

## FLIGHT DATA FILE

Pink

# Flight Plan

## STS-94

**STS-83 Reflight**  
**(FRR Cycle Trajectory)**

**Mission Operations Directorate**  
**Operations Division**

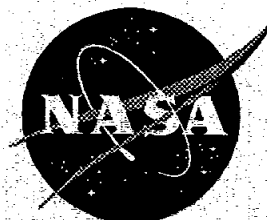
**Final**  
**February 21, 1997**

**NOTE**  
 Cover replaced by PCN-1

<u>EVENT</u>	<u>CDT</u>		
Launch	13:37	Tue	July 1
KSC Landing	06:13	Thur	July 17

National Aeronautics and  
 Space Administration

Lyndon B. Johnson Space Center  
 Houston, Texas



STS-94 FLIGHT PLAN

FINAL (Feb 21, 1997)

## PCN-1 (May 27, 1997) Sheet 1 of 1

List of Implemented Change Requests (482s):

NONE - Reference Memo # DO3-97-044

Incorporate the following into the STS-83 document:

1. Replace Cover
2. Replace iii & iv

Prepared by:

  
Book Manager

Approved by:

  
Lead, Flight Planning and Pointing Group

Approved by:

  
Chief, Flight Planning Branch

Encl: 3 pages

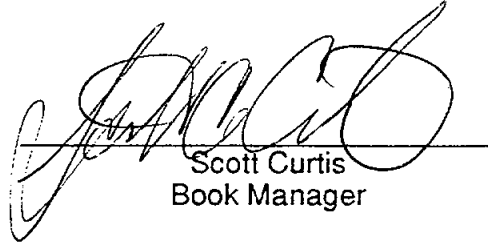
**File this PCN immediately behind the front cover as a permanent record**

MISSION OPERATIONS DIRECTORATE

STS-83 FLIGHT PLAN

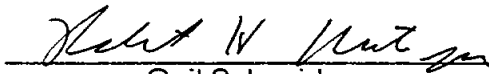
FINAL  
February 21, 1997

PREPARED BY:

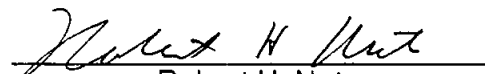


Scott Curtis  
Book Manager


APPROVED BY:



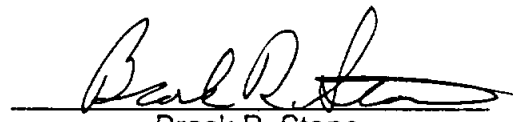
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Incorporates the following:

482#: FLT PLN-1854

Exemption #: 83

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager/Lead FAO	DO4/S. Curtis	244-1085
Lead FAO Planner	DO4/A. Cofrin	244-1170
Lead Pointer	DO4/S. Patano	244-1137

FLIGHT PLAN  
STS-94

**LIST OF EFFECTIVE PAGES**

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PCN-1 (94) 05/27/97

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3-59	.....	83/FIN
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## INTRODUCTION

The STS-83 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.

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS-83 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the Engineering Cycle version of the STS-83 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of April 3, 1997, at 13:01 CST. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

JSC-22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992 has been used to build the timelines contained in this Flight Plan. The following Appendix K Exemption has been approved for STS-83:

#83 – Allows Blue Team to wake up 14:30 hours before landing time to provide the Red Team with 8 hours of sleep prior to entry.

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



OVERVIEW TIMELINE

**OVERVIEW  
TIMELINE**

**STS-83 FINAL  
OVERVIEW TIMELINE**

19:01 GMTLO

MET	0/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
FD	R	Asc	P/I	7 hrs							FD 2															MSL OPS	
1	B	Asc	P/I	S/L Act	MSL OPS																			FD2			
	Att.	Asc	-ZLV,+YVV			55 BIAS -ZLV,-XVV																					

imu ↑  
mnvr

MET	1/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD3											MSL OPS												
2	B	MSL OPS																							
	Att.	55 BIAS -ZLV,-XVV																							

MET	2/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD4											MSL OPS												
3	B	FD3	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

imu ↑  
mnvr

MET	3/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD5											MSL OPS												
4	B	FD4	MSL OPS																						
	Att.	55 BIAS -ZLV,+XVV																							

MET	4/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FD	R	FD6											PS2 OFF-DUTY			MS3 OFF-DUTY										
5	B	FD5	MSL OPS					MS1, PS1 OFF-DUTY					MSL OPS													
	Att.	55 BIAS -ZLV,+XVV																								

imu ↑  
mnvr

MET	5/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD7											MSL OPS												
6	B	FD6	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

MET	6/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD8											MSL OPS												
7	B	FD7	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

imu ↑  
mnvr

MET	7/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD9											MSL OPS												
8	B	FD8	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

MET	8/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FD	R	FD10											MSL OPS			MS3, PS2 OFF-DUTY										
9	B	FD9	PS1 OFF-DUTY					MS1 OFF-DUTY					MSL OPS													
	Att.	55 BIAS -ZLV,-XVV																								

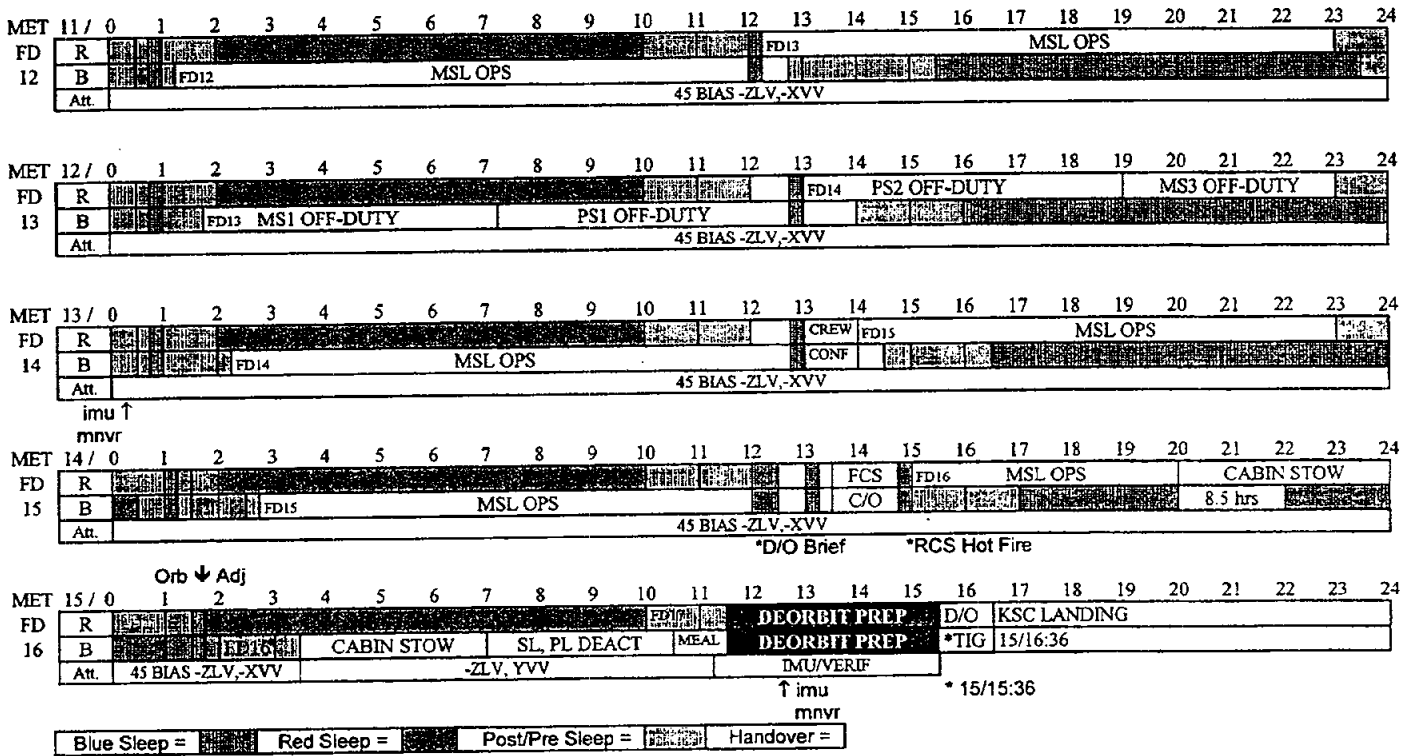
imu ↑  
mnvr

MET	9/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD11											MSL OPS												
10	B	FD10	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

MET	10/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FD	R	FD12											MSL OPS												
11	B	FD11	MSL OPS																						
	Att.	55 BIAS -ZLV,-XVV																							

imu ↑  
mnvr

**STS-83 FINAL  
OVERVIEW TIMELINE**

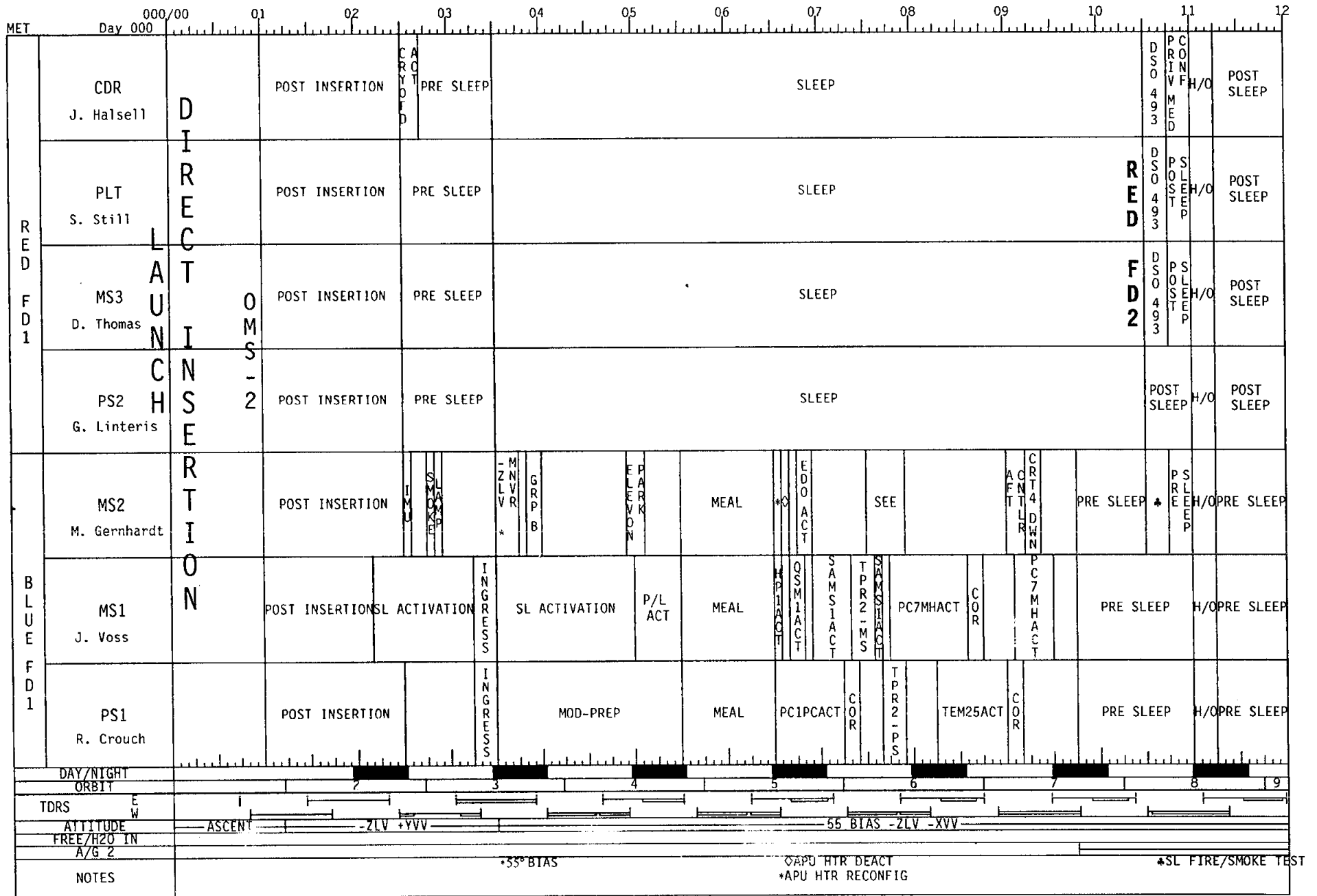


Inherent in the above timeline is the following Appendix K Violation:  
Blue awake Flight Day 16 = 14.5 hours (14 hrs max), per App. K 2.1.3C

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**SUMMARY TIMELINE**

# SUMMARY TIMELINE



MET		Day 000																								001/00
R E D F D 2	CDR J. Halsell	POST SLEEP	ERGO SETUP	EXERCISE				MEAL	PGBA2MON	PGBA30BS													IMU MNV R	-ZLV H/O	PMC -OCA	OCA D/L
	PLT S. Still	PSOL SETUP	OSCE A D/L	ERGO SETUP	EXERCISE				CRYO 02 SNSR CK	WS D A T S U P	MEAL	WDAS SETUP	WDAS DATA RET					FILTER CLEANING	SAREX SETUP	SAREX @	H/O					
	MS3 D. Thomas	POST SLEEP	D/P	LF1 ACT	COR	TPR1- MS	PC3V DACT	COR	EXP1 FAC	EXP2 CHECK	COR	MEAL	LF6 ION1	COR	TPR2- MS	CL3 PREP	EXERCISE		H/O							
	PS2 G. Linteris	POST SLEEP	D/P	PC3V DACT				COR	TPR1- PS	PCB SHACT	COR	MEAL	CL1 SETUP	COR	CL2 CHECK	TPR2- PS	CL3 PREP	COR	EXERCISE	H/O						
B L U E F D 1	MS2 M. Gernhardt	SLEEP												DSO 493	POST SLEEP		H/O		PC 6 M O N							
	MS1 J. Voss	SLEEP												DSO 493	POST SLEEP		H/O		D/P	CL 4 S T A R T						
	PS1 R. Crouch	SLEEP												DSO 493	POST SLEEP		H/O		D/P	GB X 1 F A C						
DAY/NIGHT																										
ORBIT																										
TDRS																										
ATTITUDE		55 BIAS -ZLV -XVV																								
FREE/H2O IN																										
A/G 2																										
NOTES		VRML 1330																								@11 *55° BIAS

MET		001/00																									
		01		02		03		04		05		06		07		08		09		10		11		12			
RED FD 2	CDR J. Halsell	PRE SLEEP												SLEEP												DSO 493	POST SLEEP
	PLT S. Still	PRE SLEEP												SLEEP												RED DSO 493	POST SLEEP
	MS3 D. Thomas	PRE SLEEP												SLEEP												FD3 DSO 493	POST SLEEP
	PS2 G. Linteris	SAREX @	PRE SLEEP												SLEEP												
BLUE FD 2	MS2 M. Gernhardt	FC PRG \$	UNST	TEPCA	P/TV17				MEAL	EXERCISE				RESERVE				PRE SLEEP									
	MS1 J. Voss	CL6T09P	CL6T09P	DC1CNFG	COR	PAO EVENT				MEAL	DC2CHECK	COR	PRE-SLP	TPR2-MS	DC2CHECK	COR	EXERCISE	RESERVE	PRE SLEEP								
	PS1 R. Crouch	GBX1FAC	TPR1-PS	GBX1FAC	COR	SAREX @	PAO EVENT				MEAL	PRE-SLP	TEMLIVER	COR	GBX1IFFD	COR	TPR2-PS	TEMLIVER	COR	GBX1IFFD	COR	EXERCISE	RESERVE	PRE SLEEP			
DAY/NIGHT ORBIT		[Bar chart showing day/night cycle from 17 to 25]																									
TDRS		[Bar chart showing TDRS activity from 17 to 25]																									
ATTITUDE		55 BIAS -ZLV -XVV																									
FREE/H2O IN		[Bar chart showing free water intake from 17 to 25]																									
A/G 2		[Bar chart showing A/G 2 activity from 17 to 25]																									
NOTES		@E3 ADSO 623 @E1 \$MANUAL VDTO 684																									



MET		Day 001		12	13	14	15	16	17	18	19	20	21	22	23	002/00			
R E D F D 3	CDR J. Halsell	H/O	POST SLEEP	EXERCISE		PC66MON PC67MON PC68MON PC69MON PC70MON PC71MON PC72MON PC73MON PC74MON PC75MON PC76MON PC77MON PC78MON PC79MON PC80MON	PC9MVID				MEAL						PMC - OCA OCA D/L	H/O	
	PLT S. St111	H/O	POST SLEEP	OCA D/L				EXERCISE		MEAL				EXP3TRAN			COR	H/O	
	MS3 D. Thomas	H/O	POST SLEEP	D/P	EXERCISE	LF8SCB	COR	TPR1 - MS	GBX1IFFD		MEAL		TPR2 - MS	EXP3TRAN			COR	H/O	
	PS2 G. Linteris	H/O	POST SLEEP	D/P	CL4 START	OSM2DISK	CL7T10P	TPR1 - PS	CL7T10P	CL4 START	MEAL		CL8T11P	TPR2 - PS	CL8T11P	OSM2DISK	CL7T10P	EXERCISE	H/O
B L U E F D 2	MS2 M. Gernhardt	H/O	PRE SLEEP							SLEEP							DSO 493	POST SLEEP	H/O
	MS1 J. Voss	H/O	PRE SLEEP							SLEEP							DSO 493	POST SLEEP	H/O D/P
	PS1 R. Crouch	H/O	PRE SLEEP							SLEEP							DSO 493	POST SLEEP	H/O D/P
DAY/NIGHT																			
ORBIT		25 26 27 28 29 30 31 32 B3																	
TDRS		E W																	
ATTITUDE		55 BTAS -2LV -XVV																	
FREE/H2O IN A/G 2		FREE/H2O FREE/H2O																	
NOTES																			

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

RED FD3	CDR J. Halsell	PRE SLEEP	SLEEP								DSO 493	POST SLEEP
	PLT S. Still	PRE SLEEP	SLEEP								DSO 493	POST SLEEP
	MS3 D. Thomas	PRE SLEEP	SLEEP								DSO 493	POST SLEEP
	PS2 G. Linteris	PRE SLEEP	SLEEP									POST SLEEP

BLUE FD3	MS2 M. Gernhardt	PCGMON	DCO4B011	DCO4B012	DCO4B013	TPR1-MS	PAOEVENT	DCO4B014	MEAL	DCO4B015	TPR2-MS	DCO4B016	EXERCISE	05MODUL	05MODUL	RESERVE	PSLEEP	
	MS1 J. Voss		DCO4B011	DCO4B012	DCO4B013	TPR1-MS	PAOEVENT	DCO4B014	MEAL	DCO4B015	TPR2-MS	DCO4B016		EXERCISE		RESERVE	PSLEEP	
	PS1 R. Crouch	GBX1IFFD	GBX21FFD	GBX61FFD	LF2LPS1	TPR1-PS	CL4START	CL9T12P	GBX61FFD	MEAL	CL10T13P	CL20SHUT	TEMECHG	TPR2-PS	EXERCISE	TEM3ZINT	LF2LPS4	RESERVE

DAY/NIGHT	[Bar chart showing day/night cycle]																
ORBIT	[Bar chart showing orbit parameters]																
TDRS	[Bar chart showing TDRS events]																
ATTITUDE	[Bar chart showing attitude parameters]																
FREE/H2O IN	[Bar chart showing free water intake]																
A/G 2	[Bar chart showing A/G 2 parameters]																
NOTES	[Notes section]																

MET		Day 002		12	13	14	15	16	17	18	19	20	21	22	23	003/00				
R E D F D 4	CDR J. Halsell	H/O		PC6MON	PC9MVID	PGBA30BS		EXERCISE	MEAL			105MODUL	105MODUL		P/TV17	PAOEVENT	PMC-OCA	OCA D/L	IMU MNR	
	PLT S. Still	H/O		OCA D/L	SINMOT			STEROM	MEAL					EXERCISE	PAOEVENT		RESERVE		PS R L E E P	
	MS3 D. Thomas	H/O	D/P		EXERCISE			TPR1-M	GBX1FSDC	MEAL		GBX2FSDC		TPR2-M	GBX2FSDC	GBX1FSDC	QSM2DISK	PAOEVENT	RESERVE	PS R L E E P
	PS2 G. Linteris	H/O	D/P			DC05B021		TPR1-PS		DC05B022		TEMECHG	MEAL		DC05B023		TPR2-PS	DC05B024	EXERCISE	RESERVE
B L U E F D 3	MS2 M. Gernhardt	H/O			PRE SLEEP					SLEEP							DSO493		POST SLEEP	
	MS1 J. Voss	H/O			PRE SLEEP					SLEEP							DSO493		POST SLEEP	
	PS1 R. Crouch	H/O			PRE SLEEP					SLEEP									POST SLEEP	
DAY/NIGHT																				
ORBIT		41 42 43 44 45 46 47 48 49																		
TDRS		E W																		
ATTITUDE		55 BIAS -ZLV -XVV																		
FREE/H2O IN		FREE/H2O FREE/H2O FREE/H2O																		
A/G 2																				
NOTES																				

MET		003/00		01	02	03	04	05	06	07	08	09	10	11	12		
R E D F D 4	CDR J. Halsell	-M Z N L V R		PRE SLEEP					SLEEP				DSO 4 9 3	POST SLEEP			
	PLT S. Still	H/O		PRE SLEEP					SLEEP				R E D D S O 4 9 3	POST SLEEP			
	MS3 D. Thomas	H/O		PRE SLEEP					SLEEP				F D 5 D S O 4 9 3	POST SLEEP			
	PS2 G. Linteris	H/O		PRE SLEEP					SLEEP					POST SLEEP			
B L U E F D 4	MS2 M. Gernhardt	H/O	PC6 MMON		T I S T E M P				MEAL				EXERCISE	RESERVE	P R E S L E E P		
	MS1 J. Voss	H/O	D/P	DC06B031	T P R I - M S	D C 0 6 B 0 3 2	D C 0 6 B 0 3 3	D C 0 6 B 0 3 4	MEAL	DC06B035	C L 4 S T A R T	C L 1 1 T 0 1 E	T P R 2 - M S	C L 1 1 T 0 1 E	EXERCISE	RESERVE	P R E S L E E P
	PS1 R. Crouch	H/O	D/P	EXERCISE	T E M P - M O N	T E M P - M O N	T P R 1 - P S	L F 2 L P S B	MEAL	GBX2FSDC	GBX3FSDC	GBX2FSDC	GBX3FSDC	GBX2FSDC	CL12T02E	RESERVE	P R E S L E E P
DAY/NIGHT		[Shaded bars indicating day/night cycle]															
ORBIT		49 50 51 52 53 54 55 56															
TDRS		[Shaded bars indicating TDRS coverage]															
ATTITUDE		55 BIAS -ZLV +XVV															
FREE/H2O IN		FREE/H2O FREE/H2O FREE/H2O FREE/H2O															
A/G 2		55° BIAS (+XVV)															
NOTES																	

MET		Day 003																								004/00	
		12	13	14	15	16	17	18	19	20	21	22	23														
RED FD5	CDR J. Halsell	H/O	EXERCISE	PC6MON	PC9MVID	NOBB	GBA3OB	NOBB										SAREX@	IO5MODUL	IO5MODUL					PMC-OCCA	RESERVE	SLEEP
	PLT S. Still	H/O	OCCAD/L	FILTER CLEANING																					SAREX@	RESERVE	SLEEP
	MS3 D. Thomas	H/O	D/P	EXERCISE	GBX4FSDC		LF5MET1	TPR1-MS	GBX1BDND	MEAL	GBX2BDND	GBX3BDND	GBX5BDND	TPR2-MS	GBX1BDND	GBX2BDND	GBX3BDND	GBX6BDND	TE6ZICU					TE6ZICU	RESERVE	SLEEP	
	PS2 G. Linteris	H/O	D/P		DC07B041			DC07B042	TPR1-PS	DC07B043	DC07B044	MEAL	DC07B045		TPR2-PS		DC08B051	DC3FILM						EXERCISE	RESERVE	SLEEP	
BLUE FD4	MS2 M. Gernhardt	H/O	PRE SLEEP								SLEEP														DSO493	POST SLEEP	
	MS1 J. Voss	H/O	PRE SLEEP								SLEEP														DSO493	POST SLEEP	
	PS1 R. Crouch	H/O	PRE SLEEP								SLEEP															POST SLEEP	
DAY/NIGHT		ORBIT																									
TDRS		E																									
ATTITUDE		W																									
FREE/H2O IN		A/G 2																									
A/G 2		FREE/H2O																								55 BIAS -ZLV +XVV	
NOTES																										@P1	
																										@E2	

MET		004/00		01		02		03		04		05		06		07		08		09		10		11		12	
Day 004																											
R E D F D 5	CDR J. Halsell	H/O	PRE SLEEP										SLEEP										DSO 493	POST SLEEP			
	PLT S. Still	H/O	PRE SLEEP										SLEEP										DSO 493	POST SLEEP			
	MS3 D. Thomas	H/O	PRE SLEEP										SLEEP										DSO 493	POST SLEEP			
	PS2 G. Linteris	H/O	PRE SLEEP										SLEEP										DSO 493	POST SLEEP			
B L U E F D 5	MS2 M. Gernhardt	H/O	SAREX @	PC6 MON	OCA D/	T05 MODUL		T05 MODUL	T13 QSAM	MFAL	PFC - OCA	EXERCISE				RESERVE	PSLEEP										
	MS1 J. Voss	H/O	D/P	GBX6 DND	CL4 START	CL13 T03E	TPRI - MS	CL13 T03E	GBXICHT	LF5 MET4	EXERCISE	MEAL	BLUE OFF-DUTY	PFC - OCA	BLUE OFF-DUTY				RESERVE	PSLEEP							
	PS1 R. Crouch	H/O	D/P	EXERCISE	DCO8B052	SAREX @	TPRI - PS	TEMXCHG	DCO8B053	QSM2 DISK	MEAL	BLUE OFF-DUTY	PFC - OCA	BLUE OFF-DUTY				RESERVE	PSLEEP								
DAY/NIGHT ORBIT		6#	65	66	67	68	69	70	71	72																	
TDRS EW		[Timeline bars]																									
ATTITUDE FREE/H2O IN A/G 2		-55 BIAS -ZLV +XVV																									
NOTES		0E17				0E4																					

MET		Day 004		12	13	14	15	16	17	18	19	20	21	22	23	005/00		
RED FD 6	CDR J. Halsell	H/O	EXERCISE	PC6MON	PC6MON		OSMODUL	OSMODUL	PFC - OCA	MEAL	PC9MVID	PC9MVID	SAREX @		PFC - OCA	IMU MNVR	MZLV *	
	PLT S. Still	H/O	O CAD/L						PFC - OCA	MEAL				EXERCISE	RESERVE		PSLEEP	
	MS3 D. Thomas	H/O	D/P	LF5MET2	GBX2CHT	GBX3CHT	TPR1-MS	GBX4CHT	GBX5CHT	GBX4CHT	GBX3CHT	GBX2CHT	PFC - OCA	RED OFF-DUTY	SAREX @	ROFF - DUTY	RESERVE	PSLEEP
	PS2 G. Linteris	H/O	D/P	EXERCISE	RED OFF-DUTY		PFC - OCA	RED OFF-DUTY	EM7ZITIG	RED OFF-DUTY	MEAL	CL4START	CL14T04E	CL14T04E	TPR2-PS	TEMP-MON	LF4SEM1	RESERVE
BLUE FD 5	MS2 M. Gernhardt	H/O	PRE SLEEP							SLEEP				DSO493			POST SLEEP	
	MS1 J. Voss	H/O	PRE SLEEP							SLEEP				DSO493	SAREX @		POST SLEEP	
	PS1 R. Crouch	H/O	PRE SLEEP							SLEEP				DSO493			POST SLEEP	
DAY/NIGHT		[Day/Night Cycle]																
ORBIT		[Orbit Cycle]																
TDRS		[TDRS Cycle]																
ATTITUDE		[Attitude Cycle]																
FREE/H2O IN		[Free/H2O In Cycle]																
A/G 2		[A/G 2 Cycle]																
NOTES		[Notes]																

MET		005/00		01	02	03	04	05	06	07	08	09	10	11	12	
Day 005																
REDFD6	CDR J. Halsell	H/O		PRE SLEEP	SLEEP									DSO 493	POST SLEEP	
	PLT S. Still	H/O		PRE SLEEP	SLEEP									REDFD DSO 493	POST SLEEP	
	MS3 D. Thomas	H/O		PRE SLEEP	SLEEP									FD7 DSO 493	POST SLEEP	
	PS2 G. Linteris	H/O		PRE SLEEP	SLEEP										POST SLEEP	
BLUFD6	MS2 M. Gernhardt	H/O	PC6MON NON NON NON NON NON	TOBDCE TOBDCE OCAD/L	MEAL			SL CNDS TK DUMP	TO5MODUL TO5MODUL		EXERCISE		P/TV17	PAOEVENT	RESERVE	PSLEEP
	MS1 J. Voss	H/O	D/P	DC09B061	DC09B062 TPR1-S	DC09B063 TPR1-PS	DC09B064	DC09B065	MEAL	CL4START TPR2-MS	CL16T05E		CL4START	EXERCISE	RESERVE	PSLEEP
	PS1 R. Crouch	H/O	D/P	EXERCISE	CL4START CL15T114E	CL20SHUT TPR1-PS	LF4SEM5	MEAL	GBX2CHT GBX3CHT GBX4CHT GBX6CHT	GBX4CHT GBX2CHT TPR2-PS GBX4CHT	GBX7CHT	GBX4CHT GBX3CHT GBX2CHT GBX9CHT	LF4SEM5	PAOEVENT	RESERVE	PSLEEP
DAY/NIGHT ORBIT			80	81	82	83	84	85	86	87	88					
TDRS																
ATTITUDE FREE/H2O IN A/G 2				FREE/H2O		FREE/H2O		55 BTAS -ZLV -XVV								
NOTES																



MET		Day 005		12	13	14	15	16	17	18	19	20	21	22	23	006/00				
RED FD7	CDR J. Halsell	H/O	EXERCISE	PC6MON	PC9MVID	PCBA3OBS	PCBA3OBS			MEAL		SAREX @	OSMODUL	SAREX @	OSMODUL	PMC - OCA	RESERVE	PSLEEP		
	PLT S. Still	H/O	OCCAD/L							MEAL	SINIMOT		STERRMOM		EXERCISE	SAREX @	RESERVE	PSLEEP		
	MS3 D. Thomas	H/O	D/P	LF4SEM3	TEMBZICO	TEMBZICO	TEMBZICO	TEMBZICO	EXERCISE	MEAL	GBX1IFFD	GBX6IFFD	TPR2-MS	LF3DIMSS1	TEMBZICO	GBX1IFFD	GBX3IFFD	GBX6IFFD	RESERVE	PSLEEP
	PS2 G. Linteris	H/O	D/P			DC10B071		TPR1-PS	DC10B072		MEAL	DC10B073	CL4START	CL17TO6E	TPR2-PS	CL17TO6E		EXERCISE	RESERVE	PSLEEP
BLUE FD6	MS2 M. Gernhardt	H/O	PRE SLEEP															DSO493	POST SLEEP	
	MS1 J. Voss	H/O	PRE SLEEP															DSO493	POST SLEEP	
	PS1 R. Crouch	H/O	PRE SLEEP																POST SLEEP	
DAY/NIGHT																				
ORBIT			88	89	90	91	92	93	94	95	96									
TDRS		E																		
ATTITUDE		W																		
FREE/H2O IN					FREE/H2O	FREE/H2O			55 BIAS -ZLV -XV		FREE/H2O									
A/G 2																				
NOTES												@E6		@E9		@E10				

MET		Day 006												Day 007												Day 008												Day 009												Day 010												Day 011												Day 012																																																											
R E D F D 7	CDR J. Halsell	H/O	PRE SLEEP																								SLEEP																								POST SLEEP																								DSO 493																																																										
	PLT S. Still	H/O	PRE SLEEP																								SLEEP																								POST SLEEP																								RED DSO 493																																																										
	MS3 D. Thomas	H/O	PRE SLEEP																								SLEEP																								POST SLEEP																								FD8 DSO 493																																																										
	PS2 G. Linteris	H/O	PRE SLEEP																								SLEEP																								POST SLEEP																																																																																		
B L U E F D 7	MS2 M. Gernhardt	H/O	PC6MMON	OCAD/L	OSMODUL	OSMODUL	SAREX @	MEAL																								EXERCISE																								RESERVE																								PS R E E P																																																					
	MS1 J. Voss	H/O	D/P	DC11B081																								DC11B082	TPR1-MS	DC11B083																								MEAL																								CL19T08E	CL20SHUT	CL21END	CL22INTG	TPR2-MS	CL23INCK	EXERCISE																								RESERVE																								PS R E E P	
	PS1 R. Crouch	H/O	D/P	EXERCISE																								CL4START	CL18T07E	TPR1-PS	CL18T07E	GBX2FLW	SAREX @	MEAL																								TEMPALEE	DC12B091																								DC33FILM	TPR2-PS	DC12B092	DC12B093																								RESERVE																							
DAY/NIGHT		ORBIT												ORBIT												ORBIT												ORBIT												ORBIT												ORBIT																																																																							
TDRS		E												W												E												W												E												W																																																																							
ATTITUDE		FREE/H2O												FREE/H2O												FREE/H2O												FREE/H2O												FREE/H2O												FREE/H2O																																																																							
A/G 2																																																																																																																																					
NOTES																																																																																																																																					

MET		Day 006		12	13	14	15	16	17	18	19	20	21	22	23	007/00							
RED FD8	CDR J. Halsell	H/O	EXERCISE	PCC6ZOM	PC9MVID	PGBA3OBS		OSMODUL	OSMODUL	MEAL						IMU MNVLR	MNVLR -ZLVV*	PMC -OCA					
	PLT S. Still	H/O	O C A D / L							MEAL		S A R E X @		EXERCISE	RESERVE			PS L E E P					
	MS3 D. Thomas	H/O	D/P	EXERCISE	GBX1CHT	GBX2CHT	T P R 1 - M S	GBX3CHT	GBX4CHT	GBX8CHT	GBX4CHT	GBX2CHT	GBX4CHT	GBX5CHT	GBX4CHT	GBX2CHT	T P R 2 - M S	GBX4CHT	GBX6CHT	GBX4CHT	GBX9CHT	RESERVE	PS L E E P
	PS2 G. Linteris	H/O	D/P	EXERCISE			C S S 2 S T R T		T P R 1 - P S	C S S 5 O F I C				MEAL			C S S 6 T O 3 A	S A R E X @	Q S M D I S K	C S S 6 T O 3 A			RESERVE
BLUE FD7	MS2 M. Gernhardt	H/O	PRE SLEEP							SLEEP									D S O 4 9 3		POST SLEEP		
	MS1 J. Voss	H/O	PRE SLEEP							SLEEP									D S O 4 9 3		POST SLEEP	S A R E X @	POST SLEEP
	PS1 R. Crouch	H/O	PRE SLEEP							SLEEP													POST SLEEP
DAY/NIGHT		[Bar chart showing day/night cycle]																					
ORBIT		104 105 106 107 108 109 110 111 112																					
TDRS		[Bar chart showing TDRS activity]																					
ATTITUDE		[Bar chart showing attitude]																					
FREE/H2O IN		[Bar chart showing free water in]																					
A/G 2		[Bar chart showing A/G 2]																					
NOTES		@P7 @P2 @E12 @E8 *55° BIAS																					

MET		Day 007																
		00	01	02	03	04	05	06	07	08	09	10	11	12				
RED FD8	CDR J. Halsell	H/O	PRE SLEEP				SLEEP						DSO 493	POST SLEEP				
	PLT S. Still	H/O	PRE SLEEP				SLEEP						REF DSO 493	POST SLEEP				
	MS3 D. Thomas	H/O	PS SLEEP P	SAREX @	PRE SLEEP				SLEEP						FD9 DSO 493	POST SLEEP		
	PS2 G. Linteris	H/O	PRE SLEEP				SLEEP						POST SLEEP					
BLUE FD8	MS2 M. Gernhardt	H/O	PC6 MON	OCAD/L	TOS MODUL		MEAL		EXERCISE			RESERVE	PS SLEEP					
	MS1 J. Voss	H/O	D/P	CS27T14A	CS27T14A	CS27T14A	TPR1-MS	CS27T14A	MEAL	DC13B102	TPR2-MS	DC14B111	EXERCISE	RESERVE	PS SLEEP			
	PS1 R. Crouch	H/O	D/P	EXERCISE	GBX11FFD	GBX61FFD	TPR1-PS	TEM10ZIR	DC13B101	MEAL	GBX11FFD	GBX31FFD	TPR2-PS	GBX51FFD	GBX41FFD	GBX61FFD	TEMEXCHG	RESERVE
DAY/NIGHT		[Shaded bars indicating day/night cycle]																
ORBIT		112 113 114 115 116 117 118 119 120																
TDRS		[Shaded bars indicating TDRS coverage]																
ATTITUDE		[Shaded bars indicating attitude]																
FREE/H2O IN		55 BIAS -ZLV -XVW FREE/H2O FREE/H2O FREE/H2O																
A/G 2		[Shaded bars indicating A/G 2]																
NOTES		@P5																

MET		Day 007		12	13	14	15	16	17	18	19	20	21	22	23	008/00			
R E D F D 9	CDR J. Halsell	H/O	EXERCISE	PCC6MON	PCC9MVID	NO GAGS NO GAGS NO GAGS NO GAGS NO GAGS	WDAS DATA RET			MEAL	PAO EVENT		05MODUL	05MODUL		RESERVE	PS R L E E P		
	PLT S. Still	H/O	FILTER CLEANING	OCAO/L		WDAS S/U	WDAS DATA RET		P/TV17	MEAL	PAO EVENT	SAREX @		EXERCISE		RESERVE	PS R L E E P		
	MS3 D. Thomas	H/O	D/P	EXERCISE		LF30IMS2	GBX1IFFD	GBX5IFFD	TPR1-MS	GBX4IFFD	MEAL	GBX18DND	TEMEXCHG	TPR2-MS	GBX2BDND	GBX3BDND	GBX6BDND	RESERVE	PS R L E E P
	PS2 G. Linteris	H/O	D/P	DC15B121		DC3FILM	TPR1-PS	DC15B122			MEAL	CSS24STRT	CSS28T10A	CSS28T10A	TPR2-PS	CSS28T10A	SAREX @	EXERCISE	RESERVE
B L U E F D 8	MS2 M. Gernhardt	H/O	PRE SLEEP							SLEEP						DSO493	POST SLEEP	B L U E F D 9	
	MS1 J. Voss	H/O	PRE SLEEP							SLEEP						DSO493	POST SLEEP		
	PS1 R. Crouch	H/O	PRE SLEEP							SLEEP							POST SLEEP		
DAY/NIGHT		[Day/Night Cycle]																	
ORBIT		[Orbit Cycle]																	
TDRS		[TDRS Cycle]																	
ATTITUDE		[Attitude Cycle]																	
FREE/H2O IN		[Free/H2O Cycle]																	
A/G 2		[A/G 2 Cycle]																	
NOTES		VRME I330 @E14 @E15																	

MET		008/00	01	02	03	04	05	06	07	08	09	10	11	12								
Day 008																						
RED FD9	CDR J. Halsell	H/O	PRE SLEEP				SLEEP						DSO 493	POST SLEEP								
	PLT S. Still	H/O	PRE SLEEP				SLEEP						DSO 493	POST SLEEP								
	MS3 D. Thomas	H/O	PRE SLEEP				SLEEP						DSO 493	POST SLEEP								
	PS2 G. Linteris	H/O	PRE SLEEP				SLEEP							POST SLEEP								
BLUE FD9	MS2 M. Gernhardt	H/O	P C 6 M O N	G O C A				P F C - O C A	S I M I T		S T E R O M		MEAL				T O 5 M O D U L	T O 5 M O D U L		EXERCISE	RESERVE	P S L E E P
	MS1 J. Voss	H/O	D/P	DC16B131			DC16B132	T P R 1 - M S		DC16B133	EXERCISE	MEAL	BLUE OFF-DUTY			P F C - O C A	BLUE OFF-DUTY			RESERVE	P S L E E P	
	PS1 R. Crouch	H/O	D/P	EXERCISE	BLUE OFF-DUTY					P F C - O C A	B L U E - D U T Y	MEAL		DC17B141	DC17B142	T P R 2 - P S		L F 3 D I M S 4	RESERVE	P S L E E P		
DAY/NIGHT																						
ORBIT		128	129	130	131	132	133	134	135	136												
TDRS																						
ATTITUDE																						
FREE/H2O IN																						
A/G 2																						
NOTES																						

MET Day 008 12 13 14 15 16 17 18 19 20 21 22 23 009/00

R E D F D 1 0	CDR J. Halsell	H/O	EXERCISE	PCC6MON	PC9MVID	PGBA3OBS				OSMODUL	OSMODUL		MEAL								PMC - OCA	IMUNVR
	PLT S. Still	H/O			OCA					RCRS	CABTEMP		MEAL	PFC - OCA				EXERCISE			RESERVE	PSLEP
	MS3 D. Thomas	H/O	D/P	EXERCISE	GBX1BDND	GBX2BDND	TPR1-MS		GBX3BDND	GBX6BDND			MEAL	RED OFF-DUTY	PFC - OCA		RED OFF-DUTY				RESERVE	PSLEP
	PS2 G. Linteris	H/O	D/P		DC17B143	DC17B144	TPR1-PS		DC17B145	TEM24PSI			MEAL		RED OFF-DUTY			PFC - OCA	RED OFF-DUTY	EXERCISE	RESERVE	PSLEP
B L U E F D 9	MS2 M. Gernhardt	H/O		PRE SLEEP									SLEEP								DSQ493	POST SLEEP
	MS1 J. Voss	H/O		PRE SLEEP									SLEEP								DSO493	POST SLEEP
	PS1 R. Crouch	H/O		PRE SLEEP									SLEEP								10	POST SLEEP
DAY/NIGHT		[Day/Night Cycle]																				
ORBIT		136 137 138 139 140 141 142 143 144																				
TDRS		[TDRS Schedule]																				
ATTITUDE		55 BIAS -2LV -XVV																				
FREE/H2O IN A/G 2		FREE/H2O H FREE/H2O																				
NOTES		CABIN TEMP CNTL RECONFIG @HTR RECONF @RCRS RECONF @RCRS RECONF																				

MET		009/00																	
Day 009		01	02	03	04	05	06	07	08	09	10	11	12						
RED FD10	CDR J. Halsell	-M ZLV ILVR MVR U *	PRE SLEEP		SLEEP								DSO 493	POST SLEEP					
	PLT S. Still	H/O	PRE SLEEP		SLEEP								RED DSO 493	POST SLEEP					
	MS3 D. Thomas	H/O	PRE SLEEP		SLEEP								FD11 DSO 493	POST SLEEP					
	PS2 G. Linteris	H/O	PRE SLEEP		SLEEP									POST SLEEP					
BLUE FD10	MS2 M. Gernhardt	H/O	PS /TTV U17	A	PAO EVENT	PC6 M2 MON	PG B4 M2 MON	SA M4 MON	SOCA	SL CNDS TK DUMP	MEAL	105 MODUL	105 MODUL	EXERCISE	PS /TTV U17	PAO EVENT	RESERVE		
	MS1 J. Voss	H/O	D/P	PAO EVENT	DC188151		DC188152	TPR1- MS	DC188153	MEAL	C2S 9T06A	C2S 9T06A	C2S 9T06A	C2S 9T06A	TPR2- MS	GBX 6BDND	C2S 9T06A	EXERCISE	RESERVE
	PS1 R. Crouch	H/O	D/P	PAO EVENT	EXERCISE	TEM 15 PSS	TPR1- PS	GBX 5R CND	C2S 24 STRT	MEAL	GBX 1B DND	GBX 2B DND	GBX 3B DND	LF3 DIM S6	TPR2- PSS	DC198161		DC198162	PAO EVENT
DAY/NIGHT ORBIT		144		145		146		147		148		149		150		151		152	
TDRS		E		W		E		W		E		W		E		W		E	
ATTITUDE		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O	
A/G 2																			
NOTES		* 55° BIAS		ΔSL ATR SAMPLE															



MET		Day 009		12	13	14	15	16	17	18	19	20	21	22	23	010/00
R E D F D 1 1	CDR J. Halsell	H/O	EXERCISE	PC6MON	PC9MVID	PC9MVID	PC9MVID	PC4VDPHY	MEAL		OSMODUL	OSMODUL			RESERVE	PS R E E P
	PLT S. Still	H/O			OCA			PC4VDPHY	MEAL					EXERCISE	RESERVE	PS R E E P
	MS3 D. Thomas	H/O	D/P	EXERCISE	EM1315S	GBX1FSDC		IPR11MS	GBX1FSDC	MEAL		GBX2FSDC		GBX2FSDC		PS R E E P
	PS2 G. Linteris	H/O	D/P	EXERCISE	DC19B163	DC3FILM	DC19B163	TPR11PS		MEAL		CS30T09A	CS30T09A	CS30T09A	CS30T09A	RESERVE
B L U E F D 1 0	MS2 M. Gernhardt	H/O		PRE SLEEP						SLEEP					DSO493	POST SLEEP
	MS1 J. Voss	H/O		PRE SLEEP						SLEEP					DSO493	POST SLEEP
	PS1 R. Crouch	H/O		PRE SLEEP						SLEEP					11	POST SLEEP
DAY/NIGHT																
ORBIT		152 153 154 155 156 157 158 159 160														
TDRS		E W														
ATTITUDE		55 BIAS -ZLV -XVV														
FREE/H2O IN		FREE/H2O														
A/G 2		FREE/H2O														
NOTES																

MET		Day 010		01/00	01	02	03	04	05	06	07	08	09	10	11	12															
R E D F D 1 1	CDR J. Halsell	P M C - O C A H /	O C A H /		PRE SLEEP					SLEEP						DSO 493	POST SLEEP														
	PLT S. Still	PRE SLEEP	H/O		PRE SLEEP					SLEEP						DSO 493	POST SLEEP														
	MS3 D. Thomas	PRE SLEEP	H/O		PRE SLEEP					SLEEP						DSO 493	POST SLEEP														
	PS2 G. Linteris	PRE SLEEP	H/O		PRE SLEEP					SLEEP							POST SLEEP														
B L U E F D 1 1	MS2 M. Gernhardt	POST SLEEP	H/O		EXERCISE		P C 6 M O N			PS / T T U P 1 7	MEAL		P A O E V E N T																		
	MS1 J. Voss	POST SLEEP	H/O	D/P		DC20B171		T P R 1 - M S		DC20B172		C S 2 4 S T R T		MEAL	CS31T04A		C S 3 1 T 0 4 A	T P R 2 - M S		C S 3 1 T 0 4 A		D E L E T E D C O N T E N T		C S 3 4 T E L E M E N T			EXERCISE				
	PS1 R. Crouch	POST SLEEP	H/O	D/P	EXERCISE		G B X 1 F S D C		F J D I M S		T P R 1 - P S		G B X 3 F S D C		GBX2FSDC		MEAL		P A O E V E N T		G B X 3 F S D C		GBX2FSDC		T P R 2 - P S		G B X 1 F S D C		G B X 2 F S D C		
DAY/NIGHT																															
ORBIT		160	161	162	163	164	165	166	167	168																					
TDRS																															
ATTITUDE																															
FREE/H2O IN				FREE/H2O		FREE/H2O		55 BIAS -ZLV -XVV		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O			
A/G 2																															
NOTES																															

MET		Day 010		12	13	14	15	16	17	18	19	20	21	22	23	011/00			
RED FD12	CDR J. Halsell	H/O	EXERCISE	PC6MMON	PC9MVID	PC9A30BS			MEAL	PAO EVENT				05MODUL	05MODUL	RESERVE	IMUNVR	MZLV	
	PLT S. Still	H/O	FILTER CLEANING		OCA			PSETTUP 17	MEAL	PAO EVENT				EXERCISE		PSETTUP 17	RESERVE	PSLEEP	
	MS3 D. Thomas	H/O	D/P	EXERCISE		GBX1FSDC	GBX2FSDC	TPR1MS	MEAL	PAO EVENT	GBX3FSDC	GBX2FSDC	TPR2MS	GBX2FSDC	GBX4FSDC	LEM1615S	LF7SCA1	RESERVE	PSLEEP
	PS2 G. Linteris	H/O	D/P	TEM12AU		CS32TO1A	CS32TO1A	TPR1PS	CS32TO1A	MEAL		DC21B181	TPR2PS	DC21B182	QSM2DISK	EXERCISE	RESERVE	PSLEEP	
BLUE FD11	MS2 M. Gernhardt	H/O			PRE SLEEP											DSO 493	POST SLEEP		
	MS1 J. Voss	H/O			PRE SLEEP												POST SLEEP		
	PS1 R. Crouch	H/O			PRE SLEEP												POST SLEEP		
DAY/NIGHT																			
ORBIT		168	169	170	171	172	173	174	175	176									
TDRS																			
ATTITUDE																			
FREE/H2O IN																			
A/G 2																			
NOTES																			

45° BIAS\*

MET		Day 011												Day 012											
		01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
RED FD 12	CDR J. Halsell	OCAH/O		PRE SLEEP		SLEEP						POST SLEEP		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		POST SLEEP			
	PLT S. Still	PRE SLEEP/H/O		PRE SLEEP		SLEEP						POST SLEEP		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		POST SLEEP			
	MS3 D. Thomas	PRE SLEEP/H/O		PRE SLEEP		SLEEP						POST SLEEP		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		POST SLEEP			
	PS2 G. Linteris	PRE SLEEP/H/O		PRE SLEEP		SLEEP						POST SLEEP		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		D S O 4 9 3		POST SLEEP			
BLUE FD 12	MS2 M. Gernhardt	POST SLEEP	H/O	P A O E V E N T		P C 6 M O N		P R E S L E E P		P R E S L E E P		M E A L		E X E R C I S E		P R E S L E E P		P C 6 M O N		P R E S L E E P		M E A L		E X E R C I S E	
	MS1 J. Voss	POST SLEEP	H/O	P A O E V E N T		D/P		DC22B191		T P R 1 - M S		I O S M O D U L		M E A L		E X E R C I S E		C S 2 4 S T R T		C S 3 3 T O 2 A		T P R 2 - M S		E X E R C I S E	
	PS1 R. Crouch	POST SLEEP	H/O	P A O E V E N T		D/P		G B X 1 B D N D		G B X 4 B D N D		M E A L		E X E R C I S E		C S L M 1 S E T		C S L M 2 R N D		E X E R C I S E		C S L M 1 S E T		E X E R C I S E	
DAY/NIGHT		ORBIT		176		177		178		179		180		181		182		183		184		185		186	
TDRS		E		W		W		W		W		W		W		W		W		W		W		W	
ATTITUDE		FREE/H2O IN		A/G 2		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O		FREE/H2O	
NOTES		ΦP6																							

MET		Day 011		12	13	14	15	16	17	18	19	20	21	22	23	012/00					
RED FD13	CDR J. Halsell	H/O	EXERCISE	PC6MON	PC9MVID	PC9MVID	PC9MVID			MEAL	PAOEVENT	OSMODUL	OSMODUL	MCD SAMPLE COLL	OSM3PWR	OSM4SPU	OSM2RN2	RESERVE	PSLEEP		
	PLT S. Still	H/O	WCS COMP					OCA	PSETTUP 17	MEAL	PAOEVENT	SAREX Φ	Ω	MCD SAMPLE COLL		EXERCISE		RESERVE	PSLEEP		
	MS3 D. Thomas	H/O	D/P	EXERCISE	TO9EXP		TPR1-MS	T07CM-1		MEAL	PAOEVENT	LF5METS			TPR2-MS	TEM18ZNI		RESERVE	PSLEEP		
	PS2 G. Linteris	H/O	D/P		CS24STRT	CS34TT12A	TPR1-PS	CS34TT12A	CS34TT12A	CS34TT12A	MEAL	PAOEVENT	CS35T04B	CS35T04B	TPR2-PS	CS35T04B	CS41SHUT	EXERCISE	RESERVE	PSLEEP	
BLUE FD12	MS2 M. Gernhardt	H/O	RESERVE																BLU D50493	PSLEEP	
	MS1 J. Voss	H/O	RESERVE																	BLU D50493	PSLEEP
	PS1 R. Crouch	H/O	RESERVE						SAREX Φ											1 3	POST SLEEP
DAY/NIGHT																					
ORBIT		184 185 186 187 188 189 190 191 192																			
TDRS		E W																			
ATTITUDE		45 BIAS -ZLV -XV																			
FREE/H2O IN		H20 H20																			
A/G 2																					
NOTES		ΦE16 ΦE18 ΩDT0 677																			

MET		012/00												01		02		03		04		05		06		07		08		09		10		11		12					
Day 012																																									
RED FD13	CDR J. Halsell	P M C - O C A		O C A H/O		P R E S L E E P														S L E E P																D S O 4 9 3		P O S T S L E E P			
	PLT S. Still	P R E S L E E P		H/O		P R E S L E E P														S L E E P																D S O 4 9 3		P O S T S L E E P			
	MS3 D. Thomas	P R E S L E E P		H/O		P R E S L E E P														S L E E P																D S O 4 9 3		P O S T S L E E P			
	PS2 G. Linteris	P R E S L E E P		H/O		P R E S L E E P														S L E E P																		D S O 4 9 3		P O S T S L E E P	
BLUE FD13	MS2 M. Gernhardt	P O S T S L E E P		H/O		P O S T S L E E P		P C C M O N		P F C - O C A		T I O L I F		T I O L I F		T O S M O D U L		T O S M O D U L		M E A L								T I S S A M S				E X E R C I S E									
	MS1 J. Voss	P S L E E P		S A R E X Φ		P S L E E P		H/O		P O S T S L E E P		D/P		B L U E O F F - D U T Y		P F C - O C A		B L U E O F F - D U T Y		M E A L		C S 2 4 S T R T		C S 3 6 T O 7 A		C S 3 6 T O 7 A		C S 3 6 T O 7 A		T P R 2 - M S		C S 3 6 T O 7 A		S A M S E X C		C S 3 6 T O 7 A		C S 3 6 T O 7 A		C S 3 6 T O 7 A	
	PS1 R. Crouch	P O S T S L E E P		H/O		P O S T S L E E P		D/P		B L U E O F F - D U T Y		T P R 1 - P P W R		C S L M 3 P P W R		L F 2 L P S 2		D C 2 3 B 2 0 1		D C 3 F I L M		T E M 1 9 1 8 S		M E A L		E X E R C I S E		B L U E O F F - D U T Y		P F C - O C A		B L U E O F F - D U T Y									
DAY/NIGHT																																									
ORBIT														192		193		194		195		196		197		198		199		200											
TDRS																																									
ATTITUDE																																									
FREE/H2O IN																																									
A/G 2														ΦP4																											
NOTES																																									

