

Flight Plan

STS-117

(FRR Flight Cycle Trajectory)

Mission Operations Directorate Operations Division

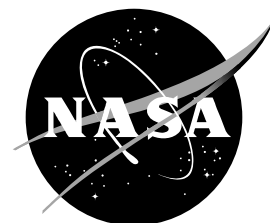
For the latest working copy of the Flight Plan, visit
<http://mod.jsc.nasa.gov/do4/flightplan/main/fp.cfm?id=117>

Final
February 16, 2007

EVENT	<u>FD</u>	<u>MET</u>	<u>GMT</u>	<u>CDT</u>
Launch	01	00/00:00	075/10:12	05:12 (3/16/07)
OBSS Survey	02	00/17:15	076/03:28	17:28 (3/17/07)
ISS Docking	03	01/19:43	077/05:55	00:55 (3/18/07)
S3/S4 Unberth	03	01/21:50	077/08:02	03:02 (3/18/07)
EVA 1	04	02/18:45	078/04:57	23:57 (3/18/07)
S4 1A SAW Deploy	05	03/15:35	079/01:47	20:47 (3/19/07)
S4 3A SAW Deploy	05	03/17:05	079/03:17	22:17 (3/19/07)
EVA 2	06	04/17:55	080/04:07	23:07 (3/20/07)
P6 2B Retract	07	05/16:00	081/02:12	21:12 (3/21/07)
EVA 3	08	06/17:25	082/03:37	22:37 (3/22/07)
Hatch Close	09	07/23:30	083/09:42	04:42 (3/24/07)
Undock	10	08/15:22	084/01:34	20:34 (3/24/07)
Deorbit	12	10/18:18	086/04:30	23:30 (3/26/07)
Landing	12	10/19:22	086/05:34	00:34 (3/27/07)

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



Verify this is the correct version for the pending operation (training, simulation or flight).
Electronic copies of FDF books are available. URL: <http://mod.jsc.nasa.gov/do3/FDF/index.html>

FLIGHT PLAN STS-117

FINAL (Feb 16, 2007)

PCN-1 (May 22, 2007) Sheet 1 of 1

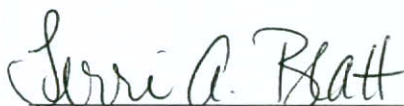
List of Implemented Change Requests (482s):

FLT PLN-2043

Incorporate the following:

1. Replace iii and iv
2. Replace 2-3 and 2-4
3. Replace 3-1 thru 3-6

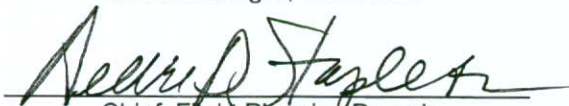
Prepared by:



Book Manager, Lead FAO

TRM SP

Approved by:



Chief, Flight Planning Branch

Encl: 10 pages

File this PCN immediately behind the front cover as a permanent record

MISSION OPERATIONS DIRECTORATE

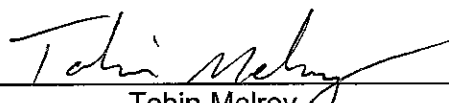
**FLIGHT PLAN
STS-117**

FINAL
February 16, 2007

PREPARED BY:



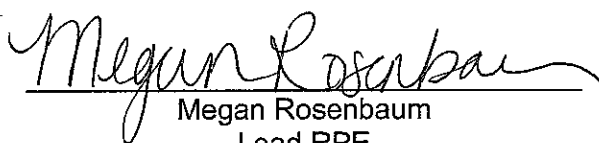
Terri Blatt
Book Manager, Lead FAO



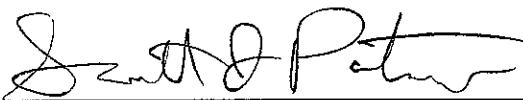
Tobin Melroy
Lead Timeliner



Loi Nguyen
Lead Ops Planner



Megan Rosenbaum
Lead RPE



Scott Patano
Lead Pointer

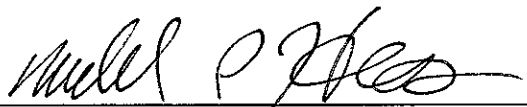
APPROVED BY:



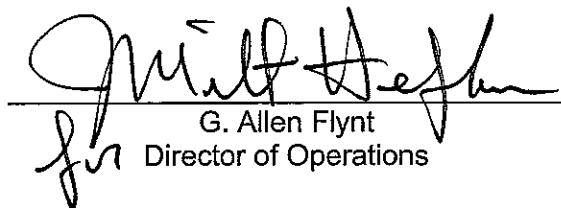
Linda DeLapp
Lead, Flight Planning Group



Debbie Stapleton
Chief, Flight Planning Branch



Michael Hess
Chief, Operations Division


for

G. Allen Flynt
Director of Operations

This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted via FDF Workflow Crew Procedure Change Request (CR) to DO3/FDF Manager.

Additional distribution of this book, for official use only, may be requested in writing to DO3/PMO Administrator. The request must include justification and requester's name, organization, position, and phone number. Contractor requests are made through the NASA or DOD organization supported. Deletions, reduction in quantity, or change of address may be submitted to DO3/FDF Management Office, 281-244-1184.

Incorporates the following:
482#: FLT PLN-2040

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager/Lead FAO	DO4/T. Blatt	281-244-1136
Lead Timeliner	DO4/T. Melroy	281-244-1132
Lead Pointer	DO4/S. Patano	281-244-1137
Lead Ops Planner	DO4/L. Nguyen	281-244-5432
Lead RPE	DO4/M. Rosenbaum	281-244-1066

FLIGHT PLAN
STS-117

LIST OF EFFECTIVE PAGES

	FINAL PCN-1	02/16/07 05/22/07	
Sign Off	* 117/FIN	3-1	117/FIN
ii.....	* 117/FIN	3-2	117/FIN 1
iii.....	* 117/FIN 1	3-3	117/FIN 1
iv.....	* 117/FIN	3-4	117/FIN 1
v	* 117/FIN	3-5	117/FIN 1
vi.....	* 117/FIN	3-6	117/FIN
1-1	117/FIN	3-7	117/FIN
1-2	117/FIN	3-8	117/FIN
1-3	117/FIN	3-9	117/FIN
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* – Omit from flight book

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3-107	117/FIN	7-9	* 117/FIN
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* – Omit from flight book

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INTRODUCTION

The STS-117 Flight Plan is the Flight Data File article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. The detailed rendezvous and undocking timelines and procedures are contained in the Rendezvous Checklist. The detailed EVA task timelines and procedures are contained in the EVA Checklist.

This Flight Plan satisfies the mission requirements specified in the following documents:

- NSTS-07700 Vol III, Flight Definition and Requirements Document
- NSTS-17462-117, STS-117 Flight Requirements Document
- NSTS-37326, Shuttle Crew Scheduling Constraints
- NSTS-21509, ISS 13A Mission Integration Plan

The timeline formats used in this Flight Plan are based on JSC-19933, Timeline Format Definitions and Standard Notes, Rev C, May 1990.

The STS-117 Flight Plan is based on a launch date of March 16, 2007 at 05:12 CDT. Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

The following SCSC Exceptions have been submitted in order to meet Category 1 objectives:
None

The Flight Plan and other related mission information are available on the following Space Shuttle Flight Planning web site:

<http://mod.jsc.nasa.gov/do4/flightplan/main/fp.cfm?id=117>

OVERVIEW TIMELINE

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STS-117 ISS 13A (launch with PVR) Overview Timeline 11+2+2 (3 EVAs) GMT L/O 075/10:12

		GMT	22	23	076/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21													
		MET	12	13	14	15	16	17	18	19	20	21	22	23	01/0	1	2	3	4	5	6	7	8	9	10	11													
FD 01	STS												PI		RMS C/O																								
	ISS																																						
	Orb Att												-ZLV +YVV				-ZLV -XVV																						
		Launch ^																																					
FD 02	STS												RCC Svrys, EVA Prep		Meal		RCC Svrys, RNDZ Prep																						
	ISS																																						
	Orb Att	-ZLV -XVV																																					
FD 03	STS												RNDZ		Hatch Open		EVA prep/xfers, S3/4 Handoff		EVA 1 Rvw		Campout																		
	ISS																																						
	Orb Att	-ZLV -XVV											RNDZ								LVLH TEA																		
		^ DOCKING (19:27)																																					
FD 04	STS												Pre EVA		EVA 1 (SAW Prep)		Pst EVA w/Prep																						
	ISS												S3/S4 Inst		PVR DPLY																								
	Orb Att	LVLH TEA																																					
FD 05	STS												SAW Deploys		Meal		Off Duty		EVA Prep		EVA 2 Rvw		Campout																
	ISS																SSRMS																						
	Orb Att	LVLH TEA											SAW DPLY										LVLH TEA																
		← MT XLAT 2-3 →																																					
FD 06	STS												Pre EVA		EVA 2 (P6, SARJ Prep)		Pst EVA w/Prep																						
	ISS												P6																										
	Orb Att	LVLH TEA																																					
FD 07	STS												O2 Xfer		P6 2B Retract		Meal		Simo Dump		EVA 3 Rvw		Campout																
	ISS																		EVA Prep		O2 Xfer																		
	Orb Att	LVLH TEA																	Simo				LVLH TEA																
FD 08	STS												Pre EVA		EVA 3		Pst EVA																						
	ISS														(P6, SARJ, path clear, H2 Vent R&R)		SSRMS																						
	Orb Att	LVLH TEA																																					
		← MT XLAT 3-5 →																																					
FD 09	STS												Off-Duty, PFCs		Meal		Simo Dump		Crew Conf & photo		EVA		RNDZ																
	ISS												Walkoff				EVA Xfer		EVA																				
	Orb Att	LVLH TEA													Simo								LVLH TEA																
		← WS #1 Inspect →																																					
FD 10	STS												Undock		Fly around		Meal		OBSS unbrth		Stbd wing		Nose cap		Port Wing		OBSS brth												
	ISS																																						
	Orb Att	-ZLV -XVV											Undock/Flyaround		-ZLV -XVV						Late Inspection				-ZLV -XVV														
		^ UNDOCKING (15:22)																																					
FD 11	STS												Cabin Stow		FCS C/O, Pilot Ops		Brief		Meal		Cabin Stow		P2		Simo Dump														
	ISS																																						
	Orb Att	-ZLV -XVV																			Simo		-ZLV -XVV																
FD 12	STS												D/O Prep		Ent																								
	ISS																																						
	Orb Att	-ZLV											IMU		-XSI		Comm		Ent																				

*KSC Land 10/19:22

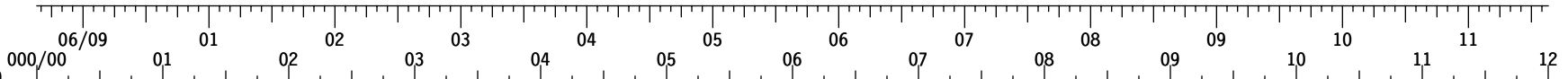
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SUMMARY TIMELINE AND ISS SHORT TERM PLAN

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FD01

GMT 06/08/07 (159)
 β=67
 MET Day 000

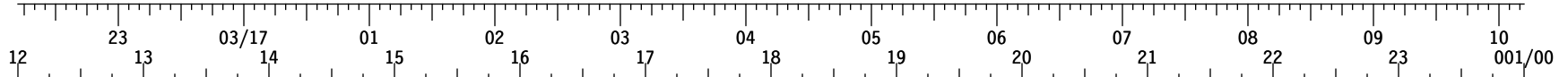


STS-117	CDR STURCKOW		POST INSERTION	AFT C/O LOAD DAPS	SETUP	IMU	ZLV	ELV PRK	GRWR BND	PRE SLEEP	PMCA/G	PRE SLEEP	SLEEP	MNVR	
	PLT/R2/M1 ARCHAMBAULT		POST INSERTION	RPMS SRUP	RMS C/O			RSUR PELY	GRWR BND	PRE SLEEP*			SLEEP		
	MS1/EV3/R1 FORRESTER	LAUNCH	POST INSERTION	RPMS*	RPMS SRUP	RMS C/O		RSUR PELY	RPMS RDWN*	PRE SLEEP			SLEEP		
	MS2/EV4/M2 SWANSON		POST INSERTION			PGSC SETUP (PART I)		UMB WELL D/L	WLES ACT	PRE SLEEP			SLEEP		
	MS3/EV2/R1 OLIVAS		POST INSERTION			P/TV01 VIDEO SETUP			HVD HIL DEO	ETP HOTO	PRE SLEEP			SLEEP	
	MS4/EV1 REILLY		POST INSERTION			PGSC SETUP (PART I)					PRE SLEEP			SLEEP	
	MS5 ANDERSON		POST INSERTION			GIRA INSTALL	SEE SETUP		OS CE AT CUP		PRE SLEEP			SLEEP	
DAY/NIGHT ORBIT															
STS	W -171 E -46 Z -275														
ORB ATT	ASC	OMS2													
NOTES															

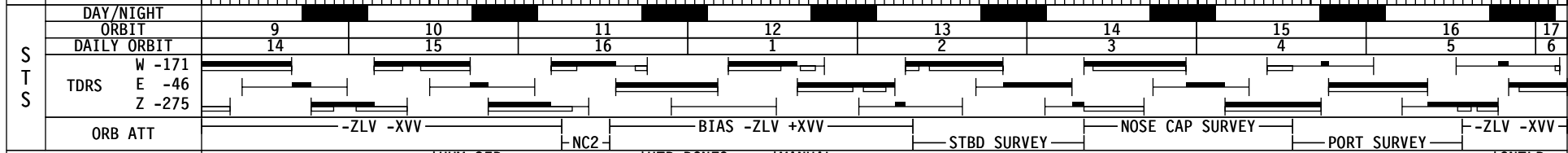
*ON-ORBIT INIT *RECONFIG *HUM SEP
 *VERIFY UPLINKS

FD02

GMT 03/16/07 (075)
 β = -34
 MET Day 000



S T S - 1 1 7	CDR STURCKOW	SLEEP	POST SLEEP	NC2^ OMS BURN	M S N U R V R V E Y	POST SLEEP		M S N T V B R D	FILTER CLEANING	CRYO 02 SNSR CK	M N O V S R E	MEAL	M P N O V R T	- - Z X L V V V	W B *	
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP*	OMS BURN		POST SLEEP	OBSS UNBRTH SRVY		STBD WING SRVY	NOSE CAP SRVY		MEAL	PORT WING SRVY	OBSS BERTH		
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP		R M S *	POST SLEEP	R P M S R U P		OBSS UNBRTH SRVY	STBD WING SRVY	NOSE CAP SRVY		MEAL	PORT WING SRVY	OBSS BERTH	
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP			PGSC SETUP (PART II)	F C P R G *		POST SLEEP	STBD WING SRVY	NOSE CAP SRVY		MEAL	PORT WING SRVY		
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP				EMU C/O PREP		EMU C/O	EVA PREP FOR XFER		MEAL	P/TV01 VIDEO SETUP	SETUP C/L CAMR		
	MS4/EV1 REILLY	SLEEP	POST SLEEP				EMU C/O PREP		EMU C/O	EVA PREP FOR XFER		MEAL	P/TV01 VIDEO SETUP	SETUP C/L CAMR		



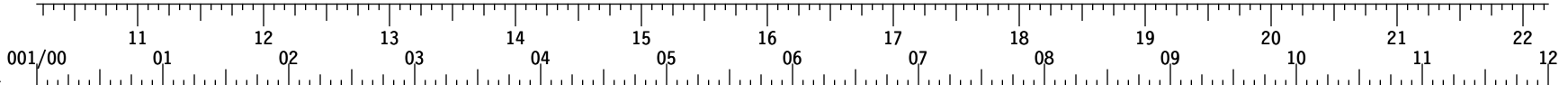
NOTES	*HUM SEP	*HTR RCNFG *HTR	*MANUAL	*CNTLR SWAP
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FD02

GMT 03/17/07 (076)

β = -32

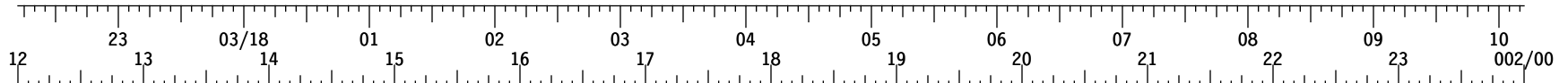
MET Day 001



S T S - 1 1 7	CDR STURCKOW	OMS POD SRVY		M C N O V M R	PRE SLEEP	NC3 [^] OMS BURN	-- Z X L V V	F M U N T V R	PMC A/G	PRE SLEEP	SLEEP			
	PLT/R2/M1 ARCHAMBAULT			EXERCISE	PRE SLEEP	OMS BURN	PRE SLEEP*			SLEEP				
	MS1/EV3/R1 FORRESTER	CWC S/U	ODS RING EXT		LDRI DNLK	PRE SLEEP				SLEEP				
	MS2/EV4/M2 SWANSON		FCMS OPS	M L E S	RNDZ TOOLS C/O	PRE SLEEP				SLEEP				
	MS3/EV2/R1 OLIVAS		HHL RING C/O EXT		RNDZ TOOLS C/O	PRE SLEEP				SLEEP				
	MS4/EV1 REILLY	ERG SETUP	XFER PREP	X B F R E E F	PRE SLEEP		O C A *	PRE SLEEP			SLEEP			
S T S	DAY/NIGHT	[Shaded bars indicating day/night cycle]												
	ORBIT	[Shaded bars indicating orbit schedule]												
	DAILY ORBIT	17 6	18 7	19 8	20 9	21 10	22 11	23 12	24 13	25 14				
	TDRS	W -171	[Timeline with various activity bars]											
	E -46	[Timeline with various activity bars]												
	Z -275	[Timeline with various activity bars]												
	ORB ATT	-ZLV -XVV	COMM	NC3	*HUM SEP				-ZLV -XVV					
	NOTES	<p style="text-align: center;">*HIGH RATE</p> <p style="text-align: center;">*HUM SEP</p>												

FD03

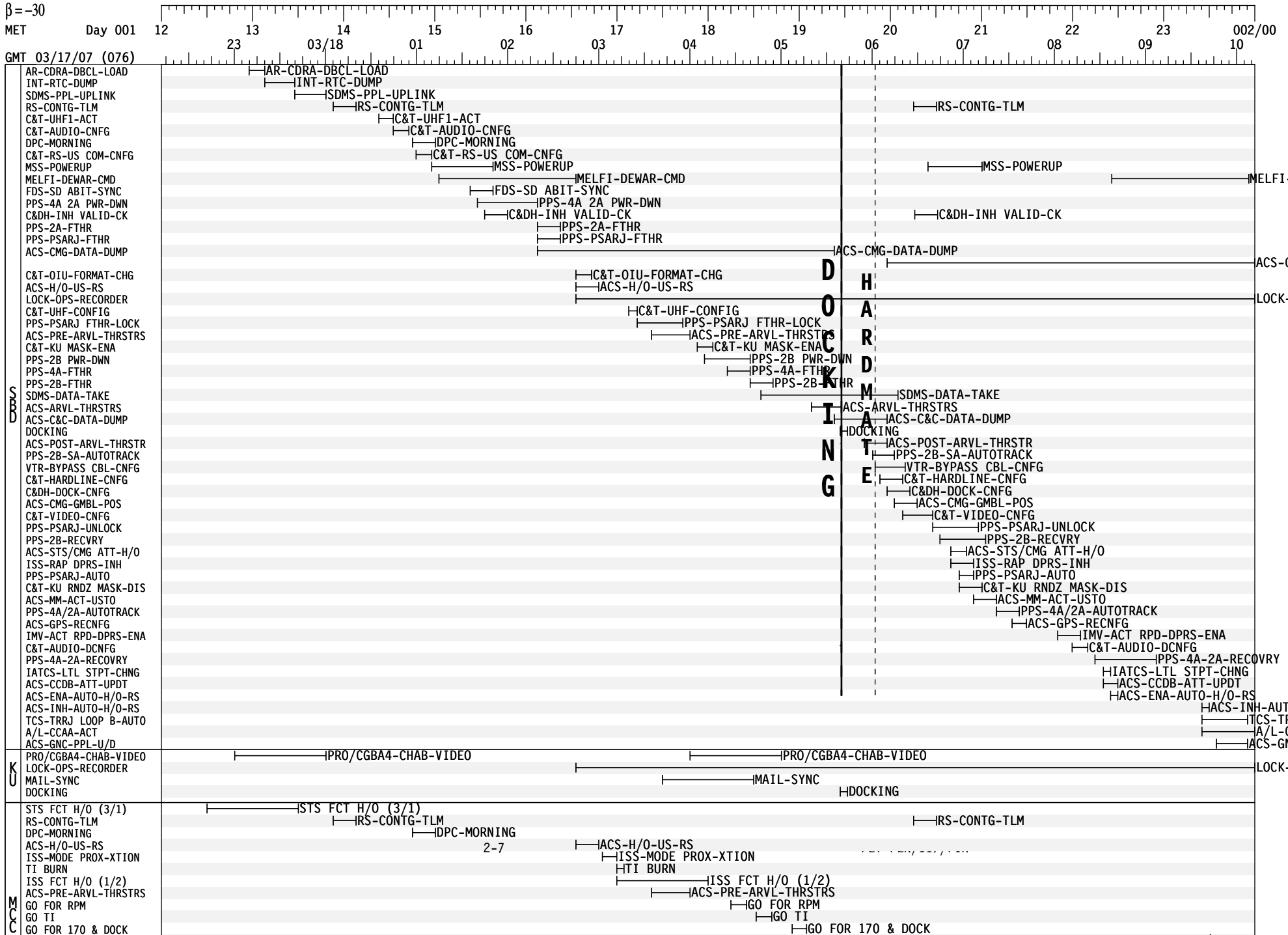
GMT 03/17/07 (076)
 β = -30
 MET Day 001



S T S - 1 1 7	CDR STURCKOW	SLEEP	MNVR POST SLEEP	SGP SRPR VUP BUP	NC4^	Ti^	RPM^	ISS RNDZ OPS	APPROACH T/L	HATCH LEAK CK - STS	ODS PREP FOR INGR	INGRS HATCH OPEN	SFTY CBRIEF	PTV06 S/U	P/B SETUP W/STS 02	FE S *	MU N D R A T	FE S *			
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP	GP RWR PR BUP				ISS RNDZ OPS	APPROACH T/L	MTE NVA R	SR V 2	GP RWR B D N	H / O	N 2 *	G R A P L	SFTY CBRIEF	S3/S4-UNBERTH	S3/S4 HAND OFF			
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP						EXERCISE	P/TV 02 OPS			GP RWR B D N	D O U C D K I O	G R A P L	SFTY CBRIEF	S3/S4-UNBERTH	S3/S4 HAND OFF			
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP	SIMO INIT	POST SLEEP	SIMO TERM	POST SLEEP	EXERCISE	ISS RNDZ OPS	APPROACH T/L			PCS SETUP - STS	POST RNDZ PGSC CNFG	SFTY CBRIEF	PST DK EVA XFR/RCNFG	R E B A *	R C / B O	E L K P R E P	C W C - S T S	
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP				P/TV 02 S/U	MP DR D E K P	EMU RMVL	P/TV 02 O P S	EXERCISE	P/TV 02 OPS		P/TV 04 S/U	P L P S B K	P/TV 05 S/U	SFTY CBRIEF	PST DK EVA XFR/RCNFG	R E B A *	R C / B O	E L K P R E P
	MS4/EV1 REILLY	SLEEP	POST SLEEP	O C A *	POST SLEEP		COND C W C S/U	MP DR D E K P	EMU RMVL	EXERCISE	APPROACH T/L	HATCH LEAK CK - STS	ODS PREP FOR INGR	INGRS HATCH OPEN	SFTY CBRIEF	PST DK EVA XFR/RCNFG	R E B A *	R C / B O	E L K P R E P		
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP	P W R O R E R P K	D P C	P W R O R E R P K	W C C N F A G	V R F Y P/TV S/U	EXERCISE RED	MIDDAY-MEAL	P O L I M M	F O L D	A A T C R H S V L S T	R P M D	HATCH LK CK-ISS		SFTY CBRIEF	EXERCISE TVIS	E V A D C S C N F G		
	FE-1 TIUPH	SLEEP	POST SLEEP	P W R O R E R P K	D P C	P W R O R E R P K		V R F Y P/TV S/U	VELO + HC	MIDDAY-MEAL	P O L I M M	F O L D			EXERCISE TVIS		SFTY CBRIEF	COX M S			
	FE-2 WILLIAMS	SLEEP	POST SLEEP	P W R O R E R P K	D P C	P W R O R E R P K	U O P P/D		EXERCISE TVIS	MIDDAY-MEAL	M I D M E E R	P/TV DOCK VIDEO		V T R	EXERCISE RED		SFTY CBRIEF	P/B SETUP W/STS 02			
S T S	DAY/NIGHT ORBIT	[Timeline bars for Day/Night Orbit]																			
	DAILY ORBIT	25 14	26 15	27 16	28 1	29 2	30 3	31 4	32 5	6											
	TDRS	W -171	[Timeline bars for TDRS W -171]																		
		E -46	[Timeline bars for TDRS E -46]																		
		Z -275	[Timeline bars for TDRS Z -275]																		
	ORB ATT	-ZLV -XVV -ZLV +YVV RNDZ APRCH DOCK BIAS -XLV -ZVV BIAS -XLV -ZVV																			
	SSRMS	WS2 PDGF2																			
	NOTES	*HIGH RATE *ACT SPPT *FILTER CK *ACT *CABLE CNCT *RPRS INIT DEACT* HTR* DEACT																			

***1/19:27**

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

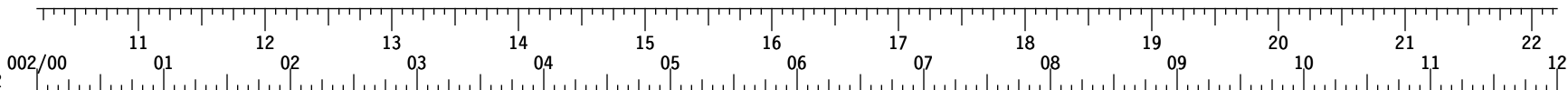


FD03

GMT 03/18/07 (077)

β = -27

MET Day 002



S T S - 1 1 7	CDR STURCKOW	N 2 *	PRE SLEEP	D A P	EVA 1 PROC REVIEW	EXERCISE	PMC A/G	PRE SLEEP	SLEEP	
	PLT/R2/M1 ARCHAMBAULT	SHO SAF 3 NREI D V RN F / 4 APE M D S L W S L Y			EVA 1 PROC REVIEW			PRE SLEEP*	SLEEP	
	MS1/EV3/R1 FORRESTER			SUG 3 NREI D V / 4 APE PL W L Y	EVA 1 PROC REVIEW			PRE SLEEP	SLEEP	
	MS2/EV4/M2 SWANSON	C I W N C I T 1			EVA 1 PROC REVIEW	C X W F C E R		PRE SLEEP	SLEEP	
	MS3/EV2/R1 OLIVAS		PRE SLEEP		EVA 1 PROC REVIEW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP (8.5 HOURS)	
	MS4/EV1 REILLY		PRE SLEEP		EVA 1 PROC REVIEW	PRE SLEEP	MASK PB/TOOL CONFIG 10.2 DPRS	PRE SLEEP	SLEEP (8.5 HOURS)	
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	R S T I R N I W I S S / U	PREP WORK	D P C	EVA 1 PROC REVIEW	P W R O R E R P K		PRE SLEEP	SLEEP	
	FE-1 TIUPH	I M S	PREP WORK	D P C	EVA 1 PROC REVIEW	P W R O R E R P K		PRE SLEEP	SLEEP	
	FE-2 WILLIAMS	U O P * E R	PREP WORK	D P C	EVA 1 PROC REVIEW	P W R O R E R P K		PRE SLEEP	SLEEP	
S T S	DAY/NIGHT	[Timeline bar]								
	ORBIT	[Timeline bar]								
	DAILY ORBIT	33	34	35	36	37	38	39	40	
	TDRS	W -171	6	7	8	9	10	11	12	13
	E -46	[Timeline bar]								
	Z -275	[Timeline bar]								
	ORB ATT	BIAS -XLV -ZVV								
	SSRMS	S3/S4 H/O						WS2 PDGF2		
	NOTES	*RPRS TERM	*HUM SEP							
		*P/U								

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -27
 MET Day 002 002/00 01 02 03 04 05 06 07 08 09 10 11 12

GMT 03/18/07 (077) 11 12 13 14 15 16 17 18 19 20 21 22

I S S	DAY/NIGHT	[Bar chart showing day/night cycle]										
	ORBIT	3644	3645	3646	3647	3648	3649	3650	3651			
	DAILY ORBIT	6	7	8	9	10	11	12	13			
	TDRS AVAIL	[Bar chart showing TDRS availability]										
RS GND												- ALL VHF
												- ALL VHF
												- ALL VHF

M C C	TCS-TRRJ LOOP A-UNLK	----- TCS-TRRJ LOOP A-UNLK										
	DPC-EVENING	----- DPC-EVENING										
	ISS FCT H/O (2/3)	----- ISS FCT H/O (2/3)										
	RS-CONTG-TLM	----- RS-CONTG-TLM										
	ACS-ENA-AUTO-H/O-RS	----- ACS-ENA-AUTO-H/O-RS										
	STS FCT H/O (2/3)	----- STS FCT H/O (2/3)										
	A/L-CAMPOUT-CNFG	----- A/L-CAMPOUT-CNFG										
	CHECS-COMMANDING	----- CHECS-COMMANDING										
	S1S3-PREP FOR MATE	----- S1S3-PREP FOR MATE										
	SSAS-SAFING-PPL	----- SSAS-SAFING-PPL										
ISS FCT H/O (3/1)	----- ISS FCT H/O (3/1)											
CHECS-KU-D/L	----- CHECS-KU-D/L											

S B D	LOCK-OPS-RECORDER	----- LOCK-OPS-RECORDER										
	ACS-CMG-DATA-DUMP	----- ACS-CMG-DATA-DUMP										
	A/L-CCAA-ACT	----- A/L-CCAA-ACT										
	TCS-TRRJ LOOP A-UNLK	----- TCS-TRRJ LOOP A-UNLK										
	CDRA-DBCL-DATA-DUMP	----- CDRA-DBCL-DATA-DUMP										
	AR-CDRA-ACT	----- AR-CDRA-ACT										
	DPC-EVENING	----- DPC-EVENING										
	RS-CONTG-TLM	----- RS-CONTG-TLM										
	A/L-10.2 PSI OP-INIT	----- A/L-10.2 PSI OP-INIT										
	IATCS-RFCA STPT-CHNG	----- IATCS-RFCA STPT-CHNG										
	PPS-PCU-DISCHARGE	----- PPS-PCU-DISCHARGE										
	SSRMS-CAUTION-SUPRSS	----- SSRMS-CAUTION-SUPRSS										
	MSS-POWERDOWN	----- MSS-POWERDOWN										
	SDMS-DATA-DUMP	----- SDMS-DATA-DUMP										
	C&T-AUDIO-CNFG	----- C&T-AUDIO-CNFG										
	C&T-VIDEO-DECNFG	----- C&T-VIDEO-DECNFG										
	A/L-CCAA-SPD-CHG	----- A/L-CCAA-SPD-CHG										
	ACS-ENA-AUTO-H/O-RS	----- ACS-ENA-AUTO-H/O-RS										
	A/L-CAMPOUT-CNFG	----- A/L-CAMPOUT-CNFG										
	CHECS-COMMANDING	----- CHECS-COMMANDING										
S1S3-PREP FOR MATE	----- S1S3-PREP FOR MATE											
SBD-KEY-CHG	----- SBD-KEY-CHG											
SSAS-SAFING-PPL	----- SSAS-SAFING-PPL											
C&T-VDS-CONFIG	----- C&T-VDS-CONFIG											
MSS-POWERUP	----- MSS-POWERUP											
AVU-PWRUP	----- AVU-PWRUP											

K U	LOCK-OPS-RECORDER	----- LOCK-OPS-RECORDER										
	MAIL-SYNC	----- MAIL-SYNC										
	PRO/CGBA4-CHAB-VIDEO	----- PRO/CGBA4-CHAB-VIDEO										
	CHECS-KU-D/L	----- CHECS-KU-D/L										

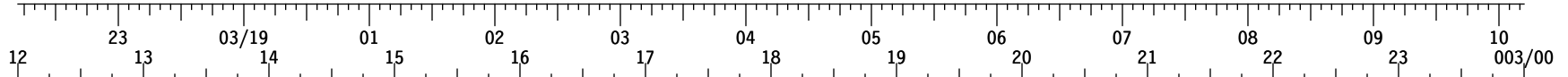
P L	ALTEA-DOSI-OPS	----- ALTEA-DOSI-OPS										
	CGBA4-PL-RES TRACK	----- CGBA4-PL-RES TRACK										
	EXPRS4-SYS-PWR/THERM	----- EXPRS4-SYS-PWR/THERM										
	MELFI-DEWAR 1-OPS	----- MELFI-DEWAR 1-OPS										
	MELFI-DEWAR 2-OPS	----- MELFI-DEWAR 2-OPS										
	PRO/CGBA4-CHAB-VIDEO	----- PRO/CGBA4-CHAB-VIDEO										
	PRO-EXPRS FILE-CMD	----- PRO-EXPRS FILE-CMD										
CGBA4-PARAM-CMD	----- CGBA4-PARAM-CMD											

2-9 FLT PLN/117/FIN



FD04

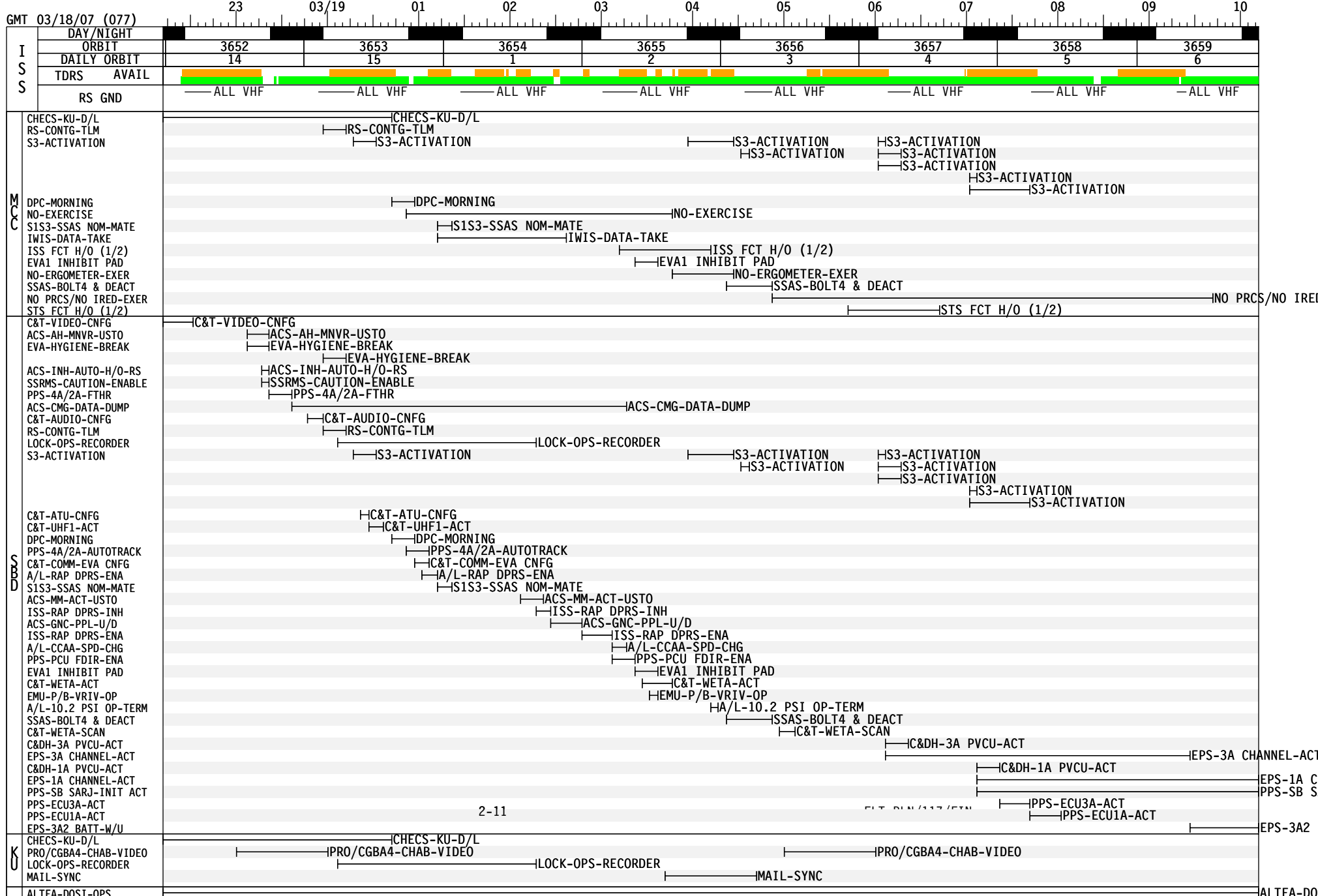
GMT 03/18/07 (077)
 β = -25
 MET Day 002



S T S - 1 1 7	CDR STURCKOW	SLEEP	POST SLEEP	PMC A/G	POST SLEEP	CM OVS MS*	SRVMS	MUPDRAT	POST SLEEP	IMU	INAHDBT	DP/TV 07 S/U	P/TV SPRT	SRMS	P/TV SPRT				
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP	SSRMS S3/S4 INSTL			MNVR TO RTL	LIIMP	3-CAPI	SAVUE*	UGRPL	SSRMS EVA 1 PARK	SRMS	SSRMS SPRT					
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP	MCICUS*	SAVUE*	AVU**	POST SLEEP	AVU TGT ACQ	1-CAPI	3-CAPI	SIS3 SSAS BOLTING	EVA 1 (6:30)				IWA SUPPORT			
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP	HYG BRK/HATCH CLS	EVA PREP SUPPORT				-14.7 REPR		CINWICIT 2	EXERCISE	CINWICIT 3	MEAL	CWEXCR3M	CWCXFER	IWIS SNSR INSTL	EMU RCNFG	
	MS3/EV2/R1 OLIVAS	SLEEP (8.5 HOURS)	POST SLEEP	HYG BRK/PREBREATHE	CAMPOUT EVA PREP		EMURGE	EMU PREBREATHE	C LK DPRS	EPURGE	EPURGE	SORTIE EGRESS & S/U	REL AFT/FWD SABB RES		REL PVR CINC/WINCH	UAFSTB	RMV MLI	RGDZ AJIS STRTS (4)	SARJ PREP LOCKS
	MS4/EV1 REILLY	SLEEP (8.5 HOURS)	POST SLEEP	HYG BRK/PREBREATHE	CAMPOUT EVA PREP		EMURGE	EMU PREBREATHE	C LK DPRS	EPURGE	EPURGE	S1-S3 NT UTIL	S3 MDM SHRD RMVL	S1-S3 ZT UTIL	KEEL PIN ROTATE	REL 1A/3A SABGA RES	UFSNWA SDB	SARJ DLA2 INSTALL	SARJ PREP LOCKS
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP	DPCPREP	HYG BRK/HATCH CLS	PREP	EVA PREP SUPPORT				-14.7 REPR		CEVIS		MIDDAY-MEAL	IWIS SNSR INSTL	EXERCISE RED		
	FE-1 TIUPMH	SLEEP	POST SLEEP	DPCPREP	PREP WORK	EXERCISE TVIS				VELO + HC	MIDDAY-MEAL								
	FE-2 WILLIAMS	SLEEP	POST SLEEP	DPCPREP	SSRMS S3/S4 INSTL	MNVR TO RTL	LIIMP	3-CAPI	SIS3 SSAS BOLTING	UGRPL	SSRMS EVA 1 PARK	SSRMS SPRT							
S T S	DAY/NIGHT ORBIT	41		42		43		44		45		46		47		48			
	DAILY ORBIT	14		15		1		2		3		4		5		6			
	TDRS W -171																		
	TDRS E -46																		
TDRS Z -275																			
ORB ATT	BIAS -XLV -ZVV				BIAS -XLV -ZVV														
SSRMS	WS2 PDGF2																		
NOTES	*HTR ACT *PWRUP *CALIBRATION *FILTER CK												No Exercise No ERGO						

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -25
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 GMT 03/18/07 (077) 23 03/19 01 02 03 04 05 06 07 08 09 10

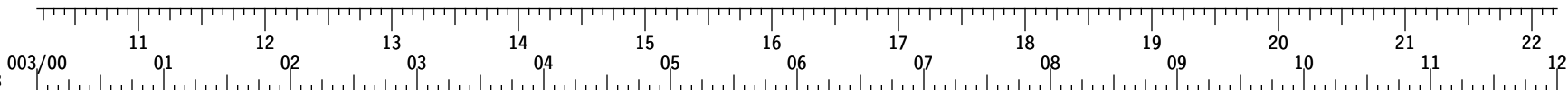


FD04

GMT 03/19/07 (078)

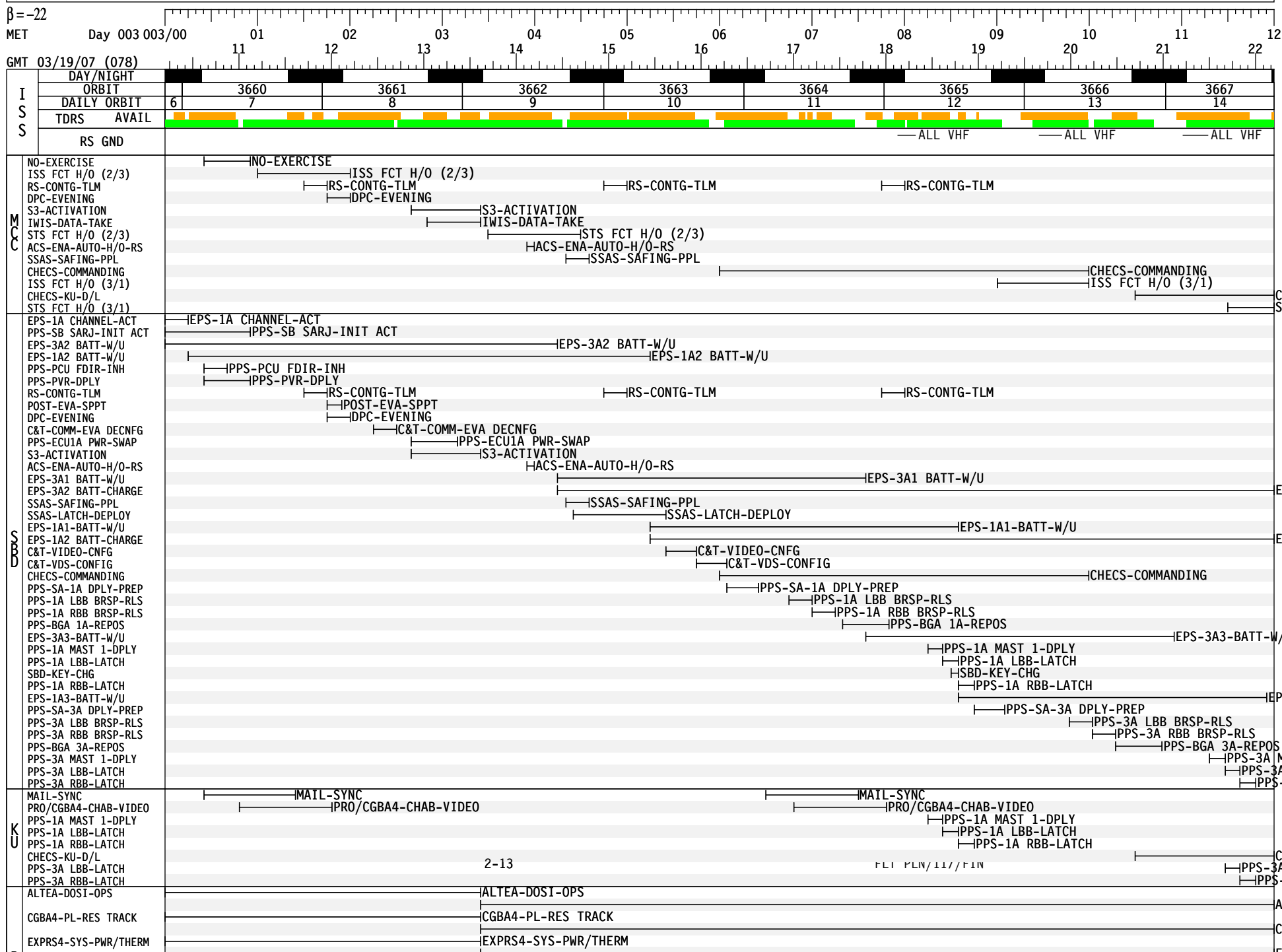
β = -22

MET Day 003



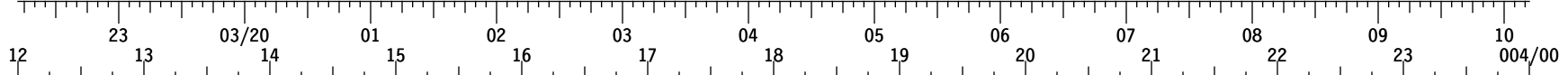
S T S - 1 1 7	CDR STURCKOW	P/TV SPRT		WVSS# 14-70	EXERCISE	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP						
	PLT/R2/M1 ARCHAMBAULT	SSRRMTS	VIEW	PVR DEPLOY	EXERCISE	PRE SLEEP			SLEEP						
	MS1/EV3/R1 FORRESTER	IVA SUPPORT			PRE SLEEP	BSA INIT	PRE SLEEP	SLEEP							
	MS2/EV4/M2 SWANSON		PVR DEPLOY		POST EVA W/H2O METOX	PRE SLEEP			SLEEP						
	MS3/EV2/R1 OLIVAS	SARJ PREP LOCKS	SORTIE C/U & INGRS	PRPS	POST EVA W/H2O METOX	PRE SLEEP			SLEEP						
	MS4/EV1 REILLY	SARJ PREP LOCKS	SORTIE C/U & INGRS	PRPS	POST EVA W/H2O METOX	PRE SLEEP			SLEEP						
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	EXERCISE RED	PREP WORK	PSLEEP	POST EVA W/H2O METOX	PRE SLEEP	RSU	PRE SLEEP	SLEEP						
	FE-1 TIUPH		IMS COX	PREP WORK	DPC	PREP WORK	PRE SLEEP		SLEEP						
	FE-2 WILLIAMS	SSRRMTS	VIEW	PVR DEPLOY	AVXU*RPK	PROPERK	DPC	PREP WORK	PRE SLEEP	SLEEP					
S T S	DAY/NIGHT	[Timeline with day/night indicators]													
	ORBIT	[Timeline with orbit indicators]													
	DAILY ORBIT	[Timeline with daily orbit indicators]													
	TDRS	W -171	[Timeline with TDRS W -171 indicators]												
		E -46	[Timeline with TDRS E -46 indicators]												
	Z -275	[Timeline with TDRS Z -275 indicators]													
	ORB ATT	BIAS -XLV -ZVV													
	SSRMS	WS2 PDGF2													
	NOTES	@MAINT #HTR DEACT *PWRDN No Exercise													

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)



FD05

GMT 03/19/07 (078)
 β = -20
 MET Day 003



S T S - 1 1 7	CDR STURCKOW	SLEEP	POST SLEEP	1A 49%	1A 00%	3A 49%	3A 00%	CXFER	MEAL	OFF DUTY	IMU	XFER OPS	N 2*	CIN 5	EXERCISE	CT 5	CXFER			
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP	CIN 4	1A 49%	1A 00%	CTE 3	M 3A	3A 49%	3A 00%	MTE H/O	SRMS RTRCT VIEW	SSRMS WS2 CNFG XLAT	XFER OPS	N 2*	CXFER				
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP	1A 49%	1A 00%	3A 49%	3A 00%		MEAL	OFF DUTY	PMDIS	EXERCISE	E_LK PREP	CT 5	CXFER					
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP	SM SNRVR S#	POST SLEEP	1A 49%	1A 00%	M NV R#	V R F Y @	3A 49%	EMU SWAP	3A 00%	PMDIS	MEAL	OFF DUTY	EXERCISE	IWS SNSR T/D	E_LK PREP	CT 5	CXFER
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP	AS PRN	1A 49%	1A 00%	3A 49%	3A 00%	EMU SWAP	3A 00%	M CI U*	SRMS RTRCT VIEW	POST EVA 1 TOOL CNFG	EXERCISE	XFER OPS	CT 5	CXFER			
	MS4/EV1 REILLY	SLEEP	POST SLEEP	AS PRN	1A 49%	1A 00%	3A 49%	3A 00%		MEAL	OFF DUTY	FOOD XFER	POST EVA 1 TOOL CNFG	XFER OPS	EXERCISE	CT 5	CXFER			
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP	PREP WORK	DPC	PL C K	R R S T R N	BSA *	BSA INIT	M E T X #	MIDDAY-MEAL	IWS DEACT	PM CDR	IMS	SSRMS WS2 CNFG XLAT	CEVIS				
	FE-1 TIUPH	SLEEP	POST SLEEP	PREP WORK	DPC						MIDDAY-MEAL	PM CDR	COX		EXERCISE TVIS	VELO + HC				
	FE-2 WILLIAMS	SLEEP	POST SLEEP	SM SNRVR S#	DPC	PREP WORK	1A 49%	1A 00%	M NV R#	V R F Y @	3A 49%	3A 00%	MIDDAY-MEAL	PM CDR	CEVIS	EXERCISE RED	PSMT DOWNS			
S T S	DAY/NIGHT	[Timeline bars for day/night cycle]																		
	ORBIT	[Timeline bars for orbit cycle]																		
	DAILY ORBIT	56	57	58	59	60	61	62	63	64										
	TDRS	W -171	[Timeline bars for TDRS events]																	
NOTES	ORB ATT	BIAS -XLV -ZVV 1A SAW DEPLOY 3A SAW DEPLOY BIAS -XLV -ZVV																		
	SSRMS	#1A CAMERAS *TERM @3A CAMERA CONFIG #3A CAMERAS *FILTER CK #TERM WS2 PDGF2 *RPRS INIT *RPRS TERM																		

NO EXERCISE

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -20
 MET Day 003 12 13 14 15 16 17 18 19 20 21 22 23 004/00
 GMT 03/19/07 (078) 23 03/20 01 02 03 04 05 06 07 08 09 10

I S S	DAY/NIGHT	[Day/Night Cycle]									
	ORBIT	3667	3668	3669	3670	3671	3672	3673	3674	3675	
	DAILY ORBIT	14	15	16	1	2	3	4	5	6	
	TDRS AVAIL	[TDRS Availability Bar]									
	RS GND	[RS GND Cycle]									
		[ALL VHF Cycle]									

CCM	CHECS-KU-D/L	[CHECS-KU-D/L Cycle]									
	STS FCT H/O (3/1)	[STS FCT H/O (3/1) Cycle]									
	NO-EXERCISE	[NO-EXERCISE Cycle]									
	RS-CONTG-TLM	[RS-CONTG-TLM Cycle]									
	TCS-S1 TRRJ-ROTATE	[TCS-S1 TRRJ-ROTATE Cycle]									
	DPC-MORNING	[DPC-MORNING Cycle]									
	ISS FCT H/O (1/2)	[ISS FCT H/O (1/2) Cycle]									
	STS FCT H/O (1/2)	[STS FCT H/O (1/2) Cycle]									

DBS	EPS-3A2 BATT-CHARGE	[EPS-3A2 BATT-CHARGE Cycle]									
	EPS-1A2 BATT-CHARGE	[EPS-1A2 BATT-CHARGE Cycle]									
	HA/L-MTX REGEN-CNFG	[HA/L-MTX REGEN-CNFG Cycle]									
	ACS-INH-AUTO-H/O-RS	[ACS-INH-AUTO-H/O-RS Cycle]									
	RS-CONTG-TLM	[RS-CONTG-TLM Cycle]									
	TCS-S1 TRRJ-ROTATE	[TCS-S1 TRRJ-ROTATE Cycle]									
	ACS-CCDB-PARAM-UPDT	[ACS-CCDB-PARAM-UPDT Cycle]									
	PPS-PSARJ-FTHR	[PPS-PSARJ-FTHR Cycle]									
	ACS-CMG-DATA-DUMP	[ACS-CMG-DATA-DUMP Cycle]									
	DPC-MORNING	[DPC-MORNING Cycle]									
	PPS-2A-FTHR	[PPS-2A-FTHR Cycle]									
	ACS-AH-MNVR-USTO	[ACS-AH-MNVR-USTO Cycle]									
	LOCK-OPS-RECORDER	[LOCK-OPS-RECORDER Cycle]									
	PPS-1A MAST 15.5-DPL	[PPS-1A MAST 15.5-DPL Cycle]									
	PPS-1A MAST 31.5-DPL	[PPS-1A MAST 31.5-DPL Cycle]									
	PPS-1A-FTHR	[PPS-1A-FTHR Cycle]									
	PPS-3A MAST 15.5-DPL	[PPS-3A MAST 15.5-DPL Cycle]									
	PPS-4A-FTHR	[PPS-4A-FTHR Cycle]									
	PPS-3A MAST 31.5-DPL	[PPS-3A MAST 31.5-DPL Cycle]									
	ACS-GNC-PPL-U/D	[ACS-GNC-PPL-U/D Cycle]									
	ACS-STC/CMG ATT-H/O	[ACS-STC/CMG ATT-H/O Cycle]									
	PPS-3A-FTHR	[PPS-3A-FTHR Cycle]									
	PPS-PSARJ-AUTO	[PPS-PSARJ-AUTO Cycle]									
	PPS-4A/2A-AUTOTRACK	[PPS-4A/2A-AUTOTRACK Cycle]									
	ACS-MM-ACT-USTO	[ACS-MM-ACT-USTO Cycle]									
	PPS-1A/3A-ISOLATION	[PPS-1A/3A-ISOLATION Cycle]									
	PPS-1A/3A-AUTOTRACK	[PPS-1A/3A-AUTOTRACK Cycle]									
	EPS-1A1 BATT-CHARGE	[EPS-1A1 BATT-CHARGE Cycle]									
	EPS-3A1 BATT-CHARGE	[EPS-3A1 BATT-CHARGE Cycle]									
	EPS-1A3 BATT-CHARGE	[EPS-1A3 BATT-CHARGE Cycle]									
	EPS-3A3 BATT-CHARGE	[EPS-3A3 BATT-CHARGE Cycle]									
	PMC-FE1	[PMC-FE1 Cycle]									
	PMC-FE2	[PMC-FE2 Cycle]									
	ACS-CMG-GMBL-POS	[ACS-CMG-GMBL-POS Cycle]									
	C&T-VDS-CONFIG	[C&T-VDS-CONFIG Cycle]									
	PMC-CDR	[PMC-CDR Cycle]									
	O2-REPRESS	[O2-REPRESS Cycle]									

GK	CHECS-KU-D/L	[CHECS-KU-D/L Cycle]									
	PRO/CGBA4-CHAB-VIDEO	[PRO/CGBA4-CHAB-VIDEO Cycle]									
	LOCK-OPS-RECORDER	[LOCK-OPS-RECORDER Cycle]									
	MAIL-SYNC	[MAIL-SYNC Cycle]									
	PMC-FE1	[PMC-FE1 Cycle]									
	PMC-FE2	[PMC-FE2 Cycle]									
	PMC-CDR	[PMC-CDR Cycle]									

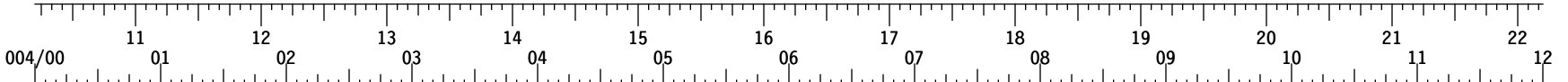
P	ALTEA-DOSI-OPS	[ALTEA-DOSI-OPS Cycle]									
	CGBA4-PL-RES TRACK	[CGBA4-PL-RES TRACK Cycle]									
	EXPRS4-SYS-PWR/THERM	[EXPRS4-SYS-PWR/THERM Cycle]									
	MELFI-DEWAR 1-OPS	[MELFI-DEWAR 1-OPS Cycle]									
	MELFI-DEWAR 2-OPS	[MELFI-DEWAR 2-OPS Cycle]									
	PRO-EXPRS FILE-CMD	[PRO-EXPRS FILE-CMD Cycle]									
	PRO/CGBA4-CHAB-VIDEO	[PRO/CGBA4-CHAB-VIDEO Cycle]									

SR											
----	--	--	--	--	--	--	--	--	--	--	--

EPS-1A1 F
 EPS-3A1 F
 EPS-1A3 F
 EPS-3A3 F
 O2-REPRESS
 ALTEA-DOSI
 CGBA4-PL-
 EXPRS4-SY
 MELFI-DEV
 MELFI-DEV

FD05

GMT 03/20/07 (079)
 β = -17
 MET Day 004



S T S - 1 1 7	CDR STURCKOW	XFER	PS A O T U P	EVA 2 PROC REVIEW	PE A V O E N T	PRE SLEEP	PMC A/G	PRE SLEEP	ISS EXTERNAL SURVEY SLEEP			
	PLT/R2/M1 ARCHAMBAULT	EXER		EVA 2 PROC REVIEW	PE A V O E N T			PRE SLEEP	SLEEP			
	MS1/EV3/R1 FORRESTER	T C O N O F L G	PRE SLEEP	EVA 2 PROC REVIEW		PRE SLEEP		MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP		
	MS2/EV4/M2 SWANSON	T C O N O F L G	PRE SLEEP	EVA 2 PROC REVIEW		PRE SLEEP		MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP		
	MS3/EV2/R1 OLIVAS	XFER		EVA 2 PROC REVIEW	PE A V O E N T			PRE SLEEP	SLEEP			
	MS4/EV1 REILLY	EXER CISE	XFER OPS	EVA 2 PROC REVIEW	PE A V O E N T			PRE SLEEP	SLEEP			
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	C E V I S	PREP WORK	EVA 2 PROC REVIEW	PE A V O E N T	DPC		PRE SLEEP	SLEEP			
	FE-1 TIUPH		PREP WORK	EVA 2 PROC REVIEW	PE A V O E N T	DPC		PRE SLEEP	SLEEP			
	FE-2 WILLIAMS		PREP WORK	EVA 2 PROC REVIEW	PE A V O E N T	DPC		PRE SLEEP	SLEEP			
S T S	DAY/NIGHT	[Timeline with shaded sleep periods]										
	ORBIT	64	65	66	67	68	69	70	71	72		
	DAILY ORBIT	6	7	8	9	10	11	12	13	14		
	TDRS	W -171	[Timeline with TDRS activity bars]									
		E -46	[Timeline with TDRS activity bars]									
	Z -275	[Timeline with TDRS activity bars]										
	ORB ATT	BIAS -XLV -ZVV										
	SSRMS	WS2 PDGF2	2-3 XLATE SRVY	XLATE WS3	WS3 PDGF2							
	NOTES											

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -17
 MET Day 004 004/00 01 02 03 04 05 06 07 08 09 10 11 12

GMT 03/20/07 (079) 11 12 13 14 15 16 17 18 19 20 21 22

I S S	DAY/NIGHT	[Day/Night Bar]													
	ORBIT	3675	3676	3677	3678	3679	3680	3681	3682	3683					
	DAILY ORBIT	6	7	8	9	10	11	12	13	14					
	TDRS AVAIL	[TDRS Availability Bar]													
RS GND		- ALL VHF - ALL VHF - ALL VHF - ALL VHF													

M C C	ISS FCT H/O (2/3)	-----													
	RS-CONTG-TLM	-----													
	DPC-EVENING	-----													
	STS FCT H/O (2/3)	-----													
	S3-PAS-CHECKOUT	-----													
	ACS-ENA-AUTO-H/O-RS	-----													
	A/L-CAMPOUT-CNFG	-----													
	CHECS-COMMANDING	-----													
	ISS FCT H/O (3/1)	-----													
	CHECS-KU-D/L	-----													

S D S	EPS-1A1 BATT-CHARGE	-----													
	EPS-3A1 BATT-CHARGE	-----													
	EPS-1A3 BATT-CHARGE	-----													
	EPS-3A3 BATT-CHARGE	-----													
	O2-REPRESS	-----													
	MT-SETUP	-----													
	MT-WS2-WS3-SURVEY	-----													
	RS-CONTG-TLM	-----													
	DPC-EVENING	-----													
	MT-WS2-WS3-TRANSLATE	-----													
	A/L-10.2 PSI OP-INIT	-----													
	A/L-CCAA-SPD-CHG	-----													
	S3-PAS-CHECKOUT	-----													
	ACS-ENA-AUTO-H/O-RS	-----													
	A/L-CAMPOUT-CNFG	-----													
	CHECS-COMMANDING	-----													
	MSS-POWERUP	-----													
	SBD-KEY-CHG	-----													
	C&T-VIDEO-CNFG	-----													
	PPS-2B-RETRACT-PREP	-----													
PPS-SMLSS PWR CH-H/O	-----														
PPS-2B-FTHR	-----														
PPS-2B LBB-UNLATCH	-----														
PPS-2B RBB-UNLATCH	-----														
PPS-2B 1/2 BAY-RTRCT	-----														
PPS-2B LBB-LATCH	-----														
PPS-2B RBB-LATCH	-----														

K	MAIL-SYNC	-----													
	PRO/CGBA4-CHAB-VIDEO	-----													
	MT-WS2-WS3-SURVEY	-----													
	CHECS-KU-D/L	-----													

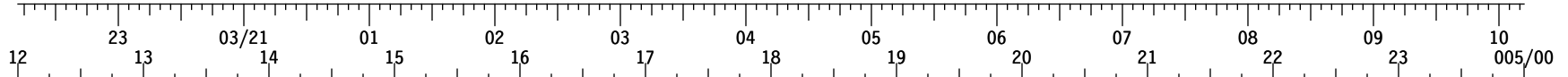
P	ALTEA-DOSI-OPS	-----													
	CGBA4-PL-RES TRACK	-----													
	EXPRS4-SYS-PWR/THERM	-----													
	MELFI-DEWAR 1-OPS	-----													
	MELFI-DEWAR 2-OPS	-----													
	PRO/CGBA4-CHAB-VIDEO	-----													
PRO-EXPRS FILE-CMD	-----														
CGBA4-PARAM-CMD	-----														

2-17 |-----| PRO-EXPRS FILE-CMD |-----| CGBA4-PARAM-CMD |-----|

ISS FCT H/O (3/1) CHECS-KU-D/L STS FCT H/O (3/1) EPS-1A3 BATT-CHARGE EPS-3A3 BATT-CHARGE ISS FCT H/O (3/1) CHECS-KU-D/L STS FCT H/O (3/1) PPS-2B 1/2 BAY-RTRCT PPS-2B LBB-L PPS-2B RBB-L

FD06

GMT 03/20/07 (079)
 β = -15
 MET Day 004



S T S - 1 1 7	CDR STURCKOW	SLEEP	PS O L S E T E P	PMC A/G	POST SLEEP	COMM	POST SLEEP	IP N H D * M V S B T	P6 2B RETRACT	C I N N C I T 6	XFER O P S	P/TV 07 S/U	C T W E C R M 6	C X W F C E R	P6 2B RETRACT	FILTER INSPECT	MEAL	P/TV SUPPORT	EXERCISE	XFER O P S	C I N N C I T 7				
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP					SSRMS RTRCT VIEWING	M C I U *		SSRMS EVA2 MNVR	SSRMS RTRCT EVA SPRT			SSRMS SUPPORT										
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP	HYG BRK/ PREBREATHE		CAMPOUT EVA PREP			E P M U R G E	EMU PREBREATHE		C L K D P R S	P D P S	SORTIE E G R E S S & S/U	2B P6 S A W R E T R A C T	D P L Y S A R J B R	S A R J D L A 1 I N S T A L L	S A R J (L O C K S) (R E S)				I N G R S			
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP	A/L R E P	HYG BRK/ PREBREATHE		CAMPOUT EVA PREP			E P M U R G E	EMU PREBREATHE		C L K D P R S	P D P S	SORTIE E G R E S S & S/U	2B P6 S A W R E T R A C T	D P L Y S A R J B R	S A R J (L O C K S) (R E S)				I N G R S			
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP		HYG B R K / H A T C H C L S	EVA PREP SUPPORT				-14.7 REPR			P/TV SUPPORT	P6 2B RETRACT	P/TV SUPPORT		EXERCISE	P/TV SPRT							
	MS4/EV1 REILLY	SLEEP	POST SLEEP				P6 2B RETRACT	EXERCISE		EVA 2 (6:30) →															
													IVA SPRT		DLAs & SARJ PREP →										
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP		D P C	PREP W O R K	B S A *	SSRMS RTRCT VIEWING		SSRMS EVA2 MNVR	SSRMS RTRCT EVA SPRT			SSRMS SUPPORT											
	FE-1 TЮPWH	SLEEP	POST SLEEP		D P C	PREP W O R K				EXERCISE TVIS			MIDDAY-MEAL		VELO + HC				I M S						
	FE-2 WILLIAMS	SLEEP	POST SLEEP		HYG B R K / H A T C H C L S	EVA PREP SUPPORT				-14.7 REPR			C W C F I L L I N I T	P6 2B RETRACT	MIDDAY-MEAL		C T W E C R M	PRE-INST L K C K A D P T R	P L U R G E	EXERCISE TVIS		L K C K R E D			
S T S	DAY/NIGHT	[Bar chart showing day/night cycle]																							
	ORBIT	72	73	74	75	76	77	78	79	80															
	DAILY ORBIT	14	15	1	2	3	4	5	6	7															
	W -171	[Bar chart showing W -171 activity]																							
	TDRS E -46 Z -275	[Bar chart showing TDRS activity]																							
ORB ATT	BIAS -XLV -ZVV																								
SSRMS											WS3 PDGF2														
NOTES	*HTR ACT *TERM										*FILTER CK														
- No Exer -										No Exer															

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -15
 MET Day 004 12 13 14 15 16 17 18 19 20 21 22 23 005/00
 GMT 03/20/07 (079) 23 03/21 01 02 03 04 05 06 07 08 09 10

I S S	DAY/NIGHT	[Day/Night Bar]								
	ORBIT	3683	3684	3685	3686	3687	3688	3689	3690	3691
	DAILY ORBIT	14	15	1	2	3	4	5	6	7
	TDRS AVAIL	[TDRS Availability Bar]								
RS GND		— ALL VHF —								

C M	CHECS-KU-D/L	— CHECS-KU-D/L —								
	STS FCT H/O (3/1)	— STS FCT H/O (3/1) —								
	RS-CONTG-TLM	— RS-CONTG-TLM —								
	DPC-MORNING	— DPC-MORNING —								
EVA2 INHIBIT PAD		— EVA2 INHIBIT PAD —								
NO-EXERCISE		— NO-EXERCISE —								
PPS-2B-RETRACT		— PPS-2B-RETRACT —								
ISS FCT H/O (1/2)		— ISS FCT H/O (1/2) —								
STS FCT H/O (1/2)		— STS FCT H/O (1/2) —								

B S D	EVA-HYGIENE-BREAK	— EVA-HYGIENE-BREAK —									
	C&T-VDS-CONFIG		— C&T-VDS-CONFIG —								
	C&T-UHF1-ACT		— C&T-UHF1-ACT —								
	RS-CONTG-TLM		— RS-CONTG-TLM —								
	PPS-2B SSU-SHUNT		— PPS-2B SSU-SHUNT —								
	C&T-AUDIO-CNFG		— C&T-AUDIO-CNFG —								
	ACS-INH-AUTO-H/O-RS		— ACS-INH-AUTO-H/O-RS —								
	C&T-COMM-EVA CNFG		— C&T-COMM-EVA CNFG —								
	DPC-MORNING		— DPC-MORNING —								
	A/L-RAP DPRS-ENA		— A/L-RAP DPRS-ENA —								
	EVA2 INHIBIT PAD		— EVA2 INHIBIT PAD —								
	ISS-RAP DPRS-INH		— ISS-RAP DPRS-INH —								
	ACS-CCDB-ATT-UPDT		— ACS-CCDB-ATT-UPDT —								
	C&T-WETA-ACT		— C&T-WETA-ACT —								
	ISS-RAP DPRS-ENA		— ISS-RAP DPRS-ENA —								
A/L-CCAA-SPD-CHG		— A/L-CCAA-SPD-CHG —									
EMU-P/B-VRIV-OP		— EMU-P/B-VRIV-OP —									
C&T-WETA-SCAN		— C&T-WETA-SCAN —									
A/L-10.2 PSI OP-TERM		— A/L-10.2 PSI OP-TERM —									
ACS-GNC-PPL-U/D		— ACS-GNC-PPL-U/D —									
PPS-2B-UNLOCK		— PPS-2B-UNLOCK —									
WRM-CWC-FILL-SPPT		— WRM-CWC-FILL-SPPT —									

K U	CHECS-KU-D/L	— CHECS-KU-D/L —								
	PRO/CGBA4-CHAB-VIDEO	— PRO/CGBA4-CHAB-VIDEO —								
	MAIL-SYNC	— MAIL-SYNC —								

P L	ALTEA-DOSI-OPS	— ALTEA-DOSI-OPS —								
	CGBA4-PL-RES TRACK	— CGBA4-PL-RES TRACK —								
	EXPRS4-SYS-PWR/THERM	— EXPRS4-SYS-PWR/THERM —								
	MELFI-DEWAR 1-OPS	— MELFI-DEWAR 1-OPS —								
MELFI-DEWAR 2-OPS		— MELFI-DEWAR 2-OPS —								
PRO-EXPRS FILE-CMD		— PRO-EXPRS FILE-CMD —								
PRO/CGBA4-CHAB-VIDEO		— PRO/CGBA4-CHAB-VIDEO —								

R S S	ISS ATTITUDE	—XVY +ZLV TEA—								
	CEO									

ISS ATTITUDE	—XVY +ZLV TEA—								
CEO									

2-19 FLT PLN/117/FIN

NOTES

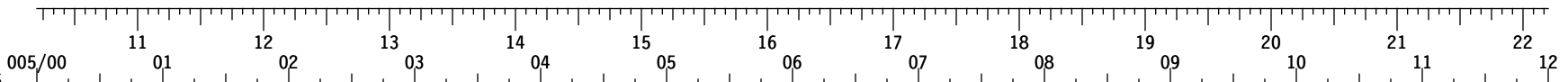
ALTEA-DOSI-OPS
 CGBA4-PL-RES TRACK
 EXPRS4-SYS-PWR/THERM
 MELFI-DEWAR 1-OPS
 MELFI-DEWAR 2-OPS
 PRO-EXPRS FILE-CMD
 PRO/CGBA4-CHAB-VIDEO

FD06

GMT 03/21/07 (080)

β = -13

MET Day 005



S T S - 1 1 7	CDR STURCKOW	XFER OPS	ISSR M U 7	CT W E R M	CWC XFER	1 4 · 7 *	PRE SLEEP	PMC A/G	PRE SLEEP	ISS EXTERNAL SURVEY SLEEP							
	PLT/R2/M1 ARCHAMBAULT	SSRMS RTRCT EVA SPRT	PRE SLEEP	EXERCISE			PRE SLEEP			SLEEP							
	MS1/EV3/R1 FORRESTER	I N G R S	P R P S	POST EVA W/H2O,METOX			PRE SLEEP			SLEEP							
	MS2/EV4/M2 SWANSON	I N G R S	P R P S	POST EVA W/H2O,METOX			PRE SLEEP			SLEEP							
	MS3/EV2/R1 OLIVAS	P/TV SPRT		POST EVA W/H2O,METOX			PRE SLEEP			SLEEP							
	MS4/EV1 REILLY	I V A S P R T		XFER OPS			PRE SLEEP			SLEEP							
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SSRMS RTRCT EVA SPRT	PREP	BSA INIT	DPC		PRE SLEEP			SLEEP							
	FE-1 TIUPH	I M S	COX	EXER	PREP WORK	DPC	PRE SLEEP			SLEEP							
	FE-2 WILLIAMS	EXER CISE RED	P R E P	POST EVA W/H2O,METOX		D L	PRE SLEEP			SLEEP							
S T S	DAY/NIGHT	[Timeline bars for Day/Night]															
	ORBIT	[Timeline bars for Orbit]															
	DAILY ORBIT	80	81	82	83	84	85	86	87	88	[Timeline bars for Daily Orbit]						
	TDRS	W -171	E -46	Z -275	[Timeline bars for TDRS]												
ORB ATT	BIAS -XLV -ZVV																
SSRMS	*HTR DEACT *MAINT WS3 PDGF2																
NOTES																	

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

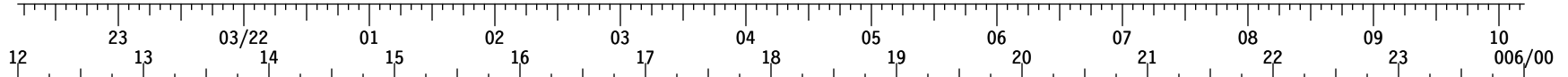
β = -13
 MET Day 005 005/00 01 02 03 04 05 06 07 08 09 10 11 12

GMT 03/21/07 (080) 11 12 13 14 15 16 17 18 19 20 21 22

	DAY/NIGHT	ORBIT	
I S S	ORBIT	3691 3692 3693 3694 3695 3696 3697 3698 3699	
	DAILY ORBIT	7 8 9 10 11 12 13 14 15	
	TDRS AVAIL		
	RS GND		
M C C	ISS FCT H/O (2/3)	ISS FCT H/O (2/3)	
	RS-CONTG-TLM	RS-CONTG-TLM	
	DPC-EVENING	DPC-EVENING	
	STS FCT H/O (2/3)	STS FCT H/O (2/3)	
	ISS FCT H/O (3/1)	ISS FCT H/O (3/1)	
S B D	POST-EVA-SPPT	POST-EVA-SPPT	
	C&T-COMM-EVA DECNFG	C&T-COMM-EVA DECNFG	
	RS-CONTG-TLM	RS-CONTG-TLM	
	DPC-EVENING	DPC-EVENING	
	PPS-PCU WARN-SUPP	PPS-PCU WARN-SUPP	
	ACS-ENA-AUTO-H/O-RS	ACS-ENA-AUTO-H/O-RS	
	C&T-VDS-DECNFG	C&T-VDS-DECNFG	
	CHECS-COMMANDING	CHECS-COMMANDING	
	C&T-VIDEO-DECNFG	C&T-VIDEO-DECNFG	
	SBD-KEY-CHG	SBD-KEY-CHG	
K	MAIL-SYNC	MAIL-SYNC	
	PRO/CGBA4-CHAB-VIDEO	PRO/CGBA4-CHAB-VIDEO	
	CHECS-KU-D/L	CHECS-KU-D/L	
P L	ALTEA-DOSI-OPS	ALTEA-DOSI-OPS	
	CGBA4-PL-RES TRACK	CGBA4-PL-RES TRACK	
	EXPRS4-SYS-PWR/THERM	EXPRS4-SYS-PWR/THERM	
	MELFI-DEWAR 1-OPS	MELFI-DEWAR 1-OPS	
	MELFI-DEWAR 2-OPS	MELFI-DEWAR 2-OPS	
	PRO/CGBA4-CHAB-VIDEO	PRO/CGBA4-CHAB-VIDEO	
R S S	PRO-EXPRS FILE-CMD	PRO-EXPRS FILE-CMD	
	CGBA4-PARAM-CMD	CGBA4-PARAM-CMD	
	ISS ATTITUDE	-XVV +ZLV TEA	
	CEO		
	NOTES		

FD07

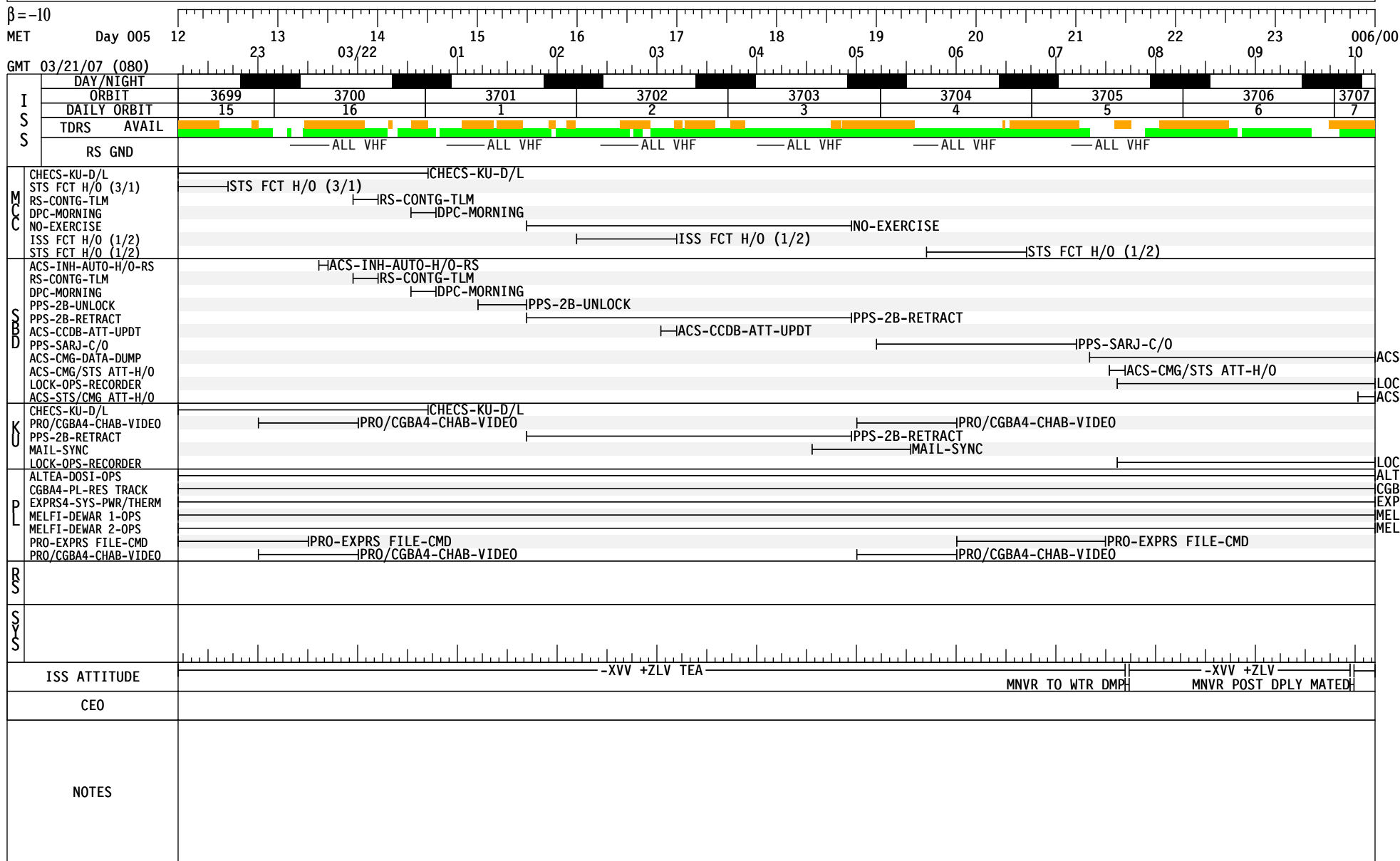
GMT 03/21/07 (080)
 β = -10
 MET Day 005



