

# Flight Plan

## STS-95

(FRR Trajectory)

Mission Operations Directorate  
Operations Division

Final  
September 25, 1998

<u>EVENT</u>	<u>CST</u>		
Launch	13:00	Thur	Oct 29, 1998
PANSAT Deploy	12:18	Fri	Oct 30, 1998
SPARTAN Deploy	12:42	Sun	Nov 1, 1998
SPARTAN Retrieve	14:24	Tues	Nov 3, 1998
KSC Landing	10:50	Sat	Nov 7, 1998

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National Aeronautics and  
Space Administration

Lyndon B. Johnson Space Center  
Houston, Texas




MISSION OPERATIONS DIRECTORATE

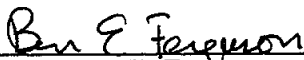
**STS-95 FLIGHT PLAN**

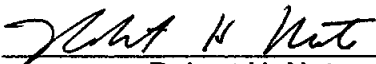
FINAL  
September 25, 1998

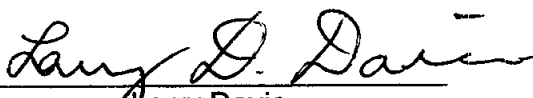
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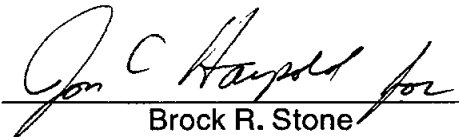
  
\_\_\_\_\_  
Roger M. Smith  
Book Manager

APPROVED BY:

  
\_\_\_\_\_  
Ben E. Ferguson  
Lead, Flight Planning

  
\_\_\_\_\_  
Robert H. Nute  
Chief, Flight Planning Branch

  
\_\_\_\_\_  
Larry Davis  
Chief, Operations Division

  
\_\_\_\_\_  
Brock R. Stone  
Director of Operations

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Lead Timeliner	DO4/T. Schneider	244-1136
Lead Pointer	DO4/K. Lawson	244-1222

FLIGHT PLAN  
STS-95

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3-90	95/FIN	7-6	* 95/FIN
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3-92	95/FIN	7-8	* 95/FIN
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A5 .....	7-5	FLT PLN-7a/95/O/A
DAP A6 .....	7-5	FLT PLN-7b/95/O/A
A6 .....	7-6	FLT PLN-8a/95/O/A
DAP A7 .....	7-6	FLT PLN-8b/95/O/A
A7 .....	7-6	FLT PLN-9a/95/O/A
DAP A8 .....	7-6	FLT PLN-9b/95/O/A
A8 .....	7-7	FLT PLN-10a/95/O/A
DAP A9 .....	7-7	FLT PLN-10b/95/O/A
A9 .....	7-7	FLT PLN-11a/95/O/A
DAP A10 .....	7-7	FLT PLN-11b/95/O/A
A10 .....	7-8	FLT PLN-12a/95/O/A
DAP A11 .....	7-8	FLT PLN-12b/95/O/A
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DAP B .....	7-9	FLT PLN-14a/95/O/A
DAP B1 .....	7-9	FLT PLN-14b/95/O/A
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DAP B2 .....	7-9	FLT PLN-15b/95/O/A
B2 .....	7-10	FLT PLN-16a/95/O/A
DAP B3 .....	7-10	FLT PLN-16b/95/O/A
B3 .....	7-10	FLT PLN-17a/95/O/A
DAP B4 .....	7-10	FLT PLN-17b/95/O/A
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DAP B5 .....	7-11	FLT PLN-18b/95/O/A
B5 .....	7-11	FLT PLN-19a/95/O/A
DAP B6 .....	7-11	FLT PLN-19b/95/O/A
B6 .....	7-12	FLT PLN-20a/95/O/A
DAP B7 .....	7-12	FLT PLN-20b/95/O/A
B7 .....	7-12	FLT PLN-21a/95/O/A
DAP B8 .....	7-12	FLT PLN-21b/95/O/A
B8 .....	7-13	FLT PLN-22a/95/O/A
DAP B9 .....	7-13	FLT PLN-22b/95/O/A
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## INTRODUCTION

The STS-95 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 deploy timelines and procedures are contained in the Rendezvous Checklist.

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive, and the requirements of the STS-95 Flight Requirements Document.

The STS-95 Planning Groundrules and Constraints (GR&Cs) have been used in the development of this Flight Plan.

The Flight Plan, as part of the Flight Data File, meets the specifications of the FRR version of the STS-95 Flight Initialization Data Pack.

The FRR profile used for this Flight Plan is for a launch date of October 29, 1998, at 13:00 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 Exemptions will be submitted for STS-95:

- #91A – Allows for use of presleep and postsleep throughout the mission for the Sleep and PTO experiments.
- #92A – Allows for use of postsleep on entry day for DSO 603.

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

The Flight Plan timeline pages, as well as other flight planning information, are available on the Space Shuttle Flight Planning web page at the following address:  
<http://139.169.149.15/shuttle/fltplan/sts95>

**OVERVIEW TIMELINE**

STS-95 ATTITUDE SUMMARY

PANSAT ↓

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
	ASC	-ZLV-XVV		IMU	-ZSI	SOL	-ZLV-XVV		-ZSI	-YLV +ZVV									-ZLV -YVV			-ZSI		

Crew sleep → -FD2→

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
	BIAS -YLV		-ZSI	-YLV +ZVV											UV CAL	+Y CEL	-ZSI	BIAS -YLV						

-FD3→

Spartan Deploy ↓

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
	BIAS -YLV	+Y CEL	SVS		+Y CEL	-ZSI	-YLV +ZVV						+Y CEL	+Y JUP	+Y JUP	+Y JUP	BIAS -YLV	-ZSI	+Y CEL	SP DEPLOY				

-FD4→

↓ NC1

NC2 ↓

-FD5→

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
	PI	-XLV +ZVV					-YLV +ZVV						+Y JUP	+Y JUP	+Y JUP	+Y CEL	-ZSI	+Y CEL	-ZSI	TOI				

NC3 ↓

-FD6→

↓ NC4

↓ NH

Ti ↓

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
	+Y JUP	-ZSI	BIAS -YLV		+Y CEL		NC3	BIAS -ZLV +YVV						+Y JUP	RENDEZVOUS									

Spartan Grapple ↓

-FD7→

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
	RENDEZVOUS		-ZSI	-YLV +ZVV										-ZSI	-XLV -YVV			BIAS -YLV						

-FD8→

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
	BIAS -YLV	+Y JUP	-ZSI	+Y CEL	+Y JUP	-ZSI	-YLV +ZVV					+Y JUP	+Y CEL	-ZSI	+Y JUP	BIAS -YLV		-ZSI						

-FD9→

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
	-YLV +ZVV										+Y JUP				-ZSI	BIAS +YVV	+Y CEL							

↓ Orb Adj

-FD10→

MET 8	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	+Y CEL	OA	+ZSI	+Y CEL			BIAS -ZLV +YVV									IMU	-XSI	COMM	ENT			

1-2

FLT PLN/95/FIN

**SUMMARY TIMELINE**

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GMT 10/29/98 19 20 21 22 23 10/30 01 02 03 04 05 06 07  
 CT 10/29/98 13 14 15 16 17 18 19 20 21 22 23 10/30 01  
 MET Day 000 000/00 01 02 03 04 05 06 07 08 09 10 11 12

CDR Brown	POST INSERTION	LOAD DAPS	AFT CO	PCBS	PF PRE DOWN	IMU	ISMO	ZSI	LIRS INSTALL	-XNLV	MEAL	TS/UC	ELV/PK	AVDT-2	HPV	SHLE	ZSI	PRE SLEEP	PMO	PRE SLEEP	PRE SLEEP	SLEEP
PLT Lindsey	POST INSERTION	HAOCT	IEH*	SPPACT	LAN S/U & LOCKR U/D	OS C/AUC/S/UC			MEAL	BIA S/U	GAS GRP 1	φ	MID CK	MOD CK	SHCNBFF			PRE SLEEP	ODN LK		PRE SLEEP	SLEEP
MS1 Robinson	POST INSERTION		SHAB ACT		SHAB MOD SETUP				MEAL	GAS GRP 1	BR AUX	BR RT	BR PC								PRE SLEEP	SLEEP
MS2 Parazynski	POST INSERTION	HAOCT	IEH*	SPPACT	LAN S/U & LOCKR U/D	BIODYN ACT	SEEM S/US		MEAL		MEQ	EXFMS	STEMP	BIOX 1				PRE SLEEP	PMO		PRE SLEEP	SLEEP
MS3 Duque	POST INSERTION		SHAB ACT		STOW AGE	CAVDTA		AGHF SETUP	MEAL	AGHF*	AGHF SAMPL CHG R1	FAS*	AGHMO								PRE SLEEP	SLEEP
PS1 Mukai	POST INSERTION	NIH ACT	DON*	CIBX GRP A	CIBX			SHAB MOD SETUP	VCK FEU	VFEU O'SCOPE THOLD	VFEU TAPE CHG										PRE SLEEP	SLEEP
PS2 Glenn	POST INSERTION	NIH ACT	DON*		STOWAGE			BIODYN ACT	MEAL												PRE SLEEP	SLEEP
DAY/NIGHT																						
ORBIT																						
SAA																						
TDRS																						
Attitude	Ascent				-ZLV -XVV	IMU		-ZSI														-ZLV -XVV
SEH								HNI														
SOLCON								SOL 1														
UVSTAR/TEXAS																						
STARLITE																						
CRYOSU																						
HOST																						TSU-1
AGHF	Survival Mode				Act & C/O																	CPL Startup
Notes					*IEH ACT					*OFF												*OFF
					*ACTIGRAPH					*ACVS HTR ACT												*FAST ACT
																						*AGHF SETUP
																						*HOST FREE DRIFT

GMT 10/30/98 07 08 09 10 11 12 13 14 15 16 17 18 19  
 CT 10/30/98 01 02 03 04 05 06 07 08 09 10 11 12 13  
 MET Day 000 12 13 14 15 16 17 18 **FD2** 19 20 21 22 23 001/00

CDR Brown	SLEEP	-M ZLVR	POST SLEEP	ERGO S/U	FE S O M N V R	ZSI	PANSAT DEPLOY	-M Y L V R	M S R O N	
PLT Lindsey	SLEEP		POST SLEEP	MAGR SIGI UNSTOW	MAGR SIGI UNSTOW	P/TV 09 S/U	PANSAT DEPLOY	EXER-CISE		
MS1 Robinson	SLEEP		POST SLEEP	SLP PC S/U MDDK	MIDCK	MODCK	PANSAT DEPLOY	BR RT		
MS2 Parazynski	SLEEP		POST SLEEP	NOPE N	VFEU TAPE CHG	STEP	EXERCISE	P/TV 14 S/U ACVS		
MS3 Duque	SLEEP		POST SLEEP	OCPCAM ACT		PCFACT	AGHF SAMP CHG R2	AGH R2		
PS1 Mukai	SLEEP		POST SLEEP	BR RT BR PT			BR AUX	MEPS ACT	∇	
PS2 Glenn	SLEEP		POST SLEEP	NOPE N	PCAM ACT	PCFACT	DON CORE TEMP H/W	MEPS ACT		
DAY/NIGHT	[Bar chart showing day/night cycle]									
ORBIT	[Bar chart showing orbit parameters]									
SAA	[Bar chart showing SAA parameters]									
TDRS	[Bar chart showing TDRS parameters]									
Attitude	-YLV +2VV -ZLV -YVV									
SEH	-SS2 -SR2									
SOLCON										
UVSTAR/TEXAS										
STARLITE										
CRYOTSU	TSU-1 PAUSE TSU-1									
HOST	CPL Startup NCS HIGH COOL									
AGHF	AGHF5 FMI									
Notes										

MGBX C/O MGBX C  
 MGBX C/O MGBX C

Perth Flyover (0/21:30)







GMT 10/31/98 19 20 21 22 23 11/01 01 02 03 04 05 06 07  
 CT 10/31/98 13 14 15 16 17 18 19 20 21 22 23 11/01 01 12  
 MET Day 002 002/00 FD03 01 02 03 04 05 06 07 08 09 10 11

CDR Brown	MEAL	STEIR MOM	+M YV R	OM SV R	ENO SE	EXERCISE	+M YV R	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP					
PLT Lindsey	BR RT	ASC DL	BR RT	MEAL	ASC8 RETRCT VIDEO	BR RT	RNDZ TOOLS C/O	P/ TV 13	BR PT	PRE SLEEP	PRE SLEEP	BLOOD DRAW ASSIST	PRE SLEEP	SLEEP		
MS1 Robinson	MEAL	AGHF SAMP CHG R3	AG HR 3	OSVS CAM A C/O	OSVS CAM D C/O	OSVS CAM B C/O	OP SV R SD N	P/ TV 08 S/U	VGS S/U	MOD CK	SH CN FG	PRE SLEEP	SLEEP			
MS2 Parazynski	MEAL	BFI OX DY N	IC N/ TR FC	OSVS CAM A C/O	OSVS CAM D C/O	OSVS CAM B C/O	RNDZ TOOLS C/O	H HL	I N O P E N	PRE SLEEP	PRE SLEEP	HIST ID	P H L E B	PRE SLEEP	SLEEP	
MS3 Duque	IFFD TCAP FLOW	MEAL	PS TA O M P L I C E	IFFD TCAP FLOW	IFFD DEACT	PS TA O M P L I C E	EXERCISE	PRE SLEEP	PRE SLEEP	HIST INF & BLD DRAW	PRE SLEEP	SLEEP				
PS1 Mukai	ASC8 FLD XFER	PS TA O M P L I C E	ASC8 FLD XFER	MEAL	MEPS CHANGE OUT 3	PS TA O M P L I C E	VFEU SLIDE & THRSHLD	VFEU TAPE CHG	EXERCISE	PS TA O M P L I C E	PRE SLEEP	PRE SLEEP	HIST ID	P H L E B	PRE SLEEP	SLEEP
PS2 Glenn	MEAL	BFI OX DY N	MEPS CHANGE OUT 3	PS TA O M P L I C E	EXERCISE	PS TA O M P L I C E	PCBA CAL	I N O P E N	PRE SLEEP	PRE SLEEP	HIST INF & BLD DRAW	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP	
DAY/NIGHT	31	32	33	34	35	36	37	38								
ORBIT																
SAA																
TDRS																
Attitude	BIAS -YLV	+Y CEL	-XLV -YVV	+Y CEL	-ZS1	-YLV +ZVV										
SEH																
SOLCON																
UVSTAR/TEXAS																
STARLITE	3	4			4C	5										
CRYOTSU																
HOST																
AGHF																
Notes																



GMT 11/01/98 19 20 21 22 23 11/02 01 02 03 04 05 06 07  
 CT 11/01/98 13 14 15 16 17 18 19 20 21 22 23 11/02 01  
 MET Day 003 003/00 FD04 01 02 03 04 05 06 07 08 09 10 11 12

CDR Brown	SEP2 SPARTN DPLY	KUCOMM	NC1 RCS BURN	-MNLVLR	MEAL	FES DMP	P/TV 04 S/U	PAO		PRE SLEEP	PMO	PRE SLEEP	NC2 MULT RCS BURN	-MNLVLR	FLOTAUDRE	SLEEP
PLT Lindsey	SPARTN DPLY	MEAL	RCS BURN	KRADA TOR	KUCOMM	GPWRDN	BR RT	ASC DL	VSTRUP	PLAYBK	PRE SLEEP	ODCNLK	MULTI RCS BURN	PRE SLEEP		SLEEP
MS1 Robinson	SPARTN DPLY	VDA STA	MEAL	EXERCISE	CGEL SAMPLE MEASURE	CGELECT	DATA	PRE SLEEP		SLEEP INSTR ASSIST	PRE SLEEP					SLEEP
MS2 Parazynski	SPARTN DPLY	MEAL	FILTER CLEAN	APDH SET PO	EXERCISE	MIDCK	MODCK	SHCNFG	PRE SLEEP	PMO	PRE SLEEP	SLEEP INSTR ASSIST	PRE SLEEP			SLEEP
MS3 Duque	CGEL EXP S/U	SSA/MUPL	MEAL	CGEL INIT EXP OPS	CSMGAEMPLUR	AGHF SAMP CHG R4	AGHR4	EXERCISE		PRE SLEEP						SLEEP
PS1 Mukai	MEPS BRCHANGE RT OUT 5 RT	MEAL	VFEU TAPE CHG	VFEU SLIDE & THRSILD	EXERCISE			PRE SLEEP		SLEEP INSTR OPS	PRE SLEEP					SLEEP
PS2 Glenn	MEPS CHANGE OUT 5	MEAL	AEXCH EP2	P/TV 04 S/U	PAO	PCBACAL		PRE SLEEP		SLEEP INSTR OPS	PRE SLEEP					SLEEP

DAY/NIGHT	46		47		48		49		50		51		52		53	
ORBIT	46		47		48		49		50		51		52		53	
SAA	46		47		48		49		50		51		52		53	
TDRS	46		47		48		49		50		51		52		53	
Attitude	-PI		-NC1		-XLV +ZVV		-NC2		-YLV +ZVV							
SEH																
SOLCON																
UVSTAR/TEXAS	-HC		TX1		TX2		TX3		TX4		TX5		TX6		TX7	
STARLITE			-14		-15		-16		-17		-18		-19		-20	
CRYOTSU			CCPL-2										TSU-3			
HOST																
AGHF					NCS HIGH COOL										AGHF2	
Notes					*OFF										*FES DMP TERM W/FES	

GMT 11/02/98 07 08 09 10 11 12 13 14 15 16 17 18 19  
 CT 11/02/98 01 02 03 04 05 06 07 08 09 10 11 12 13  
 MET Day 003 12 13 14 15 16 **FDS** 17 18 19 20 21 22 23 004/00

CDR Brown	SLEEP	+MNV JUP	SLEEP	UMN VPR OT	SLEEP	+MNV JUP	SLEEP	UMN VPR OT	POST SLEEP	+MNV CER	POST SLEEP	UMN VPR OT	POST SLEEP	ZSI MNVR	CTE AB IN	ENMOSE	+MNV CER	PAO	ODU FTY	PFC	OFF DUTY	FES MNVR	ZSI	OFF DUTY	UMN VPR OT	FES JUP	+MNV JUP
PLT Lindsey	SLEEP							OCA DNK	POST SLEEP	BASSIST	POST SLEEP				HR TRN FB	P/TV 04 S/U	+MNV CER	OFF DUTY	PFC				OFF DUTY				
MS1 Robinson	SLEEP													SHCNFG	AGHF SAMP R5	AGHF BR SAMP R5	RTEST	AGHR S							PFC		OFF DUTY
MS2 Parazynski	SLEEP							POST SLEEP	PREEP	PHLEUP				PHIO OFCK		EXERCISE		MCIU							PFC		OFF DUTY
MS3 Duque	SLEEP							POST SLEEP	BLOOD					MIDCK	MODCK	SHBRF		PAO							PFC		OFF DUTY
PS1 Mukai	SLEEP							SLEELP	DISLEENL	POST SLEEP	PHLEB				VFEU TAPE CHG		EXERCISE								PFC		OFF DUTY
PS2 Glenn	SLEEP							SLEELP	DISLEENL	POST SLEEP	BLOOD	PCBA						PAO								PFC	OFF DUTY
DAY/NIGHT																											
ORBIT		54		55		56		57		58		59		60		61											
SAA																											
TDRS																											
Attitude		-YLV +ZVV		uv* vbar		uv* vbar		+Y JUP		+Y JUP		+Y JUP		+Y CEL		-ZSI		+Y CEL									-ZSI
SEH																											PROT
SOLCON																											
UVSTAR/TEXAS				4J		5J		6J		7C		8C		9C		10C		7J									
STARLITE				21		22		23		24		25															
CRYOSU																											
HOST																											
AGHF																											
Notes																											

\*FES DMP TERM W/O FES

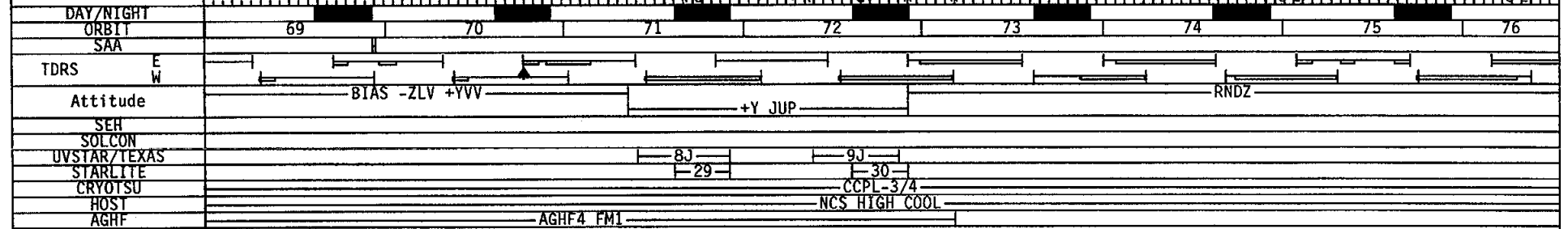
GMT	11/02/98	19	20	21	22	23	11/03	01	02	03	04	05	06	07				
CT	11/02/98	13	14	15	16	17	18	19	20	21	22	23	11/03	01				
MET	Day 004	004/00	01	02	03	04	05	06	07	08	09	10	11	12				
CDR Brown	MEAL	FES *MNV	-ZSI	OFF DUTY	-YLV	SI UNIT	PAO	W ARTIS	EXERCISE	ST MOM	+Y CEL	PRE SLEEP	NC3 MULTI RCS BURN	FL OAT URE	PRE SLEEP	S LEEP	UM V P R O T	SLEEP
PLT Lindsey	MEAL		OFF DUTY	P/TV 04 S/U	BR RT	BR H20	RNDZ PGSC S/U	I MU	P/TV 08 S/U	EXERCISE	PS R L E E P	OD N L K	PRE SLEEP	MULTI RCS BURN	PRE SLEEP			SLEEP
MS1 Robinson	MEAL		OFF DUTY	BR RT	EXERCISE	M I D C K	MOD CK	S H B R F	PRE SLEEP				SLEEP INSTR ASSIST	PRE SLEEP				SLEEP
MS2 Parazynski	MEAL		OFF DUTY	CGEL VIDEO DATA	RNDZ PGSC S/U	O F S E T T E D	P C B A C A L	B I O D Y N	PRE SLEEP	PMC	PRE SLEEP	SLEEP INSTR ASSIST	PRE SLEEP					SLEEP
MS3 Duque	MEAL		OFF DUTY	EXERCISE	CGEL VIDEO DATA	V I D E O D A T A	S H C N F G	PRE SLEEP					PRE SLEEP					SLEEP
PS1 Mukai	MEAL		OFF DUTY	VFEU SLIDE & THRSHLD	VFEU TAPE CHG	ASC DL	COG TEST	PRE SLEEP				SLEEP INSTR OPS	PRE SLEEP					SLEEP
PS2 Glenn	MEAL		OFF DUTY	COG TEST	PAO	EXERCISE	PRE SLEEP					SLEEP INSTR OPS	PRE SLEEP					SLEEP
DAY/NIGHT																		
ORBIT		61	62		63		64		65		66		67		68			
SAA																		
TDRS																		
Attitude		+Y JUP			BIAS -YLV				+Y CEL		+Y CEL		NC3		+Y CEL			BIAS -ZLV +YVV
SEH																		
SOLCON																		
UVSTAR/TEXAS																		
STARLITE																		
CRYOTSU																		
HOST																		
AGHF																		
Notes																		

\*FES DMP TERM W/O FES

\*OFF

GMT 11/03/98 07 08 09 10 11 12 13 14 15 16 17 18 19  
 CT 11/03/98 01 02 03 04 05 06 07 08 09 10 11 12 13  
 MET Day 004 12 13 14 15 16 17 18 19 20 21 22 23 005/00

CDR Brown	SLEEP	+M YJ VR JP	POST SLEEP	GR PR UP B	NC4	NH	SPARTAN RETRIEVE				Ti									
PLT Lindsey	SLEEP	OCA DNLK	POST SLEEP	P/TV 08 S/U	SPARTAN RETRIEVE															
MS1 Robinson	SLEEP	POST SLEEP			SPARTAN RETRIEVE															
MS2 Parazynski	SLEEP	POST SLEEP	PH LE B	POST SLEEP	IN OP EN	SPARTAN RETRIEVE														
MS3 Duque	SLEEP	POST SLEEP	BAL LO ND IN +	POST SLEEP	MID CK	SH CN FG	MOD CK	SH BR F	PS TA OM PL CE	CGEL PHOTO	AGHF SAMP CHG R6	AG H R 6	EXERCISE							
PS1 Mukai	SLEEP	SLE IP PS TG	POST SLEEP	PREP	PH LE B	COL N UP	POST SLEEP			BR RO	VFE U TAP E CHG	PS TA OM PL CE	EXERCISE	BR AUX	CGEL PHOTO	PS TA OM PL CE				
PS2 Glenn	SLEEP	SLE IP PS TG	POST SLEEP	BAL LO ND IN +	PCBA	CN TR FF	PO LE ST	FR EE Z R	PS LE EP	IN OP EN	POST SLEEP			EXERCISE	PS TA OM PL CE	DON HOL TER MON	OF SE TE D 06	A E X S C H E P	PS TA OM PL CE	OF SE TE D 07



Notes

GMT 11/03/98 19 20 21 22 23 11/04 01 02 03 04 05 06 07  
 CT 11/03/98 13 14 15 16 17 18 19 20 21 22 23 11/04 01  
 MET Day 005 005/00 FD06 01 02 03 04 05 06 07 08 09 10 11 12

CDR Brown	Grapple SPARTAN RETRIEVE	EXERCISE	PCSS	ENNOSE	-YLV	MNVR	MIDCK	MODCK	SHBRF	SHCNFG	PRE SLEEP	PMO	PRE SLEEP	PRE SLEEP	SLEEP	
PLT Lindsey	SPARTAN RETRIEVE	ZSI MNVR	BRH2O	VSTRTUP	VPLAYBK	PRE SLEEP	EXERCISE	PRE SLEEP	ODCNLK	PRE SLEEP	BLOOD DRAW ASSIST	PRE SLEEP	SLEEP			
MS1 Robinson	SPARTAN RETRIEVE	BERTH	RMWSDN	VGEACT	VDASTA	EXERCISE	PRE SLEEP	STPMV	P100	PRE SLEEP	PRE SLEEP	SLEEP				
MS2 Parazynski	SPARTAN RETRIEVE	BERTH	RMWSDN	PROCVTRY	EXERCISE	PRE SLEEP	PRE SLEEP	PMO	PRE SLEEP	HISTID	PHLEBP	PRE SLEEP	SLEEP			
MS3 Duque	MEAL	PS TAMP ILCE	MEPS CHANGE OUT 6	PHOTDL	CGEL INIT EXP	CGEL VIDEO DATA	PS TAMP ILCE	ARCT 8R CT	PRE SLEEP	HIST INF & BLD DRAW	PRE SLEEP	SLEEP				
PS1 Mukai	MEAL	ASC8 SAMP INJ	ASC DL	COG TEST	VFEU H2O SAMP FILL	VFEU TAPE CHG	VFEU SLIDE & THRSHLD	PS TAMP ILCE	PRE SLEEP	PREP	HIST ID	PHLEB	PRE SLEEP	SLEEP		
PS2 Glenn	MEAL	ASC8 SAMP INJ	MEPS CHANGE OUT 6	PS TAMP ILCE	COG TEST	PCBA CAL	PSLEE P	INOPEN	PRE SLEEP	PREP	HIST INF & BLD DRAW	PSA T	PRE SLEEP	SLEEP		
DAY/NIGHT	76		77		78		79		80		81		82		83	
ORBIT	76		77		78		79		80		81		82		83	
SAA	76		77		78		79		80		81		82		83	
TDRS	76		77		78		79		80		81		82		83	
Attitude	RNDZ		ZSI		-YLV +ZVW											
SEH	SR5		SS6													
SOLCON	SOL 6															
UVSTAR/TEXAS																
STARLITE																
CRYOTSU																
HOST																
AGHF																
Notes																

\*OFF \*FES DMP TERM W/FES





GMT 11/04/98 19 20 21 22 23 11/05 01 02 03 04 05 06 07  
 CT 11/04/98 13 14 15 16 17 18 19 20 21 22 23 11/05 01 02  
 MET Day 006 006/00 FD07 01 02 03 04 05 06 07 08 09 10 11 12

CDR Brown	MAGR	STEIR	MNVJUR	PAO	ENNOSE	ZSI	PSLEE	+YCEL	MNVJUR	PRE SLEEP	MNVJUR	PMO	PRE SLEEP	ZSI	PRE SLEEP	-YLV	MNVJUR	FLUO	SLEEP
PLT Lindsey	MEAL	ASC DL	NHK PAO S/U	P/TV 04 S/U	MAGR	ASC8 RETRACT VIDEO	MOD CK	SHBRF	SHCNFG	STE MP	PRE SLEEP	ODCNL K	PRE SLEEP	SLEEP					SLEEP
MS1 Robinson	MEAL	EXERCISE	BR PT	NHK CC STOW						PRE SLEEP			SLEEP INSTR ASSIST	PRE SLEEP					SLEEP
MS2 Parazynski	MEAL	CGEL VIDEO DATA	EXERCISE							PRE SLEEP	PMO	PRE SLEEP	SLEEP INSTR ASSIST	PRE SLEEP					SLEEP
MS3 Duque	ASC8 INJ W/ VIDS	AGHF SAMP CHG R7	AGH R7	CDGEALCT		CGEL PHOTO							PRE SLEEP						SLEEP
PS1 Mukai		VFEU SLIDE & THRSHLD	VFEU TAPE CHG	PAO	THRMO PILL DATA					PRE SLEEP			SLEEP INSTR OPS	PRE SLEEP					SLEEP
PS2 Glenn	MEAL	ASC DL	NHK PAO S/U	P/TV 04 S/U	PAO	PCBA CAL	ARV SEID RCO			PRE SLEEP			SLEEP INSTR OPS	PRE SLEEP					SLEEP
DAY/NIGHT																			
ORBIT	91	92	93	94	95	96	97	98	99										
SAA																			
TDRS																			
Attitude	BIAS -YLV	+Y JUP	-ZSI	+Y CEL	+Y JUP	-ZSI	-YLV +ZVV												
SEH			-SS7																
SOLCON																			
UVSTAR/TEXAS																			
STARLITE	-39	-40																	
CRYOTSU																			
HOST																			
AGHF																			
Notes																			

\*FES DMP TERM W/O FES  
 \*OFF

GMT 11/05/98 07 08 09 10 11 12 13 14 15 16 17 18 19  
 CT 11/05/98 01 02 03 04 05 06 07 08 09 10 11 12 13  
 MET Day 006 12 13 14 15 16 17 18 19 20 21 22 23 007/00

CDR Brown	S+M LYN EJVR EUPP	SLEEP	+M YCV ERL	POST SLEEP	-ZSI MNV R	POST SLEEP	+M YJV URP	POST SLEEP	MAGR OPS3 GPS TEST	FILTER CLEAN	COM M 2	OFSE TED BY	EXERCISE	GAS GRPL 2	STES PLM Y	-ZSI MNV R	CREW CONF	MEAL
PLT Lindsey		SLEEP	OCA DNLK	POST SLEEP	BDA LRS LOW ST	POST SLEEP		MAGR OPS3 GPS TEST	-M YLV R	ASC DL	CREW PHOTO S/U	EXERCISE	EVA COMM CHECK	P/TV 04 S/U		CREW CONF	MEAL	
MS1 Robinson		SLEEP		POST SLEEP		POST SLEEP				MID CK	SH BRF	OP SVR UP	P/TV 10 S/U	OSVS IMAGE OPTIMIZE	A/L S/U	EVA COMM CHECK	A L N U P	CREW CONF MEAL
MS2 Parazynski		SLEEP	POST SLEEP	PREP	PH LEB	POST SLEEP		P/TV 10 S/U	VFEU TAPE CHG	VFEU H2O SAMP FILL		OP SVR SDN	P/TV 13	EXERCISE	R P M W S D N	CREW CONF	MEAL	
MS3 Duque		SLEEP	POST SLEEP	B L O O D	POST SLEEP	SH CNF G	AGHF SAMP CHG R8	AGH R8	POST SLEEP		EXERCISE	AR SECT 8	A/L S/U	EVA COMM CHECK	A L N U P	CREW CONF	MEAL	
PS1 Mukai		SLEEP	S D S L E I P S O T G	POST SLEEP	PH LEB	POST SLEEP	ASC SAMP INJ	EXERCISE		CGEL PHOTO		BR AUX	BR AUX	CREW CONF	MEAL			
PS2 Glenn		SLEEP	S D S L E I P S O T G	POST SLEEP	B L O O D	PCBA	POST SLEEP		EXERCISE		OFSE TED BY	AR SECT 8	A D X S C H E P 4	E O S T E D BY	P/TV 04 S/U	CREW CONF	MEAL	

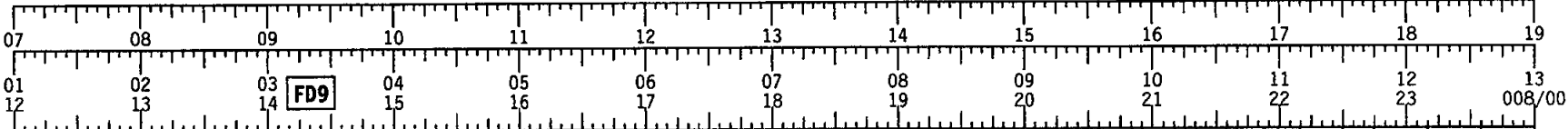
DAY/NIGHT	99	100	101	102	103	104	105	106
ORBIT								
SAA								
TDRS								
Attitude	+Y JUP	+Y CEL	-ZSI	+Y JUP	OPS 3	BIAS -YLV	-ZSI	
SEH			SS8	SR6			SR7	SS9
SOLCON								SOL 9
UVSTAR/TEXAS	12J	13J		16C	14J	FJ		
STARLITE	45	46		47	48			
CRYOTSU			PCM RCHRG				TSU-5	
HOST	NCS IDLE		CPL DEPRIME			CPL STARTUP		
AGHF								
Notes								

GMT 11/05/98 19 20 21 22 23 11/06 01 02 03 04 05 06 07  
 CT 11/05/98 13 14 15 16 17 18 19 20 21 22 23 11/06 01 12  
 MET Day 007 007/00 FD08 01 02 03 04 05 06 07 08 09 10 11 12

CDR Brown	M-AL EYAL LV	MEAL EAL	CREW PHOTO	ENOSSE EINOSSE	GAS GRP 3	MIDCK MODCK	SHBRF SHBRF	SHVFN SHVFN	PMO	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
PLT Lindsey	MEAL	CREW PHOTO		BRPC	VFEU TAPES CHG	VFEU SLIDE & THRSHLD	STEMP		PMO	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
MS1 Robinson	MEAL	CREW PHOTO	EXERCISE							PRE SLEEP	SLEEP INSTR ASSIST	PRE SLEEP	SLEEP
MS2 Parazynski	MEAL	CREW PHOTO		COFFEE					PMO	PRE SLEEP	SLEEP INSTR ASSIST	PRE SLEEP	SLEEP
MS3 Duque	MEAL	CREW PHOTO	CGEL EQUIP MENT STOW		MGBX STOW					PRE SLEEP			SLEEP
PS1 Mukai	MEAL	CREW PHOTO		COG TEST						PRE SLEEP	SLEEP INSTR OPS	PRE SLEEP	SLEEP
PS2 Glenn	MEAL	CREW PHOTO	COG TEST	PCBA CAL						PRE SLEEP	SLEEP INSTR OPS	PRE SLEEP	SLEEP
DAY/NIGHT													
ORBIT	106	107	108	109	110	111	112	113	114				
SAA													
TDRS													
Attitude													
SEH													
SOLCON													
UVSTAR/TEXAS													
STARLITE													
CRYOTSU													
HOST													
AGHF													
Notes													

