# STS-135 / ULF7

## *FD 04 Execute Package*

| MSG | Page(s) | Title |
|---|---|---|
| 018A | 1 - 15 | FD04 Flight Plan Revision |
| 019A | 16 - 17 | FD04 Mission Summary |
| 020 | 18 - 20 | FD04 Transfer Message |
| 021A | 21 - 29 | DOUG Setup Notes for ULF7 |
| 022A | 30 - 32 | EVA 1 Inhibit Pad |
| 023 | 33 - 34 | ULF7 EVA Procedure Deltas |
| 024 | 35 - 36 | ULF7 EVA Final Tool Config |
| 025 | 37 | ULF7 EVA Procedure Review Deltas |
| 026 | 38 - 39 | ULF7 EVA FD04 Deltas |
| 027 | 40 | FD03 MMT Summary |
| 028 | 41 | GPC FRP-1 for GPC 3 |
| 029 | 42 - 43 | EVA Cue Card Print Package |

***Approved by FAO:*** *J. Mintz*

***Approved by OpsPlan:***
*K. Howell*

*Last Updated: Jul 11 2011 4:32 AM GMT*
***JEDI*** *(**J**oint **E**xecute package **D**evelopment and **I**ntegration), v3.0*

Example of every ACO Transfer's home Closet

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MSG INDEX


| MSG NO. | TITLE |
|---|---|
| 018 | FD04 Flight Plan Revision |
| 019 | FD04 Mission Summary |
| 020 | FD04 Transfer Message |
| 021 | DOUG Setup Notes for ULF7 |
| 022 | EVA 1 Inhibit Pad |
| 023 | ULF7 EVA Procedure Deltas |
| 024 | ULF7 EVA Final Tool Config |
| 025 | ULF7 EVA Procedure Review Deltas |
| 026 | ULF7 EVA FD04 Deltas |
| 027 | FD03 MMT Summary |
| 028 | GPC FRP-1 for GPC 3 |
| 029 | EVA Cue Card Print Package |


1. For today's cryo config, O2 and H2 tanks 2 and 5 will be active

   R1 O2,H2 MANF VLV TK2 (two) - OP (tb-OP)
   A11 CRYO TK4 HTRS H2 A,B (two) - OFF
   A15 CRYO TK5 HTRS H2 A,B (two) - AUTO

2. DOUG currently has issues running with server files. SSC 10 and 17 have been configured to run DOUG locally from the hard drive. SSC17 is set up in the Cupola for SSRMS operations. DOUG Setup notes are in MSG021.

3. **Sandy:** Node 2 Nadir CBM checked out healthy last night. All mechanisms are go, and the sealing surfaces on station and the MPLM look good. Happy latching and bolting!

4. **Sandy:** We've scheduled an activity on Ron today at GMT 10:14 to clean the sensor of camera S/N 2007935. Please provide this camera to him before you get started on your MPLM tasks today.

5. **All:** WHC will be unavailable during the WHC-UR/IF-R&R today from approximately 10:14 - 11:44 GMT.

6. MSG029 is the current Depress/Repress CC. The ISS crew will print out this message on the ISS printer and post in the Equipment Lock.

7. Crew Choice Downlink KU Opportunities:

   Please allow 1-2 minutes to lock up on Ku-band. Check with MCC before starting playback.

   Pre-Sleep Evening of FD03

| TDRS | AOS | LOS | Delta (min) | Notes |
|---|---|---|---|---|
| E-TDS | 3/05:36 | 2/06:10 | 34 | |
| E-TDS | 3/07:12 | 3/07:46 | 34 | |

8. REPLACE PAGES 2-10 THROUGH 2-13 AND 3-32 THROUGH 3-41.

**REPLANNED**

**FD04**

GMT 07/11/11 (192)

MET Day 002

04 05 06 07 08 09 10 11 12 13 14 15

12 13 14 15 16 17 18 19 20 21 22 23 003/00

STS-135

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDR FERGUSON | SLEEP | POST SLEEP | P/TV06 ROBOTICS | PRLA OPEN | MDDK XFER | GPC3 IPL | MEAL | MPLM VEST PRESS | MPLM VEST INGRS CNFG | MPLM ACT |
| PLT HURLEY | SLEEP | POST SLEEP | DOUG SETUP | SSRMS GRAPL | MPLM UNBERTH/INSTALL | MPLM INSTALL | LIMP | BRAKE | MPLM UNGRAPPLE | MDDK XFER | MEAL | O2 PB CNFG |
| MS1 MAGNUS | SLEEP | POST SLEEP | SSRMS GRAPL | MPLM UNBERTH/INSTALL | VERIF | MPLM INSTALL | CBM 1 STG | LIMP | CBM 2 STG & ABOLTS | BRAKE | MPLM UNGRAPPLE | MEAL | MPLM VEST INGRS CNFG | CPARMV |
| MS2 WALHEIM | SLEEP | POST SLEEP | MCDUK | MCDUK | CWC #2 INIT | TRANSFER | UPDATE | MDDK XFER | CWC TERM | CWC #3 INIT | GPC3 IPL | CWC TERM | MDDK XFER | PMA3 CVR RVW | MEAL | TOOL VERIF | MDDK XFER |

DAY/NIGHT

ORBIT 40 41 42 43 44 45 46 47 48

TDRS W E Z

ORB ATT BIAS -XLV -ZVV

ISS TDRS AVAIL

Notes

**NO T2** MPLM MNVR FROM BERTH TO PRE-INSTL

**NO EXERCISE** MPLM INSTL/ BOLT LOAD

**REPLANNED**

**FD04**
GMT 07/11/11 (192)
MET Day 002

12 13 14 15 16 17 18 19 20 21 22 23 003/00
04 05 06 07 08 09 10 11 12 13 14 15

| | | |
|---|---|---|
| ISS | ISS CDR BORISENKO | SLEEP; PS; ПЗЭ МО7; PS; ПЗЭ-МО-8; POST SLEEP; DPC; PW; RSS2 ПО INST; СУБА ИУС ППЭ REFRESH; СВО-СРВК-БПК-ПУ-REPL; DAK-VFY; T2; MEAL; ♣; TEX15 DL |
| | FE-1 SAMOKUTYAEV | SLEEP; PS; ПЗЭ МО7; МО8 INST; PS; ПЗЭ МО8; МО8 STOW; PS; DPC; PW; C1-CB-B3-MNT; ТГК 43Р IMS XFER; МБИ FE1; HELP; ТГК 43Р IMS XFER; MEAL; ТГК 43Р XFER |
| | FE-3 GARAN | SLEEP; SALIVA; RXN; POST SLEEP; ПЗЭ-МО-8; POST SLEEP; DPC; RSNT-I; VSW; VCAN2; TOCA; TOCA; PW; WRM WW TNK SMPL; D3S LENS; EVA CC; EHS CSA-O2 CAL; TOCA; E_LK PREP; PMA3 CVR RVW; MEAL; RSNT-R; VSW; O2 PB CNFG |
| | FE-4 VOLKOV | SLEEP; PS; ПЗЭ МО7; PS; ПЗЭ-МО-8; POST SLEEP; DPC; PW; RSS2 ПО INST; СУБА ИУС ППЭ REFRESH; ПЗЭ-МО-12-CDM-1; МБИ-20-FE4-EXE1; MEAL; СОЖ; КПТ 2 EXE MRM1 |
| | FE-5 FURUKAWA | SLEEP; SALIVA; BISP; POST SLEEP; ПЗЭ-МО-8; POST SLEEP; DPC; CBCS PWR; PW; CEVIS; VERIF; MEC CNFG; CBM1 STG; CBM2 STG; C&A BOLTS; CBCS POWER DOWN; MPLM VEST PRESS; MEAL; DMS; MXFER MDK |
| | FE-6 FOSSUM | SLEEP; SALIVA; BISP; RXN; PS; ПЗЭ-МО-8; POST SLEEP; DPC; CEVIS; PW; WHC-UR/IF-R&R; E_LK PREP; PMA3 CVR RVW; MEAL; TOOL VERIF; CONDS SMPL |

DAY/NIGHT

DAILY ORBIT: 13 | 14 | 15 | 1 | 2 | 3 | 4 | 5 | 6

TDRS AVAIL

ISS TLM: 122 | 142 | 142 | 122 | 112 | 122

ORBIT: 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48

NOTES

*CAMCORDER CONFIG

**NO T2**
MPLM MNVR FROM BERTH TO PRE-INSTL

**NO EXERCISE**
MPLM INSTL/ BOLT LOAD

♣COГC MONTR
*CAMCORDER CONFIG

**FD04**

GMT 07/11/11 (192) 003/00 16 17 18 19 20 21 22 23 07/12 01 02 03

MET Day 003 01 02 03 04 05 06 07 08 09 10 11 12

**RRM AND ISS EXTERNAL SURVEYS**

| STS-135 | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDR FERGUSON | MPLM ACT PART 1 | IMV | INSTALL | MPLM ACT II | MPLM | INGRESS | EXERCISE | IMU | EVA 1 PROC RVW | PRE SLEEP | PMC A/G | PRE SLEEP | SLEEP |
| PLT HURLEY | O2 PBCNFG | EXERCISE | MDDK XFER | ILL ON | EVA 1 PROC RVW | PRE SLEEP | SLEEP |
| MS1 MAGNUS | MPLM VEST CPA RMV | IMV | INSTALL | VESTIBULE | CLOSE OUT | MPLM | INGRESS | AEM STATUS | CHECK | TRANSFER | BRIEF PREP | TRANSFER | BRIEF | EVA 1 PROC RVW | PRE SLEEP | SLEEP |
| MS2 WALHEIM | MDDK XFER | CWC #4 INIT | EXERCISE | CWC TERM | CWC XFER | MICRO XFR | MDK | P/TV01 S/U | EVA 1 PROC RVW | PRE SLEEP | SLEEP |

