

Ascent Checklist

STS-124

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

**Final
March 10, 2008**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



ASCENT C/L STS-124**FINAL (Mar 10, 2008)****PCN-2 (May 5, 2008) Sheet 1 of 1**

List of Implemented Change Requests (482s):

ASC-1826

Incorporate the following:

1. Replace v and vi
2. Replace FB 2-5 and FB 2-6

Prepared by: _____
Book Manager

Lead Ascent GPO

Approved by: _____
Chief, Ascent/Descent Dynamics Branch

Encl: 4 pages

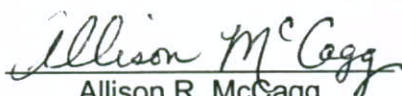
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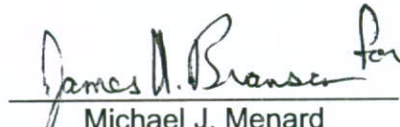
MISSION OPERATIONS DIRECTORATE

**ASCENT CHECKLIST
STS-124**

FINAL
March 10, 2008


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

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/124/FIN

Incorporates the following:
482#: NONE – Establishes baseline

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DM4/A. McCagg	281-483-7752
Switch List	CA4/M. Menard	281-244-8778
Entry	DM4/M. Trump	281-483-8029

NOTES

1. The STS-124 trajectory data in this checklist is based on the STS-124 One Cycle to Flight R1 load and the April 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-124 is flown with vehicle OV103.



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ASCENT CHECKLIST
STS-124

LIST OF EFFECTIVE PAGES

FINAL 03/10/08
PCN-1 04/24/08
PCN-2 05/05/08

Sign Off	* 124/FIN	FB 2-7	124/FIN
ii.....	* 124/FIN	FB 2-8	124/FIN
iii.....	* 124/FIN	FB 2-9	124/FIN
iv.....	* 124/FIN	FB 2-10	124/FIN
v	* 124/FIN 2	FB 2-11	124/FIN
vi.....	* 124/FIN 1	FB 2-12	<input checked="" type="checkbox"/> 124/FIN
vii.....	* 124/FIN 1	FB 2-13	124/FIN
viii.....	* 124/FIN	FB 2-14	<input checked="" type="checkbox"/> 124/FIN
ix.....	* 124/FIN	FB 2-15	124/FIN 1
x	* 124/FIN	FB 2-16	124/FIN
xi.....	124/FIN	FB 2-17	124/FIN
xii.....	124/FIN	FB 2-18	124/FIN
1-1	124/FIN	FB 2-19	124/FIN
1-2	124/FIN	FB 2-20	124/FIN
1-3	124/FIN	FB 2-21	124/FIN
1-4	124/FIN	FB 2-22	124/FIN
1-5	124/FIN	FB 2-23	124/FIN
1-6	124/FIN	FB 2-24	124/FIN
1-7	124/FIN	FB 2-25	124/FIN
1-8	124/FIN	FB 2-26	124/FIN
1-9	124/FIN	2-27	124/FIN
1-10	<input checked="" type="checkbox"/> 124/FIN	2-28	124/FIN
1-11	124/FIN	2-29	124/FIN
1-12	124/FIN	2-30	124/FIN
1-13	124/FIN	2-31	124/FIN
1-14	124/FIN	2-32	124/FIN 1
2-1	124/FIN	2-33	124/FIN 1
FB 2-2	124/FIN	2-34	124/FIN
FB 2-3	124/FIN	2-35	* 124/FIN
FB 2-4	124/FIN	2-36	* 124/FIN
FB 2-5	124/FIN	2-37	* 124/FIN
FB 2-6	124/FIN 2	2-38	* 124/FIN

* – Omit from flight book

– Prelift-off information required

2-39.....	*	124/FIN	6-17.....	124/FIN
2-40.....	*	124/FIN	6-18.....	124/FIN
2-41.....	*	124/FIN	6-19.....	124/FIN
2-42.....	*	124/FIN	6-20.....	124/FIN
2-43.....	*	124/FIN	6-21.....	124/FIN
2-44.....	*	124/FIN	6-22.....	124/FIN
2-45.....	*	124/FIN	6-23.....	124/FIN
2-46.....	*	124/FIN	6-24.....	124/FIN
3-1.....		124/FIN	6-25.....	124/FIN
3-2.....		124/FIN	6-26.....	124/FIN
3-3.....		124/FIN	6-27.....	124/FIN
3-4.....		124/FIN	6-28.....	124/FIN
3-5.....		124/FIN	6-29.....	124/FIN
3-6.....		124/FIN	6-30.....	124/FIN
3-7.....		124/FIN	6-31.....	124/FIN
3-8.....		124/FIN	6-32.....	124/FIN
4-1.....		124/FIN	6-33.....	124/FIN
4-2.....		124/FIN	6-34.....	124/FIN
4-3.....		124/FIN	6-35.....	124/FIN
4-4.....		124/FIN	6-36.....	124/FIN
5-1.....		124/FIN	6-37.....	124/FIN
5-2.....		124/FIN	6-38.....	124/FIN
5-3.....		124/FIN	6-39.....	124/FIN
5-4.....		124/FIN	6-40.....	124/FIN
6-1.....		124/FIN	7-1.....	124/FIN
6-2.....		124/FIN	7-2.....	124/FIN
6-3.....		124/FIN	7-3.....	124/FIN
6-4.....		124/FIN	7-4.....	124/FIN
6-5.....		124/FIN	7-5.....	124/FIN
6-6.....		124/FIN	7-6.....	124/FIN
6-7.....		124/FIN	7-7.....	124/FIN
6-8.....		124/FIN	7-8.....	124/FIN
6-9.....		124/FIN	7-9.....	124/FIN
6-10.....		124/FIN	7-10.....	124/FIN
6-11.....		124/FIN	8-1.....	124/FIN
6-12.....		124/FIN	8-2.....	124/FIN
6-13.....		124/FIN	8-3.....	☒ 124/FIN
6-14.....		124/FIN	8-4.....	☒ 124/FIN
6-15.....		124/FIN	8-5.....	☒ 124/FIN
6-16.....		124/FIN	8-6.....	☒ 124/FIN

* – Omit from flight book

☒ – Prelift-off information required

8-7.....	☒	124/FIN	CC 10-7	*	124/FIN
8-8.....		124/FIN	CC 10-8	*	124/FIN
9-1.....	*	124/FIN	CC 10-9	*	124/FIN
9-2.....	*	124/FIN	CC 10-10	*	124/FIN
9-3.....	*	124/FIN	CC 10-11	*	124/FIN
9-4.....	*	124/FIN	CC 10-12	*	124/FIN
9-5.....	*	124/FIN	CC 10-13	*	124/FIN
9-6.....	*	124/FIN	CC 10-14	*	124/FIN
9-7.....	*	124/FIN	CC 10-15	*	124/FIN
9-8.....	*	124/FIN	CC 10-16	*	124/FIN
9-9.....	*	124/FIN	CC 10-17	*	124/FIN
9-10.....	*	124/FIN	CC 10-18	*	124/FIN
9-11.....	*	124/FIN	CC 10-19	*	124/FIN
9-12.....	*	124/FIN 1	CC 10-20	*	124/FIN
9-13.....	*	124/FIN 1	CC 10-21	*	124/FIN
9-14.....	*	124/FIN	CC 10-22	*	124/FIN
9-15.....	*	124/FIN	CC 10-23	*	124/FIN
9-16.....	*	124/FIN	CC 10-24	*	124/FIN
9-17.....	*	124/FIN	CC 10-25	*	124/FIN
9-18.....	*	124/FIN	CC 10-26	*	124/FIN
9-19.....	*	124/FIN	CC 10-27	*	124/FIN
9-20.....	*	124/FIN	CC 10-28	*	124/FIN
9-21.....	*	124/FIN 1	CC 10-29	*	124/FIN
9-22.....	*	124/FIN	CC 10-30	*	124/FIN
9-23.....	*	124/FIN	CC 10-31	*	124/FIN
9-24.....	*	124/FIN	CC 10-32	*	124/FIN
9-25.....	*	124/FIN	CC 10-33	*	124/FIN
9-26.....	*	124/FIN	CC 10-34	*	124/FIN
9-27.....	*	124/FIN	CC 10-35	*	124/FIN
9-28.....	*	124/FIN	CC 10-36	*	124/FIN
10-1.....	*	124/FIN	CC 10-37	*	124/FIN
CC 10-2.....	*	124/FIN	CC 10-38	*	124/FIN
CC 10-3.....	*	124/FIN	CC 10-39	*	124/FIN
CC 10-4.....	*	124/FIN	CC 10-40	*	124/FIN
(A)CC 10-5....	*	124/FIN	CC 10-41	*	124/FIN
(A)CC 10-6....	*	124/FIN	10-42.....	*	124/FIN
(B)CC 10-5....	*	124/FIN			
(B)CC 10-6....	*	124/FIN			
(C)CC 10-5....	*	124/FIN			
(C)CC 10-6....	*	124/FIN			

* – 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/124/A/A
RTLS CONTINGENCY		
CDR (Back).....	(A)CC 10-6	ASC-30b/124/A/A
CONTINGENCY ABORT		
PLT (Front).....	(B)CC 10-5	ASC-31a/124/A/A
RTLS CONTINGENCY		
PLT (Back).....	(B)CC 10-6	ASC-31b/124/A/A
CONTINGENCY ABORT		
MS (Front).....	(C)CC 10-5	ASC-32a/124/A/A
RTLS CONTINGENCY		
MS (Back).....	(C)CC 10-6	ASC-32b/124/A/A
OMS 2 BURN MONITOR (Front)..	CC 10-7	ASC-5a/124/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/124/A,O/A
OPS 1 RCS BURN (Back).....	CC 10-10	ASC-6b/124/A,O/A
ASCENT ADI – NOMINAL		
(Front).....	CC 10-11	ASC-14a/124/A/A
ENTRY ALPHA – KSC 15		
(Back).....	CC 10-11	ASC-14b/124/A,E/A
AOA DEORBIT BURN (2 ENG)		
(Top/Front).....	CC 10-12	ASC-8a/A/E
(Bottom/Front).....	CC 10-13	ASC-8aa/124/A/A
AOA DEORBIT BURN (1 ENG)		
(Top/Back).....	CC 10-14	ASC-8b/A/B
(Bottom/Back).....	CC 10-15	ASC-8bb/124/A/A
AOA DEORBIT BURN (RCS)		
(Top/Front).....	CC 10-16	ASC-7a/A/B
(Bottom/Front).....	CC 10-17	ASC-7aa/124/A/A
(Top/Back).....	CC 10-18	ASC-7b/A/B
(Bottom/Back).....	CC 10-19	ASC-7bb/A/B

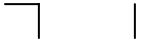
ZZA TAL REDESIGNATION		
(Front).....	CC 10-20	ASC-9a/124/A/A
ECAL – ZZA or MRN or FMI PRIME TAL		
(Back).....	CC 10-21	ASC-9b/124/A/A
MRN TAL REDESIGNATION		
(Front).....	CC 10-22	ASC-10a/124/A/A
ECAL – ZZA or MRN or FMI PRIME TAL		
(Back).....	CC 10-23	ASC-10b/124/A/A
FMI TAL REDESIGNATION		
(Front).....	CC 10-24	ASC-12a/124/A/A
ECAL – ZZA or MRN or FMI PRIME TAL		
(Back).....	CC 10-25	ASC-12b/124/A/A
ASCENT/ABORT SUMMARY		
(Front).....	CC 10-26	ASC-11a/124/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 – OV103 ONLY		
(Front).....	CC 10-31	ASC-18a/A,O,E/H
(Back).....	CC 10-32	ASC-18b/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
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<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



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PRELAUNCH PROCEDURES

**PRE-
LAUNCH**

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 – 1

NAVAIDS ACTIVATION

O8 MLS CH pb/tw (three) – 6
RADAR ALTM (two) – ON
O7 TACAN CH pb/tw (three) – 059Y
ANT SEL (three) – AUTO
MODE (three) – GPC

If OV103:

A13 √GPS PRE AMPL UC – MNC
√LC – MNC
PWR – ON
√GPS/SIGI PWR – OFF
√GPS ENCRYPT – NORM
√GPS/SIGI ENCRYPT – 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
TAC	-59	√5	-59	√5
RA	blank	√46		
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)	
TAC	INH	√20	INH	√20
GPS	INH	√43	INH	√43
DRAG H	AUT	√22	AUT	√22
ADTA H	INH	√26	INH	√26
ADTA TO G&C	INH	√29	AUT	√28
TAC	DELTA	√35		
AIF_G	INH	√48		

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

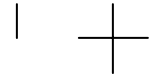
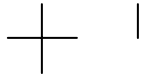
-2:00 **A SUIT PREP**

√Tabs/visor – cl/LES O2 – ON



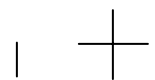
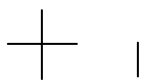
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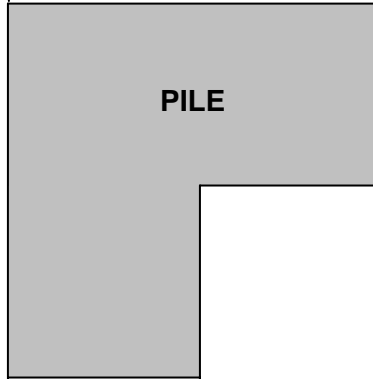


ASCENT PROCEDURES
(FLIP BOOK)

**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**
 $\sqrt{\text{MACH}} < 1.0$
 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
- ~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)	8000	2 ENG ZZA (104)	6100
PRESS TO ATO (104)	11000	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)	17600	SE ZZA (104)	(4) <input type="text"/>
SE PRESS (104)	19300		
NEG MRN (2 @ 67)	19900	2 ENG MRN (104)	5900
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)	6300
INN	24000	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	25100		
KKI, FMI	25200		
JDG	25300		



ASCENT PROCEDURES

R180

LVLH

.87M

√P_c → 72%

1.15M

√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

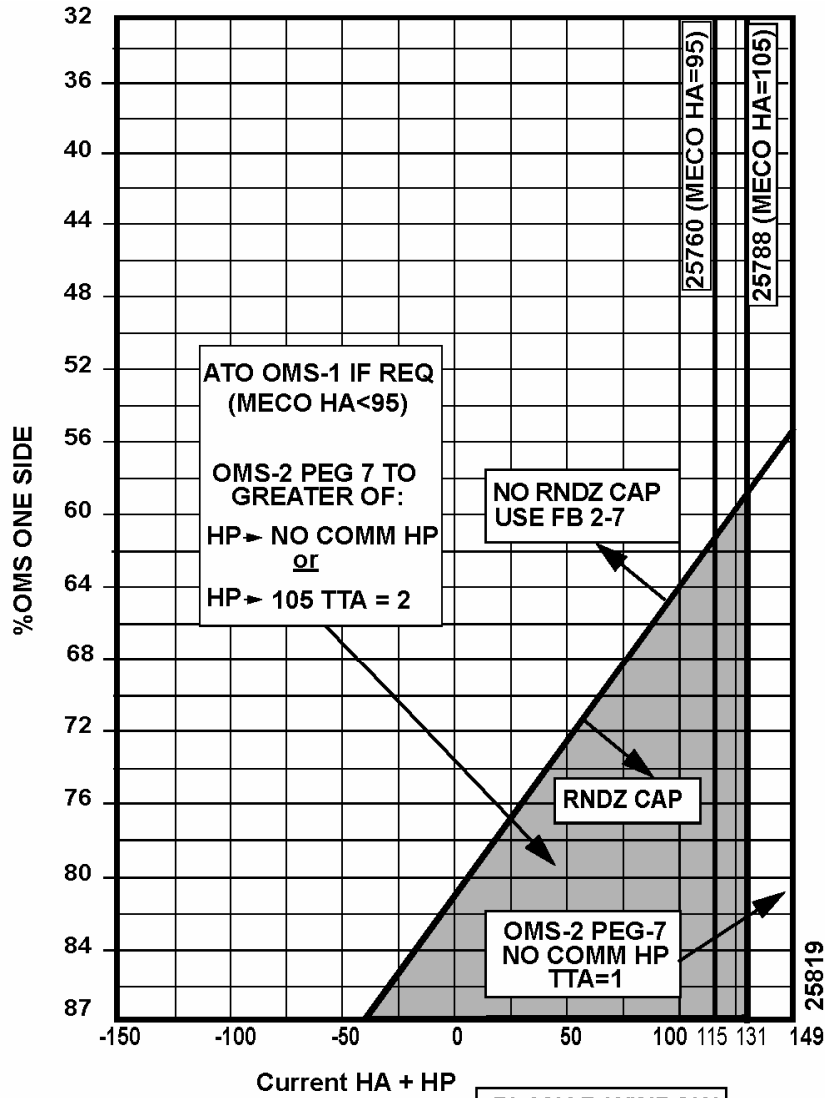
**OMS 1
TGTING**

TOP
BACK OF 'ASCENT PROCEDURES'

PILE

STS-124 OCFR1 CY
OMS 1/2 TGTING
RENDEZVOUS RECOVERY

ASC



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

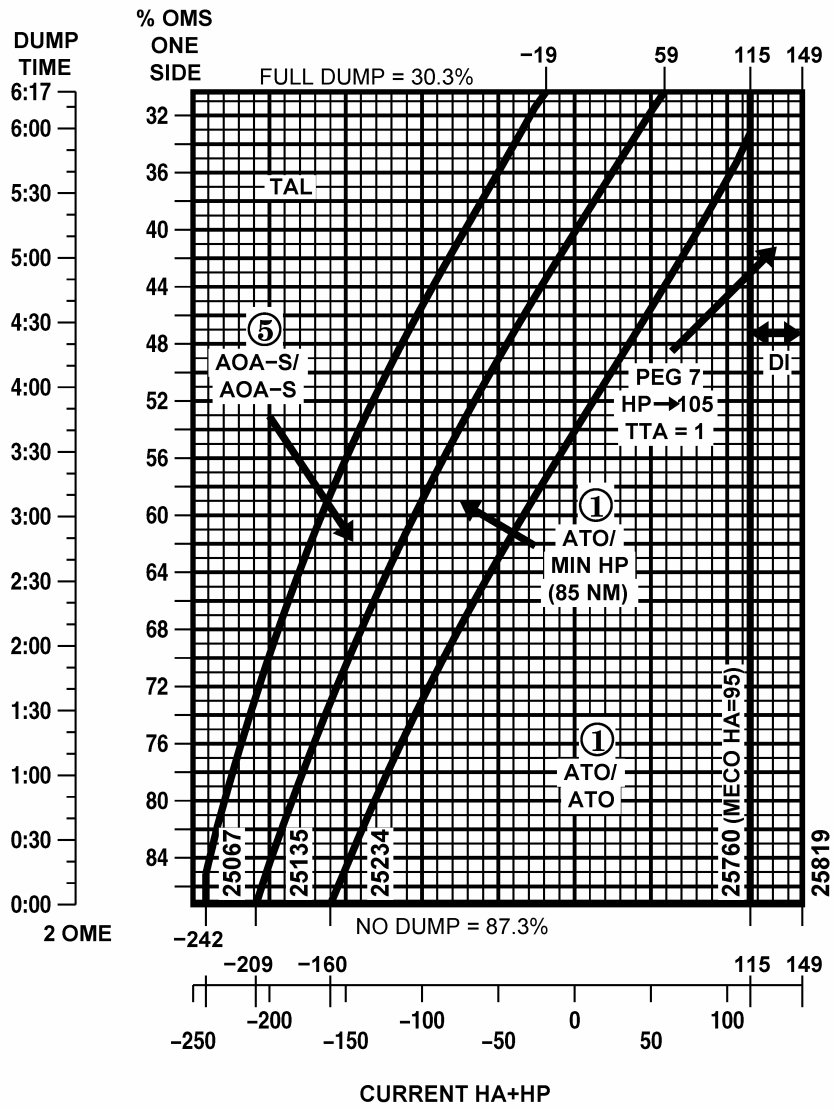
FB 2-6

ASC/124/FIN 2

TOP

STS-124 OCFR1 CY OMS 1/2 TGTING

HOOK



OMS 1
BURN

POST NOMINAL
OMS ASSIST

% OMS/SIDE
67

DUMP TIME
2: 15

FB 2-7

ASC/124/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'cnct 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 (√P_c, 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>225</td><td>220</td></tr></table> ≤ <table border="1" style="display: inline-table;"><tr><td>L</td><td>R</td></tr><tr><td>205</td><td>204</td></tr></table> or No FU IN P	L	R	225	220	L	R	205	204	OMS ENG FAIL OMS ENG FAIL (PRPLT FAIL if 1 Pod Feed)
L	R								
225	220								
L	R								
205	204								
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>O</td><td>M</td><td>S</td></tr></table>)	O	M	S	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					
O	M	S							
OMS N2 REG P HIGH or LOW	OMS ENG – ARM								
OMS N2 TK P LOW (√ <table border="1" style="display: inline-table;"><tr><td>O</td><td>M</td><td>S</td></tr></table>)	O	M	S	At N2 TK P < 470: OMS ENG – ARM					
O	M	S							
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) – 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	38.4	19.7	34.6	21.4
90	39.8	17.4	32.3	18.2
85	41.5	15.9	29.9	15.3
80	43.4	15.5	27.3	12.5
75	45.5	17.2	24.2	9.5
70	47.3	19.3	21.2	8.8
65	48.5	20.7	18.8	8.8
60	49.3	22.0	18.1	8.8
55	49.7	23.1	19.1	8.8
50	50.4	24.3	18.9	8.8
45	---	25.7	21.5	8.8