\*OFF \*FES DMP TERM W/FES

GMT 11/06/98  
 CT 11/06/98  
 MET Day 007



CDR Brown	SLEEP	POST SLEEP	M Y J U P	POST SLEEP	A P E N T *	POST SLEEP	L C O M M	FCS C/O	RCS HF	EXERCISE	+ Z L V	M E S S I N G	S I M I R	E N T R Y	V E A C T	D/O BRIEF	MEAL	M Z N S V I R	MEAL	ERGO STOW	CABIN STOW
PLT Lindsey	SLEEP	O C A O N L K	P O S T S L E E P	B D L R S I S T	POST SLEEP	POST SLEEP	FCS C/O	RCS HF	F L O O D	M N V I R	M C I U	O S R F	A S C O M D	EXERCISE	P S E T T V U P	D/O BRIEF	M E A L	S T E I R M	MEAL	S I G D L	M A G R S I G I E N T R Y S /U
MS1 Robinson	SLEEP	POST SLEEP	P H L L B R O O D	POST SLEEP	POST SLEEP	POST SLEEP	M O D C K	S H B R I L	S T E M P	EXERCISE	C I B X *	C I B X 6 *	O S T O W	C M D E A C T	S H M O D T R D N 1	D/O BRIEF	MEAL	A G H F S A M P C H G R 9	A C H G F R 9		
MS2 Parazynski	SLEEP	POST SLEEP	P H L L B R O O D	POST SLEEP	POST SLEEP	POST SLEEP	FCS C/O	EXERCISE	O S T O W	EXERCISE	O S T O W	O S T O W	D E A C T	CABIN STOW	D/O BRIEF	MEAL	CABIN STOW				
MS3 Duque	SLEEP	POST SLEEP	B L O O D	POST SLEEP	POST SLEEP	POST SLEEP	EXERCISE	P C F *	A P C F *	PCAM DEACT	F A S T *	O S T O W	P R I O N T R	D E A C T	S H M O D T R D N 1	D/O BRIEF	MEAL	CABIN STOW			
PS1 Mukai	SLEEP	S D S L E I P E N T P S O T S L E E P	P H L L B R O O D	POST SLEEP	POST SLEEP	POST SLEEP	V F E U P T O T A P E H /W C H G S T W	* C O G T E S T	BR RC	BR RC	EXERCISE	D/O BRIEF	MEAL	CABIN STOW							
PS2 Glenn	SLEEP	S D S L E I P E N T P S O T S L E E P	B L O O D	POST SLEEP	POST SLEEP	POST SLEEP	EXERCISE	POST SLEEP	C O G T E S T	POST SLEEP	B I O S L P P C S T O W	CABIN STOW	P S E T T V U P	D/O BRIEF	MEAL	CABIN STOW					
DAY/NIGHT		114	115	116	117	118	119	120	121												
ORBIT																					
SAA																					
TDRS																					
Attitude		-YLV +ZVV			+Y JUP						-ZS1				BIAS +ZLV						+ZS1
SEH																					
SOLCON																					
UVSTAR/TEXAS																					
STARLITE																					
CRYOTSU																					
HOST																					
AGHF																					
Notes																					

GMT	11/06/98	19	20	21	22	23	11/07	01	02	03	04	05	06	07
CT	11/06/98	13	14	15	16	17	18	19	20	21	22	23	11/07	01
MET	Day 008	008/00	FD09	01	02	03	04	05	06	07	08	09	10	11
CDR Brown	+MZN SVIR	PRE SLEEP	CABIN STOW	FRCS BURN	+MZN SVIR	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
PLT Lindsey	◆ CABIN STOW	FRCS BURN	CABIN STOW	MIDCK	MOBCK	SHCNFG	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
MS1 Robinson	AGHR9	CABIN STOW	CABIN STOW	TEPC	TEPC	TEPC	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
MS2 Parazynski	CSTABOIN	RSTADOW	CABIN STOW	FOFE STOW	STPEMPEN	INOPPEN	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
MS3 Duque	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
PS1 Mukai	CABIN STOW	VFEU SLIDE & OSC TRDN	VFEU TAPE CHG	DOFF *	INOPPEN	INOPPEN	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
PS2 Glenn	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	CABIN STOW	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP
DAY/NIGHT														
ORBIT	121	122	123	124	125	126	127	128	129					
SAA														
TDRS														
Attitude	+ZS1	-0A-	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	+ZS1	BIAS -ZLV +YVV
SEH														
SOLCON														
UVSTAR/TEXAS	18C	19C	20C											
STARLITE	61	62	63											
CRYOTSU														
HOST														
AGHF														
Notes	◆MAGR SIGI ENTRY S/U *SLP ACTIGRAPH *OFF @AGHF CHG R9													

GMT 11/07/98 07 08 09 10 11 12 13 14 15 16 17 18 19  
 CT 11/07/98 01 02 03 04 05 06 07 08 09 10 11 12 13  
 MET Day 008 12 13 14 **FD10** 15 16 17 18 19 20 21 22 23 009/00

CDR Brown	SLEEP	POST SLEEP	GRWB PRUP B	PMO	POST SLEEP	IMU & VERIF	-M XN SV IR	DEORBIT PREP		
PLT Lindsey	SLEEP	POST SLEEP				SP RE-ENT CNFG	PSGT SOW AIR	DEORBIT PREP	D/O	KSC
MS1 Robinson	SLEEP	POST SLEEP				SHAB DEACT		DEORBIT PREP	BURN	LANDING
MS2 Parazyński	SLEEP	POST SLEEP	PMO		POST SLEEP		HIC OER SIC HIC	DEORBIT PREP	BURN*	
MS3 Duque	SLEEP	POST SLEEP	AGHF	SH MOD TRON 2		SHAB DEACT		DEORBIT PREP		*
PS1 Mukai	SLEEP	POST SLEEP						DEORBIT PREP		
PS2 Glenn	SLEEP	POST SLEEP			DSO 603			DEORBIT PREP		
DAY/NIGHT	[Timeline with shaded blocks]									
ORBIT	129 130 131 132 133 134 135 136									
SAA	[Timeline]									
TDRS	[Timeline]									
Attitude	BIAS -ZLV +YVV IMU -XSI COMM D/O ENTRY									
SEH										
SOLCON										
UVSTAR/TEXAS										
STARLITE										
CRYOTSU	TSU-6									
HOST										
AGHF	AGHF4 FM2									
Notes	*DEACT *DEACT *DEACT *DEACT ♣ HOST FREE DRIFT									

\* D/O BURN MET 8/20:40

\* KSC LANDING MET 8/21:50

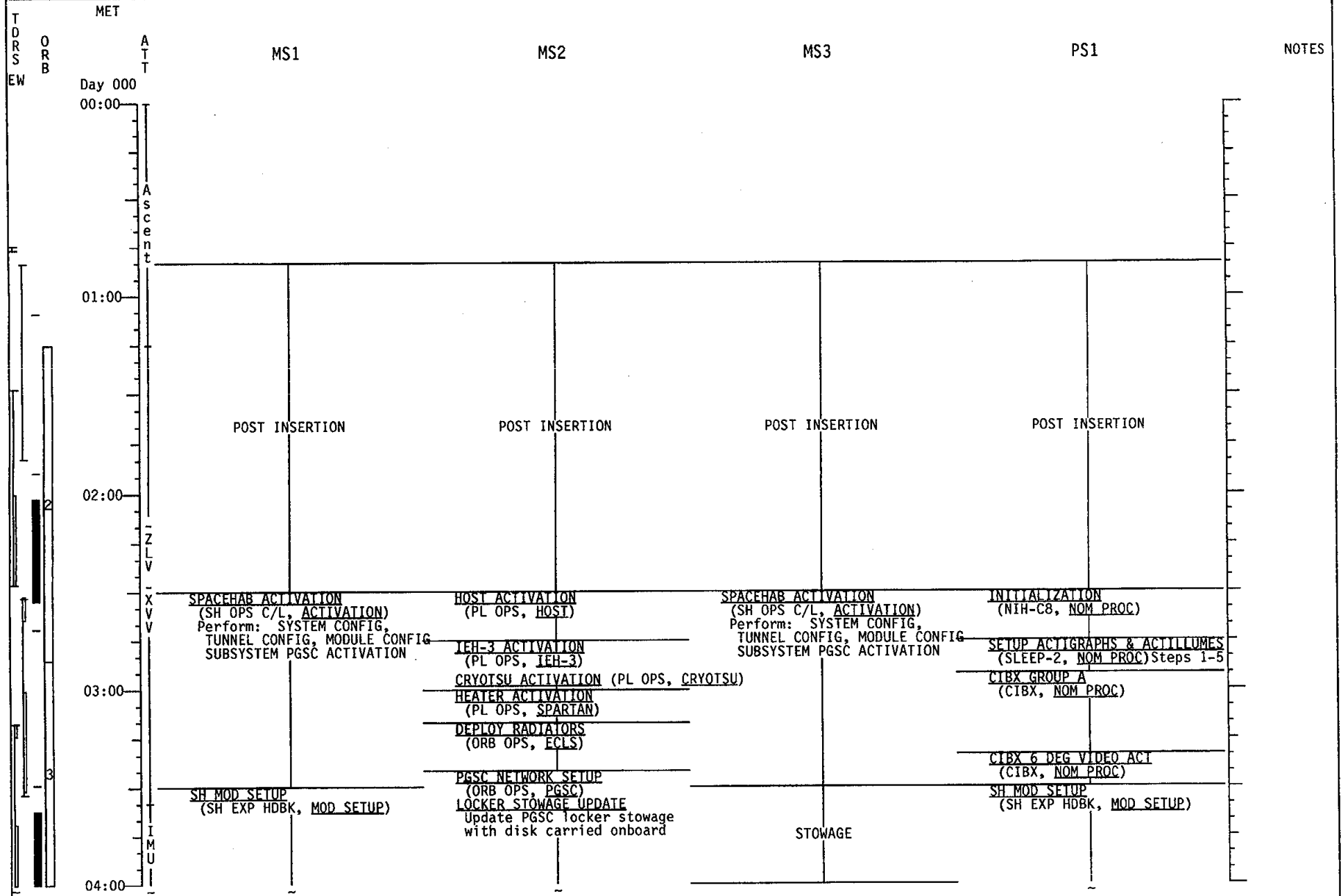
DETAILED TIMELINE

DETAILED  
TIMELINE





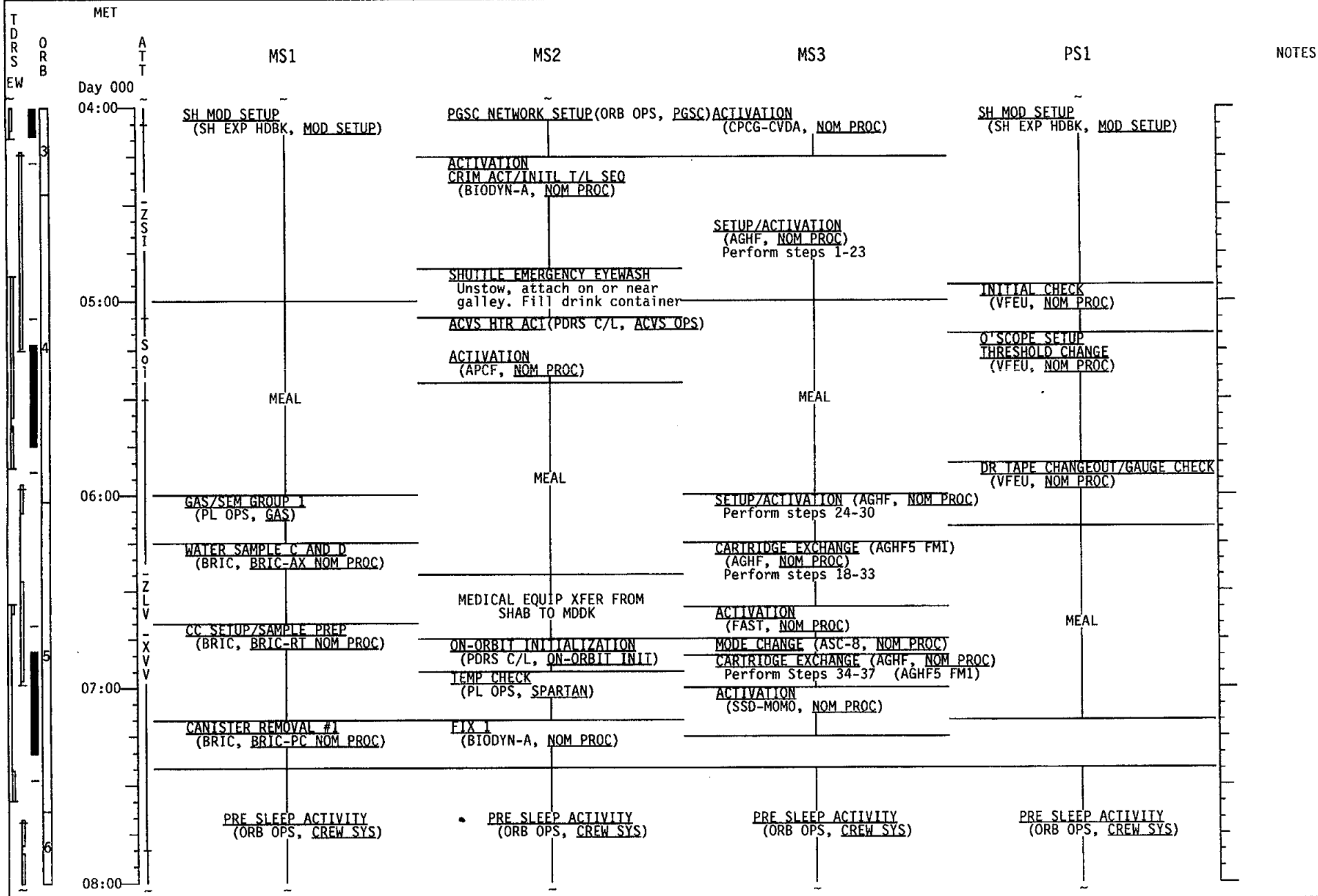
# STS-95 (FD01)



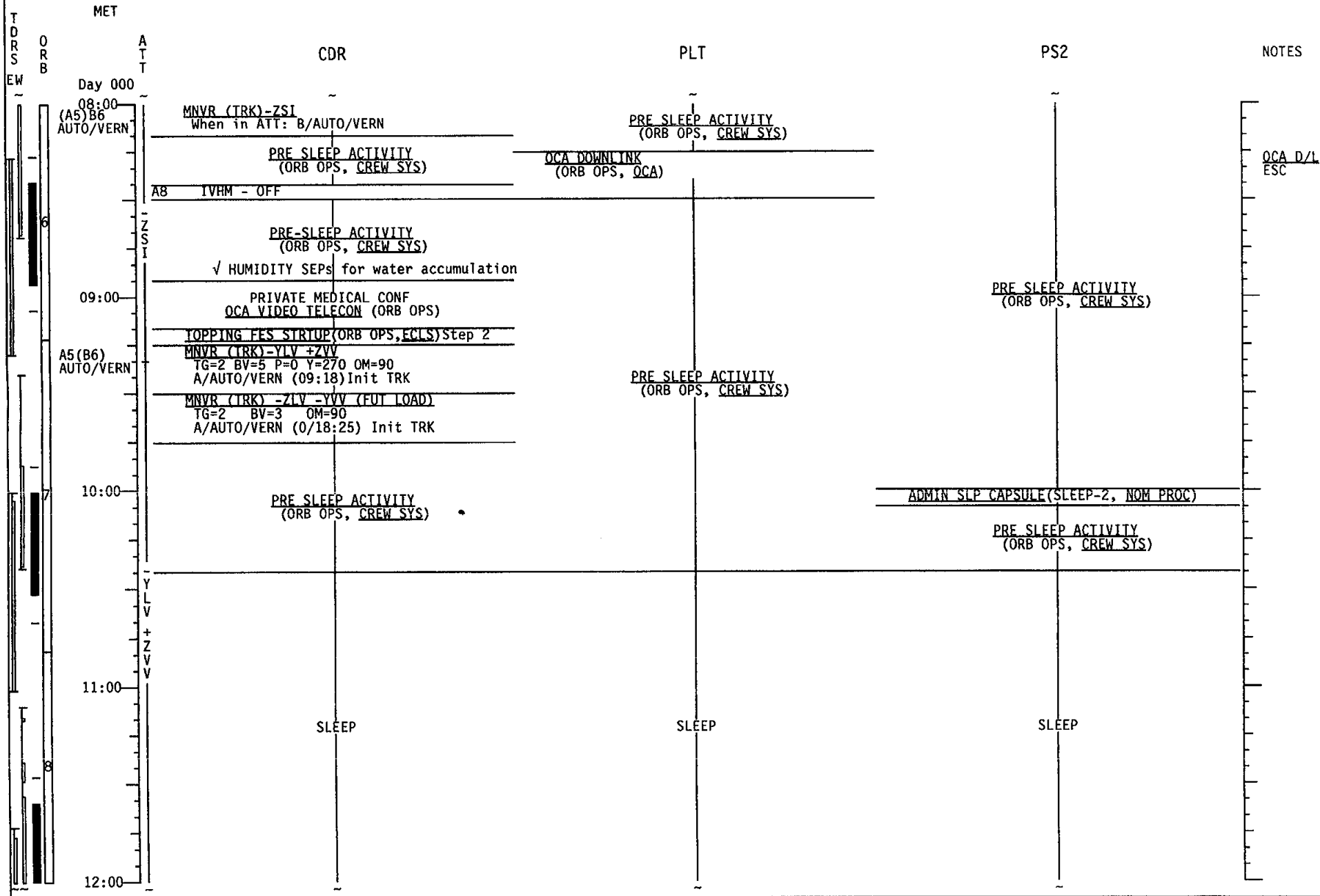
# STS-95 (FD01)

TDRS	MET	CDR	PLT	PS2	NOTES
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">Day 000</div> <div style="margin-bottom: 10px;">04:00</div> <div style="margin-bottom: 10px;">05:00</div> <div style="margin-bottom: 10px;">06:00</div> <div style="margin-bottom: 10px;">07:00</div> <div style="margin-bottom: 10px;">08:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">(A5)B6 AUTO/VERN</div> <div style="margin-bottom: 10px;">A5(B6) AUTO/VERN</div> <div style="margin-bottom: 10px;">A5(B6) FREE/VERN A5(B6) AUTO/VERN</div> <div style="margin-bottom: 10px;">A5(B6) AUTO/VERN</div> </div>	<p>MNVR (TRK) -ZSI TG=5 RA=213.37 DEC=-13.42 BV=3 OM=0 A/AUTO/VERN(04:03)Init TRK When in ATT: B/AUTO/VERN</p> <p>LYRS INSTALLATION (ORB OPS, GLY IODINE RMVL)</p> <p>MNVR (TRK) SOLCON CAL TG=2 BV=2 OM=322 A/AUTO/VERN (05:05)Init TRK</p> <p>TOPPING FES SIRTUP(ORB OPS,ECLS)Step 2</p> <p>IVHM - OFF</p> <p>MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A/AUTO/VERN (05:30)Init TRK</p> <p>&lt; FREE DRIFT (HOST) INFORM MCC &lt; ON MCC GO: DAP A/AUTO/VERN</p> <p>ELEVON PARK, GNC 201 (ORB OPS, GNC)</p> <p>VDA-2 ACTIVATION (PL OPS, PCG-STES)</p> <p>IVHM - ON</p> <p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p> <p>LI FLASH EVAP CNTLR PRI A(B)-OFF</p> <p>MNVR (TRK) -ZSI TG=5 RA=213.53 DEC=-13.47 BV=3 OM=200 A/AUTO/VERN (07:50)Init TRK When in ATT: B/AUTO/VERN</p>	<p>PGSC NETWORK SETUP (ORB OPS, PGSC)</p> <p>OCA SETUP (ORB OPS, OCA)</p> <p>OCAC SETUP (ORB OPS, CREW SYS)</p> <p>MEAL</p> <p>PGSC/BIA SETUP (PL OPS, GAS)</p> <p>GAS/SEM GROUP 1 (PL OPS, GAS)</p> <p>APU EDI RECONFIGS R2 BLR PWR (three)-OFF A12 APU HTR GG/FU PMP(three)-A/AUTO</p> <p>MIDDECK STATUS CHECK (EH, STATUS CHECKS)</p> <p>MODULE STATUS CHECK (EH, STATUS CHECKS)</p> <p>DAILY BRIEFING (SHAB)</p> <p>SHAB PRESLEEP CONFIG (SH OPS, ON ORBIT)</p> <p>PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>STOWAGE</p> <p>ACTIVATION CRIM ACT/INITL T/L SEQ (BIODYN-A, NOM PROC)</p> <p>SETUP ACTIGRAPHS &amp; ACTILLUMES (SLEEP-2, NOM PROC)Steps 6-7</p> <p>INITIAL CHANGEOUT (ADSEP, NOM PROC)</p> <p>ACTIVATION (ADSEP, NOM PROC)</p> <p>MEAL</p> <p>MEAL</p> <p>FIX 1 (BIODYN-A, NOM PROC)</p> <p>PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>NOTES</p>

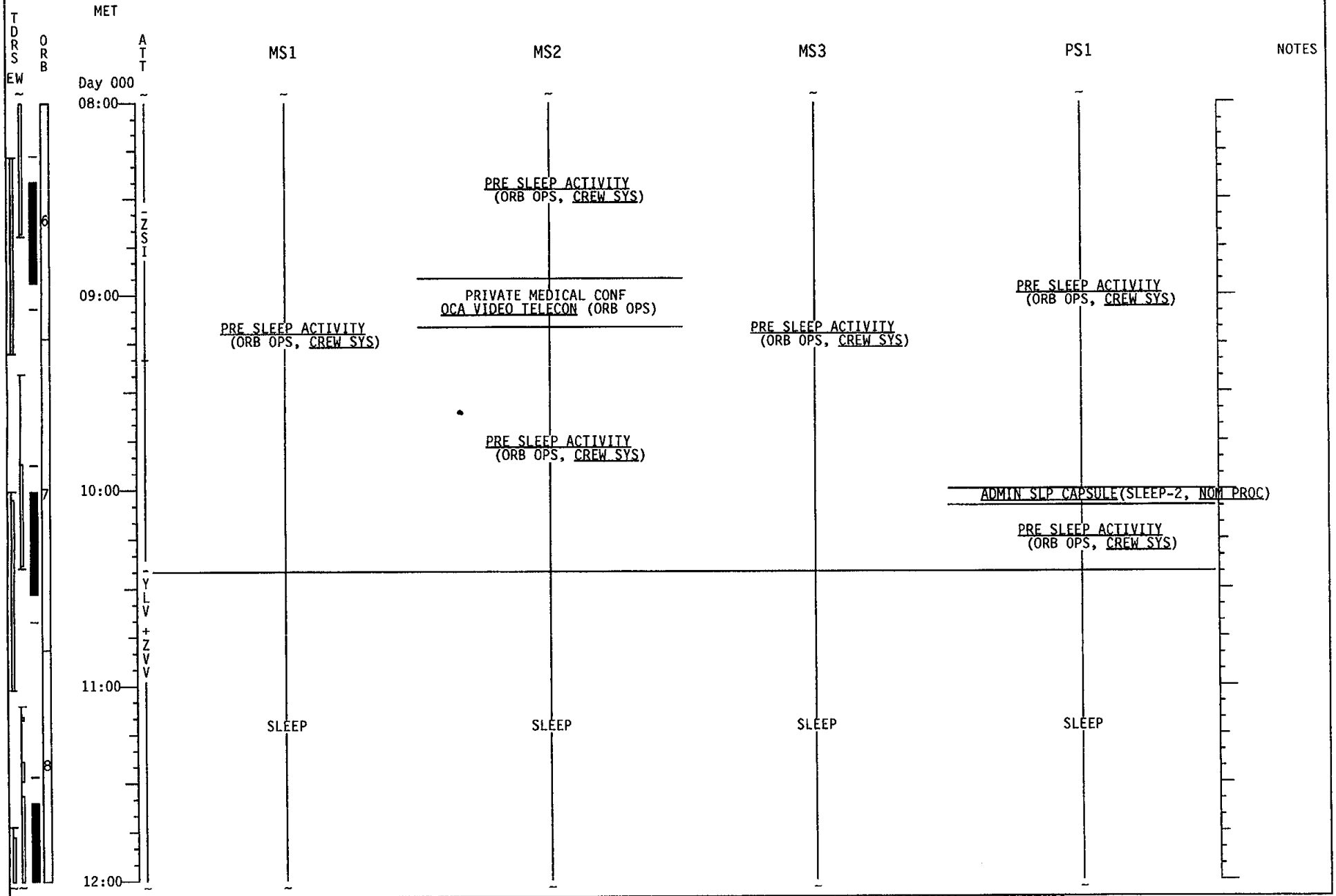
# STS-95 (FD01)



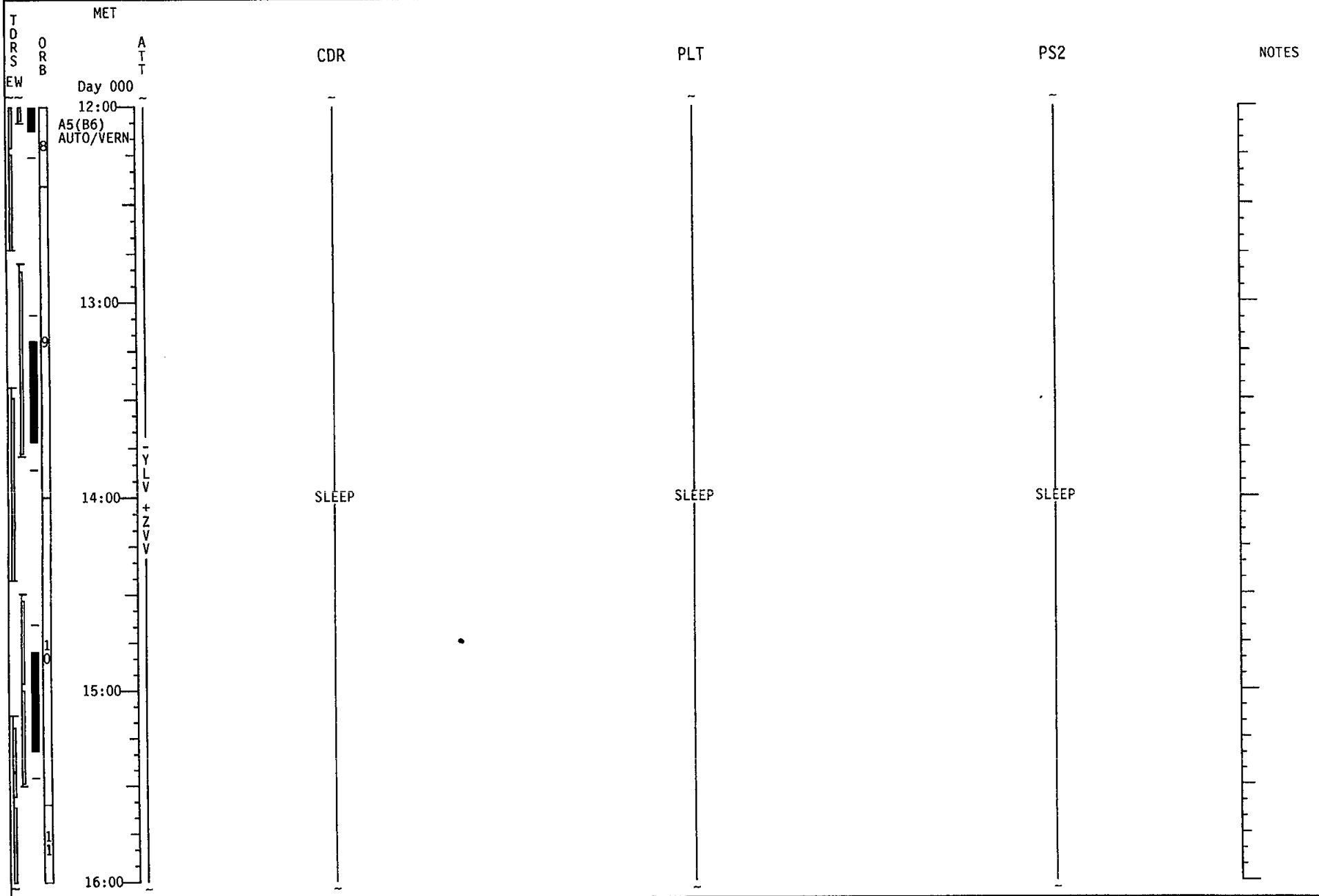
# STS-95 (FD01)



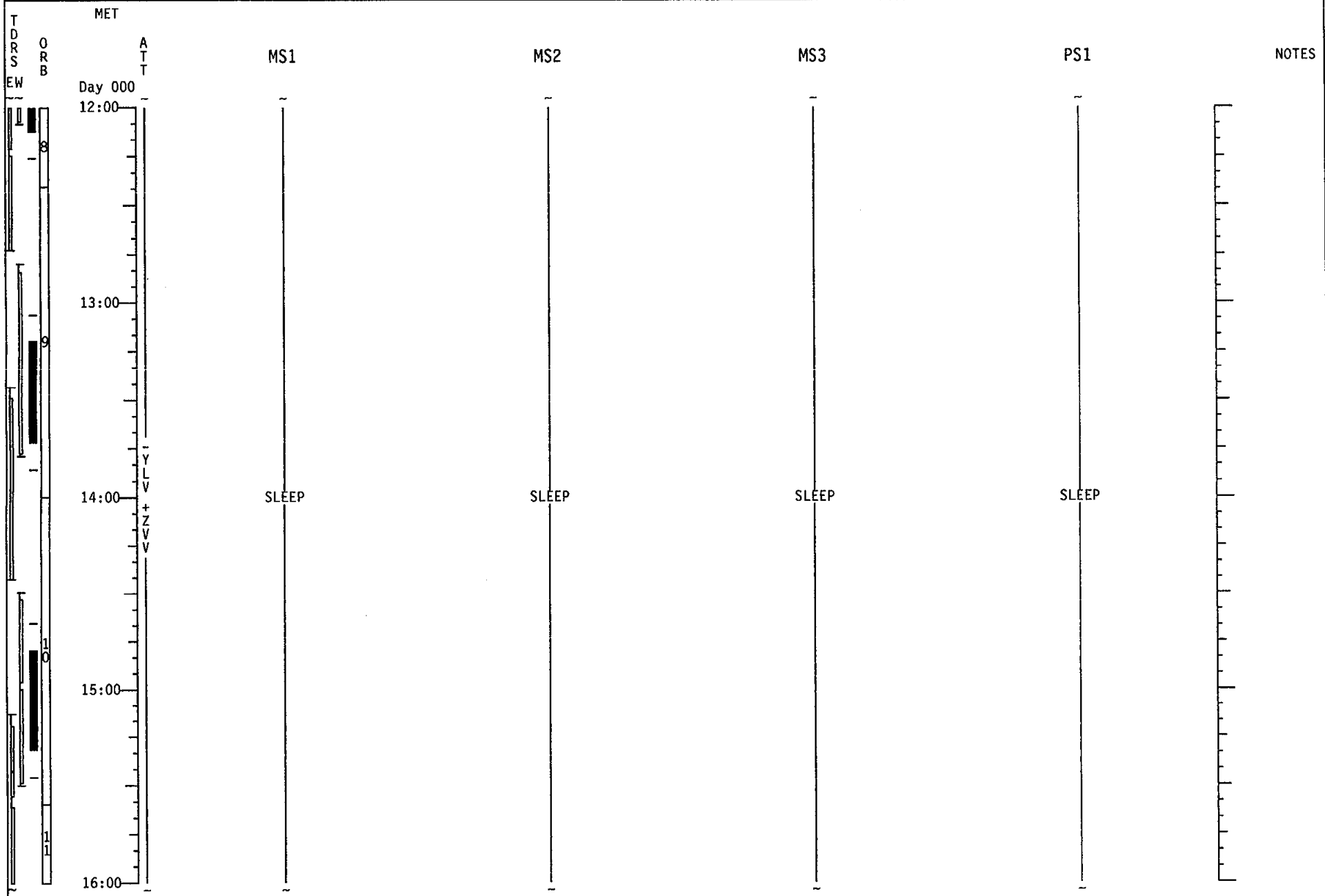
# STS-95 (FD01)



# STS-95 (FD01)

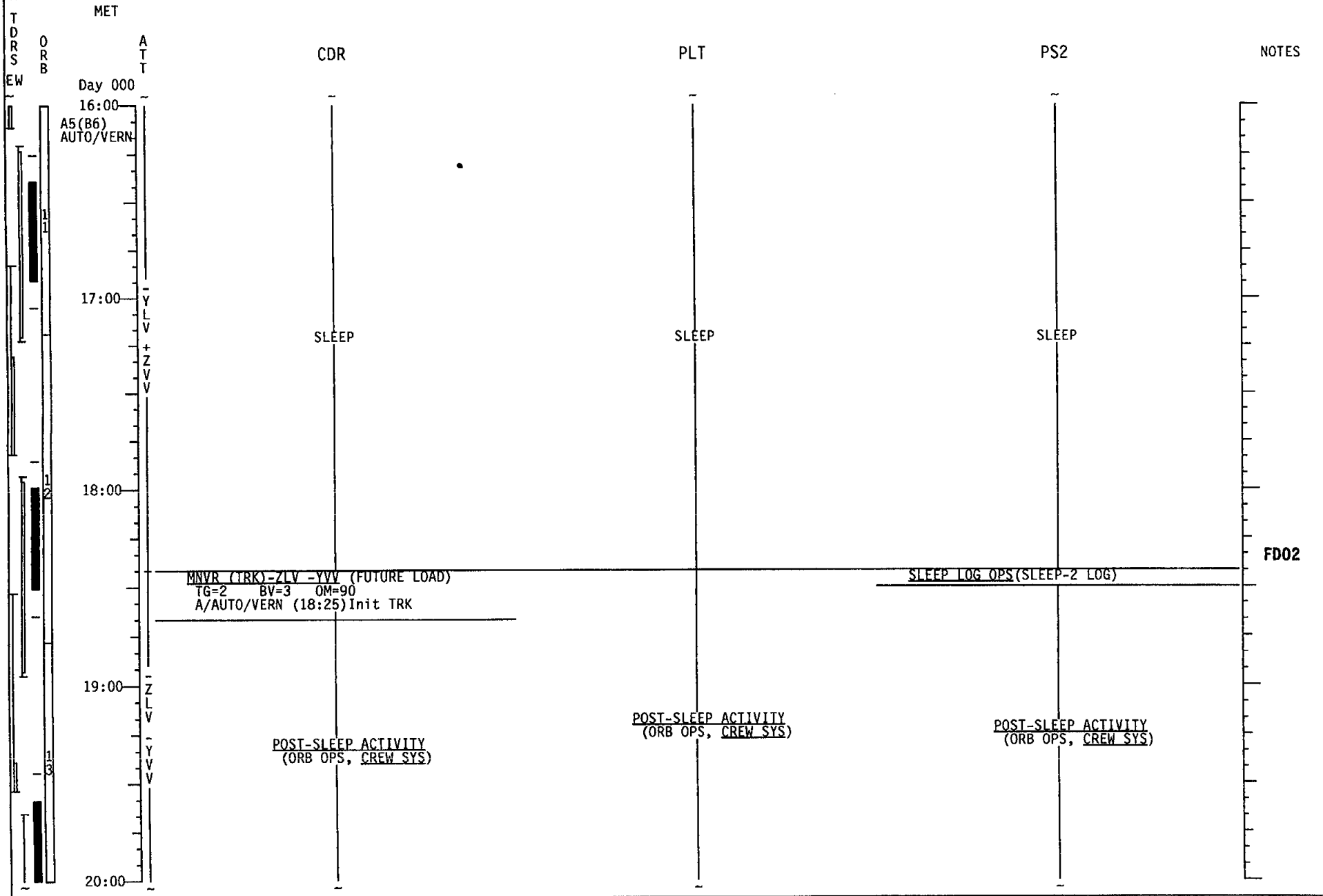


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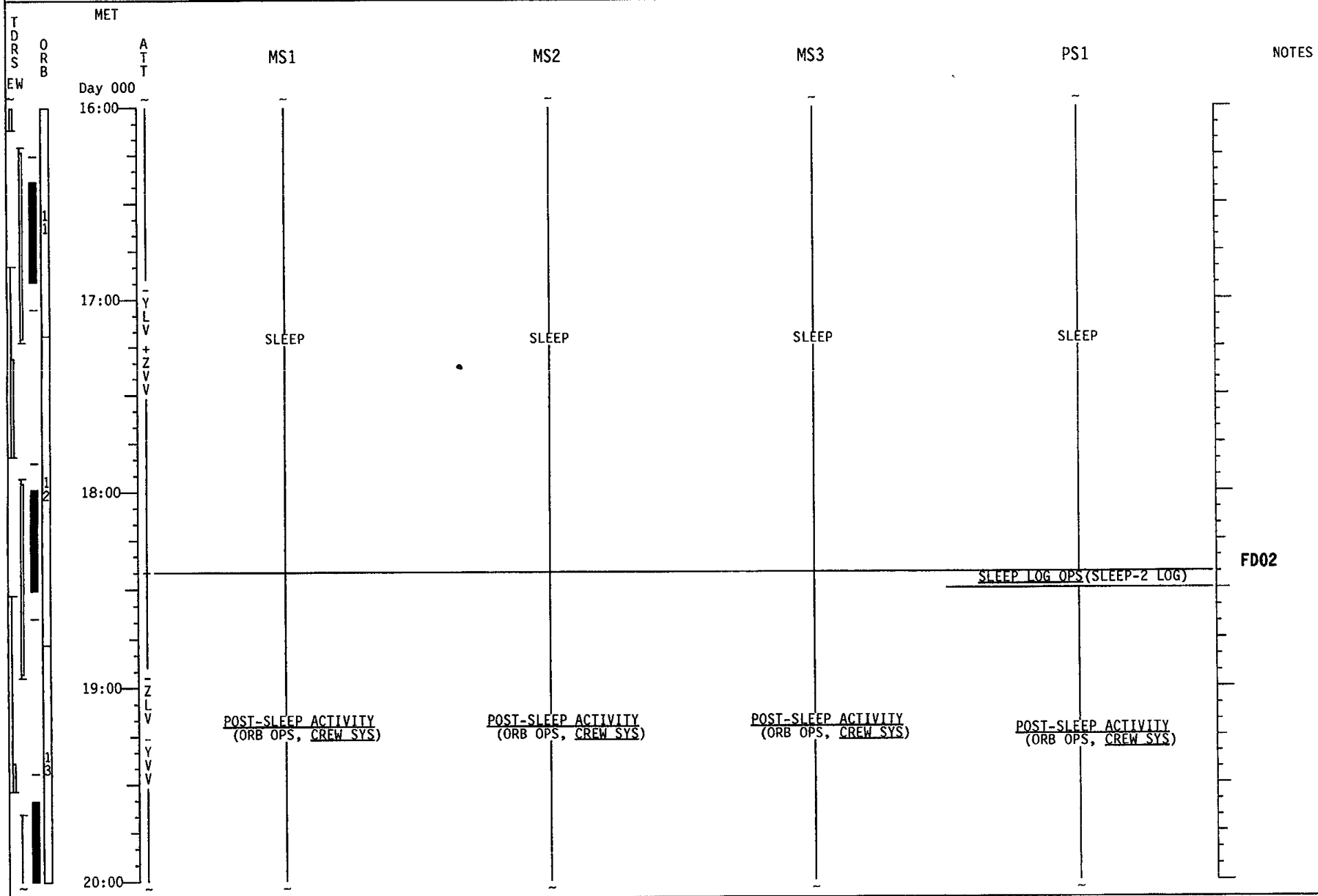




