

# Entry Checklist

## STS-118 Flight Supplement

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

**Final  
March 15, 2007**

National Aeronautics and  
Space Administration

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





MISSION OPERATIONS DIRECTORATE


**ENTRY CHECKLIST  
STS-118 FLIGHT SUPPLEMENT**


FINAL  
March 15, 2007

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

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Incorporates the following:		
482#:	ENT FS-0002	MULTI-1776
	ENT FS-0003	MULTI-1777
	ENT-0860	MULTI-1783
	ENT-0862A(P)	

P – Partial

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DM43/G. Jordan-Moore	281-483-1261
Deorbit Burn to Entry Interface	DM43/J. Patterson	281-483-1987
Contingency Procedures and Entry Interface thru Rollout	DM43/J. Patterson	281-483-1987

NOTE

This Flight Supplement must be integrated into the generic Entry Checklist to have a complete document for flight. Insert the Flight Supplement (FS) pages in the proper numerical order in the generic Entry Checklist by using the List of Effective Pages (LOEP) which provides the sequence for merging pages to create a complete Entry Checklist.

ENTRY CHECKLIST  
STS-118 FLIGHT SUPPLEMENT

**LIST OF EFFECTIVE PAGES**

FINAL      03/15/07

Sign Off.....*	generic	3-9.....	generic
ii.....*	generic	3-10.....	generic
Sign Off.....*	118/FIN	3-11.....	generic
FS iv.....*	118/FIN	3-12.....	generic
v.....*	generic	3-13.....	generic
vi.....*	generic	3-14.....	generic
vii.....*	generic	FS 3-15.....	118/FIN
viii.....*	generic	FS 3-16.....	118/FIN
ix.....*	generic	FS 3-17.....	118/FIN
x.....*	generic	FS 3-18.....	118/FIN
FS xi.....*	118/FIN	3-19.....	generic
FS xii.....*	118/FIN	3-20.....	generic
FS xiii.....*	118/FIN	3-21.....	generic
FS xiv.....*	118/FIN	3-22.....	generic
xv.....	generic	3-23.....	generic
xvi.....	generic	3-24.....	generic
1-1 (3 pgs).....†	generic	3-25.....	generic
1-2 (3 pgs).....†	generic	3-26.....	generic
2-1.....	generic	3-27.....	generic
2-2 (6 pgs).....†	generic	3-28.....	generic
2-3 (6 pgs).....†	generic	FS 3-29.....	118/FIN
2-4.....	generic	FS 3-30.....	118/FIN
FS 2-5.....	118/FIN	3-31.....	generic
FS 2-6.....	118/FIN	3-32.....	generic
FS 3-1.....	118/FIN	FS 3-33.....	118/FIN
FS 3-2.....	118/FIN	FS 3-34.....	118/FIN
FS 3-3.....	118/FIN	3-35.....	generic
FS 3-4.....	118/FIN	3-36.....	generic
3-5.....	generic	3-37.....	generic
3-6.....	generic	3-38.....	generic
FS 3-7.....	118/FIN	3-39.....	generic
FS 3-8.....	118/FIN	3-40.....	generic

\* – Omit from flight book

† – Extra pages in crew copy only

3-41.....	generic	5-23.....	generic
3-42.....	generic	5-24.....	generic
3-43.....	generic	6-1.....	generic
3-44.....	generic	6-2.....	generic
4-1.....	generic	6-3.....	generic
4-2.....	generic	6-4.....	generic
4-3.....	generic	7-1.....*	generic
4-4.....	generic	7-2.....*	generic
FS 4-5.....	118/FIN	FS 8-1.....*	118/FIN
FS 4-6.....	118/FIN	FS CC 8-2.....*	118/FIN
FS 4-7.....	118/FIN	FS CC 8-3.....*	118/FIN
FS 4-8.....	118/FIN	FS CC 8-4.....*	118/FIN
FS 4-9.....	118/FIN	CC 8-5.....*	generic
FS 4-10.....	118/FIN	CC 8-6.....*	generic
4-11.....	generic	CC 8-7.....*	generic
4-12.....	generic	CC 8-8.....*	generic
5-1.....	generic	CC 8-9.....*	generic
5-2.....	generic	CC 8-10.....*	generic
5-3.....	generic	CC 8-11.....*	generic
5-4.....	generic	CC 8-12.....*	generic
5-5.....	generic	CC 8-13.....*	generic
5-6.....	generic	CC 8-14.....*	generic
5-7.....	generic	CC 8-15.....*	generic
5-8.....	generic	CC 8-16.....*	generic
5-9.....	generic	FS CC 8-17.....*	118/FIN
5-10.....	generic	FS CC 8-18.....*	118/FIN
5-11.....	generic	CC 8-19.....*	generic
5-12.....	generic	8-20.....*	generic
5-13.....	generic	CC 8-21.....*	generic
5-14.....	generic	CC 8-22.....*	generic
5-15.....	generic	FS CC 8-23.....*	118/FIN
5-16.....	generic	FS CC 8-24.....*	118/FIN
5-17.....	generic		
5-18.....	generic		
FS 5-19.....	118/FIN		
FS 5-20.....	118/FIN		
5-21.....	generic		
5-22.....	generic		

