

# STS-117/13A

## FD 08 Execute Package



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072	17	<a href="#">EVA 3 Procedure Pen and Inks (pdf)</a>
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**Approved by FAO:** Linda Delapp

Last Updated: Jun 15 2007 11:55AM GMT  
**JEDI** (Joint **E**xecute package **D**evelopment and **I**ntegration), v2.04.0003

1 MSG INDEX

2

3 <u>MSG NO.</u>	<u>TITLE</u>
4 064	FD08 Mission Summary
5 069	FD08 Flight Plan Revision
6 070	FD07 MMT Summary (Electronic Only)
7 071	Updated LiOH Cue Card
8 072	EVA 3 Procedure Pen and Inks

9

- 10
- 11 1. In MSG 060 - SRMS OMS POD BLANKET REPAIR PROCEDURE, Step 2, make the  
12 following change due to concerns about the use of SRMS Coarse Rates causing an  
13 increase in ISS momentum:

14

15 From: RHC RATE - as required (VERN within 10 ft)  
16 To: RHC RATE - VERN (RATE MIN tb-ON)

17

- 18 2. Now that the SRMS is cradled, the arm will not be at the SAW Retract viewing position  
19 for SSRMS maneuver to the SAW EVA Setup position. The Base Elbow camera (-110, -  
20 15) can be utilized in place of the SRMS Elbow camera to adequately view the SSRMS  
21 maneuver to the SAW EVA Setup position.
- 22

23 3. POST EVA RCS Reconfiguration

24

25 IV O14:F RJDA 1A L2/R2 MANF DRIVER – ON

26

27 GNC 23 RCS

28 RCS FWD – ITEM 1 EXEC (\*)  
29 MANF VLVS OVRD 1 – ITEM 40 EXEC (OP)  
30 √2 – ITEM 41 EXEC (CL)  
31 √3 – ITEM 42 EXEC (CL)  
32 4 – ITEM 43 EXEC (OP)

33 RCS LEFT – ITEM 2 EXEC (\*)  
34 MANF VLVS OVRD 1 – ITEM 40 EXEC (OP)  
35 2 – ITEM 41 EXEC (OP)  
36 3 – ITEM 42 EXEC (OP)  
37 √4 – ITEM 43 EXEC (CL)

38 RCS RIGHT – ITEM 3 EXEC (\*)  
39 MANF VLVS OVRD 1 – ITEM 40 EXEC (OP)  
40 2 – ITEM 41 EXEC (OP)  
41 3 – ITEM 42 EXEC (OP)  
42 √4 – ITEM 43 EXEC (CL)

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1 4. Flight Day 8 Exercise Constraints

2  
3 The table below summarizes the Shuttle and ISS exercise constraints for today. These  
4 constraints are also denoted in your timelines for your reference.  
5

Activity	Exercise Constraints	
	Shuttle	ISS
P6 2B SAW RETRACT	No exercise during SAW latch or deploy/retract motor or EVA driven operations	No exercise during SAW latch or deploy/retract motor or EVA driven operations

6  
7 5. If time permits please complete the following activities:  
8

9 1) To complete our camera A focus anomaly report on possible causes please check  
10 the status of the heater cb.

11 R14:D cb MNB TV A CAMR CAMR HTR  
12  
13

14 2) To help troubleshoot the LCC desktop downlink issue that we had earlier in the  
15 flight, please check the position of the Middeck AVIU HI-Z/75 switch.

16 MIDDECK AVIU HI-Z/75 - 75  
17  
18

19 6. If the Russian computers are not recovered, the FD9 waste water dump will have to be  
20 deleted. The ISS CMGs will saturate if we perform nozzle dumps with Station in attitude  
21 control and if the Shuttle takes attitude control, return to ISS control is not possible. If we  
22 are unable to dump the waste tank while docked, the waste tank will overflow. To preclude  
23 offloading waste into a CWC, six shuttle crew will need to use the Russian Segment  
24 Toilet (ACY), beginning after post-sleep today. Please ask the ISS crew for training in  
25 how to use the ACY.  
26

27 7. To save additional power, the aft flight deck PCS can be shut down at your discretion.  
28

29 8. If needed, the following are the Ku opportunities for crew choice downlinks at the end of  
30 the day:

31 TDRS W: 7/01:07 - 01:28

32 TDRS W: 7/02:45 - 02:55

33 TDRS E: 7/03:14 - 03:20  
34  
35

36 9. REPLACE PAGES 2-26, 2-28, 3-80 THROUGH 3-89.  
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44



