

# Entry Checklist

## STS-124 Flight Supplement

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

**Final  
February 29, 2008**

National Aeronautics and  
Space Administration

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





ENTRY C/L, STS-124 FLT SUPPL

FINAL (Feb 29, 2008)

## PCN-1 (Apr 16, 2008) Sheet 1 of 1

List of Implemented Change Requests (482s):

MULTI-1816

Incorporate the following:


1. Replace FS xi thru FS xiv
2. Replace FS 4-5 thru FS 4-8
3. Replace FS CC 8-17 & FS CC 8-18

Prepared by:

  
Book Manager

  
Lead, Entry GPO

Approved by:

  
Chief, Ascent/Descent Dynamics Branch

Encl: 10 pages

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

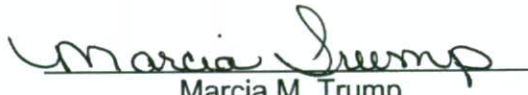


MISSION OPERATIONS DIRECTORATE

**ENTRY CHECKLIST  
STS-124 FLIGHT SUPPLEMENT**

FINAL  
February 29, 2008

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

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

Incorporates the following:
482#: NONE – Establishes baseline

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DM43/M. Trump	281-483-8029
Deorbit Burn to Entry Interface	DM43/G. Pogue	281-483-8067
Contingency Procedures and Entry Interface thru Rollout	DM43/G. Pogue	281-483-8067

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-124 FLIGHT SUPPLEMENT

**LIST OF EFFECTIVE PAGES**

FINAL      02/29/08  
PCN-1      04/16/08

Sign Off .....	* generic	FS 3-8 .....	124/FIN
ii.....	* generic	3-9.....	generic
Sign Off .....	* 124/FIN	3-10.....	generic
FS iv .....	* 124/FIN	3-11 .....	generic
v .....	* generic	3-12.....	generic
vi.....	* generic	3-13.....	generic
vii.....	* generic	3-14.....	generic
viii.....	* generic	FS 3-15 .....	124/FIN
ix.....	* generic	FS 3-16 .....	124/FIN
x .....	* generic	FS 3-17 .....	124/FIN
FS xi.....	* 124/FIN 1	FS 3-18 .....	124/FIN
FS xii.....	* 124/FIN 1	3-19.....	generic
FS xiii .....	* 124/FIN 1	3-20.....	generic
FS xiv .....	* 124/FIN	3-21 .....	generic
xv.....	generic	3-22.....	generic
xvi.....	generic	3-23.....	generic
1-1 (3 pgs).....	† generic	3-24.....	generic
1-2 (3 pgs).....	† generic	3-25.....	generic
2-1 .....	generic	3-26.....	generic
2-2 (6 pgs).....	† generic	3-27 .....	generic
2-3 (6 pgs).....	† generic	3-28.....	generic
2-4 .....	generic	FS 3-29 .....	124/FIN
FS 2-5 .....	124/FIN	FS 3-30 .....	124/FIN
FS 2-6 .....	124/FIN	3-31 .....	generic
FS 3-1 .....	124/FIN	3-32.....	generic
FS 3-2 .....	124/FIN	FS 3-33 .....	124/FIN
FS 3-3 .....	124/FIN	FS 3-34 .....	124/FIN
FS 3-4 .....	124/FIN	3-35.....	generic
3-5.....	generic	3-36.....	generic
3-6.....	generic	3-37.....	generic
FS 3-7 .....	124/FIN	3-38.....	generic