\* – Omit from flight book

## ENTRY CUE CARDS

<u>Title</u>	<u>Ref. Page</u>	<u>Card No.</u>
DEORBIT BURN FLIGHT		
RULES (Front).....	FS CC 8-2	ENT-1a/118/D/A
(Back).....	FS CC 8-3	ENT-1b/118/D/A
DEORBIT BURN (RCS)		
(Front) .....	FS CC 8-4	ENT-3a/D/L
(Back).....	CC 8-6	generic
DEORBIT BURN (2 ENG)		
(Front) .....	CC 8-8	generic
DEORBIT BURN (1 ENG)		
(Back).....	CC 8-10	generic
UNBALANCED PRPLT		
DEORBIT BURN		
(Front) .....	CC 8-12	generic
DEORBIT BURN (MIXED		
XFEED) (Back).....	CC 8-14	generic
ENTRY MANEUVERS		
(Front) .....	CC 8-16	generic
(Back).....	FS CC 8-17	ENT-6b/118/E/A
ENTRY NO-GO CHECKLIST		
(Front) .....	FS CC 8-18	ENT-7a/E/K
ADTA MGMT (Back) .....	CC 8-19	generic
ENTRY CONTROL		
(Front) .....	CC 8-21	generic
(Back).....	CC 8-22	generic
DEORBIT BURN MONITOR		
(Front) .....	FS CC 8-23	ENT-2a/118/A,O,D,E/A
OMS FAILURES (Back)....	FS CC 8-24	ENT-2b/118/A,O,D,E/A



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OMS/  
RCS ΔV

OMS/RCS ΔV

FS 2-5

ENT/118/FIN



**OMS He PRESS/ $\Delta$ V/BURN TIME**

**OMS/  
RCS  $\Delta$ V**

OMS% GAGE	OMS He Press *	OMS $\Delta$ V	RCS $\Delta$ V	RCS BURN MIN:SEC
50	3280	257	214	7:19
40	2880	201	168	5:43
38	2800	190	159	5:24
36	2720	179	149	5:05
34	2640	167	140	4:46
32	2560	156	131	4:27
30	2480	145	121	4:08
28	2400	133	112	3:48
26	2320	122	103	3:29
24	2240	111	93	3:10
22	2160	99	84	2:51
20	2080	88	74	2:32
18	2000	76	65	2:12
16	1920	65	55	1:53
14	1840	54	46	1:33
12	1760	42	36	1:13
10	1680	31	26	0:54
8	1600	19	16	0:34
6	1520	8	7	0:14
5	1480	2	2	0:04

\* He pressure not valid until 1 hr after last burn

<b><math>\Delta</math>V CAPABILITY</b>	
ARCS $\Delta$ V fps =	$\boxed{0.8} \times [L\% + R\% - \text{AFT QTY } 1]$
FRCS $\Delta$ V fps =	$\boxed{0.9} \times \text{FRCS } \%$
OMS $\Delta$ V fps =	$\boxed{5.6} \times \text{OMS } \%$

NOTE: Uses assumed vehicle weight of 232,503 lb



DEORBIT BURN

DEORBIT  
BURN



FS 3-1

ENT/118/FIN

**STS-118 LANDING SITE TABLE  
(50° to 63.5° INCLINATION)**

**DEORBIT  
BURN**

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

◆ Available for TAL Only

\* LO XRNG TAL Site

**Length** after displaced threshold

**STS-118 LANDING SITE TABLE  
(50° to 63.5° INCLINATION)**

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

◆ Available for TAL Only

**Length** after displaced threshold

**STS-118 LANDING SITE TABLE  
(50° to 63.5° INCLINATION)**

<b>S I T E</b>	<b>LOCATION</b>	<b>RWY</b>	<b>MLS CH</b>	<b>LG</b>	<b>+ OVR RUN</b>
31	KING KHALID	KKI 15R	-	13300	0
		KKI 33L	-	13300	0
32	DIEGO GARCIA	JDG 31	-	12000	950
		JDG 13	-	12000	950
33	AMBERLEY TINDAL RAAF	AMB 15	-	9500	0
		PTN 14	-	8500	0
34	YOKOTA AB	JTY 36	-	11000	1000
		JTY 18	-	11000	1000
35	ANDERSEN AFB	GUA 06L	-	10560	1050
		GUA 24R	-	10560	1000
36	WAKE ISLAND	WAK 28	-	9360	0
		WAK 10	-	9360	0
37	HONOLULU	HNL 08R	-	11500	0
		HNL 26L	-	11500	0
38	ELMENDORF	EDF 24	-	9500	0
		EDF 06	-	9500	0
39	HAO ATOLL	HAO 12	-	10390	0
		HAO 30	-	10390	0
40	RIO GALLEGOS	AWG 25	-	10900	0
		AWG 07	-	10900	0
41	ASCENSION	HAW 13	-	9520	0
		HAW 31	-	9520	0
42	NORTHRUP	NOR 17	6	15000	Lkbd
		NOR 23	6	15000	Lkbd
43	NORTHRUP	NOR 05	-	15000	Lkbd
		NOR 35	-	15000	Lkbd
44	EDWARDS AFB	EDW 15	-	16300	Lkbd
		EDW 18L	-	15000	Lkbd
45	EDWARDS AFB	EDW 22	8/†	15010	0
		EDW 04	6	14010	1800

