

Payload Operations Checklist

STS-125

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Verify this is the correct version for the pending operation (training, simulation or flight).
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SSE ACT/FSS PREP

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**SSE ACT/
FSS PREP**

SSE ACTIVATION

R1 1. PRIMARY PAYLOAD ACT
√PL PRI MNC tb – ON
√CAB – MNA

L12U 2. FSS AND MULE FMDM-B PWR ON
cb FSS/ORUC A SIDE PWR – cl

FSS FMDM-B PWR – ON (tb-gray)

* If FSS FMDM-B PWR tb – bp, cycle sw *
* If still no joy, continue *

L11U cb MULE B SIDE PWR – cl

MULE FMDM-B PWR – ON (tb-gray)

* If MULE FMDM-B PWR tb – bp, cycle sw *
* If still no joy, continue *

SM 211 SSE OVERVIEW
SM I/O RESET EXEC

L12U * If FSS FMDM-B PWR or MULE FMDM-B PWR tb – bp and 'I/O *
* ERROR FLEX' msg, FMDM failed: *
* FSS FMDM-B PWR – OFF (tb-bp) *
* FMDM-A PWR – ON (tb-gray) *
L11U * MULE FMDM-B PWR – OFF (tb-bp) *
* FMDM-A PWR – ON (tb-gray) *

SM 1 DPS UTILITY

* PORT ASSIGN STRING PL 1/2 SEC – ITEM 24 EXEC (*) *

* If 'I/O ERROR FLEX' msg, go to *
* 1.4a 'I/O ERROR FLEX' (PL SYS, SSE) *
* If 'BCE BYPASS' msg, go to 1.4b 'BCE *
* BYP FLEX' (PL SYS, SSE) *

3. VERIFY SSE STATUS

NOTE

Notify MCC of any parameter not in range, continue

SM 211 SSE OVERVIEW

√PCU – blank/blank
√CCTV ENA OFF – *
√PWR OFF – *
√COPE A HTR ZONE 1&2,3 (two) – (no *)
√B HTR ZONE 1&2,3 (two) – (no *)
√RNS ENA STAT – (no *)
√AMPS: < 0.4

POWER

√FSS EPDSU 1/2 AMPS (two):	< 3.0
√FMDM A/B AMPS:	< 0.15/0.5 to 1.1
√HTR	– blank/blank
√HTR P1/P2 AMPS (two):	< 0.4
√R1/R2 AMPS (two):	< 0.4
√CCTV HTR AMPS:	< 0.10
√ORUC	– blank/blank
√AMPS (two):	< 0.4
√MULE FMDM A/B AMPS:	< 0.15/0.7 to 1.3
√HTR	– (no *)
√HTR AMPS:	< 0.4
√COPE 1A/2A AMPS (two):	< 0.4
√1B&2B AMPS:	< 0.4
√3A/3B AMPS (two):	< 0.4
√SLIC EPDSU AMPS:	0.4 to 1.4
√FSS VOLTS (two):	24.0 to 32.0
√SLIC VOLTS (two):	24.0 to 32.0
√MULE VOLTS:	24.0 to 32.0

DPC

√DPC 1-12 (twelve):	– (no *)
√VOLTS (twelve):	< 0.5
√AMPS (twelve):	< 0.5

THERMAL

√FSS EPDSU TEMP (two):	-20 to 50 degC
√FMDM TEMP:	-3 to 55 degC (active FMDM only)
√PCU TEMP (two):	-20 to 50 degC
√IPCU TEMP:	-30 to 50 degC
√AMSB TEMP:	-20 to 50 degC
√MULE PDSU TEMP:	-20 to 50 degC
√FMDM TEMP:	-3 to 55 degC (active FMDM only)
√SLIC EPDSU TEMP (two):	-20 to 50 degC

4. FSS HEATER ACT

L12U

FSS HTR PWR – PRI (tb-gray)

- * If tb – bp, cycle sw *
- * If still no joy, continue *

CRT

√POWER FSS HTR – 1/2

- * If POWER FSS HTR NOT 1/2, go to 1.1a POWER *
- * FSS HTR NOT 1/2 (S211) (PL SYS, SSE) *

√POWER FSS HTR P1,P2 AMPS (two): ≤ 0.4

CRT	* If POWER FSS HTR P1 AMPS: > 14 or POWER FSS HTR P2	*	
	* AMPS: > 11, expect FDA, then	*	
L12U	* FSS HTR PWR – OFF (tb-bp), √MCC	*	
	* If POWER FSS HTR P1 AMPS: 0.4 to 14 or POWER FSS HTR P2	*	
	* AMPS: 0.4 to 11, then	*	
	* notify MCC, continue	*	
L12U	CCTV HTR PWR – ON (tb-gray)		
	* If CCTV HTR PWR tb – bp, cycle sw	*	
	* If no joy, continue	*	
CRT	√POWER FSS CCTV HTR AMPS: ≤ 0.9		
	* If POWER FSS CCTV HTR AMPS: > 0.9,	*	
L12U	* CCTV HTR PWR – OFF (tb-bp), continue	*	
L12U	5. <u>ORUC HTR ACT</u>		
	ORUC POWER CONTR A – ON (tb-gray)		
	CONTR B – ON (tb-gray)		
	* If either tb – bp,	*	
	* cycle sw	*	
	* If still no joy, continue	*	
CRT	√POWER ORUC – A/B		
	√AMPS (two): < 30		
	√THERMAL ORUC PRJU TEMP (two): -20 to 50 degC		
CRT	* If POWER ORUC A or B AMPS > 30: expect FDA, then	*	
L12U	* ORUC POWER CONTR A or B – OFF (tb-bp)	*	
	* √MCC	*	
CRT	* If POWER ORUC not A/B and associated tb – bp:	*	
	* ORUC A or B side failed	*	
	* ORUC POWER CONTR A or B – OFF (tb-bp)	*	
	* Continue with loss of redundancy	*	
	* If POWER ORUC not A/B and associated tb – gray:	*	
	* Possible monitor failure	*	
	* Continue ops	*	
L11U	6. <u>MULE/RNS SURVIVAL HEATER ACT</u>		
	SURV HTR B PWR – ON (tb-gray)		
	* If SURV HTR PWR tb – bp,	*	
	* cycle sw	*	
	* If still no joy, continue	*	

CRT √POWER MULE HTR – * |

* If POWER MULE HTR NOT *, go to *
 * 1.1b POWER MULE HTR NOT * *
 * (S211) (PL SYS, SSE) * |

√POWER MULE HTR AMPS: ≤ 0.4 |

L11U * If POWER MULE HTR AMPS: > 13, expect FDA, then * |
 * SURV HTR B PWR – OFF *
 * √HTR PWR tb – bp *
 * √MCC *
 * If POWER MULE HTR AMPS 0.4 to 13, then notify MCC, *
 * continue * |

L11U 7. MULE COPE HEATER ACT
 MULE COPE HTR B PWR – ON (tb-gray)

* If MULE COPE HTR B PWR tb – bp, *
 * cycle sw *
 * If still no joy: *
 * MULE COPE HTR B PWR – OFF (tb-bp) *
 * A PWR – ON (tb-gray) * |

CRT √COPE B HTR ZONE 1&2,3 (two) – * |
 √POWER MULE COPE 1A/2A AMPS (two): ≤ 0.4
 √1B&2B AMPS: ≤ 6.0
 √3A/3B AMPS: ≤ 0.4/≤ 3.5 |

L11U * If POWER MULE COPE B AMPS not as expected: *
 * expect FDA, then *
 * MULE COPE HTR B PWR – OFF (tb-bp), *
 * √MCC *
 * If POWER MULE COPE A AMPS not as expected, *
 * then notify MCC, continue * |

L12L 8. SLIC PWR ON
 cb SLIC A-SIDE PWR ENA – cl
 SLIC B-SIDE PWR ENA – ON

L12L 9. WSIPE HTR A ON
 WSIPE HTR A PWR – ON (tb-UP)

* If WSIPE HTR A PWR tb – bp, cycle sw *
 * If still no joy: *
 * WSIPE HTR A PWR – OFF (tb-bp) *
 * B PWR – ON (tb-UP) * |

CRT √POWER SLIC EPDSU AMPS: ≤ 9 |

L12L * If POWER SLIC EPDSU AMPS: > 9, *
 * WSIPE HTR A PWR – OFF (tb-bp) *
 * √MCC * |

10. BPA STBD HTR B PWR ON
 L12L BPA STBD HTR B PWR – ON (tb-gray)
- * If BPA STBD HTR B PWR tb – bp, *
 - * cycle sw *
 - * If still no joy: *
 - * BPA STBD HTR B PWR – OFF (tb-bp) *
 - * A PWR – ON (tb-gray) *
- CRT $\sqrt{\text{POWER SLIC EPDSU AMPS: } \leq 11}$ |
- * If POWER SLIC EPDSU AMPS: > 11, *
 - * BPA STBD HTR B PWR – OFF (tb-bp) *
 - * $\sqrt{\text{MCC}}$ *
- L12L
11. BPA PORT HTR A ON
 L12L BPA PORT HTR A PWR – ON (tb-gray)
- * If BPA PORT HTR A PWR tb – bp, *
 - * cycle sw *
 - * If still no joy: *
 - * BPA PORT HTR A PWR – OFF (tb-bp) *
 - * B PWR – ON (tb-gray) *
- CRT $\sqrt{\text{POWER SLIC EPDSU AMPS: } \leq 13}$ |
- * If POWER SLIC EPDSU AMPS: > 13, *
 - * BPA PORT HTR A PWR – OFF (tb-bp), *
 - * $\sqrt{\text{MCC}}$ *
- L12L
12. SLIC EPDSU HTR PWR B ON
 L12L SLIC EPDSU HTR PWR – B ON (tb-gray)
- * If SLIC EPDSU HTR PWR tb – bp, cycle sw *
 - * If still no joy: *
 - * SLIC EPDSU HTR PWR – OFF (tb-bp) *
 - * – A ON (tb-gray) *
- CRT $\sqrt{\text{POWER SLIC EPDSU AMPS: } \leq 16}$ |
- * If POWER SLIC EPDSU AMPS: > 16, *
 - * SLIC EPDSU HTR PWR – OFF (tb-bp) *
 - * $\sqrt{\text{MCC}}$ *
- L12L
13. RNS PWR ENA
 L11U RNS PWR – ENA (tb-gray)
- * If RNA PWR (tb-bp), *
 - * cycle sw *
 - * If still no joy, continue *
- CRT $\sqrt{\text{RNS AMPS: } < 1.2}$ |
- * If RNS AMPS: > 1.2 *
 - * RNS PWR – DIS (tb-bp), *
 - * $\sqrt{\text{MCC}}$ *
- L11U

