



# STS-129/ULF3

## FD 07 Execute Package

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**Approved by FAO:**

Gail Hansen



Last Updated: Nov 22 2009 8:05 AM GMT

JEDI (Joint Execute package Development and Integration), v3.0



## TOP 14 WAYS FOR JSC EMPLOYEES TO AVOID “A BUCK IN A RUT”:

- (14) Don't wake up the deer two consecutive nights in a row
- (13) Avoid red suits, black boots, and white beards
- (12) Avoid? Hand me some deer corn - and my rifle!
- (11) Wear Long-horns ... that'll frighten any beast away ... including the *mythical* Aggie!
- (10) If your name is “Bambi”, change it...
- (9) Show him the STS-129 Planning Shift Execute Package Humor (the buck won't get it either and trot away)
- (8) Don't be a Doe
- (7) If you go jogging at the Gilruth, be sure to run with Scorch
- (6) Stay off site if the local Furrie Convention is touring NASA
- (5) Don't jog with white shorts
- (4) Don't brag that you've seen his cousin on your Uncle Mike's wall
- (3) Yell, “*Hold my deer and watch this!*”
- (2) *When you go jogging at gilruth, go with a cheesy-mustached faced pirate wanna be Flight Director and be sure you are faster than he is.*

... and the #1 WAY TO AVOID A BUCK IN THE RUT ...

- (1) If Scorch is in a rut, don't go jogging with him



Deer brake dancing



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MSG 053B - FD07 FLIGHT PLAN REVISION

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MSG INDEX

<u>MSG NO.</u>	<u>TITLE</u>
MSG053	FD07 Flight Plan Revision
MSG054	FD07 Mission Summary
MSG055	FD06 MMT Summary
MSG056	FD07 Transfer Message
MSG057	FD07 PAO Event Summary - WTTG-TV / Bay News 9 / WBBM Radio
MSG058	FD07 PAO Event Summary - Tennessee Technological University
MSG059	Crew Choice Downlink
MSG060	Preliminary UPA DA Return Plan and 5 MLE Bag Layouts
MSG061	EVA 3 Summary Timeline
MSG062	FD07 EVA Deltas
MSG063	Lab Heat Exchanger TA Clamp Release Briefing Package
MSG064	FD07 EVA Tool Config

1. Post-Sleep Cryo Config

For today's Post-Sleep cryo config, O2 Tanks 1 and 2 and H2 Tanks 2 and 5 will be active. We are expecting that H2 Tank 5 will be depleted in approximately 8 hours, at which point we will be asking for the steps below to reconfigure to H2 Tank 4.

**R1 O2,H2 MANF VLV TK2 (two) - OP (tb-OP)  
O2 TK1 HTRS A,B (two) - AUTO**

**A11 CRYO TK4 HTRS H2 A,B (two) - OFF**

**A15 CRYO TK5 HTR O2 A - OFF  
HTRS H2 A,B (two) - AUTO**

H2 TK5 Depletion Cryo Config

On MCC GO or prior to pre-sleep cryo config, please perform the following steps for depletion of H2 TK5:

**A15 CRYO TK5 HTRS H2 A,B (two) - OFF**

**A11 CRYO TK4 HTRS H2 A,B (two) - AUTO**

Pre-Sleep Cryo Config

√MCC for deltas prior to configuring for Pre-Sleep.

For tonight's Pre-Sleep cryo config, Manifold 2 will be closed with O2 Tanks 2 and 5 and H2 Tanks 2 and 4 active.

**A15 CRYO TK5 HTR O2 A - AUTO**

**R1 O2 TK1 HTRS A,B (two) - OFF  
O2,H2 MANF VLV TK2 (two) - CL (tb-CL)**

MSG 053B - FD07 FLIGHT PLAN REVISION

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- 2. Due to the inaccessibility of MO63P, for DC Vacuum ops, the crew can use **ML85E, J22** prior to the Transfer of MDS on Flight Day 9.

During the scheduled Filter Cleaning on Flight Day 11, the crew can unplug the KFX Machine & Cabling from **MO13Q, J1** and use this outlet for the DC Vacuum. The KFX Machine has a battery life that should last the duration of the scheduled Filter Cleaning. Once the Filter Cleaning is complete the KFX Machine should be plugged back into **MO13Q, J1**.

Using unapproved outlets may result in excess current opening upstream circuit breakers and/or may result in insufficient voltage for affected equipment.

- 3. In order to better understand and track the issues associated with the Photo/TV cables, can you please let us know what cables have failed?
- 4. PFC for MS2 will be performed in the ISS via S-Band for audio and KU-Band for video. Please call down SSC preference before the conference and make sure that all applications besides Netmeeting have been closed. FE-5 will assist you in configuring the SSC and the ATU comm panel prior to the PFC.

**5. UPA DA Return Plan**

The UPA DA removal, packing and transfer has been targeted for FD8/GMT 327. There is time set aside for Frank to retrieve parts and tools from the JLP module, remove the UPA DA from the WRS 2 rack (LAB1P4) and pack it into a 5 MLE bag. Leland has time scheduled to gather packing materials and stow the UPA DA for return in the 5 MLE bag. Once this 5 MLE bag is back on the Shuttle middeck it will be stowed on the starboard side of the vehicle in the "ditch". The UPA has already been deactivated in prep for the DA removal. Frank's procedures, the UPA DA Prep (21-0418), and UPA DA Removal (21-0417), are uplinked on the ISS side. Our UPA DA Packing procedure is MSG 060 for your review. Let us know if you have any comments or questions.

- 6. REPLACE PAGES 2-22 AND 2-24, 3-68 THROUGH 3-75.

**REPLANNED**

**FD07**  
GMT 11/22/09 (326)

MET Day\_005

19 23 18 22 17 21 16 20 15 19 14 18 13 17 12 16 11 15 10 14 09 13 08 12

006/00

CDR HOBGAUGH	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	MEAL	XFER OPS	EXERCISE (ARED)		
PLT WILMORE	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	MEAL	EXERCISE (ARED)	XFER OPS		
MS1 MELVIN	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	MEAL	EXERCISE	EXERCISE		
MS2 BRESNIK	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	EXERCISE	EXERCISE	EVA TOOL CONFIG		
MS3 FOREMAN	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	MEAL	EXERCISE	EVA TOOL CONFIG		
MS4 SATCER	SLEEP	POST SLEEP	OFF DUTY	OFF DUTY	MEAL	EXERCISE	EVA TOOL CONFIG		
DAY/NIGHT ORBIT	88	89	90	91	92	93	94	95	96
TDRS WEZ									
ORB ATT MT/SSRMS POS									
NOTES									

\*PMR ON \*UNIVERSAL POINTING \*RPRS INIT

REPLANNED

FD07 GMT 11/22/09 (326) MET Day\_006 006/00 20 01 02 03 04 05 06 07 08 09 10 11 12

CDR HOBAUGH	PROC RWV	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP	ISS EXTERNAL SURVEYS			
PLT WILMORE	PROC RWV	PRE SLEEP		PRE SLEEP	SLEEP				
MS1 MELVIN	PROC RWV	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP				
MS2 BRESNIK	PROC RWV	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP				
MS3 FOREMAN	PROC RWV	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP				
MS4 SATCHER	PROC RWV	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP				
DAY/NIGHT ORBIT	96	97	98	99	100	101	102	103	104
TDRS									
ORB ATT MT/SSRMS POS									
NOTES									

