

Flight Plan

STS-118

FRR Flight Cycle Trajectory

Mission Operations Directorate Operations Division

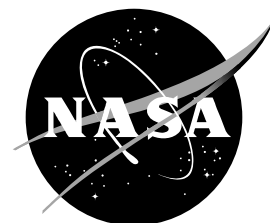
Final
July 10, 2007

For the latest working copy of the Flight Plan, visit
<http://mod.jsc.nasa.gov/do4/flightplan/main/fp.cfm?id=118>

EVENT	FD	MET	LOCAL DATE	CDT	GMT
Launch	1	00/00:00	08/09/2007	17:06	221/22:06
OBSS Survey	2	00/18:00	08/10/2007	11:06	222/16:06
ISS Docking	3	01/20:46	08/11/2007	13:52	223/18:52
S5 Unberth	3	01/22:25	08/11/2007	15:31	223/20:31
Hatch Open	3	01/22:55	08/11/2007	16:01	223/21:01
EVA 1	4	02/18:55	08/12/2007	12:01	224/17:01
EVA 2	6	04/18:25	08/14/2007	11:31	226/16:31
ESP-3 Transfer	7	05/15:10	08/15/2007	08:16	227/13:16
EVA 3	8	06/17:55	08/16/2007	11:01	228/16:01
Hatch Close	9	08/00:40	08/17/2007	17:46	229/22:46
Undock	10	08/15:25	08/18/2007	08:31	230/13:31
OBSS Survey	10	08/19:25	08/18/2007	12:31	230/17:31
Deorbit	12	10/19:05	08/20/2007	12:11	232/17:11
KSC Landing	12	10/20:04	08/20/2007	13:10	232/18:10

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>

MISSION OPERATIONS DIRECTORATE

**FLIGHT PLAN
STS-118**

FINAL
July 10, 2007

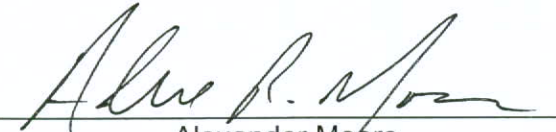
PREPARED BY:



Michael Scheib
Book Manager, Lead FAO



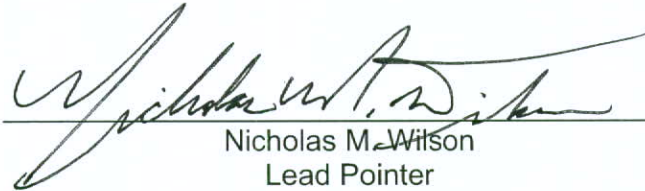
Kathleen L.K. Kilpatrick
Lead Timeliner



Alexander Moore
Lead Ops Planner



Melissa Bestick
Lead RPE



Nicholas M. Wilson
Lead Pointer

APPROVED BY:



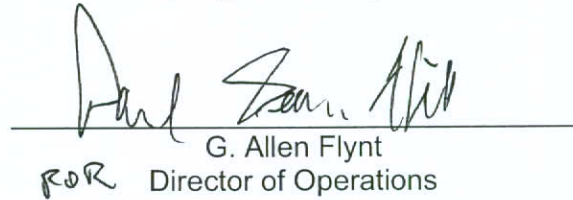
Linda DeLapp
Lead, Flight Planning Group



Debbie Stapleton
Chief, Flight Planning Branch



for Michael G. Hess
Chief, Operations Division



ROR 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-2045

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager/Lead FAO	DO4/M. Scheib	281-244-1149
Lead Timeliner	DO4/K. Kilpatrick	281-244-5797
Lead Pointer	DO4/N. Wilson	281-244-0954
Lead Ops Planner	DO4/A. Moore	281-244-0261
Lead RPE	DO4/M. Bestick	281-244-1114

FLIGHT PLAN
STS-118

LIST OF EFFECTIVE PAGES

	FINAL	07/10/07	
Sign Off	*	118/FIN	2-39
ii	*	118/FIN	2-40
iii	*	118/FIN	3-1
iv	*	118/FIN	3-2
v	*	118/FIN	3-3
vi	*	118/FIN	3-4
vii	*	118/FIN	3-5
viii	*	118/FIN	3-6
1-1		118/FIN	3-7
1-2		118/FIN	3-8
1-3		118/FIN	3-9
1-4		118/FIN	3-10
2-1		118/FIN	3-11
2-2		118/FIN	3-12
2-3		118/FIN	3-13
2-4		118/FIN	3-14
2-5		118/FIN	3-15
2-6		118/FIN	3-16
2-7		118/FIN	3-17
2-8		118/FIN	3-18
2-9		118/FIN	3-19
2-10		118/FIN	3-20
2-11		118/FIN	3-21
2-12		118/FIN	3-22
2-13		118/FIN	3-23
2-14		118/FIN	3-24
2-15		118/FIN	3-25
2-16		118/FIN	3-26
2-17		118/FIN	3-27
2-18		118/FIN	3-28
2-19		118/FIN	3-29
2-20		118/FIN	3-30
2-21		118/FIN	3-31
2-22		118/FIN	3-32
2-23		118/FIN	3-33
2-24		118/FIN	3-34
2-25		118/FIN	3-35
2-26		118/FIN	3-36
2-27		118/FIN	3-37
2-28		118/FIN	3-38
2-29		118/FIN	3-39
2-30		118/FIN	3-40
2-31		118/FIN	3-41
2-32		118/FIN	3-42
2-33		118/FIN	3-43
2-34		118/FIN	3-44
2-35		118/FIN	3-45
2-36		118/FIN	3-46
2-37		118/FIN	3-47
2-38		118/FIN	3-48

* – Omit from flight book

3-49	118/FIN	3-106	118/FIN
3-50	118/FIN	3-107	118/FIN
3-51	118/FIN	3-108	118/FIN
3-52	118/FIN	3-109	118/FIN
3-53	118/FIN	3-110	118/FIN
3-54	118/FIN	3-111	118/FIN
3-55	118/FIN	3-112	118/FIN
3-56	118/FIN	3-113	118/FIN
3-57	118/FIN	3-114	118/FIN
3-58	118/FIN	3-115	118/FIN
3-59	118/FIN	3-116	118/FIN
3-60	118/FIN	3-117	118/FIN
3-61	118/FIN	3-118	118/FIN
3-62	118/FIN	3-119	118/FIN
3-63	118/FIN	3-120	118/FIN
3-64	118/FIN	3-121	118/FIN
3-65	118/FIN	3-122	118/FIN
3-66	118/FIN	3-123	118/FIN
3-67	118/FIN	3-124	118/FIN
3-68	118/FIN	3-125	118/FIN
3-69	118/FIN	3-126	118/FIN
3-70	118/FIN	3-127	118/FIN
3-71	118/FIN	3-128	118/FIN
3-72	118/FIN	3-129	118/FIN
3-73	118/FIN	3-130	118/FIN
3-74	118/FIN	4-i	* 118/FIN
3-75	118/FIN	4-ii	* 118/FIN
3-76	118/FIN	4-1	* 118/FIN
3-77	118/FIN	4-2	* 118/FIN
3-78	118/FIN	4-3	* 118/FIN
3-79	118/FIN	4-4	* 118/FIN
3-80	118/FIN	4-5	* 118/FIN
3-81	118/FIN	4-6	* 118/FIN
3-82	118/FIN	4-7	* 118/FIN
3-83	118/FIN	4-8	* 118/FIN
3-84	118/FIN	5-1	* 118/FIN
3-85	118/FIN	5-2	* 118/FIN
3-86	118/FIN	5-3	* 118/FIN
3-87	118/FIN	5-4	* 118/FIN
3-88	118/FIN	5-5	* 118/FIN
3-89	118/FIN	5-6	* 118/FIN
3-90	118/FIN	5-7	* 118/FIN
3-91	118/FIN	5-8	* 118/FIN
3-92	118/FIN	6-1	* 118/FIN
3-93	118/FIN	6-2	* 118/FIN
3-94	118/FIN	6-3	* 118/FIN
3-95	118/FIN	6-4	* 118/FIN
3-96	118/FIN	7-1	* 118/FIN
3-97	118/FIN	7-2	* 118/FIN
3-98	118/FIN	7-3	* 118/FIN
3-99	118/FIN	7-4	* 118/FIN
3-100	118/FIN	7-5	* 118/FIN
3-101	118/FIN	7-6	* 118/FIN
3-102	118/FIN	7-7	* 118/FIN
3-103	118/FIN	7-8	* 118/FIN
3-104	118/FIN	7-9	* 118/FIN
3-105	118/FIN	7-10	* 118/FIN

* – Omit from flight book

7-11.....	*	118/FIN
7-12.....	*	118/FIN
7-13.....	*	118/FIN
7-14.....	*	118/FIN
7-15.....	*	118/FIN
7-16.....	*	118/FIN
7-17.....	*	118/FIN
7-18.....	*	118/FIN
7-19.....	*	118/FIN
7-20.....	*	118/FIN
7-21.....	*	118/FIN
7-22.....	*	118/FIN

This Page Intentionally Blank

CONTENTS

PAGE

INTRODUCTION	vi	
OVERVIEW TIMELINES.....	1-1	
SUMMARY TIMELINE AND ISS SHORT TERM PLAN	2-1	
DETAILED TIMELINE.....	3-1	
ATTITUDE TIMELINE.....	4-1	
FLIGHT PLAN NOTES	5-1	
STS-118 KU BAND ANTENNA BLOCKAGE PLAN	6-1	
FLIGHT PLAN WALKTHROUGH (WITH RATIONALE)	7-1	

INTRODUCTION

The STS-118 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-17462-118, STS-118 Flight Requirements Document
- NSTS-37326, Shuttle Crew Scheduling Constraints
- NSTS-21506, ISS 13A.1 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-118 Flight Plan is based on a launch date August 9, 2007 at 17:06 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=118>

OVERVIEW TIMELINES

I

STS-118/13A.1 Overview Timeline (11+3+2)

Launch: 09 Aug 2007 GMT 22:06

OVERVIEW
TIMELINES

		MET												
		00/	1	2	3	4	5	6	7	8	9	10	11	12
FD1	STS													
	ORB ATT		ASC	POST INSERT	Setups	RMS C/O	PSA							
		SHAB ACT^ ^NC1												
FD2	STS													
	ORB ATT													
		ESP-3 HTR ACT^ ^NC3												
FD3	STS													
	ORB ATT													
		Waste Dump^ NH^ ^NC4 ^Ti ^Dock(1/20:46) ^SSPTS ACT (Go/No-Go) ^EVA Campout												
FD4	STS													
	ORB ATT													
		^N2 Xfer Init												
FD5	STS													
	ORB ATT													
		^EVA Campout												
NOTE: If no Focused Inspection required, FD5 will be dedicated to Transfer Ops														
FD6	STS													
	ORB ATT													
		^ESP-3 HTR DEACT												
FD7	STS													
	ORB ATT													
		^Simo Dump ^EVA Campout												
FD8	STS													
	ORB ATT													
		^N2 Xfer Term												
FD9	STS													
	ORB ATT													
		^N2 Repress ^N2 Depress												
FD10	STS													
	ORB ATT													
		^Undock(08/15:25) ^NC5												
FD11	STS													
	ORB ATT													
		SIMO/COND Dump^ ^SHAB Entry Prep ^Ku Band Stow ^OA												
FD12	STS													
	ORB ATT													
		^KSC LANDING (10/20:04)												

STS-118/13A.1 Overview

(14Day Mission) Launch 09 Aug 2007 GMT 22:06

	MET	00/	1	2	3	4	5	6	7	8	9	10	11	12		
FD1	STS	ASC	POST INSERT	Setups	RMS C/O	PSA	Sleep									
	ORB ATT	ASC	-ZLV+YVV	-ZLV-XVV												
	SHAB ACT^ *NC1															
FD2	STS	PSA	OBSS Survey - Stbd. Nose, Port EMU C/O			Meal	OBSS Berth	RNDZ TOOLS, Preps	EVA	PSA	Sleep					
	ORB ATT	-ZLV-XVV	-ZLV+YVV	SURVEY			-ZLV-XVV	COMM	-ZLV-XVV							
	ESP-3 HTR ACT^ *NC2 *NC3															
FD3	STS	PSA	ISS RNDZ			Dock	S5 U/BERTH Hatch Open	S5 Hand off	EVA Preps /XFER	EVA RVW	PSA	Sleep				
	ORB ATT	-ZLV-XVV	-ZLV+YVV	RNDZ			^Dock(1/20:46)		^SSPTS ACT		^EVA Campout					
	Waste Dump^ NH^ *NC4 ^TI															
FD4	STS	PSA	EVA PREP			EVA 1 - S5 install			Post EVA	PSA	Sleep					
	ORB ATT	^SSPTS DEACT			^N2 Xfer Init			^SSPTS ACT		BIAS -XLV-ZVV						
	SSRMS GRPL & H/O OBSS TO SRMS FOCUS INSPT/ EVA Preps/ XFER															
	SSRMS EVA Support															
FD5	STS	PSA	SSRMS GRPL & H/O OBSS TO SRMS			FOCUS INSPT/ EVA Preps/ XFER	Meal	SSRMS OBSS BERTH	EVA Preps/ TOOL CNFG	EVA RVW	PSA	Sleep				
	ORB ATT	BIAS -XLV-ZVV										^EVA Campout				
	NOTE: If no Focused Inspection required, FD5 will be dedicated to Transfer Ops															
FD6	STS	PSA	EVA PREP			EVA 2 - CMG R&R			Post EVA	PSA	Sleep					
	ORB ATT	^ESP-3 HTR DEACT			SSRMS EVA Support			BIAS -XLV-ZVV								
FD7	STS	PSA	ESP3 Unberth & install / EVA Preps			Meal	Transfer, EVA Preps		EVA RVW	PSA	Sleep					
	ORB ATT	BIAS -XLV-ZVV			^Waste Dump		BIAS -XLV+YVV		BIAS -XLV-ZVV							
	^EVA Campout															
FD8	STS	PSA	EVA PREP			EVA 3 - P6 SASA RELC, CETA CARTS			Post EVA	PSA	Sleep					
	ORB ATT	BIAS -XLV-ZVV			SSRMS EVA Support			BIAS -XLV-ZVV								
	^N2 Xfer Term															
FD9	STS	PSA	Transfer, EVA Preps			Meal	Crew Conf	Off Duty		EVA RVW	PSA	Sleep				
	ORB ATT	BIAS -XLV-ZVV										^EVA Campout				
FD10	STS	PSA	EVA PREP			EVA 4 - OBSS OSE, EWIS ANT, WETA			Post EVA	PSA	Sleep					
	ORB ATT	BIAS -XLV-ZVV			Transfer			BIAS -XLV-ZVV								
FD11	STS	PSA	Transfer / EMU Xfer/ Tool Stow			Meal	Transfer		PSA	Sleep						
	ORB ATT	BIAS -XLV-ZVV			^Q2 Xfer Init		^Waste Dump		BIAS -XLV-ZVV							
	DAIU TROUBLESHOOT															
FD12	STS	PSA	Transfer			Off Duty	Meal	Off Duty	Hatch Close	LEAK CK	PSA	Sleep				
	ORB ATT	BIAS -XLV-ZVV										^O2 Xfer Term				
FD13	STS	PSA	UNDOCK/ Flyaround			UNDOCK	Meal	Late Inspection		PSA	Sleep					
	ORB ATT	BIAS -XLV-ZVV			UNDOCK		ZLV-XVV		SURVEY		COMM		-ZLV-XVV			
	SSPTS DEACT^ *Undock(11/14:57) *NC5															
FD14	STS	PSA	FCS C/O, RCS HF	Cabin Stow	DO DR	Meal	Cabin Stow	PSA	Sleep					PSA		
	ORB ATT	-ZLV-XVV			BIAS -ZLV+YVV		^Waste Dump		^SH Entry Prep		^NC6					
	^Ku Band Stow															
FD15	STS	PSA	D/O PREP			LDG										
	ORB ATT	IMU	-XSI	COMM		ENT	^KSC LANDING (13/18:11)									

14 DAY OVERVIEW

This Page Intentionally Blank

SUMMARY TIMELINE AND ISS SHORT TERM PLAN

This Page Intentionally Blank

GMT 08/09/07 (221)

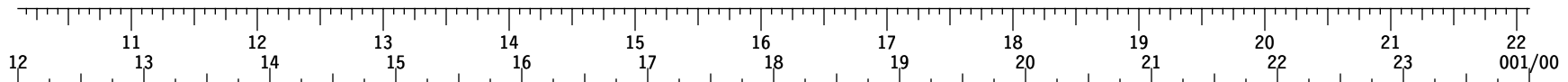
β = 45.68 000/00

MET Day 000

23 01 08/10 02 01 03 02 04 03 05 04 06 05 07 06 08 07 09 08 10 09 11 10 12

STS-118	FD01	CDR KELLY	ASCENT	POST INSERTION	NC1Δ OMS BURN -ZLV -YVV I GNT R GPR AFT I LOAD PRE SLP CK HUM SEP PMC A/G PS L E E P A P I T C H	ASSUMPTIONS: > AUGUST 9, 2007, 22:06 GMTLO > SSRMS Pre-launch C/O @ L-48 hrs (MT @ WS#1 w/SSRMS on MBS PDGF-1 for handoff)												
		PLT HOBAUGH	ASCENT	POST INSERTION	OMS BURN CC BB TT MM ** C C D M A R I L L Y N	G P R P R D N	G I R A I N S T A L L	PRE SLEEP			> ISS SAFER C/Os completed > ISS EMU C/O completed > MTL & LTL ITCS sample complete							
		MS1 CALDWELL	ASCENT	POST INSERTION	PGSC SETUP (PART I)		R P M W S R U P	R M S C / O	R U M B W E L L D / L	PRE SLEEP			SLEEP					
		MS2 MASTRACCHIO	ASCENT	POST INSERTION	R M S * O S E T U P	T E P C O N	P S R L E E P	R P M W S R U P	R M S C / O	R E V I D I D L E O	PRE SLEEP			SLEEP				
		MS3 WILLIAMS	ASCENT	POST INSERTION	PGSC SETUP (PART I)		W L E S / S / U		E T P H O T O	PRE SLEEP		SEE S E T U P	PRE SLEEP		SLEEP			
		MS4 MORGAN	ASCENT	POST INSERTION	SHAB ACT		P/TVO1 VIDEO S E T U P			PRE SLEEP - S H A B			SLEEP					
		MS5 DREW	ASCENT	POST INSERTION	SHAB ACT		P/TVO1 VIDEO S E T U P			PRE SLEEP			SLEEP					
STS	DAY/NIGHT		[Timeline bars for Day/Night]															
	ORBIT		[Timeline bars for Orbit]															
STS	TDRS		[Timeline bars for TDRS]															
	ORB ATT		[Timeline bars for Orb Att]															
NOTES		<p>*Muffler Install #PRECRADLE *RECONFIG</p> <p>*INIT</p> <p>*ON-ORBIT INIT</p>																

GMT 08/10/07 (222)
 β=43.25
 MET Day 000



S T S - 1 1 8		12	13	14	15	16	17	18	19	20	21	22		
S T S - 1 1 8	FD02	SLEEP	POST SLEEP	OMS BURN	POST SLEEP	EMU C/O PREP	EMU C/O	NOSE CAP SURVEY		CRYO 02 SCSR CK	EXERCISE	MEAL	F C *	C A B T
	PLT HOBAUGH	SLEEP	POST SLEEP	OMS BURN	POST SLEEP	OBSS STBD SURVEY	OBSS STBD SURVEY	NOSE CAP SURVEY	ERG SETUP	EXERCISE	MEAL	OBSS BERTH	OBSS BERTH	
	MS1 CALDWELL	SLEEP	POST SLEEP	OBSS UNBERTH	OBSS STBD SURVEY	NOSE CAP SURVEY	ERG SETUP	EXERCISE	MEAL	OBSS BERTH	OBSS BERTH	OBSS BERTH	OBSS BERTH	
	MS2 MASTRACCHIO	SLEEP	POST SLEEP	OBSS UNBERTH	OBSS STBD SURVEY	EMU DRK BAG FILL	OBSS PORT SURVEY	MEAL	EMU XFER PREP	EMU XFER PREP	EMU XFER PREP	EMU XFER PREP	EMU XFER PREP	
	MS3 WILLIAMS	SLEEP	POST SLEEP	PGSC SETUP (PART II)	EMU C/O PREP	EMU C/O	OBSS PORT SURVEY	MEAL	C B T M *	C D B A T I M L Y	C D B A T I M L Y	C D B A T I M L Y	C D B A T I M L Y	
	MS4 MORGAN	SLEEP	POST SLEEP - SHAB	P/TV01 VIDEO SETUP	XFER PREP	NOSE CAP SURVEY	OBSS PORT SURVEY	MEAL	OBSS BERTH	XFER PREP	OBSS BERTH	XFER PREP	XFER PREP	
	MS5 DREW	SLEEP	POST SLEEP	H2O CWC S/U & AFILL 1	P/TV01 VIDEO SETUP	CT WERM #1	XFER PREP	EMU DRK BAG FILL	ERG SETUP	XFER PREP	MEAL	C B T M *	EMU XFER PREP	EMU XFER PREP
DAY/NIGHT	ORBIT	9	10	11	12	13	14	15	16					
TDRS	W -171													
	E -46													
	Z -275													
ORB ATT		-ZLV -XVV		NC2	-ZLV +XVV	STBD SURVEY		NOSE	PORT SURVEY		-ZLV -XVV			
NOTES			*INTERCONNECT	*B HTR RCFG			*OVERNIGHT CFG	*MORNING CNFG	*CNTLR SWAP		*MANUAL PURGE	*PHOTO		

GMT 08/10/07 (222)

β=40.81

MET Day 001

001/00

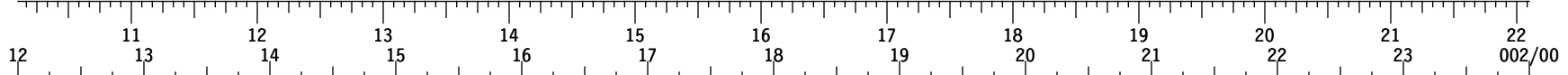
23 01 08/11 02 01 03 02 04 03 05 04 06 05 07 06 08 07 09 08 10 09 11 10 12

S T S - 1 1 8	FD02	MC NO VM RM	LDRI DNLK		NC3A RCS +X BURN	I CZ X N L V M R	F C M L T I M A N	PRE SLEEP	P A O *	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP		
	PLT HOBAUGH	A P C T U *	RNDZ TOOLS C/O		RCS +X BURN	FCMS OPS		PRE SLEEP				SLEEP			
	MS1 CALDWELL	C/L CMR INST#	RNDZ TOOLS C/O	EVA TOOL XFER PREP				PRE SLEEP				SLEEP			
	MS2 MASTRACCHIO	EMU XFER PREP		EVA TOOL XFER PREP	EXERCISE			PRE SLEEP				SLEEP			
	MS3 WILLIAMS	C/L CMR INST#	ODS RING EXT	HHL C/O	EXERCISE		D C S	PRE SLEEP				SLEEP			
	MS4 MORGAN	XFER PREP	ODS RING EXT	XFER PREP	EXERCISE		P A O S /	PRE SLEEP - SHAB				SLEEP			
	MS5 DREW	EMU XFER PREP	XFER PREP	FILTER CLEANING				PRE SLEEP				SLEEP			
S T S	DAY/NIGHT	[Timeline with alternating black and white bars]													
	ORBIT	[Timeline with alternating black and white bars]													
	TDRS	W -171	[Timeline with alternating black and white bars]												
	E -46	[Timeline with alternating black and white bars]													
	Z -275	[Timeline with alternating black and white bars]													
	ORB ATT	COMM	NC3									-ZLV	-XVV		
NOTES	*ESP-3 HEATER #DOCKING *Crew Choice *ACT														

GMT 08/11/07 (223)

β = 38.39

MET Day 001



STS-118	FD03	MNVRA		ISS RNDZ OPS		APPROACH T/L		MNVRA		HATCH LEAK CK STS		HATCH OPEN		SFTY BRF		SFTY BRF																			
	CDR KELLY	SLEEP		POST SLEEP		ISS RNDZ OPS		APPROACH T/L		HATCH LEAK CK STS		HATCH OPEN		SFTY BRF		SFTY BRF																			
	PLT HOBAUGH	SLEEP		POST SLEEP		ISS RNDZ OPS		APPROACH T/L		HATCH LEAK CK STS		HATCH OPEN		SFTY BRF		SFTY BRF																			
	MS1 CALDWELL	SLEEP		POST SLEEP		EXERCISE		ISS RNDZ OPS		APPROACH T/L		POST RNDZ PGSC CNFG		SRMS S5 UN-BERTH		SFTY BRF																			
	MS2 MASTRACCHIO	SLEEP		POST SLEEP		POST SLEEP		ISS RDZ OPS		EXERCISE		APPROACH T/L		HATCH LEAK CK STS		SRMS S5 UN-BERTH		SFTY BRF																	
	MS3 WILLIAMS	SLEEP		POST SLEEP		EXERCISE		ISS RNDZ OPS		APPROACH T/L		POST RNDZ PGSC CNFG		HATCH OPEN		SFTY BRF		SFTY BRF																	
	MS4 MORGAN	SLEEP		POST SLEEP - SHAB		XFR UPDAT		POST SLEEP		SHAB PREP FOR DOCK		EXERCISE		P/TV02 DOCK OPS		HATCH LEAK CK STS		SHAB POST DOCK RCNFG		SFTY BRF		PTV 05 S/U													
MS5 DREW	SLEEP		POST SLEEP		EXERCISE		SHAB PREP FOR DOCK		CTE #2		CDM #		ERM U/L		P/TV02 S/U DOCK		COND S/U		P/TV02 DOCK OPS		PTV06 S/U (S5)		POST RNDZ PGSC CNFG		HATCH OPEN		SFTY BRF		SFTY BRF		SODF XFER				
EXP 15	ISS CDR YURCHIKHIN	SLEEP (8.5)		POST SLEEP		PREP WORK		DPC		VRFY P/TV S/U		PFC		EXERCISE TVIS		MEAL		40MM		RFBALRM		DVOICKEO		EXERCISE VELO		HATCH OPEN		SFTY BRF		SFTY BRF		COX MNT			
	FE-1 KOTOV	SLEEP (8.5)		POST SLEEP		PREP WORK		DPC		VRFY P/TV S/U		RPM CBL CNFG		PFC		EXERCISE VELO		MEAL		80MM		RFBALRM		PMA2 CFG		EXERCISE TVIS		SFTY BRF		SFTY BRF		AK 1M SMPL		EMU #	
	FE-2 ANDERSON	SLEEP (8.5)		POST SLEEP		PROPERK		CHESSE*		DPC		PROPERK		EXERCISE TVIS + RED		IWIS S/U		MEAL		MT II DMEER		TIMER		HATCH LEAK CK-ISS		IWIS DEACT		HATCH OPEN		SFTY BRF		SFTY BRF		SP SGRMPSL	
STS	DAY/NIGHT ORBIT	24		25		26		27		28		29		30		31		32																	
	TDRS W -171	-		-		-		-		-		-		-		-		-		-		-		-		-		-		-		-			
	TDRS E -46	-		-		-		-		-		-		-		-		-		-		-		-		-		-		-		-			
TDRS Z -275	-		-		-		-		-		-		-		-		-		-		-		-		-		-		-		-				
ORB ATT	-ZLV -XVV		-ZLV +YVV		RNDZ		WS1 PDGF1		DK		BIAS -XLV -ZVV																								
SSRMS																																			
NOTES			#DEACT		*A HTR RCFG		*COMM CONFIG		#BATT C/O		*ACT		*D/L		*AUDIO		*RPM D/A		*H/O S5 POSI		#XFER TO IS														

DOCKING

DOCKING(1/20:46)*

Reference OSTP for S-band Activities

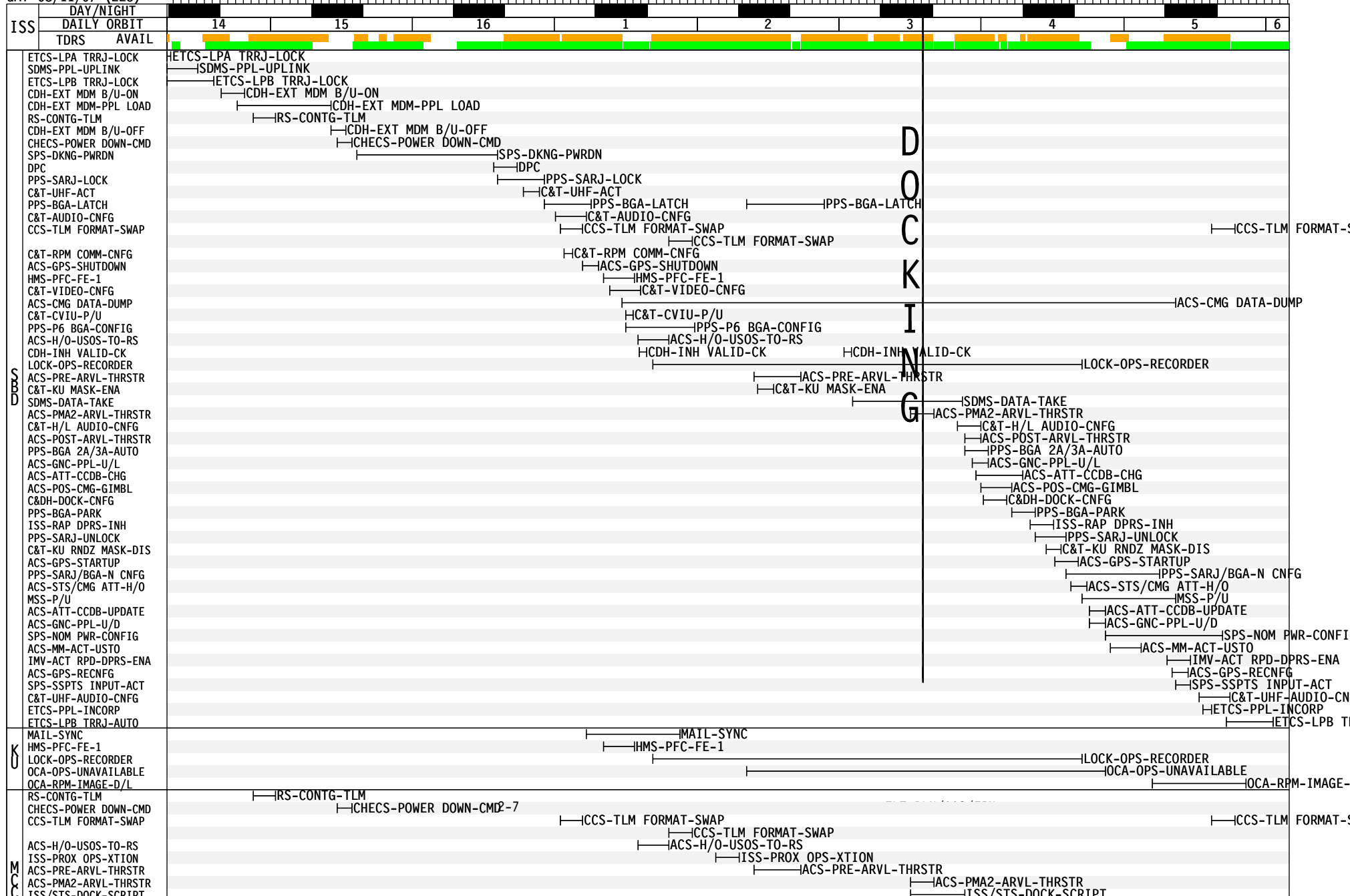
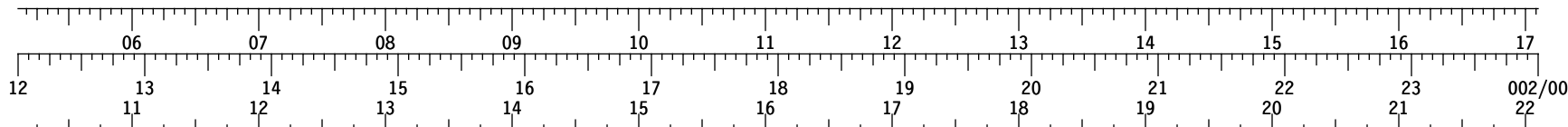
CT 08/11/07 (223)

$\beta = 38.39$

MET Day 001

FD03

GMT 08/11/07 (223)



DOCKING

**NO EXERCISE
WITH S5 GRAPPLED
BY SRMS & SSRMS**

GMT 08/11/07 (223)

β=35.96 002/00

MET Day 002

		23		01		02		03		04		05		06		07		08		09		10		11		12				
STS - 1 1 8	FD03			FESS*		02 P/B CONFIG		EVA PROC RVW		PRE SLEEP CK HUM SEP		PMC A/G		PRE SLEEP				SLEEP												
	CDR KELLY																													
	PLT HOBAUGH	SGSRPMLS	OAPCTU	XFER		CXGFBEMAR5	CPCSLP	EVA PROC RVW		PRE SLEEP				SLEEP																
	MS1 CALDWELL	SMRNMVSR*	S5 UNGPL	XFER		DPCOLCYK	MCSLUP	EVA PROC RVW		EVA1 TOOL		PRE SLEEP		SLEEP																
	MS2 MASTRACCHIO	SMRNMVSR*	E-LK PREP	RC/BOA	EVA TOOL XFR	EVA1 TOOL	PSRLEEPP	EVA PROC RVW		PRE SLEEP		MASK PB/TOOL CONFIG		PRE SLEEP		SLEEP														
	MS3 WILLIAMS	EMU#	REBA#	E-LK PREP	RC/BOA	EVA TOOL XFR	EVA1 TOOL	PSRLEEPP	EVA PROC RVW		PRE SLEEP		MASK PB/TOOL CONFIG		PRE SLEEP		SLEEP													
	MS4 MORGAN		S5 UNGPL	XFER		XFAEGRUP	XFAEGRUP	EVA PROC RVW		XBFREIREF		PRE SLEEP - SHAB		SLEEP																
MS5 DREW		REBA#	CWC XFER (2)	XFER	XFAEGRUP	XFAEGRUP	EVA PROC RVW		MRLIN		PRE SLEEP		SLEEP																	
EXP 1 5	ISS CDR YURCHIKHIN	EVA DCS CNFG	IMS EDIT			RPMP*	EVA PROC RVW		DPC		PRE SLEEP		SLEEP (8.5)																	
	FE-1 KOTOV	EMU#	REBA#	RC/BOA	PWROERPKL	EX	EVA PROC RVW		DPC		PRE SLEEP		SLEEP (8.5)																	
	FE-2 ANDERSON	JRNLS	SGSRPMLS	E-LK PREP	CHCS*	02 P/B CONFIG	EVA PROC RVW		DPC		PRE SLEEP		SLEEP (8.5)																	
STS	DAY/NIGHT ORBIT	32		33		34		35		36		37		38		39		40												
	TDRS	W -171	E -46	Z -275																										
	ORB ATT SSRMS											BIAS -XLV -ZVV												WS1 PDGF1						
NOTES	#INSTALL *OFF				*FILTER CK																									
	#H/O S5 POSITION				*Hardcard Return																									
	#XFER TO ISS				*Powerup																									

Reference OSTP for S-band Activities

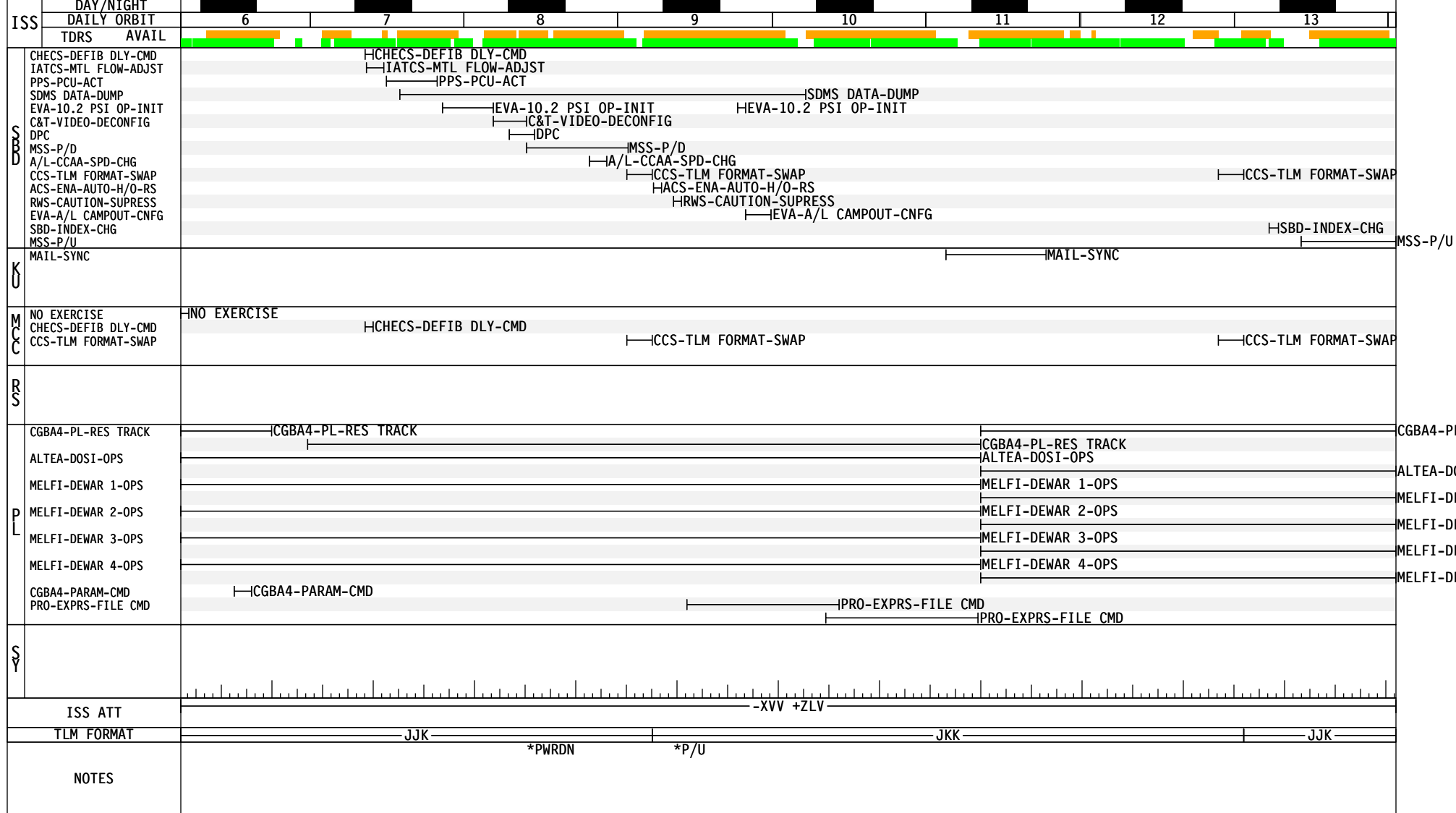
CT 08/11/07 (223)

$\beta = 35.96$

MET Day 002 002/00

FD03

GMT 08/11/07 (223)



NO UNISOLATED EXERCISE for APFR & PVR RTCT

GMT 08/12/07 (224)
 β=33.51

12 13 14 15 16 17 18 19 20 21 22 23 24
 MET Day 002 003/00

STS-118	FD04 CDR/SUIT IV KELLY	SLEEP	POST SLEEP	PMCS/G	POST SLEEP	HYG BRK/ HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	P/TV07 EVA OPS				MEAL			
	PLT HOBAUGH	SLEEP	POST SLEEP				IP NAD HT	EXERCISE	PRE- INSTL	SSRMS LOCK RMVL OPS	SSRMS S5 INSTALL	UN GRP	SSRMS PVRGF VIEW	SCX SFL RGT M*				
	MS1/IV CALDWELL	SLEEP	POST SLEEP				EXERCISE	I VA PREP	IV SUPPORT EVA 1 (6:30)									
	MS2/EV1 MASTRACCHIO	SLEEP	POST SLEEP	HYGN BREAK/ PREBRTH	14.7 RPRS	10.2 DPRS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EG RS SS	SORTIE SETUP	S5 TO S4 LL REMOVE	S5 INSTALL	PVRGF RELOC TO KEEL	GA HE TA D	S5 CLNUP	P6 FWD PVR RTCT
	MS3/EV2 WILLIAMS	SLEEP	POST SLEEP	HYGN BREAK/ PREBRTH	14.7 RPRS	10.2 DPRS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EG RS SS	SORTIE SETUP	S5 TO S4 LL REMOVE	S5 INSTALL	PVRGF RELOC TO KEEL	GA HE TA D	S5 CLNUP	P6 FWD PVR RTCT
	MS4 MORGAN	SLEEP	POST SLEEP - SHAB			XU FR DA T	POST SLEEP	XFER	P/TV 07 S/U	P/TV07 EVA OPS	MERLIN SPEGIS S/U	MEAL	SH CC SETUP	C I W N C I # T 4	C D B A T I M L Y	CT WE CR # M 4		
	MS5 DREW	SLEEP	POST SLEEP				MC RC IL I- NA	XFER	OGS PWR FILL	N2 XFER INIT	MV MP R I R H L D L O I E I T N O N O	C I W N C I # T 3	MEAL	CT WE CR # M 3	P/TV07 EVA OPS			
EXP 15	ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	DPCA M	PPC	XFER	OP GW S*	MIDDAY-MEAL				IMS EDIT	TVIS				
	FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	PREP WORK	DPCPPC	EXERCISE VELO	XFER	C/L DPRS	N2 XFER INIT	MIDDAY-MEAL				DBC CAD STR COX TAM NT				
	FE-2 ANDERSON	SLEEP (8.5)	POST SLEEP	HYG BRK/ HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	D C S	PRE- INSTL	SSRMS LOCK RMVL OPS	SSRMS S5 INSTALL	UN GRP	SSRMS PVRGF VIEW	SCX SFL RGT M*				
STS	DAY/NIGHT ORBIT	40 41 42 43 44 45 46 47 48																
	TDRS W -171 E -46 Z -275	[Timeline bars for TDRS W, E, Z]																
	ORB ATT SSRMS	BIAS -XLV -ZVV WS1 PDGF1																
NOTES	*OFF *XFER TO STS																	

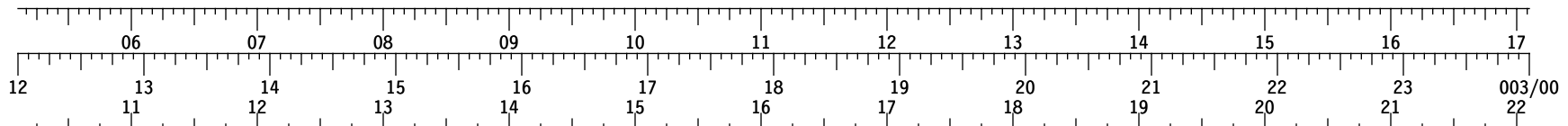
*S5 TO WS4
 *BATT CHRG
 ^ACTIVATION S

Reference OSTP for S-band Activities

CT 08/12/07 (224)
β = 33.51

MET Day 002
FD04

GMT 08/12/07 (224)



ISS	DAY/NIGHT	DAILY ORBIT
		TDRS AVAIL
		<div style="display: flex; justify-content: space-around;"> 14 15 1 2 3 4 5 6 </div>
<div style="font-size: 0.8em;"> <p>MSS-P/U</p> <p>C&T-VIDEO-CNFG</p> <p>CCS-TLM FORMAT-SWAP</p> <p>C&T-UHF-ACT</p> <p>C&T-AUDIO-CNFG</p> <p>SPS-PWRDOWN</p> <p>EVA-HYGIENE-BREAK</p> <p>ACS-INH-AUTO-H/O-RS</p> <p>PPS-P6 BCDU-DEACT</p> <p>VDS-VTR-ACT</p> <p>A/L RAPID DPRS-ENA</p> <p>DPC</p> <p>HMS-PPC-FE-1</p> <p>PPS-PCU FDIR-ENABLE</p> <p>ISS-RAP DPRS-INH</p> <p>PPS-SPC-H/O</p> <p>HMS-PPC-CDR</p> <p>ACS-GPS-AA-P/D</p> <p>ACS-GPS-SHUTDOWN</p> <p>VDS-WETA-ACT</p> <p>EVA1 INHIBIT PAD</p> <p>PPS-SARJ/BGA-LOCK</p> <p>ISS-RAP DPRS-ENA</p> <p>VDS-WETA-CONFIG</p> <p>A/L-10.2 PSI OP-TERM</p> <p>A/L-CCAA-SPD-CHG</p> <p>PPS-P6PVR RTRCT-PREP</p> <p>PPS-P6 PVR-RETRACT</p> <p>IATCS-LTL STPT-CHNG</p> <p>AR-CDRA ACT SUPPORT</p> <p>SSRMS-XLATE S5-WS4</p> </div>		<div style="font-size: 0.8em;"> <p>MSS-P/U</p> <p>C&T-VIDEO-CNFG</p> <p>ICCS-TLM FORMAT-SWAP</p> <p>C&T-UHF-ACT</p> <p>C&T-AUDIO-CNFG</p> <p>ISPS-PWRDOWN</p> <p>EVA-HYGIENE-BREAK</p> <p>EVA-HYGIENE-BREAK</p> <p>HACS-INH-AUTO-H/O-RS</p> <p>PPS-P6 BCDU-DEACT</p> <p>VDS-VTR-ACT</p> <p>A/L RAPID DPRS-ENA</p> <p>DPC</p> <p>HMS-PPC-FE-1</p> <p>PPS-PCU FDIR-ENABLE</p> <p>ISS-RAP DPRS-INH</p> <p>PPS-SPC-H/O</p> <p>HMS-PPC-CDR</p> <p>IACS-GPS-AA-P/D</p> <p>IACS-GPS-SHUTDOWN</p> <p>VDS-WETA-ACT</p> <p>EVA1 INHIBIT PAD</p> <p>PPS-SARJ/BGA-LOCK</p> <p>ISS-RAP DPRS-ENA</p> <p>VDS-WETA-CONFIG</p> <p>A/L-10.2 PSI OP-TERM</p> <p>A/L-CCAA-SPD-CHG</p> <p>PPS-P6PVR RTRCT-PREP</p> <p>IATCS-LTL STPT-CHNG</p> <p>HAR-CDRA ACT</p> <p>SSRMS-XLATE</p> </div>
K		MAIL-SYNC
MCC		ICCS-TLM FORMAT-SWAP SPS-PWRDOWN EVA1 INHIBIT PAD NO UNISOLATED EXER
RS		GTS-DEACT
PL		ALTEA-DOSI-OPS CGBA4-PL-RES TRACK MELFI-DEWAR 1-OPS MELFI-DEWAR 2-OPS MELFI-DEWAR 3-OPS MELFI-DEWAR 4-OPS PRO-EXPRS-FILE CMD CGBA4-PARAM-CMD
SY		
	ISS ATT	-XVV +ZLV
	TLM FORMAT	JJK *POWER DOWN 2-11 JKK FLT PLN/118/FIN JJK
	NOTES	^ACTIVATION S *S5 TO WS4

003/00
22
11
12
13
14
15
16
17
18
19
20
21
22

PPS-P6 PV
HIATCS-LTL STPT
HAR-CDRA ACT
SSRMS-XLATE

ALTEA-DOSI-OPS
CGBA4-PL-RES TRACK
MELFI-DEWAR 1-OPS
MELFI-DEWAR 2-OPS
MELFI-DEWAR 3-OPS
MELFI-DEWAR 4-OPS
PRO-EXPRS-FILE CMD
CGBA4-PARAM-CMD

NO UNISOLATED EXER

NO UNISOLATED EXERCISE

NO EXERCISE during MT Translation

GMT 08/12/07 (224)

β = 31.01

MET Day 003

003/00

23 01 08/13 02 01 03 02 04 03 05 04 06 05 07 06 08 07 09 08 10 09 11 10 12

STS - 1 1 8	FD04	IMU	EXERCISE	POST EVA W/H2O	PS R L E E P	PMC A/G	PRE SLEEP	ISS EXTERNAL SURVEY SLEEP																	
	CDR/SUIT IV KELLY																								
	PLT HOBAUGH	SCX SFL RGT MS		OP GSR*	CWC XFER (2)	I L L U M	O C M M L - I A N	PRE SLEEP	O A P C T U	PRE SLEEP	M U N P V D R A T	PRE SLEEP													
	MS1/IV CALDWELL	IV SUPPORT EVA1					PRE SLEEP																		
	MS2/EV1 MASTRACCHIO	P6 FWD PVR RTCT	C U L P E A N	C I P N G R P S R	C R P R S			POST EVA W/H2O		PRE SLEEP															
	MS3/EV2 WILLIAMS	P6 FWD PVR RTCT	C U L P E A N	C I P N G R P S R	C R P R S			POST EVA W/H2O		PRE SLEEP															
	MS4 MORGAN		M C H I U *	R P C D S L		EXERCISE	PRE SLEEP	X T F A E R U P	X B F R I E E F	PRE SLEEP - SHAB	C D M *														
MS5 DREW	P/TV07 EVA OPS		P M D I S M S 5 D A T A		EXERCISE		X T F A E R U P		PRE SLEEP																
EXP 1 5	ISS CDR YURCHIKHIN	TVIS	EXERCISE VELO	PREP WORK	PRE SLEEP	DPC	PRE SLEEP								SLEEP (8.5)										
	FE-1 KOTOV	COX MNT	PREP WORK	EXERCISE TVIS	E X D L	PRE SLEEP	BSA INIT	DPC	PRE SLEEP						SLEEP (8.5)										
	FE-2 ANDERSON	SCX SFL RGT MS	P M D I S M S *	P H D S I U S	P C R P R S			POST EVA W/H2O	E V D L	DPC	PFC	PPC	PRE SLEEP		SLEEP (8.5)										
STS	DAY/NIGHT ORBIT	48		49		50		51		52		53		54		55		56							
	TDRS	W -171	E -46		Z -275																				
	ORB ATT	WS1 PDGF1																BIAS -XLV -ZVV				WS4 PDGF1			
	SSRMS	*S5 TO WS4				*XFER TO ISS				MT XLATE TO WS4				*ACT											
NOTES	*FILTER CK																*Harddrive Install								

Reference OSTP for S-band Activities

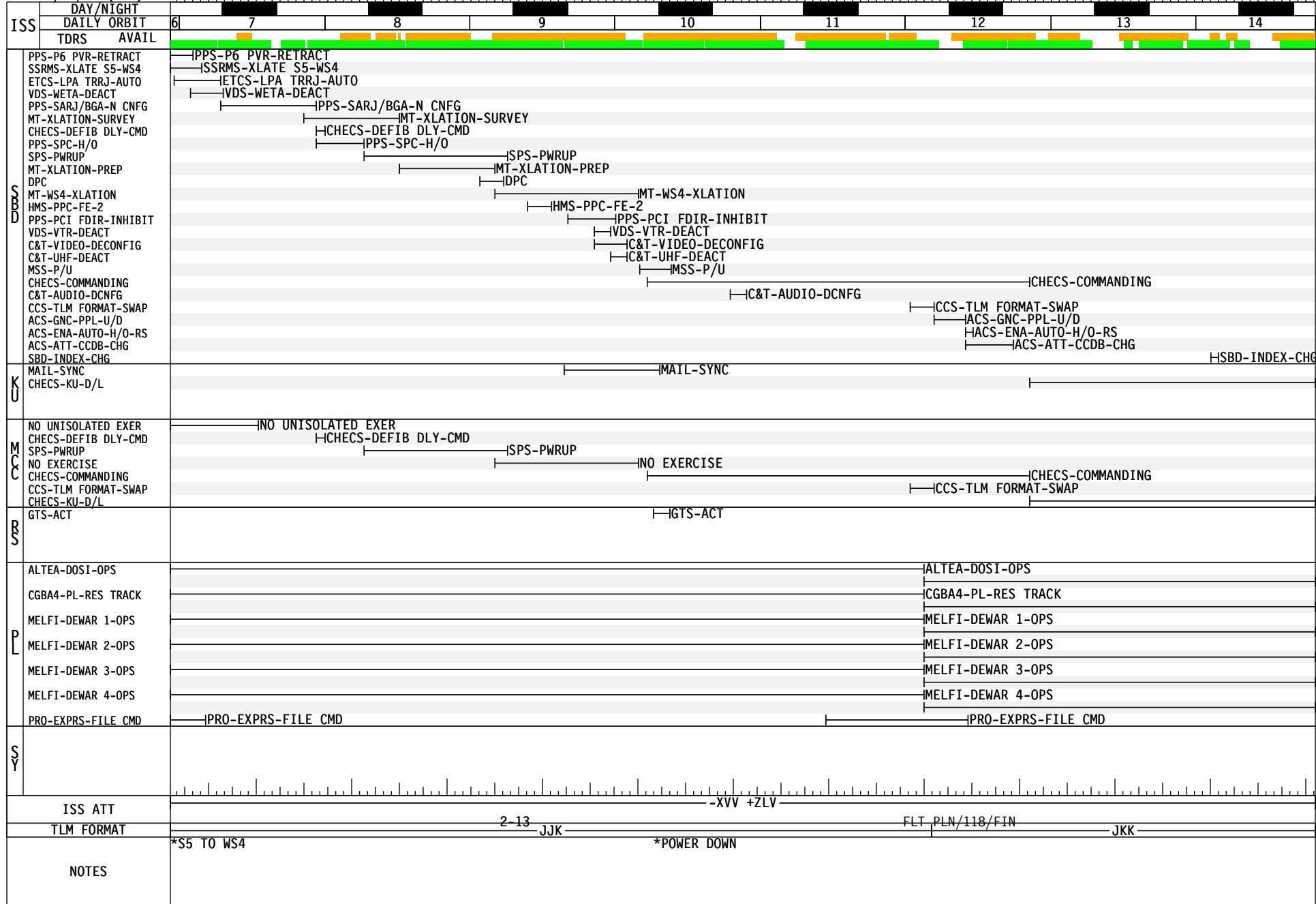
CT 08/12/07 (224)

$\beta = 31.01$

MET Day 003 003/00

FD04

GMT 08/12/07 (224)



*S5 TO WS4

*POWER DOWN

NOTES

NO EXERCISE
during OBSS
GRPL H/O

NO EXERCISE
during OBSS
GRPL H/O

GMT 08/13/07 (225)
β = 28.54
MET Day 003

12 13 14 15 16 17 18 19 20 21 22 23 24 004/00

STS - 1 1 8	FD05	ISS EXTL SVY	SLEEP	POST SLEEP	FI DOUG REVW	CINWICIT #5	POST SLEEP	IOFLWELFCRUM #M5	FOCUSSED INSPECTION				MEAL	SSAWFAEPER						
	PLT HOBAUGH	SLEEP	POST SLEEP	SSRMS GRPL OBSS UNBT	SSRMS OBSS MNVR-H/O	SRSLRMS	SSRMS FI SPPT	XFER	EXERCISE	MEAL	SSRMS PGPL MNVR OBSS	GRBRSSL	SSRMS OBSS BERTH	ORLSSS						
	MS1 CALDWELL	SLEEP	POST SLEEP	FI DOUG REVW	PGRPL	POST SLEEP	MRL*	GRPL #	FOCUSSED INSPECTION				MEAL	SUR/MG SPL	MRL*	PCRDL				
	MS2 MASTRACCHIO	SLEEP	POST SLEEP				MBI EANTTSOTTX	EVA2 TOOL	BASA*	EMU BATT RCHG INIT	EXERCISE	CXWFCER	XFER	MEAL	E-LK PREP	SAFER C/O	ETVOAOL			
	MS3 WILLIAMS	SLEEP	POST SLEEP				MBI EANTTSOTTX	EVA2 TOOL	EMU BATT RCHG INIT	PMDIS MS3 DATA	CD*	EXERCISE	XFER	MEAL	E-LK PREP	SAFER C/O	ETVOAOL			
	MS4 MORGAN	SLEEP	POST SLEEP - SHAB	FI DOUG REVW	PGRPL	POST SLEEP	MRL*	GRPL #	FOCUSSED INSPECTION				MEAL	SUR/MG SPL	MRL*	EPO BAG PREP				
	MS5 DREW	SLEEP	POST SLEEP	XUFRDAT	POST SLEEP	CMORMLIAN	EXERCISE	PWR#1 FILL	PWR#2 FILL	XFER				MEAL	CDCBATTITMLY*	CBITM#				
EXP 1 5	ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	EXERCISE VELO			XFER				MIDDAY-MEAL	PCS*	RAD MONITOR DEPLOY	* TVIS				
	FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	DCS COX MNT			EXERCISE TVIS				XFER	MIDDAY-MEAL	EXERCISE VELO					
	FE-2 ANDERSON	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	CAGBTAS	SODF*	SSRMS GRPL OBSS UNBT	SSRMS OBSS MNVR-H/O	SRSLRMS	SSRMS FI SPPT	EXERCISE RED	EXERCISE TVIS	MIDDAY-MEAL	SSRMS PGPL MNVR OBSS	GRBRSSL	SSRMS OBSS BERTH	ORLSSS	PSMTDOIWS	
STS	DAY/NIGHT ORBIT	56		57		58		59		60		61		62		63		64		
	TDRS	W -171	E -46	Z -275																
	ORB ATT SSRMS	BIAS -XLV -ZVV WS4 PDGFI																		
NOTES	#DEACT		*Release #OBSS *TERM				*PMDIS				*P/D				*TVIS SKIRT R&R *LATCH *VIDEO S/U#1 #STOW VIDEO					

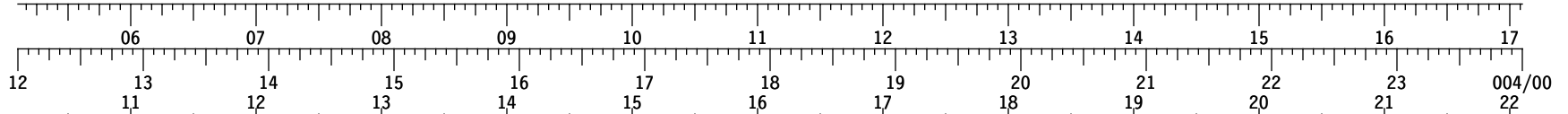
Reference OSTP for S-band Activites

CT 08/13/07 (225)
 $\beta = 28.54$

MET Day 003

FD05

GMT 08/13/07 (225)

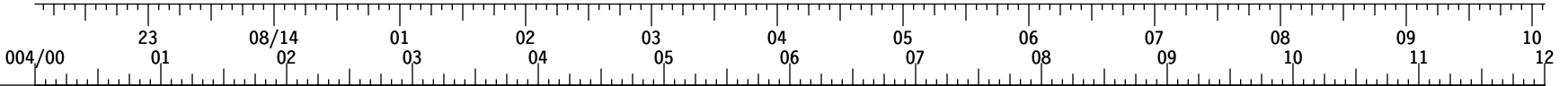


ISS	DAY/NIGHT	DAILY ORBIT																											
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">TDRS</th> <th style="width: 50%;">AVAIL</th> </tr> <tr> <td style="text-align: center;">14</td> <td style="text-align: center;">15</td> </tr> <tr> <td style="text-align: center;">13</td> <td style="text-align: center;">14</td> </tr> <tr> <td style="text-align: center;">12</td> <td style="text-align: center;">13</td> </tr> <tr> <td style="text-align: center;">11</td> <td style="text-align: center;">12</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">11</td> </tr> <tr> <td style="text-align: center;">09</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: center;">08</td> <td style="text-align: center;">09</td> </tr> <tr> <td style="text-align: center;">07</td> <td style="text-align: center;">08</td> </tr> <tr> <td style="text-align: center;">06</td> <td style="text-align: center;">07</td> </tr> </table>	TDRS	AVAIL	14	15	13	14	12	13	11	12	10	11	09	10	08	09	07	08	06	07							
TDRS	AVAIL																												
14	15																												
13	14																												
12	13																												
11	12																												
10	11																												
09	10																												
08	09																												
07	08																												
06	07																												
S B D	CCS-TLM FORMAT-SWAP	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 40%; text-align: center;">ICCS-TLM FORMAT-SWAP</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">ICCS-TLM FORMAT-SWAP</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">MSS-P/U</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">HACS-INH-AUTO-H/O-RS</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">IC&T-VIDEO-CNFG</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">SPS-OPCU-CHECKOUT</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">DPC</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">MT-XLATION-SURVEY</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">MT-XLATION-PREP</td> <td></td> </tr> </table>		ICCS-TLM FORMAT-SWAP			ICCS-TLM FORMAT-SWAP			MSS-P/U			HACS-INH-AUTO-H/O-RS			IC&T-VIDEO-CNFG			SPS-OPCU-CHECKOUT			DPC			MT-XLATION-SURVEY			MT-XLATION-PREP	
		ICCS-TLM FORMAT-SWAP																											
		ICCS-TLM FORMAT-SWAP																											
		MSS-P/U																											
		HACS-INH-AUTO-H/O-RS																											
	IC&T-VIDEO-CNFG																												
	SPS-OPCU-CHECKOUT																												
	DPC																												
	MT-XLATION-SURVEY																												
	MT-XLATION-PREP																												
K U	CHECS-KU-D/L	ICHECS-KU-D/L																											
	MAIL-SYNC	MAIL-SYNC																											
M C C	CHECS-KU-D/L	ICHECS-KU-D/L																											
	CCS-TLM FORMAT-SWAP	ICCS-TLM FORMAT-SWAP																											
	NO EXERCISE	NO EXERCISE																											
P L	ALTEA-DOSI-OPS																												
	CGBA4-PL-RES TRACK																												
	MELFI-DEWAR 1-OPS																												
	MELFI-DEWAR 2-OPS																												
	MELFI-DEWAR 3-OPS																												
	MELFI-DEWAR 4-OPS																												
PRO-EXPRS-FILE CMD	IPRO-EXPRS-FILE CMD																												
CGBA4-PARAM-CMD	ICGBA4-PARAM-CMD																												
S S	ISS ATT	-XVV +ZLV																											
	TLM FORMAT	-JJK - JJK - JJK - JJK																											
NOTES																													

ALTEA-DOSI-OPS
 CGBA4-PL-RES TRACK
 MELFI-DEWAR 1-OPS
 MELFI-DEWAR 2-OPS
 MELFI-DEWAR 3-OPS
 MELFI-DEWAR 4-OPS
 PRO-EXPRS-FILE CMD

NO EXERCISE
during MT
Translation

GMT 08/13/07 (225)
β = 26.08
MET Day 004



S T S - 1 1 8	FD05	C I W N C I T # 6	EXERCISE	C T W E I P C R M G T # M U I S	EVA PROC RVW	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP	
	PLT HOBAUGH		PWR XFER (2)	P S R L E E P	W/O PDGF1 - LAB*	EVA PROC RVW	W/O PDGF1 - LAB*	PRE SLEEP	SLEEP	
	MS1 CALDWELL	M C H I H	EXERCISE		EVA PROC RVW		PRE SLEEP	PRE SLEEP	SLEEP	
	MS2 MASTRACCHIO		EVA2 TOOL	PRE SLEEP	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP	
	MS3 WILLIAMS		EPO XFER	EVA2 TOOL	PRE SLEEP	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP
	MS4 MORGAN		EPO KIT-C VIDEO	PRE SLEEP	X T F A E R U P	EVA PROC RVW	W/O PDGF1 - LAB*	PRE SLEEP - SHAB	SLEEP	
	MS5 DREW		EPO XFER	XFER	X T F A E R U P	EVA PROC RVW		PRE SLEEP	SLEEP	
E X P 1 5	ISS CDR YURCHIKHIN		TVIS	E X P R O D L	P W R O R E R P K	EVA PROC RVW		PRE SLEEP	SLEEP (8.5)	
	FE-1 KOTOV	P C S *	XFER	P W R O R E R P K	P W R O R E R P K	EVA PROC RVW		PRE SLEEP	SLEEP (8.5)	
	FE-2 ANDERSON		EPO XFER	XFER	P W R O R E R P K	W/O PDGF1 - LAB*	EVA PROC RVW	PRE SLEEP	SLEEP (8.5)	
S T S	DAY/NIGHT ORBIT	[Timeline bars for Day/Night and Orbit]								
	TDRS	[Timeline bars for TDRS]								
	ORB ATT SSRMS	[Timeline bars for Orb Att and SSRMS]								
NOTES	*EVA2 TOOL +FILTER CK *POWERUP WS4 PDGF1 W/O MT XLATE TO WS7 BIAS -XLV -ZVV MT-WS7, SSRMS-LAB									

Reference OSTP for S-band Activites

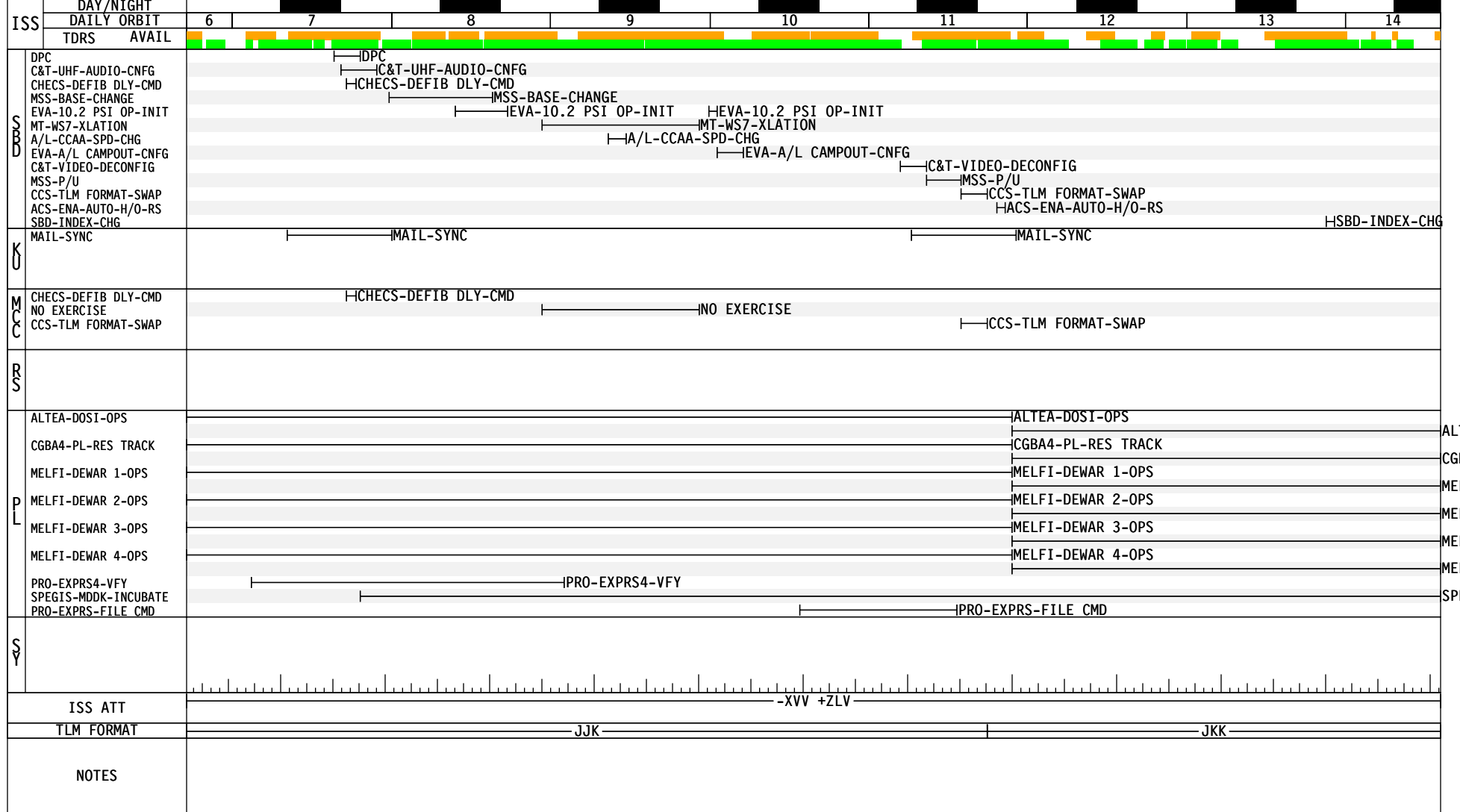
CT 08/13/07 (225)

$\beta = 26.08$

MET Day 004 004/00

FD05

GMT 08/13/07 (225)



NO EXER DURING CMG BOLT DRIVING

GMT 08/14/07 (226)
 β = 23.62
 MET Day 004

12 13 14 15 16 17 18 19 20 21 22 23 24 005/00

STS-118	FD06 CDR/SUIT IV KELLY	SLEEP	POST SLEEP	PMC S/G	POST SLEEP	HYG BRK/HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	P/TV07 EVA OPS				MEAL	IMU	
	PLT HOBAUGH	SLEEP	POST SLEEP				PC NAC HD T	ST PER M	RR LL NI	EMURGE	EMU PRE BREATHE	C/L DPRS	SSRMS CMG R&R				
	MS1/IV CALDWELL	SLEEP	POST SLEEP				EXERCISE	IVA PREP	IV SUPPORT EVA 2 (6:30)								
	MS2/EV1 MASTRACCHIO	SLEEP	POST SLEEP	HYGN BREAK/PREBRTHE	14.7 RPRS	10.2 DPRS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EGRS	SETUP	RMV FAILED CMG	XFER NEW CMG TO ESP2	RMV NEW CMG FRM ESP2	IN STL NEW CMG ON Z1	IN STL FAIL CMG-ESP2
	MS3/EV2 WILLIAMS	SLEEP	POST SLEEP	HYGN BREAK/PREBRTHE	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EGRS	SETUP	RMV FAILED CMG	XFER NEW CMG TO ESP2	RMV NEW CMG FRM ESP2	IN STL NEW CMG ON Z1	IN STL FAIL CMG-ESP2		
	MS4 MORGAN	SLEEP	POST SLEEP - SHAB			XUFRDAT	POST SLEEP	XFER	P/TV 07 S/U	SRMS*	MERLIN DSCNT CNFG	MEAL	P/TV07 EVA OPS				
	MS5 DREW	SLEEP	POST SLEEP				XFER	CINCT #7	CDM #	CTWCR #7	CSOWNDP	CBT M*	MEAL	CCIBWN TCI M*8	CCDBATT I MML Y	CTWCR #8	FLTR CLN - INSPECT
EXP 15	ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	DPCAM	XFER	MIDDAY-MEAL	EXER CISE VELO									
	FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	OGS H2O RECHARGE	OPGWS*	EXERCISE TVIS	EXERCISE VELO	MIDDAY-MEAL	COX MNT						
	FE-2 ANDERSON	SLEEP (8.5)	POST SLEEP	HYG BRK/HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	DSS	C/L DPRS	EMU-T	SSRMS CMG R&R	MIDDAY-MEAL	SSRMS CMG R&R				
STS	DAY/NIGHT ORBIT																
	TDRS																
	ORB ATT SSRMS																
NOTES	BIAS -XLV -ZVV MT-WS7, SSRMS-LAB *WARM SHUTDOWN #BATT C/O *VIDEO S/U#2 *VIDEO S/U#3 *XFER TO STS *CMG R&R VIEWING *VIDEO STOW																

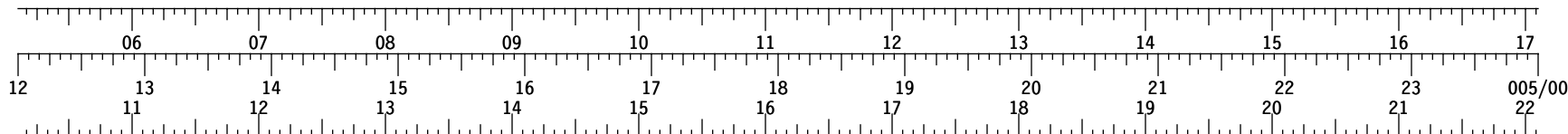
Reference OSTP for S-band Activities

CT 08/14/07 (226)
 $\beta = 23.62$

MET Day 004

FD06

GMT 08/14/07 (226)



ISS	DAY/NIGHT	DAILY ORBIT	TDRS	AVAIL		
					<div style="display: flex; justify-content: space-between;"> 14 15 1 2 3 4 5 6 7 </div>	
D P R S	CCS-TLM FORMAT-SWAP	-----				
	MSS-P/U	-----				
	C&T-VIDEO-CNFG	-----				
	EVA-HYGIENE-BREAK	-----				
	C&T-UHF-ACT	-----				
	ACS-INH-AUTO-H/O-RS	-----				
	C&T-AUDIO-CNFG	-----				
	A/L RAPID DPRS-ENA	-----				
	DPC	-----				
	PPS-PCU WARNING-ENA	-----				
	ISS-RAP DPRS-INH	-----				
	EVA2 INHIBIT PAD	-----				
	VDS-WETA-ACT	-----				
	ISS-RAP DPRS-ENA	-----				
	ETCS-TRRJ-PARK	-----				
VDS-WETA-CONFIG	-----					
ACS-CMG SHUTDOWN	-----					
ACS-CMG HEATER-OFF	-----					
A/L-10.2 PSI OP-TERM	-----					
A/L-CCAA-SPD-CHG	-----					
A/L-CCAA-RECNG	-----					
ACS-CMG DATA-DUMP	-----					
ACS-CMG-SPINUP	-----					
MAIL-SYNC	-----					
M C S	CCS-TLM FORMAT-SWAP	-----				
	PPS-PCU WARNING-ENA	-----				
	EVA2 INHIBIT PAD	-----				
	NO EXERCISE	-----				
R S	GTS-DEACT	-----				
	SPEGIS-MDDK-INCUBATE	-----				
P L S	ALTEA-DOSI-OPS	-----				
	CGBA4-PL-RES TRACK	-----				
	MELFI-DEWAR 1-OPS	-----				
	MELFI-DEWAR 2-OPS	-----				
	MELFI-DEWAR 3-OPS	-----				
PRO-EXPRS-FILE CMD	-----					
CGBA4-PARAM-CMD	-----					
ISS ATT	-----				-XVV +ZLV	
TLM FORMAT	-----				-JJK ----- JJK	
NOTES	*POWER DOWN					

ACS-CMG D
ACS-CMG-S

NO UNISOL

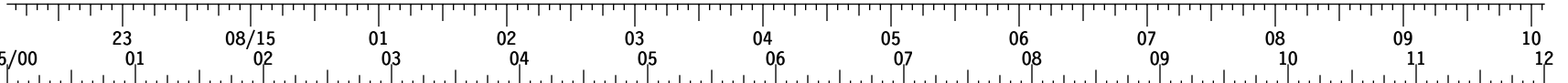
ALTEA-DOS
CGBA4-PL-
MELFI-DE
MELFI-DE
MELFI-DE
MELFI-DE
MELFI-DE

PRO-EXPRS-

GMT 08/14/07 (226)

β = 21.11 005/00

MET Day 005



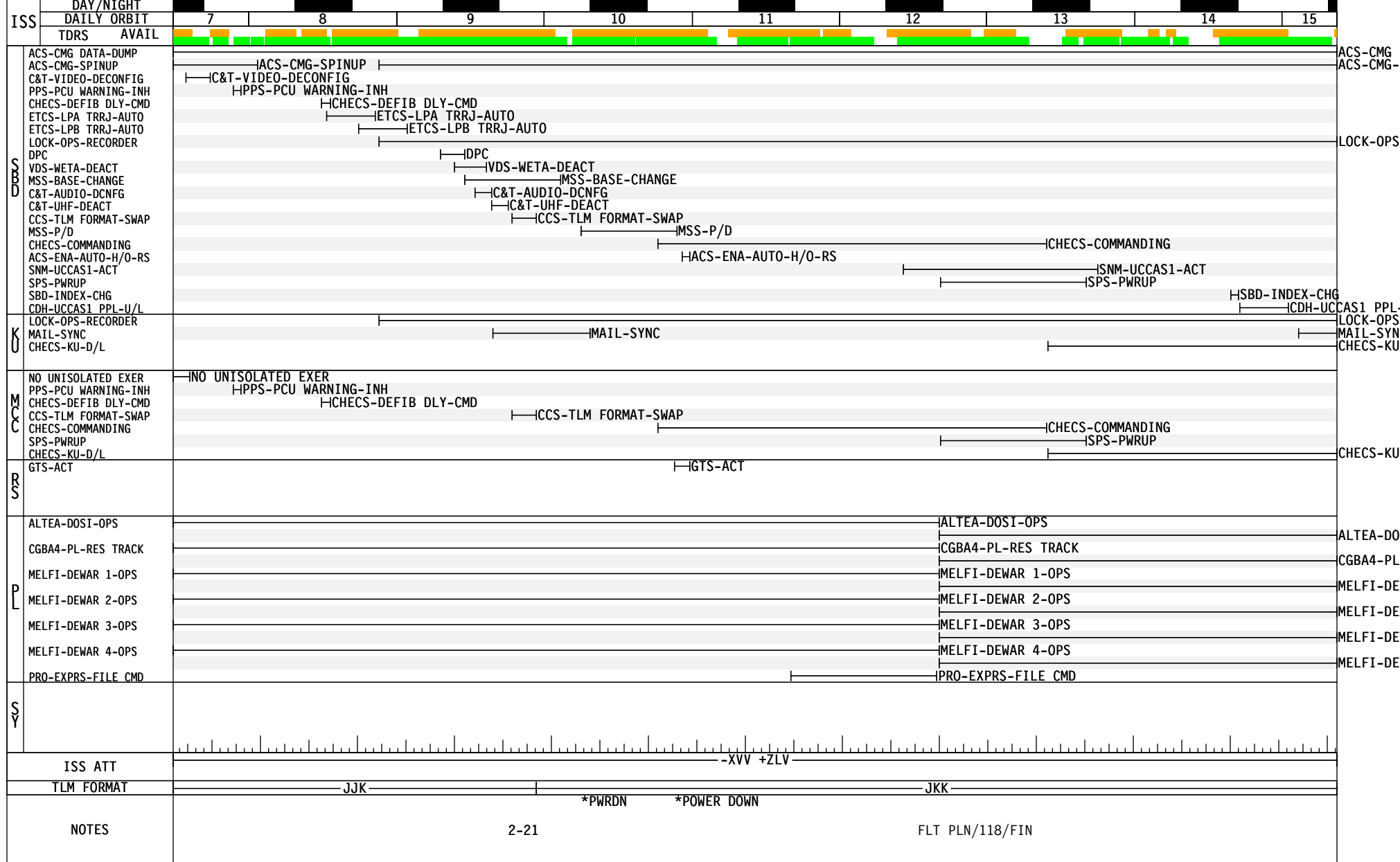
S T S - 1 1 8	FD06	CDR/SUIT IV KELLY	EXERCISE	POST EVA W/H2O	PRE SLEEP CK HUM SEP	PMC A/G	PRE SLEEP	SLEEP									
	PLT HOBAUGH	SSRMS CMG R&R	W/O LAB - PDGF2	EXERCISE	PRE SLEEP		SLEEP										
	MS1/IV CALDWELL	IV SUPPORT EVA 2		PRE SLEEP			SLEEP										
	MS2/EV1 MASTRACCHIO	*CLEAN UP	CIN/LGR/RSR	CR/PLRS	POST EVA W/H2O		PRE SLEEP	SLEEP									
	MS3/EV2 WILLIAMS	@CLEAN UP	CIN/LGR/RSR	CR/PLRS	POST EVA W/H2O		PRE SLEEP	SLEEP									
	MS4 MORGAN	P/TV07 EVA OPS	EXERCISE	OGS PWR FILL	PSRLEE	XTFAFR	PRE SLEEP - SHAB	SLEEP									
	MS5 DREW		CWC XFER (2)	EXERCISE	OPGSR*	XTFAFR	PRE SLEEP	SLEEP									
E X P 1 5	ISS CDR YURCHIKHIN	EXERCISE VELO	EXERCISE TVIS	EXDLPK	PRE SLEEP	DPC	PRE SLEEP	SLEEP (8.5)									
	FE-1 KOTOV	COM MNT	IMS EDIT	PREP WORK	W/O LAB - PDGF2	PRE SLEEP	BSA INIT	DPC	PRE SLEEP	SLEEP (8.5)							
	FE-2 ANDERSON	SSRMS CMG R&R	CR/PLRS	POST EVA W/H2O		PRE SLEEP	DPC	PRE SLEEP	SLEEP (8.5)								
S T S	DAY/NIGHT ORBIT	80		81		82		83		84		85		86		87	
	TDRS	W -171	E -46	Z -275													
	ORB ATT																
	SSRMS	BIAS -XLV -ZVV															
NOTES	*INSTL FAIL CMG-ESP2 &WORK *XFER TO ISS *ACT																
	@INSTL FAIL CMG-ESP2																
	WS7 PDGF2																

Reference OSTP for S-band Activities

CT 08/14/07 (226)
 $\beta = 21.11$

MET Day 005 005/00
FD06

GMT 08/14/07 (226)



NO EXERCISE DURING ESP3 OPS

GMT 08/15/07 (227)
 β = 18.62
 MET Day 005

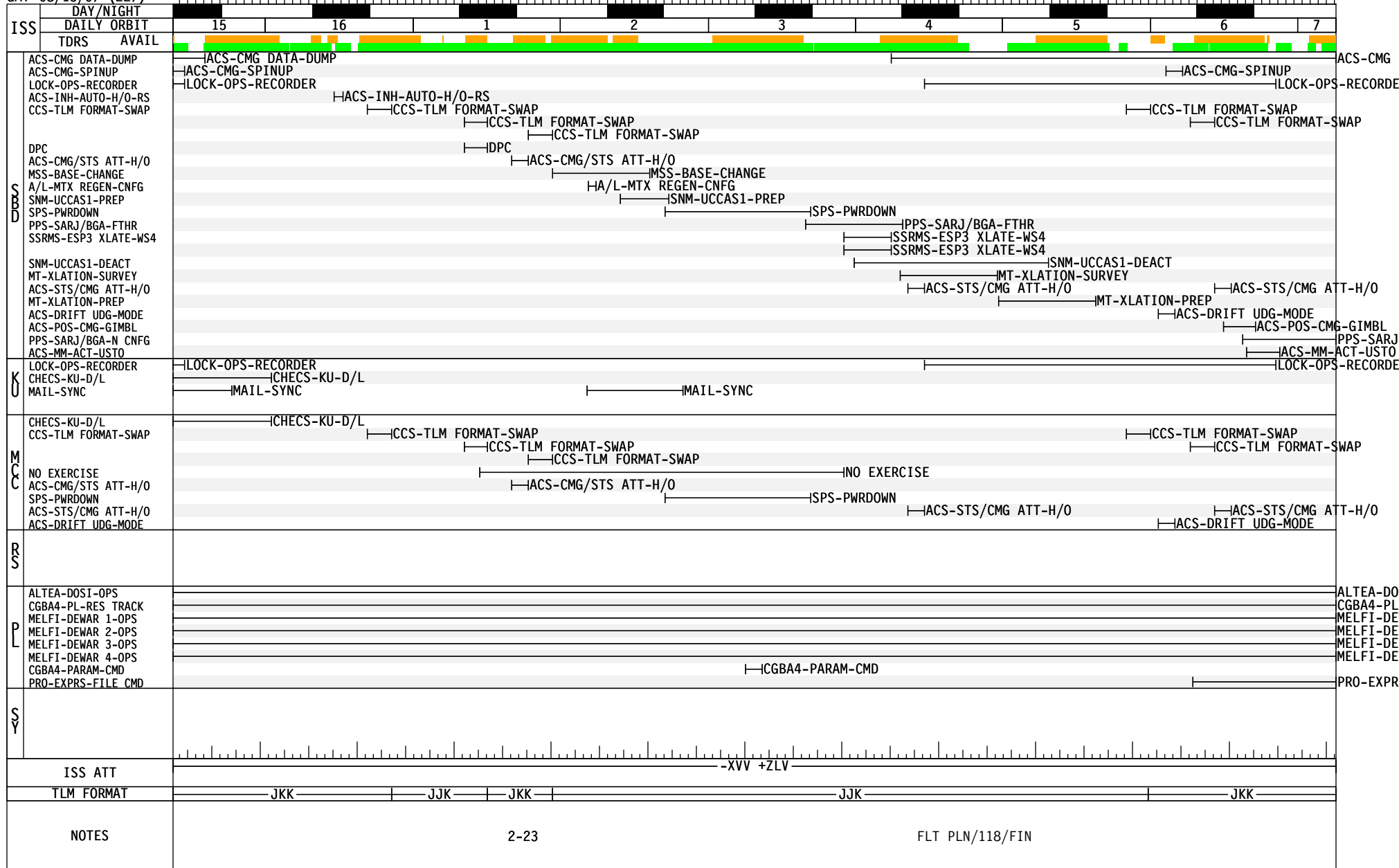
12 13 14 15 16 17 18 19 20 21 22 23 22/006/00

