Flight Plan

STS-135/ULF-7
(FDO L-35_Jul8 Trajectory)

Mission Operations Directorate
Operations Division

Final
June 17, 2011

Launch Date: Fri. July 08, 2011 GMT
Launch Time: 189/15:26:46 GMT
July 08, 11:26:46 EDT

For the latest working copy of the Flight Plan, visit

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas
MISSION OPERATIONS DIRECTORATE

FLIGHT PLAN
STS-135

FINAL
June 17, 2011

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Tyson Tucker
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| 482#:     | FLT PLN-02185 |

**AREAS OF TECHNICAL RESPONSIBILITY**

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INTRODUCTION

The STS-135 Flight Plan is the Flight Data File article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. The detailed rendezvous and undocking timelines and procedures are contained in the Rendezvous Checklist. The detailed EVA task timelines and procedures are contained in the EVA Checklist.

This Flight Plan satisfies the mission requirements specified in the following documents:
- NSTS-07700 Vol III, Flight Definition and Requirements Document
- NSTS-17462-135, STS-135 Flight Requirements Document
- NSTS-37326, Shuttle Crew Scheduling Constraints
- NSTS-21558, ISS-ULF7 Mission Integration Plan

The timeline formats used in this Flight Plan are based on JSC-19933, Timeline Format Definitions and Standard Notes, Rev C, May 1990.

The STS-135 Flight Plan is based on a launch date of July 08, 2011, at 15:26:46 GMT (11:26:46 EDT). Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

The following SCSC Exceptions have been submitted in order to meet Category 1 objectives:

None

The Flight Plan and previously published, non-flown sections listed below are available on the following Space Shuttle Flight Planning web site:


Non-flown sections that are no longer published:
- ISS Commanding Pages
- Attitude Timeline
- Ku-Band Antenna Masking Plan
- Timeline Walkthrough
- Flight Plan Notes
OVERVIEW TIMELINE
STS-135/ULF 7
Overview Timeline 12+0+2
GMT L/O: 189/15.26:46
July 8, 2011

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**GMT 07/10/11 (191)**

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**ISS CDR**
- BORISENKO
- SAFETY BRIEF
- T2
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP

**FE-1**
- SAMOKUTYAEV
- SAFETY BRIEF
- ARED
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP

**FE-3**
- GARAN
- HATCH LEAK
- ISS
- INGRS
- HATCH OPEN
- SAFETY BRIEF
- DOUGS
- T2
- SSRMS OBSS HANDBOFF
- PW
- PRE SLEEP-ISS
- SLEEP

**FE-4**
- VOLKOV
- T2
- SAFETY BRIEF
- VEL0
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP

**FE-5**
- FURUKAWA
- SAFETY BRIEF
- INGRS
- HATCH OPEN
- SSRMS OBSS HANDBOFF
- PW
- PRE SLEEP-ISS
- SLEEP

**FE-6**
- FOSSUM
- HATCH LEAK
- ISS
- INGRS
- HATCH OPEN
- SAFETY BRIEF
- SOF EMER DEPLOY
- EVA XFER
- PW
- PRE SLEEP-ISS
- SLEEP

### DAY/NIGHT
- 06
- 08
- 09
- 10
- 11
- 12
- 13

### DAILY ORBIT
- 07/10/11 (191)

### TDRS AVAIL
- 07/10/11 (191)

### ISS TLM
- 142

### ORBIT
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40

### NOTES
- NO UNISOLATED EXERCISE
- ATT RATE SETTLING
- NO EXERCISE
- WHILE DOUBLE GRAPPLED

---

2-9
FD04

CDR FERGUSON

SLEEP
POST SLEEP
P/TV06 ROBOTICS
MDDK XFER
MEAL
MPLM VEST PRESS
MPLM VEST INGRS CNFG

PLT HURLEY

SLEEP
POST SLEEP
DOUG SETUP
SSRMS GRAPL
MPLM UNBERTH/INSTALL
LIMP
MDDK XFER
MEAL
STS O2 P/B CONFIG

MS1 MAGNUS

SLEEP
POST SLEEP
SSRMS GRAPL
MPLM UNBERTH/INSTALL
VERIF
MDDK XFER
MEAL
MPLM VEST INGRS CNFG

MS2 WALHEIM

SLEEP
POST SLEEP
PLYBK OPS
MDDK XFER
MEAL
TOOL VERIF
MDDK XFER

DAY/NIGHT

ORBIT

TDRS

BIAS -XLV -ZVV

ISS TDLS AVAL

Notes

NO T2
NO EXERCISE
MPLM MNVR FROM MDRS UNBERTH BERTH TO PRE-INSTL BOLT LOAD

2-10

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**NOTES**
- *CAMCORDER CONFIG
- NO T2
- NO EXERCISE
- MPLM MNVR FROM BERTH TO PRE-INSTL
- BOLT LOAD

**MET**
- Day 002

**ISS TLM**
- 0003/00

**DAILY ORBIT**
- 122

**ORBIT**
- 40

**TDRS AVAIL**
- 122

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**NOTES**
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  - STS O2 P/B CONFIG

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**TDRS AVAIL**
- 122
- 112
- 122
- 142
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**DAILY ORBIT**
- 6
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- 14

**DAT/NIGHT**
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- 01/02
- 03/04
- 05/06
- 07/08
- 09/10
- 11/12

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**Orbit**

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**ISS TDRS AVAIL**

**NOTES**

**No Unisolated Exercise**

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**FE-6**
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**DAY/NIGHT**
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**DAILY ORBIT**
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**TDRS AVAIL**
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- FE-4 VOLKOV
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- DAILY ORBIT
- TDRS AVAIL
- ISS TLM
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**Notes:**
- DPC: Data Processing Computer
- PW: Personal Workstation
- MEAL: Meal
- CREW CONF: Crew Conference
- C PH E W TO: Communication, Planning, Equipment, Work, Training
- VELO: Volo
- MPLM XFER: MPLM Transfer
- WATER PLC: Water Plumbing
- ISS EMU C/O PREP: ISS EMU Control/Operation Preparation
- PGT C/O: PGT Control/Operation
- CEVIS: CEVIS
- EMU RESIZE: EMU Resize
- POST EVA XFER: Post EVA Transfer
- ARED: ARED
- PAO-D: PAO-D
- CL RCNFG: CL RCNFG
- MYCOPREP: MYCOPREP
- MYCO: MYCO
- ISSEMUC/O: ISSEMUC/O
- CEVIS: CEVIS
- ISSEMUC/O: ISSEMUC/O
- EMU RESIZE: EMU RESIZE
- POST EVA XFER: POST EVA XFER
- ARED: ARED
- T2: T2
- MEAL: MEAL
- CREW CONF: CREW CONF
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- VELO: VELO
- MPLM XFER: MPLM XFER
- WATER PLC: WATER PLC
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- CEVIS: CEVIS
- EMU RESIZE: EMU RESIZE
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**ISS CDR**
- BORISENKO
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**FE-1**
- SAMOKUTYAEV
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**FE-3**
- GARAN
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**FE-4**
- VOLKOV
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**FE-5**
- FURUKAWA
- CEVIS
- PW
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**FE-6**
- FOSSUM
- ARED
- DPC
- PRE SLEEP-ISS
- SLEEP
- POST SLEEP

**DAY/NIGHT**
- DAILY ORBIT
- TDRS AVAIL
- ISS TLM
- ORBIT 122 112 122
- NOTES

**NOTES**
- 2-33
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**Notes:**
- No exercise.
- MPLM uninstall/bolt unloading.
- No T2 back off to berth.
- AEM status check.
- Imu h2o.
- Obss.
- MDDK xfer.
- SSRMS MPLM uninstl.
- SSRMS MPLM ungrpl.
- PTV05 DACT.
- PTV04 DACT.
- C/L cam rinst.
- Rndz to tools.
- Post sleep.
- Meal.
- Farewell.
- Hatch close.
- Leak check.

**Orbit:**
- 134, 135, 136, 137, 138, 139, 140, 141, 142

**TDRS:**
- W, E, Z

**Orb Att:**
- BIAS -XLV -ZVV
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**NOTES**

- **NO EXERCISE**
- **NO T2**
- **MPLM UNINSTALL**
- **BOLT UNLOADING**
- **BACK OFF TO BERTH**
- **CAMCORDER CONFIG**

**ISS TLM**

- 112
- 122
- 137
- 139
- 140
- 141
- 142

**ORBIT**

- 134
- 135
- 136
- 137
- 138
- 139
- 140
- 141
- 142

**DAILY ORBIT**

- 07/17/11 (198)

**TDRS AVAIL**

- 112
- 122
- 137
- 139

**DATE**

- 07/17/11 (198)

**ISS CDR**

- BORISENKO

**ISS**

- SAMOKUTYAEV
- GARAN
- VOLKOV
- FURUKAWA
- FOSSUM

**MSS-RWS CABLE-DSCNCT**

- *CAMCORDER CONFIG"
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**ISS TLM**: 122

**ORBIT**: 142 143 144 145 146 147 148 149

**NOTES**
UNDOCKING 009/14:33

CDR FERGUSON
- POST SLEEP
- MNVR
- UNDOCK
- OPS
- FLYAROUND/SEP
- MEAL
- STBD WING SRVY-LATE
- NOSE CAP SURVEY
- PORT WING SURVEY
- OBSS BERTH

PLT HURLEY
- POST SLEEP
- UNDOCK
- OPS
- FLYAROUND/SEP
- MEAL
- STBD WING SRVY-LATE
- NOSE CAP SURVEY
- PORT WING SURVEY
- OBSS BERTH

MS1 MAGNUS
- POST SLEEP
- P/TV UNDOCK
- MEAL
- STBD WING SRVY-LATE
- NOSE CAP SURVEY
- PORT WING SURVEY
- LDRI DOWNLINK

MS2 WALHEIM
- POST SLEEP
- UNDOCK
- OPS
- FLYAROUND/SEP
- MEAL
- STBD WING SRVY-LATE
- NOSE CAP SURVEY
- PORT WING SURVEY

NOTES
- *UNDocking 009/14:33

2-38

FLT PLN/135/FIN
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**NOTES**

- ORBIT: 157, 158, 159, 160, 161, 162, 163, 164, 165
- ISS TLM: 122
ACTIVITIES PRIOR TO 00/02:50 ARE IN THE ASCENT AND POST INSERTION CHECKLISTS. THE ORBITER SHOULD BE IN A -ZLV -XVV ATTITUDE UPON ENTERING THE FLIGHT PLAN.