S T S - 1 2 9

\*RPRS TERM

BIAS -XLV -ZVW  
MS3/PDGF1

STS-129/ULF3 FD07

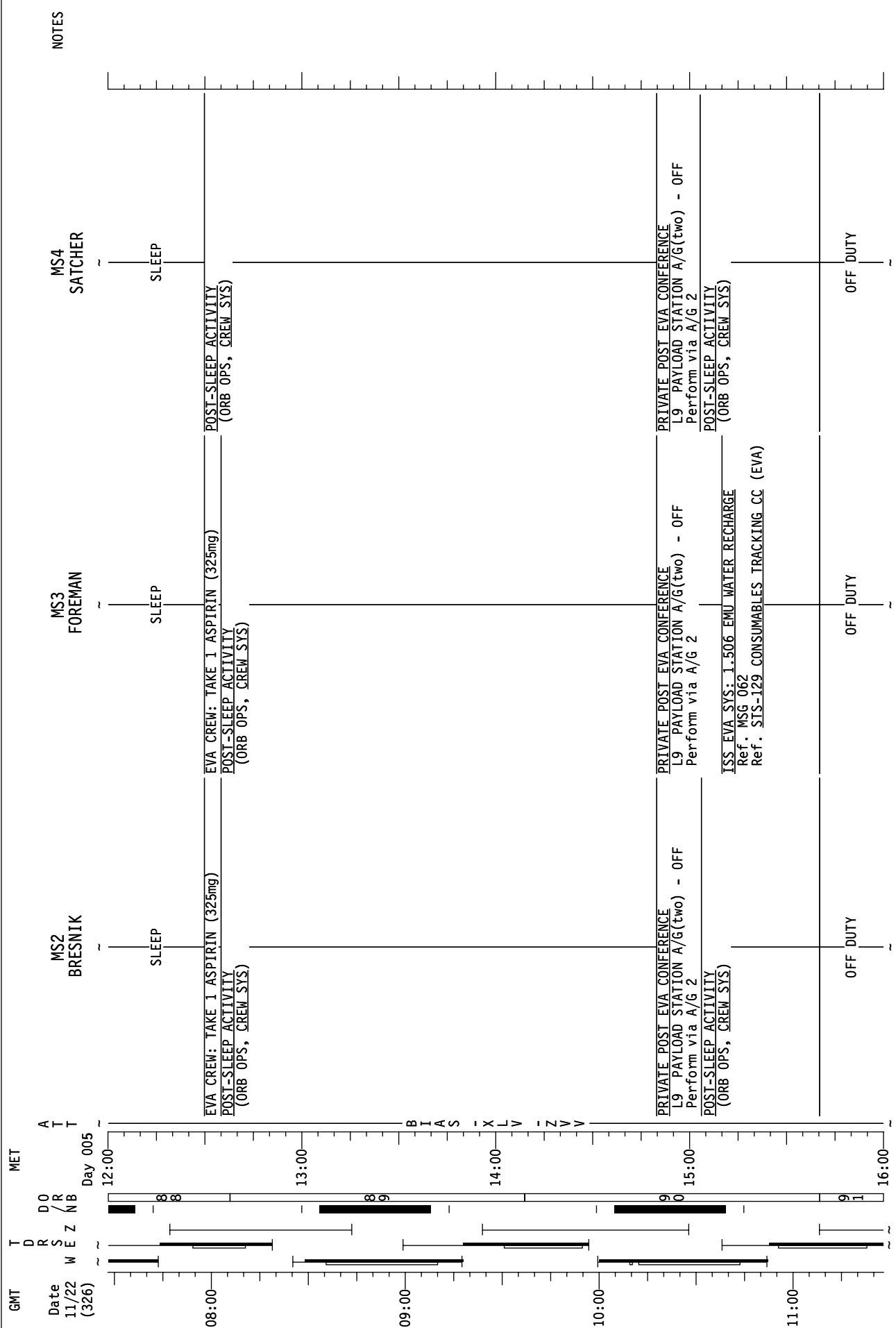
REPLANNED

GMT	DRS Date 11/22 (326)	W E Z	T D R S W E Z	MET Day 005	CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES	
08:00				12:00	SLEEP	SLEEP	SLEEP		
09:00				13:00	SLEEP	SLEEP	SLEEP		
10:00				14:00	SLEEP	SLEEP	SLEEP		
11:00				15:00	SLEEP	SLEEP	SLEEP		
16:00				16:00	SLEEP	SLEEP	SLEEP		
<p><b>SLEEP LOGBOOK (SDBI 1634)</b>  <u>POST-SLEEP ACTIVITY</u>            (ORB OPS, CREW SYS)</p>					<p><b>SLEEP LOGBOOK (SDBI 1634)</b>  <u>POST-SLEEP ACTIVITY</u>            (ORB OPS, CREW SYS)</p>				
<p><b>FD07 EZ ACTIVITIES:</b>            ✓OCAC FILTER &amp; MDDK DUCT SCREEN            TEPC (STATUS CHECK)            (ORB OPS, CREW SYS)            HARD REBOOT ALL PGSCs EXCEPT:            STS-1(OCA ROUTER), STS-5(RPOP2),            AND STS-6(WLES)</p>									
<p><b>A</b> Omit Steps 1,2,3            Use A/g 2 for audio            Inform MCC of which PGSC will be used</p>									
<p><b>ISS EVA SYSTEMS:</b> 1-605 BSA BATTERY RECHARGE            (TERM) Ref: STS-129 BATTERY RECHARGE_CC            ISS EVA SYS: 1-506 EMU WATER RECHARGE            Ref: MSG 062            Ref: STS-129 CONSUMABLES TRACKING CC (EVA)</p>									
<p>TV (ILLUMINATOR OPS)(P/TV, CC) ILL OFF - ALL            IMU STAR OF OPPTY_ALIGN (ORB OPS, GNC)            NETMEETING VIDEO CONFERRING(A)            (ORB OPS, PGSC) Private Family Conference            KU TDRE 15:28 -15:54            OFF DUTY</p>					<p>LI7 Check MCIU filter screen            GLACIER UNPACK &amp; POWERUP            (ASST OPS, PAYLOADS) Step 2 only            CGBA and ABRSS STATUS CK(CUE CARD) CGBA only.            OFF DUTY</p>				



STS-129/U/LF3 FD07

REPLANNED



STS-129/U/LF3 FD07

REPLANNED

GMT	Date 11/22 (326)	DRS W E Z	DO/R N B	MET Day 005	CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES
12:00			91	16:00		OFF DUTY		
13:00				17:00				
14:00				18:00	OFF DUTY			
15:00			93	19:00		OFF DUTY		
				20:00				

NETMEETING VIDEO CONFERENCING A  
(ORB OPS, PGSC) Private Family Conference  
KU TDRW 16:23 - 16:59

A Omit Steps 1,2,3  
Use A/G 2 for audio  
Inform MCC of which PGSC will be used

PRIVATE FAMILY CONFERENCE  
L9 PAYLOAD STATION A/G(two) - OFF  
Perform via A/G 2

UPDATE UNV PTG  
MNVR (TRK) BIAS -XLV +ZVV  
T6=2 BV=5 P=162.53 Y=359.47 OM=167.26  
VA/FREE/VERN, Init TRK

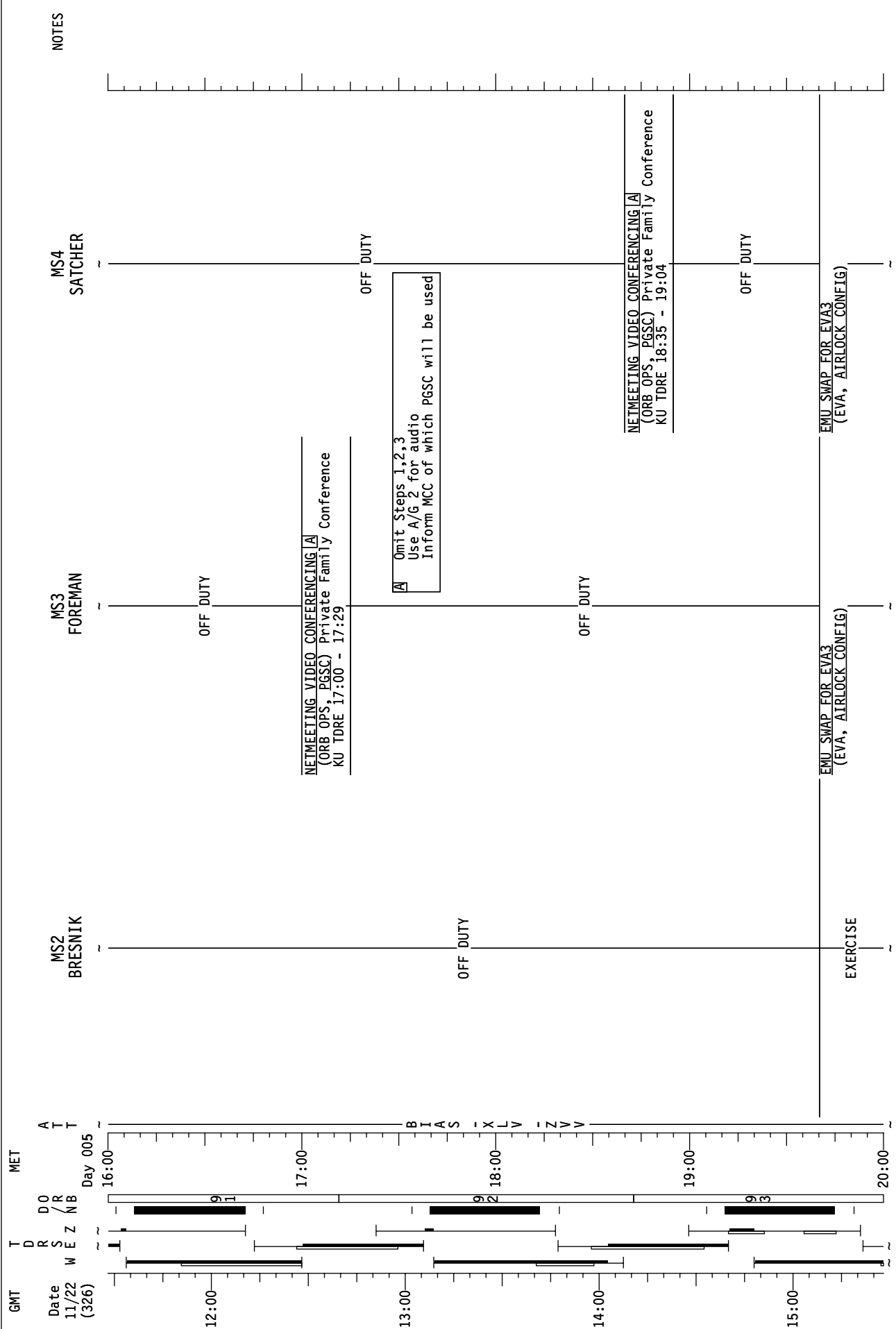
DAILY TRANSFER LIST UPDATE  
Ref. Transfer List & MSG 056