14. VERIFY MECHANISM STATUS

SM 212 SSE MECH/BPA/RNS

- √AMSB OFF - *
- √AMSB AC AMPS: < 0.20
- √AMSB TEMP: -20 to 50 degC
- √MECH - blank
- √PIVOT LO TACH: < 0.25 deg/min
- √ROTATOR TACH: < 0.9 deg/min

15. VERIFY BATT PLATE TEMPERATURE

- √BATT PLATE TEMP PORT-FWD: -20.0 to 50.0 degC
- √PORT-AFT: -20.0 to 50.0 degC
- √STBD-FWD: -20.0 to 50.0 degC
- √STBD-AFT: -20.0 to 50.0 degC

16. VERIFY RNS STATUS

- √RNS ICE VOLTS: 24.0 to 32.0
- √TEMP: -20.0 to 50.0 degC
- √RNS OP HTR OFF - *
- √AMPS: < 0.4
- √RNS SP-CUBE OFF - *
- √AMPS: < 0.4
- √RNS SENSORS OFF - *
- √AMPS: < 0.4

17. RNS TM ACTIVATION

SM 212 SSE MECH/BPA/RNS

RNS TM ON – ITEM 25 EXEC

√RNS ICE AMPS: 0.4 to 1.4

- * If RNS ICE AMPS > 1.4, *
- * record value and turn OFF TM: *
- * RNS TM OFF – ITEM 26 EXEC *
- * √MCC *

√FRM CNT: INCR

- * If RNS FRM CNT not incrementing, *
- * RNS TM OFF – ITEM 26 EXEC *
- * RNS TM ON – ITEM 25 EXEC *
- * If still no joy, √MCC *

√MSM1 OFF – *

√MSM2 OFF – *

Notify MCC, SSE ACTIVATION complete; report any anomalies

HST BSA INSTALL AND CONFIG

1. UNSTOW BSA AND CABLES
 - MF71C Remove BSA from storage locker
 - Remove BSA power cable from storage locker
 - Remove BSA 14 foot data cable from storage locker
 - BSA √BSA PWR – OFF
 - MO13Q √DC UTIL PWR MNB – OFF
 - Connect: BSA power cable to DC UTIL PWR MNB

2. VERIFY CONNECTORS DEADFACED FOR BSA INSTALLATION
 - L12L √PSP BY-PASS – DISABLE

3. CONFIGURE PDIP1 PI CONNECTORS
 - L12L Remove: HST PI 1(2) Turn-around Plug
 - Connect: BSA 14 foot data cable to PDIP1 HST PI 1(2)
 - BSA Connect: BSA 14 foot data cable to BSA data port
 - Connect: BSA power cable to BSA power port

4. CONFIGURE BSA FRONT PANEL
 - BSA RATE – 32k
 - POLARITY – Norm
 - WATCHDOG – Dis

5. BSA POWERUP AND LED VERIFICATION
 - MO13Q DC UTIL PWR MNB – ON
 - BSA BSA PWR – ON
 - √All LEDs illuminate for 4 sec
 - * If pwr to BSA fails (PWR LED not illuminated): *
 - * Check pwr cable connection *
 - * If pwr cable connection OK, *
 - * BSA PWR – OFF (wait 5 sec) *
 - * BSA PWR – ON *
 - * If no joy, √MCC *

After LED check:

 - √PWR – Green
 - √SEARCH – Yellow
 - √SIGNAL LOSS – Red
 - * If PWR/SEARCH/SIGNAL LOSS *
 - * do not match this pattern, √MCC *

Velcro BSA to desired location, MCC recommends near the middeck port ladder.

Install BSA Cue Card to exterior of BSA

6. BSA PWR OFF
 - BSA BSA PWR – OFF

Notify MCC, HST BSA INSTALL AND CONFIG complete

SSE CHECKOUT

1. SSP INTERFACE CHECKS

SM 211 SSE OVERVIEW

PCU ON – ITEM 1 EXEC (*)
√PCU – P/S
√DPC 1-12 (twelve): – *
 √VOLTS (twelve): 33.7 to 35.5
 √AMPS (twelve): ≤ 0.5

- * If any DPC 1-12 (twelve) AMPS: > 0.5, turn off affected DPC *
- * DPC OFF – ITEM 24 +X X EXEC (no *) *
- * (Refer to DPC ON/OFF INDEX NUMBERS (REF DATA)), *
- * √MCC *
- * If any other param(s) not in range, record MET and off *
- * nominal DPC values; notify MCC *
- * Continue *

NOTE

If any parameters out of limits, note and continue

L12U cb SPACE TEL SW PWR – cl
 ESS/MN SW ENA – ON (tb-gray)
 MAIN BUS EXT PWR – ON (expect no tb)
√PCU RLY CL tb – gray
 MAIN BUS EXT PWR – OFF
√PCU RLY CL tb – bp
 ESS/MN SW ENA – OFF (tb-bp)
 RSU SURV HTR PWR – ON (tb-gray)
 – OFF (tb-bp)
 FHST SHUTTER – CLOSE (tb-gray)
 – OPEN (tb-bp)

CRT PCU OFF – ITEM 2 EXEC (*)
√PCU – blank/blank
√DPC 1-12 (twelve) – (no *)

L12U FSS PCU PWR CONTR A – ON
CRT √DPC 1-12 (twelve) – *

L12U FSS PCU PWR CONTR A – OFF
CRT √DPC 1-12 (twelve) – (no *)

L12U FSS PCU PWR CONTR B – ON
CRT √DPC 1-12 (twelve) – *

L12U FSS PCU PWR CONTR B – OFF
CRT √DPC 1-12 (twelve) – (no *)

2. FSS CCTV CHECK

CCTV ENA ON – ITEM 3 EXEC (*)
PWR ON – ITEM 5 EXEC (*)

- * If CCTV ENA ON does not indicate '**', *
- * re-exec ITEM 3. If still no '**', continue *

- * If CCTV PWR ON does not indicate '**', *
- * re-exec ITEM 5. If still no '**', attempt to *
- * display Camr image on monitor. If no *
- * image, √MCC *

A7U Select FSS CCTV, zoom and focus to verify Camr operational
 CRT CCTV PWR OFF – ITEM 6 EXEC (*)

- * If CCTV PWR OFF not '**', *
- * do not perform CCTV ENA – OFF *
- * Proceed to step 3 *

Wait 15 sec,
 CCTV ENA OFF – ITEM 4 EXEC (*)

3. FSS AMSB CHECKOUT

A6U √PL RETEN LAT 1,2 (two) – OFF
 √LOGIC PWR SYS 1,2 (two) – OFF
 √PL SEL – 1

R13L √PL BAY MECH PWR SYS 1,2 (two) – OFF

SM 212 SSE MECH/BPA/RNS
 AMSB ON – ITEM 7 EXEC (B(A))

- * If AMSB ON – blank, *
- * record and continue *

√AMSB AC AMPS: < 0.20
 √MECH – blank
 √SEL (ITEMS 9-19) (eleven) – (no *)
 √STAT (ITEMS 9-19) (eleven) – blank
 √PIVOT LO TACH: < 0.25 deg/min
 √ROTATOR TACH: < 0.9 deg/min
 √O/R DIS (ITEM 22) – *

- * If any parameter out of limit, √MCC *

Perform following ITEM entries and checks per table

NOTE

SEL field should show '**' only for MECHANISM selected. For any parameters not as expected, do not deselect; contact MCC

ITEM EXEC	MECHANISM	SEL	STAT	AMSB DC AMPS	MECH	SM 97 PL SEL 1, LAT/REL LATCH 2(1)
9	DLOCK	9 – *	ENG	0.035-0.125	B(A)	01/00(10/00)
Expect 'S212 AMSB DC AMPS' msg						
21	O/R ENA (*)	9 – *	RDY	0.130-0.230		00/00(00/00)
11	PIVOT LO	11 – *	DN	0.035-0.125	B(A)	00/01(00/10)
Expect 'S212 AMSB DC AMPS' msg						
21	O/R ENA (*)	11 – *	RDY	0.130-0.230		00/00(00/00)
22	O/R DIS (*)	11 – *	DN	0.035-0.125	B(A)	00/01(00/10)
12	ROTATOR	12 – *	RDY	0.035-0.125		00/00(00/00)
14	B LAT 1	14 – *	OP	0.035-0.125	B(A)	00/01(00/10)
15	B LAT 2	15 – *	OP	0.035-0.125	B(A)	00/01(00/10)
16	B LAT 3	16 – *	OP	0.035-0.125	B(A)	00/01(00/10)
17	UMB MN	17 – *	REL	0.035-0.125	B(A)	00/01(00/10)
18	UMB B/U	18 – *	MAT	0.035-0.125	B(A)	01/00(10/00)
19	BSP	19 – *	SET	0.035-0.125	B(A)	01/00(10/00)
20	DESEL	9-19 blank		< 0.035		00/00(00/00)

4. B SIDE UMBILICAL TEST

CAUTION
 Operating the umbilical in a stalled condition for greater than 30 sec may result in damage to unit. An umbilical stall condition is indicated by AMSB AC AMPS > 0.6 and no mechanism motion

Perform FSS UMBILICAL SURVEY (PDRS OPS, PHOTO SURVEYS)