DAY/NIGHT

ORBIT 48 49 50 51 52 53 54 55 56

TDRS W E Z

ORB ATT BIAS -XLV -ZVV

ISS TDRS AVAIL

Notes

**REPLANNED**

**FD04**

GMT 07/11/11 (192) 003/00 16 17 18 19 20 21 22 23 07/12 01 02 03

MET Day 003 01 02 03 04 05 06 07 08 09 10 11 12

ISS

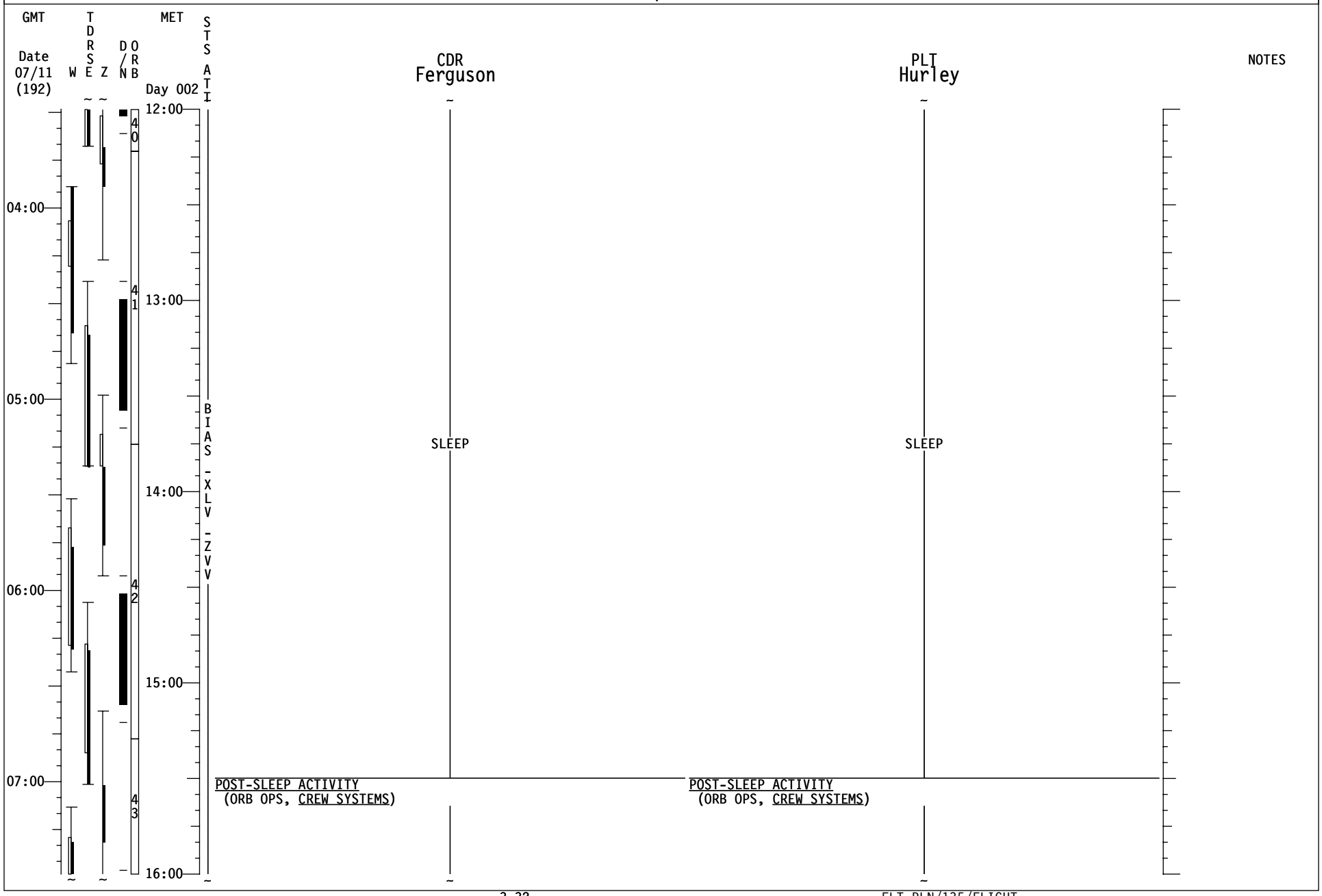
| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISS CDR BORISENKO | CCГO-СЛГ-INVENT | | | | | VELO | | | | PMC | | | PW | PS | DPC | PRE SLEEP-ISS | | | | | | SLEEP | |
| FE-1 SAMOKUTYAEV | | PMC | | T2 | | | | AK-1M | IMS | | | VELO | | PW | PS | DPC | PRE SLEEP-ISS | | | | | SLEEP | |
| FE-3 GARAN | ♣ | VCAADJ | PCDF EU RMV | PRE EVA PMC | CEVIS | | HAMP/D | | ARED | | | EVA 1 PROC RVW | | PW | PS | MPCON | DPC | PRE SLEEP-ISS | | MPCDN | RXN | SLEEP | |
| FE-4 VOLKOV | КПТ 2 EXE MRM1 | | | COГCИП 1 | MONN | | | PMC | | T2 | | | ARED | | PW | PS | DPC | PRE SLEEP-ISS | | | | SLEEP | |
| FE-5 FURUKAWA | MDDK XFER | | | | SODF BOOK U/D | | CEVIS | | | | RTNVCA | EVA 1 PROC RVW | | PW | GC/DMS | PS | DPC | PRE SLEEP-ISS | | | | SLEEP | |
| FE-6 FOSSUM | ⊕ | | ARED | | | | HMS-PRE | EVA-PMC | | EVA CAMERA CNFG | | EVA 1 PROC RVW | | ♦ | PW | PS | DPC | PRE SLEEP-ISS | | | RXN | SLEEP | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DAY/NIGHT | | | | | | | | | | |
| DAILY ORBIT | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
| TDRS AVAIL | | | | | | | | | | |
| ISS TLM | 122 | 112 | 122 | 142 | 122 | | | | | |
| ORBIT | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | |

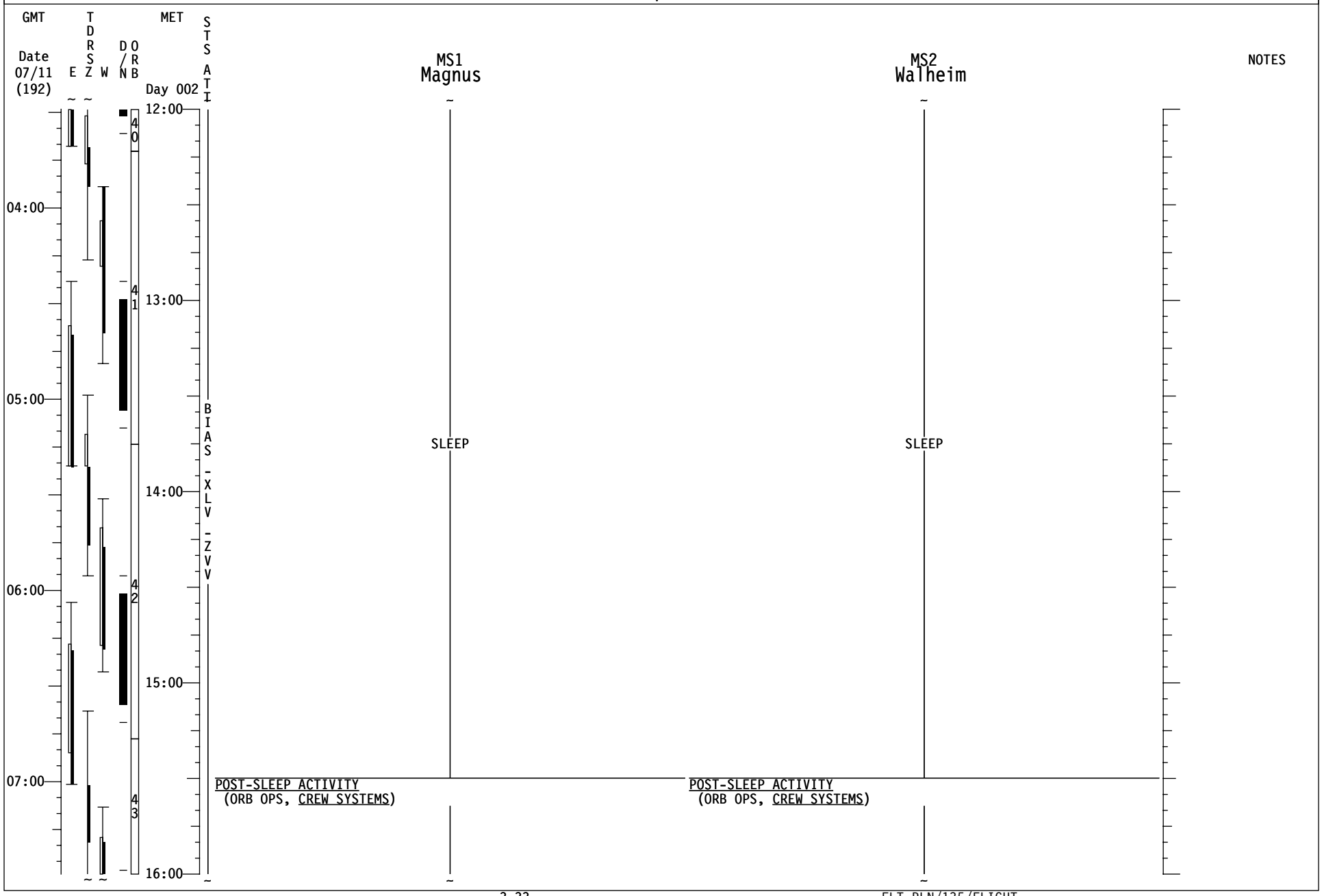
NOTES

♣O2 PB CNFG
⊕CONDS SMPL
♦VDS-N2-VID-CAP-INSTL

# STS-135/ULF7 FD04



# STS-135/ULF7 FD04



# STS-135/ULF7 FD04

GMT Date 07/11 (192) | W | TDRS E | Z | D/N | ORB | MET Day 002 | STS ATI

CDR Ferguson | PLT Hurley | NOTES

16:00 — 17:00 — 18:00 — 19:00 — 20:00

08:00 — 09:00 — 10:00 — 11:00

43 — 44 — 45

**FD04 EZ ACTIVITIES:**
- √OCAC FILTER
- √MDDK DUCT SCREEN
- TEPC STATUS CHECK
  - Verify display is backlit
- HARD REBOOT STS-3(KFX)

BIAS-XLV-ZVV

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

POC: 2.7.501 DOUG SETUP PROCEDURE
Start DOUG on SSC 17 and setup in SSRMS real-time support for the OBSS Unberth & Handoff per MSG 021

P/TV06 ROBOTICS OPERATIONS
(P/TV, SCENES) SETUP & OPS
Items 1,2 for MPLM Unberth & Install

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Steps 1-3

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Steps 4-16

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Steps 6-10

TRANSFER OPS
Ref. Middeck Transfer List and MSG 020

GPC FRP-1 (MAL, GPC FRP)
Ref. MSG 028

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Step 17

**NO T2**
MPLM MNVR FROM BERTH TO PRE-INSTALL

NO EXERCISE MPLM INSTALL/ BOLT LOAD

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | E | TDRS Z | W | D/N | ORB | MET Day 002 | STS ATI

**MS1 Magnus**

16:00 POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

ROBO: 1.200 MPLM UNBERTH AND INSTALL Steps 1-3

ROBO: 1.200 MPLM UNBERTH AND INSTALL Steps 4-16

S&M: 1.511 N2 CBM VERIFY PRE-MATE STATUS

ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 17

**MS2 Walheim**

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

L17 Check MCIU filter screen

CGBA UNIT #1,2 STATUS CHECK (CC), STL STATUS CHECK (CC)

SHUTTLE/ISS H2O CONTAINER FILL (HC) (ORB OPS, ECLS) Perform CWC FILL #2, Ref. MSG 014

DAILY TRANSFER LIST UPDATE Ref. Transfer Lists & MSG 020

TRANSFER OPS Ref. Middeck Transfer List and MSG 020

SHUTTLE/ISS H2O CONTAINER FILL (HC) (ORB OPS, ECLS) Perform FILL TERMINATION

SHUTTLE/ISS H2O CONTAINER FILL (HC) (ORB OPS, ECLS) Perform CWC FILL #3, Ref. MSG 014

GPC FRP-1 (MAL, GPC FRP) Ref. MSG 028

**NOTES**

**NO T2** MPLM MNVR FROM BERTH TO PRE-INSTALL

NO EXERCISE MPLM INSTALL/ BOLT LOAD

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | W | TDRS E | TDRS Z | D/N | ORB | MET Day 002 | STS ATI

**CDR Ferguson**

20:00 — GPC FRP-1 (MAL, GPC FRP)
Ref. MSG 028

MEAL

21:00 — MPLM: 1.113 N2 TO MPLM VESTIBULE PRESSURIZATION AND LEAK CHECK
Verify CBM bolt loading complete prior to Step 5. Leave ISA/VAJ assembled in Step 9.

BIAS-XLV-ZVV

22:00 — S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS
Steps 1-7
S&M: A.14 MPLM VESTIBULE AND ACTIVATION PROCEDURES (Cue Card)

23:00 — MPLM: 1.103 MPLM ACTIVATION (PART 1)
Perform Steps 1,4-8

**PLT Hurley**

ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 18

ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 19
ROBO: 1.200 MPLM UNBERTH AND INSTALL
Steps 20-end

TRANSFER OPS
Ref. Middeck Transfer List and MSG 020

MEAL

On MCC Go: JOINT OPS: 3.120 PREBREATHE USING SHUTTLE O2 SETUP
Steps 2-6.12. MCC-H will perform steps 2.4-2.5

**NOTES**

NO EXERCISE
MPLM INSTALL/
BOLT LOAD

12:00 — 13:00 — 14:00 — 15:00 — 00:00

46 — 47 — 48

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | TDRS E Z W | D/N | ORB 46 47 48 | MET Day 002 | STS ATI BIAS-XLV-ZVV

## MS1 Magnus

20:00
ASSY OPS: 1.105 NODE 2 NADIR CBM INCREMENTAL CAPTURE/ABOLT Steps 1-4
ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 18
ASSY OPS: 1.105 NODE 2 NADIR CBM INCREMENTAL CAPTURE/ABOLT Steps 5-end
12:00
ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 19
ROBO: 1.200 MPLM UNBERTH AND INSTALL Steps 20-end
21:00
13:00
MEAL
22:00
S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS Steps 1-7
14:00
S&M: A.14 MPLM VESTIBULE AND ACTIVATION PROCEDURES (Cue Card)
23:00
15:00
00:00
S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS Step 8

## MS2 Walheim

GPC FRP-1 (MAL, GPC FRP)
Ref. MSG 028
SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform FILL TERMINATION
TRANSFER OPS
Ref. Middeck Transfer List and MSG 020
PMA3 COVER INSTALL
(EVA, TIMELINES)
Review PMA 3 Cover, Procedures and Task Data.
Pack PMA 3 Cover per Tool Config
Ref. MSG 024
MEAL
135 EVA 1 TOOL CONFIG
(EVA, TIMELINES)
Audit
Ref. MSG 024 and 026
TRANSFER OPS
Ref. Middeck Transfer List and MSG 020

## NOTES

NO EXERCISE MPLM INSTALL/ BOLT LOAD

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | W | TDRS E | TDRS Z | DON | ORB | MET Day 003 | STS ATI

48 49 50 51

00:00 01:00 02:00 03:00 04:00 16:00 17:00 18:00 19:00

BIAS XLV ZVV

## CDR Ferguson

MPLM: 1.103 MPLM ACTIVATION (PART 1)
Perform Steps 1,4-8

S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS
Steps 9-10

MPLM: 1.103 MPLM ACTIVATION (PART 2)
Step 9

MPLM: 1.104 MPLM INGRESS Steps 1-6
Ref. MPLM Transfer List Items 100, 101,
and Middeck Transfer List Item 440.1

