tr>
<tr>
<td><strong>GPC</strong></td>
<td><strong>BAY 1</strong></td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>STR 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
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<td>PL 1/2</td>
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<tr>
<td>CRT 1</td>
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</tr>
<tr>
<td>MM 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Cont next page
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

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, activate ADTAs

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

3. During DED DISP ENT CONFIG, power up only three ADTAs, three AAs, two MLSs, and two GPS (OV105) or two TACANs (OV103,4)
4. During DPS ENTRY CONFIG
   a. If loss of Av Bay 3, do not pwrup GPC 3
   b. During SM CHECKPOINT, skip MMU 1 (if Av Bay 1) or MMU 2 (if Av Bay 2)
   c. Using column for affected Av Bay, substitute appropriate NBAT in following activities

<table>
<thead>
<tr>
<th>TRANSITION GPC 1 &amp; 2 TO OPS 3</th>
<th>TRANSITION GPC 1,2,3,4 TO OPS 3</th>
<th>RECONFIG MC 9 TABLE (GNC 9) FOR POST LANDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONFIG</strong></td>
<td><strong>LOSS OF</strong> BAY <strong>1</strong> <strong>2</strong> <strong>3</strong></td>
<td><strong>CONFIG</strong> BAY <strong>1</strong> <strong>2</strong> <strong>3</strong> <strong>4</strong></td>
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<tr>
<td>GPC 1</td>
<td>02000  3  3  3</td>
<td>02300  3  3  3</td>
</tr>
<tr>
<td><strong>STR</strong> 1</td>
<td>2  1  1</td>
<td>STR 1   3  1  1</td>
</tr>
<tr>
<td>2</td>
<td>2  1  1</td>
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<td>4  2  4  2</td>
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<tr>
<td><strong>PL 1/2</strong></td>
<td>0  0  0</td>
<td><strong>PL 1/2</strong> 2  1  1</td>
</tr>
<tr>
<td><strong>CRT 1</strong></td>
<td>2  1  1</td>
<td><strong>CRT 1</strong> 2  1  1</td>
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<td><strong>L</strong> 1   0  0  0</td>
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</tr>
<tr>
<td>2</td>
<td>2  1  2</td>
<td>2  3  4  2</td>
</tr>
</tbody>
</table>

5. ENT SWITCH LIST/VERIF pictorials will not reflect pwrdsn items
PLBD CONTINGENCY EVA TIMELINE
### FLIGHT: PLBD EVA

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

#### PUB. DATE: 3/07

<table>
<thead>
<tr>
<th>MET</th>
<th>Day 008</th>
</tr>
</thead>
<tbody>
<tr>
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<td>05</td>
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<td>07</td>
<td>08</td>
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</tbody>
</table>

**FD**

**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

---

**NOTES**

---

### EOM

**FD**

**PRE SLEEP**

**SLEEP**

**POST SLEEP**

**DEORBIT PREP**

**DEORBIT PREP BACKOUT**

**PRE SLEEP**

**SLEEP (7:00)**

**NOTES**

- **PLBD CSL FAILURE**
- **ASPIRIN**
- **LATEST 10.2 DEPRESS**
- **10.7 MAINT**
- **SAFER C/O**
- **EVA PVCU HLVW**

---

### EOM+1

**FD**

**SLEEP (7:00)**

**POST SLEEP**

**EVA PREP**

**EMU P/B**

**PLBD CLOSE EVA (3.5 HRS)**

**POST EVA**

**DEORBIT PREP (3 HRS)**

**LANDING**

**BURNT**

**NOTES**

- **POST SLEEP CONT'D**
- **EARLIEST PLBD CLOSE**
- **14.7 CAB DEPRESS**
- **EOM+1 TIG**
- **POST EVA ENTRY PREP**

---

6-3

**D/O/ALL/GEN P,1**
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
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**

