Deorbit Prep

Mission Operations Directorate
Operations Division

Generic, Rev O
February 14, 2005

NOTE
For STS-114 and subsequent flights
MISSION OPERATIONS DIRECTORATE

DEORBIT PREP

GENERIC, REVISION 0
February 14, 2005

PREPARED BY:

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**AREAS OF TECHNICAL RESPONSIBILITY**

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### DEORBIT PREP

#### LIST OF EFFECTIVE PAGES

**GENERIC 09/16/87**

**REV O 02/14/05**

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* – Omit from flight book
† – Extra copies of appropriate pages flown in back of MS2’s book only
‡ – Extra copies of appropriate pages flown in back of book
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NOMINAL DEORBIT PREP PROCEDURES
# Nominal Deorbit Prep Overview of Configuration Management

**DPS** | **OPS 1 ASC C/L** | **OPS 2 ON-Orbit** | **OPS 2 DEORBIT PREP** | **OPS 3 DEORBIT PREP** | **SEAT INGRESS** | **EI-5** | **V=15K**
--- | --- | --- | --- | --- | --- | --- | ---
**GPC** | **OPS** | **G1 G1 G1 G1 G1 BFS** | **G2 G2 G2 SM BFS** | **G2 G2 F2 SM BFS** | **G3 G3 G3 G3 BFS** | **1 2 3 4 5** | **G3 G3 G3 G3 BFS**
**POWER OUTPUT MODE** | **ON ON ON ON ON** | **N N N B R R R R R R** | **N N N T N R R R R R R** | **N N N N N R R R R R R** | **N N N N N R R R R R R** | **1 2 3 4 5** | **N N N N N R R R R R R**

**Config GPC**

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**RJD**

| RJDA | ALL ON | ALL ON | ALL ON | ALL ON | ALL ON |
| RJDF | ALL ON | ALL ON | ALL ON | ALL ON | ALL ON |
| VERNIER | ALL ON | ALL ON | ALL ON | ALL ON | ALL ON |
NOMINAL DEORBIT PREP SUMMARY TIMELINE

**TIG -04:00**
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

**TIG -03:50**
MS  PAYLOAD DEACT

**TIG -03:40**
P  RAD STOW (if reqd)

**TIG -03:30**
C,PS  SPECIALIST SEAT INSTALLATION

**TIG -03:20**
C  DPS CONFIG FOR D/O PREP
C,P  APU/HYD CONFIG

**TIG -03:10**
DPS ENTRY CONFIG

**TIG -03:00**
PARTIAL ENTRY SWITCH
LIST/VERIFY (ALL)

**TIG -02:50**
C  RAD BYPASS/FES C/O

**TIG -02:40**
MS  PAYLOAD DEACT

**TIG -02:30**
MS  PAYLOAD DEACT

**TIG -02:20**
MS  POST CLOSING CONFIG, EDO PALLET DEACT (if flown)
C  AUTO MNVR TO COMM ATT

**TIG -02:10**
MCC GO FOR OPS 3
TRANSITION TO ENT PKT

**TIG -02:00**
MCC GO FOR PLBD CLOSING
PLBD CLOSING (P,MS)

**TIG -01:50**
MCC GO FOR PLBD CLOSING

**TIG -01:40**
MCC GO FOR PLBD CLOSING

**TIG -01:30**
MCC GO FOR PLBD CLOSING

**TIG -01:20**
MCC GO FOR PLBD CLOSING

**TIG -01:10**
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**TIG -01:00**
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**TIG -00:30**
MCC GO FOR PLBD CLOSING

**TIG -00:20**
MCC GO FOR PLBD CLOSING

**TIG -00:10**
MCC GO FOR PLBD CLOSING

**TIG -00:00**
MCC GO FOR PLBD CLOSING
NOMINAL DEORBIT PREP SUMMARY TIMELINE (Cont)

-02:00
MS DEACT S TRKR

-01:50
FINAL ENTRY SWITCH LIST/VERIF (ALL)
DEORB PAD UPDATE (C)
RESET C/W (MS)
ENTRY REVIEW (ALL)
DSO 603 (if reqd)
CLOTHING CONFIG (C,P)

-01:40
C IMU/IMU ALIGN

-01:30
CLOTHING CONFIG (C,P)

-01:20
SEAT INGRESS (C,P)
CLOTHING CONFIG (MS,PS)

-01:10
MS CO2 RMVL SYS DEACT (if flown)
C FLIGHT DECK, transition to ENT
FINAL DEORBIT UPDATE/UPLINK
P OMS TVC GIMBAL CHECK

-01:00
P APU PRESTART
MS GALLEY DEACT
WCS DEACT

-00:50
OPERATIONS 302 PRO
MCC GO FOR BURN
VNT DOOR CLOSE

-00:40
MNVR TO D/O BURN ATT

-00:30
C,GALLEY DEACT
WCS DEACT
P OMS BURN PREP

-00:20

-00:10
SEAT INGRESS (MS)

-00:00
C,P SINGLE APU START

~

00:00:00
DEORBIT BURN
NOMINAL DEORBIT PREP

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

* If TIME to TIG < 4 hr and > 2 hr 40 min:
  * 1. ACCOMPLISH IMMEDIATELY:
    * MNVR (TRK) BIASED -XSI (if not already in TAIL SUN)
    * CRTX  TGT ID +4 (blanks OM)
    * BODY VECT +5
    * P    +184
    * √OM (blank)
    * Initiate TRK
  * 2. Back out of PRIORITY PWRDN as reqd (ORB PKT, PRIOR PWRDN)
  * 3. If previous FC PURGE was not accomplished within last 6 hr:
    * Accomplish FC PURGE (ORB OPS, EPS) during D/O Prep prior to DPS ENTRY
    * CONFIG
  * 4. MS accomplish CABIN CONFIG/STOW (FLIGHT PLAN) during D/O Prep timeframe
  * 5. Begin Deorbit Prep timeline immediately and perform procedure as rapidly as possible

VERIFY THAT FOLLOWING ACTIVITIES HAVE BEEN ACCOMPLISHED:

FCS CHECKOUT (ORB OPS, GNC)
RCS HOT FIRE TEST (ORB OPS, RCS)
CABIN CONFIG/STOW (FLIGHT PLAN)
IMU ALIGN – S TRK (ORB OPS, GNC)
MNVR (TRK) BIASED – XSI (FLIGHT PLAN, DETAILED TIMELINE)
FC PURGE (ORM OPS, EPS)
Back out of PRIORITY PWRDN as reqd (ORB PKT, PRIOR PWRDN)
1: GNC UNIV PTG
2: SM SYS SUMM 1

**CRT TIMER SETUP**

1

---

**COLD SOAK INITIATE**

2

---

**Note:**
- Add N2 QTY 1 + 2
- Then annotate CABIN PRESS LEAK NOMOGRAPH (ENT PKT, ECLS)
- **Determine H2 Depleted Tanks**
- Note all H2 tanks with Qty < 3%
- Then annotate DEORBIT BURN FLIGHT RULES, ELEC section (step 8) for depleted tanks (ENT, BURN CARDS)

---

**Specialist Seat Installation**

---

**FES Config**

C

L1

- **H2O Loop 3 C/O and Config**
  - SM 88 APU/ENVIRON THERM
  
  **NOTE:**
  - INCR decreases ICH FLOW

L1

If first Deorbit Prep:

- **H2O Pump Loop 1 – ON**
  - \( \sqrt{\text{Loop 1 BYP MODE}} \) MAN – INCR or DECR (hold 5 sec)
  - CRT \( \sqrt{\text{H2O Loop 1 ICH FLOW}} \) – increasing

L1

- **H2O Loop 1 BYP MAN** – INCR (Adjust until ICH FLOW ~950 ± 50)
- **H2O Pump Loop 1 (two) – OFF**
**APU/HYD CONFIG**

**APU 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, O15, O16
- RGA (four) – ON
- cb MNA,B,C ADTA (four) – cl
- 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
- 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
1: GNC 0 GPC MEMORY
2: BFS, GNC 0 BFS MEMORY

If single G2: DPS CONFIG FOR D/O PREP

ENSURE BFS GPC CAN COMMAND AN IDP

APU/HYD CONFIG

DED DISP ENT CONFIG

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

NOTE

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

ACTIVATE GPC 2 (if in HALT)