EXERCISE

IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)
EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG 023 and MSG 025

## PLT Hurley

On MCC Go: JOINT OPS: 3.120 PREBREATHE USING SHUTTLE O2 SETUP
Steps 2-6.12. MCC-H will perform steps 2.4-2.5

EXERCISE

TRANSFER OPS
Ref. Middeck Transfer List and MSG 020

ILLUMINATOR OPS (Cue Card, TV)
ILLUMINATOR ON - A,D
EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG 023 and MSG 025

NOTES

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | TDRS E Z W | D/N | ORB 48 49 50 51 | MET Day 003 | STS ATI BIAS XLV ZVV

| MET | MS1 Magnus | MS2 Walheim | NOTES |
|---|---|---|---|
| 00:00 | S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS<br>Step 8 | | |
| 16:00 | | TRANSFER OPS<br>Ref. Middeck Transfer List and MSG 020 | |
| 01:00 | | SHUTTLE/ISS H2O CONTAINER FILL (HC)<br>(ORB OPS, ECLS)<br>Perform CWC FILL #4, Ref. MSG 014 | |
| 17:00 | S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS<br>Steps 9-10 | | |
| | | EXERCISE | |
| | S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS<br>Steps 12-end | | |
| 02:00 | MPLM: 1.104 MPLM INGRESS Steps 1-6<br>Ref. MPLM Transfer List Items 100, 101,<br>and Middeck Transfer List Item 440.1 | SHUTTLE/ISS H2O CONTAINER FILL (HC)<br>(ORB OPS, ECLS)<br>Perform FILL TERMINATION | |
| 18:00 | | CWC TRANSFER<br>Transfer 3 CWCs to ISS | |
| | AEM UNIT #1,2,3 CHECK (Cue Card) | MICRO-4 TRANSFER TO ISS<br>(ASSY OPS, PAYLOADS)<br>Ref. Middeck Transfer List Items 32, 33 | |
| 03:00 | TRANSFER BRIEF PREP | CGBA UNIT #1,2 STATUS CHECK (CC), STL STATUS CHECK (CC) | |
| | TRANSFER BRIEF<br>Call down status to MCC | P/TV01 VIDEO SETUP<br>(P/TV, SCENES)<br>Setup Step 8 | |
| 19:00 | EVA 1 BRIEFING CARD<br>(EVA, TIMELINES)<br>EVA 1 Procedure Review<br>Ref. MSG 023 and MSG 025 | EVA 1 BRIEFING CARD<br>(EVA, TIMELINES)<br>EVA 1 Procedure Review<br>Ref. MSG 023 and MSG 025 | |
| 04:00 | | | |

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | TDRS W E Z | DON/ORB | MET Day 003 | STS ATI

CDR Ferguson | PLT Hurley | NOTES

04:00

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG 023 and MSG 025

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

20:00 — 51

05:00

21:00

BIAS-XLV-ZVV

CHECK ISS AIRLOCK ATU CONFIG
L9 PAYLOAD STATION A/G (two) - OFF
PRIVATE MEDICAL CONFERENCE VIA A/G 2

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

52

06:00

22:00

07:00

53

**CREW WAKE @ 03/15:30**

23:00

SLEEP

08:00

# STS-135/ULF7 FD04

GMT Date 07/11 (192) | E | TDRS Z | TDRS W | D/N | ORB | MET Day 003 | STS ATI

MS1 Magnus | MS2 Walheim | NOTES

04:00 — 05:00 — 06:00 — 07:00 — 08:00

20:00 — 21:00 — 22:00 — 23:00

ORB: 51 — 52 — 53

STS ATI: BIAS-XLV-ZVV

**EVA 1 BRIEFING CARD**
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG 023 and MSG 025

**PRE-SLEEP ACTIVITY**
(ORB OPS, CREW SYSTEMS)

**CREW WAKE @ 03/15:30**

SLEEP

MSG 019A - FD04 MISSION SUMMARY

Good morning, Atlantis!

We salute you for your flawless execution of the 86th and final rendezvous of the space shuttle program. We knew you could do it – even with one GPC tied behind your backs. After years of sleuthing, we' think we've narrowed down the location of PROP's hidden gas tank to either behind ML85E, or ML86B. If we find it, we're eying your off duty time on FD9 for an additional undock and re-rendezvous. In the meantime, the Inertial Newtonian Gravitational drive is on autopilot and we'll sit back and watch the logistical poetry that is MPLM and Middeck transfer. Oh, by the way, you'll see in your NOTAMs that the KSC TACAN is OTS, so we've asked the LSO to look into the status of Ellington Field for entry…just in case.

-FDO and Rendezvous

YOUR CURRENT ORBIT IS: 212 X 207 NM

NOTAMS -

| | |
|---|---|
| EDW - | EDW 22L/04R IN USE. EDT 22R/04L EMERGENCY DAY USE ONLY. |
| EDW - | LAKEBED RWYS RED. |
| NOR - | LAKEBED RWYS GREEN. |
| **KSC -** | **TACAN TTS 59Y OTS** |
| NTU - | RWY 05L/23R AND 14R/32L CLSD. |
| MRN - | APPROACH LTS. OTS. |
| FMI - | TACAN NIM53 DECOMMISSIONED. |
| ESN - | TACAN BAG78 OUT OF SERVICE. |
| GUA - | TACAN UNZ105 OUT OF SERVICE. |
| FFA - | NOT USABLE. IN CARETAKER STATUS. |
| YQX - | TACAN YQX74 DME ONLY. |
| YYR - | TACAN UYR40 DME ONLY. |
| YYT - | TACAN UYT23 DME ONLY. |
| YJT - | TACAN YJT78 DME ONLY. |
| BEN - | NOT USABLE. NOT SUPPORTED. |
| IKF - | NOT USABLE. NO AGREEMENT. |

<u>NEXT 2 PLS OPPORTUNITIES:</u>

EDW22 ORB 48 – 2/23:51 SKC 7 220/06P12
EDW22 ORB 64 – 4/00:29 SKC 7 220/10P19

<u>OMS TANK FAIL CAPABILITY:</u>

NO

<u>LEAKING OMS PRPLT BURN:</u>

ALWAYS BURN RETROGRADE

END OF PAGE 1 OF 2, MSG 019A

MSG 019A - FD04 MISSION SUMMARY

OMS QUANTITIES(%):

L OMS OX = 37.90 R OMS OX = 37.74
FU = 37.97 FU = 37.32

DELTA V AVAILABLE:

| | |
|---|---|
| OMS | 402 FPS |
| ARCS (TOTAL ABOVE QTY1) | 38 FPS |
| TOTAL IN THE AFT | 440 FPS |
| ARCS (TOTAL ABOVE QTY2) | 70 FPS |
| FRCS (ABOVE QTY 1) | 38 FPS |
| AFT QTY 1 | 84 % |
| AFT QTY 2 | 46 % |

| SYSTEM | FAILURE | IMPACT | WORK AROUND |
|---|---|---|---|
| COMM/INST | ISS GNC MDM to OIU interface failure via primary path (N2-1 bus) | Loss of ability to monitor ISS TLM via the OIU(including SSRMS Joint Angle Data & ISS C&W status) | ISS TLM available to Shuttle via secondary OIU path (N2-2 bus) |
| DPS | GPC 3 Mode Switch Anomaly | GPC 3 was not used for Rendezvous. Once GPC 3 is re-IPLed, the G3 Archive will no longer be resident in GPC 3. | GPC 3 will be re-IPLed. |
| EPS | FC3 O2 Flow Sensor is behaving erratically. | Unreliable FC3 Flow O2 indication on: SM 69 FUEL CELLS | Assocated FDA has been inhibited. MCC will monitor FC3 health. |

END OF PAGE 2 OF 2, MSG 019A

Good morning, Sandy!

Way to get ahead yesterday; however, that's no surprise to us! Today is another day of middeck transfer for most of the crew while you're busy working to ingress the MPLM. You can continue to transfer unconstrained resupply and return Middeck items, and most MPLM transfer items for today are related to your ingress ops.

The Transfer List Excel file, FD04_Transfer_List_STS135.xls, locations are:

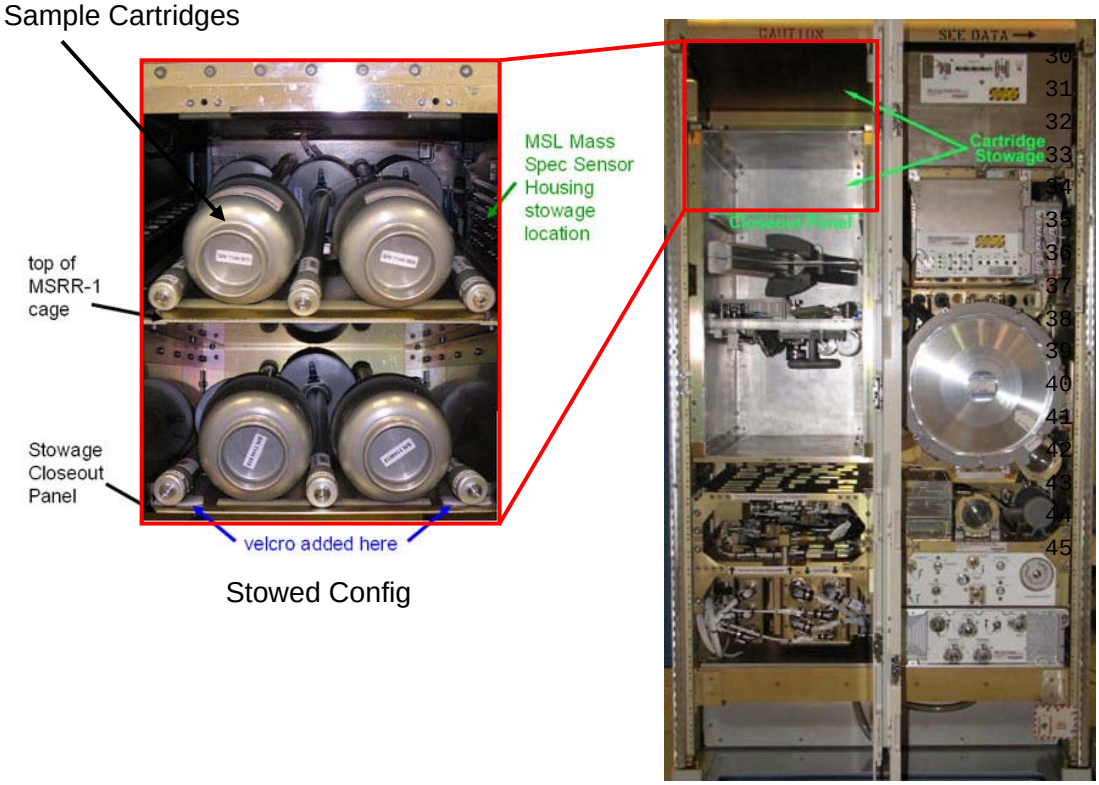
- Shuttle: **C:\OCA-up\transfer** (KFX machine)
- Station: **K:\OCA-up\transfer**

**Transfer Notes**

- **Stowage Heads-up:** There are a couple returning RFTAs and CTBs currently stowed in JLP1P1_D that you probably noticed yesterday. You will be stowing some additional Middeck resupply items in this location; therefore, you will need to remove these before you stow the Recycle Tanks (Items 2 and 12) and UPA ziplocks (Items 9.2 and 18). We recommend removing and temp stowing the return items prior to stowing any additional resupply items in this location.

- **Return Location Sort:** Since you're working ahead of schedule, we've decided to send you the return location sort for both the Middeck and MPLM. This list is organized by return location and will be very helpful when closing out return locations.

- **MSL Sample Cartridge Stowage:** When you stow Middeck Resupply Items 3 and 13 (MSL-SQF SAMPLE CARTRIDGE MPC) at LAB1O3, please refer to the following images:




Stowed Config

- **ZSR Deploy:** In case you get the time to transfer and deploy the ZSR today, we wanted to remind you that the Seat Track Studs you will need can be found in S2_K2 along with your MPLM Tool Kit.

**FD04 Choreography**

- Transfer unconstrained middeck resupply and return items.
- **Middeck Resupply Items 32 and 33:** Transfer Micro 4 samples to ISS.
- MPLM Setup:
  - **Middeck Resupply Item 30:** MPLM Pivot Pin Bracket (qty 1)
  - **MPLM Resupply Item 100:** PBA to MPLM
  - **MPLM Resupply Item 101:** PFE to MPLM
  - **MPLM Resupply Item 102:** MPLM Pivot Pin Brackets (qty 7)
  - **MPLM Resupply Item 294:** Sandy's MPLM Tool Kit
  - Retrieve pre-gathered empty 2.0 CTBs from PMM1S2.
  - Retrieve pre-gathered tools from NOD2D2.
- **MPLM Return Item 416.1:** Pack PCDF EU for return.
- **Middeck Return Item 440.1:** Pack GSC for return following MPLM Ingress ops.
- **Middeck Return Item 726:** Pack WPA Waste Water Sample for return.
- **Middeck Return Item 727:** Pack Condensate Samples for return.