MEAL

MEAL

STS-129/ULF3 FD07

REPLANNED



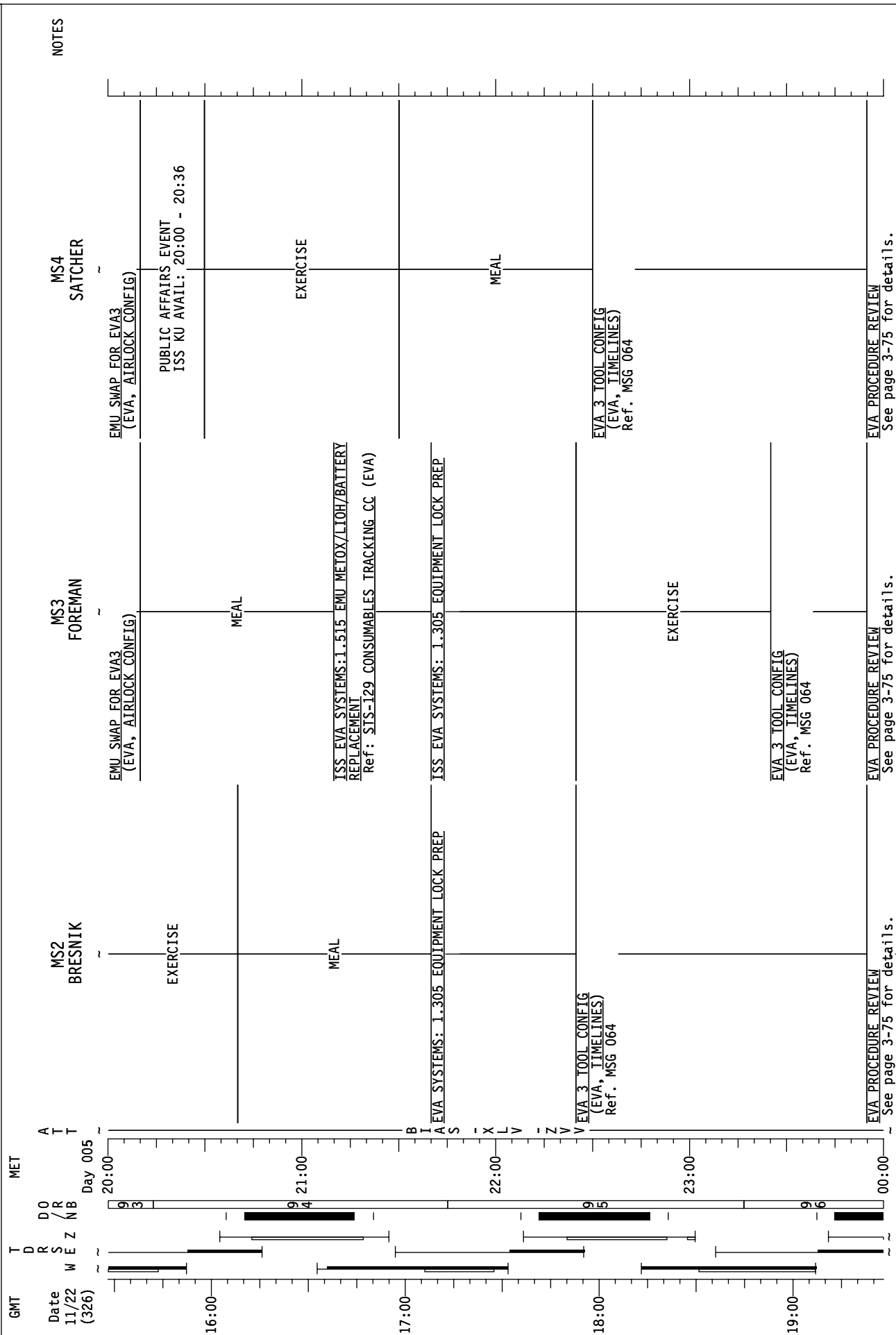
STS-129/ULF3 FD07

REPLANNED

GMT	DATE (326)	TIME	CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES
16:00	11/22	20:00 - 21:00	MEAL	MEAL	PUBLIC AFFAIRS EVENT ISS KU AVAIL: 20:00 - 20:36	
		21:00	SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION	APER THERMAL SHIELD REMOVAL (EVA, TOOLS AND STORAGE) Perform for APPR #5 Discard Ziplock bag containing heat shield pieces in ISS dry trash	MEAL	
			CMC TRANSFER Transfer 1 CMC to ISS			
			TRANSFER OPS Ref. Transfer List & MSG 056			
17:00		22:00	PUBLIC AFFAIRS EVENT ISS KU AVAIL: 21:41 - 22:23	PUBLIC AFFAIRS EVENT ISS KU AVAIL: 21:41 - 22:23	PUBLIC AFFAIRS EVENT ISS KU AVAIL: 21:41 - 22:23	
			TRANSFER OPS Ref. Transfer List & MSG 056			
			EXERCISE ARED if available	EXERCISE ARED if available		
18:00		23:00	TRANSFER OPS Ref. Transfer List & MSG 056	TRANSFER OPS Ref. Transfer List & MSG 056	TRANSFER OPS Ref. Transfer List & MSG 056	
			EXERCISE ARED if available			
			EXERCISE ARED if available			
19:00			EXERCISE ARED if available		EXERCISE	
			N2 REPRESS USING PAYLOAD N2 VLVS [B] EVA PROCEDURE REVIEW See page 3-74 for details.			
			N2 REPRESS USING PAYLOAD N2 VALVES (ORB OPS, ECLS) Perform REPRESS SETUP AND INIT Steps 3-7 MCC will TMBU S/W FDA. H/W already INH.			
			EVA PROCEDURE REVIEW See page 3-74 for details.	EVA PROCEDURE REVIEW See page 3-74 for details.	EVA PROCEDURE REVIEW See page 3-74 for details.	

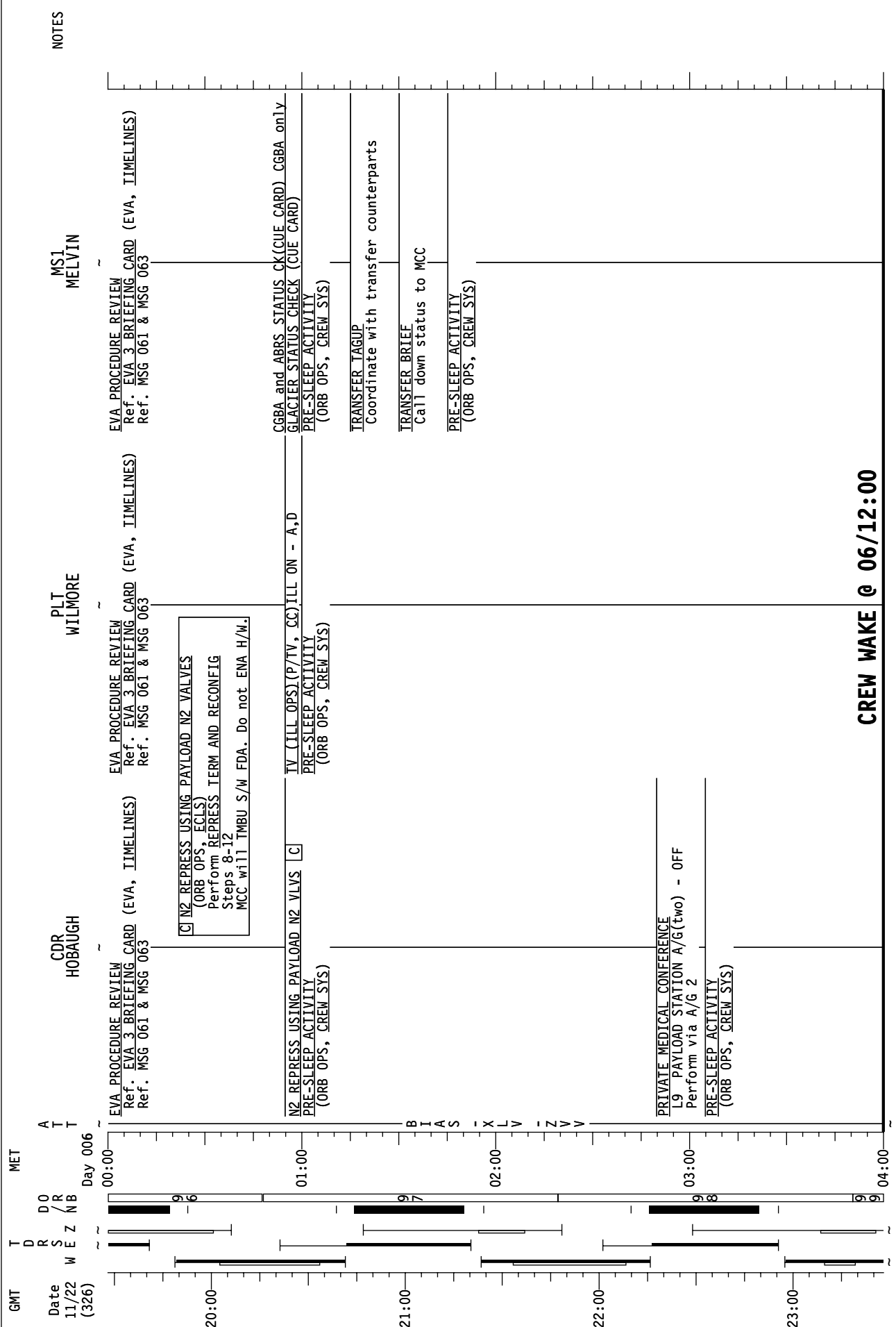
STS-129/ULF3 FD07

REPLANNED



STS-129/ULF3 FD07

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STS-129/U/LF3 FD07

REPLANNED

GMT	Date 11/22 (326)	T D R S W E Z	MET Day 006	MS2 BRESNIK	MS3 FOREMAN	MS4 SATCHER	NOTES
20:00			00:00	EVA PROCEDURE REVIEW Ref. EVA 3 BRIEFING CARD (EVA, TIMELINES) Ref. MSG 061 & MSG 063	EVA PROCEDURE REVIEW Ref. EVA 3 BRIEFING CARD (EVA, TIMELINES) Ref. MSG 061 & MSG 063	EVA PROCEDURE REVIEW Ref. EVA 3 BRIEFING CARD (EVA, TIMELINES) Ref. MSG 061 & MSG 063	
21:00			01:00	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
22:00			02:00	PRIVATE FAMILY CONFERENCE Ref. MSG 053, Item 4 ISS KU: 01:57 - 02:35			
23:00			03:00	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
04:00			04:00	ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT MASK PREBREATHE	ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT MASK PREBREATHE	ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT MASK PREBREATHE	
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				<b>CREW WAKE @ 06/12:00</b>			

MSG 054 - FD07 MISSION SUMMARY

1  
2 Good morning Atlantis! Great job on EVA2 - enjoy your half day off!

3  
4  
5 YOUR CURRENT ORBIT IS: 188 X 180 NM

6  
7 **NOTAMS:        NO CHANGES**

8  
9        EDW - LAKEBED RWY 15/33 GREEN - ELS ONLY. RWY 18L - UNUSABLE.  
10        NOR - LAKEBED RUNWAYS GREEN.  
11        YQX - TACAN YQX CH74 OTS.  
12        LAJ - TACAN LAJ45 OTS.  
13        PTN - AIRFIELD CLOSED.  
14        GUA - RWY 06R/24L CLOSED. RWY 06L REIL OTS.  
15        KKI- RWY 15R/33L CLOSED. 15L/33R USABLE.  
16        IKF - NOT USABLE. NO AGREEMENT.  
17        BEN - NOT RECOMMENDED/NOT SUPPORTED.

