

# STS-121/ULF1.1

## FD 06 Execute Package



MSG	Page(s)	Title
048	---	<a href="#">FD06 Summary Timeline (pdf)</a>
040A	1 - 9	<a href="#">FD06 Flight Plan Revision (pdf)</a>
041	10 - 11	<a href="#">FD06 Mission Summary (pdf)</a>
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045	15 - 18	<a href="#">FD05 MMT Summary (pdf)</a>
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047	20 - 22	<a href="#">EVA Tools Management Procedure Update (pdf)</a>
043A	---	<a href="#">FD06 Crew News Conference Message (pdf - Electronic Only)</a>

**Approved by FAO:** L. Eadie

Last Updated: Jul 9 2006 4:22AM GMT

JEDI (Joint Execute package Development and Integration), v2.04.0003

GMT 07/09/06 (190)

MET Day 004

		12	13	14	15	16	17	18	19	20	21	22	23	18	005/00
STS-121	FD06 CDR LINDSEY	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	PLT KELLY	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	MS1 FOSSUM	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	MS2 NOWAK	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	MS3 WILSON	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	MS4 SELLERS	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
ISS	ISS CDR	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	FE-1	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
	FE-2 Reiter	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP
STS	DAY/NIGHT ORBIT	72	73	74	75	76	77	78	79	80					
	TDRS W -171	[Timeline bars]													
	E - 46	[Timeline bars]													
	Z -275	[Timeline bars]													
	ORB ATT	[Timeline bars]													

NOTES	^CRADLE	*AR-N2 VALVE-CLOSE	*SWAP	⊗AR-N2 VALV
	^INSTALL			
	*BATT CHRG			

GMT 07/09/06 (190)

MET Day 005

		005/00												07/10													
		19	20	21	22	23	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
STS-121	FD06 CDR LINDSEY	EVA 2 PROC RVW	ILV DIL RIL ID M	CS LON D W	PRE SLEEP	PMC A/G	PRE SLEEP													SLEEP	POST SLEEP						
	PLT KELLY	EVA 2 PROC RVW			PRE SLEEP													SLEEP	POST SLEEP								
	MS1 FOSSUM	EVA 2 PROC RVW			PRE SLEEP													SLEEP	POST SLEEP								
	MS2 NOWAK	EVA 2 PROC RVW			PRE SLEEP													SLEEP	POST SLEEP								
	MS3 WILSON	EVA 2 PROC RVW			PRE SLEEP													SLEEP	POST SLEEP								
	MS4 SELLERS	EVA 2 PROC RVW	I W I F			PRE SLEEP													SLEEP	POST SLEEP							
ISS	ISS CDR	COX	PREP WK	DPC	EVE PREP WK	PRE SLEEP-ISS														SLEEP							
	FE-1	D J R N L	PREP WK	DPC	EVE PREP WK	PRE SLEEP-ISS	PFC	PRE SLEEP ISS													SLEEP						
	FE-2 Reiter	FIT	P W R E P	DPC	EVE PREP WK	PRE SLEEP-ISS														SLEEP							
STS	DAY/NIGHT	[Timeline with alternating black and white bars]																									
	ORBIT	80	81	82	83	84	85	86	87	88																	
	TDRS	W -171	E - 46	Z -275	[Timeline with alternating black and white bars]																						
ORB ATT														BIAS -XLV -ZVV													
NOTES		*STATUS CK ^CNFG																									

MSG 040A - FD06 FLIGHT PLAN REVISION

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MSG INDEX

<u>MSG NO.</u>	<u>TITLE</u>
40	FD06 Flight Plan Revision
41	FD06 Mission Summary
42	FD06 Transfer Message
43	FD06 Crew News Conference Message
44	FD06 Water Summary
45	FD05 MMT Summary (13-0638)
46	Preliminary Overview Timeline (13-0640)
47	EVA Tools Management Procedure Update (13-0639)
48	FD06 Summary Timeline

1. ACCESS POINT SERIAL NUMBER

For Piers, please report the serial number for the good access point unit.

Rationale: The Access Points are not labeled as "Prime" or "Backup" so there is no way to delineate which Access Point is failed without a crew call. The "good" access point will potentially be transferred to the ISS. A plan for a hard-wired STS PGSC network post transfer is in work.

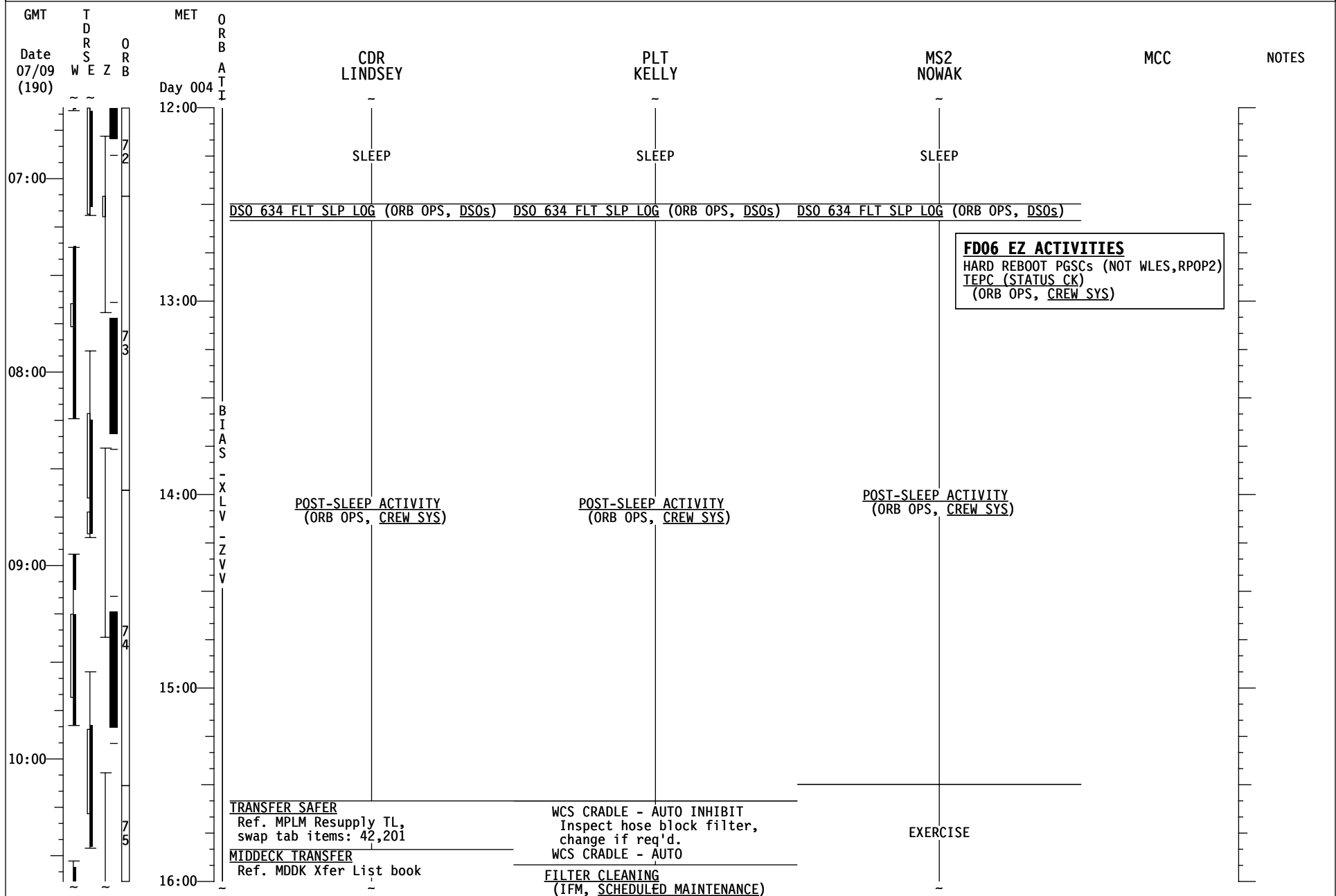
2. OUTLOOK OST SIZE MAINTENANCE

If possible, please keep your Inbox, Sent Items, and Work Related folders as clean and empty as possible (either by deleting items or moving them to your personal folders). This is needed to reduce the time required to uplink new e-mail.