**Please incorporate uplink pages as follows (we've listed the updates in the order they printed out for you):**

**MIDDECK TRANSFER LIST BOOK**

In the Middeck Transfer List **RESUPPLY** tab
Pen & Ink on the following page:
Resupply 5 – Item 29: update Stowage at Undock location
WAS: NOD1S4_D2/E2/F2
IS: NOD1S4_F1

In the Middeck Transfer List **RETURN LOCATION SORT** tab
Add the following pages:
Rtn Loc 1 thru Rtn Loc 4

**MPLM RESUPPLY TRANSFER LIST BOOK**

In the MPLM Resupply Transfer List **A2 RSP** tab
Replace the following page:
Resupply 18

In the MPLM Resupply Transfer List **S4 RSR** tab
Pen & Ink on the following page:
Resupply 47 – Item 346: update Stowage at Undock location
WAS: NOD1O4_E2
IS: NOD1O4_Aft

**MPLM RETURN TRANSFER LIST BOOK**

In the MPLM Return Transfer List **RETURN** tab
Add the following page:
Return 37

In the MPLM Transfer List **RETURN LOCATION SORT** tab
Add the following pages:
Rtn Loc 5 thru Rtn Loc 16

**FD05 Choreography**

- **MPLM Resupply Item 295:** 2 Seat Track Studs required for ZSR deploy.
- **MPLM Resupply Item 300:** Transfer and deploy ZSR.
- **MPLM Return Items 760 and 760.1:** Stow RSR/ZSR brackets for return.
- **Middeck Resupply 30 & MPLM Resupply Item 102:** Install Pivot Pin Brackets in MPLM.
- **MPLM Resupply Items 348 thru 360:** Transfer Endcone CTBs.
- **MPLM Resupply Items 215 thru 225:** Transfer ISP CTBs & set up bungee jail.
- Transfer return bags/items to MPLM bungee jails.
- Retrieve empty M-bags from A1_F1 and S4_G1 and deploy in MPLM.
- Transfer accessible RSR resupply items and stow return items.
- Clear all RSP locations that block access to RSR doors; then fold these fences
- Transfer cargo from C1 locations of RSPs and start stowing return items in these locations (only C1 locations get return bags; need to keep top/bottom fences folded).
- Remove A2 RSP front fences to accommodate CCAA HX for return (fences return in MPLM)

Have a great day and let us know if you have any questions!

- STS-135 Transfer Team

NOTE

1. Should you receive an Error message starting with "**Error: can't read…**" upon state selection, select OK and proceed as normal.

2. After loading the desired State File, you can select OPTIONS>SSRMS TARGETS>TARG SSRMS or SSRMS to move the green arm or the SSRMS, respectively, as you step through the targets.

## DOUG Setup for OBSS Unberth & Handoff

1. For **stand-alone procedure review**,
   1.1 Perform procedure **2.7.501 DOUG Startup**, step 2 (SODF: POC: Activation and Checkout: DOUG)

2. For **SSRMS real-time support**,
   2.1 Perform procedure **2.7.501 DOUG Startup**, step 1 (SODF: POC: Activation and Checkout: DOUG)

3. Configure for current ISS configuration **(STS135->ISSULF7).**
   3.1 File ► Load State
      3.1.1 In Load State Dialog box: select **'FD3 - OBSS Unberth and Handoff'**, Open
      3.1.2 In Load State Options Dialog box: select '**Both window layout and scene configuration',** select 'OK'

4. ***If state file does not load correctly, configure manually per steps 4.1-5.5:***
   4.1 Reconfig ►SSRMS
      4.1.1 In SSRMS Reconfig Dialog box, select **'SSRMS_BASE_B'**.
      4.1.2 In SSRMS Reconfig Dialog box, select **'SSRMS->NODE2_PDGF'**.
      4.1.3 In SSRMS Reconfig Dialog box, select **'MT_to_WORKSITE_4'**.
   4.2 Reconfig ►SPDM_Relocate
      4.2.1 In SPDM_Relocate Dialog box, select **'SPDM_to_LAB_PDGF'**.
   4.3 (For Stand-Alone Only) JntSystems ►

| | | SR | SY | SP | EP | WP | WY | WR |
|---|---|---|---|---|---|---|---|---|
| SSRMS | | +74.6 | +220 | -150 | -50 | -130 | -121 | +180 |
| RMS | | | +22.7 | +57.5 | -27.4 | -99.3 | +11.8 | -97.9 |
| SPDM | Arm 1 | -90 | -45 | +80 | +45 | 0 | -35 | -75 |
| | Arm 2 | -90 | -45 | -110 | +20 | +45 | -90 | 0 |
| | BR: +180<br>EOTP: 0 | | | | | | | |

5. Configure Displays
   5.1 Display ► Puddle Plot Shoulder/Wrist
   5.2 Display ► Puddle Plot Cross Cluster
   5.3 For real-time support, 'Shift' + 'V' will display the VPP (Vegas)
   5.4 For real-time support, Display ► Show SSRMS Target
   5.5 Use the 'Home' key to cycle through the Camera, SSRMS, and RMS Targets
      5.5.1 Use the 'Page Up' and 'Page Down' keys to scroll through the targets

| Procedure | Step | SSRMS | Notes |
|---|---|---|---|
| OBSS UNBERTH AND HANDOFF | 2 | Stage Park | |
| | 3 | OBSS Pre-Grapple | |
| | 4.3 | OBSS Grapple | Reconfig > STS135_ROBO_menu > 1.100_OBSS_to_SSRMS |
| | 5.3 | Low Hover | |
| | 6 | OBSS Intermediate | |
| | 7 | OBSS Handoff | Reconfig > STS135_ROBO_menu > 1.100_SRMS_to_OBSS_Grapple_Position<br>Reconfig > STS135_ROBO_menu > 1.100_OBSS_to_SRMS |
| | 9.3 | OBSS Backoff | |

## DOUG Setup for MPLM Unberth and Install

1. For **stand-alone procedure review**,
   1.1 Perform procedure **2.7.501 DOUG Startup**, step 2 (SODF: POC: Activation and Checkout: DOUG)

2. For **SSRMS real-time support**,
   2.1 Perform procedure **2.7.501 DOUG Startup**, step 1 (SODF: POC: Activation and Checkout: DOUG)

3. Configure for current ISS configuration **(STS135->ISSULF7).**
   3.1 File ► Load State
      3.1.1 In Load State Dialog box: select **'FD4 - MPLM Unberth and Install'**, Open
      3.1.2 In Load State Options Dialog box: select '**Both window layout and scene configuration',** select 'OK'

4. ***If state file does not load correctly, configure manually per steps 4.1-5.5:***
   4.1 Reconfig ►SSRMS
      4.1.1 In SSRMS Reconfig Dialog box, select **'SSRMS_BASE_B'**.
      4.1.2 In SSRMS Reconfig Dialog box, select **'SSRMS->NODE2_PDGF'**.
      4.1.3 In SSRMS Reconfig Dialog box, select **'MT_to_WORKSITE_4'**.
   4.2 Reconfig ►SPDM_Relocate
      4.2.1 In SPDM_Relocate Dialog box, select **'SPDM_to_LAB_PDGF'**.
   4.3 Reconfig ►ORBITER_INSPECTION
      4.3.1 In ORBITER_INSPECTION Reconfig Dialog box, select **'OBSS_GF1_to_SRMS'**.
   4.4 (For Stand-Alone Only) JntSystems ►

| | | SR | SY | SP | EP | WP | WY | WR |
|---|---|---|---|---|---|---|---|---|
| SSRMS | | +74.6 | +160.7 | -144 | -109.6 | -189.8 | -159.5 | +63.9 |
| RMS | | | +62.5 | +25 | -23 | 0 | -13.2 | -21.9 |
| SPDM | Arm 1 | -90 | -45 | +80 | +45 | 0 | -35 | -75 |
| | Arm 2 | -90 | -45 | -110 | +20 | +45 | -90 | 0 |
| | BR: +180<br>EOTP: 0 | | | | | | | |

5. Configure Displays
   5.1 Display ► Puddle Plot Shoulder/Wrist
   5.2 Display ► Puddle Plot Cross Cluster
   5.3 For real-time support, ‘Shift’ + ’V’ will display the VPP (Vegas)
   5.4 For real-time support, Display ► Show SSRMS Target
   5.5 Use the 'Home' key to cycle through the Camera, SSRMS, and RMS Targets
      5.5.1 Use the 'Page Up' and 'Page Down' keys to scroll through the targets

| **Procedure** | **Step** | **SSRMS** | **Notes** |
|---|---|---|---|
| MPLM UNBERTH AND INSTALL | 1 | OBSS Backoff | |
| | 2 | MPLM Pre-Grapple | |
| | 3.4 | Berthed MPLM Grapple | Reconfig > STS135_ROBO_menu > 1.200_MPLM_to_SSRMS |
| | 12<br>14 | MPLM Low Hover | |
| | 15 | MPLM Pre-Install | |
| | 17 | Ready-to-Latch | |
| | 19 | MPLM Install | Reconfig > STS135_ROBO_menu > 1.200_MPLM_to_Node_2 |
| | 21.3 | Mated MPLM Release | |
| | 22 | MPLM Clear | |
| | 23 | Reconfig 1 | |
| | 24 | Reconfig 2 | |
| | 25 | EVA 1 Start | |

## DOUG Setup for EVA1

1. For **stand-alone procedure review**,
   1.1 Perform procedure **2.7.501 DOUG Startup**, step 2 (SODF: POC: Activation and Checkout: DOUG)

2. For **SSRMS real-time support**,
   2.1 Perform procedure **2.7.501 DOUG Startup**, step 1 (SODF: POC: Activation and Checkout: DOUG)

3. Configure for current ISS configuration **(STS135->ISSULF7).**
   3.1 File ► Load State
      3.1.1 In Load State Dialog box: select **'FD5 - EVA1'**, Open
      3.1.2 In Load State Options Dialog box: select '**Both window layout and scene configuration',** select 'OK'

***4. If state file does not load correctly, configure manually per steps 4.1-5.5:***
   4.1 Reconfig ►SSRMS
      4.1.1 In SSRMS Reconfig Dialog box, select **'SSRMS_BASE_B'**.
      4.1.2 In SSRMS Reconfig Dialog box, select **'SSRMS->NODE2_PDGF'**.
      4.1.3 In SSRMS Reconfig Dialog box, select **'MT_to_WORKSITE_4'**.
   4.2 Reconfig ►SPDM_Relocate
      4.2.1 In SPDM_Relocate Dialog box, select **'SPDM_to_LAB_PDGF'**.
   4.3 Reconfig ►ORBITER_INSPECTION
      4.3.1 In ORBITER_INSPECTION Reconfig Dialog box, select **'OBSS_GF1_to_SRMS'**.
   4.4 Reconfig ►MPLM
      4.4.1 In MPLM Reconfig Dialog box, select **'MPLM->NODE2_NADIR'**.
   4.5 (For Stand-Alone Only) JntSystems ►

| | | **SR** | **SY** | **SP** | **EP** | **WP** | **WY** | **WR** |
|---|---|---|---|---|---|---|---|---|
| SSRMS | | +20 | -20 | -45.2 | -118.6 | -34.5 | -10.2 | +137.6 |
| RMS | | | +62.5 | +25 | -23 | 0 | -13.2 | -21.9 |
| SPDM | Arm 1 | -90 | -45 | +80 | +45 | 0 | -35 | -75 |
| | Arm 2 | -90 | -45 | -110 | +20 | +45 | -90 | 0 |
| | BR: +180<br>EOTP: 0 | | | | | | | |