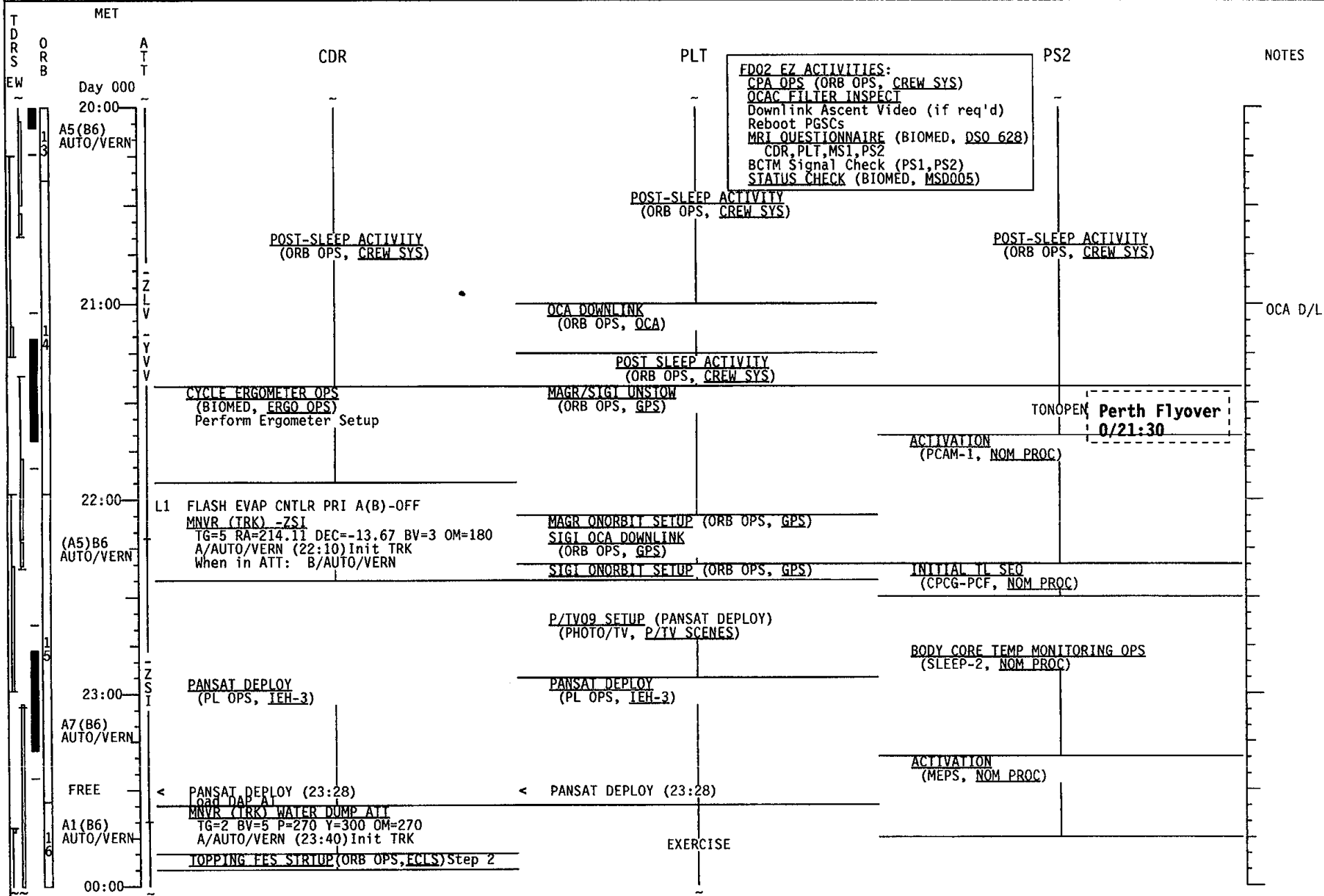
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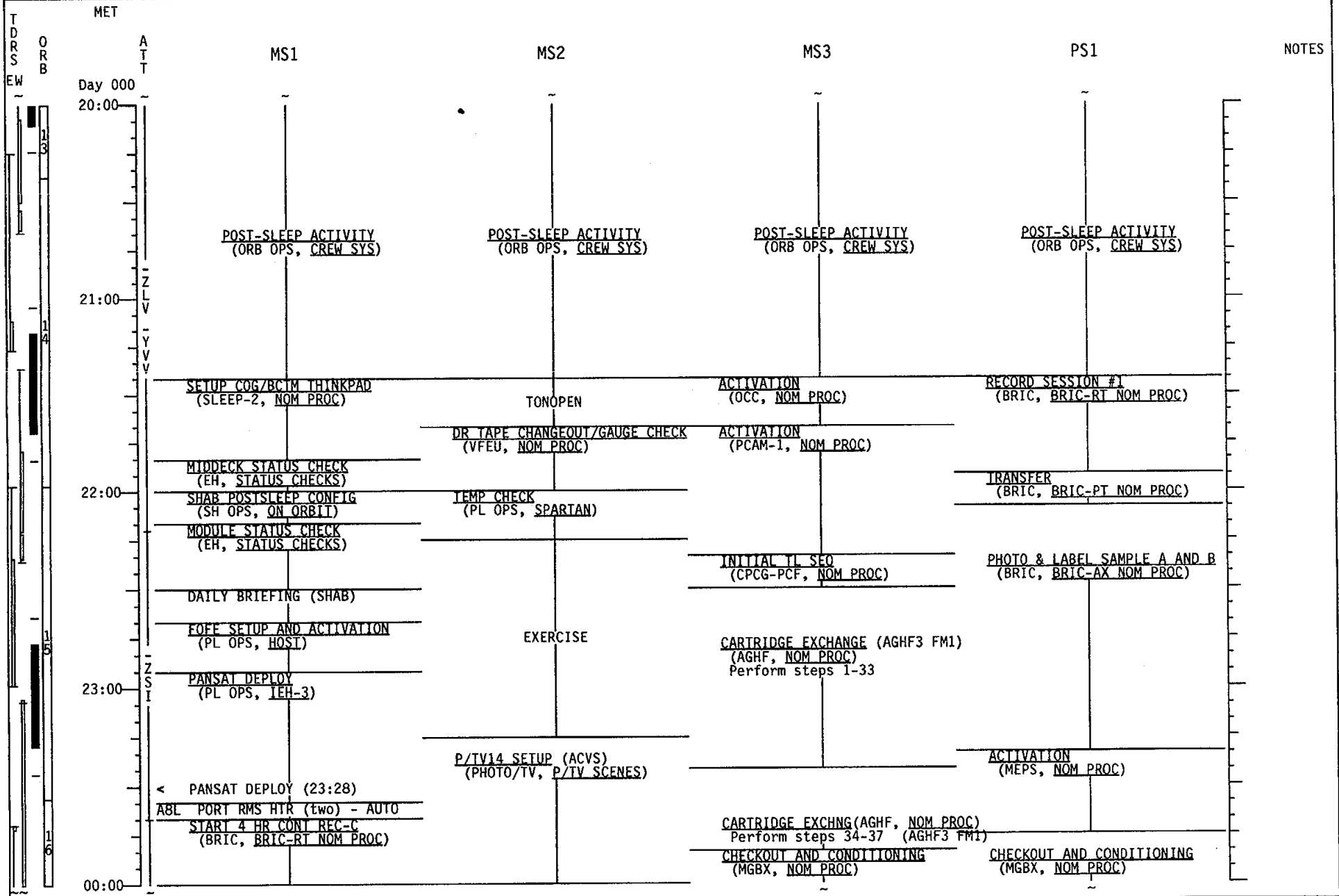
# STS-95 (FD01)



# STS-95 (FD02)



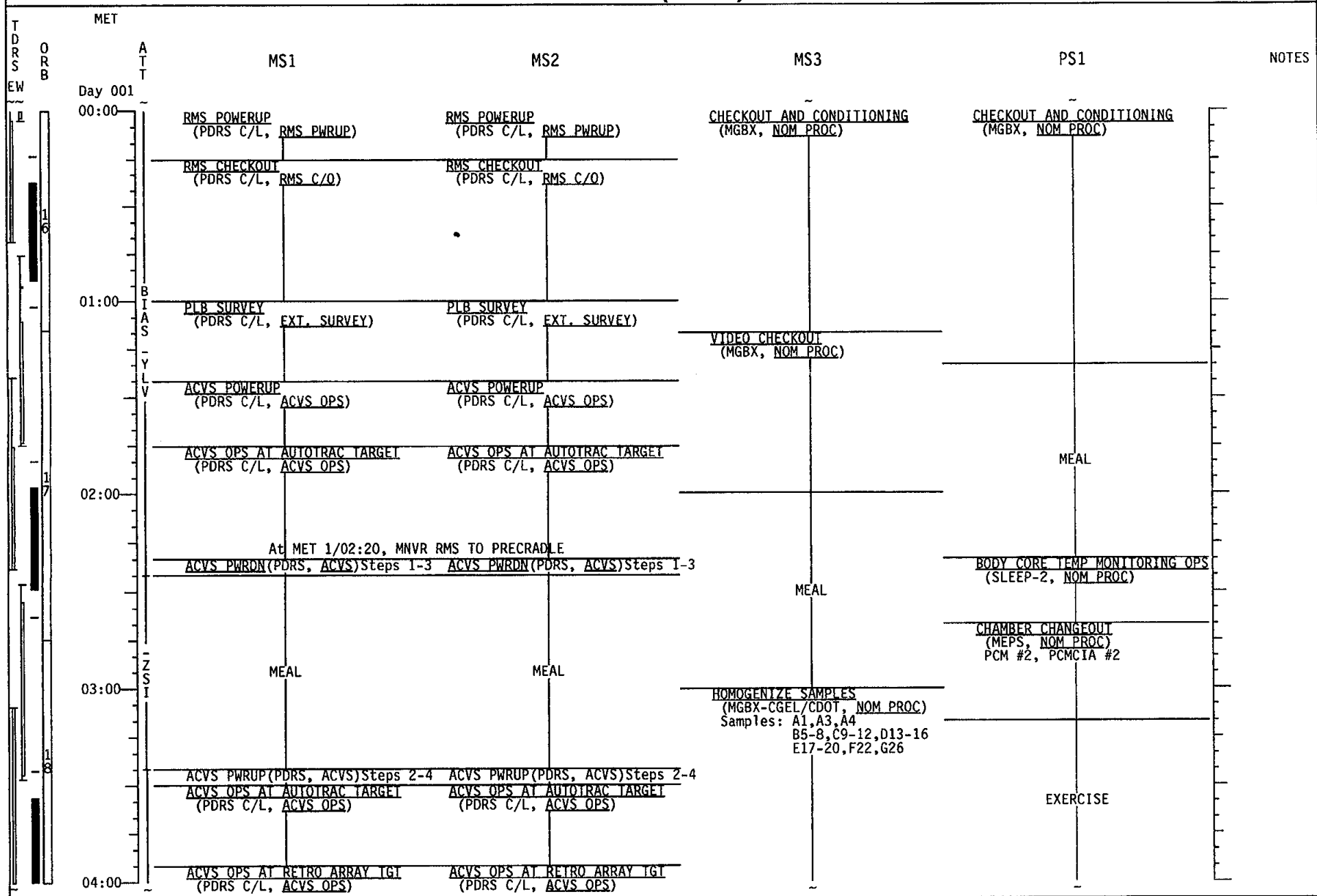
# STS-95 (FD02)



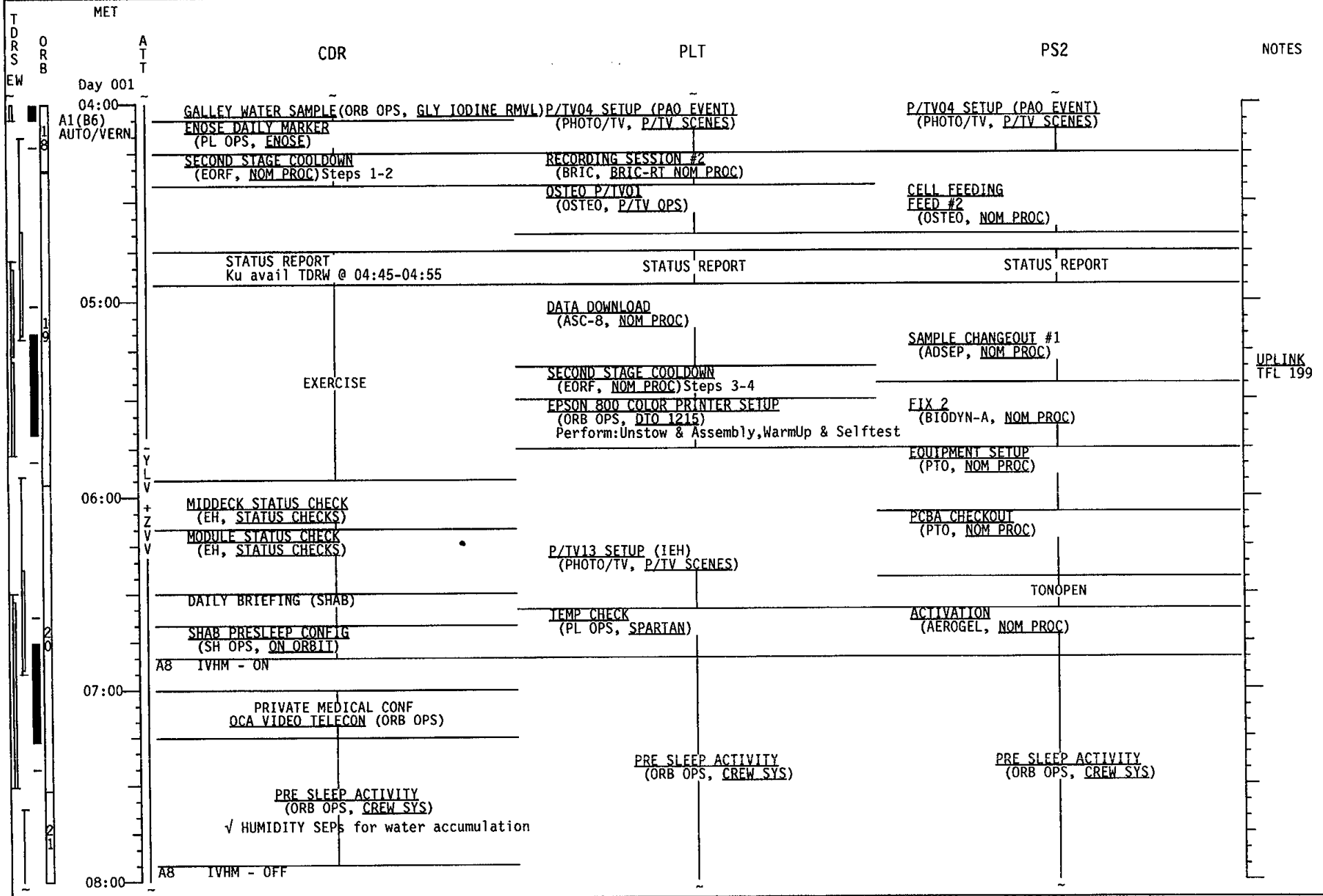
# STS-95 (FD02)

TDRS	ORB	MET	CDR	PLT	PS2	NOTES
		Day 001				
		00:00	SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Supply Dump			UPLINK TFL 184
			CRYO 02 TK HTR SNSR CK (ORB OPS, EPS)	EXERCISE		
				ACTIVATION (EORF, NOM PROC)	MEAL	
			R2 SWAP TO H2O SPRAY BOILER SYS B BLR CNTLR/HTR (three) - B			
		01:00	FC PURGE - MANUAL (ORB OPS, EPS)	FILTER CLEANING (IFM, SCHED MAINT) Clean filters		
			ENOSE ACTIVATION (PL OPS, ENOSE)		ACTIVATION (EORF, NOM PROC)	
			MEAL	WATERING H2O(A) (BRIC, BRIC-PT NOM PROC)		
		02:00		START ELECTRIC FIELD (DISH C) (BRIC, BRIC-RT NOM PROC)		
			SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Terminate Supply Dump	WATER SAMPLE/REFILL (VFEU, NOM PROC)	EXERCISE	
			L1 FLASH EVAP CNTLR PRI A(B)-OFF MNVR (TRK) -ZSI TG=5 RA=214.27 DEC=-13.72 BV=3 OM=0 A/AUTO/VERN (02:25) Init TRK When in ATT: B/AUTO/VERN	STOP ELECTRIC FIELD (DISH C) (BRIC, BRIC-RT NOM PROC)		UPLINK TFL 199
		03:00			CHAMBER CHANGEOUT (MEPS, NOM PROC) PCM #2, PCMCIA #2	
			CELL FEEDING FEED #1 (OSTEO, NOM PROC)	MEAL	CELL FEEDING FEED #1 (OSTEO, NOM PROC)	
			A1(B6) MNVR (TRK)BIAS -YLV +ZVV AUTO/VERN TG=2 BV=5 P=0 Y=270 OM=90 A/AUTO/VERN (03:25) Init TRK			UPLINK TFL 184
			TOPPING FES STRIUP(ORB OPS,ECLS)Step 2			
		04:00	GALLEY WATER SAMPLE(ORB OPS, GLY IODINE RMVL)	P/TV04 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)	P/TV04 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)	

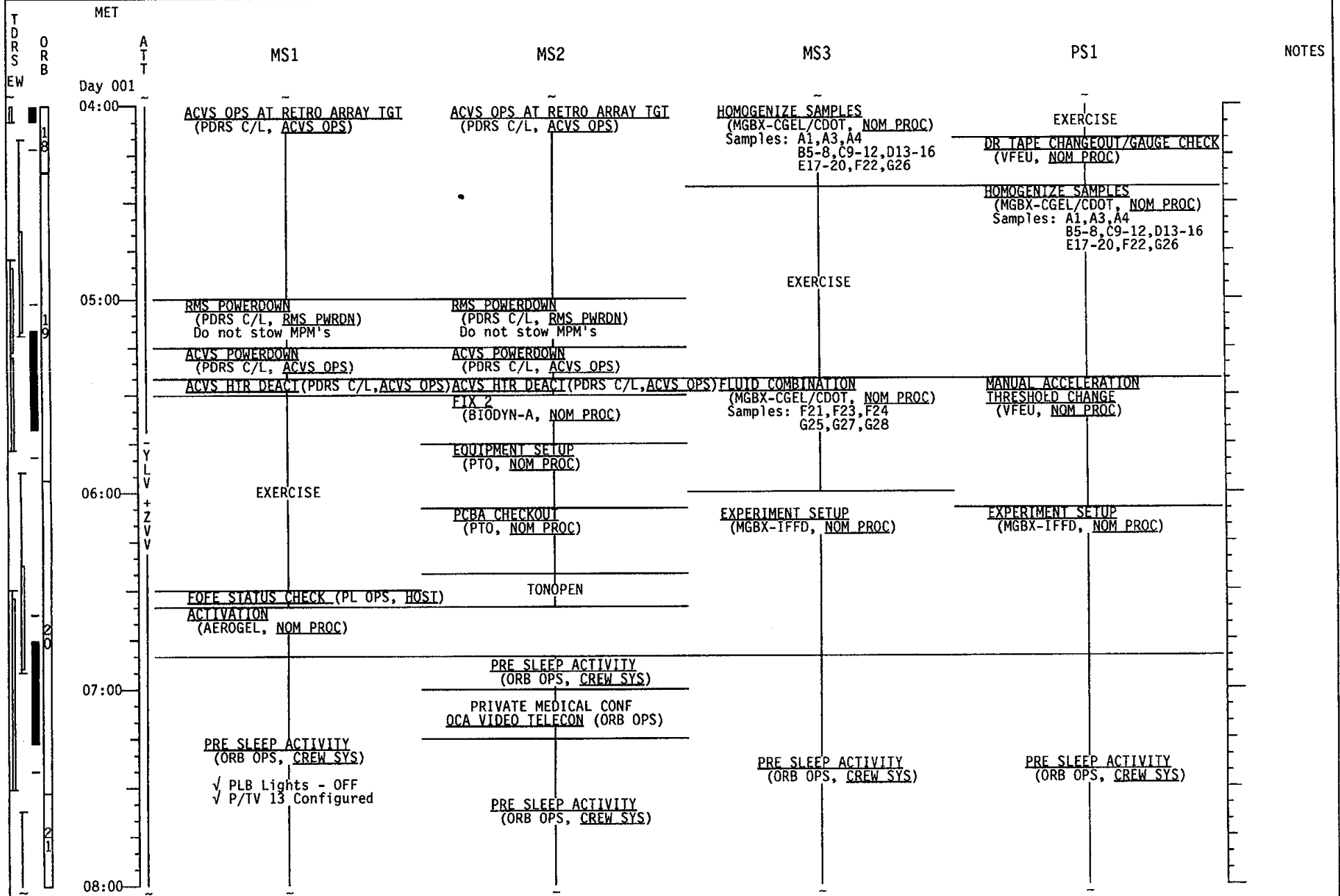
# STS-95 (FD02)



# STS-95 (FD02)

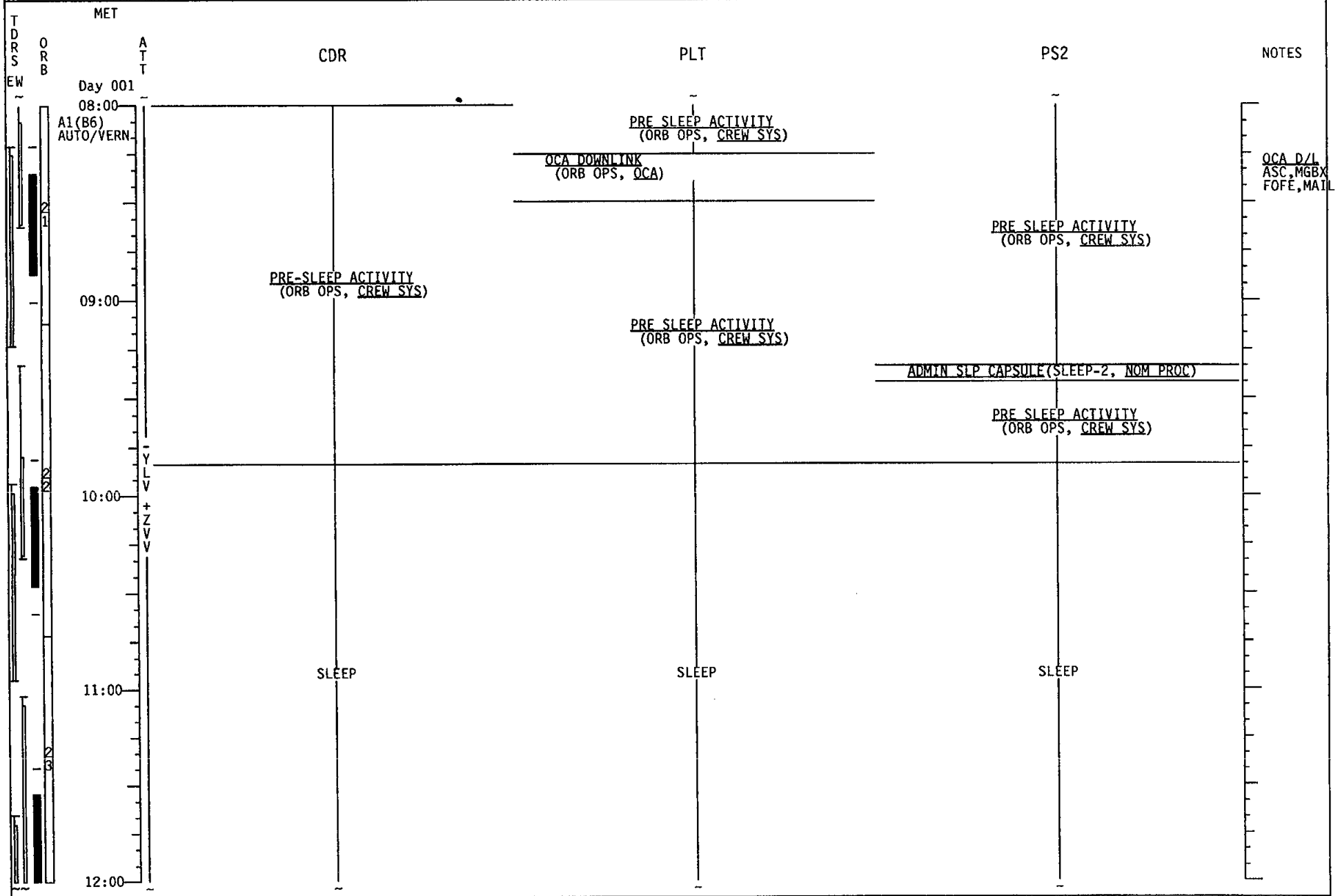


# STS-95 (FD02)

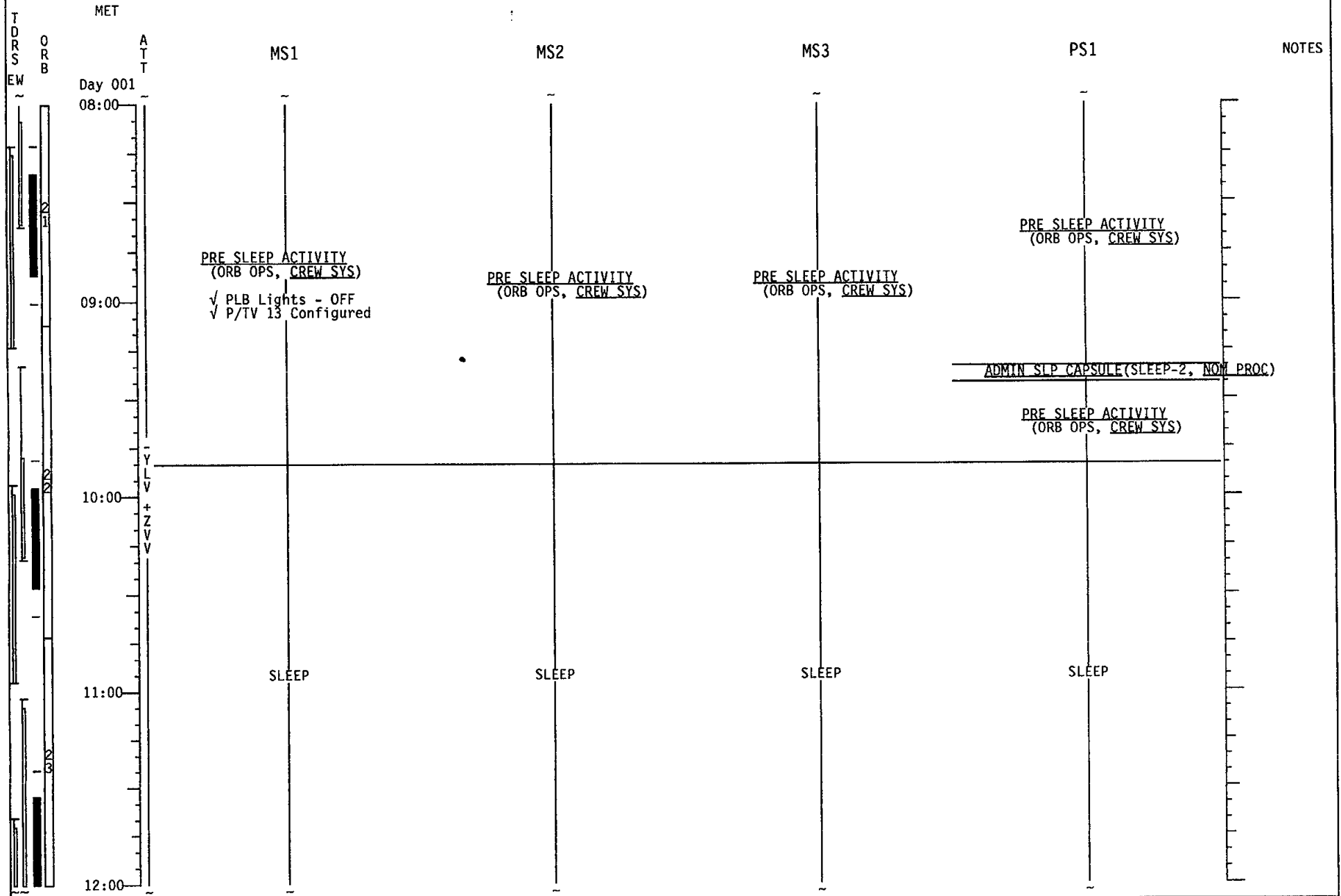




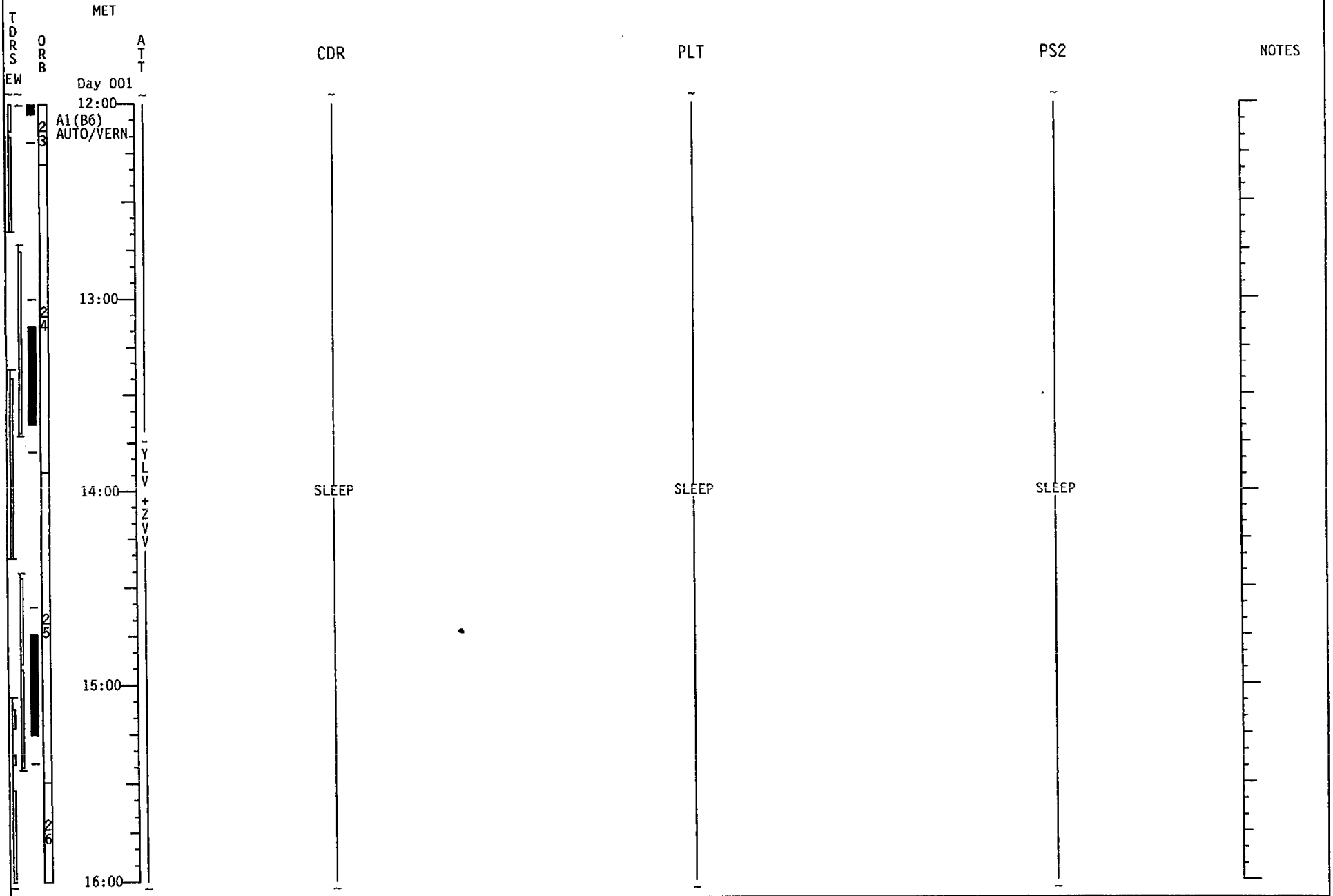
# STS-95 (FD02)



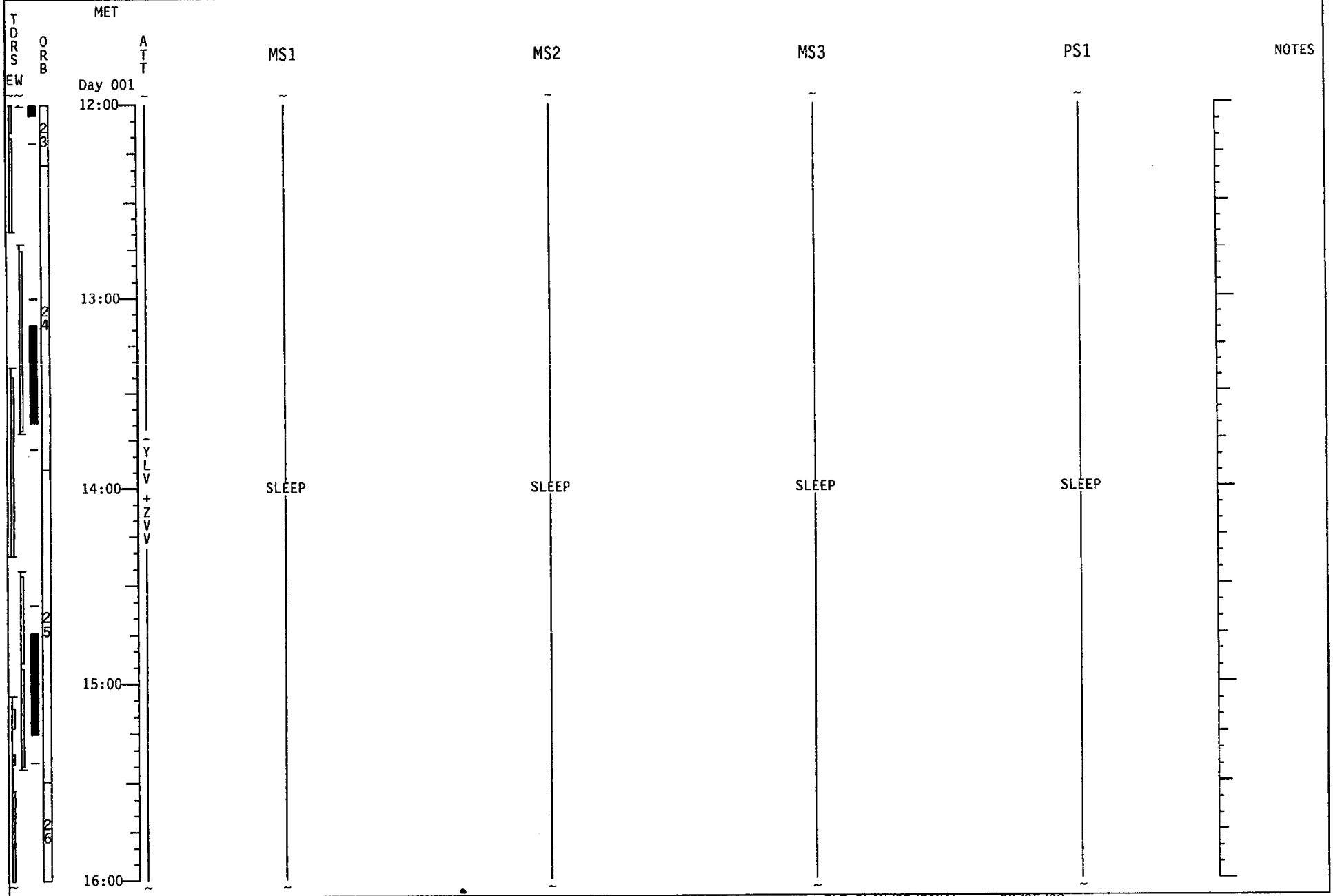
# STS-95 (FD02)