† MSBLS Jr. Ch 8 - Requires Uplink

**Length** after displaced threshold

1: GNC DEORB MNVR COAST	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 (DEL PAD)		√41		√41
RWY (DEL PAD)		√3		√3
		√4		√4
TAEM TGT				
G&N	OVHD	√6	blank	
HSI	blank		blank	
XEP	NEP	√7	NEP	√7
AIM (DEL PAD)	NOM	√8	NOM	√8
	(or CLSE)		or (CLSE)	
SPDBK	NOM	√39		
NAV				
GPS	INH	√43	INH	√43
DRAG H	AUT	√22	AUT	√22
ADTA H	INH	√26	INH	√26
MLS	AUT	√50		
G&C				
GPS	INH	√48		
ADTA	INH	√29	AUT	√28

- \* If BFS engaged: \*
- \* Set BFS HSD ITEMS to PASS config \*

G51 SEL ATMOSPHERE:  
 incl ≤ 50° ITEM 22 EXEC  
 incl > 50° SEL ITEM NR (table)

Hemi	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>N Desc</b>	23	23	23	23	22	24	24	24	22	23	23	23
<b>S Asc</b>	24	24	22	23	23	23	23	23	23	23	22	24
<b>N Asc</b>	22											
<b>S Desc</b>	22											

1: GNC DEORB MNVR COAST | 2: GNC 50 HORIZ SIT

3: GNC 51 OVERRIDE

- √ELEVON AUTO – ITEM 17 (\*)
- √SSME REPOS – ITEM 19 (ENA)
- √WRAP MODE – ITEM 45 (ENA)
- If PLB holding > 10K lb:
  - FILTER ALT – ITEM 21 EXEC (\*)

3: BFS, GNC 51 OVERRIDE

- √ELEVON AUTO – ITEM 17 (\*)
- √SSME REPOS – ITEM 19 (ENA)
- √WRAP MODE – ITEM 45 (ENA)
- If PLB holding > 10K lb:
  - √FILTER ALT – ITEM 21 (\*)

- \* DES any failed/comm faulted \*
- \* IMU, RGA, AA, or SURF feedback \*

2: GNC DEORB MNVR COAST

3: BFS, GNC DEORB MNVR COAST

- √BFS GMBL sel config same as PASS GMBL sel config



**DEORBIT BURN CARDS**

**|**

**BURN  
CARDS**

MS ONLY

FS 3-15

ENT/118/FIN

**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE AVAILABLE** ENT-1a/118/D/A

**BURN  
CARDS**

FAILURE	PRE TIG		POST TIG
	Delay (max)		Stop Burn, > Safe HP
	One Orbit	One Day	
<b>APU/HYD</b>			
1 No APU operating .....	... X ...	.....	
<b>DPS</b>			
2 RDNT fail, Split.....	.....	...X...	.....X
3 1 GPC.....	... X ...	.....	
4 BFS .....	.....	...X...	
5 GPC BITE (Multiple GPCs).....	.....	...X...	
<b>ECLS</b>			
6 2 Av Bay Fans in Bay 3.....	... X ...	.....	
7 2 Av Bay Fans in Bay 1 or 2.....	.....	...X...	
<b>ELEC</b>			
8 H2 Manf or TK leak (not in depleted tk(s) _____).....	... X ...	.....	
9 2 MN Buses.....	.....	...X...	.....X
10 CNTL CA1 (No BFS Engage in GPC 3/5).....	.....	...X...	
11 Multi $\Phi$ AC BUS (unshorted).....	... X ...	.....	
<b>GNC</b>			
12 1 MLS (if reqd), IMU, or GPS (C-band not avail).....	... X ...	.....	
13 IMU Dilemma.....	.....	...X...	.....X
14 RHC Dilemma .....	... X ...	.....	
15 2 IMUs (Not targeting EDW/NOR) .....	.....	...X...	
16 2 ADTAs (Winds > 80kts or Dynamic Wx)....	... X ...	.....	
<b>HOOK VELCRO</b>			<b>HOOK VELCRO</b>
17 2 FCS Channels (same surface) (Not targeting NOR/EDW) .....	... X ...	.....	
18 2 AAs, RGAs (Not targeting EDW/NOR) .....	... X ...	.....	
<b>OMS</b>			
19 Prplt Tank.....	... X ...	.....	.....X ①
20 Ignition (neither eng ignites).....	... X ...	.....	.....X ②
21 Both OMS Eng fail.....	.....	.....	.....X ②
22 Prplt Lk after LAST LOS.....	perigee adjust		
<b>AFT RCS</b>			
23 2 jets, same direction, same pod .....	... X ...	.....	
24 Prplt Lk after LAST LOS.....	... X ...	.....	
25 1 AFT RCS PROP TK fail .....	... X ...	.....	
<b>COMM</b>			
26 MCC GO for DEORBIT not rcvd .....	.....	...X...	