MET	Day 012	12	13	14	15	16	17	18	19	20	21	22	23	013/00	
RED FD14	CDR J. Halsell	H/O	PCC6MON NOXON	CSLM4SPU CSLM2RN4	PCC9MVID NOXON	PGBA3OBS CSLM3PWR	CSLM4SPU CSLM2RN3	MEAL		CSLM3PWR CSLM4SPU CSLM2RN5	DOBTS 677@	CSLM3PWR CSLM4SPU CSLM2RN6	EXERCISE	RESERVE	PRE SLEEP
	PLT S. Still	H/O				OCA	PFC - OCA	MEAL			DOBTS 677@	EXERCISE	RESERVE	PRE SLEEP	
	MS3 D. Thomas	H/O	D/P	LF2LPS5	IOSMODUL IOSMODUL	TPRIMS	TEMEMEXCHG TEM20COP	EXERCISE	MEAL	RED OFF-DUTY	PFC - OCA	RED OFF-DUTY	RESERVE	PRE SLEEP	
	PS2 G. Linteris	H/O	EXERCISE					PFC - OCA	MEAL	D/P	CS24STRT CS27TOBA	CS37TOBA TPR21PS CS37TOBA	EXP4RECT CSLM3PWR NOXON	RESERVE	PRE SLEEP
BLUE FD13	MS2 M. Gernhardt	H/O													BLUE
	MS1 J. Voss	EXERCISE	H/O												FD
	PS1 R. Crouch	BLUE OFF-DUTY	H/O												14
DAY/NIGHT															
ORBIT	200	201	202	203	204	205	206	207	208						
TORS															
ATTITUDE															
FREE/H2O IN			H2O				45 BIAS -ZLV -XVU					H2O	H2O		
A/G 2															
NOTES														@ D10 677	

MET		Day 013												Day 014																							
		01			02			03			04			05			06			07			08			09			10			11			12		
RED FD14	CDR J. Halsell	PRE SLEEP	I M U M N V R	H / O	M N V R	P M C - O C A	O C A	PRE SLEEP	SLEEP												D S O 4 9 3	POST SLEEP															
	PLT S. Still	PRE SLEEP	H/O	PRE SLEEP	SLEEP												D S O 4 9 3	POST SLEEP																			
	MS3 D. Thomas	PRE SLEEP	H/O	PRE SLEEP	SLEEP												D S O 4 9 3	POST SLEEP																			
	PS2 G. Linteris	PRE SLEEP	H/O	PRE SLEEP	SLEEP												D S O 4 9 3	POST SLEEP																			
BLUE FD14	MS2 M. Gernhardt	D S O 4 9 3	POST SLEEP	H/O	POST SLEEP	P C 6 M O N O Z O N E	MEAL	EXERCISE												D S O 4 9 3																	
	MS1 J. Voss	D S O 4 9 3	POST SLEEP	H/O	POST SLEEP	D/P	DC24B211	T P R 1 - M S	DC24B221	MEAL	C S S A S T R T	C S 3 8 T 1 3 A	C S 3 8 T 1 3 A	T P R 2 - M S	C S 3 8 T 1 3 A	C S 3 8 T 1 3 A	EXERCISE																				
	PS1 R. Couch	POST SLEEP	H/O	POST SLEEP	D/P	LF4SEM2	C S L M 4 S P U	T P R 1 - P S	T E M E X C H G	C S L M 2 R N 7	C S L M 3 P W R	C S L M 4 S P U	MEAL	C S L M 2 R N 8	C S L M 3 P W R	LF4SEM4	T P R 2 - P S	C S L M 4 S P U	C S L M 2 R N 9	EXERCISE																	
DAY/NIGHT		ORBIT																																			
TDRS		E W																																			
ATTITUDE		45 BIAS -ZLV -XVV																																			
FREE/H2O IN		FREE/H2O												H2O						H2O																	
A/G 2		45° BIAS																																			
NOTES																																					



MET		Day 013		12	13	14	15	16	17	18	19	20	21	22	23	014/00	
RED FD15	CDR J. Halsell		H/0	CREWCONF	EXERCISE	PC6MON	PC9MVID	PCB3OBS	PCANON		MEAL		DO TOS 6 7 7 @	IO5MODUL	IO5MODUL	RESERVE	PS RLEE EP
	PLT S. Still	SET TUP 17	H/0	CREWCONF		SAREX φ	WDAT UP	WDAS SETUP	WDAS DATA RET	EXERCISE	MEAL	FILTER CLEANING	DO TOS 6 7 7 @	EXP8TRAN		RESERVE	PS RLEE EP
	MS3 D. Thomas		H/0	CREWCONF	D/P	EXERCISE	LF6ION2	T12SAMS	TPR1-MS	LF6ION2	MEAL		TPR2-MS	EXP8TRAN		RESERVE	PS RLEE EP
	PS2 G. Linteris		H/0	CREWCONF	D/P	EXERCISE	DC25RTRN	TPR1-PS	DC25RTRN	MEAL	CS24STR	CS39T05A	CS39T05A	TPR2-PS	CS39T05A	CS39T05A	RESERVE
BLUE FD14	MS2 M. Gernhardt		H/0	CREWCONF		PRE SLEEP						SLEEP					B L U E
	MS1 J. Voss	EXERCISE	H/0	CREWCONF		PRE SLEEP						SLEEP					F D
	PS1 R. Couch	EXERCISE	H/0	CREWCONF		PRE SLEEP						SLEEP					1 5
DAY/NIGHT																	
ORBIT				216	217	218	219	220	221	222	223	224					
TDRS																	
ATTITUDE																	
FREE/H2O IN																	
A/G 2																	
NOTES						Φ81							Φ DT0 677				
						VRME 1330											

MET		Day 014												
		01	02	03	04	05	06	07	08	09	10	11	12	
RED FD15	CDR J. Halse11	PRE SLEEP	H/O PRE SLEEP	SLEEP						POST SLEEP				
	PLT S. Still	PRE SLEEP	H/O PRE SLEEP	SLEEP						POST SLEEP				
	MS3 D. Thomas	PRE SLEEP	H/O PRE SLEEP	SLEEP						POST SLEEP				
	PS2 G. Linteris	PRE SLEEP	H/O PRE SLEEP	SLEEP						POST SLEEP				
BLUE FD15	MS2 M. Gernhardt	SLEEP	POST SLEEP	H/O	POST SLEEP	PC5VDDCT		MEAL		CS46DINT			EXERCISE	
	MS1 J. Voss	SLEEP	POST SLEEP	H/O	POST SLEEP	D/P	CS40T11A	TPR1-MS	CS40T11A	MEAL		CS46DINT		
	PS1 R. Couch	SLEEP	POST SLEEP	H/O	POST SLEEP	D/P	EXERCISE	PC5VDDCT	TPR1-PS	PC2PCDCT	MEAL		CS46DINT	
DAY/NIGHT		E		W		E		W		E		W		
ORBIT		224	225	226	227	228	229	230	231	232				
TDRS		E		W		E		W		E		W		
ATTITUDE		E		W		E		W		E		W		
FREE/H2O IN		E		W		E		W		E		W		
A/G 2		E		W		E		W		E		W		
NOTES														

MET	Day 014	12	13	14	15	16	17	18	19	20	21	22	23	015/00
RED FD 16	CDR J. Halsell	D/O BRIEF	H/O	FCS C/O	RCS HOT	EXERCISE	SIN HOT			MEAL	CABIN STOW			
	PLT S. Still	D/O BRIEF	H/O	FCS C/O	RCS HOT	PC11MDCT			MEAL	CABIN STOW			EXERCISE	
	MS3 D. Thomas	D/O BRIEF	H/O	D/P	EXERCISE				MEAL	GBX9CHT	GBX3OFF	TPR2-MS	CABIN STOW	
	PS2 G. Linteris	D/O BRIEF	H/O	D/P	EXERCISE	GBX1CHT	GBX2CHT	GBX3CHT	GBX4CHT	GBX5CHT	GBX4CHT	GBX3CHT	GBX2CHT	TEM26DCT
BLUE FD 15	MS2 M. Gernhardt	D/O BRIEF	H/O	FCS C/O	RCS H/F	PRE SLEEP		SLEEP						
	MS1 J. Voss	D/O BRIEF	H/O	EXERCISE	PRE SLEEP		SLEEP							
	PS1 R. Couch	DB /O BRIEF	H/O	PRE SLEEP		SLEEP								
DAY/NIGHT														
ORBIT														
TDRS														
ATTITUDE														
FREE/H2O IN														
A/G 2														
NOTES														

MET		Day 015/00												01												02												03												04												05												06												07												08												09												10												11												12											
RED FD16	CDR J. Halsell	PRE SLEEP	RCS BURN	SLEEP												POST SLEEP	EL GRC SS +	M X S V R	DP ER OR B I T																																																																																																																																										
	PLT S. Still	PRE SLEEP	RCS BURN	SLEEP												POST SLEEP	EGRESS LOC		DP ER OR B I T																																																																																																																																										
	MS3 D. Thomas	PRE SLEEP	H/O	SLEEP												POST SLEEP			DP ER OR B I T																																																																																																																																										
	PS2 G. Linteris	PRE SLEEP	H/O	SLEEP												POST SLEEP			DP ER OR B I T																																																																																																																																										
BLUE FD15	MS2 M. Gernhardt	SLEEP	H/O	PS OLE ST P	M Z L V R	POST SLEEP	K S U T - O B W D	CABIN STOW												S P E C I A L	ERGO STOW	S L A M P L E	O C T A C W	P W R U P	MEAL	DP ER OR B I T																																																																																																																																			
	MS1 J. Voss	SLEEP	H/O			POST SLFFP		CABIN STOW												T P R 1 - M S	S A M S 3 D A C	O S M 3 D A C T	H I S T O R Y	SL-DEACT	EGRESS	SL-DEACT	MEAL	DP ER OR B I T																																																																																																																																	
	PS1 R. Couch	SLEEP	H/O			POST SLEEP		CABIN STOW												L F 9 D A C T	T P R 1 - P S	PL-DEACT		I O 6 E G R E S S	EGRESS		MEAL	DP ER OR B I T																																																																																																																																	
DAY/NIGHT ORBIT		240												241												242												243												244												245												246												247												248																																																											
TDRS		E												W																																																																																																																																															
ATTITUDE																																																																																																																																																													
FREE/H2O IN A/G 2																																																																																																																																																													
NOTES														*-ZLV, -YVV																																																																								XDT0 684																																				+DSO 331																																			

MET Day 015 12 13 14 15 16 17 18 19 20 21 22 23 016/00

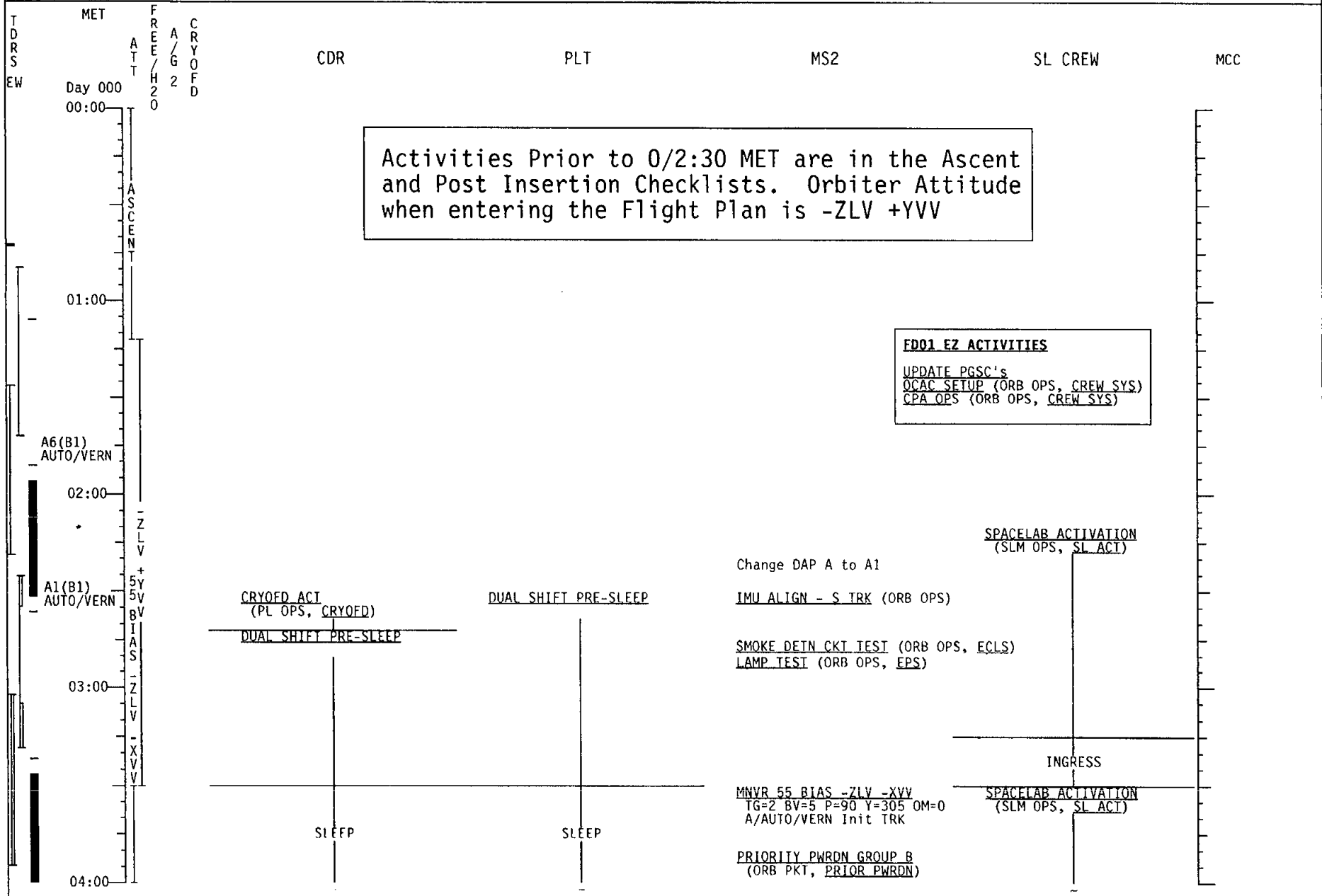
R E D F D 1 7	CDR J. Halsell	DEORBIT PREP			
	PLT S. Still	DEORBIT PREP			
	MS3 D. Thomas	DEORBIT PREP	D E O R B I T	K S C	
	PS2 G. Linteris	DEORBIT PREP			
MS2 M. Gernhardt	DEORBIT PREP	B U R N *			L A N D I N G *
MS1 J. Voss	DEORBIT PREP				
PS1 R. Couch	DEORBIT PREP				
<p>DAY/NIGHT ORBIT 248 249 250 251 252 253 254 255 256</p> <p>TDRS E W</p> <p>ATTITUDE FREE/H2O IN COMM A/G 2</p> <p>NOTES @ TIG = 15/15:36 % KSC LND = 15/16:36</p>					

DETAILED TIMELINE

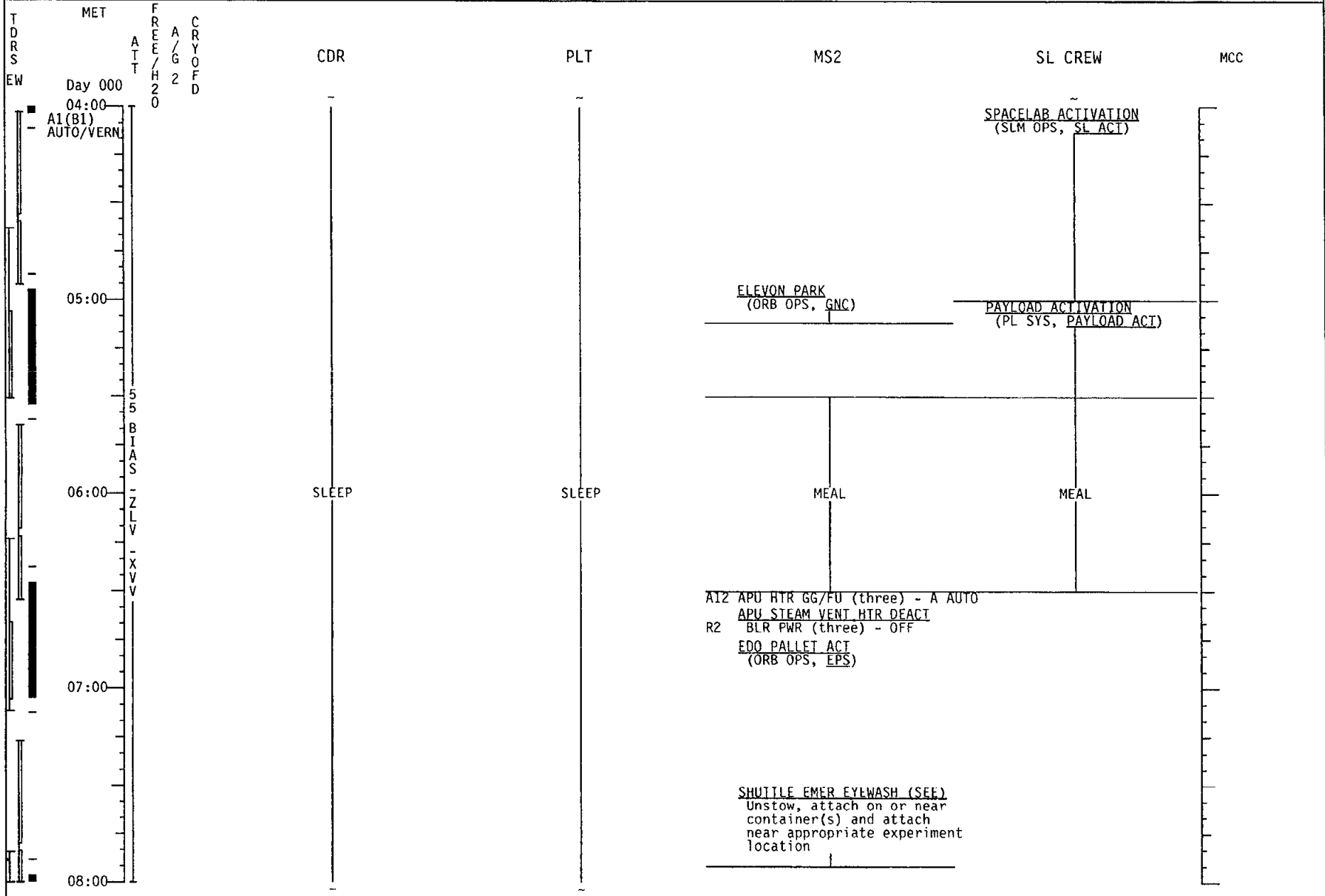
DETAILED  
TIMELINE

# DETAILED TIMELINE

STS-83 ( FD 01 )

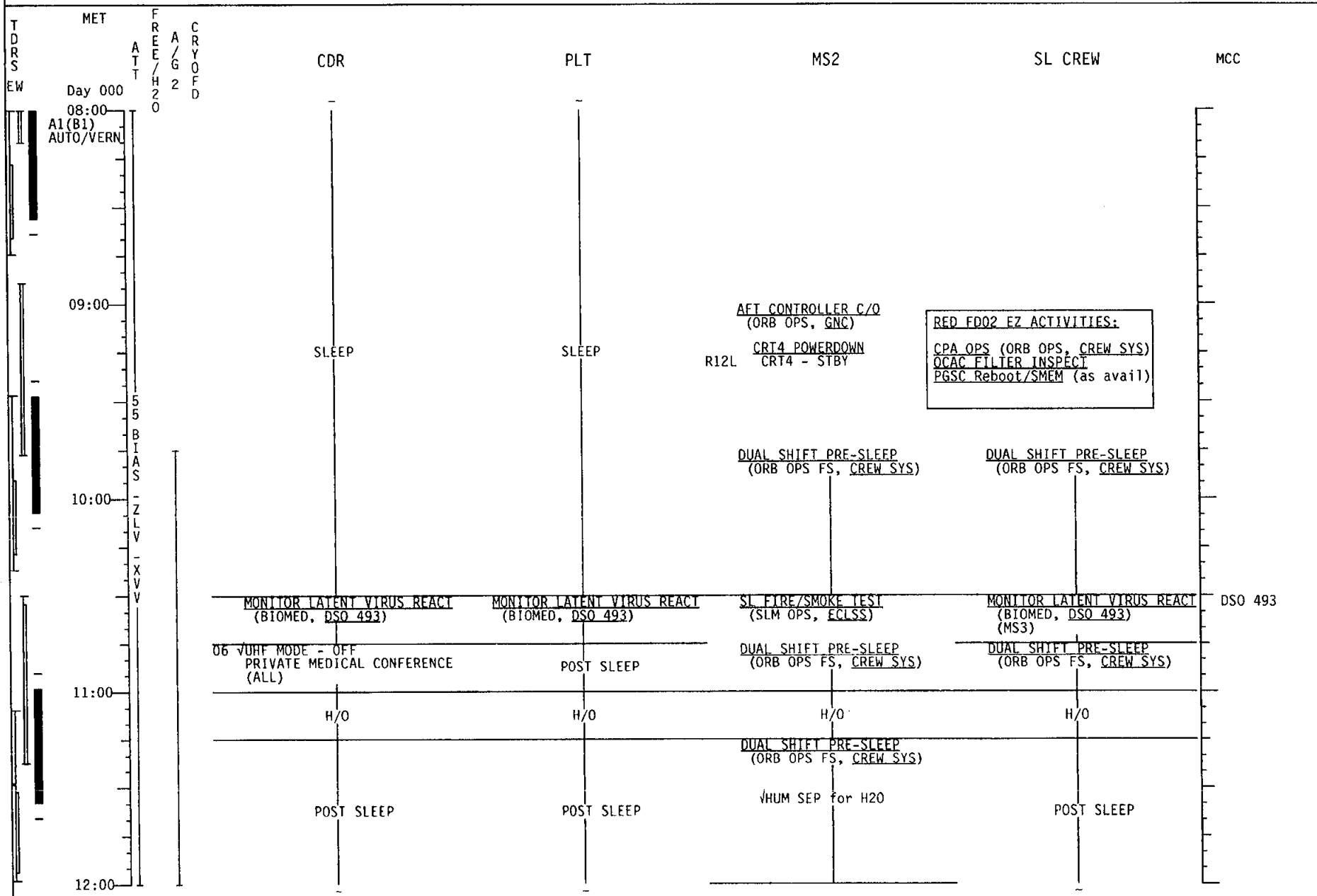


STS-83 ( FD 01 )

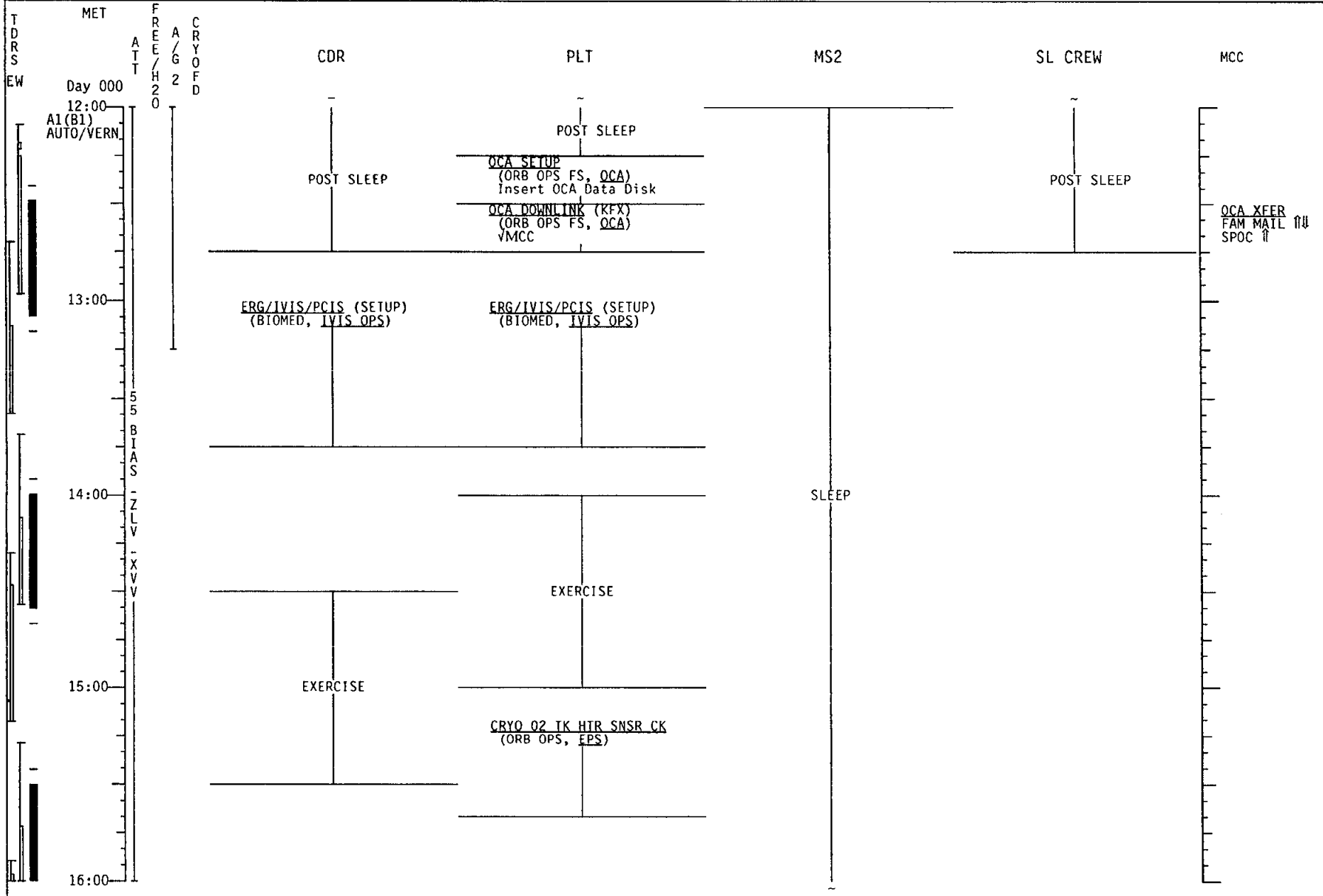




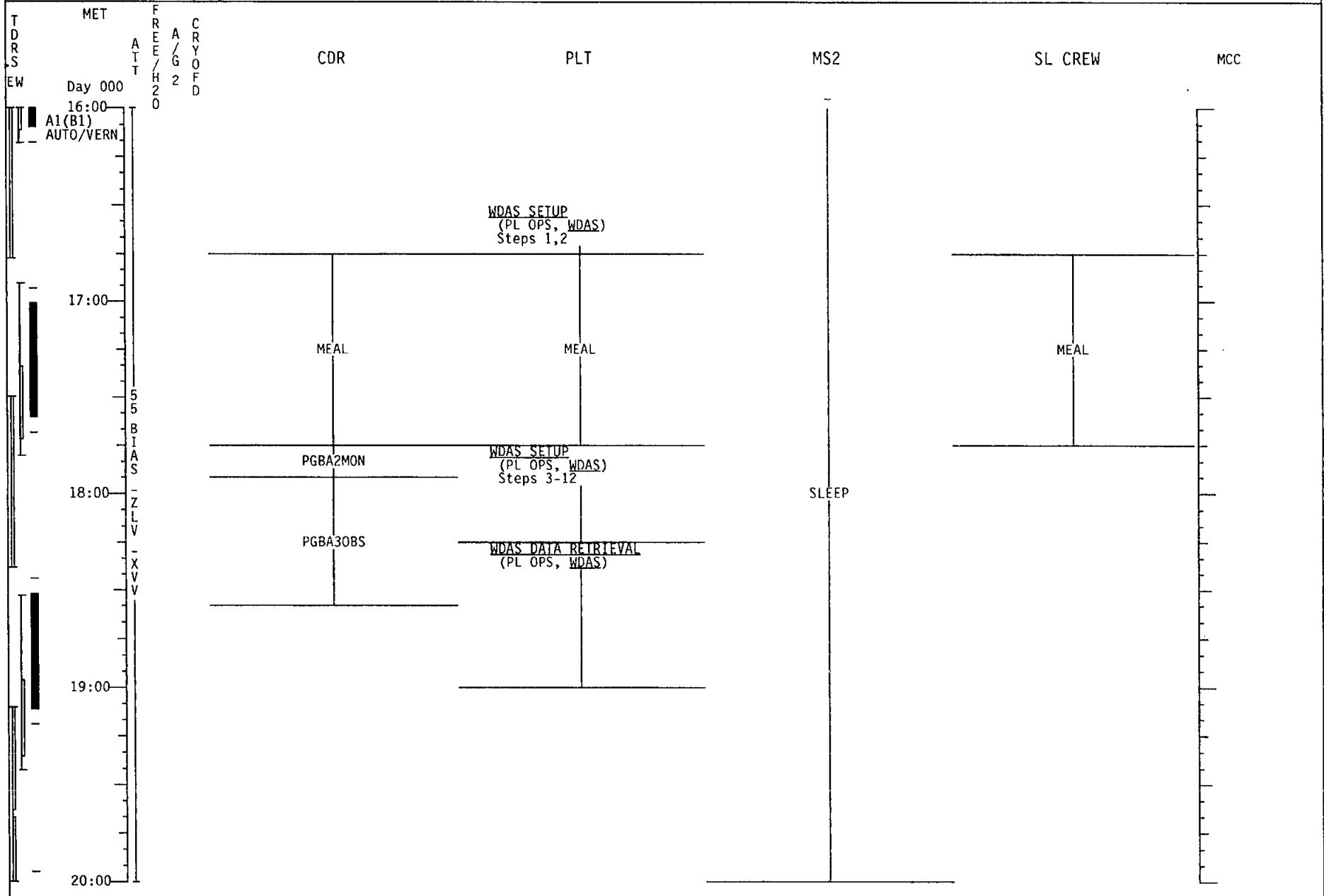
STS-83 ( RED FD 02 )



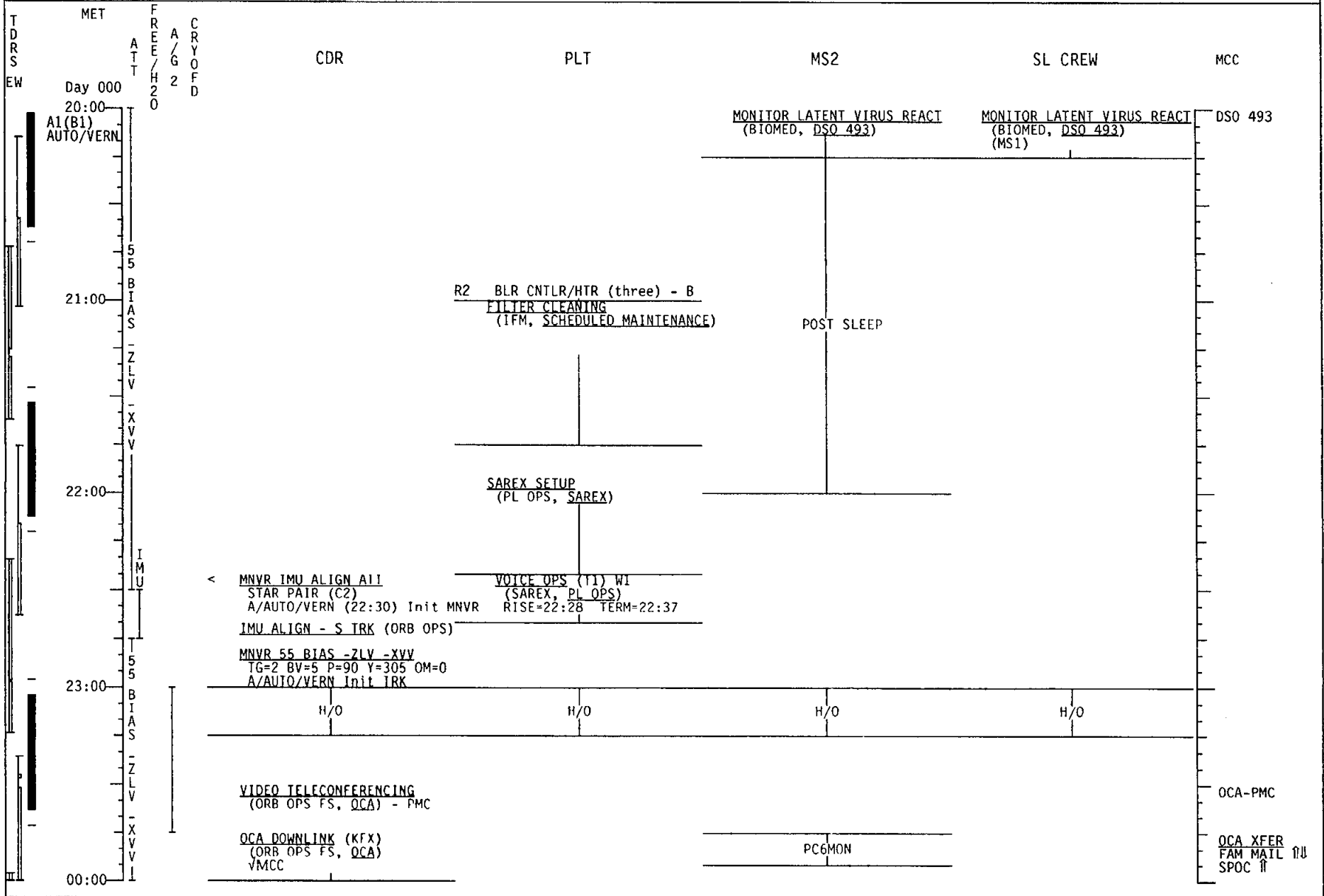
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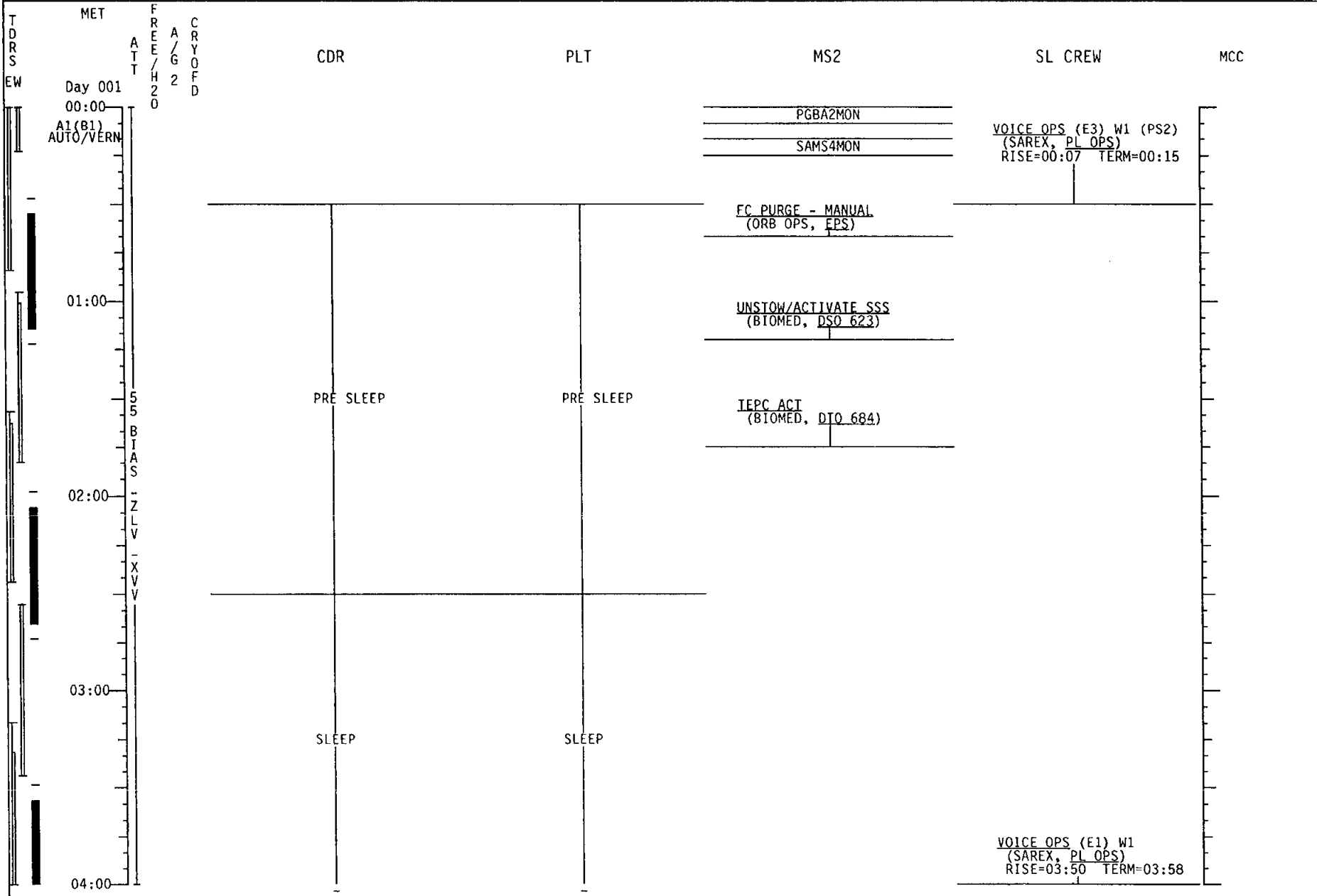
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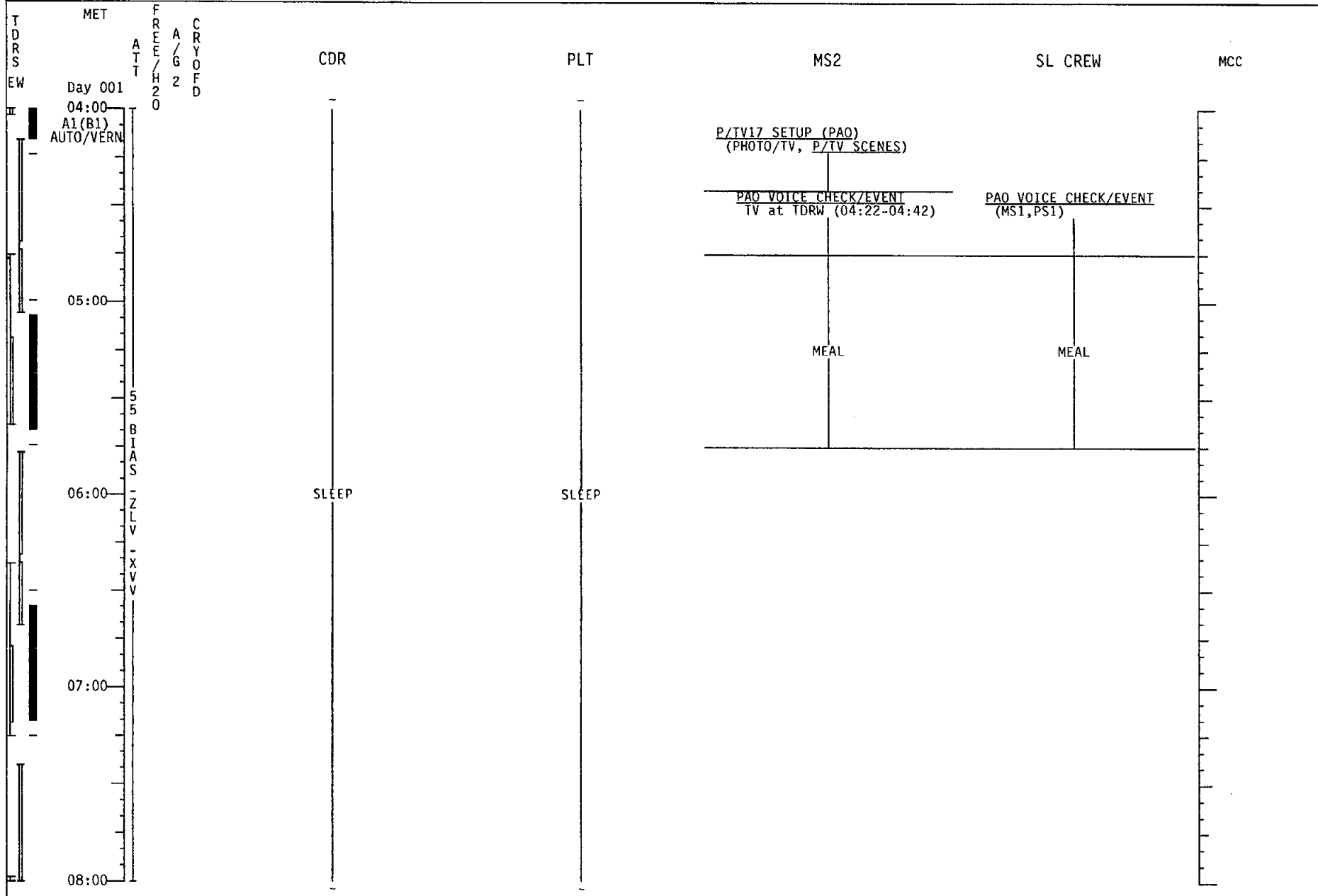
STS-83 ( RED FD 02 )



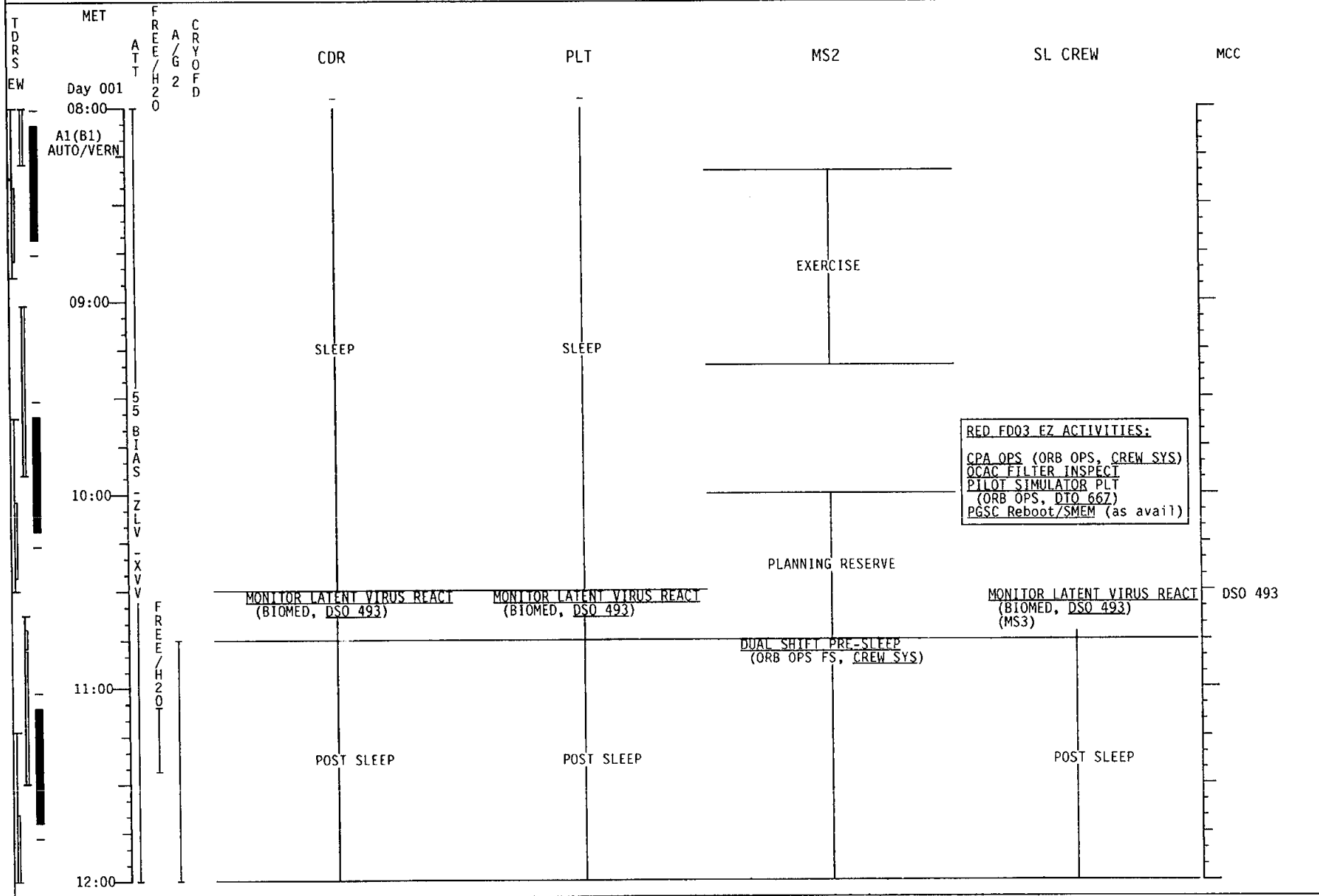
STS-83 ( BLUE FD 02 )



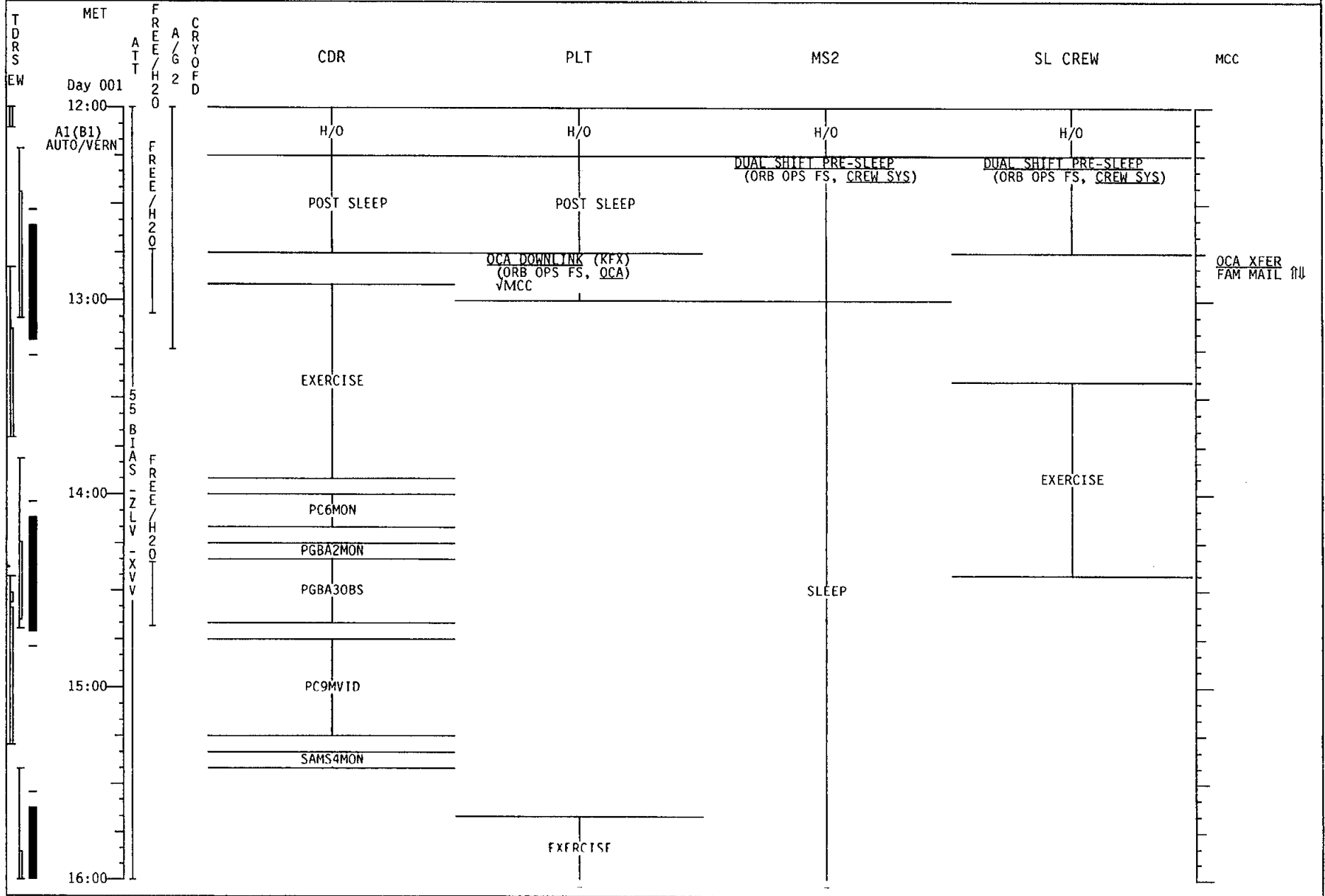
# STS-83 ( BLUE FD 02 )



# STS-83 ( BLUE FD 02 )

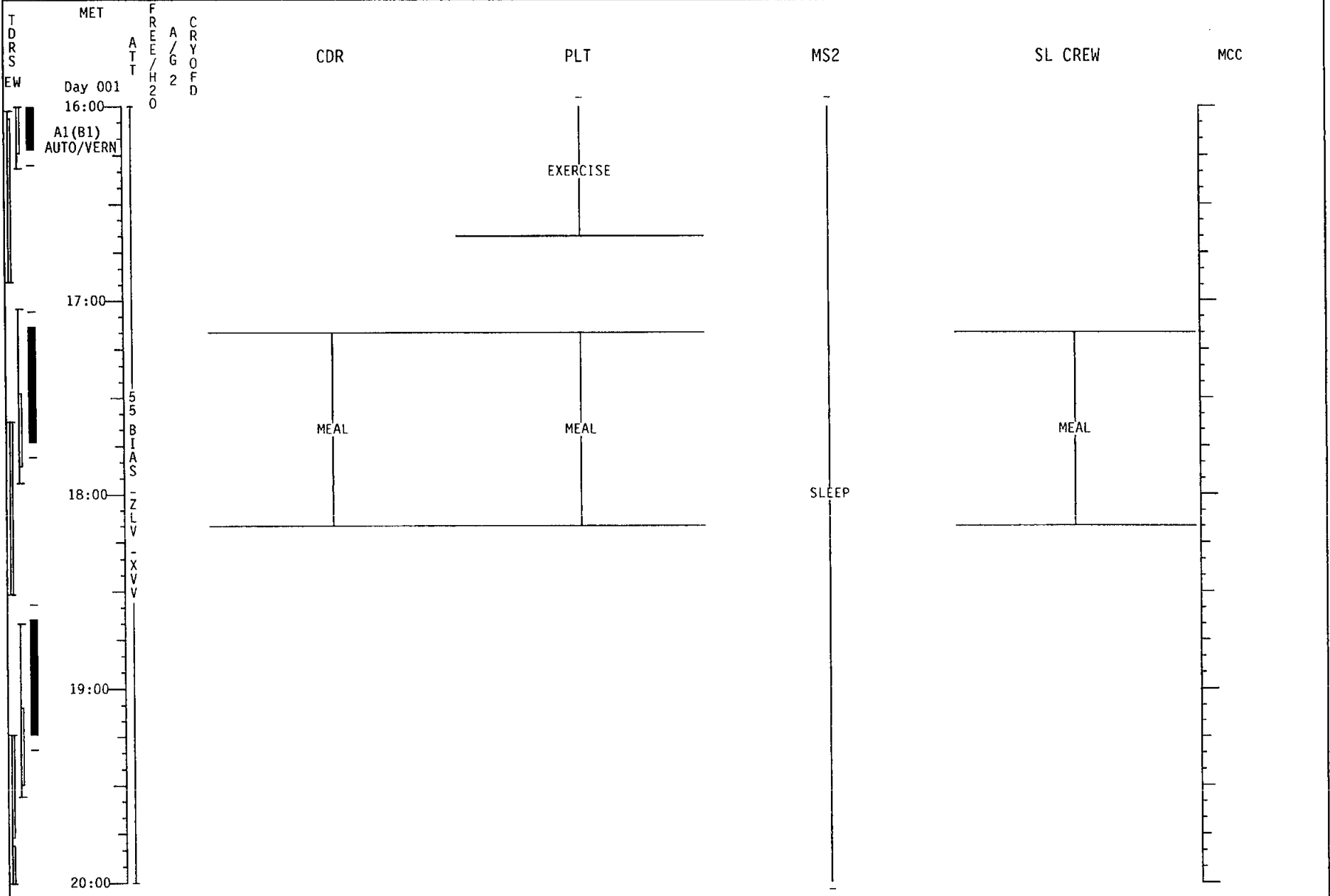


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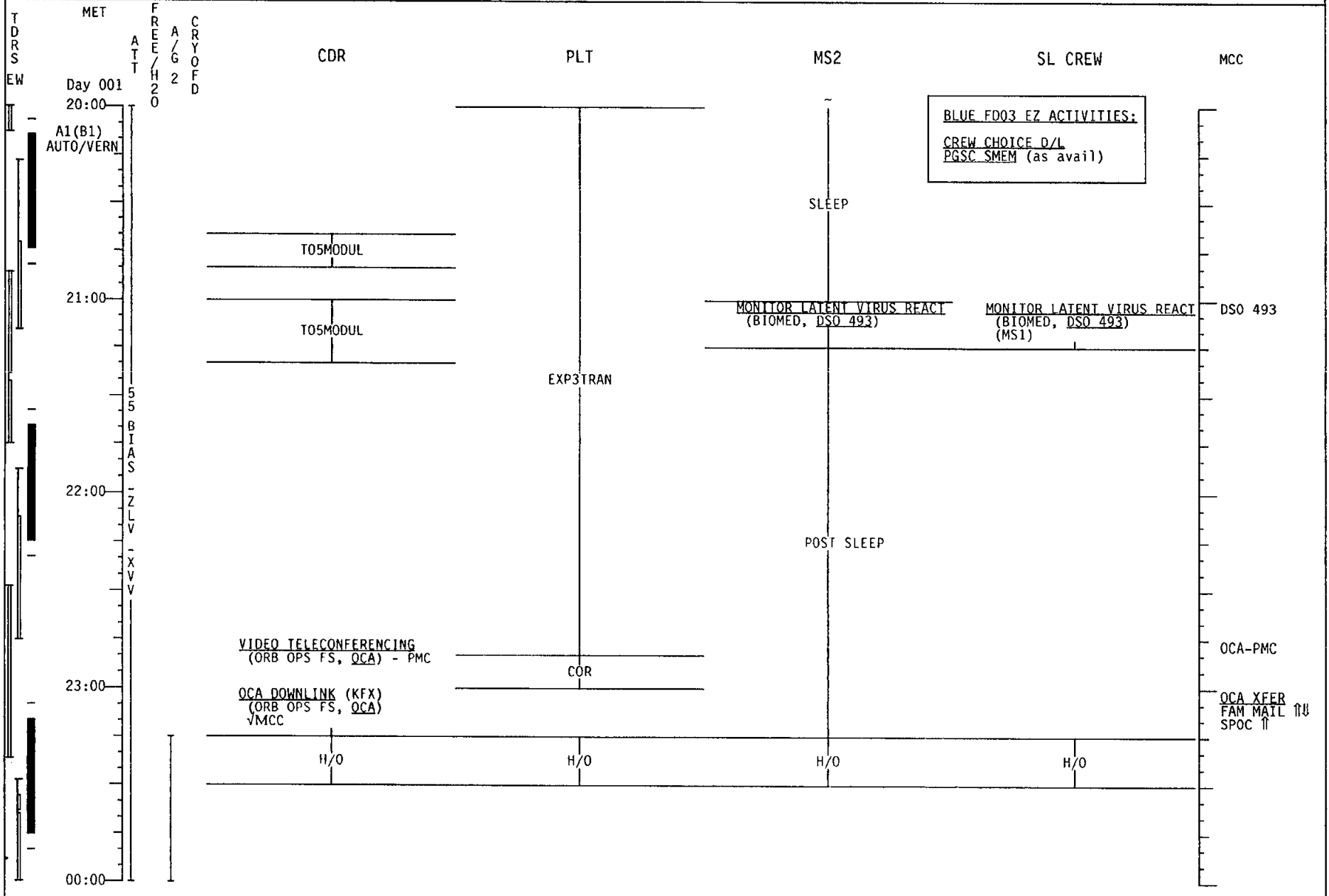