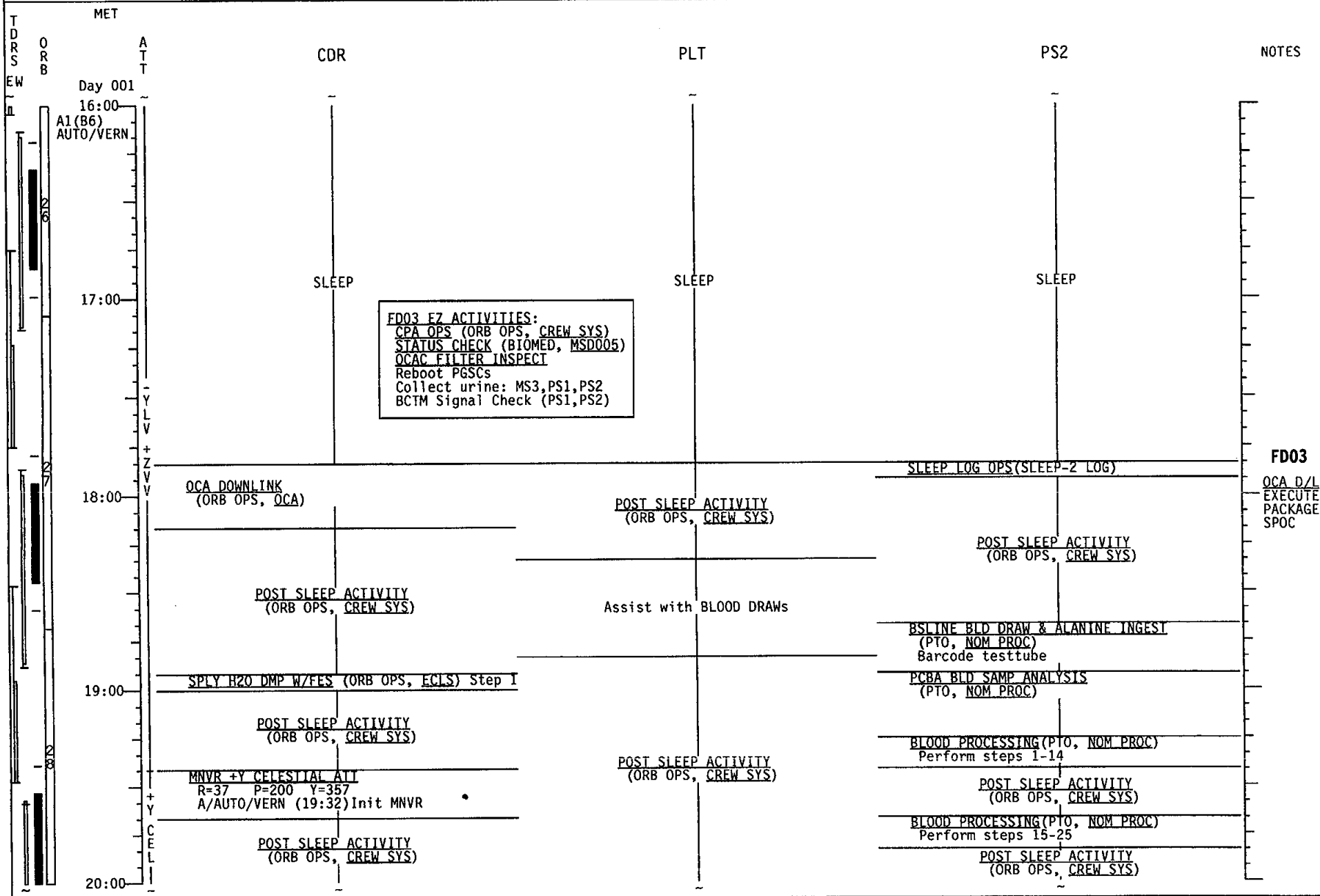
# STS-95 (FD02)



# STS-95 (FD02)

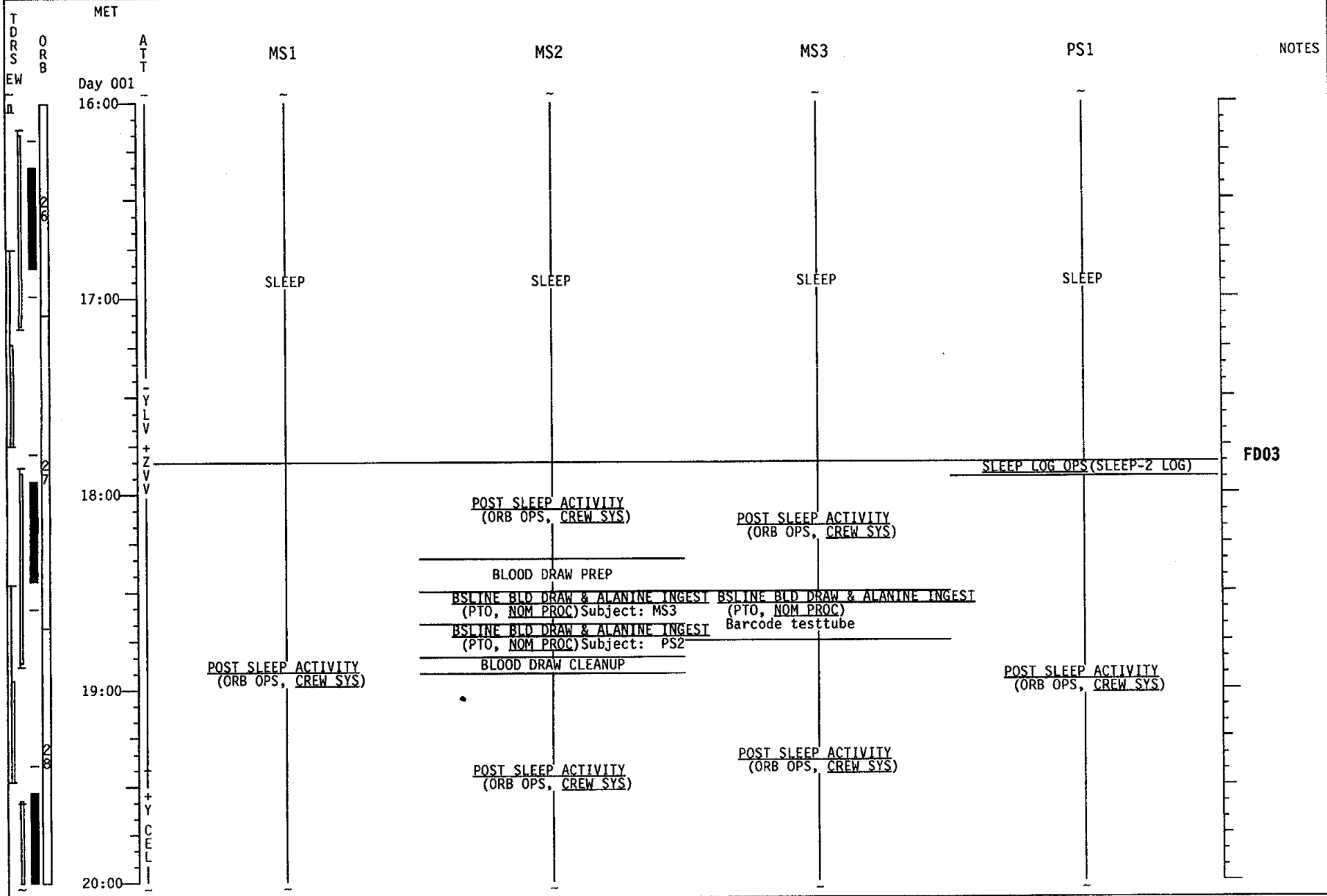


# STS-95 (FD02)



**FD03 EZ ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 STATUS CHECK (BIOMED, MSD005)  
 OCAC FILTER INSPECT  
 Reboot PGSCs  
 Collect urine: MS3,PS1,PS2  
 BCTM Signal Check (PS1,PS2)

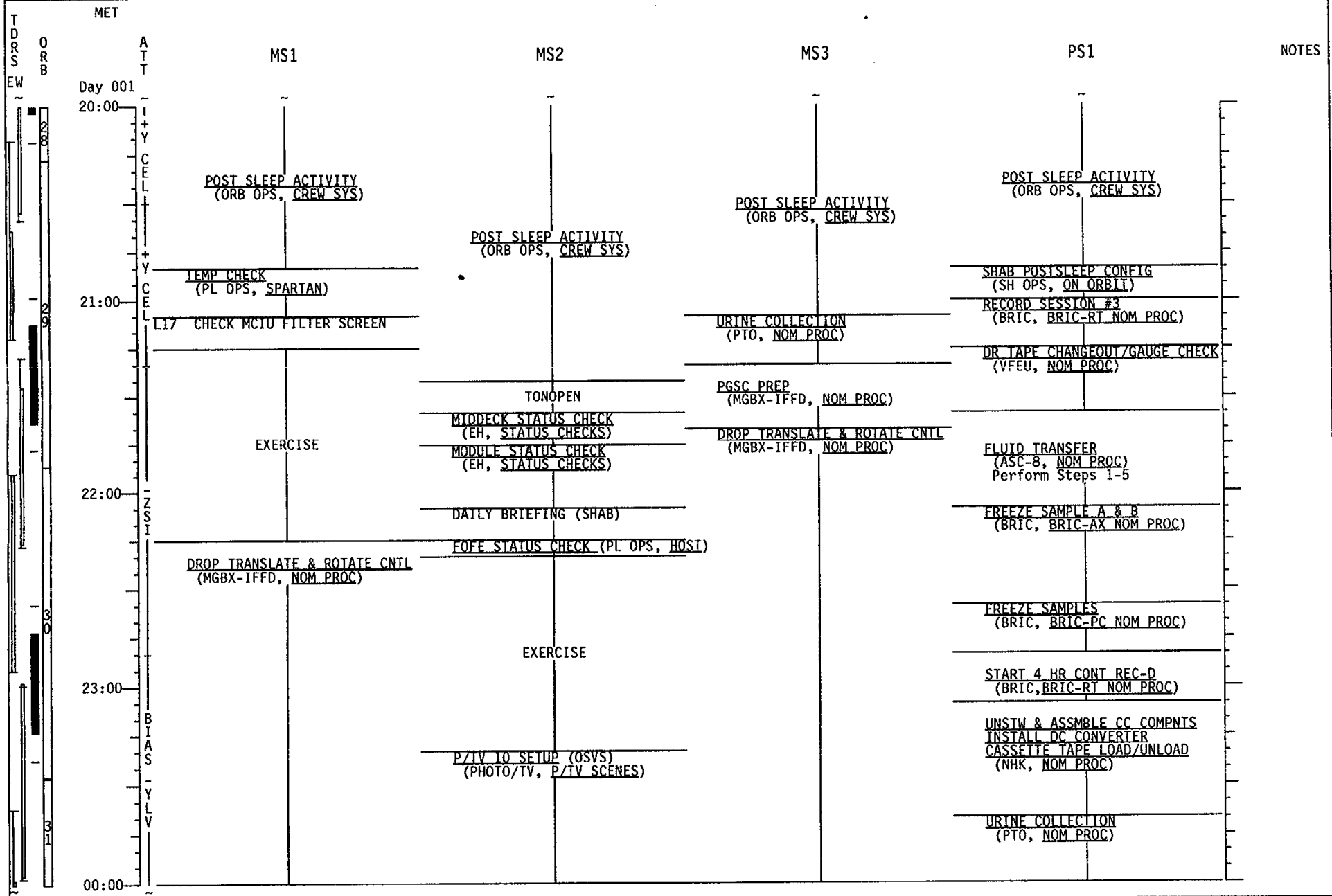
# STS-95 (FD02)



# STS-95 (FD03)

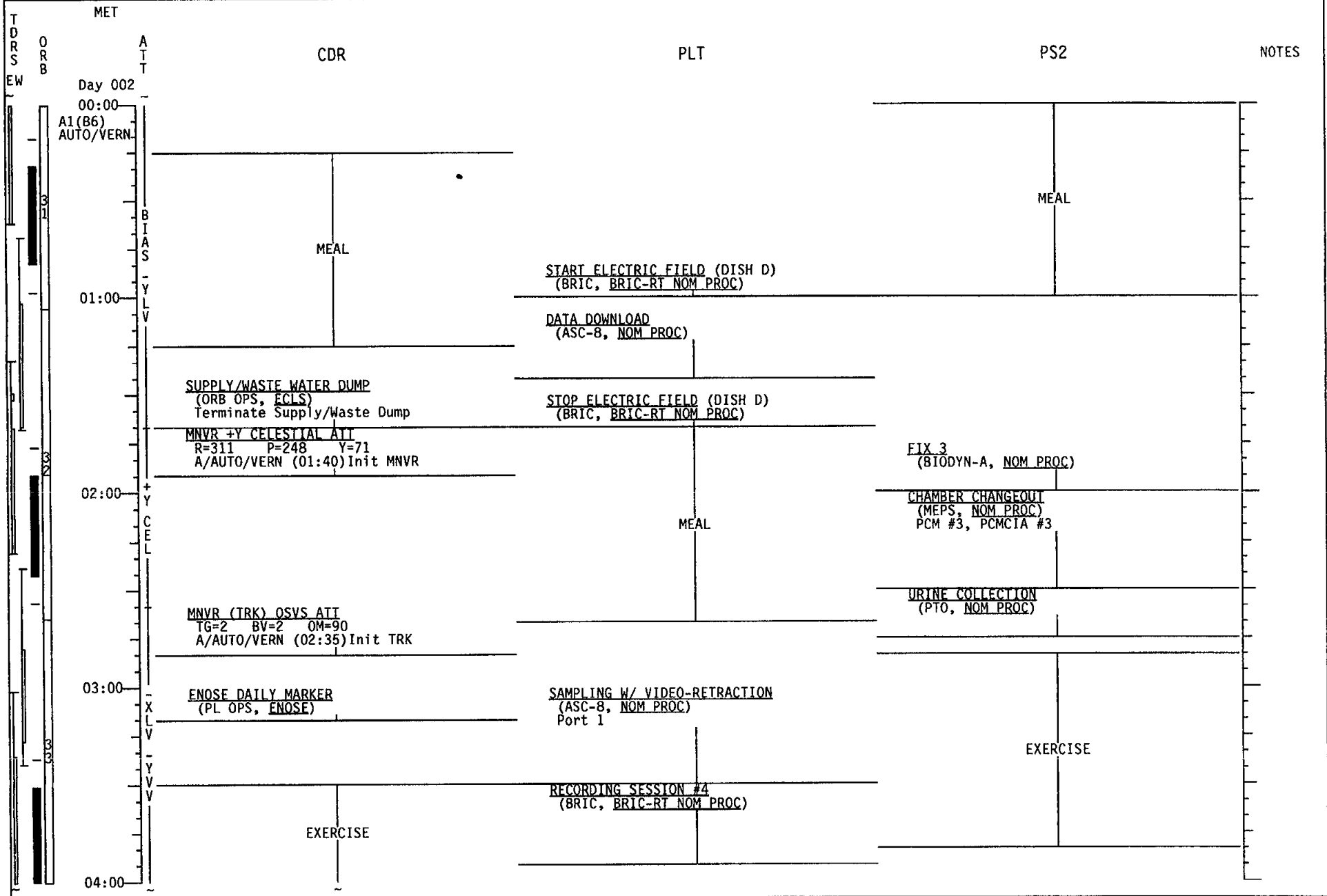
	MET	CDR	PLT	PS2	NOTES
TDRS ORB EW Day 001 20:00 A1(B6) AUTO/VERN CELE 21:00 CELE (A1)B6 AUTO/VERN ZSI 22:00 ZSI A1(B6) AUTO/VERN 23:00 BIAS YLV 00:00		POST SLEEP ACTIVITY (ORB OPS, CREW SYS)			
		MNVR +Y CELESTIAL ATT R=194 P=157 Y=298 A/AUTO/VERN (20:28) Init MNVR	POST SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST SLEEP ACTIVITY (ORB OPS, CREW SYS)	
		POST SLEEP ACTIVITY (ORB OPS, CREW SYS)			
		SPLY H2O DMP W/FES (ORB OPS, ECLS) Step 2 FES not req'd MNVR (TRK) -ZSI TG=5 RA=215.05 DEC=-13.98 BV=3 OM=185 A/AUTO/VERN (21:20) Init TRK When in ATT: B/AUTO/VERN			TONOPEN
		GPS PVA OPERATIONS (ORB OPS, GPS) Step 1			POST SLEEP ACTIVITY (ORB OPS, CREW SYS)
					URINE COLLECTION (PTO, NOM PROC)
			EXERCISE		
		DSO 802 EDUCATIONAL OPPTY John Glenn HS, New Concord, Ohio Center of Science & Industry, Columbus, Ohio Newseum, Arlington, Virginia			DSO 802 EDUCATIONAL OPPTY John Glenn HS, New Concord, Ohio Center of Science & Industry, Columbus, Ohio Newseum, Arlington, Virginia
			MNVR (TRK) WATER DUMP ATT TG=2 BV=5 P=270 Y=300 OM=270 A/AUTO/VERN (22:49) Init TRK		
		SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Supply/Waste Dump			TIPPING FES STARTUP (ORB OPS, ECLS) Step 2
		GPS PVA OPERATIONS (ORB OPS, GPS) Step 2			P/TV 10 SETUP (OSVS) (PHOTO/TV, P/TV SCENES)
			SAMPLING WITH VIDEO-INJECTION (ASC-8, NOM PROC) Port 1		

# STS-95 (FD03)

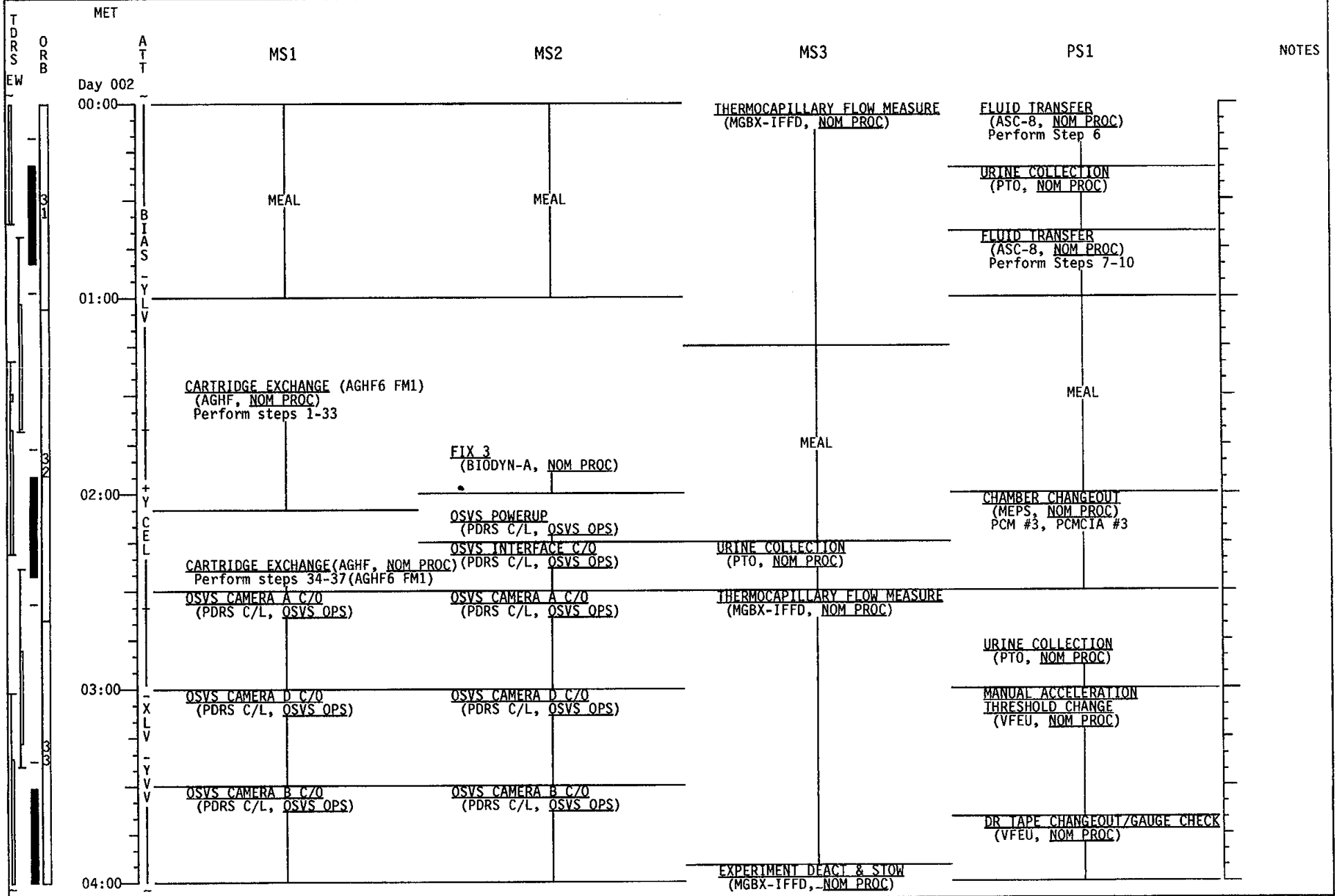




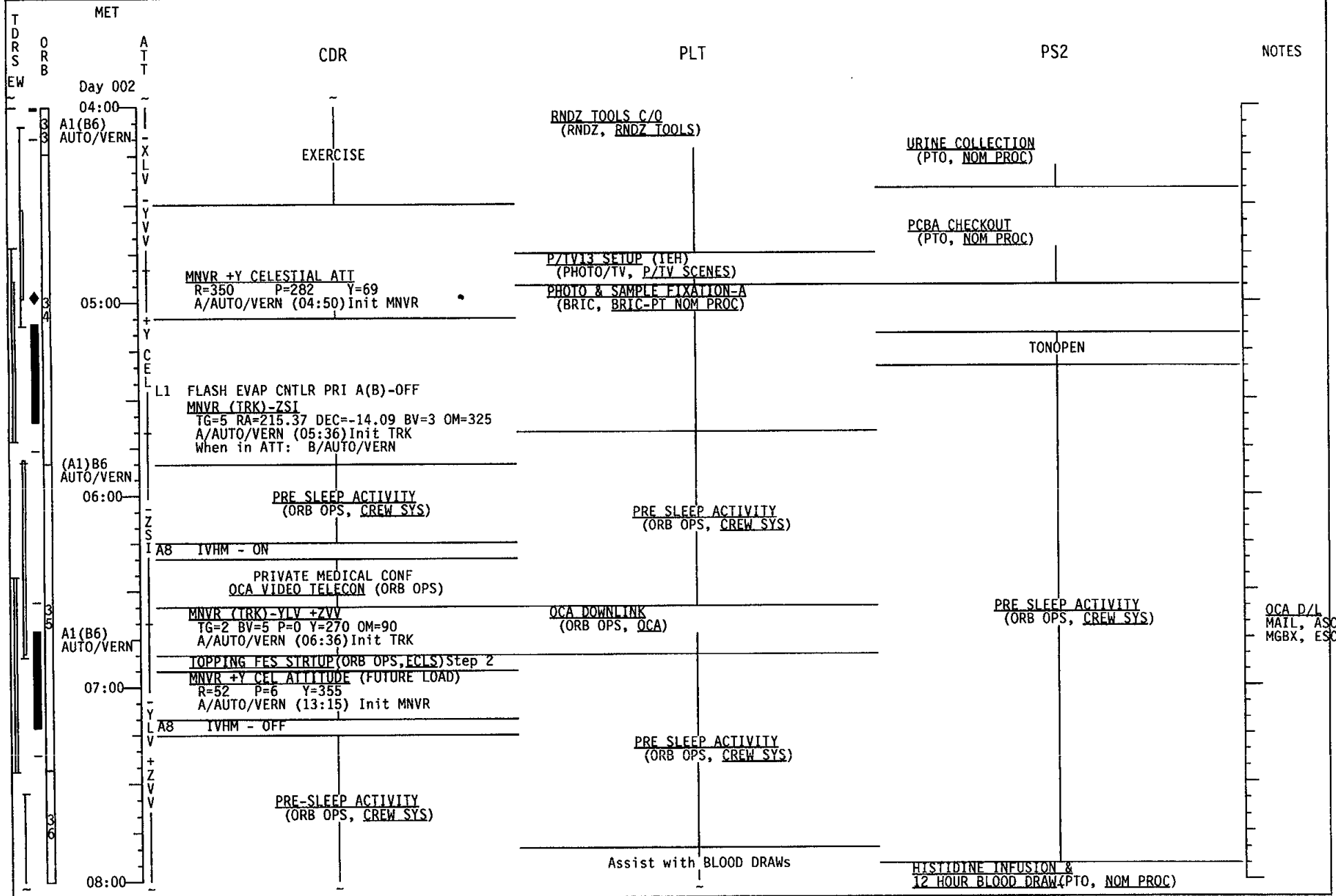
# STS-95 (FD03)



# STS-95 (FD03)

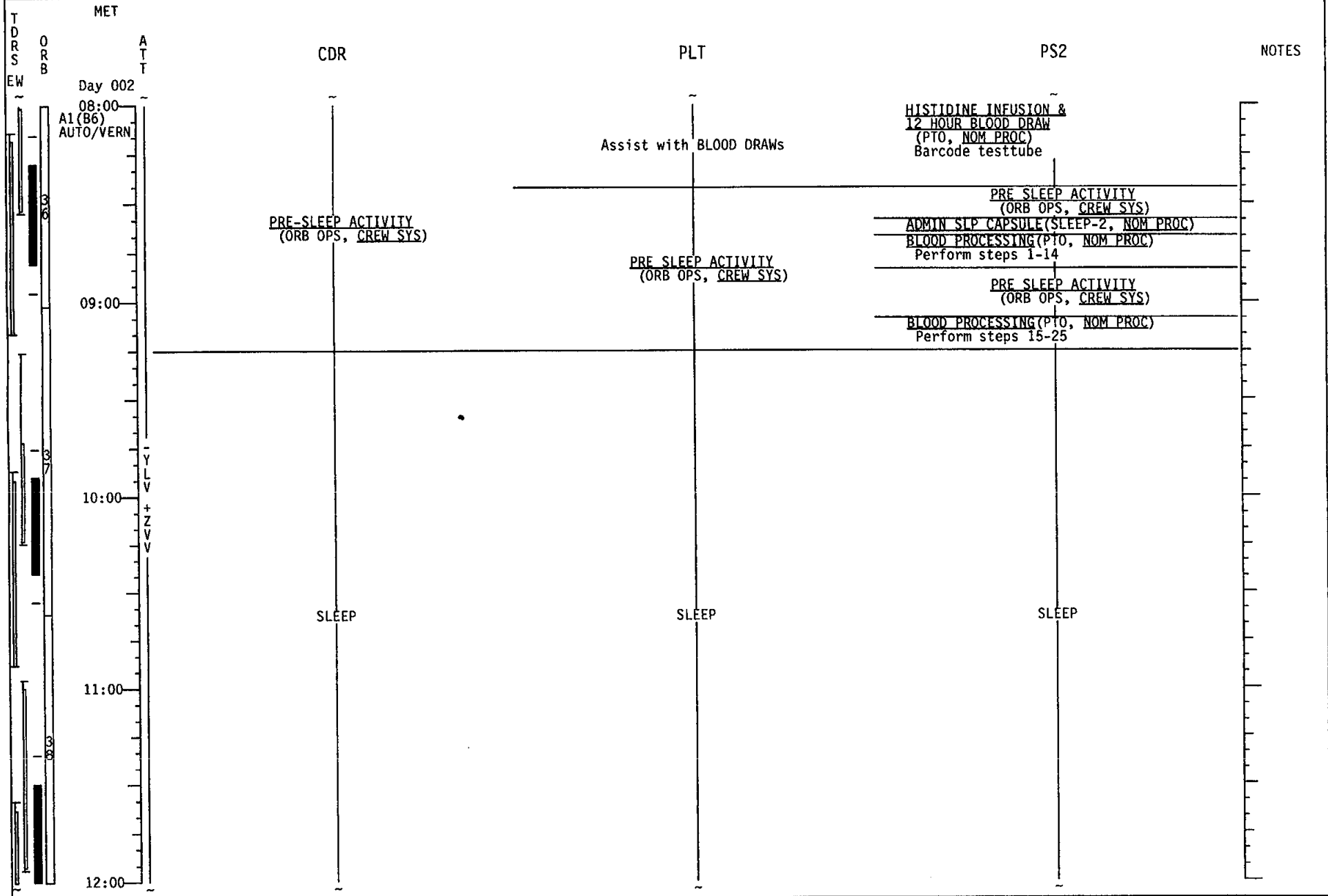


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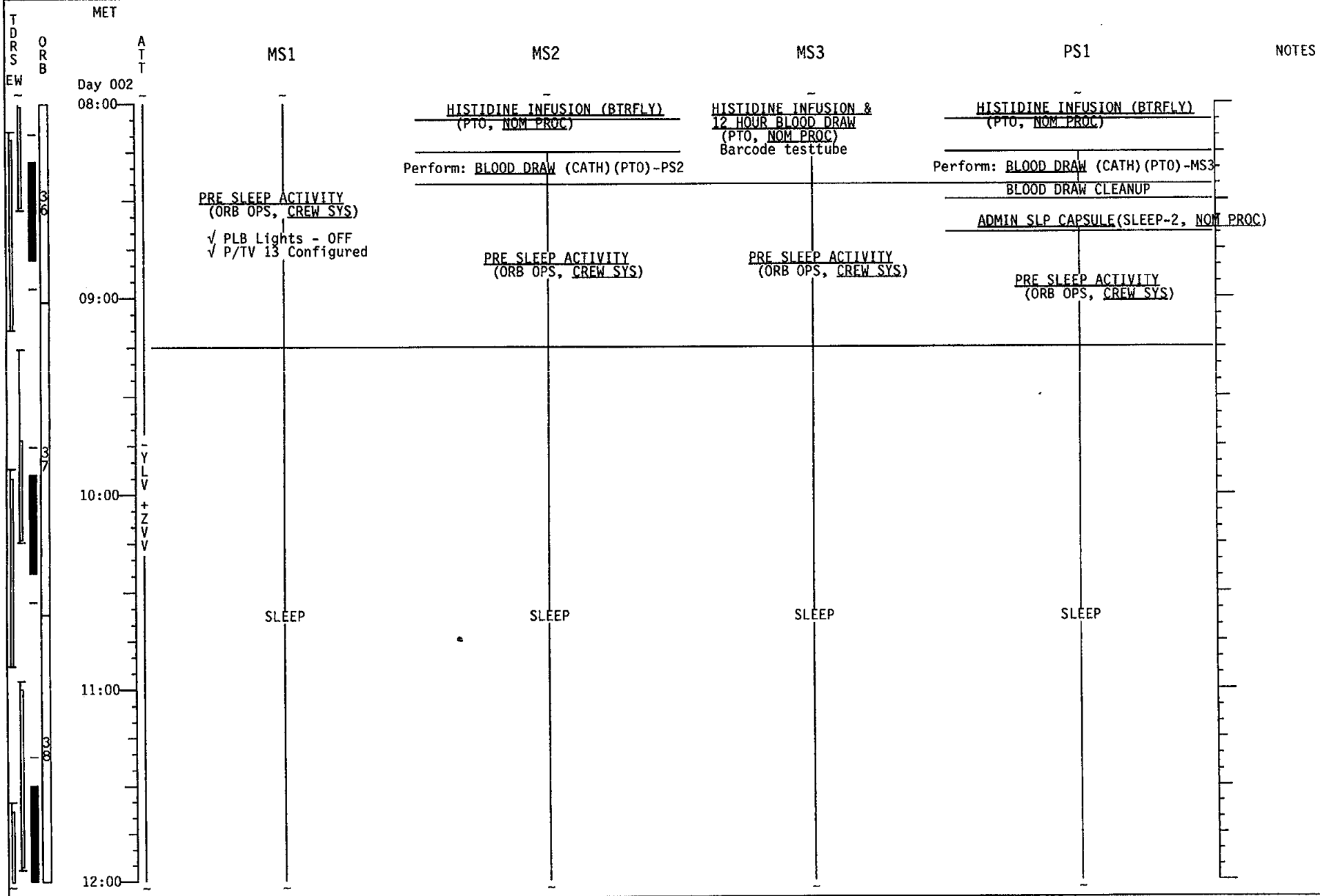




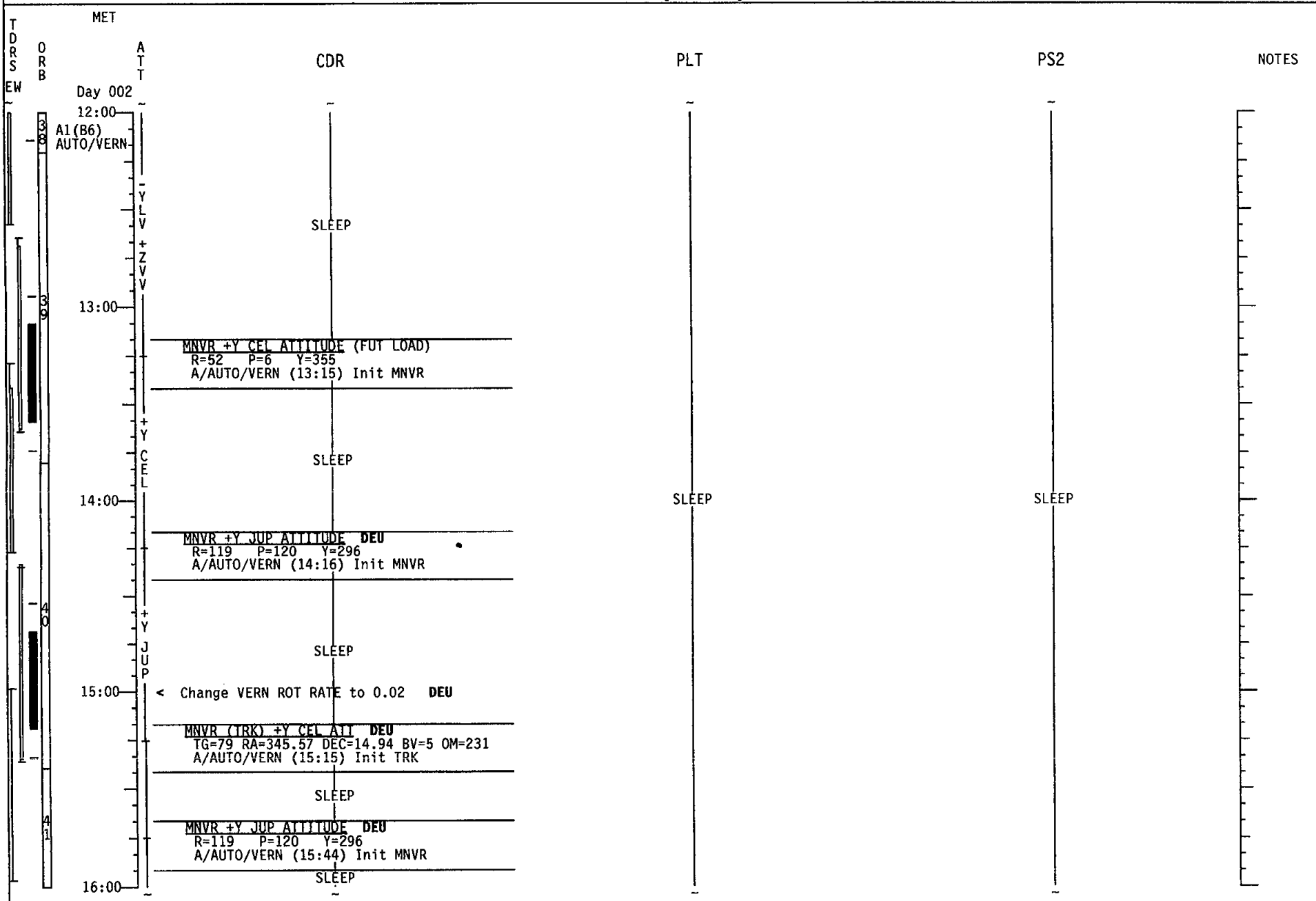
# STS-95 (FD03)