FD08

06/15/07 06:35:28

REPLANNED

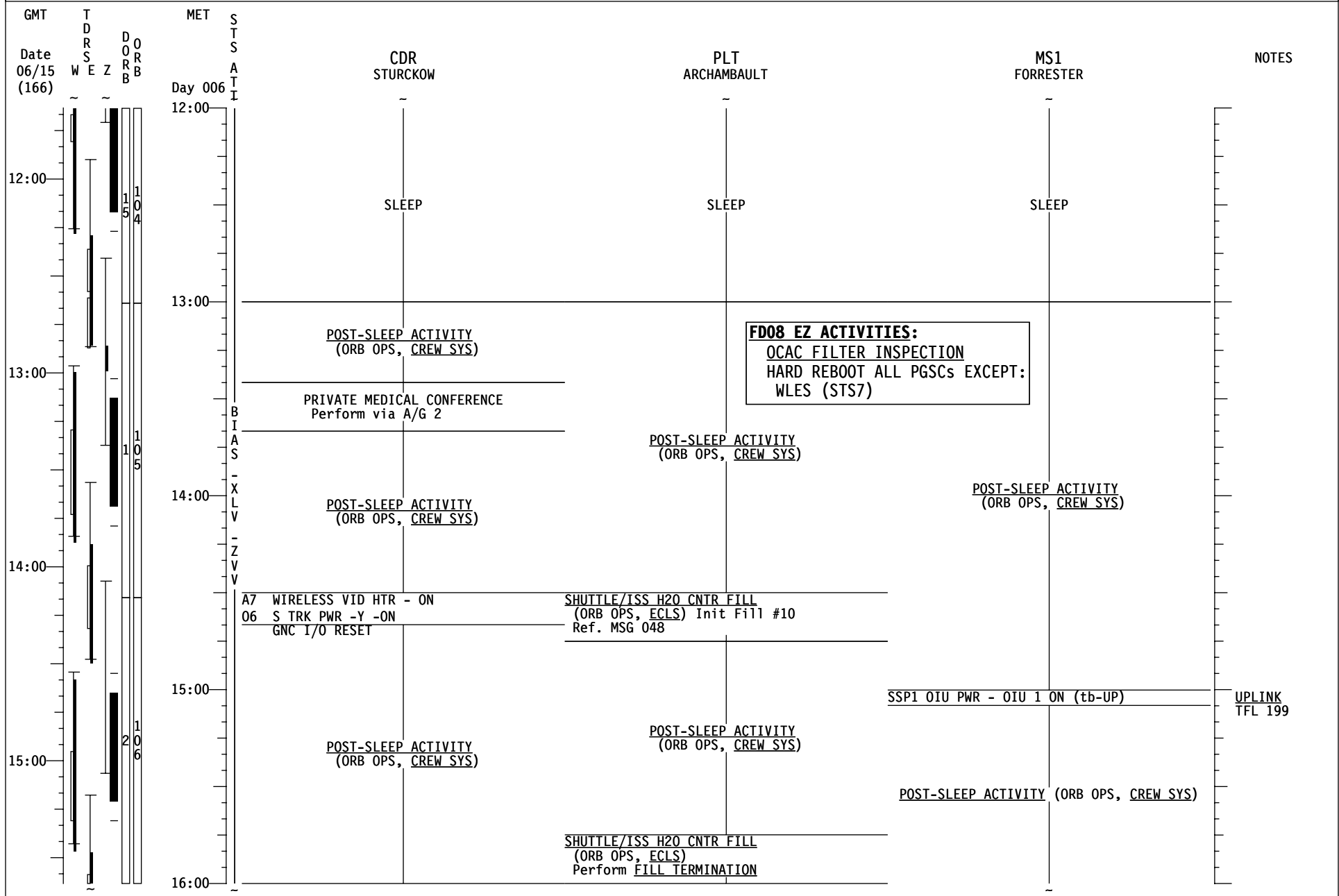
GMT 06/15/07 (166)

β=34  
MET Day 007

		06/16		01		02		03		04		05		06		07		08		09		10		11		12	
S T S - 1 1 7	CDR STURCKOW	P/TV SPRT	C I N C I T I	R M C M S #	L I O H	PRE SLEEP	C T W E R C M 1	C X W F C E R	PRE SLEEP	P M C A /G	PRE SLEEP	SLEEP															
	PLT/R2/M1 ARCHAMBAULT	S S P R R M T S	EXERCISE			PRE SLEEP						SLEEP															
	MS1/EV3/R1 FORRESTER	I V A S P R T	S M R N M V S R	R P M W R D N	EXERCISE			PRE SLEEP						SLEEP													
	MS2/EV4/M2 SWANSON	S S P R R M T S	P R P S	R P R S	POST EVA W/H2O,METOX			PRE SLEEP						SLEEP													
	MS3/EV2/R1 OLIVAS	C I N U G R S & S	P R P S	R P R S	POST EVA W/H2O,METOX			PRE SLEEP						SLEEP													
	MS4/EV1 REILLY	C I N U G R S & S	P R P S	R P R S	POST EVA W/H2O,METOX			PRE SLEEP						SLEEP													
D N	FE-2 WILLIAMS	CD		PREP	E D N E R	D P C	PRE SLEEP					SLEEP															
E X P - 1 5	ISS CDR ЮРЧИХИН	CEVIS			P W O R K	D P C	PRE SLEEP					SLEEP															
	FE-1 KOTOV	RED		PREP WORK	*	D P C	PRE SLEEP					SLEEP															
U P	FE-2 ANDERSON	PREP		POST EVA W/H2O,METOX			PRE SLEEP					SLEEP															
SSRMS		WS3 PDGF2																									
S T S	DAY/NIGHT	[Day/Night Schedule]																									
	ORBIT	112 113 114 115 116 117 118 119																									
	TDRS	W -171	[Timeline]																								
		E -46	[Timeline]																								
	Z -275	[Timeline]																									
ORB ATT		BIAS -XLV -ZVV																									
NOTES		#HTR DEACT *ГТИ-13-КРЫШКА-RMV *RCNFG																									