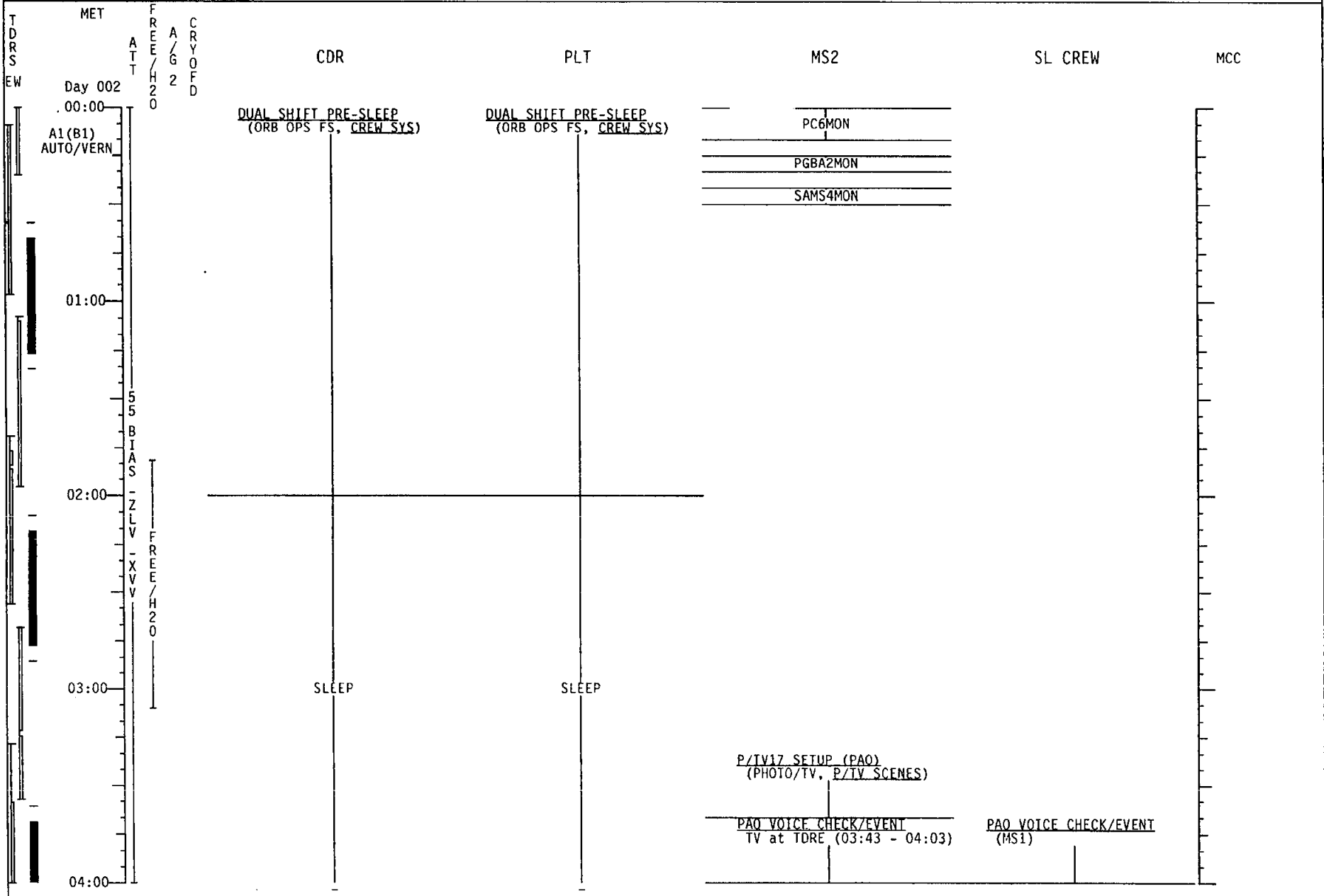
STS-83 ( RED FD 03 )



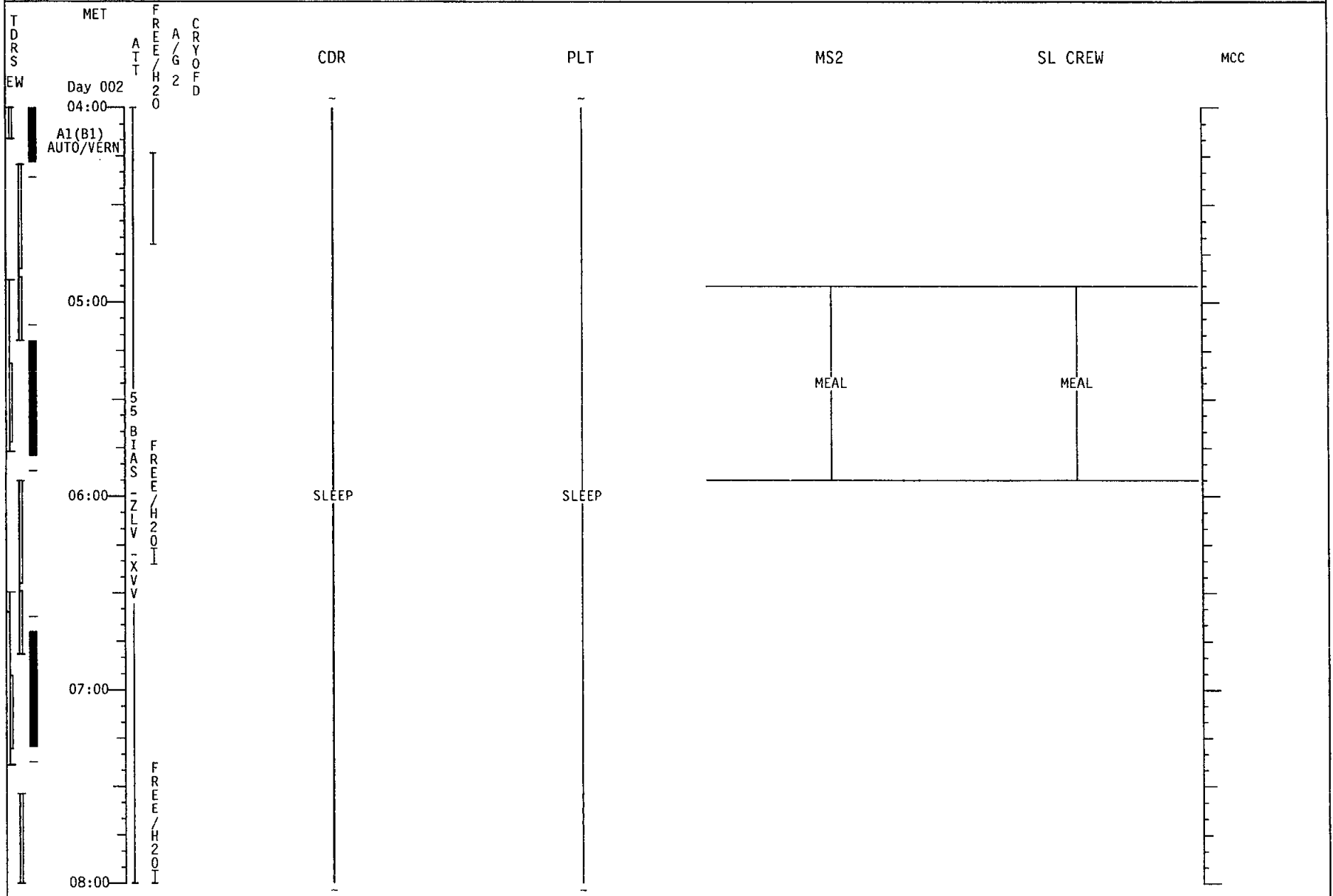
# STS-83 ( BLUE FD 03 )



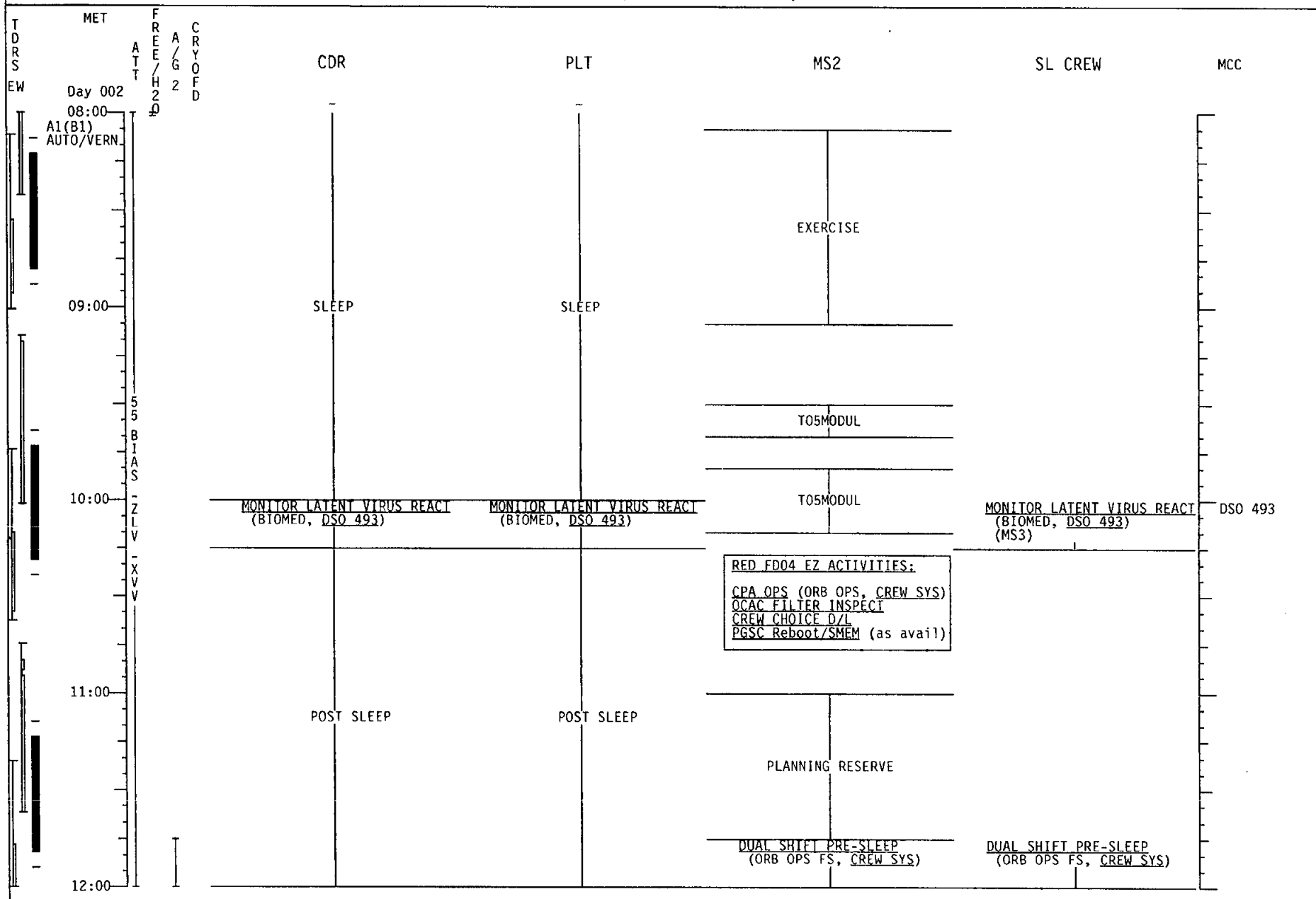
STS-83 ( BLUE FD 03 )



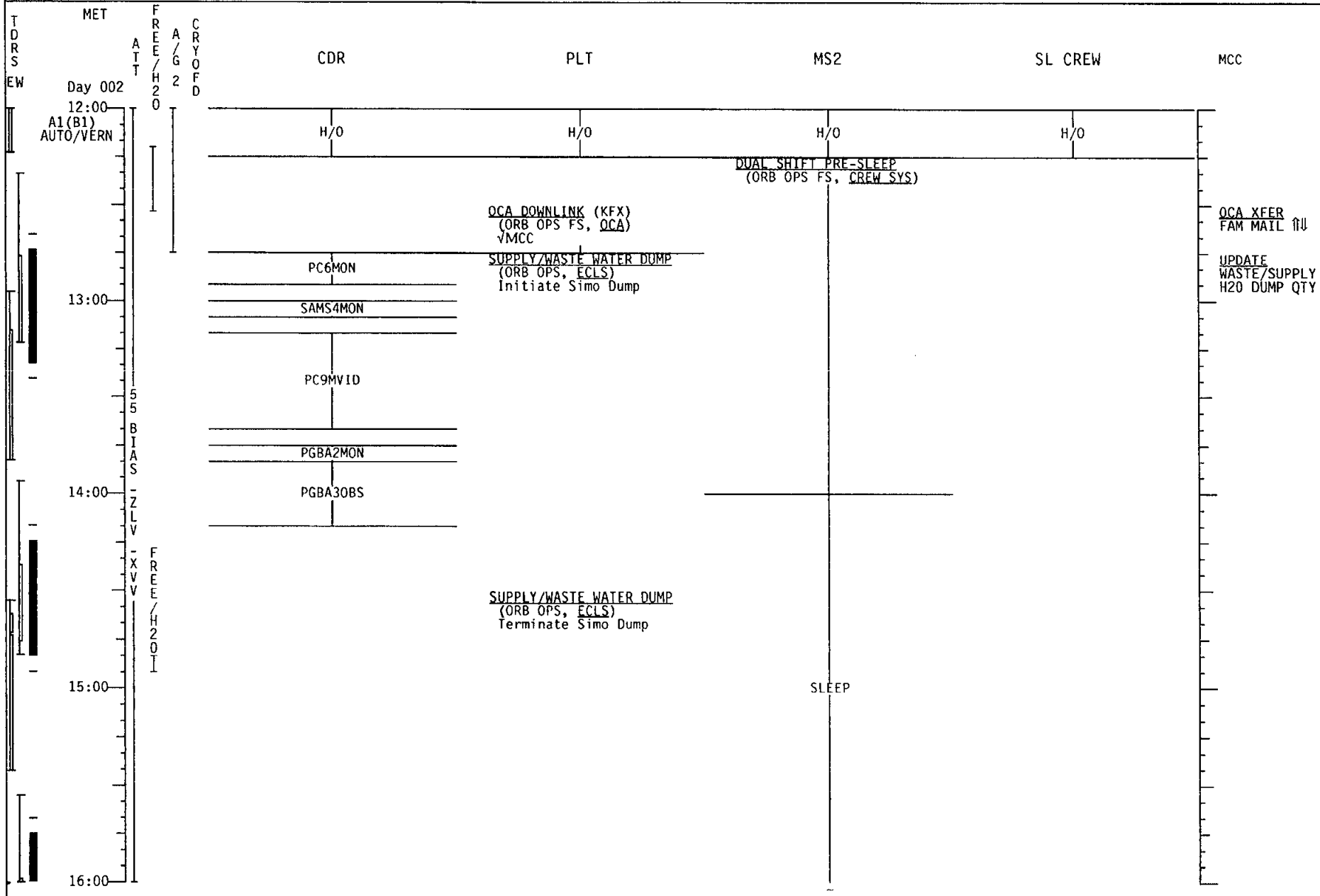
STS-83 ( BLUE FD 03 )



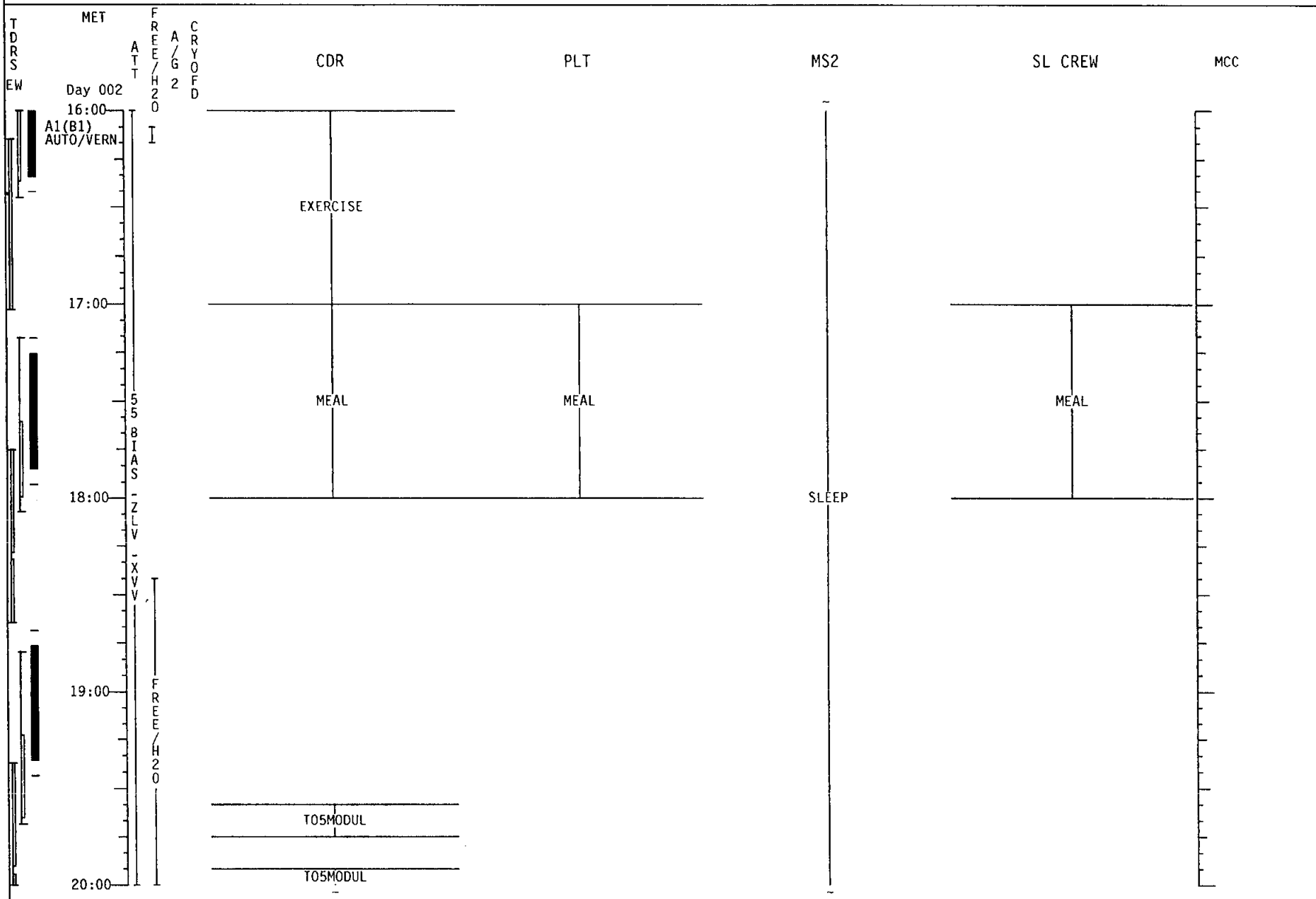
# STS-83 ( BLUE FD 03 )



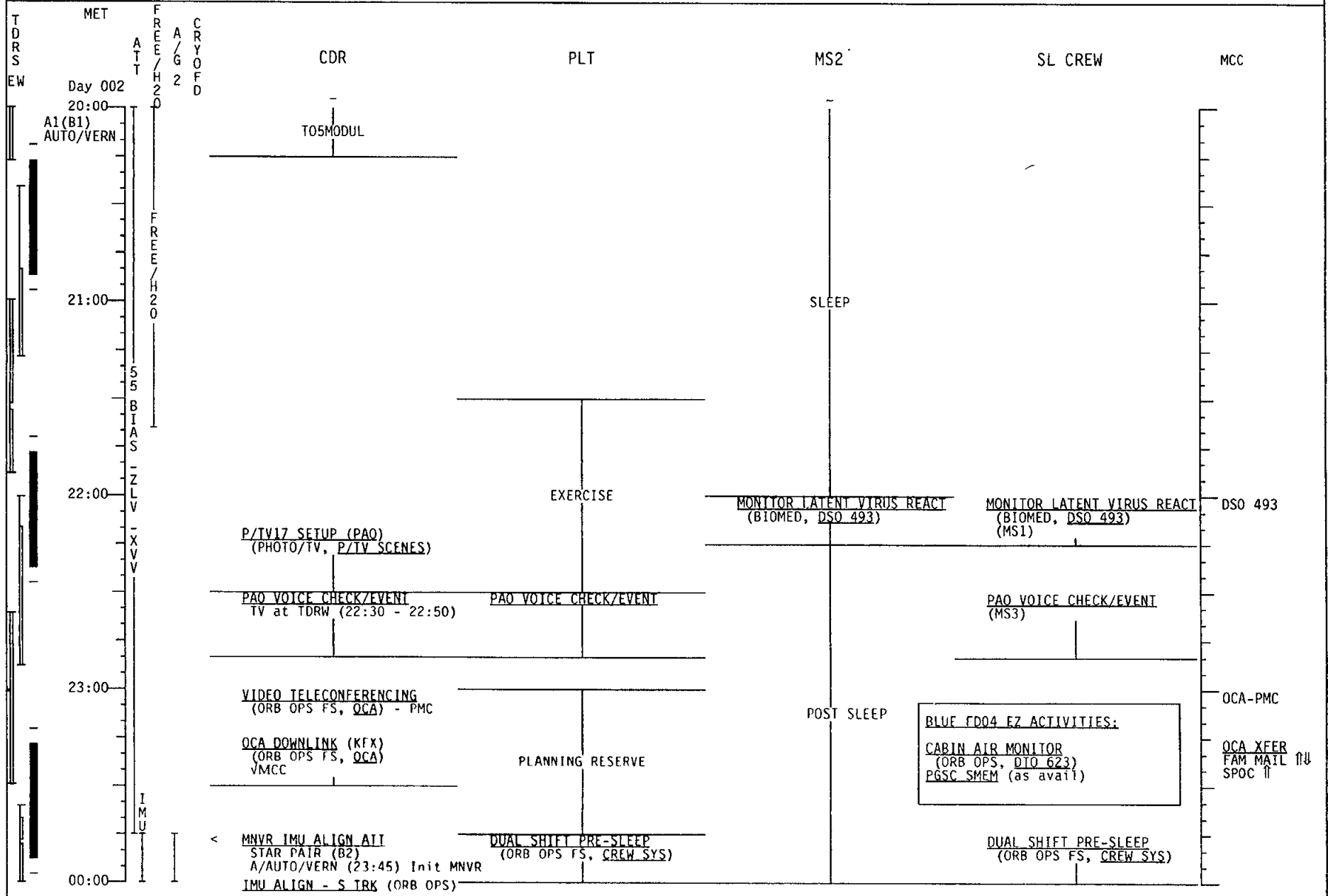
STS-83 ( RED FD 05 )



STS-83 ( RED FD 04 )

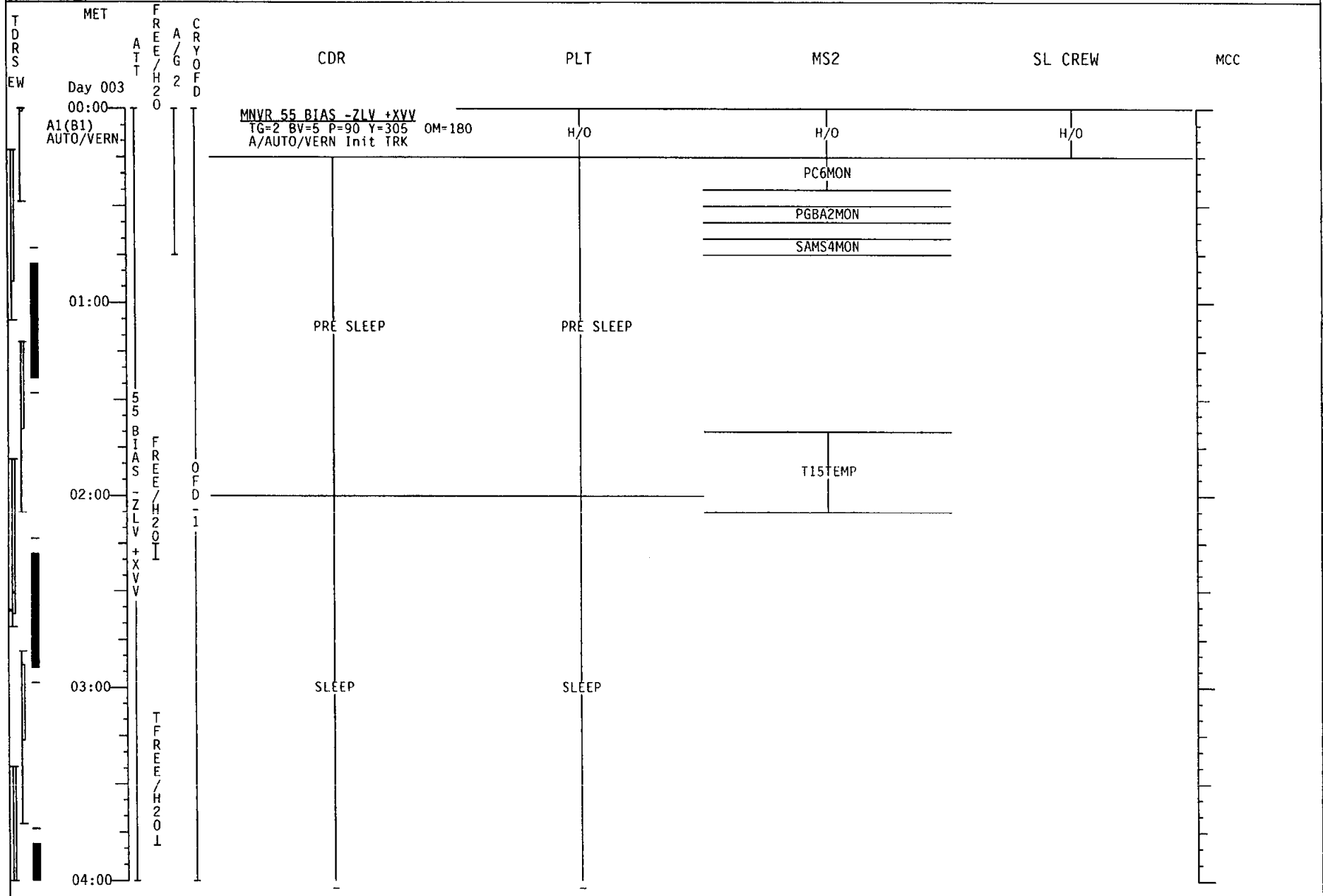


STS-83 ( RED FD 04 )

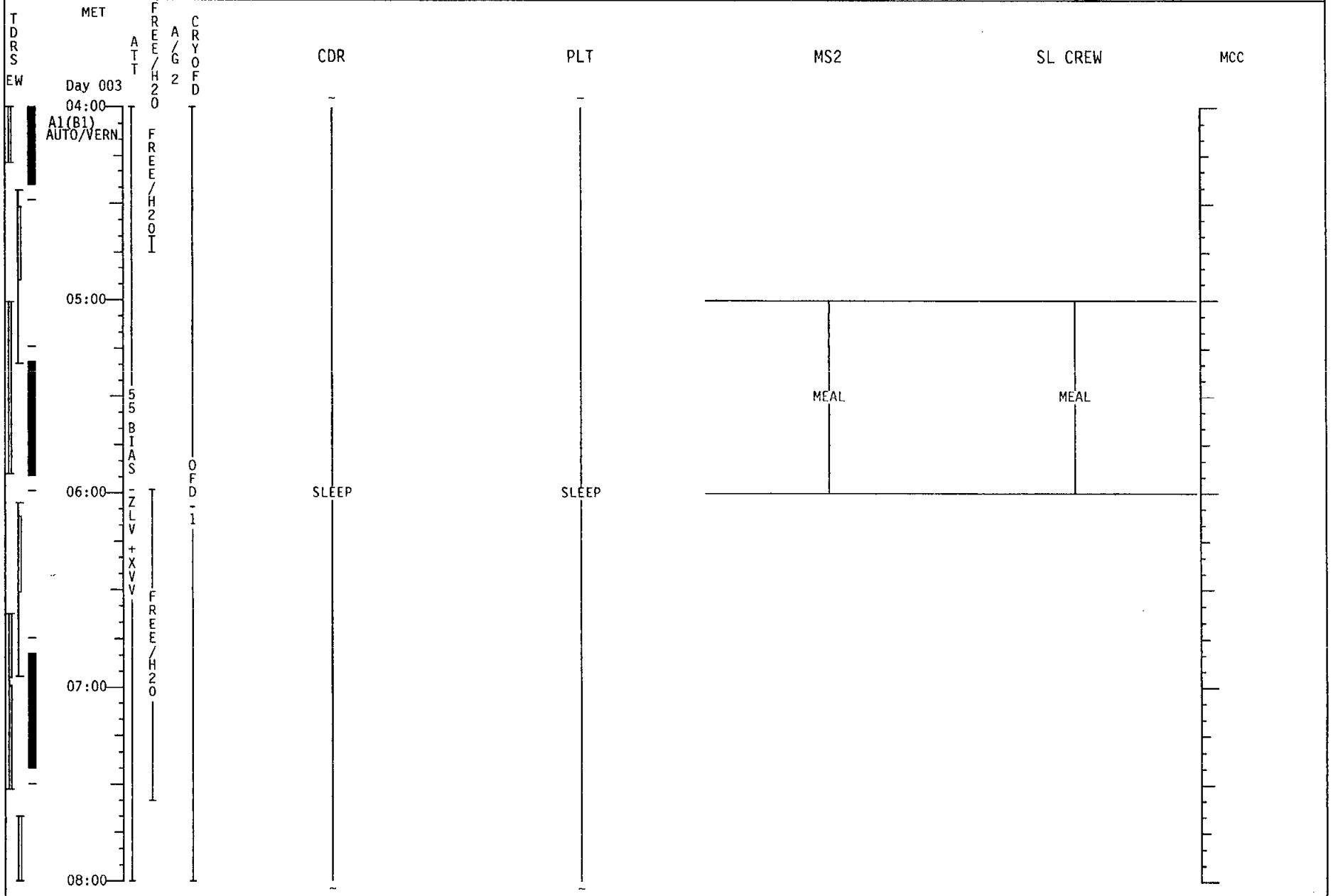




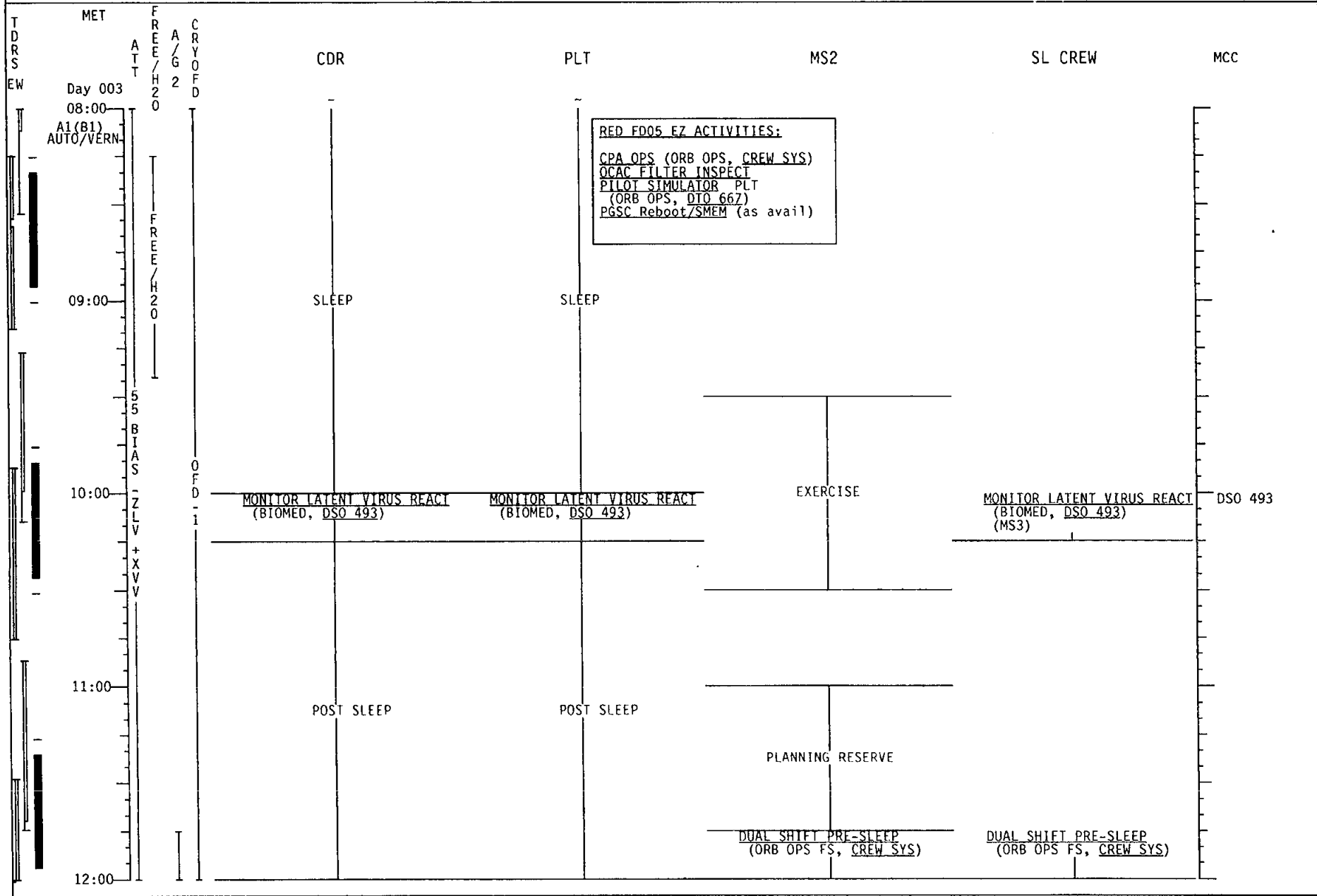
STS-83 ( BLUE FD 04 )



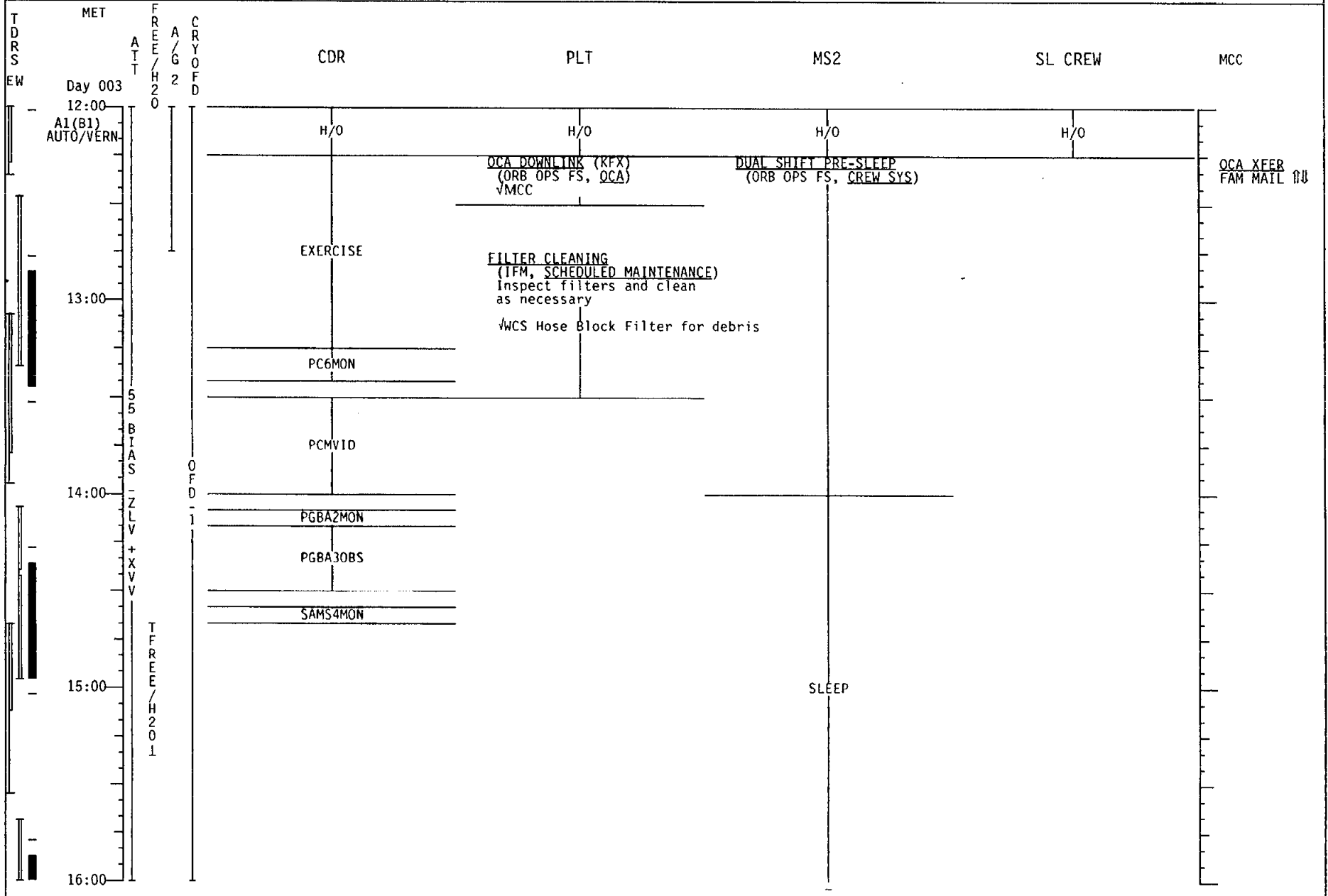
STS-83 ( BLUE FD 04 )



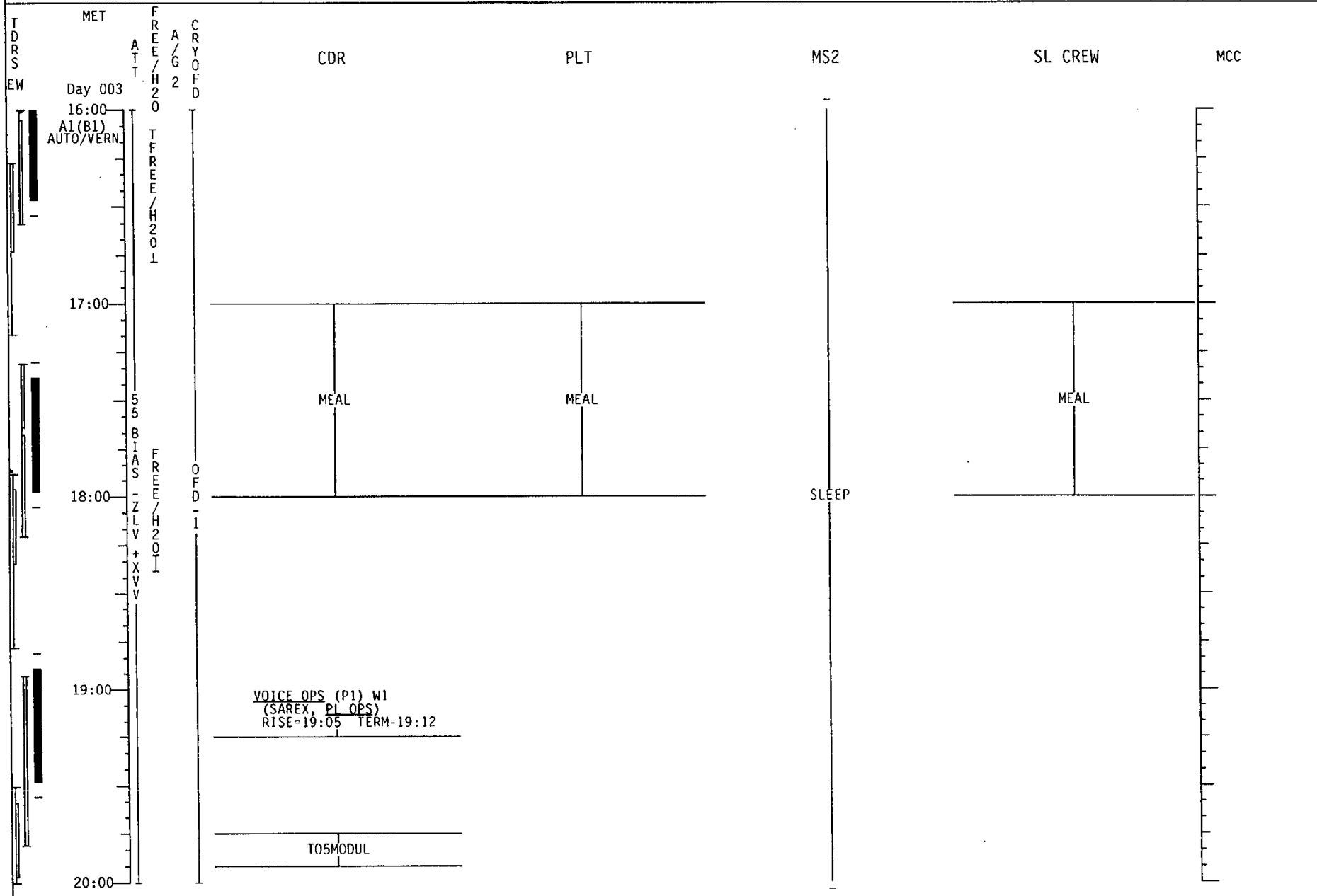
# STS-83 ( BLUE FD 04 )



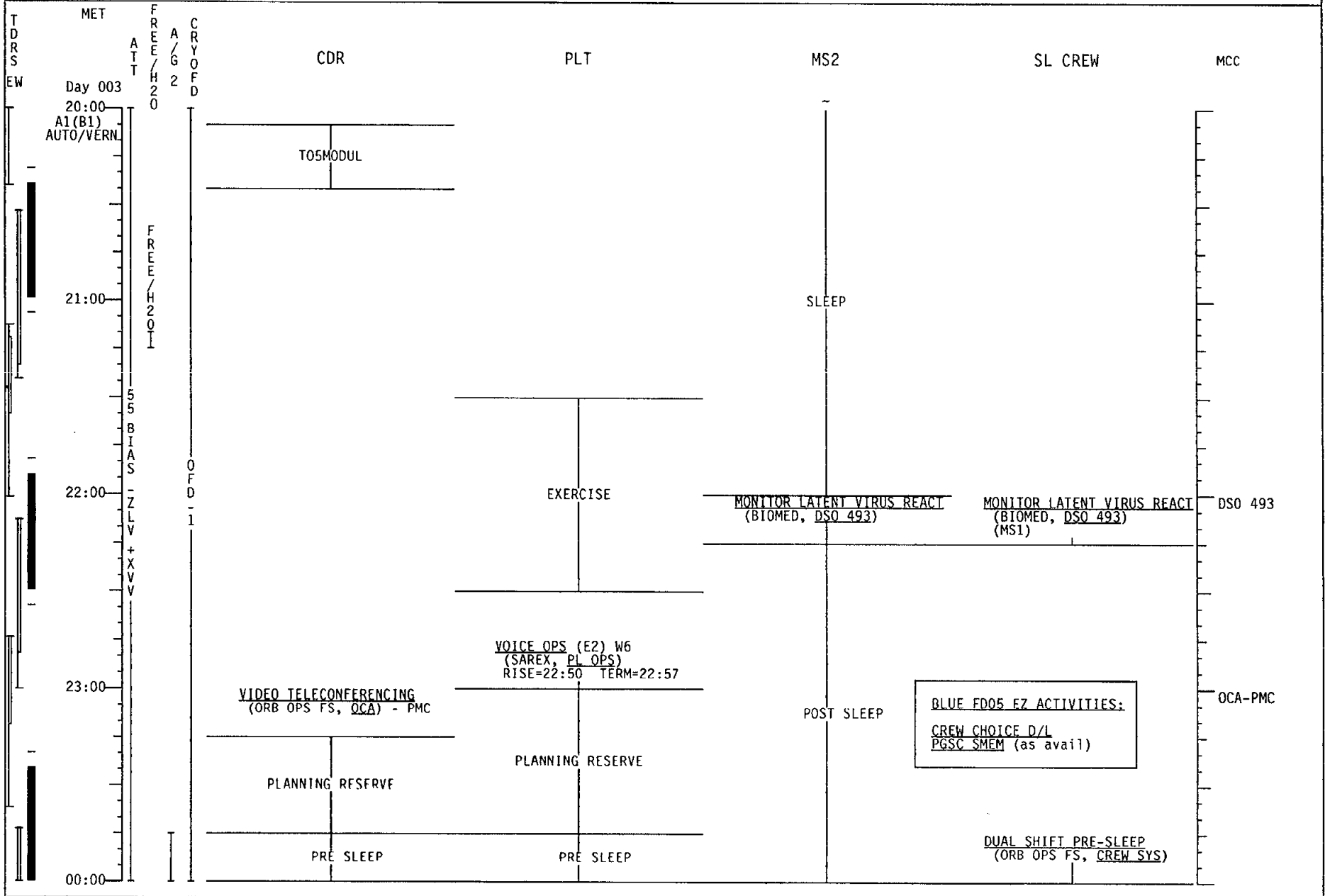
STS-83 ( RED FD 05 )



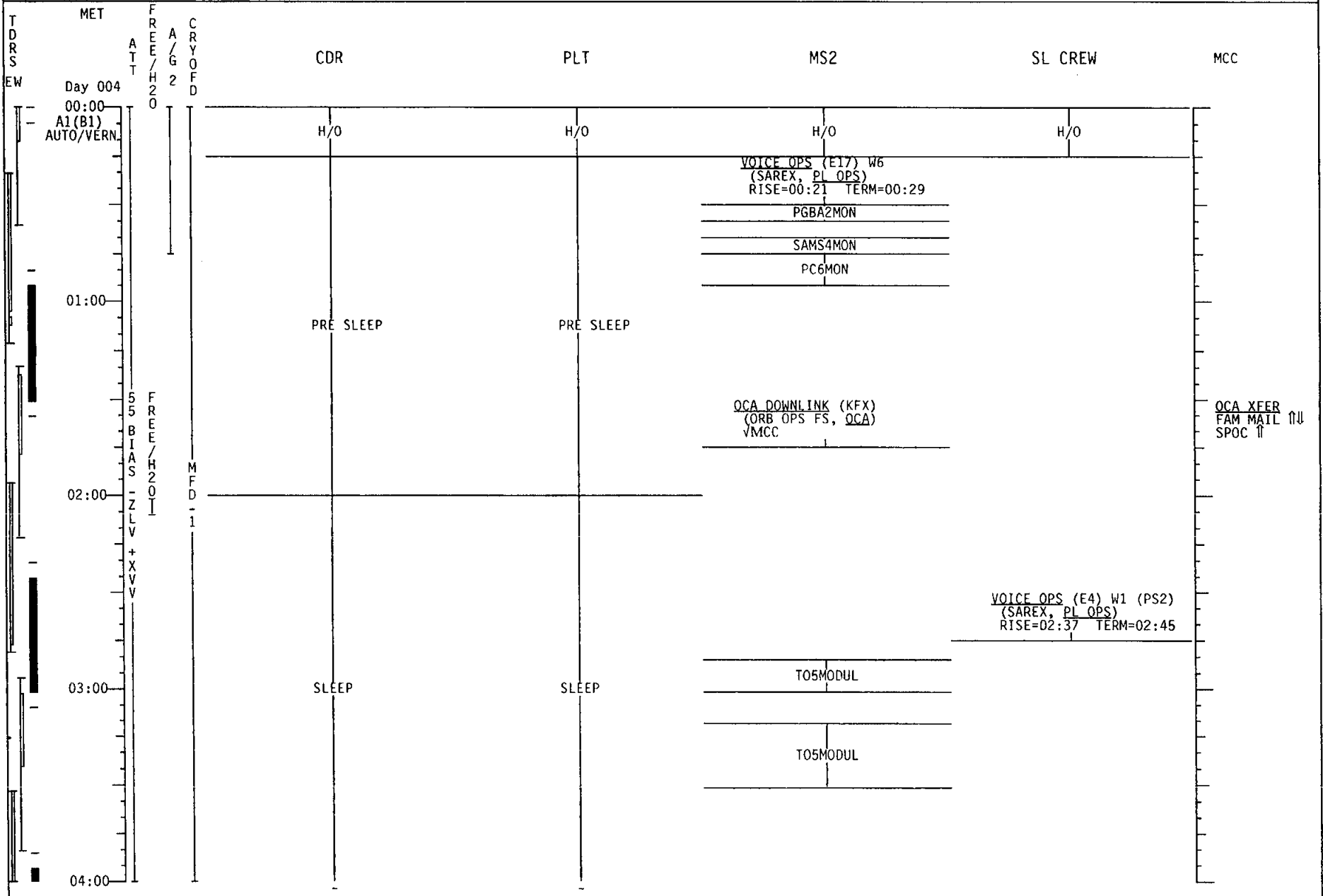
STS-83 ( RED FD 05 )



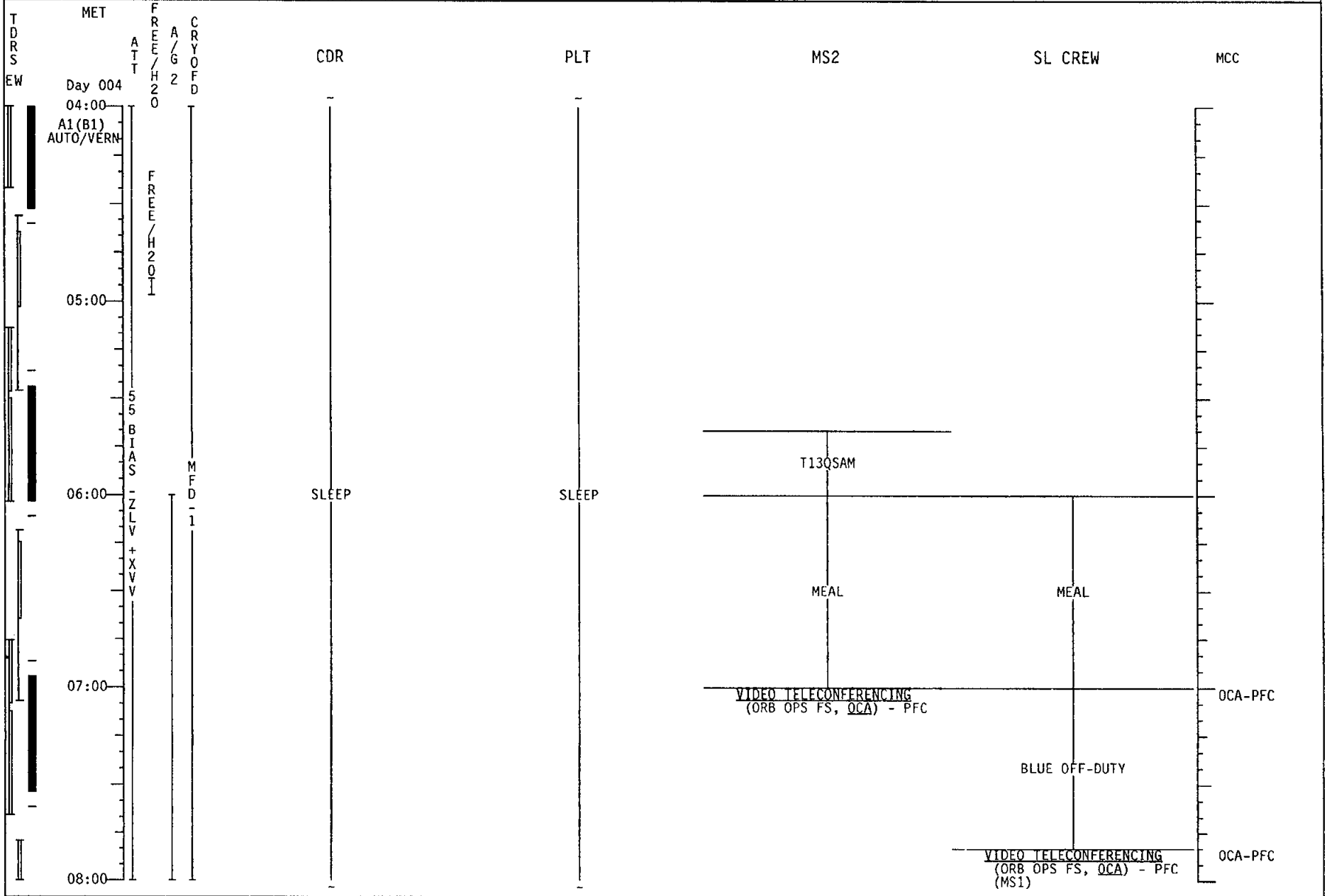
# STS-83 ( RED FD 05 )



STS-83 ( BLUE FD 05 )