**FD01 EZ ACTIVITIES:**
- PCS 1(2) CONFIG (ORB OPS, ECLS)
  - Config to PCS 2 with 14.7 CAB REG
- INLET SYS1,2 vlvs (two)- CL
- LAMP TEST (ORB OPS, EPS)
- SMOKE DETN CKT TEST (ORB OPS, ECLS)
- CSA-CP BATTERY CHANGEOUT (ORB OPS, CSA-CP)
- CSA-CP CHECKOUT AND ZERO CALIBRATION OPS (ORB OPS, CSA-CP)
- VTR CLOCK SET (PHOTO/TV, DTV) if not performed for PLBD rec D3s (PHOTO/TV, REF PROC) Perform DATE/TIME SET

RETURN TO FLIGHT PLAN AT 00/02:50

LOAD DAPS Ref.
STS-135 DAP A(B) CONFIGURATIONS
(ORB OPS, DAP TABLE)
(ORB OPS, GNC)
ON-ORBIT OMS BURN
(ORB OPS, OMS)

ON-ORBIT INITIALIZATION
(PDRS, ON-ORBIT INITIALIZATION)
DCAC SETUP
(ORB OPS, CREW SYSTEMS)
ON-ORBIT OMS BURN
(ORB OPS, OMS)

< NC1 TIG (03:40)

MNVR (TRK) -ZLV -XVV
TG-2 BV-3 OM=0
AI/AUTO/VERN, Init TRK
**STS-135/ULF7 FD01**

**MS1**

**Magnus Walheim**

**MS2**

**ACTIVITIES PRIOR TO 00/02:50 ARE IN THE ASCENT AND POST INSERTION CHECKLISTS.**

**THE ORBITER SHOULD BE IN A -ZLV -XVV ATTITUDE UPON ENTERING THE FLIGHT PLAN.**

**RETURN TO FLIGHT PLAN AT 00/02:50**

**On MCC Go:**

- SSP1
- APCU 1,2 CONV (two) - OFF (tb-bp)
- APCU 1 OUTPUT RLY - CL
- CONV - ON (tb-gray)
- OUTPUT RLY CLOSE tb-gray

**AEM MUFFLER INSL- Retrieve muffler from Seat Bag 5, attach to faceplate at Velcro tabs, and repeat for other two AEM units.**

**NOTES**

**UPLINK**

TFL 199

**MPLM ENVIRONMENT CHECK**

**UPLINK**

TFL 188

**P/TVO1 VIDEO SETUP**

(P/TV, SCENES)

**RETURN TO FLIGHT PLAN AT 00/02:50**

**STL INITIALIZATION (ASSY OPS, PAYLOADS)**

**GIRA INSTALLATION**

(ORB OPS, ECLS)

**APCU ACTIVATION**

A

**TISSUE EQUIVALENT PROPER COUNTER (TEPC)**

(A. PWR ON)

(ORB OPS, CREW SYSTEMS)

**AEM MUFFLER INSL- Retrieve muffler from Seat Bag 5, attach to faceplate at Velcro tabs, and repeat for other two AEM units.**

**On MCC Go:**

- SSP1 APCU 1 CONV - OFF (tb-bp)
- OUTPUT RLY - OP (tb-bp)
- OIU PWR - OFF (tb-bp)

**PGSC ACT (Details on pg 3-5)**

**UPLINK**

TFL 188
<table>
<thead>
<tr>
<th>Time</th>
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<tr>
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<td>03:00</td>
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<tr>
<td>04:00</td>
<td>PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN) Steps 2,5,6 (Single G2), &amp; 12 (IMU 2)</td>
<td>PRIORITY PWRDN GRP B (ORB PKT, PRIORITY PWRDN) Steps 2,5,6 (Single G2), &amp; 12 (IMU 2)</td>
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<tr>
<td>04:00</td>
<td>IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)</td>
<td>P/TV01 VIDEO SETUP (P/TV, SCENES)</td>
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<tr>
<td>05:00</td>
<td>ELEVON PARK, GNC 201 (ORB OPS, GNC)</td>
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<tr>
<td>06:00</td>
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<td>A12 APU HTR GG/FU (three) - A AUTO</td>
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<tr>
<td>06:00</td>
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<td>RMS PWRUP (PDRS, RMS PWRUP)</td>
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<tr>
<td>07:00</td>
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<td>RMS CHECKOUT (PDRS, RMS CHECKOUT)</td>
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**BMO69M Insert Bleed Orifice Assembly into LEH O2 8 QD**

**LEH O2 8 vlv-OP**

**PRIORITY PWRDN GRP B**

**(ORB PKT, PRIOR PWRDN) Steps 2,5,6 (Single G2), & 12 (IMU 2)**

**A12 APU HTR GG/FU (three) - A AUTO**

**R2 BLR POWER (three) - OFF**

**STEPS 2,5,6**

**IMU 2**

**Ferguson**

**Hurley**

**20:00**

**21:00**

**22:00**

**23:00**

**04:00**

**05:00**

**06:00**

**07:00**

**08:00**

**09:00**

**10:00**

**11:00**

**12:00**

**CDR**

**PLT**

**PGSC ACT**

**PGSC NETWORK (A. SETUP)**

**OCA SETUP**

**PGSC HARD DISK LATE UPDATE**

**WINDECOM OPS (A. ACT)**

**WORLDMAP INITIALIZATION**

**COLOR PRINTER UNSTOW & ASSEMBLY**

**COLOR PRINTER WARMUP & SELF-TEST**

**ORB OPS, PGSC**

**IMU STAR OF OPPTY ALIGN**

**ORB OPS, GNC**

**ELEVON PARK, GNC 201**

**A12 APU HTR GG/FU (three) - A AUTO**

**R2 BLR POWER (three) - OFF**

**RMS PWRUP (PDRS, RMS PWRUP)**

**RMS CHECKOUT (PDRS, RMS CHECKOUT)**

**RMS PWRDN (PDRS, RMS PWRDN)**

**Step 1**

**INSTALL BLEED ORIFICE B**

**RMS PWRDN (PDRS, RMS PWRDN)**

**Step 1**

**NOTES**
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<th>Time</th>
<th>Activity Description</th>
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<tr>
<td>04:00</td>
<td>P/TV01 VIDEO SETUP (P/TV, SCENES)</td>
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<tr>
<td>05:00</td>
<td>SHUTTLE EMER EYEWASH SETUP</td>
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<tr>
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<td>After GIRA INSTALL, unstow and fill one drink container; label “FOR EYE RINSE ONLY”.</td>
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<td>Attach on or near galley.</td>
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<tr>
<td>07:00</td>
<td>CGRA UNIT #1,2 STATUS CHECK (CC), S1L STATUS CHECK (CC)</td>
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<tr>
<td>07:00</td>
<td>AEM UNIT #1,2,3 CHECK (Cue Card)</td>
</tr>
<tr>
<td>07:00</td>
<td>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)</td>
</tr>
</tbody>
</table>

**NOTES**

- After GIRA INSTALL, unstow and fill one drink container; label “FOR EYE RINSE ONLY”. Attach on or near galley.
- Perform DCS FILE TO HARD DRIVE for ET HH Photo.
- Umbilical TPS Camera Imagery Downloading.
- Digital Via VTR (Cue Card, Digital Playback) W4 Mini-Cam.
- KU TDFW (07:05-07:58) Gimbal flip @ 7:29.
- PRE-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)
- Best Lighting (07:15-07:58).
CREW WAKE @ 00/16:30
CREW WAKE @ 00/16:30

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP

SLEEP

NOTES
FD02 EZ ACTIVITIES:
- TEPC STATUS CHECK
  Verify display is backlit
- HARD REBOOT STS-3 (KFX)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
- Hum Seps for H2O Accumulation

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
- OBSS UNBERTH
(PODRS, OBSS OPERATIONS)
  Prior to Step 3:
  SSD1 VAPCU 2 OUTPUT RLY CLOSE tb-bp

UPDATE ORBITAL MNVR PAD

L17 Check MCIU filter screen

ON-ORBIT OMS BURN
(ORB OPS, OMS)
- < NC2 TIG (18:42)

MNVR (TRK) -ZLV -XVV
TG=2 BV=3 OM=0
A1/AUTO/VERN, Init TRK
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
### STS-135/ULF7 FD02

**Date:** 07/09 (190)

**GMT**
- 08:00
- 09:00
- 10:00
- 11:00
- 12:00
- 13:00
- 14:00
- 15:00
- 16:00
- 17:00
- 18:00
- 19:00
- 20:00

**MET**
- 16:00
- 17:00
- 18:00
- 19:00
- 20:00

**MCC**
- SSP1

**On MCC Go:**
- APCU 1, 2 CONV (two) - OFF (tb-bp)
- APCU 1 OUTPUT RLY - CL
- CONV - ON (tb-gray)
- OUTPUT RLY CLOSE tb-gray

**UPLINK**
- TFL 199

**MPLM**
- PRESSURE CHECK

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

---

**STS ATT**
- MS1
- SLEEP

**POST-SLEEP ACTIVITY**
- (ORB OPS, CREW SYSTEMS)
- RCS/OMS POD HEATER RECONFIG B

**SLEEP LOGBOOK (SDBI 1634)**
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)

---

**MS2**
- SLEEP

**POST-SLEEP ACTIVITY**
- (ORB OPS, CREW SYSTEMS)
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)

---

**NOTES**
- MPLM CHAN 1, 2 HTR PWR (two) - ON (tb-gray)

---

**RCS/OMS POD HEATER RECONFIG B**
- POST-SLEEP ACTIVITY
- (ORB OPS, CREW SYSTEMS)
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)
- OIU PWR - OFF (tb-bp)
- OIU 1 ON (tb-UP)

