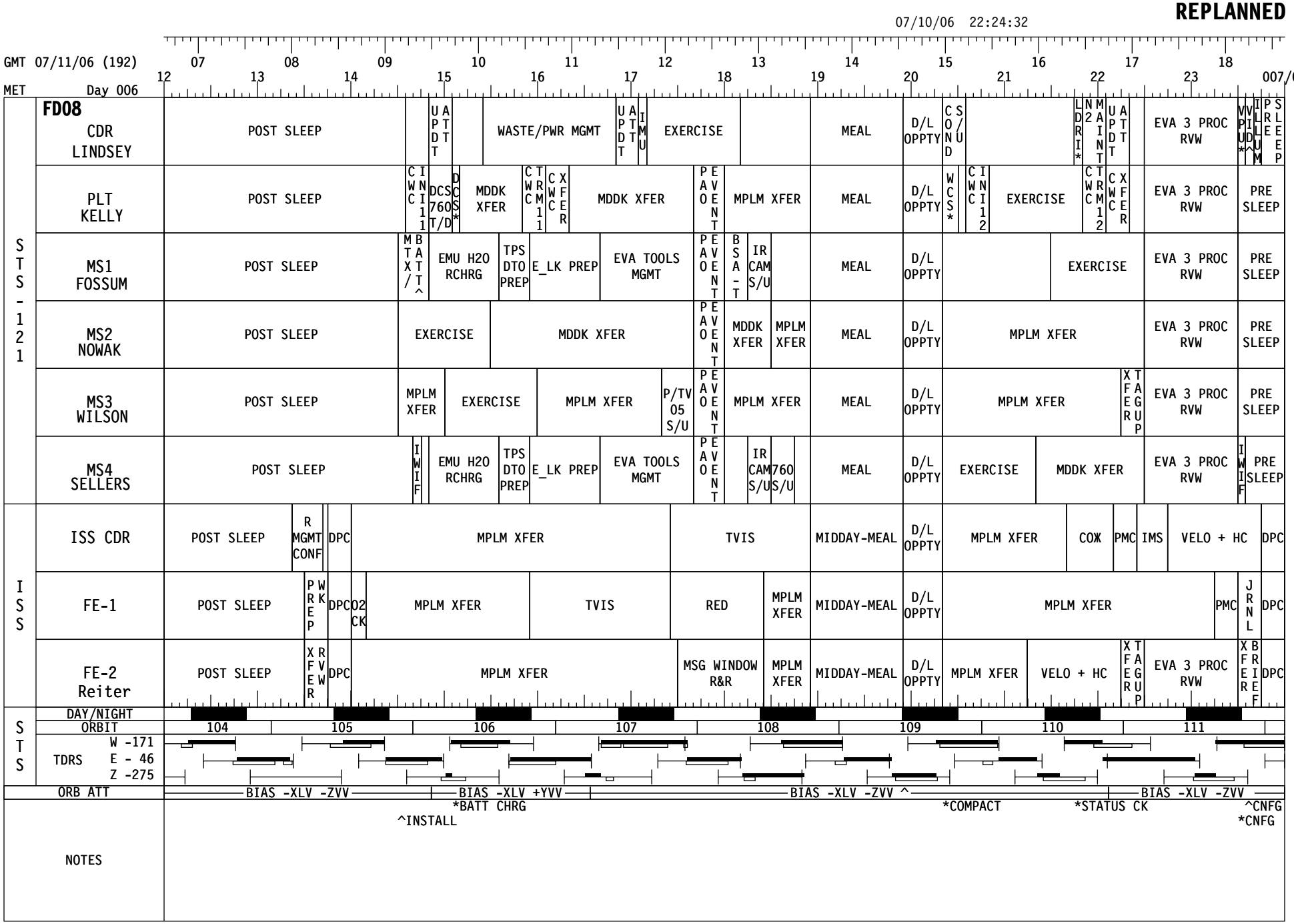
STS-121 / ULF1.1

FD 08 Execute Package

MSG	Page(s)	Title
064A	---	FD08 Summary Timeline **(pdf)**
057A	1 - 9	FD08 Flight Plan Revision **(pdf)**
058A	10 - 11	FD08 Mission Summary **(pdf)**
055	12 - 13	EVA Stowage Locations for Tues Plan (GMT192, FD8) **(pdf)**
059	14 - 15	FD08 Transfer Message **(pdf)**
061	16 - 17	FD08 Water Summary **(pdf)**
062A	18	FD07 MMT Summary **(pdf)**
063A	19	EVA Items of Interest **(pdf)**

Approved by FAO: *L. Eadie*

Last Updated: Jul 11 2006 7:38AM GMT
JEDI *(**J**oint **E**xecute package **D**evelopment and **I**ntegration), v2.04.0003*


07/10/06 22:24:32
GMT 07/11/06 (192)
MET Day 006
12 13 14 15 16 17 18 19 20 21 22 23 007/00
07 08 09 10 11 12 13 14 15 16 17 18
STS-121
FD08
CDR LINDSEY
POST SLEEP
UPDT
ATT
WASTE/PWR MGMT
UPDT
ATT
IMU
EXERCISE
MEAL
D/L OPPTY
COND
S/U
LDRI*
N2 MAINT
UPDT
ATT
EVA 3 PROC RVW
VP UD*^
ILUM
SLEEP
PLT KELLY
POST SLEEP
CWC
INCI 1
DCS 760 T/D
DCS*
MDDK XFER
CWC
TRM 1
CWC
XFER
MDDK XFER
PAO
EVENT
MPLM XFER
MEAL
D/L OPPTY
WCS*
INCI 2
EXERCISE
CWC
TRM 2
CWC
XFER
EVA 3 PROC RVW
PRE SLEEP
MS1 FOSSUM
POST SLEEP
MTX/
BATT^
EMU H2O RCHRG
TPS DTO PREP
E_LK PREP
EVA TOOLS MGMT
PAO
EVENT
BSA-T
IR CAM S/U
MEAL
D/L OPPTY
EXERCISE
EVA 3 PROC RVW
PRE SLEEP
MS2 NOWAK
POST SLEEP
EXERCISE
MDDK XFER
PAO
EVENT
MDDK XFER
MPLM XFER
MEAL
D/L OPPTY
MPLM XFER
EVA 3 PROC RVW
PRE SLEEP
MS3 WILSON
POST SLEEP
MPLM XFER
EXERCISE
MPLM XFER
P/TV 05 S/U
PAO
EVENT
MPLM XFER
MEAL
D/L OPPTY
MPLM XFER
XFER
TAG UP
EVA 3 PROC RVW
PRE SLEEP
MS4 SELLERS
POST SLEEP
IWIF
EMU H2O RCHRG
TPS DTO PREP
E_LK PREP
EVA TOOLS MGMT
PAO
EVENT
IR CAM S/U
760 S/U
MEAL
D/L OPPTY
EXERCISE
MDDK XFER
EVA 3 PROC RVW
IWIF
PRE SLEEP
ISS
ISS CDR
POST SLEEP
R MGMT CONF
DPC
MPLM XFER
TVIS
MIDDAY-MEAL
D/L OPPTY
MPLM XFER
COM
PMC
IMS
VELO + HC
DPC
FE-1
POST SLEEP
PREP
WK
DPC
O2 CK
MPLM XFER
TVIS
RED
MPLM XFER
MIDDAY-MEAL
D/L OPPTY
MPLM XFER
PMC
JRNL
DPC
FE-2 Reiter
POST SLEEP
XFER
RVW
DPC
MPLM XFER
MSG WINDOW R&R
MPLM XFER
MIDDAY-MEAL
D/L OPPTY
MPLM XFER
VELO + HC
XFER
TAG UP
EVA 3 PROC RVW
XFER
BRIEF
DPC
STS
DAY/NIGHT
ORBIT
104 105 106 107 108 109 110 111
TDRS W -171 E - 46 Z -275
ORB ATT
BIAS -XLV -ZVV
BIAS -XLV +YVV
BIAS -XLV -ZVV ^
BIAS -XLV -ZVV
*BATT CHRG
^INSTALL
*COMPACT
*STATUS CK
^CNFG
*CNFG
NOTES

