

Ascent Checklist

STS-114

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

**Final, Rev A
January 25, 2005**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



JSC-48005-114

MISSION OPERATIONS DIRECTORATE

**ASCENT CHECKLIST
STS-114**

FINAL, REVISION A
January 25, 2005

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ASC/114/FIN A

Incorporates the following:			
482#:	ASC-1681C	ASC-1692	MULTI-1660
	ASC-1684	ASC-1693	MULTI-1663
	ASC-1685	ASC-1694	MULTI-1668A
	ASC-1686	ASC-1695	MULTI-1672
	ASC-1687A	ASC-1697	MULTI-1680A
	ASC-1688	ASC-1698	MULTI-1681
	ASC-1689	ASC-1699	MULTI-1686
	ASC-1690D	ASC-1700	
	ASC-1691 (P)	ASC-1701	

(P) Partial

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
Cue Cards	DO3/M. Feierstein	281-483-1861

NOTES

1. The STS-114 trajectory data in this checklist is based on the STS-114 One Cycle to Flight load and the March 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. The size, shape, and Velcro location of the cue cards are controlled by the Cue Card Book Manager.
9. Mission STS-114 is flown with vehicle OV103.



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ASCENT CHECKLIST
STS-114

LIST OF EFFECTIVE PAGES

FINAL 11/18/02
REV A 01/25/05

Sign Off	*	114/FIN A	FB 2-7	114/FIN A
ii	*	114/FIN A	FB 2-8	114/FIN A
iii	*	114/FIN A	FB 2-9	114/FIN A
iv	*	114/FIN A	FB 2-10	114/FIN A
v	*	114/FIN A	FB 2-11	114/FIN A
vi	*	114/FIN A	FB 2-12	<input checked="" type="checkbox"/> 114/FIN A
vii	*	114/FIN A	FB 2-13	114/FIN A
viii	*	114/FIN A	FB 2-14	<input checked="" type="checkbox"/> 114/FIN A
ix	*	114/FIN A	FB 2-15	114/FIN A
x	*	114/FIN A	FB 2-16	114/FIN A
xi		114/FIN A	FB 2-17	114/FIN A
xii		114/FIN A	FB 2-18	114/FIN A
1-1		114/FIN A	FB 2-19	114/FIN A
1-2		114/FIN A	FB 2-20	114/FIN A
1-3		114/FIN A	FB 2-21	114/FIN A
1-4		114/FIN A	FB 2-22	114/FIN A
1-5		114/FIN A	FB 2-23	114/FIN A
1-6		114/FIN A	FB 2-24	114/FIN A
1-7		114/FIN A	FB 2-25	114/FIN A
1-8		114/FIN A	2-26	114/FIN A
1-9		114/FIN A	2-27	114/FIN A
1-10	<input checked="" type="checkbox"/>	114/FIN A	2-28	114/FIN A
1-11		114/FIN A	2-29	114/FIN A
1-12		114/FIN A	2-30	114/FIN A
1-13		114/FIN A	2-31	*
1-14		114/FIN A	2-32	*
2-1		114/FIN A	2-33	*
FB 2-2		114/FIN A	2-34	*
FB 2-3		114/FIN A	2-35	*
FB 2-4		114/FIN A	2-36	*
FB 2-5		114/FIN A	2-37	*
FB 2-6		114/FIN A	2-38	*

* – Omit from flight book

– Prelift-off information required

2-39.....*	114/FIN A	6-19.....	114/FIN A
2-40.....*	114/FIN A	6-20.....	114/FIN A
2-41.....*	114/FIN A	6-21.....	114/FIN A
2-42.....*	114/FIN A	6-22.....	114/FIN A
2-43.....*	114/FIN A	6-23.....	114/FIN A
2-44.....*	114/FIN A	6-24.....	114/FIN A
3-1.....	114/FIN A	6-25.....	114/FIN A
3-2.....	114/FIN A	6-26.....	114/FIN A
3-3.....	114/FIN A	6-27.....	114/FIN A
3-4.....	114/FIN A	6-28.....	114/FIN A
3-5.....	114/FIN A	6-29.....	114/FIN A
3-6.....	114/FIN A	6-30.....	114/FIN A
3-7.....	114/FIN A	6-31.....	114/FIN A
3-8.....	114/FIN A	6-32.....	114/FIN A
4-1.....	114/FIN A	6-33.....	114/FIN A
4-2.....	114/FIN A	6-34.....	114/FIN A
4-3.....	114/FIN A	6-35.....	114/FIN A
4-4.....	114/FIN A	6-36.....	114/FIN A
5-1.....	114/FIN A	6-37.....	114/FIN A
5-2.....	114/FIN A	6-38.....	114/FIN A
5-3.....	114/FIN A	6-39.....	114/FIN A
5-4.....	114/FIN A	6-40.....	114/FIN A
6-1.....	114/FIN A	7-1.....	114/FIN A
6-2.....	114/FIN A	7-2.....	114/FIN A
6-3.....	114/FIN A	7-3.....	114/FIN A
6-4.....	114/FIN A	7-4.....	114/FIN A
6-5.....	114/FIN A	7-5.....	114/FIN A
6-6.....	114/FIN A	7-6.....	114/FIN A
6-7.....	114/FIN A	7-7.....	114/FIN A
6-8.....	114/FIN A	7-8.....	114/FIN A
6-9.....	114/FIN A	7-9.....	114/FIN A
6-10.....	114/FIN A	7-10.....	114/FIN A
6-11.....	114/FIN A	8-1.....	114/FIN A
6-12.....	114/FIN A	8-2.....	114/FIN A
6-13.....	114/FIN A	8-3.....	☒ 114/FIN A
6-14.....	114/FIN A	8-4.....	☒ 114/FIN A
6-15.....	114/FIN A	8-5.....	☒ 114/FIN A
6-16.....	114/FIN A	8-6.....	☒ 114/FIN A
6-17.....	114/FIN A	8-7.....	☒ 114/FIN A
6-18.....	114/FIN A	8-8.....	114/FIN A

* – Omit from flight book

☒ – Prelift-off information required

9-1.....*	114/FIN A	CC 10-9.....*	114/FIN A
9-2.....*	114/FIN A	CC 10-10.....*	114/FIN A
9-3.....*	114/FIN A	CC 10-11.....*	114/FIN A
9-4.....*	114/FIN A	CC 10-12.....*	114/FIN A
9-5.....*	114/FIN A	CC 10-13.....*	114/FIN A
9-6.....*	114/FIN A	CC 10-14.....*	114/FIN A
9-7.....*	114/FIN A	CC 10-15.....*	114/FIN A
9-8.....*	114/FIN A	CC 10-16.....*	114/FIN A
9-9.....*	114/FIN A	CC 10-17.....*	114/FIN A
9-10.....*	114/FIN A	CC 10-18.....*	114/FIN A
9-11.....*	114/FIN A	CC 10-19.....*	114/FIN A
9-12.....*	114/FIN A	CC 10-20.....*	114/FIN A
9-13.....*	114/FIN A	CC 10-21.....*	114/FIN A
9-14.....*	114/FIN A	CC 10-22.....*	114/FIN A
9-15.....*	114/FIN A	CC 10-23.....*	114/FIN A
9-16.....*	114/FIN A	CC 10-24.....*	114/FIN A
9-17.....*	114/FIN A	CC 10-25.....*	114/FIN A
9-18.....*	114/FIN A	CC 10-26.....*	114/FIN A
9-19.....*	114/FIN A	CC 10-27.....*	114/FIN A
9-20.....*	114/FIN A	CC 10-28.....*	114/FIN A
9-21.....*	114/FIN A	CC 10-29.....*	114/FIN A
9-22.....*	114/FIN A	CC 10-30.....*	114/FIN A
9-23.....*	114/FIN A	CC 10-31.....*	114/FIN A
9-24.....*	114/FIN A	CC 10-32.....*	114/FIN A
9-25.....*	114/FIN A	CC 10-33.....*	114/FIN A
9-26.....*	114/FIN A	CC 10-34.....*	114/FIN A
9-27.....*	114/FIN A	CC 10-35.....*	114/FIN A
9-28.....*	114/FIN A	CC 10-36.....*	114/FIN A
10-1.....*	114/FIN A	CC 10-37.....*	114/FIN A
CC 10-2.....*	114/FIN A	CC 10-38.....*	114/FIN A
CC 10-3.....*	114/FIN A	CC 10-39.....*	114/FIN A
CC 10-4.....*	114/FIN A	CC 10-40.....*	114/FIN A
(A)CC 10-5.....*	114/FIN A	CC 10-41.....*	114/FIN A
(A)CC 10-6.....*	114/FIN A	10-42.....*	114/FIN A
(B)CC 10-5.....*	114/FIN A		
(B)CC 10-6.....*	114/FIN A		
(C)CC 10-5.....*	114/FIN A		
(C)CC 10-6.....*	114/FIN A		
CC 10-7.....*	114/FIN A		
CC 10-8.....*	114/FIN A		

* – Omit from flight book

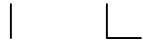
ASCENT CUE CARDS

<u>Title</u>	<u>Ref. Page</u>	<u>Card No.</u>
ADI ERROR/RATE SWITCH		
ASCENT (Front).....	CC 10-2	ASC-1a/A,E/D
ENTRY (Back).....	CC 10-2	ASC-1b/A,E/D
ASCENT/ENTRY SPEC		
(Front).....	CC 10-3	ASC-2a/A,E/E
(Back).....	CC 10-3	ASC-2b/A,E/C
SPEED BRAKE CMD		
(Front).....	CC 10-4	ASC-3a/A,E/D
(Back).....	CC 10-4	ASC-3b/A,E/C
CONTINGENCY ABORT		
CDR (Front).....	(A)CC 10-5	ASC-30a/114/A/C
RTLS CONTINGENCY		
CDR (Back).....	(A)CC 10-6	ASC-30b/114/A/C
CONTINGENCY ABORT		
PLT (Front).....	(B)CC 10-5	ASC-31a/114/A/C
RTLS CONTINGENCY		
PLT (Back).....	(B)CC 10-6	ASC-31b/114/A/C
CONTINGENCY ABORT		
MS (Front).....	(C)CC 10-5	ASC-32a/114/A/C
RTLS CONTINGENCY		
MS (Back).....	(C)CC 10-6	ASC-32b/114/A/C
OMS 2 BURN MONITOR (Front)	CC 10-7	ASC-5a/114/A,O/B
OMS FAILURES (Back).....	CC 10-8	ASC-5b/A,O,E/I
OMS 2/ORBIT OMS BURNS		
(Front).....	CC 10-9	ASC-6a/114/A,O/B
OPS 1 RCS BURN (Back).....	CC 10-10	ASC-6b/114/A,O/B
ASCENT ADI – NOMINAL		
(Front).....	CC 10-11	ASC-14a/114/A/D
ENTRY ALPHA – KSC 15		
(Back).....	CC 10-11	ASC-14b/114/A,E/C
AOA DEORBIT BURN (2 ENG)		
(Top/Front).....	CC 10-12	ASC-8a/A/E
(Bottom/Front).....	CC 10-13	ASC-8aa/114/A/B
AOA DEORBIT BURN (1 ENG)		
(Top/Back).....	CC 10-14	ASC-8b/A/B
(Bottom/Back).....	CC 10-15	ASC-8bb/114/A/B
AOA DEORBIT BURN (RCS)		
(Top/Front).....	CC 10-16	ASC-7a/A/B
(Bottom/Front).....	CC 10-17	ASC-7aa/114/A/B
(Top/Back).....	CC 10-18	ASC-7b/A/B
(Bottom/Back).....	CC 10-19	ASC-7bb/A/B

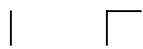
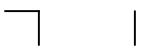
ZZA TAL REDESIGNATION		
(Front).....	CC 10-20	ASC-9a/114/A/C
ECAL – ZZA or MRN or FMI		
PRIME TAL (Back).....	CC 10-21	ASC-9b/114/A/C
MRN TAL REDESIGNATION		
(Front).....	CC 10-22	ASC-10a/114/A/C
ECAL – ZZA or MRN or FMI		
PRIME TAL (Back).....	CC 10-23	ASC-10b/114/A/C
FMI TAL REDESIGNATION		
(Front).....	CC 10-24	ASC-12a/114/A/C
ECAL – ZZA or MRN or FMI		
PRIME TAL (Back).....	CC 10-25	ASC-12b/114/A/C
ASCENT/ABORT SUMMARY		
(Front).....	CC 10-26	ASC-11a/114/A/C
(Back).....	CC 10-26	ASC-11b/A/C
EMERGENCY EGRESS		
(Front).....	CC 10-27	ASC-15a/A,E/G
(Back).....	CC 10-28	ASC-15b/A,E/D
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/G
(Back).....	CC 10-32	ASC-18b/A,O,E/C
LOC/BREAK-UP.....	CC 10-33	ASC-21a/A/C
EMERGENCY EGRESS (OVERSIZED)		
(Top/Front).....	CC 10-34	ASC-25a/A,E/E
(Bottom/Front).....	CC 10-35	ASC-25aa/A,E/C
(Top/Back).....	CC 10-36	ASC-25b/A,E/B
(Bottom/Back).....	CC 10-37	ASC-25bb/A,E/B
EMERGENCY EGRESS (RUSSIAN)		
(Top/Front).....	CC 10-38	ASC-26a/A,E/C
(Bottom/Front).....	CC 10-39	ASC-26aa/A,E/B
(Top/Back).....	CC 10-40	ASC-26b/A,E/B
(Bottom/Back).....	CC 10-41	ASC-26bb/A,E/B

PLT & CDR Ascent

<u>Flip Book</u>	FB 2-2 thru FB 2-25
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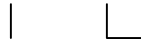


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AOA PROCEDURES	6-7
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AOA POST DEORBIT BURN.....	6-27
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OMS/RCS ΔV	6-39
OMS TARGETS, COMM COVERAGE, LAND SITES	7-1
WEATHER PADS	8-1
SWITCH LIST	9-1
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),
INST PWR – FLT/MPS (F6) (OV103,5),
INST PWR – ON (F8) (OV103,5). ESS BUS
SOURCE FC (three) – ON, AC BUS SNSR
(three) – OFF (1 sec) then AUTO TRIP (R1), cb
APU FU TK VLV ENA (six) – cl (R2). OTC will
call: (~2 min) ESS BUS SOURCE FC (three) –
OFF, AC BUS SNSR (three) – OFF (1 sec) then
MON (R1), cb ESS MN CONTR (three) – cl
(O13), cb MN CONTR (three) – cl
(O14,O15,O16), cb AC1 H2O LOOP PUMP 1 A/2
(three) – op (L4)

PAYLOAD ACTIVATION

A6U √PL RETEN PL SEL – MON

NAVAIDS ACTIVATION

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

If OV103:

A13 √GPS PRE AMPL UC – MNC
√LC – MNA
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	

A SIMO VOICE CHECK (LAUNCH CONFIG)
O5,O9, L,R AUD A/G 1 (two) – T/R
R10,L9, 2 (two) – T/R
MO42F Voice check with MCC

NOTE
Side hatch closure

-1:10:00 C **CABIN LEAK CHECK**
(-2:00:00)

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

O1 √CAB PRESS – incr to 16.7 (MA)

NOTE
Flt crew functions from this point on will be initiated by a call from OTC to proceed. Flt crew will report back to OTC after completion

-45:00 C **CABIN VENT REDUNDANCY CONFIG**
(-1:35:00)

NOTE
Vent vlv operation may occur earlier or later at LCC direction

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

-40:00 C **CABIN VENT**
(-1:30:00)

L2 CAB VENT ISOL – OP (tb-OP)
 (klaxon)
 √tb – OP
O1 √PRESS – decr

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

NOTE

Gnd-controlled Fuel Cell purge

-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 P
(-56:00)

MPS He RECONFIG

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

-15:00
(-55:00)

CONFIG OMS/RCS XFEED VLVS

NOTE

OMS/RCS XFEED vlvs
reconfigured for launch by LPS.

At T-9 there will be a planned
40 min 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 MS1
(~-15:00)

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

√Seat in launch position

√LES zippers and 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

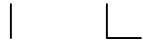
2: GNC SYS SUMM 1
3: BFS, GNC SYS SUMM 1

C3 C/W MEM – CLEAR

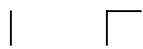
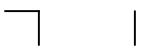
-2:00 **A SUIT PREP**

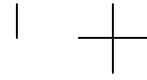
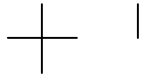
√Tabs/visor – cl/LES O2 – ON

MS1 ICOM RCDR – ON (if reqd)



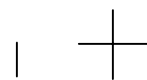
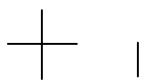
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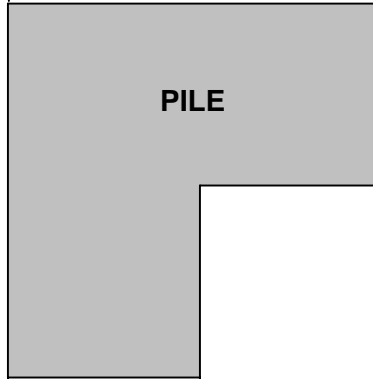


ASCENT PROCEDURES
(FLIP BOOK)

**BAILOUT
EGRESS**



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



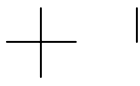
**ASCENT FLIP BOOK
(EMERGENCY EGRESS)**

**PRELAUNCH
MODE 1**

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

**POST LANDING
MODE 5**

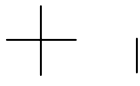
- TABS – RELEASE
- VISOR – CLOSE / LOCK
- LES O2 – ON
- GREEN APPLE – PULL
- KNEEBOARDS – REMOVE
- COOLING – DISCONNECT
- RESTRAINT – RELEASE
- PARACHUTE (four) – RELEASE
- COMM – DISCONNECT
- (G-SUIT CLIP – PULL)
- LES O2 – DISCONNECT
- PLT – EMER PWR DOWN
- EGRESS SEAT
- SLIDE/ESCAPE PANEL



- BAILOUT
MODE 8**
-
- REPORT POSITION**
 - √MACH < 1.0**
 - P, R/Y – CSS**
 - OPS 305/603 PRO (if reqd)**
 - SB – AUTO; BF – AUTO**
 - FLY 185-195 KEAS, $\Phi = 0^\circ$**
 - ABORT MODE – ATO**
 - ABORT PBI – PUSH**
 - P,R/Y – AUTO**
 - FLT CNTLR PWR (two) – OFF**
 - ~50K FT**
 - TABS – RELEASE**
 - VISOR – CLOSE / LOCK**
 - LES O2 – ON**
 - GREEN APPLE – PULL**
 - ~40K FT**
 - MS3 – VENT CABIN**
 - CDR,PLT SEATS – LOWER**
 - KNEEBOARDS – REMOVE**
 - COOLING – DISCONNECT**
 - RESTRAINT – RELEASE**
 - D-RING – UNCOVER**
 - ~30K FT**
 - MS3 – JETTISON HATCH**
 - COMM – DISCONNECT**
 - (G-SUIT CLIP – PULL)**
 - LES O2 – DISCONNECT**
 - EGRESS SEAT**
 - POLE – DEPLOY**
 - D-RING – HOOK UP**
 - BAILOUT**



ASC



TOP
BACK OF 'EMERGENCY EGRESS'

BAILOUT
EGRESS

PILE

SYS FLIGHT RULES

	RTLS	TAL
OMS – 2 He TKs		X
– 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)	8100	2 ENG ZZA (104)	5900
PRESS TO ATO (104)	10600	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)	19000		
NEG MRN (2 @ 67)	19800	2 ENG MRN (104)	5800
LAST PRE MECO TAL	23000	ABORT TAL MRN (3)	
LAST TAL		EO VI	<input type="text"/>
YJT	20100	SE OPS 3 MRN (109)	(3) <input type="text"/>
YYT	20200	SE MRN (104)	(3) <input type="text"/>
YQX	21900		
IKF	23600	2 ENG FMI (104)	6200
INN	24100	ABORT TAL FMI (29)	
FFA	24200	EO VI	<input type="text"/>
MRN,BEJ	24300	SE OPS 3 FMI (109)	(29) <input type="text"/>
KBO	24400	SE FMI (104)	(29) <input type="text"/>
ESN	24800		
ZZA,KKI	25000		
FMI	25100		
JDG	25200		

ASCENT PROCEDURES

HOOK

R180

LVLH

.96M

√P_c → 72%

1.24M

√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 *
- * When MPS PRPLT = 2%: *
- * MAN THROT, P_c → 67% *
- * Man MECO @ CO mark BFS *

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 or BFS Engaged: *
- * 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

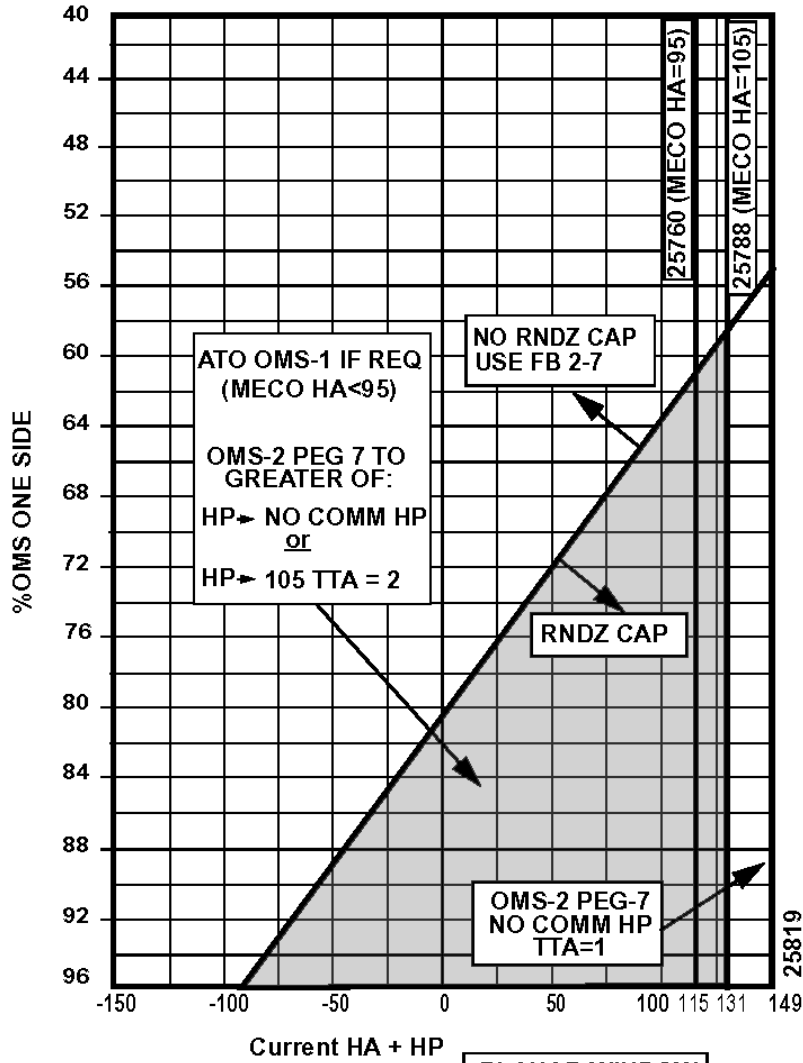
**OMS 1
TGTING**

TOP
BACK OF 'ASCENT PROCEDURES'

