

# STS-120/10A

## FD 13 Execute Package



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**Approved by FAO:** Jennifer Clevenger

Last Updated: Nov 4 2007 5:30AM GMT  
**JEDI** (Joint Execute package **D**evelopment and **I**ntegration), v2.04.0003

MSG 152B - FD13 FLIGHT PLAN REVISION

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1. ISS Stowage information for today - The shuttle crew is scheduled for several activities throughout the day that use ISS hardware. For stowage locations, including any instructions on where to restow items, reference MSG162, which is an excerpt from the ISS Daily Stowage Note.

2. The following plan shows the AVIU reconfiguration that is needed for the remaining P/TV scenes. The DTV and WVS 2 AVIU's can be easily relocated to meet all remaining scenes. Only 6 AVIUs are required to support all post-undocking setups.

Additionally, at your convenience, could you report the S/N of the non-functional AVIU?

**AVIU Reconfig:**

1. Relocate WVS 2 AVIU to DTV AVIU
2. AVIU settings

AVIU (DTV)	√SYNC/VIDEO – VIDEO
	√HI-Z/75 – 75
	PWR SELECT – LO

3. Today, you will deactivate the Airlock Fan using JNT OPS: 2.108 SHUTTLE AIRLOCK/TUNNEL FAN DEACTIVATION (BYPASS DUCT INSTALLED). In the event you have trouble with the Mylar sleeve in step 9, there is an extra sleeve stowed in the top tray of the IFM locker (MF28G).

1 **4. CWC Fill Details**

2 The following details are required for the FD13 CWC fill:

3  
4 Perform CWC fill #10 using SHUTTLE/ISS H2O CONTAINER FILL (ORB OPS, ECLS), p. 5-25.

- 5 • Use CWC S/N 1064; retrieve from NOD1D2.
- 6 • Ag Biocide is required. Use Ag Biocide Kit S/N 1006, found in MF43G.
- 7 • Sample is required.
- 8 • Fill duration is ~50 minutes.

9 Following CWC fill termination:

- 10 • Check Green/Technical label is in CWC window
- 11 • Check Green/Technical decal on CWC end
- 12 • Verify CWC S/N on end decal is 1064
- 13 • Transfer CWC to NOD1D2
- 14 • Transfer Ag Biocide Kit S/N 1006 to NOD1D2 M-02 Bag, per transfer list item 128.
- 15 • Ensure that remaining associated hardware (Ag Biocide Kit S/N 1005, Mineralization Kit S/N 1003, and Sample/Purge Kit S/N 1006) is stowed in MF43G.

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21 5. To assist with the WLES and KFX challenges on the RPOP machine, please reboot it as part of the morning PGSC reboot activities. To keep the LCS sensors running, DO NOT shut down the LCC software prior to the RPOP reboot. After the RPOP reboot, please restart the WLES software in the primary configuration and perform LCC Activation Step 2 found on the LCS cue card.

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27 6. Prior to the PMC last night, the ground had problems obtaining a good video feed while setting up for NetMeeting. The ground hardware has been fixed, but please be aware that a check of NetMeeting will not be performed prior to the first PFC today. In addition, due to limited Ku availability, MS2 and CDR's PFCs are scheduled back-to-back. A reminder has been added to MS2's PFC with the CDR's start time to maximize video availability for each crewmember.

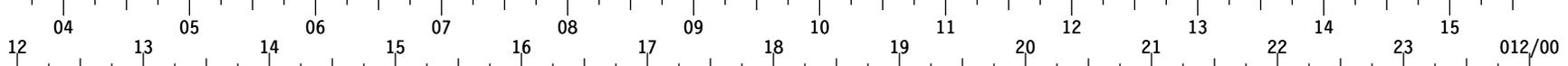
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34 7. For Scott - the ground would like to get the SAW hardware pieces returned for review. We suggest you place them in a ziplock bag and label it SAW Hardware for return. You can place this in the EVA Tools Bag C for transfer over to shuttle. We'll plan to place it in the External A/L floor bag with the other EVA tools.

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39 8. The table below summarizes the Shuttle and ISS exercise constraints for today. These constraints are also denoted in your timelines for your reference.

Activity	Exercise Constraints	
	Shuttle	ISS
STS to CMG TA Attitude Control Handover - Following ODS vestibule depress	Limit Orbiter ergometer frequency to 65 RPM (1.13 HZ)	None

40  
41  
42 9. REPLACE PAGES 2-46, 2-48, AND 3-140 THROUGH 3-149.

GMT 11/04/07 (308)  
 Day 011  
 MET



S T S - 1 2 0	FD13 CDR MELROY	SLEEP	ISS EXTERNAL SURVEY	POST SLEEP	XFER	PGS DM CAN S2	RT NRR DAP	RP RS *	PE AV O E N T	CWC 10 I	EXERCISE	CWC 10 T	CX W C E R	TRANSFER	IF M A N *	MEAL	OFF DUTY	PFC OCA	OFF DUTY	
	PLT ZAMKA	SLEEP		POST SLEEP		02 SYS TEARDOWN		TRANSFER		SRMS OBSS SENSOR C/O		P L Y B K	M C I U *	R P R S *	XFER	P/TV 04 S/U	MEAL	OFF DUTY		
	MS1 PARAZYNSKI	SLEEP		POST SLEEP		PRIN- TER SWAP				EVA XFER PREP STS		EVA XFER STS		U N S T W	P H L O S T O D	B O L P O S O D	S T O W	MEAL	OFF DUTY	
	MS2 WILSON	SLEEP		POST SLEEP		P/TV 05 S/U	PCS XFER			TRANSFER					EXERCISE		MEAL	OFF DUTY	PFC OCA	OFF DUTY
	MS3 WHEELock	SLEEP		POST SLEEP		XFER				EVA XFER PREP STS		EVA XFER STS		TRANSFER		X B F R E I R E F	MEAL	OFF DUTY		
	MS4 NESPOLI	SLEEP		POST SLEEP		PRIN- TER SWAP	PCS XFER	XFER	PE AV O E N T		SRMS OBSS SENSOR C/O		EXERCISE		XFER		PFC OCA	MEAL	OFF DUTY	
	FE-2 DN ANDERSON	SLEEP (8.5)		POST SLEEP	PREP WORK	DPC	EXERCISE RED		HANDOVER		DCB FAM				OFF DUTY		MIDDAY-MEAL	OFF DUTY		
E X P 1 6	ISS CDR WHITSON	SLEEP (8.5)		POST SLEEP	PREP WORK	DPC	EXERCISE TVIS		EVA XFER PREP STS		EXERCISE RED		OFF DUTY	R V W	I B M L M O N D	OFF DUTY	MIDDAY-MEAL	OFF DUTY	PFC	
	FE-1 MALENCHENKO	SLEEP (8.5)		POST SLEEP	PREP WORK	DPC	OR E N T A T I O N		02 SYS TEARDOWN		EXERCISE VELO	DCS T/D			OFF DUTY		MIDDAY-MEAL	OFF DUTY		
U P	FE-2 UP TANI	SLEEP (8.5)		POST SLEEP	PW	DPC	S / U	EMU BATT INIT		HANDOVER	DCB FAM		OFF DUTY	R V W	P H O T O O F F Y	I B M L M O N D	MIDDAY-MEAL	OFF DUTY	PFC	OFF DUTY

DAY/NIGHT	182	183	184	185	186	187	188	189	190			
ORBIT	[Timeline bars]											
TDRS	W -171	[Timeline bars]										
	E -46	[Timeline bars]										
	Z -275	[Timeline bars]										
ORB ATT	BIAS -XLV -ZVV											
SSRMS	WS8											
NOTES	2-46				*N2 INIT					*FILTER CK	*DEACT	*OFF DUTY
	FLT PLN/120/FLIGHT											