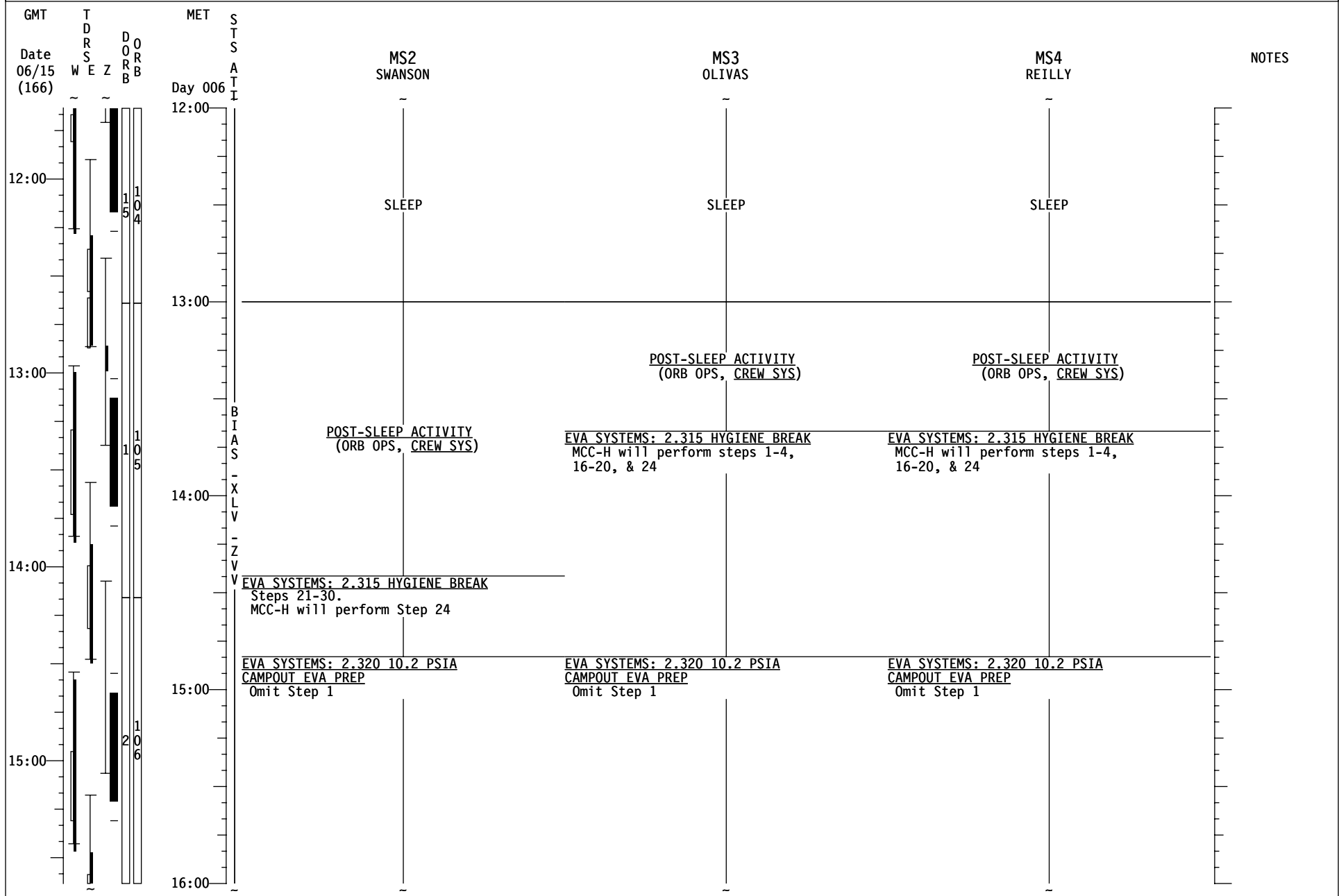
# STS-117 (FD08)

**REPLANNED**



# STS-117 (FD08)

**REPLANNED**



# STS-117 (FD08)

**REPLANNED**

GMT	T D R S E Z	D O R B	MET	S T S	CDR	PLT	MS1	NOTES
Date	W E Z	ORB	Day	A T I	STURCKOW	ARCHAMBAULT	FORRESTER	
06/15 (166)			006					
16:00					<u>EVA3 INHIBIT PAD</u> (EVA, TIMELINES) Ref. MSG 066	<u>CWC TRANSFER</u> Transfer 1 CWC to ISS Ref. MSG 048	<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS) <u>SHUTTLE CONDENSATE COLLECTION</u> (ORB OPS, ECLS) Perform <u>CHANGEOUT</u> Using CWC S/N 5082 Ref. MSG 048	
16:00						<u>ON-ORBIT INITIALIZATION</u> (PDRS, <u>ON-ORBIT INIT</u> ) Step 2 Only	L17 Check MCIU filter screen	
17:00					EXERCISE Ref. MSG 069, Item 4	<u>ROBOTICS: 1.405 MNVR FROM 2B CLEARANCE</u> <u>TO 2B SAW EVA SETUP</u> Ref. MSG 069, Item 2		
17:00					<u>MNVR (TRK) UPDATE (TEA)</u> TG=2 BV=5 P=156.7 Y=358 OM=181 A12/FREE/VERN Init TRK			
17:00					<u>IMU STAR OF OPPTY ALIGN</u> (ORB OPS) I 06 S TRK PWR -Y - OFF	<u>RMS PWRUP</u> (PDRS, <u>RMS PWRUP</u> )	<u>RMS PWRUP</u> (PDRS, <u>RMS PWRUP</u> )	
18:00					<u>P/TV07 EVA</u> (PHOTO/TV, <u>SCENES</u> ) Setup	<u>OMS POD BLANKET REPAIR</u> Ref. MSG 060 Steps 1 and 3 only	<u>OMS POD BLANKET REPAIR</u> Ref. MSG 060 Steps 1 and 3 only	
18:00						<u>OMS POD BLANKET REPAIR</u> Ref. MSG 060 Steps 4-12		
19:00					P/TV SUPPORT EVA 3		<u>IVA SUPPORT EVA 3</u> Ref. MSG 066	
19:00								
20:00								