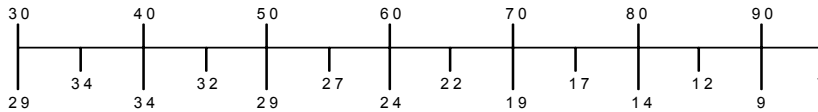
STS-124 OCFR1 CY

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	34.1	15.3	30.2	17.0
90	35.4	13.0	27.9	13.8
85	37.1	11.5	25.5	10.9
80	39.0	11.1	22.9	8.1
75	41.1	12.8	19.8	5.1
70	42.9	14.9	16.8	4.4
65	44.1	16.3	14.4	4.4
60	44.9	17.6	13.7	4.4
55	45.3	18.7	14.7	4.4
50	46.0	19.9	14.5	4.4
45	---	21.3	17.1	4.4

RTLS

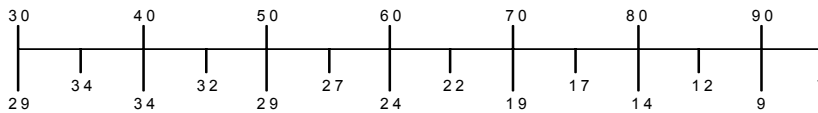
OMS BLOWDOWN

LEFT OMS GAGE QTY (%)



LEFT OMS BLDN EQUIV (%)

RIGHT OMS GAGE QTY (%)



RIGHT OMS BLDN EQUIV (%)

FB 2-11

ASC/124/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{TACANS} and GPS, INCORPORATE

* If KSC TACAN Fail: *

* TACAN Ch 097X (COF), ITEM 5 EXEC *

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 'RTL5 PLT'

PILE

TAL CDR

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

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

TAL	HDG
ZZA 010	
MRN 016	
FMI 006	

*LO XRNG

SITE	RWY	TACANS	ITEM 5	MLS	LENGTH
2	BEN 36/18	MAK 80 (DME)	CBA 116 (DME)	-/-	13720/13220
3	MRN 20/02	MRN 100	AOG 23	6/-	11730/11730
4	ZZA 30L/12R	ZZA 64	ZAR 77 (DME)	6/-	12200/12200
12	BEN 36/18	MAK 80 (DME)	CBA 116 (DME)	-/-	13720/13220
13	*MRN 20/02	MRN 100	AOG 23	6/-	11730/11730
14	*ZZA 30L/12R	ZZA 64	ZAR 77 (DME)	6/-	12200/12200
19	YJT 09/27	YJT 78	YDF 80 (DME)	-/-	9500/9500
20	YYT 29/11	UYT 23	YYT 82 (DME)	-/-	8500/8500
21	YQX 21/31	YQX 74	IQX 32 (DME)	-/-	9700/8900
23	LAJ 15/33	TRM 109	LAJ 45	-/-	10870/10870
24	BEJ 01L/19R	MOJ 37	BEJ 105	-/-	10820/10820
25	IKF 20/29	KEF 57	HL 44 (DME)	-/-	9520/9560
26	INN 06/24	SHA 80 (DME)	CRK93 (DME)	-/-	9540/9540
27	FFA 27/09	FFA 81	BZN 56	-/-	9490/9490
28	KBO 14L/32R	GIX 18	DOR 23Y (DME)	-/-	12020/12020
29	FMI 33/15	FMI 16	NIM 53	6/-	11300/12300
30	ESN 03R/21L	BAG 78 (DME)	BUK 90 (DME)	-/-	11800/11800
31	KKI 15R/33L	RIY 92	KIA 80	-/-	13300/13300
32	JDG 31/13	NKW 57	NKW 57	-/-	12000/12000

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

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

----- **MECO** $V_1 \sim 24.0K @ \text{CO mark}$ ----- **MECO** -----

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

Abort TAL (if reqd):

$\sqrt{\text{TAL flag set: [G50] ITEM 41 = TAL SITE (any site)}}$
 $\sqrt{\text{MECO } V_1 \text{ vs HI/LO Energy (TAL PLT)}}$
 $\sqrt{\text{Rates } < .5^\circ/\text{sec}; \theta > 15^\circ, Y = 0 \pm 30^\circ}$
PASS, OPS 301 PRO ($\sqrt{304}$)

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

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

BFS, OPS 301 PRO ($\sqrt{304}$)
 $[G50]$ $\sqrt{\text{SITE, RWY, TACAN}}$
S/B & ALTM (PASS/BFS)

$[TRAJ]$ $\sqrt{\text{BUGS}}$, $[HSI]$ $\sqrt{\text{H}}$, 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 $\dot{H} = 0 \uparrow$ (2nd pullout) *

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

$\sqrt{\text{SPDBK}} \rightarrow 81\%$
Go to **ENTRY MANEUVERS SURF WIND**
(Cue Card)

SPDBK @ 3000 FT

ALTM	/
AIM PT	
SPDBK	

RTL5

HOOK

TAL PLT

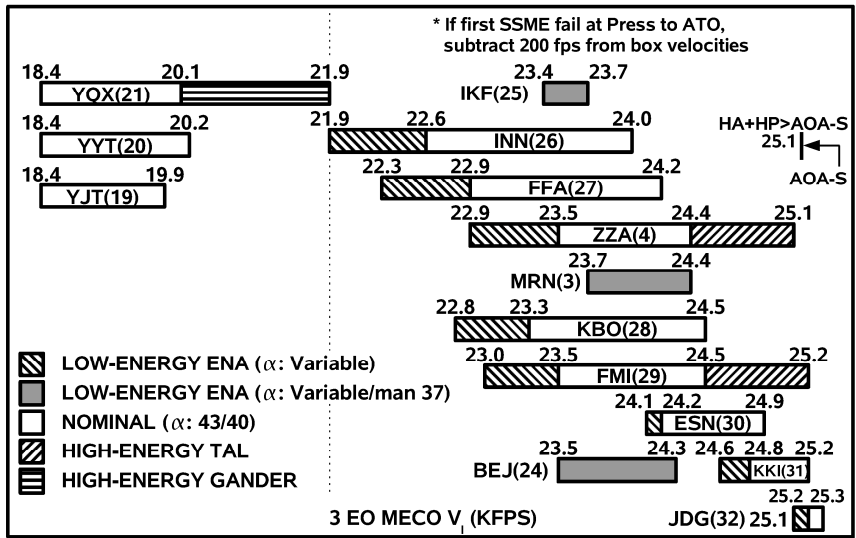
√OMS DUMP

- * 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 -- V_I ~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 < **N/A** % 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

TOP
BACK OF 'TAL PLT'

PILE

POWERED ECAL

[G51] √MAX THROT – ITEM 4 (*)


√ADI (two) – REF

√θ → 60°, Yaw → 45°

√Roll to Heads Up

[G50] Select SITE and TACAN

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	TACANs
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	ILM 117
*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	EWN 83 (D)
RTLS *8.6-9.7	RTLS *8.4-8.6 8.6-9.3	RTLS *8.0-8.1 8.1-9.8	Oceana NAS	8	NTU 32R	NGU 48
*9.7-10.5	9.2-9.9 *9.9-10.2	8.6-10.5	Wallops	9	WAL 28	SBY 49
	*10.2-10.5	9.5-11.2	Atlantic City	11	ACY 31	CYN 81
	10.5-12.3	10.1-12.7	Gabreski	15	FOK 06	HTO 83
*10.5-10.9 10.9-13.3	10.7-13.4	10.5-13.7	Otis ANGB	16	FMH 32	BOS 74
	11.5-13.2	11.1-13.9	Pease Int'l	17	PSM 34	ENE 118

*Probable bailout region

(D) - DME only

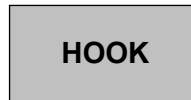
3 E/O ECAL (51.6°)

MM 602 Velocity (Vrel)			Location	Site	RWY	TACANs
IP - 2:30	In Plane	IP + 2:30				
*5.3-6.6	*5.3-6.6	*5.3-6.7	Wilmington	6	ILM 06	ILM 117
*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	EWN 83 (D)
*8.9-10.2	*8.7-10.0	*8.6-9.7	Oceana NAS	8	NTU 32R	NGU 48
*10.2-10.9	*10.0-10.7	*9.7-10.6	Wallops	9	WAL 28	SBY 49
	*10.7-11.0	*10.6-11.0	Atlantic City	11	ACY 31	CYN 81
*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	BOS 74
	11.8-12.4	11.2-13.0	Gabreski	15	FOK 06	HTO 83
	12.8-13.8	12.9-14.2	Pease Int'l	17	PSM 34	ENE 118
13.5-17.2	13.3-17.4	13.1-17.2	Halifax Int'l	18	YHZ 23	UAW 38
15.2-18.0	15.0-18.0	14.9-18.0	Stephenville	19	YJT 09	YJT 78
15.4-18.0	15.3-18.0	15.3-18.0	St. Johns Int'l	20	YYT 29	UYT 23
15.5-18.0	15.4-18.0	15.2-18.0	Gander Int'l	21	YQX 21	YQX 74
		17.3-17.6	Goose Bay	22	YYR 26	UYR 40

*Probable bailout region

(D) - DME only

TAL



HI-ENER
GANDER

ECAL ENTRY

If 3 OUT ECAL or 2 OUT SECOND GREEN:

G50 Select SITE and TACAN
BFS, OPS 602 PRO

Before NZ Hold:

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

BFS, **G50** √SITE and TACAN

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 √TACANS and 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:

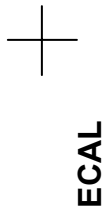
Runway Length + Ovrn	Spdbk	MGTD	Distance
≥ 11,000'	NOM	205	2500
≥ 8500 to < 11,000'	SHORT	205	1500
< 8500'	ELS	195	1000

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



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

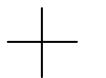
VREL	ROLL (CSS)	ALPHA (CSS)
VREL ≥ 19,900	0°	55°
VREL < 19,900	0°	50°

$\dot{H} = -800 \uparrow$ 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 (√304)

G50 Select Site YQX – ITEM 41 +2 1**TRAJ** √BUGS, **HSI** √ \hat{H} , RANGE√ET DOORS – closed and latched
(MM304 +1:30)**Ḣ = -800↑** 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,
√P,R/Y – AUTO**V = 19K** HYD MPS/TVC ISOL VLV (three) – CL
(hold 5 sec, tb-CL)**V = 15K** **G50** √RWY, TACAN, S/B, ALTM
(PASS/BFS)**V = 10K** * If RCS < **N/A** % either side: *
* **G51** AFT RCS INH, ITEM 13 EXEC ***V = 10K** √SPDBK → 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 ≥ 23,800	180°	80° ($\theta = 280^\circ$)
23,300 ≤ 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)

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, TACAN, S/B, ALTM
(PASS/BFS)

V = 10K * If RCS < [N/A] % 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)

ABORT
DUMPS

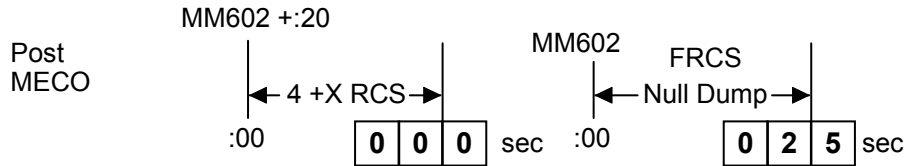
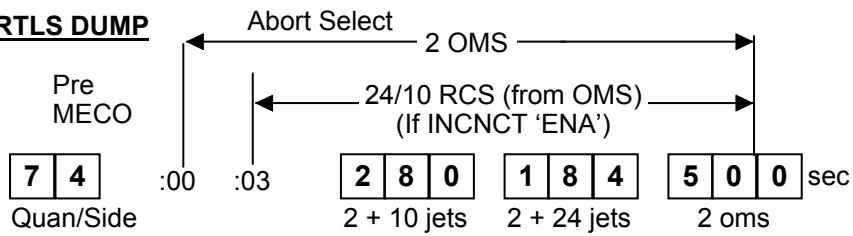
TOP
BACK OF 'ECAL ENTRY'

PILE

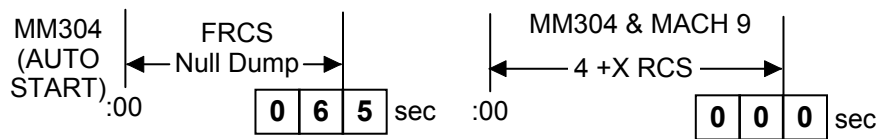
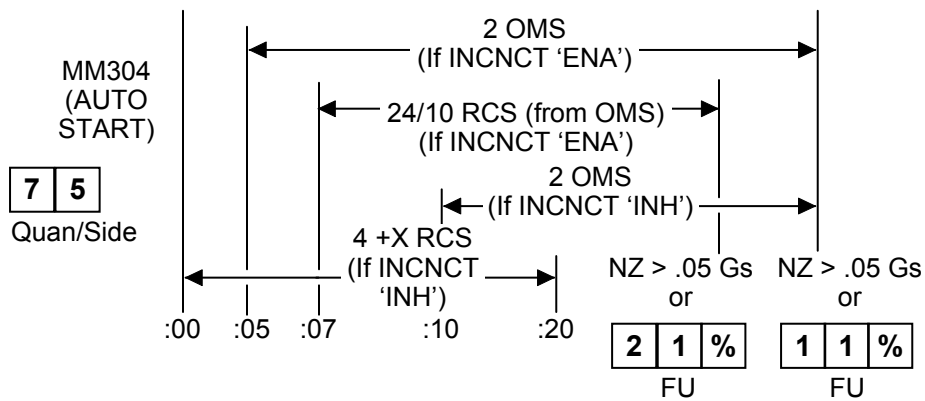
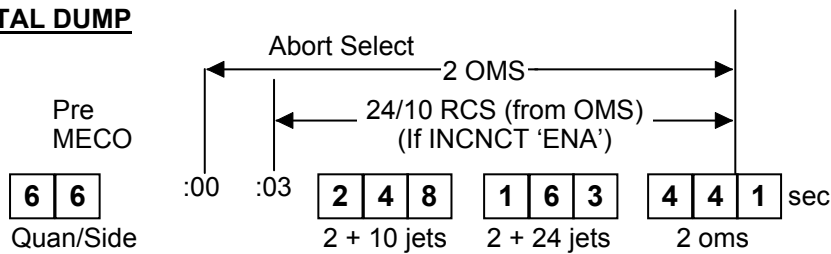
RTLS/TAL DUMPS

HI-ENER
TAL

RTLS DUMP

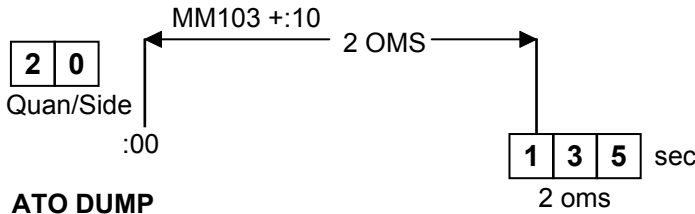


TAL DUMP

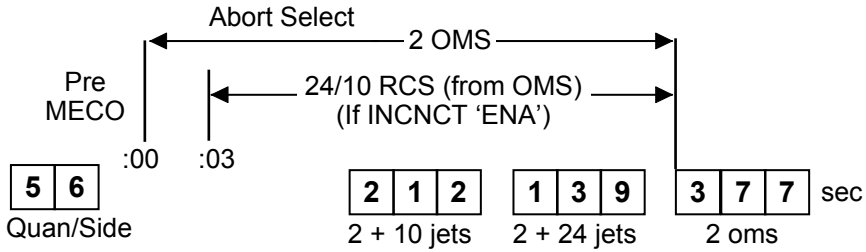




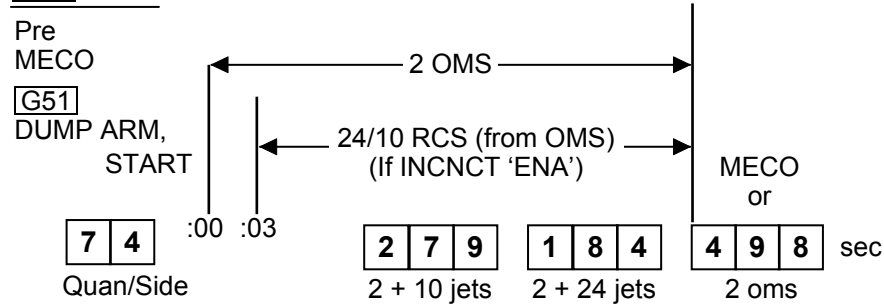
ASSIST/ATO/G51 DUMPS
ASSIST DUMP



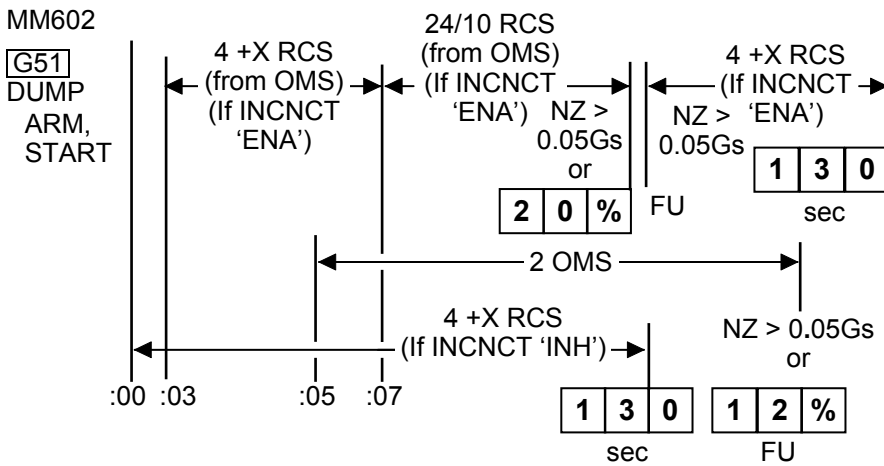
ATO DUMP



G51 DUMP



PWRD
CSS



TOP
BACK OF 'ASSIST/ATO/G51 DUMPS'