① Stop Burn > OMS PRPLT FAIL HP (Ref: DEL PAD/BURN Card)  
 ② Stop Burn > OMS ENG FAIL HP (Ref: DEL PAD/BURN Card)

**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE NOT AVAILABLE** ENT-1b/118/D/A

FAILURE	PRE TIG	POST TIG
	Delay (max)	Stop Burn, > Safe HP
	One Day	
<b>APU/HYD</b>		
1 No APU operating .....	..... X .....	
<b>DPS</b>		
2 RDNT fail, Split.....	..... X .....	.....X
3 1 GPC.....		
4 BFS .....	..... X .....	
5 GPC BITE (Multiple GPCs).....	..... X .....	
<b>ECLS</b>		
6 2 Av Bay Fans in Bay 3.....		
7 2 Av Bay Fans in Bay 1 or 2.....	..... X .....	
<b>ELEC</b>		
8 H2 Manf or TK leak (not in depleted tk(s) _____).....	..... X .....	
9 2 MN Buses.....	..... X .....	.....X
10 CNTL CA1 (No BFS Engage in GPC 3/5).....	..... X .....	
11 Multi $\Phi$ AC BUS (unshorted).....		
<b>GNC</b>		
12 1 MLS (if reqd), IMU, or GPS (C-band not avail).....	..... X .....	
13 IMU Dilemma.....	..... X .....	.....X
14 RHC Dilemma .....	..... X .....	
15 2 IMUs (Not targeting EDW/NOR).....	..... X .....	
16 2 ADTAs (Winds > 80kts or Dynamic Wx).....	..... X .....	
<b>HOOK VELCRO</b>		<b>HOOK VELCRO</b>
17 2 FCS Channels (same surface) (Not targeting NOR/EDW).....	..... X .....	
18 2 AAs, RGAs (Not targeting EDW/NOR).....	..... X .....	
<b>OMS</b>		
19 Prplt Tank.....	..... X .....	.....X ①
20 Ignition (neither eng ignites).....	..... X .....	
21 Both OMS Eng fail.....		.....X ②
22 Prplt Lk after LAST LOS.....	perigee adjust	
<b>AFT RCS</b>		
23 2 jets, same direction, same pod .....	..... X .....	
24 Prplt Lk after LAST LOS.....	..... X .....	
25 1 AFT RCS PROP TK fail .....	..... X .....	
<b>COMM</b>		
26 MCC GO for DEORBIT not rcvd .....	..... X .....	

① Stop Burn > OMS PRPLT FAIL HP (Ref: DEL PAD/BURN Card)  
 ② Stop Burn > OMS ENG FAIL HP (Ref: DEL PAD/BURN Card)



## DEORBIT BURN MONITOR

<b>OMS TEMP*</b> FU IN P $\geq$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">L</td> <td style="width: 20px; text-align: center;">R</td> </tr> <tr> <td style="text-align: center;">219</td> <td style="text-align: center;">220</td> </tr> <tr> <td style="text-align: center;"><math>\leq</math></td> <td style="text-align: center;">208</td> </tr> </table> or No FU IN P	L	R	219	220	$\leq$	208	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">L</td> <td style="width: 20px; text-align: center;">R</td> </tr> <tr> <td style="text-align: center;">219</td> <td style="text-align: center;">220</td> </tr> <tr> <td style="text-align: center;"><math>\leq</math></td> <td style="text-align: center;">208</td> </tr> </table>	L	R	219	220	$\leq$	208	OMS ENG FAIL ----- OMS PRPLT FAIL -----
L	R													
219	220													
$\leq$	208													
L	R													
219	220													
$\leq$	208													
<b>OMS PC* &amp; OMS ↓</b> (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 -----												
<b>OMS OX/FU TK P</b> ( $\sqrt{\text{ENG IN P}}$ ) OX/FU LOW ----- OX & FU HIGH		He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: OMS PRPLT FAIL ----- He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284 -----												
<b>OMS GMBL</b> PRI fail ----- SEC fail		L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL -----												
<b>GPC</b> <b>1(4) &amp;</b> Burning OMS aff ----- SEC GMBL lost 2 FAs lost		aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF, ON L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL ----- $\sqrt{\text{MAN SHUTDN}}$ -----												
<b>I/O ERROR FA</b> <b>1(4)</b> ----- 2 FAs lost		L(R) OMS GMBL – SEC ----- I/O RESET (if recov: BFS I/O RESET) If high RCS usage: OMS ENG FAIL ----- $\sqrt{\text{MAN SHUTDN}}$ -----												
<b>BCE STRG D</b> ----- <b>1(4)</b>		I/O RESET (if recov: >>) ----- If high RCS usage: L(R) OMS GMBL – SEC (twice) -----												
<b>RM DLMA IMU</b> or <b>GPC SET SPLIT</b> or <b>2 MN BUSES</b>	<b>ABOVE SAFE</b> HP $\Rightarrow$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 15px;"></td> <td style="width: 20px; height: 15px;"></td> </tr> </table> ----- <b>BELOW SAFE</b> HP $\Rightarrow$			STOP BURN: OMS ENG(s) – OFF >> ----- IMU DLMA: After C/O: $\sqrt{\text{timer}}$ <span style="border: 1px solid black; padding: 2px;">G21</span> If any IMU ACC > 0.03: aff IMU – desel I'cnct OMS to RCS ( $\sqrt{\text{RCS Burn Time}}$ ) THC +X to TGT HP (EOM) or 3.5 x timer at C/O (AOA) SET SPLIT: Go to "GPC" above -----										
<b>I/O ERROR PCM</b>		OI PCMMU PWR – 2(1) -----												