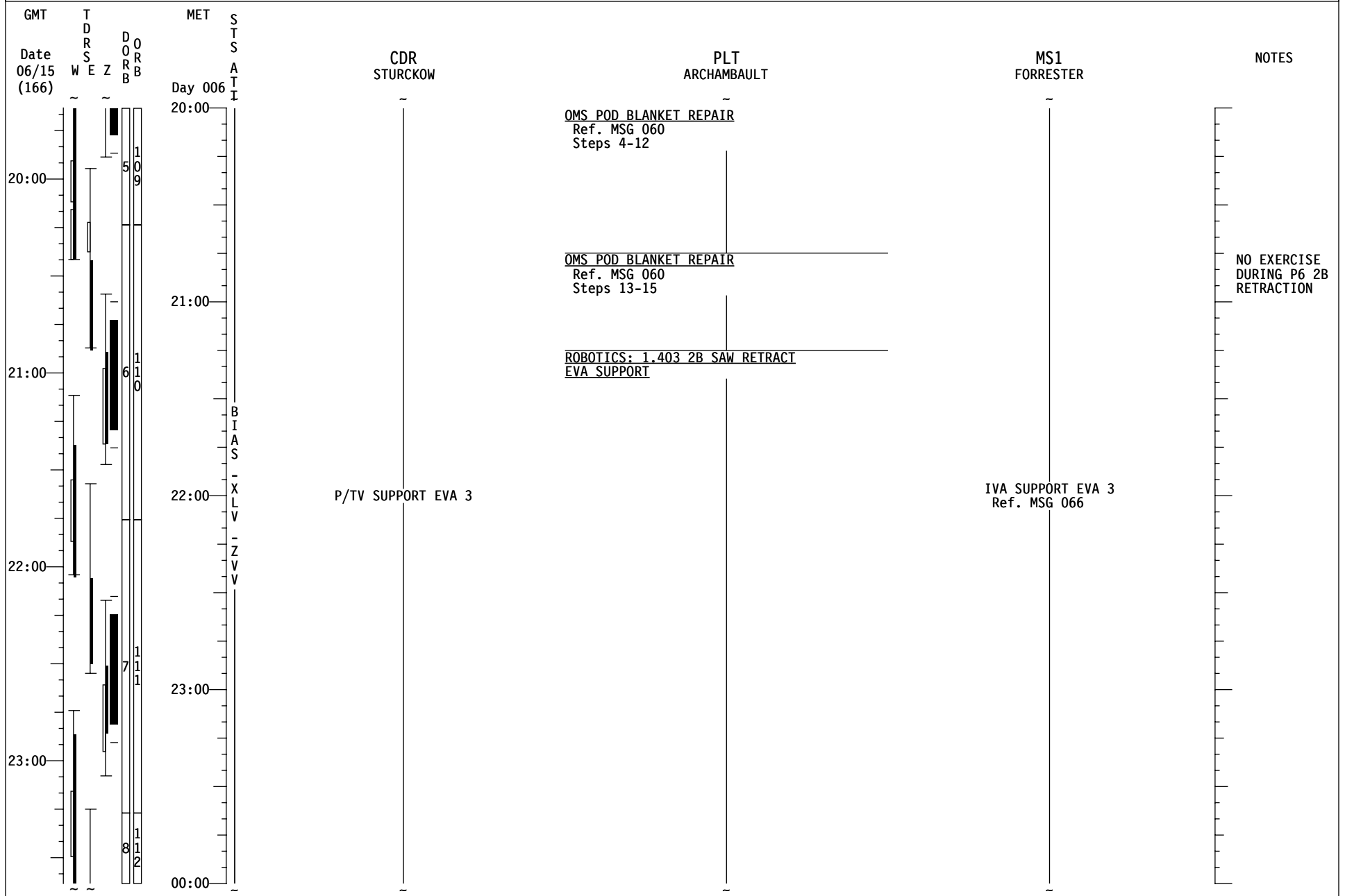
# STS-117 (FD08)

**REPLANNED**

GMT	TDRS W E Z	DORB D O R B	MET	S T S A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 06/15 (166)			Day 006					
16:00					EVA SYSTEMS: 2.320 10.2 PSIA CAMPOUT EVA PREP Omit Step 1	EVA SYSTEMS: 2.320 10.2 PSIA CAMPOUT EVA PREP Omit Step 1	EVA SYSTEMS: 2.320 10.2 PSIA CAMPOUT EVA PREP Omit Step 1	
16:00					EVA SYSTEMS: 1.220 EMU PURGE	EVA SYSTEMS: 1.220 EMU PURGE	EVA SYSTEMS: 1.220 EMU PURGE	
					EVA SYSTEMS: 1.225 EMU PREBREATHE	EVA SYSTEMS: 1.225 EMU PREBREATHE	EVA SYSTEMS: 1.225 EMU PREBREATHE	
17:00								
17:00					EVA SYSTEMS: CREWLOCK DEPRESS (CC)	EVA SYSTEMS: CREWLOCK DEPRESS (CC)	EVA SYSTEMS: CREWLOCK DEPRESS (CC)	
18:00					EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	
					L OMS POD BLANKET REPAIR Ref. MSG 060 Steps 4-12	EVA 3 SORTIE SETUP/EGRESS	EVA 3 SORTIE SETUP/EGRESS	
18:00							OMS POD SETUP	
19:00						OMS POD REPAIR		
19:00							H2O/H2 VENT VALVE R&R	
20:00								