5. Configure Displays
   5.1 Display ► Puddle Plot Shoulder/Wrist
   5.2 Display ► Puddle Plot Cross Cluster
   5.3 For real-time support, 'Shift' + 'V' will display the VPP (Vegas)
   5.4 For real-time support, Display ► Show SSRMS Target
   5.5 Use the 'Home' key to cycle through the Camera, SSRMS, and RMS Targets
      5.5.1 Use the 'Page Up' and 'Page Down' keys to scroll through the targets

| Procedure | Step | SSRMS | Notes |
|---|---|---|---|
| SSRMS EVA 1 SUPPORT | 1 | EVA 1 Start | |
| | 2 | Safety Tether Install | |
| | 3 | APFR Install | Reconfig > STS135_ROBO_menu > 1.300_APFR_to_SSRMS |
| | 4 | APFR Ingress | Reconfig > STS135_ROBO_menu > 1.300_EV2_to_SSRMS_APFR |
| | 5 | PM FRAM Release | Reconfig > STS135_ROBO_menu > 1.300_PMA_to_EV2_Removal |
| | 6 | PM Yaw | Reconfig > STS135_ROBO_menu > 1.300_PMA_to_EV2_Yaw_90 |
| | | ESP2 Clearance | |
| | 7 | Intermediate 1 | Reconfig > STS135_ROBO_menu > 1.300_PMA_to_EV2_Roll_180 |
| | 8 | Intermediate 2 | |
| | 9 | LMC Clear | |
| | 10 | LMC PM Install | Reconfig > STS135_ROBO_menu > 1.300_PMA_Install_to_LMC |
| | 11 | Crew Swap | Reconfig > STS135_ROBO_menu > 1.300_EV1_to_SSRMS_APFR |
| | 12 | LMC RRM FRAM Release | Reconfig > STS135_ROBO_menu > 1.300_RRM_to_EV1_Removal |
| | 13 | LMC Backaway | |
| | 14 | Intermediate 3 | |
| | 15 | Intermediate 4 | Reconfig > STS135_ROBO_menu > 1.300_RRM_to_EV1_Roll_180 |
| | 16 | RRM Pre-Install | |
| | 17 | EOTP RRM Install | Reconfig > STS135_ROBO_menu > 1.300_RRM_to_EOTP |
| | 18 | RRM Backaway | |
| | 19 | SPDM Clearance | |
| | 24 | Intermediate 5 | |
| | 25 | Intermediate 6 | |
| | 26 | ESP2 Egress | |
| | | APFR Egress | Toggles > EV1 |
| | 27 | APFR Retrieval | Reconfig > STS135_ROBO_menu > 1.300_SSRMS_APFR_Off |
| | 28 | Park | |

## DOUG Setup for MPLM Demate & Berth

1. For **stand-alone procedure review**,
   1.1 Perform procedure **2.7.501 DOUG Startup**, step 2 (SODF: POC: Activation and Checkout: DOUG)

2. For **SSRMS real-time support**,
   2.1 Perform procedure **2.7.501 DOUG Startup**, step 1 (SODF: POC: Activation and Checkout: DOUG)

3. Configure for current ISS configuration **(STS135->ISSULF7).**
   3.1 File ► Load State
      3.1.1 In Load State Dialog box: select **'FD10 - MPLM Demate and Berth'**, Open
      3.1.2 In Load State Options Dialog box: select '**Both window layout and scene configuration',** select 'OK'

***4. If state file does not load correctly, configure manually per steps 4.1-5.5:***
   4.1 Reconfig ►SSRMS
      4.1.1 In SSRMS Reconfig Dialog box, select **'SSRMS_BASE_B'**.
      4.1.2 In SSRMS Reconfig Dialog box, select **'SSRMS->NODE2_PDGF'**.
      4.1.3 In SSRMS Reconfig Dialog box, select **'MT_to_WORKSITE_4'**.
   4.2 Reconfig ►SPDM_Relocate
      4.2.1 In SPDM_Relocate Dialog box, select **'SPDM_to_LAB_PDGF'**.
   4.3 Reconfig ►ORBITER_INSPECTION
      4.3.1 In ORBITER_INSPECTION Reconfig Dialog box, select **'OBSS_GF1_to_SRMS'**.
   4.4 Reconfig ►MPLM
      4.4.1 In MPLM Reconfig Dialog box, select **'MPLM->NODE2_NADIR'**.
   4.5 Reconfig ►PMA_RETURN
      4.5.1 In PMA_RETURN Reconfig Dialog box, select **'PMA_to_LMC'**.
   4.6 Reconfig ►RRM
      4.6.1 In RRM Reconfig Dialog box, select **'RRM_to_SPDM_EOTP'**.
   4.7 (For Stand-Alone Only) JntSystems ►

| | | **SR** | **SY** | **SP** | **EP** | **WP** | **WY** | **WR** |
|---|---|---|---|---|---|---|---|---|
| SSRMS | | +34 | +20 | -27.5 | -118.3 | -54.2 | +28.8 | +147.9 |
| RMS | | | +62.5 | +25 | -23 | 0 | -13.2 | -21.9 |
| SPDM | Arm 1 | -90 | -45 | +80 | +45 | 0 | -35 | -75 |
| | Arm 2 | -90 | -45 | -110 | +20 | +45 | -90 | 0 |
| | BR: +180<br>EOTP: 0 | | | | | | | |

5. Configure Displays
   5.1 Display ► Puddle Plot Shoulder/Wrist
   5.2 Display ► Puddle Plot Cross Cluster
   5.3 For real-time support, 'Shift' + 'V' will display the VPP (Vegas)
   5.4 For real-time support, Display ► Show SSRMS Target
   5.5 Use the 'Home' key to cycle through the Camera, SSRMS, and RMS Targets
      5.5.1 Use the 'Page Up' and 'Page Down' keys to scroll through the targets

159

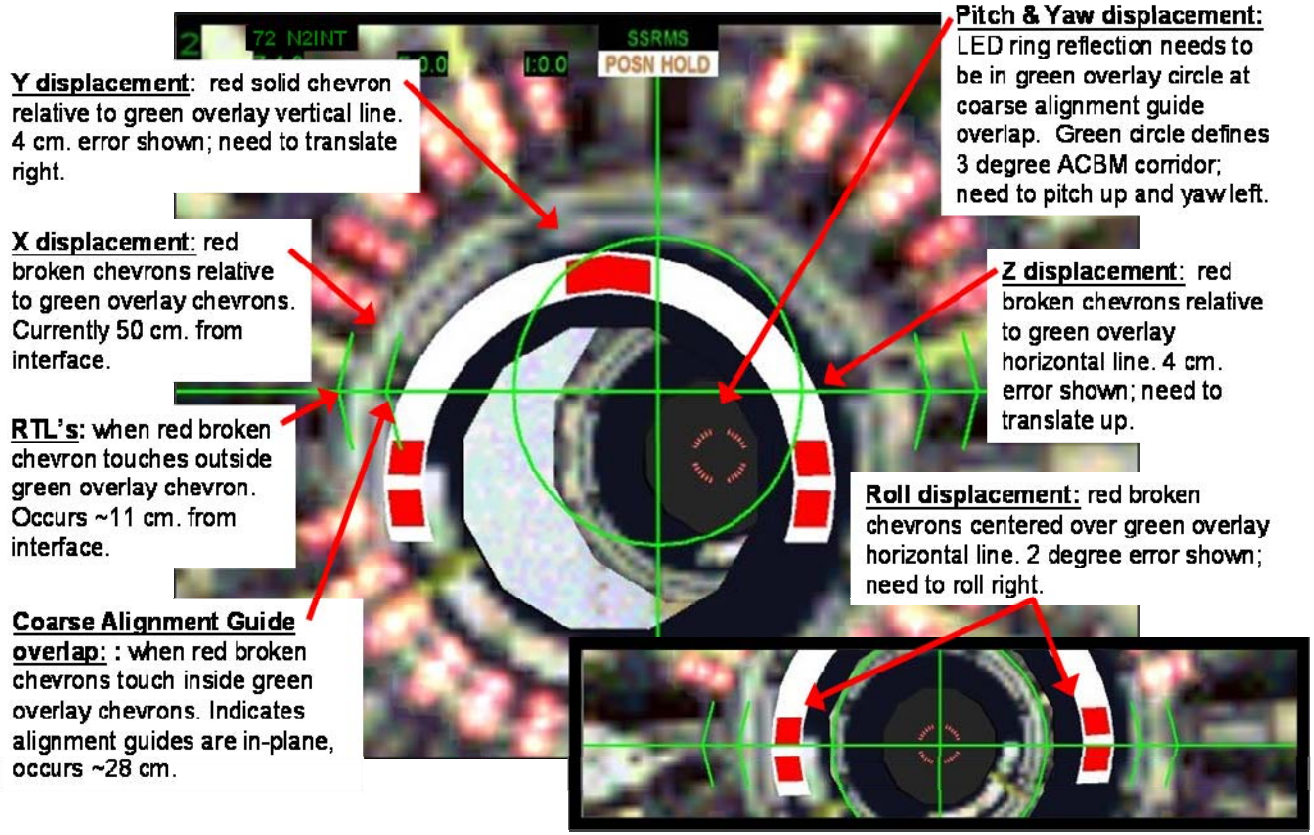
| Procedure | Step | SSRMS | Notes |
|---|---|---|---|
| MPLM DEMATE AND BERTH | 1 | EVA 1 Park | |
| | 2 | Reconfig 1 | |
| | 3 | MPLM Clear | |
| | 4 | MPLM Pre-Grapple | |
| | 5.4 | MPLM Grapple | Reconfig > STS135_ROBO_menu > 1.210_MPLM_to_SSRMS |
| | 8 | MPLM Backoff | |
| | 9 | MPLM Low Hover | |
| | 10 | MPLM Berthed | Reconfig > STS135_ROBO_menu > 1.210_MPLM_to_PLB |
| | 19.3<br>19.4 | MPLM Backoff | |
| | 20 | Intermediate | |
| | 21 | Stage Park | |

## Center-line Berthing Camera System (CBCS) for Visiting Vehicle

***HTV CBCS***

- "Fly-Payload" type command > **Fly red** (target) **to green** (overlay)
- CBCS Camera Routing: Node 2 camcorder port **DCP: 72** **PCS: N2_CAM** (RWS overlay displays 'N2INT' – N2 Internal camera)
- Overlays:
  - Overlay Target – Berthing Camera Systems >>"**CBCS Visiting Vehicle**
  - RTL's - **USOS Eff overlay** **PCS: NODE2: S&M: Nadir CBM:** **RTL Details**
- Operational Techniques:
  - Internal command frame used, so **correct all orientation errors prior to translation** to ensure aligned approach
  - Should make all corrections prior to coarse-alignment-guide overlap; **after ~28 cm apply X input only.**
  - **If correction needed, stop motion and call ground. After 4 RTLs received, keep applying X input for ~3 seconds.**
  - **If 4 RTLs not received at 7 cm, stop motion and call ground**; reference RTL data in procedure.

***CBCS Example:***



# EVA 1 INHIBIT PAD – ISS IV Actions for PRE-EVA in GREEN

## Orbiter

### ALL EVAs

TCS *(Prior to Egress – Crew)*
IV L12
1. √TCS POWER – OFF
2. Install Switch Guard to remain in place through EVA

TriDAR *(Prior to Egress – Crew)*
IV L12L (SSP2)
1. √TriDAR POWER – OFF (tb-bp)

KU-Band Antenna *(Prior to Egress – INCO)*
**MCC-H**
1. √KU-BAND Mask – active
2. √KU-BAND EVA Protect Box – active

RCS *(Prior to translation into payload bay – Crew/PROP/GNC)*
If EV crew < 27 ft from FRCS
IV
1. √DAP: VERN, FREE, LO Z
O14,15,16
2. √RJDF F1, F2, F3, F4 MANF DRIVER (four) – OFF
LOGIC (four) – OFF
**MCC-H**
3. √Above RCS config
IV
4. √RCS F – ITEM 1 EXEC (*)
√JET DES F1U – ITEM 17 (*)
F3U – ITEM 19 (*)
F2U – ITEM 21 (*)

### LOCATION DEPENDENT INHIBITS

S-Band Antennas *(Prior to translation into payload bay – Crew)*

NOTE
Possible loss of comm when forced LL FWD antenna

IV
If EV crew < 2 ft from S-Band antenna
A1R
1. S-BAND FM ANT – XMIT LOWER/RCVR UPPER
2. √**MCC**, lower antenna selected
If no comm, or on **MCC GO**
C3
3. S-BAND PM ANT – LL FWD
When EVA crewmember at least 2 ft away from all S-Band upper antennas
C3
4. S-BAND PM ANT – GPC

### TASK SPECIFIC INHIBITS

Failed PM Install on LMC *(Prior to Egress)*
(No inhibits required)

RRM Removal from LMC *(Prior to Egress – Crew)*
IV R1 PL AFT MNC – OFF

## USOS (1)

### ALL EVAs

PCU *(Prior to Egress – PHALCON)*

NOTE
PCUs may require up to a 1-hr warmup period before they are operational

**MCC-H**
1. √PCUs (two) operational in discharge mode and one of the following:
   a. CCS PCU EVA hazard control FDIR enabled
   b. Only allowed arrays unshunted and oriented < 105º from velocity vector

If one or both PCUs failed
2. Only allowed arrays unshunted and oriented < 105º from velocity vector

CUCU *(Prior to Egress – Crew)*
IV – (LAB1O4)
1. √cb POWER A, B [two] – OPEN
2. √cb LINK 1,2 [two] – OPEN

MISSE 8 *(Prior to Egress – POD)*
**POIC** Prior to EV Hatch Open
1. ELC-2 ExPA-2 Discrete Channel 6 – Disabled