REPLANNED

07/10/06 22:24:32

GMT 07/11/06 (192) 19 20 21 22 23 07/12 01 02 03 04 05 06

MET Day 007 007/00 01 02 03 04 05 06 07 08 09 10 11 12

FD08

STS-121	CDR LINDSEY	PRE SLEEP	PMC OCA	PRE SLEEP	SLEEP	DSO	PMC A/G	POST SLEEP
	PLT KELLY	PRE SLEEP			SLEEP	POST SLEEP ♣		
	MS1 FOSSUM	PRE SLEEP			SLEEP	POST SLEEP ⊕		
	MS2 NOWAK	PRE SLEEP			SLEEP	DSO	POST SLEEP	
	MS3 WILSON	PRE SLEEP			SLEEP	POST SLEEP ♦		
	MS4 SELLERS	PRE SLEEP			SLEEP	POST SLEEP ®		
ISS	ISS CDR	PREP WK	PRE SLEEP-ISS		SLEEP	POST SLEEP		
	FE-1	PREP WK	PRE SLEEP-ISS		SLEEP	POST SLEEP		
	FE-2 Reiter	PREP WK	PMC	PRE SLEEP-ISS	SLEEP	POST SLEEP ♥		
STS	DAY/NIGHT							
	ORBIT	112	113	114	115	116	117	118	119
	TDRS W -171 / E - 46 / Z -275								
	ORB ATT	BIAS -XLV -ZVV							
		ISS EXTERNAL SURVEY							

NOTES

♣EVA PREP W
⊕EVA PREP W
♦EVA PREP W
®EVA PREP W
♥EVA PREP W

CREW SLEEP SHIFT 1 HOUR EARLIER

MSG 057A - FD08 FLIGHT PLAN REVISION

MSG INDEX

1. FD08 N2 TRANSFER TERM AND N2 REPRESS

Since N2 tank to tank transfer will be complete and an N2 repress is required to maintain stack pressures above 14 psia prior to EVA #3, perform the following:

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

R13L MMU GN2 SPLY ISOL VLV A - CL (tb - CL)
Using SM 66 ENVIRONMENT, target a Cabin Pressure of 14.20 psia.

Expect 'S66 CAB N2 FLO 1' msg

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

When CABIN PRESS = 14.20 or on MCC call,

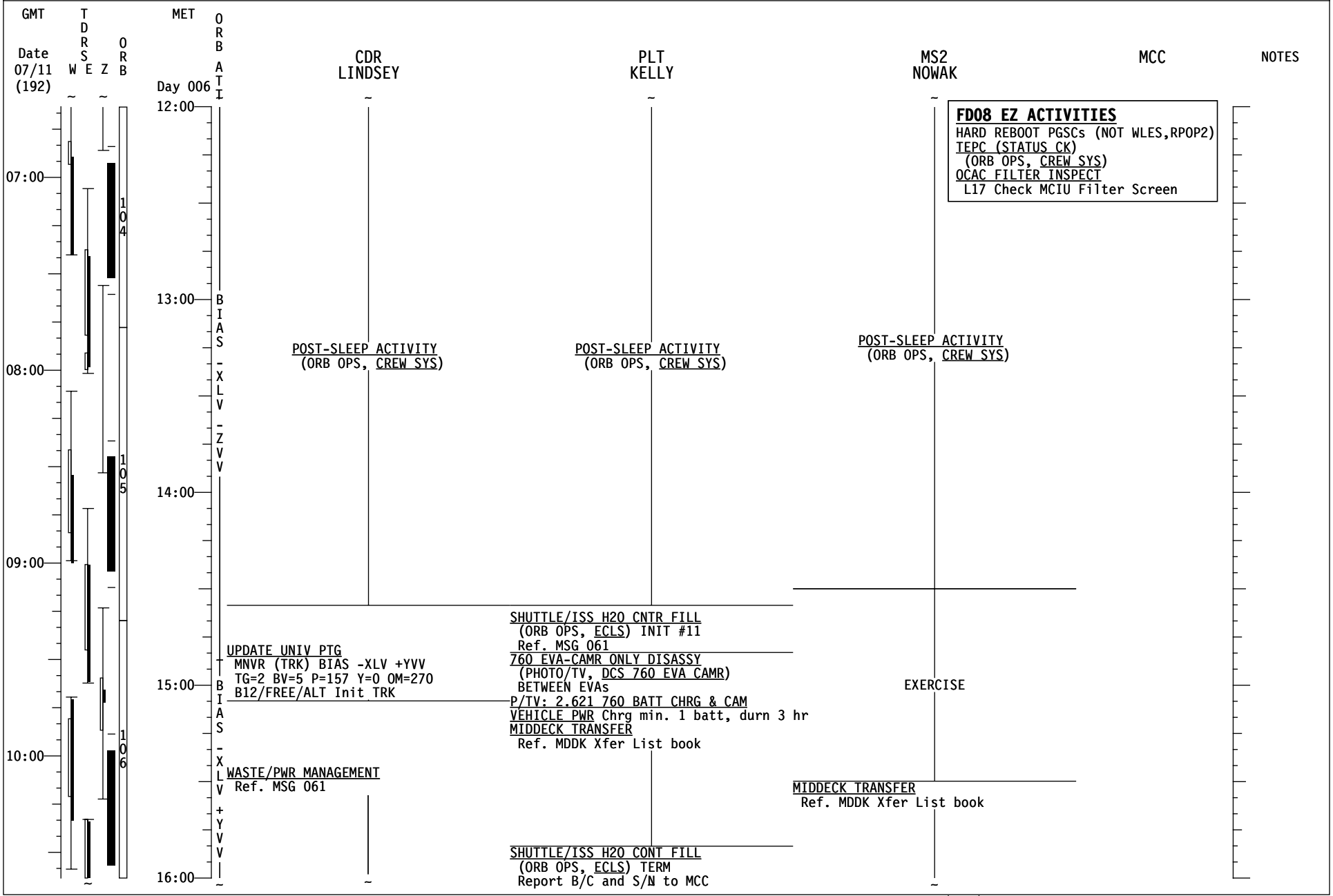
MO10W 14.7 CAB REG INLET SYS 1 vlv - CL
L2 O2/N2 CNTLR VLV SYS 1 - AUTO

