STS-121 / ULF1.1

FD 10 Execute Package

MSG	Page(s)	Title
089A	---	FD10 Summary Timeline **(pdf)**
079A	1 - 11	FD10 Flight Plan Revision **(pdf)**
080	12 - 13	FD10 Mission Summary **(pdf)**
081	14 - 15	FD10 Transfer Message **(pdf)**
082	16	FD10 Water Summary **(pdf)**
085A	17 - 18	Prep WLES Laptops for Transfer Procedure Update **(pdf)**
086	19 - 23	Return Stowage Maps **(pdf)**
087	24 - 27	FES Troubleshooting Overview and Procedure **(pdf)**
088A	28	FD10 Stack Repress **(pdf)**
090	29 - 30	FD09 MMT Summary **(pdf)**

Approved by FAO: *L. Eadie*

Last Updated: Jul 13 2006 6:58AM GMT
JEDI *(**J**oint **E**xecute package **D**evelopment and **I**ntegration), v2.04.0003*

07/12/06 19:33:34 **REPLANNED**

GMT 07/13/06 (194) 07 08 09 10 11 12 13 14 15 16 17 18 009/00

MET Day 008 12 13 14 15 16 17 18 19 20 21 22 23

FD10

STS-121	CDR LINDSEY	POST SLEEP | EXERCISE | OFF DUTY | PFC OCA | OFF DUTY | MEAL | OFF DUTY | MPLM CLNUP | CNFG MPLM RACKS
	PLT KELLY	POST SLEEP | ILUM | OFF DUTY | EXERCISE | OFF DUTY | MEAL | PFC OCA | OFF DUTY | CWC | INI 14 | STACK RPRS | CAMR* | CWC | TRM 14 | OIU^ | LDRI* | VIDD^
	MS1 FOSSUM	POST SLEEP | OFF DUTY | EXERCISE | OFF DUTY | MEAL | OFF DUTY | PFC OCA | OFF DUTY | GVNR CALL | PAO EVENT | 760 FLASH CAMR T/D | PRE SLEEP
	MS2 NOWAK	POST SLEEP | OFF DUTY | EXERCISE | OFF DUTY | MEAL | OFF DUTY | PFC OCA | OFF DUTY | PAO EVENT | PRE SLEEP
	MS3 WILSON	POST SLEEP | OFF DUTY | EXERCISE | OFF DUTY | PFC OCA | MEAL | OFF DUTY | CNFG MPLM RACKS
	MS4 SELLERS	POST SLEEP | OFF DUTY | EXERCISE | OFF DUTY | MEAL | OFF DUTY | PFC OCA | OFF DUTY | PRNTR SWAP | A31P XFER | PRE SLEEP
ISS	ISS CDR	POST SLEEP | PREP WK | PREP | DPC | H/O | PAO | S/U | H/O | ♣ | NOA1 C/O | СОГС БПА MNT | ⊕ | СОГС БПА MNT | ETD | TVIS | MIDDAY-MEAL | PAO | СОЖ | IMS | CUL CDR QUEST | СРВК БРПК MNT | VELO + HC | TVIS* | Φ СВ ЦВ MNT | EVE PREP WK | DPC
	FE-1	POST SLEEP | MORN PREP WK | PREP | DPC | PAO | SSC4 | W-MAP | TVIS | RED | H/O | MIDDAY-MEAL | PAO | MELFI RACK STRP INST | SM VIDEO S/U | CPA INST | DWNLD | PRNTR SWAP | ♦ AVU | EVE PREP WK | DPC
	FE-2 Reiter	POST SLEEP | PREP WK | PREP | DPC | NOA1 | PAO | S/U | NOA1 C/O | ETD-EXE1_FE2 | H/O | MIDDAY-MEAL | PAO | СОЖ | IMS | CPA INST | DWNLD | VELO | EVE PREP WK | DPC
STS	DAY/NIGHT	
	ORBIT	135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143
	TDRS W -171 / E - 46 / Z -275	
	ORB ATT	BIAS -XLV -ZVV

♣NOA MEAS⊕БИТС-РАЗЪЕМ-ТМИ-СПСТ

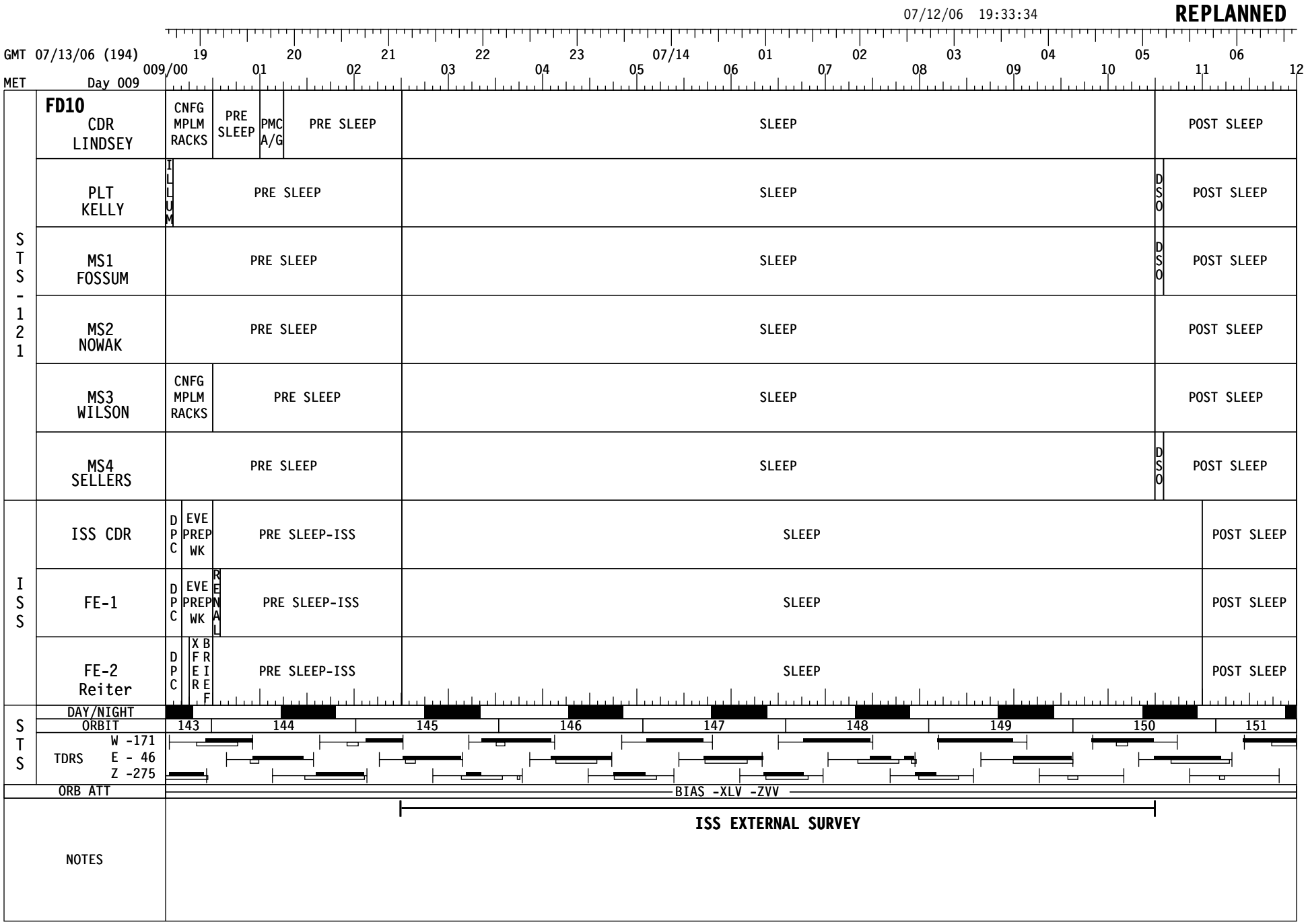
♦CSA/CP ^ACT

*WKLY-MNT *STATUS CK ^CNFG

*DCS 760 T/D

NOTES

07/12/06 19:33:34 **REPLANNED**



MSG 079A - FD10 FLIGHT PLAN REVISION

MSG INDEX

1. HAZMAT DATA FILE

   The MCC has uplinked the latest HazMat data file to all networked PGSCs onboard. Updates include materials for the Soyuz lamp and Orlan Gloves that were transferred.

2. PFC WORDS

   For your Private Family Conferences scheduled for later today, please use the RPOP PGSC. If you would rather use the KFX PGSC, just let us know before the event. The ground has to change its configuration based on which PGSC you use onboard. A/G 2 will be used for the audio portion of the event. Your families will be located in the Quarantine Facility.

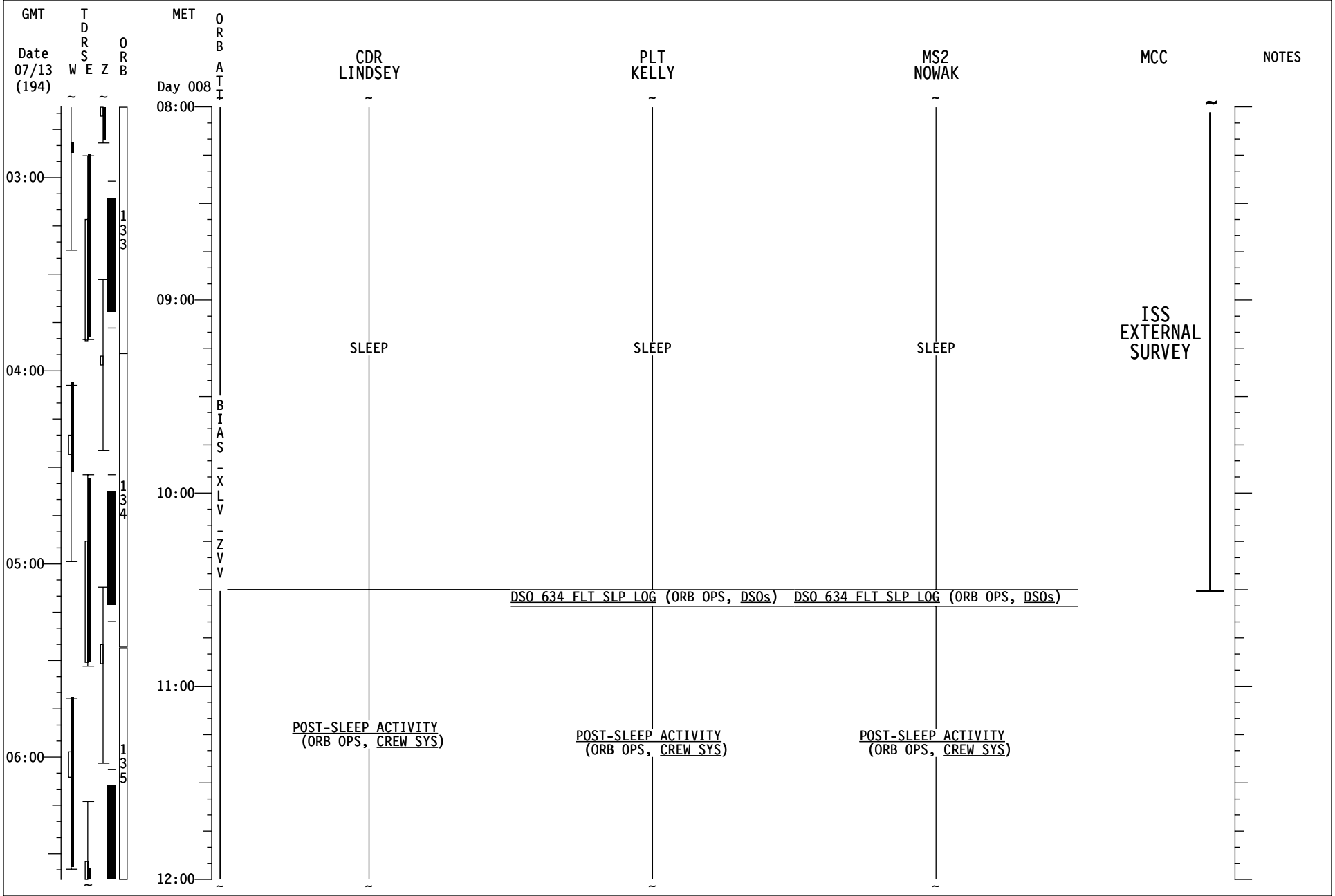
3. WORDS FOR FUTURE EMU/EVA TOOLS TRANSFERS

   Outstanding job on all three spectacular EVAs. You are always ahead of the timeline which allows you to get additional tasks done, bravo! You have a much deserved day off to enjoy being on-orbit. We are working on minor deltas to transfer and stowage plans for EMU and EVA tool hardware which you can expect in your FD11 Exec Pkg.