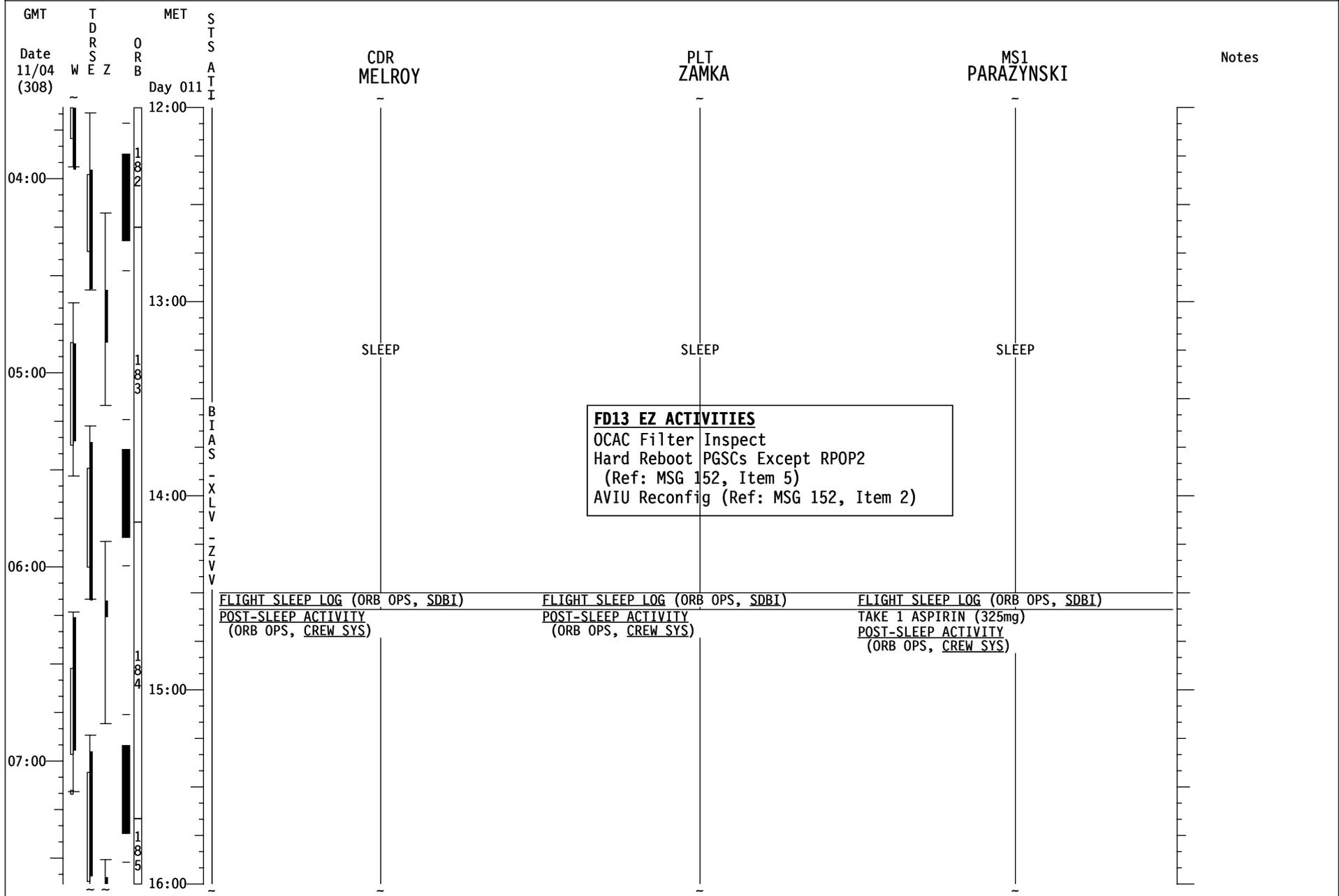
GMT 11/04/07 (308)  
 Day 012  
 MET



S T S - 1 2 0	FD13	OFF DUTY				BYE	HATCH CLOSE	H/O	ODS LEAK CHECK	H/O	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP
	PLT ZAMKA	OFF DUTY	PFC OCA	OFF DUTY		BYE	B P S M U	P/TV 04 OPS	EXERCISE	C O M M 1	PRE SLEEP	CREW CHOICE D/L	PRE SLEEP	SLEEP
	MS1 PARAZYNSKI	OFF DUTY				BYE	RNDZ TOOLS C/O		PRE SLEEP			PFC OCA	PRE SLEEP	SLEEP
	MS2 WILSON	OFF DUTY				BYE	HATCH CLOSE	ODS LEAK CHECK		PRE SLEEP				SLEEP
	MS3 WHEELock	OFF DUTY				BYE	EXERCISE	PS R L E E P	PFC OCA	PRE SLEEP				SLEEP
	MS4 NESPOLI	OFF DUTY				BYE	RNDZ TOOLS C/O		PRE SLEEP				SLEEP	
	FE-2 DN ANDERSON	OFF DUTY	PFC	DCB1 PK	C G B A S	DCB2 PK	BYE	EXERCISE		PRE SLEEP				SLEEP
E X P 1 6	ISS CDR WHITSON	OFF DUTY	PMA2 02/N2 HOSE STOW		PMA2 CBM BOLT	S T O W	BYE	HATCH CLOSE	M E T X *	PREP WORK	E X E R	DPC	PRE SLEEP	SLEEP (8.5)
	FE-1 MALENCHENKO	OFF DUTY	ORIENT	I M P N T - 1	COX MNT	BYE	EXERCISE TVIS	P W D P C	PRE SLEEP				SLEEP (8.5)	
U P	FE-2 UP TANI	OFF DUTY	DCB1 PK	DCB2 PK	BYE	M E T X *	EXERCISE CEVIS	DPC	PRE SLEEP				SLEEP (8.5)	
DAY/NIGHT ORBIT														
TDRS														
ORB ATT SSRMS														
NOTES		<p>*TERM *SPEC 205                  *INIT H                  No Ergometer &gt;65 RPM                  2-48 Att Control H/O</p> <p style="text-align: right;">FLT PLN/120/FLIGHT</p>												