3. REPLACE PAGES 3-56 THROUGH 3-63.

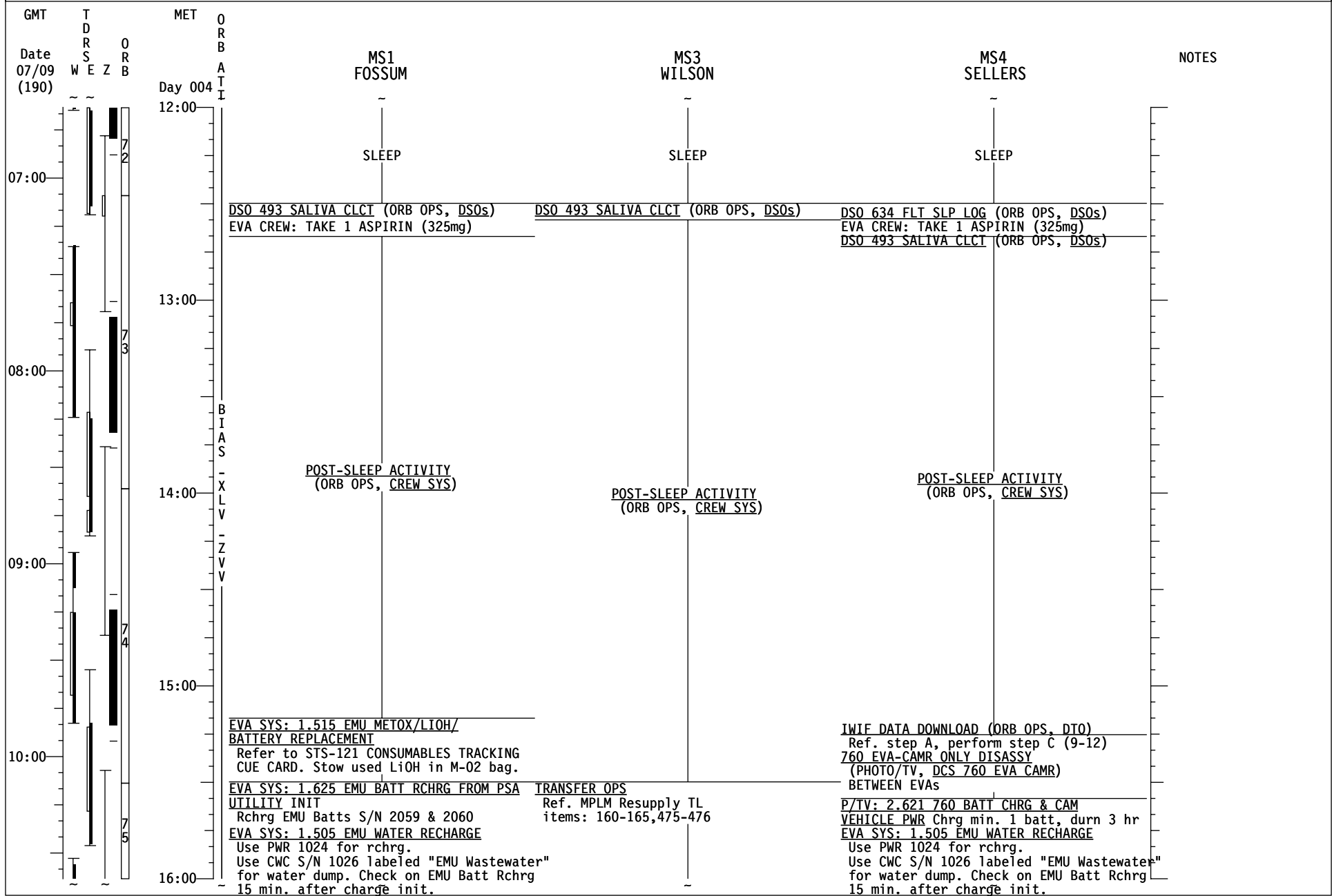
STS-121/ULF 1.1 (FD 06)

REPLANNED



STS-121/ULF 1.1 (FD 06)

REPLANNED



# STS-121/ULF 1.1 (FD 06)

**REPLANNED**

GMT	T D R S E Z O R B	MET	O R B A T I	CDR LINDSEY	PLT KELLY	MS2 NOWAK	MCC	NOTES
Date 07/09 (190)	W E Z B	Day 004						
16:00				<u>MIDDECK TRANSFER</u> Ref. MDDK Xfer List book	<u>FILTER CLEANING</u> (IFM, SCHEDULED MAINTENANCE) Inspt filters & clean as necessary	EXERCISE		
11:00						<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books		
				<u>SHUTTLE/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) INIT #7 Ref. MSG 044				
17:00				<u>MIDDECK TRANSFER</u> Ref. MDDK Xfer List book	EXERCISE			
12:00								
18:00				<u>SHUTTLE/ISS H2O CONT FILL</u> (ORB OPS, ECLS) TERM Report B/C and S/N to MCC	<u>EMU TRANSFER TO ISS</u> Transfer EMU 3008 to AFT EDDA Ref. MDDK TL item: 16			
13:00				<u>SHUTTLE/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) INIT #8 Ref. MSG 044	<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books			
19:00				EXERCISE	<u>EVA SYS: 1.412 EMU CHECKOUT W/O LEAK CK</u> Use REI Comm Cap from EMU Sys Transfer Bag #2			
					<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books			
14:00				<u>SHUTTLE/ISS H2O CONT FILL</u> (ORB OPS, ECLS) TERM Report B/C and S/N to MCC				
				<u>CWC TRANSFER</u> Transfer 2 CWCs to ISS Ref. MSG 044	<u>EVA SYS: 1.430 SAFER CHECKOUT</u> Ref. MPLM Resupply TL Swap tab item: 770 FE-1 can do C/O on 1003 while PLT xfers 1004 to MPLM			
20:00								

STS-121/ULF 1.1 (FD 06)