4. REPLACE PAGES 3-102 THROUGH 3-111.

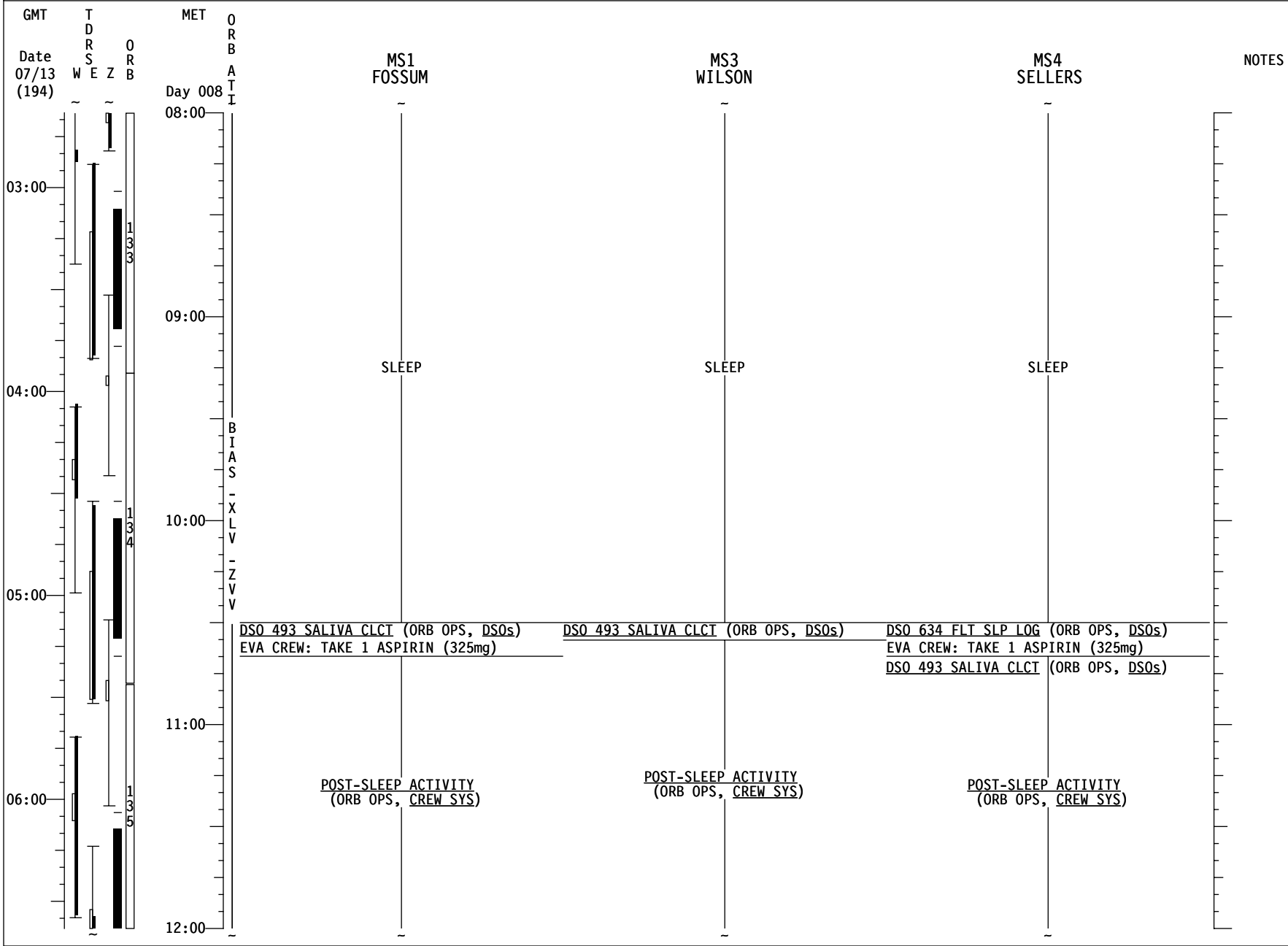
STS-121/ULF 1.1 (FD 09)

REPLANNED



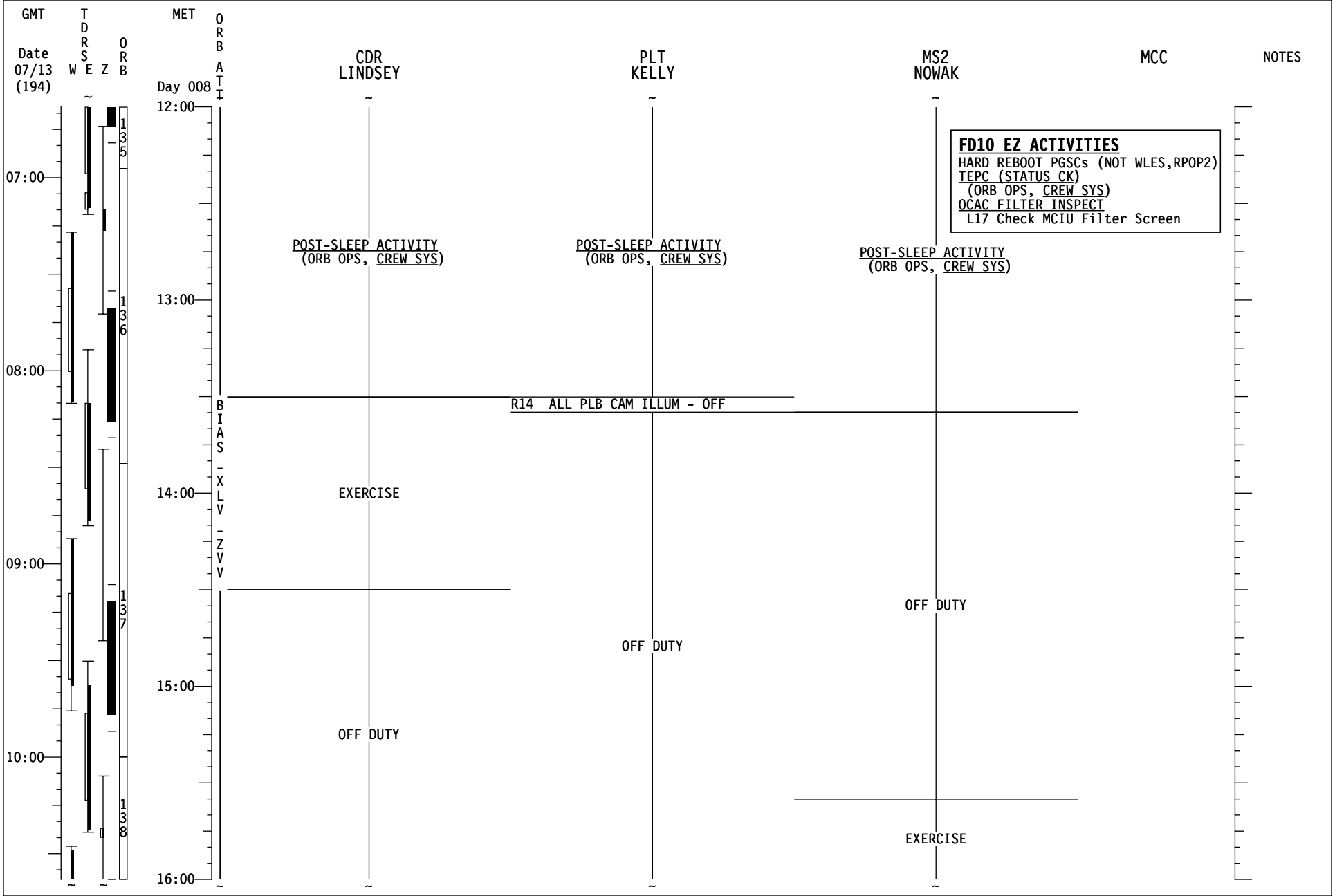
STS-121/ULF 1.1 (FD 09)

REPLANNED



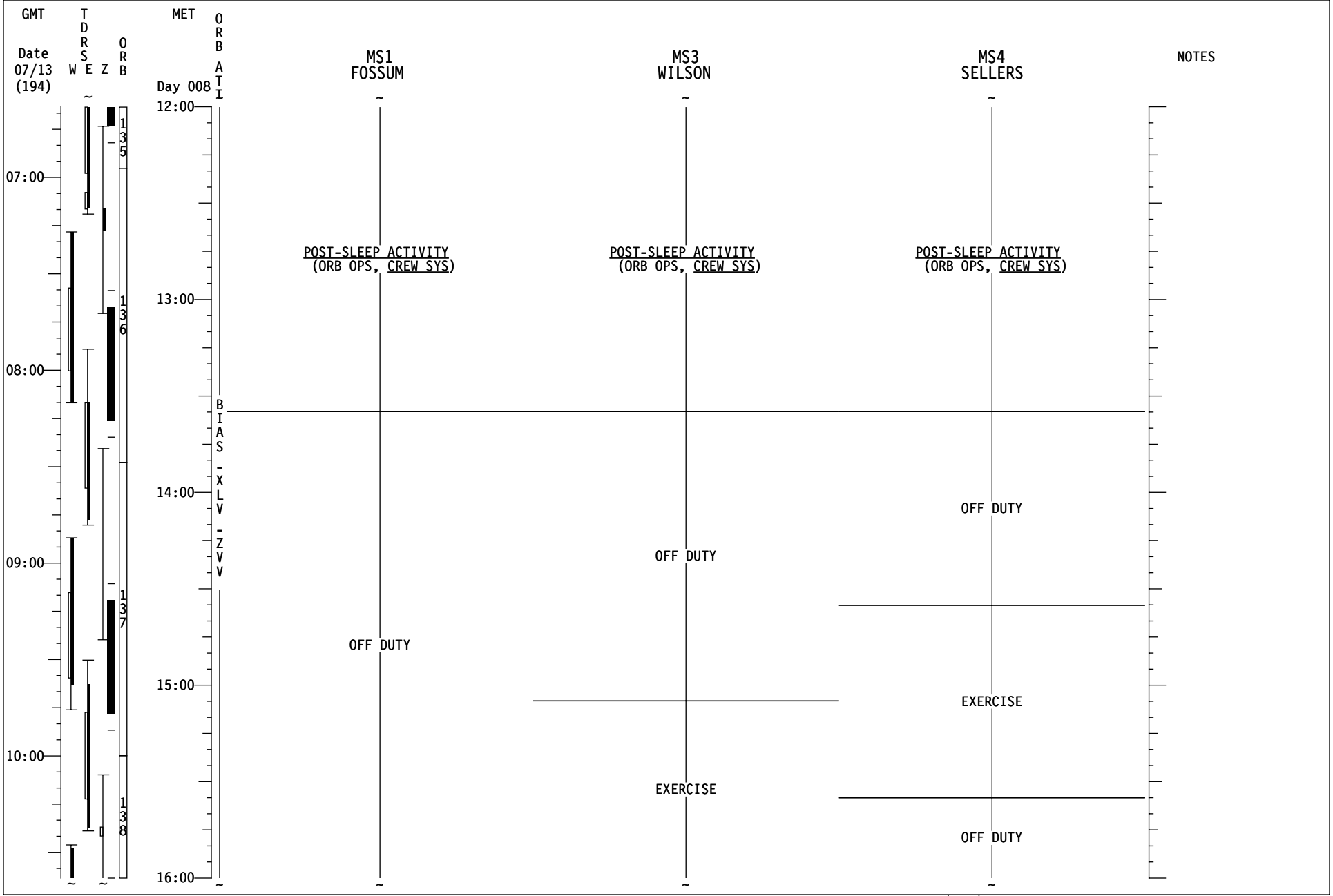
STS-121/ULF 1.1 (FD 10)