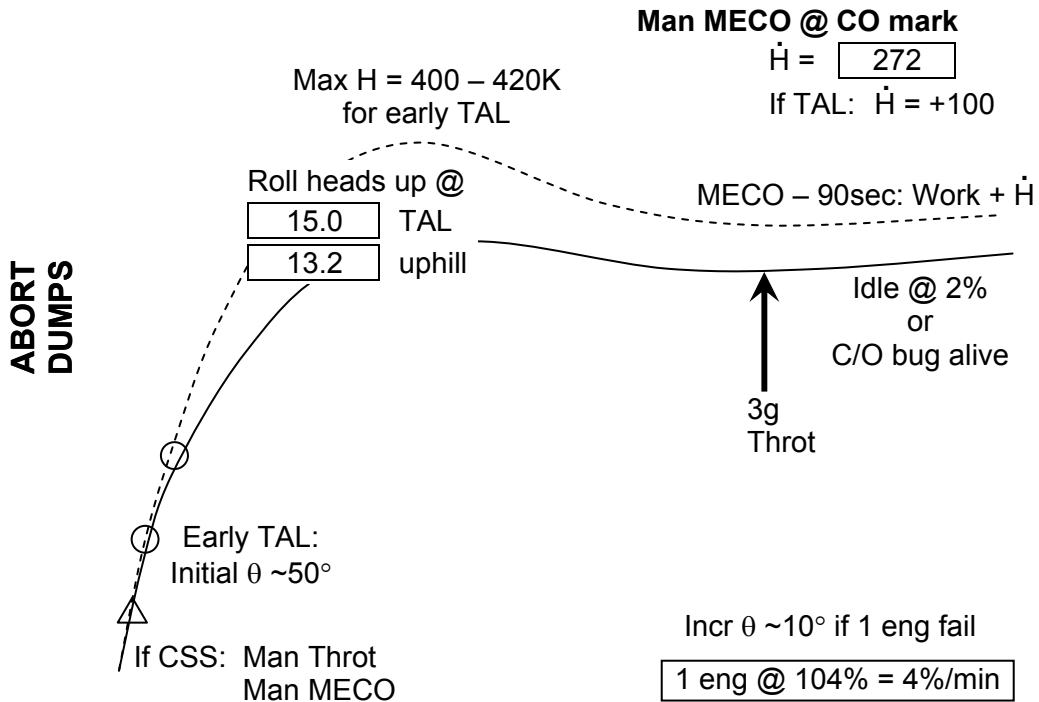
PILE

POWERED CSS – UPHILL/TAL

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

Yaw to **E** until 2:30
Then **I** uphill
or **R** if TAL

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



POWERED CSS – RTLS

HOOK

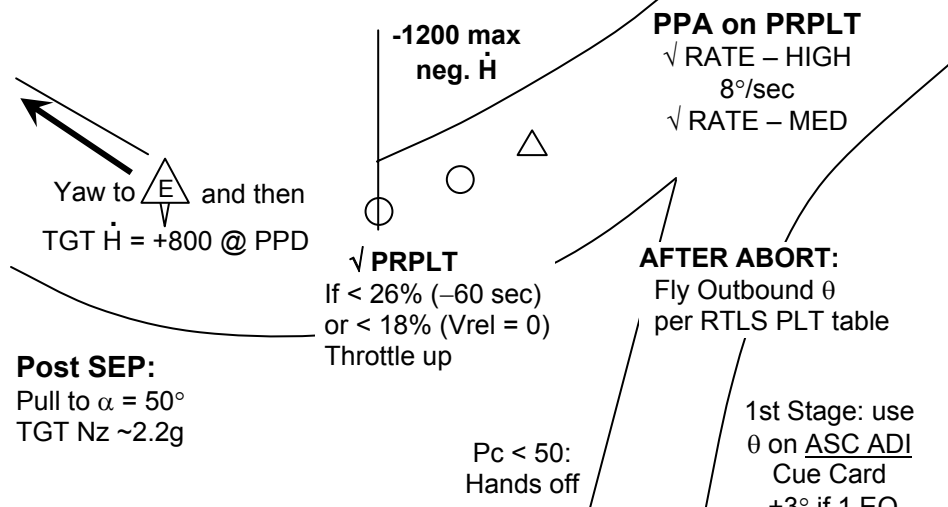
CSS & MAN THROT
(IF MET < 1:30, ENGAGE BFS)

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

Yaw to \square

\dot{H} control:
Use θ then
Throttle

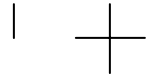
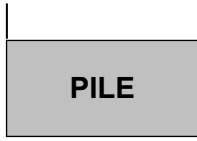


Post SEP:
Pull to $\alpha = 50^\circ$
TGT Nz ~2.2g

1 eng @ 104% = 4%/min

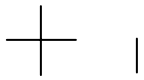
If CSS: Man Throt
Man MECO

TOP
BACK OF 'POWERED CSS – RTLS'



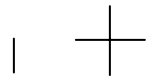
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PWRD
CSS



FB 2-26

ASC/124/FIN





ASCENT/ENTRY CUE CARDS

**ASC/ENT
CUE CARDS**



MS ONLY

2-27

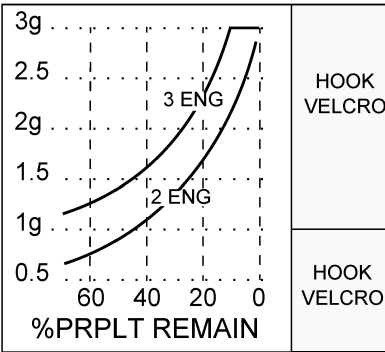
ASC/124/FIN



ASC/ENT
CUE CARDS

ASCENT ADI - NOMINAL

TIME	θ	H	\dot{H}	(124 OCFR1 CY)
0:30	68	9K	648	
0:50	62	26K	981	
1:10	54	50K	1418	
1:30	39	83K	1885	
1:50	31	124K	2193	



-STAGING-

V_I	θ	H	\dot{H}	ASC-14a/124/A/A
6	19	219K	1715	
7	16	276	1264	
8	13	311	915	
9	11	333	633	
10	9	346	401	
12	6	356	60	
14	9	355	-148	
16	25	350	-233	
18	23	344	-268	
20	21	339	-218	
22	19	337	-105	
24	17	337	66	
25819	13	345	272	

HOOK VELCRO

ENTRY ALPHA

VR	α ref	R	H	Href	Rref
25	HI 40 LO	4416	400		
24	HI 40 LO	2610	248	-46	R80
23	43 40 37	2140	240	-64	71
22	43 40 37	1789	234	-83	66
21	43 40 37	1510	228	-106	63
20	43 40 37	1289	224	-123	L60
19	43 40 37	1115	215	-145	61
18	43 40 37	978	208	-168	62
17	43 40 37	858	202	-187	63
16	43 40 37	766	195	-199	64

KSC 15

MAX L/D	
M	α
3	17
2	15
1	12

(124 OCFR1 CY)

HOOK
VELCRO

ASC-14b/124/A,E/A

HOOK
VELCRO

HOOK
VELCRO

15	43 40 37	688	189	-118	64
14	43 40 37	615	185	-126	62
13	43 40 37	547	182	-136	59
12	43 40 37	485	177	-151	57
11	42 39 36	425	172	-195	55
10	41 38 35	375	168	-173	R48
9	39 36 33	327	161	-206	43
8	37 34 31	278	154	-238	39
7	33 30 27	229	144	-267	37
6	30 27 24	185	132	-272	39
5	26 23 20	142	119	-273	40
4	22 19 18	107	107	-263	L39
3	19 16 15	75	91	-248	37
2.5	15	61	84	-252	
2	14	51	78	-253	
1.5	10	39	69	-311	
1	8	28	53	-264	

HOOK
VELCRO



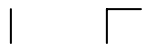
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MS ONLY

2-30

ASC/124/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**

FLIGHT CONDITIONS	MANEUVER
V = 7K	G50 √TACAN and 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 MAX Nz <input type="text"/> . <input type="text"/> √NWS – 1 Lock Inertia Reels
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	DRAG 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
V < 120 KGS or 5K' remaining	BRAKE as required (8-10 fps ² , -0.25 to -0.3G)
* If 5K' remaining and V > 140 KGS – MAX BRAKING *	
V = 60 KGS	DRAG 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/124/E/B
(Partial)

ENT
MNV

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/124/E/B
(Partial)



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MS ONLY

2-34

ASC/124/FIN



CONT
ABORT

ABORT CUE CARDS

NOT FLOWN

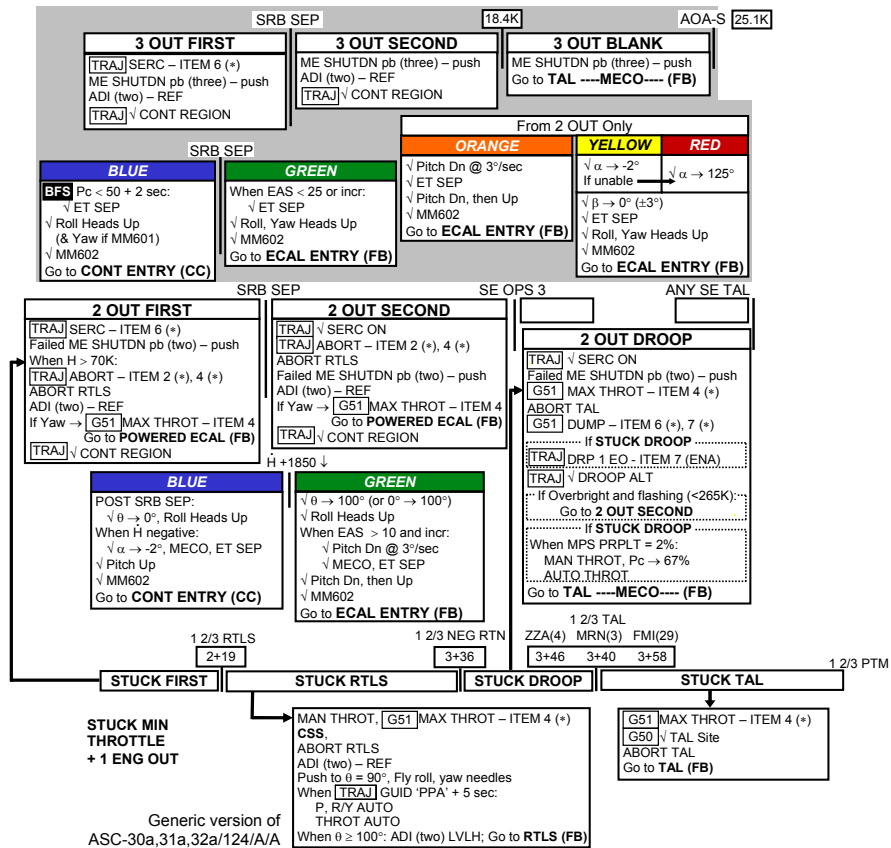
2-35

ASC/124/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

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

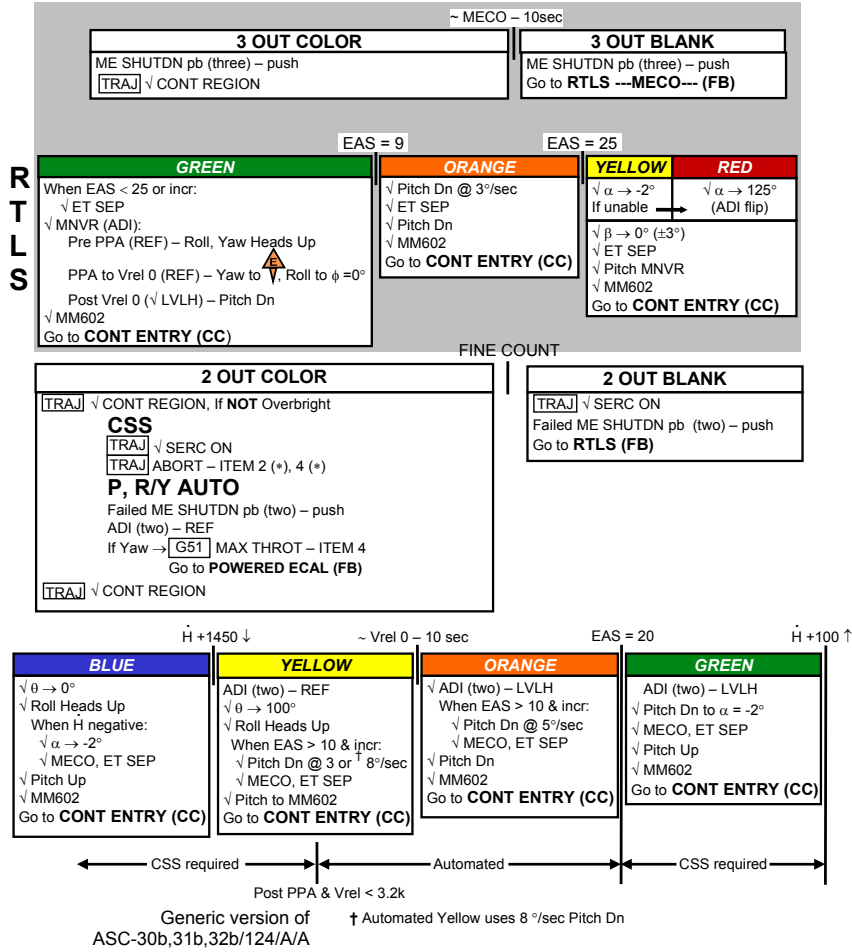
Select UHF – G T/R

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

Generic version of
ASC-30a,31a,32a/124/A/A

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 < 5 and EAS < 333 ↓
ADTA PROBES – Deploy
G50 Incorp Air Data ASAP

M2 → 1: θ = 0° by M = 1.0

Select UHF – G T/R

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

Generic version of
ASC-30b,31b,32b/124/A/A

RED

√ ADI (two) – LVLH
√ H → +400 (θmax = 75°)

TRAJ AT FINE COUNT:
√ Pitch Dn to α = -2°
√ MECO, ET SEP

√ Pitch Up
√ MM602
Go to **RTLS ---MECO---** (FB)

← Automated →

NOT FLOWN

2-39

ASC/124/FIN

**ZZA TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		6100	6200	6300	6400	6500	6600	6700	6800
SE OPS 3 ZZA 109	(4)	10900	11000	11000	11000	11100	11100	11100	11200
SE ZZA 104	(4)	17200	17100	16900	16700	16500	16300	16200	16000

1st E.O. VI		6900	7000	7100	7200	7300	7400	7500	7600
SE OPS 3 ZZA 109	(4)	11200	11200	11300	11300	11300	11400	11400	11400
SE ZZA 104	(4)	15800	15600	15500	15300	15200	15000	14900	14700

1st E.O. VI		7700	7800	7900	8000	8100	8200	8300	8400
SE OPS 3 ZZA 109	(4)	11400	11500	11500	11500	11500	11600	11600	11600
SE ZZA 104	(4)	14600	14500	14400	14200	14100	14000	14000	13900

1st E.O. VI		8500	8600	8700	8800	8900	9000	9100	9200
SE OPS 3 ZZA 109	(4)	11600	11600	11700	11700	11700	11700	11700	11700
SE ZZA 104	(4)	13800	13700	13700	13600	13600	13600	13500	13500

1st E.O. VI		9300	9400	9500	9600	9700	9800	9900	10000
SE OPS 3 ZZA 109	(4)	11800	11800	11800	11800	11800	11800	11800	11800
SE ZZA 104	(4)	13500	13500	13500	13400	13400	13400	13400	13500

1st E.O. VI		10100	10200	10300	10400	10500	10600	10700	10800
SE OPS 3 ZZA 109	(4)	11900	11900	11900	11900	11900	11900	11900	11900
SE ZZA 104	(4)	13500	13500	13500	13500	13500	13500	13600	13600

1st E.O. VI		10900	11000						
SE OPS 3 ZZA 109	(4)	11900	11900						
SE ZZA 104	(4)	13600	13600						

ASC-9a/124/A/A

NOT FLOWN

2-40

ASC/124/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/124/A/A

NOT FLOWN

2-41

ASC/124/FIN

**MRN TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		5900	6000	6100	6200	6300	6400	6500	6600
SE OPS 3 MRN 109	(3)	10900	11000	11000	11000	11100	11100	11100	11200
SE MRN 104	(3)	16900	16800	16600	16400	16300	16100	15900	15800

1st E.O. VI		6700	6800	6900	7000	7100	7200	7300	7400
SE OPS 3 MRN 109	(3)	11200	11200	11200	11300	11300	11300	11400	11400
SE MRN 104	(3)	15600	15500	15300	15200	15000	14900	14700	14600

1st E.O. VI		7500	7600	7700	7800	7900	8000	8100	8200
SE OPS 3 MRN 109	(3)	11400	11400	11500	11500	11500	11500	11600	11600
SE MRN 104	(3)	14500	14400	14200	14100	14000	13900	13900	13800

1st E.O. VI		8300	8400	8500	8600	8700	8800	8900	9000
SE OPS 3 MRN 109	(3)	11600	11600	11600	11700	11700	11700	11700	11700
SE MRN 104	(3)	13700	13600	13600	13500	13500	13400	13400	13400

1st E.O. VI		9100	9200	9300	9400	9500	9600	9700	9800
SE OPS 3 MRN 109	(3)	11700	11800	11800	11800	11800	11800	11800	11800
SE MRN 104	(3)	13400	13300	13300	13300	13300	13300	13300	13300

1st E.O. VI		9900	10000	10100	10200	10300	10400	10500	10600
SE OPS 3 MRN 109	(3)	11800	11800	11900	11900	11900	11900	11900	11900
SE MRN 104	(3)	13300	13300	13300	13400	13400	13400	13400	13400

1st E.O. VI		10700	10800	10900	11000				
SE OPS 3 MRN 109	(3)	11900	11900	11900	11900				
SE MRN 104	(3)	13500	13500	13500	13500				

ASC-10a/124/A/A

NOT FLOWN

2-42

ASC/124/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/124/A/A

NOT FLOWN

2-43

ASC/124/FIN

**FMI TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		6300	6400	6500	6600	6700	6800	6900	7000
SE OPS 3 FMI 109	(29)	11100	11200	11200	11200	11200	11200	11300	11300
SE FMI 104	(29)	17700	17500	17300	17200	17000	16800	16600	16400

1st E.O. VI		7100	7200	7300	7400	7500	7600	7700	7800
SE OPS 3 FMI 109	(29)	11300	11300	11300	11400	11400	11400	11400	11400
SE FMI 104	(29)	16200	16000	15900	15700	15500	15400	15200	15100

1st E.O. VI		7900	8000	8100	8200	8300	8400	8500	8600
SE OPS 3 FMI 109	(29)	11500	11500	11500	11500	11500	11600	11600	11600
SE FMI 104	(29)	14900	14800	14700	14500	14400	14300	14300	14200

1st E.O. VI		8700	8800	8900	9000	9100	9200	9300	9400
SE OPS 3 FMI 109	(29)	11600	11600	11600	11700	11700	11700	11700	11700
SE FMI 104	(29)	14100	14000	14000	13900	13900	13900	13800	13800

1st E.O. VI		9500	9600	9700	9800	9900	10000	10100	10200
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	13800

1st E.O. VI		10300	10400	10500	10600	10700	10800	10900	11000
SE OPS 3 FMI 109	(29)	11800	11900	11900	11900	11900	11900	11900	11900
SE FMI 104	(29)	13800	13800	13800	13800	13900	13900	13900	13900

ASC-12a/124/A/A

NOT FLOWN

2-44

ASC/124/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/124/A/A

NOT FLOWN

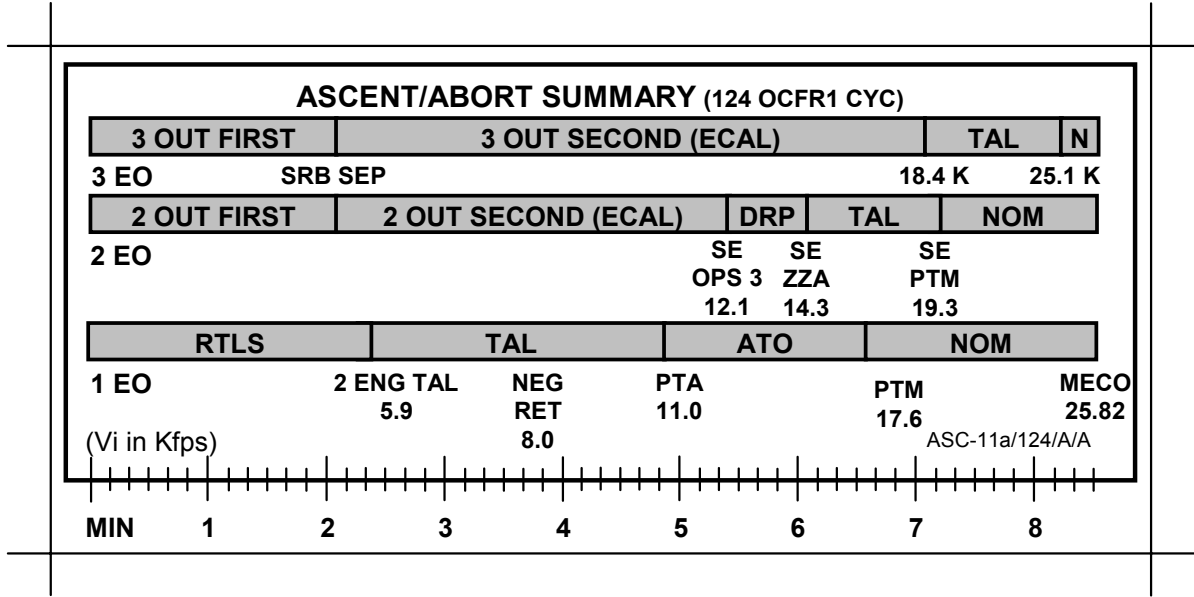
2-45

ASC/124/FIN

NOT FLOWN

2-46

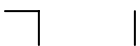
ASC/124/FIN





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 MPS PWRDN/ISOL

NOTE

Expect multiple MAs for MPS He P
as regs bleed down

R2	MPS ENG PWR L (two)	- OFF
	CTR (two)	- OFF
	R (two)	- OFF
	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 *

WARNING
 ET CTRLINE LATCHES must be stowed prior to L,R DR closure to prevent door drive damage

