

Ascent Checklist

STS-123

**Mission Operations Directorate
Flight Design and Dynamics Division**

**Final
November 20, 2007**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



| | |
|--------------------|----------------------|
| ASCENT C/L STS-123 | FINAL (Nov 20, 2007) |
|--------------------|----------------------|

PCN-1 (Jan 25, 2008) Sheet 1 of 1

List of Implemented Change Requests (482s):

- ASC-1813
- ASC-1814
- ASC-1815A
- ASC-1816
- ASC-1817
- ASC-1818

Incorporate the following:

1. Replace v thru viii
2. Replace FB 2-5 and FB 2-6
3. Replace 5-1 and 5-2
4. Replace 6-7 and 6-8
5. Replace 9-13 thru 9-16, 9-23 and 9-24, 9-27 and 9-28

Prepared by: Allison Riley McCagg Book Manager *01/25/08* Glenn E Logan Lead Ascent GPO

Approved by: Raymond T. Alvestin for P.J. Bertsch Chief, Ascent/Descent Dynamics Branch

Encl: 18 pages

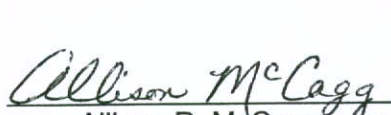
| |
|---|
| File this PCN immediately behind the front cover as a permanent record |
|---|

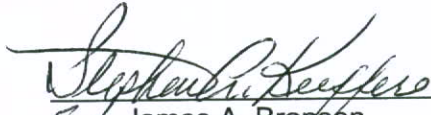
MISSION OPERATIONS DIRECTORATE

**ASCENT CHECKLIST
STS-123**

FINAL
November 20, 2007

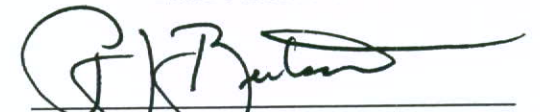
PREPARED BY:


Allison R. McCagg *11/14/07*
Book Manager


FOR James A. Branson
VITT Lead

APPROVED BY:


Glenn E. Pogue
Lead Ascent GPO


R. J. Bertsch
Chief, Ascent/Descent Dynamics Branch

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.

Additional distribution of this book, for official use only, may be requested in writing to DO3/PMO Administrator. The request must include justification and requester's name, organization, position, and phone number. Contractor requests are made through the NASA or DOD organization supported. Deletions, reduction in quantity, or change of address may be submitted to DO3/FDF Management Office, 281-244-1184.

ASC/123/FIN

| | |
|-----------------------------|-----------------------------------|
| Incorporates the following: | |
| 482#: | ASC-1803A ASC-1810 ASC-1811 |

AREAS OF TECHNICAL RESPONSIBILITY

| | | |
|--------------|----------------|--------------|
| Book Manager | DM4/A. McCagg | 281-483-7752 |
| Switch List | CA4/J. Branson | 281-244-8596 |
| Entry | DM4/M. Trump | 281-483-8029 |

NOTES

1. The STS-123 trajectory data in this checklist is based on the STS-123 One Cycle to Flight load and the February environment.
2. The Handover/Ingress Switch List gives the vehicle configuration at LCC/MCC handover (SRB Ignition) and flight crew ingress (T-3:00). If there is a switch position difference between ingress and handover, the ingress position will be boxed beside the handover position.
3. The time reference used in the Prelaunch procedures is the T- (Time to Launch) that LCC uses. This time does not reflect planned holds. The second time referenced in parentheses reflects the planned holds. The mission elapsed time (MET) has MET = 0 at SRB ignition.
4. Normal Flight Procedures are for liftoff through the OMS 2 burn.
5. The Abort to Orbit (ATO) procedures and the Backup Flight System (BFS) procedures are integrated into the appropriate parts of this checklist.
6. AOA procedures terminate with ENTRY MANEUVERS Cue Cards.
7. Ascent Flip Book for the CDR and PLT will be fabricated from the FB pages in section 2.
8. Ascent related cue cards are contained in this document. The cue cards are listed in the Ascent Cue Card section. Some cards are printed in the body of the checklist for MS use and also in the Cue Card Config section for reference of crop marks and fabrication instructions.
9. Mission STS-123 is flown with vehicle OV105.



This Page Intentionally Blank



ASCENT CHECKLIST
STS-123

LIST OF EFFECTIVE PAGES

FINAL 11/20/07
PCN-1 01/25/08

| | | | |
|----------------|---|---------------|---|
| Sign Off | * 123/FIN | FB 2-7 | 123/FIN |
| ii..... | * 123/FIN | FB 2-8 | 123/FIN |
| iii..... | * 123/FIN | FB 2-9 | 123/FIN |
| iv..... | * 123/FIN | FB 2-10 | 123/FIN |
| v | * 123/FIN 1 | FB 2-11 | 123/FIN |
| vi..... | * 123/FIN 1 | FB 2-12 | <input checked="" type="checkbox"/> 123/FIN |
| vii..... | * 123/FIN 1 | FB 2-13 | 123/FIN |
| viii..... | * 123/FIN | FB 2-14 | <input checked="" type="checkbox"/> 123/FIN |
| ix..... | * 123/FIN | FB 2-15 | 123/FIN |
| x | * 123/FIN | FB 2-16 | 123/FIN |
| xi..... | 123/FIN | FB 2-17 | 123/FIN |
| xii..... | 123/FIN | FB 2-18 | 123/FIN |
| 1-1 | 123/FIN | FB 2-19 | 123/FIN |
| 1-2 | 123/FIN | FB 2-20 | 123/FIN |
| 1-3 | 123/FIN | FB 2-21 | 123/FIN |
| 1-4 | 123/FIN | FB 2-22 | 123/FIN |
| 1-5 | 123/FIN | FB 2-23 | 123/FIN |
| 1-6 | 123/FIN | FB 2-24 | 123/FIN |
| 1-7 | 123/FIN | FB 2-25 | 123/FIN |
| 1-8 | 123/FIN | FB 2-26 | 123/FIN |
| 1-9 | 123/FIN | 2-27 | 123/FIN |
| 1-10 | <input checked="" type="checkbox"/> 123/FIN | 2-28 | 123/FIN |
| 1-11 | 123/FIN | 2-29 | 123/FIN |
| 1-12 | 123/FIN | 2-30 | 123/FIN |
| 1-13 | 123/FIN | 2-31 | 123/FIN |
| 1-14 | 123/FIN | 2-32 | 123/FIN |
| 2-1 | 123/FIN | 2-33 | 123/FIN |
| FB 2-2 | 123/FIN | 2-34 | 123/FIN |
| FB 2-3 | 123/FIN | 2-35 | * 123/FIN |
| FB 2-4 | 123/FIN | 2-36 | * 123/FIN |
| FB 2-5 | 123/FIN | 2-37 | * 123/FIN |
| FB 2-6 | 123/FIN 1 | 2-38 | * 123/FIN |

* – Omit from flight book

– Prelift-off information required

| | | | | |
|-----------|---|-----------|-----------|-----------|
| 2-39..... | * | 123/FIN | 6-17..... | 123/FIN |
| 2-40..... | * | 123/FIN | 6-18..... | 123/FIN |
| 2-41..... | * | 123/FIN | 6-19..... | 123/FIN |
| 2-42..... | * | 123/FIN | 6-20..... | 123/FIN |
| 2-43..... | * | 123/FIN | 6-21..... | 123/FIN |
| 2-44..... | * | 123/FIN | 6-22..... | 123/FIN |
| 2-45..... | * | 123/FIN | 6-23..... | 123/FIN |
| 2-46..... | * | 123/FIN | 6-24..... | 123/FIN |
| 3-1..... | | 123/FIN | 6-25..... | 123/FIN |
| 3-2..... | | 123/FIN | 6-26..... | 123/FIN |
| 3-3..... | | 123/FIN | 6-27..... | 123/FIN |
| 3-4..... | | 123/FIN | 6-28..... | 123/FIN |
| 3-5..... | | 123/FIN | 6-29..... | 123/FIN |
| 3-6..... | | 123/FIN | 6-30..... | 123/FIN |
| 3-7..... | | 123/FIN | 6-31..... | 123/FIN |
| 3-8..... | | 123/FIN | 6-32..... | 123/FIN |
| 4-1..... | | 123/FIN | 6-33..... | 123/FIN |
| 4-2..... | | 123/FIN | 6-34..... | 123/FIN |
| 4-3..... | | 123/FIN | 6-35..... | 123/FIN |
| 4-4..... | | 123/FIN | 6-36..... | 123/FIN |
| 5-1..... | | 123/FIN | 6-37..... | 123/FIN |
| 5-2..... | | 123/FIN 1 | 6-38..... | 123/FIN |
| 5-3..... | | 123/FIN | 6-39..... | 123/FIN |
| 5-4..... | | 123/FIN | 6-40..... | 123/FIN |
| 6-1..... | | 123/FIN | 7-1..... | 123/FIN |
| 6-2..... | | 123/FIN | 7-2..... | 123/FIN |
| 6-3..... | | 123/FIN | 7-3..... | 123/FIN |
| 6-4..... | | 123/FIN | 7-4..... | 123/FIN |
| 6-5..... | | 123/FIN | 7-5..... | 123/FIN |
| 6-6..... | | 123/FIN | 7-6..... | 123/FIN |
| 6-7..... | | 123/FIN | 7-7..... | 123/FIN |
| 6-8..... | | 123/FIN 1 | 7-8..... | 123/FIN |
| 6-9..... | | 123/FIN | 7-9..... | 123/FIN |
| 6-10..... | | 123/FIN | 7-10..... | 123/FIN |
| 6-11..... | | 123/FIN | 8-1..... | 123/FIN |
| 6-12..... | | 123/FIN | 8-2..... | 123/FIN |
| 6-13..... | | 123/FIN | 8-3..... | ☒ 123/FIN |
| 6-14..... | | 123/FIN | 8-4..... | ☒ 123/FIN |
| 6-15..... | | 123/FIN | 8-5..... | ☒ 123/FIN |
| 6-16..... | | 123/FIN | 8-6..... | ☒ 123/FIN |

* – Omit from flight book

☒ – Prelift-off information required

| | | | | | |
|------------|---|-----------|----------|---|---------|
| 8-7 | ☒ | 123/FIN | CC 10-7 | * | 123/FIN |
| 8-8 | | 123/FIN | CC 10-8 | * | 123/FIN |
| 9-1 | * | 123/FIN | CC 10-9 | * | 123/FIN |
| 9-2 | * | 123/FIN | CC 10-10 | * | 123/FIN |
| 9-3 | * | 123/FIN | CC 10-11 | * | 123/FIN |
| 9-4 | * | 123/FIN | CC 10-12 | * | 123/FIN |
| 9-5 | * | 123/FIN | CC 10-13 | * | 123/FIN |
| 9-6 | * | 123/FIN | CC 10-14 | * | 123/FIN |
| 9-7 | * | 123/FIN | CC 10-15 | * | 123/FIN |
| 9-8 | * | 123/FIN | CC 10-16 | * | 123/FIN |
| 9-9 | * | 123/FIN | CC 10-17 | * | 123/FIN |
| 9-10 | * | 123/FIN | CC 10-18 | * | 123/FIN |
| 9-11 | * | 123/FIN | CC 10-19 | * | 123/FIN |
| 9-12 | * | 123/FIN | CC 10-20 | * | 123/FIN |
| 9-13 | * | 123/FIN 1 | CC 10-21 | * | 123/FIN |
| 9-14 | * | 123/FIN | CC 10-22 | * | 123/FIN |
| 9-15 | * | 123/FIN | CC 10-23 | * | 123/FIN |
| 9-16 | * | 123/FIN 1 | CC 10-24 | * | 123/FIN |
| 9-17 | * | 123/FIN | CC 10-25 | * | 123/FIN |
| 9-18 | * | 123/FIN | CC 10-26 | * | 123/FIN |
| 9-19 | * | 123/FIN | CC 10-27 | * | 123/FIN |
| 9-20 | * | 123/FIN | CC 10-28 | * | 123/FIN |
| 9-21 | * | 123/FIN | CC 10-29 | * | 123/FIN |
| 9-22 | * | 123/FIN | CC 10-30 | * | 123/FIN |
| 9-23 | * | 123/FIN | CC 10-31 | * | 123/FIN |
| 9-24 | * | 123/FIN 1 | CC 10-32 | * | 123/FIN |
| 9-25 | * | 123/FIN | CC 10-33 | * | 123/FIN |
| 9-26 | * | 123/FIN | CC 10-34 | * | 123/FIN |
| 9-27 | * | 123/FIN | CC 10-35 | * | 123/FIN |
| 9-28 | * | 123/FIN 1 | CC 10-36 | * | 123/FIN |
| 10-1 | * | 123/FIN | CC 10-37 | * | 123/FIN |
| CC 10-2 | * | 123/FIN | CC 10-38 | * | 123/FIN |
| CC 10-3 | * | 123/FIN | CC 10-39 | * | 123/FIN |
| CC 10-4 | * | 123/FIN | CC 10-40 | * | 123/FIN |
| (A)CC 10-5 | * | 123/FIN | CC 10-41 | * | 123/FIN |
| (A)CC 10-6 | * | 123/FIN | 10-42 | * | 123/FIN |
| (B)CC 10-5 | * | 123/FIN | | | |
| (B)CC 10-6 | * | 123/FIN | | | |
| (C)CC 10-5 | * | 123/FIN | | | |
| (C)CC 10-6 | * | 123/FIN | | | |

☒ – Prelift-off information required

* – Omit from flight book

ASCENT CUE CARDS

| <u>Title</u> | <u>Ref. Page</u> | <u>Card No.</u> |
|------------------------------|------------------|-------------------|
| ADI ERROR/RATE SWITCH | | |
| ASCENT (Front)..... | CC 10-2 | ASC-1a/A,E/H |
| ENTRY (Back)..... | CC 10-2 | ASC-1b/A,E/E |
| ASCENT/ENTRY SPEC | | |
| (Front)..... | CC 10-3 | ASC-2a/A,E/E |
| (Back)..... | CC 10-3 | ASC-2b/A,E/D |
| SPEED BRAKE CMD | | |
| (Front)..... | CC 10-4 | ASC-3a/A,E/E |
| (Back)..... | CC 10-4 | ASC-3b/A,E/D |
| CONTINGENCY ABORT | | |
| CDR (Front)..... | (A)CC 10-5 | ASC-30a/123/A/A |
| RTLS CONTINGENCY | | |
| CDR (Back)..... | (A)CC 10-6 | ASC-30b/123/A/A |
| CONTINGENCY ABORT | | |
| PLT (Front)..... | (B)CC 10-5 | ASC-31a/123/A/A |
| RTLS CONTINGENCY | | |
| PLT (Back)..... | (B)CC 10-6 | ASC-31b/123/A/A |
| CONTINGENCY ABORT | | |
| MS (Front)..... | (C)CC 10-5 | ASC-32a/123/A/A |
| RTLS CONTINGENCY | | |
| MS (Back)..... | (C)CC 10-6 | ASC-32b/123/A/A |
| OMS 2 BURN MONITOR (Front).. | CC 10-7 | ASC-5a/123/A,O/A |
| OMS FAILURES (Back)..... | CC 10-8 | ASC-5b/A,O,E/I |
| OMS 2/ORBIT OMS BURNS | | |
| (Front)..... | CC 10-9 | ASC-6a/123/A,O/A |
| OPS 1 RCS BURN (Back)..... | CC 10-10 | ASC-6b/123/A,O/A |
| ASCENT ADI – NOMINAL | | |
| (Front)..... | CC 10-11 | ASC-14a/123/A/A |
| ENTRY ALPHA – KSC 15 | | |
| (Back)..... | CC 10-11 | ASC-14b/123/A,E/A |
| AOA DEORBIT BURN (2 ENG) | | |
| (Top/Front)..... | CC 10-12 | ASC-8a/A/E |
| (Bottom/Front)..... | CC 10-13 | ASC-8aa/123/A/A |
| AOA DEORBIT BURN (1 ENG) | | |
| (Top/Back)..... | CC 10-14 | ASC-8b/A/B |
| (Bottom/Back)..... | CC 10-15 | ASC-8bb/123/A/A |
| AOA DEORBIT BURN (RCS) | | |
| (Top/Front)..... | CC 10-16 | ASC-7a/A/B |
| (Bottom/Front)..... | CC 10-17 | ASC-7aa/123/A/A |
| (Top/Back)..... | CC 10-18 | ASC-7b/A/B |
| (Bottom/Back)..... | CC 10-19 | ASC-7bb/A/B |

| | | |
|------------------------------------|----------|-----------------|
| ZZA TAL REDESIGNATION | | |
| (Front)..... | CC 10-20 | ASC-9a/123/A/A |
| ECAL – ZZA or MRN or FMI PRIME TAL | | |
| (Back)..... | CC 10-21 | ASC-9b/123/A/A |
| MRN TAL REDESIGNATION | | |
| (Front)..... | CC 10-22 | ASC-10a/123/A/A |
| ECAL – ZZA or MRN or FMI PRIME TAL | | |
| (Back)..... | CC 10-23 | ASC-10b/123/A/A |
| FMI TAL REDESIGNATION | | |
| (Front)..... | CC 10-24 | ASC-12a/123/A/A |
| ECAL – ZZA or MRN or FMI PRIME TAL | | |
| (Back)..... | CC 10-25 | ASC-12b/123/A/A |
| ASCENT/ABORT SUMMARY | | |
| (Front)..... | CC 10-26 | ASC-11a/123/A/A |
| (Back)..... | CC 10-26 | ASC-11b/A/C |
| EMERGENCY EGRESS | | |
| (Front)..... | CC 10-27 | ASC-15a/A,E/I |
| ACES TROUBLESHOOTING | | |
| (ASCENT/ENTRY) (Back) | CC 10-28 | ASC-15b/A,E/E |
| ESCAPE PANEL EGRESS | | |
| (Front)..... | CC 10-29 | ASC-16a/A,E/D |
| (Back)..... | CC 10-29 | ASC-16b/A,E/C |
| GPC/FCS CHANNEL CONFIG | | |
| (Front)..... | CC 10-30 | ASC-17a/A,O,E/B |
| (Back)..... | CC 10-30 | ASC-17b/A,O,E/B |
| PANEL R14 – OV105 ONLY | | |
| (Front)..... | CC 10-31 | ASC-19a/A,O,E/D |
| (Back)..... | CC 10-32 | ASC-19b/A,O,E/C |
| LOC/BREAK-UP..... | CC 10-33 | ASC-21a/A/D |
| EMERGENCY EGRESS (OVERSIZED) | | |
| (Top/Front) | CC 10-34 | ASC-25a/A,E/G |
| (Bottom/Front) | CC 10-35 | ASC-25aa/A,E/E |
| (Top/Back)..... | CC 10-36 | ASC-25b/A,E/D |
| (Bottom/Back)..... | CC 10-37 | ASC-25bb/A,E/D |
| EMERGENCY EGRESS (RUSSIAN) | | |
| (Top/Front) | CC 10-38 | ASC-26a/A,E/E |
| (Bottom/Front) | CC 10-39 | ASC-26aa/A,E/D |
| (Top/Back)..... | CC 10-40 | ASC-26b/A,E/D |
| (Bottom/Back)..... | CC 10-41 | ASC-26bb/A,E/D |

PLT & CDR Ascent

| | |
|------------------------|---------------------|
| <u>Flip Book</u> | FB 2-2 thru FB 2-26 |
|------------------------|---------------------|



This Page Intentionally Blank

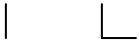


| <u>CONTENTS</u> | <u>PAGE</u> |
|--|-------------|
| PRELAUNCH PROCEDURES..... | 1-1 |
| ASCENT PROCEDURES (FLIP BOOK)..... | 2-1 |
| RTL CDR (CIL) | FB 2-12 |
| TAL CDR (CIL) | FB 2-14 |
| ASCENT/ENTRY CUE CARDS | 2-27 |
| ABORT CUE CARDS..... | 2-35 |
| POST OMS 1 BURN PROCEDURES..... | 3-1 |
| OMS 2 BURN CARDS | 4-1 |
| POST OMS 2 BURN PROCEDURES..... | 5-1 |
| AOA PADS..... | 6-1 |
| AOA PROCEDURES | 6-7 |
| AOA DEORBIT BURN AND DEORBIT BURN MONITOR CARDS | 6-17 |
| AOA POST DEORBIT BURN..... | 6-27 |
| OMS/RCS POST BURN RECONFIG (CIL)..... | 6-28 |
| OMS FAILURE | 6-37 |
| OMS/RCS ΔV | 6-39 |
| OMS TARGETS, COMM COVERAGE, LAND SITES | 7-1 |
| WEATHER PADS | 8-1 |
| SWITCH LIST | 9-1 |
| CUE CARD CONFIG | 10-1 |

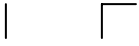


This Page Intentionally Blank





PRELAUNCH PROCEDURES



PRELAUNCH PROCEDURES

ABORT/RECYCLE PROCEDURES

NOTE

These recycle procedures will be used inside T-5 min

OTC (or NTD) will call for BFS Safing, SRB Safing, APU Shutdn, Heater Reconfig (Aerosurface positioning complete), MPS He Reconfig, OMS/RCS Reconfig, RCS Driver and OMS Safing, and Main Bus Switch Safing as reqd

C **BFS SAFING (On NTD call)**

O6 GPC MODE 5 – HALT
Report BFS Safing complete

MS1 **SRB SAFING (On NTD call – if reqd)**

O17 MEC 1 – OFF
. . . Wait 2 sec, then . . .
MEC 2 – OFF
Report SRB Safing complete

P **APU SHUTDN (On OTC call)**

R2 APU OPER (three) – OFF
FU TK VLV (three) – CL
√Shutdn (HYD PRESS < 200)
CNTLR PWR (three) – OFF
HYD CIRC PUMP (three) – GPC

Report APU SHUTDN complete

C **HEATER RECONFIG (On OTC call)**

L2 FLASH EVAP FDLN HTR (two) – 2

Report Heater Reconfig complete

NOTE

Numerous non-time-critical steps
for recycle will be individually
called by OTC

P MPS He RECONFIG (On OTC call)

R2 MPS He ISOL A,B (six) – GPC
PNEU He ISOL – GPC

Report MPS He Reconfig complete

P OMS/RCS RECONFIG (On OTC call)

O8 L,R OMS
√TK ISOL (four) – GPC (tb-OP)
√XFEED (four) – GPC (tb-CL)
FWD RCS
He PRESS (two) – GPC (tb-OP)
√TK ISOL (two) – GPC (tb-OP)
√MANF ISOL 1,2,3,4,5 (five) – GPC
(tb-OP)

O7 AFT L,R RCS
He PRESS (four) – GPC (tb-OP)
√TK ISOL (six) – GPC (tb-OP)
√MANF ISOL 1,2,3,4,5 (ten) – GPC
(tb-OP)

Report OMS/RCS Reconfig complete

C, **RCS DRIVER AND OMS SAFING**
MS2 **(On OTC call)**

MS2 O14:F RJD DRIVER (three) – OFF
 LOGIC (three) – OFF
 L OMS ENG VLV – OFF
O15:F RJD DRIVER (two) – OFF
 LOGIC (two) – OFF
O16:F RJD DRIVER (four) – OFF
 LOGIC (three) – OFF
 R OMS ENG VLV – OFF

C C3 OMS ENG (two) – OFF

Report RCS Driver and OMS Safing
complete

MS2 **MAIN BUS SWITCH SAFING (On OTC call)**

O13:A cb ESS 1BC MNA CONTR – op
 :C 2CA MNB CONTR – op
 :E 3AB MNC CONTR – op
O14:B MNA MNC CONTR – op
O15:B MNB MNA CONTR – op
O16:B MNC MNB CONTR – op

Report Main Bus Switch Safing complete

| | |
|-------------------|-----------------------------|
| 1: GNC GPC MEMORY | 2: GNC 104 GND IMU CNTL/MON |
| 3: GNC GPC MEMORY | |

-3:00:00
(Hold)

PRE-INGRESS SW RECONFIG

ASP configures OI PCMMU PWR – 1*** (C3).
 ESS BUS SOURCE FC (three) – ON, AC BUS
 SNSR (three) – OFF (1 sec) then AUTO TRIP
 (R1), cb APU FU TK VLV ENA (six) – cl (R2).
 OTC will call: (~2 min) ESS BUS SOURCE FC
 (three) – OFF, AC BUS SNSR (three) – OFF
 (1 sec) then MON (R1), cb ESS MN CONTR
 (three) – cl (O13), cb MN CONTR (three) – cl
 (O14,O15,O16), cb AC1 H2O LOOP PUMP 1 A/2
 (three) – op (L4)

PAYLOAD ACTIVATION

A6U √PL RETEN PL SEL – MON

NAVAIDS ACTIVATION

O8 MLS CH pb/tw (three) – 6
 RADAR ALTM (two) – ON

If OV105:

O7 √GPS PRE AMPL UPPER (three) – ON
 LOWER (three) – ON
 √PWR (three) – ON
 √ENCRYPT (three) – NORM

-2:25:00 A
(-3:15:00)

INGRESS ORBITER & SEATS

During seat ingress COMM
 PWR – ON (L5,R6)
 CCU PWR – ON (A11,A15,MO39M)

O5,O9, AUD VOX SENS (as needed) – adj as reqd
 R10,L9, Contact LCC (OTC & NTD) and MCC on
 MO42F A/G 1

| | |
|-------------------|-----------------------------|
| 1: GNC GPC MEMORY | 2: GNC 104 GND IMU CNTL/MON |
| 3: GNC GPC MEMORY | |

Install ASC Flip Cards
 ✓ Cue Card positions

-2:10:00
 (-3:00:00)

POST INGRESS SW RECONFIG

ASP turns on RCS 1,2,3,4
 DRIVERS (eight) (O14,O15,O16),
 OMS ENG VLV (two) (O14,O16),
 GPC OUTPUT 5 – B/U (O6)

NOTE

ASP doing C/W VOL adjust,
 expect MA

-1:57:00
 (-2:47:00)

(IDP Equivalent)

NOTE

IMU preflight align begins

-1:35:00 A
 (-2:25:00)

LCC ASTRO COMM CHECK

LCC will contact all crew on A/G 1,
 A/G 2, ICOM A, ICOM B then A/A

A MCC A/G VOICE CHECK

B A/G 1 Voice Check
 O5,O9 L,R AUD A/G 2 (two) – OFF
 A/A (two) – OFF
 Voice check with MCC

A/G 2 Voice Check
 L,R AUD A/G 2 (two) – T/R
 1 (two) – OFF
 Voice check with MCC

A/A Voice Check
 L,R AUD A/A (two) – T/R
 A/G 2 (two) – OFF
 Voice check with MCC

1: GNC GPC MEMORY 2: GNC 104 GND IMU CNTL/MON

3: GNC GPC MEMORY

-32:00 C
(-1:22:00)

PASS/BFS TRANSFER PREP

O6 √GPC MODE 5 – STBY (tb-RUN)
C3 √BFC CRT SEL: 3+1
 DISP – ON

3: GNC BFS MEMORY

CRT3 PASS/BFS XFER ENA – ITEM 25 EXEC
 √ITEM 25 (*)

NOTE

 ** blanks when transfer is complete
 (~10 min)

-30:00 C
(-1:20:00)

OMS GN2 PRESS

C3 OMS ENG (two) – ARM/PRESS

P WSB GN2 SUPPLY ACTIVATION

R2 BLR N2 SPLY (three) – ON

-25:00 A
(-1:15:00)

A/G VOICE CHECK

SIMO VOICE CHECK (LAUNCH CONFIG)
Voice check with MCC

Update Abort Winds Pad, ASC Flip Book,
and ALTM, 1-10 (if reqd)

NOTE

Cabin Press Reporting and vent vlv
closure may occur earlier or later at
LCC direction

-22:00 C
(-1:12:00)

REPORT CABIN PRESS

3: BFS, SM SYS SUMM 1

CRT3,O1 Report cabin pressure (two) to OTC

3: BFS, GNC BFS MEMORY

C CLOSE VENT VLVS

L2 CAB VENT ISOL – CL (tb-CL)
 VENT – CL (tb-CL)

| | |
|------------------------|-----------------------------|
| 1: GNC GPC MEMORY | 2: GNC 104 GND IMU CNTL/MON |
| 3: BFS, GNC BFS MEMORY | |

NOTE

At T-20 there will be a planned
10-min hold

TRAJECTORY UPDATE

√MCC for max rates and trajectory
config, 8-7

-20:00
(-1:00:00)

OPS 1 LOAD (IDP Equivalent)

| | |
|---------------------|--------------------|
| 1: GNC LAUNCH TRAJ | 2: GNC LAUNCH TRAJ |
| 1: GNC 0 GPC MEMORY | |
| 1: GNC FAULT | |

Report faults other than from unpwr
equipment

CRT1 GNC, SPEC 99 PRO

-18:30 C
(-58:30)

BFS TO OPS 1

| |
|-------------------|
| 3: BFS, GNC FAULT |
|-------------------|

CRT3 GNC, SPEC 99 PRO
O6 GPC MODE 5 – RUN (tb-RUN)

CRT3 GNC, OPS 101 PRO

| |
|-------------------------|
| 3: BFS, GNC LAUNCH TRAJ |
| 3: BFS, GNC FAULT |

Report faults other than from unpwr
equipment

CRT3 GNC, SPEC 99 PRO

| | |
|--------------|--------------------|
| 1: GNC FAULT | 2: GNC LAUNCH TRAJ |
|--------------|--------------------|

| |
|-------------------|
| 3: BFS, GNC FAULT |
|-------------------|

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

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

-17:00 P **HORIZ SIT CONFIG**
 (-57:00)

ALTM – ITEM 9 +

| | | | | |
|--|--|---|--|--|
| | | . | | |
|--|--|---|--|--|

| | <u>PASS ITEM</u> | | <u>BFS ITEM</u> | |
|----------------|------------------|-----|-----------------|-----|
| PTI | INH | √1 | | |
| TAL SITE (MCC) | 3(4,29) | √40 | 3(4,29) | √40 |
| RTLS SITE | 1 | √41 | 1 | √41 |
| PRI (MCC) | KSC 15 | √3 | KSC 15 | √3 |
| SEC (MCC) | KSC 33 | √4 | KSC 33 | √4 |
| TAEM TGT | | | | |
| G&N | OVHD | √6 | OVHD | √6 |
| HSI | blank | | blank | |
| XEP | NEP | √7 | NEP | √7 |
| AIM | NOM | √8 | NOM | √8 |
| | (or CLSE) | | (or CLSE) | |
| NAV | | | | |
| GPS | INH | √43 | INH | √43 |
| DRAG H | AUT | √22 | AUT | √22 |
| ADTA H | INH | √26 | INH | √26 |
| MLS | AUT | √50 | | |
| G&C | | | | |
| GPS | INH | √48 | | |
| ADTA | INH | √29 | AUT | √28 |

| | |
|--------------------|-------------------|
| 1: GNC LAUNCH TRAJ | 2: GNC SYS SUMM 1 |
|--------------------|-------------------|

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

C CONFIG CONT ABORT YAW STEER

CRT1 √ITEM 5

| | | |
|---|---|---|
| E | N | A |
|---|---|---|

1: GNC LAUNCH TRAJ 2: GNC SYS SUMM 1

3: BFS, GNC SYS SUMM 2

-16:00
(-56:00)

P **MPS He RECONFIG**

R2 MPS He ISOL A,B (six) – OP
 PNEU He ISOL – OP

NOTE

At T-9 there will be a planned
40 min hold

C **√INTERCOM VOICE**

√Intercom voice with all crewmembers
prior to entering T-9 hold

WEATHER UPDATE (if reqd)

Update Abort winds, RWY and ALTM
setting

-9:00

(~17:00) P

CLEAR HARDWARE C/W MEMORY

C3 C/W MEM – CLEAR

-9:00

(~15:00)

MS1

Activate V10 Recorder

-9:00

'GO FOR LAUNCH' (All)

C2 EVENT TIMER – START

F7 √TIME ind – counting down

NOTE

GLS starts

-8:00

P

CONNECT ESS BUSES TO FC (GLS √@ T-7:24)

R1 ESS BUS SOURCE FC (three) – ON

-7:30

NOTE

Access arm retract

√ACES gloves

Cinch down shoulder harness and lap belt

1: GNC LAUNCH TRAJ 2: GNC SYS SUMM 1

3: BFS, GNC SYS SUMM 2

3: BFS, SM SYS SUMM 2

-6:15 P **APU PRE START (GLS √ @ T-5:25)**

- R2 √BLR N2 SPLY (three) – ON
- √PWR (three) – ON
- √CNTLR/HTR (three) – A
- √HYD CIRC PUMP (three) – GPC
- √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
- FU TK VLV (three) – OP
- √APU/HYD RDY tb (three) – gray

* If any tb not gray, consult *
* LCC before continuing *

-5:00 P **APU START (GLS √ @ T-4:05)**

R2 APU OPER (three) – START/RUN

HYD/
APU √HYD PRESS ind (three) – LO green

R2 √APU/HYD RDY tb (three) – bp
 HYD MN PUMP PRESS (three) – NORM

HYD/
APU √PRESS ind (three) – HI green

R2 CIRC PUMP (three) – OFF

F7 √PRESS It – off

1: GNC LAUNCH TRAJ 2: GNC SYS SUMM 1
3: BFS, SM SYS SUMM 2

C HTR RECONFIG

L2 FLASH EVAP FDLN HTR (two) – OFF

NOTE

Motion/Vibration may be felt in crew module due to Main Engine gmb1 profile cks at -3:25 and move to start at -3:10

-2:30 P **CLEAR C/W MEMORY**

2: GNC FAULT
3: BFS, GNC FAULT

Verify no unexpected errors
CRT2, GNC, SPEC 99 PRO
CRT3

2: GNC SYS SUMM 1
3: BFS, GNC SYS SUMM 1

C3 C/W MEM – CLEAR

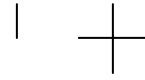
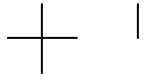
-2:00 A **SUIT PREP**

√Tabs/visor – cl/LES O2 – ON



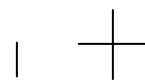
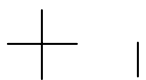
This Page Intentionally Blank



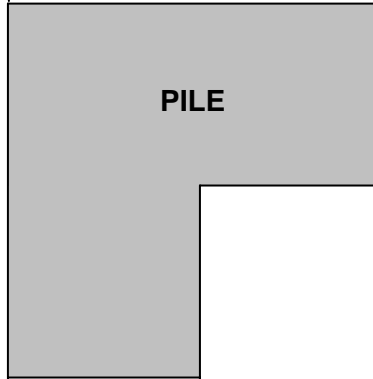


ASCENT PROCEDURES
(FLIP BOOK)

**BAILOUT
EGRESS**



TAB TITLE BLANK ON THIS PAGE ONLY
TOP
MOUNT ON LEFT SIDE OF BACKBOARD FACING
'BAILOUT MODE 8'



**ASCENT FLIP BOOK
(EMERGENCY EGRESS)**

**PRELAUNCH
MODE 1**

TABS – RELEASE
VISOR – CLOSE / LOCK
SUIT O2 – ON
GREEN APPLE – PULL
KNEEBOARDS – REMOVE
COOLING – DISCONNECT
SEAT RESTRAINT – RELEASE
PARACHUTE (four) – RELEASE
COMM – DISCONNECT
SUIT O2 – DISCONNECT
EGRESS SEAT
HATCH – OPEN MANUALLY
SLIDEWIRE BASKETS

**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

ASC

- 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**

TOP
BACK OF 'EMERGENCY EGRESS'

BAILOUT
EGRESS

PILE

SYS FLIGHT RULES

| | RTLS | TAL |
|---|------|-----|
| OMS – 2 He TKs | | |
| – 1 OX & 1 FU TKs (diff pods) | | X |
| – 2 OX or 2 FU TKs | | X |
| APU/HYD – Impending loss of all capability | X | X |
| CABIN LEAK – (-EQ dP/dT > .15) | X | X |
| CRYO – All O2(H2) | X | X |
| 2 FREON LOOPS ↓ [Accum Qty (↓ and decr) and/or Flow (↓)] | X | X |
| 2 MAIN BUSES ↓ | X | |
| THERMAL WINDOW PANE | X | |

NO COMM MODE BOUNDARIES

| | | | |
|----------------------------|-------|--------------------------------|----------------------|
| NEG RETURN (104) | 7900 | 2 ENG ZZA (104) | 6000 |
| PRESS TO ATO (104) | 10500 | ABORT TAL ZZA (4) | |
| SE OPS 3 (109) | 12100 | EO VI | <input type="text"/> |
| SE ZZA (104) | 14300 | SE OPS 3 ZZA (109) (4) | <input type="text"/> |
| PRESS TO MECO (104) | 16600 | SE ZZA (104) (4) | <input type="text"/> |
| SE PRESS (104) | 18900 | | |
| NEG MRN (2 @ 67) | 19800 | 2 ENG MRN (104) | 5800 |
| LAST PRE MECO TAL | 23000 | ABORT TAL MRN (3) | |
| LAST TAL | | EO VI | <input type="text"/> |
| YJT | 19900 | SE OPS 3 MRN (109) (3) | <input type="text"/> |
| YYT | 20200 | SE MRN (104) (3) | <input type="text"/> |
| YQX | 21900 | | |
| IKF | 23700 | 2 ENG FMI (104) | 6200 |
| INN | 23900 | ABORT TAL FMI (29) | |
| FFA | 24200 | EO VI | <input type="text"/> |
| BEJ | 24300 | SE OPS 3 FMI (109) (29) | <input type="text"/> |
| MRN | 24400 | SE FMI (104) (29) | <input type="text"/> |
| KBO | 24500 | | |
| ESN | 24900 | | |
| ZZA, KKI | 25100 | | |
| FMI | 25200 | | |
| JDG | 25300 | | |



ASCENT PROCEDURES

R180

LVLH

.98M

√P_c → 72%

1.26M

√P_c → 104%

P_c < 50+5 s

√SRB SEP (Backup AUTO SEP 2:21)

√TMECO

- * If NOT STABLE (10 sec): *
- * NO COMM – CSS & MAN THROT *

MM103+10 s

√OMS assist

Close suit O2, open visor

3:00

√EVAP OUT (T < 60)

- * If Systems ABORT reqd: *
- * RTLS at 3:40 or *
- * TAL Select prior to 23000 *
- * Otherwise Manual MECO 23700 *

V_I = 13.2K

√Roll Heads Up

- * If Man Throttle (3 eng): *
- * Man Shutdn at 25700 *
- * If 1 eng: *
- * TRAJ √SERC ON *

MECO

√V_I = 25819

MECO+20 s

√ET SEP

- * If 'SEP INH': *
- * ET SEP – MAN *
- * If Rates > .7,.7,.7: *
- * MPS PRPLT DUMP SEQ – STOP *
- * Null rates *
- * ET SEP – SEP *
- * Post ET Sep -Z xlation: *
- * MPS PRPLT DUMP SEQ – GPC *
- * If Rates < .7,.7,.7: *
- * Assume Feedline Fail *
- * If V_I < 25760: *
- * OPS 104 – PRO (√BFS 104) *
- * NOTE: Expect – 'Illegal Entry' (PASS) *
- * 'Illegal TIG' (BFS) *