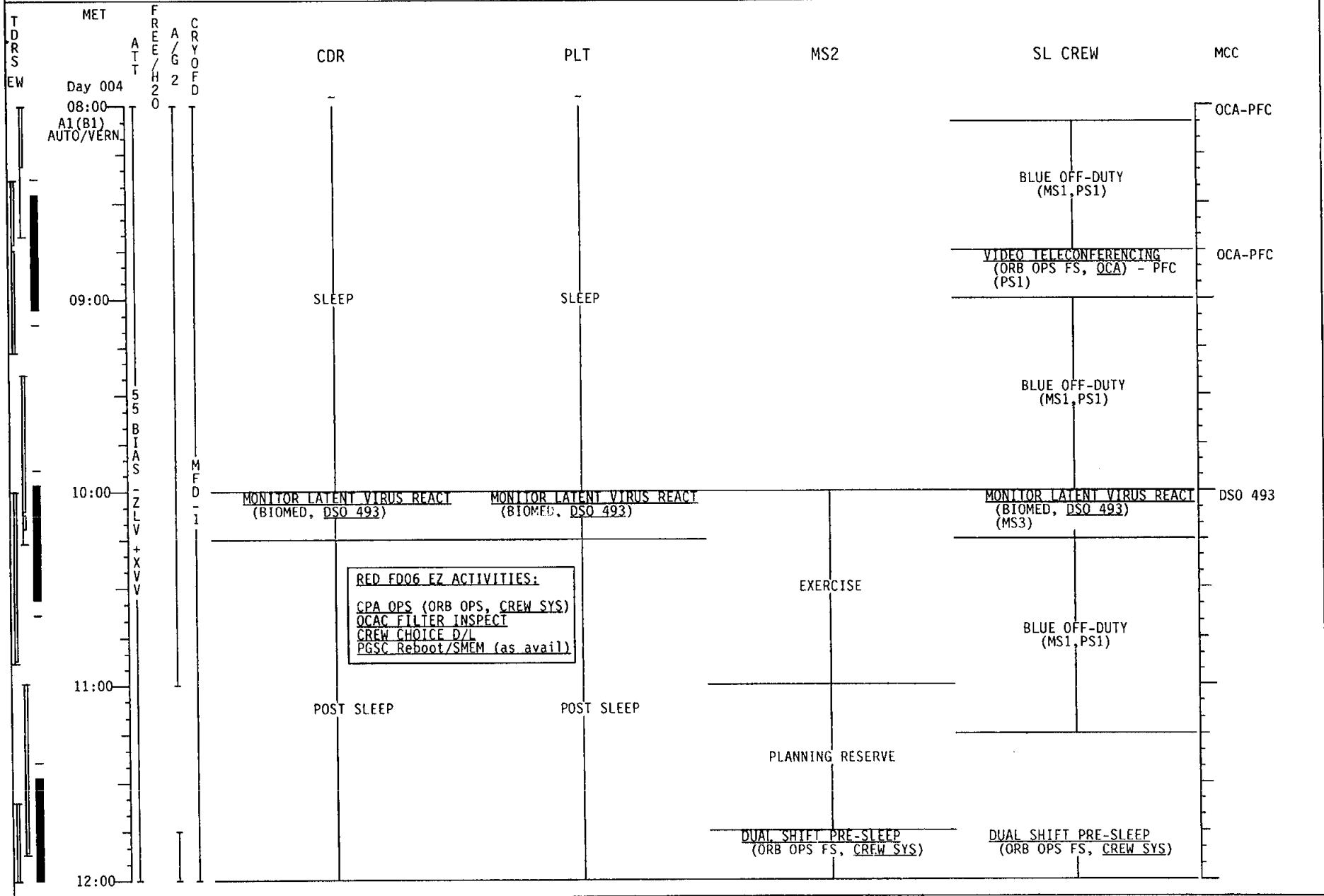


STS-83 ( BLUE FD 05 )

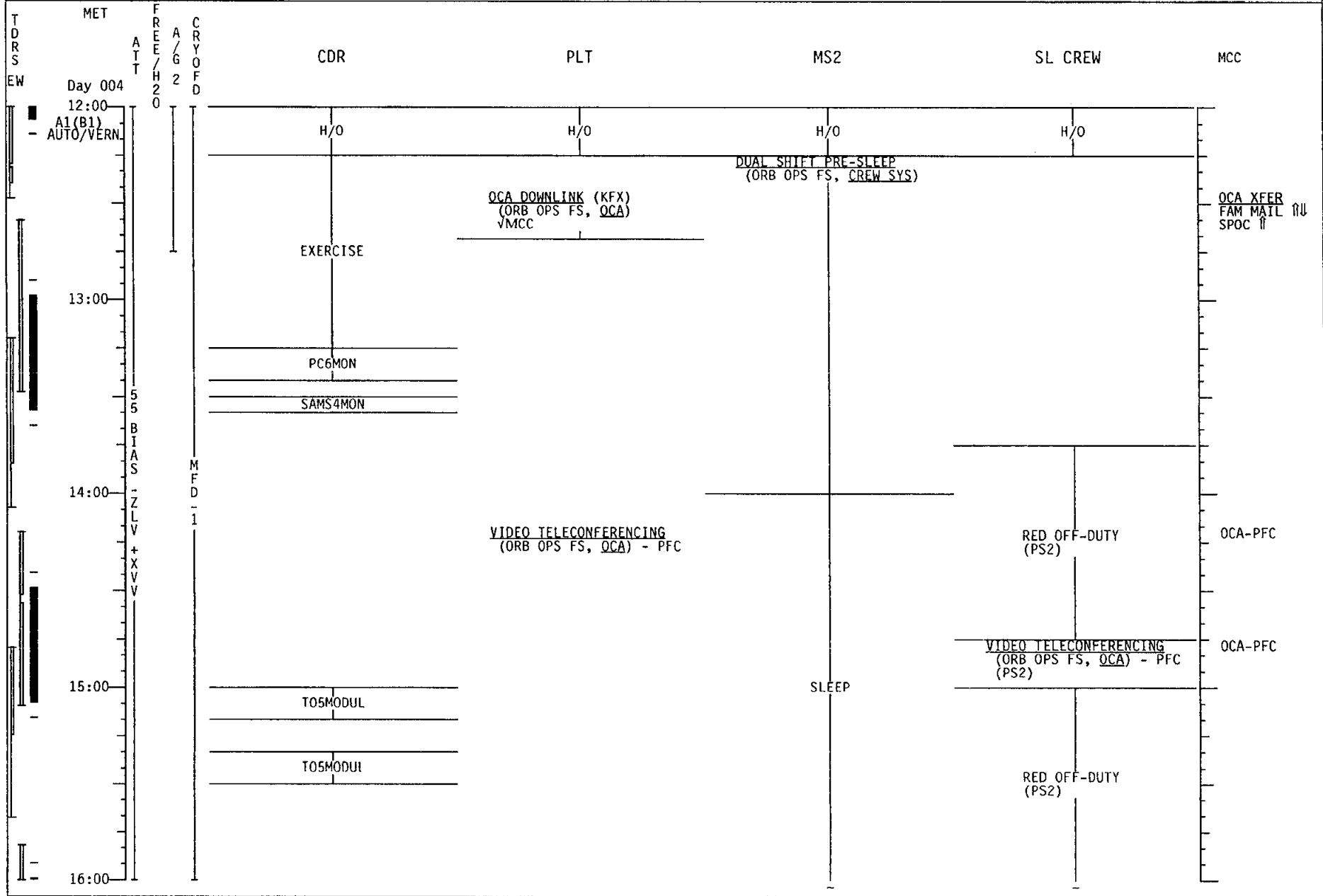




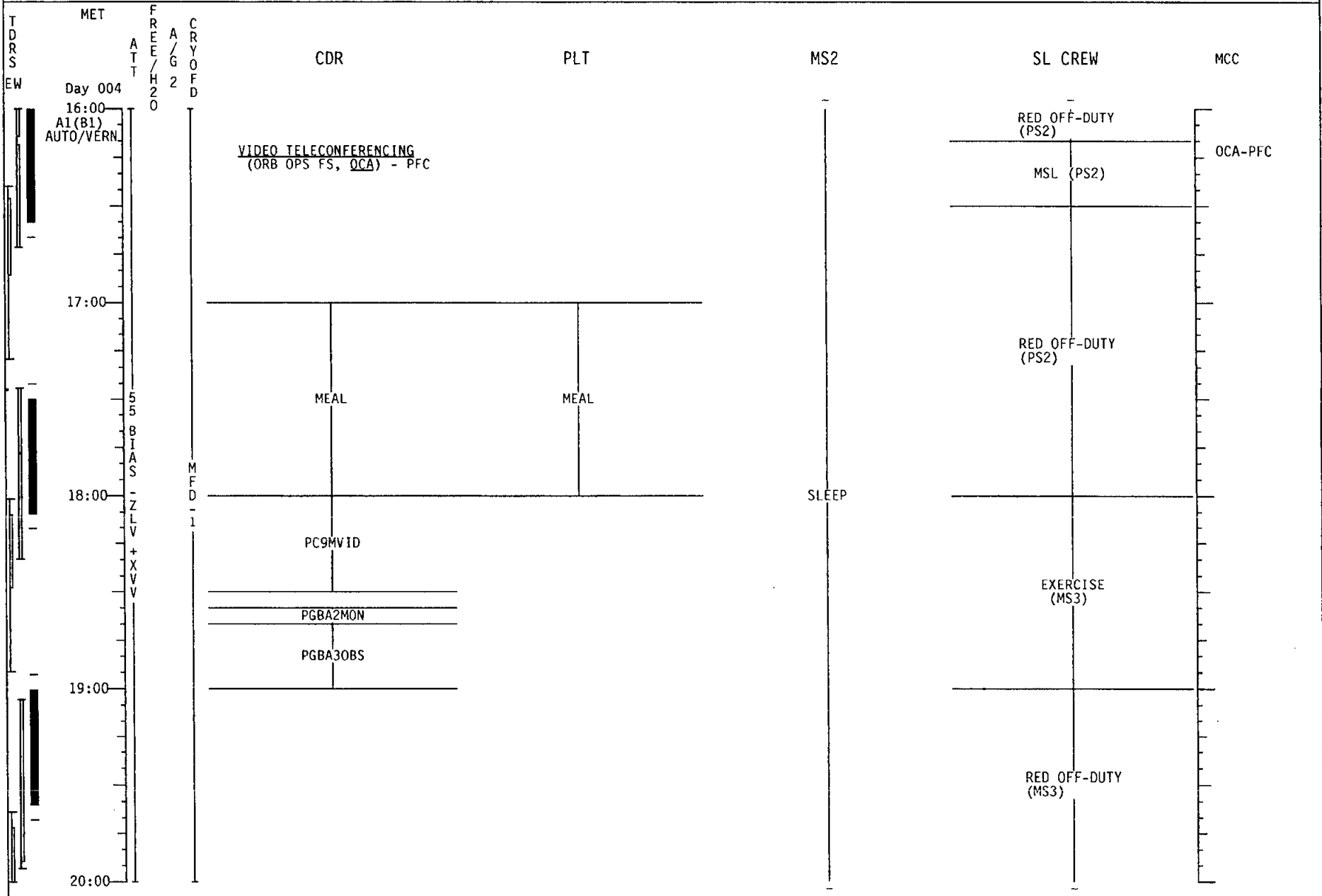
# STS-83 ( BLUE FD 05 )



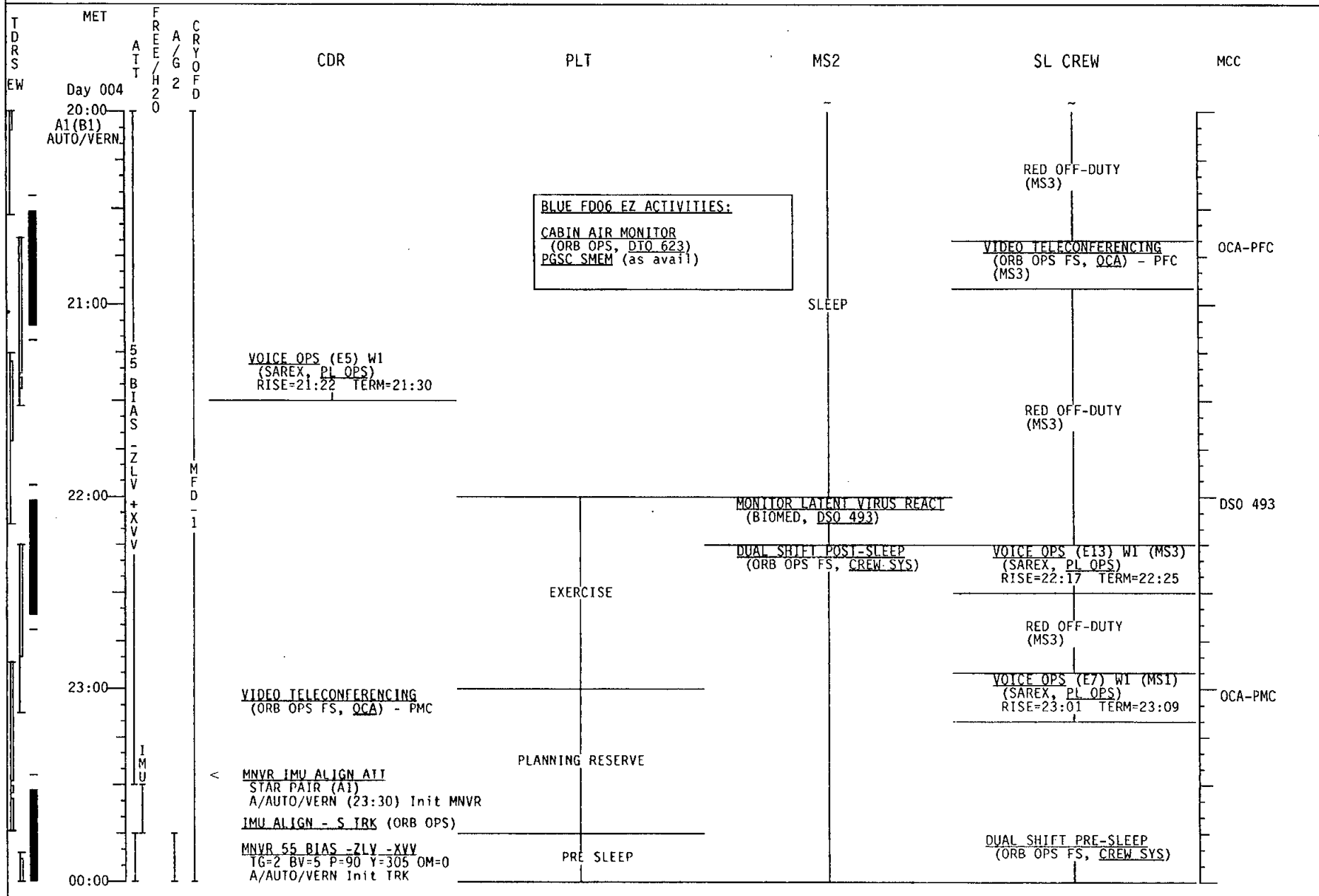
STS-83 ( RED FD 06 )



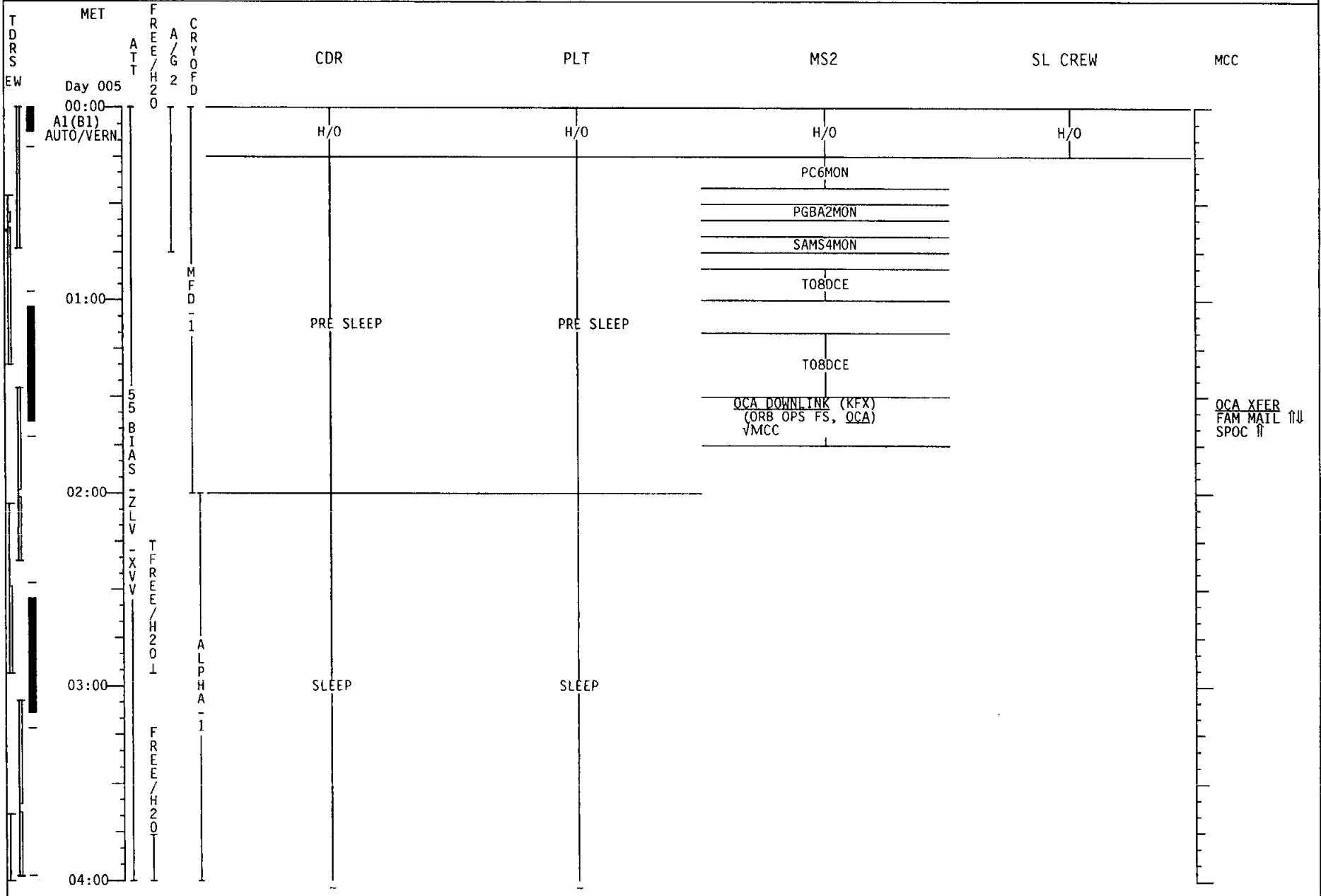
STS-83 ( RED FD 06 )



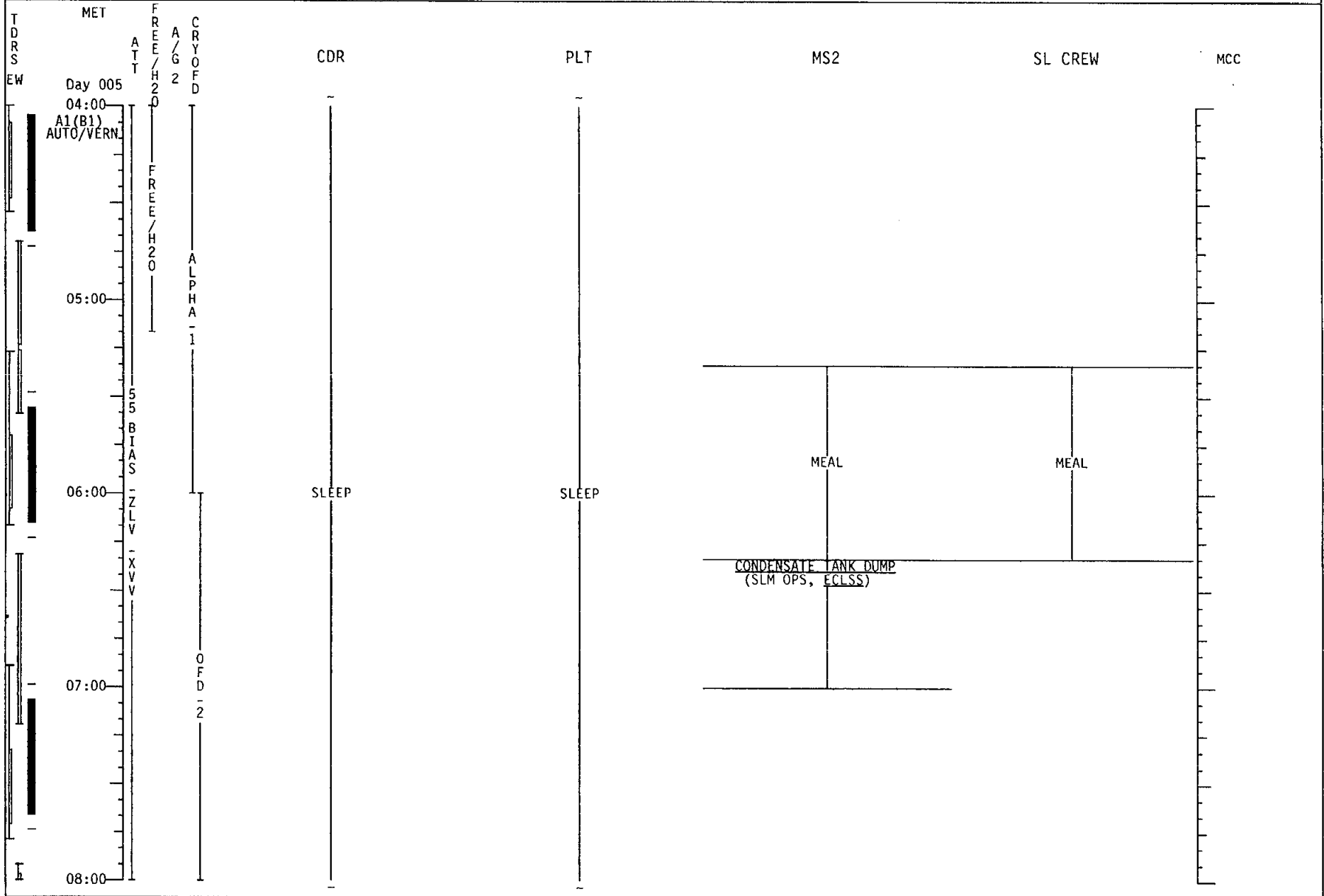
# STS-83 ( RED FD 06 )



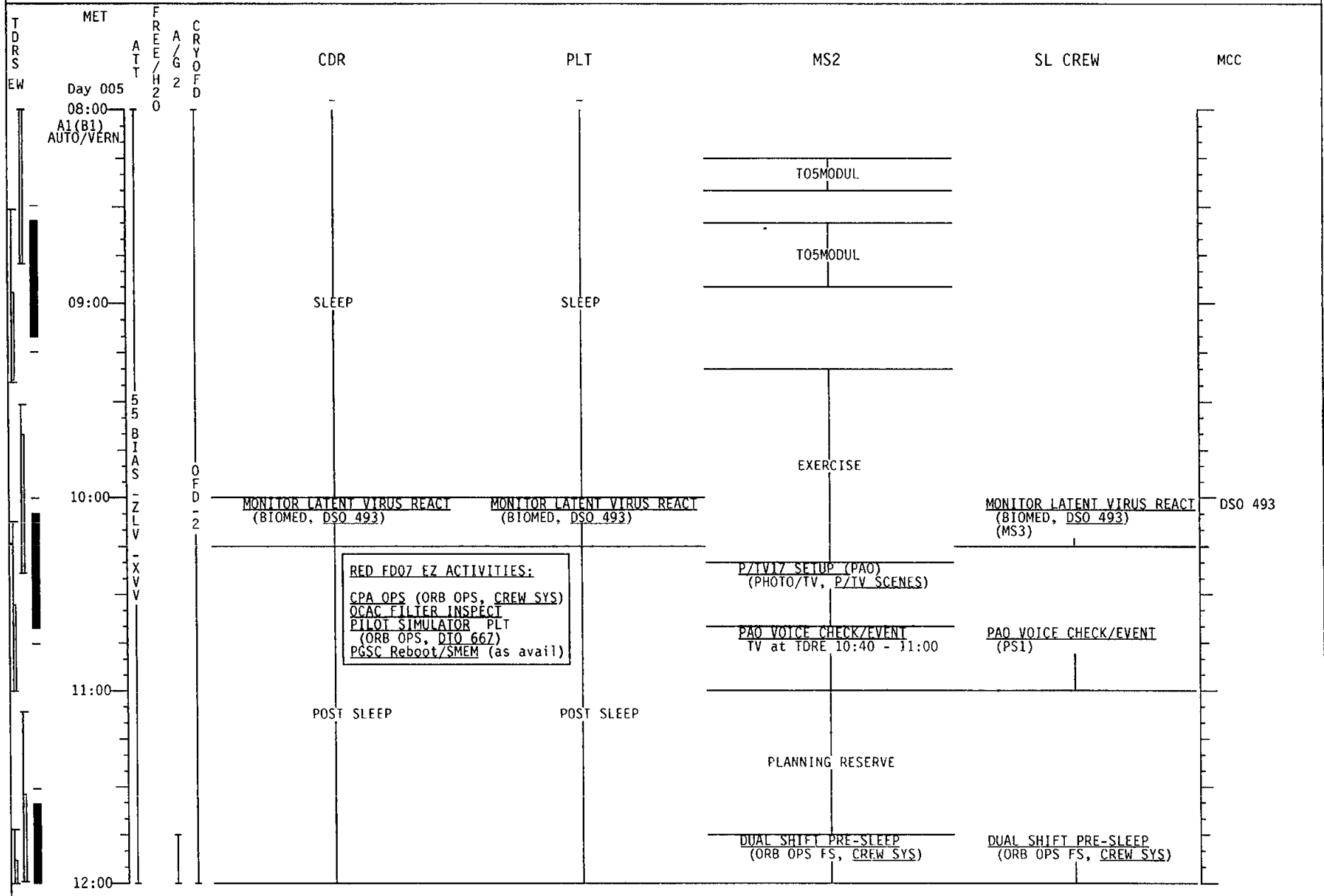
STS-83 ( BLUE FD 06 )



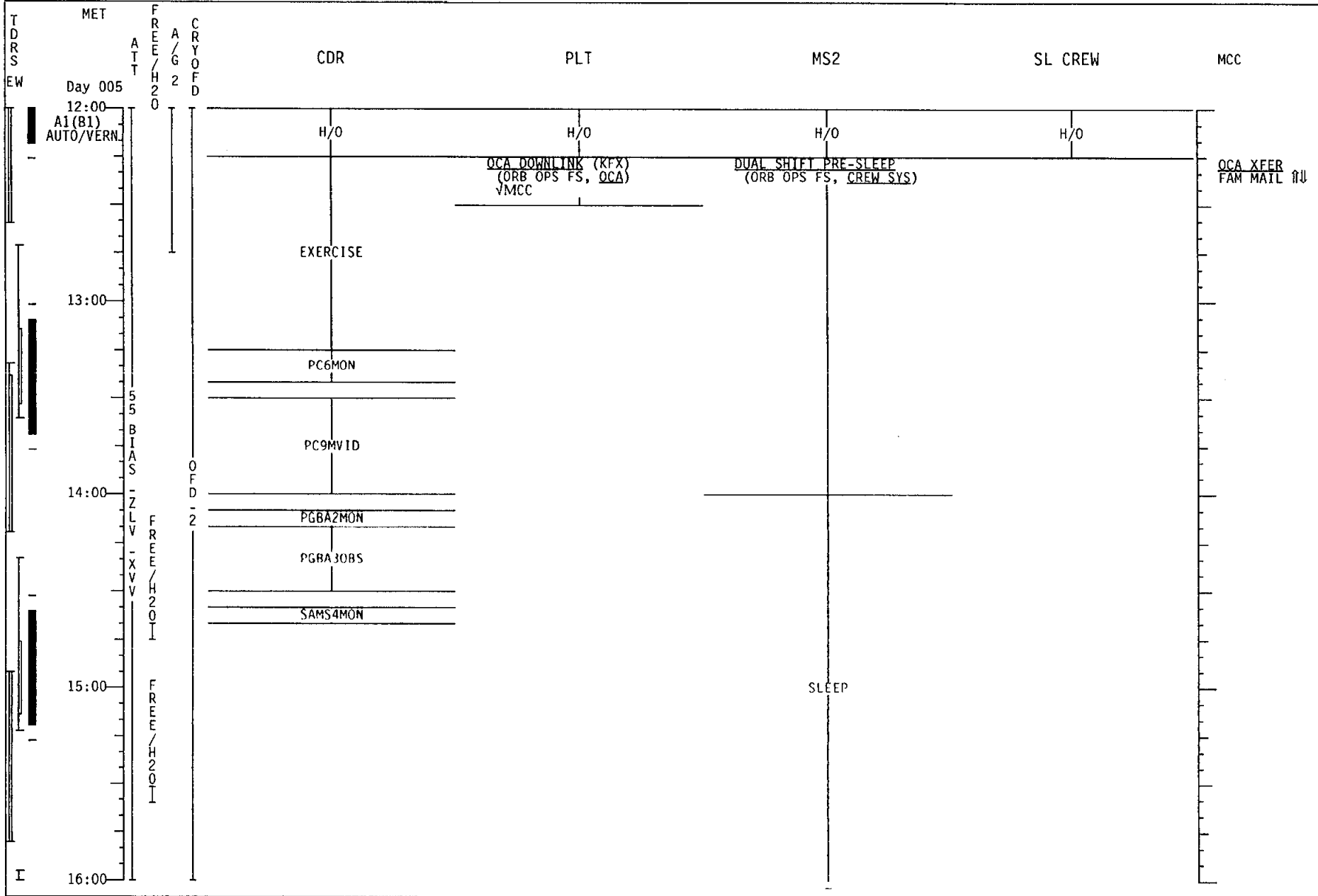
STS-83 ( BLUE FD 06 )



# STS-83 ( BLUE FD 06 )

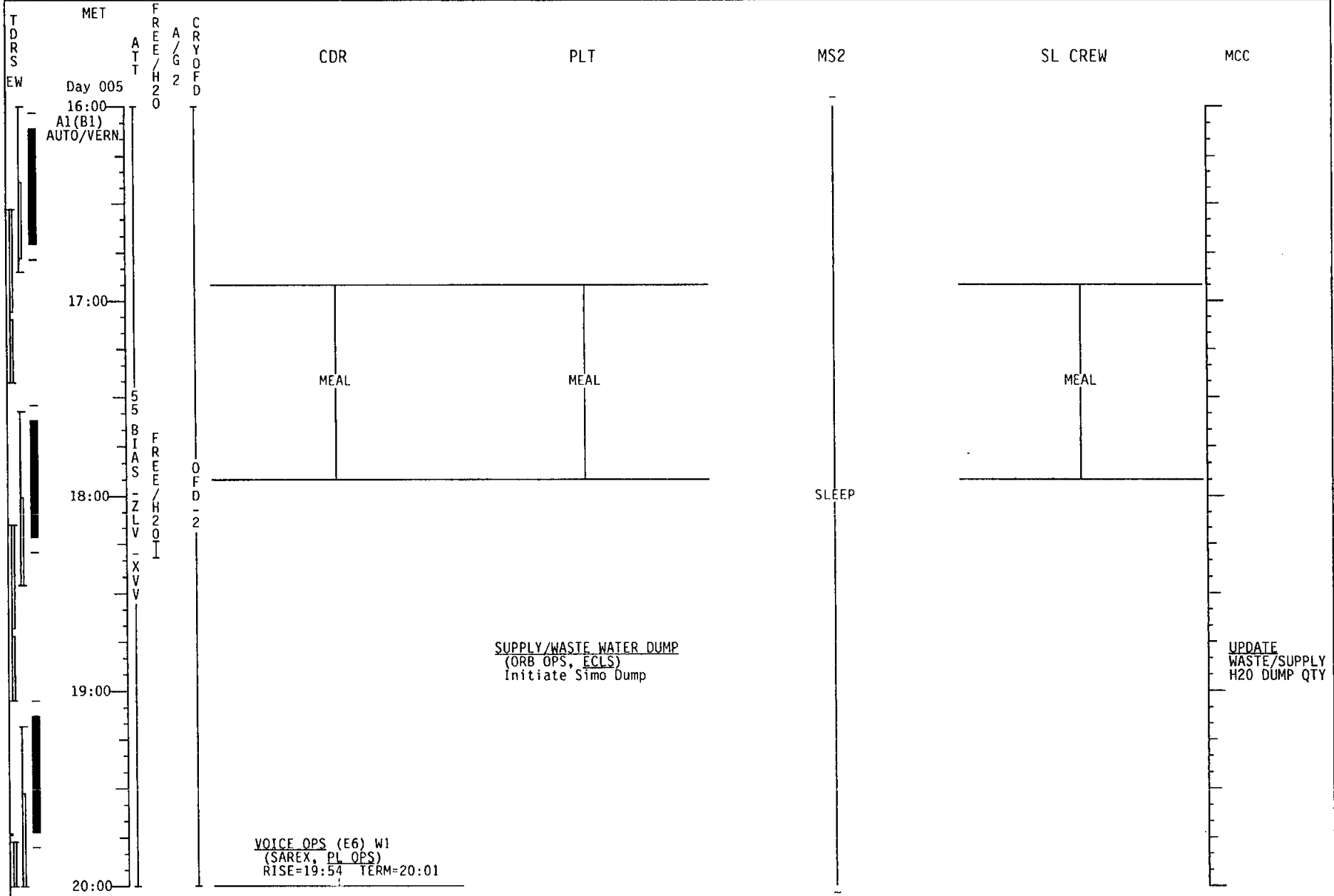


# STS-83 ( RED FD 07 )

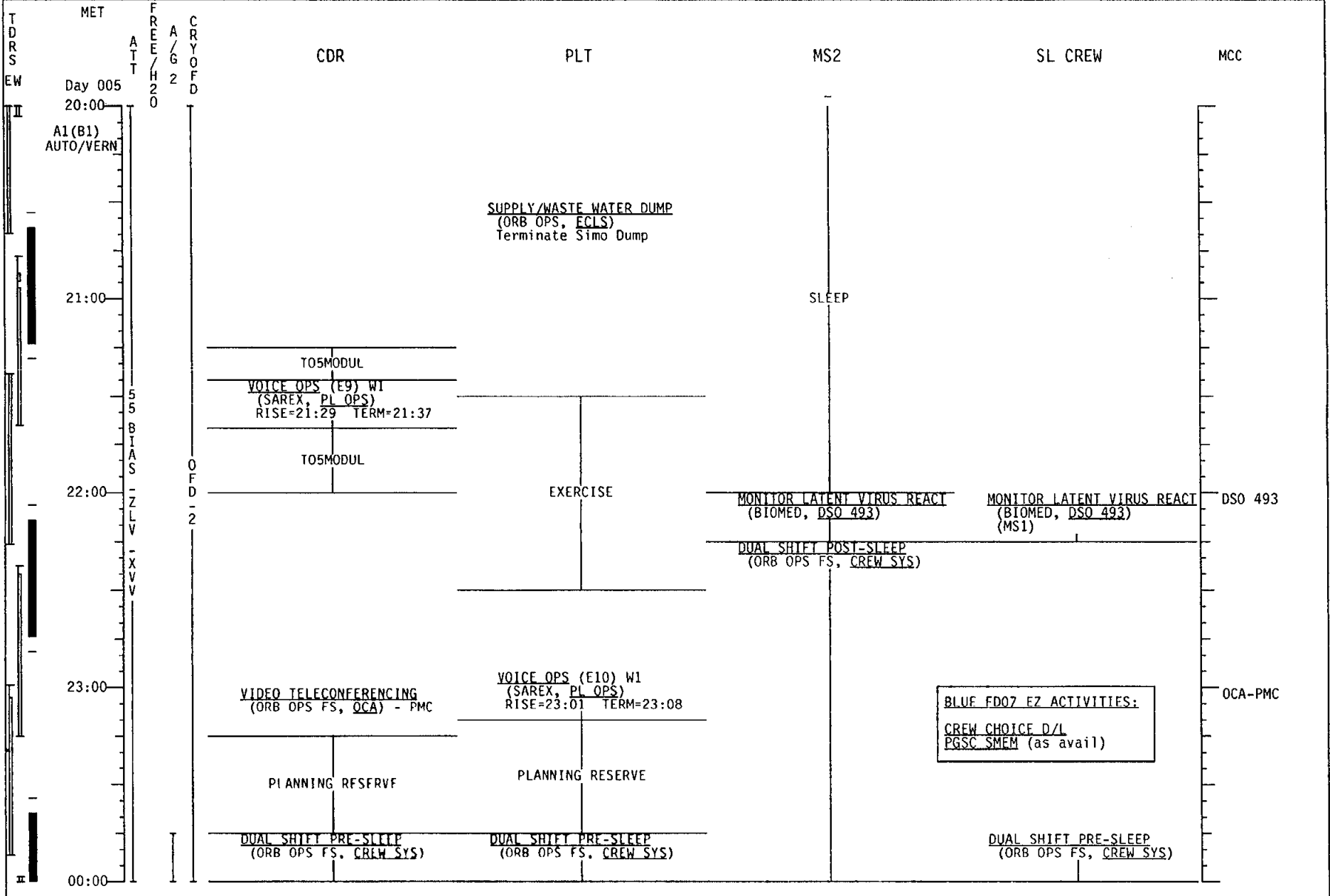




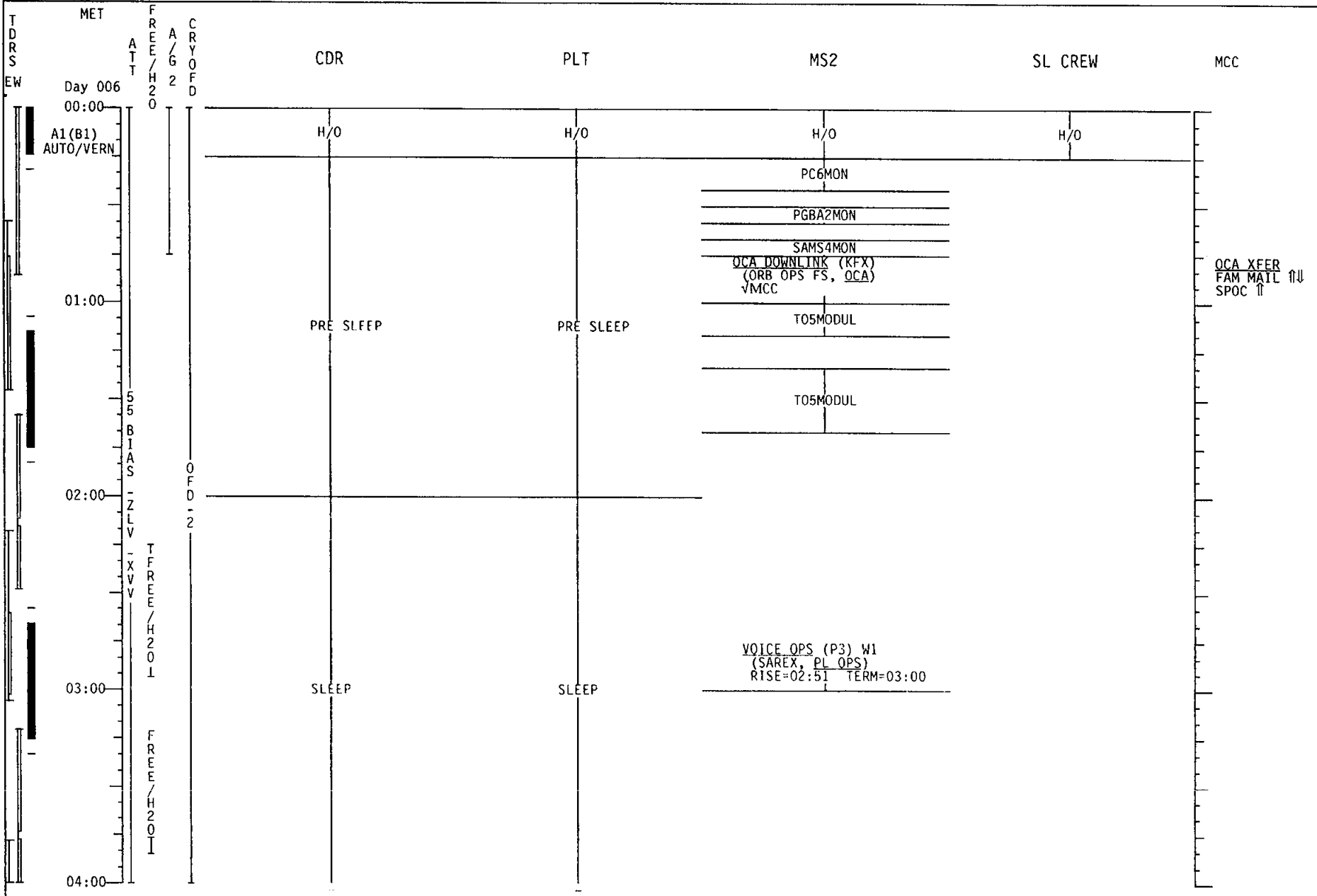
STS-83 ( RED FD 07 )



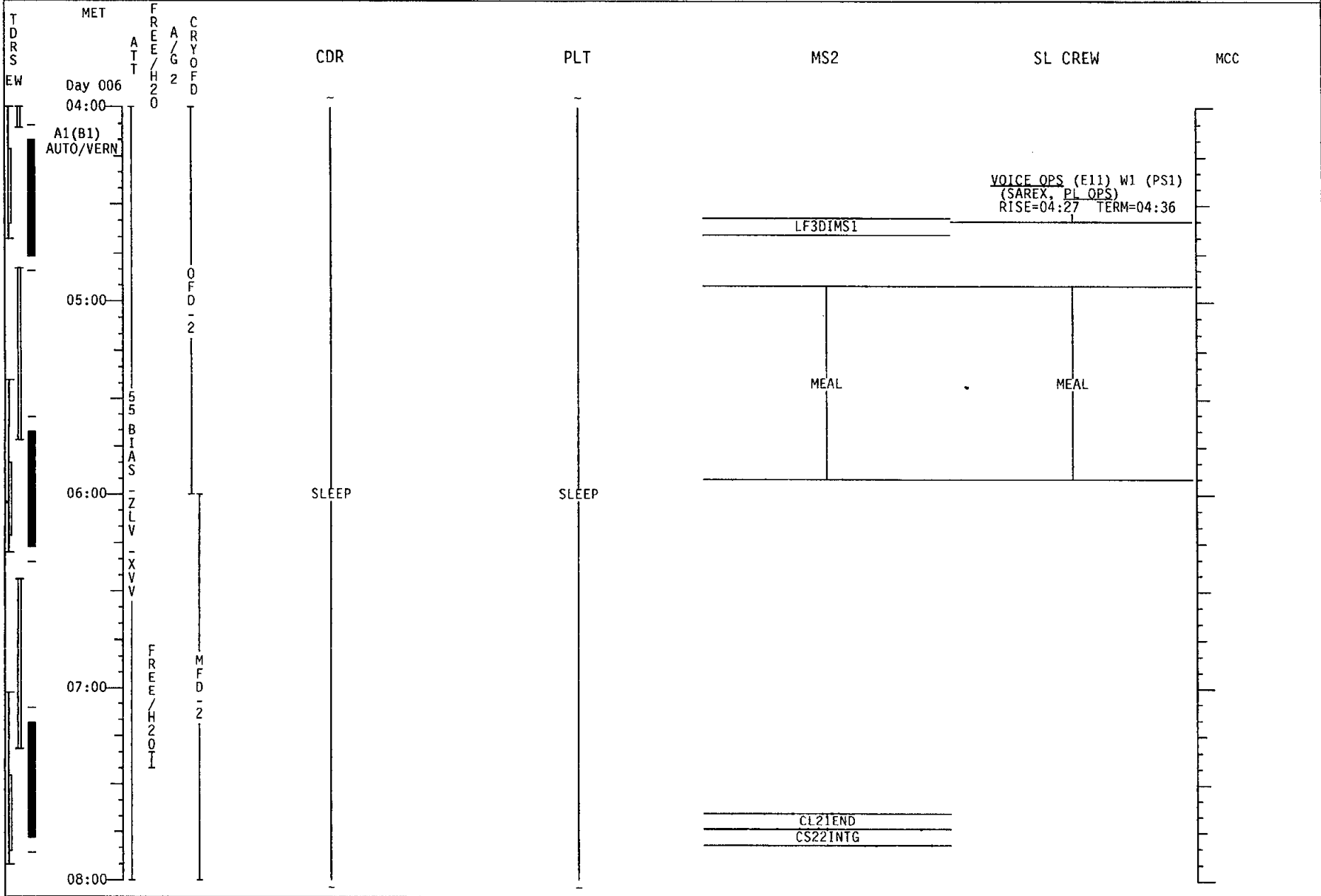
# STS-83 ( RED FD 07 )



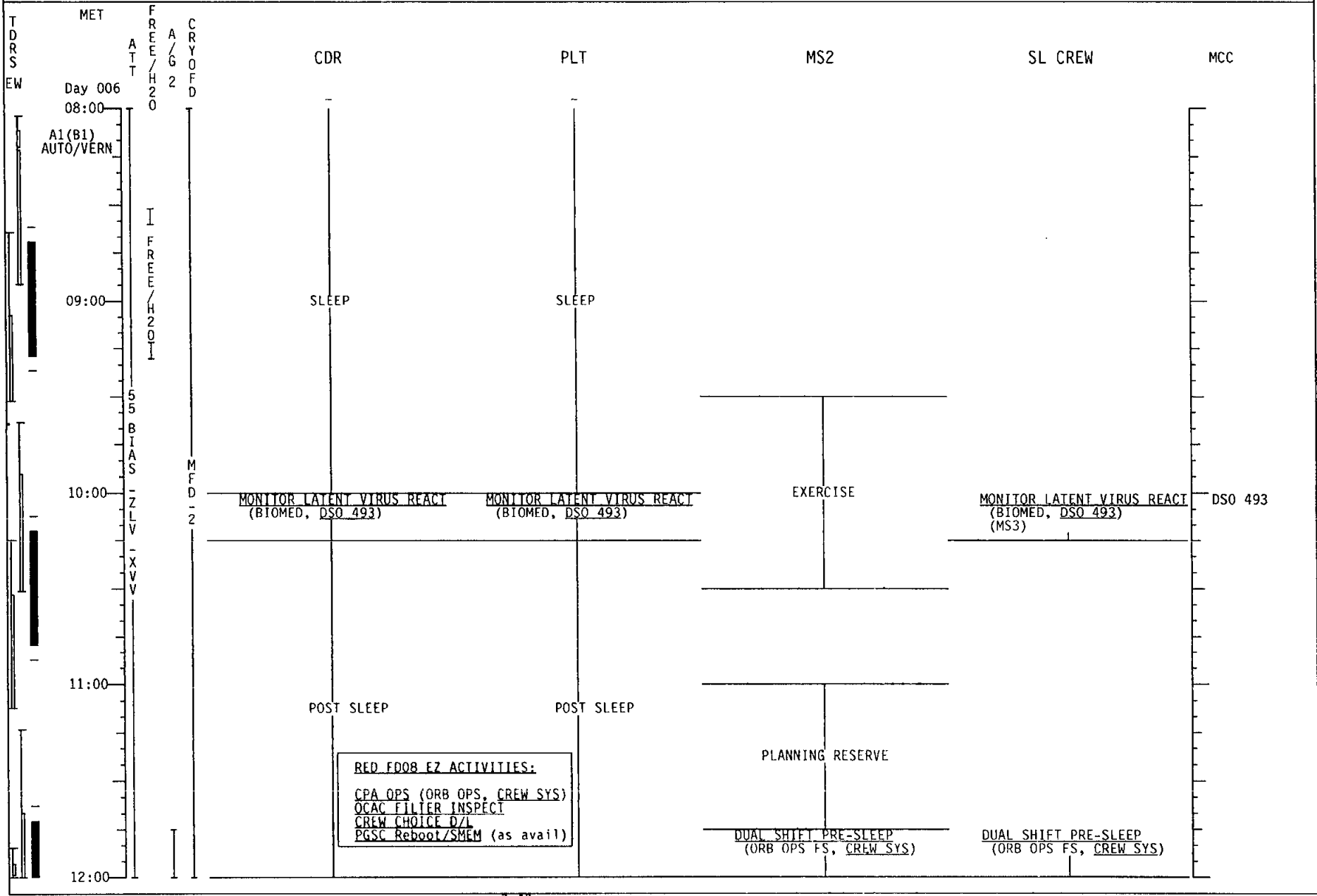
STS-83 ( BLUE FD 07 )



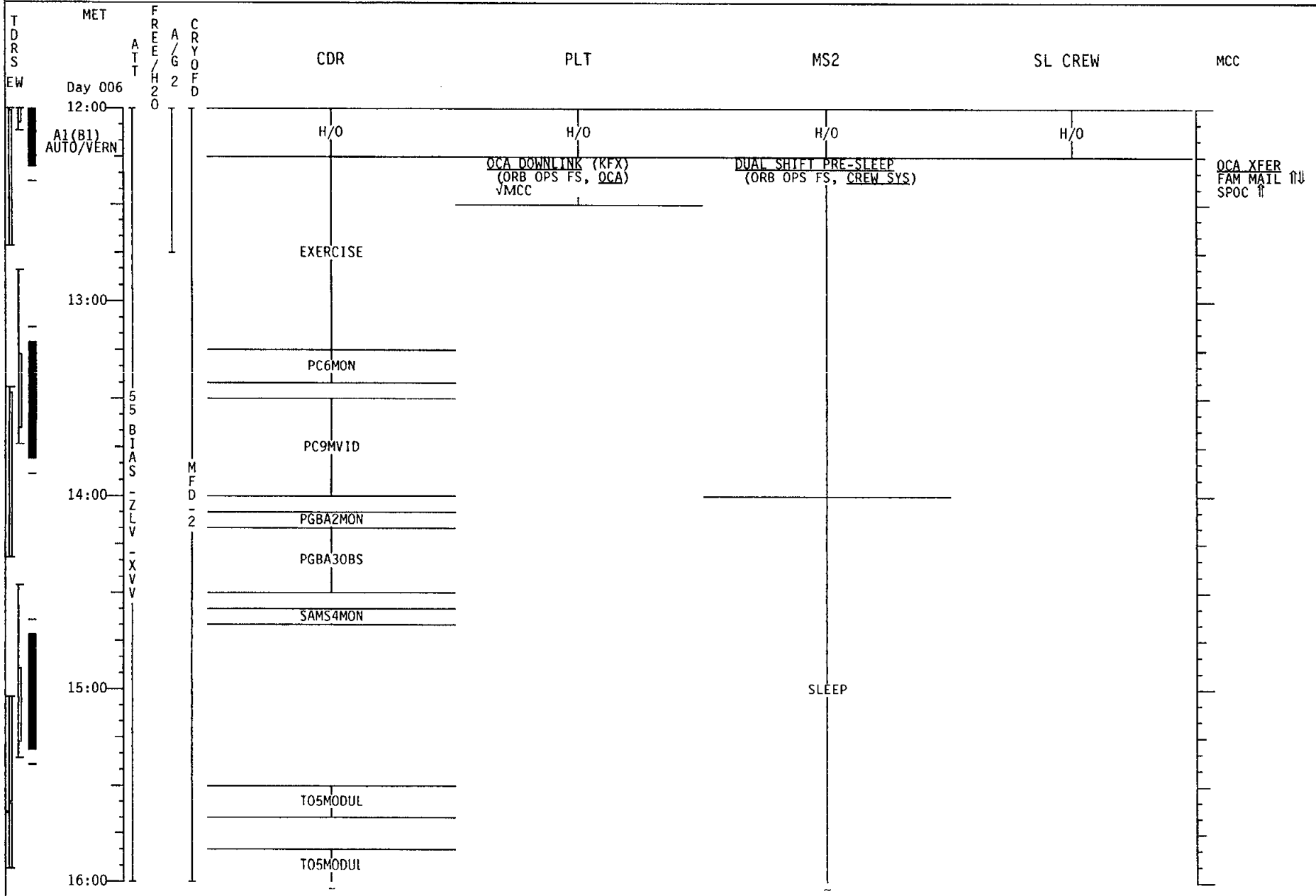
STS-83 ( BLUE FD 07 )



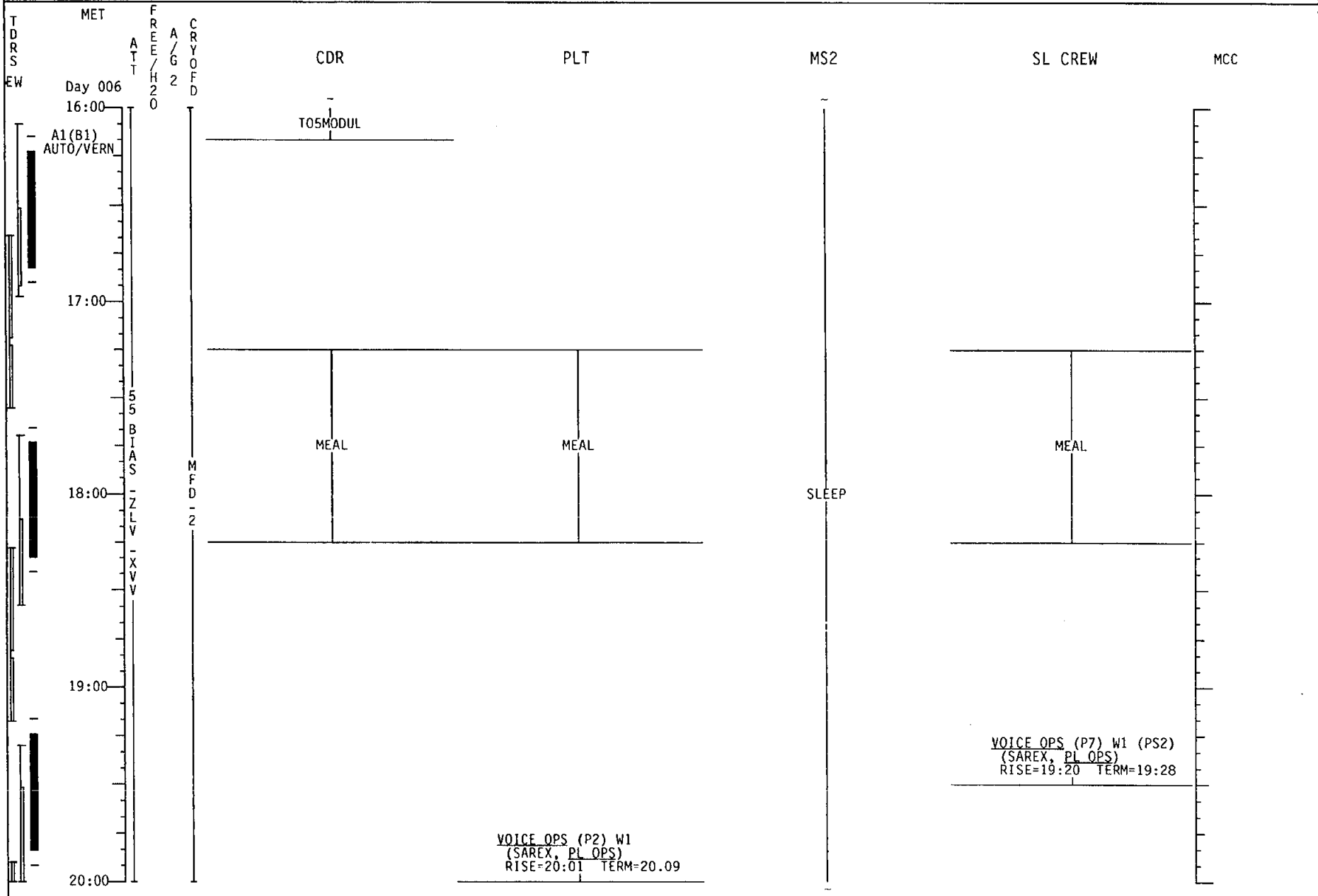
# STS-83 ( BLUE FD 07 )



