YERO PROCEDURES

YEAR END ROLL OVER (YERO)
RECOVERY PROCEDURES........................................... FS 11-2
YEAR END ROLL OVER (YERO) RECOVERY PROCEDURES

NOTE
(a) Steps 1 and 2 actions are performed prior to occurrence of the actual year-end.

(b) Forcing the GPCs to internal time avoids a nuisance alarm during crew sleep at the moment of YERO.

(c) After YERO, onboard CRT clocks continue to count up to day 366 GMT and 365 MET.

(d) The MTU time adjustment will cause the MTU GMT and MET accumulators to roll-over to 001/00:00:00 GMT and to 000/00:00:00 MET-MET at the YERO event. MTU GMT rolls over to 001/00:00:00 GMT.

(e) Do not pause between steps 7 and 8. A delay greater than 10 minutes will require a state vector update.

1. ADJUST MTU MET TO RESET AT YERO

NOTE
(a) Required ‘MET Δ’ update value equals launch GMT minus 1 days.

(b) MCC will voice up desired ‘MET Δ’ update values; MCC will confirm results following MTU update.

MET Δ: days (‘ddd’) __________
hours (‘hh’) __________
minutes (‘mm’) __________
sec (‘ss.sss’) __________

Cont next page
Following the MTU 'MET update' any new PASS fault message will reflect new MET time-tag.

If YERO to occur during crew sleep:

2. **FORCE GPCs TO INTERNAL TIME**

   CRT
   | GNC 2 TIME
   | MET Δ – ITEM 28 + d d + h h + m m EXEC
   | MET Δ – ITEM 31 + s s s s EXEC
   | UPDATE – ITEM 32 EXEC (may take up to 2 min)

   **NOTE**
   Following the MTU 'MET update' any new PASS fault message will reflect new MET time-tag.

   CRT
   | GNC 2 TIME
   | TRY – ITEM 37 EXEC

   **NOTE**
   Following actions are **not** to be performed until after occurrence of the actual year-end rollover event and on MCC GO (May take up to an hour from year-end rollover)

3. **CONFIGURE ORBITER FOR YERO**

   C3 DAP: FREE
   VERN
   
   If docked:
   O14:F, √Pri RJD LOGIC, DRIVER (sixteen) – OFF
   O15:F, √Pri RJD LOGIC, DRIVER (sixteen) – ON
   O16:F √RJD MANF L5/F5/R5 DRIVER – ON
   
   √RJD MANF L5/F5/R5 DRIVER – ON
   
   C2 IDP/CRT3 PWR – ON
   √1 PWR – ON
   √2 PWR – ON
   √4 PWR – ON
   
   Cont next page

   FS 9-4 ORB OPS/133/BAS 1
4. COMM RECONFIGURATION
   A1U
   KU BD PWR – STBY
   CNTL – PNL, CMD
   KU BD PWR – ON
   C3
   √ OI PCMMU FORMAT – GPC

   Maintain manual S-BD antenna during DPS recovery:
   Select best antenna, F9 meter > 300

5. If required, perform PL/DPS RECONFIG, Secure
   [PL SYS(PL OPS) (SODF: ASSY OPS)], time permitting, then:

6. If RMS active:
   A8U
   √ BRAKES – ON

   **NOTE**
   Do not pause between steps 7
   and 8. A delay greater than 10
   minutes will require a state vector
   update

7. CONFIGURE FOR OPS 3 TRANSITION
   O14, RGA (four) – ON
   O15, cb ADTA (four) – cl
   O16 ASA (four) – ON
   O8 MLS (three) – ON
   C3
   √ FCS CH (four) – AUTO

   CRT
   [SM 62 PCMMU/PL COMM]
   SEL FXD – ITEM 1 EXEC

Cont next page
C2 Desired IDP/CRT1(2,3) MAJ FUNC – GNC

C2 GNC 0 GPC MEMORY

CONFIG – ITEM 1 +3 EXEC
Assign MC 3

O14, O15: F
MMU (two) – ON
O6 GPC MODE 4 – STBY (tb-bp)
1 – STBY (tb-bp)
1 – RUN (tb-run)

√GPC1 takes three forward IDPs
If not √MCC

8. G3 OPS TRANSITION

C2 GNC 1 DPS UTILITY
ENABLE G3 ARCHIVE – ITEM 49 EXEC
RESUME

GNC, OPS 301 PRO

C3 If docked:
  DAP: INRTL/PULSE/PULSE/PULSE
If undocked:
  DAP: INRTL

9. CONFIGURE GPC 4 AS SM GPC

NOTE
OPS transitions neither add nor remove
IDP/CRTs from PASS set based upon
CRT NBAT. However, PASS will
redistribute active CRTs based on new
NBAT-provided IDPs are powered on

O6 GPC MODE 4 – RUN (tb-run)
C2 IDP/CRTX : MAJ FUNC – SM
GPC/CRT – 4/X EXEC

Cont next page

FS 9-6 ORB OPS/133/BAS 1
SM 1 DPS UTILITY
Disable checkpoint retrieve:

\textcircled{\textit{\checkmark}} \text{CKPT RETRV ENA – ITEM 12 (no *)}

SM, OPS 201 PRO
\textcircled{\textit{\checkmark}} \text{SM ANTENNA} display driven by GPC 4

If RMS PWR – PRI (re-establish MCIU I/O):

10. \textcircled{\textit{\checkmark}} \text{SM 94 PDRS CONTROL} (MA, GPC DATA lit on)
    I/O ON – ITEM 5 EXEC (*) (GPC DATA lit off)