---

**CGBA UNIT #1,2 STATUS CHECK (CC), STL STATUS CHECK (CC)**
### STS-135/ULF7 FD02

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<thead>
<tr>
<th>Time</th>
<th>CDR</th>
<th>Ferguson</th>
<th>PLT</th>
<th>Hurley</th>
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<tr>
<td>07/09 (190)</td>
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#### Time Schedule

- **07/09 (190)**
  - **12:00**
    - OBSS UNBERTH
      - (PDRS, OBSS OPERATIONS)
      - Prior to Step 3:
        - SSP1 VAPCU 2 OUTPUT RLY CLOSE tb-bp
  - **13:00**
    - MNVR (TRK) BIAS +YSI (Stbd Survey)
      - TG=4 BV=5 P=0 Y=40 OM=270
      - A14/AUTO/VERN, OBSS UNBERTH cmplt, Init TRK
  - **14:00**
    - OBSS LDRI/IDC RCC SURVEY - STBD
      - (PDRS, OBSS OPERATIONS)
      - Prior to Step 3:
        - SSP1 VAPCU 2 OUTPUT RLY CLOSE tb-bp
  - **15:00**
    - MNVR (TRK) BIAS +XSI (Nose Cap)
      - TG=4 BV=5 P=330 Y=0 OM=305
      - A14/AUTO/VERN, RCC SURVEY-STBD cmplt, Init TRK
  - **23:00**
    - MEAL
      - (PDRS, OBSS OPERATIONS)
      - OBSS LDRI/IDC RCC SURVEY - NOSE CAP
      - (PDRS, OBSS OPERATIONS)
FLT PLN/135/FIN

---

**Magnus Walheim**

**BRICK SYNRGE UNSTOW**

**(ASSY OPS, PAYLOADS)**

**CUBE LAB MODULE-8 ACTIVATION**

**(ASSY OPS, PAYLOADS)**

**CUBE LAB MODULE-7 ACTIVATION**

**(ASSY OPS, PAYLOADS)**

All Trays in LMA Packs 1 and 2; ONLY activate Syringes with "FD2" labeled arrows on back of trays.

---

**STS-135/ULF7 FD**

07/09 (190)

---

**MS1 Magnus**

**CYCLE ERGMOMETER OPS**

**(ORB OPS, CREW SYS)**

**ERGMOMETER SETUP**

**P/TV09 MIDDECK PAYLOADS**

**(P/TV, SCENES)** Item 5 Video

**OBSS LDRI/IDC RCC SURVEY - STBD**

**(PDMS, OBSS OPERATIONS)**

**CUBE LAB MODULE-7 ACTIVATION (ASSY OPS, PAYLOADS)**

All Trays in LMA Packs 1 and 2; ONLY activate Syringes with "FD2" labeled arrows on back of trays.

**CUBE LAB MODULE-8 ACTIVATION (ASSY OPS, PAYLOADS)**

**SYNCRGE UNSTOW (ASSY OPS, PAYLOADS)**

**MLB987C cb MNC EXT ARLK MTN LK 2N 1,2 (two) - cl**

**FILTER CLEANING**

**(IFM, SCHEDULED MAINTENANCE)**

**CRYO 02 TK HTR SNSR CK**

**(ORB OPS, EPS)**

**SHUTTLE/ISS H2O CONTAINER FILL**

**(ORB OPS, ECLS)**

Perform EQUIP PREP and WATER TRANSFER HOSE PURGE

Ref. MSG XXX

---

**MS2 Walheim**

**CYCLE ERGMOMETER OPS**

**(ORB OPS, CREW SYS)**

**ERGMOMETER SETUP**

**P/TV09 MIDDECK PAYLOADS**

**(P/TV, SCENES)** Item 5 Video

**OBSS LDRI/IDC RCC SURVEY - STBD**

**(PDMS, OBSS OPERATIONS)**

**CUBE LAB MODULE-8 CRYSTALLIZATION (ASSY OPS, PAYLOADS)**

**FUEL CELL PURGE - MANUAL**

**(ORB OPS, EPS)**

**FUEL CELL PURGE - MANUAL**

**(ORB OPS, EPS)**

---

**MEAL**

---

NOTES
**STSW-135/ULF7 FD02**

**Date**
07/09 (190)

**Time**
00:00 - 04:00

**CDR** Ferguson

**PLT** Hurley

**GMT**
01:00 - 02:00

**MET**
01:00 - 02:00

**Day**
Day 001

---

**00:00**

**OBSS LDRI/IDC RCC SURVEY - NOSE CAP**
(PDOS, OBSS OPERATIONS)

**OBSS LDRI/IDC RCC SURVEY - NOSE CAP**
(PDOS, OBSS OPERATIONS)

**01:00**

**OBSS LDRI/IDC RCC SURVEY - PORT**
(PDOS, OBSS OPERATIONS)

When RCC SURVEY-PORT step 3 complete:
MNVR (TRK) BIAS - YSI (Port Survey)
TG=4 BV=5 P=0 Y=323 OM=10, A14/AUTO/VERN, Init TRK

**02:00**

**MNVR (TRK) - ZLV - XVV**
TG=2 BV=3 OM=0
A14/AUTO/VERN, RCC-SURVEY-PORT Step 14 cmplt, Init TRK

**OBSS BERTH**
(PDOS, OBSS OPERATIONS)

**OBSS BERTH**
(PDOS, OBSS OPERATIONS)

**03:00**

**DOCKING MECHANISM INITIALIZATION**
(RNDZ, APDS)

**IMU STAR OF OPPSY ALIGN (ORB OPS, GNC)**

**RNDZ TOOLS CHECKOUT**
(RNDZ, RNDZ TOOLS)

---

**NOTES**

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**UPLINK**
TFL 192

---

**3-14**

---

**FLT PLN/135/FIN**
Magnus Walheim

**MS1**

- OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS OPERATIONS)
- OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS OPERATIONS)
- VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.
- DIGITAL VIA VTR (Cue Card, DIGITAL PLAYBACK)
- LDRI Surveys - KU TDRE (03:06-03:51)
- Gimbal flip @ 03:25

**MS2**

- RZ BLR CNTLR/HTR (three) - B
- VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.
- MIDDECK TRANSFER PREP

**NOTES**

- O2 REPRESS INIT [C]
- EVA PREP FOR TRANSFER TO ISS (EVA, AIRLOCK CONFIG)
- O2 REPRESS TERM (On MCC GO) [D]
- LGBA UNIT #1-2 STATUS CHECK (CC), STL STATUS CHECK (CC)
- WLES RNDZ TOOLS C/O PREP (ORB OPS, WLE SENSORS)
- RNDZ TOOLS CHECKOUT (RNDZ, RNDZ TOOLS)
Magnus Walheim

After LDRI Playback Complete:
- RECONFIGURE OCA DOWNLINK RATE (PL MAX)
  (ORB OPS, PGSC) Part C (Omit Step 4)

CREW WAKE @ 01/16:00
FD03 EZ ACTIVITIES:

- OCAC FILTER
- TEPC STATUS CHECK
  - Verify display is backlit
- HARD REBOOT STS-3(KFX)

POST-SLEEP ACTIVITY
  (ORB OPS, CREW SYSTEMS)
  - Hum Seps for H2O Accumulation

IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)

PRIORITY PWRRUP GRP B
  (ORB PKT, PRIORITY PWRRDN)

Steps 12 (IMU 2), 6 (Triple G2), 5

RENDEZVOUS TIMELINE
  (RNDZ, RENDEZVOUS T/L)

< NH TIG 18:44

< NC4 TIG 19:32
STS-135/ULF7 FD03

MS1 Magnus

MS2 Walheim

DAILY TRANSFER LIST UPDATE
Ref. Transfer List & MSG XXX

RENDEZVOUS TIMELINE
(RNDZ, RENDEZVOUS T/L)

RNDZ

P/TV02 DOCK
(P/TV, SCENES)
SETUP

P/TV02 DOCK
(P/TV, SCENES)

APPROACH (Cue Card)

OPS, Items 1-3

DAILY TRANSFER LIST UPDATE
Ref. Transfer List & MSG XXX

RENDEZVOUS TIMELINE
(RNDZ, RENDEZVOUS T/L)

RNDZ

P/TV02 DOCK
(P/TV, SCENES)
DEACTIVATION

DOCKING 01/23:43
**STS-135/ULF7 FD03**

**CDR**
- Ferguson

**PLT**
- Hurley

---

**UPLINK**
- TFL 184

**UPLINK**
- D11-MASK
  - BOX 40,50

**NOTES**
- NO UNISOLATED EXERCISE IN DAP: B13

---

**MNVR (TRK) BIAS -XLV -ZVV (Mated TEA)**
- TG=2 BV=5 P=161.91 Y=359.93 OM=174.12
- Init TRK, DAP: FREE > 2 sec, then
  - DAP: A12/AUTO/VERN

**When ISS is GO for attitude cntrl, DAP: FREE**
- Reload DAP: B12
- Joint Ops: 6.109 HARDLINE ICOM AUDIO Steps 1, 5, 6
- TRIDAR DEACTIVATION (Cue Card)

**WLES DOCK/UNDOCK RECOVERY (ORB OPS, WLE SENSORS)**

**OBSS HANDOFF FROM SSRMS TO SRMS**
- (PDSS, OBSS NOMINAL)

**OBSS HANDOFF FROM SSRMS TO SRMS**
- (PDSS, OBSS NOMINAL)

---

**When MNVR complete and rates damped**:
- PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN)
  - Step 6 (Single G2) BL Step 12 (IMU 2)  
  - 06 S TRK PWR -Z - OFF

**When MNVR complete and rates damped**:
- PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN)
  - Step 6 (Single G2) BL Step 12 (IMU 2)  
  - 06 S TRK PWR -Z - OFF