P/I Locker Remove and stow GPC Mode Switch Guard

1 GPC MODE 2 – HALT (tb-bp)
2 OUTPUT 2 – NORM
3 PWR 2 – ON
4 MODE 2 – STBY (tb-RUN)
5 RUN

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

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

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

NOTE

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

ACTIVATE GPC 2 (if in HALT)

P/I Locker Remove and stow GPC Mode Switch Guard

1 GPC MODE 2 – HALT (tb-bp)
2 OUTPUT 2 – NORM
3 PWR 2 – ON
4 MODE 2 – STBY (tb-RUN)
5 RUN

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

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

NOTE

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

ACTIVATE GPC 2 (if in HALT)

P/I Locker Remove and stow GPC Mode Switch Guard

1 GPC MODE 2 – HALT (tb-bp)
2 OUTPUT 2 – NORM
3 PWR 2 – ON
4 MODE 2 – STBY (tb-RUN)
5 RUN

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

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

NOTE

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

ACTIVATE GPC 2 (if in HALT)

P/I Locker Remove and stow GPC Mode Switch Guard

1 GPC MODE 2 – HALT (tb-bp)
2 OUTPUT 2 – NORM
3 PWR 2 – ON
4 MODE 2 – STBY (tb-RUN)
5 RUN

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

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

NOTE

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

ACTIVATE GPC 2 (if in HALT)

P/I Locker Remove and stow GPC Mode Switch Guard

1 GPC MODE 2 – HALT (tb-bp)
2 OUTPUT 2 – NORM
3 PWR 2 – ON
4 MODE 2 – STBY (tb-RUN)
5 RUN

TRANSITION GPCs 1 & 2 TO OPS 2
(if GPC 2 just activated)
Block 8 deleted
DAP: A/AUTO/ALT

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

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

CONFIG FOR PLBD CLOSING 7, 1-25

MCC: GO/NO-GO FOR PLBD CLOSING

DETAILED PLBD CLOSING PROCEDURES 9, 1-21
DO/ALL/GEN O

1-12

DPS ENTRY CONFIG

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)
   √MODE 1,2,4 – RUN (tb-RUN)
   √3 – STBY (tb-RUN)
   √5 – STBY (tb-RUN)

3. SM CHECKPOINT/UL CNTL ENA
   1:  SM 60 SM TABLE MAINT
   2:  SM 1 DPS UTILITY
   CRT2  MMU ASSIGN 2 SM – ITEM 4 EXEC
   CRT1  CKPT INITIATE – ITEM 18 EXEC
   √Update of CKPT TIME and STATUS GOOD indicated
   CRT2  MMU ASSIGN 1 SM – ITEM 3 EXEC
   CRT1  CKPT INITIATE – ITEM 18 EXEC
   √Update of CKPT TIME and STATUS GOOD indicated
   CRT2  CKPT RETRVR 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)
   CRT3  √TFL ENA – ITEM 29 (∗)
   BFS, GNC OPS 301 PRO
   3:  BFS, GNC DEORB MNVR COAST
   MM 1 1

7. TRANSITION GPC 1,2,3,4 TO GNC OPS 3
   X:  SM GPC MEMORY
   O6  GPC OUTPUT 4 – NORM (tb-gray)
   MODE 3,5 (two) – RUN (tb-RUN)
   √If no comm, sel best antenna
   MODIFY MC 3 per table
   GPC OPER 031 PRO
   1:  GNC DEORB MNVR COAST
   CRT 1 1
   CRT3  BFS, GNC OPS 000 PRO
   2:  GNC DEORB MNVR COAST
   CRT 1 1
   C3  BFS, GNC OPS 301 PRO
   1:  BFS, GNC DEORB MNVR COAST
   MM 1 1
   8. MNVR BACK TO COMM ATT

9. LOAD IN TGTs
   1:  GNC DEORB MNVR COAST
   √MCC for TGT and SV UPLINK
   LOAD – ITEM 22 EXEC
   TIMER – ITEM 23 EXEC
   C3  BFS, GNC 51 OVERRIDE
   BFC CRT DISP – OFF (GPC 3
   √commanding
   IDP 3)
   √If any IMU failed or not aligned:
   √All IMU – desel
   √3:  BFS, GNC 51 OVERRIDE
   MM 1 1

10. VERIFY MC 9 TABLE (GNC) FOR POST LANDING
    2:  GNC 0 GPC MEMORY
    CONFIG – ITEM 1 +9 EXEC
    Modify MC 9 per table
    CONFIG – ITEM 1 +9 EXEC
    1:  GNC DEORB MNVR COAST
    STR 1 1
    2:  GNC DEORB MNVR COAST
    STR 1 1
    3:  GNC DEORB MNVR COAST
    STR 1 1
    4:  GNC DEORB MNVR COAST
    STR 1 1
    5:  GNC DEORB MNVR COAST
    STR 1 1
    6:  GNC DEORB MNVR COAST
    STR 1 1
    7:  GNC DEORB MNVR COAST
    STR 1 1
    8:  GNC DEORB MNVR COAST
    STR 1 1
    9:  GNC DEORB MNVR COAST
    STR 1 1
    10: GNC DEORB MNVR COAST
    STR 1 1
MCC: GO/NO-GO for OPS 3 transition

POST CLOSING CONFIG 10, 1-25

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

MCC uplink:
PASS and BFS SV,TGT

DPS ENTRY CONFIG

PLBD CLOSING
DEORB PAD UPDATE

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

* If MCC cannot provide DEORB TGT, use PGSC *

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

CHECK TGTs
1: GNC DEORB MNVR COAST
√PASS and BFS TGT per DEORB MNVR PAD (ENT, MNVR PADS)
√PASS and BFS solution per DEORB MNVR PAD (ENT, MNVR PADS)
   BURN ATT, HA HP
   ΔVTOT
   TGO
### ENTRY MONITORING, step B: AT LES DONNING, if reqd (BIOMED)

- **C,P CLOTHING CONFIG 21, 1-26**
- **MS, CLOTHING CONFIG 20, 1-28, 21, 1-26**
- **IMU/IMU ALIGNMENT (Omit if BFS) 22**

### IMU/IMU ALIGNMENT

1. **1: GNC 21 IMU ALIGN**
2. **IMU/IMU **ITEM 14 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)

### Fluid Loading

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

**C,P**
- **SEAT INGRESS**
- **HUD SETUP**
- Adjust seat
- Exercise brake pedals

**C**
- **C6**
- LEH O2 lv (four) – OP

**MS**
- LES PRESS INTEGRITY CHECK
- AFD AUD SPKR CONFIG
- WIRELESS STOW, if flown
- MD AUD SPKR CONFIG
- CO2 RMVL SYS DEACT, if flown

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

**NOTE**
- WCS must be deactivated prior to EI

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

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

**TRANS DAP**
- AUTO RT 0.5 DB 3.5

**GALLEY DEACT**
- 26, 1-27

**WCS DEACT MS**
- 27, 1-28

**MS,PS**
- CLOTHING CONFIG

**GNC DEORB MNVR COAST**

**BFS, GNC DEORB MNVR COAST**

**1: GNC DEORB MNVR COAST**

**2: GNC DEORB MNVR COAST**
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AUTO PLBD CLOSING

DETAILED PLBD CLOSING PROCEDURES

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

* 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 *

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

CONFIGURE FOR AUTO MODE

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

R13L
4. PL BAY DR SYS 1,2 (two) – ENA
   \OP/CL STATUS (ten) – OP

CLOSE PLBDs USING AUTO MODE

CRT4
1. If PORT(STBD) DOOR not ‘CL’ within 6 sec of ‘RDY’:
   * PL BAY DR – STOP *
   * \PLBD BULKHEAD LATCH GO/NO-GO DIAGRAM, 1-22 *
2. If NO-GO: Go to MAL, MECH SSR-2 (CONTINGENCY)
   * PLBD CLOSURE *
   * If GO: PL BAY DR – CL *
   * Continue in procedure *

R13L
5. PL BAY DR – CL
   \STBD DOOR – blank

CRT4
6. When STBD DOOR as close as possible to PORT DOOR before contact, perform PLBD fit check:

   R13L
   * If SM GPC fails during this operation: *
     * PL BAY DR SYS 1,2 (two) – DSBL *
     * DR – STOP *
     * Perform PASS SM GPC FAIL (ORB PKT, DPS) *
   * If BFS AUTO sequence has been interrupted by reversing *
     * Latch/door drive direction, or if MANUAL mode has been *
     * used at any time during the mission, use MANUAL mode *
     * for all subsequent BFS PLBD ops *