S T S - 1 1 7	CDR STURCKOW	SLEEP	POST SLEEP	02 RECONFIG TO XFER	02*	P6 2B RETRACT	COND CWC C/O	EXERCISE	MEAL	H/O	MS NVM RO	XFER OPS	02*	02 RCNFG P/B	H/O				
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP			SSRMS RTRCT VIEWING		EXERCISE	N2*	MEAL	XFER OPS	SIMO INIT	PX FFER	N2*	WT ASR TME	DUMP PWR	ST P L R Y M R	MT N E A	
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP			P6 2B RETRACT	POST EVA 2 TOOL CNFG	C I W N C I 8	MEAL	CT W C R 8	C X F F E R	M C I U *	EXERCISE		02*	02 RCNFG P/B			
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP			P6 2B RETRACT	POST EVA 2 TOOL CNFG		MEAL		XFER OPS		EXERCISE			XFER OPS			
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP			P6 2B RETRACT	MEAL	EMU SWAP	BMI AEN TTS TOT /XL	E_LK PREP	EVA 3 TOOL CONFIG		PS A E O T U P		EXERCISE				
	MS4/EV1 REILLY	SLEEP	POST SLEEP			P6 2B RETRACT	MEAL	EMU SWAP	BMI AEN TTS TOT /XL	E_LK PREP	EVA 3 TOOL CONFIG		EXERCISE		XFER OPS				
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP	PREP DPC WORK	02 RECONFIG TO XFER	02*	P6 2B RETRACT	EXERCISE RED	MIDDAY-MEAL	M E T X *	BSA INIT				CEVIS				
	FE-1 TIUPH	SLEEP	POST SLEEP	PREP DPC WORK	PREP			VELO + HC	MIDDAY-MEAL	COX	IMS				EXERCISE TVIS				
	FE-2 WILLIAMS	SLEEP	POST SLEEP	PREP DPC WORK	PREP		SSRMS RTRCT VIEWING	CEVIS	MIDDAY-MEAL	C S A					EXERCISE RED				
S T S	DAY/NIGHT	[Timeline bars]																	
	ORBIT	88	89	90	91	92	93	94	95	96									
	DAILY ORBIT	15	16	1	2	3	4	5	6	7									
	TDRS	W -171	[Timeline bars]																
		E -46	[Timeline bars]																
	Z -275	[Timeline bars]																	
ORB ATT	BIAS -XLV -ZVV																		
SSRMS	WS3 PDGF2																		
NOTES	*INIT *RPRS INIT *TERM *NOM CNFG *FILTER CK *RPRS TERM *TERM																		

|----- No Exercise -----|

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

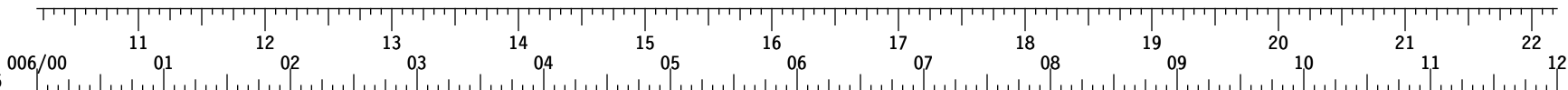


FD07

GMT 03/22/07 (081)

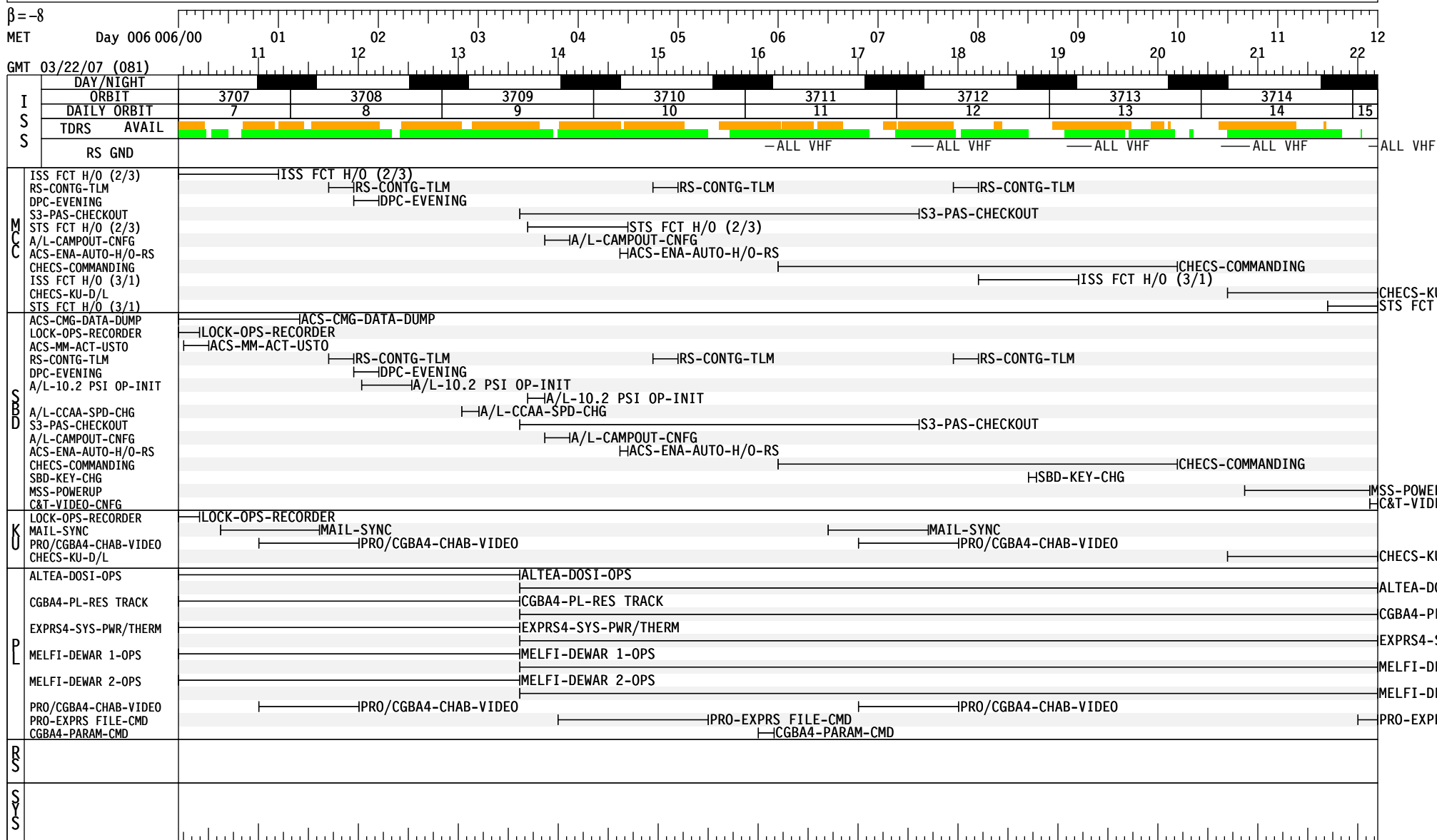
β = -8

MET Day 006



S T S - 1 1 7	CDR STURCKOW	EVA 3 PROC REVIEW	PE A V E N T	PRE SLEEP	PMCS OCA*	PRE SLEEP	SLEEP			
	PLT/R2/M1 ARCHAMBAULT	EVA 3 PROC REVIEW	PE A V E N T	PRE SLEEP	PWR #2 FILL	PRE SLEEP	SLEEP			
	MS1/EV3/R1 FORRESTER	EVA 3 PROC REVIEW	PE A V E N T	PWR #1 FILL		PRE SLEEP	SLEEP			
	MS2/EV4/M2 SWANSON	EVA 3 PROC REVIEW	PE A V E N T			PRE SLEEP	SLEEP			
	MS3/EV2/R1 OLIVAS	EVA 3 PROC REVIEW		PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP			
	MS4/EV1 REILLY	EVA 3 PROC REVIEW		PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP			
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	EVA 3 PROC REVIEW	PE A V E N T	PREP WORK	DPC	PRE SLEEP	SLEEP			
	FE-1 TIUPWH	EVA 3 PROC REVIEW	PE A V E N T	PREP WORK	DPC	PRE SLEEP	SLEEP			
	FE-2 WILLIAMS	EVA 3 PROC REVIEW	PE A V E N T	PREP WORK	DPC	PRE SLEEP	SLEEP			
S T S	DAY/NIGHT	[Timeline with shaded day/night blocks]								
	ORBIT	96	97	98	99	100	101	102	103	104
	DAILY ORBIT	7	8	9	10	11	12	13	14	15
	TDRS	W -171	E -46	Z -275	[Timeline with TDRS event bars]					
	ORB ATT	BIAS -XLV -ZVV								
SSRMS	*HTR ACT						WS3 PDGF2			
NOTES										

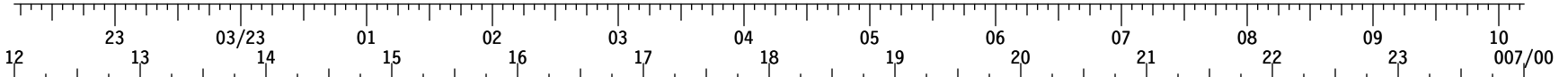
STS-117/13A JOINT MISSION STP (see OSTPV for latest version)



NOTES

FD08

GMT 03/22/07 (081)
 β = -5
 MET Day 006



Station	Activity	12	13	14	15	16	17	18	19	20	21	22	23	007/00										
STS-117	CDR STURCKOW	SLEEP	POST SLEEP	POST SLEEP	EXERCISE	EXERCISE	P/TV SUPPORT	P/TV SUPPORT	P/TV SUPPORT	FILTER INSPECT	P/TV SUPPORT	P/TV SUPPORT	P/TV SUPPORT	PWR #6 FILL										
	PLT/R2/M1 ARCHAMBAULT	SLEEP	POST SLEEP	POST SLEEP	EXERCISE	EXERCISE	SSRMS EVA 3 MNVR	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT										
	MS1/EV3/R1 FORRESTER	SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	EXERCISE	EXERCISE	EVA 3 (6:30) IVA SUPPORT																
	MS2/EV4/M2 SWANSON	SLEEP	POST SLEEP	HYG BRK/HATCH CLS	EVA PREP SUPPORT	14.7 REPR	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT	SSRMS SUPPORT										
	MS3/EV2/R1 OLIVAS	SLEEP	POST SLEEP	HYG BRK/PREBREATHE	CAMPOUT EVA PREP	EMU PREBREATHE	C_LK DPRS	EWIS ANTENNA INSTL	STOW S3 DRAG LINK	APFR RE-LOCATE	13A.1 GET AHEADS	NODE/SM LAN CBL ROUT	G_A H E T E A D	SORTIE C/U & INGRS	P_R P_R S									
	MS4/EV1 REILLY	SLEEP	POST SLEEP	HYG BRK/PREBREATHE	CAMPOUT EVA PREP	EMU PREBREATHE	C_LK DPRS	H2O/H2 VENT VLV R&R	STOW S3 DRAG LINK	MMOD SHIELD BOLT REL	13A.1 GET AHEADS	NODE/SM LAN CBL ROUT	V E N T V L V O P E N	SORTIE C/U & INGRS	P_R P_R S									
EXP-14	ISS CDR LOPEZ-ALEGRIA	SLEEP	POST SLEEP	HYG BRK/HATCH CLS	EVA PREP SUPPORT	14.7 REPR	BSA* EXERCISE RED	MIDDAY-MEAL	TVIS INSP	EXERCISE TVIS	PREP	PREP	PREP	PREP										
	FE-1 TIUPH	SLEEP	POST SLEEP	PREP WORK	DPC	EXERCISE TVIS	MIDDAY-MEAL	MIDDAY-MEAL	COX	VELO + HC	VELO + HC	VELO + HC	VELO + HC	VELO + HC										
	FE-2 WILLIAMS	SLEEP	POST SLEEP	PREP WORK	DPCA	EXERCISE RED	SSRMS EVA 3 MNVR	EXERCISE TVIS	MIDDAY-MEAL	H2 VENT VLV KTORQUE	IMS	IMS	IMS	W_C S_N F_G										
STS	DAY/NIGHT	[Day/Night Cycle]																						
	ORBIT	[Orbit Cycle]																						
	DAILY ORBIT	104	105	106	107	108	109	110	111															
	TDRS	W -171	E -46	Z -275	[TDRS Cycle]																			
ORB ATT	BIAS -XLV -ZVV																							
SSRMS	WS3 PDGF2																							
NOTES	*DUMP INIT				*HTR ACT				*DUMP TERM				*HTR DEACT				*RPRS INIT				*RPRS TERM			

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β = -5
 MET Day 006 12 13 14 15 16 17 18 19 20 21 22 23 007/00
 GMT 03/22/07 (081) 23 03/23 01 02 03 04 05 06 07 08 09 10

I S S	DAY/NIGHT	[Day/Night Cycle: Day (white), Night (black)]									
	ORBIT	3715	3716	3717	3718	3719	3720	3721	3722	8	
	DAILY ORBIT	15	1	2	3	4	5	6	7	8	
	TDRS AVAIL	[TDRS Availability: Green bars]									
RS GND		[RS GND: ALL VHF]									

M C C	CHECS-KU-D/L	CHECS-KU-D/L									
	STS FCT H/O (3/1)	STS FCT H/O (3/1)									
	RS-CONTG-TLM	RS-CONTG-TLM									
	DPC-MORNING	DPC-MORNING									
EVA3 INHIBIT PAD		EVA3 INHIBIT PAD									
ISS FCT H/O (1/2)		ISS FCT H/O (1/2)									
EVA3-IVA-SUPPORT		EVA3-IVA-SUPPORT									
STS FCT H/O (1/2)		STS FCT H/O (1/2)									

S D S	C&T-VIDEO-CNFG	C&T-VIDEO-CNFG									
	EVA-HYGIENE-BREAK	EVA-HYGIENE-BREAK									
	C&T-UHF1-ACT	C&T-UHF1-ACT									
	C&T-VDS-CONFIG	C&T-VDS-CONFIG									
	C&T-AUDIO-CNFG	C&T-AUDIO-CNFG									
	ACS-INH-AUTO-H/O-RS	ACS-INH-AUTO-H/O-RS									
	C&T-COMM-EVA CNFG	C&T-COMM-EVA CNFG									
	ACS-CCDB-ATT-UPDT	ACS-CCDB-ATT-UPDT									
	A/L-RAP DPRS-ENA	A/L-RAP DPRS-ENA									
	RS-CONTG-TLM	RS-CONTG-TLM									
	DPC-MORNING	DPC-MORNING									
	ISS-RAP DPRS-INH	ISS-RAP DPRS-INH									
	C&T-WETA-ACT	C&T-WETA-ACT									
	EVA3 INHIBIT PAD	EVA3 INHIBIT PAD									
	ISS-RAP DPRS-ENA		ISS-RAP DPRS-ENA								
A/L-CCAA-SPD-CHG		A/L-CCAA-SPD-CHG									
EMU-P/B-VRIV-OP		EMU-P/B-VRIV-OP									
C&T-WETA-SCAN		C&T-WETA-SCAN									
A/L-10.2 PSI OP-TERM		A/L-10.2 PSI OP-TERM									
A/L-MTX REGEN-CNFG		A/L-MTX REGEN-CNFG									

K U	CHECS-KU-D/L	CHECS-KU-D/L									
	PRO/CGBA4-CHAB-VIDEO	PRO/CGBA4-CHAB-VIDEO									
	MAIL-SYNC	MAIL-SYNC									

P L	ALTEA-DOSI-OPS	ALTEA-DOSI-OPS									
	CGBA4-PL-RES TRACK	CGBA4-PL-RES TRACK									
	EXPRS4-SYS-PWR/THERM	EXPRS4-SYS-PWR/THERM									
	MELFI-DEWAR 1-OPS	MELFI-DEWAR 1-OPS									
MELFI-DEWAR 2-OPS		MELFI-DEWAR 2-OPS									
PRO-EXPRS FILE-CMD		PRO-EXPRS FILE-CMD									
PRO/CGBA4-CHAB-VIDEO		PRO/CGBA4-CHAB-VIDEO									

R S S	ISS ATTITUDE	-XVV +ZLV TEA									
	CEO	[CEO Data]									

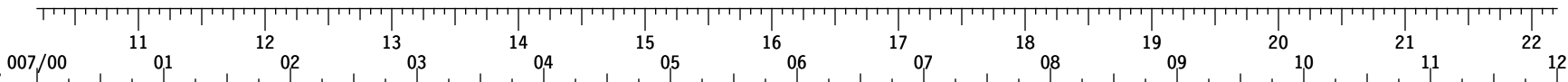
NOTES	2-27	FLT PLN/117/FIN
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FD08

GMT 03/23/07 (082)

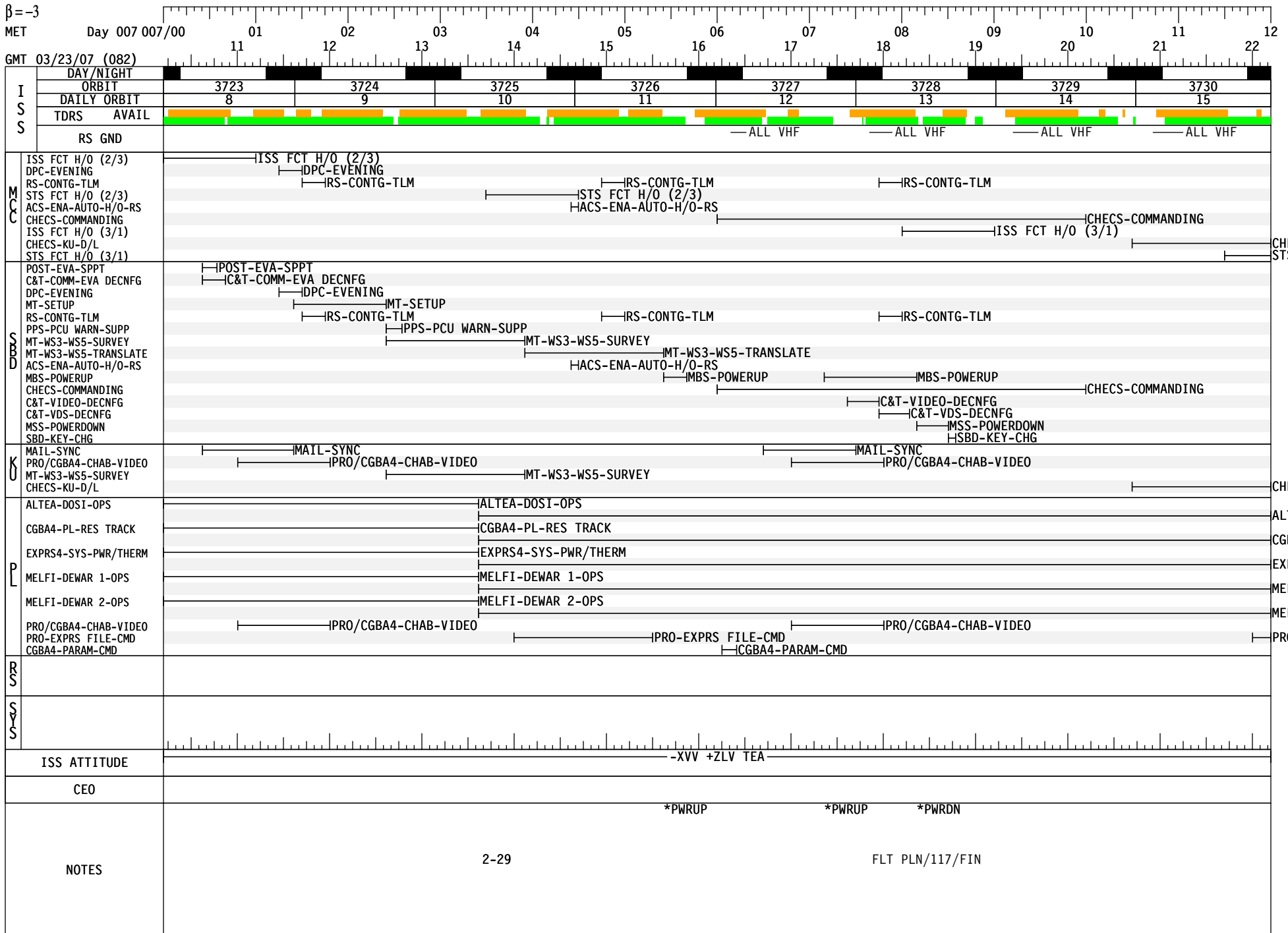
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MET Day 007



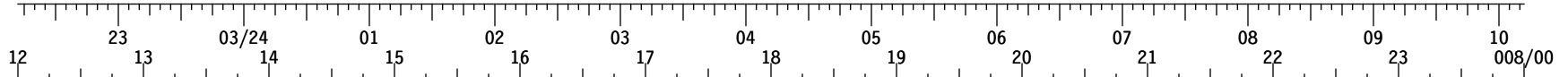
S T S - 1 1 7	CDR STURCKOW	IMU	COM 1	14-7*	PRE SLEEP	PMC A/G	PS RLEE P	FE S*	PRE SLEEP	ISS EXTERNAL SURVEY					SLEEP
	PLT/R2/M1 ARCHAMBAULT	WS3 CNFG	RPMSRDND		PRE SLEEP									SLEEP	
	MS1/EV3/R1 FORRESTER		RPMSRDND		PRE SLEEP									SLEEP	
	MS2/EV4/M2 SWANSON		POST EVA W/H2O, METOX		PRE SLEEP									SLEEP	
	MS3/EV2/R1 OLIVAS	RP RS	POST EVA W/H2O, METOX		PRE SLEEP									SLEEP	
	MS4/EV1 REILLY	RP RS	POST EVA W/H2O, METOX		PRE SLEEP									SLEEP	
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	PREP	POST EVA W/H2O, METOX	D/L	PRE SLEEP								SLEEP		
	FE-1 TIUPH	V+ELC	PREP WORK	DPC	PRE SLEEP								SLEEP		
	FE-2 WILLIAMS	WS3 CNFG	EXER	PREP WORK	DPC	PRE SLEEP							SLEEP		
S T S	DAY/NIGHT	[Day/Night Cycle Bar]													
	ORBIT	[Orbit Cycle Bar]													
	DAILY ORBIT	112 8	113 9	114 10	115 11	116 12	117 13	118 14	119 15						
	TDRS	W -171	E -46	Z -275	[TDRS Cycle Bar]										
	ORB ATT	BIAS -XLV -ZVV													
SSRMS	WS3 PDGF2			3-5 XLATE SRVY			MT XLATE WS5			WS5 PDGF2					
NOTES	*MAINT			*HTR ACT											

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)



FD09

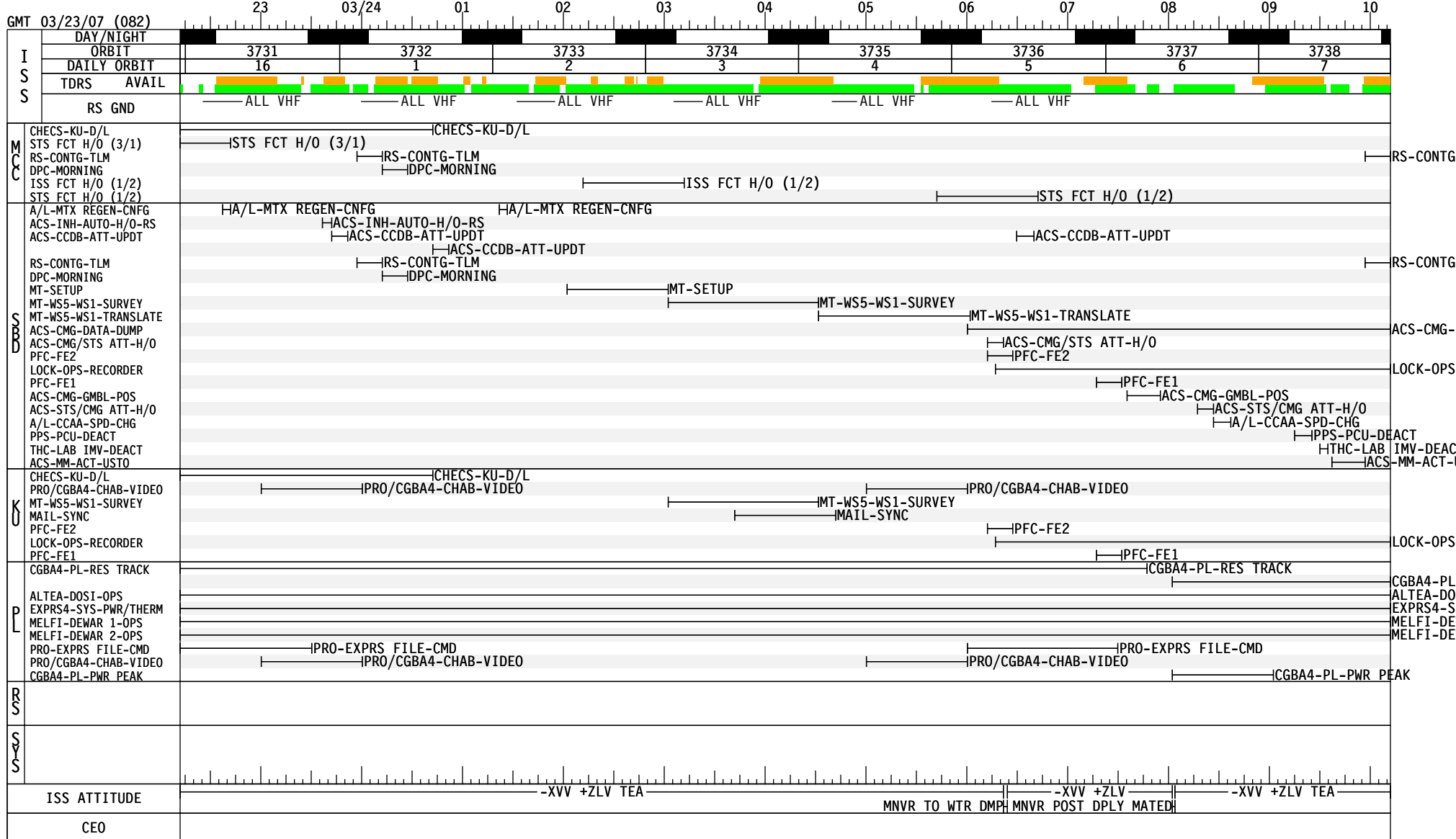
GMT 03/23/07 (082)
 β=0
 MET Day 007



S T S - 1 1 7	CDR STURCKOW	POST SLEEP	FES*	POST SLEEP	FES*	OFF DUTY	PFC OCA	OFF DUTY	MEAL	H/O	MSI N/V R/O	EXERCISE	MCIU*	MTNE V/R	H/O	CREW CONF	CPH EOWT O	FWA EREL	EGRS HATCH CLOSE	
	PLT/R2/M1 ARCHAMBAULT	POST SLEEP		PFC OCA	POST SLEEP			OFF DUTY	MEAL	DPUR MEMP	SPIN MELI T	CWC DUMP	STPEE LRS YM*			CREW CONF	CPH EOWT O	FWA EREL		
	MS1/EV3/R1 FORRESTER	POST SLEEP				PFC OCA		OFF DUTY	MEAL			PST EVA XFER & RCNFG				CREW CONF	CPH EOWT O	FWA EREL		
	MS2/EV4/M2 SWANSON	POST SLEEP	MLEP SOCA	PFC OCA	POST SLEEP			OFF DUTY	MEAL	DPUR MEMP		PST EVA XFER & RCNFG				CREW CONF	CPH EOWT O	FWA EREL	EXER CISE	
	MS3/EV2/R1 OLIVAS	POST SLEEP				ASPRN	OFF DUTY	PFC OCA	OFF DUTY	MEAL	OS S/U	P/TV08 EXTERNAL SRVY	EXERCISE	PSA OTUP		CREW CONF	CPH EOWT O	FWA EREL		
	MS4/EV1 REILLY	POST SLEEP				ASPRN	OFF DUTY	PFC OCA	OFF DUTY	MEAL	02 SYS TEARDOWN	APR IEP	XFER OPS			CREW CONF	CPH EOWT O	FWA EREL	EGRS HATCH CLOSE	
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	POST SLEEP	PREP WORK	DPC	P LCK	WALK-OFF MBS-TO-LAB	ME T X*	EXERCISE CEVIS	EXERCISE RED	MIDDAY-MEAL	02 SYS TEARDOWN	FFQ	IMS	CSA RSPLY		CREW CONF	CPH EOWT O	FWA EREL	EGRS HATCH CLOSE	
	FE-1 TIUPH	POST SLEEP	PREP WORK	DPC				EXERCISE TVIS	MIDDAY-MEAL			PFC	COX			CREW CONF	CPH EOWT O	FWA EREL	VELO + HC	
	FE-2 WILLIAMS	POST SLEEP	PREP WORK	DPC		WALK-OFF MBS-TO-LAB		EXERCISE RED	EXERCISE CEVIS	MIDDAY-MEAL	PFC	DCOLDBAG PACK	CGBA*			CREW CONF	CPH EOWT O	FWA EREL	FFQ	
S T S	DAY/NIGHT	[Day/Night Cycle]																		
	ORBIT	[Orbit Cycle]																		
	DAILY ORBIT	120 16	121 1	122 2	123 3	124 4	125 5	126 6	127 7											
	TDRS	W -171	E -46	Z -275	[TDRS Schedule]															
	ORB ATT	BIAS -XLV -ZVV																		
SSRMS	5-1 XLATE SRVY WS5 PDGF2 MT XLATE WS1 WS1 LAB																			
NOTES	*DISABLE *DUMP INIT *DUMP TERM *TERM *ENABLE *FILTER CK *DUMP INIT																			

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β=0
 MET Day 007 12 13 14 15 16 17 18 19 20 21 22 23 008/00
 GMT 03/23/07 (082) 23 03/24 01 02 03 04 05 06 07 08 09 10



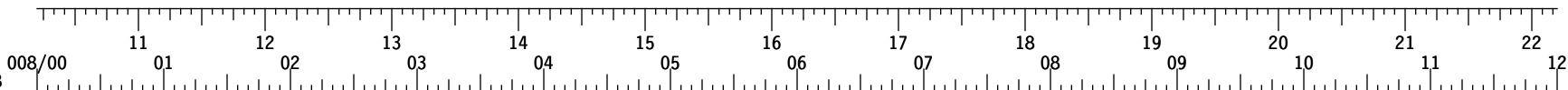
NOTES

FD09

GMT 03/24/07 (083)

β=2

MET Day 008



S T S - 1 1 7	CDR STURCKOW	H/O	HATCH LEAK CHECK	FES/O	COM 2	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP	
	PLT/R2/M1 ARCHAMBAULT	EXERCISE		PRE SLEEP				SLEEP		
	MS1/EV3/R1 FORRESTER	PRE SLEEP	EXERCISE		PRE SLEEP				SLEEP	
	MS2/EV4/M2 SWANSON	EXERCISE	RNDZ TOOLS C/O		PRE SLEEP				SLEEP	
	MS3/EV2/R1 OLIVAS		RNDZ TOOLS C/O		PRE SLEEP				SLEEP	
	MS4/EV1 REILLY	WLES	PRE SLEEP	EXERCISE		PRE SLEEP				SLEEP
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA		HATCH LEAK CHECK	PREP WORK	DPC	PRE SLEEP			SLEEP	
	FE-1 TIUPH	VELO + HC	PREP WORK	DPC	PRE SLEEP				SLEEP	
	FE-2 WILLIAMS	FFQ	PREP WORK	EXER	DPC	PRE SLEEP			SLEEP	
S T S	DAY/NIGHT	[Day/Night Cycle]								
	ORBIT	[Orbit Cycle]								
	DAILY ORBIT	7	128	129	130	131	132	133	134	135
	TDRS	W -171	[TDRS W -171]							
		E -46	[TDRS E -46]							
	Z -275	[TDRS Z -275]								
	ORB ATT	BIAS -XLV -ZVV								
	SSRMS	WS1 LAB			MT XLATE WS4			WS4 LAB		
	NOTES	*DUMP TERM								

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)

β=2
 MET Day 008 008/00 01 02 03 04 05 06 07 08 09 10 11 12

I S S	DAY/NIGHT	[Day/Night Bar]															
	ORBIT	[Orbit Bar]															
	DAILY ORBIT	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	TDRS AVAIL	[TDRS AVAIL Bar]															
RS GND		- ALL VHF															

M C C	ISS FCT H/O (2/3)	[ISS FCT H/O (2/3) Bar]										
	DPC-EVENING	[DPC-EVENING Bar]										
	RS-CONTG-TLM	[RS-CONTG-TLM Bar]										
	STS FCT H/O (2/3)	[STS FCT H/O (2/3) Bar]										
	ACS-ENA-AUTO-H/O-RS	[ACS-ENA-AUTO-H/O-RS Bar]										
	CHECS-COMMANDING	[CHECS-COMMANDING Bar]										

S B D	ISS FCT H/O (3/1)	[ISS FCT H/O (3/1) Bar]										
	ACS-CMG-DATA-DUMP	[ACS-CMG-DATA-DUMP Bar]										
	LOCK-OPS-RECORDER	[LOCK-OPS-RECORDER Bar]										
	ACS-CMG/STS ATT-H/O	[ACS-CMG/STS ATT-H/O Bar]										
	ACS-CCDB-ATT-UPDT	[ACS-CCDB-ATT-UPDT Bar]										
	ACS-CMG-GMBL-POS	[ACS-CMG-GMBL-POS Bar]										
	ACS-STS/CMG ATT-H/O	[ACS-STS/CMG ATT-H/O Bar]										
	ACS-MM-ACT-USTO	[ACS-MM-ACT-USTO Bar]										
	DPC-EVENING	[DPC-EVENING Bar]										
	RS-CONTG-TLM	[RS-CONTG-TLM Bar]										
	MT-SETUP	[MT-SETUP Bar]										
	MT-WS1-WS4-SURVEY	[MT-WS1-WS4-SURVEY Bar]										
	ACS-ENA-AUTO-H/O-RS	[ACS-ENA-AUTO-H/O-RS Bar]										
	MT-WS1-WS4-TRANSLATE	[MT-WS1-WS4-TRANSLATE Bar]										

K	LOCK-OPS-RECORDER	[LOCK-OPS-RECORDER Bar]										
	MAIL-SYNC	[MAIL-SYNC Bar]										
	PRO/CGBA4-CHAB-VIDEO	[PRO/CGBA4-CHAB-VIDEO Bar]										
	MT-WS1-WS4-SURVEY	[MT-WS1-WS4-SURVEY Bar]										
	CHECS-KU-D/L	[CHECS-KU-D/L Bar]										

P	ALTEA-DOSI-OPS	[ALTEA-DOSI-OPS Bar]										
	EXPRS4-SYS-PWR/THERM	[EXPRS4-SYS-PWR/THERM Bar]										
	MELFI-DEWAR 1-OPS	[MELFI-DEWAR 1-OPS Bar]										
	MELFI-DEWAR 2-OPS	[MELFI-DEWAR 2-OPS Bar]										
	CGBA4-PL-RES TRACK	[CGBA4-PL-RES TRACK Bar]										
	PRO/CGBA4-CHAB-VIDEO	[PRO/CGBA4-CHAB-VIDEO Bar]										
	PRO-EXPRS FILE-CMD	[PRO-EXPRS FILE-CMD Bar]										

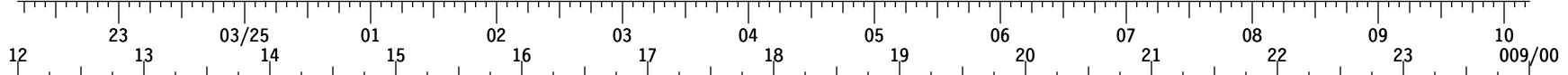
S S	CGBA4-PARAM-CMD	[CGBA4-PARAM-CMD Bar]										
	ISS ATTITUDE	-XVW +ZLV TEA										

CEO											
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NOTES	2-33 FLT PLN/117/FIN										
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FD10

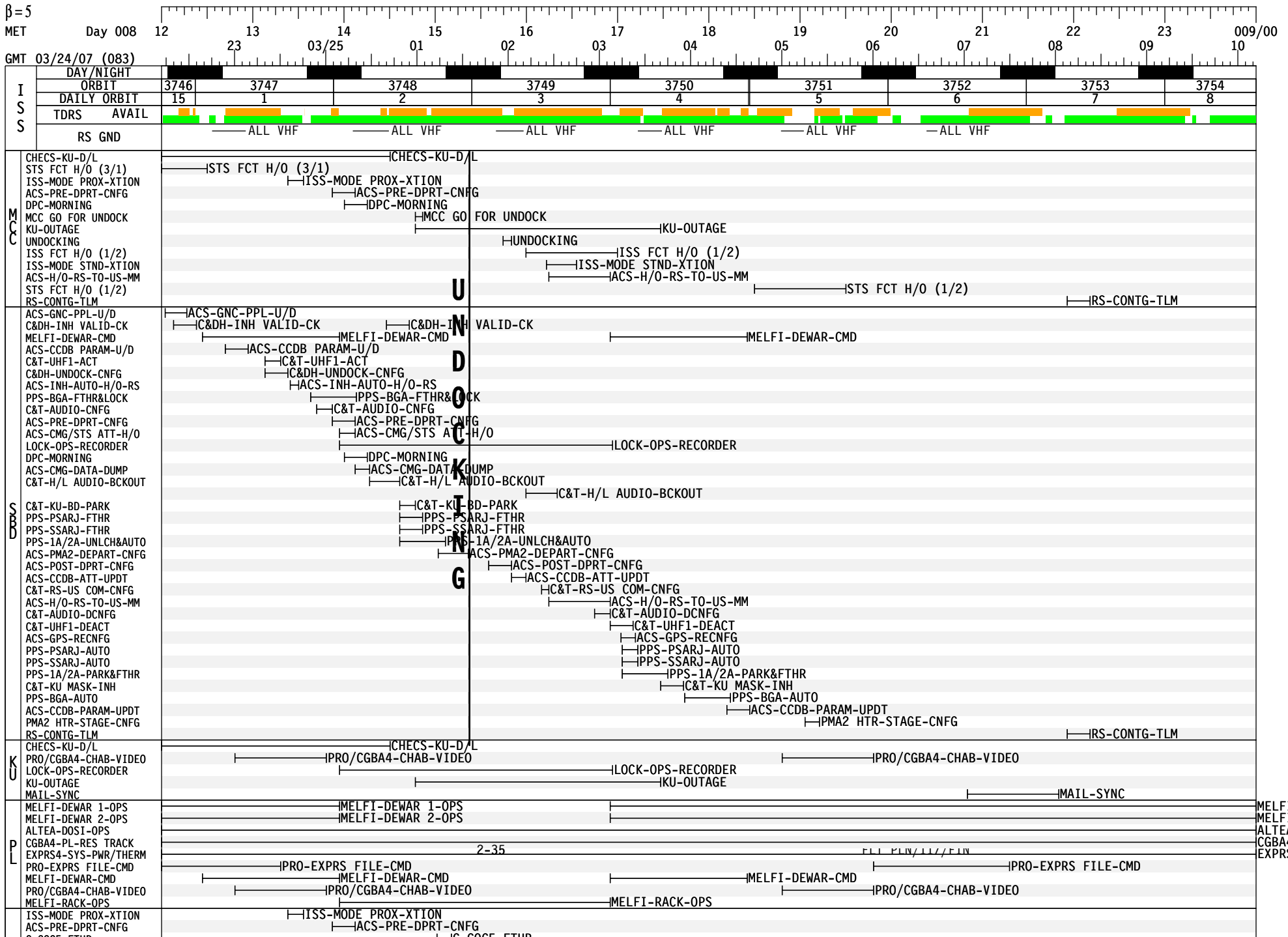
GMT 03/24/07 (083)
 β=5
 MET Day 008



S T S - 1 1 7	CDR STURCKOW	POST SLEEP	H/O -XLV +ZVV	POST SLEEP	UNDOCK OPS	FLYAROUND	SEP [^]	SEP [^]	CT/OND	MEAL	FES*	MNTVBRD	MNOVSRE	MNOVRT	EXERCISE	MCMVMMU	14:7*	PRE SLEEP	
	PLT/R2/M1 ARCHAMBAULT	POST SLEEP	GP RWR PR BUP	POST SLEEP	UNDOCK OPS	FLYAROUND	SEP		GP RWR PR BND	CABT	MEAL	OBSS UNBRTH	STBD WING SRVY	NOSE CAP SRVY	PORT WING SRVY	EXERCISE			
	MS1/EV3/R1 FORRESTER	POST SLEEP	GP RWR PR BUP	PS OLE TEP	UNDOCK OPS	FLYAROUND	SEP		SD SE OAR CT*	DO UT*	MEAL	OBSS UNBRTH	STBD WING SRVY	NOSE CAP SRVY	PORT WING SRVY	OBSS BERTH	RP MWR SDN		
	MS2/EV4/M2 SWANSON	POST SLEEP		SETUP C/L CAMR	UNDOCK OPS	FLYAROUND	SEP		GP RWR PR BND	HT LRES	MEAL	POST UNDK PGSC CNFG	STBD WING SRVY	NOSE CAP SRVY	PORT WING SRVY	OBSS BERTH		PRE SLEEP	
	MS3/EV2/R1 OLIVAS	POST SLEEP	SS VP-3	WP/TVO3 S/U	P/TVO3	UNDOCK	SEP		MS CIV U*	SR P MWR SUP	MEAL	P D T E V A O C 3 T	EXERCISE		POST EVA ENT PREP		LDRI DNK		
	MS4/EV1 REILLY	POST SLEEP		SETUP C/L CAMR	UNDOCK OPS	FLYAROUND	SEP		EMU INSTL		MEAL	C/L CAMR T/D	EXERCISE		EVA UNSTOW & PACK	POST EVA ENT PREP			
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	POST SLEEP	PREP WORK	DPC	UOP P/D	PM CNFG*		PMA2 DPRS	MIDDAY-MEAL	PLI MKN ACT 2K	PDT MEE APR 2R MS			EXERCISE RED	EXERCISE TVIS				
	FE-1 TIUPH	POST SLEEP	PREP WORK	DPC				EXERCISE TVIS	MIDDAY-MEAL					VELO + HC					
	FE-2 WILLIAMS	POST SLEEP	PREP WORK	DPC	VTR CBL	UV NID DD KE O		EXERCISE RED	MIDDAY-MEAL	BS PT SO MW U			EXERCISE TVIS						
S T S	DAY/NIGHT	[Timeline bars for Day/Night]																	
	ORBIT	[Timeline bars for Orbit]																	
	DAILY ORBIT	135	136	137	138	139	140	141	142	143									
	TDRS	W -171	[Timeline bars for TDRS]																
	E -46	[Timeline bars for TDRS]																	
	Z -275	[Timeline bars for TDRS]																	
ORB ATT	BIAS -XLV -ZVV -XLV +ZVV FLYAROUND SEP -XLV -ZVV STBD SURVEY NOSE CAP PORT SURVEY COMM																		
SSRMS	WS4 LAB *ACT *DEACT *DUMP INIT *MAINT																		
NOTES	*ACT *DEACT *DUMP INIT *MAINT *FILTER CK																		

***8/15:22**

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)



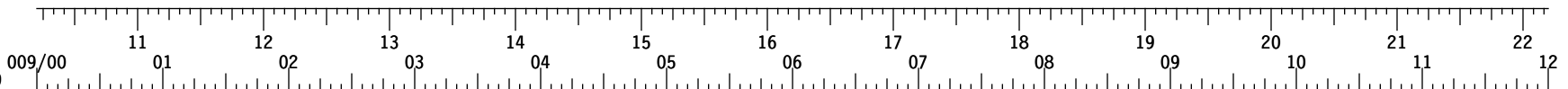
MELFI-DEW
 MELFI-DEW
 ALTEA-DOS
 CGBA4-PL-
 EXPRS4-SY

FD10

GMT 03/25/07 (084)

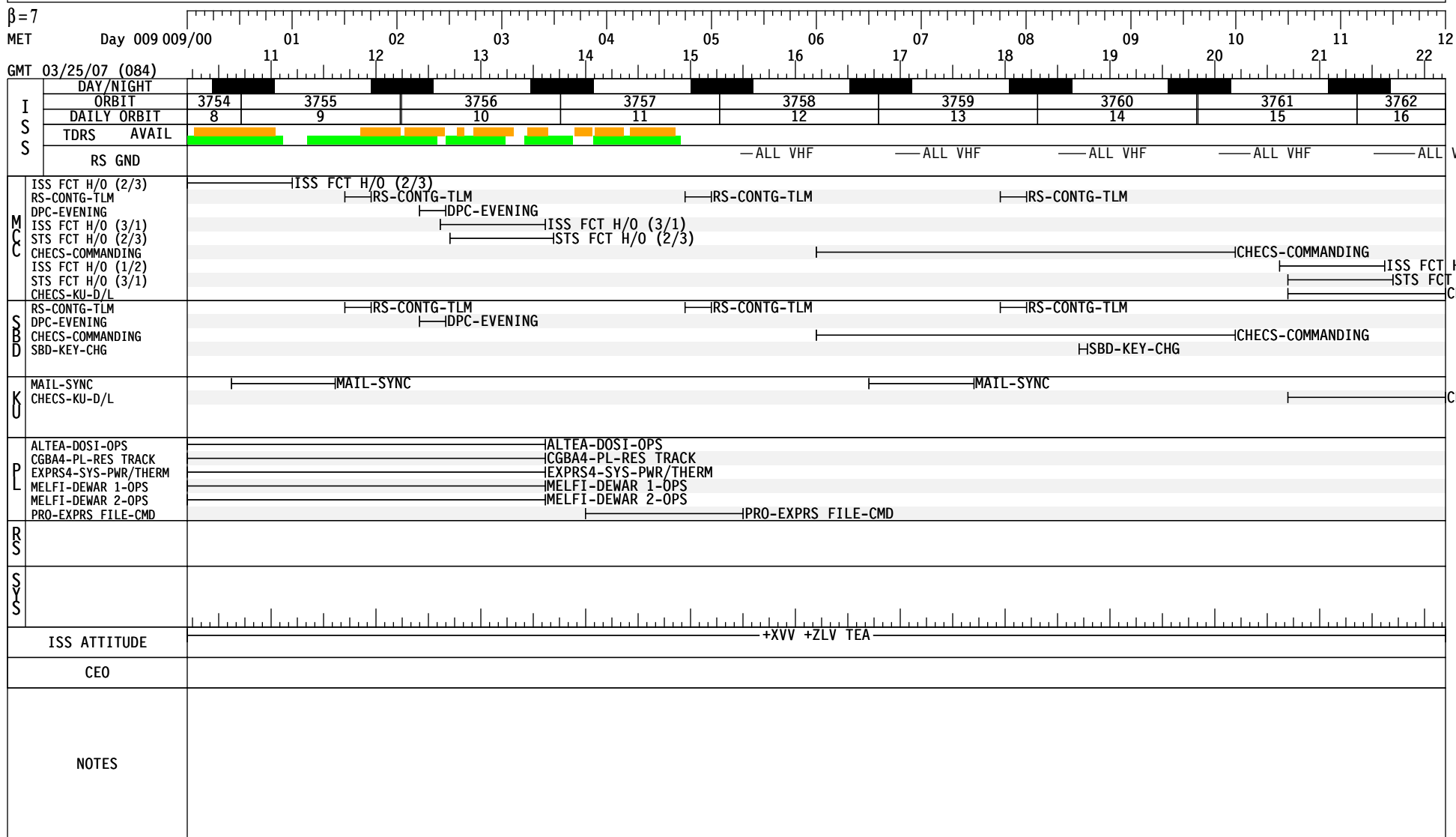
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MET Day 009



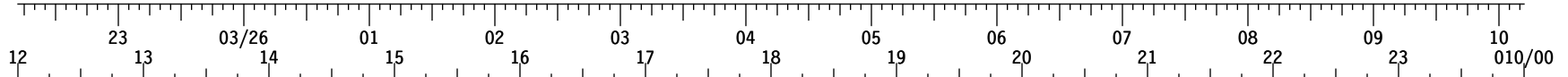
S T S - 1 1 7	CDR STURCKOW	Z X L V V	NC5 RCS BURN	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP	POST SLEEP		
	PLT/R2/M1 ARCHAMBAULT			PRE SLEEP		PRE SLEEP	SLEEP	POST SLEEP		
	MS1/EV3/R1 FORRESTER					PRE SLEEP	SLEEP	POST SLEEP		
	MS2/EV4/M2 SWANSON	P S R L E E P	RCS BURN			PRE SLEEP	SLEEP	POST SLEEP		
	MS3/EV2/R1 OLIVAS					PRE SLEEP	SLEEP	POST SLEEP		
	MS4/EV1 REILLY					PRE SLEEP	SLEEP	POST SLEEP		
E X P - 1 4	ISS CDR LOPEZ-ALEGRIA	EXERCISE TVIS		UOP P/U	PREP WORK	DPC	PRE SLEEP	SLEEP		
	FE-1 TIUPMH				PREP WORK	DPC	PRE SLEEP	SLEEP		
	FE-2 WILLIAMS	COX	R W S	IMS	EXERCISE	PREP WORK	DPC	PRE SLEEP	SLEEP	
S T S	DAY/NIGHT	[Bar chart showing day/night cycles]								
	ORBIT	143	144	145	146	147	148	149	151	
	DAILY ORBIT	8	9	10	11	12	13	14	15	16
	TDRS	W -171	[Bar chart showing TDRS events]							
		E -46	[Bar chart showing TDRS events]							
	Z -275	[Bar chart showing TDRS events]								
	ORB ATT		NC5				-ZLV -XVV			
	SSRMS						WS4 LAB			
	NOTES	*DUMP TERM								

STS-117/13A JOINT MISSION STP (see OSTPV for latest version)



FD11

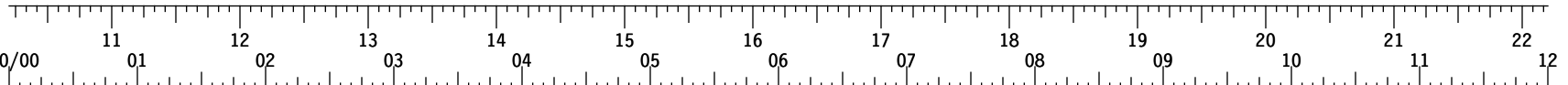
GMT 03/25/07 (084)
 β = 10
 MET Day 009



		12	13	14	15	16	17	18	19	20	21	22	23	1010/00							
STS - 117	CDR STURCKOW	POST SLEEP			FILTER CLEANING	RCS BURN	FCS C/O	RFCS RHEHOT	PILOT OPS	D/O BRIEF	MEAL	CABIN STOW	L-1 COMM CHK	PEAVO ENT	-ZLV -XVV	CABIN STOW	L-1 COMM CHK	EXERCISE	14-7*	MADIS*	CABIN STOW
	PLT/R2/M1 ARCHAMBAULT	POST SLEEP			CABIN STOW	RCS BURN	FCS C/O	RFCS RHEHOT	PILOT OPS	D/O BRIEF	MEAL	CABIN STOW	PEAVO ENT	EXERCISE		WTAE SR TME	CWC DUMP	STPEZL VM	--XZLVV		
	MS1/EV3/R1 FORRESTER	POST SLEEP			CABIN STOW	EXERCISE	CABIN STOW		D/O BRIEF	MEAL	CABIN STOW	PEAVO ENT	CABIN STOW				KU STOW	ERG STOW			
	MS2/EV4/M2 SWANSON	POST SLEEP			CABIN STOW	FCS C/O	RFCS RHEHOT	PILOT OPS	D/O BRIEF	MEAL	CABIN STOW	PEAVO ENT	SIMO INIT	EXERCISE	CABIN STOW	WDL EASCT	PGSC STOW PART 1				
	MS3/EV2/R1 OLIVAS	POST SLEEP			CABIN STOW	EXERCISE	CABIN STOW	D/O BRIEF	MEAL	CABIN STOW	PSAE OTUP	PEAVO ENT	EVS NIE TDT REU YOP	SDSE VACT	CABIN STOW		RPD MWSRA DCNT				
	MS4/EV1 REILLY	POST SLEEP			CABIN STOW			EXERCISE	D/O BRIEF	MEAL	CABIN STOW	PEAVO ENT	CABIN STOW				ERG STOW				
STS	DAY/NIGHT	151			152		153		154		155		156		157		158		159		
	DAILY ORBIT	16	1	2	3	4	5	6	7	8											
	TDRS	W -171	E -46			Z -275															
	GND											-MLA		-DFR		-WSS		-DFR		-WSS	
	ORB ATT	-ZLV -XVV			NC6		-ZLV -XVV					-ZLV +YVV				-ZLV -XVV					
NOTES	*DUMP INIT				*HEATER ACT				*DUMP TERM				*MAINT				*PWR ON				

FD11

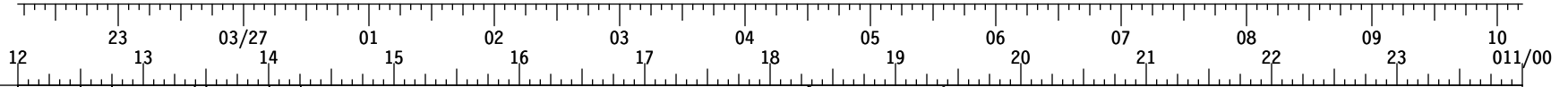
GMT 03/26/07 (085)
 β = 12
 MET Day 010



S T S - 1 1 7	CDR STURCKOW	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP					POST SLEEP	
	PLT/R2/M1 ARCHAMBAULT	PRE SLEEP			SLEEP					POST SLEEP	
	MS1/EV3/R1 FORRESTER	PRE SLEEP			SLEEP					POST SLEEP	
	MS2/EV4/M2 SWANSON	PRE SLEEP			SLEEP					POST SLEEP	
	MS3/EV2/R1 OLIVAS	PRE SLEEP			SLEEP					POST SLEEP	
	MS4/EV1 REILLY	PRE SLEEP			SLEEP					POST SLEEP	
S T S	DAY/NIGHT	[Day/Night Cycle: Light/Dark alternating]									
	ORBIT	159	160	161	162	163	164	165	166	167	
	DAILY ORBIT	8	9	10	11	12	13	14	15	1	
	TDRS	W -171	E -46		Z -275						
	GND	-DFR		-DFR		-DFR -MLA -WSS		-DFR -WSS			
	ORB ATT	-ZLV -XVV									
NOTES											

FD12

GMT 03/26/07 (085)
 β = 15
 MET Day 010



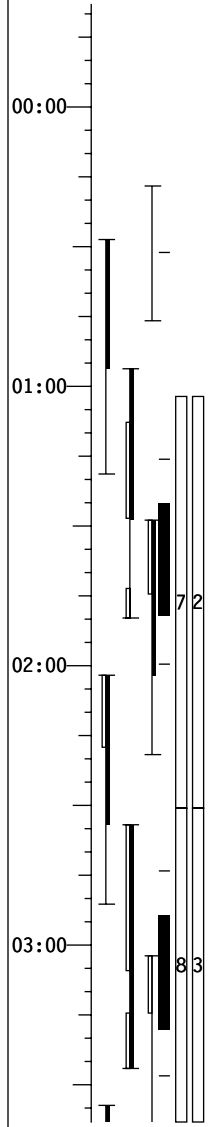
STS-117	CDR STURCKOW	POST SLEEP	PMC A/G	POST SLEEP	MADS*	IMU ALIGN & VERIF	T-RX KSI	DEORBIT PREP		
	PLT/R2/M1 ARCHAMBAULT	POST SLEEP			GP RP UP	POST SLEEP		DEORBIT PREP	D/O TIG*	KSC LANDING*
	MS1/EV3/R1 FORRESTER	POST SLEEP			GP RP UP	POST SLEEP	GS IT ROW	DEORBIT PREP		
	MS2/EV4/M2 SWANSON	POST SLEEP				PGSC STOW PART II		DEORBIT PREP		
	MS3/EV2/R1 OLIVAS	POST SLEEP						DEORBIT PREP		
	MS4/EV1 REILLY	POST SLEEP			SACT PA LCE	OST PC W	TEW RDN	DEORBIT PREP		
DAY/NIGHT	[Day/Night Cycle]									
STS	ORBIT	167 168 169 170 171 172 173 174 175								
	DAILY ORBIT	1 2 3 4 5 6 7 8 9								
	TDRS	W -171 E -46 Z -275								
	GND	-MLA -WSS -DFR -WSS								
	ORB ATT	-ZLV -XVV -IMU -XSI -COMM -D/O -ENTRY								
NOTES	*ENABLE *D/O TIG 10/18:18 *KSC LANDING 10/19:22									

DETAILED TIMELINE

DETAILED
TIMELINE

STS-117 (FD01)

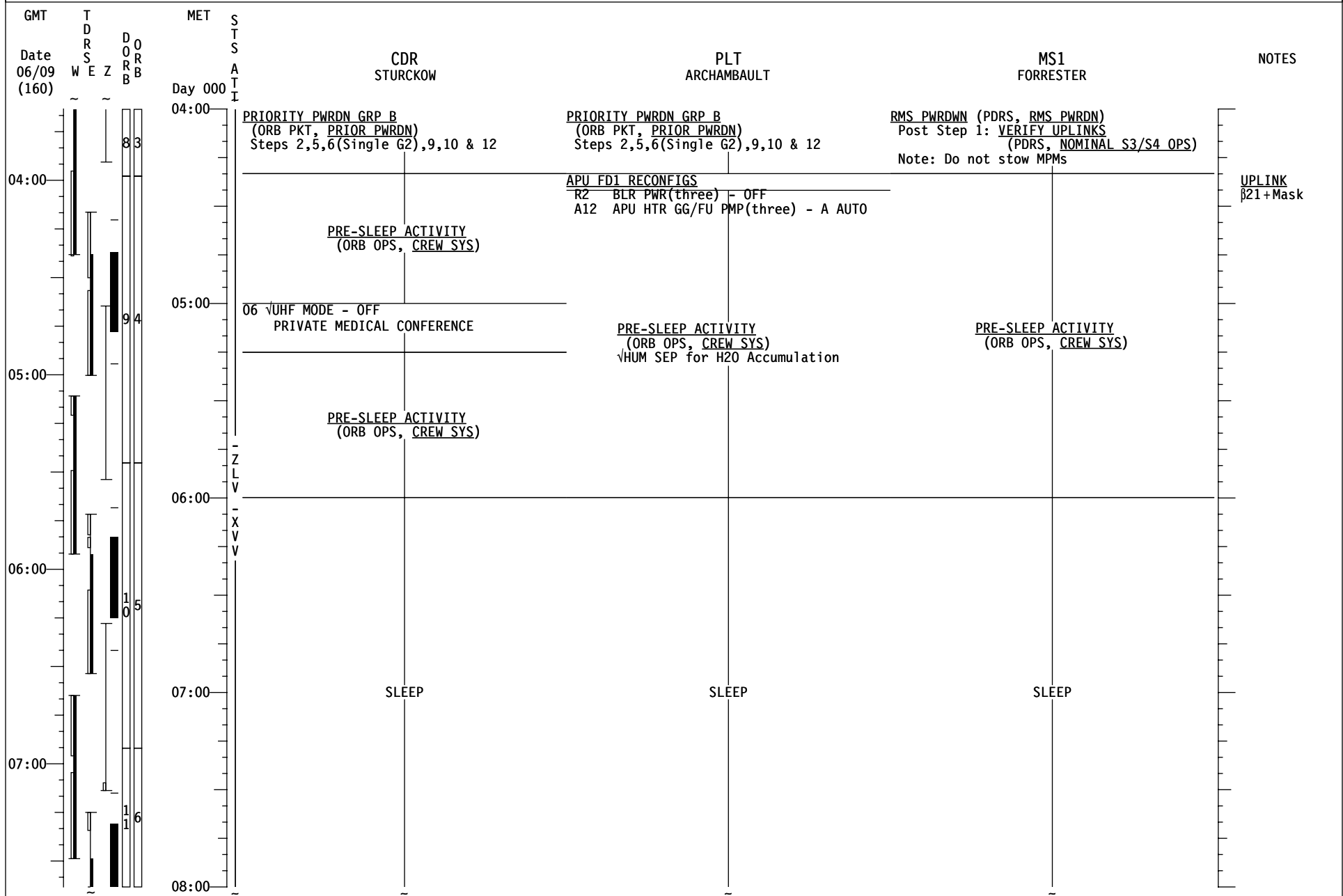
GMT	TDRS W E Z	DORB	MET	STS A T T	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 06/08 (159)			Day 000	00:00				
				ASC	ACTIVITIES PRIOR TO 0/2:30 ARE IN THE ASCENT AND POST INSERTION CHECKLISTS. THE ORBITER SHOULD BE IN A -ZLV, +YVV ATTITUDE UPON ENTERING THE FLIGHT PLAN.			
				MS2	FD01 EZ ACTIVITIES: PCS 1(2) CONFIG (ORB OPS, ECLS) Config SYS 1 01 √02/N2 FLOW sel - SYS 1 N2 LAMP TEST (ORB OPS, EPS) SMK DETN CHECK TEST (ORB OPS, ECLS) CSA-CP BATTERY CHANGEOUT (ORB OPS, CSA-CP) CSA-CP CHECKOUT (ORB OPS, CSA-CP) DATE/TIME SET (P/TV, DCS 760) VTR CLOCK SET (P/TV, DTV) if not performed for PLBD rec			
					POST INSERTION	POST INSERTION	POST INSERTION	
				ZLV				UPLINK β21+Mask
				+YVV	AFT CONTROLLER C/O (ORB OPS, GNC)			
					STS-117 DAP A & B CONFIG (ORB OPS, DAP TABLES)			
						RMS PWRUP (PDRS, RMS PWRUP)		
						ON-ORBIT INITIALIZATION (PDRS, ON-ORBIT INIT)		
					SSV NOMINAL SETUP (PHOTO/TV, SSV) OUTFRATE - 4			
						RMS CHECKOUT (PDRS, RMS C/O)		
						RMS CHECKOUT (PDRS, RMS C/O)		UPLINK β21+Mask Box A1
					IMU ALIGN - S TRK (ORB OPS)			
					MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A1/AUTO/VERN Init TRK			
						RMS PLB SURVEY	RMS PLB SURVEY	
					ELEVON PARK (ORB OPS, GNC)			
				04:00				



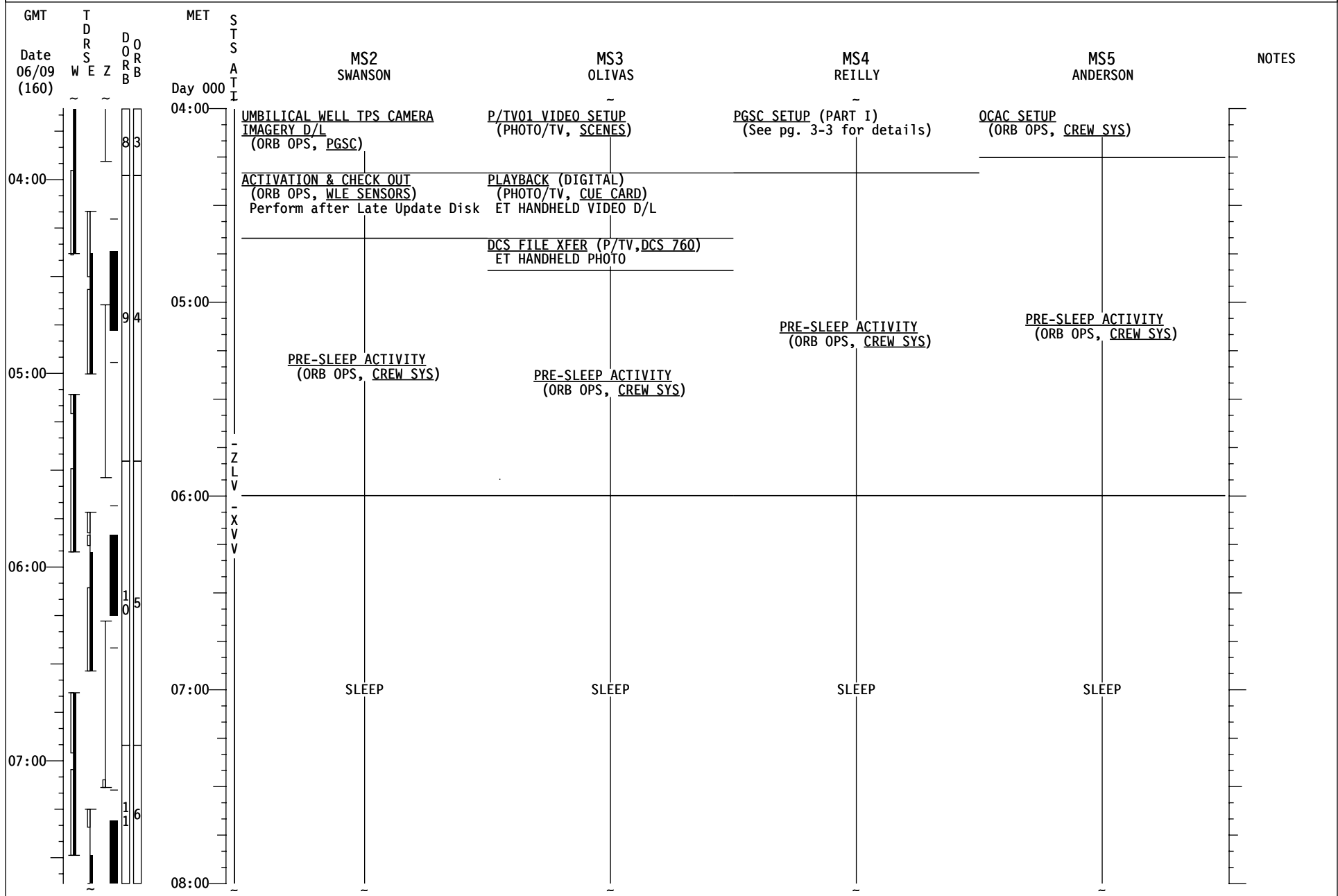
STS-117 (FD01)

GMT	TDRS WSEZ	DORB	MET Day 000	STS ATT	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	MS5 ANDERSON	NOTES
00:00			00:00	ASC					
01:00			01:00	OMS2	POST INSERTION	POST INSERTION	POST INSERTION	POST INSERTION	
02:00			02:00	ZLV					
03:00			03:00	YVV	<u>PGSC SETUP (PART I)</u> Setup the following minimum config: <u>PGSC NETWORK (ORB OPS, PGSC)</u> Setup KFX, OCA Router, WLES & RF LAN Access Point <u>COLOR PRINTER UNSTW & ASSMBLE (ORB OPS, PGSC)</u> <u>PGSC HARD DISK LATE UPDATE</u> Update all Network PGSCs w/late update disk	<u>P/TV01 VIDEO SETUP (PHOTO/TV, SCENES)</u>	<u>PGSC SETUP (PART I)</u> Setup the following minimum config: <u>PGSC NETWORK (ORB OPS, PGSC)</u> Setup KFX, OCA Router, WLES & RF LAN Access Point <u>COLOR PRINTER UNSTW & ASSMBLE (ORB OPS, PGSC)</u> <u>PGSC HARD DISK LATE UPDATE</u> Update all Network PGSCs w/late update disk	<u>GIRA INSTALLATION (ORB OPS, ECLS)</u>	
04:00			04:00						<u>SHUTTLE EMERGENCY EYEWASH (SEE)</u> Unstow, attach on or near galley Fill one drink container and label it "FOR EYE RINSE ONLY" and attach on or near galley

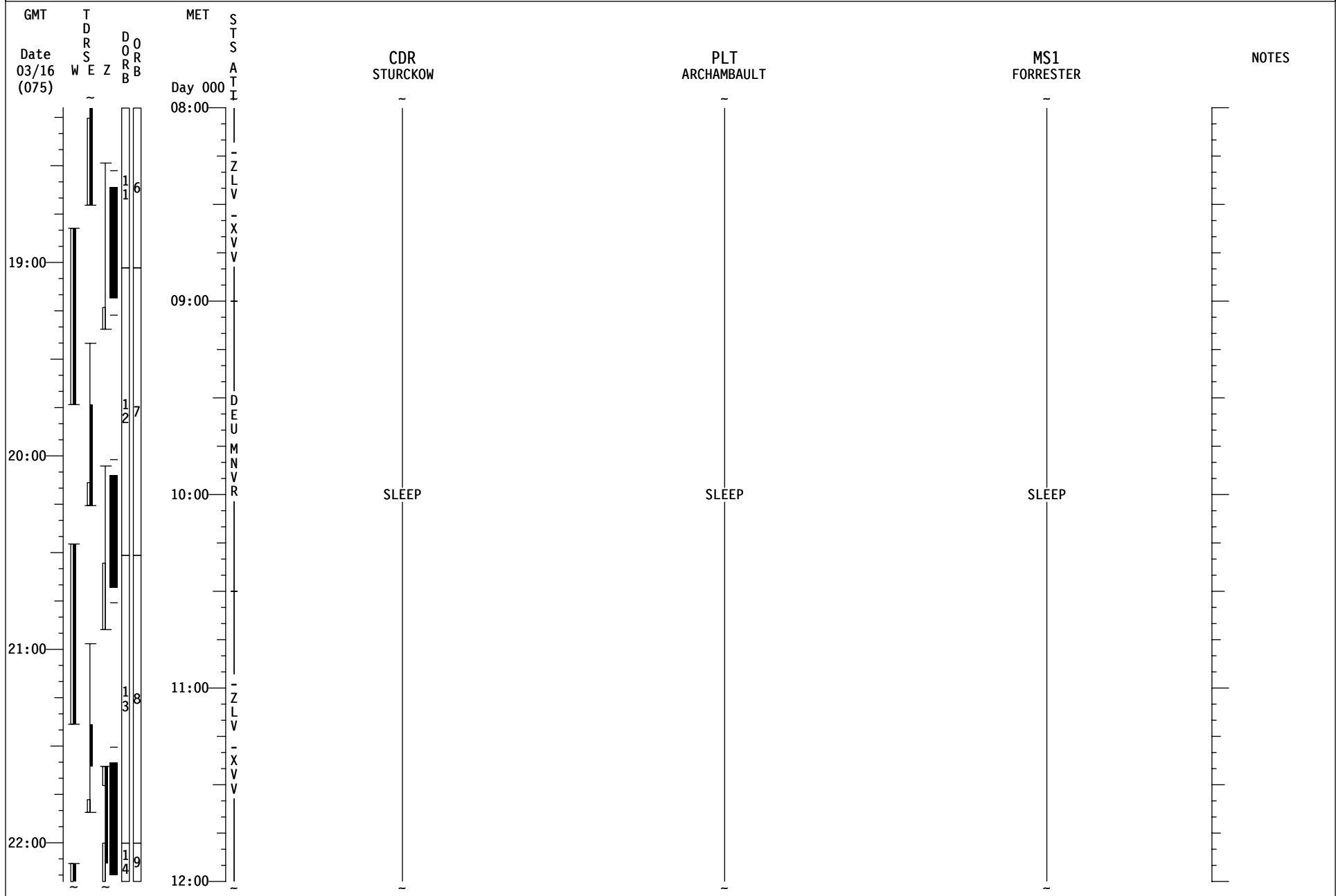
STS-117 (FD01)



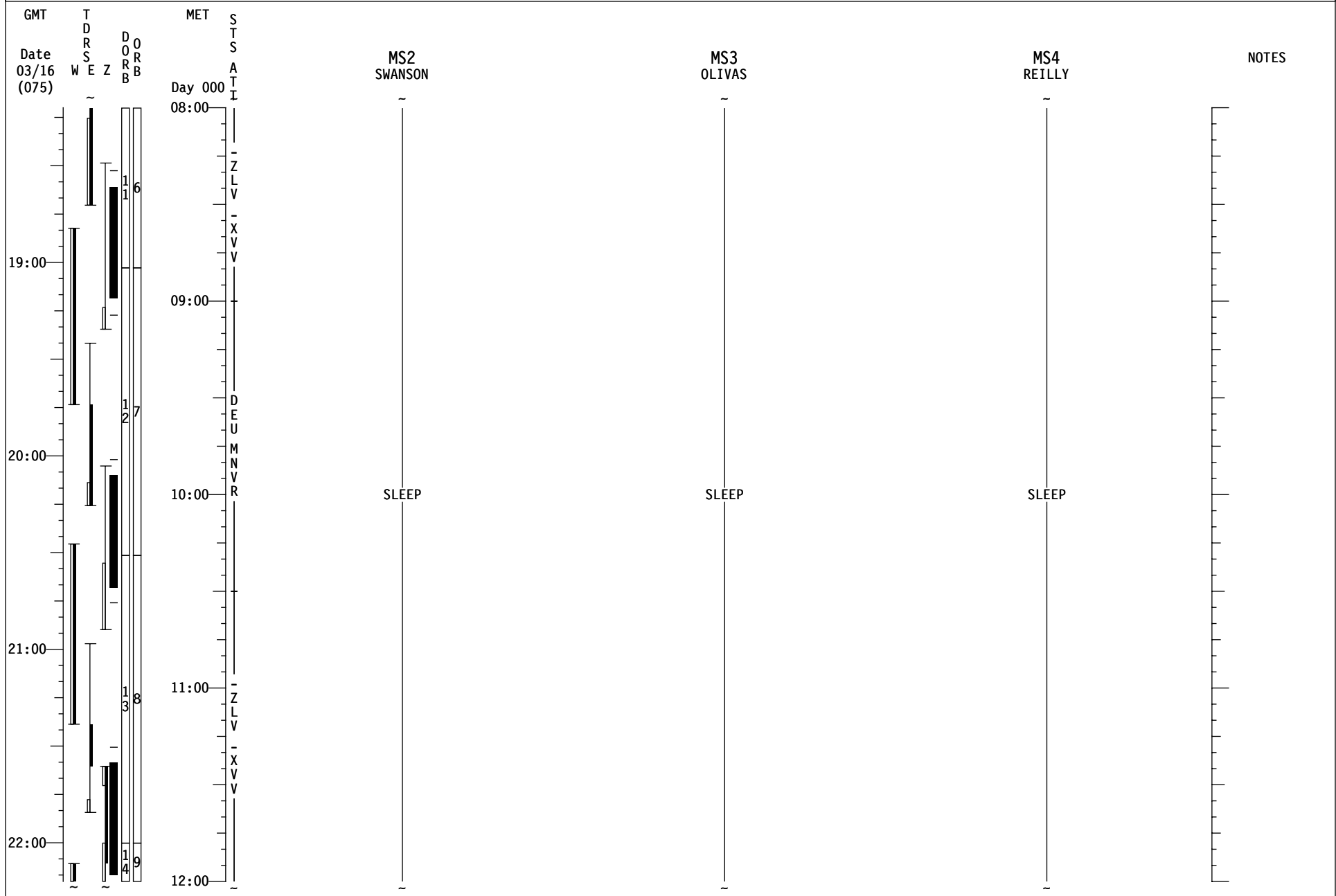
STS-117 (FD01)