Repress should take approximately 7 minutes.

2. REPLACE PAGES 3-80 THROUGH 3-87.

STS-121/ULF 1.1 (FD 08)

REPLANNED



STS-121/ULF 1.1 (FD 08)

REPLANNED

GMT Date 07/11 (192) | TDRS W E Z | ORB | MET Day 006 | ORB ATI

MS1 FOSSUM | MS3 WILSON | MS4 SELLERS | NOTES

12:00

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) — MS1

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) — MS3

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) — MS4

13:00

BIAS - XLV - ZVV

A

Refer to STS-121 CONSUMABLES TRACKING CUE CARD for EHIP Batts. EFIP Batts needed are in M-02 Bag. After step 18, perform EMU PREP FOR TPS REPAIR (EVA, TPS REPAIR)

Ref. MSG 055

14:00

EVA SYS: 1.515 EMU METOX/LIOH/ BATTERY REPLACEMENT — MS1
Ref. STS-121 CONSUMABLES TRACKING CC
Stow used LiOH in M-02 bag.

TRANSFER OPS — MS3
Ref. MPLM Resupply & Return Xfer List books

IWIF DATA DOWNLOAD (ORB OPS, DTO) — MS4
Ref. step A, perform step C (9-12)

15:00

EVA SYS: 1.505 EMU WATER RECHARGE — MS1
Use PWRs 1024,1023 for Recharge. Use CWC s/n 1026 labeled "EMU Wastewater" for Water Dump.
Ref. MSG 063, item 3

EVA SYS: 1.505 EMU WATER RECHARGE — MS4
Use PWRs 1024,1023 for Recharge. Use CWC s/n 1026 labeled "EMU Wastewater" for Water Dump.
Ref. MSG 063, item 3

BIAS - XLV + YVV

EXERCISE — MS3

TPS DTO PREP — MS1
(EVA, TOOLS & STOWAGE)
Perform TEMPERATURE PROBE ASSEMBLY and CRM APPLICATOR ASSEMBLY

TPS DTO PREP — MS4
(EVA, TOOLS & STOWAGE)
Perform TEMPERATURE PROBE ASSEMBLY and CRM APPLICATOR ASSEMBLY

16:00

EVA SYS: 1.305 EQUIPMENT LOCK PREP [A] — MS1

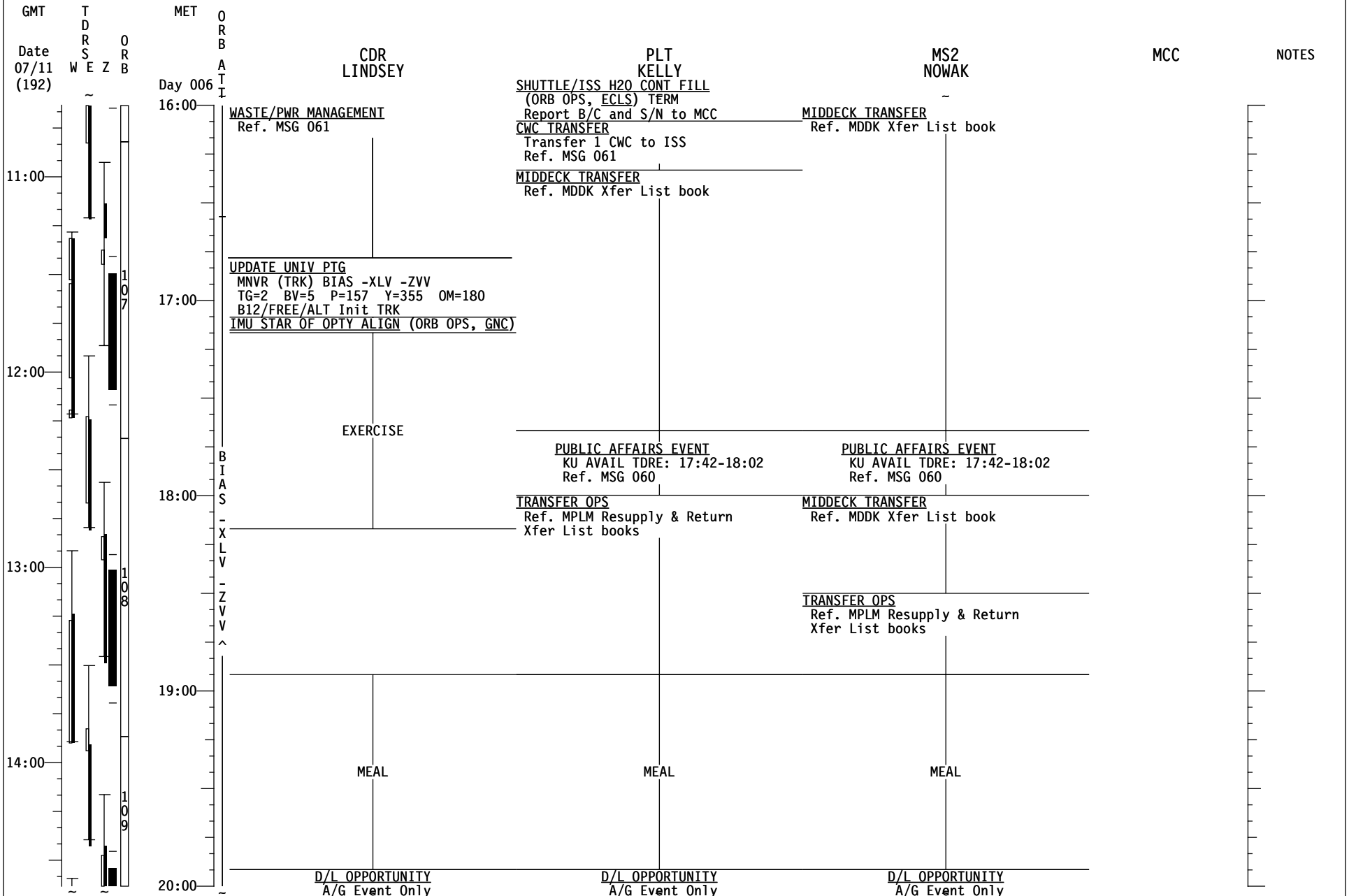
EVA SYS: 1.305 EQUIPMENT LOCK PREP [A] — MS4