REPLANNED



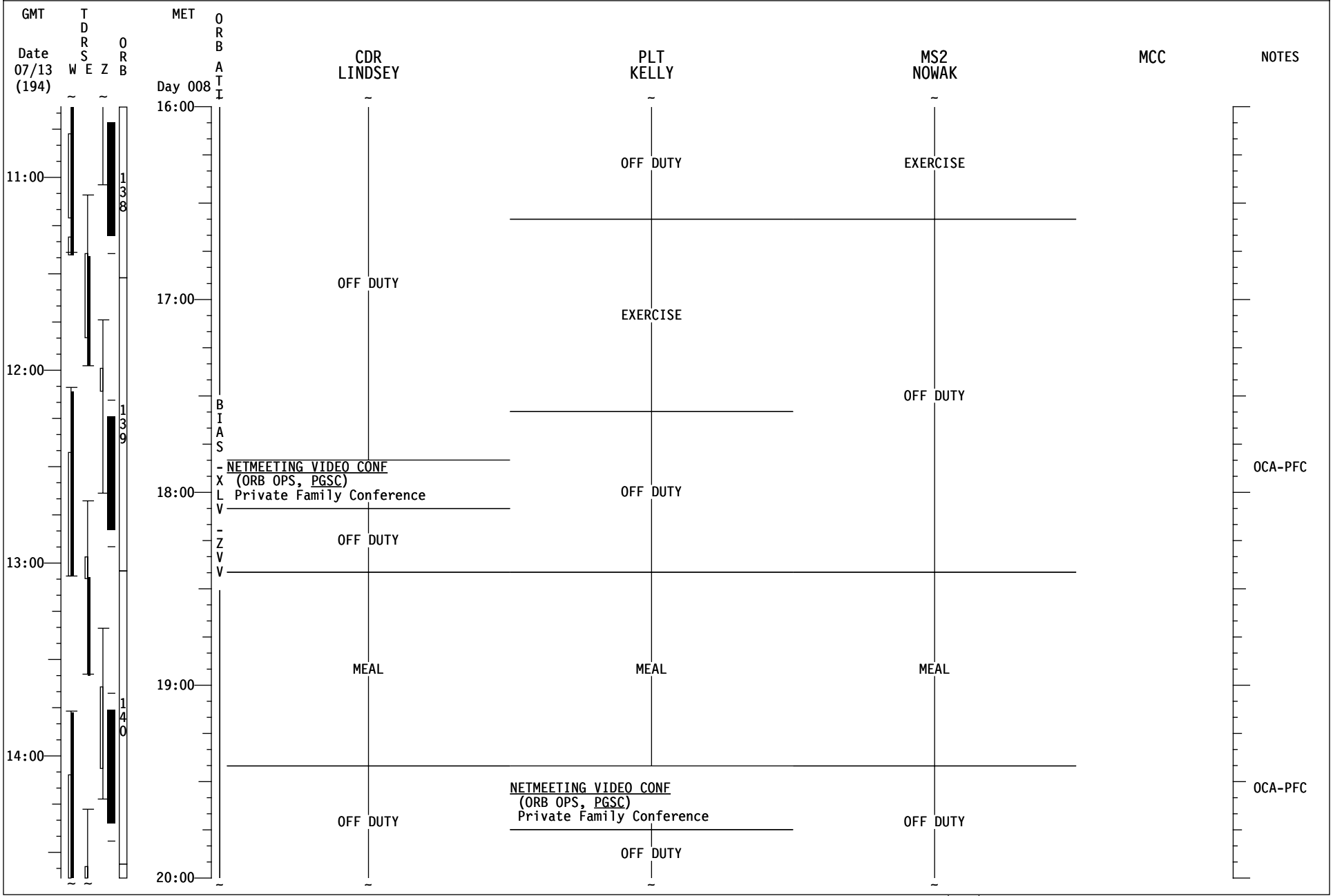
STS-121/ULF 1.1 (FD 10)

REPLANNED



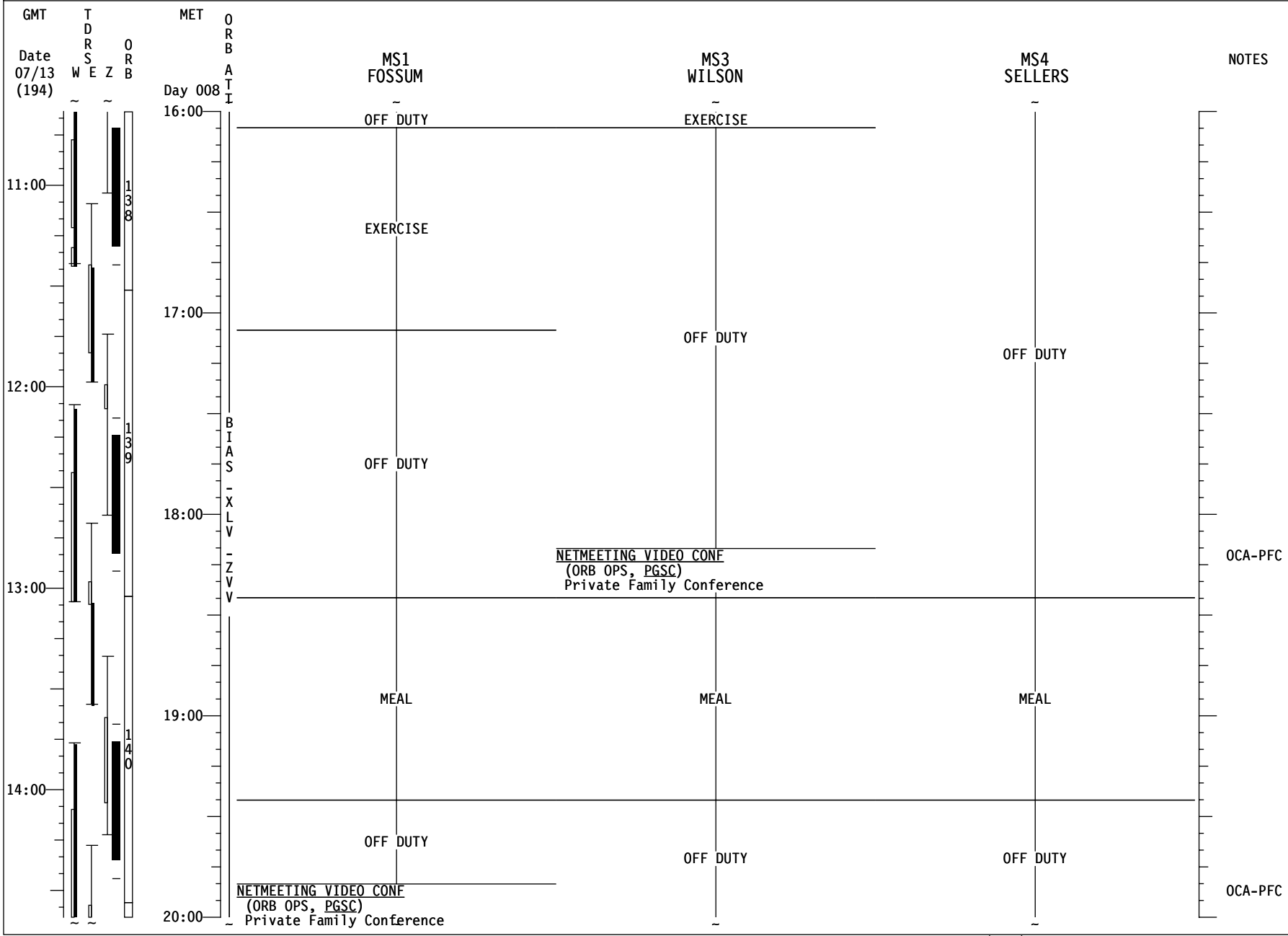
STS-121/ULF 1.1 (FD 10)

REPLANNED



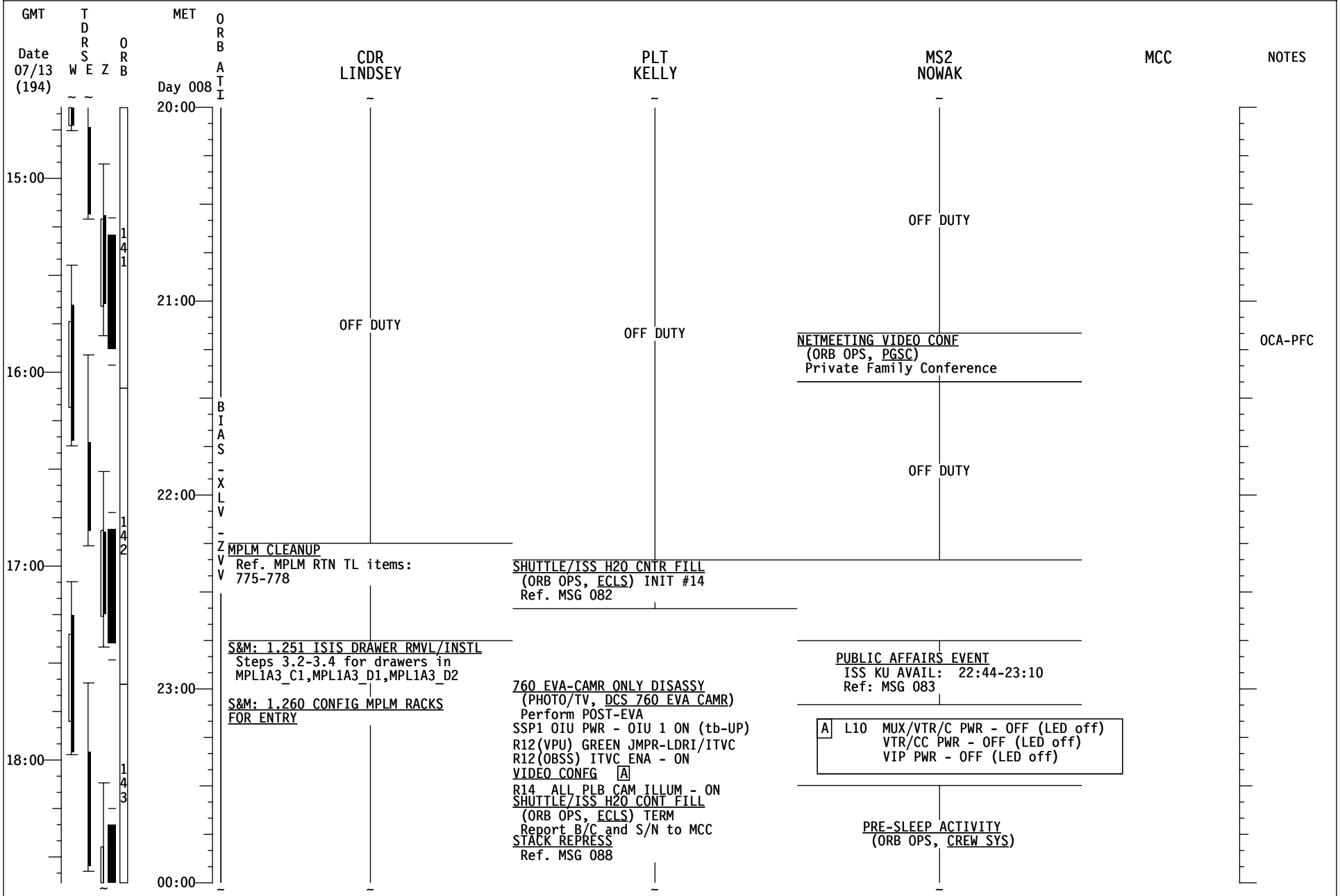
STS-121/ULF 1.1 (FD 10)