## Ground

### ALL EVAs

Ground Radar *(Prior to Egress – TOPO)*
**MCC-H**
1. √TOPO console, ground radar restrictions in place for EVA

## **EVA 1 INHIBIT PAD** (Cont)

RSOS

ALL EVAs

SM Antennas *(Prior to Egress – RIO)*

IV 1. ARISS (Ham Radio) – Deactivate
**MCC-M** 2. GTS – Deactivate
3. Napor (РСПИ) – Deactivate

JEM

ALL EVAs

ICS-EF Antenna *(Prior to Egress – SSIPC)*

**SSIPC**
1. ICS MOD – OFF
2. ICS UPC – OFF
3. ICS HPA – OFF
4. HPA ON and UPC ON commands are cleared (not present) in the ICS stored command queue

COL

ALL EVAs

HAM Radio *(Prior to Egress – Crew)*

IV 1. HAM Radio – Deactivate

USOS (2)

LOCATION DEPENDENT INHIBITS

Lab Window (*Prior to Egress – Crew*)

IV If EV crew less than 10 ft from window or in window FOV, close window shutter

Cupola Windows (*Prior to Starting Task – PMA3 Cover Install – Crew*)

IV If EV crew less than 10 ft from window, coordinate shutter opening/closing with EV crew and minimize time shutter is open

Bluetooth Stethoscope *(Prior to Egress – SSIPC)*

**SSIPC** If EV crew translating on JEM
1. Electronic Stethoscope – OFF
2. JEM Medical Laptop – Bluetooth Disabled

Mobile Transporter (*Prior to Egress – ROBO*)

**MCC-H** If EV crew < 1.5 meters from MT
1. √MT latched

SPDM *(Prior to Egress – ROBO)*

**MCC-H** If EV crew translating or working on SPDM
1. √SPDM in Keep Alive configuration
2. √PSU – Operational
3. √SACU1(2) – Operational
4. √Body Prime(Redundant) – Keep Alive or Off
5. √SPDM Arm 1(2) – Keep Alive

SSPTS *(Prior to Egress – PHALCON)*

**MCC-H** If EV crew working within 2 ft of SSPTS cables
1. RPCM LA2A3B D RPC 1 – Open, Close Cmd Inhibit
2. RPCM Z14B A RPC 2 – Open, Close Cmd Inhibit
3. RPCM Z13B A RPC 2 – Open, Close Cmd Inhibit

TASK SPECIFIC INHIBITS

Failed PM Removal from ESP-2 *(Prior to Task – PHALCON)*

**MCC-H** RPCM S04B_F RPC 10 Open/Close Inh – PM Heater 1 Pwr
RPCM N1RS2_B RPC 6 Open/Close Inh – PM Heater 2 Pwr

RRM Install on SPDM EOTP *(Prior to Egress – ROBO)*

**MCC-H** Verify SPDM PSU Output Bank A(B) Port #7 – OFF (two)

## **EVA 1 INHIBIT PAD** (Cont)

GET-AHEADS

LOCATION DEPENDENT INHIBITS

Starboard TRRJ *(Prior to Egress – ORMatE III Install & FHRC P-Clamps – THOR)*
**MCC-H** If EV crew working within 2 ft of S1 TRRJ rotation envelope (Includes ELC 4)
1. √DLA 1(2) – LOCKED 0°
2. √DLA 2(1) – ENGAGED

Port TRRJ *(Prior to EVA – PMA3 Cover Install – THOR)*
**MCC-H** If EV crew working within 2 ft of P1 TRRJ rotation envelope (Includes Node 3 Port Endcone and PMA3)
1. √DLA 1(2) – LOCKED -45°
2. √DLA 2(1) – ENGAGED

SSRMS Base B Elbow CLPA *(Prior to Starting Task – ROBO)*
**MCC-H** RPCM S04B C RPC 4 – Open, Close Cmd Inhibit
RPCM S03A C RPC 2 – Open, Close Cmd Inhibit

RSOS (2)

EVAs ON PMA1 OR RSOS (LOCATION DEPENDENT)

RSOS and RSOS Visiting Vehicle Antennas (Includes FGB, SM, DC-1, MRM-1, MRM-2, Progress)
**MCC-M** 1. √KURS P [КУРС P] – Deactivated
2. √KURS A [КУРС A] – Deactivated

USOS (3)

TASK SPECIFIC INHIBITS (2)

MISSE 8 *(Prior to Starting Task – ORMatE III Install on ELC-2 – POD)*
**POIC** If EV crew working zenith of plane of MISSE 8
1. MISSE-8 PASCAL solar cells – Zero voltage bias
2. ELC-2 ExPA-2 Discrete Channel 1 – Disabled
3. ELC-2 ExPA-2 28V Operational Power – Disabled

Starboard SARJ *(Prior to Egress – ORMatE III Install – PHALCON)*
**MCC-H** If EV crew working within 2 ft, outboard of SARJ or reqd per loads FR (Includes Outboard faces of Outboard ELCs/ESPs)
1. √DLA (1) – LOCKED at 225°
2. All motor setpoints set to zero
3. All motors deselected

MCS Configuration *(PM xfer, RRM xfer, ORMatE-III Install – ADCO)*
**MCC-H** When EV on SSRMS w/PM or RRM < 2 ft from structure; when EV on ELC-2 for ORMatE-III Install
1. √Desat Request – Inh
2. √Auto Att Control handover to RS – Inh (MOD)

Node 3 J1 FGB and J2 FGB 1553 (*Once SSRMS at Park position and prior to 1553 Get-ahead – ROBO*)
**MCC-H** If any RWS active, cmd ‘Active Assert Backup’

FGB PDGF Power (*Prior to 1553 or PDGF Get-ahead – RIO)*
**MCC-M** 1. √RACU-6 – OFF
2. √RACU-5 – OFF
System power panel (ППС) 313
**RS Crew** 1. √**БКС** Cable 77КМ-7228-110-01 – Demated
2. √**БКС** Cable 77КМ-7228-110 – Demated

RSOS (3)

ADDITIONAL ANTENNA INHIBITS FOR EVAs ON RSOS (LOCATION DEPENDENT)

FGB Antennas
**MCC-M**
1. √TORU [ТОРУ] – Deactivated
2. √TV System [ТВС] – Deactivated
3. Radiotelemetry [БР-9ЦУ-8] – Deactivate
4. √TV System [КЛ-108А] – Deactivated
5. √CNPMS [СИТНП] – Deactivated
6. √KOMPARUS [КИС] – Deactivated

EVA/135/FIN 1

Make the following pen and ink updates to the EVA Checklist pages identified below. The locations with the missing parameters are identified with a box around the new data. There should be adequate blank space on the page to make these changes. The specified torques are based on final 1819 bolt data, which were only recently available.

FS 7-24:

Below EV2 step 7, add the following warning:

> WARNING
>
> To avoid potential sharp edges, limit contact with SPDM micro-fixtures and H-fixtures.

FS 7-26:

After EV2 step 11, add the following warning:

> WARNING
>
> To avoid potential sharp edges, limit contact with CTC micro-fixtures and H-fixtures.

FS 16-3:

| TASK | FAILURE | | ACTION |
|---|---|---|---|
| **PM FRAM Transfer** | A. | 3. | On **MCC-H GO:** Increase PGT setting:<br>**PGT: [ B3 (18.4), CCW2, 30.5], 7/16 – 6 ext 1 turn only to break torque; reset PGT to B1 (12.0) for full run-out of bolt** |
| | C. | 3. | Back out primary bolt fully at nominal setting.<br>If removal isn't successful at nominal setting<br>Increase PGT setting for disengagement:<br>**PGT: [B2 (16.0), CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to B1 (12.0) for full run-out of bolt**<br>On **MCC-H GO**: Increase PGT setting:<br>**PGT: [ B3 (18.4), CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to B1 (12.0) for full run-out of bolt** |
| | | 4. | Reattempt engagement<br>**PGT: [ A7 (9.2) , CW2, 30.5], 7/16 - 6-ext**<br>Increase PGT setting:<br>**PGT: [B2 (16.0), CW2, 30.5], 7/16 - 6-ext**<br>On **MCC-H GO**: Increase PGT setting:<br>**PGT: [ B3 (18.4), CW2, 30.5], 7/16 - 6-ext** |

FS 16-4:

| TASK | FAILURE | | ACTION |
|---|---|---|---|
| **RRM FRAM Transfer** | A. | 2. | Increase PGT setting:<br>**PGT: [B2 (16.0), CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to A4 (6.3) for full run-out of bolt** |
| | | 3. | On **MCC-H GO**: Increase PGT setting:<br>**PGT: [B3 (18.4) , CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to A4 (6.3) for full run-out of bolt** |

FS 16-5:

| TASK | FAILURE | | ACTION |
|---|---|---|---|
| **RRM FRAM Transfer** | C. | 3. | Back out primary bolt fully at nominal setting.<br>If removal isn't successful at nominal setting<br>Increase PGT setting for disengagement:<br>**PGT: [B2 (16.0) , CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to A4 (6.3) for full run-out of bolt.**<br><br>On **MCC-H GO**: Increase PGT setting:<br>**PGT: [ B3 (18.4) , CCW2, 30.5], 7/16 - 6-ext 1 turn only to break torque; reset PGT to A4 (6.3) for full run-out of bolt.** |
| | | 4. | Reattempt engagement<br>**PGT: [ A4 (6.3) , CW2, 30.5], 7/16 - 6-ext**<br>Increase PGT setting:<br>**PGT: [B2 (16.0), CW2, 30.5], 7/16 - 6-ext**<br>On **MCC-H GO**: Increase PGT setting:<br>**PGT: [ B3 (18.4) , CW2, 30.5], 7/16 - 6-ext** |
| | | 6. | Engage contingency pins:<br>– Front pins<br>**PGT: [A4 (6.3), CW2, 30.5], 7/16 - 6-ext**<br>14.11 - (1.25 * Turns on Primary Bolt) turns<br><br>– Aft pins **PGT: [ B1 (12.0) , CCW2, 30.5], ERAD w/7/16 - 2-ext**<br>- Remove bolt from STOW location and engage in INSTALL location<br>- Manually turn bolt as far as possible<br>- **PGT: [ A5 (7.0) , CW2, 30.5], ERAD w/7/16 - 2-ext** |

# EVA 1

## EVA 1 TOOL CONFIG (CONT)

### EV1

- ☐☐ MWS
  - ☐☐ BRT (L)
    - ☐☐ RET (sm-sm)
    - ☐☐ Wire Tie (2 short, 2 long)
  - ☐☐ T-Bar
    - ☐☐ Wire Tie (3)
    - ☐☐ RET (sm-sm)
      - ■☐ WIF Adapter (w/PIP Pin)
    - ☐☐ RET w/PIP Pin
    - ■☐ RET (sm-sm) (*from COLT & gap spanner stow*)
    - ☐☐ Adj Equip Tether (sm-sm) (behind MWS)
    - ☐☐ Adj Equip Tether (sm-sm) (behind MWS)
    - ☐■ Adj Equip Tether (sm-sm) (Left D-ring)
    - ☐■ Adj Equip Tether (sm-sm) (Right D-ring)
    - ☐☐ Small ISS Trash Bag
      (Left/Outer short wire tied – 3 twists)
      - ■☐ COLT Cap
      - ■☐ COLT Cap
  - ☐☐ Swing Arm (R)
    - ☐☐ RET (sm-sm)
      - ☐☐ PGT [**A4** 6.3 ft-lb, **CAL**, MTL **30.5**] s/n_1002
        - ☐☐ PGT Battery s/n_1005
        - ☐☐ 7/16 (wobble) Socket-6 ext
    - ☐■ EVA Camera (w/bracket and int RET)
- ☐☐ D-ring Extender (2, R & L D-ring)
  - ☐☐ ST Pack (85-ft + 85-ft to R D-ring Ext)
  - ☐☐ Waist Tether (L on D-ring Ext)
- ☐☐ Waist Tether (R on D-ring, to Crew ST reel)
- ☐☐ SAFER
- ☐☐ WVS

NOTE: Prior to use, inspect the following hardware:
- ❑ RET cords for fraying
- ❑ Inspect Load Alleviating Straps and D-ring Extenders; ref CREW TETHER INSPECTIONS, ISS EVA Tasks Checklist:
  1. MMOD/general damage
  2. Discoloration
  3. Tack Stitching
  4. Red Band
- ❑ ISS Trash Bag: Zipper closed
  Bristle deformation/damage, after having stowed tools
- ❑ BRT joint screws not loose
- ❑❑ COLT sliders in OPEN position
- ❑❑ COLT unlock caps installed, with Velcro & RET

