

# Entry Checklist

## Mission Operations Directorate Operations Division

**Generic, Rev H**  
**March 15, 2007**

### NOTE

For STS-118 and subsequent flights

National Aeronautics and  
Space Administration

**Lyndon B. Johnson Space Center**  
Houston, Texas



**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>



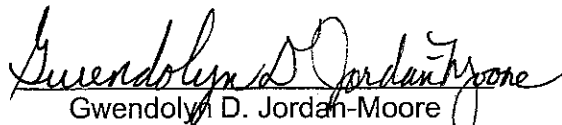
MISSION OPERATIONS DIRECTORATE

**ENTRY CHECKLIST**

GENERIC, REVISION H

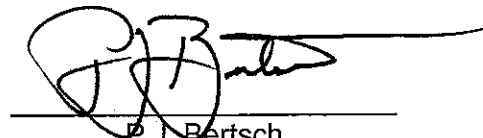
March 15, 2007

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This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted via FDF Workflow Crew Procedure Change Request (CR) to DO3/FDF Manager.

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ENT/ALL/GEN H

| Incorporates the following: |              |            |
|-----------------------------|--------------|------------|
| 482#:                       | ENT-0859     | MULTI-1776 |
|                             | ENT-0862A(P) | MULTI-1777 |
|                             | ENT-0863     | MULTI-1783 |
|                             | ENT-0864     |            |

P – Partial

#### AREAS OF TECHNICAL RESPONSIBILITY

|                                           |                      |              |
|-------------------------------------------|----------------------|--------------|
| Book Manager                              | DM43/G. Jordan-Moore | 281-483-1261 |
|                                           | DM43/M. Trump        | 281-483-8029 |
| Deorbit Burn to Entry Interface           | DM43/J. Patterson    | 281-483-1987 |
| Entry Interface thru Rollout Post Landing | DM43/J. Patterson    | 281-483-1987 |

Replace this page with page(s) from Flight Supplement



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## NOTES

1. The Wheels Stop/Egress Switch List, section 7, gives the vehicle configuration at these discrete times. If switch position difference exists between wheels stop and crew egress, egress position will be boxed beside wheels stop position. Section 7 contains switch configuration only for panels that are reconfigured during crew execution of procedures in sections 3, 4, and 5. Refer to DEORBIT PREP, section 3, for egress configuration for remaining panels.
2. This checklist is an all-vehicle book and is not complete for a specified flight without a Flight Supplement. To obtain complete checklist, incorporate Flight Supplement for specific flight of interest using instructions in Flight Supplement List of Effective Pages.
3. Entry related cue cards are contained in this document. Cue cards are listed in Entry Cue Card Config section. Some cue cards are printed in the body of checklist for MS use and also in the Entry Cue Card Config section for reference of crop marks and fabrication instructions.
4. Velcro placement, size, and shape of cue cards are controlled by Cue Card Book Manager.
5. Vehicle configuration or procedural steps that are applicable to a specific vehicle are indicated by xxx.



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# ENTRY CHECKLIST

## LIST OF EFFECTIVE PAGES

GENERIC 02/01/88

REV H 03/15/07

|                  |    |           |               |             |
|------------------|----|-----------|---------------|-------------|
| Sign Off .....   | *  | ALL/GEN H | 3-9.....      | ALL/GEN H   |
| ii.....          | *  | ALL/GEN H | 3-10.....     | ALL/GEN H   |
| iii.....         | *Δ | ALL/GEN H | 3-11.....     | ALL/GEN H   |
| iv.....          | *Δ | ALL/GEN H | 3-12.....     | ALL/GEN H   |
| v.....           | *  | ALL/GEN H | 3-13.....     | ALL/GEN H   |
| vi.....          | *  | ALL/GEN H | 3-14.....     | ALL/GEN H   |
| vii.....         | *  | ALL/GEN H | 3-15.....     | Δ ALL/GEN H |
| viii.....        | *  | ALL/GEN H | 3-16.....     | Δ ALL/GEN H |
| ix.....          | *  | ALL/GEN H | FS 3-17 ..... | flt suppl   |
| x.....           | *  | ALL/GEN H | FS 3-18 ..... | flt suppl   |
| xi.....          | *Δ | ALL/GEN H | 3-19.....     | ALL/GEN H   |
| xii.....         | *Δ | ALL/GEN H | 3-20.....     | ALL/GEN H   |
| FS xiii .....    | *  | flt suppl | 3-21.....     | ALL/GEN H   |
| FS xiv .....     | *  | flt suppl | 3-22.....     | ALL/GEN H   |
| xv.....          |    | ALL/GEN H | 3-23.....     | ALL/GEN H   |
| xvi.....         |    | ALL/GEN H | 3-24.....     | ALL/GEN H   |
| 1-1 (3 pgs)..... | †  | ALL/GEN H | 3-25.....     | ALL/GEN H   |
| 1-2 (3 pgs)..... | †  | ALL/GEN H | 3-26.....     | ALL/GEN H   |
| 2-1 .....        |    | ALL/GEN H | 3-27.....     | ALL/GEN H   |
| 2-2 (6 pgs)..... | †  | ALL/GEN H | 3-28.....     | ALL/GEN H   |
| 2-3 (6 pgs)..... | †  | ALL/GEN H | 3-29.....     | Δ ALL/GEN H |
| 2-4 .....        |    | ALL/GEN H | 3-30.....     | Δ ALL/GEN H |
| 2-5.....         | Δ  | ALL/GEN H | 3-31.....     | ALL/GEN H   |
| 2-6.....         | Δ  | ALL/GEN H | 3-32.....     | ALL/GEN H   |
| 3-1 .....        | Δ  | ALL/GEN H | 3-33.....     | Δ ALL/GEN H |
| 3-2 .....        | Δ  | ALL/GEN H | 3-34.....     | Δ ALL/GEN H |
| FS 3-3 .....     |    | flt suppl | 3-35.....     | ALL/GEN H   |
| FS 3-4 .....     |    | flt suppl | 3-36.....     | ALL/GEN H   |
| 3-5.....         |    | ALL/GEN H | 3-37.....     | ALL/GEN H   |
| 3-6.....         |    | ALL/GEN H | 3-38.....     | ALL/GEN H   |
| 3-7.....         | Δ  | ALL/GEN H | 3-39.....     | ALL/GEN H   |
| 3-8.....         | Δ  | ALL/GEN H | 3-40.....     | ALL/GEN H   |

\* – Omit from flight book

Δ – Replace with page from Flight Supplement

† – Extra pages in crew copy only

|               |           |                  |              |
|---------------|-----------|------------------|--------------|
| 3-41 .....    | ALL/GEN H | 5-23 .....       | ALL/GEN H    |
| 3-42 .....    | ALL/GEN H | 5-24 .....       | ALL/GEN H    |
| 3-43 .....    | ALL/GEN H | 6-1 .....        | ALL/GEN H    |
| 3-44 .....    | ALL/GEN H | 6-2 .....        | ALL/GEN H    |
| 4-1 .....     | ALL/GEN H | 6-3 .....        | ALL/GEN H    |
| 4-2 .....     | ALL/GEN H | 6-4 .....        | ALL/GEN H    |
| 4-3 .....     | ALL/GEN H | 7-1 .....        | * ALL/GEN H  |
| 4-4 .....     | ALL/GEN H | 7-2 .....        | * ALL/GEN H  |
| 4-5 ..... Δ   | ALL/GEN H | 8-1 .....        | *Δ ALL/GEN H |
| 4-6 ..... Δ   | ALL/GEN H | CC 8-2 .....     | *Δ ALL/GEN H |
| FS 4-7 .....  | flt suppl | FS CC 8-3 .....  | * flt suppl  |
| FS 4-8 .....  | flt suppl | FS CC 8-4 .....  | * flt suppl  |
| FS 4-9 .....  | flt suppl | CC 8-5 .....     | * ALL/GEN H  |
| FS 4-10 ..... | flt suppl | CC 8-6 .....     | * ALL/GEN H  |
| 4-11 .....    | ALL/GEN H | CC 8-7 .....     | * ALL/GEN H  |
| 4-12 .....    | ALL/GEN H | CC 8-8 .....     | * ALL/GEN H  |
| 5-1 .....     | ALL/GEN H | CC 8-9 .....     | * ALL/GEN H  |
| 5-2 .....     | ALL/GEN H | CC 8-10 .....    | * ALL/GEN H  |
| 5-3 .....     | ALL/GEN H | CC 8-11 .....    | * ALL/GEN H  |
| 5-4 .....     | ALL/GEN H | CC 8-12 .....    | * ALL/GEN H  |
| 5-5 .....     | ALL/GEN H | CC 8-13 .....    | * ALL/GEN H  |
| 5-6 .....     | ALL/GEN H | CC 8-14 .....    | * ALL/GEN H  |
| 5-7 .....     | ALL/GEN H | CC 8-15 .....    | * ALL/GEN H  |
| 5-8 .....     | ALL/GEN H | CC 8-16 .....    | * ALL/GEN H  |
| 5-9 .....     | ALL/GEN H | FS CC 8-17 ..... | *Δ ALL/GEN H |
| 5-10 .....    | ALL/GEN H | FS CC 8-18 ..... | *Δ ALL/GEN H |
| 5-11 .....    | ALL/GEN H | CC 8-19 .....    | * ALL/GEN H  |
| 5-12 .....    | ALL/GEN H | 8-20 .....       | * ALL/GEN H  |
| 5-13 .....    | ALL/GEN H | CC 8-21 .....    | * ALL/GEN H  |
| 5-14 .....    | ALL/GEN H | CC 8-22 .....    | * ALL/GEN H  |
| 5-15 .....    | ALL/GEN H | 8-23 .....       | *Δ ALL/GEN H |
| 5-16 .....    | ALL/GEN H | 8-24 .....       | *Δ ALL/GEN H |
| 5-17 .....    | ALL/GEN H |                  |              |
| 5-18 .....    | ALL/GEN H |                  |              |
| 5-19 ..... Δ  | ALL/GEN H |                  |              |
| 5-20 ..... Δ  | ALL/GEN H |                  |              |
| 5-21 .....    | ALL/GEN H |                  |              |
| 5-22 .....    | ALL/GEN H |                  |              |

Δ – Replace with page from Flight Supplement

\* – Omit from flight book

## ENTRY CUE CARDS

| <u>Title</u>                  | <u>Ref. Page</u> | <u>Card No.</u> |  |
|-------------------------------|------------------|-----------------|--|
| DEORBIT BURN FLIGHT           |                  |                 |  |
| RULES (Front) .....           | see flt suppl    | flt suppl       |  |
| (Back).....                   | see flt suppl    | flt suppl       |  |
| DEORBIT BURN (RCS)            |                  |                 |  |
| (Front) (Top).....            | see flt suppl    | flt suppl       |  |
| (Front) (Bottom).....         | CC 8-5           | ENT-3aa/D/M     |  |
| (Back) (Top) .....            | CC 8-6           | ENT-3b/D/E      |  |
| (Back) (Bottom) .....         | CC 8-7           | ENT-3bb/D/E     |  |
| DEORBIT BURN (2 ENG)          |                  |                 |  |
| (Front) (Top).....            | CC 8-8           | ENT-4a/D/L      |  |
| (Front) (Bottom).....         | CC 8-9           | ENT-4aa/D/K     |  |
| DEORBIT BURN (1 ENG)          |                  |                 |  |
| (Back) (Top) .....            | CC 8-10          | ENT-4b/D/J      |  |
| (Back) (Bottom) .....         | CC 8-11          | ENT-4bb/D/L     |  |
| UNBALANCED PRPLT              |                  |                 |  |
| DEORBIT BURN                  |                  |                 |  |
| (Front) (Top).....            | CC 8-12          | ENT-5a/D/M      |  |
| (Front) (Bottom).....         | CC 8-13          | ENT-5aa/D/O     |  |
| DEORBIT BURN (MIXED<br>XFEED) |                  |                 |  |
| (Back) (Top) .....            | CC 8-14          | ENT-5b/D/J      |  |
| (Back) (Bottom) .....         | CC 8-15          | ENT-5bb/D/K     |  |
| ENTRY MANEUVERS               |                  |                 |  |
| (Front).....                  | CC 8-16          | ENT-6a/E/P      |  |
| (Back).....                   | see flt suppl    | flt suppl       |  |
| ENTRY NO-GO CHECKLIST         |                  |                 |  |
| (Front).....                  | see flt suppl    | flt suppl       |  |
| ADTA MGMT (Back) .....        | CC 8-19          | ENT-7b/E/S      |  |
| ENTRY CONTROL                 |                  |                 |  |
| (Front).....                  | CC 8-21          | ENT-10a/A,E/B   |  |
| (Back).....                   | CC 8-22          | ENT-10b/A,E/B   |  |
| DEORBIT BURN MONITOR          |                  |                 |  |
| (Front).....                  | see flt suppl    | flt suppl       |  |
| OMS FAILURES (Back).....      | see flt suppl    | flt suppl       |  |



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xii

ENT/ALL/GEN H

| <u>CONTENTS</u>                                                                                      | <u>PAGE</u> |
|------------------------------------------------------------------------------------------------------|-------------|
| DEORBIT MNVR PADS.....                                                                               | 1-1         |
| OMS PRPLT AND DEL PADS .....                                                                         | 2-1         |
| DEORBIT BURN .....                                                                                   | 3-1         |
| OMS BURN PREP (CIL) .....                                                                            | 3-9         |
| OMS/RCS POST BURN RECONFIG (CIL).....                                                                | 3-32        |
| ENTRY CUE CARDS .....                                                                                | 4-1         |
| h = 10K LES VISORS (HC) .....                                                                        | flt suppl   |
| POST LANDING PROCEDURES .....                                                                        | 5-1         |
| 1-ORBIT LATE DEORBIT PROCEDURES.....                                                                 | 6-1         |
| SWITCH LIST AT WHEEL STOP <span style="border: 1px solid black; padding: 0 2px;">EGRESS</span> ..... | deleted     |
| ENTRY CUE CARD CONFIG .....                                                                          | 8-1         |



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1-1

ENT/ALL/GEN H

## DEORBIT MNVR PAD

OMS BOTH 1  
L 2  
R 3  
RCS SEL 4

TV ROLL 5

TRIM LOAD  
P 6  
LY 7  
RY 8

WT 9

TIG 10

TGT PEG 4

C1 14  
C2 15  
HT 16  
θT 17  
PRPLT 18

BURN ATT

R 24  
P 25  
Y 26

REI  
TXX

ΔVTOT

TGO

VGO X

VGO Y

VGO Z

TGT

HA

HP

NOTES

RCS I'CNCT:

L OMS → RCS  
R OMS → RCS  
NONE

MNVR  
PADS

# MNVR PADS

## DEORBIT MNVR PAD

OMS BOTH 1

L 2

R 3

RCS SEL 4

TV ROLL 5

TRIM LOAD

P 6

LY 7

RY 8

WT 9

TIG 10

TGT PEG 4

C1 14

C2 15

HT 16

θT 17

PRPLT 18

BURN ATT

R 24

P 25

Y 26

REI

TXX

ΔVTOT

TGO

VGO X

VGO Y

VGO Z

TGT

HA

HP

### NOTES

RCS I'CNCT:

L OMS → RCS

R OMS → RCS

NONE

1-2

ENT/ALL/GEN H

PRPLT/  
DEL PADS

OMS PRPLT AND DEL PADS

2-1

ENT/ALL/GEN H

PRPLT/  
DEL PADS

| BURN CARD                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | OMS PRPLT PAD |  |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--|
| DEORBIT<br>BURN<br>(1 ENG)             | OMS XFEED RETURN at $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/><br>or <input type="text"/> <input type="text"/> <input type="text"/> at <input type="text"/> <input type="text"/> <input type="text"/> %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |  |
| DEORBIT<br>BURN<br>(RCS)               | RCS I'CNCT TK SW at $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/><br>OMS PRPLT LOW: $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |  |
| UNBALANCED<br>PRPLT<br>DEORBIT<br>BURN | INITIAL CONFIG: <input type="text"/> TK ISOLs – CL<br>While feeding 2 OMS from 1 POD:<br>OMS PRPLT FAIL:<br>Secure <input type="text"/> OMS<br>Secure <input type="text"/> OMS<br>Interconnect <input type="text"/> OMS to RCS<br>THC + X for <input type="text"/> : <input type="text"/> <input type="text"/><br>If <input type="text"/> (XFEED) ENG '↓'<br>When <input type="text"/> OMS QTY:<br>5%: <input type="text"/> OMS TK ISOL (two) – OP<br>4%: <input type="text"/> OMS TK ISOL (two) – CL<br>If <input type="text"/> (STRAIGHT FEED) ENG '↓'<br>OMS ENG FAIL:<br>At $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/><br>or <input type="text"/> <input type="text"/> <input type="text"/> at <input type="text"/> <input type="text"/> <input type="text"/> %<br><input type="text"/> TK ISOL (two) – OP<br><input type="text"/> TK ISOL (two) – CL<br>Return to 2 ENG, 2 POD FLOW:<br>At $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> TK ISOLs – OP<br>OMS ENG FAIL: (XFEED CUE)<br>OMS QTY <input type="text"/> <input type="text"/> %L or <input type="text"/> <input type="text"/> %R |               |  |
| DEORBIT<br>BURN<br>(MIXED<br>XFEED)    | FEED FROM GOOD POD:<br>At $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/><br>or <input type="text"/> <input type="text"/> <input type="text"/> at <input type="text"/> <input type="text"/> <input type="text"/> %<br><input type="text"/> OMS He PRESS (two) – OP<br>TK ISOL (two) – OP<br>XFEED (two) – OP<br>Secure <input type="text"/> OMS<br>OMS PRPLT LOW:<br>AFT RCS RECONFIG at $\Delta VTOT = $ <input type="text"/> <input type="text"/> <input type="text"/><br>OMS ENG FAIL:<br><input type="text"/> OMS He PRESS (two) – OP<br>TK ISOL (two) – OP<br><input type="text"/> OMS XFEED (two) – CL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |  |





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3-2

ENT/ALL/GEN H

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

TIG-45

**B DEORB UPDATE/UPLINK**

1: GNC 50 HORIZ SIT  
3: BFS, GNC 50 HORIZ SIT

CRT1,3 GPS INH – ITEM 43 EXEC

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

MCC UPDATE:  
DEL PAD  
OMS PRPLT PAD  
MCC UPLINK:  
PASS, BFS SV  
PASS, BFS TGT  
BFS IMU GYRO/ACCEL

C G50 √LAND SITE per DEL PAD

On MCC GO:

C CRT1 LOAD – ITEM 22 EXEC  
TIMER – ITEM 23 EXEC

CRT1,3 √PASS & BFS TGTs per MNVR PAD:  
BURN ATT  
 $\Delta$ VTOT  
TGO  
HA HP

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

**C OMS TVC GMBL CHECK**  
(Perform during AOS)

CRT1 SECONDARY CHECK  
Perform SEC L,R then PRI L,R GMBL CK

- \* If down arrow(s) or Ms: \*
- \* Select good GMBL \*

MS LES Pressure Integrity Check

**P APU PRE-START**  
(Perform during AOS)

R4 √HYD BK ISOL VLV (three) tb – CL  
√LG EXTD ISO VLV tb – CL

- \* If tb not CL: \*
- \* R2 (Aff) HYD CIRC PUMP – ON \*
- \* R4 (Aff) ISOL VLV – CL \*
- \* Hold 5 sec, √tb – CL \*
- \* R2 HYD CIRC PUMP – OFF \*

R2 BLR N2 SPLY (three) – ON  
√PWR (three) – ON  
√CNTLR/HTR (three) – B  
√cb APU FU TK VLV ENA (six) – cl  
√APU FU TK VLV (three) – CL  
√AUTO SHTDN (three) – ENA  
√SPEED SEL (three) – NORM  
√OPER (three) – OFF  
HYD MN PUMP PRESS (three) – LO  
APU CNTLR PWR (three) – ON

|                       |
|-----------------------|
| 3: BFS, SM SYS SUMM 2 |
|-----------------------|

P R2 APU FU TK VLV (three) – OP  
√APU/HYD RDY tb (three) – gray  
APU FU TK VLV (three) – CL

|                     |
|---------------------|
| 2: GNC 50 HORIZ SIT |
|---------------------|

|                          |
|--------------------------|
| 3: BFS, GNC 50 HORIZ SIT |
|--------------------------|



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

## P OMS BURN PREP

CRT2 OMS ENG TRIMS

2 ENG BURN:

√TRIM LOAD per MNVR PAD or:

L,R – ITEM 6 +0.0 -5.7 +5.7 EXEC

### 1 ENG BURN:

√TRIM LOAD per MNVR PAD or:

P – ITEM 6 +0.0 EXEC

Good eng Y:

LY – ITEM 7 +5.2 EXEC

RY – ITEM 8 -5.2 EXEC

XFEED: Failed engine prop to  
good engine

### RCS DEORBIT OR RCS

#### He/PRPLT TK FAIL

Do not terminate OMS/RCS

Interconnect

O7 AFT L,R RCS

He PRESS (four) – OP (tb-OP)

TK ISOL (six) – GPC (tb-OP)

MANF ISOL (eight) – OP (tb-OP)

XFEED (four) – GPC (tb-CL)

√MSTR RCS XFEED – OFF

O8 L,R OMS

√He PRESS/VAP ISOL (four) – CL

√TK ISOL (four) – OP (tb-OP)

√XFEED (four) – CL (tb-CL)

FWD RCS

He PRESS (two) – OP (tb-OP)

MANF ISOL (four) – OP (tb-OP)

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

**RCS BURN PREP**

DAP: INRTL/PULSE

P O7 AFT L,R RCS

TK ISOL (six) – CL (tb-CL)

XFEED (four) – OP (tb-OP)

O8 L,R OMS

√He PRESS/VAP ISOL (four) – CL

√TK ISOL (four) – OP (tb-OP)

√R OMS XFEED (two) – CL (tb-CL)

L OMS XFEED (two) – OP (tb-OP)

DAP: AUTO/DISC

**WARNING**

Eye and skin UV damage can  
occur in as little as 10 sec

Don Sunglasses

MS3      Remove and stow Side Hatch UV Filter and  
             Locking Device, and Pyro Box Safing Pin

TIG-25    **VENT DOOR CLOSE**

**NOTE**  
VENT DOOR CLOSE must be  
performed prior to MM302 transition

2: GNC 51 OVERRIDE

|         |      |                                                              |  |
|---------|------|--------------------------------------------------------------|--|
| P       | CRT2 | VENT DOOR CNTL CLOSE – ITEM 44<br>EXEC (*), wait 1 min, then |  |
| C       | CRT1 | GNC, OPS 302 PRO                                             |  |
| MS1/MS2 |      | SEAT INGRESS                                                 |  |

|                             |                        |
|-----------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC      | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC DEORB MNVR EXEC |                        |

### MCC/CREW GO/NO-GO FOR DEORBIT BURN

\* **IF NO-GO FOR DEORBIT BURN:** \*

\* P R2 HYD MN PUMP PRESS (three) – \*

\* NORM \*

\* C CRT1 GNC, OPS 301 PRO \*

#### IF 1 ORBIT DELAY:

Go to section 6, 1-ORB LATE

#### IF 24-HR EXTENSION

P O7 AFT L,R RCS

He PRESS A (two) – GPC (tb-OP)

B (two) – CL (tb-CL)

TK ISOL (six) – OP (tb-OP)

MANF ISOL (eight) – GPC (tb-OP)

XFEED (four) – CL (tb-CL)

O8 FWD RCS

He PRESS A – GPC (tb-OP)

B – CL (tb-CL)

MANF ISOL (four) – GPC (tb-OP)

C6 Unstow ORB PKT C/L

Terminate Deorbit Procedures, go to

DEORB PREP, D/O PREP BACKOUT

|                             |                        |
|-----------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC      | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC DEORB MNVR EXEC |                        |

TIG-20> **MNVR TO DEORBIT BURN ATT**

C C3   √DAP: AUTO  
 B F6/F8   √ADI ATT (two) – INRTL  
           √ERR (two) – MED  
           √RATE (two) – MED  
 C CRT1   MNVR – ITEM 27 EXEC (\*)  
           (√ADI ATT with CRT BURN ATT)  
 B         Copy last DEL PAD and OMS PRPLT PAD  
           data on DEORBIT BURN Cue Cards  
 F6/F8   √DEORBIT BURN and DEORBIT BURN  
           MONITOR Cue Cards installed  
 A14      RCS/OMS HTR  
           FWD RCS   – OFF  
           L POD (two) – A OFF,B OFF  
           R POD (two) – A OFF,B OFF  
           OMS CRSFD LINES (two) –  
           A AUTO,B AUTO  
           FWD RCS JET 5 (one) – OFF  
           AFT RCS JET 5 (one) – OFF

TIG-12 **APU HTR DEACT**

MS A12   APU HTR GAS GEN/FU PUMP (three) – OFF

|                        |                        |
|------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC | 2: GNC DEORB MNVR EXEC |
| 3: BFS, SM SYS SUMM 2  |                        |

►TIG-5 P **SINGLE APU START** (Attempt one APU)

|                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>WARNING</b></p> <p>Do not start APU while APU TEMP INJ &gt; 437 or APU TEMP GG BED &gt; 456</p> |
|-----------------------------------------------------------------------------------------------------------------------------------|

- \* If APU TEMP INJ > 437 or APU \*
- \* TEMP GG BED > 456: \*
- \* ♦ Start any available APU \*
- \* within temperature limits \*

R2 APU FU TK VLV – OP  
 OPER – START/RUN  
 MDU √HYD PRESS ind – LO green

- \* If no start: \*
- \* • Do not execute Deorbit Burn \*
- \* • Shut down APU: \*
- \* APU SHUTDN (ENT PKT, \*
- \* APU/HYD) >> \*

R2 √HYD CIRC PUMP (three) – OFF

|                        |
|------------------------|
| 3: BFS, GNC SYS SUMM 2 |
|------------------------|

C √BURN ATT ± 5°

B Go to DEORBIT BURN (Cue Card)

|                        |                        |
|------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC | 2: GNC DEORB MNVR EXEC |
| 3: BFS, SM SYS SUMM 2  |                        |

►TIG-5 P **SINGLE APU START** (Attempt two APUs)

|                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------|
| <p align="center"><b>WARNING</b></p> <p>Do not start APU while APU TEMP INJ<br/>&gt; 437 or APU TEMP GG BED &gt; 456</p> |
|--------------------------------------------------------------------------------------------------------------------------|

- \* If APU TEMP INJ > 437 or APU \*
- \* TEMP GG BED > 456: \*
- \* ♦ Start any available APU \*
- \* within temperature limits \*

R2 APU FU TK VLV – OP  
OPER – START/RUN  
MDU √HYD PRESS ind – LO green

- \* If no start: \*
- \* APU OPER – OFF \*
- \* Start another APU \*
- \* \*
- \* If second APU starts, \*
- \* shut down unstarted APU: \*
- \* APU SHUTDN (ENT PKT, \*
- \* APU/HYD) \*
- \* If neither starts: \*
- \* • Do not start third APU \*
- \* • Do not execute Deorbit Burn \*
- \* • Shut down unstarted APUs: \*
- \* APU SHUTDN (ENT PKT, \*
- \* APU/HYD) >> \*

R2 √HYD CIRC PUMP (three) – OFF

|                        |
|------------------------|
| 3: BFS, GNC SYS SUMM 2 |
|------------------------|

C √BURN ATT ± 5°

B Go to DEORBIT BURN (Cue Card)

Replace this page with page(s) from Flight Supplement

Replace this page with page(s) from Flight Supplement

(Replace with pages FS 3-15 thru FS 3-18)

3-16

ENT/ALL/GEN H

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1    %

\*  
\* At AFT QTY 1                      THC +X to CAPTURE HP or  
\* If CUR HP:                      TOT AFT QTY 2   % then  
\*                      PREBANK/FRCS COMPLETION  
\*                      to downrange site

\* CAPTURE                        PREBANK/FRCS COMPLETION  
\* HP                      to downrange site

\* PREBANK/FLIP                        PREBANK/FRCS COMPLETION  
\* HP

\* AFT                        THC +X to TGT HP  
\* HP

\* TGT  
\* HP

\* **FRCS COMPLETION** (if applicable):

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02                      OMS ENG(s) – OFF (if < 3 IMU, at  :   )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-4aa/D/K

## DEORBIT BURN (1 ENG)

✓MM302    ✓OMS L or R  
 ✓OMS BURN CONFIG (L or R XFEED)  
 Enter TGO + 10 sec  
 ✓TRIM per MNVR PAD or P +0.0, LY +5.2, RY -5.2  
 L,R OMS He PRESS/VAP ISOL A (two) – OP  
 . . . . . Wait 2 sec . . . . . B (two) – OP  
 ✓DAP – AUTO(PASS)/DISC  
 ADI – LVLH(REF)/HI/MED  
 FLT CNTLR PWR (two) – ON  
 TIG-2 Good OMS ENG – ARM/PRESS  
 - :15 EXEC (NO EXEC > TIG +  :  )  
 - :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec  
 :00 TIG Start watch (✓P<sub>C</sub>, ΔVTOT, ENG VLVs)  
       \* If no OMS ignition: APUs – SHUT DN \*  
       OMS XFEED RETURN at ΔVTOT =     
           or    at   %  
       L,R OMS TK ISOL (four) – OP  
       XFEED (four) – CL

### \* OMS PRPLT FAIL:

\* OMS ENG – OFF

STOP BURN:

APUs – SHUT DN

SAFE

HP

Secure aff OMS

CONTINUE BURN:

Secure aff OMS

ITEM 18 +0 EXEC

✓ADI – LVLH, center needles

Interconnect good OMS to RCS

THC +X(✓OMS% vs RCS Burn Time)

AFT RCS RECONFIG

RCS COMPLETION

### \* OMS ENG FAIL:

\* OMS ENG – OFF

STOP BURN:

APUs – SHUT DN

ENG

FAIL

HP

CONTINUE BURN:

✓ADI – LVLH, center needles

Interconnect good OMS to RCS

THC +X(✓OMS% vs RCS Burn Time)

RCS I'CNCT TK SW

THC +X(✓OMS% vs RCS Burn Time)

AFT RCS RECONFIG

RCS COMPLETION

### \* RCS +X JET FAIL OFF:

STOP BURN:

APUs – SHUT DN

SAFE

HP

CONTINUE BURN:

ITEM 18 +0 EXEC

**G23** Resel jets

ENT-4b/D/J

MS ONLY

3-20

ENT/ALL/GEN H

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1  %

\*  
\* At AFT QTY 1                      THC +X to CAPTURE HP or  
\* If CUR HP:                      TOT AFT QTY 2  % then  
\*                      PREBANK/FRCS COMPLETION  
\*                      to downrange site

\* CAPTURE                       PREBANK/FRCS COMPLETION  
\* HP                      to downrange site

\* PREBANK/FLIP                       PREBANK/FRCS COMPLETION  
\* HP

\* AFT                       THC +X to TGT HP  
\* HP

\* TGT  
\* HP

\* **FRCS COMPLETION (if applicable):**

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02                      OMS ENG – OFF (if < 3 IMU, at :  )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-4bb/D/L

\_\_\_\_\_

TIG      THC +X (No Deorbit > TIG +  :  )  
 Maintain PITCH ATT ERR  $\pm 3^\circ$   
 Monitor  $\Delta VTOT$ :  
     RCS I'CNCT TK SW at  $\Delta VTOT$  =   
     R OMS XFEED (two) – OP  
     L OMS XFEED (two) – CL

AFT RCS RECONFIG AT  $\Delta VTOT =$

RCS COMPLETION

```

* Secure aff OMS
*
* STOP BURN:
* SAFE ☐ ☐ APU's – SHUT DN
* HP
*
* CONTINUE BURN:
* ITEM 18 +Q EXEC
* ☐ G23 Resel jets
* Interconnect good OMS to RCS
* THX +X (√OMS% vs RCS Burn Time)
* AFT RCS RECONFIG
* RCS COMPLETION
*
* RCS +X JET FAIL OFF:
*
* STOP BURN:
* SAFE ☐ ☐ APU's – SHUT DN
* HP
*
* CONTINUE BURN:
* ITEM 18 +Q EXEC
* ☐ G23 Resel jets

```

\_\_\_\_\_

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1    %

\*  
\*  
\* THC +X to CAPTURE HP or  
\* At AFT QTY 1 TOT AFT QTY 2   % then  
\* If CUR HP: PREBANK/FRCS COMPLETION  
\* to downrange site

\* CAPTURE   PREBANK/FRCS COMPLETION  
\* HP to downrange site

\* PREBANK/FLIP   PREBANK/FRCS COMPLETION  
\* HP

\* AFT   THC +X to TGT HP  
\* HP

\* TGT    
\* HP

\* **FRCS COMPLETION (if applicable):**

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF: VGOx = 0, release THC

AFT RCS RECONFIG

Trim Inplane X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-3aa/D/M

## UNBALANCED PRPLT DEORBIT BURN

```

√MM302      √OMS BOTH
Enter TGO + 5 sec
√TRIM per MNVR PAD or P +0.0, LY -5.7, RY +5.7
√DAP – AUTO(PASS)/DISC
ADI – LVLH(REF)/HI/MED
FLT CNTLR PWR (two) – ON
Feed 2 ENG from 1 POD
    L,R OMS He PRESS/VAP ISOL A (two) – GPC
    B (two) – OP
    ☐ OMS TK ISOL (two) – CL (tb-CL)
    L,R OMS XFEED (four) – OP (tb-OP)
TIG-2:      OMS ENG (two) – ARM/PRESS
- :15 EXEC (NO EXEC > TIG + ☐ : ☐ )
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
:00 TIG Start watch (√PC, ΔVTOT, ENG VLVs)
If no OMS ignition: APU – SHUT DN
* While feeding 2 OMS from 1 POD:
* OMS PRPLT FAIL:
* Failed OMS ENG(s) – OFF
* STOP BURN:
* APU – SHUT DN
* Secure ☐ OMS
*
SAFE ☐ ☐ HP -----
*
* CONTINUE BURN:
* ITEM 18 +0 EXEC
* If Both ENGs ↓:
* Secure ☐ OMS
* √ADI – LVLH, center needles
* Interconnect ☐ OMS to RCS
*
* THC +X for ☐ : ☐
* AFT RCS RECONFIG
* RCS COMPLETION
* If ☐ (XFEED) ENG ↓:
* When ☐ OMS QTY:
* 5%: ☐ OMS TK ISOL (two) – OP
* 4%: ☐ OMS TK ISOL (two) – CL
* If OMS PC < 80 or OMS TEMP,
* OMS ENG – OFF
* √ADI – LVLH, center needles
* RCS COMPLETION
* If ☐ (STRAIGHT FEED) ENG ↓:
* OMS ENG FAIL
* OMS ENG FAIL (CONTINUE BURN):
* Failed OMS ENG – OFF
* at ΔVTOT = ☐ ☐ ☐
* or ☐ ☐ ☐ at ☐ ☐ %
* ☐ TK ISOL (two) – OP
* ☐ TK ISOL (two) – CL
*
Return to 2 ENG, 2 POD FLOW at ΔVTOT: ☐ ☐ ☐
☐ OMS TK ISOL (two) – OP (tb-OP)
L,R OMS XFEED (four) – CL (tb-CL)

```

ENT-5a/D/M

MS ONLY

3-24

ENT/ALL/GEN H

\* **OMS PRPLT FAIL:**

Failed OMS ENG – OFF

|                      |                      |
|----------------------|----------------------|
| L OMS<br>FAIL HP     | R OMS<br>FAIL HP     |
| <input type="text"/> | <input type="text"/> |

STOP BURN:

Good OMS ENG – OFF  
APUs – SHUT DN  
Secure aff OMS

CONTINUE BURN:

ITEM 18 +0 EXEC

When good OMS QTY:

5%: L,R OMS XFEED (four) – OP

4%: Good OMS TK ISOL (two) – CL

If OMS  $P_c < 80$  or OMS TEMP,

OMS ENG – OFF

√ADI – LVLH, center needles

RCS COMPLETION

\* **OMS ENG FAIL:**

Failed OMS ENG – OFF

OMS XFEED at 1/2 ΔVTOT at fail

or OMS QTY

%L or

%R

\* **2nd OMS FAIL (ENG or PRPLT):**

Failed OMS ENG – OFF

If PRPLT FAIL: Secure aff OMS

ITEM 18 +0 EXEC

|                        |                                   |
|------------------------|-----------------------------------|
| Both<br>ENG FAIL<br>HP | Either<br>PRPLT FAIL<br>(SAFE) HP |
| <input type="text"/>   | <input type="text"/>              |

STOP BURN:

APUs – SHUT DN

CONTINUE BURN:

√ADI – LVLH, center needles

Interconnect good OMS to RCS

THC +X (√OMS% vs RCS Burn Time)

RCS I'CNCT TK SW (N/A PRPLT FAIL)

THC +X (√OMS% vs RCS Burn Time)

AFT RCS RECONFIG

RCS COMPLETION

\* **RCS COMPLETION:**

THC +X to TGT HP or TOT AFT QTY 1

%

At AFT QTY 1 THC +X to CAPTURE HP or TOT AFT QTY 2

%

If CUR HP: then PREBANK/FRCS COMPLETION  
to downrange site

CAPTURE HP

PREBANK/FRCS COMPLETION to downrange site

PREBANK/FLIP  
HP

PREBANK/FRCS COMPLETION

AFT  
HP

THC +X to TGT HP

TGT  
HP

\* **FRCS COMPLETION (if applicable):**

MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02

OMS ENG(s) – OFF (if < 3 IMU, at  :  )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-5aa/D/O

MS ONLY

3-25

ENT/ALL/GEN H

## DEORBIT BURN (MIXED XFEED)

✓MM302    ✓OMS L(R) or RCS  
 Enter TGO + 10 sec  
 ✓L,R OMS TK ISOL (four) – GPC  
     ✓XFEED (four) – GPC  
 ✓tb config from table (OMS SSR-1)  
 ✓DAP – AUTO(PASS)/DISC  
 ADI – LVLH(REF)/HI/MED  
 FLT CNTLR PWR (two) – ON  
 Man repress to maintain good OMS Tk Ps > 234 psi (simo)  
 If OMS BURN INITIATION:

TIG-2:

✓TRIM per MNVR PAD or: P +0.0, LY +5.2, RY -5.2  
 Good OMS ENG – ARM/PRESS

- :15 EXEC (No EXEC > TIG +  :  )  
 - :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec  
 :00 TIG Start watch (✓P<sub>c</sub>, ΔVTOT, ENG VLVs)  
     \* If no OMS ignition, APUs – SHUT DN \*

If RCS BURN INITIATION:

Man repress L,R OMS > L,R RCS TK Ps  
 L,R RCS XFEED (four) – OP  
 TK ISOL (six) – CL

:00 THC +X (No Deorbit > TIG +  :  )  
 Maintain PITCH ATT ERR ± 3°

FEED FROM GOOD POD:

at ΔVTOT =     
 or    at   %

☐ OMS He PRESS/VAP ISOL (two) – OP  
     TK ISOL (two) – OP (tb-OP)  
     XFEED (two) – OP (tb-OP)  
 SECURE ☐ OMS

### OMS PRPLT LOW

AFT RCS RECONFIG at ΔVTOT =     
 RCS COMPLETION

ENT-5b/D/J

MS ONLY

3-26

ENT/ALL/GEN H

\* **OMS PRPLT FAIL:**

OMS ENG – OFF

STOP BURN:  
APUs – SHUT DN  
Secure L,R OMS

SAFE ☐ ☐ ☐  
HP

CONTINUE BURN:  
Secure L,R OMS  
ITEM 18 +0 EXEC  
√ADI – LVLH, center needles  
RCS COMPLETION

\* **OMS ENG FAIL:**

OMS ENG – OFF

STOP BURN:  
APUs – SHUT DN

ENG ☐ ☐ ☐  
FAIL  
HP

CONTINUE BURN:  
Man repress L,R OMS > L,R RCS TK Ps  
FEED FROM GOOD POD:  
☐ OMS HE PRESS/VAP ISOL  
(two) – OP  
TK ISOL (two) – OP  
☐ OMS XFEED (two) – CL  
L,R RCS XFEED (four) – OP  
TK ISOL (six) – CL  
√ADI – LVLH, center needles  
THC +X (√Lowest OMS % vs  
RCS Burn Time)  
AFT RCS RECONFIG  
RCS COMPLETION

\* **RCS +X JET FAIL OFF:**

STOP BURN:  
APUs – SHUT DN

SAFE ☐ ☐ ☐  
HP

CONTINUE BURN:  
ITEM 18 +0 EXEC  
[G23] Resel jet

\* **RCS COMPLETION:**

THC +X to TGT HP or TOT AFT QTY 1 ☐ ☐ ☐ %

At AFT QTY 1 THC +X to CAPTURE HP or TOT AFT QTY 2 ☐ ☐ ☐ %  
If CUR HP: then PREBANK/FRCS COMPLETION  
to downrange site

CAPTURE HP ☐ ☐ ☐ PREBANK/FRCS COMPLETION to downrange site

PREBANK/FLIP ☐ ☐ ☐ PREBANK/FRCS COMPLETION

AFT ☐ ☐ ☐ THC +X to TGT HP

TGT ☐ ☐ ☐ HP

\* **FRCS COMPLETION (if applicable):**

MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)  
THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF VGOx = 0, Release THC  
+ :02 OMS ENG(s) – OFF (if < 3 IMU, at ☐ : ☐ ☐ )  
\* AFT RCS RECONFIG if INTERCONNECT \*  
Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-5bb/D/K

MS ONLY

3-27

ENT/ALL/GEN H



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|                        |                        |
|------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC SYS SUMM 2 |                        |

|         |                                                 |   |
|---------|-------------------------------------------------|---|
| *       | <b>If no OMS IGNITION at TIG:</b>               | * |
| *       | OMS ENG (two) – OFF                             | * |
| *       | √APU – SHUT DN                                  | * |
| * C3    | MSTR MADS PWR – OFF                             | * |
| * O8    | L,R OMS                                         | * |
| *       | He PRESS/VAP ISOL (four) – CL                   | * |
| *       | √XFEED (four) – CL                              | * |
| *       | GNC, OPS 301 PRO                                | * |
| * F6,F8 | FLT CNTLR PWR (two) – OFF                       | * |
| * C3    | √DAP: AUTO                                      | * |
| *       | √MCC at next AOS                                | * |
| *       |                                                 | * |
| *       | <b>If burn terminated with HP &gt; SAFE HP:</b> | * |
| *       | √OMS ENG (two) – OFF                            | * |
| *       | √APU – SHUT DN                                  | * |
| * C3    | MSTR MADS PWR – OFF                             | * |
| *       | OPS 301 PRO                                     | * |
| *       | If I'CNCT:                                      | * |
| *       | DAP: INRTL/PULSE                                | * |
| * O8    | L,R OMS                                         | * |
| *       | He PRESS/VAP ISOL (four) – CL                   | * |
| *       | √XFEED (four) – CL                              | * |
| * O7    | AFT L,R RCS                                     | * |
| *       | He PRESS A (two) – GPC (tb-OP)                  | * |
| *       | B (two) – CL (tb-CL)                            | * |
| *       | TK ISOL (six) – OP (tb-OP)                      | * |
| *       | XFEED (four) – CL (tb-CL)                       | * |
| * O8    | FWD RCS                                         | * |
| *       | He PRESS A – GPC (tb-OP)                        | * |
| *       | B – CL (tb-CL)                                  | * |
| * F6,F8 | FLT CNTLR PWR (two) – OFF                       | * |
| * C3    | √DAP: AUTO                                      | * |
| *       | √MCC at next AOS on DEORBIT DELAY               | * |
| *       | of 24 hr                                        | * |

**POST  
BURN**

|                        |                        |
|------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC SYS SUMM 2 |                        |

MS Stow Flight Deck SpOC

L10 REC pb – press, hold  
(VTR) PLAY pb – press, simo  
(√red dot displayed)  
Install VIP, VTR covers

B F6,F8 FLT CNTLR PWR (two) – OFF  
C3 √DAP: AUTO

### OMS/RCS POST BURN RECONFIG

P O7 AFT L,R RCS  
√He PRESS (four) – OP (tb-OP)  
√TK ISOL (six) – GPC (tb-OP)  
√XFEED (four) – GPC (tb-CL)

O8 L,R OMS  
He PRESS/VAP ISOL (four) – CL  
√TK ISOL (four) – OP (tb-OP)

\* If OMS PRPLT FAIL, \*  
\* √Aff TK ISOL (two) – CL \*

XFEED (four) – CL (tb-CL)

O3 RCS/OMS PRESS sel – RCS as reqd  
PRPLT QTY sel – RCS as reqd

POST  
BURN

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|                          |                        |
|--------------------------|------------------------|
| 1: GNC 53 ENTRY CONTROLS | 2: BFS, GNC SYS SUMM 2 |
| 3: GNC DEORB MNVR COAST  |                        |

EI-20    C    **SECONDARY ACTUATOR CHECK**  
(if not previously performed and time permits)

NOTE

If port does not bypass during check, bypass affected port after check:

SEC ACT BYPASS – ITEM 8 +X X EXEC

If affected port still does not bypass:

SEC ACT RESET – ITEM 9 +X X EXEC

- R2    1. HYD MN PUMP PRESS (one) – NORM
- CRT3   2. SURF DRIVE ON, ITEM 39 EXEC (\*)  
Wait at least 5 sec
- MDU    √SPI: Stop drive test when elevon posns  
within +12° to -27°  
SURF DRIVE OFF, ITEM 40 EXEC (\*)
- CRT1   3. √POS STIM ENA, ITEM 7 – (no \*)
- C3    4. √FCS CH 1,2,3,4 – AUTO
- CRT1   5. SEC ACT CK, CH 1 – ITEM 1 EXEC (\*)  
START – ITEM 5 EXEC (\*)
- 6. √All CH 1 PORTS BYPASS, '↓'  
STOP – ITEM 6 EXEC (\*)
- C3    7. FCS CH 1 – ORIDE
- CRT1   √All CH 1 PORTS RESET, no '↓'  
FCS CH 1 – AUTO
- 8. Repeat steps 5 thru 7 for CH 2,3,4

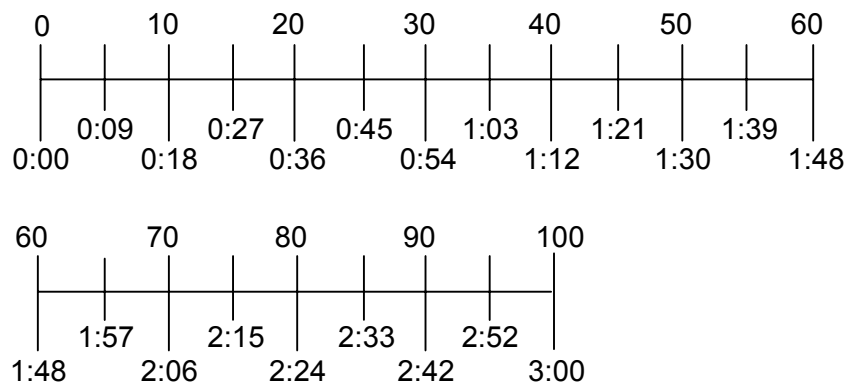
|                        |                         |
|------------------------|-------------------------|
| 1: GNC 23 RCS          | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2 |                         |

EI-18 P **FORWARD RCS DUMP**  
(Use for off-nominal X cg entry)

Determine FWD RCS 'DUMP TO %' using lowest of  
Ox or Fu qty (calculator or DEL PAD)

FOUR JET DUMP:

F RCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

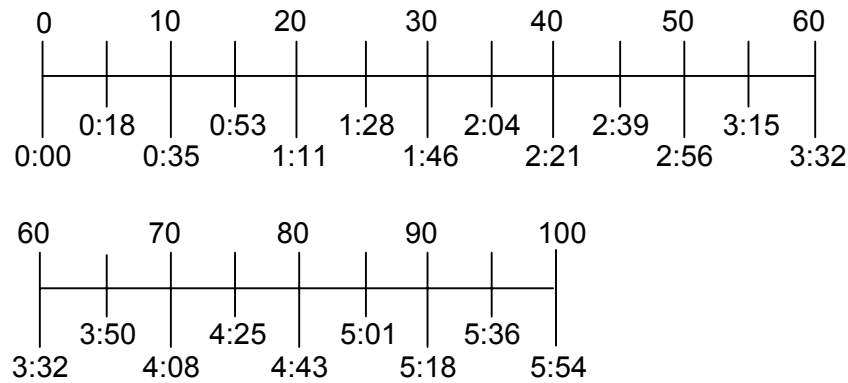
NOTE

During dump, disregard FRCS qty

|                        |                         |
|------------------------|-------------------------|
| 1: GNC 23 RCS          | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2 |                         |

### TWO JET DUMP:

F RCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

### NOTE

During dump, disregard FRCS qty

CRT2 FWD RCS ARM – ITEM 36 EXEC  
DUMP – ITEM 37 EXEC  
(Start watch)

When dump time achieved:

FWD RCS OFF – ITEM 38 EXEC

|                         |                         |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2  |                         |

## ENTRY SW CHECK

C L2   √CAB RELIEF A,B – ENA (tb-ENA)  
           √ANTISKID       – ON  
           √NWS           – 1  
           √ENTRY MODE   – AUTO

X: GNC 51 OVERRIDE

√ROLL MODE – AUTO

B L2/C3   √SPD BK – Full Fwd

P C3       √SRB SEP – AUTO  
           √ET SEP   – AUTO

B F6/F8   √AIR DATA – NAV  
                   ADI ERR   – MED  
                   RATE   – MED

√HSI SEL MODE – ENTRY

C F6               √SOURCE (two) – NAV, 1  
 P F8               √SOURCE (two) – NAV, 2

B F3       √TRIM RHC/PNL (two) – INH  
           √PNL (two) – ON

Exercise BRAKE PEDALS

|                         |                         |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2  |                         |

NOTE

If NAVAIDS OFF due to PKT C/L  
PWRDN, switch ON per PWRDN  
procedure

|   |    |                                                                               |  |
|---|----|-------------------------------------------------------------------------------|--|
| C | F6 | √RADAR ALTM – 1                                                               |  |
| P | F8 | – 2                                                                           |  |
|   | O8 | √RADAR ALTM (two) – ON<br>√MLS (three) – ON (PASS)<br>√MLS CH (three), FS 3-2 |  |
|   |    | If OV103, 104:                                                                |  |
|   | O7 | √TACAN MODE (three) – GPC<br>√ANT SEL (three) – AUTO                          |  |
|   |    | √TACAN CH (three) per DEL PAD or FS 3-2                                       |  |

|                         |                         |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2  |                         |

# EI-13      **REMAINING APUs START**

|                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>WARNING</b></p> <p>Do not start APU while APU TEMP INJ &gt; 437 or APU TEMP GG BED &gt; 456</p> |
|-----------------------------------------------------------------------------------------------------------------------------------|

- \* If an APU failed to start at TIG-5, \*
- \* start remaining good APU only \*
  
- \* If remaining APU TEMP INJ > 437 or \*
- \* APU TEMP GG BED > 456: \*
- \* A12 (Aff) APU HTR GAS GEN/FU \*
- \* PUMP – OFF \*
- \* Start aff APU when within \*
- \* temperature limits \*
  
- R2 APU FU TK VLV (two) – OP
- √APU/HYD RDY tb (two) – gray
  
- \* If tb – bp, attempt normal start \*
  
- APU OPER (two) – START/RUN
- MDU √HYD PRESS ind (two) – LO green
  
- R2 √APU/HYD RDY tb (two) – bp
  
- \* If APU OIL OUT P < 25 and APU \*
- \* TEMP OIL OUT not increasing \*
- \* after APU start or no start: \*
- \* Perform APU SHUTDN (ENT \*
- \* PKT, APU/HYD) \*

|                         |                         |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
| 3: BFS, SM SYS SUMM 2   |                         |

|       |                                   |   |
|-------|-----------------------------------|---|
| *     | If two APUs operating:            | * |
| *     | • Delete HYD FLUID THERMAL        | * |
| *     | CONDITIONING                      | * |
| *     | • Delay following until EI-6:     | * |
| * R2  | HYD MN PUMP PRESS (two) – NORM    | * |
| * MDU | √PRESS ind (two) – HI green       | * |
| *     | Perform SSME HYD REPRESS          | * |
| *     | • At TAEM:                        | * |
| * R2  | APU SPEED SEL (two) – HI >>       | * |
| *     |                                   | * |
| *     | If only one APU operating:        | * |
| * R2  | • APU AUTO SHTDN (one) – INH      | * |
| *     | • Delete SSME HYD REPRESS and     | * |
| *     | HYD FLUID THERMAL CONDITIONING    | * |
| *     | • Delay MM304 trans until EI-2;   | * |
| *     | immediately prior to MM304 trans: | * |
| *     | HYD MN PUMP PRESS (one) – NORM    | * |
| * MDU | √PRESS ind (one) – HI green       | * |
| * R2  | APU SPEED SEL (one) – HI >>       | * |
|       |                                   |   |
|       | HYD MN PUMP PRESS (three) – NORM  |   |
| MDU   | √PRESS ind (three) – HI green     |   |

#### P SSME HYD REPRESS

|    |                                                                                                                                                                                                                            |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R2 | √HYD MN PUMP PRESS (three) – NORM                                                                                                                                                                                          |
|    | <ul style="list-style-type: none"> <li>* If HYD SYS 2 or SYS 1 failed, *</li> <li>* perform following steps using *</li> <li>* SYS 3 in place of failed system *</li> </ul>                                                |
| R4 | HYD MPS/TVC ISOL VLV<br>SYS 2 – OP (hold 5 sec, tb-OP) (MA possible)<br>Wait 10 sec<br>SYS 2 – CL (hold 5 sec, tb-CL)<br><br>SYS 1 – OP (hold 5 sec, tb-OP) (MA possible)<br>Wait 10 sec<br>SYS 1 – CL (hold 5 sec, tb-CL) |

|                         |                         |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
| 3: BFS, SM 0 THERMAL    |                         |

```

* EI-11> P  HYD FLUID THERMAL CONDITIONING      *
*           (MCC CALL)                             *
*
*           CRT2  SURF DRIVE ON – ITEM 39 EXEC      *
*                   Start TIMER                      *
*
*           MDU   √SPI: Observe AEROSURFACES        *
*                   CYCLING                          *
*                   ELEV      U33 to D18 deg         *
*                   RUD       R5  to L5 deg          *
*                   SPDBK     15 to 10 %             *
*                   BDY FLP   93.6 to 3.5 %          *
*
*                   When SURF DRIVE ON (5 min),      *
*           CRT2  SURF DRIVE OFF – ITEM 40 EXEC      *

```

B            Stow DEORBIT BURN and DEORBIT BURN  
                 MONITOR Cue Cards  
                 √ENTRY Cue Cards installed

```

*           If 8 psi cabin entry,                      *
*  * ALL      √Tabs/Visor – CL/LES O2 – ON *

```

## G SUIT INFLATION

|                                                                                                                                                            |                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <p>* <b>FCS CH CONFIG</b></p> <p>* If less than four PASS GPCs, config FCS</p> <p>* CHs so that each GPC cmds equal</p> <p>* number of CHs (see table)</p> | <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|

## Config SURF FBK (see table)

\* \* If CH 4 – OFF, do not desel PASS SURF FDBK \*

El-6 Go to ENTRY MANEUVERS (Cue Card)



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## ENTRY CUE CARDS

ENT CUE  
CARDS



MS ONLY

4-1

ENT/ALL/GEN H





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ENT CUE  
CARDS



MS ONLY

4-2

ENT/ALL/GEN H



## ENTRY NO-GO CHECKLIST

| FAILURE OF:                               | AERO<br>PTI DTO | AUTO<br>FCS<br>MODE | XWIND<br>DTO<br>① |
|-------------------------------------------|-----------------|---------------------|-------------------|
| <u>APU/HYD:</u> 1 APU .....               |                 |                     | X                 |
| 2 APUs .....                              | X               |                     | X                 |
| <u>DISPLAYS:</u> 2 ADIs .....             | X               |                     |                   |
| CDR HUD .....                             |                 |                     | X ②               |
| <u>CONTROLLERS:</u>                       |                 |                     |                   |
| RHC: 1L .....                             |                 |                     | X                 |
| 2L & 2R .....                             | X               |                     | X                 |
| RPTA: 2L or 2R .....                      |                 |                     | X                 |
| <u>GNC:</u> 2 AAs (LAT) .....             | X               |                     | X                 |
| 2 AAs (NORM) .....                        | X(M < 2.5)      | X ③                 |                   |
| 2 RGAs .....                              | X               |                     | X                 |
| 2 R DDU PWR SPLY .....                    |                 |                     | X                 |
| 2 IMU (or 1 IMU + BITE) .....             | X               |                     | X                 |
| 2 ADTAs .....                             |                 |                     | X                 |
| ADTA NOT INCORP                           |                 |                     |                   |
| OR DLMA .....                             |                 | X (M < 2)           |                   |
| MLS NOT INCORP .....                      |                 | X (< 6K ft)         |                   |
| 2 FCS CH (same surface) .....             | X               |                     | X                 |
| <u>DPS:</u> 1 GPC (not restrung) .....    |                 |                     | X ④               |
| 2 GPC (restrung) .....                    | X               |                     |                   |
| 2 GPC (not restrung) .....                | X               | X ③                 | X                 |
| 1 FF .....                                |                 |                     | X ④               |
| 2 FF .....                                | X               | X ③                 | X                 |
| 2 FA .....                                | X               |                     | X                 |
| <u>RCS:</u> LEAK (AFT – during ENT) ..... | X               |                     |                   |
| 2 YAW JETs (same side) .....              | X               |                     |                   |
| MIN RCS QTY .....                         | X               |                     |                   |
| <u>TRIM:</u> Ail > ± 2.0 deg .....        | X               |                     |                   |
| <u>DOWNMODE:</u>                          |                 |                     |                   |
| FCS problem .....                         | X               | X                   | X                 |
| AOA .....                                 | X               |                     | X                 |
| <u>PLB:</u> PLBD Latch Gang .....         | X               |                     |                   |
| <u>LDG/DECEL:</u>                         |                 |                     |                   |
| Tire Leak .....                           |                 |                     | X                 |
| HYD BRAKE ISOL VLV .....                  |                 |                     | X                 |
| < 100% Brakes .....                       |                 |                     | X                 |
| NWS .....                                 |                 |                     | X                 |
| <u>ENERGY – OFF NOMINAL:</u>              |                 |                     |                   |
| Roll Ref Alert .....                      | X               |                     |                   |
| Above Upper Traj Line .....               | X               |                     |                   |
| MCC GCA, or VEL & PSN                     |                 |                     |                   |
| update .....                              | X               | X                   |                   |
| No A/L by 6K ft .....                     |                 | X                   |                   |
| <u>DATA:</u> SOLID STATE RECORDERS .....  | X (LOS)         |                     |                   |
| <u>XWIND:</u>                             |                 |                     |                   |
| < 10 Knots Peak .....                     |                 |                     | X                 |
| > 15 Knots Peak .....                     |                 |                     | X                 |
| > 10 Knots Gust .....                     |                 |                     | X                 |
| <u>GROUND SYSTEMS:</u>                    |                 |                     |                   |
| No Runway Aim Point .....                 |                 |                     | X                 |

### NOTES

- ① Consider runway redesignation (M > 6) to avoid Xwind landing
- ② GO if PAPI and BALL BAR available
- ③ Pitch AUTO mode NO-GO for M < 2.5
- ④ GO if only string 4 affected