REPLANNED

GMT	T D R S E Z	O R B	MET	O R B	MS1	MS3	MS4	NOTES
Date	W E Z	A T I	Day	A T I	FOSSUM	WILSON	SELLERS	
07/09			004					
(190)								
11:00					<p><u>EVA SYS: 1.505 EMU WATER RECHARGE</u>                      Use PWR 1024 for rchrg.                      Use CWC S/N 1026 labeled "EMU Wastewater" for water dump. Check on EMU Batt Rchrg 15 min. after charge init.</p>	<p><u>TRANSFER OPS</u>                      "Ref. MPLM Resupply &amp; Return Xfer List books</p>	<p><u>EVA SYS: 1.505 EMU WATER RECHARGE</u>                      Use PWR 1024 for rchrg.                      Use CWC S/N 1026 labeled "EMU Wastewater" for water dump. Check on EMU Batt Rchrg 15 min. after charge init.</p>	
					<p><u>EVA SYS: 1.305 EQUIPMENT LOCK PREP</u>                      Refer to STS-121 CONSUMABLES TRACKING CUE CARD for EHIP Batts. EHIP Batts are in M-02 bag.</p>		<p><u>EVA SYS: 1.305 EQUIPMENT LOCK PREP</u>                      Refer to STS-121 CONSUMABLES TRACKING CUE CARD for EHIP Batts. EHIP Batts are in M-02 bag.</p>	
12:00					<p><u>EVA TOOLS MGMT</u>                      (EVA, TOOLS &amp; STOWAGE)                      Perform FD6-EVA 1 Tool Dcnfg                      Ref. MSG 047</p>		<p><u>EVA TOOLS MGMT</u>                      (EVA, TOOLS &amp; STOWAGE)                      Perform FD6-EVA 1 Tool Dcnfg                      Ref. MSG 047</p>	
13:00								
14:00					<p><u>EVA SYS: 1.412 EMU CHECKOUT W/O LEAK CK</u>                      Use REI Comm Cap from EMU Sys Transfer Bag #2</p>	<p><u>P/TV05 ISS INTERNAL OPS (HC)</u>                      (PHOTO/TV, SCENES) SETUP</p>	<p><u>EVA SYS: 1.412 EMU CHECKOUT W/O LEAK CK</u>                      Use REI Comm Cap from EMU Sys Transfer Bag #2</p>	
						EXERCISE		
19:00					<p><u>EMU SWAP</u> Inst1 EMU 3006 (S1) on AFT EDDA  <u>EVA SYS: 1.605 BSA BATT RCHRG TERM</u>                      Then perform INITIATE on BC#2 (upper right) for HL Batts 1011 &amp; 1012                      Ref. STS-121 Logistics CC (FD6 Batt Rchrg)</p>		<p><u>EMU SWAP</u> Inst1 EMU 3006 (S1) on AFT EDDA  <u>760 EVA-CAMR ONLY</u>                      (PHOTO/TV, DCS 760 EVA CAMR)</p>	
20:00								



# STS-121/ULF 1.1 (FD 06)

**REPLANNED**

GMT	T D R S W E Z	MET	O R B A T I	CDR LINDSEY	PLT KELLY	MS2 NOWAK	MCC	NOTES
Date 07/09 (190)	W E Z	Day 004	20:00	<u>CWC TRANSFER</u> Transfer 2 CWCs to ISS Ref. MSG 044	<u>EVA SYS: 1.430 SAFER CHECKOUT</u> Ref. MPLM Resupply TL Swap tab item: 770 FE-1 can do C/O on 1003 while PLT xfers 1004 to MPLM	<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books		
15:00				MEAL	MEAL	MEAL		
21:00								
16:00				<u>CREW CONFERENCE</u> KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043	<u>CREW CONFERENCE</u> KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043	<u>CREW CONFERENCE</u> KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043		
22:00				CREW PHOTO	CREW PHOTO	CREW PHOTO		
17:00				<u>CO2 ABSORBER REPLACEMENT CUE CARD</u> (ORB OPS, CUE CARD CONFIG) Ref. MPLM Resupply TL, swap tab items: 34,178-181,455-457,750, 765-767 and back of Cue Card Block A.	<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books	<u>TRANSFER OPS</u> Ref. MPLM Resupply & Return Xfer List books		
23:00								
18:00				<u>TRANSFER TAGUP</u> Coordinate with xfer counterpart (CDR,MS3,FE-2)				
00:00				<u>EVA 2 BRIEFING CARD</u> (EVA, EVA 2)	<u>EVA 2 BRIEFING CARD</u> (EVA, EVA 2)	<u>EVA 2 BRIEFING CARD</u> (EVA, EVA 2)		

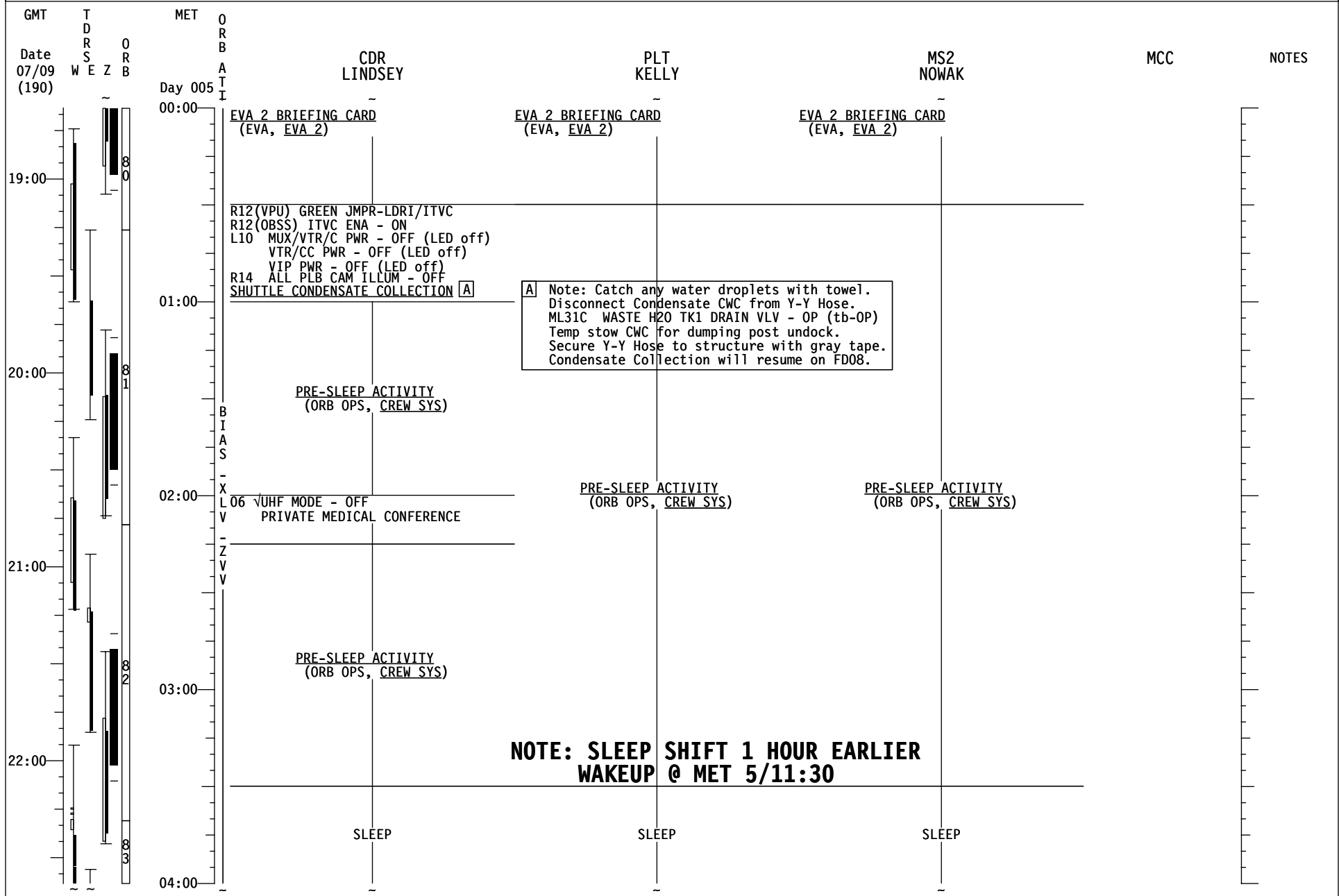
# STS-121/ULF 1.1 (FD 06)