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

ENT-2a/118/A,O,D,E/A

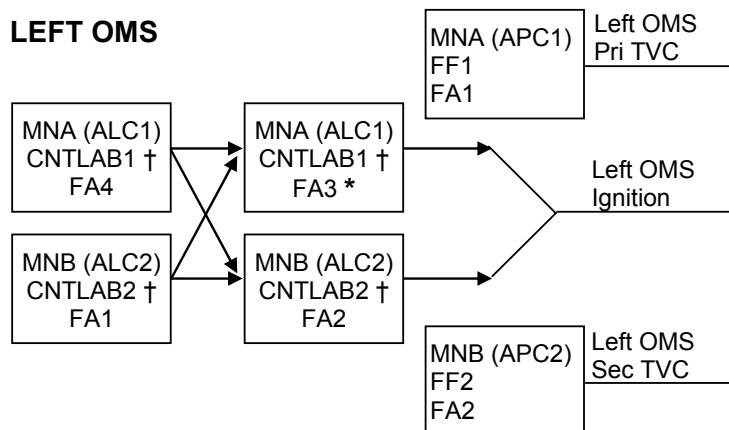
MS ONLY

FS 3-29

ENT/118/FIN

## OMS FAILURES

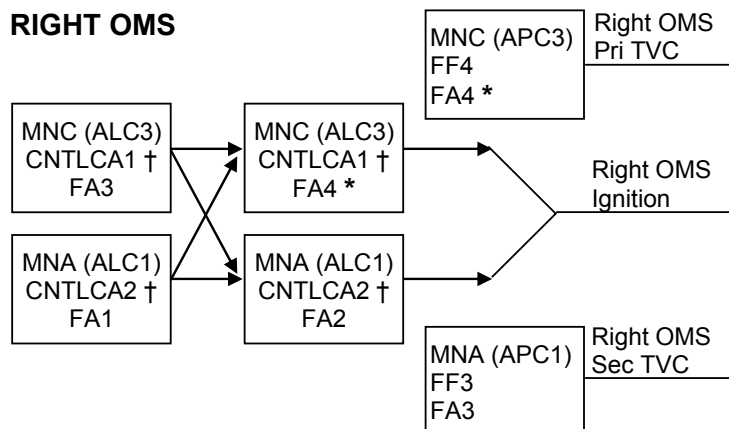
### LEFT OMS



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

\* If L(R) P<sub>C</sub> 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)

### 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

ENT-2b/118/A,O,D,E/A

MS ONLY

FS 3-30

ENT/118/FIN

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

- \* **UNDERBURN** \*
- \* Determine  $\Delta$ HP (CUR HP – TGT HP) \*
- \* Record prebank on ENTRY MANEUVERS Cue Card \*

* <b>PREBANK TABLE EDW (HA = 187 NM)</b> *										
* <b>EDW</b> *										
* $\Delta$ HP	0	3	6	10	REDES.	12	13	(14)	REDES.	
* PREBANK	0	65	95	115	NOR ELS	125	130	140	YR	
* <b>NOR</b> IF NOR NOGO *										
* <b>G50</b> ITEM 41+ 4 2, $\sqrt$ RWY 17 *										
* $\Delta$ HP		6	9	11	13	14	15	(17)	REDES.	
* PREBANK		80	95	105	115	120	130	150	YR	
* <b>YR</b> *										
* <b>G50</b> ITEM 41+ 2 2, $\sqrt$ RWY 26 *										
* $\Delta$ HP					15	18	20	24	(26)	28
* PREBANK					65	85	95	125	145	180
* <b>PREBANK TABLE KSC (HA = 187 NM)</b> *										
* <b>KSC</b> *										
* $\Delta$ HP	0	2	4	6	8	10	12	(14)	REDES.	
* PREBANK	0	50	75	95	105	110	120	140	YQX	
* <b>YQX</b> *										
* <b>G50</b> ITEM 41+ 2 1, $\sqrt$ RWY 21 *										
* $\Delta$ HP							15	22	(25)	RED.
* PREBANK							90	135	170	INN
* <b>INN</b> *										
* <b>G50</b> ITEM 41+ 2 6, $\sqrt$ RWY 06 *										
* $\Delta$ HP									26	28
* PREBANK									135	180

1180CFR2

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

C CRT1 **GNC, OPS 303 PRO**

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

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 (*)	TIME to EI (min)	LVLH PITCH (deg)
	20	339
		343
		347
* If UNDERBURN or no *		351
* DEL PAD, manually *		355
* mnvr to LVLH R 001, *	15	359
* Y 358, P per table *		3
		7
		11
		15
	10	19
		23
		27
		31
		35
	5	39

C **OMS GMBL PWRDN (PASS ONLY)**

CRT1 Verify GMBL positions:

	<u>L</u>	<u>R</u>
P	+5.9	+5.9
Y	+6.4	-6.4

GMBL OFF – ITEM 32 EXEC  
 – ITEM 33 EXEC



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

ENT-6b/118/E/A |  
(Partial)

MS ONLY

FS 4-5

ENT/118/FIN



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MS ONLY

FS 4-6

ENT/118/FIN



**DRAG CHUTE DEPLOY**

<b>MCC Call</b>	<b>Flight Condition</b>
Early	Main Gear TD
<b>NOMINAL</b>	<b>195 KEAS</b>
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	

**ENTRY  
MISC**

**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/118/E/A  
(Partial)

MS ONLY

FS 4-7

ENT/118/FIN

ENTRY  
MISC

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MS ONLY

FS 4-8

ENT/118/FIN

### ENTRY ALPHA

VR	$\alpha_{ref}$	R	H	Href	Rref
25	40	4481	400		
24	HI	40 LO	2639	245	-46 L79
23	43	40 37	2163	237	-63 69
22	43	40 37	1804	232	-82 63
21	43	40 37	1521	225	-104 60
20	43	40 37	1297	219	-122 59
19	43	40 37	1120	212	-145 59
18	43	40 37	977	205	-168 61
17	43	40 37	858	201	-187 R60
16	43	40 37	766	193	-195 62

