

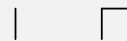
YERO PROCEDURES

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

YERO



FS 9-1 ORB OPS/426133/BAS 1



YERO

## 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 ~~367~~ 366 GMT
- (d) The MTU time adjustment will cause the MTU GMT and MET accumulators to roll-over to 001/00:00:00 GMT and 000/00:00:00 MET at the YERO event. Time adjustments are specific to YERO event occurring during leap year
- (e) Do not pause between steps 6 and 7. A delay greater than 10 minutes will require a state vector update. ~~Time adjustments are specific to YERO event occurring during leap year~~

### 1. ADJUST MTU MET TO RESET AT YERO

#### NOTE

- (a) Required 'MET  $\Delta$ ' update value equals launch GMT minus ~~2~~ 1 days
- (b) MCC will voice up desired 'MET  $\Delta$ ' update values; MCC will confirm results following MTU update

MET  $\Delta$ : days ('ddd') \_\_\_\_\_

hours ('hh') \_\_\_\_\_

minutes ('mm') \_\_\_\_\_

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sec ('ss.sss')

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FS 9-3 ORB OPS/426133/BAS 1

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CRT

**GNC 2 TIME**

MET Δ – ITEM 28 +d 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

If YERO to occur during crew sleep:

2. FORCE GPCs TO INTERNAL TIME

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

3. CONFIGURE ORBITER FOR YERO

C3

DAP: FREE

VERN

If docked:

O14:F,

O15:F,

O16:F

| √Pri RJD LOGIC, DRIVER (sixteen) – OFF

If undocked:

√Pri RJD LOGIC, DRIVER (sixteen) – ON

√RJD MANF L5/F5/R5 DRIVER – ON

C2

IDP/CRT3 PWR – ON

√1 PWR – ON

√2 PWR – ON

R11L

√4 PWR – ON

Cont next page

FS 9-4 ORB OPS/426133/BAS 1

- A1U 4. COMM RECONFIGURATION  
 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:

- A8U 6. If RMS active:  
 √BRAKES – ON

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

C2 Desired IDP/CRT1(2,3) MAJ FUNC – GNC  
 CRT 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

CONFIG	GPC	3	10000
STR	1	1	
	2	1	
	3	1	
	4	1	
PL	1/2	0	
CRT	1	1	
	2	1	
	3	1	
	4	0	
L	1	0	
	2	0	
MM	1	1	
	2	1	

Cont next page

CRT 8. G3 OPS TRANSITION  
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 CRT GPC MODE 4 – RUN (tb-run)  
IDP/CRTX : MAJ FUNC – SM  
GPC/CRT – 4/X EXEC  
SM 1 DPS UTILITY  
Disable checkpoint retrieve:  
√CKPT RETRV ENA – ITEM 12 (no \*)

SM, OPS 201 PRO

√SM ANTENNA display driven by GPC 4

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

A8U 10. SM 94 PDRS CONTROL (MA, GPC DATA It on)  
I/O ON – ITEM 5 EXEC (\*) (GPC DATA It off)  
SAFING – CANCEL (tb-bp if arm desel)

Cont next page

FS 9-6 ORB OPS/426133/BAS 1

11. ACTIVE BFS FOR YERO RECOVERY  
 O6 √GPC PWR 5 – ON  
       MODE – STBY (tb-RUN)  
 C2 BFS CRT DISP – ON  
       SEL – 3+1

12. BFS OPS 0 YERO UPLINKS  
 √MCC for manual antennas

**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

UPLINK PRIORITY	MCC	UPLINK COMMAND LOAD DESCRIPTION
1	GPO	RNP MATRIX TIME

Wait for MCC 'GO', then continue

13. BFS OPS 3 YERO UPLINKS  
 CRT3 BFS, GNC OPS 301 PRO

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

Wait for MCC 'GO', then continue

- CRT3 BFS, DEORB MNVR COAST  
 LOAD – ITEM 22 EXEC  
 Wait for MCC 'GO', then continue:

Cont next page

CRT3  
O6  
C2

14. SECURE BFS  
BFS, GNC OPS 000 PRO  
GPC MODE 5 – HALT  
BFS CRT DISP – OFF

CRT

15. IDP RECONFIG  
IDP/CRT3 PWR – OFF  
GPC/CRT 0/3 EXEC  
4/4 EXEC

CRT

16. LOAD PCMMU FORMAT  
SM 62 PCMMU/PL COMM

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

C3

17. G2 TRANSITION  
DAP: FREE pb – push and hold  
during OPS transition

CRT

Assign MC 2 →  
GNC, OPS 201 PRO  
Pause ~30 sec (DAP settling)

C3  
DAP: as reqd

CONFIG	2
GPC	10000
STR	1 1
	2 1
	3 1
	4 1
PL	1/2 0
CRT	1 1
	2 1
	3 0
	4 1
L	1 0
	2 0
MM	1 1
	2 1

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18. RE-ESTABLISH SM OPERATIONAL CONFIGURATION

CRT-3

SM 1 DPS UTILITY

CKPT RETRV ENA – ITEM 12 EXEC (\*)  
√UL CNTL ENA, ITEM 36 – (\*)

NOTE

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

C3

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

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

CRT

20. CLEAN UP JET CONFIG (if reqd)

GNC 23 RCS

JET RESET – ITEM 45 EXEC  
Reset all FAIL OFF jets  
JET RESET – ITEM 45 EXEC

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

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

23. DAP RECONFIG

SPEC 20

Config DAP A, B to A12, B12  
XJET ROT ENA – ITEM 7 EXEC  
DAP: LO Z

GNC, UNIV PTG

Reload attitude per timeline

24. CONFIGURATION CLEANUP

O15:F  
O14,  
O15,  
O16  
O8

MMU 2 – OFF  
RGA (four) – OFF  
cb ADTA (four) – op  
ASA (four) – OFF  
MLS (three) – OFF

Comment [11]: Does the format of this need to be different? This procedure is in the ORB OPS book.

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