

Entry Checklist

STS-115 Flight Supplement

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

**Final, Rev A
June 22, 2006**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

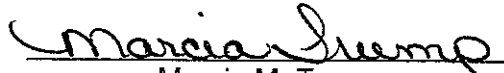


MISSION OPERATIONS DIRECTORATE

**ENTRY CHECKLIST
STS-115 FLIGHT SUPPLEMENT**

FINAL, REVISION A
June 22, 2006

PREPARED BY:

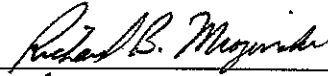


Marcia M. Trump
Book Manager

APPROVED BY:



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Lead Entry GPO



for P. J. Bertsch
Chief, Ascent/Descent
Dynamics Branch

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Incorporates the following:			
482#:	ENT-815	ENT-852	MULTI-1644
	ENT-816	ENT-853	
	ENT-826	ENT-854	
	ENT-848	ENT-855	
	ENT-851		

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DM43/M. Trump	281-483-8029
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-115 FLIGHT SUPPLEMENT

LIST OF EFFECTIVE PAGES

FINAL	02/14/03
REV A	06/22/06

Sign Off	* generic	3-8.....	generic
ii.....	* generic	3-9.....	generic
Sign Off	* 115/FIN A	3-10.....	generic
FS iv	* 115/FIN A	3-11.....	generic
v	* generic	3-12.....	generic
vi.....	* generic	3-13.....	generic
vii.....	* generic	3-14.....	generic
viii.....	* generic	3-15.....	generic
ix.....	* generic	3-16.....	generic
x	* generic	3-17.....	generic
FS xi	* 115/FIN A	3-18.....	generic
FS xii	* 115/FIN A	3-19.....	generic
FS xiii.....	* 115/FIN A	3-20.....	generic
FS xiv.....	* 115/FIN A	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	115/FIN A
FS 2-5	115/FIN A	FS 3-30	115/FIN A
FS 2-6	115/FIN A	3-31.....	generic
FS 3-1	115/FIN A	3-32.....	generic
FS 3-2	115/FIN A	FS 3-33	115/FIN A
FS 3-3	115/FIN A	FS 3-34	115/FIN A
FS 3-4	115/FIN A	3-35.....	generic
3-5.....	generic	3-36.....	generic
3-6.....	generic	3-37.....	generic
3-7.....	generic	3-38.....	generic

* – Omit from flight book

† – Extra pages in crew copy only

3-39.....	generic	5-18.....	generic
3-40.....	generic	FS 5-19.....	115/FIN A
3-41.....	generic	FS 5-20.....	115/FIN A
3-42.....	generic	5-21.....	generic
3-43.....	generic	5-22.....	generic
3-44.....	generic	5-23.....	generic
4-1.....	generic	5-24.....	generic
4-2.....	generic	6-1.....	generic
4-3.....	generic	6-2.....	generic
4-4.....	generic	6-3.....	generic
4-5.....	generic	6-4.....	generic
4-6.....	generic	7-1.....*	generic
FS 4-7.....	115/FIN A	7-2.....*	generic
FS 4-8.....	115/FIN A	7-3.....*	generic
4-9.....	generic	7-4.....*	generic
4-10.....	generic	7-5.....*	generic
FS 4-11.....	115/FIN A	7-6.....*	generic
FS 4-12.....	115/FIN A	7-7.....*	generic
4-13.....	generic	7-8.....*	generic
4-14.....	generic	7-9.....*	generic
4-15.....	generic	7-10.....*	generic
4-16.....	generic	8-1.....*	generic
5-1.....	generic	CC 8-2.....*	generic
5-2.....	generic	CC 8-3.....*	generic
5-3.....	generic	CC 8-4.....*	generic
5-4.....	generic	CC 8-5.....*	generic
5-5.....	generic	CC 8-6.....*	generic
5-6.....	generic	CC 8-7.....*	generic
5-7.....	generic	CC 8-8.....*	generic
5-8.....	generic	CC 8-9.....*	generic
5-9.....	generic	CC 8-10.....*	generic
5-10.....	generic	CC 8-11.....*	generic
5-11.....	generic	CC 8-12.....*	generic
5-12.....	generic	CC 8-13.....*	generic
5-13.....	generic	CC 8-14.....*	generic
5-14.....	generic	CC 8-15.....*	generic
5-15.....	generic	CC 8-16.....*	generic
5-16.....	generic	CC 8-17.....*	generic
5-17.....	generic	CC 8-18.....*	generic