REPLANNED



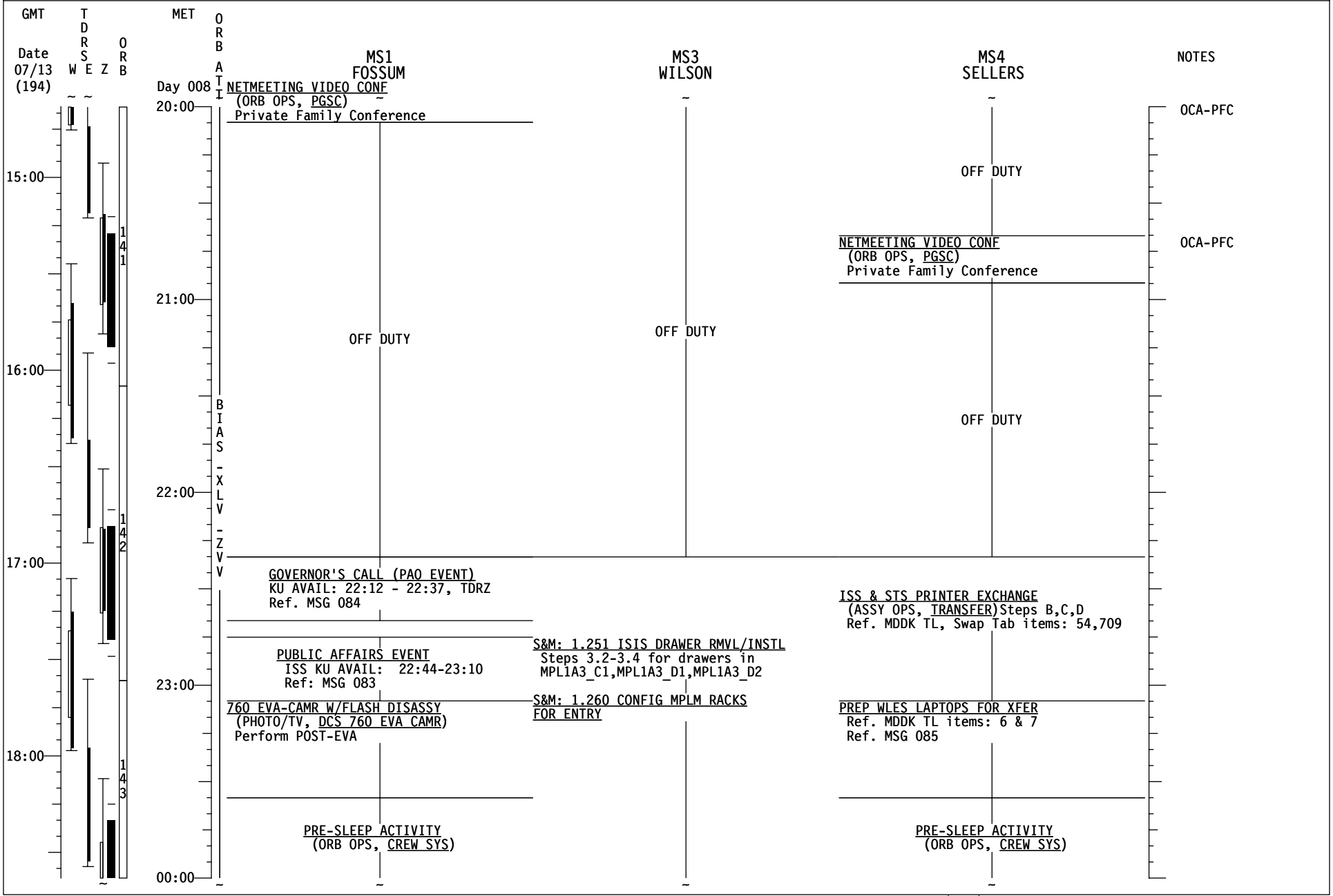
STS-121/ULF 1.1 (FD 10)

REPLANNED



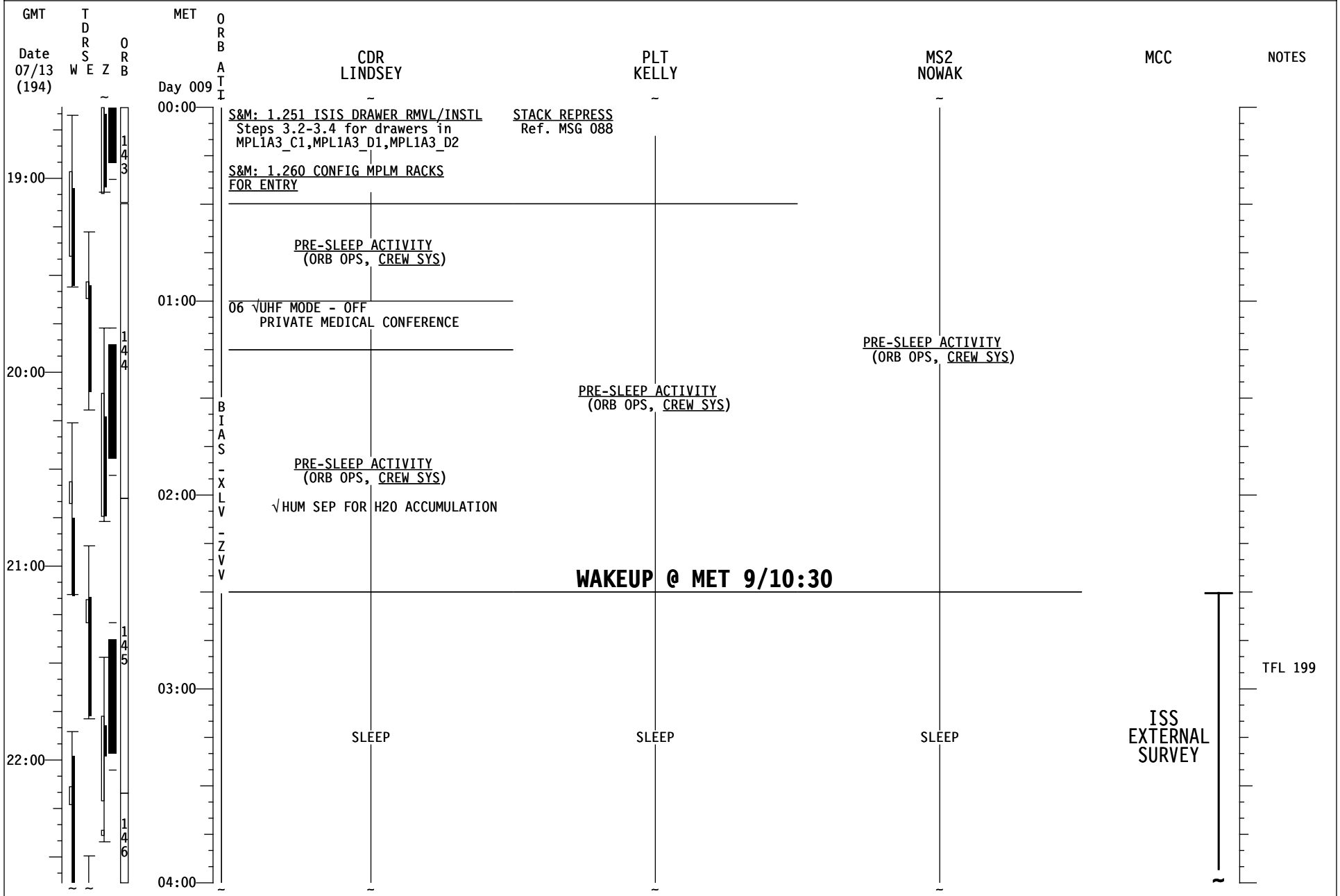
STS-121/ULF 1.1 (FD 10)

REPLANNED



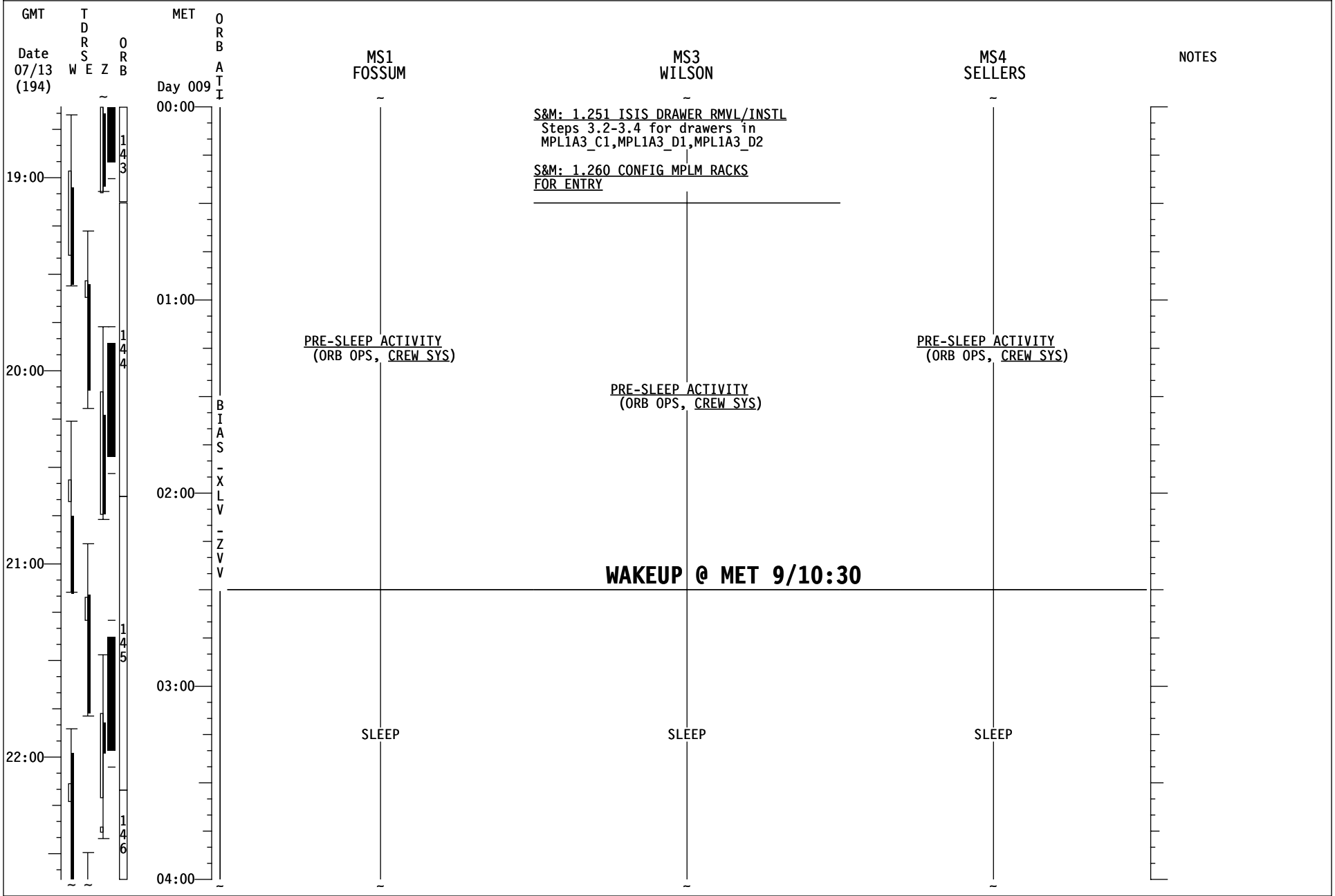
STS-121/ULF 1.1 (FD 10)