STS-118	FD07	SLEEP	POST SLEEP	P/TV 10 SU*	POST SLEEP			UCCAS1 ESP3 MATE		HOATT	-X Y V V	SIMO INIT	MEAL	D P U M R P	D P U M R P	COND DUMP	-X Z V V	HOATT	EXERCISE				
	PLT HOBAUGH	SLEEP	POST SLEEP	C M A	POST SLEEP	GH R P O L		MNVR TO INSTL POSN	SSRMS ESP3 INSTALL	S R S L S M S	SSRMS WS4 CNFG XLAT		MEAL	LAB WINDOW PANE R&R	I M U			EXERCISE	XFER				
	MS1 CALDWELL	SLEEP	POST SLEEP	E G R S R P P L	ESP3 UNBRTH	ESP3 H/O		S U R N M G S P * L					EXERCISE	MEAL	SIMO TERM	XFER	PAO EVENT			XFER			
	MS2 MASTRACCHIO	SLEEP	POST SLEEP					PREP 6B CVR*	M B I E A N T T S O T T X	EVA3 TOOL	B S A * M E T X #	EMU BATT RCHG INIT		E-LK PREP	MEAL		XFER		EVA3 TOOL		EXERCISE		
	MS3 WILLIAMS	SLEEP	POST SLEEP						M B I E A N T T S O T T X	EVA3 TOOL	M E T X #	EMU BATT RCHG INIT	EMU SWAP	E-LK PREP	MEAL		OBSS OSE EVA 4 PREP*	XFER	P/TV 08 EXT SURV OPS		XFER		
	MS4 MORGAN	SLEEP	POST SLEEP - SHAB	E G R S R P P L	ESP3 UNBRTH	ESP3 H/O		S U R N M G S P * L				UCCAS1 ESP3 MATE	S R S L S M S	SSRMS WS4 CNFG XLAT		EXERCISE	MEAL	PTV 05 PAO SU	PAO EVENT		XFER	PTV 05 PAO SU	S S E / E U D
	MS5 DREW	SLEEP	POST SLEEP	X U F P R D A T	POST SLEEP			C D M #						MEAL	C D B A T I M L Y		XFER			EXERCISE		XFER	
EXP 15	ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	D P C	D B C A S T					COX MNT		VELO	MIDDAY-MEAL					XFER			TVIS	
	FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	LAB RLS & MNVR GPL	D P C	PREP WORK					CSA-CP RSPLY	D C S		MIDDAY-MEAL	IMS EDIT				TVIS			EXERCISE VELO	XFER
	FE-2 ANDERSON	SLEEP (8.5)	POST SLEEP	LAB RLS & MNVR GPL	D P C	PREP WORK			GH R P O L	MNVR TO INSTL POSN	SSRMS ESP3 INSTALL	EMU SWAP	E-LK PREP	MIDDAY-MEAL	OBSS OSE EVA 4 PREP*				EVA3 TOOL			P L C K	
STS	DAY/NIGHT ORBIT		88	89	90	91	92	93	94	95													
	TDRS	W -171																					
		E -46																					
	Z -275																						
	ORB ATT SSRMS		BIAS -XLV -ZVV						WS7 PDGF2						BIAS -XLV +YVV			BIAS -XLV -ZVV					
NOTES		#DEACT	*ESP-3			*Includes MNVR to Viewing Position						*If 4EVA Mission											
			*BATT CHRG			*for EVA3			*TERM			*TERM											
			#BATT C/O			#BATT C/O			#TERM			#TERM											

Reference OSTP for S-band Activities

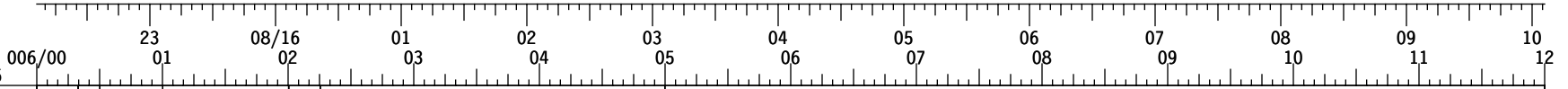
CT 08/15/07 (227)
 $\beta = 18.62$

MET Day 005
FD07
 GMT 08/15/07 (227)



NO EXERCISE
during MT
Translation

GMT 08/15/07 (227)
β = 16.16
MET Day 006



S T S - 1 1 8	FD07	CDR KELLY	PAO EDU	W C S *	EVA PROC RVW	PMC OCA	PRE SLEEP	SLEEP		
		PLT HOBAUGH	XFER		EVA PROC RVW		PRE SLEEP	SLEEP		
		MS1 CALDWELL	XFER		EVA PROC RVW		PRE SLEEP	SLEEP		
		MS2 MASTRACCHIO	EXER CISE	PRE SLEEP	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP	
		MS3 WILLIAMS	PAO EDU	S E E D S	PRE SLEEP	EVA PROC RVW	EXERCISE	PRE SLEEP	SLEEP	
		MS4 MORGAN	PAO EDU	S E E D S	PRE SLEEP	EVA PROC RVW	X T X B F A F R E G E I R U R E P F	PRE SLEEP	SLEEP	
		MS5 DREW	PAO EDU	S E E D S	XFER	EVA PROC RVW	X T F A E G R U P	PRE SLEEP - SHAB	SLEEP	
E X P 1 5		ISS CDR YURCHIKHIN	TVIS	DPC	EVA PROC RVW	PREP WORK	PRE SLEEP	SLEEP (8.5)		
		FE-1 KOTOV	XFER	DPC	EVA PROC RVW	PREP WORK	PRE SLEEP	SLEEP (8.5)		
		FE-2 ANDERSON	PAO EDU	S E E D S	J R N L	DPC	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP
S T S	DAY/NIGHT	[Bar chart showing day/night cycle]								
	ORBIT	95 96 97 98 99 100 101 102 103								
	TDRS	W -171 E -46 Z -275								
	ORB ATT	WS7 PDGF2 MT XLATE TO WS4 BIAS -XLV -ZVV WS4 PDGF2								
	SSRMS	*FILTER CK *STOW *FILTER CK								
	NOTES									

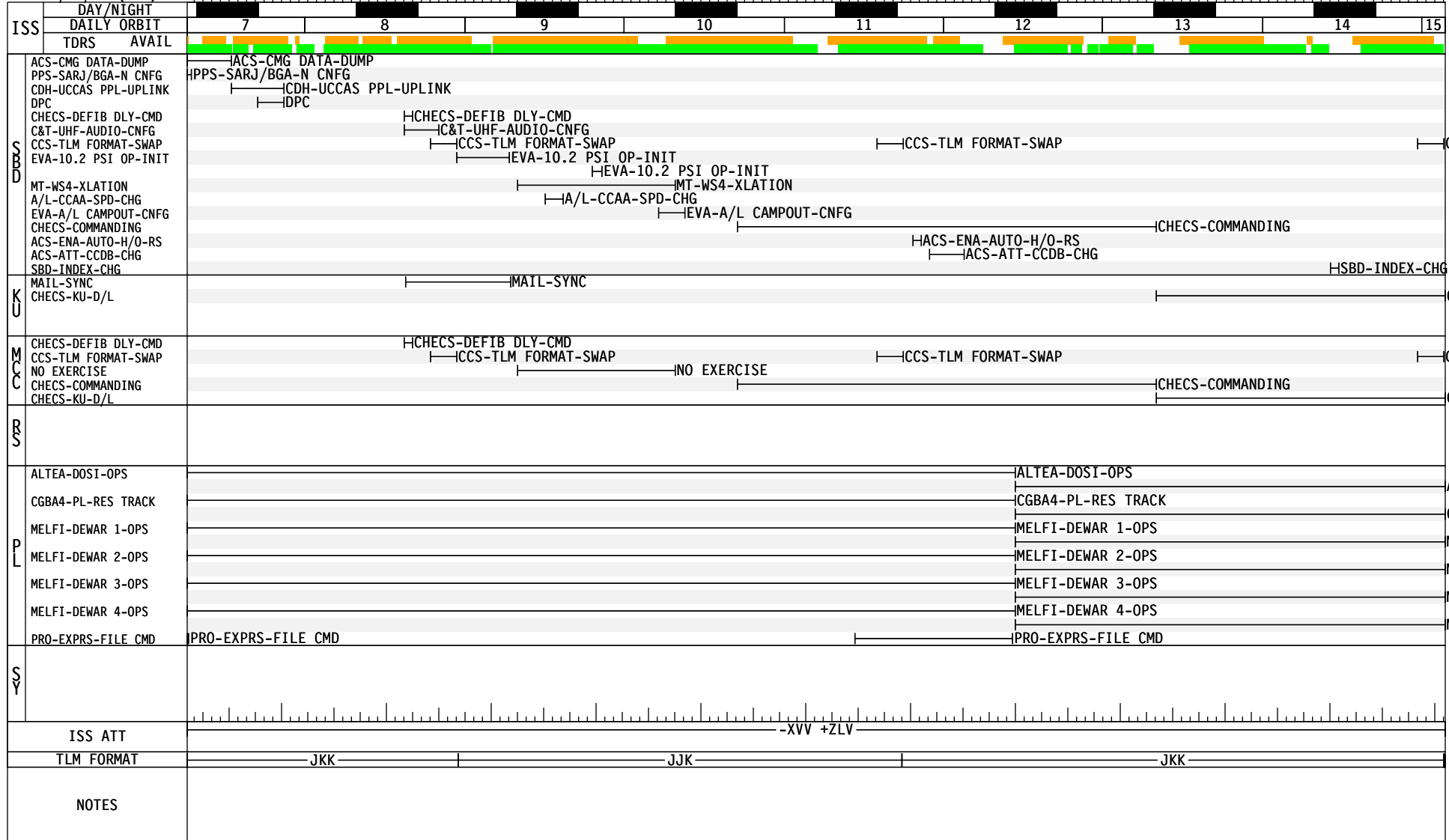
Reference OSTP for S-band Activites

CT 08/15/07 (227)
 $\beta = 16.16$

MET Day 006 006/00

FD07

GMT 08/15/07 (227)

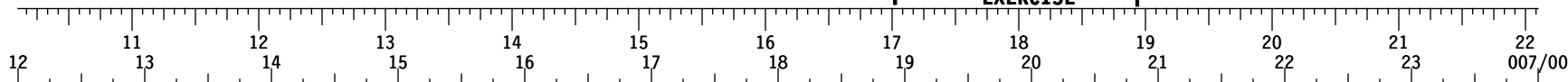


**NO UNISOLATED
EXERCISE**

GMT 08/16/07 (228)

β=13.72

MET Day 006



S T S - 1 1 8	FD08	CDR/SUIT IV KELLY	SLEEP	POST SLEEP	PMC S/G	POST SLEEP	HYG BRK/HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EXERCISE	P/TV07 EVA OPS	MEAL	P/TV 07 EVA OPS			
		PLT HOBAUGH	SLEEP	POST SLEEP				IPCNACHTM-AB	EXERCISE	SSRMS MNVR SASA SPT	SSRMS SASA RELOC	SSRMS CETA CART RELC	MEAL					
		MS1/IV CALDWELL	SLEEP	POST SLEEP				EXERCISE	IVA PREP	IV SPPT EVA 3 (6:30)								
		MS2/EV1 MASTRACCHIO	SLEEP	POST SLEEP	14.7 RPRS	10.2 DPRS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EGRS	SETUP	P6 SASA RELOCATE	CETA 1 MOVE STBD	CETA 2 MOVE STBD	SASA GIMBL LOCKS	MISSE 3 & 4 RMV	CLNUP
		MS3 WILLIAMS	SLEEP	POST SLEEP	HYG BRK/HATCH CLS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EMURGE	CIWN #9	SHAB DEBR SCREEN CK	CIWN #9	CIWN #10	MEAL	CIWN #10	EXERCISE	
		MS4 MORGAN	SLEEP	POST SLEEP - SHAB		XUFRDAT	POST SLEEP	XFER	SRMS*	P/TV 07 S/U	P/TV07 EVA OPS			MEAL	PWR#3 FILL	PWR#4 FILL	EXERCISE	
		MS5 DREW	SLEEP	POST SLEEP				XFER	LIOH EXCHANGE			MEAL	CDBATIMLY	EXERCISE				
E X P 1 5		ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	OPS PLAN P/D	XFER	EXERCISE TVIS			MIDDAY-MEAL	EXERCISE VELO	COX MNT				
		FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	EXERCISE TVIS			SSRMS MNVR SASA SPT	SSRMS SASA RELOC	SSRMS CETA CART RELC	IMS EDIT	VELO				
		FE-2/EV3 ANDERSON	SLEEP (8.5)	POST SLEEP	14.7 RPRS	10.2 DPRS	CAMPOUT EVA PREP	EMURGE	EMU PRE BREATHE	C/L DPRS	EGRS	SETUP	P1 BSP & XPDR INSTL	CETA 1 MOVE STBD	CETA 2 MOVE STBD	P6 XPDR RETRV	CLNUP	
S T S	DAY/NIGHT ORBIT		103	104	105	106	107	108	109	110	111							
	TDRS	W -171	[Timeline bars for W, E, Z]															
		E -46	[Timeline bars for W, E, Z]															
	Z -275	[Timeline bars for W, E, Z]																
	ORB ATT	BIAS -XLV -ZVV																
	SSRMS	WS4 PDGF2																
	NOTES	*RECONNECT *P6 SASA RELOC VIEW																

Reference OSTP for S-band Activities

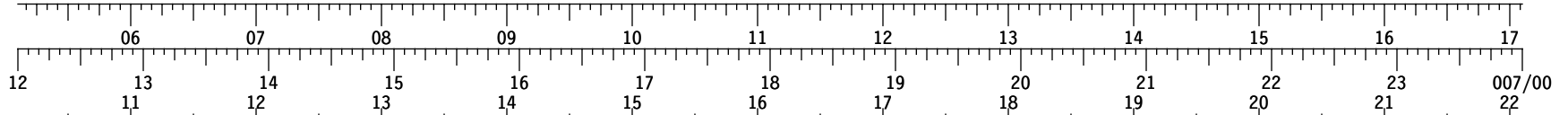
CT 08/16/07 (228)

$\beta = 13.72$

MET Day 006

FD08

GMT 08/16/07 (228)



ISS	DAY/NIGHT	DAILY ORBIT
		TDRS AVAIL
D P R S	MSS-P/U	-----
	EVA-HYGIENE-BREAK	-----
	C&T-VIDEO-CNFG	-----
	CCS-TLM FORMAT-SWAP	-----
	SBD-STRG 2 TO 1-SWAP	-----
	ACS-INH-AUTO-H/O-RS	-----
	C&T-UHF-ACT	-----
	C&T-AUDIO-CNFG	-----
	PPS-PCU WARNING-ENA	-----
	DPC	-----
K	A/L RAPID DPRS-ENA	-----
	PPS-P6 BGA-LATCH	-----
	EVA3 INHIBIT PAD	-----
	ISS-RAP DPRS-INH	-----
	VDS-WETA-ACT	-----
	ETCS-LPB TRRJ-LOCK	-----
	ISS-RAP DPRS-ENA	-----
	VDS-WETA-CONFIG	-----
	C&T-S-BAND-PARK	-----
	C&T-S-BAND-AVAIL	-----
M C	C&T-SBD 2-DEACT	-----
	C&T-RFG HTR-DEACT	-----
	A/L-10.2 PSI OP-TERM	-----
	A/L-CCAA-SPD-CHG	-----
	C&T-SBD-2-ACT	-----
	SBD-STRG 1 TO 2-SWAP	-----
	A/L-CCAA-RECENFG	-----
	CHECS-KU-D/L	-----
	MAIL-SYNC	-----

R S	CHECS-KU-D/L	-----
	CCS-TLM FORMAT-SWAP	-----
	EVA3 INHIBIT PAD	-----
	NO UNISOLATED EXER	-----
	GTS-DEACT	-----

P L	ALTEA-DOSI-OPS	-----
	CGBA4-PL-RES TRACK	-----
	MELFI-DEWAR 1-OPS	-----
	MELFI-DEWAR 2-OPS	-----
	MELFI-DEWAR 3-OPS	-----
	MELFI-DEWAR 4-OPS	-----
	PRO-EXPRS-FILE CMD	-----
	CGBA4-PARAM-CMD	-----

S Y		-----

ISS ATT		-XVV +ZLV
TLM FORMAT	-JJK	JJK
		-JJK
NOTES	*POWER DOWN	2-27
		FLT PLN/118/FIN

ALTEA-DOSI-OPS
CGBA4-PL-RES TRACK
MELFI-DEWAR 1-OPS
MELFI-DEWAR 2-OPS
MELFI-DEWAR 3-OPS
MELFI-DEWAR 4-OPS
PRO-EXPRS-FILE CMD
CGBA4-PARAM-CMD

GMT 08/16/07 (228)

β = 11.24 Day 007/00

MET

23 01 08/17 02 01 03 02 04 03 05 04 06 05 07 06 08 07 09 08 10 09 11 10 12

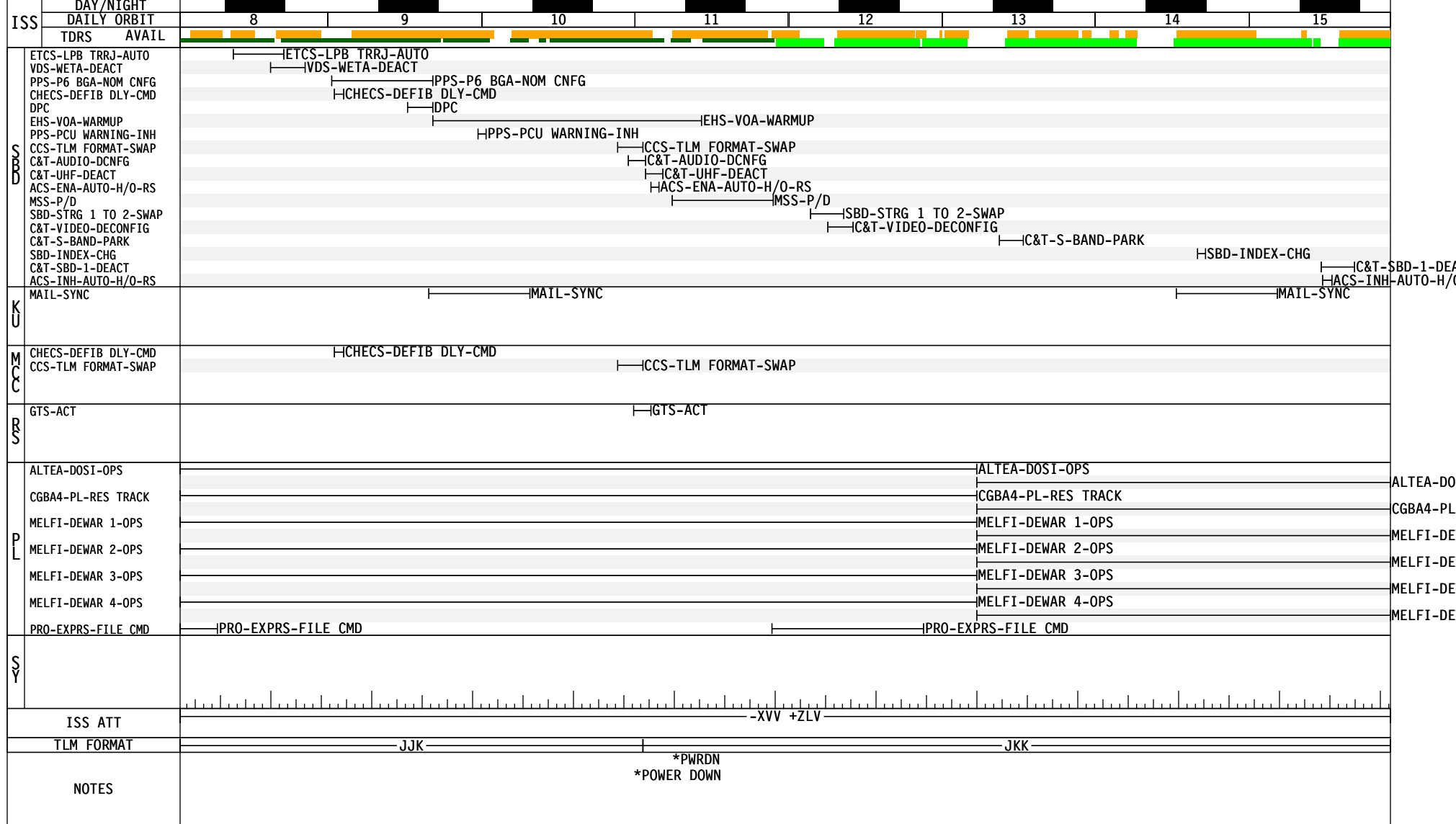
S T S - 1 1 8	FD08	P/TV 07 EVA OPS	C R P R S	POST EVA W/H2O	PRE SLEEP	PMC A/G	PRE SLEEP	ISS EXTERNAL SURVEY				
	PLT HOBAUGH			WCS# I L L U M	IO N C M - A	CWC X F E R (2)	PRE SLEEP	SLEEP				
	MS1/IV CALDWELL	IV SPPT		M3 I D I S S E	MISSE 3 X F E R		PRE SLEEP	SLEEP				
	MS2/EV1 MASTRACCHIO	CCIP L/N LGR UP	C R P R S		POST EVA W/H2O		PRE SLEEP	SLEEP				
	MS3 WILLIAMS				POST EVA W/H2O	BSA I N I T		PRE SLEEP	C D M *	SLEEP		
	MS4 MORGAN	EXER CISE	R M W C S R I D U N	M4 I D I S S E	MISSE 4 X F E R	X T F A E R U P	PRE SLEEP - SHAB	SLEEP				
	MS5 DREW		P W R X F E R (2)		N2 XFER T E R M	X T F A E R U P	X B F R E I E F	PRE SLEEP	SLEEP			
E X P 1 5	ISS CDR YURCHIKHIN	PRE SLEEP	C D R A *	OPS L A N P /U	D B E C A V S T A T D *	P R E P W O R K	D P C	PRE SLEEP	SLEEP (8.5)			
	FE-1 KOTOV	W E X L D O L		P S R L E E P	N2 XFER T E R M	P S R L E E P	D P C	PRE SLEEP	SLEEP (8.5)			
	FE-2/EV3 ANDERSON	CCIP L/N LGR UP	C R P R S		POST EVA W/H2O		D P C	PRE SLEEP	SLEEP (8.5)			
S T S	DAY/NIGHT	[Day/Night Cycle]										
	ORBIT	111	112	113	114	115	116	117	118	119		
	TDRS	W -171	E -46	Z -275	[TDRS Data]							
ORB ATT	BIAS -XLV -ZVV											
SSRMS	WS4 PDGF2											
NOTES	*FLTR*COMPACT *ACT *CNCT *CHRG											

Reference OSTP for S-band Activities

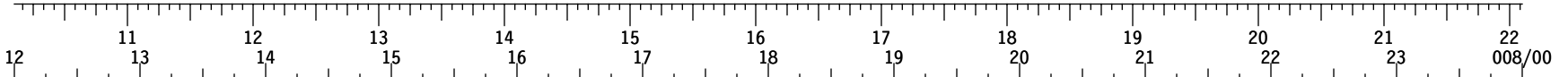
CT 08/16/07 (228)
 $\beta = 11.24$

MET Day 007 007/00
FD08

GMT 08/16/07 (228)



GMT 08/17/07 (229)
 β = 8.77
 MET Day 007

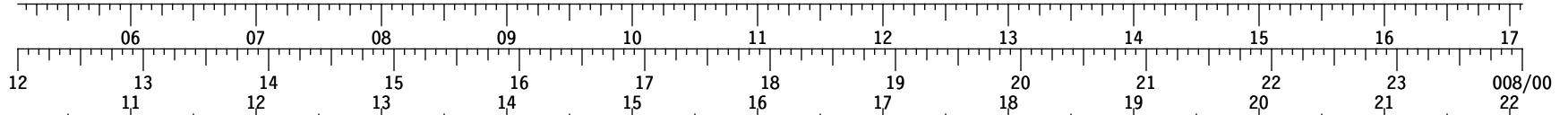


STS - 118	FD09 - EXT SVY		POST SLEEP		N2 PRRS*	FLOWND	02 TEARDOWN	NOM H20 CFG	CPH RHO W TO	CREW CONF	OFF DUTY	MEAL	OFF DUTY	N2 PFCRPRS OCA TERM								
	CDR KELLY	SLEEP																				
STS - 118	PLT HOBAUGH		POST SLEEP		IO LFLUM	EXERCISE	XFER	PXR	PCRL	CPH RHO W TO	CREW CONF	OFF DUTY	MEAL	OFF DUTY	PFC OCA							
STS - 118	MS1 CALDWELL		POST SLEEP		EVA TOOL STOW	PWR #5 FILL	EXERCISE	CPH RHO W TO	CREW CONF	OFF DUTY	MEAL	PFC OCA	OFF DUTY	SVI 2								
STS - 118	MS2 MASTRACCHIO		POST SLEEP		EVA TOOL STOW	EXERCISE	EMU XFER TO STS	CPH RHO W TO	CREW CONF	OFF DUTY	MEAL	OFF DUTY	PFC OCA	OFF DUTY	BSA*							
STS - 118	MS3 WILLIAMS		POST SLEEP		EMU PREP XFER TO STS			CPH RHO W TO	CREW CONF	OFF DUTY	MEAL	ODFTY	PFC OCA	OFF DUTY	METX#							
STS - 118	MS4 MORGAN		POST SLEEP - SHAB		XUFRD AT	POST SLEEP	XFER		XTFA EG RUP	XBFR EIP	CPH RHO W TO	CREW CONF	OFF DUTY	POFC A*	OFF DUTY	MEAL	OFF DUTY	SHEA CCT				
STS - 118	MS5 DREW		POST SLEEP		CCM A	EXERCISE	XFER	XTFA EG RUP	PTV 05 PAO SU	CPH RHO W TO	CREW CONF	OFF DUTY	PFC OCA	OFF DUTY	MEAL	OFF DUTY	P/TV 04 S/U					
EXP 15	ISS CDR YURCHIKHIN		POST SLEEP (8.5)		PREP WORK	DPC	XFER	02 TEARDOWN		PREP	CPH RHO W TO	CREW CONF	EXERCISE TVIS		MIDDAY-MEAL		IMS EDIT	DCB1 PACK BAG	DCB2 PACK BAG			
EXP 15	FE-1 KOTOV		POST SLEEP (8.5)		PREP WORK	DPC	DCB1 REV	EMU PREP XFER TO STS			PREP	CPH RHO W TO	CREW CONF	EXERCISE VELO		MIDDAY-MEAL		COX MNT	EXERCISE TVIS			
EXP 15	FE-2 ANDERSON		POST SLEEP (8.5)		PREP WORK	DPC	DCB1 REV	XFER	EXERCISE TVIS			PREP	CPH RHO W TO	CREW CONF	EXERCISE RED		MIDDAY-MEAL		JRN L	DCB1 PACK BAG	DCB2 PACK BAG	COLD BAG XFER
STS	DAY/NIGHT ORBIT		119		120		121		122		123		124		125		126		127			
	TDRS		W -171		E -46		Z -275															
ORB ATT SSRMS																						
NOTES		#DEACT		*Using PAYLOAD N2 Valves				BIAS -XLV -ZVV WS4 PDGF2				*WLES DISABLE				*TERM+BPSMU *ENABLE #TERM						

Reference OSTP for S-band Activites

CT 08/17/07 (229)
 $\beta = 8.77$

MET Day 007
FD09
 GMT 08/17/07 (229)



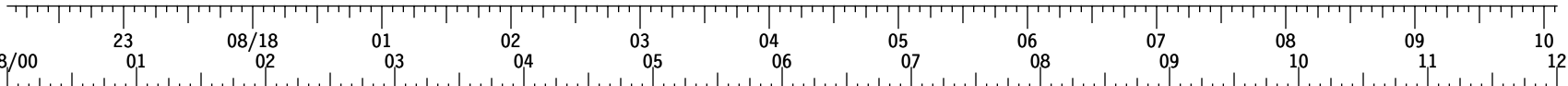
ISS	DAY/NIGHT	DAILY ORBIT	TDRS	AVAIL	
S B D	SPS-PWRDOWN		-----		ISPS-PWRDOWN
	ACS-INH-AUTO-H/O-RS		-----		IACS-INH-AUTO-H/O-RS
	PPS-SARJ/BGA-N CNFG		-----		I PPS-SARJ/BGA-N CNFG
	DPC		-----		I DPC
	A/L-MTX REGEN-CNFG		-----		HA/L-MTX REGEN-CNFG
	SPS-SSPTS INPUT-DEAC		-----		I SPS-SSPTS INPUT-DEAC
	PPS-SARJ/BGA-FTHR		-----		I PPS-SARJ/BGA-FTHR
	SPS-PWRUP		-----		I SPS-PWRUP
	IMV-ACT RPD DPRS-DIS		-----		I IMV-ACT RPD DPRS-DIS
	MAIL-SYNC		-----		I MAIL-SYNC
K U	SPS-PWRDOWN		-----		I SPS-PWRDOWN
	SPS-PWRUP		-----		I SPS-PWRUP
P	ALTEA-DOSI-OPS		-----		I ALTEA-DOSI-OPS
	CGBA4-PL-RES TRACK		-----		I CGBA4-PL-RES TRACK
	MELFI-DEWAR 1-OPS		-----		I MELFI-DEWAR 1-OPS
	MELFI-DEWAR 2-OPS		-----		I MELFI-DEWAR 2-OPS
	MELFI-DEWAR 3-OPS		-----		I MELFI-DEWAR 3-OPS
S Y	MELFI-DEWAR 4-OPS		-----		I MELFI-DEWAR 4-OPS
	PRO-EXPRS-FILE CMD		-----		I PRO-EXPRS-FILE CMD
ISS ATT		-----		-XVV +ZLV	
TLM FORMAT		-----		-JJK	
NOTES		-----			

*ACT SPPT

GMT 08/17/07 (229)

β=6.33 008/00

MET Day 008



S T S - 1 1 8	FD09	FW A E R L E L	HO A T T	EXERCISE	PRE SLEEP CK HUM SEP	PMC A/G	PRE SLEEP	SLEEP		
	PLT HOBAUGH	FW A E R L E L	HATCH CLOSE	RNDZ TOOLS C/O	HO A T T		PRE SLEEP	SLEEP		
	MS1 CALDWELL	FW A E R L E L		RNDZ TOOLS C/O			PRE SLEEP	SLEEP		
	MS2 MASTRACCHIO	FW A E R L E L	HATCH CLOSE	ODS LEAK CHECK			PRE SLEEP	SLEEP		
	MS3 WILLIAMS	FW A E R L E L	CDC BAC TIM ML YA	ODS LEAK CHECK			PRE SLEEP	SLEEP		
	MS4 MORGAN	FW A E R L E L		EXERCISE			PRE SLEEP - SHAB	SLEEP		
	MS5 DREW	FW A E R L E L		FD MP K L Y			PRE SLEEP	SLEEP		
E X P 1 5	ISS CDR YURCHIKHIN	FW A E R L E L		EXERCISE VELO	PREP WORK	PS R L E E P DPC	PRE SLEEP	SLEEP (8.5)		
	FE-1 KOTOV	FW A E R L E L	HATCH CLOSE		EX D L PREP WORK	PS R L E E P DPC	PRE SLEEP	SLEEP (8.5)		
	FE-2 ANDERSON	FW A E R L E L		B S P T S O M W U	PREP WORK	PS R L E E P DPC	PRE SLEEP	SLEEP (8.5)		
S T S	DAY/NIGHT	[Timeline bar]								
	ORBIT	127	128	129	130	131	132	133	134	135
	TDRS	W -171	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]
	E -46	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]
	Z -275	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]	[Timeline bar]
	ORB ATT	BIAS -XLV -ZVV								
	SSRMS	WS4 PDGF2								
	NOTES	*FILTER CK								

Reference OSTP for S-band Activites

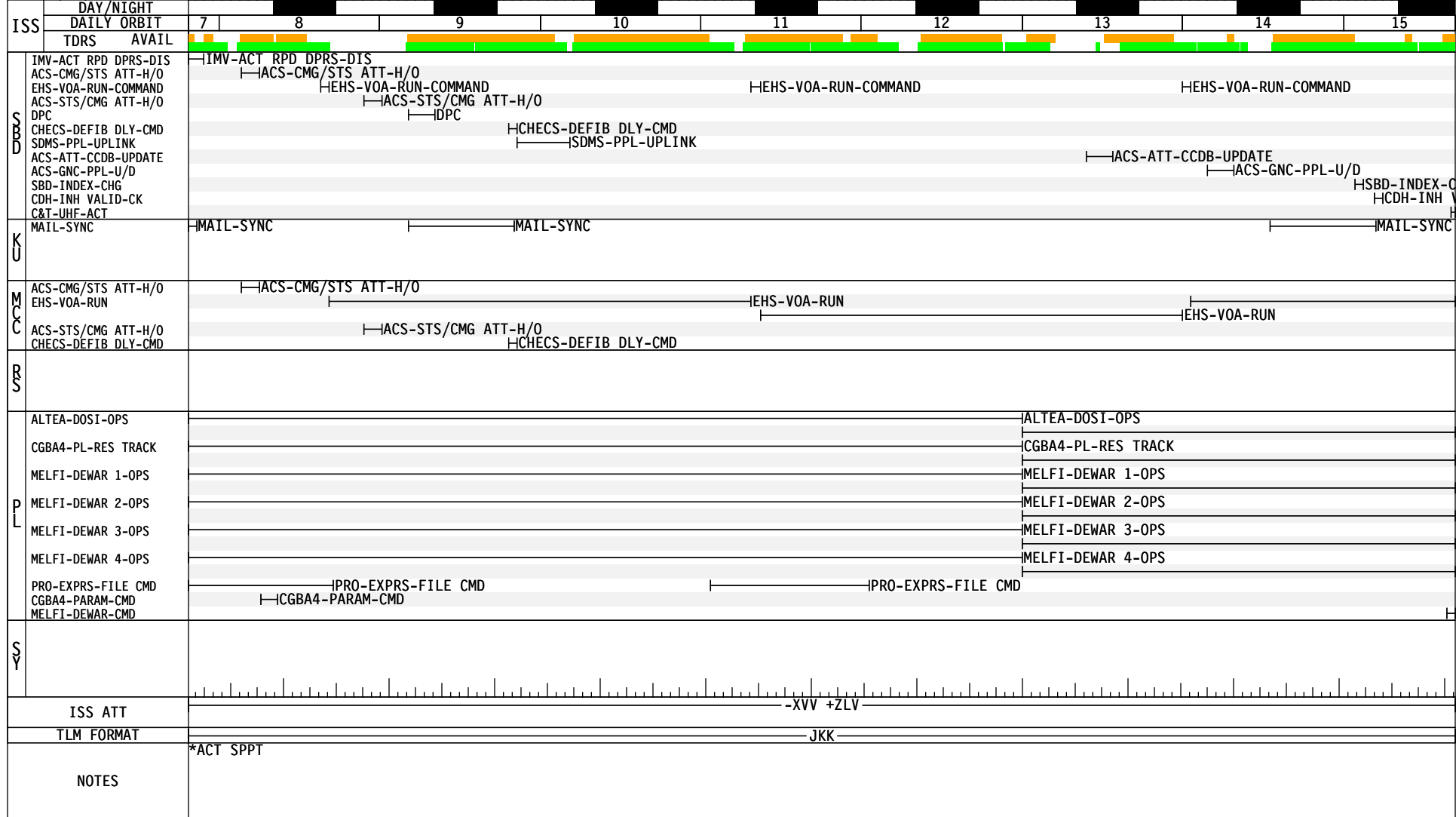
CT 08/17/07 (229)

$\beta = 6.33$

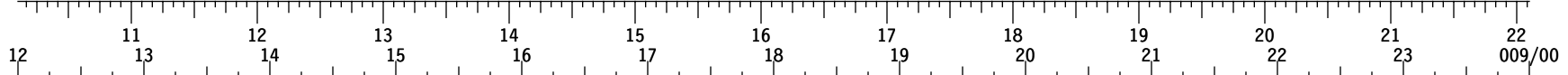
MET Day 008 008/00

FD09

GMT 08/17/07 (229)



GMT 08/18/07 (230)
 β = 3.93
 MET Day 008



STS-118	FD10	CDR KELLY	POST SLEEP	HGR UP ATT	POST SLEEP	UNDOCK OPS	FLYAROUND	SEP1	SEP2	GPRDN PSS#	POST SLEEP	MEAL	MNTV RD	COMM	NOSE CAP SURVEY	EXERCISE	
		PLT HOBAUGH	POST SLEEP	OPCU*	POST SLEEP	-XLV +ZVV	UNDOCK OPS	FLYAROUND		GPRDN PSS#	POST SLEEP	MEAL	OBSS STBD SURVEY	MNOV RE	MNOV RT	EXER CISE	
		MS1 CALDWELL	POST SLEEP		CCIN LRST#	UNDOCK OPS	UNDOCK	FLYAROUND				MEAL	OBSS UNBERTH	OBSS STBD SURVEY	NOSE CAP SURVEY	EXERCISE	*
		MS2 MASTRACCHIO	POST SLEEP			UNDOCK OPS	UNDOCK	FLYAROUND				MEAL	OBSS UNBERTH	OBSS STBD SURVEY	EXERCISE	OBSS PORT SURVEY	
		MS3 WILLIAMS	POST SLEEP		CCIN LRST#	UNDOCK OPS	UNDOCK	FLYAROUND			POST UNDK PGSC CNFG	PLBK OPS	MEAL		POST ISS EV ENT PREP	OBSS PORT SURVEY	
		MS4 MORGAN	POST SLEEP - SHAB		ABU/ DDO IO	P/TV03 UNDOCK OPS	UNDOCK	FLYAROUND			XFER CLEAN UP	P/TV 03*	MEAL	EXERCISE	NOSE CAP SURVEY	OBSS PORT SURVEY	⊕
		MS5 DREW	POST SLEEP		P/TV03 S/U	UNDOCK OPS	UNDOCK	FLYAROUND			XFER CLEAN UP	CTO/ ND	MEAL	POST ISS EV ENT PREP	EXERCISE	CD BATT MLY #	CD M#
EXP 15		ISS CDR YURCHIKHIN	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	UV NID DKE O			PMA2-DEPRESS		MIDDAY-MEAL	PFC	CD RA #	EXERCISE VELO	TVIS	
		FE-1 KOTOV	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC	PMA2 DPRT CNFG		PFC	EXERCISE TVIS		MIDDAY-MEAL				VELO	
		FE-2 ANDERSON	SLEEP (8.5)	POST SLEEP	PREP WORK	DPC				SODF WARN		MIDDAY-MEAL	PMA2 LK CH	PMA2 LK CH	EXERCISE TVIS	EXER ED R	
STS	DAY/NIGHT	[Bar chart showing day/night cycle]															
	ORBIT	[Bar chart showing orbit parameters]															
	TDRS	W -171	[Bar chart showing TDRS operations]														
	E -46	[Bar chart showing TDRS operations]															
	Z -275	[Bar chart showing TDRS operations]															
	ORB ATT	BIAS	-XLV	-ZVV	*OFF	#UNDOCKING	*HTR	-XLV	+ZVV	FLYAROUND	SEP	-ZLV	-XVV	STBD	NOSE	PORT	
NOTES	*UNDOCK (08/15:25) #ANTENNA DATA GATHER *DEACT *DEACT & C/L CAMR STOW #DCNCT #BATT C/O *OBSS BERTH ⊕OBSS BERTH																

Reference OSTP for S-band Activities

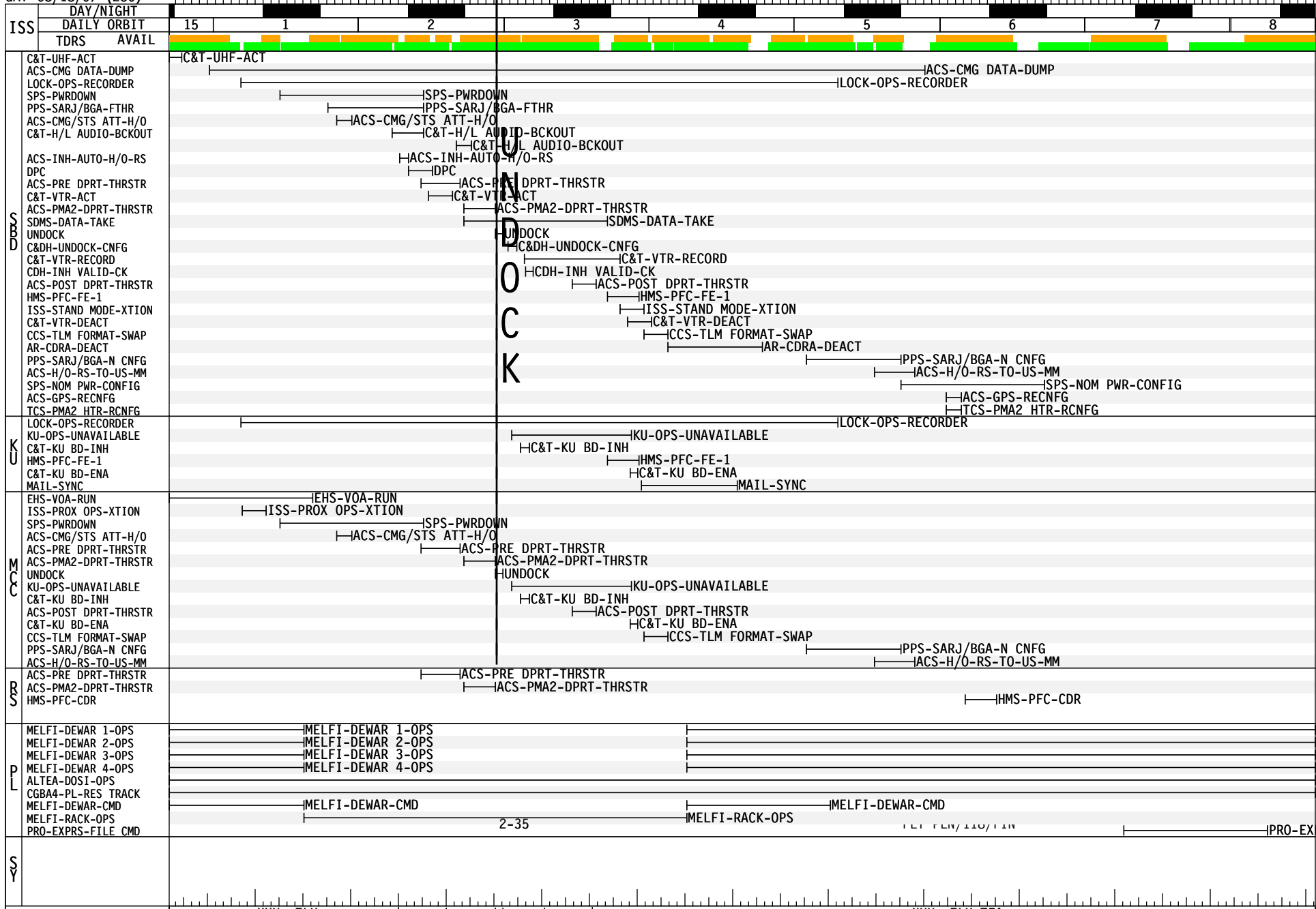
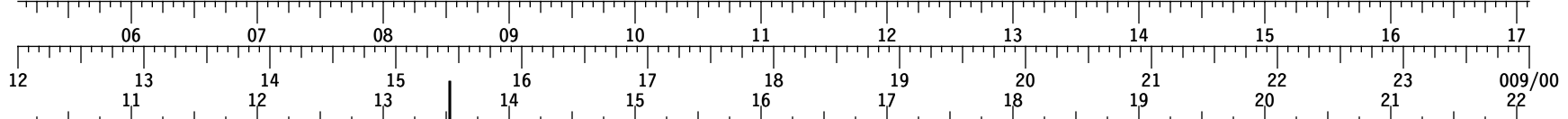
CT 08/18/07 (230)

$\beta = 3.93$

MET Day 008

FD10

GMT 08/18/07 (230)

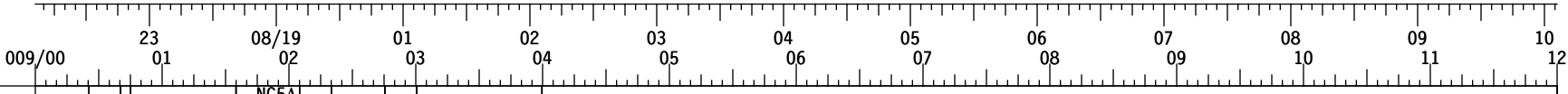


MELFI-DEW
MELFI-DEW
MELFI-DEW
MELFI-DEW
ALTEA-DOS
CGBA4-PL-
PRO-EXPRS-FILE

GMT 08/18/07 (230)

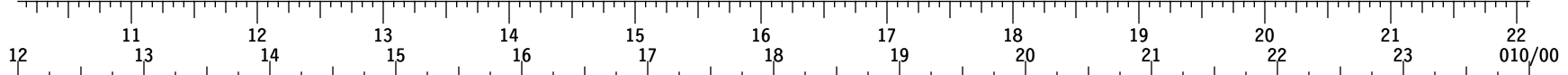
β = 1.52

MET Day 009



S T S - 1 1 8	FD10	CDR KELLY	M C N O V M R M	F E E S T	PRE SLEEP	NC5Δ MULT AXIS RCS BURN	- Z L V V	- X L V V	PRE SLEEP	PMC A/G	PRE SLEEP	SLEEP	
	PLT HOBAUGH	EXER CISE	PRE SLEEP	MULT AXIS RCS BURN	PRE SLEEP	SLEEP							
	MS1 CALDWELL	OBSS BERTH	R P M W R D N	PRE SLEEP	SLEEP								
	MS2 MASTRACCHIO	PRE SLEEP	SLEEP										
	MS3 WILLIAMS	EXERCISE	PRE SLEEP	SLEEP									
	MS4 MORGAN	OBSS BERTH	PRE SLEEP	LDRI DNLK	PRE SLEEP - SHAB	SLEEP							
	MS5 DREW	FILTER CLEANING	C C M L A	PRE SLEEP	C D M *	SLEEP							
S T S	DAY/NIGHT	[Timeline with shaded day/night blocks]											
	ORBIT	143	144	145	146	147	148	149	150				
	TDRS	W -171	[Timeline with horizontal bars]										
		E -46	[Timeline with horizontal bars]										
	Z -275	[Timeline with horizontal bars]											
	ORB ATT	COMM	NC5	*ACT				-ZLV -XVV					
	NOTES												

GMT 08/19/07 (231)
 β = -0.90
 MET Day 009

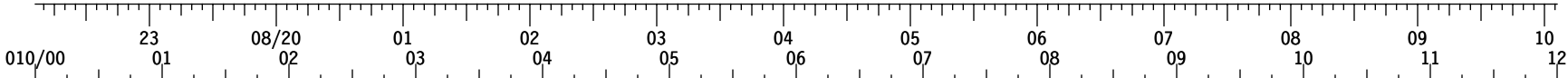


STS - 118	FD11	POST SLEEP		FCS C/O	RCS H/F	D/O BRIEF	-ZLV	+YVV	SIMO INIT*	CABIN STOW	PILOT OPS	CS AT BOW IN	LCO IMM	EXERCISE	COMM 2	PEVENT SA	PEVENT	MEAL	OFF DUTY			
	PLT HOBAUGH	POST SLEEP		FCS C/O	RCS H/F	D/O BRIEF	EXERCISE	CABIN STOW	SIMO TERM	PILOT OPS	CABIN STOW	FZLV	-XVV	CABIN STOW	PEVENT	MEAL	OFF DUTY					
	MS1 CALDWELL	POST SLEEP		EXERCISE	D/O BRIEF	CABIN STOW	EPO VIDEO	COND DUMP	CABIN STOW	MEAL	PEVENT	CABIN STOW	LCO IMM	OFF DUTY								
	MS2 MASTRACCHIO	POST SLEEP		FCS C/O	RCS H/F	D/O BRIEF	CABIN STOW	EXERCISE	CABIN STOW	COND DUMP	CABIN STOW	PEVENT	MEAL	OFF DUTY								
	MS3 WILLIAMS	POST SLEEP		CABIN STOW	D/O BRIEF	CABIN STOW		EXERCISE	CABIN STOW	CD BATTIMLY	PEVENT SA	PEVENT	MEAL	OFF DUTY								
	MS4 MORGAN	POST SLEEP - SHAB		EVT D REYO	CABIN STOW	D/O BRIEF	CABIN STOW	EPO VIDEO	EXERCISE	SHAB ENTRY PREP	CS AT BOW IN	PEVENT SA	PEVENT	MEAL	OFF DUTY							
	MS5 DREW	POST SLEEP		CCD M*	CABIN STOW	D/O BRIEF	CABIN STOW	EXERCISE	CABIN STOW	SHAB ENTRY PREP	PAO S/U	CS AT BOW IN	PEVENT SA	PEVENT	MEAL	OFF DUTY						
STS	DAY/NIGHT	[Timeline bars for Day/Night]																				
	ORBIT	[Timeline bars for Orbit]																				
	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	[Timeline bars for Orb Att]																				
	GND	[Timeline bars for GND]																				
	NOTES	#DEACT	*HTR ACT	*FILTER CK	*COMPLETE	*ANTENNA NOM CNFG														-DFR	-MLA	-DFR

GMT 08/19/07 (231)

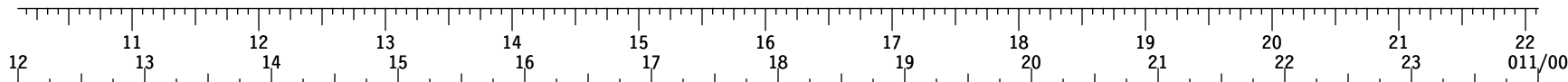
β = -3.28

MET Day 010



STS-118	FD11	CDR KELLY	OFF DUTY	MADS*	PRE SLEEP	FEST	OMS BURN	ZLV	XV	PMC A/G	PRE SLEEP	SLEEP
		PLT HOBROUGH	OFF DUTY		PRE SLEEP		OMS BURN				PRE SLEEP	SLEEP
		MS1 CALDWELL	OFF DUTY	ERG STOW	WDELECT	ENTRY*					PRE SLEEP	SLEEP
		MS2 MASTRACCHIO	OFF DUTY	SDSEACT	KUSTOW						PRE SLEEP	SLEEP
		MS3 WILLIAMS	OFF DUTY	PGSC STOW	CCMA						PRE SLEEP	SLEEP
		MS4 MORGAN	OFF DUTY	PSLEEP	KUSTOW						PRE SLEEP	SLEEP
		MS5 DREW	OFF DUTY	ERG STOW							PRE SLEEP	SLEEP
STS	DAY/NIGHT	[Timeline with shaded day/night blocks]										
	ORBIT	[Timeline with orbit parameters]										
	TDRS	W -171	[Timeline with TDRS events]									
		E -46	[Timeline with TDRS events]									
		Z -275	[Timeline with TDRS events]									
	ORB ATT	[Timeline with orbital attachment events]										
	GND	[Timeline with ground events]										
	NOTES	*PWR ON *COOLING CONFIG										

GMT 08/20/07 (232)
 β = -5.60
 MET Day 010



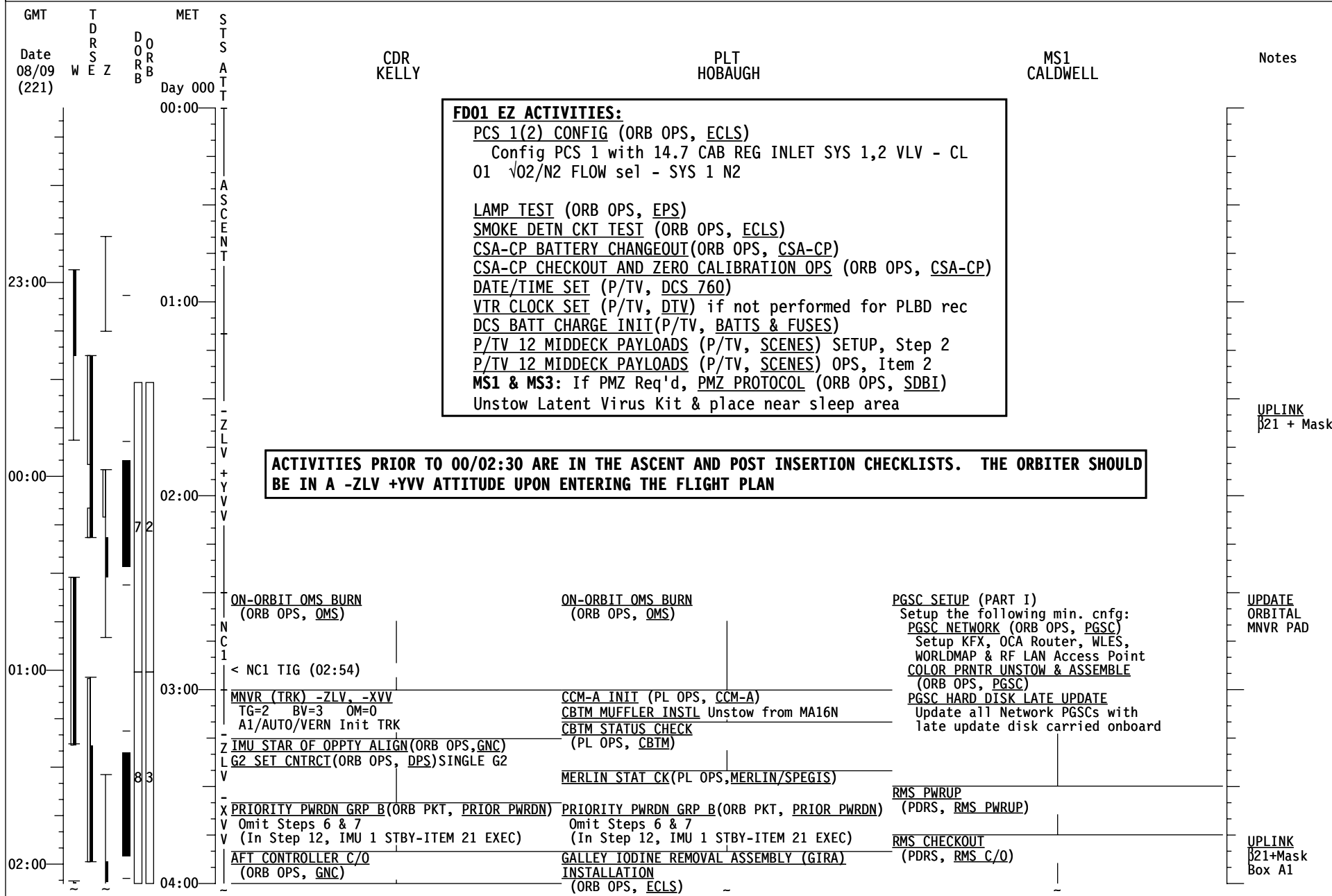
STS-118	FD12		12		13		14		15		16		17		18		19		20		21		22	
	CDR KELLY	POST SLEEP	PMC A/G	POST SLEEP	GP RW PR UP	IMU ALIGN & VERIF	T-RX SI	DEORBIT PREP																
	PLT HOBAUGH	POST SLEEP			GP RW PR UP	IMU ALIGN & VERIF	DEORBIT PREP																	
	MS1 CALDWELL	POST SLEEP			DMA	POST SLEEP	OST	DEORBIT PREP																
	MS2 MASTRACCHIO	POST SLEEP					DEORBIT PREP																	
	MS3 WILLIAMS	POST SLEEP					PGSC STOW PART II	DEORBIT PREP																
	MS4 MORGAN	POST SLEEP					FMT KOW	TCE	DEORBIT PREP															
MS5 DREW	POST SLEEP					GSI	CMA	DEORBIT PREP																
STS	DAY/NIGHT	[Timeline with day/night bars]																						
	ORBIT	[Timeline with orbit bars]																						
	TDRS	[Timeline with TDRS bars]																						
	ORB ATT	[Timeline with orb att bars]																						
GND	[Timeline with ground bars]																							
NOTES	#SAMPLE *ENTRY PREP *ENABLE *Muffler Removal										*DEORBIT TIG (10/19:05) *KSC LANDING (10/20:04) *MIDODRINE													

This Page Intentionally Blank

DETAILED TIMELINE

DETAILED
TIMELINE

STS-118 FD01



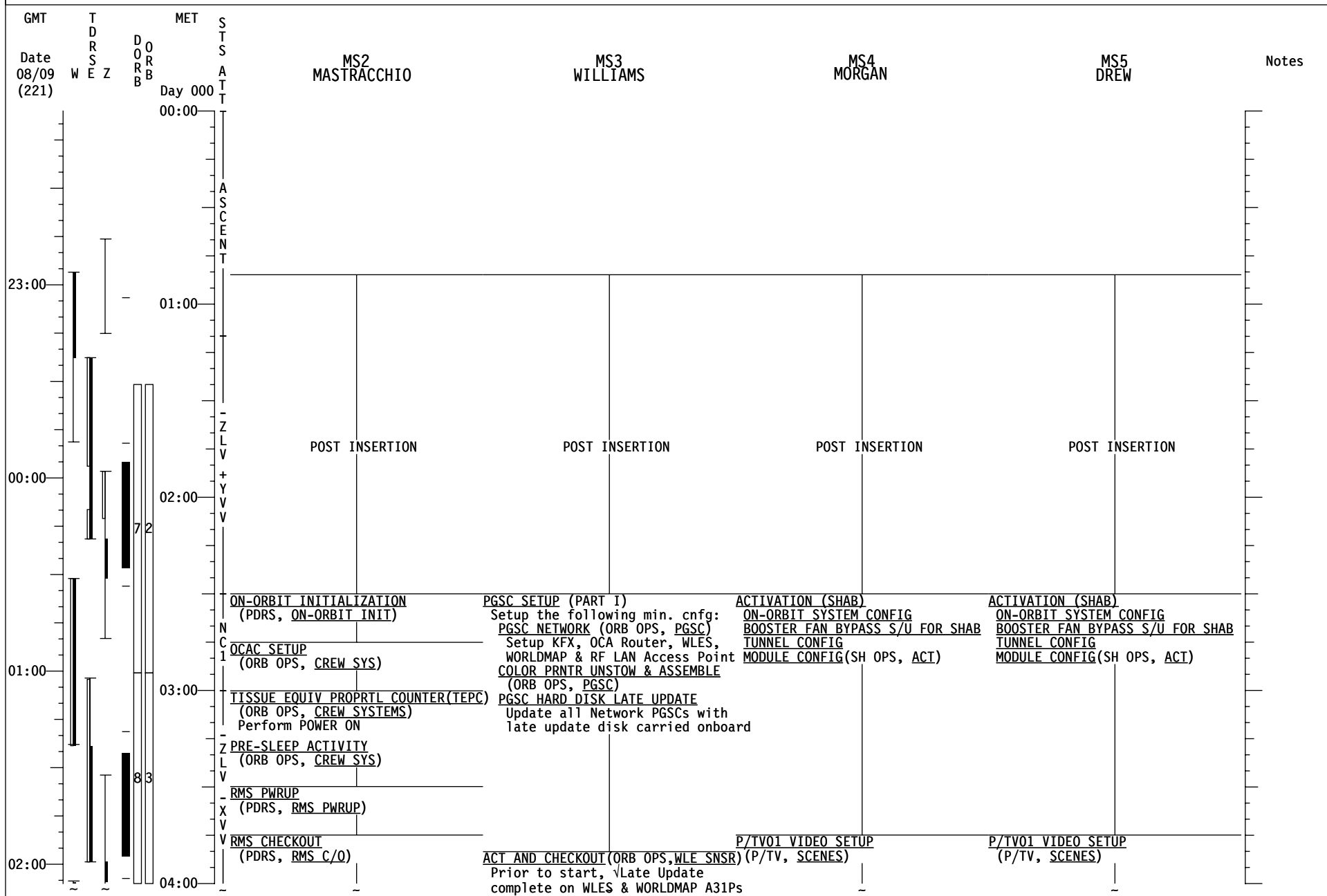
FD01 EZ ACTIVITIES:

PCS 1(2) CONFIG (ORB OPS, ECLS)
Config PCS 1 with 14.7 CAB REG INLET SYS 1,2 VLV - CL 01 √02/N2 FLOW sel - SYS 1 N2

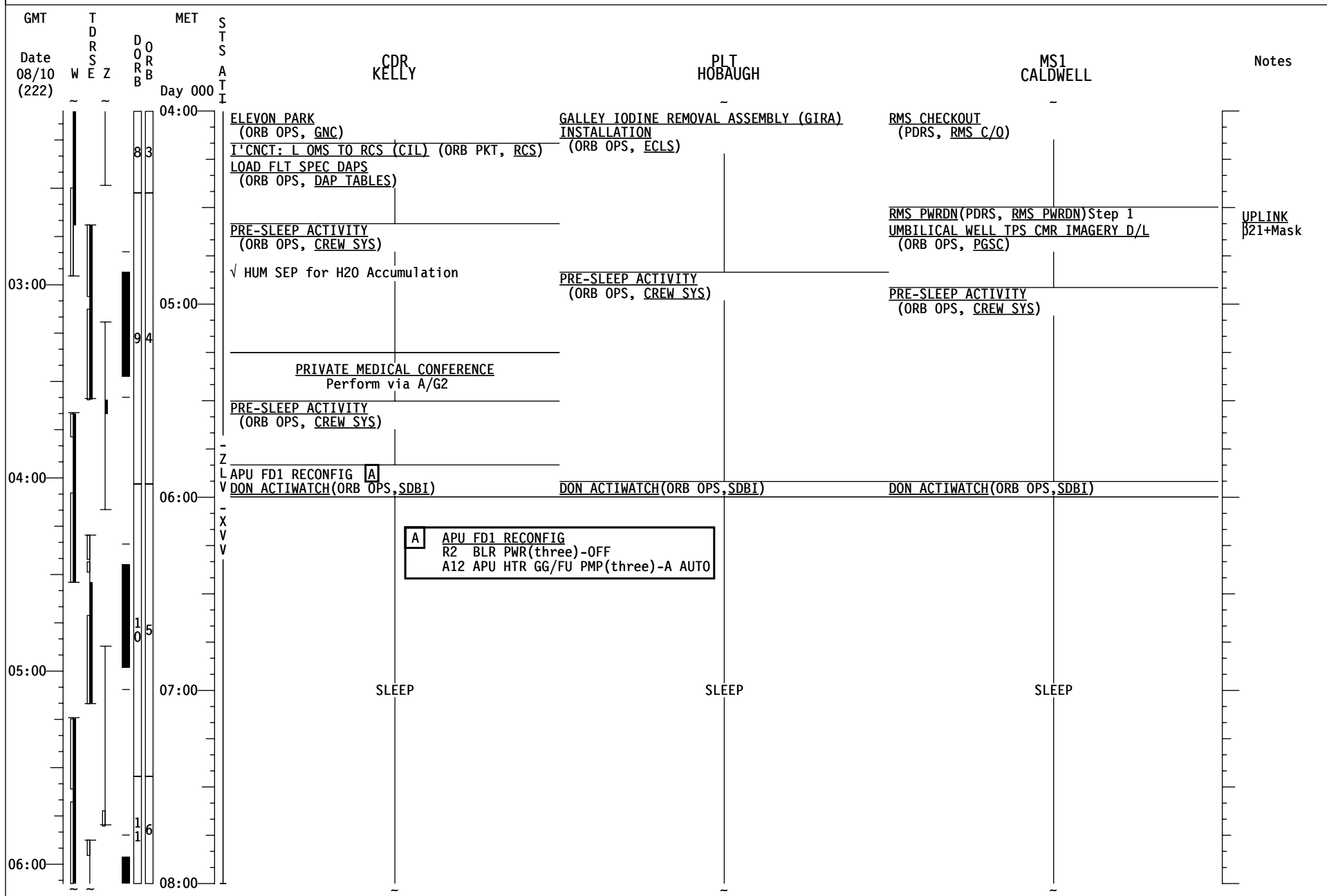
LAMP TEST (ORB OPS, EPS)
SMOKE DETN CKT TEST (ORB OPS, ECLS)
CSA-CP BATTERY CHANGEOUT (ORB OPS, CSA-CP)
CSA-CP CHECKOUT AND ZERO CALIBRATION OPS (ORB OPS, CSA-CP)
DATE/TIME SET (P/TV, DCS 760)
VTR CLOCK SET (P/TV, DTV) if not performed for PLBD rec
DCS BATT CHARGE INIT (P/TV, BATTS & FUSES)
P/TV 12 MIDDECK PAYLOADS (P/TV, SCENES) SETUP, Step 2
P/TV 12 MIDDECK PAYLOADS (P/TV, SCENES) OPS, Item 2
MS1 & MS3: If PMZ Req'd, PMZ PROTOCOL (ORB OPS, SDBI)
Unstow Latent Virus Kit & place near sleep area

ACTIVITIES PRIOR TO 00/02:30 ARE IN THE ASCENT AND POST INSERTION CHECKLISTS. THE ORBITER SHOULD BE IN A -ZLV +YVV ATTITUDE UPON ENTERING THE FLIGHT PLAN