**In Step 3 of G2 SET CONTRACTION √MCC or pause**
- ~4 min (DAP Settling)
  - DAP: as req'd

---

**UPLINK**
- TFL 184

**UPLINK**
- D11-MASK
  - BOX 40,50

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**16:00**

**17:00**

**18:00**

**19:00**

**01:00**

**02:00**

**03:00**

**04:00**

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**3-26**

**FLT PLN/135/FIN**
NO UNISOLATED EXERCISE IN DAP: B13

POST DOCKING HATCH LEAK CHECK (RDNZ, APDS)

AIRLOCK PREP FOR INGRESS - AIRLOCK FAN ACTIVE (RDNZ, APDS)

JOINT OPS: 2.104 HATCH OPENING & STS/ISS DUCT INSTL
Verify ISS complete through step 2.4
Perform steps 3-9

WELCOME
SAFETY BRIEFING

JOINT OPS: 2.104 HATCH OPENING & STS/ISS DUCT INSTL
Perform steps 10-15; MCC-H will perform Steps 10.1, 12-13, and 16-18

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform CWC FILL #1, Ref. MSG XXX

EXERCISE

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform FILL TERMINATION
Crew Wakeup @ 02/15:30

- No exercise while double grappled

- Node 2 Nadir CBM survey (Camera C)
Magnus Walheim

CREW WAKEUP @ 02/15:30

SHUTTLE/ISS H2O CONTAINER FILL (HC) see pg 3-27

PRE-SLEEP ACTIVITY

CUBE LAB MODULE-7 DEACTIVATION (ASSY OPS, PAYLOADS)
All Trays in LMA Packs 1 and 2; ONLY deactivate Syringes
with "FD3" labeled arrows on back of trays.
PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
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NOTES
MPLM CBM SURVEY (Camera A and D)
STS-135/ULF7 FD04

Date: 07/11 (192)

Day 002

CDR Ferguson

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

PLT Hurley

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP

04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00

NOTES
NOTE: Rescheduled wake-up by CLM toward 06:00 MET to allow STS from Challenged to proceed.
FD04 EZ ACTIVITIES:
- OCAC FILTER
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3 (KFX)

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

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Step 17

POC: 2.7.501 DOUG STARTUP PROCEDURE
Step 1

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Steps 6-10

ROBO: 1.200 MPLM UNBERTH AND INSTALL
Step 17

NO T2
MPLM MNVR FROM BERTH TO PRE-INSTALL

NO EXERCISE
MPLM INSTALL/BOLT LOAD
SP-135/ULF7 FD04

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

Post-Sleep Activity

MS1
Magnus

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

Post-Sleep Activity

MS2
Walheim

On MCC Go: SSPI APCU 1 OUTPUT RLY - CL (tb-gray)
Digital Via VTR
(Cue Card, Digital Playback)
Docking
KU TDRW (17:33-18:07)

On MCC Go: SSPI APCU 1 OUTPUT RLY - OP (tb-bp)
CGBA UNIT #1,2 STATUS CHECK (CC), STL STATUS CHECK (CC)

L17 Check MCIU Filter Screen

Transfer Ops
Ref. Middeck Transfer List and MSG XXX

Daily Transfer List Update
Ref. Transfer List & MSG XXX

Transfer Ops
Ref. Middeck Transfer List and MSG XXX

Shuttle/ISS H2O Container Fill (HC)
(ORB Ops, ECLS)
Perform CWC Fill #2, Ref. MSG XXX

Perform CWC Fill #2, Ref. MSG XXX

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 XXX

Notes

UPLINK
TFL 199
MPLM Pressure Check

UPLINK
TFL 184

No T2
MPLM MVR FROM BERTH TO PRE-INSTALL

No Exercise
MPLM Install/Bolt Load
STS-135/ULF7 FD04

CDR
Ferguson

PLT
Hurley

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 18

MEAL

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 XXX

MPLM: 1.113 H2 TO MPLM VESTIBULE PRESSURIZATION AND LEAK CHECK
Verify CBM bolt load complete prior to Step 5.
Leave ISA/VAJ connected in Step 9.

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

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

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

NOTES

NO EXERCISE
MPLM INSTALL/
BOLT LOAD

3-36
FLP PLN/135/FIN
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
  ROBO: 1.200 MPLM UNBERTH AND INSTALL Step 19
  ROBO: 1.200 MPLM UNBERTH AND INSTALL Steps 20-end

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

TRANSFER OPS
  Ref. Middeck Transfer List and MSG XXX
  Perform FILL TERMINATION

PMA3 COVER INSTALL
  (EVA, TIMELINES)
  Review Procedure

TRANSFER OPS
  Ref. Middeck Transfer List and MSG XXX

NO EXERCISE
MPLM INSTALL/ BOLT LOAD

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

MEAL

IIS EVA 1 TOOL CONFIG
  (EVA, TIMELINES)
  Audit

MEAL

TRANSFER OPS
  Ref. Middeck Transfer List and MSG XXX
On MCC Go: JOINT OPS: 3.120 PREBREATHE USING SHUTTLE O2 SETUP
Steps 2-6. MCC-H will perform steps 2.4-2.5

EXERCISE

LiOH Transfer
Ref. Middeck Transfer List and MSG XXX

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

ILLUMINATOR OPS (Cue Card, IV)
ILLUMINATOR DR - A, D

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG XXX

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG XXX
S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS
Step 8

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

S&M: 1.108 MPLM VESTIBULE - CONFIGURE FOR INGRESS
Steps 12-end

MPLM: 1.104 MPLM INGRESS
Steps 1-5

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform CWC FILL #4, Ref. MSG XXX

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

CWC TRANSFER
Transfer 3 CWCs to ISS

MICRO-4 TRANSFER TO ISS
(ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)

TRANSFER BRIEF PREP

TRANSFER BRIEF
Call down status to MCC

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG XXX

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG XXX

EXERCISE

NOTES
CREW WAKE @ 03/15:30

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

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

- EVA 1 BRIEFING CARD
  (EVA, TIMELINES)
  EVA 1 Procedure Review
  Ref. MSG XXX

- PRE-SLEEP ACTIVITY
  (ORB OPS, CREW SYSTEMS)
CREW WAKE @ 03/15:30

EVA 1 BRIEFING CARD
(EVA, TIMELINES)
EVA 1 Procedure Review
Ref. MSG XXX

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP
FD05 EZ ACTIVITIES:
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
  - Verify display is backlit
- HARD REBOOT STS-3 (KFX)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
- Hum Seps for H2O Accumulation
Magnus Walheim

MS1

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP

SLEEP LOGBOOK (SDBI 1634)

MS2

Post-Sleep Activity
(ORB Ops, Crew Systems)
POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

Hum Seps for H2O Accumulation

ISS EVA SYSTEMS: 2.325 ISLE EVA PREP
MCC-H Performs Steps 1, 22.8.4 - 22.8.6

ISS EVA SYSTEMS: 2.330 ISLE EMU PREBREATHE (WITH DATA COLLECTION)
Skip Steps 8, 11 and 15
MCC-H Performs Step 53

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)

EVA 1 INHIBIT PAD
(EVA, TIMELINES)

ILLUMINATOR OPS (Cue Card, TV) ILLUMINATOR OFF - ALL

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

2.105 ZSR TRANSFER MPLM TO ISS AND DEPLOY
(ASSY OPS, TRANSFER)
Steps 1-3, 5-end

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform CWC FILL #5, Ref. MSG XXX

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

DAILY TRANSFER LIST UPDATE
Ref. Transfer List & MSG XXX

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

S&M: 1.261 RSP/RSR ROTATE DOWN
Steps 1-3 for Pivot Fitting Installation on MPL2A2, F2, A4, F4

Steps 4-end to Rotate an RSP Down

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

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

2.105 ZSR TRANSFER MPLM TO ISS AND DEPLOY
(ASST OPS, TRANSFER)
Steps 1-3, 5-end

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

P/TVD EVA
(P/TV, SCENES) SETUP, step 4
ISS EVA SYSTEMS: 2.330 ISLE EMU PREBREATHE
(With Data Collection)
- Skip Steps 8, 11 and 15
- MCC-H Performs Step 53

EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD
- Perform CREWLOCK DEPRESS

MEAL

TRANSFER OPS
- Ref. MPLM Transfer Lists and MSG XXX

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

CWC TRANSFER
- Transfer 1 CWC to ISS

POC: 2.7.501 DOUG STARTUP PROCEDURE
Step 1
- ROBO: 1.300 EVA1 SUPPORT

NO UNISOLATED EXERCISE
EV CREW ON ESP-2
CDR
Ferguson

PLT
Hurley

ROBO: 1.300 EVA1 SUPPORT

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS)
Perform CWC FILL #6, Ref. MSG XXX

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

CWC TRANSFER
Transfer 1 CWC to ISS

NOTES

NO UNISOLATED EXERCISE
EV CREW ON ELC-2

EVA SYSTEMS: CREWLOCK DPSS/RPRS CUE CARD
Perform CREWLOCK REPRESS

P/TV09 MIDDECK PAYLOADS
(ASSY OPS, PAYLOADS) Item 4 Photos

ILLUMINATOR OPS (Cue Card, TV)
ILLUMINATOR ON - A, D
STS-135/ULF7 FD05

Date: 07/12 (193)

00:00

ROBO: 1.300 EVA1 SUPPORT

CSS: 1.111 CUP CREW RESTRAINT OPS Removal, Step 6

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

AEM UNIT #1,2,3 CHECK (Cue Card)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

TRANSFER BRIEF PREP

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

Day 004

04:00

IVA SUPPORT EVA 1

02:00

TDRS

NOTES

NO UNISOLATED EXERCISE
EV CREW ON ELC-2

01:00

16:00

17:00

18:00

03:00

MS1

Magnus

Walheim

MS2

02:00

00:00

01:00

02:00

03:00

04:00

ORB646566

BIAS -XLV -ZVV

D/N

MS2

IVA SUPPORT EVA 1

TRANFER BRIEF PREP

CSS: 1.111 CUP CREW RESTRAINT OPS Removal, Step 6

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

AEM UNIT #1,2,3 CHECK (Cue Card)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