- | | | |
|------|---|--|
| CCTV | Monitor UMB MN operations | |
| A6U | PL RETEN LOGIC PWR SYS 2 – ON | |
| R13L | PL BAY MECH PWR SYS 2 – ON | |
| CRT | MECH UMB MN SEL – ITEM 17 EXEC (* REL)
√AMSB DC AMPS: 0.035 to 0.125
√MECH – steady B | |
| A6U | PL RETEN LAT 2 – LAT | |
| CRT | √MECH – flashing B
√AMSB AC AMPS: 0.6 to 1.1
√MECH UMB MN STAT – RDY | |
| | * If stall condition observed (AMSB AC AMPS *
* > 0.6 and no mechanism motion): *
* PL RETEN LAT 2(1) – OFF *
* √MCC * | |
| | Wait 8 sec | |
| A6U | √MECH UMB MN STAT – MAT
PL RETEN LAT 2 – OFF | |
| CRT | √MECH – steady B | |
| CCTV | Visually verify UMB in mated posn | |
| A6U | PL RETEN LAT 2 – REL | |
| CRT | √MECH – flashing B
√AMSB AC AMPS: 0.6 to 1.1
√MECH UMB MN STAT – RDY | |
| | * If stall condition observed (AMSB AC AMPS *
* > 0.6 and no mechanism motion): *
* PL RETEN LAT 2(1) – OFF *
* √MCC * | |
| | Wait 8 sec | |
| | √MECH UMB MN STAT – REL | |
| A6U | PL RETEN LAT 2 – OFF | |

CRT √MECH – steady B
CCTV Visually verify UMB in released posn
CRT MECH DESEL – ITEM 20 EXEC (√ITEMS 9-19 (eleven) – (no *))
 √AMSB DC AMPS: < 0.035
 OFF – ITEM 8 EXEC (*)

R13L PL BAY MECH PWR SYS 2 – OFF
A6U RETEN LOGIC PWR SYS 2 – OFF

Notify MCC of any anomalies in SSE CHECKOUT prior to next step

5. SSE SWAP TO A SIDE
L12U FSS FMDM-A PWR – ON (tb-gray)

- * If FSS FMDM-A PWR tb – bp, *
- * cycle sw *
- * If still no joy, continue *

SM 211 SSE OVERVIEW

√POWER FSS FMDM A/B AMPS (two): 0.5 to 1.1

L11U MULE FMDM-A PWR – ON (tb-gray)

- * If MULE FMDM-A PWR tb – bp, *
- * cycle sw *
- * If still no joy, continue *

CRT √POWER MULE FMDM A/B AMPS (two): 0.7 to 1.3

SM1 DPS UTILITY

PORT ASSIGN STRING PL 1/2 SEC – ITEM 24 EXEC (*)

- * If FSS FMDM-A PWR tb – bp and accompanied by *
- * 'I/O ERROR FLEX' msg, FSS FMDM-A failed: *
- * PORT ASSIGN STRING PL 1/2 PRI – ITEM 23 EXEC (*), *
- * FSS FMDM-A PWR – OFF (tb-bp) *
- * MULE FMDM-A PWR – OFF (tb-bp) *
- * √MCC *
- * If MULE FMDM-A PWR tb – bp and accompanied by *
- * 'I/O ERROR FLEX' msg, MULE FMDM-A failed. MULE *
- * FMDM-A PWR – OFF (tb-bp). Go to SSE CHECKOUT *
- * WITH FAILED MULE FMDM-A (CONTINGENCY OPS) *

L11U 6. MULE/RNS SURVIVAL A HEATER ACT
SURV HTR A PWR – ON
HTR B PWR – OFF
√HTR PWR tb – gray

- * If SURV HTR PWR tb – bp, *
- * cycle SURV HTR A PWR sw *
- * If still no joy, continue *

SM 211 SSE OVERVIEW

√POWER MULE HTR – *

- * If POWER MULE HTR not *, *
- * go to 1.1b POWER MULE HTR *
- * NOT * (S211) (PL SYS, SSE) *

√POWER MULE HTR AMPS: ≤ 0.4

L11U * If POWER MULE HTR AMPS: > 13, expect FDA, then *
* SURV HTR A PWR – OFF *
* √HTR PWR tb – bp *
* √MCC *
* If POWER MULE HTR AMPS 0.4 to 13, *
* then notify MCC, continue *

L11U 7. MULE COPE-A HEATER ACT
MULE COPE HTR A PWR – ON (tb-gray)

- * If MULE COPE HTR A PWR *
- * tb – bp, cycle sw *
- * If still no joy, continue *

CRT √COPE A HTR ZONE 1&2,3 (two) – *

√POWER MULE COPE 1A/2A AMPS (two): ≤ 3.5
√1B&2B AMPS: ≤ 6.0
√3A/3B AMPS (two): ≤ 3.5

L11U * If any MULE COPE AMPS not as expected, *
* expect FDA, then *
* MULE COPE HTR A PWR – OFF (tb-bp), *
* proceed to step 9 *

L11U MULE COPE HTR B PWR – OFF (tb-bp)

8. VERIFY SSE STATUS

NOTE

If any parameter not in range, do not perform step 10; notify MCC

CRT √PCU – blank/blank
√PCU OFF – *
√CCTV ENA OFF – *
√PWR OFF – *

√COPE A HTR ZONE 1&2,3 (two) – *
 √B HTR ZONE 1&2,3 (two) – blank
 √RNS ENA STAT – *
 √AMPS: < 1.2

POWER

√FSS EPDSU 1/2 AMPS (two): < 3.0
 √FMDM A/B AMPS (two): 0.5 to 1.1
 √HTR – 1/2
 √HTR P1/P2 AMPS (two): < 0.4
 √R1/R2 AMPS (two): < 0.4
 √CCTV HTR AMPS: < 0.9
 √ORUC: A/B
 √AMPS (two): < 30.0
 √MULE FMDM A/B AMPS (two): 0.7 to 1.3
 √HTR – *
 √HTR AMPS: < 0.4
 √COPE 1A/2A AMPS (two): < 3.5
 √1B&2B AMPS: < 0.4
 √3A/3B AMPS: < 3.5/< 0.4
 √SLIC EPDSU AMPS: < 16
 √FSS VOLTS (two): 24.0 to 32.0
 √SLIC VOLTS (two): 24.0 to 32.0
 √MULE VOLTS: 24.0 to 32.0

DPC

√DPC 1-12 (twelve) – (no *)
 √VOLTS (twelve): < 0.5
 √AMPS (twelve): < 0.5

THERMAL

√FSS EPDSU TEMP (two): -20 to 50 degC
 √FMDM TEMP (two): -3 to 55 degC
 √PCU TEMP (two): -20 to 50 degC
 √IPCU TEMP: -30 to 50 degC
 √AMSB TEMP: -20 to 50 degC
 √ORUC PRJU TEMP (two): -20 to 50 degC
 √MULE PDSU TEMP: -20 to 50 degC
 √FMDM TEMP (two): -3 to 55 degC
 √SLIC EPDSU TEMP (two): -20 to 50 degC

9. FMDM-B PWRDN

NOTE

RNS TM will turn off on next step,
 expect RNS PDI data to be invalid

L11U MULE FMDM-B PWR – OFF (tb-bp)
 * If tb – gray, note and continue *

L12U FSS FMDM-B PWR – OFF (tb-bp)
 * If tb – gray, note and continue *

CRT √POWER FSS FMDM A/B AMPS: 0.5 to 1.1/< 0.15
 √MULE FMDM A/B AMPS: 0.7 to 1.3/< 0.15

10. FSS PCU CHECKOUT

PCU ON – ITEM 1 EXEC (*)

√PCU – P/S

√DPC 1-12 (twelve) – *

√VOLTS (twelve): 33.7 to 35.5

√AMPS (twelve): ≤ 0.5

* If DPC 1-12 (twelve) AMPS > 0.5, *

* PCU OFF – ITEM 2 EXEC(*) *

* √MCC *

PCU OFF – ITEM 2 EXEC (*)

√PCU – blank/blank

√DPC 1-12 (twelve) – (no *)

11. REACTIVATE RNS TM

SM 212 SSE MECH/BPA/RNS

RNS TM ON – ITEM 25 EXEC

√RNS AMPS: 0.4 to 1.4

* If RNS AMPS > 1.4, record value and turn OFF TM: *

* RNS TM OFF – ITEM 26 EXEC *

* √MCC *

√FRM CNT: INCR

* If RNS FRM CNT not incrementing, *

* RNS TM OFF – ITEM 26 EXEC *

* RNS TM ON – ITEM 25 EXEC *

* If still no joy, √MCC *

√MSM1 OFF – *

√MSM2 OFF – *

12. VERIFY MECH STATUS

√AMSB OFF – *

√AC AMPS: < 0.20

√TEMP: -20 to 50 degC

√MECH – blank

√PIVOT LO TACH: < 0.25 deg/min

√ROTATOR TACH: < 0.9 deg/min

13. AMSB CHECKOUT SIDE A

A6U

√PL RETEN LAT 1,2 (two) – OFF

√LOGIC PWR SYS 1,2 (two) – OFF

√PL SEL – 1

R13L

√PL BAY MECH PWR SYS 1,2 (two) – OFF

AMSB ON – ITEM 7 EXEC (A(B))

* If AMSB ON – blank, *

* record and continue *

√AMSB AC AMPS: < 0.20

√MECH – blank

√SEL (ITEMS 9-19) (eleven) – (no *)

√STAT (ITEMS 9-19) (eleven) – blank

√PIVOT LO TACH: < 0.25 deg/min

√ROTATOR TACH: < 0.9 deg/min

√O/R DIS (ITEM 22) – *

* If any parameter out of limit, *

* √MCC *

Perform following ITEM entries and checks per table

NOTE

SEL field should show "*" only for MECHANISM selected. For any parameters not as expected, do not deselect; contact MCC

ITEM EXEC	MECHANISM	SEL	STAT	AMSB DC AMPS	MECH	SM 97 PL SEL 1, LAT/REL LATCH 2(1)
9	DLOCK	9 – *	ENG	0.035-0.125	A(B)	01/00(10/00)
Expect 'S212 AMSB DC AMPS' msg						
21	O/R ENA(*)	9 – *	RDY	0.130-0.230		00/00(00/00)
11	PIVOT LO	11 – *	DN	0.035-0.125	A(B)	00/01(00/10)
Expect 'S212 AMSB DC AMPS' msg						
21	O/R ENA (*)	11 – *	RDY	0.130-0.230		00/00(00/00)
22	O/R DIS (*)	11 – *	DN	0.035-0.125	A(B)	00/01(00/10)
12	ROTATOR	12 – *	RDY	0.035-0.125		00/00(00/00)
14	B LAT 1	14 – *	OP	0.035-0.125	A(B)	00/01(00/10)
15	B LAT 2	15 – *	OP	0.035-0.125	A(B)	00/01(00/10)
16	B LAT 3	16 – *	OP	0.035-0.125	A(B)	00/01(00/10)
17	UMB MN	17 – *	REL	0.035-0.125	A(B)	00/01(00/10)
18	UMB B/U	18 – *	MAT	0.035-0.125	A(B)	01/00(10/00)
19	BSP	19 – *	SET	0.035-0.125	A(B)	01/00(10/00)
20	DESEL	9-19 blank		< 0.035		00/00(00/00)