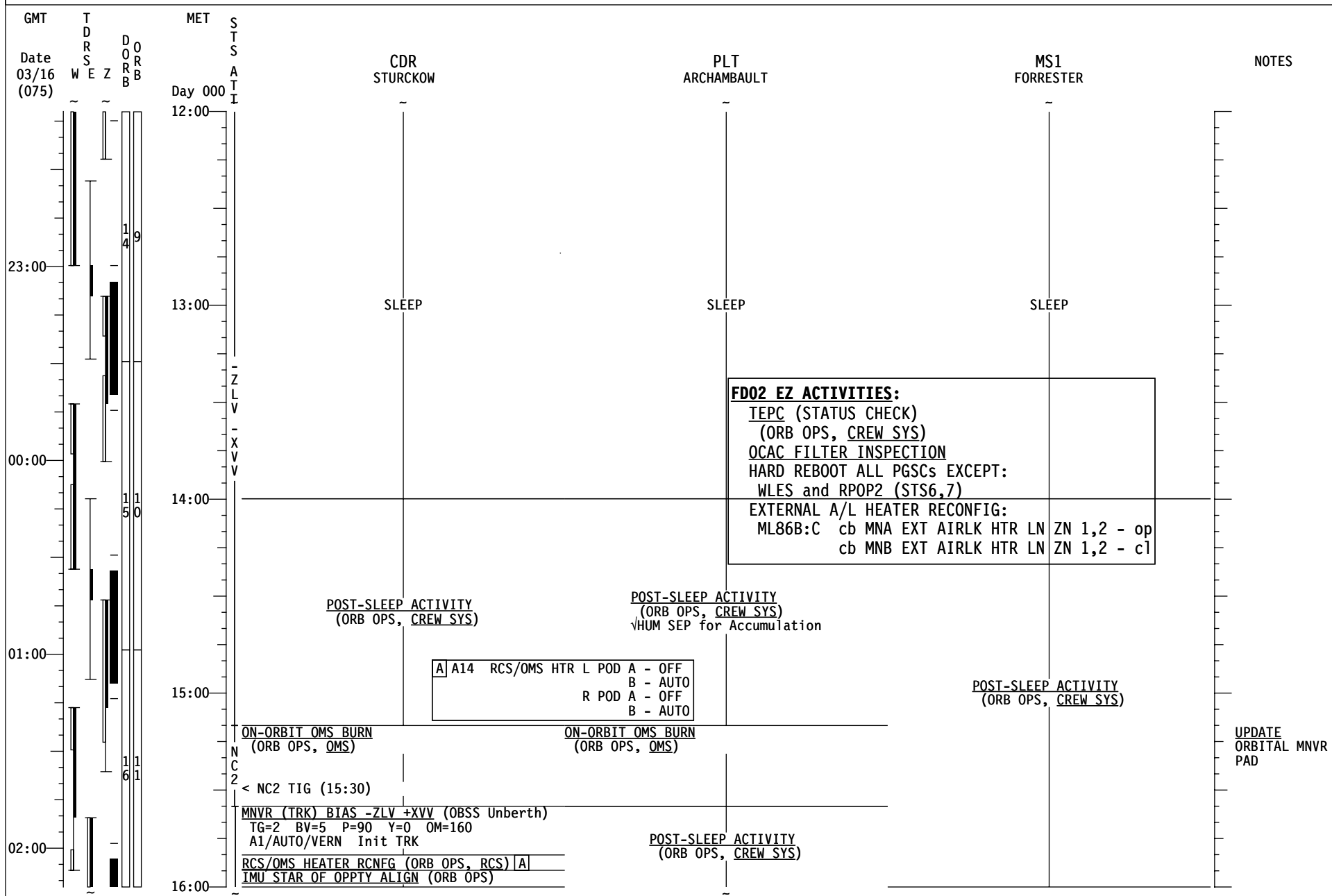
STS-117 (FD01)



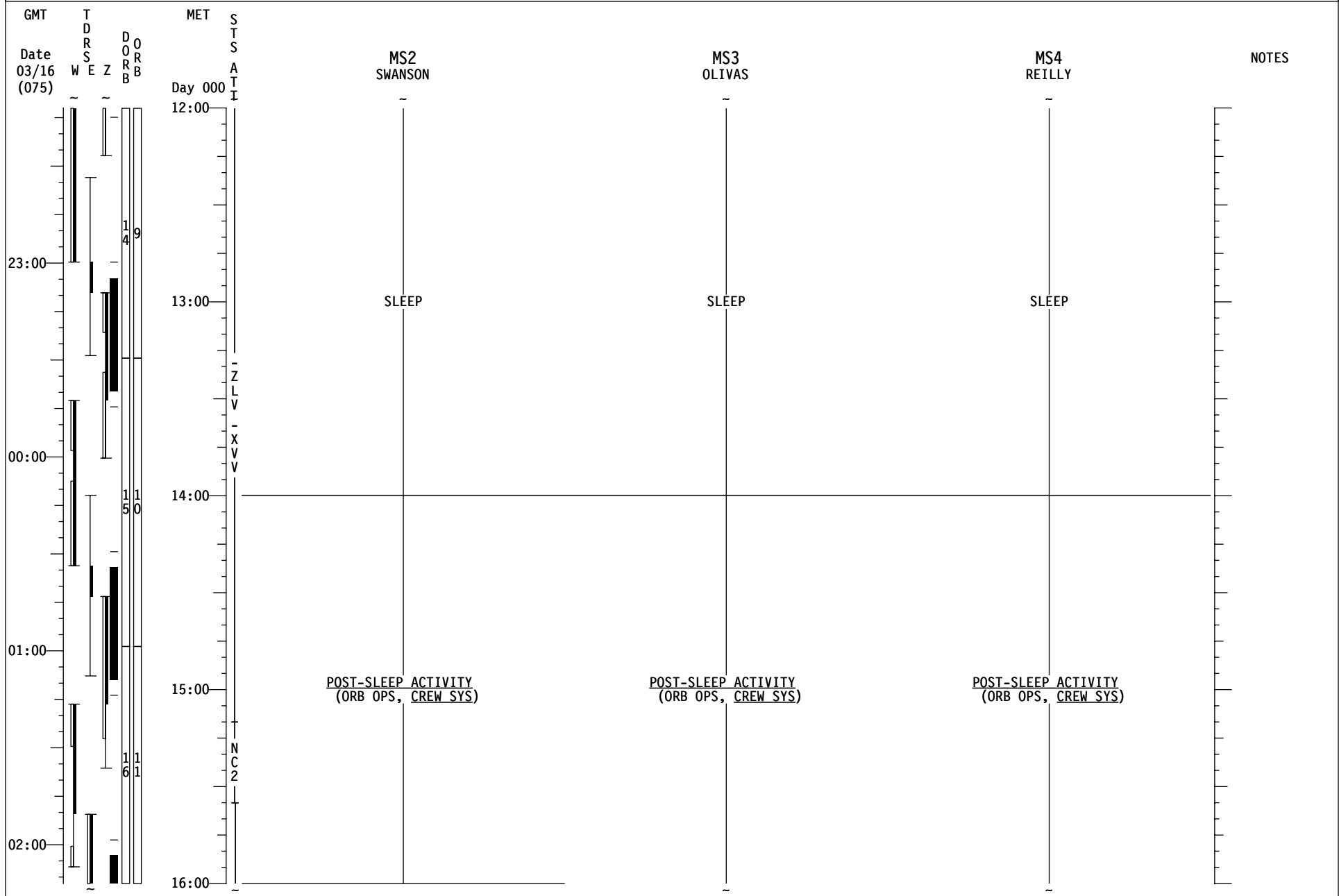
STS-117 (FD01)



STS-117 (FD02)



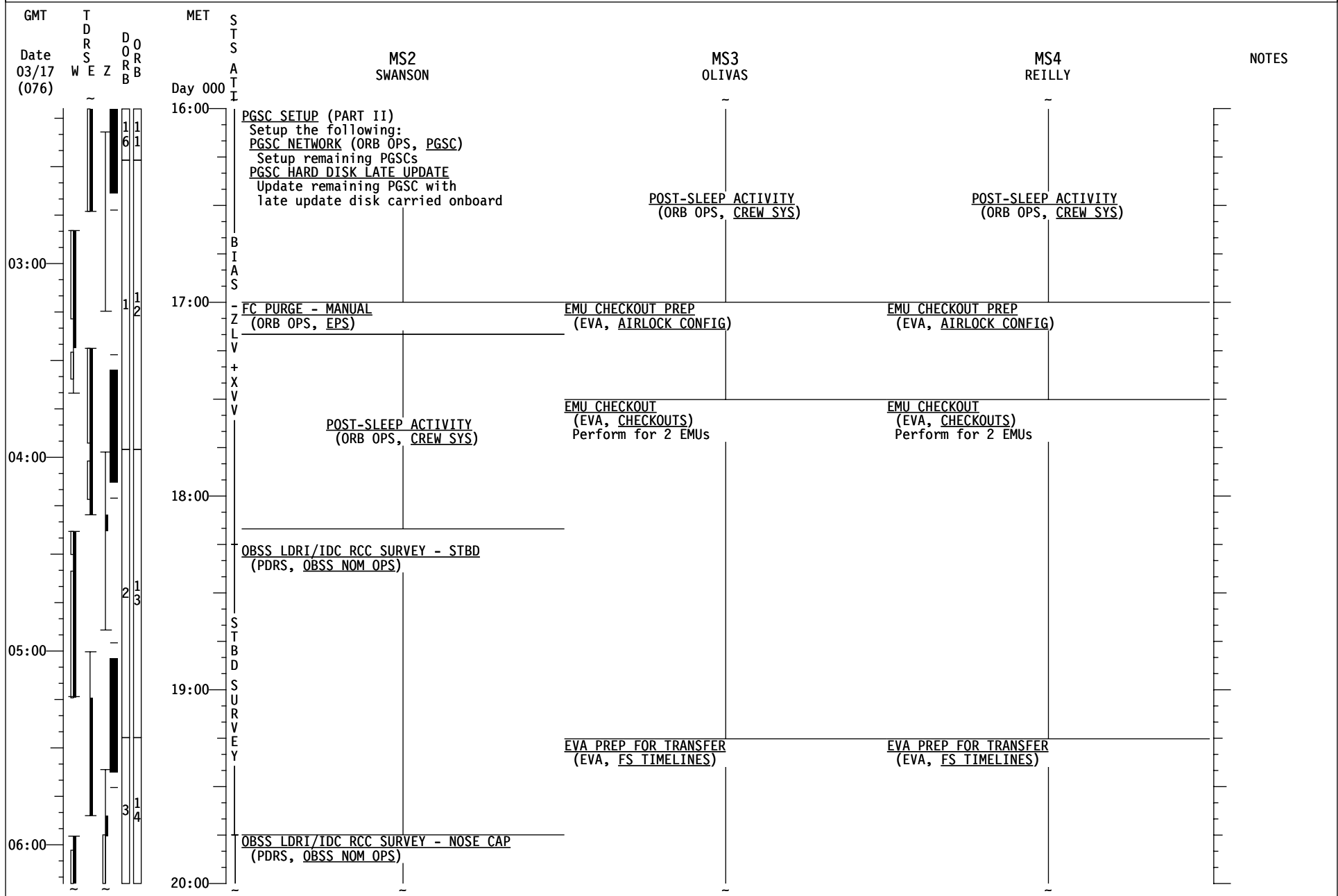
STS-117 (FD02)



STS-117 (FD02)

GMT	TDRS W E Z	DORB 1 6 1	MET Day 000	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
03:00			16:00				A8L PORT RMS HTR (two)-AUTO	
					POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
			17:00				RMS PWRUP (PDRS, RMS PWRUP)	
					POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
						OBSS UNBERTH (PDRS, OBSS NOM OPS)	OBSS UNBERTH (PDRS, OBSS NOM OPS)	UPLINK β21 only Box A2
04:00			18:00					
					MNVR (TRK) BIAS +YSI (STBD Survey) TG=4 BV=5 P=0 Y=40 OM=40 A14/AUTO/VERN Init TRK	OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)	OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)	UPLINK β21 only Box A3
					FILTER CLEANING (IFM, SCHEDULED MAINTENANCE)			
05:00			19:00					
					CRYO 02 TK HTR SNSR CK (ORB OPS, EPS)			
06:00			20:00					
					MNVR (TRK) BIAS +XSI (Nose Cap Survey) TG=4 BV=5 P=304 Y=0 OM=125 A14/AUTO/VERN Init TRK	OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)	OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)	UPLINK β12 only

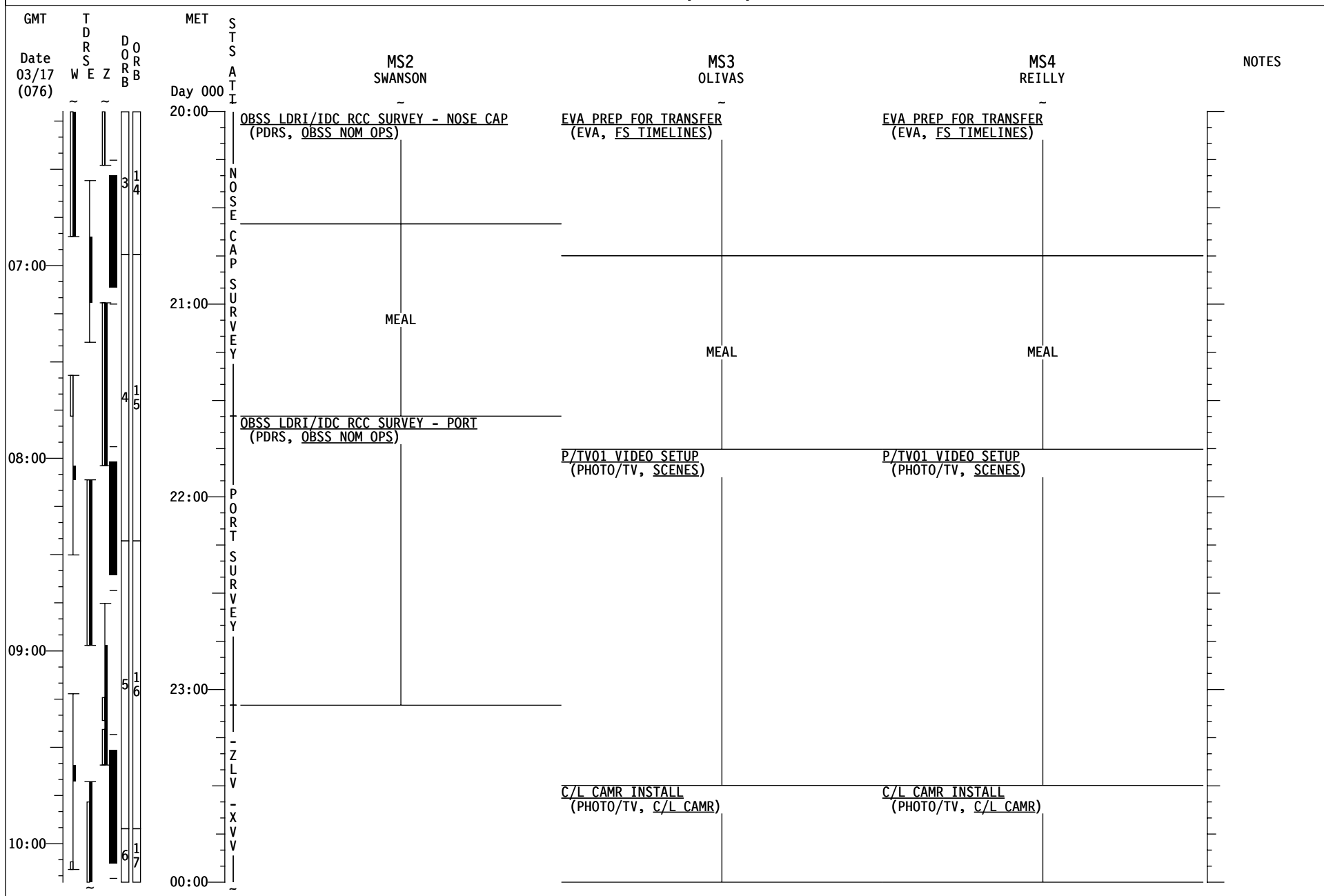
STS-117 (FD02)



STS-117 (FD02)

GMT	TDRS WSEZ	DORB	MET	STS ATTI	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/17 (076)			Day 000					
07:00				NOSE CAP SURVEY		OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)	OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)	
					MEAL	MEAL	MEAL	
08:00				PORT SURVEY	MNVR (TRK) BIAS -YSI (Port Survey) TG=4 BV=5 P=0 Y=323 OM=245 A14/AUTO/VERN Init TRK	OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS NOM OPS)	OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS NOM OPS)	UPLINK β21 only Box A2
09:00				ZLV	MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A1/AUTO/VERN Init TRK	OBSS BERTH (PDRS, OBSS NOM OPS)	OBSS BERTH (PDRS, OBSS NOM OPS)	
					R2 BLR CNTLR/HTR (three) - B			
10:00				XVV				UPLINK β21+Mask
00:00								

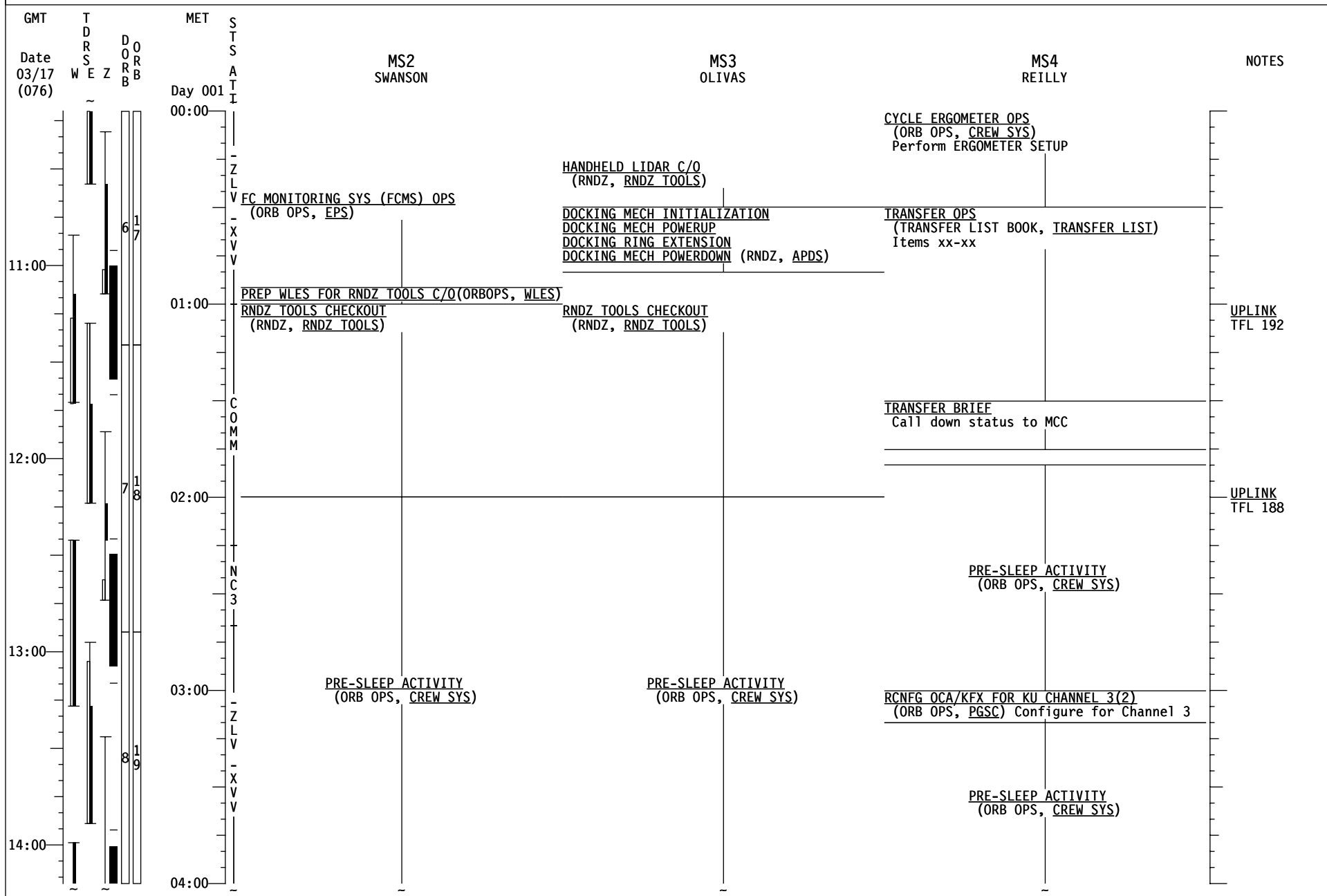
STS-117 (FD02)



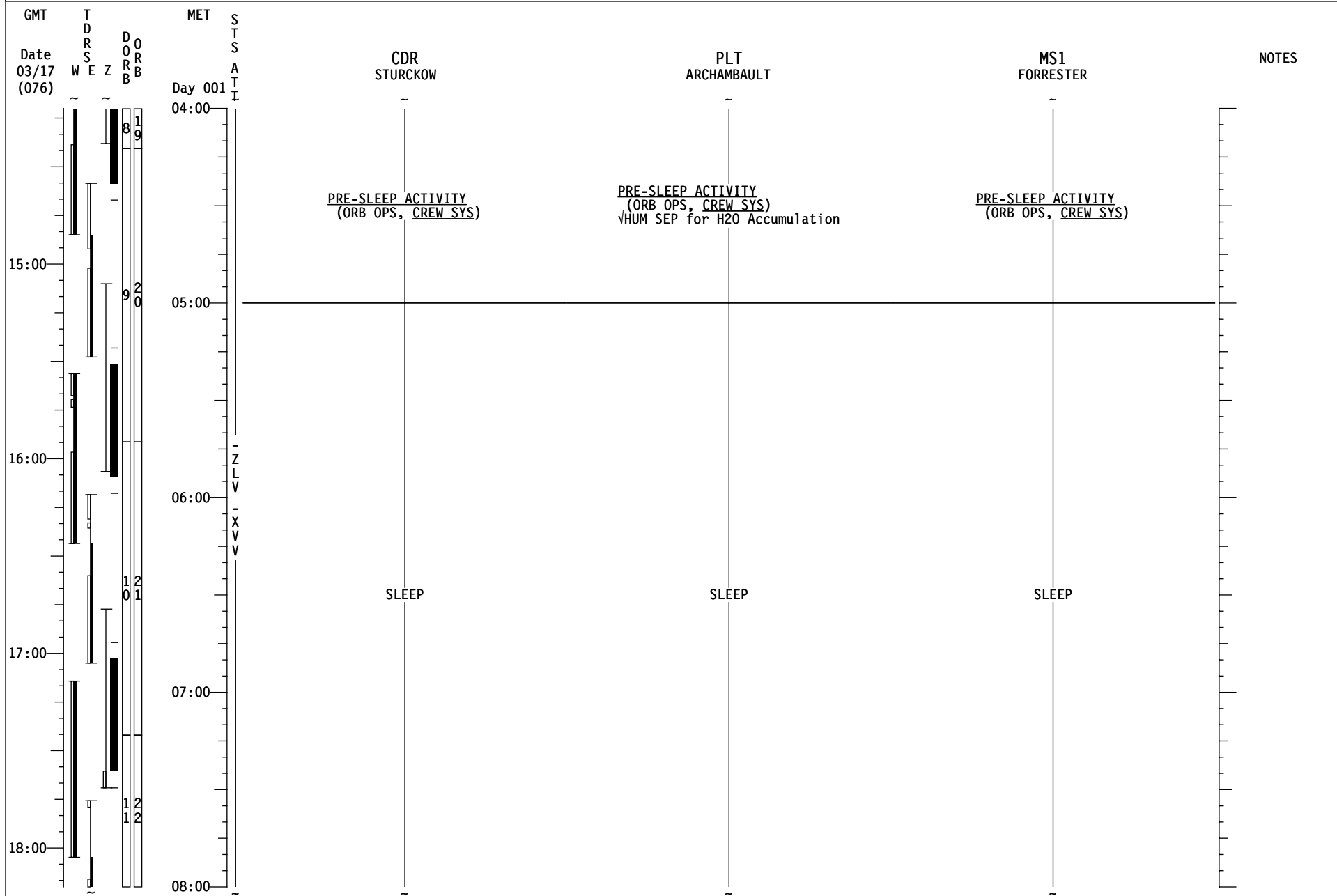
STS-117 (FD02)

GMT	TDRS W E Z	DORB	MET	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/17 (076)			Day 001					
11:00		6 17	00:00	Z L V	P/TV08 EXTERNAL SURVEY (S/U) (P/TV, SCENES) Step 1 P/TV08 EXTERNAL SURVEY (OPS) (P/TV, SCENES) Item 1		SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform EQUIP PREP and WATER TRANSFER HOSE PURGE Do not perform CWC FILL #1 until after Docking.	
				- X V V			DOCKING MECH INITIALIZATION DOCKING MECH POWERUP DOCKING RING EXTENSION DOCKING MECH POWERDOWN (RNDZ, APDS)	
			01:00		MNVR (TRK) SUN TRACK (LDRI Downlink) TG=4 BV=5 P=114 Y=0 OM=350 A1/AUTO/VERN (1/01:00) Init TRK	EXERCISE	PLAYBACK (DIGITAL) (PHOTO/TV, CUE CARD) LDRI SURVEYS - KU TDRX (XX:XX-XX:XX)	
				C O M M	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
12:00		7 18	02:00			PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
				N C 3	ON-ORBIT OMS BURN (ORB OPS, OMS)	ON-ORBIT OMS BURN (ORB OPS, OMS)		UPDATE ORBITAL MNVR PAD
					< NC3 TIG (1/02:34)			
					MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A1/AUTO/VERN Init TRK			
13:00		8 19	03:00	Z L V	FUTURE LOADED MNVR (Simo Dump) TG=2 BV=3 OM=270 A1/AUTO/VERN (1/13:15) Init TRK		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				- X V V	L06 VUHF MODE - OFF PRIVATE MEDICAL CONFERENCE	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) VHUM SEP for H2O Accumulation		
14:00			04:00		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			

STS-117 (FD02)



STS-117 (FD02)



CDR
STURCKOW

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

SLEEP

PLT
ARCHAMBAULT

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)
√HUM SEP for H2O Accumulation

SLEEP

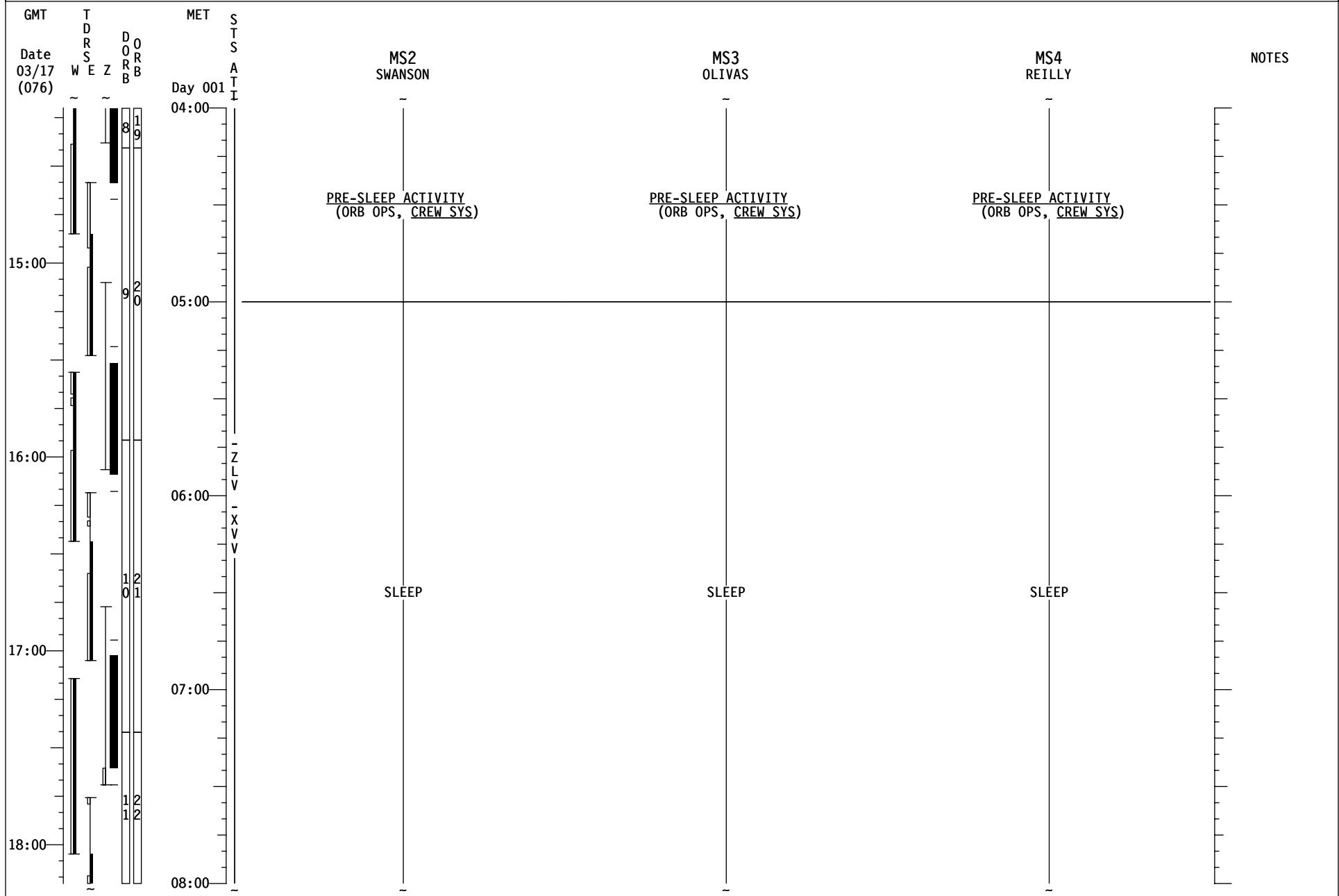
MS1
FORRESTER

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

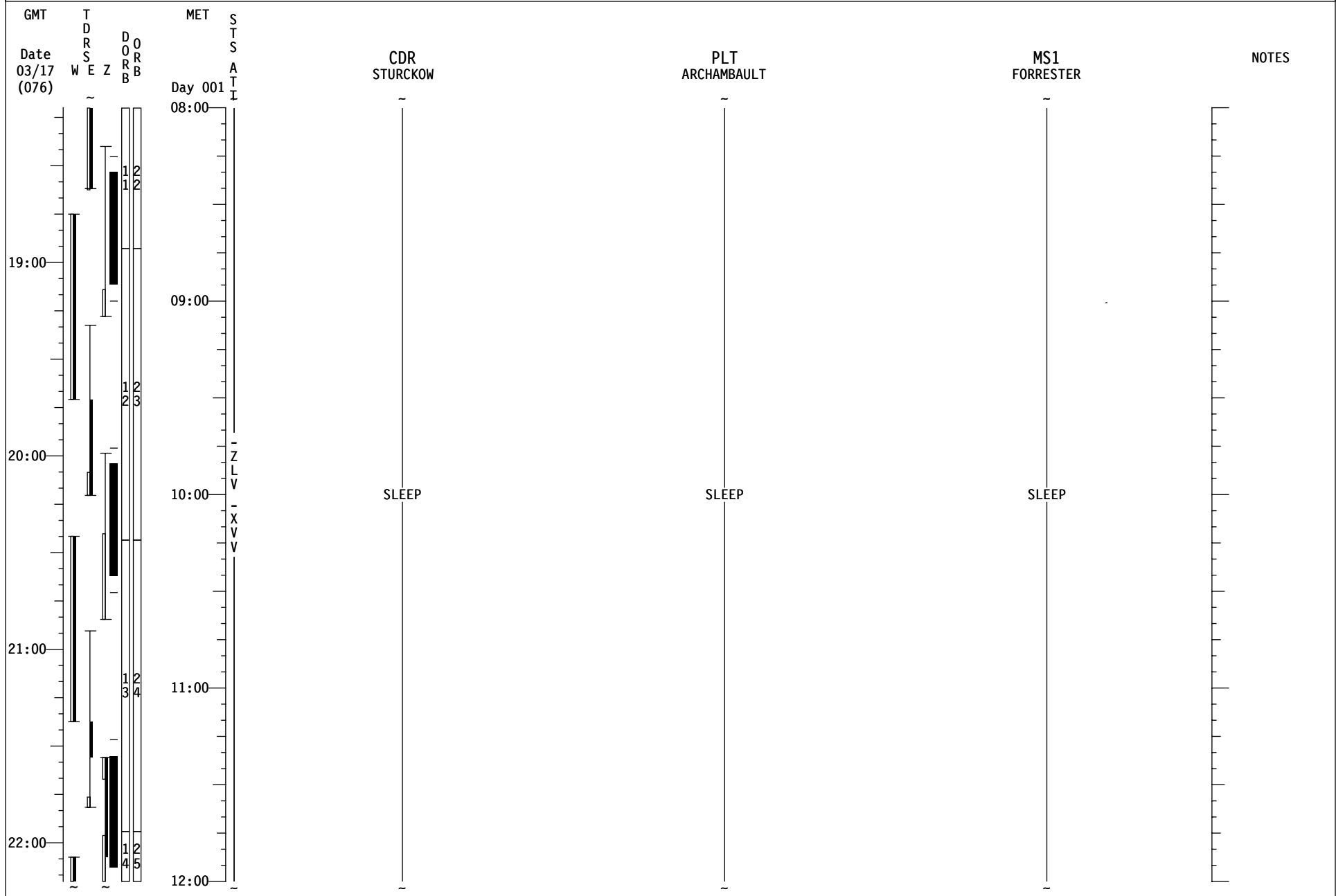
SLEEP

NOTES

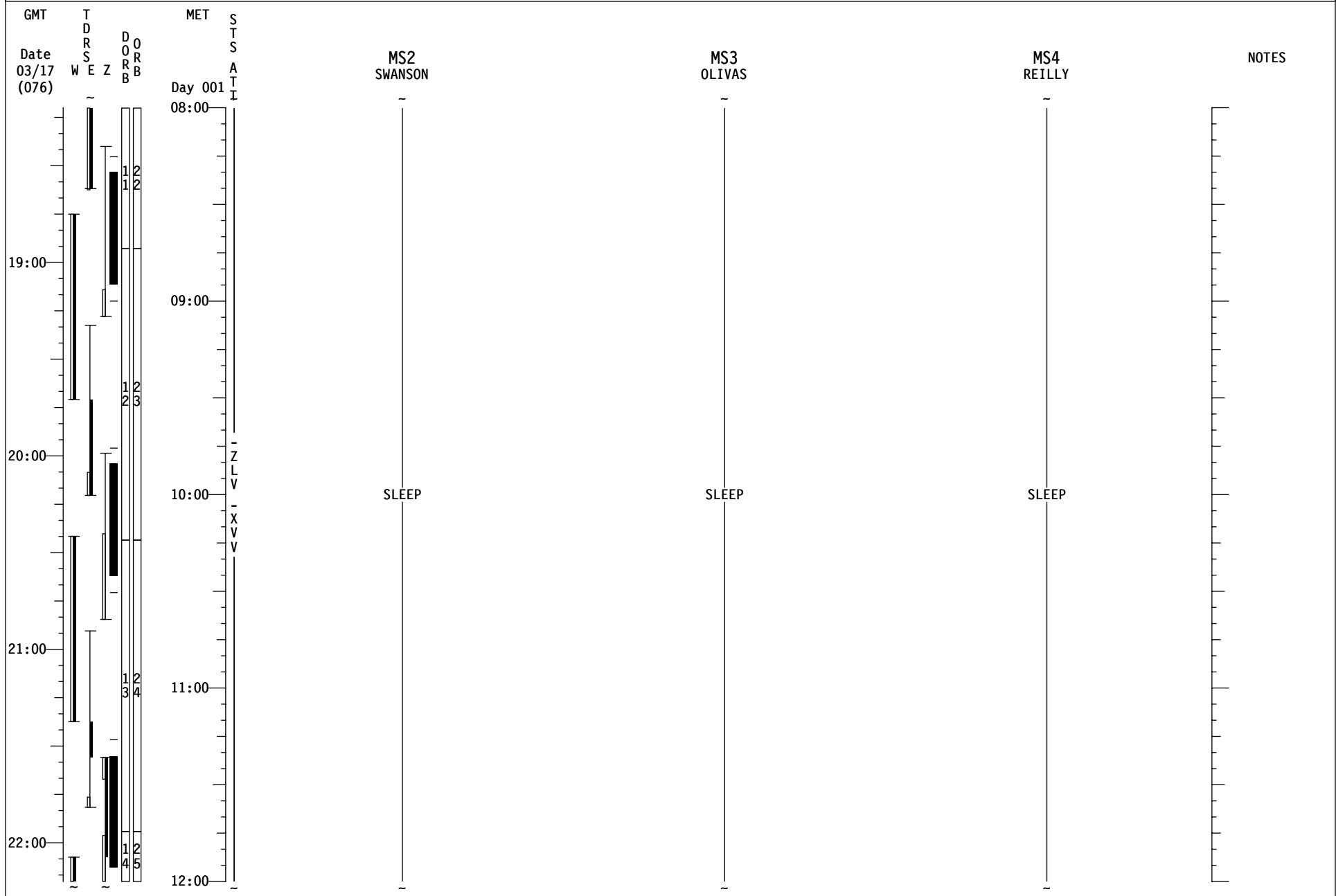
STS-117 (FD02)



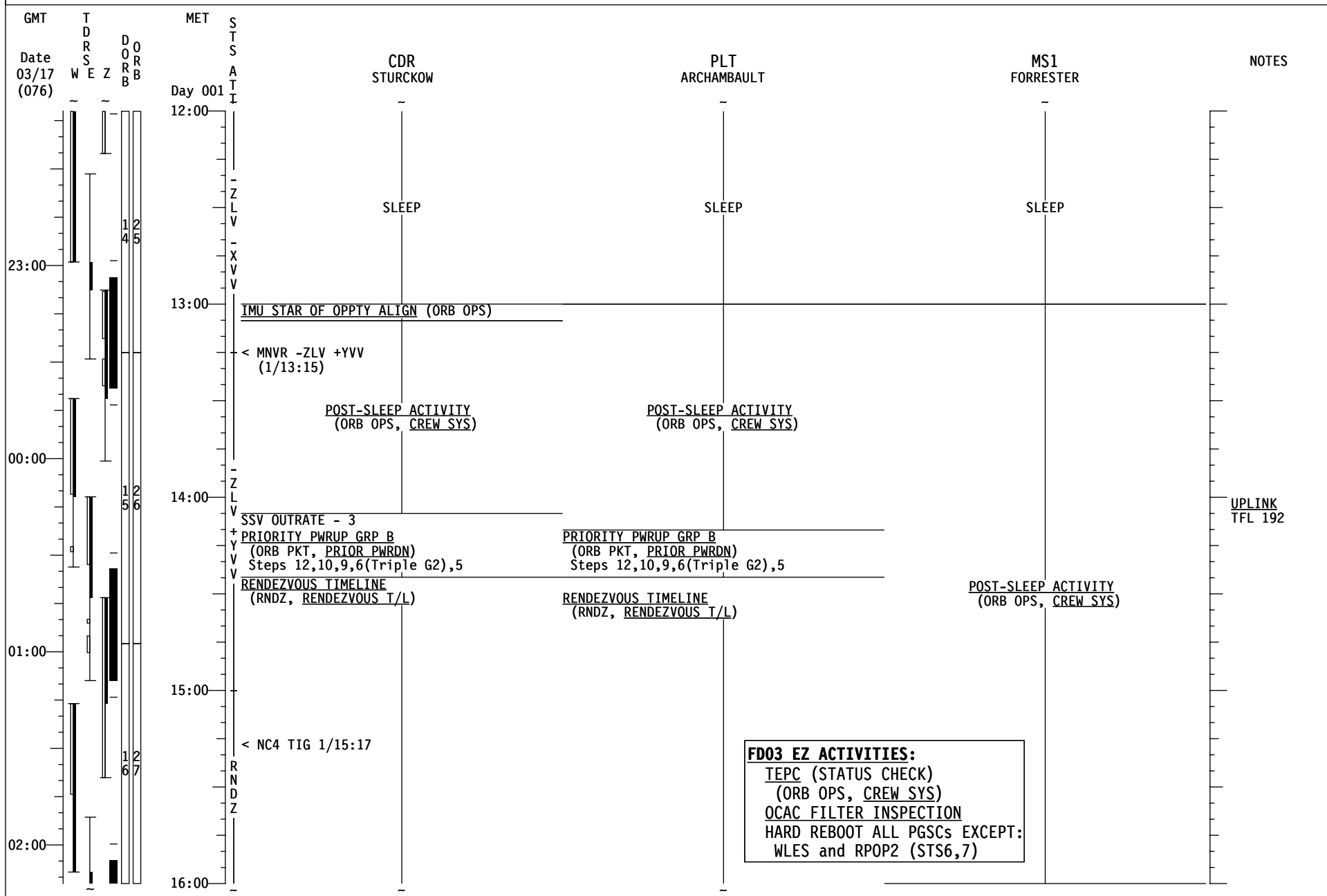
STS-117 (FD02)



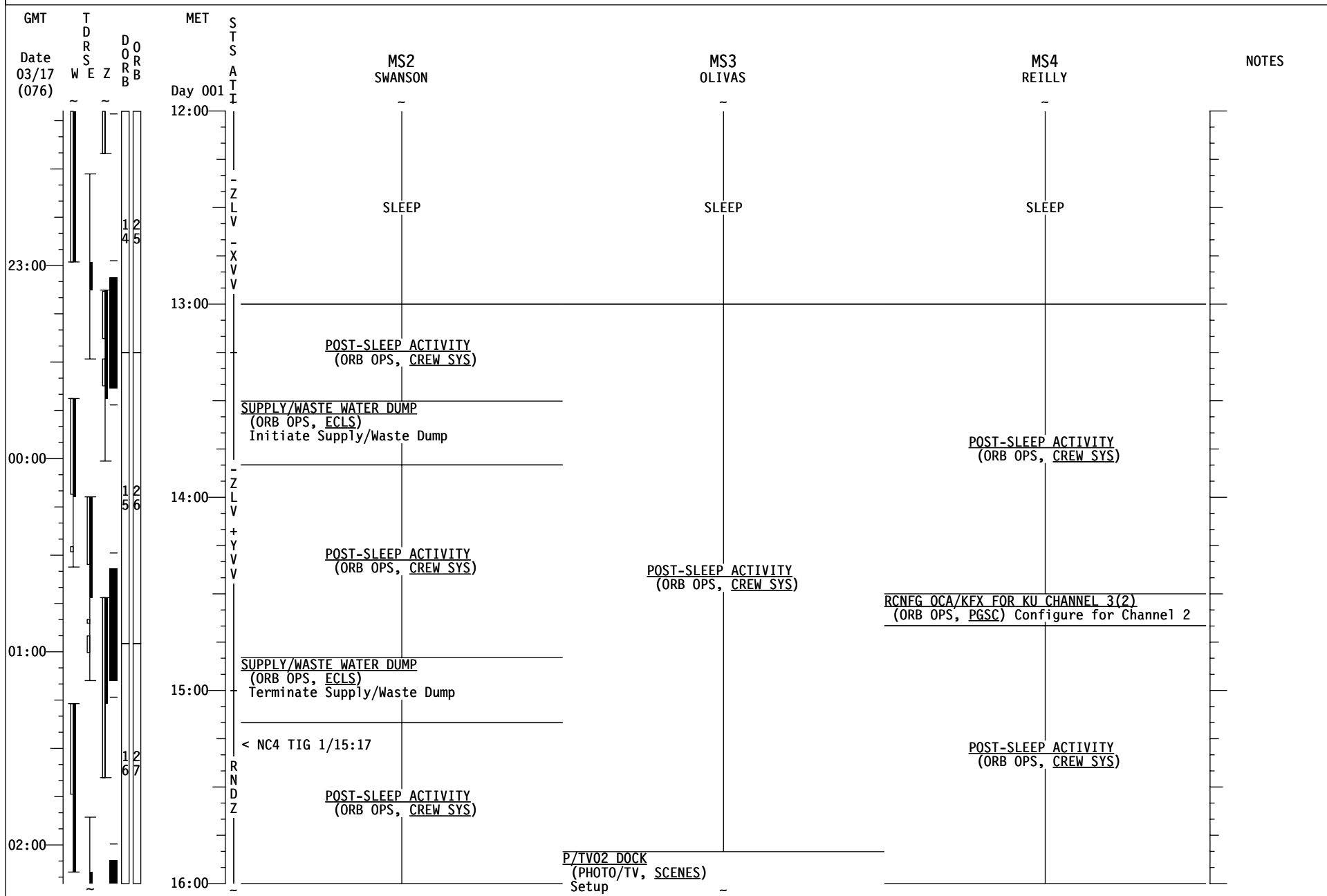
STS-117 (FD02)



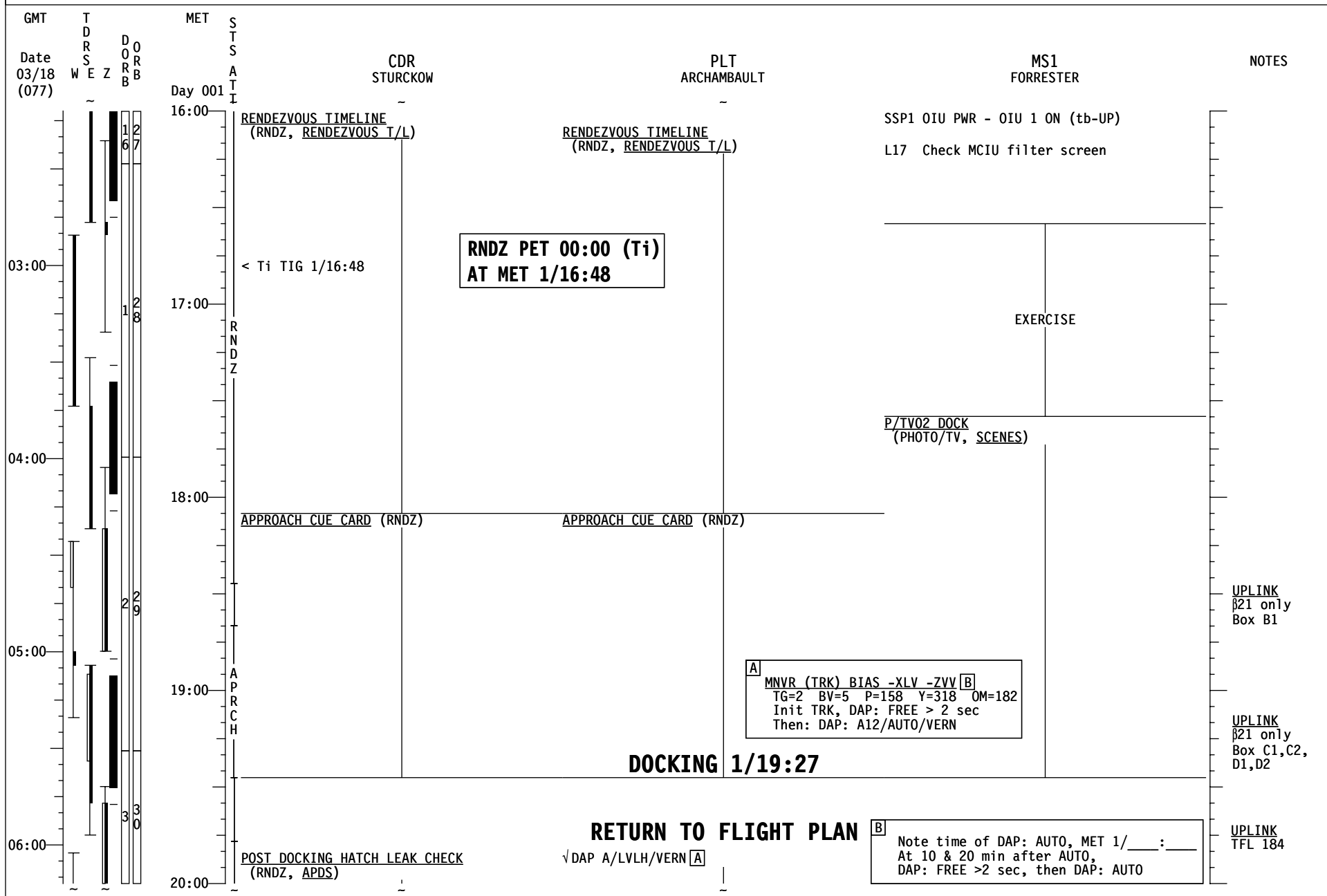
STS-117 (FD03)



STS-117 (FD03)



STS-117 (FD03)



STS-117 (FD03)

GMT	T D R S E Z D O R B	MET	S T S A T T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/18 (077)	W E Z	Day 001					
16:00					P/TV02 DOCK (PHOTO/TV, SCENES) Setup	SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS) Perform SETUP H/W located in MF28H	
				EXERCISE	MIDDECK PREP (EVA, EVA PREP) Steps 9-12	MIDDECK PREP (EVA, EVA PREP) Steps 9-12	
					EMU REMOVAL (EVA, AIRLOCK CONFIG)	EMU REMOVAL (EVA, AIRLOCK CONFIG)	
03:00				< Ti TIG 1/16:48			
					RENDEZVOUS TIMELINE (RNDZ, RENDEZVOUS T/L)		
17:00					P/TV02 DOCK (PHOTO/TV, SCENES)		
				RNDZ PET 00:00 (Ti) AT MET 1/16:48			
						EXERCISE	
04:00							
				APPROACH CUE CARD (RNDZ)	EXERCISE	APPROACH CUE CARD (RNDZ)	
18:00							
					P/TV02 DOCK (PHOTO/TV, SCENES)		
05:00							
19:00							
					DOCKING 1/19:27		
06:00					RETURN TO FLIGHT PLAN		
20:00						POST DOCKING HATCH LEAK CHECK (RNDZ, APDS)	

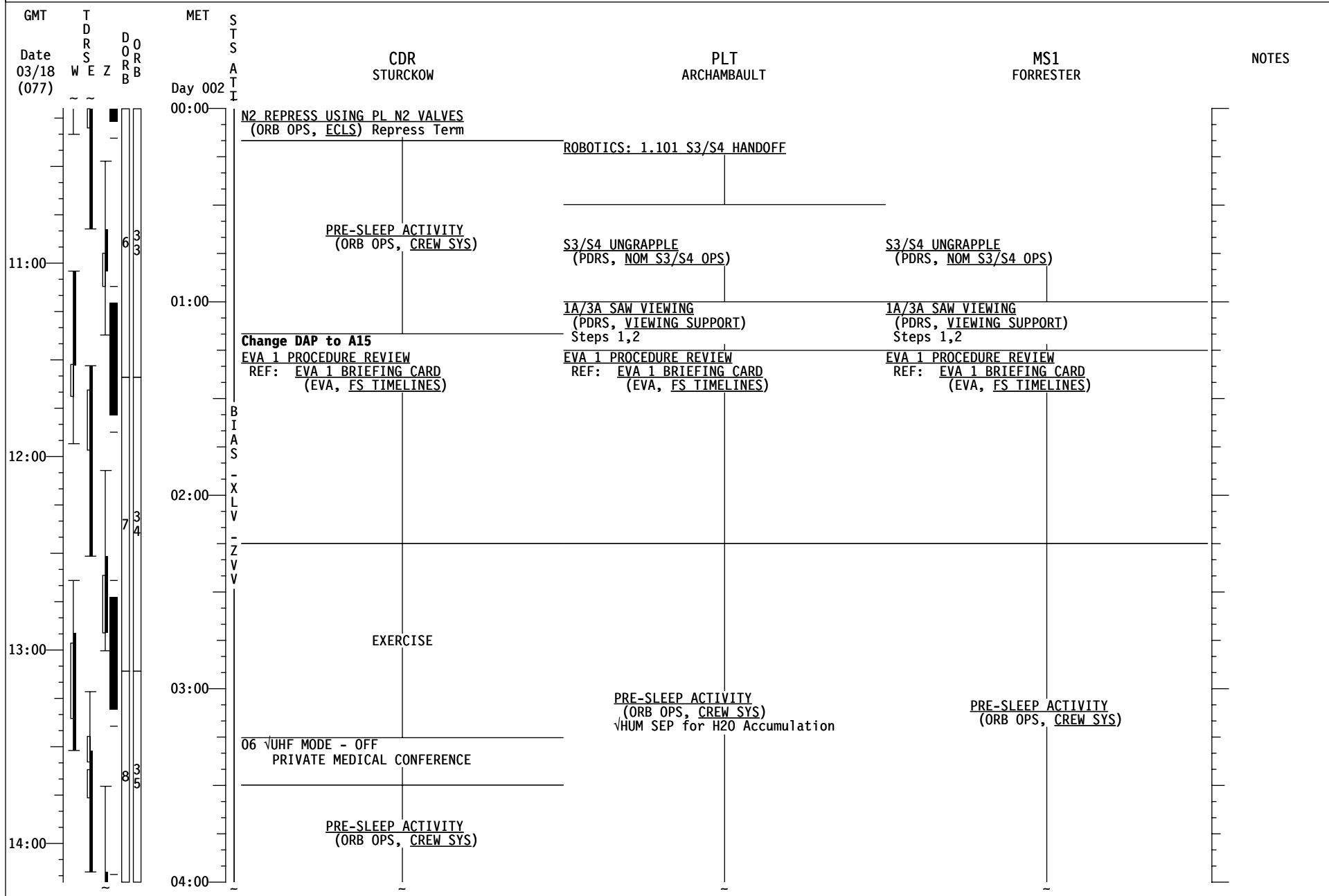
STS-117 (FD03)

GMT	TDRS WSEZ	DORB	MET	STS ATTI	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/18 (077)			Day 001					
20:00					POST DOCKING HATCH LEAK CHECK (RNDZ, APDS)	MNVR (TRK) BIAS -XLV -ZVV (See Pg. 3-22 for details)		
					A/L PREP FOR INGRESS - BYPASS CONFIG (RNDZ, APDS)	SSV OUTFATE - 2 PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN) Steps 6(Single G2) and 12 06 S TRK PWR -Z - OFF	PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN) Steps 6(Single G2) and 12 06 S TRK PWR -Z - OFF	
07:00					JOINT OPS: 2.106 HATCH OPEN AND DUCT INSTALL (Bypass config)	JOINT OPS: 3.111 H/O ATT CONTROL ORB TO CMG TA	JOINT OPS: 6.103 HARDLINE AUDIO CONFIG (ISS) Steps 1,2,6,7	
						N2 REPRESS USING PL N2 VALVES (ORB OPS, ECLS) Repress S/U and Init		
						S3/S4 GRAPPLE (PDRS, NOM S3/4 OPS)	S3/S4 GRAPPLE (PDRS, NOM S3/4 OPS)	
					WELCOME	WELCOME	WELCOME	
08:00					SAFETY BRIEFING	SAFETY BRIEFING	SAFETY BRIEFING	
					P/TV06 S3/S4 INSTALLATION (PHOTO/TV, SCENES) Perform SETUP	S3/S4 UNBERTH (PDRS, NOM S3/S4 OPS)	S3/S4 UNBERTH (PDRS, NOM S3/S4 OPS)	
					3.120 PREBREATHE USING SHUTTLE 02 SETUP			
09:00								
						S3/S4 HANDOFF (PDRS, NOM S3/S4 OPS)	S3/S4 HANDOFF (PDRS, NOM S3/S4 OPS)	
					L1 FLASH EVAP CNTLR PRI A - OFF MNVR (TRK) UPDATE (Overnight Park) TG=2 BV=5 P=159 Y=326 OM=183 A12/FREE/VERN Init TRK			
10:00								
00:00					L1 TOPPING EVAP HTR DUCT sel - OFF NOZ L,R (two) - OFF			

STS-117 (FD03)

GMT	TDRS Z	DORB	MET	STS	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/18 (077)	W	E	Day 001	01				
07:00			20:00		JOINT OPS: 6.107 PCS SETUP-SHUTTLE	P/TV04 INGRESS/EGRESS (PHOTO/TV, SCENES) Setup	POST DOCKING HATCH LEAK CHECK (RNDZ, APDS)	
						PLAYBACK (DIGITAL) (PHOTO/TV, CUE CARD) KU TDRX (XX:XX-XX:XX)	A/L PREP FOR INGRESS - BYPASS CONFIG (RNDZ, APDS)	
			21:00		POST RNDZ PGSC CONFIG Configure PGSCs per EVA/RMS Usage Chart	P/TV05 ISS INTERNAL OPS (HC) (PHOTO/TV, SCENES) Setup	JOINT OPS: 2.106 HATCH OPEN AND DUCT INSTALL (Bypass config)	
					WLES RCNFG PST DOCK (ORB OPS, WLES)			
					WELCOME	WELCOME	WELCOME	
08:00					SAFETY BRIEFING	SAFETY BRIEFING	SAFETY BRIEFING	
			22:00		POST-DOCKING EVA TRANSFER/RECNFG (EVA, AIRLOCK CNFG)	POST-DOCKING EVA TRANSFER/RECNFG (EVA, AIRLOCK CNFG)	POST-DOCKING EVA TRANSFER/RECNFG (EVA, AIRLOCK CNFG)	
09:00					EVA SYSTEMS: 1.307 REBA INSTALLATION/REMOVAL	EVA SYSTEMS: 1.307 REBA INSTALLATION/REMOVAL	EVA SYSTEMS: 1.307 REBA INSTALLATION/REMOVAL	
			23:00		EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECK	EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECK	EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECK	
					EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP	EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP	EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP	
					REF: STS-117 CONSUMABLES TRACKING CC (EVA)	REF: STS-117 CONSUMABLES TRACKING CC (EVA)	REF: STS-117 CONSUMABLES TRACKING CC (EVA)	
10:00			00:00		TRANSFER CWC TO STS Transfer Silver Biocide Kit and 4 empty CWCs, REF MSG XXX			

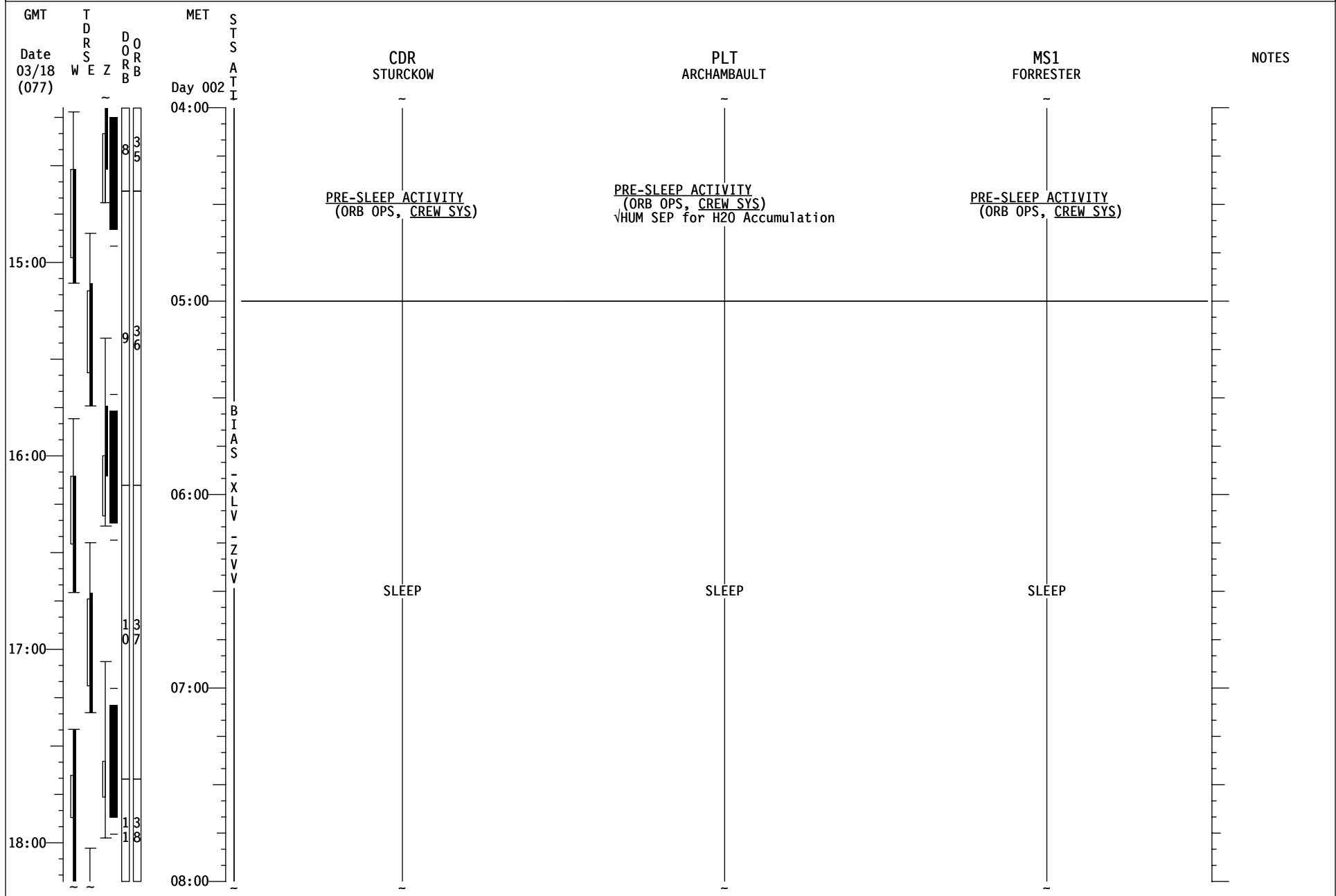
STS-117 (FD03)



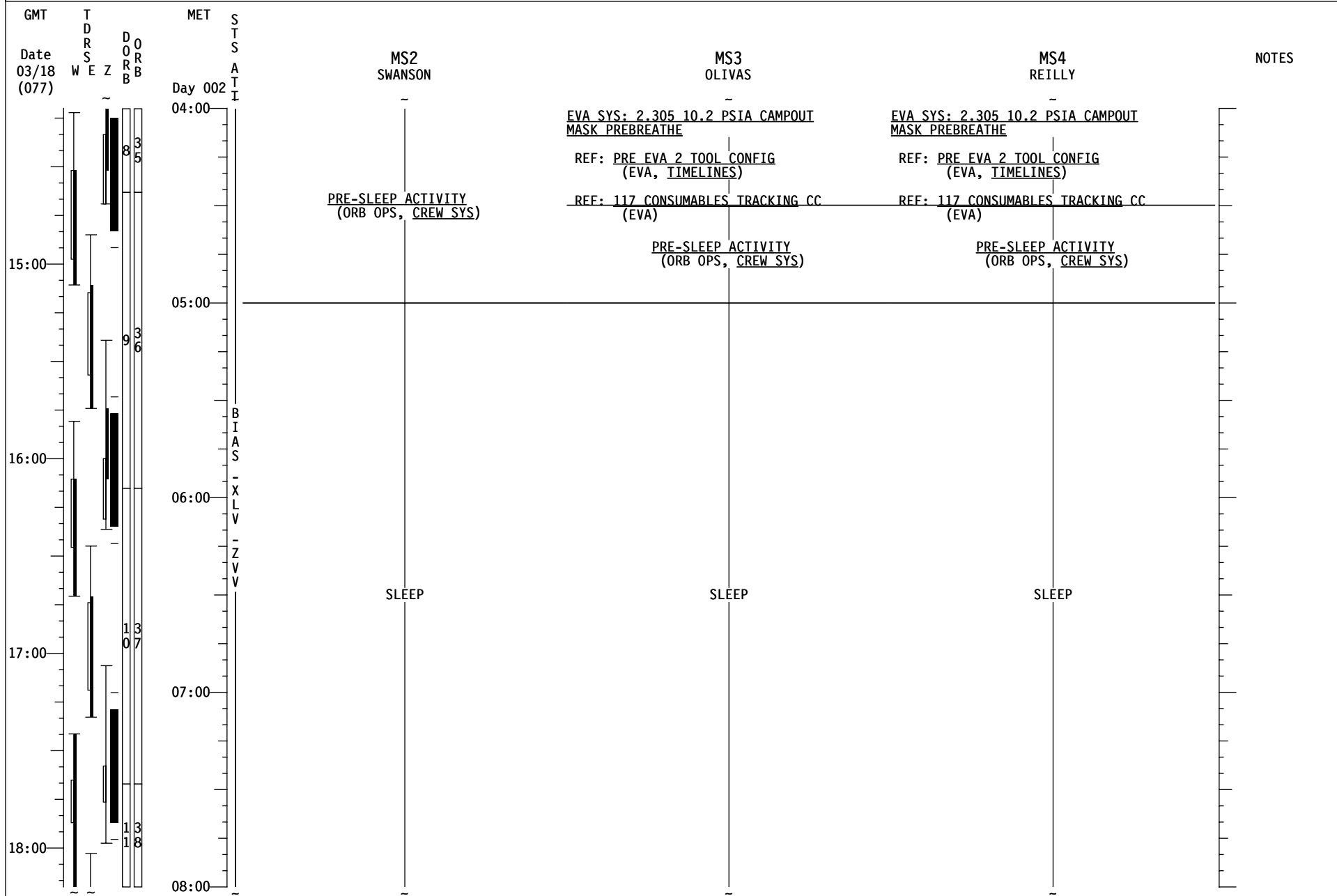
STS-117 (FD03)

GMT	T D R S W E Z	D O R B B B	MET Day 002	S T S A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
00:00					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Init Fill #1 Ref. MSG XXX			
11:00						PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
01:00					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERM			
12:00					EVA 1 PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, FS TIMELINES)	EVA 1 PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, FS TIMELINES)	EVA 1 PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, FS TIMELINES)	
02:00					Z CWC TRANSFER V Transfer 1 CWC to ISS			
13:00						PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
03:00					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	EVA SYS: 2.305 10.2 PSIA CAMPOUT MASK PREBREATHE REF: PRE EVA 2 TOOL CONFIG (EVA, TIMELINES) REF: 117 CONSUMABLES TRACKING CC (EVA)	EVA SYS: 2.305 10.2 PSIA CAMPOUT MASK PREBREATHE REF: PRE EVA 2 TOOL CONFIG (EVA, TIMELINES) REF: 117 CONSUMABLES TRACKING CC (EVA)	
14:00								
04:00								

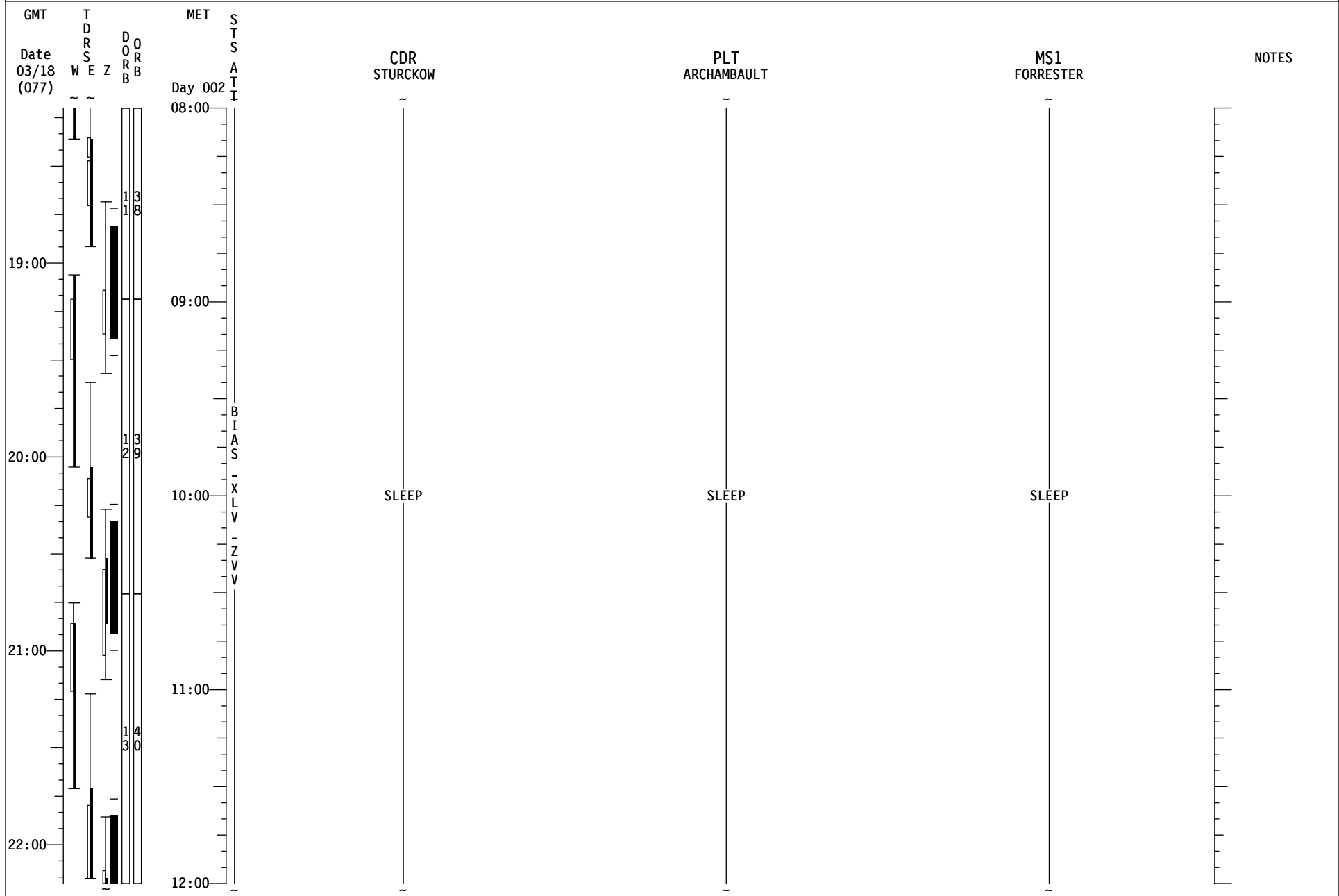
STS-117 (FD03)



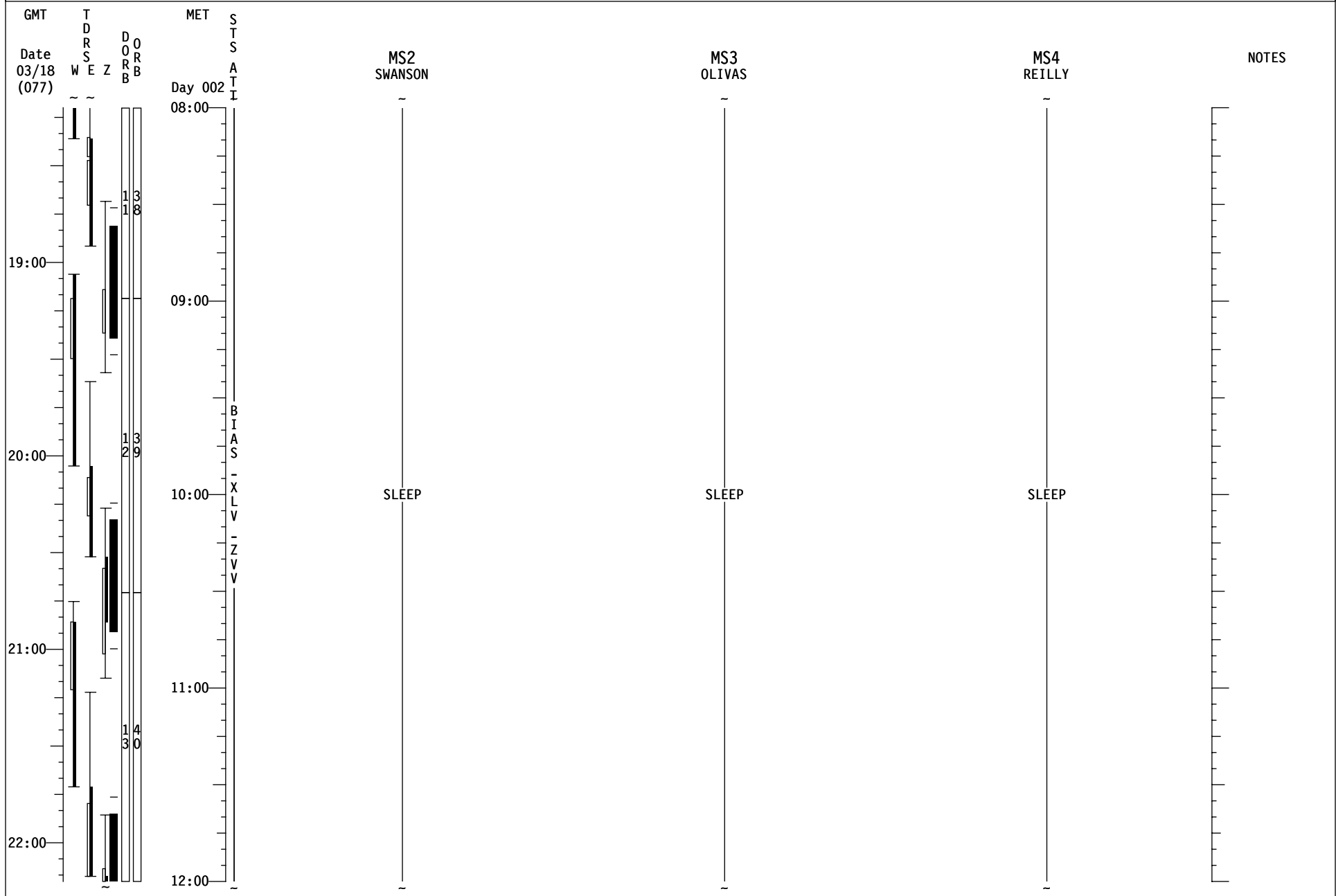
STS-117 (FD03)



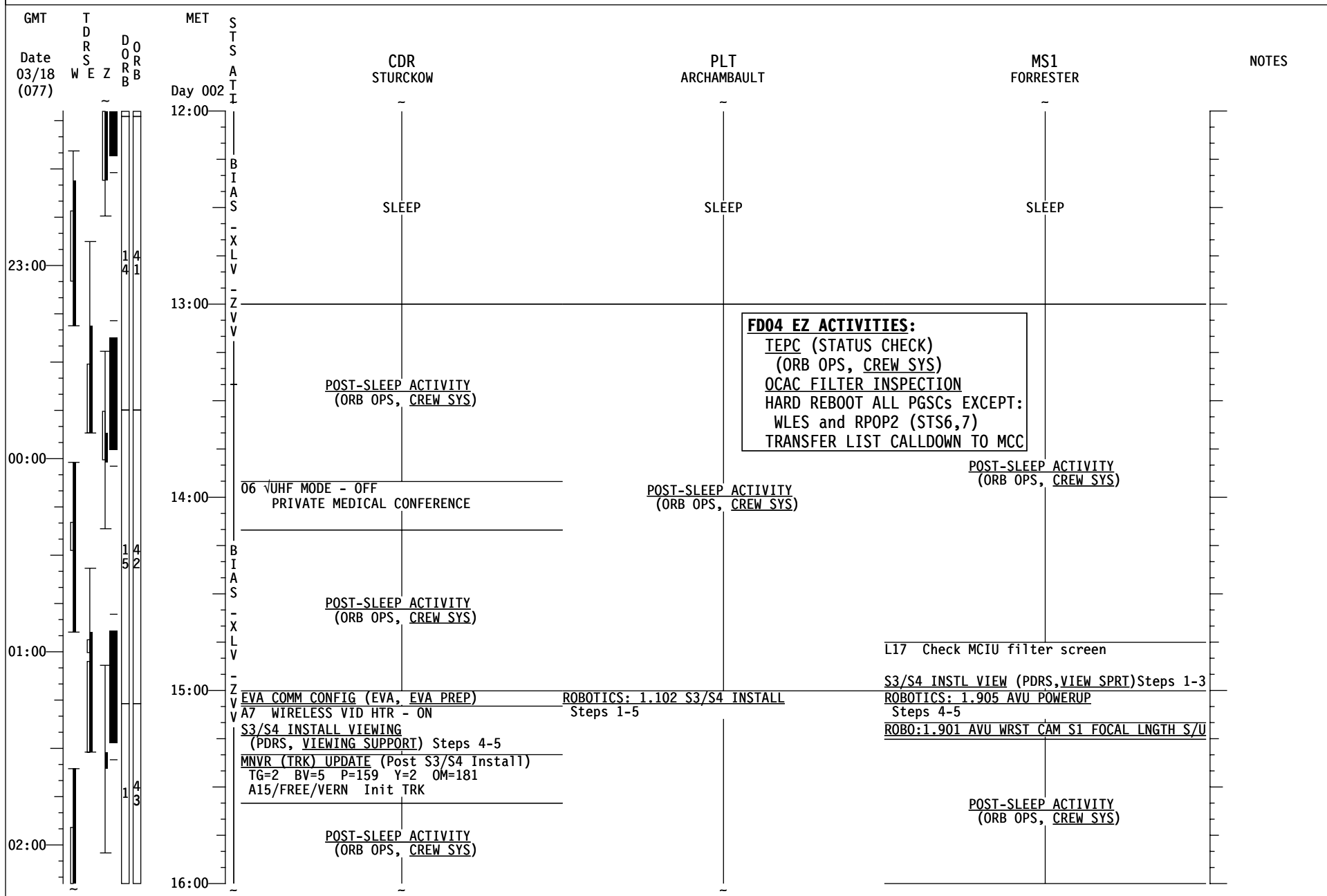
STS-117 (FD03)