► MM104+2 s

If ET Sep complete and HA > 72:
+X xlation for 11 sec

√TGTS

√ASC PKT for failures

If OMS 1 not reqd:
OMS ENG (two) – OFF
Go to POST OMS 1

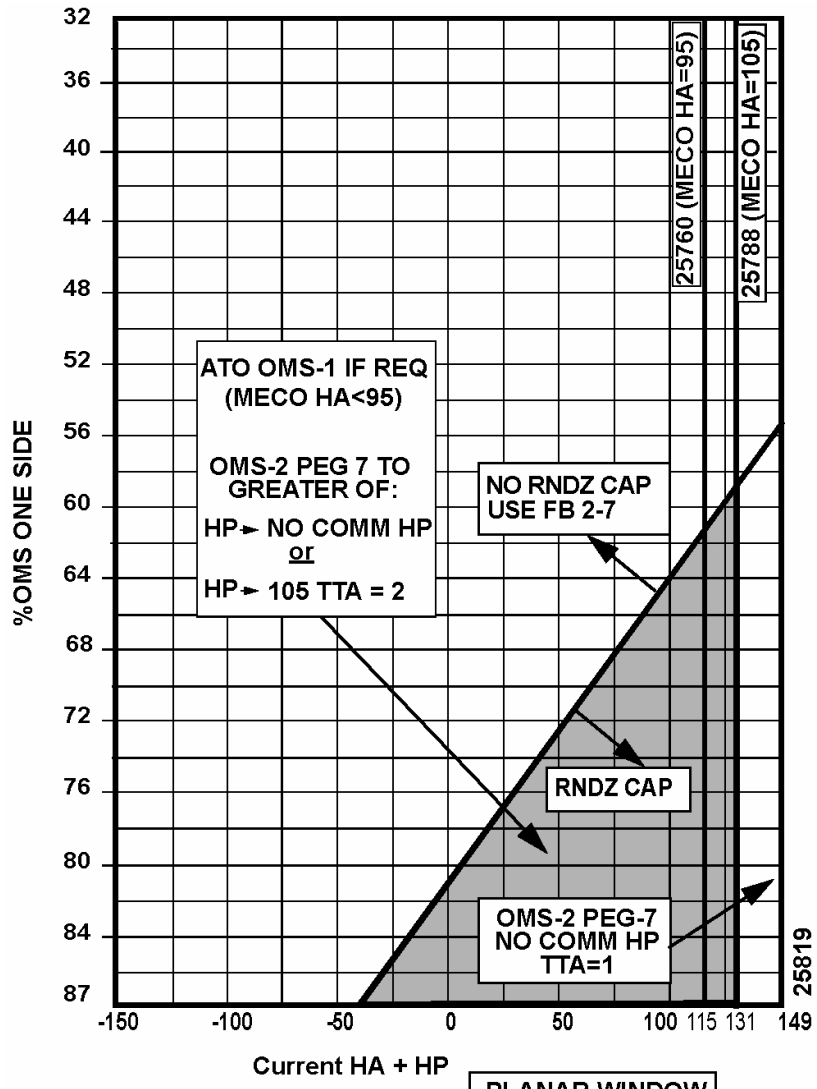
**OMS 1
TGTING**

TOP
BACK OF 'ASCENT PROCEDURES'

PILE

STS-123 OCF CY
OMS 1/2 TGTING
RENDEZVOUS RECOVERY

ASC

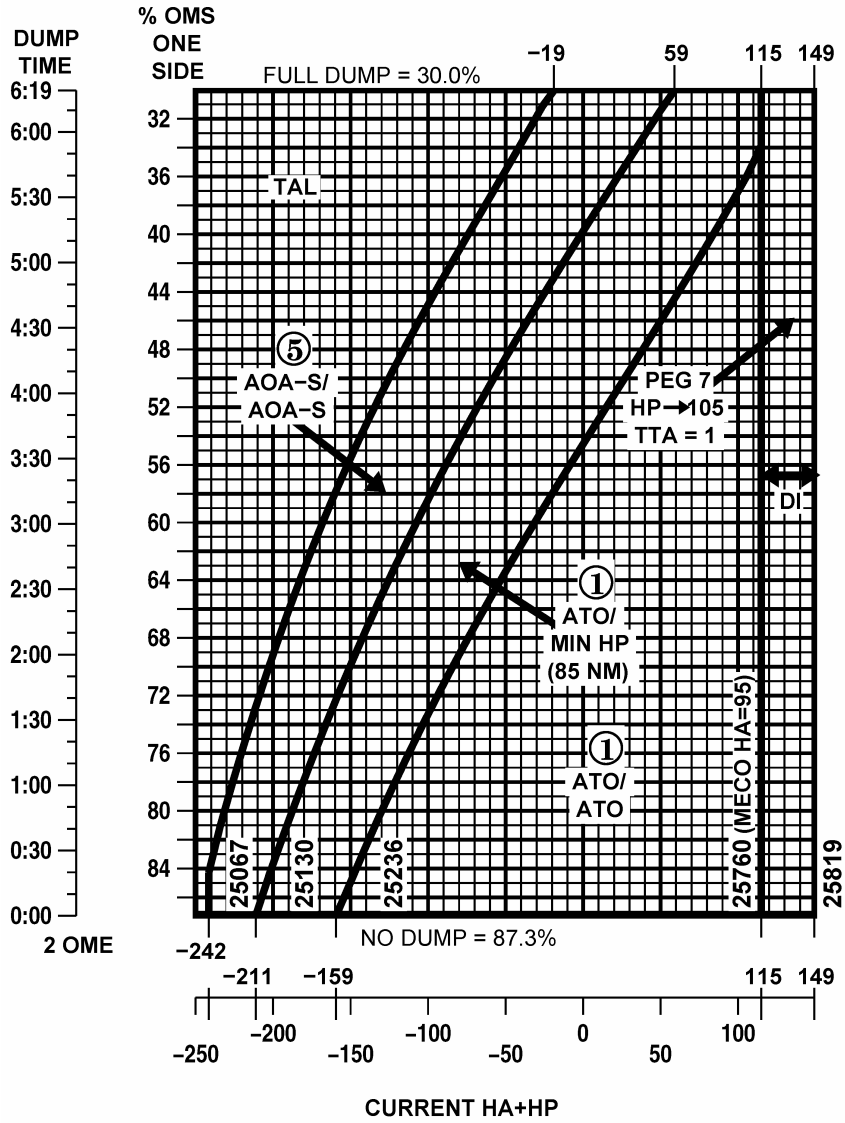
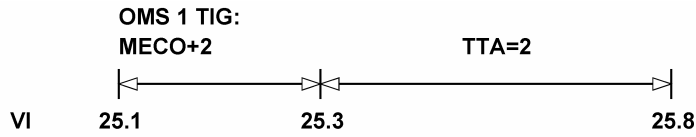


| | PLANAR WINDOW | |
|------------------|---------------|---|
| | 1 | 2 |
| NOMINAL OMS-2 HT | | |
| NO COMM OMS-2 HP | | |

TOP

STS-123 OCF CY OMS 1/2 TGTING

HOOK



OMS 1
BURN

POST NOMINAL
OMS ASSIST

% OMS/SIDE
70

DUMP TIME
1:54

FB 2-7

ASC/123/FIN

PILE

OMS 1 BURN

OMS 1
TGTING

```
* IF TIG LATER THAN MECO + 6 min:
*   MECO + 4 min: √BDY FLP pb – lt off (MPS dump complete) *
*               √MCC for APU shutdn (if time permits) *
* FEEDLINE FAIL:
*   Expect 'Illegal Entry' (PASS)/'Illegal TIG' (BFS) @ tgt select *
*   pre ET Sep; input TIG manually & LOAD tgt *
*   If TIG > MECO + 6 min:
*     TIG-1:30 or MECO + 6 min (whichever comes first):
*     ET SEP – SEP >>
*   If TIG < MECO + 6 min:
*     MPS PRPLT DUMP SEQ – STOP
*     TIG-1:30: ET SEP – SEP
*     Post ET SEP -Z xlation:
*     MPS PRPLT DUMP SEQ – GPC
* 1 OMS ENG FAIL and ΔVTOT > 500:
*   Burn good OMS + l'cncd both OMS to RCS, THC +X at TIG *
*   DAP – AUTO/DISC
*   √ENG/TRIM CONFIG, Select TGT (ITEM 35) then TIG
*   LOAD TGTS and MNVR
*   OMS XFEED (four) – OP
*   √CNTLR PWR (two) – ON
*   √OMS ENG (two) – ARM/PRESS
*   Note ΔVTOT ____ : TIG [ ] [ ] : [ ] [ ]
-:15 EXEC
:00 TIG; start watch (√Pc, ΔVTOT, ENG VLVs)
* OMS ENG FAIL:
* Failed ENG – OFF
* If ΔVTOT < 500:
*   At QTY = 5%, good OMS TK ISOL (two) – CL
* If ΔVTOT > 500:
*   RCS XFEED (four) – OP
*   RCS TK ISOL (six) – CL
*   THC +X
*   At first QTY = 5%, good OMS TK ISOL (two) – CL
*   At second QTY = 5%, THC – Release
* RCS COMPLETION:
* Interconnect to either
* OMS that was ENG FAIL
* THC +X (OMS% vs RCS ΔV)
* OMS TK SW (if reqd)
CUTOFF
+:02 OMS ENG (two) – OFF
Trim inplane X,Z residuals < 2 fps
OMS XFEED (four) – CL (√RCS straightfeed)
```

HOOK

OMS 1 BURN MONITOR

| | | | | | | | | | |
|---|--|---|-----|-----|---|---|-----|-----|---|
| OMS TEMP* FU IN P ≥ <table border="1" style="display: inline-table;"><tr><td>L</td><td>R</td></tr><tr><td>219</td><td>220</td></tr></table> ≤ <table border="1" style="display: inline-table;"><tr><td>L</td><td>R</td></tr><tr><td>201</td><td>208</td></tr></table> or No FU IN P | L | R | 219 | 220 | L | R | 201 | 208 | OMS ENG FAIL OMS ENG FAIL (PRPLT FAIL if 1 Pod Feed) |
| L | R | | | | | | | | |
| 219 | 220 | | | | | | | | |
| L | R | | | | | | | | |
| 201 | 208 | | | | | | | | |
| OMS PC* & OMS ↓ (BFS: √accel) | OMS ENG FAIL | | | | | | | | |
| OMS OX/FU TK P (√ENG IN P) OX/FU LOW | He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At Good OMS Qty = 5% OMS XFEED (four) – CL | | | | | | | | |
| OX & FU HIGH | He PRESS/VAP ISOL (two) – CL OMS XFEED (four) – CL Cycle He A(B) to maintain TK P 234-284 | | | | | | | | |
| OMS He TK P LOW (√ <table border="1" style="display: inline-table;"><tr><td>OMS/MPS</td></tr></table>) | OMS/MPS | At He P < 640 √OMS XFEED (four) – OP Aff OMS TK ISOL (two) – CL At Good OMS Qty = 5% OMS TK ISOL (four) – OP XFEED (four) – CL | | | | | | | |
| OMS/MPS | | | | | | | | | |
| OMS N2 REG P HIGH or LOW | OMS ENG – ARM | | | | | | | | |
| OMS N2 TK P LOW (√ <table border="1" style="display: inline-table;"><tr><td>OMS/MPS</td></tr></table>) | OMS/MPS | At N2 TK P < 470: OMS ENG – ARM | | | | | | | |
| OMS/MPS | | | | | | | | | |
| OMS GMBL | PRI fail L(R) OMS GMBL – SEC (twice) SEC fail If high RCS usage: OMS ENG FAIL | | | | | | | | |
| GPC 1(4) & Burning OMS aff | aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF,ON L(R) OMS GMBL – SEC (twice) | | | | | | | | |
| SEC GMBL lost 2 FAs lost | If high RCS usage: OMS ENG FAIL √MAN SHUTDN | | | | | | | | |
| I/O ERROR FA 1(4) | L(R) OMS GMBL – SEC I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL | | | | | | | | |
| 2 FAs lost | √MAN SHUTDN | | | | | | | | |
| BCE STRG D 1(4) | I/O RESET (if recov: >>) If high RCS usage: L(R) OMS GMBL – SEC (twice) | | | | | | | | |
| I/O ERROR PCM | OI PCMMU PWR – 2(1) | | | | | | | | |

OMS 2
TGTING

*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

TOP
BACK OF 'OMS 1 BURN MONITOR'

PILE

OMS 2 TARGETING
(DIR INSERTION)

**OMS 1
BURN**

| FAILURE | OMS 2 TARGET |
|---|--|
| OMS – 2 N2 TKs (Perform burn Single OMS Eng) – 1 or 2 OMS ENGs – 1 or 2 He TKs – 1 PRPLT TK EPS – MNA & B, MNB & C MNA & C ET SEP | PEG 7; TTA = 1 CUTOFF HP = 85 |
| OMS – 2 OX or 2 FU TKs – 1 OX & 1 FU TK diff PODs | AOA-S |
| 2 FREON LOOPS [Accum Qty (↓ and decr) and/or Flow (↓)] 2 H2O LOOPS CABIN LEAK (-EQ dP/dT ≥ .08) | AOA |
| APU/HYD – impending loss of all capability | AOA |
| CRYO – All O2(H2) | AOA |

OMS

| He | % | He | % |
|------|------|------|----|
| 4320 | 86.8 | 2450 | 40 |
| 4050 | 80 | 2050 | 30 |
| 3650 | 70 | 1650 | 20 |
| 3250 | 60 | 1250 | 10 |
| 2850 | 50 | 850 | 0 |

TOP

HOOK

ATO

NOTE

These tables apply only after ATO OMS 1 burn (ITGT = ①, AOA to KSC). Assumes OMS and ARCS deorbit

| DUAL POD - OMS REQUIRED | | | | |
|--|--------------------------------|-------------------------------------|------------------------|--------------------------|
| Includes 8.8 % Unusable (4.4 % per pod) | | | | |
| POST OMS 1 HP | ATO OMS 2 & STEEP D/O BURN (%) | MIN HP OMS 2 & SHALLOW D/O BURN (%) | AOA STEEP D/O BURN (%) | AOA SHALLOW D/O BURN (%) |
| 95 | 40.0 | 19.5 | 34.2 | 21.1 |
| 90 | 41.4 | 17.2 | 31.9 | 18.0 |
| 85 | 43.0 | 15.7 | 29.6 | 15.1 |
| 80 | 44.9 | 15.4 | 27.0 | 12.3 |
| 75 | 46.9 | 17.0 | 23.9 | 9.4 |
| 70 | 48.7 | 19.1 | 20.9 | 8.8 |
| 65 | 49.9 | 20.4 | 18.6 | 8.8 |
| 60 | 50.8 | 21.8 | 17.9 | 8.8 |
| 55 | 51.1 | 22.9 | 18.9 | 8.8 |
| 50 | 51.8 | 24.1 | 18.7 | 8.8 |
| 45 | --- | 25.5 | 21.2 | 8.8 |

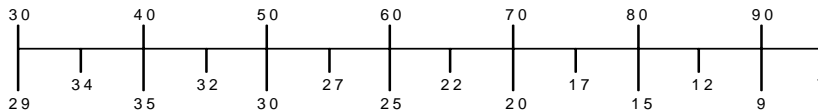
STS-123 OCF CY

| SINGLE POD - OMS REQUIRED | | | | |
|---------------------------|--------------------------------|-------------------------------------|------------------------|--------------------------|
| Includes 4.4 % Unusable | | | | |
| POST OMS 1 HP | ATO OMS 2 & STEEP D/O BURN (%) | MIN HP OMS 2 & SHALLOW D/O BURN (%) | AOA STEEP D/O BURN (%) | AOA SHALLOW D/O BURN (%) |
| 95 | 35.6 | 15.1 | 29.8 | 16.7 |
| 90 | 37.0 | 12.8 | 27.5 | 13.6 |
| 85 | 38.6 | 11.3 | 25.2 | 10.7 |
| 80 | 40.5 | 11.0 | 22.6 | 7.9 |
| 75 | 42.5 | 12.6 | 19.5 | 5.0 |
| 70 | 44.3 | 14.7 | 16.5 | 4.4 |
| 65 | 45.5 | 16.0 | 14.2 | 4.4 |
| 60 | 46.4 | 17.4 | 13.5 | 4.4 |
| 55 | 46.7 | 18.5 | 14.5 | 4.4 |
| 50 | 47.4 | 19.7 | 14.3 | 4.4 |
| 45 | --- | 21.1 | 16.8 | 4.4 |

RTLS

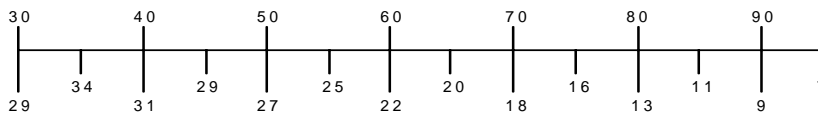
OMS BLOWDOWN

LEFT OMS GAGE QTY (%)



LEFT OMS BLDN EQUIV (%)

RIGHT OMS GAGE QTY (%)



RIGHT OMS BLDN EQUIV (%)

FB 2-11

ASC/123/FIN

PILE

RTLS CDR

Abort initiated:
After 2:30 (2 eng)
At 3:40 (3 eng)

ABORT RTLS

- * No joy: *
- * OPS 601 PRO *

√GUIDANCE STATUS on RTLS TRAJ



Expect PPA when GUID % to go = 0

- * If GUID 'INHB': *
- * √UNCONVERGED GUID TABLE *
- * MAN PPA per PRPLT *
- * REMAINING *
- * After GUID CONVERGE: *
- * P,R/Y AUTO/AUTO THROTTLE *

WINDS

| | |
|------------------------|---|
| 50K | / |
| 38 | / |
| 28 | / |
| 20 | / |
| 12 | / |
| 7 | / |
| 3 | / |
| 1 | / |
| SURF | / |
| SPDBK @ 3000 FT | |

After PPA: √BFS ITEM 1 (*)

TRAJ √Bugs, HSI √, 

Pitchdn ($\beta = 0^\circ$, $\alpha = -2^\circ$)

----- **MECO** ----- **MECO** -----

**OMS 2
TGTING**

- √ET SEP (MECO + 16 sec)
- √MM602 ($\alpha > 10^\circ$ and SEP + 10 sec)
- √P,R/Y, SPDBK, BDY FLP – AUTO
- $\alpha = 50^\circ$ until ~1.8g, maintain 2.2g

Adjust seat

$\dot{H} > -320 \uparrow$ VERT SIT √ α vs Mach
V = 5K √RUD, AIL TRIM
& EAS < 333 ↓ AIR DATA PROBE (two) – Deploy (√Heat)

M = 3.2 √SPDBK → 65%
M = 2.7 L HUD PWR – ON

* If M < 2.5, P CSS for ADTA to G&C incorp *

M = 2.0 Ensure ADTA to G&C else THETA limits
M < 1.0 P,R/Y – CSS, √SPDBK CMD vs POS
√NWS – 1

Lock Inertia Reels

POST LANDING: ENT, POST LDG

RTLS PLT



If CSS: MAN THROT
Man MECO

$\sqrt{P_c} = 104\%$ (2 eng)/69% (3 eng)
 \sqrt{DUMP}

UNCONVERGED GUIDANCE TABLE

| ENG OUT | OUTBOUND INITIAL θ | PITCHAROUND at % (8°/sec) | FLYBACK INITIAL θ |
|---------|---------------------------|---------------------------|--------------------------|
| Liftoff | 60° | 44% | 64° |
| :30 | 56° | 47% | 63° |
| 1:00 | 57° | 47% | 63° |
| :30 | 56° | 48% | 62° |
| 2:00 | 49° | 51% | 61° |
| :30 | 42° | 51% | 52° |
| 3:00 | 38° | 52% | 50° |
| :30 | 34° | 53% | 48° |
| 4:00 | Last RTLS | 52% | 46° |

$\sqrt{P_c}$ at PPA + 20 sec

* If $P_c = 104\%$ (2 eng): *

* **G51** MAX THROT – ITEM 4 (*) *

Pitchdn: $\sqrt{P_c} \rightarrow 67\%$

MECO ----- **MECO**

KEAS = 77 $\sqrt{SPDBK} \rightarrow 81\%$
 \sqrt{ET} DOORS – Closed and latched (MECO +1:30)
 \sqrt{ET} SEP, SRB SEP – AUTO
 Adjust seat
G50 \sqrt{GPS} , INCORPORATE

G50 \sqrt{AIR} DATA, INCORPORATE
 MM603 HYD MPS/TVC ISOL VLV (three) – CL
 (hold 5 sec, tb-CL)
 H = 85K MLS (three) – ON
 If Rwy 33(15): MLS CH (three) – 6(8)
 I/O RESET
 M = 2.7 R HUD PWR – ON
 M < 1.0 \sqrt{R} FLT CNTLR PWR – ON
 Lock Inertia Reels
 M = 0.7 \sqrt{LG} EXTD ISO VLV – OP
 H = 10K \sqrt{BDY} FLP – TRAIL
 $\sqrt{A/L}$ (KSC – Tabs, Visors, Suit O2)
 POST LANDING: ENT, POST LDG

TAL

TOP
BACK OF 'RTLS PLT'

PILE

TAL CDR

If $V_1 > 23000$ manual MECO 23700 , go to post MECO
ABORT TAL

| | |
|-----|-----|
| TAL | HDG |
| ZZA | 010 |
| MRN | 016 |
| FMI | 006 |

*LO XRNG

$G50$ \sqrt{SITE} & RWY (PASS/BFS), \sqrt{HDG}

| SITE | RWY | MLS | LENGTH |
|------|--------------|-----|-------------|
| 2 | BEN 36/18 | -/- | 13720/13220 |
| 3 | MRN 20/02 | 6/- | 11730/11730 |
| 4 | ZZA 30L/12R | 6/- | 12200/12200 |
| 12 | BEN 36/18 | -/- | 13720/13220 |
| 13 | *MRN 20/02 | 6/- | 11730/11730 |
| 14 | *ZZA 30L/12R | 6/- | 12200/12200 |
| 19 | YJT 09/27 | -/- | 9500/9500 |
| 20 | YYT 29/11 | -/- | 8500/8500 |
| 21 | YQX 21/31 | -/- | 9700/8900 |
| 23 | LAJ 15/33 | -/- | 10870/10870 |
| 24 | BEJ 01L/19R | -/- | 10820/10820 |
| 25 | IKF 20/29 | -/- | 9520/9560 |
| 26 | INN 06/24 | -/- | 9540/9540 |
| 27 | FFA 27/09 | -/- | 9490/9490 |
| 28 | KBO 14L/32R | -/- | 12020/12020 |
| 29 | FMI 33/15 | 6/- | 11300/12300 |
| 30 | ESN 03R/21L | -/- | 11800/11800 |
| 31 | KKI 15R/33L | -/- | 13300/13300 |
| 32 | JDG 31/13 | -/- | 12000/12000 |

* If second eng fails: $TRAJ$ $\sqrt{SERC ON}$ *
* $G50$ \sqrt{SITE} ($\sqrt{Redes card}$) *

$V_1 = 15.0K$ $\sqrt{Roll Heads Up}$

----- MECO $V_1 \sim 24.0K @ CO mark$ ----- MECO

MECO+20 s $\sqrt{ET SEP}$, $\sqrt{AUTO -Z TRANS}$
MECO+37 s $\sqrt{MM104}$

Abort TAL (if reqd):

\sqrt{TAL} flag set: $G50$ ITEM 41 = TAL SITE (any site)

$\sqrt{MECO V_1}$ vs HI/LO Energy (TAL PLT)

$\sqrt{Rates} < .5^\circ/sec$; $\theta > 15^\circ$, $Y = 0 \pm 30^\circ$

PASS, OPS 301 PRO ($\sqrt{304}$)

- * No joy in 68 sec: BFS - ENGAGE *
- * BFS, OPS 301 PRO *

RTLS

----- MM304 -----
BFS, OPS 301 PRO ($\sqrt{304}$)

$G50$ \sqrt{SITE} , RWY
S/B & ALTM (PASS/BFS)

$TRAJ$ \sqrt{BUGS} , HSI \sqrt{H} , RANGE, AMI $\sqrt{\alpha = 43^\circ}$

- * Low energy: $TRAJ$ ITEM 3 (Lo Energy ENA) *
- * If Variable/man 37: Pitch - CSS at $\alpha = 37^\circ$ *
- * Pitch - AUTO when $H = 0 \uparrow$ (2nd pullout) *

$V = 10K$
 $V = 7K$

$\sqrt{SPDBK} \rightarrow 81\%$

Go to ENTRY MANEUVERS SURF WIND
(Cue Card)

| |
|--------|
| / |
| |
| ALTM |
| AIM PT |
| SPDBK |

SPDBK @ 3000 FT

ALTM

AIM PT

SPDBK

TAL PLT



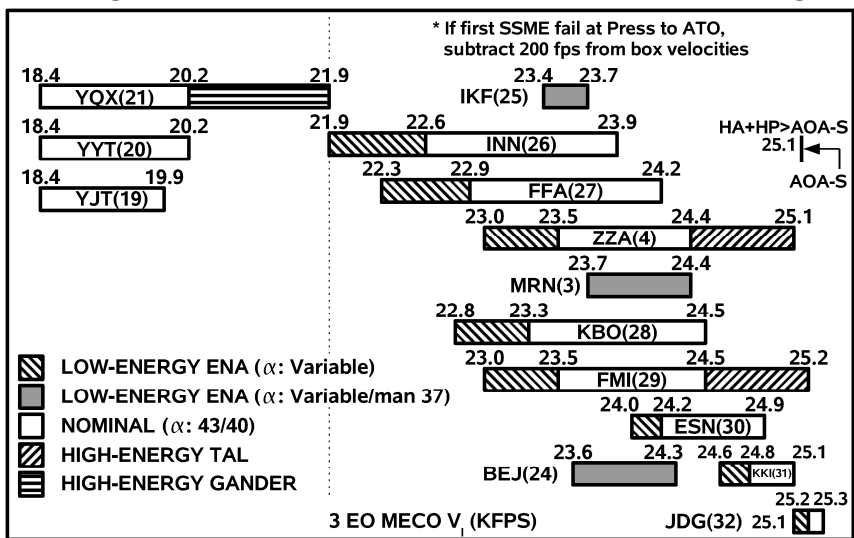
√OMS DUMP

- * If second eng fail: *
- * **G51** DUMP – ITEM 6 (*), 7 (*) *
- * Failed ME SHUTDN pb (two) – push *

√AUTO THROT

- * If STUCK TAL: *
- * When MPS PRPLT = 2%: *
- * MAN THROT, P_c → 67% *
- * AUTO THROT *

----- MECO -- V₁ ~24.0K @ CO mark ----- MECO -----



----- MM304 -----

√OMS DUMP

√ET DOORS – Closed and latched (MM304 +1:30)

V = 19K HYD MPS/TVC ISOL VLV (three) – CL
(hold 5 sec, tb-CL)

G50 √GPS, INCORPORATE

V = 10K * If RCS < **57** % either side: *

* **G51** AFT RCS INH, ITEM 13 EXEC *


V = 7K MLS (three) – ON (√channels)
I/O RESET

Go to ENTRY MANEUVERS (Cue Card)

ECAL

PILE

POWERED ECAL

- √G51 √MAX THROT – ITEM 4 (*)
- √ADI (two) – REF
- √θ → 60°, Yaw → 45°
- √Roll to Heads Up
- √G50 Select SITE
- When EAS > 4 and incr:
- √Yaw to 
- √Pitch down at 3°/sec
- √MECO, ET SEP

ET SEP + 8s: CSS, pull to α = 58° at 4°/sec, AUTO
√MM602 (BFS, OPS 602 PRO)
Go to ECAL ENTRY

2 E/O ECAL (51.6°)

| Velocity (VI) | | | Location | Site | RWY |
|-------------------------|---------------------------------|---------------------|---------------|------|---------|
| IP - 2:30 | In Plane | IP + 2:30 | | | |
| *5.3-6.8 | *5.3-6.7 | *5.3-6.7 6.8-7.3 | Wilmington | 6 | ILM 06 |
| *6.8-8.6 | *6.7-6.9 6.9-8.1 *8.1-8.4 | 6.7-7.9 *7.9-8.0 | Cherry Point | 7 | NKT 32L |
| RTLS | RTLS | RTLS | | | |
| *8.6-9.7 | *8.4-8.6 8.6-9.3 | *8.0-8.1 8.1-9.8 | Oceana NAS | 8 | NTU 32R |
| *9.7-10.5 | 9.2-9.9 *9.9-10.2 | 8.6-10.5 | Wallops | 9 | WAL 28 |
| | *10.2-10.5 | 9.5-11.2 | Atlantic City | 11 | ACY 31 |
| | 10.5-12.3 | 10.1-12.7 | Gabreski | 15 | FOK 06 |
| *10.5-10.9 10.9-13.3 | 10.7-13.4 | 10.5-13.7 | Otis ANGB | 16 | FMH 32 |
| | 11.5-13.2 | 11.1-13.9 | Pease Int'l | 17 | PSM 34 |

*Probable bailout region

3 E/O ECAL (51.6°)

| MM 602 Velocity (Vrel) | | | Location | Site | RWY |
|-------------------------|-------------------------|---------------------------------|-----------------|------|---------|
| IP - 2:30 | In Plane | IP + 2:30 | | | |
| *5.3-6.6 | *5.3-6.6 | *5.3-6.7 | Wilmington | 6 | ILM 06 |
| *6.6-8.9 | *6.6-8.7 | *6.7-7.3 7.3-8.0 *8.0-8.6 | Cherry Point | 7 | NKT 32L |
| *8.9-10.2 | *8.7-10.0 | *8.6-9.7 | | | |
| *10.2-10.9 | *10.0-10.7 | *9.7-10.6 | Wallops | 9 | WAL 28 |
| | *10.7-11.0 | *10.6-11.0 | Atlantic City | 11 | ACY 31 |
| *10.9-11.9 11.9-13.9 | *11.0-11.6 11.6-14.4 | *11.0-11.2 11.2-14.7 | Otis ANGB | 16 | FMH 32 |
| | 11.8-12.4 | 11.2-13.0 | Gabreski | 15 | FOK 06 |
| | 12.8-13.8 | 12.9-14.2 | Pease Int'l | 17 | PSM 34 |
| 13.5-17.2 | 13.3-17.4 | 13.1-17.2 | Halifax Int'l | 18 | YHZ 23 |
| 15.2-18.0 | 15.0-18.0 | 14.9-18.0 | Stephenville | 19 | YJT 09 |
| 15.4-18.0 | 15.3-18.0 | 15.3-18.0 | St. Johns Int'l | 20 | YYT 29 |
| 15.5-18.0 | 15.4-18.0 | 15.2-18.0 | Gander Int'l | 21 | YQX 21 |
| | | 17.3-17.6 | Goose Bay | 22 | YYR 26 |

*Probable bailout region

TAL



HI-ENER
GANDER

ECAL ENTRY

If 3 OUT ECAL or 2 OUT SECOND GREEN:

G50 Select SITE
BFS, OPS 602 PRO

Before NZ Hold:

RHC/PNL TRIM – ENA
If M < 5, √AIL/RUD TRIM

BFS, **G50** √SITE

Nz Hold:

Expect prebank = 20° if TGT Nz < ~3.3g and ΔAZ > 20°
At H = -600 ↑ expect initial bank 2xΔAZ (70° max)
If E/W ≥ STN, expect bank = 70° until ΔAZ increased to 15-30°
past site, then 2xΔAz

G50 √GPS, INCORPORATE

M < 5 and EAS < 333 ↓:

AIR DATA PROBE (two) – Deploy (√Heat)

G50 INCORPORATE Air Data ASAP

M = 3.2: √OPS 603

Select UHF-G T/R

NO COMM ECAL LNDG CRITERIA

@H = 70K, √Range:

- * If Range < 28 nm or Range > 54 nm: *
- * P, R/Y CSS *
- * Bank (≤ 30°) to HDG 120° *
- * Go to BAILOUT *

G50 √SPDBK (ITEM 39) per ECAL LANDING Table

ECAL LANDING:

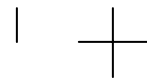
| Runway Length + Ovrn | Spdbk | MGTD | Distance |
|----------------------|-------|------|----------|
| ≥ 11,000' | NOM | 205 | 2500 |
| ≥ 8500 to < 11,000' | SHORT | 205 | 1500 |
| < 8500' | ELS | 195 | 1000 |

MAIN GEAR TD: EARLY CHUTE, DEROTATE, √SPDBK – 100%

NOSE GEAR TD: BRAKE – as reqd

- * If 5K' remaining and V > 140 KGS – MAX BRAKING *
- * (smooth application, not < 2 sec) *

Go to RTLS (enter POST-MECO M = 2.7 step) or BAILOUT



ECAL



PILE

HIGH-ENERGY GANDER CDR

MM104

Abort TAL:

√TAL flag set: **G50** ITEM 41 = TAL SITE (any site)
√Rates < .5°/sec; $\theta > 15^\circ$, $Y = 0 \pm 30^\circ$
PASS, OPS 301 PRO (√304)

-----**MM304**-----

MM304

P, R/Y – CSS
√VREL

| VREL | ROLL (CSS) | ALPHA (CSS) |
|---------------|------------|-------------|
| VREL ≥ 19,900 | 0° | 55° |
| VREL < 19,900 | 0° | 50° |

$\dot{H} = -800 \uparrow$

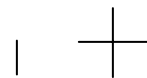
Roll towards site ($\phi \sim 80^\circ$), initial target $\dot{H} = -350$,
hold initial Alpha per table
G50 Hold 3.0g Nz using roll

- * If Nz ≥ 3.5: *
- * Reduce Alpha ($40^\circ < \alpha < 55^\circ$) and *
- * \dot{H} until Nz < 3.5 *

Orbiter bug below upper line or V = 6K

Pitch down at 1°/sec, center needles,
P, R/Y – AUTO

Go to ENTRY MANEUVERS (Cue Card)



HIGH-ENERGY GANDER PLT

HOOK

-----MM304-----

BFS, OPS 301 PRO ($\sqrt{304}$)**G50** Select Site YQX – ITEM 41 +2 1**TRAJ** \sqrt{BUGS} , **HSI** $\sqrt{\hat{H}}$, RANGE $\sqrt{ET DOORS}$ – closed and latched
(MM304 +1:30) **$\dot{H} = -800\uparrow$** Monitor \dot{H} , Nz**When \dot{H}
stabilizes** Ensure Nz stays < 3.5**Monitor
Traj** Report when orbiter bug reaches upper line**Orbiter bug
below
upper line
or V = 6K** Monitor pitchdown at 1°/sec to center needles,
 $\sqrt{P,R/Y}$ – AUTO**V = 19K** HYD MPS/TVC ISOL VLV (three) – CL
(hold 5 sec, tb-CL)**V = 15K** **G50** \sqrt{RWY} , S/B, ALTM
(PASS/BFS)**V = 10K** * If RCS < **57** % either side: *
* **G51** AFT RCS INH, ITEM 13 EXEC ***V = 10K** $\sqrt{SPDBK} \rightarrow 81\%$
Go to ENTRY MANEUVERS (Cue Card)HI-ENER
TAL



PILE

HIGH-ENERGY TAL CDR

MM104

Abort TAL:

√TAL flag set: **G50** ITEM 41 = TAL SITE (any site)
 √Rates < .5°/sec; $\theta > 15^\circ$, $Y = 0 \pm 30^\circ$
PASS, OPS 301 PRO (√304)

**HI-ENER
GANDER**

-----**MM304**-----

MM304

P, R/Y – CSS
 √VREL

| VREL | ROLL (CSS) 4-5°/sec | ALPHA (CSS) |
|-----------------------------|---------------------------|------------------------------|
| $VREL \geq 23,800$ | 180° | 80° ($\theta = 280^\circ$) |
| $23,300 \leq VREL < 23,800$ | 180° | 55° |
| $VREL < 23,300$ | 0° | 55° |

$\dot{H} = -200 \downarrow$ If Alpha = 80°, push to Alpha = 55° ($\theta = \sim 305^\circ$)

Earlier of
 $\dot{H} = -600 \downarrow$
or Guid Init Roll Heads Up at 4-5°/sec, maintain Alpha = 55°

$\dot{H} = -500 \uparrow$ R/Y – AUTO (√Rolls toward site before $\dot{H} > +200$)
 Limit roll to 90° until V = 6K:
 TRAJ Roll CMD > 90° R/Y CSS @ 90°
 < 90° R/Y AUTO

Orbiter bug below upper line When commanded drag (\leftarrow) < 40:
 Pitch down at 0.5°/sec, center pitch needle,
 P – AUTO

V = 6K If energy still high:
 Pitch down at 1°/sec, center pitch needle,
 P, R/Y – AUTO

Go to ENTRY MANEUVERS (Cue Card)



HIGH-ENERGY TAL PLT

HOOK

-----MM304-----

BFS, OPS 301 PRO (√304)

[G50] If [FMI] GO TAL Site – Select [FMI] –
ITEM 41 + [29]

Otherwise, select best Wx site [ZZA] (Site 4)
or [FMI]

[TRAJ] √BUGS, [HSI] √^H, RANGE

√ET DOORS – closed and latched
(MM304 +1:30)

ABORT
DUMPS

Guid Init:
(D = 3, q̄ = 8,
EAS = 48)

- * If no comm and [ZZA/FMI] *
- * initial Commanded Drag (←) ≥ [35] , *
- * [G50] Select Site [ESN] – ITEM 41 + [30] *
- * *

V = 19K HYD MPS/TVC ISOL VLV (three) – CL
(hold 5 sec, tb-CL)

V = 15K [G50] √RWY, S/B, ALTM
(PASS/BFS)

V = 10K * If RCS < [57] % either side: *

- * [G51] AFT RCS INH, ITEM 13 EXEC *

V = 10K √SPDBK → 81%

V = 7K MLS (three) – ON (√channels)
I/O RESET

Go to ENTRY MANEUVERS (Cue Card)

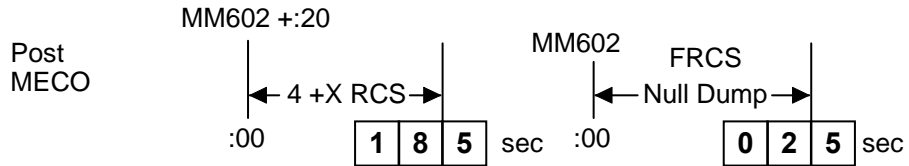
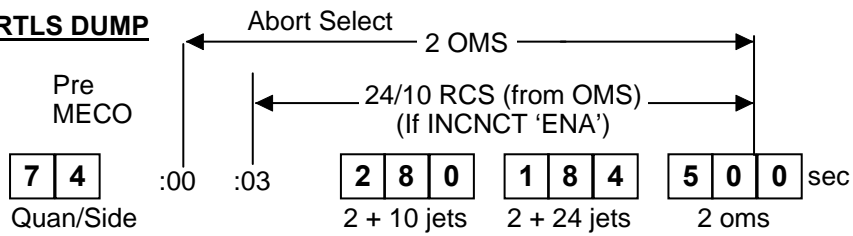
TOP
BACK OF 'ECAL ENTRY'