\* – Omit from flight book  
† – Extra pages in crew copy only

3-39.....	generic	5-22.....	generic
3-40.....	generic	5-23.....	generic
3-41.....	generic	5-24.....	generic
3-42.....	generic	6-1.....	generic
3-43.....	generic	6-2.....	generic
3-44.....	generic	6-3.....	generic
4-1.....	generic	6-4.....	generic
4-2.....	generic	7-1.....*	generic
4-3.....	generic	7-2.....*	generic
4-4.....	generic	FS 8-1.....*	124/FIN
FS 4-5.....	124/FIN 1	FS CC 8-2.....*	124/FIN
FS 4-6.....	124/FIN	FS CC 8-3.....*	124/FIN
FS 4-7.....	124/FIN 1	FS CC 8-4.....*	124/FIN
FS 4-8.....	124/FIN	CC 8-5.....*	generic
FS 4-9.....	124/FIN	CC 8-6.....*	generic
FS 4-10.....	124/FIN	CC 8-7.....*	generic
4-11.....	generic	CC 8-8.....*	generic
4-12.....	generic	CC 8-9.....*	generic
5-1.....	generic	CC 8-10.....*	generic
5-2.....	generic	CC 8-11.....*	generic
5-3.....	generic	CC 8-12.....*	generic
5-4.....	generic	CC 8-13.....*	generic
5-5.....	generic	CC 8-14.....*	generic
5-6.....	generic	CC 8-15.....*	generic
5-7.....	generic	CC 8-16.....*	generic
5-8.....	generic	FS CC 8-17.....*	124/FIN 1
5-9.....	generic	FS CC 8-18.....*	124/FIN
5-10.....	generic	CC 8-19.....*	generic
5-11.....	generic	8-20.....*	generic
5-12.....	generic	CC 8-21.....*	generic
5-13.....	generic	CC 8-22.....*	generic
5-14.....	generic	FS CC 8-23.....*	124/FIN
5-15.....	generic	FS CC 8-24.....*	124/FIN
5-16.....	generic		
5-17.....	generic		
5-18.....	generic		
FS 5-19.....	124/FIN		
FS 5-20.....	124/FIN		
5-21.....	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/124/D/A
(Back).....	FS CC 8-3	ENT-1b/124/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/124/E/B
ENTRY NO-GO CHECKLIST		
(Front) .....	FS CC 8-18	ENT-7a/E/K
EMERGENCY EGRESS		
(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/124/A,O,D,E/A
OMS FAILURES (Back)....	FS CC 8-24	ENT-2b/124/A,O,D,E/A



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OMS/  
RCS ΔV

OMS/RCS ΔV

FS 2-5

ENT/124/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	3210	280	232	7:20
40	2810	219	182	5:44
38	2730	207	172	5:25
36	2650	195	162	5:06
34	2570	183	152	4:47
32	2490	170	142	4:27
30	2410	158	132	4:08
28	2330	146	121	3:49
26	2250	134	111	3:30
24	2170	121	101	3:11
22	2090	109	91	2:52
20	2010	96	81	2:33
18	1930	84	71	2:14
16	1850	72	60	1:54
14	1770	59	50	1:34
12	1690	47	39	1:15
10	1610	34	29	0:55
8	1530	22	18	0:35
6	1450	9	8	0:16
5	1410	3	3	0:06

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

<b><math>\Delta</math>V CAPABILITY</b>	
ARCS $\Delta$ V fps =	$\boxed{0.9} \times [L\% + R\% - \text{AFT QTY } 1]$
FRCS $\Delta$ V fps =	$\boxed{0.9} \times \text{FRCS } \%$
OMS $\Delta$ V fps =	$\boxed{6.1} \times \text{OMS } \%$

NOTE: Uses assumed vehicle weight of 216,126 lb



DEORBIT BURN

DEORBIT  
BURN



FS 3-1

ENT/124/FIN

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

**DEORBIT  
BURN**

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

◆ Available for TAL Only  
\* LO XRNG TAL Site

■ DME  
Length after displaced threshold

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

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

◆ Available for TAL Only

■ DME

Length after displaced threshold

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

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

† MSBLS Jr. Ch 8 - Requires Uplink

■ DME  
Length after displaced threshold



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
TACAN (DEL PAD)		√5		√5
RA	blank	√46		
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		
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
DES any failed TACANs		√		√
TAC	DELTA	√35		
AIF_G	INH	√48		

\* 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/124/FIN



**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE AVAILABLE** ENT-1a/124/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 TACAN (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/124/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 Φ AC BUS (unshorted) .....	..... X .....	
<b>GNC</b>		
12 1 MLS (if reqd), IMU, or TACAN (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 .....	.....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;">225</td> <td style="text-align: center;">220</td> </tr> <tr> <td style="text-align: center;"><math>\leq</math></td> <td style="text-align: center;">204</td> </tr> </table> or No FU IN P	L	R	225	220	$\leq$	204		OMS ENG FAIL ----- OMS PRPLT FAIL
L	R							
225	220							
$\leq$	204							
<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/124/A,O,D,E/A