TRANSFER BRIEF PREP

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

AMS UNIT #1,2 CHECK (Cue Card)
PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

CHECK ISS AIRLOCK ATU CONFIG
L9 PAYLOAD STATION A/G (two) - OFF

PRIVATE MEDICAL CONFERENCE VIA A/G 2

ISS EVA SYSTEMS: 1.240 POST EVA
Without H2O RECHARGE
Steps 37-39, 51, 66 not required
MCC-H will perform Steps 43, 67-68

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

CREW WAKE @ 04/15:00
CREW WAKE @ 04/15:00

MISSE 8 ORMATE III R/W POST EVA COVER STOWAGE

(A) On MCC Go:
MISSE 8 ORMATE III R/W POST EVA COVER STOWAGE
(EVA, TOOLS AND STOWAGE)

MICRO-4 MIXING - SHUTTLE (MIX A)
(ASSY OPS, PAYLOADS)

MICRO-4 MIXING - ISS (MIX A)
(ASSY OPS, PAYLOADS)

TRANSFER BRIEF
Call down status to MCC

TRANSFER BRIEF PREP

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

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**CDR Ferguson**

**PLT Hurley**
FD06 EZ ACTIVITIES:
- OCAC FILTER
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3(KFX)
MS1 Magnus

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP LOGBOOK (SDBI 1634)

MS2 Walheim

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
**STT-135/ULF7 FD06**

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**POST-SLEEP ACTIVITY**

**ILLUMINATOR OPS** (Cue Card, TV) ILLUMINATOR OFF - ALL

**L17 Check MC1U filter screen**

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

Perform CWC FILL #7, Ref. MSG XXX

**TRANSFER OPS** Ref. Middeck Transfer List and MSG XXX

**EXERCISE**

Perform CWC FILL #8, Ref. MSG XXX

**EXERCISE**

Perform FILL TERMINATION

**POST-SLEEP ACTIVITY** (ORB OPS, CREW SYSTEMS)
MS1 Magnus

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

Face in space Ref. MSG XXX
ISS KU Avail (01:27 - 01:55)

AEM UNIT #1,2,3 CHECK (Cue Card)

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

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

TRANSFER BRIEF PREP

TRANSER BRIEF
Call down status to MCC

MS2 Walheim

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

Face in space Ref. MSG XXX
ISS KU Avail (01:55 - 02:02)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
CREW WAKE @ 05/14:00
CREW WAKE @ 05/14:00

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP
FD07 EZ ACTIVITIES:
- OCAC FILTER
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3 (KFX)

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)
- SHUTTLE/ISS H2O CONTAINER FILL (HC)
  (ORB OPS, ECLS)
  Perform CWC FILL #9, Ref. MSG XXX

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)
MS1 Magnus

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP LOGBOOK (SDBI 1634)

MS2 Walheim

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

CDR
Ferguson

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

PLT
Hurley

A WCS CRADLE - AUTO INIT
Inspect hose block filter,
change if req'd

WCS CRADLE - AUTO

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

IMU STAR OF OPPITY ALIGN (ORB OPS, GNC)

ILLUMINATOR OPS (Cue Card, TV) ILLUMINATOR OFF - ALL

WCS FILTER CHECK A

L17 Check MCIU filter screen

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

Perform FILL TERMINATION

EXERCISE

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

CWC TRANSFER
Transfer 2 CWCs to ISS

EXERCISE

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (19:26 - 20:10)

PWR FILL
(ORB OPS, ECLS)

Perform WATER FILL #1
Fill S/N TBD, Ref. MSG XXX

PWR FILL (ORB OPS, ECLS)

Perform WATER FILL #2
Fill S/N TBD, Ref. MSG XXX

PWR FILL (ORB OPS, ECLS)

Perform FILL TERMINATION

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

Perform CWC FILL #10, Ref. MSG XXX

EXERCISE

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

GRM T

MET

Date
07/14 (195)

Day 005

NOTES
Perform WATER FILL #2
Fill S/N TBD, Ref. MSG XXX

PWR TRANSFER
Transfer 3 PWRs to ISS

Private Family Conference B
ISS KU AVAIL (22:49 - 23:32)

Private Family Conference B
ISS KU AVAIL (23:34 - 00:04)

N PFC to be performed using S-Band via Public Call 4 for audio and Ku-band for Video. Please call down SSC preference before the conference and make sure that all applications except Netmeeting have been closed.
CDR
Ferguson

PLT
Hurley

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

AEM UNIT #1, 2, 3 CHECK (Cue Card)

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)

OFF DUTY

NOTES
Pre-Sleep Activity:

- Magnus Walheim
- Private Family Conference B
- ISS KU AVAIL (00:31 - 01:04)
- CGBA UNIT #1,2 STATUS CHECK (CC), STL STATUS CHECK (CC)
- Transfer Brief Prep
- Transfer Brief Call down status to MCC
- Private Family Conference B
- ISS KU AVAIL (01:06 - 01:48)
- Pre-Sleep Activity
- (ORB OPS, CREW SYSTEMS)

Notes:

- PFC to be performed using S-Band via Public Call 4 for audio and Ku-band for Video. Please call down SSC preference before the conference and make sure that all applications except Netmeeting have been closed.
CREW WAKE @ 06/13:00

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP

CDR
Ferguson

PLT
Hurley

NOTES
CREW WAKE @ 06/13:00

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

MS1
Magnus

MS2
Walheim

SLEEP

NOTES
FD08 EZ ACTIVITIES:
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3(KFX)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)
Post-Sleep Activity

ORB Ops, Crew Systems

CGBA Unit #1,2 Status Check (CC), STL Status Check (CC)

Daily Transfer List Update
Ref. Transfer List & MSG XXX

ISS EMU Checkout Prep
(EVA, Airlock Config)
STSW-135/FD08

CDR
Ferguson

PLT
Hurley

EXERCISE

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX

PWR FILL
(ORB OPS, ECLS)
Perform WATER FILL #4
Fill S/N TBD, Ref. MSG XXX

PWR FILL
(ORB OPS, ECLS)
Perform WATER FILL #5
Fill S/N TBD, Ref. MSG XXX

PWR FILL
(ORB OPS, ECLS)
Perform WATER FILL #6
Fill S/N TBD, Ref. MSG XXX

CWC-I FILL
(ORB OPS, ECLS)
Parts A-C
Ref. MSG XXX

PWR TRANSFER
Transfer 3 PWRs to ISS

FILTER CLEANING
(TFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (19:14 - 19:49)

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (19:14 - 19:49)
**POST-SLEEP ACTIVITY**
(ORB Ops, Crew Systems)

**ISS EMU CHECKOUT PREP**
(EVA, Airlock Config)

---

**TRANSFER OPS**
Ref. MPLM Transfer Lists and MSG XXX

**ISS EMU CHECKOUT**
(EVA, Checkouts)
Perform for 2 EMUs

---

**EXERCISE**

---

**POST EVA EMU RESIZE**
(EVA, Airlock Config)

---

**TRANSFER OPS**
Ref. MPLM Transfer Lists and MSG XXX

---

**P/TV08 EXTERNAL SURVEY**
(P/TV, Scenes)
Setup

---

**P/TV08 EXTERNAL SURVEY**
(P/TV, Scenes)
OPS, Item 2 for ISS Survey

---

**TRANSFER OPS**
Ref. MPLM Transfer Lists and MSG XXX
STSW-135/ULF7 FD08

FLT PLN/135/FIN

08

Ferguson Hurley

A N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
Steps 3-7

MCC will TMBU S/W FDA,
H/W FDA already INH.

B N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go, perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

MCC

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (20:09 - 20:54)

CREW PHOTO

TRANSPORT OPS
Ref. MPLM Transfer Lists and MSG XXX

CREW PHOTO

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

STS-135/ULF7 FD

12:00 13:00 14:00 15:00

GMT

Date

07/15 (196)

W E Z

TDRS

D/N

ORB108109110

BIAS -XLV -ZVV

CDR

MEAL

PUBLIC AFFAIRS


CREW CONFERENCE

ISS KU AVAIL: (21:51 - 22:32)

TRANSFER OPS

Ref. MPLM Transfer Lists and MSG XXX

8-12

CREW PHOTO

N2 REPRESS TERM (On MCC GO) B

429

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

3-84

FLY PLN/135/FIN

08

Ferguson Hurley

A N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
Steps 3-7

MCC will TMBU S/W FDA,
H/W FDA already INH.

B N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go, perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

MCC

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (20:09 - 20:54)

CREW PHOTO

TRANSPORT OPS
Ref. MPLM Transfer Lists and MSG XXX

CREW PHOTO

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

STS-135/ULF7 FD

12:00 13:00 14:00 15:00

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CREW CONFERENCE

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TRANSFER OPS

Ref. MPLM Transfer Lists and MSG XXX

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CREW PHOTO

N2 REPRESS TERM (On MCC GO) B

429

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

3-84

FLY PLN/135/FIN

08

Ferguson Hurley

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(ORB OPS, ECLS)
Steps 3-7

MCC will TMBU S/W FDA,
H/W FDA already INH.

B N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go, perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

MCC

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (20:09 - 20:54)

CREW PHOTO

TRANSPORT OPS
Ref. MPLM Transfer Lists and MSG XXX

CREW PHOTO

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

STS-135/ULF7 FD

12:00 13:00 14:00 15:00

GMT

Date

07/15 (196)

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TDRS

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BIAS -XLV -ZVV

CDR

MEAL

PUBLIC AFFAIRS


CREW CONFERENCE

ISS KU AVAIL: (21:51 - 22:32)

TRANSFER OPS

Ref. MPLM Transfer Lists and MSG XXX

8-12

CREW PHOTO

N2 REPRESS TERM (On MCC GO) B

429

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

3-84

FLY PLN/135/FIN

08

Ferguson Hurley

A N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
Steps 3-7

MCC will TMBU S/W FDA,
H/W FDA already INH.