**REPLANNED**

GMT	T D R S E Z	O R B	MET	O R B	MS1 FOSSUM	MS3 WILSON	MS4 SELLERS	NOTES
Date 07/09 (190)	W E Z	O R B	Day 004	A T	EVA SYS: 1.605 BSA BATT RCHRG TERM Then perform INITIATE on BC#2 (upper right) for HL Batts 1011 & 1012 Ref. STS-121 Logistics CC (FD6 Batt Rchrg)	EXERCISE	760 EVA-CAMR ONLY (PHOTO/TV, DCS 760 EVA CAMR)	
15:00					MEAL	MEAL	MEAL	
16:00					CREW CONFERENCE KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043	CREW CONFERENCE KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043	CREW CONFERENCE KU AVAIL: 21:09 - 21:45, TDRW REF: MSG 043	
17:00					CREW PHOTO	CREW PHOTO	CREW PHOTO	
18:00					TRANSFER OPS Ref. MPLM Resupply & Return Xfer List books	TRANSFER OPS Ref. MPLM Resupply & Return Xfer List books	MIDDECK TRANSFER Perform transfer for MDDK TL items 47 and 488.	
					EXERCISE		EXERCISE	
					TRANSFER OPS Ref. MPLM Resupply & Return Xfer List books	TRANSFER TAGUP Coordinate with xfer counterpart (CDR,MS3,FE-2)		
					EVA 2 BRIEFING CARD (EVA, EVA 2)	EVA 2 BRIEFING CARD (EVA, EVA 2)	EVA 2 BRIEFING CARD (EVA, EVA 2)	
00:00								

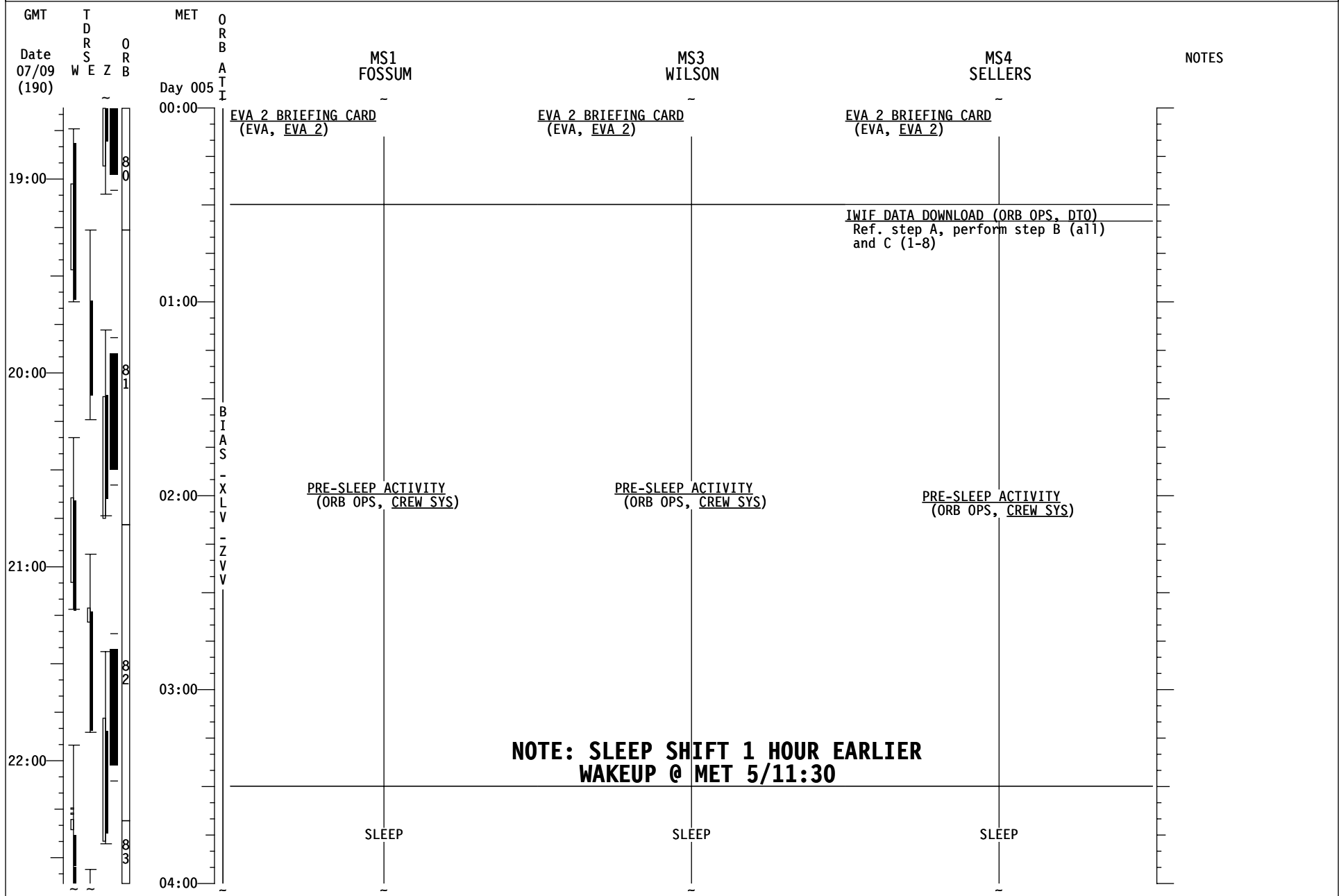
STS-121/ULF 1.1 (FD 06)

REPLANNED



# STS-121/ULF 1.1 (FD 06)

**REPLANNED**



**MSG 041 (13-0635) - FD06 MISSION SUMMARY**

Page 1 of 2

1  
2 Good morning, Discovery.  
3  
4 Fantastic job on the EVA and the transfer ops yesterday. You guys proved the arm and  
5 boom are stiff enough to use for EVAs – the TPS repair folks are sleeping easier tonight.  
6 Plus, with MELFI moved over, the Station now has a freezer. Have fun with the transfer ops  
7 today.  
8  
9 Just to help you all see how the extra day fits in, we've sent up and printed a new overview  
10 timeline for the rest of the mission with the added day.  
11  
12  
13 YOUR CURRENT ORBIT IS: 191 X 177 NM  
14  
15 NOTAMS:  
16  
17 KING KHALID- VORTAC CHAN 92X OPERATIONAL BUT CAUTION ADVISED DUE TO  
18 NO MONITORING  
19 LAJES – TACAN 45X OUT OF SERVICE TILL 10 JUL  
20 GUAM (GUA) – RWY 06L/24R CLOSED  
21 AMBERLEY (AMB) – CLOSED  
22 OCEANA (NTU) - RWY 23L/05R CLOSED  
23 RIO GALLEGOS (AWG) - NOT APPROVED  
24 ISTRES (FMI) – 33 RWY REMAINING MARKERS AVAIL ARE 300,600,900M  
25  
26 NEXT 2 PLS OPPORTUNITIES:  
27  
28 EDW22 ORB 80 – 4/23:59 (SCT100, 210@8P11)  
29 EDW22 ORB 95 – 5/22:46 (FEW250, 200@7P10)  
30  
31 OMS TANK FAIL CAPABILITY:  
32  
33 L OMS FAILS: NO  
34 R OMS FAILS: NO  
35  
36 LEAKING OMS PRPLT BURN:  
37  
38 L OMS LEAK: ALWAYS BURN RETROGRADE  
39 R OMS LEAK: ALWAYS BURN RETROGRADE  
40  
41 OMS QUANTITIES(%)  
42  
43 L OMS OX = 34.6 R OMS OX = 37.2  
44 FU = 35.1 FU = 37.9  
45  
46 SUBTRACT I'CNCT COUNTER FOR CURRENT OMS QUANTITIES  
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**MSG 041 (13-0635) - FD06 MISSION SUMMARY**