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

   CONFIGURE FOR AUTO MODE

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

   R13L
   4. PL BAY DR SYS 1,2 (two) – ENA
      \OP/CL STATUS (ten) – OP

   POST-PLBD CLOSING CLEANUP

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

   11. GPC/CRT 54 EXEC

   ~

   R13L
   4. PL BAY DR SYS 1,2 (two) – ENA
      \OP/CL STATUS (ten) – OP

   CLOSE PLBDs USING AUTO MODE

   CRT4
   1. If PORT(STBD) DOOR not ‘CL’ within 6 sec of ‘RDY’:
      * PL BAY DR – STOP *
      * \PLBD BULKHEAD LATCH GO/NO-GO DIAGRAM, 1-22 *
   2. If NO-GO: Go to MAL, MECH SSR-2 (CONTINGENCY)
      * PLBD CLOSURE *
      * If GO: PL BAY DR – CL *
      * Continue in procedure *

   R13L
   5. PL BAY DR – CL
      \STBD DOOR – blank

   CRT4
   6. When STBD DOOR as close as possible to PORT DOOR before contact, perform PLBD fit check:

      R13L
      * If SM GPC fails during this operation: *
        * PL BAY DR SYS 1,2 (two) – DSBL *
        * DR – STOP *
        * Perform PASS SM GPC FAIL (ORB PKT, DPS) *
      * If BFS AUTO sequence has been interrupted by reversing *
        * Latch/door drive direction, or if MANUAL mode has been *
        * used at any time during the mission, use MANUAL mode *
        * for all subsequent BFS PLBD ops *

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

      CONFIGURE FOR AUTO MODE

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

      R13L
      4. PL BAY DR SYS 1,2 (two) – ENA
         \OP/CL STATUS (ten) – OP

      POST-PLBD CLOSING CLEANUP

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

      11. GPC/CRT 54 EXEC

   ~
AUTO PLBD CLOSING (Cont)

PLBD BULKHEAD LATCH GO/NO-GO DIAGRAM
(REVERSE FOR STBD DOOR)

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

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

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<thead>
<tr>
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<th>PLBD DISPLAY PL MDM</th>
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<td>LATCH</td>
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<td>5-8</td>
<td>1/MID3</td>
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<td>9-12</td>
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<td>1/MID1</td>
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<tr>
<td>S AFT</td>
<td>3/MID4</td>
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<tr>
<td>S DOOR</td>
<td>1/MID1</td>
</tr>
<tr>
<td>P FWD</td>
<td>1/MID1</td>
</tr>
<tr>
<td>P AFT</td>
<td>1/MID3</td>
</tr>
<tr>
<td>P DOOR</td>
<td>3/MID4</td>
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</tbody>
</table>
MANUAL PLBD CLOSING

DETAILED PLBD CLOSING PROCEDURES

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

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

- If SM GPC fails during this operation:
  - PL BAY DR SYS 1,2 (two) – DSBL PL BAY DR – STOP
  - Go to PASS SM GPC FAIL (ORB PKT, DPS)

- If BFS AUTO sequence has been interrupted by reversing Latch/door drive direction, or if MANUAL mode has been used at any time during the mission, use MANUAL mode for all subsequent BFS PLBD ops

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

CONFIGURE FOR MANUAL MODE

CRT4
1. SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS
4: SM PL BAY DOORS

R13L
7. PL BAY DR – STOP

R13L
4. Select Port Door – ITEM 13 EXEC (*)
5. PL BAY DR – CL

POST-PLBD CLOSING CLEANUP

CRT4
28. PL BAY DR SYS 1,2 (two) – DSBL

R13L
30. GPC/CRT 54 EXEC
### MANUAL PLBD CLOSING (Cont)

#### PLBD BULKHEAD LATCH GO/NO-GO DIAGRAM
(REVERSE FOR STBD DOOR)

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<tr>
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<th>AC MCA</th>
<th>CNTL</th>
<th>MDM</th>
<th>SYS</th>
<th>AC MCA</th>
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<td>2/MID2</td>
<td>BC3/BC1</td>
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</table>

**ENTRY DAY NO-GO DIAGRAM**

C/L LATCH EXTENDED GUIDE ROLLER TRAJECTORY

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**Note:**
- **GO:** If scallop above top of target line and port left door close indication present.
- **NO-GO:** If scallop below top of target line and port left door close indication present.
- **UPPER EDGE SEAL BRACKET:** Scallop above top of target line.
- **BOTTOM OF TARGET LINE:** Scallop below top of target line.
- **PORT DOOR SCALLOP:** Scallop at closed and latched position.
## MS AFT FLIGHT DECK ACTIVITIES

### TIME (TIG-)
- **3:35** SPECIALIST SEAT INSTALLATION
- **3:10** PARTIAL ENT SWITCH LIST/VERIF (AFT)
- **2:55** If reqd, PAYLOAD DEACT, if reqd (PL OPS, DEORB PREP) or PAYLOAD DEACTIVATION (SODF: ASSY OPS: DEORBIT PREP)
- **2:51** CONFIG FOR PLBD CLOSING
- **2:40** DETAILED PLBD CLOSING PROCEDURES
- **2:25** POST CLOSING CONFIG
- **1:56** DEACT STAR TRKRS & CLOSE DOORS
- **1:55** PAYLOAD ENT SW LIST/VERIF (PL OPS, DEORB PREP)
- **1:50** FINAL ENT SWITCH LIST VERIF (AFT)
- **1:41** RESET C/W
- **1:40** ENTRY REVIEW
- **1:28** DSO 603, if reqd (BIOMED, BIOMED DSOs)
- **1:10** CLOTHING CONFIG
- **1:00** Begin Fluid Loading per individual prescription. Fluid Loading should be completed by El For 1 rev waveoff, repeat half the protocol If > 1 rev waveoff, repeat entire protocol
- **0:53** AFT AUD SPKR CONFIG
- **0:52** WIRELESS STOW, if flown

### CONFIG FOR PLBD CLOSING
- **7**
  - **CONFIG RMS** (if RMS onboard)
  - Elbow Camr in aligned position
  - Pan 90° from X-axis
  - Tilt per decal
- **A8L**
  - RMS PWR – OFF (SM ALERT, BCE BYP MCIU)
  - PORT RMS HTR (two) – OFF
- **R11L**
  - IDP/CRT PWR – ON
- **MDU**
  - CRT 4 PWR – ON
- **A6U**
  - ANNUN BUS SEL – MNC
  - Minimum operating time for PLB
  - Floodlights: 10 min ~3 min to full bright

### POST CLOSING CONFIG
- **10**
  - **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
        - EDO PALLET DEACT, if flown (ORB OPS, EPS)

### AFT AUD SPKR CONFIG
- **28**
  - Verify CDR, PLT on headsets
  - **A13**
    - OS AUD SPKR PWR – OFF
    - MS COMM CCU PWR – OFF
    - Disconnect and stow Handheld Mic
    - Configure MHA to MS CCU per entry plug-in plan
    - Connect Lightweight Headsets or ACES Comm Cap
    - MS COMM CCU PWR – ON

### Config for PLBD CLOSING
- **7**

### Note
- CONFIG RMS (if RMS onboard)
- Elbow Camr in aligned position
- Pan 90° from X-axis
- Tilt per decal

### Set Up Lights
- **R11L**
  - IDP/CRT4 PWR – ON
- **MDU**
  - CRT 4 PWR – ON
- **A6U**
  - ANNUN BUS SEL – MNC

### Note
- Minimum operating time for PLB Floodlights: 10 min ~3 min to full bright

### Config for PLBD CLOSING
- **7**

### Post Closing Config
- **10**

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

### Note
- 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
      - EDO PALLET DEACT, if flown (ORB OPS, EPS)
Back of MS AFT FLIGHT DECK ACTIVITIES

DEACT STAR TRKRS & CLOSE DOORS

O6  STAR TRKR PWR (two) – OFF
O14:E,  cb STAR TRKR -Z,-Y (two) – op
O15:E  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

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

ENT AFT FLT DECK CONFIG

A6L  SYS PWR MN A,MN B (two) – OFF (hold 5 sec)
\SYS 1 SYS 2 tb (two) – OFF
cb ESS 1BC SYS PWR CNTL SYS 1 – op
2CA SYS PWR CNTL SYS 2 – op
MN A,B,D C LOG (six) – op