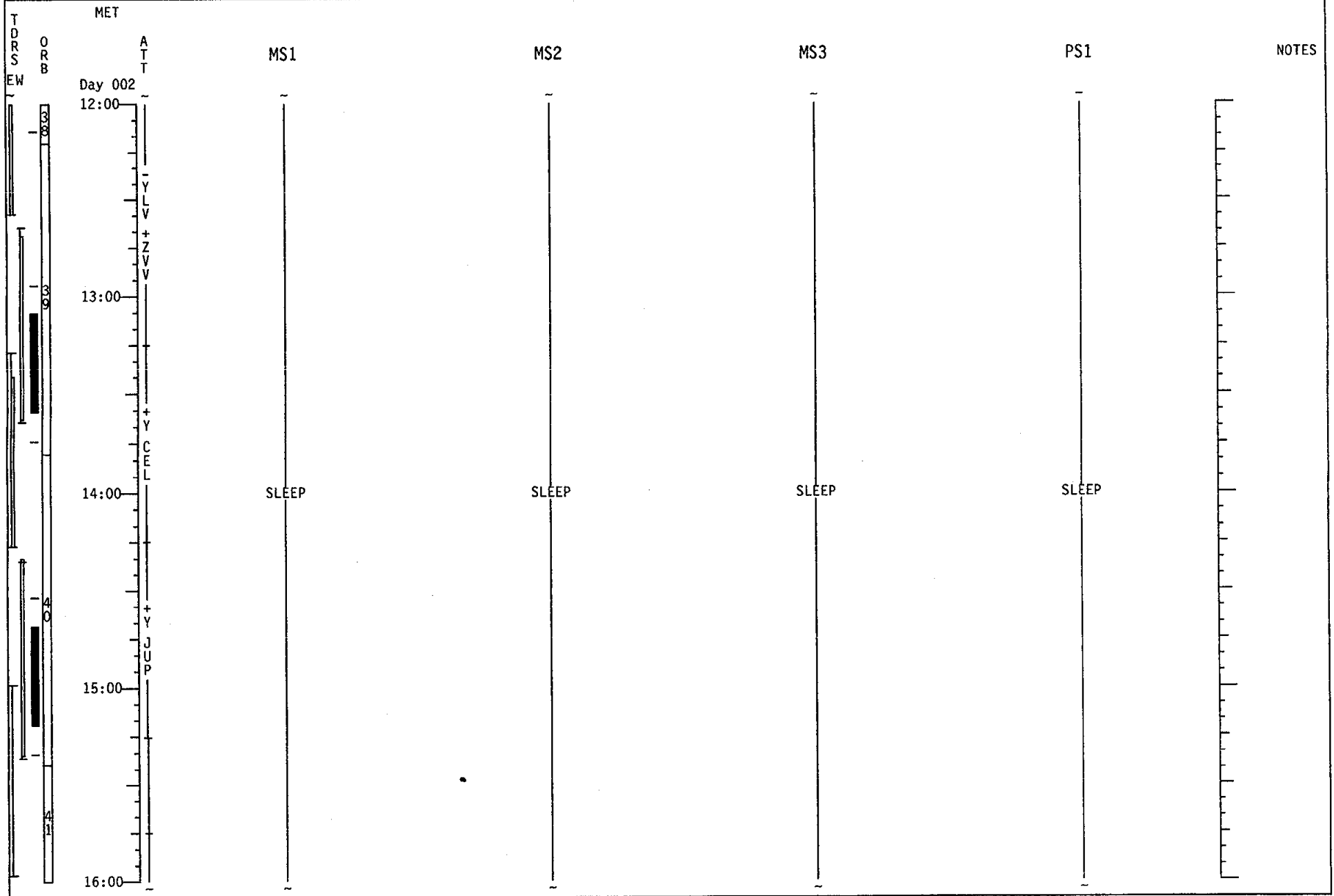
# STS-95 (FD03)



# STS-95 (FD03)

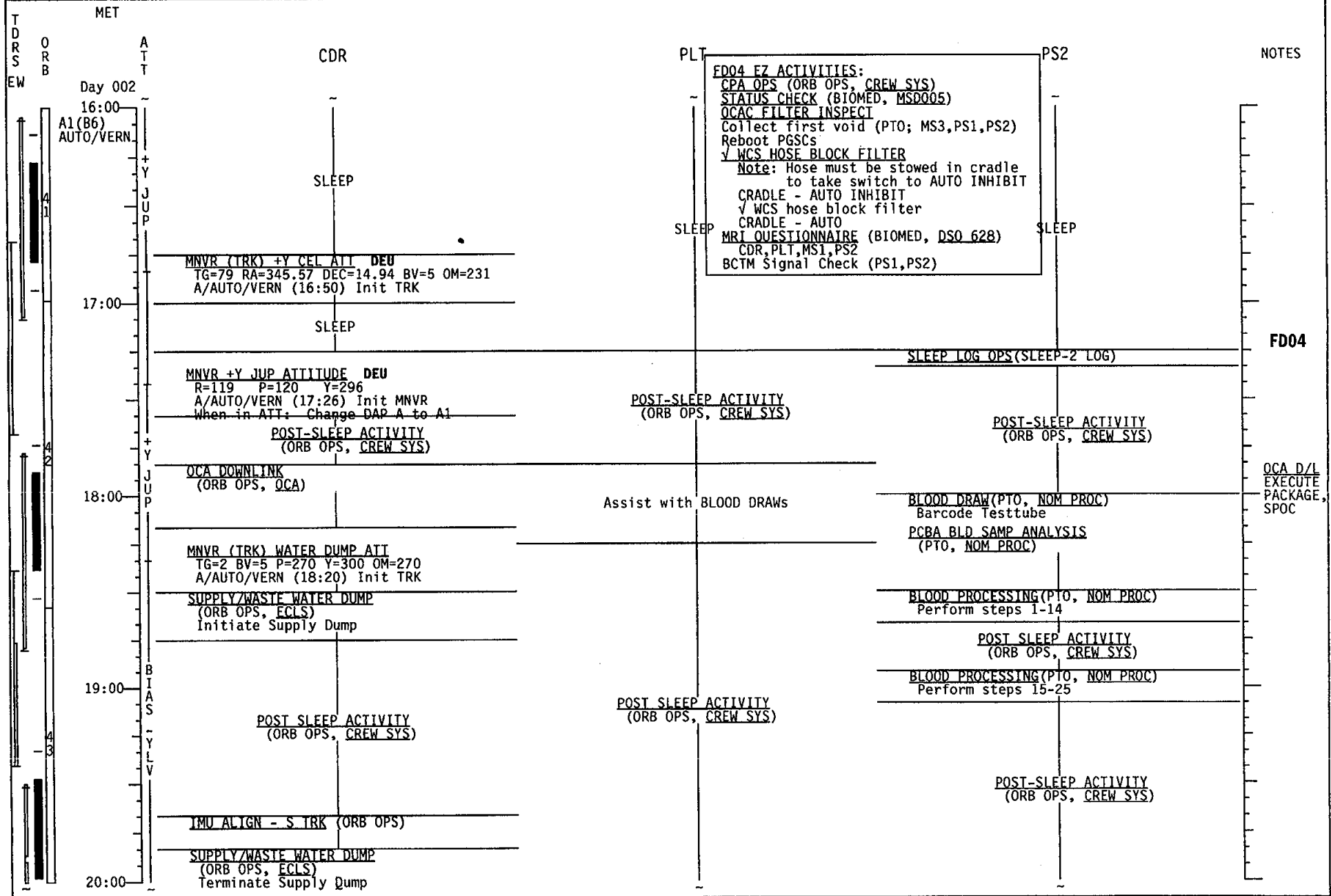


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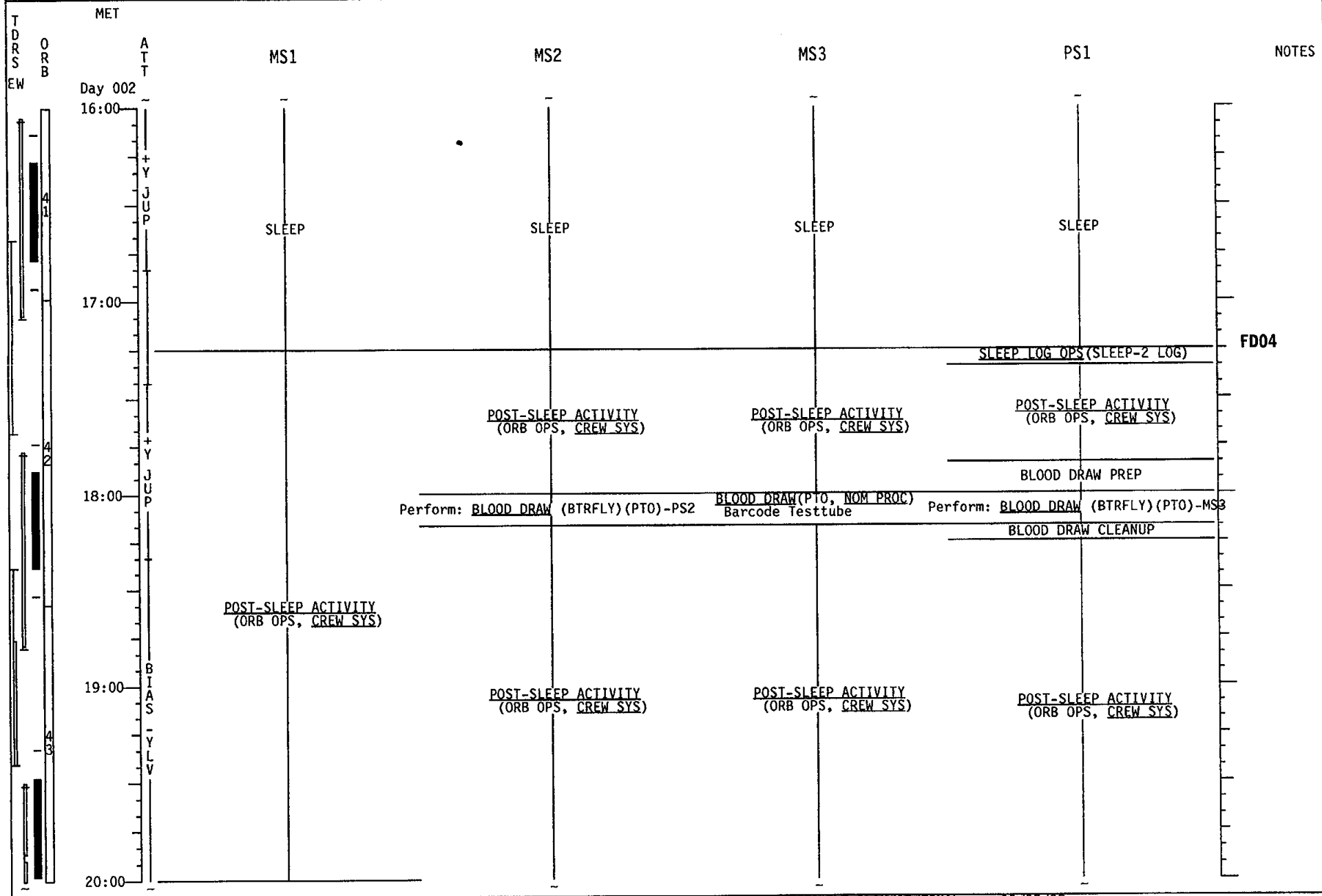




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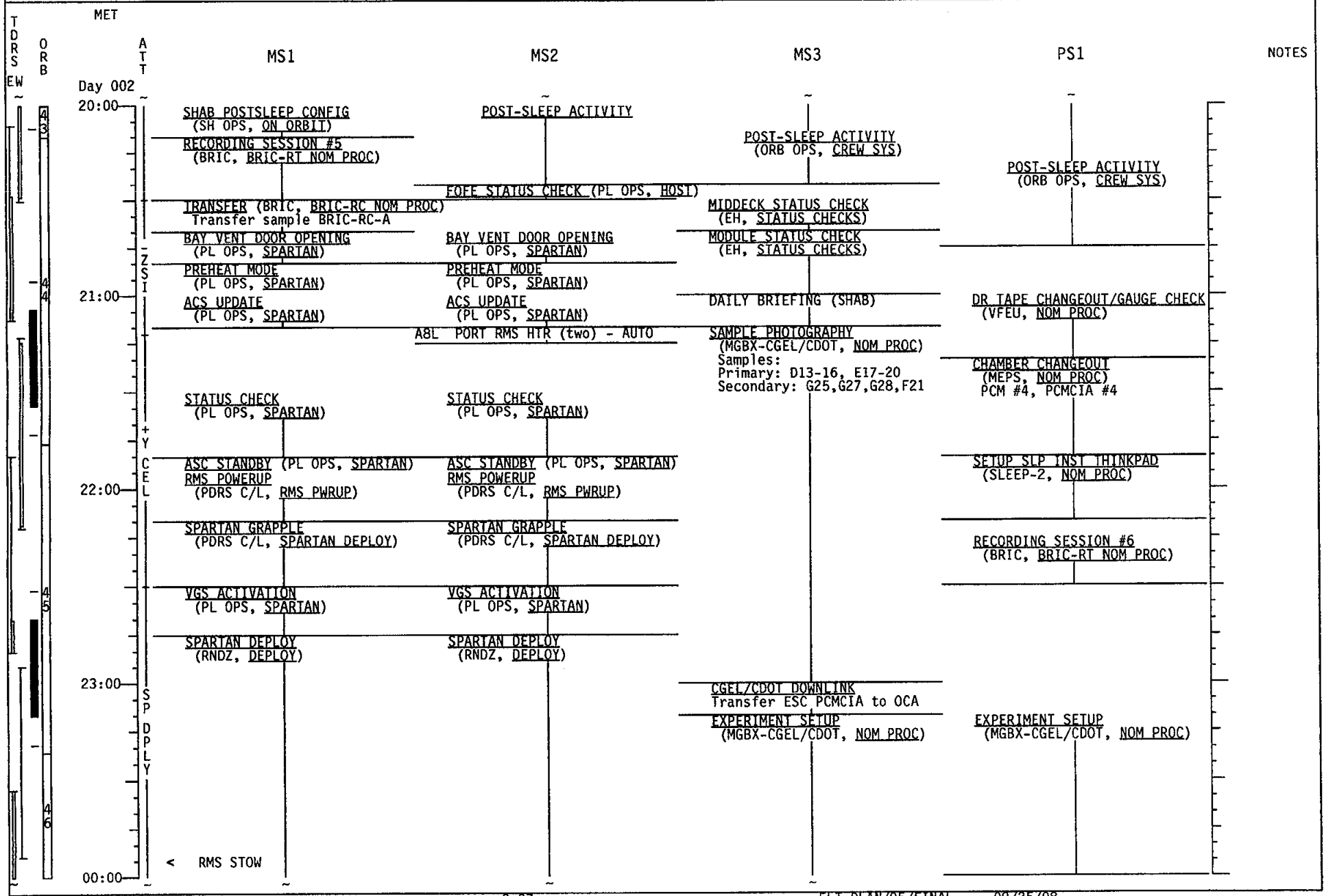
# STS-95 (FD03)



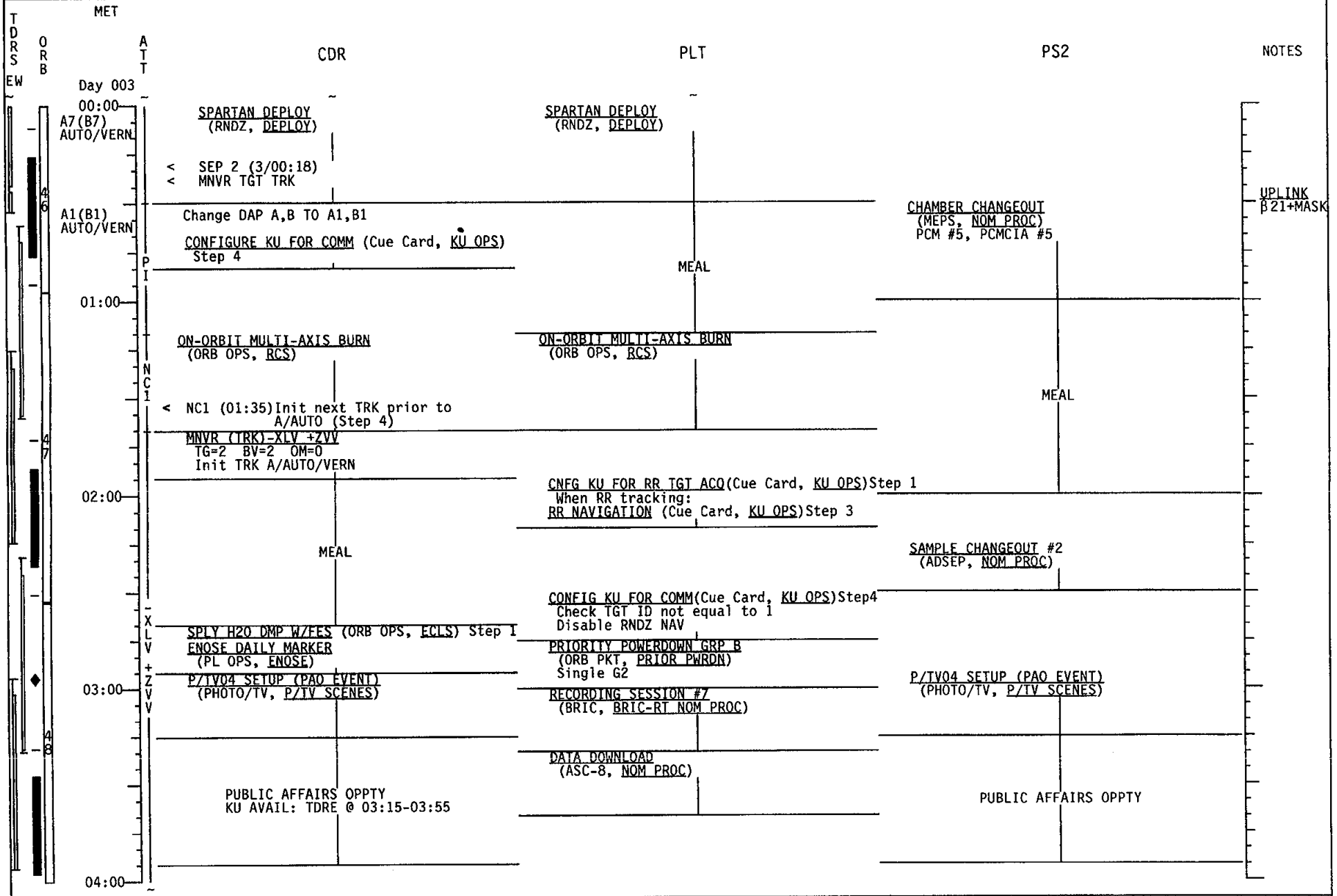
# STS-95 (FD04)

TDRS	MET	CDR	PLT	PS2	NOTES
ORB A1(B6) A1(B6) A1(B6) A1(B6) A9(B1) A10(B1) A7(B9) A7(B8) A7(B7)	Day 002 20:00 AUTO/VERN (A1)B6 AUTO/VERN 21:00 AUTO/VERN 22:00 AUTO/VERN 23:00 AUTO/VERN FREE 00:00	SUPPLY/WASTE WATER DUMP (Term) FLASH EVAP CNTLR PRI A(B)-OFF  MNVR (TRK) -ZSI TG=5 RA=215.97 DEC=-14.29 BV=3 OM=325 A/AUTO/VERN (20:28) Init TRK When in ATT: B/AUTO/VERN  EXERCISE  PRIOR POWERUP GROUP B (ORB PKT, PRIOR PWRDN) Steps 7,8,11,12,13; Dual G2  CELL FEEDING FEED #3 (OSTEO, NOM PROC)  MNVR SPARTAN DPLY ATT R=304.94 P=255.77 Y=355.25 A/AUTO/VERN (22:30) Init MNVR  SPARTAN DEPLOY (RNDZ, DEPLOY) UNBERTH  < RELEASE (2/23:42) < SEP 1 (23:48) < KU TO RADAR	POST SLEEP ACTIVITY (ORB OPS, CREW SYS)  MNVR +Y CELESTIAL ATT R=76 P=226 Y=64 A/AUTO/VERN (21:09) Init MNVR  EXERCISE  SPARTAN DEPLOY (RNDZ, DEPLOY)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)  CHAMBER CHANGEOUT (MEPS, NOM PROC) PCM #4, PCMCIA #4  CELL FEEDING FEED #3 (OSTEO, NOM PROC)  P/TV08 SETUP (SPTN DPLY/RTRV) (PHOTO/TV, P/TV SCENES)  EXERCISE  CELL FEEDING FEED #4 (OSTEO, NOM PROC)	UPLINK TFL 184  UPLINK B21+MASK+BOX 0<AZ<100 -75<EL<-20  UPLINK B 0 only  UPLINK TFL 199

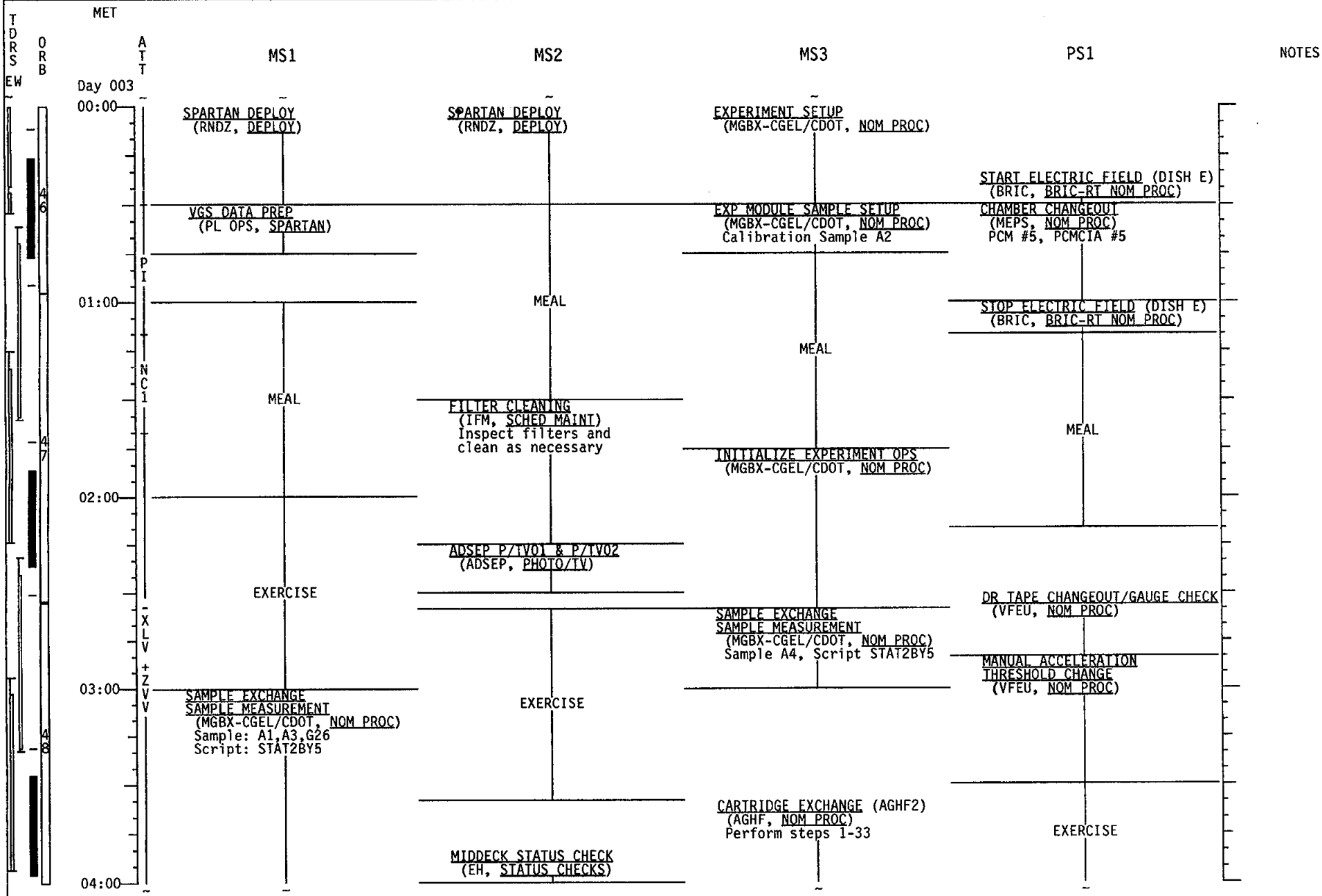
# STS-95 (FD04)



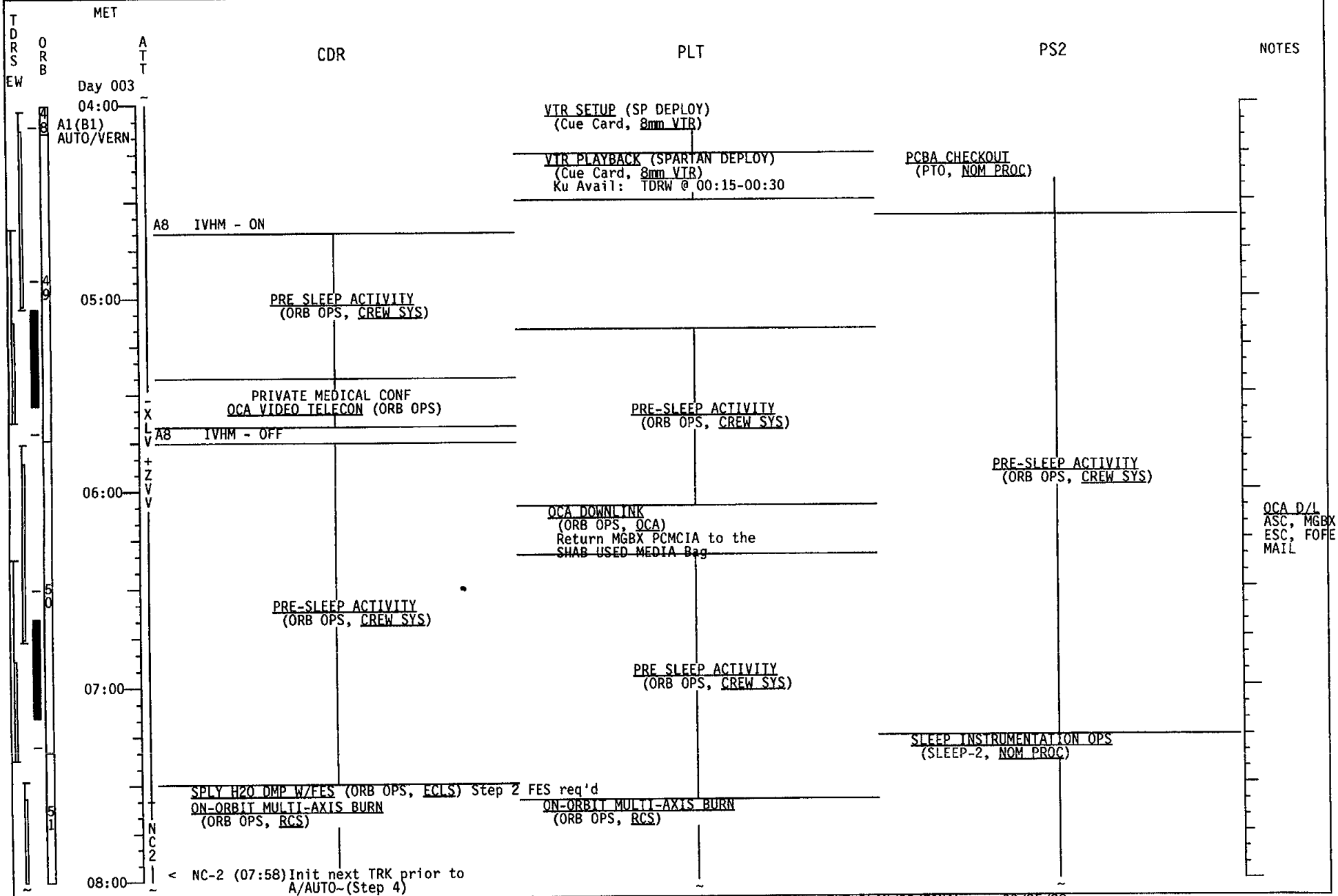
# STS-95 (FD04)



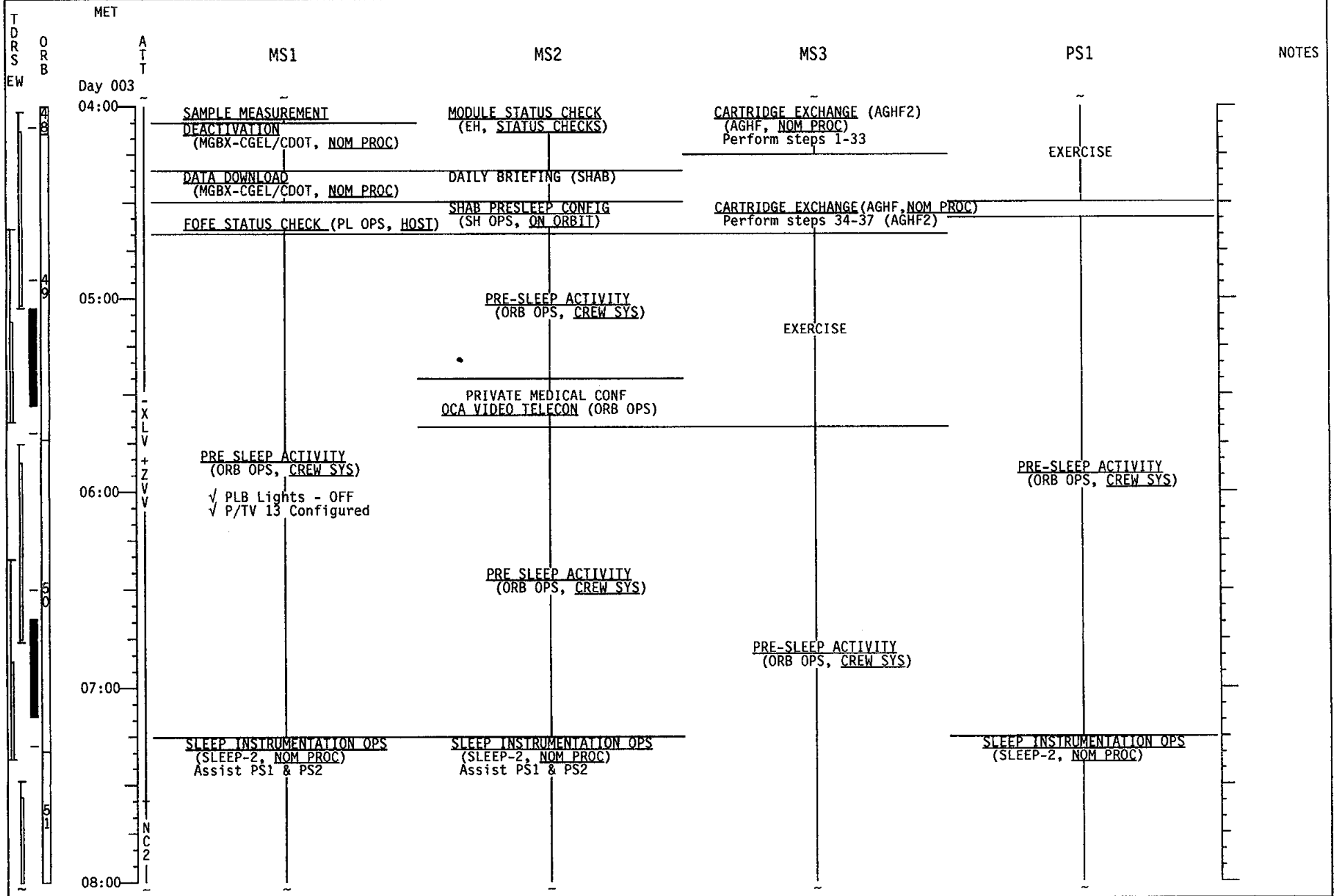
# STS-95 (FD04)