PILE

STS-114 OCF CY
OMS 1/2 TARGETING
RENDEZVOUS RECOVERY

ASC

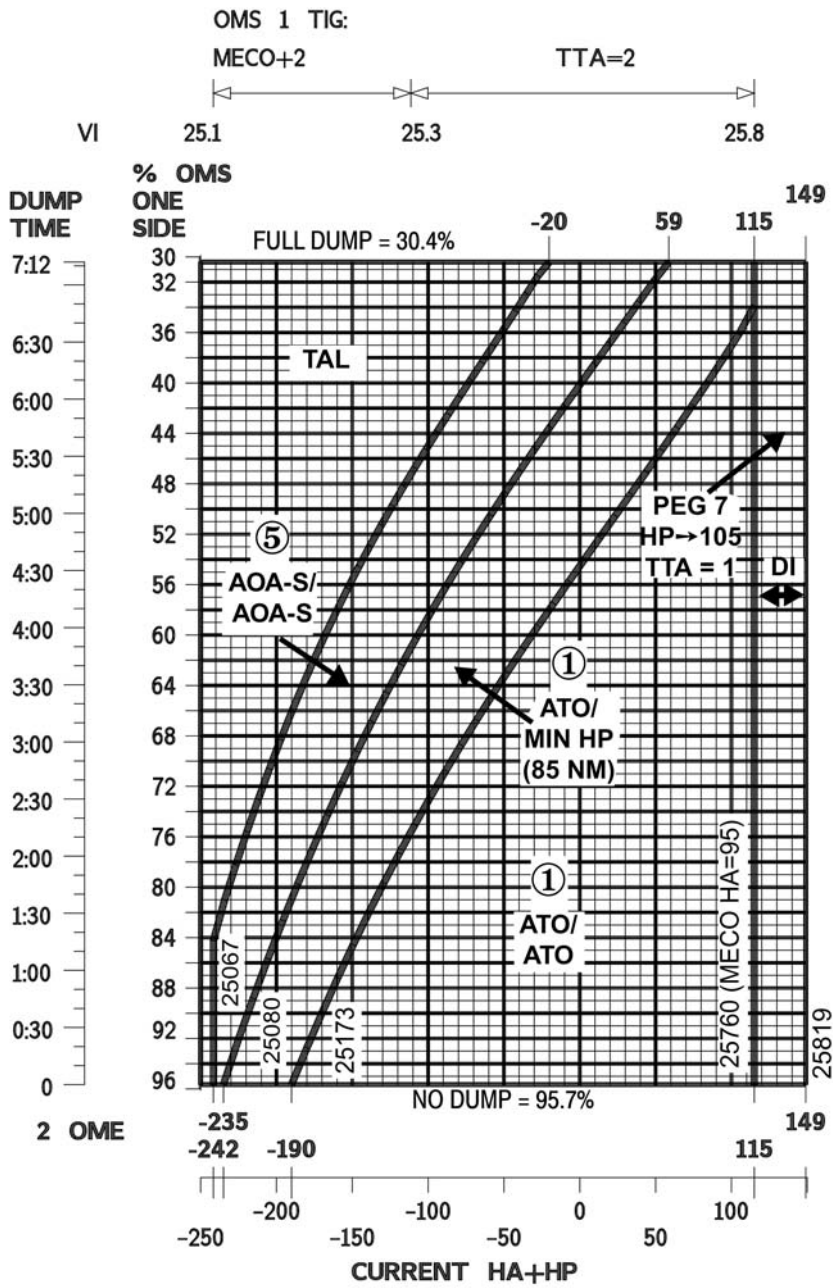


	PLANAR WINDOW	
	1	2
NOMINAL OMS-2 HT		
NO COMM OMS-2 HP		

TOP

STS-114 OCFR4 CY OMS 1/2 TGTING

HOOK



OMS 1
BURN

POST NOMINAL
OMS ASSIST

% OMS/SIDE
74

DUMP TIME
2:19

FB 2-7

ASC/114/FIN A

PILE

OMS 1 BURN

OMS 1
TGTING

* **IF TIG LATER THAN MECO + 6 min:**
* MECO + 4 min: $\sqrt{\text{BDY FLP pb - lt off (MPS dump complete)}}$ *
* $\sqrt{\text{MCC for APU shutdn (if time permits)}}$ *
* **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 $\Delta\text{VTOT} > 500$:** *
* Burn good OMS + l'cncnt both OMS to RCS, THC +X at TIG *

DAP - AUTO/DISC
MNVR - BURN ATT ($\sqrt{\text{INRTL}}$)
OMS XFEED (four) - OP
 $\sqrt{\text{CNTLR PWR (two) - ON}}$
 $\sqrt{\text{OMS ENG (two) - ARM/PRESS}}$
Note ΔVTOT ___ ___ TIG :

-:15 EXEC
:00 TIG; start watch ($\sqrt{\text{Pc, } \Delta\text{VTOT, ENG VLVs}}$)

* **OMS ENG FAIL:** *
* Failed ENG - OFF *
* If $\Delta\text{VTOT} < 500$: *
* At QTY = 5%, good OMS TK ISOL (two) - CL *
* If $\Delta\text{VTOT} > 500$: *
* 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 ($\sqrt{\text{RCS straightfeed}}$)

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>OMS/MPS</td></tr></table>)	OMS/MPS	At He P < 640 √OMS XFEED (four) – OP Aff OMS TK ISOL (two) – CL At Good OMS Qty = 5% OMS TK ISOL (four) – OP XFEED (four) – CL							
OMS/MPS									
OMS N2 REG P HIGH or LOW	OMS ENG – ARM								
OMS N2 TK P LOW (√ <table border="1" style="display: inline-table;"><tr><td>OMS/MPS</td></tr></table>)	OMS/MPS	At N2 TK P < 470: OMS ENG – ARM							
OMS/MPS									
OMS GMBL	PRI fail L(R) OMS GMBL – SEC (twice) SEC fail If high RCS usage: OMS ENG FAIL								
GPC 1(4) & Burning OMS aff	aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF,ON L(R) OMS GMBL – SEC (twice)								
SEC GMBL lost 2 FAs lost	If high RCS usage: OMS ENG FAIL √MAN SHUTDN								
I/O ERROR FA 1(4)	L(R) OMS GMBL – SEC I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL								
2 FAs lost	√MAN SHUTDN								
BCE STRG D 1(4)	I/O RESET (if recov: >>) If high RCS usage: L(R) OMS GMBL – SEC (twice)								
I/O ERROR PCM	OI PCMMU PWR – 2(1)								

OMS 2
TGTING

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

TOP
BACK OF 'OMS 1 BURN MONITOR'

PILE

OMS 2 TARGETING
(DIR INSERTION)

**OMS 1
BURN**

FAILURE	OMS 2 TARGET
OMS – 2 N2 TKs (Perform burn Single OMS Eng)	NOM
OMS – 2 OMS ENGS – 1 He TK – 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 – 2 He TKs	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	%
4800	96	2980	50
4580	90	2580	40
4180	80	2180	30
3780	70	1780	20
3380	60	1380	10
		980	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 9.1 % Unusable (4.6 % 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	39.9	20.0	34.7	21.5
90	41.3	17.6	32.4	18.4
85	43.0	16.2	30.0	15.5
80	44.9	15.8	27.5	12.7
75	46.9	17.5	24.4	9.8
70	48.7	19.5	21.4	9.1
65	49.9	20.9	19.0	9.1
60	50.8	22.2	18.3	9.1
55	51.1	23.3	19.3	9.1
50	51.8	24.5	19.1	9.1
45	---	25.9	21.7	9.1

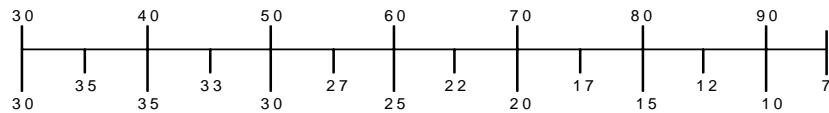
STS-114 OCFR4 CY

SINGLE POD - OMS REQUIRED				
Includes 4.6 % Unusable				
POST OMS 1 HP	ATO OMS 2 & STEEP D/O BURN (%)	MIN HP OMS 2 & SHALLOW D/O BURN (%)	AOA STEEP D/O BURN (%)	AOA SHALLOW D/O BURN (%)
95	35.4	15.4	30.2	17.0
90	36.8	13.1	27.9	13.8
85	38.4	11.6	25.5	11.0
80	40.3	11.2	22.9	8.2
75	42.4	12.9	19.8	5.2
70	44.2	14.9	16.8	4.6
65	45.3	16.3	14.4	4.6
60	46.2	17.6	13.8	4.6
55	46.6	18.7	14.7	4.6
50	47.2	20.0	14.5	4.6
45	---	21.4	17.1	4.6

RTLS

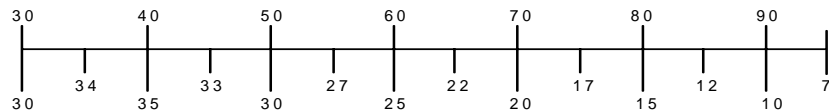
OMS BLOWDOWN

LEFT OMS GAGE QTY (%)



LEFT OMS BLDN EQUIV (%)

RIGHT OMS GAGE QTY (%)



RIGHT OMS BLDN EQUIV (%)

FB 2-11

ASC/114/FIN A

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 'INHIB': *
- * √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
and $g < 2$ 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

HOOK

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
 \sqrt{TACANS} , INCORPORATE

* If KSC TACAN Fail: *

* TACAN Ch 073X (OMN), ITEM 5 EXEC *

G51 \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

LES Visors – Down

POST LANDING: ENT, POST LDG

TAL

TOP
BACK OF 'RTL PLT'

PILE

TAL CDR

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

ABORT TAL

$G50$ \checkmark SITE & RWY (PASS/BFS), \checkmark HDG

TAL	HDG
ZZA	010
MRN	016
FMI	006

*LO XRNG

SITE	RWY	TACANS	ITEM 5	MLS	LENGTH
2	BEN 36/18	BEN 108	MAK 80 (DME)	6/-	13720/12720
3	MRN 20/02	MRN 100	AOG 23	6/-	11730/11730
4	ZZA 30L/12R	ZZA 64	ZZA 77 (DME)	6/-	12200/12200
12	*BEN 36/18	BEN 108	MAK 80 (DME)	6/-	13720/12720
13	*MRN 20/02	MRN 100	AOG 23	6/-	11730/11730
14	*ZZA 30L/12R	ZZA 64	ZZA 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	HL44 (DME)	-/-	9520/9560
26	INN 06/24	SHA 80 (DME)	CRN 37 (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: $TRAJ$ \checkmark SERC ON *

* $G50$ \checkmark SITE (\checkmark Redes card) *

$V_1 = 15.0K$ \checkmark Roll Heads Up

$V_1 \sim 24.0K$ @ CO mark **BFS**

MECO

MECO+20 s
MECO+37 s

\checkmark ET SEP, \checkmark AUTO -Z TRANS
 \checkmark MM104

MECO

Abort TAL (if reqd):

\checkmark TAL flag set: $G50$ ITEM 41 = TAL SITE (any site)

\checkmark MECO V_1 vs HI/LO Energy (TAL PLT)

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

PASS, OPS 301 PRO (\checkmark 304)

* No joy in 68 sec: BFS - ENGAGE *

* BFS, OPS 301 PRO *

RTL

BFS, OPS 301 PRO (\checkmark 304) MM304

$G50$ \checkmark SITE, RWY, TACAN
S/B & ALTM (PASS/BFS)

$TRAJ$ \checkmark BUGS, HSI \checkmark H , RANGE, AMI \checkmark $\alpha = 43^\circ$

* Low energy: $TRAJ$ ITEM 3 (Lo Energy ENA) *

* If Variable/man 37: Pitch - CSS at $\alpha = 37^\circ$ *

* Pitch - AUTO when $H = 0 \uparrow$ (2nd pullout) *

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

\checkmark SPDBK \rightarrow 81%

Go to ENTRY MANEUVERS
(Cue Card)

SURF WIND

SPDBK @ 3000 FT

ALTM

AIM PT

SPDBK

/

TAL PLT



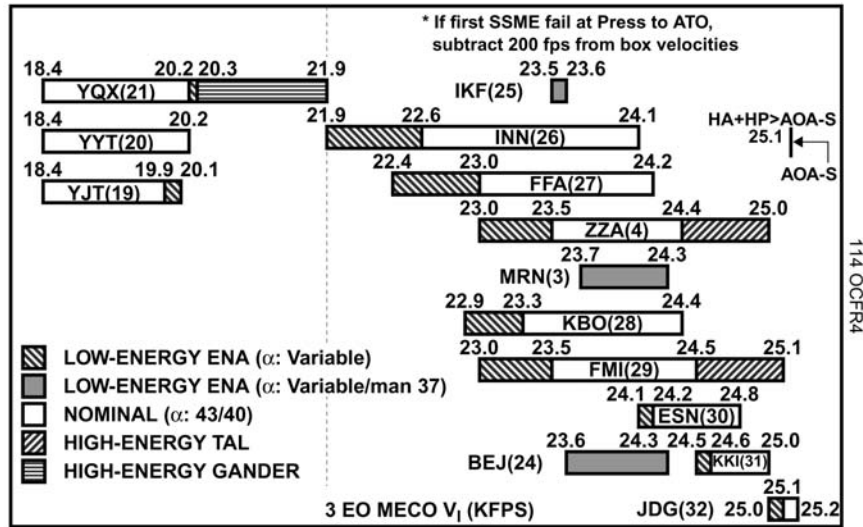
√OMS DUMP

- * If second eng fail: *
- * **G51** DUMP – ITEM 6 (*), 7 (*) *
- * If OMS He PRESS < 2K: DUMP STOP *
- * Failed ME SHUTDN pb (two) – push *

√AUTO THROT

- * If second eng fail or STUCK TAL: *
- * When MPS PRPLT = 2%: *
- * MAN THROT, P_c → 67% *
- * Man MECO @ CO mark **BFS** *

----- MECO ··· V₁ ~24.0K @ CO mark **BFS** ----- 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)

V = 10K * If RCS < **57** % either side: *
* **G51** AFT RCS INH, ITEM 13 EXEC *

V = 7K MLS (three) – ON (√channels)
I/O RESET
Go to ENTRY MANEUVERS (Cue Card)

ECAL

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	NFE 19Y
*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

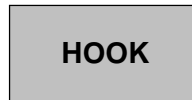
3 E/O ECAL (51.6°)

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	NFE 19Y
*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 24	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
TAL

ECAL ENTRY

If 3 OUT ECAL or 2 OUT SECOND GREEN:

**G50 Select SITE and TACAN
BFS, OPS 602 PRO**

VERT SIT √ECAL/BDA (ITEM 1) – ENA

Before NZ Hold:

**RHC/PNL TRIM – ENA
If M < 5, √AIL/RUD TRIM
Expect 20° ≤ α ≤ 58°**

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, INCORPORATE

M < 5 and g < 2: AIR DATA PROBE (two) – Deploy (√Heat)

G50 INCORPORATE Air Data ASAP

M = 3.2: √OPS 603

Select UHF-G T/R

NO COMM ECAL LNDG CRITERIA

@H = 70K, √Range:

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

G50 √SPDBK (ITEM 39) per ECAL LANDING Table

ECAL LANDING:

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

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

NOSE GEAR TD: BRAKE – as reqd

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

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

ECAL



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 < **57** % either side: *
* **G51** AFT RCS INH, ITEM 13 EXEC ***V = 10K** √SPDBK → 81%
Go to ENTRY MANEUVERS (Cue Card)HI-ENER
TAL



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)	ALPHA (CSS)
$VREL \geq 23,800$	180°	80° ($\theta = 280^\circ$)
$23,300 \leq VREL < 23,800$	180°	55°
$VREL < 23,300$	0°	55°

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

$\dot{H} = -700 \downarrow$ Roll Heads Up, maintain Alpha = 55°

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

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

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

Go to ENTRY MANEUVERS (Cue Card)



HIGH-ENERGY TAL PLT

HOOK

-----MM304-----

BFS, OPS 301 PRO (√304)

[G50] If [FMI] GO TAL Site – Select [FMI] –
ITEM 41 + [29]
Otherwise, select best Wx site [ZZA] (Site 4)
or [FMI]

[TRAJ] √BUGS, [HSI] √^H, RANGE

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

ABORT
DUMPS

Guid Init:
(D = 3, q̄ = 8,
EAS = 48)

- * If no comm and [ZZA/FMI] *
- * initial Commanded Drag (←) ≥ [35] , *
- * [G50] Select Site [ESN] – ITEM 41 + [30] *
- * [G51] AFT RCS INH, ITEM 13 EXEC *

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 < [57] % either side: *

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

V = 10K √SPDBK → 81%

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

Go to ENTRY MANEUVERS (Cue Card)

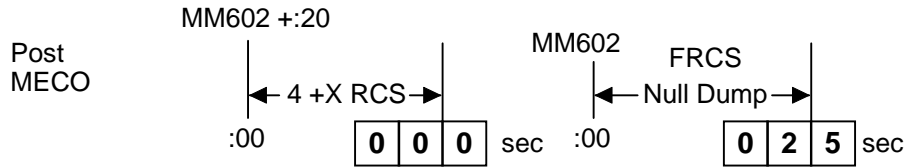
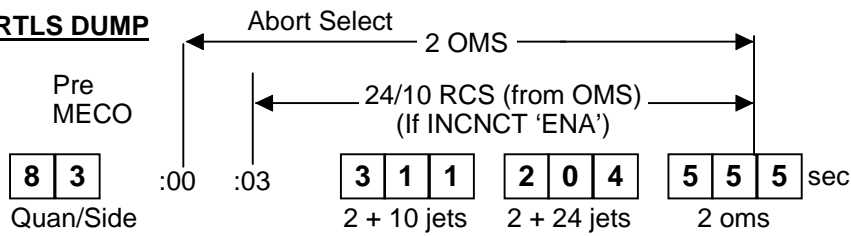
TOP
BACK OF 'ECAL ENTRY'

PILE

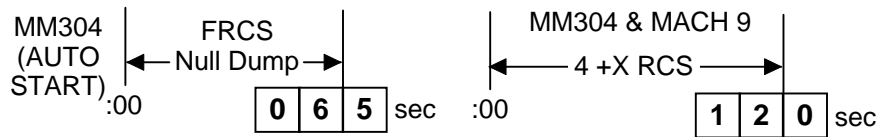
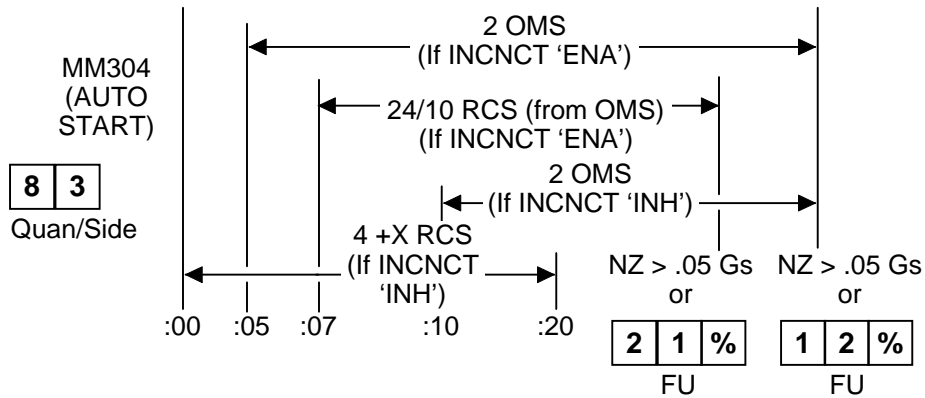
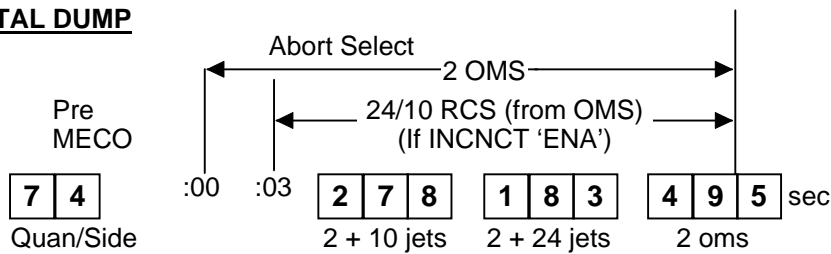
RTLS/TAL DUMPS

HI ENER
TAL

RTLS DUMP

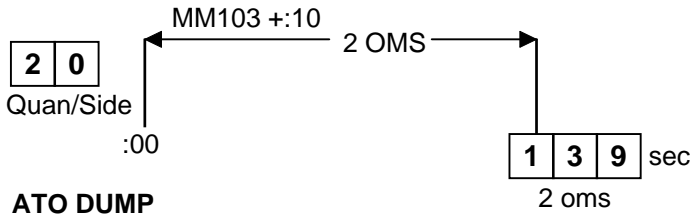


TAL DUMP

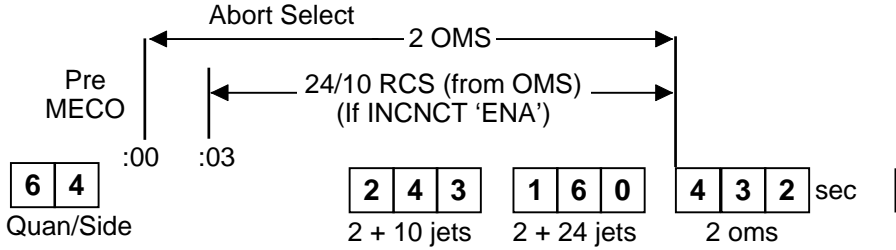




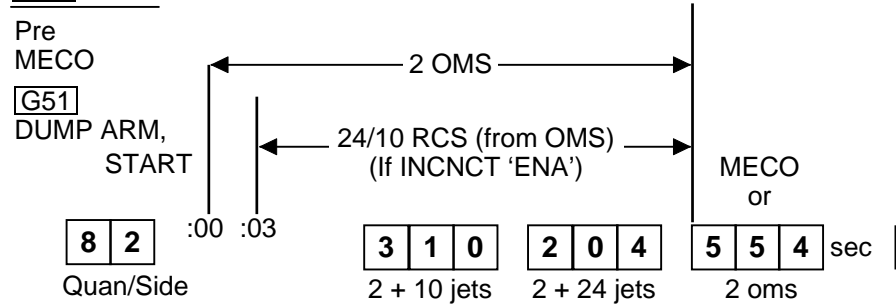
ASSIST/ATO/G51 DUMPS
ASSIST DUMP



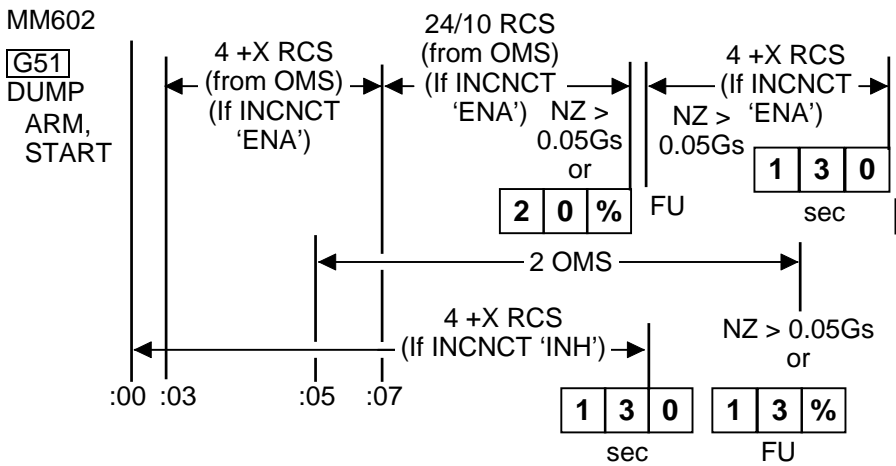
ATO DUMP



G51 DUMP



PWRD
CSS



TOP
BACK OF 'ASSIST/ATO/G51 DUMPS'

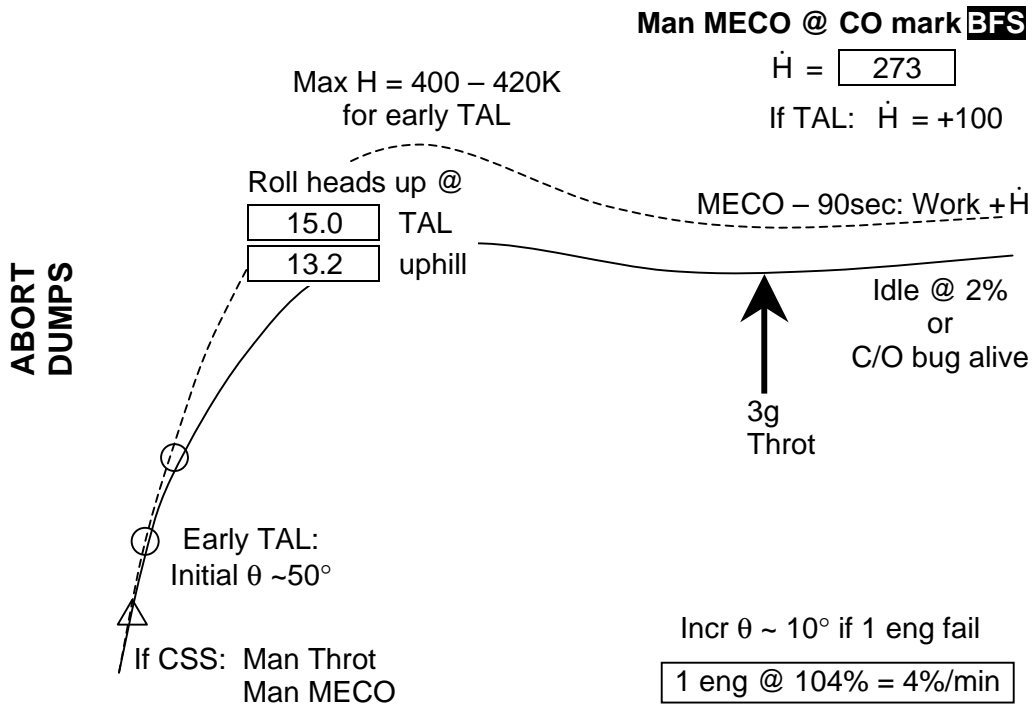
PILE

POWERED CSS – UPHILL/TAL

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

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

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



POWERED CSS – RTLS



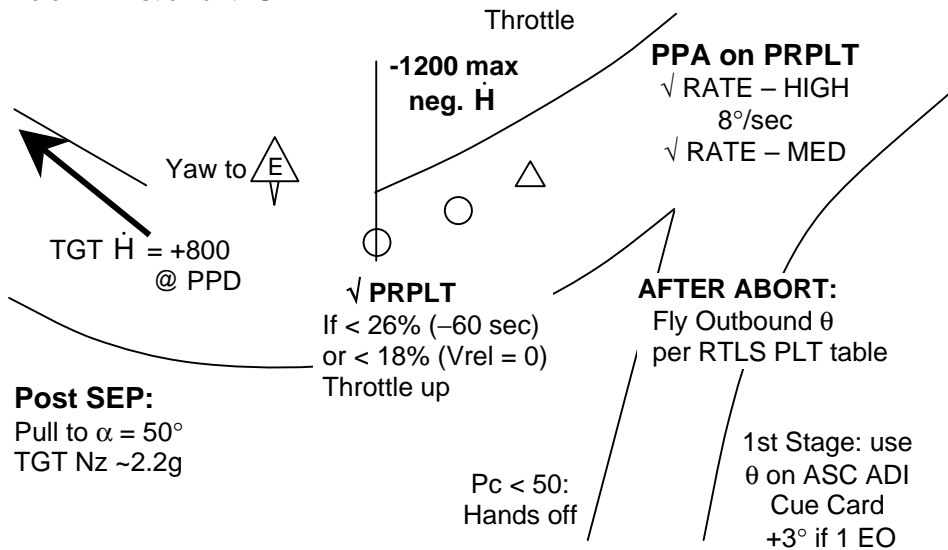
CSS & MAN THROT
(IF MET < 1:30, ENGAGE BFS)