A12  HYD HTR

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

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 MN B KU ANT HTR – op
UHF EVA (two) – op

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
XMIT/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
XMIT/ICOM MODE – R
VOL tw (five) – R

O19  TV PWR – ON

L10(MUX)  VTR/CC PWR – ON (LED on)
(VIP)  PWR – ON (LED on, DATA FLOW LED flashes twice)
(VTR)  ON/STANDBY – PRESS (green LED on)
<table>
<thead>
<tr>
<th>TIME (TIG-)</th>
<th>MS MIDDECK ACTIONS</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/VERIF (MID), 3-10 thru 3-12</td>
</tr>
<tr>
<td>1:55</td>
<td>ENT MIDDECK CONFIG</td>
</tr>
<tr>
<td>1:50</td>
<td>FINAL ENT SWITCH LIST/VERIF (MID), 3-30 thru 3-32</td>
</tr>
<tr>
<td>1:40</td>
<td>ENTRY REVIEW</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</td>
</tr>
<tr>
<td></td>
<td>For 1 rev waveoff, repeat half the protocol</td>
</tr>
<tr>
<td></td>
<td>If &gt; 1 rev waveoff, repeat entire protocol</td>
</tr>
<tr>
<td>0:55</td>
<td>Remove,stow Side Hatch UV Filter, Locking Device, and Pyro Box Safing Pin</td>
</tr>
<tr>
<td>0:51</td>
<td>MD AUD SPKR CONFIG</td>
</tr>
<tr>
<td>0:50</td>
<td>CO2 RMVL SYS DEACT, if flown</td>
</tr>
<tr>
<td>0:35</td>
<td>GALLEY DEACT</td>
</tr>
<tr>
<td>0:33</td>
<td>WCS DEACT</td>
</tr>
</tbody>
</table>

**ENT MIDDECK CONFIG**

**ENTRY COMM**

<table>
<thead>
<tr>
<th>MIDDECK SPKR AUD A/G 1</th>
<th>T/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/G 2</td>
<td>T/R</td>
</tr>
<tr>
<td>A/A</td>
<td>T/R</td>
</tr>
<tr>
<td>ICOM (two)</td>
<td>T/R</td>
</tr>
<tr>
<td>VOX SENS</td>
<td>R</td>
</tr>
<tr>
<td>VOL tw (five)</td>
<td>R</td>
</tr>
<tr>
<td>XMIT/ICOM MODE</td>
<td>R</td>
</tr>
</tbody>
</table>

**MIDDECK PCS**

| 14.7 CAB REG INLET v (two) | CL |
| H2O TK N2 REG INLET v (two) | OP |
| O2 REG INLET v (two)      | CL  |
| LEH O2 vlv (two)          | R   |
| LEH O2 8 vlv – CL         |     |
| Remove,stow O2 Bleed Orifice |
| LEH O2 8 vlv – R          |     |
| 7 vlv – R                 |     |
| RMS PNL LTS (if RMS onboard) |   |
| cb RMS PRI φA – op        |     |
| B/U φA – op               |     |

**ENT STOWAGE**

**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)
  - Reinstall large Pin
- 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
- 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 hw and egress routes
- Install orange chemlights (2 ea) above side hatch

**EGRESS ROUTE CONFIG**

**Tape Foot Loops in egress routes**

**NOTE**

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

**ML86B:A**
- MNC SPLY H2O GALLEY SPLY – op
- MNA GALLEY OVEN – op
- MNB GALLEY H2O HTR – op

(Cont next page)
Back of MS MIDDECK ACTIVITIES

ENT AIRLOCK CONFIG

If Booster Fan flown:

MO13Q 1. ARLK FAN A(B) – OFF
2. Remove, stow flex duct from booster fan muffler inlet and cabin middeck floor air fitting
MA73C:G 3. cb AC1,2 ARLK TNL FAN A,B (six) – op
4. Unstow, install diffuser cap on middeck floor air fitting
5. Remove, stow flex duct from cabin middeck floor air fitting
AW18A 6. LTG FLOOD 1(3,4) – OFF
7. Perform AIRLOCK ENTRY SWITCH LIST/VERIFICATION, 3-3
8. INNER HATCH 9. Equal vlv (two) – NORM, install caps
9. MIDDECK FLR 10. EMU O2 ISOL vlv – CL
11. AIRLK 2 – OFF/ON
12. √ ARLK H2O S/O vlv – OP (tb-op)

If TNL ADAPT flown:

ML86B:E 13. cb MNA FLOOD TNL ADAPT 2 – op
14. cb MNB FLOOD TNL ADAPT 3 – op
15. cb MNC FLOOD TNL ADAPT 4 – op
16. MIDDECK 9 – op
17. cb MNB FLOODS MIDDECK 10 – op
18. cb MNC FLOODS AIRLK 4 – op
19. cb ESS 1BC FLOOD AIRLK 2 – op

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
MO30F, Cooling units – Hose Jumper Plug installed
MO52J, Pre-chill cooling units 10 min prior to seat ingress
PDB J2(3,4), ML85E (MUP)

CO2 RMVL SYS DEACT

MO51F

CNTLR 2(1) MODE – STBY (hold 3 sec)
Wait 6 sec
√ CNTLR 2(1) OPER lt – off
√ FAIL lt – on
MNC(A) – OFF
√ CNTLR 2(1) FAIL lt – off
AG 3(1) – OFF (hold 3 sec)
AC 3(1) cbs (three) – op
COM INSTR – OFF

Remove and replace LiOH Canister in position A with one fresh LiOH Canister

WCS DEACT

WCS (EDO WCS)

VAC VLV – CL

MODE – AUTO
FAN SEP SEL sw – OFF
Unstow hose from cradle, attach hose to WCS housing via Velcro straps
Stow:
WCS Trash Can
Mirror
Privacy Curtain
Foot/toe restraints – up, latched

If EDO WCS:

EDO WCS

Secure urinal hose with Velcro strap
URINAL SEL – OFF
WCS PWR SEL (two) – OFF 1, OFF 2
Commode lid lock – lock
COMPACTOR – stowed
COMPACTOR CLEANING LATCH PIN – disengaged
LOCK PINS (three) – tighten (snug)

Stow thigh restraints
Close and latch door

ML31C

VAC VENT ISOL VLV BUS SEL – MNB
CNT – CL (tb-CL)
NOZ HTR – OFF

√ Middeck lts as reqd

MD AUD SPKR CONFIG

MO42F

MIDDECK AUD SPKR PWR – OFF

Disconnect and stow Handheld Mic
Configure MHA to MID CCU per entry plug-in plan
Connect Lightweight Headsets or ACES Comm Cap
MIDDECK COMM CCU PWR – ON
DEORBIT PREP BACKOUT PROCEDURES
DEORBIT PREP BACKOUT SUMMARY TIMELINES

ET 000:00:00
MCC GO/NO-GO for 24 hr
Ref ENT, DEORBIT BURN
MS1,2 SEAT EGRESS
RAD ACT
APU/HYD CONFIG

ET 00:10
RAD DEPLOY (if reqd)

ET 00:20
VERNIER HTR ACT
MIDDECK SEAT EGRESS
OPEN VENT DOORS
C,P SEAT EGRESS

ET 00:30
DPS CONFIG GNC 2/SM
RAD VERIF & FLASH EVAP CONFIG
KU-BD ANT DEPLOY (if reqd)
KU-BD ACTIVATION (if reqd)

ET 00:40
On MCC GO for Verns:
CONFIG RJDs

ET 00:50

ET 01:00
BRAKES, FCS & DED DISP CONFIG
EDO PALLET ACTIVATION (if flown)

ET 01:20
ON-ORBIT HTR CONFIG (MS)

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

ET 01:50
AIRLOCK SETUP FOR INGRESS

ET 02:00
PRIORITY PWRDN GROUP C (if reqd)
Continue per MCC direction
Ref ENT, DEORBIT BURN

CONFIG FOR PLBD OPENING

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

RAD DEPLOY, IF REQD (ORB OPS, ECLS)

CAB TEMP CNTLR – 2
TEMP – adj rotary as reqd

VERNIER HTR ACT
WHEN PLBD OPENING COMPLETE:
SEAT EGRESS (all middeck)