# STS-95 (FD04)

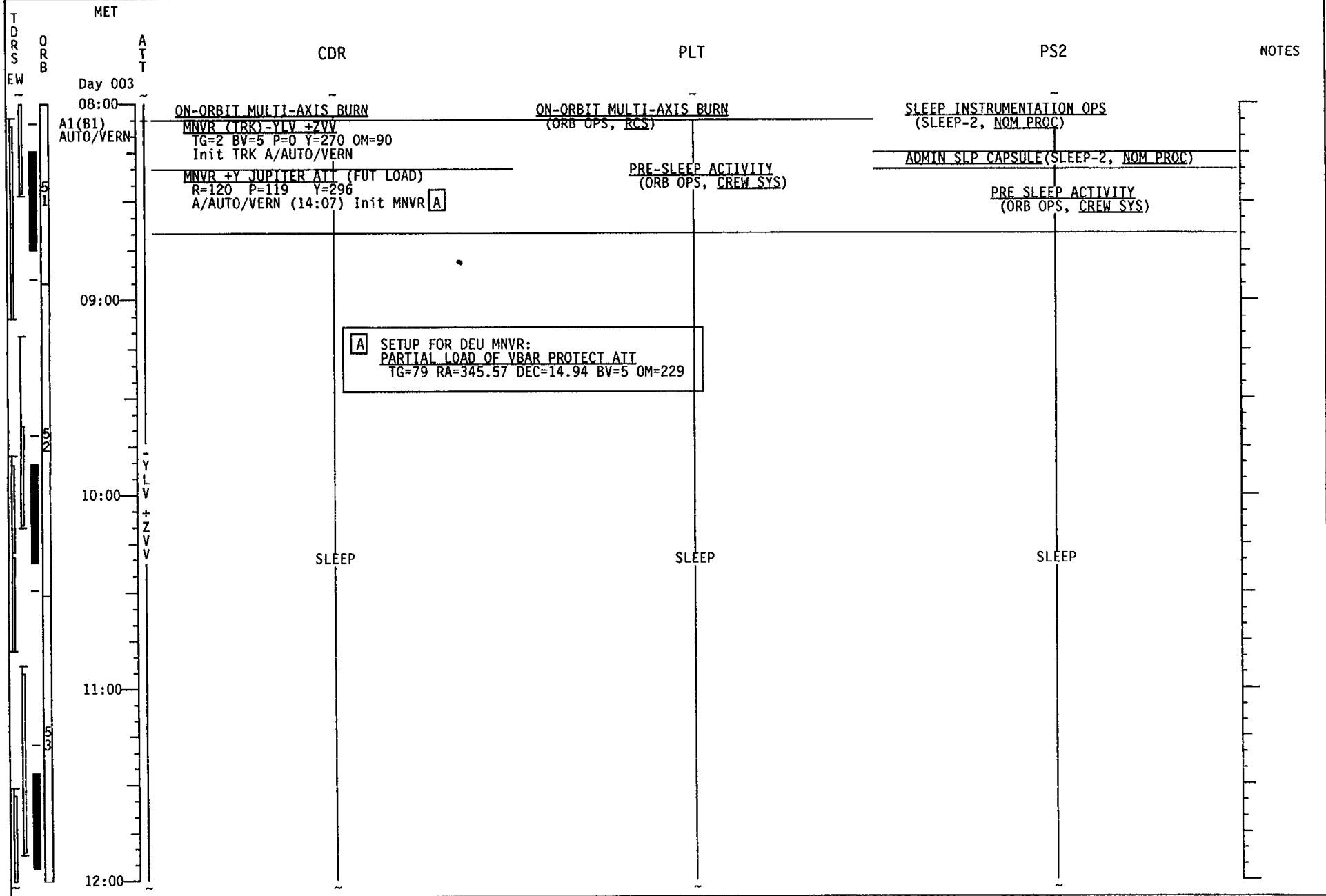


# STS-95 (FD04)

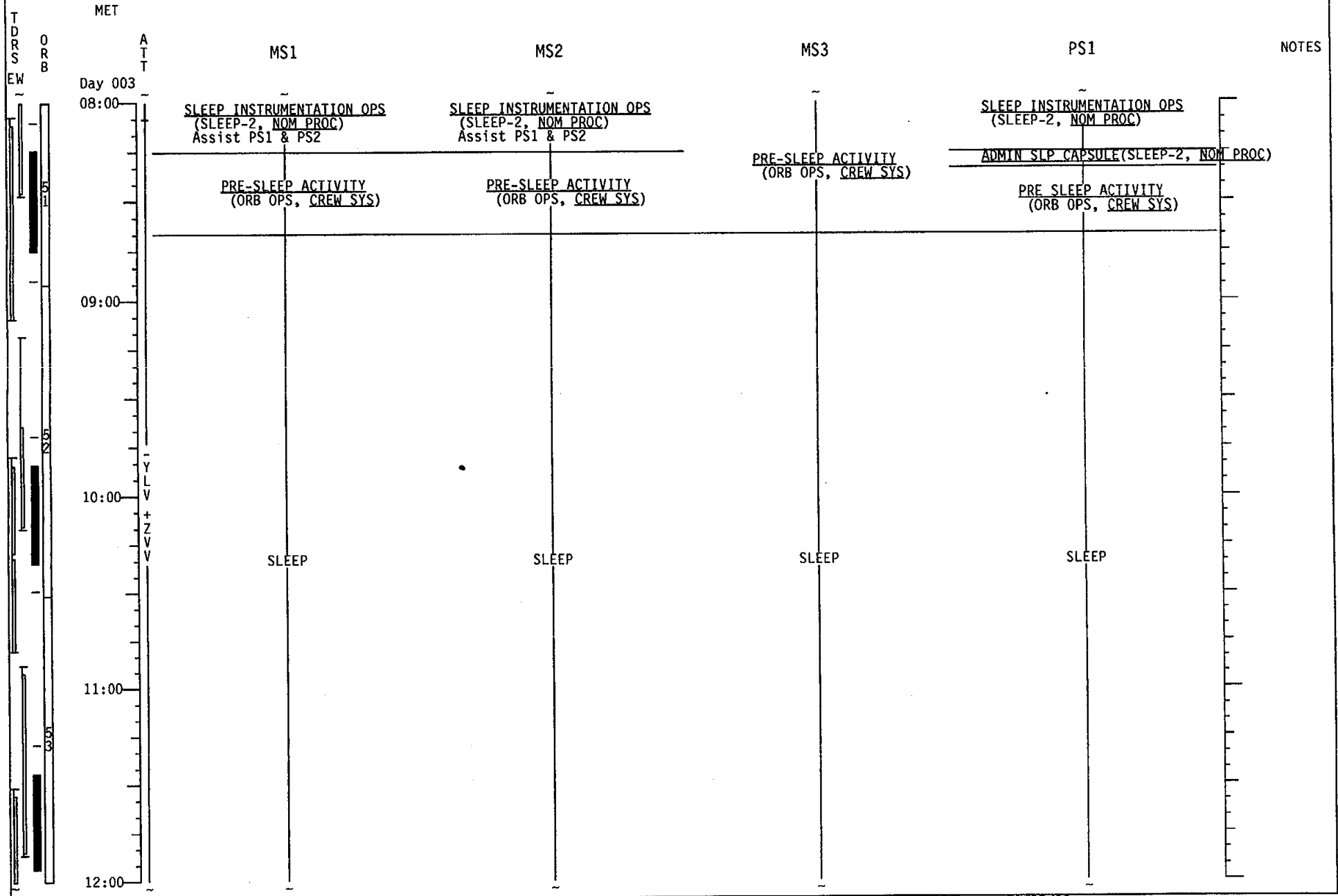




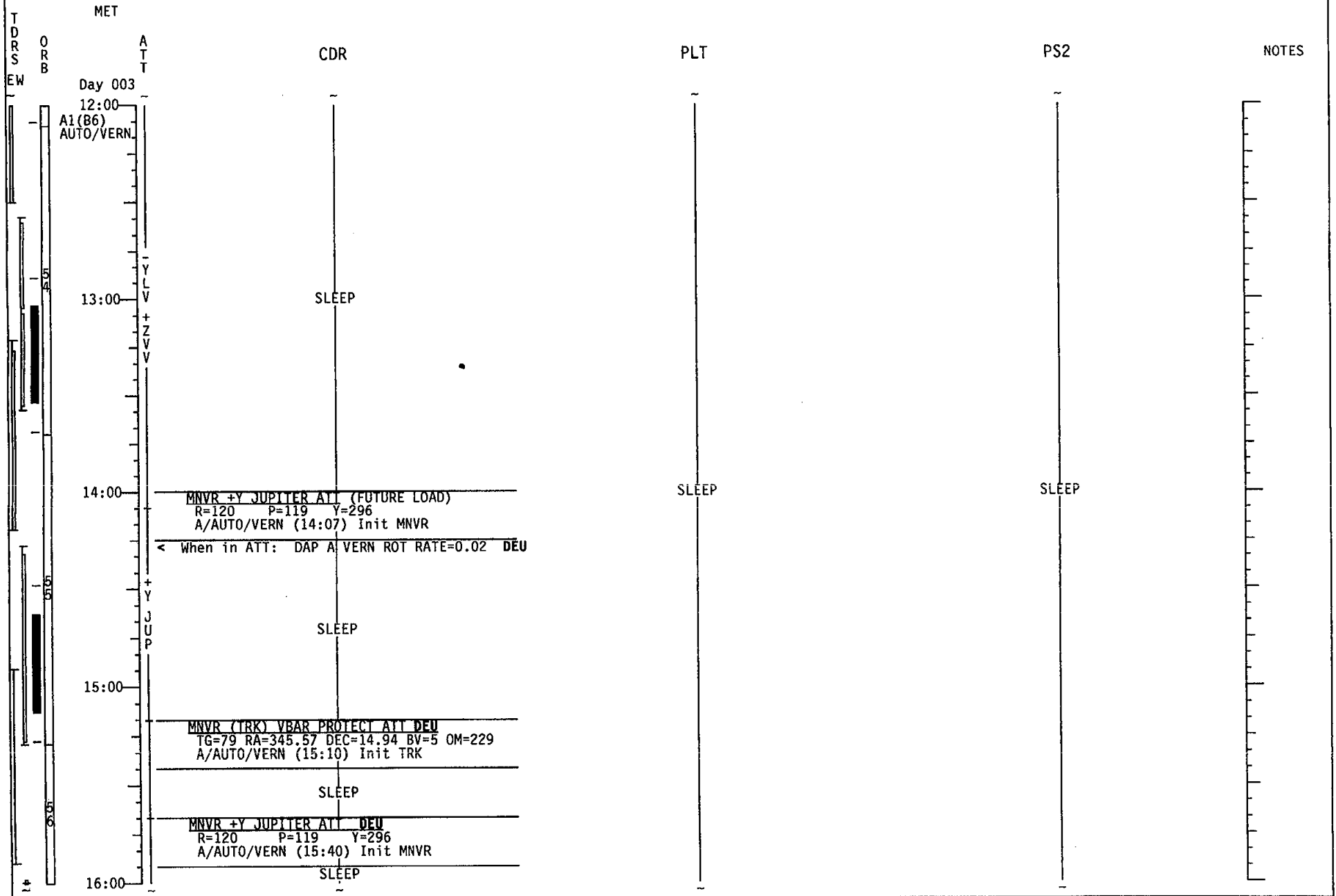
# STS-95 (FD04)



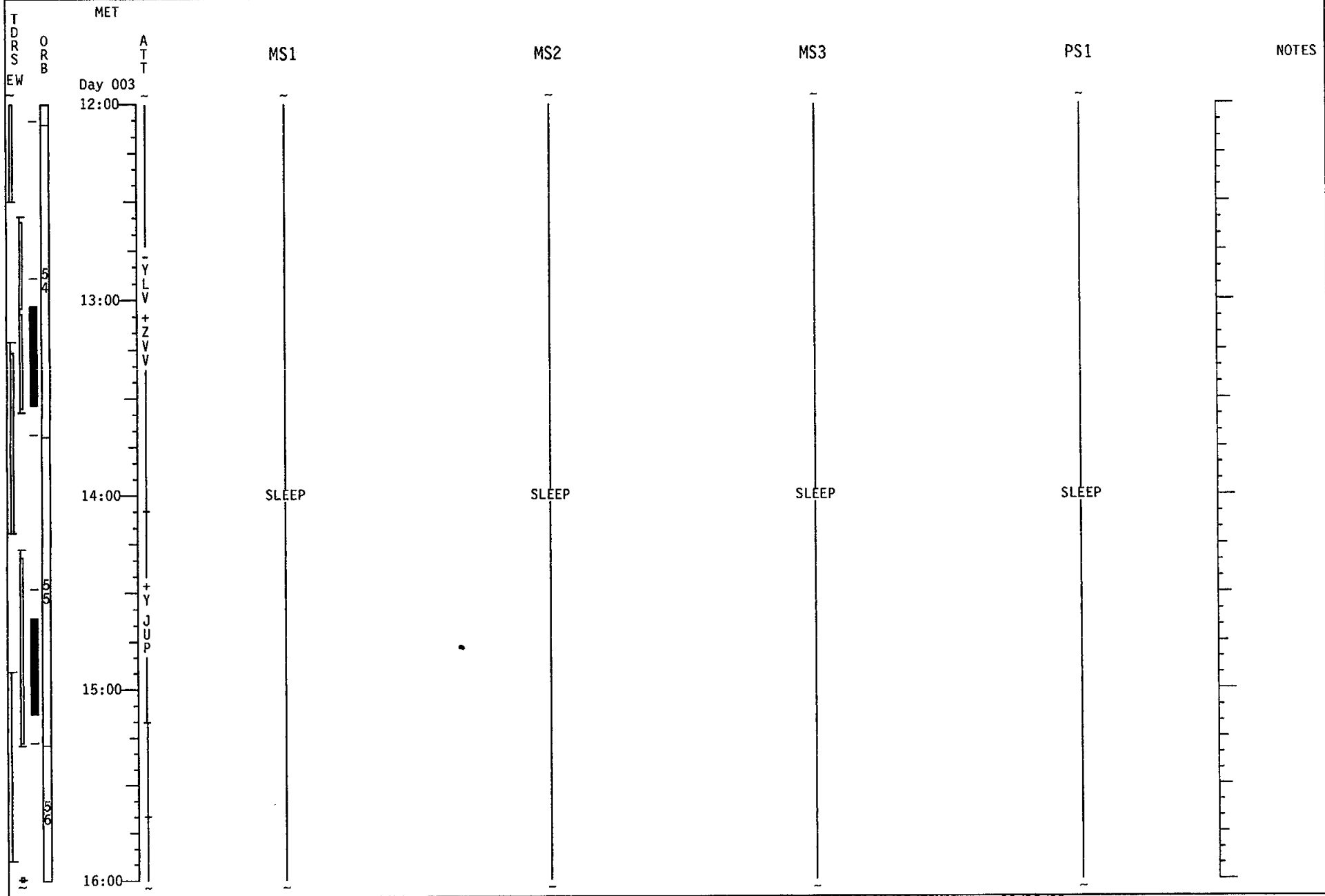
# STS-95 (FD04)



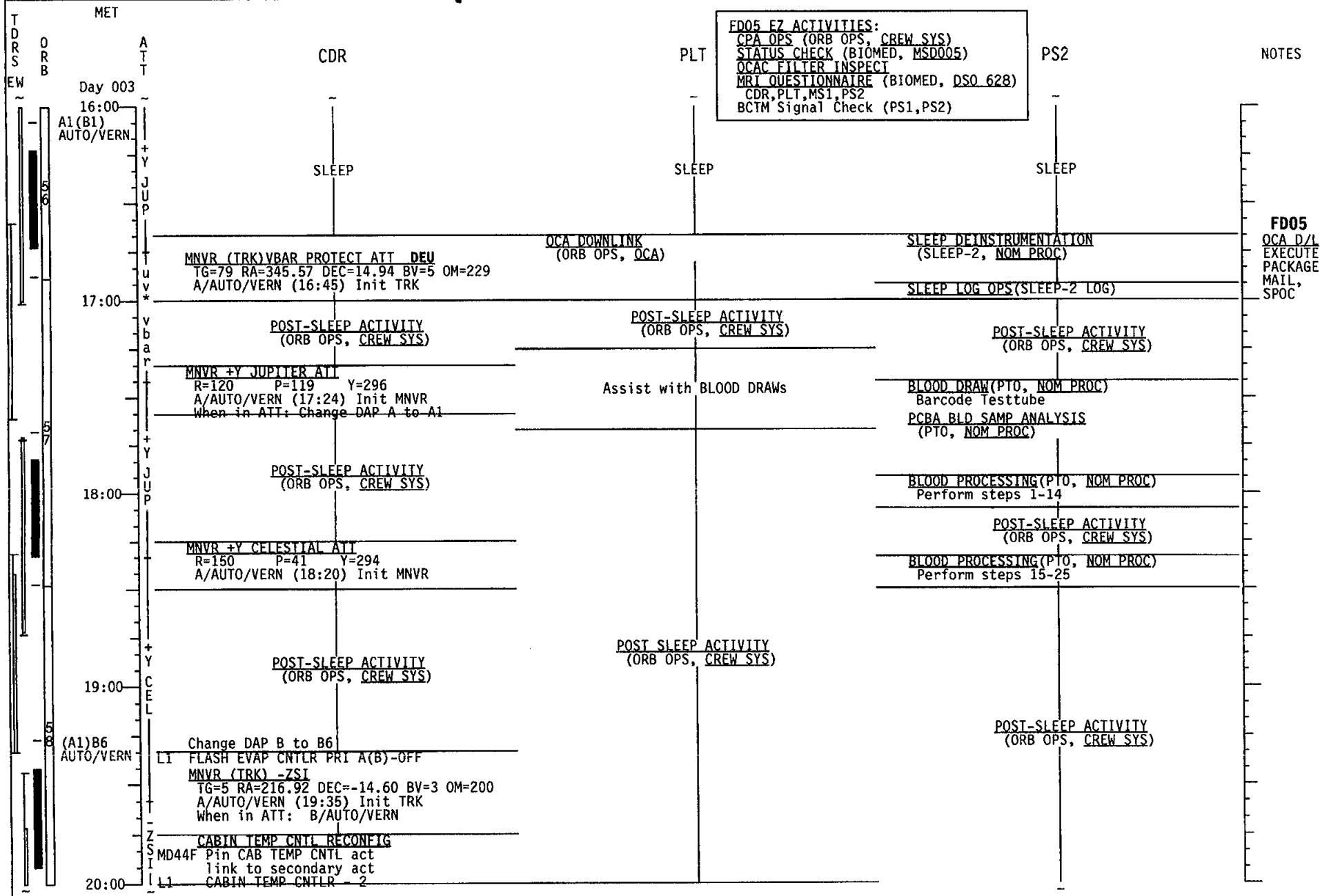
# STS-95 (FD04)



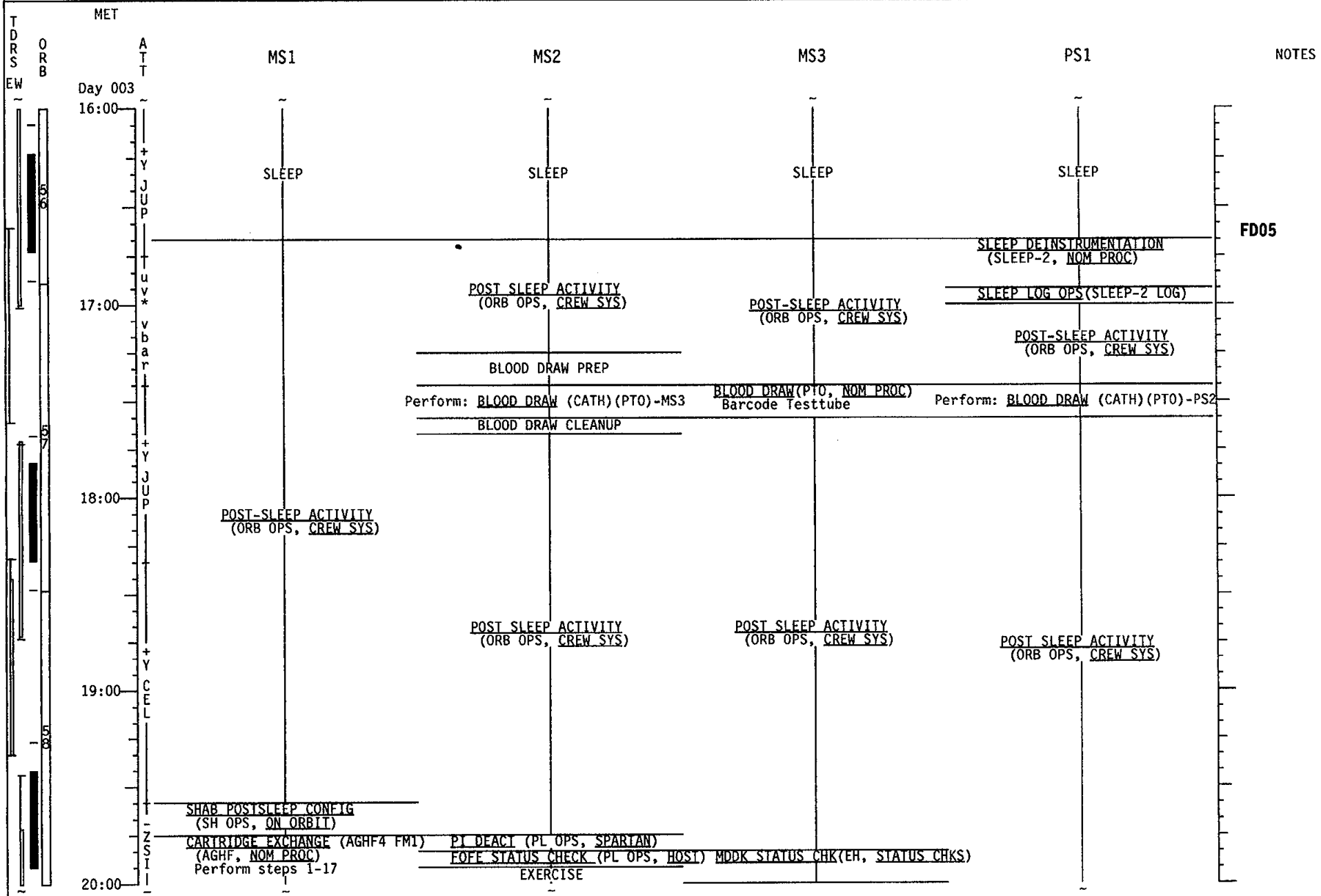
# STS-95 (FD04)



# STS-95 (FD04)



# STS-95 (FD04)



# STS-95 (FD05)

	MET	CDR	PLT	PS2	NOTES
TDRS OR B EW Day 003 20:00 (A1)B6 AUTO/VERN A1(B6) AUTO/VERN 21:00 22:00 (A1)B6 AUTO/VERN 23:00 A1(B6) AUTO/VERN 00:00	20:00 ENOSE DAILY MARKER (PL OPS, ENOSE)	HTR RECONFIG-CONFIG B (ORB OPS, EPS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
	MNVR +Y CELESTIAL ATT R=142 P=61 Y=333 A/AUTO/VERN (20:16) Init MNVR	P/TV04 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)			
	SPLY H2O DMP W/FES (ORB OPS, ECLS) Step I				
	PUBLIC AFFAIRS OPPTY KU AVAIL: TDRE @ 20:35-21:00	RCS REGULATOR RECONFIGURE (ORB OPS, RCS)		PUBLIC AFFAIRS OPPTY	
	OFF DUTY	MNVR +Y CELESTIAL ATT R=357 P=204 Y=359 A/AUTO/VERN (21:01) Init MNVR			
	PRIVATE FAMILY CONFERENCE OCA VIDEO TELECON(ORB OPS) Ku avail (21:20 - 21:35)	OFF DUTY		OFF DUTY	
	OFF DUTY	PRIVATE FAMILY CONFERENCE OCA VIDEO TELECON(ORB OPS) Ku avail (21:35 - 21:50)			
	SPLY H2O DMP W/FES(ORB OPS,ECLS)Step 2 FES not req'd MNVR (TRK) -ZSI TG=5 RA=217.03 DEC=-14.64 BV=3 OM=306 A/AUTO/VERN (22:02) Init TRK When in ATT: B/AUTO/VERN			PRIVATE FAMILY CONFERENCE OCA VIDEO TELECON(ORB OPS) Ku avail (21:50 - 22:05)	
	OFF DUTY	OFF DUTY			
	OFF DUTY	OFF DUTY			
	MNVR VBAR PROTECT ATT R=132 P=109 Y=293 A/AUTO/VERN (23:28) Init MNVR When in ATT: DAP A VERN ROT=0.04				
	SPLY H2O DMP W/FES (ORB OPS, ECLS) Step I MNVR +Y JUPITER ATT R=120 P=119 Y=296 A/AUTO/VERN (23:44) Init MNVR When in ATT: DAP A to A1				





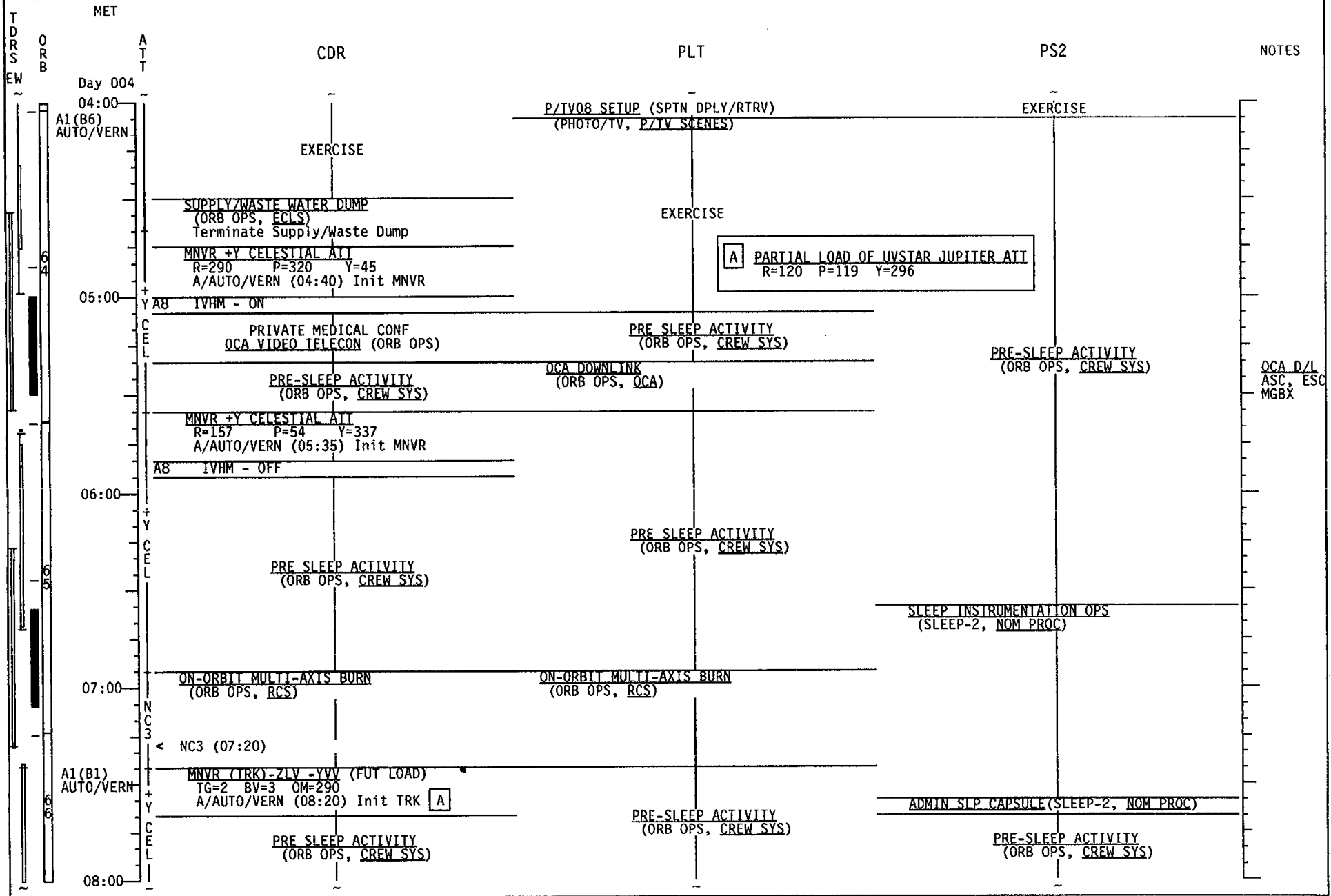
# STS-95 (FD05)

	MET	CDR	PLT	PS2	NOTES
TDRS ORB EW Day 004 00:00 A1(B6) AUTO/VERN + Y J U P - N S I 01:00 (A1)B6 AUTO/VERN - B I A S 02:00 A1(B6) AUTO/VERN - Y L V 03:00 - T 04:00		MEAL  SPLY H2O DMP W/FES (ORB OPS, ECLS) Step 2 FES not req'd MNVR (TRK) -ZSI TG=5 RA=217.13 DEC=-14.67 BV=3 OM=37 A/AUTO/VERN (00:50) Init TRK When in ATT: B/AUTO/VERN  OFF DUTY  MNVR (TRK) WATER DUMP ATT TG=2 BV=5 P=270 Y=300 OM=270 A/AUTO/VERN (01:55) Init TRK TOPPING FES STARTUP (ORB OPS, ECLS) Step 2 SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Supply Dump  PUBLIC AFFAIRS OPPTY KU AVAIL: TDRW @ 02:40-03:05  SPLY/WASTE H2O DMP (ORB OPS, ECLS) Initiate waste dump CANISTER TRANSFER (PL OPS, BRIC-13)  EXERCISE	MEAL          P/TV04 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)  EQUIPMENT STORAGE (BRIC, BRIC-RT NOM PROC) WATERING H2O (B) (BRIC, BRIC-PT NOM PROC)  PGSC SETUP (RNDZ, RENDEZVOUS TOOLS)  IMU ALIGN - S TRK (ORB OPS)  P/TV08 SETUP (SPIN DPLY/RTRV) (PHOTO/TV, P/TV SCENES)	MEAL          COGNITIVE PERFORMANCE OPS (SLEEP-2, NOM PROC)          PUBLIC AFFAIRS OPPTY          EXERCISE	

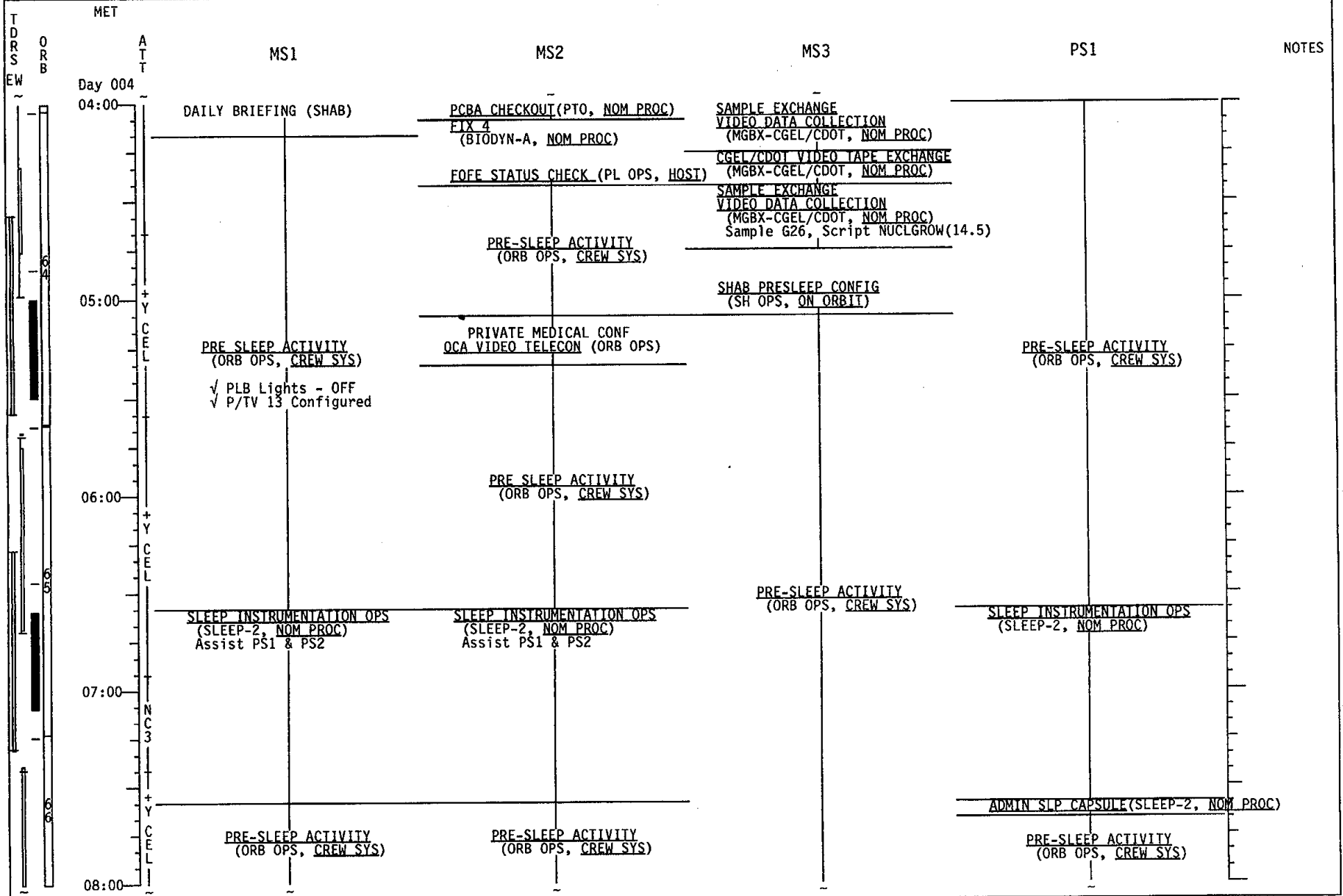
# STS-95 (FD05)

	MET	MS1	MS2	MS3	PS1	NOTES
T D R S E W  O R B  6 11  6 28  6 33  T	A T T  Day 004 00:00  + Y J U P  - Z S I  B I A S  Y L V  04:00	MEAL    OFF DUTY   RECORDING SESSION #8 (BRIC, BRIC-RT, NOM PROC)  EXERCISE  MIDDECK STATUS CHECK (EH, STATUS CHECKS) MODULE STATUS CHECK (EH, STATUS CHECKS)	MEAL   OFF DUTY   EXP MODULE SMPL S/U (MGBX-CGEL, NOM PROC) Steps 1-10, 17-27; Smple G25, Script VMOV2BY5 SAMPLE EXCHANGE VIDEO DATA COLLECTION (MGBX-CGEL/CDOT, NOM PROC) Sample G28, Script VMOV2BY5  PGSC SETUP (RNDZ, RENDEZVOUS TOOLS)  CELL FEEDING FEED #5 (OSTEO, NOM PROC) PCBA CHECKOUT (PTO, NOM PROC)	MEAL   OFF DUTY   EXERCISE  SAMPLE EXCHANGE VIDEO DATA COLLECTION (MGBX-CGEL/CDOT, NOM PROC) Sample: G27, F21, F24 Script: VMOV2BY5	MEAL   OFF DUTY   MANUAL ACCELERATION THRESHOLD CHANGE (VFEU, NOM PROC)  DR TAPE CHANGEOUT/GAUGE CHECK (VFEU, NOM PROC)  DATA DOWNLOAD (ASC-8, NOM PROC)  COGNITIVE PERFORMANCE OPS (SLEEP-2, NOM PROC)	

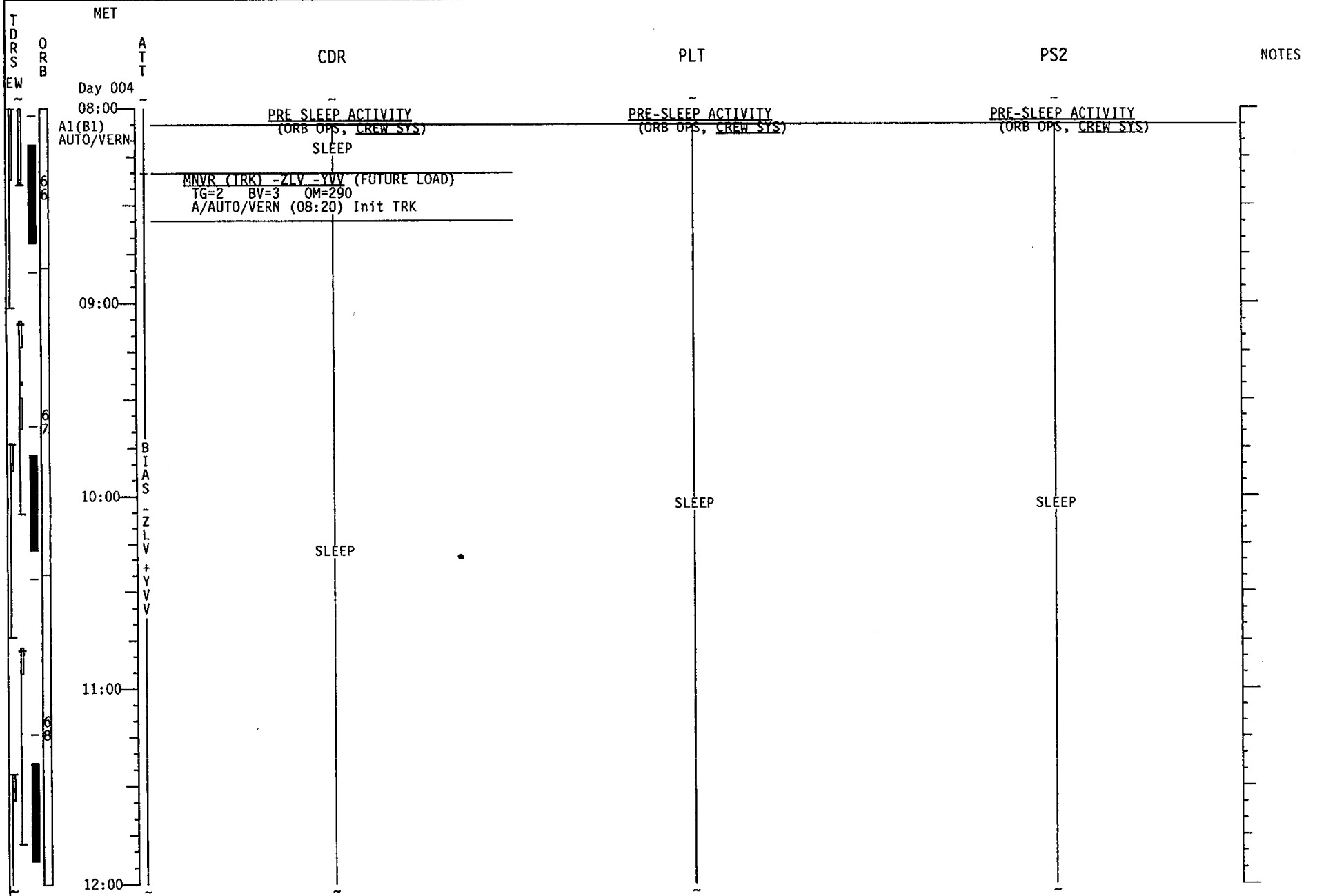
# STS-95 (FD05)



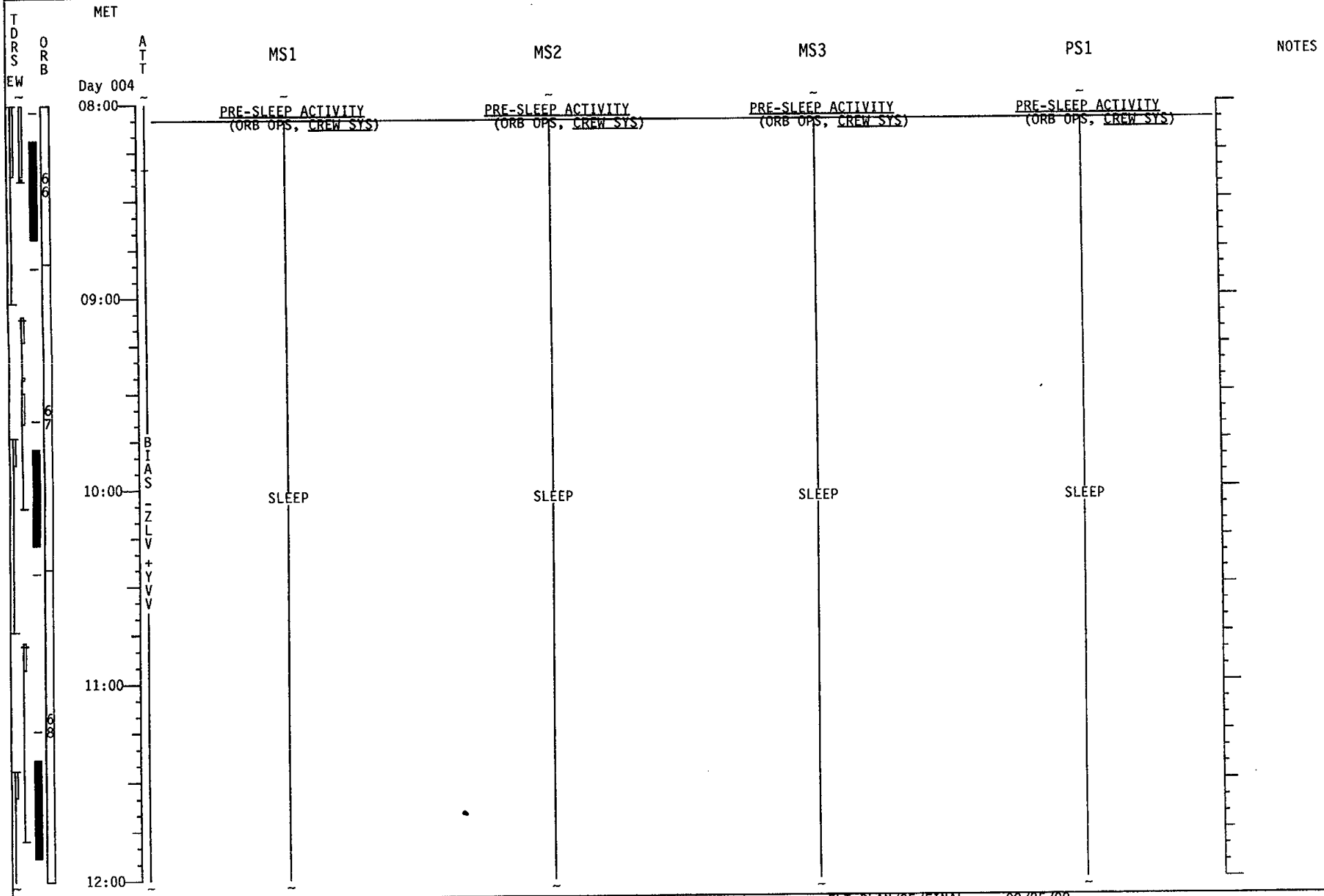
# STS-95 (FD05)