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

Yaw to

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

\dot{H} control:
Use θ then
Throttle



1 eng @ 104% = 4%/min

If CSS: Man Throt
Man MECO



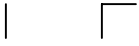
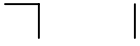
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ASCENT/ENTRY CUE CARDS

**ASC/ENT
CUE CARDS**



MS ONLY

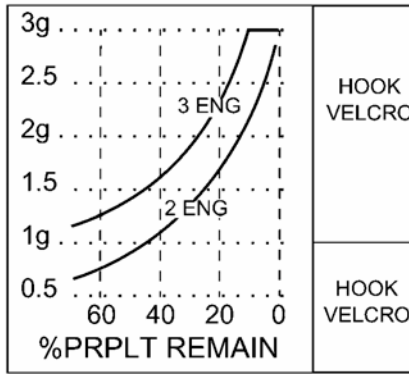
2-27

ASC/114/FIN A

ASC/ENT
CUE CARDS

ASCENT ADI - NOMINAL

TIME	θ	H	\dot{H}	(114 OCFR4 CY)
0:30	68	9K	635	
0:50	62	26K	980	
1:10	55	49K	1402	
1:30	39	82K	1874	
1:50	31	123K	2186	



-STAGING-

V_1	θ	H	\dot{H}	ASC-14a/114/A/D
6	19	218K	1720	
7	16	275	1268	
8	13	310	918	
9	11	332	636	
10	9	346	403	
12	6	356	62	
14	9	355	-147	
16	25	350	-231	
18	23	344	-267	
20	21	339	-217	
22	19	337	-104	
24	17	337	66	
25819	13	345	273	

ENTRY ALPHA

VR	α_{ref}	R	H	H _{ref}	Rref
25	40	4462	400		
24	HI 40 LO	2639	247	-46	L78
23	43 40 37	2163	239	-63	68
22	43 40 37	1805	232	-82	62
21	43 40 37	1527	226	-104	R59
20	43 40 37	1300	220	-121	58
19	43 40 37	1125	212	-143	60
18	43 40 37	982	206	-165	61
17	43 40 37	862	199	-185	62
16	43 40 37	764	192	-197	64

KSC 15

MAX L/D	
M	α
3	17
2	15
1	12

ASC-14b/114/A,E/C

HOOK VELCRO	HOOK VELCRO
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114 OCFR4 CY

15	43 40 37	686	185	-118	64
14	43 40 37	613	181	-127	62
13	43 40 37	546	177	-136	60
12	43 40 37	485	172	-151	58
11	43 40 37	429	168	-191	L55
10	41 38 35	376	163	-173	47
9	39 36 33	328	157	-204	43
8	37 34 31	278	149	-237	38
7	33 30 27	230	139	-266	38
6	30 27 24	185	128	-272	39
5	26 23 20	142	115	-273	41
4	22 19 18	106	103	-263	R40
3	19 16 15	75	88	-248	37
2.5	14	61	80	-227	
2	13	50	74	-275	
1.5	10	38	64	-324	
1	8	28	50	-267	



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MS ONLY

2-30

ASC/114/FIN A



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 or He TK or RCS OX TK leak: <input type="text"/> G51 VENT DOORS – OP PTI – ENA at EI-5 when applicable
$\bar{q} = 1$	(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 AIL trim monitoring
D = 11	√DRAG H (FORCE if editing)
V = 19K	√MPS/TVC ISOL VLV – 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%
$\Delta Az = 10.5^\circ$	FIRST ROLL REVERSAL <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

ENT-6a/E/M

FLIGHT CONDITIONS	MANEUVER
V = 7K	√TACAN status * If ELS: UHF MODE – G T/R *
V = 5K	ADTA PROBES – DEPLOY (√HEAT) Begin AIL and RUD trim monitoring
M = 2.7	√APUs HUD PWR (two) – ON
* If M < 2.5; P CSS for ADTA to G&C incorp *	
M = 2.0	Ensure ADTA to G&C else √Theta limits
M < 1.0	√R FLT CNTLR – ON P,R/Y – CSS as reqd √SPDBK CMD vs POS √NWS – 1 Lock Inertia Reels MAX Nz <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>
M = 0.7	√LG EXTEND ISOL VLV – OP
h = 15K	√MLS
h = 10K	√A/L, TABS/VISORS – CL/LES O2 – ON (KSC)
h = 2K	LANDING GEAR ARM pb – ARM
h = 300	LANDING GEAR DN pb – DN
MAIN GEAR TD	√SPDBK – 100%
V = 195 KEAS	DRAG CHUTE pb (two) – ARM, DPY (simo)
V = 185 KEAS	DEROTATE
NOSE GEAR TD	SRB SEP – MAN/AUTO and depress pb √Auto Load Relief √HYD BRAKE ISOL VLV (three) – OP
MIDFIELD and V < 140 KGS	BRAKE as required (8-10 fps ² , -0.25 to -0.3G)
* If 5K' remaining and V > 140 KGS – MAX BRAKING *	
V = 60 KGS	DRAG CHUTE JETT pb – JETT
V = 40 KGS	BRAKE < 6 fps ² (-0.2G) (Antiskid cutout)
WHEEL STOP	Go to ENT C/L, <u>POST LANDING PROCEDURES</u>

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/E/T



CONT
ABORT

ABORT CUE CARDS



NOT FLOWN

2-33

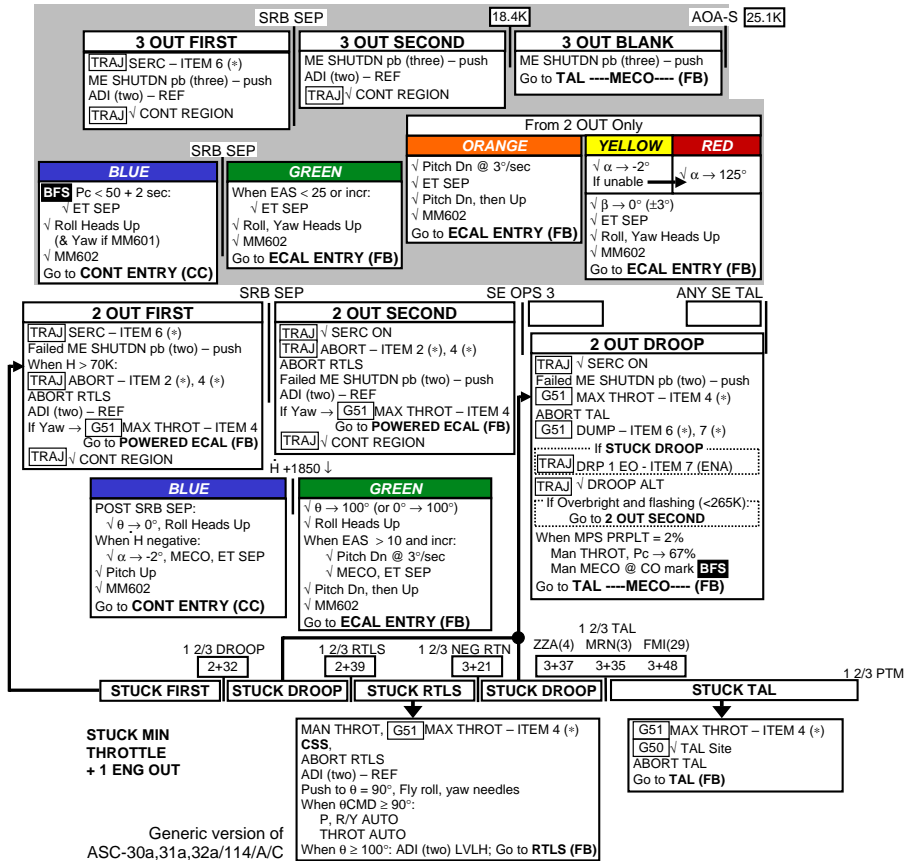
ASC/114/FIN A



**CONT
ABORT**

CONTINGENCY ABORT

High Inclination
51.6°



NOT FLOWN

2-34

ASC/114/FIN A

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%

Expect $20^\circ \leq \alpha \leq 58^\circ$

After NZ Hold (and $N_z < 2g$)
 $M \leq 5$, ADTA PROBES – Deploy
Monitor – M / α
 $M2 \rightarrow 1: \theta = 0^\circ$ by $M = 1.0$

M	>12	9	6	3	1
α	40	35	26	18	12

√ Air Data
G50 Incorp Air Data ASAP

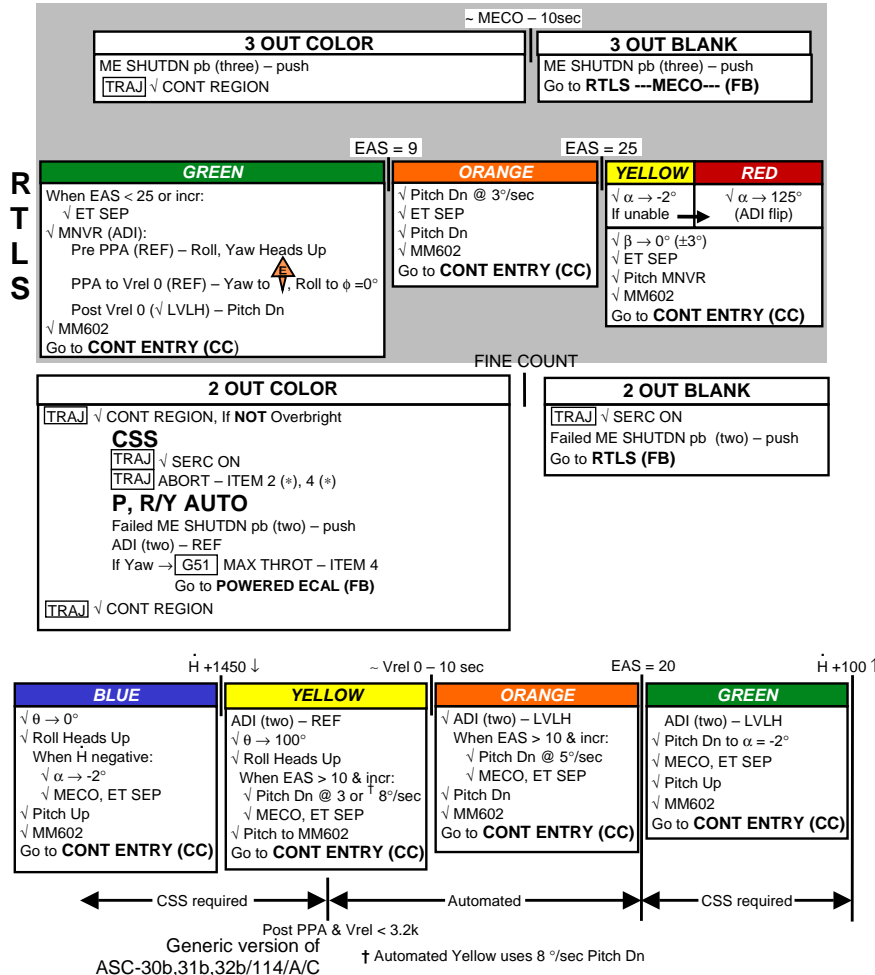
Select UHF – G T/R

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

Generic version of
ASC-30a,31a,32a/114/A/C

RTLS CONTINGENCY

High Inclination
51.6°



RTLS CONTINGENCY

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%

Expect $20^\circ \leq \alpha \leq 58^\circ$

After NZ Hold (and Nz < 2g)

$M \leq 5$, ADTA PROBES – Deploy

Monitor – M / α

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

M	> 8	6	4	2	1
α	32	26	20	15	12

√ Air Data

G50 Incorp Air Data ASAP

Select UHF – G T/R

When $M < 1.0$

Go to **BAILOUT (FB)**

RED

√ ADI (two) – LVLH

√ $H \rightarrow +400$ ($\theta_{max} = 75^\circ$)

TRAJ AT FINE COUNT:

√ Pitch Dn to $\alpha = -2^\circ$

√ MECO, ET SEP

√ Pitch Up

√ MM602

Go to **RTLS ---MECO--- (FB)**

← Automated →

Generic version of
ASC-30b,31b,32b/114/A/C

NOT FLOWN

2-37

ASC/114/FIN A

**ZZA TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI		5900	6000	6100	6200	6300	6400	6500	6600
SE OPS 3 ZZA 109	(4)	10900	11000	11000	11000	11000	11000	11100	11100
SE ZZA 104	(4)	17800	17600	17400	17200	17000	16700	16500	16300

1st E.O. VI		6700	6800	6900	7000	7100	7200	7300	7400
SE OPS 3 ZZA 109	(4)	11100	11100	11100	11200	11200	11200	11200	11200
SE ZZA 104	(4)	16100	15900	15700	15500	15300	15200	15000	14800

1st E.O. VI		7500	7600	7700	7800	7900	8000	8100	8200
SE OPS 3 ZZA 109	(4)	11300	11300	11300	11300	11300	11400	11400	11400
SE ZZA 104	(4)	14700	14500	14400	14300	14100	14000	13900	13800

1st E.O. VI		8300	8400	8500	8600	8700	8800	8900	9000
SE OPS 3 ZZA 109	(4)	11400	11400	11400	11500	11500	11500	11500	11500
SE ZZA 104	(4)	13800	13700	13600	13600	13500	13500	13500	13400

1st E.O. VI		9100	9200	9300	9400	9500	9600	9700	9800
SE OPS 3 ZZA 109	(4)	11500	11500	11600	11600	11600	11600	11600	11600
SE ZZA 104	(4)	13400	13400	13400	13400	13400	13400	13400	13400

1st E.O. VI		9900	10000	10100	10200	10300	10400	10500	10600
SE OPS 3 ZZA 109	(4)	11600	11700	11700	11700	11700	11700	11700	11700
SE ZZA 104	(4)	13500	13500	13500	13500	13600	13600	13600	13600

ASC-9a/114/A/C

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/114/A/C

NOT FLOWN

2-39

ASC/114/FIN A

**MRN TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI		5800	5900	6000	6100	6200	6300	6400	6500
SE OPS 3 MRN 109	(3)	10900	11000	11000	11000	11000	11100	11100	11100
SE MRN 104	(3)	17200	17000	16800	16700	16500	16300	16100	15900

1st E.O. VI		6600	6700	6800	6900	7000	7100	7200	7300
SE OPS 3 MRN 109	(3)	11200	11200	11200	11200	11300	11300	11300	11300
SE MRN 104	(3)	15700	15500	15400	15200	15000	14900	14700	14600

1st E.O. VI		7400	7500	7600	7700	7800	7900	8000	8100
SE OPS 3 MRN 109	(3)	11400	11400	11400	11400	11400	11500	11500	11500
SE MRN 104	(3)	14400	14300	14200	14000	13900	13800	13800	13700

1st E.O. VI		8200	8300	8400	8500	8600	8700	8800	8900
SE OPS 3 MRN 109	(3)	11500	11500	11600	11600	11600	11600	11600	11600
SE MRN 104	(3)	13600	13500	13500	13400	13400	13400	13300	13300

1st E.O. VI		9000	9100	9200	9300	9400	9500	9600	9700
SE OPS 3 MRN 109	(3)	11600	11700	11700	11700	11700	11700	11700	11700
SE MRN 104	(3)	13300	13300	13300	13300	13300	13300	13300	13300

1st E.O. VI		9800	9900	10000	10100	10200	10300	10400	10500
SE OPS 3 MRN 109	(3)	11700	11800	11800	11800	11800	11800	11800	11800
SE MRN 104	(3)	13300	13400	13400	13400	13400	13500	13500	13500

1st E.O. VI		10600							
SE OPS 3 MRN 109	(3)	11800							
SE MRN 104	(3)	13500							

ASC-10a/114/A/C

NOT FLOWN

2-40

ASC/114/FIN A

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/114/A/C

NOT FLOWN

2-41

ASC/114/FIN A

**FMI TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI		6200	6300	6400	6500	6600	6700	6800	6900
SE OPS 3 FMI 109	(29)	11000	11100	11100	11100	11100	11200	11200	11200
SE FMI 104	(29)	18300	18100	17900	17600	17400	17200	16900	16700
1st E.O. VI		7000	7100	7200	7300	7400	7500	7600	7700
SE OPS 3 FMI 109	(29)	11200	11200	11300	11300	11300	11300	11300	11400
SE FMI 104	(29)	16500	16300	16100	15900	15700	15500	15300	15100
1st E.O. VI		7800	7900	8000	8100	8200	8300	8400	8500
SE OPS 3 FMI 109	(29)	11400	11400	11400	11400	11500	11500	11500	11500
SE FMI 104	(29)	15000	14800	14700	14500	14400	14300	14200	14100
1st E.O. VI		8600	8700	8800	8900	9000	9100	9200	9300
SE OPS 3 FMI 109	(29)	11500	11500	11600	11600	11600	11600	11600	11600
SE FMI 104	(29)	14100	14000	13900	13900	13900	13800	13800	13800
1st E.O. VI		9400	9500	9600	9700	9800	9900	10000	10100
SE OPS 3 FMI 109	(29)	11700	11700	11700	11700	11700	11700	11800	11800
SE FMI 104	(29)	13800	13800	13800	13800	13800	13800	13800	13800
1st E.O. VI		10200	10300	10400	10500	10600			
SE OPS 3 FMI 109	(29)	11800	11800	11800	11800	11800			
SE FMI 104	(29)	13800	13900	13900	13900	13900			

ASC-12a/114/A/C

NOT FLOWN

2-42

ASC/114/FIN A

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/114/A/C

NOT FLOWN

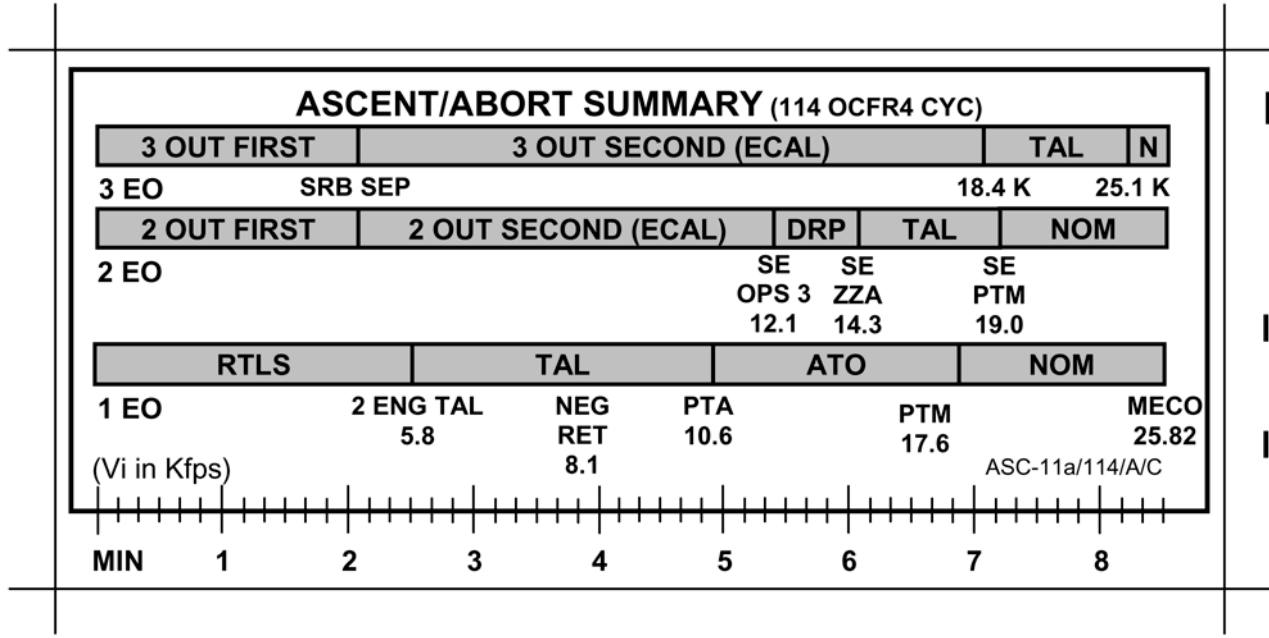
2-43

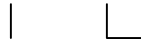
ASC/114/FIN A

NOT FLOWN

2-44

ASC/114/FIN A





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

- * 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~100°) *
- * Go to MPS DUMP complete *

MPS DUMP start (MECO + 2:03)
(10:26 Nom)

C At OMS 1 TIG + 0 sec: (MECO + 2:03)

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

Control pitch rate 2°/sec max (P down – accel)

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

When ET in O/H window (MS call or P ~125°):

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 ~100°) *

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 *

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

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

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

TAIL ONLY CONTROL (√MCC)

2: GNC 23 RCS

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

FES & HEATER ACTIVATION

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

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

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

AC BUS SNSR

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

MAJOR MODE CHANGE

CRT1 GNC, OPS 105 PRO

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

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

B OMS 2 BURN SETUP

√OMS 2 TARGETING, Flip Book

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

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

NOTE

Onboard computed TIG may vary slightly but is acceptable

√Targets, OMS TARGETS

LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC

CRT3 √BFS TGT

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

P ET UMBILICAL DOOR CLOSURE

* If Feedline fail, √MCC before closure *

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

NOTE

Double times for single motor operation

R2	ET UMB DR MODE – GPC/MAN CTRLLINE LAT – STO √After 6 sec, CTRLLINE LAT tb – STO * If CTRLLINE LAT does not stow within 12 sec: * * CTRLLINE LAT – GND * * √MCC * CTRLLINE 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 DR (two) – OFF LAT (two) – LAT (tb-bp) √After 6 sec, L,R LAT tb (two) – LAT * If doors do not latch within 12 sec: * * L,R LAT (two) – OFF * * √MCC * L,R LAT (two) – OFF MODE – GPC
----	---



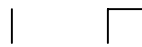
OMS 2 BURN CARDS

OMS 2

MS ONLY

4-1

ASC/114/FIN A



OMS 2 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></table> \leq <table border="1" style="display: inline-table; border-collapse: collapse;"><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 \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 > 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 ($\sqrt{\text{OMS/MPS}}$)	At He P < 640 or QTY \leq 41: If HP < 85 : OMS XFEED from good OMS At HP > 85 : OMS PRPLT FAIL						
OMS N2 REG P HIGH or LOW	OMS ENG – ARM						
OMS N2 TK P LOW ($\sqrt{\text{OMS/MPS}}$)	At N2 TK P < 470: OMS ENG – ARM						
OMS GMBL	PRI fail SEC fail L(R) OMS GMBL – SEC (twice)						
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 $\sqrt{\text{MAN SHUTDN}}$						
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/114/A,O/B

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/114/A,O/B

POST OMS 2 BURN PROCEDURES

**POST
OMS 2**

5-1

ASC/114/FIN A

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

P OMS/RCS POST BURN RECONFIG

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)	

POST
OMS 2

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

MAJOR MODE CHANGE

CRT1 GNC, OPS 106 PRO

1: GNC OMS 2 MNVR COAST	2: GNC OMS 2 MNVR COAST
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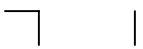
B C4A, Stow ASC PKT (Helmet Bag)
R3A Unstow ORBIT Cue Cards & ORB PKT