PRELIM MIDDECK CONFIG
OPEN VENT DOORS
OPEN VENT DOORS CNTL OPEN – ITEM 43 EXEC (*)

FD/FCC/COMM CONFIG MS AFT ACTIVITIES

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
- UCD (clamp)
- Emesis Bag (unstow new Bag)

### DPS CONFIG TO GNC2/SM

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

1. **TRANSITION TO GNC OPS 201**

   **GNC 0 GPC MEMORY**
   √**CONFIG – ITEM 1 +2 EXEC**
   
   Config for single G2 GPC ops unless directed otherwise by MCC:
   Modify MC 2 per table
   - BFC CRT DISP – OFF
   - GNC, OPS 201 PRO
   - GNC UNIV PTG
   - DAP: B/AUTO/PRI
   - GNC 1 DPS UTILITY
   - CKPT RETR V ENA – ITEM 12 EXEC (*)
   - CRT 1: 1
   - 2
   - 4
   - 1
   - 1
   - 2
   - 1
   - 4
   - 2
   - 1
   - 2
   - 1
   - 0
   - 1
   - 2
   - 1

   **CRTX**
   - MAJ FUNC – PL
   - GPC/CRT 2/X EXEC
   - X: PL GPC MEMORY
   - CONFIG ITEM 45 +2 EXEC
   - GPC ITEM 46 +2 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)

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 +2 EXEC
   - STORE – ITEM 47 EXEC
   - Store complete when MC = 02 (~16 sec)
   - √All IDPs deassigned from FD GPC

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

   **C3**
   - BFC CRT DISP – OFF
   - MAJ FUNC – SM
   - GPC/CRT 4/X EXEC
   - X: SM GPC MEMORY
   - STORE ITEM 35 EXEC

   **C3**
   - BFC CRT DISP – ON
   - CRT 1: 1
   - 2
   - 3
   - 4
   - 4
   - 4

4. **RECONFIG GPCs**

   **C3**
   - BFC CRT DISP – ON
   - CRT3
   - 1
   - 0
   - 4
   - 2
   - 3

   **C3**
   - BFC CRT DISP – OFF
   - √All IDPs deassigned from BFS
   - O6
   - GPC MODE 5 – STBY (tb-RUN)
     (releases payload buses 1,2)
     then HALT (tb-bp)
   - OUTPUT 4 – TERM (tb-bp)
   - 5 – NORM (tb-bp)

   **P/I Locker**
   - Unstow and install GPC Mode Switch Guard

5. **MEDS RECONFIG**

   **C2**
   - IDP/CRT3 PWR – OFF
1. GNC 51 OVERRIDE
2. GNC DEORB MNVR COAST
3. BFS, GNC DEORB MNVR COAST

P  CLOTHING CONFIG 9, 2-6
MS,PS  CLOTHING CONFIG 10, 2-15
C  If reqd, PAYLOAD REACT (PL OPS, DEORB PREP) or PAYLOAD DEACTIVATION (SODF: ASSY OPS: DEORBIT PREP)
C  DPS CONFIG TO GNC2/SM 11, 2-6 and 2-7
P  RAD VERIF & FLASH EVAP CONFIG 12
MS  RMS PNL LT, TEMP MON, HTR ACT, C/W 13, 2-16
C  KU-BD ANT DEPLOY, if reqd (ORB OPS, COMM/INST)
C  KU-BD ACTIVATION, if reqd (ORB OPS, COMM/INST)
MS  MIDDECK CONFIG 14, 2-17 and 2-18
C,P  If MCC GO for use of verniers:
O16:F  RJD MANF L5/F5/R5 DRIVER – ON, wait 5 sec
DAP: A/AUTO/VERN
Else, load DAP A5 (Nose and Tail) or A6 (Tail)
GNC 20 DAP CONFIG
ITEM 10 +0.1 EXEC
11 +1 EXEC
22 +1 EXEC
DAP: A/AUTO/ALT

6. TFL/DFL FOR ON-ORBIT OPS
   √MCC for TFL/DFL config
   Perform LOAD PCMMU FORMAT (ORB OPS FS, COMM/INST) and LOAD PDI DECOM FORMAT (ORB OPS FS, COMM/INST)
7. ERROR LOG RESET
   After MCC GO:
   SM 0 GPC MEMORY
   ERR LOG RESET – ITEM 48 EXEC
   GNC 0 GPC MEMORY
   ERR LOG RESET – ITEM 48 EXEC

RAD VERIF & FLASH EVAP CONFIG 12

2: 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  FLASH EVAP CNTLR PRI B(A) – OFF
   L2  FREON ISOL MODE – AUTO
2: SM SYS SUMM 1
ET 01:00  C,MS  CLOTHING CONFIG 9, 2-6
       CLOTHING CONFIG 15, 2-18

01:05  C,P  BRAKES, FCS & DED DISP ON-ORBIT CONFIG 16
       CLOTHING CONFIG (P,MS,PS)

01:10  MS  EDO PALLET ACTIVATION, if flown (ORB OPS, EPS)

01:15

01:20  MS  ON-ORBIT HTR CONFIG 17, 2-16

01:25  C  L1  H2O LOOP 2 SYS MODE – AUTO
       PUMP LOOP 1 – GPC

BRAKES, FCS & DED DISP ON-ORBIT CONFIG 16

C,P  O14, BRAKES MNA,B,C (three) – OFF
     O15, RGA (four) – OFF
     O16, cb MNA,B,C ADTA (four) – op
           MNA,B ACCEL 1,2 (two) – op
           DDU L (two) – op
           /MNB,C DDU AFT (two) – op
           MNB,C DDU R (two) – op
           ASA (four) – OFF
           ACCEL 4,3 (two) – OFF

O17:A  ATVC (four) – OFF

O7  TACAN MODE (three) – OFF

O8  RADAR ALTM (two) – OFF
     MLS (three) – OFF

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

C3  /FCS CH (four) – AUTO

F6,F8  FLT CNTLR PWR (two) – OFF

F3  /TRIM RHC/PNL – INH
     PNL (two) – OFF
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:30</td>
<td>AUTO MNVR -ZLV, -XVV</td>
<td>VGT ID +2, BODY VECT +3, OM +0, DAP: A/AUTO/VERN, Initiate TRK</td>
</tr>
<tr>
<td></td>
<td>C,MS</td>
<td>ON-OBIT PCS2(1) CONFIG, 2-18</td>
</tr>
<tr>
<td>01:40</td>
<td>P</td>
<td>STARR TRKR ACT (two)</td>
</tr>
<tr>
<td></td>
<td>MS,PS</td>
<td>SPECIALIST SEAT REMOVAL/STOWAGE</td>
</tr>
<tr>
<td>01:45</td>
<td>P</td>
<td>HYD THERM COND ENA, HYD CIRC PUMP (three) – GPC</td>
</tr>
<tr>
<td>01:50</td>
<td>MS</td>
<td>AIRLOCK SETUP FOR INGRESS, 2-18</td>
</tr>
<tr>
<td>01:55</td>
<td></td>
<td>On MCC call: PRIORITY PWRDN GROUP C, if reqd (ORB PKT, PRIORITY PWRDN)</td>
</tr>
<tr>
<td>02:00</td>
<td></td>
<td>Continue per MCC direction</td>
</tr>
</tbody>
</table>

**STAR TRKR ACT (two)**
- O14:E, O15:E: cb STAR TRKR -Z, Y (two) – cl
- O6: STAR TRKR PWR (two) – ON
- C2: GNC I/O RESET
- O6: STAR TRKR DR CNTL SYS (two) – OP (start timer), \POS tb (wo) – bp
  - When both tb – OP (~8-24 sec) or either tb – bp > 24 sec: STAR TRKR DR CNTL SYS (two) – OFF
- X: GNC 21 IMU ALIGN RESUME
  - If tb – bp > 8 sec, notify MCC (*)
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PLBD OPENING

DETAILED PLBD OPENING PROCEDURES

**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 1,2 (two) – DSBL
  - PL BAY DR – STOP
  - Perform PASS SM GPC FAIL (ORB PKT, DPS)

**R13L**
- If SM GPC fails during this operation:
  - PL BAY DR SYS 1,2 (two) DSBL
  - PL BAY DR – STOP
  - Perform PASS SM GPC FAIL (ORB PKT, DPS)