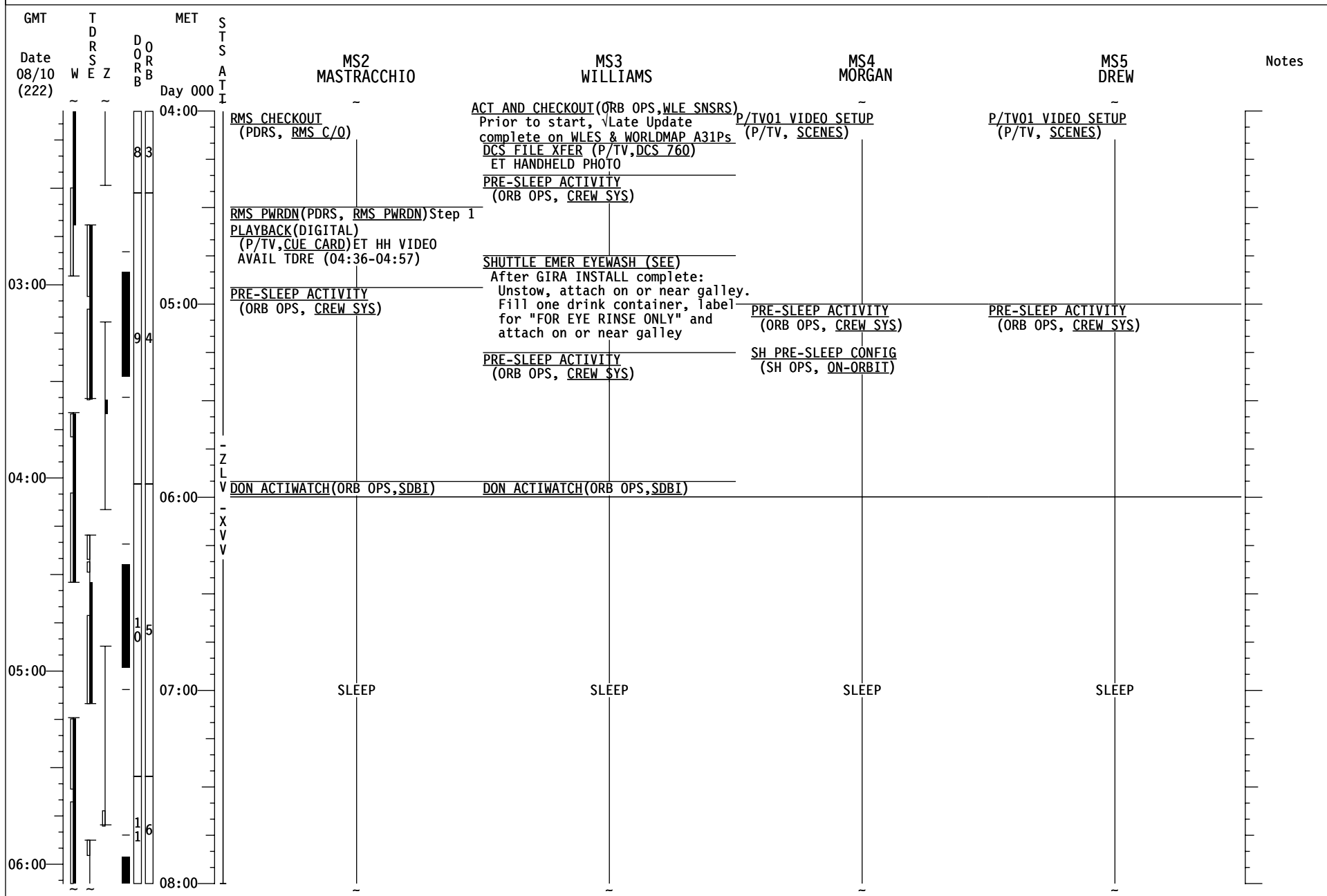
STS-118 FD01



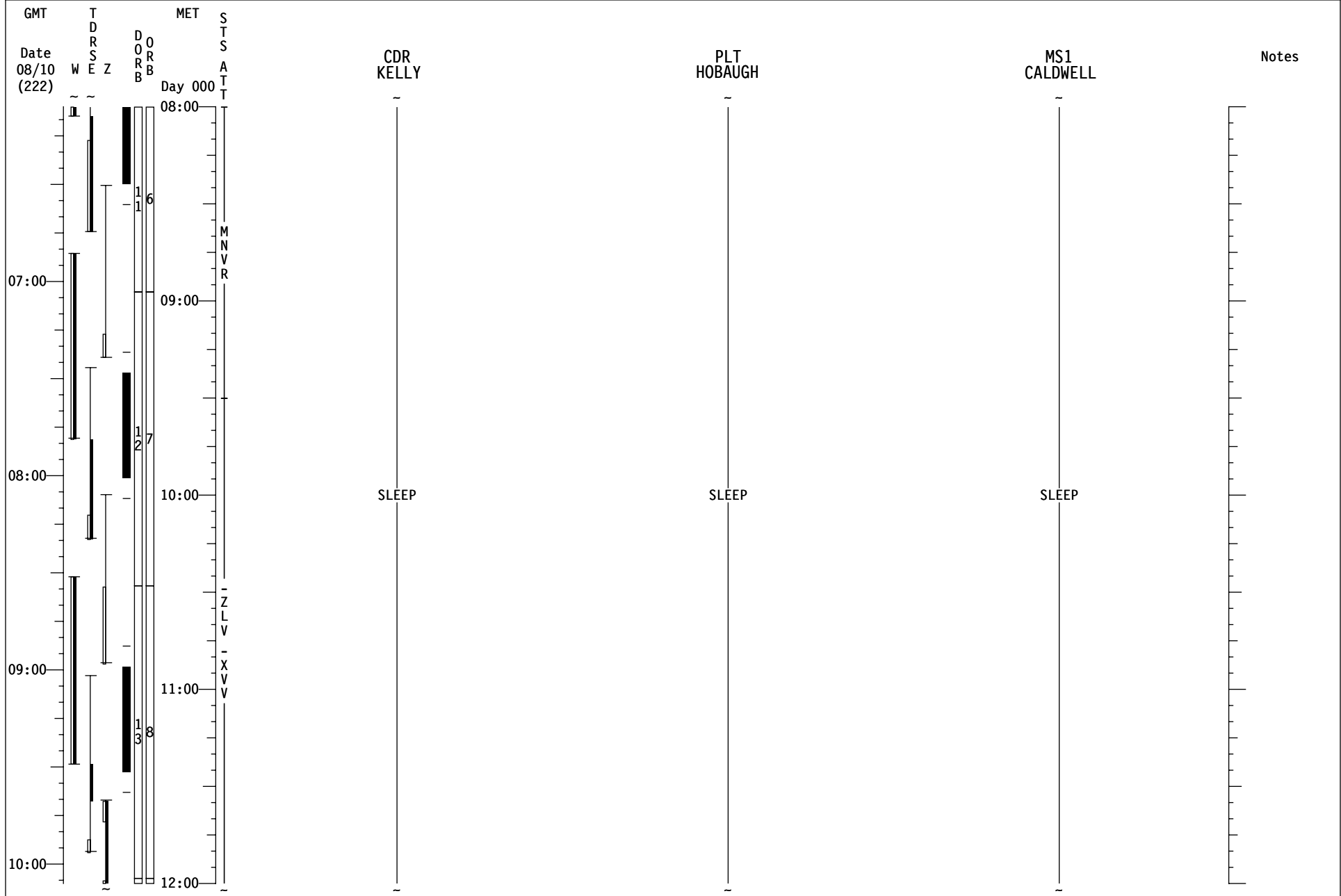
STS-118 FD01



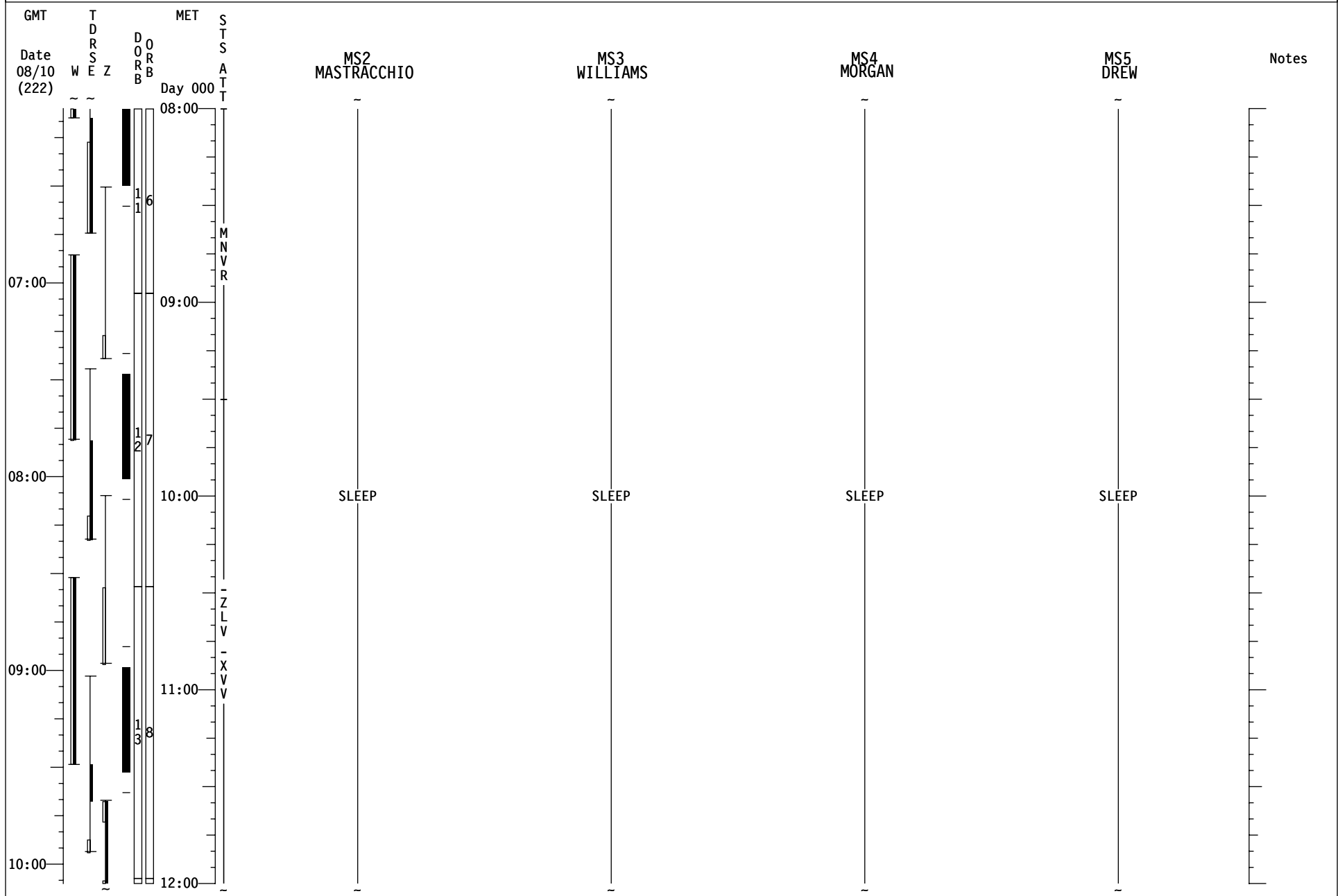
STS-118 FD01



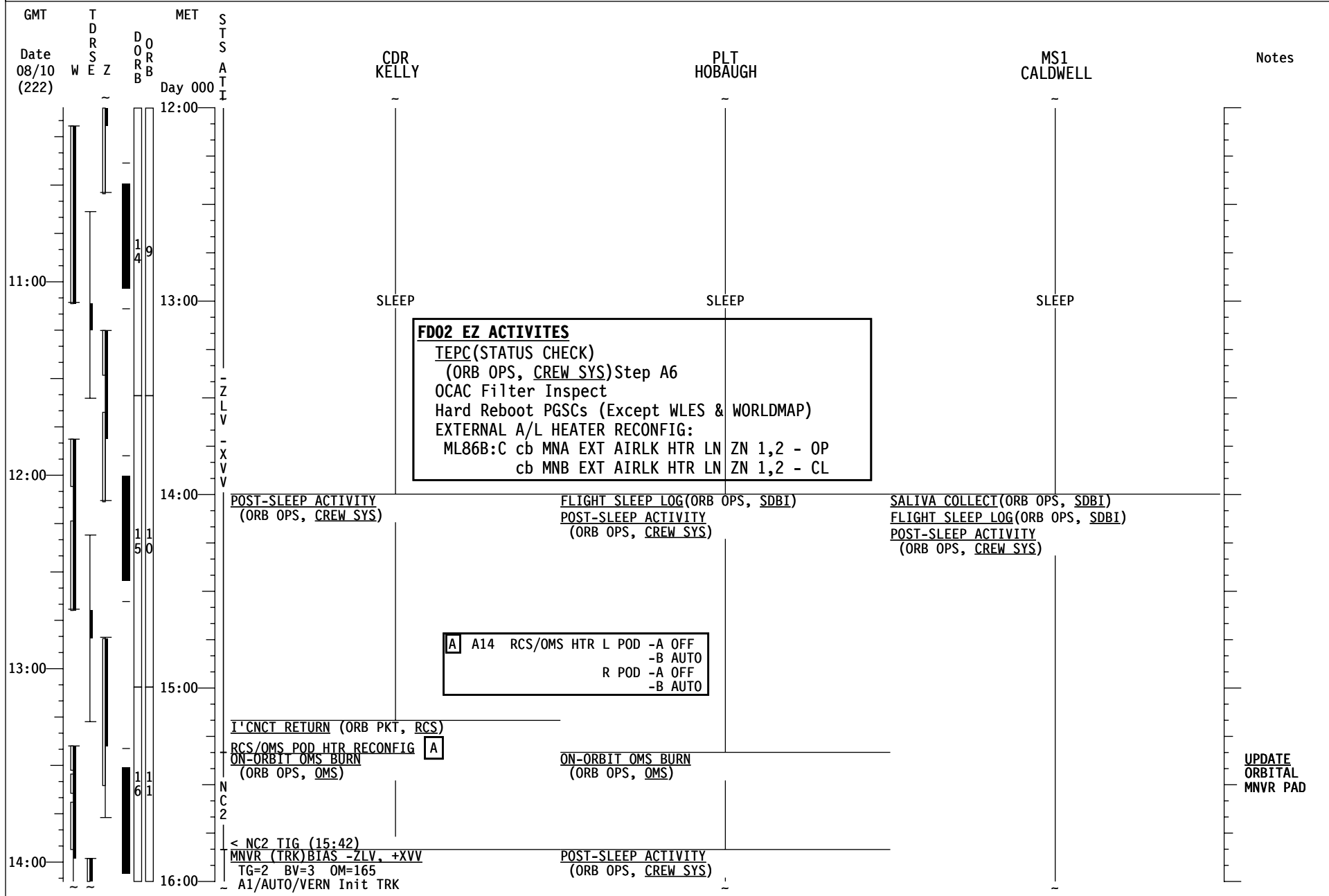
STS-118 FD01



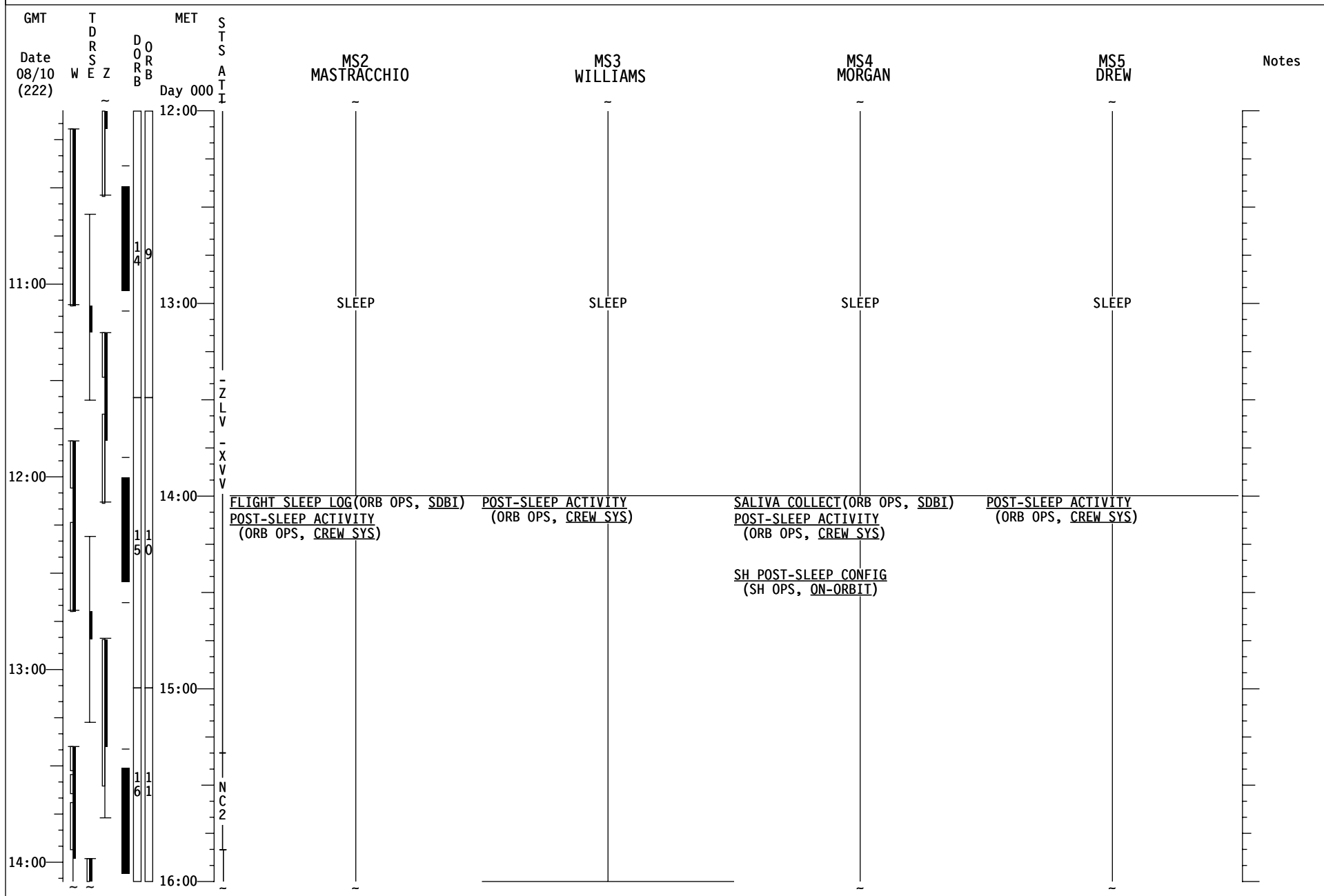
STS-118 FD01



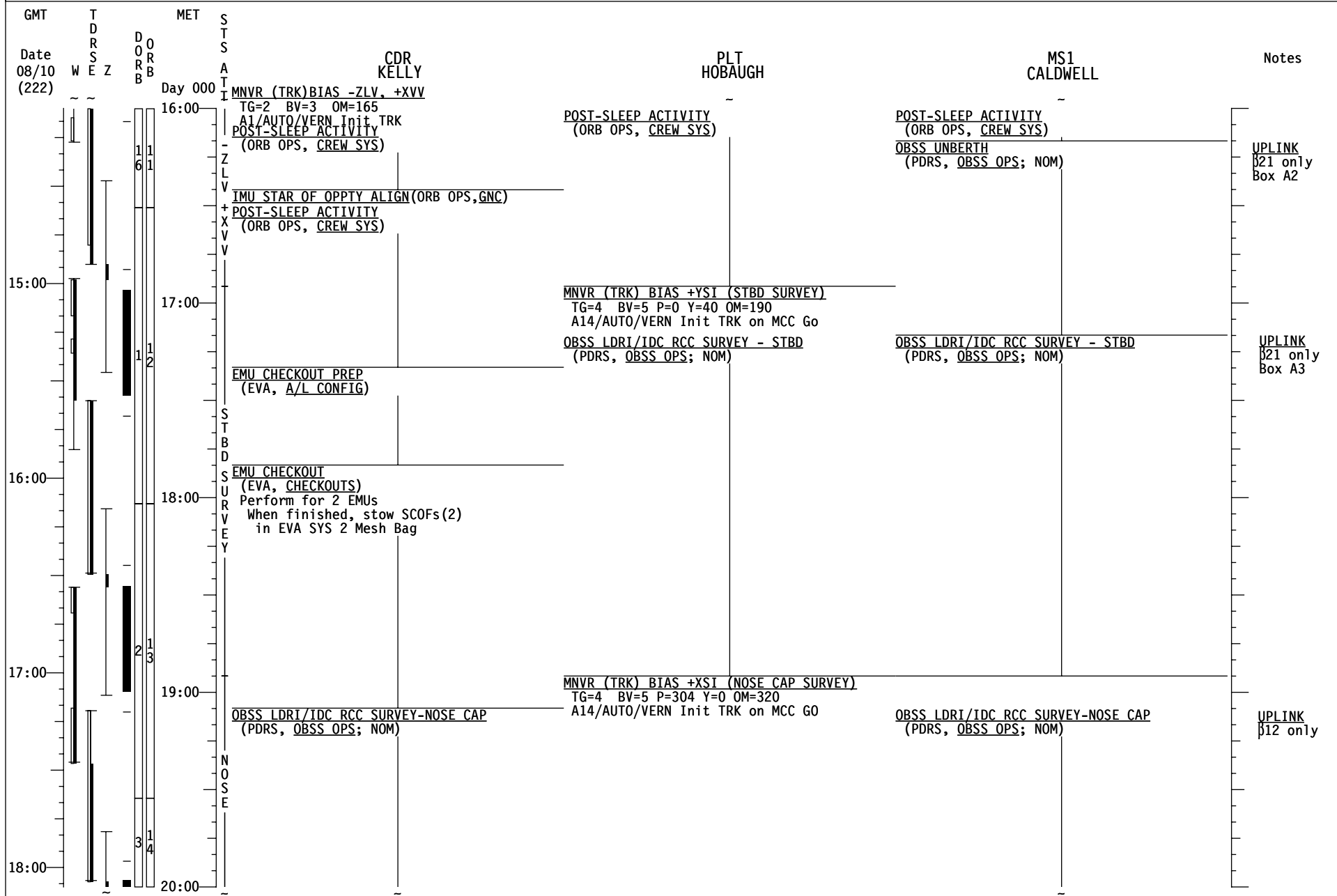
STS-118 FD02



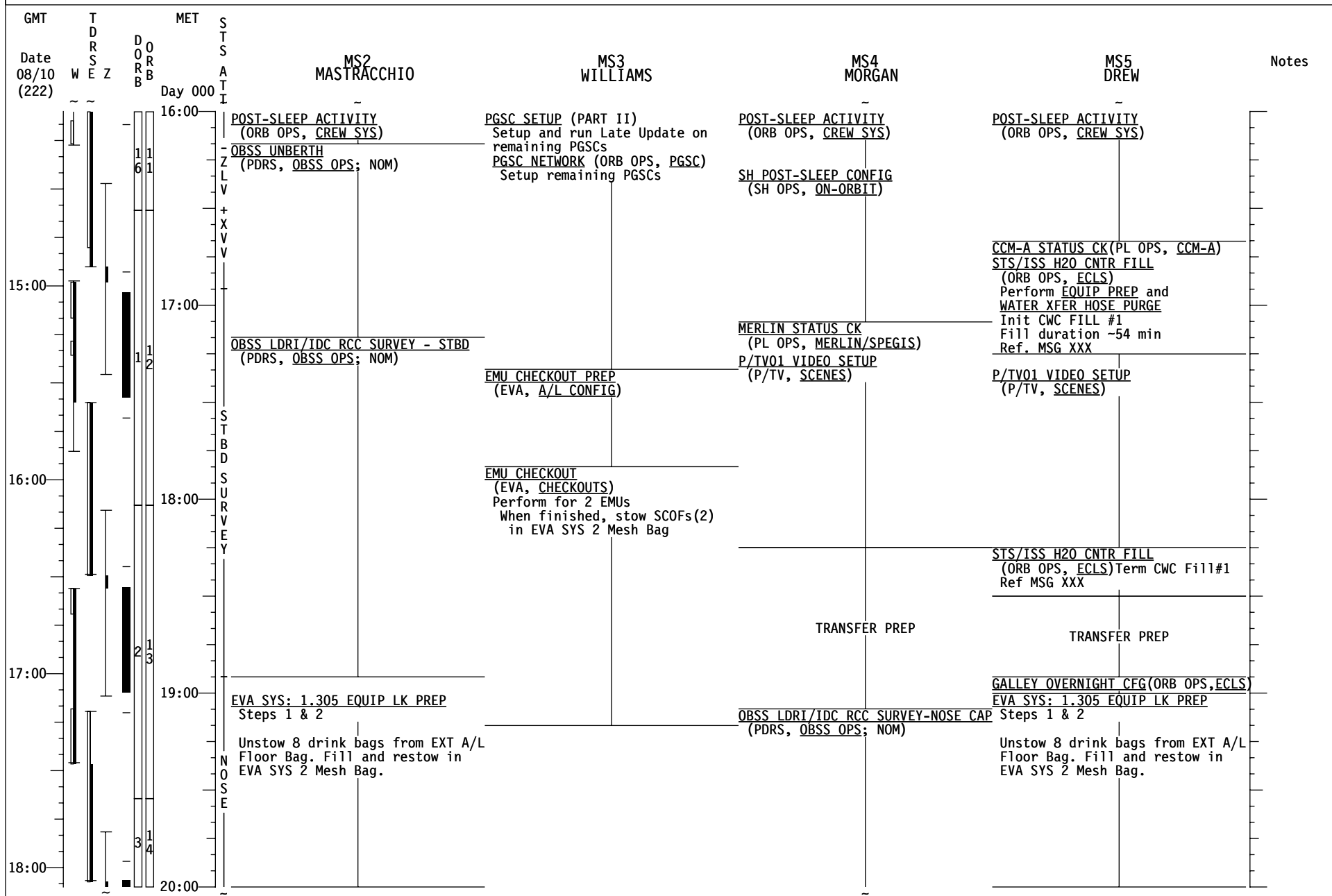
STS-118 FD02



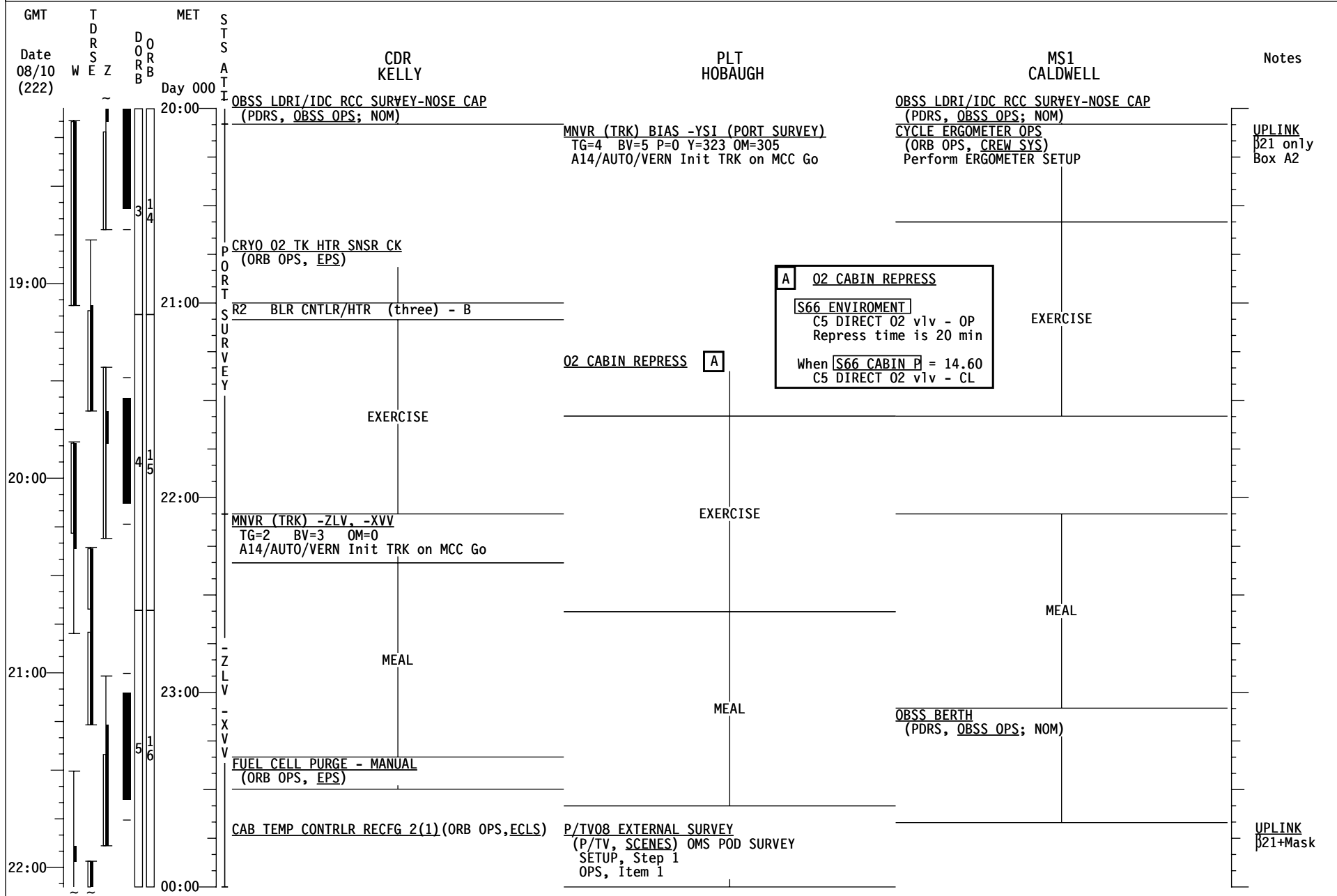
STS-118 FD02



STS-118 FD02



STS-118 FD02



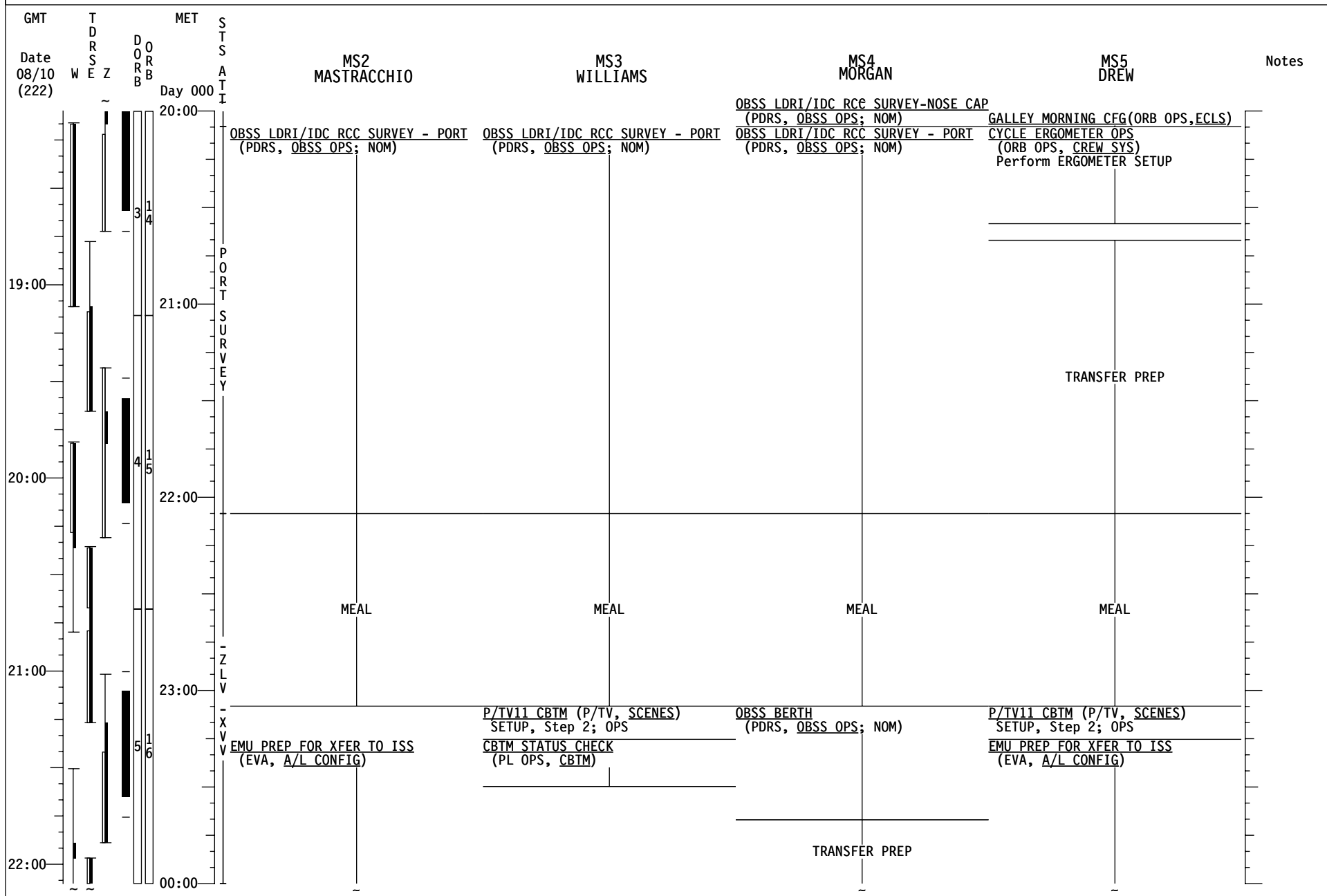
A O2 CABIN REPRESS

S66 ENVIROMENT

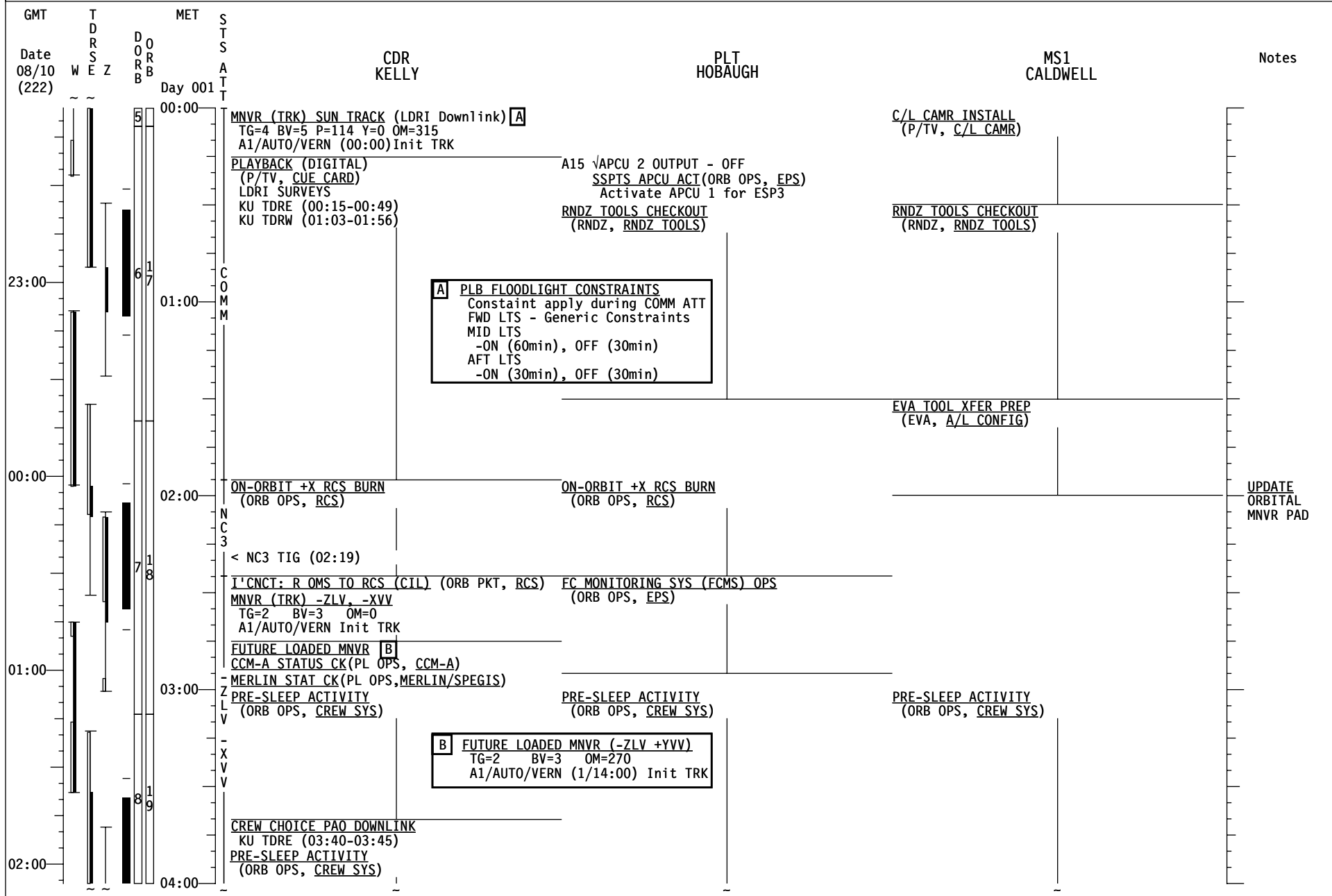
C5 DIRECT O2 vlv - OP
Repress time is 20 min

When **S66 CABIN P** = 14.60
C5 DIRECT O2 vlv - CL

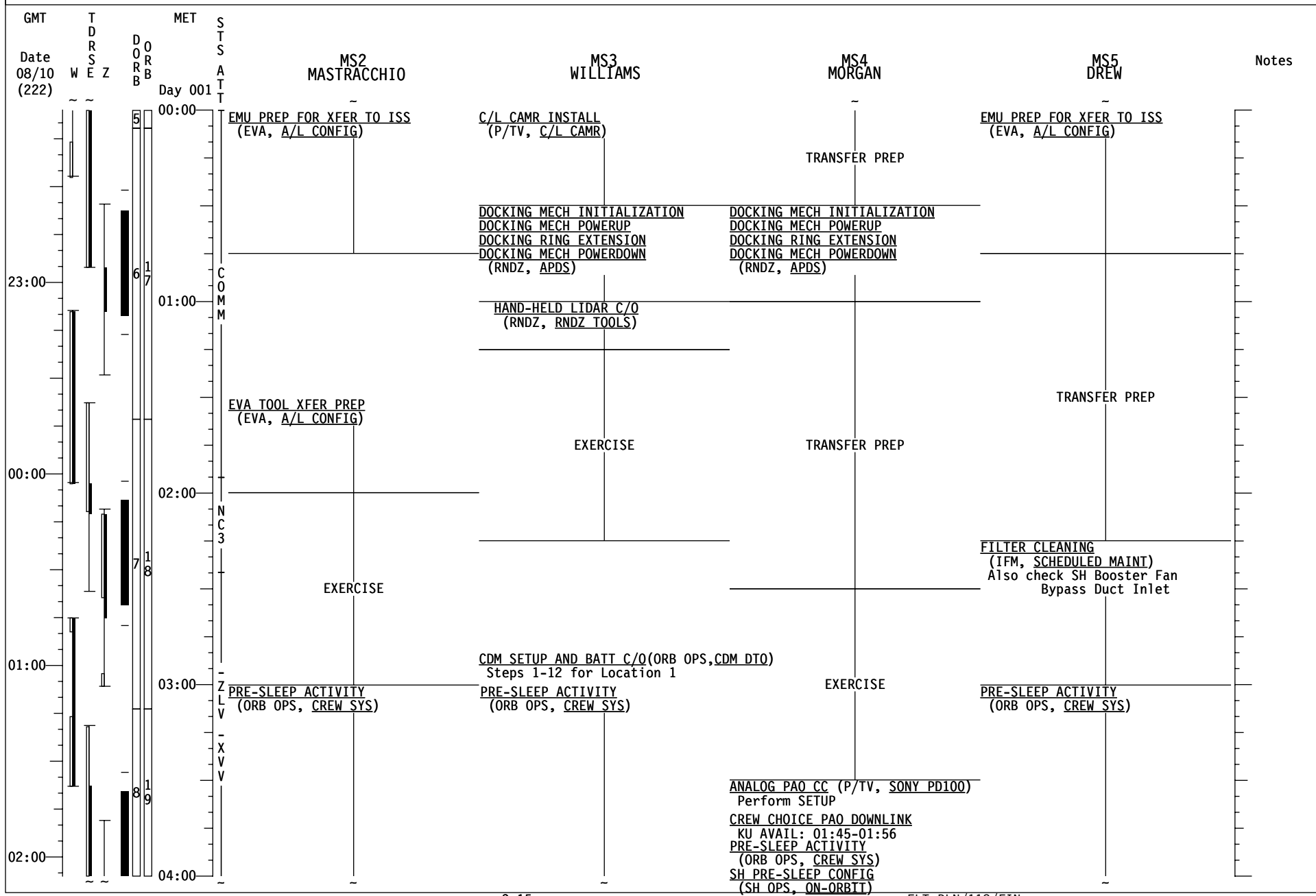
STS-118 FD02



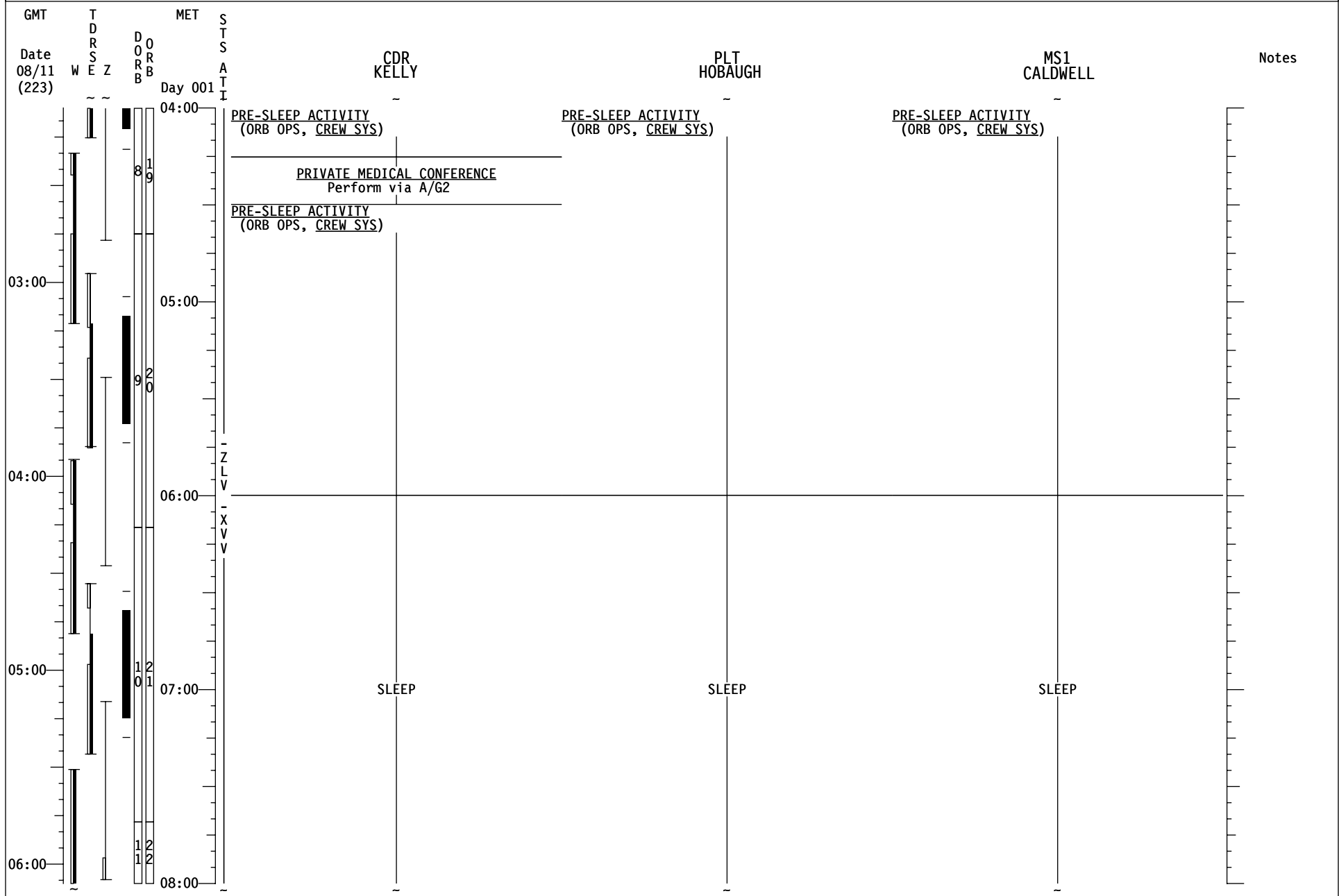
STS-118 FD02



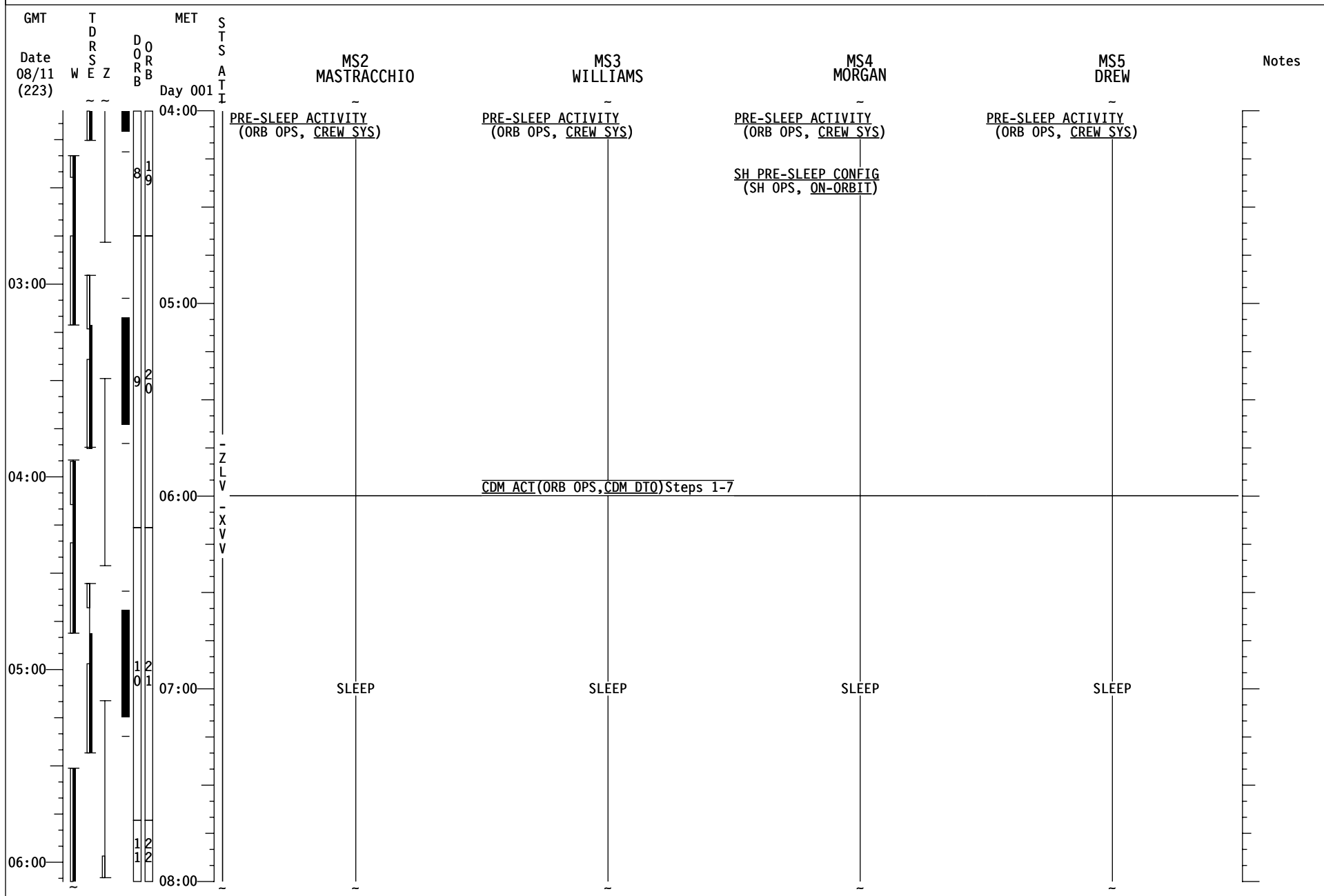
STS-118 FD02



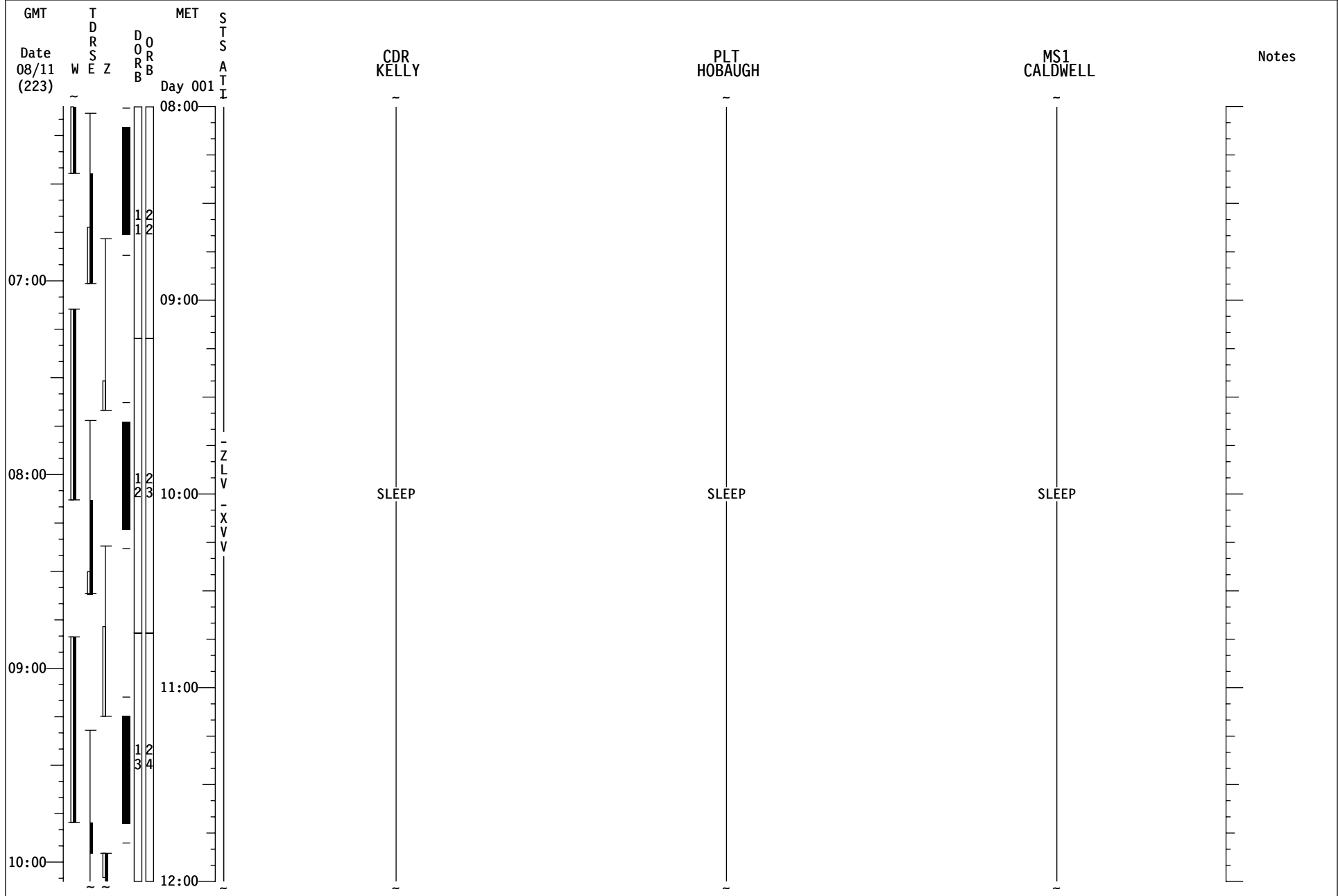
STS-118 FD02



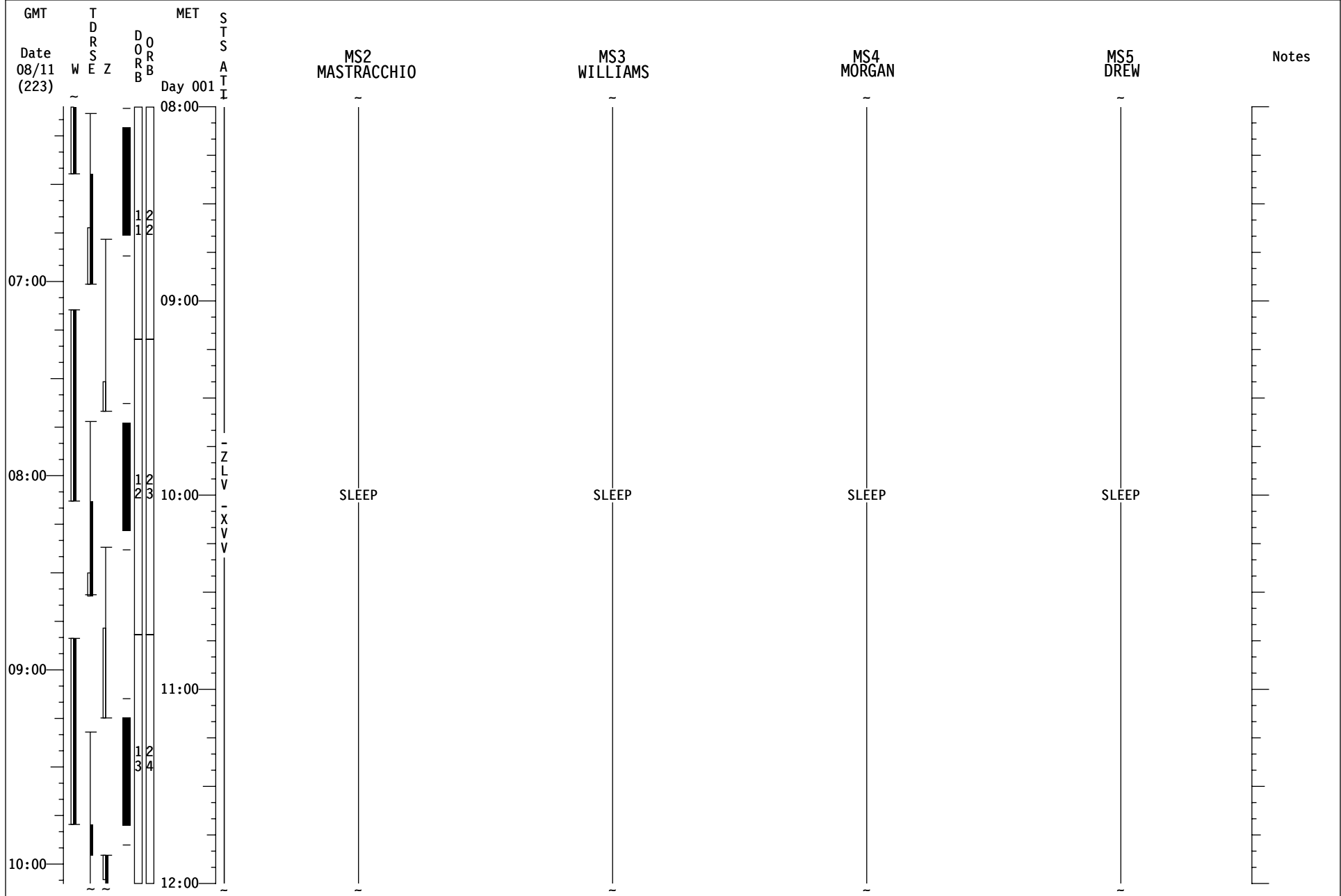
STS-118 FD02



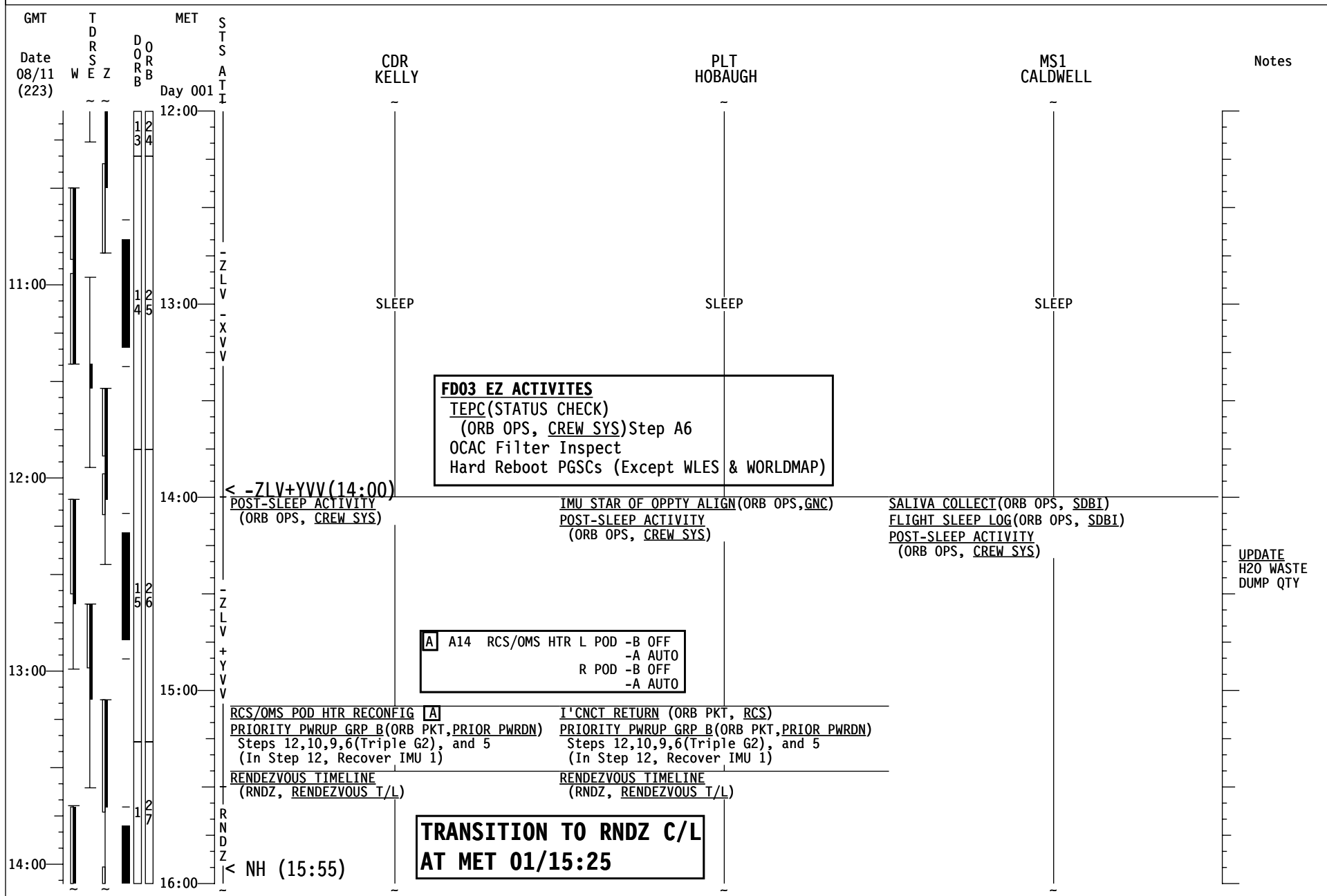
STS-118 FD02



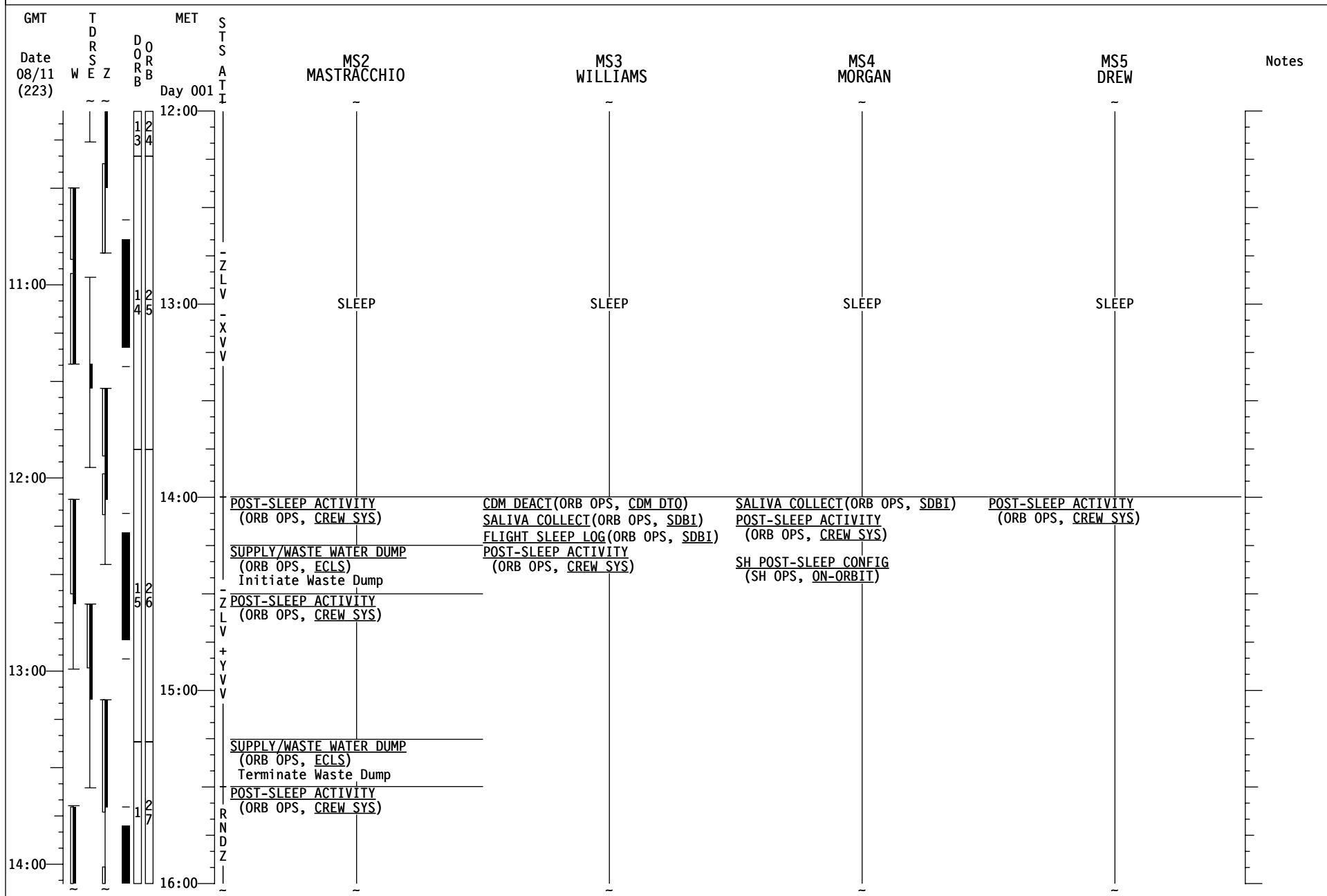
STS-118 FD02



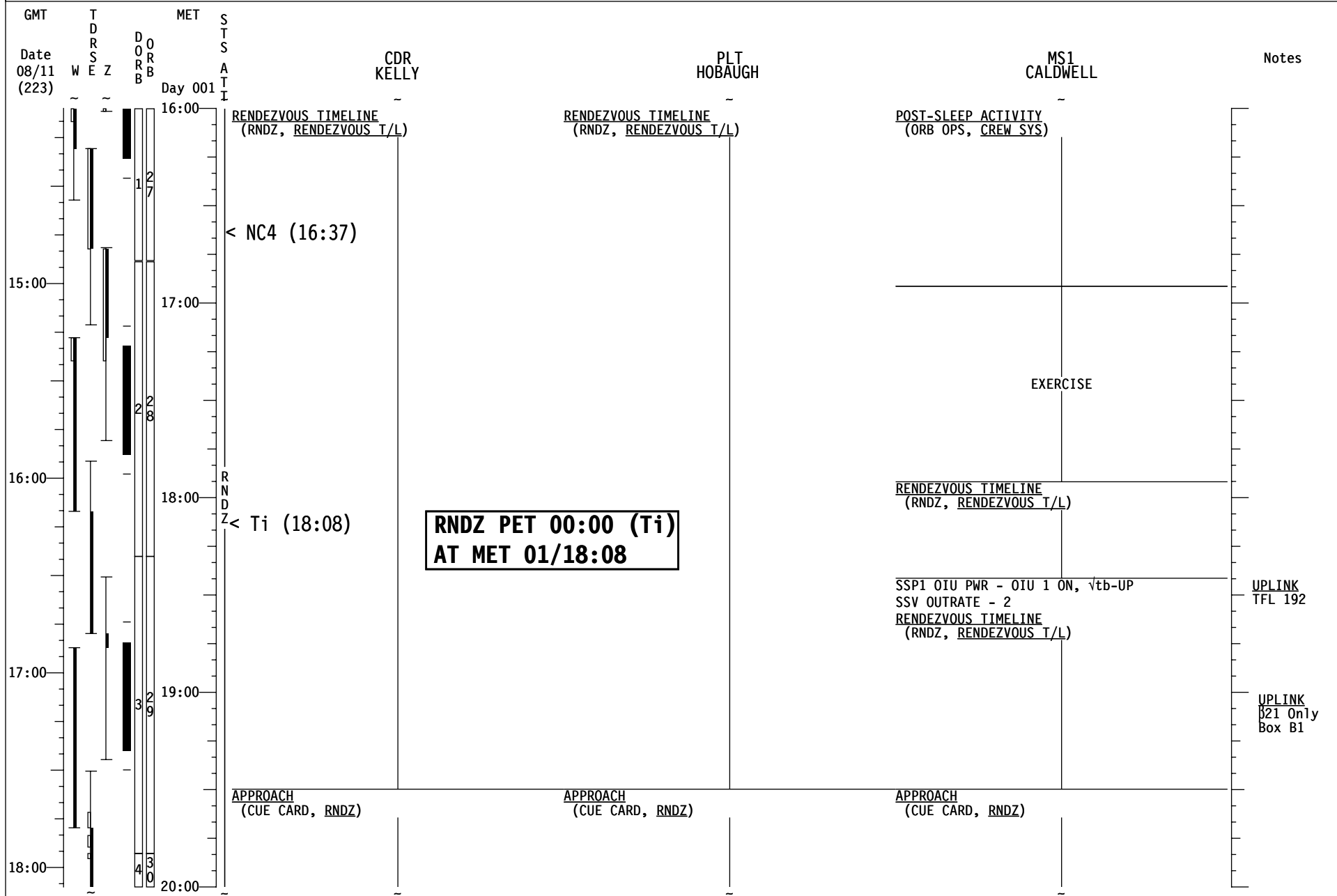
STS-118 FD03



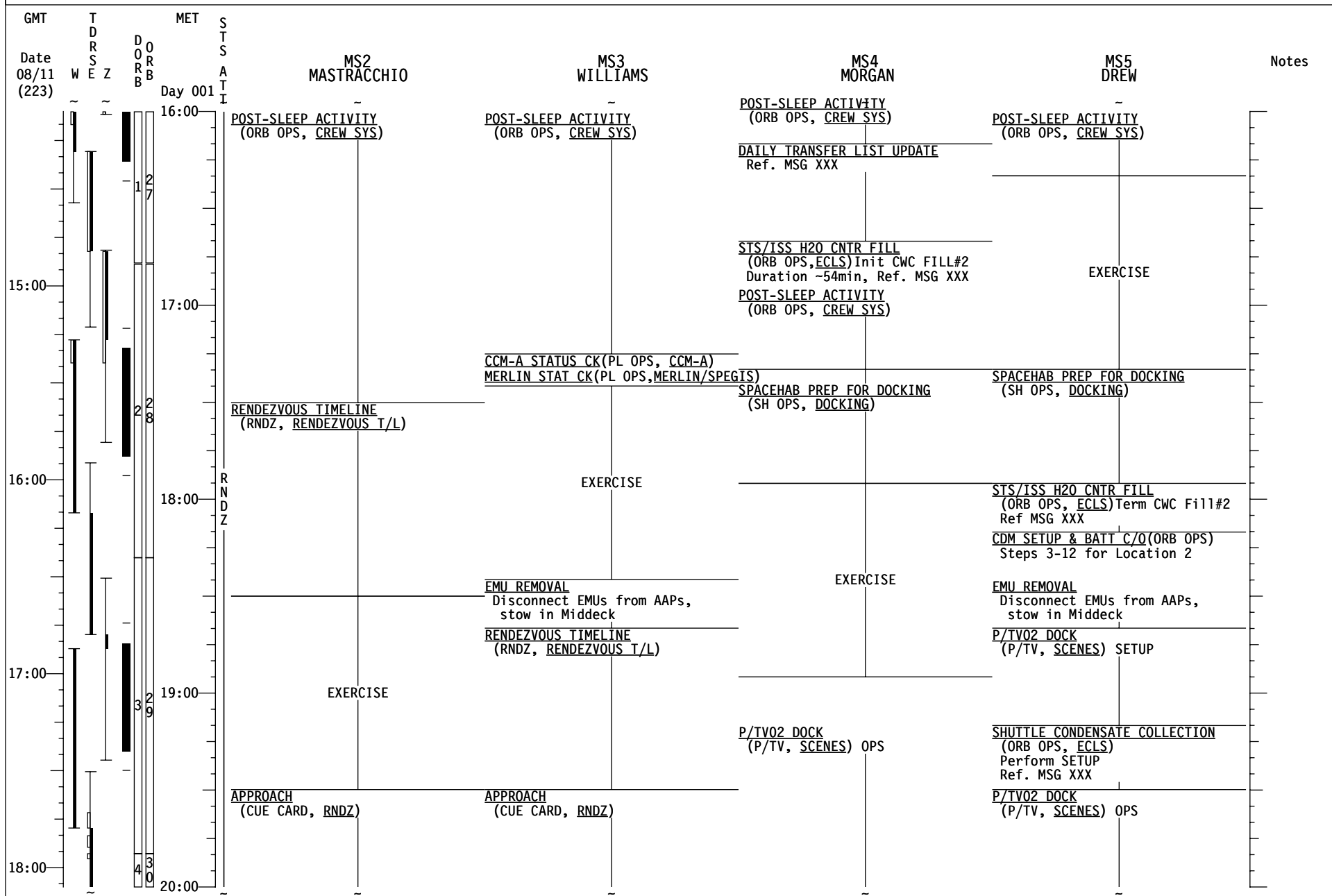
STS-118 FD03



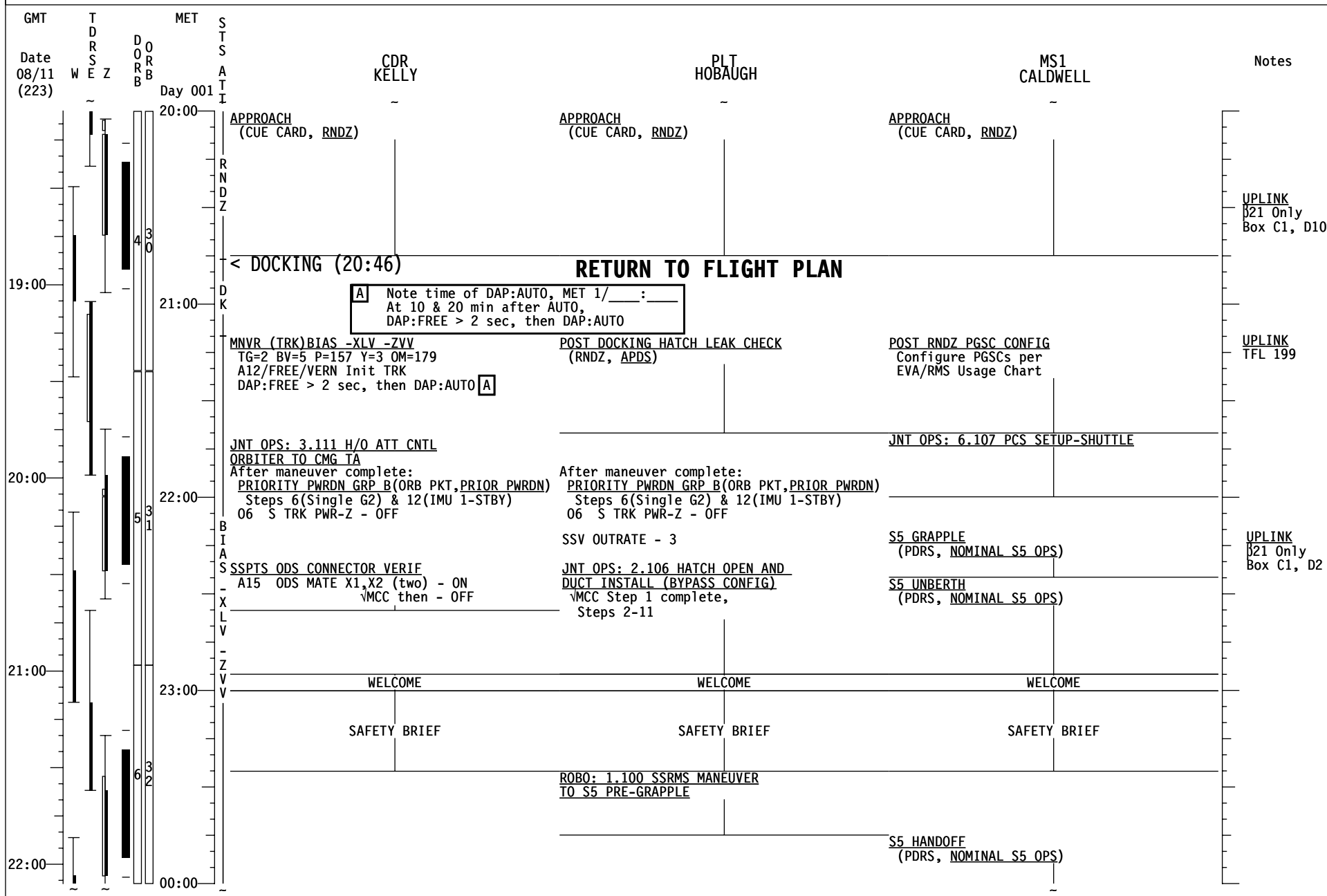
STS-118 FD03



STS-118 FD03



STS-118 FD03



STS-118 FD03

GMT	TDRSEZ	MET	S T S	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/11 (223)	W E Z	Day 001	DOORB					
19:00		20:00	RNDZ	APPROACH (CUE CARD, RNDZ)	APPROACH (CUE CARD, RNDZ)	P/TV02 DOCK (P/TV, SCENES) OPS	P/TV02 DOCK (P/TV, SCENES) OPS	
RETURN TO FLIGHT PLAN								
		21:00	D K	POST DOCKING HATCH LEAK CHECK (RNDZ, APDS)	POST RNDZ PGSC CONFIG Configure PGSCs per EVA/RMS Usage Chart	JNT OPS: 6.103 H/L AUDIO CONFIG Perform Steps 1,2,6,7	P/TV06 S5 UNBERTH (P/TV, SCENES) SETUP	
		20:00		A/L PREP FOR INGRS-BYPASS CONFIG (RNDZ, APDS)	A/L PREP FOR INGRS-BYPASS CONFIG (RNDZ, APDS)		JNT OPS: 6.107 PCS SETUP-SHUTTLE	
		22:00				P/TV04 INGRESS/EGRESS (P/TV, SCENES) SETUP	CBTM STATUS CHECK (PL OPS, CBTM)	
		21:00	B I S X L V Z V V	S5 GRAPPLE (PDRS, NOMINAL S5 OPS)	JNT OPS: 2.106 HATCH OPEN AND DUCT INSTALL (BYPASS CONFIG) VMCC Step 1 complete, Steps 2-11	SPACEHAB RECONFIG POST DOCKING (SH OPS, DOCKING)	SPACEHAB RECONFIG POST DOCKING (SH OPS, DOCKING)	
		23:00		S5 UNBERTH (PDRS, NOMINAL S5 OPS)				
				WELCOME	WELCOME	WELCOME	WELCOME	
				SAFETY BRIEF	SAFETY BRIEF	SAFETY BRIEF	SAFETY BRIEF	
		22:00				P/TV05 ISS INTERNAL OPS (S/U) (P/TV, SCENES) SETUP: BPSMU and RWS	ISS RPM IMAGE TRANSFER [A] SODF TRANSFER Ref. Transfer List & MSG XXX Deploy new JEE Cue Cards at A/L and LAB FWD HATCH	
		00:00		S5 HANDOFF (PDRS, NOMINAL S5 OPS)	EMU TRANSFER TO ISS (EVA, A/L CONFIG)			
						[A] ISS RPM IMAGE TRANSFER On MCC GO: Retrieve RPM image card from ISS and place in KFX PGSC		

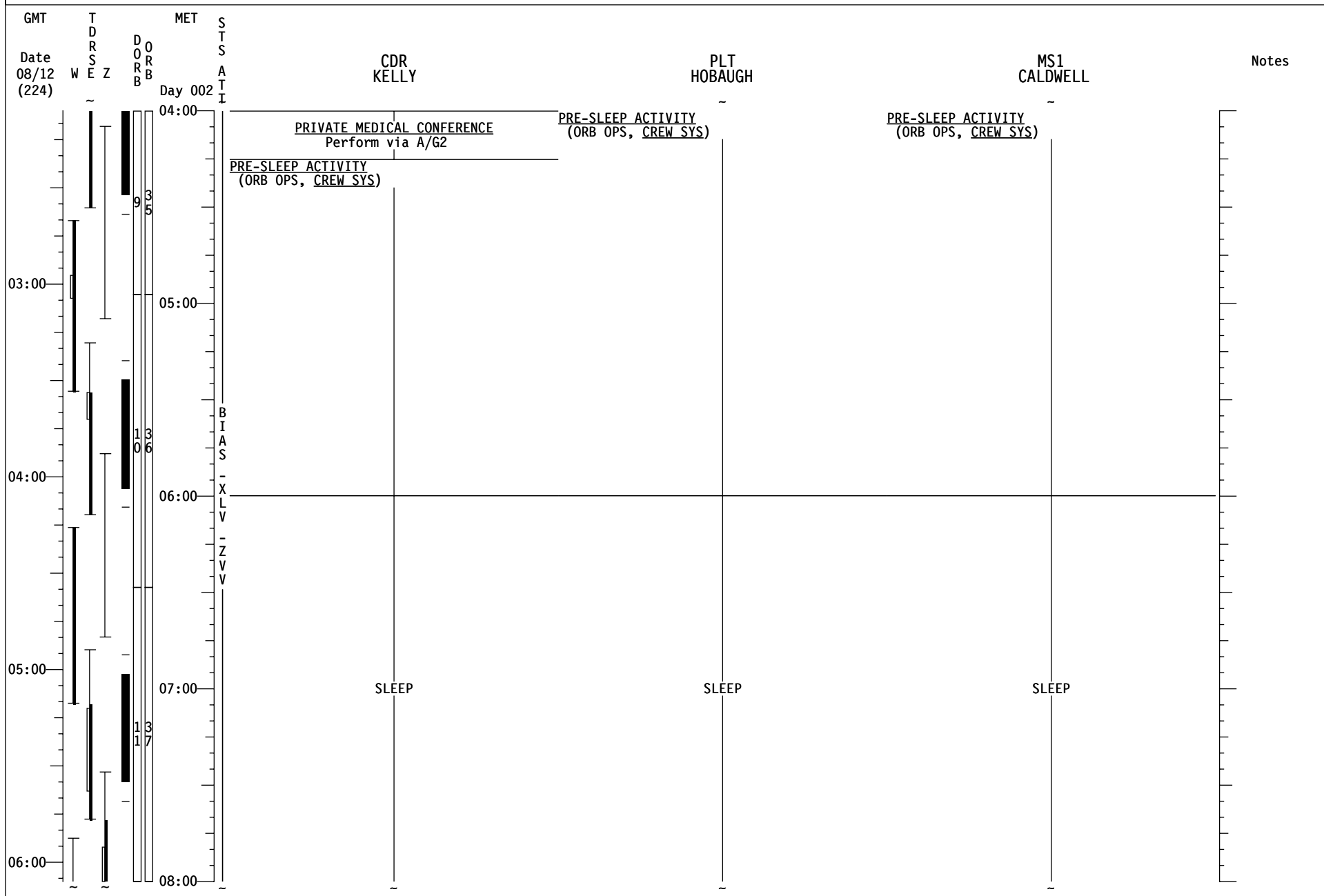
STS-118 FD03

GMT Date 08/11 (223)	TDRSEZ W E Z	MET Day 002	STS A T I	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	Notes	
		00:00						
					ROBO: 1.110 SSRMS S5 GRAPPLE		<p>S5 HANDOFF (PDRS, NOMINAL S5 OPS)</p> <hr/> <p>S5 UNGRAPPLE (PDRS, NOMINAL S5 OPS) Ungrapple & MNVR to S5 Install view posn</p>	<p>NO EXERCISE WHILE S5 GRAPPLED BY SRMS & SSRMS</p>
				<p>A SSPTS OPCU ACT On MCC Go: Activate OPCU 1 and 2 In Step 3: For OPCU 1 and 2 adjust voltage 17 increments UP for both</p>				
				<p>SSPTS OPCU ACT (ORB OPS, EPS) A √MCC for Bus Tie Config</p>				
	23:00		01:00					
				<p>On MCC GO: L1 FLASH EVAP CNTLR PRI B-OFF</p> <p>JNT OPS: 3.120 PREBREATHE USING SHUTTLE O2 SETUP</p>	<p>TRANSFER Ref. Transfer List & MSG XXX</p>	<p>TRANSFER Ref. Transfer List & MSG XXX</p>		
				<p>B I A S</p>	<p>CGBA-5 TRANSFER Ref. item XXX in Xfer List</p>	<p>PLAYBACK(DIGITAL)DOCKING (P/TV, CUE CARD) KU TDRW (01:35-02:07)</p>		
	00:00		02:00					
				<p>X L V</p>	<p>CCM-A STATUS CK(PL OPS, CCM-A) PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>L17 Check MCIU filter screen PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>		
				<p>Z V V</p>	<p>EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)</p>	<p>EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)</p>	<p>EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)</p>	
01:00		03:00						
			<p>8 4</p>	<p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>PRE EVA 1 TOOL CONFIG (EVA, TIMELINES)</p>		
			<p>√ HUM SEP for H2O Accumulation</p>					
02:00		04:00						
			<p>9 3 5</p>			<p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) -</p>		

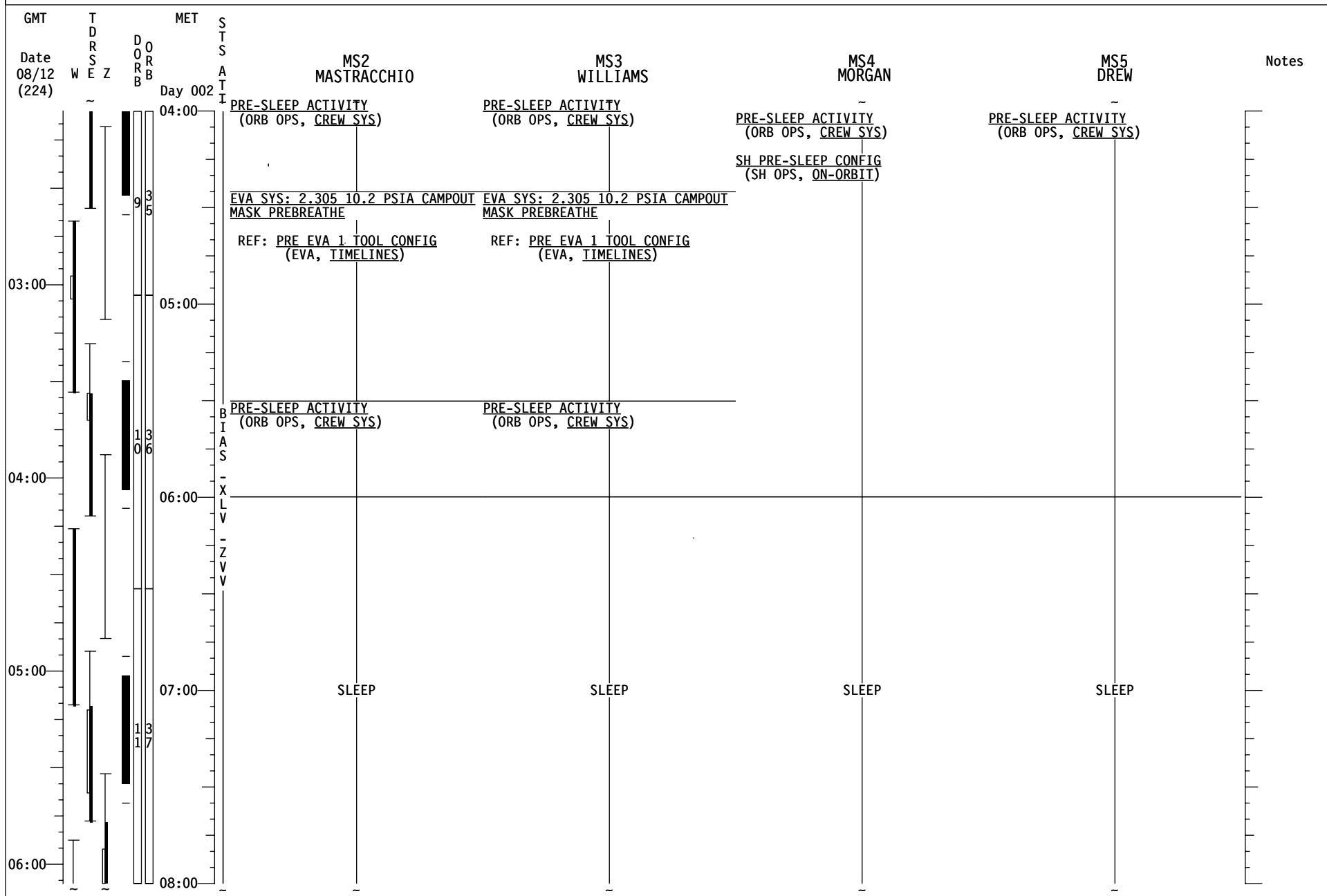
STS-118 FD03

GMT	TDRSEZ	DORB	MET	STSAIT	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/11 (223)	W E Z	6 3 2	Day 002	I					
00:00					S5 HANDOFF (PDRS, NOMINAL S5 OPS)	EMU TRANSFER TO ISS (EVA, A/L CONFIG)			
23:00					EVA SYS: 1.305 EQUIP LOCK PREP Steps 7-34, (In Step 34: confirm PBAs-4 isolated crew)	EVA SYS: 1.305 EQUIP LOCK PREP Steps 7-34, (In Step 34: confirm PBAs-4 isolated crew)	S5 UNGRAPPLE(PDRS, NOMINAL S5 OPS) Ungrapple & MNVR to S5 Install view posn	EVA SYS: 1.307 REBA INST/REMOV Installation steps	NO EXERCISE WHILE S5 GRAPPLLED BY SRMS & SSRMS
01:00					EVA SYS: 1.403 REBA POWERED HARDWARE CHECKOUT	EVA SYS: 1.403 REBA POWERED HARDWARE CHECKOUT		CWC TRANSFER Transfer 2 CWC bags to ISS	
					POST DOCK EVA TOOL XFER (EVA, A/L CONFIG)	POST DOCK EVA TOOL XFER (EVA, A/L CONFIG)			
00:00					PRE EVA 1 TOOL CONFIG (EVA, TIMELINES)	PRE EVA 1 TOOL CONFIG (EVA, TIMELINES)	TRANSFER Ref. Transfer List & MSG XXX		TRANSFER Ref. Transfer List & MSG XXX
					X PRE-SLEEP ACTIVITY L (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
					Z EVA PROCEDURE REVIEW V REF: EVA 1 BRIEFING CARD V (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 1 BRIEFING CARD (EVA, TIMELINES)	
01:00							DAILY STS/ISS CREW TRANSFER TAGUP	DAILY STS/ISS CREW TRANSFER TAGUP	
					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			MERLIN STAT CK(PL OPS, MERLIN/SPEGS) PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)
02:00							DAILY TRANSFER BRIEFING		
							PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
							SH PRE-SLEEP CONFIG (SH OPS, ON-ORBIT)		