ENT-7a/E/K

MS ONLY

4-3

ENT/ALL/GEN H

### ENTRY MANEUVERS

| FLIGHT CONDITIONS                                   | MANEUVER                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EI-5                                                | ✓LVLH ATT<br>GNC, OPS 304 PRO<br>* If PREBANK, R/Y – CSS *<br>* Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> *<br>* Maintain PREBANK ±5° *<br>If previous OMS OX TK, He TK, or RCS OX TK leak:<br><input type="text"/> G51 VENT DOOR CNTL OPEN – ITEM 43 EXEC<br>(AOA) <input type="text"/> SPI When SB position – 0%:<br>✓HYD MN PUMP PRESS (three) – LO |
| $\bar{q} = 1$                                       | (AOA) HYD MN PUMP PRESS (three) – NORM                                                                                                                                                                                                                                                                                                                                                        |
| 'Guidance Box' @<br>$\bar{q} \sim 8$<br>or<br>D ~ 3 | CLOSED LOOP GUIDANCE ____:____:____<br>* If PREBANK: P,R/Y – AUTO *<br>Begin AIL trim monitoring                                                                                                                                                                                                                                                                                              |
| V = 24K                                             | If previous OMS OX TK, He TK, or RCS OX TK leak:<br><input type="text"/> G51 VENT DOOR CNTL CLOSE – ITEM 44 EXEC                                                                                                                                                                                                                                                                              |
| D = 11                                              | ✓DRAG H                                                                                                                                                                                                                                                                                                                                                                                       |
| $\Delta Az = 10.5^\circ$                            | FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)                                                                                                                                                                                                                                                        |
| V = 19K                                             | ✓HYD MPS/TVC ISOL VLV SYS (three) – CL                                                                                                                                                                                                                                                                                                                                                        |
| V = 15K                                             | ✓NAVAIDS (I/O RESET if reqd)                                                                                                                                                                                                                                                                                                                                                                  |
| V = 12K                                             | RAD BYP VLV MODE (two) – AUTO<br>CNTLR LOOP (two) – AUTO B(A)                                                                                                                                                                                                                                                                                                                                 |
| V = 10K                                             | ✓SPDBK to 81%                                                                                                                                                                                                                                                                                                                                                                                 |

ENT-6a/E/P



Replace this page with page(s) from Flight Supplement |



Replace this page with page(s) from Flight Supplement

(Replace with pages FS 4-6 thru FS 4-10)

4-6

ENT/ALL/GEN H

## ENTRY CONTROL

### ARCS QTY (L + R) < 10 %

|                                        |                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------|
| ARCS QTY = 0 & JETS<br>FAIL OFF        | 1. ENTRY MODE – NO Y JET<br>(R/Y CSS; expect sluggish control)                                            |
| $\bar{q} \geq 20$ & M > 6              | 2. <b>G51</b> ELEVON FIXED – ITEM 18 EXEC (*)                                                             |
| CONTROL<br>PROBLEMS* &<br>ARCS QTY > 0 | 3. ENTRY MODE – AUTO<br>When control regained:<br>4. ENTRY MODE – NO Y JET<br>5. $\sqrt{\text{AIL}}$ trim |
| M < 6 & ARCS QTY > 0                   | 6. ENTRY MODE – AUTO                                                                                      |
| M < 5                                  | 7. TRIM/RHC PNL – ENA<br>8. TRIM ROLL – away from AIL trim (to < 1)                                       |

\*Region of least margin: M 12-8

### AIL TRIM $\geq 3^\circ$

|                          |                                                                                                                                                                                                                                                        |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----|----|-----|---|----------|----|----|----|----|----|----|
| TAL                      | 1. <b>G51</b> WRAP MODE – ITEM 45 EXEC (ACT)                                                                                                                                                                                                           |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| AIL trim = 5             | 2. BF – MAN<br>3. BF – UP (to 0%)                                                                                                                                                                                                                      |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| NO Y JET                 | 4. Perform roll reversals at 3°/s (expect sluggish control)                                                                                                                                                                                            |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| M < 13 &<br>AIL trim = 5 | 5. P – CSS<br>6. Fly $\alpha$ per schedule: <table><tr><td>M</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8-6</td><td>5</td></tr><tr><td><math>\alpha</math></td><td>37</td><td>36</td><td>35</td><td>33</td><td>30</td><td>26</td></tr></table> | M  | 12 | 11 | 10  | 9  | 8-6 | 5 | $\alpha$ | 37 | 36 | 35 | 33 | 30 | 26 |
| M                        | 12                                                                                                                                                                                                                                                     | 11 | 10 | 9  | 8-6 | 5  |     |   |          |    |    |    |    |    |    |
| $\alpha$                 | 37                                                                                                                                                                                                                                                     | 36 | 35 | 33 | 30  | 26 |     |   |          |    |    |    |    |    |    |
| M < 5                    | 7. TRIM/RHC PNL – ENA<br>8. TRIM ROLL – away from AIL trim (to < 1)<br>9. P – AUTO                                                                                                                                                                     |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| M < 2                    | 10. BF – AUTO                                                                                                                                                                                                                                          |    |    |    |     |    |     |   |          |    |    |    |    |    |    |

ENT-10a/A,E/B

### HIGH-FREQ OSC OR SURF/JET CYCLE

|                          |                                                        |
|--------------------------|--------------------------------------------------------|
| Returning PL<br>> 10K lb | 1. <b>G51</b> $\sqrt{\text{FILTER ALT}}$ – ITEM 21 (*) |
|                          | 2. P, R/Y – CSS                                        |
| Osc/Cycle continues      | 3. ENTRY MODE – LO GAIN                                |
| Osc/Cycle stops          | 4. ENTRY MODE – AUTO<br>5. P, R/Y – AUTO               |

ENT-10b/A,E/B



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MS ONLY

4-12

ENT/ALL/GEN H



POST  
LDG

## POST LANDING PROCEDURES

POST  
LDG

- \* **LOSS OF COMM** \*
- \* In event of loss of comm (day or night), the following signals \*
- \* will be utilized to indicate onboard status to convoy: \*
- \* NOTE \*
- \* Before declaring loss of comm, attempt to contact \*
- \* convoy on 259.7 using PRC-112 radio channel A \*
- \* Crew should continue signals until acknowledged by convoy \*
- \* From Crew (with Mini Mag light stowed in ACES or Spotlight \*
- \* stowed in volume 3b) \*
- \* Crew OK Circular motion \*
- \* OMS/RCS & Hatch safed Circular motion \*
- \* APU shutdn Circular motion \*
- \* Crew needs assistance; \*
- \* will open/blow hatch Vertical motion \*
- \* Crew needs assistance; \*
- \* will not open/blow hatch Horizontal motion \*
- \* From Convoy \*
- \* Convoy will acknowledge crew signals with sequence of \*
- \* three flashes of headlights on convoy vehicle \*
- \* Continuous flashing – Emer pwrdsn and egress \*
- \* \*\*\*\*\* \*
- \* **EXPEDITED PWRDN** \*
- \* Accomplish for: \*
- \* • Loss of all comm, including hand signals, with convoy \*
- \* elements \*
- \* • Loss of telemetry and onboard systems monitoring \*
- \* visibility \*
- \* • Fuel leak (OMS, RCS, or APU) if: \*
- \* - Nonisolatable, or \*
- \* - Leak occurs during RTLS, TAL, AOA, or \*
- \* POST D/O TIG \*
- \* • Fire Suppression Bottle discharged during entry for \*
- \* confirmed or suspected fire \*
- \* If APU, OMS, RCS Fuel Leak: \*
- \* APUs OFF ASAP \*
- \* As time permits: \*
- \* RCS,OMS SAFING (RJDs), 5-4 \*
- \* GPC DEACT \*
- \* O6 GPC MODE 1,2,3,4,5 (five) – STBY (tb-bp) \*
- \* – HALT \*
- \* ET UMBILICAL DOOR OPENING, 5-5 (RTLS/TAL only) \*
- \* ‘MODE 5’ POST LANDING EGRESS Cue Card (CDR or \*
- \* MCC call) then EMER PWRDN Cue Card \*

|                        |                   |
|------------------------|-------------------|
| 1: GNC VERT SIT 2      | 2: GNC SYS SUMM 1 |
| 3: BFS, GNC VERT SIT 2 |                   |

## POST LANDING

|                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|
| <p><b>WARNING</b><br/> APUs OFF ASAP for APU<br/> hydrazine, OMS, RCS (FWD or<br/> AFT), or MPS propellant leak</p> |
|---------------------------------------------------------------------------------------------------------------------|

00:00

|      |                                                                          |
|------|--------------------------------------------------------------------------|
| C    | After orbiter stops:<br>Report, "WHEELS STOP"<br>Establish COMM with NCC |
| L2   | SPD BK – MAN, full fwd<br>NWS – OFF                                      |
| P    | If RTLS or TAL abort:<br>Perform ET UMBILICAL DOOR<br>OPENING, 5-5       |
| R2   | √APU AUTO SHTDN (three) – ENA<br>√SPEED SEL (three) – NORM               |
| R1   | √AC BUS SNSR (three) – AUTO                                              |
| C F6 | FLT CNTLR PWR – OFF                                                      |
| B F3 | HUD PWR (two) – OFF                                                      |
| P C3 | If ELS:<br>MSTR MADS PWR – OFF<br>DoD ELS, MCC call DoD OSC on NCC       |

**NOTE**  
MCC will report "GO/NO-GO  
TO DOFF SUITS" (post safety  
assessment)

|                        |                   |
|------------------------|-------------------|
| 1: GNC VERT SIT 2      | 2: GNC SYS SUMM 1 |
| 3: BFS, GNC VERT SIT 2 |                   |

## CDR

### NOTE

CDR activities are now on even numbered pages and PLT activities on odd numbered pages

### **RCS, OMS SAFING (RJDs)**

C3       √OMS ENG (two)       – OFF  
O14:F       RJD DRIVER (nine) – OFF  
O15:F       LOGIC (eight)   – OFF  
O16:F       OMS ENG VLV (two) – OFF

C,P,MS

### **DRAG CHUTE SAFING**

(Not performed if ELS)

O15:E       cb MNB DRAG CHUTE SYS 2 – op  
O16:E       MNC DRAG CHUTE SYS 1 – op  
F2,F3,       √DRAG CHUTE pb (six)       – lt off  
F4

### **DEACT AIR DATA PROBE HTRS**

C3       √AIR DATA PROBE (two) – DPY

C,P,MS

### **LANDING GEAR SAFING**

(Not performed if ELS)

R14:F       cb ESS 1BC LDG GEAR ARM/DN  
RESET – cl

### NOTE

SM0 TIRE PRESS msgs occur when LG ARM/DN RESET performed

A12       LG ARM/DN RESET – RESET  
F6,F8       √LDG GEAR pb (four) – lt off  
A12       LG ARM/DN RESET – dn  
R14:F       cb ESS 1BC LDG GEAR ARM/DN  
RESET – op

Check with MS3. Report to MCC: “RJDs OFF, SIDE HATCH, DRAG CHUTE, AND LANDING GEAR SAFED” (MCC report to NCC)

|                        |                   |
|------------------------|-------------------|
| 1: GNC VERT SIT 2      | 2: GNC SYS SUMM 1 |
| 3: BFS, GNC VERT SIT 2 |                   |

## PLT ET UMBILICAL DOOR OPENING

Report to MCC, "ET UMBILICAL DOORS ARE COMING OPEN"

R2 ET UMB DR  
MODE – GPC/MAN  
R LAT – REL (tb-bp, REL ~6 sec)  
– OFF  
DR – OP (tb-bp)  
Wait 12 sec, R DR – OFF (tb-bp)  
L LAT – REL (tb-bp, REL ~6 sec)  
– OFF  
DR – OP (tb-bp)  
Wait 12 sec, L DR – OFF (tb-bp)  
MODE – GPC

## HYDRAULIC LOAD TEST (ON MCC CALL)

### NOTE

Minimum of two operating hyd systems is reqd for this test

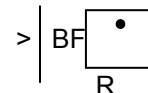
F4 BDY FLP pb – MAN  
F8 √FLT CNTLR PWR – ON

### NOTE

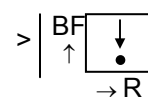
If only two systems are operating, do not depressurize either hyd pump

R2 HYD MN PUMP PRESS 1 – LO (MA)  
C3 Run Full Load Test:  
BDY FLP – TRAIL  
RHC – Forward ctr  
Rudder full left  
When set, do following simo:  
BDY FLP – UP (to ≤ 6%)  
RHC – move to aft ctr  
Rudder full right  
RHC – release  
Rudder – neutral  
BDY FLP – reset to TRAIL  
R2 HYD MN PUMP  
PRESS 1 – NORM  
3 – LO (MA)  
C3 Repeat Load Test  
R2 HYD MN PUMP PRESS 3 – NORM

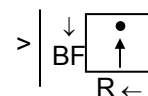
### SETUP:



### LOAD TEST:



### RELEASE:



|                        |                   |
|------------------------|-------------------|
| 1: GNC VERT SIT 2      | 2: GNC SYS SUMM 1 |
| 3: BFS, GNC VERT SIT 2 |                   |

## CDR

MCC Report GO/NO-GO for DPS transition

### DPS TRANSITION – GNC 9 (If PASS)

#### 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.

MCC will call for BFS to be taken from RUN to  
 STBY for Solid State Recorder dumping and PL  
 monitoring as reqd

√BFC CRT DISP – ON

CRT3 BFS, GNC, OPS 000 PRO

3: BFS, GNC BFS MEMORY

1: GNC 0 GPC MEMORY

Verify:

| CONFIG<br>GPC | 9<br>12340 |
|---------------|------------|
| STR 1         | 1          |
| 2             | 2          |
| 3             | 3          |
| 4             | 4          |
| PL 1/2        | 1          |
| CRT 1         | 1          |
| 2             | 2          |
| 3             | 3          |
| 4             | 0          |
| L 1           | 1          |
| 2             | 2          |
| MM 1          | 1          |
| 2             | 2          |

CRT1 GNC, OPS 901 PRO

|                        |                   |
|------------------------|-------------------|
| 1: GNC VERT SIT 2      | 2: GNC SYS SUMM 1 |
| 3: BFS, GNC VERT SIT 2 |                   |

**PLT SET BODY FLAP (Prior to OPS 9)**

F4 BODY FLAP pb – MAN  
C3 BODY FLAP – DOWN (100%)

**SSME REPO (If PASS, OPS 9, and GO from MCC)**

NOTE

Do not resume GNC SPEC 105 until 'VFB 84 – COMPLETE' msg rcvd

**2: GNC 105 TCS CONTROL**

R4 HYD MPS/TVC ISOL VLV SYS (three) – OP  
Hold 5 sec, √tb – OP

- \* If less than two HYD MPS/TVC \*
- \* ISOL VLVs open, √MCC \*

CRT2 CLEAR MSG – ITEM 8 EXEC  
SELECT ID – ITEM 1 + 0 2 EXEC  
√NAME VFB 84 (~15 sec)  
MM READ – ITEM 2 EXEC  
√'AI MODE 1(0,3) COMPLETE' msg (~2.5 min)  
√'VFB 84 – COMPLETE' msg

- \* If any 'AI MODE X FAILED RETEST' msg: \*
- \* √MCC, report ECP ERROR \*
- \* To terminate: CANCEL – ITEM 5 EXEC \*

Go to APU/HYD SHUTDN >>

**SPDBK REPO (No SSME REPO, ON MCC GO)**

R4 √HYD MPS/TVC ISOL VLV SYS (three) – CL

**2: GNC 113 ACTUATOR CONTROL**

CRT2 AI MODE 1 MDM – ITEM 23 EXEC (\*)  
√ACTUATOR GIMBALING STATUS – RUN, CPLT  
SB – ITEM 1 EXEC (\*)  
RATE – ITEM 29 + 1 EXEC  
FIN POS – ITEM 30 + 8 EXEC  
√START 31 – → ←  
START – ITEM 31 EXEC (\*→ ←)  
√STATUS – RUN, CPLT (~30 sec)