#### TIME (TIG-)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:50</td>
<td>ENT STOWAGE</td>
</tr>
<tr>
<td>3:50</td>
<td>ENT AIRLOCK CONFIG</td>
</tr>
<tr>
<td>3:35</td>
<td>SPECIALIST SEAT INSTALLATION</td>
</tr>
<tr>
<td>3:10</td>
<td>PARTIAL ENT SWITCH LIST/VERIFY (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/VERIFY (MID), 3-30 thru 3-32</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</td>
</tr>
<tr>
<td>1:28</td>
<td>DSO 603, if reqd (BIOMED, BIOMED DSOs)</td>
</tr>
<tr>
<td>1:10</td>
<td>CLOTHING CONFIG</td>
</tr>
<tr>
<td>1:00</td>
<td>Begin Fluid Loading per individual prescription. Fluid Loading should be completed by EI. 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>0:50</td>
<td>MD AUD SPRK CONFIG (29)</td>
</tr>
<tr>
<td>0:50</td>
<td>CG2 MM/LS SYS DEACT, if flown (25)</td>
</tr>
<tr>
<td>0:35</td>
<td>GALLEY DEACT (26)</td>
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</table>

#### MS MIDDECK ACTIONS

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<td>GALLEY DEACT (26)</td>
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#### PERSONAL HYGIENE SYS STOWAGE

**NOTE**

**PERSONAL HYGIENE KITS**

**PERSONAL HYGIENE 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)**

**Reinstall large Pin**

**Release Locking Pin (Ring)**

**Slide forward Safing Latch**

**Pole Straps secure**

#### FDF STOWAGE

**NOTE**

**FLIGHT PLAN**

**CABIN CONFIG**

**Backup PGSC**

**Middeck Cams, Accessories**

**FWD/AFT Shades, Filters**

**Exercise Equipment**

**Quick Don Masks**

**Retention net is in ASC/ENT config**

#### GALLEY DEACT (26)

**GALLEY**

**OVEN/RHS**

**H2O HTRS (two)**

**REHYD STA lever**

**OVEN DOOR LATCH**

**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**

#### GALLEY DEACT (26)

**GALLEY**

**OVEN/RHS**

**H2O HTRS (two)**

**REHYD STA lever**

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#### EGRESS ROUTE CONFIG

**Tape Foot Loops in egress routes**

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### ENT AIRLOCK CONFIG

1. **AIRLK FAN A(B) – OFF**
2. Inlet flex duct stowed and bypass duct strapped to Tunnel Extension wall. Unstow, install cap on Airlock Fan outlet
3. cb AC1,2 ARLK TNL FAN A(B) (six) – off
4. Unstow, install diffuser cap on middeck floor air 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 INNER
8. Close hatch:
   - Position handle to preclosing position per decal
   - Handle – CCW to LATCH
   - Lock lever to LOCKED
9. Equal vlv (two) – NORM, install caps
10. **EMU O2 ISOL vlv – CL**
11. **AIRLK 2 – OFF/ON**
   - If TNL ADAPT flown:
     - cb MNA FLOOD TNL ADAPT 2 – op
     - cb MNB FLOOD TNL ADAPT 3 – op
     - cb MNC FLOOD TNL ADAPT 4 – op
13. **AIRLK 9 – off**
14. **CB MNA FLOODS ARLK 1 – op**
15. **CB MNB FLOODS MIDDECK 10 – op**
16. **CB MNC FLOODS ARLK 4 – op**
17. **ESM 1BC FLOOD ARLK 2 – op**
18. **CO2 RMVL SYS DEACT**
19. **MODE sel – STBY (hold 3 sec)**
   - Wait 6 sec
   - CNTLR 2(1) OPER lt – off
   - CNTLR 2(1) FAIL lt – off
   - AC 3(1) – OFF (hold 3 sec)
20. **COMPACTOR – stowed**
21. **COMPACTOR CLEANING LATCH PIN – disengaged**
22. **COMPACTOR LOCK PINS (three) – tighten (snug)**
23. **Stow thigh restraints**
24. **Close and latch door**
25. **Middeck lts as req**

---

### CLOTHING CONFIG

- Unstow, don:
  - ACES
  - Harness
  - Boots

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

Connect middeck cooling units per PWR/DATA/VIDEO: ASCENT/ENTRY CONFIG (REF FS, UTIL PWR)