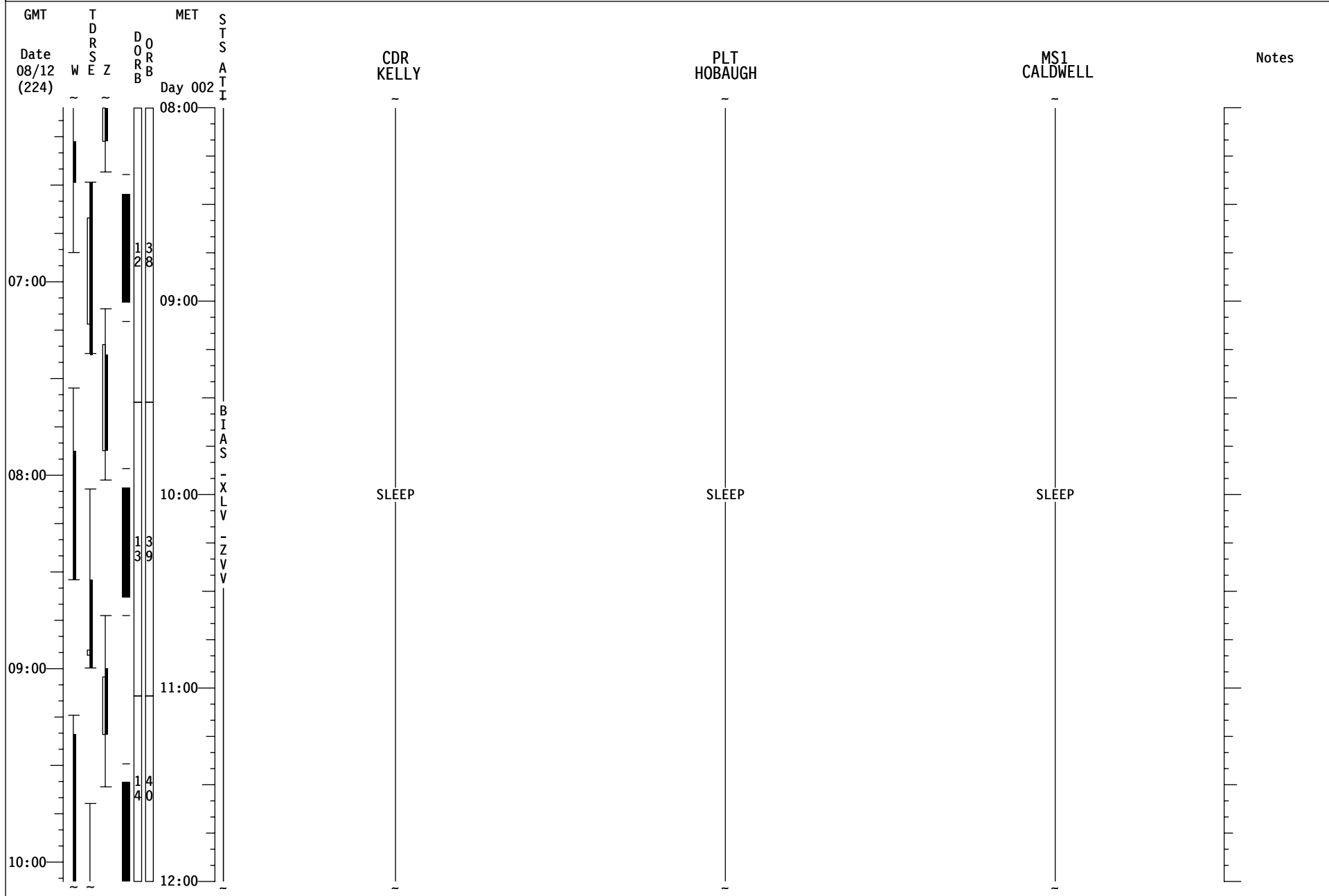
STS-118 FD03



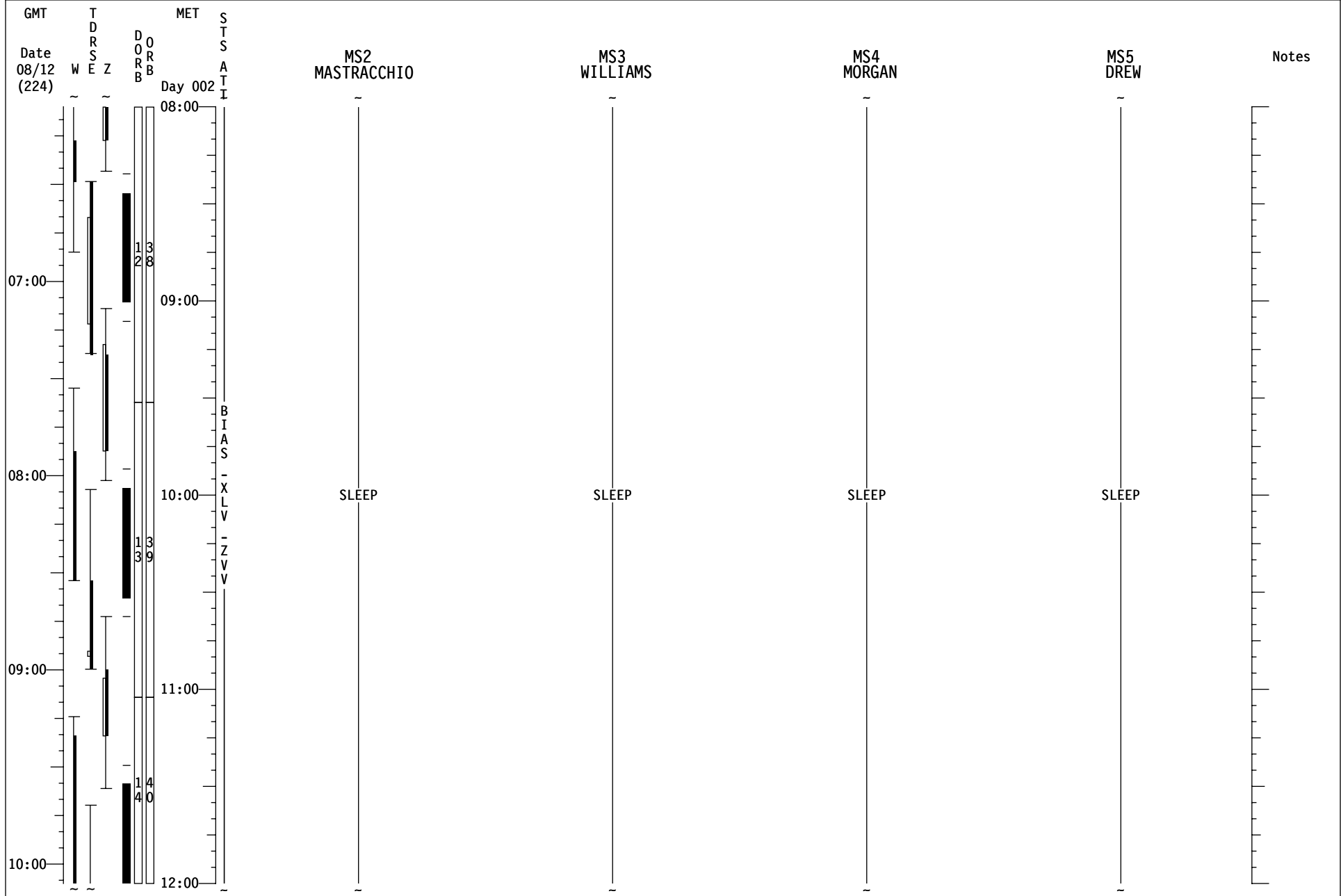
STS-118 FD03



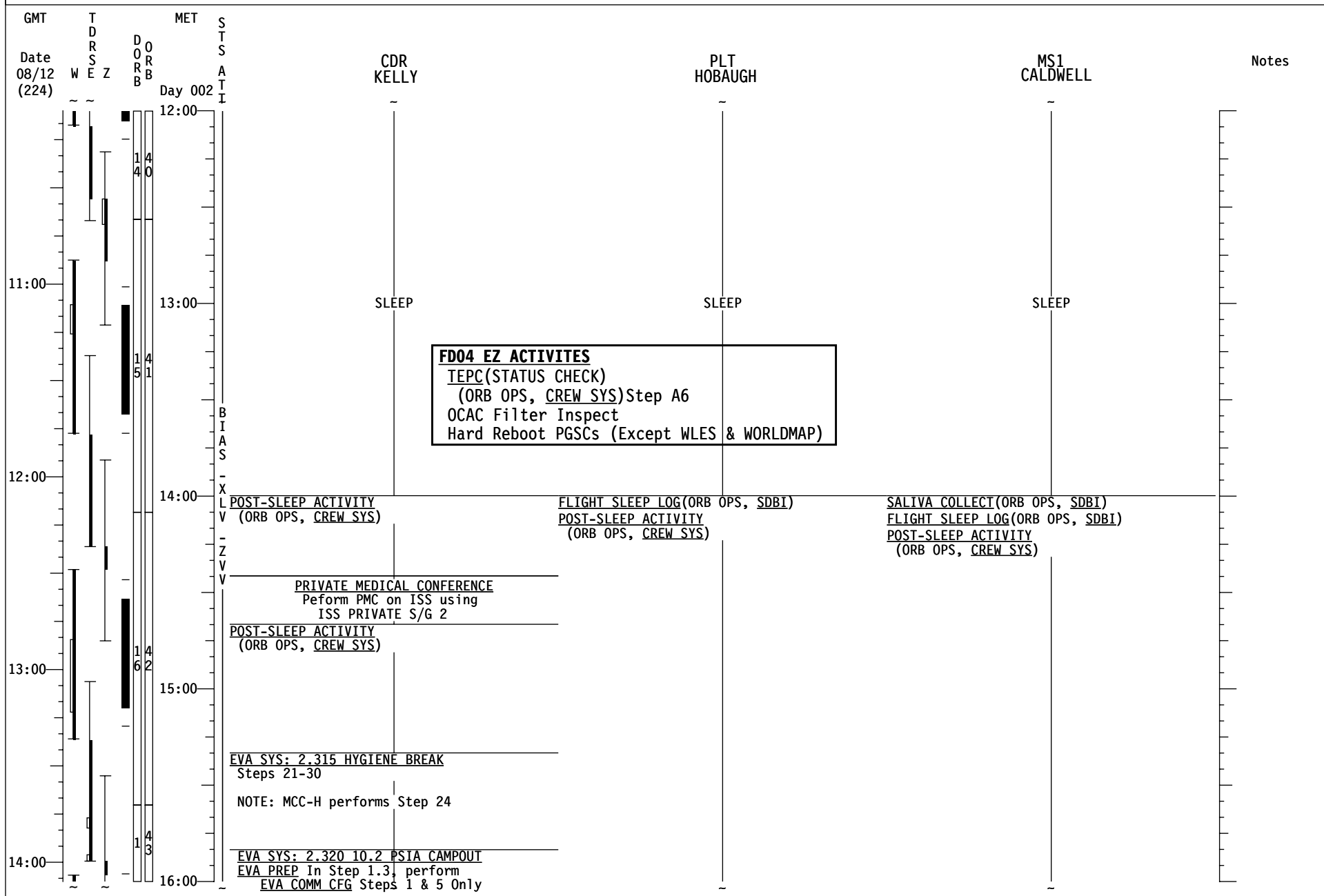
STS-118 FD03



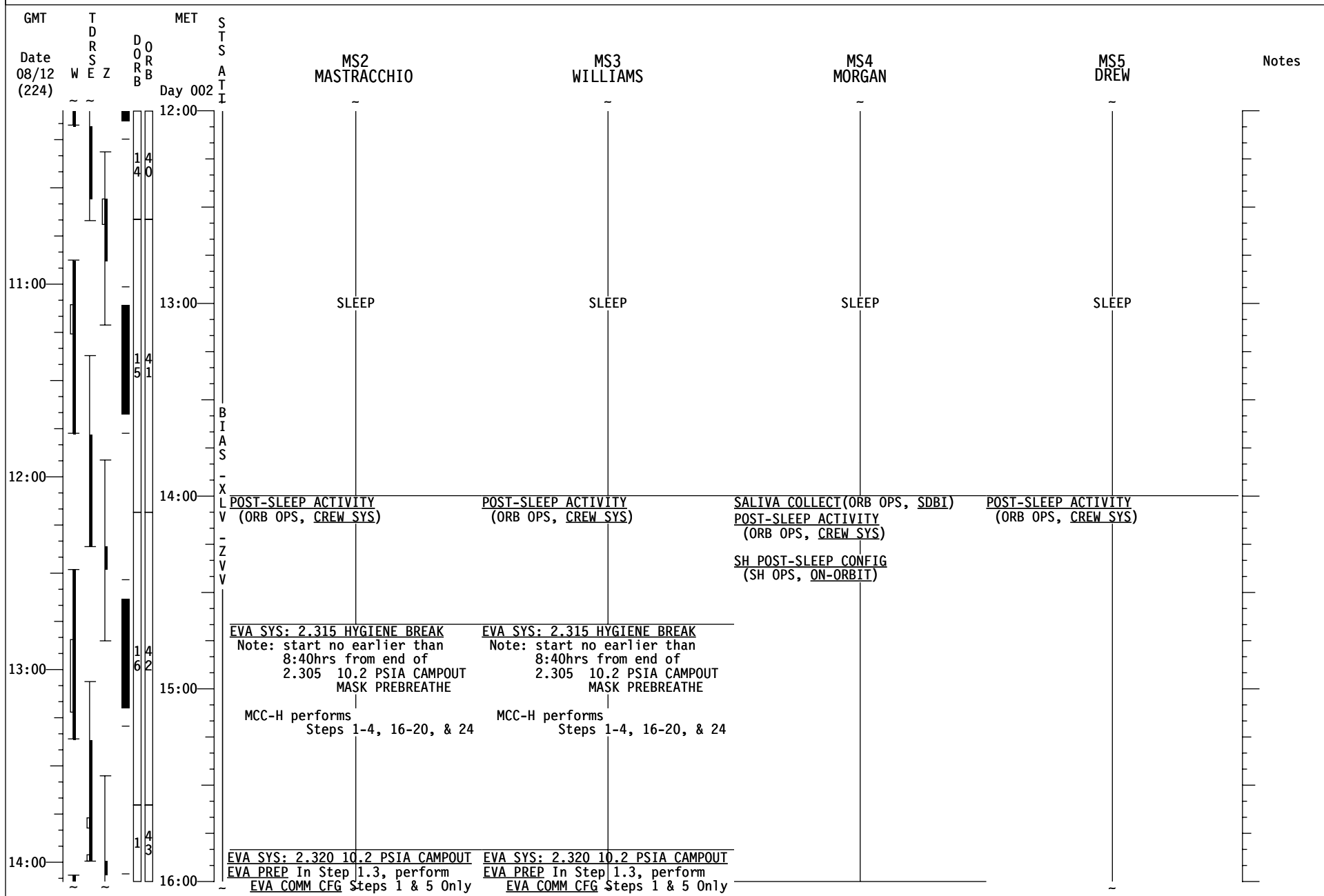
STS-118 FD03



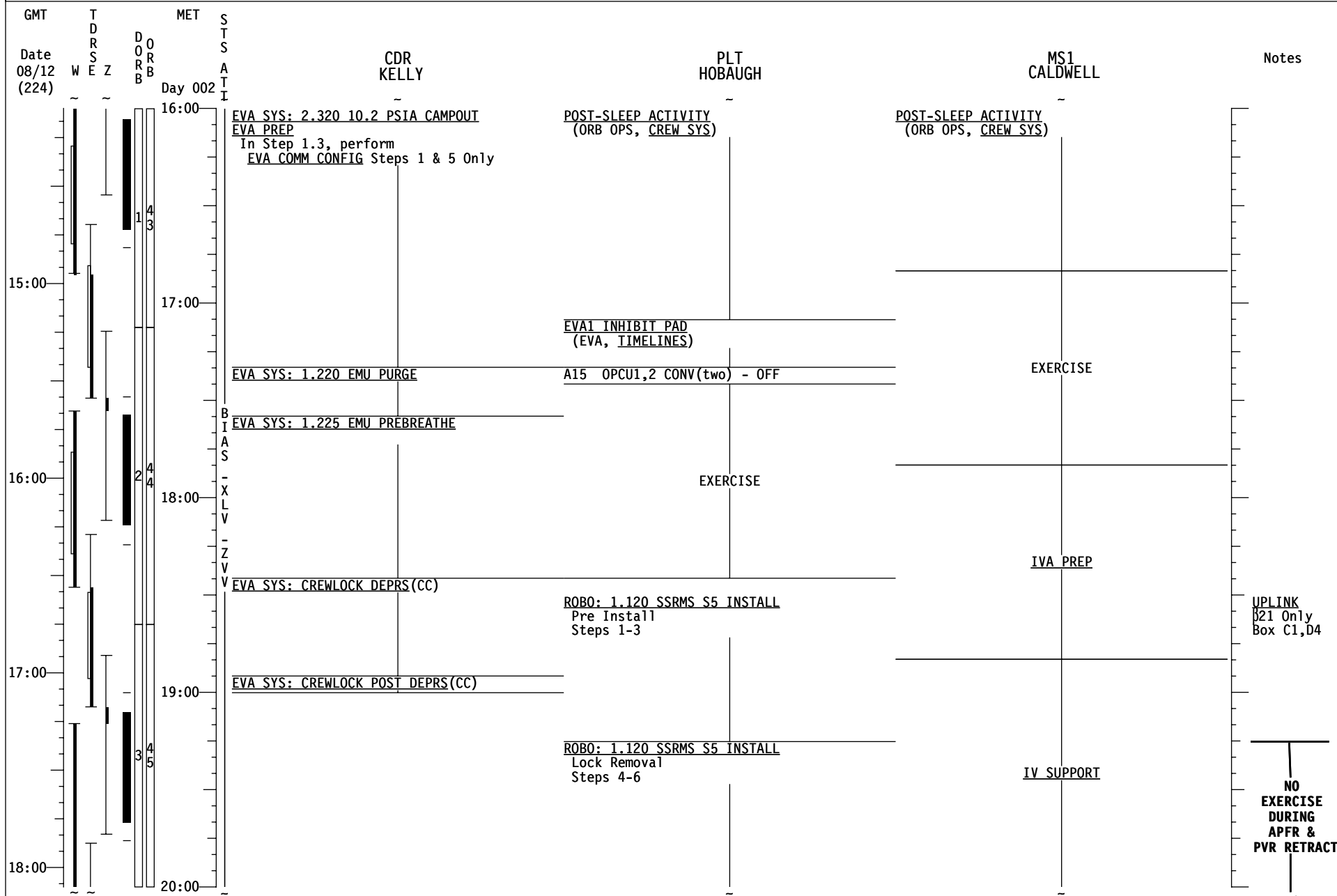
STS-118 FD04



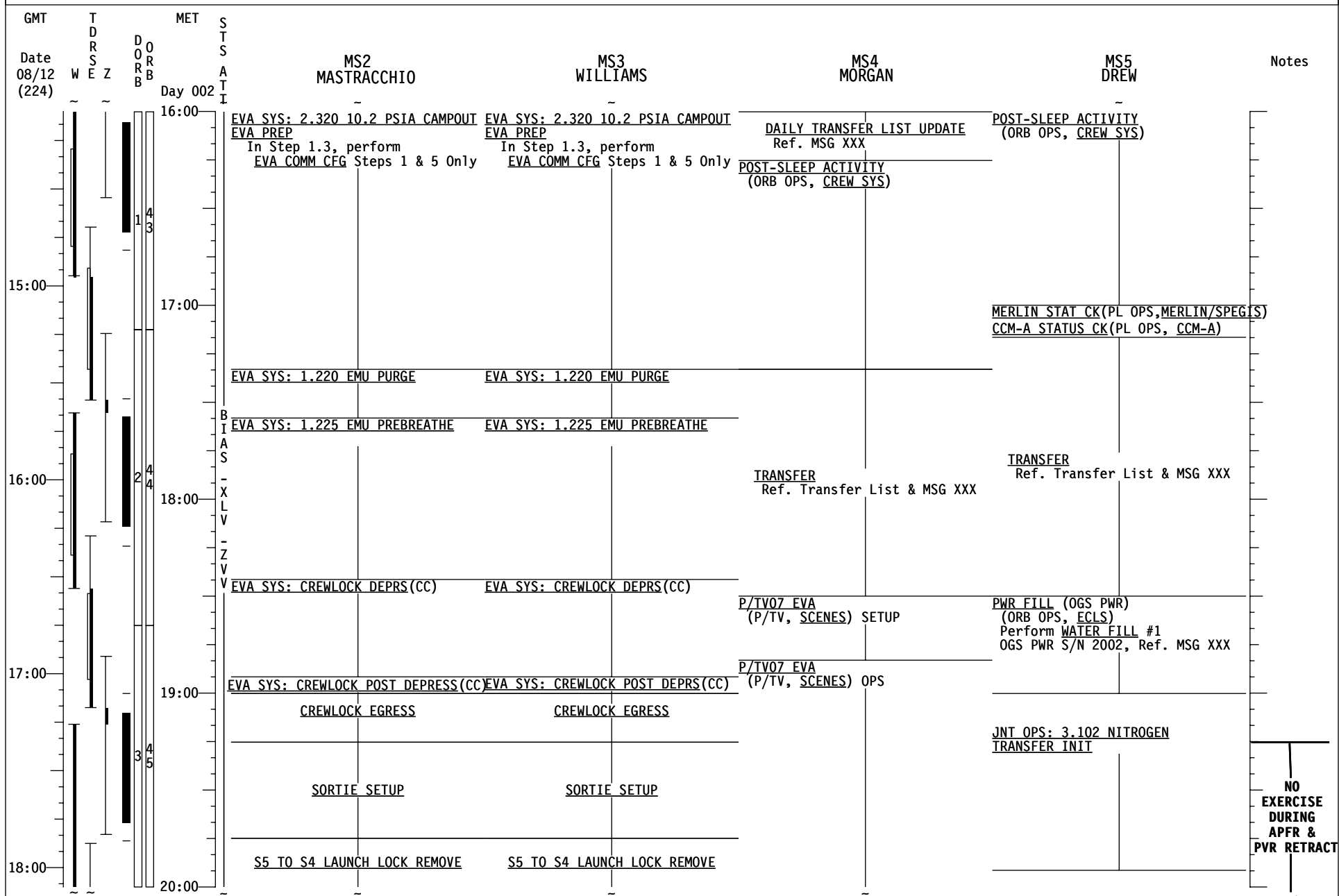
STS-118 FD04



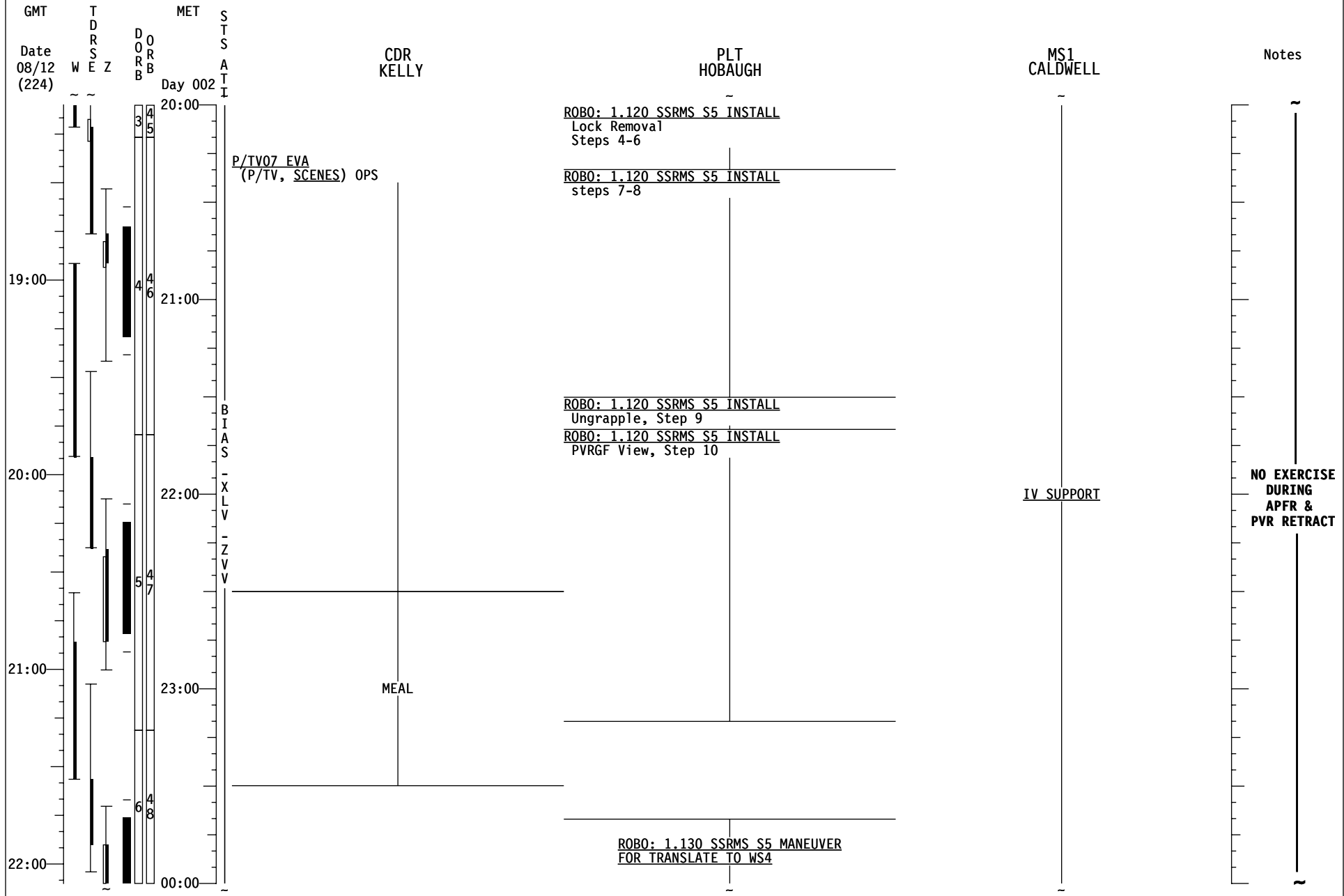
STS-118 FD04



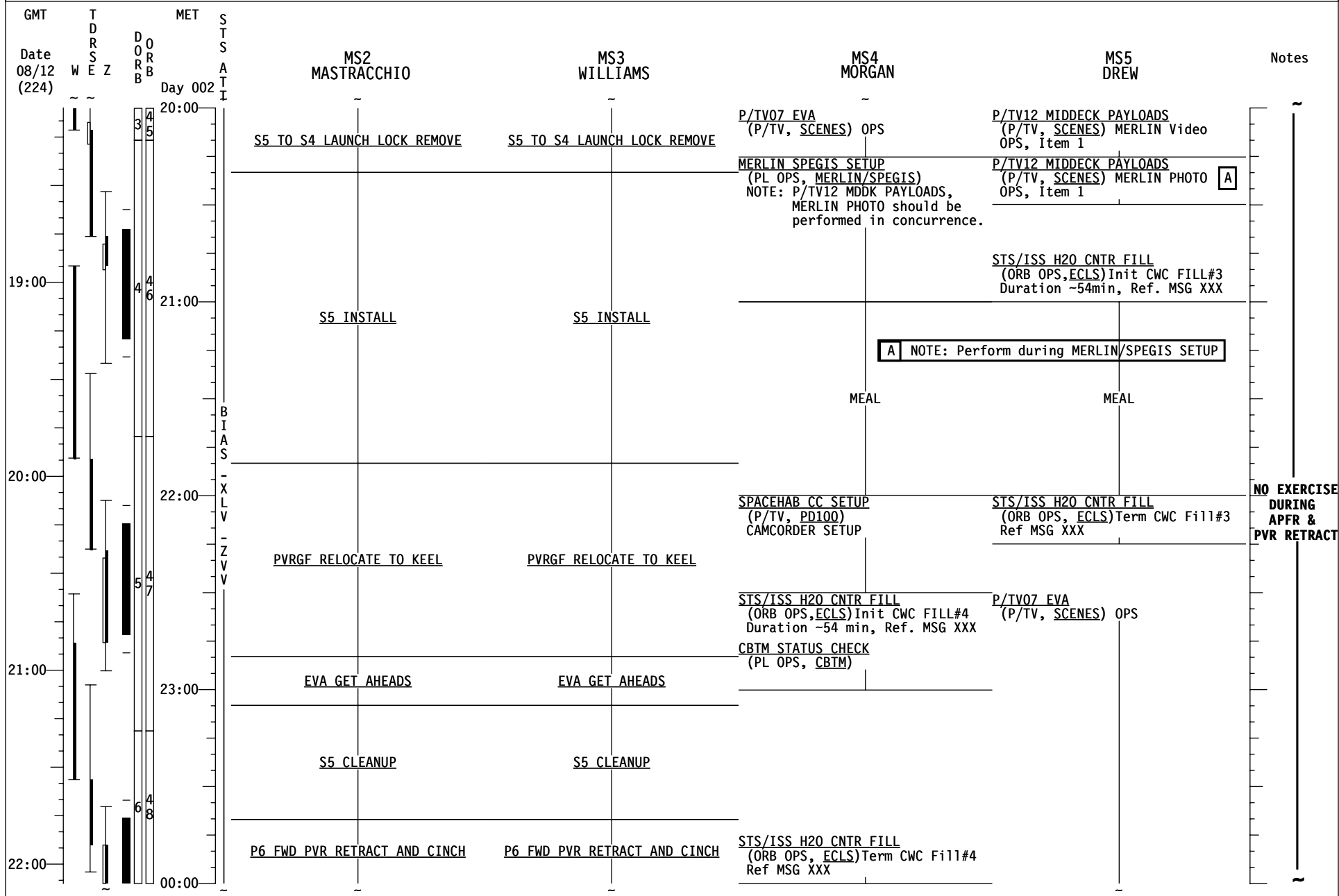
STS-118 FD04



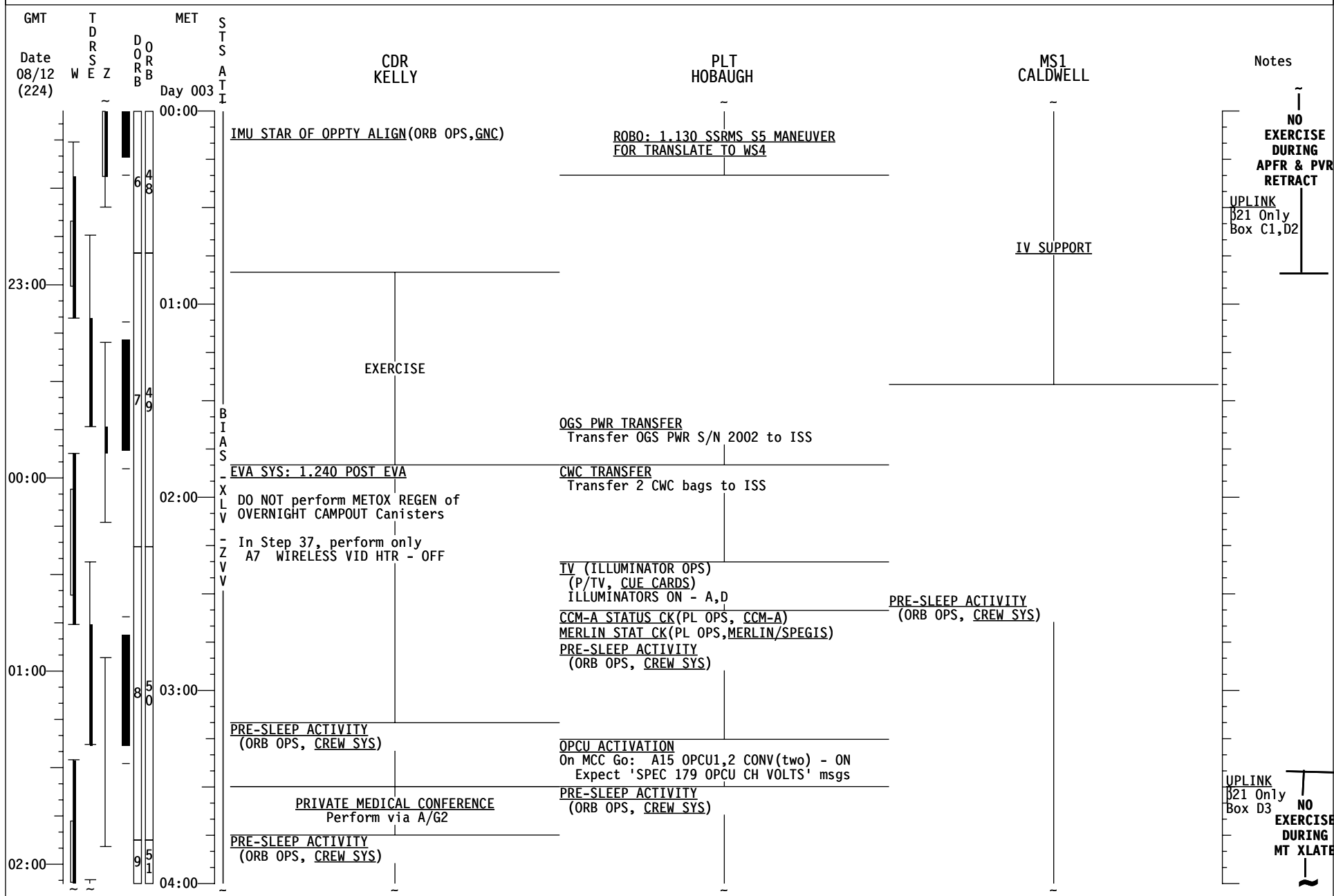
STS-118 FD04



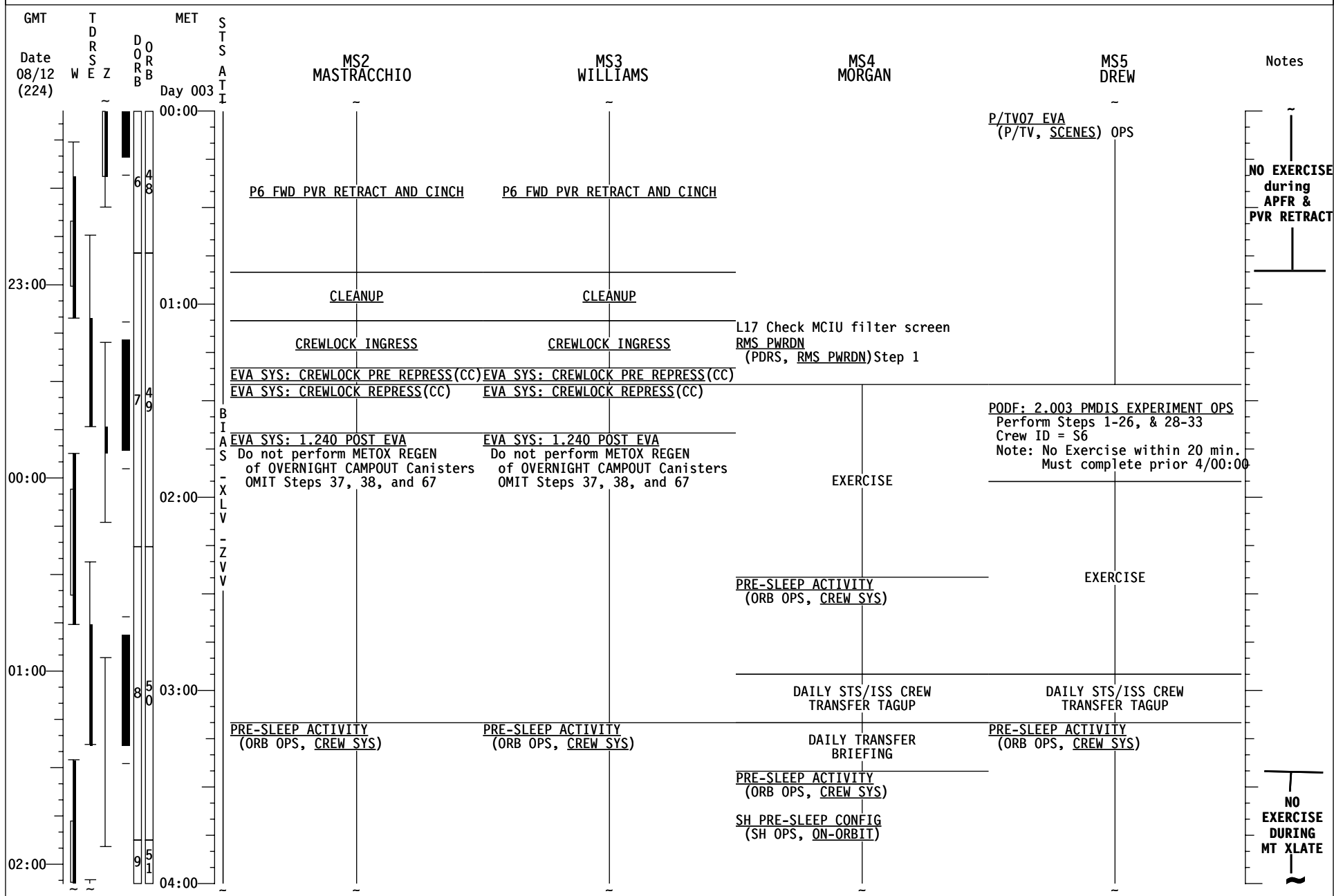
STS-118 FD04



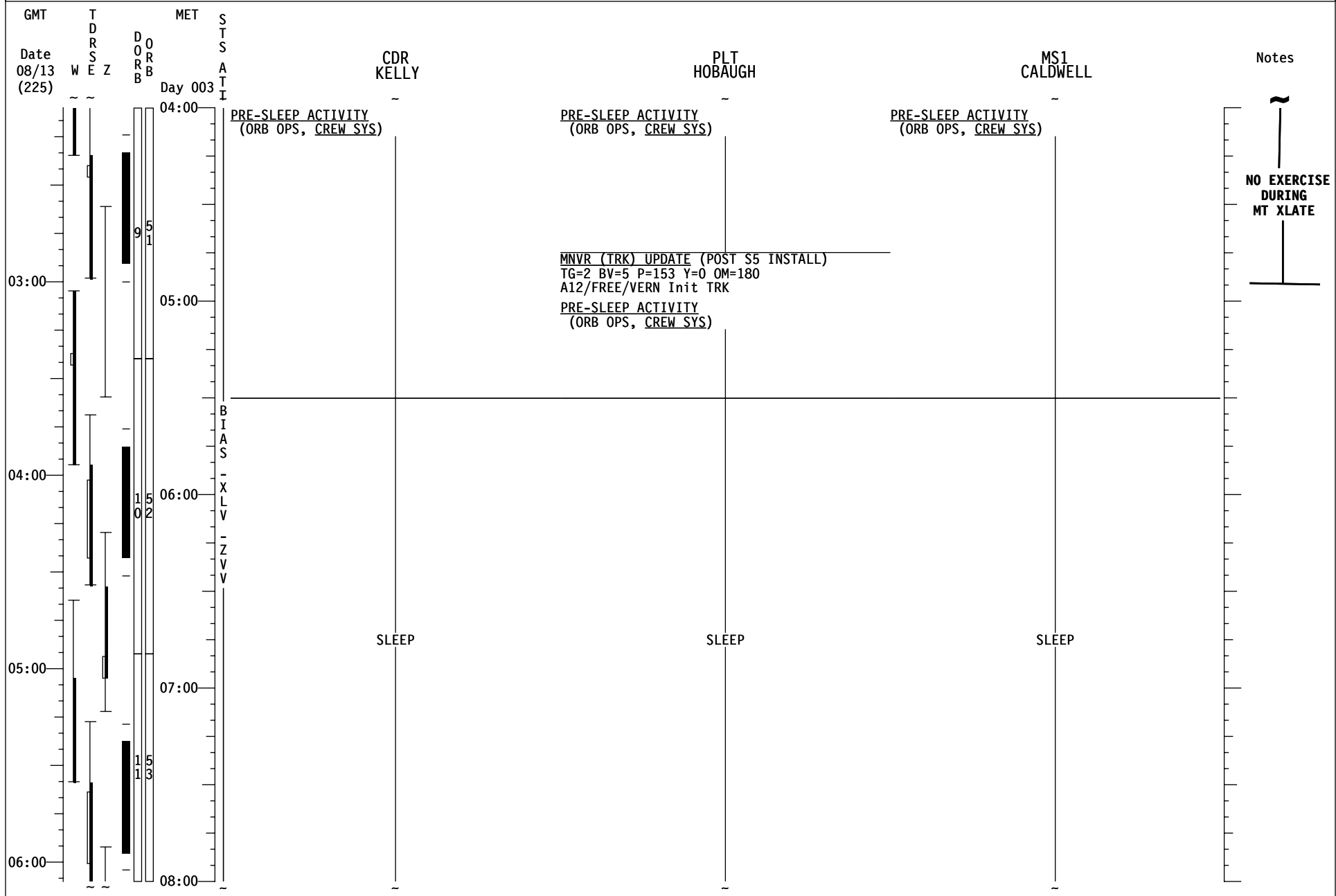
STS-118 FD04



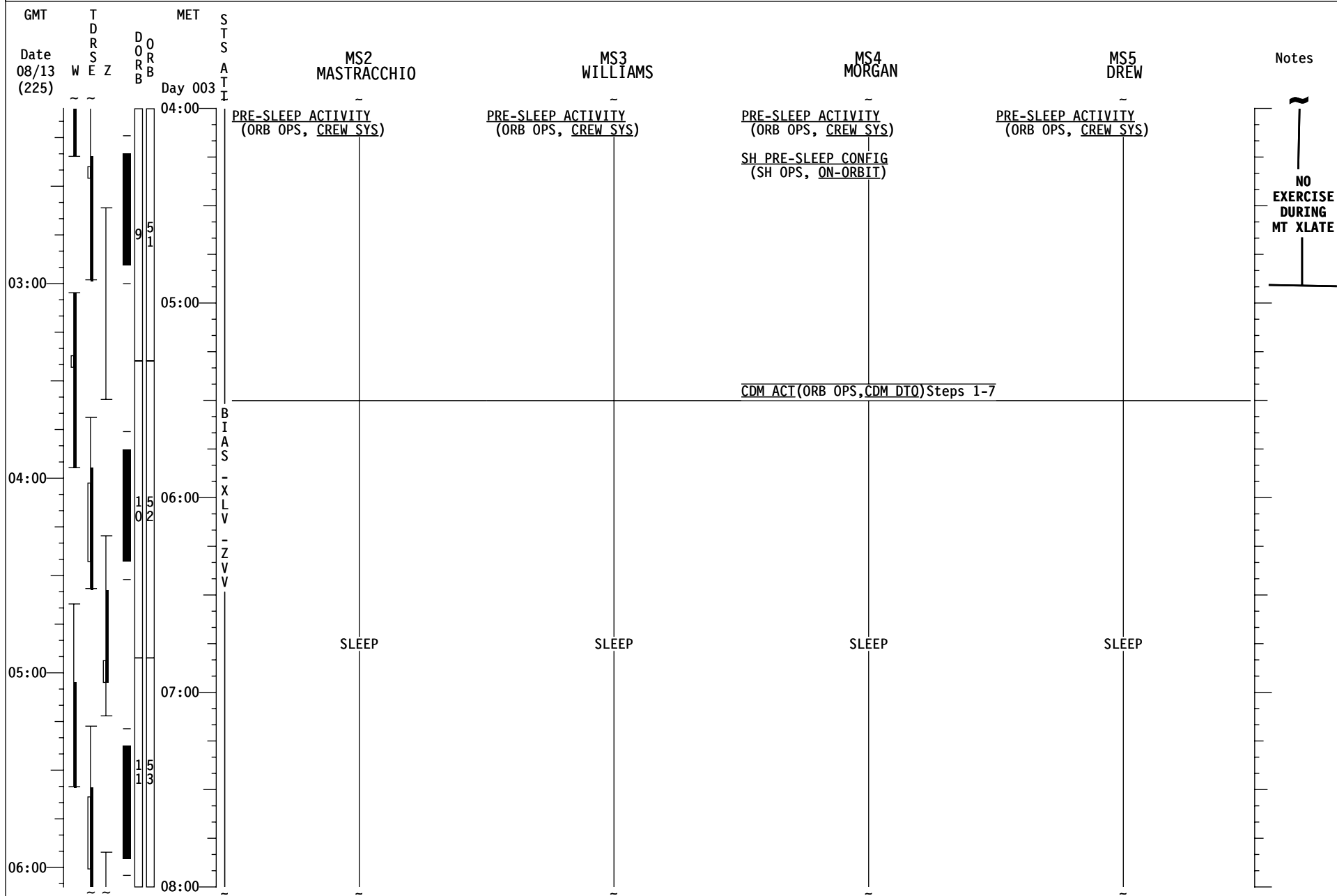
STS-118 FD04



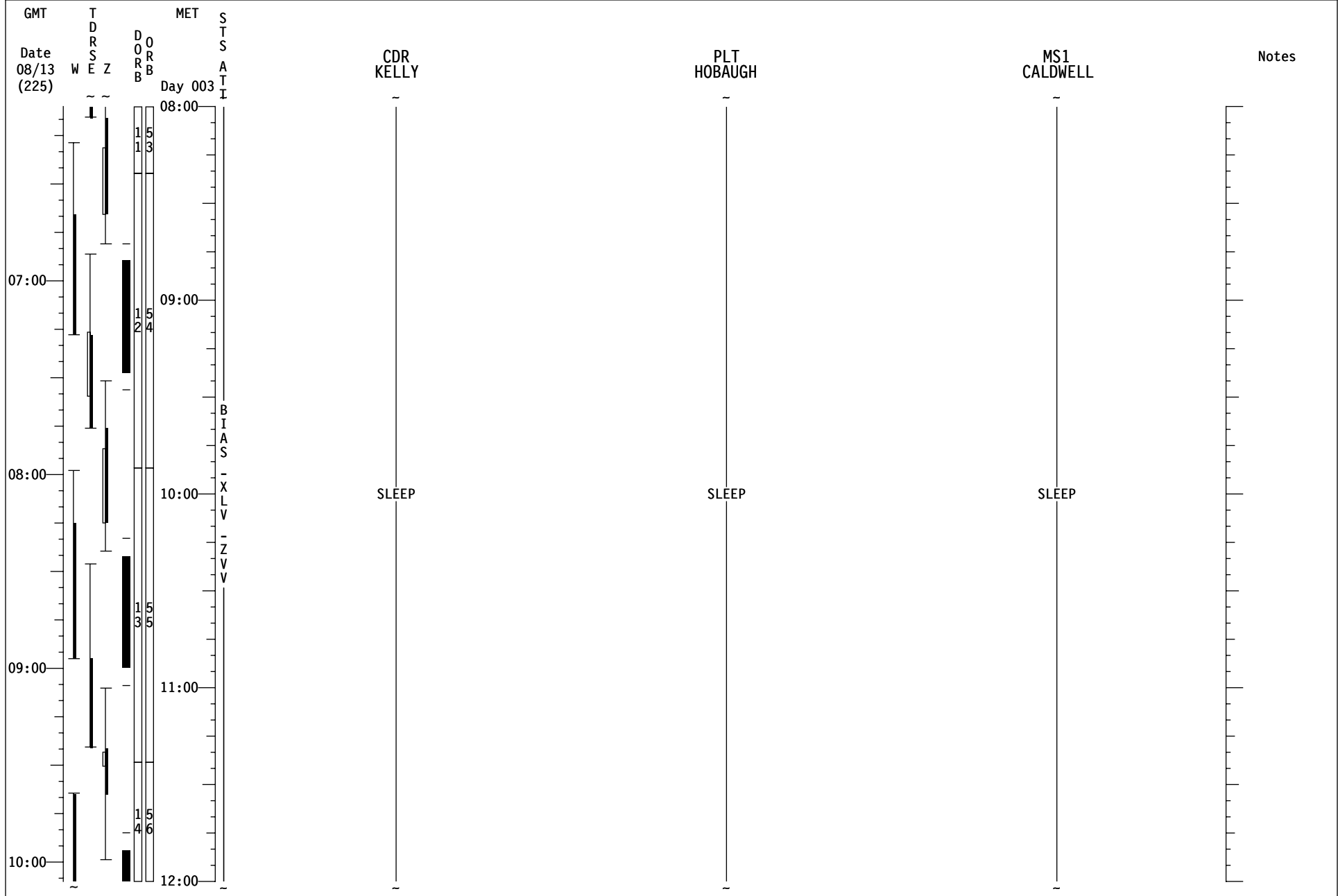
STS-118 FD04



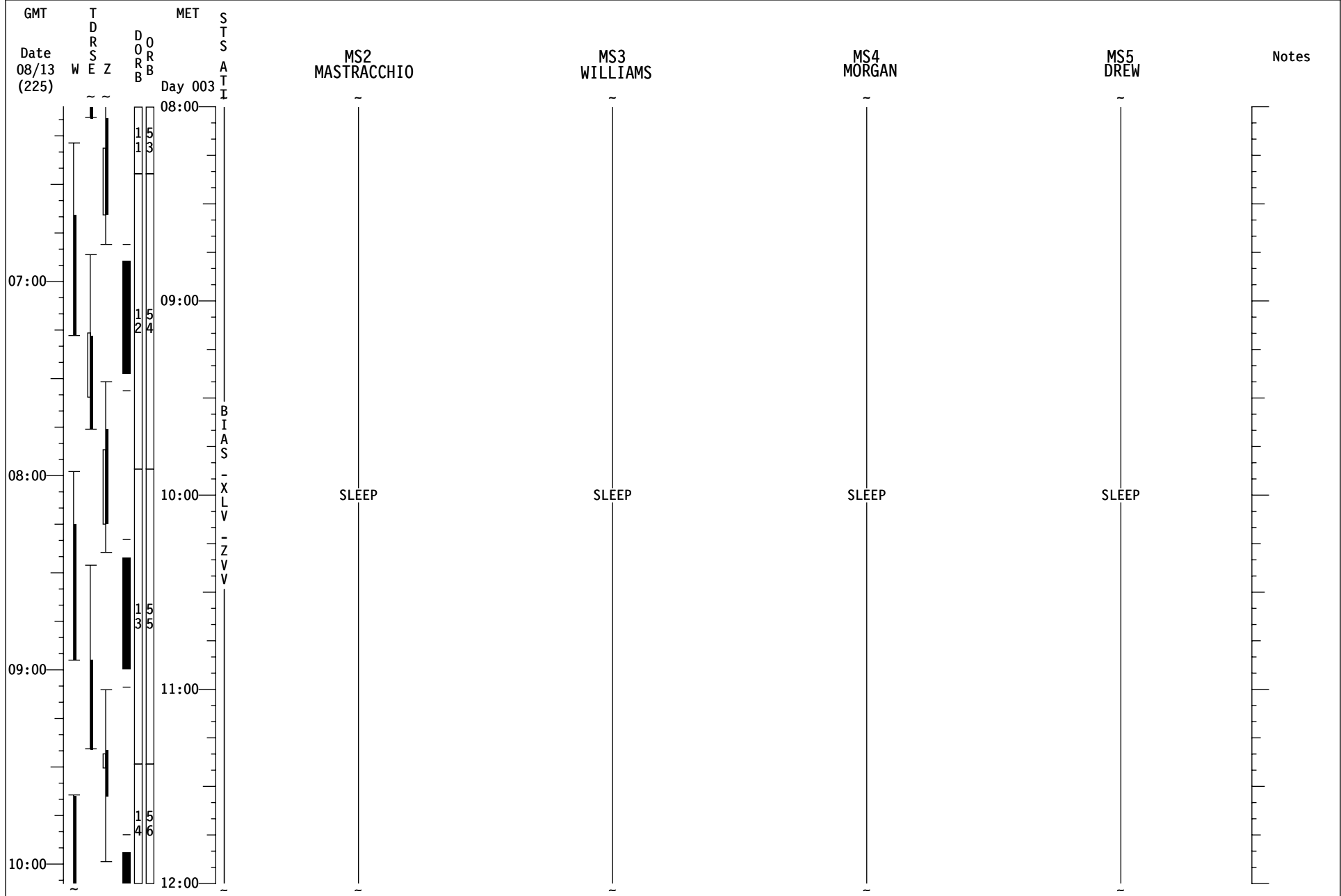
STS-118 FD04



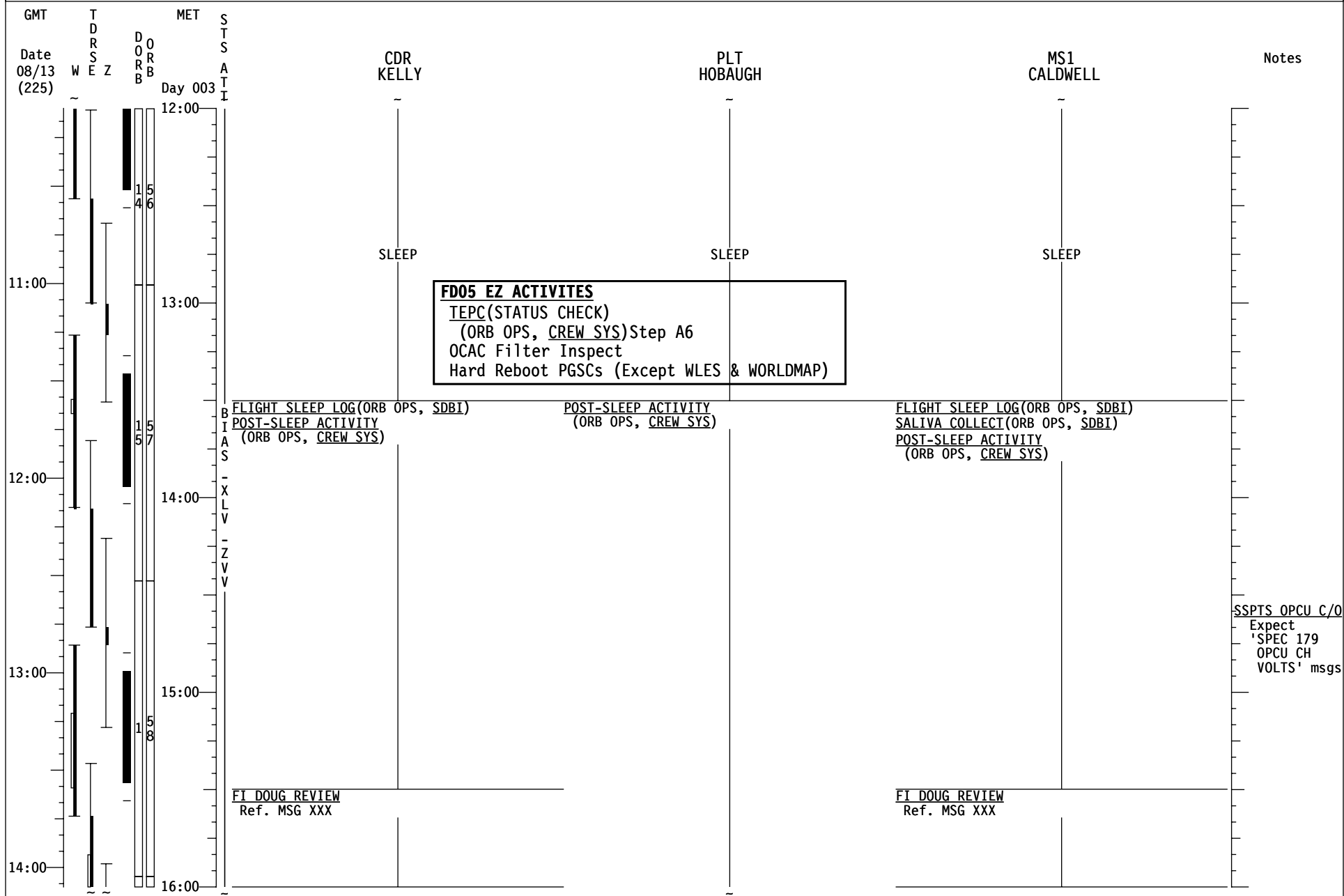
STS-118 FD04



STS-118 FD04

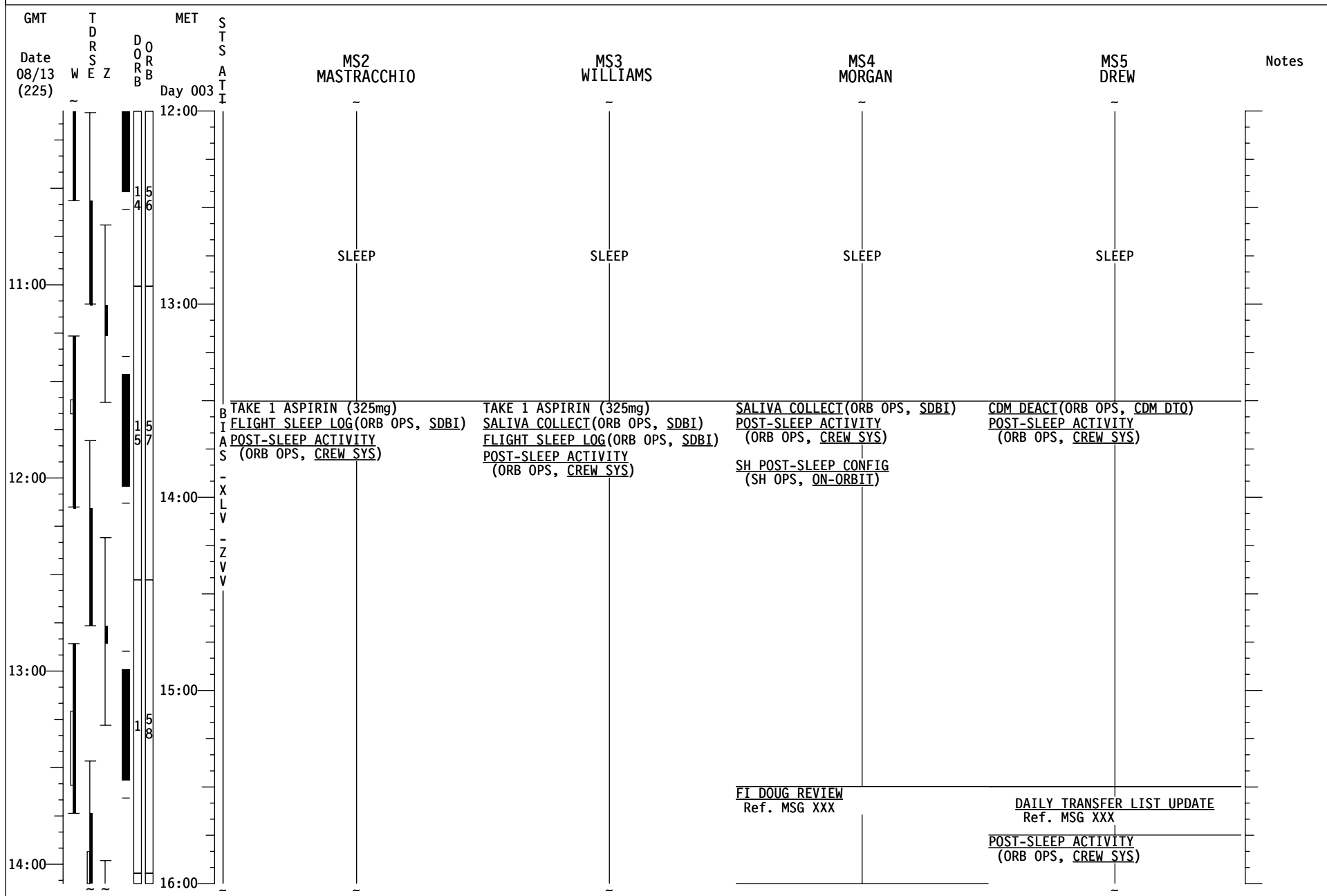


STS-118 FD05

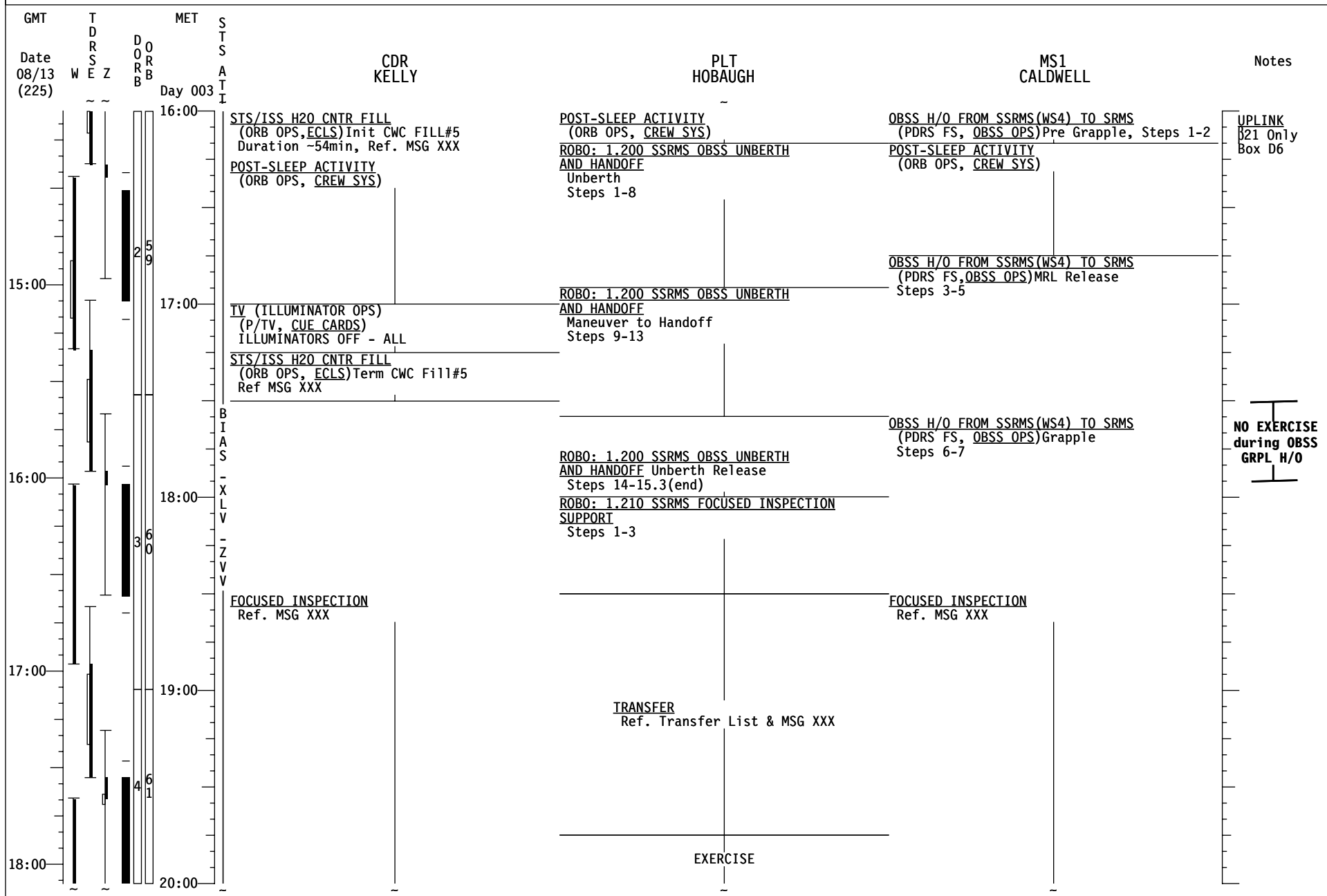


SSPTS OPCU C/O
 Expect
 'SPEC 179
 OPCU CH
 VOLTS' msgs

STS-118 FD05



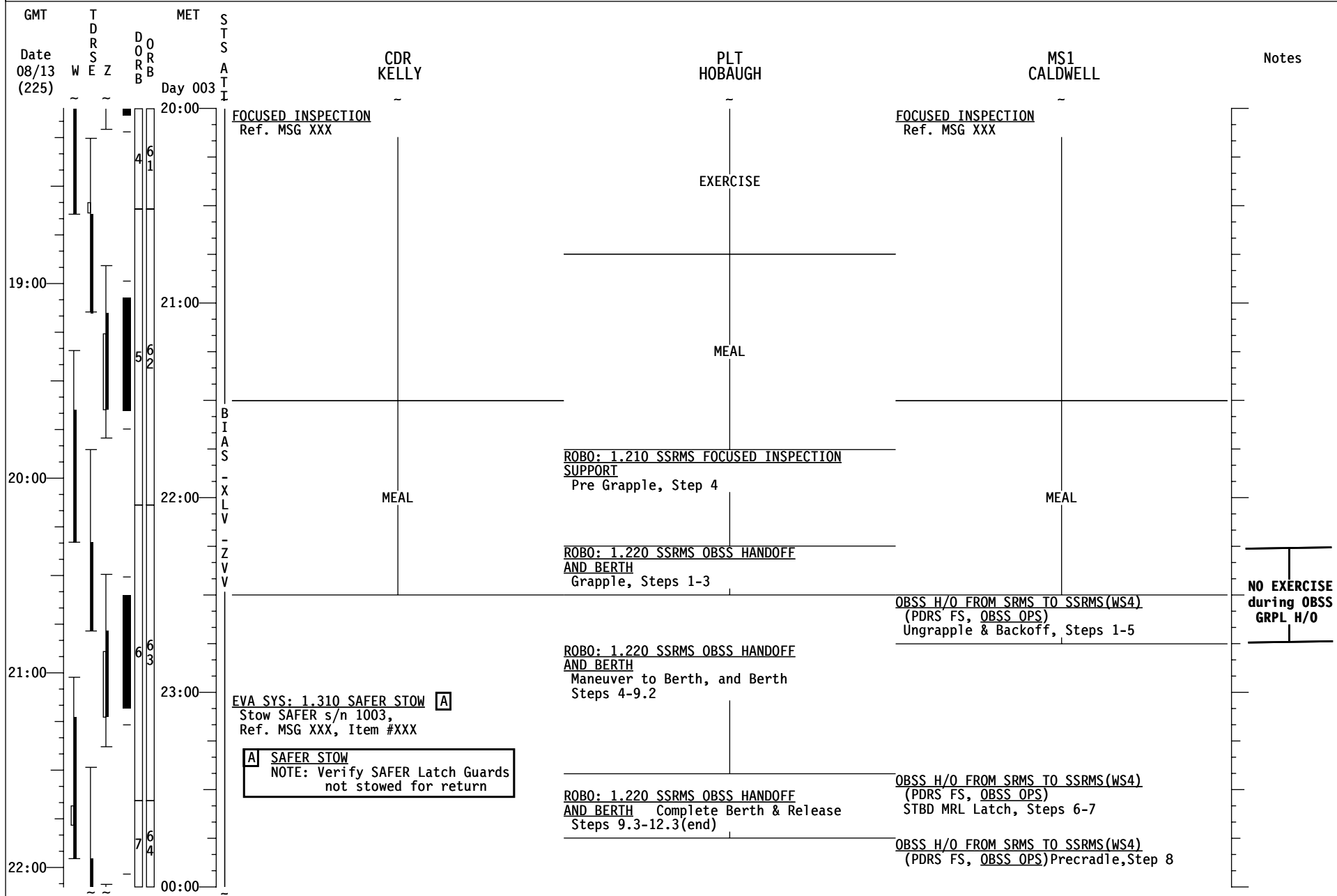
STS-118 FD05



STS-118 FD05

GMT	T D R S E Z W E Z	MET Day 003	S T S A T I	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
16:00				<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>OBSS H/O FROM SSRMS (WS4) TO SRMS</u> (PDRS FS, OBSS OPS) Pre Grapple, Steps 1-2	<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
						<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>CCM-A STATUS CK (PL OPS, CCM-A)</u> <u>MERLIN STAT CK (PL OPS, MERLIN/SPEGIS)</u>	
15:00				<u>EVA SYS: 1.515 EMU METOX/LIOH/ BATTERY REPLACEMENT</u>	<u>EVA SYS: 1.515 EMU METOX/LIOH/ BATTERY REPLACEMENT</u>	<u>OBSS H/O FROM SSRMS (WS4) TO SRMS</u> (PDRS FS, OBSS OPS) MRL Release Steps 3-5	<u>EXERCISE</u>	
				<u>PRE EVA 2 TOOL CONFIG</u> (EVA, TIMELINES)	<u>PRE EVA 2 TOOL CONFIG</u> (EVA, TIMELINES)			
16:00						<u>OBSS H/O FROM SSRMS (WS4) TO SRMS</u> (PDRS FS, OBSS OPS) Grapple Steps 6-7	<u>PWR FILL</u> (ORB OPS, ECLS) Perform <u>WATER FILL #1</u> Ref. MSG XXX, S/N 1026	<u>NO EXERCISE</u> <u>during OBSS</u> <u>GRPL H/O</u>
18:00				<u>EVA SYS: 1.605 BSA BATT RECHRG</u> - Terminate Steps			<u>PWR FILL (ORB OPS, ECLS)</u> Perform <u>WATER FILL #2</u> Ref. MSG XXX, S/N 1027	
				<u>EVA SYS: 1.605 BSA BATTERY</u> <u>RECHARGE</u> Initiate steps Charge EMU batteries from EVA1	<u>EVA SYS: 1.605 BSA BATTERY</u> <u>RECHARGE</u> Initiate steps Charge EMU batteries from EVA1	<u>FOCUSED INSPECTION</u> Ref. MSG XXX		
17:00					<u>PODF: 2.003 PMDIS EXPERIMENT OPS</u> Perform Steps 1-26, & 28-33 Crew ID = S5 Note: No Exercise 20 min prior. Must complete prior 4/00:00			
				<u>EXERCISE</u>	<u>PODF: 2.006 BURNING A CD W/PMDIS</u>		<u>TRANSFER</u> Ref. Transfer List & MSG XXX	
18:00				<u>CWC TRANSFER (1 BAG)</u> Transfer 1 CWC bag to ISS	<u>EXERCISE</u>			
				<u>TRANSFER</u> Ref. Transfer List & MSG XXX				
20:00								

STS-118 FD05



STS-118 FD05

GMT	T D R S E Z	MET	S T S	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/13 (225)	W E Z	Day 003	Day 003					
					EXERCISE	FOCUSED INSPECTION Ref. MSG XXX		
19:00				TRANSFER Ref. Transfer List & MSG XXX	TRANSFER Ref. Transfer List & MSG XXX		TRANSFER Ref. Transfer List & MSG XXX	
20:00				MEAL	MEAL	MEAL	MEAL	
21:00				EVA SYS: 1.305 EQUIP LOCK PREP Steps 7-34, (In Step 34: confirm PBAs-4 isolated crew)	EVA SYS: 1.305 EQUIP LOCK PREP Steps 7-34, (In Step 34: confirm PBAs-4 isolated crew)	OBSS H/O FROM SRMS TO SSRMS(W54) (PDRS FS, OBSS OPS) Ungrapple & Backoff, Steps 1-5	CBTM STATUS CHECK (PL OPS, CBTM)	NO EXERCISE during OBSS GRPL H/O
							CBTM VID PREP(PL OPS,CBTM)Step1-7	
22:00				SAFER CHECKOUT (EVA, CHECKOUTS) Checkout SAFER s/n 1004 from Shuttle. Disregard SAFER latch guard steps. When complete, stow on ISS Ref. MSG XXX, Item #XXX)	SAFER CHECKOUT (EVA, CHECKOUTS) Checkout SAFER s/n 1004 from Shuttle. Disregard SAFER latch guard steps. When complete, stow on ISS Ref. MSG XXX, Item #XXX)	OBSS H/O FROM SRMS TO SSRMS(W54) (PDRS FS, OBSS OPS) STBD MRL Latch, Steps 6-7		
				PRE EVA 2 TOOL CONFIG (EVA, TIMELINES)	PRE EVA 2 TOOL CONFIG (EVA, TIMELINES)	EPO KIT-C DRINK BAG PREP (PL OPS, EPO)	CBTM VID PREP(PL OPS,CBTM)Step 8	
00:00								

STS-118 FD05

GMT	T D R S E Z	MET	S T S	C D R	P L T	M S 1	Notes
Date 08/13 (225)	W E Z	Day 004	A T I	K E L L Y	H O B A U G H	C A L D W E L L	
00:00							L17 Check MCIU filter screen
23:00							
00:00							
01:00							
02:00							
03:00							
04:00							

STS/ISS H2O CNTR FILL
(ORB OPS, ECLS) Init CWC FILL#6
Duration ~54min, Ref. MSG XXX

L17 Check MCIU filter screen

EXERCISE

PWR TRANSFER
Transfer 2 PWR to ISS

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

STS/ISS H2O CNTR FILL
(ORB OPS, ECLS) Term CWC FILL#6
Ref MSG XXX

ROBO: 1.230 SSRMS WALKOFF
PDGF1 TO LAB PDGF
Lab Grapple, Steps 1-5

EXERCISE

IMU STAR OF OPPTY ALIGN(ORB OPS, GNC)
SPEGIS CANISTER ACT
S (PL OPS, MERLIN/SPEGIS)

EVA PROCEDURE REVIEW
REF: EVA 2 BRIEFING CARD
(EVA, TIMELINES)

EVA PROCEDURE REVIEW
REF: EVA 2 BRIEFING CARD
(EVA, TIMELINES)

EVA PROCEDURE REVIEW
REF: EVA 2 BRIEFING CARD
(EVA, TIMELINES)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

ROBO: 1.230 SSRMS WALKOFF
PDGF1 TO LAB PDGF
PDGF1 Release & MnvR to
EVA 2 Start position
Steps 6-9(end)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRIVATE MEDICAL CONFERENCE
Perform via A/G2

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

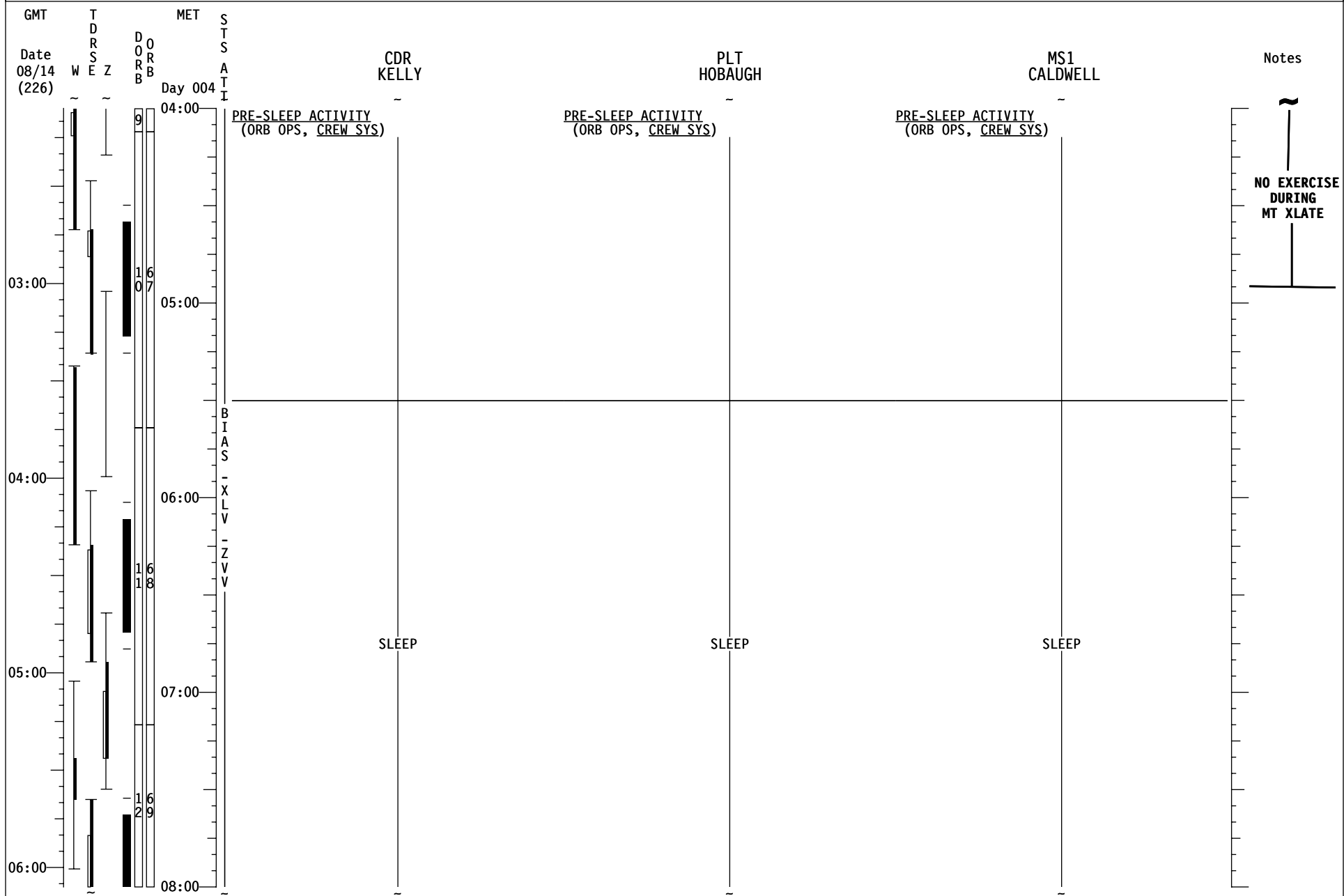
UPLINK
B21 Only
Box C1,D2
NO EXERCISE DURING MT XLATE

STS-118 FD05

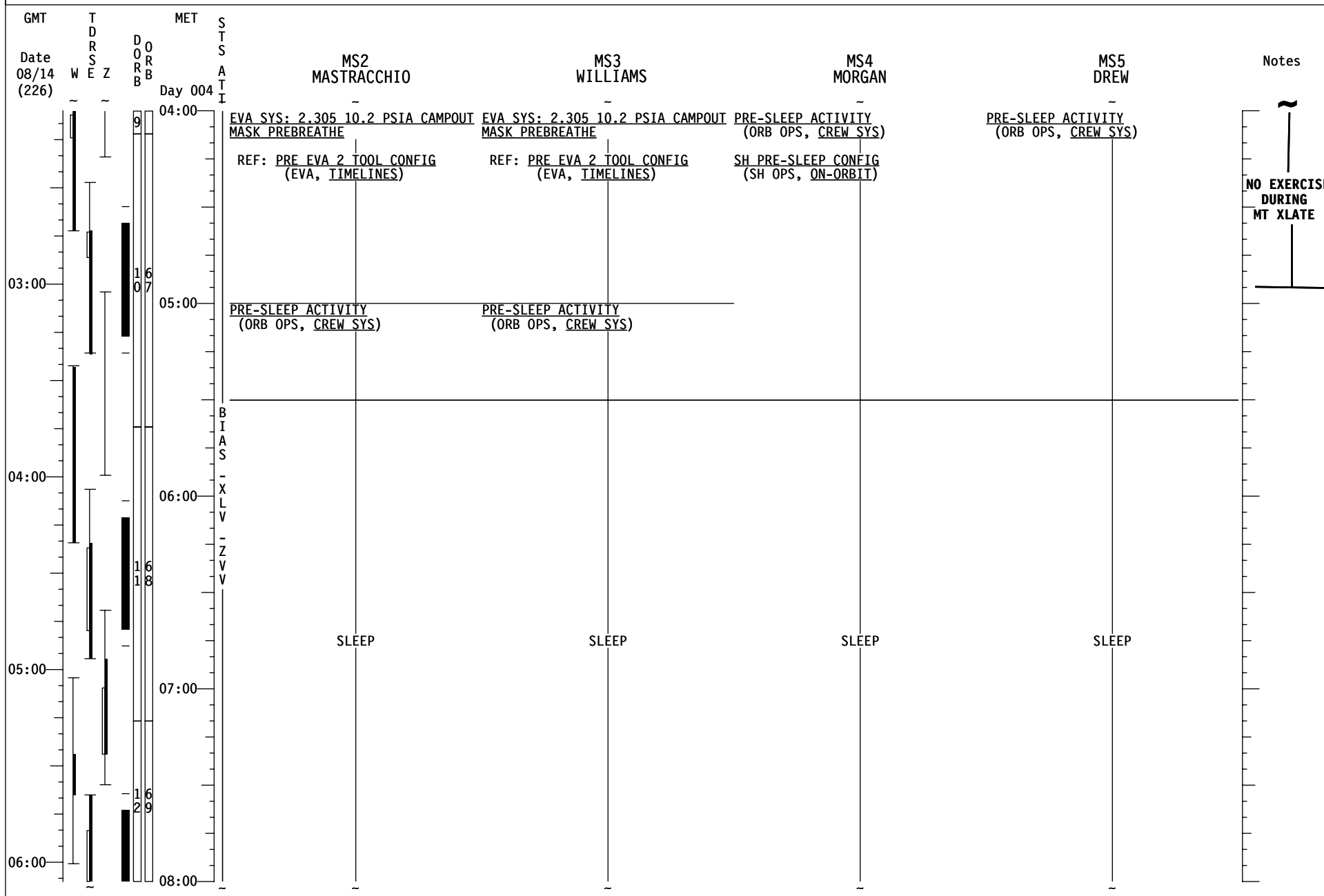
GMT Date 08/13 (225)	TDRSEZ W E Z	MET Day 004	S T S A T I	Notes			
				MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW
				PRE EVA 2 TOOL CONFIG (EVA, TIMELINES)	PRE EVA 2 TOOL CONFIG (EVA, TIMELINES) EPO KIT-C XFER VIDEO (PL OPS, EPO) Transfer Chambers, H2O Bags, and Setup	EPO KIT-C XFER VIDEO (PL OPS, EPO)	EPO KIT-C XFER VIDEO (PL OPS, EPO) Transfer Chambers, H2O Bags, and Setup
					PRE EVA 2 TOOL CONFIG (EVA, TIMELINES)		
23:00				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	TRANSFER Ref. Transfer List & MSG XXX
						DAILY STS/ISS CREW TRANSFER TAGUP	DAILY STS/ISS CREW TRANSFER TAGUP
						DAILY TRANSFER BRIEFING	MERLIN STAT CK (PL OPS, MERLIN/SPEGIS) CCM-A STATUS CK (PL OPS, CCM-A) CWC TRANSFER (1 BAG) Transfer 1 CWC bag to ISS
00:00				X L V EVA PROCEDURE REVIEW REF: EVA 2 BRIEFING CARD (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 2 BRIEFING CARD (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 2 BRIEFING CARD (EVA, TIMELINES)	EVA PROCEDURE REVIEW REF: EVA 2 BRIEFING CARD (EVA, TIMELINES)
01:00				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	ROBO: 1.230 SSRMS WALKOFF PDGF1 TO LAB PDGF PDGF1 Release & Mnvrr to EVA 2 Start position Steps 6-9(end)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)
						PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
02:00				EVA SYS: 2.305 10.2 PSIA CAMPOUT MASK PREBREATHE	EVA SYS: 2.305 10.2 PSIA CAMPOUT MASK PREBREATHE		

NO EXERCISE
DURING
MT XLATE

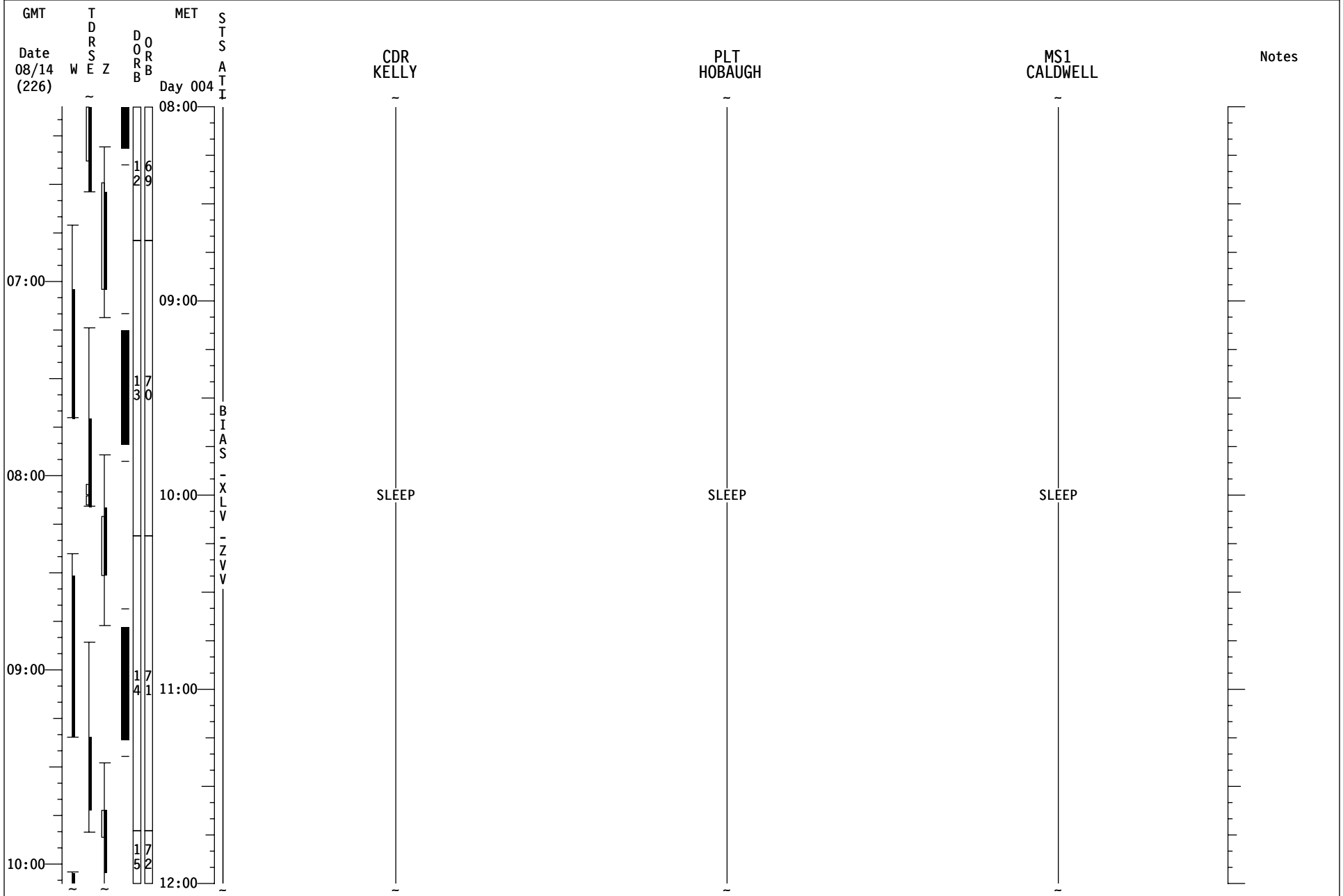
STS-118 FD05



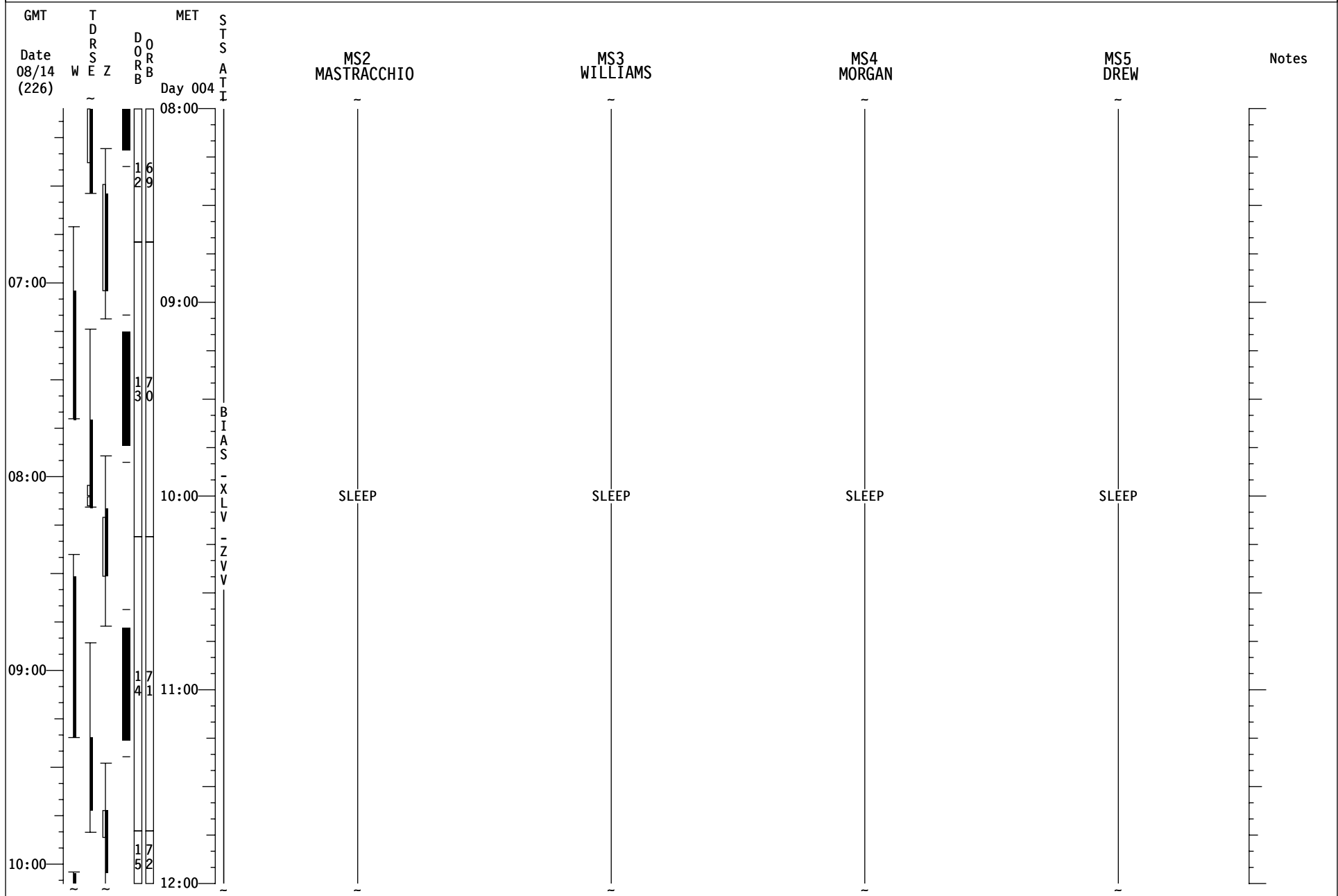
STS-118 FD05



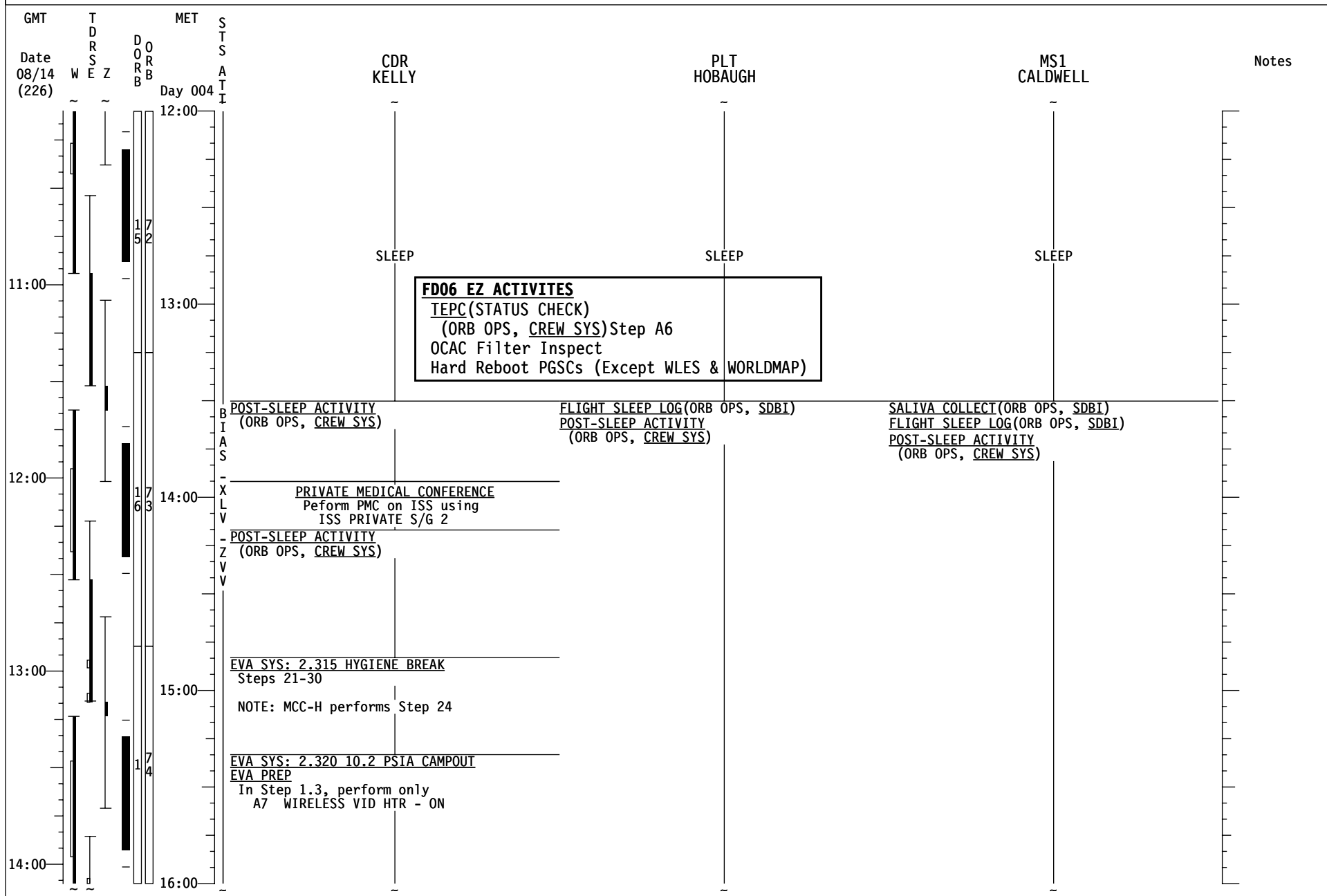
STS-118 FD05



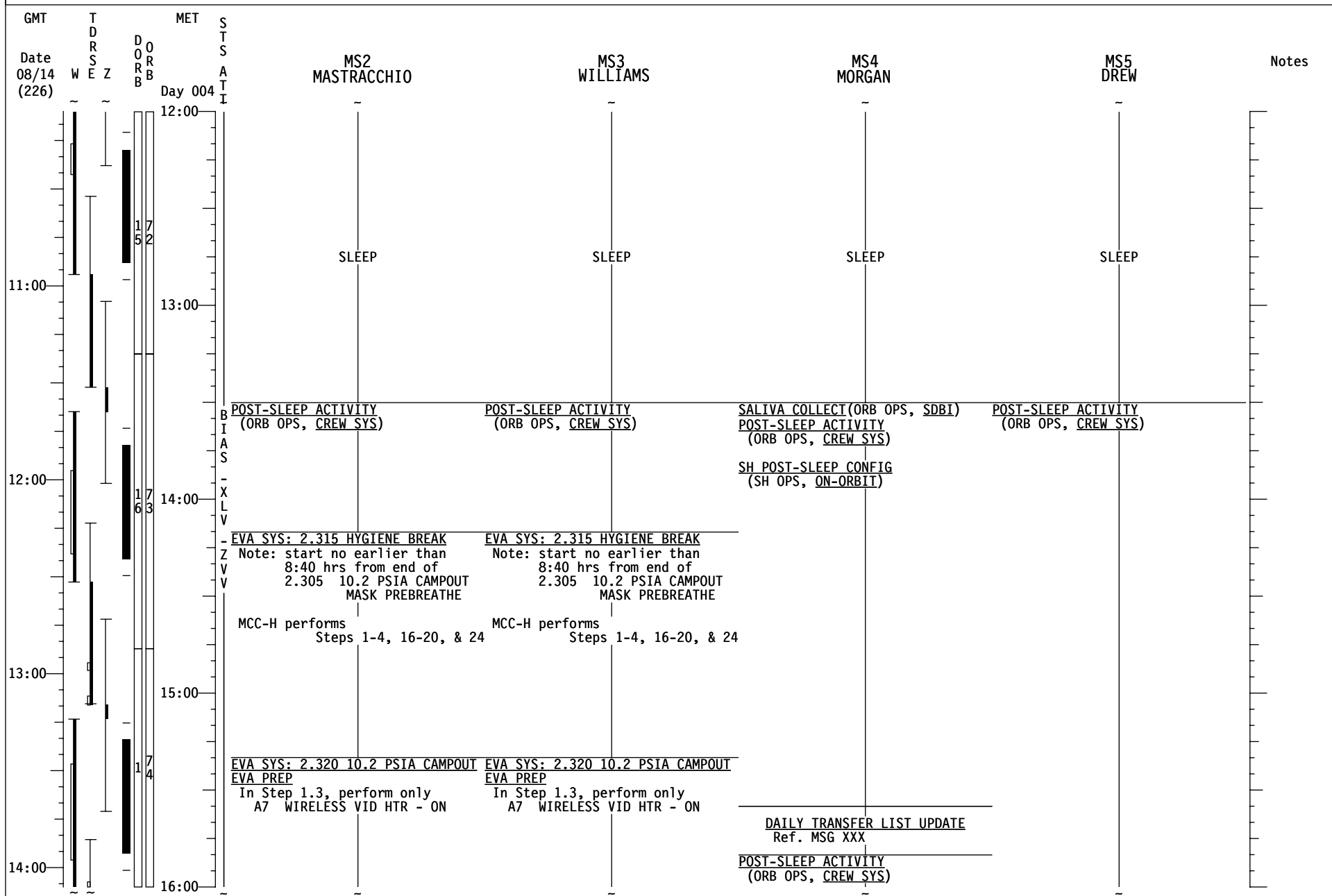
STS-118 FD05



STS-118 FD06



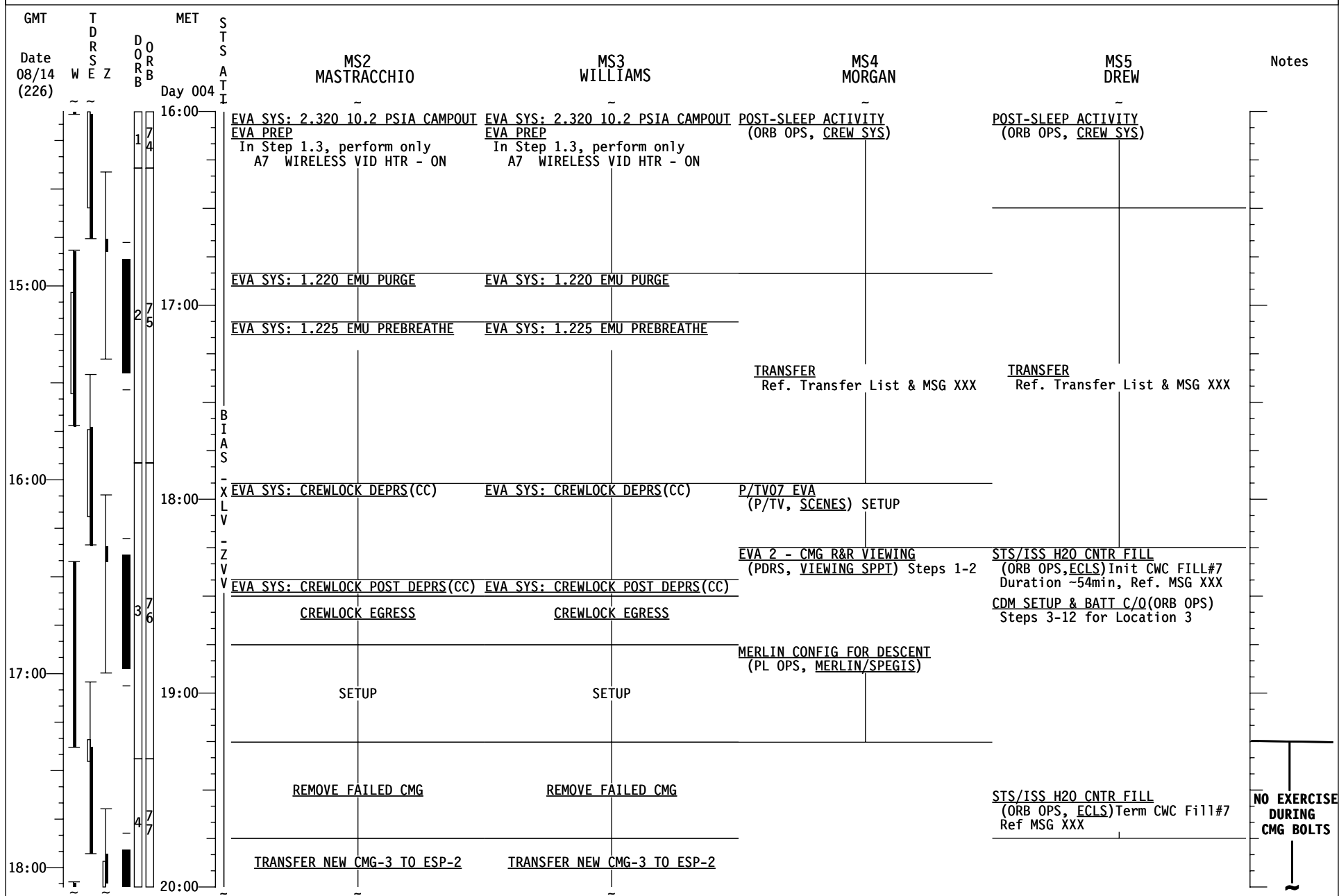
STS-118 FD06



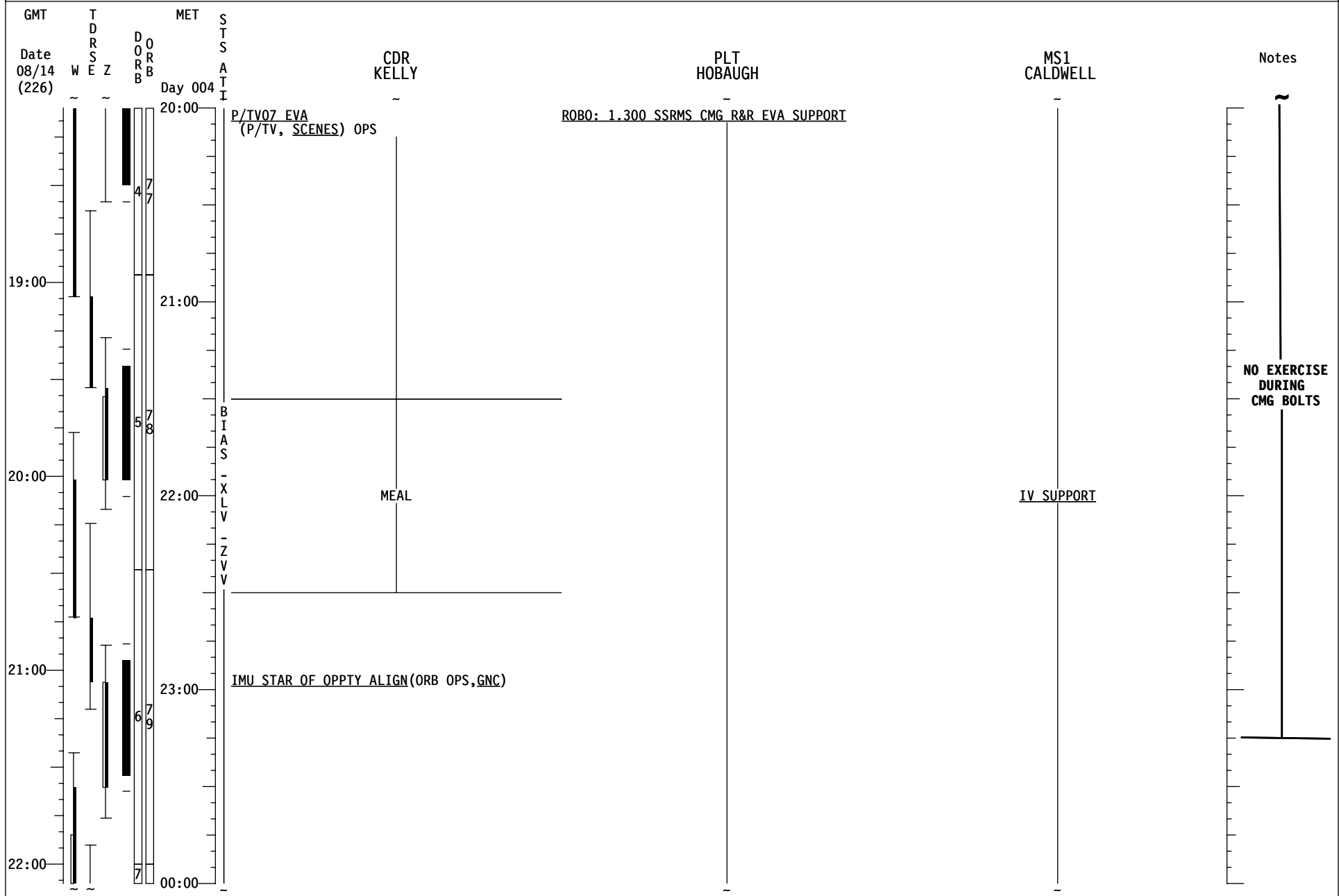
STS-118 FD06

GMT	TDRSEZ	MET	SATS	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	Notes
Date 08/14 (226)	W E Z	Day 004	1 7 4				
16:00				<u>EVA SYS: 2.320 10.2 PSIA CAMPOUT</u> <u>EVA PREP</u> In Step 1.3, perform only A7 WIRELESS VID HTR - ON	<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>POST-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
15:00				<u>EVA SYS: 1.220 EMU PURGE</u>	<u>EVA2 INHIBIT PAD</u> (EVA, TIMELINES)		
17:00			2 7 5	<u>EVA SYS: 1.225 EMU PREBREATHE</u>	<u>CCM-A STATUS CK</u> (PL OPS, CCM-A) <u>SPEGIS CANISTER TERM</u> (PL OPS, MERLIN/SPEGIS)	EXERCISE	
16:00					<u>MERLIN WARM SHUTDOWN</u> (PL OPS, MERLIN/SPEGIS) <u>MERLIN STAT CK</u> (PL OPS, MERLIN/SPEGIS)		
18:00				<u>EVA SYS: CREWLOCK DEPRS(CC)</u>	<u>TRANSFER</u> Ref. Transfer List & MSG XXX	<u>IVA PREP</u>	
17:00			3 7 6	<u>EVA SYS: CREWLOCK POST DEPRS(CC)</u> <u>P/TV07 EVA</u> (P/TV, SCENES) OPS	<u>ROBO: 1.300 SSRMS CMG R&R EVA SUPPORT</u>		
19:00						IV SUPPORT	
18:00			4 7 7				NO EXERCISE DURING CMG BOLTS
20:00							