REPLANNED



STS-121/ULF 1.1 (FD 10)

REPLANNED



MSG 080 (13-0664) - FD10 MISSION SUMMARY

Good morning, Discovery.

Since today is an off-duty day for you, the planning shift team has come up with a few ideas* to help you pass the time;

1) Who can toss the laptop the furthest down the station before it bounces off the wall (of course, we would appreciate it if you use Station assets for this one).
2) Arm wrestling: Big arm vs. little arm, David and Goliath II, the battle begins.
3) Boom toss – toss the boom between arms (just don't tell the Canadians if you lose it)
4) Take all the CWCs into the Crew Lock, close the hatch, empty the CWCs and go for a swim (PBAs might be needed).
5) Lawn darts (if you need a target, remember that's an Aggie compatible task)
6) Marco polo (the whole fish-out-of water thing would need to be tweaked though)
7) We could up-link a few appropriate computer games for you if you like – Asteroids, Space Invaders, or Star Wars' Wing Commander.

And last but not least, here's a haiku from our GC,

Day of Freedom Launch
Leonardo and Spacewalks
Crew now Chillaxin'

Enjoy your day off, it's well deserved.

*None of these ideas have been approved by the MMT

YOUR CURRENT ORBIT IS: 191 X 177 NM

NOTAMS:

ORMOND BEACH (KOMN) – TAC (OMN CH 73) AZIMUTH OUT OF SERVICE UFN
LAJES – TACAN 45X OUT OF SERVICE TIL 8 SEP
KING KHALID - VORTAC CH 92X OPERATIONAL BUT CAUTION ADVISED DUE TO NO MONITORING
GUAM (GUA) – RWY 06L/24R CLOSED UNTIL 31 JULY
AMBERLEY (AMB) – CLOSED
RIO GALLEGOS (AWG) - NOT APPROVED
ISTRES (FMI) – 33 RWY REMAINING MARKERS AVAIL ARE 300,600,900M

NEXT 2 PLS OPPORTUNITIES:

EDW22 ORB 142 – 8/22:18 (FEW100 240@5P10)
EDW22 ORB 157 – 9/21:06 (FEW060 FEW150 230@5P10)

OMS TANK FAIL CAPABILITY:

L OMS FAILS: NO
R OMS FAILS: NO

LEAKING OMS PRPLT BURN:

L OMS LEAK: ALWAYS BURN RETROGRADE
R OMS LEAK: ALWAYS BURN RETROGRADE

OMS QUANTITIES (%)

L OMS OX = 34.6 R OMS OX = 37.2
FU = 35.1 FU = 37.9

SUBTRACT I'CNCT COUNTER FOR CURRENT OMS QUANTITIES

DELTA V AVAILABLE:

OMS	336 FPS
ARCS (TOTAL ABOVE QTY1)	24 FPS
TOTAL IN THE AFT	360 FPS
ARCS (TOTAL ABOVE QTY2)	54 FPS
FRCS (ABOVE QTY 1)	33 FPS
AFT QTY 1	84 %
AFT QTY 2	46 %

SYSTEM	FAILURE	IMPACT	WORK AROUND
APU 1	Pressure decay in APU 1 fuel tank that is not associated with temperature changes.	N2 or Hydrazine leak at a decay rate of ~3 psi/day.	None. Current margins support all entry operations. Tank pressures can be monitored via SPEC 86: APU FUEL TK P 1 and APU FUEL OUT P 1.
APU 3	APU HTR GAS GEN/FUEL PUMP 3 loss of primary thermostat control on both A and B heater strings.	Overtemp thermostat controlling temps on APU 3 fuel pump and gas generator valve module.	None. Elevated temps can be seen on the following: SPEC 86 PUMP/VLV PMP T 3 PUMP/VLV VLV T 3 SPEC 88 APU FUEL T PUMP OUT 3, PUMP BYP LN 3, and GG SPLY LN 3.
WLES	While downlinking raw window from Port Unit 1021, WLES software locked up on prime laptop	Temporarily unable to command to and receive data from the WLES sensors as backup WLES laptop was also unusable (LRU inadvertently disconnected)	Recovered after LRU was re-installed on backup, both laptops were rebooted and WLES software restarted.

Good morning Thomas, Stephanie, and Steve,

Thanks for your work with the new return items yesterday.

Information for crew:
No new transfer items today! We are still working on adding the UCB s/n 1089 to return in the middeck.

Stephanie, for the Mddk Transfer List, we've uplinked the remaining pages that contain items that have been already called down. There are also a few pages with additional changes to replace in this book. We will send up Return Sort pages for this book on FD11. Hope we got it right this time!

Thomas, for the MPLM Transfer List Books, we only uplinked Return Sort pages. These are for your reference when verifying rack contents during MPLM Config for Entry. We had no other change pages for these books. We did not uplink any more pages for these books that only reflect calldowns. Please let us know if you'd like us to send you anything else.

Stephanie, regarding the information you are receiving in MMT Summaries about transfer – the MMT report's "preliminary estimates from FD9" are actually our analysis from the FD8 calldown because our XFR BRIEFs have been occurring after the inputs for daily MMT Summaries are due. This results in the transfer information being a day old by the time it gets to you.

The information we reported based on the FD8 calldown is as follows:

FD8 MPLM Transfer Status - 90% of total MPLM Transfers are complete (93% of MPLM Resupply and 89% of MPLM Return).

FD8 Middeck Transfer Status – 80% of total Middeck Transfers are complete (75% of Middeck Resupply and 86% of Middeck Return).

The information we reported based on the FD9 calldown is as follows:

FD9 MPLM Transfer Status - 96% of total MPLM Transfers are complete (96% of MPLM Resupply and 96% of MPLM Return).

FD9 Middeck Transfer Status – 80% of total Middeck Transfers are complete (75% of Middeck Resupply and 86% of Middeck Return).

FD10 Choreography

- Pack used EVA LiOHs (CCCs)
- Install ZSR on front of P3 RSR.
- Install ZSR on front of S2 RSR
- Configure MPLM racks and verify rack contents.
- MPLM Cleanup (return bungees, seat track studs, CTB with pivot pins to ISS)
- Transfer/swap/configure STS and ISS printers

The Transfer List Excel file, FD10_TransferList_STS121.xls, is located on the KFX machine in **C:\OCA-up\transfer.**

(continued on next page)

For ISS, the Transfer List Excel file, FD10_TransferList_STS121.xls, is located in **K:\OCA-up\transfer.**

Please incorporate uplink pages as follows (call us with any questions):

In the MDDK Transfer List Book
RESUPPLY tab, Replace the following pages:
Page Resupply 1
Page Resupply 6
MDDK RSPLY REALTIME ADDITIONS tab, Replace Page Resupply 9
RETURN tab, Replace the following pages:
Page Return 1
Page Return 4
Page Return 7
MDDK RTN REALTIME ADDITIONS tab, Replace Page Return 8

In the MPLM Return Transfer List Book
RETURN SORT tab
Remove all pages and insert the following pages:
Page Rtn Loc 5 - Page Rtn Loc 19

-The Transfer Team-

Today there will be 1 CWC fill.

The Shuttle/ISS H2O Container Fill initiation scheduled for PLT at MET 8/22:20 should contain the following details:

SHUTTLE/ISS H2O CONT FILL INIT #14
(ORB OPS, ECLS)
Ag Biocide is req'd.
Sample is not req'd.
Fill Duration: ~50 minutes
Report Serial Number and Barcode to MCC.

After fill is complete, transfer the CWC to the water wall (NOD1P2) at MET 09/15:55 per the flight plan. If there is insufficient room for the bag at this ISS location, store CWC on the FGB Floor and report to MCC.

MSG 085A - PREP WLES LAPTOPS FOR TRANSFER PROCEDURE UPDATE

1. DEACTIVATE WLE SENSORS LAPTOP(S)

A31p 'Enhanced Wideband MicroTAU – WLEFlight 2.2'

For each WLES A31p in use:
- Click 'Exit'
- At prompt 'Are you sure you want to exit?'
  click 'Yes'
- Click 'Start'>'Shutdown'
- Disconnect Laptop Receiver Unit from A31p Serial port
- Remove Laptop Receiver Unit from Velcro on A31p

2. CONNECT LRU TO 'NEW' PRIME WLES LAPTOP

STS8
- Click 'Start'>'Shutdown'
- Connect LRU to A31p Serial port
- Secure LRU to A31p with Velcro

3. CONNECT LRU TO 'NEW' BACKUP WLES LAPTOP

STS5
- Click 'Start'>'Shutdown'
- Connect LRU to A31p Serial port
- Secure LRU to A31p with Velcro

4. LAUNCH WLE SOFTWARE

Perform for both laptops:
- A31p pwr – On
- Select clock from system tray
- Verify time is set to GMT (Casablanca, Monrovia), adjust if necessary
- Click 'OK'
- Double click 'Shuttle Apps'>'EWBMTAU-WLEFlight'

'Backup Mode Selection'
- For prime laptop, select 'Primary'
- For backup laptop, select 'Secondary'

Cont next page

5. VERIFY COMM WITH RELAY UNITS

Use prime WLES laptop

'Main'
Click 'Unit List' (left side of display)
√Cabin Relay Units Unit ID 1664 and 1728 (2) present on display in first column; scroll down as necessary
For each Cabin Relay Unit:
√Unit ID present
√Type: 'Relay-GL'
√Last Update: time is updating
√Via: 'RF'
√Mode: 'Idle'

NOTE

'Last Update' times nominally update every 5 to 15 sec

If no time updates after 2 min, contact MCC-H

6. ENABLE DATA FILE BACKUP

Use prime WLES laptop

'Main'
Click 'System Settings' (left side of display)