- MO13Q, DC UTIL PWR MNA(B,C) – ON as reqd
- MO39M, Cooling units – Hose Jumper Plug installed
- MO52J, Pre-chill cooling units 10 min prior to seat ingress
- ML85E (MUP)
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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<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>00:21</td>
<td>MO69M LEH O2 vlv (two) – CL</td>
</tr>
<tr>
<td>00:22</td>
<td>PRELIM MIDDECK CONFIG</td>
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<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</td>
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<tr>
<td>01:00</td>
<td>CLOTHING CONFIG</td>
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<tr>
<td>01:40</td>
<td>ON-ORBIT PCS 2(1) CONFIG</td>
</tr>
<tr>
<td>01:50</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
<tr>
<td>01:50</td>
<td>AIRLOCK SETUP FOR INGRESS</td>
</tr>
</tbody>
</table>

PRELIM MIDDECK CONFIG

INSTALL FILTERS
- Hatch UV Filter and Locking Device Pyos Box
- Safing Pin

COMM CONFIG
- 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
- MIDDECK SPKR AUD SPKR PWR – SPKR/MIC
- AG 1 – T/R, tw-2
- AG 2 – RCV, tw-2
- A/V – 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 – ON OP (lb-OP)
- If VAC VENT ISOL VLV CNTL lb – CL or bp:
  - VAC VENT ISOL VLV BUS SEL – MNB
  - CNTL – OP (lb-OP)
- If VAC VENT ISOL VLV CNTL lb still CL or bp:
  - MCC for further actions

GALLEY ACTIVATION
- ML86B:A cb MNC SPLY H2O GALLEY SPLY – cl
- ML86B:B cb MNA GALLEY OVEN – cl
- cb MNB GALLEY H2O HTR – cl
- R11L:G vlv (two) – CL
- \$PLY H2O GALLEY SPLY VLV – OP (lb-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 – UP
- If EDO WCS:
  - CANISTER – LOCK
  - Commode lid lock – use
  - URINAL SEL – SEP 1
  - WCS PWR SEL (two) – AUTO 1, OFF 2
  - FAN PWR – AUTO
  - URN DIV VLV – FAN SEP 1
  - Open commode lid
  - Commode airflow
  - Fecal Bag installed
  - Close commode lid
  - Unstrap urinal hose Velcro strap
  - Unstow urinal hose
  - Urinal airflow
  - URINAL READY lt – on (5-15 sec)
  - Slow urinal hose
  - COMPACTOR LOCK PINS (three) – loosen (use 1/4-in Hex Wrench, if reqd)
  - COMPACTOR ARM LOCK PIN – raised
  - COMPACTOR CLEANING LATCH PIN – engaged
  - Install Fecal Bag and Lid Dispensers

If WCS:
- 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
  - Slow 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"

**TOP**

**CLOTHING CONFIG**

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

**FLOODLIGHT CONFIG**

If TNL ADAPT flown:
- cb MNA FLOOD TNL ADAPT 2 – cl
- cb MMB FLOOD TNL ADAPT 3 – cl
- cb MNC FLOOD TNL ADAPT 4 – cl

**MO69M**
- LEH O2 8 VLV – CL
- Insert O2 Bleed Orifice Assembly into LEH O2 8 QD
- LEH O2 8 VLV – OP

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

<table>
<thead>
<tr>
<th>C</th>
<th>L2</th>
<th>O2 XOVR SYS (two) – OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>O2/N2 FLOW set – SYS 2(1) O2</td>
<td></td>
</tr>
<tr>
<td>C7</td>
<td>LEH O2 SPLY vlv (two) – OP</td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>MO10W</td>
<td>H2O TK N2 REG INLET SYS 1(2) vlv – CL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>O2 REG INLET SYS 2(1) vlv – OP</td>
</tr>
</tbody>
</table>

**AIRLOCK SETUP FOR INGRESS**

1. Equal vlv caps (two) – remove, stow
2. Equal vlv (two) – NORM
3. Open hatch per decal
4. LTG FLOOD 1(3.4) – ON (as reqd)
5. ARLK 2 – ON/OFF
6. ARLK H2O S/O vlv – OP (lb-op)
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. Go to SPACEHAB INGRESS AFTER WAVEOFF
11. If Orbiter only or Spacehab reingress not desired:
   - Unstow bypass duct from Tunnel Extension wall and install
   - on middeck floor fitting
12. Airflow at top of external airlock halo

**HOOK VEL-CRO**

**D/O/ALL/GEN P.1**
DEORBIT PREP  ALL