07:00 | 08:00 | 09:00 | 10:00

ORB: 104 | 105 | 106

STS-121/ULF 1.1 (FD 08)

REPLANNED



STS-121/ULF 1.1 (FD 08)

REPLANNED

GMT Date 07/11 (192) | MET Day 006 | TDRS W E Z | ORB ATI BIAS -XLV -ZVV^ | MS1 FOSSUM | MS3 WILSON | MS4 SELLERS | NOTES

16:00

MS1 FOSSUM

EVA SYS: 1.305 EQUIPMENT LOCK PREP
Refer to STS-121 CONSUMABLES
TRACKING CUE CARD for EHIP Batts.
EHIP Batts needed are in M-02 Bag.
After step 18, perform
EMU PREP FOR TPS REPAIR
(EVA, TPS REPAIR)

Ref. MSG 055

EVA TOOLS MGMT
(EVA, TOOLS & STOWAGE)
Perform FD8-EVA 2 Tool Dcnfg
Ref. MDDK Resupply TL items:
40,800 & 802
Ref. MSG 063, item 1

MS3 WILSON

TRANSFER OPS
Ref. MPLM Resupply & Return
Xfer List books
Ref. MPLM Resupply TL, Swap tab
items: 245,756,756.1

P/TVO5 ISS INTERNAL OPS (HC)
(PHOTO/TV, SCENES) SETUP

MS4 SELLERS

EVA SYS: 1.305 EQUIPMENT LOCK PREP
Refer to STS-121 CONSUMABLES
TRACKING CUE CARD for EHIP Batts.
EHIP Batts needed are in M-02 Bag.
After step 18, perform
EMU PREP FOR TPS REPAIR
(EVA, TPS REPAIR)

Ref. MSG 055

EVA TOOLS MGMT
(EVA, TOOLS & STOWAGE)
Perform FD8-EVA 2 Tool Dcnfg
Ref. MDDK Resupply TL items:
40,800 & 802
Ref. MSG 063, item 1

11:00

12:00

17:00

PUBLIC AFFAIRS EVENT
KU AVAIL TDRE: 17:42-18:02
Ref. MSG 060

PUBLIC AFFAIRS EVENT
KU AVAIL TDRE: 17:42-18:02
Ref. MSG 060

PUBLIC AFFAIRS EVENT
KU AVAIL TDRE: 17:42-18:02
Ref. MSG 060

18:00

EVA SYS: 1.605 BSA BATTERY RECHARGE
TERM - Stow HL Batts in M02 Bag. 1019
for use in EVA IR CAM SETUP.