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/124/FIN



OMS 2 BURN MONITOR

OMS TEMP* FU IN P \geq <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; text-align: center;">L</td><td style="width: 20px; text-align: center;">R</td></tr><tr><td style="text-align: center;">225</td><td style="text-align: center;">220</td></tr></table> \leq <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; text-align: center;">205</td><td style="width: 20px; text-align: center;">204</td></tr></table> or No FU IN P	L	R	225	220	205	204	OMS ENG FAIL ----- OMS PRPLT FAIL -----
L	R						
225	220						
205	204						
OMS PC* & OMS \downarrow (BFS: $\sqrt{\text{accel}}$) ENG VLV 1 or 2 < 70 or OX IN P > 227 OX IN P \leq 227 or No OX IN P	OMS ENG FAIL ----- OMS PRPLT FAIL -----						
OMS OX/FU TK P ($\sqrt{\text{ENG IN P}}$) 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 > <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; text-align: center;">85</td></tr></table> : OMS PRPLT FAIL ----- He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284 -----	85					
85							
OMS He TK P LOW ($\sqrt{\text{OMS/MPS}}$)	At He P < 640 or QTY \leq 41: If HP < <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; text-align: center;">85</td></tr></table> : OMS XFEED from good OMS At HP > <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; text-align: center;">85</td></tr></table> : OMS PRPLT FAIL -----	85	85				
85							
85							
OMS N2 REG P HIGH or LOW	OMS ENG – ARM -----						
OMS N2 TK P LOW ($\sqrt{\text{OMS/MPS}}$)	At N2 TK P < 470: OMS ENG – ARM -----						
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 If high RCS usage: OMS ENG FAIL ----- 2 FAs lost $\sqrt{\text{MAN SHUTDN}}$ -----						
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 $\sqrt{\text{MAN SHUTDN}}$ -----						
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/124/A,O/A

OMS 2

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/124/A,O/A

POST OMS 2 BURN PROCEDURES

**POST
OMS 2**

5-1

ASC/124/FIN

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

C POST BURN STATUS

NOMINAL

Δ TIG

	:		
--	---	--	--

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

C OMS TVC GMBL CHECK

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

If Delayed AOA (AOA after Direct Insertion OMS 2 burn):
 O8 L,R OMS He PRESS/VAP ISOL (four) – CL
 Go to 6-8, steps following OPS 105 PRO

P OMS/RCS POST BURN RECONFIG

**POST
OMS 2**

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

O8 FWD RCS
 He PRESS A – GPC (tb-OP)
 B – CL (tb-CL)
 TK ISOL (two) – OP (tb-OP)
 \sqrt MANF ISOL 1,2,3,4 (four) – GPC (tb-OP)

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

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

Go to POST INSERT, POST INSERTION



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AOA PADS

**AOA
PADS**

6-1

ASC/124/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 8		
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		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		Nz LIMIT		20K		/	
:		.		.		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:									

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 (%)							9 1		
TOT AFT QTY 2 (%)							5 3		
$\text{FLIP HP} = \text{TGT HP} + \left[\begin{array}{ c c } \hline \square & \square \\ \hline \end{array} \text{OR} \begin{array}{ c c } \hline 1 & 9 \\ \hline 0 & 7 \\ \hline \end{array} \begin{array}{l} \text{STEEP} \\ \text{SHALLOW} \end{array} \right] + \frac{24}{2} = \square$									
$\text{AFT HP} = \text{TGT HP} + \frac{14}{2} = \square$									
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		RWY		50K		/			
				38K		/			
<input type="checkbox"/> L		<input type="checkbox"/> OVHD		28K		/			
<input type="checkbox"/> R		<input type="checkbox"/> STRT		20K		/			
ΔT MACH < 1 TO HAC		MAX Nz		Nz LIMIT		WINDS:		12K	
: : :			(ENT MNVR Cue Card)		7K	
ΔT HAC INIT TO H = 20K								3K	
: : :								1K	
AIMPOINT		SPEEDBRAKE		SURFACE		/			
<input type="checkbox"/> NOM		<input type="checkbox"/> NOM							
<input type="checkbox"/> CLOSE-IN		<input type="checkbox"/> S.F.							
REMARKS:									

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

DEORBIT BURN (1 ENG)	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"/> %
DEORBIT BURN (RCS)	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"/>
UNBALANCED PRPLT DEORBIT BURN	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
DEORBIT BURN (MIXED XFEED)	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



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AOA

AOA PROCEDURES

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	TACANS	ITEM 5	MLS
1	KSC 15 KSC 33	TTS 59Y	COF 97	8 6
40	EDT 22R EDT 04L	EDW 111	LHS 21	8 6
42	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6
43	NOR 05 NOR 35	SNG 121Y	HMN 92	- -
44	EDW 15 EDW 18L	EDW 111	LHS 21	- -
45	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6

† MSBLS Jr. Channel 8 – Requires Uplink

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)



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DEORBIT
CARDS

AOA DEORBIT BURN AND DEORBIT BURN MONITOR CARDS

MS ONLY

6-17

ASC/124/FIN

DEORBIT CARDS

DEORBIT BURN MONITOR

OMS TEMP* FU IN P \geq <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td style="padding: 2px;">L</td><td style="padding: 2px;">R</td></tr> <tr><td style="padding: 2px;">225</td><td style="padding: 2px;">220</td></tr> <tr><td style="padding: 2px;">205</td><td style="padding: 2px;">204</td></tr> </table> or No FU IN P	L	R	225	220	205	204	OMS ENG FAIL OMS PRPLT FAIL
L	R						
225	220						
205	204						
OMS PC* & OMS ↓ (BFS: $\sqrt{\text{accel}}$) ENG VLV 1 or 2 < 70 or OX IN P > 227 OX IN P \leq 227 or No OX IN P	OMS ENG FAIL OMS PRPLT FAIL						
OMS OX/FU TK P ($\sqrt{\text{ENG IN P}}$) 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: OMS PRPLT FAIL He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284						
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 $\sqrt{\text{MAN SHUTDN}}$						
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 $\sqrt{\text{MAN SHUTDN}}$						
BCE STRG D 1(4)	I/O RESET (if recov: >>) If high RCS usage: L(R) OMS GMBL – SEC (twice)						
RM DLMA IMU or ABOVE SAFE HP \Rightarrow <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr> </table>			STOP BURN: OMS ENG(s) – OFF >>				
GPC SET SPLIT or 2 MN BUSES BELOW SAFE HP \Rightarrow	IMU DLMA: After C/O: $\sqrt{\text{timer}}$ G21 If any IMU ACC > 0.03: aff IMU – desel I'cnct OMS to RCS ($\sqrt{\text{RCS Burn Time}}$) THC +X to TGT HP (EOM) or 3.5 x timer at C/O (AOA) SET SPLIT: Go to "GPC" above						
I/O ERROR PCM	OI PCMMU PWR – 2(1)						

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

ENT-2a/124/A,O,D,E/A



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MS ONLY

6-19

ASC/124/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/124/A/A

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 – OFF (If < 3 IMU, at :)

* AFT RCS RECONFIG if INTERCONNECT *

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

ASC-8bb/124/A/A

AOA DEORBIT BURN (RCS)

√MM302 √RCS SEL
√RCS BURN CONFIG (L OMS I'CNCT)

L,R OMS He PRESS/VAP ISOL A (two) – OP
... Wait 2 sec ... B (two) – OP

√DAP – INRTL/DISC
ADI – LVLH(REF)/MED/MED
FLT CNTLR PWR (two) – ON

TIG THC +X
Maintain PITCH ATT ERR ± 3°
Monitor ΔVTOT

RCS I'CNCT TK SW at ΔVTOT =
R OMS XFEED (two) – OP
L OMS XFEED (two) – CL

| **OMS PRPLT LOW** |
| AFT RCS RECONFIG AT ΔVTOT = |
RCS COMPLETION

- * **OMS PRPLT FAIL (MULTIPLE JETS FAIL OFF):** *
- * Secure aff OMS *
- * ITEM 18 +0 EXEC *
- * Resel jets *
- * Interconnect good OMS to RCS *
- * THC +X (√OMS% vs RCS Burn Time) *
- * AFT RCS RECONFIG *
- * RCS COMPLETION *
- * **RCS +X JET FAIL OFF:** *
- * ITEM 18 +0 EXEC *
- * Resel jets *

ASC-7a/A/B

HINGE

MS ONLY

6-24

ASC/124/FIN



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MS ONLY

6-26

ASC/124/FIN





**POST D/O
BURN**

AOA POST DEORBIT BURN

6-27

ASC/124/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	6	9	13	17	(19)	21	24	26
PREBANK	0	70	90	100	110	115	130	155	180

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

Δ HP	0	1	2	3	4	5	6	(7)	8
PREBANK	90	110	115	120	125	130	140	155	175

* 124 ocf1 *

C POST BURN STATUS

NOMINAL

Δ TIG

<input type="text"/>	:	<input type="text"/>	<input type="text"/>
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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	

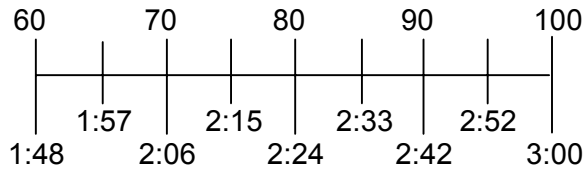
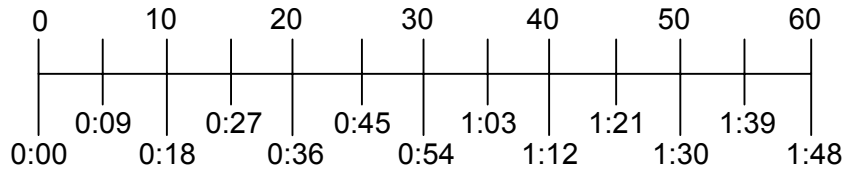
1: GNC 23 RCS	2: GNC DEORB MNVR COAST
3: BFS, GNC SYS SUMM 2	

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)

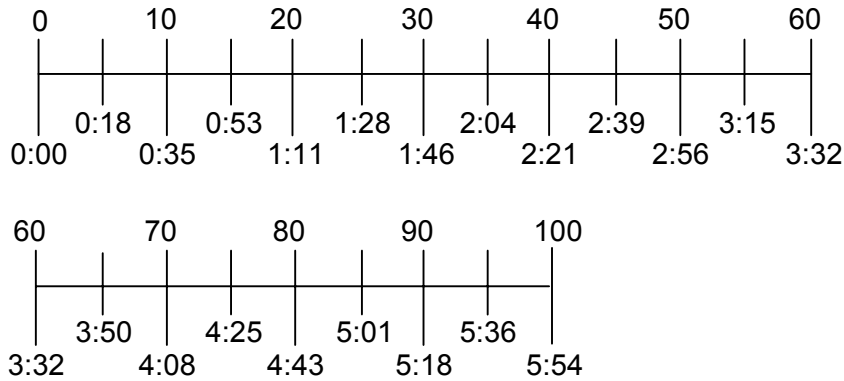
NOTE

During dump, disregard FRCS qty

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

TWO JET DUMP:

FRCS PRPLT TO BE DUMPED (%)



TIME FROM DUMP INITIATION (M:S)

NOTE

During dump, disregard FRCS qty

CRT2 FWD RCS ARM – ITEM 36 EXEC
 DUMP – ITEM 37 EXEC
 (Start watch)
 When dump time achieved:
 FWD RCS OFF – ITEM 38 EXEC

1: GNC DEORB MNVR COAST

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	
TAC (per AOA RWY)	√5	√5	
RA	blank √46		
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		
TAC	INH √20	INH	√20
GPS	INH √43	INH	√43
DRAG H	AUT √22	AUT	√22
ADTA H	INH √26	INH	√26
ADTA TO G&C	INH √29	AUT	√28
TAC	DELTA √35		
DES any failed TACANS	√		√
AIF_G	INH √48		

* 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

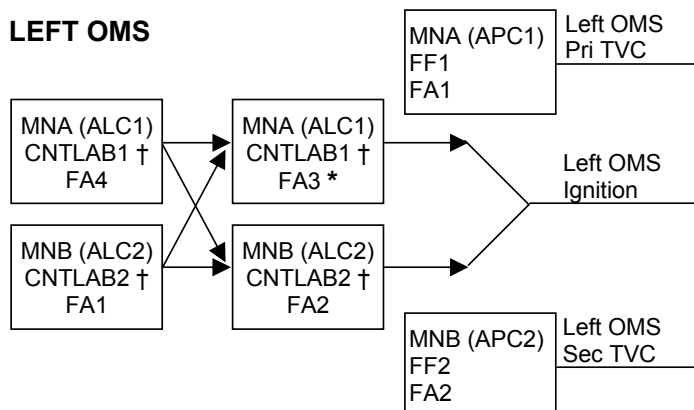
6-37

ASC/124/FIN



OMS FAILURES

LEFT OMS

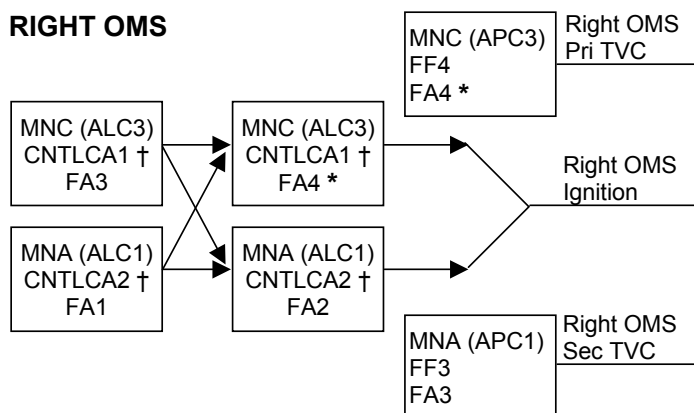


† If CNTL AB1 or AB2 (CA1 or CA2) failed and ign path still exists at OMS fail, assume L(R) OMS ↓ is PRPLT FAIL

* 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**



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	430	354	13:17
85	4250	420	346	12:59
80	4050	395	325	12:11
75	3850	369	304	11:23
70	3650	343	283	10:35
65	3450	318	262	09:47
60	3250	292	241	08:59
55	3050	266	220	08:10
50	2850	240	198	07:22
45	2650	214	177	06:34
40	2450	188	156	05:46
35	2250	162	134	04:58
30	2050	135	113	04:10
25	1850	109	91	03:22
20	1650	83	70	02:34
15	1450	56	47	01:45
10	1250	30	25	00:55
5	1050	3	3	00:06

OMS/
RCS Δ V

OMS-2/AOA Δ V
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 $\boxed{257,303}$ lb

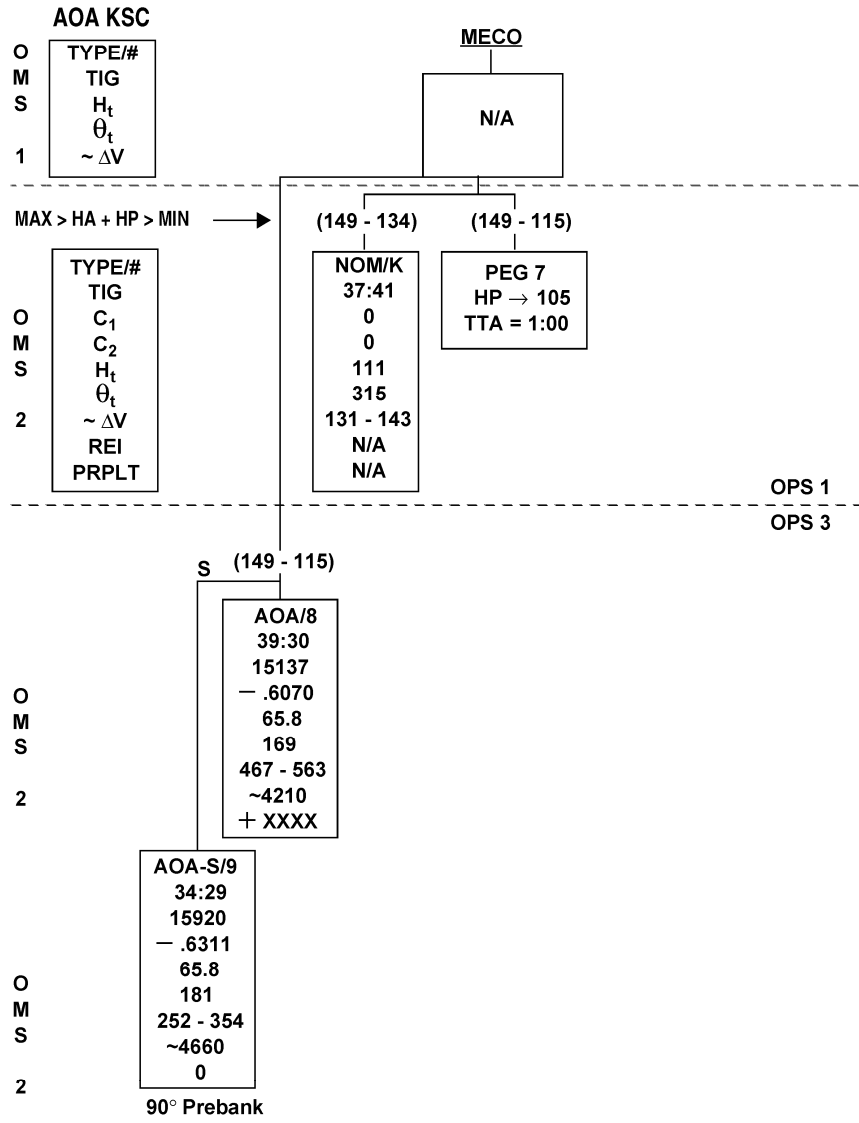


OMS TARGETS, COMM COVERAGE, LAND SITES

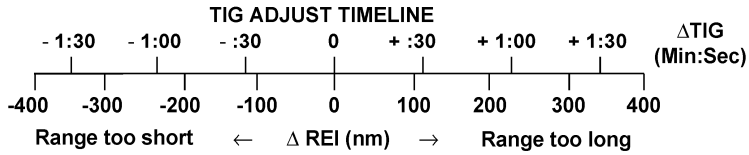
OMS TGTS



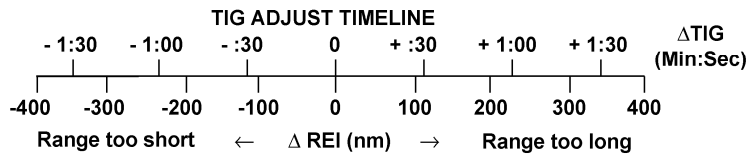
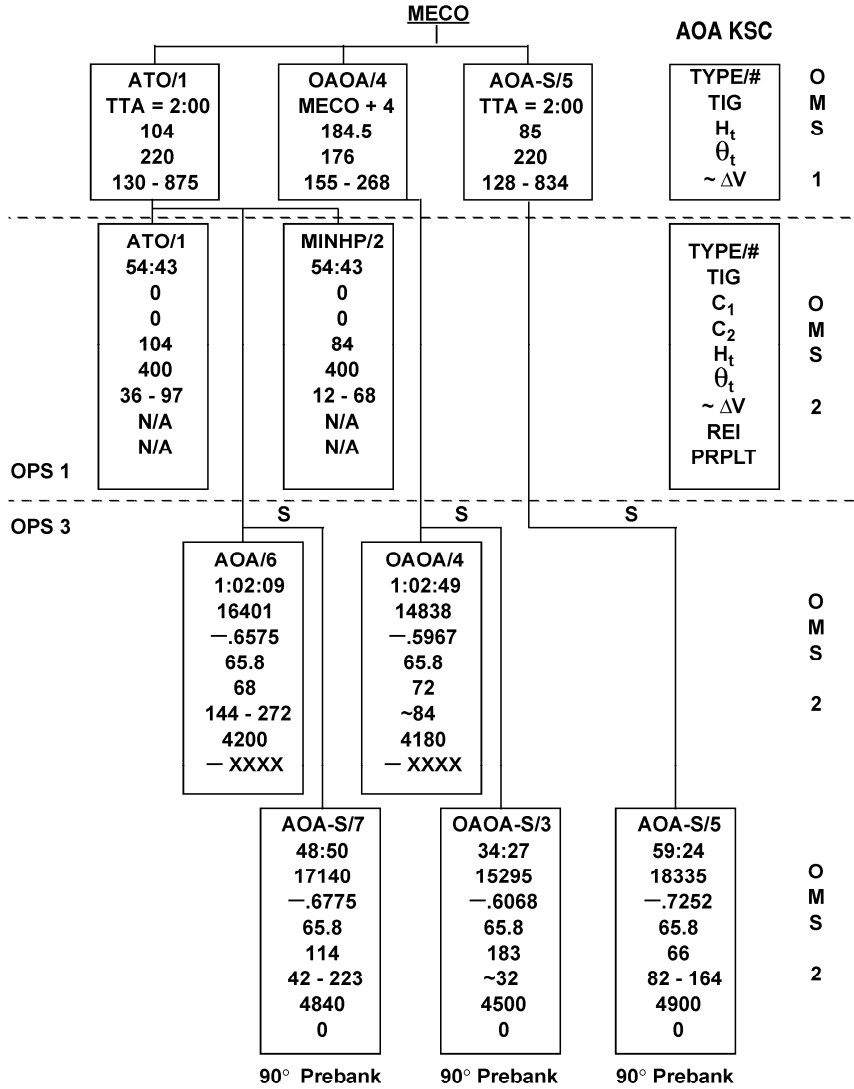
STS-124 OCFR1 CY OMS TARGETS - DIRECT INSERTION