PILE

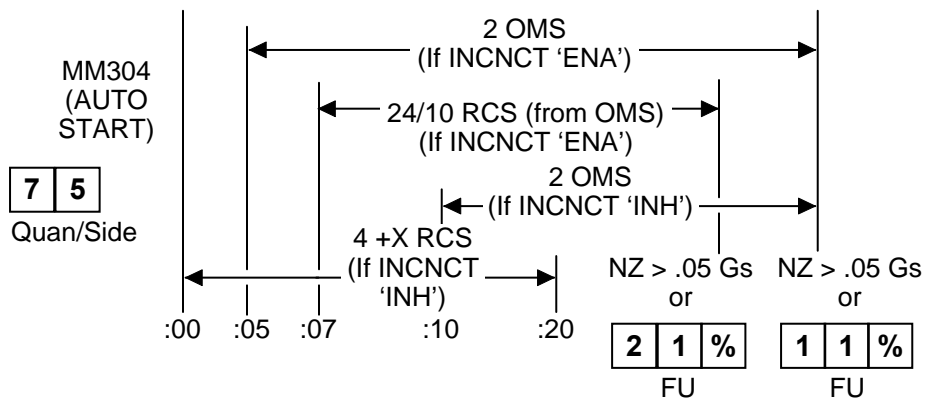
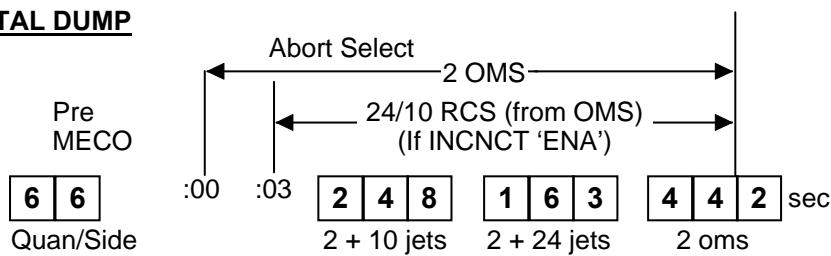
RTLS/TAL DUMPS

HI-ENER
TAL

RTLS DUMP

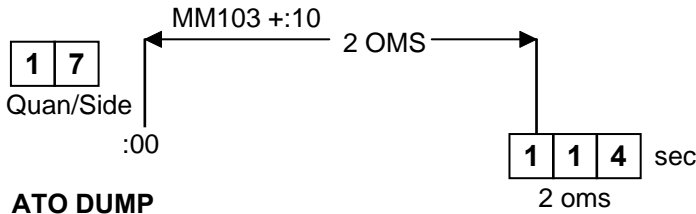


TAL DUMP

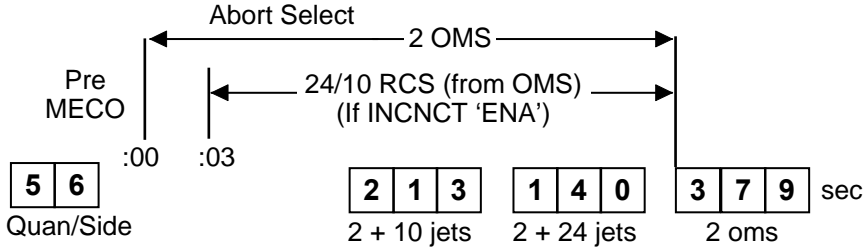




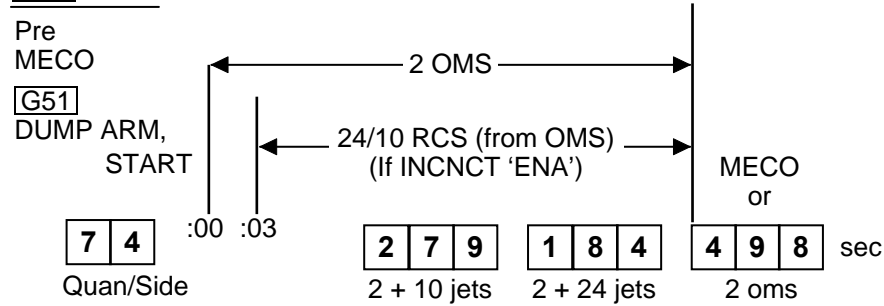
ASSIST/ATO/G51 DUMPS
ASSIST DUMP



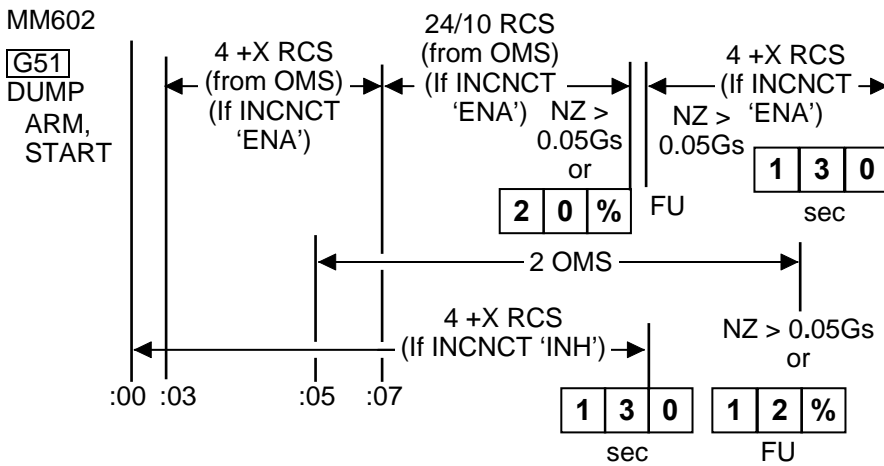
ATO DUMP



G51 DUMP



PWRD
CSS



TOP
BACK OF 'ASSIST/ATO/G51 DUMPS'

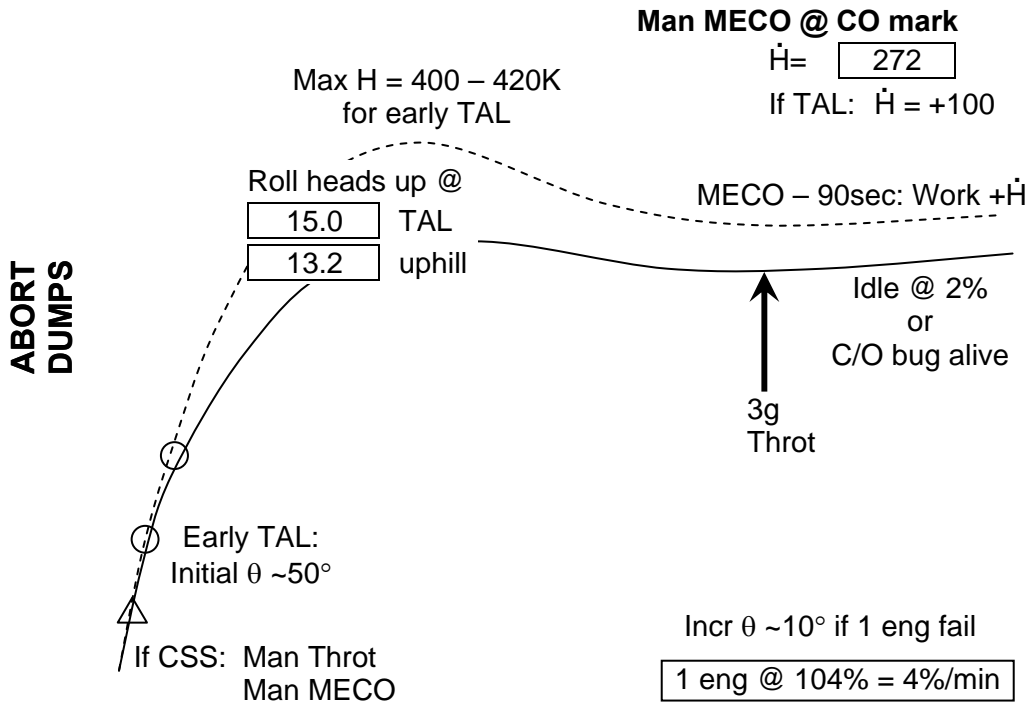
PILE

POWERED CSS – UPHILL/TAL

CSS & MAN THROT
(IF MET < 1:30, ENGAGE BFS)

Yaw to $\triangle E$ until 2:30
Then $\triangle I$ uphill
or $\triangle R$ if TAL

| If TAL \sqrt{HDG} | |
|---------------------|-----|
| ZZA | 010 |
| MRN | 016 |
| FMI | 006 |



POWERED CSS – RTLS

HOOK

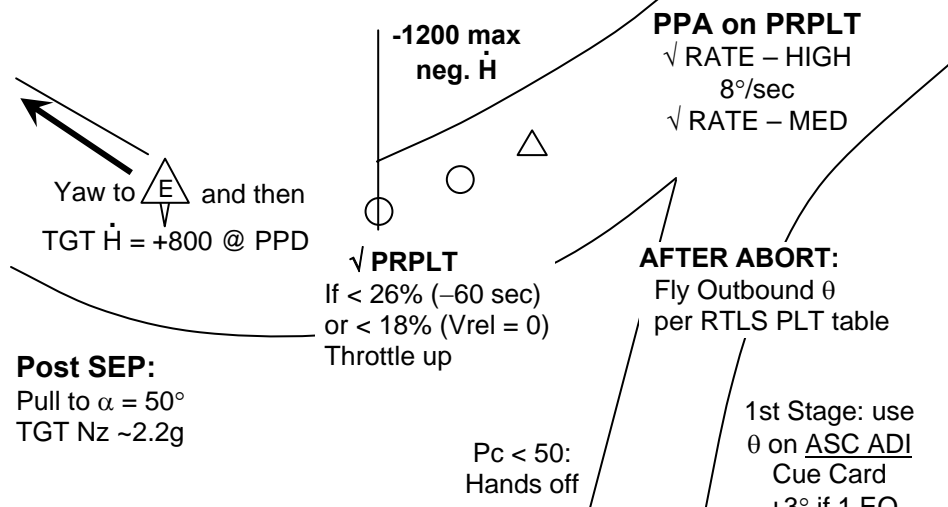
CSS & MAN THROT
(IF MET < 1:30, ENGAGE BFS)

| Post PPA | Pre PPA |
|--------------|--------------|
| 2 eng = 100% | 2 eng = 104% |
| 3 eng = 69% | 3 eng = 69% |

PPD
Idle & Pitch DN to
horiz ($\alpha -2^\circ$)
Man MECO @ CO mark
Hold FWD stick until SEP

R Yaw to **R**

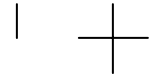
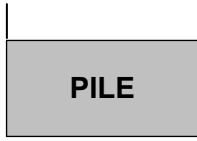
\dot{H} control:
Use θ then
Throttle



1 eng @ 104% = 4%/min

If CSS: Man Throt
Man MECO

TOP
BACK OF 'POWERED CSS – RTLS'

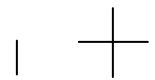
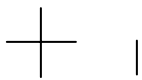


This Page Intentionally Blank

PWRD
CSS

FB 2-26

ASC/123/FIN





ASCENT/ENTRY CUE CARDS

**ASC/ENT
CUE CARDS**



MS ONLY

2-27

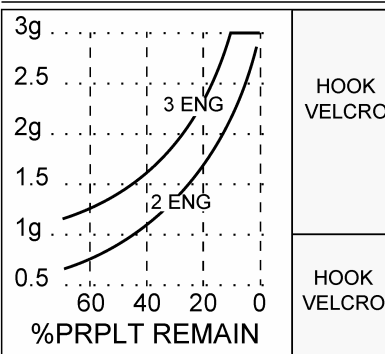
ASC/123/FIN



ASC/ENT
CUE CARDS

ASCENT ADI - NOMINAL

| TIME | θ | H | \dot{H} | (123 OCF CY) |
|------|----------|------|-----------|--------------|
| 0:30 | 68 | 9K | 630 | |
| 0:50 | 63 | 25K | 978 | |
| 1:10 | 55 | 49K | 1394 | |
| 1:30 | 39 | 82K | 1868 | |
| 1:50 | 31 | 122K | 2183 | |



-STAGING-

| V_I | θ | H | \dot{H} | ASC-14a/123/A/A |
|-------|----------|------|-----------|-----------------|
| 6 | 19 | 218K | 1722 | |
| 7 | 16 | 276 | 1269 | |
| 8 | 13 | 311 | 919 | |
| 9 | 11 | 333 | 635 | |
| 10 | 9 | 346 | 403 | |
| 12 | 6 | 357 | 61 | |
| 14 | 9 | 356 | -149 | |
| 16 | 25 | 350 | -234 | |
| 18 | 23 | 344 | -270 | |
| 20 | 21 | 339 | -220 | |
| 22 | 19 | 337 | -106 | |
| 24 | 17 | 337 | 64 | |
| 25819 | 13 | 345 | 272 | |

HOOK VELCRO

ENTRY ALPHA

| VR | α ref | R | H | Href | Rref |
|----|--------------|------|-----|------|------|
| 25 | HI 40 LO | 4430 | 400 | | |
| 24 | HI 40 LO | 2614 | 248 | -46 | L79 |
| 23 | 43 40 37 | 2144 | 240 | -64 | 69 |
| 22 | 43 40 37 | 1792 | 233 | -83 | 63 |
| 21 | 43 40 37 | 1509 | 227 | -106 | 60 |
| 20 | 43 40 37 | 1292 | 220 | -123 | 59 |
| 19 | 43 40 37 | 1117 | 213 | -146 | 59 |
| 18 | 43 40 37 | 974 | 208 | -169 | R60 |
| 17 | 43 40 37 | 861 | 200 | -187 | 62 |
| 16 | 43 40 37 | 768 | 193 | -196 | 64 |

KSC 15

| MAX L/D | |
|---------|----------|
| M | α |
| 3 | 17 |
| 2 | 15 |
| 1 | 12 |

(123 OCF CY)

HOOK
VELCRO

ASC-14b/123/A,E/A

HOOK
VELCRO

HOOK
VELCRO

| | | | | | |
|-----|----------|-----|-----|------|-----|
| 15 | 43 40 37 | 686 | 187 | -118 | 64 |
| 14 | 43 40 37 | 613 | 183 | -127 | 62 |
| 13 | 43 40 37 | 545 | 179 | -136 | 60 |
| 12 | 43 40 37 | 483 | 174 | -152 | 58 |
| 11 | 42 39 36 | 426 | 168 | -194 | 57 |
| 10 | 41 38 35 | 376 | 164 | -173 | L50 |
| 9 | 39 36 33 | 325 | 158 | -208 | 44 |
| 8 | 37 34 31 | 279 | 151 | -238 | 40 |
| 7 | 33 30 27 | 230 | 141 | -266 | 39 |
| 6 | 30 27 24 | 183 | 129 | -272 | 40 |
| 5 | 26 23 20 | 142 | 116 | -274 | 40 |
| 4 | 23 20 18 | 106 | 104 | -263 | R41 |
| 3 | 19 16 15 | 74 | 90 | -248 | 38 |
| 2.5 | 14 | 60 | 82 | -252 | |
| 2 | 14 | 50 | 77 | -261 | |
| 1.5 | 10 | 39 | 68 | -313 | |
| 1 | 8 | 27 | 52 | -267 | |

HOOK VELCRO



This Page Intentionally Blank



MS ONLY

2-30

ASC/123/FIN



ENTRY MANEUVERS

| FLIGHT CONDITIONS | MANEUVER |
|---|---|
| EI-5 | √LVLH ATT GNC, OPS 304 PRO * If PREBANK, R/Y – CSS * * Roll at 1°/sec to <input type="text"/> <input type="text"/> <input type="text"/> * * Maintain PREBANK ±5° * If previous OMS OX TK, He TK, or RCS OX TK leak: <input type="text"/> G51 VENT DOOR CNTL OPEN – ITEM 43 EXEC (AOA) <input type="text"/> SPI When SB position – 0%: √HYD MN PUMP PRESS (three) – LO |
| $\bar{q} = 1$ | (AOA) HYD MN PUMP PRESS (three) – NORM |
| ‘Guidance Box’ @ $\bar{q} \sim 8$ or D ~ 3 | CLOSED LOOP GUIDANCE ____:____:____ * If PREBANK: P,R/Y – AUTO * Begin ALL trim monitoring |
| V = 24K | If previous OMS OX TK, He TK, or RCS OX TK leak: <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"/> (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 CNTLR LOOP (two) – AUTO B(A) |
| V = 10K | √SPDBK to 81% |

ENT-6a/E/P

**ENT
MNVR**

ENT
MNV

| FLIGHT CONDITIONS | MANEUVER | | | |
|--|--|--|--|--|
| V = 7K | G50 √GPS, INCORPORATE * If ELS: UHF MODE – G T/R * | | | |
| V = 5K | ADTA PROBES – DEPLOY (√HEAT) Begin AIL and RUD trim monitoring | | | |
| M = 3.5 | If previous OMS OX TK, He TK, or RCS OX TK leak: G51 VENT DOOR CNTL OPEN – ITEM 43 EXEC | | | |
| M = 2.7 | √APUs HUD PWR (two) – ON | | | |
| * If M < 2.5; P CSS for ADTA to G&C incorp * | | | | |
| M = 2.0 | Ensure ADTA to G&C else √Theta limits | | | |
| M < 1.0 | √R FLT CNTLR – ON P,R/Y – CSS as reqd √SPDBK CMD vs POS √NWS – 1 Lock Inertia Reels MAX Nz <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr></table> | | | |
| | | | | |
| M = 0.7 | √LG EXTD ISO VLV – OP | | | |
| h = 15K | √MLS | | | |
| h = 10K | √A/L (KSC – Tabs, Visors, Suit O2) | | | |
| h = 2K | LDG GEAR ARM pb – push (ARM It on) | | | |
| h = 300 | LDG GEAR DN pb – push (DN It on) | | | |
| MAIN GEAR TD | √SPDBK – 100% | | | |
| V = 195 KEAS | DRA G CHUTE ARM, DPY pb (two) – push (simo) (All Its on) | | | |
| V = 185 KEAS | DEROTATE | | | |
| NOSE GEAR TD | SRB SEP – MAN/AUTO and depress pb √Auto Load Relief √HYD BK ISOL VLV (three) – OP | | | |
| MIDFIELD and V < 140 KGS | BRAKE as required (8-10 fps ² , -0.25 to -0.3G) | | | |
| * If 5K' remaining and V > 140 KGS – MAX BRAKING * | | | | |
| V = 60 KGS | DRA G CHUTE JETT pb – push (JETT1,JETT2 It on) | | | |
| V = 40 KGS | BRAKE < 6 fps ² (-0.2G) (Antiskid cutout) | | | |
| WHEEL STOP | Go to ENT C/L, <u>POST LANDING PROCEDURES</u> | | | |

ENT-6b/123/E/A
(Partial)

DRAG CHUTE DEPLOY

| MCC Call | Flight Condition |
|--|--------------------------------|
| Early | Main Gear TD |
| NOMINAL | 195 KEAS |
| Late | Post-Nose Gear TD Xwind DTO |
| Emergency Only | No Deploy Except CDR call |
| NO DEPLOY prior to MGTD > 230 KEAS < 80 KGS Xwind > 15 kts | |

FAILED TIRE TECHNIQUE

| | |
|-----------|---------------------------------------|
| Post-MGTD | P – AUTO |
| 185 KEAS | Deploy drag chute |
| 180 KEAS | √Auto derotation |
| NGTD | Max RHC roll away from failed tire |

| | |
|------|---|
| 50K | / |
| 38K | / |
| 28K | / |
| 20K | / |
| 12K | / |
| 7K | / |
| 3K | / |
| 1K | / |
| SURF | / |

ENT-6b/123/E/A
(Partial)



This Page Intentionally Blank



MS ONLY

2-34

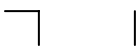
ASC/123/FIN





CONT
ABORT

ABORT CUE CARDS



NOT FLOWN

2-35

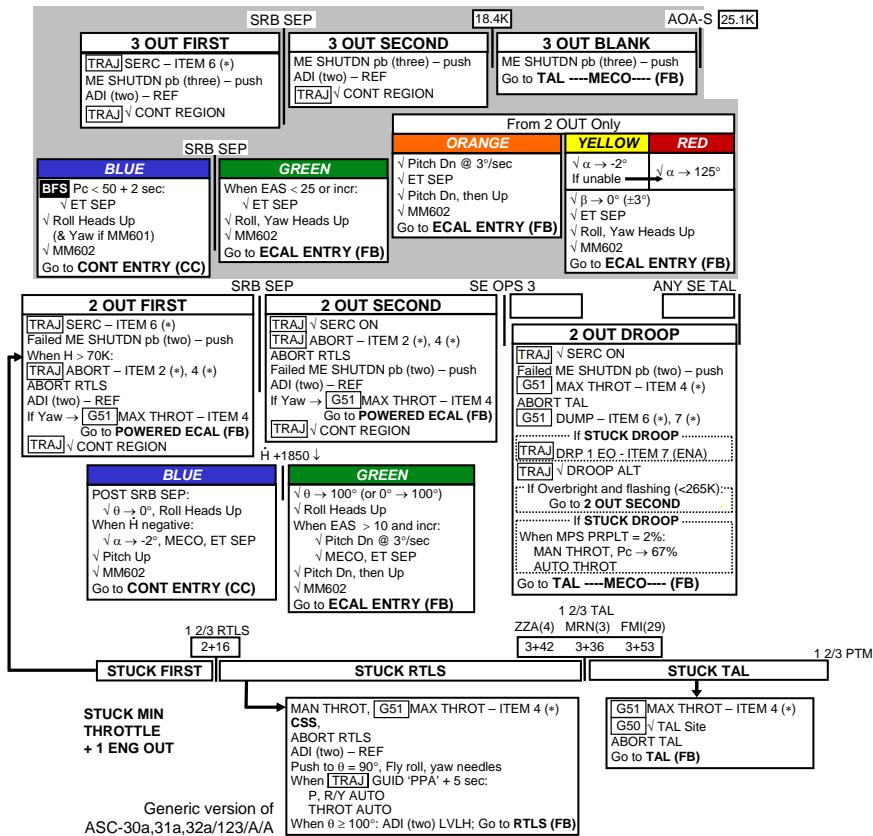
ASC/123/FIN



**CONT
ABORT**

CONTINGENCY ABORT

High Inclination
51.6°



CONTINGENCY ABORT

CONT ENTRY / MM602

VERT SIT INH ECAL/BDA –
ITEM 1 (INH)

Before NZ Hold

RHC/PNL TRIM – ENA

If $M < 5$,

√ AIL/RUD TRIM

If $M < 3$, S/B = 65%

$M \leq 5$ and $EAS < 333$ ↓

ADTA PROBES – Deploy

G50 Incorp Air Data ASAP

M2 → 1: $\theta = 0^\circ$ by $M = 1.0$

Select UHF – G T/R

When $M < 1.0$

Go to **BAILOUT (FB)**

Generic version of
ASC-30a,31a,32a/123/A/A

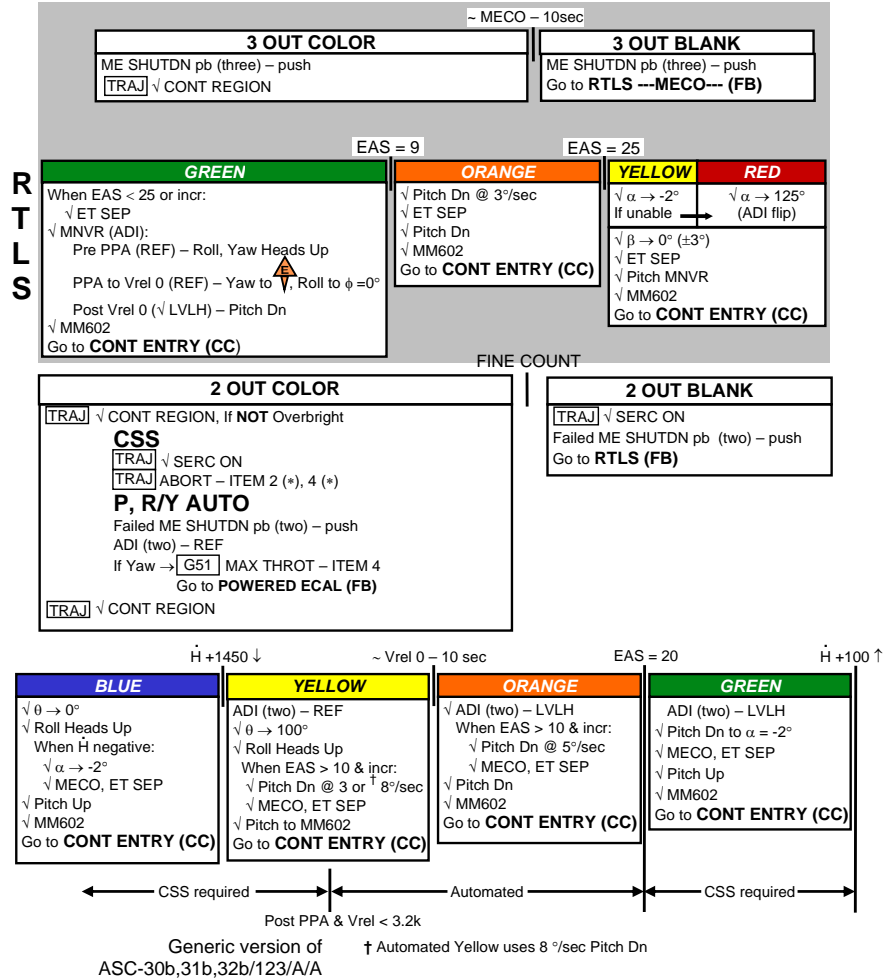
NOT FLOWN

2-37

ASC/123/FIN

RTLS CONTINGENCY

High Inclination
51.6°



RTLS CONTINGENCY

CONT ENTRY / MM602

VERT SIT -

If ECAL/BDA – INH
√ Theta Limits after Nz Hold

If ECAL/BDA – ENA
ITEM 1 (INH)

Before NZ Hold
RHC/PNL TRIM – ENA

If $M < 5$,
√ AIL/RUD TRIM

If $M < 3$, S/B = 65%

$M \leq 5$ and $EAS < 333$ ↓
ADTA PROBES – Deploy
G50 Incorp Air Data ASAP

$M2 \rightarrow 1$: $\theta = 0^\circ$ by $M = 1.0$

Select UHF – G T/R

When $M < 1.0$
Go to **BAILOUT (FB)**

Generic version of
ASC-30b,31b,32b/123/A/A

RED

√ ADI (two) – LVLH
√ $\dot{H} \rightarrow +400$ ($\theta_{max} = 75^\circ$)
TRAJ AT FINE COUNT:
√ Pitch Dn to $\alpha = -2^\circ$
√ MECO, ET SEP
√ Pitch Up
√ MM602
Go to **RTLS ---MECO--- (FB)**

← Automated →

**ZZA TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6000 | 6100 | 6200 | 6300 | 6400 | 6500 | 6600 | 6700 |
| SE OPS 3 ZZA 109 | (4) | 10900 | 11000 | 11000 | 11000 | 11100 | 11100 | 11100 | 11100 |
| SE ZZA 104 | (4) | 17000 | 16900 | 16700 | 16500 | 16300 | 16100 | 16000 | 15800 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6800 | 6900 | 7000 | 7100 | 7200 | 7300 | 7400 | 7500 |
| SE OPS 3 ZZA 109 | (4) | 11200 | 11200 | 11200 | 11200 | 11300 | 11300 | 11300 | 11300 |
| SE ZZA 104 | (4) | 15600 | 15500 | 15300 | 15200 | 15000 | 14900 | 14700 | 14600 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7600 | 7700 | 7800 | 7900 | 8000 | 8100 | 8200 | 8300 |
| SE OPS 3 ZZA 109 | (4) | 11400 | 11400 | 11400 | 11400 | 11500 | 11500 | 11500 | 11500 |
| SE ZZA 104 | (4) | 14500 | 14300 | 14200 | 14100 | 14000 | 14000 | 13900 | 13800 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8400 | 8500 | 8600 | 8700 | 8800 | 8900 | 9000 | 9100 |
| SE OPS 3 ZZA 109 | (4) | 11500 | 11600 | 11600 | 11600 | 11600 | 11600 | 11600 | 11700 |
| SE ZZA 104 | (4) | 13800 | 13700 | 13700 | 13600 | 13600 | 13600 | 13500 | 13500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9200 | 9300 | 9400 | 9500 | 9600 | 9700 | 9800 | 9900 |
| SE OPS 3 ZZA 109 | (4) | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11800 | 11800 |
| SE ZZA 104 | (4) | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|--|--|
| 1st E.O. VI | | 10000 | 10100 | 10200 | 10300 | 10400 | 10500 | | |
| SE OPS 3 ZZA 109 | (4) | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | | |
| SE ZZA 104 | (4) | 13600 | 13600 | 13600 | 13600 | 13600 | 13600 | | |

ASC-9a/123/A/A

NOT FLOWN

2-40

ASC/123/FIN

ECAL – ZZA or MRN or FMI PRIME TAL

| | | | | | | | |
|------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-9b/123/A/A

NOT FLOWN

2-41

ASC/123/FIN

**MRN TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 5800 | 5900 | 6000 | 6100 | 6200 | 6300 | 6400 | 6500 |
| SE OPS 3 MRN 109 | (3) | 10800 | 10900 | 10900 | 10900 | 11000 | 11000 | 11000 | 11100 |
| SE MRN 104 | (3) | 16800 | 16700 | 16500 | 16300 | 16200 | 16000 | 15800 | 15700 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6600 | 6700 | 6800 | 6900 | 7000 | 7100 | 7200 | 7300 |
| SE OPS 3 MRN 109 | (3) | 11100 | 11100 | 11200 | 11200 | 11200 | 11300 | 11300 | 11300 |
| SE MRN 104 | (3) | 15500 | 15300 | 15200 | 15000 | 14900 | 14700 | 14600 | 14500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7400 | 7500 | 7600 | 7700 | 7800 | 7900 | 8000 | 8100 |
| SE OPS 3 MRN 109 | (3) | 11300 | 11400 | 11400 | 11400 | 11400 | 11500 | 11500 | 11500 |
| SE MRN 104 | (3) | 14400 | 14200 | 14100 | 14000 | 13900 | 13900 | 13800 | 13700 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8200 | 8300 | 8400 | 8500 | 8600 | 8700 | 8800 | 8900 |
| SE OPS 3 MRN 109 | (3) | 11500 | 11500 | 11600 | 11600 | 11600 | 11600 | 11600 | 11600 |
| SE MRN 104 | (3) | 13600 | 13600 | 13500 | 13500 | 13500 | 13400 | 13400 | 13400 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9000 | 9100 | 9200 | 9300 | 9400 | 9500 | 9600 | 9700 |
| SE OPS 3 MRN 109 | (3) | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11800 |
| SE MRN 104 | (3) | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9800 | 9900 | 10000 | 10100 | 10200 | 10300 | 10400 | 10500 |
| SE OPS 3 MRN 109 | (3) | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 |
| SE MRN 104 | (3) | 13400 | 13400 | 13400 | 13500 | 13500 | 13500 | 13500 | 13500 |

ASC-10a/123/A/A

NOT FLOWN

2-42

ASC/123/FIN

ECAL – ZZA or MRN or FMI PRIME TAL

| | | | | | | | |
|------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-10b/123/A/A

NOT FLOWN

2-43

ASC/123/FIN

**FMI TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6200 | 6300 | 6400 | 6500 | 6600 | 6700 | 6800 | 6900 |
| SE OPS 3 FMI 109 | (29) | 11000 | 11100 | 11100 | 11100 | 11200 | 11200 | 11200 | 11200 |
| SE FMI 104 | (29) | 17800 | 17600 | 17400 | 17200 | 17000 | 16800 | 16600 | 16400 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7000 | 7100 | 7200 | 7300 | 7400 | 7500 | 7600 | 7700 |
| SE OPS 3 FMI 109 | (29) | 11300 | 11300 | 11300 | 11400 | 11400 | 11400 | 11400 | 11500 |
| SE FMI 104 | (29) | 16200 | 16000 | 15800 | 15600 | 15400 | 15300 | 15100 | 15000 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7800 | 7900 | 8000 | 8100 | 8200 | 8300 | 8400 | 8500 |
| SE OPS 3 FMI 109 | (29) | 11500 | 11500 | 11500 | 11500 | 11600 | 11600 | 11600 | 11600 |
| SE FMI 104 | (29) | 14800 | 14700 | 14600 | 14400 | 14300 | 14200 | 14200 | 14100 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8600 | 8700 | 8800 | 8900 | 9000 | 9100 | 9200 | 9300 |
| SE OPS 3 FMI 109 | (29) | 11600 | 11600 | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 |
| SE FMI 104 | (29) | 14000 | 14000 | 13900 | 13900 | 13800 | 13800 | 13800 | 13800 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9400 | 9500 | 9600 | 9700 | 9800 | 9900 | 10000 | 10100 |
| SE OPS 3 FMI 109 | (29) | 11700 | 11700 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 |
| SE FMI 104 | (29) | 13800 | 13800 | 13800 | 13800 | 13800 | 13800 | 13800 | 13900 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|--|--|--|--|
| 1st E.O. VI | | 10200 | 10300 | 10400 | 10500 | | | | |
| SE OPS 3 FMI 109 | (29) | 11800 | 11800 | 11800 | 11800 | | | | |
| SE FMI 104 | (29) | 13900 | 13900 | 13900 | 13900 | | | | |

ASC-12a/123/A/A

NOT FLOWN

2-44

ASC/123/FIN

ECAL – ZZA or MRN or FMI PRIME TAL

| | | | | | | | |
|------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-12b/123/A/A

NOT FLOWN

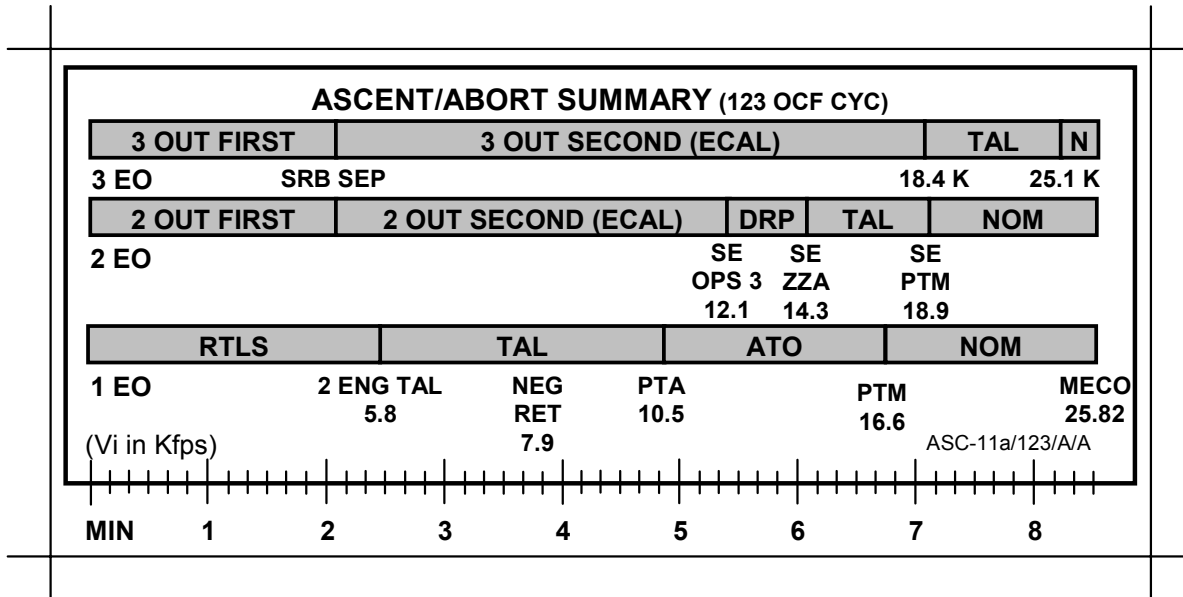
2-45

ASC/123/FIN

NOT FLOWN

2-46

ASC/123/FIN





POST OMS 1 BURN PROCEDURES

**POST
OMS 1**



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

ET PHOTO MANEUVER/MPS DUMP

- * If OMS 1 Burn performed, go to *
- * POST BURN STATUS *

B $\sqrt{\text{MCC}}$,
ADI – REF

- * If Feedline Fail: *
- * $\sqrt{\text{MCC}}$ GO for +X and Pitch Mnvr *
- * At MECO + 6 min: (14:23 Nom) *
- * ET SEP – SEP *
- * At MM104 + 2 sec *
- * +X xlation for 11 sec *
- * At OMS 1 TIG: (16:05 Nom) *
- * Pitch up at 2°/sec until ET in O/H *
- * window (P ~110°) *
- * Go to MPS DUMP complete *

If NO-GO for Photo Pitch Mnvr, go to MPS DUMP complete; do not pitch

MPS DUMP start (MECO + 2:03)

C At OMS 1 TIG + 30 sec: (MECO + 2:33)
(10:56 Nom)

C3 DAP – INRTL: R (DISC), P (PULSE), Y (DISC),
Orbiter pitches up

Control pitch rate 2°/sec to 3°/sec

- * If no pitch rate, go to MPS DUMP complete *

When ET in O/H window (MS call or P ~90°):

P – DISC

Adjust pitch photo att as reqd for MS

P **MPS DUMP complete**

F4 $\sqrt{\text{BDY FLP pb}}$ – It off (MECO + 4 min) (12:24 Nom)

- * C If no pitch rate, *
- * P – DISC *
- * Pitch up at 2°/sec until ET *
- * in O/H window (P ~85°) *

POST
OMS 1

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

C POST BURN STATUS

NOMINAL OMS 1 TIG TO MCC :

- * C **ALPHA MANAGEMENT (if reqd)** *
- * *
- * If underspeed (ATO or AOA-S) OMS 1 *
- * and Post OMS 1 HP ≤ 75 nm: *
- * Maneuver to LVLH R000, P340, Y000 *
- * (maintain LVLH P = 0 ± 20) *
- * After 10 min: *
- * Maneuver to LVLH P = 340 *
- * After 10 min: *
- * Maneuver to Burn Attitude *

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

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

IF AOA
If two Freon Loops ↓ or two H2O Loops ↓:
Go to SYS AOA
Otherwise, go to AOA

- * If no comm and MPS dump complete: *
- * HYD MN PUMP PRESS (three) – *
- * LO (MA) *

P APU/HYD SHUTDN

R2 √MCC
√APU AUTO SHTDN (three) – ENA
BLR PWR (three) – OFF
N2 SPLY (three) – OFF
APU OPER (1,2,3; 5 sec interval) – OFF (MA)
FU TK VLV (three) – CL
√Shutdn (HYD PRESS < 200)
CNTLR PWR (three) – OFF
√HYD MN PUMP PRESS (three) – NORM

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

TAIL ONLY CONTROL (√MCC)

| |
|---------------|
| 2: GNC 23 RCS |
|---------------|

CRT2 OVRD FWD RCS MANF STATs 1,2,3,4 – CL

FES & HEATER ACTIVATION

C L1 FLASH EVAP CNTLR PRI A – ON
L2 FDLN HTR (two) – 1

P R1 O2 TK1,2 HTRS B (two) – AUTO
H2 TK1,2 HTRS B (two) – AUTO

MS1 A12 APU HTR TK/FU LN/H2O SYS 1A,2A,3A (three) –
AUTO

AC BUS SNSR

R1 AC BUS SNSR (three) – OFF (1 sec),
then AUTO TRIP

MAJOR MODE CHANGE

CRT1 GNC, OPS 105 PRO

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

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

B OMS 2 BURN SETUP

√OMS 2 TARGETING, Flip Book

CRT1 TRIM LOAD – ITEM 6 +0.4 -5.7 +5.7 EXEC

- * For single eng burn (good eng): *
- * TRIM LOAD LY – ITEM 7 +5.2 EXEC *
- * RY – ITEM 8 -5.2 EXEC *
- * OMS L – ITEM 2 EXEC *
- * R – ITEM 3 EXEC *
- * For RCS burn: *
- * RCS SEL – ITEM 4 EXEC *

NOTE

Onboard computed TIG may vary slightly but is acceptable

√Targets, OMS TARGETS

LOAD – ITEM 22 EXEC
 TIMER – ITEM 23 EXEC

CRT3 √BFS TGT

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

P ET UMBILICAL DOOR CLOSURE

* If Feedline fail, √MCC before closure *

| |
|---|
| <p>WARNING ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage</p> |
|---|