Page 2 of 2

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2	<u>DELTA V AVAILABLE:</u>	
3		
4	OMS	363 FPS
5	ARCS (TOTAL ABOVE QTY1)	26 FPS
6	TOTAL IN THE AFT	389 FPS
7		
8	ARCS (TOTAL ABOVE QTY2)	59 FPS
9	FRCS (ABOVE QTY 1)	36 FPS
10		
11	AFT QTY 1	84 %
12	AFT QTY 2	46 %
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## MSG 042 (13-0636) - FD06 TRANSFER MESSAGE

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Good morning Thomas, Stephanie, and Steve,

Wonderful job with the rack transfers yesterday. Thanks for working so hard on all the hardware moves. We are looking forward to Steve's LiOH transfers today ☺

We have a few outstanding questions from yesterday's calldown:

1. Was 518 (2.0 CTB of Comm Caps/LCVG) temp stowed in the middeck?
2. Was 632 (0.5 CTB of misc hdwe) temp stowed in the MPLM Endcone bungee jail?
3. Thomas called down items 141-157 as complete with the exception of item 155. We expect that is because the final location of 155 was A/L Crewlock. Item 152 also has a final location of A/L Crewlock. Please confirm whether or not the transfer of item 152 was completed yesterday. Thanks.
4. Thomas called down item 115 (Payload Hdwe) as complete. The final location of 115 is LAB101\_B2 in place of ZCG (item 624). ZCG was not called down as complete, so we expect that 115 is not in its final location. . Please confirm whether or not the transfer of item 115 was completed yesterday. Thanks.

### FD06 Transfer Choreography

- Transfer/swap CCAA HX from MPLM to/from LAB1S6
- Middeck Transfer: IVA Tool bag Swaps (after CCAA HX transfer is complete)
- Transfer new SAFER to ISS for SAFER checkout, put foam in endcone bungee jail for old SAFER
- Transfer new SAFER Cue Card to ISS for SAFER Checkout
- Transfer old SAFER from ISS to MPLM after SAFER Checkout (put in foam from bungee jail)
- Transfer ZCG from ISS and ETR dwr contents to ISS.
- Transfer items from/to F3 RSP backside Mbags (easy access after MELFI transfer & before bungee jail is set up)
- Set up inter-rack F2 bungee jail (where MELFI launched)
- Transfer 10 STS121 unused LiOH cans from MPLM to ISS (remove cans from CTBs)
- Transfer 8 STS121 used LiOH cans from MDDK LiOH box to MPLM (use emptied CTBs above)
- Transfer 7 STS121 unused LiOH cans from MDDK LiOH box to ISS
- Transfer 15 STS114 unused LiOH cans from ISS (staged in mesh bags) to MDDK LiOH box
- Transfer return bags/items into aft endcone and F2 bungee jails.
- Transfer resupply bags/items to ISS.

The Transfer List Excel file, FD06\_TransferList\_STS121.xls, is located on the KFX machine in **C:\OCA-up\transfer**.

For ISS, the Transfer List Excel file, FD06\_TransferList\_STS121.xls, is located in **K:\OCA-up\transfer**.

(continued on next page)

**MSG 042 (13-0636) - FD06 TRANSFER MESSAGE**

Page 2 of 2

- 1
- 2 Please incorporate uplink pages as follows (call us with any questions!):
- 3
- 4 In the MDDK Transfer List Book
- 5 **RESUPPLY** tab
- 6 Replace Page Resupply 6
- 7
- 8 In the MPLM Resupply Transfer List Book
- 9 **LAYOUTS** tab
- 10 Replace the following pages:
- 11 L-13
- 12 L-16
- 13 L-25
- 14 L-26
- 15 **RESUPPLY** tab
- 16 Replace the following page:
- 17 Page Resupply 14
- 18
- 19 In the MPLM Return Transfer List Book
- 20 **LAYOUTS** tab
- 21 Replace the following pages:
- 22 L-40
- 23 **RETURN** tab
- 24 Replace the following pages:
- 25 Page Return 18
- 26 Page Return 19
- 27 Page Return 20
- 28 **MPLM REALTIME ADDITIONS** tab
- 29 Replace the following page:
- 30 Page Return 32
- 31
- 32 -The Transfer Team-
- 33
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MSG 044 - FD06 WATER SUMMARY

1  
2 The Shuttle condensate collection CWC on the middeck should be close to full so it will  
3 be disconnected from the Y-Y hose and temp stowed. Condensate collection will resume  
4 on FD8 with a second bag. Details are in the flight plan.

5  
6 Two CWCs will be filled for transfer to ISS.

7  
8 The Shuttle/ISS H2O Container Fill initiation scheduled for CDR at MET 4/16:40 should  
9 contain the following details:

10  
11 SHUTTLE/ISS H2O CONT FILL INIT #7

12 (ORB OPS, ECLS)

13 Ag Biocide is req'd.

14 Sample is not req'd.

15 Fill Duration: ~50 minutes

16 Report Serial Number and Barcode to MCC.

17  
18 Following fill #7, at MET 4/18:10 CDR should perform:

19  
20 SHUTTLE/ISS H2O CONT FILL INIT #8

21 (ORB OPS, ECLS)

22 Ag Biocide is req'd.

23 Sample is not req'd.

24 Fill Duration: ~50 minutes

25 Report Serial Number and Barcode to MCC.

26  
27 After both fills are complete, transfer the CWCs to the water wall (NOD1P2) at MET 4/19:40  
28 per the flight plan. If there is insufficient room for the bags at this ISS location, store CWCs  
29 on the FGB Floor and report to MCC.

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## MSG 045 (13-0638) - FD05 MMT SUMMARY

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### FD5 MMT Crew Summary

The focus of the FD5 MMT was a continued review of the TPS areas that were part of the FD4 focused inspection. The good news is that the RCC has been cleared for entry based on the data obtained by you so your hard work has paid off. Here's a summary of the TPS analysis that has been completed to date.

a) Tile Analysis/ET Doors - No new data on the tile or ET doors since they were cleared for entry at the MMT yesterday.

b) RCC Analysis - As expected the MMT has declared that the RCC is safe for entry based on analysis of the nose cap, Panel 9R, and 5R FD4 focused inspection data. Panel 9R and the nose cap have both been determined to be surface deposits. The nose cap is likely bird dropping (Figure 1) and the Panel 9R data (Figure 2) is thought to be a hydrocarbon source from the booster sep motor or from the launch pad environment. Panel 5R (Figure 3) is thought to be some slight scratching of the RCC coating and is of no concern. For all three of these areas of interest the weave pattern is visible, and there are no damage characteristics such as crushed coating etc. that indicate real damage. There should be no further discussion of the RCC until the late inspection is performed on FD11 and FD12.

d) Gap Fillers - Yesterday the port wing aft gap filler was cleared for entry and today the arrowhead tadpole gap filler has been cleared as safe for entry based on the FD4 focused inspection data. For this gap filler shown in Figure 4 the rooster tail end stitching appears to be damaged/missing and fabric has started to fray. There are no signs of gap filler debond from the tile sidewall and the maximum height of fraying does not appear to exceed 0.20". The concern yesterday was that this gap filler could trip the boundary layer early on the forward part of the vehicle, thus a focused inspection was required to better analyze the protuberance height. Based on the focused inspection data, the frayed 0.2 inch protrusion height will not effect nominal transition, so this gap filler has been cleared for entry.