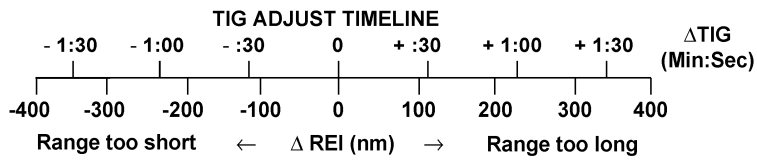
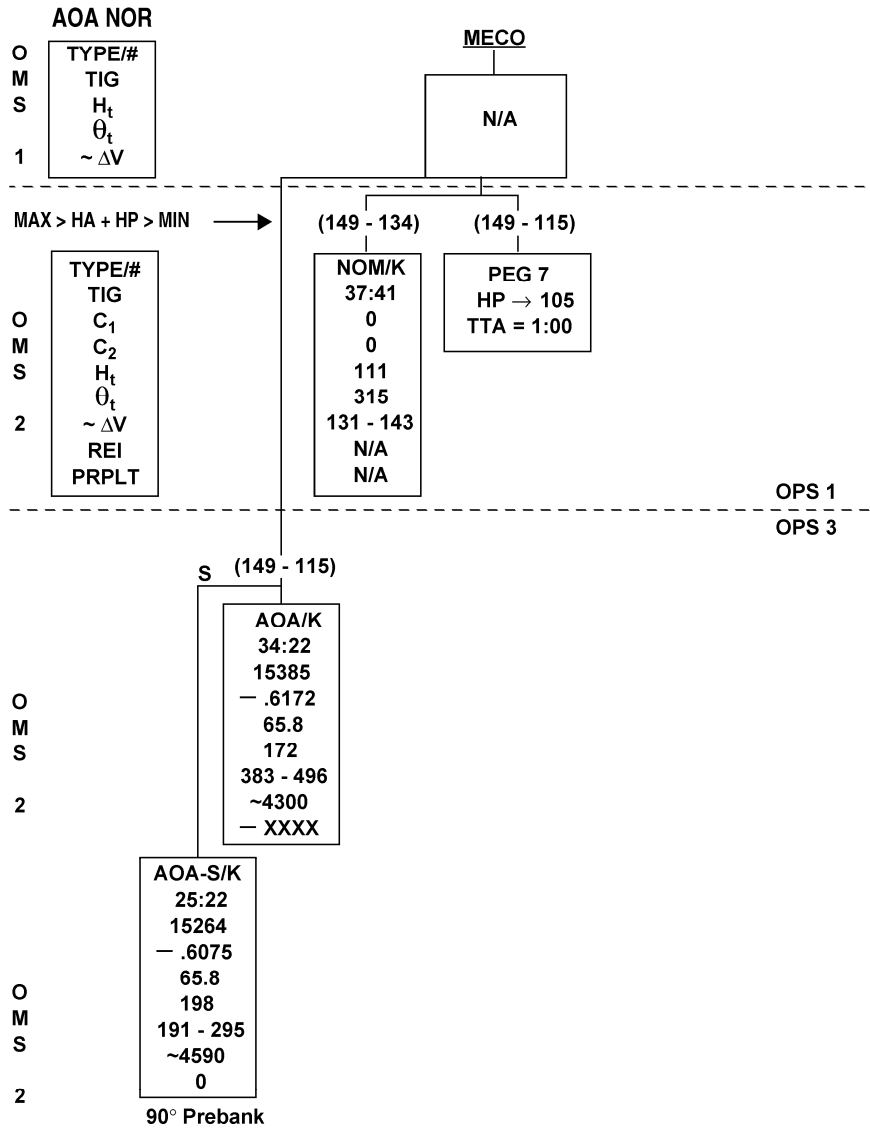
OMS TGTS



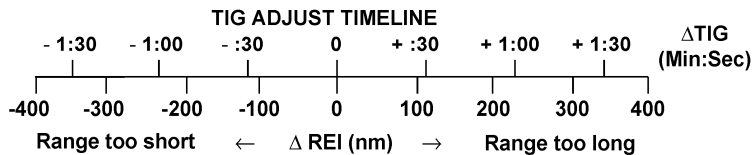
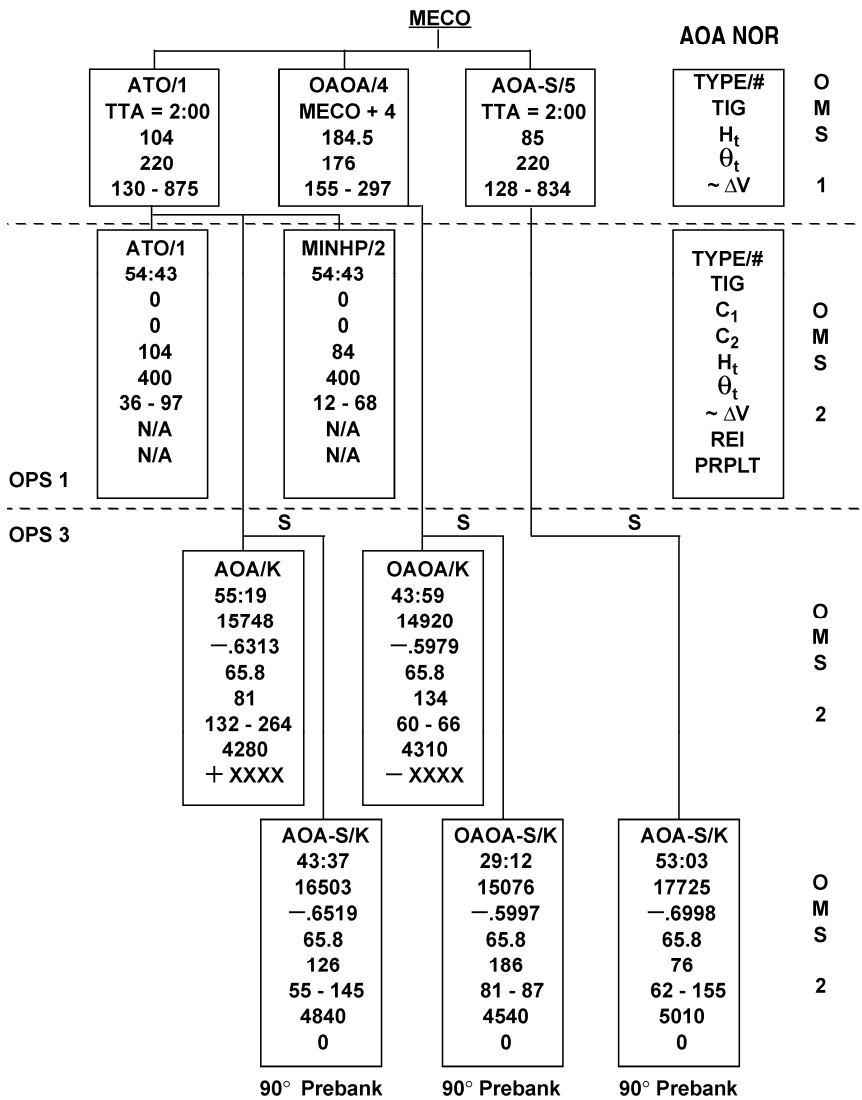
STS-124 OCFR1 CY OMS TARGETS - W/OMS 1



STS-124 OCFR1 CY OMS TARGETS - DIRECT INSERTION

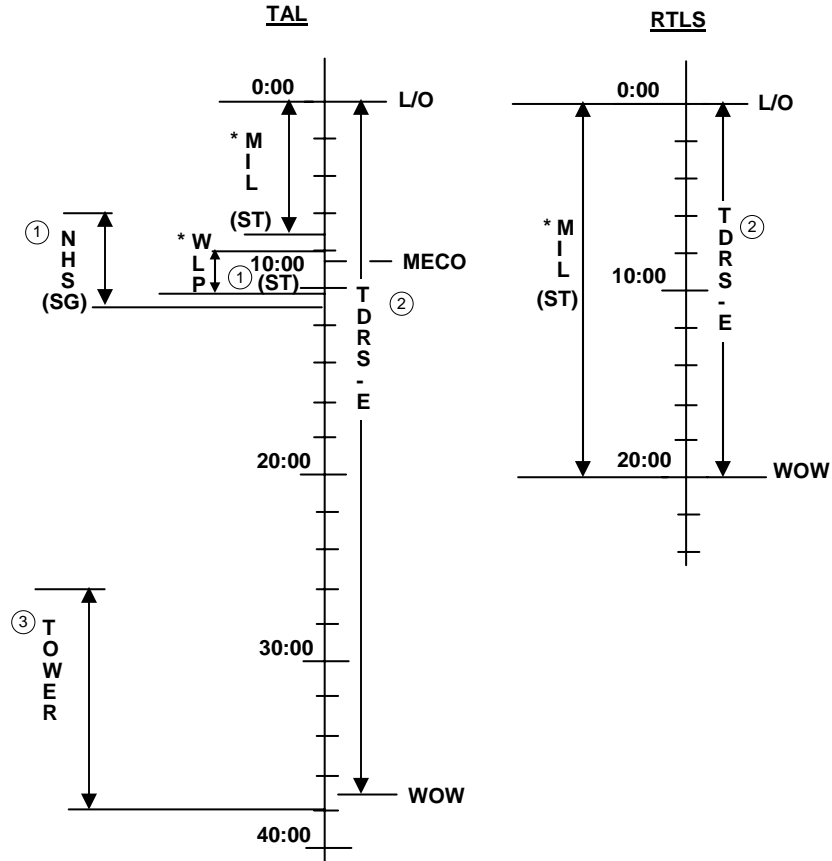


STS-124 OCFR1 CY OMS TARGETS - W/OMS 1



**COMM
COVER**

COMMUNICATION COVERAGE – (TAL/RTLS)



MODE

ST – STDN
SG – SGLS

*UHF available

NOTE: ① NHS/WLP coverage only on high inclinations

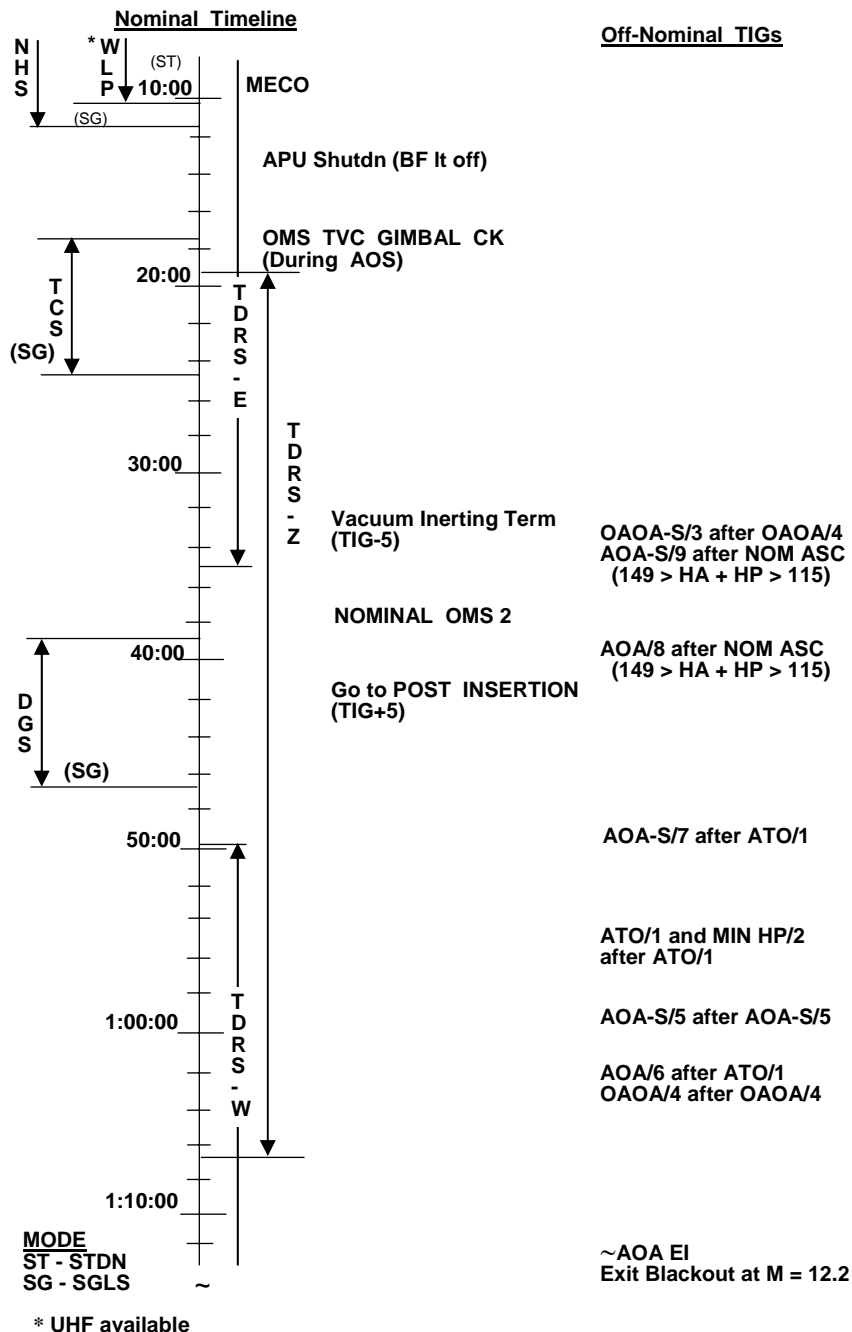
② ET blocks coverage until vehicle upright

③ Tower UHF installed at all TAL sites

**COMM
COVER**

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

LAND
SITE



**STS-124 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

SITE	LOCATION	RWY	TACANS		MLS CH	LG	+ OVR RUN
				ITEM 5			
1	KSC	KSC 15 KSC 33	TTS 59Y	COF 97	8 6	15000 15000	1000 1000
2	BEN GUERIR	BEN 36 BEN 18	MAK 80 ■	CBA 116 ■	- -	13720 13220	0 1000
3	MORON AB	MRN 20 MRN 02	MRN 100	AOG 23	◆6 -	11730 11730	1000 1000
4	ZARAGOZA	ZZA 30L ZZA 12R	ZZA 64	ZAR 77 ■	◆6 -	12200 12200	1000 1010
5	MYRTLE BEACH	MYR 36 MYR 18	ILM 117	FLO 99	- -	9500 9500	1000 1000
6	WILMINGTON	ILM 06 ILM 24	ILM 117	DIW 107 ■	- -	7500 7500	0 0
7	CHERRY POINT	NKT 32L NKT 23R	EWN 83 ■	NCA 101	- -	7110 7100	800 880
8	OCEANA NAS	NTU 32R NTU 23L	NGU 48	ORF 116	- -	7500 11500	0 0
9	WALLOPS	WAL 28 WAL 04	SBY 49	SWL 71	- -	7510 8750	0 0
10	DOVER AFB	DOV 32 DOV 19	SIE 95	CYN 81	- -	12400 9100	0 0
11	ATLANTIC CITY	ACY 31 ACY 13	CYN 81	SIE 95	- -	9500 9500	0 0
12	BEN GUERIR	BEN 36 BEN 18	MAK 80 ■	CBA 116 ■	- -	13720 13220	0 1000
13	*MORON AB	MRN 20 MRN 02	MRN 100	AOG 23	◆6 -	11730 11730	1000 1000
14	*ZARAGOZA	ZZA 30L ZZA 12R	ZZA 64	ZAR 77 ■	◆6 -	12200 12200	1000 1010
15	GABRESKI	FOK 06 FOK 24	HTO 83	GON 45Y ■	- -	8500 8500	1000 1000

◆ Available for TAL Only
* LO XRNG TAL Site

■ DME
Length after displaced threshold

**STS-124 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

S I T E	LOCATION	RWY	TACANS		MLS CH	LG	+ OVR RUN
				ITEM 5			
16	OTIS ANGB	FMH 32 FMH 23	BOS 74	PVD 103	-	9000	0
						7500	0
17	PEASE INT'L	PSM 34 PSM 16	ENE 118	BOS 74	-	10020	0
						10020	0
18	HALIFAX INT'L	YHZ 23 YHZ 32	UAW 38	YHZ 98 ■	-	8800	0
						7700	0
19	STEPHENVILLE	YJT 09 YJT 27	YJT 78	YDF 80 ■	-	9500	0
						9500	0
20	ST JOHNS INT'L	YYT 29 YYT 11	UYT 23	YYT 82 ■	-	8500	0
						8500	0
21	GANDER INT'L	YQX 21 YQX 31	YQX 74	IQX 32 ■	-	9700	0
						8900	0
22	GOOSE BAY	YYR 26 YYR 34	UYR 40	YYR 120 ■	-	10550	0
						9080	0
23	LAJES	LAJ 15 LAJ 33	TRM 109	LAJ 45	-	10870	970
						10870	990
24	BEJA	BEJ 01L BEJ 19R	MOJ 37	BEJ 105	-	10820	0
						10820	900
25	KEFLAVIK	IKF 20 IKF 29	KEF 57	HL 44 ■	-	9520	0
						9560	0
26	SHANNON	INN 06 INN 24	SHA 80 ■	CRK 93 ■	-	9540	0
						9540	0
27	FAIRFORD	FFA 27 FFA 09	FFA 81	BZN 56	-	9490	990
						9490	970
28	KOLN-BONN	KBO 14L KBO 32R	GIX 18	DOR 23Y ■	-	12020	0
						12020	0
29	ISTRES AB	FMI 33 FMI 15	◆FMI 16	NIM 53	◆6	11300	3960
						12300	0
30	ESENBOGA	ESN 03R ESN 21L	BAG 78 ■	BUK 90 ■	-	11800	0
						11800	0

◆ Available for TAL Only

■ DME

Length after displaced threshold

**STS-124 LANDING SITE TABLE
(50° to 63.5° INCLINATION)**

S I T E	LOCATION	RWY	TACANS		MLS CH	LG	+ OVR RUN
				ITEM 5			
31	KING KHALID	KKI 15R KKI 33L	RIY 92	KIA 80	- -	13300 13300	0 0
32	DIEGO GARCIA	JDG 31 JDG 13	NKW 57	NKW 57	- -	12000 12000	950 950
33	AMBERLEY TINDAL RAAF	AMB 15 PTN 14	AMB 94 -	- TDL 70	- -	9500 8500	0 0
34	YOKOTA AB	JTY 36 JTY 18	SHT 19	NJA 98	- -	11000 11000	1000 1000
35	ANDERSEN AFB	GUA 06L GUA 24R	UAM 54	UNZ 105	- -	10560 10560	1050 1000
36	WAKE ISLAND	WAK 28 WAK 10	AWK 82	AWK 82	- -	9360 9360	0 0
37	HONOLULU	HNL 08R HNL 26L	HNL 95	NGF 93	- -	11500 11500	0 0
38	ELMENDORF	EDF 24 EDF 06	EDF 81	BGQ 72	- -	9500 9500	0 0
39	HAO ATOLL	HAO 12 HAO 30	HAO 85 ■	HAO 85 ■	- -	10390 10390	0 0
40	EDW TEMP	EDT 22R EDT 04L	EDW 111	LHS 21	8 6	12000 12000	1000 1000
41	ASCENSION	HAW 13 HAW 31	ASI 59	ASI 59	- -	9520 9520	0 0
42	NORTHROP	NOR 17 NOR 23	SNG 121Y	HMN 92	6 6	15000 15000	Lkbd Lkbd
43	NORTHROP	NOR 05 NOR 35	SNG 121Y	HMN 92	- -	15000 15000	Lkbd Lkbd
44	EDWARDS AFB	EDW 15 EDW 18L	EDW 111	LHS 21	- -	16300 15000	Lkbd Lkbd
45	EDWARDS AFB	EDW 22 EDW 04	EDW 111	LHS 21	8/† 6	15010 14010	0 1800