18  
19 **NEXT 2 PLS OPPORTUNITIES:**

20  
21 NOR17 ORB 95 – 5/22:37 FEW200 7 090/02P03  
22 EDW04 ORB111 – 6/22:58 FEW200 7 030/05P08

23  
24 **OMS TANK FAIL CAPABILITY:**

25  
26 L OMS FAILS:        NO  
27 R OMS FAILS:        NO

28  
29 **LEAKING OMS PRPLT BURN:**

30  
31 L OMS LEAK:        ALWAYS BURN RETROGRADE  
32 R OMS LEAK:        ALWAYS BURN RETROGRADE

33  
34 **OMS QUANTITIES(%)**

35  
36 L OMS OX = 38.5        R OMS OX = 38.8  
37        FU = 38.5                FU = 38.4

38  
39 Subtract interconnect counter for current OMS quantities.



MSG 054 - FD07 MISSION SUMMARY

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DELTA V AVAILABLE:

OMS	407 FPS
<u>ARCS (TOTAL ABOVE QTY1)</u>	<u>37 FPS</u>

TOTAL IN THE AFT 444 FPS

ARCS (TOTAL ABOVE QTY2)	70 FPS
FRCS (ABOVE QTY 1)	40 FPS

AFT QTY 1 85 %

AFT QTY 2 47 %

THERE ARE NO FAILURE/IMPACT/WORK AROUNDS FOR TODAY.

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The MMT met today to review mission progress and orbiter systems. The mission is progressing per the nominal timeline and EVA 2 was underway during the MMT. Atlantis and her crew are doing great and no new system anomalies were discussed. The MRM2 manual initiation of rapid depress, fire, and toxic atmosphere has been inhibited. This action should prevent subsequent false alarms. In addition, the MMT reviewed and concurred with the Distillation Assembly packing plan. The packing procedures will be uplinked tonight.

# MSG 056A (21-0481A) - FD07 TRANSFER MESSAGE

Page 1 of 21

1  
2 Good Morning Leland and Mike,

3  
4 You are still doing extremely well on transfer, you are now 50% complete! Thank You for  
5 all your hard work and we appreciate how much transfer you have done already in the flight  
6 and we hope we can continue to keep up with you. Today for transfer you have the CUCU  
7 install and generic transfer ops. I have again listed the unconstrained Resupply and Return  
8 items.

## 9 10 Transfer Notes

- 11
- 12 • **Return Sort:** We have uplinked the return sort pages for you to use a reference if  
13 needed.
- 14
- 15 • **5 MLE Return Bag Layouts:** Tracy has worked tirelessly to provide you with  
16 Return bag layouts. You can find these in MSG 60 (21-0486). You will notice that  
17 Bag I is not shown. We are currently working on that configuration and will have  
18 that drawing ready for you on FD08.
- 19
- 20 • **UPA-DA Packing Plan:** This is currently scheduled on FD08 and Leland has been  
21 scheduled to help pack and transfer the DA. The DA Packing Plan has been  
22 uplinked with the 5 MLE bag drawings.
- 23
- 24 • **ULF3 Return Bags 403, 406 and 412:** An EDV-U is being added to Return (it  
25 won't be on the Transfer List until FD08) and it will be stowed in Bag I. With this  
26 addition, the following items have been deleted from Return: 403, 406 and 412.  
27 This configuration was only approved today and I apologize for you already packing  
28 Bag 412 and now having to unpack it and leave it on ISS. We would like you to  
29 move Bag 412 back to NOD2D2 and keep 403 and 406 in NOD2D2.
- 30
- 31 • **Comm Caps in Bag 403:** Most of Bag 403 is staying on ISS, but we would like you  
32 to pull out the two comm caps (S/N 1168 and 1171). These items are reflected in  
33 your transfer list.
- 34

35 The Transfer List Excel file, FD07\_Transfer\_List\_STS129.xls, locations are:

- 36 • Shuttle: **C:\OCA-up\transfer** (KFX machine)
- 37 • Station: **K:\OCA-up\transfer**

## 38 39 FD07 Choreography

- 40 • **Items 29.1, 29.2, & 29.3:** Transfer CUCU items per CUCU TRANSFER & INSTALL  
41 activity
- 42 • **Generic Transfer Ops**
  - 43 ○ **Unconstrained items:**
    - 44 ▪ **Resupply:** 54, 55, and 62
    - 45 ▪ **Return:** 404, 405, 410, 418, 419, 420, 600, 601, 602, 603, 609, 610,  
46 731 and 900
  - 47
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**MSG 056A (21-0481A) - FD07 TRANSFER MESSAGE**

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**Please incorporate uplink pages as follows (we've listed the updates in the order they printed out for you):**

In the Transfer List **RETURN** tab

Replace the following pages:

Return 1 thru 11

Add the following pages:

Return 12 and 13

In the Transfer List **RETURN LOCATION SORT** tab

Add the following pages:

RETURN SORT 1 thru 6

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

**MIDDECK RETURN**

Item 402 - updated final location

Item 403 - deleted

Item 403.1 - new item

Item 403.2 - new item

Item 404 thru 406 - updated final location

Item 408 thru 409 - updated final location

Item 600 - updated final location

Item 602 thru 604 - updated final location

Item 606 thru 610 - new items

Item 705 thru 709 - updated final location

Item 902 thru 904 - updated final location

**FD08 Choreography**

- **Item 902:** Transfer WRS Distillation Assembly per WRS XFER activity

- Generic Transfer Ops

Have an extraordinary day and let us know if you have any questions!

- The STS-129 Transfer Team

MSG 059 - FD07 CREW CHOICE DOWNLINK

1

TDRS	AOS	LOS	Delta (min)	Notes
W	06/02:05	06/02:40	35	
W	06/03:42	06/03:51	9	

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Note: Please notify MCC-H 10 minutes prior to the event to allow for ground network configuration.

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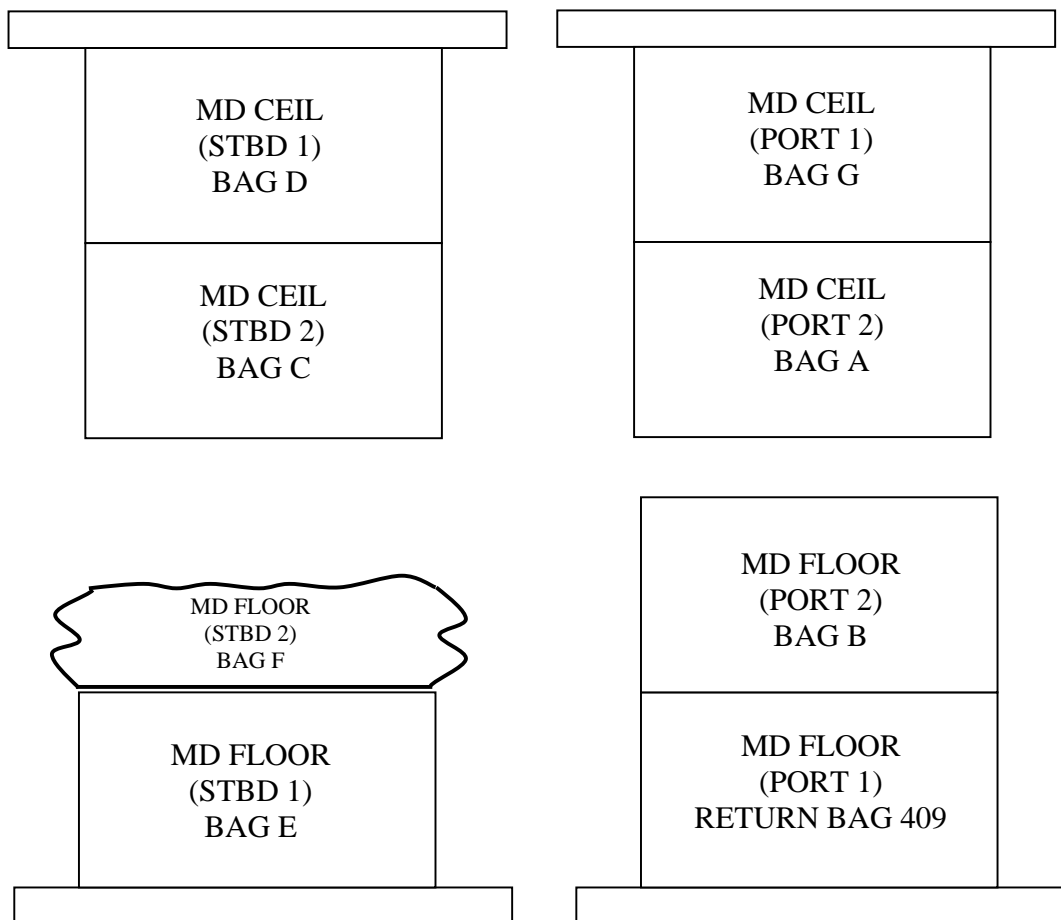
**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

Page 1 of 8

Good morning STS-129 Flight Crew,

The following pages contain the preliminary UPA DA Return Stowage Plan along with the 5-MLE Bag layouts. The UPA DA removal, packing and transfer is scheduled for FD8 and we would like your comments on the procedure prior.