- * 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/114/FIN A



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

AOA PADS

W/OMS 1 AOA DEL PAD

<u>DEORBIT</u>																															
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 HP =		()		+		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>						OR		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td>0</td><td>2</td></tr> <tr><td>0</td><td>1</td></tr> </table>		0	2	0	1	STEEP		+		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td>2</td><td>4</td></tr> </table>		2	4	=		()	
0	2																														
0	1																														
2	4																														
		TGT HP				ΔHP (REDES SITE)		ΔHP (PRI SITE)		SHALLOW		()		($\frac{FLIP \Delta V}{2}$)																	
AFT HP =		()		+		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>						+		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td>1</td><td>0</td></tr> </table>		1	0	=		()											
1	0																														
		TGT HP						()		($\frac{AFT \Delta V}{2}$)																					
B/U SITE					N / A																										
FRCS: DUMP TO % (USE TIME AS CUE)					<input type="checkbox"/> OX		<input type="checkbox"/> FU																								
<u>ENTRY / LANDING</u>																															
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		()		deg		28K		/																					
<input type="checkbox"/> R		<input type="checkbox"/> STRT		()		TAC		20K		/																					
ΔT MACH < 1 TO HAC		()		MAX Nz		()		12K		/																					
		()				()		7K		/																					
ΔT HAC INIT TO H = 20K		()		Nz LIMIT		()		3K		/																					
		()				()		1K		/																					
AIMPOINT		SPEEDBRAKE						SURFACE		/																					
<input type="checkbox"/> NOM		<input type="checkbox"/> NOM		()		% @ 3K																									
<input type="checkbox"/> CLOSE-IN		<input type="checkbox"/> S.F.																													
REMARKS:																															

6-4

ASC/114/FIN A

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="text"/> <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="text"/> <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	

NOTE

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

Transition to OPS 3 NLT TIG-10 min

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

F6,F8 Install AOA DEORBIT BURN and DEORBIT BURN MONITOR Cue Cards (R3A)

IF APUs SHUTDN:

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

P W/B STEAM VENT HTR ACT

3: BFS, SM SYS SUMM 2

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

NOTE

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

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

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

P MPS ISOL

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

NOTE

Expect multiple MAs for MPS He P
as regs bleed down

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	

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	OMN 73	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 50 HORIZ SIT	2: GNC DEORB MNVR EXEC
3: BFS, GNC DEORB MNVR EXEC	

1: GNC DEORB MNVR EXEC

B OMS 2 BURN SETUP

CRT1 √Or enter Target (steep or shallow based on ΔV capability) from OMS TARGETS or MCC

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

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

NOTE

Onboard computed TIG and θ_t may vary slightly and are acceptable if REI is correct

LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC

CRT3 √BFS TGT

Fill in AOA DEORBIT BURN CARDS from AOA DEL PAD, 6-2 or 6-3

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

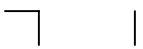
C Mnv to Deorbit Burn Attitude
(\sqrt ADI ATT with CRT BURN ATT)

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/114/FIN A

DEORBIT CARDS

DEORBIT BURN MONITOR

<p>OMS TEMP*</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 10%; text-align: center;">L</th> <th style="width: 10%; text-align: center;">R</th> </tr> </thead> <tbody> <tr> <td>FU IN P ≥</td> <td style="text-align: center;">225</td> <td style="text-align: center;">220</td> </tr> <tr> <td> <</td> <td style="text-align: center;">205</td> <td style="text-align: center;">204</td> </tr> </tbody> </table> <p>or No FU IN P</p>		L	R	FU IN P ≥	225	220	<	205	204	<p>OMS ENG FAIL</p> <p>OMS PRPLT FAIL</p>
	L	R								
FU IN P ≥	225	220								
<	205	204								
<p>OMS PC* & OMS ↓ (BFS: √accel)</p> <p>ENG VLV 1 or 2 < 70</p> <p>or OX IN P > 227</p> <p>OX IN P ≤ 227</p> <p>or No OX IN P</p>	<p>OMS ENG FAIL</p> <p>OMS PRPLT FAIL</p>									
<p>OMS OX/FU TK P (√ENG IN P)</p> <p>OX/FU LOW</p>	<p>He PRESS/VAP ISOL (two) – OP</p> <p>If aff TK P not incr:</p> <p style="padding-left: 20px;">He PRESS/VAP ISOL (two) – CL</p> <p style="padding-left: 20px;">At PC < 72 or OMS TEMP:</p> <p style="padding-left: 40px;">OMS PRPLT FAIL</p>									
<p>OX & FU HIGH</p>	<p>He PRESS/VAP ISOL (two) – CL</p> <p>Cycle He A(B) to maintain TK P 234-284</p>									
<p>OMS GMBL</p> <p>PRI fail</p> <p>SEC fail</p>	<p>L(R) OMS GMBL – SEC (twice)</p> <p>If high RCS usage: OMS ENG FAIL</p>									
<p>GPC 1(4) &</p> <p style="padding-left: 20px;">Burning OMS aff</p>	<p>aff GPC PWR – OFF</p> <p>If SEC GMBL avail:</p> <p style="padding-left: 20px;">aff MDM FF 1(4) – OFF,ON</p> <p style="padding-left: 20px;">L(R) OMS GMBL – SEC (twice)</p>									
<p>SEC GMBL lost</p> <p>2 FAs lost</p>	<p>If high RCS usage: OMS ENG FAIL</p> <p>√MAN SHUTDN</p>									
<p>I/O ERROR FA 1(4)</p>	<p>L(R) OMS GMBL – SEC</p> <p>I/O RESET (if recov: BFS I/O RESET)</p> <p>If high RCS usage: OMS ENG FAIL</p>									
<p>2 FAs lost</p>	<p>√MAN SHUTDN</p>									
<p>BCE STRG D</p> <p>1(4)</p>	<p>I/O RESET (if recov: >>)</p> <p>If high RCS usage:</p> <p style="padding-left: 20px;">L(R) OMS GMBL – SEC (twice)</p>									
<p>RM DLMA IMU</p> <p>or</p> <p style="padding-left: 20px;">ABOVE SAFE</p> <p style="padding-left: 20px;">HP ⇒ <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/></p>	<p>STOP BURN: OMS ENG(s) – OFF >></p>									
<p>GPC SET SPLIT</p> <p>or</p> <p>2 MN BUSES BELOW SAFE</p> <p style="padding-left: 20px;">HP ⇒</p>	<p>IMU DLMA:</p> <p style="padding-left: 20px;">After C/O: √timer G21</p> <p style="padding-left: 20px;">If any IMU ACC > 0.03: aff IMU – desel</p> <p style="padding-left: 20px;">I'cnct OMS to RCS (√RCS Burn Time)</p> <p style="padding-left: 20px;">THC +X to TGT HP (EOM) or</p> <p style="padding-left: 20px;">3.5 x timer at C/O (AOA)</p> <p>SET SPLIT: Go to "GPC" above</p>									
<p>I/O ERROR PCM</p>	<p>OI PCMMU PWR – 2(1)</p>									

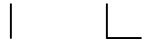
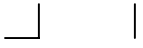
*If XFD, BLDN, or sensor fail, monitor ENG IN P for off-nominal performance

ENT-2a/114/A,O,D,E/C

MS ONLY

6-18

ASC/114/FIN A



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HINGE

* **RCS COMPLETION:** *
* If DIRECT INSERTION: *
* THC +X to $\Delta VTOT = 0$ or TOT AFT QTY 1 % *
* * * * *
* At AFT QTY 1 THC +X to FLIP ΔV or *
* if CUR $\Delta VTOT$: TOT AFT QTY 2 % then *
* FRCS COMPLETION *
* * * * *
* FLIP ----- *
* ΔV FRCS COMPLETION *
* * * * *
* AFT ----- *
* ΔV THC +X to TGT ΔV *
* * * * *
* TGT ----- *
* ΔV *
* * * * *
* If W/OMS 1: *
* THC +X to TGT HP or TOT AFT QTY 1 % *
* * * * *
* At AFT QTY 1 THC +X to FLIP HP or *
* if CUR HP: TOT AFT QTY 2 % then *
* FRCS COMPLETION *
* * * * *
* FLIP ----- *
* HP FRCS COMPLETION *
* * * * *
* AFT ----- *
* HP THC +X to TGT HP *
* * * * *
* TGT ----- *
* HP *
* * * * *
* **FRCS COMPLETION:** *
* Mnvr to -X Att (pitch up at 3°/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/114/A/B

AOA DEORBIT BURN (1 ENG)

- √MM302 √OMS L or R
- √OMS BURN CONFIG (L or R XFEED)
- Enter TGO + 10 sec
- √TRIM: P +0.4, LY +5.2, RY -5.2
- L,R OMS He PRESS/VAP ISOL A (two) – OP
- ... Wait 2 sec ... B (two) – OP
- √DAP – AUTO(PASS)/DISC
- ADI – LVLH(REF)/HI/MED
- FLT CNTLR PWR (two) – ON
- TIG-2 Good OMS ENG – ARM/PRESS
- :15 EXEC
- :15 If OMS AFT QTY < 11%, THC +X to OMS IGN + 1 sec
- :00 Start watch (√P_C, ΔVTOT, ENG VLVs)

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

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

ASC-8b/A/B

HINGE

MS ONLY

6-22

ASC/114/FIN 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/114/A/B

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 $\pm 3^\circ$
Monitor $\Delta VTOT$

RCS I'CNCT TK SW at $\Delta VTOT$ =
R OMS XFEED (two) – OP
L OMS XFEED (two) – CL

OMS PRPLT LOW
AFT RCS RECONFIG AT $\Delta VTOT$ =
RCS COMPLETION

- * **OMS PRPLT FAIL (MULTIPLE JETS FAIL OFF):** *
- * Secure aff OMS *
- * ITEM 18 +0 EXEC *
- * [G23] 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 *
- * [G23] Resel jets *

ASC-7a/A/B

HINGE

MS ONLY

6-24

ASC/114/FIN 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:** *
* Mnvtr 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) *
* * * * *

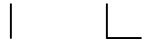
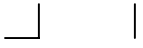
CUTOFF:
VGOx = 0, release THC
AFT RCS RECONFIG
Trim Inplane X,Z residuals < 2 fps (< 0.5 fps if shallow)

ASC-7aa/114/A/B



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**POST D/O
BURN**

AOA POST DEORBIT BURN



6-27

ASC/114/FIN A

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	(2)	6	11	15	19	22	25	28
PREBANK	0	25	65	90	100	110	120	140	170

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

Δ HP	0	(1)	2	3	5	6	7	8	9
PREBANK	90	100	110	115	130	140	150	160	175

* 114 OCFR4 *

C POST BURN STATUS

NOMINAL

Δ TIG

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

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 53 CONTROLS 2: BFS, GNC SYS SUMM 2

3: GNC DEORB MNVR COAST

1: GNC 23 RCS 2: GNC DEORB MNVR COAST

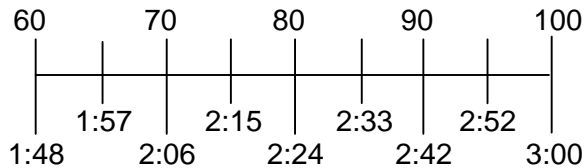
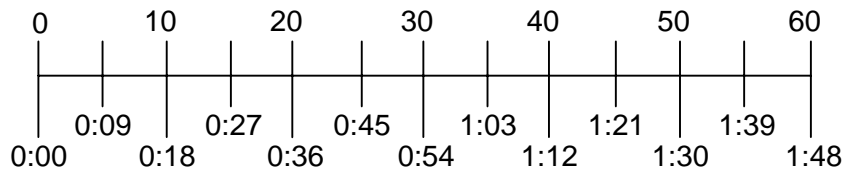
3: BFS, GNC SYS SUMM 2

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)

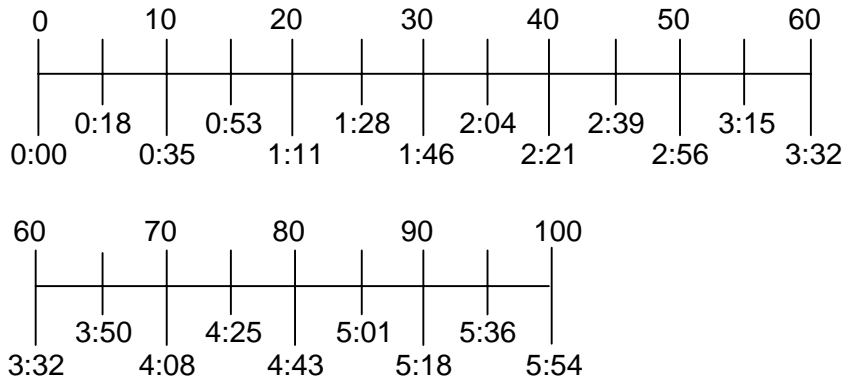
NOTE

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

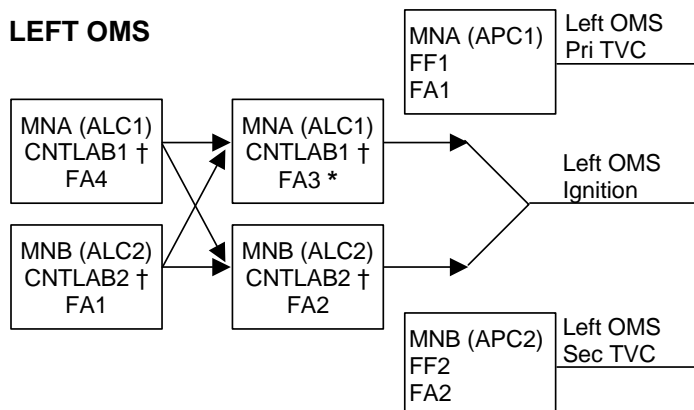
6-37

ASC/114/FIN A



OMS FAILURES

LEFT OMS

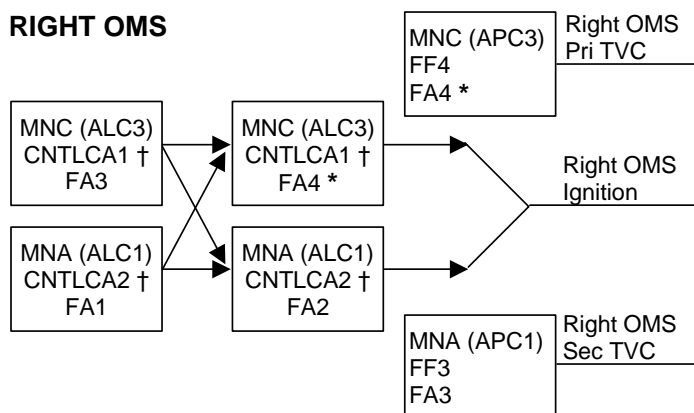


† If CNTL AB1 or AB2 (CA1 or CA2) failed and ign path still exists at OMS fail, assume L(R) OMS ↓ is PRPLT FAIL

* If L(R) Pc 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)

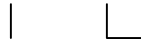
OMS FAILURE

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
95.6	4800	478	393	14:39
95	4780	475	391	14:34
90	4580	449	370	13:45
85	4380	423	349	12:57
80	4180	398	328	12:09
75	3980	372	306	11:21
70	3780	346	285	10:33
65	3580	320	264	09:45
60	3380	294	242	08:57
55	3180	268	221	08:09
50	2980	241	200	07:21
45	2780	215	178	06:32
40	2580	189	156	05:44
35	2380	162	135	04:56
30	2180	136	113	04:08
25	1980	109	91	03:20
20	1780	83	69	02:32
15	1580	56	47	01:43
10	1380	29	25	00:54
5	1180	2	2	00:04

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 $\boxed{256,123}$ lb

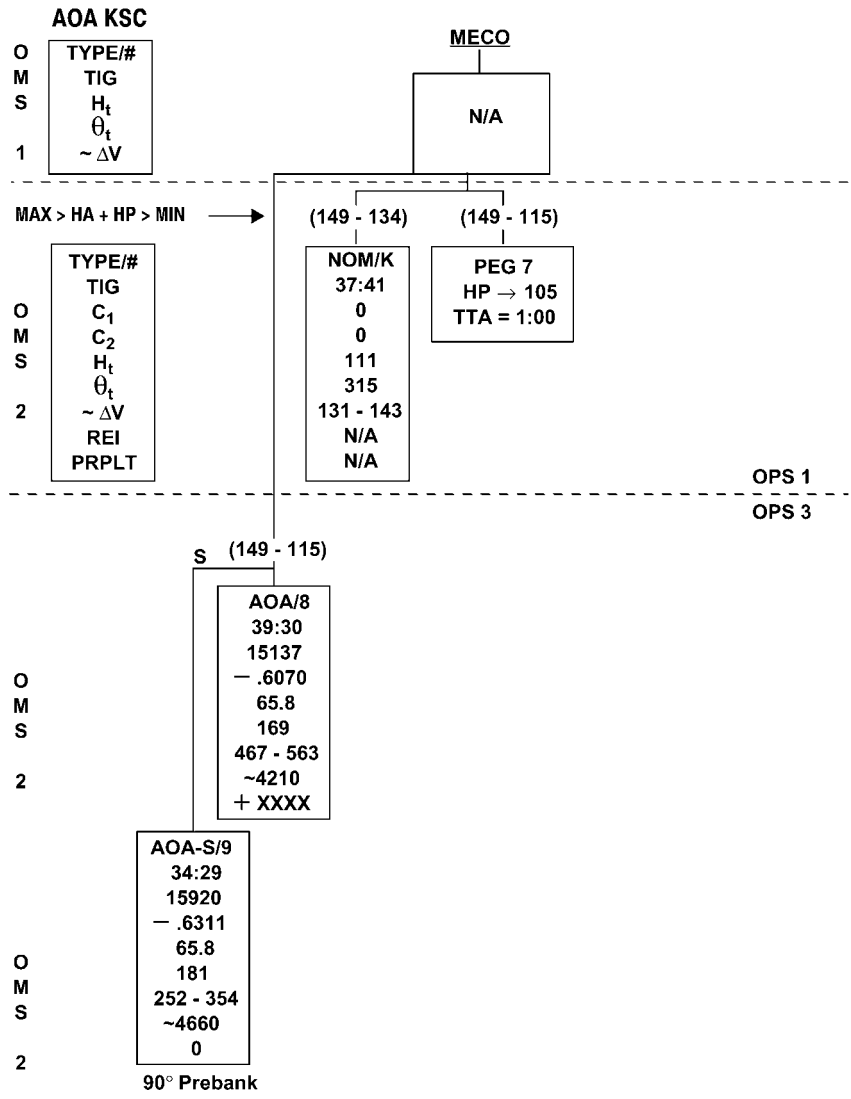


OMS TARGETS, COMM COVERAGE, LAND SITES

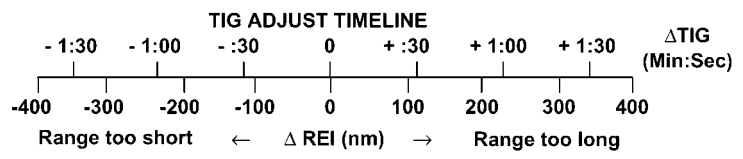
**OMS
TGTS**



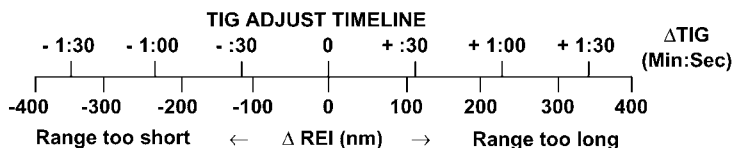
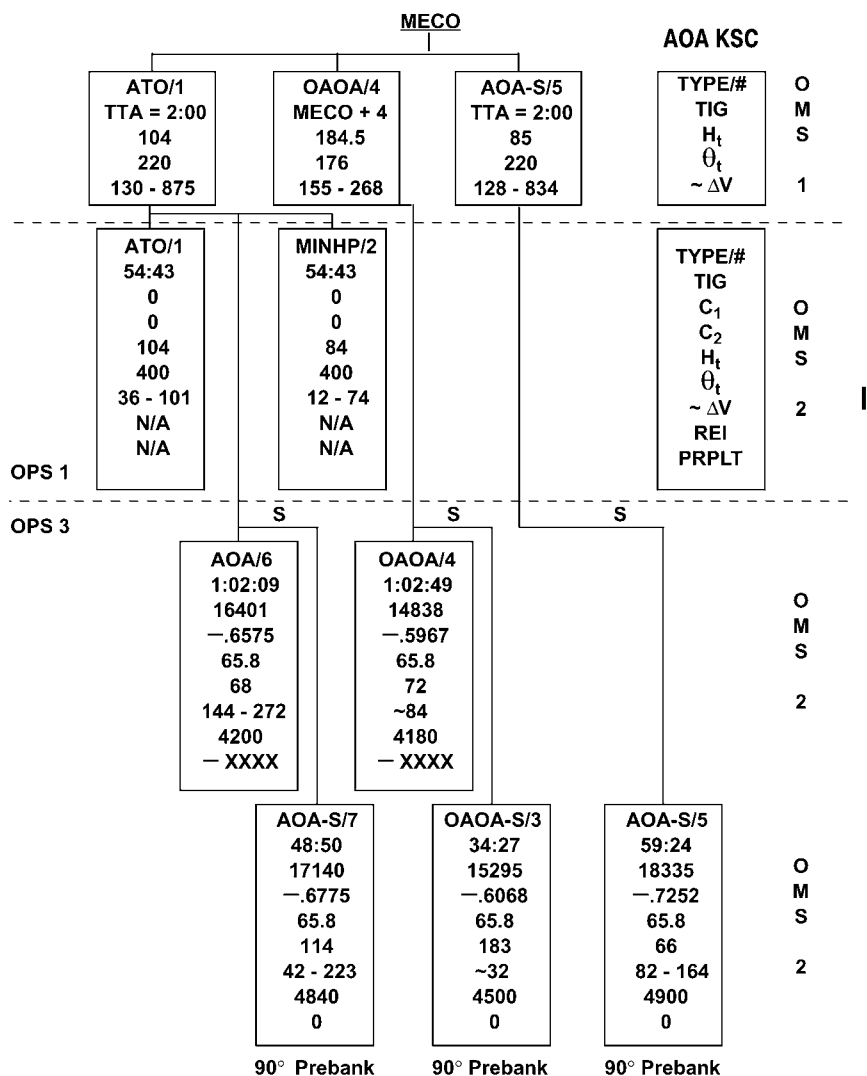
STS-114 OCFR4 CY OMS TARGETS - DIRECT INSERTION



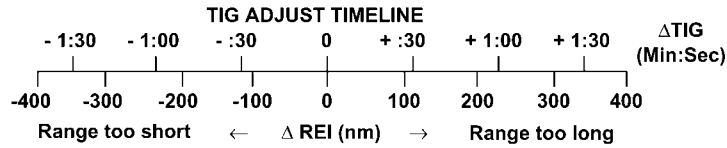
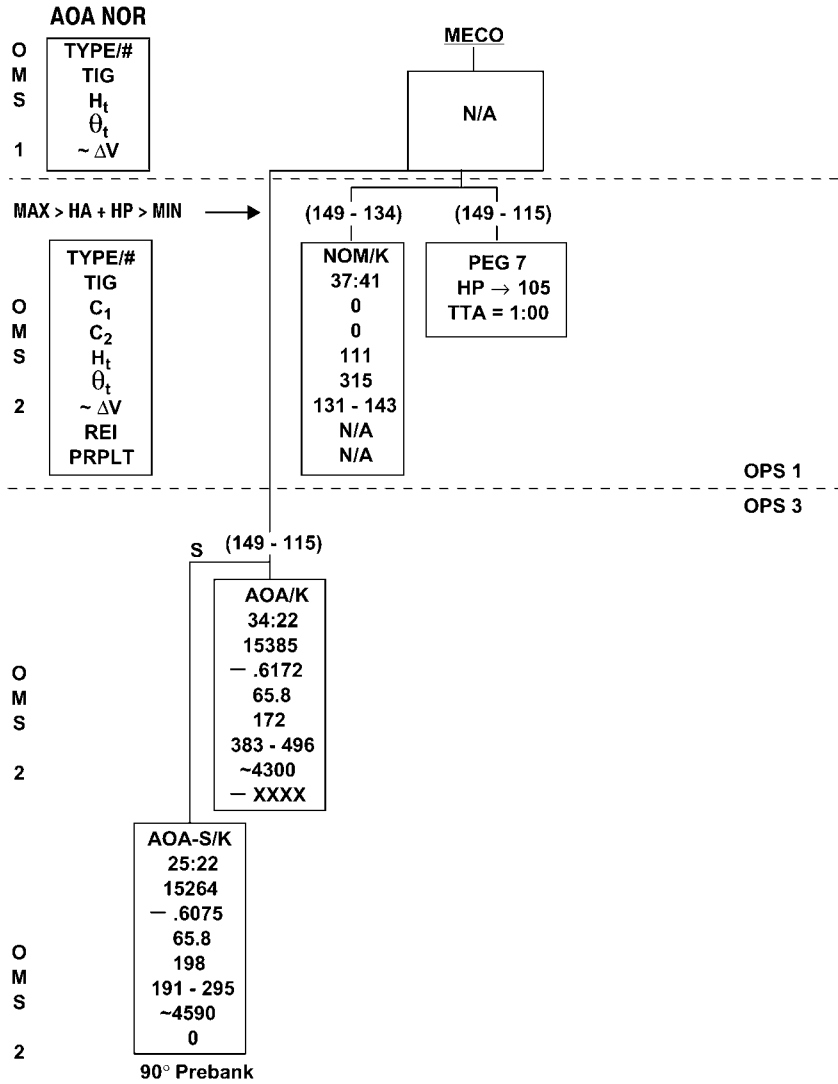
**OMS
TGTS**