† MSBLS Jr. Ch 8 - Requires Uplink

■ DME

Length after displaced threshold



WEATHER PADS

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ASC/124/FIN



**WEATHER
PADS**

**WEATHER
PADS**

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CONUS TERMINAL FORECASTS RTLS - ORB

↓ RTLS ACL pg 1-10

DEORB ORBIT	SITE	LDG GMT	SKY	VIS/WX	T/TD (°F)	WIND (MAG)	ALTM	DA	REMARKS
RTLS									
AOA (1)									
AOA (2)									

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

FIRST DAY PLS

ALT	RTLS	AOA (1)	AOA (2)	AOA (3)	ORB: _____	DEORB: _____
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				

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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	L9..... 9-23
R6..... 9-6		L10L..... 9-23
R side OVHD	MIDDECK EXPERIMENTS	L10U..... 9-24
Flood..... 9-6		L11U..... 9-24
	MIDDECK (NONE).. 9-16	L12UL..... 9-24
C2..... 9-6		L12UR..... 9-24
C3..... 9-6	AIRLOCK	L12LL..... 9-24
C5..... 9-7		L12LR..... 9-24
S2..... 9-7	AW18A..... 9-17	L12L..... 9-24
C6..... 9-7	AW18D..... 9-17	R12..... 9-24
C7..... 9-7	AW18H..... 9-17	
	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

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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-124 options affecting switch list:
1) OV103
2) GMTLO
3) Orbit incln = 51.6°
4) Payload: ISS-1J (JEM-PM, RMMA)
5) Crew size of 7 up, 7 down
6) Installed: TK CRYO sets (5), SORG, Ku Ant, GN2 (6), External Airlock (ISS), RMS, OBSS, OIU, VPU, WVS, DTV, ODS
7) Options N/R: RCRS
- Changes are with respect to STS-120 Switch List as published in FIN 2

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

L5 L COMM PWR – ON OFF

L side OVHD Flood – BRT

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 }

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

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

FIRE SUPPR AV BAY (three) – SAFE
 pb (three) – lt off
 SMOKE DETN lts (ten) – off
 SNSR – dn
 CKT TEST – OFF

L2 CAB RELIEF (two) – ctr (tb-ENA)
 VENT (two) – ctr (tb-CL)

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

L2 FLASH EVAP FDLN HTR SPLY (two) – OFF 2
 ANTISKID – ON
 NWS – 1
 BDY FLP – AUTO/OFF
 ENTRY MODE – AUTO
 TRIM R,P,Y (three) – ctr
 FREON ISOL MODE – OFF
 LOOP 1,2 (two) – ctr ****
 SBTC – full forward
 ATM PRESS CONTROL
 O2 SYS SPLY (two) – ctr (tb-OP)
 EMER – ctr (tb-bp)**
 XOVR SYS (two) – OP
 N2 SYS (four) – ctr (tb-OP)
 O2/N2 CNTLR VLV SYS 1 – OP
 2 – CL
 PPO2 SNSR/VLV – NORM

S1 CDR SEAT PWR BUS SEL – AC2 (up)
 CONTR (two) – ctr

F1 DC UTIL PWR MNB – OFF
 AC UTIL PWR AC1 – OFF

F2 All pb lts off except:
 BDY FLP pb – AUTO lt off
 SPDBK/THROT pb – AUTO lt off
 PITCH pb – AUTO lt off
 ROLL/YAW pb – AUTO lt off

F6U L HUD MODE – NORM
 DIM BRT sel – mid range
 HUD BRT – as reqd

F3 L HUD PWR – OFF
 TRIM RHC/PNL – INH
 PNL – ON
 NWS FAIL lt – off
 ANTISKID FAIL lt – off
 R TRIM RHC/PNL – INH
 PNL – ON
 HUD PWR – OFF
 DRAG CHUTE pb (six) – lt off

F8U R HUD MODE – NORM
 DIM BRT sel – mid range
 HUD BRT – as reqd

F4 All pb lts off except:
 BDY FLP pb – AUTO lt off
 SPDBK/THROT pb – AUTO lt off
 PITCH pb – AUTO lt off
 ROLL/YAW pb – AUTO lt off

F6 BFC – right
 HUD DATA BUS – 1
 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, 1
 RDR ALTM – 1
 FLT CNTLR PWR – ON
 ADI ATT – REF
 ERR – MED
 RATE – MED

NOT FLOWN

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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		
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		
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		
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)		
		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
		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
		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

NOT FLOWN

9-5

ASC/124/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 ISOL 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/124/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 DIRECT O2 vlv – CL		O6	
S2	PL SEAT PWR BUS SEL – AC3 (dn) CONTR (two) – ctr	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 LEH O2 vlv (four) – OP		O3	
C7 LEH O2 SPLY vlv (two) – OP		RCS/OMS PRESS sel – RCS He X 10 PRPLT QTY sel – OMS FUEL MSN TIME – MET	
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	O2	
CRYO O2 HTR ASSY TEMP sel – TK1 1 O2/H2 sel – TK1 FC STACK TEMP sel – 1		O4	

NOT FLOWN

9-7

ASC/124/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

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ASC/124/FIN

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

O9 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

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ASC/124/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
	RJDF 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/124/FIN

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

<p>ML86B:A cb MNA SPLY H2O TKA INLET - cl { }</p> <p style="padding-left: 20px;">TKB OUTLET - cl { }</p> <p style="padding-left: 20px;">WASTE H2O DUMP VLV/NOZ HTR - op {Y}</p> <p style="padding-left: 20px;">H2O LINE HTR A - op {Y}</p> <p style="padding-left: 20px;">MNB SPLY H2O TKB INLET - cl { }</p> <p style="padding-left: 40px;">TKC OUTLET - cl { }</p> <p style="padding-left: 40px;">DUMP ISOL - op {Y}</p> <p style="padding-left: 40px;">B SPLY ISOL VLV - cl { }</p> <p style="padding-left: 20px;">H2O LINE HTR B - op {Y}</p> <p style="padding-left: 20px;">MNC SPLY H2O TKA OUTLET - cl { }</p> <p style="padding-left: 40px;">TKC INLET - cl { }</p> <p style="padding-left: 40px;">DUMP VLV/NOZ HTR - op {Y}</p> <p style="padding-left: 40px;">XOVR VLV - cl { }</p> <p style="padding-left: 40px;">GALLEY SPLY - op {Y}</p> <p>:B cb MNA WASTE H2O TK1 VLV - cl { }</p> <p style="padding-left: 20px;">SPLY H2O TKD OUTLET - cl { }</p> <p style="padding-left: 20px;">WASTE H2O DUMP ISOL - op {Y}</p> <p style="padding-left: 20px;">VAC VENT ISOL VLV - op {Y}</p> <p style="padding-left: 20px;">WCS CNTLR - op {Y}</p> <p style="padding-left: 20px;">GALLEY OVEN - op {Y}</p> <p style="padding-left: 20px;">MNB WASTE H2O TK1 DRAIN - cl { }</p> <p style="padding-left: 20px;">SPLY H2O TKD INLET - cl { }</p> <p style="padding-left: 20px;">VAC VENT NOZ HTR - op {Y}</p> <p style="padding-left: 40px;">ISOL VLV - op {Y}</p> <p style="padding-left: 20px;">WCS CNTLR - op {Y}</p> <p style="padding-left: 20px;">GALLEY H2O HTR - op {Y}</p> <p>:C cb MNA EXT ARLK HTR LINE ZN1 - op {Y}</p> <p style="padding-left: 20px;"> ZN2 - op {Y}</p> <p style="padding-left: 20px;">STRUC - op {Y}</p>	<p>ML86B:C cb MNA EXT ARLK HTR VEST - op {Y}</p> <p style="padding-left: 20px;">MNB EXT ARLK HTR LINE ZN1 - op {Y}</p> <p style="padding-left: 40px;"> ZN2 - op {Y}</p> <p style="padding-left: 40px;"> H2O S/O VLV - cl { }</p> <p style="padding-left: 40px;"> STRUC - op {Y}</p> <p style="padding-left: 40px;"> VEST - op {Y}</p> <p style="padding-left: 20px;">MNC EXT ARLK HTR LINE ZN1 - op {Y}</p> <p style="padding-left: 40px;"> ZN2 - op {Y}</p> <p>:D cb MNA PYRO JETT SYS A KU ANT - op {R}</p> <p style="padding-left: 20px;">STBD RMS - op {R}</p> <p style="padding-left: 20px;">MMU GN2 SPLY ISOL VLV A - op {Y}</p> <p style="padding-left: 40px;">PORT HTR A - op {R}</p> <p style="padding-left: 40px;">STBD HTR A - op {R}</p> <p style="padding-left: 20px;">MNB PYRO JETT SYS A PORT RMS - op {R}</p> <p style="padding-left: 20px;">MMU GN2 SPLY ISOL VLV B - op {R}</p> <p style="padding-left: 40px;">PORT HTR B - op {R}</p> <p style="padding-left: 40px;">STBD HTR B - op {R}</p> <p style="padding-left: 20px;">MNC PYRO JETT SYS B KU ANT - op {R}</p> <p style="padding-left: 40px;">PORT RMS - op {R}</p> <p style="padding-left: 40px;">STBD RMS - op {R}</p> <p>:E cb MNA EMU 2 H2O SPLY - op {Y}</p> <p style="padding-left: 20px;"> WASTE - op {Y}</p> <p style="padding-left: 20px;">FC PCM - cl { }</p> <p style="padding-left: 20px;">CO2 SYS 1 CNTLR (OV104,5) - op {R}</p> <p style="padding-left: 20px;">FLOOD TNL ADAPT 2 - op {R}</p> <p style="padding-left: 20px;"> - (op {Y} if SH flown)</p>
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NOT FLOWN

9-11

ASC/124/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</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 { }</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 { R }</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: 40px;">DUMP ISOL VLV – ctr (tb-bp)**</p> <p style="padding-left: 40px;">VLV – ctr (tb-bp)**</p> <p style="padding-left: 40px;">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: 40px;">CNTL – ctr (tb-bp)**</p> <p style="padding-left: 40px;">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>
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NOT FLOWN

9-13

ASC/124/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 – OFF
 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 (OV103,4 only)

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/124/FIN

MIDDECK EXPERIMENTS SWITCH LIST FOR HANDOVER **INGRESS**

(NONE)

NOT FLOWN

9-16

ASC/124/FIN

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/124/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/124/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 c/w
	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	- 1 MON
	LAT (five)	- OFF (tb-bp)
	RDY tb (five)	- bp
<hr style="border-top: 1px dashed black;"/>		
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 style="border-top: 1px dashed black;"/>		
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/124/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

A2	DIGI DIS SEL – EL/AZ		
	X-PNTR SCALE – X10		
A7U	MSTR ALARM pb	– lt off	
	PL BAY FLOOD (eight)	– OFF	
	PORT RMS LIGHT	– OFF	
	CAMR	– WRIST	
	WIRELESS VIDEO (two)	– OFF	
	TV CAMR PWR (five)	– ctr (tb-OFF)	
	PWR CNTL	– CMD	
	CONTR UNIT	– OFF	
	DNLK	– ENA	
	SYNC	– NORM	
	VID IN pb (thirteen)	– lt off	
	OUT pb (eight)	– lt off	
	CAMR CMD PAN/TILT	– LO RATE	
	FOCUS	– ctr	
	ZOOM	– ctr	
	IRIS	– ctr	
	TILT	– ctr	
	PAN	– ctr	
	MENU pb (three)	– lt off	
	MODE pb (three)	– lt off	
			A7L
			(APDS CNTL PNL)
			CNTL PNL PWR (three) – OFF
			HTRS/DCU PWR (three) – OFF
			APDS PWR (three) – OFF (lt off)
			STATUS lts (thirty-six) – off
			PYROS (three) – OFF (lt off)
			PYRO CIRC PROT OFF lts (two) – off
			A4
			MSN TIMER sel – MET

NOT FLOWN

9-21

ASC/124/FIN 1

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/>
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NOT FLOWN

9-22

ASC/124/FIN

AFT FLIGHT DECK PAYLOADS SWITCH LIST FOR HANDOVER INGRESS

L10U	(AVIU) SYNC/VIDEO – VIDEO HI-Z/75 – HI-Z PWR SEL – HI	L12LR	SSP-2 cb PDIP 2 PWR 1 – op
L11U	(PDIP 2) T-0/OIU/OIU – OIU (ctr) DC PWR 1 CABIN P/L – OFF 2 CABIN P/L – OFF	L12L	(PDIP 1) Ku BAND RATE – OFF DC PWR 1 CABIN P/L – OFF 2 CABIN P/L – OFF
L12UL	SSP-1 cb SW PWR 1 – op PDIP 1 PWR 2/KuBAND RLY – op	R12	(VPU/OPP) VPU PWR – OFF
L12UR	SSP-1 (TCS/OIU) Verify all tbs bp TCS PWR – OFF cb PDIP 1 PWR 1 – op OIU PWR – OFF	R12	(OPP) cb OBSS SW PWR CB1 – op { Y } OBSS SW PWR – OFF
L12LL	SSP-2 cb PDIP 2 PWR 2 – op C/L CAM PWR – OFF	R12	(OBSS) RSC PWR – OFF ITVC ENA – OFF SPEE PWR – OFF

NOT FLOWN

9-24

ASC/124/FIN

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

A11 CRYO TK4 HTR (four) - OFF
 O2 RESET/TEST - ctr
 MS COMM CCU PWR - ON OFF
 DC UTIL PWR MNC - ON
 (OV105)
 PALLET HTRS C,D (two) - OFF
 TK10 HTRS (four) - OFF
 O2 RESET/TEST - ctr
 TK11 HTRS (four) - OFF
 O2 RESET/TEST - ctr
 TK12 HTRS (four) - OFF
 O2 RESET/TEST - ctr
 TK13 HTRS (four) - OFF
 O2 RESET/TEST - ctr
 (OV104)
 CRYO TK SEL (eight) - ctr
 All cbs (104,5) - op { R }

R14:C cb MNA UHF EVA - op { Y }
 MNB KU ELEC - op { Y }
 ANT HTR - op { Y }
 CABLE HTR - op { R }
 MNC KU SIG PROC - op { Y }
 UHF EVA - op { Y }
 :D All cbs - op { Y } except:
 cb MNC TV CAB - cl { }
 :E MNA D CAMR (three) - op { Y }
 MNB RMS CAMR (three) - op { Y }
 - (op { R } if no
 PORT RMS flown)
 :F ESS 1BC LDG GEAR ARM/DN RESET - op { R }

R14: All cbs - cl { } except:
 (OV104,5)
 :B cb MNA PALLET DSC 1A/2B - op { R }
 3A - op { R }
 MNB PALLET DSC 1B - op { R }
 4B - op { R }
 MNC PALLET DSC 2A - op { R }
 3B/4A - op { R }

NOT FLOWN

9-26

ASC/124/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	PPCO2 #2
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	PPCO2 (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	3	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	SUBSYS
AFD1	negative	auto	n/a	n/a	n/a	n/a



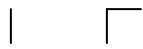
CUE CARD CONFIG

**CUE CARD
CONFIG**

FAB USE ONLY

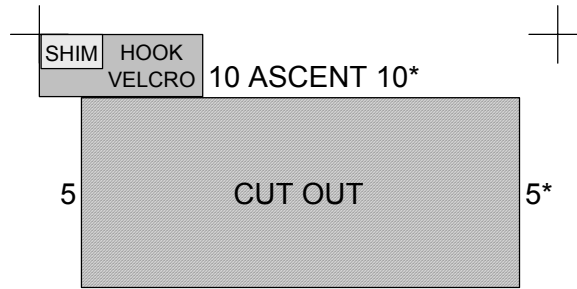
10-1

ASC/124/FIN



CUE CARD
CONFIG

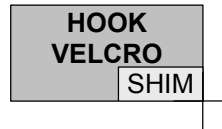
TOP



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

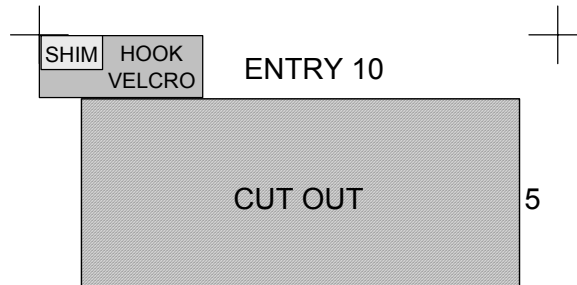
**ADI ERROR/RATE
SWITCH**

ASC-1a/A,E/H



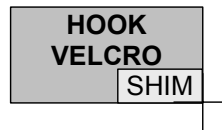
TOP

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/124/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

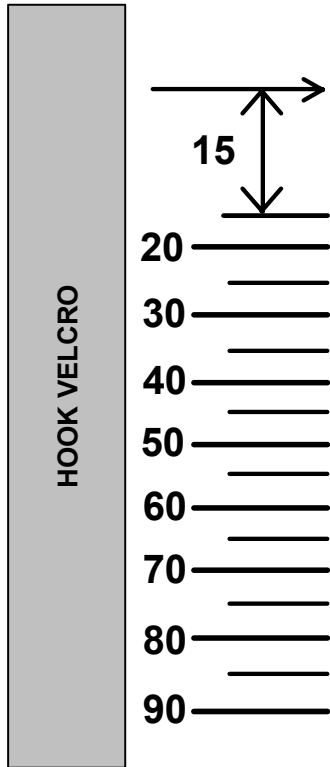
HOOK
VELCRO
SHIM

ASC-2b/A,E/D

TOP

ASC-3a/A,E/E

ALIGN ARROW WITH
SBTC TRAILING EDGE
FULL FORWARD



SPEEDBRAKE CMD
VS
SBTC TRAILING EDGE



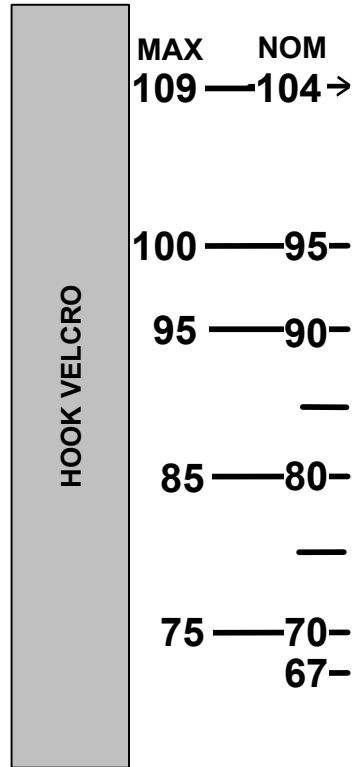
FAB USE ONLY

TOP

BACK OF
'SPEED BRAKE CMD'