AMSB OFF – ITEM 8 EXEC (*)

Notify MCC, SSE CHECKOUT complete; report any anomalies

FSS PREP FOR BERTHING

1. FSS AMSB PWR ON

A6U √PL RETEN LAT 1,2 (two) – OFF
 √LOGIC PWR SYS 2(1) – OFF
 √PL SEL – 1
 LOGIC PWR SYS 1(2) – ON

SM 212 SSE MECH/BPA/RNS
AMSB ON – ITEM 7 EXEC (A(B))

* If AMSB ON – blank, *
* record and continue *

√MECH – blank
 √SEL (ITEMS 9-19) (eleven) – (no *)
 √STAT (ITEMS 9-19) (eleven) – blank
 √O/R DIS (ITEM 22) – *

* If any param not as expected, √MCC *

R13L PL BAY MECH PWR SYS 1(2) – ON

2. BAPS DOWNLOCK RELEASE

CAUTION
Operating the downlock in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 1.0 and no mechanism motion

CCTV Configure CCTV to monitor downlock ops, P/TV03 FSS OPS
 (PHOTO/TV FS, SCENES)

CRT MECH DLOCK SEL – ITEM 9 EXEC (* ENG)

* If MECH DLOCK STAT – *, then EOT sw failed: *
* O/R ENA – ITEM 21 EXEC (*) and continue *
* operation of downlock until observed clear *
* of BAPS pin or 20 sec max *
* Expect '212 AMSB DC AMPS' msg *
* If MECH DLOCK STAT – RDY, continue *

√AMSB DC AMPS: 0.035 to 0.125
√MECH – steady A(B)

A6U √PL RETEN LAT 1 tb – LAT (A side only)
 1(2) – REL (tb-bp)

CRT √MECH – flashing A(B)
 √AMSB AC AMPS: 1.0 to 2.5
 √MECH DLOCK STAT – RDY

* If MECH DLOCK STAT – ENG, then BOT sw failed, *
* continue *
* Expect '*' *

- * If stall condition observed at any time during *
- * mechanism operations (AMSB AC AMPS > 1.0 *
- * and no mechanism motion) immediately perform: *
- * PL RETEN LAT 1(2) – OFF *
- * √MCC *

Wait 24 sec

√MECH DLOCK STAT – DIS

- A6U
- * If DLOCK STAT – RDY after 30 total sec: *
 - * PL RETEN LAT 1(2) – OFF *
 - * Perform 1.3a PRIMARY MOTOR FAILS TO *
 - * DRIVE MECHANISM (PL SYS, SSE) *

A6U √PL RETEN LAT 1 tb – REL (A side only)
1(2) – OFF

CRT √MECH – steady A(B)

CCTV Visually verify DLOCK clear of BAPS pin

3. PIVOT BAPS UP FOR BERTHING

CAUTION

Operating the pivoter in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.3 and no mechanism motion

CCTV Configure CCTV to monitor pivot ops, P/TV03 FSS OPS (PHOTO/TV FS, SCENES)

CRT MECH PIVOT LO SEL – ITEM 11 EXEC (* DN)

- * If MECH PIVOT LO STAT – *, EOT sw failed: *
- * MECH DESEL – ITEM 20 EXEC (ITEM 11 – (no *)) *
- * Perform SSE SSR-1 FMDM SWAP A→B(B→A) *
- * (PL SYS, SSE) and repeat step 3 for alt side *
- * If MECH PIVOT LO STAT – RDY, continue *

√AMSB DC AMPS: 0.035 to 0.125

√MECH – steady A(B)

A6U √PL RETEN LAT 1 tb – REL (A side only)
1(2) – LAT (tb-bp)

Start Timer

CRT √MECH – flashing A(B)
√AMSB AC AMPS: 0.3 to 0.7
√MECH PIVOT LO STAT – RDY

- * If MECH PIVOT LO STAT – DN, BOT sw failed, *
- * continue *
- * Expect ‘*’ in 23.8 min *

CCTV	Visually verify BAPS motion, monitor performance	
CRT	√MECH PIVOT LO TACH: > 2.5 deg/min	
A6U	<ul style="list-style-type: none"> * If FDA 'S212 PVT STALL' received, * * PL RETEN LAT 1(2) – OFF, * * perform 1.3e 'S212 PVT(ROT) STALL' * * (PL SYS, <u>SSE</u>) * 	
	<ul style="list-style-type: none"> * If MECH PIVOT LO TACH: < 0.25 deg/min and * * AMSB AC AMPS: < 0.2, PL RETEN LAT 1(2) – OFF, * * perform 1.3a 'PRIMARY MOTOR FAILS TO DRIVE * * MECHANISM' (PL SYS, <u>SSE</u>) * 	
CRT	√MECH PIVOT LO STAT – UP	
A6U	√PL RETEN LAT 1 tb – LAT (A side only) 1(2) – OFF	
	Stop Timer Record pivot time ____:____	
CRT	√MECH – steady A(B)	
CCTV	Visually verify BAPS properly positioned Notify MCC of pivot duration	
CRT	4. <u>AMSB PWRDN</u> MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *))	
	<ul style="list-style-type: none"> * If any MECH SEL – *, do not turn AMSB – OFF; * * notify MCC, continue * 	
	√AMSB DC AMPS: < 0.035 OFF – ITEM 8 EXEC (*)	
R13L	PL BAY MECH PWR SYS 1(2) – OFF	
A6U	PL RETEN LOGIC PWR SYS 1(2) – OFF Notify MCC, FSS PREP FOR BERTHING complete; report any deviation	

RNS ON-ORBIT CHECKOUT

CAUTION

Do not proceed without MCC GO. Potential hardware damage if activated outside of operational temperature

On MCC GO:

1. RNS OPS ACTIVATION

SM 212 SSE MECH/BPA/RNS
RNS OPS ON – ITEM 37 EXEC

SM 211 SSE OVERVIEW

√RNS AMPS: 3.0 to 13.0

SM 212 SSE MECH/BPA/RNS

√RNS MSM1 ON – *
√MSM2 ON – *
√OP HTR ON – *
√AMPS: < 8.5
√SP-CUBE ON – *
√AMPS: 1.0 to 2.0
√SENSORS ON – *
√AMPS: 0.8 to 1.8

Start timer

2. RNS DATA RECORD

NOTE

Wait for MSM hard drives to be powered sequentially

Wait 2.5 min

L11U RNS CAM REC – START (tb-UP)

* If RNS CAM REC (tb-bp), *
* note and continue *

RNS GPS REC – START (tb-UP)

* If RNS GPS REC (tb-bp), *
* note and continue *

NOTE

Ground will acquire RNS data for 30 sec

Wait 30 sec

RNS CAM REC – STOP (tb-bp)
GPS REC – STOP (tb-bp)

3. RNS OPS DEACTIVATION
RNS OPS OFF – ITEM 38 EXEC

√RNS ICE AMPS: 0.4 to 1.4
√MSM1 OFF – *
√MSM2 OFF – *
√OP HTR OFF – *
√AMPS: < 0.4
√SP-CUBE OFF – *
√AMPS: < 0.4
√SENSORS OFF – *
√AMPS: < 0.4

Notify MCC, RNS ON-ORBIT CHECKOUT complete; report any anomalies

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RETRIEVAL OPERATIONS

PI CONFIG..... 2-2
LATCH AND MATE HST 2-4
ACTIVATE HST EXTERNAL PWR..... 2-11

RETRIEVAL
OPERATIONS

PI CONFIG

1. √PDI CONFIG

SM 62 PCMMU/PL COMM

√TFL: 206

√PDI config 768

DECOM	INPUT	FMT	SOURCE
1	1(2)	10	4 kbps A Normal
2	1(2)	18	32 kbps INV T
3	4	28	4 kbps RNS
4	1(2)	19	32 kbps T Normal
5-FPM	(510)		

2. CONFIG PL COMM

L12L PSP BY-PASS – ENABLE

A1U SIGNAL STRENGTH – S-BAND PL

A1L

- √S-BD PL CNTL – CMD
- √ANT POLAR – L CIRC
- √XMTR PWR – LO
- √PWR SYS – 1(2)
- √PSP CMD OUTPUT – PL UMB
- √MOD – OFF
- CH SEL INTRG 1,2 tw (six) – 701,701
- S-BD PL PWR SEL – BOTH

3. BSA PWR ON

BSA BSA PWR – ON

√All LEDs illuminate for 4 sec

- * If pwr to BSA fails (PWR LED not illuminated): *
- * Check pwr cable connection *
- * If pwr cable connection OK, *
- * BSA PWR – OFF (wait 5 sec) *
- * BSA PWR – ON *
- * If no joy, √MCC *

4. VERIFY BSA CONFIG SETUP

√RATE – 32k
√POLARITY – Norm
√WATCHDOG – Dis

After LED check:

√PWR – Green
√SEARCH – Yellow
√SIGNAL LOSS – Red

* If PWR/SEARCH/SIGNAL LOSS *
* do not match this pattern, √MCC *

Notify MCC, PI CONFIG complete

NOTE

Step 5 will occur after HST Berth

BSA

5. POST BERTH BSA CONFIG

BSA RATE – Auto
WATCHDOG – Ena

√PWR – Green
√RATE – 32k – Green
√SYNC – Bit – Green
√SYNC – Frame – Green

LATCH AND MATE HST

WARNING
Operation of two FSS mechanisms may result in HST collision with orbiter
For any SM ALERT during FSS ops:
A6U PL RETEN LAT 1,2 (two) – OFF
R13 PL BAY MECH PWR SYS 1,2 (two) – OFF
√MCC

CAUTION
Operating a berthing latch in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 1.0 and no mechanism motion

1. AMSB PWR ON

A6U √PL RETEN LAT 1,2 (two) – OFF
 √LOGIC PWR SYS 1(2) – OFF
 √PL SEL – 1
 LOGIC PWR SYS 1(2) – ON

SM 212 SSE MECH/BPA/RNS

AMSB ON – ITEM 7 EXEC (A(B))