* – Omit from flight book

CC 8-19.....* generic
CC 8-20.....* generic
CC 8-21.....* generic
8-22.....* generic
FS CC 8-23.....* 115/FIN A
FS CC 8-24.....* 115/FIN A

* – Omit from flight book

FS xiii

ENT/115/FIN A

ENTRY CUE CARDS

<u>Title</u>	<u>Ref. Page</u>	<u>Card No.</u>
Deorbit Burn Flight		
Rules (Front)	CC 8-2	generic
(Back)	CC 8-3	generic
Deorbit Burn (RCS)		
(Front)	CC 8-4	generic
(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)	CC 8-17	generic
Entry NO-GO Checklist		
(Front)	CC 8-18	generic
ADTA Mgmt (Back)	CC 8-19	generic
Mach α		
(Front)	CC 8-20	generic
(Back)	CC 8-20	generic
Entry Control		
(Front)	CC 8-21	generic
(Back)	CC 8-22	generic
Deorbit Burn Monitor		
(Front)	FS CC 8-23	ENT-2a/115/A,O,D,E/B I
OMS Failures (Back)	FS CC 8-24	ENT-2b/115/A,O,D,E/A



OMS/
RCS ΔV

OMS/RCS ΔV

FS 2-5

ENT/115/FIN A



OMS He PRESS/ Δ V/BURN TIME

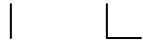
**OMS/
RCS Δ V**

OMS% GAGE	OMS He Press *	OMS Δ V	RCS Δ V	RCS BURN MIN:SEC
50	3320	283	235	7:18
40	2920	222	184	5:42
38	2840	209	174	5:23
36	2760	197	164	5:04
34	2680	184	154	4:45
32	2600	172	143	4:26
30	2520	159	133	4:07
28	2440	147	123	3:48
26	2360	134	113	3:29
24	2280	122	102	3:10
22	2200	109	92	2:50
20	2120	97	82	2:31
18	2040	84	71	2:12
16	1960	72	61	1:52
14	1880	59	50	1:33
12	1800	47	39	1:13
10	1720	34	29	0:54
8	1640	21	18	0:34
6	1560	9	7	0:14
5	1520	2	2	0:04

* He pressure not valid until 1 hr after last burn

ΔV CAPABILITY	
ARCS Δ V fps =	$\boxed{0.9} \times [L\% + R\% - \text{AFT QTY } 1]$
FRCS Δ V fps =	$\boxed{1.0} \times \text{FRCS } \%$
OMS Δ V fps =	$\boxed{6.2} \times \text{OMS } \%$

NOTE: Uses assumed vehicle weight of 212,440 lb



DEORBIT BURN

DEORBIT
BURN



FS 3-1

ENT/115/FIN A

**STS-115 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	OMN 73	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	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	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	ZZA 77 ■	◆6 -	12200 12200	1000 1010
15	GABRESKI	FOK 06 FOK 24	HTO 83	GON45Y ■	- -	8500 8500	1000 1000

◆ Available for TAL Only

* LO XRNG TAL Site

■ DME

Length after displaced threshold

**STS-115 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 23	UAW 38	YHZ 98 ■	-	8800	0
		YHZ 32			-	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 AB	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-115 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	-	-	9500	0
			-	TDL 70	-	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 13 HAW 31	ASI 59	ASI 59	-	9520	0
					-	9520	0
42	NORTHRUP	NOR 17 NOR 23	SNG 121Y	HMN 92	6	15000	Lkbd
					6	15000	Lkbd
43	NORTHRUP	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