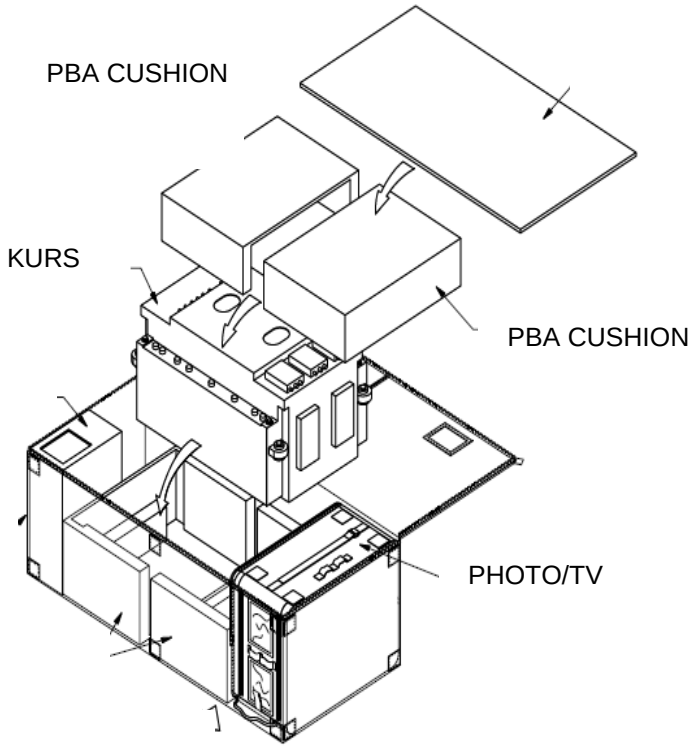
'Directories'
At the line 'Backup Directory' click 'Browse…'
Navigate to the "R" drive, the mapped drive for the backup WLES laptop
Navigate to 'Program Files'>'Invocon'>'EWBMTAU-WLEFlight'
Click 'OK'

Click 'Status' (left side of display)

Notify MCC-H: "WLES laptop prep for transfer complete"

MSG 086 - RETURN STOWAGE MAPS

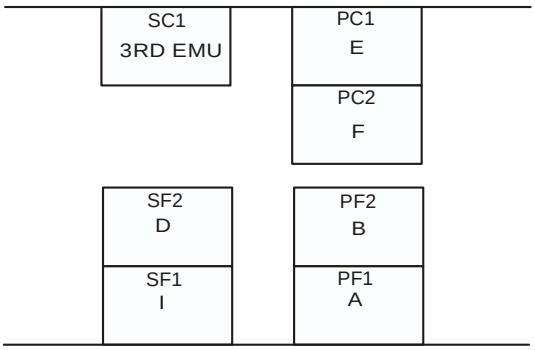
1



AIRLOCK FLOOR BAG (C)

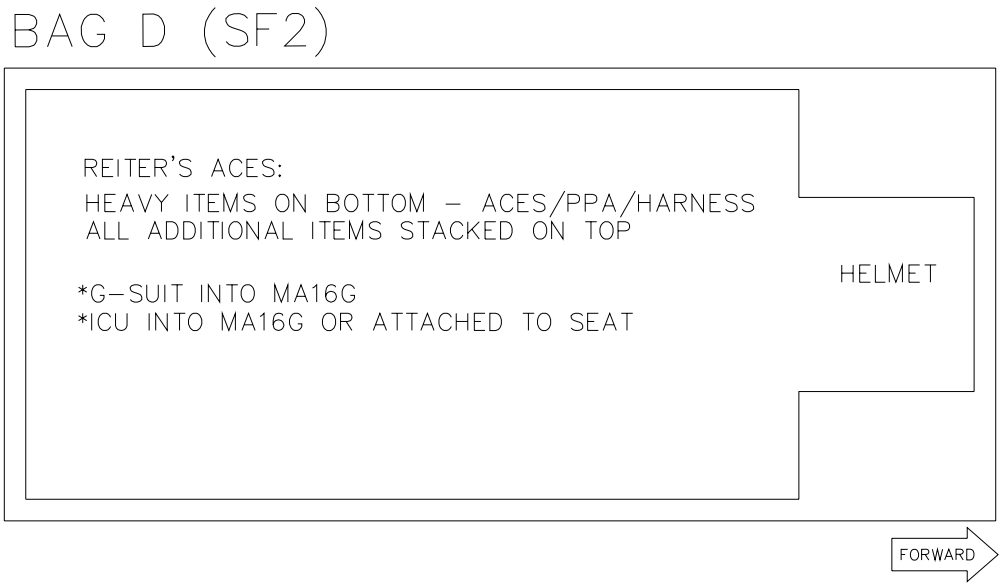
- "EYES" OF KURS FACE UP AS SHOWN
- EXCESS CUSHION CAN BE STOWED IN BAG I

DITCH BAG CONFIGURATION

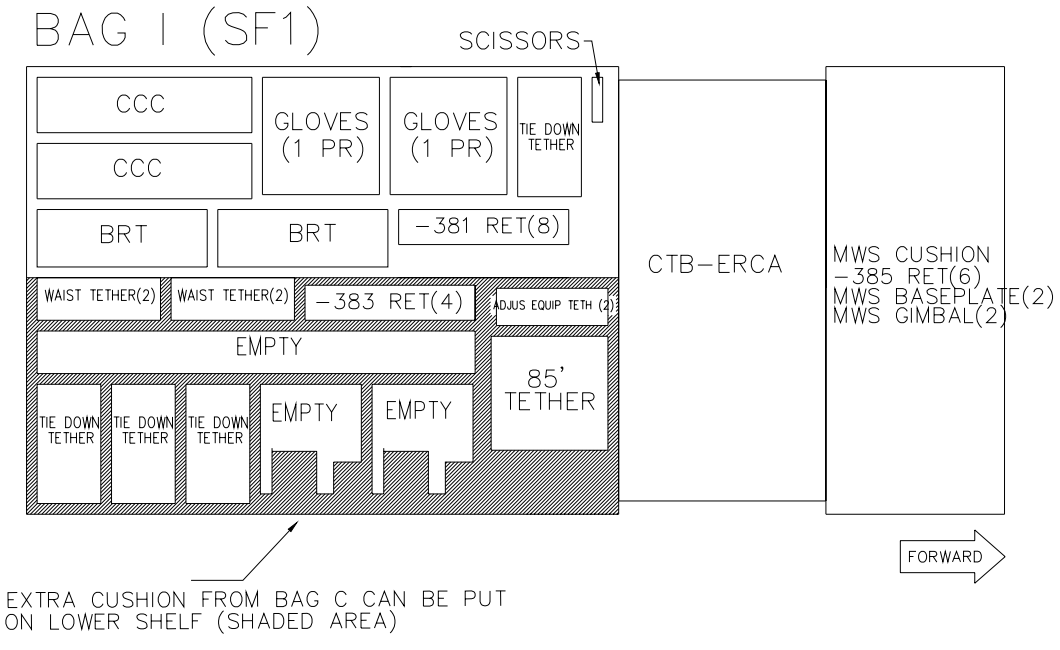


2
3
4
5
6

1

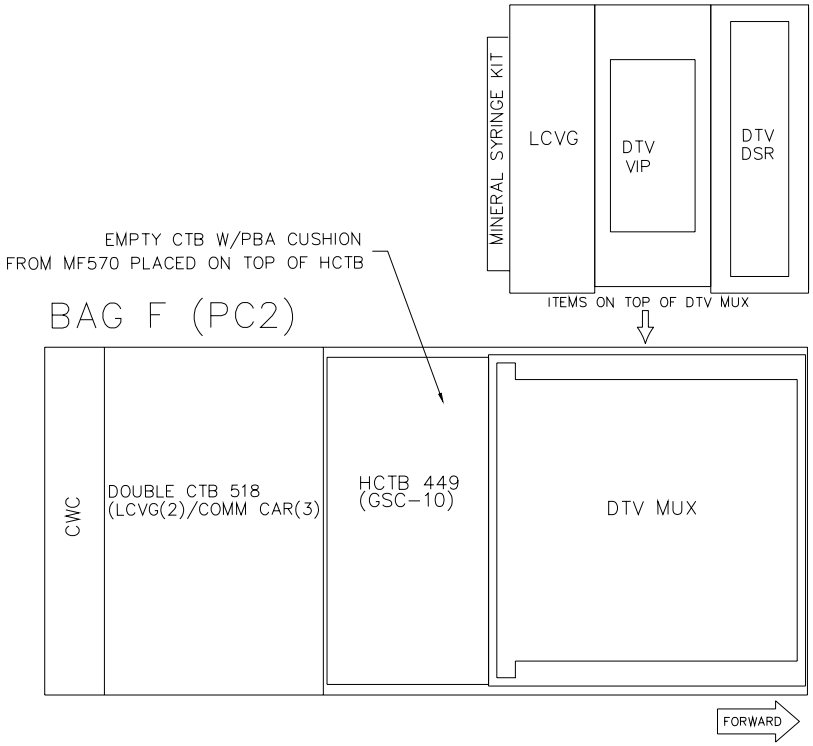

BAG D (SF2)
REITER'S ACES:
HEAVY ITEMS ON BOTTOM – ACES/PPA/HARNESS
ALL ADDITIONAL ITEMS STACKED ON TOP
*G–SUIT INTO MA16G
*ICU INTO MA16G OR ATTACHED TO SEAT
HELMET
FORWARD

2
3

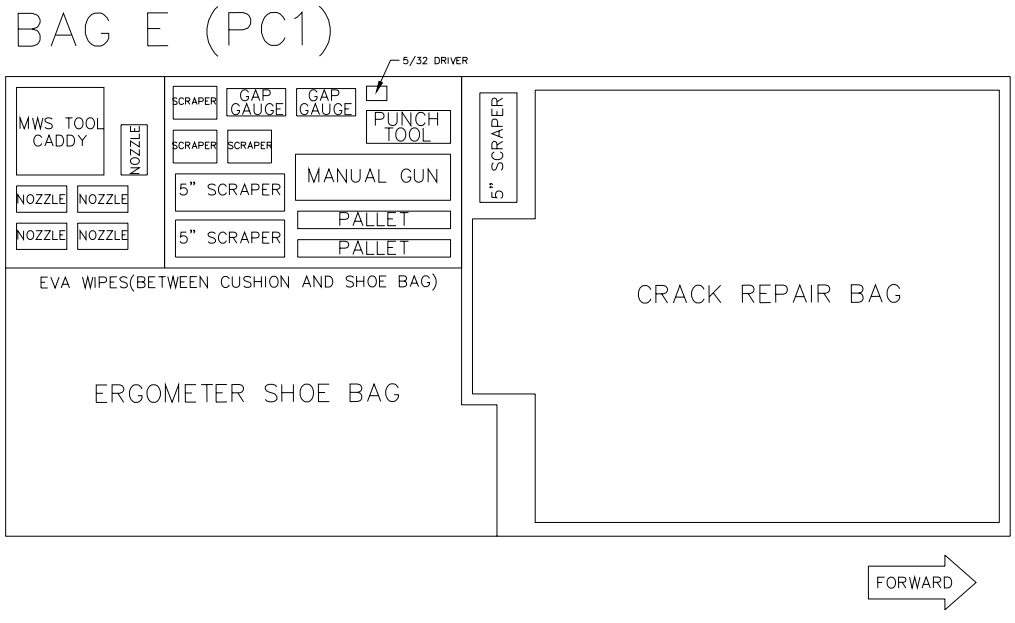

BAG I (SF1)
SCISSORS
CCC
CCC
GLOVES (1 PR)
GLOVES (1 PR)
TIE DOWN TETHER
BRT
BRT
–381 RET(8)
WAIST TETHER(2)
WAIST TETHER(2)
–383 RET(4)
ADJUS EQUIP TETH (2)
EMPTY
85' TETHER
TIE DOWN TETHER
TIE DOWN TETHER
TIE DOWN TETHER
EMPTY
EMPTY
CTB–ERCA
MWS CUSHION –385 RET(6)
MWS BASEPLATE(2)
MWS GIMBAL(2)
FORWARD
EXTRA CUSHION FROM BAG C CAN BE PUT ON LOWER SHELF (SHADED AREA)