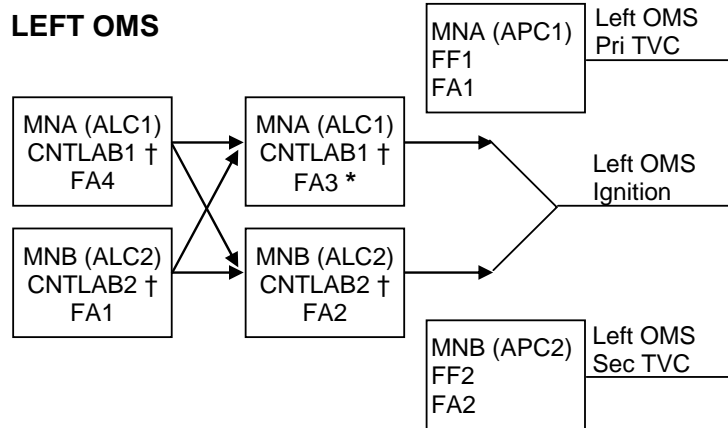
MS ONLY

FS 3-29

ENT/124/FIN

## OMS FAILURES

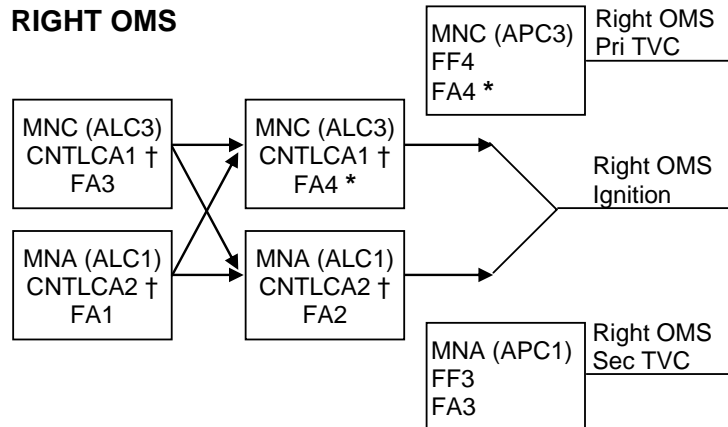
### LEFT OMS



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

\* If L(R) P<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/124/A,O,D,E/A

MS ONLY

FS 3-30

ENT/124/FIN



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

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

\* **PREBANK TABLE EDW (HA = 182 NM)** \*

<b>EDW</b>										
ΔHP	0	5	9	12	REDES.	13	14	(15)	REDES.	
PREBANK	0	90	105	120	NOR ELS	130	140	155	YR	
<b>NOR</b>					IF NOR NOGO					
G50 ITEM 41 +4 2, √RWY 17 SET TACAN tw (three) 121Y										
ΔHP		10	11	12	13	14	15	16	(17)	REDES.
PREBANK		105	110	115	120	130	140	155	175	YR
<b>YR</b>										
G50 ITEM 41 +2 2, √RWY 26 SET TACAN tw (three) 040X										
ΔHP						16	18	20	24	(26) 28
PREBANK						75	85	95	125	145 180

\* **PREBANK TABLE KSC (HA = 183 NM)** \*

<b>KSC</b>										
ΔHP	0	4	5	7	10	12	13	(15)	REDES.	
PREBANK	0	80	90	100	115	125	130	160	YQX	
<b>YQX</b>										
G50 ITEM 41 +2 1, √RWY 21 SET TACAN tw (three) 074X										
ΔHP							16	22	(25)	RED.
PREBANK							95	135	170	INN
<b>INN</b>										
G50 ITEM 41 +2 6, √RWY 06 SET TACAN tw (three) 080X										
ΔHP									26	28
PREBANK									135	180