DEORBIT BURN MONITOR

OMS TEMP* FU IN P \geq <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td style="width: 20px; text-align: center;">L</td><td style="width: 20px; text-align: center;">R</td></tr> <tr><td style="text-align: center;">230</td><td style="text-align: center;">230</td></tr> <tr><td style="text-align: center;">214</td><td style="text-align: center;">212</td></tr> </table> or No FU IN P	L	R	230	230	214	212	Oms Eng Fail Oms PRPLT Fail
L	R						
230	230						
214	212						
OMS PC* & OMS ↓ (BFS: $\sqrt{\text{accel}}$) ENG VLV 1 or 2 < 70 or OX IN P > 227 OX IN P \leq 227 or No OX IN P	Oms Eng Fail Oms PRPLT Fail						
OMS OX/FU TK P ($\sqrt{\text{ENG IN P}}$) OX/FU LOW OX & FU HIGH	He PRESS/VAP ISOL (two) – OP If aff TK P not incr: He PRESS/VAP ISOL (two) – CL At PC < 72 or OMS TEMP: Oms PRPLT Fail He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284						
OMS GMBL PRI fail SEC fail	L(R) OMS GMBL – SEC (twice) If high RCS usage: Oms Eng Fail						
GPC 1(4) & Burning OMS aff SEC GMBL lost 2 FAs lost	aff GPC PWR – OFF If SEC GMBL avail: aff MDM FF 1(4) – OFF, ON L(R) OMS GMBL – SEC (twice) If high RCS usage: Oms Eng Fail $\sqrt{\text{MAN SHUTDN}}$						
I/O ERROR FA 1(4) 2 FAs lost	L(R) OMS GMBL – SEC I/O RESET (if recov: BFS I/O RESET) If high RCS usage: Oms Eng Fail $\sqrt{\text{MAN SHUTDN}}$						
BCE STRG D 1(4)	I/O RESET (if recov: >>) If high RCS usage: L(R) OMS GMBL – SEC (twice)						
RM DLMA IMU or ABOVE SAFE HP \Rightarrow <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr> </table> GPC SET SPLIT or 2 MN BUSES BELOW SAFE HP \Rightarrow			STOP BURN: Oms Eng(s) – OFF >> IMU DLMA: After C/O: $\sqrt{\text{timer}}$ G21 If any IMU ACC > 0.03: aff IMU – desel I'cnct OMS to RCS ($\sqrt{\text{RCS Burn Time}}$) THC +X to TGT HP (EOM) or 3.5 x timer at C/O (AOA) SET SPLIT: Go to "GPC" above				
I/O ERROR PCM	OI PCMMU PWR – 2(1)						

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

ENT-2a/115/A,O,D,E/B

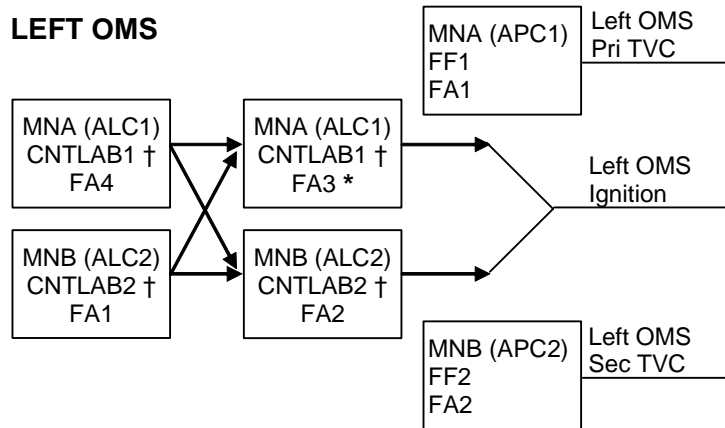
MS ONLY

FS 3-29

ENT/115/FIN A

OMS FAILURES

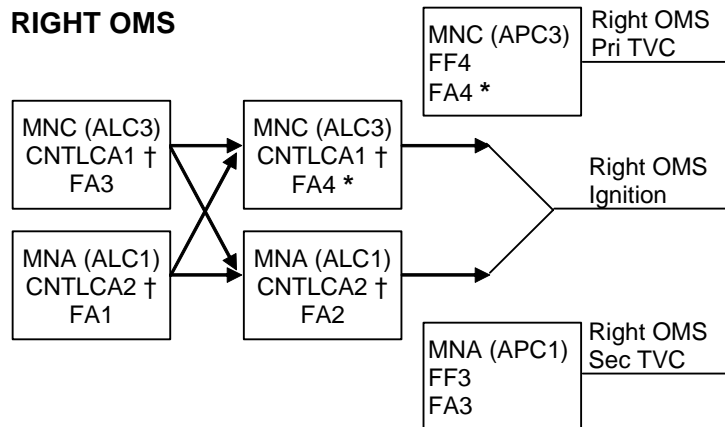
LEFT OMS



† 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)