4
5
6
7

1

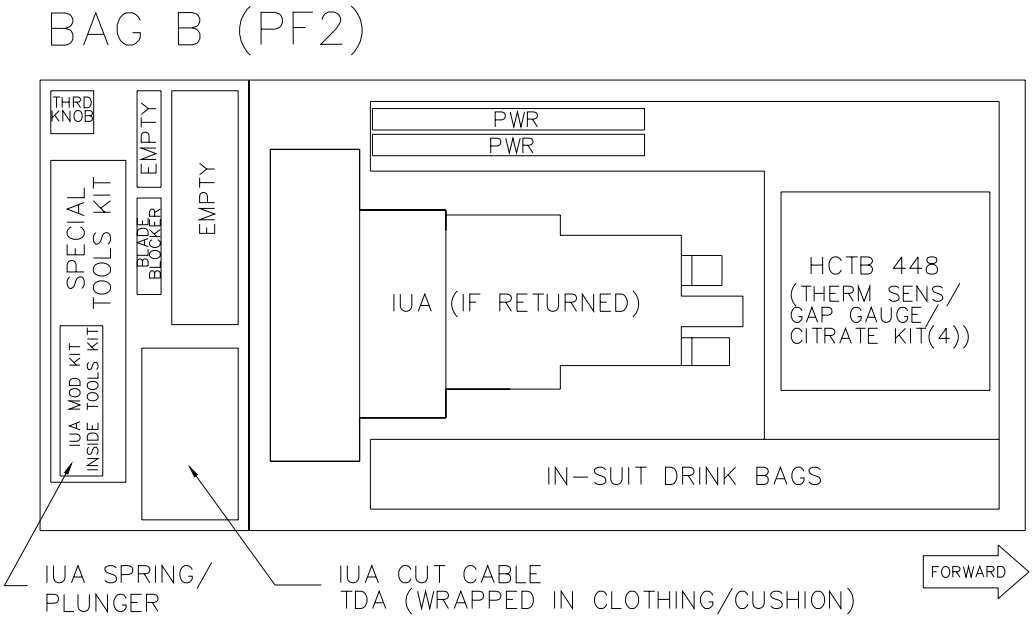

MINERAL SYRINGE KIT
LCVG
DTV VIP
DTV DSR
ITEMS ON TOP OF DTV MUX
EMPTY CTB W/PBA CUSHION FROM MF570 PLACED ON TOP OF HCTB
BAG F (PC2)
CWC
DOUBLE CTB 518 (LCVG(2)/COMM CAR(3)
HCTB 449 (GSC-10)
DTV MUX
FORWARD

2
3

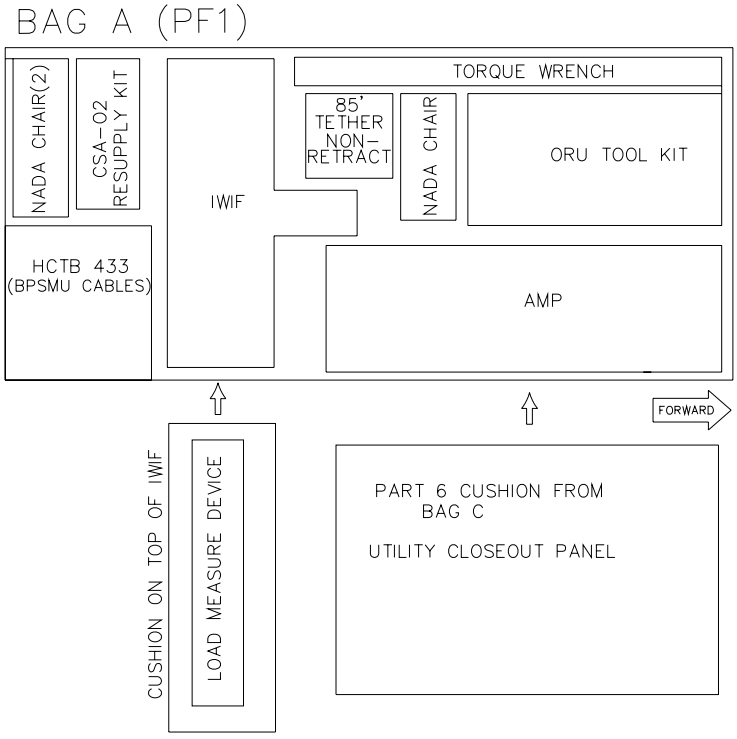

BAG E (PC1)
5/32 DRIVER
MWS TOOL CADDY
NOZZLE
NOZZLE
NOZZLE
NOZZLE
NOZZLE
SCRAPER
GAP GAUGE
GAP GAUGE
PUNCH TOOL
SCRAPER
SCRAPER
5" SCRAPER
MANUAL GUN
PALLET
5" SCRAPER
PALLET
5" SCRAPER
EVA WIPES(BETWEEN CUSHION AND SHOE BAG)
ERGOMETER SHOE BAG
CRACK REPAIR BAG
FORWARD

4
5
6
7

1

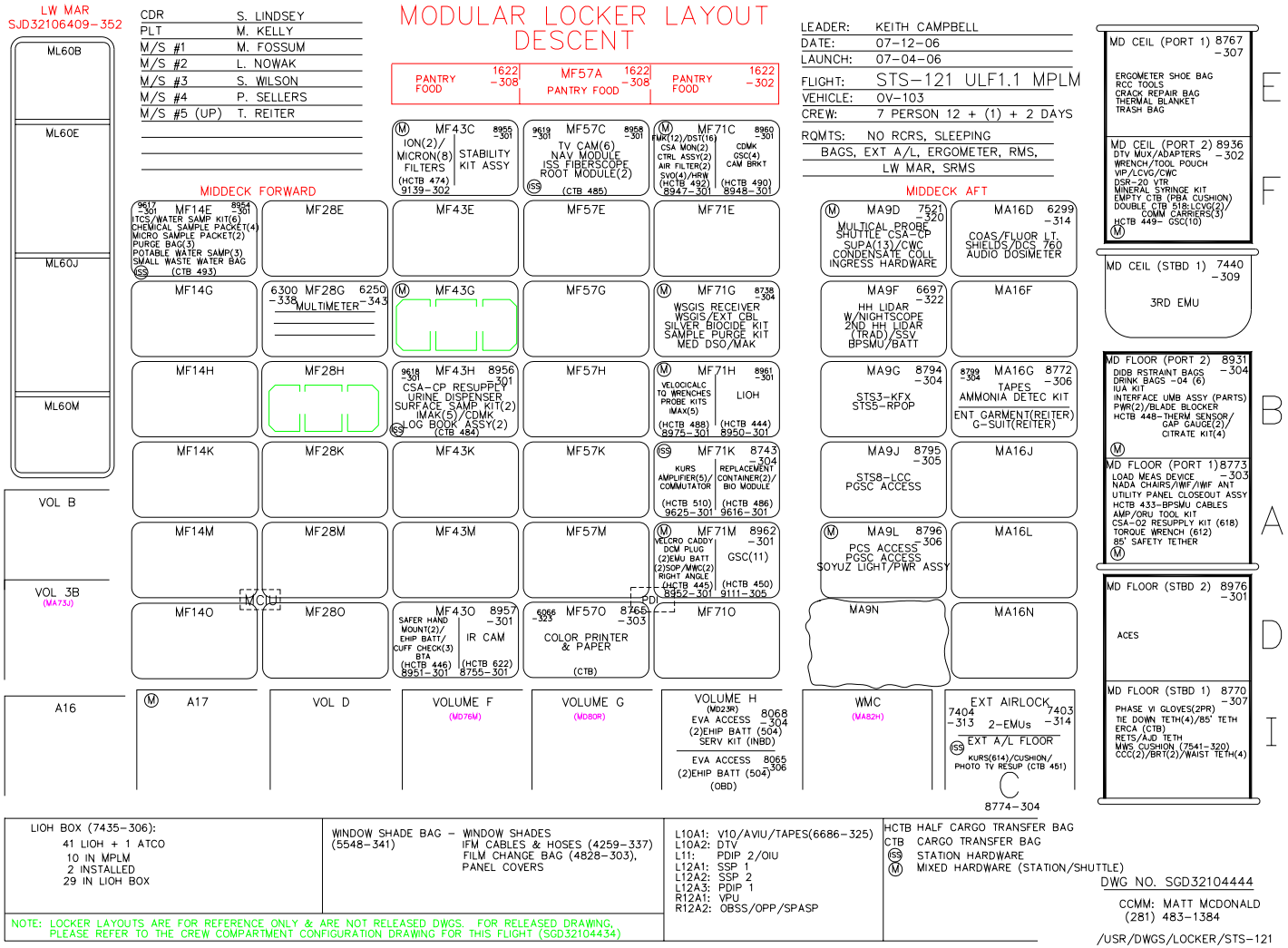

BAG B (PF2)
THRD KNOB
EMPTY
EMPTY
SPECIAL TOOLS KIT
BLADE BLOCKER
IUA MOD KIT INSIDE TOOLS KIT
PWR
PWR
IUA (IF RETURNED)
HCTB 448 (THERM SENS/ GAP GAUGE/ CITRATE KIT(4))
IN-SUIT DRINK BAGS
IUA SPRING/ PLUNGER
IUA CUT CABLE TDA (WRAPPED IN CLOTHING/CUSHION)
FORWARD

2
3
4


BAG A (PF1)
NADA CHAIR(2)
CSA-02 RESUPPLY KIT
IWIF
TORQUE WRENCH
85' TETHER NON-RETRACT
NADA CHAIR
ORU TOOL KIT
HCTB 433 (BPSMU CABLES)
AMP
FORWARD
CUSHION ON TOP OF IWIF
LOAD MEASURE DEVICE
PART 6 CUSHION FROM BAG C
UTILITY CLOSEOUT PANEL

5
6

1



ONLY LOCATIONS THAT CHANGE FOR RETURN ARE SHOWN

2
3

FES Troubleshooting Overview:

The initial setup steps configure the Supply H2O tanks to tie TK B to the FES and allow the Fuel Cell water to flow into TKC and TKD. This will allow the MCC to calculate accurate water rates that the FES is using. In addition, the water pressures (V64P0201A, not available onboard) in the Supply H2O system will provide insight into FES Hi Load operations. The motors for the Auto A rad controllers will be disabled to minimize switch throws during the procedure.

The FES Pri A controller will be run through a series of heat load changes to evaluate how the FES performs during the changes. The test begins with high temperatures at the FES inlet, both the Hi Load and Topping FES will be required. This configuration is maintained for 5 minutes and then one of the Freon Loops is taken to the Rads High temperature (57 deg). The FES inlet temperature will be moderate, which is the temperature range where FES Pri B shut down on FD1. This configuration will be held for 5 minutes and then the second Freon Loop will be taken to the Rads High temperature. The FES inlet temperature will be low, the FES controller logic should stop the Hi Load FES from providing cooling at this temperature range. The FES will remain in this configuration for 7 minutes and then FES Pri B will be put through the same sequence of steps.