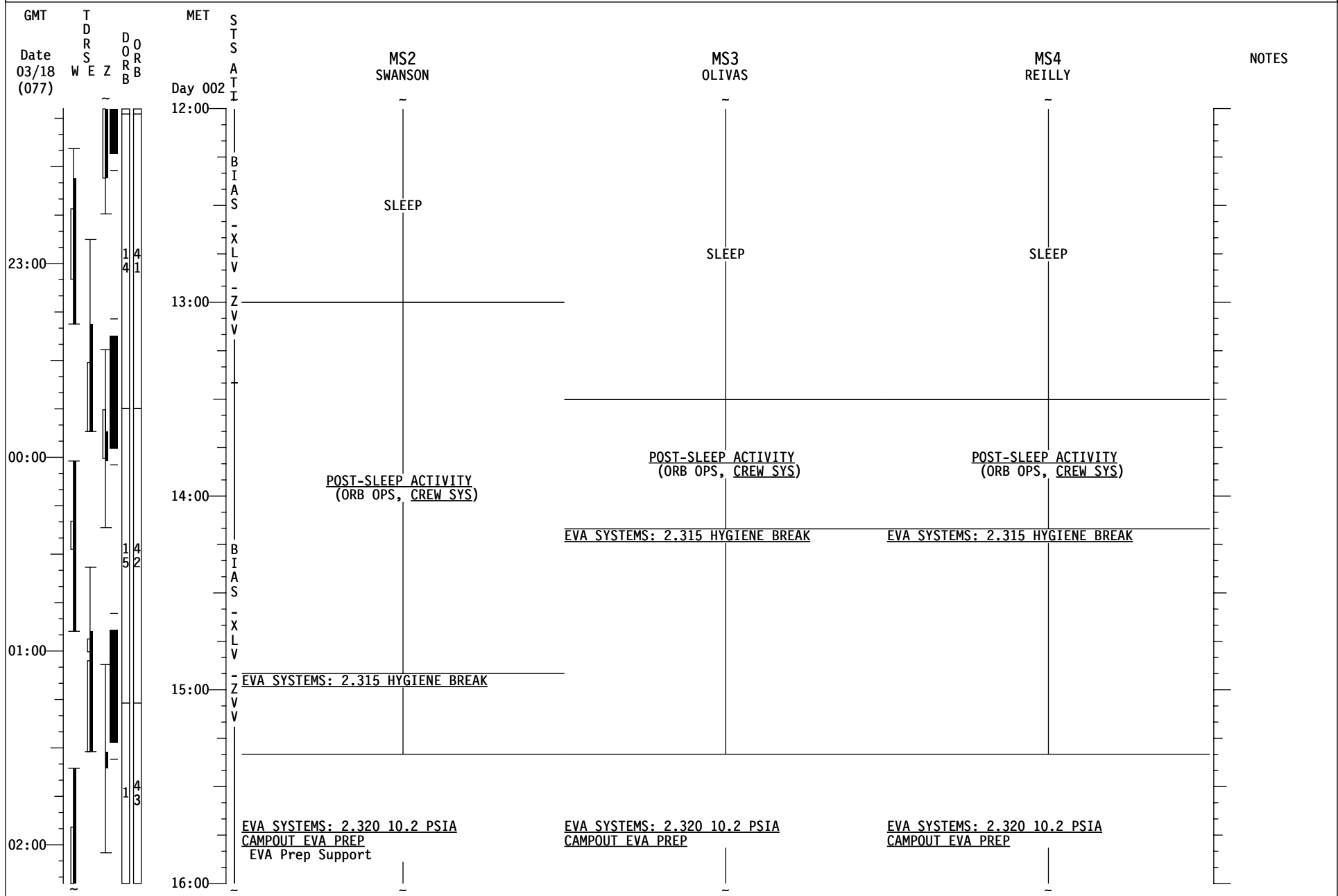
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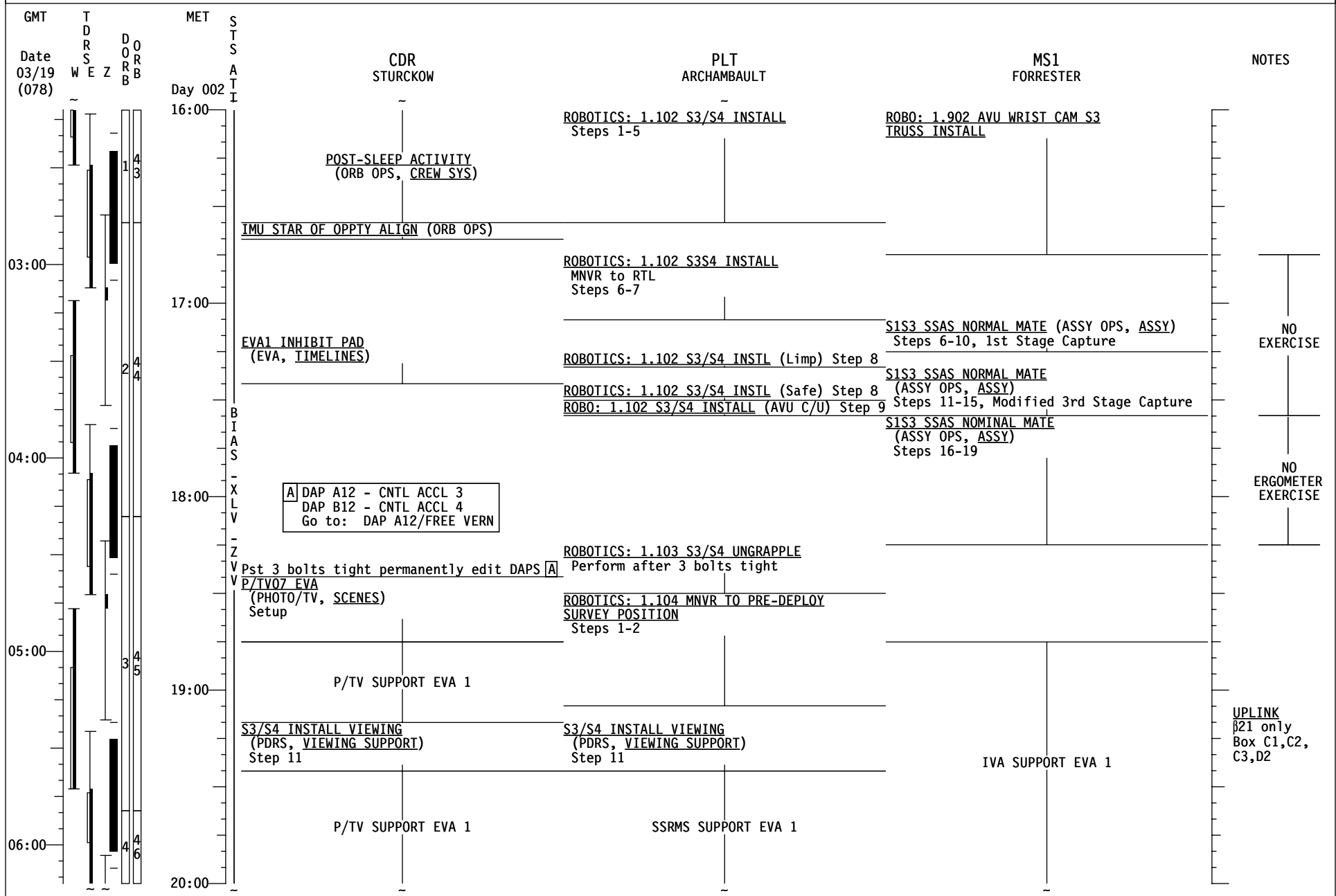
STS-117 (FD04)



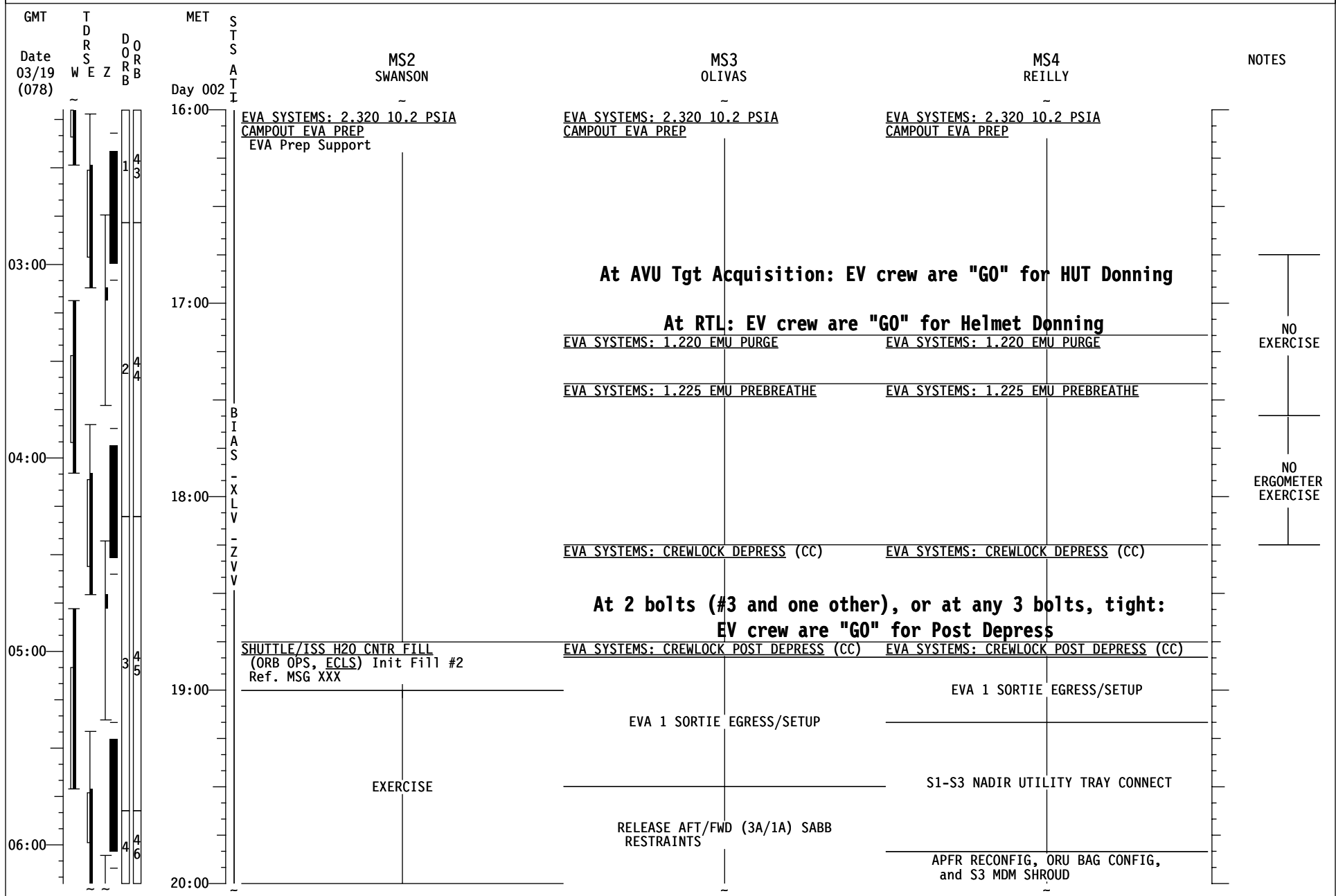
STS-117 (FD04)



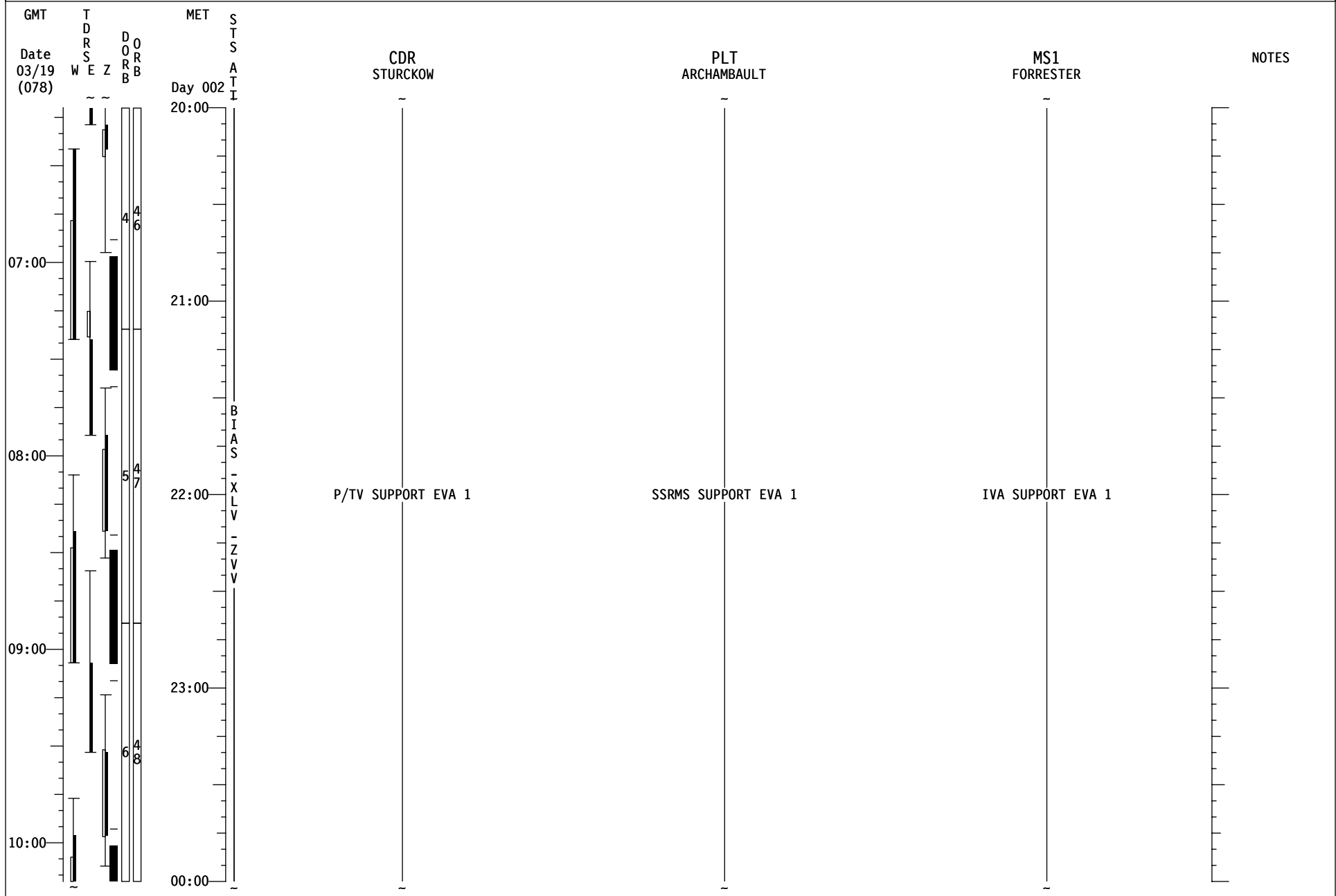
STS-117 (FD04)



STS-117 (FD04)



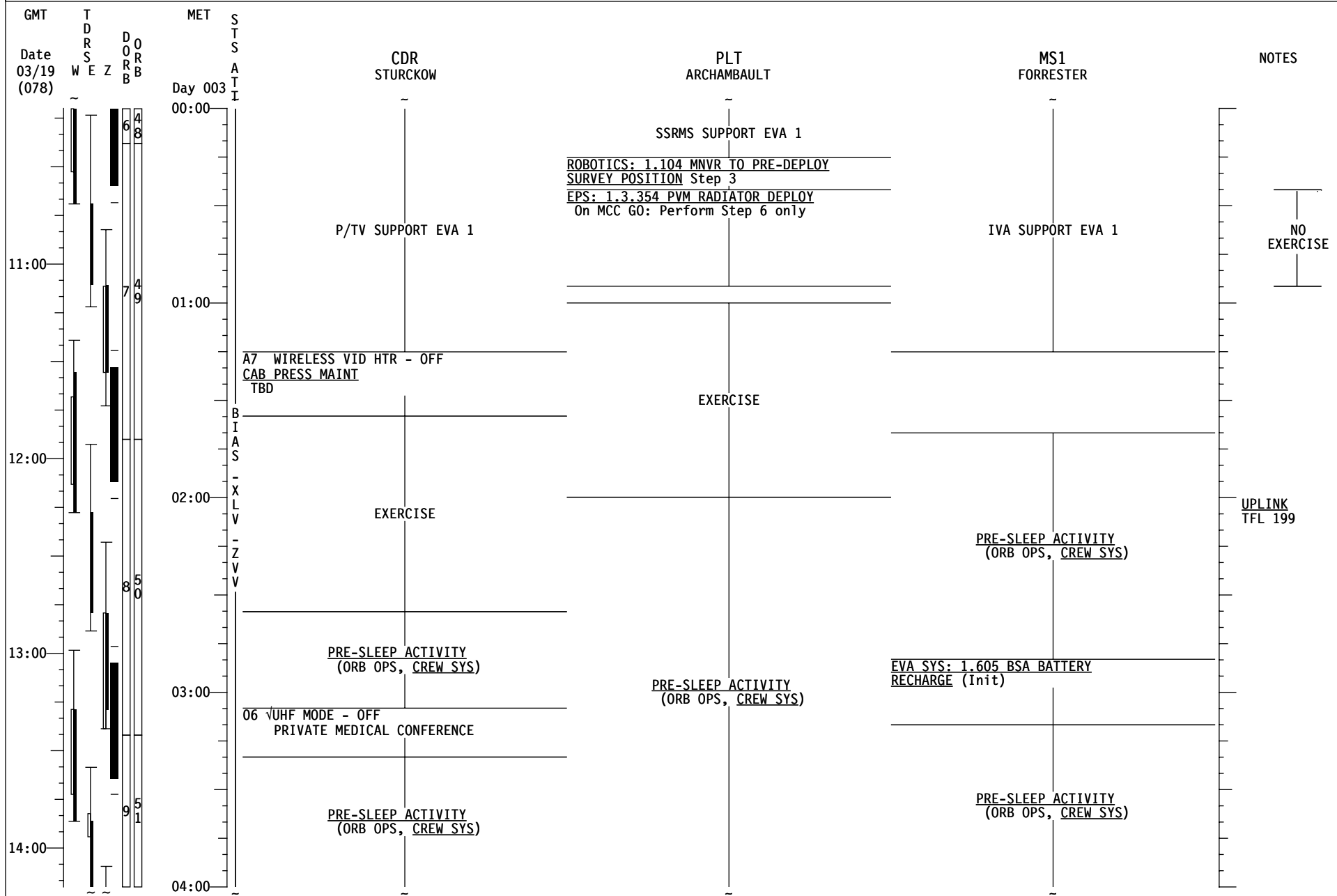
STS-117 (FD04)



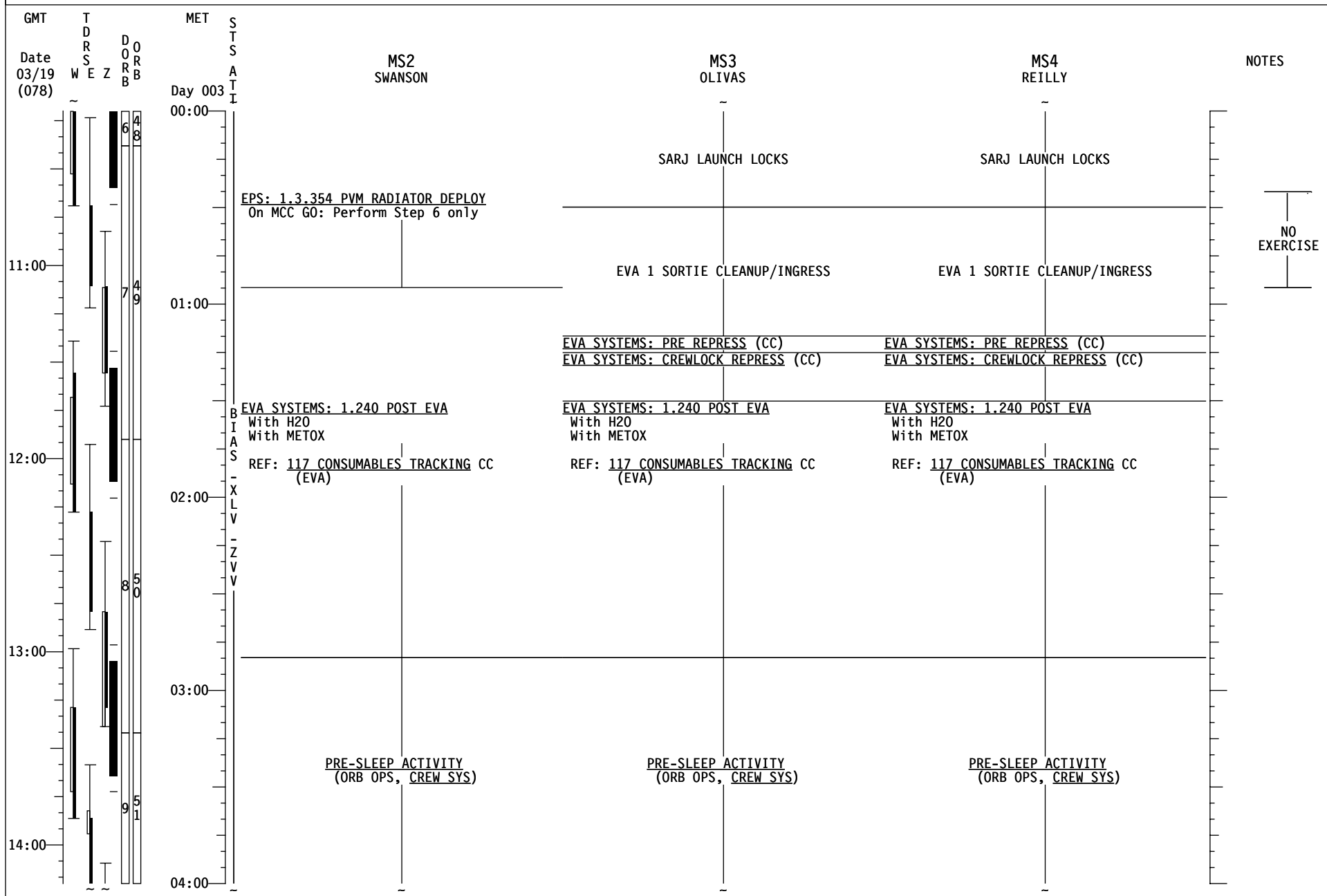
STS-117 (FD04)

GMT	TDRS W E Z	DORB D O R B	MET Day 002	S T S A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
07:00			20:00		SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERM		APFR RECONFIG, ORU BAG CONFIG, and S3 MDM SHROUD	
					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Init Fill #3 Ref. MSG XXX		S1-S3 ZENITH UTILITY TRAY CONNECT	
			21:00		MEAL	RELEASE AFT/FWD (3A/1A) SABB RESTRAINTS		
							APFR RECONFIG KEEL PIN ROTATE	
08:00					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION	PVM RADIATOR CINCHES/WINCHES		
					S CWC TRANSFER Transfer 2 CWCs to ISS		1A/3A SAW BETA GIMBAL RESTRAINT RELEASE	
			22:00			AFT (3A) SABB UNSTOW		
					Z CSS: 14-XXX 2.XXX IWIS SENSOR INSTALL REF MSG XXX		FWD (1A) SABB UNSTOW	
						FWD/AFT (1A/3A) ECU/SSU MLI REMOVAL AND JETTISON		
09:00					FR/SW EMU RECONFIG (EVA, AIRLOCK CNFG)			
			23:00			AJIS STRUT RIGIDIZATION	SARJ DLA 2 INSTALL	
10:00						SARJ LAUNCH LOCKS	SARJ LAUNCH LOCKS	
			00:00					

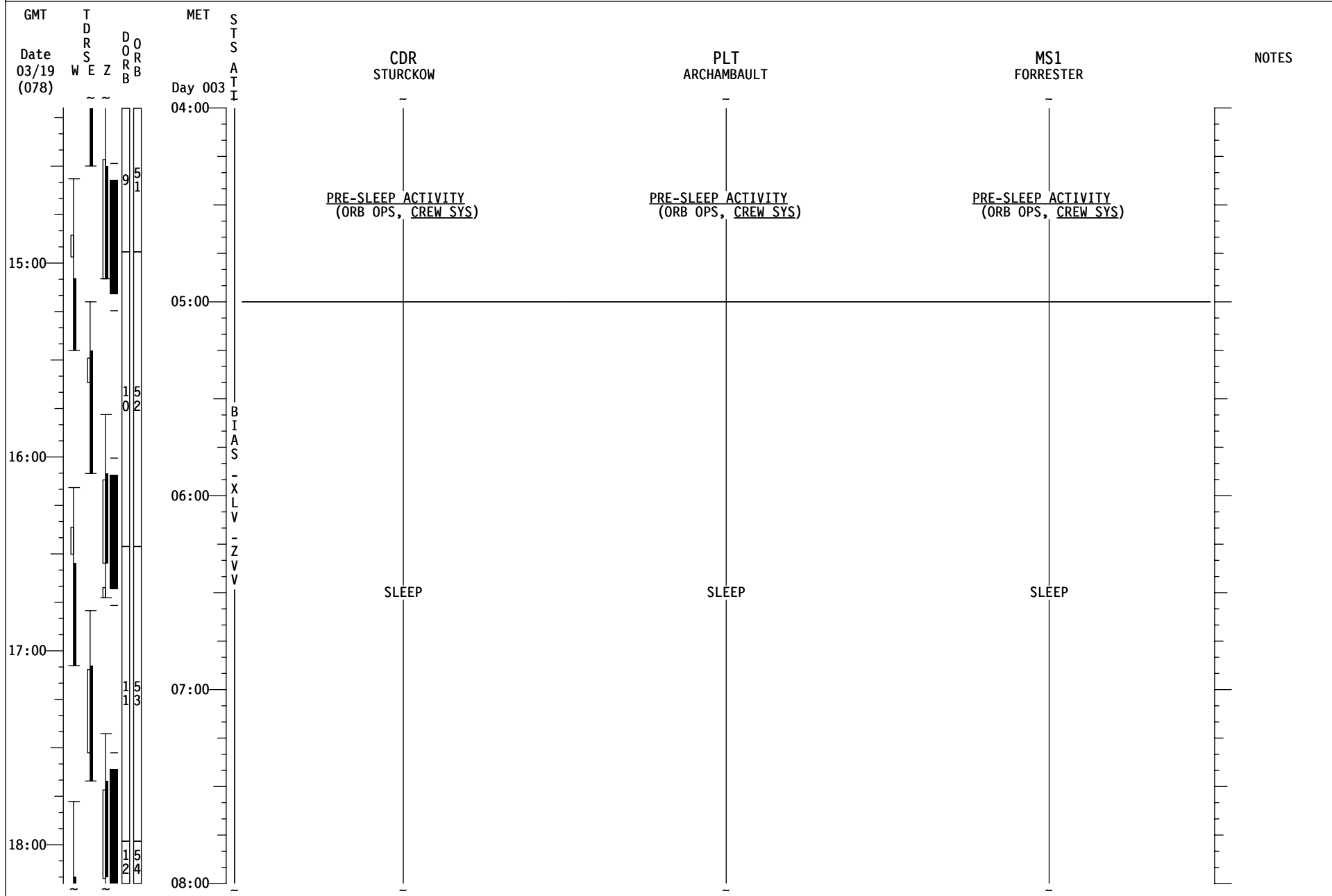
STS-117 (FD04)



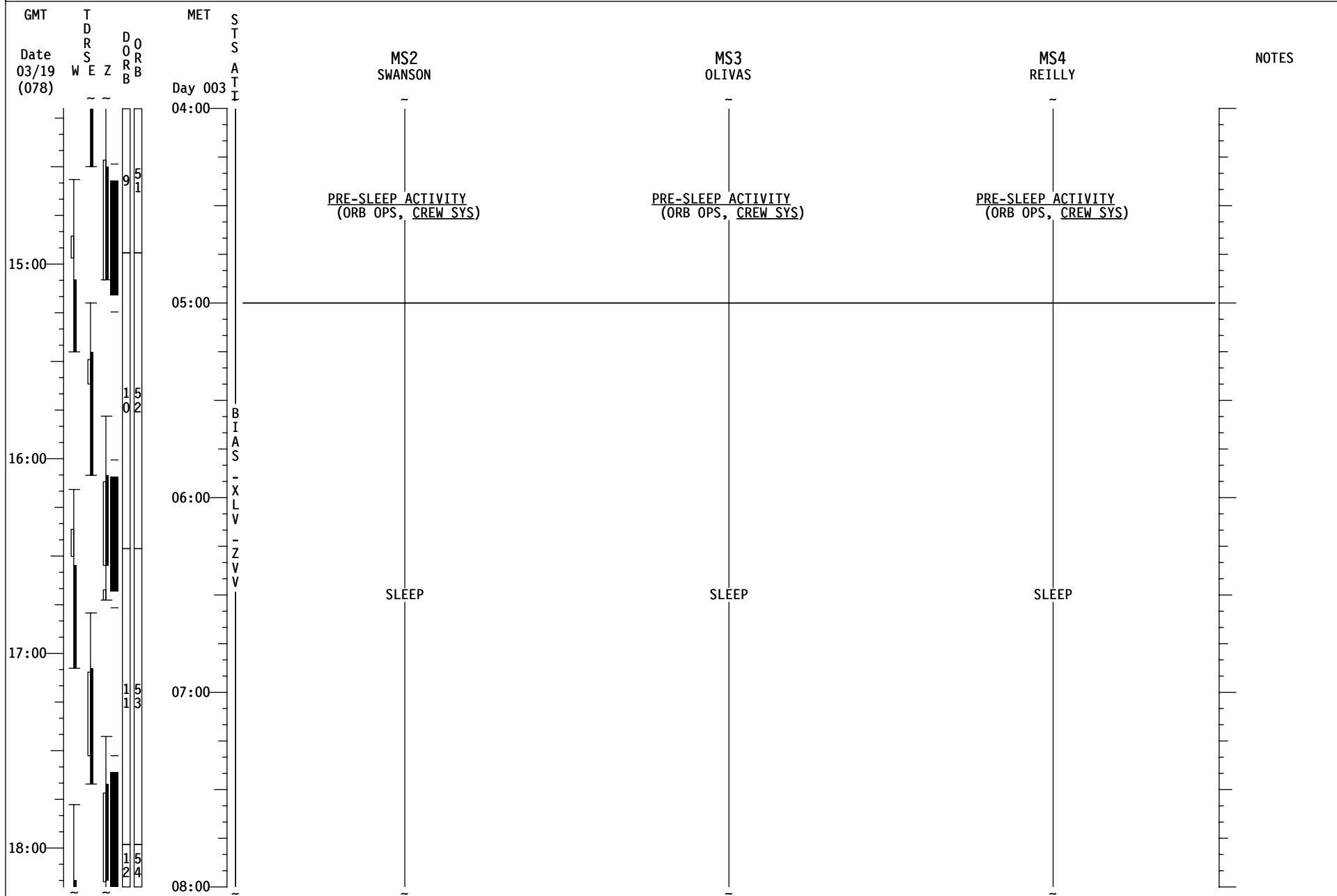
STS-117 (FD04)



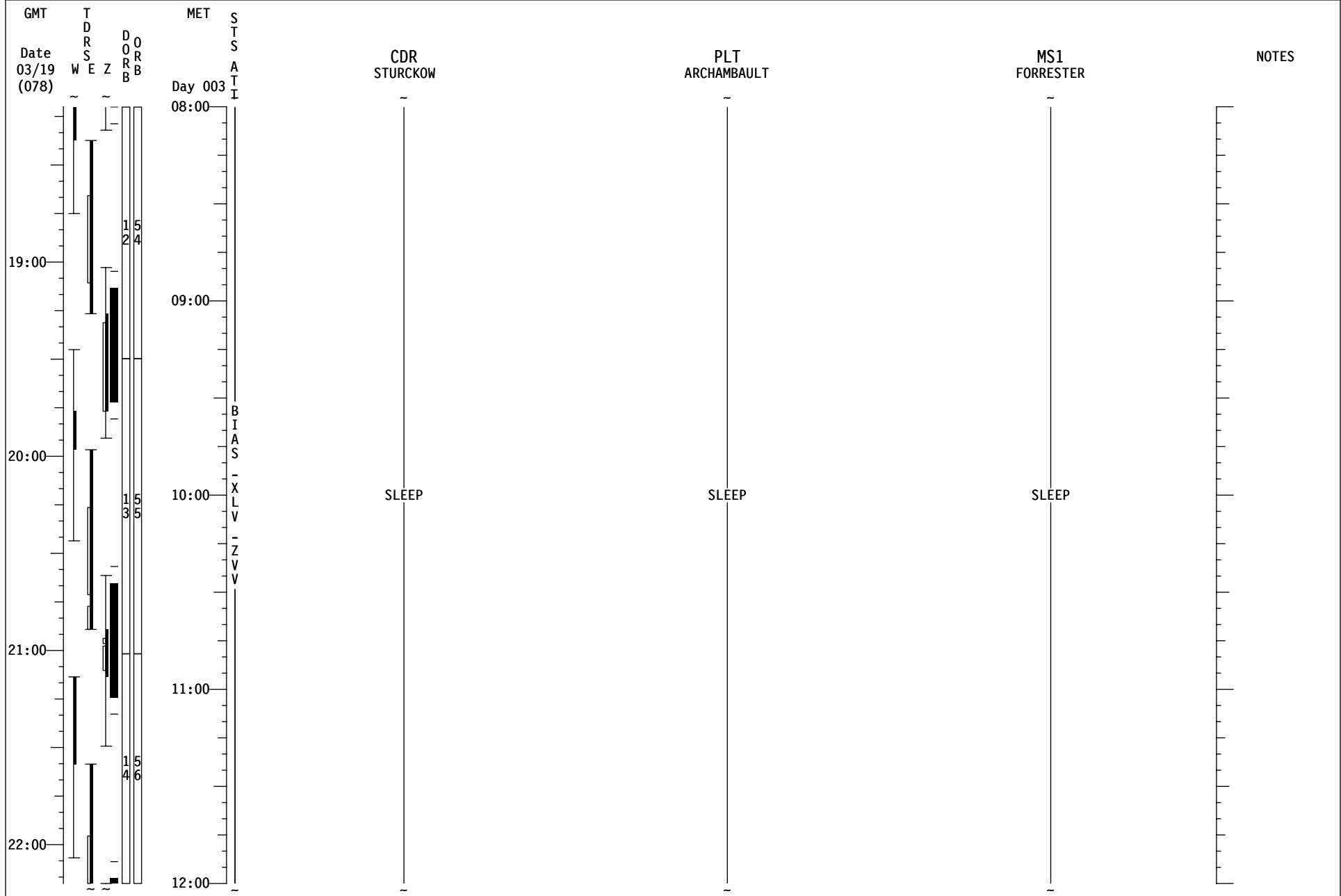
STS-117 (FD04)



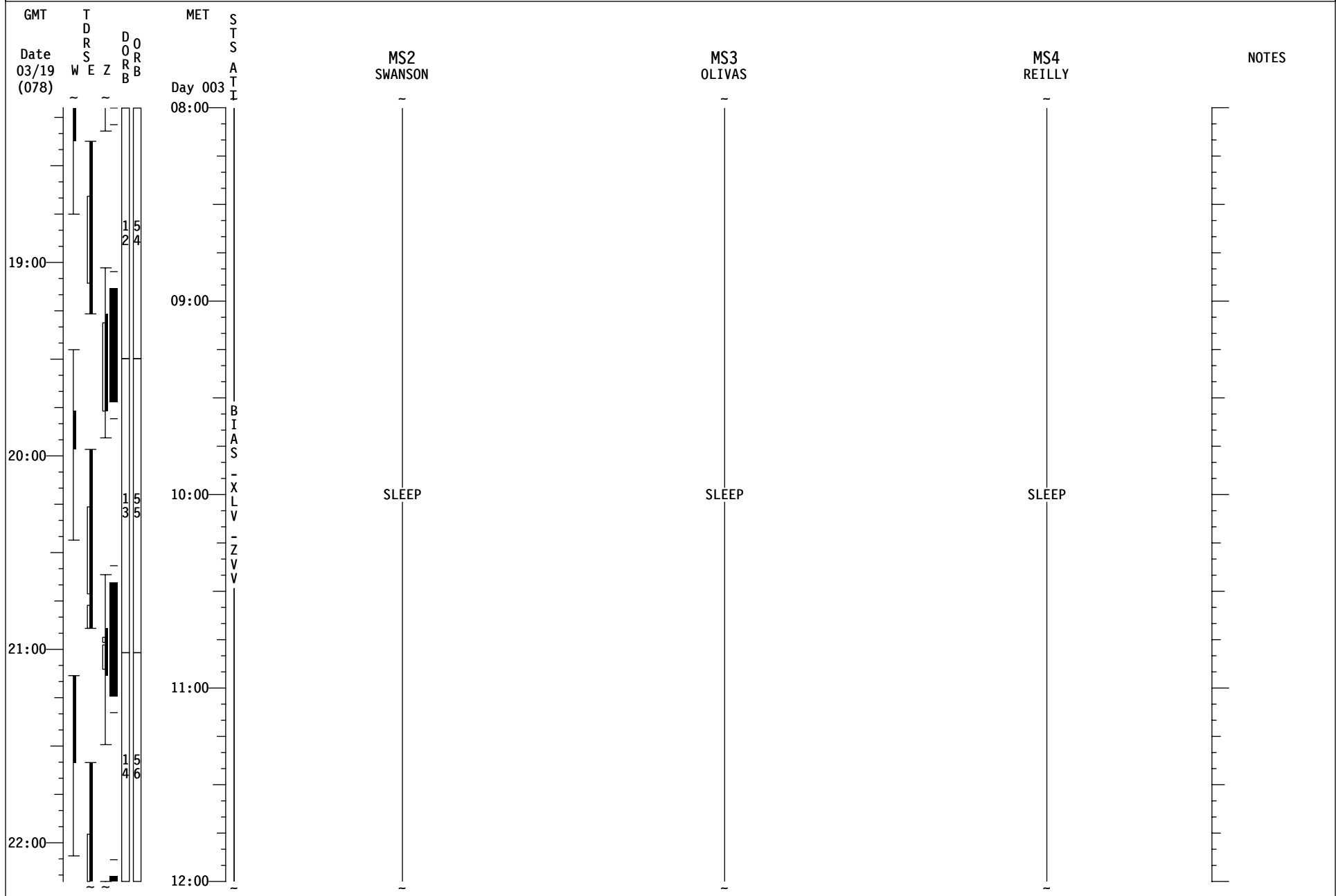
STS-117 (FD04)



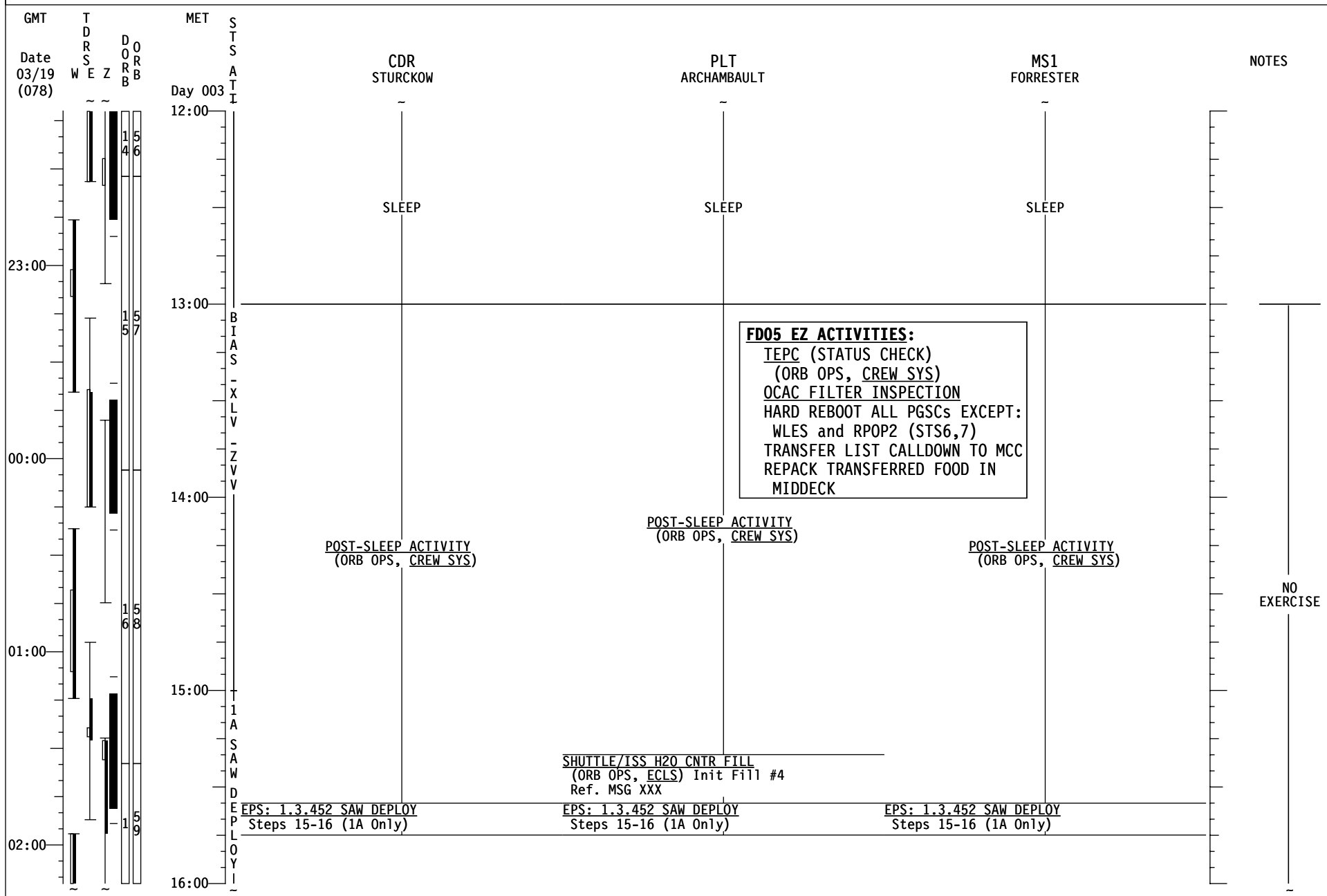
STS-117 (FD04)



STS-117 (FD04)

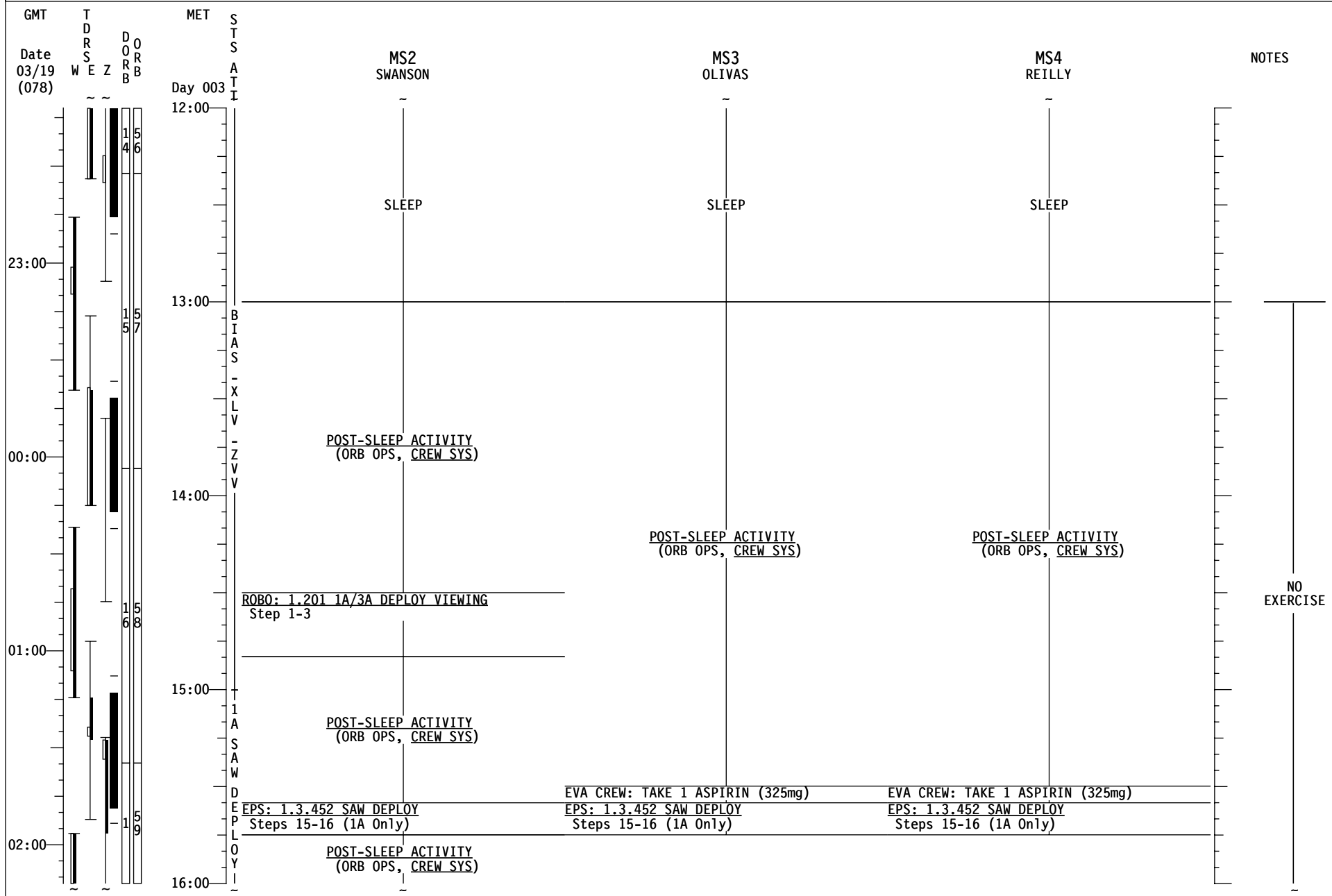


STS-117 (FD05)



FD05 EZ ACTIVITIES:
 TEPC (STATUS CHECK)
 (ORB OPS, CREW SYS)
 QCAC FILTER INSPECTION
 HARD REBOOT ALL PGSCs EXCEPT:
 WLES and RPOP2 (STS6,7)
 TRANSFER LIST CALLDOWN TO MCC
 REPACK TRANSFERRED FOOD IN
 MIDDECK

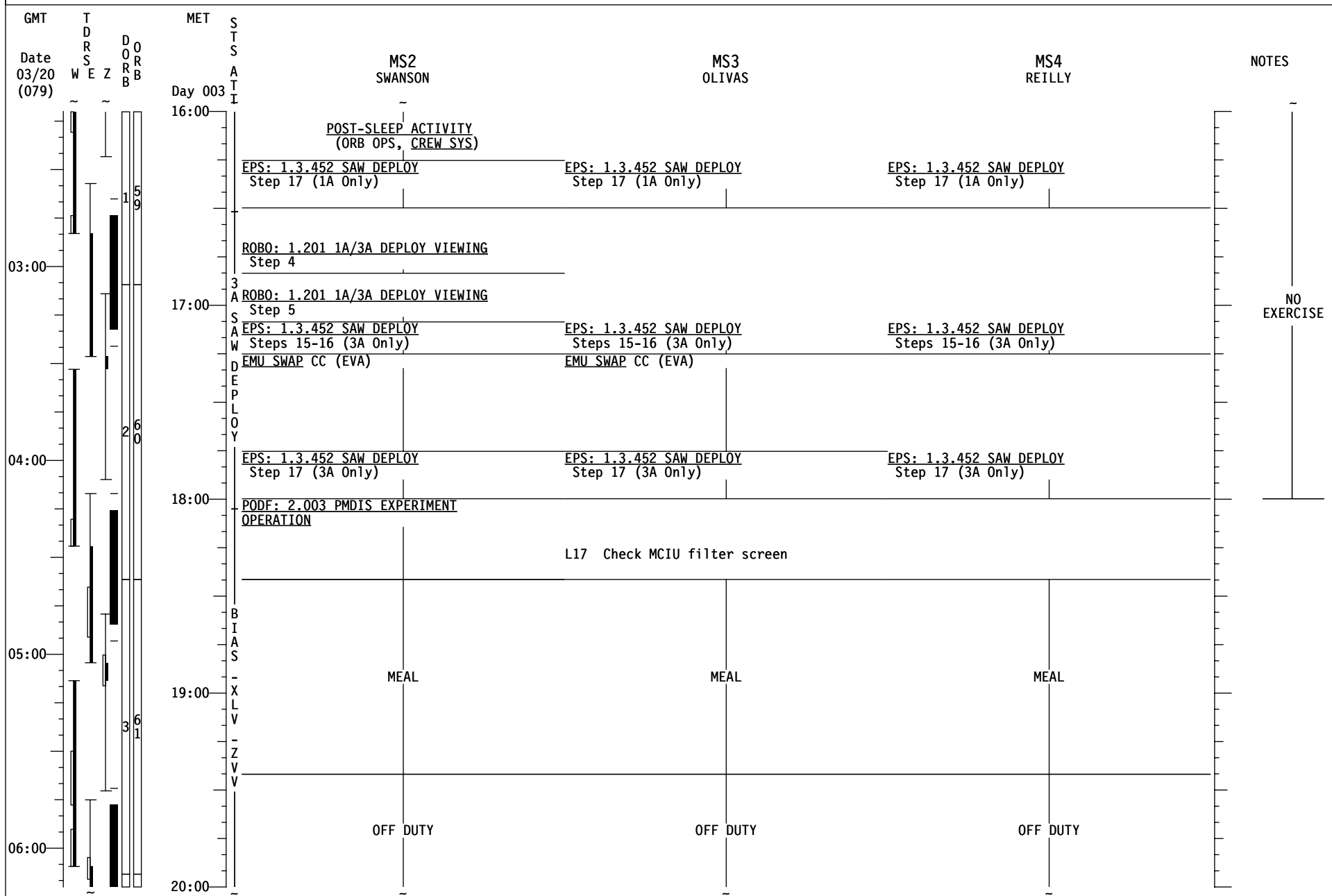
STS-117 (FD05)



STS-117 (FD05)

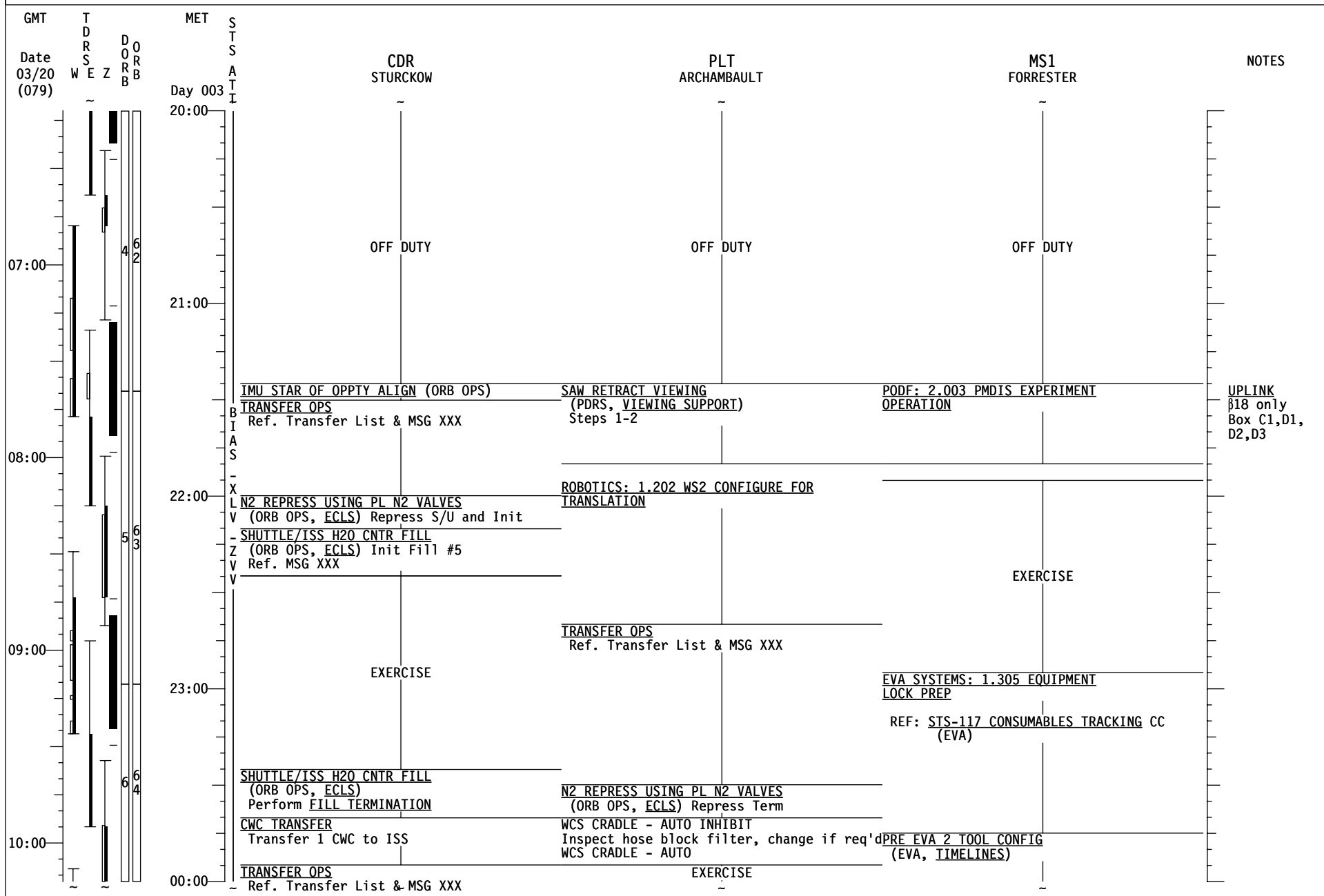
GMT	TDRS WSEZ	DORB	MET	STS ATTI	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/20 (079)			Day 003					
16:00					EPS: 1.3.452 SAW DEPLOY Step 17 (1A Only)	EPS: 1.3.452 SAW DEPLOY Step 17 (1A Only)	EPS: 1.3.452 SAW DEPLOY Step 17 (1A Only)	
						SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION		
03:00				3A		MNVR (INRTL) UPDATE (3A Deploy) R=224 P=324 Y=8 A12/FREE/VERN Init MNVR		
17:00				SAW	EPS: 1.3.452 SAW DEPLOY Steps 15-16 (3A Only)	EPS: 1.3.452 SAW DEPLOY [A] Steps 15-16 (3A Only)	EPS: 1.3.452 SAW DEPLOY Steps 15-16 (3A Only)	NO EXERCISE
				DEPLOY		[A] In Step 15.8 Shuttle takes attitude control.		
04:00					EPS: 1.3.452 SAW DEPLOY Step 17 (3A Only)	EPS: 1.3.452 SAW DEPLOY [B] Step 17 (3A Only)	EPS: 1.3.452 SAW DEPLOY Step 17 (3A Only)	
18:00					CWC TRANSFER Transfer 1 CWC to ISS	MNVR (TRK) BIAS -XLV -ZVV (TEA) TG=2 BV=5 P=159 Y=2 OM=181 A12/AUTO/VERN Init TRK	[B] In Step 17.9, verify TEA attitude is loaded and Init TRK before rate damping.	
						When in ATT and rates dampened: JNT OPS: 3.111 H/O ATT CNTRL ORB TO CMG TA		
05:00				BIAS	MEAL	MEAL	MEAL	
19:00				XLV				
				ZVV				
06:00					OFF DUTY	OFF DUTY	OFF DUTY	
20:00								

STS-117 (FD05)

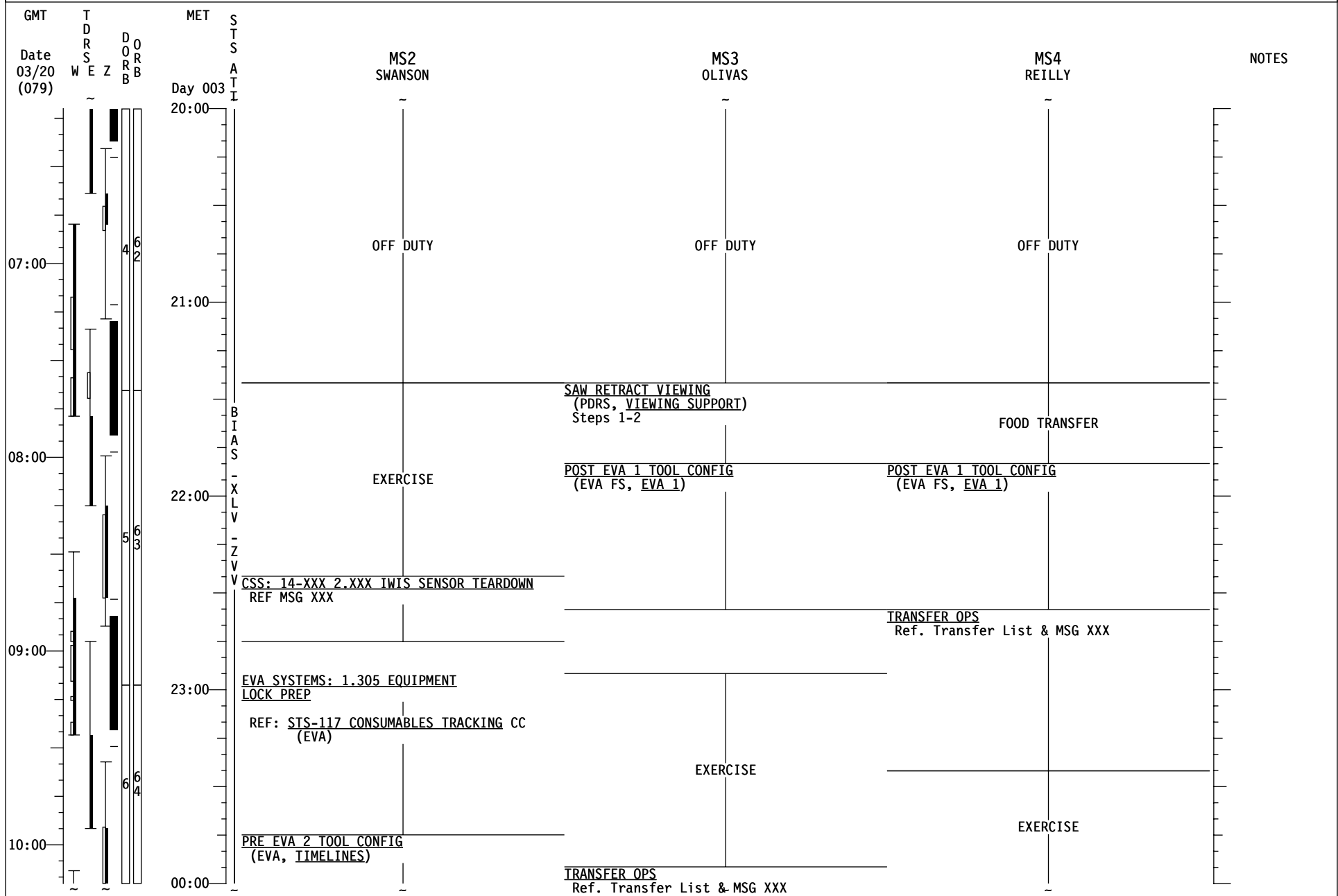


NO
EXERCISE

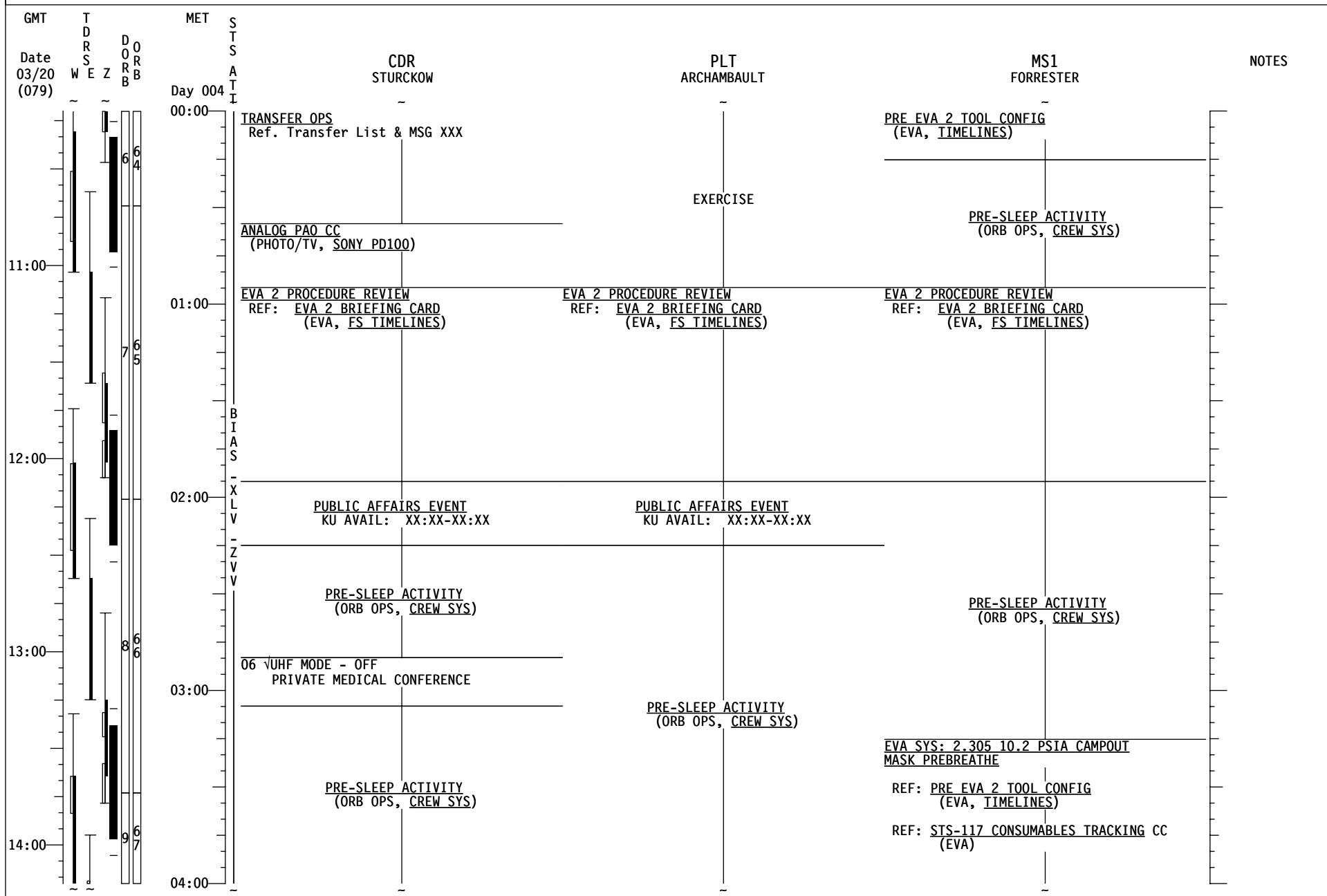
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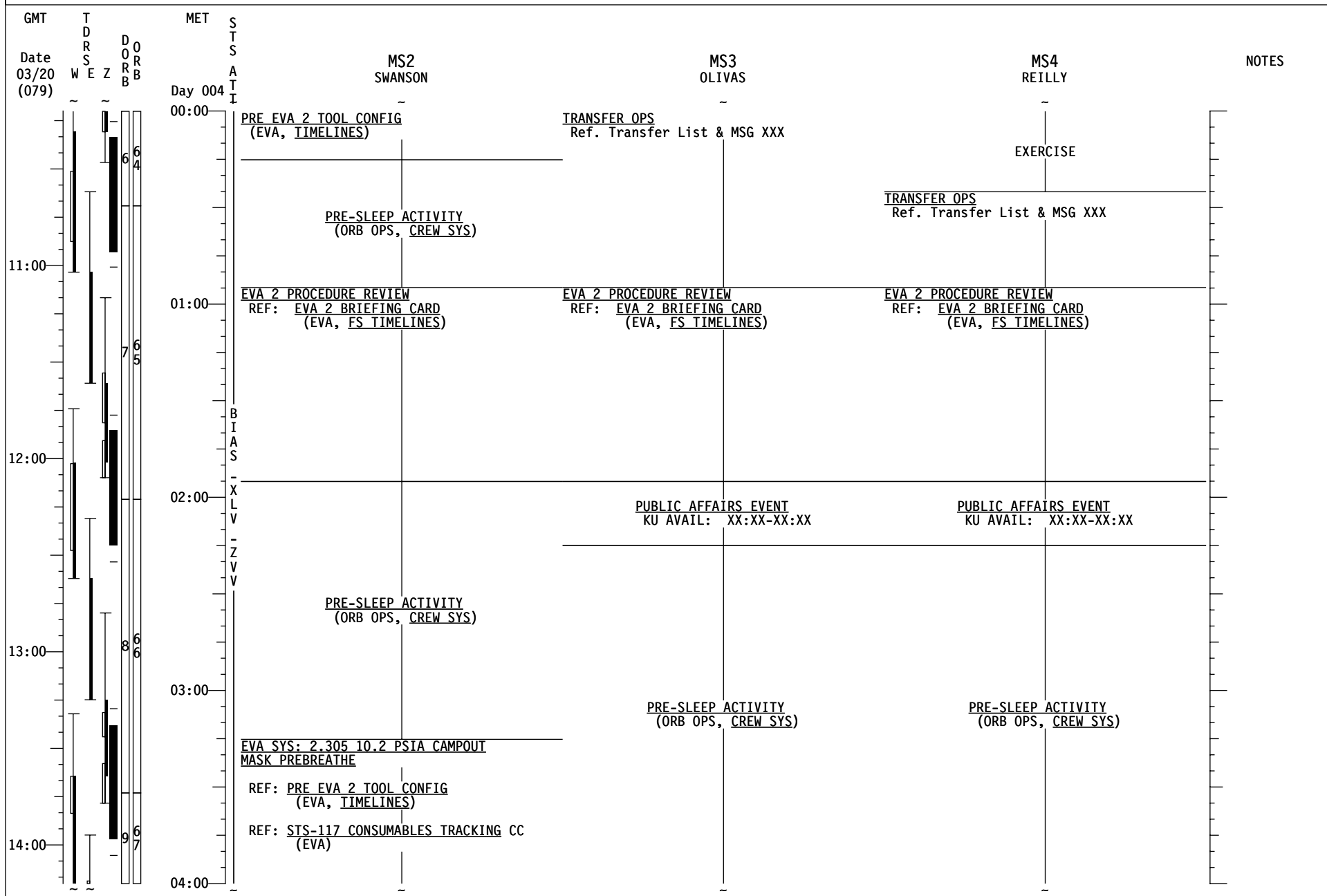
STS-117 (FD05)



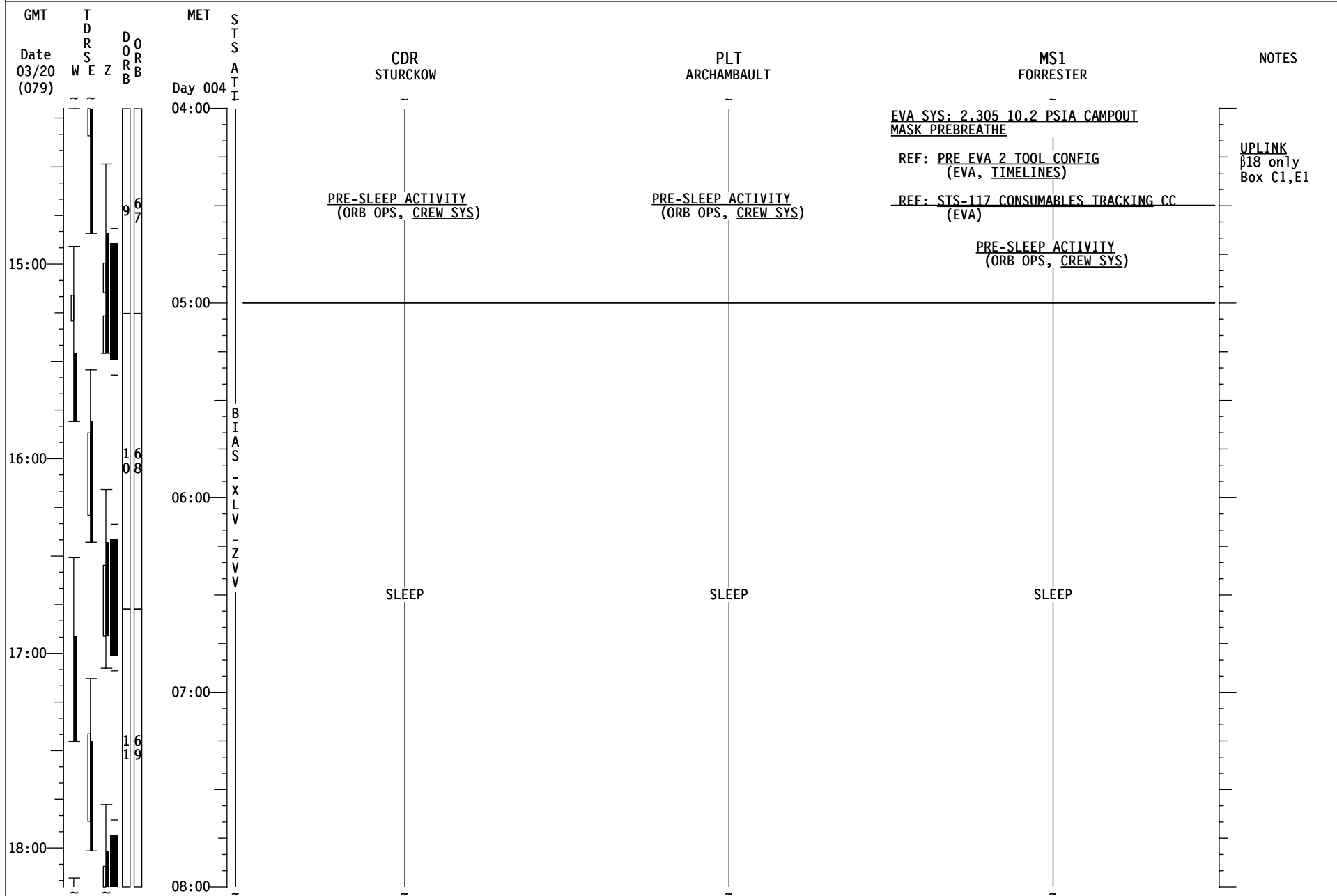
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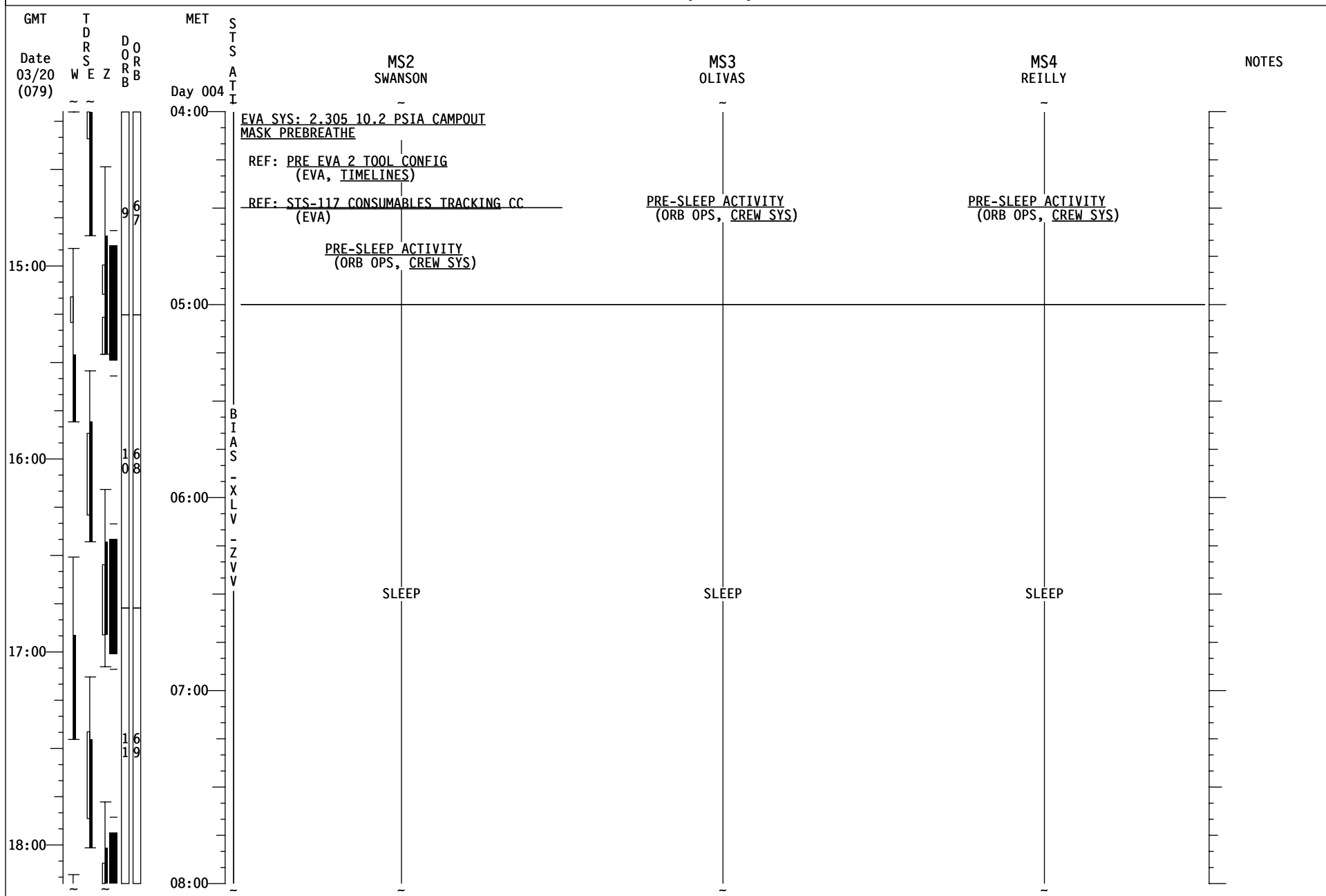
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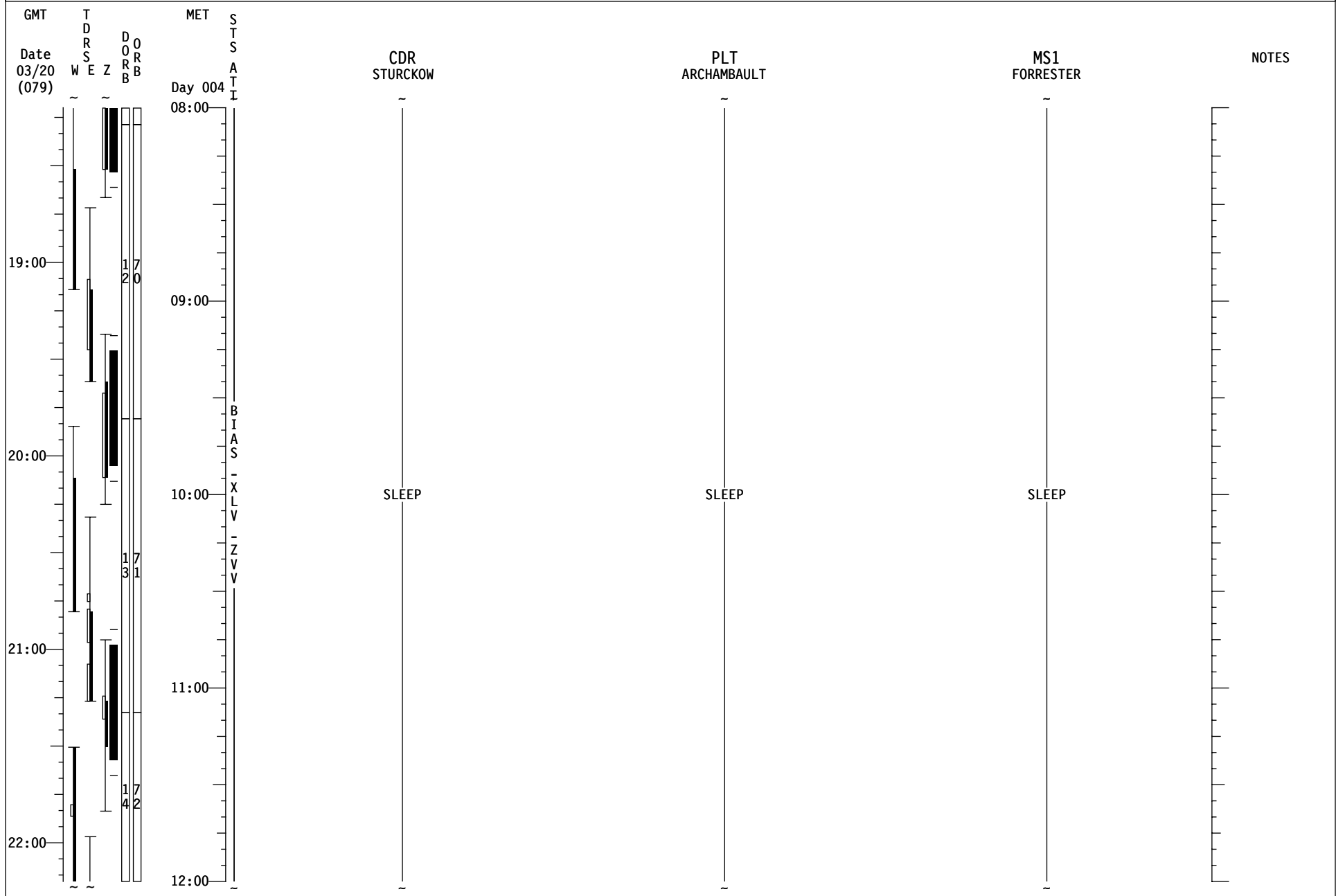
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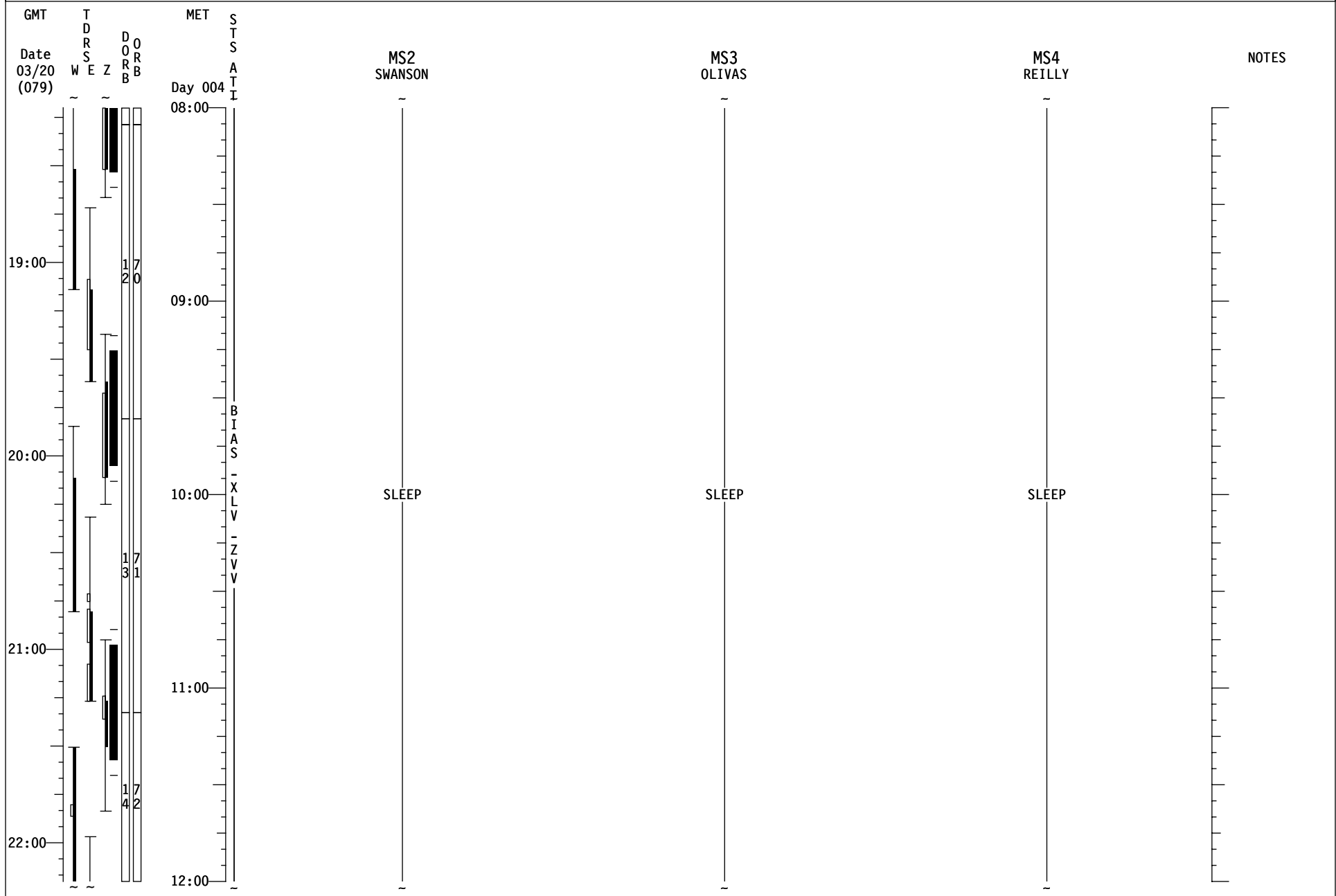
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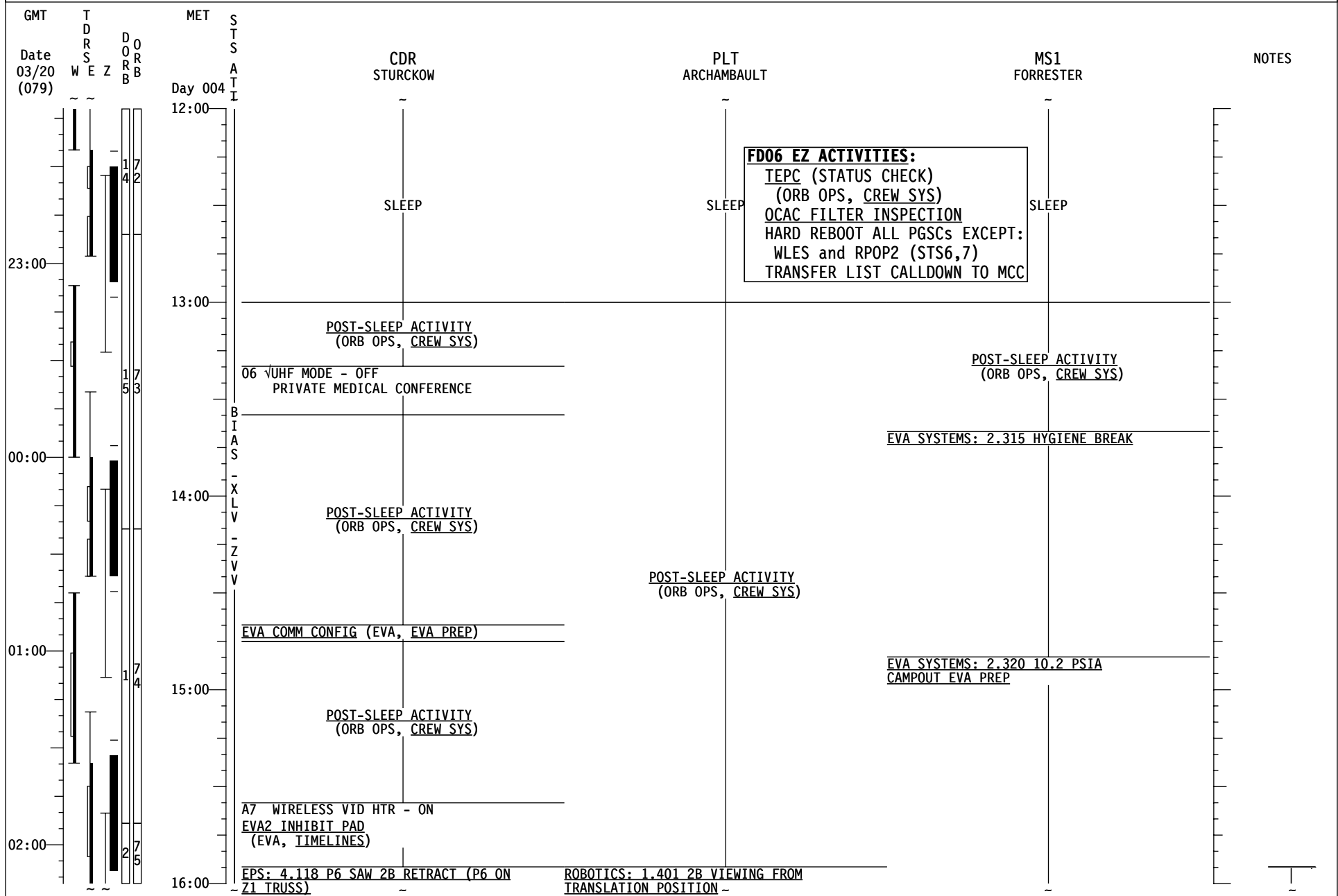
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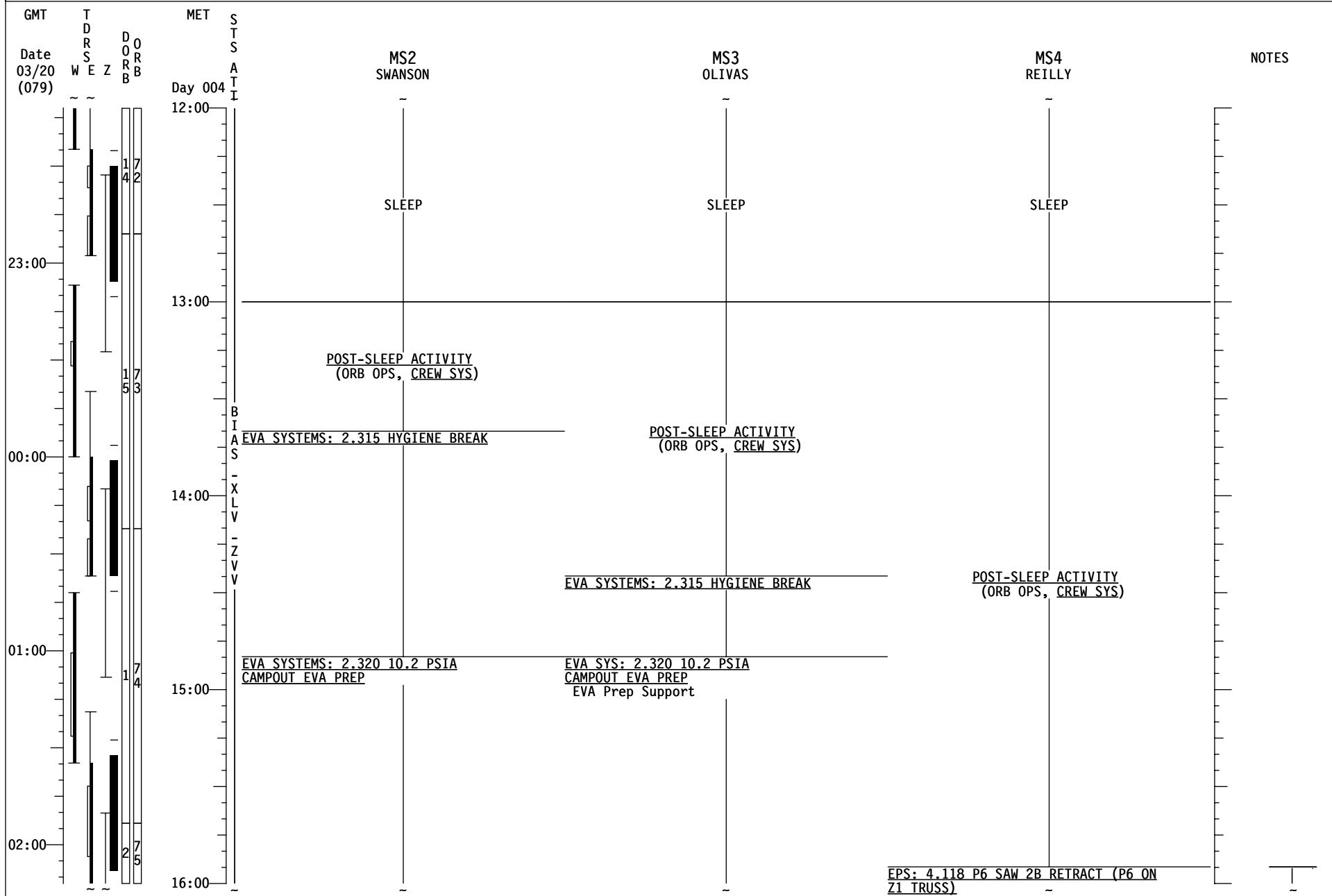
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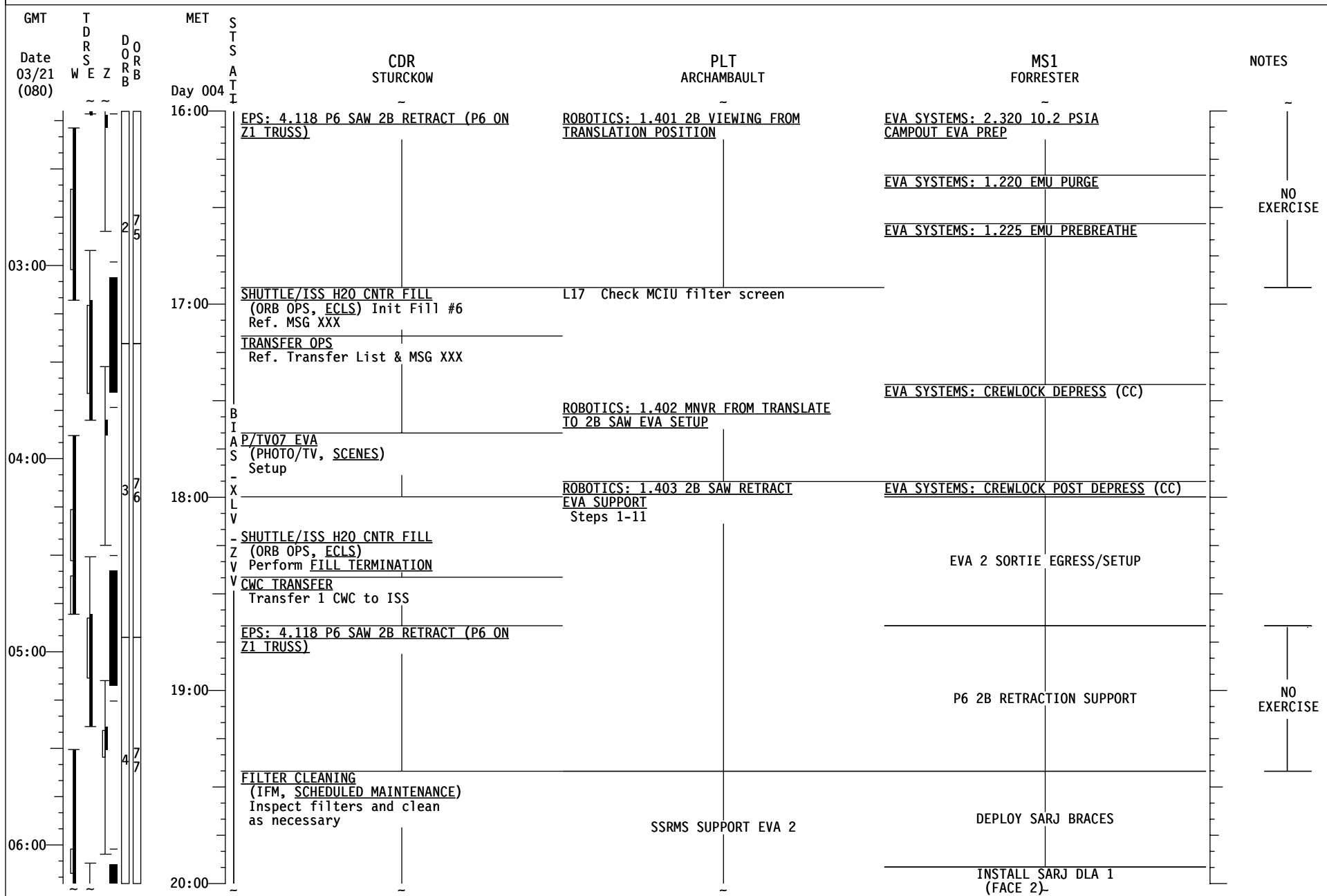
STS-117 (FD06)