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/115/A,O,D,E/A

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

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

* PREBANK TABLE EDW (HA = 184 NM) *										
* EDW *										
Δ HP	0	6	9	11	13	REDES.	14	(15)	REDES.	
PREBANK	0	95	105	115	130	NOR ELS	145	160	YR	
NOR						IF NOR NOGO				
* G50 ITEM 41+ <u>4</u> <u>2</u> , \sqrt RWY 17 SET TACAN tw (three) 121Y *										
Δ HP		10	12	13	14	15	16	(17)	REDES.	
PREBANK		110	120	125	130	140	155	170	YR	
* YR *										
* G50 ITEM 41+ <u>2</u> <u>2</u> , \sqrt RWY 26 SET TACAN tw (three) 040X *										
Δ HP					16	18	20	24	(26)	28
PREBANK					75	85	95	125	145	180
* PREBANK TABLE KSC (HA = 184 NM) *										
* KSC *										
Δ HP	0	3	6	8	10	12	15	(16)	REDES.	
PREBANK	0	65	95	110	120	130	170	180	YQX	
* YQX *										
* G50 ITEM 41+ <u>2</u> <u>1</u> , \sqrt RWY 21 SET TACAN tw (three) 074X *										
Δ HP							17	22	(25)	RED.
PREBANK							100	135	170	INN
* INN *										
* G50 ITEM 41+ <u>2</u> <u>6</u> , \sqrt RWY 06 SET TACAN tw (three) 080X *										
Δ HP									26	28
PREBANK									135	180

1150CFR2

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 (*)

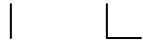
	TIME to EI (min)	LVLH PITCH (deg)
	20	339
		343
		347
* If UNDERBURN or no *		351
* DEL PAD, manually *		355
* mnvr to LVLH R 001; *	15	359
* Y 358, P per table *		3
		7
		11
		15
	10	19
		23
		27
		31
		35
	5	39

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

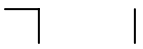
CRT1 Verify GMBL positions:

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

GMBL OFF – ITEM 32 EXEC
– ITEM 33 EXEC



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MS ONLY

FS 4-7

ENT/115/FIN A





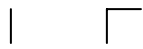
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MS ONLY

FS 4-8

ENT/115/FIN A



ENTRY ALPHA

VR	α_{ref}	R	H	Href	Rref	
25	40	4405	400			
24	HI	40 LO	2601	249	-47	R80
23	43	40 37	2131	240	-64	71
22	43	40 37	1779	234	-84	66
21	43	40 37	1505	228	-106	64
20	43	40 37	1291	223	-123	L62
19	43	40 37	1117	215	-146	62
18	43	40 37	974	207	-169	63
17	43	40 37	860	201	-188	63
16	43	40 37	767	194	-200	65

KSC 15

MAX L/D	
M	α
3	17
2	15
1	12

ASC-14b/115/A,E/B (115 OCFR2 CY)

HOOK VELCRO	HOOK VELCRO
----------------	----------------

15	43	40 37	684	187	-118	64
14	43	40 37	611	184	-127	62
13	43	40 37	544	180	-137	59
12	43	40 37	482	175	-153	57
11	42	39 36	426	170	-195	55
10	41	38 35	375	167	-173	R49
9	39	36 33	327	161	-206	44
8	37	34 31	277	153	-239	41
7	33	30 27	229	144	-267	39
6	30	27 24	184	132	-272	40
5	26	23 20	143	120	-274	41
4	22	19 18	107	108	-263	L40
3	19	16 15	75	92	-248	39
2.5	14		61	84	-205	
2	12		50	78	-260	
1.5	10		38	68	-316	
1	8		28	54	-262	