# STS-120 FD 13

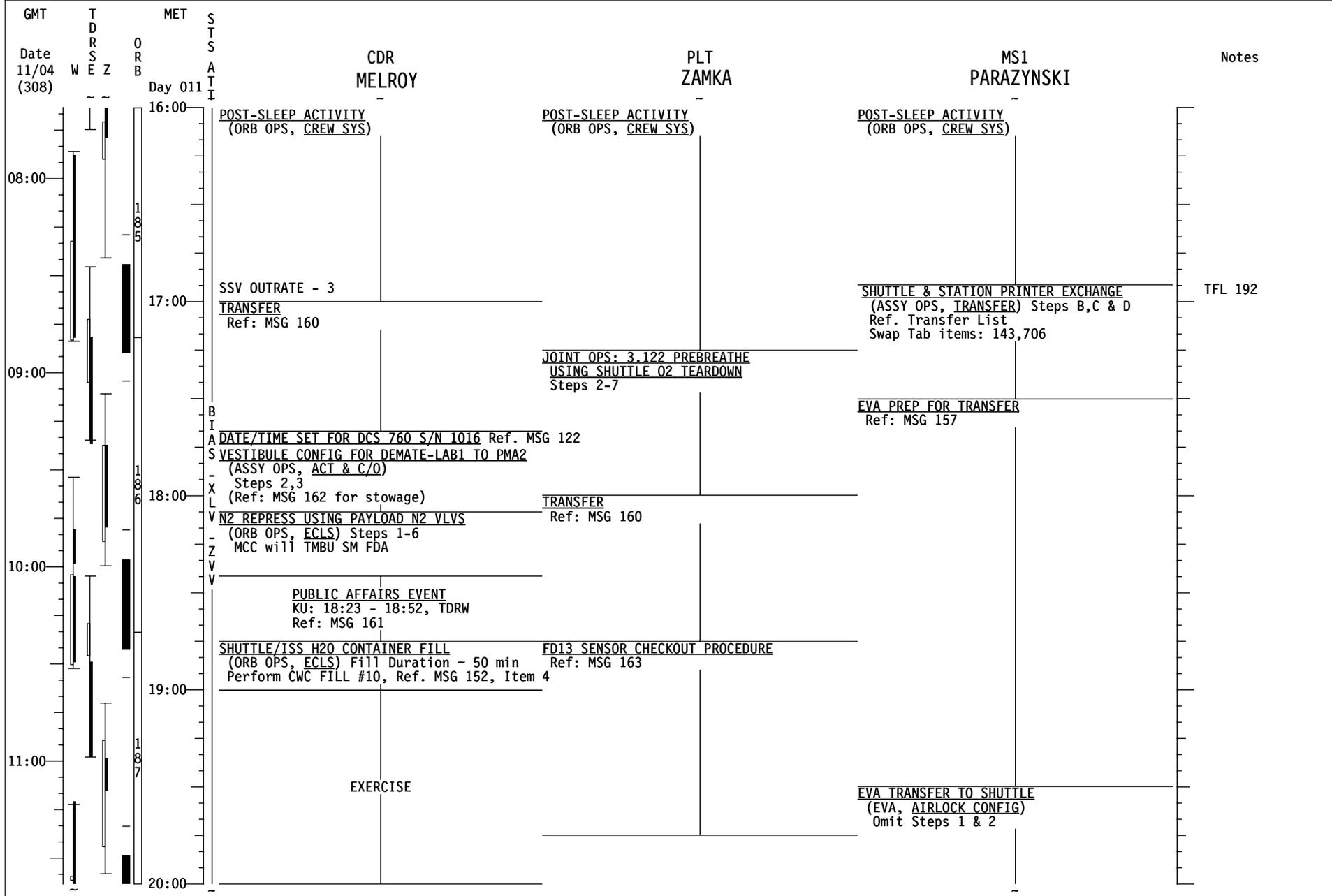
**REPLANNED**





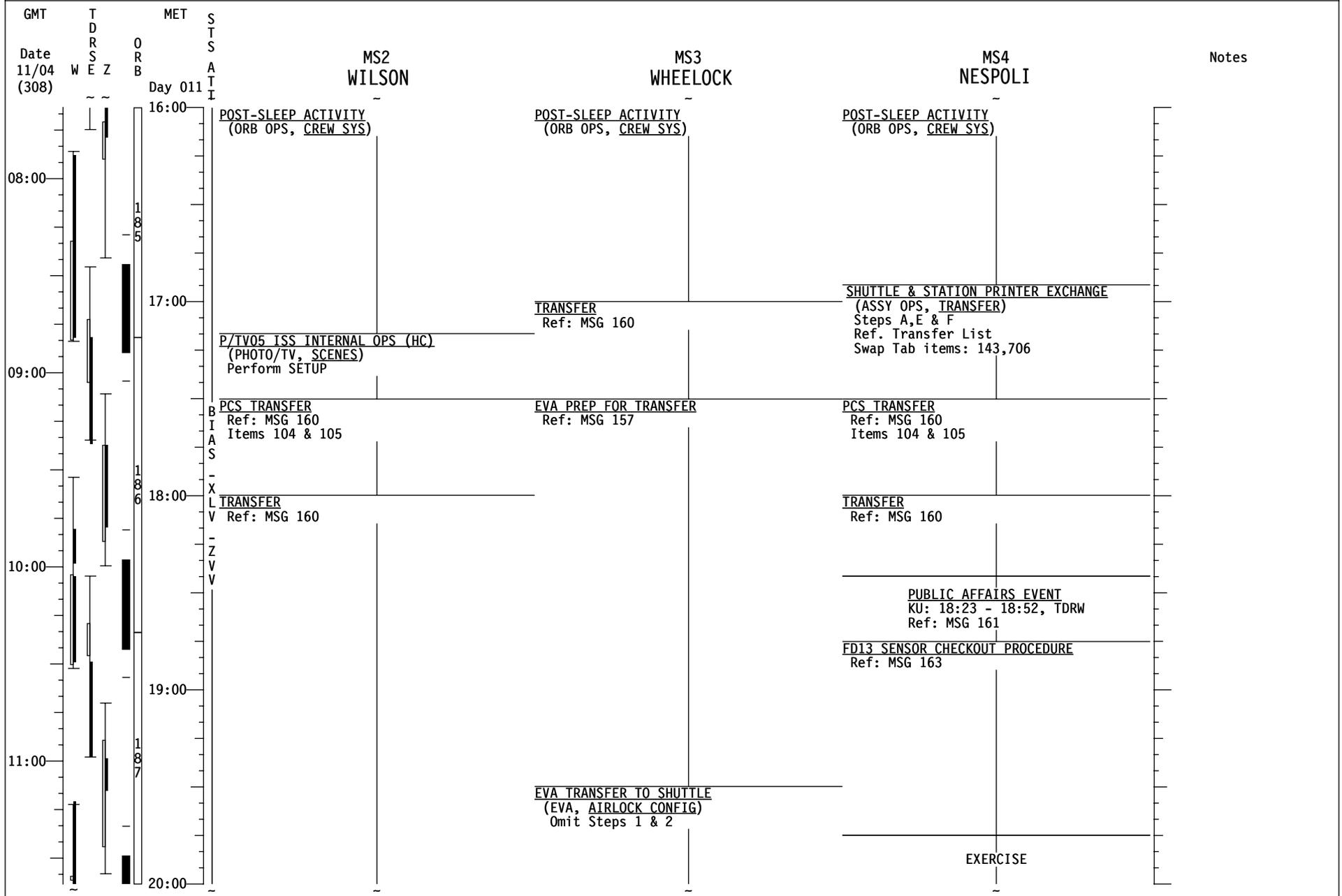
# STS-120 FD 13

**REPLANNED**



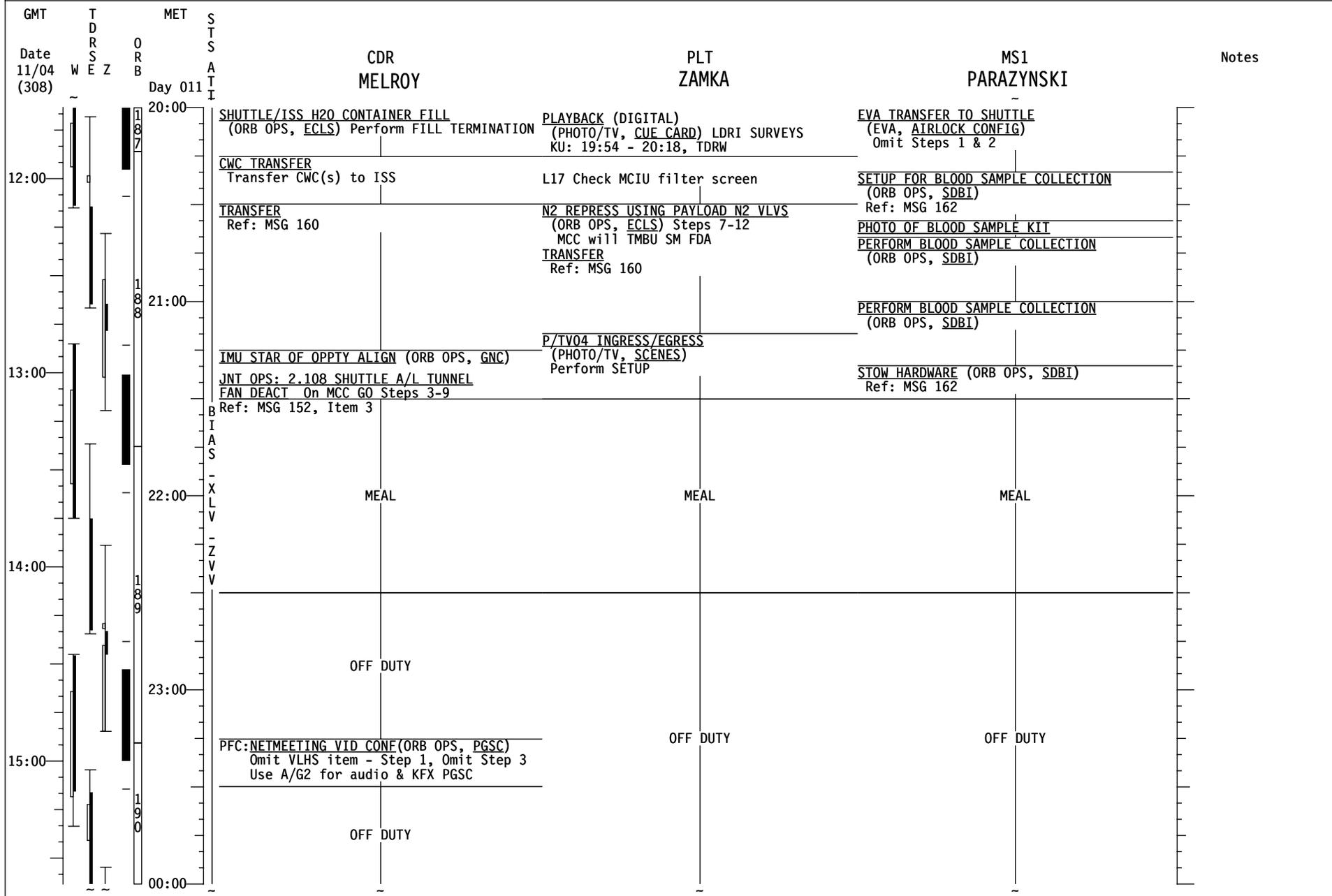
# STS-120 FD 13

**REPLANNED**



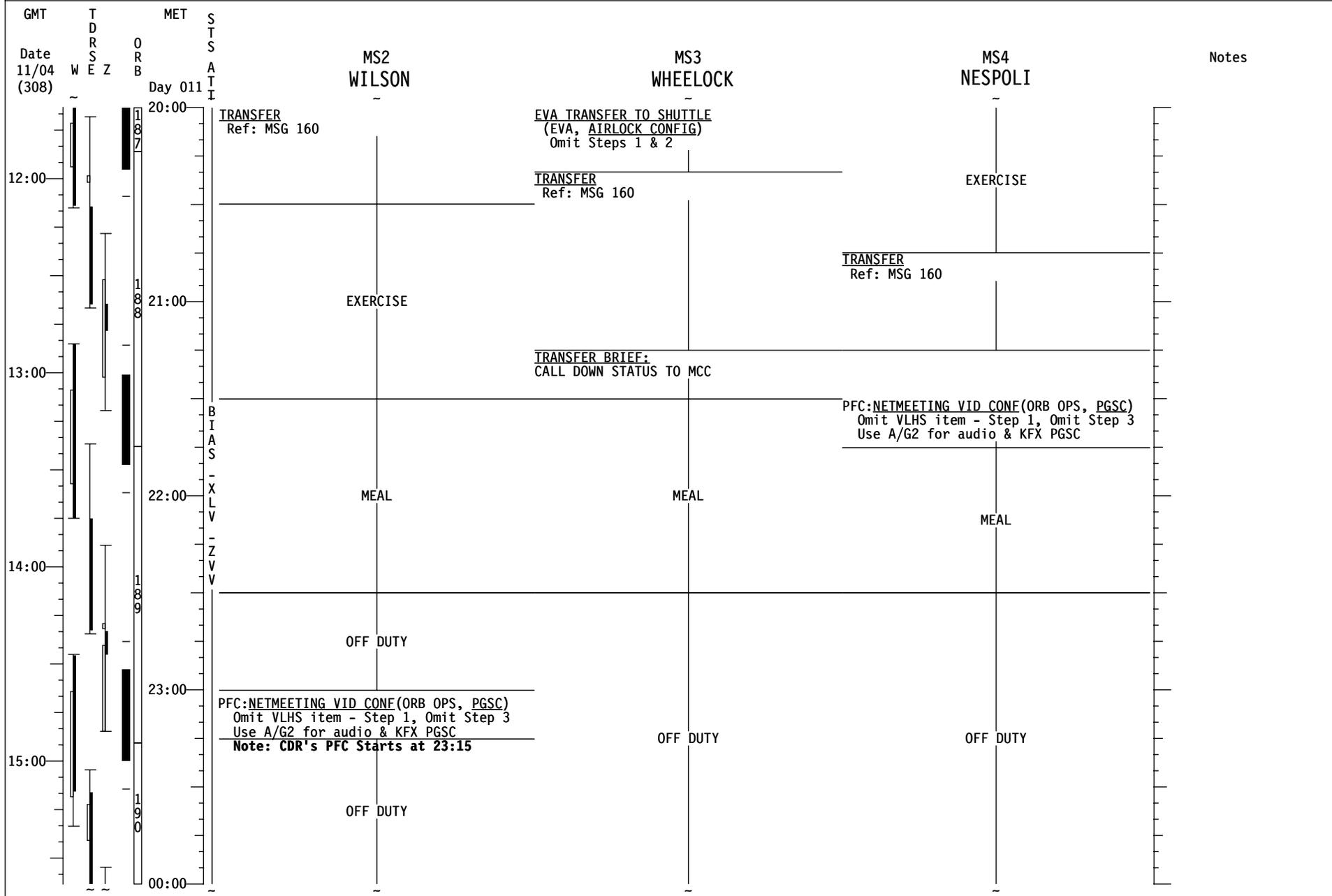
# STS-120 FD 13

**REPLANNED**



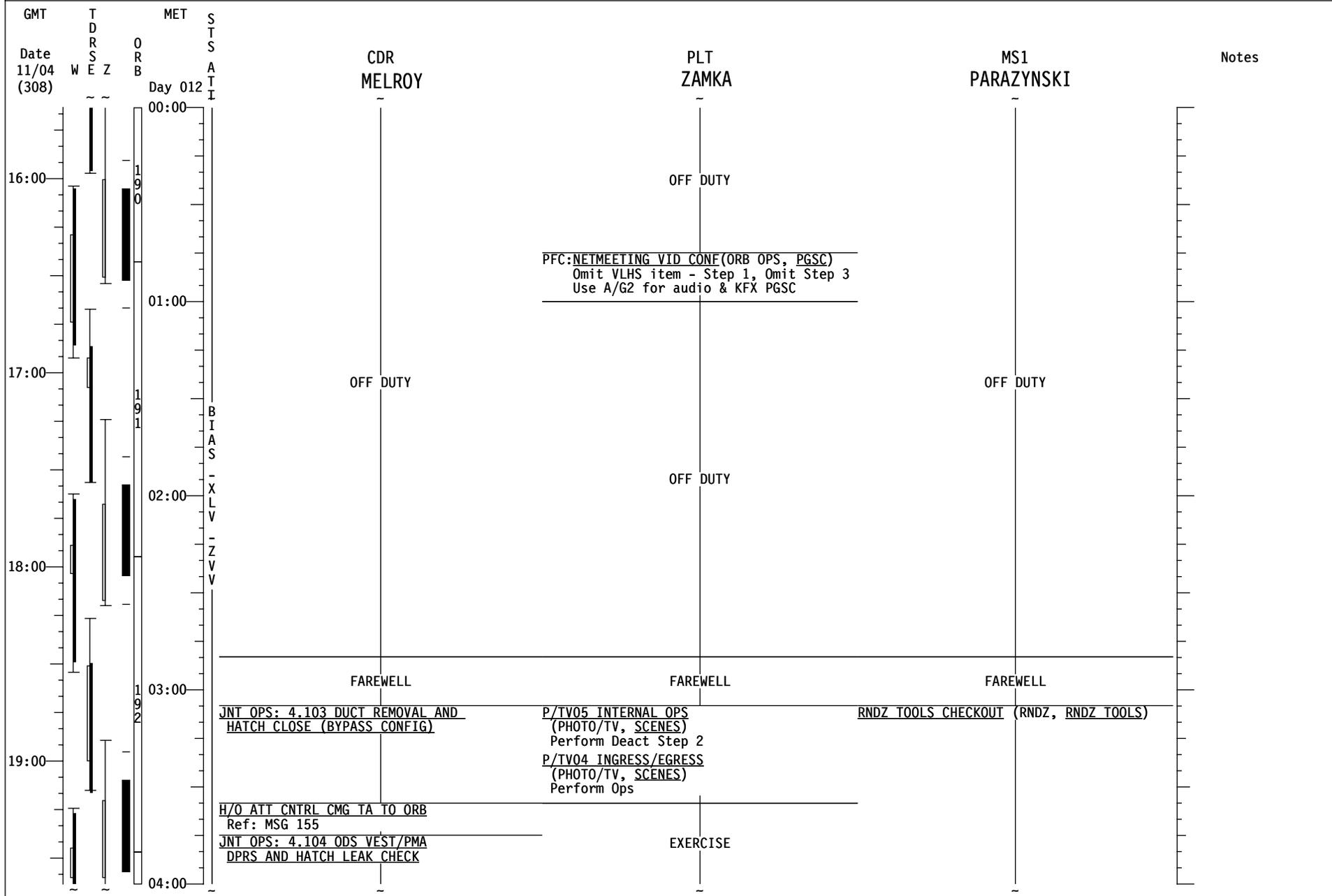
# STS-120 FD 13

**REPLANNED**



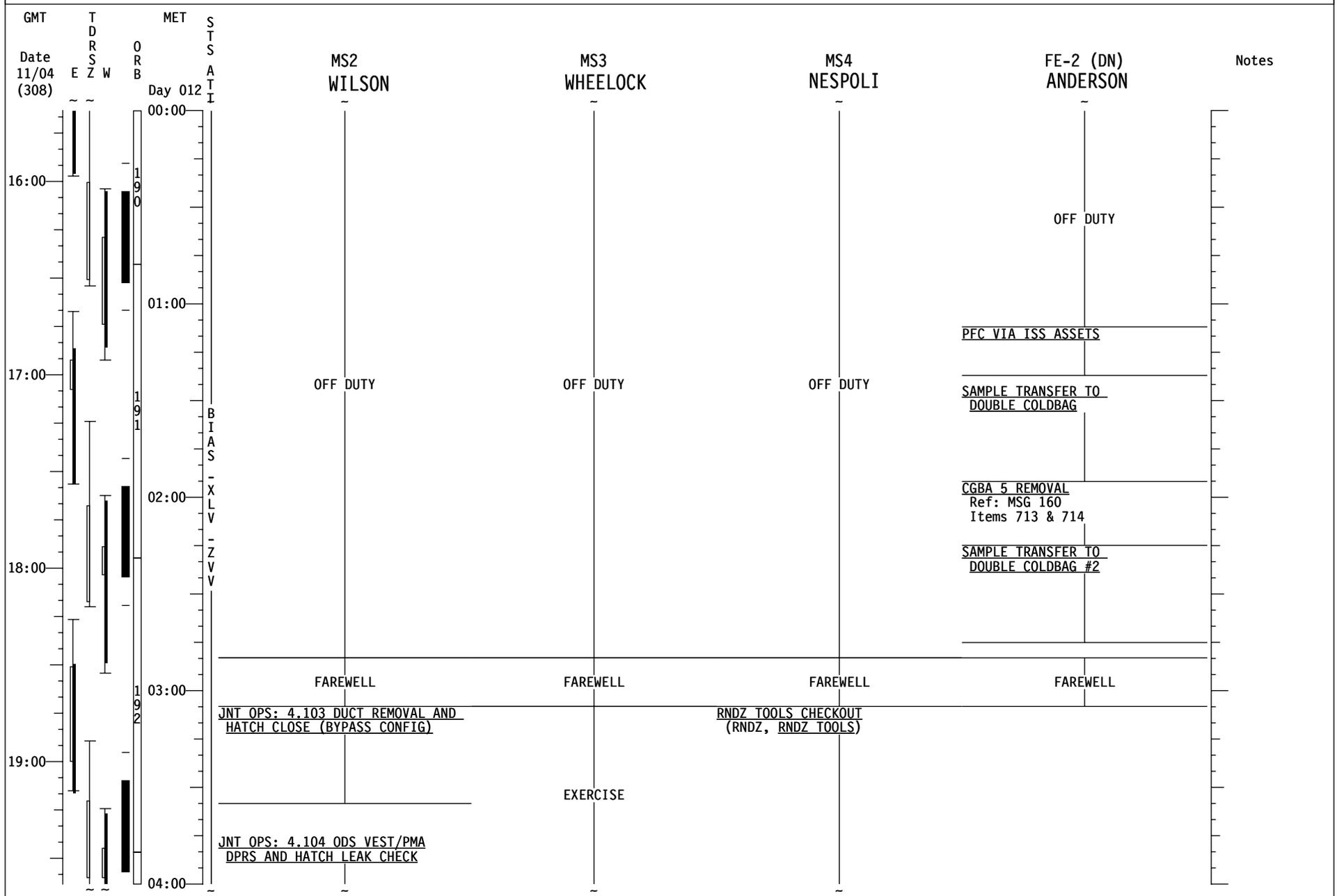