124 oct r1

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> √TACAN and GPS, INCORPORATE * If ELS: UHF MODE – G T/R *
V = 5K	ADTA PROBES – DEPLOY (√HEAT) Begin AIL and RUD trim monitoring
M = 3.5	If previous OMS OX TK, He TK, or RCS OX TK leak: <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      MAX N <sub>z</sub> <input type="text"/> . <input type="text"/> √NWS – 1 Lock Inertia Reels
M = 0.7	√LG EXTD ISO VLV – OP
h = 15K	√MLS
h = 10K	√A/L (KSC – Tabs, Visors, Suit O2)
h = 2K	LDG GEAR ARM pb – push (ARM It on)
h = 300	LDG GEAR DN pb – push (DN It on)
MAIN GEAR TD	√SPDBK – 100%
V = 195 KEAS	DRAG CHUTE ARM, DPY pb (two) – push (simo) (All Its on)
V = 185 KEAS	DEROTATE
NOSE GEAR TD	SRB SEP – MAN/AUTO and depress pb √Auto Load Relief √HYD BK ISOL VLV (three) – OP
V < 120 KGS or 5K' remaining	BRAKE as required (8-10 fps <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/124/E/B  
(Partial)

MS ONLY

FS 4-5

ENT/124/FIN 1



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MS ONLY

FS 4-6

ENT/124/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/124/E/B  
(Partial)

MS ONLY

FS 4-7

ENT/124/FIN 1

ENTRY  
MISC

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MS ONLY

FS 4-8

ENT/124/FIN

### ENTRY ALPHA

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

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

(124 OCFR1 CY)

HOOK VELCRO

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

HOOK VELCRO

HOOK VELCRO

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

HOOK VELCRO

MS ONLY

FS 4-9

ENT/124/FIN



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MS ONLY

FS 4-10

ENT/124/FIN





1:	2:
3:	

**POST LANDING PAYLOAD ACTIVITIES**

N/A



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CUE CARD  
CONFIG

**ENTRY CUE CARD CONFIG**

FAB USE ONLY

FS 8-1

ENT/124/FIN

DEORBIT BURN FLIGHT RULES  
ONE-ORBIT LATE AVAILABLE ENT-1a/124/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 TACAN (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)

TOP  
BACK OF 'DEORBIT BURN FLIGHT RULES'

**DEORBIT BURN FLIGHT RULES**  
**ONE-ORBIT LATE NOT AVAILABLE** ENT-1b/124/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 TACAN (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 .....	.....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/124/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   APU<sub>s</sub> – SHUT DN    \*

\*    HP    -----    \*

\*    CONTINUE BURN:    \*

\*    ITEM 18 +0 EXEC    \*

\*     Resel jets    \*

\*    Interconnect good OMS to RCS    \*

\*    THC +X (√OMS% vs RCS Burn Time)    \*

\*    AFT RCS RECONFIG    \*

\*    RCS COMPLETION    \*

\* **RCS +X JET FAIL OFF:**    \*

\*    STOP BURN:    \*

\*    SAFE   APU<sub>s</sub> – SHUT DN    \*

\*    HP    -----    \*

\*    CONTINUE BURN:    \*

\*    ITEM 18 +0 EXEC    \*

\*     Resel jets    \*

ENT-3a/D/L

HINGE

(reduced copy)

FAB USE ONLY

FS CC 8-4

ENT/124/FIN

TOP  
BACK OF 'ENTRY MANEUVERS'

	FLIGHT CONDITIONS	MANEUVER	DRAG CHUTE DEPLOY
HOOK VELCRO	V = 7K	[G50] √TACAN and GPS, INCORPORATE * If ELS: UHF MODE – G T/R *	<b>MCC Call</b> / <b>Flight Condition</b> Early / Main Gear TD <b>NOMINAL</b> / <b>195 KEAS</b>
	V = 5K	ADTA PROBES – DEPLOY (√HEAT) Begin ALL and RUD trim monitoring	Late / Post-Nose Gear TD Xwind DTO
	M = 3.5	If previous OMS OX TK, He TK, or RCS OX TK leak: [G51] VENT DOOR CNTL OPEN – ITEM 43 EXEC	Emergency Only / No Deploy Except CDR call
	M = 2.7	√APUs HUD PWR (two) – ON * 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 MAX Nz <input type="text"/> . <input type="text"/> √NWS – 1 Lock Inertia Reels	<b>FAILED TIRE TECHNIQUE</b> Post-MGTD P – AUTO 185 KEAS Deploy drag chute 180 KEAS √Auto derotation NGTD Max RHC roll away from failed tire
	M = 0.7	√LG EXT ISO VLV – OP	
	h = 15K	√MLS	
	h = 10K	√AL (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)	50K / / 38K / /	
V = 185 KEAS	DEROTATE	28K / / 20K / / 12K / / 7K / /	
NOSE GEAR TD	SRB SEP – MAN/AUTO and depress pb √Auto Load Relief √HYD BK ISOL VLV (three) – OP	3K / / 1K / / SURF / /	
V < 120 KGS or 5K' remaining	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/124/E/B