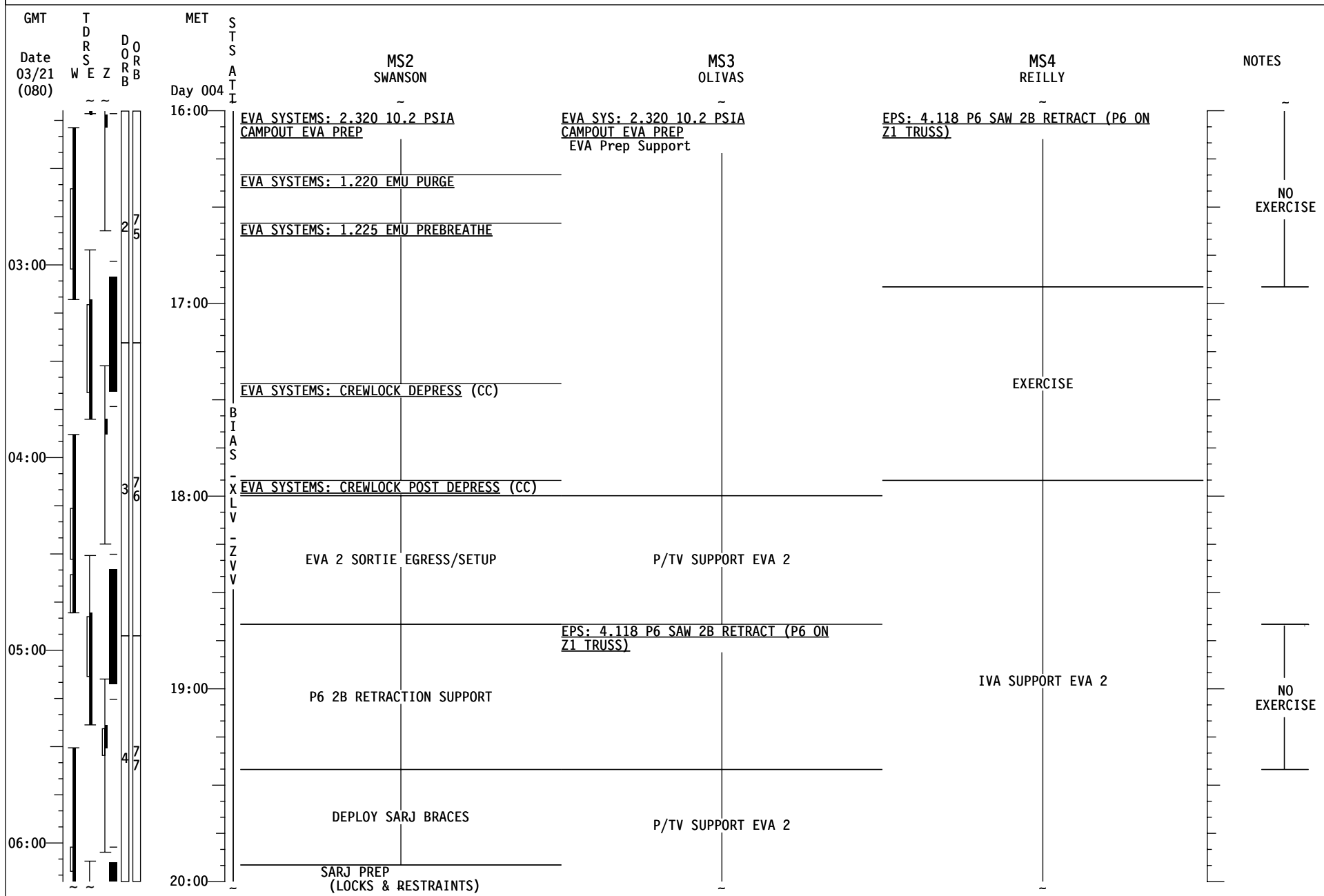
STS-117 (FD06)



STS-117 (FD06)



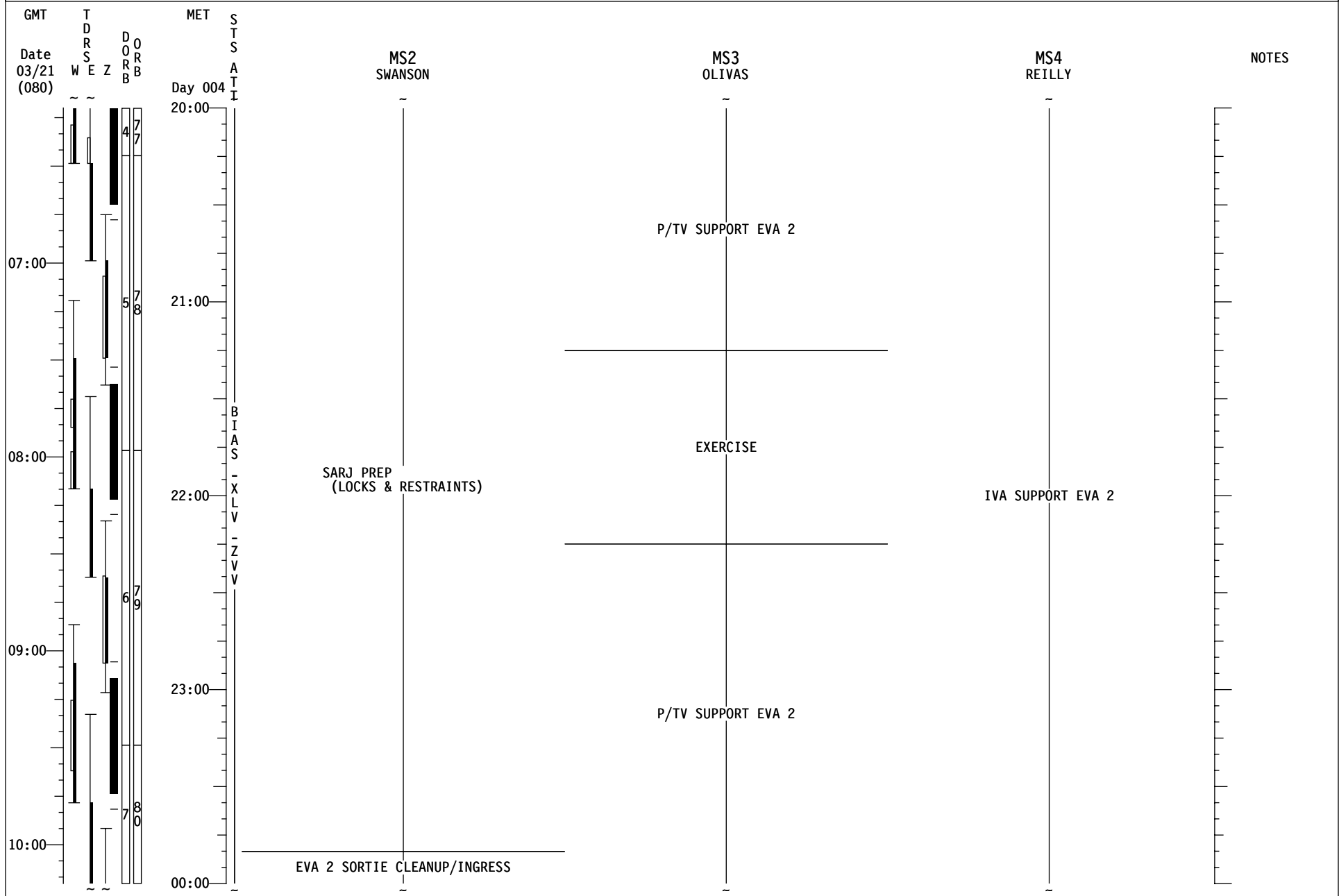
STS-117 (FD06)



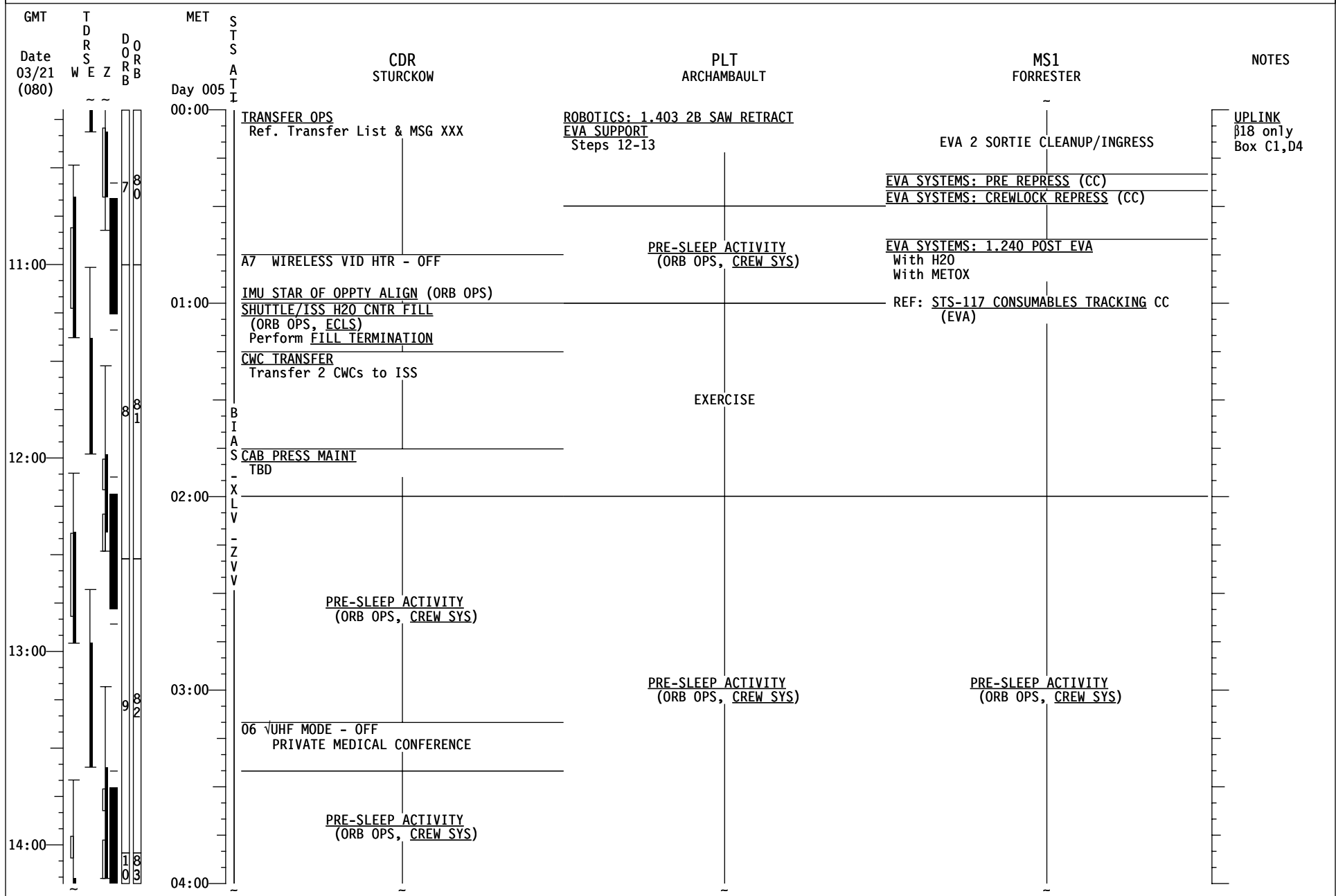
STS-117 (FD06)

GMT	T D R S W E Z	D O R B 4 7 5 8 6 9 7 0	MET Day 004	S T S A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
20:00					<u>FILTER CLEANING</u> (IFM, SCHEDULED MAINTENANCE) Inspect filters and clean as necessary			
07:00					MEAL		INSTALL SARJ DLA 1 (FACE 2)	
21:00								
08:00					P/TV SUPPORT EVA 2			
22:00						SSRMS SUPPORT EVA 2		
09:00					EXERCISE		SARJ PREP (LOCKS & RESTRAINTS)	
23:00								
10:00					<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX			
00:00					<u>SHUTTLE/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) Init Fill #7 Ref. MSG XXX		EVA 2 SORTIE CLEANUP/INGRESS	

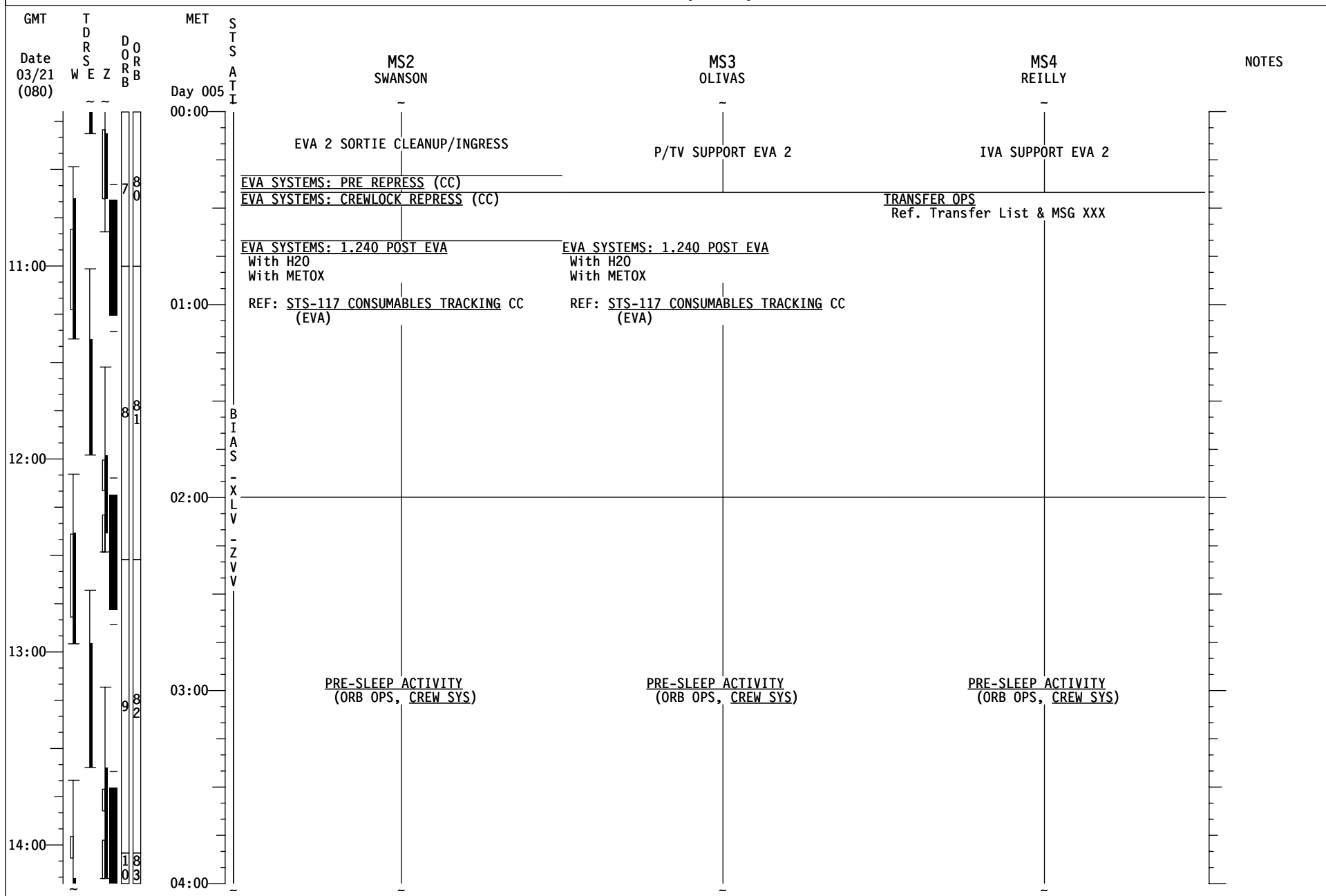
STS-117 (FD06)



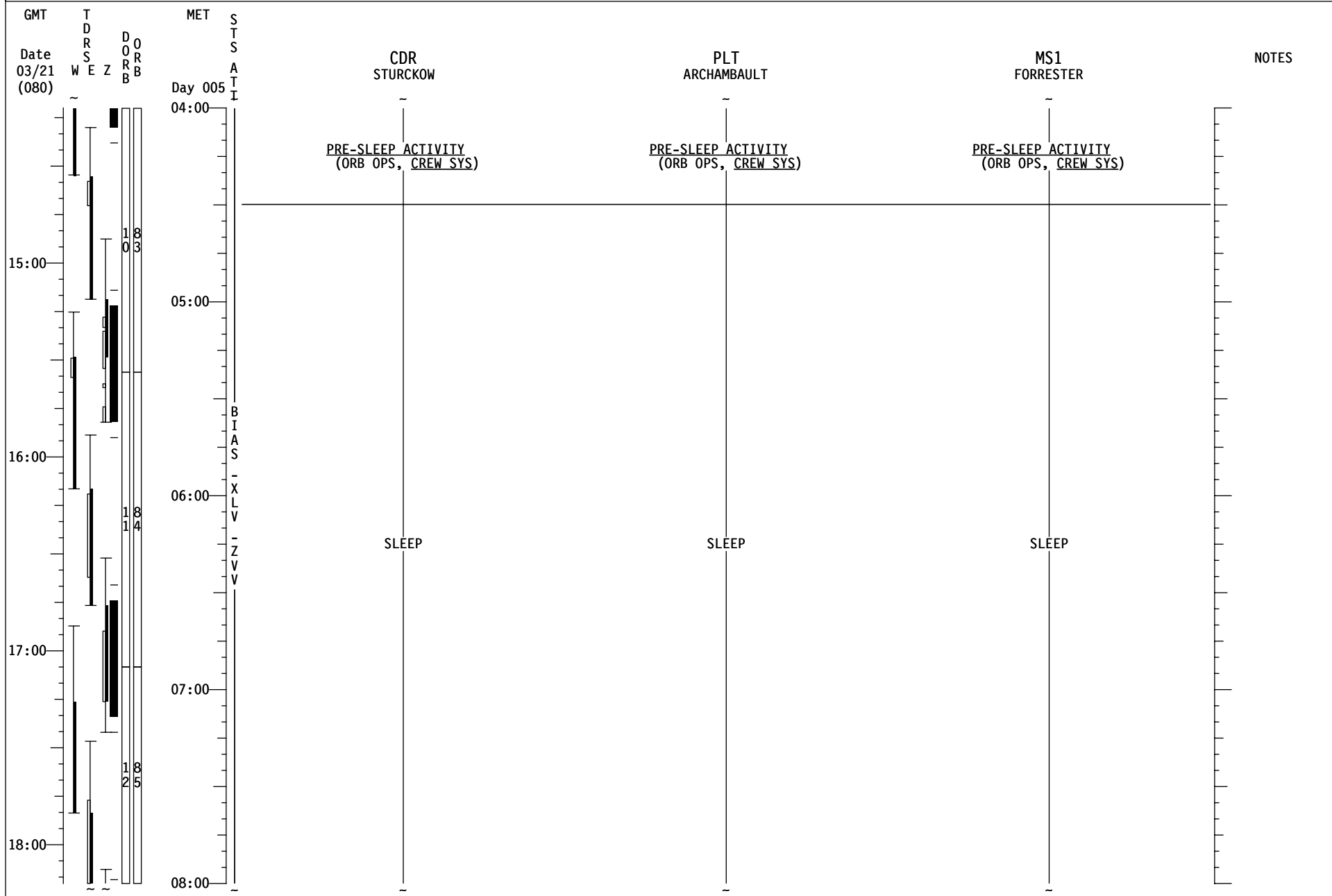
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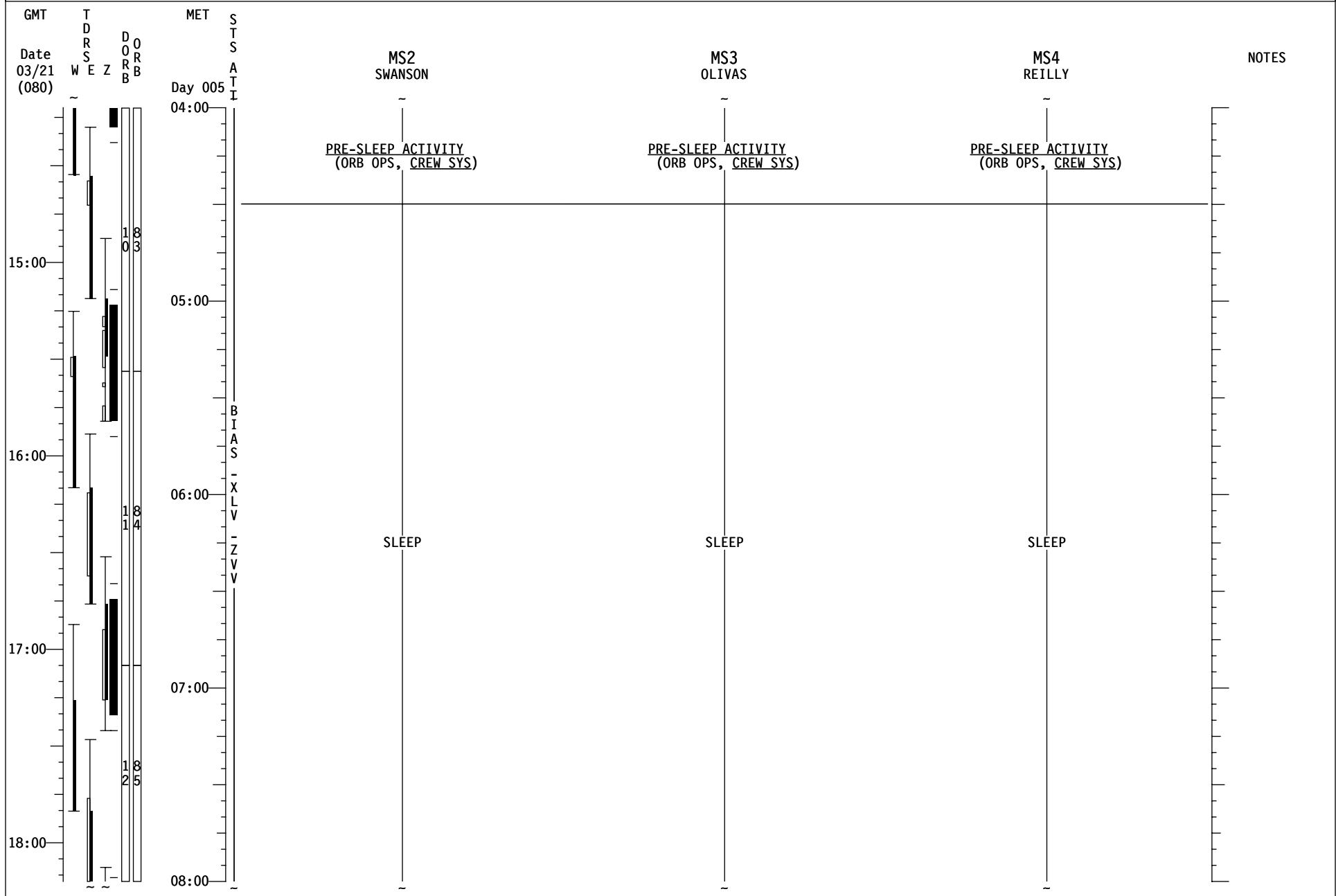
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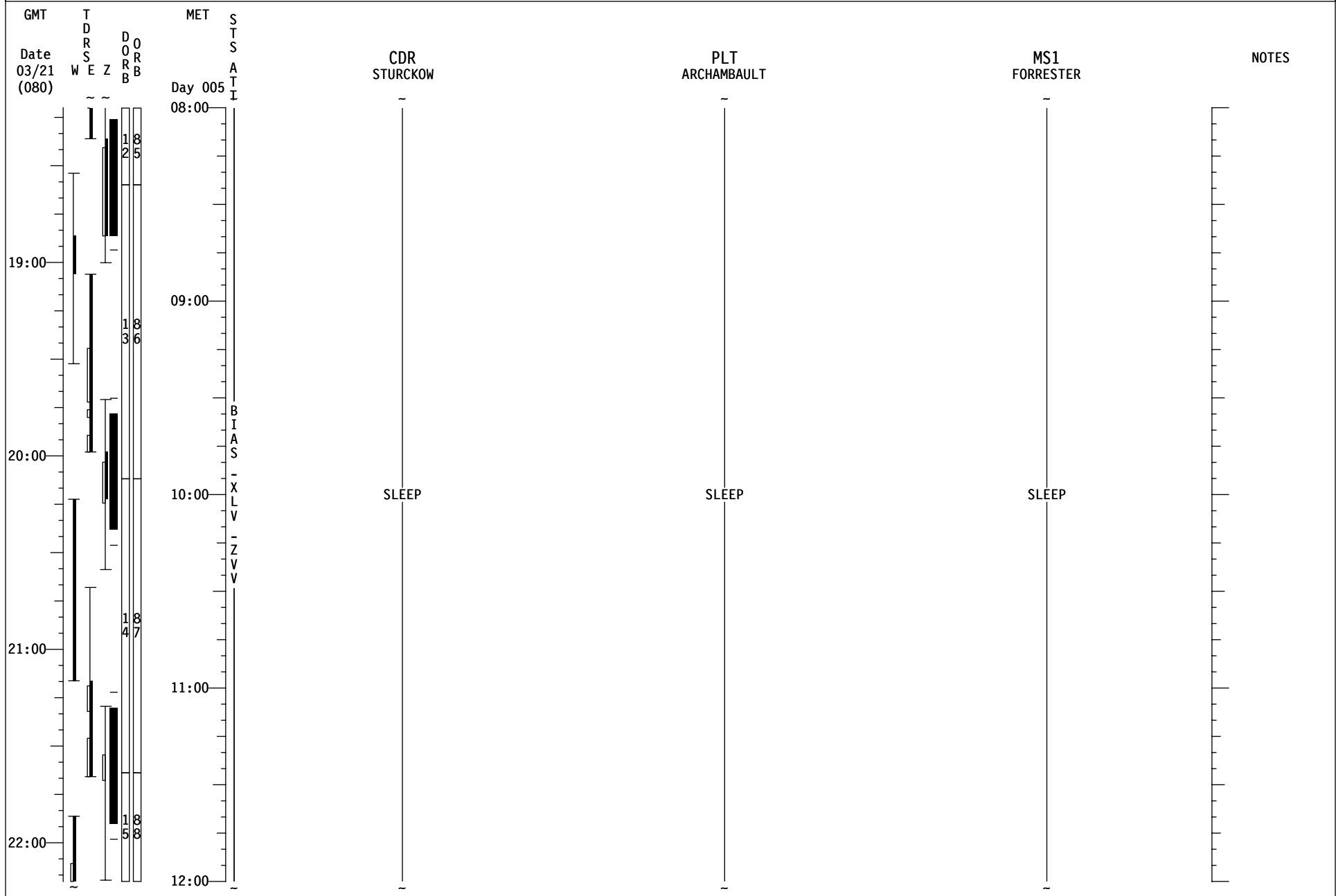
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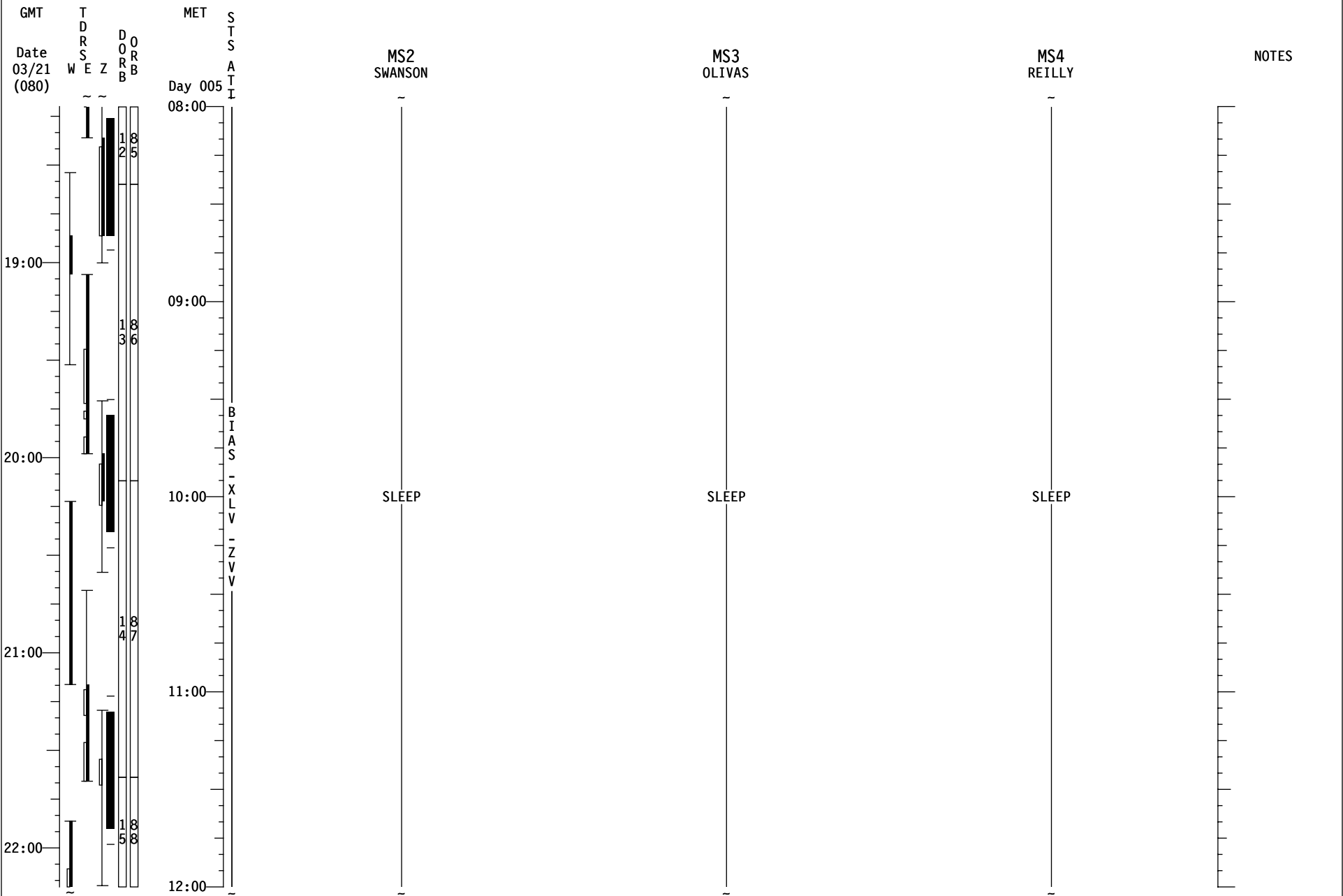
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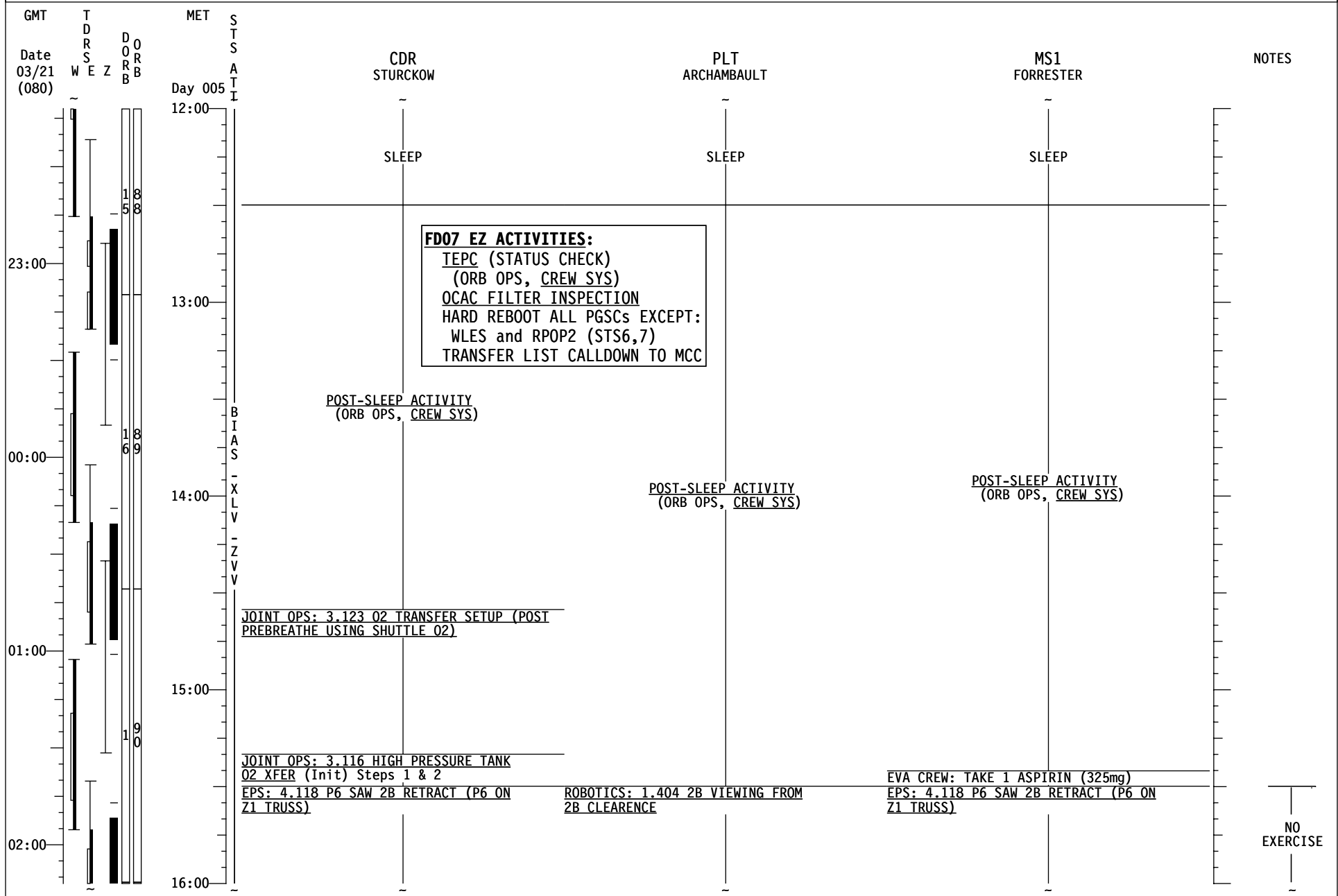
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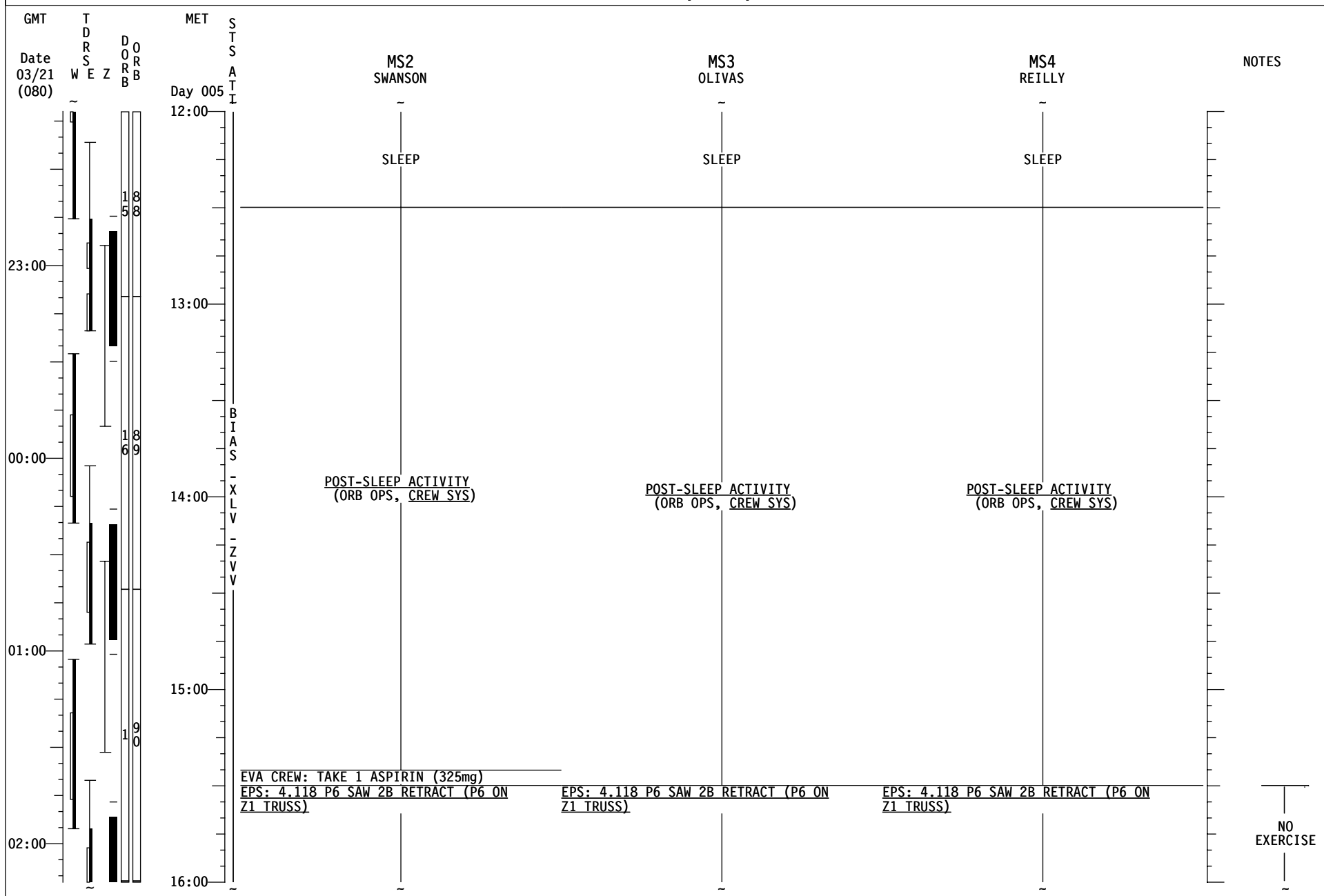
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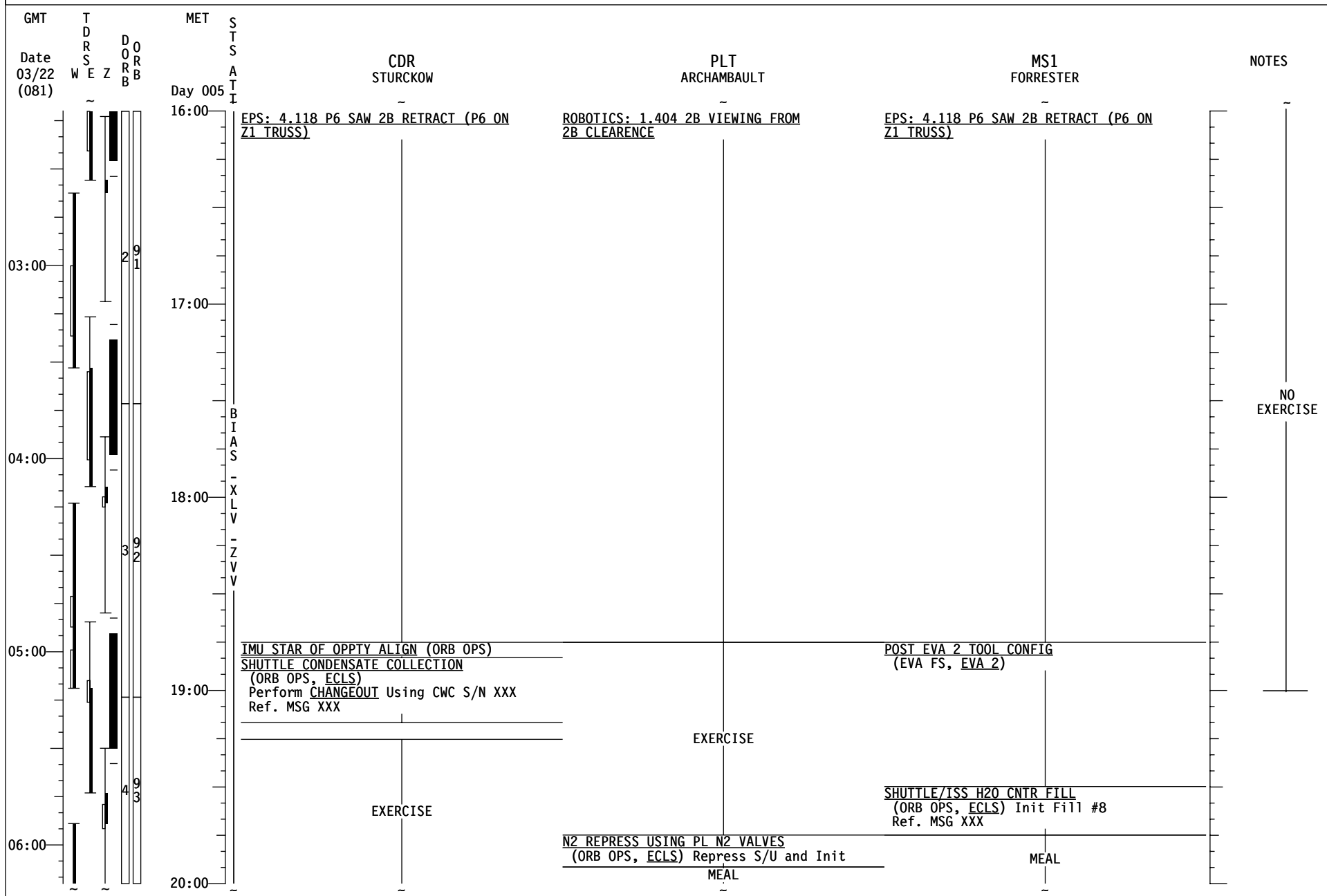
STS-117 (FD07)



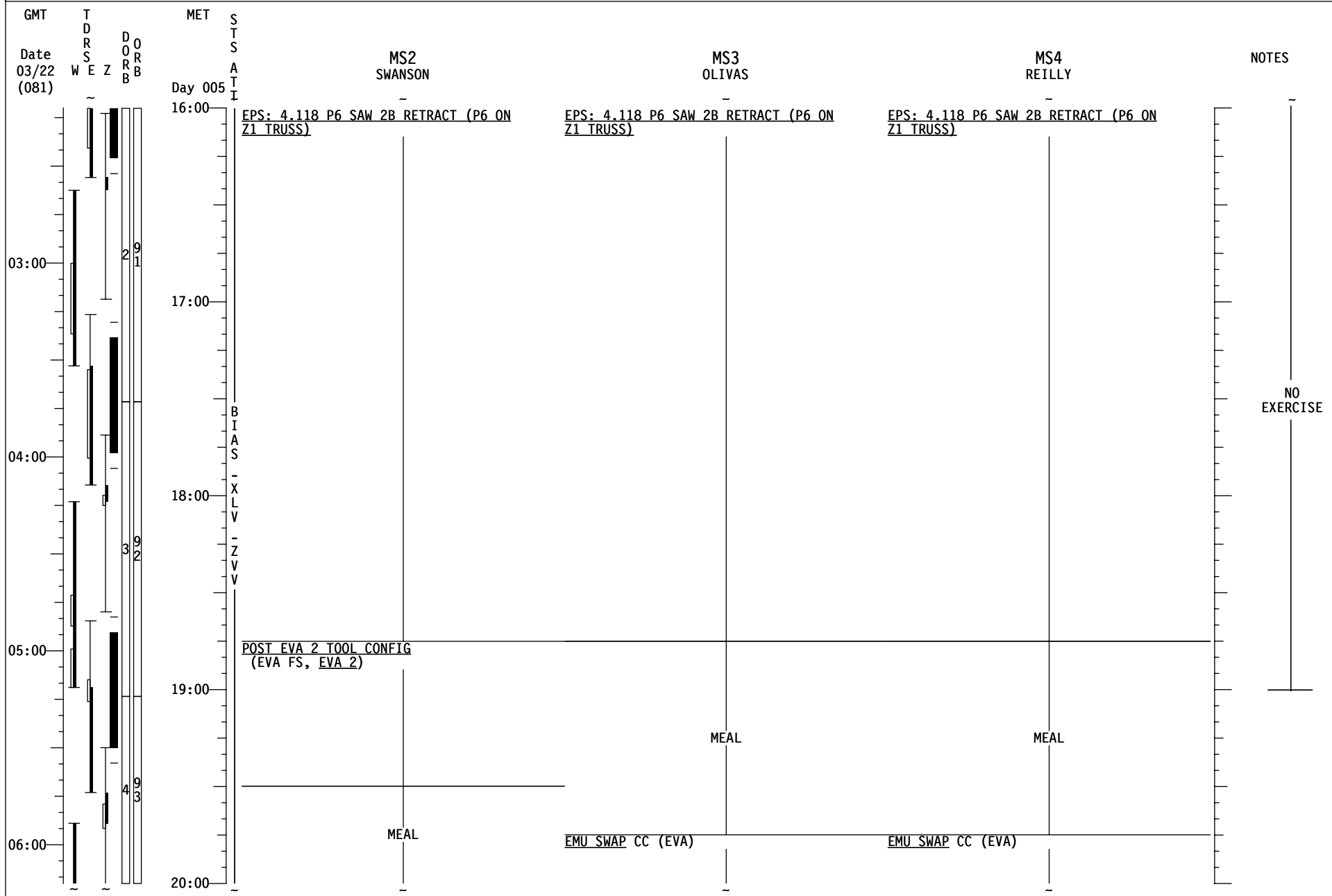
STS-117 (FD07)



STS-117 (FD07)



STS-117 (FD07)



STS-117 (FD07)

GMT	T D R S E Z D O R B	MET	S T S A T I	CDR	PLT	MS1	NOTES
Date 03/22 (081)	W E Z	Day 005	I	STURCKOW	ARCHAMBAULT	FORRESTER	
20:00	9 3		B I A S	EXERCISE			
			- X L V	MEAL	MEAL		
07:00		21:00	Z V V V		<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX		<u>SHUTTLE/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) Perform <u>FILL TERMINATION</u>
	5 4			<u>NOMINAL H2O CONFIG</u> (ORB OPS, ECLS) <u>JOINT OPS: 3.110 H/O ATT CONTROL</u> <u>CMG TA TO ORB</u>			<u>CWC TRANSFER</u> Transfer 1 CWC to ISS
				<u>MNVR (TRK) BIAS -XLV +YVV (Simo Dump)</u> TG=2 BV=5 P=159 Y=2 OM=193 A12/AUTO/VERN (5/21:30) Init TRK	<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Initiate Supply/Waste Dump		L17 Check MCIU filter screen
08:00		22:00	B I A S	<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX	<u>PWR TRANSFER</u> Transfer 6 PWRs to STS REF MSG XXX		
			- X L V		<u>N2 REPRESS USING PL N2 VALVES</u> (ORB OPS, ECLS) Repress Term		
					<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Terminate Waste Dump Part I Steps 1,2 only		
09:00	6 5	23:00	V	<u>JOINT OPS: 3.116 O2 XFER to HIGH</u> <u>PRESSURE TANK (Term) Step 3</u>	<u>PWR DUMP - WASTE LINE</u> (ORB OPS, ECLS) REF MSG XXX		<u>JOINT OPS: 3.116 O2 XFER to HIGH</u> <u>PRESSURE TANK (Term) Step 3</u>
				<u>JOINT OPS: 3.121 PREBREATHE USING SHUTTLE</u> <u>O2 SETUP (POST O2 TRANSFER)</u>			<u>JOINT OPS: 3.121 PREBREATHE USING SHUTTLE</u> <u>O2 SETUP (POST O2 TRANSFER)</u>
					<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Terminate Supply Dump Parts H,J only		
10:00	7 6	00:00		<u>JOINT OPS: 3.111 H/O ATT CONTROL</u> <u>ORB TO CMG TA</u>	<u>MNVR (TRK) BIAS -XLV -ZVV (TEA)</u> TG=2 BV=5 P=159 Y=2 OM=181 A12/AUTO/VERN (5/23:45) Init TRK		

STS-117 (FD07)

GMT	T D R S W E Z	D O R B 4 3	MET	S T S A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
03/22 (081)			Day 005	20:00		EMU SWAP CC (EVA)	EMU SWAP CC (EVA)	
					MEAL	ISS EVA SYS: 1.515 EMU METOX/LIOH/ BATTERY REPLACEMENT	ISS EVA SYS: 1.515 EMU METOX/LIOH/ BATTERY REPLACEMENT	
					<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX	REF: STS-117 CONSUMABLES TRKING CC (EVA)	REF: STS-117 CONSUMABLES TRKING CC (EVA)	
07:00						EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP	EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP	
						REF: STS-117 CONSUMABLES TRACKING CC (EVA)	REF: STS-117 CONSUMABLES TRACKING CC (EVA)	
						EVA 3 TOOL CONFIG (EVA, FS TIMELINES)	EVA 3 TOOL CONFIG (EVA, FS TIMELINES)	
08:00								
09:00					EXERCISE			
						ANALOG PAO CC (PHOTO/TV, SONY PD100)		
							EXERCISE	
					<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX			
						EXERCISE	<u>TRANSFER OPS</u> Ref. Transfer List & MSG XXX	
10:00								
00:00								

STS-117 (FD07)

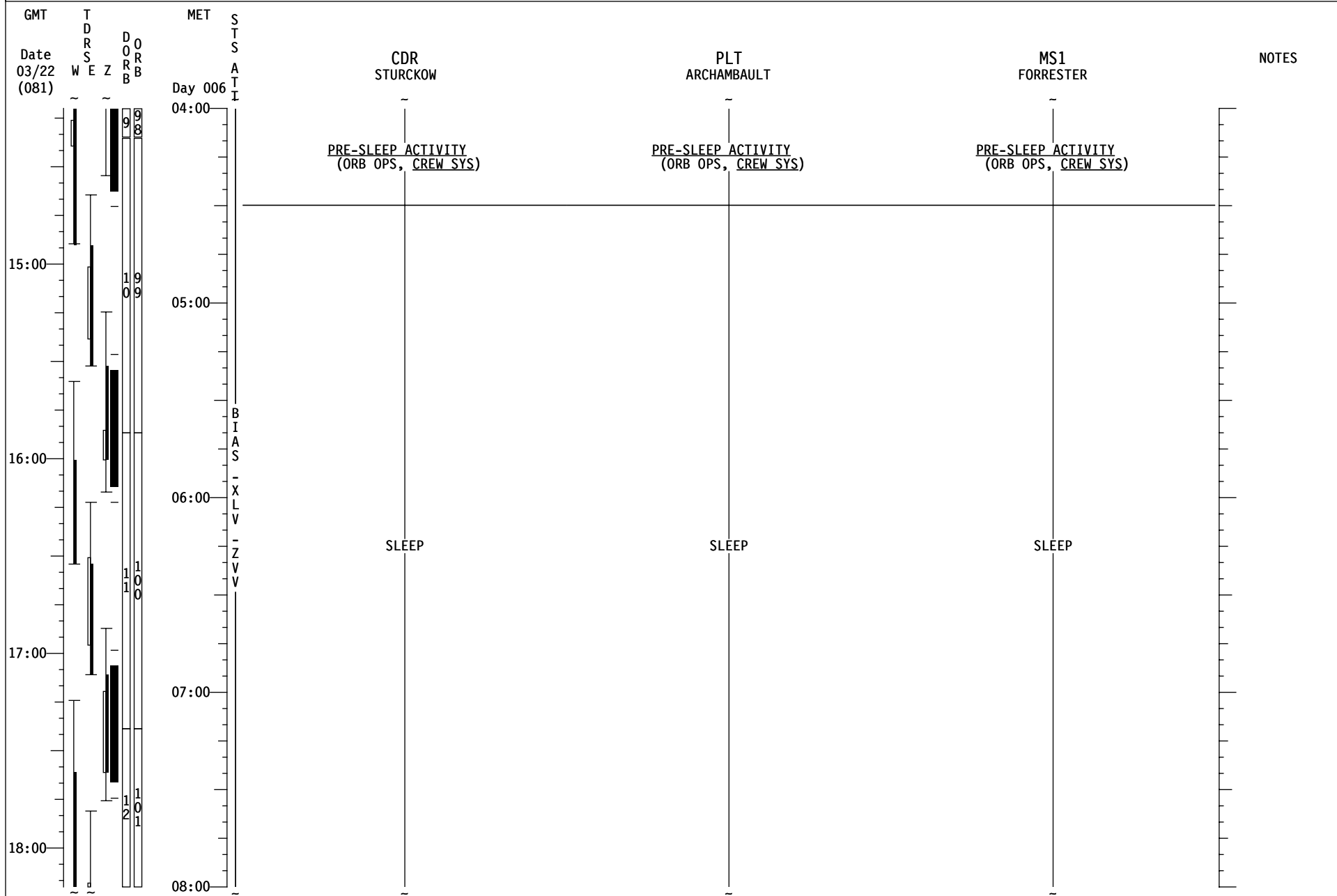
GMT	TDRS W E Z	DORB	MET Day 006	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
00:00					EVA 3 PROCEDURE REVIEW REF: EVA 3 BRIEFING CARD (EVA, FS TIMELINES)	EVA 3 PROCEDURE REVIEW REF: EVA 3 BRIEFING CARD (EVA, FS TIMELINES)	EVA 3 PROCEDURE REVIEW REF: EVA 3 BRIEFING CARD (EVA, FS TIMELINES)	
11:00								
01:00					PUBLIC AFFAIRS EVENT KU AVAIL: XX:XX-XX:XX	PUBLIC AFFAIRS EVENT KU AVAIL: XX:XX-XX:XX	PUBLIC AFFAIRS EVENT KU AVAIL: XX:XX-XX:XX	
12:00							PWR FILL (ORB OPS, ECLS) Perform WATER FILL #1 REF MSG XXX	
02:00					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PWR FILL (ORB OPS, ECLS) Perform WATER FILL #2 REF MSG XXX		
13:00					NETMEETING VIDEO CONFERENCING [A] (ORB OPS, OCA) Private Medical Conference			
					L1 TOPPING EVAP HTR DUCT sel - A NOZ L,R (two) - A AUTO			
03:00							PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	OCA-PMC
14:00					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
04:00								

[A] Omit VLHS item in Step 1
Omit Step 3
Use A/G2 for Audio and KFX PGSC

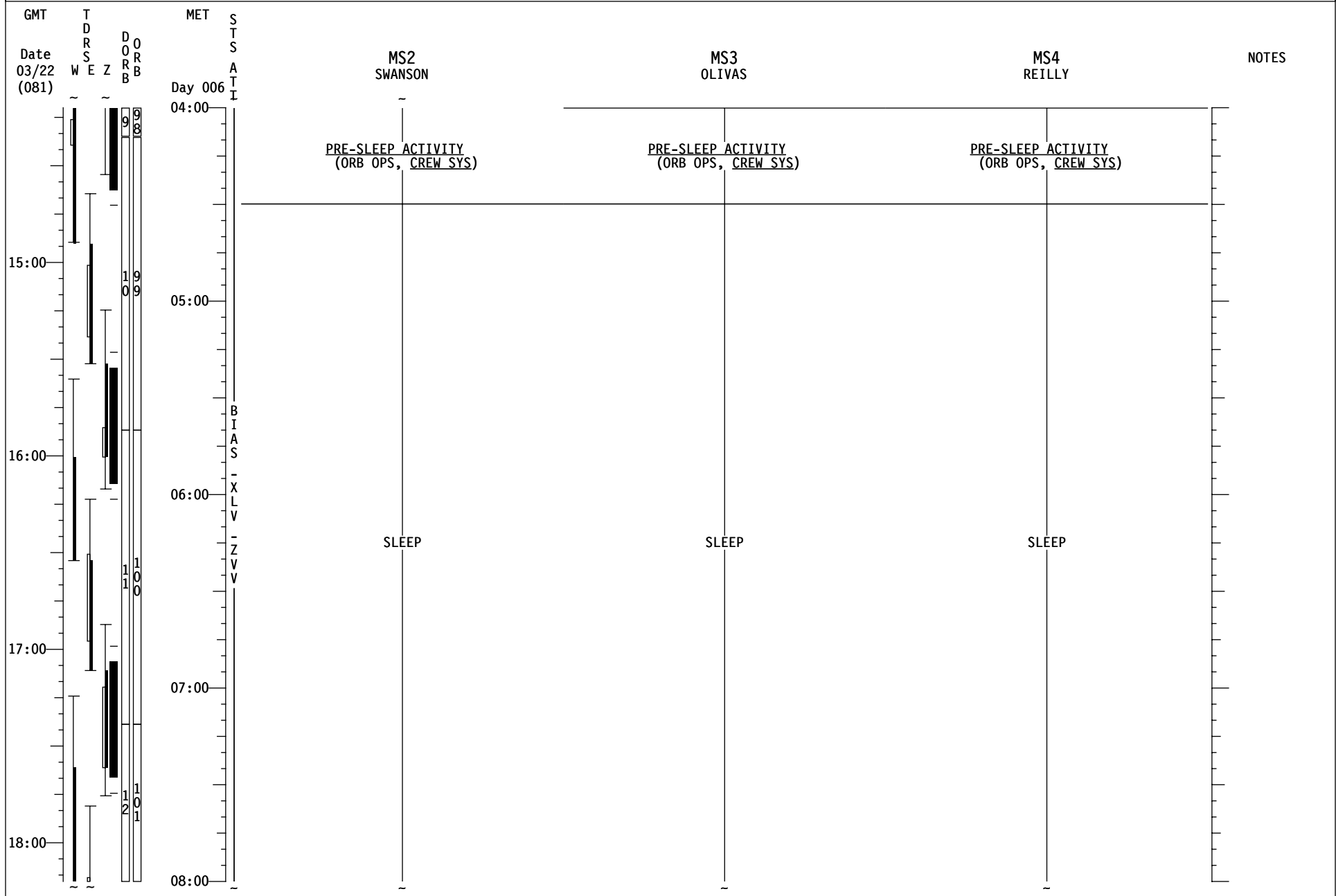
STS-117 (FD07)

GMT	TDRS W E Z	DORB	MET Day 006	STS A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
03/22 (081)	~	79	00:00		<u>EVA 3 PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, FS TIMELINES)	<u>EVA 3 PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, FS TIMELINES)	<u>EVA 3 PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, FS TIMELINES)	
11:00		87	01:00		<u>PUBLIC AFFAIRS EVENT</u> KU AVAIL: XX:XX-XX:XX			
12:00		87	02:00	B I A S - X L V - Z V V		<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
13:00		99	03:00		<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>EVA SYSTEMS: 2.305 10.2 PSIA CAMPOUT</u> <u>MASK PREBREATHE INIT</u> REF: <u>PRE EVA1 TOOL CONFIG</u> (EVA, TIMELINES) REF: <u>STS-117 CONSUMABLES TRACKING CC</u> (EVA)	<u>EVA SYSTEMS: 2.305 10.2 PSIA CAMPOUT</u> <u>MASK PREBREATHE INIT</u> REF: <u>PRE EVA1 TOOL CONFIG</u> (EVA, TIMELINES) REF: <u>STS-117 CONSUMABLES TRACKING CC</u> (EVA)	
14:00		98	04:00					

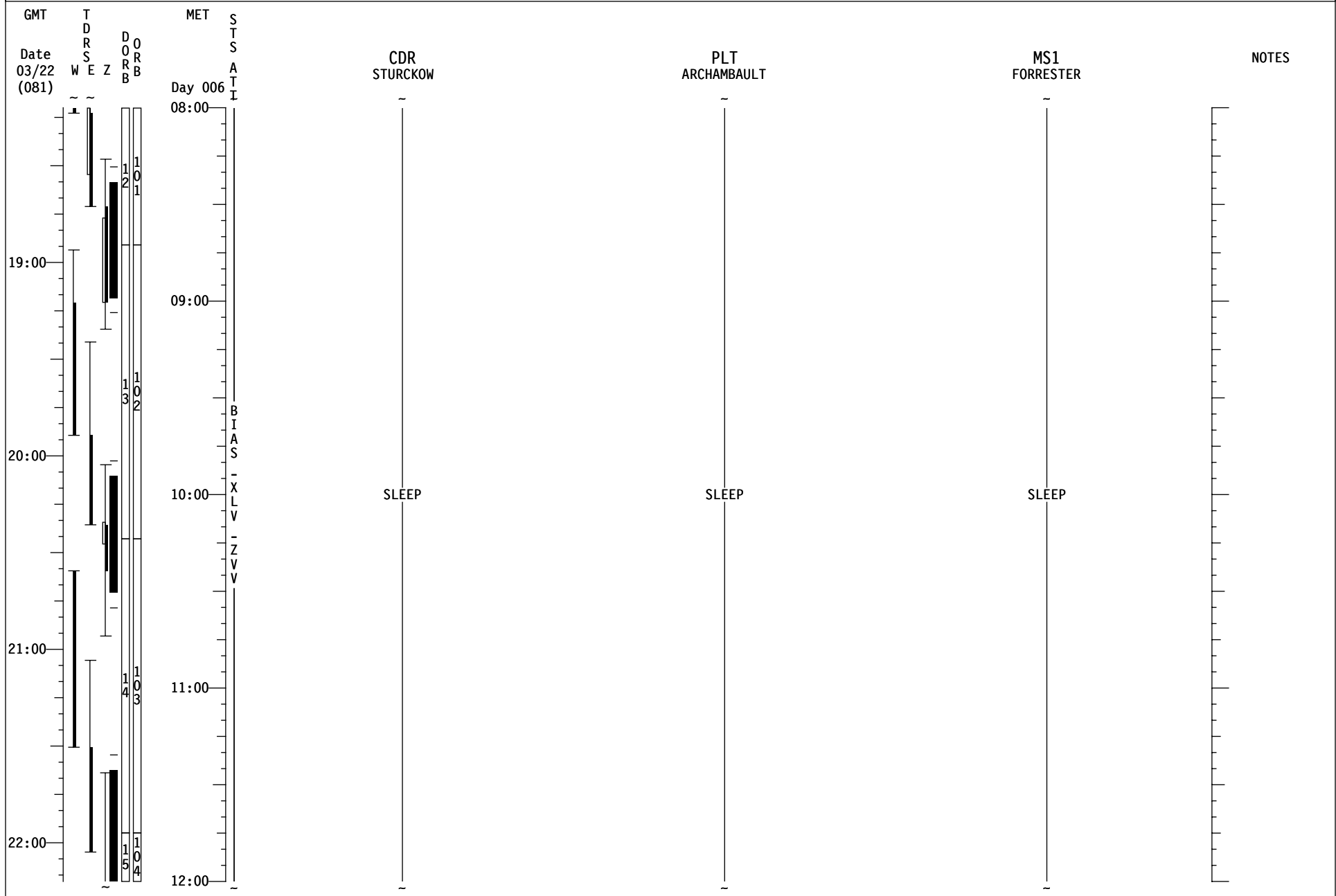
STS-117 (FD07)