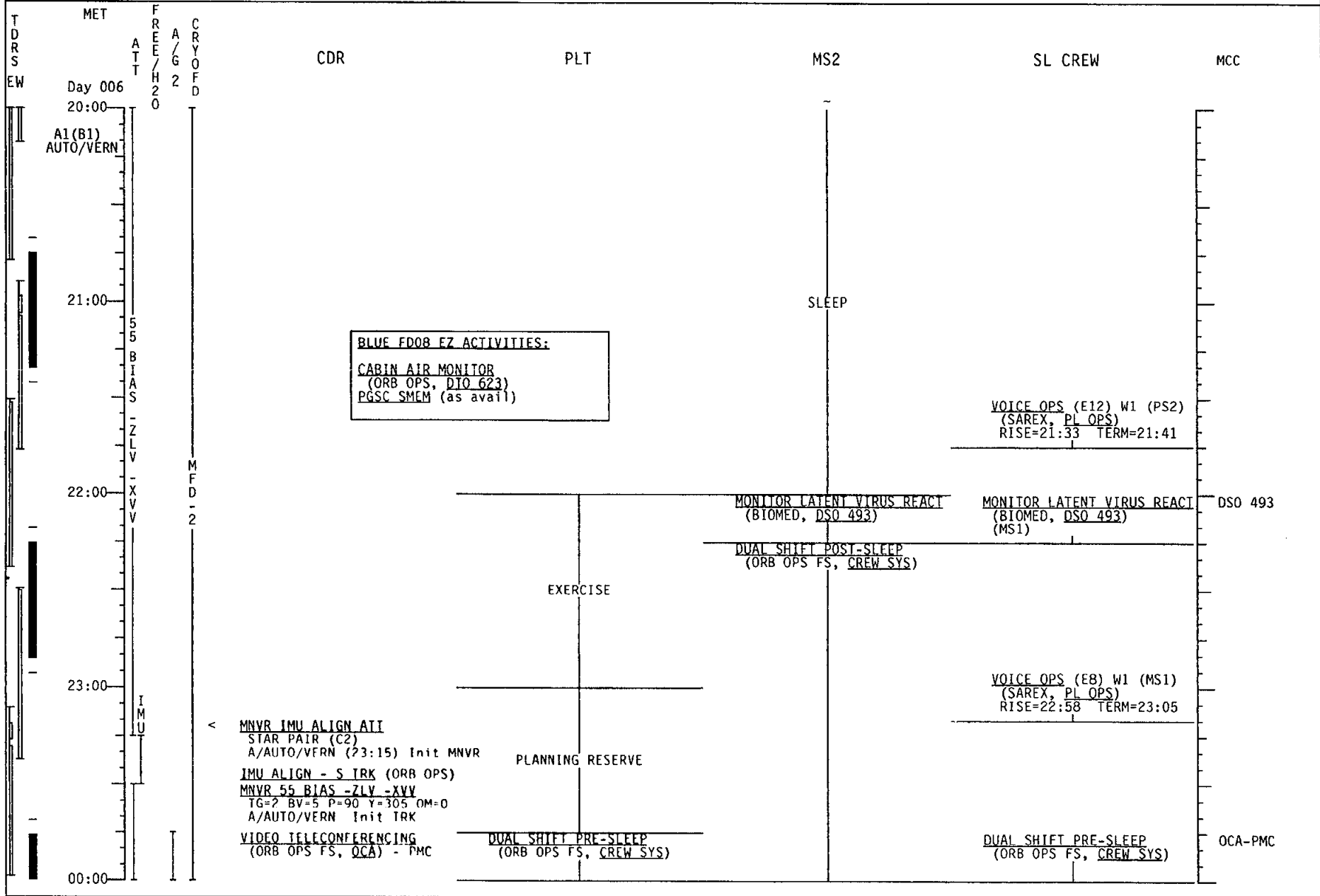
STS-83 ( RED FD 08 )



STS-83 ( RED FD 08 )

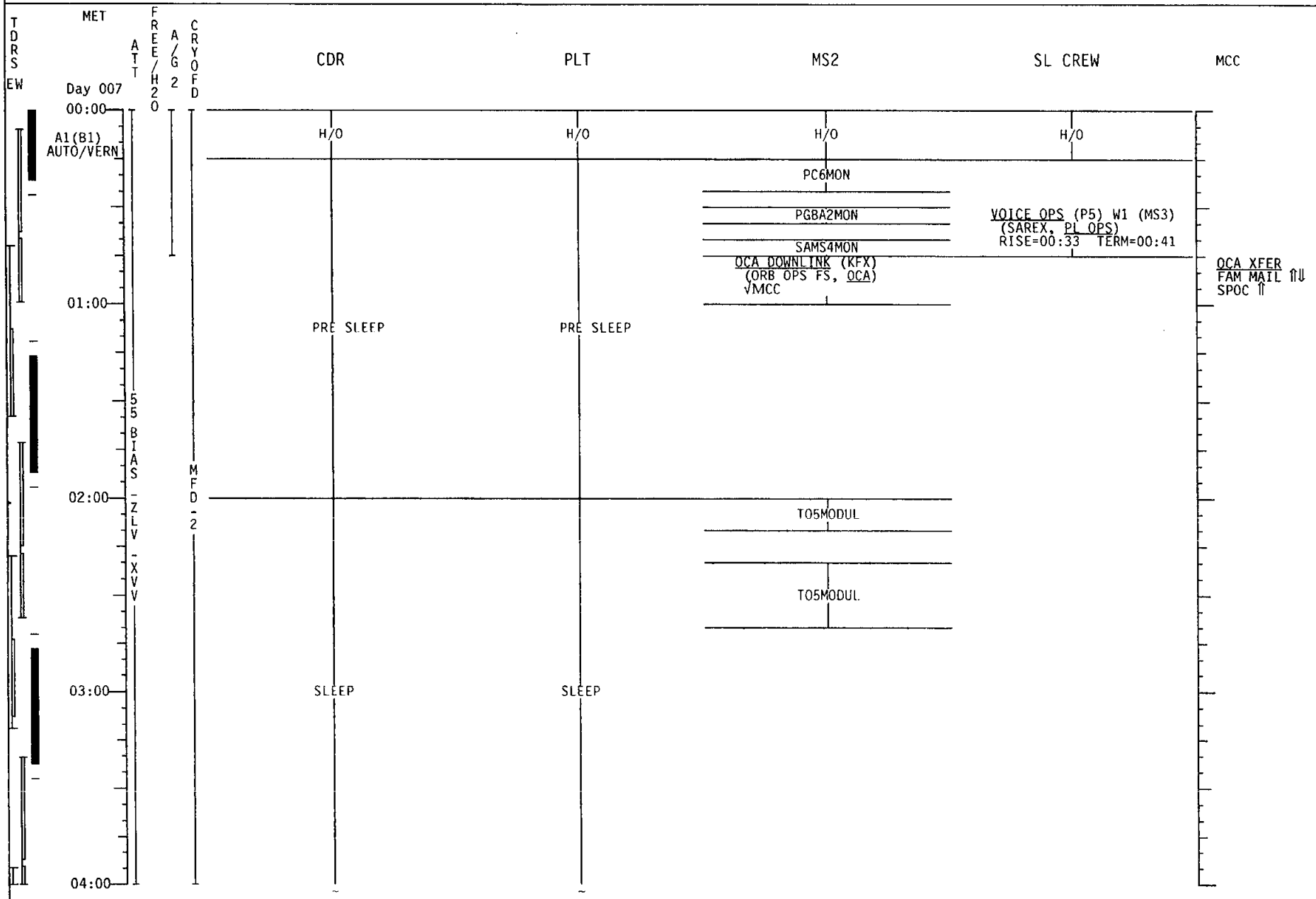


STS-83 ( RED FD 08 )

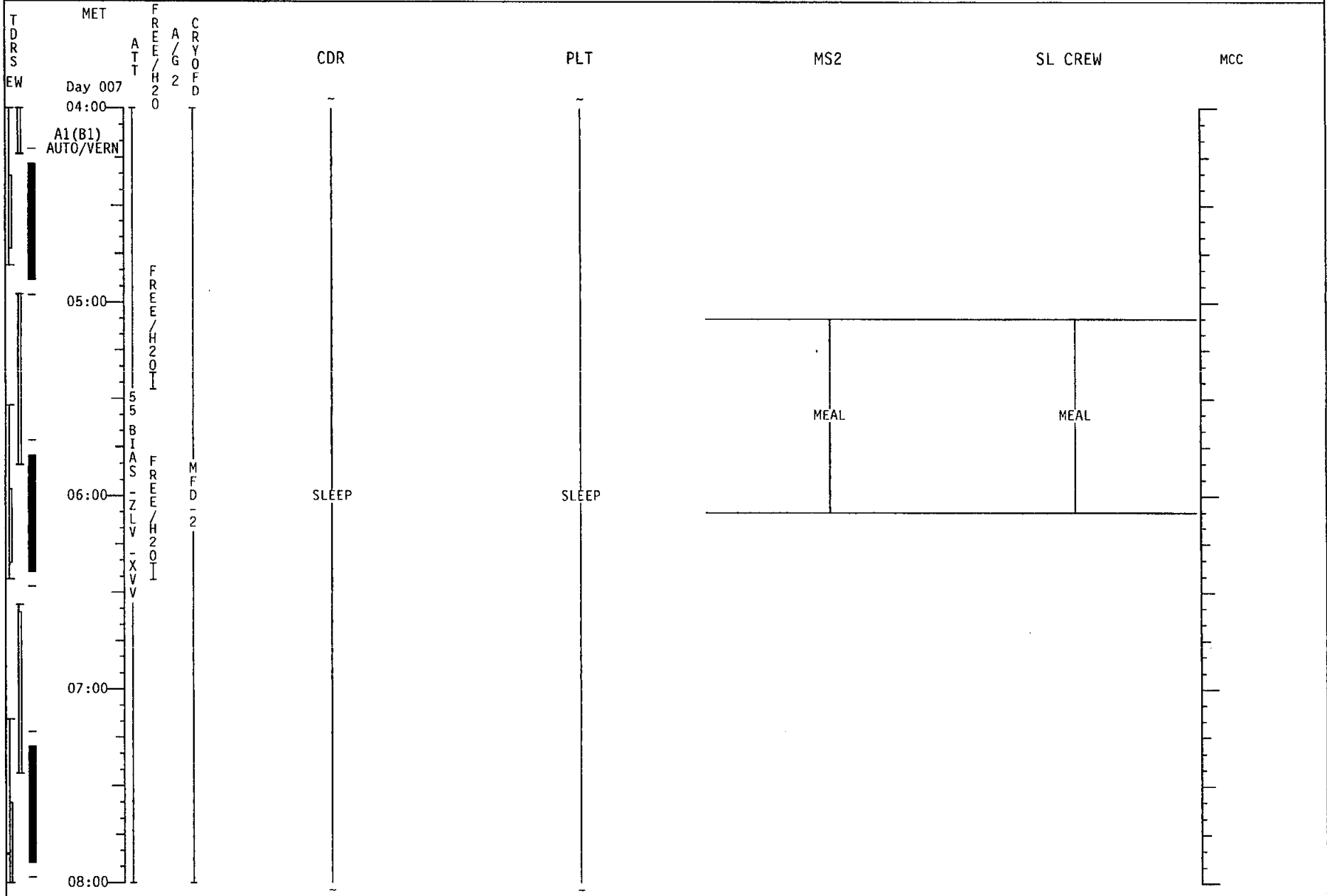




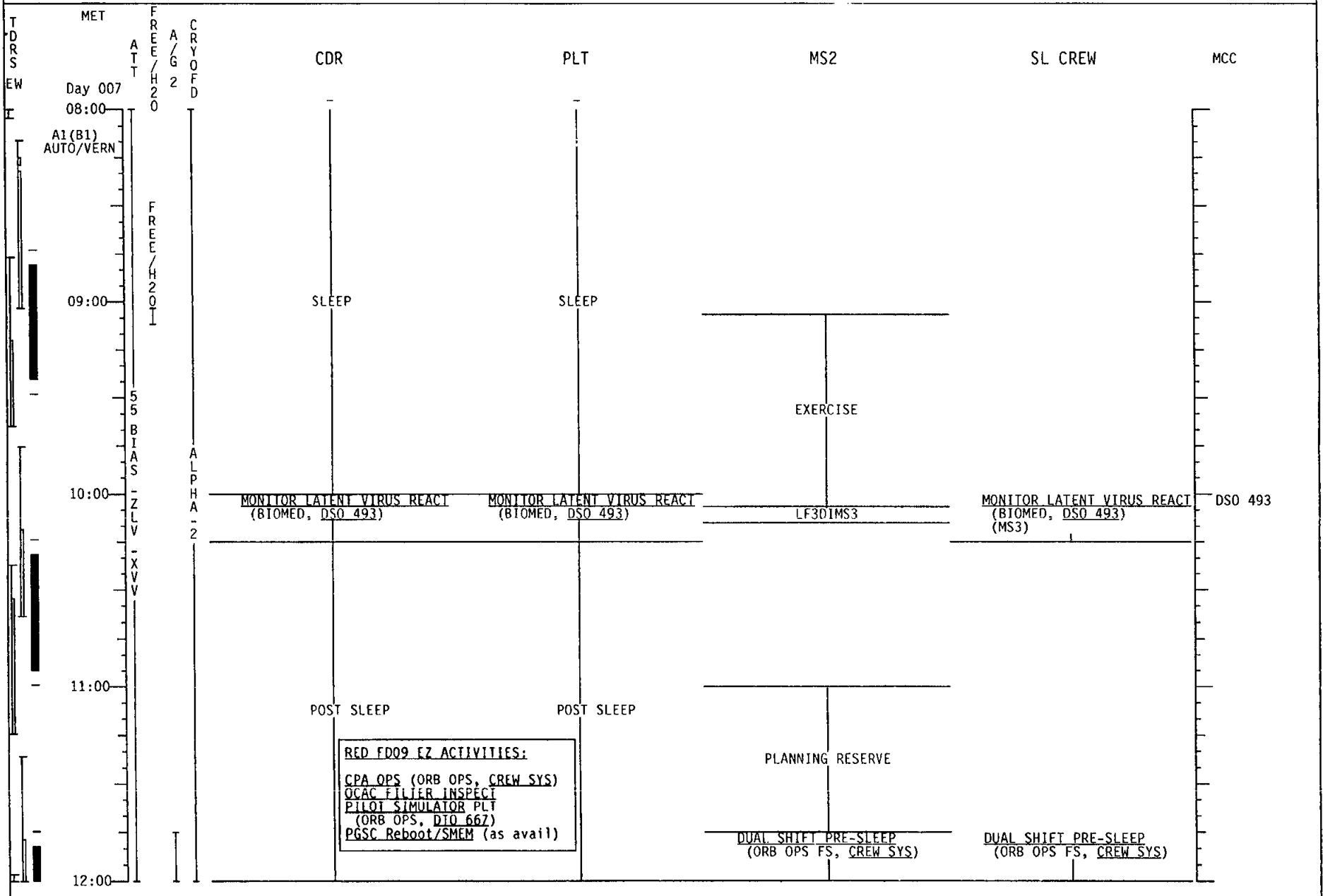
STS-83 ( BLUE FD 08 )



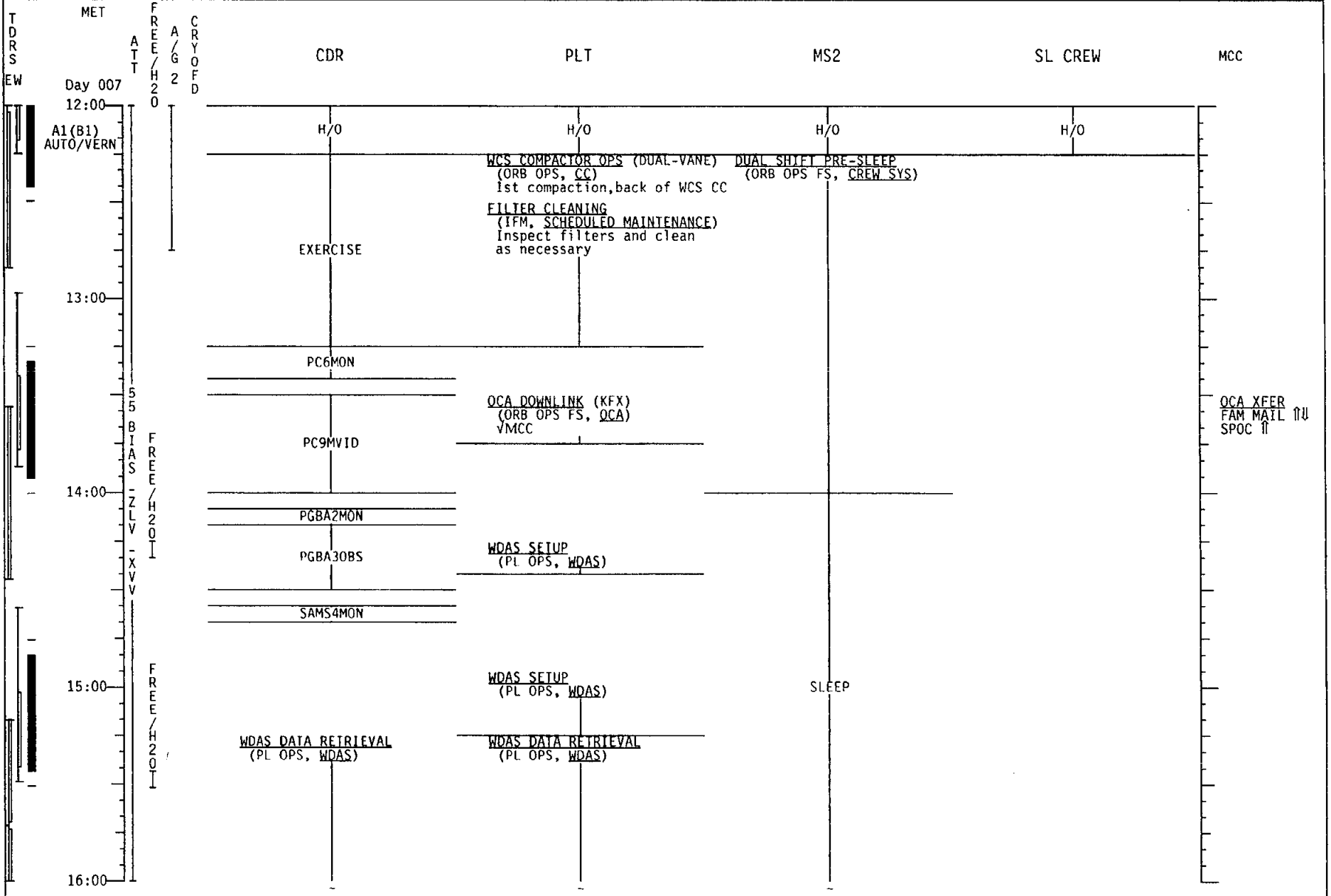
# STS-83 ( BLUE FD 08 )



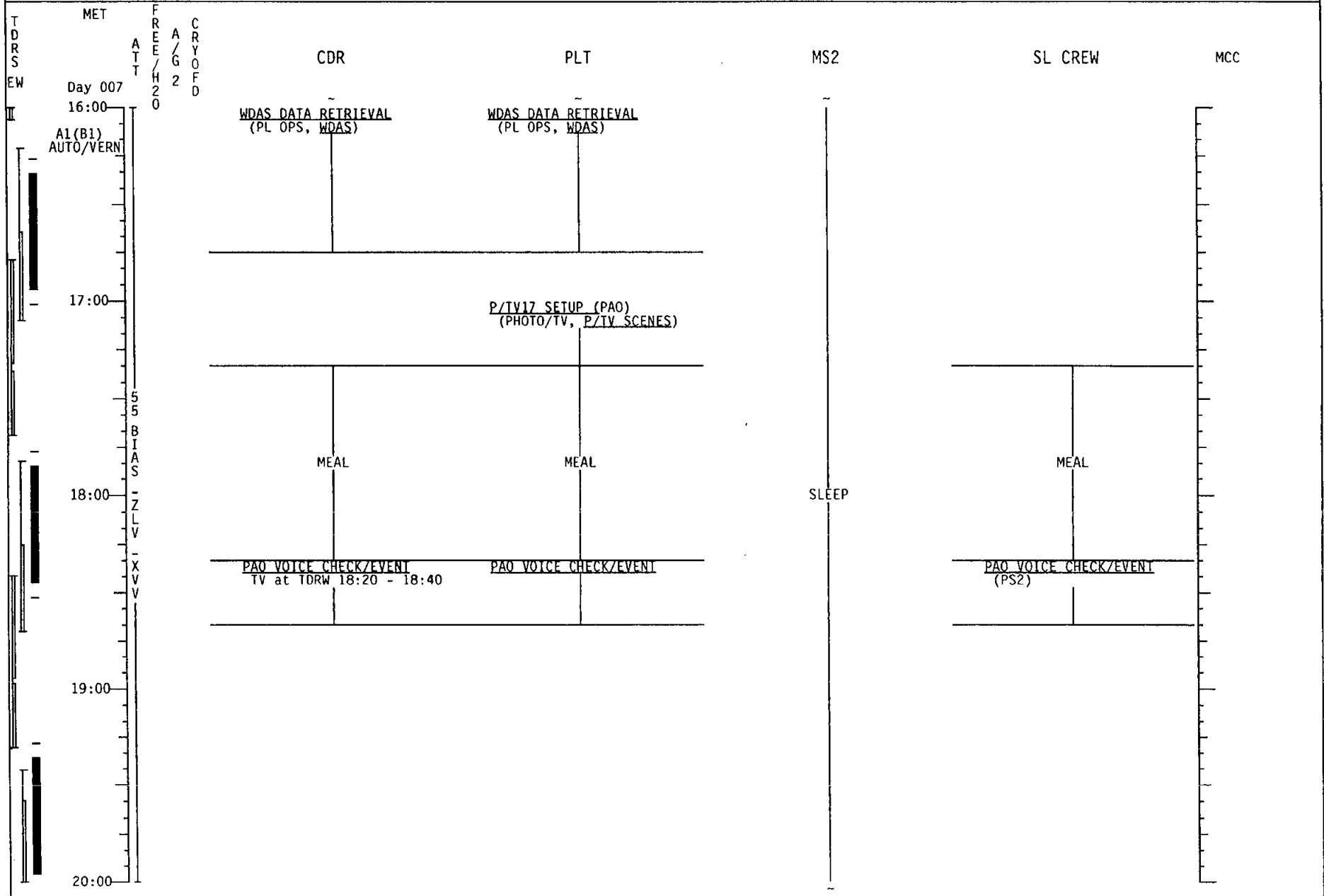
STS-83 ( BLUE FD 08 )



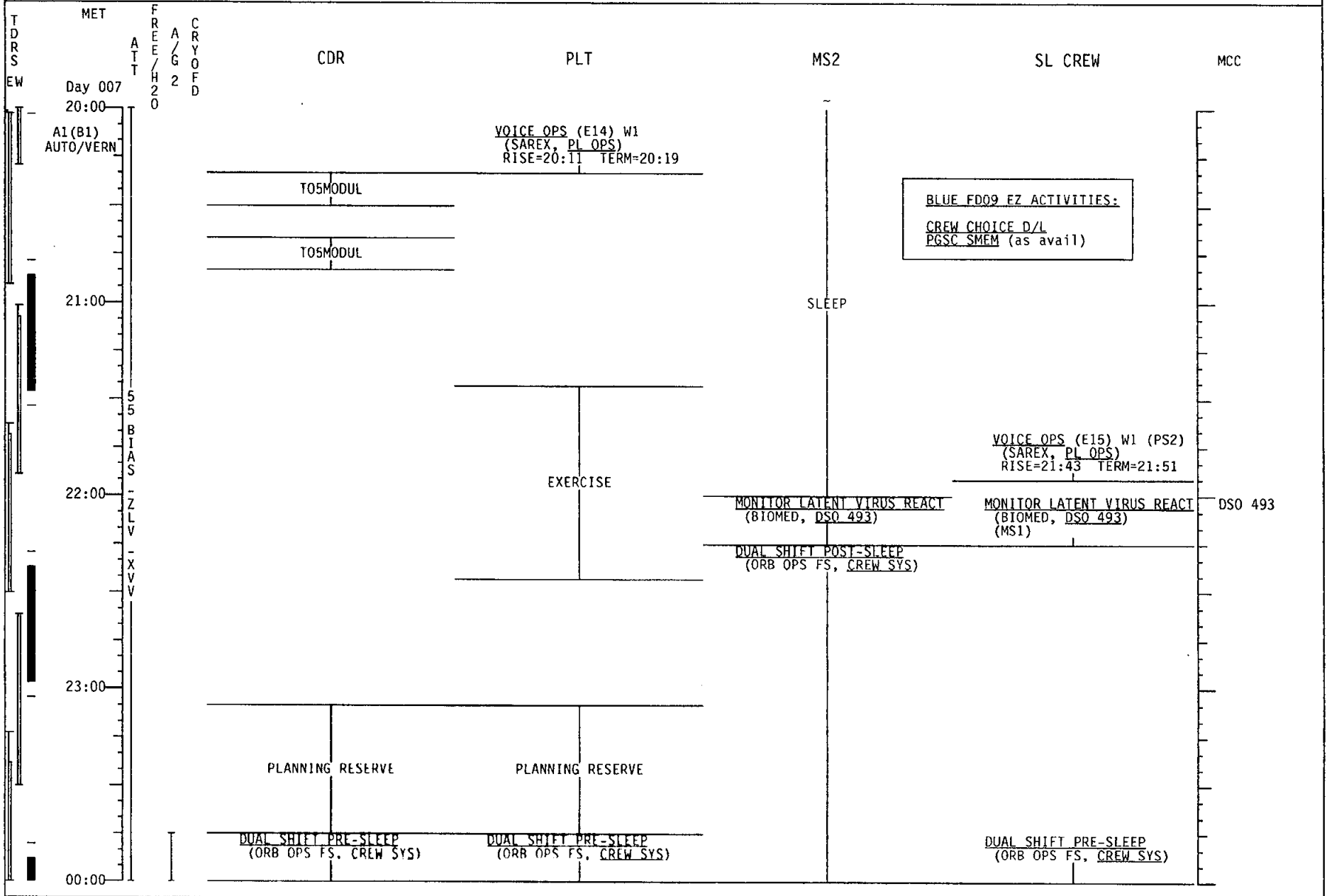
# STS-83 ( RED FD 09 )



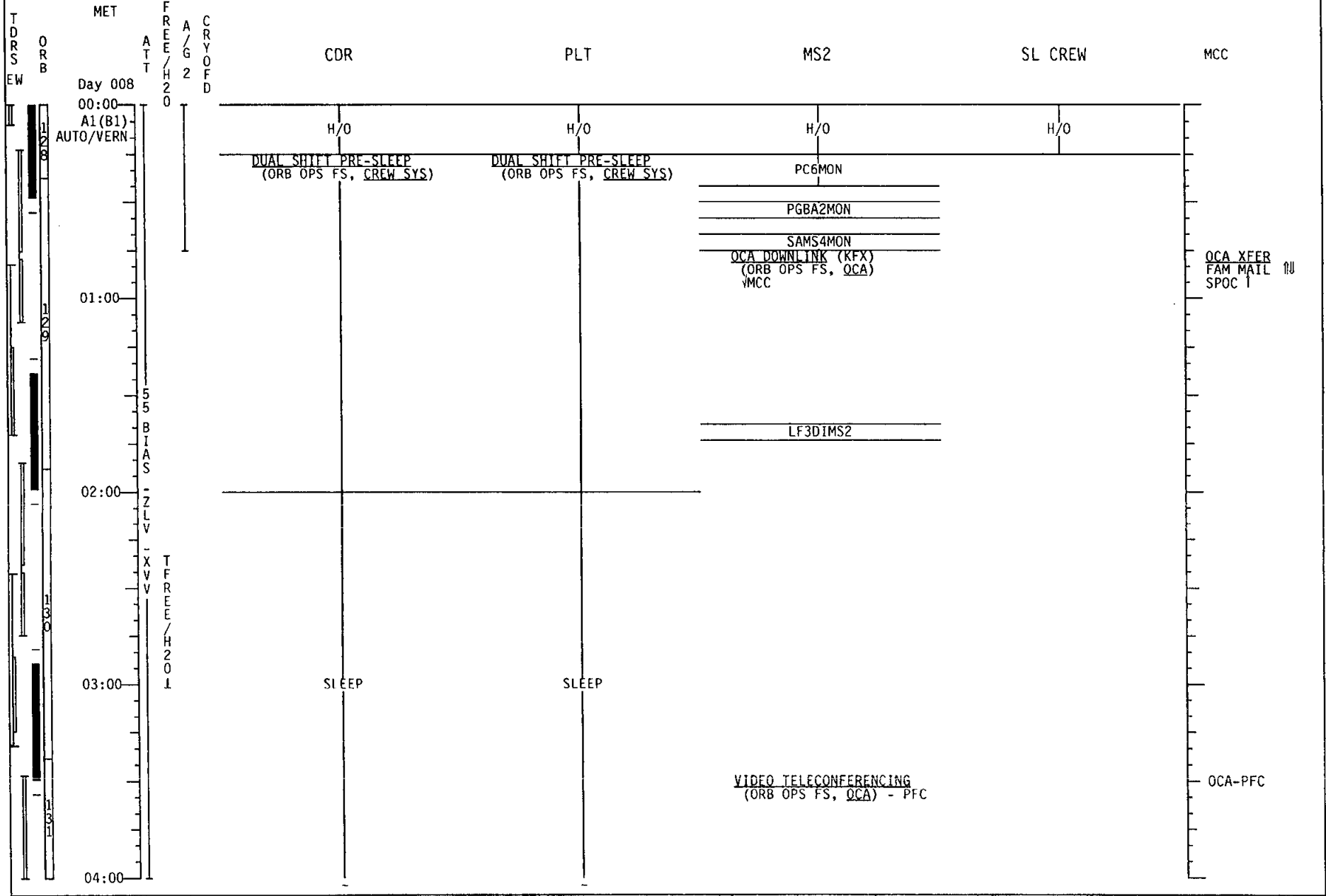
STS-83 ( RED FD 09 )



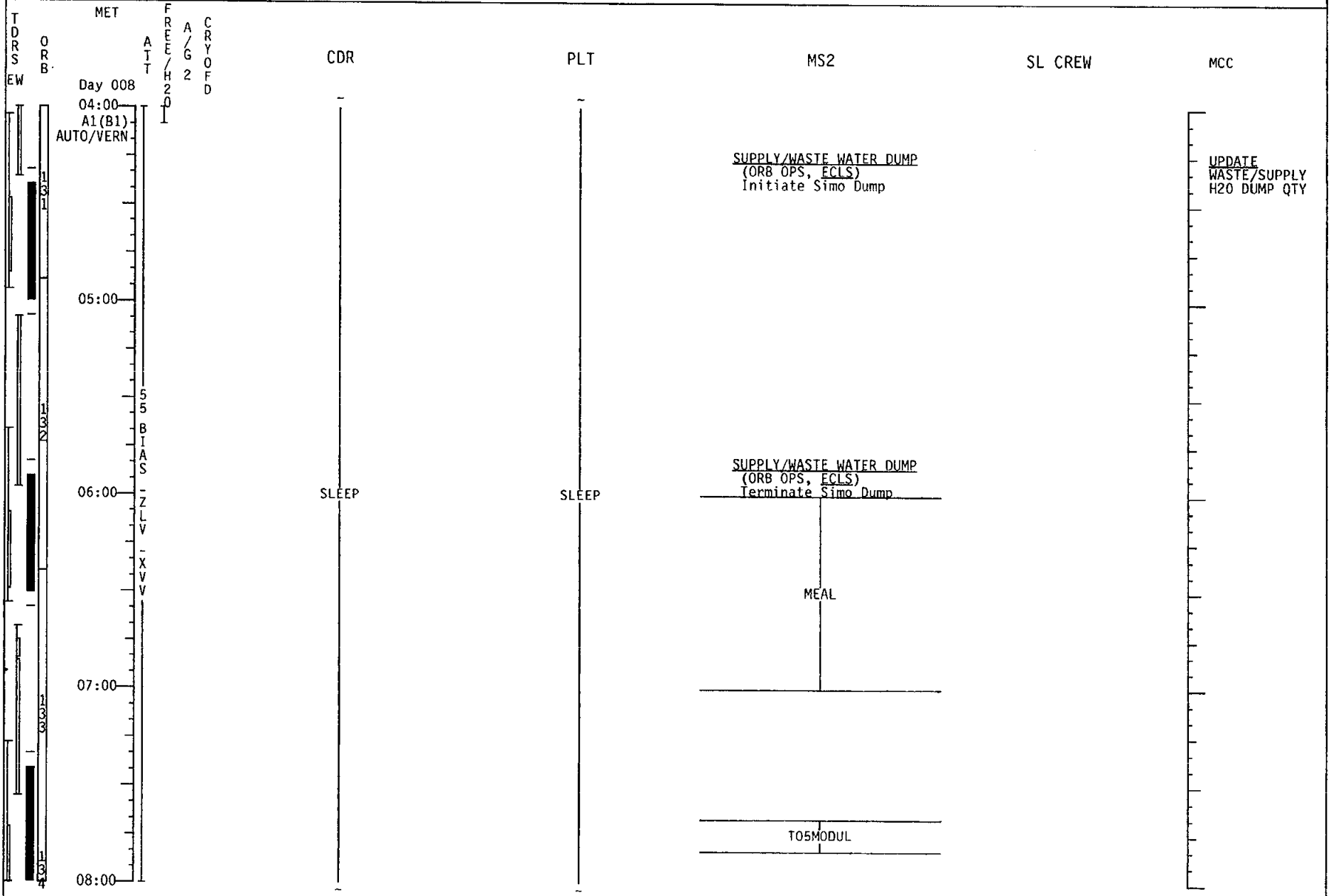
STS-83 ( RED FD 09 )



# STS-83 (BLUE FD 09)

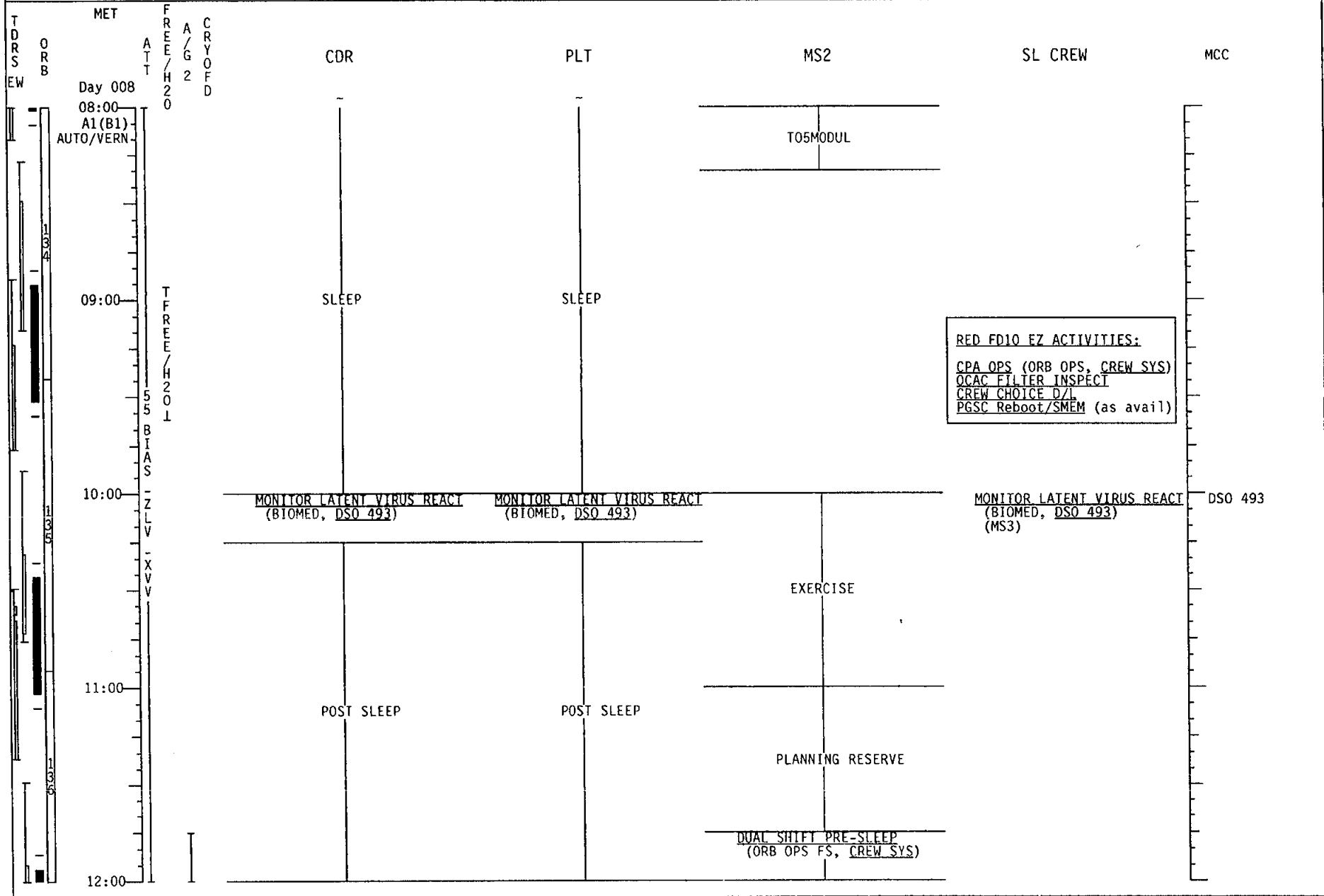


STS-83 ( BLUE FD 09 )



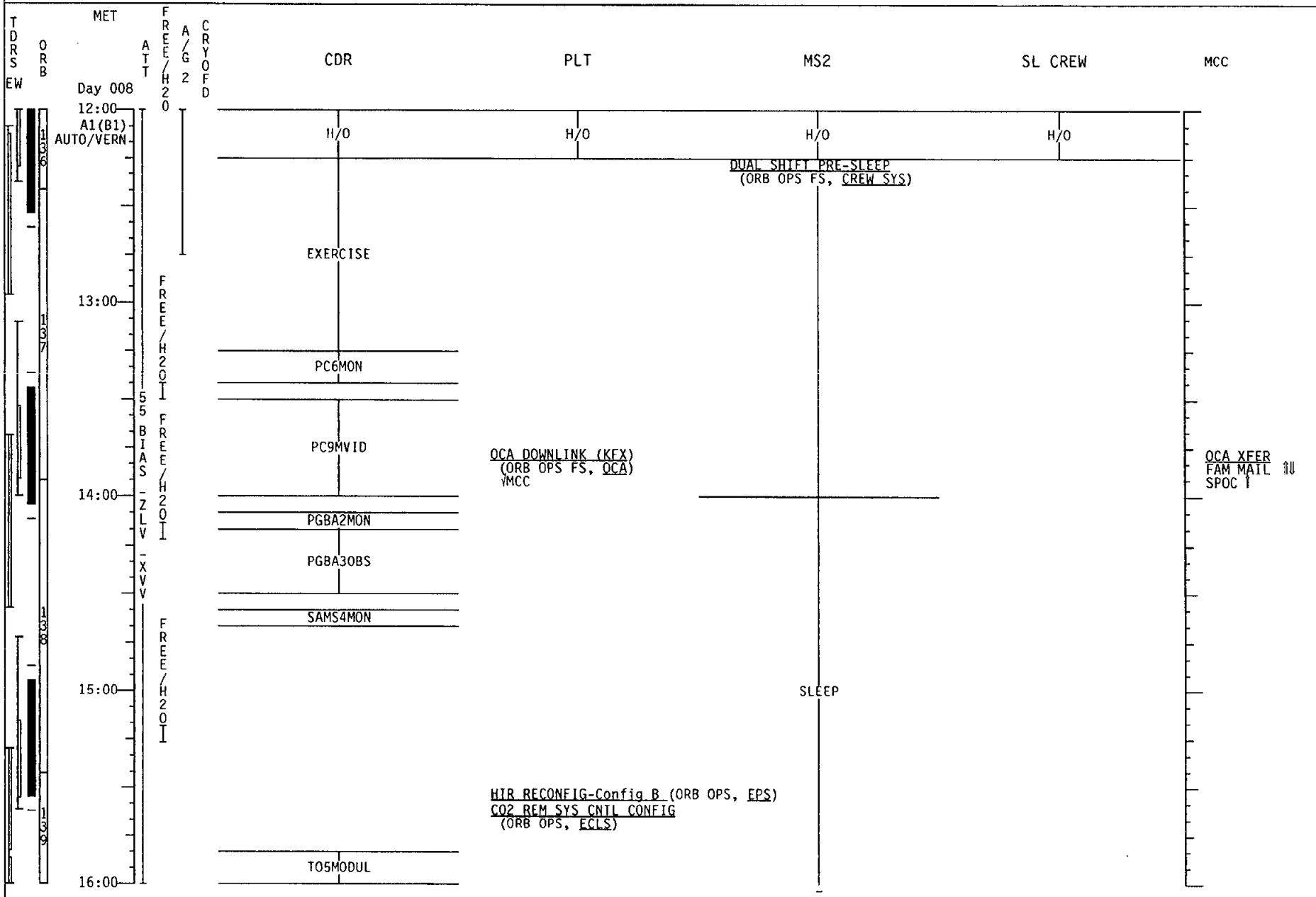


# STS-83 ( BLUE FD 09 )

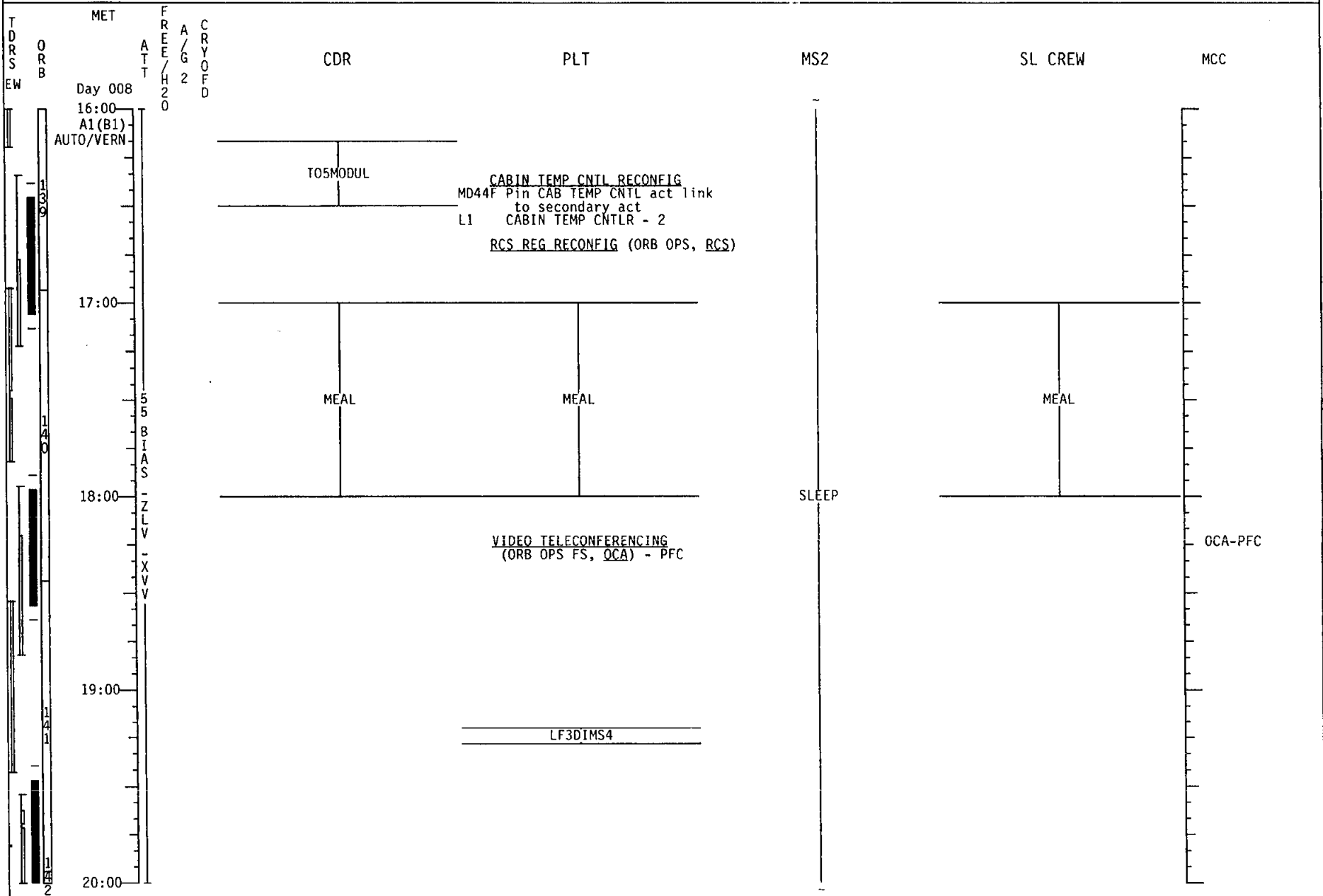


**RED FD10 EZ ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 QCAC FILTER INSPECT  
 CREW CHOICE D/L  
 PGSC Reboot/SMEM (as avail)

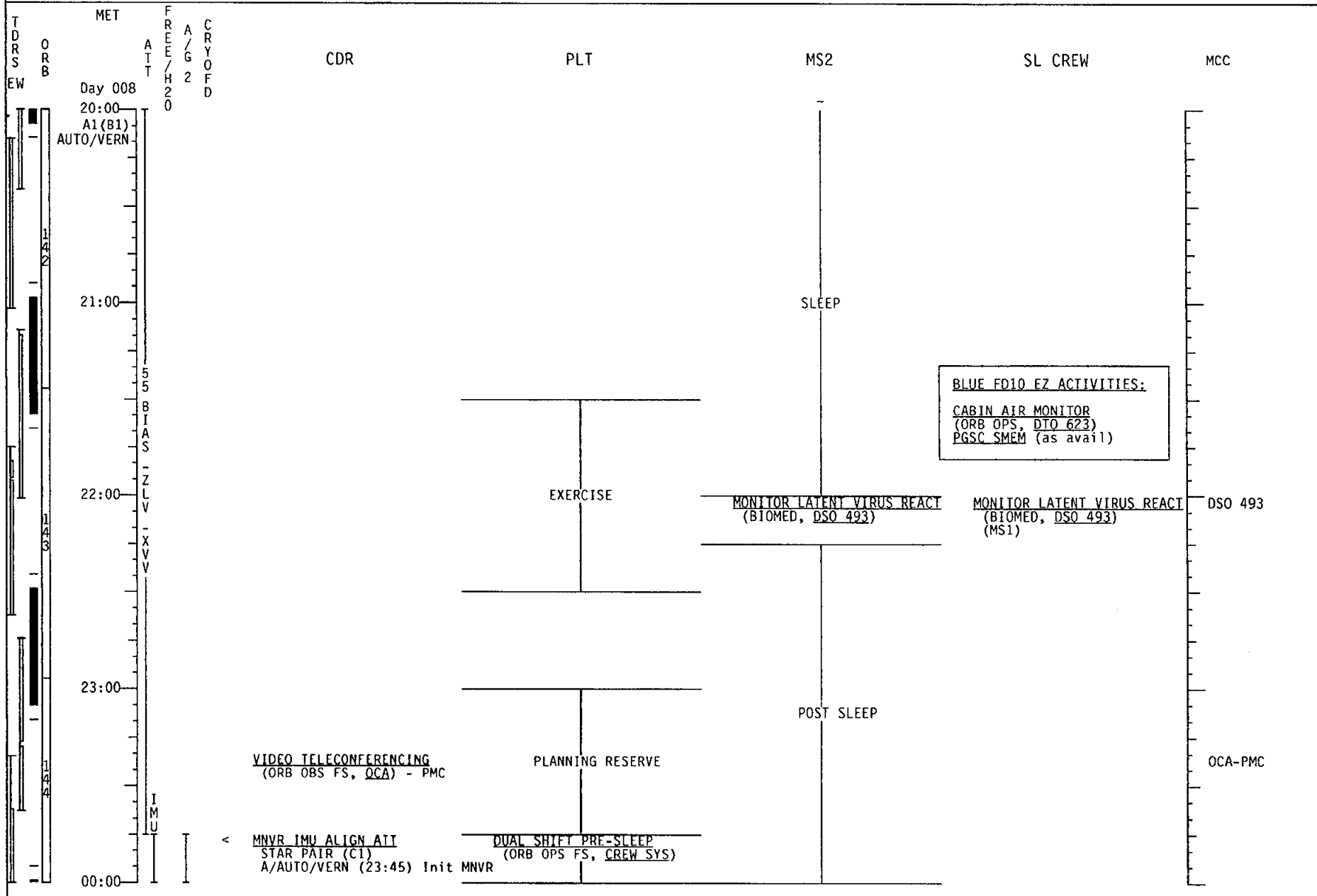
STS-83 ( RED FD 10 )



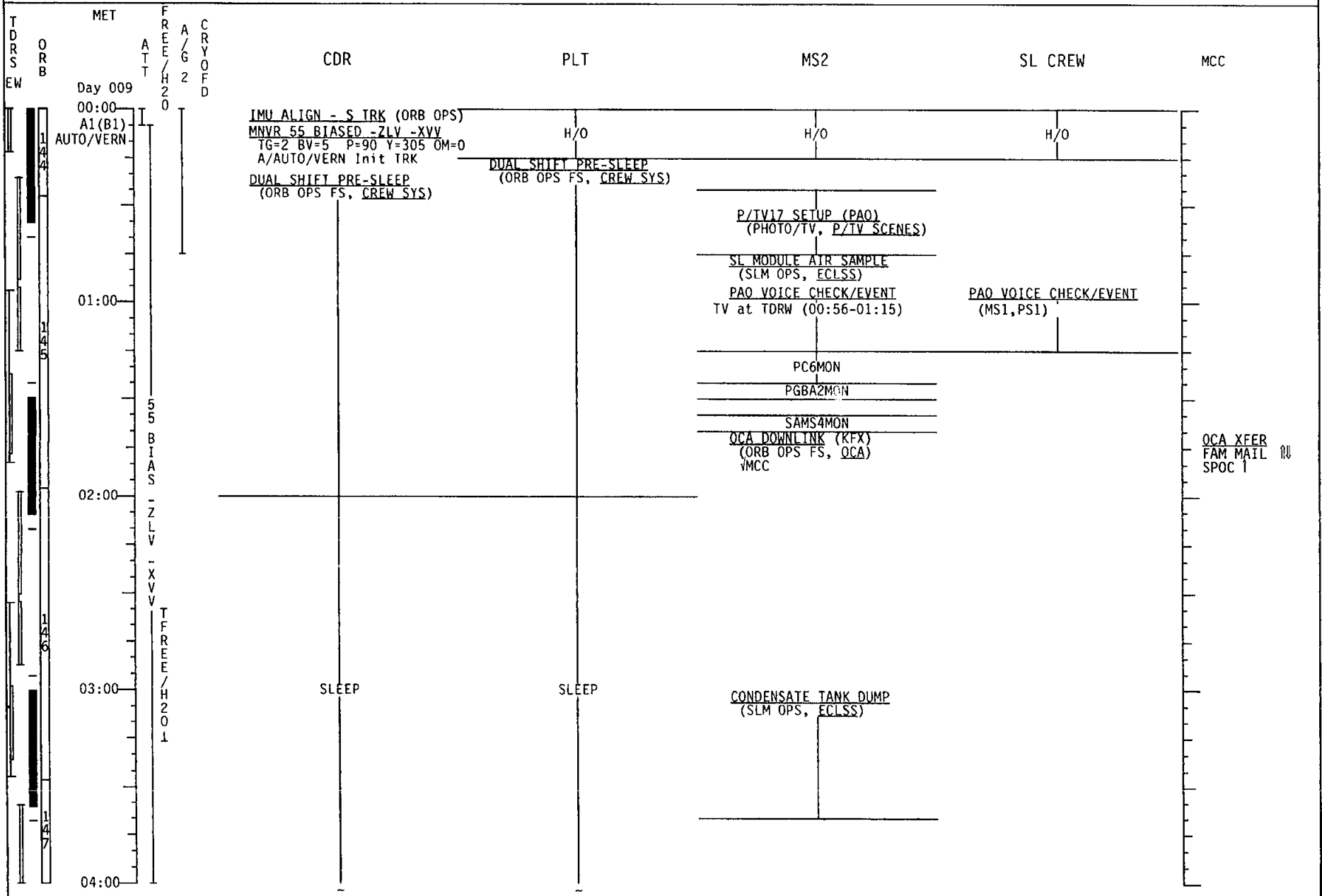
STS-83 ( RED FD 10 )