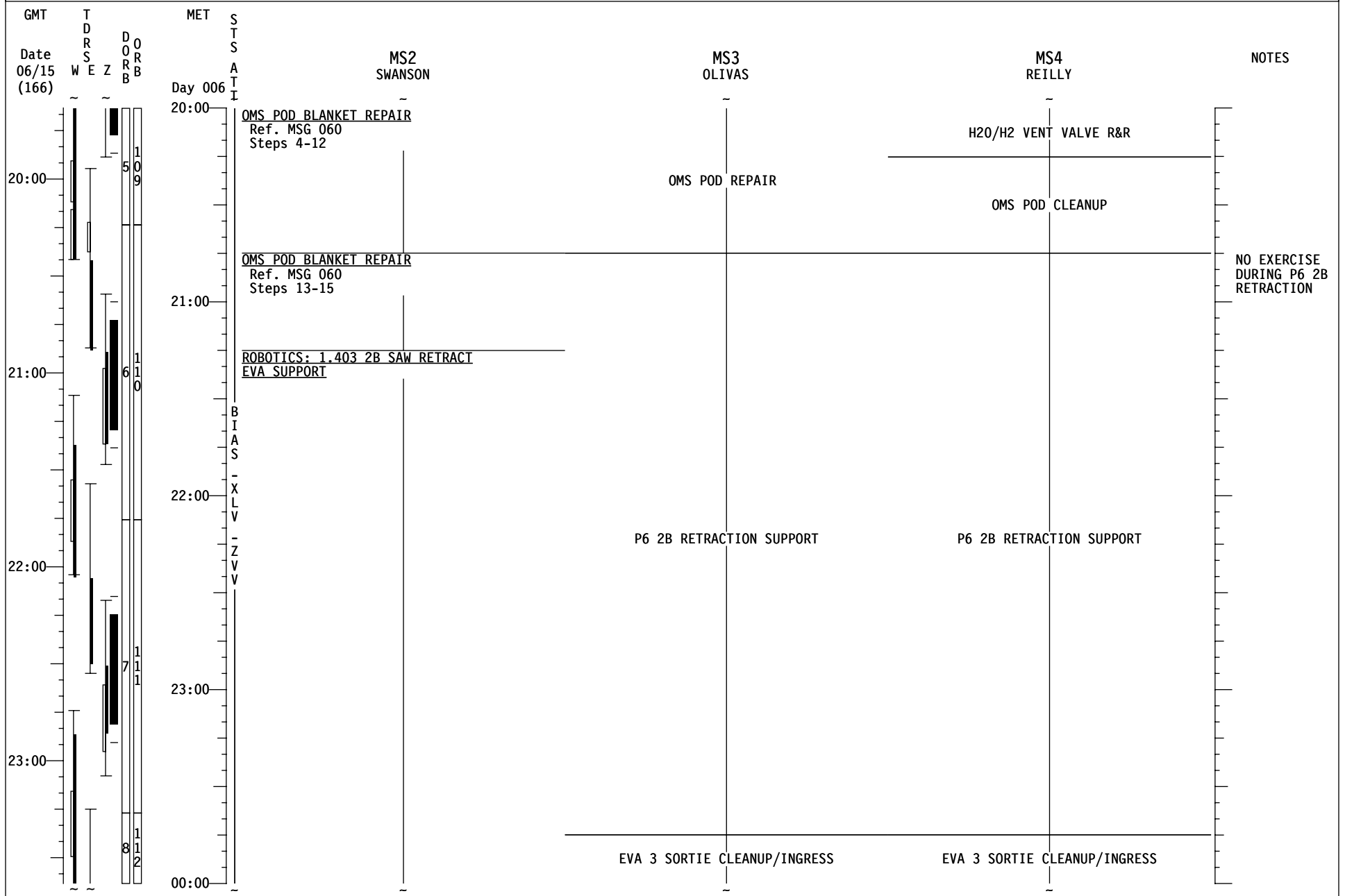
# STS-117 (FD08)

**REPLANNED**



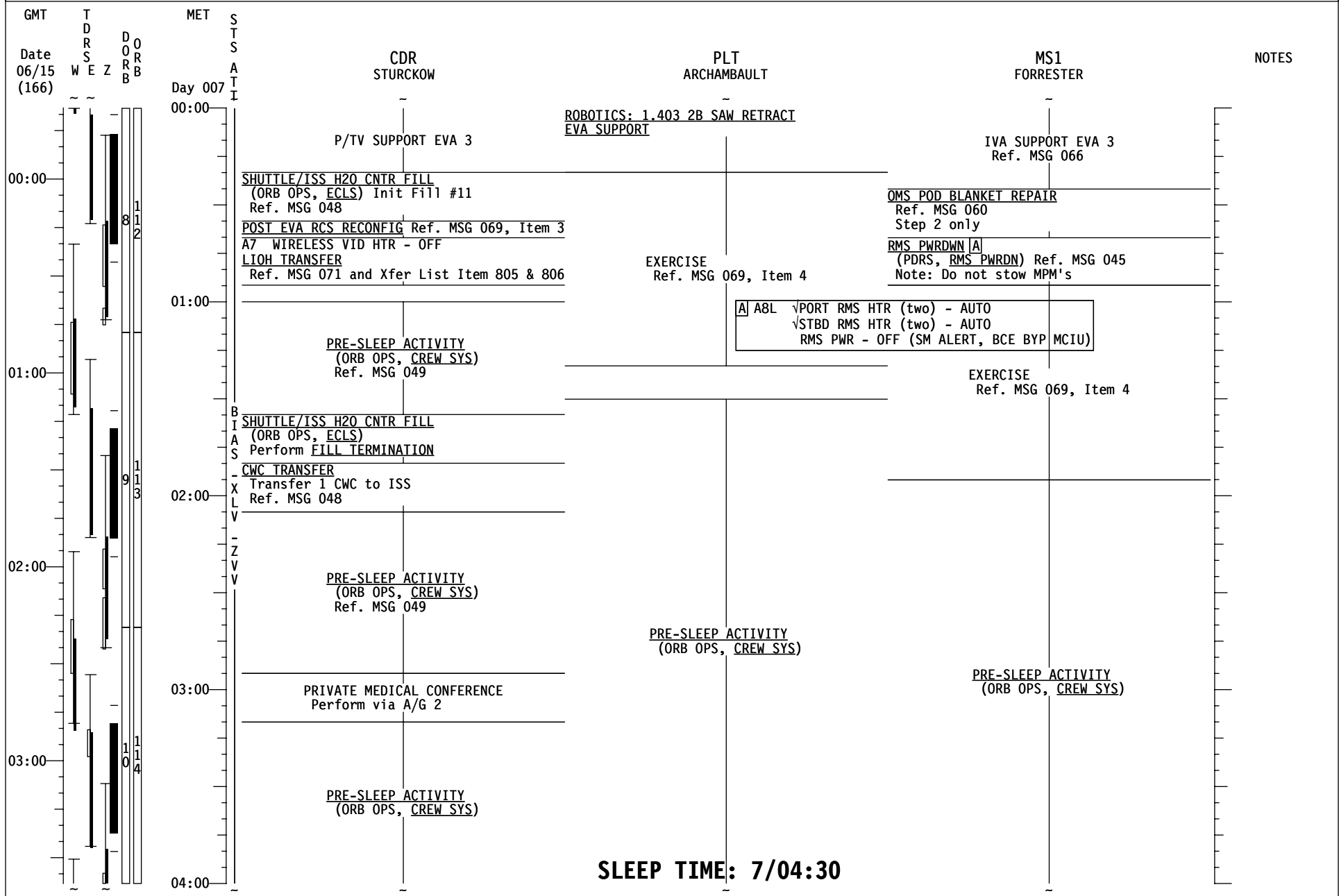
# STS-117 (FD08)