This leaves the gap filler forward of the starboard ET door (Figure 5) as the only final concern for entry. Thermal, aerothermal, and stress analysis for that gap filler is planned to be completed for the FD6 MMT. The focused inspection data shown in Figure 5 is greatly assisting the analysis and the team is looking at how much the gap filler will deflect aft during entry. Previous flight data has been reviewed and there have been two prior flights with protruding gap fillers in this area. In fact STS-114 had a .25 inch protruding gap filler in a similar location. The FD6 MMT will review the final analysis and it is expected that this area will be cleared at that time.

e) Thermal Blankets. The two blankets on the upper surface just aft of the F1U and F3U thrusters and the blanket on the port side just forward of the -Y star tracker are still under review in terms of debris transport. The Debris Analysis Team continues to perform blanket pull tests, debris transport, and impact loads analysis in order to clear these blankets. The plan is to review both of these items at the FD6 MMT since all of the analysis is not yet complete. Both of these items are very close to be cleared as safe for entry but the final results will be available tomorrow at the FD6 MMT.

**MSG 045 (13-0638) - FD05 MMT SUMMARY**

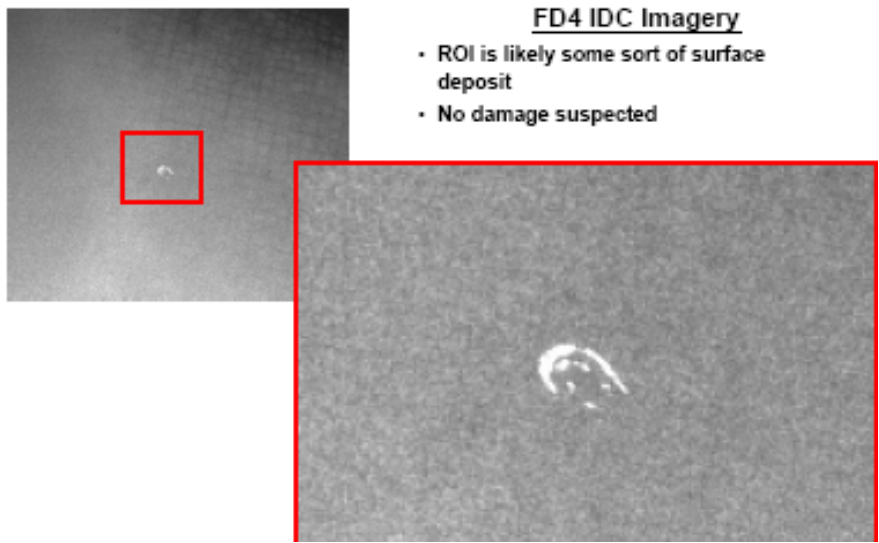
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**Ascent WLE Sensor Data** - As discussed earlier there were 6 ascent events on the WLE sensors (3 on each wing) that tripped the noise floor for further evaluation. After a thorough review of the ascent imagery, radar data, and all other sources, none of this data corroborated the WLEIDS indications. There has been no further discussion of review of this ascent data so this is considered closed as well.

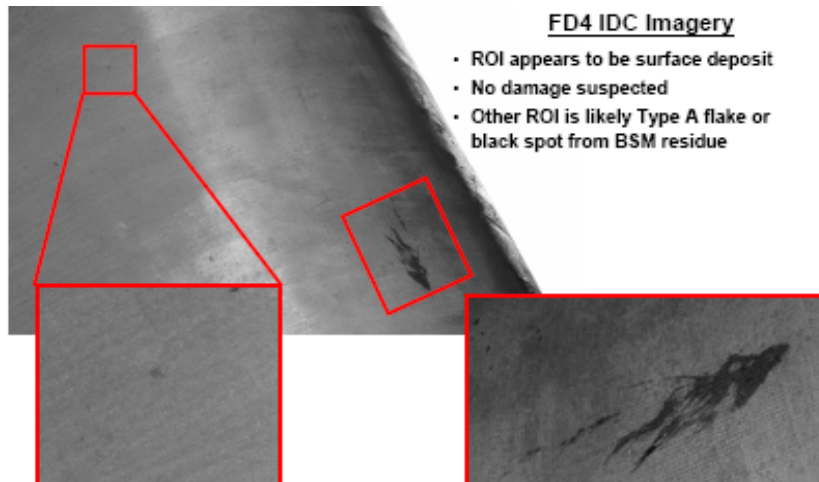
**DTO 849**- Preliminary results from EVA #1 DTO #849 are very encouraging. The motion was less than expected based on pre-flight analysis and the damping of the OBSS/RMS was much greater than expected. In some cases the motion was expected to take about a minute to damp out and the real performance observed today was that it took about 1/4 of that time to damp out. The DTO team is very happy with the data collected today.

Figure 1 - Nosecap Focused Inspection



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Figure 2 Panel 9R Focused Inspection



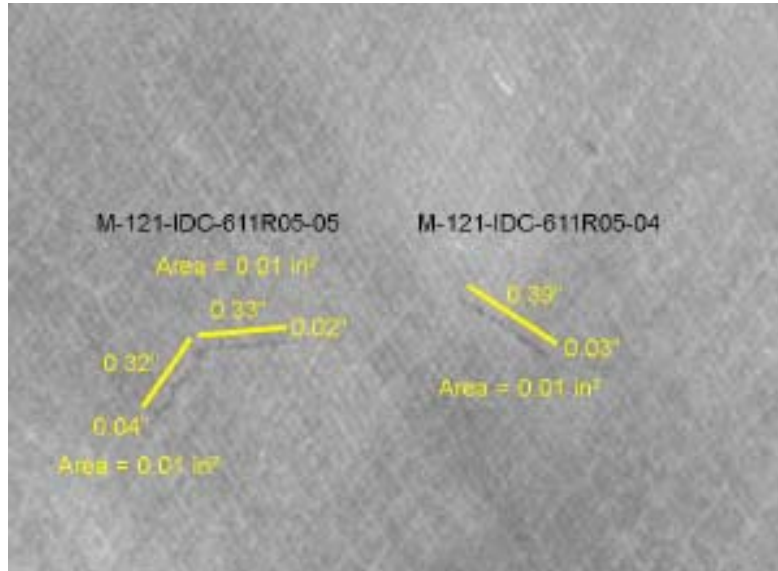
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**MSG 045 (13-0638) - FD05 MMT SUMMARY**