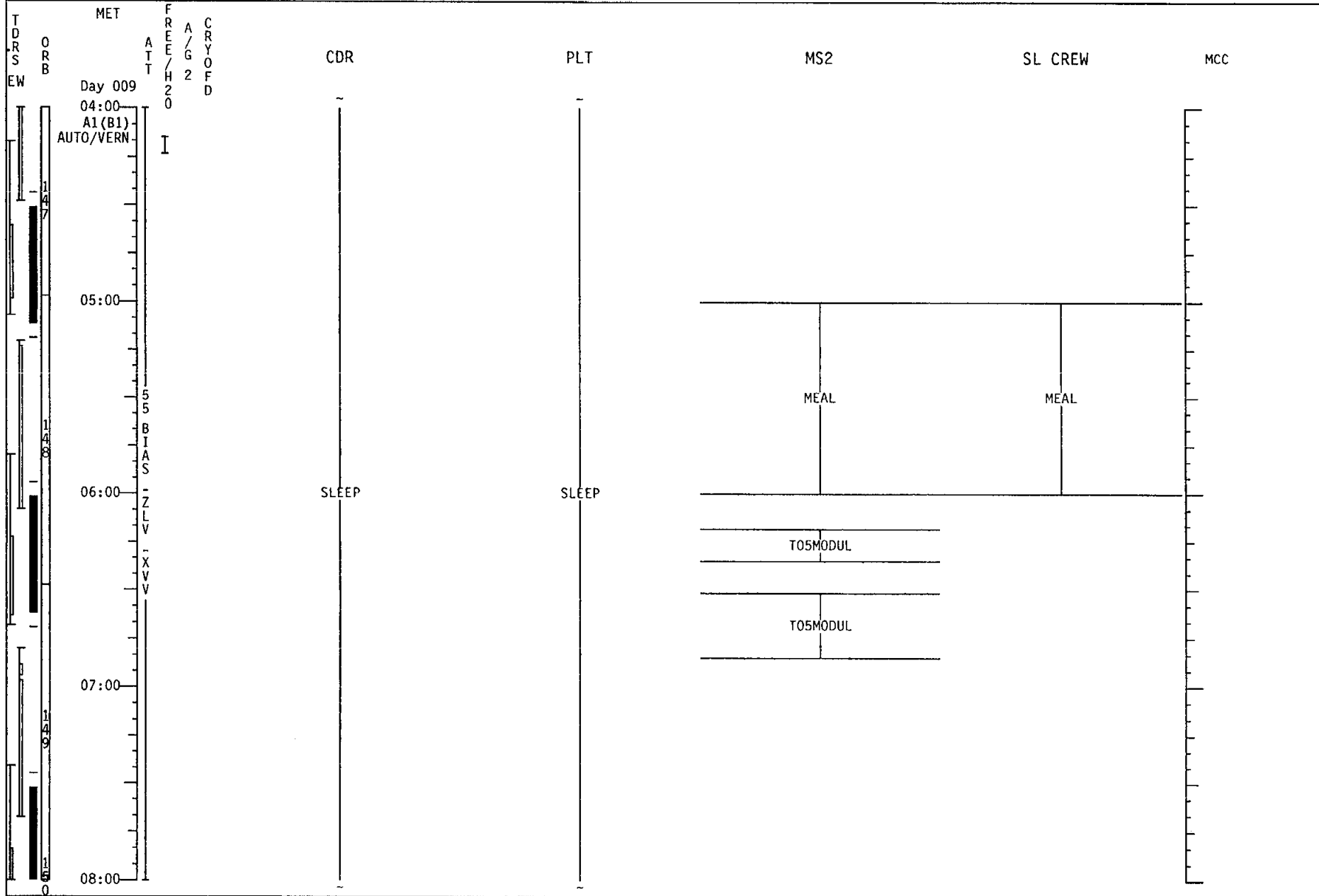
STS-83 ( RED FD 10 )



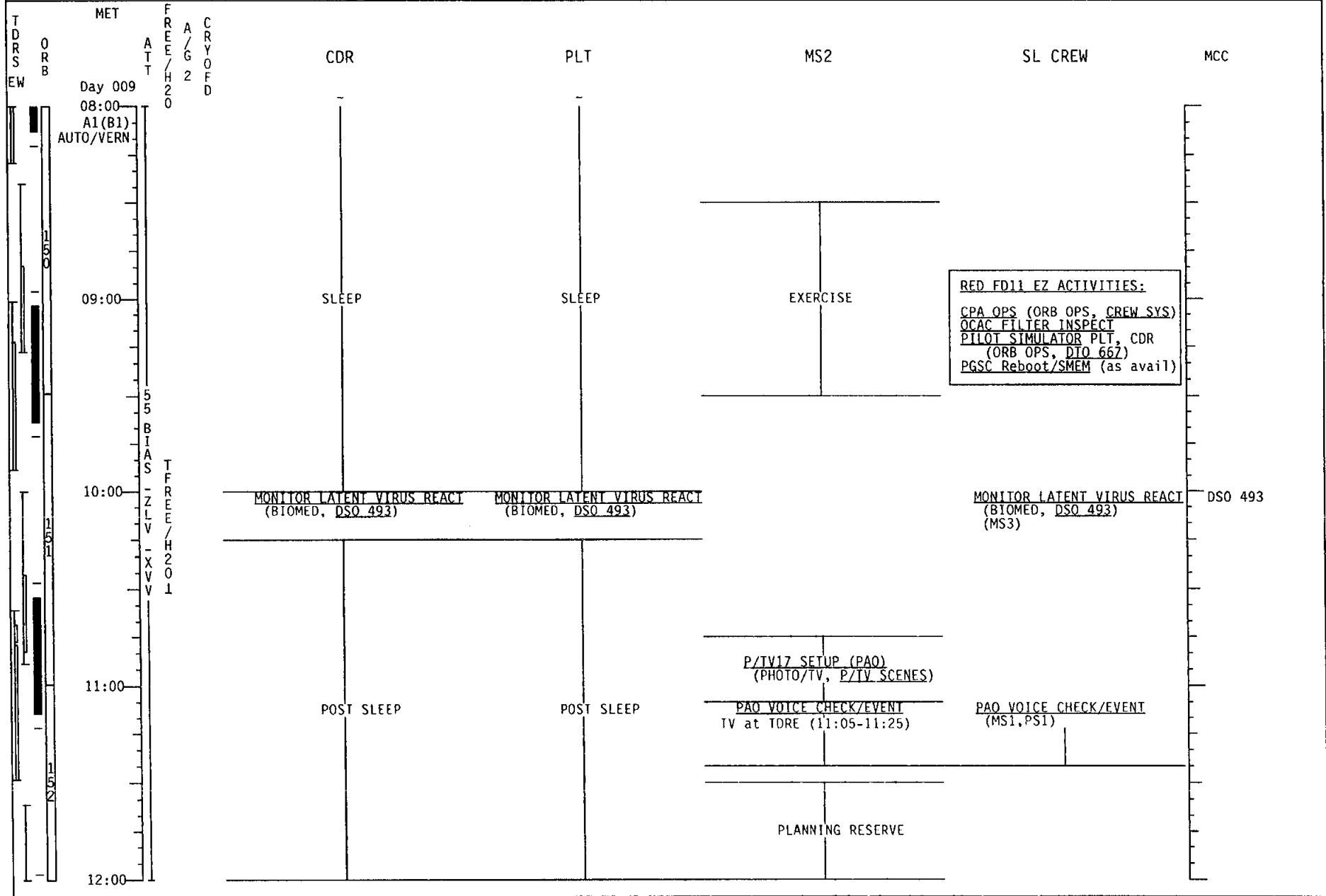
# STS-83 (BLUE FD 10)



# STS-83 ( BLUE FD 10 )

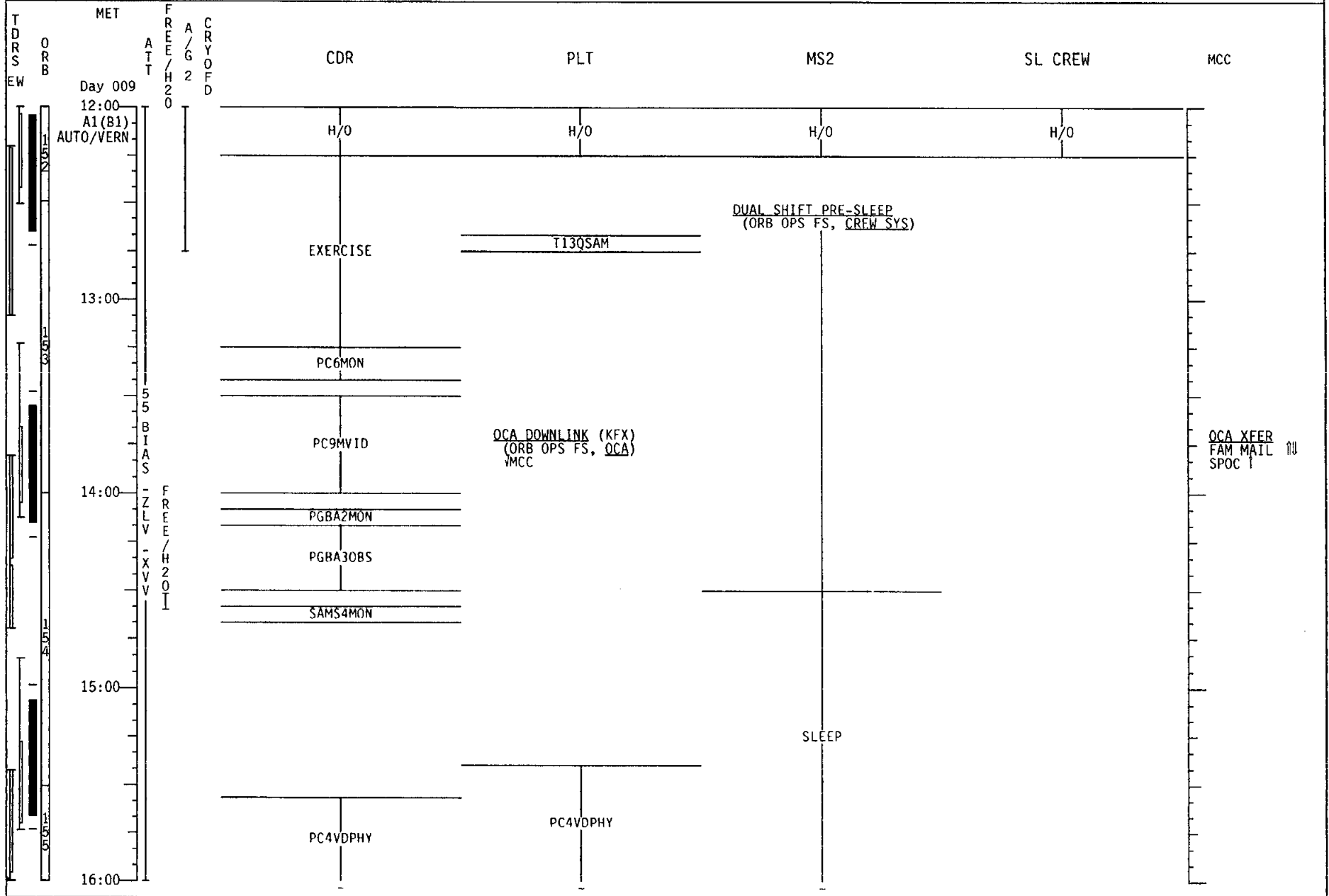


# STS-83 (BLUE FD 10)



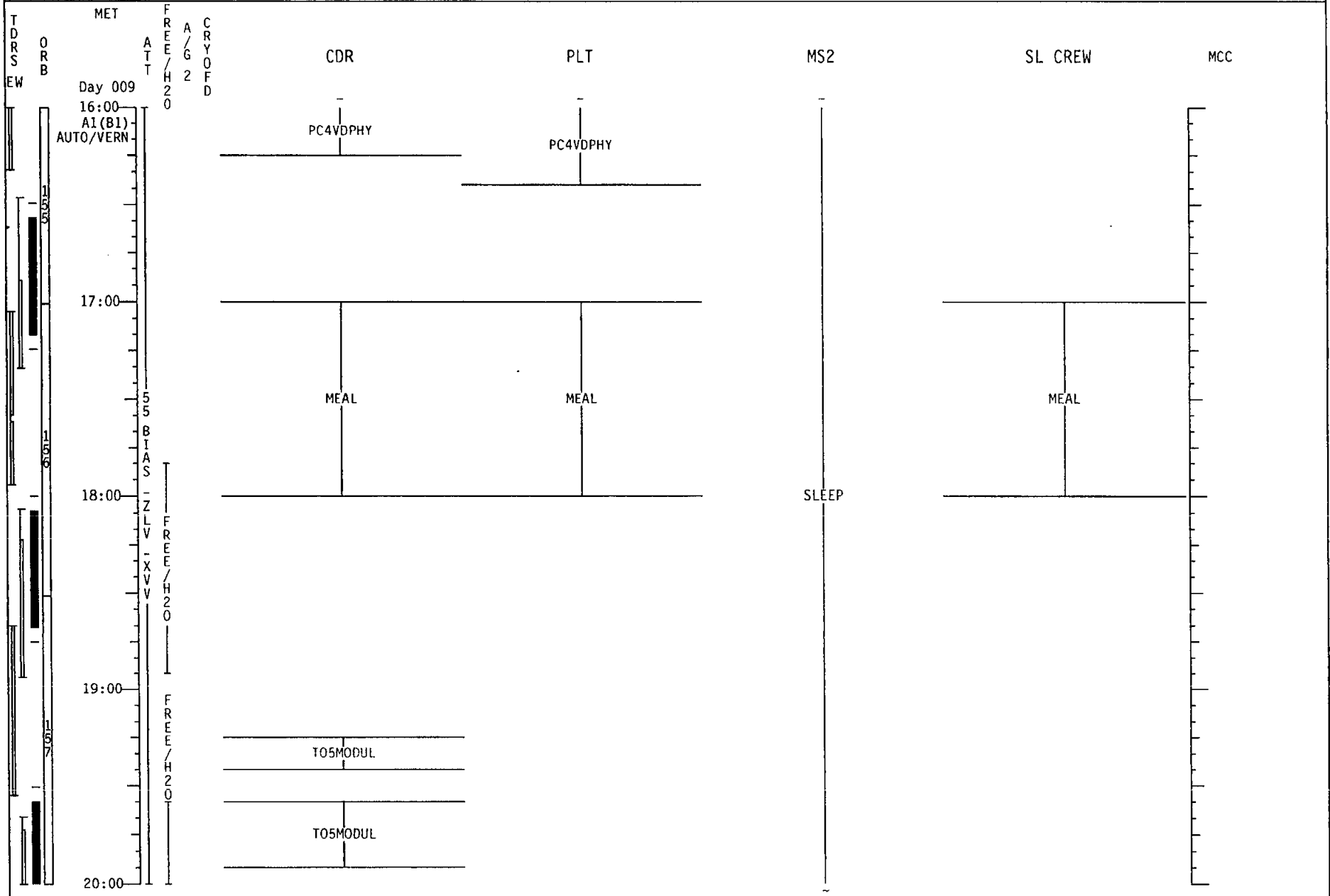
**RED FD11 EZ ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 OCAC FILTER INSPECT  
 PILOT SIMULATOR PLT, CDR  
 (ORB OPS, DIO 667)  
 PGSC Reboot/SMEM (as avail)

# STS-83 ( BLUE FD 10 )

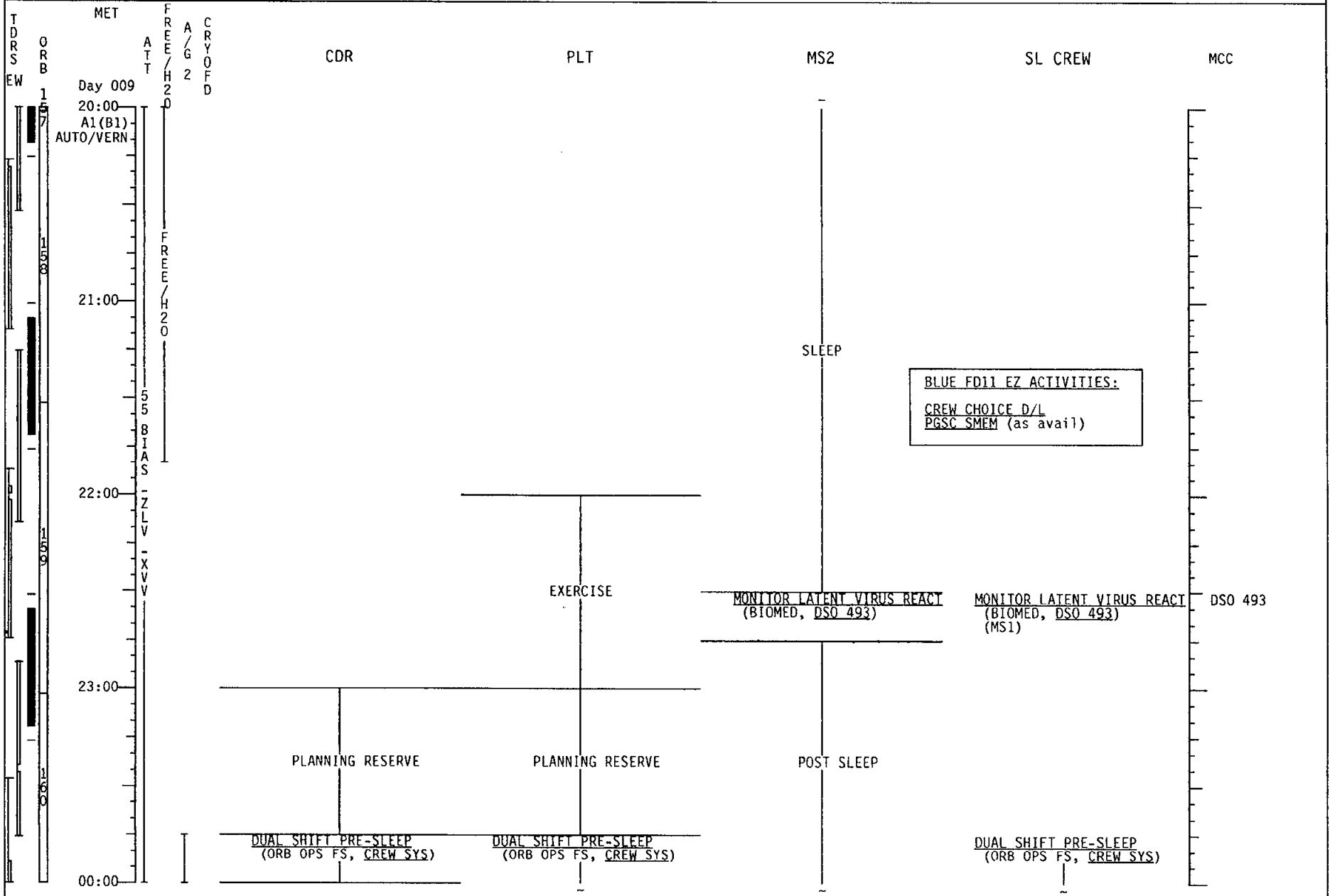




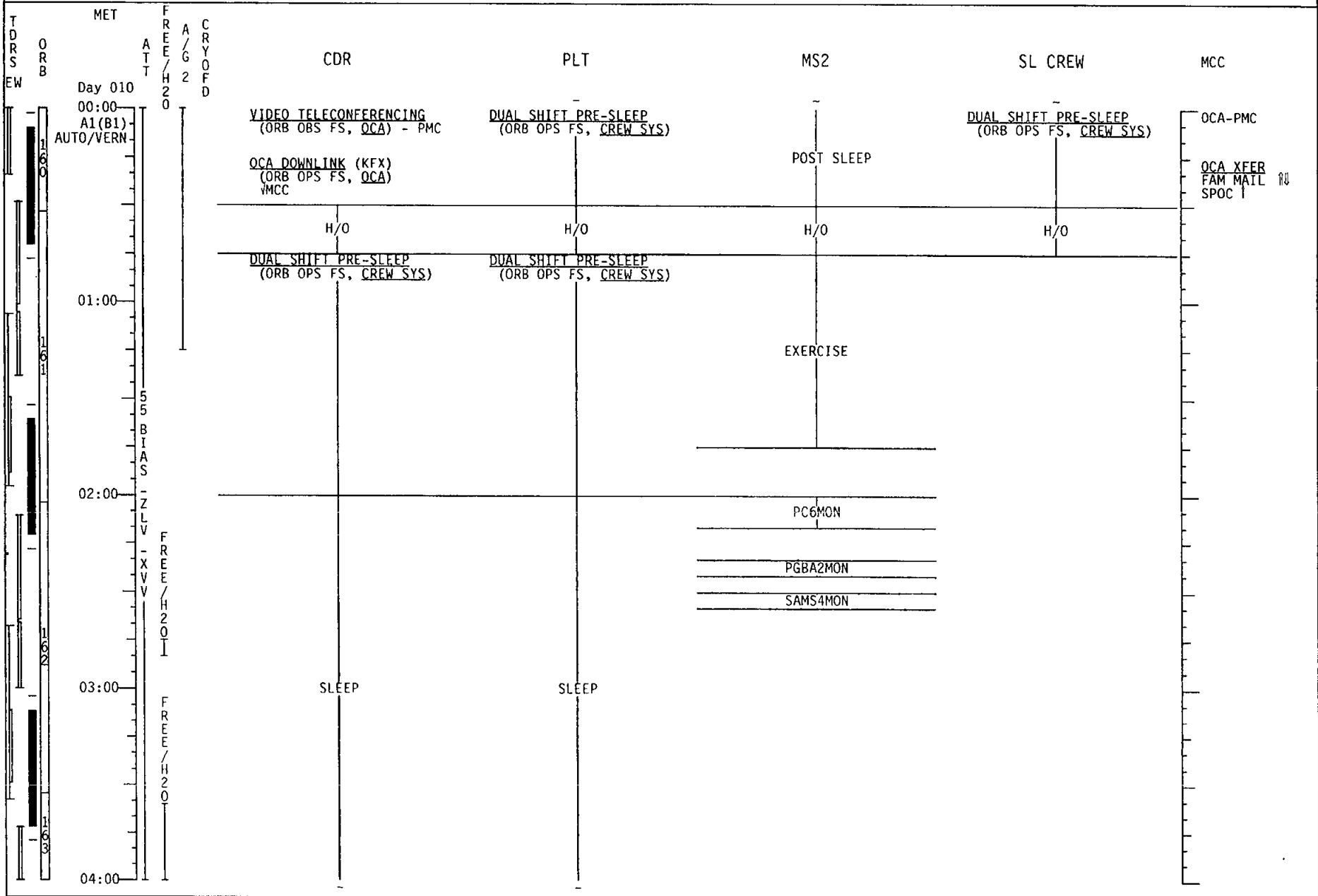
# STS-83 ( BLUE FD 10 )



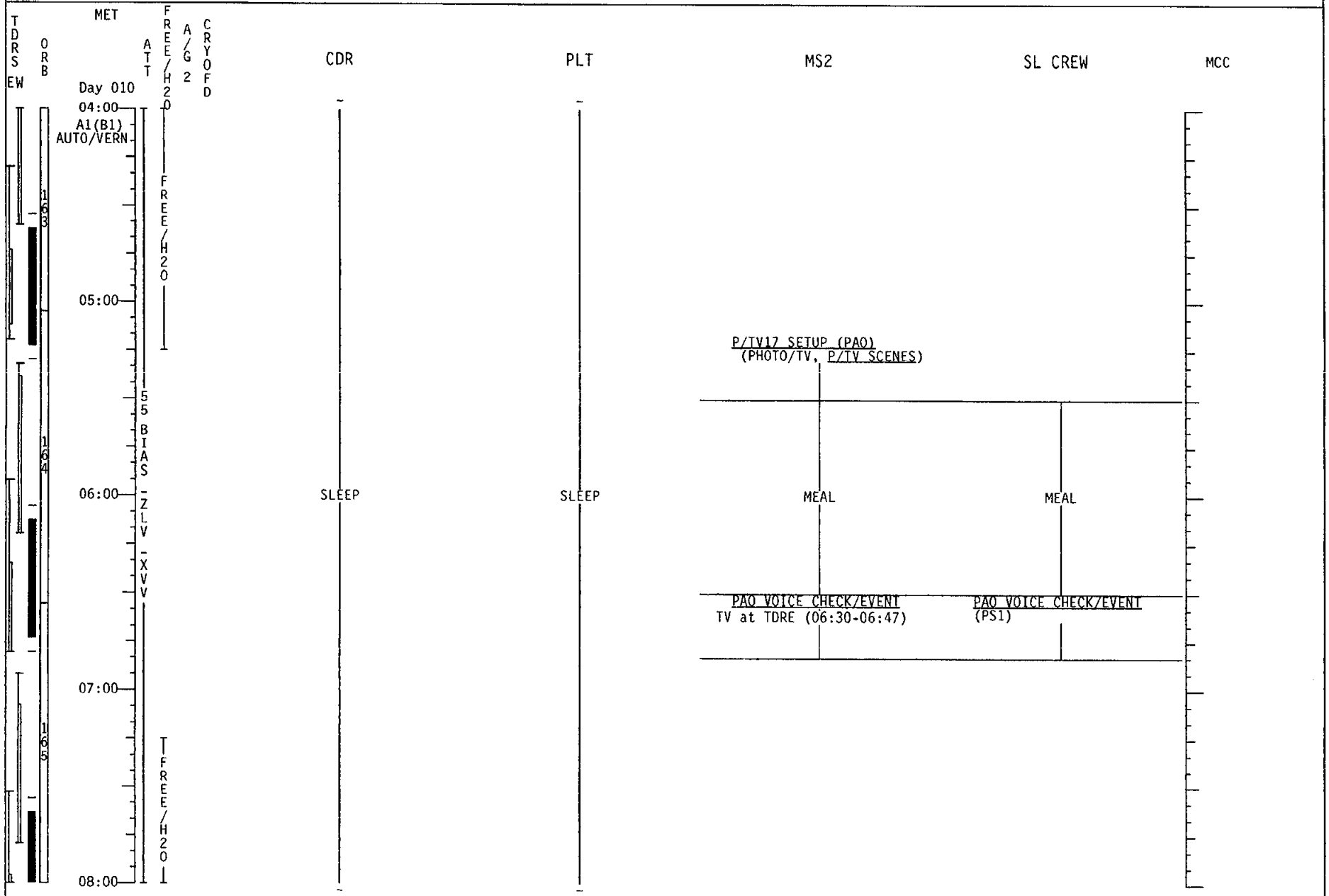
# STS-83 (BLUE FD 10)



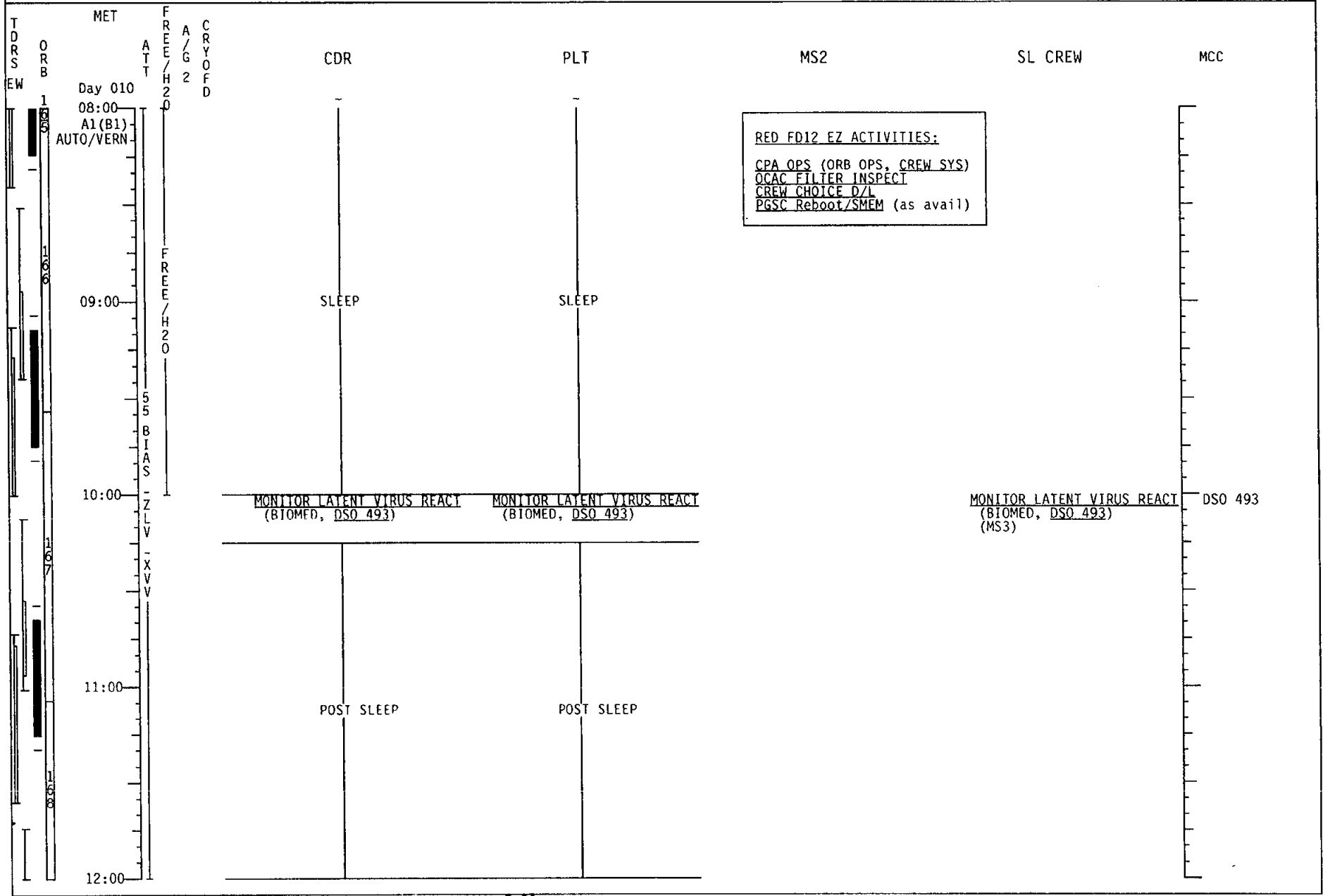
# STS-83 ( BLUE FD 11 )



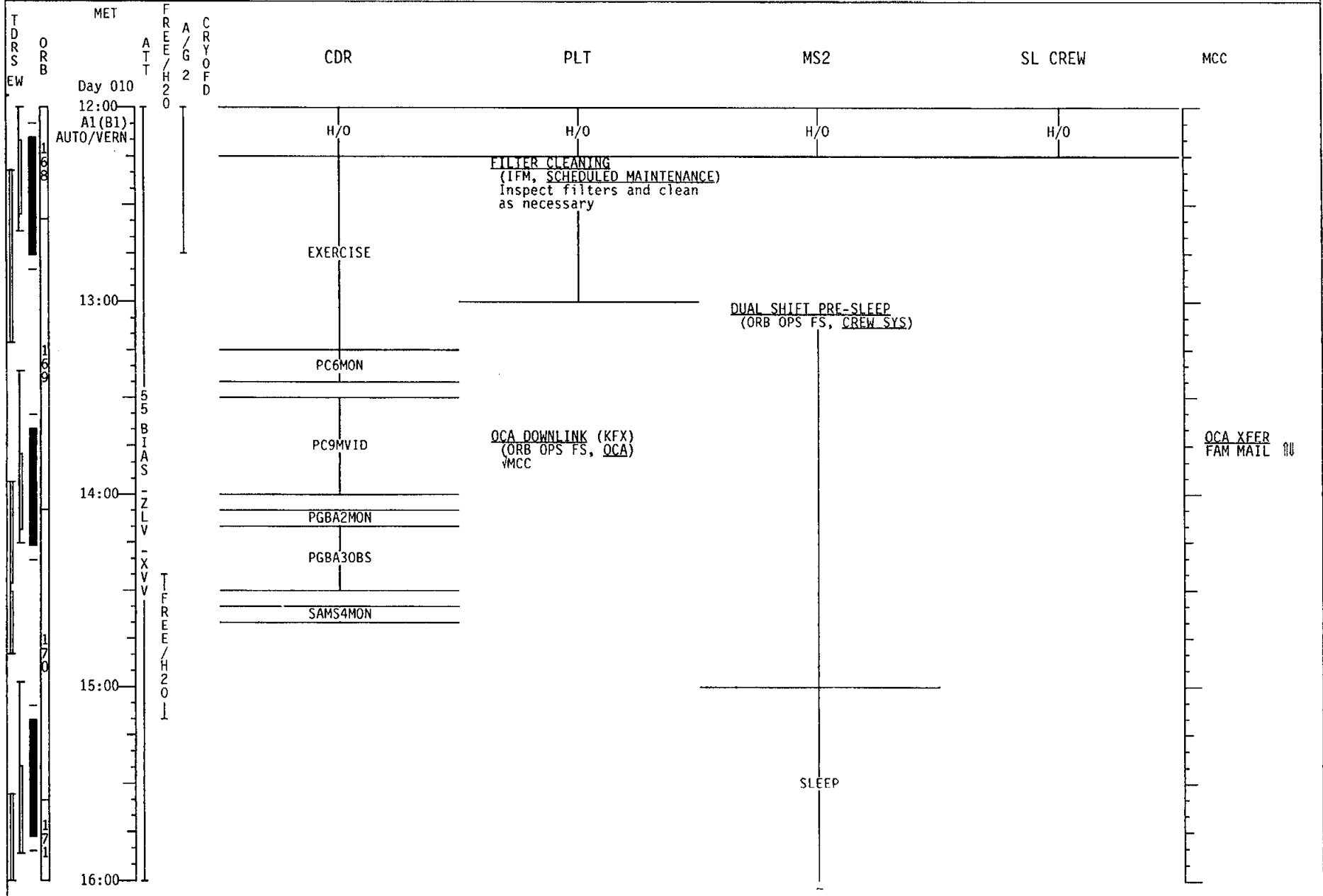
# STS-83 ( BLUE FD 11 )



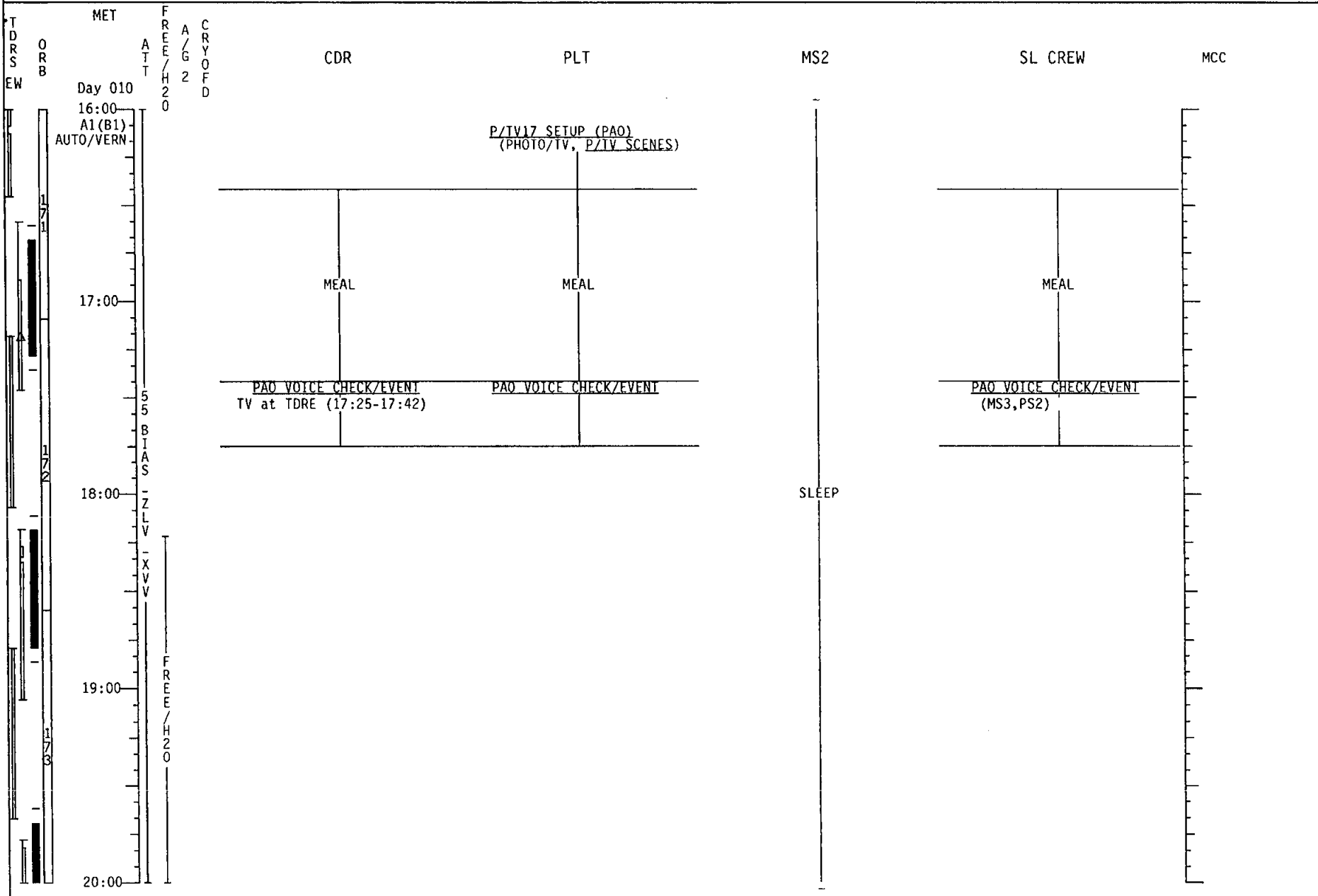
# STS-83 (BLUE FD 11)



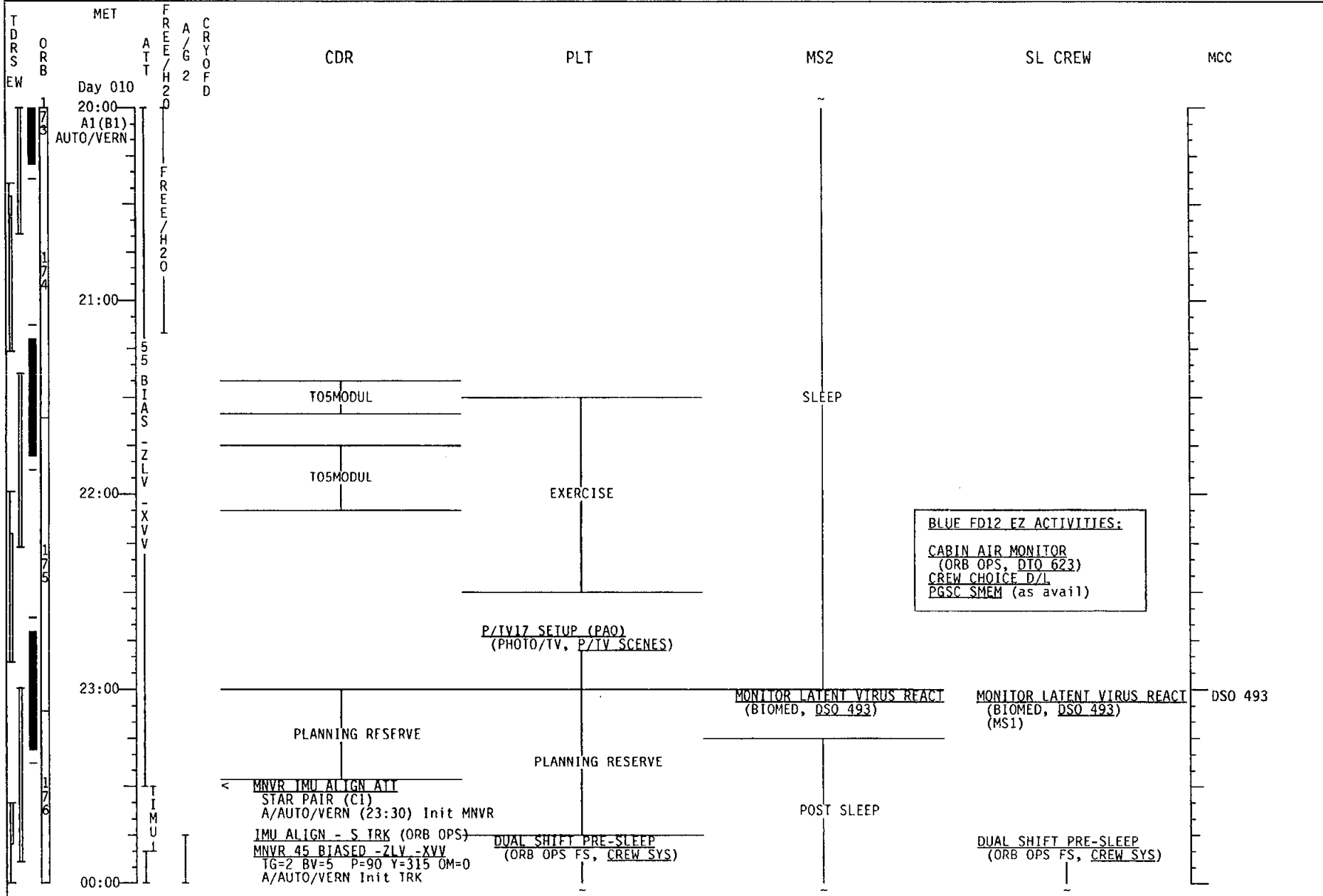
STS-83 ( RED FD 12 )



STS-83 ( RED FD 12 )



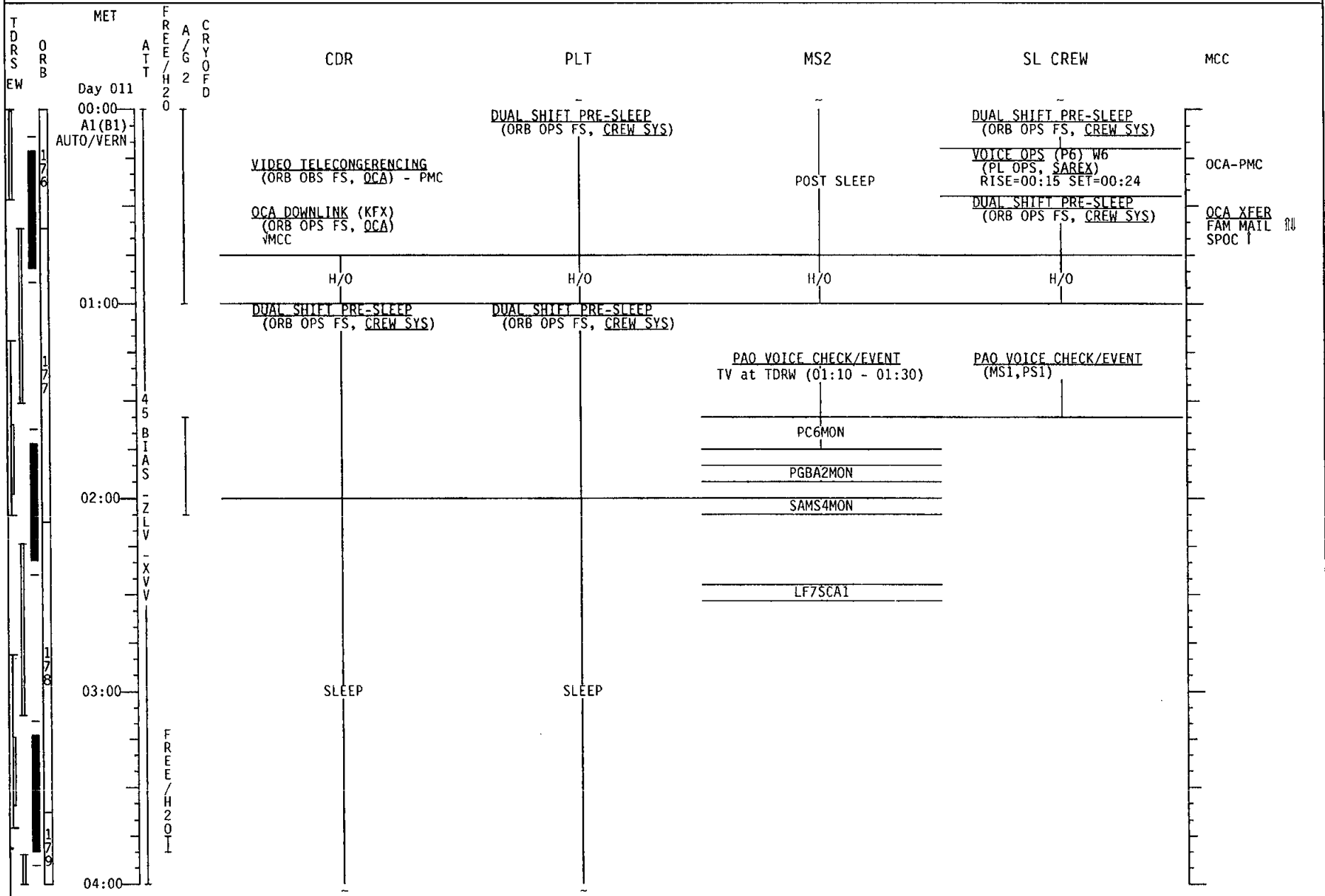
# STS-83 ( RED FD 12 )



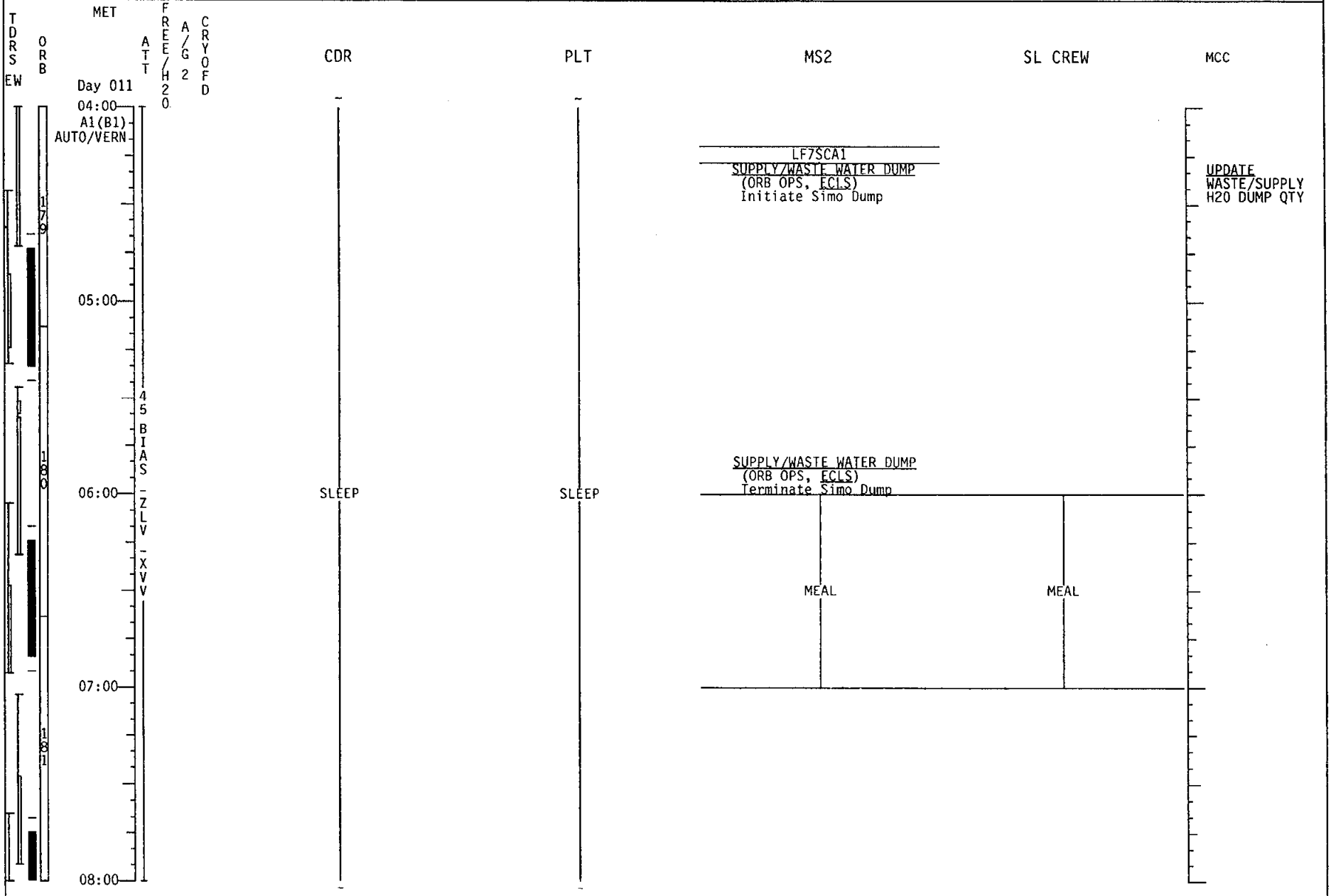
**BLUE FD12 EZ ACTIVITIES:**  
 CABIN AIR MONITOR  
 (ORB OPS, DTO 623)  
 CREW CHOICE D/L  
 PGSC SMEM (as avail)



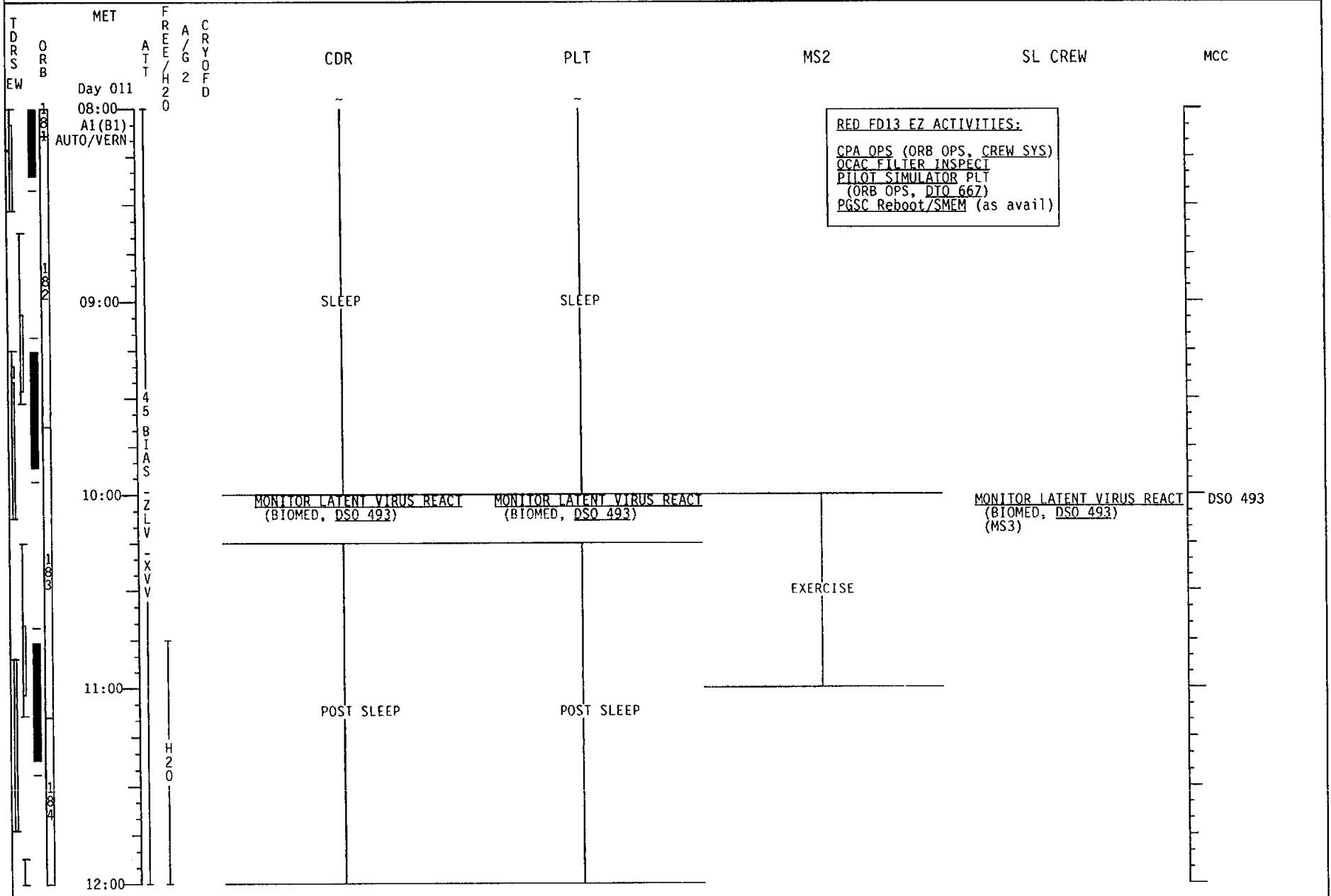
# STS-83 ( BLUE FD 12 )



STS-83 ( BLUE FD 12 )