**REPLANNED**



# STS-117 (FD08)

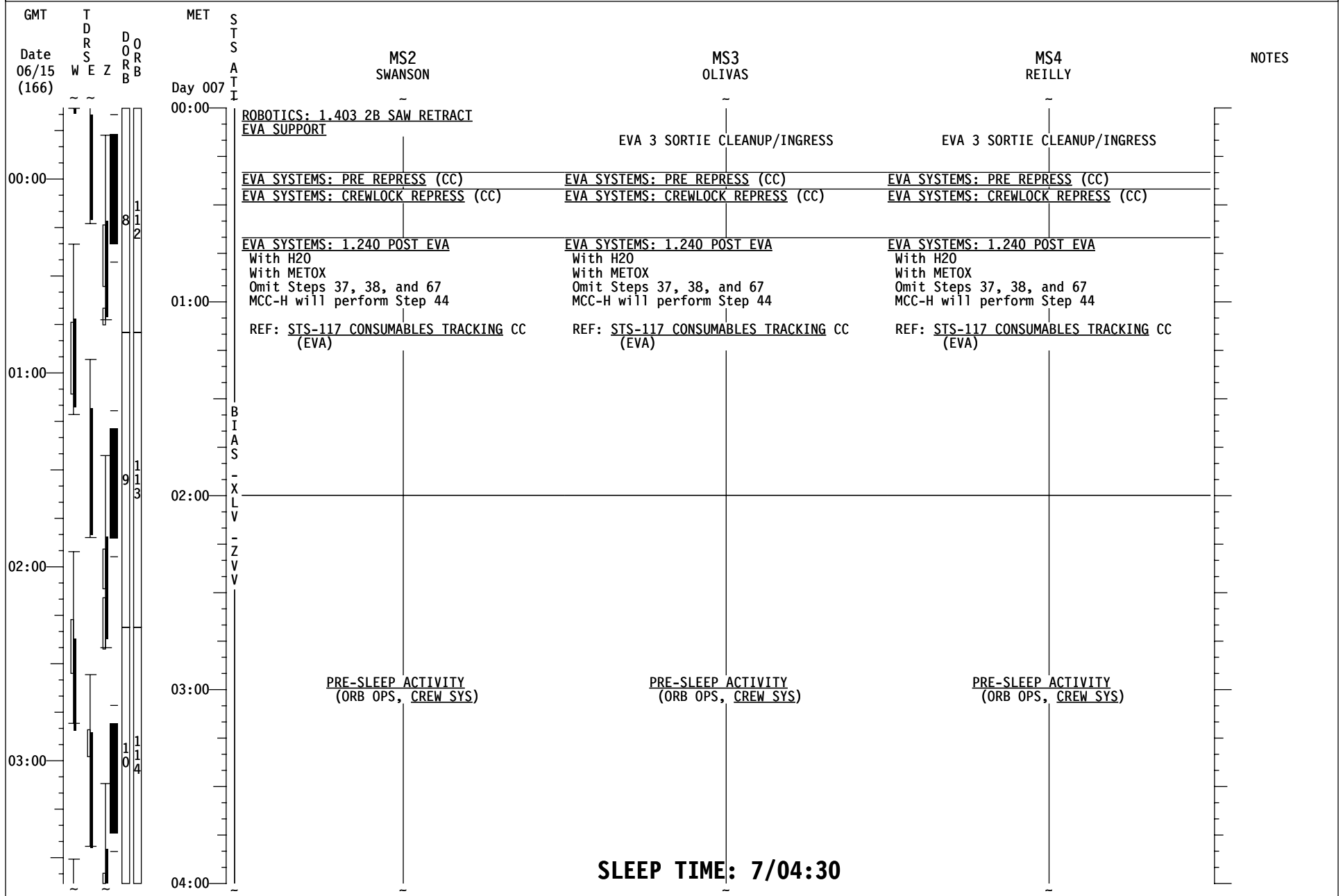
**REPLANNED**



**SLEEP TIME: 7/04:30**

# STS-117 (FD08)

**REPLANNED**



**SLEEP TIME: 7/04:30**

**MSG 064 (05-0443) - FD08 MISSION SUMMARY**

Page 1 of 1

1 Good Morning Atlantis!  
2 Your cooperation and proactive nature regarding the modified powerdown is greatly  
3 appreciated. We are ready for another great day in space with EVA3. Good luck!