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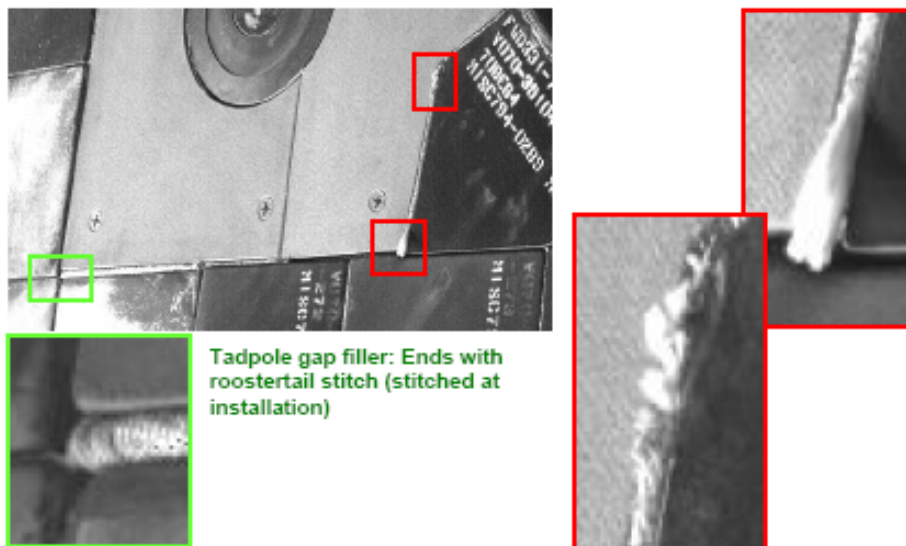
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Figure 3 Panel 5R Focused Inspection



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Figure 4 Arrowhead Tadpole Gap Filler



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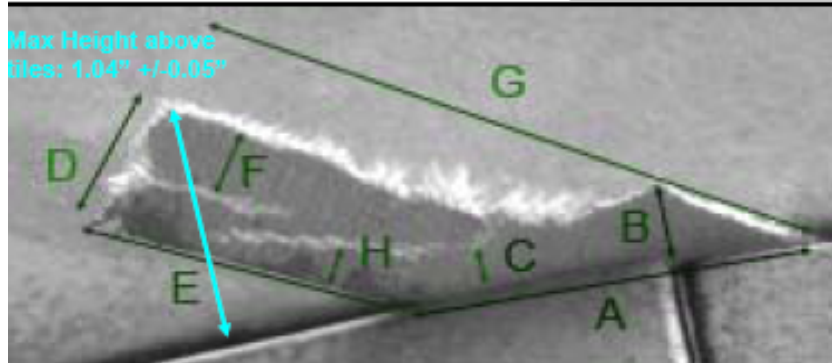
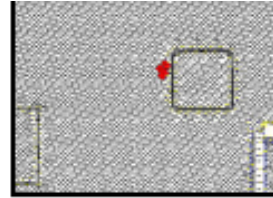
# MSG 045 (13-0638) - FD05 MMT SUMMARY

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Figure 5 Gap Filler Forward of Starboard ET Door

A = 1.28" +/- 0.10"    E = 1.20" +/- 0.10"  
B = 0.37" +/- 0.10"    F = 0.30" +/- 0.05"  
C = 0.24" +/- 0.05"    G = 2.30" +/- 0.15"  
D = 0.58" +/- 0.05"    H = 0.23" +/- 0.05"



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# MSG 046 (13-0640) - PRELIMINARY OVERVIEW TIMELINE

Page 1 of 1

## STS-121 Overview Timeline 13+0+2 (Energy Dependent Day)

0	FD01	1	2	3	4	5	6	7	8	9	10	11	12	
		Ascent/Post Insertion		PGSC, P/TVO1 SETUP	WSB DTO	NC1 (4:27)								
12	FD02	13	14	15	16	17	18	19	20	21	22	23	1/0	
					NC2 (15:50)	RMS C/O	OBSS UNBERTH	FLT FLD	OBSS STBD SURVEY	OBSS NOSE SURVEY	MEAL	OBSS PORT SURVEY	OBSS BTH	
1/0		1	2	3	4	5	6	7	8	9	10	11	12	
		OBSS BERTH cont.	SRMS EE CREW CABIN SURVEY	NC3 (02:28)										
12	FD03	13	14	15	16	17	18	19	20	21	22	23	2/0	
			WST DUMP/ GP PWR UP/ MPLM CK	NC4 (15:13)		Ti (16:45)			DOCK	LK CK/ INGR Prep	HATCH OPEN	HI	SFTY BRIEF	
2/0		1	2	3	4	5	6	7	8	9	10	11	12	
		ISS UN GRP	SRMS MNVR	SSRMS ACBM										
12	FD04	13	14	15	16	17	18	19	20	21	22	23	3/0	
					MPLM INSTALL, EVA 1 PREP			MBS GRAPPLE	LAB UNGRP	MVR SVY	FOCUSED INSPECTION		MPLM INGR	
3/0		1	2	3	4	5	6	7	8	9	10	11	12	
		MPLM INGRESS/ R/JMC TRANSFER	EVA 1 PROC REVIEW											
12	FD05	13	14	15	16	17	18	19	20	21	22	23	4/0	
			EVA PREP W/ ISS O2			EMU PURGE/ PRE-BREATHE	C_LK DEPRESS		EVA 1 (DTO 849, TUS R&R)					
4/0		1	2	3	4	5	6	7	8	9	10	11	12	
		EVA 1	REP	POST EVA W/O H2O										
12	FD06	13	14	15	16	17	18	19	20	21	22	23	5/0	
			MPLM TRANSFER, EVA 2 PREP								MEAL	CREW CONF & PHOTO	MPLM TRANS FER	EVA 2 PROC R/VW
5/0		1	2	3	4	5	6	7	8	9	10	11	12	
		EVA 2 PROC REVIEW												
12	FD07	13	14	15	16	17	18	19	20	21	22	23	6/0	
			EVA PREP W/ ISS O2			EMU PURGE/ PRE-BREATHE	C_LK DEPRESS		EVA 2 (LRUs)					
6/0		1	2	3	4	5	6	7	8	9	10	11	12	
		REP	POST EVA W/O H2O											
12	FD08	13	14	15	16	17	18	19	20	21	22	23	7/0	
			MPLM TRANSFER, EVA 3 PREP							MEAL	MPLM TRANSFER		EVA3 PROC R/VW	
7/0		1	2	3	4	5	6	7	8	9	10	11	12	
													PRE P	
12	FD09	13	14	15	16	17	18	19	20	21	22	23	8/0	
			EVA PREP W/ ISS O2			EMU PURGE/ PRE-BREATHE	C_LK DEPRESS		EVA 3 (TPS REPAIR)					
8/0		1	2	3	4	5	6	7	8	9	10	11	12	
		POST EVA W/O H2O												
12	FD10	13	14	15	16	17	18	19	20	21	22	23	9/0	
			OFF DUTY/EXERCISE					MEAL	OFF DUTY/EXERCISE					
9/0		1	2	3	4	5	6	7	8	9	10	11	12	
		MORN PREP	DPC	ISS EXERCISE, MAINTENANCE	CEVIS R&R	ISS MEAL	CEVIS STOW	MSG WINDOW R&R	CPA INSTALL		MPLM CLNUP	CFG MPLM RACKS		
12	FD11	13	14	15	16	17	18	19	20	21	22	23	10/0	
		EG RS	DE- ACT	MPLM VEST CNFG DEMATE		MPLM VEST DEPRESS		N1 CBM DEMATE	SSRMS MPLM UNINSTALL	MPLM BERTH	UN GRP	SSRMS WALKOFF TO MBS	FULL PORT LDRI SURVEY	
10/0		1	2	3	4	5	6	7	8	9	10	11	12	
		SRVY	RNDZ TOOLS C/O											
12	FD12	13	14	15	16	17	18	19	20	21	22	23	11/0	
		BYE	EGRES S	ATT H/O	ODS LK CK	UNDOCK (15:30)	SEP	MNV R	DMP INIT	OPR PWR DN	MEAL	DMP TRM	MN VR	
11/0		1	2	3	4	5	6	7	8	9	10	11	12	
		NC-5												
12	FD13	13	14	15	16	17	18	19	20	21	22	23	12/0	
			FCS C/O, RCS H/F	NC-6	CONDENSATE & PWR DUMP, POST EVA ENTRY PREP, PILOT OPS			CABIN STOW	MEAL	D/O BRIEF	PAO	FCMS OPS	COM CK	
12/0		1	2	3	4	5	6	7	8	9	10	11	12	
12	FD14	13	14	15	16	17	18	19	20	21	22	23	13/0	
		IMU ALIGN/ VERIF, -XSI		DEORBIT PREP				ENTRY						
		1	2	3	4	5	6	7	8	9	10	11	12	