# STS-120 FD 13

**REPLANNED**



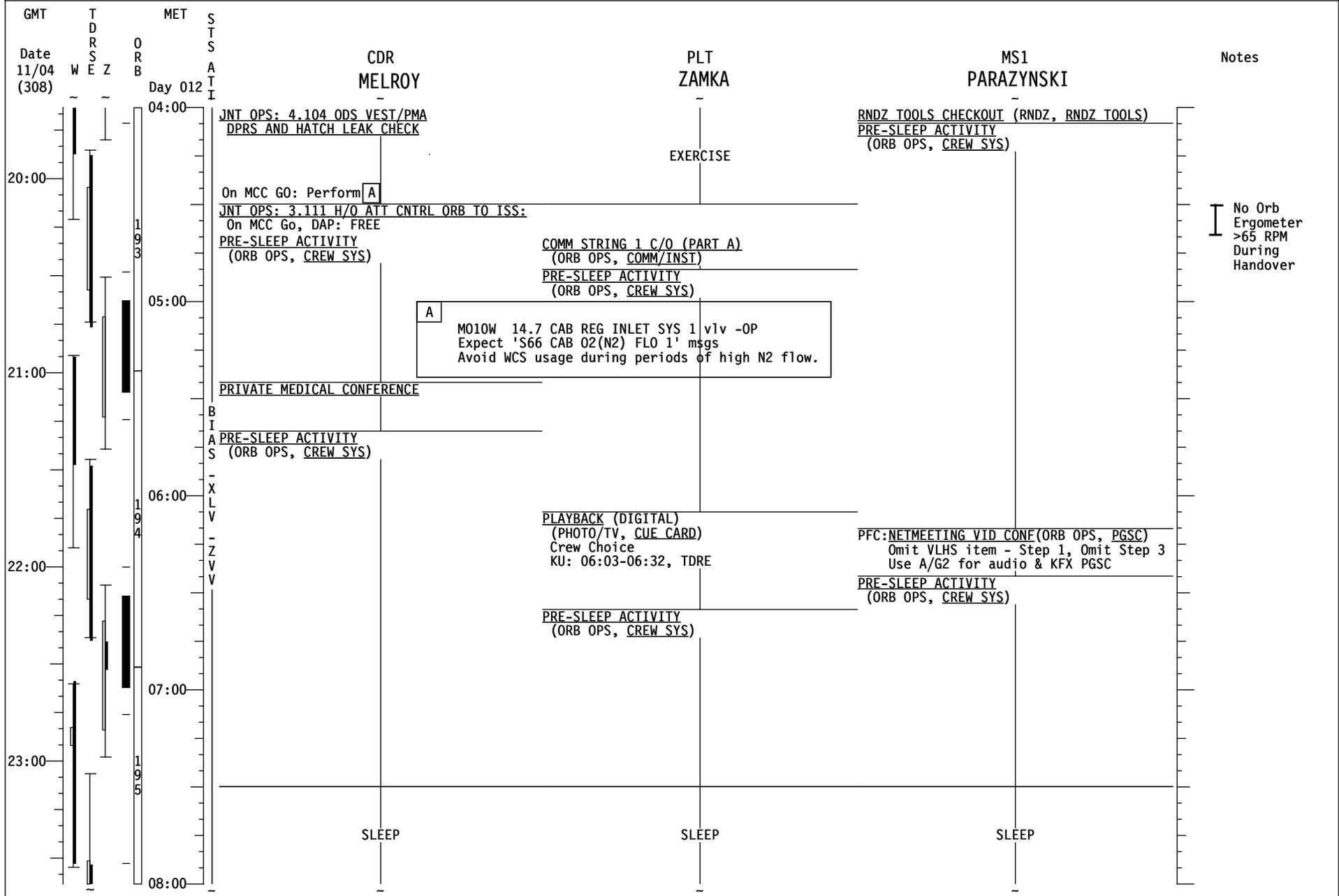
# STS-120 FD 13

**REPLANNED**



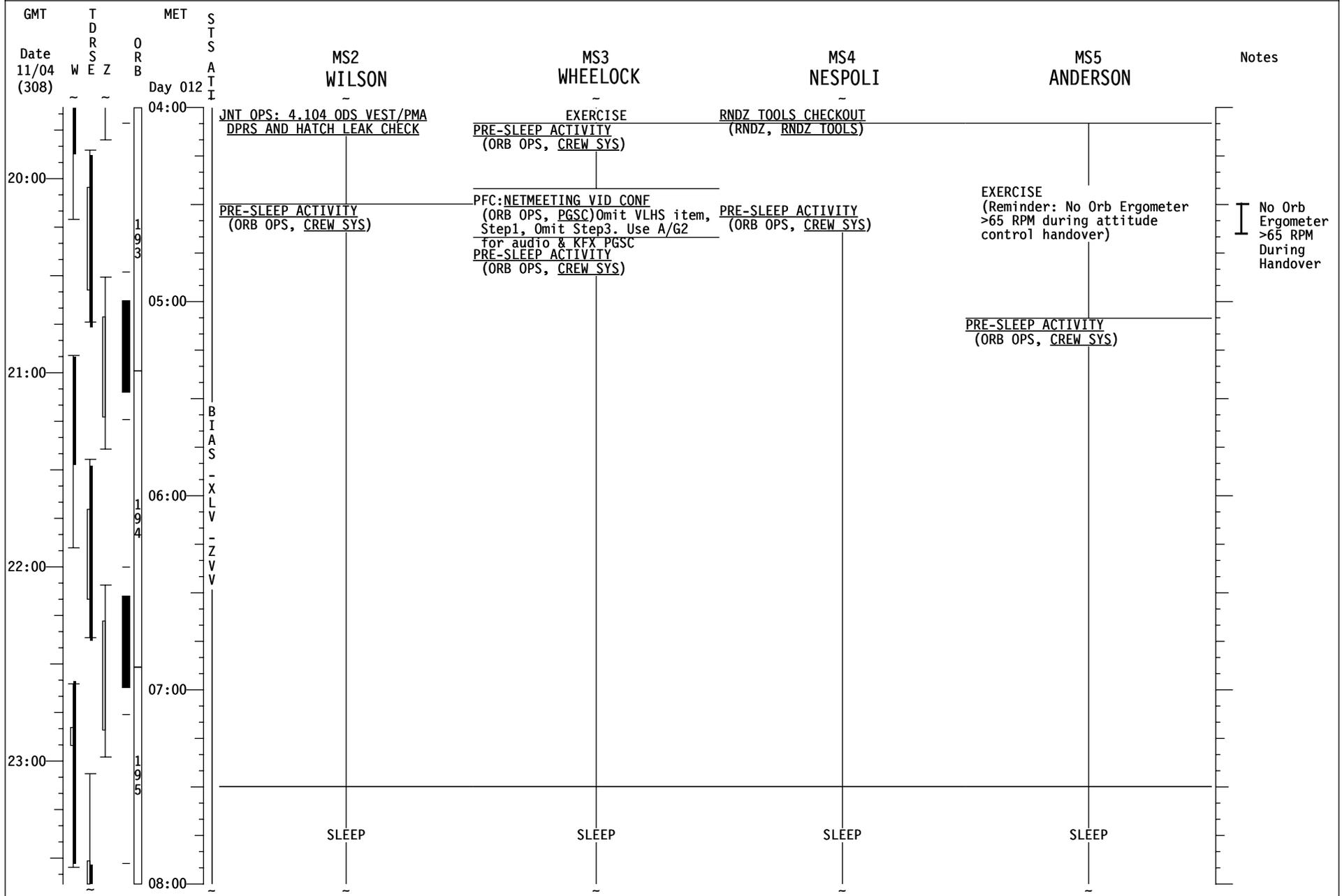
# STS-120 FD 13

**REPLANNED**



STS-120 FD 13

PRELIMINARY REPLANNED



# MSG 153 (16-0212) - FD13 MISSION SUMMARY

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Good Morning Discovery!!!