NOTE

Double times for single motor operation

R2

ET UMB DR

MODE – GPC/MAN
CTRLINE LAT – STO
√After 6 sec, CTRLINE LAT tb – STO

* If CTRLINE LAT does not stow within 12 sec: *
* CTRLINE LAT – GND *
* √MCC *

CTRLINE LAT – GND
L,R DR (two) – CL (tb-bp)
√After 24 sec, L,R DR tb (two) – CL

* If doors do not close within 48 sec: *
* L,R DR (two) – OFF *
* √MCC *

L,R LAT (two) – LAT (tb-bp)
√After 6 sec, L,R LAT tb (two) – LAT

* If doors do not latch within 12 sec: *
* L,R DR (two) – OFF *
* LAT (two) – OFF *
* √MCC *

L,R DR (two) – OFF
LAT (two) – OFF
MODE – GPC



OMS 2 BURN CARDS

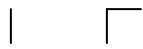
OMS 2



MS ONLY

4-1

ASC/123/FIN



OMS 2 BURN MONITOR

| | | | | | | | |
|--|--|---|-----|-----|-----|-----|---|
| OMS TEMP* FU IN P ≥ <table style="display: inline-table; border: 1px solid black;"><tr><td style="padding: 0 5px;">L</td><td style="padding: 0 5px;">R</td></tr><tr><td style="padding: 0 5px;">219</td><td style="padding: 0 5px;">220</td></tr></table> ≤ <table style="display: inline-table; border: 1px solid black;"><tr><td style="padding: 0 5px;">201</td><td style="padding: 0 5px;">208</td></tr></table> or No FU IN P | L | R | 219 | 220 | 201 | 208 | OMS ENG FAIL ----- OMS PRPLT FAIL |
| L | R | | | | | | |
| 219 | 220 | | | | | | |
| 201 | 208 | | | | | | |
| OMS PC* & OMS ↓ (BFS: √accel) ENG VLV 1 or 2 < 70 or OX IN P > 227 ----- OX IN P ≤ 227 or No OX IN P | OMS ENG FAIL ----- OMS PRPLT FAIL | | | | | | |
| OMS OX/FU TK P (√ENG IN P) OX/FU LOW ----- OX & FU HIGH | He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP or HP > 85 : OMS PRPLT FAIL ----- He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284 | | | | | | |
| OMS He TK P LOW (√ OMS/MPS) | At He P < 640 or QTY ≤ 41: If HP < 85 : OMS XFEED from good OMS At HP > 85 : OMS PRPLT FAIL | | | | | | |
| OMS N2 REG P HIGH or LOW OMS N2 TK P LOW (√ OMS/MPS) | OMS ENG – ARM ----- At N2 TK P < 470: OMS ENG – ARM | | | | | | |
| OMS GMBL PRI fail SEC fail | L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL | | | | | | |
| GPC 1(4) & Burning OMS aff ----- SEC GMBL lost 2 FAs lost | aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF,ON L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL ----- √MAN SHUTDN | | | | | | |
| I/O ERROR FA 1(4) ----- 2 FAs lost | L(R) OMS GMBL – SEC I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL ----- √MAN SHUTDN | | | | | | |
| BCE STRG D 1(4) | I/O RESET (if recov: >>) ----- If high RCS usage: L(R) OMS GMBL – SEC (twice) | | | | | | |
| I/O ERROR PCM | OI PCMMU PWR – 2(1) | | | | | | |

*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

ASC-5a/123/A,O/A

OPS 1 RCS BURN

AFT RCS

✓RCS BURN CONFIG:
 OMS TK ISOL (all) – OP OMS TK
 L(R) OMS XFEED (two) – OP switch at
 R(L) OMS XFEED (two) – CL 1/2 ΔVTOT
 AFT L,R RCS XFEED (four) – OP (If reqd)
 TK ISOL (six) – CL

TIG-2 L,R OMS He PRESS/VAP ISOL A – OP
 . . . Wait 2 sec . . .
 L,R OMS He PRESS/VAP ISOL B – OP
 ✓MM105
 CNTLR PWR (two) – ON
 ✓BURN ATT (INRTL) then REF, pb – push
 ✓RCS SEL
 DAP: INRTL/DISC
 :00 + X
 Maintain PITCH ATT ERR ± 3°
 Monitor OMS data
 Monitor ΔVTOT
 CUTOFF Release THC
 CNTLR PWR (two) – OFF

FWD RCS

FRCS BURN PREP
 Load DUMMY target for FRCS attitude
 RCS SEL – ITEM 4 EXEC
 TIG @ TTA = 2:00 or as reqd
 ΔVX = -2.1 (ITEM 19)
 ΔVY = 0 (ITEM 20)
 ΔVZ = +1.0 (ITEM 21)
 LOAD – ITEM 22 EXEC
 TIMER – ITEM 23 EXEC
 TIG-10 Auto Mnvr to ATT
 When in attitude:
 ADI ATT – REF (push)
 Load External ΔV Burn Target
 ΔVX = +80
 ΔVY = 0
 ΔVZ = 0
 LOAD – ITEM 22 EXEC
 TIMER – ITEM 23 EXEC
 ✓VGOX = negative
 ✓VGOY = 0
 ✓VGOZ = +21 ± 2
 ✓REF ball – 0,0,0

NOTE

Error needles invalid during burn
 Burn time = ~2X TGO
 TGT Hp = for ASCENT

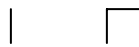
-:30 CNTLR PWR (two) – ON
 DAP: INRTL/DISC
 :00 -X
 CUTOFF CUR HP = TGT HP , release THC
 CNTLR PWR (two) – OFF

ASC-6b/123/A,O/A



POST OMS 2 BURN PROCEDURES

**POST
OMS 2**



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

MAJOR MODE CHANGE

CRT1 GNC, OPS 106 PRO

| | |
|-------------------------|-------------------------|
| 1: GNC OMS 2 MNVR COAST | 2: GNC OMS 2 MNVR COAST |
|-------------------------|-------------------------|

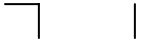
B C4A, Stow ASC PKT (Helmet Bag)
R3A Unstow ORBIT Cue Cards & ORB PKT

- * If ATO, \sqrt MCC for procedure changes *
- * If Rev 3 deorbit reqd, go to CONT *
- * DEORB, LAUNCH DAY ORBIT 3 *

Go to POST INSERT, POST INSERTION



This Page Intentionally Blank





AOA PADS

**AOA
PADS**

6-1

ASC/123/FIN



DIRECT INSERTION AOA DEL PAD

| DEORBIT | | | | | | | | | |
|---|--|---|--|--|-----------------------------|---|-----------------------------|---------|------|
| PRPLT | | | | | () | | | | |
| BURN CUE CARD: | | | | | | | | | |
| OMS ENG FAIL XFEED QTY CUE | | | | | %L | | %R | | |
| TOT AFT QTY 1 (%) | | | | | | | 9 1 | | |
| TOT AFT QTY 2 (%) | | | | | | | 5 3 | | |
| FLIP ΔV | | | | | | | 4 8 | | |
| AFT ΔV | | | | | | | 2 9 | | |
| B/U SITE | | | | | | | N / A | | |
| FRCS: DUMP TO % (USE TIME AS CUE) | | | | | <input type="checkbox"/> OX | | <input type="checkbox"/> FU | | |
| ENTRY / LANDING | | | | | | | | | |
| EI - 5 MM303 INRTL ATT (6-30) | | | | | R | | P | | Y |
| MM304 PREBANK (ENT MNVR Cue Card) | | | | | <input type="checkbox"/> L | | <input type="checkbox"/> R | | |
| ALTM SET (6-34) | | | | | | | . | | |
| CLG INIT | | | | | | | : | | |
| EXPECTED AIL TRIM | | | | | <input type="checkbox"/> L | | <input type="checkbox"/> R | | . |
| VREL 1ST REVERSAL | | | | | | | . | | |
| XCG AT TD | | | | | | | . | | |
| LAND SITE | | <input type="checkbox"/> <input type="checkbox"/> | | RWY | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | 50K / | |
| <input type="checkbox"/> L | | <input type="checkbox"/> OVHD | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> deg | | <input type="checkbox"/> <input type="checkbox"/> MLS | | 38K / | |
| <input type="checkbox"/> R | | <input type="checkbox"/> STRT | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> TAC | | | | 28K / | |
| ΔT MACH < 1 TO HAC | | MAX Nz | | Nz LIMIT | | WINDS: | | 12K / | |
| <input type="checkbox"/> <input type="checkbox"/> : | | <input type="checkbox"/> . | | <input type="checkbox"/> . | | (ENT MNVR Cue Card) | | 7K / | |
| ΔT HAC INIT TO H = 20K | | | | | | | | | 3K / |
| <input type="checkbox"/> <input type="checkbox"/> : | | | | | | | | 1K / | |
| AIMPOINT | | SPEEDBRAKE | | | | | | SURFACE | / |
| <input type="checkbox"/> NOM | | <input type="checkbox"/> NOM | | <input type="checkbox"/> <input type="checkbox"/> % @ 3K | | | | | |
| <input type="checkbox"/> CLOSE-IN | | <input type="checkbox"/> S.F. | | | | | | | |
| REMARKS: | | | | | | | | | |

AOA
PADS

W/OMS 1 AOA DEL PAD

| DEORBIT | | | | | | | | | |
|-----------------------------------|--|--|--|--|---|--|-----------------------------|--|---------------------------------------|
| PRPLT | | | | | () [] [] [] [] [] | | | | |
| BURN CUE CARD: | | | | | | | | | |
| OMS ENG FAIL XFEED QTY CUE | | | | | %L [] [] | | %R [] [] | | |
| TOT AFT QTY 1 (%) | | | | | | | [] [] [] [] | | |
| TOT AFT QTY 2 (%) | | | | | | | [] [] [] [] | | |
| FLIP HP = | | | | | () [] [] | | + [] [] | | OR |
| | | | | | [] [] [] [] | | [] [] [] [] | | STEEP |
| | | | | | [] [] [] [] | | [] [] [] [] | | SHALLOW |
| | | | | | [] [] [] [] | | + [] [] [] [] | | = [] [] |
| | | | | | TGT HP | | () [] [] | | ($\frac{\text{FLIP } \Delta V}{2}$) |
| AFT HP = | | | | | () [] [] | | + [] [] [] [] | | = [] [] |
| | | | | | TGT HP | | () [] [] | | ($\frac{\text{AFT } \Delta V}{2}$) |
| B/U SITE | | | | | [] [] [] [] [] [] [] [] [] [] | | | | |
| FRCS: DUMP TO % (USE TIME AS CUE) | | | | | <input type="checkbox"/> OX | | <input type="checkbox"/> FU | | |
| ENTRY / LANDING | | | | | | | | | |
| EI - 5 MM303 INRTL ATT (6-30) | | | | | R [] [] [] | | P [] [] [] | | Y [] [] [] |
| MM304 PREBANK (ENT MNVR Cue Card) | | | | | <input type="checkbox"/> L | | <input type="checkbox"/> R | | |
| ALTM SET (6-34) | | | | | [] [] [] [] | | [] [] [] [] | | |
| CLG INIT | | | | | [] [] [] [] | | [] [] [] [] | | |
| EXPECTED AIL TRIM | | | | | <input type="checkbox"/> L | | <input type="checkbox"/> R | | |
| VREL 1ST REVERSAL | | | | | [] [] [] [] | | [] [] [] [] | | |
| XCG AT TD | | | | | [] [] [] [] | | [] [] [] [] | | |
| LAND SITE [] [] | | | | | RWY [] [] [] [] [] [] | | 50K / | | |
| <input type="checkbox"/> L | | | | | <input type="checkbox"/> OVHD [] [] [] [] deg | | 38K / | | |
| <input type="checkbox"/> R | | | | | <input type="checkbox"/> STRT [] [] [] [] TAC | | 28K / | | |
| ΔT MACH < 1 TO HAC | | | | | MAX Nz [] [] [] [] | | 20K / | | |
| | | | | | Nz LIMIT [] [] [] [] | | 12K / | | |
| ΔT HAC INIT TO H = 20K | | | | | [] [] [] [] | | 7K / | | |
| | | | | | [] [] [] [] | | 3K / | | |
| AIMPOINT | | | | | SPEEDBRAKE | | 1K / | | |
| <input type="checkbox"/> NOM | | | | | <input type="checkbox"/> NOM [] [] % @ 3K | | SURFACE / | | |
| <input type="checkbox"/> CLOSE-IN | | | | | <input type="checkbox"/> S.F. | | | | |
| REMARKS: | | | | | | | | | |

6-4

ASC/123/FIN

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 () .

HA

HP

TGT

NOTES

RCS I'CNCT:

L OMS → RCS

R OMS → RCS

NONE

BURN CARD

OMS PRPLT PAD

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



This Page Intentionally Blank



AOA

AOA PROCEDURES

AOA

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

P HYD DEPRESS

- R4 √HYD MPS/TVC ISOL VLV (three) – CL
- R2 √APU SPEED SEL (three) – NORM
- √AUTO SHTDN (three) – ENA
- HYD MN PUMP PRESS (three) – LO (MA)

FES & HEATER ACTIVATION

- C L2 FLASH EVAP FDLN HTR (two) – 1
- P R1 O2 TK1,2 HTRS B (two) – AUTO
- H2 TK1,2 HTRS B (two) – AUTO
- MS1 A12 APU HTR TK/FU LN/H2O SYS 1A,2A,3A (three) – AUTO

AC BUS SNSR

- R1 AC BUS SNSR (three) – OFF (1 sec),
 then AUTO TRIP

MAJOR MODE CHANGE

- CRT1 GNC, OPS 105 PRO

Select any AOA I_TGT (3-12) to set AOA flag,
but do not load until OPS 3

If Delayed AOA (AOA after Direct Insertion OMS 2 burn):

√MCC

| SITE | TIG | C1 | C2 | H _t | θ _t | PRPLT |
|------|-----|-------|---------|----------------|----------------|-------|
| KSC | | 16401 | -0.6575 | 65.8 | 69 | |
| NOR | | 15748 | -0.6313 | 65.8 | 82 | |

If no MCC uplink, **ALL** target data **MUST** be manually entered in OPS 3

RCS COMPLETION and Recovery Prebank pages use 'w/OMS 1'

Post burn expect reduced time of free fall (TFF)

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

NOTE

Manually entered tgt data will be carried over to OPS 3 except: PASS, BFS ITEMS 5 and 18 (ILL ENTRY).

Transition to OPS 3 NLT TIG-10 min

| | |
|------|-----------------------|
| C4F, | Stow ASC PKT |
| R3A | Stow ASCENT Cue Cards |
| R3F | Unstow ENT PKT |

| | |
|-------|---|
| F6,F8 | Install <u>AOA DEORBIT BURN</u> and <u>DEORBIT BURN MONITOR</u> Cue Cards (R3A) |
|-------|---|

IF APUs SHUTDN:

| |
|---|
| <p><u>WARNING</u> Ice in W/B Steam Vent may cause loss of APU/HYD</p> |
|---|

P **W/B STEAM VENT HTR ACT**

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

√APU OIL IN TEMP (three) < 230 degF
√OUT TEMP (three) < 230 degF

NOTE

If any temp > 230, wait until temp < 230 in aff system

| | |
|----|----------------------------|
| R2 | √BLR CNTLR/HTR (three) – A |
| | PWR (three) – ON |
| | N2 SPLY (three) – ON |

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

P MPS ISOL

NOTE

Expect multiple MAs for MPS He P
as regs bleed down

R2 MPS He ISOL (six) – GPC
 PNEU He ISOL – GPC
 √He I'CNCT (three) – GPC

MPS GH2 INERTING

R4 MPS H2 PRESS LINE VENT – OP
 (Start watch)
 After 1 min:
 MPS H2 PRESS LINE VENT – GND

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

P ET UMBILICAL DOOR CLOSURE

* If Feedline fail, √MCC before closure *

| |
|---|
| <p>WARNING ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage</p> |
|---|

* If ET Doors will not manually close and latch, prior to OPS 3 transition:
*

| |
|--------------------|
| 2: GNC 51 OVERRIDE |
|--------------------|

* ET UMB DR CLOSE – ITEM 40(30) EXEC *

NOTE

Double times for single motor operation

R2

ET UMB DR

MODE – GPC/MAN

CTRLINE LAT – STO

√After 6 sec, CTRLINE LAT tb – STO

* If CTRLINE LAT does not stow within 12 sec: *
* CTRLINE LAT – GND *
* √MCC *

CTRLINE LAT – GND

L,R DR (two) – CL (tb-bp)

√After 24 sec, L,R DR tb (two) – CL

* If doors do not close within 48 sec: *
* L,R DR (two) – OFF *
* √MCC *

L,R LAT (two) – LAT (tb-bp)

√After 6 sec, L,R LAT tb (two) – LAT

* If doors do not latch within 12 sec: *
* L,R DR (two) – OFF *
* LAT (two) – OFF *
* √MCC *

L,R DR (two) – OFF

LAT (two) – OFF

MODE – GPC

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

RECONFIG DPS FOR ENTRY

| |
|--|
| CAUTION |
| If recovering string(s) due to failed GPC(s), all FCS CH(s) to AUTO prior to OPS 301 PRO |

CRT1 GNC, OPS 301 PRO (√DAP)
 CRT3 BFS, GNC, OPS 301 PRO

CRT1 GNC, OPS 302 PRO

| | |
|-----------------------------|------------------------|
| 1: GNC 50 HORIZ SIT | 2: GNC DEORB MNVR EXEC |
| 3: BFS, GNC DEORB MNVR EXEC | |

√RWY Selection
 AOA RWY OPTIONS

| ALL INCLINATIONS | | |
|------------------|---------|-----|
| SITE | RWY | MLS |
| 1 | KSC 15 | 8 |
| | KSC 33 | 6 |
| 40 | EDT 22R | 8 |
| | EDT 04L | 6 |
| 42 | NOR 17 | 6 |
| | NOR 23 | 6 |
| 43 | NOR 05 | – |
| | NOR 35 | – |
| 44 | EDW 15 | – |
| | EDW 18L | – |
| 45 | EDW 22 | 8/† |
| | EDW 04 | 6 |

† MSBLS Jr. Channel 8 – Requires Uplink

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

C OMS TVC GMBL CHECK
(Perform during S-band AOS)

CRT1 SECONDARY CHECK

Perform SEC L,R then PRI L,R GMBL CK

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

SEAT ADJUSTMENT

Adjust Back Angle

P OMS BURN PREP

- * For single eng burn/No PROP failures: *
- * XFEED failed eng PROP to good eng *

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

| | |
|--|---|
| RCS BURN PREP (I'CNCT OMS to RCS) | |
| P O8 | L,R OMS He PRESS/VAP ISOL (four) – CL TK ISOL (four) – OP (tb-OP) L OMS XFEED (two) – OP (tb-OP) R OMS XFEED (two) – CL (tb-CL) |
| O7 | AFT L,R RCS XFEED (four) – OP (tb-OP) TK ISOL (six) – CL (tb-CL) |

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

OMS BURN TIG ADJUST (if reqd)

CRTX LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC

Determine Δ TIG (if REI – REF > 50)
from OMS TARGETS

CRTX Enter new TIG

LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC

Repeat until Δ RANGE < 50

CRT3 \sqrt BFS TGT

MNVR TO DEORBIT BURN ATTITUDE

B F6,F8 \sqrt ADI ATT (two) – INRTL
 \sqrt ERR (two) – 5
 \sqrt RATE (two) – 5

C MNVR – ITEM 27 EXEC (*)
(\sqrt ADI ATT with CRT BURN ATT)

3: BFS, GNC SYS SUMM 2

TIG-5 B R3A Go to AOA DEORBIT BURN (Cue Card)



This Page Intentionally Blank



DEORBIT
CARDS

AOA DEORBIT BURN AND DEORBIT BURN MONITOR CARDS

MS ONLY

6-17

ASC/123/FIN

DEORBIT CARDS

DEORBIT BURN MONITOR

| <p>OMS TEMP*</p> <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">L</th> <th style="text-align: center;">R</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">FU IN P ></td> <td style="text-align: center;">219</td> <td style="text-align: center;">220</td> </tr> <tr> <td style="text-align: right;">≤</td> <td style="text-align: center;">201</td> <td style="text-align: center;">208</td> </tr> </tbody> </table> <p>or No FU IN P</p> | | L | R | FU IN P > | 219 | 220 | ≤ | 201 | 208 | <p>OMS ENG FAIL</p> <p>OMS PRPLT FAIL</p> |
|--|---|-----|---|-----------|-----|-----|---|-----|-----|---|
| | L | R | | | | | | | | |
| FU IN P > | 219 | 220 | | | | | | | | |
| ≤ | 201 | 208 | | | | | | | | |
| <p>OMS PC* & OMS ↓ (BFS: √accel)</p> <p>ENG VLV 1 or 2 < 70</p> <p>or OX IN P > 227</p> <p>OX IN P ≤ 227</p> <p>or No OX IN P</p> | <p>OMS ENG FAIL</p> <p>OMS PRPLT FAIL</p> | | | | | | | | | |
| <p>OMS OX/FU TK P (√ENG IN P)</p> <p>OX/FU LOW</p> | <p>He PRESS/VAP ISOL (two) – OP</p> <p>If aff TK P not incr:</p> <p style="margin-left: 20px;">He PRESS/VAP ISOL (two) – CL</p> <p style="margin-left: 20px;">At PC < 72 or OMS TEMP:</p> <p style="margin-left: 40px;">OMS PRPLT FAIL</p> | | | | | | | | | |
| <p>OX & FU HIGH</p> | <p>He PRESS/VAP ISOL (two) – CL</p> <p>Cycle He A(B) to maintain TK P 234-284</p> | | | | | | | | | |
| <p>OMS GMBL</p> <p style="margin-left: 20px;">PRI fail</p> <p style="margin-left: 20px;">SEC fail</p> | <p>L(R) OMS GMBL – SEC (twice)</p> <p>If high RCS usage: OMS ENG FAIL</p> | | | | | | | | | |
| <p>GPC 1(4) &</p> <p style="margin-left: 20px;">Burning OMS aff</p> | <p>aff GPC PWR – OFF</p> <p>If SEC GMBL avail:</p> <p style="margin-left: 20px;">aff MDM FF 1(4) – OFF,ON</p> <p style="margin-left: 20px;">L(R) OMS GMBL – SEC (twice)</p> | | | | | | | | | |
| <p style="margin-left: 20px;">SEC GMBL lost</p> <p style="margin-left: 40px;">2 FAs lost</p> | <p>If high RCS usage: OMS ENG FAIL</p> <p>√MAN SHUTDN</p> | | | | | | | | | |
| <p>I/O ERROR FA 1(4)</p> | <p>L(R) OMS GMBL – SEC</p> <p>I/O RESET (if recov: BFS I/O RESET)</p> <p>If high RCS usage: OMS ENG FAIL</p> | | | | | | | | | |
| <p style="margin-left: 20px;">2 FAs lost</p> | <p>√MAN SHUTDN</p> | | | | | | | | | |
| <p>BCE STRG D 1(4)</p> | <p>I/O RESET (if recov: >>)</p> <p>If high RCS usage:</p> <p style="margin-left: 20px;">L(R) OMS GMBL – SEC (twice)</p> | | | | | | | | | |
| <p>RM DLMA IMU</p> <p>or</p> <p style="margin-left: 20px;">ABOVE SAFE</p> <p style="margin-left: 20px;">HP ⇒ <input type="checkbox"/> <input type="checkbox"/></p> | <p>STOP BURN: OMS ENG(s) – OFF >></p> | | | | | | | | | |
| <p>GPC SET SPLIT</p> <p>or</p> <p style="margin-left: 20px;">BELOW SAFE</p> <p style="margin-left: 20px;">HP ⇒</p> | <p>IMU DLMA:</p> <p>After C/O: √timer <input type="checkbox"/> G21</p> <p>If any IMU ACC > 0.03: aff IMU – desel</p> <p>l'cnct OMS to RCS (√RCS Burn Time)</p> <p>THC +X to TGT HP (EOM) or</p> <p style="margin-left: 20px;">3.5 x timer at C/O (AOA)</p> <p>SET SPLIT: Go to "GPC" above</p> | | | | | | | | | |
| <p>I/O ERROR PCM</p> | <p>OI PCMMU PWR – 2(1)</p> | | | | | | | | | |