-The STS-129 Middeck Stowage Team



**VIEW: DITCH LOOKING AFT**

**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

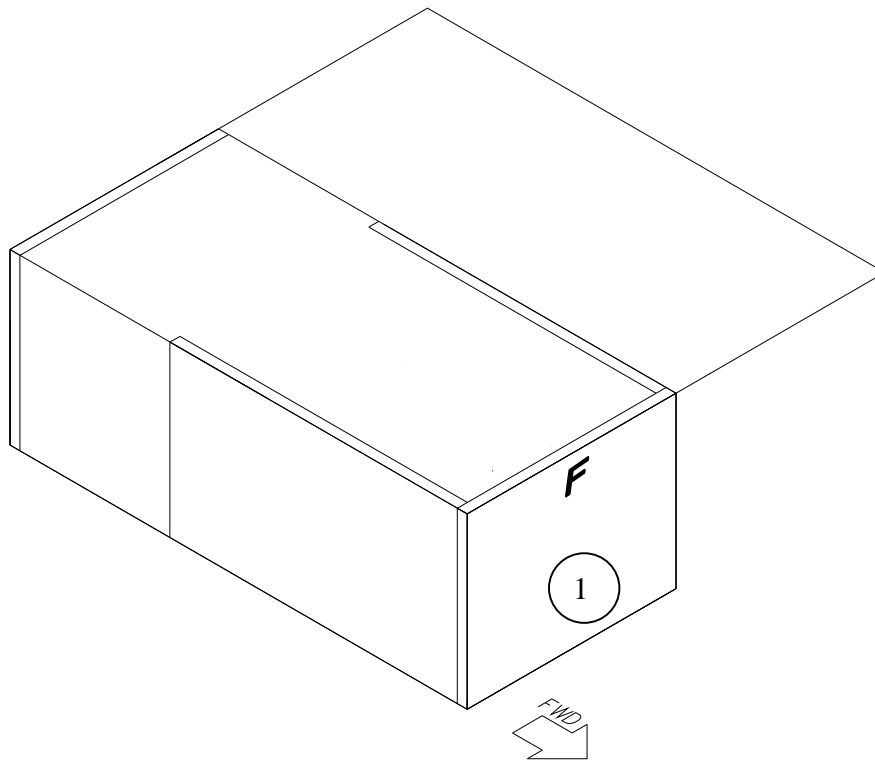
Page 2 of 8

UPA DA Return Stowage Plan

**NOTE**

**For simplification the visual aids of this plan have assigned numbers to the foam required to complete this stowage plan. The foam itself does not have numbers.**

1. Retrieve the needed cushions from Bags F and D as follows:
  - 1.1 Retrieve one of the end pieces of Bag F (Shown as number 1 below).

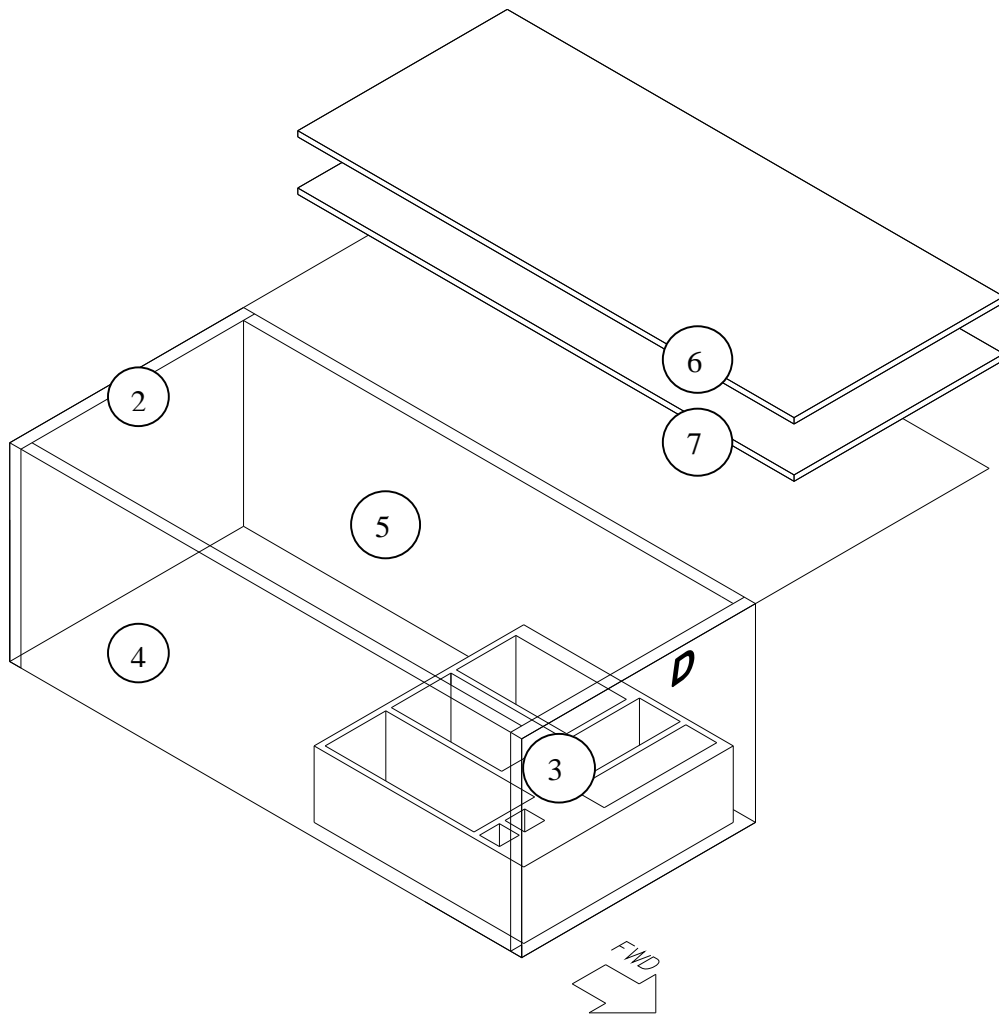


**NOTE: REFERENCE BAG LAYOUT FOR FINAL RETURN CONFIGURATION**

**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

Page 3 of 8

- 1.2 Retrieve six foam pieces from Bag D as shown below: two end pieces numbered 2 and 3, two side pieces numbered 4 and 5, and two top pieces numbered 6 and 7.



NOTE: REFERENCE BAG LAYOUT FOR FINAL RETURN CONFIGURATION



## MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS

Page 4 of 8

2. Configure the retrieved foam in Bag E for the Return of the UPA DA.

2.1 Prior to configuring Bag E it should already have five pieces of foam (2 end pieces, 2 side pieces, and 1 “loose piece”) and the BCM cushion.

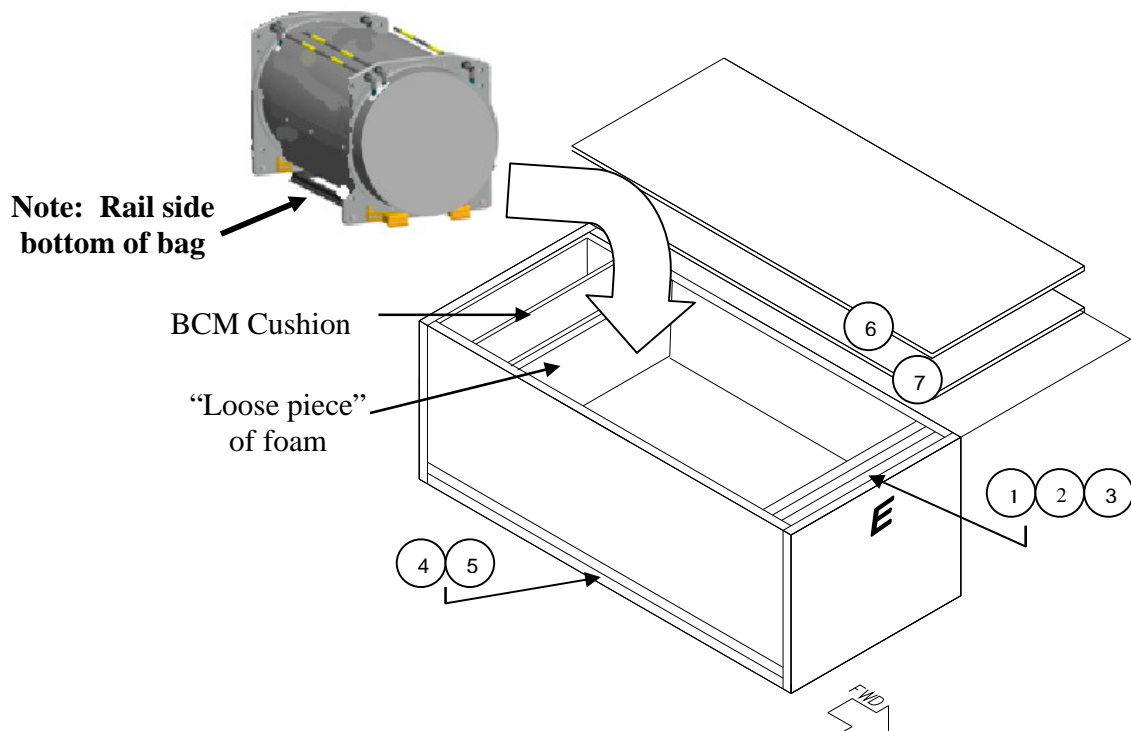
2.2 Bag E should be configured as follows:

2.2.1 First, place foam pieces number 4 and 5 at the bottom of the bag.

2.2.2 Then add foam pieces number 1, 2, and 3 next to foam at the FWD end

2.2.3 Place “loose piece” of foam against BCM cushion at AFT end of the bag.

2.2.4 Stow UPA DA as shown below



3. Closeout of Bag and Report status/completion of plan.

**CAUTION: THE AFT END MUST HAVE A SNUG FIT TO PROTECT THE HARDWARE AND PREVENT MOVEMENT ABOUT.**

3.1 After UPA DA stowage, place Transfer Line Item 603 underneath BCM cushion.

3.2 Fill out bag with empty CTBs, HCTBs, and/or any miscellaneous pieces of foam.

Note: Pay close attention to the tubing when filling out the bag since these must be protected

3.3 Place the last two pieces of foam (6, 7) lengthwise over the UPA DA to protect tubing

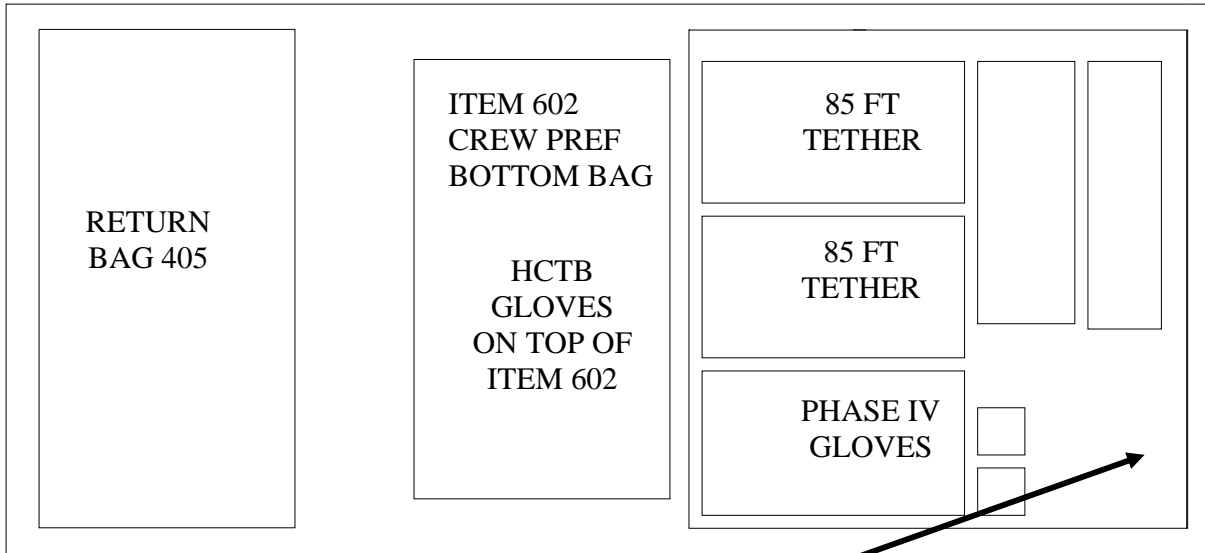
3.4 Report to MCC closure/completion of plan.