(reduced copy)

FAB USE ONLY

FS CC 8-17

ENT/124/FIN 1

TOP

HOOK  
VELCRO

HOOK  
VELCRO

**ENTRY NO-GO CHECKLIST**

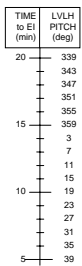
FAILURE OF:	AERO PTI DTO	AUTO FCS MODE	XWIND DTC ①
<b>APU/HYD:</b> 1 APU.....			X
2 APUs.....			X
<b>DISPLAYS:</b> 2 ADIs.....	X		
CDR HUD.....			X ②
<b>CONTROLLERS:</b>			
RHC: 1L.....			X
2L & 2R.....	X		X
RPTA: 2L or 2R.....	X		X
<b>SNC:</b> 2 AAs (LAT).....	X	X ③	X
2 AAs (NORM).....	X (M < 2.5)		X
2 RGS.....			X
2 R DDU PWIR SPLY.....			X
2 IMU (or 1 IMU + BITE).....	X		X
2 ADTAs.....			X
ADTA NOT INCORP OR DLMA.....	X (M < 2)		X
MLS NOT INCORP.....	X (< 6K ft)		X
<b>DPS:</b> 2 FCS CH (same surface).....	X		X ④
1 GPC (not restrung).....			X ④
2 GPC (restrung).....	X	X ⑤	X ④
2 GPC (not restrung).....	X	X ⑤	X ④
1 FF.....			X
2 FF.....	X	X ⑥	X
<b>RCS:</b> 2 FA.....	X		X
LEAK (AFT - during ENT).....	X		X
2 YAW JETs (same side).....	X		X
MIN RCS QTY.....	X		X
<b>TRIM:</b> All > ± 2.0 deg.....	X		X
<b>DOWNMODE:</b>			
FCS problem.....	X	X	X
ADA.....	X		X
<b>PLB:</b> PLBD Latch Gang.....	X		X
<b>LDC/DECEL:</b>			
Tire Leak.....			X
HYD BRAKE ISOL VLV.....			X
< 100% Brake.....			X
NWS.....			X
<b>ENERGY - OFF NOMINAL:</b>			
Roll Ref Alert.....	X		X
Above Upper Traj Line.....	X		X
MCC GCA, or VEL & PSN update.....	X	X	X
No AL by 6K ft.....	X		X
<b>DATA: SOLID STATE RECORDERS... X (LOS)</b>			
<b>XWIND:</b>			
< 10 Knots Peak.....			X
> 15 Knots Peak.....			X
> 10 Knots Gust.....			X
<b>GROUND SYSTEMS:</b>			
No Runway Aim Point.....			X

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO

HOOK  
VELCRO



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

ENT-7a/E/K

(reduced copy)