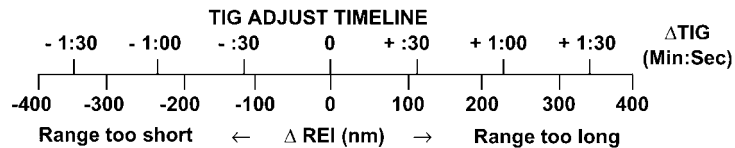
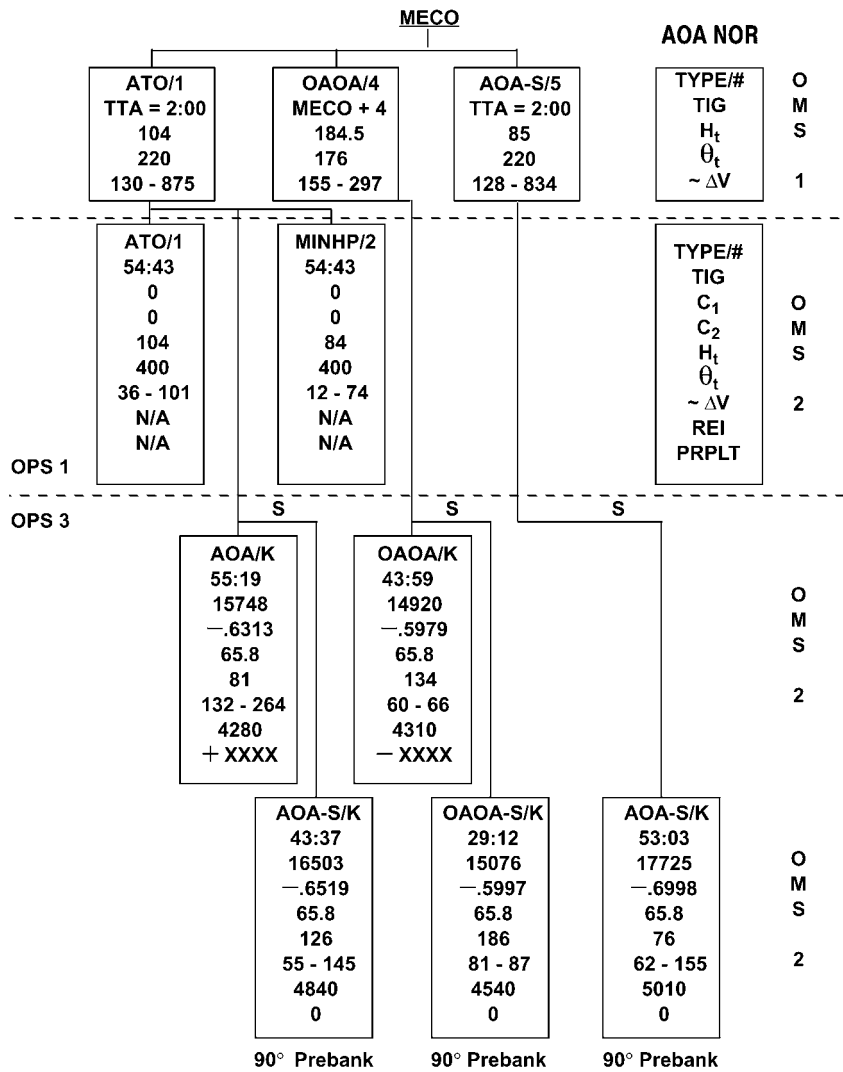
STS-114 OCFR4 CY OMS TARGETS - W/OMS 1



STS-114 OCFR4 CY OMS TARGETS - DIRECT INSERTION

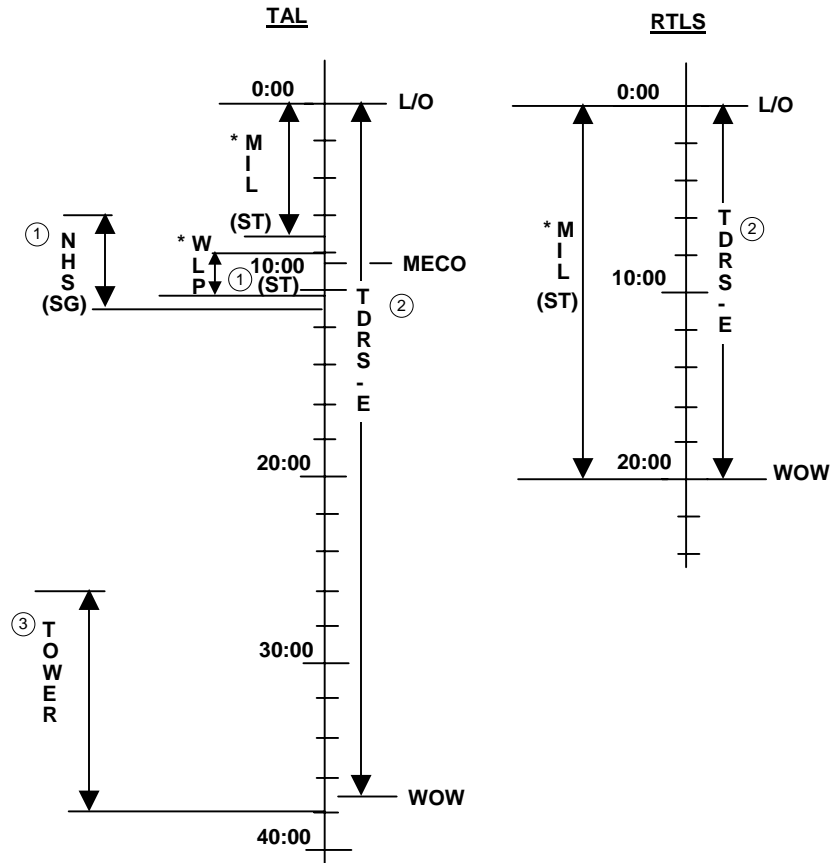


STS-114 OCFR4 CY OMS TARGETS - W/OMS 1



**COMM
COVER**

COMMUNICATION COVERAGE – (TAL/RTLS)



MODE

ST – STDN
SG – SGLS

*UHF available

NOTE: ① NHS/WLP coverage only on high inclinations

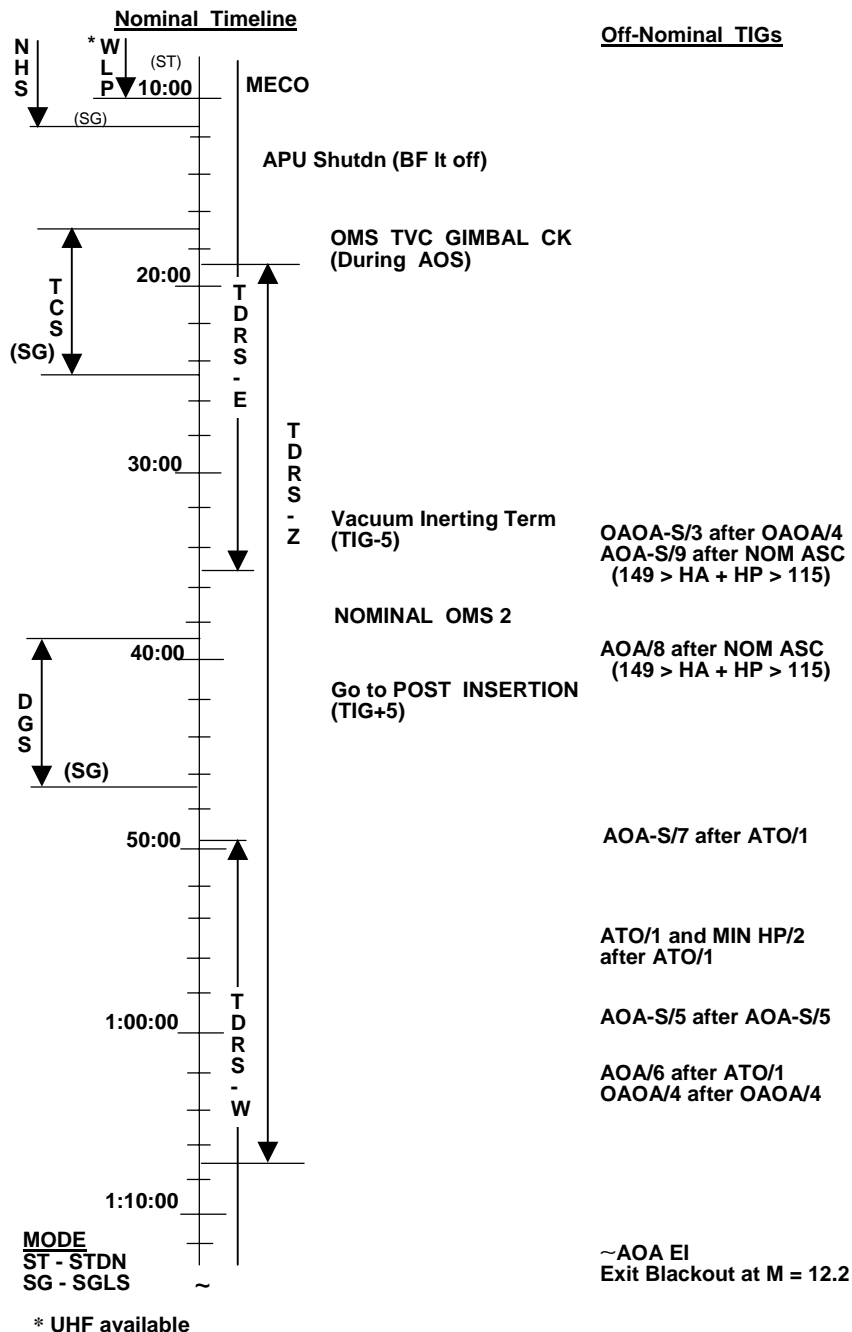
② ET blocks coverage until vehicle upright

③ Tower UHF installed at all TAL sites

**COMM
COVER**

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

LAND
SITE



STS-114 LANDING SITE TABLE
(50° to 63.5° INCLINATION)

S I T E	LOCATION	RWY	TACANS		MLS CH	LG	+ OVR RUN
				ITEM 5			
1	KSC	KSC 15 KSC 33	TTS 59Y	OMN 73	8 6	15000 15000	1000 1000
2	BEN GUERIR	BEN 36 BEN 18	◆BEN 108	MAK 80 ■	◆6 -	13720 12720	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	ZZA 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	NFE 19Y	NGU 48	- -	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	DQO 87	- -	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	◆BEN 108	MAK 80 ■	◆6 -	13720 12720	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	ZZA 77 ■	◆6 -	12200 12200	1000 1010
15	GABRESKI	FOK 06 FOK 24	HTO 83	TMU 45Y ■	- -	8500 8500	1000 1000

◆ Available for TAL Only

* LO XRNG TAL Site

■ DME

Length after displaced threshold

**STS-114 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	BOS 74	PVD 103	-	9000	0
		FMH 23			-	7500	0
17	PEASE INT'L	PSM 34	ENE 118	BOS 74	-	10020	0
		PSM 16			-	10020	0
18	HALIFAX INT'L	YHZ 24	UAW 38	YHZ 98 ■	-	8800	0
		YHZ 33			-	7700	0
19	STEPHENVILLE	YJT 09	YJT 78	YDF 80 ■	-	9500	0
		YJT 27			-	9500	0
20	ST JOHNS INT'L	YYT 29	UYT 23	YYT 82 ■	-	8500	0
		YYT 11			-	8500	0
21	GANDER INT'L	YQX 21	YQX 74	IQX 32 ■	-	9700	0
		YQX 31			-	8900	0
22	GOOSE BAY	YYR 26	UYR 40	YYR 120 ■	-	10550	0
		YYR 34			-	9080	0
23	LAJES	LAJ 15	TRM 109	LAJ 45	-	10870	970
		LAJ 33			-	10870	990
24	BEJA	BEJ 01L	MOJ 37	BEJ 105	-	10820	0
		BEJ 19R			-	10820	900
25	KEFLAVIK	IKF 20	KEF 57	HL 44 ■	-	9520	0
		IKF 29			-	9560	0
26	SHANNON	INN 06	SHA 80 ■	CRN 37 ■	-	9540	0
		INN 24			-	9540	0
27	FAIRFORD	FFA 27	FFA 81	BZN 56	-	9490	990
		FFA 09			-	9490	970
28	KOLN/BONN	KBO 14L	GIX 18	DOR 23Y ■	-	12020	0
		KBO 32R			-	12020	0
29	ISTRES	FMI 33	◆FMI 16	NIM 53	◆6	11300	3960
		FMI 15			-	12300	0
30	ESENBOGA	ESN 03R	BAG 78 ■	BUK 90 ■	-	11800	0
		ESN 21L			-	11800	0

◆ Available for TAL Only

■ DME

Length after displaced threshold

**STS-114 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	0
					-	13300	0
32	DIEGO GARCIA	JDG 31 JDG 13	NKW 57	NKW 57	-	12000	950
					-	12000	950
33	AMBERLEY TINDAL RAAF	AMB 15 PTN 14	AMB 94 -	- TDL 70	-	9500	0
					-	8500	0
34	YOKOTA AB	JTY 36 JTY 18	SHT 19	NJA 98	-	11000	1000
					-	11000	1000
35	ANDERSEN AFB	GUA 06L GUA 24R	UAM 54	UNZ 100	-	10560	1050
					-	10560	1000
36	WAKE ISLAND	WAK 28 WAK 10	AWK 82	AWK 82	-	9360	0
					-	9360	0
37	HONOLULU	HNL 08R HNL 26L	HNL 95	NGF 93	-	11500	0
					-	11500	0
38	ELMENDORF	EDF 24 EDF 06	EDF 81	BGQ 72	-	9500	0
					-	9500	0
39	HAO ATOLL	HAO 12 HAO 30	HAO 85 ■	HAO 85 ■	-	10390	0
					-	10390	0
40	RIO GALLEGOS	AWG 25 AWG 07	GAL 114 ■	GAL 114 ■	-	10900	0
					-	10900	0
41	ASCENSION	HAW 14 HAW 32	ASI 59	ASI 59	-	9500	0
					-	9500	0
42	NORTHROP	NOR 17 NOR 23	SNG 121Y	HMN 92	6	15000	Lkbd
					6	15000	Lkbd
43	NORTHROP	NOR 05 NOR 35	SNG 121Y	HMN 92	-	15000	Lkbd
					-	15000	Lkbd
44	EDWARDS AFB	EDW 15 EDW 18L	EDW 111	LHS 21	-	16300	Lkbd
					-	15000	Lkbd
45	EDWARDS AFB	EDW 22 EDW 04	EDW 111	LHS 21	8/†	15010	0
					6	14010	1800

† MSBLS Jr. Ch 8 - Requires Uplink

■ DME

Length after displaced threshold



WEATHER PADS

8-1

ASC/114/FIN A



**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	/	/	/	/		/

TAL () data to ACL FB 2-14

TAL/CONUS TERMINAL FORECASTS

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

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

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

BLOCK 1 TRAJECTORY MESSAGE

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

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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	
R4 9-6	FLOOR 9-15	L9 9-23
R6 9-6	MO63P 9-15	L10L 9-23
R side OVHD		L10U 9-24
Flood..... 9-6	MIDDECK EXPERIMENTS	L11U 9-24
		L12UL 9-24
C2 9-6	MIDDECK (TEPC) .. 9-16	L12UR 9-24
C3 9-6		L12LL 9-24
C5 9-7	AIRLOCK	L12LR 9-24
S2 9-7		L12L 9-24
C6 9-7	AW18A 9-17	R12 9-24
C7 9-7	AW18D 9-17	
	AW18H 9-17	A15 9-25
O1 9-7	AW82B 9-17	A14 9-25
O2 9-7	AW82D 9-17	A13 9-25
O3 9-7	AW82H 9-17	A12 9-25
O5 9-7	TW58T 9-17	A11 9-26
O6 9-7	A/L IN HATCH 9-17	
O7 9-8	A/L OUT HATCH ... 9-17	R14 9-26
O8 9-8	SH HATCH 9-17	
O9 9-8	EXT A/L UPPER	HARDWARE
O13 9-9	HATCH 9-17	C/W 9-27
O14 9-9	TNL ADP	MEDS CONFIG
O15 9-9	HATCH 9-17	FOR INGRESS.... 9-28
O16 9-9		
O17 9-10		
O19 9-10		

SW LIST

NOT FLOWN

9-1

ASC/114/FIN A

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 counterclockwise
- 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-114 options affecting switch list:
 - 1) OV103
 - 2) GMTLO
 - 3) Orbit incln = 51.6°
 - 4) Payload: MPLM, ESP2, two APCUs
 - 5) Crew size of 7
 - 6) Installed: TK CRYO sets (5), SORG, Ku Ant, GN2 (6), External Airlock (ISS), RMS, OBSS, OIU, VPU, WVS, DTV
 - 7) Options N/R: RCRS
- Changes are with respect to STS-114 Switch List as published in FIN 3

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

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

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

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 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 MAN 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 MAN 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	A

NOT FLOWN

9-4

ASC/114/FIN A

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

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

NOT FLOWN

9-5

ASC/114/FIN A

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) – ctr (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/114/FIN A

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 HTR (SH only) – OFF EMER LTG – OFF/ON	O5	L AUD TACAN ID (two) – 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		
S2	PL SEAT PWR BUS SEL – AC3 (dn) CONTR (two) – ctr		
C6	LEH O2 vlv (four) – OP		
C7	LEH O2 SPLY vlv (two) – OP		
O1	COAS – OFF AIR TEMP sel – CAB HX OUT H2O PUMP OUT PRESS sel – LOOP 2 FREON sel – LOOP 1 O2/N2 FLOW sel – SYS 1 O2 PPO2 sel – SNSR A	O6	LTG PNL sel (two) – OFF – (1/4 brt if night launch) INST L/CTR sel – OFF – (1/4 brt if night launch) OVHD sel – as reqd – (1/4 brt if night launch) L GLRSHLD FLOOD sel (two) – VAR, as reqd L SEAT/CTR CNSL FLOOD sel (two) – OFF,BRT S TRK DR CNTL (two) – OFF POS tb (two) – CL PWR (two) – OFF UHF SPLX/EVA XMIT FREQ – 259.7/414.2 PWR AMP – ON SPLX SQUELCH – ON EVA STRING – 1 ENCRYPT – ON MODE – SPLX
O2	CRYO O2 HTR ASSY TEMP sel – TK1 1 O2/H2 sel – TK1 FC STACK TEMP sel – 1		
O3	RCS/OMS PRESS sel – RCS He X 10 PRPLT QTY sel – OMS FUEL MSN TIME – MET		

NOT FLOWN

9-7

ASC/114/FIN A

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

<p>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)</p> <hr/> <p>O7 TACAN MODE sel (three) - GPC OFF ANT SEL (three) - AUTO as is CH pb/tw (three) - 059Y 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)</p> <hr/>	<p>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</p> <hr/> <p>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) - OFF, as reqd</p>
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NOT FLOWN

9-8

ASC/114/FIN A

FWD FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

O9 R AUD PAGE - dn
 VOL pb (five) - as reqd
 VOL 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
 :C RAD ISOL CONTR - cl { }
 :D GPS PRE AMPL UC (OV103,5) - op {R}
 LC (OV103,5) - cl { }
 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 (OV103,5) - cl { }
 LC (OV103,5) - op {R}
 3 PRE AMPL (two)(OV104) - op {R}
 O2 EMER - op {R}

NOT FLOWN

9-9

ASC/114/FIN A

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	OFF
	RJDF 2A F3 LOGIC	- ON	
	DRIVER	- ON	OFF
	RJDF 2B F4/F5 LOGIC	- ON	
	F4 DRIVER	- ON	OFF
	R OMS ENG VLV	- ON	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	OFF
	DC UTIL PWR MNA	- ON	
	COAS PWR	- OFF	
<hr/>			

NOT FLOWN

9-10

ASC/114/FIN A

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

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

NOT FLOWN

9-11

ASC/114/FIN A

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

<p>ML86B:E cb MNB MAR 1 - op { Y }</p> <p style="padding-left: 20px;">2 - cl { }</p> <p style="padding-left: 40px;">SEAT L - cl { }</p> <p style="padding-left: 60px;">R - cl { }</p> <p style="padding-left: 40px;">CO2 COM INSTR (OV104,5) - op { R }</p> <p style="padding-left: 40px;">FLOOD TNL ADAPT 3 - op { R }</p> <p style="padding-left: 60px;">- (op { Y } if SH flown)</p> <p style="padding-left: 20px;">MNC EMU 1 H2O SPLY - op { Y }</p> <p style="padding-left: 40px;">WASTE - op { Y }</p> <p style="padding-left: 40px;">SEAT L - cl { }</p> <p style="padding-left: 60px;">R - cl { }</p> <p style="padding-left: 40px;">CO2 SYS 2 CNTLR (OV104,5) - op { R }</p> <p style="padding-left: 40px;">FLOOD TNL ADAPT 4 - op { R }</p> <p style="padding-left: 60px;">- (op { Y } if SH flown)</p> <p>:F cb MNA FLOODS MIDDECK 1/8 - cl { }</p> <p style="padding-left: 20px;">WMC/MO13Q - op { Y }</p> <p style="padding-left: 20px;">AIRLK 1 - op { Y }</p> <p style="padding-left: 20px;">MIDDECK 9 - op { Y }</p> <p style="padding-left: 20px;">CRYO O2 HTR TK3 SNSR 1 - cl { }</p> <p style="padding-left: 40px;">TK5 SNSR 1 - op { R }</p> <p style="padding-left: 60px;">- (cl { } if TK5 flown)</p> <p style="padding-left: 20px;">MNB FLOODS MIDDECK 2/6 - cl { }</p> <p style="padding-left: 40px;">BUNK 2/4 - op { Y }</p> <p style="padding-left: 40px;">MIDDECK 10 - op { Y }</p> <p style="padding-left: 40px;">AIRLK 3 - op { Y }</p> <p style="padding-left: 20px;">CRYO O2 HTR TK3 SNSR 2 - cl { }</p> <p style="padding-left: 40px;">TK4 SNSR 1 - op { R }</p> <p style="padding-left: 60px;">- (cl { } if TK4 flown)</p>	<p>I ML86B:F cb MNC FLOODS MIDDECK 5/7 - cl { }</p> <p style="padding-left: 20px;">3/4/MO13Q - cl { }</p> <p style="padding-left: 40px;">BUNK 1/3 - op { Y }</p> <p style="padding-left: 40px;">AIRLK 4 - op { Y }</p> <p style="padding-left: 20px;">CRYO O2 HTR TK5 SNSR 2 - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK5 flown)</p> <p style="padding-left: 20px;">TK4 SNSR 2 - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK4 flown)</p> <p>:G cb ESS 1BC FLOOD AIRLK 2 - op { Y }</p> <p style="padding-left: 20px;">TNL ADAPT 1 - op { R }</p> <p style="padding-left: 40px;">- (op { Y } if SH flown)</p> <p style="padding-left: 20px;">CRYO CNTLR TK4 (two) - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK4 flown)</p> <p style="padding-left: 20px;">QTY TK4 (two) - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK4 flown)</p> <p style="padding-left: 20px;">2CA CRYO CNTLR TK5 (two) - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK5 flown)</p> <p style="padding-left: 20px;">QTY TK5 (two) - op { R }</p> <p style="padding-left: 40px;">- (cl { } if TK5 flown)</p> <p style="padding-left: 20px;">3AB CRYO CNTLR TK3 (two) - cl { }</p> <p style="padding-left: 40px;">QTY TK3 (two) - cl { }</p>
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NOT FLOWN

9-12

ASC/114/FIN A

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

ML85E (MUP – if reqd)
 AC S1 – OFF
 cb AC CB1 – op { Y }
 DC 10 AMP MNB S2 – OFF
 S3 – OFF
 S4 – OFF
 S5 – ON
 cb DC 10 AMP MNB CB2 – op { Y }
 CB3 – op { Y }
 CB4 – op { Y }
 CB5 – cl { }
 PUMPS S6 – OFF
 cb PUMPS (two) – op { Y }

SORG (NOTE: Panel deleted if Galley not flown)
 OVEN FAN – OFF
 H2O HOT(COLD) pb (two) – lt off
 VOL sel – as reqd
 MV2 – as reqd
 REHYD STA Lever – CL, latched
 OVEN/RHS – OFF
 H2O HTR (two) – OFF
 AUX PORT – cap installed
 TEST PORT 4 – cap installed
 ELECT TEST PORT – cap installed
 OVEN DOOR – CL

MO13Q MIDDECK FLOODS 1,2,3,5,7 (five) – OFF
 9,10 (two) – OFF
 4,6,8 (three) – ON
 MO13Q LTG – OFF

MO13Q AIRLK FAN (two) – OFF
 H2O S/O VLV – ctr (tb-OP)
 AIRLK 2 – OFF/ON
 TNL ADAPT 1 – OFF/ON
 DC UTIL PWR MNB – OFF
 AC UTIL PWR AC3 – OFF

ML31C WASTE H2O TK1 DRAIN VLV – ctr (tb-OP)
 VLV – ctr (tb-OP)
 DUMP ISOL VLV – ctr (tb-bp)**
 VLV – ctr (tb-bp)**
 VLV ENA/NOZ HTR – OFF
 SPLY H2O TKD INLET – ctr (tb-OP)
 OUTLET – ctr (tb-OP)
 VAC VENT ISOL VLV BUS SEL – MNA
 CNTL – ctr (tb-bp)**
 NOZ HTR – OFF