Page 4 of 8, MSG 060A (21-0486A)

**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

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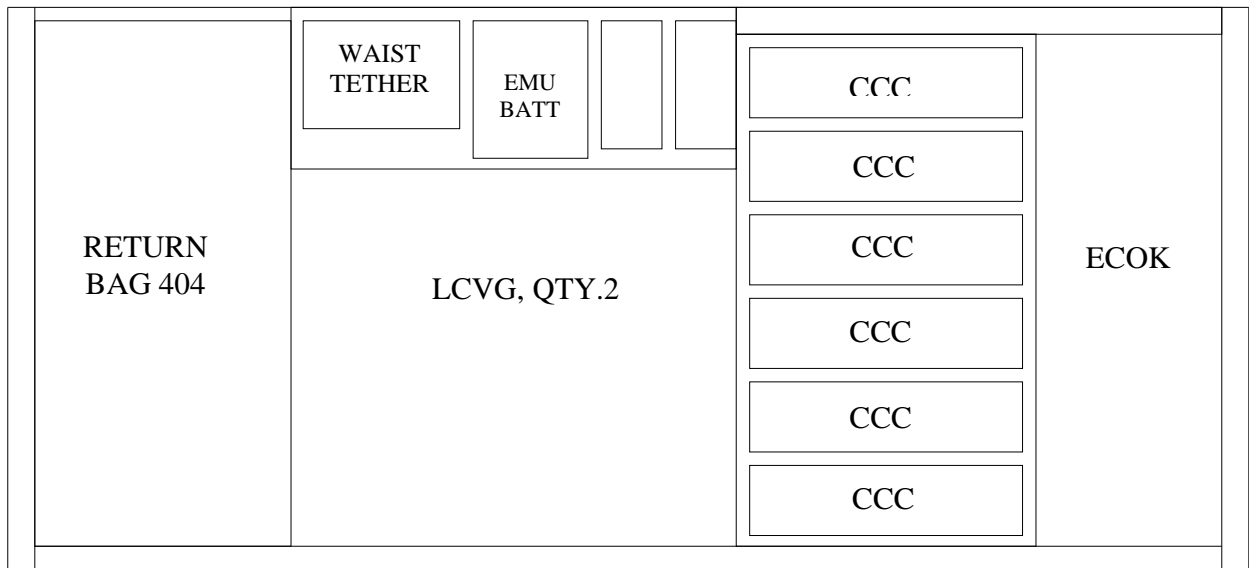
**MD CEIL ST BD 1 (BAG D) – TOP VIEW OF BAG**



PLACE ECOK ON TOP OF 85 FT TETHER CUSHION



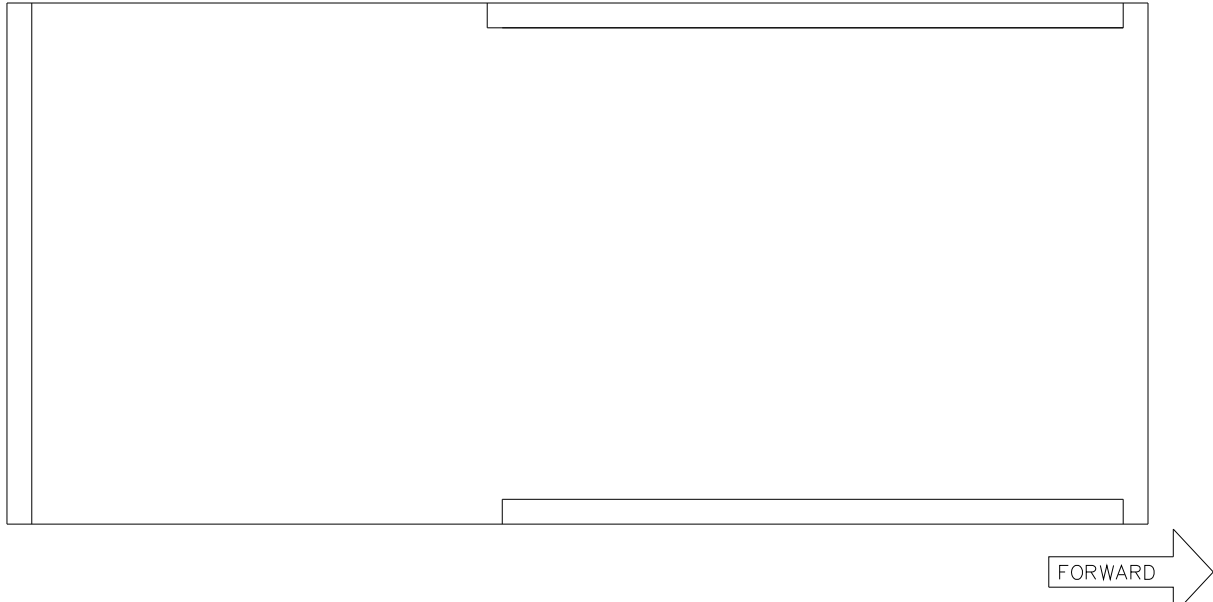
**MD CEIL STBD2 (BAG C) – TOP VIEW OF BAG**



**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

Page 6 of 8

**MD FLOOR STBD 2 (BAG F)**



Note: Lay all pieces of foam at bottom of bag as follows:

- Two side pieces overlapping FWD to AFT of bag
- End piece placed on top of side pieces on the FWD end of Bag

This bag will be returned on top of bag E (UPA DA) and steps listed above will protect tubing from strap loading.

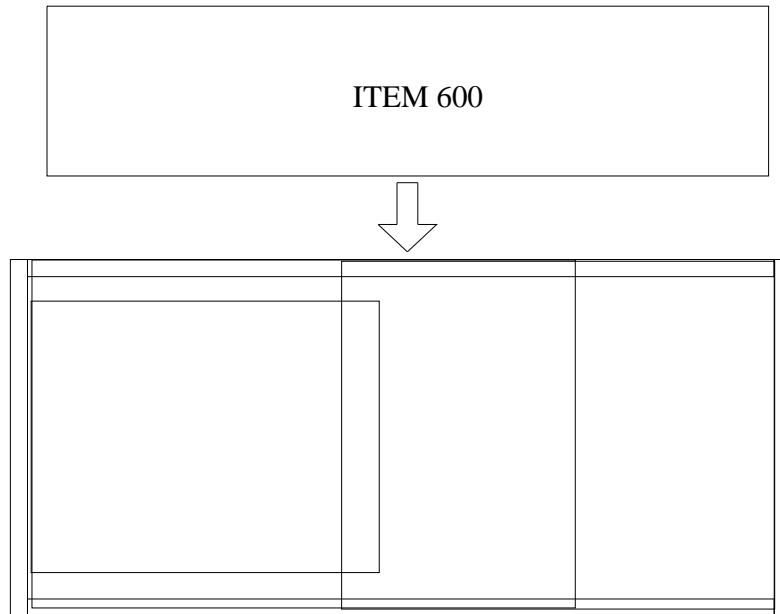
**MD FLOOR (STBD 1) BAG E**

Return configuration is listed on pages 2 thru 4 (UPA-DA Return Plan)

**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

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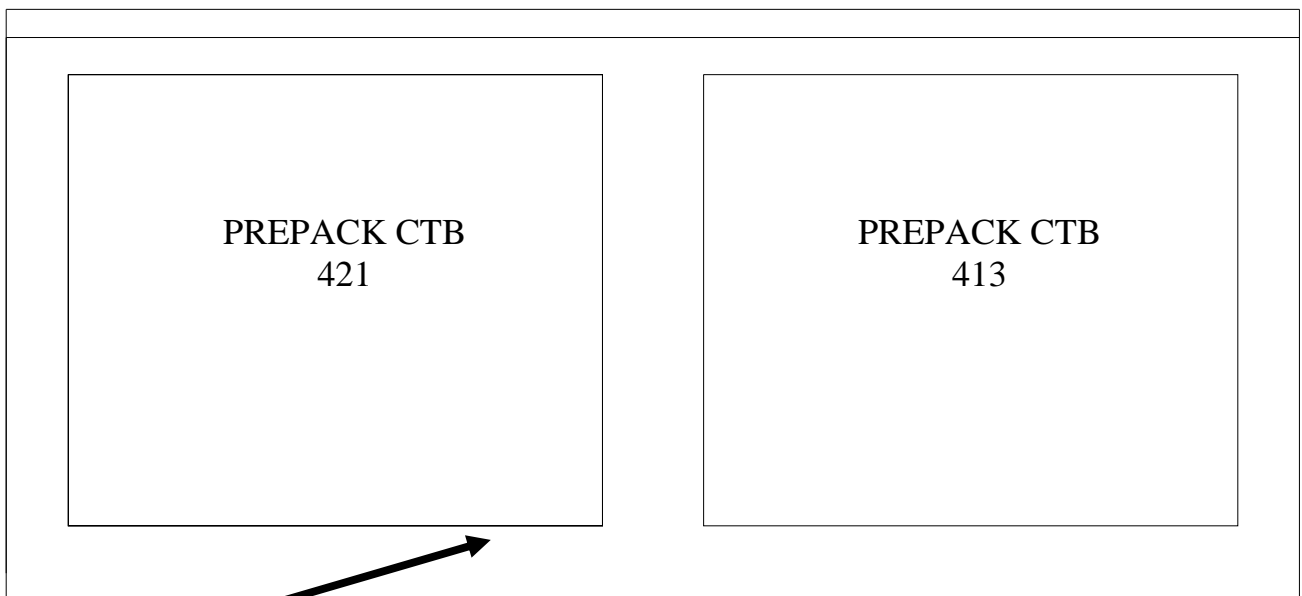
**MD CEIL PORT 1 (BAG G) – TOP VIEW OF BAG**