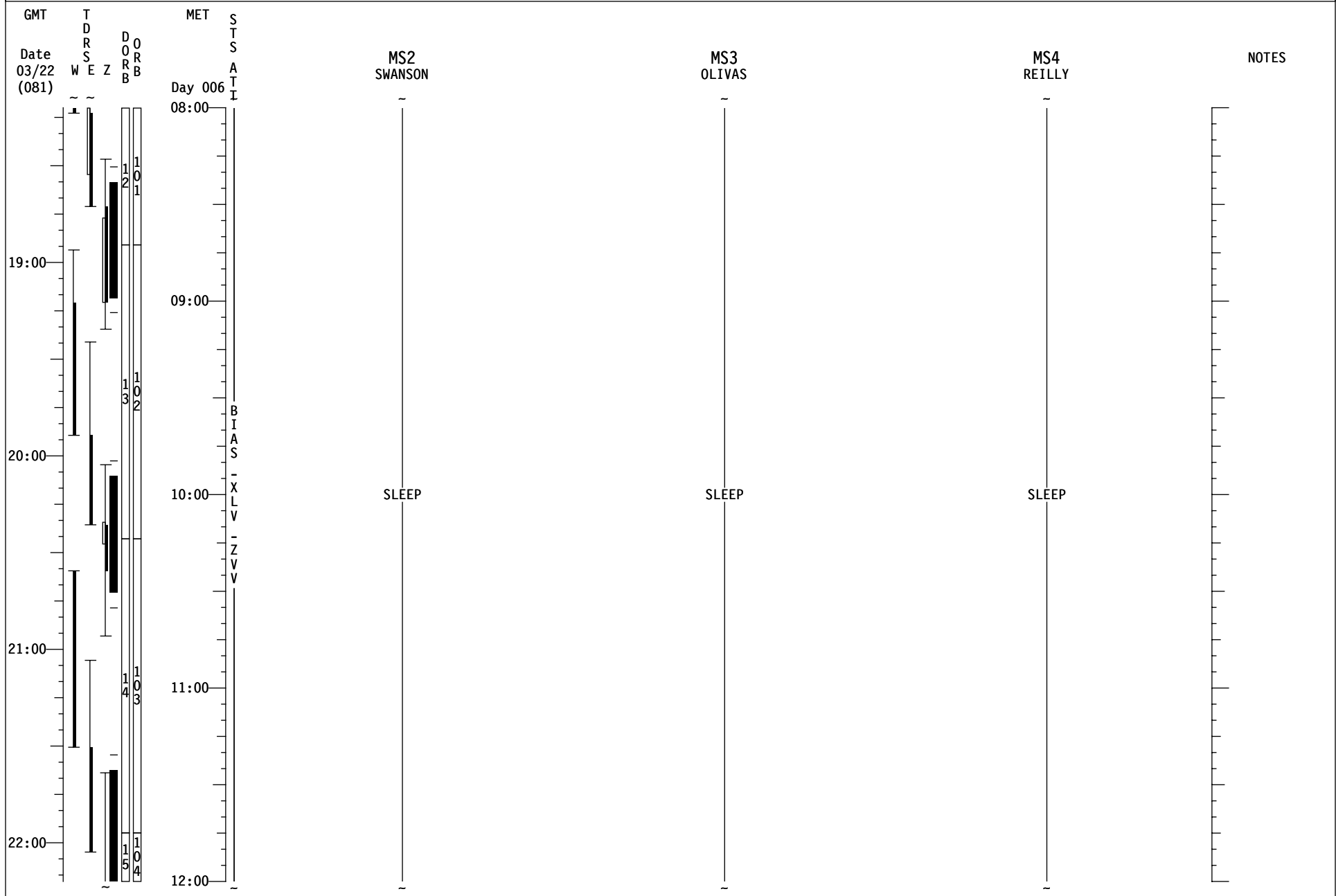
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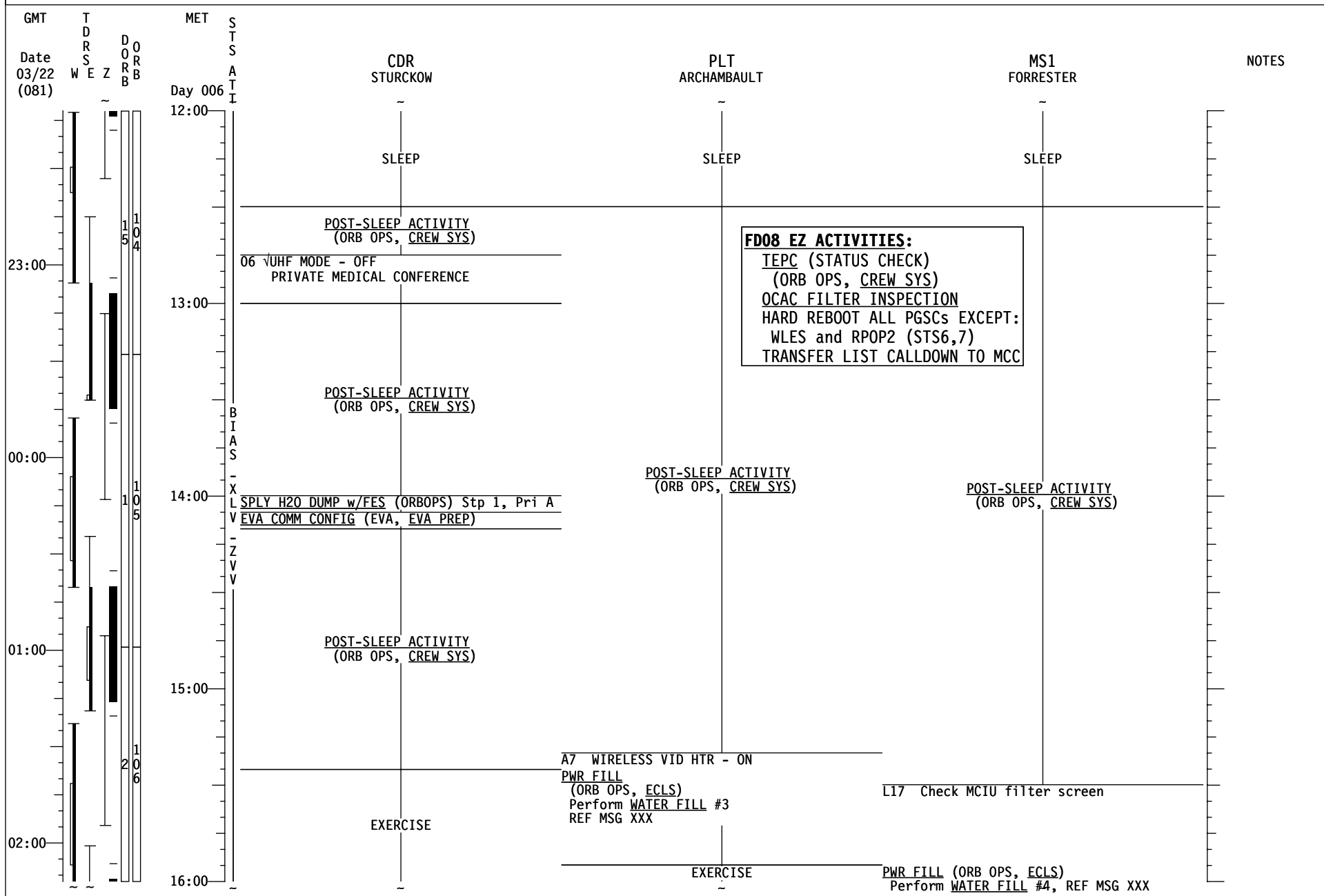
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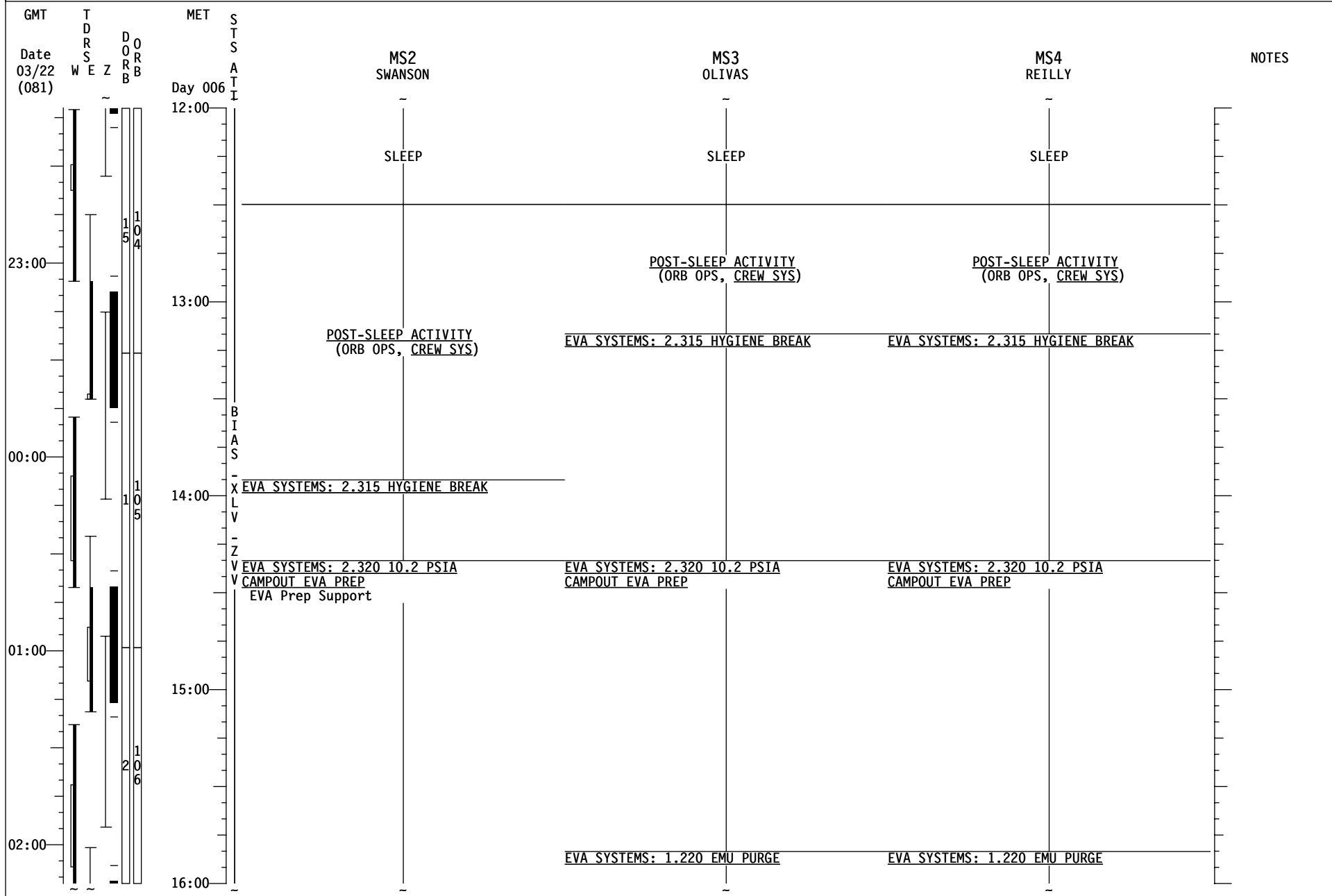
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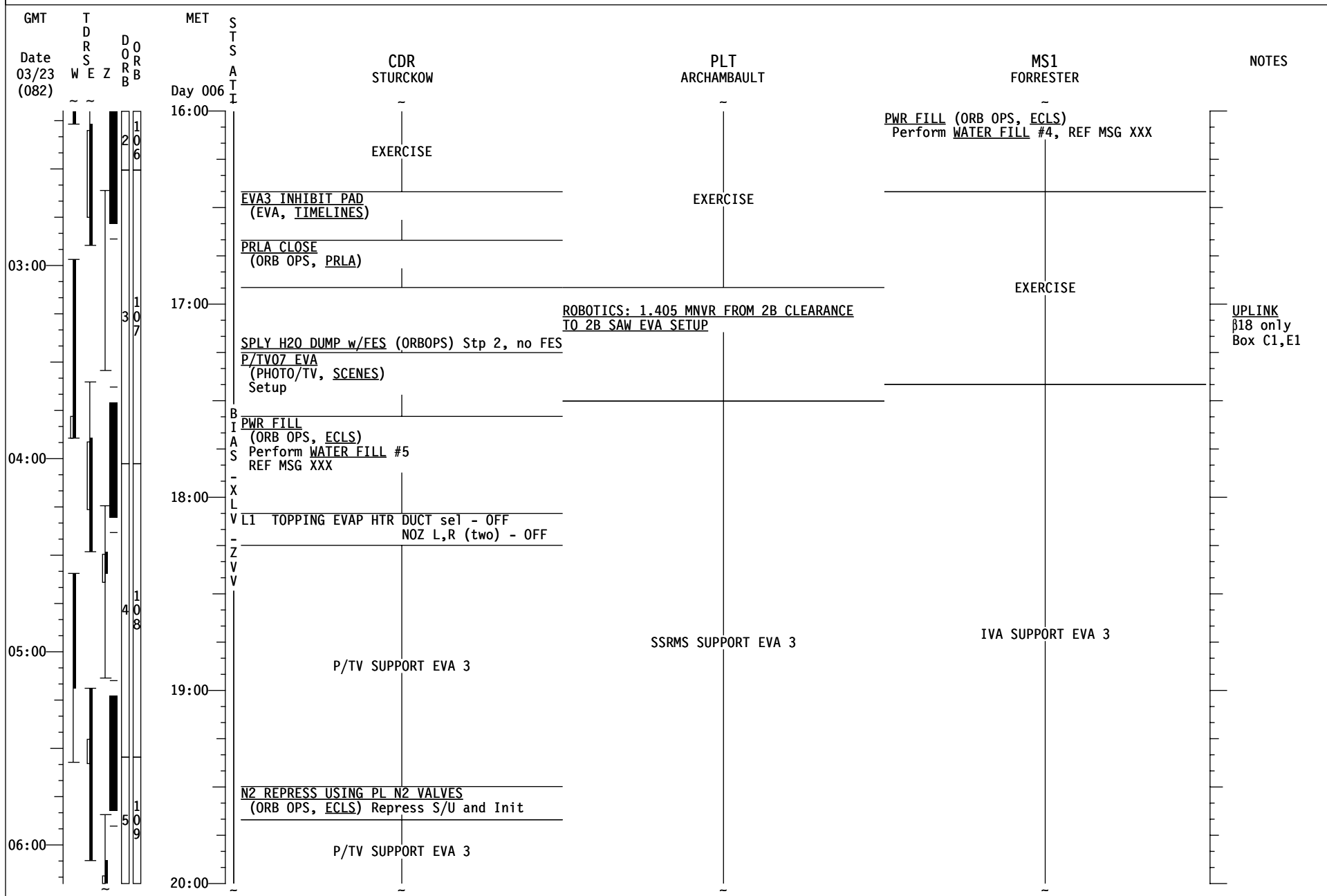
STS-117 (FD08)



STS-117 (FD08)



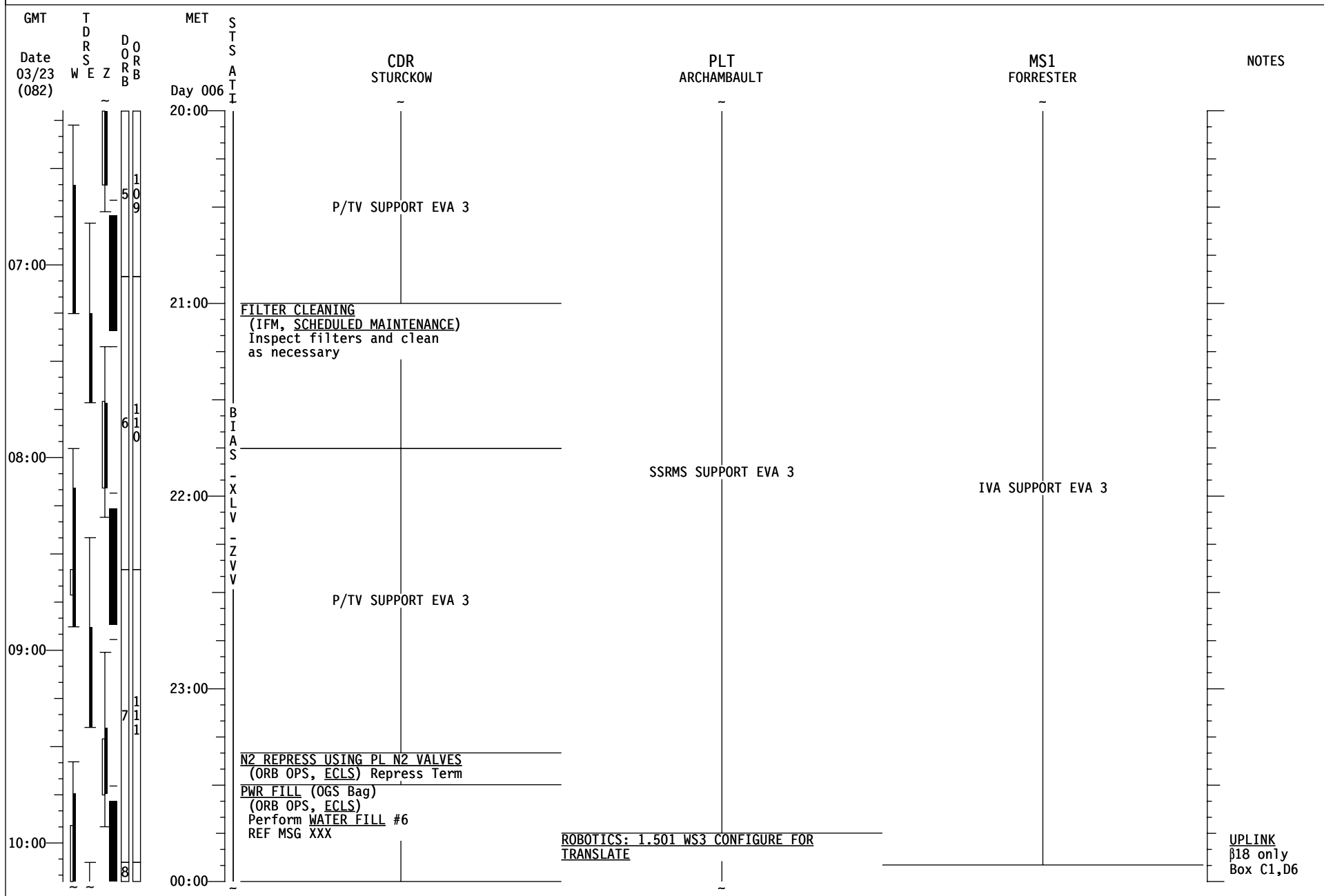
STS-117 (FD08)



STS-117 (FD08)

GMT	TDRS W E Z	DORB 106 307 408 509	MET Day 006	STS A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
03:00			16:00		EVA SYSTEMS: 2.320 10.2 PSIA CAMPOUT EVA PREP EVA Prep Support	EVA SYSTEMS: 1.220 EMU PURGE EVA SYSTEMS: 1.225 EMU PREBREATHE	EVA SYSTEMS: 1.220 EMU PURGE EVA SYSTEMS: 1.225 EMU PREBREATHE	
			17:00			EVA SYSTEMS: CREWLOCK DEPRESS (CC)	EVA SYSTEMS: CREWLOCK DEPRESS (CC)	
						EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	
04:00			18:00			EVA 3 SORTIE SETUP/EGRESS	EVA 3 SORTIE SETUP/EGRESS	
						LAB EWIS ANTENNA INSTALL	H2O/H2 VENT VALVE R&R	
05:00			19:00		SSRMS SUPPORT EVA 3			
06:00			20:00			STOW S3 DRAG LINK Includes: Keel Pin	STOW S3 DRAG LINK Includes: Keel Pin	

STS-117 (FD08)



STS-117 (FD08)

GMT	TDRS W E Z	DORB	MET	STS A T I	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/23 (082)			Day 006				
20:00					STOW S3 DRAG LINK Includes: Keel Pin	STOW S3 DRAG LINK Includes: Keel Pin	
					S3/S4 CLOSEOUT AND APFR RELOCATE	S3/S4 CLOSEOUT AND APFR RELOCATE	
07:00							
					13A.1 GET AHEAD TASKS	13A.1 GET AHEAD TASKS	
08:00							
					SSRMS SUPPORT EVA 3		
					NODE-TO-SM LAN CABLE ROUTING	NODE-TO-SM LAN CABLE ROUTING	
09:00							
					13A.1 GET AHEAD TASKS	H2O/H2 VENT VALVE OPEN	
					EVA 3 SORTIE CLEANUP/INGRESS	EVA 3 SORTIE CLEANUP/INGRESS	
10:00							
					EVA SYSTEMS: PRE REPRESS (CC)	EVA SYSTEMS: PRE REPRESS (CC)	
					EVA SYSTEMS: CREWLOCK REPRESS (CC)	EVA SYSTEMS: CREWLOCK REPRESS (CC)	
00:00							

STS-117 (FD08)

GMT	TDRS W E Z	DORB	MET Day 007	S T S A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
03/23 (082)	~	~	Day 007					
11:00		8 11 2	00:00		IMU STAR OF OPPTY ALIGN (ORB OPS)	ROBOTICS: 1.501 WS3 CONFIGURE FOR TRANSLATE		
					COMM STRING 1 C/O (PART A) (ORB OPS, COMM/INST)			
					CAB PRESS MAINT TBD	RMS PWRDWN (PDRS, RMS PWRDN) Note: Do not stow MPM's	RMS PWRDWN (PDRS, RMS PWRDN) Note: Do not stow MPM's	
			01:00		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
12:00				B I A S	06 UHF MODE - OFF			
			02:00	X L V	PRIVATE MEDICAL CONFERENCE			
		9 11 3		Z V V	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
				L1	TOPPING EVAP HTR DUCT sel - A NOZ L,R (two) - A AUTO	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
13:00			03:00		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			UPLINK β18 only Box C1,D6
14:00		11 11 4	04:00					

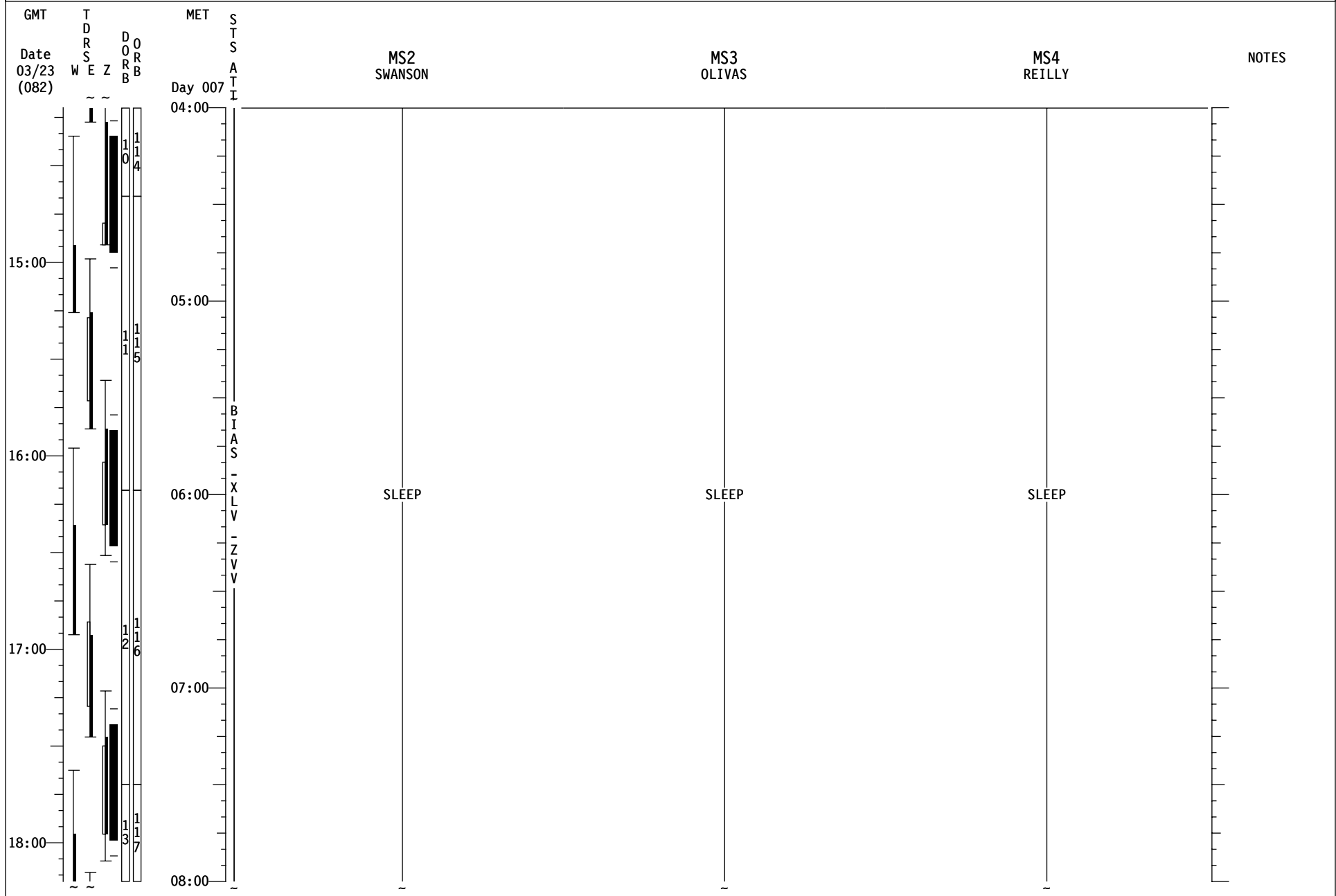
STS-117 (FD08)

GMT	TDRS W E Z	DORB	MET	S T S A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/23 (082)			Day 007					
11:00		1112	00:00			EVA SYSTEMS: CREWLOCK REPRESS (CC) EVA SYSTEMS: 1.240 POST EVA With H2O With METOX REF: STS-117 CONSUMABLES TRACKING CC (EVA)	EVA SYSTEMS: CREWLOCK REPRESS (CC) EVA SYSTEMS: 1.240 POST EVA With H2O With METOX REF: STS-117 CONSUMABLES TRACKING CC (EVA)	
12:00		1113	01:00					
13:00		1114	02:00	B I A S - X L V - Z V V	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
14:00			03:00					
			04:00					

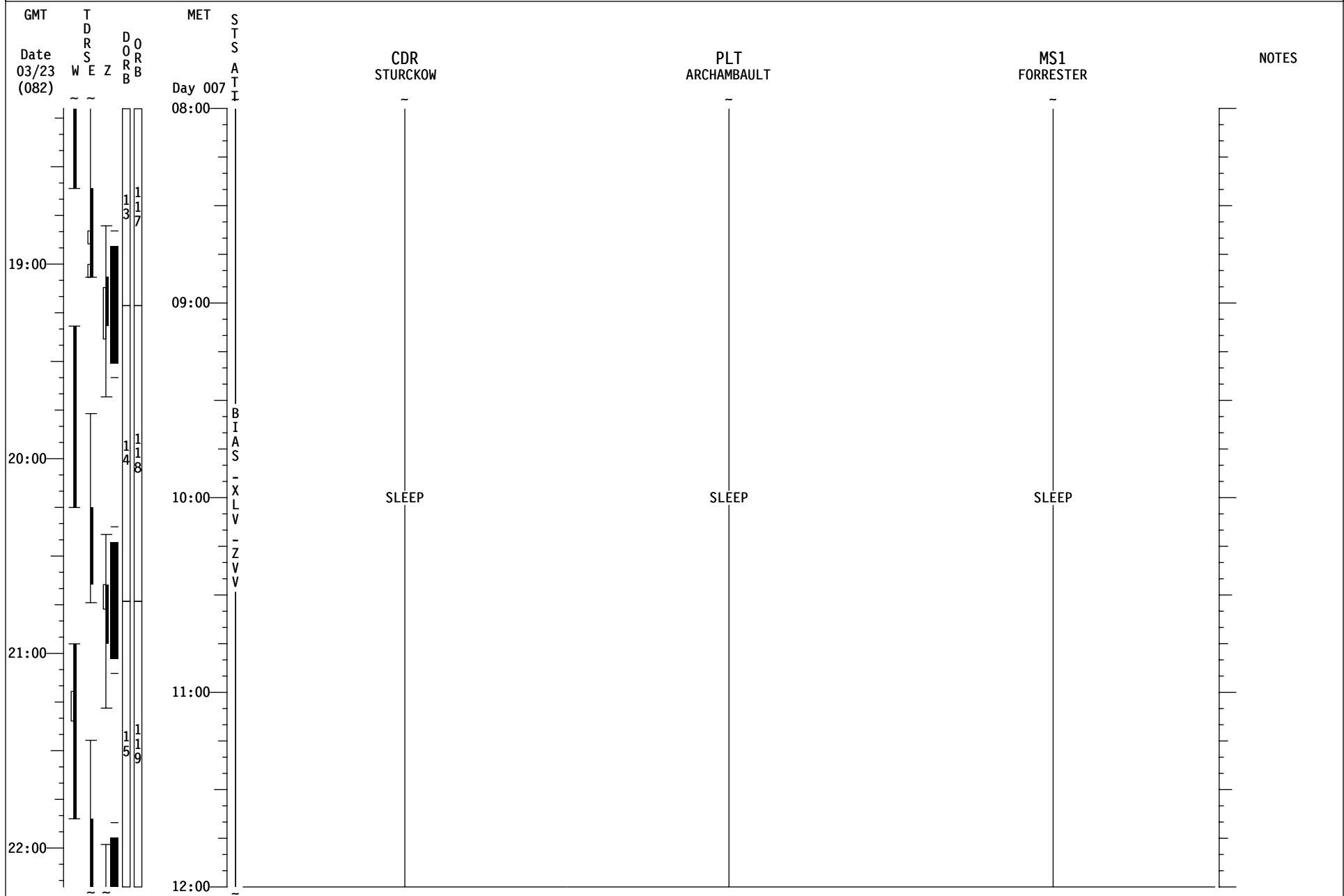
STS-117 (FD08)

GMT	TDRS WSEZ	DORB	MET Day 007	STS ATTI	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
03/23 (082)	~	~	04:00					
15:00			05:00					
16:00			06:00	B I A S - X L V - Z V V	SLEEP	SLEEP	SLEEP	
17:00			07:00					
18:00			08:00					

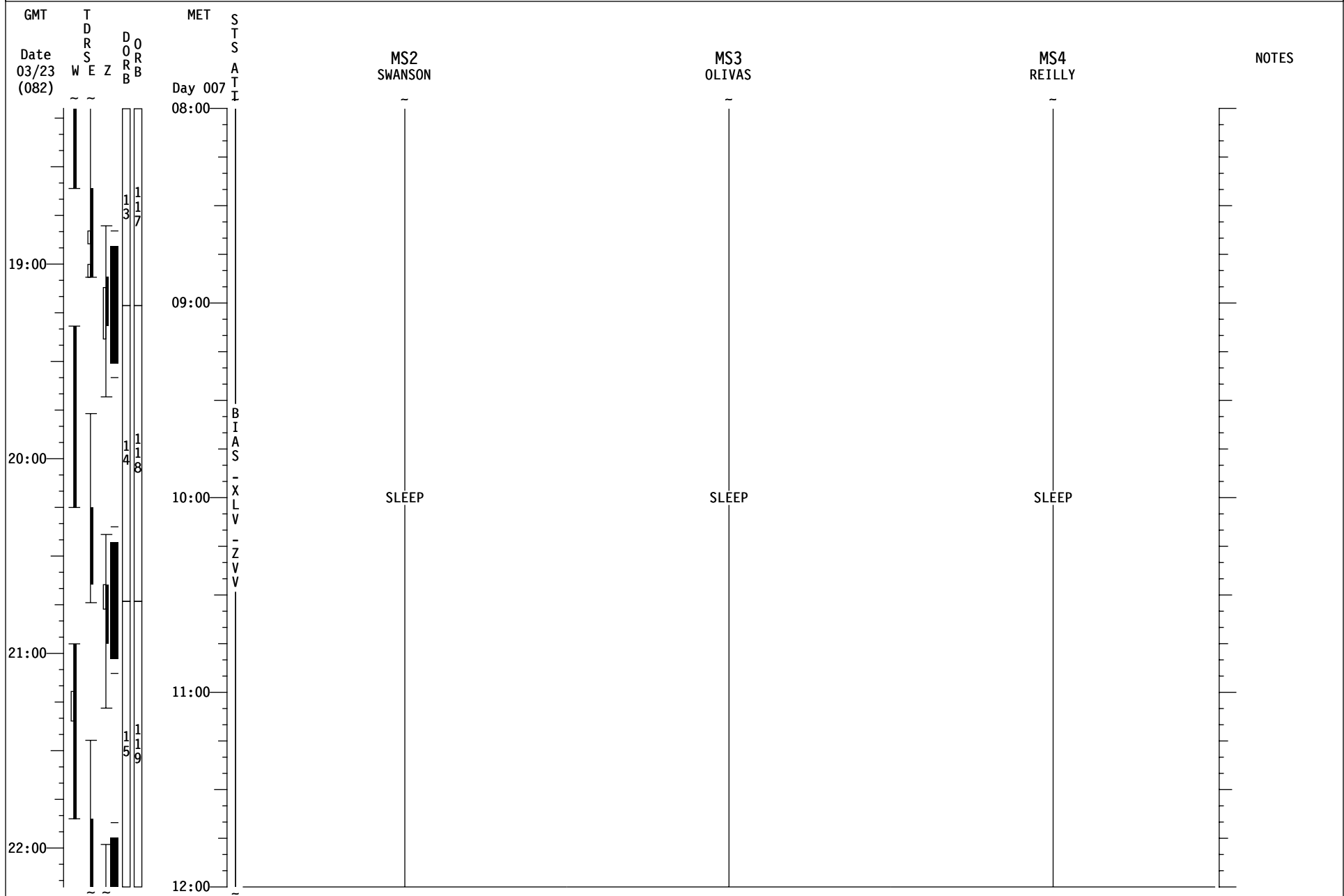
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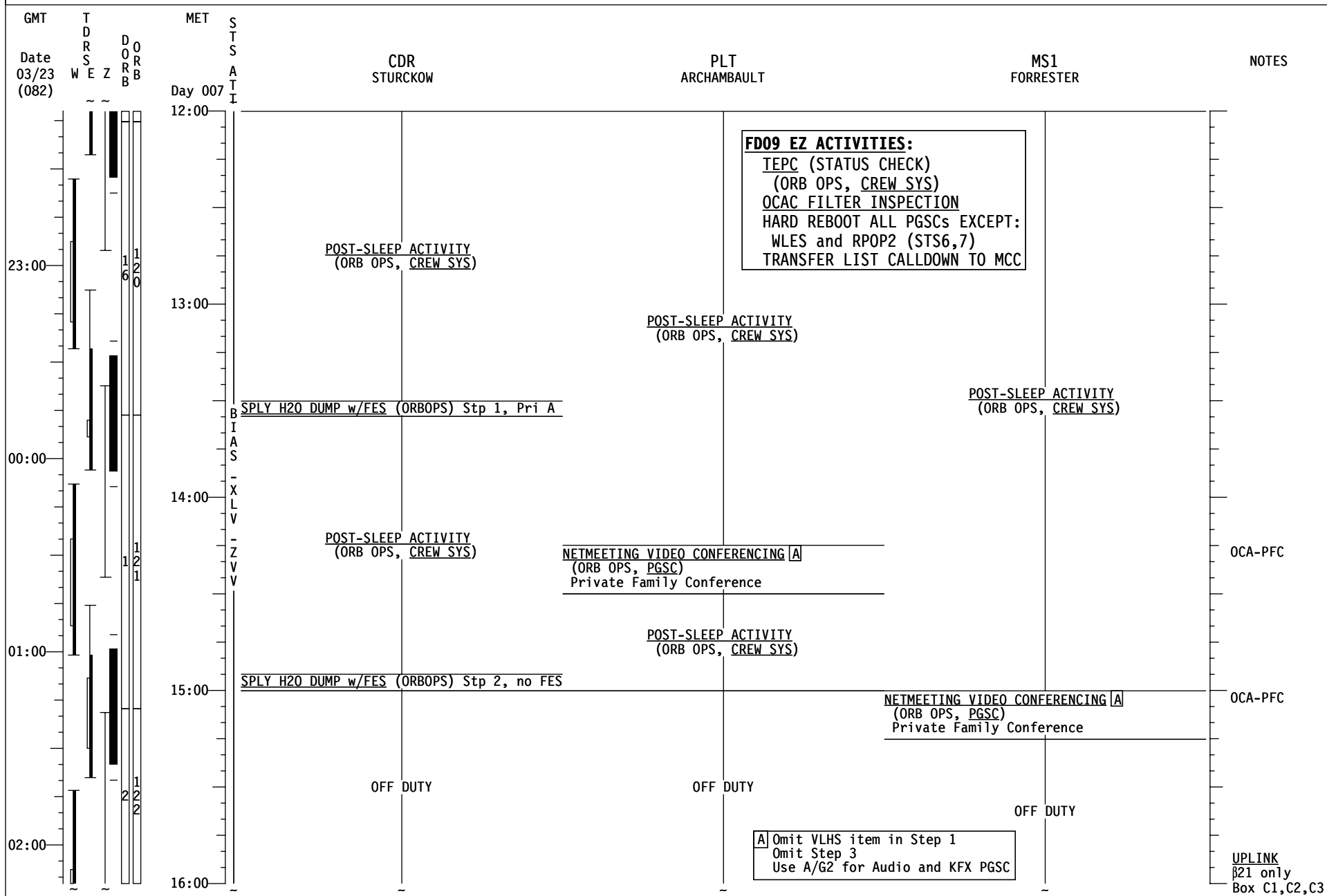
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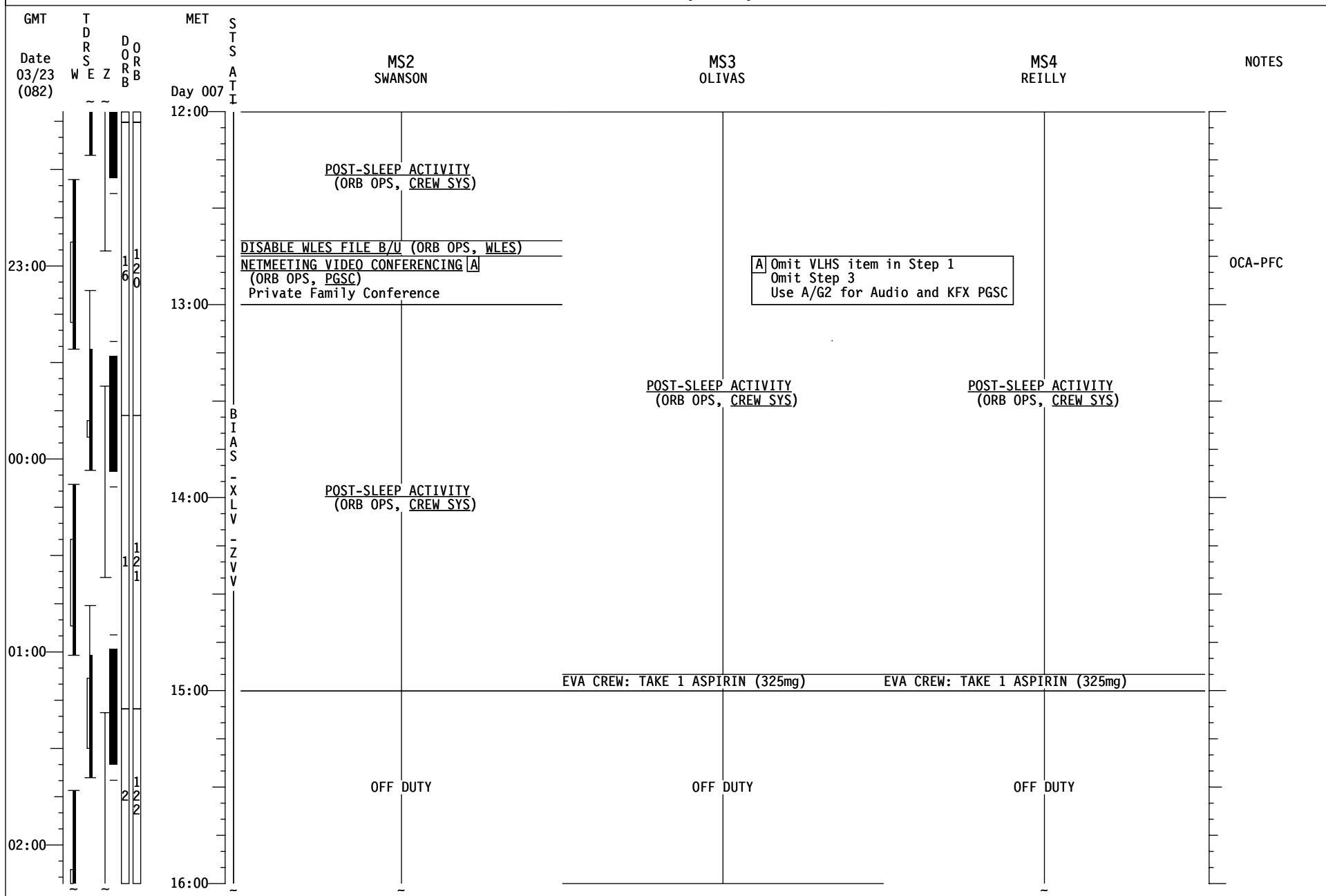
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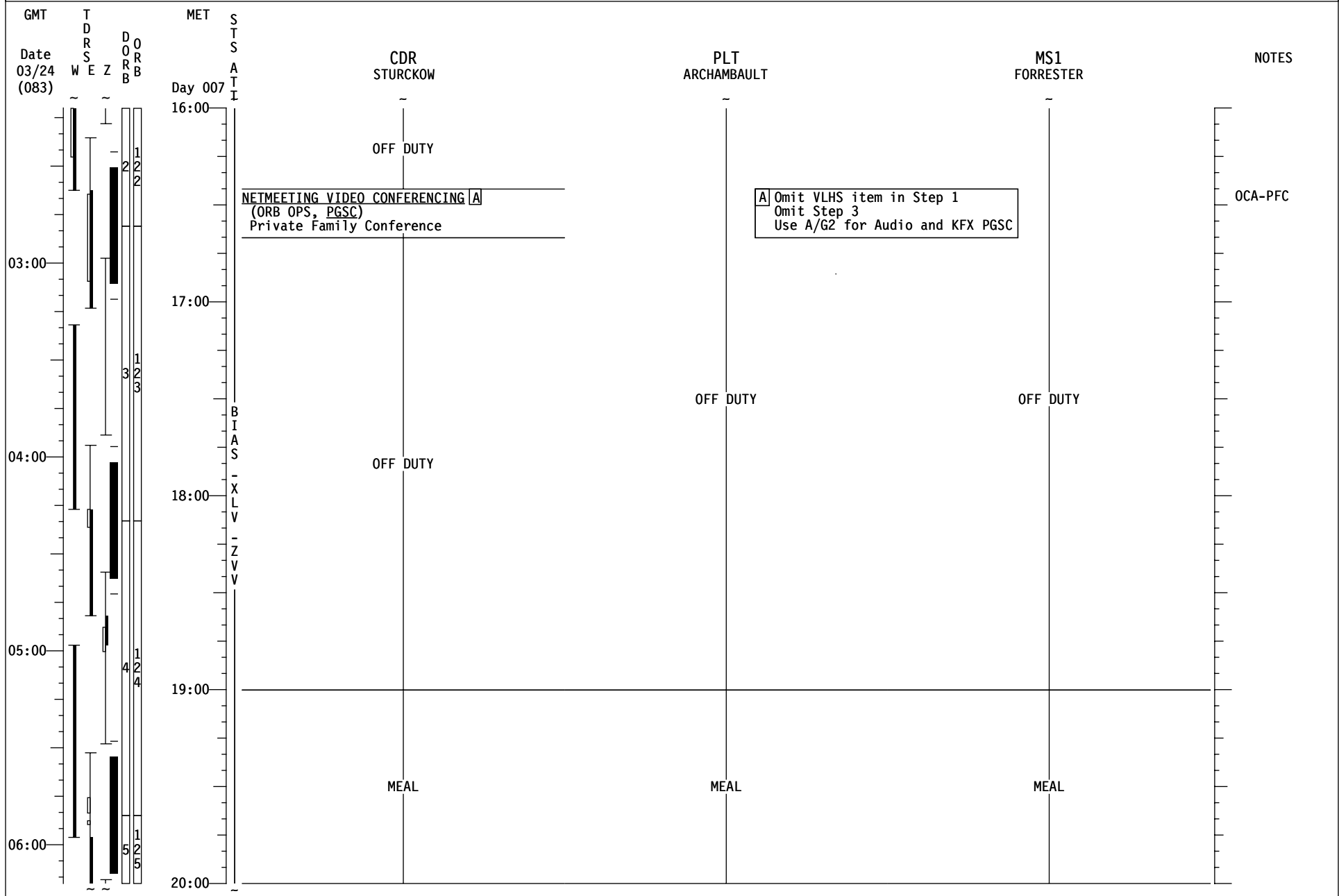
STS-117 (FD09)



STS-117 (FD09)



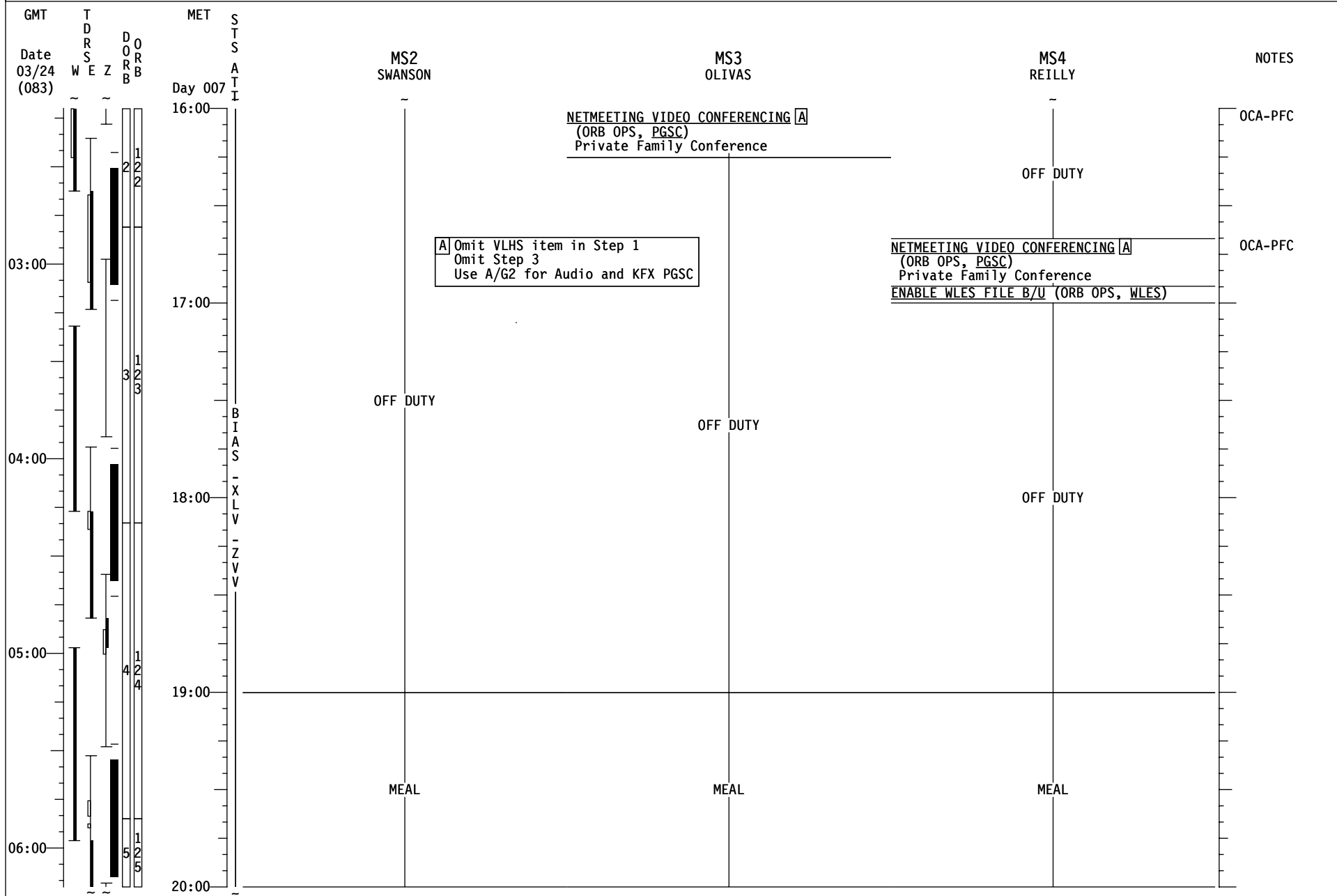
STS-117 (FD09)



[A] Omit VLHS item in Step 1
 Omit Step 3
 Use A/G2 for Audio and KFX PGSC

OCA-PFC

STS-117 (FD09)



STS-117 (FD09)

GMT	TDRS W E Z	DORB	MET	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/24 (083)			Day 007					
07:00		125	20:00		<u>JOINT OPS: 3.110 H/O ATT CONTROL</u> <u>CMG TA TO ORB</u> <u>MNVR (TRK) BIAS -XLV +YVV (Simo Dump)</u> TG=2 BV=5 P=159 Y=2 OM=193 A12/AUTO/VERN (7/20:10) Init TRK	<u>CWC OVERBOARD DUMP Setup</u> (ORB OPS, ECLS) Part A only <u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Initiate Supply Dump <u>CWC OVERBOARD DUMP</u> (ORB OPS, ECLS) Dump Middeck Condensate CWC Bag CWC S/N XXX Perform all Parts except Part A	<u>POST EVA TRANSFER AND RECONFIG</u> (EVA, AIRLOCK CONFIG)	UPDATE H2O SPLY DUMP QTY TK A & B
		525			EXERCISE			
			21:00					
08:00		626						
			22:00		<u>MNVR (TRK) BIAS -XLV -ZVV (TEA)</u> TG=2 BV=5 P=159 Y=2 OM=181 A12/AUTO/VERN (7/21:50) Init TRK <u>JOINT OPS: 3.111 H/O ATT CONTROL</u> <u>ORB TO CMG TA</u>	<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Terminate Supply Dump <u>SPLY H2O DUMP w/FES (ORBOPS) Stp 1, Pri A</u>		
					CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	
09:00			23:00		CREW PHOTO	CREW PHOTO	CREW PHOTO	
					FAREWELL	FAREWELL	FAREWELL	
10:00		727			<u>4.103 DUCT REMOVAL & HATCH CLOSE</u> (BYPASS CONFIG)			
00:00								

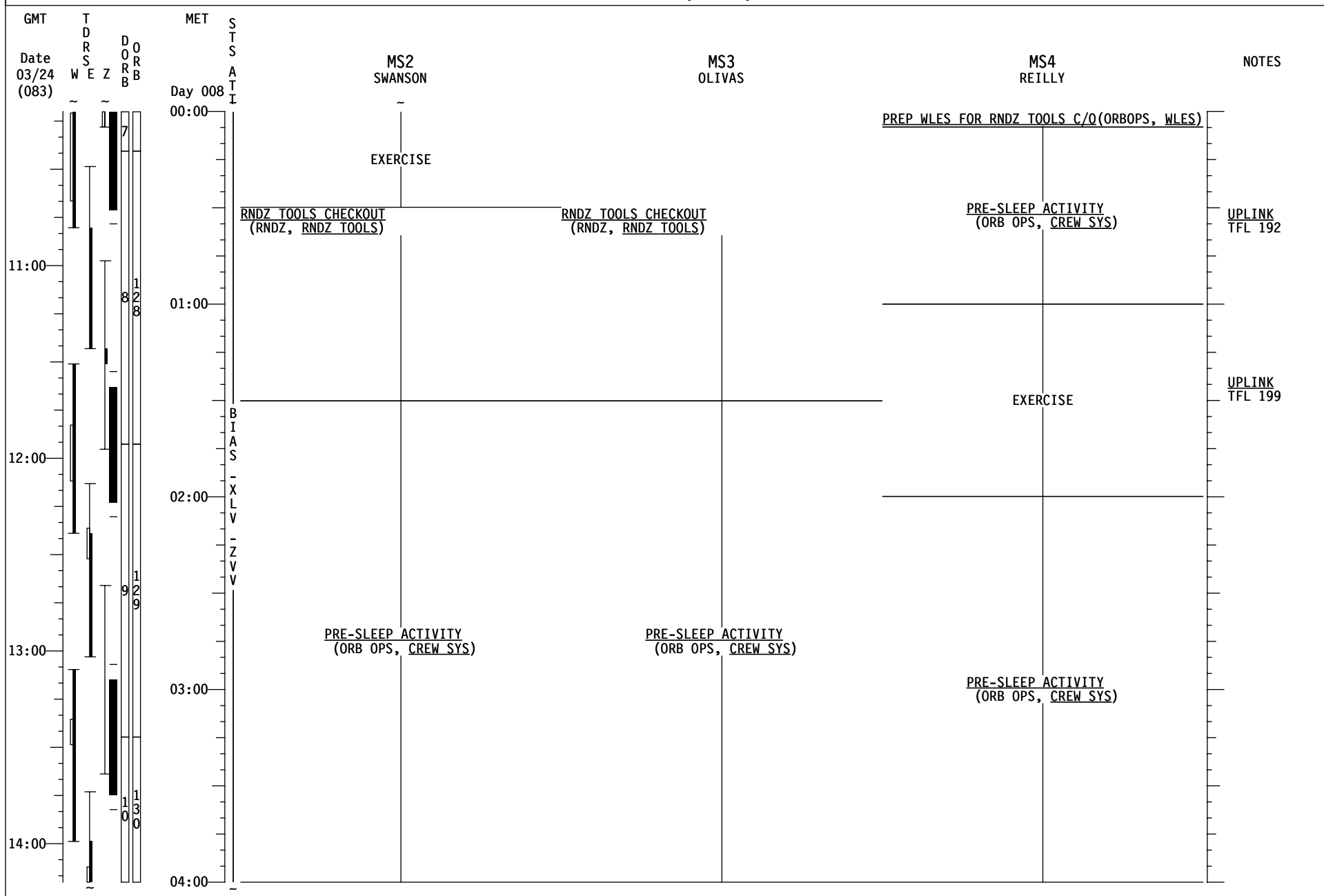
STS-117 (FD09)

GMT	TDRSZ	DORB	MET	STS	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/24 (083)	W	E	Day 007	A				
07:00			20:00	I	CWC OVERBOARD DUMP Setup (ORB OPS, ECLS) Perform Part A only	P/TV08 EXTERNAL SURVEY (PHOTO/TV, SCENES) Setup	JOINT OPS: 3.116 O2 HIGH PRESSURE TANK TRANSFER Step 3	
				S	POST EVA TRANSFER AND RECONFIG (EVA, AIRLOCK CONFIG)	P/TV08 EXTERNAL SURVEY (PHOTO/TV, SCENES)	REF: JOINT OPS: 3.118 OXYGEN TRANSFER TEARDOWN	
				A			PREP WLES LAPTOP FOR TRANSFER (ORB OPS, WLE SENSORS)	
			21:00	S			TRANSFER OPS Ref. Transfer List & MSG XXX	
				L		EXERCISE		
				V				
				-				
			22:00	V		ANALOG PAO CC (PHOTO/TV, SONY PD100)		
				-				
				S	CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	CREW CONFERENCE KU: XX:XX-XX:XX, TDRX	
				A				
			23:00	S	CREW PHOTO	CREW PHOTO	CREW PHOTO	
				L				
				V	FAREWELL	FAREWELL	FAREWELL	
				-				
				Z			4.103 DUCT REMOVAL & HATCH CLOSE (BYPASS CONFIG)	
				V	EXERCISE			
10:00				-				
			00:00	V				

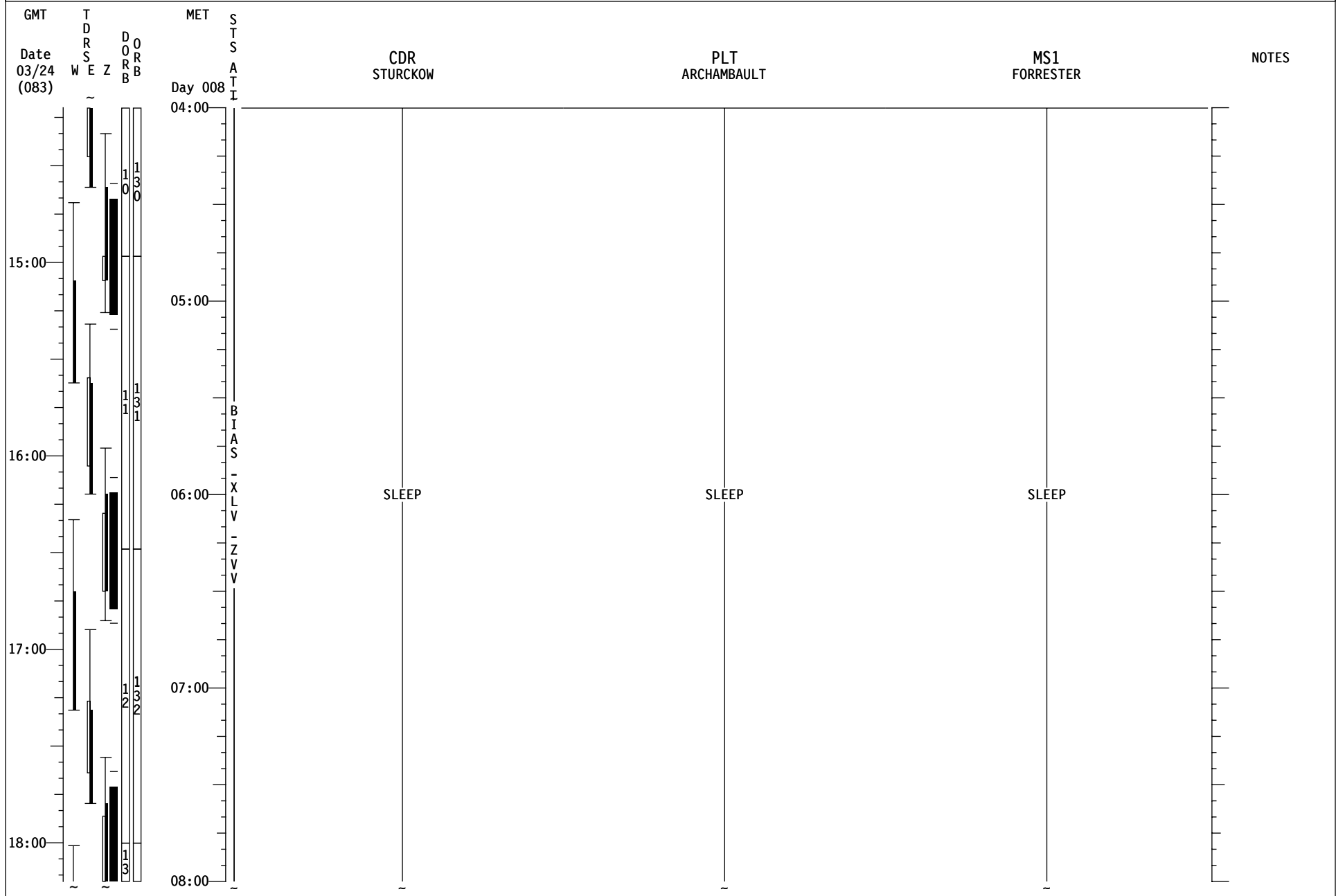
STS-117 (FD09)

GMT	TDRSEZ	DORB	MET	STS	CDR	PLT	MS1	NOTES
Date 03/24 (083)	W	E	Day 008	ATTI	STURCKOW	ARCHAMBAULT	FORRESTER	
00:00		7			<u>JOINT OPS: 3.110 H/O ATT CONTROL</u> <u>CMG TA TO ORB</u> <u>4.104 ODS VEST/PMA DPRS & HATCH</u> <u>LEAK CHECK</u>		<u>PRE-SLEEP ACTIVITY</u> <u>(ORB OPS, CREW SYS)</u>	<u>UPLINK</u> <u>TGT SV</u>
11:00		8				EXERCISE		
01:00		8			<u>SPLY H2O DUMP w/FES (ORBOPS) Stp 2, no FES</u> <u>JOINT OPS: 3.111 H/O ATT CONTROL</u> <u>ORB TO CMG TA</u> <u>COMM STRING 1 C/O (PART B)</u> <u>(ORB OPS, COMM/INST)</u>		EXERCISE	
12:00				BIAS	<u>PRE-SLEEP ACTIVITY</u> <u>(ORB OPS, CREW SYS)</u>			
02:00				XLV				
				VV	<u>Z 06 VUHF MODE - OFF</u> <u>PRIVATE MEDICAL CONFERENCE</u>	<u>PRE-SLEEP ACTIVITY</u> <u>(ORB OPS, CREW SYS)</u>	<u>PRE-SLEEP ACTIVITY</u> <u>(ORB OPS, CREW SYS)</u>	
13:00		9						
03:00					<u>PRE-SLEEP ACTIVITY</u> <u>(ORB OPS, CREW SYS)</u>			
14:00		10						
04:00								

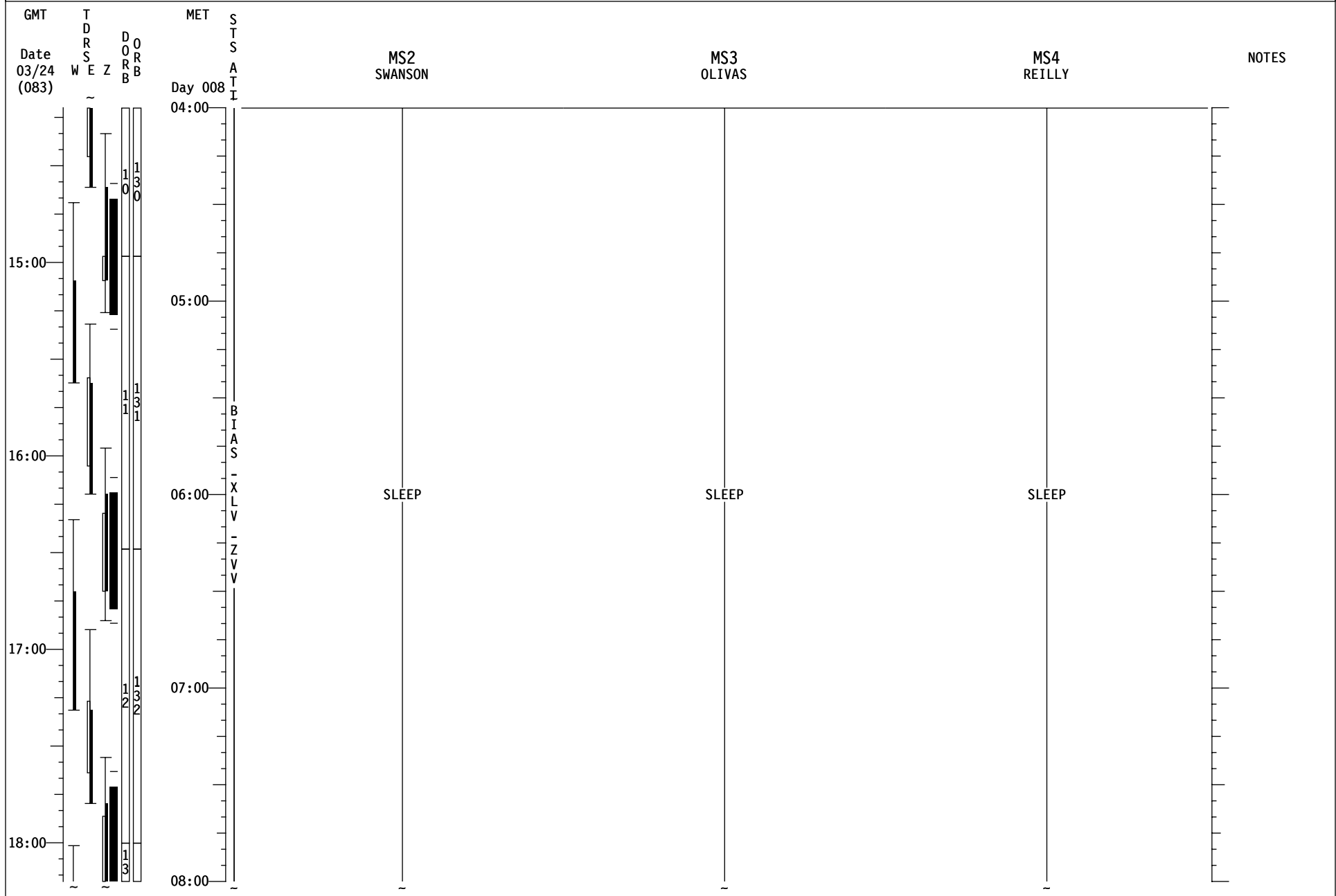
STS-117 (FD09)



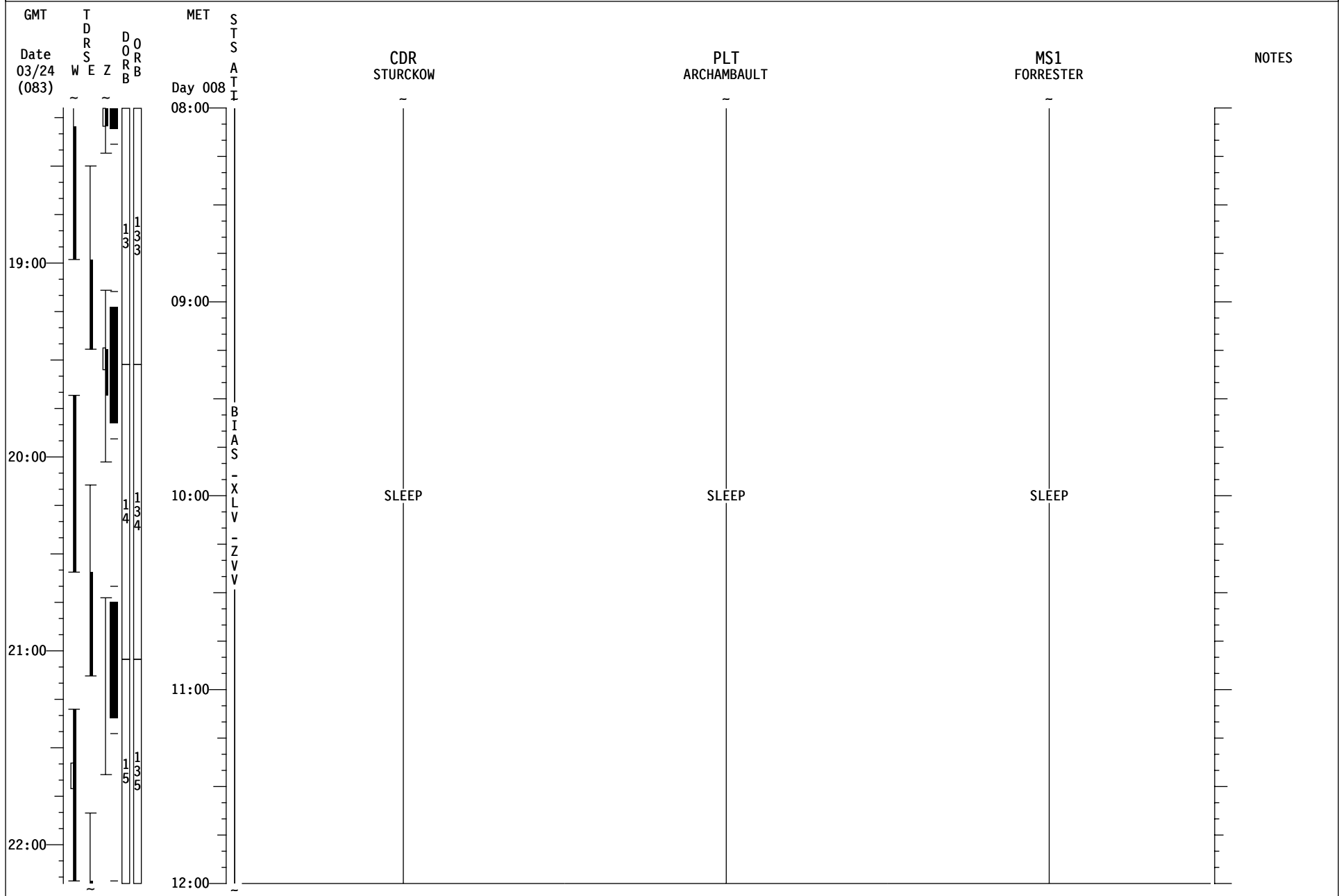
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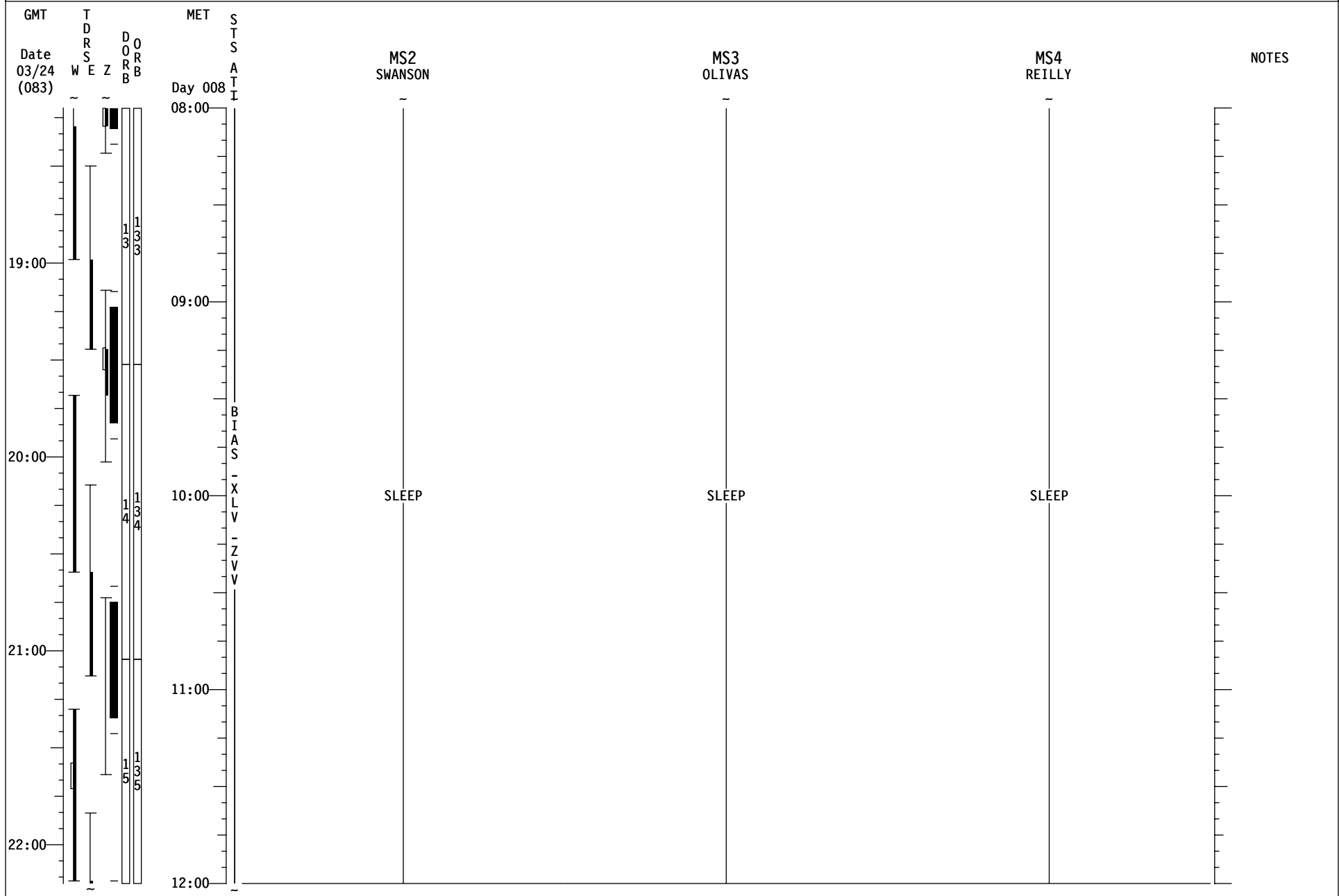
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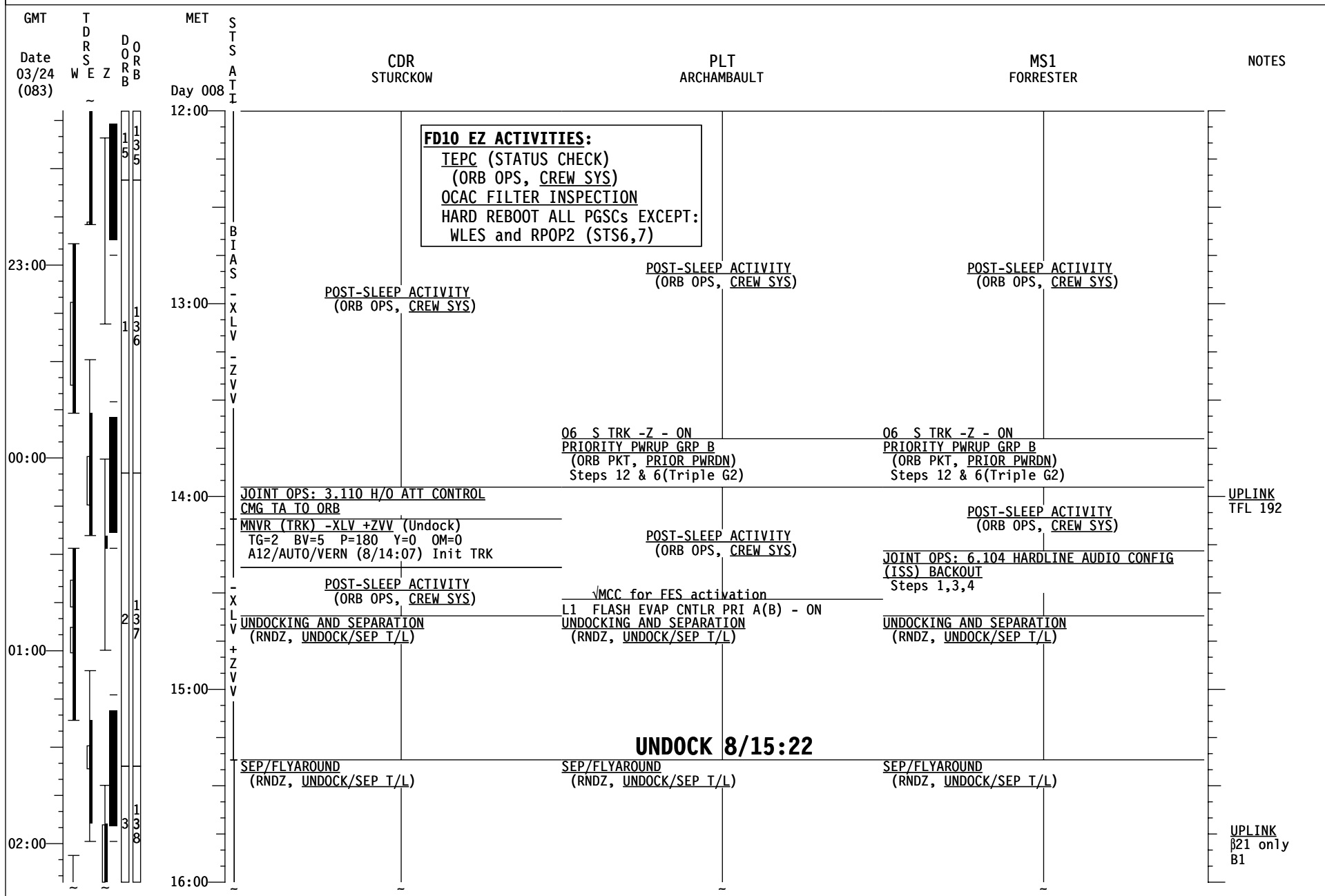
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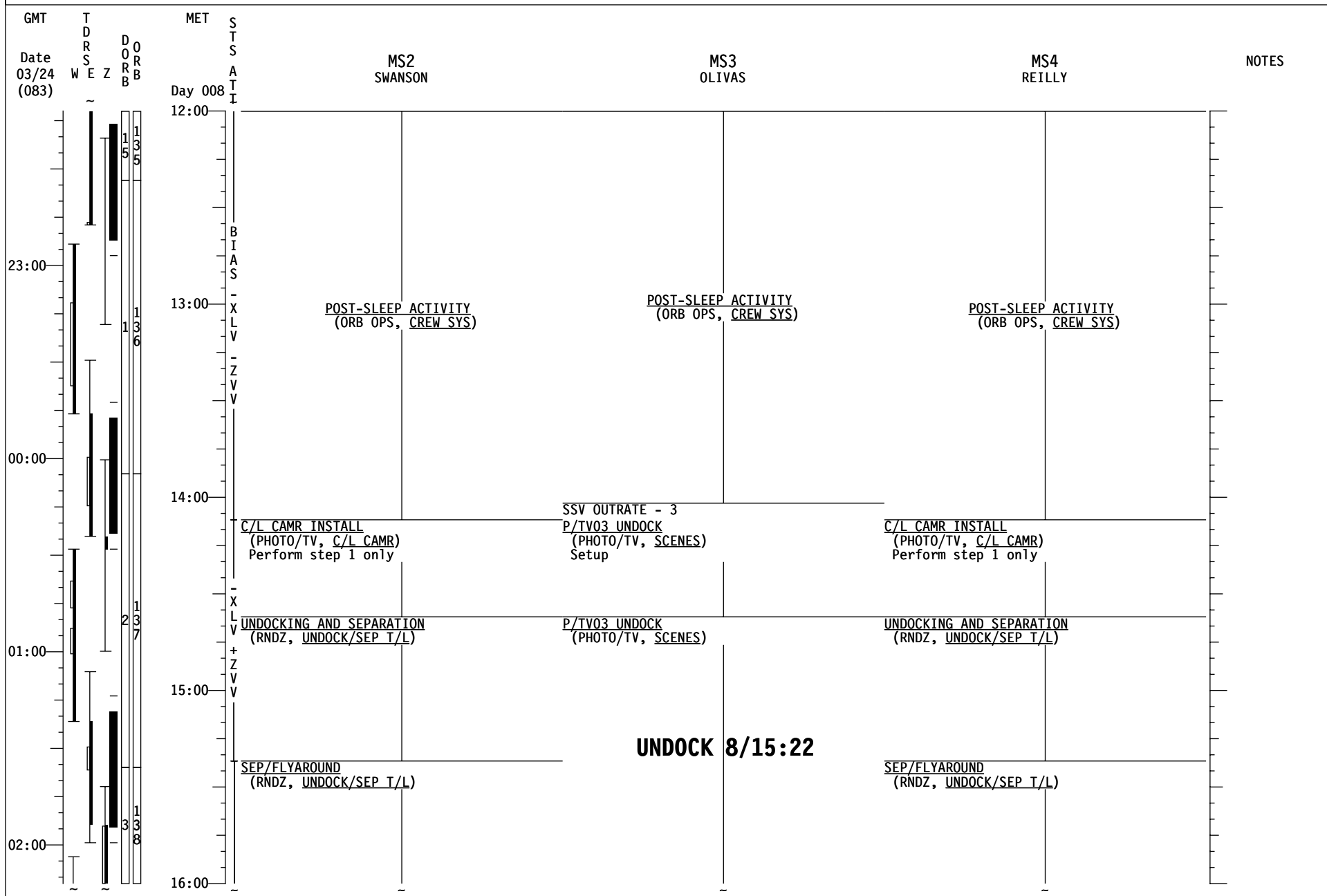
STS-117 (FD09)



STS-117 (FD10)



STS-117 (FD10)



STS-117 (FD10)

GMT	TDRS W E Z	DORB	MET	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/25 (084)			Day 008					
16:00					SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	
					SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	
03:00					< SEP 1 8/16:37			
					< SEP 2 8/17:05			
17:00					SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS) Perform TEARDOWN	PRIORITY PWRDN_GRP B (ORB PKT, PRIOR PWRDN) Steps 5,6(Single G2),9,10 & 12	JOINT OPS: 6.106 SSOR DEACTIVATION	UPLINK β21 + Mask
						CABIN TEMP CONTROLLER RECNG 2(1) (ORB OPS, ECLS)	SSPI OIU PWR - OFF (tb-bp) Expect S62 BCE BYP PSP 1	UPLINK TFL 188
04:00								
18:00					MEAL	MEAL	MEAL	
05:00						OBSS UNBERTH (PDRS, OBSS NOM OPS)	OBSS UNBERTH (PDRS, OBSS NOM OPS)	UPLINK β21 only Box A2
19:00					SPLY H2O DUMP w/FES (ORBOPS) Stp 1, Pri A			
					MNVR (TRK) BIAS +YSI (STBD Survey) TG=4 BV=5 P=0 Y=40 OM=54 A14/AUTO/VERN Init TRK	OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)	OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)	UPLINK β21 only Box A3
06:00								
20:00								