ML26C SPLY H2O GN2 TKA SPLY vlv – CL
 TK VENT vlv – VENT

ML18F EMER LTG – ON/OFF
 WMC FLOOD – OFF

ML30N Neg Press Relief vlv cap (two) – installed/seated

MA73C:A,B MCA LOGIC MNA (four) – ON
 MNB (six) – ON
 MNC (four) – ON
 :C,D All cbs – cl { }
 :E All cbs – op { Y } except:
 cb AC2 PL 3Φ – op { Y }
 AC3 PL 3Φ – op { Y }

NOT FLOWN

9-13

ASC/114/FIN A

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

MA73C:F cb AC1 RMS PRI Φ A – op { Y }
 – (op { R } if no RMS flown)
 MAR 3 Φ – op { Y }
 OPS INST HYD ACTR Φ C – cl { }
 AC2 RMS B/U Φ A – op { Y }
 – (op { R } if no RMS flown)
 L SEAT 3 Φ – cl { }
 OPS INST HYD ACTR Φ C – cl { }
 AC3 L SEAT 3 Φ – cl { }
 :G cb ARLK TNL FAN (six) – op { R }
 – (op { Y } if SH flown or
 ISS docking mission)
 AC2 R SEAT 3 Φ – cl { }
 AC3 GALLEY FAN (three) – op { Y }
 R SEAT 3 Φ – cl { }
 blank switch – dn
 :H,l All cbs – cl { }
 :I AFT POD VLV LOGIC (three) – ON

MO10W 14.7 CAB REG INLET vlv (two) – CL
 PPO2 CNTLR (two) – NORM
 O2 REG INLET vlv (two) – CL
 H2O TK N2 REG INLET vlv (two) – OP
 PL N2 vlv (two) – CL
 O2 EMER vlv – CL
 N2 XOVR vlv – CL
 H2O TK N2 ISOL vlv (two) – OP
 PL O2 vlv (two) – CL

WCS AUTO INHIBIT/AUTO – AUTO
 COMMODE CNTL – DN/OFF
 MODE – AUTO
 VAC VLV – CL
 FAN BYP (two) – OFF
 SEP – OFF
 HOSE BLOCK – SEP 1
 COMPACTOR ANGLE – –0 or < 10%

MO30F DC UTIL PWR MNC – ON

MO32M LEH O2 5 vlv – CL (OP if seat 5 flown)
 6 vlv – CL (OP if seat 6 flown)

MO39M MIDDECK COMM CCU PWR – ON OFF

MO42F MIDDECK SPKR AUD PWR – AUD/TONE
 A/G (two) – T/R
 A/A – T/R
 ICOM (two) – T/R
 VOX SENS sel – as reqd
 MSTR SPKR VOL sel – as reqd
 PAGE – dn
 VOL pb (five) – as reqd
 XMIT/ICOM MODE sel – as reqd
 (PTT/PTT
 recommended)
 TONES – ACCU/BYP
 SPKR PWR – OFF
 GPC MEM DUMP sel – OFF
 BYP TONE VOL – as reqd

NOT FLOWN

9-14

ASC/114/FIN A

MIDDECK SWITCH LIST FOR HANDOVER INGRESS

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

MO58F TV PWR – OFF

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

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

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

MIDDECK FLOOR

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

MO63P (OV103,4 only)

cb CB2/J2 – op { Y }
 CB3/J3 – op { Y }
 CB4/J4 – op { Y }
 CB5/J5 – op { Y }
 CB6/J6 – op { Y }
 RLY PWR – op { Y }

J2 – OFF
 J3 – OFF
 J4 – OFF
 J5 – OFF
 J6 – OFF
 Left select – 10A
 Right select – 10A

NOT FLOWN

9-15

ASC/114/FIN A

MIDDECK EXPERIMENTS SWITCH LIST FOR HANDOVER **INGRESS**

MIDDECK (TEPC)
SW-1 – OFF

NOT FLOWN

9-16

ASC/114/FIN A

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

TW58T TNL FAN – OFF
cb TNL FAN – op {Y}
– (op {R} if SH flown)
TNL LIGHT – OFF

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/114/FIN A

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

R12L	<p><u>NOTE:</u> Panel may be blank if no PL requirement (See 9-23 or 9-24)</p>																																																																												
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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 AMPL – 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 2 TAGS – CLEAR		

NOT FLOWN

9-19

ASC/114/FIN A

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

AFT MDU MDU PWR - OFF
 BRT sel - as reqd

A6U DAP - all off
 SENSE: -Z
 FLT CNTLR PWR - OFF
 Unused rotary sw - full ccw
 ADI ATT - INRTL
 ERR - MED
 RATE - MED
 OS LTG FLOOD sel (two) - ON,BRT
 PNL sel - OFF
 INST sel - OFF
 NUMERIC sel - OFF
 ANNUN BUS SEL - OFF
 LAMP TEST - ctr
 INTEN sel (two) - VAR,MED
 EVENT TIMER SET pb (four) - as reqd
 MODE - UP
 CNTL - ctr
 TIMER - ctr

A6U PL RETEN LOGIC PWR (two) - OFF
 PL SEL - MON
 LAT (five) - OFF (tb-bp)
 RDY tb (five) - bp

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

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 – ELBOW 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
		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
		A4 MSN TIMER sel – MET

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;">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 MRLs present) <li style="padding-left: 40px;">HTR (two) – OFF <li style="padding-left: 20px;">R-F-L tb (three) – gray <li style="padding-left: 40px;">– (bp if no RMS/OBSS 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;">HTR (two) – OFF <li style="padding-left: 20px;">RETEN LAT – OFF (tb-LAT) <li style="padding-left: 20px;">– (OFF (tb-bp) if no MRLs present) <li style="padding-left: 40px;">R-F-L tb (three) – gray <li style="padding-left: 40px;">– (bp if no RMS flown) RMS RHC RATE – VERN <hr style="border-top: 1px solid black;"/> <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 style="border-top: 1px solid black;"/>
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NOT FLOWN

9-22

ASC/114/FIN A

AFT FLIGHT DECK PAYLOADS SWITCH LIST FOR HANDOVER INGRESS

<p>L10U (AVIU) SYNC/VIDEO – VIDEO HI-Z/75 – HI-Z PWR SELECT – HI</p> <hr/> <p>L11U (PDIP 2) MPLM DATA – OIU (ctr) DC PWR 1 – OFF 2 – OFF</p> <hr/> <p>L12UL SSP-1 (APCU/MPLM) Verify all tbs bp APCU 1 CONV – OFF OUTPUT RLY – OP 2 CONV – OFF OUTPUT RLY – OP cb SW PWR 1 – op PDIP 1 PWR 2/KuBAND RLY – op MPLM CHAN 1 HTR PWR – OFF 2 HTR PWR – OFF</p> <hr/> <p>L12UR SSP-1 (TCS/ODS) Verify all tbs bp TCS PWR – OFF cb SW PWR 2 – op X1/X2 SW PDIP 1 PWR 1 – op ODS CONN MATE X1 TLM PWR – OFF X2 TLM PWR – OFF OIU PWR – OFF</p> <hr/>	<p>L12LL SSP-2 (MPLM) MPLM KEEL CAM PWR – OFF HTR/ILLUM PWR – OFF cb SW PWR 3 – op PDIP 2 PWR 2/MPLM RLY – op C/L CAM PWR – OFF</p> <hr/> <p>L12LR SSP-2 (PDIP 2) cb PDIP 2 PWR 1 – op</p> <hr/> <p>L12L (PDIP 1) Ku BAND RATE – OFF DC PWR 1 – OFF 2 – OFF</p> <hr/> <p>R12 (VPU/OPP) VPU PWR – OFF</p> <hr style="border-top: 1px dashed black;"/> <p>R12 (OPP) cb OBSS SW PWR CB1 – op { Y } OBSS SW PWR – OFF</p> <hr style="border-top: 1px dashed black;"/> <p>R12 (OBSS) RSC PWR – OFF ITVC ENA – OFF SPEE PWR – OFF</p> <hr/>
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NOT FLOWN

9-24

ASC/114/FIN A

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

<p>A15: (All Veh)</p> <p>PS COMM CCU PWR - OFF ON</p> <p>DC UTIL PWR MNC - OFF</p> <p>AC UTIL PWR AC3 - OFF</p> <p>:A CRYO TK5 HTRS (four) - OFF</p> <p style="padding-left: 40px;">O2 RESET/TEST - ctr</p> <p style="padding-left: 40px;">(OV104,5)</p> <p>:B cb PPCA CONT PWR (two) - op { R }</p> <p>:C PALLET PWR (two) - ctr (tb-OFF)</p> <p style="padding-left: 40px;">HTRS (two) - OFF</p> <p style="padding-left: 40px;">HTRS (sixteen) - OFF</p> <p>:D,E, F,G O2 RESET/TEST (four) - ctr</p> <p>:H,I, cb PALLET ESS (sixteen) - op { R }</p> <p>:J,K HTR SNSR (eight) - op { R }</p> <hr/> <p>A14 RCS/OMS HTR FWD RCS - OFF</p> <p style="padding-left: 40px;">L POD (two) - A OFF, B OFF</p> <p style="padding-left: 40px;">R POD (two) - A OFF, B OFF</p> <p style="padding-left: 40px;">OMS KIT - OFF</p> <p style="padding-left: 80px;">CRSFD LINES (two) - A AUTO, B AUTO</p> <p style="padding-left: 40px;">FWD RCS JET (five) - AUTO</p> <p style="padding-left: 40px;">AFT RCS JET (five) - AUTO</p> <p style="padding-left: 40px;">PYRO (twelve) - SAFE</p> <p style="padding-left: 40px;">RMS LAT - SAFE</p> <hr/>	<p>A13 OS AUD MSTR SPKR VOL sel - as reqd</p> <p style="padding-left: 40px;">SPKR PWR - OFF</p> <p>GPS PRE AMPL UC (OV103,5) - MNC</p> <p style="padding-left: 40px;">LC (OV103,5) - MNA</p> <p style="padding-left: 40px;">(two) (OV104) - ON</p> <p style="padding-left: 80px;">PWR - ON OFF</p> <p>GPS/SIGI PWR (OV103,5) - OFF</p> <p>blank sw (OV104) - dn</p> <p>GPS ENCRYPT - NORM</p> <p>GPS/SIGI ENCRYPT (OV103,5) - NORM</p> <p>blank sw (OV104) - dn</p> <hr/> <p>A12 APU HTR GAS GEN/FUEL PUMP (three) - OFF</p> <p style="padding-left: 40px;">LUBE OIL LINE (three) - OFF</p> <p style="padding-left: 40px;">TK/FU LINE/H2O SYS (six) - OFF</p> <p>LG ARM/DN RESET - dn</p> <p>FC3 STRUCT RTN - ctr (tb-ON)</p> <p>HYD HTR RUD SPD BK A - OFF</p> <p style="padding-left: 40px;">B - AUTO</p> <p style="padding-left: 40px;">BDY FLP A - AUTO</p> <p style="padding-left: 80px;">B - OFF</p> <p style="padding-left: 40px;">ELEV A - AUTO</p> <p style="padding-left: 80px;">B - OFF</p> <p style="padding-left: 40px;">AFT FUS A - AUTO</p> <p style="padding-left: 80px;">B - OFF</p> <p>CIRC PUMP PWR 1 - MNA</p> <p style="padding-left: 40px;">2 - MNB</p> <p style="padding-left: 40px;">3 - MNC</p> <hr/>
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NOT FLOWN

9-25

ASC/114/FIN A

AFT FLIGHT DECK SWITCH LIST FOR HANDOVER INGRESS

<p>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 }</p> <hr/> <p>R14: All cbs - cl { } except: :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 }</p>	<p>R14:C cb MNA UHF EVA - op { Y } MNB KU ELEC - op { Y } ANT HTR - op { Y } CABLE HTR - op { R } MNC UHF EVA - op { Y } KU SIG PROC - op { Y }</p> <p>:D All cbs - op { Y } except: cb MNB VPU - op { Y } MNC TV CAB - cl { }</p> <p>:E MNA D CAMR (three) - op { Y } MNB RMS CAMR (three) - op { Y } - (op { R } if no PORT RMS flown)</p> <p>:F ESS 1BC LDG GEAR ARM/DN RESET - op { R }</p> <hr/>
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NOT FLOWN

9-26

ASC/114/FIN A

HARDWARE CAUTION & WARNING CONFIGURATION

UPPER LIMIT CHANGE

4	CABIN PRESS	<u>TO</u> 3.85 V/15.40 psia (OV103) 3.90 V/15.53 psia (OV104) 3.85 V/15.35 psia (OV105) 3.60 V/288 psi (OV103,4) 3.70 V/296 psi (OV105)
7	OMS TK P OX-L	3.60 V/288 psi
17	OMS TK P FU-L	3.60 V/288 psi
37	OMS TK P OX-R	3.60 V/288 psi
39	MPS He Reg 1A P	4.00 V/816.3 psia (OV103) 4.10 V/815.5 psia (OV104) 4.10 V/808.4 psia (OV105)
47	OMS TK P FU-R	3.60 V/288 psi
49	MPS He Reg 2A P	4.00 V/810.6 psia (OV103) 4.10 V/814.6 psia (OV105) 4.85 V/0.2" H2O (if SH flown)
55	CAB FAN ΔP	4.00 V/811.5 psia (OV105)
59	MPS He Reg 3A P	2.30 V/2.7 psi (if SH flown)
65	PPO2 #1	4.25 V/6.80" H2O
74	CABIN FAN ΔP	3.80 V/7.6 mmHg (if SH flown)
75	PPCO2 #2	3.25 V/65 psi
79	MANF P LH2	4.85 V/0.2" H2O (if SH flown)
85	ARS FAN ΔP	1.55 V/13.8 psi (if SH flown)
95	CAB TOTAL PRESS	4.30 V/115.2 °F
107	FREON LOOP 1 EVAP OUT T	4.30 V/115.2 °F
117	FREON LOOP 2 EVAP OUT T	4.30 V/115.2 °F

LOWER LIMIT CHANGE

4	CABIN PRESS	<u>TO</u> 3.45 V/13.80 psia (OV103) 3.45 V/13.74 psia (OV104) 3.45 V/13.76 psia (OV105)
39	MPS He Reg 1A P	3.30 V/676.0 psia (OV103) 3.45 V/678.7 psia (OV105)
49	MPS He Reg 2A P	3.35 V/679.9 psia (OV103) 3.45 V/684.6 psia (OV105)
59	MPS He Reg 3A P	3.35 V/680.0 psia (OV105)
74	CABIN FAN ΔP	2.60 V/4.16" H2O
106	FREON FLOW 1	0.80 V/1186 lb/hr
116	FREON FLOW 2	0.80 V/1186 lb/hr

INHIBIT

8	APU 1 EGT
18	APU 2 EGT
28	APU 3 EGT
30	CRYO O2 P TK4/5 (if TK4 and TK5 not flown)
40	CRYO O2 P TK5 (unless OV103,4,5 and TK5 flown)
55	CAB FAN ΔP (if SH flown)
61	CRYO O2 HTR1 TK4 (if TK4 and TK5 not flown)
65	PPO2 (if SH flown)
71	CRYO O2 HTR2 TK4 (if TK4 and TK5 not flown)
75	PPCO2 (if SH flown)
77	OMS PBK OXID TK ULL P
80	CRYO H2 P TK4/5 (if TK4 and TK5 not flown)
81	CRYO O2 HTR1 TK5 (unless OV103,4,5 and TK5 flown)
85	ARS FAN ΔP (if SH flown unpowered)
87	OMS PBK FUEL TK ULL P
90	CRYO H2 ΔP TK5 (unless OV103,4,5 and TK5 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	4	OMS/MPS	FLT INST
CDR2	positive	auto	primary	3	A/E PFD	DATA BUS
MFD1	positive	auto	primary	3	HYD/APU	SUBSYS STATUS
MFD2	positive	auto	primary	4	OMS/MPS	SUBSYS STATUS
PLT1	positive	auto	primary	4	A/E PFD	DATA BUS
PLT2	positive	auto	primary	4	HYD/APU	FLT INST
AFD1	negative	auto	n/a	n/a	n/a	n/a



CUE CARD CONFIG

**CUE CARD
CONFIG**

FAB USE ONLY

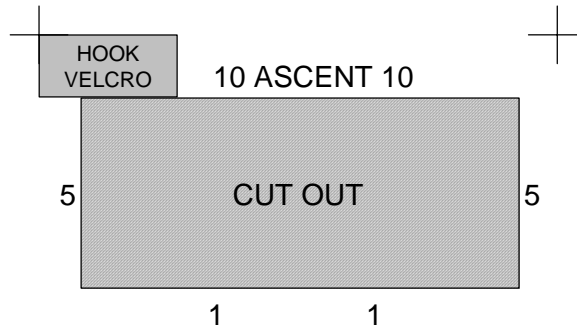
10-1

ASC/114/FIN A



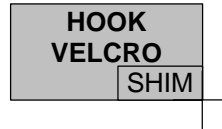
CUE CARD
CONFIG

TOP



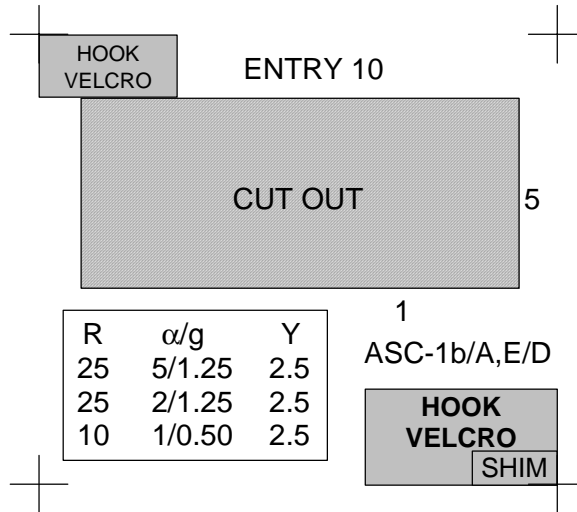
**ADI ERROR/RATE
SWITCH**

ASC-1a/A,E/D



TOP

BACK OF 'ADI ERROR/RATE SWITCH'



FAB USE ONLY

CC 10-2

ASC/114/FIN A

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		

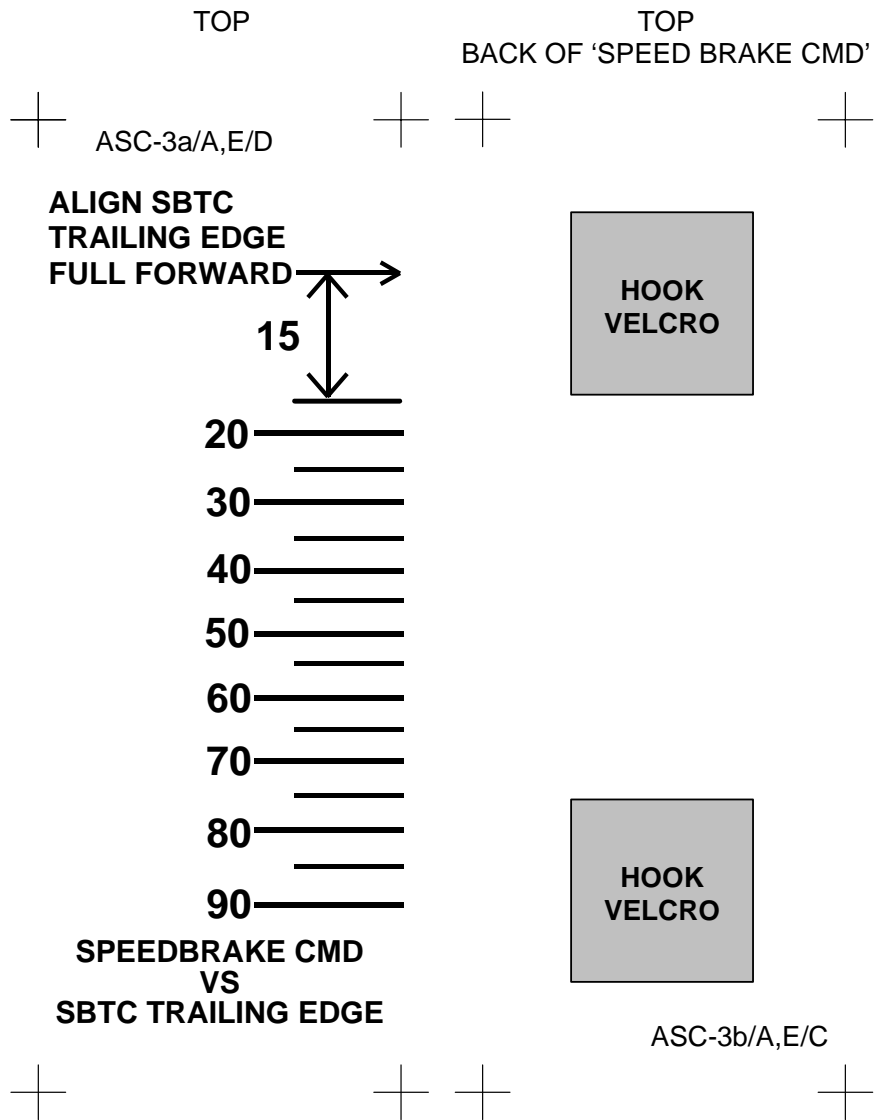
TOP
BACK OF 'ASCENT/ENTRY SPEC'



FAB USE ONLY

CC 10-3

ASC/114/FIN A

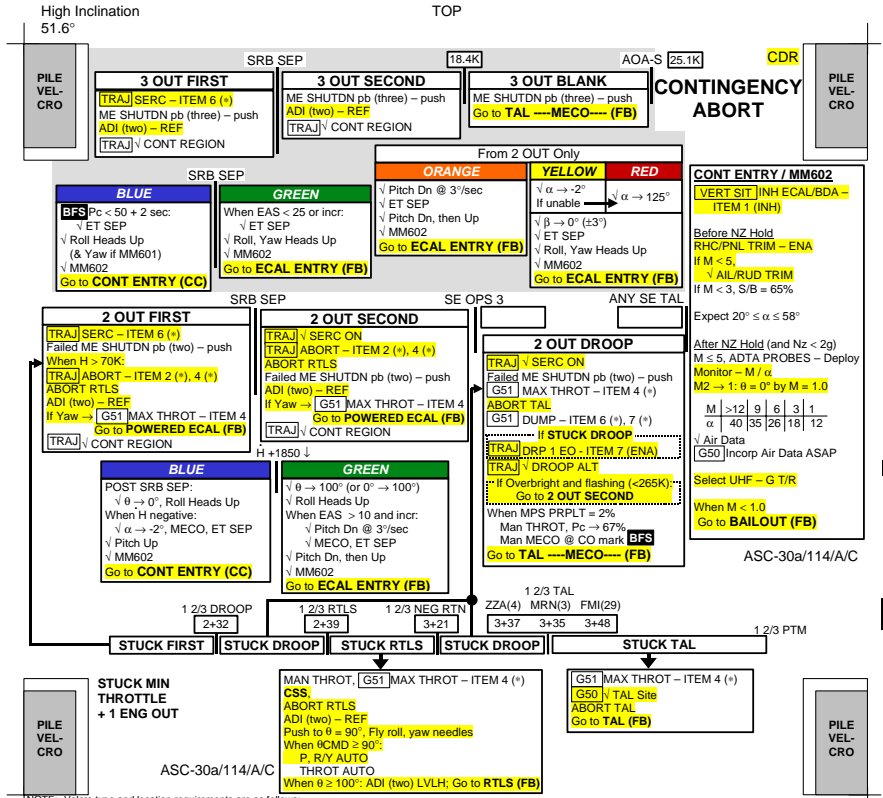


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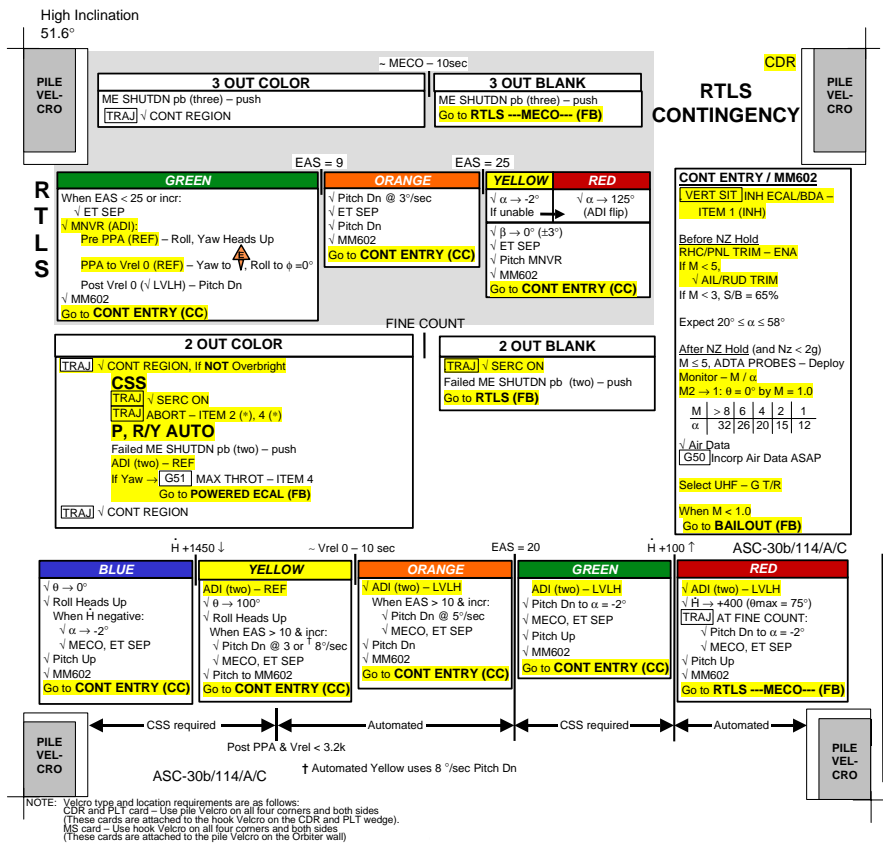
FAB USE ONLY