Congratulations!!! Yesterday “Too Tall” finally found his niche in the cosmos!!!

Wow!!! Yesterday was an absolutely awesome day! But now you have done it. This flight has drained our bucket of superlative adjectives absolutely dry. Therefore, it is time for you to think about coming home!

Based on the overnight checkout of the LDRI, it is considered fully functional and ready to support late inspection. The plan is to still check out all three sensors (LDRI/IDC/LCS) in order to confirm functionality and to have the LDRI available for illumination, if needed, for IDC checkout.

Time changed last night- remember to “fall back” an hour on your personal watches!

Have a great final day on board ISS!!!

YOUR CURRENT ORBIT IS: 188 X 181 NM

## NOTAMS:

EDW – RWY 15/33 ELS ONLY. RWY 18L – CLOSED.

NOR – GREEN.

WAL – RWY 04/22 CLOSED.

NTU – RWY 32L/14R CLOSED

RWY 05R FIRST 3000’ CLOSED, 8997’ REMAINING

NKT – FIRST 1000’ OF RWY 23L & 32R CLOSED.

LAJ – REQUIRES 30 MIN. NOTICE TO CLEAR RWY 2300-0900Z DAILY EXCEPT SUNDAY

FFA – NOT SUPPORTED.

WAK – UNUSABLE.

AMB – UNUSABLE.

JDG – DIEGO GARCIA: CLOSED 1800 - 0100Z UNTIL 5 NOV 0100Z.

IKF – NO AGREEMENT FOR USE.

AWG – NO AGREEMENT FOR USE.

BEN – POLITICALLY NOT RECOMMENDED/NOT SUPPORTED.

## NEXT 2 PLS OPPORTUNITIES:

EDW22 ORB 188 – 11/21:05 (SCT250 250/05P08)

EDW04 ORB 207 – 13/02:18 (SCT250 060/06P12)

## OMS TANK FAIL CAPABILITY:

L OMS FAIL: NO

R OMS FAIL: NO

**MSG 153 (16-0212) - FD13 MISSION SUMMARY**

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LEAKING OMS PRPLT BURN:

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

OMS QUANTITIES(%)

L OMS OX = 33.5    R OMS OX = 33.5  
FU = 33.1            FU = 33.4

SUBTRACT I'CNCT COUNTER FOR CURRENT OMS QUANTITIES

DELTA V AVAILABLE:

OMS	334 FPS
<u>ARCS (TOTAL ABOVE QTY1)</u>	<u>52 FPS</u>
TOTAL IN THE AFT	386 FPS
ARCS (TOTAL ABOVE QTY2)	85 FPS
FRCS (ABOVE QTY 1)	0 FPS
AFT QTY 1	66 %
AFT QTY 2	28 %

<u>SYSTEM</u>	<u>FAILURE</u>	<u>IMPACT</u>	<u>WORK AROUND</u>
EPS	Mid Port Payload Bay Floodlight failed to illuminate.	Mid Port Payload Bay Floodlight will be left OFF.  Mark Switch: A7U PLB FLOOD MID PORT to prevent turning ON.	Other Payload floodlights still available.

# MSG 154 (16-0213) - FD12 MMT SUMMARY

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## FD 12 MMT Summary

It was absolutely a tremendous day! The entire team was awed by the outstanding work that you performed to make EVA 4 a great success. The extended team, both on-orbit and on the ground, deserves congratulations and it is a good day to be a part of the extended NASA family. The MMT briefly reviewed the status and health of the orbiter, which continues to perform very well. The remaining timeline was discussed at a high level, and the MMT is beginning to turn its attention to undocking, late inspection, and end-of-mission.

**EVA 4 Summary:** EVA 4 required 7 hours and 19 minutes to complete. All 5 cuff-links were installed and the 4B solar array is fully deployed and fully tensioned. One get-ahead task, the APFR retrieval, was completed and is ready for a sharp edge inspection. It was reported that a pair of needle-nose pliers was lost during the EVA. The team is working to confirm that there are no relative motion concerns with this overboard object.

**Late Inspection** - At the start of the MMT, the OBSS had just been grappled and powered. It was estimated that the OBSS had remained unpowered for approximately 9 hours. The MMT discussed plans to validate the functionality of the sensor packages on the OBSS. There are many options that will accomplish late inspection and preparations are well underway to accommodate any combination of sensor package functionality. Late Inspection is planned after undocking on FD 14.

# MSG 155B (16-0214B) - HANDOVER ATTITUDE CONTROL PROCEDURE UPDATE

Page 1 of 5

## 3.11X HANDOVER ATTITUDE CONTROL CMG TA TO ORBITER VIA SPEC 205 (JNT OPS/PCS R10 - ALL/FIN 7/SPN)

### OBJECTIVE:

Transfer mated stack attitude control from ISS to orbiter using SPEC 205. Verify orbiter is in Free Drift, configure ISS to Free Drift, then assume mated stack control with orbiter.

#### 1. MCC-H PREPARATION FOR HANDOVER- GROUND ONLY

MCC-H

##### 1.1 GNC COMMAND RESPONSE COUNTERS RESET

MCG: GNC Command Response Counters

GNC Command Response Counters

sel Reset

Verify the Since Reset column values are all blank.

Do not close this window until the procedure is complete.

##### 1.2 VERIFYING INITIAL ATTITUDE CONTROL CONFIGURATION

MCG: MCS Configuration

MCS Configuration

'MCS Moding'

Verify US GNC Mode – CMG TA

Verify RS SUDN Mode – CMG TA

Verify RS Control – Slave

'Attitude'

Verify US Att Mnvr In Prog – No

Drift

'Momentum Servo'

√ Inertial

##### 1.3 MCC VERIFY SSOR / SSSR KEYS ARE UPDATED.

###### NOTE

SSOR/ SSSR keys only need to be updated if the SSOR/SSSR link will be used for this procedure.

MCC -H

Verify SSOR/SSSR key.

If necessary update key.

# MSG 155B (16-0214B) - HANDOVER ATTITUDE CONTROL PROCEDURE UPDATE

Page 2 of 5

## 1.4 MCC VERIFY TELEMETRY FORMAT LOAD (TFL).

### NOTE

TFL 192 is used if this procedure will be performed using the SSOR/SSSR link.  
TFL 184 is used if this procedure will be performed using the hardline link.

MCC -H

Verify TFL.  
If necessary update TFL.

## 1.5. CHECKING USOS SOLAR ARRAYS ARE CONFIGURED

√MCC-H that USOS Solar Array Wing configuration is acceptable for the upcoming attitude control configuration.

## 2. VERIFYING ORBITER NOT IN CONTROL

C3(A6)

√DAP: FREE

GNC 20 DAP CONFIG

√DAP: A12/VERN(ALT, LO Z)

GNC UNIV PTG

√ TG=2 BV=5 P=157 Y=352 OM=178

√TRK active – ITEM 19 EXEC (\*)

If ALT DAP required

O14:F  
O15:F,  
O16:F

√**MCC**

RJDA 1A L2/R2 MANF DRIVER – OFF

RJD MANF L5/F5/R5 DRIVER – OFF

Pri RJD LOGIC (eight) – ON

√**MCC** FOR GO TO POWER UP Pri DRIVERS

Pri RJD DRIVER (eight) – ON

RJD MANF L5/F5/R5 DRIVER – ON

Orbiter ⇒ ISS, **MCC-H**, “Shuttle ready to begin controlling attitude of Mated Stack.”

# MSG 155B (16-0214B) - HANDOVER ATTITUDE CONTROL PROCEDURE UPDATE

Page 3 of 5

## 3. ESTABLISHING SPEC 205 COMMANDING LINK

### NOTE

1. ITEM 1 on SPEC 205 routes item entries through the SSOR/SSSR link.  
ITEM 2 on SPEC 205 routes item entries through the OIU hard-line link.  
  
Note: For STS-120 we will be using the SSOR/SSSR link for commanding
2. If the command link (SSOR/SSSR or OIU Hardline) used in this procedure had not been used previously, the first command to the ISS via this link will be rejected at the C&C level. Therefore the first command (excluding ITEM 1 or ITEM 2) will have to be sent twice.

CRT

SM 205 ISS MCS MODING

REROUTE TO SSOR (ROUTE NORM HARDLINE) – ITEM 1 (2) EXEC  
No Feedback is expected.

## 4. VERIFY ISS GNC STATUS

CRT

SM 205 ISS MCS MODING

- √ US GNC MODE – CMG TA
- √ RS GNC MODE – CMG TA
- √ US/RS GNC COMM – GOOD
- √ US PRI GNC MDM – GOOD
- √ CMG ATT CNTL – GOOD

## 5. REMOVING ISS GNC INHIBITS

Telemetry response from the ISS to SPEC 205 may take up to 30 seconds to occur

CRT

MODE XTION – ITEM 4 EXEC (ENA)  
If MODE XTION does not change to Enable  
MODE XTION – ITEM 4 EXEC (ENA)

ATT MNVR – ITEM 5 EXEC (ENA)

ATT CNTL SHDN – ITEM 7 EXEC (ENA)

# MSG 155B (16-0214B) - HANDOVER ATTITUDE CONTROL PROCEDURE UPDATE

Page 4 of 5

## 6. MODING US GNC FROM CMG TA TO DRIFT

Step 6 modes the mated stack to Free Drift. Step 7 should be performed as soon as possible after successful confirmation in step 6.

'HANDOVER CNTL TO ORB'  
√ US DRIFT AVAIL – YES

MODE TO DRIFT – ITEM 9 EXEC

'STATUS'  
√ US GNC MODE – DRIFT

Orbiter ⇒ ISS, **MCC-H**, "ISS is in Free Drift."

## 7. ASSUMING CONTROL WITH ORBITER

C3(A6)

DAP: LVLH

GNC UNIV PTG

When rates are < 0.1 degrees/second/axis  
DAP: AUTO

Orbiter ⇒ ISS, **MCC-H**, "Shuttle has established attitude control."

## 8. REPLACING ISS GNC INHIBITS TO PREVENT MODING

SM 205 ISS MCS MODING

MODE XTION – ITEM 8 EXEC (INH)

## 9. GROUND RECONFIGURATION

MCC-H

MCG: MCS Configuration: MCS Inhibits  
MCS Inhibits

√ Mode Transition Inhibit  
**cmd** Attitude Maneuver Inhibit (Verify – Inh)  
**cmd** Desat Request Inhibit (Verify – Inh)  
**cmd** Att Cntl Shutdown Inhibit (Verify – Inh)

# MSG 155B (16-0214B) - HANDOVER ATTITUDE CONTROL PROCEDURE UPDATE

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## NOTE

1. This inhibit prevents the US from taking attitude control either via manual command or command from RS software.
2. The operator should be sure to use only the telemetry shown in the below procedure to verify end item of the command. Per SPN 34945, the telemetry enumeration directly from the MCS Safing Display is reversed and incorrect.