EVA IR CAM SETUP
(PHOTO/TV, EVA IR CAM)
Use EHIP Batt s/n 1019
Ref. MSG 055

TRANSFER OPS
Ref. MPLM Resupply & Return
Xfer List books

EVA IR CAM SETUP
(PHOTO/TV, EVA IR CAM)
Use EHIP Batt s/n 1019
Ref. MSG 055

760 EVA-CAMR ONLY
(PHOTO/TV, DCS 760 EVA CAMR)

13:00

19:00

MEAL

MEAL

MEAL

14:00

20:00

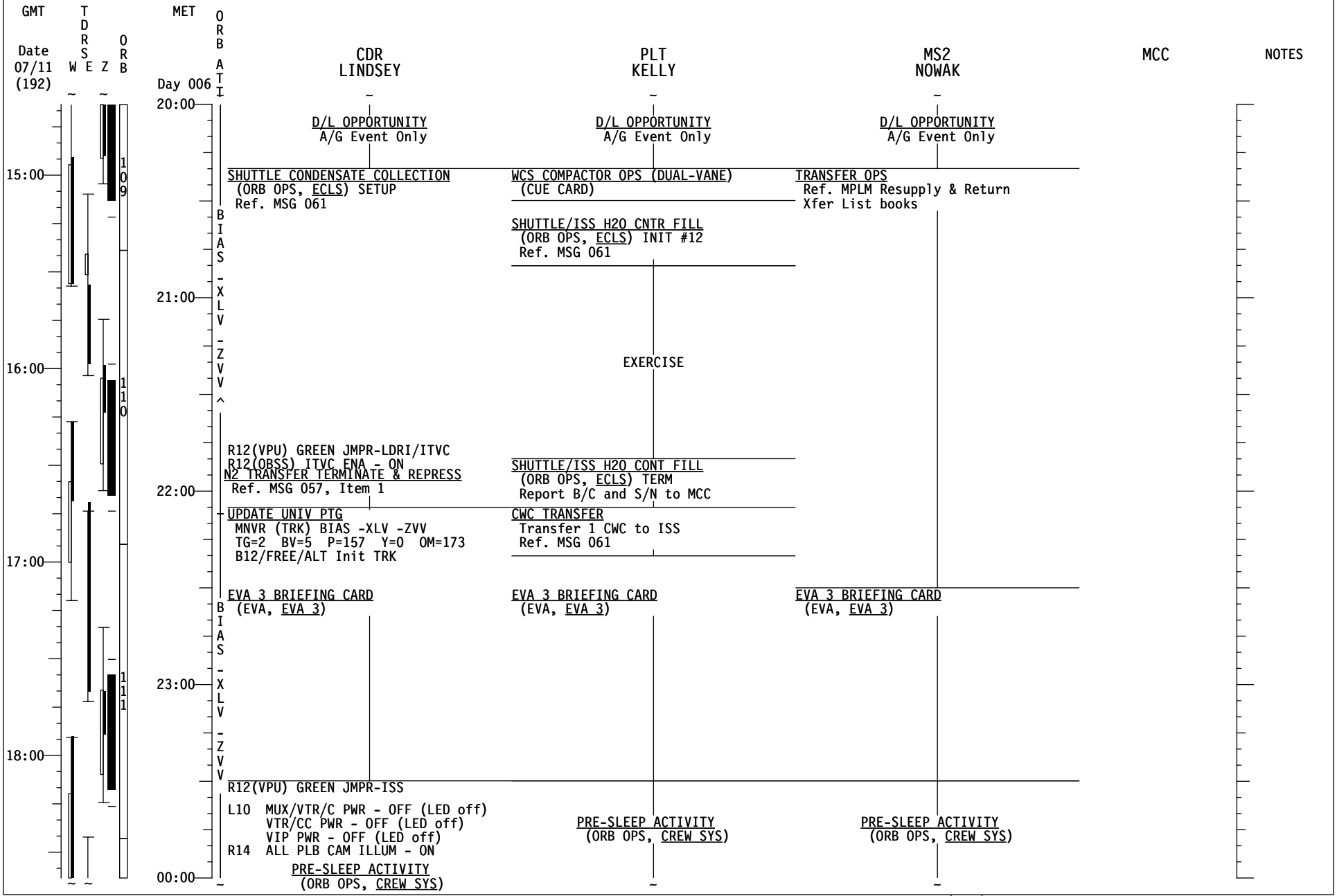
D/L OPPORTUNITY
A/G Event Only

D/L OPPORTUNITY
A/G Event Only

D/L OPPORTUNITY
A/G Event Only

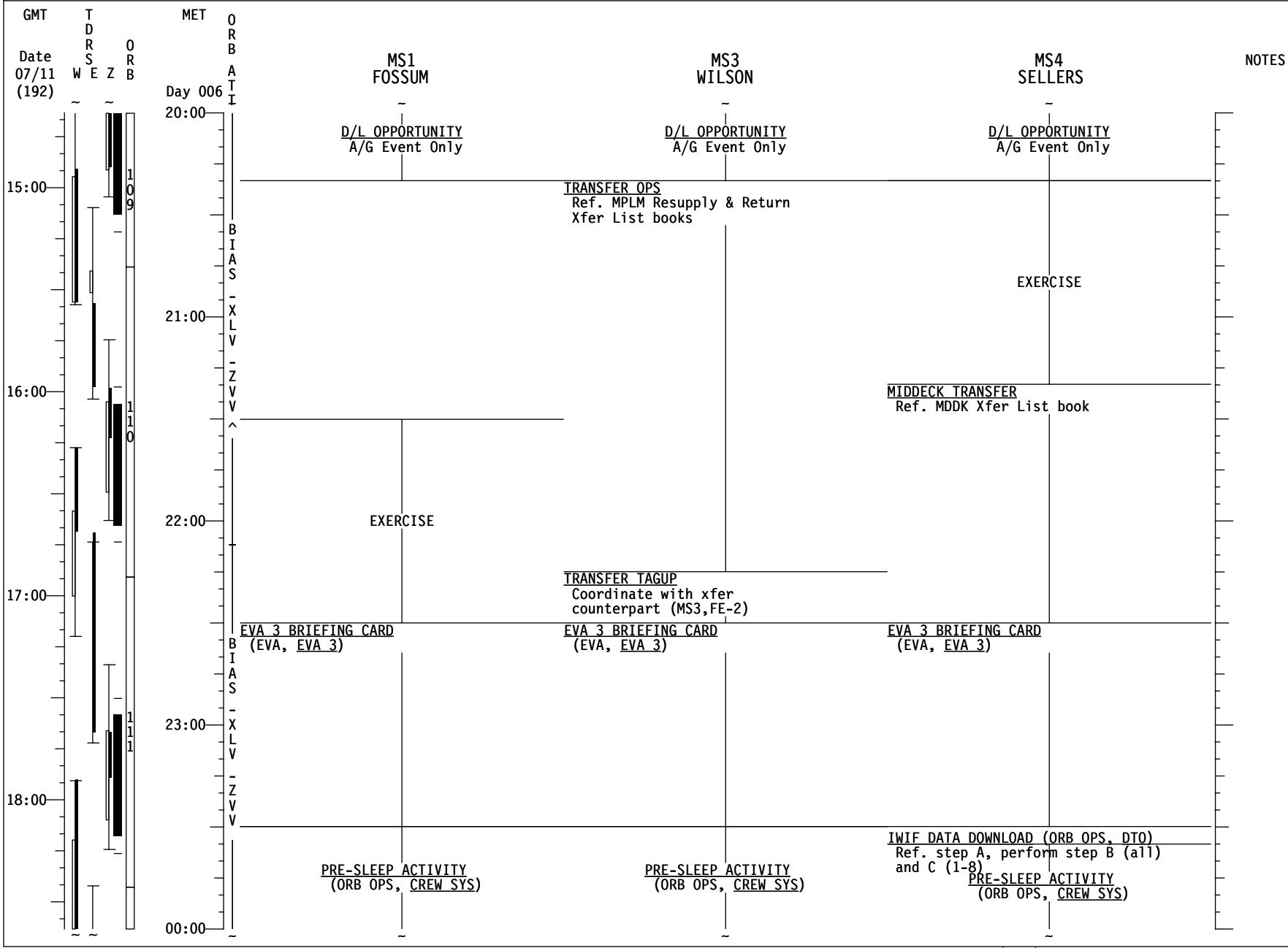
STS-121/ULF 1.1 (FD 08)