Highlighted items are transferred from Shuttle

### EV2

- ☐☐ MWS
  - ☐☐ BRT (L)
    - ☐☐ RET (sm-sm)
    - ☐☐ Wire Tie (2 long)
  - ☐☐ T-Bar
    - ☐☐ Wire Tie (3)
    - ☐☐ RET (sm-sm)
    - ☐☐ RET w/PIP Pin
    - ☐☐ Adj Equip Tether (sm-sm) (behind MWS)
    - ■☐ Adj Equip Tether (sm-sm) (Fairlead)
    - ■☐ Adj Equip Tether (sm-sm) (Fairlead)
    - ☐☐ Small ISS Trash Bag
      (Left/Outer short wire tied – 3 twists)
      - ☐☐ RET w/PIP Pin
        - ☐■ WIF Adapter (w/PIP Pin)
  - ☐☐ Swing Arm (R)
    - ☐☐ RET (sm-sm)
      - ☐☐ PGT [**A4** 6.3 ft-lb, **CAL**, MTL **30.5**] s/n_1004
        - ☐☐ PGT Battery s/n_1006
        - ☐☐ 7/16 (wobble) Socket-6 ext
- ☐☐ D-ring Extender (2, R & L D-ring)
  - ☐☐ 85-ft Safety Tether (R D-ring Ext) (Anchor – *A/L*)
  - ☐☐ 85-ft Safety Tether (R D-ring Ext) (Crew – *SSRMS*)
  - ☐☐ Waist Tether (L on D-ring Ext)
- ☐☐ Waist Tether (R on D-ring, to Anchor ST reel)
- ☐☐ SAFER
- ☐☐ WVS

- ☐☐ RET (Lg-sm) (stays in A/L)
- ☐☐ Adj Equip Tethers (sm-sm) (stays on ORU Bag)
  - ☐☐ **Medium ORU Bag (PMA3 Cover)**
    - ☐☐ Gap Spanner (fully extend) (on int tethers) (-307/42"-72")
    - ☐☐ RET (sm-sm)
      - ☐☐ PMA3 Cover (Cover key near bag flap hinge)
    - ■☐ EVA Camera (w/bracket and Int RET)
    - ☐☐ RET (sm-sm)
      - ☐☐ Needle Nose Pliers

Tether Counts: **GREEN RETs**
RETs (sm-sm) = 14/16 RETs (PIP Pin) = 4/5
RETs (Lg-sm) = 5/8 Adj Eq Tethers = 10/10 sm; 2/2 Lg

- ☐☐ Adj Equip Tether (sm-sm)
- ☐☐ RET (Lg-sm) (stays in A/L)
  - ☐☐ **Crewlock Bag (COLT)**
    - ☐☐ Wire Ties (2 long – 3 twists)
    - ☐■ COLT (short/aft, used second)
      - ☐ Int RET 1
      - ☐ Wire tied closest to bag, along external HR
      - ☐☐ RET (sm-sm) (Cap to COLT)
        - ☐■ COLT Cap (installed on COLT)
    - ☐■ COLT (long/fwd, used first)
      - ☐ Int RET 2
      - ☐ Wire tied 2nd to bag, along external HR
      - ☐■ RET (sm-sm) (Cap to COLT)
        (*used for gap spanner stow*)
        - ☐■ COLT Cap (installed on COLT)
    - ☐☐ ERAD w/7/16" socket 2" ext (Int RET 3)
      (*for RRM FRAM contingency bolt down*)
    - ☐☐ RET (sm-sm)
    - ☐☐ RET (sm-sm)
      - ☐■ Fisheye Camera (w/bracket and int RET)
- ☐☐ Adj Equip Tether (sm-sm)
- ☐☐ RET (Lg-sm) (Stays in A/L)
  - ☐☐ **Crewlock Bag (MISSE)**
    - ☐☐ Wire Ties (1 short, 1 long – 3 twists)
    - ☐☐ Adj Equip Tether (sm-sm) (from internal D-ring around MISSE to HR)
      - ☐☐ MISSE 8 ORMATE (Int RET 1; wire tied to back of bag; configure during pre-breathe)
    - ☐☐ Ratchet w/7/16" socket 2" ext (Int RET 2)
    - ☐☐ RET (sm-sm)
      - ☐☐ EVA Camera (w/bracket and Int RET)
    - ☐☐ Wire Tie Caddy (Int RET 3) (3 short; 6 long)
    - ☐☐ Socket Caddy (Int RET 4)
    - ☐☐ RET (sm-sm)
      - ■☐ EVA Fisheye Camera (w/bracket and Int RET)
- ☐☐ RET (Lg-sm) (stays in A/L)
- ☐☐ Adj Equip Tether (Lg-sm)
- ☐☐ Adj Equip Tether (Lg-sm)
  - ☐☐ **1553 Data Cable Bag**
    - ☐■ 1553 Cable
    - ☐☐ Fish Stringer
      - ■☐ Node 3 Terminator MLI
      - ■☐ Node 3 Terminator MLI
      - ■☐ Node 3 Terminator Cap
      - ■☐ Node 3 Terminator Cap
      - ■☐ 1553 P1 cap
      - ■☐ 1553 P2 cap

EVA/135/FIN X
PEN & INKS

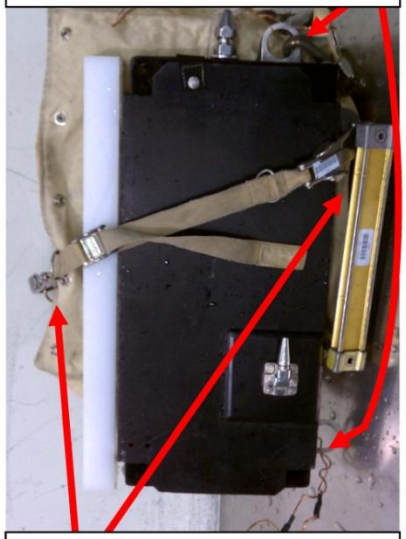
## **EVA 1 TOOL CONFIG** (CONT)

☐☐ **IV Bag**
- ☐☐ Towels (2)
- ☐☐ Contamination Detection Kit
- ☐☐ RET (sm-sm, Black)
  - ☐☐ GP Caddy
    - ☐☐ Adjustable Thermal Mittens (2)
  - ☐☐ GP Caddy
    - ☐☐ Adjustable Thermal Mittens (2)
- ☐☐ RET (sm-sm, Black)
  - ☐☐ Socket Caddy (hatch contingencies)
    - ☐☐ 1/2 Socket-8 ext
    - ☐☐ 7/16 (wobble) Socket-6 ext (spare)
- ☐☐ RET (sm-sm, Black)
  - ☐☐ DCM Plug (SAFER Hardmount) (2)

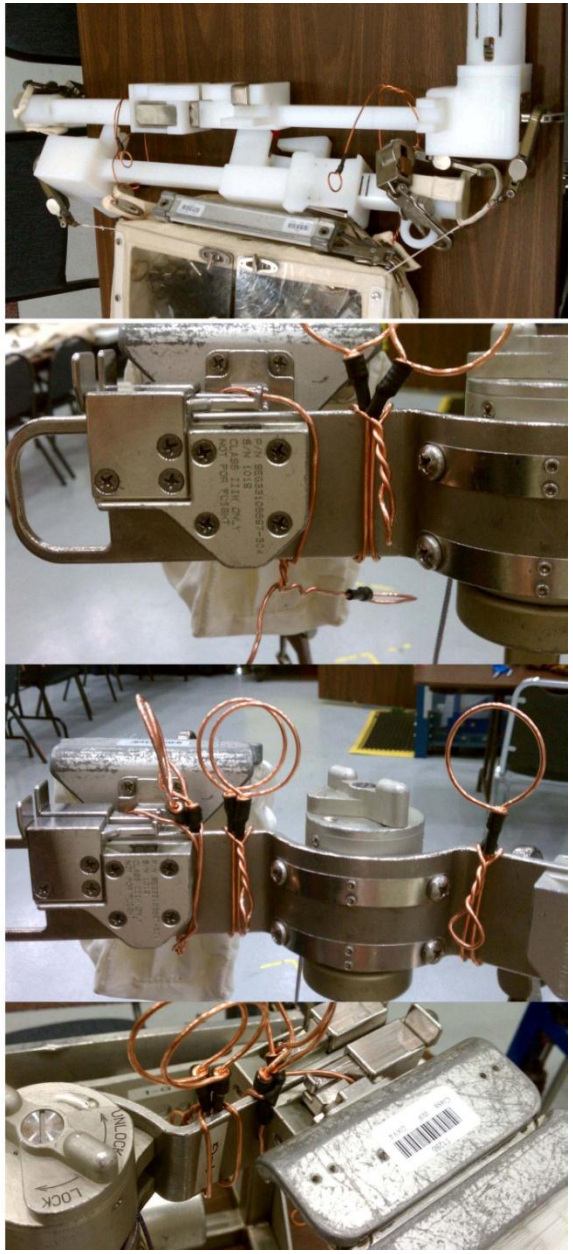
☐☐ **Staging Bag**
- ☐☐ Fish Stringer Tether #1
  - ☐☐ Wire Tie Caddy (6 short; 3 long)
  - ☐☐ Velcro/Tape Caddy
  - ☐☐ PGT s/n __1007_____
    - ☐☐ PGT Battery s/n __1008_____
    - ☐☐ 7/16 (wobble) Socket-6 ext
  - ☐☐ Ratchet Wrench w/Palm Wheel
  - ☐☐ Spare WIF Adapter (w/PIP Pin)
  - ☐☐ Long Duration Tie-Down Tether
  - ☐☐ Long Duration Tie-Down Tether
  - ☐☐ Spare 85-ft Safety Tether
- ☐☐ Fish Stringer Tether #2 (inside tether)
  - ☐☐ Connector Cleaner Tool Kit
  - ☐☐ Pry Bar
  - ☐☐ MWS Key Strap Assy (on wire tie, to strap)

☐☐ RET (Lg-sm)
- ☐☐ **Crewlock Bag (Tool Relocations)** ~~(hook to outside of Staging Bag)~~
  - ☐☐ Vise Grips (stbd toolbox) (Int RET 1)
  - ☐☐ Probe (stbd toolbox) (Int RET 2)
  - ☐☐ Pin Straightener Assy (port toolbox) (Int RET 3)
  - ☐☐ Adj Equip Tether (sm-sm) (Int RET 4)
    - ☐☐ Short MMOD T-Handle Tool (port toolbox)
    - ☐☐ Short MMOD T-Handle Tool (port toolbox)
  - ☐☐ RET w/PIP Pin
    - ☐☐ 1" QD Cap Tool (stbd QD Bag)
    - ■☐ General Purpose Cutters (Large Cutters) (from port toolbox)

Wire ties anchored on Bag eyelet and tied to MISSE tether point



Adj Tether from internal ring to HR






EVA/135/FIN X
PEN & INKS

1. Make sure the AL thermal cover is closed and secure when you come in (and each time you leave the AL). We have had past instances when it came open after the EV crew left the area because it wasn't well secured. Ideally we want gaps of 3 inches or less if possible.
2. This is the last planned EVA for at least a year. Make sure all your closeouts are complete.
3. Use the EVA camera for closeout photos and up close stills – not the fish eye camera.
4. Let us know if you need to deviate from the planned translation paths so we can double check for any potential hazards along your new path.
5. Manage your TCV to maintain a comfortable body temperature. If you allow yourself to get too warm or too cold, you could end up with fogging and/or comfort issues that are difficult to recover from.
6. You'll want glove heaters off for daylight passes when working in hot areas. PMAs and other dark surfaces are the typical hot spots. You can also manage surface temperatures by shading with your body position. You may also translate away from the hot area until the area is shaded or sunset. The thermal predicts for 135 EVA show that
    a. Your hands may get warm in direct sun during the SSRMS translation between ESP-2 and the PLB. Rex will remind you to turn off glove heaters prior to the translation if you'll be in daylight.
    b. The following worksites will be warm and will require you to turn your glove heaters off: PMA-3 cover worksite (especially the forward side), the FGB PDGF area, and the 1553 worksites.
7. The possibility of SPDM grappling raising burrs on the micro-squares and H-fixtures has become a concern. Because there isn't time to completely resolve this issue prior to your EVA, we are asking you to avoid contact with the items of concern on the SPDM. See the Warning Pen and Ink on 7-24 and 7-26.
8. When translating with MISSE 8 ORMATE, remember to minimize contact with structure to protect the shatterable materials, even when the cover is installed.

Mike, Ron, and Satoshi,

For FDF EVA Checklist procedures that you are scheduled to work with the 135 crew, you'll be sharing the FDF hardcopies. If you have a standalone activity, we'll link a message with the procedure to the OSTPV activity so you don't have to track down a hardcopy.