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

MANUAL PLBD OPENING PROCEDURE

**MS CRTX**
1. SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS
2. AC POWER ON – ITEM 1 EXEC (*)
3. OP/CL STATUS (ten) – ENA
4. CENTER LATCHES 1-4, 13-16 (two) – blank, OP (~20 sec)
5. PORT FWD, AFT LATCHES (two) – blank, OP (~20 sec)
6. PORT FWD, AFT DOOR – RDY, blank, OP (~63 sec)
7. AUTO MODE SEL – ITEM 3 EXEC (*)
8. PL BAY DR – OP
9. POST-PLBD OPENING CLEANUP
10. AC POWER OFF – ITEM 2 EXEC (*)
11. SM, OPS X01 PRO (if PASS SM)
12. SM ANTENNA
13. After floodlights ON > 10 min:

AUTO PLBD OPENING PROCEDURE

**MS CRTX**
1. SM, OPS X02 PRO or BFS, SM 63 PL BAY DOORS
2. AC POWER ON – ITEM 1 EXEC (*)
3. OP/CL STATUS (ten) – ENA
4. CENTER LATCHES 1-4, 13-16 (two) – blank, OP (~20 sec)
5. PORT FWD, AFT LATCHES (two) – blank, OP (~20 sec)
6. PORT FWD, AFT DOOR – RDY, blank, OP (~63 sec)
7. AUTO MODE SEL – ITEM 3 EXEC (*)
8. PL BAY DR – OP
9. POST-PLBD OPENING CLEANUP
10. AC POWER OFF – ITEM 2 EXEC (*)
11. SM, OPS X01 PRO (if PASS SM)
12. SM ANTENNA
13. After floodlights ON > 10 min:
**PLBD OPENING** (Cont)

16. Select STBD FWD, AFT LATCHES – ITEM 8,9 EXEC (*)
17. PL BAY DR – OP

R13L

18. PL BAY DR – STOP
CRTX

19. Deselect STBD FWD, AFT LATCHES – ITEM 8,9 EXEC (*)
20. Select STBD DOOR – ITEM 10 EXEC (*)

R13L

21. PL BAY DR – OP
CRTX

22. PL BAY DR – STOP
R13L

23. Deselect STBD DOOR – ITEM 10 EXEC (*)

OPEN PORT FWD, AFT LATCHES & DOOR

24. Select PORT FWD, AFT LATCHES – ITEM 11,12 EXEC (*)
25. PL BAY DR – OP

R13L

26. PL BAY DR – STOP
CRTX

27. Deselect PORT FWD, AFT LATCHES – ITEM 11,12 EXEC (no *)
28. Select PORT DOOR – ITEM 13 EXEC (*)

R13L

29. PL BAY DR – OP
CRTX

30. PL BAY DR – STOP
R13L

31. Deselect PORT DOOR – ITEM 13 EXEC (no *)

POST-PLBD OPENING CLEANUP

32. PL BAY DR SYS 1,2 (two) – DSBL
CRTX

33. OP/CL STATUS (ten) – OP
R13L

34. AC POWER OFF – ITEM 2 EXEC (*)

A7U

35. After floodlights ON > 10 min:
   PL BAY FLOOD (all) – OFF

---

**FUNCTION**

<table>
<thead>
<tr>
<th>PLBD CONTROL Ref: MA73C:C&amp;D for MCA cbs</th>
<th>PLBD DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MTR 1</strong></td>
<td><strong>MTR 2</strong></td>
</tr>
<tr>
<td>AC/ MCA</td>
<td>CNTL</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td><strong>LATCH</strong></td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>1/MID3</td>
</tr>
<tr>
<td>9-12</td>
<td>1/MID1</td>
</tr>
<tr>
<td>1-4</td>
<td>1/MID3</td>
</tr>
<tr>
<td>13-16</td>
<td>3/MID4</td>
</tr>
<tr>
<td>S FWD</td>
<td>1/MID1</td>
</tr>
<tr>
<td>S AFT</td>
<td>3/MID4</td>
</tr>
<tr>
<td>S DOOR</td>
<td>1/MID1</td>
</tr>
<tr>
<td>P FWD</td>
<td>1/MID1</td>
</tr>
<tr>
<td>P AFT</td>
<td>1/MID3</td>
</tr>
<tr>
<td>P DOOR</td>
<td>3/MID4</td>
</tr>
</tbody>
</table>

---

2-14 D/O/ALL/GEN O
## 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 vl (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 DEACTIVATION (SODF: ASSY OPS: DEORBIT PREP)</td>
</tr>
<tr>
<td>00:47</td>
<td>RMS PNLT, TEMP MON, HTR ACT, 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

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

### CLOTHING CONFIG

| O19 | TV PWR – OFF |
| L10 (VTR) | ON/STANDBY – PRESS (red LED on) |
| (VIP) | PWR – OFF (LED off) |
| (MUX) | VTR/CC PWR – OFF (LED off) |

### CONFIG FOR PLBD OPENING

| 4 | BFS, SM 63 PL BAY DOORS |
| A6U |annun bus sel – MNC |

**NOTE**

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

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

Record MET / / : : : : : :

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

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

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

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

R13U
PARAMETER NAME C/W CH ENA/INH
MPS He REG P C 39 INH
L 49 INH
R 59 INH
HYD P 1 99 INH
2 109 INH
3 119 INH

ON-OFRBIT HTR CONFIG

R2
BLR PWR (three) – OFF
R4
HYD BK HTR (three) – OFF
L1
\HI LOAD EVAP – OFF
DUCT HTR – OFF
If WVS installed:
A7
WIRELESS VIDEO HTR – ON
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

Block 4 deleted
Block 18 deleted
### MS MIDDECK BACKOUT ACTIVITIES

**NOTE**

_WAIT FOR GO FROM CDR OR PLT BEFORE STARTING ANY ACTIVITY ON THIS PAGE_

<table>
<thead>
<tr>
<th>TIME (ET)</th>
<th>MS MIDDECK ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:20</td>
<td><strong>SPECIALIST SEAT EGRESS</strong></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><strong>PRELIM MIDDECK CONFIG</strong> [7]</td>
</tr>
<tr>
<td></td>
<td>If reqd, PAYLOAD REACT, (PL OPS, DEORB PREP) or PAYLOAD DEACTIVATION</td>
</tr>
<tr>
<td>00:40</td>
<td><strong>MIDDECK CONFIG</strong> [14]</td>
</tr>
<tr>
<td>01:00</td>
<td><strong>CLOTHING CONFIG</strong> [T5], 2-18</td>
</tr>
<tr>
<td>01:40</td>
<td><strong>ON-ORBIT PCS 2(1) CONFIG</strong> [T9], 2-18</td>
</tr>
<tr>
<td>01:42</td>
<td><strong>SPECIALIST SEAT REMOVAL/STOWAGE</strong></td>
</tr>
<tr>
<td>01:50</td>
<td><strong>AIRLOCK SETUP FOR INGRESS</strong> [21], 2-18</td>
</tr>
<tr>
<td>00:52</td>
<td><strong>MIDDECK CONFIG</strong> [14]</td>
</tr>
<tr>
<td>01:40</td>
<td><strong>INSTALL FILTERS</strong></td>
</tr>
<tr>
<td></td>
<td>Unstow, install: Side Hatch UV Filter and Locking Device Pyro Box Safing Pin</td>
</tr>
<tr>
<td></td>
<td><strong>COMM CONFIG</strong></td>
</tr>
<tr>
<td></td>
<td>Unstow: Headsets, Handheld Mics and/or Wireless Comm if flown</td>
</tr>
<tr>
<td></td>
<td>(see WCCS COMM PLAN (Cue Card))</td>
</tr>
<tr>
<td></td>
<td>If WCCS perform STD WCCS CONFIG (ORB OPS, COMM/INST) or see WCCS COMM PLAN (Cue Card)</td>
</tr>
<tr>
<td>MO42F</td>
<td><strong>MIDDECK SPKR AUD</strong> A/G 1 – T/R, tw-2</td>
</tr>
<tr>
<td></td>
<td>A/G 2 – RCV, tw-2</td>
</tr>
<tr>
<td></td>
<td>A/A – RCV, tw-2</td>
</tr>
<tr>
<td></td>
<td>ICOM A – T/R, tw-2</td>
</tr>
<tr>
<td></td>
<td>ICOM B – RCV, tw-2</td>
</tr>
<tr>
<td></td>
<td>XMIT/COM MODE – PTT/PTT</td>
</tr>
<tr>
<td></td>
<td>MSTR SPKR VOLUME – 8</td>
</tr>
<tr>
<td>MO39M</td>
<td><strong>MIDDECK COMM CCU PWR</strong> – OFF</td>
</tr>
<tr>
<td></td>
<td>Connect Handheld Mic to CCU</td>
</tr>
<tr>
<td></td>
<td><strong>HTR CONFIG</strong></td>
</tr>
<tr>
<td>ML31C</td>
<td><strong>VAC VENT ISOL VLV BUS SEL</strong> – MNA</td>
</tr>
<tr>
<td></td>
<td>NOZ HTR – ON</td>
</tr>
<tr>
<td></td>
<td>ISOL VLV CNTL – OP (tb-OP)</td>
</tr>
<tr>
<td></td>
<td><em>If VAC VENT ISOL VLV CNTL tb – CL or bp:</em></td>
</tr>
<tr>
<td></td>
<td><em>VAC VENT ISOL VLV BUS SEL – MNB</em></td>
</tr>
<tr>
<td></td>
<td><em>CNTL – OP (tb-OP)</em></td>
</tr>
<tr>
<td></td>
<td><em>If VAC VENT ISOL VLV CNTL tb still CL or bp:</em></td>
</tr>
<tr>
<td></td>
<td>√MCC for further actions</td>
</tr>
</tbody>
</table>