B N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go, perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

MCC

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (20:09 - 20:54)

CREW PHOTO

TRANSPORT OPS
Ref. MPLM Transfer Lists and MSG XXX

CREW PHOTO

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

STS-135/ULF7 FD

12:00 13:00 14:00 15:00

GMT

Date

07/15 (196)

W E Z

TDRS

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BIAS -XLV -ZVV

CDR

MEAL

PUBLIC AFFAIRS


CREW CONFERENCE

ISS KU AVAIL: (21:51 - 22:32)

TRANSFER OPS

Ref. MPLM Transfer Lists and MSG XXX

8-12

CREW PHOTO

N2 REPRESS TERM (On MCC GO) B

429

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

3-84

FLY PLN/135/FIN

08

Ferguson Hurley

A N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
Steps 3-7

MCC will TMBU S/W FDA,
H/W FDA already INH.

B N2 REPRESS USING P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go, perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary

MCC

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (20:09 - 20:54)

CREW PHOTO

TRANSPORT OPS
Ref. MPLM Transfer Lists and MSG XXX

CREW PHOTO

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

STS-135/ULF7 FD

12:00 13:00 14:00 15:00

GMT

Date

07/15 (196)

W E Z

TDRS

D/N

ORB108109110

BIAS -XLV -ZVV

CDR

MEAL

PUBLIC AFFAIRS


CREW CONFERENCE

ISS KU AVAIL: (21:51 - 22:32)

TRANSFER OPS

Ref. MPLM Transfer Lists and MSG XXX

8-12

CREW PHOTO

N2 REPRESS TERM (On MCC GO) B

429

Transfer Ops
Ref. MPLM Transfer Lists and MSG XXX

NOTES

3-84

FLY PLN/135/FIN
Crew Wake @ 07/12:00

**CDR Ferguson**

- Transfer Ops (Ref. MPLM Transfer Lists and MSG XXX)
- Check ISS Airlock ATU Config
- CWC-I Transfer (Transfer 2 CWC-Is to ISS)
- MYCO Body Sample Collection (Review Only)

**PLT Hurley**

- Transfer Ops (Ref. MPLM Transfer Lists and MSG XXX)
- MYCO Body Sample Collection (Review Only)
- Private Medical Conference Via A/G 2
- Pre-Sleep Activity (ORB Ops, Crew Systems)

---

**NOTES**

- Fill CWC-I #1 (Parts D & E) (Ref. MSG XXX)
- Fill CWC-I #2 (Parts D-F) (Ref. MSG XXX)
- Pre-Sleep Activity (ORB Ops, Crew Systems)

---

**Date**

07/15 (196)

**Day 007**

**00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00**
CREW WAKE @ 07/12:00
FD09 EZ ACTIVITIES:
- OCAC FILTER
- MDDK DUCT SCREEN
- TEPC (ORB OPS, CREW SYSTEMS)
- CHECK STATUS
- HARD REBOOT STS-3(KFX)

MYCO BODY SAMPLE COLLECTION
(ASST OPS, PAYLOADS)
- At step 6.1, hand Myco Kit to FE-3, FE-5 or FE-6 for MELFI insertion

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
- IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)
- L17 Check MCIU filter screen
- VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.

TRANSFER OPS
Ref. MPLM Transfer Lists and MSG XXX
- CWC-I FILL (ORB OPS, ECLS)
  Fill CWC-I #3
  Perform Parts D & E
  Ref. MSG XXX
- CWC-I TRANSFER
  Transfer 3 CWC-Is to ISS

VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.
MS1
Magnus

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.

DAILY TRANSFER LIST UPDATE
Ref. Transfer List & MSG XXX

P/TV09 MIDDECK PAYLOADS (P/TV, SCENES) OPS Item 6 for STL

MS2
Walheim

SLEEP LOGBOOK (SDBI 1634)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

VISION EXAM- Retrieve Visual Acuity Charts from MAK, TBD. Complete Exam and Questionnaire with uncorrected vision and corrected vision, if prescribed.

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

TRANSFER OPS- Ref. MPLM Transfer Lists and MSG XXX

NOTES
SUPPLY H2O DUMP USING FES
(ORB OPS, ECLS) Step 1 using FES Pri B

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

S& M: 100 CBM CONTROLLER PANEL ASSEMBLY
INSTALLATION - GENERIC
Steps I-Z-end for Node 2 Nadir

CWC-I FILL
(ORB OPS, ECLS)
Fill CWC-I #6
Perform Parts D & E
Ref. MSG XXX

CWC-I TRANSFER
Transfer 3 CWC-Is to ISS

CWC-I FILL
(ORB OPS, ECLS)
Fill CWC-I #7
Perform Parts D & E
Ref. MSG XXX

CWC-I FILL
(ORB OPS, ECLS)
Fill CWC-I #8
Perform Parts D-F
Ref. MSG XXX

EXERCISE

MEAL

NOTES
Magnus Walheim

S/M: 1.100 CBM CONTROLLER PANEL ASSEMBLY INSTALLATION - GENERIC
Steps 1.2-end for Node 2 Nadir

EXERCISE

TRANSFER OPS - Ref. MPLM Transfer Lists and MSG XXX

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

MEAL

NOTES
STS-135/ULF7 FD09

Date: 07/16 (197)

CDR Ferguson

- MEAL

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (19:55 - 20:32)

PLT Hurley

- MEAL

PUBLIC AFFAIRS EVENT
ISS KU AVAIL: (19:55 - 20:32)

GLACIER SWAP - SHUTTLE
(ASSY OPS, PAYLOADS)

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX
STS-135/ULF7 FD09

Date 07/16 (1977) 00:00 00:00 00:00 00:00 MET Day 007

TDRS D/N ORB124 125 126

---

MS1
Magnus

TRANSACTION
Ref. Middeck Transfer List and MSG XXX

OFF DUTY

MEAL

TRANSFER OPS

IFM: 1.2.406 MPLM GLA SCAVENGE
Steps 1-3, for MPL2A2, MPL2P2, MPL2A3, MPL2P3

NOTES

MS2
Walheim

NLP ACTIVATION
(ASSY OPS, PAYLOADS)

P/TV 09 MIDDECK PAYLOADS
(P/TV, SCENES)
OPS for item 1 video, photo
Magnus Walheim

**CREW WAKE @ 08/11:30**

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

**STS-135/ULF7 FD**

**16:00 17:00 18:00 19:00 GMT**

**Date**

**07/16 (197)**

**MET Day 008**

**Notes**
FD10 EZ ACTIVITIES:
- OCAC FILTER
- MDDK DUCT SCREEN
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3(KFX)

POST-SLEEP ACTIVITY
- (ORB OPS, CREW SYSTEMS)

POST-SLEEP ACTIVITY
- (ORB OPS, CREW SYSTEMS)
Magnus Walheim

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP LOGBOOK (SDBI 1634)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
**Notes**: 

- **Steps 1-6** (Ground can perform steps 4-5 on request). Remove PFE and PBA from MPLM and stow in the following locations: 
  - PFE: NOD1P2-12 PEPS Locker and 
  - PBA: NOD2P2 PEPS Locker.

- **MPLM**: 1.110 NODE 2 TO MPLM VESTIBULE DEPRESS AND LEAK CHECK
  - Ground will perform Steps 5.1 and 10.2

- **N2 REPRESS USING P/L N2 VLVS**
  - (ORB OPS, ECLS) Steps 3-7
  - MCC will TMBU S/W FDA, H/W FDA already INH.

- **IMU STAR OF OPPORTUNITY ALIGN**
  - (ORB OPS, GNC)

- **MPLM**: 1.105 MPLM EGRESS [A]

- **MPLM**: 1.106 MPLM DEACTIVATION
  - Steps 1-2, 4-6

- **S&M**: 1.109 MPLM VESTIBULE CONFIGURE FOR DEMATE
  - Steps 3-end

- **N2 REPRESS INIT** [B]

- **POST-SLEEP ACTIVITY**
  - (ORB OPS, CREW SYSTEMS)
Steps 1-6 (Ground can perform steps 4-5 on request). Remove PFE and PBA from MPLM and stow in the following locations:
PFE: NOD1P2-12 PEPS Locker and
PBA: NOD2P2 PEPS Locker.
MPLM: 1.110 NODE 2 TO MPLM VESTIBULE DEPRESS AND LEAK CHECK
Ground will perform Steps 5.1 and 10.2

N2 REPRESS TERM (On MCC GO) C
On MCC go:
JOINT OPS: 3.122 PREBREATHE USING SHUTTLE O2 TEARDOWN
Steps 2-7; MCC-H will perform steps 2.4 and 5.5

N2 REPRESS USING
P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go:
Perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 1-5

ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 6-17

C N2 REPRESS USING
P/L N2 VLVS
(ORB OPS, ECLS)
On MCC go:
Perform steps 8-12
MCC will TMBU S/W FDA.
Do not ENA H/W.