* If AMSB ON – blank, continue *

√MECH – blank
 √SEL (ITEMS 9-19) (eleven) – (no *)
 √STAT (ITEMS 9-19) (eleven) – blank
 √O/R DIS (ITEM 22) – *

* If any param not as expected, AMSB OFF – ITEM 8 EXEC *
 * (*), and perform SSE SSR-1 FMDM SWAP A→B(B→A) *
 * (PL SYS, SSE), then proceed to step 2 on alt side *

R13L PL BAY MECH PWR SYS 1(2) – ON
 Return to HST BERTH, step 6 (PDRS OPS FS, NOMINAL HST RETRIEVAL)
 or SJ HST BERTH, step 6 (PDRS OPS FS, OFF-NOMINAL HST RETRIEVAL)

2. BERTH LAT 2 PARTIAL CLOSURE

Verify with RMS operator that HST is in latch posn
 CCTV Perform P/TV04 HST RETRIEVE/BERTH, OPS, FSS/HST Latching
 (PHOTO/TV FS, SCENES)
 CAMR B(C) √Berth latch 2 align and monitor operations
 Start VTR

 √DAP: FREE

 CRT MECH B LAT 2 SEL – ITEM 15 EXEC (* OP)

	* If MECH B LAT 2 STAT – * and visually observed open,	*	
	* then EOT sw failed:	*	
	* MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *))	*	
	* Perform SSE SSR-1 FMDM SWAP A→B(B→A) (PL SYS, <u>SSE</u>)	*	
	* and complete steps 2-9 on alt side	*	
	* If MECH B LAT 2 STAT – RDY, continue	*	
	√AMSB DC AMPS: 0.035 to 0.125		
	√MECH – steady A(B)		
A6U	√PL RETEN LAT 1 tb – REL (A side only)		
	1(2) – LAT (tb-bp), drive to cage ~8 sec		
CRT	√MECH – flashing A(B)		
	√AMSB AC AMPS: 1.0 to 2.5		
	* If stall condition observed (AMSB AC AMPS *	*	
	* > 1.0 and no mechanism motion):	*	
A6U	* PL RETEN LAT 1(2) – OFF	*	
	* √MCC	*	
A6U	PL RETEN LAT 1(2) – OFF		
CRT	√MECH B LAT 2 STAT – RDY		
	√MECH – blank		
CCTV	√Latch 2 cages berthing pin		
	* If latch not caging berthing pin, perform *	*	
	* 1.3a PRIMARY MOTOR FAILS TO	*	
	* DRIVE MECHANISM (PL SYS, <u>SSE</u>)	*	
	3. <u>BERTH LAT 1 PARTIAL CLOSURE</u>		
CCTV	√Berth LAT 1 align and monitor operations		
CAMR C(D)			
CRT	MECH B LAT 1 SEL – ITEM 14 EXEC (* OP)		
	* If MECH B LAT 1 STAT – * and visually observed open,	*	
	* then EOT sw failed:	*	
	* MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *))	*	
	* Perform SSE SSR-1 FMDM SWAP A→B(B→A) (PL SYS, <u>SSE</u>)	*	
	* and complete steps 3-9 on alt side	*	
	* If MECH B LAT 1 STAT – RDY, continue	*	
	√AMSB DC AMPS: 0.035 to 0.125		
	√MECH – steady A(B)		
A6U	√PL RETEN LAT 1 tb – REL (A side only)		
	1(2) – LAT (tb-bp), drive to cage ~8 sec		
CRT	√MECH – flashing A(B)		
	√AMSB AC AMPS: 1.0 to 2.5		

- * If stall condition observed (AMSB AC AMPS *
- * > 1.0 and no mechanism motion): *
- * PL RETEN LAT 1(2) – OFF *
- * √MCC *

A6U PL RETEN LAT 1(2) – OFF

CRT √MECH B LAT 1 STAT – RDY
√MECH – blank

CCTV √Latch 1 cages berthing pin

- * If latch not caging berthing pin, perform *
- * 1.3a PRIMARY MOTOR FAILS TO *
- * DRIVE MECHANISM (PL SYS, SSE) *

Return to HST BERTH, step 8 (PDRS OPS FS, NOMINAL HST RETRIEVAL)
or SJ HST BERTH, step 8 (PDRS OPS FS, OFF-NOMINAL HST RETRIEVAL)

4. BERTH LAT 3 COMPLETE CLOSURE

Verify with RMS operator that RMS in TEST MODE

CCTV √Latch 3 align and monitor operations
CAMR B

CRT MECH B LAT 3 SEL – ITEM 16 EXEC (*OP)

- * If MECH B LAT 3 STAT – * and visually observed open, then EOT *
- * sw failed: *
- * MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven – (no *))) *
- * Perform SSE SSR-1 FMDM SWAP A→B(B→A) (PL SYS, SSE) *
- * and complete steps 4-9 on alt side *
- * If MECH B LAT 3 STAT – RDY, continue *

√AMSB DC AMPS: 0.035 to 0.125

√MECH – steady A(B)

A6U √PL RETEN LAT 1 tb – REL (A side only)
1(2) – LAT (tb-bp)

CRT √MECH – flashing A(B)
√AMSB AC AMPS: 1.0 to 2.5
√MECH B LAT 3 STAT – RDY

- * If stall condition observed (AMSB AC AMPS *
- * > 1.0 and no mechanism motion): *
- * PL RETEN LAT 1(2) – OFF *
- * √MCC *

A6U

- * If MECH B LAT 3 STAT – OP and motion observed, *
- * BOT sw failed. Continue and expect '**' *

CRT	Wait 15 sec, √MECH B LAT 3 STAT – CL	
A6U	* If MECH B LAT 3 STAT – OP or RDY after 30 total sec: * * PL RETEN LAT 1(2) – OFF * * Perform 1.3a PRIMARY MOTOR FAILS TO DRIVE * * MECHANISM (PL SYS, <u>SSE</u>) *	
A6U	√PL RETEN LAT 1 tb – LAT (A side only) 1(2) – OFF	
CRT	√MECH – steady A(B)	
CCTV	√Latch 3 completely closed	
	5. <u>BERTH LAT 2 COMPLETE CLOSURE</u>	
CCTV CAMR B(C)	Monitor Latch 2 closure operations	
CRT	MECH B LAT 2 SEL – ITEM 15 EXEC (* RDY)	
	√AMSB DC AMPS: 0.035 to 0.125 √MECH – blank	
A6U	PL RETEN LAT 1(2) – LAT	
CRT	√MECH – flashing A(B) √AMSB AC AMPS: 1.0 to 2.5 √MECH B LAT 2 STAT – RDY	
	* If stall condition observed (AMSB AC AMPS * * > 1.0 and no mechanism motion): * * PL RETEN LAT 1(2) – OFF * * √MCC *	
	* If MECH B LAT 2 STAT – OP, BOT sw * * failed. Continue and expect (*) *	
	Wait 7 sec, √MECH B LAT 2 STAT – CL	
A6U	* If MECH B LAT 2 STAT – RDY after 30 total sec: * * PL RETEN LAT 1(2) – OFF * * Perform 1.3a PRIMARY MOTOR FAILS TO * * DRIVE MECHANISM (PL SYS, <u>SSE</u>) *	
A6U	√PL RETEN LAT 1 tb – LAT (A side only) 1(2) – OFF	
CRT	√MECH – steady A(B)	
CCTV	√Latch 2 completely closed	

6. BERTH LAT 1 COMPLETE CLOSURE

CCTV Monitor Latch 1 closure operations
CAMR B(C),D

CRT MECH B LAT 1 SEL – ITEM 14 EXEC (* RDY) |

√AMSB DC AMPS: 0.035 to 0.125 |

√MECH – blank |

A6U PL RETEN LAT 1(2) – LAT

CRT √MECH – flashing A(B) |

√AMSB AC AMPS: 1.0 to 2.5 |

√MECH B LAT 1 STAT – RDY |

* If stall condition observed (AMSB AC AMPS *
* > 1.0 and no mechanism motion): *
* PL RETEN LAT 1(2) – OFF *
* √MCC *

* If MECH B LAT 1 STAT – OP, BOT sw *
* failed. Continue and expect ‘*’ *

Wait 7 sec, |

√MECH B LAT 1 STAT – CL |

A6U * If MECH B LAT 1 STAT – RDY after 30 total sec: *
* PL RETEN LAT 1(2) – OFF *
* Perform 1.3a PRIMARY MOTOR FAILS TO *
* DRIVE MECHANISM (PL SYS, SSE) *

√PL RETEN LAT 1 tb – LAT (A side only)
1(2) – OFF

CRT √MECH – steady A(B)

CCTV √Latch 1 completely closed
CAMR B(C),D

CCTV Perform P/TV04 HST RETRIEVE/BERTH, DEACT (PHOTO/TV FS, SCENES) |

Notify MCC, MECH B LAT ops complete. Ready for ungrapple
RMS return to HST BERTH, step 7 (PDRS OPS FS, NOMINAL HST
RETRIEVAL) or SJ HST BERTH, step 7 (PDRS OPS FS, OFF-NOMINAL HST
RETRIEVAL) |

7. UMBILICAL DEADFACE VERIFICATION

SM 211 SSE OVERVIEW

CRT √PCU – blank/blank |

√DPC 1-12 (twelve) – (no *) |

L12U √FHST SHUTTER – OPEN (tb-bp)

√RSU SURV HTR PWR – OFF (tb-bp)

√ESS/MN SW ENA – OFF (tb-bp)

√SSM WK LTS – OFF

8. MAIN UMBILICAL MATE

CAUTION

Operating the umbilical in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.6 and no mechanism motion

CCTV Monitor UMB operations
CAMR A,B

CCTV Perform P/TV04 HST RETRIEVE/BERTH, OPS, FSS/HST Umbilical Mate
(PHOTO/TV FS, SCENES)

SM 212 SSE MECH/BPA/RNS

MECH UMB MN SEL – ITEM 17 EXEC (* REL)

- * If MECH UMB MN STAT – *: *
- * MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *)) *
- * Perform SSE SSR-1 FMDM SWAP A→B(B→A) (PL SYS, SSE) *
- * and complete steps 8,9 on alt side *
- * If MECH UMB MN – RDY, continue *

√AMSB DC AMPS: 0.035 to 0.125

√MECH – steady A(B)

A6U √PL RETEN LAT 1 tb – REL (A side only)
1(2) – LAT (tb-bp)