### KSC 15

MAX L/D	
M	$\alpha$
3	17
2	15
1	12

ASC-14b/118/A,E/A

(118 OCFR2 CY)

HOOK  
VELCRO

HOOK  
VELCRO

15	43	40 37	685	186	-207	64
14	43	40 37	612	181	-127	62
13	43	40 37	544	178	-136	60
12	43	40 37	481	173	-153	58
11	42	39 36	424	168	-195	57
10	41	38 35	373	162	-174	52
9	39	36 33	324	158	-207	L46
8	37	34 31	276	151	-239	41
7	33	30 27	230	141	-267	40
6	30	27 24	183	129	-273	41
5	26	23 20	142	116	-274	42
4	23	20 18	106	104	-263	R39
3	19	16 15	74	89	-248	36
2.5	14		60	81	-251	
2	13		50	75	-281	
1.5	9		37	65	-330	
1	7		27	50	-264	

HOOK VELCRO

MS ONLY

FS 4-9

ENT/118/FIN



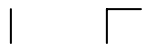
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MS ONLY

FS 4-10

ENT/118/FIN



1:	2:
3:	

## POST LANDING PAYLOAD ACTIVITIES

### NOTE

Switch throw to occur no earlier than crew egress in order to maintain crew comfort and is desired no later than 1 hr post landing to maintain Spacehab thermal requirements for early retrieval operations

If required for early retrieval, after crew egress and within 1 hr of wheelstop:

L1                   FLOW PROP VLV LOOP 1 – PL HX (tb-PL)



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CUE CARD  
CONFIG

ENTRY CUE CARD CONFIG

FAB USE ONLY

FS 8-1

ENT/118/FIN

TOP

**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE AVAILABLE** ENT-1a/118/D/A

FAILURE	PRE TIG		POST TIG
	Delay (max)		Stop Burn, > Safe HP
	One Orbit	One Day	
<b>APU/HYD</b>			
1 No APU operating .....	... X ...	.....	
<b>DPS</b>			
2 RDNT fail, Split.....	.....	...X...	.....X
3 1 GPC.....	... X ...	.....	
4 BFS .....	.....	...X...	
5 GPC BITE (Multiple GPCs).....	.....	...X...	
<b>ECLS</b>			
6 2 Av Bay Fans in Bay 3.....	... X ...	.....	
7 2 Av Bay Fans in Bay 1 or 2.....	.....	...X...	
<b>ELEC</b>			
8 H2 Manf or TK leak (not in depleted tk(s) .....).....	... X ...	.....	
9 2 MN Buses.....	.....	...X...	.....X
10 CNTL CA1 (No BFS Engage in GPC 3/5).....	.....	...X...	
11 Multi $\Phi$ AC BUS (unshorted).....	... X ...	.....	
<b>GNC</b>			
12 1 MLS (if reqd), IMU, or GPS (C-band not avail).....	... X ...	.....	
13 IMU Dilemma.....	.....	...X...	.....X
14 RHC Dilemma .....	... X ...	.....	
15 2 IMUs (Not targeting EDW/NOR) .....	.....	...X...	
16 2 ADTAs (Winds > 80kts or Dynamic Wx)....	... X ...	.....	
<b>HOOK VELCRO</b>			<b>HOOK VELCRO</b>
17 2 FCS Channels (same surface) (Not targeting NOR/EDW) .....	... X ...	.....	
18 2 AAs, RGAs (Not targeting EDW/NOR) .....	... X ...	.....	
<b>OMS</b>			
19 Prplt Tank.....	... X ...	.....	.....X ①
20 Ignition (neither eng ignites).....	... X ...	.....	
21 Both OMS Eng fail.....	.....	.....	.....X ②
22 Prplt Lk after LAST LOS.....	perigee adjust		
<b>AFT RCS</b>			
23 2 jets, same direction, same pod .....	... X ...	.....	
24 Prplt Lk after LAST LOS.....	... X ...	.....	
25 1 AFT RCS PROP TK fail .....	... X ...	.....	
<b>COMM</b>			
26 MCC GO for DEORBIT not rcvd .....	.....	...X...	

① Stop Burn > OMS PRPLT FAIL HP (Ref: DEL PAD/BURN Card)

② Stop Burn > OMS ENG FAIL HP (Ref: DEL PAD/BURN Card)

(reduced copy)

FAB USE ONLY

FS CC 8-2

ENT/118/FIN

TOP  
BACK OF 'DEORBIT BURN FLIGHT RULES'