TRANSFER OPS
Ref. Middeck Transfer List and MSG XXX

ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 1-5

ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 6-17

NO EXERCISE
MPLM UNINSTALL/ BOLT UNLOAD
Magnus Walheim

P/TV09 MIDDECK PAYLOADS
(P/TV, SCENES)
Ops for Item 1 Video, Photo

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

NO EXERCISE
MPLM UNINSTALL/BOLT UNLOAD

POC: 2.7.501 DOUG STARTUP PROCEDURE
Step 1

ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 1-5

TRANSFERS
Ref. Middeck Transfer List and MSG XXX

MEAL

CWC-I FILL (ORB OPS, ECLS)
Fill CWC-I #12
Perform Parts D & E
Ref. MSG XXX

CWC-I FILL (ORB OPS, ECLS)
Fill CWC-I #13
Perform Parts D & E Ref. MSG XXX

NOTES
### CDR

**Ferguson**

**TRANSFER OPS**

Ref. Middeck Transfer List and MSG XXX

- ROBO: 1.210 MPLM DEMATE AND BERTH
  - Steps 10-17

- ROBO: 1.210 MPLM DEMATE AND BERTH
  - Steps 18-end

### PLT

**Hurley**

**AEM UNIT #1,2,3 CHECK** (Cue Card)

**C/L CAMR INSTALL**

- **(P/TV, C/L CAMR)**
  - Steps 1 and 4

**OBSS MNVR TO UNDOCK POSITION**

- **(PDMS, OBSS NOMINAL)**
- **RNDZ TOOLS CHECKOUT**
  - **(RNDZ, RNDZ TOOLS)**

**NOTES**

- **PLT**
  - **FAREWELL RNDZ TO TOOLS CHECKOUT**
    - **(RNDZ, RNDZ TOOLS)**

- **FAREWELL**
  - **P/TV04 INGRESS/EGRESS**
    - **(P/TV, SCENES)**
    - **SETUP**

- **C/L CAMR INSTALL**
  - **(P/TV, C/L CAMR)**
  - **(P/TV, SCENES)**
  - **SETUP**

- **P/TV04 INGRESS/EGRESS (DEACTIVATION) (P/TV, SCENES)**

- **ROBO: 1.210 MPLM DEMATE AND BERTH**
  - Steps 6-17

- **ROBO: 1.210 MPLM DEMATE AND BERTH**
  - Steps 18-end

- **EXERCISE**
  - **P/TV05 ISS INTERNAL OPS**
    - **(P/TV, SCENES)**
    - **Perform DEACTIVATION**

- **P/TV04 ISS INTERNAL OPS (HC)**
  - **SETUP**

- **P/TV04 Internal Ops (HC)**
  - **SETUP**

- **P/TV04 INGRESS/EGRESS**
  - **(P/TV, SCENES)**
  - **SETUP**

- **P/TV05 ISS INTERNAL OPS**
  - **(P/TV, SCENES)**
  - **Perform DEACTIVATION**

- **C/L CAMR INSTALL**
  - **(P/TV, C/L CAMR)**
  - **(P/TV, SCENES)**
  - **SETUP**

- **OBSS MNVR TO UNDOCK POSITION**
  - **(PDMS, OBSS NOMINAL)**
  - **RNDZ TOOLS CHECKOUT**
    - **(RNDZ, RNDZ TOOLS)**

- **NOTES**

**STNS 135/ULF7 FD10**
CWC-I FILL (ORB OPS, ECLS) (See Details on Pg 3-107)
Fill CWC-I #14
Perform Parts D-F
Ref. MSG XXX
CWC-I TRANSFER
Transfer 3 CWC-Is to ISS
SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS)
Perform CHANGEOUT. Gather empty Shuttle CWC S/N TBD from TBD and take ISS CWC S/N TBD to TBD for processing.
ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 6-17
ROBO: 1.210 MPLM DEMATE AND BERTH
Steps 18-end
SSPI MPLM CHAN 1,2 HTR PWR (two) - ON (tb-gray)
TRANSFER BRIEF
Call down status to MCC
TRANSFER BRIEF PREP
TRANSFER BRIEF
Call down status to MCC
FAREWELL
JOIN OPS: 4.102 S15/ISS DUCT BMVL & HATCH CLOSING
MCC-H can perform steps 2 & 3 on crew request
JOIN OPS: 4.102 S15/ISS DUCT BMVL & HATCH CLOSING
MCC-H can perform steps 2 & 3 on crew request
JOIN OPS: 4.104 ODS VEST/PMA DPRS & HATCH LEAK CHECK
JOIN OPS: 4.104 ODS VEST/PMA DPRS & HATCH LEAK CHECK
RNDZ TOOLS CHECKOUT
(RNDZ, RNDZ TOOLS)
PCS ACTIVATION ON MCC GO:
- MO10W 14.7 CAB REG INLET SYS 2 VLV - OP
- Avoid WCS use during high N2 flow
- Expect possible "S66 CAB O2 FLO 2" msgs

PRE-SLEEP ACTIVITY
- (ORB OPS, CREW SYS)

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

Crew wake @ 09/11:00
**STON-35/ULF7 FD10**

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<th>MET</th>
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<th>TDRS</th>
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**MS1 Magnus**

- **PRE-SLEEP ACTIVITY**
  - ORB OPS, CREW SYSTEMS
  - On MCC Go: SSP1 APCU 1 OUTPUT RLY - CL (tb-gray)
  - On MCC Go: SSP1 APCU 1 OUTPUT RLY - OP (tb-bp)

**MS2 Walheim**

- **PRE-SLEEP ACTIVITY**
  - ORB OPS, CREW SYSTEMS
  - SSP1 MPLM CHAN 1,2 HTR PWR (two) - OFF (tb-bp)

**RNDZ TOOLS CHECKOUT**

- RNDZ, RNDZ TOOLS

**UPLINK TFL 199**

- MPLM PRESSURE CHECK

**UPLINK TFL 184**

**NOTES**

**CREW WAKE @ 09/11:00**
STS-135/ULF7 FD10

Date 07/17 (198)

Day 009

Ferguson

Hurst

SLEEP

SLEEP
FD11 EZ ACTIVITIES:

- OCAC FILTER
- TEPC STATUS CHECK
- Verify display is backlit
- HARD REBOOT STS-3(KFX)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

- Hum Seeps for H2O Accumulation

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

NOTES
When ISS in Free Drift, DAP: LVLH,
When jet activity stopped for > 5 sec,
DAP: FREE > 2 sec, Then DAP: AUTO
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<th>Action</th>
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<tr>
<td>00:00</td>
<td>RMS PW DWN (PDRS, RMS PW DWN)</td>
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<td>01:00</td>
<td>Skip Steps 5 and 6</td>
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<tr>
<td>01:00</td>
<td>RMS PW DWN (PDRS, RMS PW DWN)</td>
</tr>
<tr>
<td>01:00</td>
<td>Skip Steps 5 and 6</td>
</tr>
<tr>
<td>02:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>02:00</td>
<td>MNVR (TRK) BIAS +XSI (Nose Cap)</td>
</tr>
<tr>
<td>02:00</td>
<td>TG=4 BV=5 P=330 Y=0 OM=335</td>
</tr>
<tr>
<td>02:00</td>
<td>A14/AUTO/VERN, RCC SURVEY-STBD cmplt, Init TRK</td>
</tr>
<tr>
<td>03:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>03:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>04:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>05:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>06:00</td>
<td>MNVR (TRK) BIAS -YSI (Port Survey)</td>
</tr>
<tr>
<td>06:00</td>
<td>TG=4 BV=5 P=0 Y=323 OM=350, A14/AUTO/VERN, Init TRK</td>
</tr>
<tr>
<td>07:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>08:00</td>
<td>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>09:00</td>
<td>MNVR (TRK) -ZLV -XVV</td>
</tr>
<tr>
<td>09:00</td>
<td>TG=2 BV=3 OM=0</td>
</tr>
<tr>
<td>09:00</td>
<td>A14/AUTO/VERN, RCC SURVEY-PORT Step 12 cmplt, Init TRK</td>
</tr>
<tr>
<td>10:00</td>
<td>OBSS BERTH (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>11:00</td>
<td>OBSS BERTH (PDRS, OBSS OPERATIONS)</td>
</tr>
<tr>
<td>12:00</td>
<td></td>
</tr>
</tbody>
</table>
Magnus Walheim

SUPPLY H2O DUMP USING FES (ORB OPS, ECLS)
Step 1 using FES Pri A

EMU INSTALLATION (EVA, AIRLOCK CONFIG)

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

GLACIER STATUS CHECK (CC) FOB SAMPLE EXTRACTION (ASSY OPS, PAYLOADS)

CGBA ADJUST SET TEMP (ASSY OPS, PAYLOADS)

Set temperature to +8C

POST ISS EVA ENT PREP (EVA, POST EVA ENT PREP)

SUPPLY H2O DUMP USING FES (ORB OPS, ECLS) Step 1 using FES Pri A

DIGITAL VIA VTR (Cue Card, DIGITAL PLAYBACK)

LDRI Surveys
KU TDRE (22:46-23:45)
Gimbal flip @ 23:16

AEM UNIT #1,2,3 CHECK (Cue Card)

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

GLACIER STATUS CHECK (CC) FOB SAMPLE EXTRACTION (ASSY OPS, PAYLOADS)

NLP TERMINATION (ASSY OPS, PAYLOADS)

Terminate GAPs A-P

EXERCISE

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

- UHF MODE - OFF
- L9 PAYLOAD STATION A/G (two) - OFF
- PRIVATE MEDICAL CONFERENCE VIA A/G 2

**RMS PWRDWN**
(PDRS, RMS PWRDN)
Skip Steps 5 and 6

**CREW WAKE @ 10/11:00**
**STS-135/ULF7 FD11**

**Crew Wake @ 10/11:00**

### PRE-SLEEP ACTIVITY

**ORB OPS, CREW SYSTEMS**

- **MPLM Pressure Check**
- **UPLINK TFL 199**
- **Digitally Via VTR (Cue Card, Digital Playback)**
- **Undocking KU TDRW (00:17 - 00:44)**
- **SUPPLY WATER DUMP USING FES**

### Crew Wake

**Magnus Walheim**

**On MCC Go:**

- SSP1 APCU 1 CONV (two) - OFF (tb-bp)
- OIU PWR - OFF (tb-bp)
- SSP1 MPLM CHAN 1, 2, 3, 4, 5, 6, 8 - OFF (tb-bp)

**On MCC Go:**

- SSP1 APCU 1, 2 CONV (two) - OFF (tb-bp)
- APCU 1 OUTPUT RLY - CL
- OIU PWR - OFF (tb-bp)
- SSP1 MPLM CHAN 1, 2, 3, 4, 5, 6, 8 - OFF (tb-bp)
- APCU 1 OUTPUT RLY - OFF (tb-bp)
- CONV - ON (tb-gray)
- OUTPUT RLY CLOSE (tb-gray)

**After LDRI Playback Complete:**

- RECONFIGURE OCA DOWNLINK RATE (PL MAX)
  - (ORB OPS, PGSC) Part C (Omit Step 4)

**Notes:**

- FOB SAMPLE EXTRACTION
  - (ASSY OPS, PAYLOADS)
- DIGITAL VIA VTR
  - (ASSY OPS, PAYLOADS)