REPLANNED



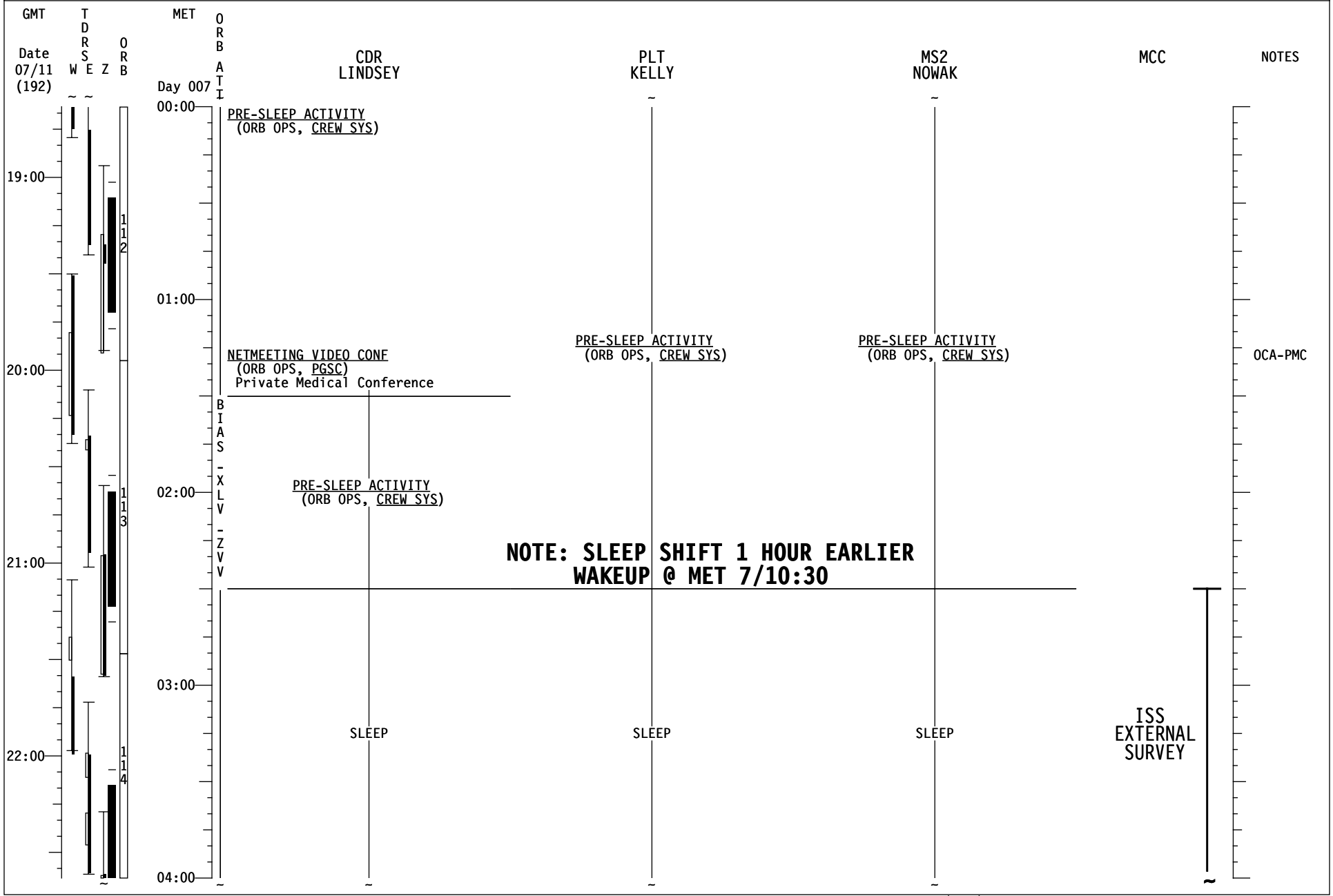
STS-121/ULF 1.1 (FD 08)

REPLANNED



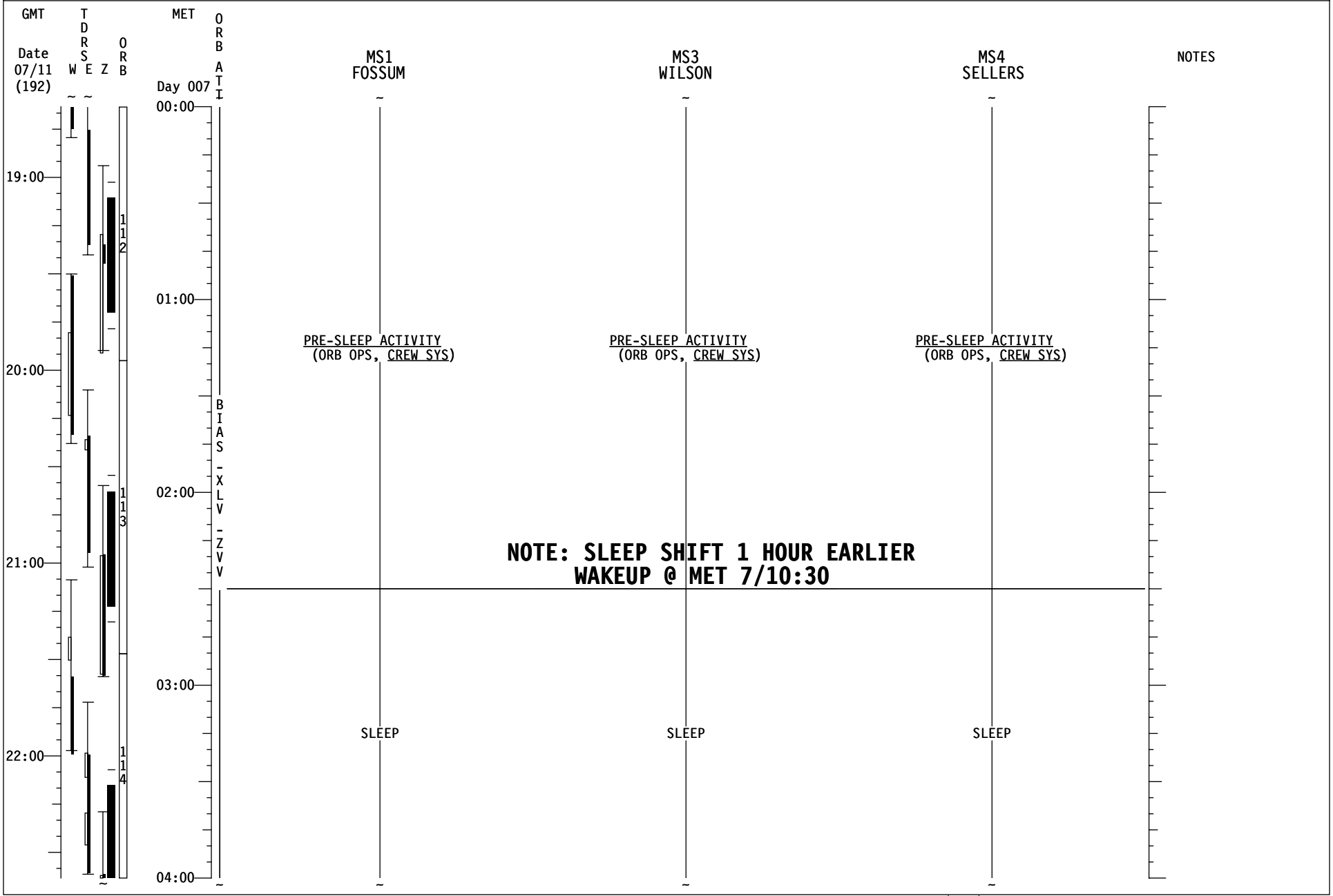
STS-121/ULF 1.1 (FD 08)

REPLANNED



STS-121/ULF 1.1 (FD 08)

REPLANNED



Good morning, Discovery.

That was a great EVA and it showed that Aggies can be taught to work locks, latches, and anything else. Miracles never cease. Everyone down here is very happy, especially the ROBOs, the MT is back to full capability including the mast camera. And now, thanks to you, we can continue building Station.