CC 10-4

ASC/114/FIN A



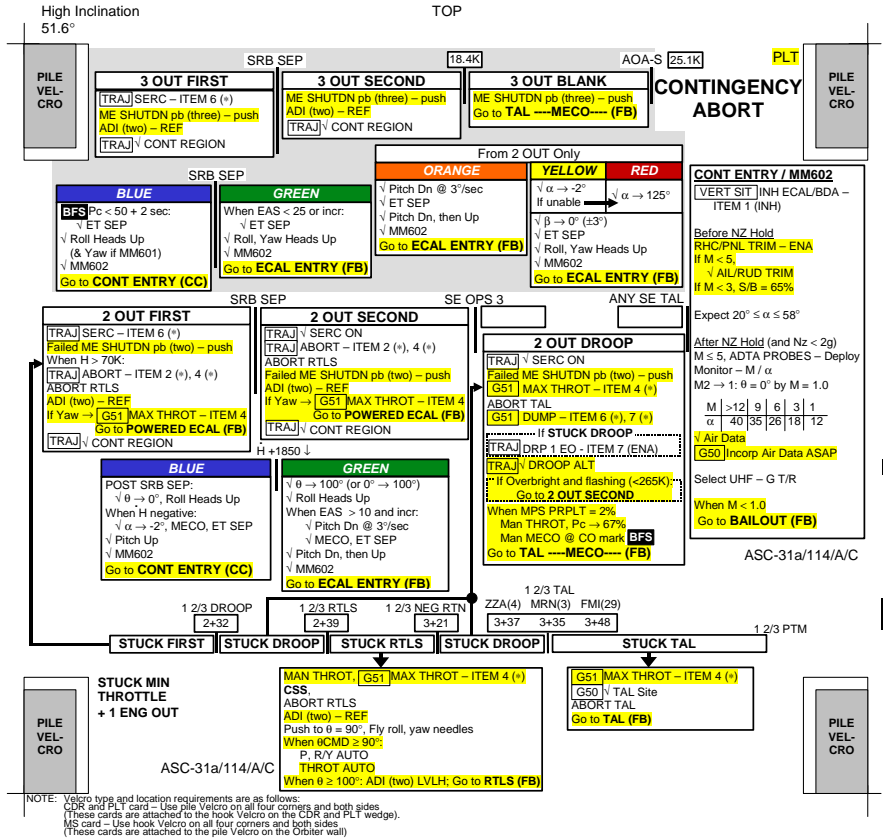
NOTE: Velcro type and location requirements are as follows:
 CDR and FLT card - Use pile Velcro on all four corners and both sides.
 (These cards are attached to the hook Velcro on the CDR and FLT wedge).
 MS card - Use hook Velcro on all four corners and both sides.
 (These cards are attached to the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



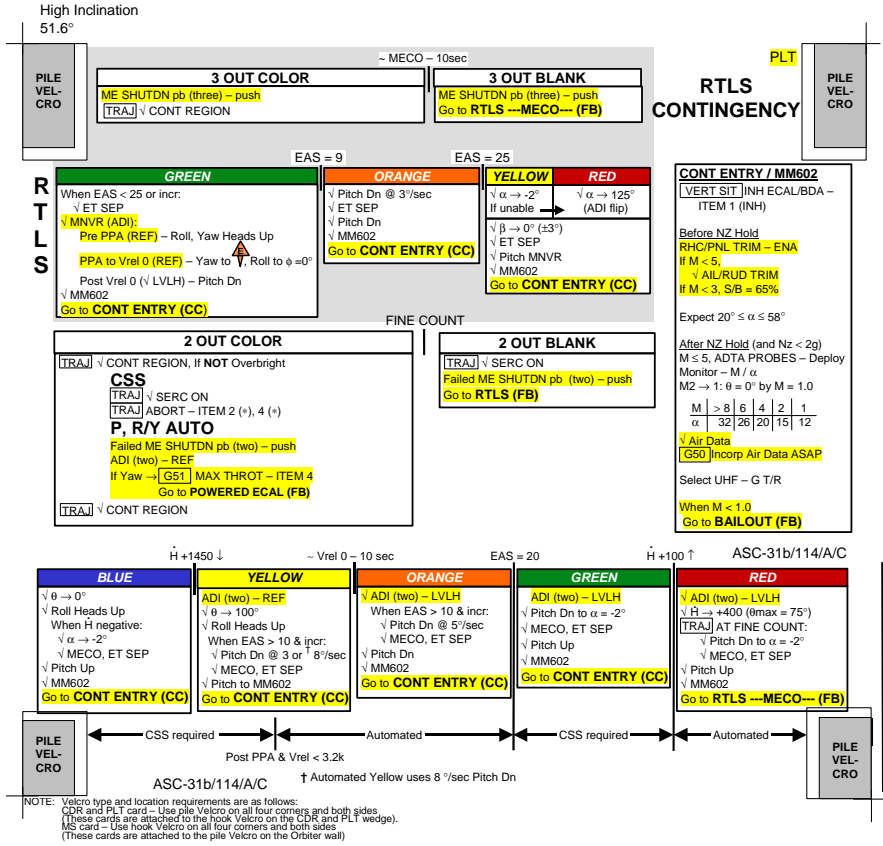
FAB USE ONLY

(reduced copy)
(A)CC 10-6

CDR
ASC/114/FIN A



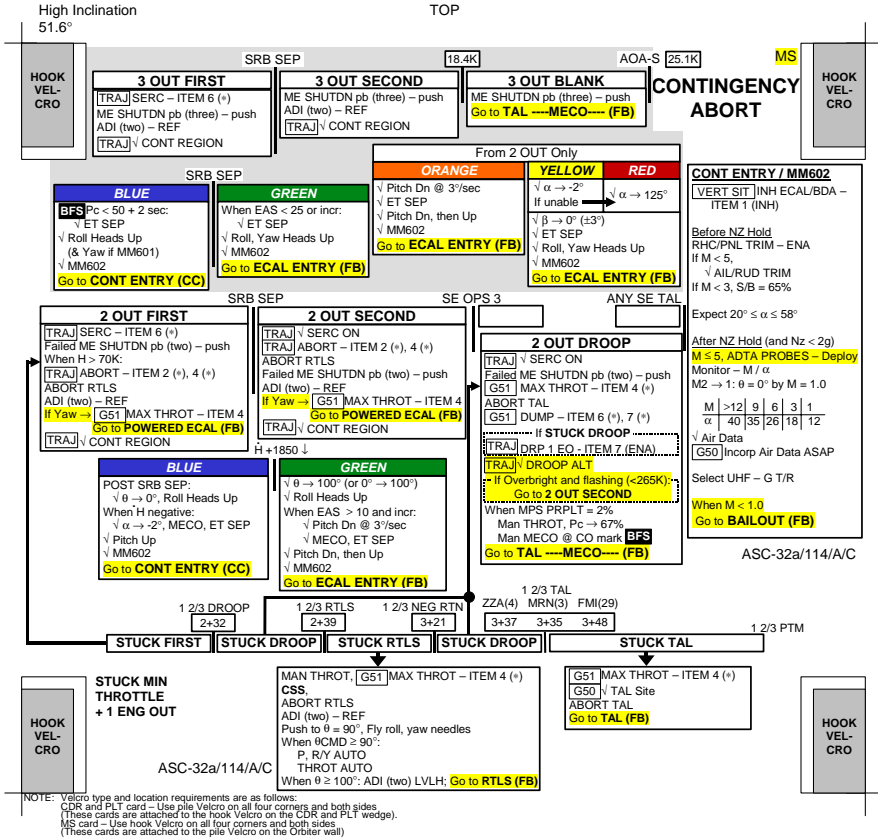
NOTE: Velcro type and location requirements are as follows:
 CDR and PLT card - Use pile Velcro on all four corners and both sides
 (These cards are attached to the hook Velcro on the CDR and PLT wedge).
 MS card - Use hook Velcro on all four corners and both sides
 (These cards are attached to the pile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



(reduced copy)

FAB USE ONLY PLT ASC/114/FIN A

(B)CC 10-6

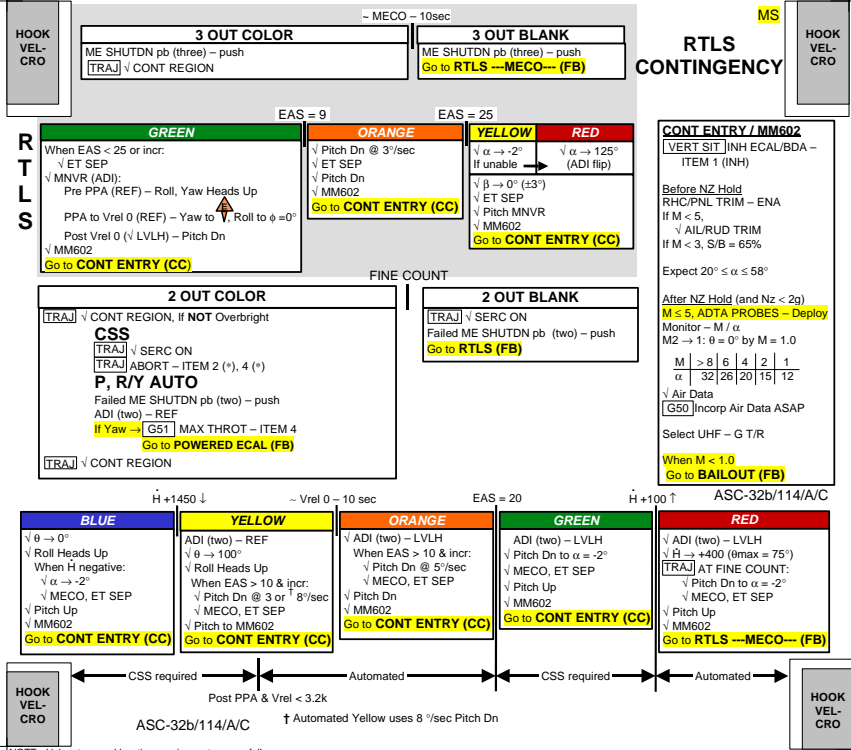


FAB USE ONLY

(reduced copy)
 (C)CC 10-5

MS
 ASC/114/FIN A

High Inclination
51.6°



FAB USE ONLY

(C)CC 10-6

MS
ASC/114/FIN A

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 ENG – ARM						
OMS N2 TK P LOW (√[OMS/MPS])	At N2 TK P < 470: OMS ENG – ARM						
OMS GMBL PRI fail SEC fail	L(R) OMS GMBL – SEC (twice) If high RCS usage: OMS ENG FAIL						
GPC 1(4) & Burning OMS aff 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/114/A,O/B

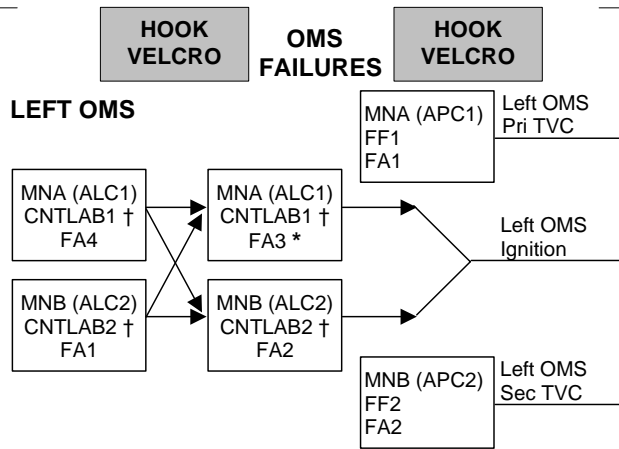
(reduced copy)

FAB USE ONLY

CC 10-7

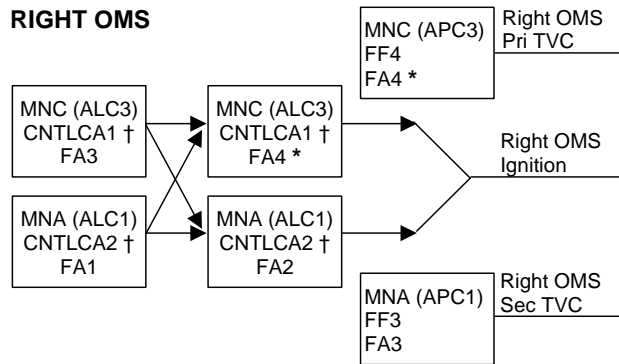
ASC/114/FIN A

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) Pc 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/114/FIN A

TOP

HOOK VELCRO	OMS 2/ ORBIT OMS BURNS	HOOK VELCRO
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√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	GPC	OP	CL
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)
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-: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 PRPLT 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

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 *

* 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

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)

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

ASC-6a/114/A,O/B

(reduced copy)

FAB USE ONLY

CC 10-9

ASC/114/FIN A

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/114/A,O/B

(reduced copy)

FAB USE ONLY

CC 10-10

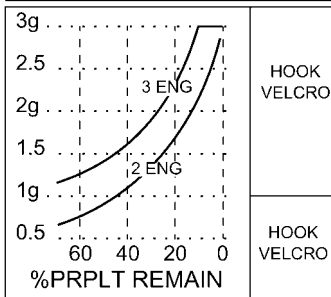
ASC/114/FIN A

TOP

ASCENT ADI - NOMINAL

TIME	θ	H	\dot{H}
0:30	68	9K	635
0:50	62	26K	980
1:10	55	49K	1402
1:30	39	82K	1874
1:50	31	123K	2186

(114 OCFR4 CY)



-STAGING-

V_i	θ	H	\dot{H}
6	19	218K	1720
7	16	275	1268
8	13	310	918
9	11	332	636
10	9	346	403
12	6	356	62
14	9	355	-147
16	25	350	-231
18	23	344	-267
20	21	339	-217
22	19	337	-104
24	17	337	66
25819	13	345	273

ASC-14a/114/A/D

HOOK VELCRO

TOP
BACK OF 'ASCENT
ADI-NOMINAL'

ENTRY ALPHA

VR	α_{ref}	R	H	\dot{H}_{ref}	Rref
25	40	4462	400		
24	HI 40 LO	2639	247	-46	L78
23	43 40 37	2163	239	-63	68
22	43 40 37	1805	232	-82	62
21	43 40 37	1527	226	-104	R59
20	43 40 37	1300	220	-121	58
19	43 40 37	1125	212	-143	60
18	43 40 37	982	206	-165	61
17	43 40 37	862	199	-185	62
16	43 40 37	764	192	-197	64

KSC 15

MAX L/D	
M	α
3	17
2	15
1	12

(114 OCFR4 CY)

ASC-14b/114/A,E/C

HOOK VELCRO

15	43 40 37	686	185	-118	64
14	43 40 37	613	181	-127	62
13	43 40 37	546	177	-136	60
12	43 40 37	485	172	-151	58
11	43 40 37	429	168	-191	L55
10	41 38 35	376	163	-173	47
9	39 36 33	328	157	-204	43
8	37 34 31	278	149	-237	38
7	33 30 27	230	139	-266	38
6	30 27 24	185	128	-272	39
5	26 23 20	142	115	-273	41
4	22 19 18	106	103	-263	R40
3	19 16 15	75	88	-248	37
2.5	14	61	80	-227	
2	13	50	74	-275	
1.5	10	38	64	-324	
1	8	28	50	-267	

HOOK VELCRO

(reduced copy)

FAB USE ONLY

CC 10-11

ASC/114/FIN A

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:**

* Mvnr 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/114/A/B

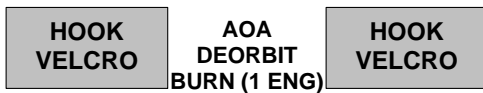
(reduced copy)

FAB USE ONLY

CC 10-13

ASC/114/FIN A

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/114/FIN A

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

*** RCS COMPLETION:**

* If DIRECT INSERTION:

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

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

* FLIP -----
* ΔV FRCS COMPLETION

* AFT -----
* ΔV THC +X to TGT ΔV

* TGT -----
* ΔV

* If W/OMS 1:

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

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

* FLIP -----
* HP FRCS COMPLETION

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

* TGT -----
* HP

*** FRCS COMPLETION:**

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

CUTOFF

+ :02 OMS ENG – OFF (If < 3 IMU, at :)
* AFT RCS RECONFIG if INTERCONNECT *
Trim X,Z residuals < 2 fps (< 0.5 fps if shallow)

ASC-8bb/114/A/B

(reduced copy)

FAB USE ONLY

CC 10-15

ASC/114/FIN A

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 r to -X Att (pitch up at 3°/sec to VGOz = +1/4 $\Delta VTOT$)
* THC -X to $\Delta VTOT = 0$ or FRCS depletion (JETS FAIL OFF)

CUTOFF:

VGOx = 0, release THC
AFT RCS RECONFIG
Trim Inplane X,Z residuals < 2 fps (< 0.5 fps if shallow)

ASC-7aa/114/A/B

(reduced copy)

FAB USE ONLY

CC 10-17

ASC/114/FIN A



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/114/FIN A



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



ASC-7bb/A/B

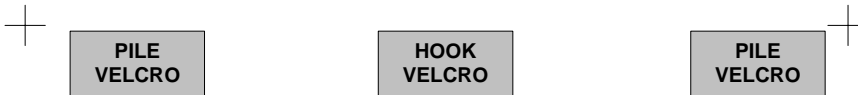


FAB USE ONLY

(reduced copy)
CC 10-19

ASC/114/FIN A

TOP



**ZZA TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI	5900	6000	6100	6200	6300	6400	6500	6600
SE OPS 3 ZZA 109 (4)	10900	11000	11000	11000	11000	11000	11100	11100
SE ZZA 104 (4)	17800	17600	17400	17200	17000	16700	16500	16300

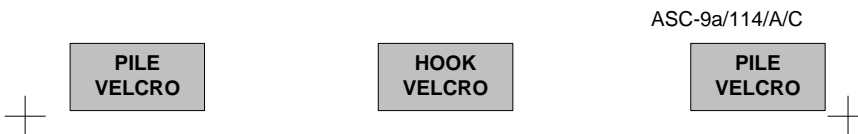
1st E.O. VI	6700	6800	6900	7000	7100	7200	7300	7400
SE OPS 3 ZZA 109 (4)	11100	11100	11100	11200	11200	11200	11200	11200
SE ZZA 104 (4)	16100	15900	15700	15500	15300	15200	15000	14800

1st E.O. VI	7500	7600	7700	7800	7900	8000	8100	8200
SE OPS 3 ZZA 109 (4)	11300	11300	11300	11300	11300	11400	11400	11400
SE ZZA 104 (4)	14700	14500	14400	14300	14100	14000	13900	13800

1st E.O. VI	8300	8400	8500	8600	8700	8800	8900	9000
SE OPS 3 ZZA 109 (4)	11400	11400	11400	11500	11500	11500	11500	11500
SE ZZA 104 (4)	13800	13700	13600	13600	13500	13500	13500	13400

1st E.O. VI	9100	9200	9300	9400	9500	9600	9700	9800
SE OPS 3 ZZA 109 (4)	11500	11500	11600	11600	11600	11600	11600	11600
SE ZZA 104 (4)	13400	13400	13400	13400	13400	13400	13400	13400

1st E.O. VI	9900	10000	10100	10200	10300	10400	10500	10600
SE OPS 3 ZZA 109 (4)	11600	11700	11700	11700	11700	11700	11700	11700
SE ZZA 104 (4)	13500	13500	13500	13500	13600	13600	13600	13600



(reduced copy)

FAB USE ONLY

CC 10-20

ASC/114/FIN A

TOP
BACK OF 'ZZA TAL REDESIGNATION'

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

ECAL – ZZA or MRN or FMI PRIME TAL

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

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

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

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

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

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

ASC-9b/114/A/C

**HOOK
VELCRO**

**HOOK
VELCRO**

**HOOK
VELCRO**

(reduced copy)

FAB USE ONLY

CC 10-21

ASC/114/FIN A

TOP



**MRN TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI	5800	5900	6000	6100	6200	6300	6400	6500
SE OPS 3 MRN 109 (3)	10900	11000	11000	11000	11000	11100	11100	11100
SE MRN 104 (3)	17200	17000	16800	16700	16500	16300	16100	15900

1st E.O. VI	6600	6700	6800	6900	7000	7100	7200	7300
SE OPS 3 MRN 109 (3)	11200	11200	11200	11200	11300	11300	11300	11300
SE MRN 104 (3)	15700	15500	15400	15200	15000	14900	14700	14600

1st E.O. VI	7400	7500	7600	7700	7800	7900	8000	8100
SE OPS 3 MRN 109 (3)	11400	11400	11400	11400	11400	11500	11500	11500
SE MRN 104 (3)	14400	14300	14200	14000	13900	13800	13800	13700

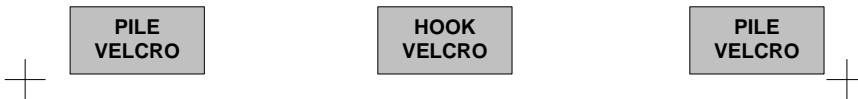
1st E.O. VI	8200	8300	8400	8500	8600	8700	8800	8900
SE OPS 3 MRN 109 (3)	11500	11500	11600	11600	11600	11600	11600	11600
SE MRN 104 (3)	13600	13500	13500	13400	13400	13400	13300	13300

1st E.O. VI	9000	9100	9200	9300	9400	9500	9600	9700
SE OPS 3 MRN 109 (3)	11600	11700	11700	11700	11700	11700	11700	11700
SE MRN 104 (3)	13300	13300	13300	13300	13300	13300	13300	13300

1st E.O. VI	9800	9900	10000	10100	10200	10300	10400	10500
SE OPS 3 MRN 109 (3)	11700	11800	11800	11800	11800	11800	11800	11800
SE MRN 104 (3)	13300	13400	13400	13400	13400	13500	13500	13500

1st E.O. VI	10600							
SE OPS 3 MRN 109 (3)	11800							
SE MRN 104 (3)	13500							

ASC-10a/114/A/C



(reduced copy)

FAB USE ONLY

CC 10-22

ASC/114/FIN A

TOP
BACK OF 'MRN TAL REDESIGNATION'

HOOK
VELCRO

HOOK
VELCRO

HOOK
VELCRO

ECAL – ZZA or MRN or FMI PRIME TAL

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

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

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

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

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

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

ASC-10b/114/A/C

HOOK
VELCRO

HOOK
VELCRO

HOOK
VELCRO

(reduced copy)

FAB USE ONLY

CC 10-23

ASC/114/FIN A

TOP

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

**FMI TAL REDESIGNATION
(114 OCFR4 CYC)**

1st E.O. VI		6200	6300	6400	6500	6600	6700	6800	6900
SE OPS 3 FMI 109	(29)	11000	11100	11100	11100	11100	11200	11200	11200
SE FMI 104	(29)	18300	18100	17900	17600	17400	17200	16900	16700

1st E.O. VI		7000	7100	7200	7300	7400	7500	7600	7700
SE OPS 3 FMI 109	(29)	11200	11200	11300	11300	11300	11300	11300	11400
SE FMI 104	(29)	16500	16300	16100	15900	15700	15500	15300	15100

1st E.O. VI		7800	7900	8000	8100	8200	8300	8400	8500
SE OPS 3 FMI 109	(29)	11400	11400	11400	11400	11500	11500	11500	11500
SE FMI 104	(29)	15000	14800	14700	14500	14400	14300	14200	14100

1st E.O. VI		8600	8700	8800	8900	9000	9100	9200	9300
SE OPS 3 FMI 109	(29)	11500	11500	11600	11600	11600	11600	11600	11600
SE FMI 104	(29)	14100	14000	13900	13900	13900	13800	13800	13800

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

1st E.O. VI		10200	10300	10400	10500	10600			
SE OPS 3 FMI 109	(29)	11800	11800	11800	11800	11800			
SE FMI 104	(29)	13800	13900	13900	13900	13900			

ASC-12a/114/A/C

PILE
VELCRO

HOOK
VELCRO

PILE
VELCRO

(reduced copy)