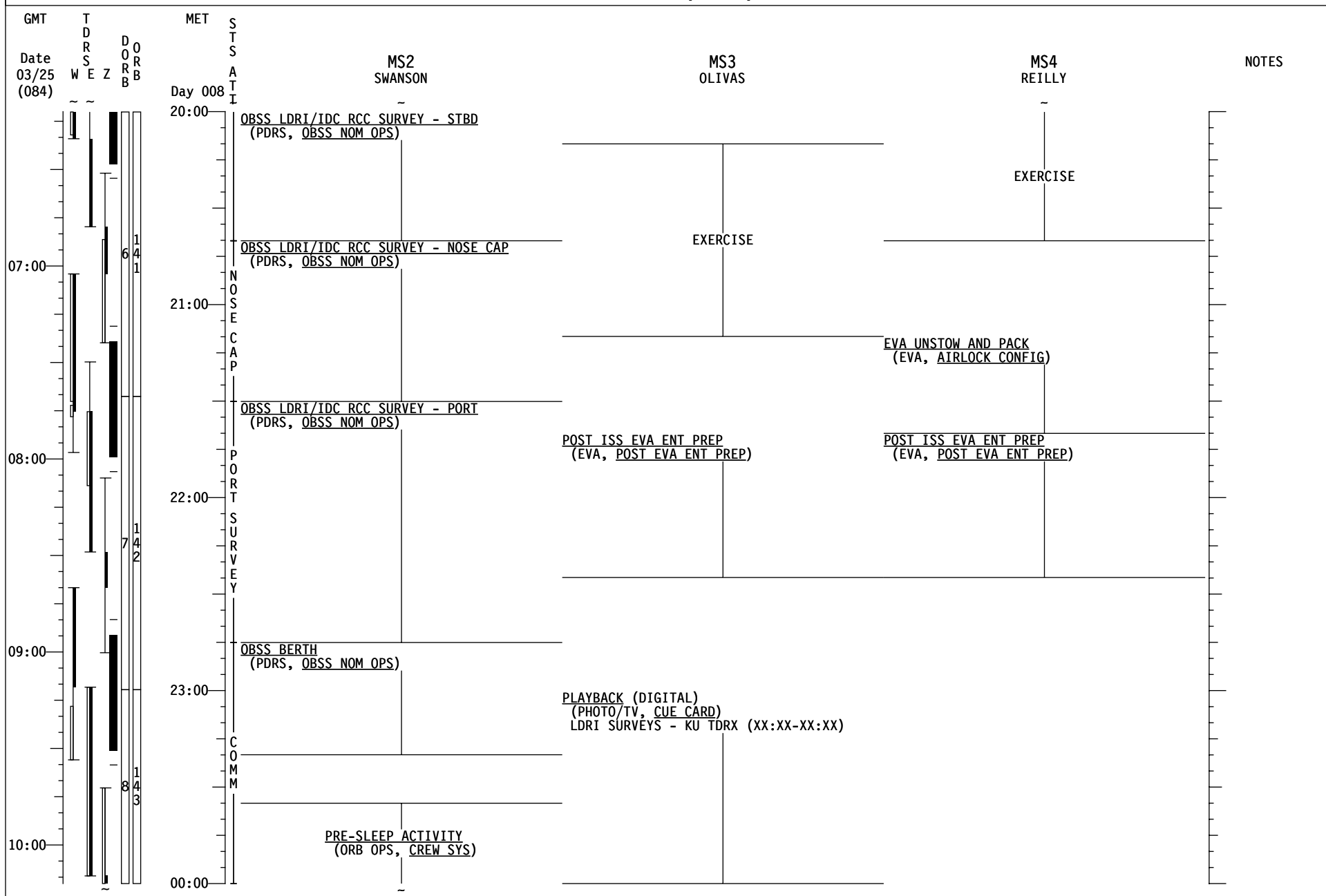
STS-117 (FD10)

GMT	TDRS W E Z	DORB	MET	STS A T I	MS2 SWANSON	MS3 OLIVAS	MS4 REILLY	NOTES
Date 03/25 (084)			Day 008					
16:00					SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	P/TV03 UNDOCK (PHOTO/TV, SCENES)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	
					SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	SEP/FLYAROUND (RNDZ, UNDOCK/SEP T/L)	
03:00					< SEP 1 8/16:37			
17:00					< SEP 2 8/17:05			
					PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN) Steps 5,6(Single G2),9,10 & 12	L17 Check MCIU filter screen SSV OUTFATE - 4 RMS PWRUP	EMU INSTALLATION (EVA, AIRLOCK CONFIG)	
					HEATER RECONFIG-CONFIG B (ORB OPS, EPS) WLES RCNFG PST UNDOCK (ORB OPS, WLES)	(PDRS, RMS PWRUP)		
04:00								
18:00					MEAL	MEAL	MEAL	
05:00					POST UNDOCK PGSC CONFIG Configure PGSCs	P/TV03 UNDOCK (PHOTO/TV, SCENES) Deactivation	C/L CAMR INSTALL (PHOTO/TV, C/L CAMR) Step 4 only	
19:00								
					OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)			
06:00							EXERCISE	
20:00								

STS-117 (FD10)

GMT	TDRS W E Z	DORB D O R B	MET Day 008	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
07:00		141		NOSE CAP	<p>MNVR (TRK) BIAS +XSI (Nose Cap Survey) TG=4 BV=5 P=304 Y=0 OM=125 A14/AUTO/VERN Init TRK</p>	<p>OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)</p>	<p>OBSS LDRI/IDC RCC SURVEY - NOSE CAP (PDRS, OBSS NOM OPS)</p>	UPLINK β12 only
08:00		742		PORT SURVEY	<p>MNVR (TRK) BIAS -YSI (Port Survey) TG=4 BV=5 P=0 Y=323 OM=30 A14/AUTO/VERN Init TRK</p>	<p>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS NOM OPS)</p>	<p>OBSS LDRI/IDC RCC SURVEY - PORT (PDRS, OBSS NOM OPS)</p>	UPLINK β21 only Box A2
09:00		843		COM M	<p>EXERCISE</p>			
				C O M M	<p>MNVR (TRK) SUN TRACK (LDRI Downlink) TG=4 BV=5 P=114 Y=0 OM=25 A1/AUTO/VERN Init TRK</p>		<p>OBSS BERTH (PDRS, OBSS NOM OPS)</p>	
				C O M M	<p>IMU STAR OF OPPTY ALIGN (ORB OPS) CAB PRESS MAINT TBD</p>	<p>EXERCISE</p>		
				C O M M	<p>RCS REG RCNFG (ORB OPS, RCS)</p>		<p>RMS PWRDWN (PDRS, RMS PWRDN) Note: Do not stow MPM's</p>	
10:00				C O M M	<p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>			UPLINK β21 + Mask
20:00				C O M M		<p>OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)</p>	<p>OBSS LDRI/IDC RCC SURVEY - STBD (PDRS, OBSS NOM OPS)</p>	

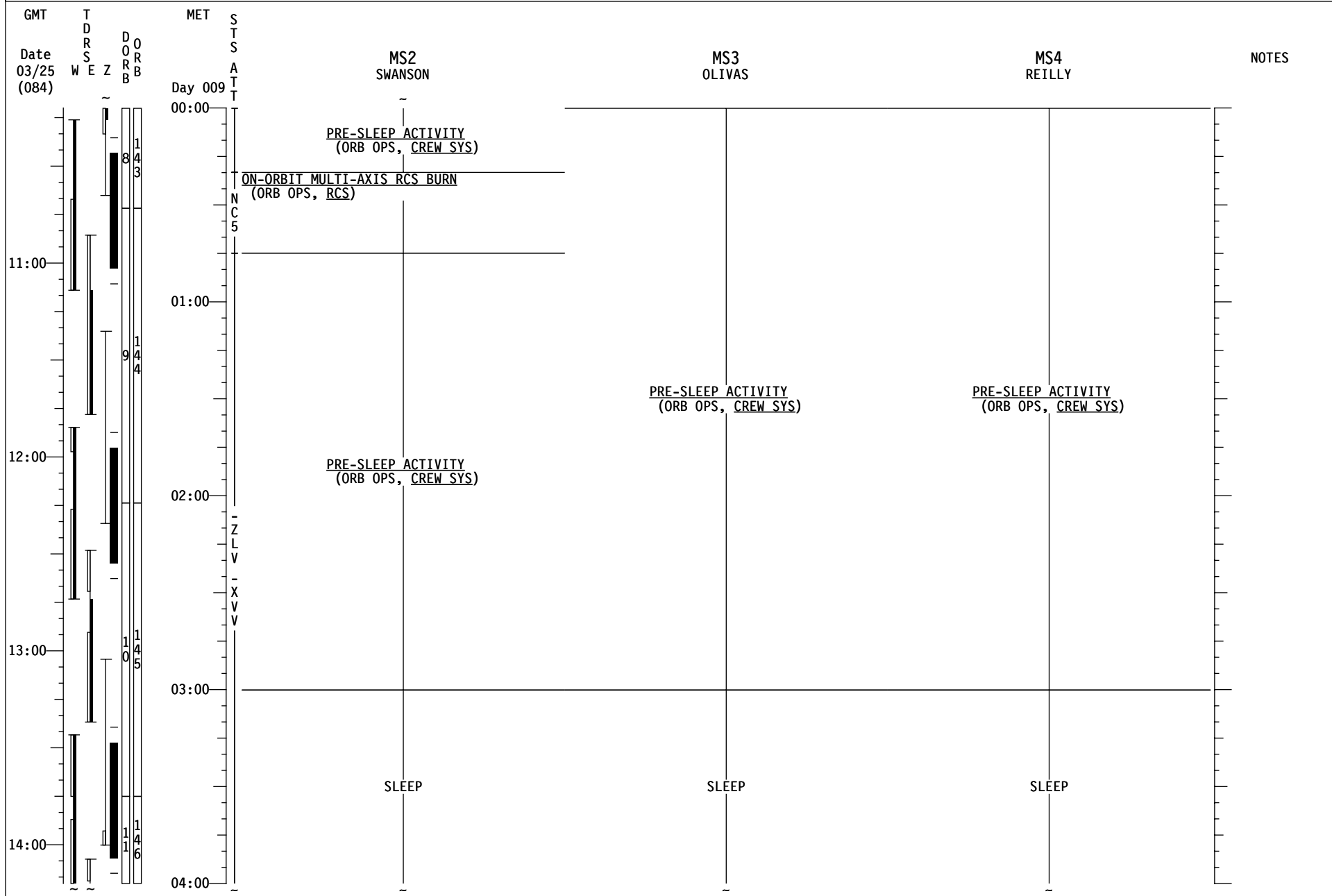
STS-117 (FD10)



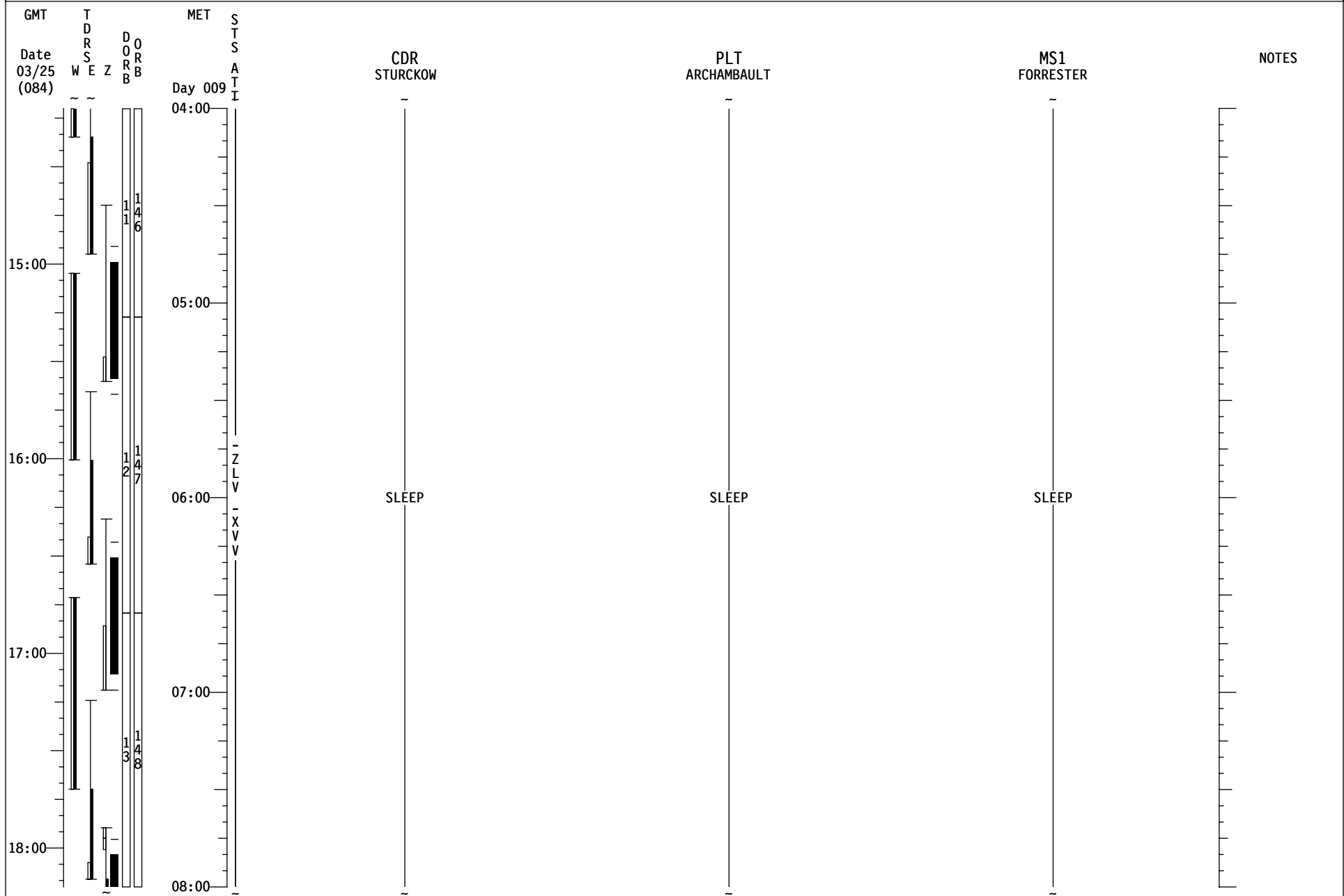
STS-117 (FD10)

GMT	TDRS W E Z	DORB 1 4 3	MET Day 009	STS A T T	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
00:00					MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A14/AUTO/VERN (9/00:00) Init TRK			
					ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
11:00					< NC5 TIG (9/00:41)			
					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	SPLY H2O DUMP w/FES (ORBOPS) Stp 2, w/FES		
01:00					06 VUHF MODE - OFF PRIVATE MEDICAL CONFERENCE			
							PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
12:00								
					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
02:00								
13:00								
03:00								
					SLEEP	SLEEP	SLEEP	
14:00								
04:00								

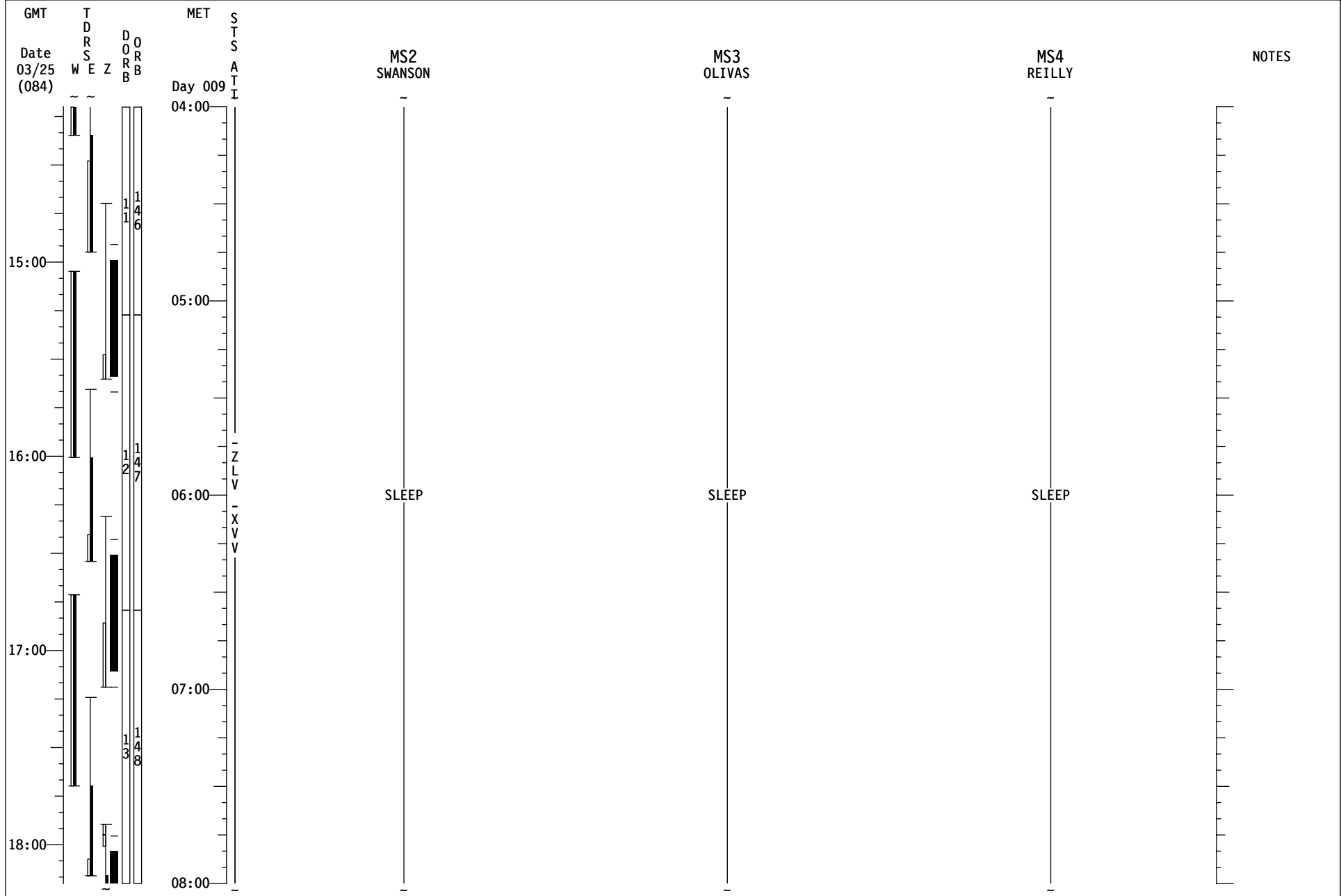
STS-117 (FD10)



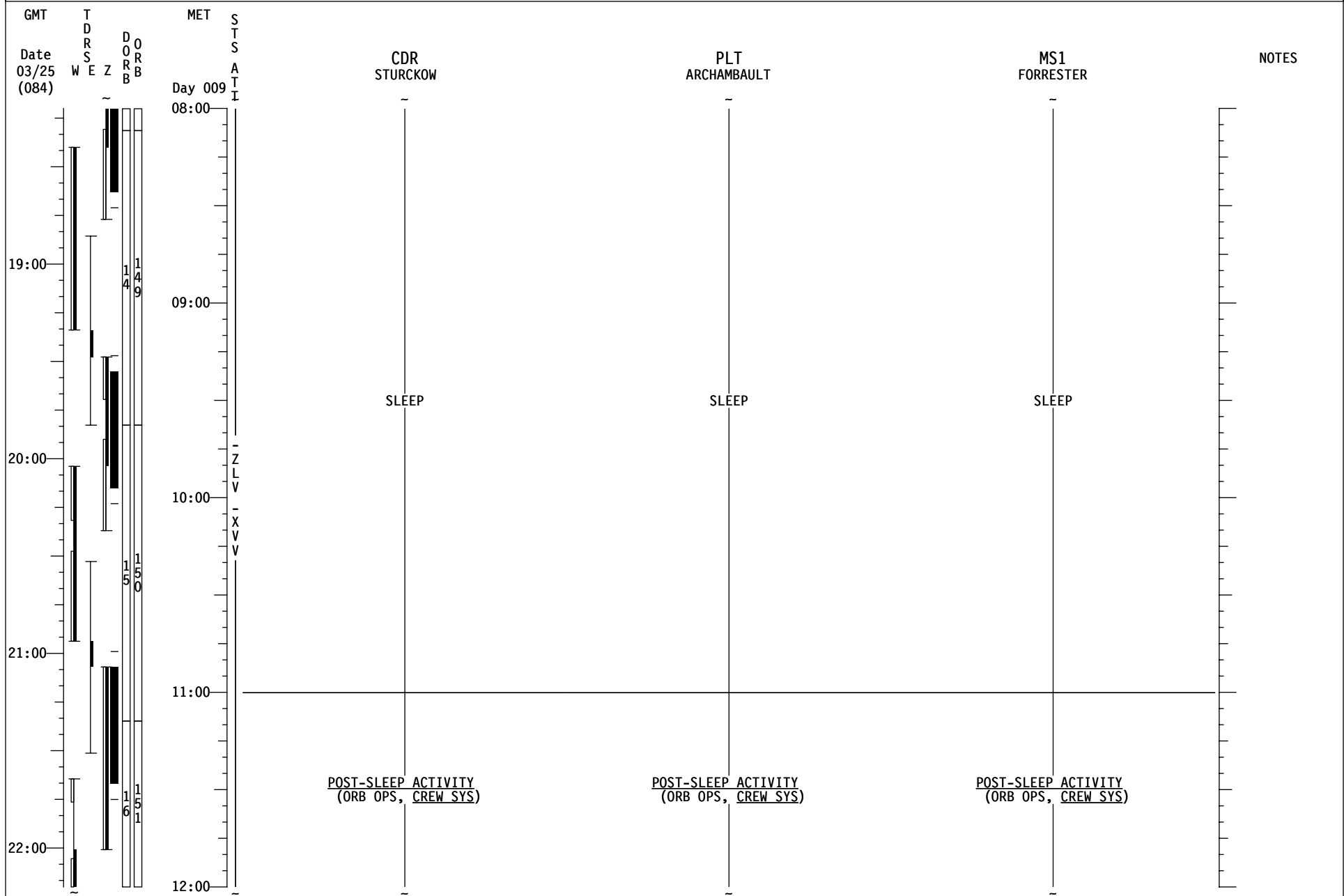
STS-117 (FD10)



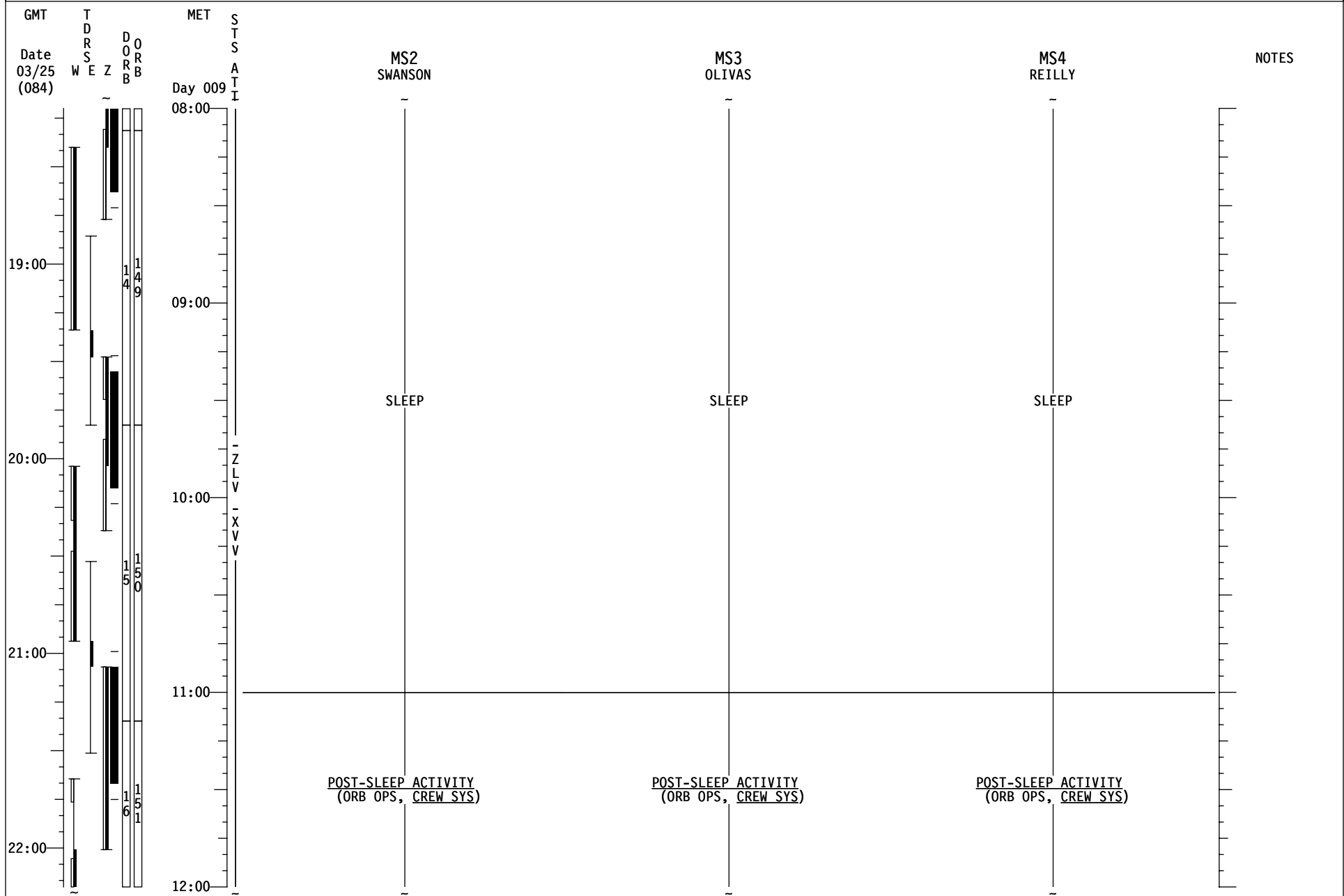
STS-117 (FD10)



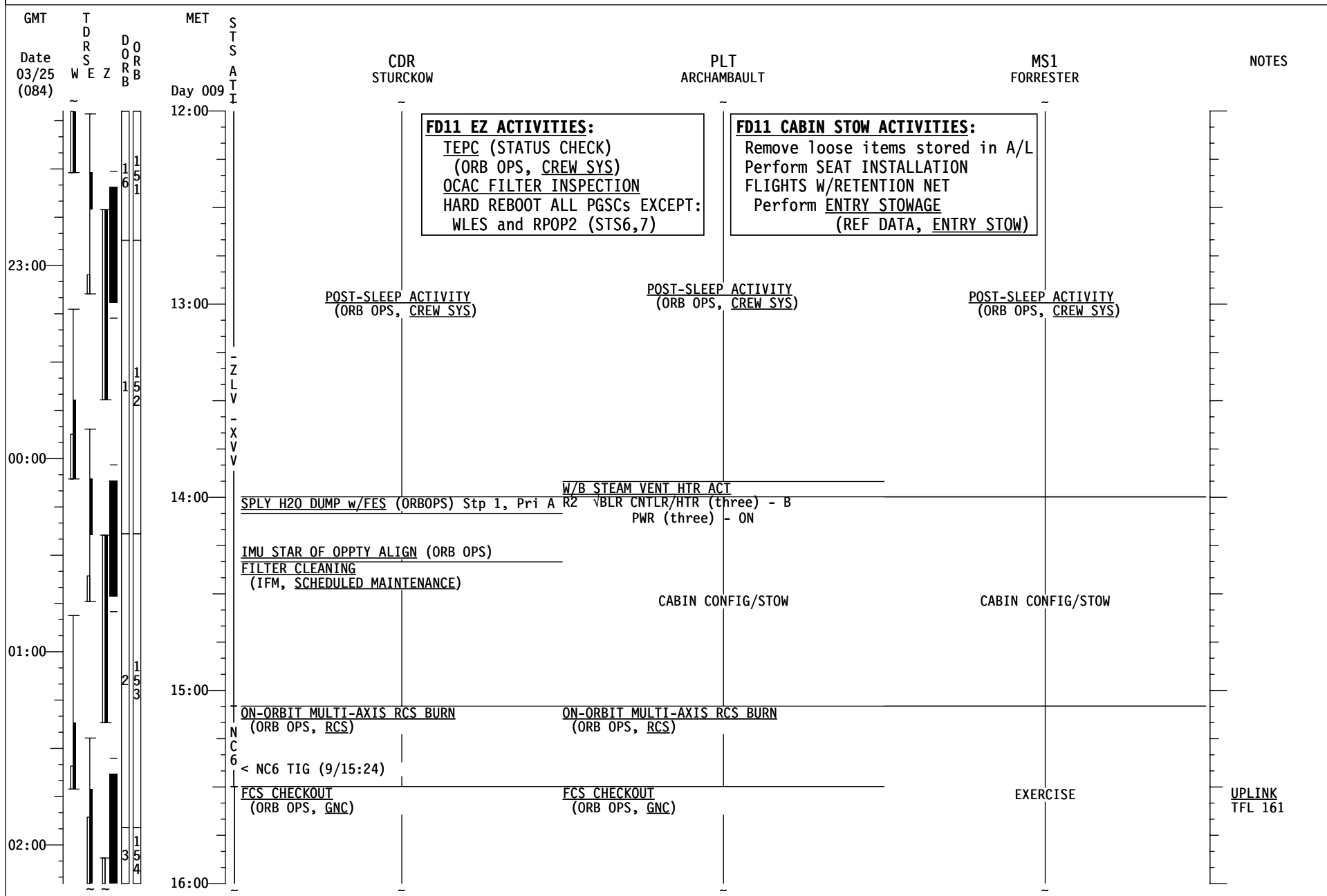
STS-117 (FD11)



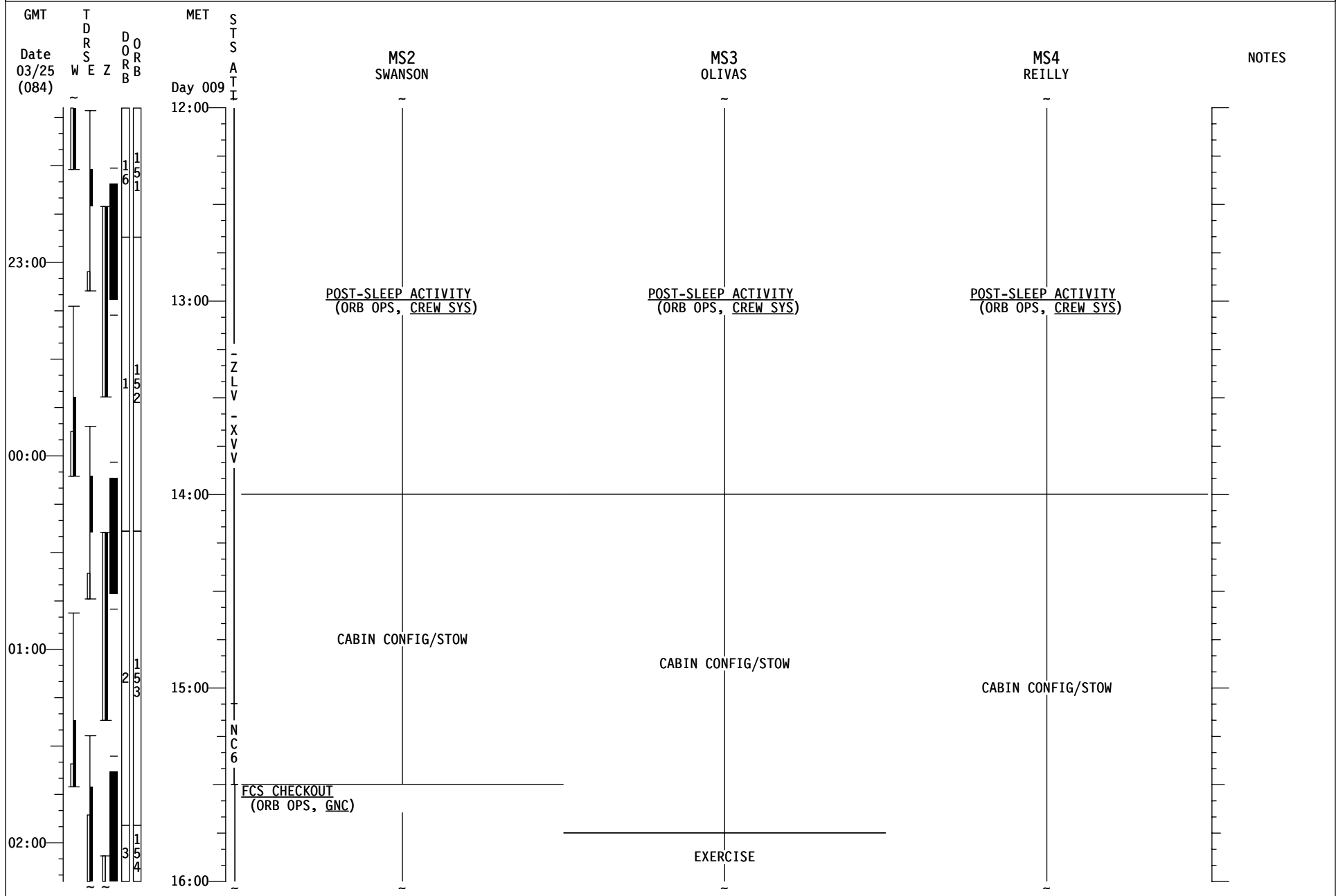
STS-117 (FD11)



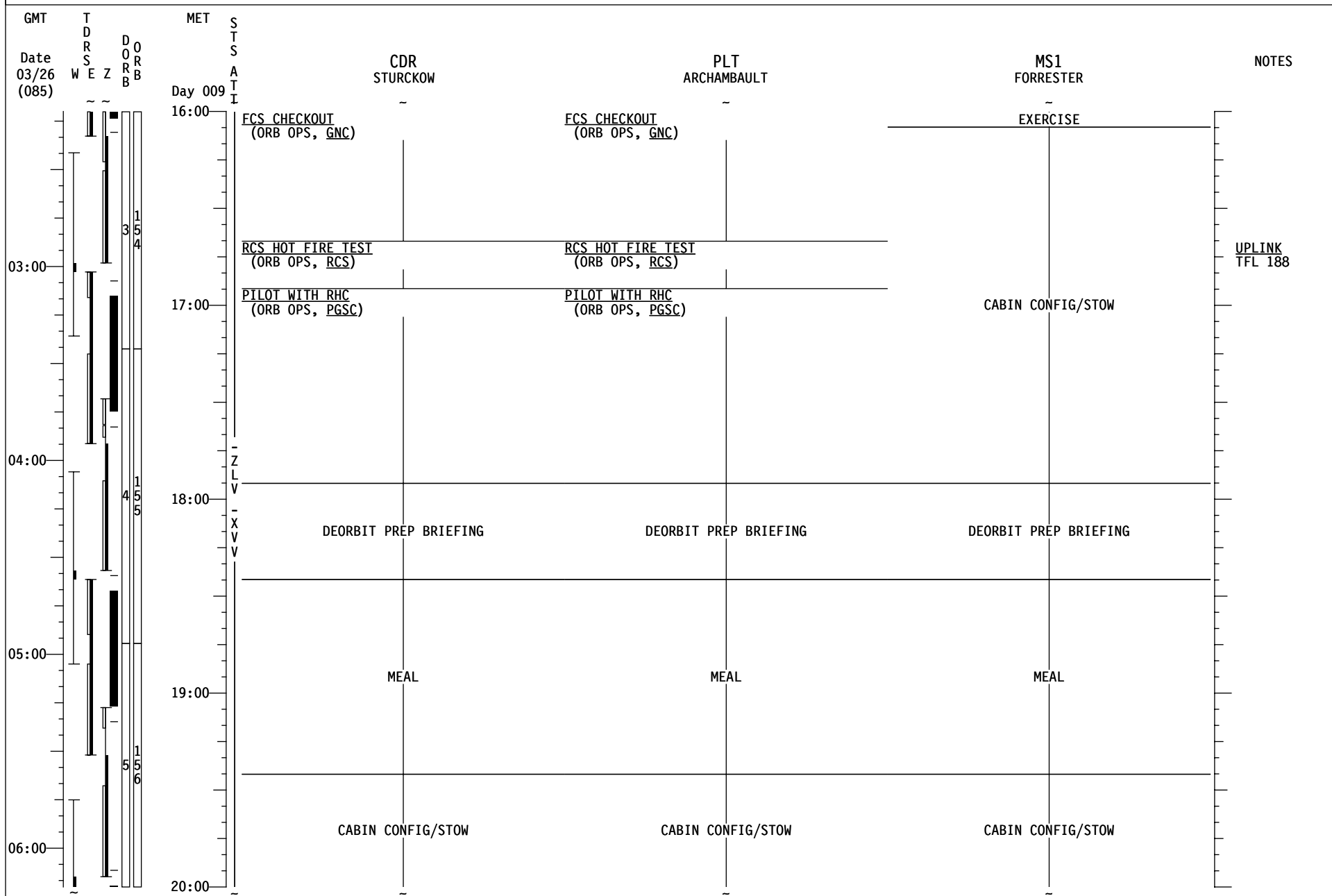
STS-117 (FD11)



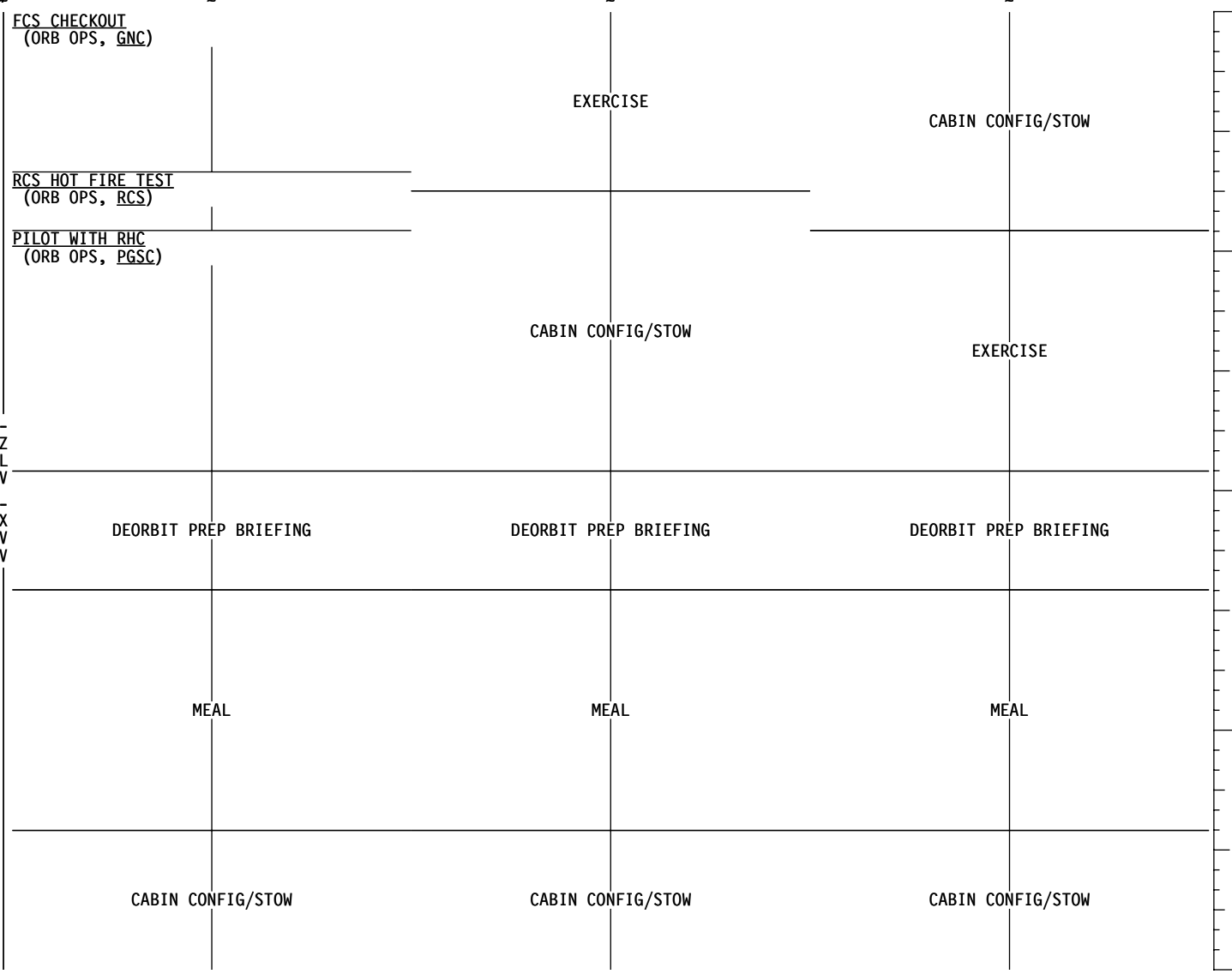
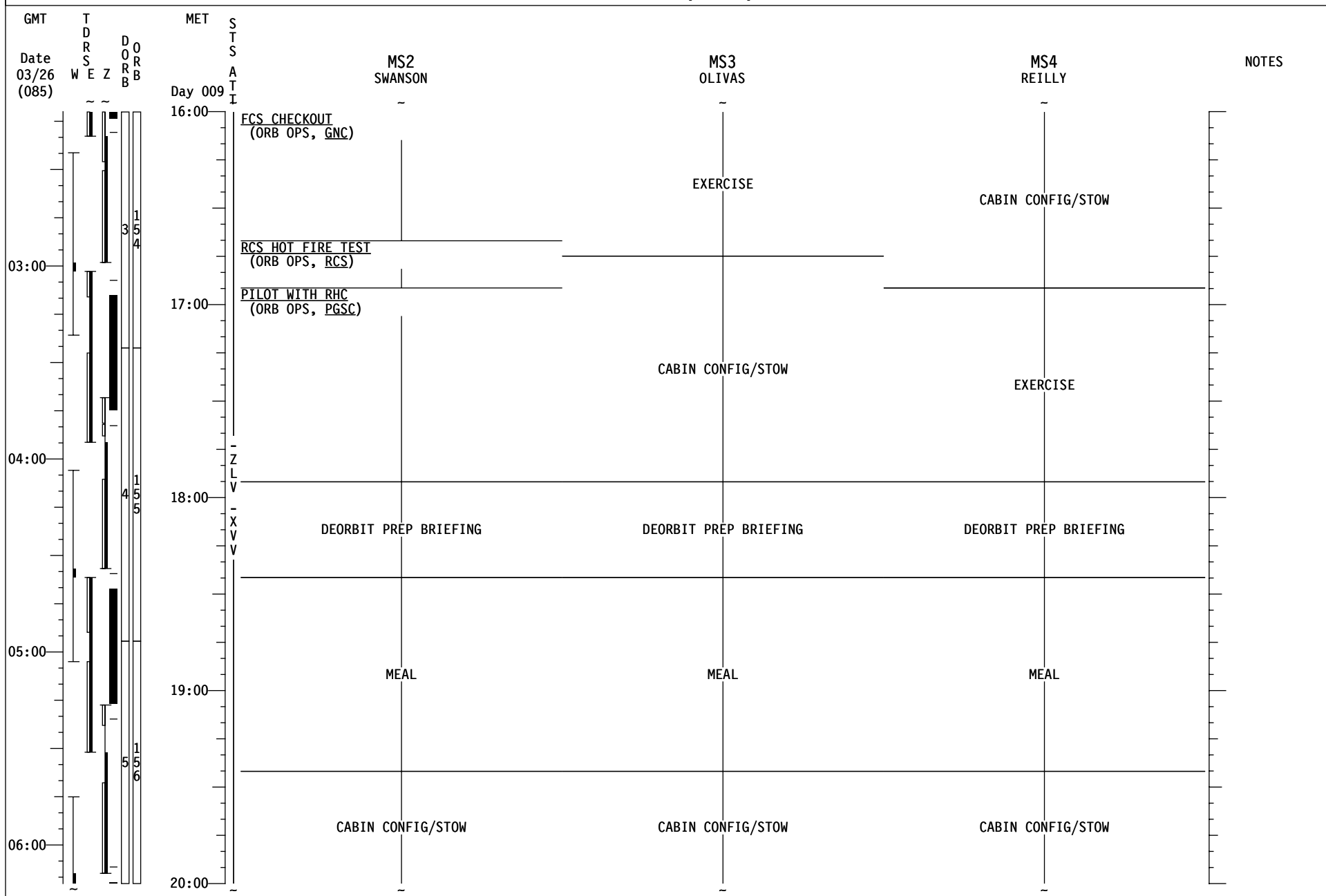
STS-117 (FD11)



STS-117 (FD11)



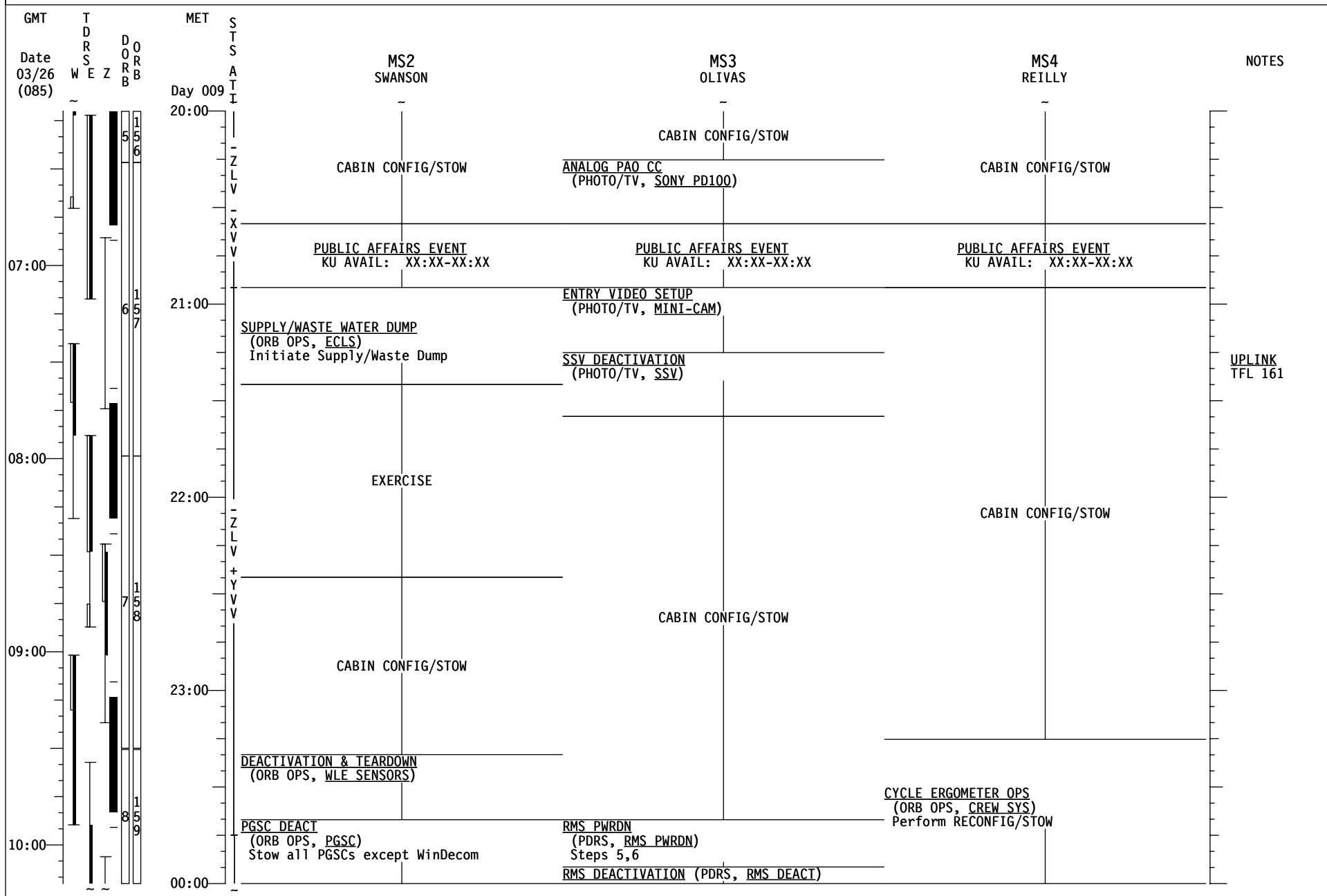
STS-117 (FD11)



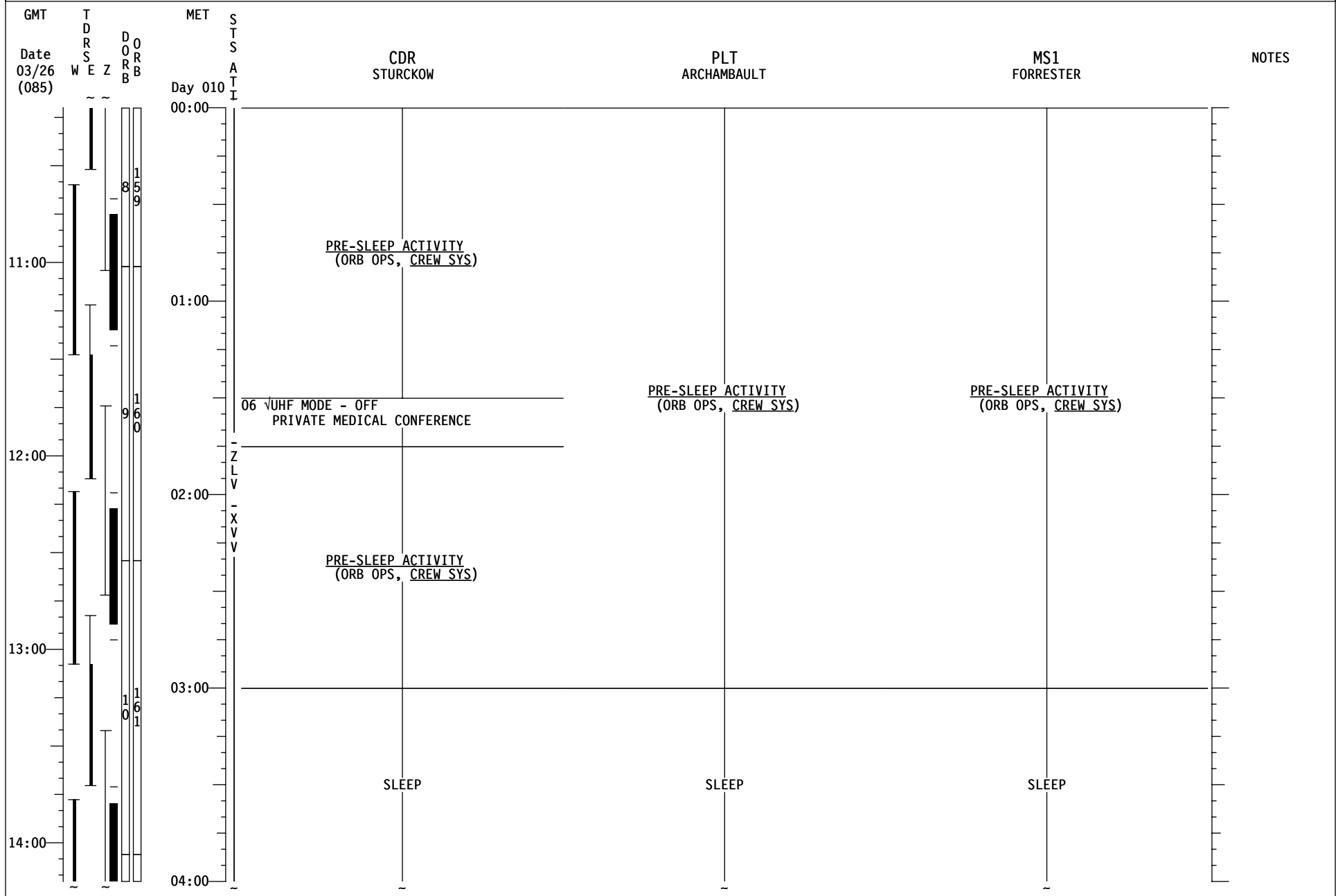
STS-117 (FD11)

GMT	TDRS W E Z	DORB	MET	STS A T I	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES
Date 03/26 (085)			Day 009					
20:00		156			CABIN CONFIG/STOW			
			ZLV		<u>LANDING-1 COMM C/O</u> (ORB OPS, <u>COMM/INST</u>)	CABIN CONFIG/STOW	CABIN CONFIG/STOW	
07:00			XVV		<u>PUBLIC AFFAIRS EVENT</u> KU AVAIL: XX:XX-XX:XX	<u>PUBLIC AFFAIRS EVENT</u> KU AVAIL: XX:XX-XX:XX	<u>PUBLIC AFFAIRS EVENT</u> KU AVAIL: XX:XX-XX:XX	
		157			<u>MNVR (TRK) -ZLV +YVV (Simo Dump)</u> TG=2 BV=3 OM=270 A1/AUTO/VERN (9/20:55) Init TRK			
					<u>SPLY H2O DUMP w/FES (ORBOPS) Stp 2, w/FES</u>			
					CABIN CONFIG/STOW	EXERCISE		
08:00			ZLV		<u>LANDING-1 COMM C/O</u> (ORB OPS, <u>COMM/INST</u>)			
							CABIN CONFIG/STOW	
		158	YVV		EXERCISE	<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, <u>ECLS</u>) Terminate Waste Dump Part I Steps 1,2 only		
						<u>CWC OVERBOARD DUMP</u> (ORB OPS, <u>ECLS</u>) Dump SN XXX REF MSG XXX		
09:00								
					<u>CAB PRESS MAINT</u> TBD			
					C3 MASTER MADS POWER - ON A6L MADS STRAIN GAGE - ON		<u>KU-BD ANT STOW (ORB OPS, <u>COMM/INST</u>)</u> Deactivate CCTV	
		159			CABIN CONFIG/STOW	<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, <u>ECLS</u>) Terminate Supply Dump Parts H,J only	<u>CYCLE ERGOMETER OPS</u> (ORB OPS, <u>CREW_SYS</u>) Perform RECONFIG/STOW	
10:00						<u>MNVR (TRK) -ZLV -XVV</u> TG=2 BV=3 OM=0 A1/AUTO/VERN (9/23:45) Init TRK		
00:00								

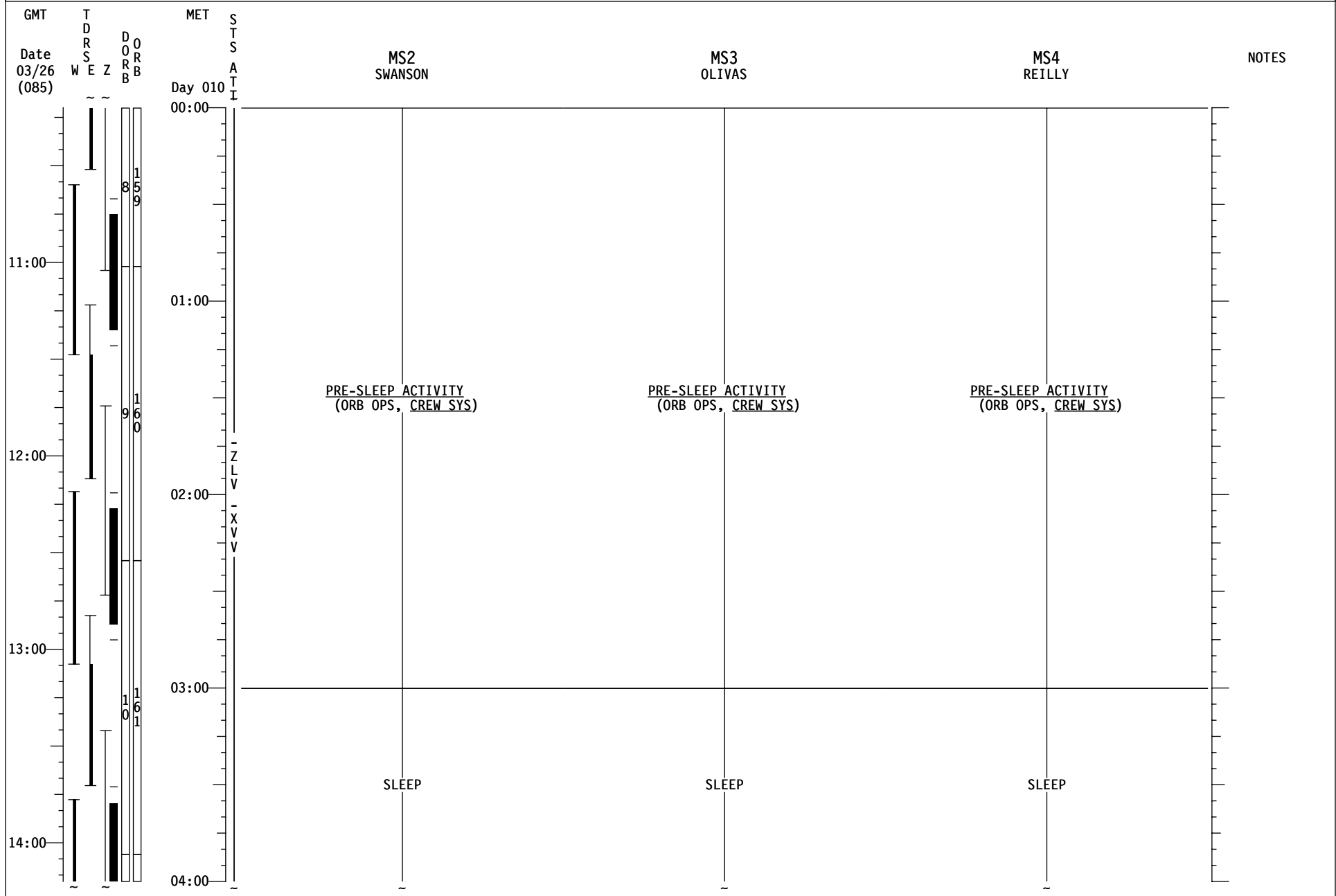
STS-117 (FD11)



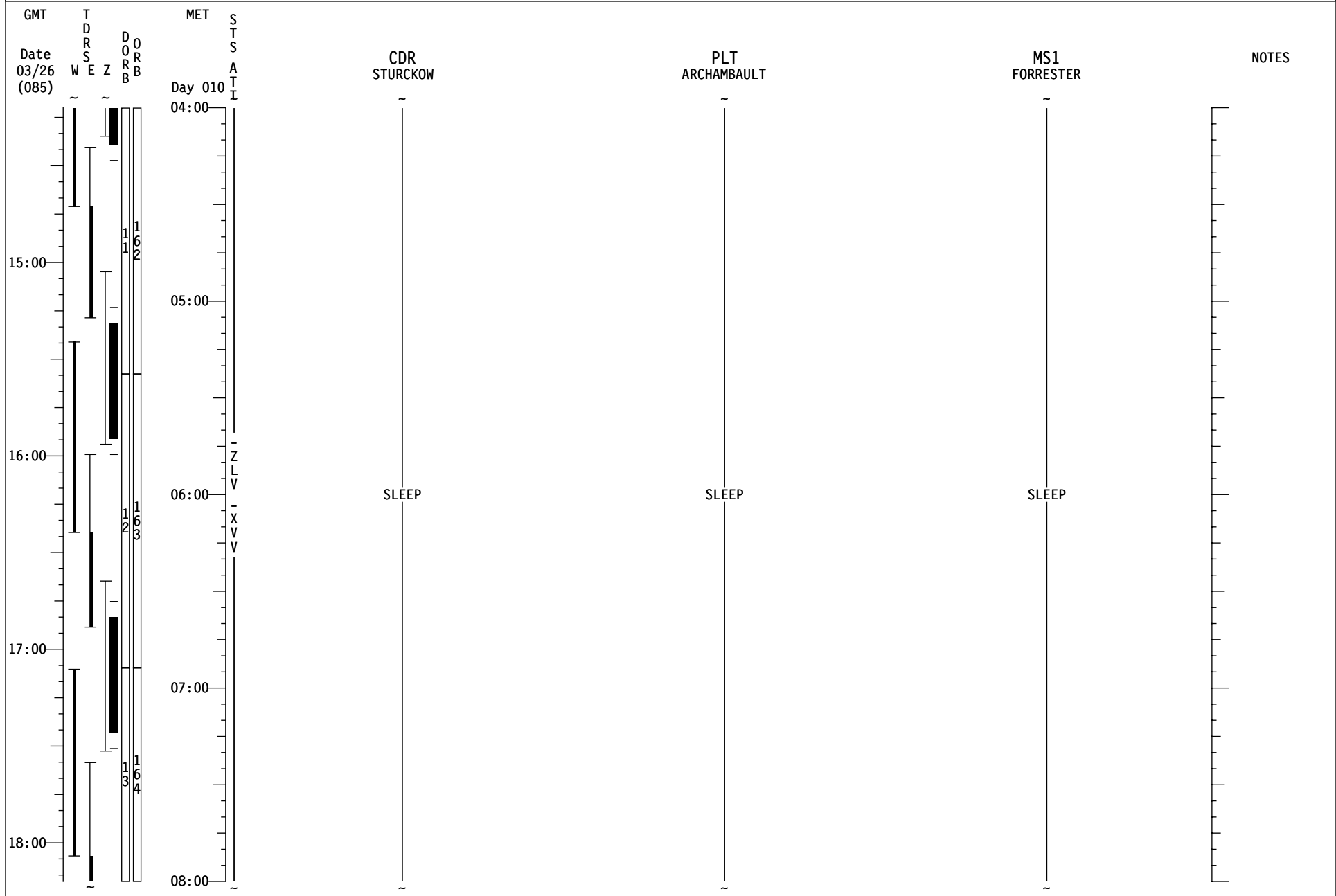
STS-117 (FD11)



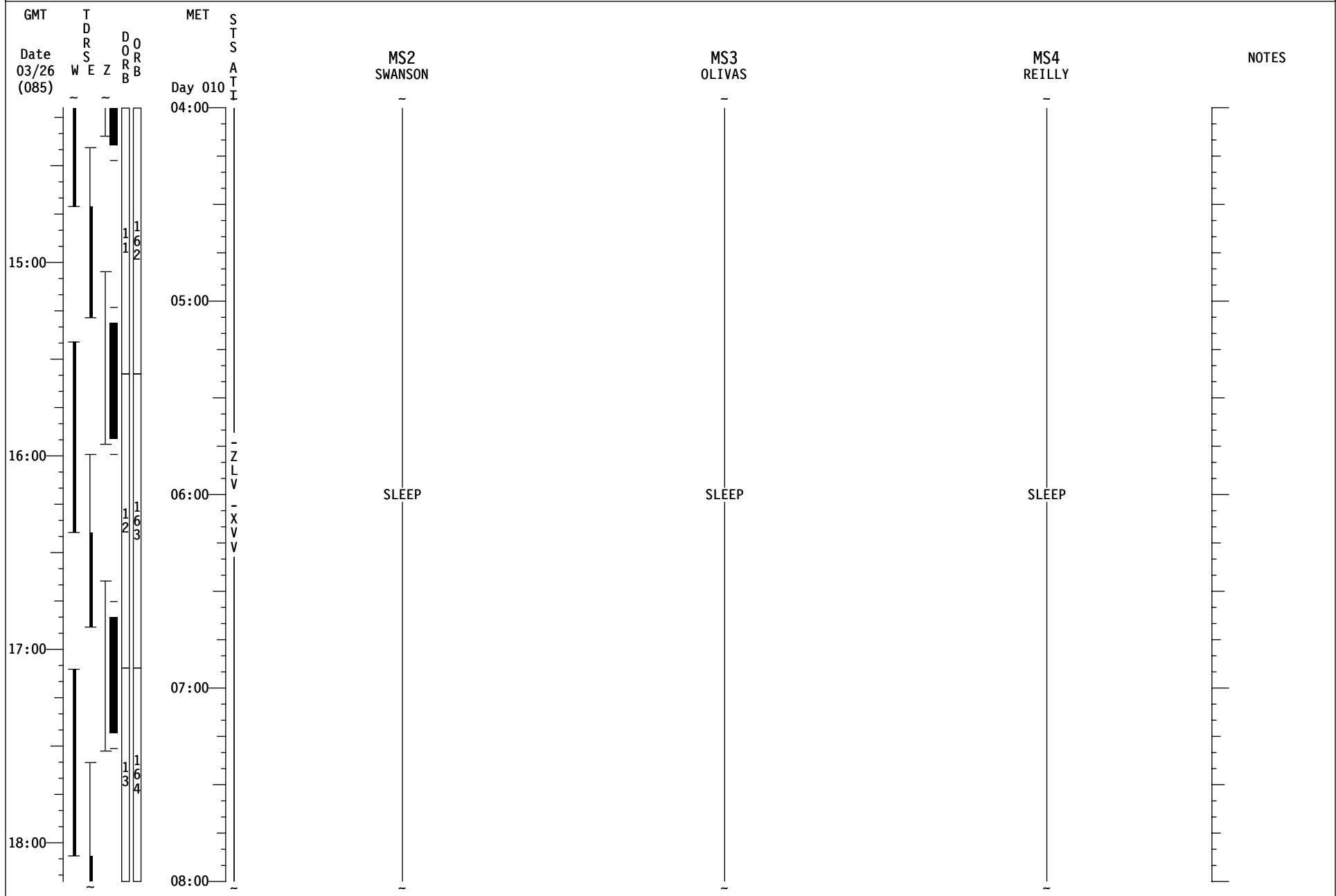
STS-117 (FD11)



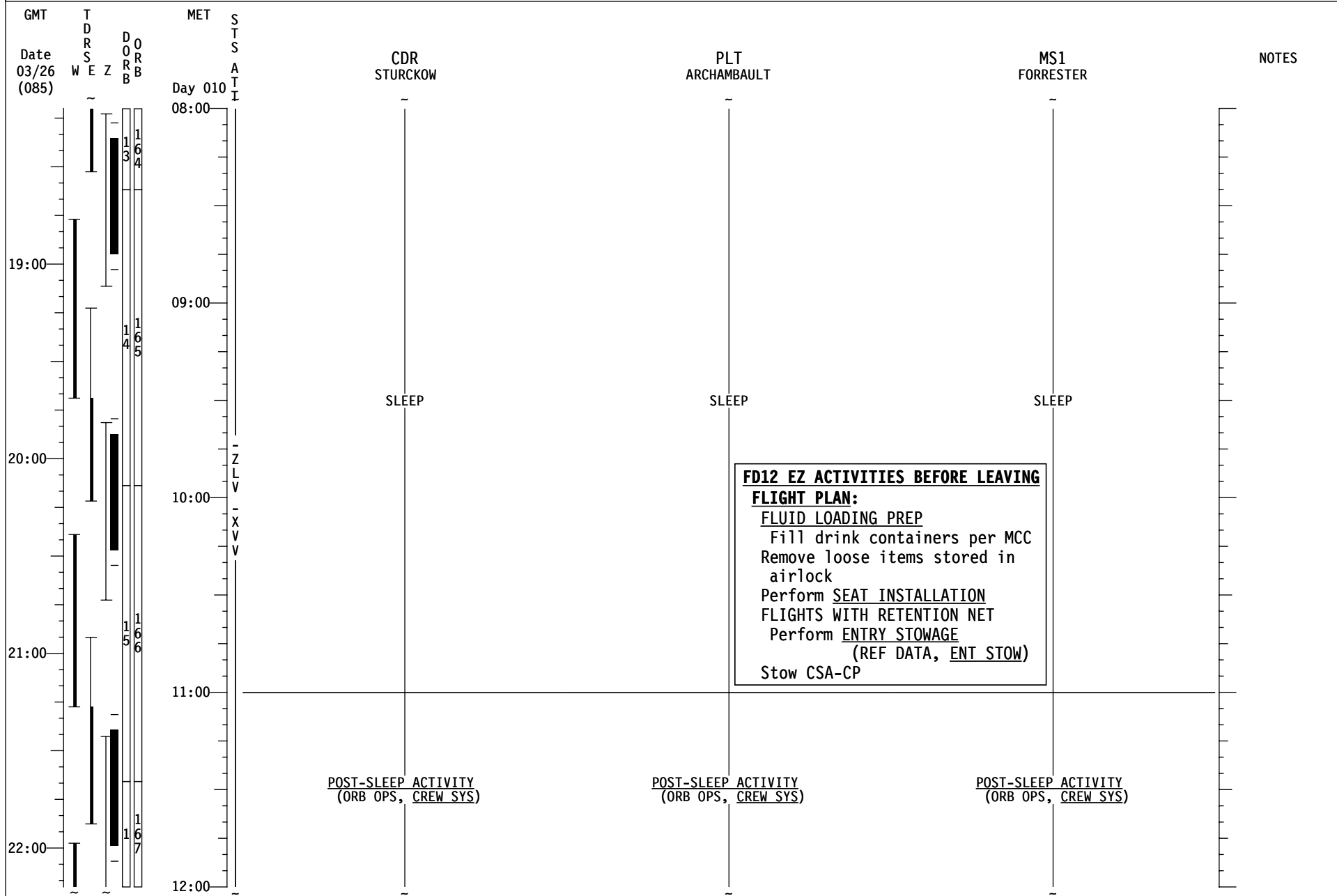
STS-117 (FD11)



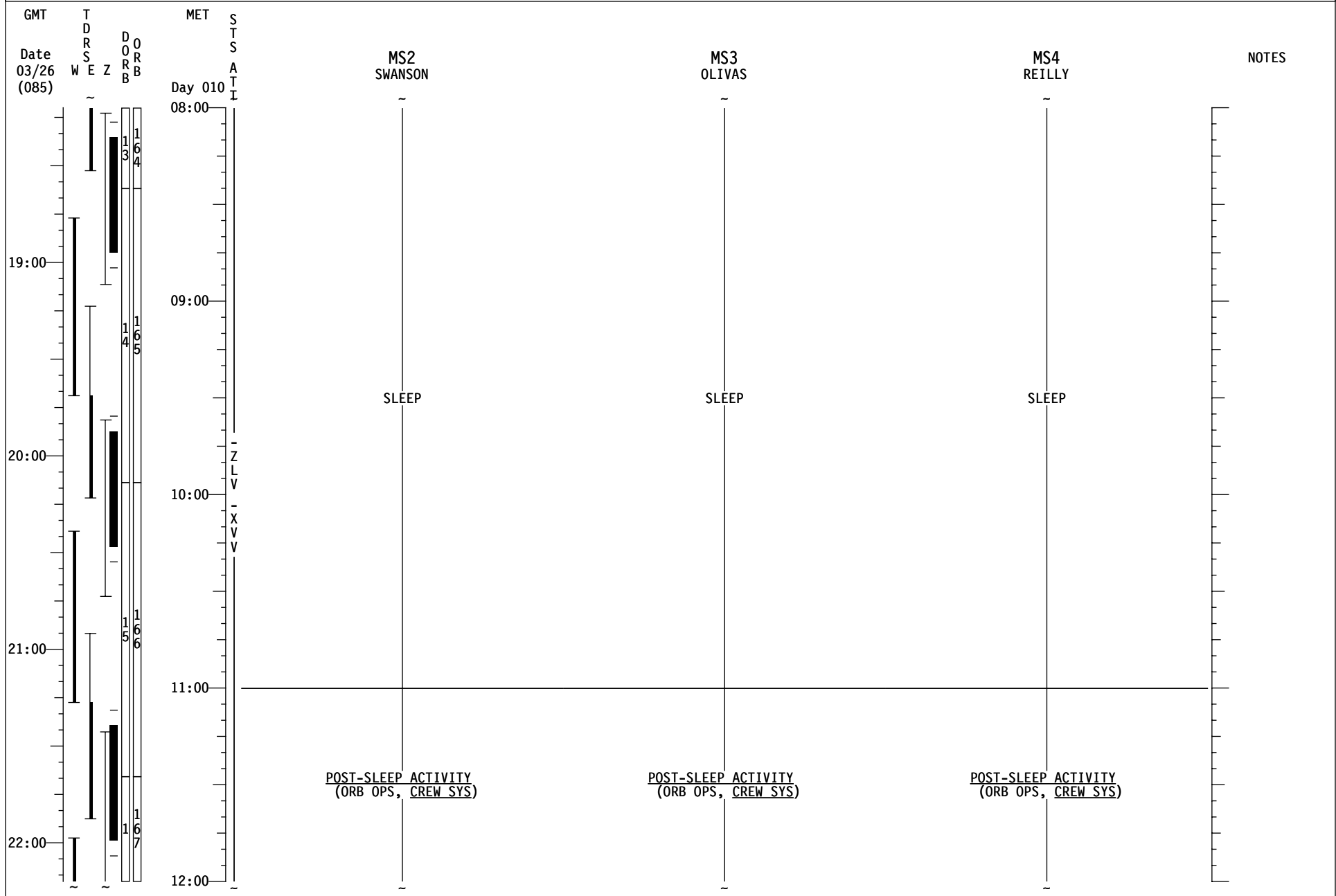
STS-117 (FD11)



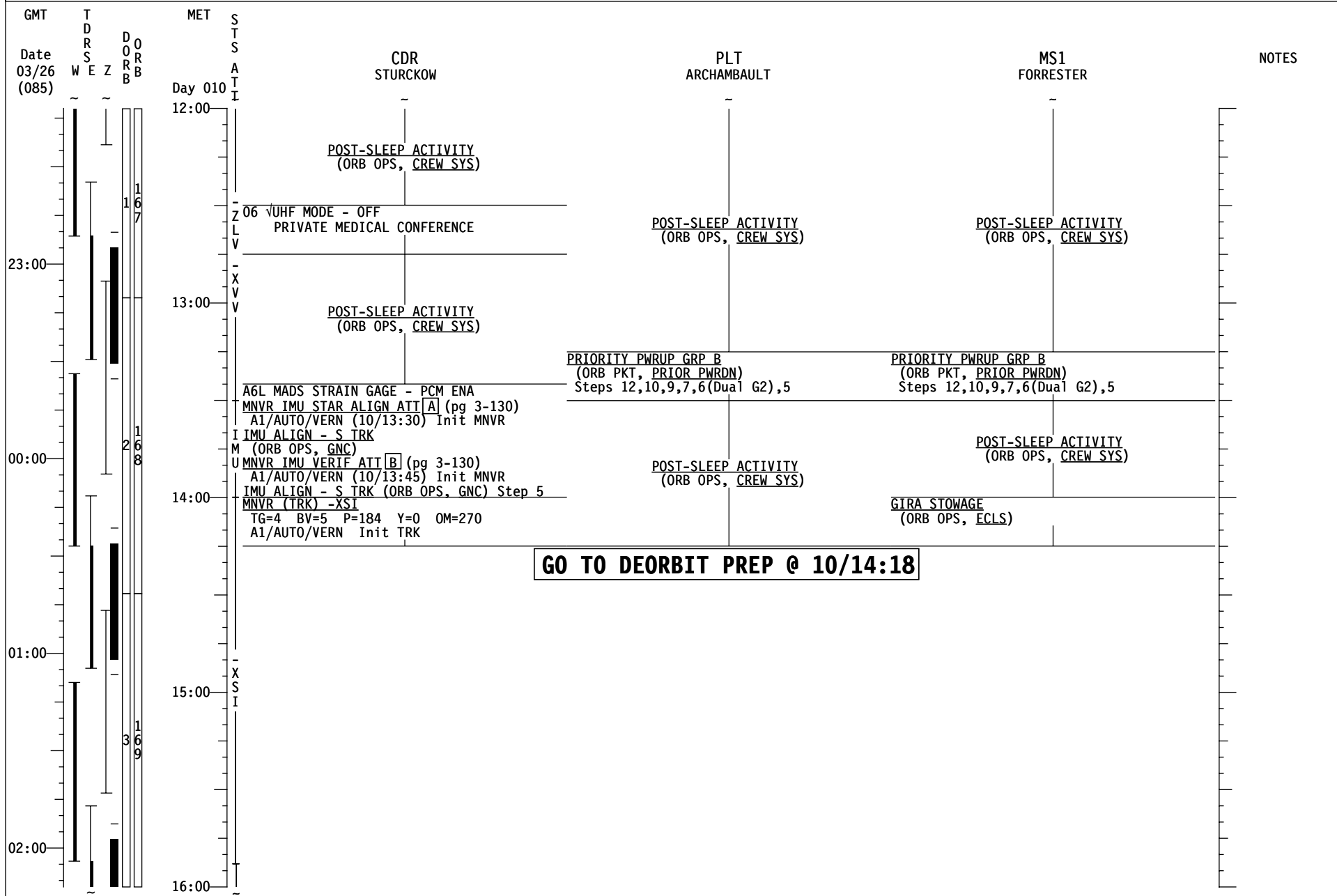
STS-117 (FD12)