*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

ENT-2a/123/A,O,D,E/A



This Page Intentionally Blank



MS ONLY

6-19

ASC/123/FIN



HINGE

```

* RCS COMPLETION:
* If DIRECT INSERTION:
*   THC +X to ΔVTOT = 0 or TOT AFT QTY 1    %
*
*   At AFT QTY 1      THC +X to FLIP ΔV or
*   if CUR ΔVTOT:    TOT AFT QTY 2    % then
*                   FRCS COMPLETION
*
*   FLIP    -----
*   ΔV           FRCS COMPLETION
*
*   AFT    -----
*   ΔV           THC +X to TGT ΔV
*
*   TGT    -----
*   ΔV     
*
* If w/OMS 1:
*   THC +X to TGT HP or TOT AFT QTY 1    %
*
*   At AFT QTY 1      THC +X to FLIP HP or
*   if CUR HP:        TOT AFT QTY 2    % then
*                   FRCS COMPLETION
*
*   FLIP   -----
*   HP          FRCS COMPLETION
*
*   AFT   -----
*   HP          THC +X to TGT HP
*
*   TGT   -----
*   HP    
*
* FRCS COMPLETION:
*   Mnvr to -X Att (pitch up at 3°/sec to VGOz = +1/4 ΔVTOT)
*   THC -X to ΔVTOT = 0 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)
ASC-8aa/123/A/A

AOA DEORBIT BURN (1 ENG)

- √MM302 √OMS L or R
- √OMS BURN CONFIG (L or R XFEED)
- Enter TGO + 10 sec
- √TRIM: P +0.4, 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
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
- :00 Start watch (√P_c, ΔVTOT, ENG VLVs)

OMS XFEED RETURN at ΔVTOT = or at %
L,R OMS TK ISOL (four) – OP
XFEED (four) – CL

- * **OMS PRPLT FAIL (CONTINUE BURN):** *
- * OMS ENG – OFF *
- * ITEM 18 +0 EXEC *
- * Secure aff OMS *
- * √ADI – LVLH, center needles *
- * Interconnect good OMS to RCS *
- * THC +X (√OMS% vs RCS Burn Time) *
- * AFT RCS RECONFIG *
- * RCS COMPLETION *
- * **OMS ENG FAIL (CONTINUE BURN):** *
- * OMS ENG – OFF *
- * √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:** *
- * ITEM 18 +0 EXEC *
- * Resel jet *

ASC-8b/A/B

HINGE

HINGE

* **RCS COMPLETION:** *

* If DIRECT INSERTION: *

* THC +X to $\Delta VTOT = 0$ or TOT AFT QTY 1 % *

* At AFT QTY 1 THC +X to FLIP ΔV or *
 if CUR $\Delta VTOT$: TOT AFT QTY 2 % then *
 FRCS COMPLETION *
 * FLIP -----*
 ΔV FRCS COMPLETION *
 * AFT -----*
 ΔV THC +X to TGT ΔV *
 * TGT -----*
 ΔV *
 * If w/OMS 1: *
 THC +X to TGT HP or TOT AFT QTY 1 % *
 * At AFT QTY 1 THC +X to FLIP HP or *
 if CUR HP: TOT AFT QTY 2 % then *
 FRCS COMPLETION *
 * FLIP -----*
 HP FRCS COMPLETION *
 * AFT -----*
 HP THC +X to TGT HP *
 * TGT -----*
 HP *
 * * **FRCS COMPLETION:** *
 Mnvr to -X Att (pitch up at $3^\circ/\text{sec}$ to $VGOz = +1/4 \Delta VTOT$) *
 THC -X to $\Delta VTOT = 0$ or FRCS depletion (JETS FAIL OFF) *

CUTOFF

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

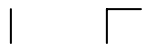
* AFT RCS RECONFIG if INTERCONNECT *

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

ASC-8bb/123/A/A



This Page Intentionally Blank





**POST D/O
BURN**

AOA POST DEORBIT BURN

6-27

ASC/123/FIN



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

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

P OMS/RCS POST BURN RECONFIG

**POST D/O
 BURN**

IF I'CNCT
 Perform I'CNCT RETURN
 (ENT PKT, RCS)

O7 AFT L,R RCS
 √He PRESS (four) – OP (tb-OP)
 √TK ISOL (six) – GPC (tb-OP)
 MANF ISOL 1,2,3,4 (eight) – OP (tb-OP)
 √XFEED (four) – GPC (tb-CL)

O8 FWD RCS
 TK ISOL (two) – OP (tb-OP)
 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)

Determine Prebank
 Determine ΔHP (CUR HP -TGT HP)

Use RECOVERY PREBANK TABLES
 Record Prebank on ENTRY MANEUVERS
 Cue Card

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

* **RECOVERY PREBANK TABLES (KSC)** *

* NOTE: APPLICABLE ONLY IF OMS 1 REQD *

* (ATO/AOA steep entries) **KSC** *

| | | | | | | | | | |
|-------------|---|----|----|----|-----|-----|-----|-----|-----|
| Δ HP | 0 | 4 | 7 | 10 | 13 | 16 | 20 | 23 | 26 |
| PREBANK | 0 | 55 | 80 | 95 | 100 | 105 | 120 | 140 | 175 |

* (ATO/AOA shallow entries) **KSC** *

| | | | | | | | | | |
|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Δ HP | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| PREBANK | 90 | 110 | 115 | 120 | 125 | 135 | 145 | 160 | 175 |

* 123 OCF *

C POST BURN STATUS

NOMINAL

| |
|--|
| |
|--|

Δ TIG

| | | | |
|--|---|--|--|
| | : | | |
|--|---|--|--|

P CRT2 **GNC, OPS 303 PRO**

| | |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
|-------------------------|-------------------------|

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

C CRT1 √Uplinked INRTL EI-5 MM303 ATT with DEL PAD

- * If no Deorbit TGT uplink, enter INRTL *
- * EI-5 MM303 ATT from DEL PAD: *
- * R – ITEM 24 + _____ *
- * P – ITEM 25 + _____ *
- * Y – ITEM 26 + _____ *

Mnvr to EI-5 ATT – ITEM 27 EXEC (*)

- * If UNDERBURN or no DEL PAD, *
- * manually mnvr to LVLH R001, Y358, *
- * P per table below *

| TIME to EI (min) | LVLH PITCH (deg) |
|------------------------|------------------------|
| 20 | 339 |
| | 343 |
| | 347 |
| | 351 |
| | 355 |
| 15 | 359 |
| | 3 |
| | 7 |
| | 11 |
| | 15 |
| 10 | 19 |
| | 23 |
| | 27 |
| | 31 |
| | 35 |
| 5 | 39 |

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

C OMS GMBL PWRDN (PASS ONLY)

CRT1 Verify GMBL positions:

| | | |
|---|------|------|
| | L | R |
| P | +5.9 | +5.9 |
| Y | +6.4 | -6.4 |

GMBL OFF – ITEM 32 EXEC
– ITEM 33 EXEC

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

C SECONDARY ACTUATOR CHECK (ON MCC GO)

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
- SPI √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 (*)
CK 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 '↓'
- C3 FCS CH 1 – AUTO
- 8. Repeat steps 5 thru 7 for CH 2,3,4
- R2 9. HYD MN PUMP PRESS (three) – LO

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

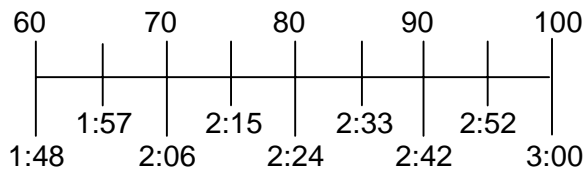
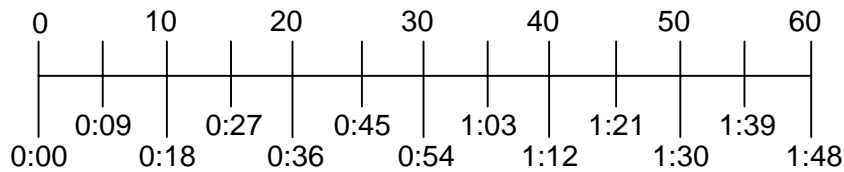
| | |
|------------------------|-------------------------|
| 1: GNC 23 RCS | 2: GNC DEORB MNVR COAST |
| 3: BFS, GNC SYS SUMM 2 | |

P FRCS DUMP

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

FOUR JET DUMP:

FRCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

NOTE

During dump, disregard FRCS qty

| | |
|-------------------------|-------------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC DEORB MNVR COAST |
|-------------------------|-------------------------|

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

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

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

HORIZ SIT CONFIG

ALTM – ITEM 9 +

| | | | | |
|--|--|---|--|--|
| | | . | | |
|--|--|---|--|--|

| | <u>PASS ITEM</u> | <u>BFS ITEM</u> |
|-------------------------|------------------|-----------------|
| PTI | INH √1 | |
| LAND SITE (AOA DEL PAD) | √41 | √41 |
| RWY (AOA DEL PAD) | √3 | √3 |
| | √4 | √4 |
| TAEM TGT | | |
| G&N | OVHD √6 | blank |
| HSI | blank | blank |
| XEP | NEP √7 | NEP √7 |
| AIM (AOA DEL PAD) | NOM √8 | NOM √8 |
| | (or CLSE) | or (CLSE) |
| SPDBK | NOM √39 | |
| NAV | | |
| GPS | INH √43 | INH √43 |
| DRAG H | AUT √22 | AUT √22 |
| ADTA H | INH √26 | INH √26 |
| MLS | AUT √50 | |
| G&C | | |
| GPS | INH √48 | |
| ADTA | INH √29 | AUT √28 |

* If BFS engaged: *

* Set HSD BFS ITEMS to PASS Config *

| | |
|-------------------------|---------------------|
| 1: GNC DEORB MNVR COAST | 2: GNC 50 HORIZ SIT |
| 3: GNC 51 OVERRIDE | |

- * **If APUs shut down:** *
- * Perform APU RESTART *
- * (ENT PKT, APU/HYD) *

PRE EI CHECKLIST

- * If less than four PASS GPCs, config FCS *
- * CHs so that each GPC cmd equals number *
- * of CHs. See table on POST OPS 3/GRTLS *
- * TRANSITION RESTRING (Cue Card) *
- * *
- *

| |
|-----------------|
| GNC 53 CONTROLS |
|-----------------|

 *
- * *
- * Config SURF FBK (See table on POST *
- * OPS 3/GRTLS TRANSITION RESTRING *
- * (Cue Card) *
- * *

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

- B F6,F8 FLT CNTLR PWR (two) – ON
- P If SECONDARY ACTUATOR CHECK performed:
- R2 HYD MN PUMP PRESS (one) – NORM
- Go to ENTRY MANEUVERS (Cue Card)



OMS FAILURE

**OMS
FAILURE**



MS ONLY

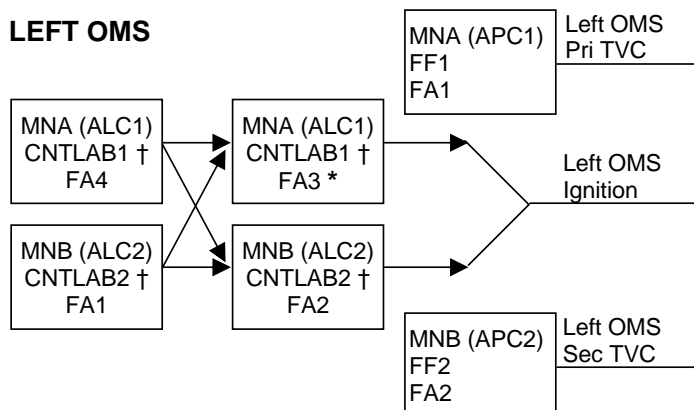
6-37

ASC/123/FIN



OMS FAILURES

LEFT OMS

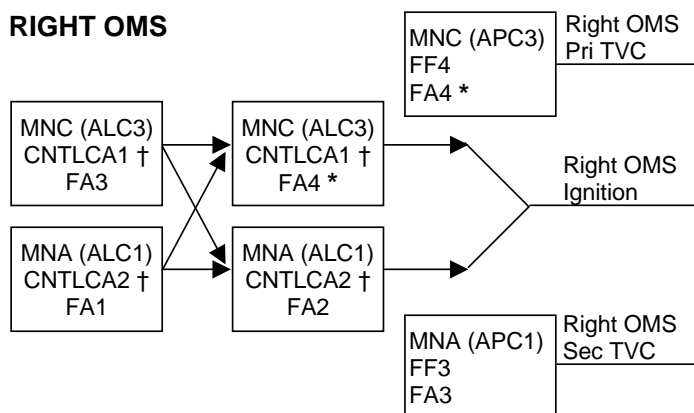


† If CNTL AB1 or AB2 (CA1 or CA2) failed and ign path still exists at OMS fail, assume L(R) OMS ↓ is PRPLT FAIL

* If L(R) P_c failed high during burn, or FA3(4) failed, at L(R) OMS fail, no guidance downmode after L(R) OMS ENG switch OFF (TGO slow, ADI needles in error, 6 ft/s underburn)

OMS FAILURE

RIGHT OMS



| If two FA MDMs lost | | |
|---------------------|-----------------------|----------------------------|
| MDMs | Preburn: ENG – OFF | During burn: MAN SHUTDN |
| 1,2 | LEFT (TVC) | BOTH |
| 1,3 | RIGHT (IGN) | LEFT |
| 1,4 | LEFT (IGN) | RIGHT |
| 2,3 | LEFT (IGN) | RIGHT |
| 2,4 | RIGHT (IGN) | LEFT |
| 3,4 | RIGHT (TVC) | BOTH |

ASC-5b/A,O,E/I



OMS/RCS ΔV

**OMS/
RCS ΔV**



6-39

ASC/123/FIN

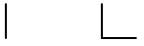
OMS He PRESS/ Δ V/BURN TIME

| OMS% GAGE | OMS He Press | OMS Δ V | RCS Δ V | RCS BURN MIN:SEC |
|-----------|--------------|----------------|----------------|------------------|
| 86.8 | 4320 | 428 | 356 | 13:16 |
| 85 | 4250 | 419 | 348 | 12:59 |
| 80 | 4050 | 393 | 327 | 12:11 |
| 75 | 3850 | 368 | 306 | 11:23 |
| 70 | 3650 | 342 | 285 | 10:35 |
| 65 | 3450 | 317 | 263 | 09:47 |
| 60 | 3250 | 291 | 242 | 08:58 |
| 55 | 3050 | 265 | 221 | 08:10 |
| 50 | 2850 | 239 | 199 | 07:22 |
| 45 | 2650 | 213 | 178 | 06:34 |
| 40 | 2450 | 187 | 156 | 05:46 |
| 35 | 2250 | 161 | 135 | 04:58 |
| 30 | 2050 | 135 | 113 | 04:10 |
| 25 | 1850 | 109 | 92 | 03:22 |
| 20 | 1650 | 82 | 70 | 02:34 |
| 15 | 1450 | 56 | 48 | 01:45 |
| 10 | 1250 | 30 | 25 | 00:55 |
| 5 | 1050 | 3 | 3 | 00:06 |

OMS/
RCS Δ V

| OMS-2/AOA ΔV |
|--|
| ARCS ΔV fps = $\boxed{0.7} \times [L\% + R\% - \text{AFT QTY } 1]$ |
| FRCS ΔV fps = $\boxed{0.8} \times \text{FRCS } \%$ |
| OMS ΔV fps = $\boxed{5.1} \times \text{OMS } \%$ |

NOTE: Uses assumed vehicle weight of $\boxed{255,992}$ lb

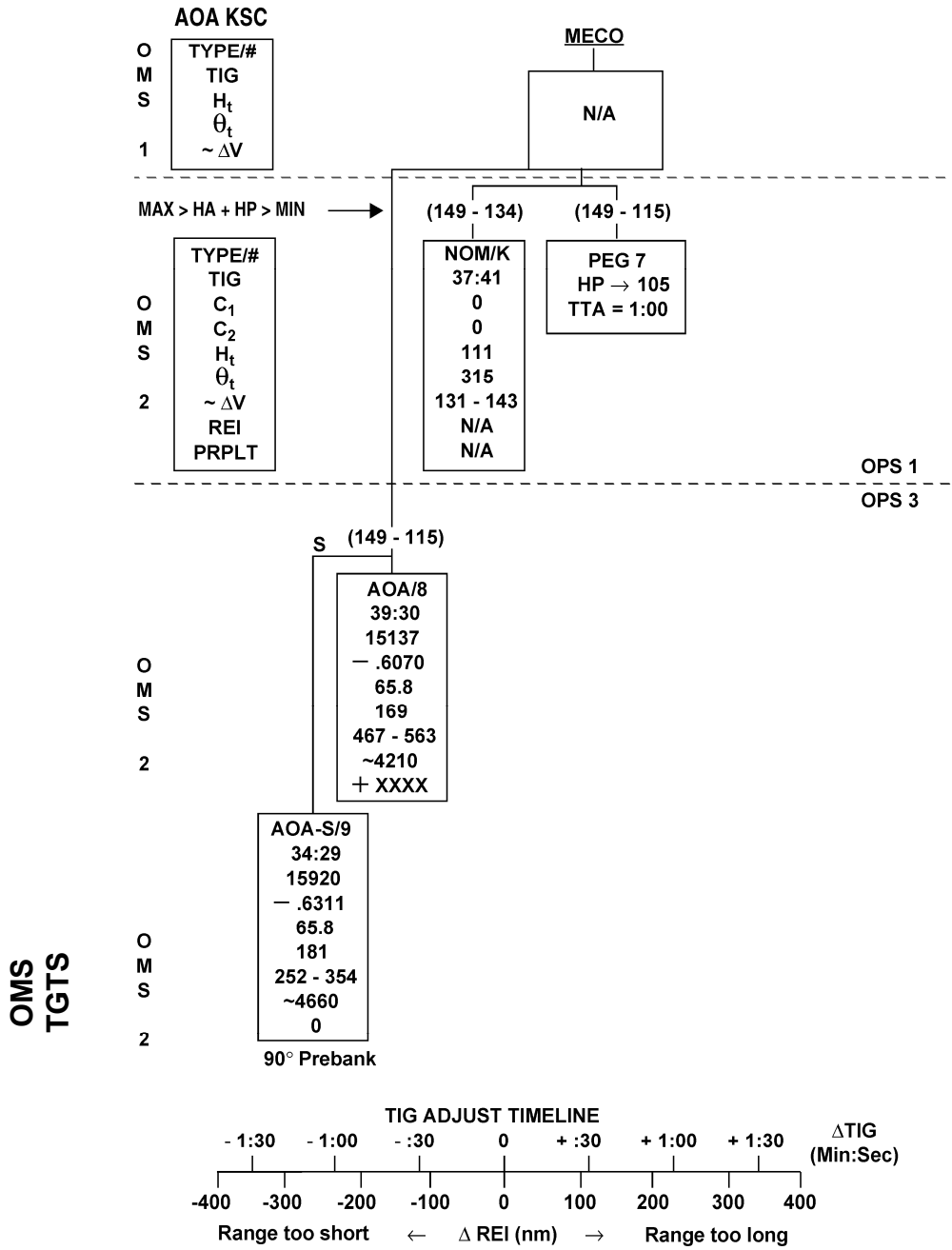


OMS TARGETS, COMM COVERAGE, LAND SITES

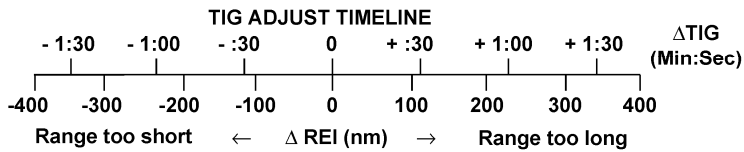
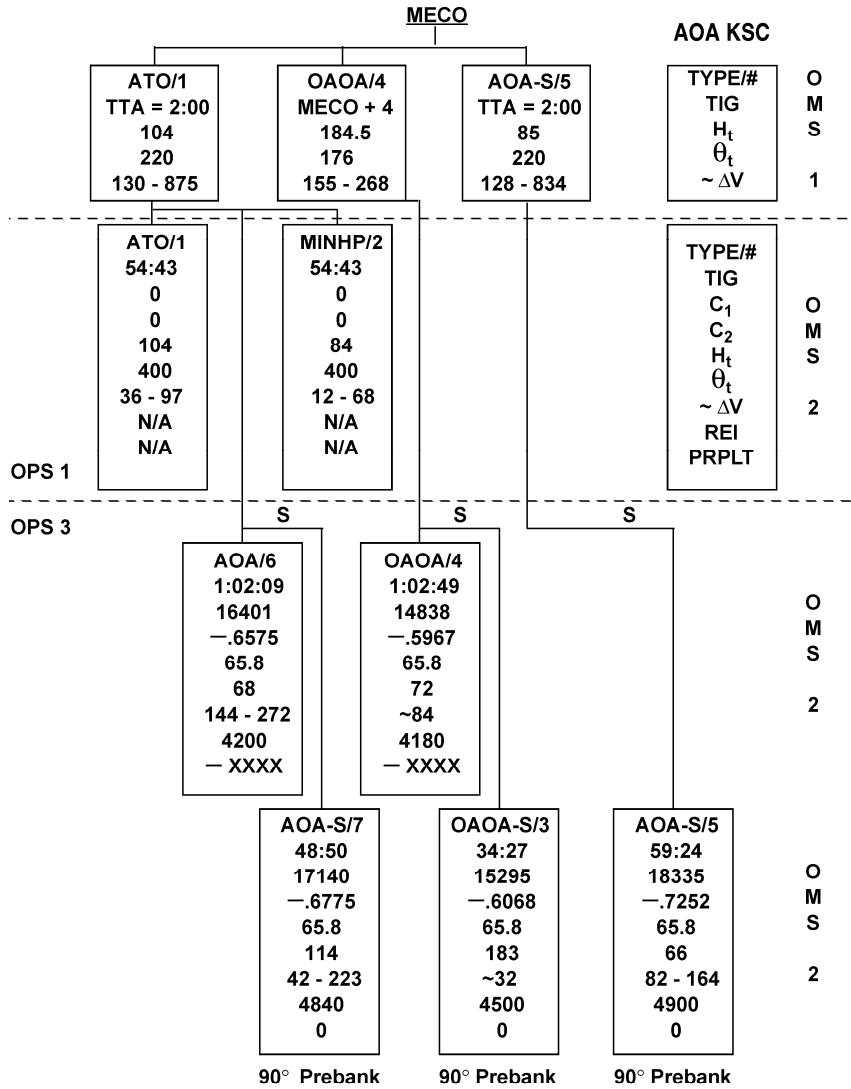
**OMS
TGTS**



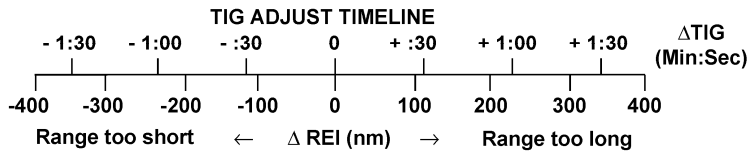
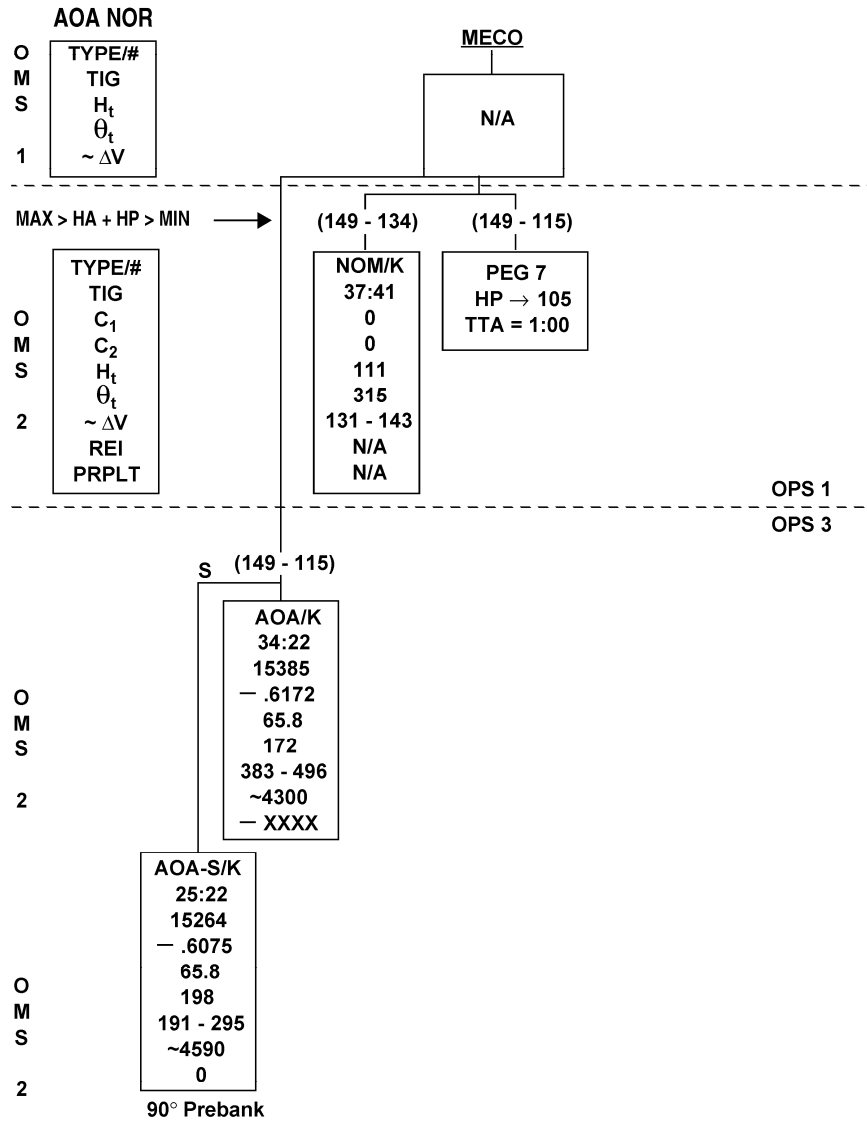
STS-123 OCF CY OMS TARGETS - DIRECT INSERTION



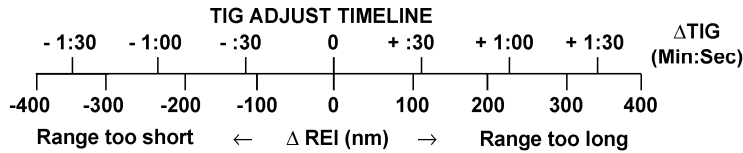
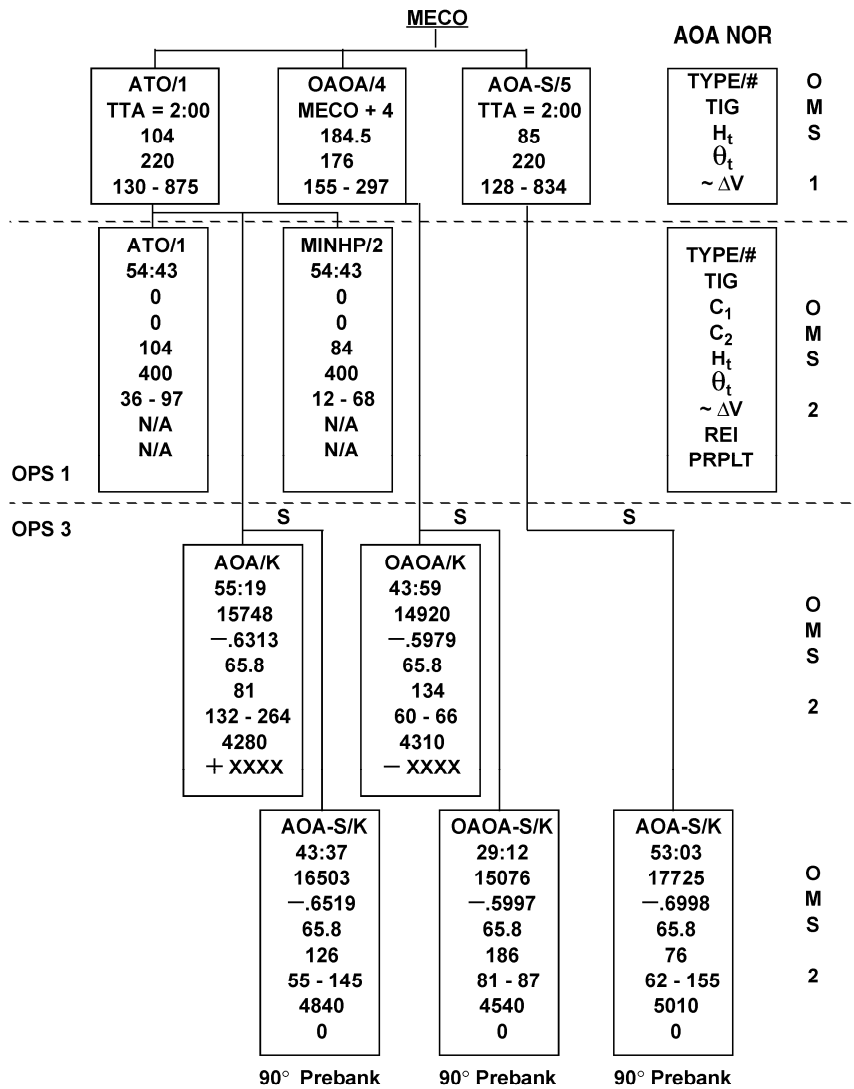
STS-123 OCF CY OMS TARGETS - W/OMS 1



STS-123 OCF CY OMS TARGETS - DIRECT INSERTION

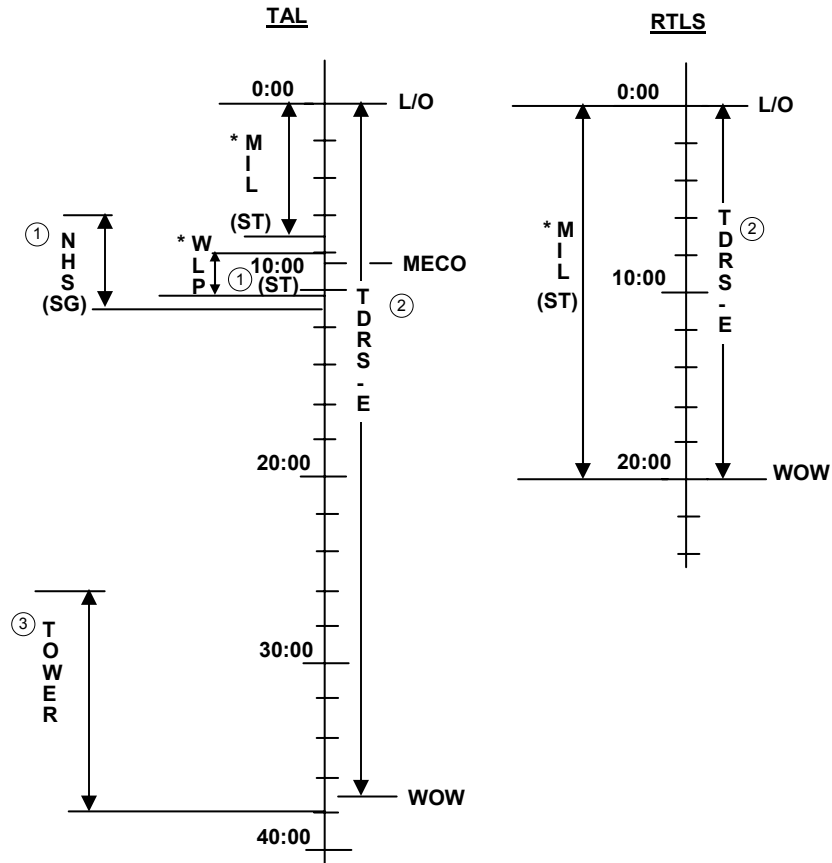


STS-123 OCF CY OMS TARGETS - W/OMS 1



**COMM
COVER**

COMMUNICATION COVERAGE – (TAL/RTLS)



MODE

ST – STDN
SG – SGLS

*UHF available

NOTE: ① NHS/WLP coverage only on high inclinations

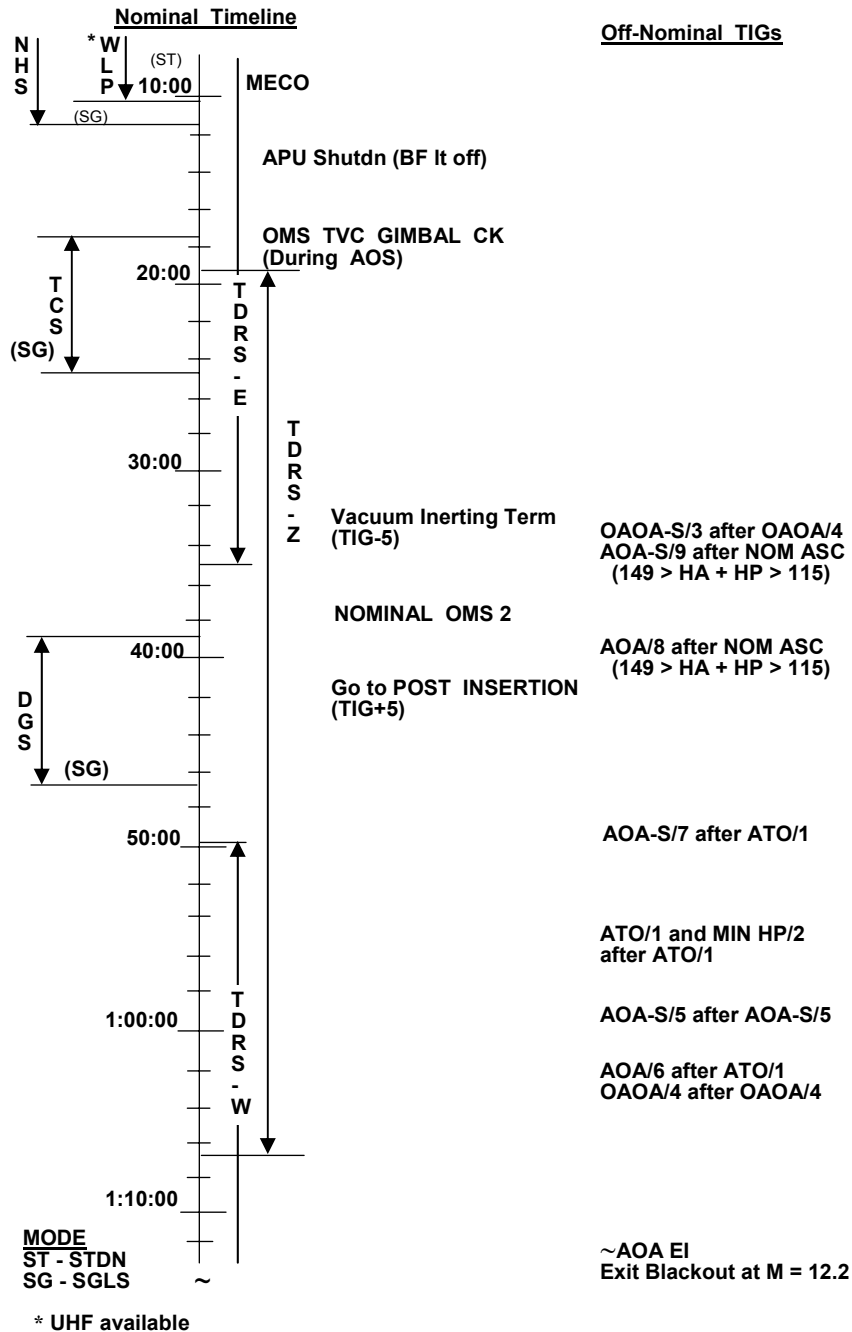
② ET blocks coverage until vehicle upright

③ Tower UHF installed at all TAL sites

**COMM
COVER**

COMMUNICATION COVERAGE – (AOA to **KSC**)

LAND
SITE



**STS-123 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

| S I T E | LOCATION | RWY | MLS CH | LG | + OVR RUN |
|------------------|---------------|--------------------|-----------|----------------|-----------------|
| 1 | KSC | KSC 15 KSC 33 | 8 6 | 15000 15000 | 1000 1000 |
| 2 | BEN GUERIR | BEN 36 BEN 18 | - - | 13720 13220 | 0 1000 |
| 3 | MORON AB | MRN 20 MRN 02 | ◆6 - | 11730 11730 | 1000 1000 |
| 4 | ZARAGOZA | ZZA 30L ZZA 12R | ◆6 - | 12200 12200 | 1000 1010 |
| 5 | MYRTLE BEACH | MYR 36 MYR 18 | - - | 9500 9500 | 1000 1000 |
| 6 | WILMINGTON | ILM 06 ILM 24 | - - | 7500 7500 | 0 0 |
| 7 | CHERRY POINT | NKT 32L NKT 23R | - - | 7110 7100 | 800 880 |
| 8 | OCEANA NAS | NTU 32R NTU 23L | - - | 7500 11500 | 0 0 |
| 9 | WALLOPS | WAL 28 WAL 04 | - - | 7510 8750 | 0 0 |
| 10 | DOVER AFB | DOV 32 DOV 19 | - - | 12400 9100 | 0 0 |
| 11 | ATLANTIC CITY | ACY 31 ACY 13 | - - | 9500 9500 | 0 0 |
| 12 | BEN GUERIR | BEN 36 BEN 18 | - - | 13720 13220 | 0 1000 |
| 13 | *MORON AB | MRN 20 MRN 02 | ◆6 - | 11730 11730 | 1000 1000 |
| 14 | *ZARAGOZA | ZZA 30L ZZA 12R | ◆6 - | 12200 12200 | 1000 1010 |
| 15 | GABRESKI | FOK 06 FOK 24 | - - | 8500 8500 | 1000 1000 |

◆ Available for TAL Only

* LO XRNG TAL Site **Length** after displaced threshold

**STS-123 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

| S I T E | LOCATION | RWY | MLS CH | LG | + OVR RUN |
|----------------------------|-----------------|--------------------|-------------------|----------------|--------------------------|
| 16 | OTIS ANGB | FMH 32 FMH 23 | - - | 9000 7500 | 0 0 |
| 17 | PEASE INT'L | PSM 34 PSM 16 | - - | 10020 10020 | 0 0 |
| 18 | HALIFAX INT'L | YHZ 23 YHZ 32 | - - | 8800 7700 | 0 0 |
| 19 | STEPHENVILLE | YJT 09 YJT 27 | - - | 9500 9500 | 0 0 |
| 20 | ST JOHNS INT'L | YYT 29 YYT 11 | - - | 8500 8500 | 0 0 |
| 21 | GANDER INT'L | YQX 21 YQX 31 | - - | 9700 8900 | 0 0 |
| 22 | GOOSE BAY | YYR 26 YYR 34 | - - | 10550 9080 | 0 0 |
| 23 | LAJES | LAJ 15 LAJ 33 | - - | 10870 10870 | 970 990 |
| 24 | BEJA | BEJ 01L BEJ 19R | - - | 10820 10820 | 0 900 |
| 25 | KEFLAVIK | IKF 20 IKF 29 | - - | 9520 9560 | 0 0 |
| 26 | SHANNON | INN 06 INN 24 | - - | 9540 9540 | 0 0 |
| 27 | FAIRFORD | FFA 27 FFA 09 | - - | 9490 9490 | 990 970 |
| 28 | KOLN-BONN | KBO 14L KBO 32R | - - | 12020 12020 | 0 0 |
| 29 | ISTRES AB | FMI 33 FMI 15 | ◆6 - | 11300 12300 | 3960 0 |
| 30 | ESENBOGA | ESN 03R ESN 21L | - - | 11800 11800 | 0 0 |

◆ Available for TAL Only

Length after displaced threshold

**STS-123 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

| S I T E | LOCATION | RWY | MLS CH | LG | + OVR RUN |
|----------------------------|-------------------------|--------------------|-------------------|----------------|--------------------------|
| 31 | KING KHALID | KKI 15R KKI 33L | - - | 13300 13300 | 0 0 |
| 32 | DIEGO GARCIA | JDG 31 JDG 13 | - - | 12000 12000 | 950 950 |
| 33 | AMBERLEY TINDAL RAAF | AMB 15 PTN 14 | - - | 9500 8500 | 0 0 |
| 34 | YOKOTA AB | JTY 36 JTY 18 | - - | 11000 11000 | 1000 1000 |
| 35 | ANDERSEN AFB | GUA 06L GUA 24R | - - | 10560 10560 | 1050 1000 |
| 36 | WAKE ISLAND | WAK 28 WAK 10 | - - | 9360 9360 | 0 0 |
| 37 | HONOLULU | HNL 08R HNL 26L | - - | 11500 11500 | 0 0 |
| 38 | ELMENDORF | EDF 24 EDF 06 | - - | 9500 9500 | 0 0 |
| 39 | HAO ATOLL | HAO 12 HAO 30 | - - | 10390 10390 | 0 0 |
| 40 | EDW TEMP | EDT 22R EDT 04L | 8 6 | 12000 12000 | 1000 1000 |
| 41 | ASCENSION | HAW 13 HAW 31 | - - | 9520 9520 | 0 0 |
| 42 | NORTHROP | NOR 17 NOR 23 | 6 6 | 15000 15000 | Lkbd Lkbd |
| 43 | NORTHROP | NOR 05 NOR 35 | - - | 15000 15000 | Lkbd Lkbd |
| 44 | EDWARDS AFB | EDW 15 EDW 18L | - - | 16300 15000 | Lkbd Lkbd |
| 45 | EDWARDS AFB | EDW 22 EDW 04 | 8/† 6 | 15010 14010 | 0 1800 |

† MSBLS Jr. Ch 8 - Requires Uplink

Length after displaced threshold



WEATHER PADS

8-1

ASC/123/FIN



**WEATHER
PADS**

**WEATHER
PADS**

This Page Intentionally Blank

TAL () data to ACL FB 2-14

TAL/CONUS TERMINAL FORECASTS

| DEORB ORBIT | SITE | LDG GMT | SKY | VIS/WX | T/TD (°F) | WIND (MAG) | ALTM | DA | REMARKS |
|-------------|------|---------|-----|--------|-----------|------------|------|----|---------|
| TAL (1) | | | | | | | | | |
| TAL (2) | | | | | | | | | |
| TAL (3) | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

UPPER WINDS FORECAST (SFC=MAG, OTHER LEVELS=TRUE)

| ALT | TAL (1) | TAL (2) | TAL (3) | | | |
|-----|---------|---------|---------|--|--|--|
| 50K | / | / | / | | | |
| 38K | / | / | / | | | |
| 28K | / | / | / | | | |
| 20K | / | / | / | | | |
| 12K | / | / | / | | | |
| 7K | / | / | / | | | |
| 3K | / | / | / | | | |
| 1K | / | / | / | | | |
| SFC | / | / | / | | | |

BLOCK 1 TRAJECTORY MESSAGE

| DEORB ORB | APPROX TIG | SITE/RWY | OOP TIG WINDOW | |
|---|------------|-----------------------------|----------------|-------|
| | | | OPEN | CLOSE |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| <u>MAX RATES (1st STAGE)</u> | | <u>MISCELLANEOUS</u> | | |
| <u>NOTE:</u> IGNORE ATTITUDE ERRORS DURING LOAD RELIEF | | NOTAMS: _____ | | |
| ROLL _____°/sec at _____ | | _____ | | |
| PITCH _____°/sec at _____ | | _____ | | |
| YAW _____°/sec | | _____ | | |
| <u>TRAJECTORY LOFTING (2nd STAGE)</u> | | | | |
| LOFTED/DEPRESSED _____ K ft at VI _____ K fps | | | | |

┌

—

└

—

This Page Intentionally Blank

—

└

—

└

SWITCH LIST FOR HANDOVER INGRESS

| FWD | MIDDECK | AFT |
|-------------------|------------------------|-----------------------|
| L5..... 9-3 | ML86B..... 9-11 | R12L..... 9-18 |
| L side OVHD | ML85E..... 9-13 | R11U..... 9-18 |
| Flood..... 9-3 | SORG..... 9-13 | R11L..... 9-18 |
| L4..... 9-3 | MO13Q..... 9-13 | R10..... 9-18 |
| L1..... 9-3 | ML31C..... 9-13 | R13U..... 9-18 |
| L2..... 9-3 | ML26C..... 9-13 | R13L..... 9-19 |
| S1..... 9-4 | ML18F..... 9-13 | |
| | ML30N..... 9-13 | A1U..... 9-19 |
| F1..... 9-4 | MA73C..... 9-13 | A1L..... 9-19 |
| F2..... 9-4 | MO10W..... 9-14 | A1R..... 9-20 |
| F6U(HUD)..... 9-4 | WCS..... 9-14 | AFT MDU..... 9-20 |
| F3..... 9-4 | MO30F..... 9-14 | A6U..... 9-20 |
| F8U(HUD)..... 9-4 | MO32M..... 9-14 | A6L..... 9-20 |
| F4..... 9-4 | MO39M..... 9-14 | A2..... 9-21 |
| F6..... 9-4 | MO42F..... 9-14 | A7U..... 9-21 |
| F7..... 9-5 | MO51F..... 9-15 | A7L..... 9-21 |
| F8..... 9-5 | MO58F..... 9-15 | A4..... 9-21 |
| F9..... 9-5 | MO52J..... 9-15 | A8U..... 9-22 |
| | MO69M..... 9-15 | A8L..... 9-22 |
| R1..... 9-5 | MD44F..... 9-15 | A3..... 9-22 |
| R2..... 9-5 | MIDDECK FLOOR... 9-15 | |
| R4..... 9-6 | MO63P..... 9-15 | |
| R6..... 9-6 | | L9..... 9-23 |
| R side OVHD | MIDDECK EXPERIMENTS | L10L..... 9-23 |
| Flood..... 9-6 | | L10U..... 9-24 |
| | MIDDECK (TEPC).. 9-16 | L11U..... 9-24 |
| C2..... 9-6 | | L12UL..... 9-24 |
| C3..... 9-6 | AIRLOCK | L12UR..... 9-24 |
| C5..... 9-7 | | L12LL..... 9-24 |
| S2..... 9-7 | AW18A..... 9-17 | L12LR..... 9-24 |
| C6..... 9-7 | AW18D..... 9-17 | L12L..... 9-24 |
| C7..... 9-7 | AW18H..... 9-17 | R12..... 9-24 |
| | AW82B..... 9-17 | A15..... 9-25 |
| O1..... 9-7 | AW82D..... 9-17 | A14..... 9-25 |
| O2..... 9-7 | AW82H..... 9-17 | A13..... 9-25 |
| O3..... 9-7 | TW58T..... 9-17 | A12..... 9-25 |
| O5..... 9-7 | A/L IN HATCH..... 9-17 | A11..... 9-26 |
| O6..... 9-7 | A/L OUT HATCH... 9-17 | |
| O7..... 9-8 | SH HATCH..... 9-17 | R14..... 9-26 |
| O8..... 9-8 | EXT A/L UPPER | |
| O9..... 9-8 | HATCH..... 9-17 | HARDWARE |
| O13..... 9-9 | TNL ADP HATCH... 9-17 | C/W..... 9-27 |
| O14..... 9-9 | | MEDS CONFIG |
| O15..... 9-9 | | FOR INGRESS 9-28 |
| O16..... 9-9 | | |
| O17..... 9-10 | | |
| O19..... 9-10 | | |

SW LIST

NOT FLOWN

9-1

ASC/123/FIN

NOTES

- HANDOVER from LCC occurs at SRB Ignition (LCC to MCC Handover)
- **INGRESS** denotes switch status prior to beginning of PRE-INGRESS SW RECONFIGURATION (at T-3:00 (hold)) if different than HANDOVER
- ----- denotes physical break in panel structure
- Radiator flow valve, indicated by *, is in full radiator flow position and unpowered to allow maximum radiator flow capability if required
- Radiator isolation valve, indicated by ****, is configured in radiator flow and unpowered
- Talkbacks on panels L2, R11, R13, A6, and ML31C indicated by ** are bp because cbs on ML86B, A6, and O16 open. Position of valves indicated below:

```

L2:      O2 EMER          - CL
R11L:    SPLY H2O DUMP ISOL VLV - CL
          VLV            - CL
          GALLEY SPLY VLV - CL

R13L:    MMU GN2 SPLY ISOL VLV A - CL
          B - CL

A6L:     VEST DEP VLV SYS 1 VENT ISOL - CL
          VENT          - CL
          2 VENT ISOL - CL
          VENT          - CL