4  
5 YOUR CURRENT ORBIT IS: 184 X 179 NM

6  
7 NOTAMS:

8  
9 MORON (MRN) – CLOSED  
10 WAKE ISLAND (WAK) - CLOSED  
11 GOOSE BAY (YYR) – RWY 08/26 CLOSED  
12 LAJES (LAJ) – TACAN LAJ CH45 UNUSABLE  
13 KEFLAVIK (IKF) – UNUSABLE  
14 RIO GALLEGOS (AWG) – UNUSABLE

15  
16  
17 NEXT 2 PLS OPPORTUNITIES:

18  
19 EDW22 ORB 111 – 6/23:01 (SKC VRB06, after 7/01:00 SKC 230/15P23)  
20 EDW22 ORB 126 – 7/21:46 (SKC 220/8P12)

21  
22 OMS TANK FAIL CAPABILITY:

23  
24 L OMS FAIL: NO R OMS FAIL: NO

25  
26 LEAKING OMS PRPLT BURN:

27  
28 L OMS LEAK: ALWAYS RETROGRADE  
29 R OMS LEAK: ALWAYS RETROGRADE

30  
31 OMS QUANTITIES(%)

32  
33 L OMS OX = 31.0 R OMS OX = 33.0  
34 FU = 30.8 FU = 32.5

35  
36 SUBTRACT I'CNCT COUNTER FOR CURRENT OMS QUANTITIES

37  
38 DELTA V AVAILABLE:

39  
40 OMS 329 FPS  
41 ARCS (TOTAL ABOVE QTY1) 48 FPS  
42 TOTAL IN THE AFT 377 FPS  
43  
44 ARCS (TOTAL ABOVE QTY2) 82 FPS  
45 FRCS (ABOVE QTY 1) 23 FPS  
46  
47 AFT QTY 1 79 %  
48 AFT QTY 2 41 %

49  
50  
51 THERE ARE NO FAILURE/IMPACT/WORK AROUNDS FOR TODAY.

**FLIGHT DAY 3 DOCKING  
ORBITER with ISS  
CO2 ABSORBER REPLACEMENT**  
(7 crewmembers/Single Shift/FD 1-17)

FLIGHT DAY	POS A	POS B	CK CMPLT
LAUNCH	1	2	
PRE FD01	"	"	
POST FD02	3	4	
PRE FD02	"	5	
POST FD03	6	7	DOCKING
PRE FD03	"	8	
POST FD04	"	"	EVA1
PRE FD04	9	"	
POST FD05	"	"	
PRE FD05	"	10	
POST FD06	"	"	EVA2
PRE FD06	11	"	
POST FD07	"	"	
PRE FD07	"	12	
POST FD08	"	"	EVA3
PRE FD08	13	"	
POST FD09	"	"	
PRE FD09	"	14	
POST FD10	"	"	EVA4
PRE FD10	STS-114 10	"	
POST FD11	"	"	
MID FD11	STS-114 11	STS-114 12	ODS HATCH CL
PRE FD11	"	"	
POST FD12	15	16	UNDOCK
PRE FD12	"	17	
POST FD13	18	19	
PRE FD13	20*	21*	
POST FD14	22	23	EOM
PRE FD14	24	"	
POST FD15	25	26	EOM+1
PRE FD15	27*	28*	
POST FD16	29	30	EOM+2
PRE FD16	"	31	
POST FD17	32	33	EOM+3

\*Re-bag and seal LiOH cans w/ Gray Tape and stow.  
(Locations of canisters and LiOH exchange plan on back)

**NOTE**

This card is specifically used for the STS-117 mission with the orbiter conducting single shift ops with a crew size of 7. Changeout scheme reflects FD3 docking with ISS, Vozdukh and CDRA (activated in dual-bed mode) during docked ops, and undocking on FD12. ODS hatch closure will be worked the night before undocking.

Back of LiOH Cue Card

**BACK OF 'FLIGHT DAY 3 DOCKING  
ORBITER with ISS  
CO2 ABSORBER REPLACEMENT'**

**LIOH CANISTER STOWAGE LOCATIONS**

ASCENT STOWAGE LOCATIONS

Orbiter:

MD52M (LiOH Box): cans 1-31\*

STBD FLR 2 Bag D: cans 32-33

ISS:

NOD1S4\_D2: STS-114LF1 cans 10-12

ENTRY (EOM) STOWAGE LOCATIONS

Orbiter:

MD52M (LiOH Box): cans 4-31, STS-114 cans 10-12

STBD FLR 2 Bag D: cans 32-33

\*2 LiOH cans installed in LiOH slots A and B



MSG 072 - EVA 3 PROCEDURE PEN AND INKS

1 We have 2 small changes to the plan for EVA 3:  
2

- 3 1. We recommend adding 1 RET (eq-eq) to EV2's T-bar for him to use to stow the  
4 Ingress Aid at the Airlock Toolbox. It can be a PIP pin or plain RET.  
5
- 6 2. During DLA 2 verification, we would like to re-torque the draw bolts incrementally,  
7 like the original deploy procedure. On MSG 066 page 15, insert the following steps  
8 after EV1 step 10:  
9

10 10a. **PGT[A3 4.8 ft-lb, CCW2 30 RPM, MTL 30.5]-6ext 7/16**: Rotate follower arm  
11 draw bolt 2C to torque, ~3 turns  
12

13 10b. **PGT[A3 4.8 ft-lb, CW2 30 RPM, MTL 30.5]-6ext 7/16**: Rotate follower arm  
14 draw bolt 1C to torque, ~3 turns  
15

16 Expect ~ 2 turns in steps 11 & 12. The order of steps 11 & 12 are not critical, so  
17 you can perform step 12 first, if you prefer.  
18

19 Also, for MSG 066 page 10, EV2 step 24 (closeout photo imagery of the blanket repair), IV  
20 may reference PHOTO T/V C/L p 4-34 for a photogrammetry technique refresher if  
21 necessary.  
22  
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**FD7 MMT Crew Summary**

The MMT met today and discussed mission progress, the Port OMS blanket repair, ISS attitude control anomalies, ascent hardware performance, and debris assessment results.