### MIDDECK CONFIG [14]

<table>
<thead>
<tr>
<th>GALLEY ACTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML86B:A 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 SPLV H2O GALLEY SPLV VLV – OP (tb-OP)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GALLEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2O HTRs (two) – ON</td>
</tr>
<tr>
<td>OVEN/RHS – ON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WCS ACTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA73C:G CB AC3 GALLEY FAN (three) – cl</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WCS (EDO WCS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAC VLV – OP</td>
</tr>
</tbody>
</table>

**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)

**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 (pairflow)
- 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 Pip Pin
- Stow Pole

**FLOODLIGHT CONFIG**

If TNL ADAPT flown:

- cb MNA FLOOD TNL ADAPT 2 – cl
- cb MNB FLOOD TNL ADAPT 3 – cl
- cb MNC FLOOD TNL ADAPT 4 – cl

**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
- cb ESS 1B FLOOD AIRLK 2 – cl

**ML86B:G**

- If TNL ADAPT flown:
  
  - cb ESS 1B 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**

<table>
<thead>
<tr>
<th>C</th>
<th>L2</th>
<th>√</th>
<th>O2 XOVR SYS (two) – OP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O2/N2 CNTLR VLV SYS 1(2) – CL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2(1) – AUTO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| O1 | √ | O2/N2 FLOW sel – SYS 2(1) O2 |

| C7 | √ | LEH O2 SPLY vlv (two) – OP |

Expect possible ‘S66 CAB O2(N2) FLO 2(1)’ msg

**MS MO10W**

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

**MO69M**

- LEH O2 8 vlv – CL

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

**AIRLOCK SETUP FOR INGRESS**

**INNER**

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

**HATCH**

2. √ Equal vlv (two) – NORM

3. Open hatch per decal

**AW18A**

4. LTG FLOOD 1(3,4) – ON (as reqd)

**MO13Q**

5. AIRLOCK 2 – ON/OFF

6. √ ARlk H2O S/O vlv – OP (lb-op)

**MIDDECK FLR**

7. √ EMI O2 ISOL vlv – CL

8. Remove, stow diffuser cap on middeck floor air fitting (mark)

**MA73C:G**

9. cb AC 1,2 ARlk TNL FAN A,B (six) – cl

10. Unstow, install flex duct from booster fan muffler inlet to cabin middeck floor air fitting

**MO13Q**

11. √ ARlk FAN A(B) – ON

12. √ Airflow at top of external airlock halo

If Spacehab flown and reingress desired:

- 13. Go to SPACEHAB INGRESS AFTER WAVEOFF (SH OPS, ON-ORBIT or RDM OPS, ON-ORBIT)

If Spacehab not flown or reingress not desired >>

- 14. Unstow flex duct from tunnel extension; install between middeck floor air fitting and airlock duct inlet
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**

<table>
<thead>
<tr>
<th>Switch</th>
<th>Location</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>F3</td>
<td>................</td>
<td>3-4</td>
</tr>
<tr>
<td>F7</td>
<td>................</td>
<td>3-4</td>
</tr>
<tr>
<td>L,R HUD</td>
<td>................</td>
<td>3-4</td>
</tr>
<tr>
<td>F2</td>
<td>................</td>
<td>3-5</td>
</tr>
<tr>
<td>O7</td>
<td>................</td>
<td>3-5</td>
</tr>
<tr>
<td>O13</td>
<td>................</td>
<td>3-5</td>
</tr>
<tr>
<td>L side OVHD flood</td>
<td>..........</td>
<td>3-5</td>
</tr>
<tr>
<td>F1</td>
<td>................</td>
<td>3-6</td>
</tr>
<tr>
<td>F6</td>
<td>................</td>
<td>3-6</td>
</tr>
<tr>
<td>L5</td>
<td>................</td>
<td>3-6</td>
</tr>
</tbody>
</table>

**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

**AFT**

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

**MIDDECK-AFT**

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

**MIDDECK-FWD**

- MO58F .................... 3-10
- MO39M .................... 3-10
- MO52J .................... 3-10
- MO30F .................... 3-10
- MD44F .................... 3-10
- MD24K .................... 3-10
- A/L HATCH .............. 3-10
- MO63P .................... 3-10
- ML86B .................... 3-11

**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

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

CIRCUIT BREAKER SNAP RING COLOR CODES

**COLOR**

- Red
- Green
- Yellow
- Orange
- Blank (no ring)

**CONFIGURATION**

- Open at all times
- Open on orbit only
- Open ascent, close per procedure
- Open orbit through entry
- Always closed or as reqd
# FINAL ENTRY SWITCH LIST/VERIFICATION (TIG-1:50)

## 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>
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<tr>
<td>Green</td>
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</tr>
<tr>
<td>Yellow</td>
<td>Open ascent, close per procedure</td>
</tr>
<tr>
<td>Orange</td>
<td>Open orbit through entry</td>
</tr>
<tr>
<td>Blank (no ring)</td>
<td>Always closed or as reqd</td>
</tr>
</tbody>
</table>

## LEFT SEAT

<table>
<thead>
<tr>
<th>Switch</th>
<th>Location</th>
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<tbody>
<tr>
<td>L4</td>
<td>3-13</td>
</tr>
<tr>
<td>L1</td>
<td>3-14</td>
</tr>
<tr>
<td>L2</td>
<td>3-15</td>
</tr>
<tr>
<td>C2/C3</td>
<td>3-16</td>
</tr>
<tr>
<td>O1</td>
<td>3-17</td>
</tr>
<tr>
<td>O5</td>
<td>3-17</td>
</tr>
<tr>
<td>O6</td>
<td>3-18</td>
</tr>
<tr>
<td>O14</td>
<td>3-19</td>
</tr>
<tr>
<td>O15</td>
<td>3-19</td>
</tr>
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</table>

## AFT

<table>
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<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4</td>
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<tr>
<td>R10</td>
<td>3-22</td>
</tr>
<tr>
<td>R12U</td>
<td>3-22</td>
</tr>
<tr>
<td>R11L</td>
<td>3-22</td>
</tr>
<tr>
<td>R13L</td>
<td>3-23</td>
</tr>
<tr>
<td>R14</td>
<td>3-23</td>
</tr>
<tr>
<td>A1L,R</td>
<td>3-24</td>
</tr>
<tr>
<td>A12</td>
<td>3-25</td>
</tr>
<tr>
<td>A13</td>
<td>3-25</td>
</tr>
<tr>
<td>L9</td>
<td>3-26</td>
</tr>
<tr>
<td>A6L</td>
<td>3-27</td>
</tr>
<tr>
<td>A7L</td>
<td>3-28</td>
</tr>
<tr>
<td>(APDS CNTL PNL)</td>
<td>3-28</td>
</tr>
<tr>
<td>A15</td>
<td>3-29</td>
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## MIDDECK-AFT