ML31C:   WASTE H2O DUMP ISOL VLV - CL
          VLV            - CL
          VAC VENT ISOL VLV CNTL - CL
    
```

- Before turning OI PCMMU PWR switch on C3, indicated by ***, to OFF, notify LCC so gnd power can be connected; also notify LCC before turning it to 1 after crew ingress
- All unspecified/unlabeled switches – dn (2 position)/ctr (3 position), tb – bp, cb – op, rotaries – full counter clockwise
- PL RETEN PL SEL switch on panel A6U will nominally be 1 for deployable payload missions using only a single PL SEL position but will be **MON** until PRE-INGRESS SW CONFIG. All other missions will be in MON (Fit Rule A10-281)
- Circuit Breaker snapping color codes:
 - { R } – Red – open all times
 - { G } – Green – open on orbit only
 - { Y } – Yellow – open ascent, closed per procedure
 - { O } – Orange – open orbit thru entry
 - { } – Blank (no ring) – always closed or as required
- STS-123 options affecting switch list:
 - 1) OV105
 - 2) GMTLO
 - 3) Orbit incln = 51.6°
 - 4) Payload: JEM ELM-PS, SLP-D1 with SPDM, MISSE 6, RIGEX SSRMS Yaw Joint and 2 DCSUs
 - 5) Crew size of 7 up, 7 down
 - 6) Installed: TK CRYO sets (5), SORG, Ku Ant, GN2 (6), External Airlock (ISS), SRMS, OBSS, OIU, VPU, WVS, DTV
 - 7) Options N/R: RCRS
- Changes are with respect to STS-118 Switch List as published in FIN 2

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | |
|--|---|
| <p>L5 L COMM PWR – ON OFF</p> <hr/> <p>L side OVHD Flood – BRT</p> <hr/> <p>L4: All cbs – cl { } except: :B All cbs – op {Y} :D All cbs – cl {O} :E All cbs – cl {O} :F cb AC1 H2O LOOP PUMP 1 A/2 (three) – op {R} cl :J AC3 SIG CONDR (two) – op {Y} :P blank cbs (three) – op {R} :Q cb AC1 ΦC LTG INST OS – op {Y} AC2 ΦC LTG NUMERIC OS – op {Y} AC3 LTG (three) – op {Y}</p> <hr/> <p>L1 HUM SEP A – OFF B – ON CAB TEMP sel – COOL CNTLR – OFF FAN A – ON B – OFF IMU FAN A,C (two) – OFF B – ON H2O PUMP LOOP 1 (two) – OFF,B 2 – ON LOOP BYP MAN (two) – ctr MODE (two) – MAN</p> | <p>L1 AV BAY 1,3 FAN A (two) – OFF B (two) – ON 2 FAN A – ON B – OFF FLOW PROP VLV LOOP (two) – ctr (tb-ICH) FREON PUMP LOOP (two) – B RAD CNTLR OUT TEMP – NORM LOOP (two) – OFF* BYP VLV MAN SEL (two) – ctr (tb-BYP) MODE (two) – MAN NH3 CNTLR A – OFF B – PRI/GPC H2O ALT PRESS – CL FLASH EVAP CNTLR PRI A – GPC B – OFF SEC (two) – A SPLY,OFF HI LOAD EVAP – ENA TOP EVAP HTR NOZ (two) – A AUTO DUCT sel – A HI LOAD DUCT HTR sel – A</p> <hr style="border-top: 1px dashed black;"/> <p>FIRE SUPPR AV BAY (three) – SAFE pb (three) – It off SMOKE DETN Its (ten) – off SNSR – dn CKT TEST – OFF</p> <hr/> <p>L2 CAB RELIEF (two) – ctr (tb-ENA) VENT (two) – ctr (tb-CL)</p> |
|--|---|

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|----|--|----|--|
| F6 | ABORT MODE – OFF pb – lt off RCS CMD lts (three) – off RANGE SAFE ARM lt – off AIR DATA – NAV | R1 | PL PRI MNB,FC3 (two) – ctr (tb-OFF) AUX – OFF AFT MNB – OFF MNC – OFF INV PWR (three) – ctr (tb-ON) INV/AC BUS (three) – ctr (tb-ON) cb AC CONTR (nine) – op { } AC BUS SNSR (three) – MON |
| F7 | MDU PWR (five) – ON BRT sel (five) – as reqd MN ENG STAT lts (six) – off SM ALERT lt – off C/W matrix lts – off all off except HYD PRESS | R1 | (CRYO) O2 MANF VLV (two) – ctr (tb-OP) TK1,2 HTRS A (two) – AUTO B (two) – OFF RESET/TEST (two) – ctr TK3 HTRS (two) – OFF RESET/TEST – ctr FC REAC (three) – ctr tb (six) – OP (three) – ctr RDY tb (three) – gray COOL PUMP ΔP tb (three) – gray H2 MANF VLV (two) – ctr (tb-OP) TK1,2 HTRS A (two) – AUTO B (two) – OFF TK3 HTRS (two) – OFF |
| F8 | HUD DATA BUS – 4 MDU PWR (two) – ON BRT sel (two) – as reqd LDG GEAR pb (two) – lt off tb (three) – UP HSI SEL MODE – ENTRY SOURCE (two) – NAV,2 FLT CNTLR PWR – ON RAD ALTM – 2 ADI ATT – REF ERR – MED RATE – MED AIR DATA – NAV | R2 | MPS PRPLT DUMP (two) – GPC ENG PWR (six) – ON He ISOL (six) – OP GPC PNEU L ENG He XOVR – GPC He ISOL – OP GPC LH2 ULL PRESS – AUTO He l'CNCT (three) – GPC |
| F9 | AC Volts sel – as reqd DC Volt/Amp sel – VOLTS MNB | | |
| R1 | CNTL BUS PWR (three) – dn ESS BUS SOURCE MN (three) – ON FC (three) – ON OFF FC/MN BUS (three) – ctr (tb-ON) MN BUS TIE (three) – ctr (tb-OFF) PL CAB – OFF PRI MNC – ctr (tb-OFF) | | |

NOT FLOWN

9-5

ASC/123/FIN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|-------------------------|--|----|--|
| R2 | APU/HYD RDY tb (three) – bp APU OPER (three) – START/RUN OFF SPEED SEL (three) – NORM HYD MN PUMP PRESS (three) – NORM cb APU FU TK VLV ENA (six) – cl { } op HYD CIRC PUMP (three) – OFF GPC APU CNTLR PWR (three) – ON OFF FUEL TK VLV (three) – OP CL AUTO SHUTDN (three) – ENA BLR CNTLR/HTR (three) – A PWR (three) – ON N2 SPLY (three) – ON OFF ET UMB DR MODE – GPC CTRLINE LAT – GND (tb-bp) L,R DR (two) – OFF (tb-OP) LAT (two) – OFF (tb-REL) | C2 | IDP/CRT PWR (three) – ON MAJ FUNC (three) – GNC SEL (two) – as reqd EVENT TIMER MODE – DN CNTL – ctr TIMER SET pb (four) – 0900 TIMER – ctr |
| | | C3 | OMS ENG (two) – ARM/PRESS OFF BFC CRT DISP – ON OFF SEL – 3+1 FCS CH (four) – AUTO BDY FLP – AUTO/OFF AIR DATA PROBE STO (two) – INH MN ENG LIMIT SHUTDN – AUTO TRIM R,P,Y (three) – ctr SBTC – full forward DAP – all off SRB SEP – AUTO ET SEP – AUTO AUD CTR – 1 OI PCMMU PWR – 1 OFF*** FORMAT – GPC S-BD PM CNTL – CMD ANT sel – GPC AIR DATA PROBE (two) – STOW FC REAC VLV (three) – dn cb FC REAC VLV CL ENA (three) – op { R } UPLK – ENA MSTR MADS PWR – ON C/W MEM – ctr MODE – NORM |
| R4 | HYD BRAKE HTR (three) – OFF ISOL VLV (three) – GPC (tb-CL) MPS/TVC ISOL VLV (three) – GPC (tb-OP) LG/NWS HYD SYS – AUTO 1/2 LG EXTEND ISO VLV – GPC (tb-CL) MPS ENG CNTLR HTR (three) – OFF MANF PRESS (two) – GPC FILL/DRAIN (four) – GND H2 PRESS LINE VENT – GND LO2 PREVLV (three) – GPC LH2 PREVLV (three) – GPC FDLN RLF ISOL (two) – GPC | | |
| R6 | R COMM PWR – ON OFF | | |
| R side OVHD Flood – BRT | | | |

NOT FLOWN

9-6

ASC/123/FIN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|----|--|----|---|
| C3 | RTG PUMP (OV103,4 – no SH) – PRI SHORT ENA (two) (OV104 – no SH) – DSBL SHORT (two) (OV104 – no SH) – OFF PL SAFING (four) (OV103 – no SH) – SAFE (five) (OV105 – no SH) – SAFE SH FIRE SUPPR ARM (two) (SH only) – SAFE DISCH (two) (SH only) – NO-OP H2O LN HTRS (SH only) – OFF EMER LTG – OFF/ON | O5 | L AUD TACAN ID (two) (OV103,4) – OFF,1 VOX SENS sel – as reqd A/G (two) – T/R A/A – T/R ICOM (two) – T/R PWR – AUD/TONE CNTL sel – NORM XMIT/ICOM MODE sel – as reqd (PTT/VOX recommended) VOL pb (five) – as reqd TACAN pb – 5 PAGE – dn |
| C5 | | O6 | |
| C5 | DIRECT O2 vlv – CL | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| S2 | | O6 | |
| S2 | PL SEAT PWR BUS SEL – AC3 (dn) CONTR (two) – ctr | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| C6 | | O6 | |
| C6 | LEH O2 vlv (four) – OP | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| C7 | | O6 | |
| C7 | LEH O2 SPLY vlv (two) – OP | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| O1 | COAS – OFF AIR TEMP sel – CAB HX OUT H2O PUMP OUT PRESS sel – LOOP 2 FREON sel – LOOP 1 O2/N2 FLOW sel – SYS 1 O2 PPO2 sel – SNSR A | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| O2 | CRYO O2 HTR ASSY TEMP sel – TK1 1 O2/H2 sel – TK1 FC STACK TEMP sel – 1 | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |
| O3 | RCS/OMS PRESS sel – RCS He X 10 PRPLT QTY sel – OMS FUEL MSN TIME – MET | O6 | LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF, BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX |

NOT FLOWN

9-7

ASC/123/FIN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|----|--|----|--|
| O6 | ANNUN LAMP TEST – ctr BUS SEL ACA 1 – MNA 2/3 – MNB INTEN sel (two) – BRT,MED MTU – AUTO INT DISP PROC (four) – dn MDM PL1,2 (two) – ON PL3 – OFF FA (four) – ON FF (four) – ON GPC PWR (five) – ON OUTPUT 1,2,3,4 (four) – NORM (tb-gray) 5 – B/U NORM (tb-bp) IPL SOURCE – OFF GPC MODE 1,2,3,4 (four) – RUN (tb-RUN) 5 – RUN STBY (tb-RUN) | | O8 RADAR ALTM (two) – ON OFF MLS (three) – OFF MLS CH pb/tw (three) – 6 R SEAT/CTR CNSL FLOOD sel (two) – OFF,BRT LTG PNL R sel (three) – OFF – (1/4 brt if night launch) NUMERIC sel – BRT – (1/4 brt if night launch) R GLRSHLD FLOOD sel (two) – VAR, as reqd OMS KIT He PRESS/VAP ISOL (two) – CL TK ISOL (two) – CL (tb-bp) L OMS He PRESS/VAP ISOL (two) – GPC TK ISOL (two) – GPC (tb-OP) XFEED A – GPC (tb-CL) B – GPC (tb-CL) (tb-OP) R OMS He PRESS/VAP ISOL (two) – GPC TK ISOL (two) – GPC (tb-OP) XFEED (two) – GPC (tb-CL) FWD RCS He PRESS (two) – OP (tb-OP) TK ISOL (two) – GPC (tb-OP) MANF ISOL (five) – GPC (tb-OP) ANNUN LAMP TEST – ctr |
| O7 | TACAN MODE sel (three) (OV103,4) – GPC OFF ANT SEL (three) (OV103,4) – AUTO as is CH pb/tw (three) (OV103,4) – 059Y as is GPS PRE AMPL UPPER (three) (OV105) – ON OFF LOWER (three) (OV105) – ON OFF PWR (three) (OV105) – ON OFF ENCRYPT (three) (OV105) – NORM as is AFT L RCS He PRESS (two) – OP (tb-OP) TK ISOL (three) – GPC (tb-OP) MANF ISOL (five) – GPC (tb-OP) XFEED (two) – GPC (tb-CL) MSTR RCS XFEED – OFF AFT R RCS He PRESS (two) – OP (tb-OP) TK ISOL (three) – GPC (tb-OP) MANF ISOL (five) – GPC (tb-OP) XFEED (two) – GPC (tb-CL) | O9 | R AUD PWR – AUD/TONE A/G (two) – T/R A/A – T/R ICOM (two) – T/R VOX SENS sel – as reqd TACAN ID (two) (OV103,4) – OFF, as reqd |

NOT FLOWN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

O09 R AUD PAGE - dn
 VOL pb (five) - as reqd
 TACAN pb - 5
 XMIT/ICOM MODE sel - as reqd (PTT/VOX recommended)
 CNTL sel - NORM

O13: All cbs - cl { } except:
 :A,C,E cb ESS MN CONTR (three) - cl { } op

O14:A BRAKES MNA - ON
 RGA 1 - ON
 IMU 1 - ON
 FC1 CNTLR - ON
 :B,C,D,E All cbs - cl { } except:
 :B cb MNA MNC CONTR - cl { } op
 :D GPS PRE AMPL UC (OV103) - op {R}
 LC (OV103) - op {R}
 1 PRE AMPL (two)(OV104) - op {R}
 CAB VENT - cl {O}
 ISOL - cl {O}
 :E ADTA 1 - cl {G}
 ACCEL 1 - cl {G}
 DDU AFT - op {Y}
 :F MMU 1 - ON
 RJDA 1A L2/R2 LOGIC - ON
 DRIVER - ON OFF
 2A L4/R4 LOGIC - ON
 DRIVER - ON OFF
 RJDF 1B F1 LOGIC - ON
 DRIVER - ON OFF

O14:F L OMS ENG VLV - ON OFF
 ASA 1 - ON

O15:A BRAKES MNB - ON
 RGA (two) - ON
 IMU 2 - ON
 FC2 CNTLR - ON
 :B,C,D,E All cbs - cl { } except:
 :B cb MNB MNA CONTR - cl { } op
 :C UTIL PWR F1/MO13Q - op {Y}
 :E ADTA 2 - cl {G}
 ACCEL 2 - cl {G}
 DDU R - cl {G}
 :F MMU 2 - ON
 RJDA 1B L1/L5/R1 LOGIC - ON
 L1/R1 DRIVER - ON OFF
 RJDF 1A F2 LOGIC - ON
 DRIVER - ON OFF
 ASA 2 - ON
 ACCEL 4 - ON

O16:A BRAKES MNC - ON
 RGA 3 - ON
 IMU 3 - ON
 FC3 CNTLR - ON
 :B,C,D,E All cbs - cl { } except:
 :B cb MNC MNB CONTR - cl { } op
 :D GPS PRE AMPL UC (OV103) - cl { }
 LC (OV103) - cl { }
 3 PRE AMPL (two)(OV104) - op {R}
 O2 EMER - op {R}

NOT FLOWN

9-9

ASC/123/FIN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|-------|--------------------------|-------|------------------------------|
| O16:E | cb MNC ADTA 3,4 (two) | - cl | {G} |
| | DDU R | - cl | {G} |
| | AFT | - op | {Y} |
| :F | RJDA 2B L3/R3/R5 LOGIC | - ON | |
| | L3/R3 DRIVER | - ON | <input type="checkbox"/> OFF |
| | RJDF 2A F3 LOGIC | - ON | |
| | DRIVER | - ON | <input type="checkbox"/> OFF |
| | 2B F4/F5 LOGIC | - ON | |
| | F4 DRIVER | - ON | <input type="checkbox"/> OFF |
| | R OMS ENG VLV | - ON | <input type="checkbox"/> OFF |
| | ASA 3,4 (two) | - ON | |
| | ACCEL 3 | - ON | |
| | RJD MANF L5/F5/R5/DRIVER | - OFF | |
| <hr/> | | | |
| O17:A | ATVC (four) | - ON | |
| :B | EIU (three) | - ON | |
| :C | SIG CONDR FREON A | - AC2 | |
| | B | - AC3 | |
| | OL 1/2 | - ON | |
| | OR 1/2 | - ON | |
| :D | SIG CONDR OA 1/2/3 | - ON | |
| | MDM OA 1/2/3 | - ON | |
| | MEC (two) | - ON | |
| <hr/> | | | |
| O19 | TV PWR | - ON | <input type="checkbox"/> OFF |
| | DC UTIL PWR MNA | - ON | |
| | COAS PWR | - OFF | |
| <hr/> | | | |

NOT FLOWN

9-10

ASC/123/FIN

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

| | | | | |
|---------|-------------------------------|----------------|-------|--|
| ML86B:A | cb MNA SPLY H2O TKA INLET | - cl | { } | |
| | TKB OUTLET | - cl | { } | |
| | WASTE H2O DUMP VLV/NOZ HTR | - op | { Y } | |
| | H2O LINE HTR A | - op | { Y } | |
| | MNB SPLY H2O TKB INLET | - cl | { } | |
| | TKC OUTLET | - cl | { } | |
| | DUMP ISOL | - op | { Y } | |
| | B SPLY ISOL VLV | - cl | { } | |
| | H2O LINE HTR B | - op | { Y } | |
| | MNC SPLY H2O TKA OUTLET | - cl | { } | |
| | TKC INLET | - cl | { } | |
| | DUMP VLV/NOZ HTR | - op | { Y } | |
| | XOVR VLV | - cl | { } | |
| | GALLEY SPLY | - op | { Y } | |
| :B | cb MNA WASTE H2O TK1 VLV | - cl | { } | |
| | SPLY H2O TKD OUTLET | - cl | { } | |
| | WASTE H2O DUMP ISOL | - op | { Y } | |
| | VAC VENT ISOL VLV | - op | { Y } | |
| | WCS CNTLR | - op | { Y } | |
| | GALLEY OVEN | - op | { Y } | |
| | MNB WASTE H2O TK1 DRAIN | - cl | { } | |
| | SPLY H2O TKD INLET | - cl | { } | |
| | VAC VENT NOZ HTR | - op | { Y } | |
| | ISOL VLV | - op | { Y } | |
| | WCS CNTLR | - op | { Y } | |
| | GALLEY H2O HTR | - op | { Y } | |
| :C | cb MNA EXT ARLK HTR LINE ZN1 | - op | { Y } | |
| | ZN2 | - op | { Y } | |
| | STRUC | - op | { Y } | |
| ML86B:C | cb MNA EXT ARLK HTR VEST | - op | { Y } | |
| | MNB EXT ARLK HTR LINE ZN1 | - op | { Y } | |
| | ZN2 | - op | { Y } | |
| | H2O S/O VLV | - cl | { } | |
| | STRUC | - op | { Y } | |
| | VEST | - op | { Y } | |
| | MNC EXT ARLK HTR LINE ZN1 | - op | { Y } | |
| | ZN2 | - op | { Y } | |
| :D | cb MNA PYRO JETT SYS A KU ANT | - op | { R } | |
| | STBD RMS | - op | { R } | |
| | MMU GN2 SPLY ISOL VLV A | - op | { Y } | |
| | PORT HTR A | - op | { R } | |
| | STBD HTR A | - op | { R } | |
| | MNB PYRO JETT SYS A PORT RMS | - op | { R } | |
| | MMU GN2 SPLY ISOL VLV B | - op | { R } | |
| | PORT HTR B | - op | { R } | |
| | STBD HTR B | - op | { R } | |
| | MNC PYRO JETT SYS B KU ANT | - op | { R } | |
| | PORT RMS | - op | { R } | |
| | STBD RMS | - op | { R } | |
| :E | cb MNA EMU 2 H2O SPLY | - op | { Y } | |
| | WASTE | - op | { Y } | |
| | FC PCM | - cl | { } | |
| | CO2 SYS 1 CNTLR (OV104,5) | - op | { R } | |
| | FLOOD TNL ADAPT 2 | - op | { R } | |
| | | - (op { Y } if | | |
| | | SH flown) | | |

NOT FLOWN

9-11

ASC/123/FIN

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

| | |
|---|---|
| <p>ML85E (MUP – if reqd)</p> <p>AC S1 – OFF</p> <p>cb AC CB1 – op {Y}</p> <p>DC 10 AMP MNB S2 – OFF</p> <p style="padding-left: 40px;">S3 – ON OFF</p> <p style="padding-left: 40px;">S4 – OFF</p> <p style="padding-left: 40px;">S5 – OFF</p> <p>cb DC 10 AMP MNB CB2 – op {Y}</p> <p style="padding-left: 40px;">CB3 – cl op {Y}</p> <p style="padding-left: 40px;">CB4 – op {Y}</p> <p style="padding-left: 40px;">CB5 – op {Y}</p> <p>PUMPS S6 – OFF</p> <p>cb PUMPS (two) – op {Y}</p> <hr/> <p>SORG (NOTE: Panel deleted if Galley not flown)</p> <p>OVEN FAN – OFF</p> <p>H2O HOT(COLD) pb (two) – lt off</p> <p style="padding-left: 40px;">VOL sel – as reqd</p> <p>MV2 – as reqd</p> <p>REHYD STA Lever – CL, latched</p> <p>OVEN/RHS – OFF</p> <p>H2O HTR (two) – OFF</p> <p>AUX PORT – cap installed</p> <p>TEST PORT 4 – cap installed</p> <p>A5J105 ELECT TEST PORT – cap installed</p> <p>OVEN DOOR – CL</p> <hr/> <p>MO13Q MIDDECK FLOODS 1,2,3,5,7 (five) – OFF</p> <p style="padding-left: 40px;">9,10 (two) – OFF</p> <p style="padding-left: 40px;">4,6,8 (three) – ON</p> <p style="padding-left: 40px;">MO13Q LTG – OFF</p> | <p>MO13Q AIRLK FAN (two) – OFF</p> <p>H2O S/O VLV – ctr (tb-OP)</p> <p>AIRLK 2 – OFF/ON</p> <p>TNL ADAPT 1 – OFF/ON</p> <p>DC UTIL PWR MNB – OFF</p> <p>AC UTIL PWR AC3 – OFF</p> <hr/> <p>ML31C WASTE H2O TK1 DRAIN VLV – ctr (tb-OP)</p> <p style="padding-left: 40px;">VLV – ctr (tb-OP)</p> <p style="padding-left: 80px;">DUMP ISOL VLV – ctr (tb-bp)**</p> <p style="padding-left: 40px;">VLV – ctr (tb-bp)**</p> <p style="padding-left: 80px;">VLV ENA/NOZ HTR – OFF</p> <p>SPLY H2O TKD INLET – ctr (tb-OP)</p> <p style="padding-left: 40px;">OUTLET – ctr (tb-OP)</p> <p>VAC VENT ISOL VLV BUS SEL – MNA</p> <p style="padding-left: 80px;">CNTL – ctr (tb-bp)**</p> <p style="padding-left: 80px;">NOZ HTR – OFF</p> <hr/> <p>ML26C SPLY H2O GN2 TKA SPLY vlv – CL</p> <p style="padding-left: 40px;">TK VENT vlv – VENT</p> <hr/> <p>ML18F EMER LTG – ON/OFF</p> <p>WMC FLOOD – OFF</p> <hr/> <p>ML30N Neg Press Relief vlv cap (two) – installed/seated</p> <hr/> <p>MA73C:A,B MCA LOGIC MNA (four) – ON</p> <p style="padding-left: 40px;">MNB (six) – ON</p> <p style="padding-left: 40px;">MNC (four) – ON</p> <p>:C,D All cbs – cl { }</p> <p>:E All cbs – op {Y}</p> |
|---|---|

NOT FLOWN

9-13

P & I

ASC/123/FIN 1

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

MO51F (CO2 RMVL SYS (RCRS) – OV104,5)
 CNTLR lts (four) – off
 MNA – OFF
 AC1 – ctr
 CNTLR 1 MODE – ctr
 COM INSTR – OFF
 MNC – OFF
 AC3 – ctr
 CNTLR 2 MODE – ctr
 All cbs (six) (OV104,5) – op { R }

MO58F TV PWR – OFF

MO52J DC UTIL PWR MNA – ON
 AC UTIL PWR AC1 – OFF
 MSTR ALARM pb – lt off

MO69M LEH O2 7 vlv – CL (OP if seat 7 flown)
 8 vlv – CL

MD44F CAB TEMP CNTL LINK – PRI ACT (pinned)
 vlv – FULL COOL (**ccw** by
 using AUTO TEMP
 CNTLR 1)
 SEC ACT – FULL HEAT (**cw** by
 using AUTO TEMP
 CNTLR 2)

MIDDECK FLOOR

EMU O2 ISOL VLV – CL
 CAB PURGE VLV – CL
 ISOL VLV – CL

MO63P cb CB2/J2 – op { Y }
 CB3/J3 – cl { }
 CB4/J4 – op { Y }
 CB5/J5 – op { Y }
 CB6/J6 – op { Y }
 RLY PWR – op { Y }
 J2 – OFF
 J3 – ON
 J4 – OFF
 J5 – OFF
 J6 – OFF
 Left select – 10A
 Right select – 10A

NOT FLOWN

9-15

ASC/123/FIN

MIDDECK EXPERIMENTS SWITCH LIST FOR HANDOVER **INGRESS**

MF71E (MERLIN)
STATUS LED - lt off
cb MAIN - op (lt off)
PAYLOAD - op (lt off) {R}

(IF FLOWN)
MIDDECK (TEPC)
SW-1 - OFF

NOT FLOWN

9-16

ASC/123/FIN 1

AIRLOCK SWITCH LIST FOR HANDOVER INGRESS

| | | |
|-------|---|--|
| AW18A | LTG FLOOD 1,3,4 (three) – OFF 2 – ON/OFF | |
| AW18D | AIRLK AUD PWR – OFF A/G 1 – T/R A/G 2 – RCV A/A – T/R ICOM (two) – T/R PAGE – dn VOL pb (five) – as reqd CNTL – NORM VOX SENS sel – as reqd MSTR VOL 1 sel – MAX XMIT/ICOM MODE sel – PTT/VOX MSTR VOL 2 sel – MAX | |
| AW18H | PWR/BATT CHGR EMU BUS SEL (two) – OFF MODE (two) – OFF INPUT – EMU 1 | |
| AW82B | AIRLK DEPRESS vlv – CL cap – installed O2 vlv (two) – CL | |
| AW82D | EMU H2O (four) – ctr (tb-CL) CCU PWR (two) – OFF | |
| AW82H | EMU H2O SPLY WASTE reg (two) – REGULATING | |
| TW58T | (NOTE: Panel deleted if SH not flown) TNL LTG FLOOD 1 – ON/OFF 2,3,4 (three) – OFF ADP PL ISOL VLV – CL cap – installed | |

| |
|--|
| AIRLOCK INNER HATCH |
| Actuator Handle – LAT |
| Lock Lever – LOCK |
| Equal vlv (two) – NORM |
| cap (two) – installed |
| AIRLOCK OUTER HATCH (if SH – C HATCH) |
| Actuator Handle – LAT |
| Lock Lever – LOCK |
| Equal vlv (two) – OFF |
| cap (two) – installed |
| SH HATCH (D HATCH) (if SH flown) |
| Actuator Handle – LAT |
| Lock Lever – LOCK |
| Equal vlv (two) – OFF |
| cap (two) – installed |
| EXT AIRLOCK UPPER HATCH (if EXT A/L flown) |
| Actuator Handle – LAT |
| Lock Lever – LOCK |
| Equal vlv (two) – OFF |
| cap (two) – installed |
| TUNNEL ADAPTER HATCH (if flown) |
| Actuator Handle – LAT |
| Lock Lever – LOCK |
| Equal vlv (two) – OFF |
| cap (two) – installed |

NOT FLOWN

9-17

ASC/123/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

R12L NOTE: Panel may be blank if no PL requirement
(See 9-23 or 9-24)

| | | |
|------|--|--|
| R11U | FC GPC PURGE SEQ - dn (tb-bp) PURGE HTR - GPC VLVS (three) - GPC STARTUP HTR (three) - ENA H2O LINE HTR - A AUTO RELIEF HTR - A AUTO MDU PWR - ON BRT sel - as reqd | |
| R11L | IDP/CRT4 PWR - ON MAJ FUNC - SM ENCRYPTOR - NORM MS AUD CNTL - NORM SPLY H2O TKA INLET - ctr (tb-OP) OUTLET - ctr (tb-CL) TKB INLET - ctr (tb-OP) OUTLET - ctr (tb-OP) TKC INLET - ctr (tb-OP) OUTLET - ctr (tb-OP) DUMP ISOL VLV - ctr (tb-bp)** VLV - ctr (tb-bp)** ENA/NOZ HTR - OFF XOVR VLV - ctr (tb-CL) GALLEY SPLY VLV - ctr (tb-bp)** B SPLY ISOL VLV - ctr (tb-OP) | |

| | | |
|------|--|--|
| R10 | MS AUD PWR - AUD/TONE A/G (two) - T/R A/A - T/R ICOM (two) - T/R VOX SENS sel - as reqd PAGE - dn VOL pb (five) - as reqd XMIT/ICOM MODE sel - as reqd (PTT/VOX recommended) LTG PNL sel - OFF FLOOD sel (two) - ON,BRT - (OFF,BRT if night launch) BIOMED CH 1 sel - MIDDECK CTR 2 sel - MIDDECK R | |
| R13U | C/W TONE VOL (two) - as is PARAM STATUS - ctr MEM - ctr LAMP TEST - ctr PARAM SEL pb (three) - 120 LIMIT SET VALUE pb (three) - 000 LIMIT - LOWER FUNC - ctr PARAM - ctr | |

NOT FLOWN

9-18

ASC/123/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | | |
|------|---|-----|--|
| R13L | PL BAY DR SYS (two) – DSBL MECH PWR SYS (two) – OFF DR – STOP (tb-as is) RAD LAT CNTL (two) – OFF (tb-LAT) CNTL (two) – OFF (tb-STO) KU ANT DIRECT STO – OFF ANT – GND (tb-STO) MMU GN2 SPLY ISOL VLV (two) – ctr (tb-bp)** | A1L | S-BD PL CNTL – CMD ANT POLAR – L CIRC XMTR PWR – LO CH SEL INTRG 1,2 tw (six) – 910,910 FREQ SWEEP – OFF MOD – OFF PWR SYS – OFF SEL – PSP PSP CMD OUTPUT – PL UMB PL DATA INTLVR PWR – ON S-BD PM ANT SW ELEC – 1 PRE AMP – 1 PWR AMPL STBY – 1 OPER – 1 MODE sel – STDN HI XPNDR – 1 NSP DATA RATE XMIT – HI RCV – HI UPLK DATA – S-BD CODING XMIT – OFF RCV – ON PWR – 1 ENCRYPTION PWR – ON MODE – SEL SEL – RCV |