**Port OMS Pod Blanket Repair:**

The MMT received a status of the blanket repair verification testing and the corresponding schedule for completion. The blanket pull test has been completed which provides high confidence that the Saffil pins and staples will secure the blanket through the entry environment. The Arc Jet, Wind Tunnel, and Radiant Heat tests using the repaired configuration are now in work and most of these results are expected tomorrow. The Operations team reported that the EVA onboard training and procedure reviews for securing the blanket are in work.

**ISS Attitude Control and Shuttle Consumables:**

The MMT was briefed on the ISS attitude control issues and the latest troubleshooting efforts. The good news was that power from the US Segment was restored to the FGB and Soyuz which were operating on battery power. The attempts to regain the SM Central Computers were not successful today and as a result ISS continues to rely on CMG attitude control.

As a result of the ISS attitude control issues the MMT was also briefed on the Shuttle Cryo O2 and OMS/RCS consumables. The modified powerdown you performed today and delaying the O2 transfer will provide an additional docked day if required. Options to maximize RCS consumables are also in work which include the ability to handover attitude control from Shuttle to ISS CMG control, a modified ISS attitude while on verniers, or the use of Alt Dap. The details regarding these options are still in work.

**Ascent Hardware Performance:**

The SRB, ET, and SSME elements provided a post flight status to the MMT. Each element echoed that their system was nominal both from a hardware and performance perspective. The SSME AHMS controller worked as expected and the ET foam liberation was well within expected limits. An exceptionally clean ascent!

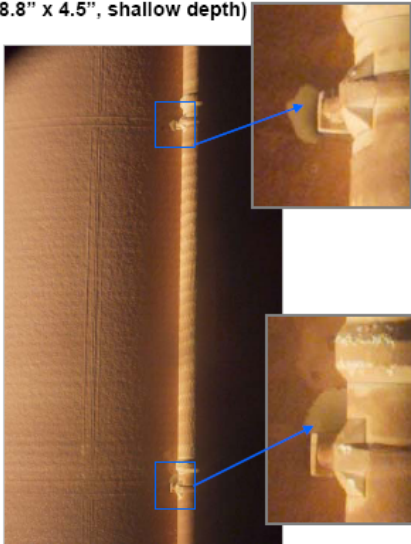
**Imagery/Debris Assessment Team:**

The RIB elevon TPS has been cleared. The team cleared this area by using imagery from the RPM pitch maneuver which was partially obscured by shadowing, SRB video of the elevon, and analysis. The analysis confirmed that even if TPS in this small region were damaged the result would be a tile turnaround issue only with no structural damage. The SRB video and RPM imagery indicate that there were no significant damage on the elevon. The team has no concerns with these tile.

1  
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Figure 1: ET debris events within expected limits.

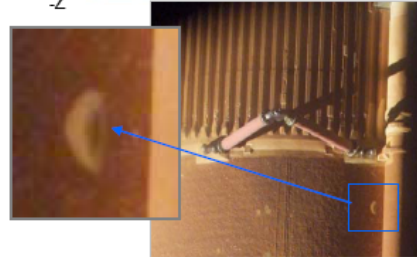
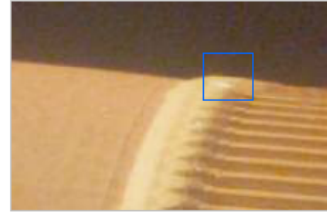
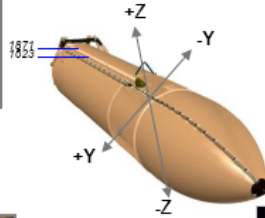
LH2 acreage loss inboard of LO2 feedline base closeout at X<sub>T</sub> 1623 (~8.8" x 4.5", shallow depth)



LH2 acreage loss inboard of LO2 feedline base closeout at X<sub>T</sub> 1871 (~6.2" x 6.2", shallow depth)

Intertank to LH<sub>2</sub> Tank flange closeout losses (4)

- Three losses outside of critical debris zone (not rework for RTF)
- One loss located flange closeout near +Z (stringer panel) / -Y (thrust panel) splice closeout (~ 5" X 3", note poor image quality)

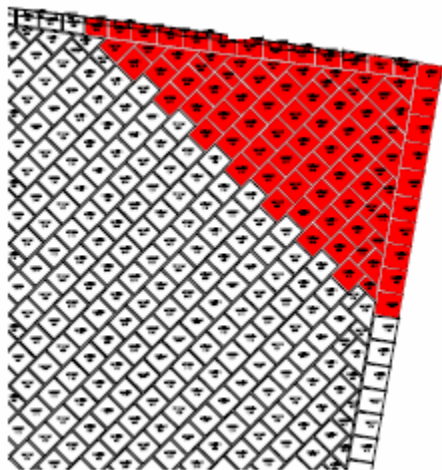


LH2 acreage loss at X<sub>T</sub> 1163 (~8.5" x 3.5" x ~1.15"-1.50" D)

Preliminary Assessment shows that debris events are within expected limits or have release times beyond ASTT

3  
4  
5  
6  
7

Figure 2: RIB Elevon Tile (red area partially obscured by shadowing).



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