HOOK VELCRO

MS ONLY

FS 4-11

ENT/115/FIN A



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MS ONLY

FS 4-12

ENT/115/FIN A



1:	2:
3:	

POST LANDING PAYLOAD ACTIVITIES

N/A



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TOP

HOOK
VELCRO
**DEORBIT
BURN
MONITOR**
HOOK
VELCRO

OMS TEMP* <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%; text-align: center;">L</td> <td style="width: 25%; text-align: center;">R</td> </tr> <tr> <td>FU IN P ≥</td> <td style="border: 1px solid black; text-align: center;">230</td> <td style="border: 1px solid black; text-align: center;">230</td> </tr> <tr> <td>≤</td> <td style="border: 1px solid black; text-align: center;">214</td> <td style="border: 1px solid black; text-align: center;">212</td> </tr> </table> or No FU IN P		L	R	FU IN P ≥	230	230	≤	214	212	OMS ENG FAIL ----- OMS PRPLT FAIL
	L	R								
FU IN P ≥	230	230								
≤	214	212								
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: OMS PRPLT FAIL ----- He PRESS/VAP ISOL (two) – CL Cycle He A(B) to maintain TK P 234-284									
OMS GMBL ----- PRI fail ----- SEC fail	L(R) OMS GMBL – SEC (twice) ----- If high RCS usage: OMS ENG FAIL									
GPC 1(4) & Burning OMS aff ----- SEC GMBL lost ----- 2 FAs lost	aff GPC PWR – OFF If aff 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)									
RM DLMA IMU or GPC SET SPLIT or 2 MN BUSES ----- ABOVE SAFE HP ⇒ <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/> ----- BELOW SAFE HP ⇒	STOP BURN: OMS ENG(s) – OFF >> ----- IMU DLMA: After C/O: √timer 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									
I/O ERROR PCM	OI PCMMU PWR – 2(1)									

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

ENT-2a/115/A,O,D,E/B

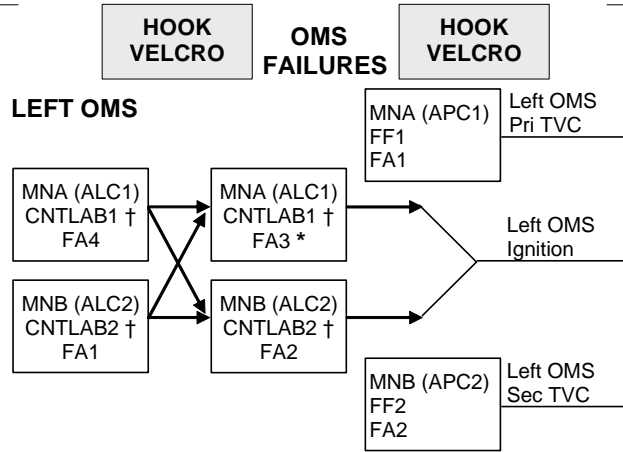
(reduced copy)

FAB USE ONLY

FS CC 8-23

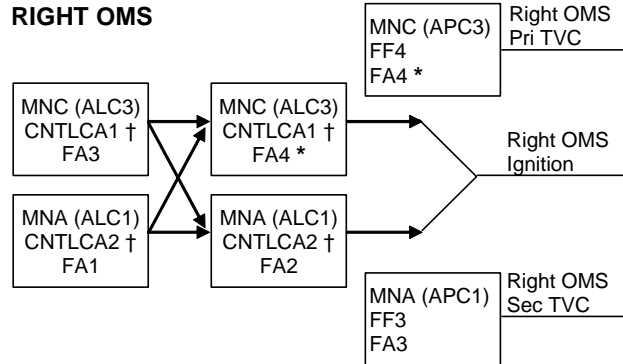
ENT/115/FIN A

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) 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

ENT-2b/115/A,O,D,E/A

(reduced copy)

FAB USE ONLY

FS CC 8-24

ENT/115/FIN A

Space Shuttle Program
FLIGHT DATA FILE

JSC-48020-115
FINAL, REV A



ENTRY CHECKLIST

STS
115

Flight Cover (trim bottom to expose tabs)