- Arrange pieces of foam in bottom of bag
- Place item 600 on top of arranged foam and center in bag
- Fill voids with laundry and/or empty CTBs



**MD CEIL PORT 2 (BAG A) – TOP VIEW OF BAG**



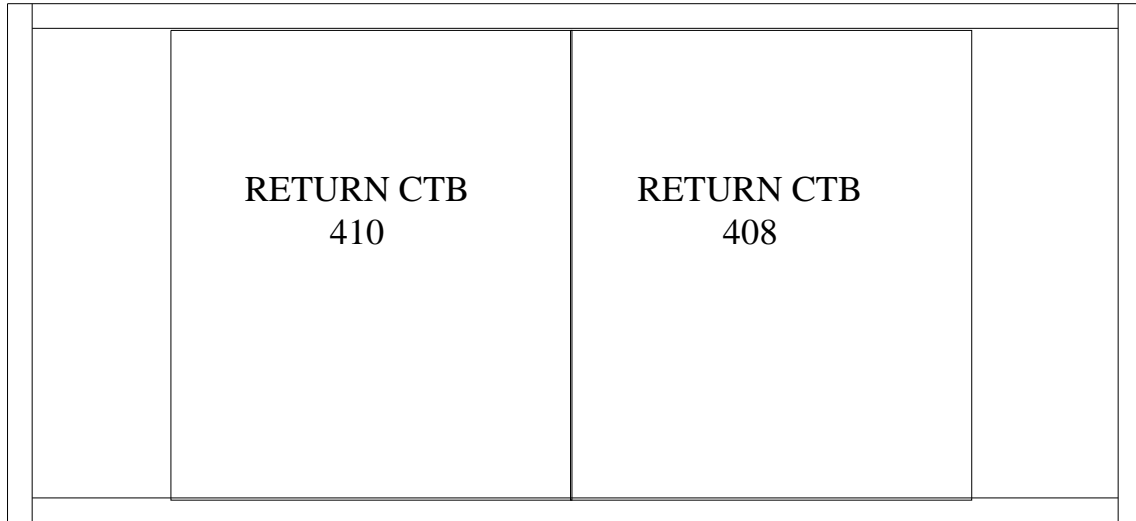
Place Silver Biocide Kit, Mineral Kit and Sample/Purge Kit as best fit in bag.



**MSG 060A (21-0486A) - PRELIMINARY UPA DA RETURN PLAN AND 5 MLE BAG LAYOUTS**

Page 8 of 8

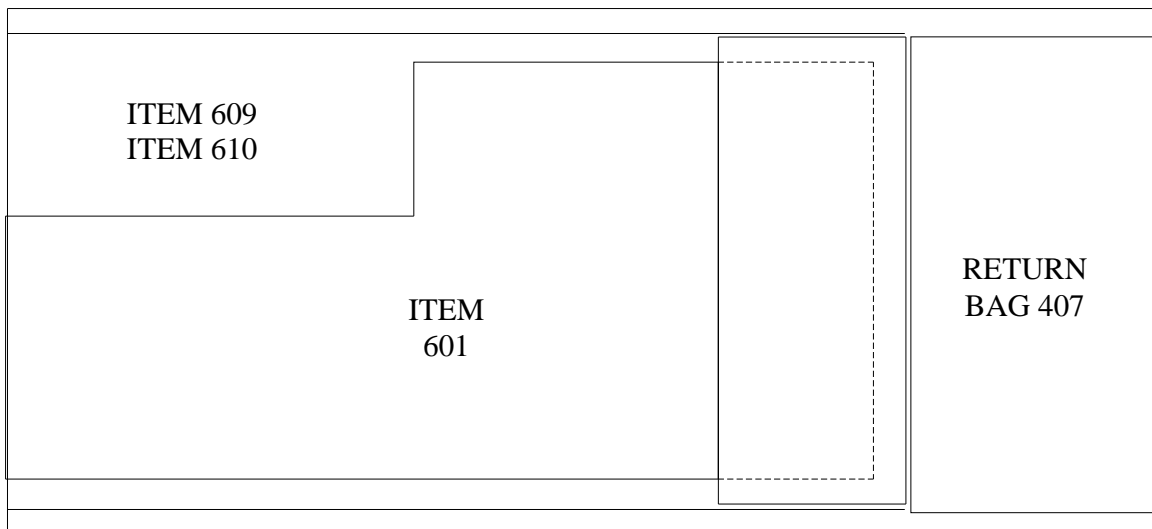
**MD FLOOR PORT 2 (BAG B)**



ARRANGE AS SHOWN



**MD FLOOR PORT 1 (RETURN BAG 409)**



1 Here are 2 EVA 3 timeline options under consideration. We are currently thinking the 2 MMOD Shield option is preferable  
2 with the 1 MMOD Shield option as a fall back if the first shield does not go as expected. These tasks are still under  
3 review. Your EVA 3 tool config will support for either option. Your EVA team will be discussing these options and your  
4 preferences during the tagup this morning.  
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EVA 3 SUMMARY TIMELINE - TWO MMOD SHIELDS

PET HR : MIN	IV/SSRMS	EV2 (Sa)	EV3 (Br)
00:00		<p>EGRESS/SETUP (00:30)</p> <ul style="list-style-type: none"> <li>• Post Depress and Egress (00:15)</li> <li>• Setup (00:15)</li> </ul> <p>HPGT TRANSFER &amp; MISSE 7 INSTALL (03:00)</p> <ul style="list-style-type: none"> <li>• HPGT Setup (01:00)</li> </ul>	<p>EGRESS/SETUP (00:30)</p> <ul style="list-style-type: none"> <li>• Post Depress and Egress (00:15)</li> <li>• Setup (00:15)</li> <li>• APFR 5 Install</li> </ul> <p>HPGT TRANSFER &amp; MISSE 7 INSTALL (03:00)</p> <ul style="list-style-type: none"> <li>• Retrieve MISSE PECs (00:45)</li> </ul>
01:00		<ul style="list-style-type: none"> <li>• Hand off HPGT to SSRMS (00:15)</li> </ul>	<ul style="list-style-type: none"> <li>• Install MISSE PEC Bundle (00:15)</li> <li>• Hand off HPGT to SSRMS (00:15)</li> </ul>
02:00	<ul style="list-style-type: none"> <li>• Maneuver HPGT to A/L (00:45)</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare AVL (00:30)</li> <li>• Install HPGT (01:15)</li> </ul>	<ul style="list-style-type: none"> <li>• Install &amp; Deploy MISSE PECs (00:30)</li> <li>• Install HPGT (01:15)</li> </ul>
03:00			
04:00		<p>AVL MMOD SHIELDS (00:30)</p> <ul style="list-style-type: none"> <li>• Open HPGT 1 &amp; 5</li> </ul> <p>LTL HX TA CLAMP RELEASE (00:45)</p>	<p>AVL MMOD SHIELDS (00:30)</p> <ul style="list-style-type: none"> <li>• Open HPGT 1 &amp; 5</li> </ul> <p>LTL HX TA CLAMP RELEASE (00:45)</p>
05:00		<p>MTL HX TA CLAMP RELEASE (00:45)</p>	<p>MTL HX TA CLAMP RELEASE (00:45)</p>
06:00		<p>S1 ATA BOLT #1 RELEASE (00:20)</p> <p>CHEATER BAR STOW (00:15)</p> <p>CLEANUP/INGRESS (00:25)</p> <ul style="list-style-type: none"> <li>• Cleanup (00:10)</li> <li>• Ingress and Pre-Press (00:15)</li> </ul>	<p>P1/P3 FLUID JUMPER INSTALL (00:30)</p> <p>CLEANUP/INGRESS (00:30)</p> <ul style="list-style-type: none"> <li>• Cleanup (00:15)</li> <li>• Ingress and Pre-Press (00:15)</li> </ul>
06:30			