STS-118 FD06



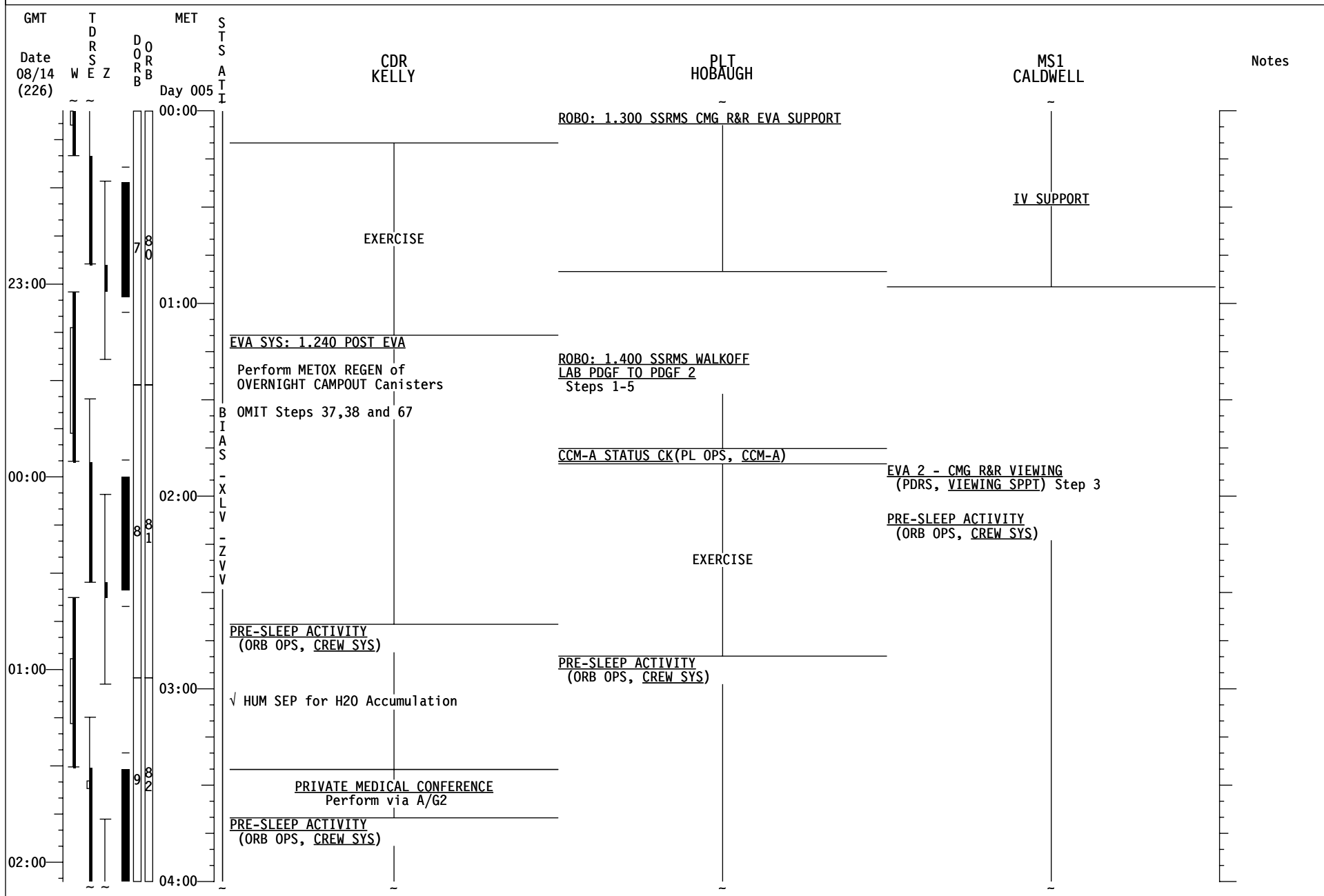
STS-118 FD06



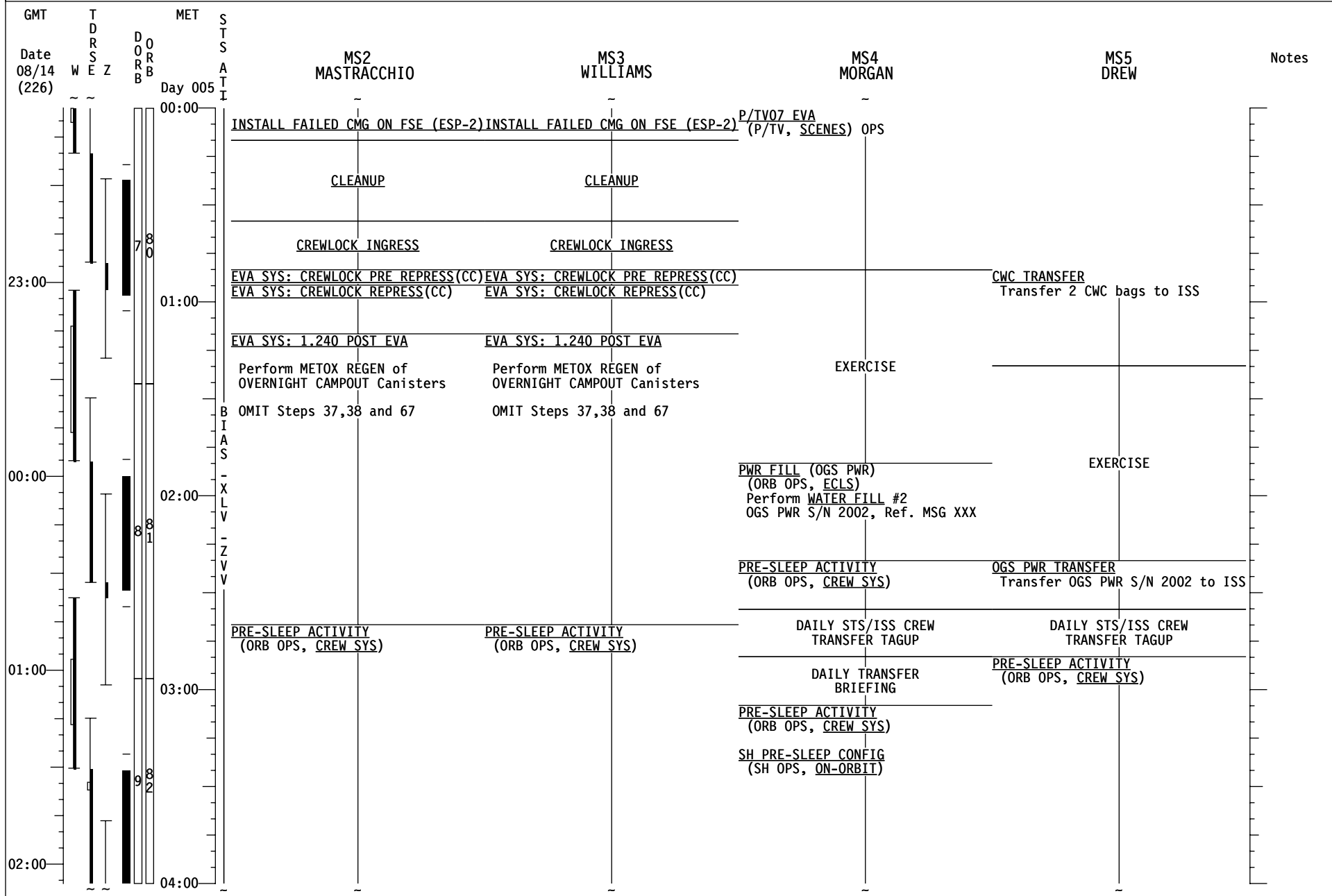
STS-118 FD06

GMT Date 08/14 (226)	T D R S E Z	D O R B	M E T Day 004	S T S A T I	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
			20:00						
					<u>TRANSFER NEW CMG-3 TO ESP-2</u>	<u>TRANSFER NEW CMG-3 TO ESP-2</u>			
			19:00				MEAL	MEAL	
					<u>REMOVE NEW CMG-3 FROM ESP-2</u>	<u>REMOVE NEW CMG-3 FROM ESP-2</u>	<u>P/TV07 EVA</u> (P/TV, SCENES) OPS	<u>CBTM VID PREP(PL OPS) Step 8, &1-7</u> <u>STS/ISS H2O CNTR FILL</u> (ORB OPS,ECLS) Init CWC FILL#8 Duration ~54min, Ref. MSG XXX	NO EXERCISE DURING CMG BOLTS
			20:00						
					<u>INSTALL NEW CMG ON Z1</u>	<u>INSTALL NEW CMG ON Z1</u>		<u>CBTM VID PREP(PL OPS,CBTM) Step 8</u> <u>CBTM STATUS CHECK</u> (PL OPS, CBTM)	
			21:00					<u>STS/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) Term CWC Fill#8 Ref MSG XXX	
					<u>INSTALL FAILED CMG ON FSE (ESP-2)</u>	<u>INSTALL FAILED CMG ON FSE (ESP-2)</u>		<u>FILTER CLEANING</u> (IFM, SCHEDULED MAINT) Inspect filters & clean as necessary Also check SH Booster Fan Bypass duct inlet	
			22:00						
			00:00						

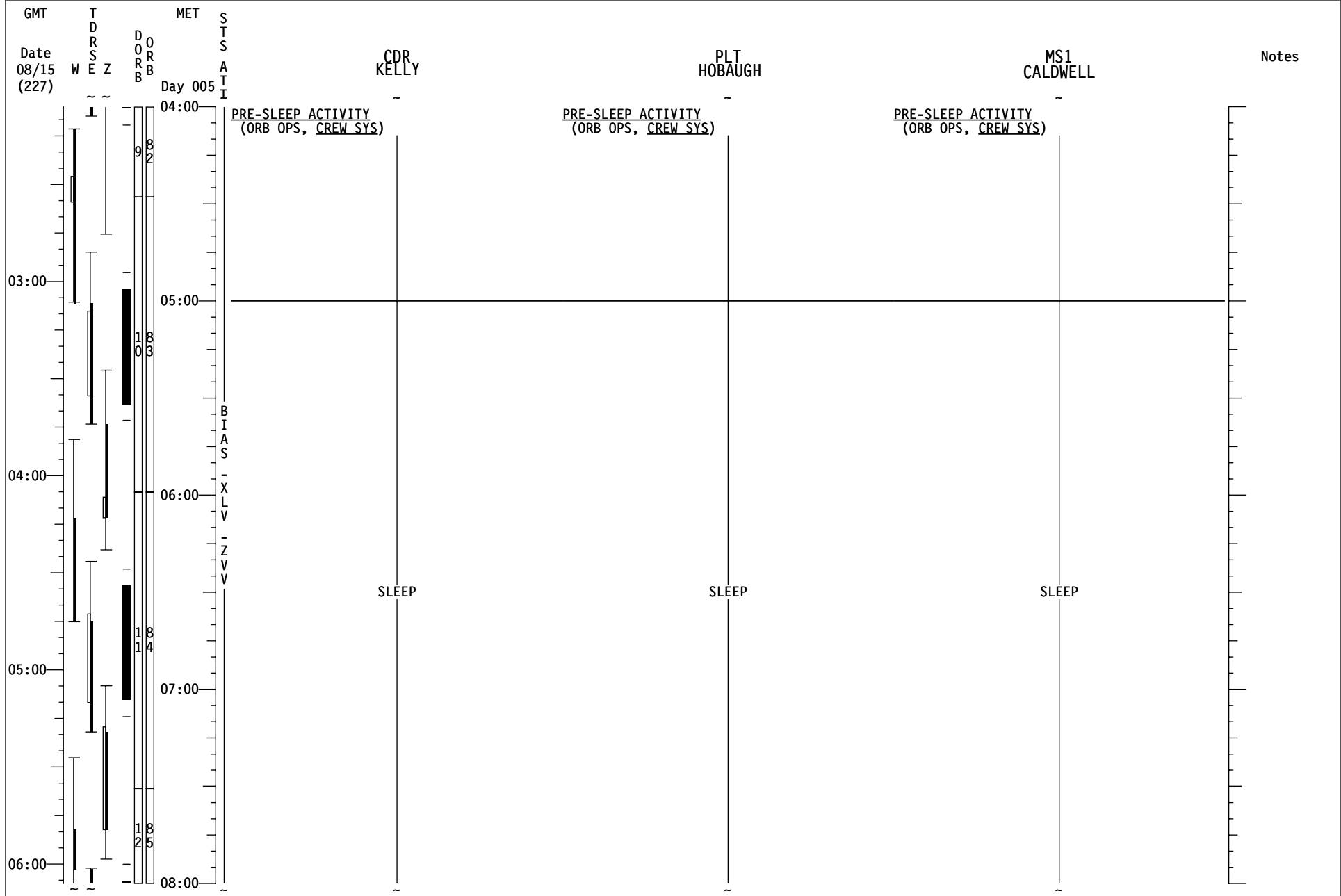
STS-118 FD06



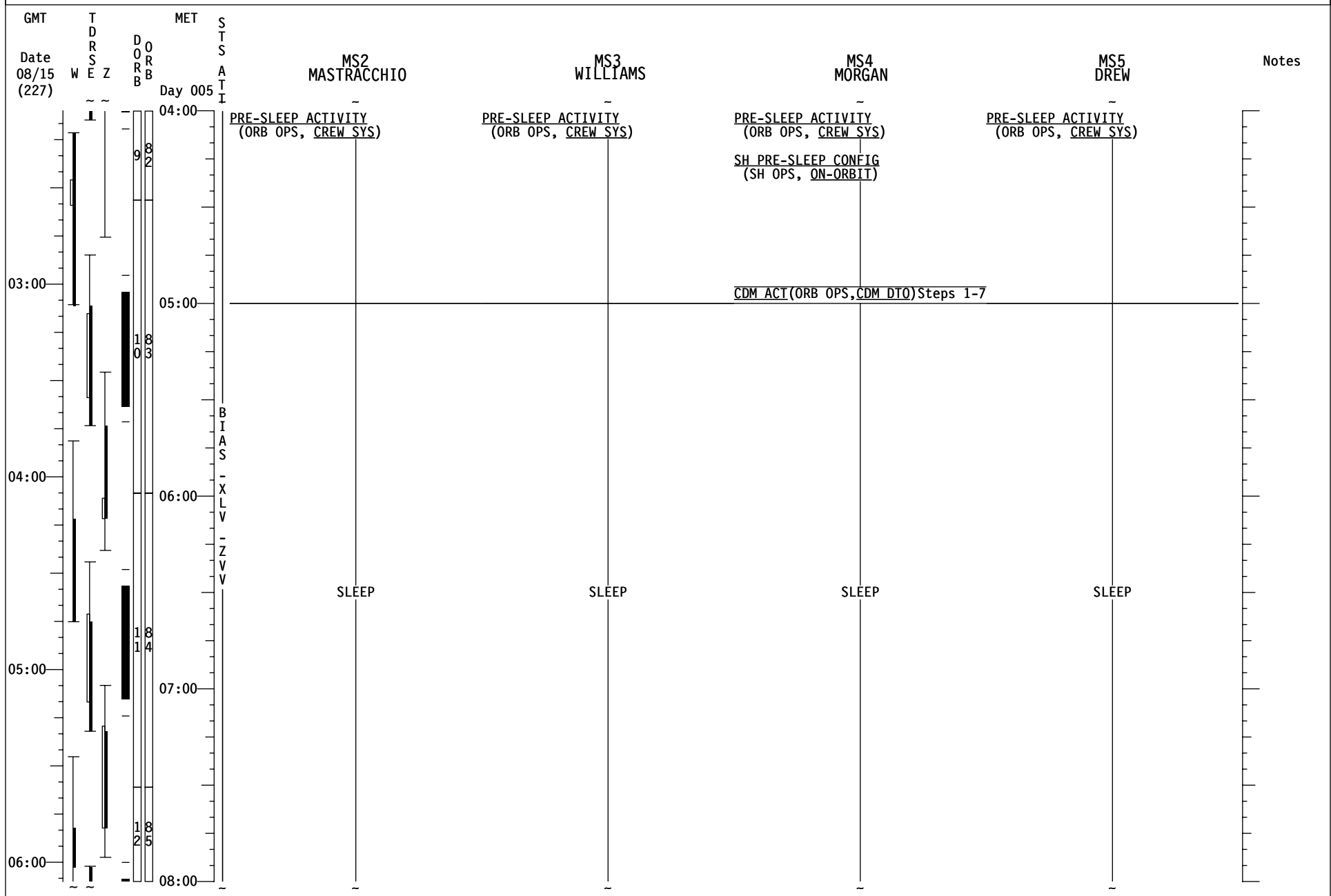
STS-118 FD06



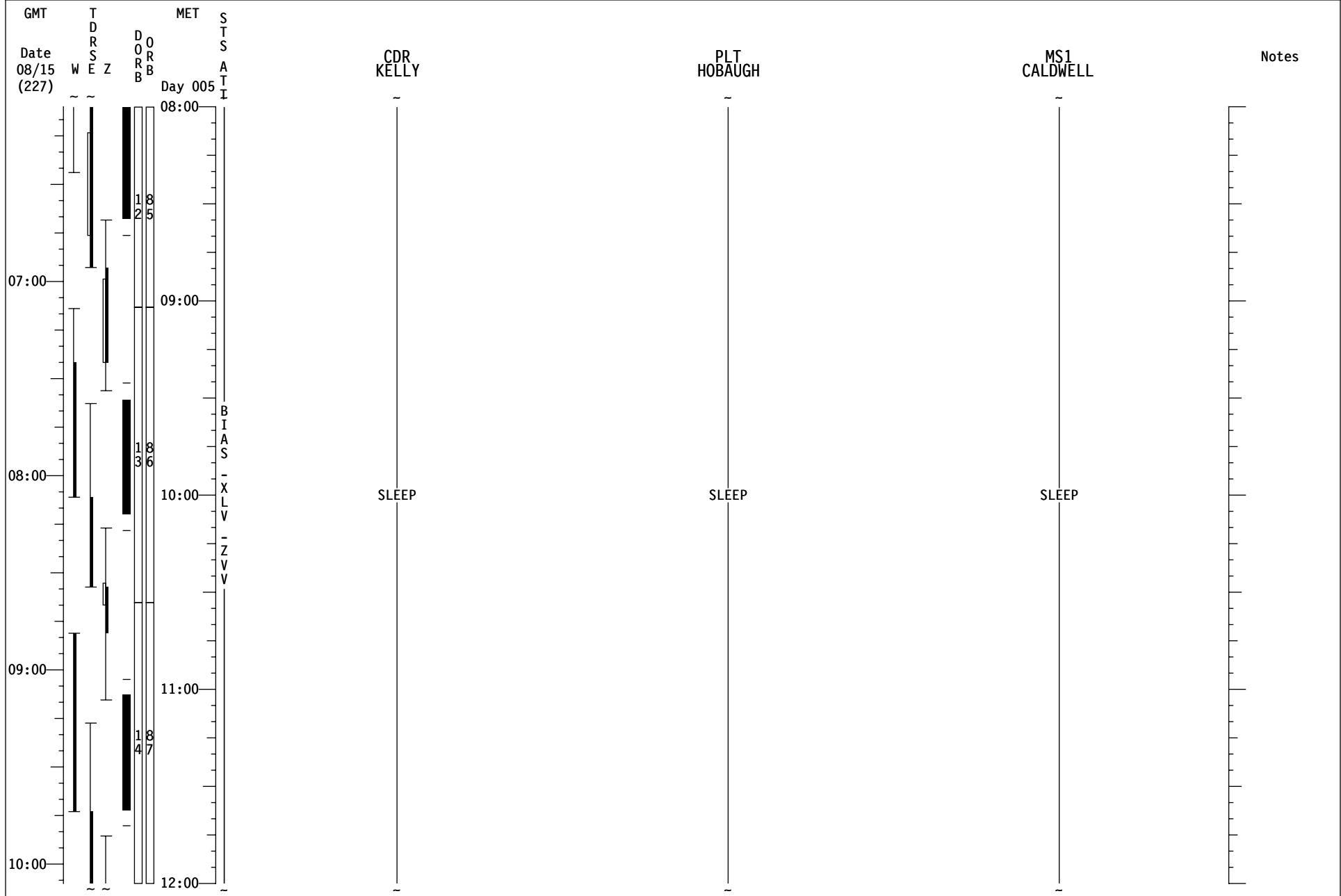
STS-118 FD06



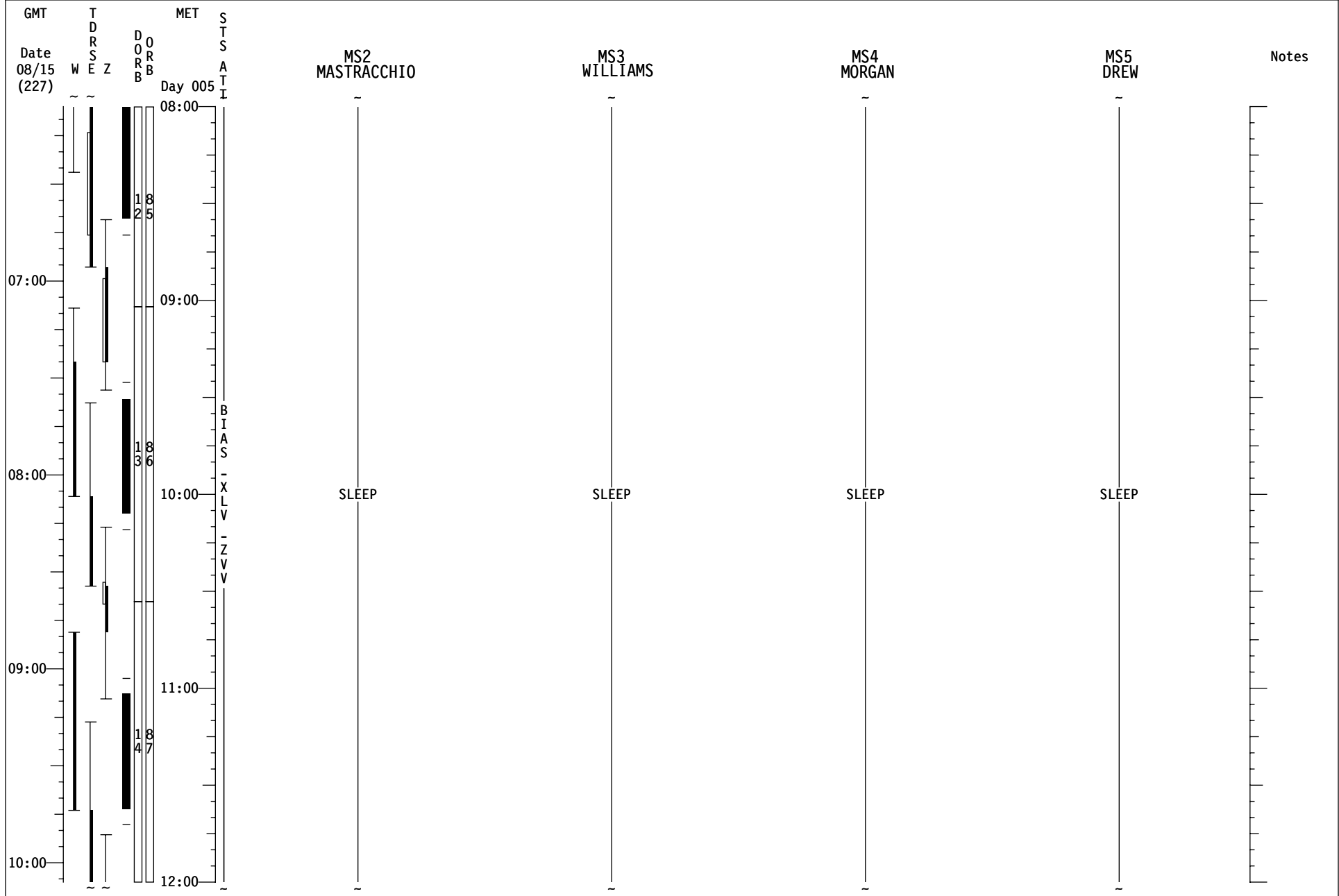
STS-118 FD06



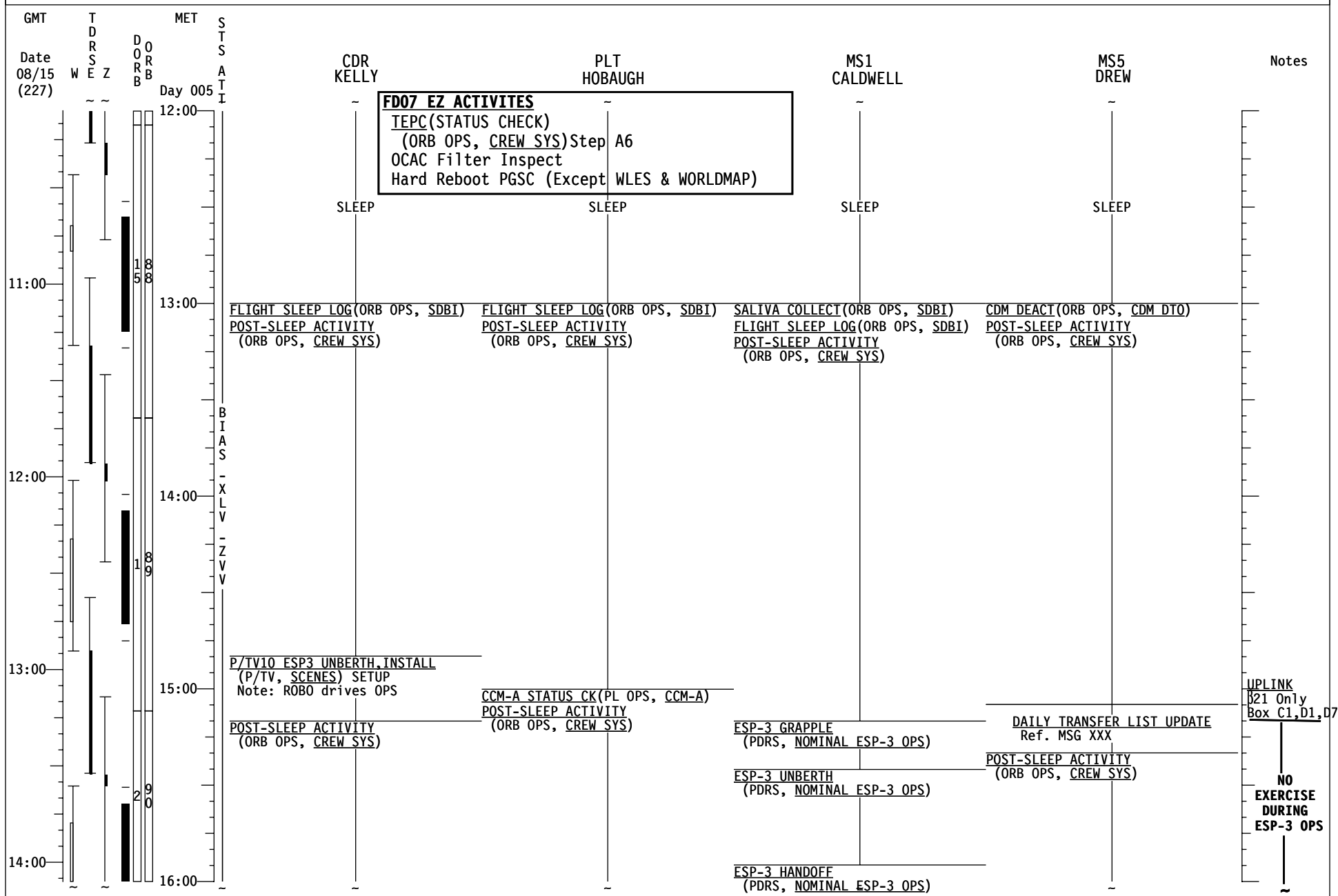
STS-118 FD06



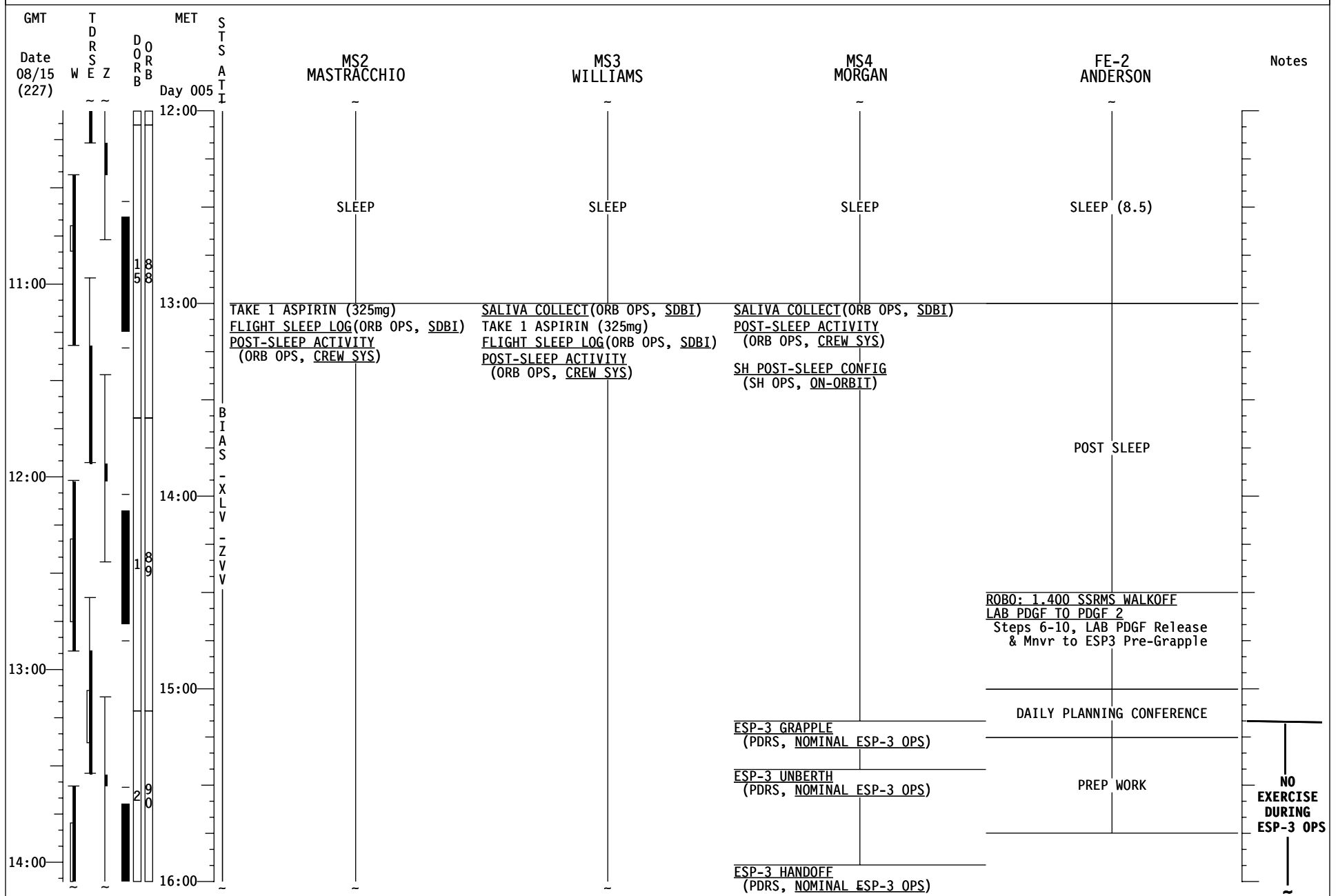
STS-118 FD06



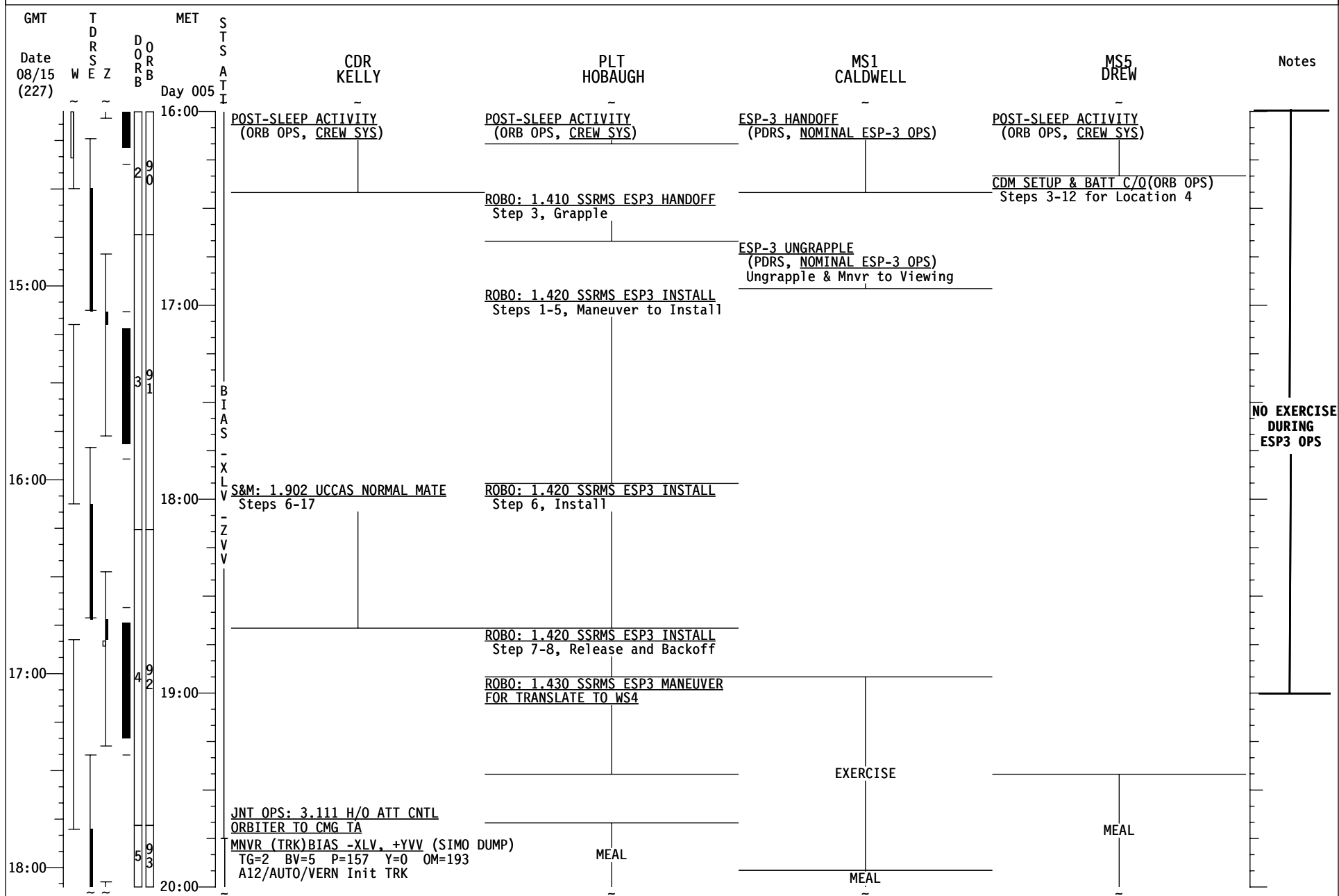
STS-118 FD07



STS-118 FD07

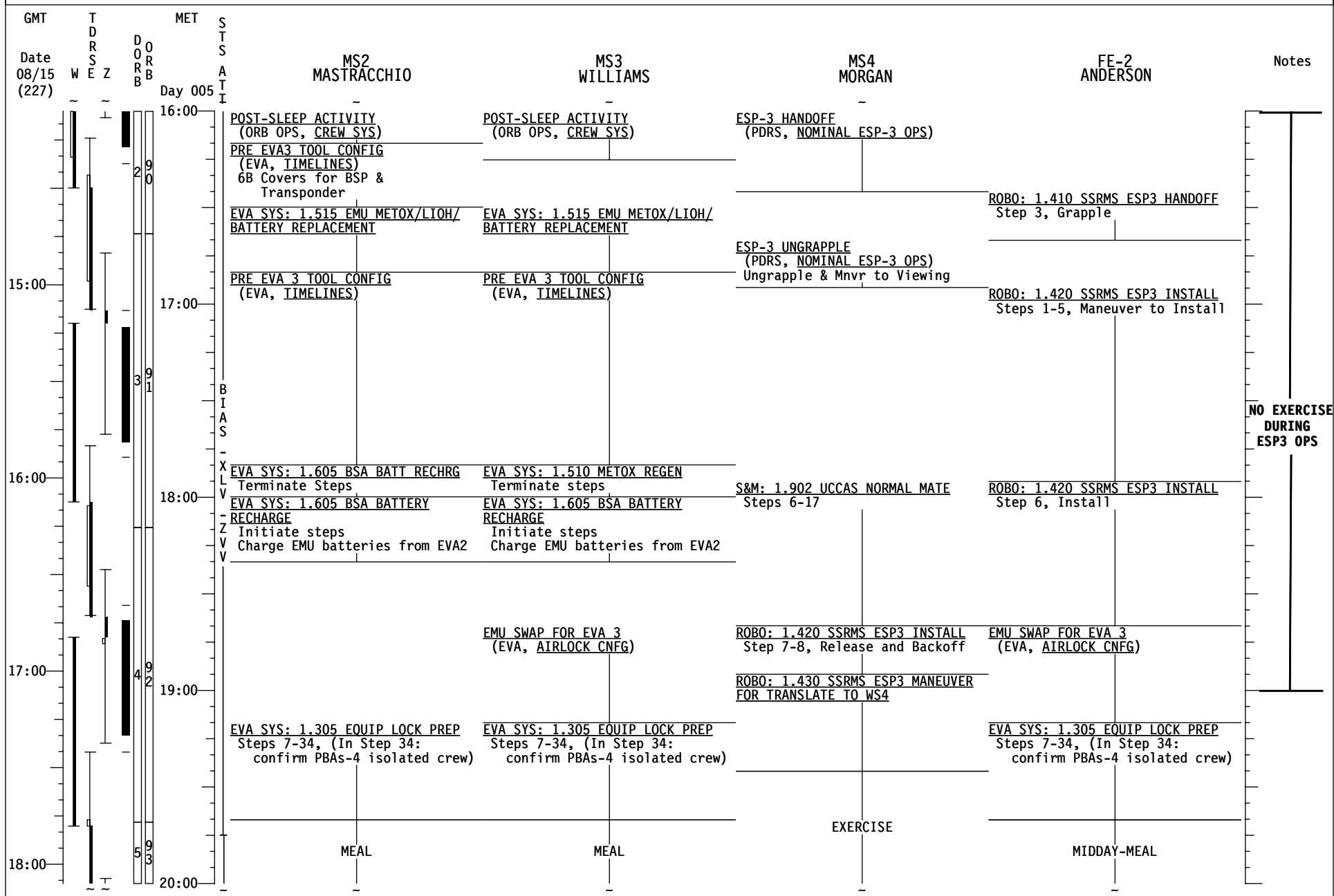


STS-118 FD07



NO EXERCISE
DURING
ESP3 OPS

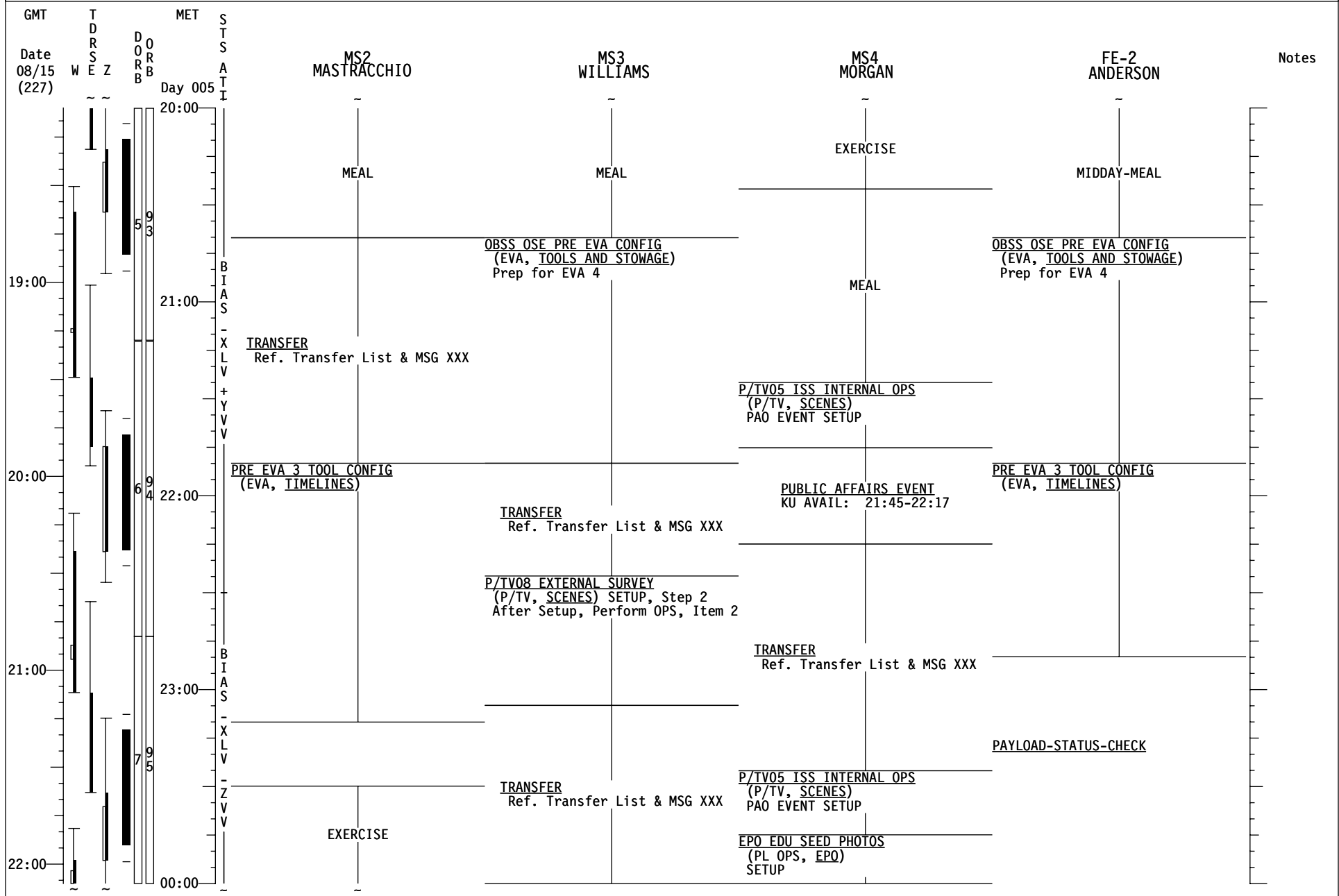
STS-118 FD07



STS-118 FD07

GMT	T D R S E Z	M E T	S T S	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	MS5 DREW	Notes
Date 08/15 (227)	W E Z	Day 005	A T I					
				<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Ref. MSG XXX Init Supply/Waste Dump				
					MEAL		MEAL	
						MEAL		
							<u>CBTM STATUS CHECK</u> (PL OPS, CBTM)	
					<u>IFM: 3.2.502 LAB WINDOW SCRATCH</u> <u>PANE ASSEMBLY R&R</u>			
				MEAL				
19:00								
						<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Term Supply/Waste Dump Ref. MSG XXX		
				<u>PWR DUMP-SUPPLY LINE</u> (ORB OPS, ECLS) Dump S/N 1023 Ref. MSG XXX				
						<u>TRANSFER</u> Ref. Transfer List & MSG XXX	<u>TRANSFER</u> Ref. Transfer List & MSG XXX	
				<u>PWR DUMP-SUPPLY LINE</u> (ORB OPS, ECLS) Dump S/N 1018 Ref. MSG XXX				
					<u>IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)</u>			
				<u>CWC OVERBOARD DUMP</u> (ORB OPS, ECLS) Dump S/N XXXX Ref. MSG XXX				
20:00								
						<u>PUBLIC AFFAIRS EVENT</u> KU AVAIL: 21:45-22:17		
					EXERCISE			
				<u>MNVR BIAS (TRK) -XLV -ZVV (TEA)</u> TG=2 BV=5 P=157 Y=1 OM=180 A12/AUTO/VERN Init TRK				
				<u>JNT OPS: 3.111 H/O ATT CNTL</u> <u>ORBITER TO CMG TA</u>			EXERCISE	
21:00								
						<u>TRANSFER</u> Ref. Transfer List & MSG XXX		
				EXERCISE	<u>TRANSFER</u> Ref. Transfer List & MSG XXX			
							<u>TRANSFER</u> Ref. Transfer List & MSG XXX	
22:00								

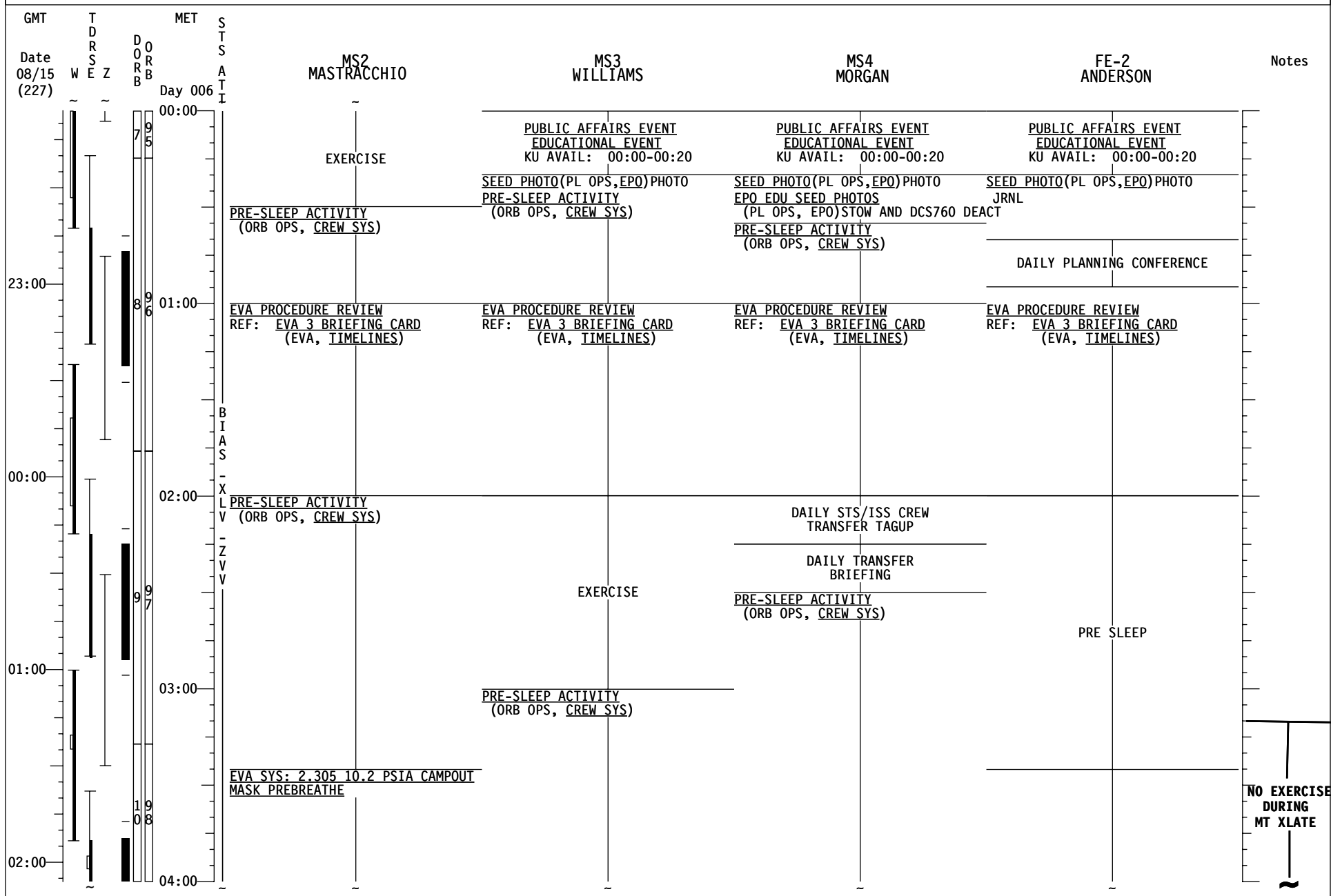
STS-118 FD07



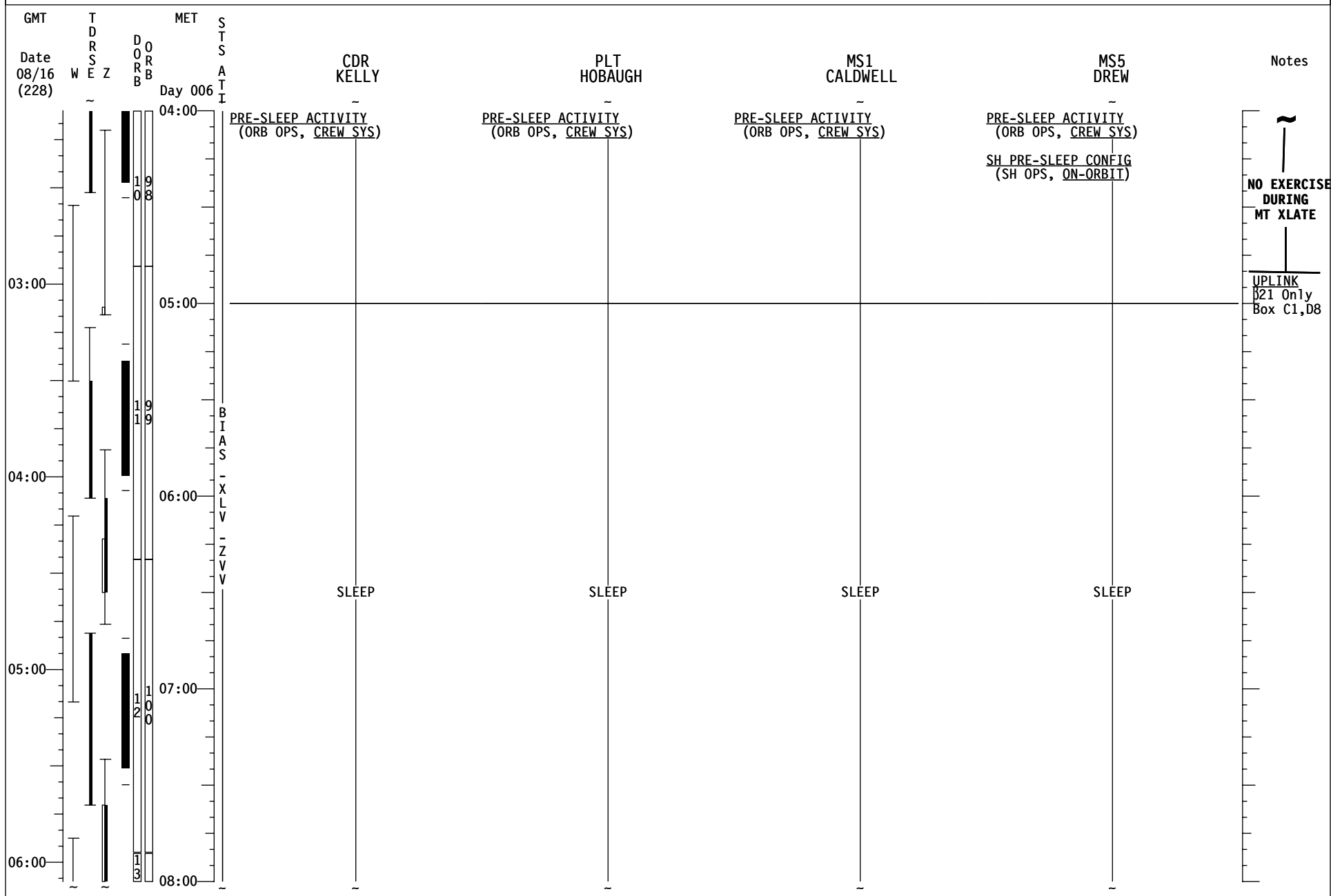
STS-118 FD07

GMT	TDRSEZ	MET	SSTS	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	MS5 DREW	Notes
Date 08/15 (227)	W E Z	Day 006	Day 006					
				<u>PUBLIC AFFAIRS EVENT</u> <u>EDUCATIONAL EVENT</u> KU AVAIL: 00:00-00:20			<u>PUBLIC AFFAIRS EVENT</u> <u>EDUCATIONAL EVENT</u> KU AVAIL: 00:00-00:20	
				<u>WCS FILTER CHECK</u> [A]	<u>TRANSFER</u> Ref. Transfer List & MSG XXX	<u>TRANSFER</u> Ref. Transfer List & MSG XXX		
				[A] <u>WCS CRADLE - AUTO INHIBIT</u> Inspect hose block filter, change if req'd WCS CRADLE - AUTO			<u>TRANSFER</u> Ref. Transfer List & MSG XXX	
23:00				<u>EVA PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, <u>TIMELINES</u>)	<u>CCM-A STATUS CK</u> (PL OPS, <u>CCM-A</u>) <u>EVA PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, <u>TIMELINES</u>)	L17 Check MCIU filter screen <u>EVA PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, <u>TIMELINES</u>)	<u>EVA PROCEDURE REVIEW</u> REF: <u>EVA 3 BRIEFING CARD</u> (EVA, <u>TIMELINES</u>)	
				[B] I A S X L <u>PMC:NETMEETING VID CONF</u> (ORB OPS, <u>PGSC</u>) Omit VLHS item in Step 1, Omit Step 3 Use A/G for audio & KFX PGSC		<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, <u>CREW SYS</u>)	DAILY STS/ISS CREW TRANSFER TAGUP	OCA-PMC
				Z <u>PRE-SLEEP ACTIVITY</u> (ORB OPS, <u>CREW SYS</u>)	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, <u>CREW SYS</u>)		<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, <u>CREW SYS</u>)	
							<u>SH PRE-SLEEP CONFIG</u> (SH OPS, <u>ON-ORBIT</u>)	
01:00								<u>UPLINK</u> β21 Only Box D3
								NO EXERCISE DURING MT XLATE
02:00								
04:00								