EVA Systems:

Mike, Ron, Fergy, Satoshi,

1. Kapton tape on the EMU disconnects and electrical connectors are not required since we are not going outboard of the SARJ and don't need shock hazard protection. The procedure steps where this is applicable are:
    - 1.305 Equipment Lock Prep: steps 9 & 21.5
    - 2.325 ISLE EVA Prep: steps 18 & 42
2. For tomorrow's 2.330 ISLE EMU Prebreathe (With Data Collection) procedure, please use the paper copy of the ISLE Prebreathe Cue Card out of the ISS EVA Systems Checklist with Red Stripe (under Alternate Prebreathe Protocols tab, pg 575) for the EVA, which will be returned on 135. There was only one hardcopy of the cue card flown (instead of the two expected), which is currently located in the EVA SYS XFER BAG #2 to be deployed post EVA. This hardcopy cue card will be used for future stage EVAs.
3. Spare CSA-O2s for Equipment Lock Prep - Due to the issues with MCA, we will be having you take a spare set of CSA-O2s (4 units total) into the A\L with you. Updated execute notes for E-Lk Prep have the additional steps to verify the CSA-O2s (4) functionality on the shuttle.
4. As discussed yesterday, we want you to use the new version of the Crewlock Depress/Repress Cue Card for the EVA. Please perform the following sets to deploy the new version of the cue card in the A/L:
    4.1 Perform **MSG 28-0505 EVA Cue Card Print Instructions** to print out and tape new cue card over the old hardcopy of the Crewlock Depress/Repress Cue Card (1) that is currently deployed in the E-Lk.
    4.2 Gather the other old hardcopy (1) from the C-Lk and stow in the EVA SYS XFER Bag 1 for return on 135.
    4.3 Deploy the new hardcopy (1) Crewlock Depress/Repress Cue Card from the EVA SYS XFER Bag 2 in the C-Lk.
5. Please report to **MCC-H** the s/n of the two new EVA Prebreathe Masks (2) stowed yesterday in the PHA Bags in the A/L.

EVA Tasks:

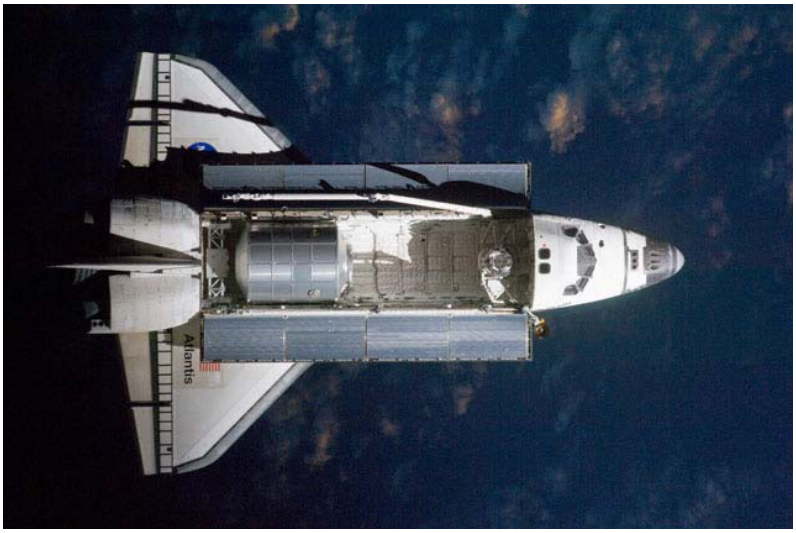
Ron, Satoshi, Mike, Chris, Doug, Sandy, and Rex,

1. <u>28-0496 (135-023) ULF7 EVA Procedure Deltas</u> - has pen and ink updates to the EVA Procedures.
    a. SPDM micro-squares and h-fixtures Warnings – 7-24 and 7-26

   b. Cribsheet Deltas – EVA Checklist, STS-135/ULF7 WORKAROUNDS CRIBSHEET, EVA 1 CONTINGENCIES
2. 28-0497 (135-024) - ULF7 EVA Final Tool Config – This updated tool config is based on the photos taken July 4th. Please let us know of any further updates.
   a. EV1 & EV2 BRT wire tie count is fine as long as you have the wire tie caddy (MISSE Bag)
   b. EV1 & EV2 PGT batteries should have been configured after the photos were taken
   c. Please verify EV1 has a 6” wobble socket on the PGT
   d. Please verify EV1 ST Pack config (ref: 7-17 for drawing)
   e. Fisheye Camera should be configured on FD04, just before Procedure Review
   f. The tool config was updated based on the photos to reflect that the EVA camera moved from the COLT bag to EV1. From what we can see it only has the bracket RET which means you will need an additional RET for any transfers. We noticed the RET which restrained this camera is still in the COLT bag. Let us know if you move this RET.
   g. Please verify the COLT Bag has a Lg-sm RET and an Adjustable on the outside.
3. 28-0498 (135-025) ULF7 EVA Procedure Review Deltas - contains some reminders for your procedure review
4. Rex, we are working on updating the DOUG load on your PGSC so that you can use it as a reference on the AFD. We’ll let you know when that is complete.

STS-135/ULF7 FD03 - MMT Summary

Congratulations on an outstanding Rendezvous and docking. Text book and by the numbers. The RPM “ballet” was as beautiful as ever! What a magnificent flying machine.




The MMT met today to review the orbiter systems and mission progress.

The LESS/RCC team has completed review of the FD2 inspection data and the RCC looks great. At the time of the MMT, the TPS folks were still busily reviewing the RPM photography and the official status of these will be briefed at the FD4 MMT.

Atlantis continues to perform exceptionally well, and besides the “hiccup” with GPC 3, the teams are not working any systems issues. The flight control teams will provide further words on GPC 3 troubleshooting

The ISS team is happy to have you onboard! Enjoy your docked stay!

MSG 028 - GPC FRP-1 FOR GPC 3

To attempt recovery of GPC 3, work DPS FRP-1. This procedure will dump and IPL GPC 3, and if the GPC is recovered, will freeze-dry GPC 3.

DPS FRP-1, Single GPC FAIL, MAL PROC, pg 5-58
Start in Block 8.
Block 8 - Work DPS SSR-1 to Dump GPC 3 (steps 2 & 7 are not required)
Block 9 - Work DPS SSR-8 to IPL GPC 3.
Proceed from Block 11 as appropriate.
If recovered,
From Block 14 proceed to Block 16.
Block 16 - In Block 33, use Dual G2 column, replacing Target Set with GPCs 1 & 3 only. Remain DAP FREE.
From Block 23 proceed to Block 24 and then Block 27.
Block 27 - Work Block 32 to Contract to Single using GPC 1 - stringing all 1's. Remain DAP FREE. Freeze-dry GPC 3.

Notes:
1) Block 8 will take GNC downlist for ~5 minutes.

END OF PAGE 1 OF 1, MSG 028

**CREWLOCK DEPRESS/REPRESS CUE CARD**
(ISS EVA SYS/ULF7 - ALL/FIN 14/HC/Paper on ISS) Page 1 of 2 pages

CREWLOCK DEPRESS (30 MINUTES, 45 MINUTES FOR EXERCISE PROTOCOL)

DCM 1. √sw Comm FREQ – LOW
2.√sw COMM mode – PRI
UIA 3. sw DEPRESS PUMP PWR → ON
(wait 10 seconds for complete startup)
C-Lk 4. DEPRESS PUMP MAN ISOV → OPEN (EV expect alert tone)
IV If using CEVIS Exercise Protocol, start PET clock.
DCM Monitor Suit P gauge < 5.5.

```
*********************************
*  If gauge > 5.5
*  |   Stop depress, √MCC-H.
*********************************
```

DCM 5. When C-Lk at 6.0, EV expect alert tone.
When C-Lk at 5.0 psia (259 mm Hg)
C-Lk | 6. DEPRESS PUMP MAN ISOV → CLOSED (EV expect alert tone), then:
DCM 7. sw DISP → STATUS until [LEAK CHECK?] displayed
sw DISP → YES (hold for 2 seconds) follow displayed instructions

```
*******************************************************************
*  If [LEAKAGE HI | SUIT P X.X]
*  |   Perform {2.110  FAILED LEAK CHECK (5 PSIA)}, all
*  |     (SODF: ISS EVA SYS: EMU CONTINGENCY), then:
*******************************************************************
```

8. √O2 ACT – EVA
If using CEVIS Exercise Protocol
| 9. Hold at 5.0 psia until Depress PET = 00:25, then:
C-Lk 10. DEPRESS PUMP MAN ISOV → OPEN (EV expect alert tone)
IV A/L1A2 11. Emergency MPEV → Open
DCM Monitor SUIT P gauge < 5.5.

```
*********************************
*  If gauge > 5.5
*  | Stop depress, √MCC-H.
*********************************
```

When C-Lk at 2.0 psia (103 mm Hg)
C-Lk | 12. DEPRESS PUMP MAN ISOV → CLOSED, then:
UIA 13. sw DEPRESS PUMP PWR → OFF
C-Lk 14. Attach waist tethers to C-Lk D-Ring for egress.
DCM 15. When C-Lk dP/dT ~ 0 EV expect alert tone.
When EV Hatch ΔP < 0.5 psi (26 mm Hg)
C-Lk | 16. EV Hatch → open, stow
IV A/L1A2 | 17. Emergency MPEV → Closed

POST DEPRESS (5 MINUTES)

DCM 1. sw POWER → BATT (stagger switch throws) expect warning tone
√Display sw functional
(IV record GMT _____/_____:_____ _____) EVA PET = 00:00
UIA 2. sw PWR EV-1,2 (two) → OFF
√PWR EV-1,2 LEDs (four) – Off
DCM 3. SCU ←|→ DCM
4. Install DCM cover.
5. Stow SCU in pouch.
C-Lk 6. √DEPRESS PUMP MAN ISOV – CLOSED
DCM 7. Temp control vlv → Max H
8. sw WATER → ON
9. √DCM blank, BITE – off
10. Temp control vlv → 3 to Max C
11. √STATUS, Compare to Cuff Checklist page 1 (IV record)
12. As required, Visors.
IV PCS 13. Airlock: ECLSS: PCA: VRIV
**cmd** Close (√Position – Closed)
14. Go to {CREWLOCK EGRESS} (SODF: ISS EVA SYS: CUFF CHECKLIST) page 38 or EVA specific timeline.

EVA-1a/ULF7 - ALL/O

**CREWLOCK DEPRESS/REPRESS CUE CARD**
(ISS EVA SYS/ULF7 - ALL/FIN 14/HC/Paper on ISS) Page 2 of 2 pages

PRE REPRESS (5 MINUTES)

DCM 1. √SCU →|← DCM
2. √sw WATER – OFF for 2 minutes
C-Lk 3. √EV Hatch closed, locked
UIA 4. √OXYGEN EMU1,2 vlv (two) – OPEN
5. sw PWR EV-1,2 (two) → ON
√PWR EV-1,2 EMU LEDs (two) – On
√PWR EV-1,2 VOLTS = 18.0 to 19.0
DCM 6. sw POWER → SCU (EV expect warning tone)

CREWLOCK REPRESS (10 MINUTES)

**WARNING**
If on SOP, leave O2 ACT – EVA thru C-Lk repress.

DCM 1. O2 ACT → PRESS
If Hardline Comm available
DCM | 2.sw COMM mode → HL
C-Lk 3. √EV Hatch MPEV – CLOSED
C-Lk 4. As required, IV Hatch equalization vlv → throttle OFF to NORM
(EV expect alert tone)
(IV record GMT_____/_____:_____ _____)
DCM 5. When C-Lk at 4.0, EV expect alert tone.
When C-Lk at 5.0 (259 mm Hg)
C-Lk | 6. IV Hatch equalization valve → OFF (EV expect alert tone), then:
7. Wait 2 minutes for C-Lk pressure to stabilize.
IV 8. Airlock: ECLSS
Record Crew Lock Press: _____mmHg (P1)
Wait 1 minute, then record again: _____mmHg (P2)

```
************************************************************
*  If ΔP ≥ 9 mmHg (where ΔP = P1-P2)
*  |  Go to {4.150  CREWLOCK LARGE LEAK
*  |    RESPONSE}, all (SODF: ISS EVA SYS:
*  |    EMERGENCY).
*
*  If ΔP > 2 mmHg (where ΔP = P1-P2)
*  |  Go to {2.205  CREWLOCK SMALL LEAK
*  |    RESPONSE}, all (SODF: ISS EVA SYS:
*  |    AIRLOCK CONTINGENCY).
************************************************************
```

9. √sw Gloves heaters – OFF, Gloves clean

**WARNING**
1. If CUFF 1 symptoms resolving upon repress, report as CUFF 2.
2. If any DCS, leave O2 ACT – PRESS.

DCM 10. O2 ACT → IV
C-Lk 11. IV Hatch equalization vlv → NORM (EV expect alert tone)
DCM When C-Lk dP/dT ~ 0 (EV expect alert tone)
| 12. Go to {1.240 POST EVA}, all (SODF: ISS EVA SYS: EVA PREP/POST).

EVA-1b/ULF7 - ALL/O

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