CRT √MECH – flashing A(B)
√AMSB AC AMPS: 0.6 – 1.2
√MECH UMB MN STAT – RDY

- * If stall condition observed (AMSB AC AMPS *
- * > 0.6 and no mechanism motion): *
- * PL RETEN LAT 1(2) – OFF *
- * √MCC *

Wait 8 sec,

√MECH UMB MN STAT – MAT

A6U * If MECH UMB MAT STAT – RDY or REL after 30 total sec: *

- * PL RETEN LAT 1(2) – OFF *
- * Perform 1.3a PRIMARY MOTOR FAILS TO DRIVE *
- * MECHANISM (PL SYS, SSE) *

√PL RETEN LAT 1 tb – LAT (A side only)
1(2) – OFF

CRT √MECH – steady A(B)

CCTV Visually verify UMB mated

L12U √MN BUS PWR ON tb – gray
√ESS BUS INT PWR tb – UP

SM 210 HST SYS

√UMB SG V INT MN BUS > 26

√ESS BUS > 26

- * If either tb – bp or any UMB SG V ≤ 26, *
- * √MCC *

9. AMSB PWRDN

SM 212 SSE MECH/BPA/RNS

DESEL – ITEM 20 EXEC (√ITEMS 9-19 (eleven) – (no *)) |

- * If any MECH SEL – *, do not turn *
- * AMSB OFF; notify MCC, continue *

√AMSB DC AMPS: < 0.035 |
 OFF – ITEM 8 EXEC (*)

A6U PL RETEN LOGIC PWR SYS 1(2) – OFF

R13L PL BAY MECH PWR SYS 1(2) – OFF |

Notify MCC, LATCH AND MATE HST complete; report any anomalies

ACTIVATE HST EXTERNAL PWR

1. SETUP

L12U √cb SPACE TEL SW PWR – cl
 FHST SHUTTER – CLOSE (remains bp) |

 SM 210 HST SYS

 √TLM COUNT – incr

 √EPS INT ESS BUS A,B,C – ***

 SM 211 SSE OVERVIEW

 PCU ON – ITEM 1 EXEC (*)

L12U * If 'PDI DECOM FAIL' msg accompanied by MN *
 * BUS PWR ON tb – bp, notify MCC and hold *

CRT √PCU – P/S
 √DPC 1-12 (twelve) – *
 √VOLTS (twelve): 33.7 to 35.5
 √AMPS (twelve): ≤ 0.5 |

 * If any DPC 1-12 (twelve) AMPS: > 0.5, turn off *
 * affected DPC, DPC OFF – ITEM 24 +X X EXEC (*) *
 * (DPC ON/OFF INDEX NUMBERS (REF DATA)), *
 * √MCC *
 * If any other param(s) not in range, record MET and *
 * off nominal DPC values, notify MCC *

L12U √FHST SHUTTER tb – gray

2. EXTERNAL PWR ACTIVATION

 On MCC GO:

 ESS/MN SW ENA – ON (tb-gray)

 MAIN BUS EXT PWR – ON (tb-gray)

 √IPCU RLY CL tb – gray |

 * If either tb – bp, notify MCC, continue *
 * If both tb – bp, cycle sw (up only) *
 * If no joy, √MCC *

CRT √DPC 1-12 VOLTS (twelve): 33.8 to 35.3
 √AMPS (twelve): 2-7 |

L12U ESS BUS EXT PWR – ON (tb-UP)

 SM 210 HST SYS

 √UMB SG V EXT MN BUS > 30

 √ESS BUS > 30

3. INT ESS PWR OFF

 On MCC GO:

L12U ESS BUS INT PWR – OFF (tb-bp)
 ESS/MN SW ENA – OFF (tb-bp)

 Notify MCC, ACTIVATE HST EXTERNAL PWR complete; repeat any anomalies |

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IN-BAY
OPERATIONS

SINGLE (DUAL) SA SLEW

1. SETUP

CCTV Set up CCTVs to monitor SA slew
 CAMR A,D Perform P/TV03 FSS OPS (OPS), #3 SA SLEWS, SETUP (PHOTO/TV FS, SCENES)

Perform following only if VRCS available:

√In ATT
 DAP: B11/AUTO/VERN

SM 210 HST SYS

√SOLAR ARRAY SLEW – blank,blank

Inform MCC ready for SINGLE (DUAL) SA SLEW

2. STOCC INITIATE SLEW

- * For any observed uncontrolled SA motion, or if unable to go *
- * free drift on time: *
- * **SM 210 HST SYS** *
- * SOLAR ARRAY SADE OFF – ITEM 9 +9 9 EXEC (OFF) *
- * Notify MCC *

On MCC call:
 DAP: FREE

STOCC CMD ± WING SLEW

NOTE

Expect 'S210 SADE WING' msg in ~30 sec

Visually verify SAs slewing

CRT √SOLAR ARRAY SLEW – +OP -OP one (or both) flash

SA MNVR SIZE (deg)	SLEW TIME (Motor Op, mm:ss)
15	08:32
20	09:10
30	10:16
45	11:37
60	12:45
90	14:38
100	15:11
105	15:28
180	19:08

On MCC call:
 DAP: B11/AUTO/VERN(ALT)

- * If no comm 2 min after SOLAR ARRAY SLEW *
- * +OP -OP not flashing: *
- * DAP: B11/AUTO/VERN(ALT) *

ROTATE HST

WARNING

Operation of two FSS mechanisms may result in HST collision with orbiter

For any SM ALERT during FSS ops:

A6U PL RETEN LAT 1,2 (two) – OFF

R13 PL BAY MECH PWR SYS 1,2 (two) – OFF

√MCC

CAUTION

Operating the rotator in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.3 and no mechanism motion

1. FSS AMSB PWR ON

A6U √PL RETEN LAT 1,2 (two) – OFF
√LOGIC PWR SYS 2(1) – OFF
√PL SEL – 1
LOGIC PWR SYS 1(2) – ON

SM 212 SSE MECH/BPA/RNS

AMSB ON – ITEM 7 EXEC (A(B))

√MECH – blank
√SEL (ITEMS 9-19) (eleven) – (no *)
√STAT (ITEMS 9-19) (eleven) – blank
√O/R DIS (ITEM 22) – *

- * If any param not as expected, √MCC *
- * If rotation reqd to continue EVA, AMSB OFF – ITEM 8 *
- * EXEC (*), perform SSE SSR-1 FMDM SWAP *
- * A→B(B→A) (PL SYS, SSE) and proceed to step 2 *

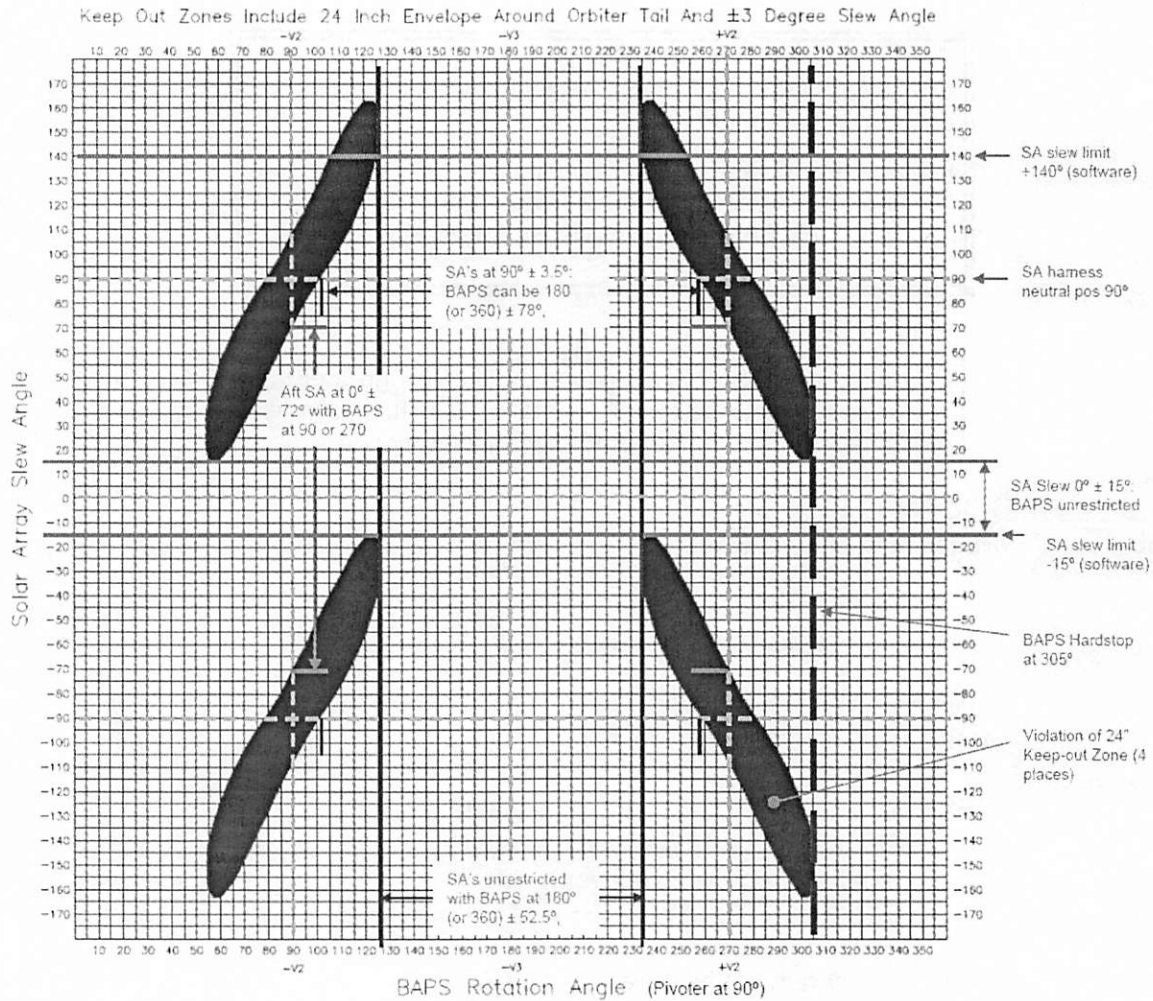
R13L PL BAY MECH PWR SYS 1(2) – ON

2. HST ROTATION

Check HST in safe posn:

SM 210 HST SYS

SolarArray Clearance With Orbiter Tail



If in a configuration not identified, \sqrt{MCC}

CCTV
CAMR B(D),
ELBOW

Perform P/TV03 FSS OPS, OPS (PHOTO/TV FS, SCENES)
Monitor HST posn during rotation

SM 212 SSE MECH/BPA/RNS

MECH ROTATOR SEL – ITEM 12 EXEC (*RDY)

- * If ROTATOR STAT – ccw or cw and visually *
- * verified not at EOT, then EOT sw failed: *
- * O/R ENA – ITEM 21 EXEC (*), continue *

\sqrt{AMSB} DC AMPS: 0.035 to 0.125

Mnvr to reqd posn:

<u>TASK</u>	<u>POSN</u>
Berth	B(-V3)
RSUs	-V3
Bay 3 Battery Module	-V3
WFC3	-V3
Bay 2 Battery Module	-V3
COS	-V2
ACS Repair Part I	-V2
NOBL bay 8	+V3
STIS Repair	+V2
NOBL bay 5	+V2
NOBL bay 7	+V3
ACS Repair Part II	+V3
FGS 2	+V3

FSS ROTATOR POSN CORRELATION				
POSN TO → FROM ↓	B (-V3) HST 180°	-V2 HST 90°	+V2 HST 270°	(+V3) HST 0°
B (-V3) HST 180°		06:05 LAT	06:05 REL	12:11 LAT
-V2 HST 90°	06:05 REL		12:11 REL	06:05 LAT
+V2 HST 270°	06:05 LAT	12:11 LAT		18:16 LAT
(+V3) HST 0°	12:11 REL	06:05 REL	18:16 REL	

Times based on 14.8 deg/min actual run time during previous missions
NOTE: Table contains duration of motion in mm:ss, REL LAT switch posn

A6U PL RETEN LAT 1(2) – REL or LAT (tb-bp) as reqd

CRT √MECH – flashing A(B)
 √ROTATOR STAT – RDY

CCTV √Rotator posn visually
 CAMR B(D)

CRT √ROTATOR TACH: > 10 deg/min
 √AMSB AC AMPS: 0.3 to 0.7

A6U * If FDA 'S212 ROT STALL' received, *
 * PL RETEN LAT 1(2) – OFF, perform 1.3e 'S212 *
 * PVT(ROT) STALL' (PL SYS, SSE) *
 * * *
 * If ROTATE TACH: < 0.9 deg/min and AMSB AC *
 * AMPS: < 0.2, PL RETEN LAT 1(2) – OFF, *
 * perform 1.3a PRIMARY MOTOR FAILS TO *
 * DRIVE MECHANISM (PL SYS, SSE) *

Once at target position,
 A6U PL RETEN LAT 1(2) – OFF
 CRT ✓MECH – blank

3. AMSB PWRDN

DESEL – ITEM 20 EXEC (MECH SEL, ITEMS 9-19 (eleven) – (no *))

* If any MECH SEL – *, do not turn AMSB – OFF; *
 * notify MCC. Continue *

✓AMSB DC AMPS: < 0.035
 OFF – ITEM 8 EXEC (*)

A6U PL RETEN LOGIC PWR SYS 1(2) – OFF

R13L PL BAY MECH PWR SYS 1(2) – OFF

Report to MCC when complete; report any anomalies

PIVOT HST

WARNING
Operation of two FSS mechanisms may result in HST collision with orbiter
For any SM ALERT during FSS ops: A6U PL RETEN LAT 1,2 (two) – OFF R13 PL BAY MECH PWR SYS 1,2 (two) – OFF √MCC
Do not pivot up with BSP latch engaged

1. FSS AMSB PWR ON

A6U √PL RETEN LAT 1,2 (two) – OFF
 √LOGIC PWR SYS 2(1) – OFF
 √PL SEL – 1
 LOGIC PWR SYS 1(2) – ON

SM 212 SSE MECH/BPA/RNS

AMSB ON – ITEM 7 EXEC (A(B))

√MECH – blank
 √SEL (ITEMS 9-19) (eleven) – (no *)
 √STAT (ITEMS 9-19) (eleven) – blank
 √O/R DIS (ITEM 22) – *

- * If any param not as expected, √MCC *
- * If pivot reqd to continue EVA, AMSB OFF – ITEM 8 *
- * EXEC (*), perform SSE SSR-1 FMDM SWAP *
- * A→B(B→A) (PL SYS, SSE) and proceed to step 2 *

R13L PL BAY MECH PWR SYS 1(2) – ON

2. BSP LATCH RELEASE

If pivoting up from 43.8°, continue; else, go to step 3

CRT BSP SEL – ITEM 19 EXEC (*)
 √STAT – SET
 √AMSB DC AMPS: 0.035 to 0.125
 √MECH – steady A(B)

A6U PL RETEN LAT 1(2) – REL, wait 4 sec, OFF
 CRT √BSP STAT – REL
 √BSP – DIS *

- * If BSP STAT not REL and BSP DIS *, continue *
- * If BSP STAT REL and BSP DIS A, DIS B, continue *
- * Else, perform 1.3b BSP FAILS TO DISENGAGE *
- * (PL SYS, SSE) *

3. BSP LATCH SET VERIFICATION

If pivoting down to 43.8°, continue; else, go to step 4

BSP SEL – ITEM 19 EXEC (*)
 √AMSB DC AMPS: 0.035 to 0.125
 √BSP STAT – SET

* If BSP STAT not SET, √MCC *

√BSP – blank/blank/blank

- * If BSP not blank, record and assume switch failed *
- * Ignore affected status and continue *

4. HST PIVOT

WARNING

With HST attached and HGA Booms Stowed do not pivot below 70° without notifying MCC. Could violate HST HGA pointing constraints

CAUTION

Operating the pivoter in a stalled condition for greater than than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.3 and no mechanism motion

CCTV Monitor HST posn during pivot, verify envelope clear of obstructions

CCTV Perform P/TV03 FSS OPS, OPS (PHOTO/TV FS, SCENES)
CAMR B(D), ELBOW

Verify BSP PIP pins removed

DAP: FREE

CRT MECH PIVOT LO SEL – ITEM 11 EXEC (* RDY)

√AMSB DC AMPS: 0.035 to 0.125

Maneuver to reqd posn

FSS PIVOTER POSN CHANGES TIME CORRELATION					
POSN TO → FROM ↓	0°	43.8°	75°	85°	90°
0°		11:35 LAT	19:50 LAT	22:29 LAT	23:48 LAT
43.8°	11:35 REL		8:15 LAT	10:54 LAT	12:13 LAT
75°	19:50 REL	8:15 REL		2:39 LAT	3:58 LAT
85°	22:29 REL	10:54 REL	2:39 REL		1:19 LAT
90°	23:48 REL	12:13 REL	3:58 REL	1:19 REL	

Times based on 3.8 deg/min actual run time during previous missions

NOTE: Duration displayed in mm:ss

Start Timer

NOTE

With BSP installed, pivoter will stall when reaching 43.8° or 90° posn and FDA will annunciate 15 sec later. 15 sec stall is reqd to preload BSP

A6U PL RETEN LAT 1(2) – REL for pivot dn or LAT for pivot up as reqd

CRT √MECH – flashing A(B)

CCTV Visually verify BAPS motion
CAMR B(D),
ELBOW

CRT √MECH PIVOT LO TACH: > 2.5 deg/min
√AMSB AC AMPS: 0.3 to 0.7

A6U * If unexpected 'S212 PVT STALL' msg received *
* PL RETEN LAT 1(2) – OFF, perform *
* 1.3e 'S212 PVT(ROT) STALL' (PL SYS, SSE) *

* If MECH PIVOT LO TACH: < 0.25 deg/min and AMSB AC AMPS: *
* < 0.2, PL RETEN 1(2) – OFF, perform 1.3a PRIMARY MOTOR *
* FAIL TO DRIVE MECHANISM (PL SYS, SSE) *

√DAP: FREE

A6U If pivoting to 43.8°:
Expect 'S212 PVT STALL' msg
PL RETEN LAT 1(2) – OFF
Stop Timer
CRT √BSP – ENG *, RET *

* If BSP – ENG *, continue; *
* else, perform 1.3d BSP FAILS TO ENGAGE *
* (PL SYS, SSE) *

A6U If pivoting to 90°:
Expect 'S212 PVT STALL' msg
PL RETEN LAT 1(2) – OFF
Stop Timer
CCTV If pivoting to any intermediate posn:
At expected pivot completion time:
CAMR B(D), Visually confirm pivoter posn
ELBOW

A6U PL RETEN LAT 1(2) – OFF
Stop Timer

CRT √MECH – blank
DAP: B11/AUTO/VERN(ALT)

5. BSP LATCH RESET

If pivoted up from 43.8°, continue; else, go to step 6

MECH BSP SEL – ITEM 19 EXEC (*)

√AMSB DC AMPS: 0.035 to 0.125

√MECH – steady A(B)

A6U PL RETEN LAT 1(2) – LAT, wait 4 sec, OFF

CRT √MECH BSP STAT – SET

* If BSP STAT – * or L/A, √MCC *

6. AMSB PWRDN

MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *))

* If any MECH SEL – *, do not turn *

* AMSB OFF; notify MCC. Continue *

√AMSB DC AMPS: < 0.035

OFF – ITEM 8 EXEC (*)

A6U PL RETEN LOGIC PWR SYS 1(2) – OFF

R13L PL BAY MECH PWR SYS 1(2) – OFF

Notify MCC, PIVOT HST complete; report any anomalies

HGA DEPLOYMENT

1. SETUP
CCTV Set up CCTVs to monitor HGA deployment (P/TV08 HST RELEASE, OPS, HGA Deploy (PHOTO/TV FS, SCENES))

Perform following only if VRCS available:

√In ATT
DAP: B11/AUTO/VERN

NOTE

Expect MCC call immediately prior to commanded mechanism operations

SM 210 HST SYS

√TLM COUNT – incr
√HGA +V3,-V3 HNG (two) – STWD
√LAT (two) – REL

WARNING

√Within 45 deg of ±V2 FWD for crew safety.
If not within 45 deg of ±V2 FWD, call MCC

Inform MCC ready for HGA deployment

2. HGA DEPLOYMENT

NOTE

HGA deployment nominally performed simo. HGA mast deploy takes ~8 min. Mast deploy speed will vary during deployment