EVA 3 SUMMARY TIMELINE - ONE MMOD SHIELD

PET HR : MIN	IV/SSRMS	EV2 (Sa)	EV3 (Br)
00:00		<p><u>EGRESS/SETUP (00:30)</u></p> <ul style="list-style-type: none"> <li>• Post Depress and Egress (00:15)</li> <li>• Setup (00:15)</li> </ul> <p><u>HPGT TRANSFER &amp; MISSE 7 INSTALL (03:00)</u></p> <ul style="list-style-type: none"> <li>• HPGT Setup (01:00)</li> </ul>	<p><u>EGRESS/SETUP (00:30)</u></p> <ul style="list-style-type: none"> <li>• Post Depress and Egress (00:15)</li> <li>• Setup (00:15)</li> <li>• APFR 5 Install</li> </ul> <p><u>HPGT TRANSFER &amp; MISSE 7 INSTALL (03:00)</u></p> <ul style="list-style-type: none"> <li>• Retrieve MISSE PECs (00:45)</li> </ul>
01:00	<ul style="list-style-type: none"> <li>• Maneuver HPGT to A/L (00:45)</li> </ul>	<ul style="list-style-type: none"> <li>• Hand off HPGT to SSRMS (00:15)</li> </ul>	<ul style="list-style-type: none"> <li>• Install MISSE PEC Bundle (00:15)</li> <li>• Hand off HPGT to SSRMS (00:15)</li> </ul>
02:00		<ul style="list-style-type: none"> <li>• Prepare AVL (00:30)</li> <li>• Install HPGT (01:15)</li> </ul>	<ul style="list-style-type: none"> <li>• Install &amp; Deploy MISSE PECs (00:30)</li> <li>• Install HPGT (01:15)</li> </ul>
03:00			
04:00		<p><u>AVL MMOD SHIELDS (00:30)</u></p> <ul style="list-style-type: none"> <li>• Open HPGT 1 &amp; 5</li> </ul> <p><u>HX TA CLAMP RELEASE (00:45)</u></p>	<p><u>AVL MMOD SHIELDS (00:30)</u></p> <ul style="list-style-type: none"> <li>• Open HPGT 1 &amp; 5</li> </ul> <p><u>HX TA CLAMP RELEASE (00:45)</u></p>
05:00		<p><u>S1 ATA BOLT #1 RELEASE (00:20)</u></p> <p><u>CHEATER BAR STOW (00:15)</u></p> <p><u>MSS TASKS (00:30)</u></p> <ul style="list-style-type: none"> <li>• Connector Insulating Sleeve Install</li> <li>• Camera Cover Install - LEE A</li> <li>• Camera Cover Install - MBS</li> </ul> <p><u>APFR 3 RELOCATION (00:15)</u></p> <p><u>CLEANUP/INGRESS (00:25)</u></p> <ul style="list-style-type: none"> <li>• Cleanup (00:10)</li> <li>• Ingress and Pre-Press (00:15)</li> </ul>	<p><u>P1/P3 FLUID JUMPER INSTALL (00:35)</u></p> <p><u>S1/S3 FLUID JUMPER INSTALL (00:35)</u></p> <p><u>CLEANUP/INGRESS (00:35)</u></p> <ul style="list-style-type: none"> <li>• Cleanup (00:20)</li> <li>• Ingress and Pre-Press (00:15)</li> </ul>
06:00			
06:30			



FD 7 EVA Deltas Message

**EVA 3 big picture words:**

Due to the success of EVA 2, EVA 3 will now contain several additional tasks from your get ahead list. We would also like EV2 and EV3 to work together to release Lab Heat Exchanger TA clamps under some MMOD shields. This task is an opportunity to increase the efficiency of the Lab Heat Exchanger R&Rs once the worksites are congested by the installation of Node 3 and the PMM. We would like to discuss performing this task for one or both heat exchangers with you during the tagup. The updated summary timeline for each option can be found in MSG 21-0487 (129-061). A briefing package on the Heat Exchanger TA clamps can be found in MSG 21-0489 (129-063).

We also have two sharp edge reminders:

1. The set screw on the HPGT isolation valve has a potential sharp edge when the valve is closed
2. As you already noted, A/L HR 0537 has a possible sharp edge

**BRT inspection for Randy:**

During EVA 3 tool config, please inspect your BRT probe and MWS receptacle to determine if the EVA 2 release was a hardware malfunction or an inadvertent actuation of the tab. A replacement BRT or MWS can be found in A/L100\_Behind Closeout if necessary.

**FM CCA troubleshooting steps during 1.506 EMU Water Recharge:**

For Mike and Butch -

Due to Mike's CCA issues during EVA2 we would like to determine if there is an issue with his CCA or his EMU since EMU 3018 is supposed to stay on orbit. We would like you to perform the following steps during EMU H2O Recharge today.

After EMU H2O Recharge INIT, step 19:

*Note:* When Comm Mode is in Pri, CCA will be hot mic'd

- EMU 3018
1. Verify DCM volume is above 4  
Note volume setting
  2. Don FM1 CCA
  3. sw POWER → BATT
  4. Listen for audible tones during Power Restart
  5. Doff comm cap
  6. sw COMM mode → OFF
  7. FM1 CCA ↔ electrical harness
  8. Stow FM1 CCA in EVA Systems Transfer Bag
  9. Unstow FM2 CCA from FM ECOK
  10. FM2 CCA →← electrical harness

**21-0488 (MSG 062) – FD07 EVA Deltas**

Page 2 of 2

- 1 11. sw COMM mode → PRI
- 2 12. Don FM2 CCA
- 3 13. sw POWER → SCU
- 4 14. Listen for audible tones during Power Restart
- 5 15. Doff comm cap
- 6
- 7 EMU 3006 16. FM don BR1 CCA
- 8 17. sw POWER → BATT
- 9 18. Listen for audible tones during Power Restart
- 10 19. Doff comm cap
- 11 20. sw POWER → SCU
- 12
- 13 EMU 3006/ 21. Reconfigure for Continuous EMU Data for both EMUs
- 14 3018 (Reference 1.506 EMU Water Recharge, Step 10, if necessary)
- 15 22. Compare and Contrast audio tone levels for all 3 tests.
- 16 Report volume setting on DCM and troubleshooting results to
- 17 **MCC-H**
- 18

In EMU H2O Recharge TERM, after Step 38:

- 20
- 21 1. FM2 CCA ←→electrical harness
- 22 2. Stow FM2 CCA in SA ECOK
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21-0490 (MSG 064) – FD07 EVA Tool Config  
PAGE 1 OF 2

EVA 3 TOOL CONFIG

EV 2

- MWS
- BRT (L)
- RET (sm-sm)
- Wire Ties (2 long)
- T-Bar
- RET (sm-sm)
- RET w/PIP Pin
- Adj Equip Tether (for HPGT handling)
- Adj Equip Tether (for HPGT handling)
- Wire Ties (2)
- Empty Small ISS Trash Bag (left/inboard)
- A/L Towel Bar Strap
- A/L QD MLJ
- Swing Arm (R)
- RET (sm-sm)
- PGT [B7 25.5ft-lb, CAL, MTL 30.5] s/n \_\_\_\_\_
- PGT Battery s/n \_\_\_\_\_
- 7/16 (wobble) Socket-6 ext
- D-ring Extenders (2, R & L D-ring)
- ST Pack (85-ft + 85-ft to L D-ring Ext) (A/L & Second)
- Waist Tethers (2, L on D-ring, R on D-ring Ext)
- SAFER
- WVS

EV 3

- MWS
- BRT (R)
- RET (sm-sm)
- Wire Ties (2 short, 2 long)
- T-Bar
- RET (sm-sm)
- RET w/PIP Pin
- Adj Equip Tether
- Adj Equip Tether (for MISSE bundle)
- Adj Equip Tether (for MISSE bundle)
- Wire Ties (2)
- Empty Small ISS Trash Bag (right/inboard)
- QD caps (4)
- Swing Arm (L)
- RET (sm-sm)
- EVA Camera w/bracket
- D-ring Extenders (2, R & L D-ring)
- ST Pack (85-ft + 85-ft to L D-ring Ext) (A/L & Second)
- Waist Tethers (2, L on D-ring, R on D-ring Ext)
- SAFER
- WVS

A/L

- RET (Lg-sm)
- MUT EE + Ballstack + Round Scoop
- RET (Lg-sm)
- PGT [X Xt-lb, CAL, MTL 30.5] s/n \_\_\_\_\_
- PGT Battery s/n \_\_\_\_\_
- 7/16 (wobble) Socket-6 ext
- RET (Lg-sm)
- Adj Equip Tether
- Crewlock Bag (Get-ahead Bag)
- EVA Ratchet Palm Wheel (on int RET)
- EVA Ratchet w/2" socket (on int RET)
- (use middle tether point)
- Wire Ties (2) (external)
- Cheater Bar (on int RET)
- (wire tied to outside of bag)
- MBS Booty (-0501; size 21/25) (on int RET)
- RET w/PIP Pin
- MBS Booty (-0501; size 21/25)
- RET (sm-sm)
- MSS Camr Cover Bag
- RET (sm-sm)
- MSS Camr Cover (in bag)
- RET (sm-sm)
- MSS Camr Cover Bag
- RET (sm-sm)
- MSS Camr Cover (in bag)

RET (Lg-sm)

- Adj Equip Tether
- Crewlock Bag (HPGT Bag)
- HPGT Guide Post (on int RET)
- QD Tool (on int RET)
- RET (sm-sm)
- RET (sm-sm)
- Short MMOD Shield T-Tool
- Wire Tie Caddy (9 short) (on int RET)
- RET (sm-sm)
- Wire Tie Caddy (Min 5 long)
- RET (sm-sm)
- RET (Lg-sm) (Lg hook to RET; sm to T-Tool)
- Long MMOD Shield T-Tool (long for BRT)
- RET (sm-sm)
- RET (sm-sm)
- Short MMOD Shield T-Tool
- HPGT FRGF Cover (on int RET)
- Long Duration Tie-Down Tether
- Long Duration Tie-Down Tether

NOTE – Prior to use, inspect the following hardware:

- RET cords for fraying
- Safety Tether/Waist Tether LAS: No Red Visible
- ISS Trash Bag: Bristle deformation/damage, after having stowed tools in trash bag
- BRT joint screws not loose
- Empty trash bags and verify zipper closed

**EVA 3 TOOL CONFIG (Cont)**

- IV Bag**
- Towels (2)
- Contamination Detection Kit
- GP Caddy (2)
- Adjustable Thermal Mittens (2)
- Socket Caddy (hatch cont) w/RET (sm-sm) (Black)
- 1/2 Socket-8 ext
- 7/16 (wobble) Socket-6 ext (spare)
- DCM Plug (SAFER Hardmount) (2)
- RET (sm-sm, Black) (2)

- Staging Bag**
- Fish Stringer Tether
- Long Duration Tie-Down Tether
- Velcro/Tape Caddy
- PGT
- PGT Battery
- 7/16 (wobble) Socket-6 ext
- Vise Grips
- Ratchet Wrench
- 7/16 (rigid) Socket-9 ext
- Spare 85-ft Safety Tether
- Spare WIF Adapter
- Fish Stringer Tether
- Connector Cleaner Tool Kit
- Pin Straightener Assy
- Probe
- Pry Bar
- Long Duration Tie-Down Tether
- Torque Wrench Bag
- Torque Wrench (set to 20 ft-lb; on hook)
- MWS Key Strap Assy (wire-tied to strap)

Tether Counts: <b>BLUE RETs</b> RETs (sm-sm) = 16    Adj Equip Tethers RETs (Lg-sm) = 6    Sm-sm = 7 of 10 RETs (PIP Pin) = 3    Lg-sm = 0 of 2
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