A8U
SAFING – CANCEL (tb-bp if arm desel)

11. \textbf{ACTIVE BFS FOR YERO RECOVERY}

   \textcircled{\textit{\checkmark}} \text{GPC PWR 5} – ON
   MODE – STBY (tb-RUN)

   \textcircled{\textit{\checkmark}} \text{BFS CRT DISP} – ON
   SEL – 3+1

12. \textbf{BFS OPS 0 YERO UPLINKS}

   \textcircled{\textit{\checkmark}} \text{MCC} for manual antennas

\textbf{NOTE}
The ‘RNP Matrix Time’ load must be uplinked to the BFS while it is in pre-deorbit OPS 000 and tracking the PASS. However, the uplinked data will not be incorporated by the BFS until it is PRO’d to OPS 3

\begin{tabular}{|c|c|c|}
\hline
UPLINK PRIORITY & MCC & UPLINK COMMAND LOAD DESCRIPTION \\
\hline
1 & GPO & RNP MATRIX TIME \\
\hline
\end{tabular}

Wait for MCC ‘GO’, then continue

Cont next page

FS 9-7 ORB OPS/133/BAS 1
13. BFS OPS 3 YERO UPLINKS

CRT3 BFS, GNC OPS 301 PRO

<table>
<thead>
<tr>
<th>UPLINK PRIORITY</th>
<th>MCC</th>
<th>UPLINK COMMAND LOAD DESCRIPTION</th>
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<tr>
<td>1</td>
<td>GPO</td>
<td>GPS SOP TIME ADJUSTMENT</td>
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<tr>
<td>2</td>
<td>FDO</td>
<td>DUMMY PEG TARGETS</td>
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<tr>
<td>3</td>
<td>INCO</td>
<td>TDRS STATE VECTORS</td>
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<tr>
<td>4 (if reqd)</td>
<td>GPO</td>
<td>ORBITER STATE VECTOR</td>
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<td>5 (if reqd)</td>
<td>GNC</td>
<td>IMU GYRO BIAS</td>
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<td>6 (if reqd)</td>
<td>GNC</td>
<td>IMU ACCEL BIAS</td>
</tr>
<tr>
<td>7 (if reqd)</td>
<td>GNC</td>
<td>IMU ACCEL SCALE FACTOR</td>
</tr>
</tbody>
</table>

Wait for MCC ‘GO’, then continue

CRT3 BFS, DEORB MNVR COAST

LOAD – ITEM 22 EXEC

Wait for MCC ‘GO’, then continue:

14. SECURE BFS

CRT3 BFS, GNC OPS 000 PRO

O6 GPC MODE 5 – HALT

C2 BFS CRT DISP – OFF

15. IDP RECONFIG

IDP/CRT3 PWR – OFF

FS 9-8 ORB OPS/133/BAS 1
16. **LOAD PCMMU FORMAT**

**CRT**

| SM 62 PCMMU/PL COMM |

**FORMAT:**
- SEL FXD – ITEM 1 EXEC (*)
- SEL ID – ITEM 3 +X X EXEC
- √SM COMM BUF – RDY
- LOAD – ITEM 4 EXEC
- √LOAD, ITEM 4 – RUN, CPLT, then:
  - SEL PGM – ITEM 2 EXEC (*)
- RESUME

17. **G2 TRANSITION**

**C3**

- DAP: FREE pb – push and hold
- ▲________ during OPS transition

**CRT**

- Assign MC 2
- GNC, OPS 201 PRO

<table>
<thead>
<tr>
<th>CONFIG</th>
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**Cont next page**

*Merknad [L6]: Moved this step after the IDP deassignment to preclude a FSW Message.*
18. **RE-ESTABLISH SM OPERATIONAL CONFIG**

   CRT
   SM 1 DPS UTILITY
   CKPT RETRV ENA – ITEM 12 EXEC (*)
   √UL CNTL ENAAUTO, ITEM 36 ITEM 35 – (*)

   **NOTE**
   MCC will complete comm reconfig, including loading low-rate TFL, TDRS vectors, and any required site reconfigurations

   Wait for MCC ‘GO’ to reselect auto antenna control:
   C3
   S-BD PM ANT sel – GPC

19. If required, perform PL/DPS RECONFIG, Recovery [PL SYS(PL OPS) (SODF: ASSY OPS)], then:

20. **CLEAN UP JET CONFIG** (if reqd)

   CRT
   GNC 23 RCS
   JET RESET – ITEM 45 EXEC
   Reset all FAIL OFF jets
   JET RESET – ITEM 45 EXEC
   \ MCC for additional jet reconfiguration

21. Perform G2 SET EXPANSION (DPS) (TRIPLE G2)

22. Perform G2 SET CONTRACTION (DPS) (SINGLE G2)

23. **DAP RECONFIG** (Only If Docked)

   SPEC 20 DAP CONFIG
   Config DAP A, B to A12, B12
   XJET ROT ENA – ITEM 7 EXEC

   C3
   DAP: VERN
   DAP: LO Z

   GNC, UNIV PTG
   Reload attitude per timeline

24. **CONFIGURATION CLEANUP**

   Cont next page
| O15:F | MMU 2 | OFF |
| O14, | RGA (four) | OFF |
| O15, | cb ADTA (four) | op |
| O16 | ASA (four) | OFF |
| O8  | MLS (three) | OFF |

**18. RE-ESTABLISH SM OPERATIONAL CONFIGURATION**