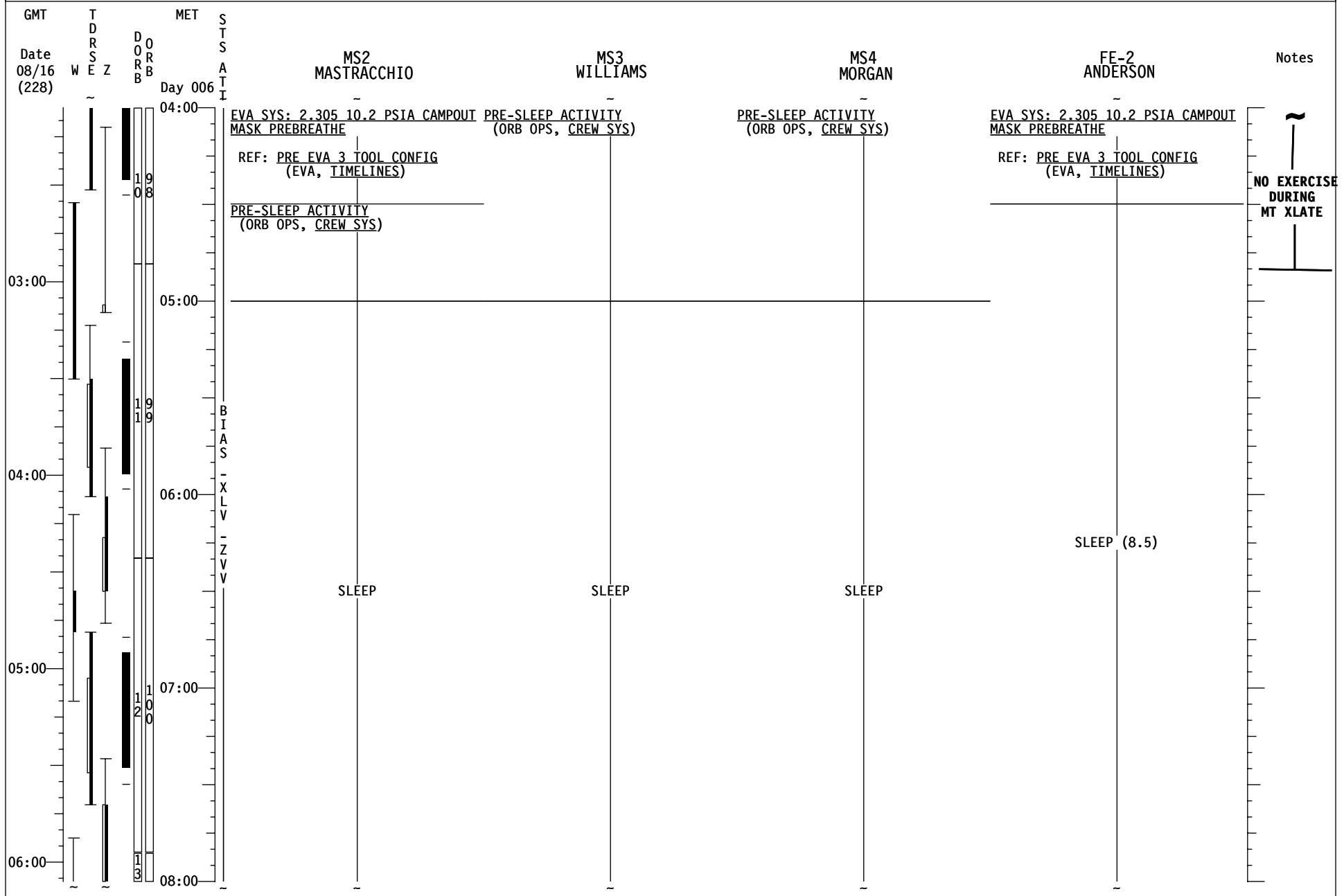
STS-118 FD07



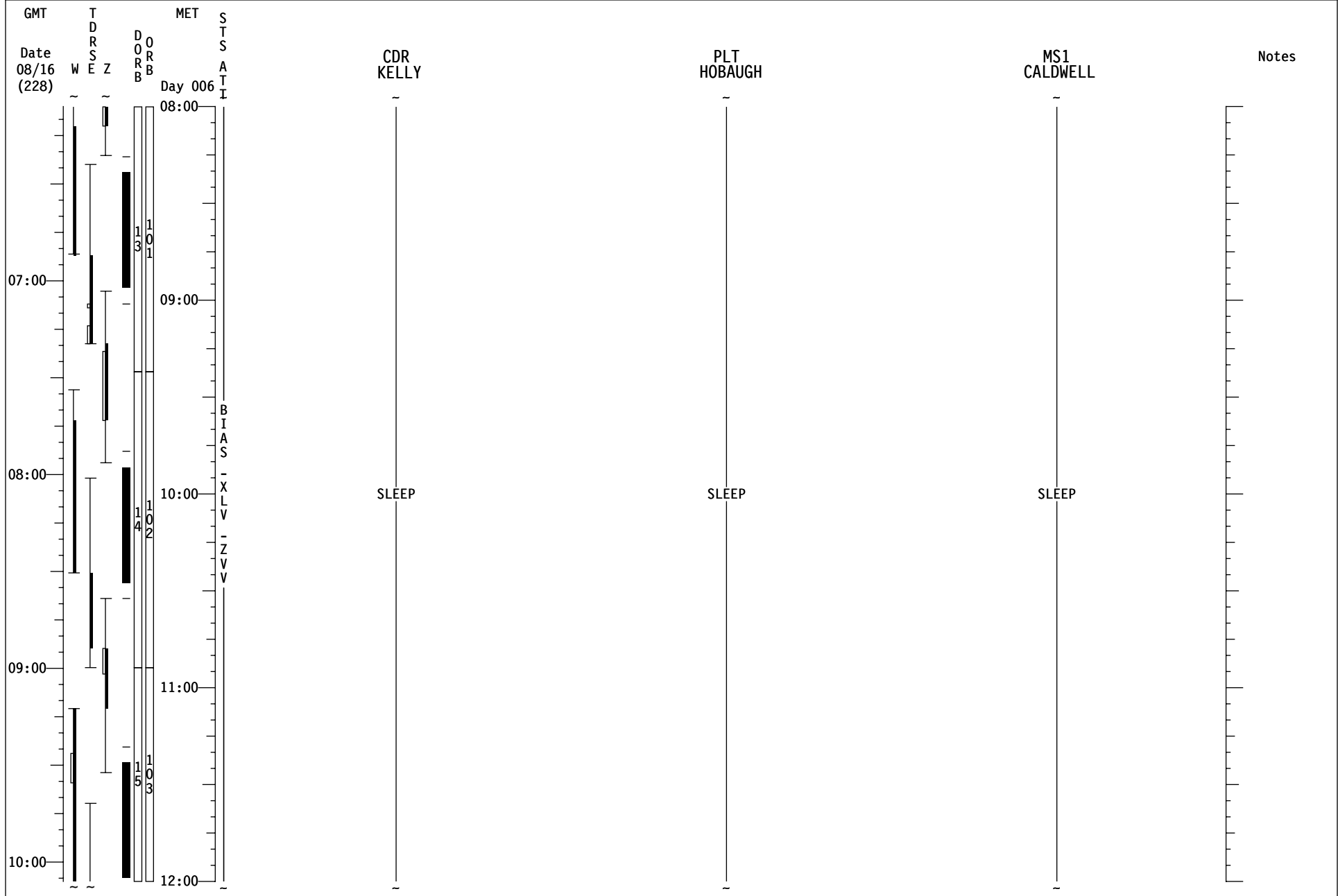
STS-118 FD07



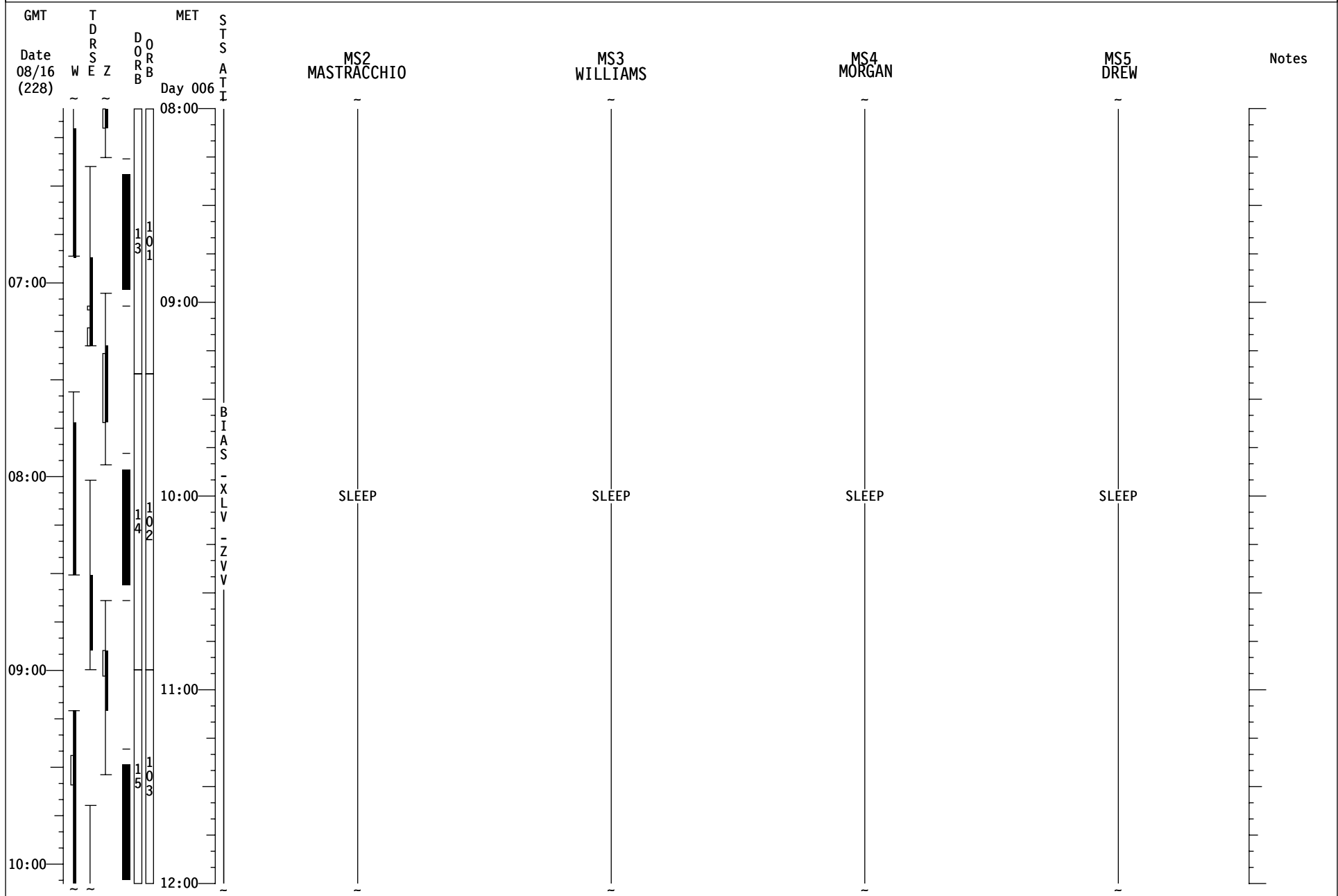
STS-118 FD07



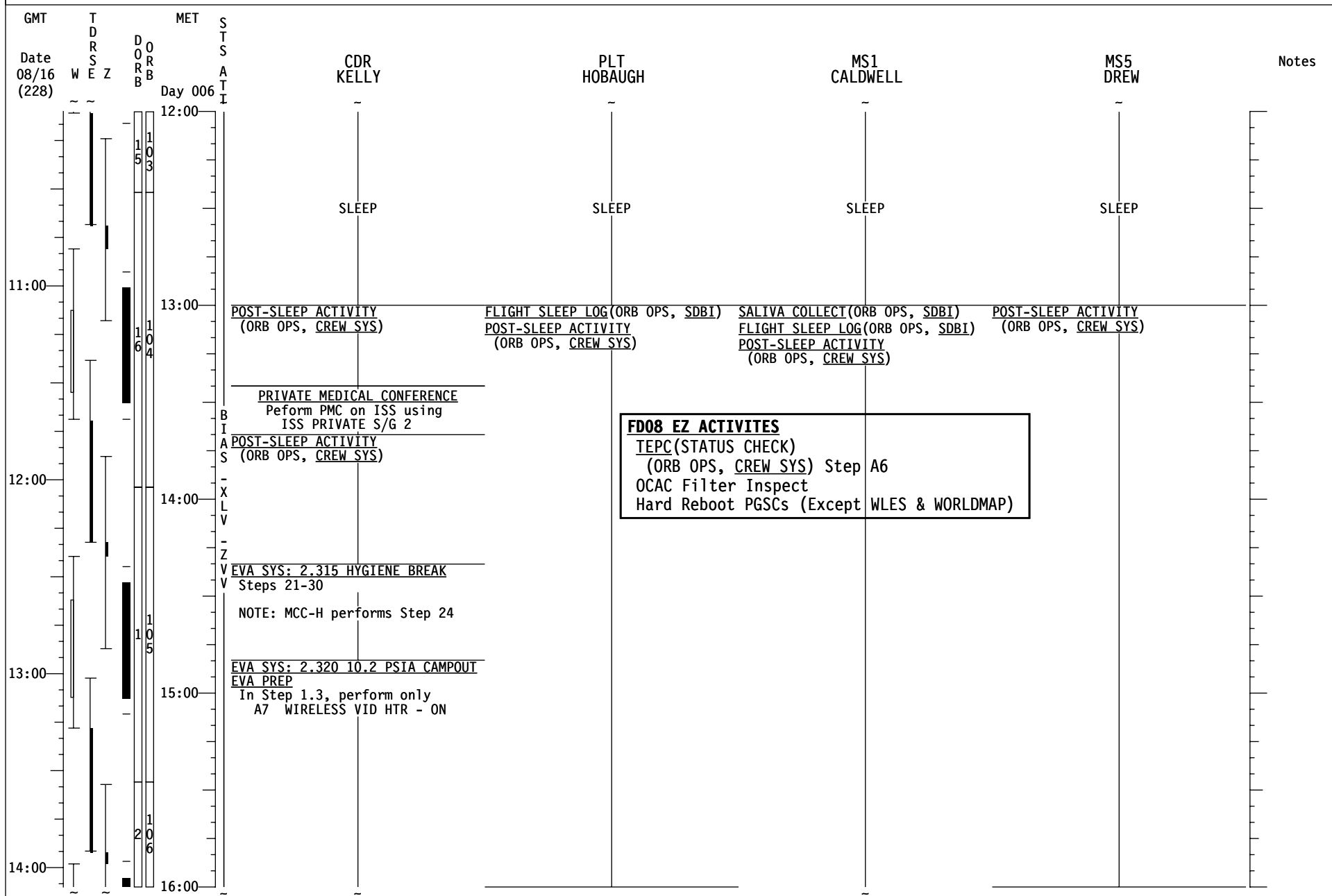
STS-118 FD07



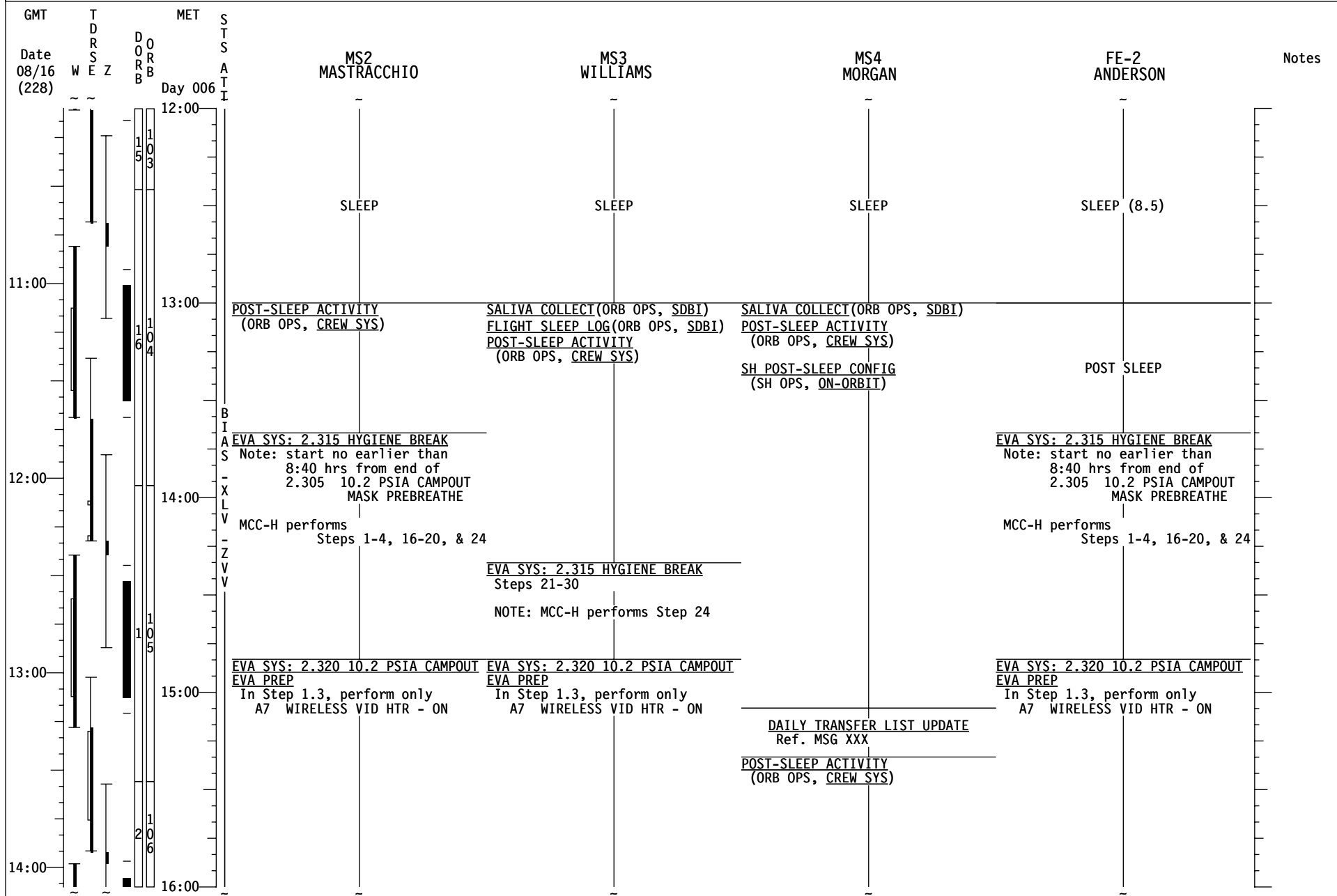
STS-118 FD07



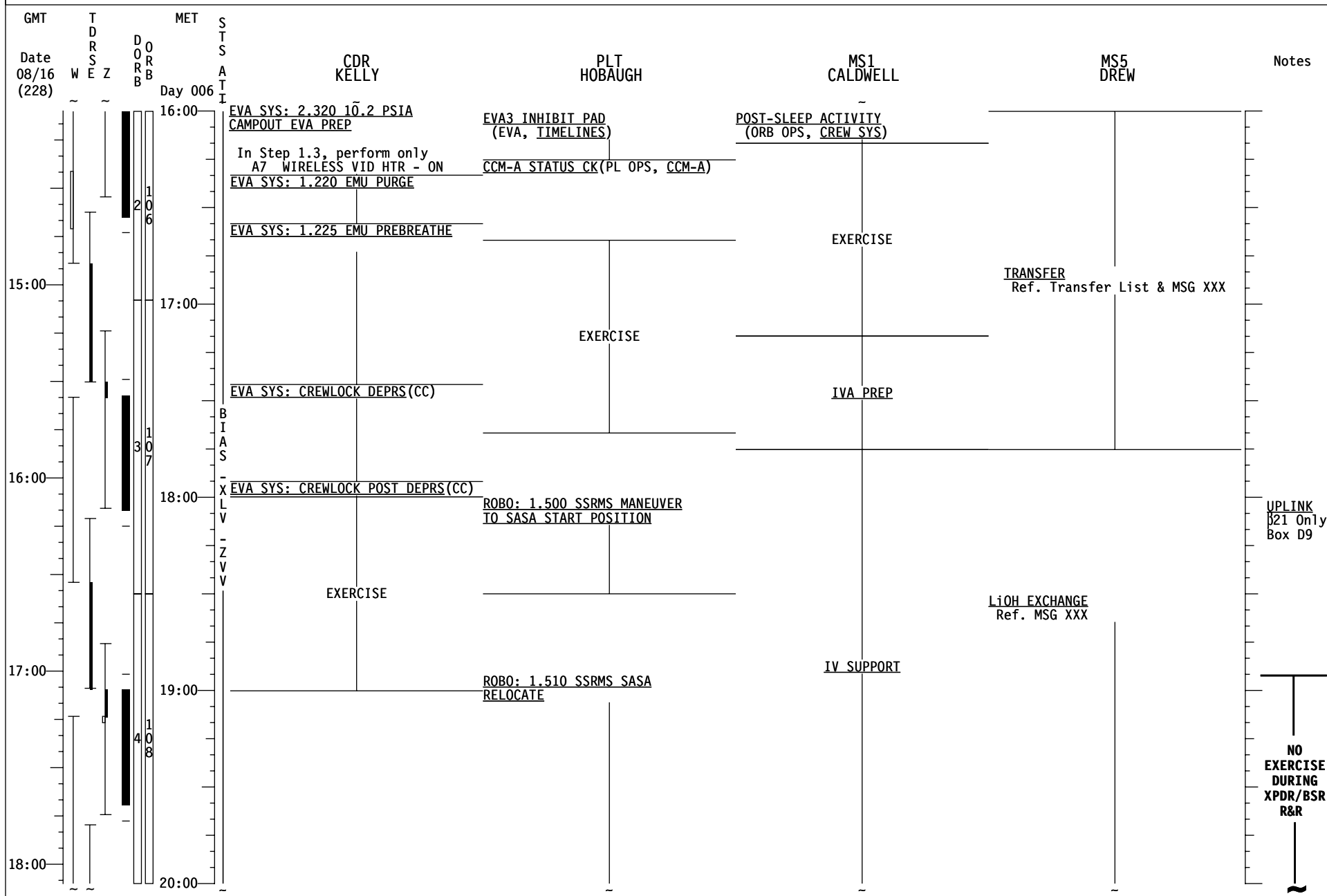
STS-118 FD08



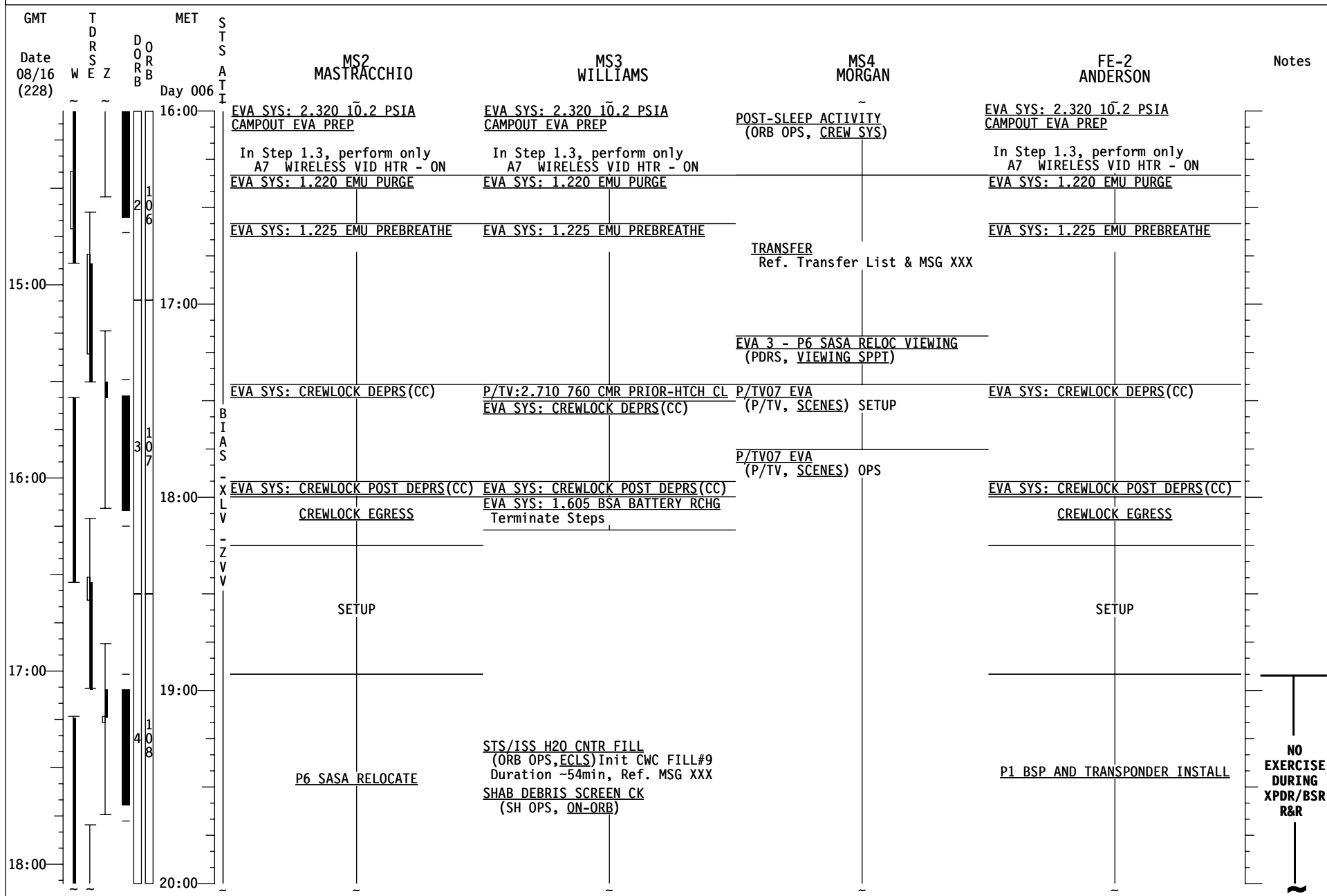
STS-118 FD08



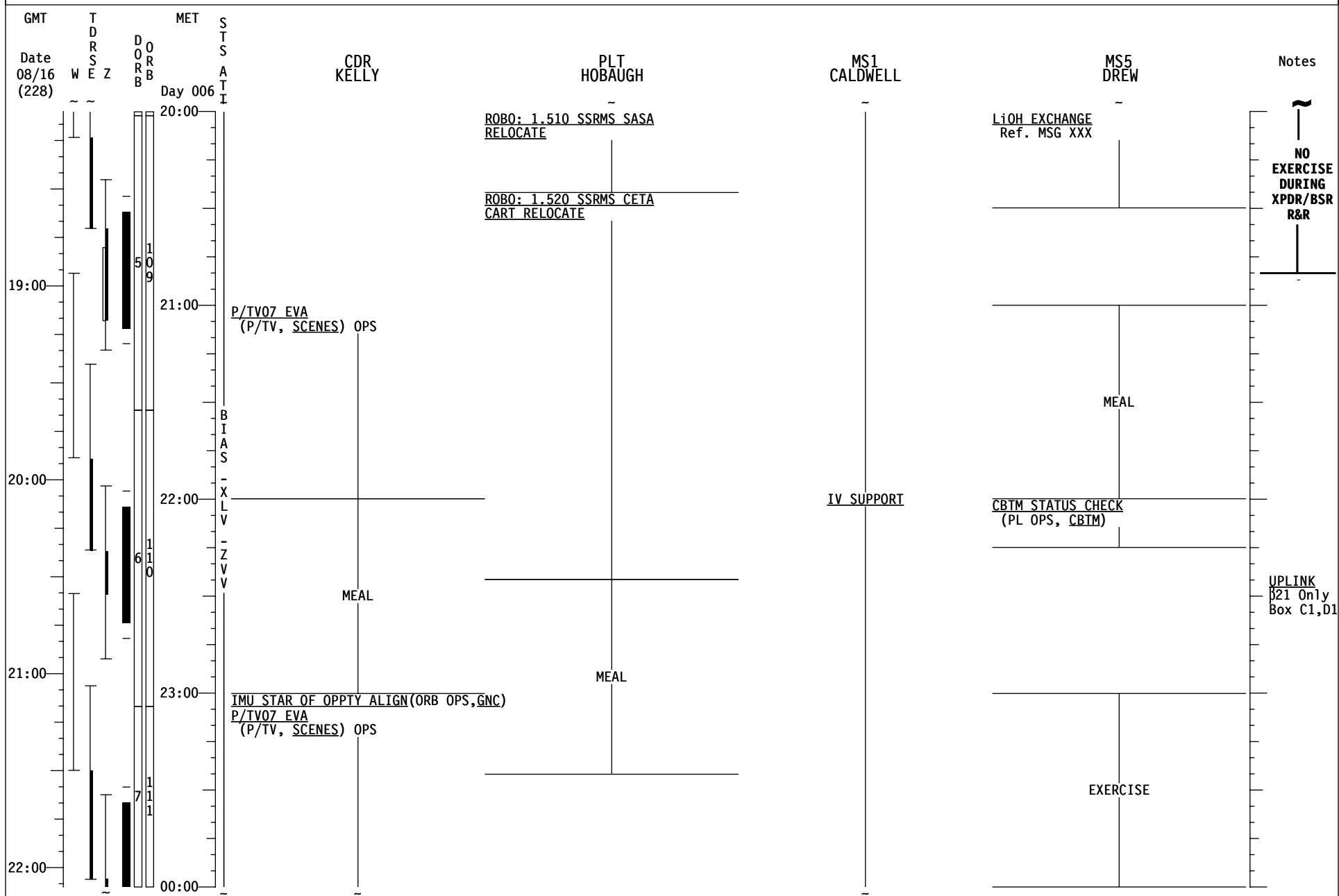
STS-118 FD08



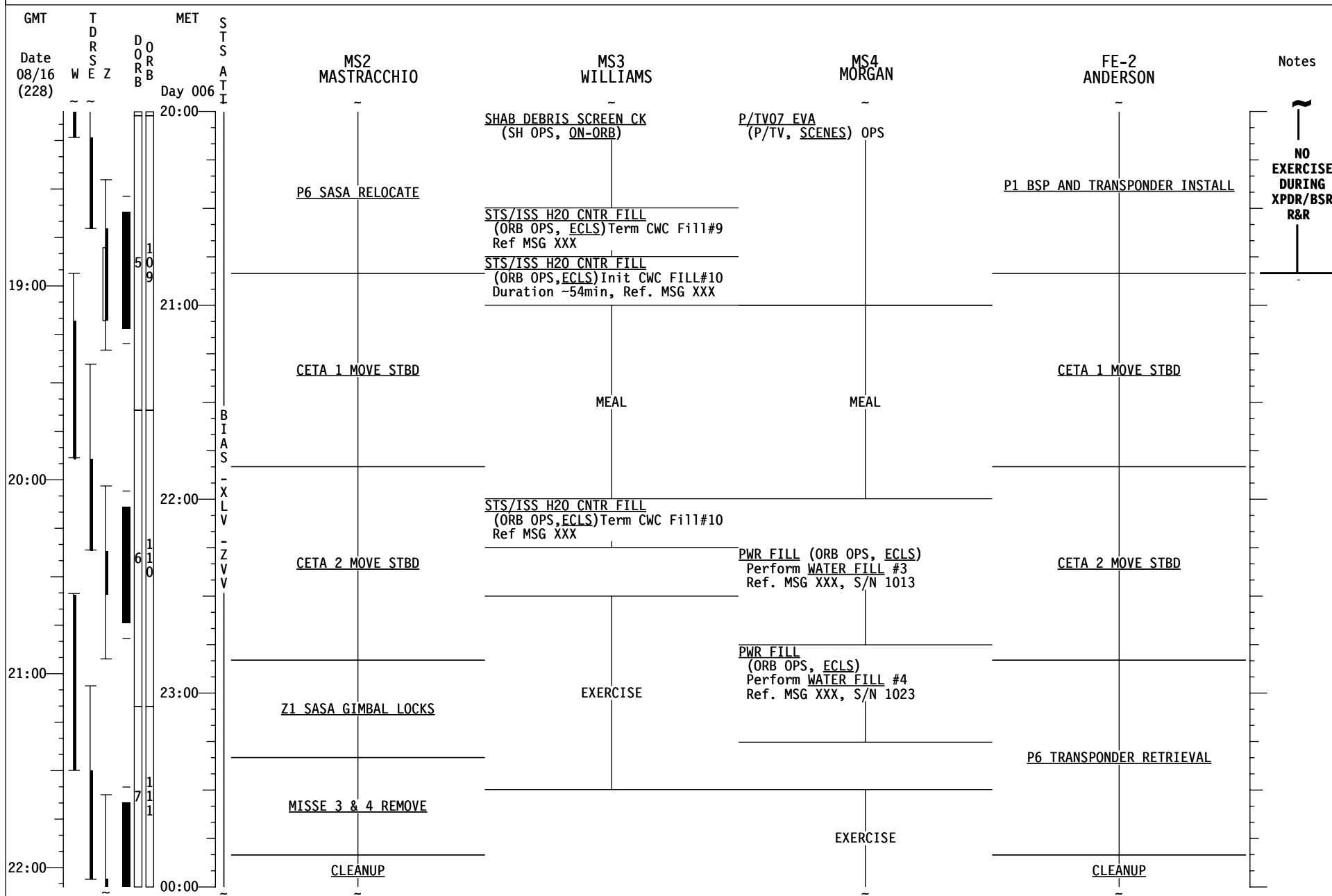
STS-118 FD08



STS-118 FD08



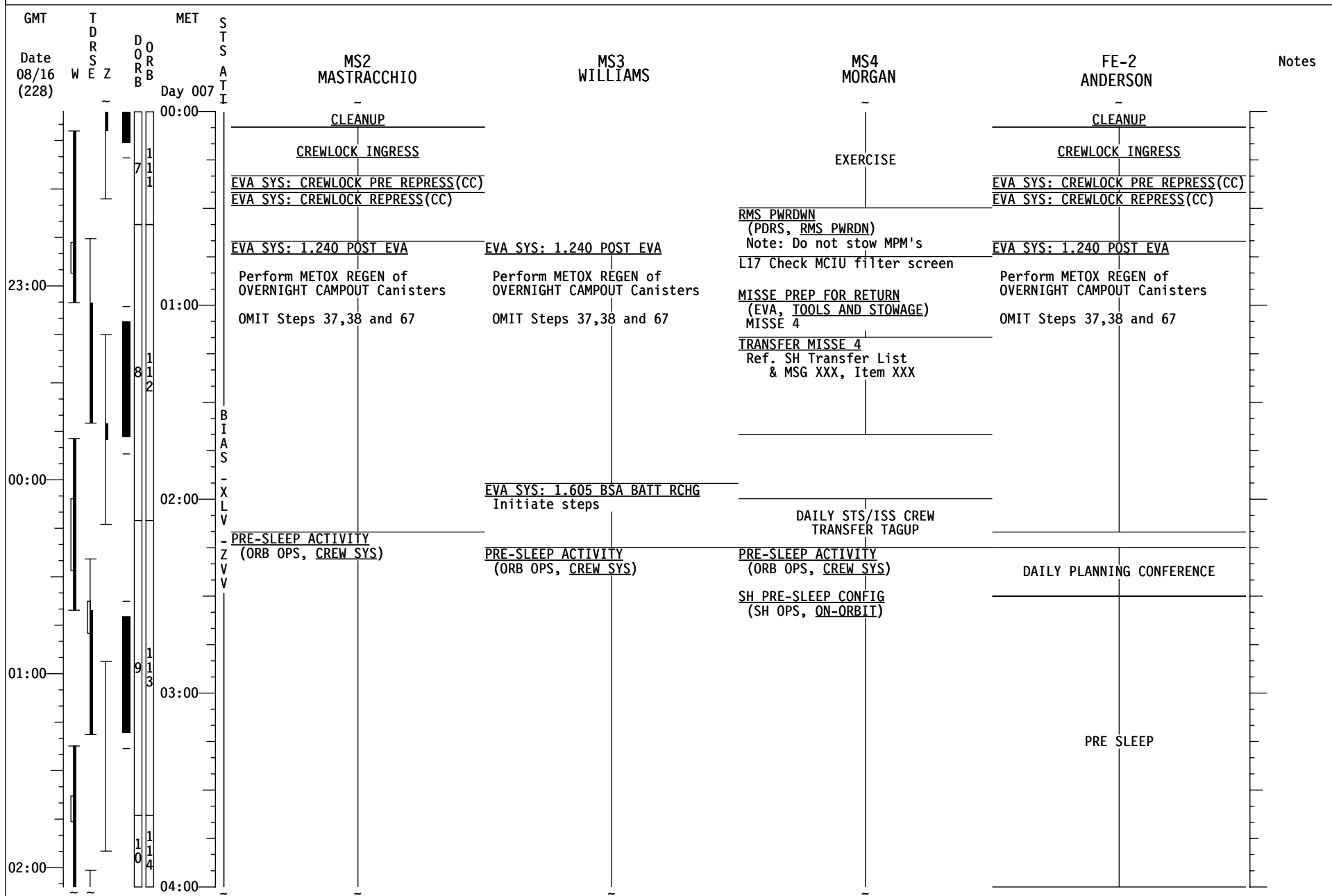
STS-118 FD08



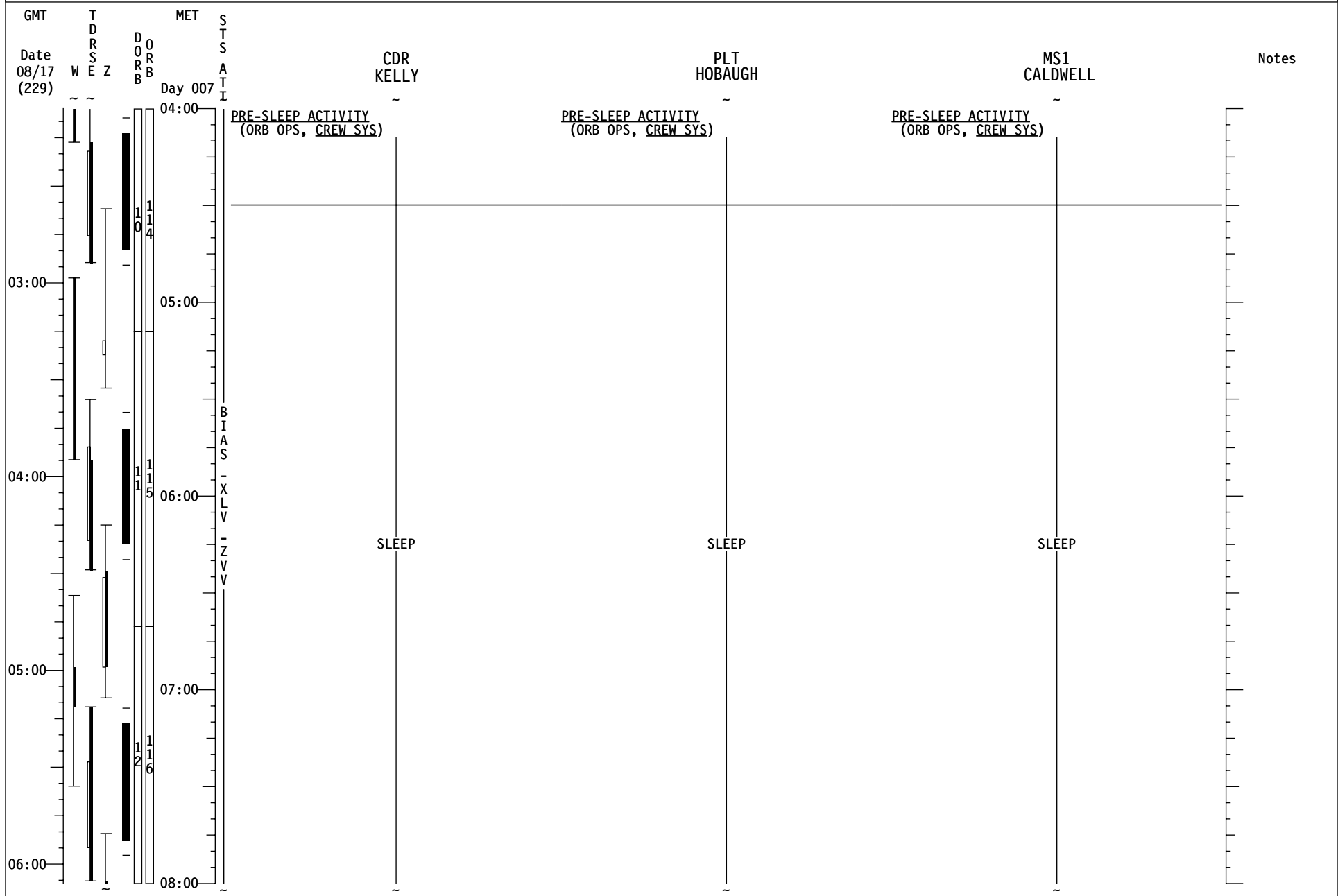
STS-118 FD08

GMT	T D R S E Z	MET	S T S A T I	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	MS5 DREW	Notes
08/16 (228)	W E Z	Day 007	00:00					
			00:00	P/TV07 EVA (P/TV, SCENES) OPS		IV SUPPORT		
				EVA SYS: CREWLOCK PRE REPRESS(CC) EVA SYS: CREWLOCK REPRESS(CC)			PWR TRANSFER Transfer 2 PWR to ISS	
23:00			01:00	EVA SYS: 1.240 POST EVA Perform METOX REGEN of OVERNIGHT CAMPOUT Canisters OMIT Steps 37,38 and 67		MISSE PREP FOR RETURN (EVA, TOOLS AND STOWAGE) MISSE 3		
				WCS COMPACTOR OPS (CUE CARD, DUAL-VANE) TV (ILLUMINATOR OPS) (P/TV, CUE CARDS) ILLUMINATORS ON - A,D CCM-A STATUS CK(PL OPS, CCM-A) CWC TRANSFER Transfer 2 CWC bags to ISS		TRANSFER MISSE 3 Ref. SH Transfer List & MSG XXX, Item XXX	JNT OPS: 3.103 NITROGEN TRANSFER TERM	
00:00			02:00			PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
							DAILY STS/ISS CREW TRANSFER TAGUP	
				Z PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			DAILY TRANSFER BRIEFING	
01:00			03:00	PRIVATE MEDICAL CONFERENCE Perform via A/G2			PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)				
02:00			04:00					

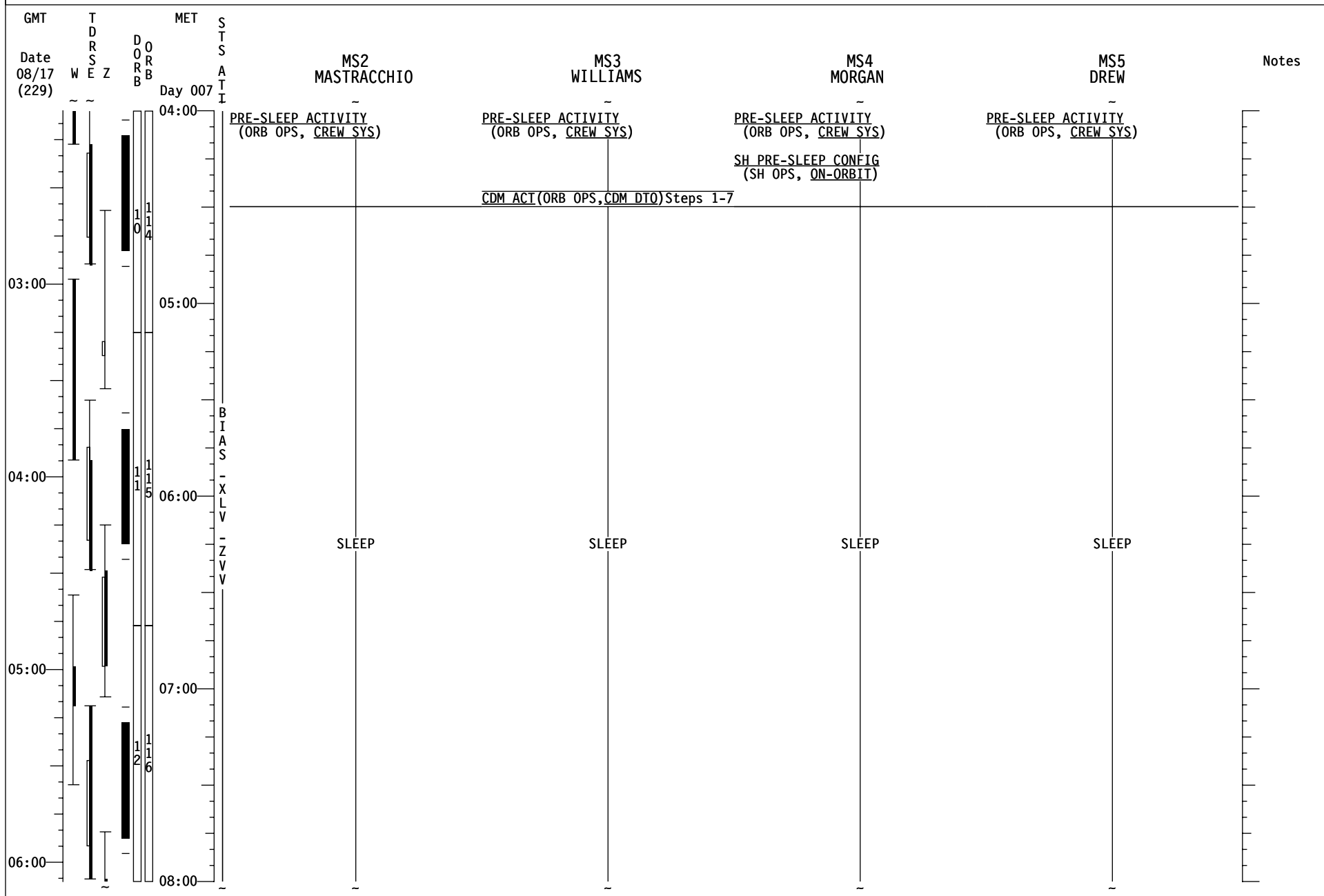
STS-118 FD08



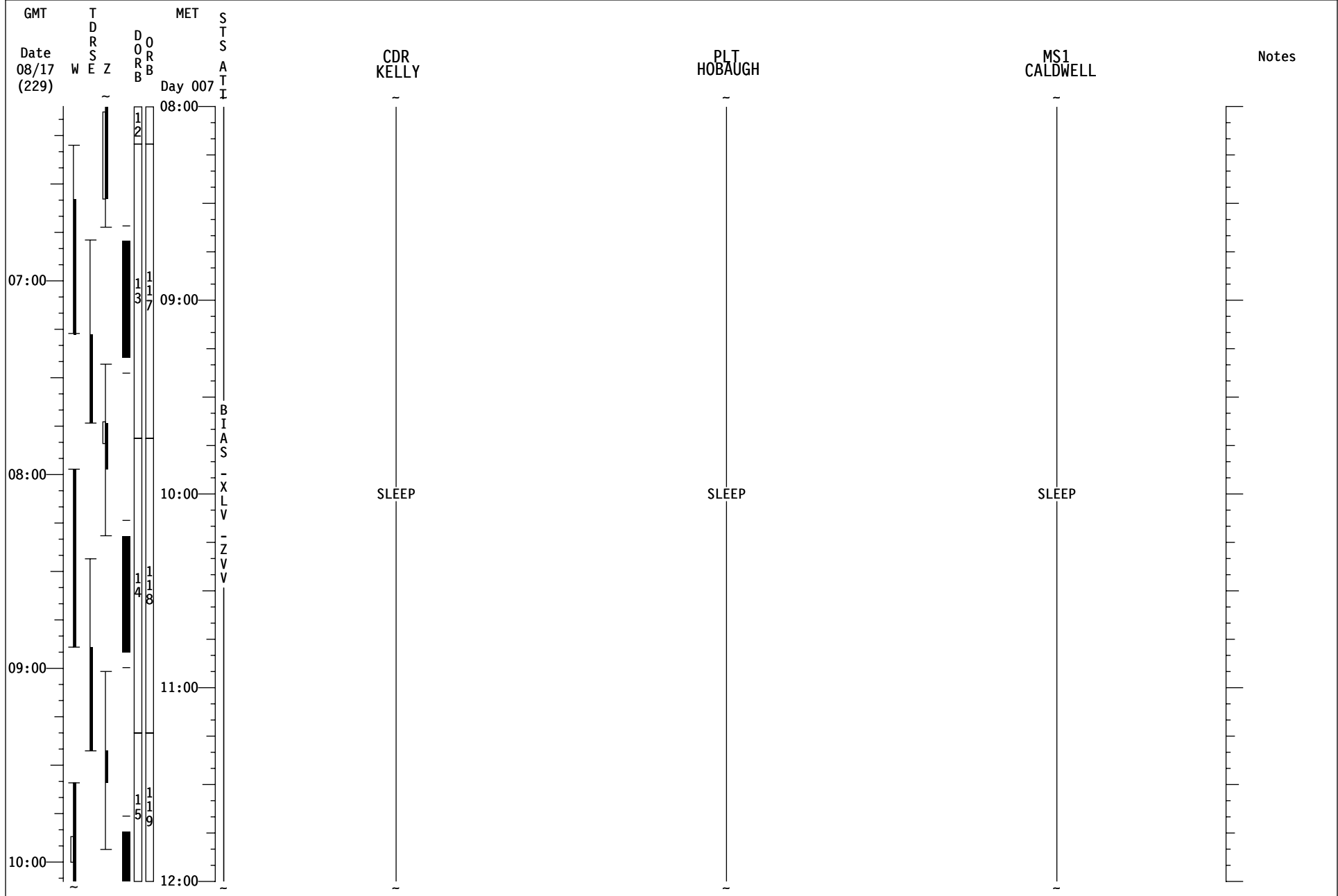
STS-118 FD08



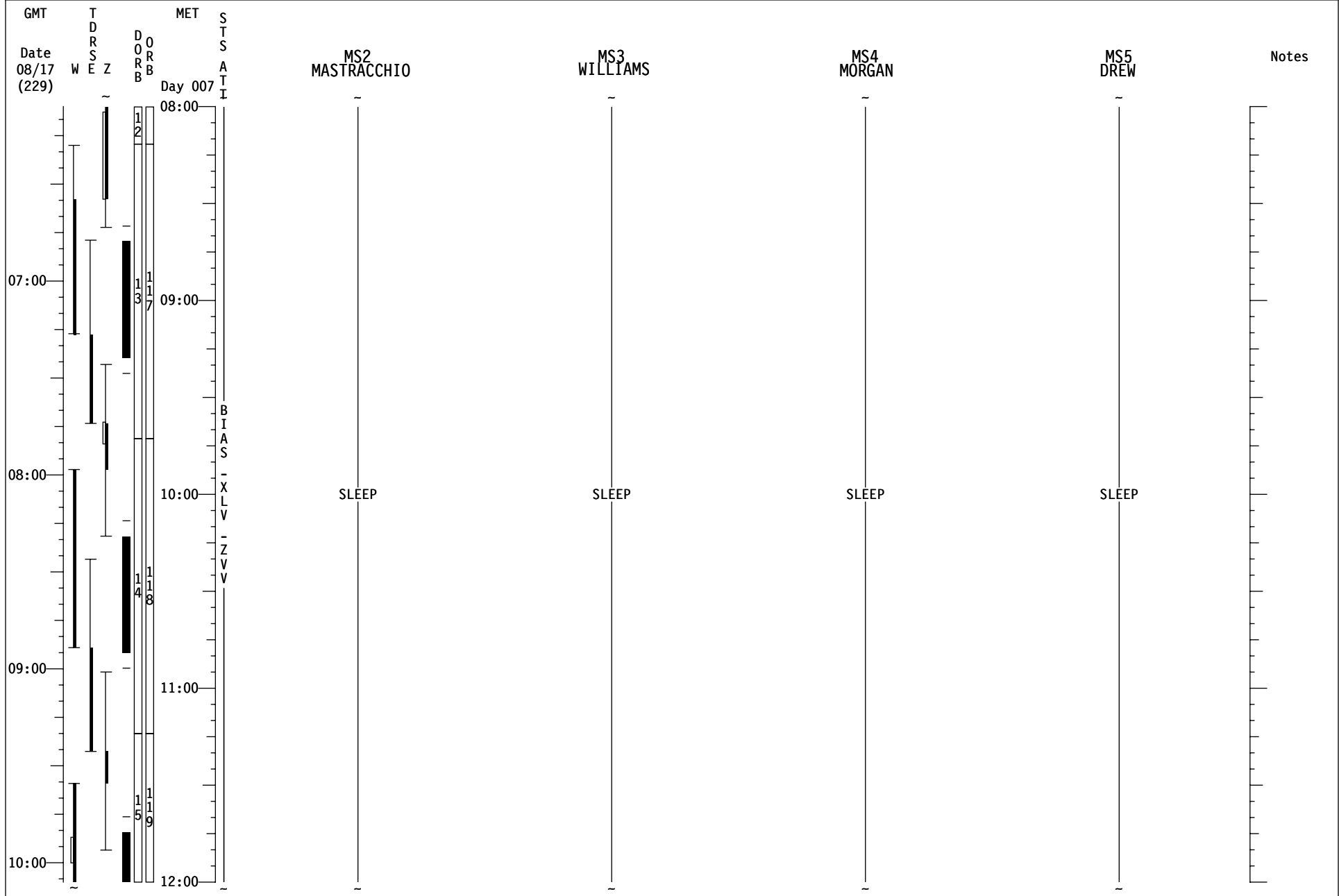
STS-118 FD08



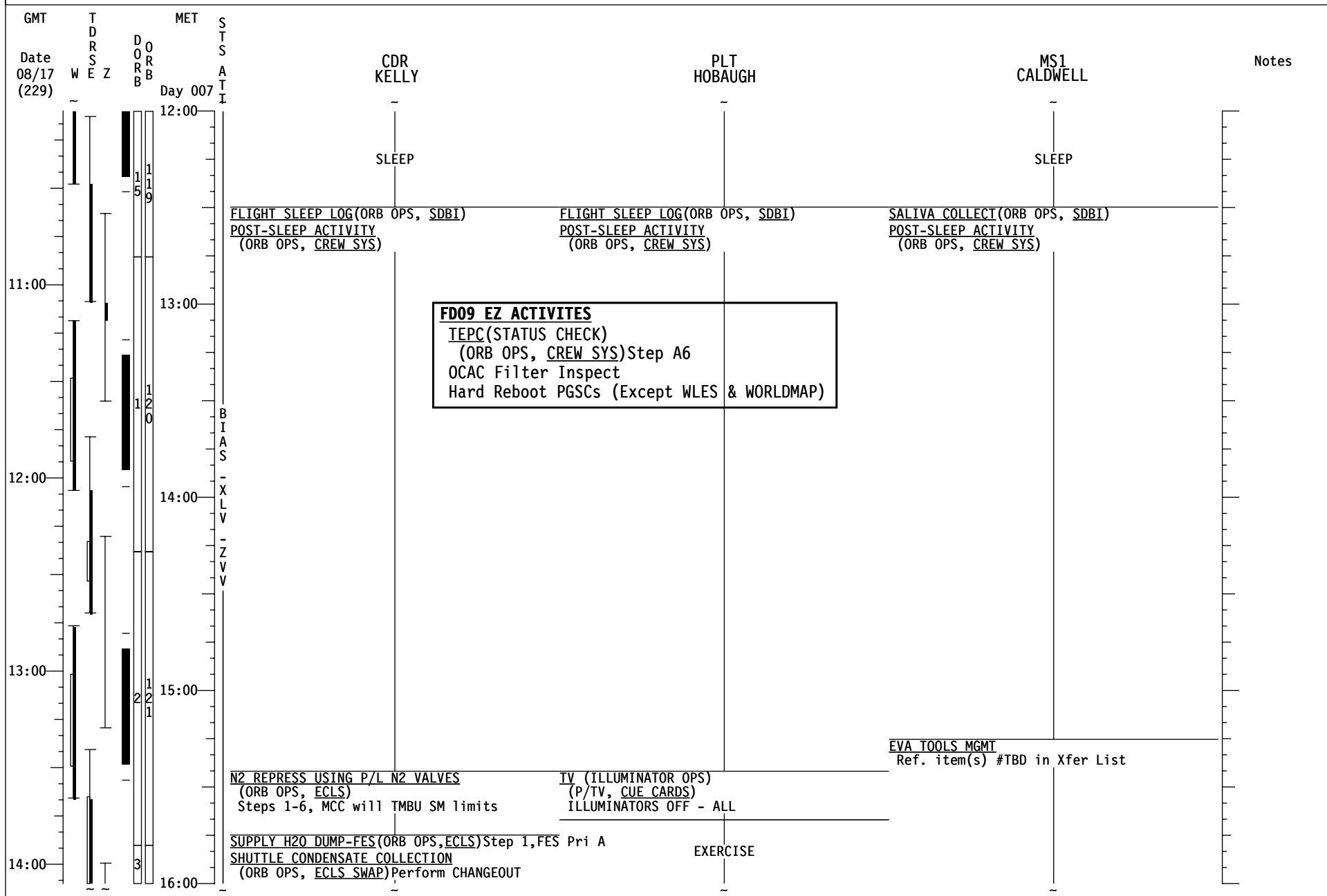
STS-118 FD08



STS-118 FD08



STS-118 FD09



STS-118 FD09

GMT	T D R S E Z	MET	S T S A T I	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	Notes
08/17 (229)	W E Z	Day 007					
16:00				SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS SWAP) Perform CHANGEOUT		EVA TOOLS MGMT Ref. item(s) #TBD in Xfer List	
				JNT OPS: 3.122 P/B USING SHUTTLE O2 TEARDOWN	EXERCISE	PWR FILL (ORB OPS, ECLS) Perform WATER FILL #5 Ref. MSG XXX, S/N 1018	
15:00					TRANSFER Ref. Transfer List & MSG XXX		
					PWR TRANSFER Transfer 1 PWR to ISS	EXERCISE	
				NOMINAL H2O CONFIG (ORB OPS, ECLS)	PRLA CLOSE (ORB OPS, PRLA)		
16:00				CREW PHOTO	CREW PHOTO	CREW PHOTO	
				CREW CONFERENCE ISS KU: TBD	CREW CONFERENCE ISS KU: TBD	CREW CONFERENCE ISS KU: TBD	
17:00				OFF DUTY	OFF DUTY	OFF DUTY	
18:00							

STS-118 FD09

GMT	T D R S E Z	MET	S T S A T I	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/17 (229)	W E Z	Day 007						
				<u>EVA TOOLS MGMT</u> Ref. item(s) #TBD in Xfer List	<u>EMU PREP FOR TRANSFER TO SHUTTLE</u> (EVA, A/L CONFIG)		<u>EXERCISE</u>	
				<u>EXERCISE</u>		<u>TRANSFER</u> Ref. Transfer List & MSG XXX	<u>TRANSFER</u> Ref. Transfer List & MSG XXX	
15:00				<u>EMU TRANSFER TO SHUTTLE</u> (EVA, A/L CONFIG)	<u>EMU TRANSFER TO SHUTTLE</u> (EVA, A/L CONFIG)	<u>DAILY STS/ISS CREW TRANSFER TAGUP</u>	<u>DAILY STS/ISS CREW TRANSFER TAGUP</u>	
						<u>DAILY TRANSFER BRIEFING</u>	<u>P/TV05 ISS INTERNAL OPS (P/TV, SCENES) PAO EVENT SETUP, & Still Camera</u>	
16:00				<u>CREW PHOTO</u>	<u>CREW PHOTO</u>	<u>CREW PHOTO</u>	<u>CREW PHOTO</u>	
				<u>CREW CONFERENCE</u> ISS KU: TBD	<u>CREW CONFERENCE</u> ISS KU: TBD	<u>CREW CONFERENCE</u> ISS KU: TBD	<u>CREW CONFERENCE</u> ISS KU: TBD	
17:00				<u>OFF DUTY</u>	<u>OFF DUTY</u>	<u>OFF DUTY</u>	<u>OFF DUTY</u>	
						<u>DISABLE WLES FILE B/U(ORB OPS,WLE SENSORS)</u> <u>PFC:NETMEETING VID CONE(ORB OPS, PGSC)</u> Omit VLHS item- Step 1, Omit Step 3 Use A/G for audio & KFX PGSC		OCA-PFC
						<u>OFF DUTY</u>	<u>PFC:NETMEETING VID CONE(ORB OPS, PGSC)</u> Omit VLHS item- Step 1, Omit Step 3 Use A/G for audio & KFX PGSC	OCA-PFC
18:00							<u>OFF DUTY</u>	

STS-118 FD09

GMT	TDRSEZ	MET	S	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/17 (229)	W E Z	Day 007	ST S A T I					
				MEAL	MEAL	MEAL	MEAL	
19:00					OFF DUTY			
					<u>PFC:NETMEETING VID CONF(ORB OPS, PGSC)</u> Omit VLHS item - Step 1, Omit Step 3 Use A/G for audio & KFX PGSC			OCA-PFC
20:00				OFF DUTY				
					OFF DUTY	OFF DUTY	OFF DUTY	
21:00								
					<u>PFC:NETMEETING VID CONF(ORB OPS, PGSC)</u> Omit VLHS item - Step 1, Omit Step 3 Use A/G for audio & KFX PGSC			OCA-PFC
22:00				OFF DUTY				
						<div style="border: 1px solid black; padding: 2px; display: inline-block;"> A SPACEHAB CC DRAG THRU D/A Stow drag thru video cable string used for SHAB CC view in A17 DTV Bag </div>		
23:00				OFF DUTY				
				<u>EVA SYS: 1.605 BSA BATT RECHRG</u> Terminate Steps	<u>EVA SYS: 1.510 METOX REGEN</u> Terminate steps	<u>SPACEHAB CC DRAG THRU D/A</u> A		
22:00					<u>ENABLE WLES FILE B/U(ORB OPS,WLE SENSORS)</u>		<u>P/TV04 INGRESS/EGRESS</u> (P/TV, SCENES) SETUP	
00:00								

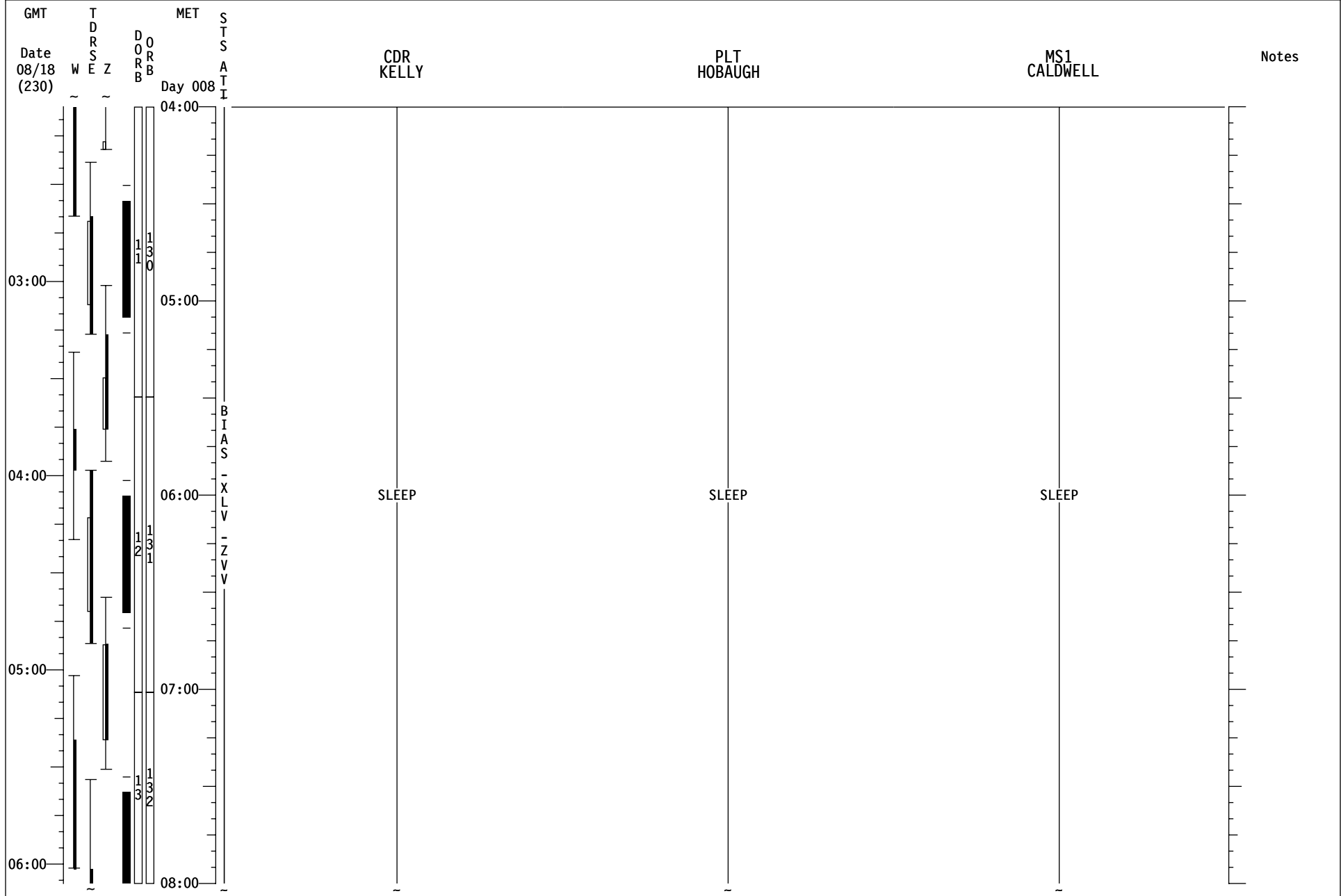
STS-118 FD09

GMT	T D R S E Z	MET	S T S	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	Notes
Date 08/17 (229)	W E Z	Day 008	A T I				
				FAREWELL	FAREWELL	FAREWELL	
				SUPPLY H2O DUMP-FES(ORB OPS,ECLS) Step 2. FES Pri A is req'd. JNT OPS: 3.110 H/O ATT CNTL CMG TA TO ORBITER	JNT OPS: 4.103 DUCT REMOVAL AND HATCH CLOSE (BYPASS CONFIG) When MCC completed Steps 1-2, perform Steps 3-6 & 8-10		
23:00				EXERCISE	RNDZ TOOLS CHECKOUT (RNDZ, RNDZ TOOLS)	L17 Check MCIU filter screen RNDZ TOOLS CHECKOUT (RNDZ, RNDZ TOOLS)	
00:00				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	JNT OPS: 3.111 H/O ATT CNTL ORBITER TO CMG TA PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				HUM SEP for H2O Accumulation			
				PRIVATE MEDICAL CONFERENCE Perform via A/G2			
01:00				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
02:00							
03:00							
04:00							

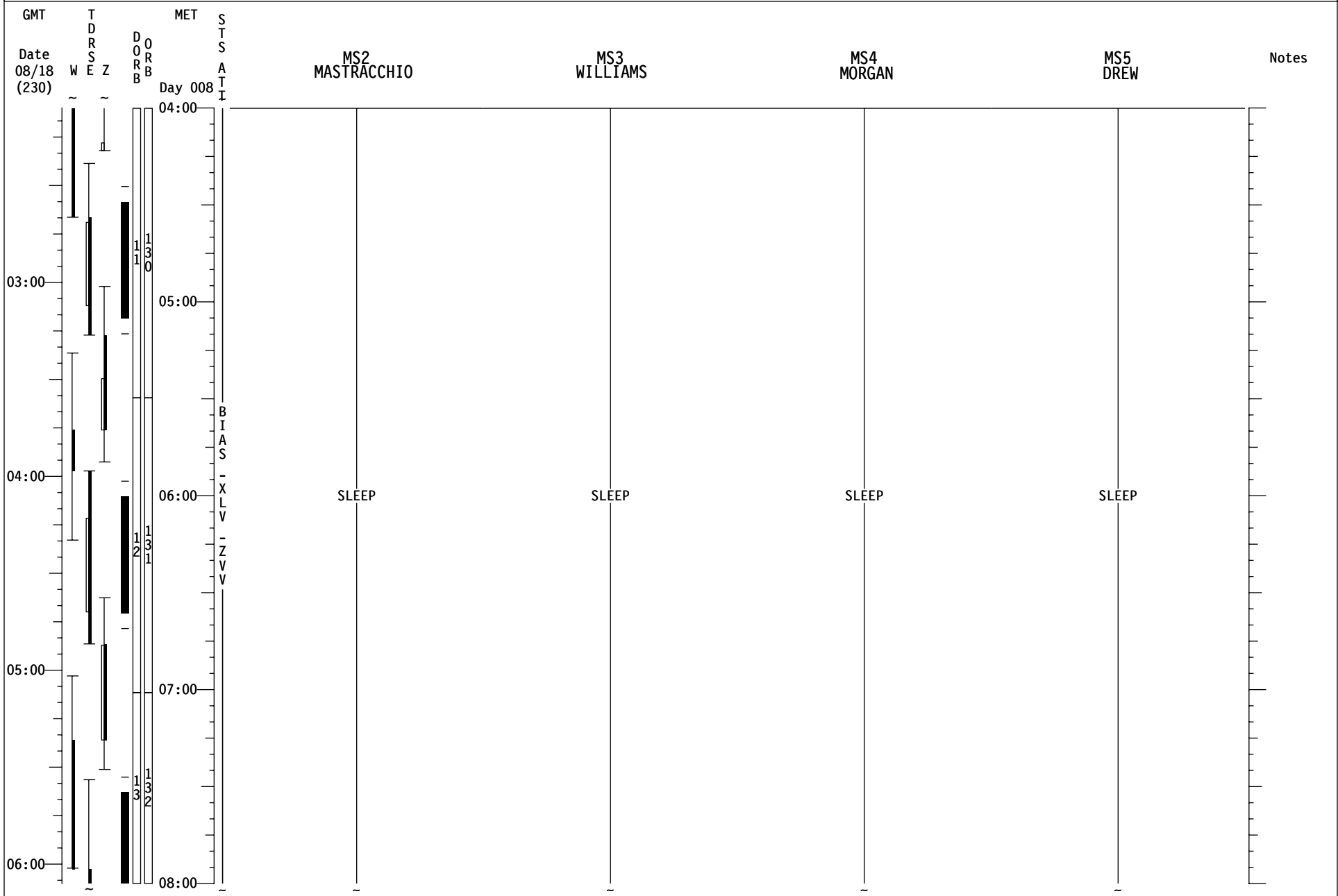
STS-118 FD09

GMT	T D R S E Z	MET	S T S	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/17 (229)	W E Z	Day 008	A T I					
				FAREWELL	FAREWELL	FAREWELL	FAREWELL	
				<u>JNT OPS: 4.103 DUCT REMOVAL AND HATCH CLOSE (BYPASS CONFIG)</u> When MCC completed Steps 1-2, perform Steps 3-6 & 8-10	<u>CBTM STATUS CHECK</u> (PL OPS, <u>CBTM</u>)			
				<u>JNT OPS: 4.104 ODS VEST/PMA DPRS AND HATCH LEAK CHECK</u>	<u>JNT OPS: 4.104 ODS VEST/PMA DPRS AND HATCH LEAK CHECK</u>	EXERCISE	<u>FORMALDEHYDE MONITOR KIT</u> (ORB OPS, CREW SYS) Perform Steps 1-6	
23:00							<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
							<u>SH PRE-SLEEP CONFIG</u> (SH OPS, ON-ORBIT)	
00:00				<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)			
01:00								
02:00								
03:00								
04:00								