| A1U | SLEW AZM – ctr ELEV – ctr RATE – SLOW SIG STRENGTH sel – S-BD PM KU tb (three) – bp sel (two) – MAN SLEW, dn PWR – OFF MODE – RDR PASSIVE RADAR OUTPUT – HI CNTL – CMD SIG PROC HDR – TV LDR – MMU 1 TAGS – CLEAR | | |

NOT FLOWN

9-19

ASC/123/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | | |
|-------|--------------------------------|------------|
| A1R | S-BD FM CNTL | - CMD |
| | ANT | - GPC |
| | PWR | - 1 |
| | DATA SOURCE sel | - ME |
| | AUD CTR VOICE RCD SEL CH 1 sel | - ICOM A |
| | 2 sel | - ICOM B |
| | DOCK RING (seven) | - OFF |
| | SL (seven) | - OFF |
| | UHF A/G (two) | - OFF |
| | A/A | - OFF |
| | PL BAY OUTLETS ICOM (two) | - OFF |
| <hr/> | | |
| | AFT MDU MDU PWR | - OFF |
| | BRT sel | - as reqd |
| <hr/> | | |
| A6U | DAP | - all off |
| | SENSE: -Z | |
| | FLT CNTLR PWR | - OFF |
| | Unused rotary sw | - full ccw |
| | ADI ATT | - INRTL |
| | ERR | - MED |
| | RATE | - MED |
| | OS LTG FLOOD sel (two) | - ON,BRT |
| | PNL sel | - OFF |
| | INST sel | - OFF |
| | NUMERIC sel | - OFF |
| | ANNUN BUS SEL | - OFF |
| | LAMP TEST | - ctr |
| | INTEN sel (two) | - VAR,MED |
| | EVENT TIMER SET pb (four) | - as reqd |
| | MODE | - UP |
| | CNTL | - ctr |
| | TIMER | - ctr |

| | | |
|-------|---------------------------------|-----------------|
| A6U | PL RETEN LOGIC PWR (two) | - OFF |
| | PL SEL | - MON |
| | LAT (five) | - OFF (tb-bp) |
| | RDY tb (five) | - bp |
| <hr/> | | |
| A6L | (DSP) | |
| | cb ESS SYS PWR CNTL (two) | - op { Y } |
| | DEP (four) | - op { Y } |
| | DOCK LT (four) | - op { Y } |
| | MN LOG (six) | - op { Y } |
| | PMA 2/3 GRP 1 HOOKS SYS A (two) | - op { R } |
| | B (two) | - op { R } |
| | 2 HOOKS SYS A (two) | - op { R } |
| | B (two) | - op { R } |
| | SYS PWR (two) | - ctr (tb-OFF) |
| | PMA 2/3 HOOKS (two) | - ctr (tb-bp) |
| | PYRO PWR (two) | - OFF |
| | PSU PWR (two) | - OFF |
| | VEST DEP VLV (four) | - ctr (tb-bp)** |
| | LTS (four) | - OFF |
| <hr/> | | |
| A6L | cb MADS PWR MNB | - cl { } |
| | MADS RCDR PWR | - PCM/WB ENA |
| | PB FWD | - CMD |
| | STRAIN GAGE | - PCM ENA |
| | WB/ACIP PCM | - CMD |
| | PCM | - CMD |
| | RCD MODE | - SAMPLE |
| | FDM CNTL | - DATA |
| | MAN CALBR sel | - DC 0 |
| | ACIP HTR | - OFF |

NOT FLOWN

9-20

ASC/123/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

| | |
|--|---|
| <p>A8U (This panel may be replaced or deleted if RMS not flown)</p> <ul style="list-style-type: none"> RMS Mode lts (twelve) – off BRAKES – ON (tb-OFF) SAFING – AUTO (tb-bp) MODE sel – TEST AUTO SEQ – ctr <li style="padding-left: 20px;">lts (two) – off S/W STOP tb – gray C/W TONE VOL – as reqd <li style="padding-left: 20px;">lts (eleven) – off MSTR ALARM pb – lt off RATE MIN tb – OFF <li style="padding-left: 20px;">HOLD tb – OFF <li style="padding-left: 20px;">SCALE tb – gray EE MODE – OFF <li style="padding-left: 20px;">MAN CONTR – ctr <li style="padding-left: 20px;">tb (six) – bp B/U JOINT sel – SY <li style="padding-left: 20px;">PL REL – OFF <li style="padding-left: 20px;">DIRECT DR – ctr PARAM sel – PORT TEMP LTG ANNUN/NUM sel (two) – VAR,LO <li style="padding-left: 20px;">PNL/INST sel – OFF JOINT sel – CRIT TEMP SINGLE/DIRECT DR – ctr SHDLR BRACE REL – ctr (tb-bp) <hr style="border-top: 1px dashed black;"/> | <p>A8L (This panel may be deleted if RMS not flown)</p> <ul style="list-style-type: none"> STBD RMS – OFF (tb-STO) <li style="padding-left: 20px;">– (OFF (tb-bp) if NO MPMs present) <li style="padding-left: 40px;">RETEN LAT – OFF (tb-LAT) <li style="padding-left: 20px;">– (OFF (tb-bp) if no MPMs present) <li style="padding-left: 40px;">HTR (two) – OFF <li style="padding-left: 40px;">R-F-L tb (three) – gray <li style="padding-left: 20px;">– (bp if no RMS flown) RMS SEL – OFF <li style="padding-left: 20px;">PWR – OFF PORT RMS – OFF (tb-STO) <li style="padding-left: 20px;">– (OFF (tb-bp) if no MPMs present) <li style="padding-left: 40px;">RETEN LAT – OFF (tb-LAT) <li style="padding-left: 20px;">– (OFF (tb-bp) if no MRLs present) <li style="padding-left: 40px;">HTR (two) – OFF <li style="padding-left: 40px;">R-F-L tb (three) – gray <li style="padding-left: 20px;">– (bp if no RMS flown) RMS RHC RATE – VERN <hr/> <p>A3</p> <ul style="list-style-type: none"> MON CONTRAST (two) – ctr <li style="padding-left: 20px;">BRT (two) – ctr <li style="padding-left: 20px;">COLOR (two) – as reqd <li style="padding-left: 20px;">TINT (two) – as reqd <li style="padding-left: 20px;">FUNCTION (two) – ctr <li style="padding-left: 20px;">PWR (two) – OFF <hr/> |
|--|---|

NOT FLOWN

9-22

ASC/123/FIN

AFT FLIGHT DECK PAYLOADS SWITCH LIST FOR HANDOVER INGRESS

| | |
|---|---|
| <p>L10U (AVIU) SYNC/VIDEO – VIDEO HI-Z/75 – HI-Z PWR SEL – HI</p> | <p>L12LR SSP-2 Verify all tbs bp RIGEX – (ctr) cb PDIP 2 PWR 1 – op</p> |
| <p>L11U (PDIP 2) T-0/OIU/OIU – OIU (ctr) DC PWR 1 CABIN P/L – OFF 2 CABIN P/L – OFF</p> | <p>L12L (PDIP 1) Ku BAND RATE – OFF DC PWR 1 CABIN P/L – OFF 2 CABIN P/L – OFF</p> |
| <p>L12UL SSP-1 cb SW PWR 1 CAM PWR – op PDIP 1 PWR 2/KuBAND RLY – op</p> | <p>R12 (VPU/OPP) VPU PWR – OFF</p> |
| <p>L12UR SSP-1 Verify all tbs bp TCS PWR – OFF cb PDIP 1 PWR 1 – op OIU PWR – OFF</p> | <p>R12 (OPP) cb OBSS SW PWR cb1 – op { Y } OBSS SW PWR – OFF</p> |
| <p>L12LL SSP-2 KEEL CAM HTR/ILLUM PWR – OFF ENABLE – OFF cb CAM SW PWR – op PDIP 2 PWR 2 – op C/L CAM PWR – OFF</p> | <p>R12 (OBSS) RSC PWR – OFF ITVC ENA – OFF SPEE PWR – OFF</p> |

NOT FLOWN

9-24

ASC/123/FIN 1

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

A15: (All Veh)
 PS COMM CCU PWR - OFF ON
 DC UTIL PWR MNC - OFF
 AC UTIL PWR AC3 - OFF
 :A CRYO TK5 HTRS (four) - OFF
 O2 RESET/TEST - ctr
 (OV104)
 :B cb PPCA CONT PWR (two) - op {R}
 :C PALLET PWR (two) - ctr (tb-OFF)
 HTRS (two) - OFF
 :D,E, HTRS (sixteen) - OFF
 F,G O2 RESET/TEST (four) - ctr
 :H,I, cb PALLET ESS (sixteen) - op {R}
 J,K HTR SNSR (eight) - op {R}
 (OV103,5)
 :B cb CNTL PWR PTU 1,2 (two) - op {Y}
 :C PTU/MAIN BUS A,B (two) - ctr (tb-OFF)
 ODS MATE X1, X2 (two) - OFF
 :D,E OPCU 1,2 CONV (two) - OFF
 V-ADJ (two) - OFF
 UP/DOWN (two) - ctr
 APCU 1,2 CONV (two) - OFF
 OUTPUT (two) - OFF
 :F,G All switches (ten) - ctr
 :H,I, All cbs (twenty-four) - op {R}
 J,K

A14 RCS/OMS HTR FWD RCS - OFF
 L POD (two) - A OFF, B OFF
 R POD (two) - A OFF, B OFF
 OMS KIT - OFF
 CRSFD LINES (two) - A AUTO,
 B AUTO

NOT FLOWN

A14 RCS/OMS HTR FWD RCS JET (five) - AUTO
 AFT RCS JET (five) - AUTO
 CARGO COOL LP HTRS ORB (three) (OV103,5) - OFF
 CARGO LN (two) (OV103,5) - OFF
 PYRO (twelve) - SAFE
 RMS LAT - SAFE

A13 OS AUD MSTR SPKR VOL sel - as reqd
 SPKR PWR - OFF
 GPS PRE AMPL (two) (OV103) - MNC
 (two) (OV104) - ON
 PWR (OV103,104) - ON OFF
 GPS/SIGI PWR (OV103) - OFF
 blank sw (OV104) - dn
 GPS ENCRYPT (OV103,4) - NORM
 GPS/SIGI ENCRYPT (OV103) - NORM
 blank sw (OV104) - dn

A12 APU HTR GAS GEN/FUEL PUMP (three) - OFF
 LUBE OIL LINE (three) - OFF
 TK/FU LINE/H2O SYS (six) - OFF
 LG ARM/DN RESET - dn
 FC3 STRUCT RTN - ctr (tb-ON)
 HYD HTR RUD SPD BK A - OFF
 B - AUTO
 BDY FLP A - AUTO
 B - OFF
 ELEV A - AUTO
 B - OFF
 AFT FUS A - AUTO
 B - OFF
 CIRC PUMP PWR 1 - MNA
 2 - MNB
 3 - MNC

9-25

ASC/123/FIN

HARDWARE CAUTION & WARNING CONFIGURATION

UPPER LIMIT CHANGE

4 CABIN PRESS

7 OMS TK P OX-L

17 OMS TK P FU-L
37 OMS TK P OX-R
39 MPS He Reg 1A P

47 OMS TK P FU-R
49 MPS He Reg 2A P
55 CAB FAN ΔP
59 MPS He Reg 3A P
65 PPO2 #1
74 CABIN FAN ΔP
75 POCO2 #1
79 MANF P LH2
85 ARS FAN ΔP
95 CAB TOTAL PRESS
105 H2O LOOP 1 PUMP OUT P
107 FREON LOOP 1 EVAP OUT T
117 FREON LOOP 2 EVAP OUT T

TO

3.85 V/15.36 psia (OV103)
3.90 V/15.53 psia (OV104)
3.85 V/15.42 psia (OV105)
3.60 V/288 psi (OV103,5)
3.70 V/296 psi (OV104)
3.60 V/288 psi
3.60 V/288 psi
4.00 V/816.3 psia (OV103)
4.10 V/815.5 psia (OV104)
4.10 V/807.0 psia (OV105)
3.60 V/288 psi
4.00 V/810.6 psia (OV103)
4.85 V/0.2" H2O (if SH flown)
3.90 V/806.5 psia (OV105)
2.30 V/2.7 psi (if SH flown)
4.25 V/6.80" H2O
3.80 V/7.6 mmHg (if SH flown)
3.25 V/65 psi
4.85 V/0.2" H2O (if SH flown)
1.55 V/13.8 psi (if SH flown)
2.85 V/85.5 psia (OV104)
4.30 V/115.2 °F
4.30 V/115.2 °F

LOWER LIMIT CHANGE

4 CABIN PRESS

39 MPS He Reg 1A P

49 MPS He Reg 2A P
59 MPS He Reg 3A P
74 CABIN FAN ΔP
105 H2O LOOP 1 PUMP OUT P
106 FREON FLOW 1
116 FREON FLOW 2

TO

3.45 V/13.76 psia (OV103)
3.45 V/13.74 psia (OV104)
3.40 V/13.62 psia (OV105)
3.30 V/676 psia (OV103)
3.45 V/677.0 psia (OV105)
3.35 V/679.9 psia (OV103)
3.30 V/682.8 psia (OV105)
2.60 V/4.16" H2O
0.85 V/25.5 psia (OV104)
0.80 V/1186 lb/hr
0.80 V/1186 lb/hr

INHIBIT

8 APU 1 EGT
14 CAB O2 FLOW 1 (OV105)
18 APU 2 EGT
28 APU 3 EGT
30 CRYO O2 P TK4 (if TK4 not flown)
40 CRYO O2 P TK5 (if TK5 not flown)
55 CAB FAN ΔP (if SH flown)
61 CRYO O2 HTR1 TK4 (if TK4 not flown)
65 PPO2 (if SH flown)
71 CRYO O2 HTR2 TK4 (if TK4 not flown)
75 POCO2 #1 (if SH flown)
77 OMS PBK OXID TK ULL P
80 CRYO H2 P TK4 (if TK4 not flown)
81 CRYO O2 HTR1 TK5 (if TK5 not flown)
85 ARS FAN ΔP (if SH flown unpowered)
87 OMS PBK FUEL TK ULL P
90 CRYO H2 P TK5 (if TK5 not flown)
95 CAB TOTAL PRESS (if SH flown)

MEDS CONFIGURATION FOR INGRESS

| MDU | View Angle | Port Config | Selected Port | Flight Critical Bus | Display | Edgekey Menu |
|------------|-------------------|--------------------|----------------------|----------------------------|----------------|---------------------|
| CRT1 | positive | auto | primary | 3 | DPS | DPS |
| CRT2 | positive | auto | primary | 4 | DPS | DPS |
| CRT3 | positive | auto | primary | 4 | DPS | DPS |
| CRT4 | negative | auto | primary | 1 | DPS | DPS |
| CDR1 | positive | auto | primary | 1 | OMS/MPS | FLT INST |
| CDR2 | positive | auto | primary | 3 | A/E PFD | DATA BUS |
| MFD1 | positive | auto | primary | 3 | HYD/APU | SUBSYS STATUS |
| MFD2 | positive | auto | primary | 4 | OMS/MPS | SUBSYS STATUS |
| PLT1 | positive | auto | primary | 4 | A/E PFD | DATA BUS |
| PLT2 | positive | auto | primary | 4 | HYD/APU | FLT INST |
| AFD1 | negative | auto | n/a | n/a | n/a | n/a |



CUE CARD CONFIG

**CUE CARD
CONFIG**

FAB USE ONLY

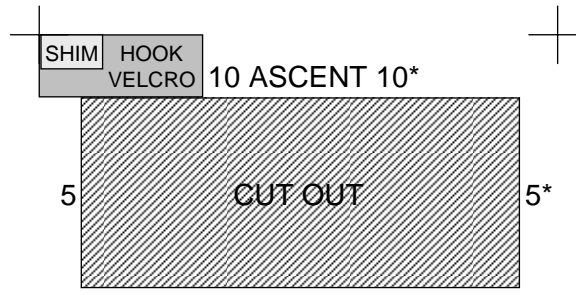
10-1

ASC/123/FIN



CUE CARD
CONFIG

TOP



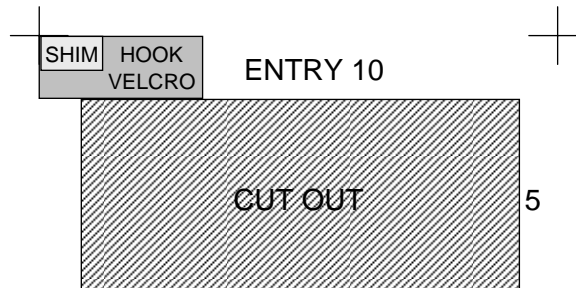
*OPS 2/8 values are 5,1,0.2

**ADI ERROR/RATE
SWITCH**

ASC-1a/A,E/H

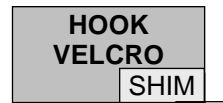


TOP
BACK OF 'ADI ERROR/RATE SWITCH'



| R | α/g | Y |
|----|------------|-----|
| 25 | 5/1.25 | 2.5 |
| 25 | 2/1.25 | 2.5 |
| 10 | 1/0.50 | 2.5 |

1
ASC-1b/A,E/E



FAB USE ONLY

CC 10-2

ASC/123/FIN

TOP

| ASCENT/ENTRY SPEC PASS | NO. | ASC-2a/A,E/E BFS | NO. |
|-----------------------------------|------------|-----------------------------|------------|
| GPC MEMORY | 0 | BFS MEMORY | 0 |
| IMU ALIGN (301) | 21 | <u>GNC</u> | |
| STRK/COAS CNTL (301) | 22 | HORIZ SIT | 50 |
| RCS (OPS 3) | 23 | OVERRIDE | 51 |
| HORIZ SIT | 50 | GPS STATUS | 55 |
| OVERRIDE | 51 | <u>SM</u> | |
| ENT CONTROL (OPS 3) | 53 | PL BAY DOORS | 63 |
| GPS STATUS | 55 | | |

TOP
BACK OF 'ASCENT/ENTRY SPEC'

HOOK
VELCRO
SHIM

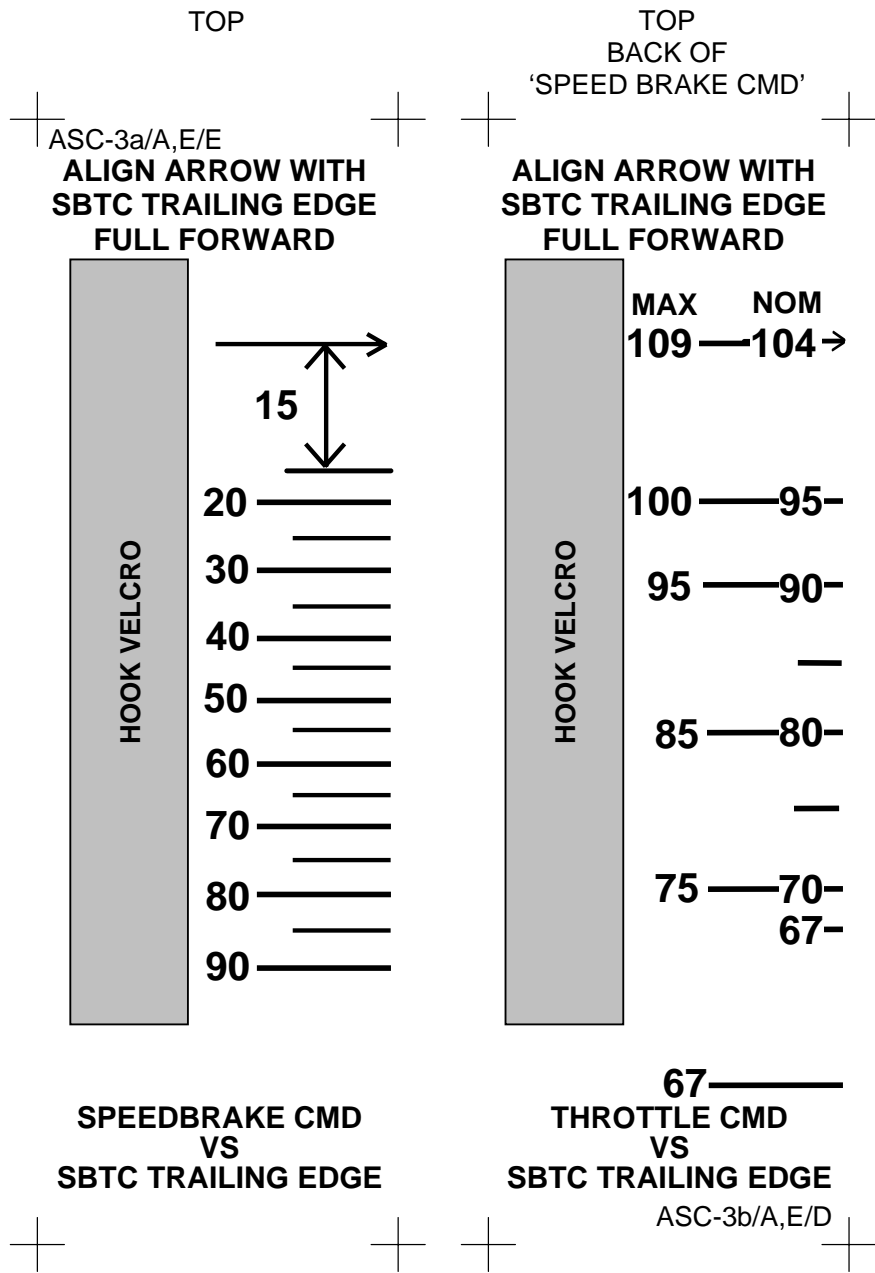
HOOK
VELCRO
SHIM

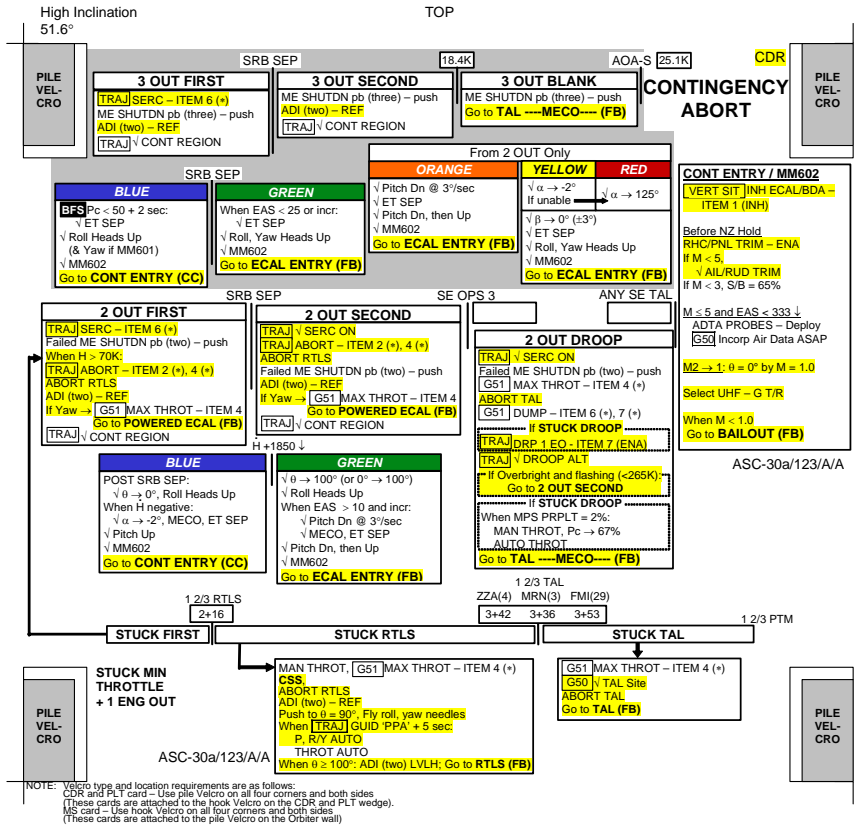
ASC-2b/A,E/D

FAB USE ONLY

CC 10-3

ASC/123/FIN

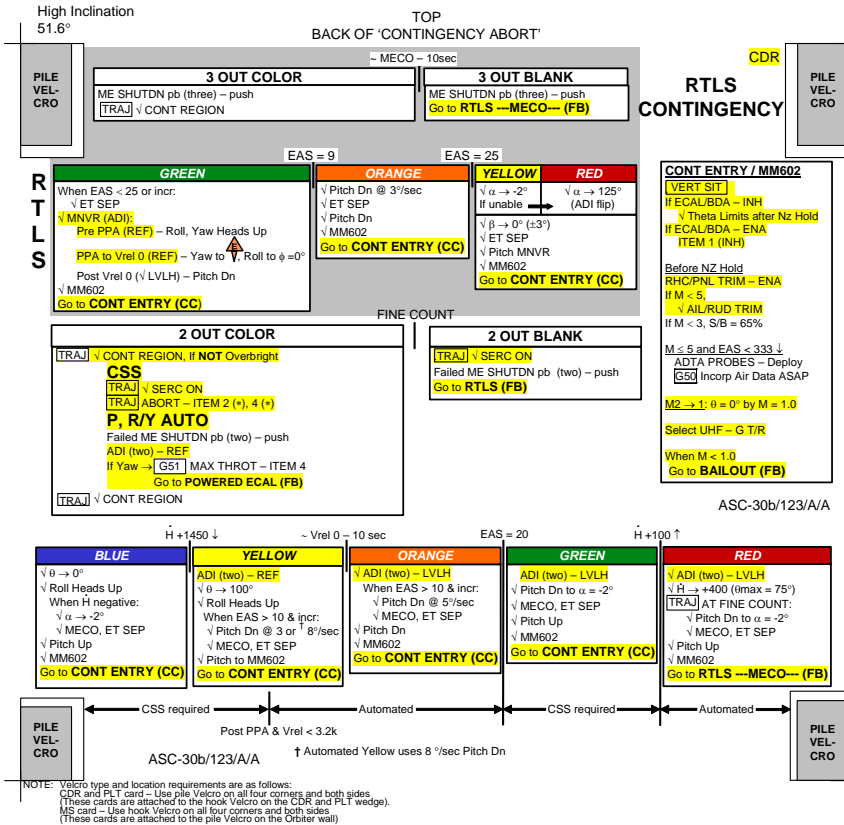




FAB USE ONLY

(reduced copy)
 (A)CC 10-5

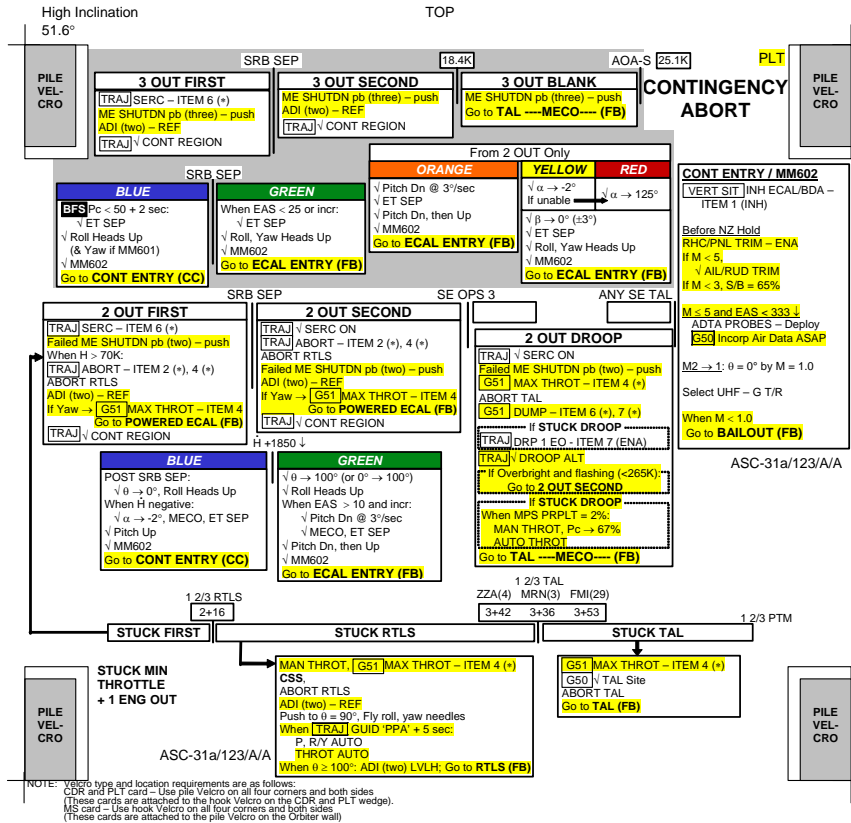
CDR
 ASC/123/FIN



FAB USE ONLY

(reduced copy)
(A)CC 10-6

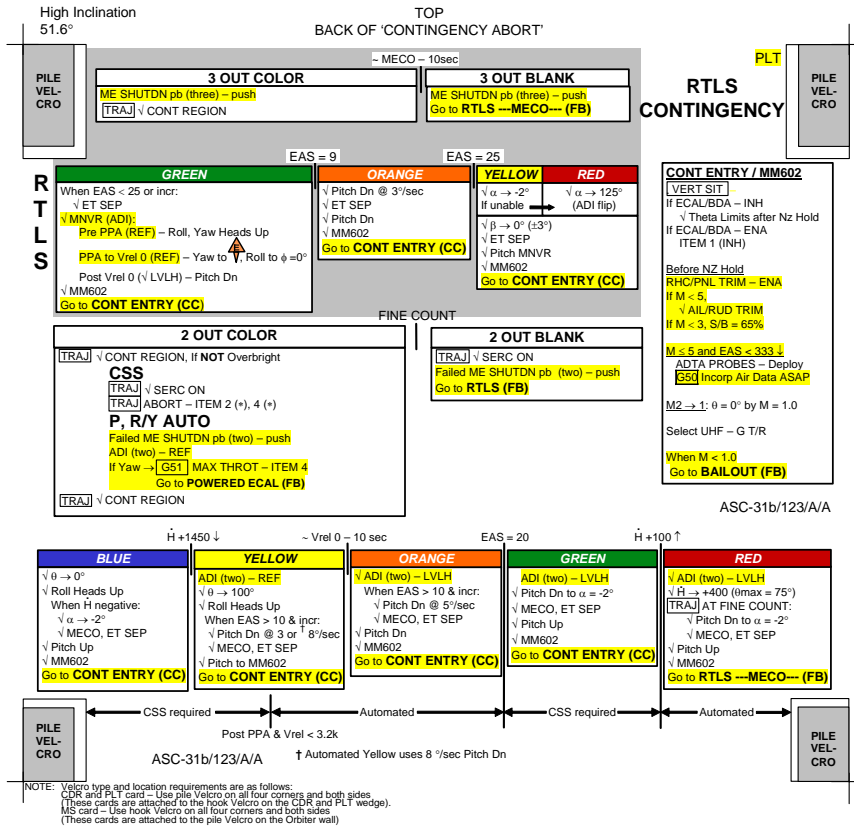
CDR
ASC/123/FIN



FAB USE ONLY

(reduced copy)
 (B)CC 10-5

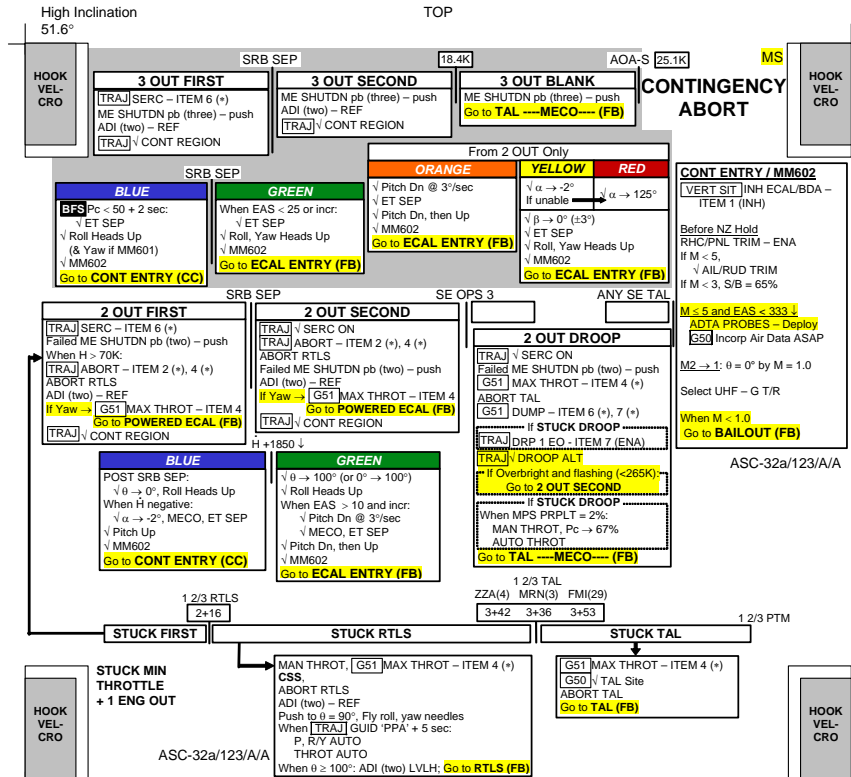
PLT
 ASC/123/FIN



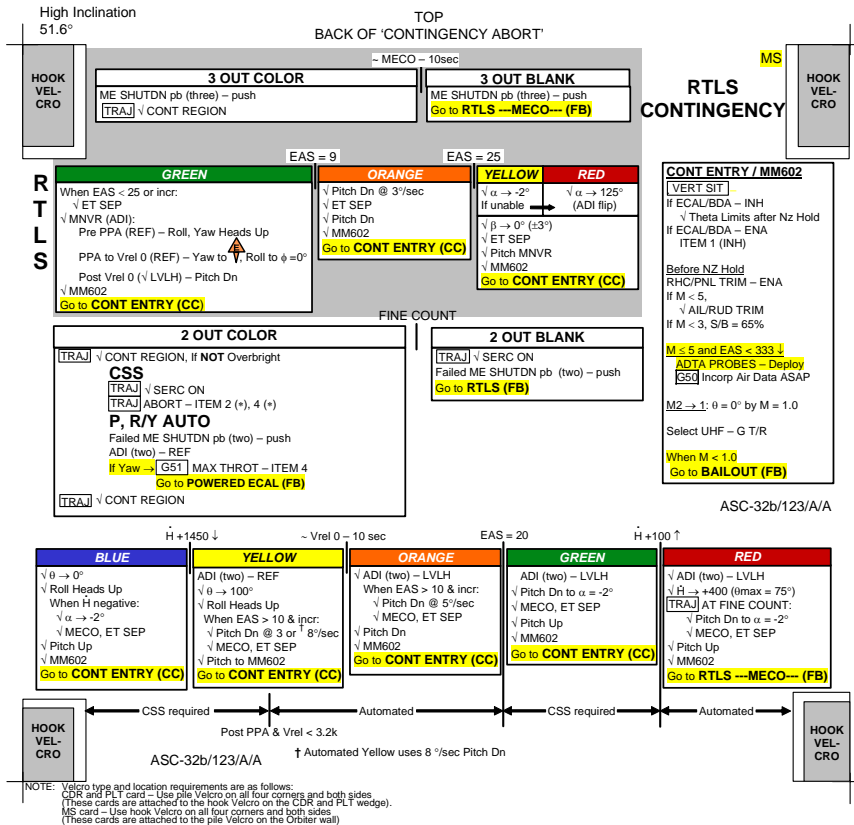
FAB USE ONLY

(reduced copy)
(B)CC 10-6

PLT
ASC/123/FIN



NOTE: Velcro type and location requirements are as follows:
 CDR and PLT card - Use pile Velcro on all four corners and both sides
 (These cards are attached to the hook Velcro on the CDR and PLT wedge).
 MS card - Use hook Velcro on all four corners and both sides
 (These cards are attached to the pile Velcro on the Orbiter wall)



FAB USE ONLY

(reduced copy)
(C)CC 10-6

MS
ASC/123/FIN

TOP

HOOK
VELCRO
**OMS 2
BURN
MONITOR**
HOOK
VELCRO

| | | | | | | | |
|--|---|---|-----|-----|-----|-----|---|
| OMS TEMP* FU IN P ≥ <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 0 5px;">L</td><td style="border: 1px solid black; padding: 0 5px;">R</td></tr><tr><td style="border: 1px solid black; padding: 0 5px;">219</td><td style="border: 1px solid black; padding: 0 5px;">220</td></tr></table> ≤ <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 0 5px;">201</td><td style="border: 1px solid black; padding: 0 5px;">208</td></tr></table> or No FU IN P | L | R | 219 | 220 | 201 | 208 | OMS ENG FAIL ----- OMS PRPLT FAIL |
| L | R | | | | | | |
| 219 | 220 | | | | | | |
| 201 | 208 | | | | | | |
| OMS PC* & OMS ↓ (BFS: √accel) ENG VLV 1 or 2 < 70 or OX IN P > 227 ----- OX IN P ≤ 227 or No OX IN P | OMS ENG FAIL ----- OMS PRPLT FAIL | | | | | | |
| OMS OX/FU TK P (√ENG IN P) OX/FU LOW ----- OX & FU HIGH | He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP or HP > 85 : OMS PRPLT FAIL ----- He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284 | | | | | | |
| OMS He TK P LOW (√ OMS/MPS) | At He P < 640 or QTY ≤ 41: If HP < 85 : OMS XFEED from good OMS At HP > 85 : OMS PRPLT FAIL | | | | | | |
| OMS N2 REG P HIGH or LOW | OMS ENG – ARM | | | | | | |
| OMS N2 TK P LOW (√ OMS/MPS) | At N2 TK P < 470: OMS ENG – ARM | | | | | | |
| OMS GMBL PRI fail SEC fail | L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL | | | | | | |
| GPC 1(4) & Burning OMS aff | aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF, ON L(R) OMS GMBL – SEC (twice) | | | | | | |
| SEC GMBL lost 2 FAs lost | If high RCS usage: OMS ENG FAIL ----- √MAN SHUTDN | | | | | | |
| I/O ERROR FA 1(4) | L(R) OMS GMBL – SEC ----- I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL | | | | | | |
| 2 FAs lost | √MAN SHUTDN | | | | | | |
| BCE STRG D 1(4) | I/O RESET (if recov: >>) ----- If high RCS usage: L(R) OMS GMBL – SEC (twice) | | | | | | |
| I/O ERROR PCM | OI PCMMU PWR – 2(1) | | | | | | |

*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

ASC-5a/123/A,O/A

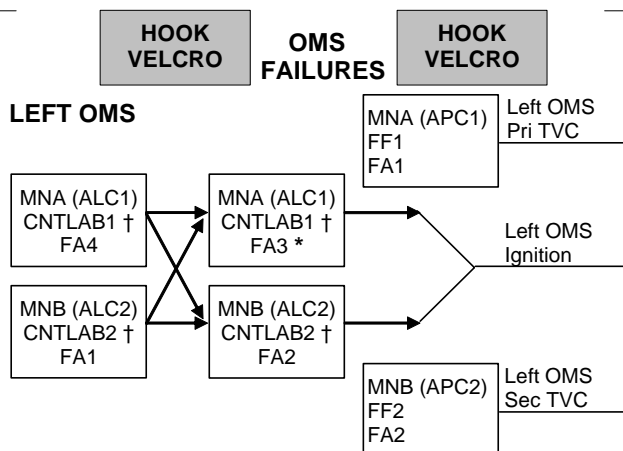
(reduced copy)

FAB USE ONLY

CC 10-7

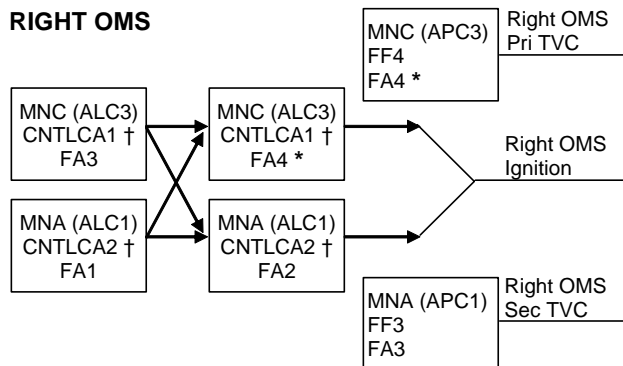
ASC/123/FIN

TOP
BACK OF 'OMS BURN MONITOR'



† If CNTL AB1 or AB2 (CA1 or CA2) failed and ign path still exists at OMS fail, assume L(R) OMS ↓ is PRPLT FAIL

* If L(R) P_c failed high during burn, or FA3(4) failed, at L(R) OMS fail, no guidance downmode after L(R) OMS ENG switch OFF (TGO slow, ADI needles in error, 6 ft/s underburn)



| If two FA MDMs lost | | |
|---------------------|-----------------------|----------------------------|
| MDMs | Preburn: ENG – OFF | During burn: MAN SHUTDN |
| 1,2 | LEFT (TVC) | BOTH |
| 1,3 | RIGHT (IGN) | LEFT |
| 1,4 | LEFT (IGN) | RIGHT |
| 2,3 | LEFT (IGN) | RIGHT |
| 2,4 | RIGHT (IGN) | LEFT |
| 3,4 | RIGHT (TVC) | BOTH |

ASC-5b/A,O,E/I

(reduced copy)

FAB USE ONLY

CC 10-8

ASC/123/FIN

TOP
BACK OF 'OMS2/ORBIT OMS BURNS'

| | | |
|------------------------|---------------------------|------------------------|
| HOOK VELCRO | OPS 1 RCS BURN | HOOK VELCRO |
|------------------------|---------------------------|------------------------|

AFT RCS

√RCS BURN CONFIG:
 OMS TK ISOL (all) – OP OMS TK
 L(R) OMS XFEED (two) – OP switch at
 R(L) OMS XFEED (two) – CL 1/2 ΔVTOT
 AFT L,R RCS XFEED (four) – OP (If reqd)
 TK ISOL (six) – CL

TIG-2 L,R OMS He PRESS/VAP ISOL A – OP
 ... Wait 2 sec ...
 L,R OMS He PRESS/VAP ISOL B – OP
 √MM105
 CNTLR PWR (two) – ON
 √BURN ATT (INRTL) then REF, pb – push
 √RCS SEL
 DAP: INRTL/DISC
 :00 + X
 Maintain PITCH ATT ERR ± 3°
 Monitor OMS data
 Monitor ΔVTOT
 CUTOFF Release THC
 CNTLR PWR (two) – OFF

FWD RCS

FRCS BURN PREP
 Load DUMMY target for FRCS attitude
 RCS SEL – ITEM 4 EXEC
 TIG @ TTA = 2:00 or as reqd
 ΔVX = -2.1 (ITEM 19)
 ΔVY = 0 (ITEM 20)
 ΔVZ = +1.0 (ITEM 21)
 LOAD – ITEM 22 EXEC
 TIMER – ITEM 23 EXEC
 TIG-10 Auto Mnvr to ATT
 When in attitude:
 ADI ATT – REF (push)
 Load External ΔV Burn Target
 ΔVX = +80
 ΔVY = 0
 ΔVZ = 0
 LOAD – ITEM 22 EXEC
 TIMER – ITEM 23 EXEC
 √VGOX = negative
 √VGOY = 0
 √VGOZ = +21 ± 2
 √REF ball -0,0,0

NOTE

Error needles invalid during burn
 Burn time = ~2X TGO
 TGT Hp = **85** for ASCENT

-:30 CNTLR PWR (two) – ON
 DAP: INRTL/DISC
 :00 -X
 CUTOFF CUR HP = TGT HP , release THC
 CNTLR PWR (two) – OFF

ASC-6b/123/A,O/A

(reduced copy)

FAB USE ONLY

CC 10-10

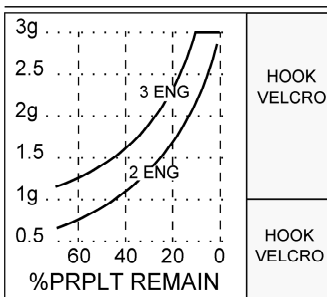
ASC/123/FIN

TOP

TOP
BACK OF 'ASCENT
ADI - NOMINAL'

ASCENT ADI - NOMINAL

| TIME | θ | H | \dot{H} | (123 OCF CY) |
|------|----------|------|-----------|--------------|
| 0:30 | 68 | 9K | 630 | |
| 0:50 | 63 | 25K | 978 | |
| 1:10 | 55 | 49K | 1394 | |
| 1:30 | 39 | 82K | 1868 | |
| 1:50 | 31 | 122K | 2183 | |



-STAGING-

| V_I | θ | H | \dot{H} | ASC-14a/123/A/A |
|-------|----------|------|-----------|-----------------|
| 6 | 19 | 218K | 1722 | |
| 7 | 16 | 276 | 1269 | |
| 8 | 13 | 311 | 919 | |
| 9 | 11 | 333 | 635 | |
| 10 | 9 | 346 | 403 | |
| 12 | 6 | 357 | 61 | |
| 14 | 9 | 356 | -149 | |
| 16 | 25 | 350 | -234 | |
| 18 | 23 | 344 | -270 | |
| 20 | 21 | 339 | -220 | |
| 22 | 19 | 337 | -106 | |
| 24 | 17 | 337 | 64 | |
| 25819 | 13 | 345 | 272 | |

HOOK VELCRO

ENTRY ALPHA

| VR | α ref | R | H | Href | Rref |
|----|--------------|-------|------|------|----------|
| 25 | HI | 40 LO | 4430 | 400 | |
| 24 | HI | 40 LO | 2614 | 248 | -46 L79 |
| 23 | 43 | 40 37 | 2144 | 240 | -64 69 |
| 22 | 43 | 40 37 | 1792 | 233 | -83 63 |
| 21 | 43 | 40 37 | 1509 | 227 | -106 60 |
| 20 | 43 | 40 37 | 1292 | 220 | -123 59 |
| 19 | 43 | 40 37 | 1117 | 213 | -146 59 |
| 18 | 43 | 40 37 | 974 | 208 | -169 R60 |
| 17 | 43 | 40 37 | 861 | 200 | -187 62 |
| 16 | 43 | 40 37 | 768 | 193 | -196 64 |

KSC 15

| MAX L/D | |
|---------|----------|
| M | α |
| 3 | 17 |
| 2 | 15 |
| 1 | 12 |

(123 OCF CY)

HOOK VELCRO

ASC-14b/123/A,E/A

HOOK VELCRO

| | | | | | | |
|-----|----|-------|-----|-----|------|-----|
| 15 | 43 | 40 37 | 686 | 187 | -118 | 64 |
| 14 | 43 | 40 37 | 613 | 183 | -127 | 62 |
| 13 | 43 | 40 37 | 545 | 179 | -136 | 60 |
| 12 | 43 | 40 37 | 483 | 174 | -152 | 58 |
| 11 | 42 | 39 36 | 426 | 168 | -194 | 57 |
| 10 | 41 | 38 35 | 376 | 164 | -173 | L50 |
| 9 | 39 | 36 33 | 325 | 158 | -208 | 44 |
| 8 | 37 | 34 31 | 279 | 151 | -238 | 40 |
| 7 | 33 | 30 27 | 230 | 141 | -266 | 39 |
| 6 | 30 | 27 24 | 183 | 129 | -272 | 40 |
| 5 | 26 | 23 20 | 142 | 116 | -274 | 40 |
| 4 | 23 | 20 18 | 106 | 104 | -263 | R41 |
| 3 | 19 | 16 15 | 74 | 90 | -248 | 38 |
| 2.5 | 14 | | 60 | 82 | -252 | |
| 2 | 14 | | 50 | 77 | -261 | |
| 1.5 | 10 | | 39 | 68 | -313 | |
| 1 | 8 | | 27 | 52 | -267 | |

HOOK VELCRO

(reduced copy)

FAB USE ONLY

CC 10-11

ASC/123/FIN

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

* **RCS COMPLETION:** *

* If DIRECT INSERTION: *

* THC +X to $\Delta VTOT = 0$ or TOT AFT QTY 1 % *

* At AFT QTY 1 THC +X to FLIP ΔV or
* if CUR $\Delta VTOT$: TOT AFT QTY 2 % then
* FRCS COMPLETION *

* FLIP -----
* ΔV FRCS COMPLETION *

* AFT -----
* ΔV THC +X to TGT ΔV *

* TGT -----
* ΔV *

* If w/OMS 1: *

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

* At AFT QTY 1 THC +X to FLIP HP or
* if CUR HP: TOT AFT QTY 2 % then
* FRCS COMPLETION *

* FLIP -----
* HP FRCS COMPLETION *

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

* TGT -----
* HP *

* **FRCS COMPLETION:** *

* Mnv to -X Att (pitch up at 3°/sec to VGOz = +1/4 $\Delta VTOT$)
* THC -X to $\Delta VTOT = 0$ 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)

ASC-8aa/123/A/A

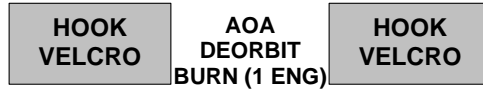
(reduced copy)

FAB USE ONLY

CC 10-13

ASC/123/FIN

TOP
BACK OF 'AOA DEORBIT BURN (2 ENG)'



- √MM302 √OMS L or R
- √OMS BURN CONFIG (L or R XFEED)
- Enter TGO + 10 sec
- √TRIM: P +0.4, 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
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
- :00 Start watch (√P_c, ΔVTOT, ENG VLVs)

OMS XFEED RETURN at ΔVTOT =
 or at %
 L,R OMS TK ISOL (four) – OP
 XFEED (four) – CL

- * **OMS PRPLT FAIL (CONTINUE BURN):** *
- * OMS ENG – OFF *
- * ITEM 18 +0 EXEC *
- * Secure aff OMS *
- * √ADI – LVLH, center needles *
- * Interconnect good OMS to RCS *
- * THC +X (√OMS% vs RCS Burn Time) *
- * AFT RCS RECONFIG *
- * RCS COMPLETION *
- * **OMS ENG FAIL (CONTINUE BURN):** *
- * OMS ENG – OFF *
- * √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:** *
- * ITEM 18 +0 EXEC *
- * G23 Resel jet *

ASC-8b/A/B

HINGE

(reduced copy)

FAB USE ONLY

CC 10-14

ASC/123/FIN

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

* **RCS COMPLETION:** *

* If DIRECT INSERTION: *

* THC +X to $\Delta VTOT = 0$ or TOT AFT QTY 1 % *

* At AFT QTY 1 THC +X to FLIP ΔV or
* if CUR $\Delta VTOT$: TOT AFT QTY 2 % then
* FRCS COMPLETION *

* FLIP -----
* ΔV FRCS COMPLETION *

* AFT -----
* ΔV THC +X to TGT ΔV *

* TGT -----
* ΔV ----- *

* If w/OMS 1: *

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