- \* If STATUS – STOP or BUSY: \*
- \* √MCC, (To terminate: ITEM 32 EXEC) \*

Go to APU/HYD SHUTDN >>

|               |               |
|---------------|---------------|
| 1: AS DESIRED | 2: AS DESIRED |
| 3: AS DESIRED |               |

## CDR RAD RECONFIG

(On MCC call, unless no COMM)

- O1 When FREON EVAP OUT TEMP  
> 40 degF:  
If RTLS/TAL/AOA, go to NH3  
RECONFIG, 5-22 >>
- L1 RAD OUT TEMP – HI  
H2O PUMP LOOP 1 – ON  
Proceed to NH3 ACT

## NH3 ACT

- O1 When FREON EVAP OUT TEMP > 55  
degF, select one of the following as  
specified by MCC:
- L1 NH3 CNTLR A – PRI/GPC ( )  
– SEC/ON ( )  
B – PRI/GPC ( )  
– SEC/ON ( )

- \* During NH3 ops: \*
- \* If EVAP OUT TEMP alarm and \*
- \* O1 FREON EVAP OUT TEMP < 32 degF: \*
- \* L1 1. FREON PUMP LOOP 1,2 \*
- \* (two) – OFF (ASAP) \*
- \* 2. √H2O PUMP LOOP 1 – ON \*
- \* 3. NH3 CNTLR A(B) – OFF \*
- \* 4. FREON PUMP LOOP 1 – B \*
- \* Wait 3 min, then: \*
- \* 5. FREON PUMP LOOP 2 – B \*
- \* 6. Go to NH3 RECONFIG, 5-22 >> \*
- \* If EVAP OUT TEMP alarm and \*
- \* O1 FREON EVAP OUT TEMP > 65 degF: \*
- \* 7. Go to NH3 RECONFIG, 5-22 \*

|                      |               |
|----------------------|---------------|
| 1: AS DESIRED        | 2: AS DESIRED |
| 3: BFS, SM SYS SUM 2 |               |

## PLT      APU/HYD SHUTDN

√SSME REPO complete (if PASS)

R4      HYD MPS/TVC ISOL VLV (1,2,3; 5 sec interval) – CL (hold each 5 sec, tb-CL)

R2      BLR PWR (three) – OFF

N2 SPLY (three) – OFF

APU OPER

(1,2,3; 5 sec interval) – OFF (MA)

APU FU TK VLV (three) – CL

√Shutdn (HYD PRESS < 200)

CNTRLR PWR (three) – OFF

MCC      Report to MCC, “APU/HYD SHUTDOWN”  
 Report to Convoy 1, “SSME REPO COMPLETE AND APU/HYD SHUTDOWN”  
 Report, “GO/NO-GO FOR VENT DOOR PURGE POSITIONING”

## POST LANDING MPS RECONFIG (After APU/HYD shutdn + 1 min)

### NOTE

Expect multiple MAs for MPS  
 He P as regs bleed down

R2      MPS He ISOL (six) – CL  
          I’CNCT L – OUT OP  
          PNEU L ENG He XOVR – CL

|               |               |
|---------------|---------------|
| 1: AS DESIRED | 2: AS DESIRED |
| 3: AS DESIRED |               |

**C,MS**

**C**

## **PCS DEACTIVATION**

L2 O2 SYS 1,2 SPLY (two) – CL (tb-CL)  
√EMER tb – bp

**MS**

## **GPS PWRDN**

- \* If landing not at KSC, EDW, or NOR \*
- \* GPS ENCRYPT – ZEROIZE \*
- \* Wait 1 sec \*
- \* GPS ENCRYPT – NORMAL \*

If OV103,4:  
A13

GPS POWER – OFF  
PRE AMPL UC – OFF  
LC – OFF

If OV105:  
O7

GPS POWER (three) – OFF  
PRE AMPL UPPER (three) – OFF  
LOWER (three) – OFF

**MCC**

Report, “GO/NO-GO FOR EXTENDED  
PWR UP”

**If GO for EXTENDED PWR UP, go to  
SYS DEACT FOR EXTENDED PWR UP,  
5-14**

|               |                        |
|---------------|------------------------|
| 1: AS DESIRED | 2: GNC 105 TCS CONTROL |
| 3: AS DESIRED |                        |

## PLT VENT DOOR PURGE POSITIONING (PASS)

(on MCC GO, not performed if ELS)

(Do not perform during SYS DEACT FOR  
EXTENDED PWRUP)

CRT2 CLEAR MSG – ITEM 8 EXEC  
SELECT ID – ITEM 1 +0 3 EXEC  
√NAME 'VFB89' (~15 sec)  
MM READ – ITEM 2 EXEC  
After 'VFB89 – ENTERING 30 MIN  
DELAY' msg, CANCEL – ITEM 5 EXEC

## RCS, OMS VALVE TEST

Pause 1 sec between each line

O7 √MSTR RCS XFEED – OFF  
O8 L,R OMS He PRESS/VAP ISOL (four) –  
CL,GPC  
L OMS XFEED (two) – OP (tb-OP),  
then – CL (tb-CL)  
R OMS XFEED (two) – OP (tb-OP),GPC  
then – CL (tb-CL),GPC  
L,R OMS TK ISOL  
(four) – CL (tb-CL),  
then – OP (tb-OP),GPC  
L OMS XFEED (two) – OP (tb-OP),GPC  
FWD RCS  
He PRESS (two) – CL (tb-CL),GPC  
TK ISOL (two) – CL (tb-CL),  
then – OP (tb-OP),GPC  
MANF ISOL (five) – CL (tb-CL)  
then – OP(tb-OP),GPC  
O7 L,R RCS  
He PRESS (four) – CL (tb-CL),GPC  
MANF ISOL (ten) – CL (tb-CL),  
then – OP (tb-OP),GPC  
TK ISOL (six) – CL (tb-CL)  
XFEED (four) – OP (tb-OP),  
then – CL (tb-CL),GPC  
TK ISOL (six) – OP (tb-OP),GPC



|        |        |
|--------|--------|
| 1: OFF | 2: OFF |
| 3: OFF |        |

**PLT**

NOTE

**If GO for EXTENDED PWR UP, go to SYS DEACT FOR EXTENDED PWR UP, 5-15.**

If NO-GO for EXTENDED PWR UP, continue ops

**HATCH OPENING (not KSC,EDW,NOR)**

Before hatch opening:  
√Tabs/Visor – CL

Green Apple – PULL

**EXTEND  
PWR UP**

**VEHICLE PWRDN (on GO from CDR)**

NOTE

All vehicle lighting and orbiter  
O2 will be lost at pwrdn

|    |                           |       |
|----|---------------------------|-------|
| R1 | MN BUS TIE (three)        | – OFF |
|    | FC/MN BUS (three)         | – OFF |
|    | ESS BUS SOURCE FC (three) | – OFF |

**EGRESS**

Pull G SUIT controller clip (if inflated)  
Egress seat, orbiter  
(Helmet reqd if ELS)

**MCC TO KSC HANDOVER (at crew egress)**

|                     |               |
|---------------------|---------------|
| 1: GNC 0 GPC MEMORY | 2: AS DESIRED |
| 3: AS DESIRED       |               |

**CDR**

### **SYS DEACT FOR EXTENDED PWR UP**

(Do not perform during VENT DOOR PURGE POSITION, SSME REPO, or SPDBK REPO sequence)

#### 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

**EXTEND  
PWR UP**

|                     |
|---------------------|
| 1: GNC 0 GPC MEMORY |
|---------------------|

| CONFIG<br>GPC | 9<br>10000 |
|---------------|------------|
| STR 1         | 1          |
| 2             | 1          |
| 3             | 1          |
| 4             | 1          |
| PL 1/2        | 1          |
| CRT 1         | 1          |
| 2             | 1          |
| 3             | 1          |
| 4             | 0          |
| L 1           | 1          |
| 2             | 1          |
| MM 1          | 1          |
| 2             | 1          |

CRT1 GNC, OPS 901 PRO

### **GPC PWRDN**

O6 GPC MODE 2,3,4 (three) – STBY (tb-bp)  
– HALT

CRT1 If no GPC failure,  
ERR LOG RESET – ITEM 48 EXEC

O6 GPC PWR 2,3,4 (three) – OFF  
LTG (five) – OFF

C2 IDP/CRT 2 PWR – OFF

Inform MS2 to proceed with MS Sys  
Deact activities, 5-18

|                     |               |
|---------------------|---------------|
| 1: GNC 0 GPC MEMORY | 2: AS DESIRED |
| 3: AS DESIRED       |               |

**PLT            SYS DEACT FOR EXTENDED PWR UP**

|       |                           |
|-------|---------------------------|
| F8    | FLT CNTLR PWR – OFF       |
| F3    | TRIM PNL            – OFF |
|       | √RHC                – INH |
| R4    | HYD BK HTR (three) – OFF  |
| O8    | LTG (five)        – OFF   |
| O17:A | ATVC (four) – OFF         |

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

### **C,MS,PS**

|   |    |                |        |
|---|----|----------------|--------|
| C | L2 | ANTISKID       | – OFF  |
|   |    | √NWS           | – OFF  |
|   | C3 | √FCS CH (four) | – AUTO |
|   | F3 | TRIM PNL       | – OFF  |
|   |    | √RHC           | – INH  |

### **IDP/CRT 4 PWRDN**

|    |     |                     |
|----|-----|---------------------|
| MS | R12 | IDP/CRT 4 PWR – OFF |
|----|-----|---------------------|

### **EGRESS**

(After MS Sys Deact complete, and ASP Comm check with MCC complete)

|   |    |                  |
|---|----|------------------|
| C | L5 | L COMM PWR – OFF |
|---|----|------------------|

|         |  |                                                          |
|---------|--|----------------------------------------------------------|
| C,MS,PS |  | Pull G SUIT controller clip (if inflated)<br>Egress seat |
|---------|--|----------------------------------------------------------|

|             |                   |                    |
|-------------|-------------------|--------------------|
| MS<br>MS,PS | A11,A15,<br>MO39M | COMM CCU PWR – OFF |
|-------------|-------------------|--------------------|

Unstow 'Return to Houston' Bags

|         |  |                |
|---------|--|----------------|
| C,MS,PS |  | Egress orbiter |
|---------|--|----------------|

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

**PLT**

**EGRESS**

(When desired after ground support personnel establishes comm at PS station)

R6            R COMM PWR – OFF  
                  Pull G SUIT controller clip (if inflated)  
                  Egress seat, orbiter

**MCC TO KSC HANDOVER**

(At crew egress or GSE cooling activation, whichever occurs later)

**MS EXT  
 PWR UP**

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

## MS MS SYS DEACT FOR EXTENDED PWR UP

MS1 Perform POST LANDING PAYLOAD ACTIVITIES  
(if reqd), FS 5-19

## MS2 LRU DEACTIVATION (After APU/HYD SHUTDN)

O14,O15,  
O16      BRAKES (three)      – OFF  
             RGA (four)      – OFF  
             IMU (three)      – OFF  
             ASA (four)      – OFF  
             cb ADTA (four)      – op  
             cb/sw ACCEL (four)      – op/OFF  
             cb DDU (six)      – op  
                 MNA NWS      – op  
                 MNB NWS      – op  
O7      TACAN MODE (three)      – OFF  
             (OV103,104 only)  
O8      RADAR ALTM (two)      – OFF  
             MLS (three)      – OFF  
C      L1      IMU FAN (three)      – OFF

## APU HEATER DEACTIVATION (After APU/HYD SHUTDN)

A12      APU HTR  
             TK/FU LN/H2O SYS (six)      – OFF  
             √GAS GEN/FU PUMP (three) – OFF  
             LUBE OIL LN (three)      – OFF

## RCS/OMS HEATERS PWRDN

A14      OMS CRSFD LINE A,B (two) – OFF  
             If reqd, install and lock PL Bay Window  
             Shades  
MS2      Inform CDR, “POST LANDING  
             PROCEDURE COMPLETE”

MS EXT  
PWR UP

I

Replace this page with page(s) from Flight Supplement

Replace this page with page(s) from Flight Supplement

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

## **ASP            INTEGRATED POST LANDING PROCEDURES FOR EXTENDED PWR UP**

|               |     |                                                                                          |
|---------------|-----|------------------------------------------------------------------------------------------|
| ASP 1         | A15 | Connect Comm (PS)<br>PS Comm CCU PWR – ON<br><br>Comm ck with MCC                        |
| ASP to<br>MCC |     | Report when “CREW READY TO<br>EGRESS”<br><br>Report “POST LANDING PROCEDURE<br>COMPLETE” |

**ASP EXT  
PWR UP**

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

## CDR      **SYS DEACT FOR EXTENDED PWR UP**

### **NH3 RECONFIG**

(On MCC call; Cooling Cart not ready)

- L1      1. NH3 CNTLR A(B) – OFF  
             If RTLS/TAL/AOA:  
                 2. RAD BYP VLV LOOP 1,2 –  
                     RAD FLOW  
                     Wait 1 min  
                     H2O PUMP LOOP 1 – ON
- O1      When FREON EVAP OUT TEMP  
             > 55 degF, select one of the following  
             as specified by MCC:
- L1      3. NH3 CNTLR A – PRI/GPC ( ☐ )  
                     A – SEC/ON ( ☐ )  
                     B – PRI/GPC ( ☐ )  
                     B – SEC/ON ( ☐ )

- |      |                                |   |
|------|--------------------------------|---|
| *    | During NH3 ops:                | * |
| *    | If EVAP OUT TEMP alarm and     | * |
| * O1 | FREON EVAP OUT TEMP < 32 degF: | * |
| * L1 | 1. FREON PUMP LOOP 1,2         | * |
| *    | (two) – OFF (ASAP)             | * |
| *    | 2. √H2O PUMP LOOP 1 – ON       | * |
| *    | 3. NH3 CNTLR A(B) – OFF        | * |
| *    | If no comm:                    | * |
| *    | 4. Go to VEHICLE PWRDN,        | * |
| *    | 5-13 >>                        | * |
| *    | 5. √MCC                        | * |
| *    | If EVAP OUT TEMP alarm and     | * |
| * O1 | FREON EVAP OUT TEMP > 65 degF: | * |
| *    | 6. Go to POST LANDING LOSS     | * |
| *    | OF COOLING, 5-24               | * |

ASP EXT  
PWR UP

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

## CDR NH3 DEACT

(On MCC call if Cooling Cart ready)