ASC-3b/A,E/D

ALIGN ARROW WITH
SBTC TRAILING EDGE
FULL FORWARD

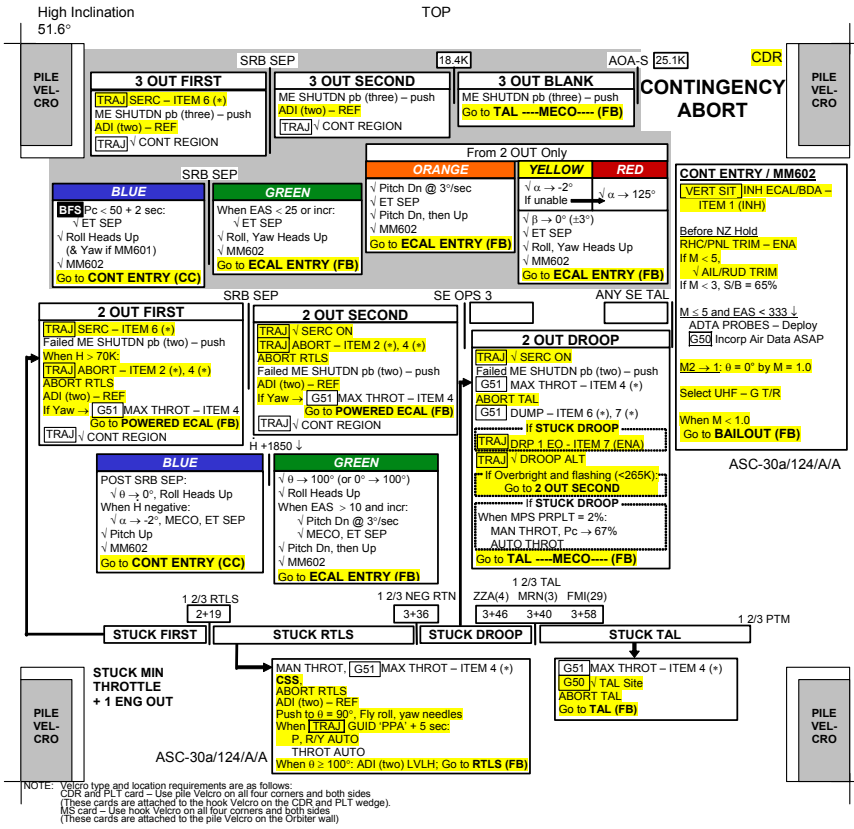


THROTTLE CMD
VS
SBTC TRAILING EDGE
ASC-3b/A,E/D



CC 10-4

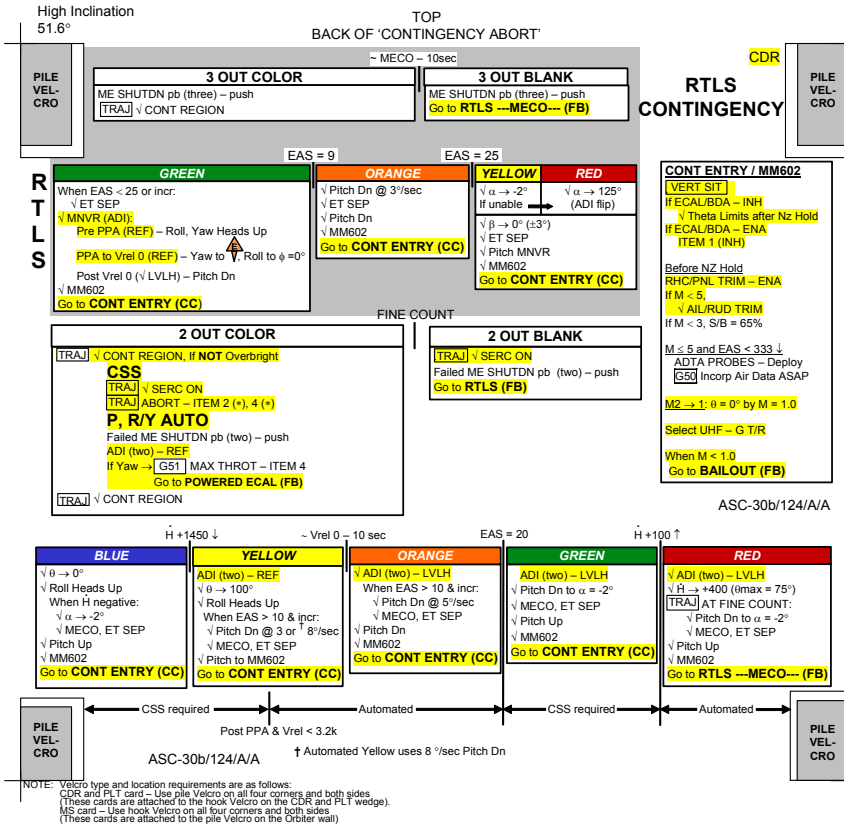
ASC/124/FIN



FAB USE ONLY

(reduced copy)
(A)CC 10-5

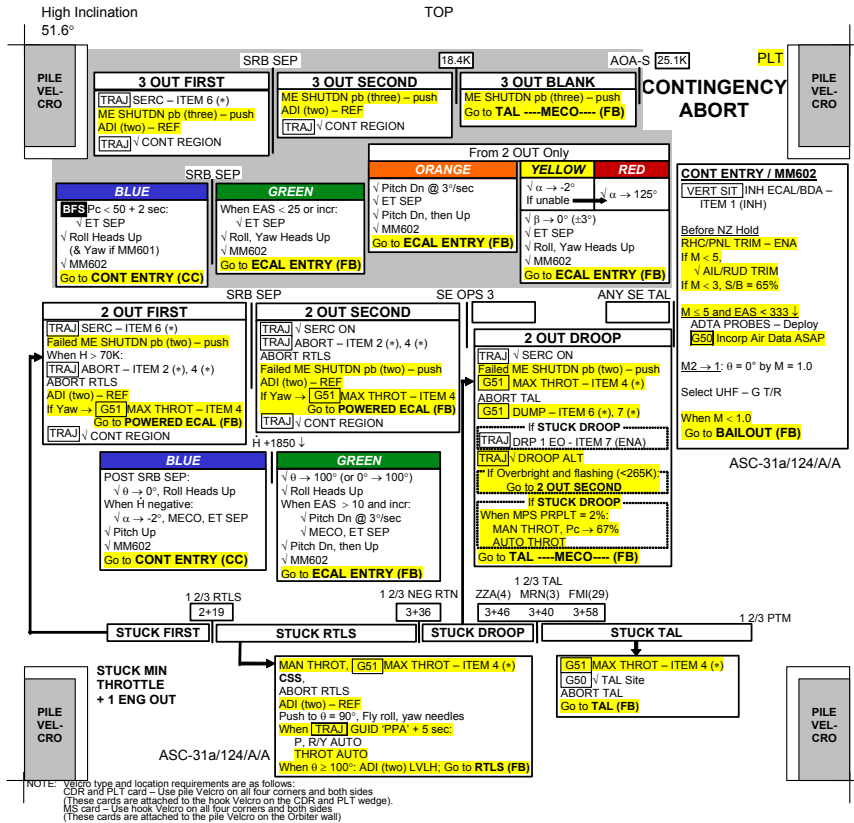
CDR
ASC/124/FIN



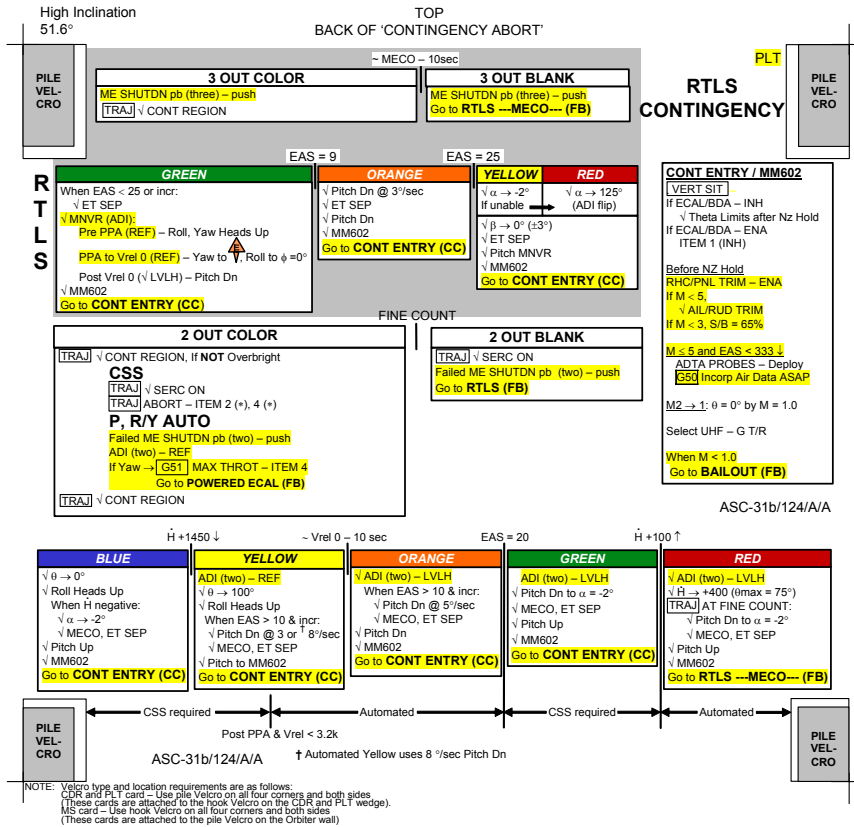
FAB USE ONLY

(reduced copy)
(A)CC 10-6

CDR
ASC/124/FIN



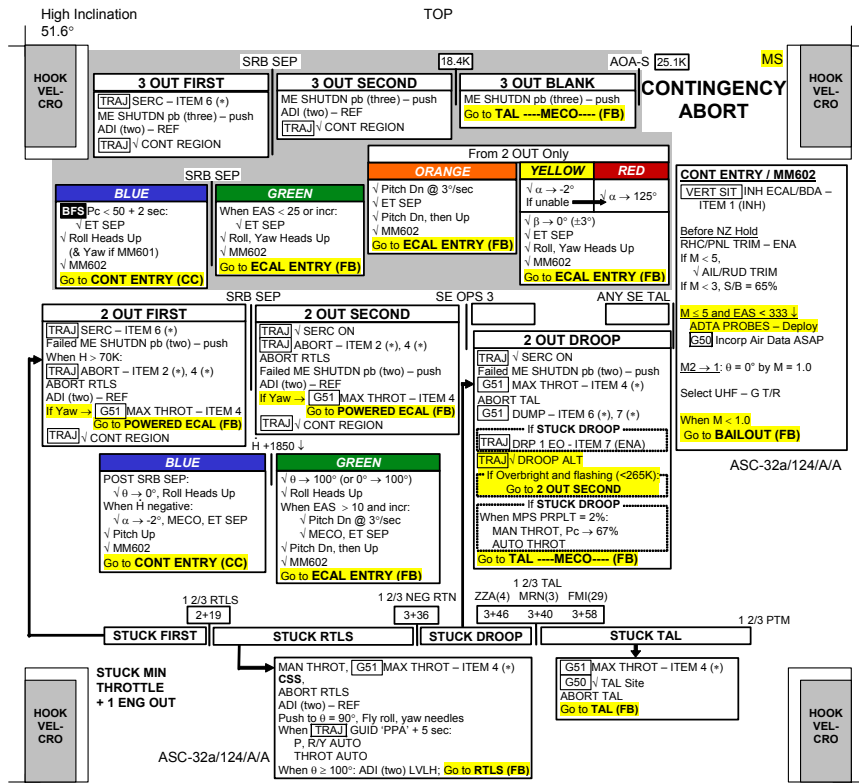
(reduced copy) **PLT**
 FAB USE ONLY (B)CC 10-5 ASC/124/FIN



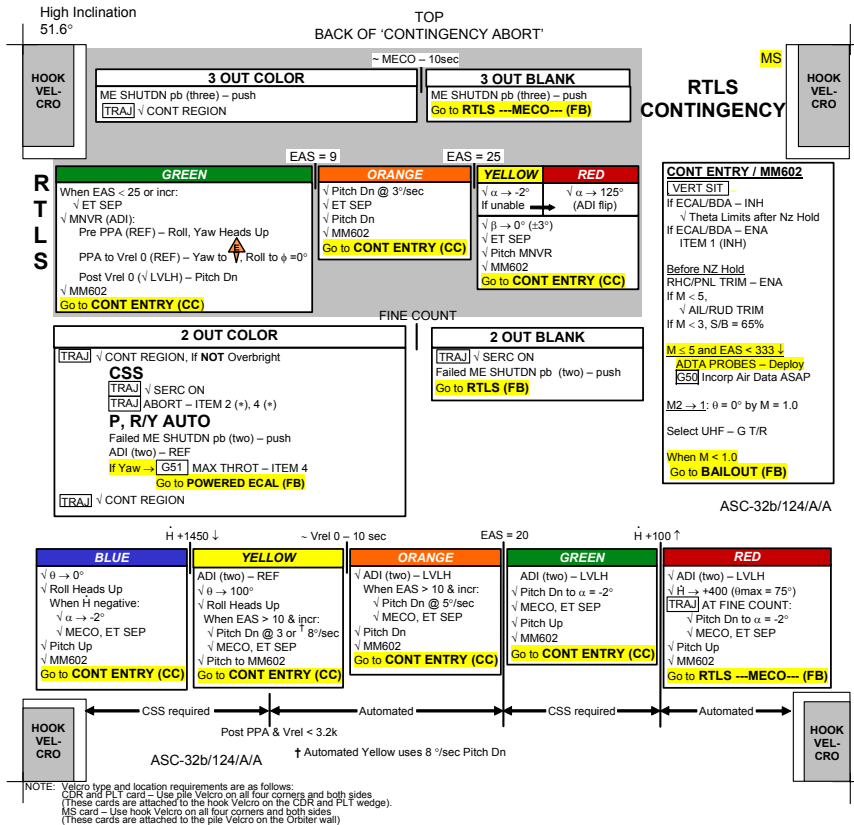
FAB USE ONLY

(reduced copy)
(B)CC 10-6

PLT
ASC/124/FIN



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



↑ H +1450 ↓

~ Vrel 0 - 10 sec

EAS = 20

↑ H +100 ↓

BLUE

√ θ → 0°
√ Roll Heads Up
When H negative:
√ α → -2°
√ MECO, ET SEP
√ Pitch Up
√ MM602
Go to **CONT ENTRY (CC)**

YELLOW

ADI (two) - REF
√ θ → 100°
√ Roll Heads Up
When EAS > 10 & incr:
√ Pitch Dn @ 3 or 8°/sec
√ MECO, ET SEP
√ Pitch to MM602
Go to **CONT ENTRY (CC)**

ORANGE

ADI (two) - LVLH
When EAS > 10 & incr:
√ Pitch Dn @ 5°/sec
√ MECO, ET SEP
√ Pitch Dn
√ MM602
Go to **CONT ENTRY (CC)**

GREEN

ADI (two) - LVLH
√ Pitch Dn to α = -2°
√ MECO, ET SEP
√ Pitch Up
√ MM602
Go to **CONT ENTRY (CC)**

RED

ADI (two) - LVLH
√ H → +400 (tmax = 75°)
[TRAJ] AT FINE COUNT:
√ Pitch Dn to α = -2°
√ MECO, ET SEP
√ Pitch Up
√ MM602
Go to **RTLS → MECO → (FB)**

HOOK
VEL-
CRO

← CSS required Automated CSS required Automated →

Post PPA & Vrel < 3.2k

ASC-32b/124/A/A ↑ Automated Yellow uses 8°/sec Pitch Dn

HOOK
VEL-
CRO

FAB USE ONLY

(reduced copy)
(C)CC 10-6

MS

ASC/124/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;">225</td><td style="border: 1px solid black; padding: 0 5px;">220</td></tr></table> or <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 0 5px;">205</td><td style="border: 1px solid black; padding: 0 5px;">204</td></tr></table> or No FU IN P	L	R	225	220	205	204	Oms ENG FAIL Oms PRPLT FAIL
L	R						
225	220						
205	204						
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/124/A,O/A

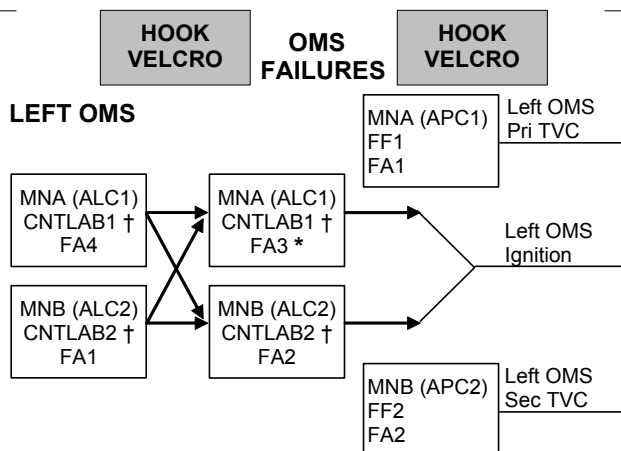
(reduced copy)

FAB USE ONLY

CC 10-7

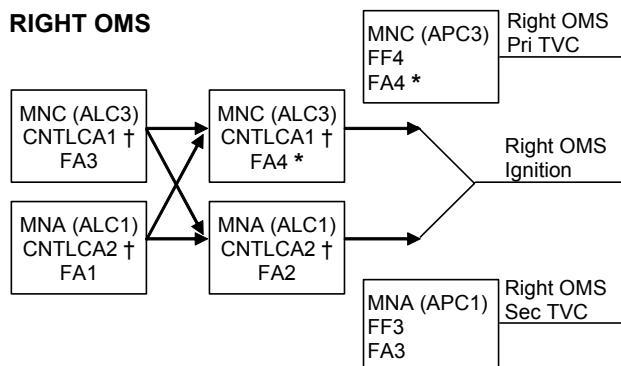
ASC/124/FIN

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/124/FIN

TOP

HOOK VELCRO **OMS 2/ ORBIT OMS BURNS** **HOOK VELCRO**

√MM105/202(302)
 Enter TGO +5 sec (2 eng) or TGO +10 sec (1 eng)
 √BURN ATT (INRTL) then REF, pb – push
 √ENG SEL √DAP TRANS – NORM (MM202)
 CNTL PWR (two) – ON √DAP – AUTO(PASS)/DISC
 √GMBL TRIM
 2 engine: P = +0.4 LY = -5.7 RY = +5.7
 1 engine: P = +0.4 LY = +5.2 RY = -5.2
 L,R OMS He PRESS/VAP ISOL A (two) – OP
 . . . Wait 2 sec . . .
 L,R OMS He PRESS/VAP ISOL B (two) – GPC (OP for SE burn)

ORB BURN A			
B			

TIG-2 SEL OMS ENG(s) – ARM/PRESS (√P VLVs OP)
 If P VLV CL: Aff OMS ENG – OFF

WARNING

Do not burn aff engine if:
 OMS N2 TK P < 470(564) (NONCRIT BURN)
 He TK P < 640
 FU ENG IN P < 216(244)
 OX ENG IN P < 151(244)

--	--	--

ΔVTOT: OMS XFEED RETURN (Planned Single Engine)

-:15 EXEC
 If OMS ENG P_c MSG and non critical burn: Aff ENG – OFF
 If Leaking OMS PROP, burn RCS +X TIG - 15 sec to
 OMS IGN + 1 sec
 :00 TIG; start watch (√P_c, ΔVTOT, ENG VLVs)

* **OMS PRFLT FAIL:** *

* **HP < [85]** (CONTINUE BURN): *

* Failed OMS ENG – OFF *

* √XFEED (two) – CL *

* TK ISOL (two) – CL *

* He PRESS (two) – CL *

* **HP > [85]** (STOP BURN): *

* OMS ENG (two) – OFF *

* √Failed OMS XFEED (two) – CL *

* TK ISOL (two) – CL *

* He PRESS (two) – CL *

* **OMS ENG FAIL:** *

* ASCENT or CRIT O/O (Continue Burn) *

* Failed ENG – OFF *

* OMS XFEED at → 1/2 ΔVTOT [] [] [] *

* at FAIL *

* **RCS COMPLETION:** (Hp < [85] or CRIT O/O) *

* Interconnect to either OMS that was ENG FAIL *

* THC +X (Hp = [85]) *

* Post burn, AFT RCS RECONFIG *

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

Trim	OMS 2	TAIL ONLY CNTL	Orbit
Residuals:	VGO X < 0.2 fps VGO Y,Z < 2 fps	VGO X < +0.2 fps	All axes < 0.2 fps

ASC-6a/124/A,O/A

(reduced copy)

FAB USE ONLY

CC 10-9

ASC/124/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/124/A,O/A

(reduced copy)

FAB USE ONLY

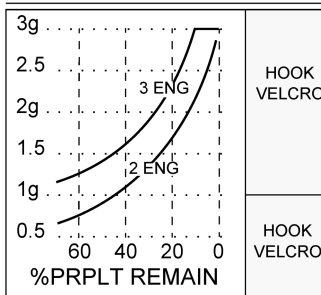
CC 10-10

ASC/124/FIN

TOP

ASCENT ADI - NOMINAL

TIME	θ	H	\dot{H}	(124 OCFR1 CY)
0:30	68	9K	648	
0:50	62	26K	981	
1:10	54	50K	1418	
1:30	39	83K	1885	
1:50	31	124K	2193	



-STAGING-

V_i	θ	H	\dot{H}	ASC-14a/124/A/A
6	19	219K	1715	
7	16	276	1264	
8	13	311	915	
9	11	333	633	
10	9	346	401	
12	6	356	60	
14	9	355	-148	
16	25	350	-233	
18	23	344	-268	
20	21	339	-218	
22	19	337	-105	
24	17	337	66	
25819	13	345	272	

HOOK VELCRO

TOP
BACK OF 'ASCENT
ADI - NOMINAL'

ENTRY ALPHA

VR	α ref	R	H	Href	Rref
25	HI 40	LO 4416	400		
24	HI 40	LO 2610	248	-46	R80
23	43 40	37 2140	240	-64	71
22	43 40	37 1789	234	-83	66
21	43 40	37 1510	228	-106	63
20	43 40	37 1289	224	-123	L60
19	43 40	37 1115	215	-145	61
18	43 40	37 978	208	-168	62
17	43 40	37 858	202	-187	63
16	43 40	37 766	195	-199	64