FAB USE ONLY

CC 10-24

ASC/114/FIN A

TOP
BACK OF 'FMI TAL REDESIGNATION'



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/114/A/C



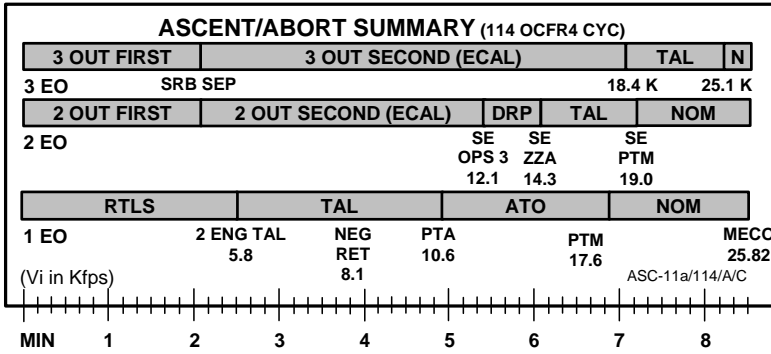
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FAB USE ONLY

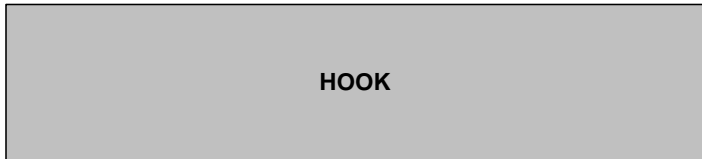
CC 10-25

ASC/114/FIN A

TOP



TOP
BACK OF 'ASCENT/ABORT SUMMARY'



ASC-11b/A/C

(reduced copy)

FAB USE ONLY

CC 10-26

ASC/114/FIN A

TOP

EMERGENCY EGRESS

PRELAUNCH MODE 1	BAILOUT MODE 8
TABS – RELEASE	REPORT POSITION
VISOR – CLOSE / LOCK	√MACH < 1.0
LES O2 – ON	P, R/Y – CSS
GREEN APPLE – PULL	OPS 305/603 PRO (if reqd)
KNEEBOARDS – REMOVE	SB – AUTO; BF – AUTO
COOLING – DISCONNECT	FLY 185-195 KEAS, $\Phi = 0^\circ$
RESTRAINT – RELEASE	ABORT MODE – ATO
PARACHUTE (four) – RELEASE	ABORT PBI – PUSH
COMM – DISCONNECT	P,R/Y – AUTO
LES O2 – DISCONNECT	FLT CNTLR PWR (two) – OFF
EGRESS SEAT	<u>-50K FT</u>
HATCH – OPEN MANUALLY	TABS – RELEASE
SLIDEWIRE BASKETS	VISOR – CLOSE / LOCK
	LES O2 – ON
	GREEN APPLE – PULL
	<u>-40K FT</u>
	MS3 – VENT CABIN
	CDR,PLT SEATS – LOWER
	KNEEBOARDS – REMOVE
	COOLING – DISCONNECT
	RESTRAINT – RELEASE
	D-RING – UNCOVER
	<u>-30K FT</u>
	MS3 – JETTISON HATCH
	COMM – DISCONNECT
	(G-SUIT CLIP – PULL)
	LES O2 – DISCONNECT
	EGRESS SEAT
	POLE – DEPLOY
	D-RING – HOOK UP
	BAILOUT

ASC-15a/A,E/G

(reduced copy)

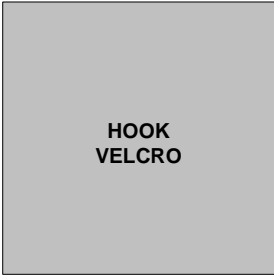
FAB USE ONLY

CC 10-27

ASC/114/FIN A




TOP
BACK OF 'EMERGENCY EGRESS'



HOOK
VELCRO



ASC-15b/A,E/D 

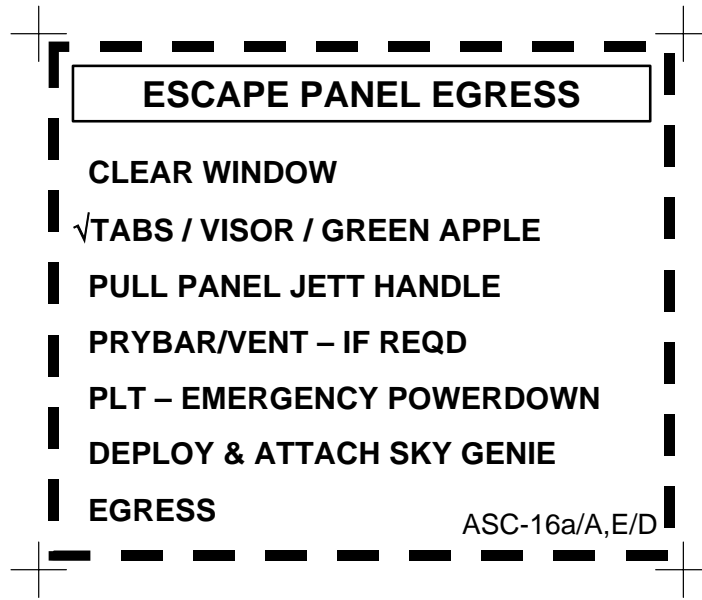
FAB USE ONLY

(reduced copy)
CC 10-28

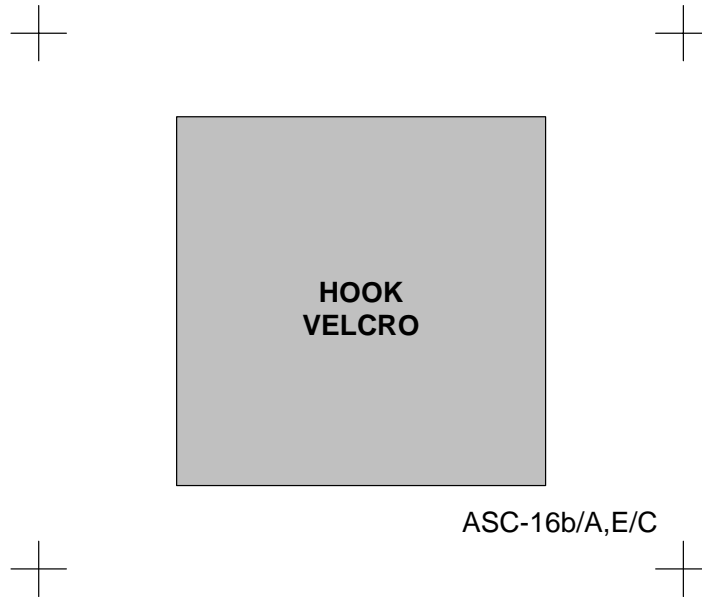
ASC/114/FIN A



TOP



TOP
BACK OF 'ESCAPE PANEL EGRESS'



(reduced copy)

FAB USE ONLY

CC 10-29

ASC/114/FIN A

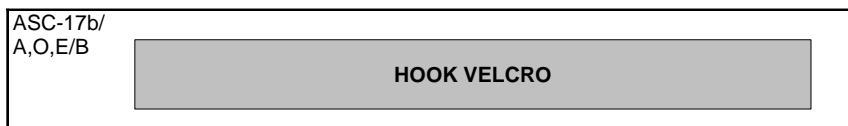
GPC/FCS CHANNEL CONFIGURATION

TOP

GPC

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

TOP
BACK OF 'GPC'



Fabrication Notes

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

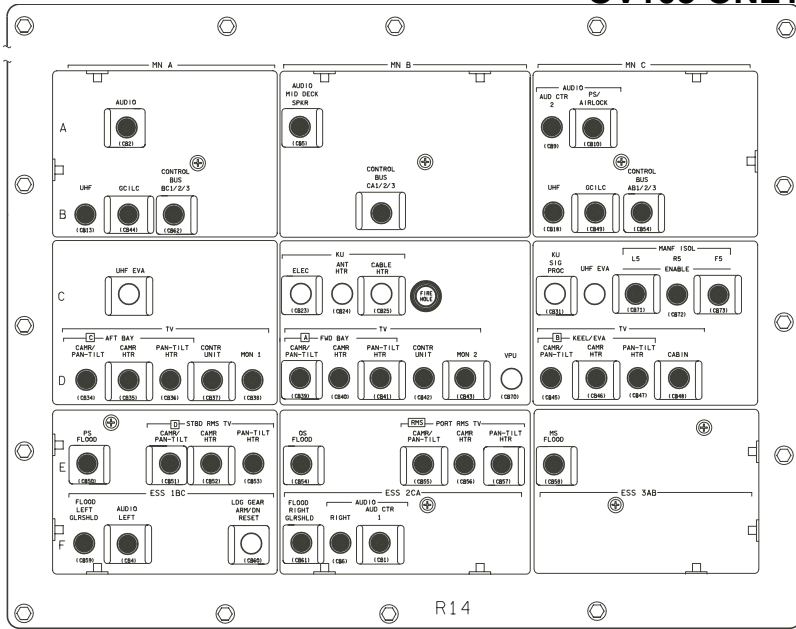
(reduced copy)

FAB USE ONLY

CC 10-30

ASC/114/FIN A

OV103 ONLY



(reduced copy)

FAB USE ONLY

CC 10-31

ASC/114/FIN A



TOP
BACK OF 'PANEL R14 - OV103 ONLY'



HOOK
VELCRO

HOOK
VELCRO



HOOK
VELCRO



HOOK
VELCRO

HOOK
VELCRO



HOOK
VELCRO

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

FAB USE ONLY

(reduced copy)
CC 10-32

ASC/114/FIN A



TOP

LOC/BREAK-UP

BEFORE 'GO AT THROTTLEUP'

- GREEN APPLE
- JETTISON HATCH
- BAILOUT
- PULL RIP CORD

'GO AT THROTTLEUP' TO SRB SEP

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

AFTER SRB SEP

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

ASC-21a/A/C

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

(reduced copy)

FAB USE ONLY

CC 10-33

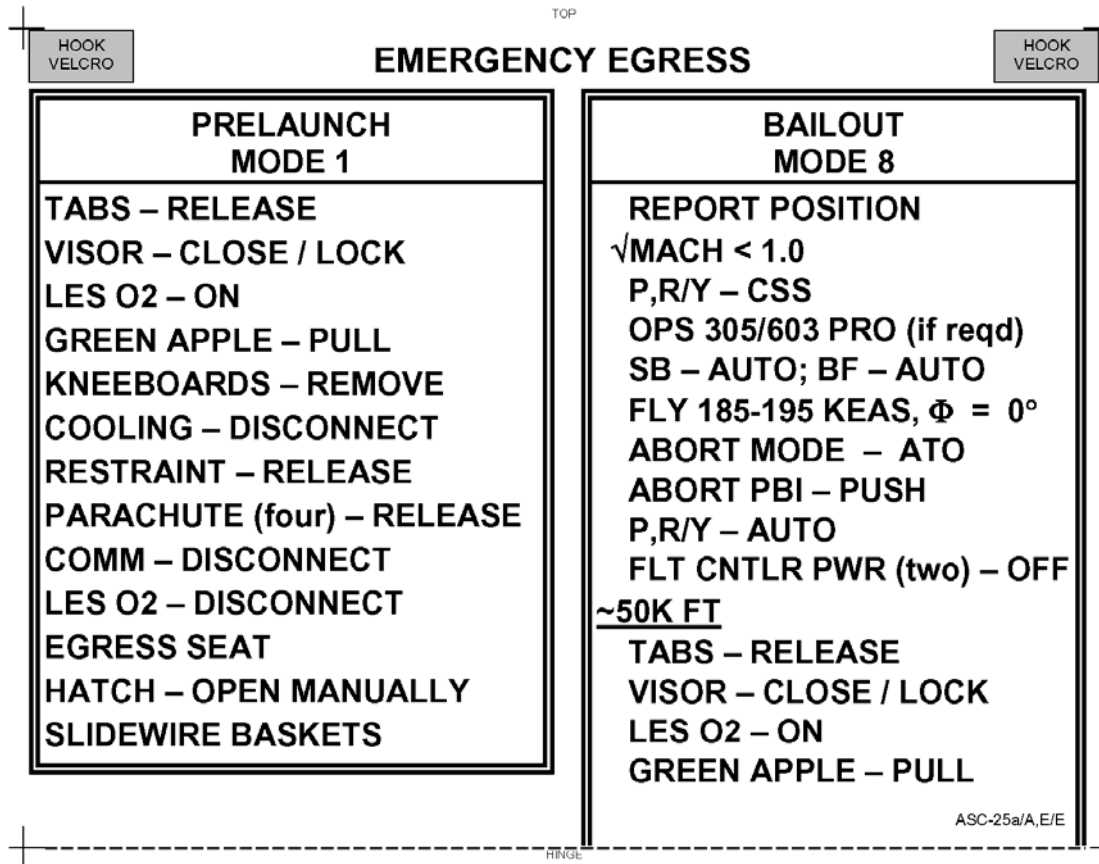
ASC/114/FIN A

FAB USE ONLY

CC 10-34

ASC/114/FIN A

(reduced copy)



FAB USE ONLY

CC 10-35

ASC/114/FIN A

(reduced copy)

TOP, HINGED AT BOTTOM OF 'EMERGENCY EGRESS'
HINGE

**POST LANDING
MODE 5**

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

PILE
VELCRO

~40K FT

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

~30K FT

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

ASC-25aa/A,E/C

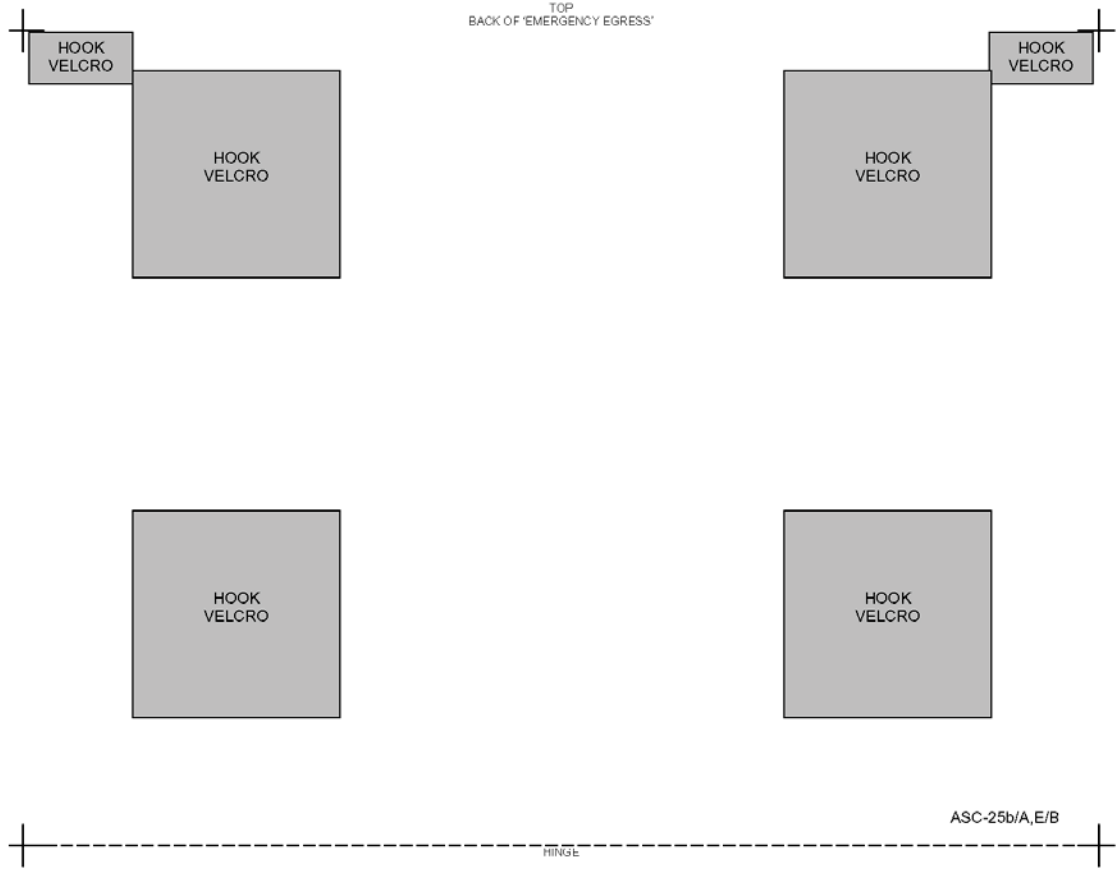
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FAB USE ONLY

CC-10-36

ASC/114/FIN A

(reduced copy)



FAB USE ONLY

(reduced copy)
CC 10-37

ASC/114/FIN A



ASC-25bb/A,E/B



FAB USE ONLY

СС 10-38

ASC/114/FIN A

(reduced copy)

HOOK
VELCRO

ВЕРХ

АВАРИЙНОЕ ПОКИДАНИЕ

HOOK
VELCRO

РЕЖИМ 1 ДО ЗАПУСКА

ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
ПОДАЧУ O2 СК "LES" - ВКЛ
ЗЕЛЕНЬ ШАРИК - ПОТЯНУТЬ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ - ОТСОЕДИНИТЬ
ПРИВЯЗНУЮ СИСТЕМУ - ОСВОБОДИТЬ
ПАРАШЮТ (4) - ОТСТЕГНУТЬ
СВЯЗЬ - ОТСОЕДИНИТЬ
ПОДАЧУ O2 СК "LES" - 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 (2) - ВЫКЛ
~50 ТЫСЯЧ ФУТОВ
ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
ПОДАЧУ O2 СК "LES" - ВКЛ
ЗЕЛЕНЬ ШАРИК - ПОТЯНУТЬ

ASC-26a/A,E/C

НИЗ

FAB USE ONLY

СС 10-39

ASC/114/FIN A

(reduced copy)

HINGE

**РЕЖИМ 5
ПОСЛЕ ПОСАДКИ**

ЯЗЫЧКИ ШЕЙНОЙ ПРОКЛАДКИ - УБРАТЬ
ШЛЕМ - ОПУСТИТЬ/ ЗАКРЫТЬ
ПОДАЧУ O2 СК "LES" - ВКЛ
ЗЕЛЕНЬ ШАРИК - ПОТЯНУТЬ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ - ОТСОЕДИНИТЬ
ПРИВЯЗНУЮ СИСТЕМУ - ОСВОБОДИТЬ
ПАРАШЮТ (4) - ОТСТЕГНУТЬ
СВЯЗЬ - ОТСОЕДИНИТЬ
(СНЯТЬ КОНТРОВКУ С КЛАПАНА ППК)
ПОДАЧУ O2 СК "LES" - ОТСОЕДИНИТЬ
ПИЛОТ – ЭКСТРЕННО ОТКЛЮЧИТЬ ПИТАНИЕ
ПОКИНУТЬ КРЕСЛО
ИСПОЛЬЗОВАТЬ СКЛИЗ/ВЫХОДНУЮ
ПАНЕЛЬ

PILE
VELCRO

~40 ТЫСЯЧ ФУТОВ
MS3 - СБРОСИТЬ ДАВЛЕНИЕ В КАБИНЕ
КРЕСЛА КЭ И ПИЛОТА - ВНИЗ
НАКОЛЕННЫЕ ПЛАНШЕТЫ - УБРАТЬ
СИСТЕМУ ОХЛАЖДЕНИЯ - ОТСОЕДИНИТЬ
ПРИВЯЗНУЮ СИСТЕМУ - ОСВОБОДИТЬ
D-ОБРАЗНОЕ КОЛЬЦО - НАЙТИ
~30 ТЫСЯЧ ФУТОВ
MS3 - ОТСТРЕЛИТЬ ЛЮК
СВЯЗЬ - ОТСОЕДИНИТЬ
(СНЯТЬ КОНТРОВКУ С КЛАПАНА ППК)
ПОДАЧУ O2 СК "LES" - ОТСОЕДИНИТЬ
ПОКИНУТЬ КРЕСЛО
РАЗЛОЖИТЬ НАПРАВЛЯЮЩУЮ ШТАНГУ
D-ОБРАЗНОЕ КОЛЬЦО - ПРИСТЕГНУТЬ
ПОКИНУТЬ КОРАБЛЬ

ASC-26aa/A,E/B

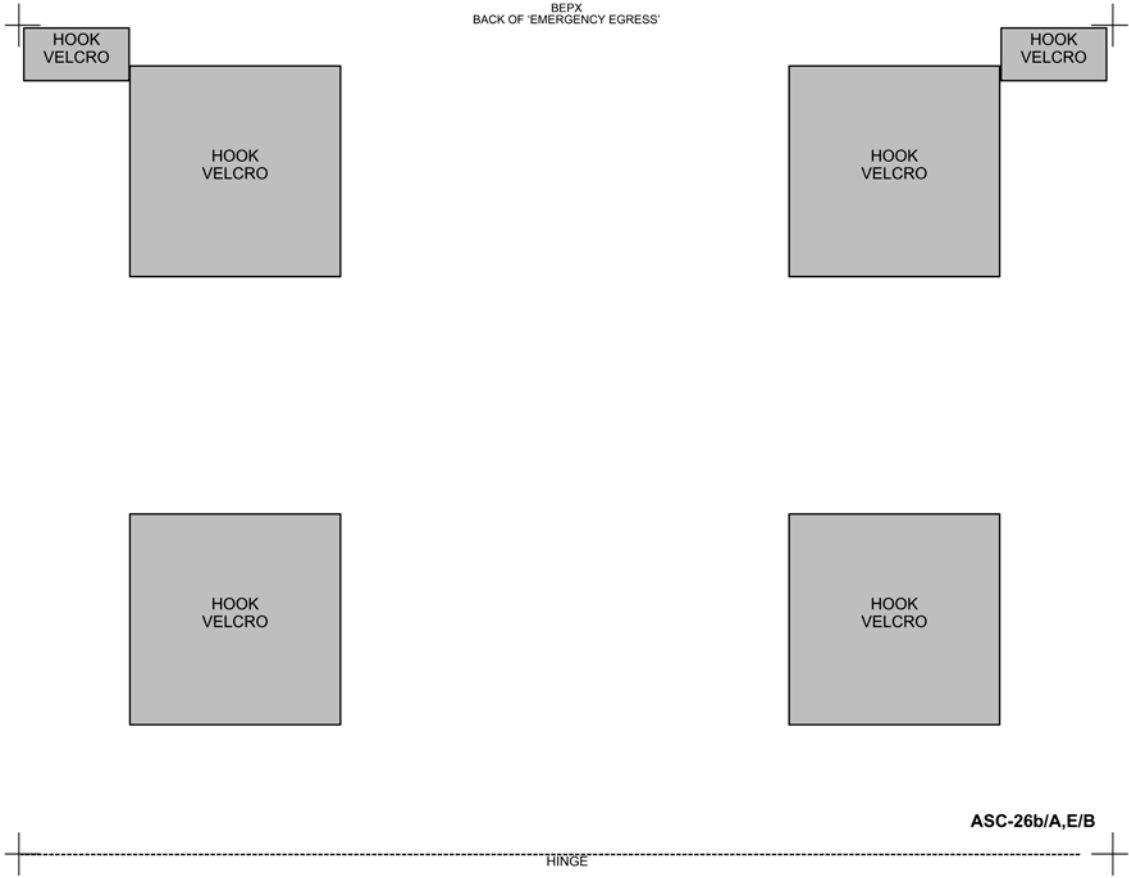
PILE
VELCRO

FAB USE ONLY

CC 10-40

ASC/114/FIN A

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FAB USE ONLY

(reduced copy)
CC 10-41

ASC/114/FIN A

TOP, HINGED AT BOTTOM OF BACK OF 'EMERGENCY EGRESS'
HINGE

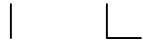
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VELCRO

HOOK
VELCRO

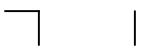
ASC-26bb/A,E/B

PILE
VELCRO

PILE
VELCRO



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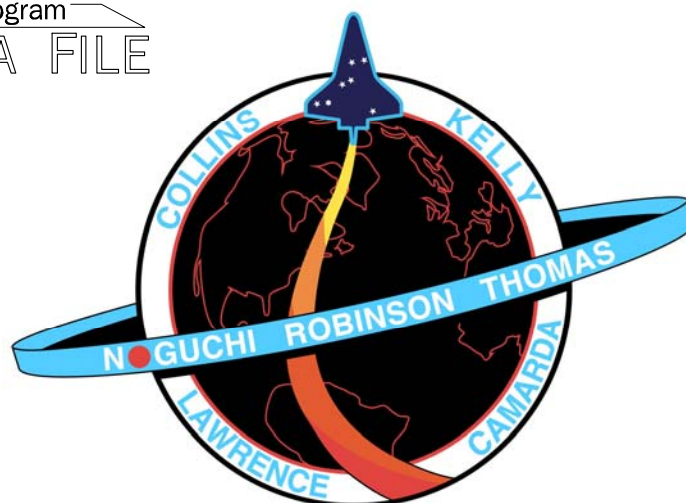
10-42

ASC/114/FIN A



Space Shuttle Program
FLIGHT DATA FILE

JSC-48005-114
FINAL, REV A



ASCENT CHECKLIST

STS
114

Flight Cover (trim bottom to expose tabs)