MCG: MCS Safing: Auto Att Control Handover RS to US

Auto Att Control Handover RS to US

'Inhibit'

**cmd** Arm

**cmd** Inhibit (Verify Status - Inh)

**16-0216 (MSG 156) – FD13 EVA DELTAS**  
**Page 1 of 1**

1 What an AWESOME, history-making EVA! This one will go down as one of our biggest  
2 successes in EVA history. Words can not express how proud you made everyone with the  
3 execution by the entire team. Scott, what a way to add to an already impressive EVA  
4 career! The summit of Everest will have a hard time competing with the view from the boom.  
5 We aren't quite finished yet, though. Today is a busy day before we can get the hatch  
6 closed. We have a few last minute changes and reminders for today's activities, so take a  
7 look below.

8  
9 Regarding 55' Safety Tether (#72):

10 You reported that 55-ft safety tether # 72 was not retracting. This may have been due to the  
11 cold environment on EVA 4. We'd like to know if it is working again (IVA), and whether you  
12 think this tether's behavior is out of family with other safety tethers.

13  
14 EVA TRANSFER TO SHUTTLE Redlines

15 We would like you to redline the EVA TRANSFER TO SHUTTLE procedure on page FS 2-  
16 20. Delete steps 1 and 2. The EMU Batteries are not in the BSA since we charged those  
17 earlier. They will be placed in the correct EMU's via the updated message 16-0217 (MSG  
18 157) EVA PREP FOR TRANSFER TO SHUTTLE.

19  
20 EVA PREP FOR TRANSFER TO SHUTTLE

21 We have revised the EVA PREP FOR TRANSFER TO SHUTTLE procedure and uplinked  
22 the new version as 16-0217 (MSG 157).

23  
24 POST EVA 4 BSA Battery Recharge Graphic

25 We will need to charge batteries in preparation for the upcoming Inc-16 Stage EVA. We  
26 have uplinked the new BSA Graphic in message 16-0218 (MSG 158) POST EVA 4 BSA  
27 Battery Recharge Graphic.

28  
29 Final ISS EMU Locations for the Inc-16 Stage EVAs

30 We have scheduled a block of time later after 10A undocks to relocate EMU 3006 to the  
31 FWD EDDA and EMU 3018 to the AFT EDDA. This will put them in place for the upcoming  
32 EVAs. You don't have to do this now but as a get ahead if the EMUs are being relocated  
33 anyway, configuring them this way will save you time later. Please let us know where they  
34 wind up.

**16-0217 (MSG 157) – EVA PREP FOR TRANSFER TO SHUTTLE (120 min)**  
**Page 1 of 4**

- 1 EMU 3004 (Pz),  
2 EMU 3003 (Wo)
- 3 1. Remove REBAs. As required, reference removal steps in 1.307  
4 REBA INSTALLATION/REMOVAL (ISS EVA SYS, AIRLOCK  
5 CONFIG)
  - 6 2. Install expended LiOH canisters and EMU Batteries for return as  
7 follows:  
8 EMU 3004 (Pz): LiOH s/n 2002; EMU Batt s/n 2039  
9 EMU 3003 (Wo): √LiOH s/n 2028; EMU Batt s/n 2040
  - 10 3. Remove Helmet Lights and EMU TVs from helmets
  - 11 DCM
  - 12 4. √PWR – SCU
  - 13 5. √DCM PURGE vlv – op (up)
  - 14 6. √WATER – OFF, switch guard installed
  - 15 7. √O2 ACT – OFF
  - 16 8. √Helmet sunshades down, visor up, cover installed
  - 17 9. Locate EMU Servicing Kit s/n 5005 labeled “Use and Return on 120”.  
18 Unstow signal conditioner s/n 103
  - 19 10. Unstow EMU Servicing Kit s/n 5002 from ‘EVA Systems 2’ mesh bag.  
20 Stow signal conditioner s/n 103 in this Servicing Kit
  - 21 11. Stow EMU Servicing Kit s/n 5002 back in ‘EVA Systems 2’ mesh bag.  
22 Stow EMU Servicing Kit s/n 5005 labeled “Use and Return on 120”  
23 in ‘EVA Systems 1’ mesh bag for return
  - 24 12. Unstow Pz comm cap (s/n 1165) from Pz ECOK and place in  
25 Tn ECOK
  - 26 13. Unstow Wo B/U comm cap (s/n 1183) from Wo ECOK and place in  
27 ‘EVA Systems 3’ mesh bag
  - 28 14. Unstow Tn failed comm. cap (s/n 1205) from Tn ECOK and place in  
29 ‘EVA Systems 1’ mesh bag for return
  - 30 15. Verify Ad B/U comm. cap (s/n 1185) stowed in Tn ECOK
  - 31 16. Retrieve 2 empty DIDBs from Shuttle A/L Floor Storage Bag and  
32 place in AL1D0 with other station DIDBs.
  - 33 17. Configure/verify items stowed in the table below.
  - 34
  - 35
  - 36
  - 37
  - 38
  - 39
  - 40
  - 41
  - 42
  - 43
  - 44

<b><u>EMU 3004 (Pz) (Large)</u></b>	<b><u>EMU 3003 (Wo) (XL)</u></b>
<ul style="list-style-type: none"><li><input type="checkbox"/> Helmet s/n 1068 (√sunshades down, visors up, cover installed, no helmet lights or TV installed)<ul style="list-style-type: none"><li><input type="checkbox"/> Valsalva</li><li><input type="checkbox"/> Fresnel Lens (2)</li></ul></li><li><input type="checkbox"/> Wrist Mirror</li><li><input type="checkbox"/> DIDB Restraint Bag</li><li><input type="checkbox"/> Pz Gloves (s/n 6248)</li><li><input type="checkbox"/> EMU Battery (s/n 2039)</li><li><input type="checkbox"/> Expended LiOH Can (s/n 2002)</li><li><input type="checkbox"/> LTA (Pz)</li><li><input type="checkbox"/> CCA (s/n 1166)</li><li><input type="checkbox"/> ISS EVA Cuff C/L (EV1)</li></ul> <p><u>NOTE:</u> Will be removing cuff during EVA Stow</p>	<ul style="list-style-type: none"><li><input type="checkbox"/> Helmet s/n 1072 (√sunshades down, visors up, cover installed, no helmet lights or TV installed)<ul style="list-style-type: none"><li><input type="checkbox"/> Valsalva</li><li><input type="checkbox"/> Fresnel Lens (2)</li></ul></li><li><input type="checkbox"/> Wrist Mirrors (2)</li><li><input type="checkbox"/> DIDB Restraint Bag</li><li><input type="checkbox"/> Wo Gloves (left s/n 6193 and right s/n 6245)</li><li><input type="checkbox"/> EMU Battery (s/n 2040)</li><li><input type="checkbox"/> Expended LiOH Can (s/n 2028)</li><li><input type="checkbox"/> LTA (Wo)</li><li><input type="checkbox"/> CCA (s/n 1172)</li><li><input type="checkbox"/> ISS EVA Cuff C/L (EV2)</li></ul> <p><u>NOTE:</u> Will be removing cuff during EVA Stow</p>

1

<p><b><u>EMU Crew Option Kit (Pz)</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> LCVG w/biomed (Pz) (s/n 3205)</li> <li><input type="checkbox"/> Pz EVA #1, 2, 3, 4 Ziplock Bags             <ul style="list-style-type: none"> <li><input type="checkbox"/> 3 MAGs/Ziplocks (less used)</li> <li><input type="checkbox"/> TCUs (top, bottom)</li> <li><input type="checkbox"/> Wristlets</li> <li><input type="checkbox"/> Comfort Gloves</li> <li><input type="checkbox"/> Thermal Socks</li> <li><input type="checkbox"/> Moleskin (less used)</li> <li><input type="checkbox"/> Fresnel Lens (Contingency only)</li> </ul> </li> <li><input type="checkbox"/> Spare Mesh Bag</li> </ul>	<p><b><u>EMU Crew Option Kit (Wo)</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> LCVG w/biomed (Wo) (s/n 3196)</li> <li><input type="checkbox"/> Wo EVA #1, 3, 4 Ziplock Bags             <ul style="list-style-type: none"> <li><input type="checkbox"/> 3 MAGs/Ziplocks (less used)</li> <li><input type="checkbox"/> TCUs (top, bottom)</li> <li><input type="checkbox"/> Wristlets</li> <li><input type="checkbox"/> Comfort Gloves</li> <li><input type="checkbox"/> Tube Socks</li> <li><input type="checkbox"/> Moleskin (less used)</li> <li><input type="checkbox"/> Fresnel Lens (Contingency only)</li> </ul> </li> </ul>
<p><b><u>Mesh Bag (EVA Systems 1)</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 3 Expended LiOH Cans (s/n 2025, 2004, 2018)</li> <li><input type="checkbox"/> 2 unused filled DIBs for return</li> <li><input type="checkbox"/> STS-120/10A EVA Checklist (blue stripe)</li> <li><input type="checkbox"/> C/L ISS EVA SYSTEMS (blue stripe)</li> <li><input type="checkbox"/> STS-120/10A CONSUMABLES TRACKING CUE CARD</li> <li><input type="checkbox"/> STS-120/10A BATTERY RECHARGE PLAN CUE CARD</li> <li><input type="checkbox"/> Depress/Repress Cue Card</li> <li><input type="checkbox"/> EMERGENCY UNDOCKING CUE CARD</li> <li><input type="checkbox"/> EMU Servicing Kit (s/n 5005)</li> <li><input type="checkbox"/> Pz B/U gloves (s/n 6268)              NOTE: Was in Pz ECOK</li> <li><input type="checkbox"/> Wo prime gloves (s/n 6068)              NOTE: Was in Pz ECOK</li> <li><input type="checkbox"/> Wo B/U &amp; 2<sup>nd</sup> B/U gloves (right s/n 6193, left s/n 6245)              NOTE: Was in Wo ECOK</li> <li><input type="checkbox"/> Tn Comm Cap (s/n 1205)</li> <li><input type="checkbox"/> Pz &amp; Wo Mission Patches, Flags, EV Stripes (For RTH Bag)</li> </ul>	

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 14

**16-0217 (MSG 157) – EVA PREP FOR TRANSFER TO SHUTTLE (120 min)**  
**Page 4 of 4**

EVA TOOL TRANSFER PREP

1. Gather EVA TOOLS A, EVA TOOLS B, and EVA TOOLS C mesh bags
2. Configure/verify items according to table below:

<u>Item</u>	<u>Mesh Bag</u>	<u>Notes</u>
<input type="checkbox"/> LTA Cable (qty 1)	A	
<input type="checkbox"/> OIH carriers (qty 1, leaving 1 on-orbit for 1E)	A	1
<input type="checkbox"/> Node 2 CBM PIP pins (qty 3)	A	2
<input type="checkbox"/> PDGF mounting ring thermal cover (qty 1)	A	3
<input type="checkbox"/> Node 2 caps (qty 13)	A	4
<input type="checkbox"/> SSU MLI Shrouds (qty 2)	B	
<input type="checkbox"/> Large Trash Bag, s/n 1009 (qty 1)	B	5a
<input type="checkbox"/> Brush handles from EWAs (qty 2)	B	5b
<input type="checkbox"/> Broom Clip Caddy ("MWS Tool Stowage Caddy") (qty 1)	B	
<input type="checkbox"/> Thermal Sensor (qty 1)	B	
<input type="checkbox"/> Unused EVA Wipes (qty 3 only)	B	5c
<input type="checkbox"/> Red RETs (sm-sm) (qty 16)	B	
<input type="checkbox"/> Red RETs (sm-sm w/PIP pin) (qty 5)	B	
<input type="checkbox"/> 85-ft safety tethers (qty 2) Verify: #27 (s/n 1007) and #22 (s/n 1002)	C	
<input type="checkbox"/> Adjustable tethers (qty 6) Verify: s/n 1010, 1013, 1014, 1015, 1036, 1037	C	6