* At AFT QTY 1 THC +X to FLIP HP or
* if CUR HP: TOT AFT QTY 2 % then
* FRCS COMPLETION *

* FLIP -----
* HP FRCS COMPLETION *

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

* TGT -----
* HP ----- *

* **FRCS COMPLETION:** *

* Mnv r to -X Att (pitch up at 3°/sec to VGOz = +1/4 $\Delta VTOT$)
* THC -X to $\Delta VTOT = 0$ 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)

ASC-8bb/123/A/A

(reduced copy)

FAB USE ONLY

CC 10-15

ASC/123/FIN

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

* **RCS COMPLETION:**

* If DIRECT INSERTION:

* THC +X to $\Delta VTOT = 0$ or TOT AFT QTY 1 %

* At AFT QTY 1 THC +X to FLIP ΔV or
* if CUR $\Delta VTOT$: TOT AFT QTY 2 % then
* FRCS COMPLETION

* FLIP -----
* ΔV FRCS COMPLETION

* AFT -----
* ΔV THC +X to TGT ΔV

* TGT -----
* ΔV

* If w/OMS 1:

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

* At AFT QTY 1 THC +X to FLIP HP or
* if CUR HP: TOT AFT QTY 2 % then
* FRCS COMPLETION

* FLIP -----
* HP FRCS COMPLETION

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

* TGT -----
* HP

* **FRCS COMPLETION:**

- * Mnv to -X Att (pitch up at 3°/sec to VGOz = +1/4 $\Delta VTOT$)
- * THC -X to $\Delta VTOT = 0$ 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)

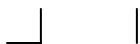
ASC-7aa/123/A/A

(reduced copy)

FAB USE ONLY

CC 10-17

ASC/123/FIN



TOP
 BACK OF 'AOA DEORBIT BURN (RCS)'



**HOOK
 VELCRO**

**HOOK
 VELCRO**



HINGE

ASC-7b/A/B



FAB USE ONLY

(reduced copy)
 CC 10-18

ASC/123/FIN



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



ASC-7bb/A/B



FAB USE ONLY

(reduced copy)
CC 10-19

ASC/123/FIN

TOP

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

**ZZA TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6000 | 6100 | 6200 | 6300 | 6400 | 6500 | 6600 | 6700 |
| SE OPS 3 ZZA 109 | (4) | 10900 | 11000 | 11000 | 11000 | 11100 | 11100 | 11100 | 11100 |
| SE ZZA 104 | (4) | 17000 | 16900 | 16700 | 16500 | 16300 | 16100 | 16000 | 15800 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6800 | 6900 | 7000 | 7100 | 7200 | 7300 | 7400 | 7500 |
| SE OPS 3 ZZA 109 | (4) | 11200 | 11200 | 11200 | 11200 | 11300 | 11300 | 11300 | 11300 |
| SE ZZA 104 | (4) | 15600 | 15500 | 15300 | 15200 | 15000 | 14900 | 14700 | 14600 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7600 | 7700 | 7800 | 7900 | 8000 | 8100 | 8200 | 8300 |
| SE OPS 3 ZZA 109 | (4) | 11400 | 11400 | 11400 | 11400 | 11500 | 11500 | 11500 | 11500 |
| SE ZZA 104 | (4) | 14500 | 14300 | 14200 | 14100 | 14000 | 14000 | 13900 | 13800 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8400 | 8500 | 8600 | 8700 | 8800 | 8900 | 9000 | 9100 |
| SE OPS 3 ZZA 109 | (4) | 11500 | 11600 | 11600 | 11600 | 11600 | 11600 | 11600 | 11700 |
| SE ZZA 104 | (4) | 13800 | 13700 | 13700 | 13600 | 13600 | 13600 | 13500 | 13500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9200 | 9300 | 9400 | 9500 | 9600 | 9700 | 9800 | 9900 |
| SE OPS 3 ZZA 109 | (4) | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11800 | 11800 |
| SE ZZA 104 | (4) | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|--|--|
| 1st E.O. VI | | 10000 | 10100 | 10200 | 10300 | 10400 | 10500 | | |
| SE OPS 3 ZZA 109 | (4) | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | | |
| SE ZZA 104 | (4) | 13600 | 13600 | 13600 | 13600 | 13600 | 13600 | | |

ASC-9a/123/A/A

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

(reduced copy)

FAB USE ONLY

CC 10-20

ASC/123/FIN

TOP
BACK OF 'ZZA TAL REDESIGNATION'

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

ECAL – ZZA or MRN or FMI PRIME TAL

| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
|------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
|------------------|-------------|-------------|-------------|-------------|-------------|------|------|
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-9b/123/A/A

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

(reduced copy)

FAB USE ONLY

CC 10-21

ASC/123/FIN

TOP

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

**MRN TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 5800 | 5900 | 6000 | 6100 | 6200 | 6300 | 6400 | 6500 |
| SE OPS 3 MRN 109 | (3) | 10800 | 10900 | 10900 | 10900 | 11000 | 11000 | 11000 | 11100 |
| SE MRN 104 | (3) | 16800 | 16700 | 16500 | 16300 | 16200 | 16000 | 15800 | 15700 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6600 | 6700 | 6800 | 6900 | 7000 | 7100 | 7200 | 7300 |
| SE OPS 3 MRN 109 | (3) | 11100 | 11100 | 11200 | 11200 | 11200 | 11300 | 11300 | 11300 |
| SE MRN 104 | (3) | 15500 | 15300 | 15200 | 15000 | 14900 | 14700 | 14600 | 14500 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7400 | 7500 | 7600 | 7700 | 7800 | 7900 | 8000 | 8100 |
| SE OPS 3 MRN 109 | (3) | 11300 | 11400 | 11400 | 11400 | 11400 | 11500 | 11500 | 11500 |
| SE MRN 104 | (3) | 14400 | 14200 | 14100 | 14000 | 13900 | 13900 | 13800 | 13700 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8200 | 8300 | 8400 | 8500 | 8600 | 8700 | 8800 | 8900 |
| SE OPS 3 MRN 109 | (3) | 11500 | 11500 | 11600 | 11600 | 11600 | 11600 | 11600 | 11600 |
| SE MRN 104 | (3) | 13600 | 13600 | 13500 | 13500 | 13500 | 13400 | 13400 | 13400 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9000 | 9100 | 9200 | 9300 | 9400 | 9500 | 9600 | 9700 |
| SE OPS 3 MRN 109 | (3) | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 | 11800 |
| SE MRN 104 | (3) | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 | 13400 |

| | | | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9800 | 9900 | 10000 | 10100 | 10200 | 10300 | 10400 | 10500 |
| SE OPS 3 MRN 109 | (3) | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 |
| SE MRN 104 | (3) | 13400 | 13400 | 13400 | 13500 | 13500 | 13500 | 13500 | 13500 |

ASC-10a/123/A/A

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

(reduced copy)

FAB USE ONLY

CC 10-22

ASC/123/FIN

TOP
BACK OF 'MRN TAL REDESIGNATION'

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

ECAL – ZZA or MRN or FMI PRIME TAL

| | | | | | | | |
|------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-10b/123/A/A

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

(reduced copy)

FAB USE ONLY

CC 10-23

ASC/123/FIN

TOP

**PILE
VELCRO**

**HOOK
VELCRO**

**PILE
VELCRO**

**FMI TAL REDESIGNATION
(123 OCF CYC)**

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 6200 | 6300 | 6400 | 6500 | 6600 | 6700 | 6800 | 6900 |
| SE OPS 3 FMI 109 | (29) | 11000 | 11100 | 11100 | 11100 | 11200 | 11200 | 11200 | 11200 |
| SE FMI 104 | (29) | 17800 | 17600 | 17400 | 17200 | 17000 | 16800 | 16600 | 16400 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7000 | 7100 | 7200 | 7300 | 7400 | 7500 | 7600 | 7700 |
| SE OPS 3 FMI 109 | (29) | 11300 | 11300 | 11300 | 11400 | 11400 | 11400 | 11400 | 11500 |
| SE FMI 104 | (29) | 16200 | 16000 | 15800 | 15600 | 15400 | 15300 | 15100 | 15000 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 7800 | 7900 | 8000 | 8100 | 8200 | 8300 | 8400 | 8500 |
| SE OPS 3 FMI 109 | (29) | 11500 | 11500 | 11500 | 11500 | 11600 | 11600 | 11600 | 11600 |
| SE FMI 104 | (29) | 14800 | 14700 | 14600 | 14400 | 14300 | 14200 | 14200 | 14100 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 8600 | 8700 | 8800 | 8900 | 9000 | 9100 | 9200 | 9300 |
| SE OPS 3 FMI 109 | (29) | 11600 | 11600 | 11700 | 11700 | 11700 | 11700 | 11700 | 11700 |
| SE FMI 104 | (29) | 14000 | 14000 | 13900 | 13900 | 13800 | 13800 | 13800 | 13800 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1st E.O. VI | | 9400 | 9500 | 9600 | 9700 | 9800 | 9900 | 10000 | 10100 |
| SE OPS 3 FMI 109 | (29) | 11700 | 11700 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 |
| SE FMI 104 | (29) | 13800 | 13800 | 13800 | 13800 | 13800 | 13800 | 13800 | 13900 |

| | | | | | | | | | |
|------------------|------|-------|-------|-------|-------|--|--|--|--|
| 1st E.O. VI | | 10200 | 10300 | 10400 | 10500 | | | | |
| SE OPS 3 FMI 109 | (29) | 11800 | 11800 | 11800 | 11800 | | | | |
| SE FMI 104 | (29) | 13900 | 13900 | 13900 | 13900 | | | | |

ASC-12a/123/A/A

**PILE
VELCRO**

**HOOK
VELCRO**

**PILE
VELCRO**

(reduced copy)

FAB USE ONLY

CC 10-24

ASC/123/FIN

TOP
BACK OF 'FMI TAL REDESIGNATION'

HOOK
VELCRO

HOOK
VELCRO

HOOK
VELCRO

ECAL – ZZA or MRN or FMI PRIME TAL

| 1st EO VI (KFPS) | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 |
|------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|
| CHERRY POINT (7) | | 6.7 - 7.0 | 6.7 - 7.2 | 6.8 - 7.3 | 6.8 - 7.4 | 6.9 - 7.5 | 6.9 - 7.6 |
| OTIS ANGB (16) | | 10.3 - 11.1 | 10.3 - 11.2 | 10.2 - 11.3 | 10.2 - 11.5 | 10.2 - 11.6 | 10.2 - 11.6 |

| 1st EO VI (KFPS) | 7.0 | 7.2 | 7.4 | 7.6 | 7.8 | 8.0 | 8.2 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CHERRY POINT (7) | 7.0 - 7.7 | 7.2 - 7.8 | 7.4 - 7.9 | 7.6 - 7.9 | 7.8 - 8.0 | 8.0 - 8.0 | |
| GABRESKI (15) | | | | | 10.5 - 10.7 | 10.4 - 10.8 | 10.3 - 11.0 |
| OTIS ANGB (16) | 10.2 - 11.7 | 10.2 - 11.8 | 10.2 - 11.9 | 10.2 - 12.0 | 10.2 - 12.1 | 10.2 - 12.1 | 10.3 - 12.2 |

| 1st EO VI (KFPS) | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| OCEANA NAS (8) | | 8.6 - 9.0 | 8.8 - 9.1 | 9.0 - 9.2 | 9.2 - 9.3 | | |
| WALLOPS (9) | | | | 9.4 - 9.6 | 9.2 - 9.7 | 9.4 - 9.8 | 9.6 - 9.8 |
| GABRESKI (15) | 10.3 - 11.1 | 10.3 - 11.2 | 10.3 - 11.3 | 10.4 - 11.3 | 10.4 - 11.4 | 10.4 - 11.5 | 10.4 - 11.5 |
| OTIS ANGB (16) | 10.3 - 12.3 | 10.3 - 12.3 | 10.3 - 12.4 | 10.4 - 12.4 | 10.4 - 12.5 | 10.5 - 12.6 | 10.5 - 12.6 |
| PEASE INT'L (17) | 11.3 - 11.7 | 11.3 - 11.9 | 11.3 - 12.0 | 11.3 - 12.1 | 11.3 - 12.2 | 11.3 - 12.2 | 11.3 - 12.3 |

| 1st EO VI (KFPS) | 9.8 | 10.0 | 10.2 | 10.4 | 10.6 | 10.8 | 11.0 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| WALLOPS (9) | 9.8 - 9.9 | | | | | | |
| GABRESKI (15) | 10.4 - 11.6 | 10.5 - 11.7 | 10.5 - 11.7 | 10.5 - 11.8 | 10.6 - 11.8 | 10.8 - 11.9 | 11.0 - 11.9 |
| OTIS ANGB (16) | 10.5 - 12.7 | 10.5 - 12.7 | 10.6 - 12.8 | 10.6 - 12.8 | 10.7 - 12.9 | 10.8 - 12.9 | 11.0 - 12.9 |
| PEASE INT'L (17) | 11.3 - 12.4 | 11.4 - 12.5 | 11.4 - 12.5 | 11.5 - 12.6 | 11.5 - 12.6 | 11.5 - 12.7 | 11.5 - 12.7 |

| 1st EO VI (KFPS) | 11.2 | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| GABRESKI (15) | 11.2 - 12.0 | 11.4 - 12.0 | 11.6 - 12.1 | 11.8 - 12.2 | 12.0 - 12.2 | 12.2 - 12.3 | |
| OTIS ANGB (16) | 11.2 - 13.0 | 11.4 - 13.0 | 11.6 - 13.1 | 11.8 - 13.1 | 12.0 - 13.2 | 12.2 - 13.2 | 12.4 - 13.2 |
| PEASE INT'L (17) | 11.5 - 12.8 | 11.5 - 12.8 | 11.6 - 12.9 | 11.8 - 12.9 | 12.0 - 13.0 | 12.2 - 13.0 | 12.4 - 13.0 |

| 1st EO VI (KFPS) | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 |
|------------------|-------------|-------------|-------------|-------------|-------------|------|------|
| OTIS ANGB (16) | 12.6 - 13.3 | 12.8 - 13.3 | 13.0 - 13.4 | 13.2 - 13.4 | 13.4 - 13.4 | | |
| PEASE INT'L (17) | 12.6 - 13.1 | 12.8 - 13.1 | 13.0 - 13.1 | | | | |

ASC-12b/123/A/A

HOOK
VELCRO

HOOK
VELCRO

HOOK
VELCRO

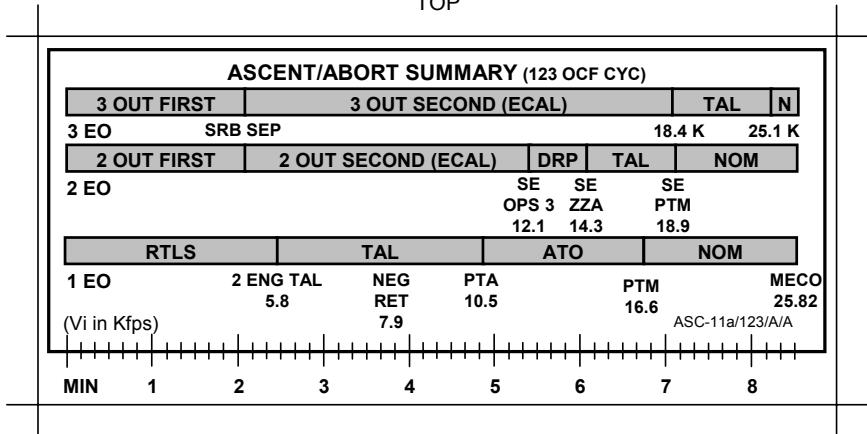
(reduced copy)

FAB USE ONLY

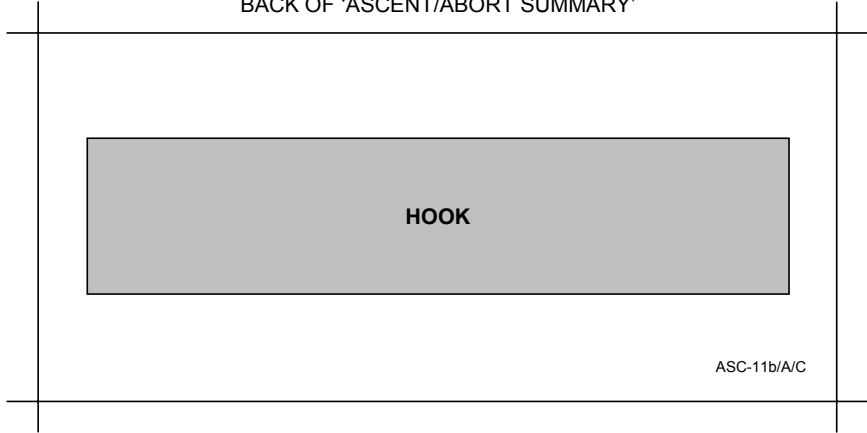
CC 10-25

ASC/123/FIN

TOP



TOP
BACK OF 'ASCENT/ABORT SUMMARY'



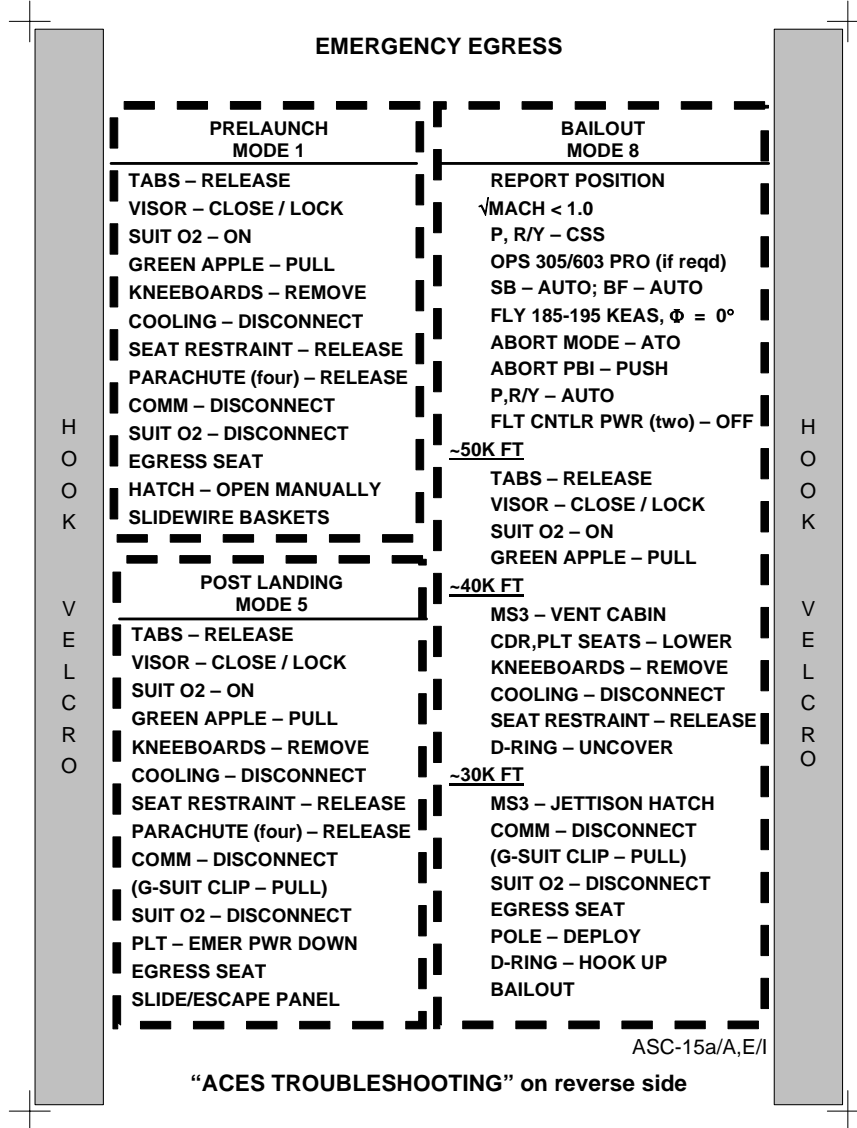
(reduced copy)

FAB USE ONLY

CC 10-26

ASC/123/FIN

TOP



(reduced copy)

FAB USE ONLY

CC 10-27

ASC/123/FIN

TOP
BACK OF "EMERGENCY EGRESS"

ACES TROUBLESHOOTING (ASCENT/ENTRY)

LOSS OF COMM

If LOSS OF XMIT:

NOTE

O2 helmet flow automutes microphones (i.e., inhalation, open or leaking visor, leaking neck dam)

1. ✓TABS – IN
2. ✓Helmet pressure visor seal not obstructed
3. ✓MIC placement
4. ✓CCU PWR – ON

| POWER BUS | ATU |
|-------------|------------|
| ESS BUS 1BC | CDR |
| ESS BUS 2CA | PLT |
| MNA | MS STATION |
| MNB | MIDDECK |
| MNC | PS STATION |

If LOSS OF RECEIVE:

5. HIU VOL – MAX
6. ✓All cable connections mated properly:
CCA-to-Helmet I/F cable
Comm pigtail
HIU
Comm panel
7. ✓ATU Config (Flight Deck as applicable):
A/G1, A/G2, A/A, ICOM A, ICOM B – T/R
MODE – PTT/VOX
VOX SENS – 2-4
A/G1, A/G2 tw – 9
A/A, ICOM A, ICOM B tw – 5

LOSS OF SUIT PRESSURE

1. ✓TABS – IN
2. ✓VISOR – CLOSED/LOCKED
3. ✓Helmet properly attached
4. ✓Gloves properly attached
5. ✓BIP plug secured
6. ✓Suit zipper fully zipped

LOSS OF SUIT O2

1. ✓O2 hose connected to ACES O2 manifold
2. ✓LEH O2 vlv – OP (Flight Deck)
3. ✓O2 hose connected properly at LEH O2 (Flight Deck)

INADVERTENT EOS ACTIVATION (After T-2:00)

1. Remain on shuttle LEH O2
2. Keep visor closed and locked through MECO

NOTE

Prior to opening visor, disconnect EOS O2 line (with locking collar clip) from O2 manifold to prevent EOS O2 flow

H
O
O
K

V
E
L
C
R
O

H
O
O
K

V
E
L
C
R
O

C6

ASC-15b/A,E/E

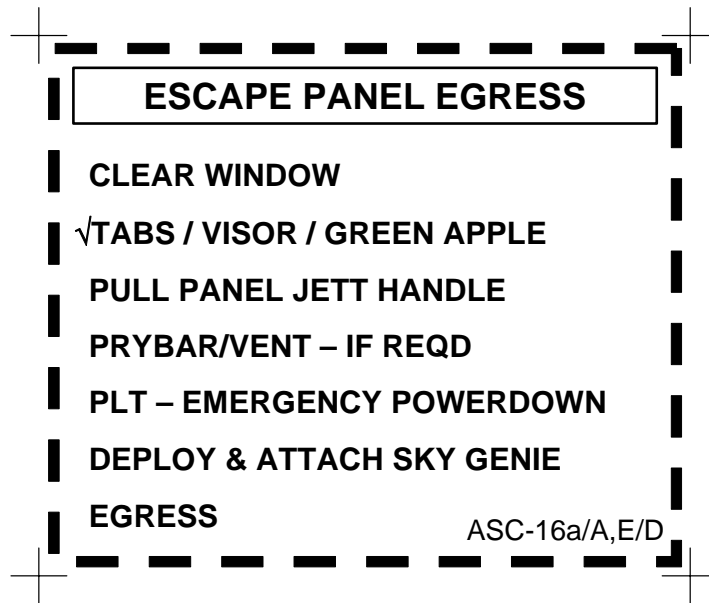
(reduced copy)

FAB USE ONLY

CC 10-28

ASC/123/FIN

TOP



TOP
BACK OF 'ESCAPE PANEL EGRESS'



**HOOK
VELCRO**

ASC-16b/A,E/C

(reduced copy)

FAB USE ONLY

CC 10-29

ASC/123/FIN

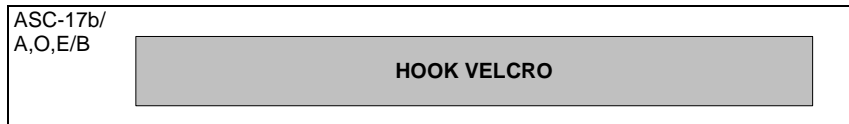
GPC/FCS CHANNEL CONFIGURATION

TOP

GPC

| | | | | |
|--|-----|-----|-----|---------------------|
| GPC | GPC | GPC | GPC | ASC-17a/ A,O,E/B |
| Delay 2 sec between each switch throw (AUTO ⇄ ORIDE) | | | | |

TOP
BACK OF 'GPC'



Fabrication Notes

1. Cut to exact outside edge
2. Cover GPC boxes with Scotch tape

(reduced copy)

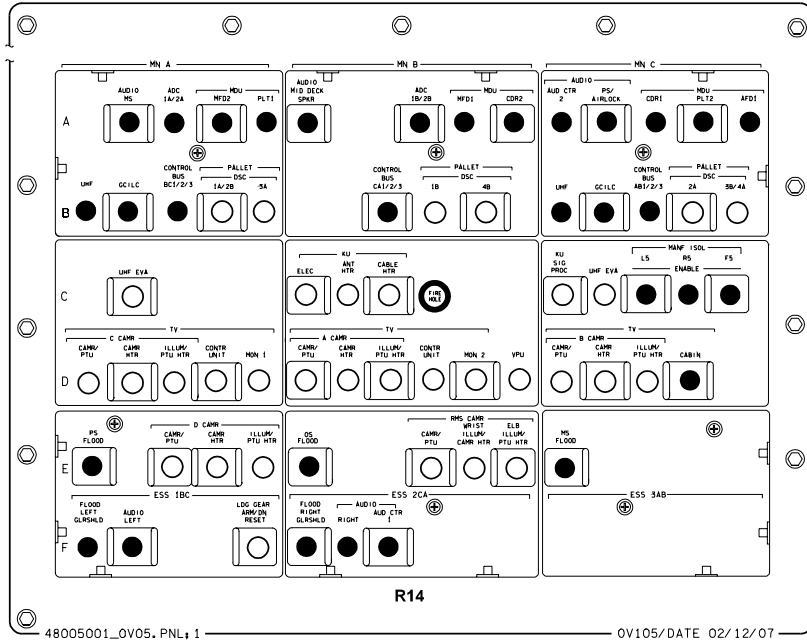
FAB USE ONLY

CC 10-30

ASC/123/FIN

TOP
 PANEL R14 - OV105 ONLY

OV105 ONLY



ASC-19a/A,O,E/D

(reduced copy)

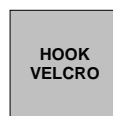
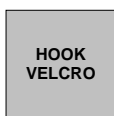
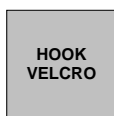
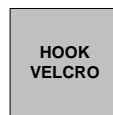
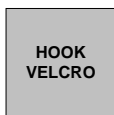
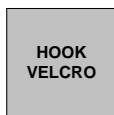
FAB USE ONLY

CC 10-31

ASC/123/FIN



TOP
 BACK OF 'PANEL R14 - OV105 ONLY'



ASC-19b/A,O,E/C

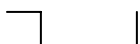


(reduced copy)

FAB USE ONLY

CC 10-32

ASC/123/FIN



TOP

LOC/BREAK-UP

BEFORE 'GO AT THROTTLEUP'

- GREEN APPLE
LOCK INERTIA REEL
- JETTISON HATCH
- BAILOUT
- PULL RIP CORD

'GO AT THROTTLEUP' TO SRB SEP

- GREEN APPLE
LOCK INERTIA REEL
- VENT
- 'G' SPIKE
- JETTISON HATCH
- √ ALT/SUIT
- BAILOUT (BELOW 40 K)
- PULL RIP CORD

AFTER SRB SEP

- √ TABS/VISOR/GREEN APPLE
LOCK INERTIA REEL
- GO TO MIDDECK
- VENT
- 'G' SPIKE
- JETTISON HATCH
- √ ALT/SUIT
- BAILOUT (BELOW 40 K)
- PULL RIP CORD

ASC-21a/AD

NOTE: This crew kneeboard card is optional and has no back facing

(reduced copy)

FAB USE ONLY

CC 10-33

ASC/123/FIN

FAB USE ONLY

CC 10-34

ASC/123/FIN

(reduced copy)

HOOK
VELCRO

EMERGENCY EGRESS

TOP

NOTE
'LOSS OF COMM TROUBLESHOOTING'
ON REVERSE SIDE

HOOK
VELCRO

PRELAUNCH MODE 1

TABS – RELEASE
VISOR – CLOSE / LOCK
SUIT O2 – ON
GREEN APPLE – PULL
KNEEBOARDS – REMOVE
COOLING – DISCONNECT
SEAT RESTRAINT – RELEASE
PARACHUTE (four) – RELEASE
COMM – DISCONNECT
SUIT O2 – DISCONNECT
EGRESS SEAT
HATCH – OPEN MANUALLY
SLIDEWIRE BASKETS

BAILOUT MODE 8

REPORT POSITION
 $\sqrt{\text{MACH}} < 1.0$
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

ASC-25a/A,E/G

HINGE

FAB USE ONLY

CC 10-35

ASC/123/FIN

(reduced copy)

TOP, HINGED AT BOTTOM OF 'EMERGENCY EGRESS'
HINGE

**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**

~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**

ASC-25aa/A,E/E

PILE
VELCRO

NOTE

'SUIT PRESS AND O2, EOS ACTIVATION TROUBLESHOOTING' ON REVERSE SIDE

PILE
VELCRO

TOP
BACK OF 'EMERGENCY EGRESS' HEAD TO TOE

ACES TROUBLESHOOTING (ASCENT/ENTRY)

LOSS OF COMM

If LOSS OF XMIT:

NOTE

O2 helmet flow automutes microphones (i.e., inhalation, open or leaking visor, leaking neck dam)

1. √TABS – IN
2. √Helmet pressure visor seal not obstructed
3. √MIC placement
4. √CCU PWR – ON

| POWER BUS | ATU |
|-------------|----------------|
| ESS BUS 1BC | R14 CDR |
| ESS BUS 2CA | R14 PLT |
| MNA | R14 MS STATION |
| MNB | R14 MIDDECK |
| MNC | R14 PS STATION |

If LOSS OF RECEIVE:

5. HIU VOL – MAX
6. √All cable connections mated properly:
 - CCA-to-Helmet I/F cable
 - Comm pigtail
 - HIU
 - Comm panel
7. √ATU Config (Flight Deck as applicable):
 - A/G1, A/G2, A/A, ICOM A, ICOM B – T/R
 - MODE – PTT/VOX
 - VOX SENS – 2-4
 - A/G1, A/G2 tw – 9
 - A/A, ICOM A, ICOM B tw – 5

H
O
O
K

V
E
L
C
R
O

H
O
O
K

V
E
L
C
R
O

H
O
O
K
V
E
L
C
R
O

H
O
O
K
V
E
L
C
R
O

H
I
N
G
E

FAB USE ONLY

CC 10-36

ASC/123/FIN

(reduced copy)

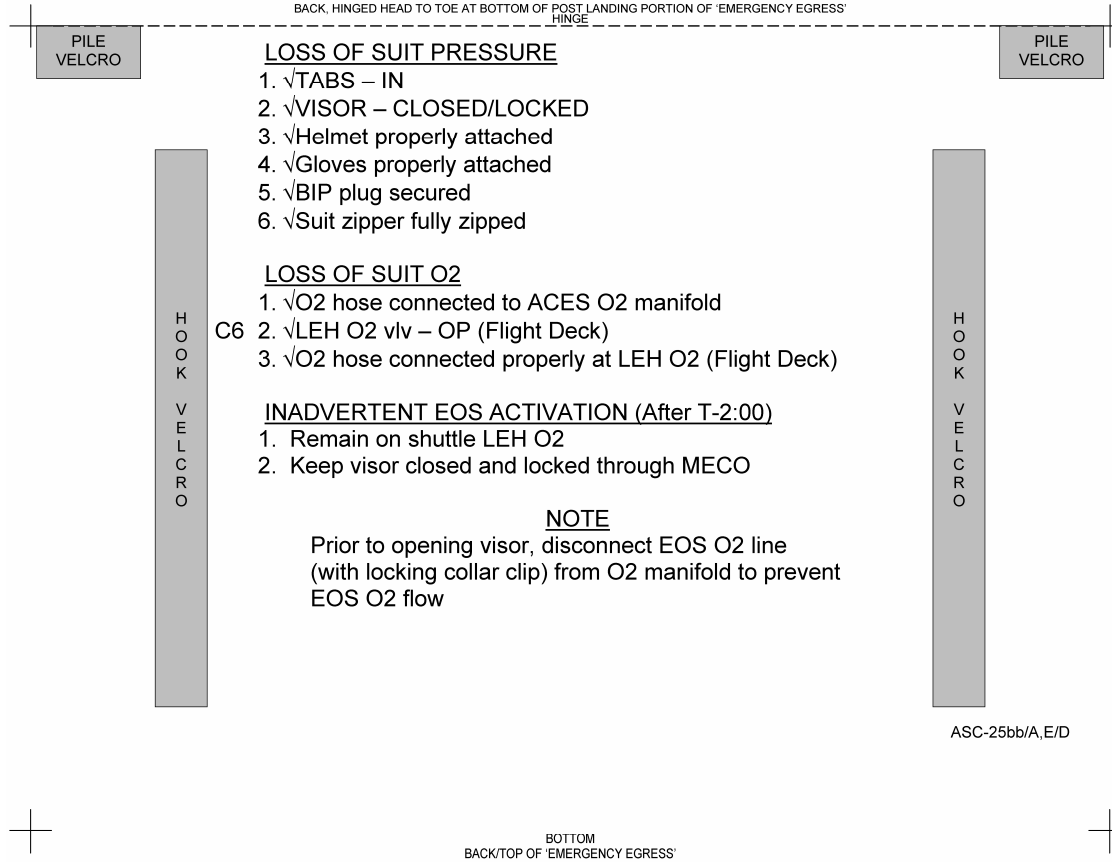
ASC-25b/A,E/D

FAB USE ONLY

CC 10-37

ASC/123/FIN

(reduced copy)



FAB USE ONLY

СС 10-38

ASC/123/FIN

(reduced copy)

HOOK
VELCRO

АВАРИЙНОЕ ПОКИДАНИЕ

ВЕРХ

ПРИМЕЧАНИЕ
"УСТРАНЕНИЕ НЕИСПРАВНОСТЕЙ ПРИ ПОТЕРЕ СВЯЗИ"
НА ОБРАТНОЙ СТОРОНЕ

HOOK
VELCRO

РЕЖИМ 1 ДО СТАРТА

ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
СК O2 - ВКЛ
ЗЕЛЕНый ШАРИК - ПОТЯНУТЬ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ - ОТСОЕДИНИТЬ
ПРИВЯЗНЫЕ РЕМНИ КРЕСЛА - ОСВОБОДИТЬ
ПАРАШЮТ (четыре) - ОТСТЕГНУТЬ
СВЯЗЬ - ОТСОЕДИНИТЬ
СК O2 - ОТСОЕДИНИТЬ
ПОКИНУТЬ КРЕСЛО
ЛЮК – ОТКРЫТЬ ВРУЧНУЮ
ИСПОЛЬЗОВАТЬ ЛЮЛЬКУ ДЛЯ СПУСКА

РЕЖИМ 8 АВАРИЙНОЕ ДЕСАНТИРОВАНИЕ

СООБЩИТЬ ПОЛОЖЕНИЕ
 $\sqrt{\text{ЧИСЛО МАХА}} < 1,0$
ТАНГАЖ, РЫСКАНИЕ/КРЕН - CSS
OPS 305/603 PRO (если необходимо)
А/Д ТОРМОЗ - АВТО; ПОСАД. ЩИТОК - АВТО
ВЫБРАТЬ СКОРОСТЬ 185-195 KEAS, $\Phi = 0^\circ$
ABORT MODE - АТО
KN ABORT - НАЖАТЬ
ТАНГАЖ, РЫСКАНИЕ/КРЕН - АВТО
ТМБ FLT CNTLR PWR (два) - ВЫКЛ
~50 ТЫСЯЧ ФУТОВ
ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
СК O2 - ВКЛ
ЗЕЛЕНый ШАРИК - ПОТЯНУТЬ

ASC-26a/A,E/E

HINGE

FAB USE ONLY

CC 10-39

ASC/123/FIN

(reduced copy)

TOP, HINGED AT BOTTOM OF 'EMERGENCY EGRESS'
HINGE

**РЕЖИМ 5
ПОСЛЕ ПОСАДКИ**

ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
СК O2 - ВКЛ
ЗЕЛЕНый ШАРИК - ПОТЯНУТЬ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ - ОТСОЕДИНИТЬ
ПРИВЯЗНЫЕ РЕМНИ КРЕСЛА - ОСВОБОДИТЬ
ПАРАШЮТ (четыре) - ОТСТЕГНУТЬ
СВЯЗЬ - ОТСОЕДИНИТЬ
(СНЯТЬ КОНТРОВКУ С КЛАПАНА ППК)
СК O2 - ОТСОЕДИНИТЬ
ПИЛОТ – ЭКСТРЕННО ОТКЛЮЧИТЬ
ПИТАНИЕ
ПОКИНУТЬ КРЕСЛО
ИСПОЛЬЗОВАТЬ СКЛИЗ/ВЫХОДНУЮ
ПАНЕЛЬ

~40 ТЫСЯЧ ФУТОВ

MS3 - СБРОСИТЬ ДАВЛЕНИЕ В КАБИНЕ
КРЕСЛА КЭ И ПИЛОТА - ВНИЗ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ -
ОТСОЕДИНИТЬ
ПРИВЯЗНЫЕ РЕМНИ КРЕСЛА -
ОСВОБОДИТЬ
D-ОБРАЗНОЕ КОЛЬЦО - НАЙТИ

~30 ТЫСЯЧ ФУТОВ

MS3 - ОТСТРЕЛИТЬ ЛЮК
СВЯЗЬ - ОТСОЕДИНИТЬ
(СНЯТЬ КОНТРОВКУ С КЛАПАНА ППК)
СК O2 - ОТСОЕДИНИТЬ
ПОКИНУТЬ КРЕСЛО
РАЗЛОЖИТЬ НАПРАВЛЯЮЩУЮ ШТАНГУ
D-ОБРАЗНОЕ КОЛЬЦО - ПРИСТЕГНУТЬ
ПОКИНУТЬ КОРАБЛЬ

ASC-26aa/A,E/D

PILE
VELCRO

ПРИМЕЧАНИЕ
УСТРАНЕНИЕ НЕИСПРАВНОСТЕЙ ПРИ ПОТЕРЕ ДАВЛЕНИЯ В СК, ПОДАЧЕ O2 И ВКЛЮЧЕНИИ СИСТЕМЫ EOS
НА ОБРАТНОЙ СТОРОНЕ

PILE
VELCRO

FAB USE ONLY

CC 10-40

ASC/123/FIN

(reduced copy)

BEFX
BACK OF 'EMERGENCY EGRESS' HEAD TO TOE

УСТРАНЕНИЕ НЕИСПРАВНОСТЕЙ СК ACES (ВЫВЕДЕНИЕ/СПУСК)

ПОТЕРЯ СВЯЗИ

ЕСЛИ ПОТЕРЯ СВЯЗИ В РЕЖИМЕ ПЕРЕДАЧИ:

ПРИМЕЧАНИЕ

Поток O2 в шлеме загл микрофоны (т.е. дыхание, откр или негерм смотр щиток, негерм шейная прокладка)

1. ✓Язычки шейной прокладки – IN (убраны)
2. ✓Гермоуплотнение смотр щитка шлема - свободно
3. ✓Размещение микрофона
4. ✓ПИТАНИЕ ССУ – ON (Вкл)

| ШИНА ПИТАНИЯ | БЛОК ATU |
|--------------|----------------|
| ESS BUS 1BC | R14 CDR |
| ESS BUS 2CA | R14 PLT |
| MNA | R14 MS STATION |
| MNB | R14 MIDDECK |
| MNC | R14 PS STATION |

ЕСЛИ ПОТЕРЯ СВЯЗИ В РЕЖИМЕ ПРИЕМА:

5. HIU VOL – MAX (Громкость на HIU - максимум)
6. ✓Все кабели пристыкованы правильно:
Интерфейсный кабель CCA-to-Helmet
Короткий конец кабеля связи
HIU (Устройство сопряжения с гарнитурой)
Пульт связи
7. ✓Конфигурация ATU (Полетная палуба, как предписано):
A/G1, A/G2, A/A, ICOM A, ICOM B – T/R (ПРД/ПРМ)
MODE – PTT/VOX
VOX SENS – 2-4
A/G1, A/G2 диск переключ – 9
A/A, ICOM A, ICOM B диск переключ – 5

HOOK
VELCRO

ASC-26b/A,E/D

HOOK
VELCRO

HINGE

HOOK
VELCRO

HOOK
VELCRO

FAB USE ONLY

CC 10-41

ASC/123/FIN

(reduced copy)

PILE
VELCRO

H
O
O
K

V
E
L
C
R
O

BACK, HINGED HEAD TO TOE AT BOTTOM OF POST LANDING PORTION OF 'EMERGENCY EGRESS'
HINGE

ПОТЕРЯ ДАВЛЕНИЯ В СК

1. ✓Язычки шейной прокладки – IN (убраны)
2. ✓СМОТР ЩИТОК – ОПУСТИТЬ/ЗАКРЫТЬ
3. ✓Шлем подстыкован правильно
4. ✓Перчатки подстыкованы правильно
5. ✓Вилка питания аппаратуры VIP - закреплена
6. ✓Замок-молния СК - застегнута до конца

ПОТЕРЯ ПОДАЧИ O2 В СК

1. ✓Шланг O2 подстыкован к магистрали O2 СК ACES
2. ✓кл LEH O2 – OP (Откр) (Полетная палуба)
3. ✓Шланг O2 подстыкован правильно на LEH O2 (Полетная палуба)

НЕПРЕДНАМЕРЕННОЕ ВКЛЮЧЕНИЕ СИСТЕМЫ EOS

(Через T-2:00)

1. Остаться на LEH O2 Шаттла
2. Держать смотр щиток опущенным и закрытым, включая этап МЕСО

ПРИМЕЧАНИЕ

Перед открытием смотр щитка, отсоединить линию O2 системы EOS (контровка) от магистрали O2 с целью предотвращения потока O2 из EOS

PILE
VELCRO

H
O
O
K

V
E
L
C
R
O

ASC-26bb/A, E/D

НИЗ
ОБРАТНАЯ СТОРОНА/ВЕРХ КАРТОЧКИ "АВАРИЙНОЕ ПОКИДАНИЕ"



This Page Intentionally Blank



FAB USE ONLY

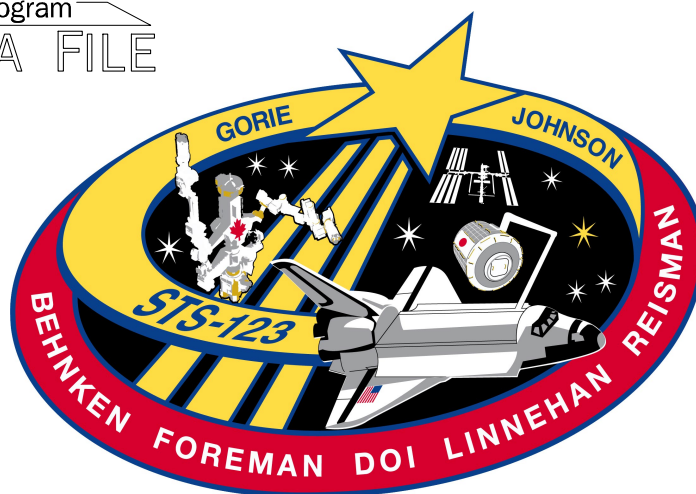
10-42

ASC/123/FIN



Space Shuttle Program
FLIGHT DATA FILE

JSC-48005-123
FINAL



ASCENT CHECKLIST

STS
123

Flight Cover (trim bottom to expose tabs)