- L1
1. NH3 CNTLR A(B) – OFF
  2. RAD OUT TEMP – NORM

|      |                                |   |
|------|--------------------------------|---|
| *    | After NH3 TERMINATION:         | * |
| *    | If EVAP OUT TEMP alarm and     | * |
| * O1 | FREON EVAP OUT TEMP < 32 degF: | * |
| * L1 | 1. FREON PUMP LOOP 1,2         | * |
| *    | (two) – OFF (ASAP)             | * |
| *    | 2. √H2O PUMP LOOP 1 – ON       | * |
| *    | If no comm:                    | * |
| *    | 3. Go to VEHICLE PWRDN,        | * |
| *    | 5-13 >>                        | * |
| *    | 4. √MCC                        | * |
| *    | If EVAP OUT TEMP alarm and     | * |
| * O1 | FREON EVAP OUT TEMP > 65 degF  | * |
| *    | for 5 min:                     | * |
| *    | 5. Go to POST LANDING LOSS     | * |
| *    | OF COOLING, 5-24               | * |

|               |        |
|---------------|--------|
| 1: AS DESIRED | 2: OFF |
| 3: AS DESIRED |        |

# **POST LANDING LOSS OF COOLING (NH3 FAILED OR DEPLETED)**

- |        |    |                                                                                                         |
|--------|----|---------------------------------------------------------------------------------------------------------|
| C      | L1 | 1. NH3 CNTLR A,B (two) – OFF                                                                            |
|        |    | 2. √RAD BYP VLV MAN SEL (two) – RAD FLOW (tb-RAD, 3 sec)                                                |
|        |    | 3. √RAD CNTLR OUT TEMP – NORM                                                                           |
| C,P,MS |    | 4. √Complete post landing procedures thru ENT C/L, 5-18 & FS 5-19 ASAP<br>Assume GO for EXTENDED PWR UP |
| B      | C3 | 5. √BFC CRT SEL – 3+1<br>DISP – ON                                                                      |

|                       |
|-----------------------|
| 3: BFS, SM SYS SUMM 2 |
|-----------------------|

- |   |      |                                                                                                                   |
|---|------|-------------------------------------------------------------------------------------------------------------------|
|   |      | Terminate monitoring if ground cooling established (Convoy commander call) >>                                     |
|   | CRT3 | 6. Monitor AV BAY TEMP (three)<br>When AV BAY TEMP 1 or 2 > 113 or AV BAY TEMP 3 > 107 or no temperature insight: |
| P |      | 7. Go to VEHICLE PWRDN, 5-13 >>                                                                                   |
| A |      | 8. Crew egress if not already complete                                                                            |

## **1-ORBIT LATE DEORBIT PROCEDURES**

Refer to DEORBIT BURN FLIGHT RULES  
Cue Card for failures that require 1-orbit  
delay

**1-ORB  
LATE**

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

## 1-ORBIT LATE DEORBIT PROCEDURES

TRANS B  
DAP

These procedures assume:

1. All DEORB PREP completed
2. DEORBIT BURN completed up to but not including SINGLE APU START, 3-13. If activities are not complete, then do them during troubleshooting time

C CRT1 GNC, OPS 301 PRO

R2 √HYD MN PUMP PRESS (three) – NORM

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

B A14 RCS/OMS HTR  
FWD RCS – A AUTO  
L POD (two) – A AUTO, B OFF  
R POD (two) – A AUTO, B OFF  
OMS CRSFD LINES (two) –  
A AUTO, B OFF  
FWD RCS JET 5 (one) – AUTO  
AFT RCS JET 5 (one) – AUTO

|                     |
|---------------------|
| 1: GNC 50 HORIZ SIT |
|---------------------|

|                          |
|--------------------------|
| 3: BFS, GNC 50 HORIZ SIT |
|--------------------------|

CRT1 √GPS, INCORPORATE

TIG-1:10> **IMU/IMU ALIGN**

Perform IMU/IMU alignment using best IMU as reference. √MCC for reference IMU

|                     |
|---------------------|
| 1: GNC 21 IMU ALIGN |
|---------------------|

C CRT1 IMU/IMU – ITEM 14 + \_\_ EXEC  
ALIGN IMU 1(2,3) –  
ITEM 10(11,12) EXEC (\*)  
If no comm, EXEC – ITEM 16 EXEC (\*)  
Rcd MET \_\_/\_\_:\_\_  
√EXEC, ITEM 16 – (no \*) (4-6 min)

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

CRT2 GNC, OPS 302 PRO

|                             |                        |
|-----------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC      | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC DEORB MNVR EXEC |                        |

### **ALL FLUID LOADING: 1-ORBIT LATE**

Approx 1 hr prior to new TIG, drink 8 fluid oz water plus take 2 salt tablets every 15 min for total of 16 fluid oz water and 4 salt tablets per crewmember

### **FINAL DEORB UPDATE/UPLINK**

|                          |
|--------------------------|
| 1: GNC 50 HORIZ SIT      |
| 3: BFS, GNC 50 HORIZ SIT |

CRT1,3 GPS INH – ITEM 43 EXEC

|                         |
|-------------------------|
| 1: GNC DEORB MNVR EXEC  |
| 3: BFS, DEORB MNVR EXEC |

C           MCC UPDATE:  
              DEL PAD  
              OMS PRPLT PAD  
              MCC UPLINK:  
              PASS, BFS SV (if reqd)  
              PASS, BFS TGT

G50 √LAND SITE as reqd

On MCC GO:  
CRT1       LOAD – ITEM 22 EXEC  
              TIMER – ITEM 23 EXEC  
CRT1,3 √PASS & BFS TGTS per MNVR PAD:  
              BURN ATT  
              ΔVTOT  
              TGO  
              HA HP

|                             |                        |
|-----------------------------|------------------------|
| 1: GNC DEORB MNVR EXEC      | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC DEORB MNVR EXEC |                        |

**IF WAVEOFF**

Go to IF NO-GO FOR  
DEORBIT BURN, 3-11

TIG-15> B A14 RCS/OMS HTR  
FWD RCS – OFF  
L POD (two) – A OFF,B OFF  
R POD (two) – A OFF,B OFF  
OMS CRSFD LINES (two) –  
A AUTO,B AUTO  
FWD RCS JET 5 (one) – OFF  
AFT RCS JET 5 (one) – OFF

TIG-12 **APU HTR DEACT**  
MS A12 APU HTR GAS GEN/FU PUMP (three) – OFF

TIG-10> **MNVR TO 1-ORBIT LATE DEORBIT ATT**

C3 √DAP: AUTO  
B F6,F8 √ADI ATT (two) – INRTL  
√ERR (two) – MED  
√RATE (two) – MED  
C CRT1 MNVR – ITEM 27 EXEC (\*)  
(√ADI ATT with CRT BURN ATT)  
B Copy last DEL PAD and OMS PRPLT PAD  
data on DEORBIT BURN Cue Cards

F6/F8 √DEORBIT BURN and DEORBIT BURN  
MONITOR Cue Cards installed

|                       |
|-----------------------|
| 3: BFS, SM SYS SUMM 2 |
|-----------------------|

R2 HYD MN PUMP PRESS (three) – LO

Return to DEORBIT BURN Cue Cards and  
SINGLE APU START, 3-13

SWITCH LIST AT WHEELS STOP **EGRESS**

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(Replace with pages FS CC 8-2 thru FS CC 8-4)



8-2

ENT/ALL/GEN H



TOP  
HINGED AT BOTTOM OF 'DEORBIT BURN (RCS)'  
HINGE

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1    %

\* At AFT QTY 1      THC +X to CAPTURE HP or  
\* If CUR HP:      TOT AFT QTY 2   % then  
\* PREBANK/FRCS COMPLETION  
\* to downrange site

\* CAPTURE        PREBANK/FRCS COMPLETION  
\* HP      to downrange site

\* PREBANK/FLIP        PREBANK/FRCS COMPLETION  
\* HP

\* AFT        THC +X to TGT HP  
\* HP

\* TGT  
\* HP

\* **FRCS COMPLETION** (if applicable):

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF: VGOx = 0, release THC

AFT RCS RECONFIG

Trim Inplane X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-3aa/D/M

(reduced copy)

FAB USE ONLY

CC 8-5

ENT/ALL/GEN H



TOP  
BACK OF 'DEORBIT BURN (RCS)'



HOOK  
VELCRO

HOOK  
VELCRO



HINGE

ENT-3b/D/E

(reduced copy)

FAB USE ONLY

CC 8-6

ENT/ALL/GEN H



TOP  
HINGED AT BOTTOM OF 'DEORBIT BURN (RCS)'  
HINGE

ENT-3bb/D/E

FAB USE ONLY

(reduced copy)  
CC 8-7

ENT/ALL/GEN H



TOP  
HINGED AT BOTTOM OF 'DEORBIT BURN (2 ENG)'  
HINGE

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1  %

\* At AFT QTY 1                      THC +X to CAPTURE HP or  
\* If CUR HP:                      TOT AFT QTY 2  % then  
\*                      PREBANK/FRCS COMPLETION  
\*                      to downrange site

\* CAPTURE                       PREBANK/FRCS COMPLETION  
\* HP                      to downrange site

\* PREBANK/FLIP                       PREBANK/FRCS COMPLETION  
\* HP

\* AFT                       THC +X to TGT HP  
\* HP

\* TGT  
\* HP

\* **FRCS COMPLETION (if applicable):**

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)  
\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02                      OMS ENG(s) – OFF (if < 3 IMU, at :  )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-4aa/D/K

(reduced copy)

FAB USE ONLY

CC 8-9

ENT/ALL/GEN H

TOP  
BACK OF 'DEORBIT BURN (2 ENG)'

HOOK  
VELCRO

DEORBIT  
BURN (1 ENG)

HOOK  
VELCRO

√MM302 √OMS L or R  
√OMS BURN CONFIG (L or R XFEED)  
Enter TGO + 10 sec  
√TRIM per MNVR PAD or P +0.0, LY +5.2, RY -5.2  
L,R OMS He PRESS/VAP ISOL A (two) – OP  
..... Wait 2 sec ..... B (two) – OP  
√DAP – AUTO(PASS)/DISC  
ADI – LVLH(REF)/HI/MED  
FLT CNTLR PWR (two) – ON  
Good OMS ENG – ARM/PRESS  
TIG-2  
- :15 EXEC (NO EXEC > TIG +  :  )  
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec  
:00 TIG Start watch (√P<sub>C</sub>, ΔVTOT, ENG VLVs)

\* If no OMS ignition: APU's – SHUT DN \*  
OMS XFEED RETURN at ΔVTOT =     
or    at   %  
L,R OMS TK ISOL (four) – OP  
XFEED (four) – CL

\* OMS PRPLT FAIL:

\* OMS ENG – OFF

\* STOP BURN:  
\* APU's – SHUT DN  
\* Secure aff OMS  
SAFE    
HP

\* CONTINUE BURN:  
\* Secure aff OMS  
\* ITEM 18 +Q EXEC  
\* √ADI – LVLH, center needles  
\* Interconnect good OMS to RCS  
\* THC +X(√OMS% vs RCS Burn Time)  
\* AFT RCS RECONFIG  
\* RCS COMPLETION

\* OMS ENG FAIL:

\* OMS ENG – OFF

\* STOP BURN:  
\* APU's – SHUT DN  
ENG FAIL     
HP

\* CONTINUE BURN:  
\* √ADI – LVLH, center needles  
\* Interconnect good OMS to RCS  
\* THC +X(√OMS% vs RCS Burn Time)  
\* RCS I/CNCT TK SW  
\* THC +X(√OMS% vs RCS Burn Time)  
\* AFT RCS RECONFIG  
\* RCS COMPLETION

\* RCS +X JET FAIL OFF:

\* STOP BURN:  
\* APU's – SHUT DN  
SAFE    
HP

\* CONTINUE BURN:  
\* ITEM 18 +Q EXEC  
\* **G23** Resel jets

ENT-4b/D/J

HINGE

(reduced copy)

FAB USE ONLY

CC 8-10

ENT/ALL/GEN H

TOP  
HINGED AT BOTTOM OF 'DEORBIT BURN (1 ENG)'  
HINGE

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1    %

\* At AFT QTY 1                      THC +X to CAPTURE HP or  
\* If CUR HP:                      TOT AFT QTY 2   % then  
\*                      PREBANK/FRCS COMPLETION  
\*                      to downrange site

\* CAPTURE HP   PREBANK/FRCS COMPLETION  
\*                      to downrange site

\* PREBANK/FLIP HP   PREBANK/FRCS COMPLETION

\* AFT HP   THC +X to TGT HP

\* TGT HP

\* **FRCS COMPLETION** (if applicable):

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02 OMS ENG – OFF (if < 3 IMU, at  :   )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-4bb/D/L

(reduced copy)

FAB USE ONLY

CC 8-11

ENT/ALL/GEN H

TOP

HOOK  
VELCRO

UNBALANCED  
PRPLT  
DEORBIT  
BURN

HOOK  
VELCRO

√MM302    √OMS BOTH  
Enter TGO + 5 sec  
√TRIM per MNVR PAD or P +0.0, LY -5.7, RY +5.7  
√DAP – AUTO(PASS)/DISC  
ADI – LVLH(REF)/HI/MED  
FLT CNTLR PWR (two) – ON  
Feed 2 ENG from 1 POD  
L,R OMS He PRESS/VAP ISOL A (two) – GPC  
B (two) – OP

☐ OMS TK ISOL (two) – CL (tb-CL)  
L,R OMS XFEED (four) – OP (tb-OP)

TIG-2: OMS ENG (two) – ARM/PRESS  
- :15 EXEC (NO EXEC > TIG + ☐ : ☐ )  
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec  
:00 TIG Start watch (√P<sub>c</sub>, ΔVTOT, ENG VLVs)  
If no OMS ignition: APUs – SHUT DN

\* While feeding 2 OMS from 1 POD:

**OMS PRPLT FAIL:**

Failed OMS ENG(s) – OFF

STOP BURN:

APUs – SHUT DN

Secure ☐ OMS

SAFE  
HP ☐

CONTINUE BURN:

ITEM 18 +0 EXEC

If Both ENGs ↓:

Secure ☐ OMS

√ADI – LVLH, center needles

Interconnect ☐ OMS to RCS

THC +X for ☐ : ☐

AFT RCS RECONFIG

RCS COMPLETION

If ☐ (XFEED) ENG ↓:

When ☐ OMS QTY:

5%: ☐ OMS TK ISOL (two) – OP

4%: ☐ OMS TK ISOL (two) – CL

If OMS P<sub>c</sub> < 80 or OMS TEMP,

OMS ENG – OFF

√ADI – LVLH, center needles

RCS COMPLETION

If ☐ (STRAIGHT FEED) ENG ↓:

OMS ENG FAIL

**OMS ENG FAIL (CONTINUE BURN):**

Failed OMS ENG – OFF

at ΔVTOT = ☐ ☐ ☐

or ☐ ☐ at ☐ ☐ %

☐ TK ISOL (two) – OP

☐ TK ISOL (two) – CL

**Return to 2 ENG, 2 POD FLOW at ΔVTOT:** ☐ ☐ ☐

☐ OMS TK ISOL (two) – OP (tb-OP)

L,R OMS XFEED (four) – CL (tb-CL)

ENT-5a/D/M

HINGE

(reduced copy)

FAB USE ONLY

CC 8-12

ENT/ALL/GEN H

TOP  
HINGED AT BOTTOM OF 'UNBALANCED PRPLT DEORBIT BURN'  
HINGE

\* **OMS PRPLT FAIL:**

\* Failed OMS ENG – OFF

STOP BURN:

Good OMS ENG – OFF

APUs – SHUT DN

Secure aff OMS

L OMS  
FAIL HP

R OMS  
FAIL HP

CONTINUE BURN:

ITEM 18 +Q EXEC

When good OMS QTY:

5%: L,R OMS XFEED (four) – OP

4%: Good OMS TK ISOL (two) – CL

If OMS  $P_C < 80$  or OMS TEMP,

OMS ENG – OFF

√ADI – LVLH, center needles

RCS COMPLETION

\* **OMS ENG FAIL:**

\* Failed OMS ENG – OFF

OMS XFEED at 1/2 ΔVTOT at fail

or OMS QTY

%L or

%R

\* **2nd OMS FAIL (ENG or PRPLT):**

\* Failed OMS ENG – OFF

If PRPLT FAIL: Secure aff OMS

ITEM 18 +Q EXEC

Both  
ENG FAIL  
HP

Either  
PRPLT FAIL  
(SAFE) HP

STOP BURN:

APUs – SHUT DN

CONTINUE BURN:

√ADI – LVLH, center needles

Interconnect good OMS to RCS

THC +X (√OMS% vs RCS Burn Time)

RCS I/CNCT TK SW (N/A PRPLT FAIL)

THC +X (√OMS% vs RCS Burn Time)

AFT RCS RECONFIG

RCS COMPLETION

\* **RCS COMPLETION:**

THC +X to TGT HP or TOT AFT QTY 1

At AFT QTY 1

THC +X to CAPTURE HP or TOT AFT QTY 2

If CUR HP:

then PREBANK/FRCS COMPLETION

to downrange site

CAPTURE HP

PREBANK/FRCS COMPLETION to downrange site

PREBANK/FLIP  
HP

PREBANK/FRCS COMPLETION

AFT

THC +X to TGT HP

TGT

\* **FRCS COMPLETION (if applicable):**

MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)

THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF

+ :02

OMS ENG(s) – OFF (if < 3 IMU, at : )

\* AFT RCS RECONFIG if INTERCONNECT \*

Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-5aa/D/O

(reduced copy)

FAB USE ONLY

CC 8-13

ENT/ALL/GEN H

TOP  
BACK OF 'UNBALANCED PRPLT DEORBIT BURN'

HOOK  
VELCRO

DEORBIT  
BURN  
(MIXED  
XFEED)

HOOK  
VELCRO

√MM302 √OMS L(R) or RCS  
Enter TGO + 10 sec  
√L,R OMS TK ISOL (four) – GPC  
√XFEED (four) – GPC  
√tb config from table (OMS SSR-1)  
√DAP – AUTO(PASS)/DISC  
ADI – LVLH(REF)/HI/MED  
FLT CNTLR PWR (two) – ON  
Man repress to maintain good OMS Tk Ps > 234 psi (simo)  
If OMS BURN INITIATION:

TIG-2:

√TRIM per MNVR PAD or: P +0.0, LY +5.2, RY -5.2  
Good OMS ENG – ARM/PRESS  
- :15 EXEC (No EXEC > TIG +  :  )  
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec  
:00 TIG Start watch (√Pc, ΔVTOT, ENG VLVs)  
\* If no OMS ignition, APUs – SHUT DN \*

If RCS BURN INITIATION:

Man repress L,R OMS > L,R RCS TK Ps  
L,R RCS XFEED (four) – OP  
TK ISOL (six) – CL

:00 THC +X (No Deorbit > TIG +  :  )  
Maintain PITCH ATT ERR ± 3°

FEED FROM GOOD POD:

at ΔVTOT =     
or    at   %

☐ OMS He PRESS/VAP ISOL (two) – OP  
TK ISOL (two) – OP (tb-OP)  
XFEED (two) – OP (tb-OP)  
SECURE ☐ OMS

**OMS PRPLT LOW**

AFT RCS RECONFIG at ΔVTOT =     
RCS COMPLETION

HINGE  
(reduced copy)

FAB USE ONLY

CC 8-14

ENT-5b/D/J

ENT/ALL/GEN H

TOP  
HINGED AT BOTTOM OF 'DEORBIT BURN (MIXED XFEED)'  
HINGE

\* **OMS PRPLT FAIL:**

\* OMS ENG – OFF

\* SAFE  
\* HP

☐ ☐

STOP BURN:  
APUs – SHUT DN  
Secure L,R OMS

CONTINUE BURN:  
Secure L,R OMS  
ITEM 18 +0 EXEC  
√ADI – LVLH, center needles  
RCS COMPLETION

\* **OMS ENG FAIL:**

\* OMS ENG – OFF

\* ENG  
\* FAIL  
\* HP

☐ ☐ ☐

STOP BURN:  
APUs – SHUT DN

CONTINUE BURN:  
Man repress L,R OMS > L,R RCS TK Ps  
FEED FROM GOOD POD:  
☐ OMS HE PRESS/VAP ISOL  
(two) – OP  
TK ISOL (two) – OP  
☐ OMS XFEED (two) – CL  
L,R RCS XFEED (four) – OP  
TK ISOL (six) – CL  
√ADI – LVLH, center needles  
THC +X (√Lowest OMS % vs  
RCS Burn Time)  
AFT RCS RECONFIG  
RCS COMPLETION

\* **RCS +X JET FAIL OFF:**

\* STOP BURN:  
\* APUs – SHUT DN

\* SAFE  
\* HP

☐ ☐ ☐

CONTINUE BURN:  
ITEM 18 +0 EXEC  
[G23] Resel jet

\* **RCS COMPLETION:**

\* THC +X to TGT HP or TOT AFT QTY 1 ☐ ☐ ☐ %

\* At AFT QTY 1 THC +X to CAPTURE HP or TOT AFT QTY 2 ☐ ☐ %  
\* If CUR HP: then PREBANK/FRCS COMPLETION  
\* to downrange site

\* CAPTURE HP ☐ ☐ PREBANK/FRCS COMPLETION to downrange site

\* PREBANK/FLIP ☐ ☐ PREBANK/FRCS COMPLETION  
\* HP

\* AFT ☐ ☐ THC +X to TGT HP  
\* HP

\* TGT ☐ ☐  
\* HP

\* **FRCS COMPLETION** (if applicable):

\* MNVR to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)  
\* THC -X to TGT HP or FRCS depletion (JETS FAIL OFF)

CUTOFF VGOx = 0, Release THC  
+ :02 OMS ENG(s) – OFF (if < 3 IMU, at ☐ : ☐ )  
\* AFT RCS RECONFIG if INTERCONNECT \*  
Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ENT-5bb/D/K

(reduced copy)

FAB USE ONLY

CC 8-15

ENT/ALL/GEN H

TOP

PILE  
VELCRO

PILE  
VELCRO

ENTRY MANEUVERS

| FLIGHT<br>CONDITIONS                                   | MANEUVER                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EI-5                                                   | ✓LVLH ATT<br>GNC, OPS 304 PRO<br>* If PREBANK, R/Y – CSS *<br>* Roll at 1°/sec to <input type="text"/> <input type="text"/> *<br>* Maintain PREBANK ±5° *<br>If previous OMS OX TK, He TK, or RCS OX TK leak:<br>[G51] VENT DOOR CNTL OPEN – ITEM 43 EXEC<br>(AOA) [SPI] When SB position – 0%:<br>✓HYD MN PUMP PRESS (three) – LO |
| $\bar{q} = 1$                                          | (AOA) HYD MN PUMP PRESS (three) – NORM                                                                                                                                                                                                                                                                                             |
| 'Guidance<br>Box' @<br>$\bar{q} \sim 8$<br>or<br>D ~ 3 | CLOSED LOOP GUIDANCE _____ : _____ : _____<br>* If PREBANK: P,R/Y – AUTO *<br>Begin AIL trim monitoring                                                                                                                                                                                                                            |
| V = 24K                                                | If previous OMS OX TK, He TK, or RCS OX TK leak:<br>[G51] VENT DOOR CNTL CLOSE – ITEM 44 EXEC                                                                                                                                                                                                                                      |
| D = 11                                                 | ✓DRAG H                                                                                                                                                                                                                                                                                                                            |
| $\Delta Az = 10.5^\circ$                               | FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (DEL PAD)                                                                                                                                                                                                                  |
| V = 19K                                                | ✓HYD MPS/TVC ISOL VLV SYS (three) – CL                                                                                                                                                                                                                                                                                             |
| V = 15K                                                | ✓NAVAIDS (I/O RESET if reqd)                                                                                                                                                                                                                                                                                                       |
| V = 12K                                                | RAD BYP VLV MODE (two) – AUTO<br>CNTLR LOOP (two) – AUTO B(A)                                                                                                                                                                                                                                                                      |
| V = 10K                                                | ✓SPDBK to 81%                                                                                                                                                                                                                                                                                                                      |

PILE  
VELCRO

PILE  
VELCRO

ENT-6a/E/P

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CC 8-16

ENT/ALL/GEN H



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FAB USE ONLY

CC 8-17

ENT/ALL/GEN H





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FAB USE ONLY

CC 8-18

ENT/ALL/GEN H



TOP  
BACK OF 'ENTRY NO-GO CHECKLIST'

HOOK  
VELCRO

HOOK  
VELCRO

**BAILOUT  
MODE 8**

REPORT POSITION

✓MACH < 1.0  
P, R/Y - CSS  
OPS 305/603 PRO (if reqd)  
SB - AUTO; BF - AUTO  
FLY 185-195 KEAS,  $\phi = 0^\circ$   
ABORT MODE - ATO  
ABORT PBI - PUSH  
P,R/Y - AUTO  
FLT CNTLR PWR (two) - OFF

**-50K FT**

TABS - RELEASE  
VISOR - CLOSE/LOCK  
SUIT O2 - ON  
GREEN APPLE - PULL

**-40K FT**

MS3 - VENT CABIN  
CDR,PLT SEATS - LOWER  
KNEEBOARDS - REMOVE  
COOLING - DISCONNECT  
SEAT RESTRAINT - RELEASE  
D-RING - UNCOVER

**-30K FT**

MS3 - JETTISON HATCH  
COMM - DISCONNECT  
(G-SUIT CLIP - PULL)  
SUIT O2 - DISCONNECT  
EGRESS SEAT  
POLE - DEPLOY  
D-RING - HOOK UP  
BAILOUT

**POST LANDING  
MODE 5**

TABS - RELEASE  
VISOR - CLOSE/LOCK  
SUIT O2 - ON  
GREEN APPLE - PULL  
KNEEBOARDS - REMOVE  
COOLING - DISCONNECT  
SEAT RESTRAINT -  
RELEASE  
PARACHUTE (four) -  
RELEASE  
COMM - DISCONNECT  
(G-SUIT CLIP - PULL)  
SUIT O2 - DISCONNECT  
PLT - EMER PWR DOWN  
EGRESS SEAT  
SLIDE/ESCAPE PANEL

HOOK  
VELCRO

HOOK  
VELCRO

ENT-7b/E/S

(reduced copy)

FAB USE ONLY

CC 8-19

ENT/ALL/GEN H



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FAB USE ONLY

8-20

ENT/ALL/GEN H



FAB USE ONLY

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CC 8-21

ENT/ALL/GEN H

TOP

### ENTRY CONTROL

#### ARCS QTY (L + R) < 10 %

|                                        |                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------|
| ARCS QTY = 0 & JETS<br>FAIL OFF        | 1. ENTRY MODE – NO Y JET<br>(R/Y CSS; expect sluggish control)                                            |
| $\bar{q} \geq 20$ & $M > 6$            | 2. <b>G51</b> ELEVON FIXED – ITEM 18 EXEC (*)                                                             |
| CONTROL<br>PROBLEMS* &<br>ARCS QTY > 0 | 3. ENTRY MODE – AUTO<br>When control regained:<br>4. ENTRY MODE – NO Y JET<br>5. $\sqrt{\text{AIL trim}}$ |
| $M < 6$ & ARCS QTY > 0                 | 6. ENTRY MODE – AUTO                                                                                      |
| $M < 5$                                | 7. TRIM/RHC PNL – ENA<br>8. TRIM ROLL – away from AIL trim (to < 1)                                       |

\*Region of least margin: M 12-8

#### AIL TRIM $\geq 3^\circ$

|                          |                                                                                                                                                                                                                                                        |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----|----|-----|---|----------|----|----|----|----|----|----|
| TAL                      | 1. <b>G51</b> WRAP MODE – ITEM 45 EXEC (ACT)                                                                                                                                                                                                           |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| AIL trim = 5             | 2. BF – MAN<br>3. BF – UP (to 0%)                                                                                                                                                                                                                      |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| NO Y JET                 | 4. Perform roll reversals at 3°/s (expect sluggish control)                                                                                                                                                                                            |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| M < 13 &<br>AIL trim = 5 | 5. P – CSS<br>6. Fly $\alpha$ per schedule: <table><tr><td>M</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8-6</td><td>5</td></tr><tr><td><math>\alpha</math></td><td>37</td><td>36</td><td>35</td><td>33</td><td>30</td><td>26</td></tr></table> | M  | 12 | 11 | 10  | 9  | 8-6 | 5 | $\alpha$ | 37 | 36 | 35 | 33 | 30 | 26 |
| M                        | 12                                                                                                                                                                                                                                                     | 11 | 10 | 9  | 8-6 | 5  |     |   |          |    |    |    |    |    |    |
| $\alpha$                 | 37                                                                                                                                                                                                                                                     | 36 | 35 | 33 | 30  | 26 |     |   |          |    |    |    |    |    |    |
| M < 5                    | 7. TRIM/RHC PNL – ENA<br>8. TRIM ROLL – away from AIL trim (to < 1)<br>9. P – AUTO                                                                                                                                                                     |    |    |    |     |    |     |   |          |    |    |    |    |    |    |
| M < 2                    | 10. BF – AUTO                                                                                                                                                                                                                                          |    |    |    |     |    |     |   |          |    |    |    |    |    |    |

(Continued on back for 'HIGH-FREQ OSC OR SURF/JET CYCLE')

ENT-10a/A,E/B

FAB USE ONLY

(reduced copy)  
CC 8-22

ENT/ALL/GEN H

TOP  
BACK OF 'ENTRY CONTROL'

HOOK  
VELCRO

HOOK  
VELCRO

**HIGH-FREQ OSC OR SURF/JET CYCLE**

|                     |                          |                                                                                |
|---------------------|--------------------------|--------------------------------------------------------------------------------|
|                     | Returning PL<br>> 10K lb | 1. <span style="border: 1px solid black;">G51</span> √FILTER ALT – ITEM 21 (*) |
|                     |                          | 2. P, R/Y – CSS                                                                |
| Osc/Cycle continues |                          | 3. ENTRY MODE – LO GAIN                                                        |
| Osc/Cycle stops     |                          | 4. ENTRY MODE – AUTO                                                           |
|                     |                          | 5. P, R/Y – AUTO                                                               |

HOOK  
VELCRO

HOOK  
VELCRO

ENT-10b/A,E/B



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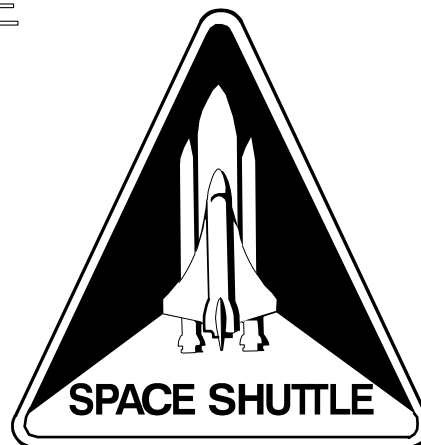
FAB USE ONLY

8-24

ENT/ALL/GEN H

Space Shuttle Program  
FLIGHT DATA FILE

JSC-48019  
GENERIC, REV H



# ENTRY CHECKLIST

STS  
ALL

Flight Cover (trim bottom to expose tabs)