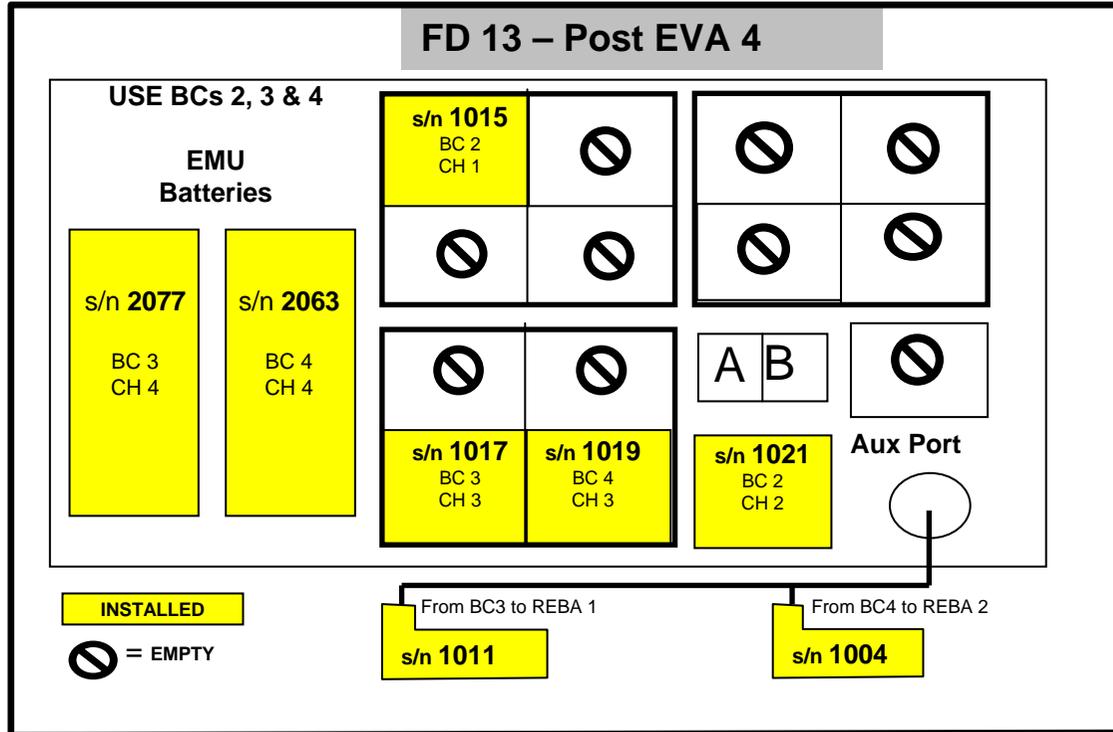
TABLE NOTES:

1. Ensure the insert and lid are placed back on the OIH carrier
2. Node 2 PCBM covers (qty 8) are now remaining on ISS due to landing middeck stowage constraints
3. If the PDGF mounting ring thermal cover won't fit in a return bag, it can be left on ISS
4. Remember to leave the 8 caps for Peggy and Yuri to install on the Lab. They need the following quantities and sizes: 4 – size 15, 1 –size 17, 1 – size 21, and 2 – size 25
5. T-RAD Hardware Changes:
  - a. We are returning the Large trash bag that we launched
  - b. We are also now returning the two brush handles that you retrieved from the EWA kits. You can leave the third brush handle from the all Gel Brush caddy on ISS. The Gel/Foam Brush caddy and Gel brush caddy will both remain on ISS.
  - c. We are going to leave 5 EVA wipes on ISS for future SARJ troubleshooting, this leaves 3 to come home (if I did my Chica math correctly...). They can be stowed in the 10A EVAs 2-4 Mesh Bag
6. There is a possibility that 1 or 2 of the Shuttle adjustable tethers could be outside on the Lab with the small trash bag and gap spanners. If that is the case, please let us know which S/Ns are missing, and retrieve replacements from ISS inventory (also let us know what the replacement S/Ns are)

ADDITIONAL TRANSFER DELTAS:

1. The CIPAA sample bag and angled stamp are also going to remain on ISS for future use. They can be stowed in the 10A EVAs 2-4 Mesh Bag.

### STS-120/10A Battery Recharge Plan Updated Post EVA 4/FD13



# MSG 160 (16-0220) - FD13 TRANSFER MESSAGE

Page 1 of 7

1 Good morning Doug, Stephanie, and Dan,

2

3 You may have been excited to transfer items before, but we bet your transfer items  
4 have never been this excited about being transferred by you! Please exercise some extra  
5 TLC when transferring items 900 and 901.

6



7

8

9

10 Your ground transfer team anxiously waits for “all to be revealed” on the final day of transfer.  
11 Thanks for all your awesome work on transfer ops for this flight. It has been a true pleasure  
12 working with you! Good luck and see you soon!

13

14 The Transfer List Excel file, FD13\_TransferList\_ST5120.xls, is located on the KFX machine  
15 in **C:\OCA-up\transfer**.

16

17 For ISS, the Transfer List Excel file, FD13\_TransferList\_ST5120.xls, is located in **K:\OCA-**  
18 **up\transfer**.

19

## 20 Transfer Notes

21

- 22 • The final Transfer conference is scheduled prior to the Double Coldbag pack and  
23 CGBA return activities today. As a result, we'll still need final confirmation that these  
24 items have been transferred outside of the final transfer conference.
- 25 • Last time we spoke, we discussed the return configuration of the Russian crew  
26 preference items being packed into the IELK 5MLE bag (Bag H). If the items do not  
27 fit, the preliminary “plan B” is to stow any remaining Russian crew preference items  
28 in the MDDK Retention net. If ‘plan B’ is invoked, we will unfortunately require the  
29 ISS foam gathered from NODE 2 to return to ISS to help control the return weight in  
30 the MDDK Retention Net.
- 31 • Another go-back?!? Inconceivable! Yep, it's true, item 405.2 has been added to the  
32 transfer list to remove the two returning CSA-O2s from bag 405 and place them back  
33 on ISS. Turns out, the CSA-O2s we delivered aren't trending as closely to the MCA  
34 as was hoped. For this reason, it's necessary to keep the old units on orbit to ensure  
we have functional CSA-O2s on ISS.

## MSG 160 (16-0220) - FD13 TRANSFER MESSAGE

Page 2 of 7

- The 'Return Location Sort' pages have been included in this uplink package. This is a list of all items on the 'Return Tab', but they are sorted by their 'Stowage at Undock' location.

### Questions/Answers for the crew

- **Q:** Please let us know the configuration of the Russian crew preference items and the IELK 5MLE Bag H so we can evaluate alternative return configurations if necessary.

### Open items for transfer today

- **Items 104 and 105** – PCS Transfer activity
- **Items 128 and 130** – Final CWC fill
- **Items 141** – Hatch close
- **Items 143 and 706** – Printer Swap activity
- **Items 701 through 704** –EVA hardware Transfer from ISS to Shuttle
- **Items 709 and 710** – Double Coldbag 1 & 2 Pack
- **Items 711** – Integrate Immune Saliva Sample Hardware Stow
- **Items 712** - Integrate Immune Blood Sample Hardware Stow
- **Items 713 and 714** – CGBA-5 Science Insert 2 Removal
- **Items 900 and 901** – prior to hatch close
- **All remaining open items on the transfer list**

### Please incorporate uplink pages as follows:

In **RETURN** tab

Replace Page(s):

Return – 5

In **RETURN SORT** tab

Add Page(s):

Sort – 1

Sort – 2

Sort – 3

Sort – 4

### Changes to the Transfer List are detailed below:

In **RETURN** tab

**Item 405.2**    **New Item**

Call us with any questions and have a great day!

- The 10A Transfer Team

MSG 162 - FD13 ISS STOWAGE INFO

1 Excerpt from 16-0223 Stowage Locations For Sun Plan (GMT 308, FD13)  
 2

<b>PMA2-GRND STRAP-RMV</b>						
<b>VESTIBULE CONFIG FOR DEMATE-LAB1 TO PMA2</b>						
<b>1.103 ACBM TO PCBM GROUND STRAP REMOVAL</b>						
#	LOCATION	ITEM NAME	P/N	S/N	B/C	Notes
<b>Restow the following items:</b>			IMS Plan: No			
1	<b>NOD1P4_A2</b> 1.0 CTB: MPLM Vest Outfitting Bag (aka VOK), S/N 1048, B/C 002933J	12" x 12" Ziplock Bag	528-50000-5	-	-	<b>Label</b> bag "From LAB-PMA2 Vestibule"  ISS Crew will also put CBM Protective Caps in this bag in CBM-CPA-INSTALL tomorrow.
2		Element Ground Strap Assy	683-13477-7	1036	-	
3		Element Ground Strap Assy	683-13477-7	1037	-	

3

<b>IMMN-BLOOD H/W-SETUP</b>						
<b>2.001 INTEGRATED IMMUNE BLOOD COLLECTION</b>						
#	LOCATION	ITEM NAME	P/N	S/N	B/C	Notes
1	<b>LAB106</b> <b>Jettison Stowage Bag</b>	Integrated Immune Blood Collection Kit	SJG46121520-301	1001	HRF07149J	
2		→Blood Sample Sleeve	SDG46121531-301	N/A	ANY	<b>NOTIFY</b> POIC of B/C# used
3		Integrated Immune Blood Collection Kit	SJG46121520-301	1002	HRF07150J	
4		→Blood Sample Sleeve	SDG46121531-301	N/A	ANY	<b>NOTIFY</b> POIC of B/C# used

4

<b>IMMN-BLOOD H/W-STOW</b>						
<b>2.001 INTEGRATED IMMUNE BLOOD COLLECTION</b>						
<b>Restow the following items:</b>			IMS Plan: Yes/No			
#	LOCATION	ITEM NAME	P/N	S/N	B/C	Notes
1	<b>10A TRANSFER LIST</b> <b>Return Item #711</b>	Blood Sample Sleeve [2]	SDG46121531-301	-	-	B/C# used by Crew for Blood Collections.
2	<b>LAB106</b> <b>Jettison Stowage Bag</b>	Integrated Immune Blood Collection Kit	SJG46121520-301	1001 1002	HRF07149J HRF07150J	