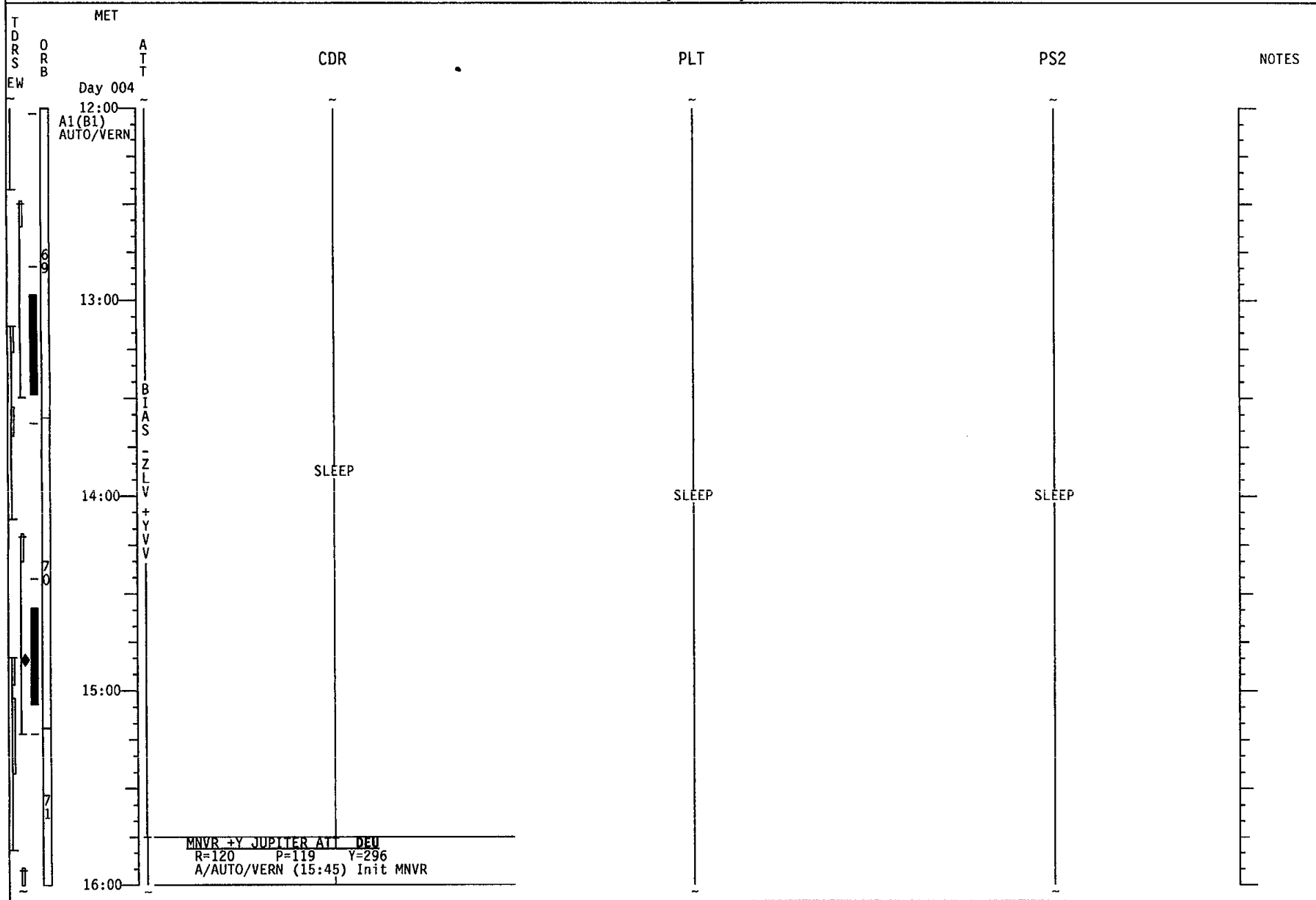
# STS-95 (FD05)



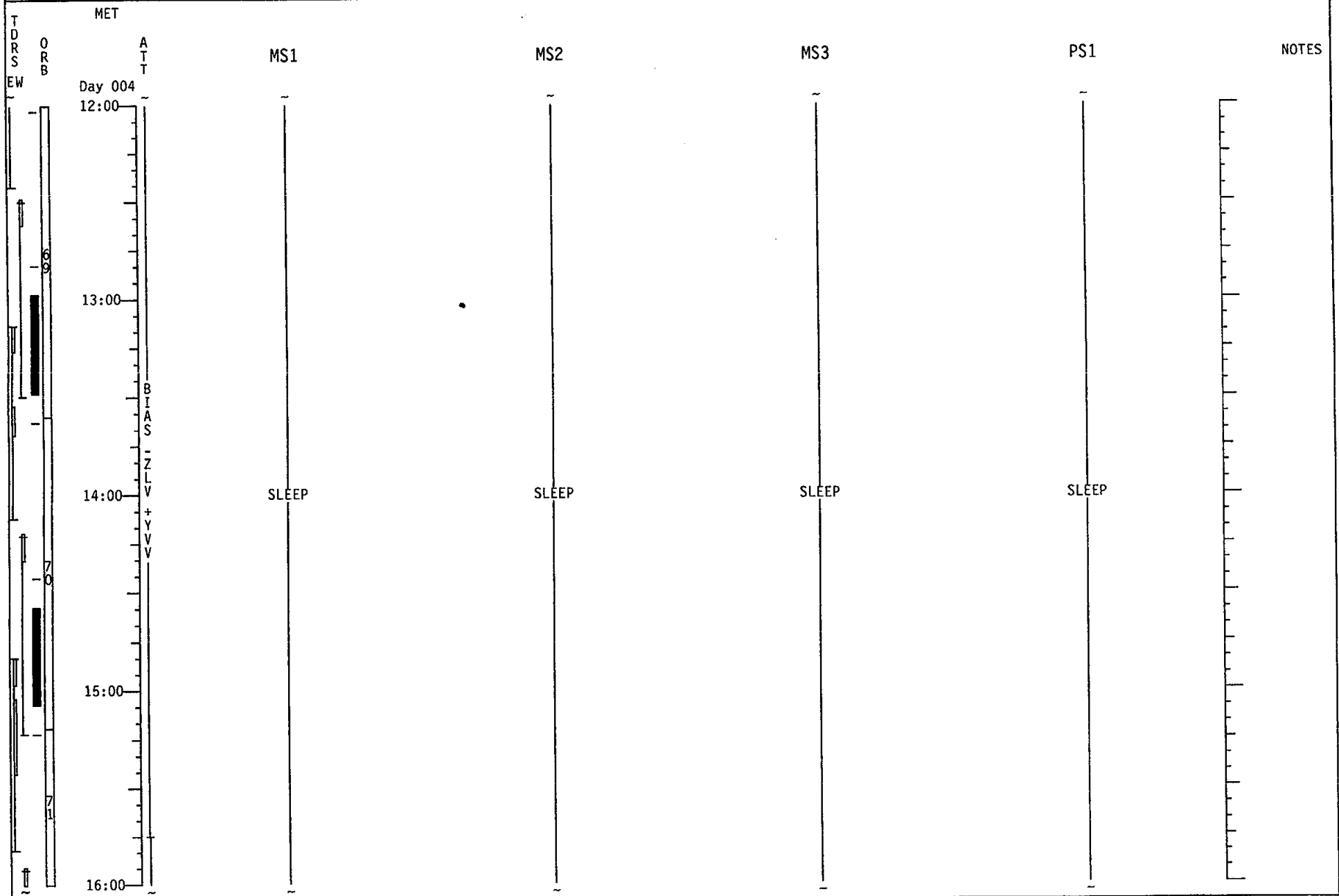
# STS-95 (FD05)



# STS-95 (FD05)

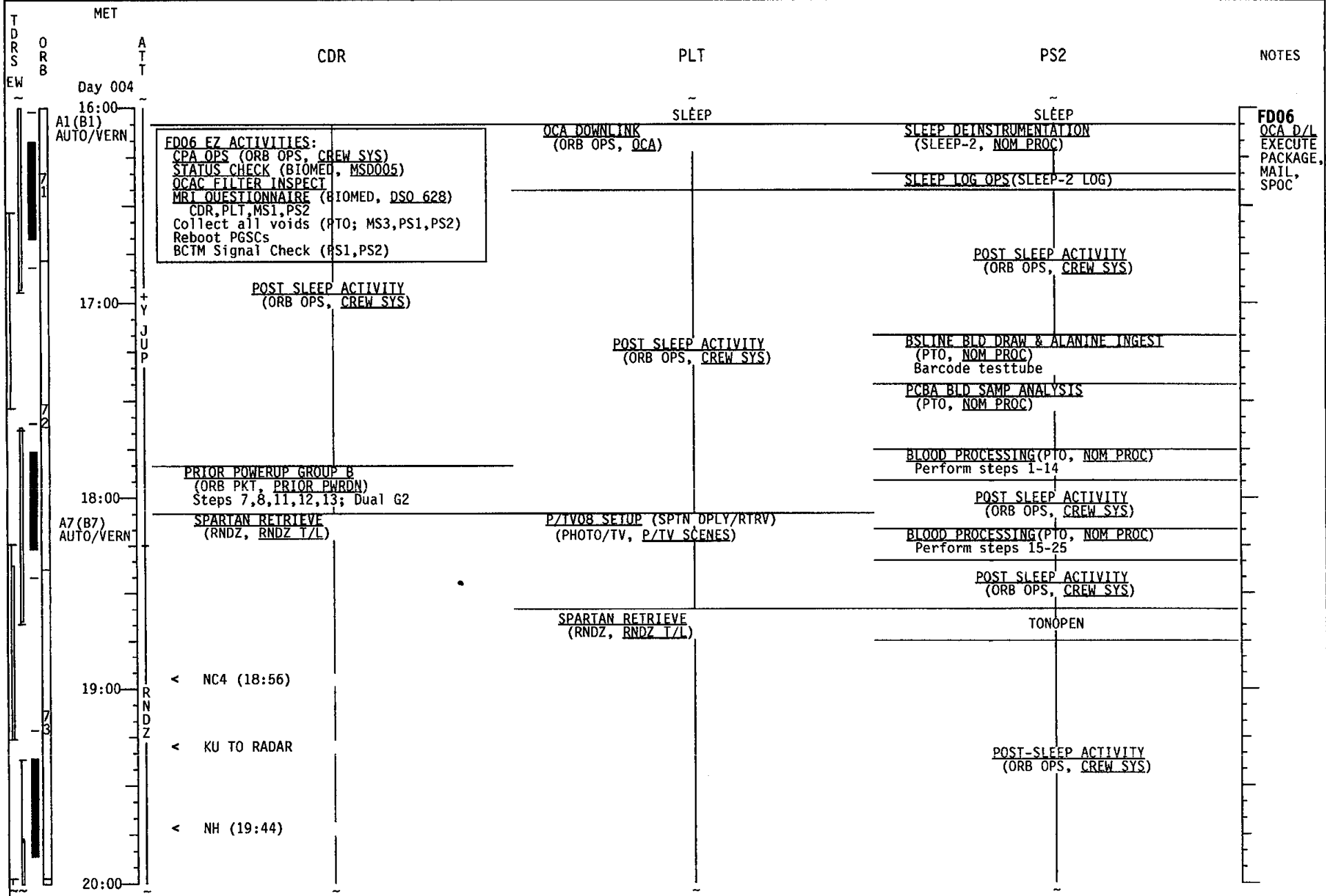


# STS-95 (FD05)

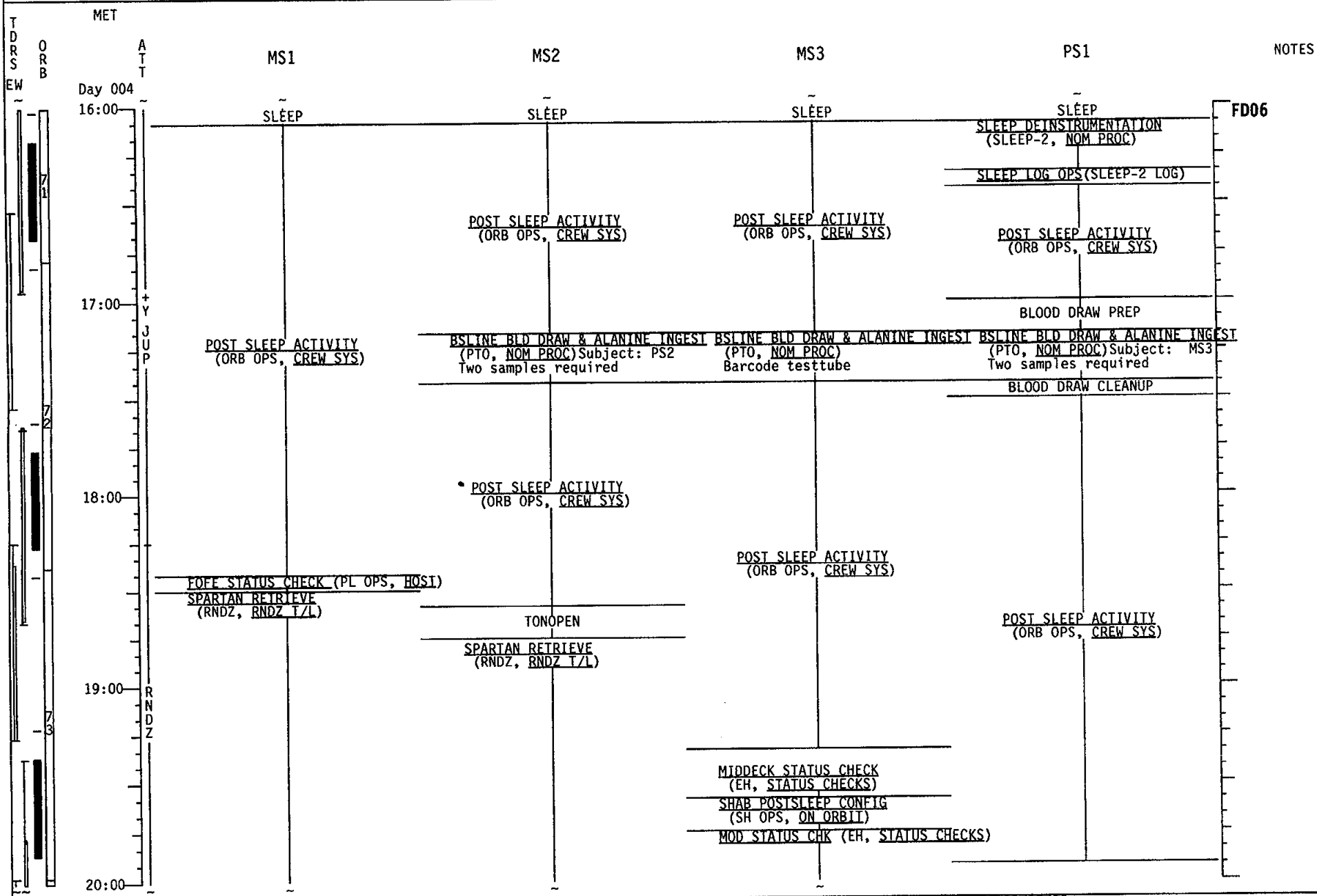




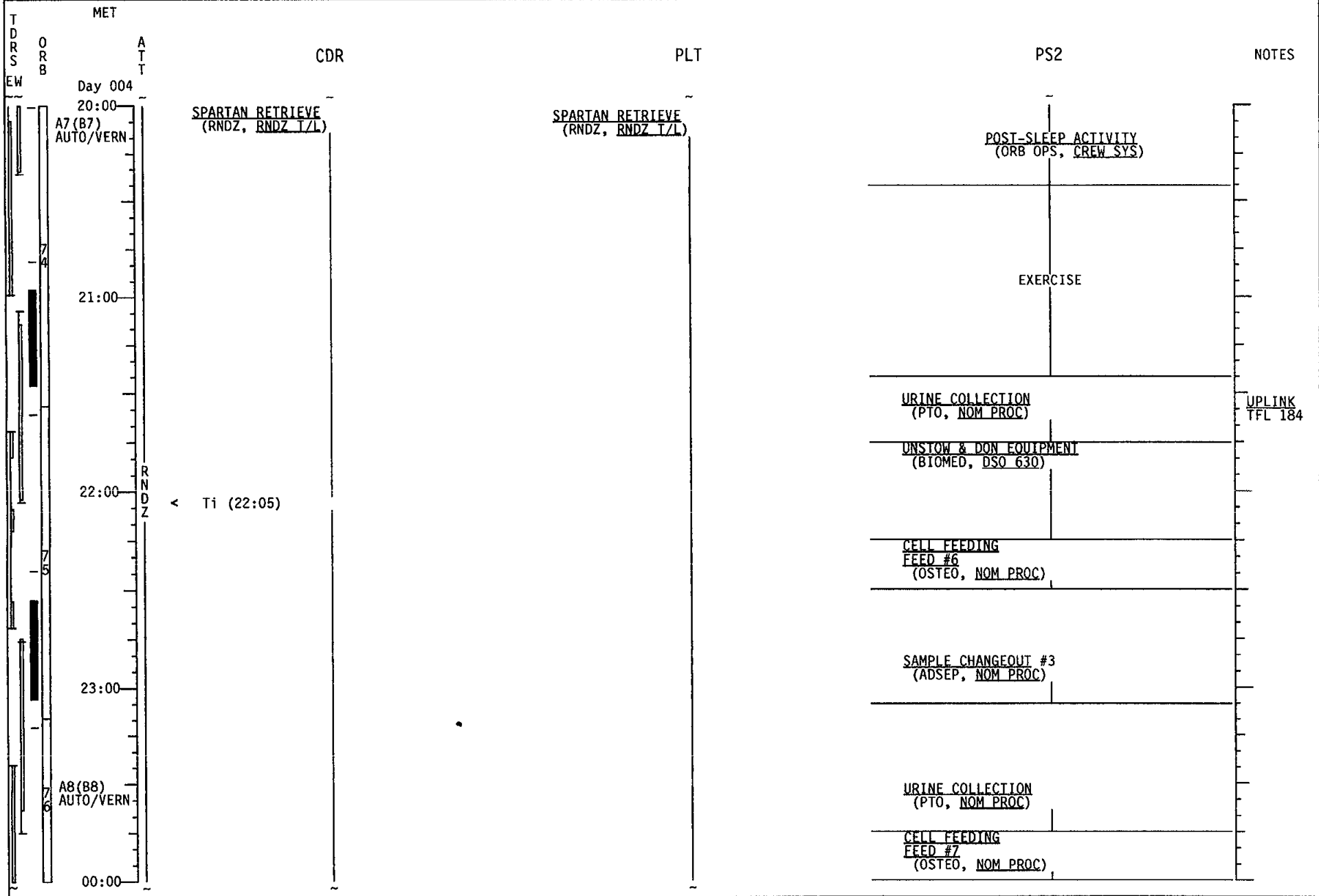
# STS-95 (FD06)



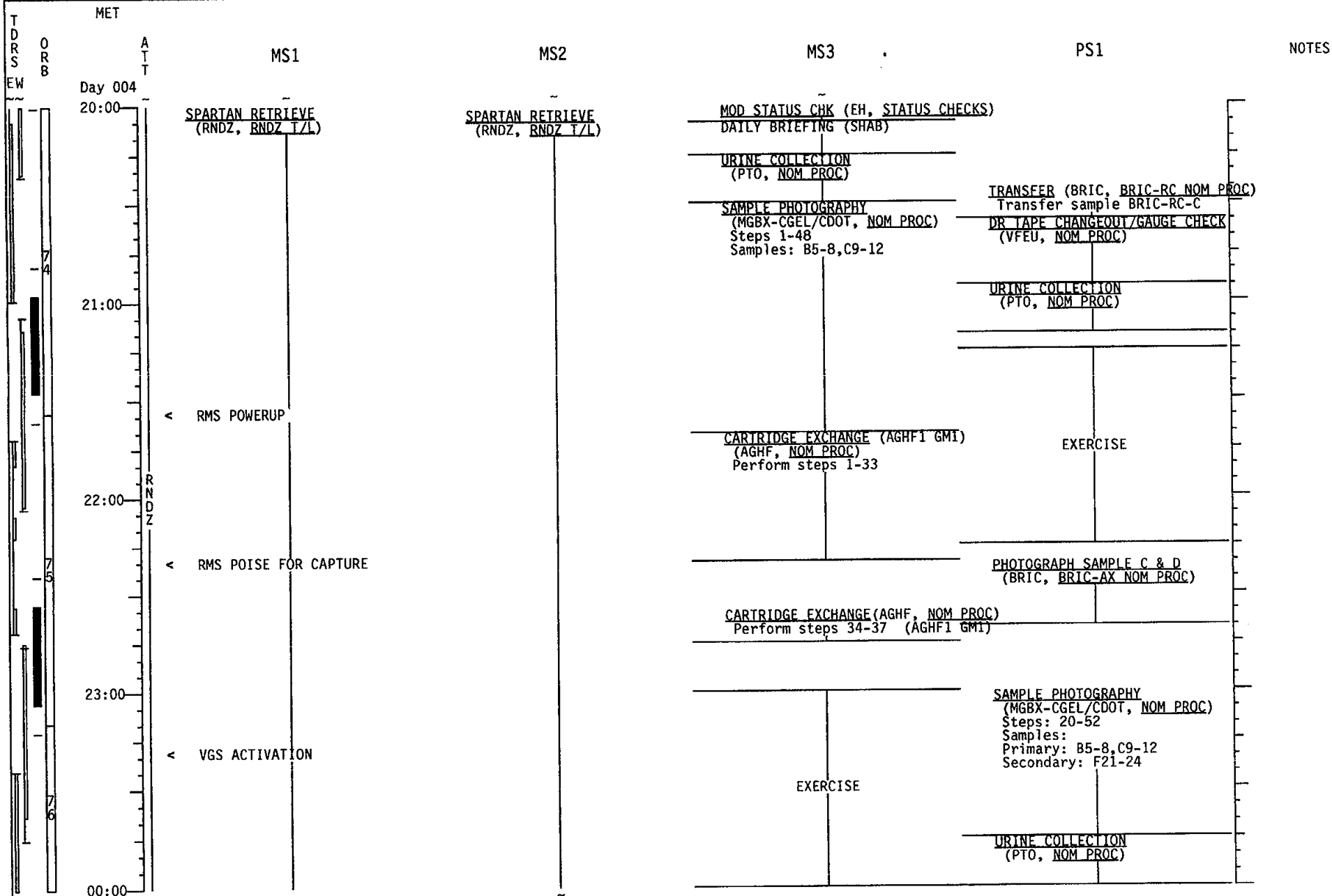
# STS-95 (FD06)



# STS-95 (FD06)



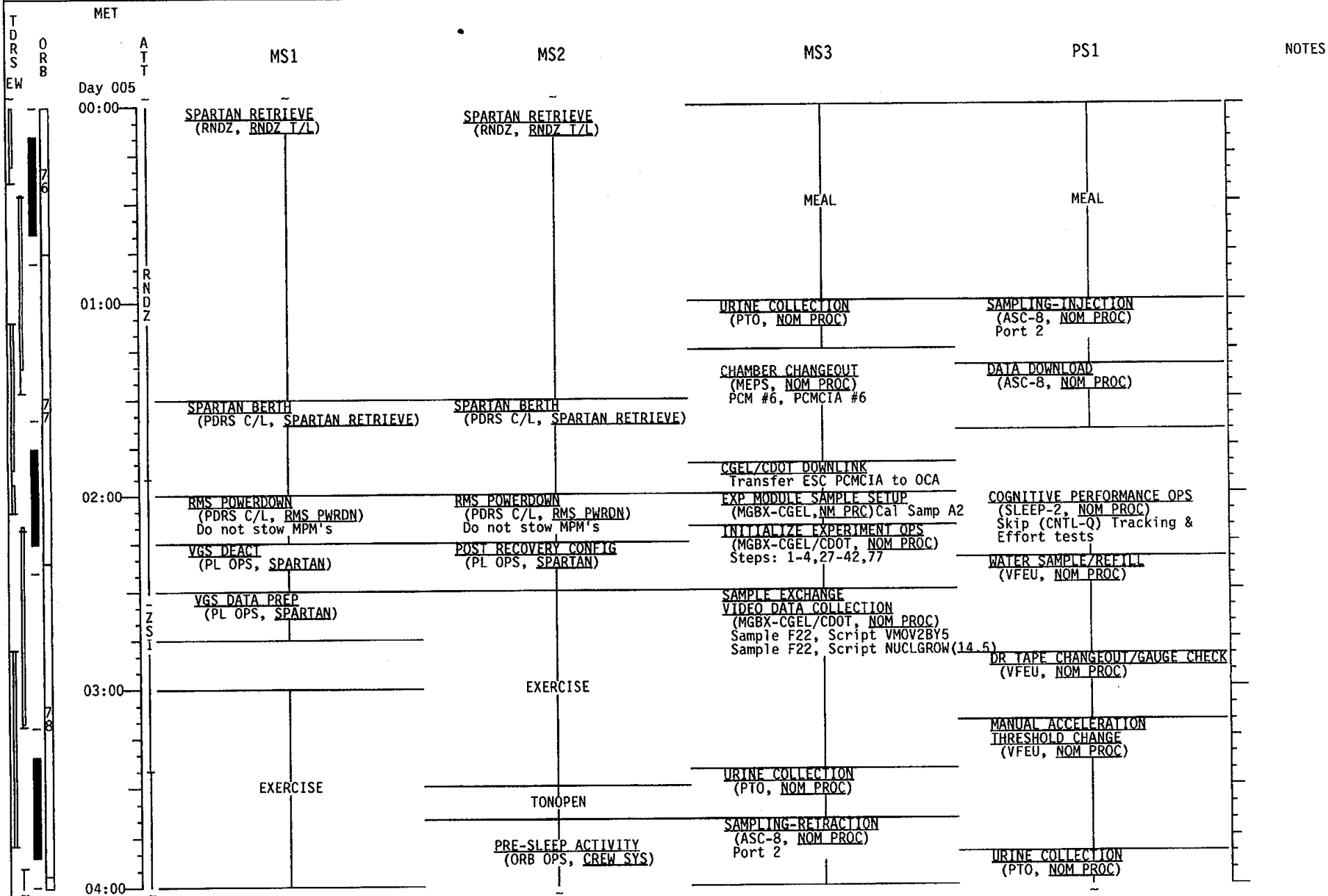
# STS-95 (FD06)



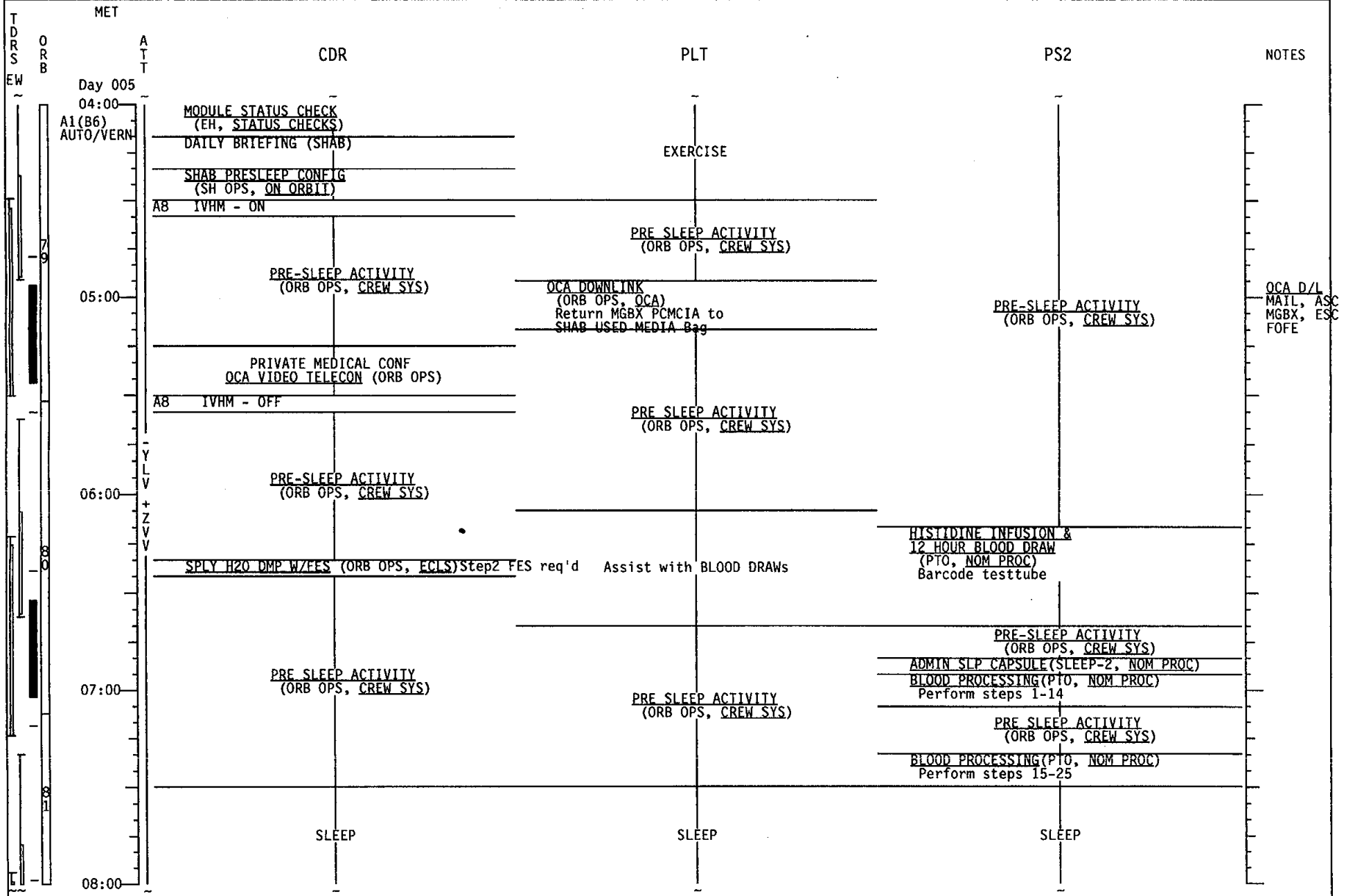
# STS-95 (FD06)

TDRS	ORB	MET	CDR	PLT	PS2	NOTES
		Day 005				
		00:00	SPARTAN RETRIEVE (RNDZ, RNDZ T/L) STATIONKEEP AT 250 FT	SPARTAN RETRIEVE (RNDZ, RNDZ T/L)		
		01:00	< SEP TO 600 FT		MEAL	
			< KU TO COMM			UPLINK β -5only
			< CAPTURE (01:24)		SAMPLING-INJECTION (ASC-8, NOM PROC) Port 2	
			PRIORITY POWERDOWN GRP B (ORB PKT, PRIOR PWRDN) Single G2		CHAMBER CHANGEOUT (MEPS, NOM PROC) PCM #6, PCMCIA #6	
		02:00	EXERCISE	L1 FLASH EVAP CNTLR PRI A(B)-OFF Config DAP A,B TO A1,B6 MNVR (TRK) -ZSI TG=5 RA=218.17 DEC=-15.00 BV=3 OM=0 Post SPTN BERTH, Init TRK A/AUTO/VERN When in ATT: B/AUTO/VERN	URINE COLLECTION (PTO, NOM PROC)	
				WATERING H2O (C) (BRIC, BRIC-PT NOM PROC)		UPLINK TFL 199 β 21 deg + mask
				VTR SETUP (SP RETRIEVE) (Cue Card, 8mm VTR)		
				VTR PLAYBACK (SP RETRIEVE) (Cue Card, 8mm VTR) Ku avail TDRW @ 02:45-03:00	COGNITIVE PERFORMANCE OPS (SLEEP-2, NOM PROC) Skip (CNTL-Q) Tracking & Effort tests	
		03:00	PCS 1(2) CONFIG (ORB OPS, ECLS) Config Sys 2		PCBA CHECKOUT (PTO, NOM PROC)	
			ENOSE DAILY MARKER (PL OPS, ENOSE)	PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)		
			MNVR (TRK) -YLV +ZVV ATT TG=2 BV=5 P=0 Y=270 OM=90 A/AUTO/VERN (03:27) Init TRK		PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)	
			SPLY H2O DMP W/FES (ORB OPS, ECLS) Step 1		TONOPEN	
			MIDDECK STATUS CHECK (EH, STATUS CHECKS)	EXERCISE		
			MODULE STATUS CHECK (EH, STATUS CHECKS)		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
		04:00				

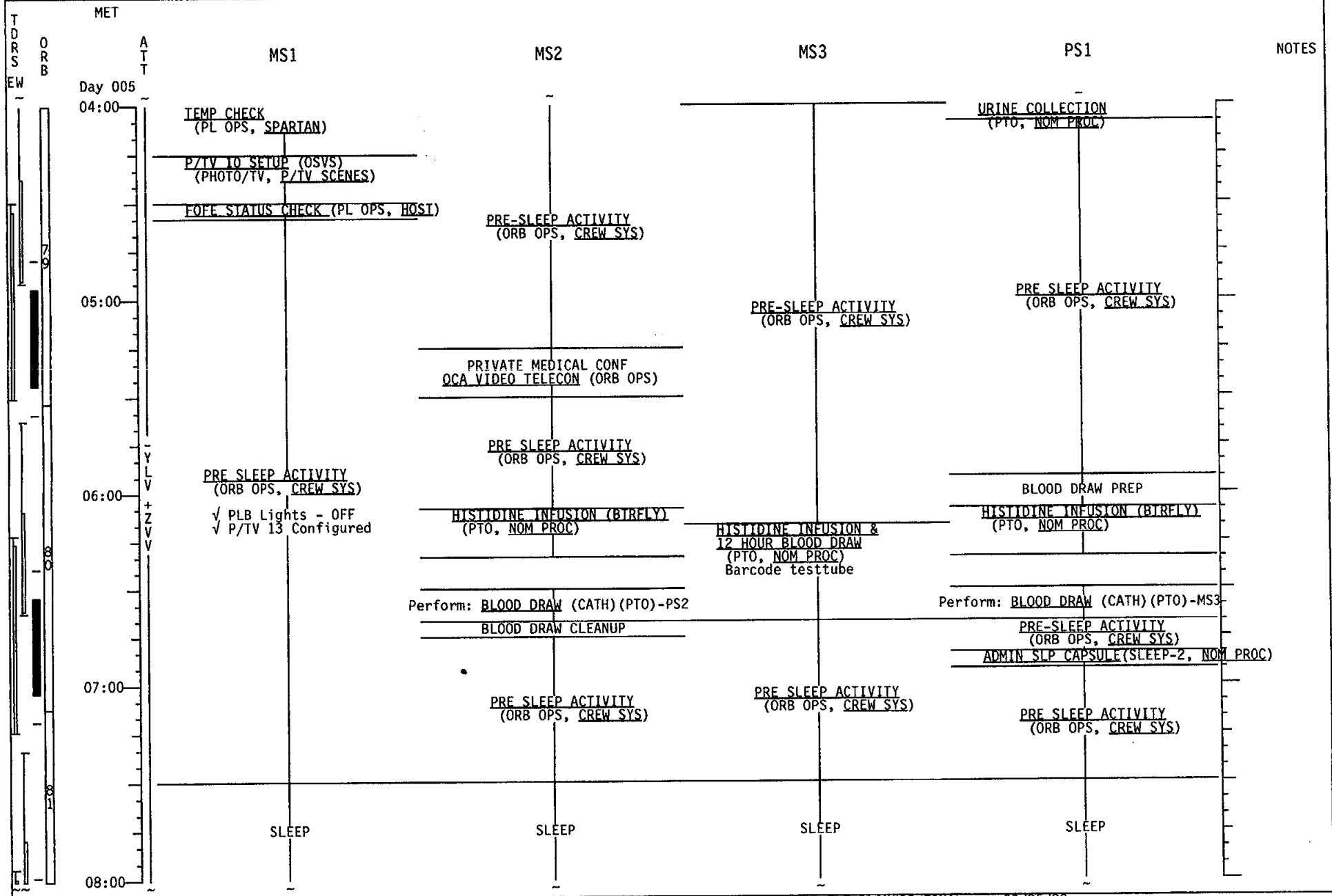
# STS-95 (FD06)