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OV103

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

PNL M058F

PNL M030F

PNL M039M

PNL M052J

PNL MD24K

NOTE: NOT VISIBLE IF HAY FLOWN

PNL MD44F

CAB TEMP CNTL ACT LINKAGE - SECONDARY ACTUATOR

4801531_114, PNL: 1

(OV103) A3-10

OV103/DATE 12/10/02

D/O/3/GEN O
PNL M042F

PNL M032M

PNL M069M

NOTES:
▷ CLOSED IF CO2 RMVL SYS FLOWN
▷ ON IF CO2 RMVL SYS FLOWN
OV105

-- AIRLOCK HATCH --
ACTUATOR HANDLE - Latched
LOCK LEVER - Locked
EQUALIZATION VALVE (TWO) - NORM - CAPS INSTALLED

PNL M058F

PNL M052J

PNL M039M

PNL M030F

PNL MD24K

PNL MD44F

CAB TEMP CNTL ACT LINKAGE - SECONDARY ACTUATOR

480150310_114. PNL 1

(OV105) C3-10
MID DECK SPEAKER AUDIO

PANEL M042F

CO2 REMOVAL SYSTEM

PANEL M051F

PNL M032M

PNL M069M

NOTES:
- CLOSED IF CO2 RMVL SYS FLOWN
- ON IF CO2 RMVL SYS FLOWN
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

**RIGHT SEAT**

P   F8   **AIR DATA** (slaved to CDRs)
    **ADI ERR**
    **RATE**
    **ATT** (slaved to CDRs)
    **ATT REF** pb
    **HSI SEL MODE**
    **SOURCE TACAN, MLS, NAV**
    **RDR ALTM**
    **R TRIM RHC/PNL**

F3   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
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, DDU 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 DDU 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 LESs for donning. Don QDM if cabin temp > 90 degF and discomfort occurs. If cabin temp > 95 degF and no evaporative cooling, don LES, 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 \textbf{DPS CONFIG FOR D/O PREP} \textit{4a}, but perform \textbf{ENSURE BFS GPC CAN COMMAND AN IDP} \textit{4b}
   
   If Av Bay 3 loss, perform both \textbf{DPS CONFIG FOR D/O PREP} \textit{4a} and \textbf{ENSURE BFS GPC CAN COMMAND AN IDP} \textit{4b}

2. In \textbf{APU/HYD CONFIG}:
   
   If AV BAY 1 or 2 air cooling lost:
   \[
   \begin{align*}
   &\text{FCS CH (four) – ORIDE} \\
   &\text{If AV BAY 3 air cooling lost:} \\
   &\quad\sqrt{\text{FCS CH 1,2,3 (three) – AUTO}} \\
   &\quad 4 \quad \text{– OFF}
   \end{align*}
   \]

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

4. During \textbf{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:

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{CONFIG} & \textbf{LOSS OF} & \textbf{CONFIG} & \textbf{LOSS OF} \\
\textbf{GPC} & \textbf{BAY 1} & \textbf{BAY 2} & \textbf{BAY 3} & \textbf{BAY 1} & \textbf{BAY 2} & \textbf{BAY 3} \\
\hline
\textbf{STR} 1 & 2 & 1 & 1 & 3 & 1 & 1 \\
   & 2 & 1 & 1 & 2 & 4 & 2 & 2 \\
   & 3 & 1 & 1 & 2 & 4 & 1 & 1 \\
   & 4 & 1 & 2 & 1 & 4 & 2 & 2 \\
\hline
\textbf{PL 1/2} & 0 & 0 & 0 & 2 & 1 & 1 \\
\hline
\textbf{CRT 1} & 2 & 1 & 1 & 3 & 1 & 1 \\
   & 2 & 1 & 1 & 2 & 4 & 2 & 2 \\
   & 3 & 1 & 1 & 2 & 4 & 1 & 1 \\
   & 4 & 1 & 2 & 1 & 4 & 2 & 2 \\
\hline
\textbf{L} 1 & 0 & 0 & 0 & 2 & 0 & 0 \\
   & 2 & 0 & 0 & 1 & 0 & 0 \\
\hline
\textbf{MM} 1 & 2 & 1 & 1 & 3 & 1 & 1 \\
   & 2 & 1 & 1 & 2 & 4 & 2 & 2 \\
\hline
\end{tabular}
\end{table}

\textbf{CONT next page}

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

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

5. **In C,P ENT FWD FLT DECK CONFIG:**
   
   If AV BAY 1 air cooling lost:
   
   - O14:A  √ BRAKES MNA – OFF
   - O15:A  MNB – ON
   - O16:A  √ MNC – OFF

   If AV BAY 2 air cooling lost:
   
   - O14:A  BRAKES MNA – ON
   - O15:A  √ MNB – OFF
   - O16:A  MNC – ON

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

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

8. If just prior to OPS 302 TRANSITION, affected GPCs have been in HALT for \( \geq 3.5 \) 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)

### LOSS OF AV BAY AIR COOLING

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</tbody>
</table>

5-5  

D/O/ALL/GEN O
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, 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 (ECLS, OPCL)** 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 LES, open LES O2 vlvs
     - check tabs, visors – CL, LES O2 – ON

13. **ENTRY SWITCH LIST/VER** will not reflect pwrtn items

IN ENT CL

14. At **TIG –4**, activate DDUs

15. At **EI**, activate ADTAs

16. At **V=15K**, activate TACANs, 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 TACANs
**AV BAY FIRE** (Cont)

4. During DPS ENTRY CONFIG
   
a. If loss of Av Bay 3, do not pwrup GPC 3

b. During SM CHECKPOINT, skip MMU 1 (if Av Bay 1) or MMU 2 (if Av Bay 2)

c. Using column for affected Av Bay, substitute appropriate NBAT in following activities

<table>
<thead>
<tr>
<th>TRANSITION GPC 1 &amp; 2 TO OPS 3</th>
<th>TRANSITION GPC 1, 2, 3, 4 TO OPS 3</th>
<th>RECONFIG MC 9 TABLE (GNC 9) FOR POST LANDING</th>
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<td><strong>LOSS OF</strong></td>
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5. **ENT SWITCH LIST/VERIF** pictorials will not reflect pwrdsn items
PLBD CONTINGENCY EVA TIMELINE
### FLIGHT: PLBD EVA 102
### EDITION: FROM D/O PREP TO EOM+1
### PUB. DATE: 5/96

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#### 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

#### Notes:
- PRE SLEEP
- SLEEP
- POST SLEEP
- DEORBIT PREP
- D/O PREP BACKOUT
- MAC/INC
- ACC
- EMU C/O
- PRE SLEEP
- SLEEP
- (7:00)

#### Events:
- PLBD CLS FAILURE
- ASPIRIN
- 10.2 MAINT

#### POST SLEEP CONT'D
- EARLIEST PLBD CLOSE
- 14.7 CAB REPRESS
- POST EVA ENTRY PREP
- EOM+1 TIG
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.
**FLIGHT:** HW EVA 14.7  
**EDITION:** FROM D/O PREP TO EOM+1  
**PUB. DATE:** 5/96

| MET | 01 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | -10 | -11 | -12 | -13 | -14 | -15 | -16 |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| FD  | PRE SLEEP | SLEEP | POST SLEEP | PRE SLEEP |
| EOM | PRE SLEEP | SLEEP | POST SLEEP | D/ORB/ PREP | BACK/ PREP | AL | EMU C/O (1,2) | MODK | EVA PREP | PURGE/PRE BREATHE | AL | HW STOW (EVA 3:00) |
| MET | 000 | -16 | -15 | -14 | -13 | -12 | -11 | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
| FD  | PRE SLEEP | SLEEP | POST SLEEP | D/ORB/ PREP | BACK/ PREP | AL | EMU C/O (1,2) | MODK | EVA PREP | PURGE/PRE BREATHE | AL | HW STOW (EVA 3:00) |
| NOTES: | PREFERRED HW STOW (DUAL SHIFT) |

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

**IMPACTS:**  
- COMBINED 2HR LATE AND 7HR SLEEP  
- DUAL SHIFT NON-ENTRY TEAM MAY LATE SHIFT AS MUCH AS 6 HRS

**NOTES:**  
- PREFERRED HW STOW (SINGLE SHIFT)  
- LATEST HW STOW FAIL  
- NEOM TIG  
- MODK PREP

**EOM+1**

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**D/O/ALL/GEN O**
PLBD 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.
DEORBIT PREP
STS ALL