**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE NOT AVAILABLE** ENT-1b/118/D/A

FAILURE	PRE TIG	POST TIG
	Delay (max)	Stop Burn, > Safe HP
	One Day	
<b>APU/HYD</b>		
1 No APU operating .....	..... X .....	
<b>DPS</b>		
2 RDNT fail, Split.....	..... X .....	.....X
3 1 GPC.....	..... X .....	
4 BFS .....	..... X .....	
5 GPC BITE (Multiple GPCs).....	..... X .....	
<b>ECLS</b>		
6 2 Av Bay Fans in Bay 3.....	..... X .....	
7 2 Av Bay Fans in Bay 1 or 2.....	..... X .....	
<b>ELEC</b>		
8 H2 Manf or TK leak (not in depleted tk(s).....)	..... X .....	
9 2 MN Buses.....	..... X .....	.....X
10 CNTL CA1 (No BFS Engage in GPC 3/5).....	..... X .....	
11 Multi $\Phi$ AC BUS (unshorted).....	..... X .....	
<b>GNC</b>		
12 1 MLS (if reqd), IMU, or GPS (C-band not avail).....	..... X .....	
13 IMU Dilemma.....	..... X .....	.....X
14 RHC Dilemma .....	..... X .....	
15 2 IMUs (Not targeting EDW/NOR).....	..... X .....	
16 2 ADTAs (Winds > 80kts or Dynamic Wx).....	..... X .....	
<b>HOOK VELCRO</b>		<b>HOOK VELCRO</b>
17 2 FCS Channels (same surface) (Not targeting NOR/EDW).....	..... X .....	
18 2 AAs, RGAs (Not targeting EDW/NOR).....	..... X .....	
<b>OMS</b>		
19 Prplt Tank.....	..... X .....	.....X ①
20 Ignition (neither eng ignites).....	..... X .....	
21 Both OMS Eng fail.....	..... X .....	.....X ②
22 Prplt Lk after LAST LOS.....	perigee adjust	
<b>AFT RCS</b>		
23 2 jets, same direction, same pod .....	..... X .....	
24 Prplt Lk after LAST LOS.....	..... X .....	
25 1 AFT RCS PROP TK fail .....	..... X .....	
<b>COMM</b>		
26 MCC GO for DEORBIT not rcvd .....	..... X .....	

① Stop Burn > OMS PRPLT FAIL HP (Ref: DEL PAD/BURN Card)

② Stop Burn > OMS ENG FAIL HP (Ref: DEL PAD/BURN Card)

(reduced copy)

FAB USE ONLY

FS CC 8-3

ENT/118/FIN

TOP

HOOK  
VELCRO

DEORBIT  
BURN  
(RCS)

HOOK  
VELCRO

√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 (No Deorbit > TIG +  :  )  
Maintain PITCH ATT ERR ± 3°  
Monitor ΔVTOT:  
RCS I'CNCT TK SW at ΔVTOT =     
R OMS XFEED (two) – OP  
L OMS XFEED (two) – CL

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

**\* OMS PRPLT FAIL (MULTIPLE JETS FAIL OFF):**

*	Secure aff OMS	*
*		*
*	STOP BURN:	*
*	SAFE <input type="text"/> <input type="text"/> APU <sub>s</sub> – SHUT DN	*
*	HP -----	*
*	CONTINUE BURN:	*
*	ITEM 18 +0 EXEC	*
*	<input type="text"/> Resel jets	*
*	Interconnect good OMS to RCS	*
*	THC +X (√OMS% vs RCS Burn Time)	*
*	AFT RCS RECONFIG	*
*	RCS COMPLETION	*
*	<b>RCS +X JET FAIL OFF:</b>	*
*	STOP BURN:	*
*	SAFE <input type="text"/> <input type="text"/> APU <sub>s</sub> – SHUT DN	*
*	HP -----	*
*	CONTINUE BURN:	*
*	ITEM 18 +0 EXEC	*
*	<input type="text"/> Resel jets	*
*		*

ENT-3a/D/L

HINGE

(reduced copy)

FAB USE ONLY

FS CC 8-4

ENT/118/FIN

TOP  
BACK OF 'ENTRY MANEUVERS'

FLIGHT CONDITIONS	MANEUVER	DRAG CHUTE DEPLOY	
		MCC Call	Flight Condition
V = 7K	[G50] √GPS, INCORPORATE * If ELS: UHF MODE – G T/R *	Early	Main Gear TD
V = 5K	ADTA PROBES – DEPLOY (√HEAT) Begin AIL and RUD trim monitoring	<b>NOMINAL</b>	<b>195 KEAS</b>
M = 3.5	If previous OMS OX TK, He TK, or RCS OX TK leak: [G51] VENT DOOR CNTL OPEN – ITEM 43 EXEC	Late	Post-Nose Gear TD Xwind DTO
M = 2.7	√APUs HUD PWR (two) – ON	Emergency Only	No Deploy Except CDR call
* If M < 2.5; P CSS for ADTA to G&C incorp *		NO DEPLOY prior to MGTD > 230 KEAS < 80 KGS Xwind > 15 kts	
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"/>	<b>FAILED TIRE TECHNIQUE</b>	
M = 0.7	√LG EXTND ISO VLV – OP	Post-MGTD	P – AUTO Deploy drag chute
h = 15K	√MLS	185 KEAS	√Auto derotation
h = 10K	√A/L (KSC – Tabs, Visors, Suit O2)	180 KEAS	Max RHC roll away from failed tire
h = 2K	LDG GEAR ARM pb – push (ARM It on)	NGTD	
h = 300	LDG GEAR DN pb – push (DN It on)		
MAIN GEAR TD	√SPDBK – 100%	50K	/
V = 195 KEAS	DRAG CHUTE ARM, DPY pb (two) – push (simo) (All Its on)	38K	/
V = 185 KEAS	DEROTATE	28K	/
NOSE GEAR TD	SRB SEP – MAN/AUTO and depress pb √Auto Load Relief √HYD BK ISOL VLV (three) – OP	20K	/
MIDFIELD and V < 140 KGS	BRAKE as required (8-10 fps <sup>2</sup> , -0.25 to -0.3G)	12K	/
* If 5K' remaining and V > 140 KGS – MAX BRAKING *		7K	/
V = 60 KGS	DRAG CHUTE JETT pb – push (JETT1, JETT2 It on)	3K	/
V = 40 KGS	BRAKE < 6 fps <sup>2</sup> (-0.2G) (Antiskid cutout)	1K	/
WHEEL STOP	Go to ENT C/L, <u>POST LANDING PROCEDURES</u>	SURF	/