Transfer is going so well, we thought about giving you a bunch of time off, but then after the laughter died down, we actually did decide to reduce transfer a few hours today. Thanks again for working so well on this.

We were pleased to hear that the IWIF files are being downloaded successfully. We sure do appreciate your extra effort to successfully download 1003. The ground team is looking forward to having the data early so they can get to work on analyzing it for future flights. Great job!

YOUR CURRENT ORBIT IS: 191 X 177 NM

NOTAMS:

ORMOND BEACH (KOMN) – TAC (OMN CH 73) AZMUTH OUT OF SERVICE UFN
CHERRY POINT (NKT) - RWY 32 CLOSED FOR MAINTENANCE
LAJES – TACAN 45X OUT OF SERVICE TILL 10 JUL
KING KHALID - VORTAC CH 92X OPERATIONAL BUT CAUTION ADVISED DUE TO NO MONITORING
GUAM (GUA) – RWY 06L/24R CLOSED
AMBERLEY (AMB) – CLOSED
OCEANA (NTU) - RWY 23L/05R CLOSED
RIO GALLEGOS (AWG) - NOT APPROVED
ISTRES (FMI) – 33 RWY REMAINING MARKERS AVAIL ARE 300,600,900M

NEXT 2 PLS OPPORTUNITIES:

EDW22 ORB 111 – 6/23:09 (FEW150 FEW250, 200@7P10)
EDW22 ORB 126 – 7/21:56 (FEW080 FEW250, 210@10P15)

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	365 FPS
ARCS (TOTAL ABOVE QTY1)	26 FPS
TOTAL IN THE AFT	391 FPS
ARCS (TOTAL ABOVE QTY2)	59 FPS
FRCS (ABOVE QTY 1)	36 FPS
AFT QTY 1	84 %
AFT QTY 2	46 %

Contents:

Timeline Procedures:

EMU SYS						
1.305 EQUIPMENT LOCK PREP						
Type: Standard			IMS Plan: No			
#	**LOCATION**	**ITEM NAME**	**P/N**	**S/N**	**B/C**	**Notes**
1	**A/L1O1** M-02 Bag: EVA PREP AND OPS, S/N 1038, B/C 003019J	Helmet Light Battery	SEG39130223-302	1011 1012 1013 1014	-	

EMU PREP FOR TPS REPAIR						
N/A						
Type: Standard			IMS Plan: No			
#	**LOCATION**	**ITEM NAME**	**P/N**	**S/N**	**B/C**	**Notes**
1	**A/L1A1** EMU Equipment Bag, S/N 1059, B/C EB1013J	O2 Actuator Cover	SEZ13101999-701	1002 1006	EMUG22J EMUA62J	
2	**A/L1O1** M-02 Bag: EVA PREP AND OPS, S/N 1038, B/C 003019J	EMU ORU Tool Kit Assembly	SJG13101970-301	1003	017701J	
3		Kapton Tape 1"	528-41353-1	-	-	
4		TEFLON SQUARES, 2"X2"	SED39136016-001	-	-	
5		MODIFIED BANDAGE SCISSORS ASSY	SED13101577-301	-	-	

EVA IR CAM SETUP						
N/A						
Type: Standard			IMS Plan: No			
#	**LOCATION**	**ITEM NAME**	**P/N**	**S/N**	**B/C**	**Notes**
1	**A/L1O1** M-02 Bag: EVA PREP AND OPS, S/N 1038, B/C 003019J	Helmet Light Battery	SEG39130223-302	1019	-	This was charged on FD08 and might still be in the BSA.

Tasklist Procedures:

NONE

MSG 059 (13-0651) - FD08 TRANSFER MESSAGE

Good morning Thomas, Stephanie, and Steve,

Guess it pays to have three Loadmasters, especially one ISS trained Loadmaster! Amazing. We were able to give up some time today…..enjoy! Please pass on our thanks to Jeff and Pavel for the transfer work yesterday.

Information for crew:
Thomas called down that the docked ops bag was temp stowed in P3_D2. We've reflected this in item 207 (docked ops bag with contents) as temp stowed. We did not show 757 (empty docked ops bag) as complete since it's not yet in its final return config.

Thomas called down that the Vband coupling is temp stowed in MPL1P3_B2 in a ziplock We added a reminder to Return Bag 757 (CEVIS 0.5 CTB) to be sure it is placed in this CTB.

We understand that Pavel is still looking for two Russian Converter amp units. If they're found, please add them to Return Bag 478 in MPL1S2_D1. This is on your updated pages today as item 478.1.

Questions for Thomas:
Please confirm that the Access Point and patch antenna were removed from item 509.

Please confirm the s/n of the Orlan gloves that Pavel has to return. These are on your updated pages today as item 808.

Please verify s/n and contents of Return Bag 428. You called down this item as a 1.0 CTB, but per the prepack list Return Bag 428 should be 0.5 CTB s/n 1136 containing a Dummy Box, an IWIS RSU, and a Portable microphone. If there are other items in this CTB, please let us know. We are concerned the CTB may contain items that are NOT planned for return.

Regarding your bag relocations (513 and 428) today:
MPLM Folks verified the new locations are fine. Return Bag 513 may stay in S2_G2. Assuming Return Bag 428 only contains the items listed above (previous paragraph), it may stay in P2_D2.

FD08 Choreography
- Middeck Transfers
- Transfer EVA3 items from MDDK to ISS (CRM bag, IR Camera CTB)
- Transfer MSG window to LAB for R&R if not already complete.
- Transfer CTB of unused EVA LiOHs to Joint A/L; put 4 LiOHs into M-02 bag in A/L; retrieve 4 used EVA LiOHs form M02 bag and pack back in this CTB. Return CTB to MPLM.
- Continue packing return bags/items in RSPs and RSRs (not much left!)

The Transfer List Excel file, FD08_TransferList_STS121.xls, is located on the KFX machine in **C:\OCA-up\transfer.**

For ISS, the Transfer List Excel file, FD08_TransferList_STS121.xls, is located in **K:\OCA-up\transfer.**

(continued on next page)

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

In the MDDK Transfer List Book
RESUPPLY tab
Replace Page Resupply 7
MDDK RSPLY REALTIME ADDITIONS tab
Replace Page Resupply 9
RETURN tab
Make the following Pen & Ink change (if desired):
Page Return 3: Item 486: Change weight from 14.1 to 13.88
MDDK RTN REALTIME ADDITIONS tab
Replace Page Return 8

In the MPLM Resupply Transfer List Book
P3 RSR tab
Replace Page Resupply 26

In the MPLM Return Transfer List Book
LAYOUTS tab
Replace the following pages:
L-16
L-21
L-29
L-30
L-31
RETURN tab
Replace the following pages:
Page Return 16
Page Return 25
Page Return 26
MPLM RTN REALTIME ADDITIONS tab
Replace Page Return 32

-The Transfer Team-

MSG 061 - FD08 WATER SUMMARY

Today there will be 2 CWC Fills, 2 PWR dumps, and a waste dump. If time allows, the waste dump may be turned into a simo dump. Shuttle Condensate Collection will be reinitiated later today.