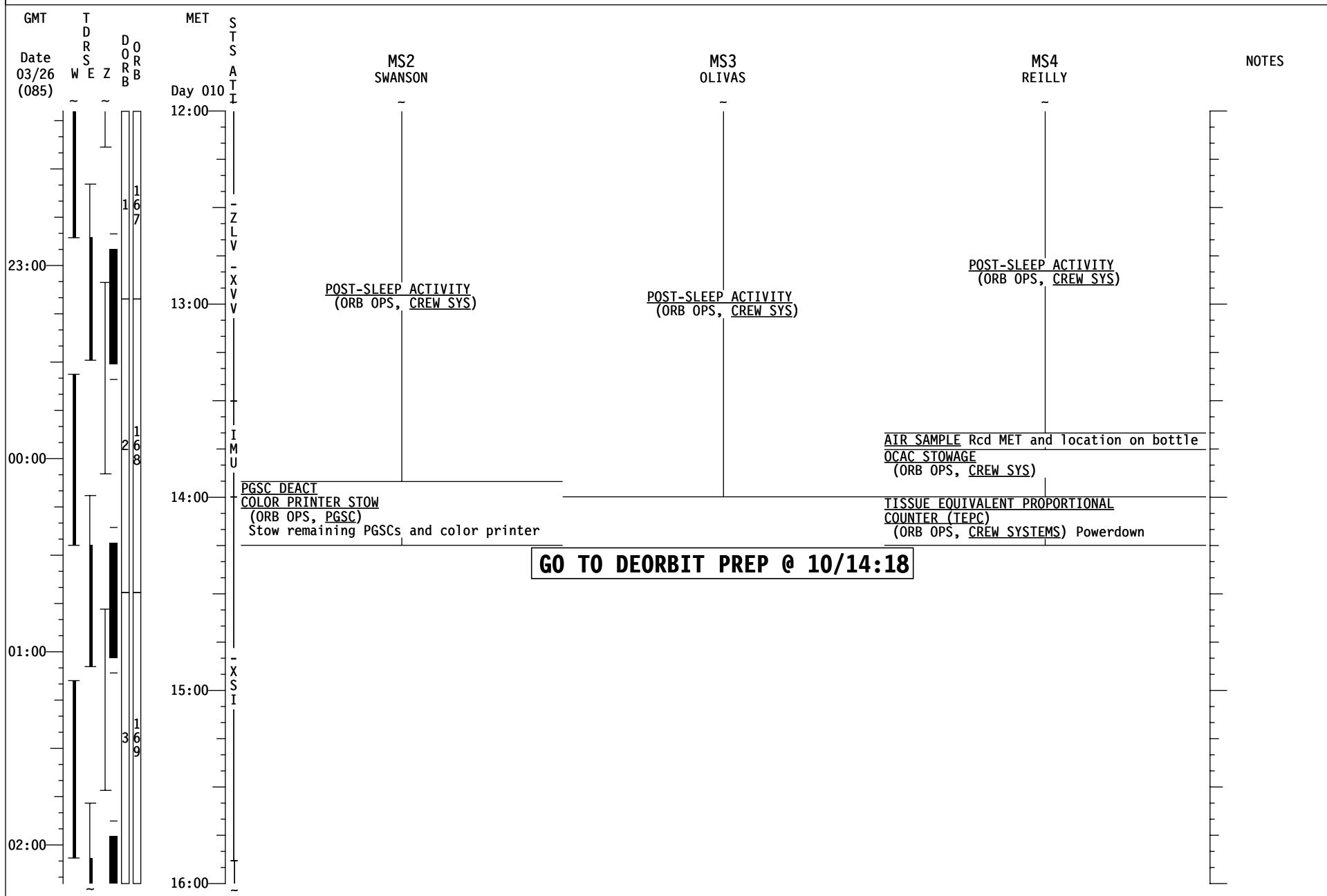
STS-117 (FD12)



STS-117 (FD12)



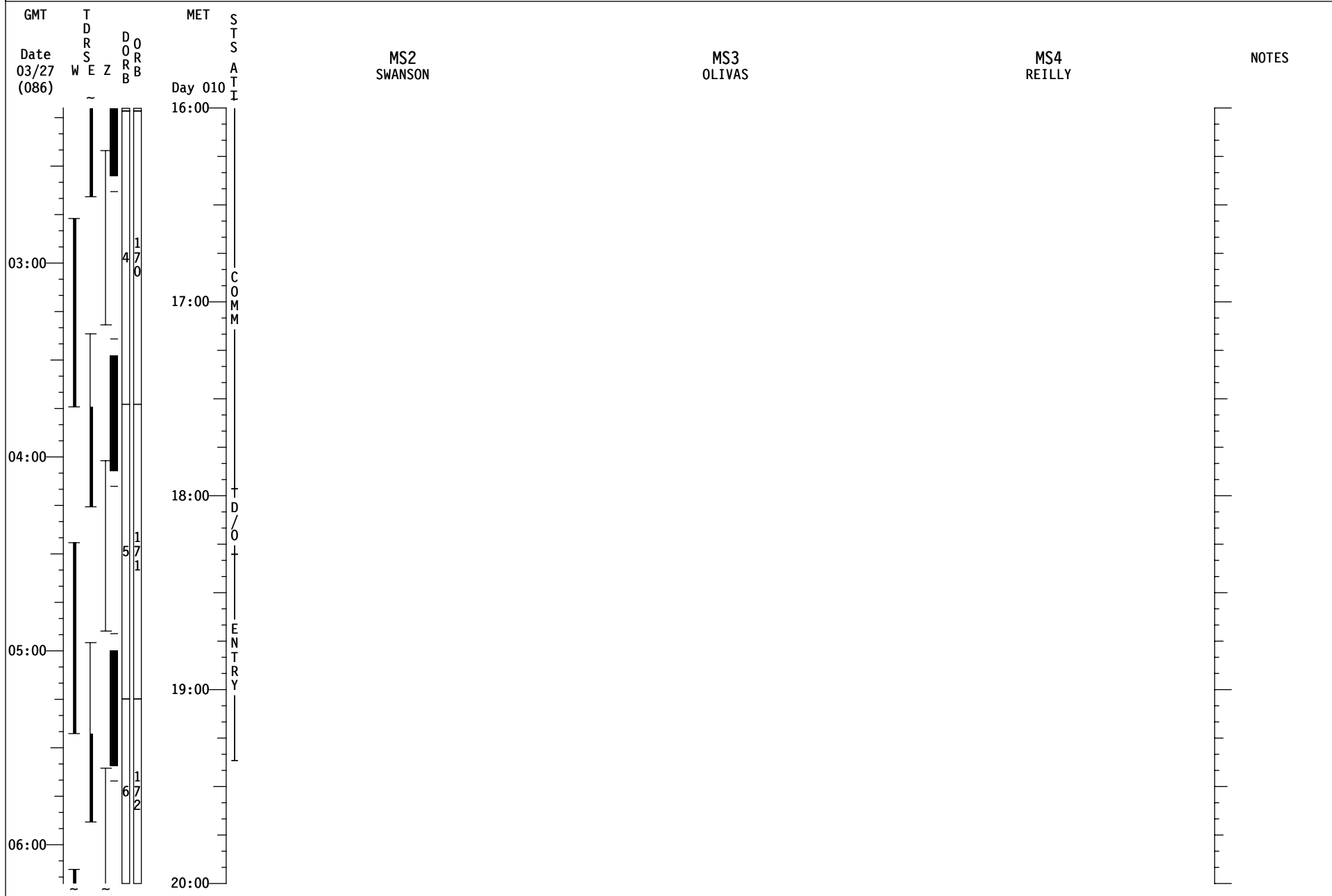
STS-117 (FD12)



STS-117 (FD12)

GMT	TDRS W E Z	DORB	MET	STS ATTITUDE	CDR STURCKOW	PLT ARCHAMBAULT	MS1 FORRESTER	NOTES																		
Date 03/27 (086)			Day 010																							
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;">03:00</div> <div style="margin-bottom: 20px;">04:00</div> <div style="margin-bottom: 20px;">05:00</div> <div>06:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;">16:00</div> <div style="margin-bottom: 20px;">17:00</div> <div style="margin-bottom: 20px;">18:00</div> <div style="margin-bottom: 20px;">19:00</div> <div>20:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;">170</div> <div style="margin-bottom: 20px;">171</div> <div style="margin-bottom: 20px;">172</div> <div style="margin-bottom: 20px;">173</div> <div style="margin-bottom: 20px;">174</div> <div style="margin-bottom: 20px;">175</div> <div style="margin-bottom: 20px;">176</div> <div style="margin-bottom: 20px;">177</div> <div style="margin-bottom: 20px;">178</div> <div style="margin-bottom: 20px;">179</div> <div style="margin-bottom: 20px;">180</div> <div style="margin-bottom: 20px;">181</div> <div style="margin-bottom: 20px;">182</div> <div style="margin-bottom: 20px;">183</div> <div style="margin-bottom: 20px;">184</div> <div style="margin-bottom: 20px;">185</div> <div style="margin-bottom: 20px;">186</div> <div style="margin-bottom: 20px;">187</div> <div style="margin-bottom: 20px;">188</div> <div style="margin-bottom: 20px;">189</div> <div style="margin-bottom: 20px;">190</div> <div style="margin-bottom: 20px;">191</div> <div style="margin-bottom: 20px;">192</div> <div style="margin-bottom: 20px;">193</div> <div style="margin-bottom: 20px;">194</div> <div style="margin-bottom: 20px;">195</div> <div style="margin-bottom: 20px;">196</div> <div style="margin-bottom: 20px;">197</div> <div style="margin-bottom: 20px;">198</div> <div style="margin-bottom: 20px;">199</div> <div style="margin-bottom: 20px;">200</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;">COMM</div> <div style="margin-bottom: 20px;">ENTR</div> <div style="margin-bottom: 20px;">RY</div> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> A <u>IMU STAR ALIGN PAD</u> ID: -Y: 52, HAMAL MET (10/13:24 TO 10/14:07) -Z: 28, AL NAIR MET (10/13:31 TO 10/14:20) ANG DIFF: 88.6 DUAL S TRKR 2nd ATTITUDE <u>ALIGNMENT</u> (SINGLE S TRKR) -Z: 52 -Y: 28 <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">R 229</td> <td style="padding: 2px;">R 115</td> <td style="padding: 2px;">313</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">P 96</td> <td style="padding: 2px;">P 127</td> <td style="padding: 2px;">101</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Y 61</td> <td style="padding: 2px;">Y 61</td> <td style="padding: 2px;">46</td> </tr> </table> </div> <div style="border: 1px solid black; padding: 5px;"> REQD ID: -Y: ____, -Z: ____, ANG ERR ____, ____, ____ ANG: 1 2 3 ΔX () __, __ () __, __ () __, __ ΔY () __, __ () __, __ () __, __ ΔZ () __, __ () __, __ () __, __ EXECUTION TIME: __/__:__:__ MET </div>	R 229	R 115	313	P 96	P 127	101	Y 61	Y 61	46	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> B <u>IMU VERIFICATION STAR ALIGN PAD</u> ID: -Y: 81, PHACT MET (10/13:46 TO 10/14:35) -Z: 33, PEACOCK MET (10/13:34 TO 10/14:25) ANG DIFF: 82.6 DUAL S TRKR 2nd ATTITUDE <u>ALIGNMENT</u> (SINGLE S TRKR) -Z: 81 -Y: 33 <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">R 211</td> <td style="padding: 2px;">R 126</td> <td style="padding: 2px;">295</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">P 155</td> <td style="padding: 2px;">P 170</td> <td style="padding: 2px;">154</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Y 2</td> <td style="padding: 2px;">Y 1</td> <td style="padding: 2px;">347</td> </tr> </table> </div> <div style="border: 1px solid black; padding: 5px;"> REQD ID: -Y: ____, -Z: ____, ANG ERR ____, ____, ____ ANG: 1 2 3 ΔX () __, __ () __, __ () __, __ ΔY () __, __ () __, __ () __, __ ΔZ () __, __ () __, __ () __, __ EXECUTION TIME: __/__:__:__ MET </div>	R 211	R 126	295	P 155	P 170	154	Y 2	Y 1	347			
R 229	R 115	313																								
P 96	P 127	101																								
Y 61	Y 61	46																								
R 211	R 126	295																								
P 155	P 170	154																								
Y 2	Y 1	347																								

STS-117 (FD12)



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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
1 000/00:39:00 M 075/10:51:04 G	M50 (CALC) INRTL R = 139.00 MNVR P = 104.00 PYR Y = 40.00 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 37 P 102 $\beta = -36$	+X PYR R = 0.26 P = 12.20 Y = 359.61 LVLH 000/00:39:00 M 075/10:51:04 G	OMS-2 Posigrade Heads Up TIG 0/00:39:00
2 000/01:12:00 M 19:56 075/11:24:04 G 32:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR A5/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 5.00 DB RT 0.070 EARTH R 0 P 90 $\beta = -36$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV PLBD Opening
3 000/03:15:00 M 25:08 075/13:27:04 G 37:12	M50 (CALC) INRTL R = 310.00 MNVR P = 121.00 PYR Y = 24.00 MNVR B1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 222 P 118 $\beta = -35$	+X PYR R = 179.85 P = 348.01 Y = 0.35 LVLH 000/03:35:00 M 075/13:47:04 G	NC-1 Posigrade Heads Down TIG 0/03:35
4 000/03:40:00 M 54:58 075/13:52:04 G 14:07:02	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -35$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
5 000/09:00:00 M 075/19:12:04 G				INRTL MNVR
6 000/15:10:00 M 25:00 076/01:22:04 G 37:04	M50 (CALC) INRTL R = 312.00 MNVR P = 122.00 PYR Y = 24.00 MNVR B1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 219 P 119 $\beta = -33$	+X PYR R = 180.16 P = 347.56 Y = 359.87 LVLH 000/15:30:00 M 076/01:42:04 G	NC-2 Posigrade Heads Down TIG 0/15:30
7 000/15:35:00 M 36:47 076/01:47:04 G 48:51	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 0.00 OM = 160.00 MNVR A1/AUTO/VERN HOLD A14/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -33$	LVLH R=180.00 P= 0.00 Y=340.00	Bias -ZLV +XVV OBSS Unberth and Survey
8 000/18:15:00 M 29:01 076/04:27:04 G 41:05	TGT= 4 BV = 5 P = 0.00 Y = 40.00 OM = 40.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 90 P 40 $\beta = -33$	INRTL R=264.61 P=321.91 Y=359.02 RA= 355.783 DEC= -1.825S	BIAS +YSI STBD Wing Survey
9 000/19:45:00 M 54:58 076/05:57:04 G 06:07:02	TGT= 4 BV = 5 P = 304.00 Y = 0.00 OM = 125.00 MNVR A14/AUTO/VERN HOLD A14/AUTO/ALT	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 180 P 56 $\beta = -32$	INRTL R=358.60 P= 58.00 Y=350.49 RA= 355.840 DEC= -1.800S	BIAS +XSI Nose Cap Survey
10 000/21:35:00 M 47:12 076/07:47:04 G 59:16	TGT= 4 BV = 5 P = 0.00 Y = 323.00 OM = 245.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 270 P 37 $\beta = -32$	INRTL R=104.70 P=326.07 Y=344.15 RA= 355.910 DEC= -1.770S	BIAS -YSI PORT Wing Survey

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
11 000/23:05:00 M 15:44 076/09:17:04 G 27:48	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -32$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV OBSS Berth
12 001/01:00:00 M 04:57 076/11:12:04 G 17:01	TGT= 4 BV = 5 P = 114.00 Y = 0.00 OM = 350.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 114 $\beta = -31$	INRTL R=167.87 P=118.17 Y= 34.09 RA= 356.040 DEC= -1.714S	LDRI Ku Comm
13 001/02:15:00 M 29:56 076/12:27:04 G 42:00	M50 (CALC) INRTL R = 32.00 MNVR P = 276.00 PYR Y = 318.00 MNVR B1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 328 P 84 $\beta = -31$	+X PYR R = 180.37 P = 348.09 Y = 359.87 LVLH 001/02:34:00 M 076/12:46:04 G	NC-3 Posigrade Heads Down TIG 1/02:34
14 001/02:40:00 M 54:59 076/12:52:04 G 13:07:03	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -31$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
15 001/13:15:00 M 22:30 076/23:27:04 G 34:34	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -29$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Simo Dump Future Load
16 001/14:30:00 M 077/00:42:04 G				NH Placeholder
17 001/15:00:00 M 11:47 077/01:12:04 G 23:51	M50 (CALC) INRTL R = 201.00 MNVR P = 26.00 PYR Y = 45.00 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 38 P 53 $\beta = -29$	+X PYR R = 359.20 P = 12.46 Y = 0.28 LVLH 001/15:17:00 M 077/01:29:04 G	NC-4 Posigrade Heads Up TIG 1/15:17
18 001/15:20:00 M 23:49 077/01:32:04 G 35:53	LVLH TRACK TGT = 2 P = 0.00 BV = 5 Y = 0.00 OM = 0.00 MNVR B7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.5000 DB AT 2.00 DB RT 0.100 EARTH R 90 P 0 $\beta = -28$	LVLH R= 0.00 P=270.00 Y= 0.00	-Z Target Track Sunset 15:52
19 001/15:25:00 M 16:15:00 077/01:37:04 G 02:27:04	LVLH TRACK TGT = 2 P = 339.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0070 DB AT 1.000 DB RT 0.020 EARTH R 180 P 21 $\beta = -28$	LVLH R= 0.00 P=291.00 Y= 0.00	-Z Target Track
20 001/16:15:00 M 33:31 077/02:27:04 G 45:35	LVLH TRACK TGT = 2 P = 349.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0090 DB AT 1.000 DB RT 0.020 EARTH R 180 P 11 $\beta = -28$	LVLH R= 0.00 P=281.00 Y= 0.00	-Z Target Track

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
21 001/16:34:00 M 36:59 077/02:46:04 G 49:03	M50 (CALC) INRTL R = 202.00 MNVR P = 26.00 PYR Y = 45.00 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 37 P 53 $\beta = -28$	+X PYR R = 0.10 P = 12.08 Y = 0.05 LVLH 001/16:48:00 M 077/03:00:04 G	Ti Posigrade Heads Up TIG 1/16:48
22 001/16:50:00 M 53:36 077/03:02:04 G 05:40	LVLH TRACK TGT = 2 P = 358.00 BV = 5 Y = 0.00 OM = 0.00 MNVR B7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.5000 DB AT 2.00 DB RT 0.100 EARTH R 180 P 2 $\beta = -28$	LVLH R= 0.00 P=272.00 Y= 0.00	-Z Target Track
23 001/16:54:00 M 18:05:26 077/03:06:04 G 04:17:30	LVLH TRACK TGT = 2 P = 310.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0112 DB AT 1.000 DB RT 0.020 EARTH R 180 P 50 $\beta = -28$	LVLH R= 0.00 P=320.00 Y= 0.00	-Z Target Track
24 001/18:06:00 M 19:20 077/04:18:04 G 31:24	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A8/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.0500 DB AT 1.000 DB RT 0.020 EARTH R 180 P 90 $\beta = -28$	LVLH R= 0.00 P= 0.00 Y= 0.00	Establish RBAR Ti +01:18
25 001/18:27:00 M 29:00 077/04:39:04 G 41:04	COE (CALC) TGT = 2 P = 180.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/ALT HOLD A9/AUTO/VERN	RATE 0.7500 DB AT 2.00 DB RT 0.100 EARTH R 135 P 180 $\beta = -28$	+X PYR R = 0.00 P = 90.00 Y = 0.00 LVLH 001/18:34:00 M 077/04:46:04 G	RPM ORB R = 0.00 LVLH P = 90.00 Y = 0.00
26 001/18:29:00 M 31:00 077/04:41:04 G 43:04	COE (CALC) TGT = 2 P = 90.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/ALT HOLD A9/AUTO/VERN	RATE 0.7500 DB AT 1.00 DB RT 0.100 EARTH R 0 P 90 $\beta = -28$	+X PYR R = 0.00 P = 180.00 Y = 0.00 LVLH 001/18:36:00 M 077/04:48:04 G	RPM ORB R = 0.00 LVLH P = 180.00 Y = 0.00
27 001/18:31:00 M 33:00 077/04:43:04 G 45:04	COE (CALC) TGT = 2 P = 0.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/ALT HOLD A9/AUTO/VERN	RATE 0.7500 DB AT 1.00 DB RT 0.100 EARTH R 323 P 0 $\beta = -28$	+X PYR R = 0.00 P = 270.00 Y = 0.00 LVLH 001/18:38:00 M 077/04:50:04 G	RPM ORB R = 0.00 LVLH P = 270.00 Y = 0.00
28 001/18:33:00 M 35:00 077/04:45:04 G 47:04	COE (CALC) TGT = 2 P = 270.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/ALT HOLD A9/AUTO/VERN	RATE 0.7500 DB AT 1.00 DB RT 0.100 EARTH R 180 P 90 $\beta = -28$	+X PYR R = 0.00 P = 0.00 Y = 0.00 LVLH 001/18:40:00 M 077/04:52:04 G	RPM ORB R = 0.00 LVLH P = 0.00 Y = 0.00
29 001/18:40:00 M 51:40 077/04:52:04 G 05:03:44	LVLH TRACK TGT = 2 P = 179.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/ALT HOLD A9/AUTO/VERN	RATE 0.1300 DB AT 2.00 DB RT 0.100 EARTH R 0 P 179 $\beta = -28$	LVLH R= 0.00 P= 91.00 Y= 0.00	TORVA
30 001/19:27:00 M 077/05:39:04 G				Docking 1/19:27

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
31 001/19:47:00 M 20:16:04 077/05:59:04 G 06:28:08	COE (CALC) TGT = 2 P = 158.00 BV = 5 Y = 318.00 OM = 182.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 293 P 134 $\beta = -28$	ISS YPR R = 315.84 P = 16.16 Y = 166.87 LVLH 001/19:47:00 M 077/05:59:04 G	Bias -XLV -ZVV Mated TEA Pre S3/4 Install ORB R = 196.37 LVLH P = 62.89 Y = 39.28
32 001/21:48:00 M 002/00:04:39 077/08:00:04 G 10:16:43	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 326.00 OM = 183.00 MNVR A12/FREE/VERN HOLD (same)	RATE 0.0010 DB AT 3.000 DB RT 0.050 EARTH R 298 P 141 $\beta = -27$	ISS YPR R = 324.15 P = 17.28 Y = 170.89 LVLH 001/21:48:00 M 077/08:00:04 G	Bias -XLV -ZVV Overnight Park is Handoff Posn ORB R = 190.35 LVLH P = 66.87 Y = 32.69
33 002/01:10:00 M 077/11:22:04 G				Config DAP A15/FREE/VERN
34 002/13:48:00 M 14:18:03 078/00:00:04 G 30:07	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 181.00 MNVR A15/FREE/VERN HOLD (same)	RATE 0.0200 DB AT 3.000 DB RT 0.080 EARTH R 6 P 159 $\beta = -24$	ISS YPR R = 2.14 P = 20.99 Y = 181.77 LVLH 002/13:48:00 M 078/00:00:04 G	Bias -XLV -ZVV Mated TEA Post S3/4 Install ORB R = 178.35 LVLH P = 68.96 Y = 358.49
35 002/18:20:00 M 078/04:32:04 G				Config DAP A12/FREE/VERN Permanent Edits A12 CNTL ACCL 3 B12 CNTL ACCL 4
36 003/15:00:00 M 29:25 079/01:12:04 G 41:29	M50 (CALC) INRTL R = 224.00 MNVR P = 331.00 PYR Y = 1.00 MNVR A12/FREE/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 SUN R 131 P 30 $\beta = -19$	ISS YPR R = 357.20 P = 20.30 Y = 89.86 XPOP 003/15:50:00 M 079/02:02:04 G	1A SAW Deploy XPOP
37 003/15:36:00 M 079/01:48:04 G				Free Drift Deploy 1A SAW to 49 percent at Sunrise
38 003/15:46:00 M 079/01:58:04 G	M50 (CALC) INRTL R = 224.00 MNVR P = 331.00 PYR Y = 1.00 MNVR A12/FREE/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 SUN R 131 P 30 $\beta = -19$	ISS YPR R = 357.20 P = 20.30 Y = 89.86 XPOP 003/15:50:00 M 079/02:02:04 G	Return to Att 1A SAW Deploy XPOP
39 003/16:21:00 M 079/02:33:04 G				Free Drift Deploy 1A SAW to 100 percent
40 003/16:31:00 M 34:18 079/02:43:04 G 46:22	M50 (CALC) INRTL R = 224.00 MNVR P = 324.00 PYR Y = 8.00 MNVR A12/FREE/VERN HOLD (same)	RATE 0.0500 DB AT 3.000 DB RT 0.050 SUN R 123 P 38 $\beta = -19$	ISS YPR R = 347.26 P = 20.58 Y = 90.27 XPOP 003/17:20:00 M 079/03:32:04 G	3A SAW Deploy XPOP

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
41 003/17:08:00 M 079/03:20:04 G				Free Drift Deploy 3A SAW to 49 percent at Sunrise
42 003/17:18:00 M 079/03:30:04 G	M50 (CALC) INRTL R = 224.00 MNVR P = 324.00 PYR Y = 8.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 SUN R 123 P 38 $\beta = -19$	ISS YPR R = 347.26 P = 20.58 Y = 90.27 XPOP 003/17:20:00 M 079/03:32:04 G	Return to Att 3A SAW Deploy XPOP Orb Att Cntrl
43 003/17:53:00 M 079/04:05:04 G				Free Drift Deploy 3A SAW to 100 percent
44 003/18:03:00 M 30:44 079/04:15:04 G 42:48	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 181.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 6 P 159 $\beta = -18$	ISS YPR R = 2.14 P = 20.99 Y = 181.77 LVLH 003/18:03:00 M 079/04:15:04 G	Bias -XLV -ZVV Mated TEA Post 1/3A Deploy ORB R = 178.35 LVLH P = 68.96 Y = 358.49
45 005/21:30:00 M 32:00 081/07:42:04 G 44:04	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 193.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 6 P 159 $\beta = -8$	ISS YPR R = 2.14 P = 20.99 Y = 193.77 LVLH 005/21:30:00 M 081/07:42:04 G	Bias -XLV +YVV Simo Dump 13 Deg Retro Inside Envelope ORB R = 167.15 LVLH P = 69.09 Y = 2.80
46 005/23:45:00 M 47:00 081/09:57:04 G 59:04	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 181.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 6 P 159 $\beta = -7$	ISS YPR R = 2.14 P = 20.99 Y = 181.77 LVLH 005/23:45:00 M 081/09:57:04 G	Bias -XLV -ZVV Mated TEA Post 1/3A Deploy ORB R = 178.35 LVLH P = 68.96 Y = 358.49
47 007/20:10:00 M 12:00 083/06:22:04 G 24:04	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 193.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 6 P 159 $\beta = 1$	ISS YPR R = 2.14 P = 20.99 Y = 193.77 LVLH 007/20:10:00 M 083/06:22:04 G	Bias -XLV +YVV Simo Dump 13 Deg Retro Inside Envelope ORB R = 167.15 LVLH P = 69.09 Y = 2.80
48 007/21:50:00 M 52:00 083/08:02:04 G 04:04	COE (CALC) TGT = 2 P = 159.00 BV = 5 Y = 2.00 OM = 181.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 6 P 159 $\beta = 1$	ISS YPR R = 2.14 P = 20.99 Y = 181.77 LVLH 007/21:50:00 M 083/08:02:04 G	Bias -XLV -ZVV Mated TEA Post 1/3A Deploy ORB R = 178.35 LVLH P = 68.96 Y = 358.49
49 008/14:07:00 M 36:47 084/00:19:04 G 48:51	COE (CALC) TGT = 2 P = 180.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 145 P 180 $\beta = 5$	ISS YPR R = 0.00 P = 0.00 Y = 0.00 LVLH 008/14:07:00 M 084/00:19:04 G	-XLV +ZVV Mnvr To Undock ORB R = 0.00 LVLH P = 90.00 Y = 0.00
50 008/15:22:00 M 084/01:34:04 G				Undock 8/15:22

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
51 008/16:02:00 M 13:32 084/02:14:04 G 25:36	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 5$	LVLH R= 0.00 P=180.00 Y= 0.00	TORF -RBAR
52 008/16:13:33 M 25:05 084/02:25:37 G 37:09	LVLH TRACK TGT = 2 P = 0.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 EARTH R 0 P 0 $\beta = 5$	LVLH R= 0.00 P=270.00 Y= 0.00	TORF -VBAR
53 008/16:25:06 M 36:38 084/02:37:10 G 48:42	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 EARTH R 180 P 90 $\beta = 5$	LVLH R= 0.00 P= 0.00 Y= 0.00	TORF +RBAR SEP-1 TIG 16:37
54 008/16:37:00 M 48:32 084/02:49:04 G 03:00:36	LVLH TRACK TGT = 2 P = 180.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 EARTH R 230 P 180 $\beta = 5$	LVLH R= 0.00 P= 90.00 Y= 0.00	TORF +VBAR
55 008/16:48:33 M 17:00:05 084/03:00:37 G 12:09	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A9/AUTO/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 5$	LVLH R= 0.00 P=180.00 Y= 0.00	TORF -RBAR SEP-2 TIG 17:05 OBSS Unberth
56 008/19:25:00 M 30:55 084/05:37:04 G 42:59	TGT= 4 BV = 5 P = 0.00 Y = 40.00 OM = 54.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 90 P 40 $\beta = 6$	INRTL R=273.93 P=318.69 Y= 0.78 RA= 3.122 DEC= 1.354N	BIAS +YSI STBD Wing Survey
57 008/20:40:00 M 49:04 084/06:52:04 G 07:01:08	TGT= 4 BV = 5 P = 304.00 Y = 0.00 OM = 125.00 MNVR A14/AUTO/VERN HOLD A14/AUTO/ALT	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 180 P 56 $\beta = 6$	INRTL R=347.95 P= 52.92 Y=348.22 RA= 3.170 DEC= 1.374N	BIAS +XSI Nose Cap Survey
58 008/21:30:00 M 37:55 084/07:42:04 G 49:59	TGT= 4 BV = 5 P = 0.00 Y = 323.00 OM = 30.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 270 P 37 $\beta = 6$	INRTL R=250.68 P= 33.28 Y=349.89 RA= 3.201 DEC= 1.388N	BIAS -YSI PORT Wing Survey
59 008/22:45:00 M 54:42 084/08:57:04 G 09:06:46	TGT= 4 BV = 5 P = 114.00 Y = 0.00 OM = 25.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 114 $\beta = 6$	INRTL R=136.95 P=136.63 Y= 52.53 RA= 3.249 DEC= 1.408N	LDRI Ku Comm OBSS Berth
60 009/00:00:00 M 12:38 084/10:12:04 G 24:42	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 7$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XV

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
61 009/00:41:00 M 084/10:53:04 G				NC-5 Multi-Axis
62 009/15:24:00 M 085/01:36:04 G				NC-6 Multi-Axis
63 009/20:55:00 M 21:02:30 085/07:07:04 G 14:34	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 11$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Waste Dump
64 009/23:45:00 M 52:30 085/09:57:04 G 10:04:34	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 12$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
65 010/13:30:00 M 39:07 085/23:42:04 G 51:11	INRTL R = 229.00 MNVR P = 96.00 Y = 61.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 302 P 90 $\beta = 14$	-Y:52 Hamal 13:24-14:07 -Z:28 Al Nair 13:31-14:20	IMU Align Pair AOS 13:31 Pair LOS 14:07
66 010/13:45:00 M 51:20 085/23:57:04 G 086/00:03:24	INRTL R = 211.00 MNVR P = 155.00 Y = 2.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 313 P 156 $\beta = 15$	-Y:81 Phact 13:46-14:35 -Z:33 Peacock 13:34-14:25	IMU Verif Pair AOS 13:46 Pair LOS 14:25 Planar Sep 73.8
67 010/14:00:00 M 02:42 086/00:12:04 G 14:46	TGT= 4 BV = 5 P = 184.00 Y = 0.00 OM = 270.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 180 P 176 $\beta = 15$	INRTL R=230.73 P=180.48 Y=358.36 RA= 4.736 DEC= 2.051N	-XSI
68 010/15:53:00 M 16:00:54 086/02:05:04 G 12:58	INRTL R = 174.00 MNVR P = 273.00 Y = 36.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 187 P 83 $\beta = 15$		Comm
69 010/17:58:00 M 18:00:31 086/04:10:04 G 12:35	M50 (CALC) INRTL R = 157.00 MNVR P = 249.00 PYR Y = 326.00 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 196 P 108 $\beta = 15$	+X PYR R = 0.40 P = 191.92 Y = 0.15 LVLH 010/18:18:00 M 086/04:30:04 G	Deorbit Burn TIG 18:18

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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV-104 Atlantis
 Launch Window: 10 minutes from Pad A
 Inclination: 51.6°
 Insertion Altitude: 122 nm
 Rendezvous Altitude: 181 nm
 Duration: 11+2+2

B. SHUTTLE AND STATION CREW

CDR/R3 – Frederick Sturckow
 PLT/R2/M1 – Lee Archambault
 MS1/EV3/R1 – Patrick Forrester
 MS2/EV4/M2 – Steven Swanson
 MS3/EV2/R1 – John Olivas
 MS4/EV1 – James Reilly

ISS CDR – Michael Lopez-Alegria
 FE-1 – Mikhail Tyurin
 FE-2/M2 – Sunita Williams

C. MAJOR EVENTS

<u>EVENT</u>	<u>FD</u>	<u>MET</u>	<u>GMT</u>	<u>CDT</u>
Launch	01	00/00:00	075/10:12	05:12 (3/16/07)
OMS-2	01	00/00:39	075/10:51	05:51 (3/16/07)
NC-1	01	00/03:35	075/13:47	08:47 (3/16/07)
NC-2	02	00/15:30	076/01:42	20:42 (3/16/07)
NPC	02	00/15:34	076/01:46	20:46 (3/16/07)
OBSS Survey	02	00/17:15	076/03:28	17:28 (3/17/07)
NC-3	02	01/02:34	076/12:46	07:46 (3/17/07)
NC-4	03	01/15:17	077/01:29	20:29 (3/17/07)
Ti	03	01/16:48	077/03:00	22:00 (3/17/07)
ISS Docking	03	01/19:43	077/05:55	00:55 (3/18/07)
S3/S4 Unberth	03	01/21:50	077/08:02	03:02 (3/18/07)
EVA 1	04	02/18:45	078/04:57	23:57 (3/18/07)
PVR Deploy	04	03/00:25	078/10:37	05:37 (3/19/07)
S4 1A SAW Deploy	05	03/15:35	079/01:47	20:47 (3/19/07)
S4 3A SAW Deploy	05	03/17:05	079/03:17	22:17 (3/19/07)
EVA 2	06	04/17:55	080/04:07	23:07 (3/20/07)
P6 2B Retract	07	05/16:00	081/02:12	21:12 (3/21/07)
EVA 3	08	06/17:25	082/03:37	22:37 (3/22/07)
Undock	10	08/15:22	084/01:34	20:34 (3/24/07)
Sep	10	08/17:05	084/03:17	22:17 (3/24/07)
Deorbit	12	10/18:18	086/04:30	23:30 (3/26/07)
Landing	12	10/19:22	086/05:34	00:34 (3/27/07)

D. LANDING OPPORTUNITIES

		<u>Landing Orbit #</u>	<u>Site</u>	<u>TIG MET</u>	<u>Landing MET</u>	<u>Landing GMT</u>	<u>Landing CDT</u>
Nominal	Primary	172	KSC	10/18:18	10/19:22	086/05:34	00:34, 3/27/07
	1 Rev	173	KSC	10/19:53	10/20:57	086/07:09	02:09, 3/27/07
	Late Weather Alt	174	EDW	10/21:23	10/22:27	086/08:39	03:39, 3/27/07
EOM +1	Primary	188	KSC	11/18:38	11/19:42	087/05:54	00:54, 3/28/07
	1 Rev	189	EDW	11/20:08	11/21:12	087/07:24	02:24, 3/28/07
	Late Weather Alt	190	EDW	11/21:43	11/22:47	087/08:59	03:59, 3/28/07
EOM +2	Primary	203	KSC	12/17:23	12/18:27	088/04:39	23:39, 3/29/07
	1 Rev	204	KSC	12/18:58	12/20:02	088/06:14	01:14, 3/29/07
	Late Weather Alt	204	EDW	12/20:28	12/21:32	088/08:44	03:44, 3/29/07

E. COMMUNICATIONS

The Summary Timeline contains several databands for ground site and TDRS events. The TDRS band reflects the three TDRS satellites that will be used for Orbiter coverage (East, West, and Z) and their longitudinal position. The data shown contain Ku-band coverage (unshaded bars) as well as TDRS SHO schedule (solid bars). The SHO schedule depicts early, normal, and midpass handovers and closed or extended Z satellite coverage.

The GND band contains the AOS/LOS of the US ground sites used for the L-1 Comm Checks and for deorbit and landing comm. MLA and DFA are for Kennedy Space Center and Edwards Air Force Base respectively, and WSS is for White Sands Space Harbor (which is needed on wave-off opportunities only).

TDRS Z currently does not have the capability for DTV, and therefore cannot be used for critical damage detection. TDRS Z is not desirable for PAO Events, however events can be scheduled on Z. OCA downlink is limited to 2Mbps on TDRS Z.

Prime TDRS Support

TDRS: East (LON: -46° W), West (LON: -171° W), and Z (LON: -275° W)

Ground Sites: MLA, WLP, WSS, AGO and DFR

Contingency RTS: DGS, GTS, HTS, OTS, CTS, VTS, and NHS

Backup TDRS Support

TDRS: East (LON: -41° W), West (LON: -174° W)

F. PAYLOADS

LAUNCH PACKAGE (LP) 13A

The primary objective of this flight is to deliver and integrate the completion of International Space Station (ISS) Stage 13A with the S3/S4 Integrated Truss Segment (ITS). The S4 Photovoltaic (PV) Module (PVM) contains two beta gimbal/PV array assemblies, two Beta Gimbal Transition Structures (BGTSSs), one Integrated Equipment Assembly (IEA) - Type I, and associated cabling. The cargo element (CE) also includes six battery sets, PV radiator, four Payload Attachment Systems (PAS), Solar Array Rotating Joint (SARJ), and preintegrated Space Vision System (SVS) targets. The CE occupies the majority of the payload bay and is attached in the payload bay by four active longeron trunnion latches and two active keel trunnion latches.

The RC hardware consists of middeck return items only. The middeck return items will include ISS hardware, EVA tools, utilization hardware, support equipment that was launched in the Orbiter middeck, and the CGBA CSI Hab that will be transferred near the end of the Docked timeframe.

Structural dynamic characterization of the ISS using the EWIS, which is located on the S4 truss segment, and the Structural Dynamic Measurement System (SDMS), which is located on the inboard truss elements of the ISS, will be performed to support the validation process of structural dynamic models.

G. SECONDARY PAYLOADS

1. Perceptual Motor Deficits In Space/Test of Reaction and Adaptation Capabilities (PMDIS/TRAC)

The PMDIS objective is to determine if perceptual motor deficits observed in previous missions are simply due to postural instability or actually represent central nervous system deficits.

The equipment is a laptop computer with touchscreen, joystick, and reaction switches, mounted on a lap-table tray. PMDIS and TRAC present the crewmember with visual stimuli, and measure the response accuracy and score. The equipment will be unstowed from the Destiny Lab and PMDIS measurements made before docking. After docking, two Shuttle crew members will perform the experiment separately, and the TRAC measurements will be made.

H. ON ORBIT DETAILED TEST OBJECTIVES (DTOs)

1. DTO 805 Crosswind Landing Performance (DTO of Opportunity)

The purpose is to demonstrate the capability to perform a manually controlled landing in the presence of a crosswind.

I. SHORT DURATION BIOASTRONAUTICS INVESTIGATIONS (SDBIs)

2. Test of Midodrine as a Countermeasure Against Postflight Orthostatic Hypotension (SDBI 1503-S)

To date, available countermeasures have not eliminated postflight orthostatic hypotension. This study is designed to evaluate a new pharmacological countermeasure for protection from postflight orthostatic hypotension. This experiment will measure the efficacy of midodrine in reducing the incidence and/or severity of orthostatic hypotension in returning astronauts. Efficacy will be evaluated with an expanded tilt test.

Protocol B will evaluate the efficacy of a 10 mg midodrine pill taken in-flight, between Deorbit TIG and landing.

Space alters cardiovascular function and orthostatic hypotension is one of the alterations that negatively impacts crew safety. Susceptibility to orthostatic hypotension is individual, with some astronauts experiencing severe symptoms, while others are less affected. This countermeasure evaluation proposal, sponsored by the Countermeasures Evaluation and Validation Project, is the first phase of the evaluations of midodrine. It is designed to give the greatest opportunity of measuring the maximum efficacy of the drug.

J. STATION DEVELOPMENT TEST OBJECTIVES (SDTOS)

1. ISS Structural Life Validation and Extension (IWIS)

The ISS structure has a 15-year life requirement. The overall objective is to guarantee safety of the ISS structure and crew. Specific objectives are to accurately determine structural life usage, to expand ISS operations, and to increase the life of the structure. Structural life estimates are based on worst case loading conditions using finite element models of structures and forcing function estimations. It is desirable to reduce this conservatism through post-flight reconstructions using correlated models, validated forcing functions, measured ISS response data, and actual on-orbit loading conditions. This reconstruction requires actual or educated estimates of input (forcing function) and actual output (on-orbit sensor measurements) of the ISS response.

Two IWIS objectives include data takes during ISS assembly element installation and a dedicated thruster firing data take. In this case, a short series of Russian thruster firings.

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STS-117 KU BAND ANTENNA BLOCKAGE PLAN

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KU BAND ANT
BLOCKAGE PLAN

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~00/01:30	Beta 21 + Mask	Ku Activation	Standard mode used for Orbiter with all payloads within PLB envelope
~00/02:55	Beta 21 + Mask with box: A1: $26 \leq AZ \leq 110$ $-90 \leq EL \leq -30$	RMS Checkout	Protection for SRMS
~00/04:20	Beta 21 + Mask	RMS back in pre-cradle	Standard mode used for Orbiter with all payloads within PLB envelope
~00/17:15	Beta 21 Only with box: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	OBSS unberth through Flat Field Position	Protects SRMS for OBSS unberth operations and for maneuver to the Flat Field position
~00/18:15	Beta 21 Only with box: A3: $-132 \leq AZ \leq 80$ $-90 \leq EL \leq 60$	STBD Survey	Protection for SRMS during STBD Survey
~00/19:45	Beta 12 Only:	Nose Cap Survey	Protection for SRMS during Nose Cap Survey NOTE: Do not initiate until SRMS in NOSE CAP ACAS Start
~00/21:35	Beta 21 Only with box: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	Port Survey and OBSS Berth	Protection for SRMS during Port Survey and OBSS Berth
~00/23:40	Beta 21 + Mask	LDRI Downlink	SRMS back in pre-cradle. Standard mode used for Orbiter with all payloads within PLB envelope
~01/18:37	Beta 21 Only with box: B1: $-35 \leq AZ \leq 45$ $-35 \leq EL \leq 40$	RNDZ at 765 ft	Protection for ISS during RNDZ

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~01/19:07	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ C2: $-37 \leq AZ \leq -8$ $-28 \leq EL \leq 44$ D1: $-108 \leq AZ \leq -8$ $-57 \leq EL \leq 39$ D2: $-126 \leq AZ \leq 6$ $-90 \leq EL \leq -52$	Prox Ops at 105 ft through docking S3/S4 Unberth, Overnight Park, and Install Operations SRMS Deploy Viewing and Install Viewing Positions	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS, and S3/S4 during unberth, hand-off, the overnight configuration, and the entire installation timeframe. Maintain through the completion of SSRMS EVA 1 Park, when the SSRMS will be in the Pre-Deploy Survey Position Protection for the translation path and work area of the EVA crewmembers
~02/19:05	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ C2: $-37 \leq AZ \leq -8$ $-28 \leq AZ \leq 44$ C3: $-83 \leq AZ \leq -32$ $-13 \leq AZ \leq 39$ D2: $-126 \leq AZ \leq 6$ $-90 \leq EL \leq -52$	SSRMS EVA 1 Park SRMS Deploy Viewing Position	Protection for ISS structure (with attached S3/S4), including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS and SSRMS in their respective deploy viewing positions Protection for the translation path and work area of the EVA crewmembers
~03/21:25	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ D1: $-108 \leq AZ \leq -8$ $-57 \leq EL \leq 39$ D2: $-126 \leq AZ \leq 6$ $-90 \leq EL \leq -52$ D3: $-92 \leq AZ \leq -8$ $-57 \leq EL \leq 64$	SRMS Retract Position SSRMS Translation from Worksite 2 to 3	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement before start of SRMS maneuver to Retract Viewing Position

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~04/04:10	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ E1: $-83 \leq AZ \leq -8$ $-28 \leq EL \leq 72$	Overnight configuration after SSRMS translation SSRMS EVA 2 Support SRMS Retract Viewing Position	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement after MT reaches Worksite 3 Protection for the translation path and work area of the EVA crewmembers
~05/00:00	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ D4: $-98 \leq AZ \leq -8$ $-28 \leq EL \leq 82$	SSRMS 2B Retract Position SRMS Retract Viewing Position	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement before SSRMS maneuver to 2B Retract Position
~06/17:00	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ E2: $-98 \leq AZ \leq -8$ $-28 \leq EL \leq 64$	SSRMS EVA 3 Support	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS Protection for translation path and work area of the EVA crewmembers
~06/23:45	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ D5: $-83 \leq AZ \leq 79$ $-66 \leq EL \leq 75$	SSRMS Translation from Worksite 3 to 5	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement before SSRMS maneuver to Config Position

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~07/03:00	Beta 18 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ D6: $41 \leq AZ \leq 79$ $-57 \leq EL \leq 64$	SSRMS at Worksite 5	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement after SSRMS reaches Worksite 5
~07/15:50	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-66 \leq EL \leq 75$ C2: $-32 \leq AZ \leq -8$ $-28 \leq AZ \leq 38$ C3: $-86 \leq AZ \leq -27$ $-8 \leq AZ \leq 35$	SSRMS attached to Lab MT at Worksite 1	Protection for ISS structure, including the S0 truss and MBS structure, and potential direct transmission into (or reception from) the ISS Ku dish Protection for SRMS, SSRMS. Implement after SSRMS walk off to Lab
~08/15:42	Beta 21 Only with boxes: B1: $-35 \leq AZ \leq 45$ $-35 \leq EL \leq 40$	Post Undock, ORB at approximately 105 ft	ISS Protection within 8° corridor inside of 765 ft but greater than 105 ft Docking through Sep 2
~08/17:10	Beta 21 + Mask	Post Sep 2 configuration	Standard mode used for Orbiter with all payloads within PLB envelope
~08/18:40	Beta 21 Only with box: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	OBSS unberth through Flat Field Position	Protects SRMS for OBSS unberth operations and for the maneuver to the Flat Field position
~08/19:25	Beta 21 Only with box: A3: $-132 \leq AZ \leq 80$ $-90 \leq EL \leq 60$	STBD Survey	Protection for SRMS during STBD Survey
~08/20:40	Beta 12 Only	Nose Cap Survey	Protection for SRMS during Nose Cap Survey NOTE: Do not initiate until SRMS in NOSE CAP ACAS Start
~08/21:30	Beta 21 Only with box: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	Port survey and OBSS Berth	Protection for SRMS during Port Survey and OBSS Berth
~08/23:35	Beta 21 + Mask	LDRI Downlink	SRMS back in pre-cradle. Standard mode used for Orbiter with all payloads within PLB envelope

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FLIGHT PLAN WALKTHROUGH (WITH RATIONALE)

Generic Items:

- ISS activities completed prior to Shuttle docking:
 - SSRMS Pre-launch checkout at L-48 hours. Mobile Transporter (MT) and SSRMS are at worksite 2, pdgf 2 (w2p2)
- In general, whenever there is mechanism motion (solar arrays retraction or deploy, radiator deploys), exercise is forbidden. Additionally, any time both RMS and SSRMS are grappled to something (i.e., S3/4, or OBSS) exercise is prohibited.

FD01 – Launch & Setup

- Following Post Insertion, the standard FD01 activities are scheduled: Aft Controller checkout, OMS burn NC-1, Elevon park, RMS On-orbit init, powerup, checkout and PLB survey, GIRA Install, APU reconfig, Group B powerdown, OCAC setup, Tissue Equivalent Proportional counter (TEPC) power on and Emergency Eyewash (SEE) setup.
- **PGSCs** - Part I of PGSC setup is completed, which includes running the late update disk on the absolute minimum config of the Router, KFX, and WLES PGSCs. The wireless Access point and color printer are also required as part of the FD01 setup. Two crewmembers are scheduled to perform PGSC LAN setup, so the entire network could feasibly be set up on FD1.
- **RMS** - PLT and MS1 will perform the RMS powerup and PLB Survey; however, MS1 and MS3 will perform the RMS Checkout since the PLT will be occupied with the NC-1 burn.

FD02 – OBSS and RNDZ Prep

- **RNDZ Burns** - NC-2 and NC-3 rendezvous burns are planned to allow adequate time for RMS surveys using OBSS. NPC is not scheduled since it will likely be combined with one of the other two burns this day.
- **Maneuvers** - Prior to crew sleep, the CDR will future load the maneuver for the FD03 simo dump. The maneuver starts after crew wakeup on FD03.
- **OBSS Surveys** - Starboard wing, nose cap, and port wing.
 - New surveys are debuting on STS-117. The updated procedures reduce the amount of time required to perform each scan, scan a larger area, and incorporate the use of IDC while LDRI scans are occurring, thus reducing the likelihood of needing Focused Inspection during the mission (the IDC image is already available if LDRI indicates a suspect area). For this mission, on FD02, the starboard wing is scheduled for 90 minutes (although 75 minutes is the expected duration), the nose cap for 50 minutes, and the port wing for 90 minutes. For Late Inspection, the port wing survey decreases to 75 minutes. Additionally, the starboard survey incorporates the Flat Field calibration. The two wing surveys cover most of the areas of the crew cabin, so the RMS survey after OBSS berth is no longer required. Those areas of the crew cabin not surveyed will be photographed during the RPM maneuver during rendezvous. As a result of the huge reduction in time to complete all the FD02 surveys, only three crewmembers are scheduled, vice the four seen on some of the previous missions.
 - Scans of the entire starboard wing are not easily performed, or are impossible to perform while docked and so are scheduled first. Three crewmembers are required continuously during the survey with two performing OBSS/RMS ops and one monitoring the LDRI/IDC and situational awareness cameras. Only two crewmembers are required during unberthing and berthing (non-laser ops). The survey is scheduled to continue through the night passes, but the crew may elect to pause if the night time visuals are not sufficient.
 - The LDRI survey attitude requires no sun within +/-10 degree field of view (FOV) of the laser bore sight. No sun can be directly behind the instrument, either, within a 20 degree half-cone of the bore sight. And just when you thought things couldn't be more complicated, it is highly desired to keep the sun at a 90 degree half cone from the bore

sight of the LDRI FOV such that it is always behind the instrument, but not directly behind!

- The IDC instrument requires no sun within a 90 degree half cone of the FOV. As a result of the large sun “keep-out zone,” the nose cap cannot be completed without changing the Orbiter attitude. This is not desirable. Any infringement of the sun within the 90 degree half cone will result in the IDC instrument being powered off during those times. Informing the crew of when to power off IDC will be taken care of in the PDRS procedures. The IDC line-of-sight is calibrated to align with the LDRI line-of-sight during scans.
- Real-time Ku is required during the LDRI 3D calibration in OBSS Unberth. Each surface scan requires as much real-time Ku as possible to downlink DTV. Inertial attitudes are scheduled to maximize Ku and to optimize LDRI lighting. Specifically, the wing attitudes put the sun on the wing in the X-Y plane ~60 degrees from the nose and the nose cap attitude puts the sun on the nose pitched down 30 degrees to avoid sun in the crew’s eyes. All maneuvers are scheduled to occur during RMS/OBSS repositioning. If maneuvers are required during the survey, the scanning will be paused. VERN/ALT attitude hold is acceptable for LDRI. DAP A14 is loaded per the Unberth procedure and is used for the survey. Nose jets are disabled during the nose cap survey and ALT/tail only is selected per the procedure.
- Replay of survey data not obtained real-time is scheduled prior to sleep. INCO will provide LOS times in order to help the crew cue the tapes. A dedicated comm maneuver is scheduled to provide sufficient Ku downlink time. Note that TDRS Z does not have the capability for DTV and cannot be used to downlink surveys.
- LCS will be used as a backup to LDRI (sensor package on end of OBSS). LCS has no lighting constraints and requires OCA downlink of data instead of video downlink. LCS requires masking from Ku radiation during surveys due to data degradation. LCS also requires certain S-band antennas be inhibited during data takes but this is handled by the procedure.
- P/TV08 is set up for an OMS Pod survey.
- RMS is pre-cradled following survey completion (RMS Powerdown, step 1 only) to save time on FD03, in theory. Since the RMS powerup was scheduled on the PLT on FD03 after hard mate and before hatch opening, the time savings is negligible.
- **Centerline Camera** - RNDZ prep activities include Centerline Camera install and ODS Ring Extension, which cannot occur during OBSS surveys due to a camera view constraint onboard. The C/L Camera install must occur before ODS Ring Extension. These activities are scheduled after the completion of the surveys.
- **CWC Setup** - Hardware is set up to be able to fill CWCs post docking. All the CWCs to be filled are on ISS. A cue card listing the requirements for each bag will be uplinked FD02 and posted near the galley. This reduces the amount of fill information required on the Flight Plan detail pages, as well as eliminates the need for a water message in each Execute Package.
- **OCA** - Prior to crew sleep, the OCA downlink rate will be changed from Channel 2 (low) to Channel 3 (high) to expedite the downlink of IDC data files (4 mg each). During IDC scanning, 1500 to 2000 data files are generated; however, only approximately 600 images files need to be downlinked (those during insolation passes). Additional data files may be requested, if required for analysis.

FD03 – Docking and S3/S4 Handoff

- **EECOM Items**
 - A simo dump is scheduled to start 30 minutes after crew wakeup to reduce the amount of water dumped during the docked mission.
 - The CWC Condensate bag is installed prior to docking.
 - A 3 hour N2 stack repress starts just prior to hatch opening.
 - MS2 transfers four CWC bags and the silver biocide kit to the Orbiter in preparation for CWC fills, which begin immediately following the bag transfer.

- **PGSC Items**
 - OCA downlink rate changed from Channel 3 to Channel 2 so that Channel 3 is available for video before the start of RNDZ.
 - The PGSC network is reconfigured from the RNDZ configuration to an RMS configuration in preparation for S3/S4 unberth and handoff.
- **EVA Items**
 - The EMUs are removed from the Orbiter airlock to facilitate ISS access after docking. MS3 and MS4 will fill EMU drink bags (scheduled as steps in Middeck Prep) as required for the EVAs prior to suit transfer post-docking.
 - The EVA 1 crew and the IV crewmember (MS2) begin preparing for that EVA immediately after the safety briefing. EVA equipment will be transferred from the Orbiter to the Station airlock, the REBA will be installed and checked, and Equipment Lock prepped. The Equipment Lock procedure is only 30 minutes since the drink bags were filled prior to docking (middeck prep proc).
 - The CDR and FE-2 configure the O2 system so that the Orbiter provides the oxygen for EMU prebreathes which conserves ISS resources.
 - MS3 and MS4 start EVA campout procedures at the end of the day. As a result of a desire to synchronize EVA prep activities and Robotics on FD4, the campout crewmembers are given an 8.5 hour sleep period. The EVA crewmembers cannot initiate repress until at least 8:40 has elapsed at 10.2 psi, which isn't a problem with either an 8 hour or 8.5 hour sleep period.
- **Comm Items**
 - The OIU is activated during RNDZ.
 - The docked audio setup is performed later than other flights. Significant ISS powerdowns are required prior to docking. The DAIU won't be powered ON until post-docking, so the docked audio setup must wait until that is complete. In the event that the DAIU fails, as it has on previous missions, the STS-117 mission will use UHF comm just like those other flights.
 - The SSV outrate is changed to 2 post-docking.
- **RNDZ Items**
 - The Shuttle will rendezvous with the ISS. When the Shuttle is on the RBAR at 600 feet from ISS, it will perform the RBAR Pitch Maneuver (RPM) to allow the ISS crewmembers to photograph the belly of the Shuttle for tile damage. The pictures are downlinked via ISS OCA with 800mm images having higher priority than the 400mm images.
- **Maneuvers**
 - Once docked, the Shuttle will maneuver the stack to the Biased -XLV -ZVV (TEA) attitude. ISS will maintain attitude control during most of the docked timeframe using Control Moment Gyros (CMGs).
 - Most of the attitude changes performed by the CMGs on ISS will require the CDR or PLT to update the attitude in Universal Pointing in the event that the Shuttle must take attitude control quickly.
 - The Group B Powerdown is scheduled after the Shuttle maneuver to TEA is complete since it requires the Shuttle to go FREE for a short time during the procedure.
- **Ingress** - After docking, leak checks are performed on the PMA and ODS and the ODS is prepared for ingress by removing the centerline camera. P/TV04 will support hatch opening and ingress. A short welcome and then a safety briefing will be given to the Shuttle crewmembers.
- **Photo/TV** - Photo/TV04 is setup for ISS ingress, Photo/TV 05 is setup for comm and video transfer between Shuttle and ISS and Photo/TV 06 is setup to supply video of S3/S4 unberth and handoff.
- **Robotics** - PLT and MS1 use the RMS to lift S3/S4 out of the bay to a handoff position for the SSRMS to grapple. The durations are increased for the RMS operations to reduce the risk of a loss of attitude control by ISS since the 3 CMGs can't handle a faster rate. The PLT is also the SSRMS guy, so he (and FE-2) grapple the truss segment with the SSRMS and then PLT returns to Shuttle to ungrapple the RMS from S3/S4. Since the S3/4 installation viewing position is too close to structure to keep the RMS overnight (Flight rule violation) the

RMS maneuvers to the 1A/3A viewing attitude, instead. The two positions are very similar. No crew exercise is allowed while both arms are grappled to the truss.

- **IWIS** - The ISS crew performs IWIS setup in preparation for the two data takes scheduled for FD04. One data take is of S3/S4 installation. The second data take is of a series of Russian thruster firings.

FD04 – S3/S4 Installation and EVA 1

- EVA Prep Activities, EVA prep/Campout protocol - 40 minutes following campout crew wakeup, the airlock is repressed to 14.7 psi. The EVA crewmembers have 40 minutes while wearing their Quick-don masks for a hygiene break and to gather breakfast if it wasn't brought into the airlock the prior evening (in which case they eat breakfast prior to the 14.7 repress). The EVA and IV crewmembers ingress the ISS airlock before the hatch is closed. A 20 minute depress to 10.2 psi ensues. The EVA crew then doff the O2 masks and don the EMUs. The EMUs are purged with pure O2 and the airlock is repressed to 14.7 psi. The IV crewmembers exit. The EVA crewmembers (MS3 and MS4) then perform a 60-minute in-suit prebreathe followed by Crew Lock hatch closing, Crew Lock depress, and lastly Post Depressurization when the EVA crew disconnects from the Service and Cooling Umbilical (SCU) and the Phase Elapsed Time (PET) clock begins. The depress pump depresses the crew lock down to 1.5 psi, but at 3 psi the Crew Lock valves are opened to vacuum. Once depress is complete, the EVA crew egress the crew lock and begin EVA setup. P/TV07 supports EVA activities. The following EMU suit donning synch points are in the Flight Plan:
 - At AVU Target Acquisition: Don HUTs.
 - At RTL: Don Helmets.
 - At 2 bolts (#3 and another) or 3/4 bolts: GO for Post Depress.
- The PMC is conducted during the 40 minutes before the hygiene break per crew request.
- EVA activities primarily concern safing the S3/S4 truss by connecting utilities providing power and data. The next concern is preparing the truss for Solar Array deploy the next day by releasing and unstowing the Solar Array Blanket Boxes (SABB). The Solar Array Beta Gimbal Assemblies (BGA) are also released. MDM covers from S3 are removed and jettisoned. Struts (AJIS) to stabilize S3/S4 are installed. The cinches and winches on the PVR are released to allow deploy later. The first of two Drive Locking Assemblies (DLA) is installed. The DLA is essentially the gear that allows the SARJ (Solar Array Rotary Joint) to rotate. Once that is complete, the crew begins removing SARJ launch locks and restraints.
- **PVR Deploy** - After the DLA is installed, the IV crewmembers are GO to deploy the Photovoltaic Radiator (PVR) on S3/S4. The PVR deploy must occur in insolation, preferably at the start of insolation while the EV crew is still outside. The PVR had some problems during deploys on the ground, so it is desirable to have the EV crew available to perform a manual deploy, if required. Neither crew can exercise while the PVR is being deployed.
- **Post EVA activities** - When EVA cleanup is complete, the EV crew ingresses the ISS Crew Lock and performs Pre-repress (EV crew connects to SCU terminating the EVA), closes the EVA hatch, and represses the Crew Lock. Post EVA procedures include water and metox. Battery Stowage Assembly (BSA) init is done.
- **Robotics** - While the EV crew is preparing for the spacewalk, the Robotics operators are moving the S3/S4 truss from the overnight park (handoff position) to install. The AVU is setup and calibrated to assist the crew in the installation. Once installed, the SSRMS ungrapples S3/S4 and maneuvers to a park position for EVA 1 support. No exercise on either crew can be scheduled during 1st and 3rd stage capture. No ergometer exercise can be scheduled while SSAS bolts are driving.
- The RMS is moved from the 1A/3A viewing position (from overnight) to the installation viewing position. After installation, it is then returned to the 1A/3A viewing position in preparation for deploy the next day.
- **DAP** - After S3/S4 is installed, the crew must permanently alter A12 and B12 (CNTL ACCELS).
- During the EVA, MS2 must perform an EMU reconfiguration for his and MS1s suits.

- **IWIS** - Two IWIS data takes are scheduled for this day. The first data take will measure vehicle accelerations during the S3/S4 truss install. The second data take will measure vehicle accelerations caused by choreographed Russian thruster firings. The second test requires accelerometers to be mounted in the Shuttle. Those sensors are scheduled to be installed during the EVA. If the Russian firing test is coordinated (GO), then the IWIS deact will move to FD05. Otherwise, the deact should remain as scheduled for the S3/S4 installation. The Russian thruster firing must occur after all the crew exercise is complete and during an eclipse pass. The test must also occur before crew sleep since it requires a drag-through cable. This cable must be disconnected prior to crew sleep (by the ISS crew).
- Periodically throughout the mission, the crew will perform 14.7 maintenance (Atlantis requirement) to bump up the cabin pressure.

FD05 – Solar Array Deploys

- **Deploys** - Overnight, FN4, MCC-H will deploy the 1A and 3A solar arrays to 1 bay via commanding. The station CMGs maneuver the stack to put the sun on the 1A blanket box. After wakeup, the crew will position the SSRMS to view the 1A deploy. At the beginning of the next insolation pass, the 1A array is deployed to 49%. The deploy stops for 30 minutes while the sun warms the blanket which has proven to reduce stiction. At the end of the same insolation pass, the array is fully deployed to 100% before eclipse. During the eclipse pass, the ISS maneuvers the stack to put sun on the 3A blanket box and the SSRMS cameras are reconfigured to view the 3A deploy. At the start of insolation, the 3A array is deployed to 49%, waits for 30 minutes of warming, and then is fully deployed to 100% at the end of the solar pass. No exercise can be scheduled on either crew during the deploys.
- **Maneuvers** - In step 15.8 of the SAW deploy procedure, the Orbiter takes control of the stack. ISS CMG's perform both maneuvers to the 1A and 3A attitudes. The Orbiter holds the 3A attitude and maneuvers back to TEA once both arrays are fully deployed. The ISS holds the 1A attitude. Plume loads are the driver for the ISS holding the 1A attitude and the Orbiter the 3A attitude. Since the stack is in the 1A attitude a relatively short time, the Shuttle crew preferred not to be distracted to perform a maneuver update in the event Shuttle had to take control. The update is performed for the 3A attitude by the PLT, who will be the only Shuttle crewmember on Shuttle during the deploys.
- During the deploy wait times, the Shuttle crew will fill CWCs and perform an EMU swap in preparation for EVA 2.
- **PMDIS** - Perceptual Motor Deficits In Space/Test of Reaction and Adaptation Capabilities needs to be completed by Launch + 96 hours. FD05 was the earliest these tests could be scheduled on the Shuttle crew. MS1 and MS2 volunteered for this experiment. Tests cannot be scheduled past 4/00:00. Once the tests are complete, FE-2 will stow the PMDIS equipment.
- **OFF-Duty** - Two hours of OFF Duty are scheduled for the Shuttle crew after lunch. If the deploys take longer than expected, this OFF Duty can be scheduled on EOM-1 or if days are added to the mission, perhaps on an added day.
- **Robotics** - After the deploys are complete, the PLT and MS3 maneuvers the RMS to a retraction viewing position in preparation for FD06 retraction attempts. The RMS is maneuvered first so that RMS cameras can be used to view the maneuver of the SSRMS (next) to a configuration to be able to translate FN5 from Worksite 2 (W2) to W3. The PLT and ISS-CDR perform the SSRMS maneuver. The translation is required for 2B retraction support during EVA 2, as well as for camera viewing.
- **EVA** - MS3 and MS4 perform a Post EVA 1 tool config after lunch. MS1 and MS2, who are scheduled for the next EVA, perform Equipment Lock prep and start a Tool Config prior to EVA 2 Procedure Review and campout. The remainder of the EVA 2 Tool Config will be done while MS1 and MS2 are on masks during prebreathe. While the deploys are occurring earlier in the day, ISS-CDR prepares the DCS camera and takes care of the BSA and METOX initiates and terminates.
- **Food** - Flight STS-116/12A.1 prepositioned food trays for the 13A crew. During FD5, MS4 will transfer the food trays to the middeck. The repacking of each person's food in the middeck is scheduled as an EZ Block activity.

FD06 – 2B Retraction and EVA 2

- **2B Retraction** - As a result of the difficulties retracting the P6 4B array on STS-116, it was decided that additional time, earlier in the mission to attempt to retract the 2B array was desirable. So, late in Postsleep while the EVA crew prepares, one solar pass is dedicated to attempting to retract 2B via IV commanding. At the first sign of backfolding, which could damage the array, the attempt will stop and wait until the EVA crew is outside. If no problems occur, the retraction will continue for that solar pass and then continue for the first 1:15 of EVA 2 with the EVA crew available and positioned to assist the retraction as needed. During both the IV and EV attempt, the crew is prime for observing the retraction. Neither crew can exercise while 2B retraction is in work.
- **EVA 2** is primarily concerned with preparing the SARJ for rotation. Once the 2B array is retracted to 19 bays, or when the 1:15 EVA time expires (which ever happens first), work on the 2B array will stop and the EVA crew will return to tasks that prepare the SARJ for rotation - installing braces (not dentistry), installing the second DLA and removing, if possible, all the remaining SARJ launch locks and restraints.
- **Robotics** - The SSRMS is positioned on FD05 for 2B retract viewing on FD06. After the IV attempt is complete; however, it must maneuver to a position to pick up an EV crewmember for the EV retraction attempt. After the EVA is complete, the SSRMS is maneuvered back to the 2B viewing attitude in preparation for the IV attempt on FD07.
- FE-2 purges the vent valve lines in preparation for the OGS R&R during EVA 3. The lines need ~18 hours to dry out before the R&R occurs. Leak checks are also performed.

FD07 – 2B Retraction and water dumps

- **Focused inspection** - If focused inspection is required, it will be scheduled on FD07. The OBSS handoff will need to occur first (~2.5 hours) followed by the inspection. Any required translations (possibly to W4) would need to be done FN7 and any walkoffs (possibly to P3) done prior to OBSS handoff on FD08.
- **2B Retraction** - A second IV attempt to retract 2B is scheduled for the morning of FD07. Two insolation passes are scheduled. The intent is to fully retract 2B during those passes; however, the 12A.1 experience suggests that EVA 3 will likely be used to finalize the retraction. During the retraction attempt, no crew exercise is allowed.
- **EVA** - MS1 and MS2 perform a post EVA 2 Tool Config after the retraction attempt. This needs to be completed prior to the EVA 3 Tool Config. MS3 and MS4 prepare for EVA 3 by swapping EMUs, performing Equipment Lock Prep and the Tool Config. The ISS crew takes care of the BSA and METOX inits and terms; however the EVA crew will do the EMU installs.
 - **O2 Transfer** - STS-117 will transfer ~40 lbs of O2 to ISS. Normally, it would be desirable to perform the transfer after all the EVAs are complete; however, this would result in an SCSC violation on FD08 as well as a too long of a transfer time due to the Shuttle crew OFF-Duty on FD09. So on FD08, the O2 transfer deconfigures the EVA setup and starts the transfer in the morning. Eight hours later (max duration) the O2 transfer is terminated and the configuration is returned to the EVA configuration for EVA 3 the next day.
 - The first **SIMO dump** for the mission is scheduled. Once the waste dump is complete, the crew evacuates “empty” PWRs (Payload Water Reservoir). The PWRs can contain 20 lbs of water and appear empty, so the crew will evacuate the bags prior to filling them again. A leaking PWR on a previous mission is thought to be the result of it not being truly empty before the fill began.
 - The **condensate CWC** is changed out on FD07. It will be dumped post-undocking. The last CWC is filled (#8). Two PWRs are filled post-SIMO dump.
 - Another **stack N2 repress** is scheduled.
- **CGBA** - This is a science experiment with specimen containers returning on Shuttle. The transfer is scheduled as close to undocking as possible, but no earlier than landing - 5 days. This transfer is done by the ISS crew on FD07. The return location is TBD.
- The PMC is done via OCA videoconferencing to test out the configuration prior to the PFCs on FD09 during OFF Duty.

FD08 – EVA 3, the great unknown

- **EVA 3, the nominal plan** is to perform the Oxygen Generation System (OGS) Vent Valve R&R. This requires leak checks and IV work behind panel LAB1P1 in ISS. The IV tasks are done by FE-2 during the EVA. Other EVA tasks include installing LAB EWIS (External Wireless Instrumentation System) antenna, stowing S3 drag link/keel pin, routing Node/SM LAN cabling, and 13A.1 get-aheads.
- **EVA 3, the off-nominal plan:** If solar array 2B doesn't retract on FD07, then EVA 3 will be dedicated to the retraction. If possible, it is highly desirable to clear the path (drag link/keel pin activity) for the MT to translate to W1 for a checkout during the joint mission. If mission duration allows (+2 days possible), then EVA 4 will be added to the flight to finish the tasks nominally scheduled for EVA 3. If mission duration will not allow +2 days, then EVA 4 cannot be added (without an SCSC violation). If Focused Inspection is scheduled on FD07, no time remains for 2B retraction. In this case, FD08 will mimic FD06 so that an IV attempt will be scheduled during EVA prep, followed by an EVA dedicated to retraction.
- **PRLA** - the CDR closes the PRLAs before the EV crew egresses for the last EVA in the event that the PRLAs won't close and need an EVA assist.
- **FES** - An FES dump is scheduled during EVA prep and terminates ~15 min prior to the EV crew egress. This allows ISS Momentum Mgr to settle out prior to any 2B activities in the EVA. Any solar array activity requires either FREE drift or MM, no thrusters of any kind. This FES dump assumes that the FES heaters are powered on FN7 (before crew sleep) so that the crew only has to start the FES on FD08. This is a cryo hit, but prevents the FES dump from occurring during the EVA. The FES heaters are powered off after the completion of the FES dump. At the end of FD08, prior to crew sleep, the heaters are powered back on to prepare for FES dumps on FD09. If the FES dump the morning of FD09 is not required, then the heaters do not need to be powered on FN8.
- Another N2 stack repress and 14.7 psi maintenance is scheduled.
- Three PWRs are filled early in the day, the fourth is filled late in the day so that EECOM doesn't fall below redlines.
- Post EVA, the SSRMS is configured to translate from W3 to W5 in preparation of the SSRMS walkoff to the LAB on FD09. Regardless if the W1 path was cleared during the EVA, the SSRMS will still walkoff to the LAB.
- The Comm system is configured to String 1 for 24 hours
- The RMS is placed in an undocking position. If Focused Inspection was done, then the RMS will be holding the OBSS for undocking and the positioning duration is 25 minutes. If no Focused Inspection is done, then the RMS will be powered down.

FD09 – OFF Duty and Water Dump #2

- **OFF Duty PFCs** - The majority of the Shuttle Crew OFF Duty is scheduled on FD09. The crew's Private Family Conferences are also scheduled during this time. Prior to the PFCs the WLES backup function is disabled to prevent any network disruptions or slowdowns during the events. Once all of the PFCs are completed, the WLES backup function is restored.
- **FES Activities** - A short FES dump is scheduled on the CDR during Postsleep. A second FES dump is scheduled after the completion of the Supply dump later in the day. The FES dump should be initiated prior to the handover to ISS attitude control post supply dump. The second FES dump is terminated during the Hatch Leak Checks prior to handover to ISS.
- The **Supply dump** on FD09 is a combination of a supply dump and a concurrent CWC dump through the waste line. Prior to the Supply init, the PLT and MS2 will perform Part A of the CWC Overboard dump procedure to connect the CWC bag to the waste line. At the completion of the dump, the Orbiter maneuvers the stack back to TEA and hands back attitude control.
- **O2 Teardown** - Although the O2 transfer was completed on FD07, the transfer teardown is scheduled on FD09. It is done by a Shuttle and an ISS crewmember.
- **ISS Exterior Survey** (P/TV08) is scheduled on MS3. This is desired to be done after all of the EVAs (exterior changes to ISS) are complete. This should be scheduled during an insolation pass.

- The **Crew Conference** and crew photo are scheduled on FD09. The crew conference video can be downlinked via Shuttle or ISS assets, depending on which vehicle has better Ku comm during that timeframe. The crew photo is personal time for the crew to take a group picture before the hatches are closed and the two crews are isolated from each other.
- **Hatch closure** - Late on FD09, the crews say goodbye. The Shuttle crew egresses Station, closes the hatch, and depresses the vestibule. This is done the night before undock so that undock can occur early on FD10, protecting Late Inspection on undocking day.
- **SSRMS Walkoff** - In order to more safely checkout W1, the SSRMS walks off from w5p2 to the LAB. This is scheduled on the ISS CDR and FE-2 immediately after the DPC. Regardless of whether the path to W1 was cleared during an EVA, the SSRMS will still walkoff to the LAB to expedite checkout during the stage. The survey to inspect the translation path can be done using cameras other than those on the SSRMS. The survey, if the path is cleared, will occur prior to the walkoff (during ISS Postsleep) so that the MT translation from W5 to W1 can occur before lunch. The MT translation requires either MM or FREE drift (no thrusters), so it must be completed prior to the attitude handover to the Shuttle for the water dump. Note that MM cannot maintain attitude control with the MT translation and an FES dump occurring simultaneously. Once the MT is at W1, it is desirable to stay at that worksite for a 1.5 hour checkout and TBD duration to warm up the MT before it travels back to W4. As a result of the Orbiter attitude control during the water dump and the vestibule depress, the translation back to W4 is scheduled early in the sleep period once MM has settled out. The MT is at W4 for undocking the next day.
- The Comm system is reconfigured back to Comm string 2 for the remainder of the mission.
- MS2 and MS3 perform RNDZ Tools checkout after the hatches are closed. The backup WLES laptop is the RPOP 2 PGSC, so the WLES application is deactivated and the periodic dumps from the prime WLES laptop to the backup are terminated. WLES remains in this configuration until after undock.
- MS1 and MS2 perform post EVA transfer and reconfigurations prior to hatch closure to ensure that ISS tools stay on ISS and Shuttle tools are on Shuttle.
- The ISS experiment Nutrition is sending samples back in the Shuttle in a Double Coldbag. The coldbag is transferred from MELFI NET 129 hours prior to the worst-case landing scenario (EOM +2). It is scheduled to be transferred by FE-2 just prior to hatch closure. Location TBD.

FD10 – Undocking and Late Inspection

- Before undocking, a Group B powerup is done, the centerline camera is installed, P/TV03 is set up for undocking imagery, the SSV outrate is changed to 3, the FES is activated, and the Orbiter takes control of the stack and maneuvers to the undock attitude. The maneuver is initiated ~1:15 prior to undocking to provide PHALCON sufficient time to feather solar arrays once the maneuver is complete but before undock. The docked audio system is deconfigured.
- After undock, a **flyaround** is scheduled; however, if Focused Inspection was done on FD07, the RMS will still be holding the OBSS. In this situation, the flyaround will not be performed since the pitch loads imparted during flyaround have not been analyzed with the OBSS on the RMS.
- After Final sep, a Group B powerdown is done, the Space to Space Orbiter Radio (SSOR) and OIU are deactivated, the EMUs are reinstalled in the airlock, the midflight reconfigs are done, and the condensate CWC bag is torn down. WLES is returned to it's nominal config with a prime and backup PGSC and with periodic data dumps to the backup PGSC restarted. P/TV03 and the centerline camera are torn down, and the PGSC network is reconfigured from a RNDZ profile to the RMS profile. FES is deactivated.
- **Late inspection** occurs after lunch. The OBSS is unberthed (unless Focused Inspection was performed in which case the RMS is still holding onto the boom). The new scanning protocols are used, however the time for the port and starboard wing is reduced to 75 minutes (from the 90 minutes scheduled on FD02). Once the scans are complete, the Orbiter maneuvers to a comm attitude to playback any LDRI data that wasn't collected real-time.

- The EVA Unstow and Pack activity is removing items from a bag transferred on FD09 before hatch closure and repacking it nicely for entry.
- A 14.7 maintenance is performed.
- NC-5 is scheduled late in the day to protect for a possible **re-RNDZ**. Note that NC-5 may be deleted if the opening rate between Shuttle and ISS is slow. If Late Inspection perturbs the drift away from Station such that there is no opening rate, or worse, a small closing rate, then NC-5 will likely be performed.

FD11 – Entry Prep

- Nominal activities scheduled: FCS C/O with Filter cleaning and APU Heater activation beforehand; RCS Hotfire; PILOT Ops; D/O Briefing, and Cabin stow.
- L-1 comm checks are scheduled for a prime MILA and prime Dryden flyover. The entry Flight Director is okay with this scheduling (no WSSH, no backups).
- A simo dump is scheduled on FD11. After the termination of the waste water dump, the crew hooks up the condensate CWC and dumps that overboard.
- SSV and WLES are deactivated.
- Ku band antenna is stowed.
- Ergometer is stowed.
- RMS port and starboard MPMs are stowed and the RMS is deactivated.
- PGSC stow part I is done
- The MADS instrumentation is activated in preparation for entry. Normally, this is called to the crew, but on a previous flight, landing opportunity discussions prevented this information from getting called to the crew. So, it has been scheduled in the Flight Plan.

FD12 – Entry

- Nominal activities include the Group B Powerup, IMU Align and Verification and the maneuver to the -XSI thermal conditioning attitude.
- GIRA and OCAC are stowed and TEPC is powered down. An air sample is obtained.
- The remainder of the PGSC LAN is stowed.
- After the D/O burn, MS3 will perform the Midodrine experiment (ingest a tablet).

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FLIGHT PLAN

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