ENT-6b/118/E/A

(reduced copy)

FAB USE ONLY

FS CC 8-17

ENT/118/FIN

TOP

HOOK  
VELCRO

HOOK  
VELCRO

ENTRY NO-GO CHECKLIST

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

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

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO

ENT-7a/E/K

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

(reduced copy)

FAB USE ONLY

FS CC 8-18

ENT/118/FIN

TOP

HOOK  
VELCRO

HOOK  
VELCRO

**DEORBIT  
BURN  
MONITOR**

<b>OMS TEMP*</b> FU IN P	<table border="1"> <tr> <td></td> <td>L</td> <td>R</td> </tr> <tr> <td>≥</td> <td>219</td> <td>220</td> </tr> <tr> <td>≤</td> <td>201</td> <td>208</td> </tr> </table>		L	R	≥	219	220	≤	201	208	OMS ENG FAIL ----- OMS PRPLT FAIL
	L	R									
≥	219	220									
≤	201	208									
or No FU IN P											
<b>OMS PC* &amp; OMS ↓</b> (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									
<b>OMS OX/FU TK P</b> (√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 PC < 72 or OMS TEMP: OMS PRPLT FAIL									
OX & FU HIGH		He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284									
<b>OMS GMBL</b>	PRI fail SEC fail	L(R) OMS GMBL – SEC (twice) If high RCS usage: OMS ENG FAIL									
<b>GPC</b>	<b>1(4) &amp;</b> 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									
<b>I/O ERROR FA</b>	<b>1(4)</b>	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									
<b>BCE STRG D</b>	<b>1(4)</b>	I/O RESET (if recov: >>) If high RCS usage: L(R) OMS GMBL – SEC (twice)									
<b>RM DLMA IMU</b> or	<b>ABOVE SAFE</b> HP ⇒ <input type="checkbox"/> <input type="checkbox"/>	STOP BURN: OMS ENG(s) – OFF >>									
<b>GPC SET SPLIT</b> or											
<b>2 MN BUSES</b>	<b>BELOW SAFE</b> HP ⇒	IMU DLMA: After C/O: √timer <input type="checkbox"/> G21 If any IMU ACC > 0.03: aff IMU – desel I'cnct OMS to RCS (√RCS Burn Time) THC +X to TGT HP (EOM) or 3.5 x timer at C/O (AOA) SET SPLIT: Go to "GPC" above									
<b>I/O ERROR PCM</b>		OI PCMMU PWR – 2(1)									

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

ENT-2a/118/A,O,D,E/A

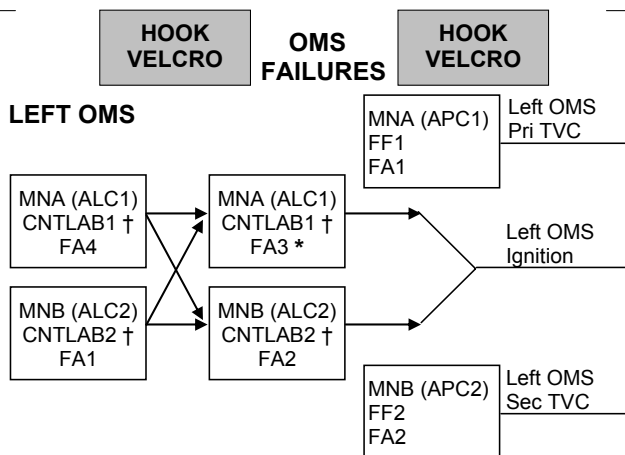
(reduced copy)

FAB USE ONLY

FS CC 8-23

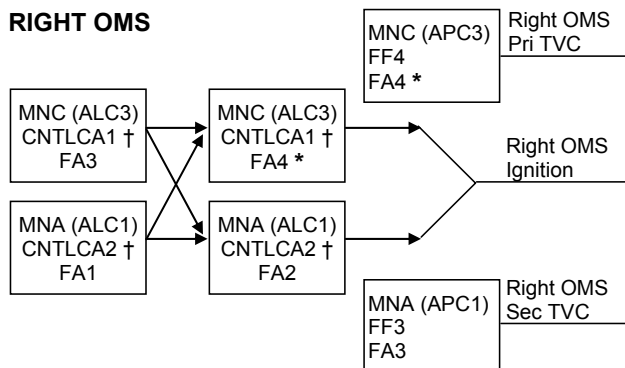
ENT/118/FIN

TOP  
BACK OF 'DEORBIT BURN MONITOR'



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

\* If L(R) P<sub>c</sub> 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

ENT-2b/118/A,O,D,E/A

(reduced copy)

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ENT/118/FIN



Space Shuttle Program  
FLIGHT DATA FILE

JSC-48020-118  
FINAL



# ENTRY CHECKLIST

STS  
**118**

Flight Cover (trim bottom to expose tabs)