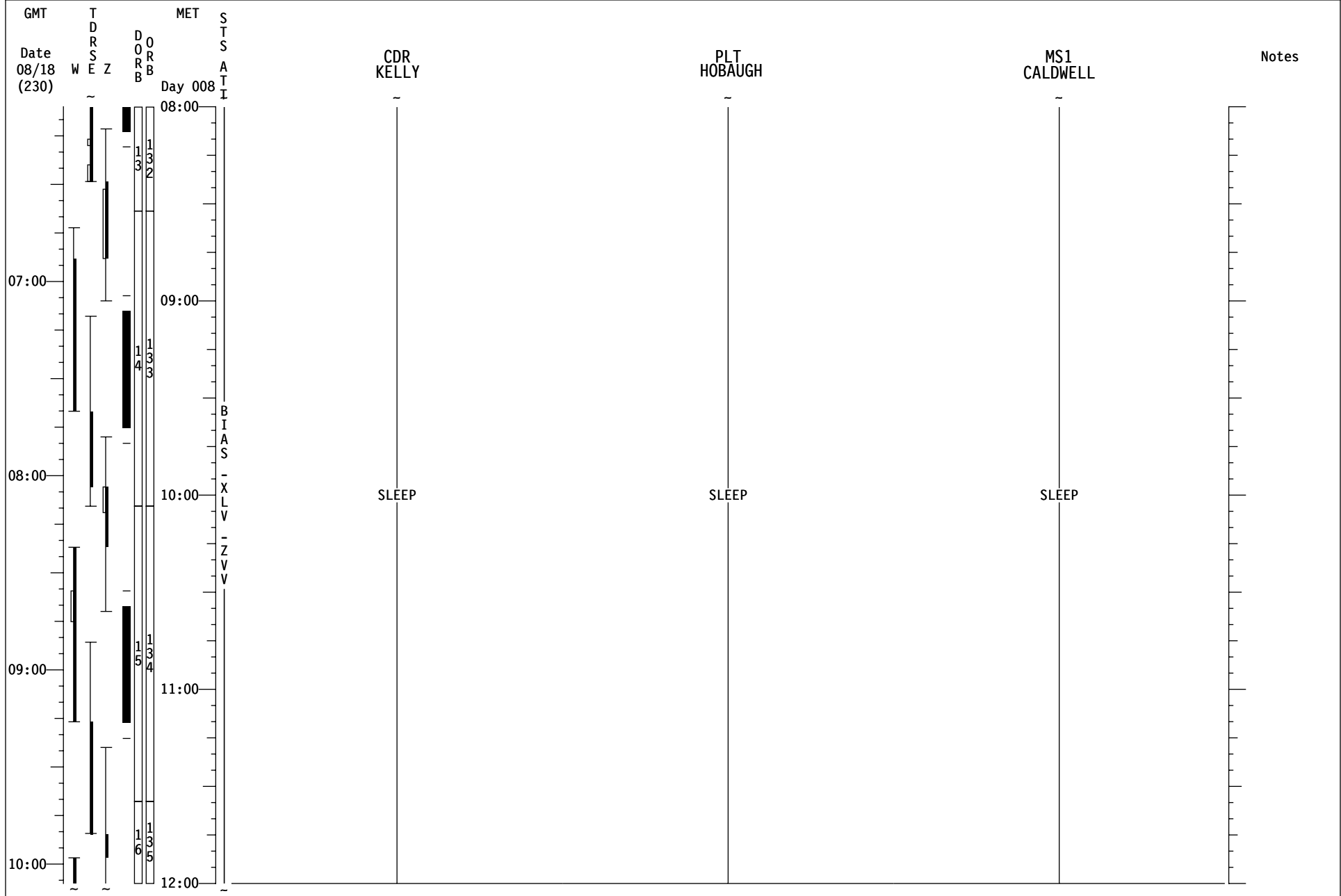
STS-118 FD09



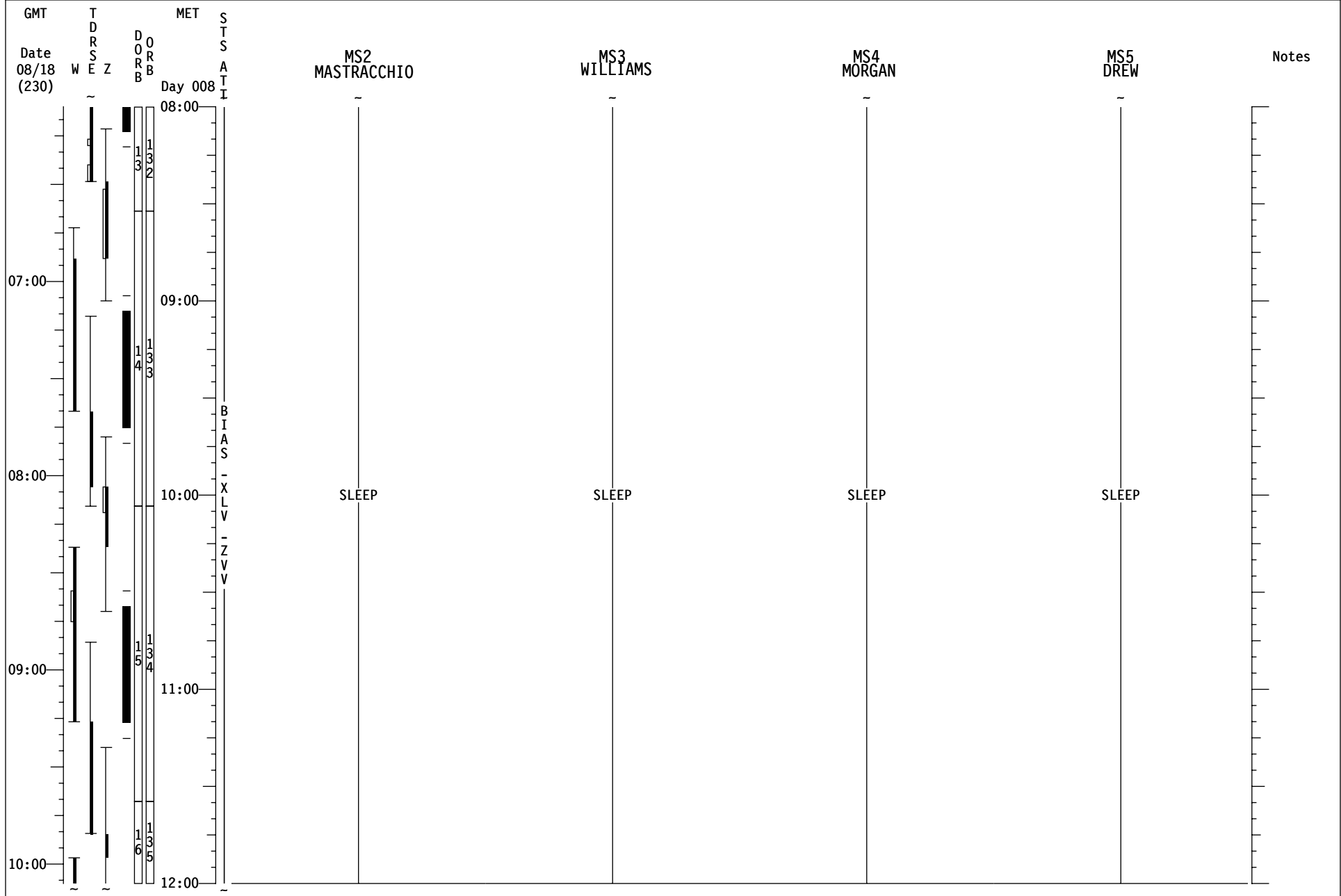
STS-118 FD 09



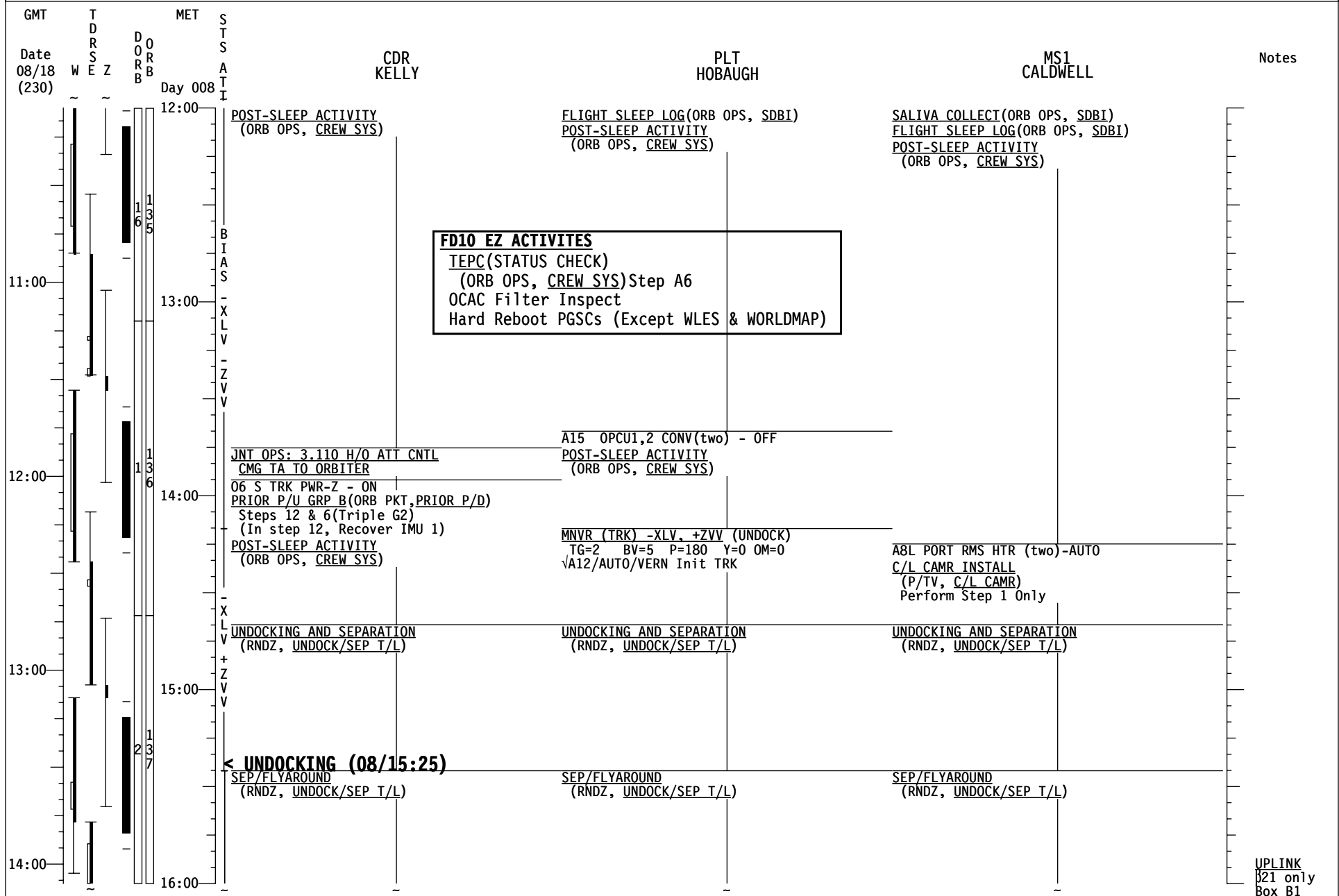
STS-118 FD 09



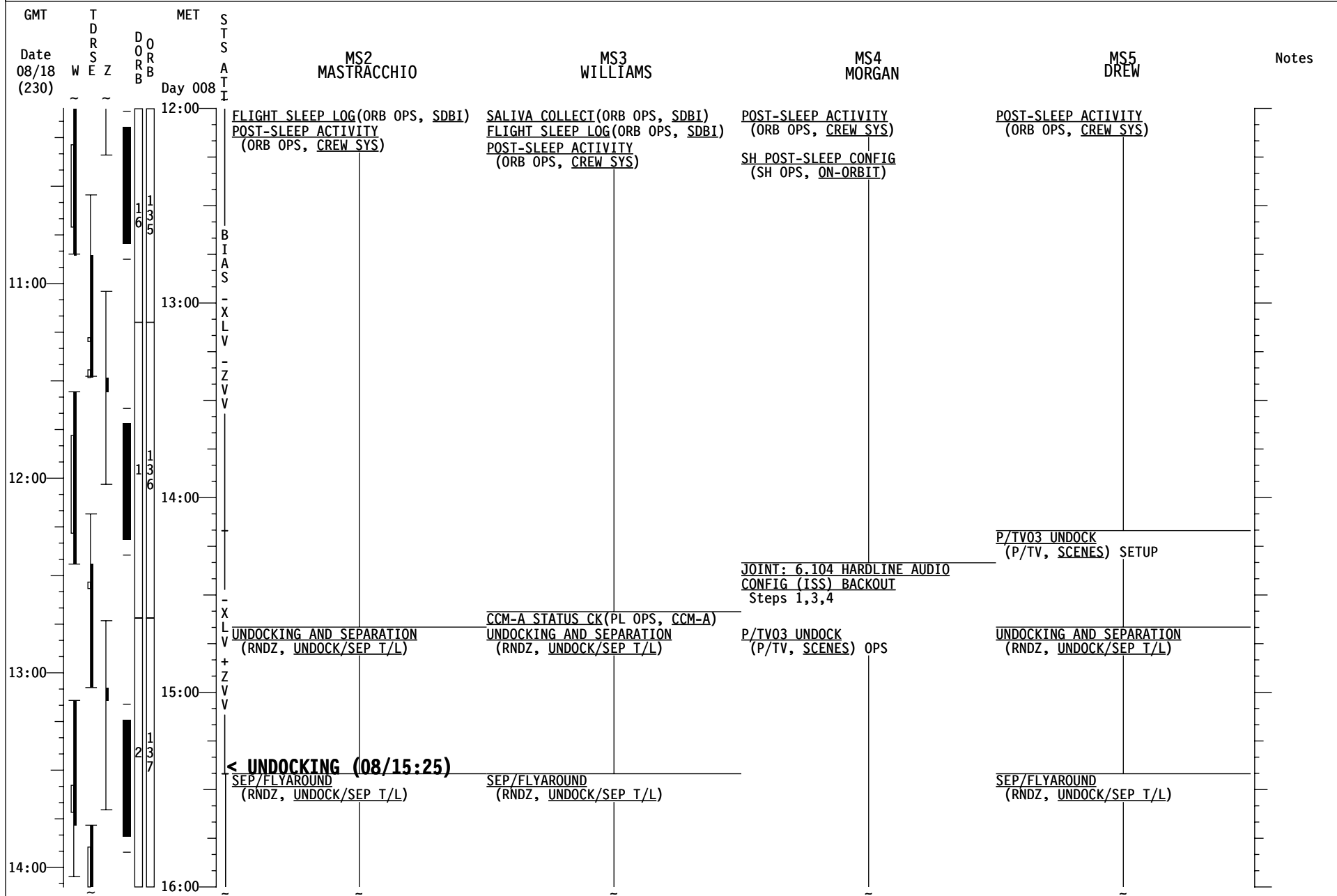
STS-118 FD 09



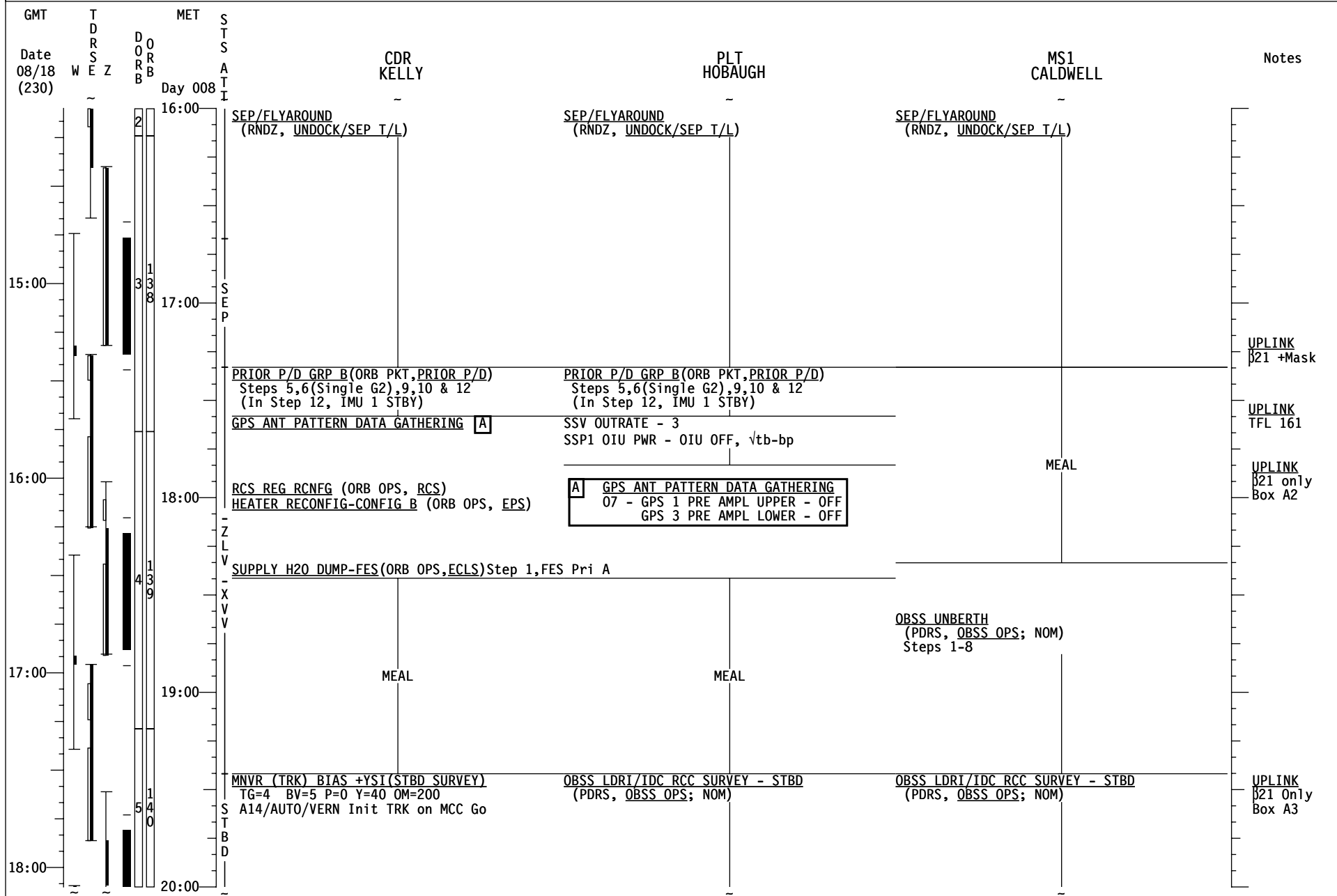
STS-118 FD 10



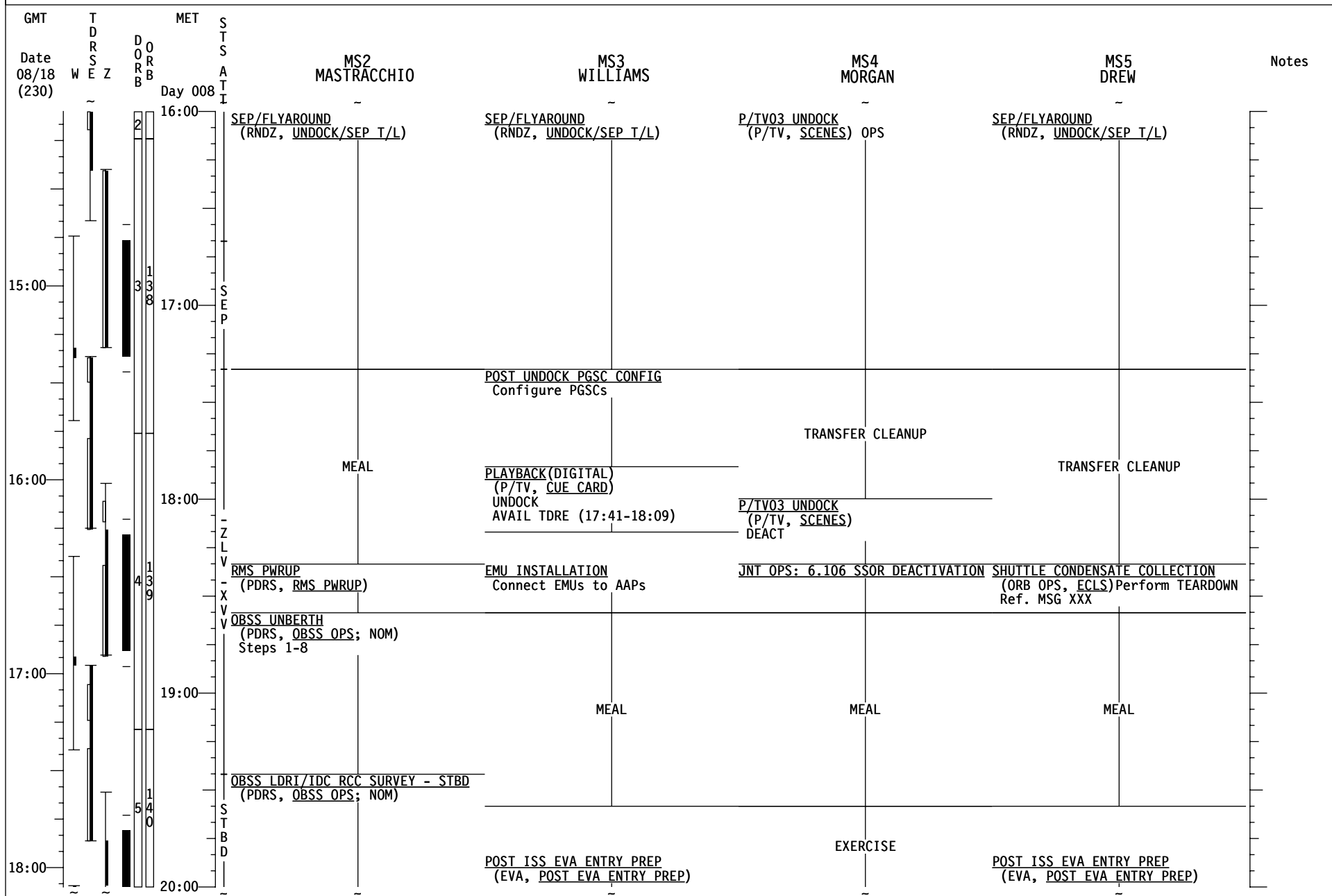
STS-118 FD10



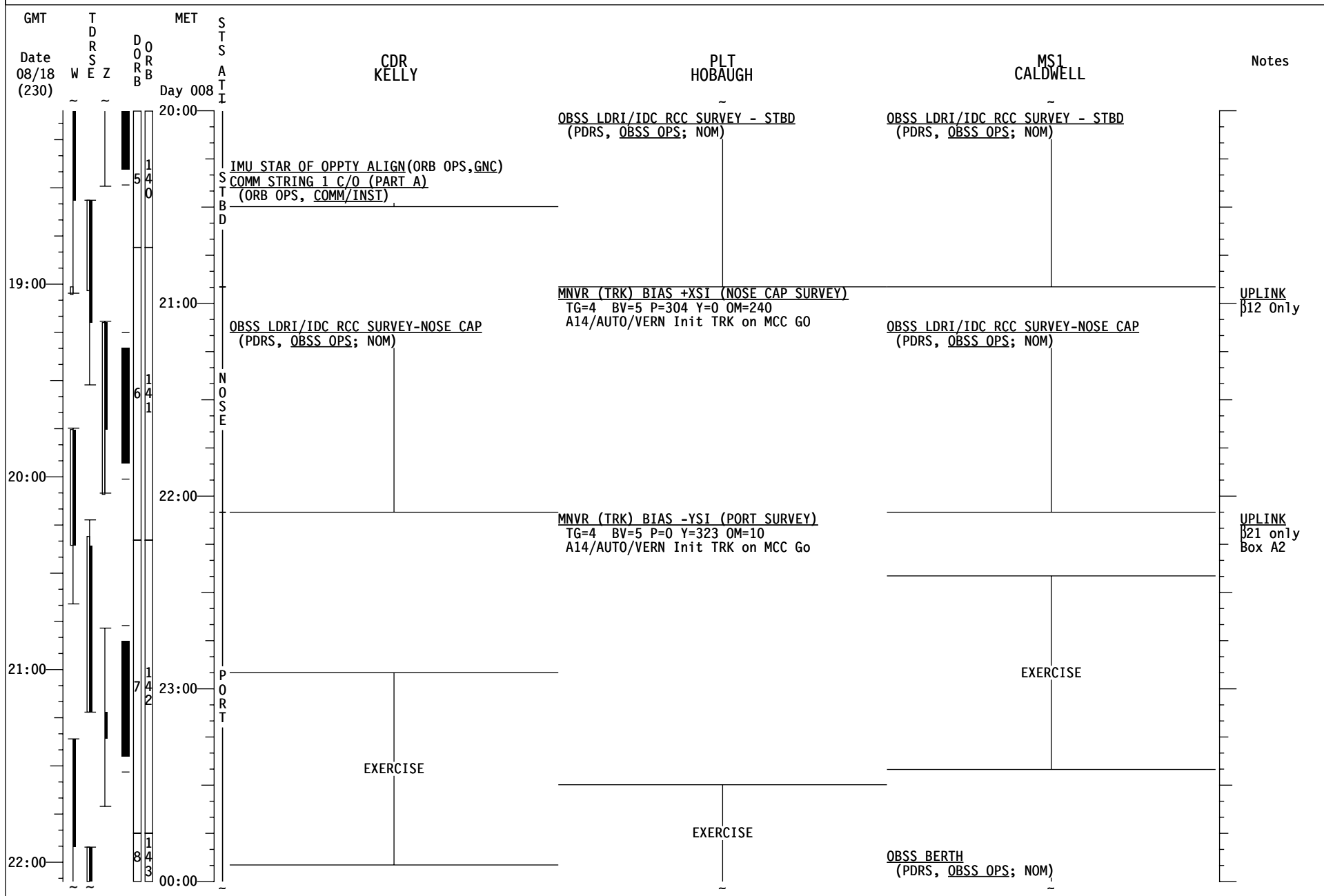
STS-118 FD10



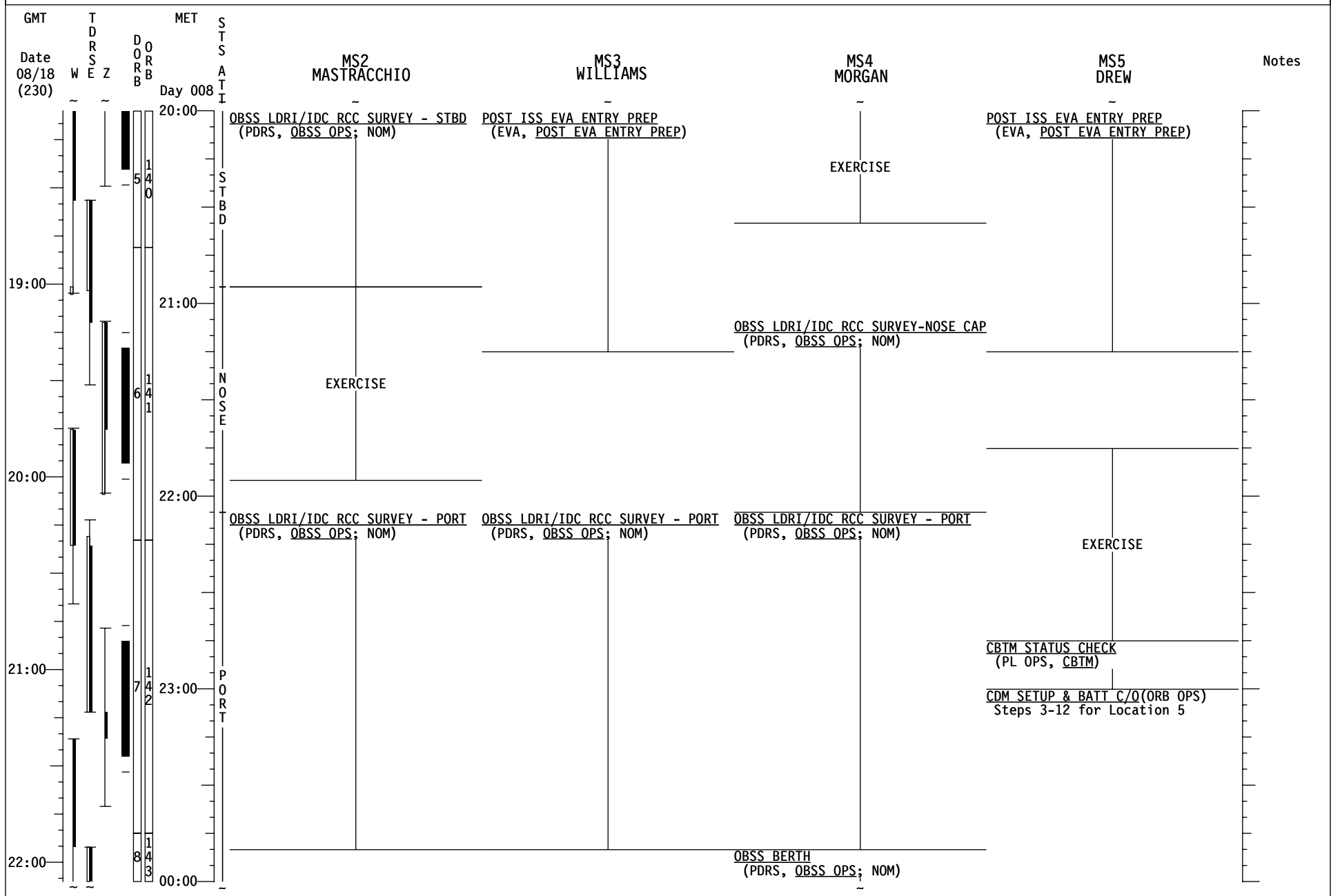
STS-118 FD10



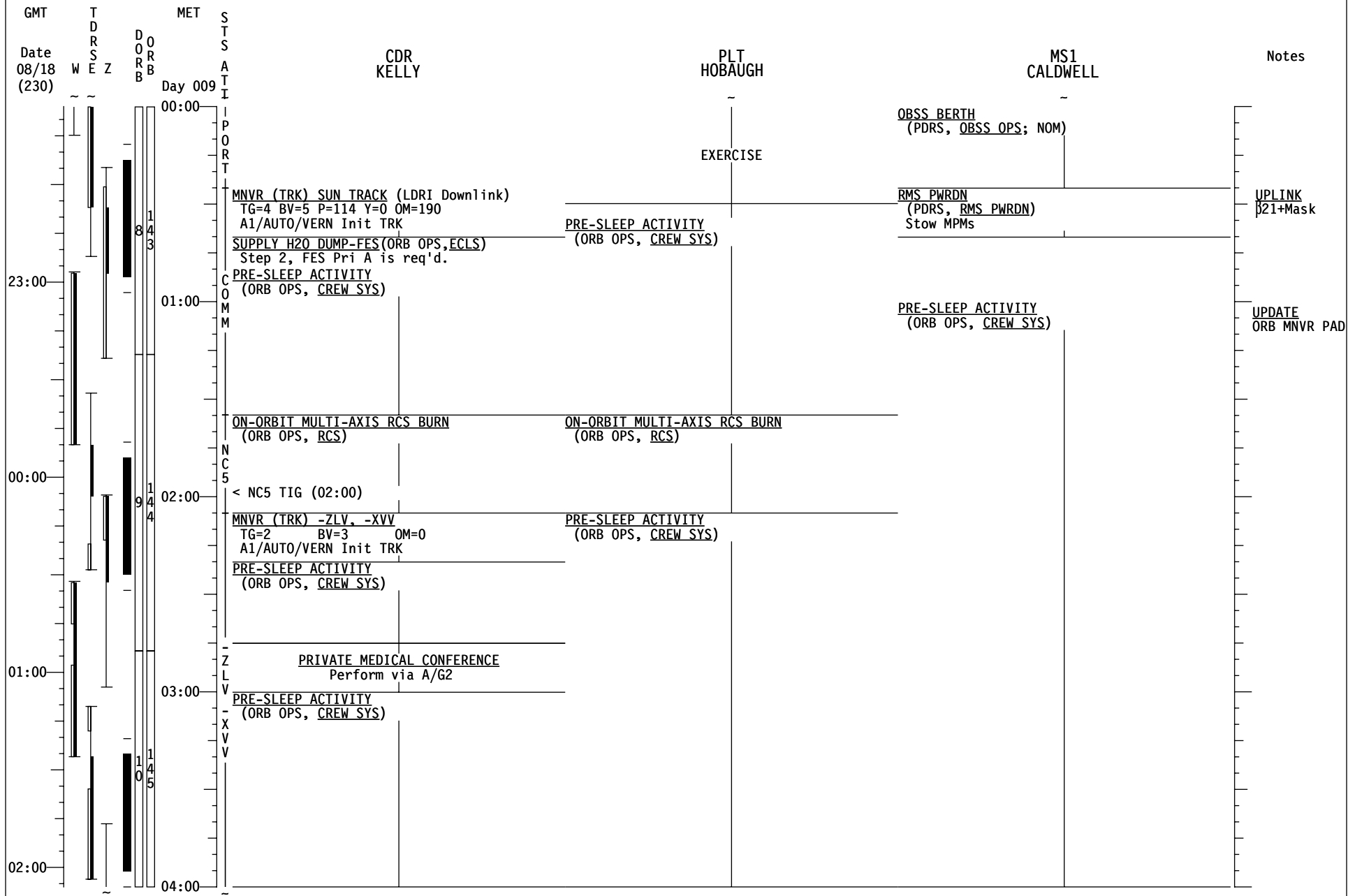
STS-118 FD10



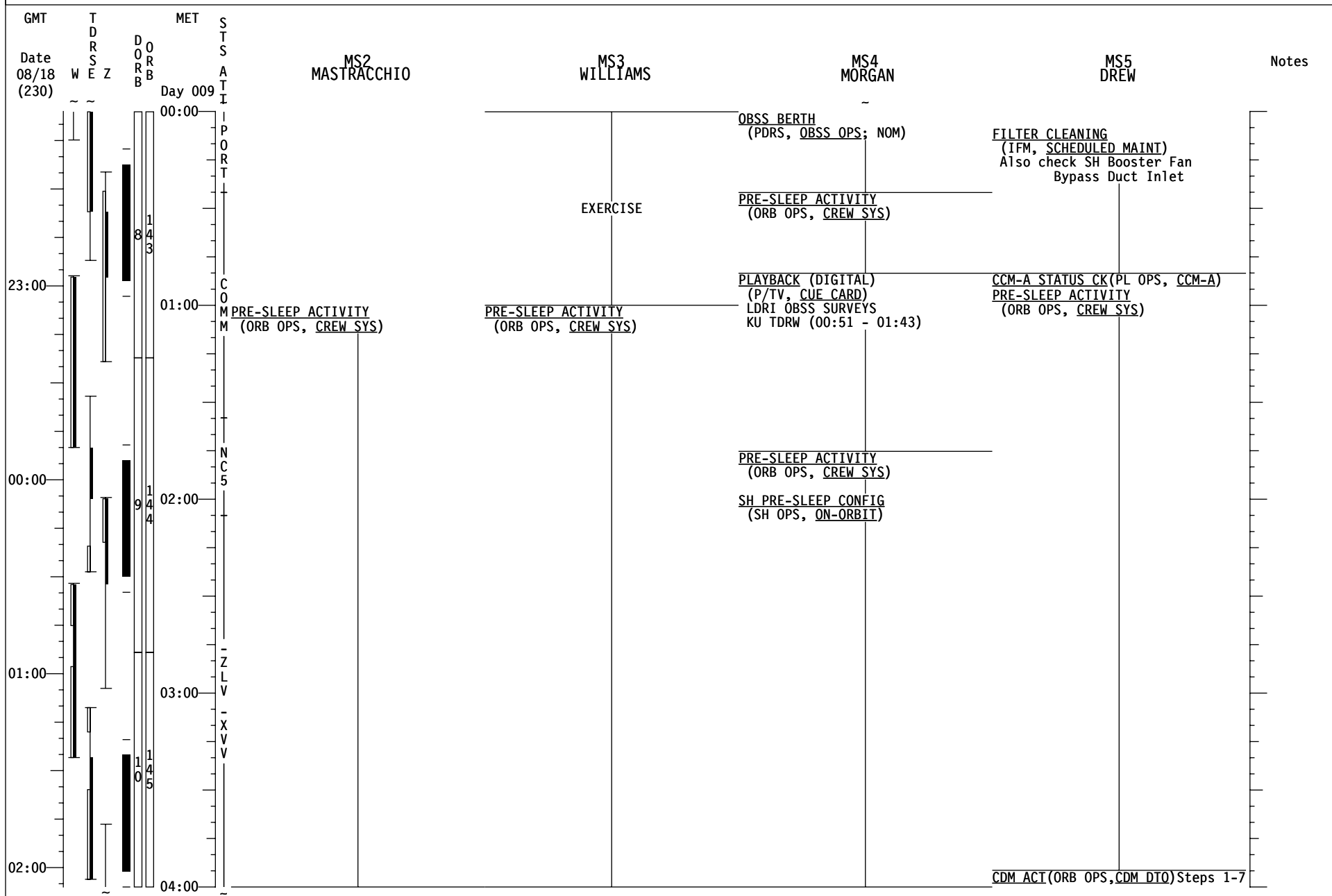
STS-118 FD10



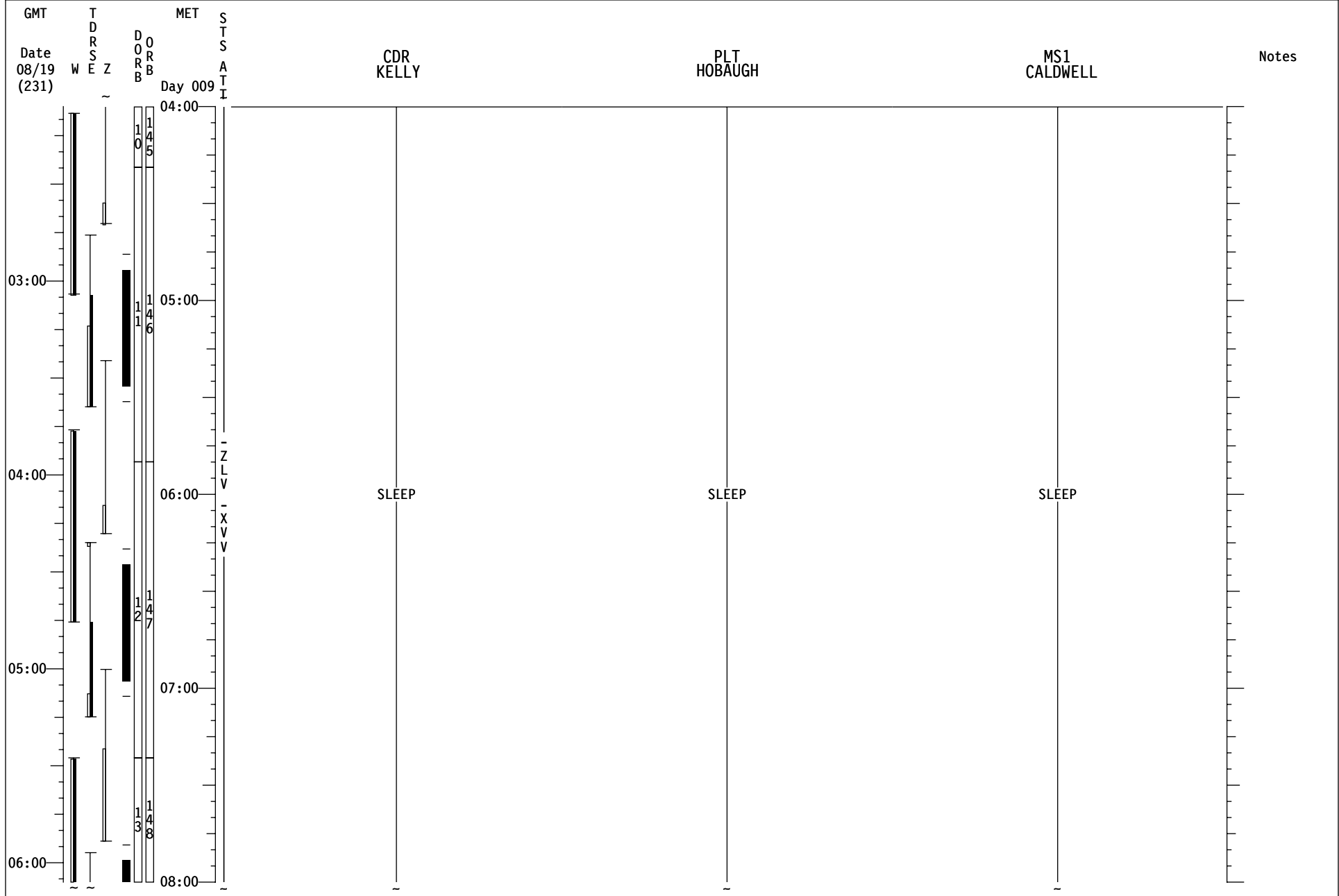
STS-118 FD10



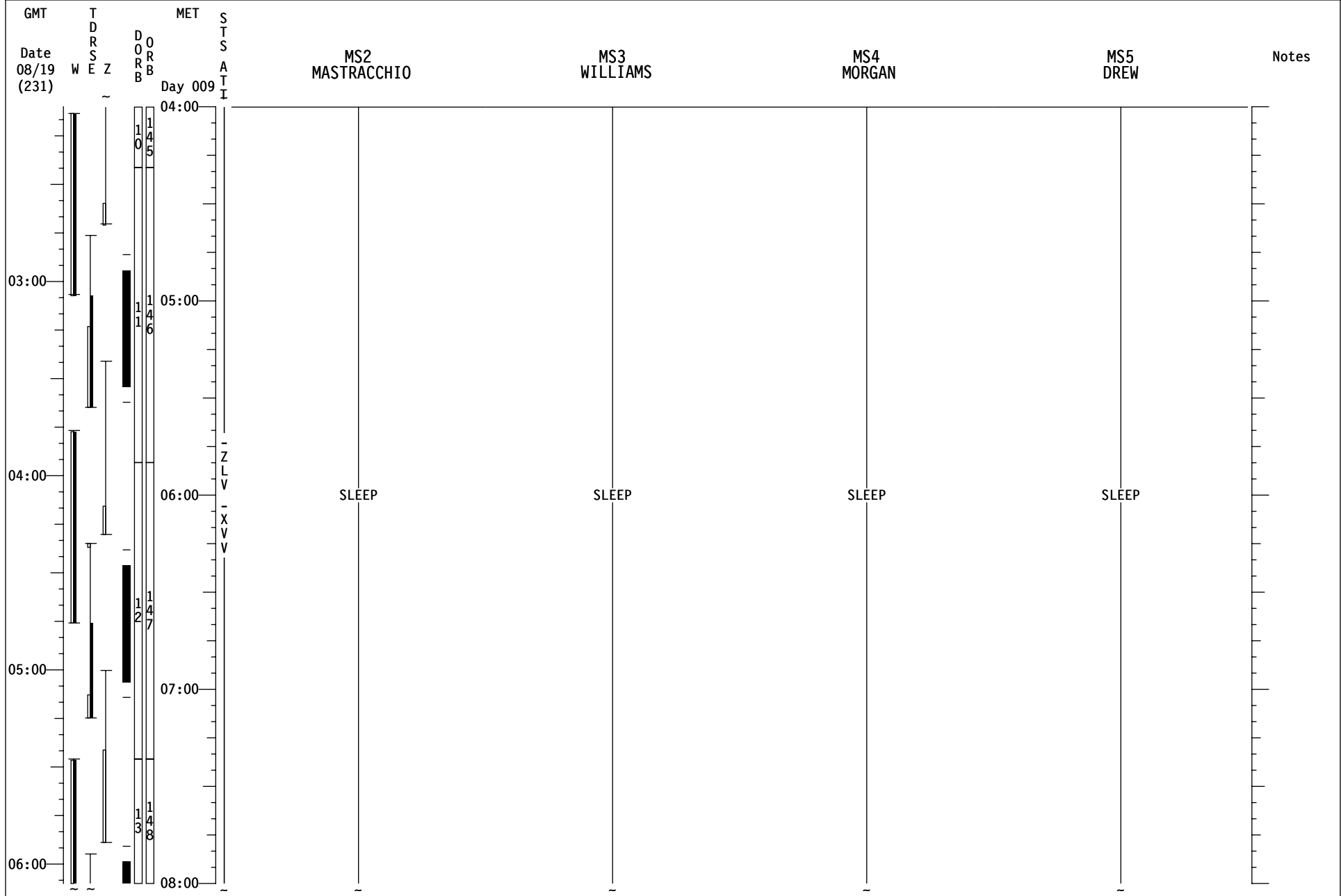
STS-118 FD 10



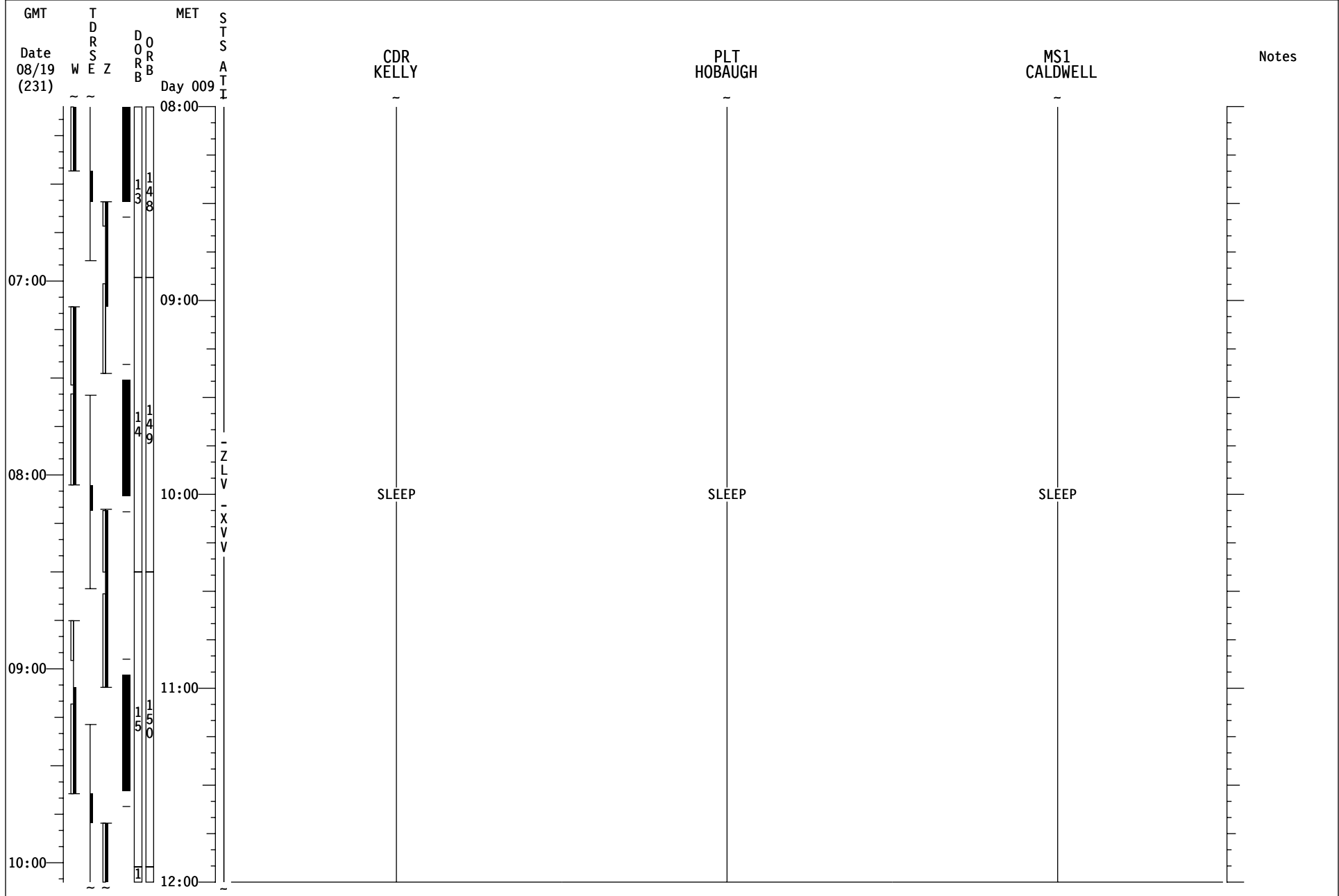
STS-118 FD 10



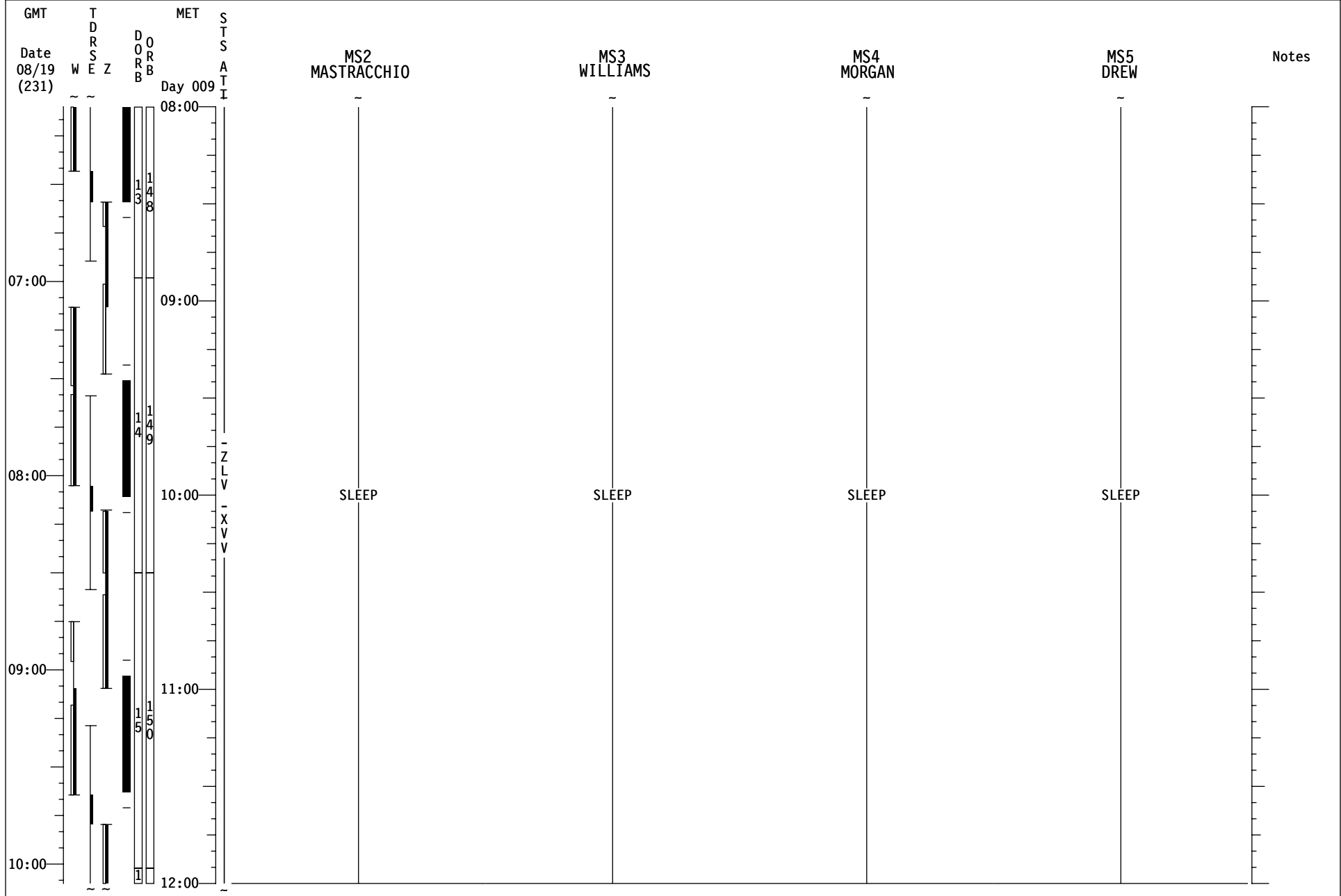
STS-118 FD 10



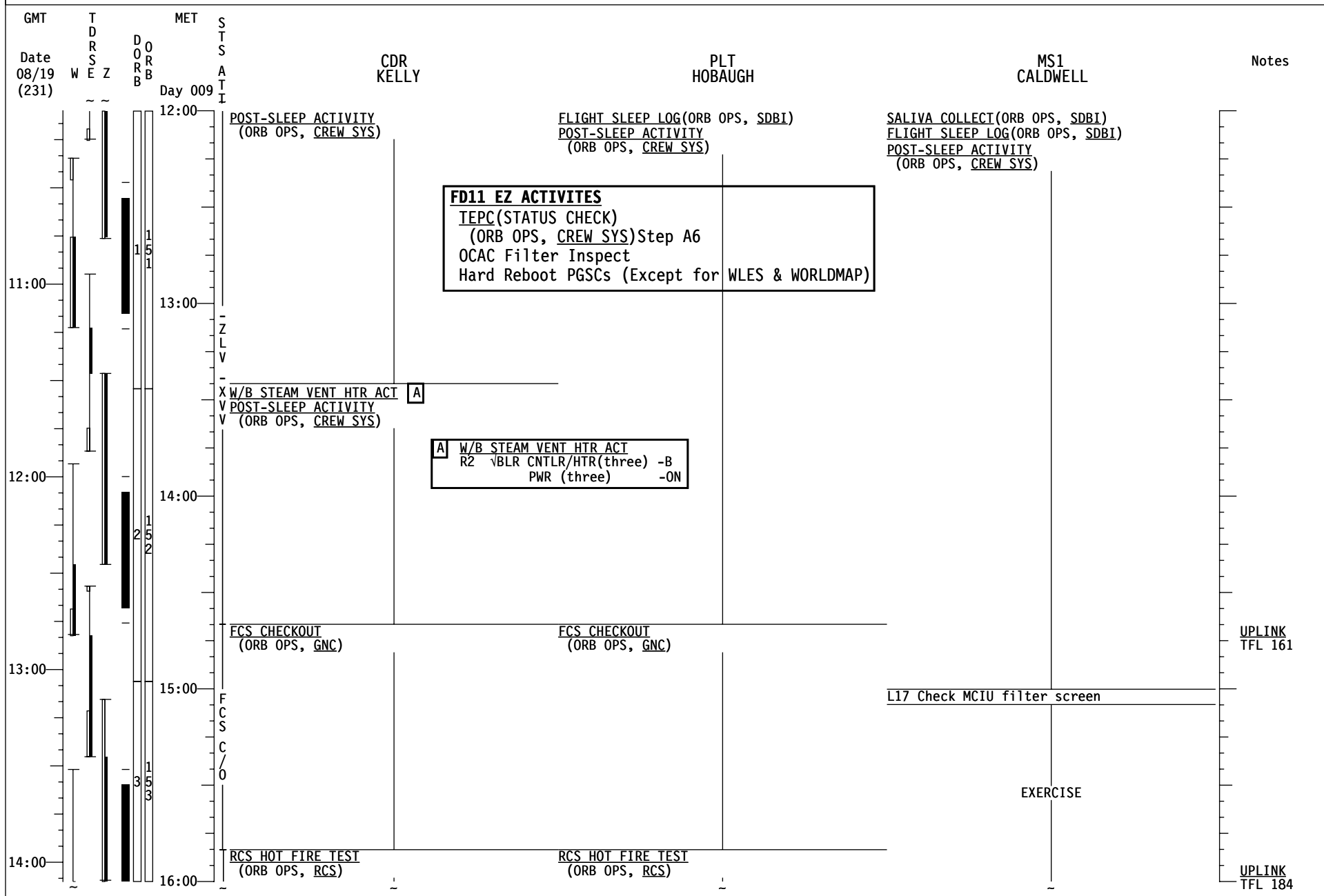
STS-118 FD 10



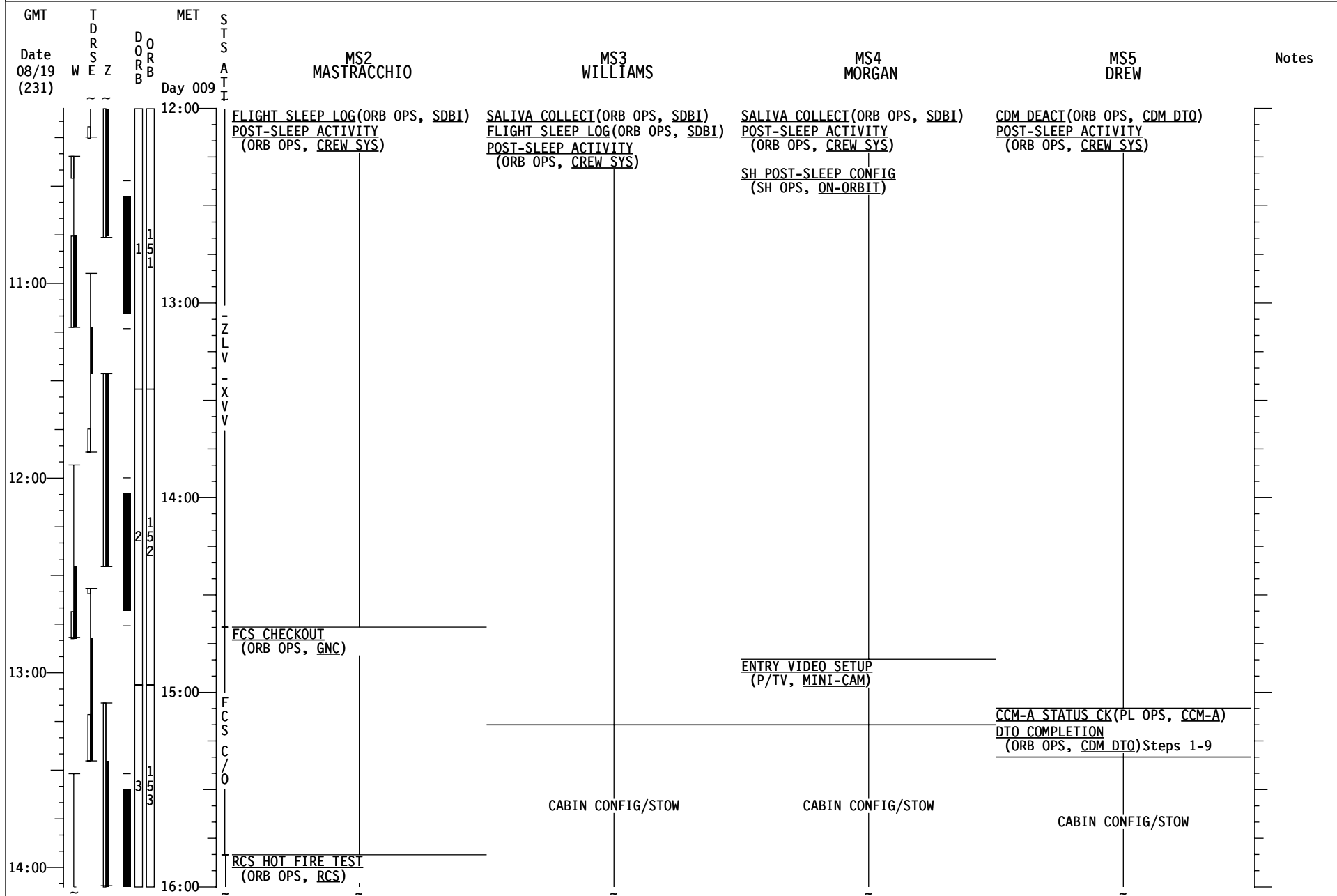
STS-118 FD 10



STS-118 FD 11



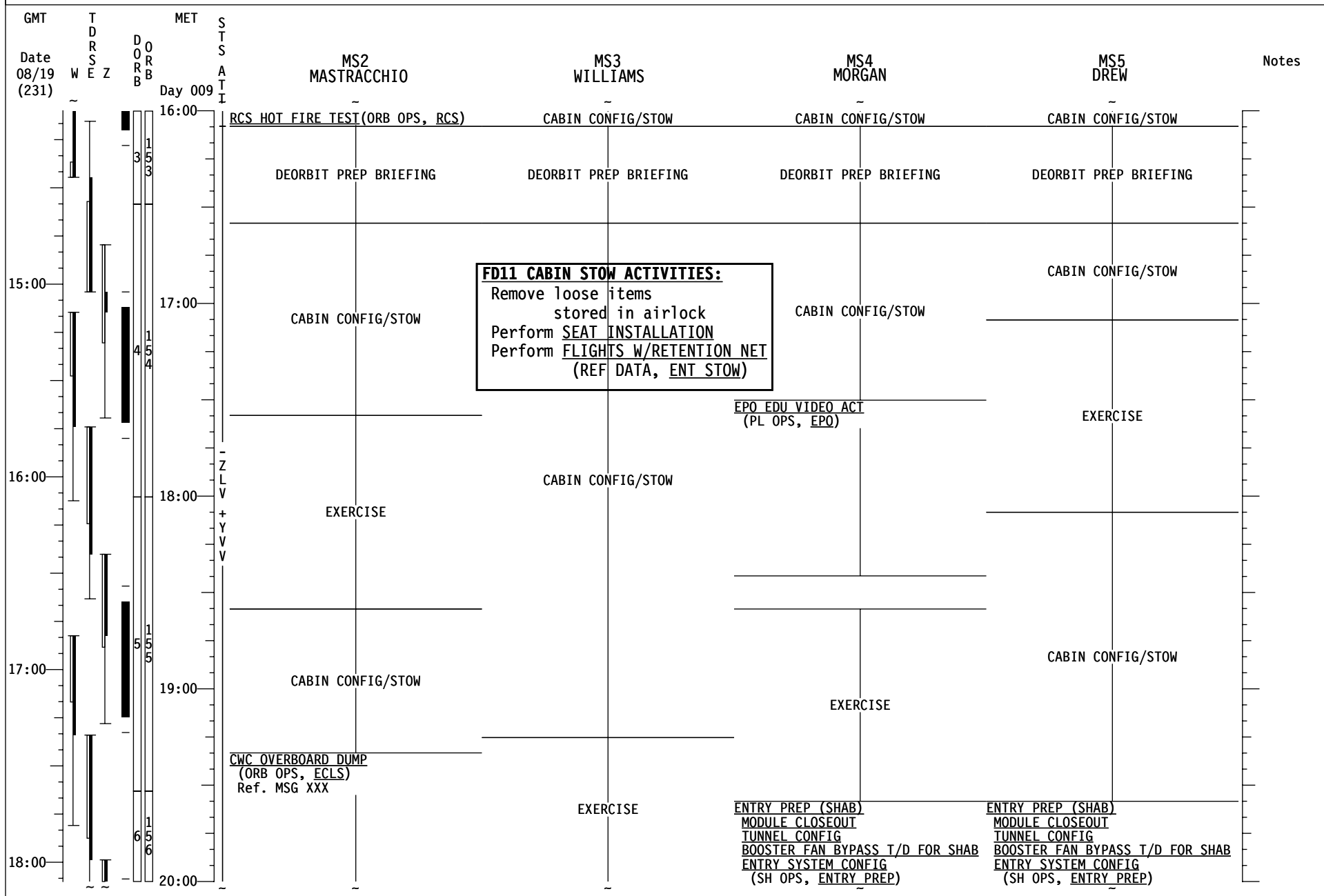
STS-118 FD 11



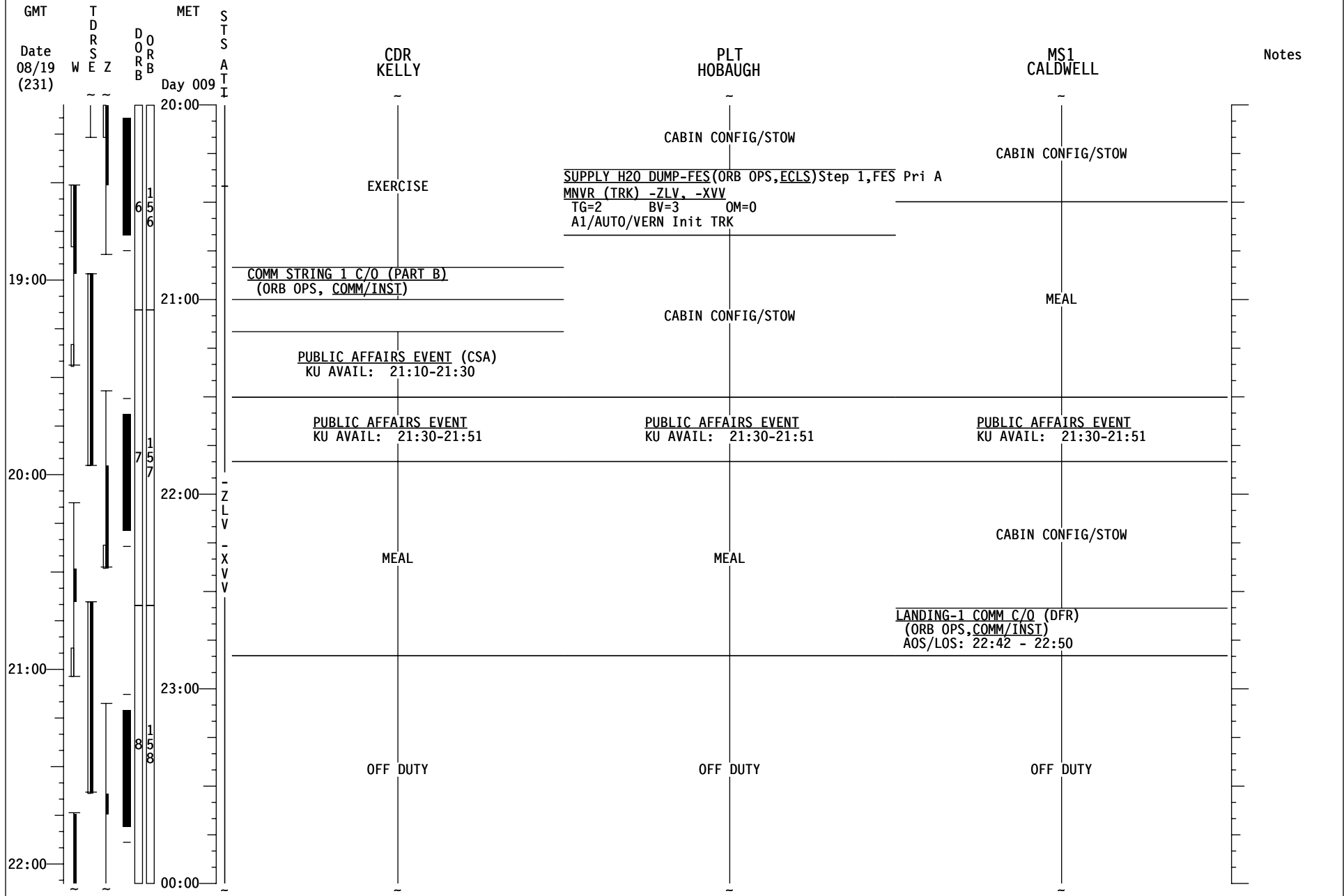
STS-118 FD 11

GMT	TDRSEZ	MET	SATS	CDR KELLY	PLT HOBAUGH	MS1 CALDWELL	Notes
Date 08/19 (231)	W E Z	Day 009	Day 009				
16:00				RCS HOT FIRE TEST(ORB OPS, RCS)	RCS HOT FIRE TEST(ORB OPS, RCS)	EXERCISE	UPLINK TFL 184
				DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	
15:00				MNVR (TRK) -ZLV, +YVV TG=2 BV=3 OM=270 A1/AUTO/VERN Init TRK			
				SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Init Supply/Waste Dump Ref. MSG XXX	EXERCISE	CABIN CONFIG/STOW	UPLINK TFL 161
				RETURN GPS ANT TO NOMINAL CONFIG [A]			
				[A] RETURN GPS ANT TO NOMINAL CONFIG 07 - GPS 1 PRE AMPL UPPER - ON GPS 3 PRE AMPL LOWER - ON			
16:00				CABIN CONFIG/STOW	CABIN CONFIG/STOW	EPO EDU VIDEO ACT (PL OPS, EPO)	
18:00				PILOT WITH RHC (ORB OPS, PGSC)	PILOT WITH RHC (ORB OPS, PGSC)	CWC OVERBOARD DUMP (ORB OPS, ECLS) Ref. MSG XXX	
17:00				CABIN CONFIG/STOW			
				LANDING-1 COMM C/O (MLA) (ORB OPS, COMM/INST) AOS/LOS: 19:36 - 19:44	CABIN CONFIG/STOW	CABIN CONFIG/STOW	
18:00				EXERCISE			
20:00							

STS-118 FD 11



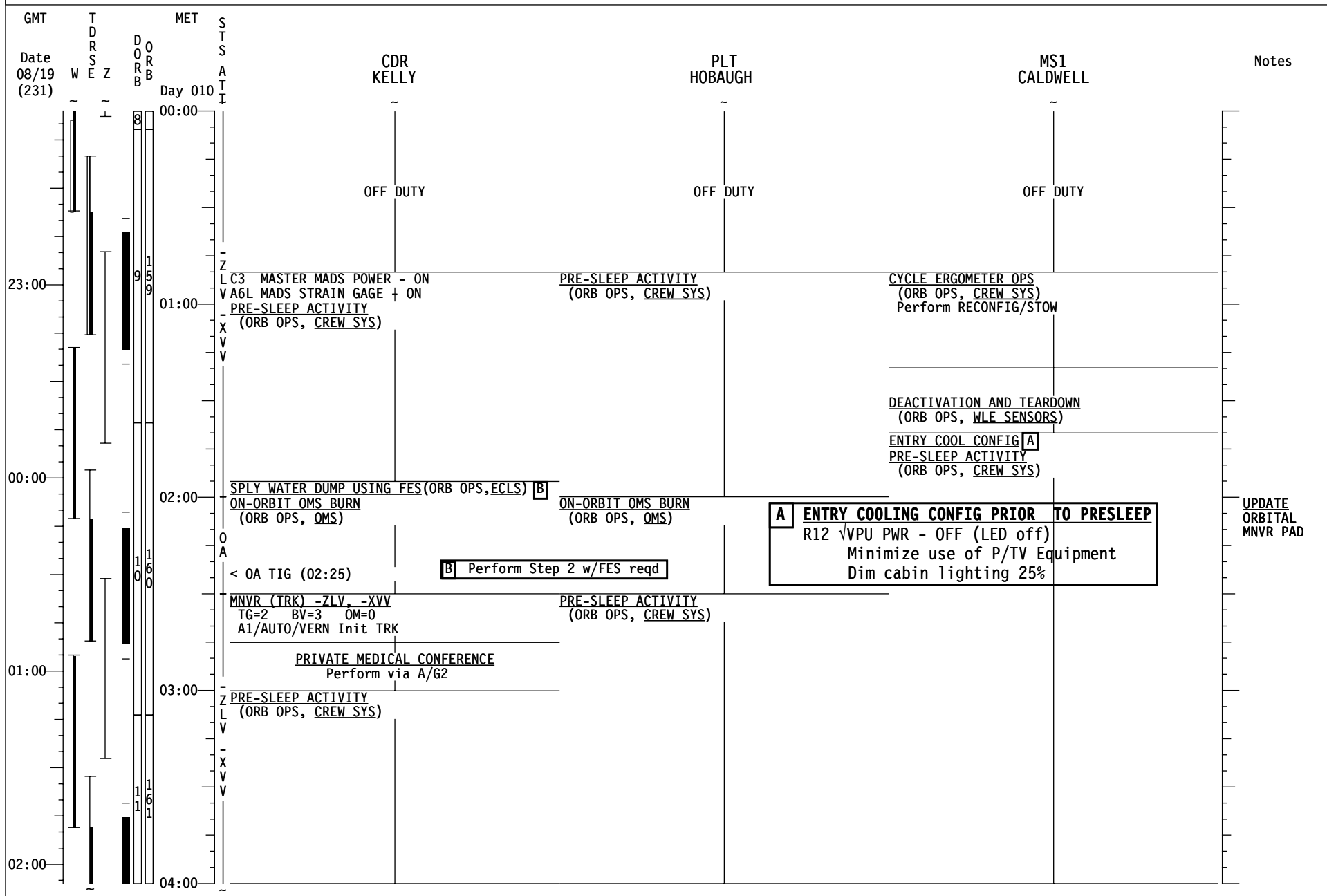
STS-118 FD 11



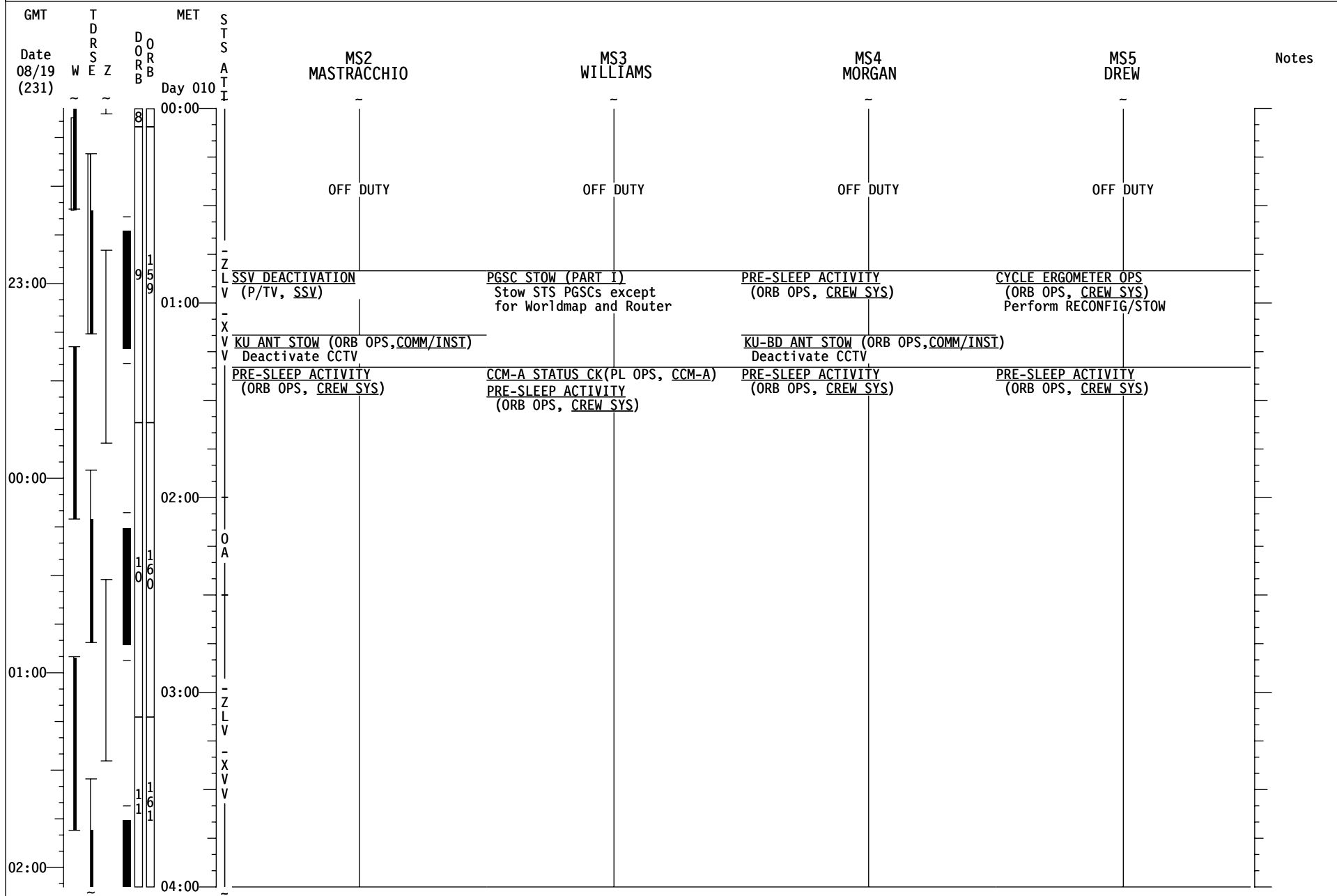
STS-118 FD 11

GMT	T D R S E Z	MET	S T S	MS2 MASTRACCHIO	MS3 WILLIAMS	MS4 MORGAN	MS5 DREW	Notes
Date 08/19 (231)	W E Z	Day 009	A T I					
19:00				CWC OVERBOARD DUMP (ORB OPS, ECLS) Ref. MSG XXX	EXERCISE	ENTRY PREP (SHAB) MODULE CLOSEOUT TUNNEL CONFIG BOOSTER FAN BYPASS T/D FOR SHAB ENTRY SYSTEM CONFIG (SH OPS, ENTRY PREP)	ENTRY PREP (SHAB) MODULE CLOSEOUT TUNNEL CONFIG BOOSTER FAN BYPASS T/D FOR SHAB ENTRY SYSTEM CONFIG (SH OPS, ENTRY PREP)	
				CABIN CONFIG/STOW	CABIN CONFIG/STOW			
20:00					CBTM STATUS CHECK (PL OPS, CBTM)	CABIN CONFIG/STOW	ANALOG PAO CC (P/TV, SONY PD100)	
					PUBLIC AFFAIRS EVENT (CSA) KU AVAIL: 21:10-21:30	PUBLIC AFFAIRS EVENT (CSA) KU AVAIL: 21:10-21:30	CABIN CONFIG/STOW	
				PUBLIC AFFAIRS EVENT KU AVAIL: 21:30-21:51	PUBLIC AFFAIRS EVENT KU AVAIL: 21:30-21:51	PUBLIC AFFAIRS EVENT KU AVAIL: 21:30-21:51	PUBLIC AFFAIRS EVENT KU AVAIL: 21:30-21:51	
21:00								
				MEAL	MEAL	MEAL	MEAL	
22:00								
				OFF DUTY	OFF DUTY	OFF DUTY	OFF DUTY	
23:00								
00:00								

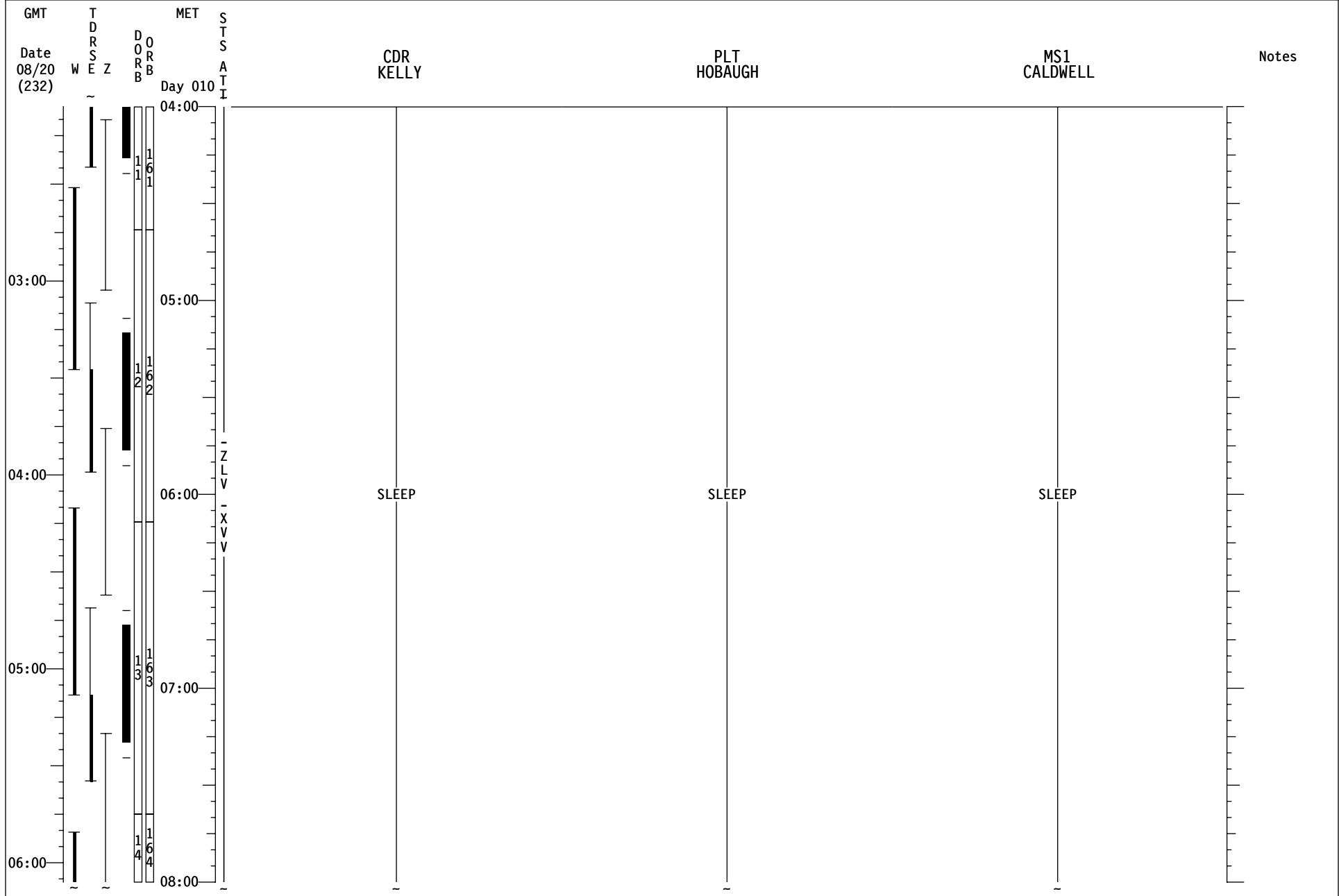
STS-118 FD 11



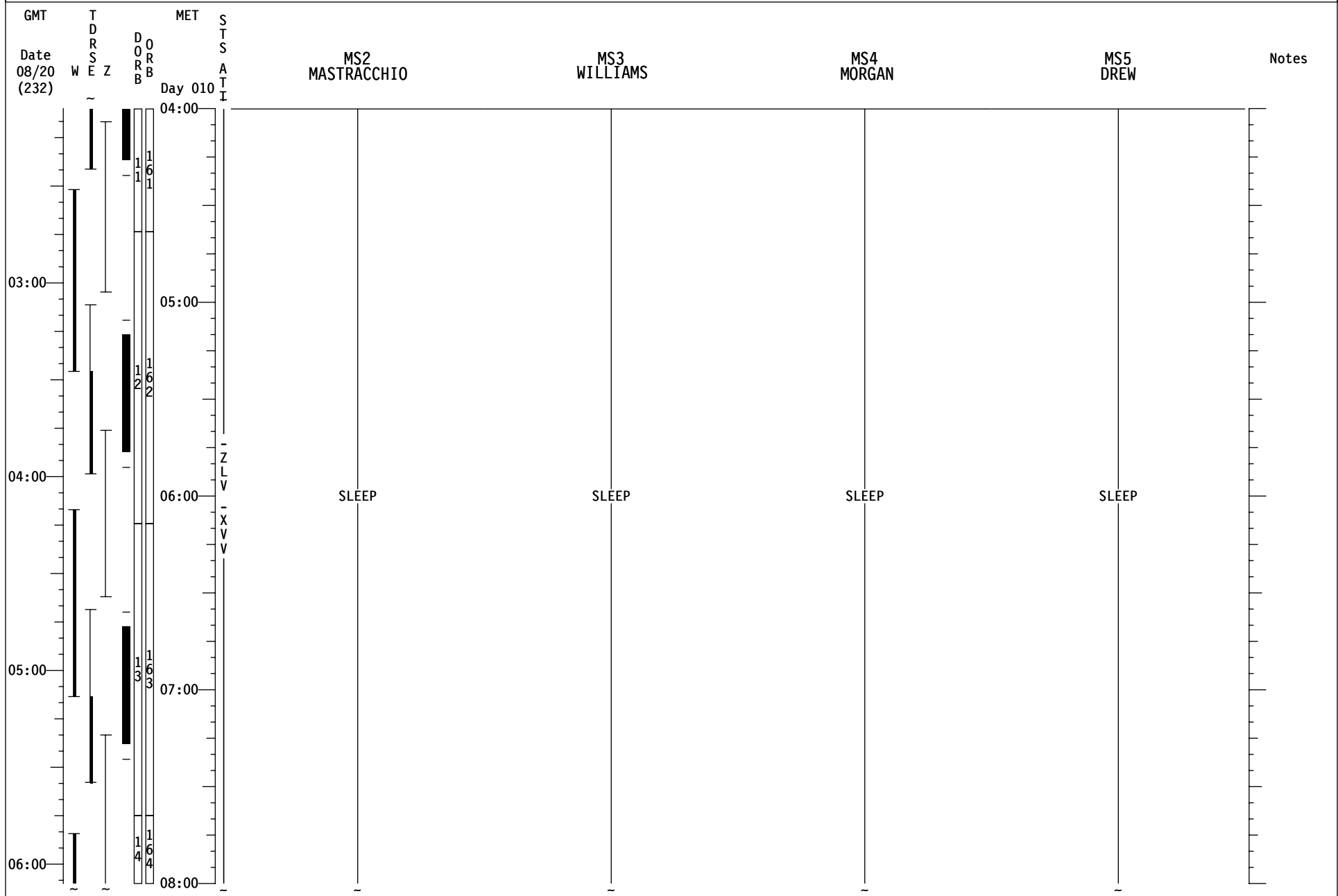
STS-118 FD11



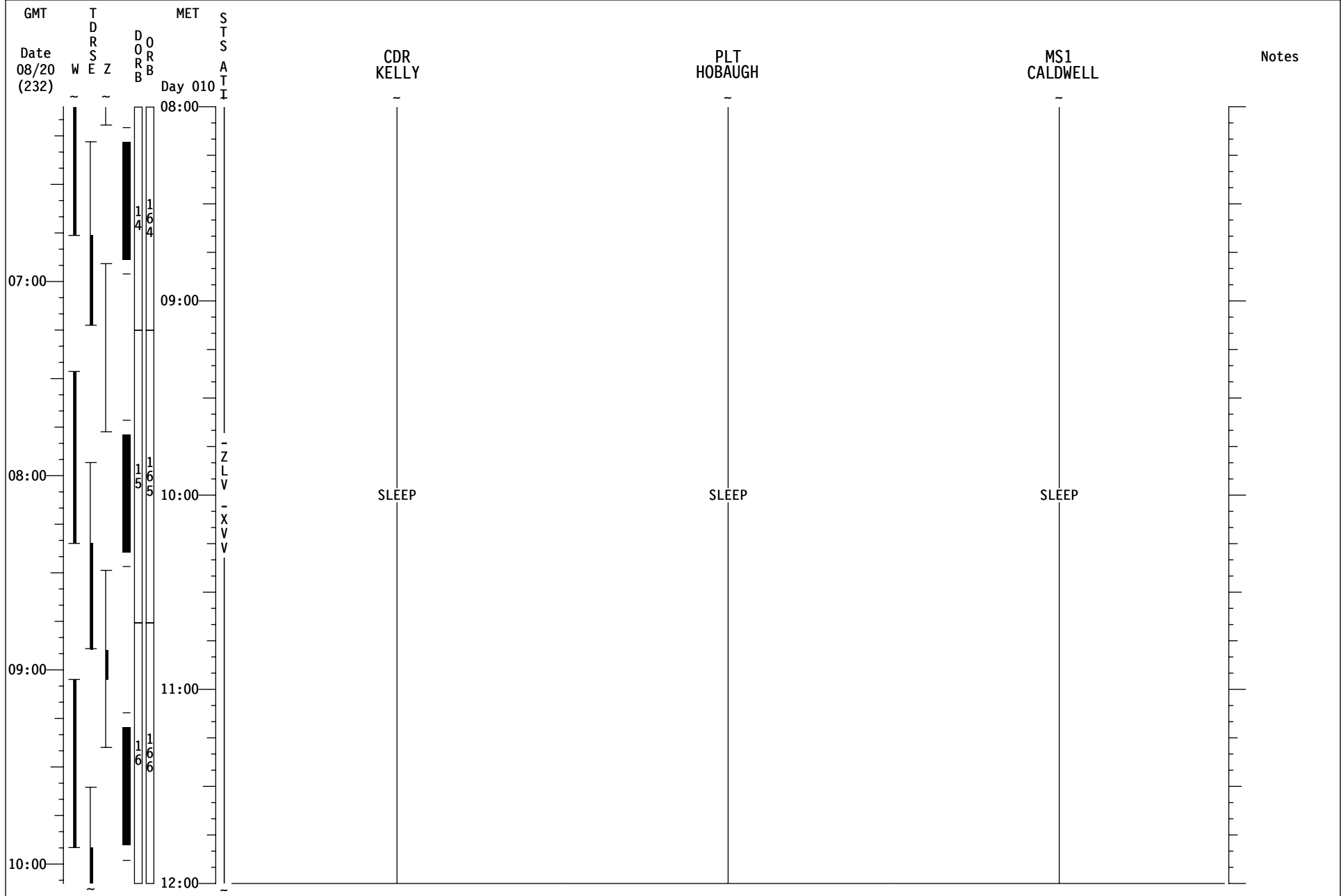
STS-118 FD11



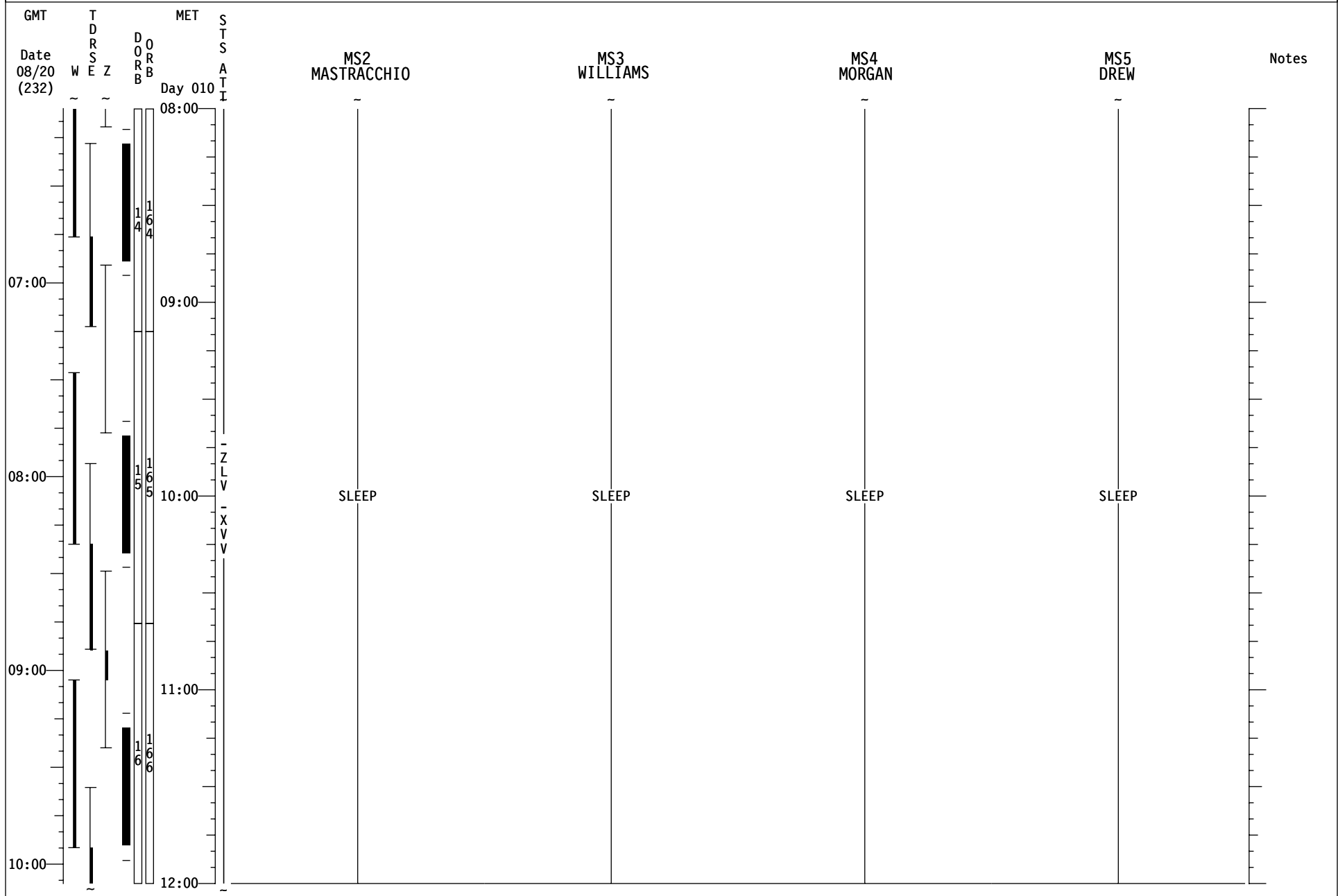
STS-118 FD11



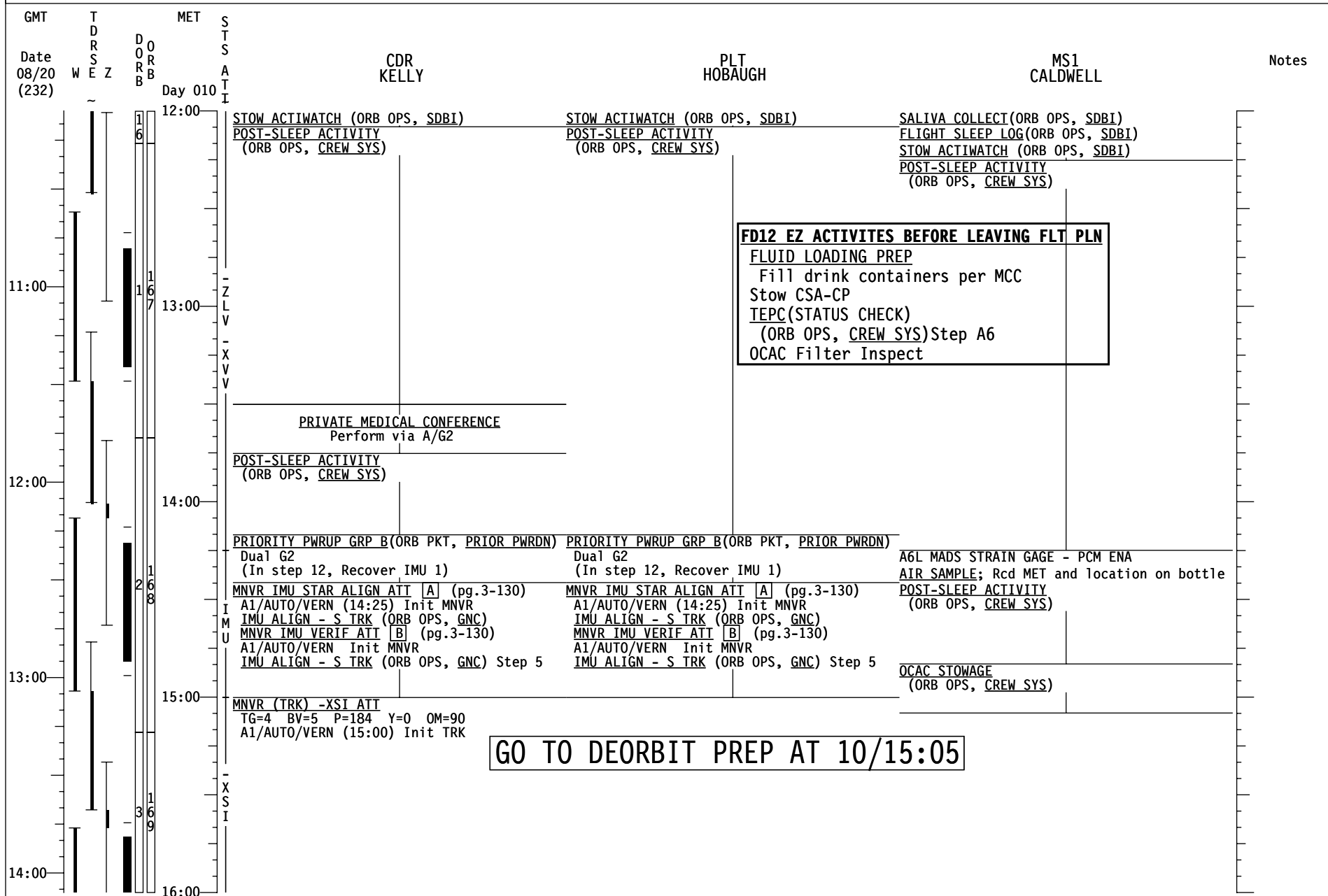
STS-118 FD11



STS-118 FD11



STS-118 FD12



A	IMU STAR ALIGN PAD		
ID: -Y: 26, FOMALHAUT MET (10/14:13 TO 10/14:58)			
-Z: 15, HADAR MET (10/14:19 TO 10/15:11)			
ANG DIFF: 82.3			
DUAL S TRKR ALIGNMENT		2nd ATTITUDE (SINGLE S TRKR)	
		-Z: 26 -Y: 15	
R 327	R 206	342	
P 62	P 101	135	
Y 61	Y 49	64	
REQD ID:			
-Y: ____, -Z: ____, ANG ERR ____, ____, ____,			
ANG: 1 2 3			
ΔX () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
ΔY () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
ΔZ () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
EXECUTION TIME: __/__:__:__ MET			

B	IMU VERIFICATION STAR ALIGN PAD		
ID: -Y: 17, ACRUX MET (10/14:26 TO 10/15:15)			
-Z: 13, RIGEL MET (10/14:33 TO 10/15:20)			
ANG DIFF: 90.7			
DUAL S TRKR ALIGNMENT		2nd ATTITUDE (SINGLE S TRKR)	
		-Z: 17 -Y: 13	
R 91	R 0	177	
P 37	P 28	25	
Y 348	Y 335	356	
REQD ID:			
-Y: ____, -Z: ____, ANG ERR ____, ____, ____,			
ANG: 1 2 3			
ΔX () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
ΔY () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
ΔZ () ____, ____, ____, () ____, ____, ____, () ____, ____, ____,			
If any ΔX, ΔY, OR ΔZ > 0.1 Check MCC			
EXECUTION TIME: __/__:__:__ MET			

The sections following this divider page will not be included in flight copies.

This Page Intentionally Blank

ATTITUDE TIMELINE

This Page Intentionally Blank

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
1 000/00:37:19 M 221/22:43:13 G	M50 (CALC) INRTL R = 192.34 MNVR P = 63.86 PYR Y = 36.91 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 226 P 94 $\beta = 45$	+X PYR R = 0.00 P = 12.00 Y = 0.00 LVLH 000/00:37:19 M 221/22:43:13 G	OMS-2 Posigrade Heads Up TIG 0/00:37:46 DV = 230.8 fps
2 000/00:40:00 M 221/22:45:54 G	LAUNCH August 9, 2007 22:05:54 GMT			
3 000/01:10:00 M 17:49 221/23:15:54 G 23:43	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 7.00 OM = 270.00 MNVR A5/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 5.00 DB RT 0.070 EARTH R 7 P 90 $\beta = 45$	LVLH R= 0.00 P=173.00 Y= 90.00	-ZLV +YVV PLBD Opening
4 000/02:35:00 M 44:40 222/00:40:54 G 50:34	M50 (CALC) INRTL R = 13.88 MNVR P = 287.13 PYR Y = 323.63 MNVR A1/AUTO/VERN HOLD A1/AUTO/PRI	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 131 P 110 $\beta = 45$	+X PYR R = 180.00 P = 348.00 Y = 0.00 LVLH 000/02:54:31 M 222/01:00:25 G	NC-1 Posigrade Heads Dwon TIG 02:54:31 DV = 89 fps
5 000/03:00:00 M 15:00 222/01:05:54 G 20:54	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 $\beta = 45$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
6 000/08:00:00 M 222/06:05:54 G	INRTL MNVR			INRTL MNVR Duration: 01:30
7 000/15:25:00 M 40:00 222/13:30:54 G 45:54	M50 (CALC) INRTL R = 358.73 MNVR P = 90.05 PYR Y = 38.37 MNVR A1/AUTO/VERN HOLD A1/AUTO/PRI	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 43 P 80 $\beta = 42$	+X PYR R = 180.00 P = 348.00 Y = 0.00 LVLH 000/15:41:52 M 222/13:47:46 G	NC-2 Posigrade Heads Down TIG 0/15:41:52 DV = 34.3 fps
8 000/15:50:00 M 52:05 222/13:55:54 G 57:59	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 165.00 MNVR A1/AUTO/VERN HOLD A14/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 42$	LVLH R=180.00 P= 0.00 Y=345.00	Bias -ZLV +XVV OBSS Unberth Att opt'ed for comm
9 000/16:55:00 M 17:08:54 222/15:00:54 G 14:48	TGT= 4 BV = 5 P = 0.00 Y = 40.00 OM = 190.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 90 P 40 $\beta = 42$	INRTL R=328.97 P=175.28 Y= 6.00 RA= 139.268 DEC= 15.800N	STBD Wing Survey BIAS +YSI
10 000/18:55:00 M 19:08:02 222/17:00:54 G 13:56	TGT= 4 BV = 5 P = 304.00 Y = 0.00 OM = 320.00 MNVR A14/AUTO/VERN HOLD A14/AUTO/ALT	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 180 P 56 $\beta = 42$	INRTL R=279.08 P= 10.76 Y= 85.11 RA= 139.347 DEC= 15.776N	Nose Cap Survey BIAS +XSI

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		
11 000/20:05:00 M 10:18 222/18:10:54 G 16:12	TGT= 4 BV = 5 P = 0.00 Y = 323.00 OM = 305.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 270 P 37 β = 41	INRTL R=105.40 P=152.29 Y= 38.96 RA= 139.393 DEC= 15.762N	PORT Wing Survey BIAS -YSI
12 000/22:05:00 M 18:14 222/20:10:54 G 24:08	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 EARTH R 0 P 90 β = 41	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV OBSS Berth
13 001/00:00:00 M 13:51 222/22:05:54 G 19:45	TGT= 4 BV = 5 P = 114.00 Y = 0.00 OM = 315.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 114 β = 40	INRTL R= 73.48 P=180.86 Y=285.39 RA= 139.548 DEC= 15.715N	LDRI Ku Comm
14 001/02:04:00 M 14:38 223/00:09:54 G 20:32	M50 (CALC) INRTL R = 1.20 MNVR P = 88.98 PYR Y = 38.34 MNVR B1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 41 P 81 β = 40	+X PYR R = 180.00 P = 350.00 Y = 0.00 LVLH 001/02:19:34 M 223/00:25:28 G	NC-3 RCS +X Posigrade Heads Up TIG 1/02:19:34 DV = 3
15 001/02:30:00 M 45:00 223/00:35:54 G 50:54	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 β = 40	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
16 001/14:00:00 M 07:30 223/12:05:54 G 13:24	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 β = 38	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Waste Dump Future Load
17 001/16:20:00 M 31:41 223/14:25:54 G 37:35	M50 (CALC) INRTL R = 144.52 MNVR P = 206.82 PYR Y = 336.05 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 312 P 62 β = 37	+X PYR R = 0.00 P = 12.00 Y = 6.00 LVLH 001/16:36:54 M 223/14:42:48 G	NC-4 R OMS Posigrade Heads Up TIG 1/16:36:54 DV = 11.9 fps
18 001/16:41:00 M 44:56 223/14:46:54 G 50:50	EPH TARGET TGT = 1 P = 90.00 BV = 3 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 β = 37	LVLH R=359.94 P=270.99 Y= 0.00 TGT VIDFILE: FIN_14DAY VID #: 13	-Z Target Track
19 001/18:00:00 M 05:30 223/16:05:54 G 11:24	M50 (CALC) INRTL R = 146.94 MNVR P = 214.67 PYR Y = 345.78 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 317 P 54 β = 37	+X PYR R = 0.00 P = 12.00 Y = 354.00 LVLH 001/18:08:17 M 223/16:14:11 G	Ti L OMS Posigrade Heads Up TIG 1/18:08:17 DV = 8.9 fps
20 001/18:13:00 M 22:52 223/16:18:54 G 28:46	EPH TARGET TGT = 1 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.2000 DB AT 2.00 DB RT 0.100 β = 37	LVLH R= 0.16 P=275.40 Y= 0.00 TGT VIDFILE: FIN_14DAY VID #: 13	-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		
21 001/19:20:00 M 24:58 223/17:25:54 G 30:52	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.2000 DB AT 2.00 DB RT 0.100 EARTH R 180 P 90 $\beta = 37$	LVLH R= 0.00 P= 0.00 Y= 0.00	Establish RBAR Ti +01:13
22 001/19:44:00 M 46:00 223/17:49:54 G 51:54	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 308 P 180 $\beta = 36$	+X PYR R = 0.00 P = 90.00 Y = 0.00 LVLH 001/18:34:00 M 223/16:39:54 G	RPM init Ti +01:36 118 ORB R = 0.00 LVLH P = 90.00 Y = 0.00
23 001/19:46:00 M 48:00 223/17:51:54 G 53:54	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 2.00 DB RT 0.100 EARTH R 0 P 90 $\beta = 36$	+X PYR R = 0.00 P = 180.00 Y = 0.00 LVLH 001/18:36:00 M 223/16:41:54 G	RPM ORB R = 0.00 LVLH P = 180.00 Y = 0.00
24 001/19:48:00 M 50:00 223/17:53:54 G 55:54	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 2.00 DB RT 0.100 EARTH R 170 P 0 $\beta = 36$	+X PYR R = 0.00 P = 270.00 Y = 0.00 LVLH 001/18:38:00 M 223/16:43:54 G	RPM ORB R = 0.00 LVLH P = 270.00 Y = 0.00
25 001/19:50:00 M 52:00 223/17:55:54 G 57:54	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 2.00 DB RT 0.100 EARTH R 180 P 90 $\beta = 36$	+X PYR R = 0.00 P = 0.00 Y = 0.00 LVLH 001/18:40:00 M 223/16:45:54 G	RPM ORB R = 0.00 LVLH P = 0.00 Y = 0.00
26 001/19:55:00 M 20:06:32 223/18:00:54 G 12:26	COE (CALC) 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 236 P 180 $\beta = 36$	+X PYR R = 0.00 P = 90.00 Y = 0.00 LVLH 001/20:09:00 M 223/18:14:54 G	TORVA init Ti +01:47 ORB R = 0.00 LVLH P = 90.00 Y = 0.00
27 001/20:46:00 M 223/18:51:54 G				Docking 1/20:46
28 001/21:10:00 M 39:56 223/19:15:54 G 45:50	COE (CALC) TGT = 2 P = 157.00 BV = 5 Y = 3.00 OM = 179.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 8 P 157 $\beta = 36$	ISS YPR R = 3.26 P = 22.97 Y = 180.27 LVLH 001/20:40:00 M 223/18:45:54 G	BIAS -XLV -ZVV AR ORB R = 179.75 LVLH P = 67.02 Y = 356.85
29 005/19:45:00 M 47:23 227/17:50:54 G 53:17	COE (CALC) TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 193.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 0 P 157 $\beta = 17$	ISS YPR R = 0.00 P = 23.00 Y = 193.00 LVLH 005/19:55:00 M 227/18:00:54 G	Bias -XLV +YVV Water Dump ORB R = 168.00 LVLH P = 67.53 Y = 5.04
30 005/22:30:00 M 32:10 227/20:35:54 G 38:04	COE (CALC) TGT = 2 P = 157.00 BV = 5 Y = 1.00 OM = 180.00 MNVR A12/AUTO/VERN HOLD A12/FREE/VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050 EARTH R 3 P 157 $\beta = 16$	ISS YPR R = 1.09 P = 23.00 Y = 180.42 LVLH 005/23:20:00 M 227/21:25:54 G	BIAS -XLV -ZVV I2 ORB R = 179.61 LVLH P = 67.00 Y = 359.08

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		
31 008/14:10:00 M 39:58 230/12:15:54 G 45:52	COE (LOAD) 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 172 P 180 $\beta = 3$	ISS YPR R = 0.00 P = 0.00 Y = 0.00 LVLH 008/14:40:00 M 230/12:45:54 G	-XLV +ZVV Mnvr To Undock in att: undock -40 min ORB R = 0.00 LVLH P = 90.00 Y = 0.00
32 008/15:25:00 M 230/13:30:54 G				Undock 8/15:25
33 008/15:54:00 M 16:05:32 230/13:59:54 G 14:11:26	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 $\beta = 3$	LVLH R= 0.00 P=180.00 Y= 0.00	TORF
34 008/16:05:33 M 17:05 230/14:11:27 G 22:59	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 139 P 0 $\beta = 3$	LVLH R= 0.00 P=270.00 Y= 0.00	TORF
35 008/16:17:06 M 28:38 230/14:23:00 G 34:32	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 $\beta = 3$	LVLH R= 0.00 P= 0.00 Y= 0.00	TORF
36 008/16:28:39 M 40:11 230/14:34:33 G 46:05	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 30 P 180 $\beta = 3$	LVLH R= 0.00 P= 90.00 Y= 0.00	TORF SEP-1 TIG 16:40 DV = 3 fps
37 008/16:41:00 M 52:32 230/14:46:54 G 58:26	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 $\beta = 3$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV SEP-2 TIG 17:08 DV = 1 fps
38 008/19:25:00 M 39:53 230/17:30:54 G 45:47	TGT= 4 BV = 5 P = 0.00 Y = 40.00 OM = 200.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 90 P 40 $\beta = 2$	INRTL R=337.13 P=178.63 Y=355.58 RA= 146.895 DEC= 13.326N	STBD Wing Survey
39 008/20:55:00 M 21:02:16 230/19:00:54 G 08:10	TGT= 4 BV = 5 P = 304.00 Y = 0.00 OM = 240.00 MNVR A14/AUTO/VERN HOLD A14/AUTO/ALT	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 180 P 56 $\beta = 2$	INRTL R=337.91 P=260.76 Y= 26.85 RA= 146.953 DEC= 13.306N	Nose Cap Survey
40 008/22:05:00 M 17:54 230/20:10:54 G 23:48	TGT= 4 BV = 5 P = 0.00 Y = 323.00 OM = 10.00 MNVR A14/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 3.000 DB RT 0.200 SUN R 270 P 37 $\beta = 2$	INRTL R=149.07 P=174.34 Y= 1.00 RA= 146.999 DEC= 13.290N	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		
41 009/00:25:00 M 37:26 230/22:30:54 G 43:20	TGT= 4 BV = 5 P = 114.00 Y = 0.00 OM = 190.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 114 $\beta = 1$	INRTL R= 45.76 P= 64.35 Y= 14.80 RA= 147.089 DEC= 13.259N	LDRI Ku Comm
42 009/02:05:00 M 19:10 231/00:10:54 G 25:04	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 $\beta = 1$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
43 009/16:35:00 M 42:30 231/14:40:54 G 48:24	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 $\beta = -1$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Dump
44 009/20:25:00 M 32:30 231/18:30:54 G 38:24	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 $\beta = -2$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
45 010/02:08:00 M 12:35 232/00:13:54 G 18:29	M50 (CALC) INRTL R = 125.62 MNVR P = 238.68 PYR Y = 336.96 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 4 P 68 $\beta = -3$	+X PYR R = 0.00 P = 192.00 Y = 0.00 LVLH 010/02:25:00 M 232/00:30:54 G	OA DUAL OMS HEADS UP TIG 10/02:25 DV = 86 fps
46 010/02:30:00 M 32:38 232/00:35:54 G 38:32	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 $\beta = -3$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
47 010/14:25:00 M 36:53 232/12:30:54 G 42:47	INRTL R = 327.00 MNVR P = 62.00 Y = 61.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 83 P 81 $\beta = -5$	-Y: 26 AOS: 14:13 LOS: 14:58 -Z: 15 AOS: 14:19 LOS: 15:11	IMU ALIGN -Y: FOMALHAUT -Z: HADAR PAIR AOS: 14:19 PAIR LOS: 14:58
48 010/14:42:00 M 52:34 232/12:47:54 G 58:28	INRTL R = 91.00 MNVR P = 37.00 Y = 348.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 315 P 152 $\beta = -6$	-Y: 17 AOS: 14:26 LOS: 15:15 -Z: 13 AOS: 14:33 LOS: 15:20	IMU VERIF -Y: ACRUX -Z: RIGEL PAIR AOS: 14:33 PAIR LOS: 15:15
49 010/15:00:00 M 05:14 232/13:05:54 G 11:08	TGT= 4 BV = 5 P = 184.00 Y = 0.00 OM = 90.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 180 P 176 $\beta = -6$	INRTL R=140.93 P= 18.44 Y=326.87 RA= 148.584 DEC= 12.738N	-XSI
50 010/16:45:00 M 52:40 232/14:50:54 G 58:34	TGT= 4 BV = 5 P = 175.00 Y = 30.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 81 P 150 $\beta = -6$	INRTL R=248.15 P= 45.20 Y=309.14 RA= 148.652 DEC= 12.714N	Comm

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	M50 (CALC)	RATE 0.5000	+X PYR	Deorbit Burn
010/18:45:00 M	INRTL R = 131.00	DB AT 3.50	R = 0.06	TIG 19:05
47:57	MNVR P = 254.00	DB RT 0.20	P = 191.92	
	PYR Y = 320.00		Y = 359.68	
232/16:50:54 G		SUN R 7	LVLH	
53:51	MNVR TRN/AUTO/PRI	P 89	010/19:05:00 M	
	HOLD (same)	$\beta = -6$	232/17:10:54 G	

FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: Endeavour (OV-105)
 Launch Window: 10 minutes
 Inclination: 51.6°
 Insertion Altitude: 122 nautical miles
 Rendezvous Altitude: 184 nautical miles
 Duration: 11+[3]+2 Days

B. SHUTTLE AND STATION CREW

Shuttle Crew:

CDR/IV – Scott Kelly
 PLT – Charles O. Hobaugh
 MS1/IV – Tracy E. Caldwell
 MS2/EV1 – Richard A. Mastracchio
 MS3/EV2 – Dave Williams
 MS4 – Barbara Morgan
 MS5 – Alvin Drew

ISS Crew:

ISS CDR – Fyodor Yurchikhin
 FE-1 – Oleg Kotov
 FE-2 – Clayton Anderson

C. MAJOR EVENTS FOR 11 DAY MISSION

<u>EVENT</u>	<u>FD</u>	<u>MET</u>	<u>GMT</u>	<u>CDT</u>
Launch	1	00/00:00	221/22:06	17:06
OMS-2	1	00/00:37	221/22:43	17:43
NC-1	1	00/02:54	222/01:00	20:00
NC-2	2	00/15:41	222/13:47	08:47
OBSS Survey	2	00/17:10	222/15:16	10:16
NC-3	2	01/02:19	223/00:25	19:25
NH	3	01/15:55	223/14:01	09:01
NC-4	3	01/16:36	223/14:42	09:42
Ti	3	01/18:08	223/16:14	11:14
ISS Docking	3	01/20:46	223/18:52	13:52
S5 Unberth	3	01/22:25	223/20:31	15:31
Hatch Open	3	01/22:55	223/21:01	16:01
EVA 1	4	02/18:55	224/17:01	12:01
EVA 2	6	04/18:25	226/16:31	11:31
ESP 3 Transfer	7	05/15:10	227/13:16	08:16
EVA 3	8	06/17:55	228/16:01	11:01
Hatch Close	9	08/00:40	229/22:46	17:46
Undock	10	08/15:25	230/13:31	08:31
Sep 1	10	08/16:40	230/14:46	09:46
Sep 2	10	08/17:08	230/15:14	10:14
OBSS Survey	10	08/19:25	230/17:31	12:31
NC 5	10	09/02:00	231/00:06	19:06
OA	11	10/02:25	232/00:31	19:31
Deorbit	12	10/19:05	232/17:11	12:11
KSC Landing	12	10/20:04	232/18:10	13:10

FLIGHT PLAN NOTES

D. MAJOR EVENTS FOR 14 DAY MISSION

<u>EVENT</u>	<u>FD</u>	<u>MET</u>	<u>GMT</u>	<u>CDT</u>
EVA 4	10	08/16:55	230/15:01	10:01
Hatch Close	12	10/22:30	232/20:36	15:36
Undock	13	11/14:57	233/13:03	08:03
Sep 1	13	11/16:12	233/14:18	09:18
Sep 2	13	11/16:40	233/14:46	09:46
OBSS Survey	13	11/19:00	233/17:06	12:06
NC 5	13	12/01:00	233/23:06	18:06
NC 6	14	13/00:25	234/22:31	17:31
Deorbit	15	13/17:09	235/15:15	10:15
KSC Landing	15	13/18:11	235/16:17	11:17

E. 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>
<u>11 DAY MISSION</u>							
Nominal	Primary	172	KSC	10/19:05	10/20:04	232/18:10	13:10
	1 Rev	173	KSC	10/20:42	10/21:39	232/19:45	14:45
	Late						
	Weather Alt	174	EDW	10/22:10	10/23:08	232/21:15	16:15
EOM +1	Primary	187	KSC	11/17:36	11/18:37	233/16:43	11:43
	1 Rev	188	KSC	11/19:12	11/20:11	233/18:17	13:17
	Late						
	Weather Alt	189	EDW	11/20:41	11/21:41	233/19:47	14:47
EOM +2	Primary	203	KSC	12/17:43	12/18:44	234/16:50	11:50
	1 Rev	204	KSC	12/19:20	12/20:19	234/18:25	13:25
	Late						
	Weather Alt	205	EDW	12/20:48	12/21:48	234/19:54	14:54

F. 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).

The RS band contains the AOS/LOS of the Russian ground sites used by the FGB and SM. The data displayed is a summation of AOS/LOS times of all the ground sites on each respective pass.

Shuttle

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

Ground Sites: MLA, WLP, WSS, and DFR

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

ISS

TDRS Support: East (-46°), West (-174°), and Z (-275°)

US Ground Sites: MIL, WLP, and DFR

Russian Ground Sites: DJS, PPK, BRN, SPB, KLP, ULD, SHK, USK

G. PAYLOADS

LAUNCH PACKAGE (LP) 13A.1

The primary objective is to launch and install the Integrated Truss Segment (ITS) S5 Cargo Element (CE) and the 3rd External Stowage Platform-3 (ESP-3), perform a Port S-Band communications system upgrade, relocate 2 Crew Equipment Translation Aids (CETA) carts, retrieve the P6 Transponder, perform a Control Moment Gyro remove and replacement, retrieve Materials International Space Station Experiment (MISSE) 3 & 4, and deliver/return items using the Orbiter crew compartment and the SPACEHAB Logistics Single Module (LSM) (henceforth referred to as LSM).

The LP consists of the ITS-S5 Short Spacer Truss Segment (SSTS) with two Photovoltaic Radiator Grapple Fixtures (PVRGFs) hard-mounted to the OSE attached to the S5 structure, the ESP-3 and the ESP-3-mounted items, the LSM stowed logistics items including the OBSS OSE and ISS items stowed in the Orbiter crew compartment. The ESP-3 launch configuration will include the following ORUs and Flight Support Equipment (FSE) mounted on the ESP-3: Space Station Remote Manipulator System (SSRMS) Pitch/Roll Joint (P/R-J), Battery Charge Discharge Unit (BCDU), Nitrogen Tank Assembly (NTA), Control Moment Gyroscope (CMG), Ammonia Tank Assembly (ATA) FSE, and two Passive Flight Releasable Attachment Mechanisms (PFRAMs). The power cable between the Orbiter and the ESP-3 will be connected for launch to enable power for the CMG on ESP-3.

H. SECONDARY PAYLOADS

1. CCM-A (Cell Culture Module - Configuration)

The CCM-A (Myofibers) experiment is a United States Air Force/Space and Missile Systems Center (USAF/SMC) middeck payload designed to monitor the activities of tissue samples at the cellular level under the influence of microgravity and to develop intervention modalities and strategies for counter-acting the effects. From pre-launch through post-landing, these muscle, bone, and endothelial cells are supplied with oxygenated media and selected drugs. As the media and drugs pass through the cartridges containing cells, divisions of the effluent are delivered to a fluid sump collection tube array or re-circulated to the same cell cartridge after oxygenation. Fixative within the collection tubes discontinues all biological activity, thus sustaining a chronological physical record for future analysis. CCM-A remains powered the entire flight. It is initialized once on orbit and terminated prior to entry. Status checks are performed twice a day to record the rail temperatures.