CWC Fill Details

The Shuttle/ISS H2O Container Fill initiation scheduled for PLT at 6/14:35 should contain the following details:
SHUTTLE/ISS H2O CONT FILL INIT #11
(ORB OPS, ECLS)
Ag Biocide is req'd.
Sample is not req'd.
Fill Duration: ~50 minutes
Report Serial Number and Barcode to MCC.

Following fill #11, per the flight plan, transfer the CWC to the water wall (NOD1P2). If there is insufficient room for the CWC at this ISS location, store CWC on the FGB Floor and report to MCC.

At MET 6/20:35 the PLT should perform CWC fill #12. The following fill details apply:
SHUTTLE/ISS H2O CONT FILL INIT #12
(ORB OPS, ECLS)
Ag Biocide is req'd.
Sample is not req'd.
Fill Duration ~50 minutes
Report Serial Number and Barcode to MCC.

Following fill #12, per the flight plan, transfer the CWC to the water wall (NOD1P2). If there is insufficient room for the CWC at this ISS location, store CWC on the FGB Floor and report to MCC.

PWR and Waste Dump Details

Prior to MET 6/15:25 obtain PWR S/N 1007 from ISS A/L1D1_B1, and PWR S/N 1013 from ISS A/L1D1_A2. The B-B hose and R-Y QD adapter are in the Contingency Hose and Cable Kit (CHCK).

At MET 6/15:25, the CDR should dump the two PWRs sequentially from the supply line using PWR DUMP-SUPPLY LINE (ORB OPS, ECLS) p.5-40. Supply dump valve open durations will be approximately 12 minutes for PWR 1007 and 14 minutes for PWR 1013. PWRs will be empty when the PWR bags collapse or there is a sustained increase in supply nozzle temperatures.

Once the PWR dump has been completed, perform a waste water only dump using SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) p. 5-2. Perform steps E, G, and I. Dump the waste tank to 5%. Dump valve open duration will be approximately 27 minutes.

After the dumps have been terminated, temp stow empty PWRs on the middeck for refilling on FD10. B-B hose and R-Y QD adapter should also be temp stowed for use post-undocking.

MCC will TMBU all FDA for the PWR and Waste water dumps.

Shuttle Condensate Collection Details

At 6/20:20 MET, reinitiate condensation collection using SETUP of SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS) p. 5-36. Obtain CWC from Middeck Ceiling Port 2 Bag F. Report time of initiation, CWC Serial Number and barcode to MCC.

FD7 MMT Crew Summary

The FD7 MMT meeting was less than 30 minutes in length and there were no significant discussion topics or key decisions made. There was no new information or analysis on any of the TPS items of interest including tile, RCC, ET doors, thermal blankets, and gap fillers. EVA #2 was in progress at the time of the MMT and both programs were very pleased and excited about the great work performed by the crew in restoring the Mobile Transporter (MT) to full redundancy. Just for your information the translation from Worksite 4 to Worksite 5 on the morning on FD7 was the first MT translation since January of 2003. Here are a few minor items of interest that were discussed in the meeting:

Transfer – A preliminary estimate from the end of FD6 is that the MPLM is on schedule with about 40% of the total transfer complete. Approximately 93% of the re-supply and 7% of the return is estimated to be complete. The middeck transfer appears to be ahead of schedule with a total of ~44% complete. This breaks down to 68% re-supply and 10% return.

WLE Sensors – The WLE sensors should continue to work for at least two more days based on thermal predictions and battery lifetime. Sensor near panel #8 on the port wing does not appear to be communicating properly but there are two other sensors in the area that provide overlapping coverage.

MADS Data – As you know this is the first mission where pressure and temperature data recorded on the MADS system can be downlinked and evaluated by the MCC in real-time. Part of this data is now recorded on the Solid State Recorders during ascent, entry, and other times of interest. The teams have evaluated this data and other than a few sensors that failed off scale high or low the data looks very good.

Humidity Control in ISS – The ISSP, SSP, and Russians have agreed that there will be no additional reductions in ISS humidity for the rest of the mission so no further manual adjustments of the Water Loop 2 flow will be required.

Water Spray Boiler (WSB)/APU Restart DTO – The Water Spray Boiler DTO performed by the CDR/PLT on FD1 was all nominal and this provides great confidence that the water/PGME mixture has solved the FD1 freeze up issue on the WSBs. Based on the work performed on STS-121 and STS-114, the team will utilize water and PGME in all three boilers beginning with STS-116 on Discovery later this year.

1. EVA TOOL MANAGEMENT

To help clarify crewlock bag nomenclature: In 121 EVA Checklist, EVA TOOLS MANAGEMENT, Flight Day 8 - EVA 2 Tool Deconfig, page FS 8-17, the crewlock bag without a reference number was taken out during EVA 2 and will be taken out again on EVA 3. Crewlock bag #2 is the zenith/aft (upper/right) bag on the crewlock endcone, while crewlock bag #3 is the nadir/fwd (lower/left) bag.

2. SAFER 1005 ANOMALIES

Due to the SAFER 1005 anomalies during EVA 2, the ground teams are trying to figure out what might have happened and are looking at potential changes to donning SAFERs. We have the following questions for you to answer at your convenience that will help us out and make everyone comfortable with SAFER use for EVA 3:

- During EVA Prebreathe, did you notice any issues when donning SAFER 1005 specifically related to the tower latch mechanism?
- Did you notice any difference between donning of SAFER 1005 and 1007 or any difference between the donning for the two EVAs?
- During the EVA, when you first noticed the left tower, what was its configuration?
- Did you notice anything that could have bumped the SAFER towers during the EVA?
- During Post EVA, did you notice any issues when doffing SAFER 1005?

We may have further words for SAFER donning in preparation for EVA 3. Also, please keep in mind that you have SAFER 1003 in reserve should you feel SAFER 1005 is non-useable during EVA 3 donning.

3. EMU WATER RECHARGE

Please provide the following information during 1.505 EMU Water Recharge, ISS EVA Systems Checklist, page 236, step 18:

a) Record the time sw PUMP -> ON

b) At 5 minutes of pump run time, report the quantity displayed on the IRU.

This information is requested in support of an engineering investigation on the Inflight Refill Unit (IRU).