On MCC call:
DAP: FREE

- STOCC Command ±HGA HNG – DPLY

SM 210 HST SYS

√HGA +V3,-V3 HNG (two) – TRAN

Visually verify both HGA masts deploying

Note posn of HGA dish upon clearing latches

√HGA +V3,-V3 HNG (two) – DPLY

On MCC call:
DAP: B11/AUTO/VERN(ALT)

- * If no comm 2 min after HGA Deploy *
- * HGA +V3,-V3 HNG (two) - DPLY: *
- * DAP: B11/AUTO/VERN(ALT) *

3. HGA SLEW TO 0,0 POSITION

NOTE

HGA slew nominally performed simo. HGA slew takes ~15 min

STOCC Command HGA slew to 0,0 (straight out)

4. HGA SLEW TO STRUCTURAL CLEARANCE POSITION

NOTE

HGA slew nominally performed simo. HGA slew takes ~15 min

STOCC Command HGA slew to RMS/tail clearance posn

Visually verify both HGA dishes in the RMS/tail clearance posn

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UNBERTH BSA CONFIG

- BSA 1. CONFIGURE BSA
 RATE – 32k
 WATCHDOG – Dis
- √PWR – Green
 √RATE – 32k – Green
 √SYNC – Bit – Green
 √SYNC – Frame – Green

NOTE

Step 2 and subs will occur after HST Sep burn

- BSA 2. POWER OFF BSA
 BSA PWR – OFF
- L12L 3. DISABLE PSP-BYPASS
 PSP BY-PASS – DISABLE
- L12L 4. CONFIGURE PDIP1 PI CONNECTORS
 Disconnect BSA 14 foot data cable from HST PI 1(2)
 Re-install HST PI 1(2) Turn-Around Plug
- MO13Q 5. DISCONNECT BSA CABLE
 DC UTIL PWR MNB – OFF
 Disconnect BSA power cable from BSA power port
 BSA Disconnect BSA data cable from BSA data port
- MF71C 6. STOW HST BSA AND DATA CABLE
 Stow BSA, BSA power cable, and BSA 14-foot data cable in locker
- Notify MCC, HST BSA stowage complete
- A1U 7. CONFIG PL COMM
 SIG STR – S-BD PM
- A1L √S-BD PL CNTL – CMD
 √ANT POLAR – L CIRC
 √XMTR PWR – LO
 √PWR SYS – 1
 √PSP CMD OUTPUT – PL UMB
 √PL MOD – OFF
 CH SEL INTRG 1,2 tw (six) – 910,910
 PL PWR SEL – PSP
 CNTL – PNL
 wait 5 sec
 CMD
- A1R S-BAND FM POWER – 1

FSS STOW WITH BSP INSTALLED

CAUTION

Operating the pivoter or rotator in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.3 and no mechanism motion

1. FSS AMSB PWR ON

A6U √PL RETEN LAT 1,2 (two) – OFF
 √LOGIC PWR SYS 2(1) – OFF
 √PL SEL – 1
 LOGIC PWR SYS 1(2) – ON

SM 212 SSE MECH/BPA/RNS

AMSB ON – ITEM 7 EXEC A(B)

√MECH – blank
 √SEL (ITEMS 9-19) (eleven) – (no *)
 √STAT (ITEMS 9-19) (eleven) – blank
 √O/R DIS (ITEM 22) – *

- * If any param not as expected, √MCC *
- * If pivot reqd to continue EVA, AMSB OFF – ITEM 8 EXEC (*), *
- * perform SSE SSR-1 FMDM A→B(B→A) (PL SYS, SSE) and *
- * proceed to step 2 on alt side *

R13L PL BAY MECH PWR SYS 1(2) – ON

2. ROTATE BAPS

CCTV Perform P/TV03 FSS OPS, OPS, FSS CONFIG FOR LANDING
 (PHOTO/TV FS, SCENES)

CRT MECH ROTATOR SEL – ITEM 12 EXEC (* RDY)

- * If ROTATOR STAT – ccw or cw and visually *
- * verified not at EOT, then EOT sw failed: *
- * O/R ENA – ITEM 21 EXEC (*), continue *

A6U √AMSB DC AMPS: 0.035 to 0.125
 PL RETEN LAT 1(2) – REL or LAT as reqd
 Rotate until any berthing latch aligns with fixed target

CRT √MECH – flashing A(B)
 √ROTATOR TACH: > 10 deg/min
 √AMSB AC AMPS: 0.3 to 0.7
 √ROTATOR STAT – RDY

- * If FDA 'S212 ROT STALL' received, PL RETEN *
- * LAT 1(2) – OFF, perform 1.3e 'S212 PVT(ROT) *
- * STALL' (PL SYS, SSE) *

A6U * If ROTATE TACH: < 0.9 deg/min and AMSB AC *
 * AMPS: < 0.2, PL RETEN LAT 1(2) – OFF, *
 * perform 1.3a PRIMARY MOTOR FAILS TO *
 * DRIVE MECHANISM (PL SYS, SSE) *

√Rotator posn visually (Berthing latch aligned with fixed target)

A6U PL RETEN LAT 1(2) – OFF
CRT √MECH – blank

3. BSP LATCH SET VERIFICATION

MECH BSP SEL – ITEM 19 EXEC (*)

√AMSB DC AMPS: 0.035 to 0.125

√MECH BSP STAT – SET

* If BSP STAT not SET, √MCC *

√BSP – blank/blank/blank

* If BSP not blank, record and assume switch failed *

* Ignore affected status and continue *

Verify BSP PIP pins removed

4. MECH PIVOT DOWN TO 43.8°

CAUTION

Operating the pivoter in a stalled condition for greater than 30 sec may result in damage to unit. A stalled condition is indicated by AMSB AC AMPS > 0.3 and no mechanism motion

CRT MECH PIVOT LO SEL – ITEM 11 EXEC (* RDY)
√AMSB DC AMPS: 0.035 to 0.125

NOTE

With BSP installed, pivoter will stall when reaching 43.8° posn (~12 min 13 sec) and 'S212 PVT STALL' FDA will annunciate 15 sec later. 15 sec stall is reqd to preload BSP

A6U PL RETEN LAT 1(2) – REL for approximately 12:13 (wait for FDA)

CRT √MECH – flashing A(B)

CCTV Visually verify BAPS motion
CAMR A,B

CRT √MECH PIVOT LO TACH: > 2.5 deg/min
√AMSB AC AMPS: 0.3 to 0.6

* If unexpected 'S212 PVT STALL' msg received, *

* PL RETEN LAT 1(2) – OFF, perform 1.3e *

* 'S212 PVT(ROT) STALL' (PL SYS, SSE) *

A6U * If MECH PIVOT LO TACH: < 0.25 deg/min and *

* AMSB AC AMPS: < 0.2, PL RETEN LAT 1(2) – *

* OFF, perform 1.3a PRIMARY MOTOR FAILS *

* TO DRIVE MECHANISM (PL SYS, SSE) *

A6U	Expect 'S212 PVT STALL' msg: PL RETEN LAT 1(2) – OFF	
CRT	√MECH BSP – ENG *, RET *	
	* If BSP – ENG*, continue; *	
	* else, perform 1.3d BSP FAILS TO ENGAGE *	
	* (PL SYS, <u>SSE</u>) *	
CRT	√MECH – blank	
	5. <u>AMSB PWRDN</u>	
	MECH DESEL – ITEM 20 EXEC (ITEMS 9-19 (eleven) – (no *))	
	√AMSB DC AMPS: < 0.035	
	OFF – ITEM 8 EXEC (*)	
A6U	PL RETEN PL SEL – MON LOGIC PWR SYS 1(2) – OFF	
R13L	PL BAY MECH PWR SYS 1(2) – OFF	
	Notify MCC when complete; report any anomalies	

ACTIVATE HST ESS BUS INTERNAL PWR

I

1. PRECHECKS

SM 210 HST SYS

√TLM COUNT – incr

√EPS INT ESS BUS ABC (three) – no ***

L12U

√cb SPACE TEL SW PWR – cl

2. CONNECT BATTERIES TO ESS BUS

On MCC GO:

ESS/MN SW ENA – ON (tb-gray)

ESS BUS INT PWR – ON (tb-UP)

- * If ESS BUS INT PWR tb-bp, *
- * Perform 2.1a ESS BUS INT PWR tb-bp *
- * WHEN SHOULD BE tb-UP (WHEN CMDED) *
- * (PL SYS, HST) *

SM 210 HST SYS

√EPS INT ESS BUS ABC – ***

- * If INT ESS BUS ABC not ***, √MCC *

Notify MCC, ACTIVATE HST ESS BUS INTERNAL PWR complete

SSE DEACT

NOTE

If any tb – gray, note and continue

- L12L
1. DEACT SLIC HTRS
WSIPE HTR A(B) PWR – OFF (tb-bp)
BPA STBD HTR B(A) PWR – OFF (tb-bp)
BPA PORT HTR A(B) PWR – OFF (tb-bp)
SLIC EPDSU HTR PWR – OFF (tb-bp)

SM 211 SSE OVERVIEW

√POWER SLIC EPDSU AMPS: 0.4 to 1.4

- L12L
2. SLIC PWR OFF
SLIC B-SIDE PWR ENA – OFF
cb SLIC A-SIDE PWR ENA – op

- L12U
3. DEACT CCTV HTR
CCTV HTR PWR – OFF (tb-bp)

4. DEACT ORUC PWR
ORUC PWR CONTR A – OFF (tb-bp)
B – OFF (tb-bp)

SM 211 SSE OVERVIEW

√POWER ORUC – blank/blank

√AMPS (two): < 0.4

5. DEACT FSS HTRS
FSS HTR PWR – OFF (tb-bp)

CRT

√POWER FSS HTR P1/P2 AMPS (two): < 0.4
√R1/R2 AMPS (two): < 0.4

- L11U
6. DEACT MULE/RNS HTRS
SURV HTR A(B) PWR – OFF
√HTR PWR tb – bp

CRT

√POWER MULE HTR AMPS: < 0.4

L11U

MULE COPE HTR A(B) PWR – OFF (tb-bp)

CRT

√MULE COPE 1A/2A AMPS (two): < 0.4
√1B&2B AMPS: < 0.4
√3A/3B AMPS (two): < 0.4

- L11U
7. RNS PWR DISABLE
RNS PWR – DIS (tb-bp)