KSC 15

MAX L/D	
M	α
3	17
2	15
1	12

(124 OCFR1 CY)

ASC-14b/124/A,E/A

HOOK VELCRO

15	43 40 37	688 189	-118 64
14	43 40 37	615 185	-126 62
13	43 40 37	547 182	-136 59
12	43 40 37	485 177	-151 57
11	42 39 36	425 172	-195 55
10	41 38 35	375 168	-173 R48
9	39 36 33	327 161	-206 43
8	37 34 31	278 154	-238 39
7	33 30 27	229 144	-267 37
6	30 27 24	185 132	-272 39
5	26 23 20	142 119	-273 40
4	22 19 18	107 107	-263 L39
3	19 16 15	75 91	-248 37
2.5	15	61 84	-252
2	14	51 78	-253
1.5	10	39 69	-311
1	8	28 53	-264

HOOK VELCRO

(reduced copy)

FAB USE ONLY

CC 10-11

ASC/124/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/124/A/A

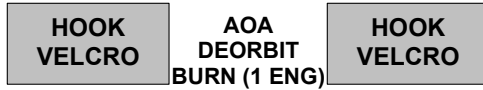
(reduced copy)

FAB USE ONLY

CC 10-13

ASC/124/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/124/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/124/A/A

(reduced copy)

FAB USE ONLY

CC 10-17

ASC/124/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/124/FIN



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



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**ZZA TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		6100	6200	6300	6400	6500	6600	6700	6800
SE OPS 3 ZZA 109	(4)	10900	11000	11000	11000	11100	11100	11100	11200
SE ZZA 104	(4)	17200	17100	16900	16700	16500	16300	16200	16000

1st E.O. VI		6900	7000	7100	7200	7300	7400	7500	7600
SE OPS 3 ZZA 109	(4)	11200	11300	11300	11300	11400	11400	11400	11400
SE ZZA 104	(4)	15800	15600	15500	15300	15200	15000	14900	14700

1st E.O. VI		7700	7800	7900	8000	8100	8200	8300	8400
SE OPS 3 ZZA 109	(4)	11400	11500	11500	11500	11500	11600	11600	11600
SE ZZA 104	(4)	14600	14500	14400	14200	14100	14000	14000	13900

1st E.O. VI		8500	8600	8700	8800	8900	9000	9100	9200
SE OPS 3 ZZA 109	(4)	11600	11600	11700	11700	11700	11700	11700	11700
SE ZZA 104	(4)	13800	13700	13700	13600	13600	13600	13500	13500

1st E.O. VI		9300	9400	9500	9600	9700	9800	9900	10000
SE OPS 3 ZZA 109	(4)	11800	11800	11800	11800	11800	11800	11800	11800
SE ZZA 104	(4)	13500	13500	13500	13400	13400	13400	13400	13500

1st E.O. VI		10100	10200	10300	10400	10500	10600	10700	10800
SE OPS 3 ZZA 109	(4)	11900	11900	11900	11900	11900	11900	11900	11900
SE ZZA 104	(4)	13500	13500	13500	13500	13500	13500	13600	13600

1st E.O. VI		10900	11000						
SE OPS 3 ZZA 109	(4)	11900	11900						
SE ZZA 104	(4)	13600	13600						

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BACK OF 'ZZA TAL REDESIGNATION'

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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				

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**MRN TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		5900	6000	6100	6200	6300	6400	6500	6600
SE OPS 3 MRN 109	(3)	10900	11000	11000	11000	11100	11100	11100	11200
SE MRN 104	(3)	16900	16800	16600	16400	16300	16100	15900	15800

1st E.O. VI		6700	6800	6900	7000	7100	7200	7300	7400
SE OPS 3 MRN 109	(3)	11200	11200	11200	11300	11300	11300	11400	11400
SE MRN 104	(3)	15600	15500	15300	15200	15000	14900	14700	14600

1st E.O. VI		7500	7600	7700	7800	7900	8000	8100	8200
SE OPS 3 MRN 109	(3)	11400	11400	11500	11500	11500	11500	11600	11600
SE MRN 104	(3)	14500	14400	14200	14100	14000	13900	13900	13800

1st E.O. VI		8300	8400	8500	8600	8700	8800	8900	9000
SE OPS 3 MRN 109	(3)	11600	11600	11600	11700	11700	11700	11700	11700
SE MRN 104	(3)	13700	13600	13600	13500	13500	13400	13400	13400

1st E.O. VI		9100	9200	9300	9400	9500	9600	9700	9800
SE OPS 3 MRN 109	(3)	11700	11800	11800	11800	11800	11800	11800	11800
SE MRN 104	(3)	13400	13300	13300	13300	13300	13300	13300	13300

1st E.O. VI		9900	10000	10100	10200	10300	10400	10500	10600
SE OPS 3 MRN 109	(3)	11800	11800	11900	11900	11900	11900	11900	11900
SE MRN 104	(3)	13300	13300	13300	13400	13400	13400	13400	13400

1st E.O. VI		10700	10800	10900	11000				
SE OPS 3 MRN 109	(3)	11900	11900	11900	11900				
SE MRN 104	(3)	13500	13500	13500	13500				

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BACK OF 'MRN TAL REDESIGNATION'

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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				

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**FMI TAL REDESIGNATION
(124 OCFR1 CYC)**

1st E.O. VI		6300	6400	6500	6600	6700	6800	6900	7000
SE OPS 3 FMI 109	(29)	11100	11200	11200	11200	11200	11200	11300	11300
SE FMI 104	(29)	17700	17500	17300	17200	17000	16800	16600	16400

1st E.O. VI		7100	7200	7300	7400	7500	7600	7700	7800
SE OPS 3 FMI 109	(29)	11300	11300	11300	11400	11400	11400	11400	11400
SE FMI 104	(29)	16200	16000	15900	15700	15500	15400	15200	15100

1st E.O. VI		7900	8000	8100	8200	8300	8400	8500	8600
SE OPS 3 FMI 109	(29)	11500	11500	11500	11500	11500	11600	11600	11600
SE FMI 104	(29)	14900	14800	14700	14500	14400	14300	14300	14200

1st E.O. VI		8700	8800	8900	9000	9100	9200	9300	9400
SE OPS 3 FMI 109	(29)	11600	11600	11600	11700	11700	11700	11700	11700
SE FMI 104	(29)	14100	14000	14000	13900	13900	13900	13800	13800

1st E.O. VI		9500	9600	9700	9800	9900	10000	10100	10200
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	13800

1st E.O. VI		10300	10400	10500	10600	10700	10800	10900	11000
SE OPS 3 FMI 109	(29)	11800	11900	11900	11900	11900	11900	11900	11900
SE FMI 104	(29)	13800	13800	13800	13800	13900	13900	13900	13900

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TOP
BACK OF 'FMI TAL REDESIGNATION'

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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				

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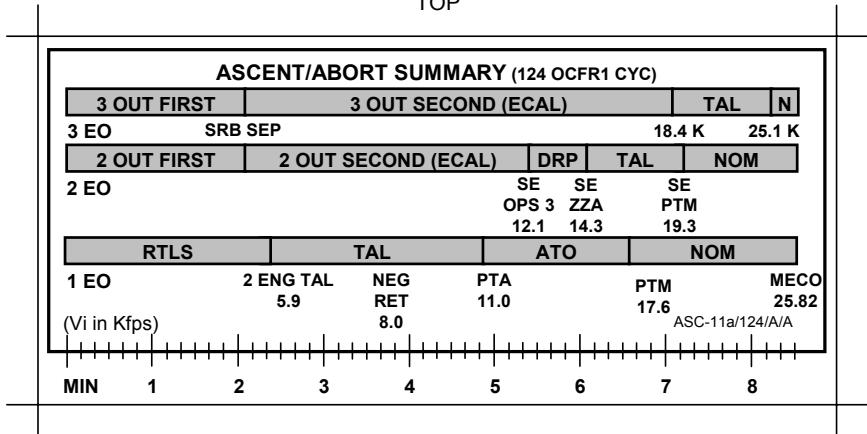
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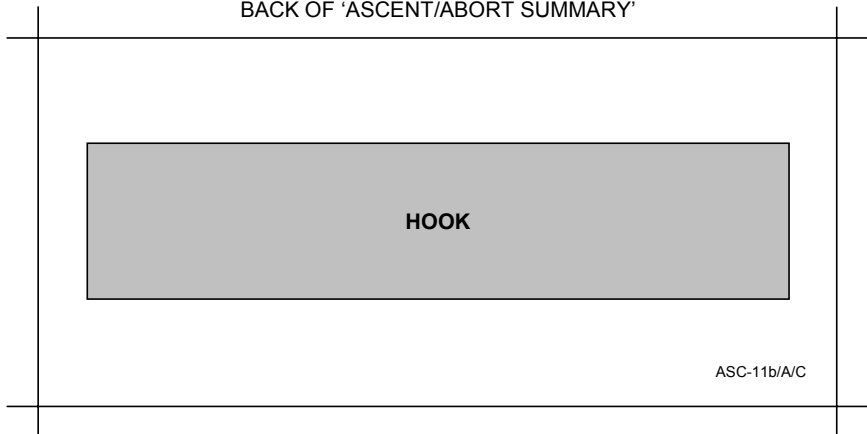
CC 10-25

ASC/124/FIN

TOP



TOP
BACK OF 'ASCENT/ABORT SUMMARY'



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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
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C6

ASC-15b/A,E/E

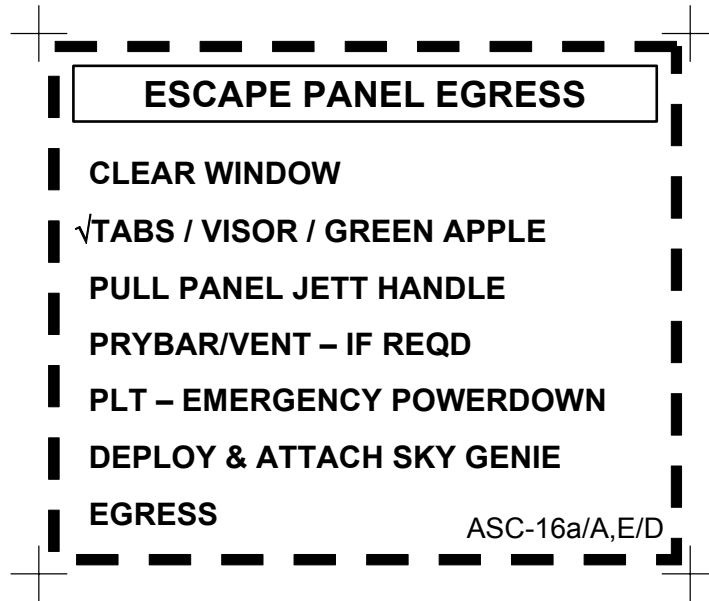
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TOP



TOP
BACK OF 'ESCAPE PANEL EGRESS'



**HOOK
VELCRO**

ASC-16b/A,E/C

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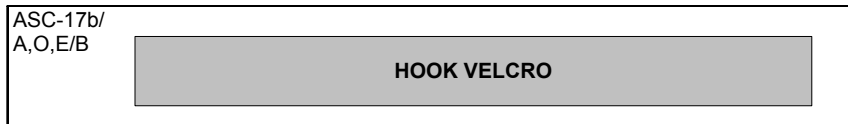
GPC/FCS CHANNEL CONFIGURATION

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

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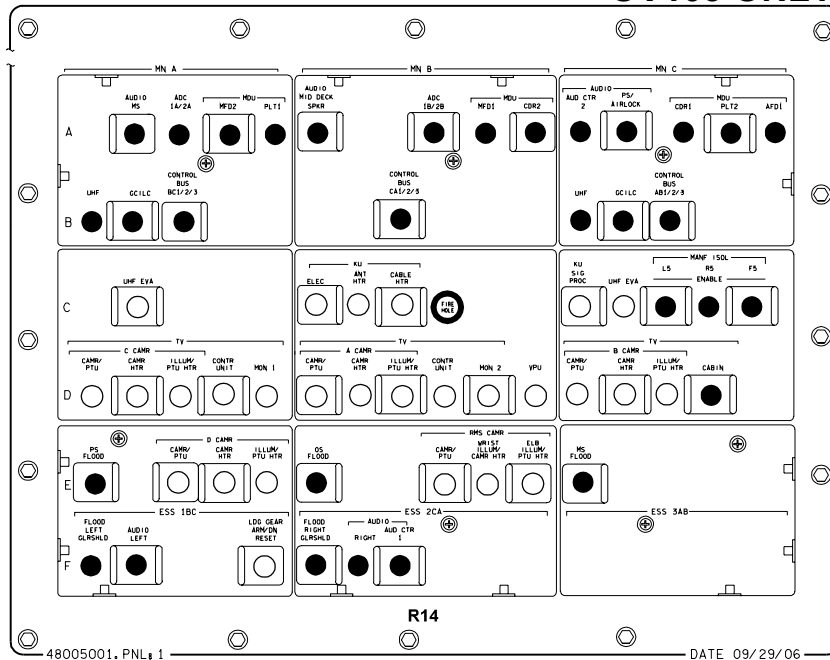
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TOP
 PANEL R14 - OV103 ONLY

OV103 ONLY



48005001, PNL 1

DATE 09/29/06

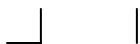
ASC-18a/A,O,E/H

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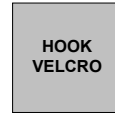
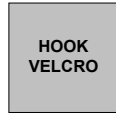
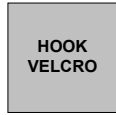
FAB USE ONLY

CC 10-31

ASC/124/FIN



TOP
 BACK OF 'PANEL R14 - OV103 ONLY'



ASC-18b/A,O,E/C



(reduced copy)
 CC 10-32

FAB USE ONLY

ASC/124/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/124/FIN

FAB USE ONLY

CC 10-34

ASC/124/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/124/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

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HINGE

ASC-25b/A,E/D

FAB USE ONLY

CC 10-36

ASC/124/FIN

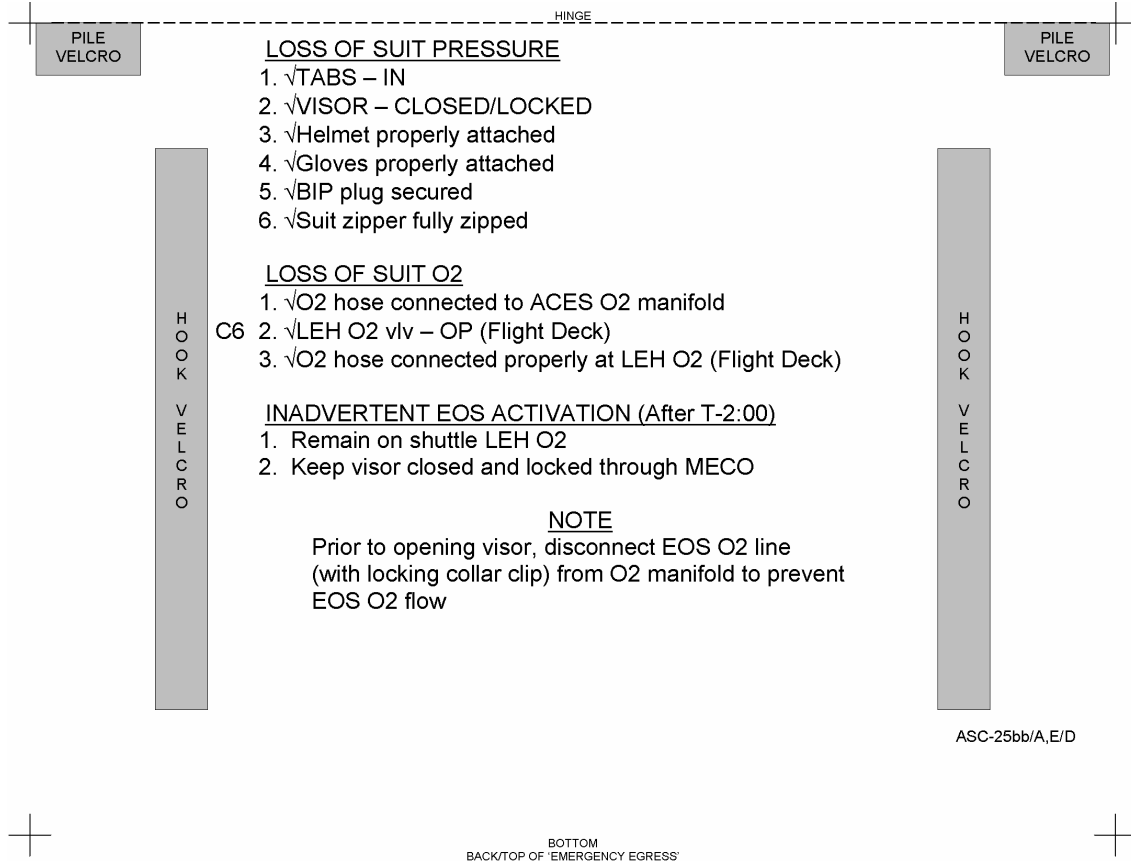
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FAB USE ONLY

CC 10-37

ASC/124/FIN

(reduced copy)



FAB USE ONLY

СС 10-38

ASC/124/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
КН АВОРТ - 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/124/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

СС 10-40

ASC/124/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

HOOK
VELCRO

HOOK
VELCRO

ASC-26b/A,E/D

HOOK
VELCRO

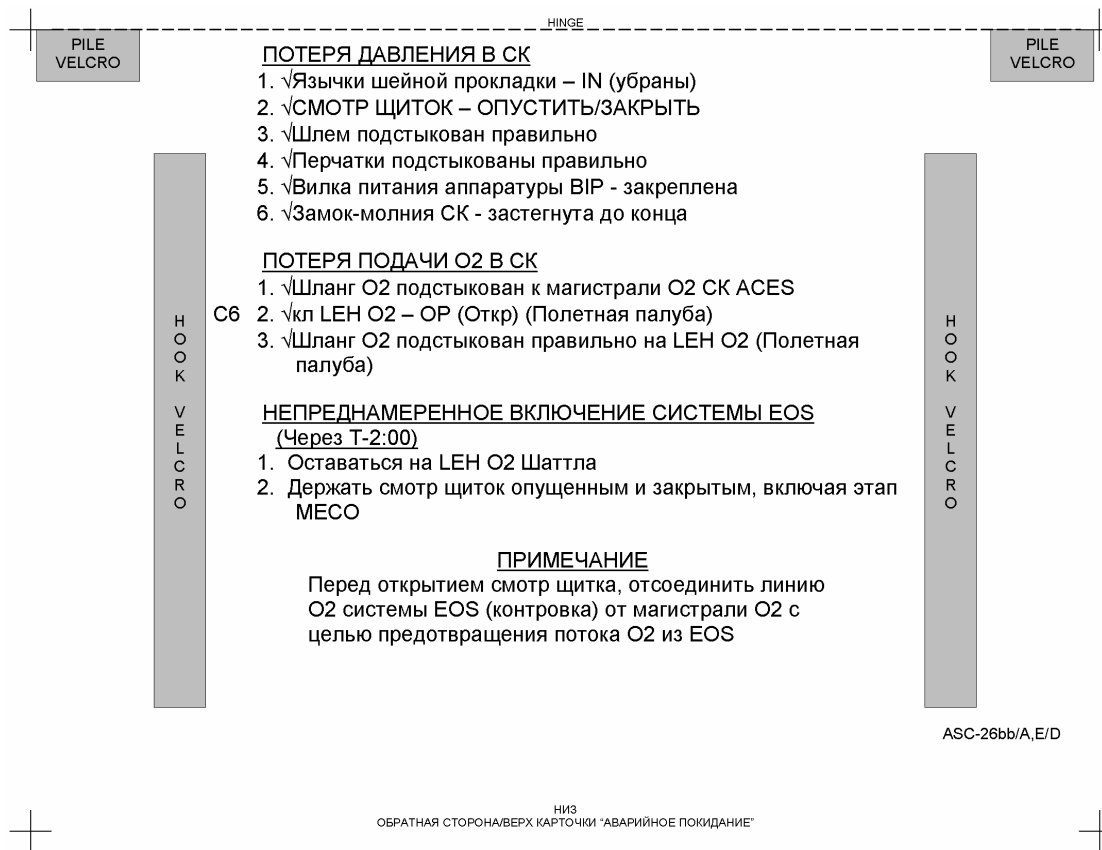
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FAB USE ONLY

CS 10-41

ASC/124/FIN

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FAB USE ONLY

10-42

ASC/124/FIN



Space Shuttle Program
FLIGHT DATA FILE

JSC-48005-124
FINAL



ASCENT CHECKLIST

STS
124

Flight Cover (trim bottom to expose tabs)