**NOTES**

**UPLINK TFL 188**

**UPLINK TFL 199**

**MPLM PRESSURE CHECK**

**On MCC Go:**

- **RECNFG OCA DOWNLINK RATE (PL MAX)**
- **SUPPLY WATER DUMP USING FES**
- **PERFORM STEP 2 W/ FES PRI A REQ'D**
- **PRE-SLEEP ACTIVITY**
  - (ORB OPS, CREW SYSTEMS)

**Day 010**

**Date**

07/18 (199)

**MET**

00:00 01:00 02:00 03:00 04:00
FD12 CABIN STOW ACTIVITIES:
- Remove loose items stored in A/L
- Perform MS Seat Installation

FD12 EZ ACTIVITIES:
- FLUID LOADING PREP
  - Fill drink containers
  - Ref. MSG XXX
- TEPC STATUS CHECK
  - Verify display is backlit
- HARD REBOOT STS-3(KFX)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)
Post-sleep activity
(ORB ops, Crew Systems)

SLEEP LOGBOOK (SDBI 1634)
<table>
<thead>
<tr>
<th>Time</th>
<th>CDR Ferguson</th>
<th>PLT Hurley</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00</td>
<td>POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)</td>
<td>POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)</td>
</tr>
<tr>
<td>13:00</td>
<td>MNVR (TRK) -ZLV -XVV</td>
<td>POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)</td>
</tr>
<tr>
<td></td>
<td>MNVR (TRK) -ZLV -XVV</td>
<td>IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)</td>
</tr>
<tr>
<td></td>
<td>ON-ORBIT +X RCS BURN, MM 202 (ORB OPS, RCS)</td>
<td>ON-ORBIT +X RCS BURN, MM 202 (ORB OPS, RCS)</td>
</tr>
<tr>
<td></td>
<td>&lt; SEP3 TIG (13:08)</td>
<td>UPDATE ORBITAL MNVR PAD</td>
</tr>
<tr>
<td></td>
<td>POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>FCS CHECKOUT (ORB OPS, GNC)</td>
<td>FCS CHECKOUT (ORB OPS, GNC)</td>
</tr>
<tr>
<td>15:00</td>
<td>LI FLASH EVAP CNTL RX A(B)-OFF</td>
<td>MNVR (TRK) -YLV +ZVV (PSSC DEPLOY)</td>
</tr>
<tr>
<td></td>
<td>PSSC DEPLOY (ASSY OPS, PAYLOADS)</td>
<td>UPLINK TFL 188</td>
</tr>
<tr>
<td>16:00</td>
<td>RCS HOT FIRE TEST (ORB OPS, RCS)</td>
<td>RCS HOT FIRE TEST (ORB OPS, RCS)</td>
</tr>
</tbody>
</table>
STS-135/ULF7 FD12

- CDR Ferguson
  - EXERCISE
   - SUPPLY H2O DUMP USING FES
     (ORB OPS, ECLS) Step 1 using FES Pri B
  - EXERCISE
  - CABIN CONFIG/STOW

- PLT Hurley
  - LANDING-1 COMM C/O
    (ORB OPS, COMM/INST)
    MLA (20:24-20:32)
  - LANDING-1 COMM C/O
    (ORB OPS, COMM/INST)
    DFR (21:54-22:03)
  - CABIN CONFIG/STOW

- NOTES
  - A6L MAD S STRAIN GAGE - ON
  - AEM UNIT #1,2,3 CHECK (Cue Card)
Magnus Walheim

On MCC Go:
- SSP1
- APCU 1,2 CONV (two) - OFF (tb-bp)
- APCU 1 OUTPUT RLY - CL
- CONV - ON (tb-gray)
- OUTPUT RLY CLOSE tb-gray

Cabin Config/Stow

BRICK SYNRGE ACTUATION
( Assy Ops, Payloads)

P/TV C Middeck Payloads
(P/TV, Scenes)
- Ops, Item 2 for BRIC Photo

Cycle Ergometer Ops
( Orb Ops, Crew Sys)
- Reconfig/Stow

Crew Choice Downlink (Recorded Shuttle Tribute)
KU Avail Tore: 21:45-22:44
Gimbal Flip @ 22:16

Cabin Config/Stow

WLES Deactivation & Teardown
( Orb Ops, WLE Sensors)

Cabin Config/Stow

Uplink
TFL 199
MPLM Pressure Check
TFL 161

Notes
**CREW WAKE @ 11/11:00**

**FLT PLN/135/FIN**

- **Ferguson**
  - Entry Cooling Config D
  - Pre-Sleep Activity
  - CABIN CONFIG/STOW
  - Minimize use of P/TV equipment
  - Dim cabin lighting to 25%

- **Hurley**
  - UHF Mode - OFF
  - L9 Payload Station A/G (two) - OFF
  - Private Medical Conference via A/G 2
  - Pre-Sleep Activity
Magnus Walheim

CREW WAKE @ 11/11:00
PRE-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

SLEEP

CABIN CONFIG/STOW

SSV DEACTIVATION (P/TV, SSV)

KU-BD ANT STOW (ORB OPS, COMM/INST)

PRE-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

SLEEP

CREW WAKE @ 11/11:00
FD13 EZ ACTIVITIES:
√ OCAC FILTER
TEPC STATUS CHECK
Verify display is backlit
Stow CSA-CP

NOTES
STS-135/ULF7 FD13

Magnus Walheim

MS1
SLEEP
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

MS2
SLEEP
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYSTEMS)

SLEEP LOGBOOK (SDBI 1634)

NOTES
GO TO DEORBIT PREP AT 11/14:36
Magnus Walheim

GO TO DEORBIT PREP AT 11/14:36

CUBE LAB MODULE-7 DEACTIVATION (ASSY OPS, PAYLOADS)

All Trays in all LMA Packs; ONLY deactivate Syringes with "EOM" or "ULF7" for labeled arrows on back of tray.

TISSUE EQUIVALENT PROPORTIONAL COUNTER (TEPC) (ORB OPS, CREW SYSTEMS)

B. POWERDOWN

AEM MUFFLER STOW

Remove muffler from each AEM and stow in Seat Bag 5.

PGSC NETWORK (ORB OPS, PGSC)

B. TEARDOWN

Stow remaining PGSCs

AIR SAMPLE - Rcd MET and location on bottle

CUBE LAB MODULE-7 DEACTIVATION (ASSY OPS, PAYLOADS)

All Trays in all LMA Packs; ONLY deactivate Syringes with "EOM" or "ULF7" for labeled arrows on back of tray.

Tissue Equivalent Proportional Counter (TEPC) (ORB OPS, CREW SYSTEMS)

B. POWERDOWN

AEM MUFFLER STOW

Remove muffler from each AEM and stow in Seat Bag 5.

SIL ENTRY PREP (ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)

GIRA STOWAGE

(ORB OPS, ECLS)

STL ENTRY PREP (ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)

GO TO DEORBIT PREP AT 11/14:36

A6L MADS STRAIN GAGE - PCM ENA

CGBA UNIT #1,2 STATUS CK (CC), GLACIER STATUS CHECK (CC)

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

POST-SLEEP ACTIVITY (ORB OPS, CREW SYSTEMS)

NOTES

SDBI 1634, SLEEP-WAKE ACTIGRAPHY (ORB OPS, SUBI)

B. DOFF ACTIWATCH

CGBA UNIT #1,2 STATUS CK (CC), GLACIER STATUS CHECK (CC)

STL ENTRY PREP (ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)

GO TO DEORBIT PREP AT 11/14:36

A6L MADS STRAIN GAGE - PCM ENA

CGBA UNIT #1,2 STATUS CK (CC), GLACIER STATUS CHECK (CC)

STL ENTRY PREP (ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)

GO TO DEORBIT PREP AT 11/14:36

A6L MADS STRAIN GAGE - PCM ENA

CGBA UNIT #1,2 STATUS CK (CC), GLACIER STATUS CHECK (CC)

STL ENTRY PREP (ASSY OPS, PAYLOADS)

AEM UNIT #1,2,3 CHECK (Cue Card)
**A**

**IMU STAR ALIGN PAD**

ID: -Y: 30 ANTARES
MET (11/13:52 TO 11/14:42)

ID: -Z: 16 ACHERNAR
MET (11/14:07 TO 11/14:52)

ANG DIFF: 88.9

DUAL S TRKR 2nd ATTITUDE ALIGNMENT (SINGLE S TRKR)
-Z: 30 -Y: 16

\[
\begin{array}{c|c|c}
R & R & 20 \\
P & P & 344 \\
Y & Y & 319 \\
\end{array}
\]

REQD ID:
-Y: ___, -Z: ___, ANG ERR____,______

ANG: 1 2 3

\[
\begin{array}{c|c|c|c|c|c}
\Delta X & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\Delta Y & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\Delta Z & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\end{array}
\]

EXECUTION TIME: ____/____:___:___ MET

**B**

**IMU VERIFICATION STAR ALIGN PAD**

ID: -Y: 27 DENE
MET (11/14:18 TO 11/15:11)

-Z: 54 DIPHDA
MET (11/14:13 TO 11/15:03)

ANG DIFF: 83.7

DUAL S TRKR 2nd ATTITUDE ALIGNMENT (SINGLE S TRKR)
-Z: 27 -Y: 54

\[
\begin{array}{c|c|c}
R & R & 15 \\
P & P & 283 \\
Y & Y & 44 \\
\end{array}
\]

REQD ID:
-Y: ___, -Z: ___, ANG ERR____,______

ANG: 1 2 3

\[
\begin{array}{c|c|c|c|c|c}
\Delta X & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\Delta Y & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\Delta Z & ( ) & __,____ ( ) & __,____ ( ) & __,____ \\
\end{array}
\]

If any \(\Delta X\), \(\Delta Y\), OR \(\Delta Z\) > 0.1 Check MCC

EXECUTION TIME: ____/____:___:___ MET
FLIGHT PLAN

STS 135

Flight Cover (trim bottom to expose tabs)