\*TIG KSC 12/17:26

\*BU KSC 12/19:02

## MSG 047 (13-0639) - EVA TOOLS MANAGEMENT PROCEDURE UPDATE

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The 121 EVA Checklist requires some updates due to unplanned tools brought inside after EVA1. The EVA Tool Management procedures and EVA2 Tool Configuration page need to be updated for FD6 with the following changes:

Replace EVA Tools Management pages FS 8-15 and FS 8-16 with pages 2 and 3 of this message.

Pen and Ink the following changes into the 121 EVA Checklist, EVA 2 TOOL CONFIG, page FS 7-51, Pre-EVA Tool Configuration,:

- a. Under Staging bag, Spare Safety Tether, change "#22" to "#23"
- b. Under EV2, add a checkbox and "A/L Safety Tether (#66)"

# MSG 047 (13-0639) - EVA TOOLS MANAGEMENT PROCEDURE UPDATE

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## Flight Day 3 - EVA Tool Transfer (Cont)

1. Install remaining tools in bag, ensure all Velcro straps are used to retain tools

CRM Bag				
Locker	Item Description	Qty.	Part No.	Serial No.
Ext A/L Floor	Fish Stringer	□ 1	SED39127200-701	1033
Port Ceiling 1	5-in spatula <b>Stow in Lg Trash Bag</b>	□ 1	SED33118187-302	1 of: 1014, 1016, 1017
	Palette <b>Rmv film from both sides Avoid scratching surface</b>	□ 2	SED33118670-301	1001, 1002
	CRM Applicator w/ TMG	□ 1	SED33119446-301	1006
	CRM Applicator Nozzle <b>Stow in ziploc</b>	□ 3	SED33119448-301	3 of: 1004 - 1008
	Broom Clip Caddy	□ 2	GD2051000-301	1011, 1012
	EVA Wipe - <b>install on Fish Stringer (1 wipe is for Staging Bag)</b>	□ 8	SED33116397-701	N/A
	SSRMS LEE CLA Cover	□ 1	51617-0052-1	201
MF57O	Gap Spanner	□ 1	SEG33109930-307	1071

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## Flight Day 4 - RJMC Transfer

1. Retrieve RH swingarms from ISS A/L, transfer to MPLM

Full CTB "BACKUP EVA HDW", s/n 1033, b/c 002918J				
	Item Description	Qty.	Part No.	Serial No.
1.0 CTB 1033	RH Swingarm	□ 2	SEG33110491-305	1005, 1006

2. Retrieve the following items from Shuttle and MPLM; transfer to ISS A/L

Shuttle, MPLM				
	Item Description	Qty.	Part No.	Serial No.
	Ziploc bag (for RJMC conn. caps)	□ 1	N/A (small)	N/A
MPLM A4-A1	RJMC	□ 1	5842400-505	1017
MPLM P3-A1	RH Swingarm (swap w/ old ones)	□ 2	SEG33110491-307	1003, 1004

3. Configure swingarms and RETs on EV1 and EV2 MWS per EVA 1 TOOL CONFIG
4. Configure RJMC in Lg ORU Bag per EVA 1 TOOL CONFIG
5. Remove blind mate connector caps (4, black plastic), stow in a Ziploc bag labeled "RJMC caps" in "PGT Hardware" CTB s/n 1161 (A/L1O1)
6. Verify Adj tethers (2) removed from EMU wrists

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## MSG 047 (13-0639) - EVA TOOLS MANAGEMENT PROCEDURE UPDATE

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### Flight Day 6 – EVA 1 Tool Deconfig

- 1
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- 4 1. Verify SHUTTLE EVA 1 TOOLS bags (2) are empty
- 5 2. Deconfigure Lg ORU (OBSS DTO) Bag:
- 6  Load Cell should already be in Middeck
- 7  Digital Camera w/mount should already be out for battery charging
- 8  Stow Digital camera w/flash and mount in Digital Flash CTB s/n 1105
- 9  Stow ballstack (verify it is s/n 1010) in MUT and MWS PARTS CTB, s/n 1013 (A/L100)
- 10  Move WIF Adapter to EV2 Trash Bag
- 11  Move Force Measurement Tool to SHUTTLE EVA 1-A TOOLS bag
- 12  Move EVA Ratchet to crewlock bag; swap 6-in socket to PGT (in “PGT Hardware” CTB s/n 1161); stow on EV2 MWS
- 13  Move 85-ft Safety Tethers (# 22 and 26) to EV1 and EV2 MWS; move 55-ft safety tethers to tether staging area
- 14  Move 85-ft Safety Tether (# 24) to BACKUP EVA HDW CTB s/n 1033 (A/L101); and from the same bag, retrieve #23 and stow in Staging Bag (will be the spare)
- 15  Move 55-ft safety tether (#73) from staging bag to tether staging area
- 16  Move 55-ft safety tether #66 (sm-sm) from tether staging area to EV2 EMU (A/L tether)
- 17  Stow PAD in Crewlock Bag #2
- 18  Stow all tethers and fish stringer from Lg ORU Bag in tether staging area (replace Mike's BRT RET)
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- 25 3. Fold, stow Lg ORU bag (sunshade) for EVA 3 TOOL CONFIG
- 26
- 27 4. Reconfigure Med ORU Bag:
- 28  Move Blade Blocker to SHUTTLE EVA 1-A TOOLS BAG
- 29  Move RET to tether staging area
- 30  Move PGT w/ 6-in socket to EV1 MWS
- 31
- 32 5. Leave Med ORU Bag configured in A/L:
- 33  Fish Stringer
- 34  IUA w/ RET
- 35  Spare RET
- 36  Lg-sm RET and sm-sm Adj tethers (2) on exterior of bag
- 37
- 38 6. Leave RJMC bag configured in A/L
- 39
- 40 7. Deconfigure EMUs
- 41  Replace wire ties on EV1 and EV2 MWS T-bars (2 ea.)
- 42  Stow 55-ft safety tether #59 in tether staging area, mark “slow to retract”
- 43
- 44 8. Temp stow SHUTTLE EVA 1 TOOLS bag in ISS for EVA 2 Tool Deconfig
- 45
- 46 9. Perform EVA 2 TOOL CONFIG using tools from SHUTTLE EVA 2 TOOLS bag and “EVA2” Crewlock bag
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