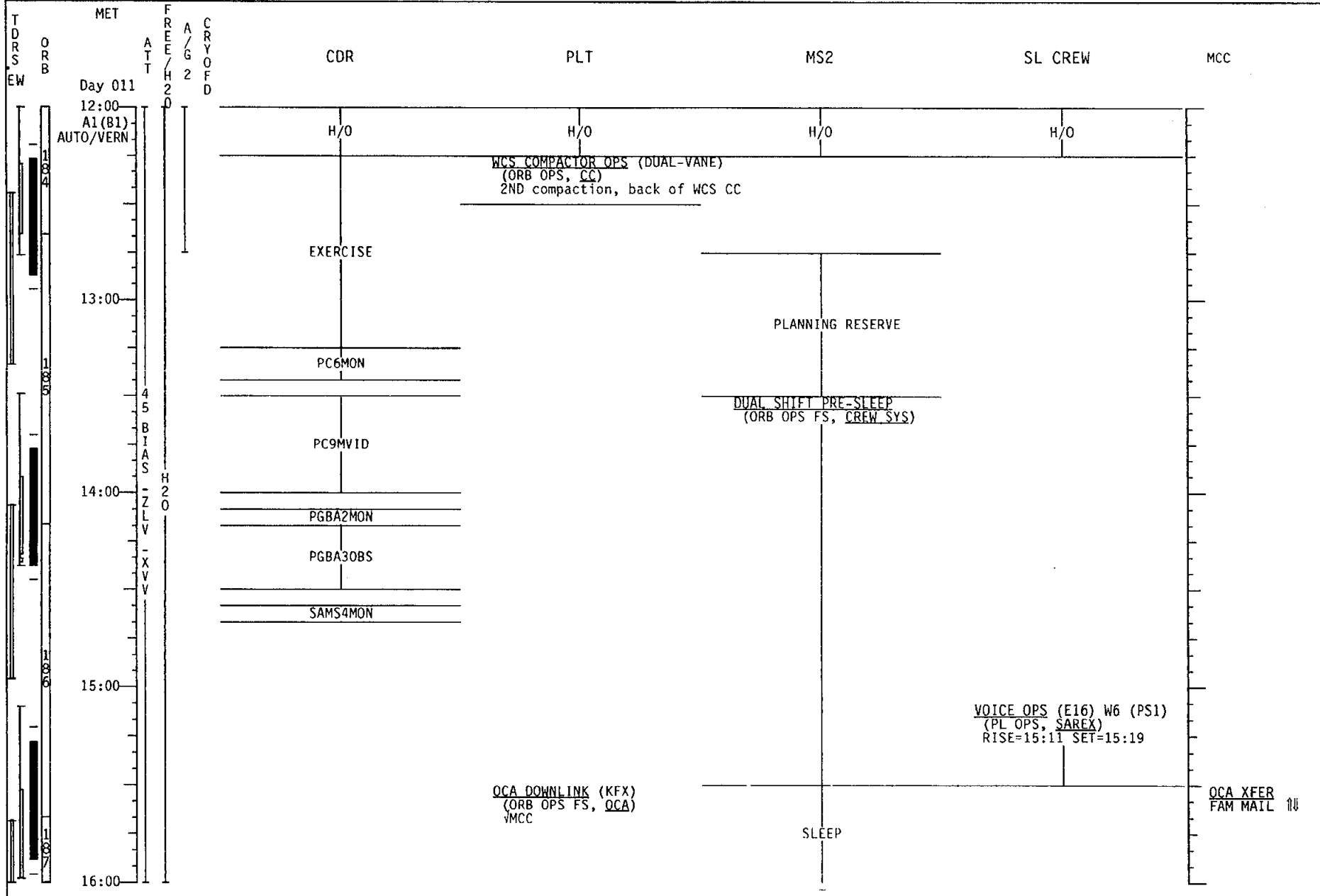


# STS-83 ( BLUE FD 12 )

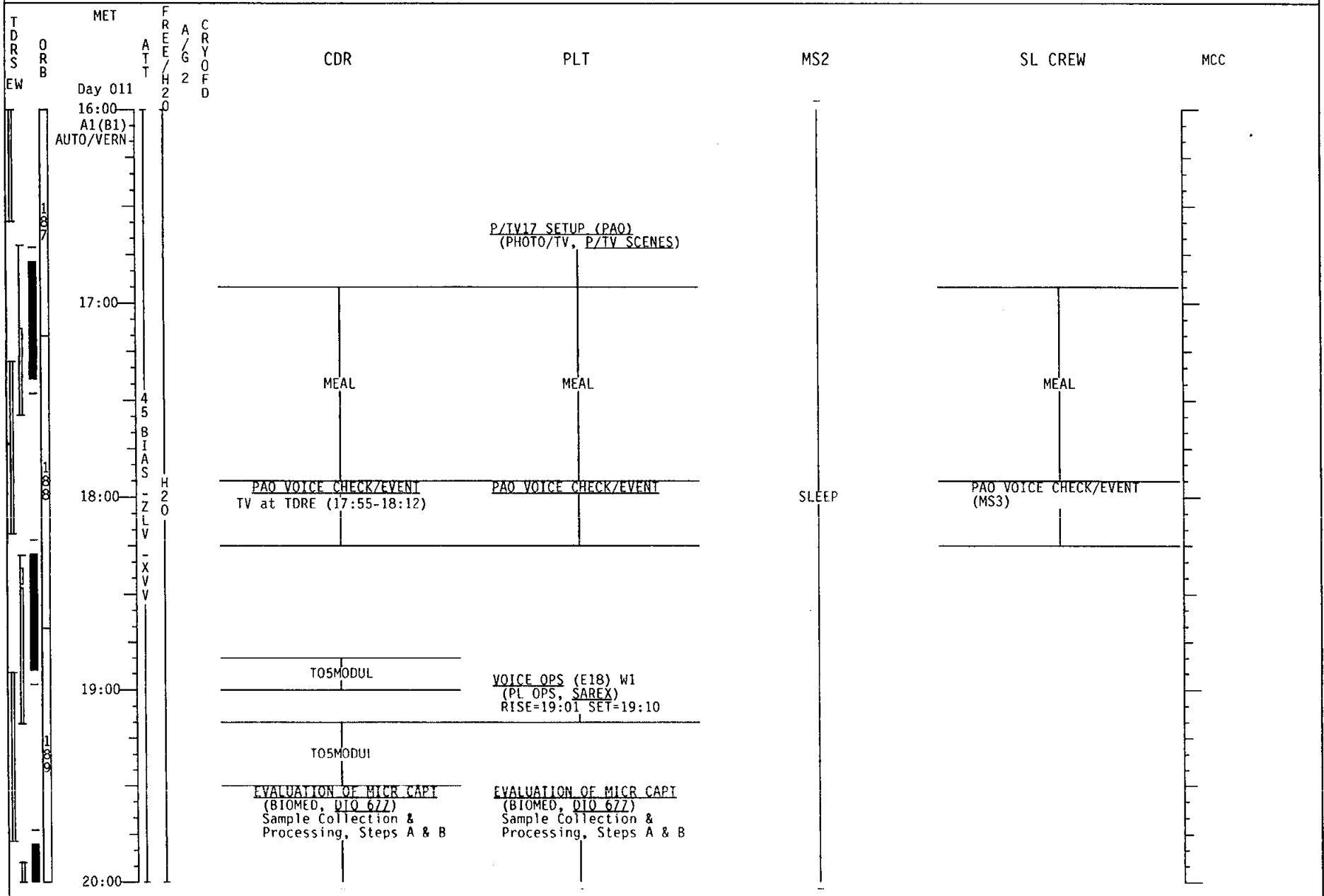


**RED FD13 EZ ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 QCAC FILTER INSPECT  
 PILOT SIMULATOR PLT  
 (ORB OPS, DIO 667)  
 PGSC Reboot/SMEM (as avail)

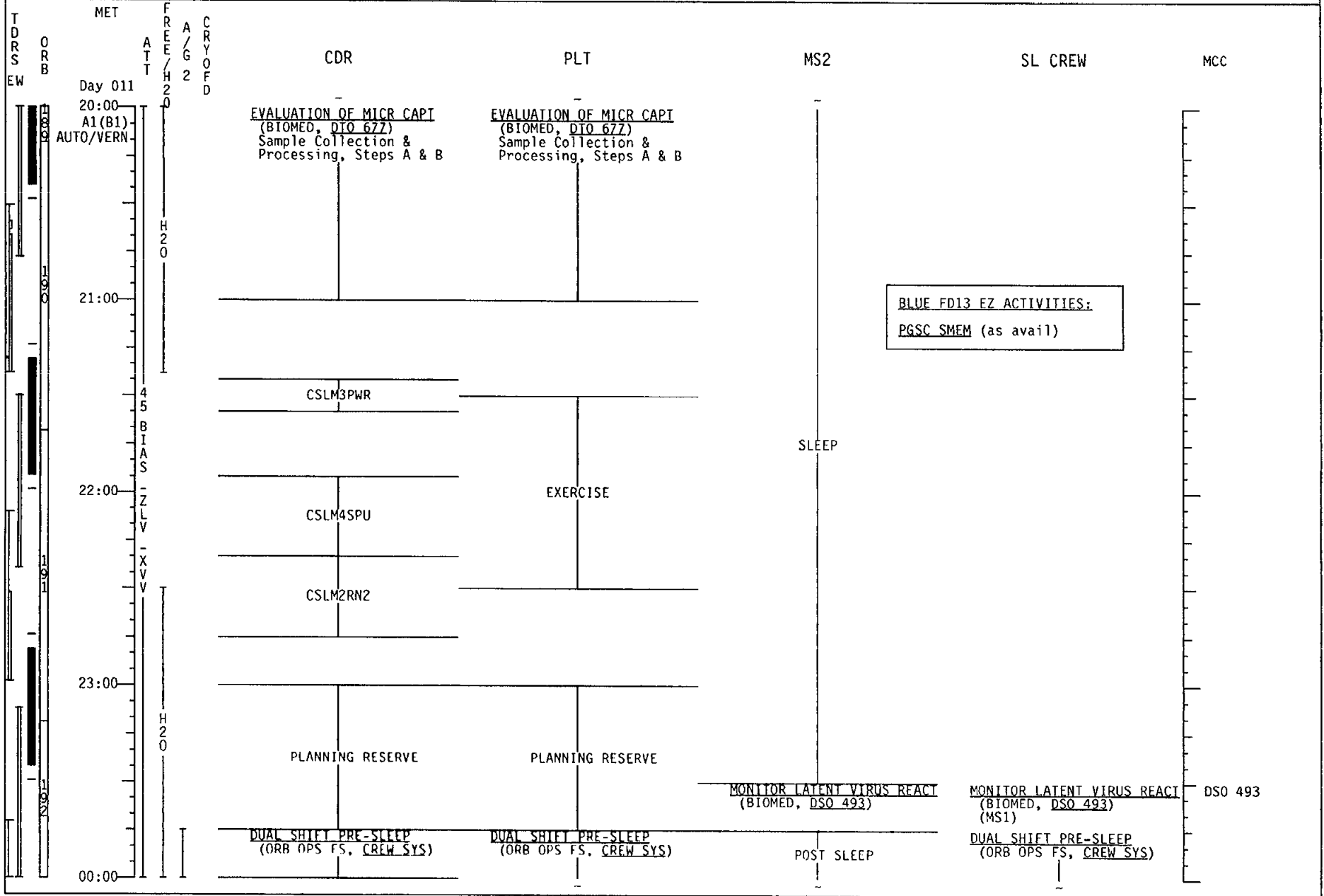
STS-83 ( RED FD 13 )



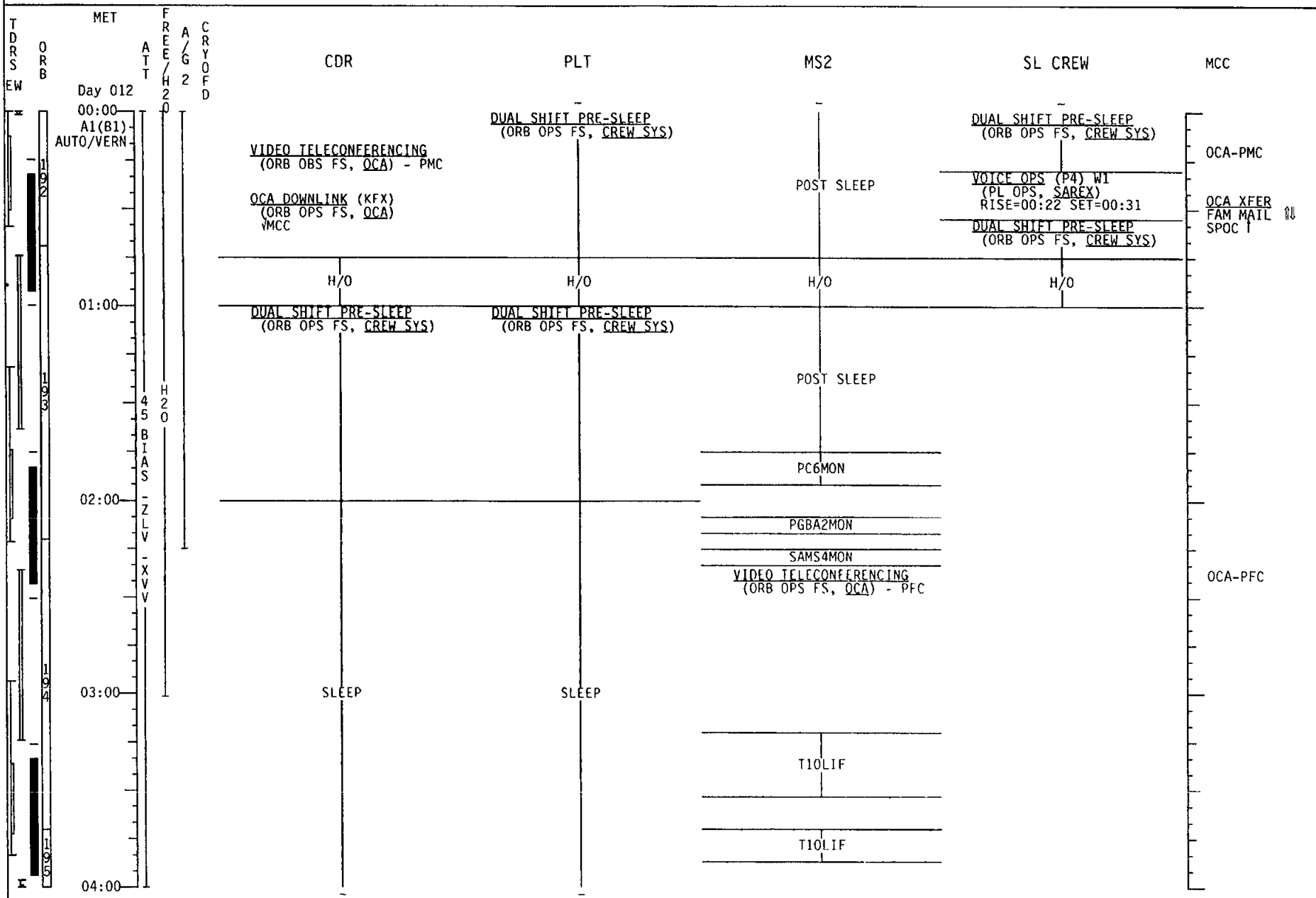
STS-83 ( RED FD 13 )



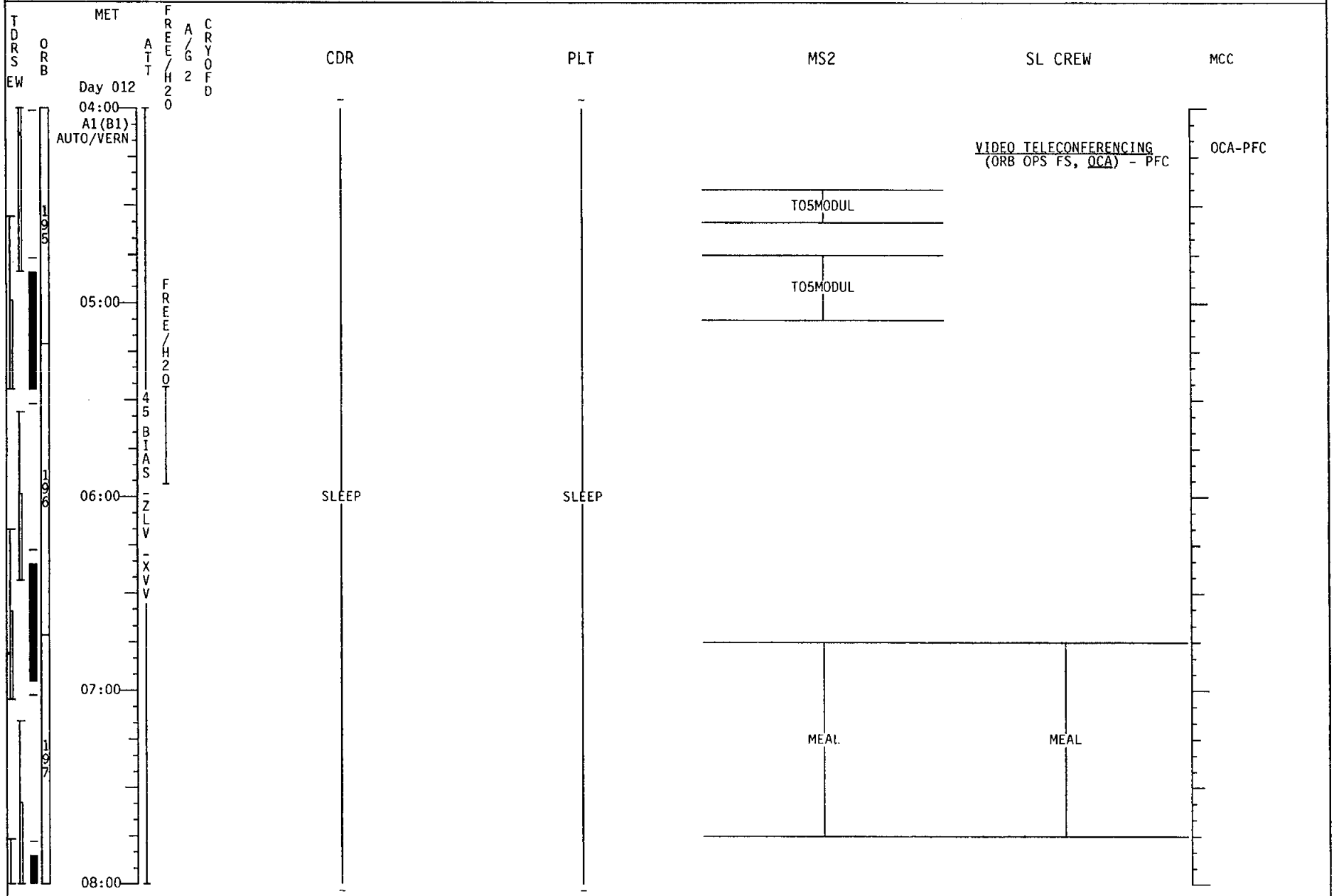
# STS-83 ( RED FD 13 )



# STS-83 (BLUE FD 13)

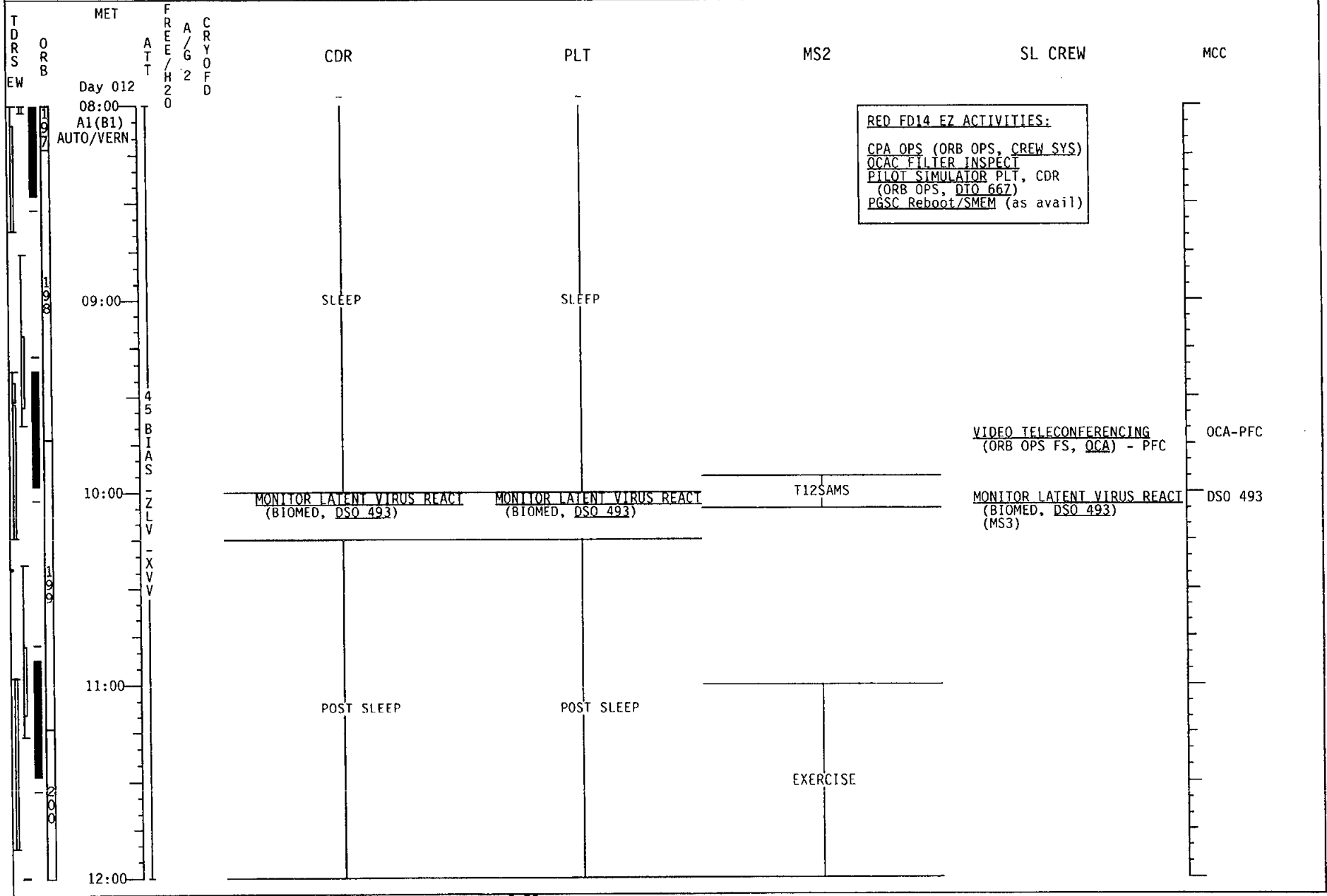


# STS-83 ( BLUE FD 13 )

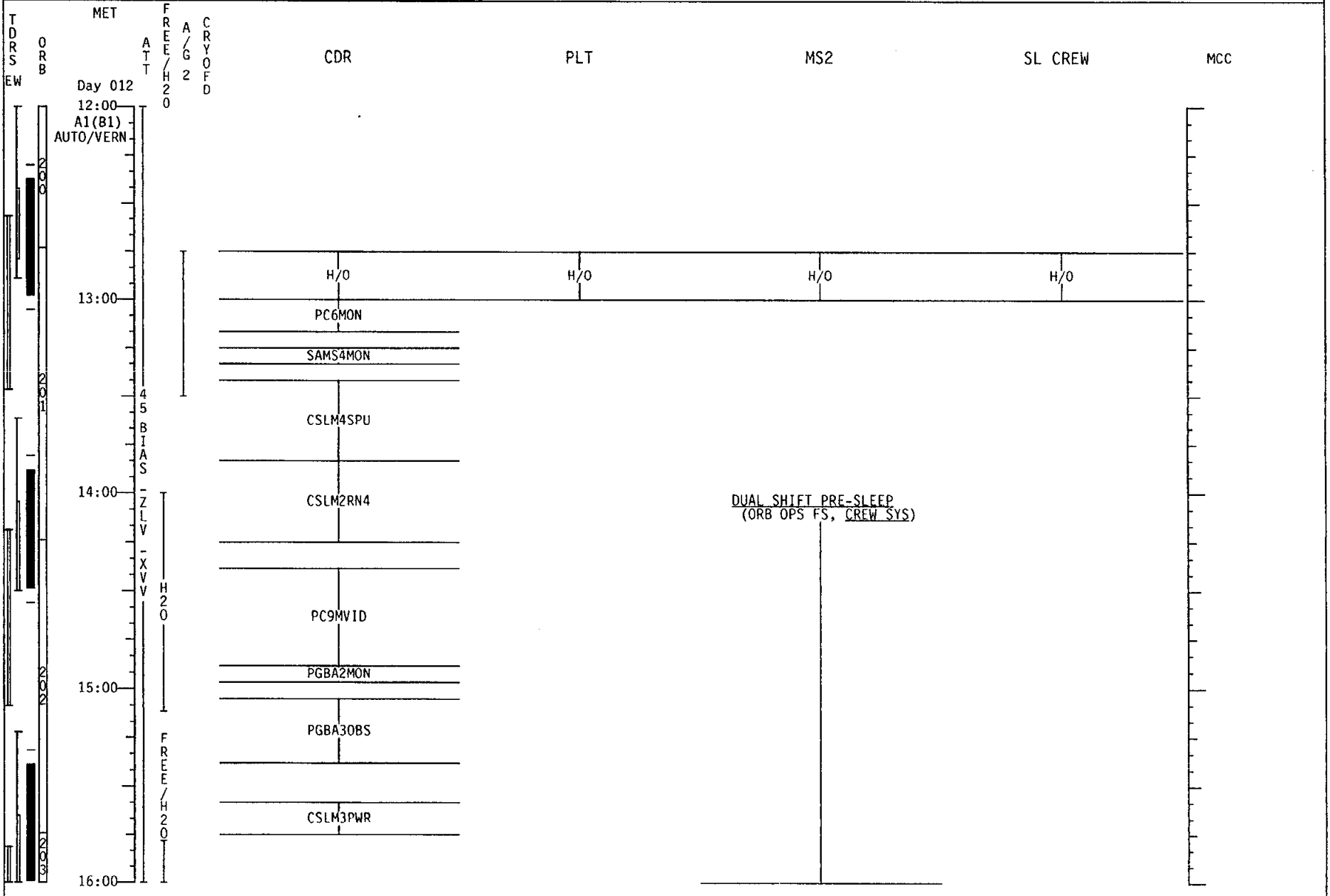




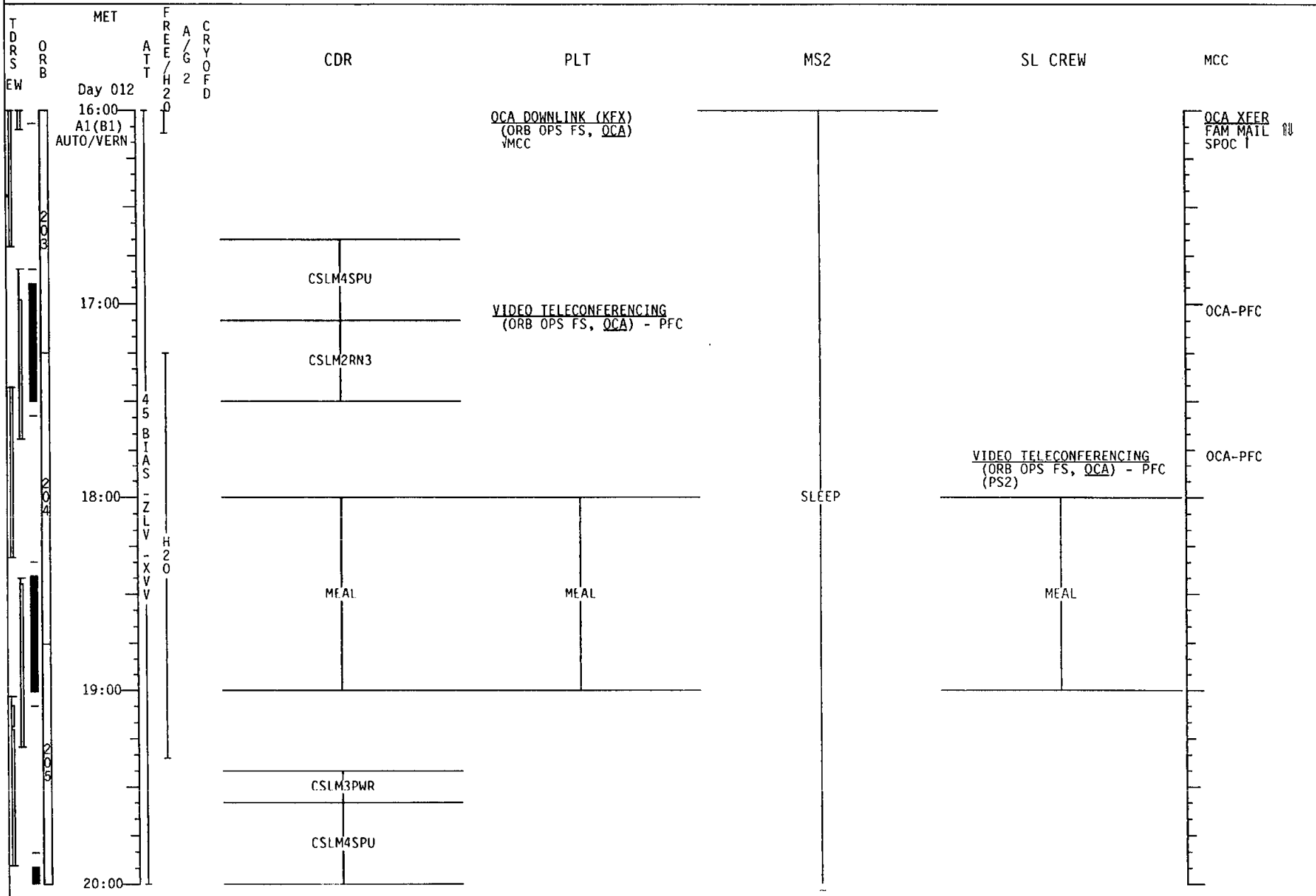
# STS-83 ( BLUE FD 13 )



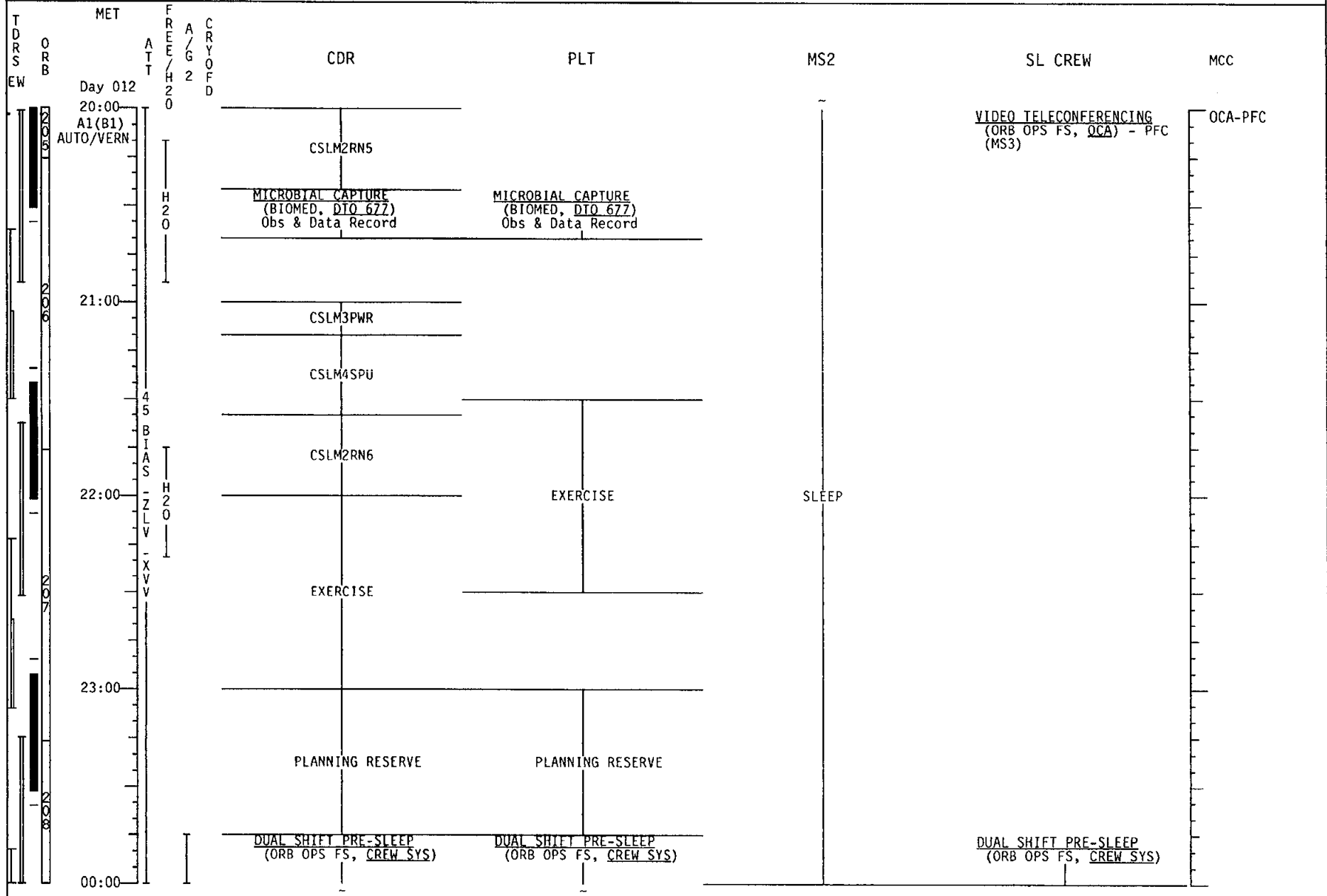
# STS-83 ( RED FD 14 )



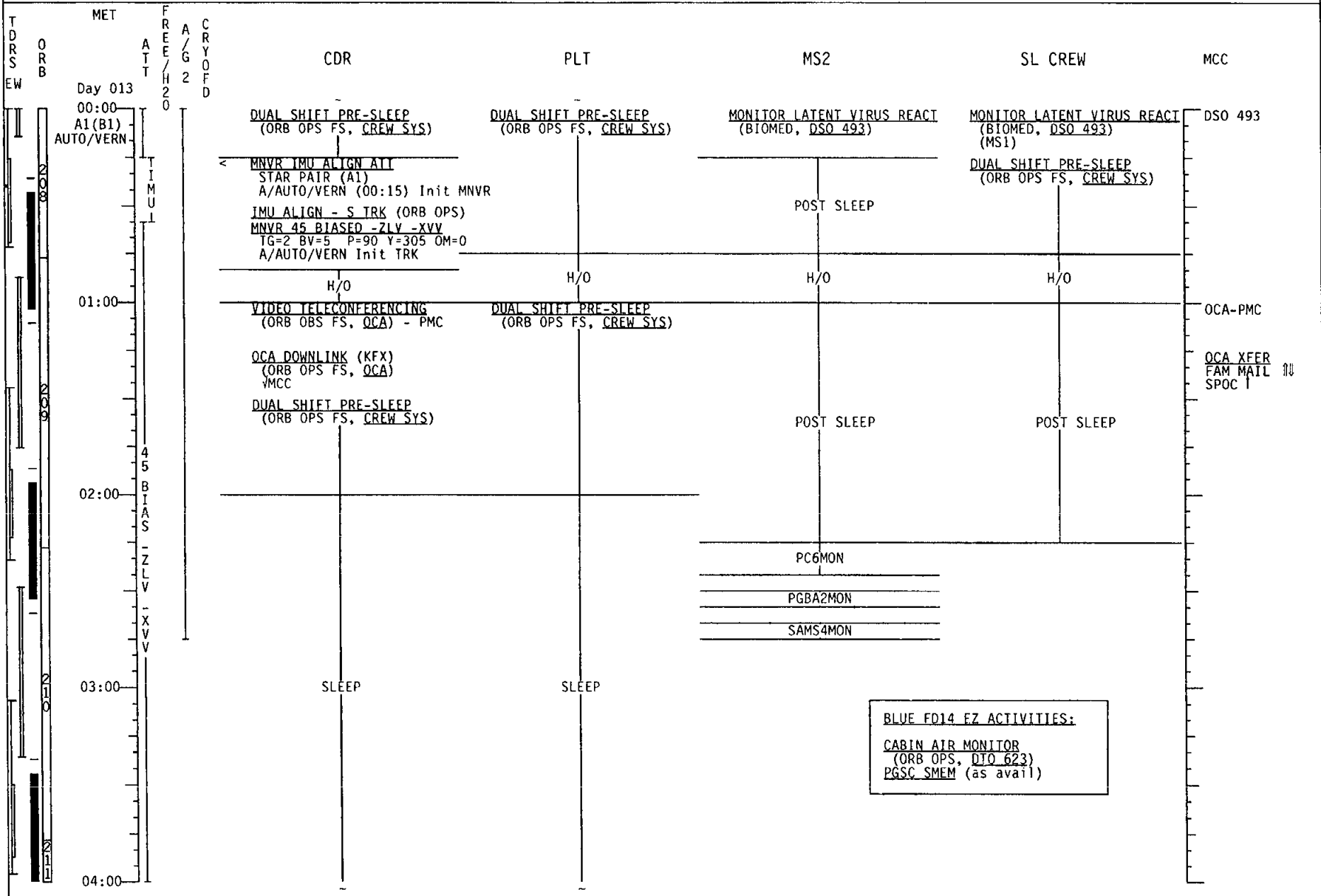
STS-83 ( RED FD 14 )



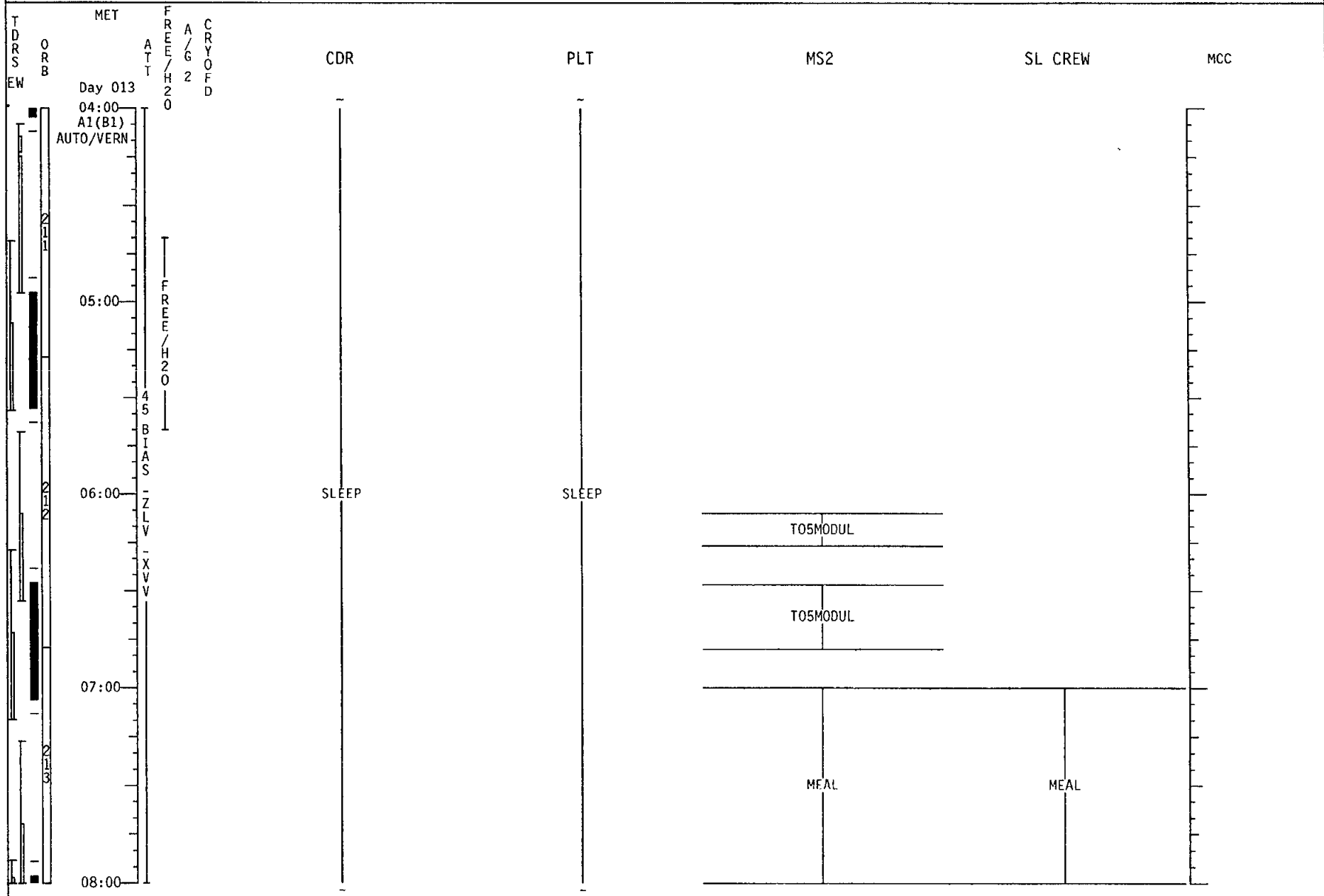
# STS-83 ( RED FD 14 )



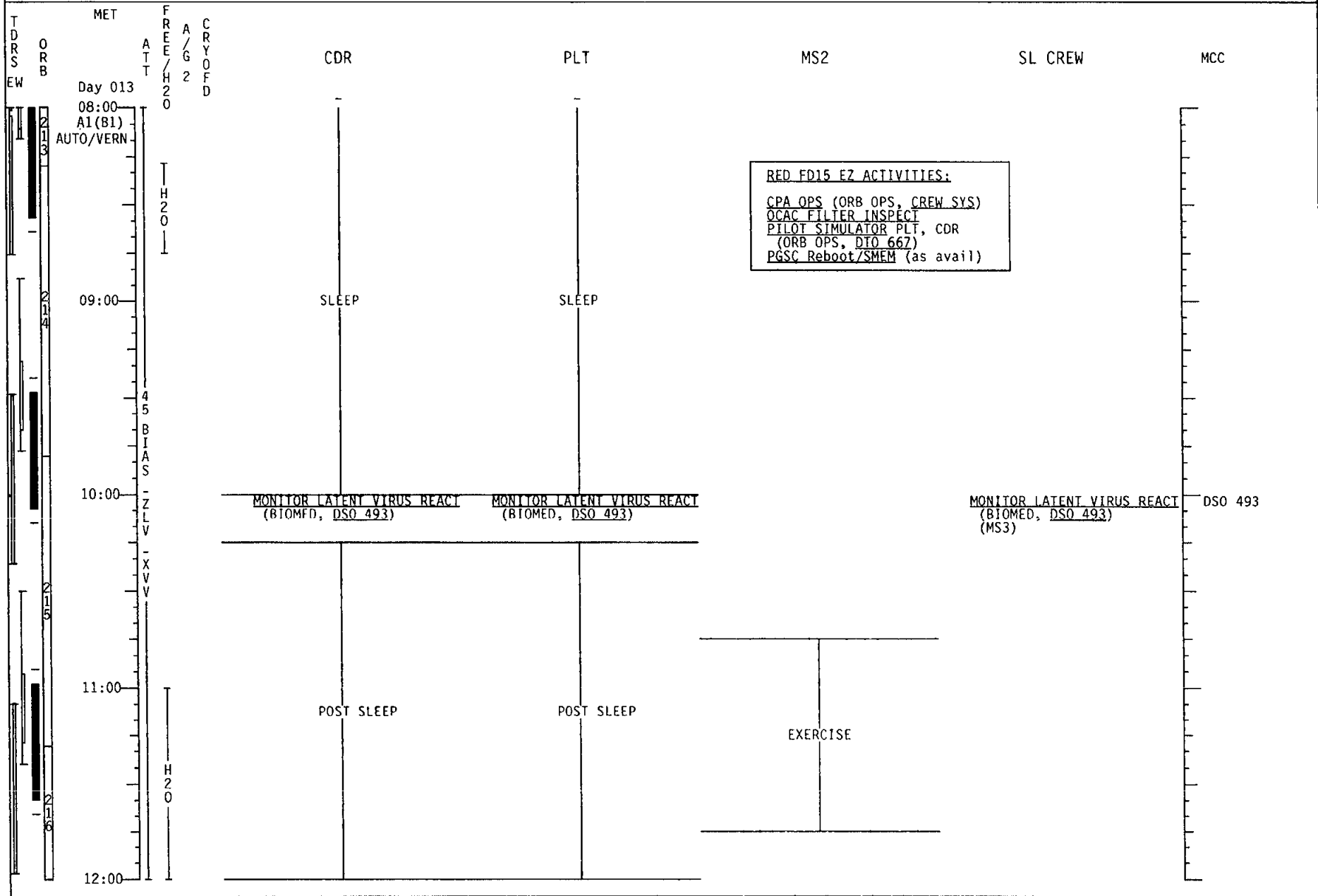
# STS-83 ( BLUE FD 14)



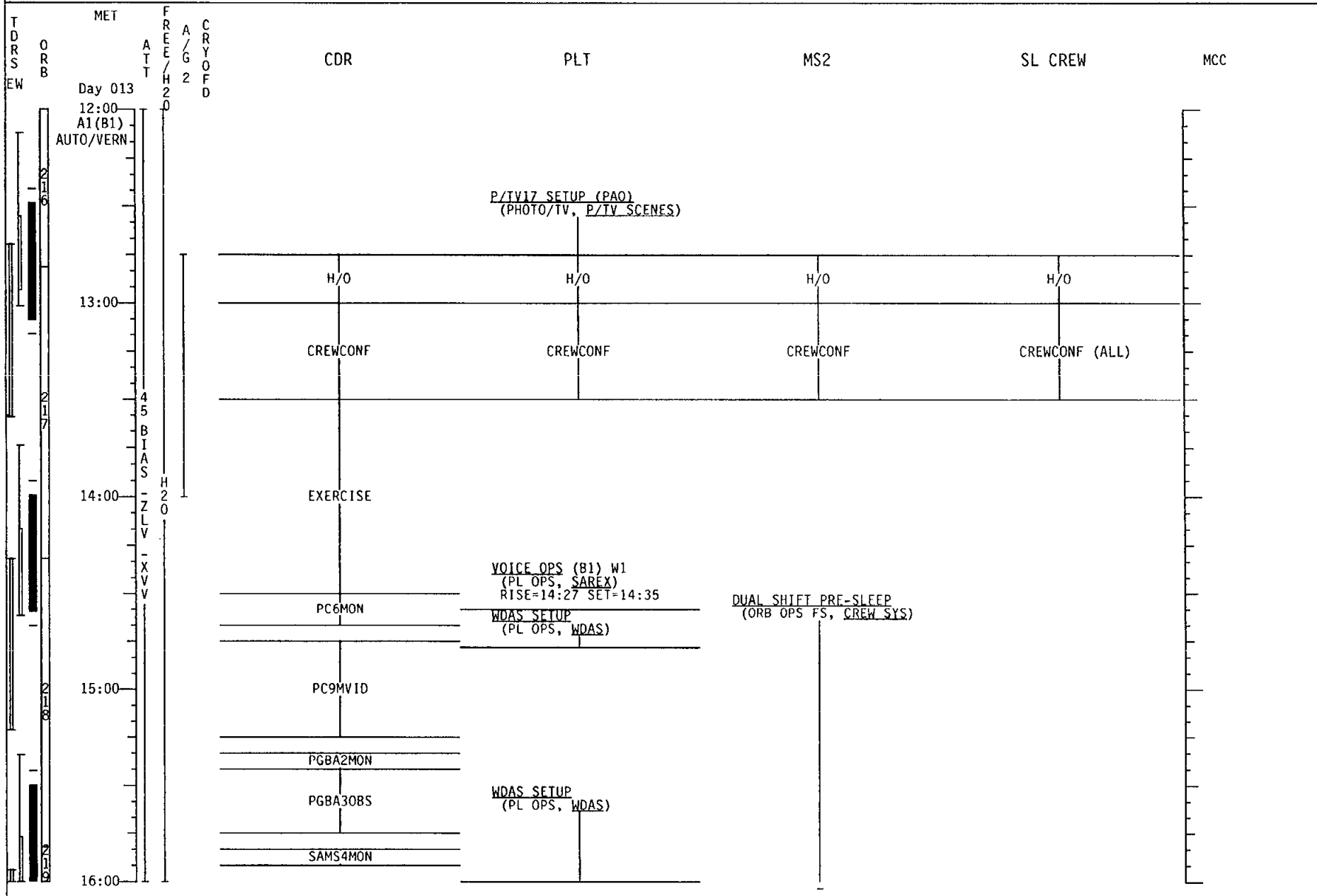
# STS-83 ( BLUE FD 14)



# STS-83 ( BLUE FD 14)

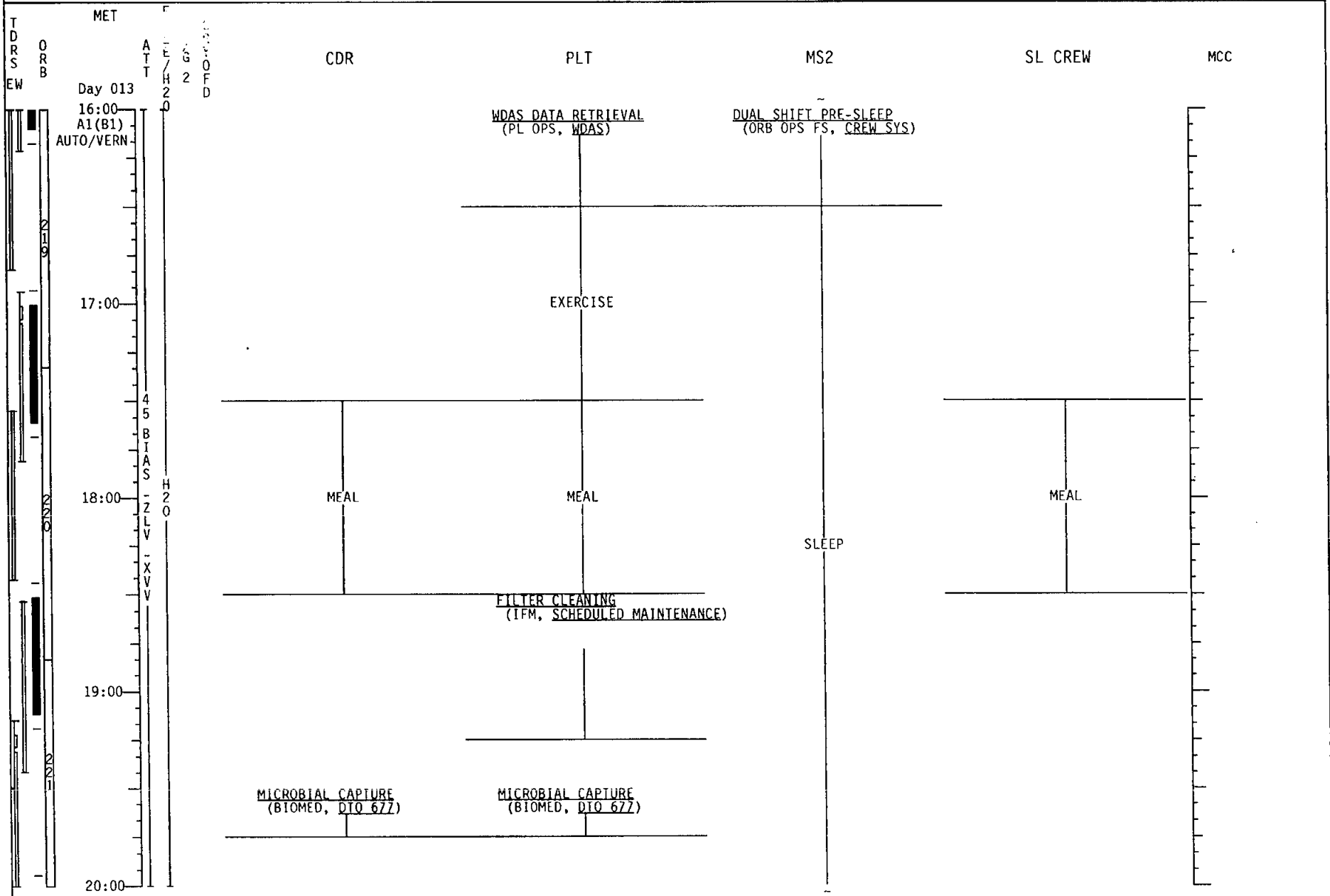


# STS-83 ( RED FD 15 )

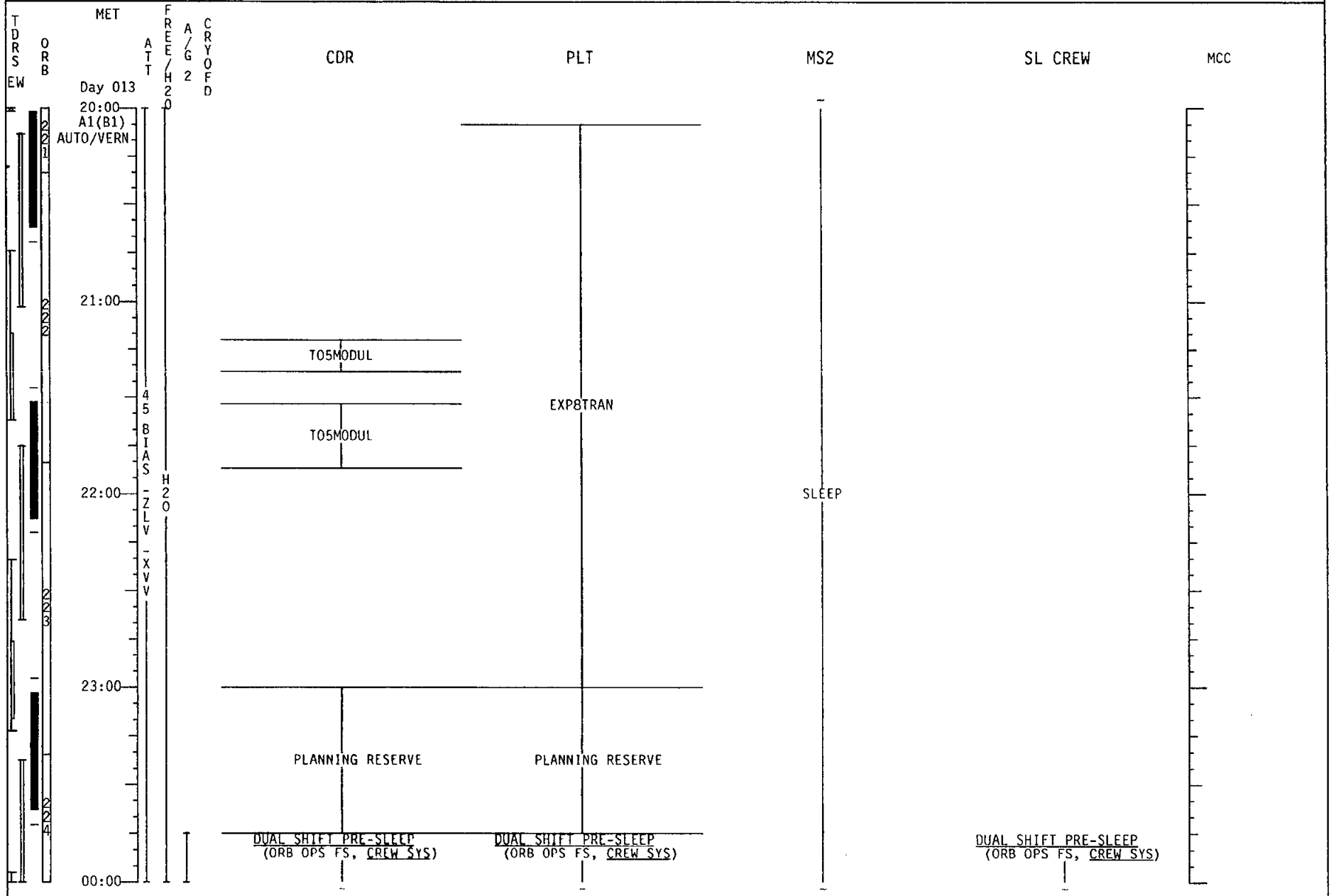




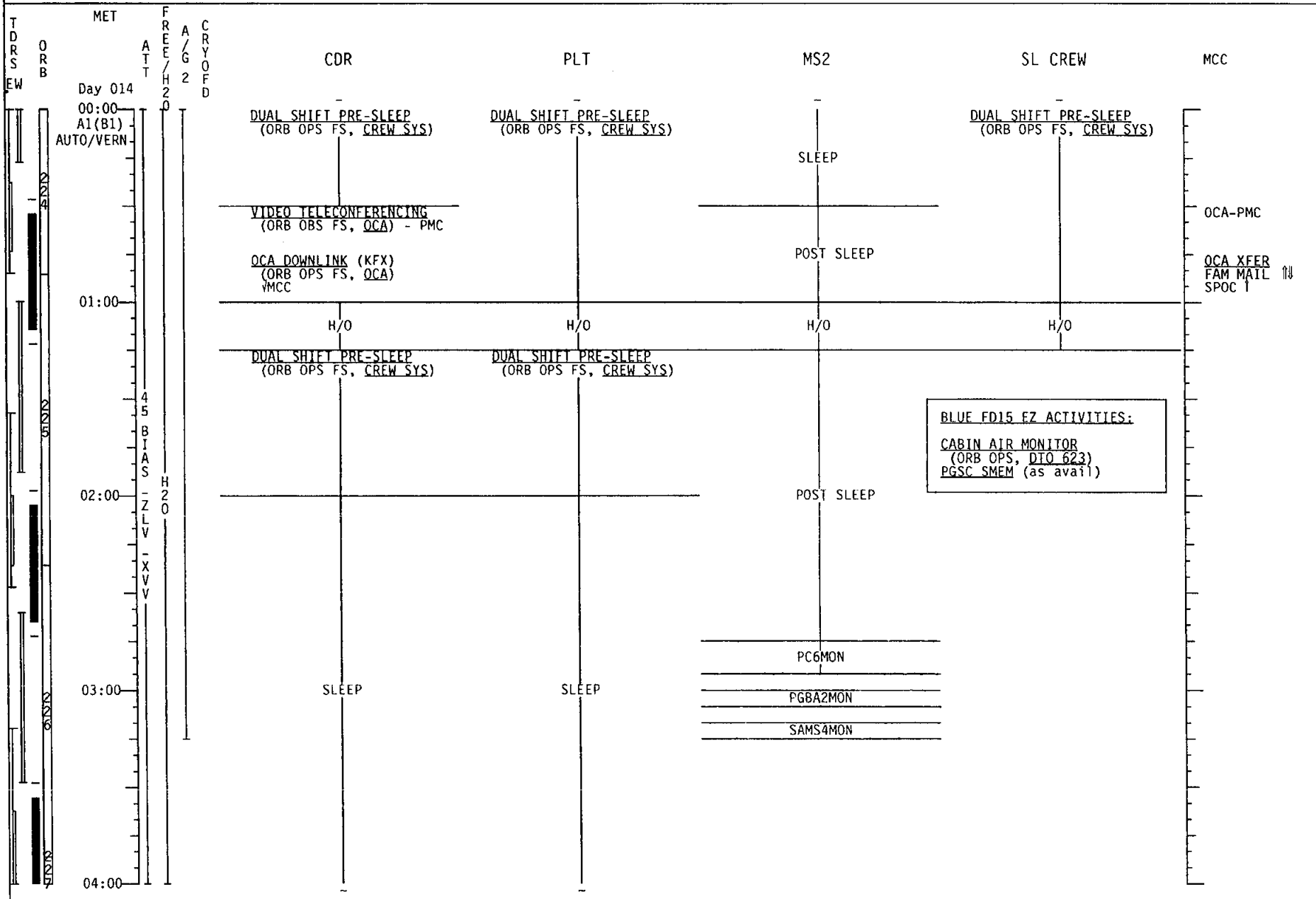
# STS-83 ( RED FD 15 )