The FES Secondary will be tested after the FES Pri A and Pri B steps are complete. The temperature range at the FES inlet for the FES Secondary check is high for the entire FES Secondary test. The FES Secondary Hi Load A and B supply valves will be tested. Following completion of the FES Secondary Hi Load steps, the Supply H2O tanks will be reconfigured to obtain accurate Supply H2O use rates from the Topper A and Topper B spray valves. The Topper A spray valves will use Supply H2O from TKB and the Topper B spray valves will use Supply H2O from TKC.

Following the FES Secondary test, the Freon Loop and FES systems will be reconfigured back to nominal orbit ops.

The expected Supply H2O usage rates based on the FES inlet temperatures for each portion of the test will be calculated. The amount of water used from the Supply H2O tanks will then be calculated and the two sets of data compared and used with the Supply H2O pressure oscillations to pinpoint failure modes within the FES.

The FES troubleshooting procedure was run through a PV session in the SMS. The execution of the procedure took ~ 90 minutes. The procedure is included to provide a good idea of what to expect when the final procedure is uplinked. Currently, FAO has the FES test placed on FD13 following FCS Checkout.

The current plan is to use FES PRI A for Entry.

FES TROUBLESHOOTING (PRELIMINARY)

WARNING
To protect against a potential undertemp condition, if a S88 EVAP OUT T 1(2) msg occurs at any time due to low EVAP OUT T, immediately perform L1 H2O PUMP LOOP 1 – ON

Initial Setup:

ML31C 1. SPLY H2O TK D OUTLET - CL (tb-CL)

L1 2. TOP EVAP HTR DUCT sel – A/B
FLASH EVAP CNTLR SEC - B SPLY

L4:P 3. cb AC2 ΦB RAD CNTLR 1A – op
AC3 ΦB RAD CNTLR 2A – op

R11L 4. SPLY H2O TK B INLET - CL (tb-CL)
TK C OUTLET - CL (tb-CL)

Adjust Hardware C&W, MCC will TMBU Software limits:

R13U 5.

PARAMETER NAME	C/W CH	UPPER LIMIT
FREON LOOP 1 EVAP OUT T	107	4.3V/115.2 deg
FREON LOOP 2 EVAP OUT T	117	4.3V/115.2 deg

6. √DAP: A/AUTO/ALT(PRI)

CRT SM 88 APU/ENVIRON THERM

FES Pri A:

L1 7. FLASH EVAP CNTLR PRI A - OFF
RAD CNTLR LOOP 1,2 (two) - OFF, AUTO A

When S88 RAD OUT T 1,2 decr (~110 sec),

8. RAD CNTLR LOOP 1,2 (two) – OFF
OUT TEMP - HIGH
HI LOAD EVAP - ENA
FLASH EVAP CNTLR PRI A - ON

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then,

9. RAD CNTLR LOOP 2 - AUTO A

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then,

10. RAD CNTLR LOOP 1 - AUTO A

After 7 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then, proceed to FES Pri B step 11.

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FES Pri B:

> NOTE
> If the FES Pri B controller shuts down during the FES Pri B portion of the test, the controller can be cycled one time. If another shut down is observed prior to the end of the wait period, √ MCC.

L1 11. FLASH EVAP CNTLR PRI A - OFF
RAD CNTLR LOOP 1,2 (two) - OFF, AUTO A

When S88 RAD OUT T 1,2 decr (~110 sec),
12. RAD CNTLR LOOP 1,2 (two) – OFF
FLASH EVAP CNTLR PRI B - ON

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then,
13. RAD CNTLR LOOP 2 - AUTO A

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then,
14. RAD CNTLR LOOP 1 - AUTO A

After 7 minutes, √ S88 EVAP OUT T 1,2 ~ 39 deg and stable then, proceed to FES Secondary step 15.

FES Secondary:

L1 15. FLASH EVAP CNTLR PRI B – OFF
RAD CNTLR LOOP 1,2 (two) – OFF, AUTO A

When S88 RAD OUT T 1,2 decr (~110 sec),
16. RAD CNTLR LOOP 1,2 (two) – OFF
FLASH EVAP CNTLR SEC – ON

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 62 deg and stable then,
17. FLASH EVAP CNTLR SEC - A SPLY
SEC – OFF, ON

After 5 minutes, √ S88 EVAP OUT T 1,2 ~ 62 deg and stable then,

L1 18. FLASH EVAP CNTLR SEC – OFF
HI LOAD EVAP – OFF

R11L 19. SPLY H2O XOVR VLV – CL (tb-CL)
TKC INLET – CL (tb-CL)
TKC OUTLET – OP (tb-OP)

L1 20. FLASH EVAP CNTLR SEC – ON

After 7 minutes, √ S88 EVAP OUT T 1,2 ~ 62 deg and stable then,

Reconfigure for Nom Ops:

21. RAD CNTLR LOOP 1,2 (two) - AUTO A

Continued next page

After 5 minutes, perform the following

L4:P 22. cb AC2 ΦB RAD CNTLR 1A – cl
AC3 ΦB RAD CNTLR 2A – cl

L1 23. RAD CNTLR OUT TEMP – NORM
TOP EVAP HTR DUCT sel – B

R11L 24. SPLY H2O TK B INLET – OP (tb-OP)
TK C INLET – OP (tb-OP)
XOVR VLV – OP (tb-OP)

ML31C 25. SPLY H2O TK D OUTLET – OP (tb-OP)
On MCC call,

L1 FLASH EVAP CNTLR PRI A – ON

Adjust Hardware C&W, MCC will TMBU Software limits:

R13U 26

PARAMETER NAME	C/W CH	UPPER LIMIT
FREON LOOP 1 EVAP OUT T	107	1.9V/64.8 deg
FREON LOOP 2 EVAP OUT T	117	1.9V/64.8 deg

MSG 088A - FD10 STACK REPRESS

To maintain the stack pressures above 14.0 psia, perform the following steps. The repress is expected to take approximately 36 minutes; however, a pause may be required to allow for mixing.

Caution: Do not remain in WCS area during the repress, as introduction of N2 may cause hypoxia.

Expect 'S66 CAB N2, O2 1 FLO' messages

Using SM 66 ENVIRONMENT,

OCAC PWR - OFF
MO10W 14.7 CAB REG INLET SYS 1 vlv - OP
L2 O2/N2 CNTLR VLV SYS 1 - OP

When CABIN PRESS = 14.24 psia, or on MCC call:
L2 O2/N2 CNTLR VLV SYS 1 - CL

If at any time 'S78 CABIN O2 CONC':
MO10W 14.7 CAB REG INLET SYS 1 vlv - CL
On MCC call:
MO10W 14.7 CAB REG INLET SYS 1 vlv - OP

When CABIN PRESS = 14.48, or on MCC call:
L2 O2/N2 CNTLR VLV SYS 1 - OP

When Cabin PRESS = 14.68 psia, or on MCC call:
MO10W 14.7 CAB REG INLET SYS 1 vlv - CL
OCAC PWR - ON
L2 O2/N2 CNTLR VLV SYS 1 - AUTO

FD9 MMT Crew Summary

At the FD9 MMT both Programs were extremely happy with the results of EVA 3 including the get-ahead task of transferring the grapple bar to ISS. FYI-The spatula that was released inadvertently during the EVA is well clear of the orbiter and ISS. It was 4 miles in front of the ISS/Shuttle at crew sleep on FD9 and continues to move in front of and below the ISS with the distance increasing about 2 miles each rev. Overnight, we were able to get additional video of the SSRMS LEE snare cable using orbiter cameras A, B and C. With these pictures, we were able to clear the SSRMS for all FD11 activities including the MPLM and SSRMS walk off activities. The pictures confirm that the cable is not far enough out of the groove to interfere with grapple operations. There is no concern with MPLM reberth. The MMT also reviewed the late inspection analysis and reporting timeline and the details of that discussion are included below. The most significant item of discussion was two separate, distinct, unrelated APU problems: APU 1 fuel tank pressure decay and the APU 3 heater issues. More details on this subject and a few others are provided below.

Late Inspection – As you know LDRI will be used on FD11 to inspect the port wing and after undock on FD12 to inspect the starboard wing and nose cap. The imagery team and Debris Assessment Team (DAT) are estimating no more than 15 hours to review the port wing data. The starboard wing and nose cap should take no more than 18 hours. The DAT recommendation for entry will be provided to the flight control team no later than 11/19:30 MET which is in the middle of the crew day on FD13. The crew and MCC ops team will press on with the nominal day before entry activities and will only change course of action if formally notified by the MMT. The MMT stressed that this activity cannot and will not interfere with normal entry planning and preparation unless there is a significant item uncovered in the LDRI data. The good news is that the DAT and Imagery teams did a great job on FD2 and on FD4 and will have the data and experience from these earlier inspections to draw upon for the late inspection.

Transfer – The preliminary estimates from FD9 are that the MPLM is still ahead of schedule with about 90% of the total MPLM transfer complete with approximately 93% of the re-supply and 89% of the return compete. The middeck transfer is ahead of schedule and is ~80% complete (75% re-supply/86% return complete) based on the data presented at the MMT. The MPLM weight will be ~55 lbs greater than what was analyzed pre-flight but the cg and individual rack mass properties are within VLA tolerances and all loads remain valid with positive margin. Additionally a total of 70-75 lbs of N2 has been transferred to the ISS.

APU 1 Tank Pressure Decay – The APU 1 fuel pressure is decaying differently than the other two tanks which is indicative of a small N2 or hydrazine leak. The data is very subtle so it has taken eight days to detect this change in slope between the three APU fuel tank plots. APU 2 and APU 3 shows a normal pressure decay of 6 psi over the eight days of the mission. This is due to the temperature change in the tanks which is caused by a 9-10 degrees Fahrenheit decrease in the tank temperatures as the aft structure cools. It takes some time to see this change because ascent does a good job of warming up this part of the vehicle. APU 1 Tank pressure has dropped a total of 22 psi over these eight days which is indicative of a leak which is most likely N2. The Entry Flight Director, CB Reps, and the entire APU community are meeting several times daily to understand the data and determine a forward plan of action. There was an N2 leak at the QD panel during a portion of the STS-121 OPF flow that was later fixed; that has many in the community thinking that the leak is N2. Analysis is in work to determine if it is feasible to leak hydrazine based on

the very slow leak rate and the propensity of hydrazine to freeze and slow an actual fuel leak. We hope to have more details on this subject tomorrow but as of today there is no change to any mission plans based on the data collected. The APU is not considered failed and the N2 pressure will be more than 100 psi above the lower operating limit at EOM.

APU 3 GG/Fuel Line/Pump/Valve Heater – Both the A and B heaters appear to be controlling at their upper limit on the overtemp thermostat. Initially the B heater appeared to fail ON, as indicated by the Supply Line Temp, increasing from ~82 deg F to 190 deg F. The heater then operated nominally for two cycles, and then failed ON again. MMACS asked to reconfigure the heater to the A system, where it is also operating on the overtemp thermostat. There are a few theories on the failure mode that could affect both the A and B heaters. This area was reworked before STS-121 with a new sealant such that the heaters were removed and rewrapped. If the wrap came loose on orbit, it would bias both thermostats cold and would appear as a failed on heater. If the heater is debonded, a similar signature would be expected. The teams continue to meet multiple times each day on this topic and additional data will be provided as the analyses mature. APU 3 is not considered failed for entry at this time and there are no significant impacts to entry operations.