FAB USE ONLY

FS CC 8-18

ENT/124/FIN



TOP

HOOK  
VELCRO

HOOK  
VELCRO

**DEORBIT  
BURN  
MONITOR**

<b>OMS TEMP*</b>	<table border="1"> <tr> <td></td> <td>L</td> <td>R</td> </tr> <tr> <td>FU IN P ≥</td> <td>225</td> <td>220</td> </tr> <tr> <td>≤</td> <td>205</td> <td>204</td> </tr> </table>		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									
or No FU IN P											
<b>OMS PC* &amp; OMS ↓</b> (BFS: √accel)	<p>ENG VLV 1 or 2 &lt; 70</p> <p>or OX IN P &gt; 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>									
<b>OMS OX/FU TK P</b> (√ENG IN P)	OX/FU LOW	<p>He PRESS/VAP ISOL (two) – OP</p> <p>If aff TK P not incr:</p> <p>He PRESS/VAP ISOL (two) – CL</p> <p>At PC &lt; 72 or OMS TEMP:</p> <p>OMS PRPLT FAIL</p>									
	OX & FU HIGH	<p>He PRESS/VAP ISOL (two) – CL</p> <p>Cycle He A(B) to maintain TK P 234-284</p>									
<b>OMS GMBL</b>	<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>									
<b>GPC</b>	<p><b>1(4) &amp;</b></p> <p>Burning OMS aff</p> <p>SEC GMBL lost</p> <p>2 FAs lost</p>	<p>aff GPC PWR – OFF</p> <p>If SEC GMBL avail:</p> <p>aff MDM FF 1(4) – OFF,ON</p> <p>L(R) OMS GMBL – SEC (twice)</p> <p>If high RCS usage: OMS ENG FAIL</p> <p>√MAN SHUTDN</p>									
<b>I/O ERROR FA</b>	<b>1(4)</b>	<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>√MAN SHUTDN</p>									
<b>BCE STRG D</b>	<b>1(4)</b>	<p>I/O RESET (if recov: &gt;&gt;)</p> <p>If high RCS usage:</p> <p>L(R) OMS GMBL – SEC (twice)</p>									
<b>RM DLMA IMU</b>	<b>ABOVE SAFE</b>	<p>STOP BURN: OMS ENG(s) – OFF &gt;&gt;</p>									
or	HP ⇒ <input type="checkbox"/>										
<b>GPC SET SPLIT</b>	<b>BELOW SAFE</b>	<p>IMU DLMA:</p> <p>After C/O: √timer <input type="checkbox"/>G21</p> <p>If any IMU ACC &gt; 0.03: aff IMU – desel</p> <p>I'cnct OMS to RCS (√RCS Burn Time)</p> <p>THC +X to TGT HP (EOM) or</p> <p>3.5 x timer at C/O (AOA)</p> <p>SET SPLIT: Go to "GPC" above</p>									
or	HP ⇒ <input type="checkbox"/>										
<b>2 MN BUSES</b>											
<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/124/A,O,D,E/A

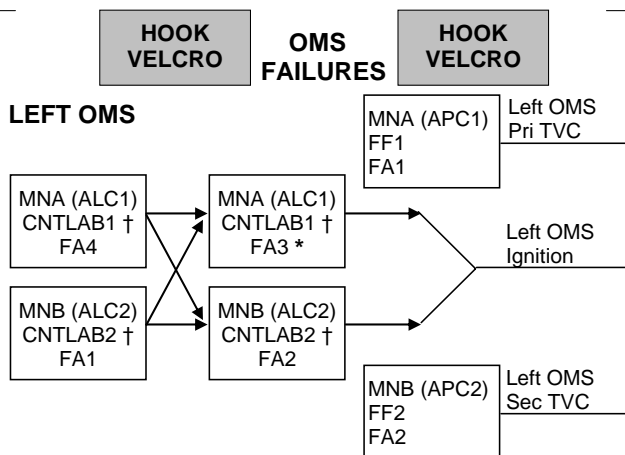
(reduced copy)

FAB USE ONLY

FS CC 8-23

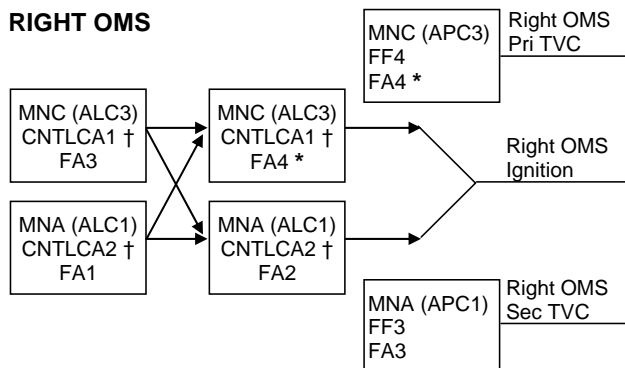
ENT/124/FIN

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/124/A,O,D,E/A

(reduced copy)

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ENT/124/FIN

Space Shuttle Program  
FLIGHT DATA FILE

JSC-48020-124  
FINAL



# ENTRY CHECKLIST

STS  
124

Flight Cover (trim bottom to expose tabs)