2. MERLIN (The Microgravity Experiment Research Locker/Incubator) and SPEGIS (Streptococcus Pneumoniae Expression of Genes In Space)

The MERLIN is a rear-breathing middeck locker size facility that provides a thermally controlled environment for scientific experiments in the middeck of the Space Shuttle, SPACEHAB module, or the International Space Station (ISS) EXPRESS Rack.

The objective of SPEGIS is to characterize how the virulence of Streptococcus Pneumoniae bacteria is affected by the space flight environment. Also, data from this study will be used to validate ground-based microgravity simulation model systems for bacterial pathogenesis.

The MERLIN provides thermal control to temperatures within the range of -20° C to +48.5° C (moderate temperature loop required for below +4° C). For Flight 13A.1, MERLIN will launch continuously powered in the shuttle middeck and will contain 3 SPEGIS sample canisters at 4° C. The SPEGIS are constructed out of aluminum, and provide 2 levels of containment. Inside each canister are three polypropylene vials, which house the bacteria and provide the third level of containment. During the docked phase of the flight, MERLIN will incubate the SPEGIS sample canisters at 37° C for approximately 12 hours. Prior to incubation, the SPEGIS samples will be transferred to the MELFI on ISS to be stored at 2° C while MERLIN ramps up from 4° C to 37° C. At the end of the incubation the samples will be removed and placed in MELFI to be frozen, after which the MERLIN will be powered down for entry. As late as possible, prior to undocking, samples will be removed from MELFI and placed in Coldbags for return on the Shuttle.

3. EPO (Education Payload Operations) Educator

Education Payload Operations (EPO) Educator is a sortie payload manifested for 13A.1. The primary objective is to engage students, educators, and the public in the Vision for Space Exploration through the adventure of STS-118 and the flight of the first Educator Astronaut, Barbara Morgan. EPO Educator is divided into three activities.

Activity 1 involves the crew taking photos of a seed packet. After the mission, these seed packets will be distributed to schools across the country as part of a national engineering design challenge where students will plan, design, build, and validate the performance of their design for a plant growth chamber and use the seeds to conduct science experiments.

Activity 2 will capture video of crewmembers showing various locations on the space shuttle and provide descriptions of crewmember duties during ascent, on-orbit, and descent. The video will be used in conjunction with the national engineering design challenge mentioned above. The imagery will allow students to identify a variety of constraints that need to be addressed when constructing their own growth chambers.

Activity 3 has two objectives. The first objective is to capture video imagery of the transfer of two small collapsible plant growth chambers from shuttle to ISS. During the transfer, crewmembers will provide a physical description of the plant growth chambers, discuss the planned on-orbit plant growth investigation, and explain the importance of the engineering process when designing hardware for space missions. The second objective is to conduct a two-week plant growth investigation onboard the ISS. For this investigation, crewmembers will grow plants from similar seeds to those being used for EPO-Educator. During the investigation, crewmembers will capture still imagery of plant growth which will be used in connection with the national engineering design challenge. These images are intended to connect student ground-based investigations with that taking place on-orbit.

4. CBTM-02 (Commercial Bioprocessing Testing Module – 02)

The CBTM-02 is a commercial experiment designed to pre-clinically test pharmaceuticals, and develop and examine animal models useful to pharmaceutical and biotechnology companies in the microgravity environment. The experiment consists of three Animal Enclosure Modules (AEMs) in the Shuttle Middeck. The research conducted is expected to answer questions about the effectiveness of a promising drug candidate as a countermeasure to muscle atrophy observed in microgravity. This will be the first time that a muscle atrophy pharmaceutical countermeasure will be tested in space. If successful, the development of a pharmaceutical to prevent low gravity-induced muscle atrophy could reduce the need for exercise while maintaining a high level of general muscular fitness in crew members. Such a pharmaceutical could also help many on Earth who suffer from muscle wasting diseases.

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

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 located on the ISS US Lab and consists of a laptop computer with touchscreen, joystick, and reaction switches, mounted on a lap-table tray. PMDIS presents the crewmember with visual stimuli, and measure the response accuracy and score. The equipment will be set up by ISS crew members prior to Shuttle docking. After docking, two Shuttle crew members will perform the experiment separately, and the data transferred onto disks for transfer back to the Shuttle.

I. PAYLOADS OF OPPORTUNITY

1. Ram Burn Observation (RAMBO)

The objective of the RAMBO payload is to help calibrate the RAMBO satellite. This requires retrograde, posigrade, and out-of-plane burns. The RAMBO payload does not require any dedicated Orbiter Maneuvering System (OMS) burn, but will require state vectors. The location of the RAMBO satellite is classified, therefore no pre mission planning needs to be done for this payload.

2. Maui Analysis of Upper-Atmospheric Injections (MAUI)

The objective of the MAUI payload is to obtain optical signatures of spacecraft plumes using optical telescope sensors and all-sky imagers at the Air Force Maui Optical and Supercomputing Site (AMOS). The MAUI payload will require state vector information and may request OMS, Primary Reaction Control System (PRCS) and Vernier Reaction Control System (VRCS) burns, if propellant and crew time are available. The MAUI payload may collect data during any encounter opportunity when the Orbiter support activities can be planned to meet the criteria defined.

J. ON ORBIT DETAILED TEST OBJECTIVES (DTOs)

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

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

2. DTO 853 In-Flight Evaluation for Areas of CO2 Concentration

The purpose of the DTO is to evaluate Carbon Dioxide (CO₂) levels at mission specific times and suspect areas in the Orbiter that have the potential to contain elevated levels of CO₂. CO₂ levels will be recorded using the Carbon Dioxide Monitor (CDM) - a portable handheld device designed to monitor and quantify CO₂ concentrations. The characterization of airflow mixing in the middeck will help define LiOH requirements for later flights.

K. SHORT DURATION BIOASTRONAUTICS INVESTIGATIONS (SDBIS) |

1. SDBI 1490 (Protocol B) - Bioavailability & Performance Effects of Promethazine (PMZ) During Space Flight

The purpose of this SDBI is to establish dose-response relationship of Promethazine (PMZ) before and during flight; estimate bioavailability of PMZ from the intramuscular (IM), oral, and suppository routes of administration before and during flight; and compare and contrast the effect of flight-related variables (e.g., space motion sickness, (SMS), mission duration, sleep medications, and crew activity schedules) and PMZ administration on sleep quality and efficacy.

2. SDBI 1634 - Sleep-Wake Actigraphy

This SDBI will use state-of-the-art ambulatory technology to monitor sleep-wake activity and light exposure patterns obtained in-flight. This data should help us better understand the effects of space flight on sleep as well as aid in the development of effective countermeasures for both short and long-duration spaceflight.

3. SDBI 1493 - Monitoring Latent Virus Reactivation and Shedding

This SDBI will determine the frequency of induced reactivation of latent viruses (includes saliva collection), latent virus shedding, and clinical disease after exposure to the physical, physiological, and psychological stressors associated with space flight.

4. SDBI 1503-S - Midodrine

This SDBI will determine the usefulness of midodrine, an α -adrenergic agonist, to support standing arterial blood pressure and thereby reduce incidence of postflight orthostatic hypotension. During Protocol A, midodrine was administered postflight. For Protocol B, midodrine will be administered in-flight between Time of Ignition (TIG) and landing with the callout located in the Entry C/L book.

This Page Intentionally Blank

STS-118 KU BAND ANTENNA BLOCKAGE PLAN

|

KU BAND ANT
BLOCKAGE PLAN

STS-118 KU BAND ANTENNA 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
~00/03:45	Beta 21 + Mask with box: A1: $26 \leq AZ \leq 110$ $-90 \leq EL \leq -30$	RMS Checkout	Protection for SRMS
~00/04:30	Beta 21 + Mask	RMS - back in Pre-Cradle	Standard mode used for Orbiter with all payloads within PLB envelope
~00/16:10	Beta 21 Only with box: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	OBSS Unberth	Protects SRMS for OBSS Unberth operations and for maneuver to Flat Field position
~00/17:10	Beta 21 Only with box: A3: $-132 \leq AZ \leq 80$ $-90 \leq EL \leq 60$	Begin STBD Survey	Protection for SRMS during STBD Survey
~00/19:05	Beta 12 Only	Nose Cap Survey	Protection for SRMS during Nose Cap Survey
~00/20:05	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	End OBSS Berth	SRMS back in Pre-Cradle. Standard mode used for Orbiter with all payloads within PLB envelope
~01/19:00	Beta 21 Only: B1: $-42 \leq AZ \leq 50$ $-35 \leq EL \leq 40$	RNDZ at 765 ft	Protection for ISS during RNDZ
~01/20:25	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D10: $-106 \leq AZ \leq -8$ $-39 \leq EL \leq 44$	Prox Ops at 105 ft through docking	Protection for ISS structure
~01/22:10	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D2: $-111 \leq AZ \leq 6$ $-88 \leq EL \leq 44$	S5 Grapple and Overnight Robotics Configuration	Protection for ISS structure Protection for SRMS, SSRMS, and S1 during Handoff

KU BAND ANT
BLOCKAGE PLAN

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~02/18:30	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D4: $-124 \leq AZ \leq 6$ $-89 \leq EL \leq 44$	Begin ROBO operations, SSRMS Install	Protection for ISS structure Protection for SRMS and SSRMS during operations
~03/00:20	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D2: $-111 \leq AZ \leq 6$ $-88 \leq EL \leq 44$	End Robotics operations	Protection for ISS structure Protection for the SSRMS in its overnight configurations at WS1 as well as the S5
~03/03:30	Beta 21 Only with boxes: D3: $-107 \leq AZ \leq 71$ $-89 \leq EL \leq 87$	Begin MBS translation to WS4	Protection for the SSRMS in its overnight configuration at WS4 as well as the S5
~03/16:00	Beta 21 Only with boxes: D6: $-129 \leq AZ \leq 74$ $-89 \leq EL \leq 87$	Begin Robotics operations starting with OBSS Unberth and Handoff	Protection for SRMS, SSRMS, and ISS structure
~04/03:25	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D2: $-111 \leq AZ \leq 6$ $-88 \leq EL \leq 44$	End Robotics operations	Protection for ISS structure
~05/15:10	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D1: $-86 \leq AZ \leq 45$ $-39 \leq EL \leq 40$ D7: $45 \leq AZ \leq 83$ $38 \leq EL \leq 62$	Begin Robotics operations starting with ESP3 Grapple	Protection for the SRMS, SSRMS, and ISS structure
~06/03:10	Beta 21 Only with boxes: D3: $-107 \leq AZ \leq 71$ $-89 \leq EL \leq 87$	Begin MT Translation to WS4	Protection for the SRMS, SSRMS, and ISS structure during MT Translation to WS4

APPROX. MET (ALL TIMES APPROXIMATE)	MODE	EVENT	DESCRIPTION
~06/04:40	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D8: $-86 \leq AZ \leq -8$ $-39 \leq EL \leq 54$	End MT Translation to WS4	Overnight Protection for the SRMS, SSRMS, and ISS structure
~06/18:00	Beta 21 Only with boxes: D9: $-161 \leq AZ \leq 96$ $-89 \leq EL \leq 89$	Begin Robotics operations starting with SSRMS MNVR to SASA Start Position	Protection for the SRMS, SSRMS, and ISS structure during EVA3
~06/22:25	Beta 21 Only with boxes: C1: $-13 \leq AZ \leq 46$ $-68 \leq EL \leq 75$ D1: $-86 \leq AZ \leq -8$ $-39 \leq EL \leq 44$	End Robotics operations	Protection for the ISS structure
~08/15:55	Beta 21 Only B1: $-42 \leq AZ \leq 50$ $-35 \leq EL \leq 40$	Post Undock, Orbiter at approximately 105 ft	ISS Protection with 8° corridor inside of 765 ft but greater than 105 ft Undocking through Sep 2
~08/17:10	Beta 21 + Mask	Post Sep 2 Configuration	Standard Mode used for Orbiter with all payloads within PLB envelope
~08/17:35	Beta 21 Only: A2: $-90 \leq AZ \leq 110$ $-90 \leq EL \leq 0$	OBSS Unberth	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
~08/20:55	Beta 12 Only	Nose Cap Survey	Protection for SRMS during Nose Cap Survey Note: Do not initiate SRMS in NOSE CAP ACAS Start
~08/22:05	Beta 21 Only: 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
~09/00:25	Beta 21 + Mask	End OBSS Berth	SRMS back in Pre-Cradle. Standard mode used for Orbiter with all payloads within PLB envelope

FLIGHT PLAN WALKTHROUGH (WITH RATIONALE)

The following day by day timeline summary is outlined for an 11 day mission, as published in the Flight Plan, and a 14 day mission.

Flight Plan Design:

- Due to the possibility that STS-118/13A.1 could be an 11 or 14 day mission (depending on SSPTS power availability), best effort was made to co-align mission objectives, activity scheduling, and crew sleep cycles through at least Flight Day (FD) 8. Publication of an 11 day mission timeline, despite expected SSPTS success, was decided for two reasons: 1. the official mission duration designation is 11+3+2, and 2. it offers the most constraining view of what it takes to get the major objectives accomplished.
- The 11 day timeline was built in such a way that the easiest path will be taken in real-time replanning once mission duration is defined. Most activities and requirements are included in the timeline as if duration was 14 days, unless the more timeline constraining version of an activity or group of activities (such as water ops planning) is due to the nature of the 11 day mission (i.e. SSPTS not functional). Thus, depending on 11 or 14 day durations, most daily replanning will be in the form of activity deletions or minor changes.
- Note, a successful launch attempt on the first two flight days will result in a 12 day mission even if SSPTS does not become operational. There is also possibility of a 13 day duration. Flight Rule C2-24 provides a guideline of major mission events for durations 11 thru 14. The 12 day mission likely adds a full Transfer day. Thirteen day mission likely includes an EVA 4 day.

General Items:

- **ISS activities completed prior to Shuttle docking:**
 - SSRMS Pre-launch checkout at L-48 hours. Mobile Transporter (MT) is at worksite (WS#1) with SSRMS on MBS, PDGF 1.
 - ISS SAFER checkouts are completed.
 - ISS EMU Checkout is complete.
 - MTL & LTL ITCS sample is complete.
- **Exercise Constraints:** Shuttle Ergometer and ISS IRED Exercise are not allowed whenever there is mechanism motion (P6 photovoltaic radiator (PVR) retraction) or any time both SRMS and SSRMS are grappled to something (i.e., S5, ESP3 or OBSS). The flight specific Flight Rule for Loads Constraints (i.e. Exercise) has not been finalized at time of this publication; therefore some of the constraints information provided for each flight day may or may not be accurate. A conservative approach was taken to scheduling crew Exercise during anticipated constraining periods.
- **SSPTS:** (Station-Shuttle Power Transfer System): This is the first flight where Shuttle will receive power from the ISS thus providing the ability for longer mission duration. Four power channels are available; however, it is expected that no more than two channels will be used at any time during this flight. SSPTS will be activated on the evening of FD03 after docking and will remain powered until just before undocking, with the exception of one powerdown period required when SARJ needs to be locked for S5 install on EVA 1 (FD04). All SSPTS Orbiter Power Control Unit (OPCU) act & deact actions are included in the 11 day plan and will be deleted if non-functional.
- **Transfer:** 108 hrs are required, 78 from the Spacehab, 30 from the Middeck (mddk)
 - Cargo is transferred from Spacehab forward & aft bulkheads, the Maximum Envelope Stowage System (MESS) rack and the double stowage rack to the ISS. Items brought from the ISS are stowed in Spacehab or the Middeck.
 - Transfer is not timelined during SSRMS operations due to spatial constraints at the robotics work station (RWS) in the ISS Lab. On EVA 1, 2 & 3, minimal Transfer is scheduled prior to EVA. In the 14 day mission, there are no SSRMS ops during EVA 4, so Transfer is permitted.

- Transfer is not scheduled without a loadmaster, except in special cases where the loadmaster has been scheduled lead time at the beginning of a short transfer period.
- No more than 5 crew are allowed to be timelined for Transfer at a given time due to overcrowding.
- Transfer Updates are scheduled every morning beginning on FD03 for 15 minutes (except FD03 - 30 min). Transfer Tagups occur between MS4 and another loadmaster. Transfer Briefings are conducted with crew and MCC, therefore comm must be available.
- **Spacehab (SHAB):** SHAB is activated on FD01 and is closed out for entry on EOM-1 (crew preference). There are no plans to re-open Spacehab for wave-off days. MS4 is responsible for all SHAB activities including Act, Deact and daily configs during her post/presleep periods. A SHAB fan bypass duct check is performed anytime generic Orbiter filter cleaning is scheduled to ensure SHAB is getting proper airflow from the middeck. A flex duct debris screen check is performed once mid-flight.
- **EVAs:** Three EVAs are planned in the 11 day mission; 4 if 14 days. All are planned using the ISS Airlock and Campout Prebreathe protocol. There are 3 EVA crewmembers: MS2, MS3, and ISS FE-2. MS2 & MS3 perform EVA 1 and 2; MS2 & FE-2 perform EVA 3. MS3 and FE-2 perform EVA 4.
- **Robotics:**
 - The SRMS is left powered from FD01 until after EVA 3 on FD08. It is powered up again prior to Late Inspection on Undocking day (FD010 or FD013).
 - SSRMS is used from FD03 until completion of EVA 3 on FD08. It is planned to leave the SSRMS at its final MT position (WS#4) during EVA 3 with the wrist reconfigured for undock at the end of its last EVA 3 support task (CETA cart relocation).
 - Manipulator Control Interface Unit (MCIU) filter screen checks are scheduled daily, except on days when standard Filter Check is scheduled.
- **MT/MBS/SSRMS Summary:**
 - SSRMS supports S5 install from WS#1, MBS PDGF1.
 - SSRMS supports OBSS hand-off for Focused Inspection from WS#4, MBS PDGF1.
 - SSRMS supports EVA-2 (CMG R&R) from the Lab PDGF following a walk-off from the MT at WS#4. MT will translate unloaded to WS#7 to be pre-positioned for ESP-3 install. SSRMS walks-off to WS#7, MBS PDGF2 following EVA-2.
 - After ESP-3 install completion, MT with SSRMS translates to WS#4 to support EVA 3. This is the final location for the flight as SSRMS support is not required for EVA 4.
- **General EECOM Notes:**
 - The EECOM water plan is in flux and may vary from what is scheduled in this Flight Plan and documented in this Flight Plan walkthrough. The information provided is the plan at Flight Plan Final publication.
 - Ten CWC fills and 7 PWR fills are timelined in the 11 day mission. Two of the timelined PWR fills are for the ISS Oxygen Generating System (OGS), 5 are for EVAs. CWC fills and PWR fills cannot occur at the same time since EECOM would not be able to tell how much water is in each. PWR fills cannot occur during supply nozzle dumps.
 - The EECOM water plan for the mission is dependent on the operation of SSPTS. When SSPTS is operating, Orbiter fuel cells produce less water and therefore supply dumping is minimal and the FES can be deactivated for most of the docked timeframe. The Flight Plan assumes water production based on SSPTS not operating and therefore there are several FES dumps and Simo dumps (vs just waste dumps) timelined.
 - Water dumps (whether Simo or Waste only) are scheduled on the same flight days for 11 & 14 day missions:
 - 11 day: FD03 (pre-dock), FD07 (docked), FD011 (EOM-1).
 - 14 day: FD03 (pre-dock), FD07 (docked), FD011 (docked), FD014 (EOM-1).
 - All the dump periods, except for FD03, include two Condensate dumps. PWRs are also dumped (emptied out) during the mated dumps for prior to refilling.

- Humidity Separator (Hum Sep) checks are performed in Presleep on FD01 and on any day when a condensate bag is set up to ensure the water is going into the bag and not into the Lower Electronic Box (LEB).
- **PMCs:** Generally, these are scheduled in Presleep and performed via A/G. One Presleep PMC is scheduled via OCA to ensure Netmeeting operation prior to PFCs on FD09. PMCs for the EV crew on the morning of EVAs are conducted via ISS S/G while in the crew lock in the 40 minute period prior to the Hygiene Break.
- **PAO Events:** Mostly planned for the US Lab while docked. If Shuttle KU is not available, ISS Ku may be used. Educator Astronaut MS4 participates in all but one PAO event. There are three Educator specific PAO events in the 14 day mission; one in an 11 day. Additionally, there are two occasions scheduled for a short PAO crew choice event if crew time and Ku comm is available (late FD02 and FD05, if no Focused Inspection).
- **PGSC Daily:** PGSCs except for WLES and WorldMap are rebooted daily (EZ block).
- **DCS:** All digital camera systems (DCS) activities are performed by the ISS crew.
- **Secondary payloads:**
 - MERLIN launches powered and returns unpowered. It requires twice daily status checks from FD01 until the facility is shutdown (MERLIN WARM SHUTDOWN) following completion of the 15 hr SPEGIS incubation period. The crew checks the hardware functions and operational temperature. Desired separation of the two status checks each day is between 8 - 12 hours. MERLIN/SPEGIS Setup occurs on FD04. SPEGIS incubation must be initiated by FD07 or there will be loss of science.
 - CCM-A is activated on FD01 and deactivated on entry day. It requires twice daily status checks; one as close to Post Sleep as possible and the other as close to Presleep as possible. The crew records rail temperatures and notifies MCC.
 - CBTM requires a daily status check at the same time each day +/- 2 hrs. The checks include crew observation logs and AEM hardware status. It is very important the daily checks occur within the same window timeframe to avoid disturbing the experiment light cycle. CBTM requires still photos and three videotape sessions (FD02, 5 or 6).
 - PMDIS is an ISS payload and will be setup sometime after hatch opening. Each PMDIS session performed by two Shuttle crewmembers needs to be completed by Launch + 96 hrs (MET 4/00:00). Once the tests are complete, PMDIS equipment will be stowed by the ISS crew.
- **On-orbit SDBIs, DTOs, SDTOs:**
 - **SDBIs 1634 (Sleep Short) and 1493 (Latent Virus)** are usually scheduled daily for assigned crewmembers, except where impacting specific crew on a critical work day or if SCSC violations would result. SDBI 1490B (PMZ) is only performed if promethazine is taken by a participating crewmember on FD01. SDBI 1503S (Midodrine) is only performed during Shuttle entry.
 - 1490B: Actiwatch and sleep log (MS1, MS3).
 - 1493: Daily saliva collections and log at crew wake up. (MS1, MS3, MS4).
 - 1634: Actiwatch worn throughout mission, daily sleep log. (CDR,PLT, MS1,MS2,MS3).
 - 1503S: During entry (MS3).
 - **DTO 853 Carbon Dioxide Monitor (CDM)** is operated over five Sleep periods during the mission, preferably when all Shuttle crew available (that is, no crew in ISS airlock campout). It is activated just prior to sleep and deactivated immediately upon wake-up so that there is least disturbance to the air mixing at the five middeck measurement locations. After each datatake, a battery changeout is performed and the monitoring device is relocated to a different spot in the middeck.
 - **SDTO 13005-U** is desired during docking, S5 installation, reboost and undocking. The Internal Wireless System (IWIS) is only required for docking and reboost. However, there is no reboost planned due to limited prop margins. S5 install and undocking measurements will use other equipment.

- **ISS R & Rs:**
 - Docked Audio Interface Unit (DAIU): troubleshooting and possible R&R of failed unit occurs while docked to confirm operational. Not currently planned for 11 day mission.
 - Lab Window Scratch Pane R&R: performed to improve science imagery and return old pane in the Spacehab. Currently timelined in 11 day mission.
 - CEVIS R & R: Replace the current CEVIS which has an anomolous power supply and return. Not currently planned for 11 day mission.
 - TVIS Skirt R & R: Performed by ISS crew in the 11 day mission.

FD01 – Launch & Setup

- **Following Post Insertion (PI)** the standard FD01 activities are scheduled: NC1 OMS burn, Aft Controller checkout, Elevon Park, RMS On-orbit init, GIRA Install, APU Reconfig, Group B powerdown, Load DAPS, OCAC setup, Tissue Equivalent Proportional Counter (TEPC) power on and Shuttle Emergency Eyewash (SEE) setup.
 - NC1 is designated as a critical burn and G2 Set is left in expansion in the PI checklist. Following the burn the G2 Set contraction will be performed.
 - SEE Setup must occur after the GIRA Install.
- **Spacehab (SHAB):** In PI, PL Bus activations are performed to keep the module thermally safe. Following PI, MS4 and MS5 will complete the SHAB system activation, set up booster fan bypass, open the hatch. Two crewmembers may be sleeping in the SHAB.
- **PGSCs:** Part I of PGSC setup is completed, which includes running the late update disk on the absolute minimum config of the OCA 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 FD01.
- **Ascent Imagery:** ET handheld photos and ET umbilical well photos will be downloaded to a PGSC for OCA downlink. ET Video downlink will be performed.
- **RMS:** MS1 and MS2 will perform the RMS Powerup and RMS C/O in preparation for the survey on FD02. The RMS is placed in pre-cradle for overnight (not powered down).
- **Photo/TV:** P/TV01 Setup is scheduled on FD01 with additional time the morning of FD02 to complete Setup if needed. P/TV01 is the general setup of camera equipment for the mission. The first few steps of the setup procedure are required prior to playing back the ET video. Steps 1 - 9 are the minimum requirement for FD02 OBSS TPS inspection.
- **SSV Setup:** Not scheduled separately this flight as it is step 6 of P/TV01 Setup.
- **Secondary Payloads:**
 - MERLIN daily status check.
 - CCM-A activation scheduled no later than Launch + 3 hours. Includes pushing a button on the front panel and taking a photo of the front panel. The short photo procedure is P/TV12 Middeck Payloads, which is scheduled in the EZ block.
 - CBTM Mufflers are installed on the locker face of each AEM to minimize noise levels in cabin during the mission. This is followed by the first daily status check.
- **CSA-CP:** A new type of alkaline battery is being used for CSA-CP, replacing the lithium ones which off-gas and can contaminate the combustion sensors. The alkaline battery has limited life and it is required to do a battery changeout on FD01, scheduled as an EZ activity. CSA-CP is then checked out and calibrated.
- **SDBIs:**
 - **1490B, 1634** - Crew participants don Actiwatch activity monitors and wear them throughout the mission. EV (MS2, MS3) crew will remove the watch prior to EVAs. If PMZ required, participating crew (MS1, MS3) will begin following the protocol.
 - **1493** - Latent virus kit is unstowed and placed near sleep area.

FD02 - Surveys, EVA & 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.

- **PGSC S/U & P/TV01 Setups:** Time is allotted for completion of these setups initiated on FD01. They will be deleted if already complete.
- **Surveys:** OBSS Starboard Wing, Nose cap and Port wing surveys & OMS Pod Survey.
 - The survey procedures use a smaller 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 1:45 minutes, the nose cap for 1:00, and the port wing for 2:00. 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 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 desired (not 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.
 - RMS is pre-cradled following survey completion in the OBSS Berth procedure.
 - P/TV08 is set up for handheld photo OMS Pod survey, which must occur in daylight.

- **EVA Preps:** EMUs (two) are checked out and prepared for transfer. EVA Tools are prepared for transfer. EMU Disposable In-suit Drink Bags (DIDBs) are filled. Galley Overnight Config is performed prior to the drink bags fills to add iodine to the water for long term preservation. The bags are then gathered in the EMU transfer prep.
- **Rendezvous Prep activities:** Centerline Camera install and ODS Ring Extension cannot occur during OBSS surveys due to a camera view constraint onboard and thus are scheduled after OBSS Berth is completed. The C/L Camera install must occur before ODS Ring Extension. These activities are scheduled after the completion of the surveys. Hand Held Lidar (HHL) and Rendezvous Tools are checked out. RNDZ Tools C/O cannot occur during the surveys due to PGSC conflict.
- **Transfer:** Loadmasters perform as much Transfer Prep as possible on FD02
- **CWC Setup:** Hardware is set up to be able to fill CWCs. The first fill occurs right after setup. 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. However, it is likely that the an updated cue card will be uplinked later in the mission once SSPTS is declared operational. When SSPTS is operating, there will be less water generation by the fuel cells so the water plan for the docked mission will be somewhat altered.
- **Generic activities:** CRYO O2 Sensor Ck, Water Spray Boiler (WSB) Controller Swap, FC Manual Purge, FC Monitoring, Cabin Temp Controller Reconfig, Ergometer setup and Filter Cleaning are performed.
- **Maneuver:** Prior to crew sleep, the CDR will future load the maneuver for the FD03 waste water dump. The maneuver starts at or just after crew wakeup on FD03.
- **Secondary Payloads/DTOs/SDBIs:**
 - MERLIN & CCM-A status checks (twice at both ends of the day).
 - CBTM Daily status check and CBTM Photo (to capture location and environment of units for historical documentation.)
 - First saliva and log for participating crewmembers (SDBIs).
 - CDM (DTO 853) is setup for the first time anytime prior to sleep, but activation must be done just prior to sleep.
- **ESP-3 Heater Activation:** At L+ 24 hrs, APCU-1 activation is performed to initiate heaters to the External Stowage Platform (ESP-3). CMG-3, which rides on the ESP-3, requires the heater for thermal keep alive. The heaters will remain on until EVA-2 just prior to disconnecting the physical power cables to the heater so that the CMG-3 can be moved to ISS. Thermal analysis has shown that the heater power is not required until L+24 and therefore is not scheduled earlier in order to conserve cryo.
- **O2 Repress:** Performed between mid-day and crew sleep since the Pressure Control System (PCS) was not activated on FD01. Pressure bleeds down (via cew O2 consumption) to meet the ISS desired pressure for hatch opening. The reduced pressure is also required to support 4 ISS based EVAs. The ppO2 needs to be maintained within Shuttle operational limit; the O2 Repress ensures these limits will not be violated.
- **Payload bay floodlight constraint:** occurs with S5 truss in the bay when the Orbiter is in a solar inertial attitude. This occurs during the Comm attitude for LDRI playback. A 30 minute Off period must follow any 60 minute On period for the mid and aft lights.

FD03 – Docking and S5 Handoff

- **CDM:** The CDM will be powered off immediately after wakeup, with the battery changeout and device relocation occurring later in the day.
- **RNDZ:** 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.

- **Spacehab:** The Spacehab module hatch is closed out for docking (SHAB PREP for DOCK). This must not occur prior to MS4's Transfer Update block because she wouldn't be able to use SHAB to update her transfer lists. After docking SHAB hatches are reopened.
- **Transfer:** Limited Transfer time is available on FD03. In addition to generic Transfer, the crew transfers to the ISS: two EMUs, EVA Tools, SODF, two CWCs and CGBA5. Along with the SODF, MS5 will transfer Joint Expedited Egress (JEE) cue cards and deploy them at the airlock and lab fwd hatch.
- **RPM Image Card Transfer to STS:** If ISS OCA is not powered up by hatch opening between the two vehicles or ISS Ku not expected to be available for a long time AND if Shuttle is expected to have Ku, a real time call will be made to transfer the RPM image card over to the KFX machine on Shuttle for downlink. It is highly desired to get the images down as soon as possible.
- **EECOM:**
 - A Waste dump is scheduled to start soon after crew wakeup.
 - The CWC Condensate bag is installed prior to docking. To verify that the water from the Hum Seps are going into the Cond bag and not into the Lower Electronic Box (LEB), CDR will perform a hum sep check in Presleep.
 - CWC Fill #2 is performed.
 - The FES may or may not be deactivated soon after SSPTS is activated on FD03. The timeline includes FES-OFF on MCC Go post SSPTS activation.
- **PGSC:**
 - Post docking, the PGSC network is reconfigured from the RNDZ configuration to an RMS configuration in preparation for S5 unberth and handoff. The STS PCS is also setup as desired by the crew.
- **EVA items:**
 - Prior to docking, the EMUs are removed from the Orbiter airlock to facilitate ISS access after docking.
 - Post docking, crewmembers begin preparing for EVA 1. EMU suits, the filled drink EMU bags and EVA tools will be transferred from the Orbiter to the ISS airlock. The REBA will be installed into the EMUs and powered hardware checkout performed. The Equipment Lock is prepared. The procedure takes only 30 minutes since the drink bags were filled FD02. The crew will configure the EVA tools, which may continue while the EV crew is prebreathing on the masks. All crewmembers are timelined an hour for the EVA 1 procedure review.
 - The CDR and FE-2 configure the O2 system so that the Orbiter provides the oxygen for EMU prebreathe which conserves ISS resources.
 - MS2 and MS3 start EVA campout procedures at the end of the day. The EVA crewmembers cannot initiate repress until at least 8:40 has elapsed at 10.2 psi, which isn't a problem with the nominal 8 hour sleep period.
- **Comm:**
 - The OIU is activated during RNDZ and will remain on until post undock.
 - The hardline audio config is performed post docking. 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-118 mission will use UHF comm just like those other flights. DAIU troubleshooting will be performed on FD011 if the mission duration is 14 days.
 - The SSV outrate is changed to 2 prior to docking and then changed to 3 post-docking.
- **Maneuvers:**
 - Once docked, the Shuttle will maneuver the stack to the Biased -XLV -ZVV (TEA) attitude. ISS will take over attitude control and maintain it 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.

- o The set contraction in Group B Powerdown cannot be scheduled after the Shuttle maneuver to TEA is complete. Previous flight analysis has shown that performing the set contraction in the middle of the post docking maneuver can significantly increase the chance of exceeding the max vern jet cycling limit.
- **Ingress:** After docking, leak checks are performed on the PMA and ODS and the ODS is prepared for ingress including the removal of the centerline camera. P/TV04 will support hatch opening and ingress. A short welcome and then a safety briefing will be given to the to the Shuttle crewmembers.
- **Photo/TV:** Post docking P/TV04 is set up for ISS ingress video and photos and P/TV06 is set up to supply video of S5 Unberth and Handoff. Post hatch opening P/TV05 Setup (ISS Internal Ops) is performed. BPSMU is configured for ISS comm between the ISS and Orbiter. Drag-through RWS cables will be connected to the quick disconnect (QD) box on the ISS. Depending on how the cable is setup at the RWS, the crew may have to connect an A31p video adapter to the video cable string so they can display the video on the A31p's. The cables cannot be connected until the hatch is open. A video playback of docking is also scheduled.
- **Robotics:**
 - o While the hatches are still closed between the two vehicles post-docking, SRMS S5 operations will begin with grapple and unberth. The unberth cannot begin until ISS is in momentum management (MM) following the handover of attitude control from Shuttle to ISS and the desat request is verified inhibited (step 1 of unberth). This could take up to 30 minutes and therefore ~ 30 min is allotted in the timeline. Once in MM, PRLA release of S5 can be performed and unberth can commence. It is timelined that the unberth will be complete (SRMS in low hover) while the hatches are opened.
 - o S5 robotics ops will be on hold until after the welcome ceremony, safety brief and camera setups for viewing are complete.
 - o After the safety briefing, S5 ops will continue. PLT and FE-2 will mnvr the SSRMS to the pre-grapple position. MS1 and MS2 will mnvr the SRMS with S5 truss to the handoff position. SSRMS will grapple S5. Then SRMS will ungrapple S5 and mnvr to the S5 install viewing position for overnight. The SSRMS with S5 is parked at the handoff position overnight.
- **Exercise:** Not allowed while both arms are grappled to the truss.
- **SSPTS:** After docking CDR, performs a quick verification of the SSPTS X1 and X2 connector telemetry which will provide a minimal check of the ODS / APAS connectors before activating the ISS Remote Power Controllers (RPCs) for the Orbiter Power Converter Unit (OPCU). A few hours later, when ISS is expected to be back up to its nominal operating power config and the ground closes the ISS RPCs, on MCC go Shuttle crew will initiate ISS power transfer to Shuttle by activating OPCU 1 & 2 from panel A15. OPCUs require 120 V input power from the ISS RPCs. SSPTS function will be known by this time: however the ground will continue to monitor for a yet, undetermined amount of time (could be FD05) before a 14 day mission is declared.
- **IWIS:** For SDTO 13005-U is set up by ISS crew for docking, then deactivated post docking
- **Secondary Payloads:**
 - o MERLIN and CCM-A twice daily status checks.
 - o CBTM daily status check.

FD04 – S5 Installation and EVA 1

- **EVA 1 Overview:** S5 space truss installation onto the S4 truss, S5 PVRGF relocation, S5 prep get ahead tasks P6 forward radiator retract and cinch.
- **EVA Prep Activities, EVA prep/Campout protocol:** 40 minutes following campout crew wakeup, the airlock is repressurized 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 suit IV crewmembers (two) 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 (MS2 and MS3) 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 EVA 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 into space and begin EVA setup. P/TV07 supports EVA activities.

- The PMC for the EV crew is conducted via the ISS S/G while in the Crew Lock, during the 40 minutes before the hygiene break per crew request.

- **EVA 1 (EVA tasks and robotics):**

- MS2 is EV1, MS3 is EV2, MS1 is IV, PLT is M1, FE-2 is M2.
- Prior to the EVA, SSRMS is located at WS#1 PDGF 1 with the S5 truss in the handoff position. The starboard solar arrays need to be parked during EVA 1 to provide SSRMS S5 access to S4, resulting in lower ISS power generation. MCC-H locks the S3/S4 SARJ at 180 deg, S4 1A BGA at 180 deg and S4 3A BGA at 270 deg. Due to the low power generation, if SSPTS is operational, it must be powered down for EVA 1. PLT powers off OPCUs 1,2 from Panel A15.
- While the EV crew is in the crewlock depress and after MCC-H parks the arrays, the SSRMS maneuvers the S5 to the pre-installation position. After the EV crew egresses the crewlock and sets up, they translate (free float) over to S4 corners 2 and 3 for SSRMS GCA (guided controlled assist) to the S5 launch lock removal position.
- S5 to S4 Launch Lock Removal - SSRMS is moved to the launch lock removal position (about 6 - 12 inches from S4) with EV crew guided assist. Each EV crew ingresses Articulating Portable Foot Restraints (APFRs) and removes launch locks using pistol grip tools (PGTs) from the four S5 corners which will attach to S4.
- S5 Install - SSRMS maneuvers the S5 to a soft capture position with EV crew monitoring structural clearances. Once soft captured, EV crew drive the Rocketdyne Attachment System (RTAS) bolts to an initial torque at each corner. The SSRMS ungrapples S5. The crew then proceed to provide final bolt torque, install ground straps and remove soft capture pins first at corner 1 and 2 and then at corners 3 and 4. S5 installation is complete.
- Photovoltaic Radiator Grapple Fixture (PVRGF) Relocation - The PVRGF provides grapple fixtures for the SRMS and SSRMS to use during the S5 hand-off. After S5 is installed, the PVRGF interferes with S4 3A BGA rotation and therefore the EV crew must relocate it to the keel position on S5. SSRMS provides viewing support.
- S5 Getaheads - Since the crew is already at the S5 truss, if they are ahead of the timeline they can begin performing some Category 4 getaheads (tasks desired prior to mission 15A when the S6 truss is installed). They have until 04:10 PET at which point S5 Cleanup must commence. The getaheads include connecting S5 to S4 electrical connections (1:00), removing S5 to S6 launch locks (00:40), and opening the S5 RTAS capture latch assembly (CLA) (00:15) to allow future S6 capture.
- S5 Cleanup - The crew takes photos, gathers up tools, trash bag with removed launch locks, and translates back to the airlock; on the way relocating the APFRs to CETA Carts 1 and 2 for EVA 3 use.
- P6 FWD PVR Retract and Cinch - The task is performed in preparation for P6 relocation on STS-120/10A. Additionally, it must be performed prior to P6 SASA relocate on EVA 3 due to clearance issues. The crew leaves the airlock location and translates to the P6 forward PVR starboard nadir corners with EV1 forward on P6 and EV2 port. They translate around the PVR to ensure it is in a good config and clear of obstructions for retraction. On EV crew go, MCC-H performs the PVR retraction. After the PVR is retracted, the crew installs cinches and provides torquing.
- EVA Cleanup/Ingress - The crew translates back to the airlock. If time is available they will take photos of MISSEs 3 & 4 to be downlinked via OCA to see if they are in a safe (non-toxic due to leaking) condition for return. IV performs WVS powerdown.

- **Exercise:** Shuttle and ISS RED Exercise is not permitted during the various periods of APFR use and during PVR retraction.

- **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 recharge. METOX regen is not performed on this day due to power constraints (since the SARJ is locked for EVA 1). Battery Stowage Assembly (BSA) recharge is initiated. This recharges helmet light, PGT and REBA batteries.
- **Robotics:**
 - SSRMS supports the S5 installation and EVA as described above. Once no longer needed for PVRGF viewing support and the EV crew is clear, it is configured to a position to be ready for translation on the MT where it will ride to WS#4 in the evening in support of OBSS hand-off on FD05.
 - SRMS is only used for viewing support. After the EVA it is put in precradle for overnight.
- **SSPTS:** If functioning, the OPCUs will be powered OFF prior to the start of EVA 1 and then powered back ON after EVA 1 is complete as explained in the EVA tasks section. The Ground will then perform an OPCU Checkout the next morning.
- **Transfer:** Only minimal Transfer is scheduled on available crewmembers prior to SSRMS activities commence. Post EVA, two CWCs and the OGS PWR are transferred to ISS.
- **EECOM / ECLS:**
 - CWC 3 & 4 are filled.
 - N2 transfer from Orbiter to replenish the ISS tanks is initiated by STS and ISS crew. 50 lbs are requested. Termination is timed on FD08. Max rate is 3 lbs / hr, but 1 lb per hour is typically seen.
 - One PWR is filled and transferred to the ISS to be used for recharging the Oxygen Generating System (OGS) which occurs on FD06.
 - Carbon Dioxide Removal Assembly (CDRA) is activated by ISS crew
- **Photo/TV:**
 - An overnight External Survey is scheduled. Crew turns on PLB illuminators in pre sleep.
 - SHAB CC Setup (crew request). Crew sets up a camcorder in the SHAB to drag the video signal over to ISS. The video cable goes to the RWS in the Lab, but won't interfere with SSRMS ops.
- **CDM:** The 2nd of 5 data takes is started just prior to sleep with a CDM activation.
- **Secondary Payloads:**
 - MERLIN/SPEGIS -
 - MERLIN twice daily status checks.
 - MERLIN/SPEGIS Setup is scheduled mid-FD04. It cannot occur prior to FD04 in order to allow MELFI temperature to stabilize after docking. SPEGIS canisters are removed from MERLIN and then transferred to the MELFI on ISS. The MERLIN temperature is then ramped up from +4 deg C to +37.5 deg C for later incubation.
 - MERLIN Photo (P/TV12 Middeck Payloads) is required once concurrently with MERLIN/SPEGIS Setup. It can also be done during one of the SPEGIS sample insertion / removal activities on another day. View includes crew performing ops.
 - MERLIN Video (P/TV Middeck Payloads) is recorded of the payload and front panel for ground verification of on-orbit config. This can be done anytime during docked ops. Crew downlinks at their earliest convenience.
 - CBTM - Daily status check.
 - PMDIS - FE-2 performs hard drive install and hardware setup. MS5 performs data session.
 - CCM-A - twice daily status check.

FD05 – Focused Inspection (FI) (or Full Day Transfer)

- **General Note:** This day is planned primarily as a focused inspection day if imagery results from FD02 inspections and RPM photos deem FI necessary. The sensor(s) which will be used is based on the inspection areas targeted and the type of images needed, although LCS is considered highest priority for FI. LCS/IDC images are brought down via OCA;

LDR1/ITVC requires live downlink or playback on either TDRS E or W. TDRZ cannot be used. If no FI is required, the day will be dedicated for Logistics Transfer.

- **SSPTS:** If SSPTS is operational, MCC-H will perform an OPCU Checkout in morning that may cause some messages to occur. No action for the crew, but there is a note located on the detail pages during the Post Sleep of this morning (SSPTS OPCU Checkout. Expect 'SPEC 179 OPCU CH VOLTS' msgs).
- **Robotics:**
 - Focused Inspection will be performed using the OBSS on the SRMS. A 3 hour placeholder activity is timed for FI. There is a little more time available if required; however, Transfer and EPO activities would have to be deleted. The crew performing the FI (MS1, MS4, CDR) will begin their day with a DOUG Review. Since the SRMS cannot reach the OBSS in the docking config, the SSRMS must unberth the OBSS and hand it off to the SRMS. SSRMS provides SRMS OBSS viewing support. After the FI is complete, the SSRMS grapples the OBSS from the SRMS and then performs OBSS Berth. The SRMS is put in pre-cradle for overnight. The pre & post FI OBSS handoffs each take about two hours.
 - Walk-Off - In the evening, the crew will perform SSRMS walk-off from WS#4 PDGF 1 to the LAB. First, a 30 minute mnvr is performed for the SSRMS to grapple the Lab grapple fixture. MCC-H then performs a base change (~1 hr). The crew returns to the RWS to complete the walk-off by releasing the SSRMS from the MBS PDGF and maneuvering it to the EVA 2 start position.
 - MT Translate - MCC-H translates the MT (without SSRMS) to WS#7 from where the SSRMS will support ESP-3 install ops on FD07.
- **EVA 2 Prep activities:** MS2 and MS3 install METOX and batteries for the next EVA, perform BSA recharge termination (initiated the night before), and EMU battery recharge initiation (which are not initiated the night before, since they require 4 hour cool down). The EV crew prepares EVA tools and the Equipment Lock. Additionally for this day, SAFER s/n 1004 brought up in SHAB is checked out and stowed on ISS. SAFER Swap must occur concurrently with the SAFER Checkout and stows SAFER s/n 1003 for return. This is just standard SAFER rotation activity. All crew are scheduled for EVA 2 Procedure Review. EV crew begins ISS airlock campout as described previously on FD04.
- **EECOM:** PWR Fill #1 and #2 and CWC Fill #5 and #6.
- **Transfer:** Minimal Transfer can be scheduled due to all the SSRMS activity. Transfer is scheduled during the actual focused inspection time and later, once the OBSS is reberthed. The filled PWRs and CWCs are transferred.
- **CDM:** The 2nd of 5 data takes is terminated just after wakeup with the battery changeout and relocation happening later on in the day.
- **Secondary Payloads:**
 - EPO Educator -
 - EPO Drink Bag - MS4 fills drink bags with water to be used to supply water during seed growth on ISS. Must be scheduled prior to EPO KIT-C VIDEO.
 - EPO Kit-C Transfer Video requires MS3, MS4, MS5, FE-2. MS4 sets up PD100 camcorder (CC) and records the transfer of seed growth chambers and drink bags from Shuttle to ISS with commentary. After the taping, CC is stowed, tapes are labeled and returned to Shuttle.
 - The Kit-C Transfer should occur prior to the first EDU PAO Event on FD07 since Kit-C will probably be discussed. It is highly desired to perform this transfer and video documentation on FD05 since there are few other timeline opportunities due to required crew being involved in EVA 2 as EV crew or SSRMS operator.
 - The same camcorder is used for CBTM Video Setup and thus cannot be scheduled at the same time.
 - CBTM -
 - CBTM Video Setup #1. A 40 minute video session is required for each of the 3 CBTM AEMs on either FD02, 5 or FD06. They should be scheduled around the same time as the CBTM daily status check. The setups use the same PD100 camcorder (CC) as EPO and cannot be scheduled at the same time. The CBTM will

be pulled out of the middeck locker to allow for CC attachment. The recording session is unattended by crew; however, after 40 minutes of recording, the crew will remove the CC and mounting equipment, remove the tape and stow the CBTM in the locker.

- o PMDIS - MS3's data session must occur prior to Launch + 96 hrs (or 4/00:00 MET). Upon completion MS3 burns the data to a CD, removes and stows the copied CD and shuts down the PMDIS laptop. FE-2 stows the PMDIS hardware.
- o CCM-A - twice daily status checks.
- o MERLIN - twice daily status checks (note, first check after SPEGIS act must be 10 min).
- o SPEGIS Activation - scheduled prior to Presleep. The 3 SPEGIS canisters are removed (must be at least 2.5 hrs after MERLIN/SPEGIS Setup) from MELFI and transferred to MERLIN where they will be incubated for 15 (+/- 2) hours at a temp of 37.5 deg C. S-band voice is required.
- **Other:** CGBA -5 (which was transferred on FD03) is activated by FE-2 and Radiation Monitor is deployed by ISS CDR.
- **FD05 Non-Focused Inspection Timeline:** If no Focused Inspection is required on this day, the main differences to the timeline will be the added Transfer time and timeline re-ordering. Also, the walk-off will be moved to the start of the day. This is done for two reasons: 1. to allow resolution time in case of problems 2. allow for more Shuttle KU availability throughout the day since the SSRMS will be on the Lab earlier and a smaller KU protect box will be required. One other difference for the alternate Non-FI FD05 timeline is that a short PAO Crew Choice event involving the Educator astronaut will be planned.

FD06 – CMG-3 R&R

- **EVA 2 Overview:** Transfer and install new CMG-3 from ESP-3 in the Orbiter payload bay to Z1 CMG location. Relocate failed CMG-3 to ESP-2 for return on mission 1E.
- **EVA Prep Activities, EVA prep/Campout protocol: see FD04**
- **EVA 2 (EVA tasks and robotics):**
 - o MS2 is EV1, MS3 is EV2, MS1 is IV, PLT is M1, FE-2 is M2.
 - o The SSRMS is in the EVA 2 start position following the walk-off to the Lab on FD05.
 - o Egress/Setup - EV1 translates to the Z1 worksite. EV2 GCAs the SSRMS to the APFR install position near the airlock, installs APFR onto SSRMS (for later), and then free floats to the Z1 worksite where the failed CMG is. The EV crew peels back failed CMG thermal shroud to gain access to CMG-3 and perform WVS survey. MCC-H performs CMG-3 power inhibits.
 - o Remove Failed CMG - The EV crew removes six bolts and temp stows the old CMG on the Multi-Use Tether (MUT) End Effector (EE) and tethers it to the Z1 handrail.
 - o Transfer New CMG to ESP-2 - The EV crew returns to the airlock hatch for tether config. EV1 then translates to ESP-3 in the Orbiter cargo bay. EV2 ingresses SSRMS APFR and is maneuvered to the payload bay to the CMG removal location, where he egresses the APFR momentarily to assist EV1 with removing the new CMG multilayer insulation (MLI). MS1 (IV) then deactivates APCUs 1 and 2 to remove heater power that has been provided to the ESP-3 since FD02 keeping the new CMG-3 thermally safe. No other ORU on ESP-3 required heaters. This is done as late as possible just as the EV crew is ready to remove the CMG-3 from ESP-3. Once this power is removed, the new CMG has ~24 hours to be transferred to Z1 and installed. EV1 at the ESP-3 connector box location disconnects Shuttle power cables (which provided power to the ESP-3 heaters) from the connector box and mates them to dummy receptacles. The power cables are disconnected at this time in order to allow ESP-3 to be robotically removed from the payload bay the next day (ESP3). EV2 has re-ingressed the SSRMS APFR and attached a retractable tether (RET) to the CMG to assist him with carrying the CMG. EV1 releases the Flight Releasable Attachment Mechanism (FRAM) Flight Support Equipment (FSE) bolt, which attaches the CMG to ESP3. The SSRMS then maneuvers EV2 (with CMG and FSE) to ESP-2 for installation there. Meanwhile, EV1 translates to the ESP-2 location. The purpose of installing the CMG FSE on ESP-2 is to then remove the new CMG from the FSE on ESP-2 so that the old CMG can be attached to that FSE

until it is brought back on STS-122/1E. The ESP-2 location was chosen since it is on the airlock making old CMG-3 easily retrievable on 1E. EV1 GCAs SSRMS soft-dock of new CMG to ESP-2 and then drives the FRAM bolt.

- o Remove New CMG - EV1 (free float) and EV2 (on SSRMS) remove the six CMG bolts from the FSE and remove the new CMG from ESP-2.
- o Install New CMG on Z1 - EV2 carries the new CMG attached to a RET via SSRMS over to the Z1 worksite location. EV1 translates to Z1. After checking for foreign object debris (FOD) in the old CMG cavity, EV1 helps GCA SSRMS to Hand-Off position. EV1 ingresses IAPFR and receives the CMG from EV2. EV2 egresses the SSRMS APFR while EV1 installs CMG into soft dock position on Z1. Both then install the CMG with six bolts using PGTs. Connectors are mated. IV crew then gives MCC-H a Go for Powerup to check new CMG-3 function.
- o Install Failed CMG on ESP - Already at the Z1 temp stow location, EV2 retrieves failed CMG and hands it off to EV1 so he can ingress the SSRMS APFR. Once ingressed, EV1 hands-off the CMG back to EV2 who will carry it to the ESP-2 location while riding the SSRMS. Meanwhile, EV1 replaces the Z1 thermal shroud and translates to ESP-2. EV2 inserts the old CMG into the FSE on ESP-2. Both crew then drive the six bolts. Crew installs MLI and the task is complete. Note that driving the shim bolts, which provide shear load support for return, is not planned to be done as they cannot be driven until the failed CMG thermally equalizes with the FSE. This must be done prior to CMG return on 1E.
- o Clean Up - SSRMS is maneuvered to the APFR egress position, APFR is removed and stowed. MISSE photos (to inspect for toxic leakage) are taken if time permits and not already done in EVA 1. MS1 powers down WVS.
- **Exercise:** No Shuttle Ergometer or ISS IRED allowed during APFR and bolt driving periods (i.e. most of EVA 2).
- **Post EVA:** Same as FD04 except this time METOX Regen of overnight campout canisters is performed.
- **EVA 2 (Off Nominal):** In the event that only two EVAs can be performed on this mission in an MDF situation, EVA 2 will be modified. Some or all EVA 3 tasks will be performed since they are higher priority (required for P6 relocation on STS-120/10A) than the CMG R&R. The heater power cable disconnect activity will remain in order to allow ESP-3 transfer on FD07. The new CMG is still highly desired to be left on ISS and therefore will ride with ESP-3 to its P3 truss location, where it assumes survival capability. In the event the specific MDF scenario doesn't allow for a separate ESP-3 transfer day (FD07), then only a subset of the EVA 3 tasks will be done on EVA 2 in order to also allow for robotics transfer of ESP-3 on this same day (FD06); probably meaning only one CETA cart could be relocated. The primary reason the CMG R&R was planned for EVA 2 in the first place, despite being lower priority than the EVA 3 tasks, is that the heater power cable needs to be disconnected prior to transfer ESP-3 on FD07. ESP-3 transfer is a mandatory Category 1 objective and thus is highly desired to occur no later than FD07. Additionally, if the CMG R&R had been planned for EVA 3, the R&R would occur from the ESP-3 location requiring different robotics choreography.
- **Robotics:**
 - o SSRMS supports much of the EVA 2 activities as described above. In the evening, the SSRMS will begin a walk-off to WS#7 MBS PDGF2 in support of ESP-3 transfer & installation ops. The SSRMS is left grappled to WS#7 PDGF2 overnight while a base change is performed. The walk-off will be completed FD07 morning.
 - o SRMS provides viewing support during the EVA. In the evening, it will be put in pre-cradle, which must occur after the SSRMS walk-off activity for clearance reasons.
- **EECOM/ECLS**
 - o CWCs 7 & 8 are filled.
 - o ISS OGR is recharged using water transferred over in a PWR. This PWR is then transferred back to Shuttle to be filled again later this day. After filling, it will be returned to ISS for future OGR recharging needs.

- o Condensate bag swap is performed. CDR performs a hum sep check to make sure condensate is going into the bag. The water from the old bag will be dumped overboard on FD07. The new bag contents will be dumped later after post-undocking (or on FD011 if a 14 day mission).
- **CDM:** The 3rd of 5 data takes is started just prior to sleep with CDM Act.
- **Secondary Payloads:**
 - o CCM-A - twice daily status checks.
 - o SPEGIS - canister termination is performed in the morning ~15 hrs (+/- 2 hrs) after incubation began the night before. The three canisters are removed from MERLIN and transferred to MELFI and inserted into a dewar for freezing.
 - o MERLIN - after the SPEGIS canisters are removed, MERLIN is shutdown (MERLIN Warm Shutdown) and then is configured for descent anytime before landing.
 - o CBTM - Videotape sessions of CBTM #2 and #3 are performed as described on FD05.

FD07 – ESP3 Handoff and Install

- **External Stowage Platform (ESP-3):** Carries ORUs (orbital replaceable units -- external spare parts) including CMG-3, Nitrogen Transfer Assembly (NTA), Battery/Charge Discharge Unit (BCDU), SSRMS Pitch/Roll Joint, Ammonia Tank Assembly (ATA) FSE and two empty FRAMs. The CMG was removed from ESP-3 while still in the orbiter bay and transferred during EVA 2 on FD06. The other ORUs will be transferred with ESP-3.
- **ESP-3 Transfer to ISS:** During the first half of FD07, SRMS and SSRMS support the transfer and installation of ESP-3 onto the Unpressurized Cargo Carrier Attachment System (UCCAS) 1 on the P3 truss zenith side. The UCCAS has connections for power and data.
- **Robotics:**
 - o Prior to beginning any ESP-3 operations, the SSRMS (now attached to MBS PDGF2 at WS#7) must first be released from the Lab and maneuvered to the ESP-3 pre-grapple position. This is done first since it's highly desired to avoid simultaneous maneuvering of the SRMS and SSRMS. ESP-3 is unberthed via the SRMS and maneuvered to the hand position. A tight clearance exists between ESP-3 and the OBSS during unberth. SSRMS maneuvers to the hand-off position and grapples ESP-3. SRMS ungrapples ESP-3 and maneuvers to a viewing position to support the SSRMS transfer and installation. SSRMS then maneuvers ESP-3 to the install position where it will be mated to the P3 UCCAS1. The SSRMS supports through both stages of capture (performed by CDR & MS4) and then releases ESP-3 and backs off. The SSRMS is then maneuvered into a config position for translate to WS#4. The MT is translated to WS#4 in Presleep to support EVA 3 on FD08. The SRMS remains in the ESP-3 viewing position overnight.
- **Exercise:** Currently, none is scheduled during ESP-3 robotics transfer until the Loads Flight Rule is complete. It is assumed that at the least, no Exercise will be permitted while both arms are grappled to ESP-3 and during ESP-3 mate operations onto the P3 UCCAS.
- **EVA 3 prep tasks:** EV crew perform similar preparations as timelined on FD05. Additional tasks include METOX regen termination, Prep of 6B MLI Covers for the P1 BSP and Transponder. Since FE-2 is doing EVA 3, his EMU is relocated from Node 1 to the airlock and MS3's EMU is relocated to Node 1 (EMU Swap).
- **OBSS OSE Prep:** Trained EV crew transfer the two OBSS boom stands that launch in the SHAB and assemble them in preparation for EVA 4 where they will be installed on the two S1 zenith trunnions. If there will be no EVA 4, they will still be transferred, but the prep is not required. It is not needed until the OBSS itself is transferred on mission 1 J/A. This activity is scheduled on FD07 because the trained crewmembers will not have much time on FD08 (EVA 3) or FD09.
- **Lab Window Scratch Pane R&R:** Despite being a low priority task, it is scheduled on FD07 due to return stowage config of the old pane in the SHAB. If only an 11 day mission, the R&R may get bumped to allow for more transfer time. But the new pane will be transferred to ISS for stage work.
- **Photo/TV:**
 - o P/TV10 ESP-3 Unberth, Install - performed prior to SRMS ESP-3 grapple and unberth.

- P/TV08 External Survey - Photography of the ISS Structure after the major structure changes (S5 truss, ESP-3 Transfer) are complete. Unlike other missions where the structural changes to ISS are significant and thus the survey is required to be performed as late as possible in the mission, it can be performed any time during STS-118/13A.1. Scheduling requirements include daylight periods and no robotic arm or EVA operations which could cause field of view obstructions.
- **EECOM:**
 - Water dump period - includes a simo dump, two PWR dumps (evacuates empty PWRs), and a condensate CWC bag dump. 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. If SSPTS is operational, a waste dump will be performed instead of a simo dump since less water will be generated by the fuel cells.
- **Attitude Control & MNVR:** Shuttle takes over attitude control during the mated water dump period and maneuvers to a specific dump attitude for recontact avoidance reasons.
- **Transfer:** About half-day of generic Transfer can be performed on this day. Transfer cannot be scheduled during ESP-3 SSRMS operations due to interference at the RWS.
- **PAO:** Two PAO Events are scheduled on this day. One is an Educator PAO Event, related specifically to the Educator astronaut. The EDU PAO Event needs to occur after the EPO Kit-C Transfer has been completed (scheduled on FD05) such that the Kit-C can be discussed. The second event is standard media.
- **PMC:** Performed today via OCA videoconferencing to test out the Netmeeting configuration prior to the PFCs on FD09.
- **CDM:** The 3rd of 5 data takes is terminated just after wakeup with the battery changeout and relocation happening later on in the day.
- **Secondary Payloads:**
 - EPO Seed Photo - MS4 unstows the seed packets and photos are taken for documentation purposes with MS3, MS4 and FE-2. The photo session must occur during docked ops at the end of any scheduled PAO event so the crew will already be in appropriate attire for seed photos, saving additional setup time.
 - CCM-A - twice daily status checks.
 - CBTM - daily status check.

FD08 – EVA 3

- **EVA 3 Overview:** STS-120/10A P6 Relocation preparation tasks including port S-band comm system upgrades (see list below), CETA Cart 1 and CETA Cart 2 Moves. Other tasks include engaging Z1 SASA gimbal locks to prep SASA for return on 10A, MISSE 3 & 4 retrieval for return in SHAB, and P6 XPDR retrieval for return and possible upgrade for future use.
 - Port S-band comm system upgrade tasks include relocating the P6 SASA to P1, since it is not powered at the P6 location after 10A, and installation of the new S-band Transponder (XPDR) and Base Signal Processor (BSP) to be installed at the same time as the P6 SASA task. These tasks are performed while docked for comm redundancy via Orbiter S-band.
 - The two Crew and Equipment Transfer Aid (CETA) carts are moved to the starboard side of the MT to allow the MT translation to WS#8 for the SSRMS to support P6 relocation to P5.
 - Materials International Space Station Experiment (MISSE) Passive Experiment Container (PEC) - desired after 12 months of exposure (installed on 8/03/06) and to free up room for the CDRA bed to return in the middeck on 10A. If MISSE not returned on 13A.1, they would be returned on 10A in the middeck (since no SHAB) and delay CDRA return.
- **EVA Prep Activities, EVA prep/Campout protocol:** see FD04
- **EVA 3 (EVA tasks and robotics):**
 - MS2 is EV1, FE-2 is EV3, MS1 is IV. PLT and FE-1 are M1 and M2, respectively.

- o Egress/Setup - At the time of crew egress, the SSRMS (based at WS#4, PDGF2) is at the APFR install position. EVA 1 installs APFR on SSRMS, ingresses APFR and rides the SSRMS to the P6 truss SASA location. Simultaneously, EV3 translates to CETA cart 2 with the ORU bag containing new BSP and XPDR, ingresses Translational Foot Restraint (TFR) and translates the carts past P1 bay.
- o SASA Relocation/P1 BSP & XDPR Install - The work for these is done concurrently by EV1 and EV 3, respectively.
 - o The SSRMS with EV1 arrives at the SASA remove location on P6 and EV1 egresses the SSRMS APFR. After P6 inhibits are in place (1 hour thermal clock begins) EV1 then demates connectors at P6 and mates to dummy connectors. He re-ingresses the APFR and rides SSRMS while carrying SASA to the P1 location for installation. He egresses APFR and mates SASA connectors. MCC-H applies heater power and the thermal clock stops. Once complete, he holds onto APFR and rides SSRMS to the APFR egress position at CETA 1 location. Note, the P6 fwd PVR must be retracted and cinched for this task due to SSRMS interference. This should have occurred on EVA 1.
 - o EV3 removes dummy XDPR and BSP boxes and temp stows them. The functional BSP and XDPR boxes are then removed from the ORU bag and 6B covers and then installed on P1 radiator plates using the PGT. Dummy boxes are stowed in ORU bag, dummy XPDR box stowed on 6B cover for 6 retrieval. When complete, MCC-H powers up the new boxes. EV3 then preps CETA carts for relocation by moving them so that CETA2 is in Bay 04. The carts are decoupled at this point and cart couplers are prepped for capture.
- o CETA Cart Relocation - Both EV crew are involved with SSRMS support (which begins at the CETA 1 removal position). CETA 1 is moved first, then CETA 2. Each cart is removed from the rails at P1 by one EV crew (EV3) on the SSRMS APFR, who then holds the cart while the arm translates to the install position on the starboard side (S1) of the MT. The other EV crew (EV1) translates to S1. EV3 crew installs the CETA cart on the truss with SSRMS and EV1 assistance. Once installed, the free floating crew (EV1) rotates and locks the wheel bogies (four) into the MT rail and couples CETA 1 to the MT. The sequence is repeated for CETA 2. The task is concluded by EV1 coupling together the CETA carts. EV3 egresses the SSRMS APFR, translates to CETA 2 to grab the ORU bag (with dummy boxes) to take back to the airlock where it is temp stowed. He retrieves the dummy XPDR boxes and 6B cover plate from the bag. The dummy XPDR box will be put in the place of the P6 XPDR, which will be removed in the next task.
- o Z1 SASA Gimbal Locks/MISSE Retrieval / P6 Transponder (XPDR) Retrieval - these tasks are performed concurrently by EV1 and EV3, respectively. Robotics support is not required. Mission 12A could not engage the locks due to bolt misalignment; but it still needs to be done in prep for SASA return on 10A. P6 XPDR is removed prior to P6 relocation on 10A since its current location will not receive power post P6 relocation. It will be returned for refurbishment.
 - o EV1 translates to Z1 and removes the Z1 SASA shroud to access the spare gimbal locks. Using the PGT, he rotates the lock fasteners until properly aligned and seated.
 - o EV3 retrieves the XPDR 6B cover plate from the ORU bag (temp stowed at the airlock) and translates to P6 for P6 XPDR removal. After removing the P6 XPDR, the dummy XPDR is removed from 6B cover and installed in the P6 XDPR location. P6 XDPR is installed on 6B cover and stowed on body restraint tether (BRT) and brought back to the airlock for return home.
 - o Time permitting, EV3 will inspect suspect P6 PiP pins along translation paths. This is desired to ensure PiP pins are secure prior to P6 relocation.
 - o MISSE 3 & 4 retrieval - While the MISSEs have been on-orbit, they may have incurred MMOD strikes that could puncture the tray and cause toxic battery leakage. If the crew had time during EVA 1 or 2, they took photos and downlinked via OCA for analysis. If this has not already been performed, EV1 will visually inspect and perform WVS survey. They will not be retrieved if leaking is seen or the MISSE

cannot be closed and latched. EV1 translates to airlock gas tank 2 for MISSE 3, closes it and stows inside A/L. Then he translates to airlock endcone to retrieve MISSE 4. Once the MISSEs are brought inside, MS1 and MS4 disassemble and prep them for return to SHAB as soon as possible.

- **Exercise:** Not permitted during SASA relocation.
- **Post EVA:** same as FD06 (EVA 2). If this is the last EVA BSA is not recharged and METOX regen is not performed.
- **Robotics:**
 - SSRMS - supports EVA 3 tasks (P6 SASA, and CETA cart relocations) as described in the EVA section. After the EVA is complete, the SSRMS is no longer needed for the rest of the docked mission and is left in position with only a reconfiguration of the wrist for undocking.
 - SRMS - Supports P6 SASA relocation views. After EVA 3 the arm is powered down until needed for Late Inspection.
- **EECOM/ECLS:**
 - CWC Fills 9 & 10, PWR Fills 3 & 4 are performed.
 - MS5 performs a two hour LiOH exchange between the SHAB, ISS and Orbiter. 9 STS-114 cans will be rotated to the Shuttle for use; 3 cans will be transferred to SHAB for return; and 30 STS-118 cans will be transferred to ISS and pre-positioned for use on future missions.
 - Shuttle & ISS crew terminate the transfer of N2 from Shuttle to ISS. If the mission is extended, the termination can be delayed until the desired quantity (50 lbs) is obtained.
- **Transfer:** This is a limited transfer day due to heavy robotics operations in EVA 3. Some transfer is performed prior to the EVA. Post EVA, two CWCs and two PWRs are transferred. After disassembly in the airlock, MISSE 3 & 4 are transferred to SHAB.
- **Spacehab:** On STS-116/1A.1 debris buildup was found on the SHAB flex duct debris screen. Therefore, a SHAB Debris Screen Check is desired to ensure SHAB ARS fan operation does not degrade to the point of affecting module operations. The activity is scheduled for 1 hour, but may require less time.
- **CDM:** The 4th of 5 data takes is started just prior to sleep.
- **Overnight ISS External Survey:** Crew turns on PLB illuminators in presleep.
- **Secondary Payloads:**
 - CCM-A - twice daily status check.
 - CBTM - daily status check.

FD09 - Final Transfers, Off Duty, Hatch Closing (11 day mission)

- **Crew Conference & Photo** - all Shuttle and ISS crewmembers participate in the US Lab. P/TV05 sets this up. If Shuttle KU is unavailable, ISS Ku can be used. The Crew Photo is personal time for the crew to take a group picture.
- **EECOM/ECLS:**
 - A FES Dump is initiated early in the day and terminated as late as possible.
 - NOM H2O Config - configures the supply water system from the transfer config (enabled in Post Insertion) to the nominal orbit config when water transfer ops (CWC fills) are complete. This needs to occur before the FES dump is initiated.
 - N2 Repress - scheduled at the start of the day and terminated just before hatch close. It is performed to meet the agreed to stack total pressure at hatch closure.
 - Shuttle O2 System teardown which was used to support prebreathe.
 - PWR Fill #5 is performed. Counting the two OGS PWR Fills, 7 fills have been performed.
 - COND SWAP is performed. CDR will perform a hum sep check in presleep to ensure water going into the condensate bag.
- **Transfer:** Final transfers are performed including a final PWR. Transfer Brief is scheduled prior to Off Duty to allow ACO time to perform a final Transfer analysis and make sure everything that can be done, is done.

- **EVA items:** EMUs are prepared for return to Shuttle. An ISS crewmember is required to participate to help locate all the equipment. EVA Tools are stowed on their appropriate Shuttle and ISS sides. BSA recharge and METOX regen are terminated.
- **PRLAs:** The Payload Retention Latch Assembly that holds payloads (such as the S5 truss) in the bay are closed on FD09. It is desired to wait as late as possible in the mission to ensure that the launched cargo bay payloads are not returning. If they were closed early and stuck closed, a payload could not be returned if required. If the PRLAs fail to close, there is no safety issue for landing anymore; and therefore an EVA would not be required to manually close them.
- **Off Duty:** 4 hours of off duty scheduled late on this day prior to hatch closing. It is desired to schedule this late rather than early, since it is not likely crew will take off duty time with considerable number of activities left to be accomplished prior to hatch closing.
- **PFCs:** All 7 Shuttle crew will be scheduled during the Off Duty period. Prior to the PFCs, the WLES backup function is disabled to prevent any network disruptions during the events. When the last PFC is over, WLES backup function is reenabled.
- **CDM:** The 4th of 5 data takes is terminated just after wakeup with the battery changeout and relocation happening later on in the day.
- **Secondary Payloads:**
 - CCM-A - twice daily status check.
 - CBTM - daily status check.
- **Cold Bag Packing & Transfer:** SPEGIS and other samples are packed in two Double Cold Bags (DCBs) and transferred to Shuttle. Two crew are required, one must be a trained crew (FE-2). Another assists. Packing procedure review time is required at anytime prior to the actual packing. It is highly desired the packing occurs as late as possible prior to hatch closing to ensure the samples survive through EOM+2. The survival limit is documented as Landing - 129 hrs.
- **Prior to Hatch Closing:**
 - P/TV04 sets up for the farewell and hatch closing.
 - BPSMU QD - Drag Thru QD is deactivated.
 - SHAB CC Deact - Drag through cables to the Lab and CC used for SHAB viewing are disassembled and stowed.
 - SSV Outrate configured to 2.
- **Hatch closure:** Late on FD09, the Shuttle crew egresses ISS, closes the hatch, and depresses the vestibule. This is done the night before undock so that undock can occur early on FD010 (FD013 in 14 day mission case), protecting time for Late Inspection on undocking day.
- **Attitude Control:** Shuttle attitude control is required during the ODS vestibule leak check. After the leak check, control is returned to ISS for overnight.
- **Undock Prep:** RNDZ Tools checkout is performed after the hatches are closed.
- **FMK Deploy:** Formaldehyde Kit deployed asap after hatch closure to determine the concentration levels of formaldehyde received from the ISS volume atmosphere. It will be stowed on entry day.

FD09 - Alternate Version for 14 Day Mission (Crew Conf, Off Duty)

- The primary focus of FD09 is maintained with Crew Conference / Photo, Off Duty, and PFCs as already described previously. The main differences between this version and the 11 day mission versions are that preparations are made for EVA 4 instead of transferring EVA equipment back to Shuttle; and the hatches are not closed for undocking. The alternate FD09 timeline will take the place of the published FD09 when SSPTS is declared operational.
- **Identical activities to 11 day mission FD09 timeline:** PRLA Close, Condensate bag Swap, Hum Sep check (Presleep), WLES backup disable/enable, Secondary Payloads, CDM.
- **EVA 4 prep tasks:** EV crew perform similar preparations as timelined on FD05. Additional tasks include METOX regen termination and EMU Swap. MS3 will perform EVA 4 instead of

MS2, so his they will swap their suits between Node 1 and the airlock. MS3 and FE-2 campout in the ISS airlock overnight.

- **EECOM:** Since SSPTS is assumed operational in this timeline version, less water is being generated by the fuel cells. In the other version, all 10 CWCs have already been filled. That will not be possible when SSPTS is operating, so CWC fill #9 is scheduled here.
- **Transfer:** Limited time is available for generic Transfer prior to Off Duty. One CWC is transferred.
- **PAO:** The second of 3 PAO Educator (EDU) Event is scheduled.

FD010 - Undocking & Late Inspection (11 day mission)

- **SSPTS:** OPCUs 1, 2 deact is shown in the prior to Group B Powerup; however will be deleted if SSPTS was not operational.
- **Pre-undocking:** Group B powerup is done, the centerline camera is installed, P/TV03 is set up for undocking imagery, and the Orbiter assumes attitude control and maneuvers to the undock attitude. It is desired to decouple the mnvr from the Grp B Powerup. The mnvr is initiated ~1:15 prior to undocking to provide PHALCON sufficient time to feather solar arrays once the maneuver is complete but before undock. RMS heaters are activated.
- **ISS Flyaround:** Due to the recent increased length in survey times, the flyaround is subject to deletion if launch date specific trajectory results in undocking occurring too late in the morning. Otherwise, crew workday rules could be exceeded.
- **Post Final sep standard activities:** 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 (RCS Regs, Htr B) are done, the condensate CWC bag is torn down, the SSV outrate is changed to 3, and the FES is activated until late in day. P/TV03 deact includes centerline camera, and the PGSC network is reconfigured from a RNDZ setup to the RMS setup. The RMS is powered up for inspections. Comm String 1 C/O is performed. Post ISS EVA Entry Prep (includes items transferred .from ISS packed nicely for entry).
- **GPS Antenna Pattern Data Collection:** Starboard GPS antennas are powered off forcing GPC units 1 & 3 to use its antenna on the port side to see how they perform. This is scheduled post undocking for a 24 hour period.
- **Late inspection:** The SRMS unberths the OBSS; the LDRI calibration is not required as on FD02. The new scanning protocols are used as described for FD02, except that not every scan is performed; thus the inspection times for each survey are a little shorter. Once the scans are complete, the OBSS is berthed, the RMS is powered down and MPMs stowed. The Orbiter maneuvers to a comm attitude to playback (TDRE or W only) any LDRI data that wasn't collected real-time.
- **NC-5:** is scheduled late in the day to maintain a safe sep rate between ISS and Shuttle. If Late Inspection attitude mnvrs perturb the drift away from Station (as happened on STS-117) such that there is no opening rate, or worse a small closing rate, then NC-5 will likely be performed.
- **CDM:** The 5th data take is started just prior to sleep.
- **Secondary Payloads:** CCM-A, CBTM daily status checks.
- **Filter Cleaning:** should be performed just prior to FCS C/O the next morning, but due to packed EOM-1 day, it is permitted to perform it late on FD010.

FD010 - Alternate Version for 14 Day Mission (EVA 4)

- **EVA 4 Overview:** The tasks currently identified for EVA 4 are not required and all are deferrable. Tasks were chosen which do not require robotics in order to allow the day to be used for logistics Transfer. The following is the current list of tasks identified for EVA 4; however, are subject to change.
 - Secure LAB & NODE MMOD Shields - could not be performed on 13A as planned
 - OBSS OSE Installation - install the two OBSS OSE boom stands (assembled on FD07) onto two S1 zenith trunnions. The OBSS itself will be transferred on mission STS-123/1J/A. STS-124/1J cannot fly an OBSS requiring the previous mission (1J/A) to leave an OBSS on ISS.
 - External Wireless Isolation System (EWIS) Antenna Installation.

- GPS Antenna Assembly (AA) #4 retrieval - return to allow failure analysis and repair.
- P6 AUX BAG MOVE - relocate the bag to Z1 forward to reduce translation time post 10A P6 relocation.
- S3 Wireless Video System (WVS) External Transceiver Assembly (WETA) Antenna Install at Camera Port (CP) 1 on S3 truss - most likely task to be deleted if not enough time in the EVA.
- **EVA Prep Activities, EVA prep/Campout protocol: see FD04**
- **EVA 4 (EVA tasks):**
 - MS3 is EV2, FE-2 is EV3.
 - OBSS OSE Install - crew translates to S1 Zenith outboard (EV2) and inboard (EV3) trunnions and performs the installation.
 - EV2 will then head over to S0 nadir-inboard (where the GPS AA #4 is located) and remove the AA. Meanwhile, EV3 translates to P6, retrieves the P6 Auxiliary Bag, then translates to Z1 forward for installation.
 - Both crew perform the remaining EVA tasks together, but will not be described here as an EVA C/L with the revised timeline is not yet published.
- **Post EVA:** same as EVA 3
- **CEVIS R&R:** Current ISS ergometer has an anomolous power supply; highly desired to replace and return old unit. MS5 performs the R&R. Another crewmember is required for assistance for a few minutes.
- **EECOM:**
 - Last CWC Fill #10 is performed (in the 11 day no SSPTS plan, this was already accomplished on FD08).
 - NOM H2O Config - configures the supply water system from the transfer config (enabled in Post Insertion) to the nominal orbit config when water transfer ops (CWC fills) are complete.

FD011 - Entry Prep (EOM-1) (11 day mission)

- **Nominal activities scheduled:** FCS C/O with Water Spray Boiler (WSB) Heater activation one hour beforehand; RCS Hotfire; D/O Briefing, PILOT Ops, Cabin stow, Ergometer stow. In the 11 day mission scenario, permission was granted to schedule Filter Cleaning the night before FCS C/O to make room for two hours crew Off Duty time.
- **Off Duty (2 hrs):** scheduled here due to lack of time while docked and significant impact to already very short scheduled Transfer time availability in 11 day mission. Will be removed from EOM-1 day in the 14 day mission and 4:15 Off Duty will be scheduled while docked.
- **Comm:**
 - L-1 comm checks are scheduled for a prime MLA and prime DFR flyover. No WSSH or MLA, DFR backups are timelined.
 - Comm String 2 C/O is performed.
 - MADS PWR ON - The MADS instrumentation is activated in preparation for entry.
 - SSV Deact.
 - Ku Band stow.
- **EECOM:**
 - Water Dumps: Simo dump, followed by two condensate CWC dumps.
 - FES Dump: initiated following the simo & CWC dumps and terminated as late as possible.
 - Entry Cooling Config.
- **Spacehab:** Module is prepared for entry, hatches are closed. No plan to open for wave-off.
- **GPS Antennas:** Returned to nominal config 24 hrs after initiating antenna pattern characterization test.
- **PGSCs:** Part 1 of the stow is done.
- **WLES:** Deactivated.
- **PAO Events:** Two are requested on this day for the 11 day mission; only one for 14 day mission. The CSA Event remains fixed on this day.

- **OA Burn:** Orbital Adjust burn scheduled to bring in a 2nd KSC landing opportunity on EOM day. Scheduled late in the day to allow time for Late Inspection analysis.
- **Secondary Payloads:**
 - EPO - MS4 and MS1 provide tours of Shuttle, demonstrations of crew tasks or hardware, and other items of interest. Voice will be recorded. Can be scheduled any time during the mission including post undock.
 - CCM-A - twice daily status checks.
 - CBTM - status checks.
- **CDM:** The 5th data take is terminated just after wakeup. Later on the CDM is stowed for return.

FD011 - Alternate Version for 14 Day Mission (Transfer, DAIU Troubleshooting)

- **General Note** - This is an inserted day dedicated mostly to Transfer. DAIU troubleshooting will be performed in the 14 day mission.
- **EECOM/ECLS:**
 - Water dump period - includes a waste dump, two PWR dumps (evacuates empty PWRs), and a condensate CWC bag dump.
 - O2 Transfer - If required during the mission, early in the day the O2 system is reconfigured (O2 RECONFIG TO XFER) from prebreathe support to a transfer config to ISS gas tanks. The transfer is initiated and will run until just before hatch closing on FD012 (14 day mission).
- **Attitude Control & Mnvr:** Shuttle takes over attitude control during the mated dump period and maneuvers to a specific dump attitude for recontact avoidance reasons.
- **SHAB CC Deact:** As described for FD09 (11 day mission).
- **EVA items:** EMUs are prepared for return to Shuttle. An ISS crewmember is required to participate to help find all the equipment. EVA Tools are stowed on their appropriate Shuttle and ISS sides.
- **DAIU:** Troubleshooting of the Docked Audio Interface Unit will be performed with R&R if required. Though not a continuous all day activity, the task spans nearly the entire day with FE-2 as the task lead. Shuttle crewmember (MS5) assists for the voice checks.
- **CDM:** The 5th data take is terminated just after wakeup. Later on the CDM is stowed for return.
- **PAO:** Two events in this timeline version.

FD012 - Entry (11 Day Mission)

- 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 prior to deorbit prep. Actiwatches (used for the SDBIs) are doffed, MADS is enabled, the FMK Kit is stowed.
- The remainder of the PGSC LAN is stowed.
- After the D/O burn, MS3 will perform DSO 1503-S Midodrine.
- **Secondary Payloads:**
 - CBTM Muffler is removed.
 - CCM-A is powered off.

FD012 – Alternate Version for 14 Day Mission (Final Transfer, Off Duty, Hatch Closing)

- **General Note:** The timeline has similarities in structure to the published 11 day mission FD09 plan since it is the day of hatch closing. Similar activities include N2 Repress, SSV-2, BPSMU QD, Double Cold Bag (DCB) packing and transfer, hatch closing, ODS Leak checks, RNDZ Tools Setup, FMK Deploy, and CCM-A and CBTM status checks.
- **OFF Duty:** A second block of Off Duty (4:15 required) is scheduled for the 14 day mission.
- **PFCs:** If some crew PFCs could not be scheduled during the first Off Duty period on FD09, they will be scheduled today. The WLES backup function is disabled prior to the first PFC to prevent any network disruptions and restored after the last PFC.

- **EECOM/ECLS:**
 - O2 Teardown - Shuttle and ISS crew terminate the O2 transfer which was initiated on FD011 (14 day version) and teardown the equipment.
 - PWR Fills: Two more may be required this day.
 - FES - Heaters are activated and the FES system is reactivated. FES is not required for most of a SSPTS mission and therefore had been deactivated.
- **PAO:** The last of 3 PAO Educator (EDU) events.

FD013 – Alternate for 14 Day Mission (Undocking and Late Inspection)

- **General Note:** The day is the same in structure and activity scheduling as the FD010 Undocking & LI. In this case, OPCUs 1,2 (SSPTS) will be deactivated prior to Group B Powerup.
- **CDM:** will have already been completed (last overnight session is scheduled for flight night 10 in either mission duration scenario).

FD014 – Alternate for 14 Day Mission (Entry Prep)

- **Same as FD011 (EOM-1) with the following exceptions**
 - 2 hour Off Duty block is deleted, since 4 hour Off Duty is added to FD012.
 - 2nd PAO Event is not required, since it will be accommodated during docked ops.
 - Filter Cleaning will be added just prior to FCS C/O since more time is available in the EOM-1 version.
 - The water dump may be waste only (vice simo).
 - OA burn may or may not be required. If not required, an NC6 placeholder will be timed.

FD015 – Alternative for 14 Day Mission (Entry)

- **Same as FD012 (Entry)**



FLIGHT PLAN

**STS
118**