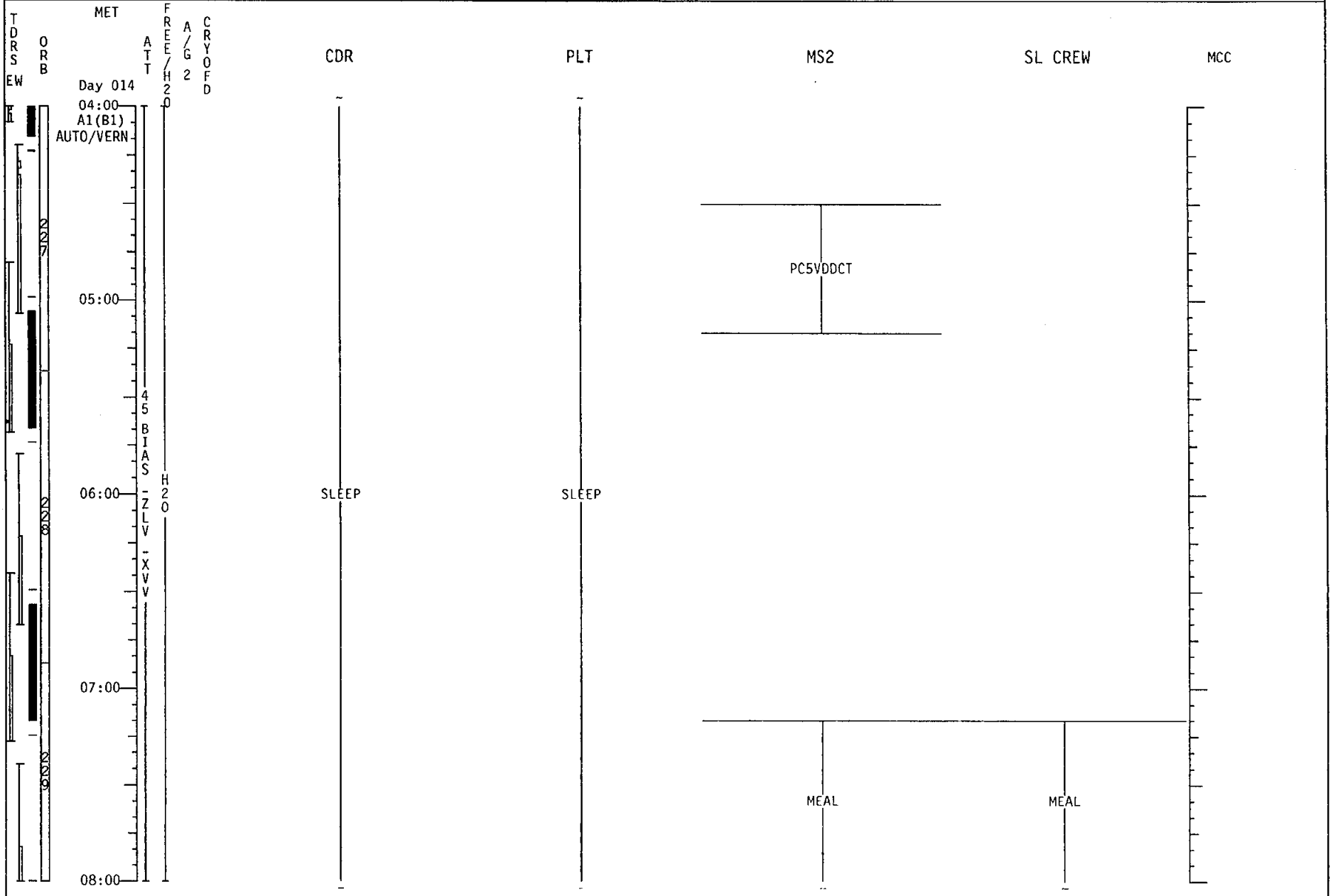
# STS-83 ( RED FD 15 )



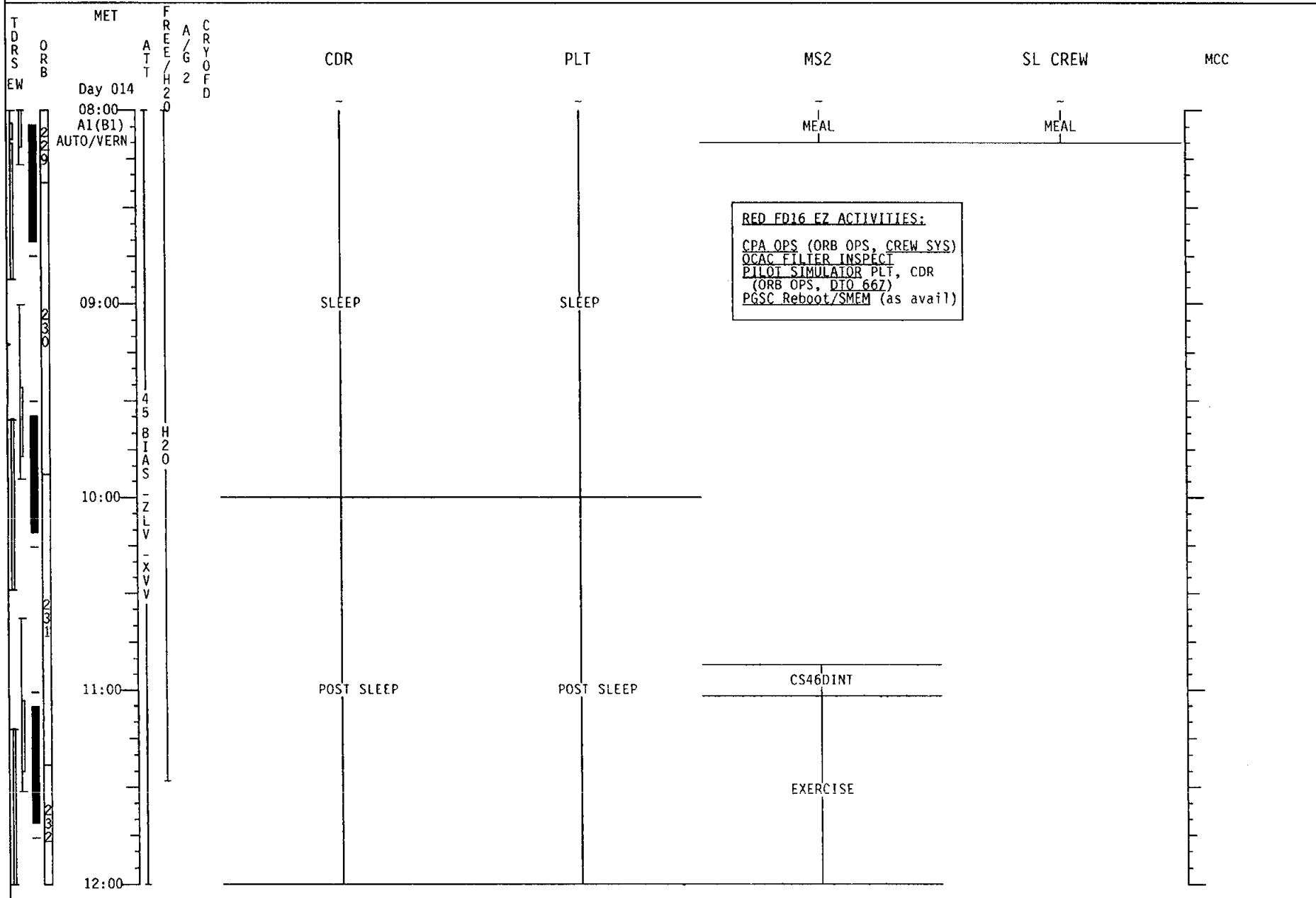
# STS-83 ( RED FD 15 )



# STS-83 ( BLUE FD 15)

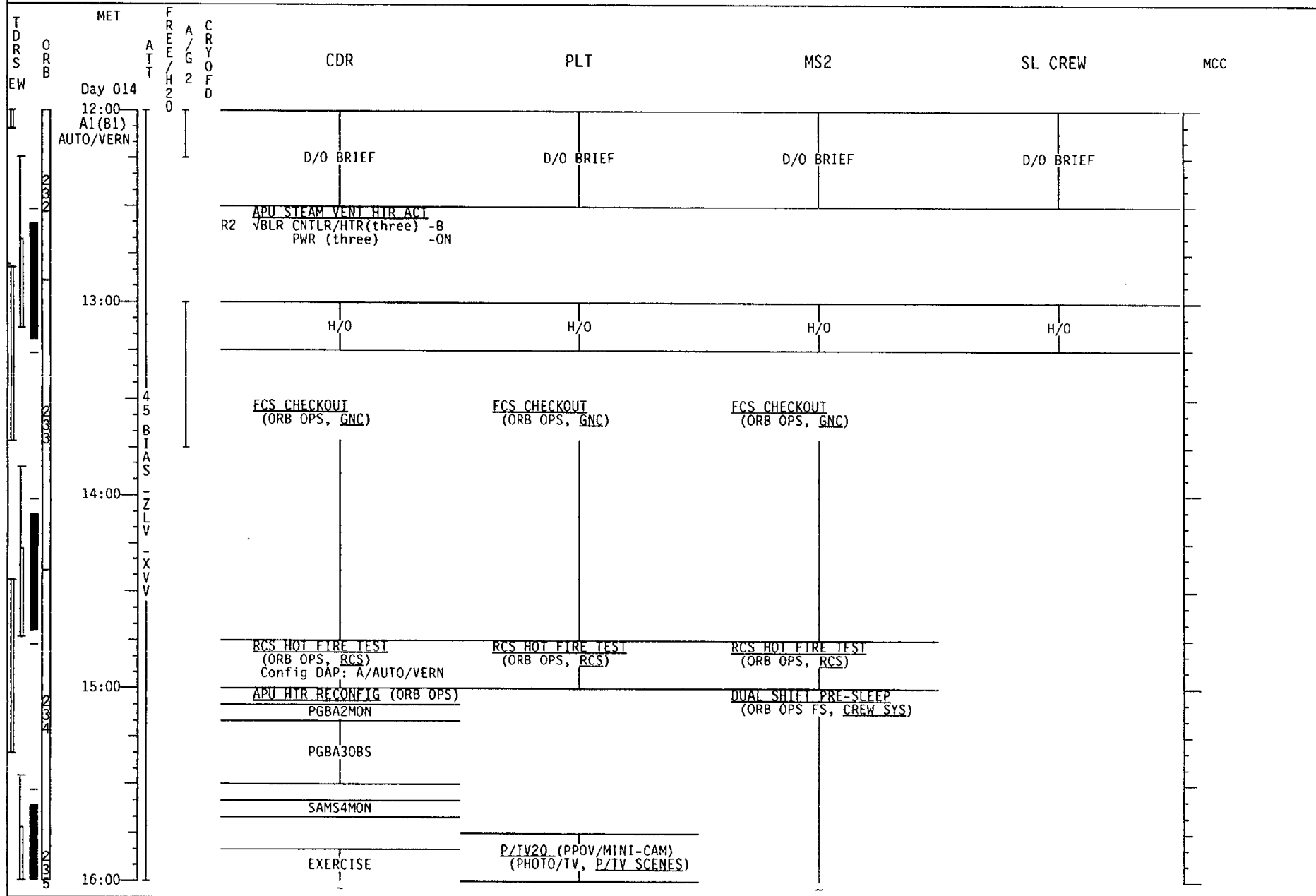


# STS-83 ( BLUE FD 15)

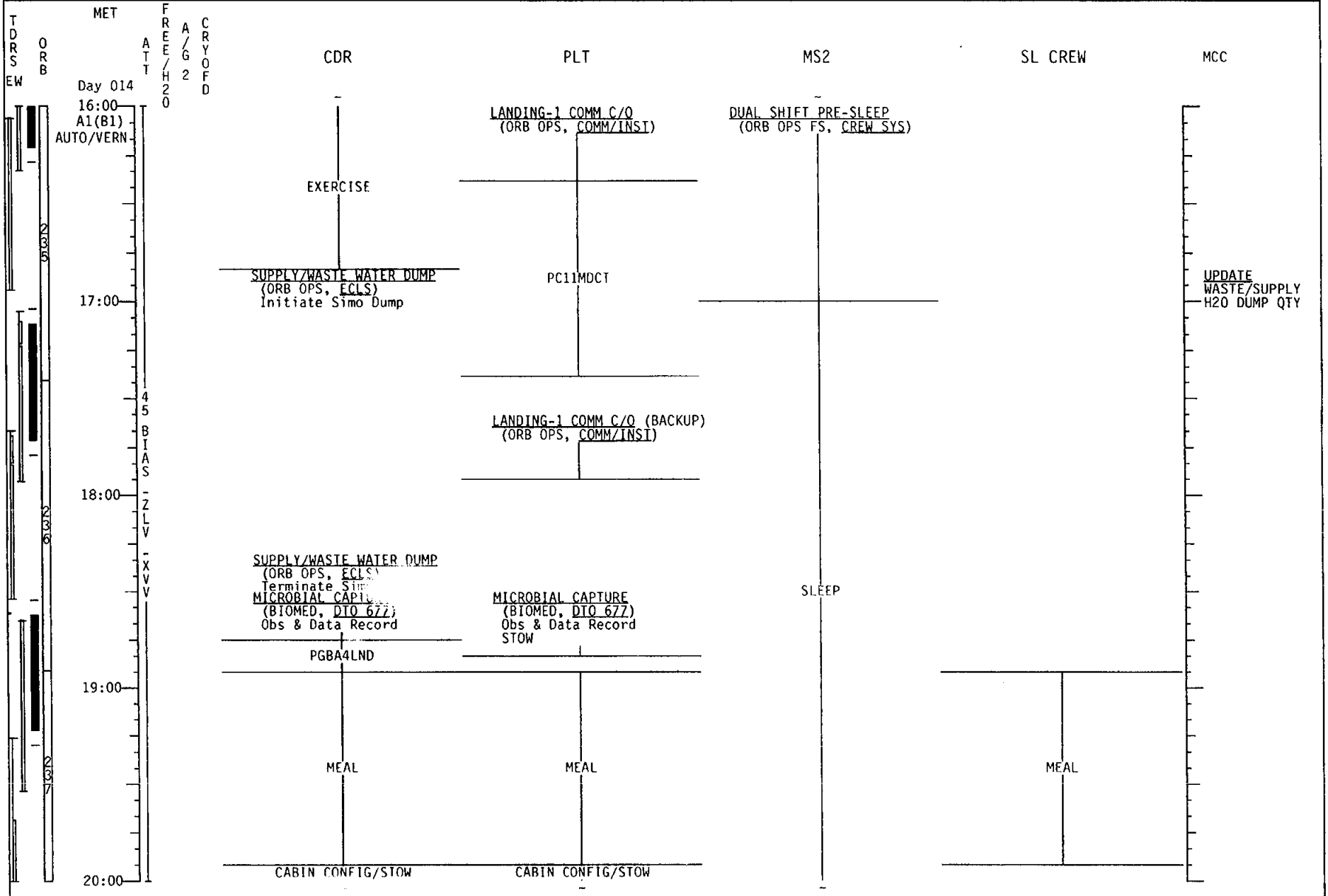


**RED FD16 EZ ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 OCAC FILTER INSPECT  
 PILOT SIMULATOR PLT, CDR  
 (ORB OPS, DTO 66Z)  
 PGSC Reboot/SMEM (as avail)

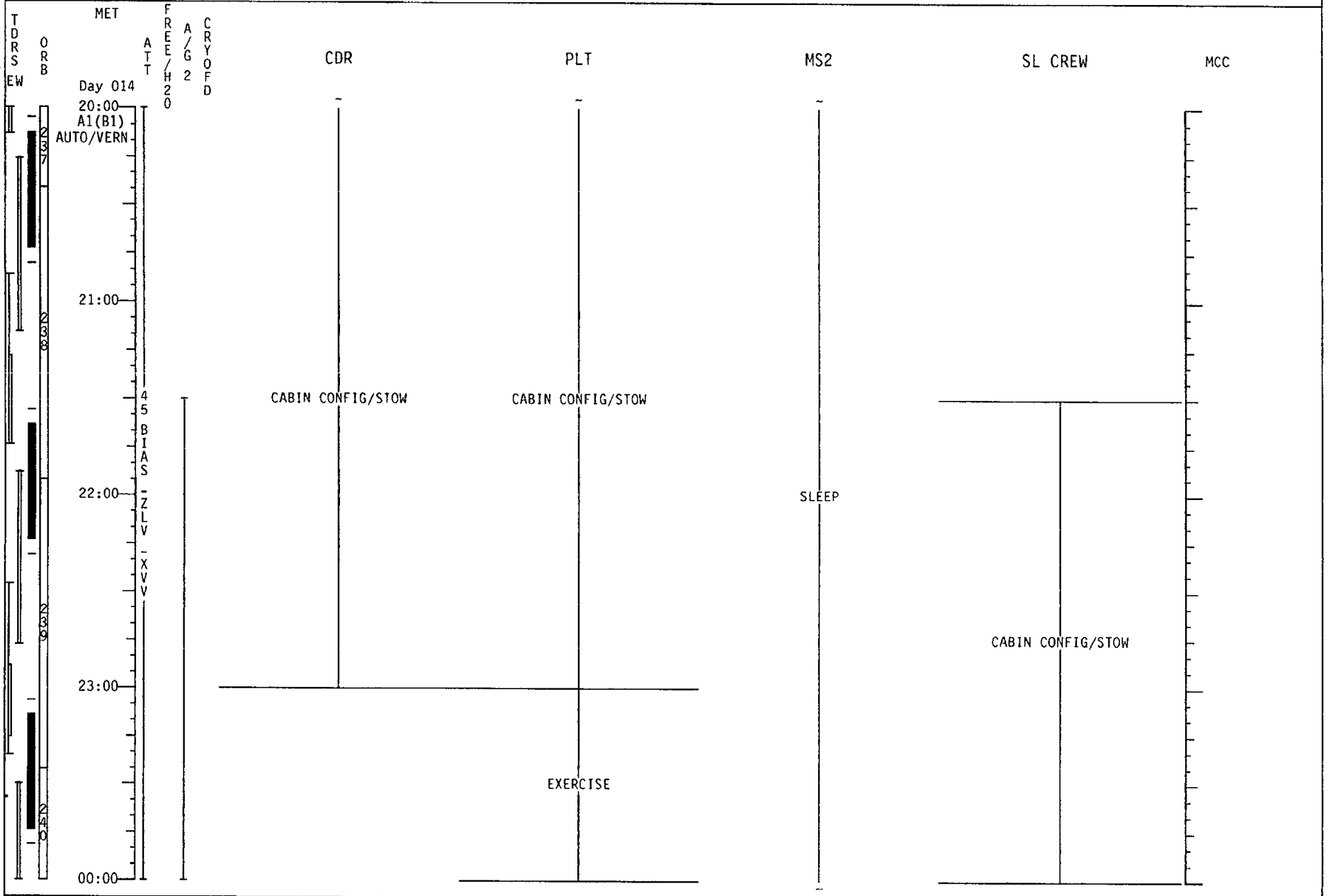
# STS-83 ( RED FD 16 )



# STS-83 ( RED FD 16 )

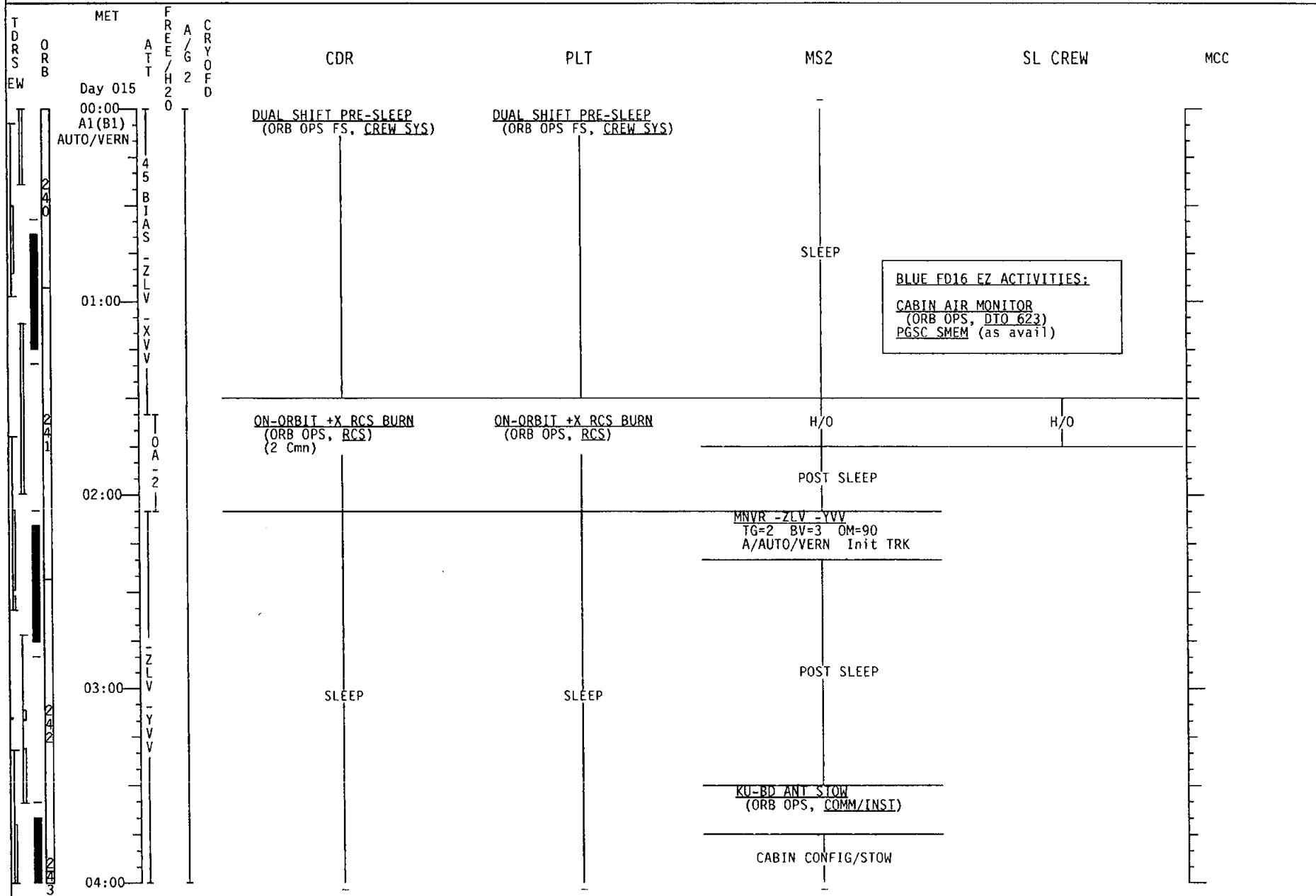


STS-83 ( RED FD 16 )

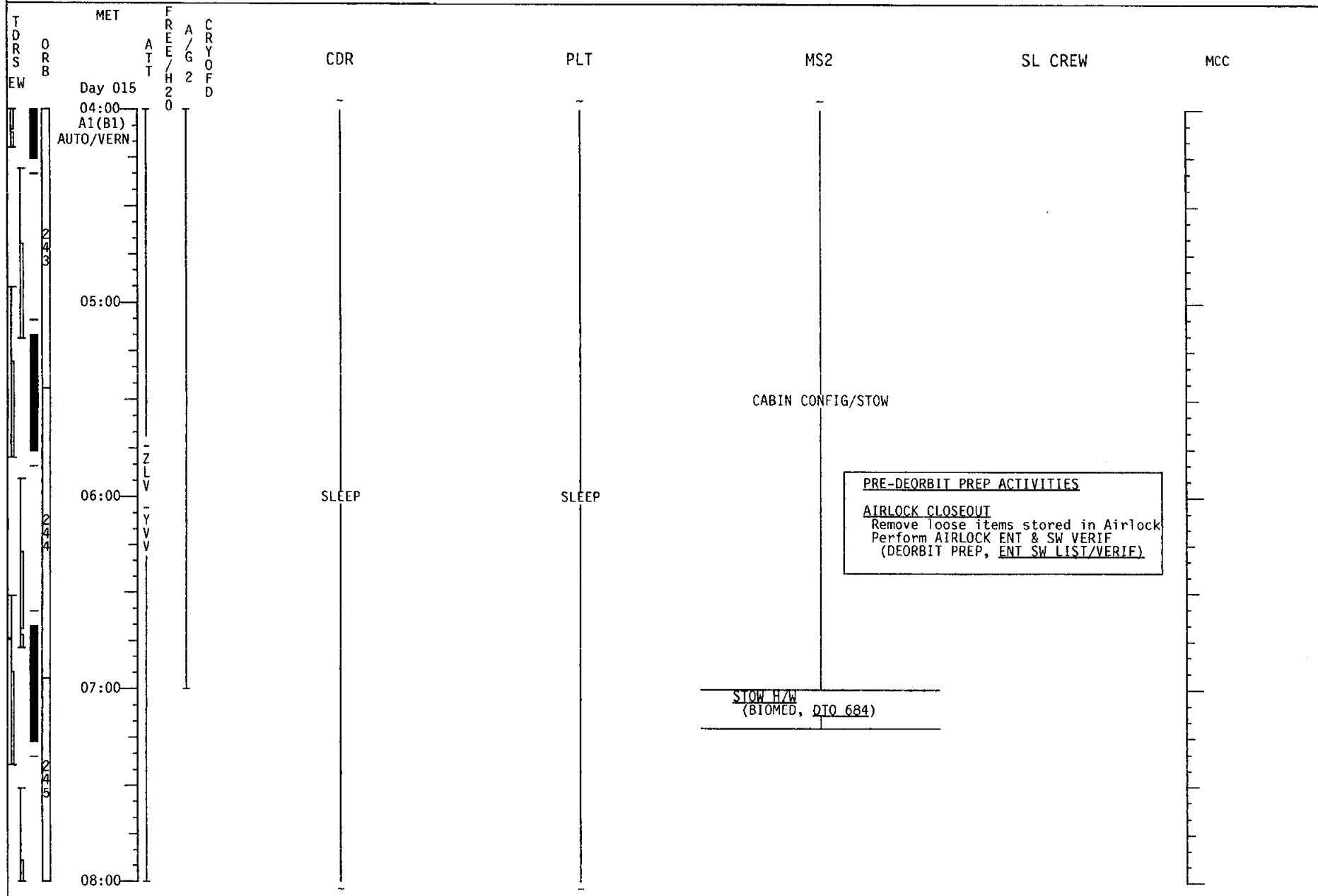




# STS-83 ( RED FD 16 )

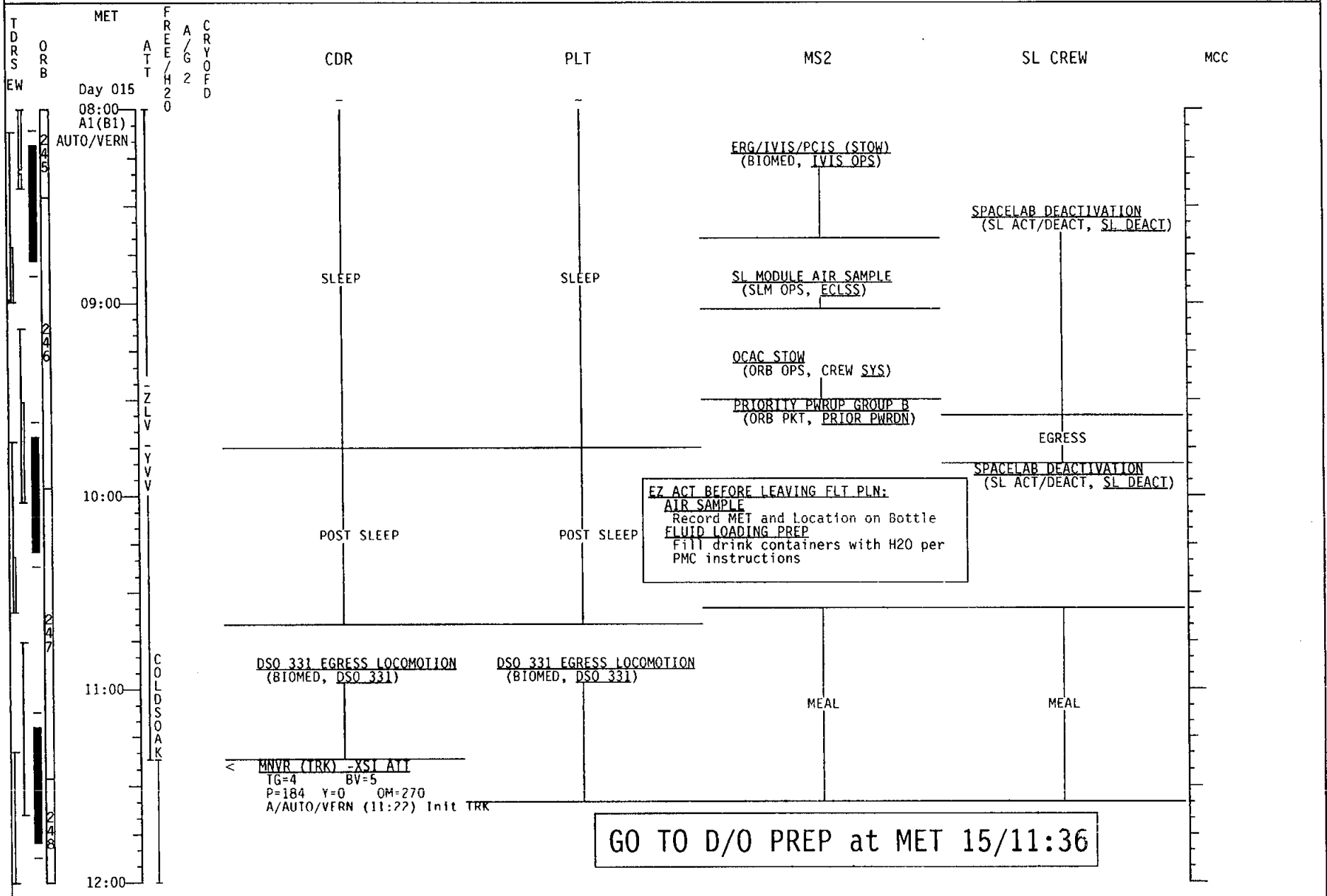


# STS-83 ( BLUE FD 16)



**PRE-DEORBIT PREP ACTIVITIES**  
**AIRLOCK CLOSEOUT**  
 Remove loose items stored in Airlock  
 Perform AIRLOCK ENT & SW VERIF  
 (DEORBIT PREP, ENT SW LIST/VERIF)

# STS-83 ( BLUE FD 16)



DAP TABLE

DAP TABLE

## DAP TABLE

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOMINAL
A2	- PTC		OMS & RCS BURNS
A3	- GG	B2	- LOSS OF VERN
A4	- PRE/POST DEPLOY		(TAIL ONLY)
A5	- LOSS OF VERN	B3	- LOSS OF VERN
	(NOSE & TAIL)		(NOSE & TAIL)
A6	- LOSS OF VERN	B4	- SSUS DEPLOY
	(TAIL ONLY)	B5	- COAS CAL
A7	- RENDEZVOUS	B7	- RENDEZVOUS
A8	- PROX OPS	B8	- PROX OPS

CNT ACC = 0    UNLOADED RMS  
           = 1-5   NOT USED

UNIV PTG	
TGT ID = 1 Orbiting Vehicle = 2 Earth ctr = 3 Earth tgt Input LAT ( $\pm 90$ ) LON ( $\pm 180$ , + = East) ALT (-3444.0 to 20000.0 nm) = 4 Sun ctr = 5 Celestial tgt Input RA (0-359.99) DEC ( $\pm 90$ ) = 11-110 Nav Stars	
BODY VECT = 1 +X* = 2 -X* = 3 -Z* = 4 -Y Star Tracker* = 5 Optional Input P (0-359.99) Y (270-359.99, 0-90) * input OM $\rightarrow$ OM (0-359.99)	
MON AXIS = 1 +X = 2 -X	

**STS-83 GENERIC DAP A CONFIGURATIONS**

	ITEM #	A1	A2	A3	A4	A5	A6	A7	A8
<b>PRI</b>									
ROT RATE	10	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	11	5.00	1.00	1.00	3.00	5.00	5.00	2.00	2.00
RATE DB	12	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
Y OPTION	16	ALL	ALL	TAIL	ALL	ALL	TAIL	ALL	ALL
TRAN PLS	17	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05
<b>ALT</b>									
RATE DB	18	0.200	0.200	0.200	0.200	0.070	0.070	0.200	0.200
JET OPT	19	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
# JETS	20	2	2	2	2	1	1	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>VERN</b>									
ROT RATE	23	0.2000	0.4000	0.0080	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000
RATE DB	25	.020	.020	.010	.020	.020	.020	.020	.020
ROT PLS	26	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/ POST DEPLOY	LOSS OF VERN (N/T)	LOSS OF VERN (TAIL ONLY)	RNDZ	PROX OPS

**STS-83 GENERIC DAP B CONFIGURATIONS**

	ITEM #	B1	B2	B3	B4	B5	B7	B8
<b>PRI</b>								
ROT RATE	30	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000	0.2000
ATT DB	31	3.00	3.00	3.00	0.30	3.00	2.00	2.00
RATE DB	32	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	33	0.04	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34	.000	.000	.000	.000	.000	.000	.000
P OPTION	35	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL
Y OPTION	36	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL
TRAN PLS	37	0.10	0.02	0.02	0.02	0.02	0.05	0.01
<b>ALT</b>								
RATE DB	38	0.200	0.070	0.070	0.200	0.200	0.200	0.200
JET OPT	39	ALL	TAIL	ALL	ALL	ALL	ALL	ALL
# JETS	40	2	1	1	2	2	2	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>VERN</b>								
ROT RATE	43	0.2000	0.2000	0.2000	0.0080	0.0160	0.2000	0.2000
ATT DB	44	1.000	1.000	1.000	0.100	0.033	1.000	1.000
RATE DB	45	.020	.020	.020	.010	.020	.020	.020
ROT PLS	46	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	47	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	0	0	0
PURPOSE		NOM OMS RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (N/T)	SSUS DEPLOY	COAS CAL	RNDZ	PROX OPS

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



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**ATTITUDE TIMELINE**

ATTITUDE  
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
1 000/01:12:00 MET 22:57 093/20:13:00 GMT 23:57	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Nose South Post Insertion SOPA
2 000/03:30:00 MET 38:32 093/22:31:00 GMT 39:32	TGT=2 BV=5 P= 90.00 Y=305.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R= 55.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 55 deg roll
3 000/22:30:00 MET 39:53 094/17:31:00 GMT 40:53	INRTL R=139.00 MNVR P=166.00 Y= 38.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 321 P 128		IMU Align Star Pair C2 -Y:18 CAPELLA -Z:57 ACAMAR
4 000/22:45:00 MET 59:50 094/17:46:00 GMT 18:00:50	TGT=2 BV=5 P= 90.00 Y=305.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R= 55.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 55 deg roll
5 002/23:45:00 MET 53:45 096/18:46:00 GMT 54:45	INRTL R=328.00 MNVR P=339.00 Y= 39.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 334 P 27		IMU Align Star Pair B2 -Y:27 DENEK -Z:99 GAMMA GRU
6 003/00:00:00 MET 14:59 096/19:01:00 GMT 15:59	TGT=2 BV=5 P= 90.00 Y=305.00 OM=180.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R=235.00 P= 0.00 Y= 0.00	BIAS -ZLV +XVV Nose Forward 55 deg roll
7 004/23:30:00 MET 43:04 098/18:31:00 GMT 44:04	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 121 P 89		IMU Align Star Pair A. -Y:20 ARCTURUS -Z:17 ACRUX
8 004/23:50:00 MET 005/00:04:37 098/18:51:00 GMT 19:05:37	TGT=2 BV=5 P= 90.00 Y=305.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R= 55.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 55 deg roll
9 006/23:15:00 MET 26:20 100/18:16:00 GMT 27:20	INRTL R=139.00 MNVR P=166.00 Y= 38.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 317 P 123		IMU Align Star Pair C2 -Y:18 CAPELLA -Z:57 ACAMAR
10 006/23:30:00 MET 43:44 100/18:31:00 GMT 44:44	TGT=2 BV=5 P= 90.00 Y=305.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R= 55.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 55 deg roll
11 008/23:45:00 MET 58:11 102/18:46:00 GMT 59:11	INRTL R=139.00 MNVR P=166.00 Y= 38.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 316 P 122		IMU Align Star Pair C2 -Y:18 CAPELLA -Z:57 ACAMAR
12 009/00:05:00 MET 11:42 102/19:06:00 GMT 12:42	TGT=2 BV=5 P= 90.00 Y=305.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 305 P 90	LVLH R= 55.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 55 deg roll

\*\*\* ALL ATTITUDES IN MEAN OF 1950 \*\*\*  
\*\*\* PYR EULER SEQUENCE \*\*\*

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
13 010/23:30:00 MET 44:07 104/18:31:00 GMT 45:07	INRTL R=132.00 MNVR P=348.00 Y=339.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 315 P 43		IMU Align Star Pair C1 -Y:57 ACAMAR -Z:18 CAPELLA
14 010/23:50:00 MET 011/00:04:18 104/18:51:00 GMT 19:05:18	TGT=2 BV=5 P= 90.00 Y=315.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 315 P 90	LVLH R= 45.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 45 deg roll
15 013/00:15:00 MET 28:37 106/19:16:00 GMT 29:37	INRTL R=289.00 MNVR P=184.00 Y= 55.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 147 P 100		IMU Align Star Pair A1 -Y:17 ACRUX -Z:20 ARCTURUS
16 013/00:35:00 MET 49:13 106/19:36:00 GMT 50:13	TGT=2 BV=5 P= 90.00 Y=315.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 315 P 90	LVLH R= 45.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV 45 deg roll
17 015/01:35:00 MET 39:26 108/20:36:00 GMT 40:26	INRTL R=217.00 MNVR P=305.00 Y=305.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 195 P 89		Orbit Adjust +X RCS TV ROLL 180 TIG 15/01:45
18 015/01:50:00 MET 57:50 108/20:51:00 GMT 58:50	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV -YVV Thermal Cond.
19 015/11:22:00 MET 35:25 109/06:23:00 GMT 36:25	TGT=4 BV=5 P=184.00 Y= 0.00 OM=270.00 RA= 26.561 DEC= 10.975N	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 180 P 176	INRTL R=204.95 P=171.80 Y=335.60	Rad Coldsoak
20 015/12:38:00 MET 42:30 109/07:39:00 GMT 43:30	INRTL R=202.00 MNVR P=219.00 Y=312.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 SUN R 148 P 135		IMU -Y:25 REGULUS -Z:15 HADAR
21 015/12:48:00 MET 50:22 109/07:49:00 GMT 51:22	INRTL R=281.00 MNVR P=322.00 Y=323.00	B1 AUTO DB AT 3.00 PRI DB RT 0.20	RATE 0.5000 SUN R 144 P 68		Verif -Y:29 ALKAID -Z:30 ANTARES
22 015/12:56:00 MET 13:00:07 109/07:57:00 GMT 08:01:07	INRTL R= 72.00 MNVR P=136.00 Y=340.00	B1 AUTO DB AT 3.00 PRI DB RT 0.20	RATE 0.5000 SUN R 90 P 150		Comm
23 015/15:20:00 MET 25:33 109/10:21:00 GMT 26:33	INRTL R=242.00 MNVR P=356.00 Y= 2.00	TRN AUTO DB AT 3.50 PRI DB RT 0.20	RATE 0.5000 SUN R 226 P 25		Deorbit Burn OMS Retro TV ROLL 180 TIG 15/15:36

\*\*\* ALL ATTITUDES IN MEAN OF 1950 \*\*\*  
\*\*\* PYR EULER SEQUENCE \*\*\*

**FLIGHT PLAN NOTES**

FLIGHT PLAN NOTES  
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV102/Columbia  
 Inclination: 28.5°  
 Insertion Altitude: 160 X 160 nm  
 Duration: 16 days

B. MAJOR EVENTS

<u>EVENT</u>	<u>MET</u>	<u>DATE</u>	<u>CST</u>	<u>GMT</u>	<u>ΔV</u>	<u>HA/HP</u>
Launch	00/00:00	04/03/97	13:01	19:01	***	*****
OMS2 C/O	00/00:42	04/03/97	13:43	19:43	220.7	160/163
Orbit Adjust	15/01:45	04/18/97	14:46	20:46	0.0	154/160
Deorbit	15/15:36	04/19/97	05:37	11:37	259.0	***/**
Landing	15/16:36	04/19/97	06:37	12:37	***	***/**

C. LANDING OPPORTUNITIES

		<u>Landing Orbit No.</u>	<u>Site</u>	<u>Local Time</u>	<u>MET</u>
Nominal	Primary	251	KSC	07:37	15/16:36
	1 Rev Late	252	KSC	09:13	15/18:12
	Weather Alt	253	EDW	07:40	15/19:39
1 Day Late	Primary	267	KSC	07:39	16/14:38
	1 Rev Late	268	KSC	09:14	16/18:13
	Weather Alt	269	EDW	07:41	16/19:40
2 Days Late	Primary	283	KSC	07:40	17/16:39
	1 Rev Late	284	KSC	09:15	17/18:14
	Weather Alt	285	EDW	07:41	17/19:40

D. CREW

CDR – Jim Halsell  
 PLT – Susan Still  
 MS1 – Janice Voss  
 MS2 – Mike Gernhardt  
 MS3 – Don Thomas  
 PS1 – Greg Linteris  
 PS2 – Roger Crouch

1. BLUE Team: MS2, MS1, PS1  
 RED Team: CDR, PLT, MS3, PS2

Each team works approximately 12 hours followed by 12 hours off duty. This allows continuous 24-hour/day payload operations.

2. The Payload Commander is MS1. The crewmembers responsible for performing an EVA, should one become necessary, are MS2 and MS3.

FLIGHT PLAN NOTES

## E. COMMUNICATIONS

### SHUTTLE

TDRS Support: East (41° W), West (174° W)

Ground Sites: MIL and BDA

Contingency RTS: DGS, GTS, HTS, MIL, BDA, OTS, and VTS

## F. IMU ALIGNS

Routine IMU aligns are expected to occur every 48 hours. If stars of opportunity are not available in the flown attitude, the orbiter will be required to maneuver to an IMU attitude for alignment.

## G. OFF DUTY

Off duty periods for the crew are scheduled for flight days 5, 9, and 13.

## H. PAYLOADS

### 1. Microgravity SpaceLab (MSL-1)

MSL consists of a complement of experiments which focus on microgravity materials processing technology and other science and research requiring the low-gravity environment of Earth orbit.

The following is a list of the MSL experiments:

- a. Space Acceleration Measurement System (SAMS)
- b. Large Isothermal Furnace (LIF)
- c. Protein Crystal Growth-Single Locker Thermal Enclosure System (PCG-STES)
- d. Microgravity Measurement Assembly (MMA)
- e. Electromagnetic Containerless Processing Facility (TEMPUS)
- f. Quasi-Steady Acceleration Measurement (QSAM)
- g. Middeck Glovebox (MGBX)
- h. Orbital Acceleration Research Experiment (OARE)
- i. Astro-Plant Growth Bioprocessing Apparatus (ASTRO-PGBA)
- j. Fiber Supported Droplet Combustion Experiment (FSDC-2)
- k. Physics of Hard Spheres Experiment (PHASE)
- l. Combustion Module (CM-1)
- m. Droplet Combustion Experiment (DCE)
- n. Coarsening in Solid-Liquid Mixtures (CSLM)
- o. Capillary Heat Transfer (CHT)
- p. Internal Flows in a Free Drop (IFFD)
- q. Bubble and Drop Nonlinear Dynamics (BDND)

### 2. Cryogenic Flexible Diode (CRYOFD)

The CRYOFD is a hitchhiker canister designed to demonstrate the in-space performance of a methane and an oxygen flexible, cryogenic, diode heat pipe.

### 3. Shuttle Amateur Radio Experiment - II (SAREX-II) Config B

SAREX-II is a flight deck payload capable of two-way communication with amateur radio stations in the Line of Sight (LOS) of the orbiter. The antenna is mounted in either Window 1 or 6.

## I. ON-ORBIT DTOs

### 1. Cabin Air Monitoring (DTO 623)

This DTO will use the solid sorbent sampler to continuously sample the orbiter atmosphere throughout the flight.

### 2. Portable In-Flight Landing Operations Trainer (PILOT) (DTO 667)

This DTO consists of a laptop PC with landing software and a spare RHC (essentially a landing simulator). The DTO will attempt to verify that the simulator will assist the CDR and PLT in maintaining a high level of proficiency for approach and landing on EDO missions.

### 3. Evaluation of Microbial Capture Device in Microgravity (DTO 677)

This DTO will demonstrate the zero-gravity operation of water sampling hardware proposed for the microbiological characterization of spacecraft potable water. Six microbial capture devices (MCDs) will be processed during the last 5 days of the flight using both shuttle drinking water and ground supplied water.

### 4. Radiation Measurements in Shuttle Crew Compartment (DTO 684)

This DTO will measure the linear energy transfer spectrum of the complex space radiation in the crew compartments. The data will provide accurate measurements of biologically effective dose equivalent and evaluate risk of single event upsets (SEUs) in shuttle avionics.

## J. ON-ORBIT DSOs

### 1. Interaction of the Space Shuttle Launch and Entry Suit and Sustained Weightlessness on Egress Locomotion (DSO 331)

This DSO will identify the impact of the Launch Entry Suit/Advanced Crew Escape Suit (LES/ACES) and sustained weightlessness on egress locomotion mechanical efficiency as measured by oxygen consumption and gait alteration.

### 2. Monitoring Latent Virus Reactivation and Shedding in Astronauts (DSO 493)

This DSO will study spaceflight-induced immunocompetence focusing on the potential for reactivation and dissemination (shedding) of latent viruses. Saliva samples will be collected daily from participating crewmembers.

## K. ON-ORBIT RMEs

### 1. Wireless Data Acquisition System (RME 1330)

This RME will demonstrate the Wireless Instrumentation System (WIS) to provide temperature measurements that can be used to determine if payload hardware is approaching its thermal limits in near real time.



FLIGHT DATA FILE  
Distribution  
83 FLT PLN FSP FIN

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\*\* JSC \*\*

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AP3/BRANCH DISTRIBUTION (10)  
AP3/PAO DISTRIBUTION (100)  
AP5/SCHOER, R.K.  
BT4/MC GUYER, M. (3)  
BT4/WHITE, C.  
BT53/STI LIBRARY (3)  
C44/ALDRIDGE, A.  
C44/HANCOCK, L.  
CA/LEESTMA, D.C.  
CA41/VOGT, G.  
CA44/BERTRAND, O.J.  
CB/CB/STS-83 FLIGHT CREW (7)  
CB/CHIEF  
CB/FAMILY ESCORT MGR  
CB/HENRICKS, T.T. (9)  
CB/IVINS, M.S.  
CB/RICHARDS, P. (4)  
CB/STS-83 FLIGHT CREW (7)  
DA2/STONE, B.R.  
DA8/SHANNON, J.P.  
DA82/ACTION CENTER  
DF/SCR RMS 1&2 (4)  
DF/DM/WOOD, CHRIS (4)  
DF14/ARMSTRONG, C.H.  
DF22/DPS FDF REP (4)  
DF24/INCO FDF REP (3)  
DF42/EVA (4)  
DF44/ROBOTICS SECTION (5)  
DF5/MMACS LEAD OFFICER (3)  
DF54/BOOK MANAGER P/TV (2)  
DF55/BOOSTER (3)  
DF62/GNC GROUP LEAD (3)  
DF63/PROP  
DF71/JOYCE, P.M.  
DF73/EGIL LIBRARY  
DF73/LEAD EGIL  
DF73/SYSTEMS LIBRARY  
DF82/EECOM LIBRARY (2)  
DJ4/QUICK, T.K. (3)  
DM11/CHIEF  
DM2/FLIGHT DESIGN MANAGER  
DM21/LOWES, F.B.  
DM3/CARMAN, G.

DM32/GROUP LEAD (7)  
DM32/ORBIT FDO GROUP LEAD (7)  
DM43/HEAD  
DM43/LIBRARY (4)  
DM46/ENTRY FDO  
DM46/LSO (2)  
DO12/OPS SAFETY OFFICE  
DO2/SALINAS, L.  
DO35/FDF LIBRARY  
DO352/TECH EDITOR  
DO353/BOND/BLUE SHELF (10)  
DO353/FDF FLIGHT LEAD  
DO353/FDF MNGR/RESERVE (15)  
DO4/BOOK MANAGER FLT PLN (15)  
DO4/FAO TEAM (15)  
DO4/POINTING  
DO4/SHUTTLE FLT PLANNING (3)  
DO44/HEAD  
DO45/SECTION HEAD  
DO45/TIMELINE - FAO SSR#1  
DO6/LIBRARY (18)  
DP/CHIEF  
DT3/SIM SUP OFFICE  
DT32/TEAM LEAD  
DT34/BORDELON, M.  
DT34/CONTROL PROP (4)  
DT35/DPS/NAV TRAIN LEAD (4)  
DT35/NOYES, C. (2)  
DT35/RMS TRAINING GROUP (2)  
DT36/SHUTTLE COMM SECTION (2)  
DT36/SPENCER, J.  
DT36/TRAINING SYS SECTION (2)  
DT37/CARGO SYSTEMS (3)  
DT37/ROWEN, G.C.  
EC/CTSD LIBRARY  
EC3/ROTTER, H.A.  
EC5/ANDERSON, S. (2)  
EC5/CHANG, C.M.  
EE2/RCA SUPPORT  
EG/CRITELLI, S. (2)  
EG/LIBRARY  
EG1/KANIPE, D.B.  
EG1/MCSWAIN, G.  
ER4/HESS, C. (4)  
ES3/CHANG, Y. PHD  
ES32/SERNA, R.  
ES62/DAVIS, R.  
EV/LIV-16/LIBRARY  
EV12/SALAZAR, G.  
EV14-LIB/ASD-14-LIB  
EV211/SCHADELBAUER, S.  
EV3/DEKOME, K.  
EV3/PHAN, C. (2)

EV44-ASD/ASD-44-LIB  
JL5/SUPPORT (2)  
MA2/DITTEMORE, R.D.  
MER/30 LIBRARY  
MO/P2/WOLFER, J.  
MT3/BANKS, W.R.  
MT3/LODEN, H.A.  
MT3/MANAGER (3)  
MV/MC CULLOUGH, C.E.  
MV2/LIBRARY  
MV3/OLIVER, P.  
MV6/RMS INTEGRATION (3)  
NS2/CHIEF  
NS4/LIBRARY  
NS44/GOFFNEY, B. (2)  
NS44/LLOYD, S.  
OA/WARD, D.K.  
PS4/CLINTON, S.  
R11E/ODRC GROUP  
R12B-16/CB SAIL REP  
SD/HATCHER, D. (5)  
SD/LIND, M. (5)  
SD/WARE, K.  
SD24/SURGEON (2)  
SD26/PANDER, L. (5)  
SD4/JAMES, J.T.  
SD561/COLLIER, K.R.  
SN3/CHRISTIANSEN, E.  
SN3/HARDY, A.C.  
SN5/EOL  
SN5/GAUNCE, M.  
SP33/HARRIS, C.D.  
SP43/CHRISTOPHER, K.  
SP43/HEINOL, C.  
SP44/KLOERIS, V.  
ZR1/USAF TECHNICAL LIBRARY (5)  
ZS8/ASSGND LEAD FORECASTER

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\*\* JSC OFFSITE \*\*

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LSIS - HOUSTON  
3700 BAY AREA BLVD  
SUITE 600  
P O BOX 58487  
HOUSTON, TX 77258  
6402A/PROJECT OFFICE (3)

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ALLIED SIGNAL-HOUSTON  
B33B-555/OST DOCUMENT CNTL (4)

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HUGHES TRAINING  
TSC/LIBRARY

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LOCKHEED-MARTIN-HOUSTON  
C102/HEYDORN, J.  
C70/KEENER, J.F.

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MCDONNELL DOUGLAS-HST TWR 1  
16055 SPACE CENTER BLVD  
HOUSTON, TX 77062  
B1/BROUSSARD, A.

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UNISYS GOV'T SYSTEMS GROUP-HST  
U03D-(FDF)/HOPE, A.J.

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BOEING AEROSPACE-HOUSTON  
P O BOX 58747  
HOUSTON, TX 77058  
HF-10/TRAVLOS, J.A.  
HF-10/WIBLE, L.

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HONEYWELL-HOUSTON  
2525 BAY AREA BLVD  
SUITE 200  
HOUSTON, TX 77058  
GEDERBERG, T.

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ROCKWELL-HOUSTON  
ZC01/ASUNCION, C.  
ZC01/BATTLE, H.H.  
ZC01/CUNNINGHAM, N.  
ZC01/WOODALL, J.W.  
ZC01-555/DE VAULT, G.M.  
ZC01-555/TAYLOR, J.T.  
ZC03-17/BRYAN, L.W.

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