5  
6  
7

**FD13 SENSOR CHECKOUT**

1. SETUP

MON 1	A
MON 2	RSC (C)
DNLK	P1 LOOB

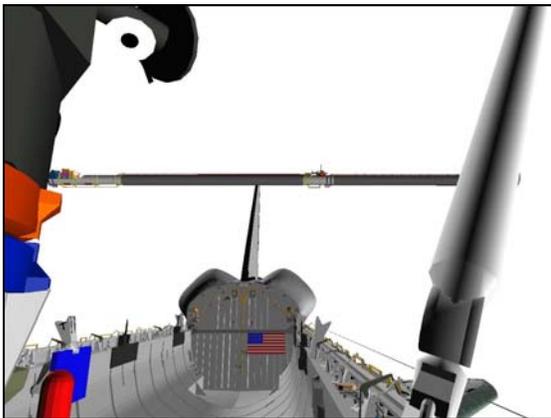
SM 94 PDRS CONTROL

- √ PL ID, ITEM 3: 2
- √ INIT ID, ITEM 24: 2

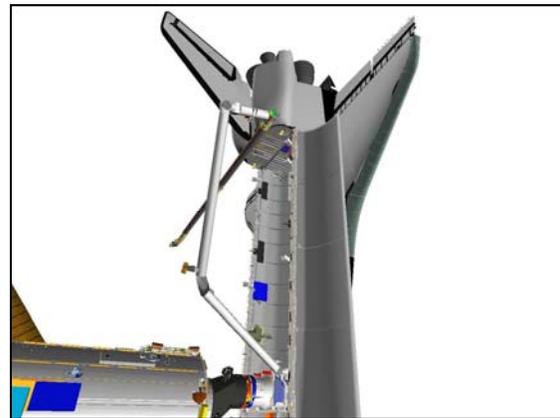
UNDOCK posn:

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1029	+229	-614	14	270	0	2
	SY	SP	EP	WP	WY	WR	
√	+25.8	+66.3	-49.0	-85.9	+10.7	-100.7	

\* display singularity



CCTV A (0,25)



P1 LOOB (120,30)

2. MANEUVER TO SENSOR CHECKOUT POSITION

SM 94 PDRS CONTROL

- END POS – ITEM 18 -1 1 7 2 +3 5 3 -3 8 8 EXEC
- ATT – ITEM 21 +2 7 7 +2 9 4 +9 7 EXEC
- CMD CK – ITEM 25 EXEC (GOOD)

- RHC RATE – COARSE (RATE MIN tb-OFF)
- BRAKES – OFF (tb-OFF)
- MODE – OPR CMD, ENTER (READY It on)

-----  
 - After PROCEED, if motion no longer apparent but POR is within  
 - 1 in/1 deg and IN PROG It - on:  
 - AUTO SEQ – STOP  
 -----

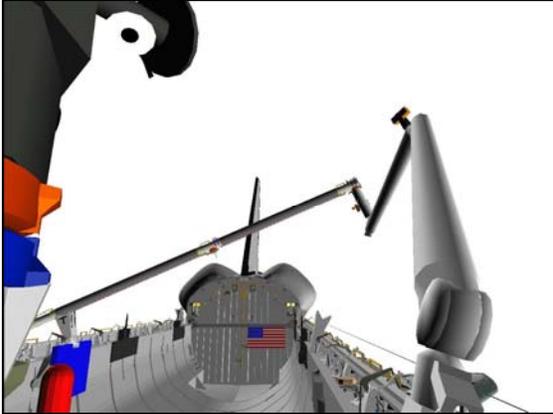
AUTO SEQ – PROCEED (IN PROG It on)

MSG 163 - FD13 SENSOR CHECKOUT

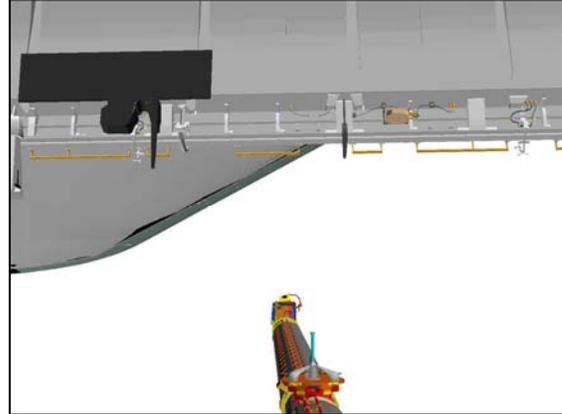
When AUTO SEQ IN PROG It – off:  
BRAKES – ON (tb-ON)

SENSOR CHECKOUT posn:

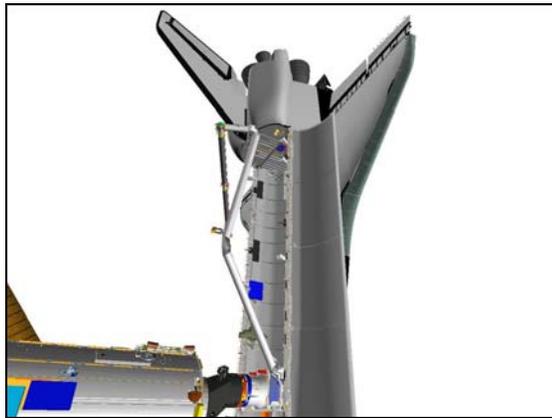
	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1172	+353	-388	277	294	97	2
	SY	SP	EP	WP	WY	WR	
√	+6.7	+41.6	-48.0	+101.4	-43.0	-64.5	



CCTV A (0, 15)



RSC



P1 LOOB (120,30)

3. SENSOR CHECKOUT

Perform ACTIVATION, steps 1 and 5 (LDRI/ITVC Cue Card, P/TV)

DTV ← PL2

CAMR CMD PAN/TILT

PAN

TILT

PAN/TILT

PAN:

TILT:

-HI RATE

-L (to hard stop)

-UP (to hard stop)

-RESET, HI RATE (LO within 10°)

+80 (right)

-70 (down)

MSG 163 - FD13 SENSOR CHECKOUT

3.1 LDRI CALIBRATION

NOTE

Ensure GMT is set on DSR-25

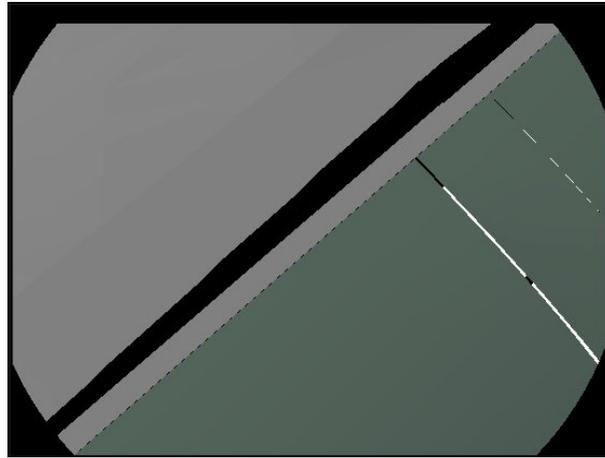
A7U

√MUX 1 L ← MIDDECK

LDRI MODE 3 pb – push (LDRI video)

√DTV ← PL2

PAN/TILT to match LDRI view shown below



**LDRI: +80, -70**

√MCC to verify correct sensor view

Note PAN/TILT: \_\_\_\_\_, \_\_\_\_\_

A7U

√DTV ← PL2

√VIDEO OUT – not DTV

√VIDEO IN – not PL2

L10(VTR)

REC pb – push, hold

PLAY pb – push, simo (red ●)

Record for 30 sec

√MUX 1 L ← MIDDECK

A7U

LDRI MODE 4 pb – push (brighter LDRI video)

Record for 30 sec

LDRI MODE 5 pb – push (flickering LDRI video)

Record for 30 sec

LDRI MODE 6 pb – push (brighter flickering LDRI video)

Record for 30 sec

## MSG 163 - FD13 SENSOR CHECKOUT

- A7U  
A7
- 3.2 LDRI FLAT FIELDS  
√DTV ← PL2  
PAN: +100 (right)  
Wait 5 sec  
  
TILT: -57 (up)  
Wait 5 sec  
  
PAN: +85 (left)  
Wait 5 sec
- A7U
- √MUX 1 L ← MIDDECK  
LDRI MODE 2 pb – push (LDRI Video)  
√DTV ← PL2
- 3.3 LCS/IDC CHECKOUT  
Perform IDC SOFTWARE ACTIVATION (IDC Cue Card, P/TV)
- LCC/PGSC
- Minimize, do not close IDC software  
Maximize LCC software  
sel 'Scanning' 'Detailed Area Scan'  
sel – Area Scan 11  
**cmd** Start Area Scan (verify Scan Status: Complete)  
  
sel – Area Scan 12  
**cmd** Start Area Scan (verify Scan Status: Complete)  
  
sel – Area Scan 13  
**cmd** Start Area Scan (verify Scan Status: Complete)
- LCC/PGSC
- Minimize, do not close LCC software  
Maximize IDC software  
√'Use AE' checked  
Sel 'Scan Lo-Res'  
Resize and posn AE box as reqd (pause 2 sec)  
Sel 'Scan Hi-Res'  
Sel 'Stop Scan' after 30 sec  
√'Waiting for User Command' displayed  
From Scenario File drop-list, sel 'White Tile-Day' or 'White Tile-Night'  
from drop-down menu per real-time conditions  
sel 'Acquire Set'  
√'Acquiring Set' displayed  
√'Waiting for User Command' displayed after set  
sel 'Power Off'  
Minimize IDC Software
- A7U
- √DTV ← PL2  
√MUX 1 L ← MIDDECK  
LDRI MODE 1 pb – push (LDRI Video)

MSG 163 - FD13 SENSOR CHECKOUT

√VIDEO OUT - not DTV  
 √VIDEO IN – not PL2

L10(VTR) STOP pb – push (no red ● )

4. MANEUVER TO UNDOCK POSITION

SM 94 PDRS CONTROL

END POS – ITEM 18 -1 0 2 9 +2 2 9 -6 1 4 EXEC  
 ATT – ITEM 21 +1 4 +2 7 0 + 0 EXEC  
 CMD CK – ITEM 25 EXEC (GOOD)

RHC √RATE – COARSE (RATE MIN tb-OFF)  
 BRAKES – OFF (tb-OFF)  
 MODE – OPR CMD, ENTER (READY It on)

AUTO SEQ – PROCEED (IN PROG It on)

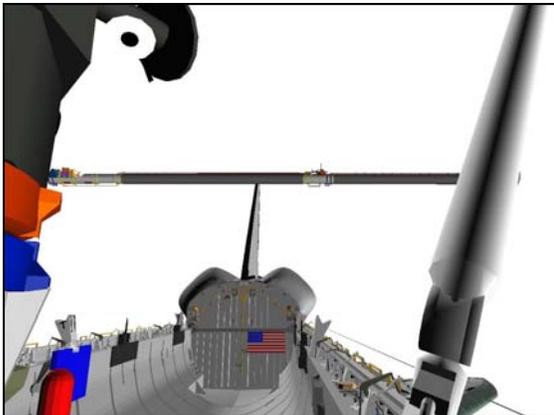
When AUTO SEQ IN PROG It – off:  
 BRAKES – ON (tb-ON)

PARAM – PORT TEMP  
 JOINT – CRIT TEMP

UNDOCK posn:

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1029	+229	-614	14	270	0	2
	SY	SP	EP	WP	WY	WR	
√	+25.8	+66.3	-49.0	-85.9	+10.7	-100.7	

\* display singularity



CCTV A (0,25)



P1 LOOB (120, 30)