# STS-95 (FD06)

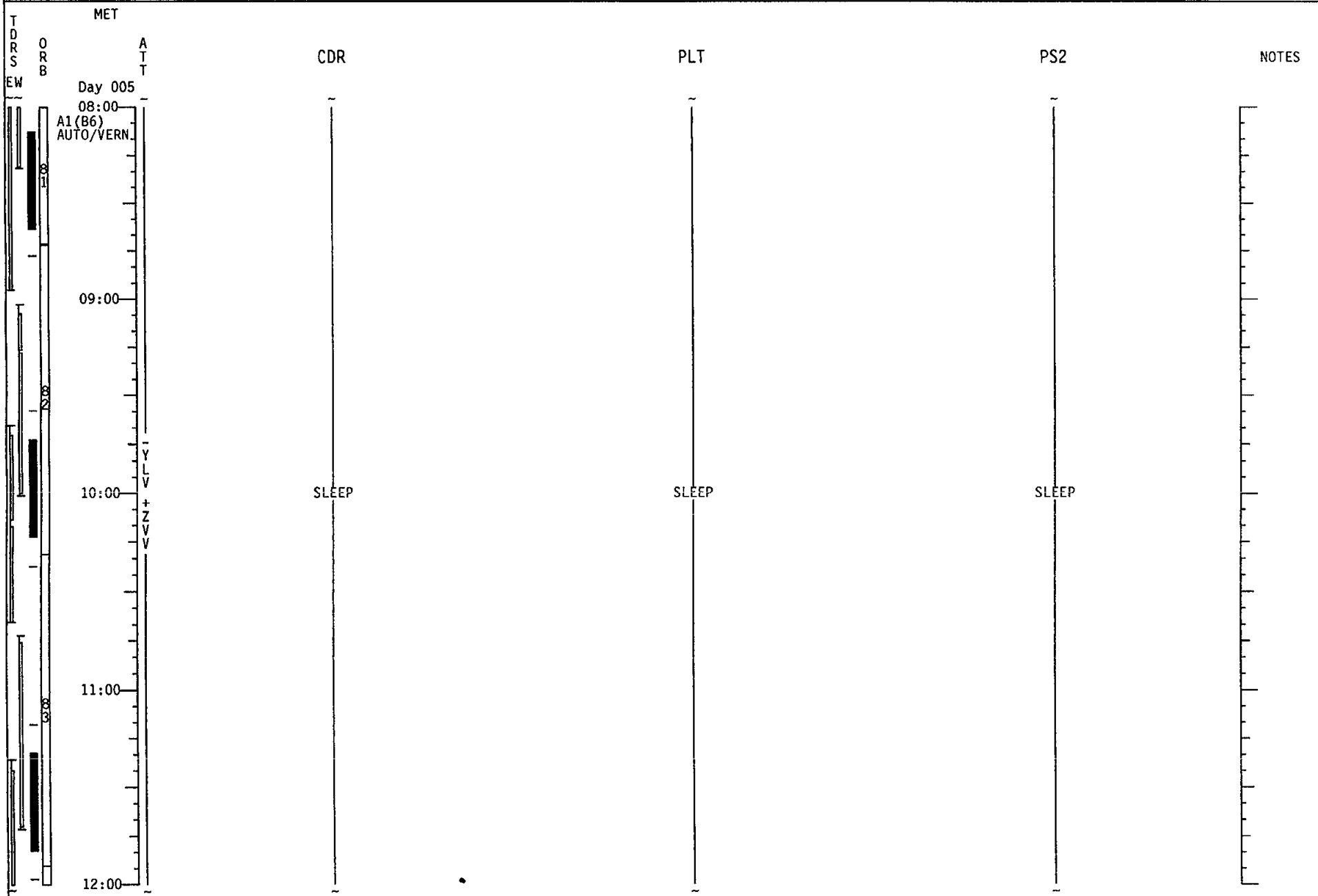


# STS-95 (FD06)

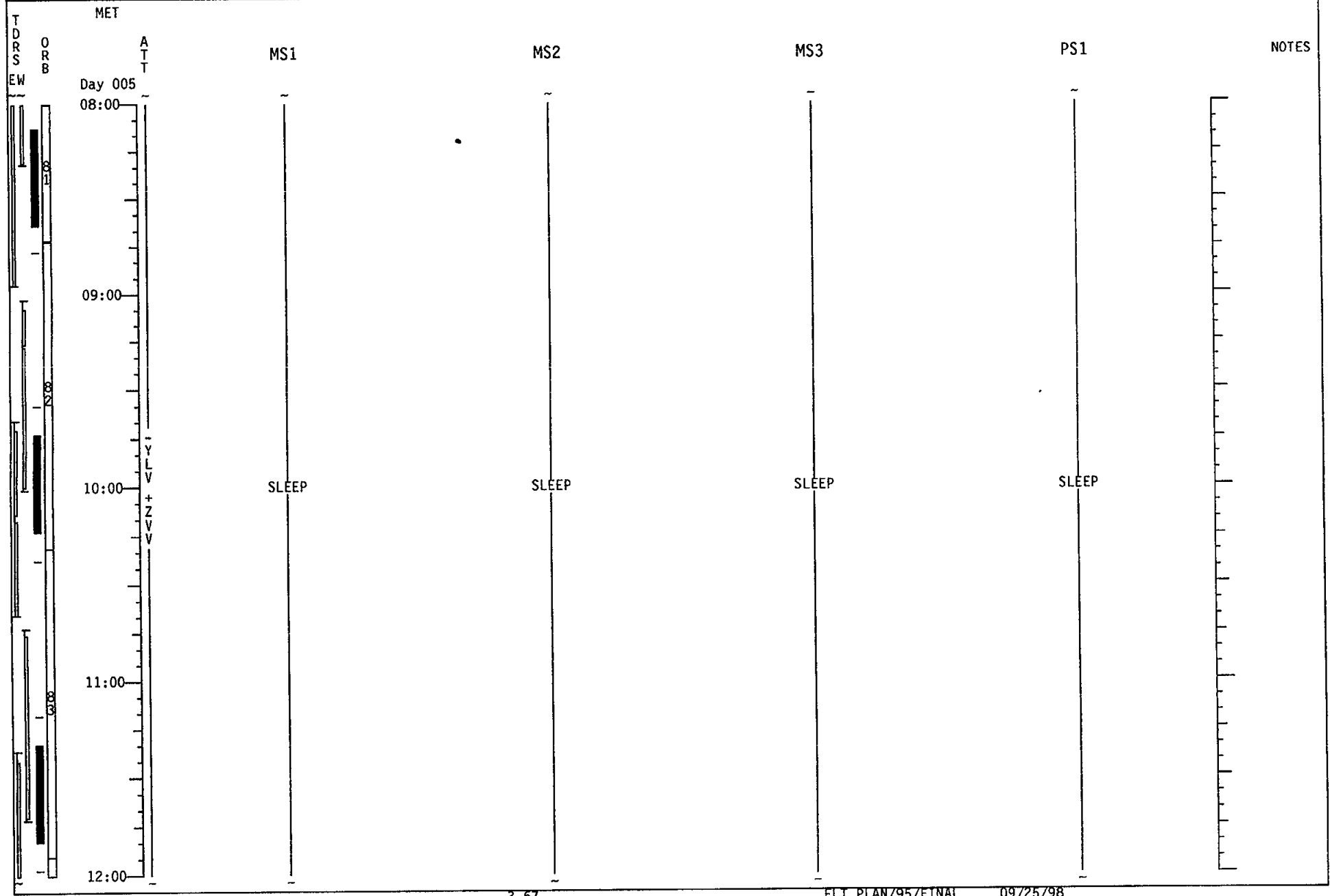




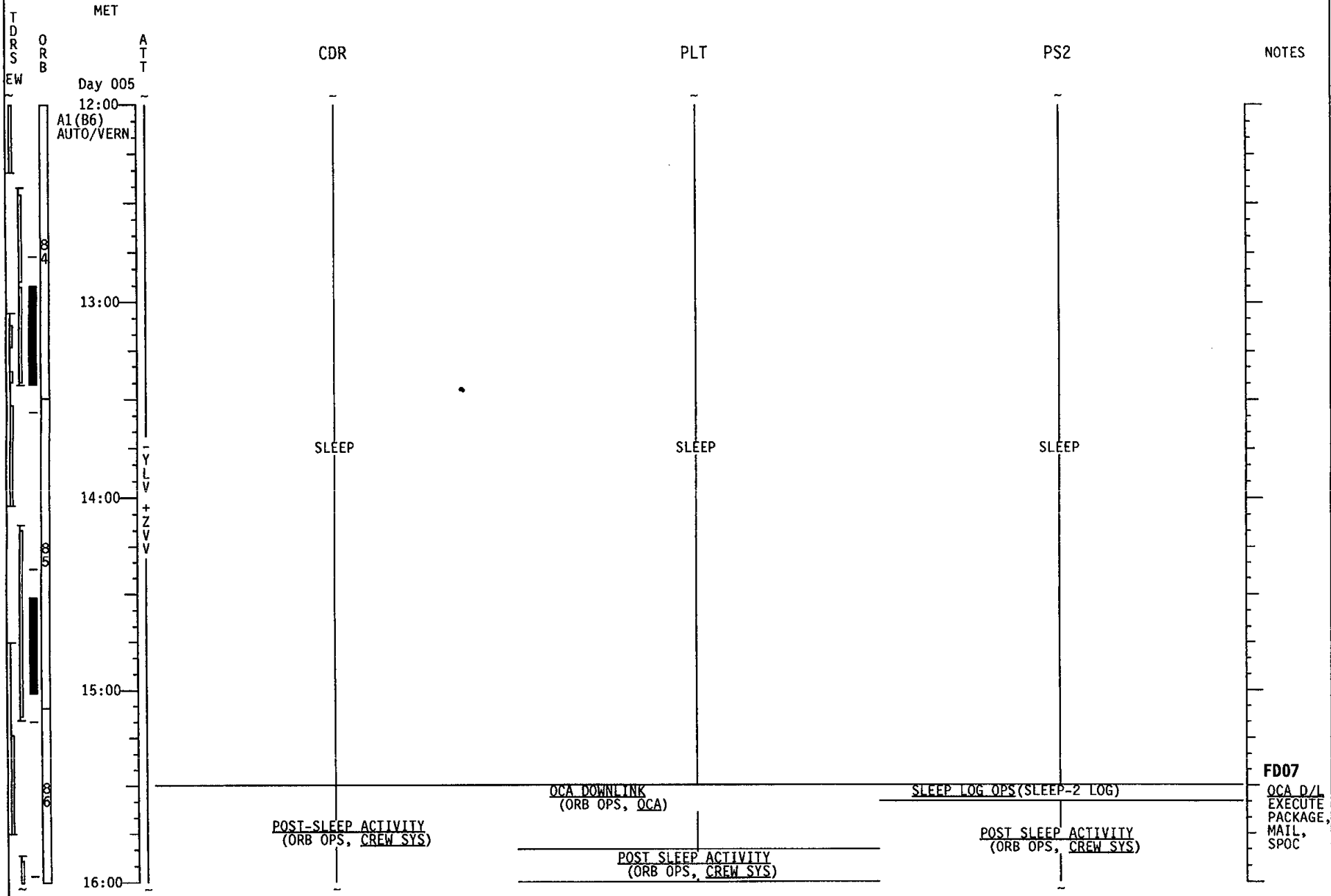
# STS-95 (FD06)



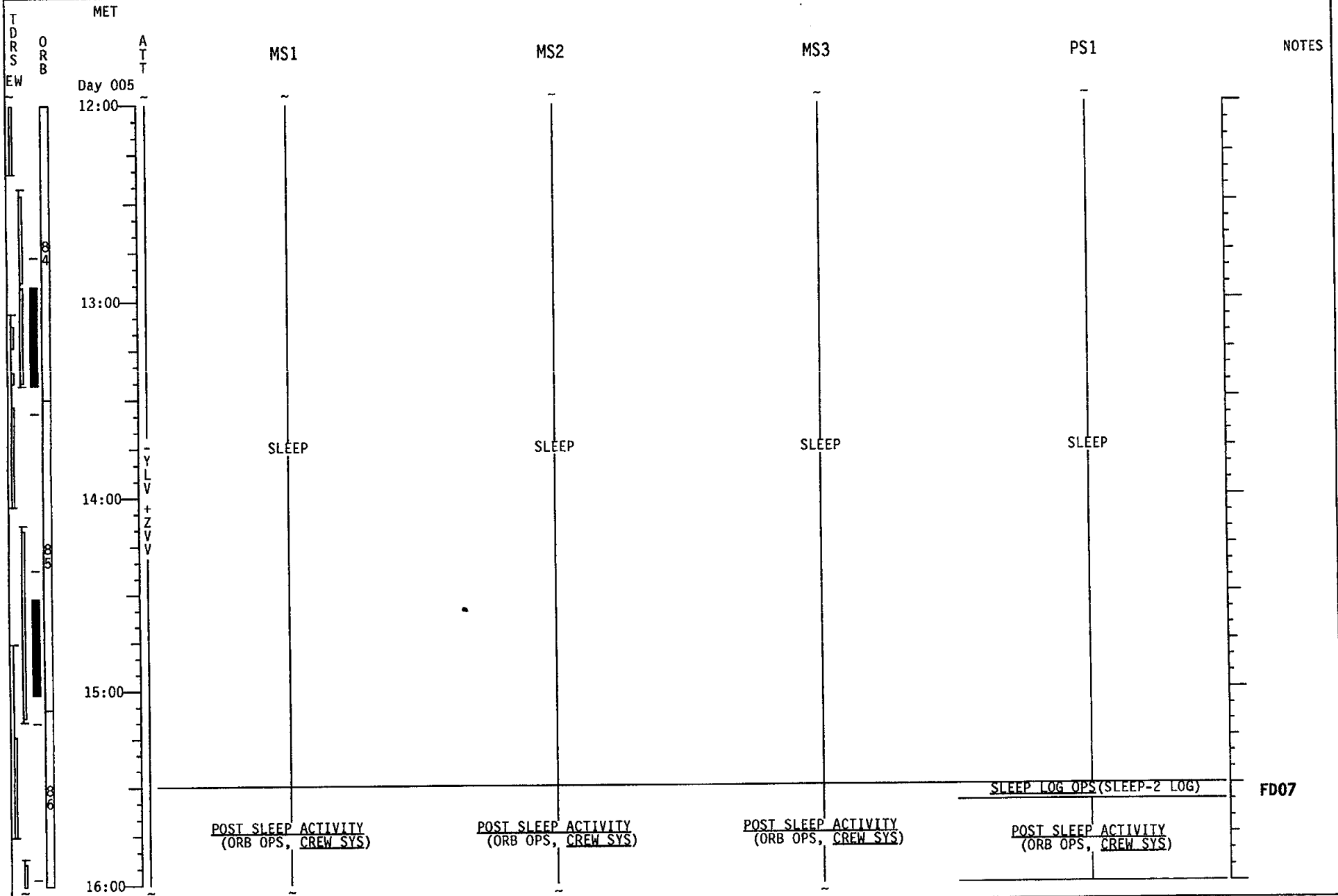
# STS-95 (FD06)



# STS-95 (FD06)



# STS-95 (FD06)

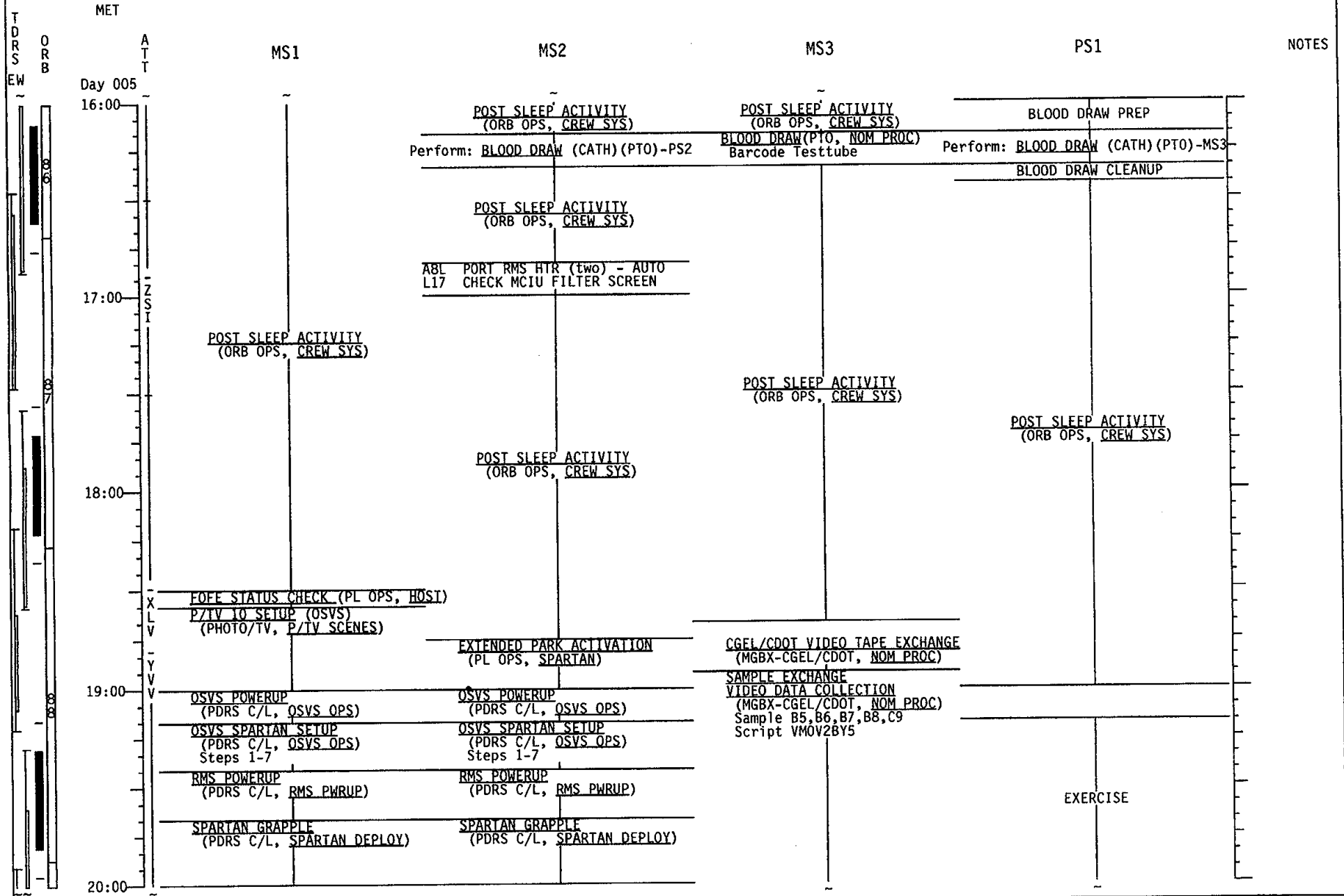


# STS-95 (FD07)

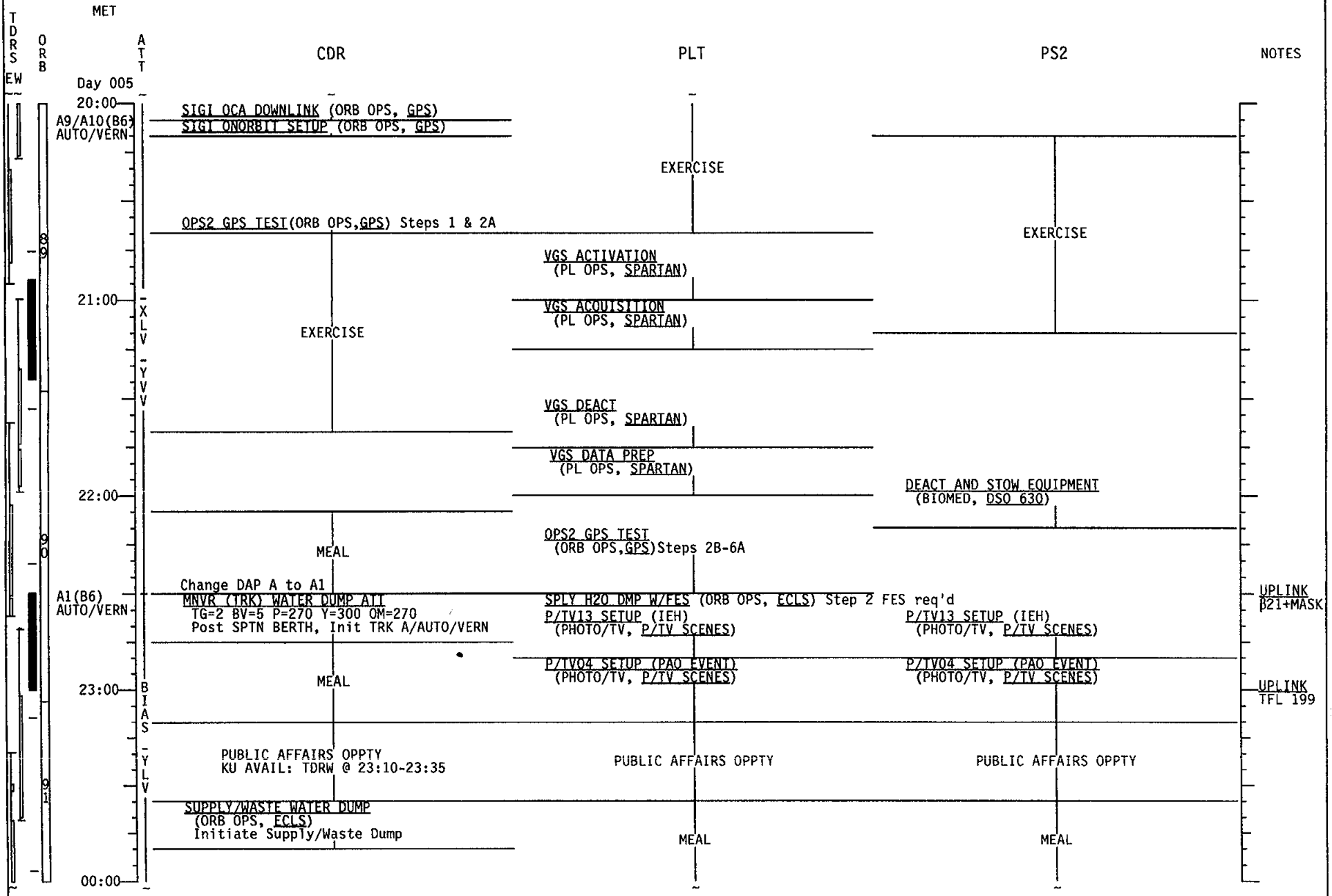
TDRS	MET	CDR	PLT	PS2	NOTES
ORB EW 16:00 17:00 18:00 19:00 20:00 A1(B6) (A1)B6 A1(B6) A9/A10(B6)	Day 005 16:00 AUTO/VERN 17:00 AUTO/VERN 18:00 AUTO/VERN 19:00 AUTO/VERN 20:00 AUTO/VERN	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) L1 FLASH EVAP CNTLR PRI A(B)-OFF MNVR (TRK) -ZSI TG=5 RA=218.76 DEC=-15.19 BV=3 OM=270 A/AUTO/VERN (16:28) Init TRK POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) MNVR (TRK) -XLV -YVV ATT TG=2 BV=2 OM=90 A/AUTO/VERN (17:28) Init TRK SPLY H2O DMP W/FES (ORB OPS, ECLS) Step I POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) MIDDECK STATUS CHECK (EH, STATUS CHECKS) SHAB POSTSLEEP CONFIG (SH OPS, ON ORBIT) MODULE STATUS CHECK (EH, STATUS CHECKS) DAILY BRIEFING (SHAB) MAGR/SIGI HARD DRIVE SWAP (ORB OPS, GPS) MAGR ONORBIT SETUP (ORB OPS, GPS) SIGI OCA DOWNLINK (ORB OPS, GPS)	Assist with BLOOD DRAWS POST SLEEP ACTIVITY (ORB OPS, CREW SYS) TEMP CHECK (PL OPS, SPARTAN) DR TAPE CHANGEOUT/GAUGE CHECK (VFEU, NOM PROC) COMM STRING 1 CHECKOUT (PART A) (ORB OPS, COMM/INSI) EXERCISE	POST SLEEP ACTIVITY (ORB OPS, CREW SYS) BLOOD DRAW(PTO, NOM PROC) Barcode Testtube PCBA BLD SAMP ANALYSIS (PTO, NOM PROC) BLOOD PROCESSING(PTO, NOM PROC) Perform steps 1-14 POST SLEEP ACTIVITY (ORB OPS, CREW SYS) BLOOD PROCESSING(PTO, NOM PROC) Perform steps 15-25 POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	UPLINK TFL 184 UPLINK B21+MASK+BOX 0<AZ<100 -75<EL<-20

**FD07 E7 ACTIVITIES:**  
 CPA OPS (ORB OPS, CREW SYS)  
 STATUS CHECK (BIOMED, MSD005)  
 QCAC FILTER INSPECT  
 Collect first void (PTO; MS3,PS1,PS2)  
 Reboot PGSCs  
 MRI QUESTIONNAIRE (BIOMED, DSO 628)  
 CDR,PLT,MS1,PS2  
 BCTM Signal Check (PS1,PS2)

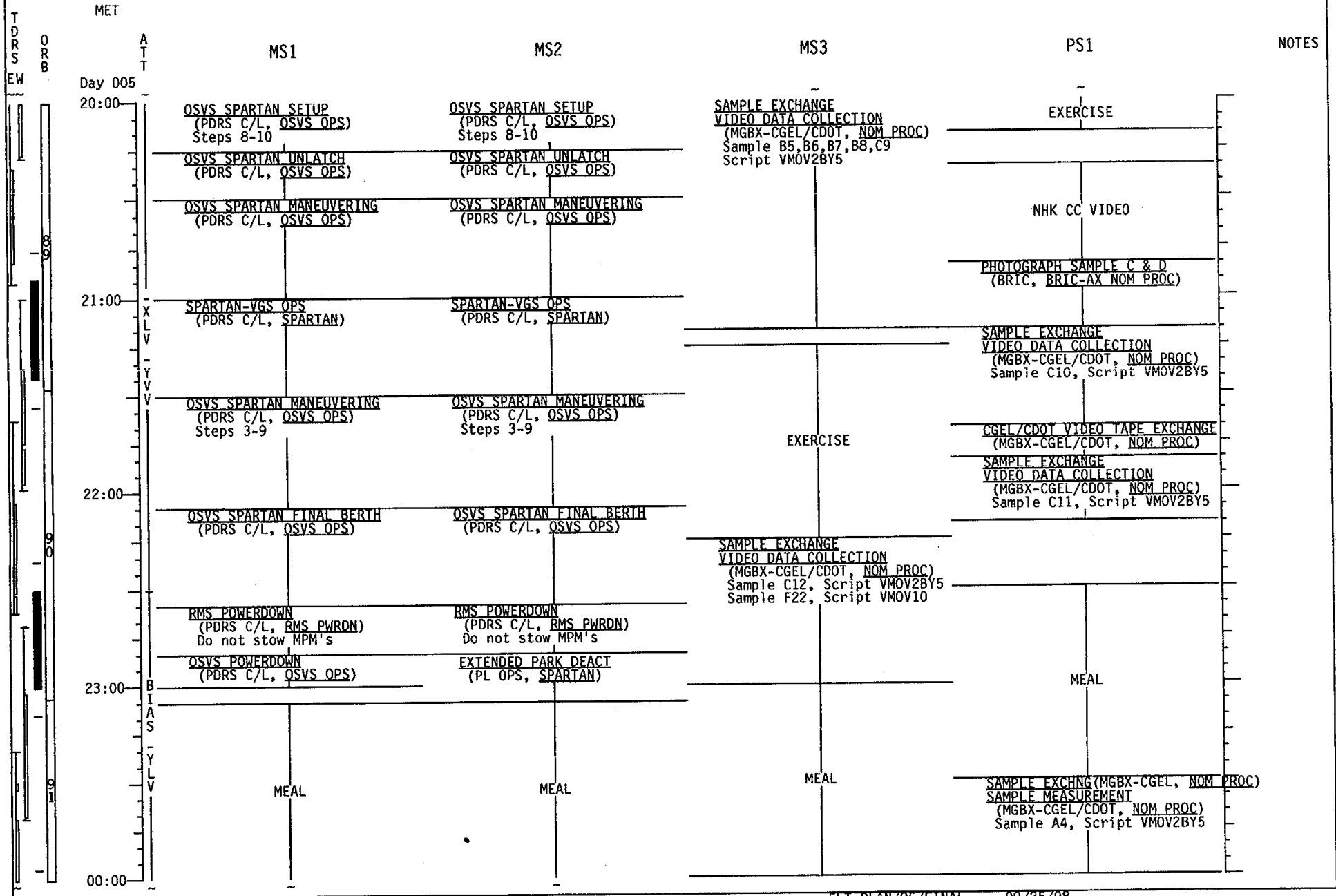
# STS-95 (FD07)



# STS-95 (FD07)



# STS-95 (FD07)

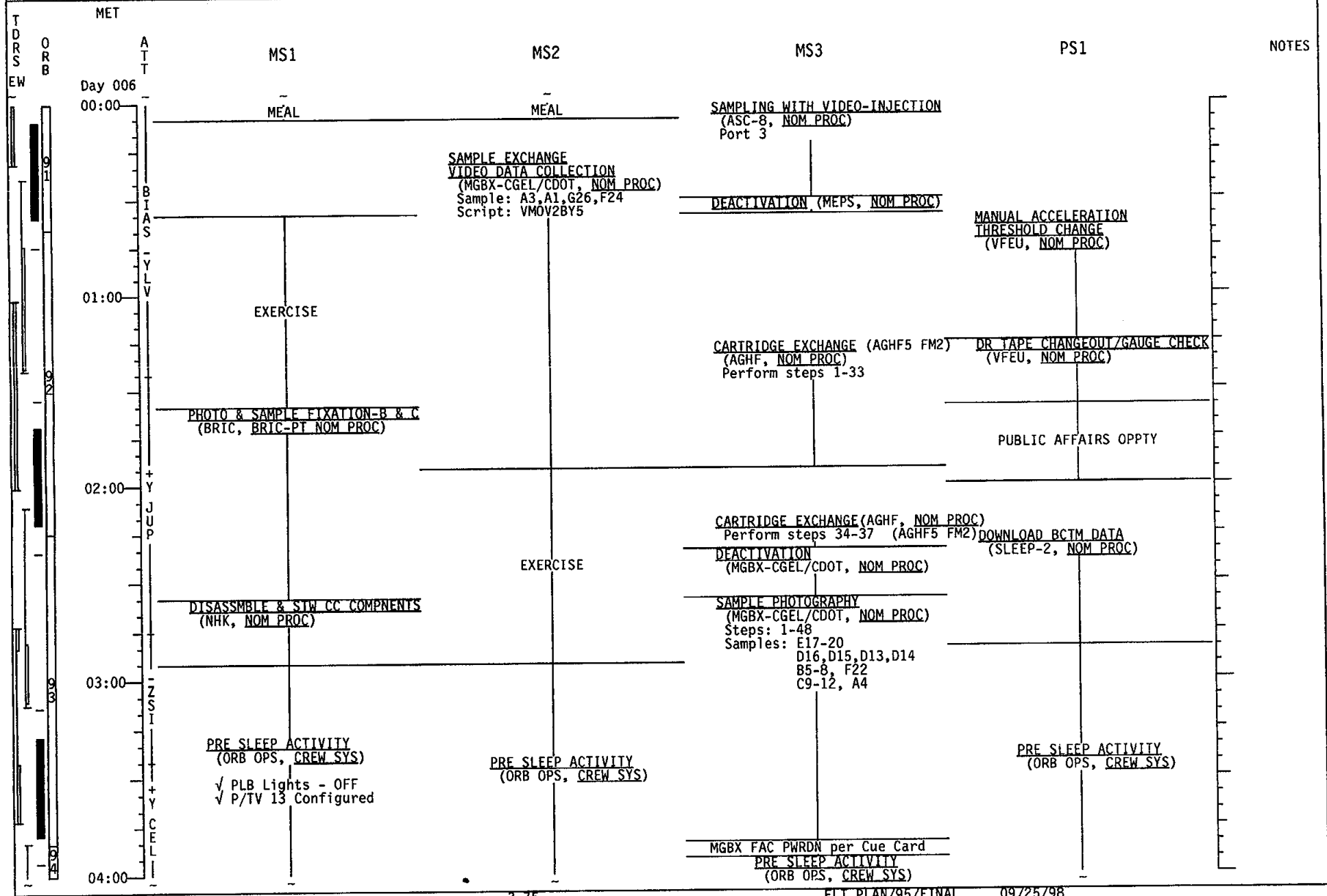




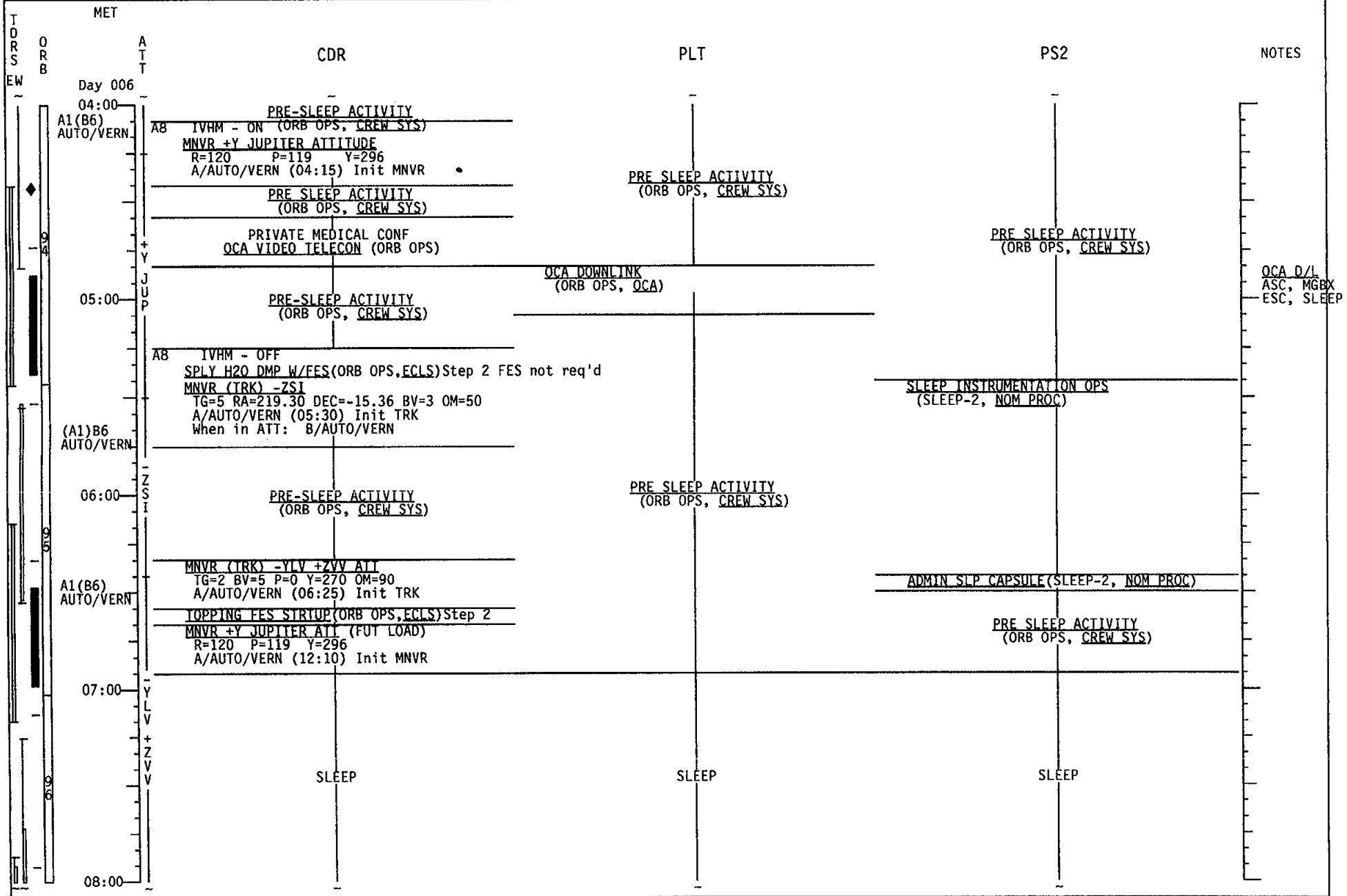
# STS-95 (FD07)

TDRS	ORB	MET	ATT	CDR	PLT	PS2	NOTES
		Day 006					
		00:00					
		A1(B6) AUTO/VERN		OPS2 GPS TEST(ORB OPS,GPS) Step6B	MEAL	MEAL	
					DATA DOWNLOAD (ASC-8, NOM PROC)	DATA DOWNLOAD (ASC-8, NOM PROC)	
		01:00		SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Terminate Supply/Waste Dump	CASSETTE TAPE LOAD/UNLOAD BATTERY CHANGEOUT (NHK, NOM PROC) Relocate NHK camera for PAO Event	CASSETTE TAPE LOAD/UNLOAD BATTERY CHANGEOUT (NHK, NOM PROC) Relocate NHK camera for PAO Event	
				MNVR +Y JUPITER ALTITUDE R=120 P=119 Y=296 A/AUTO/VERN (01:25) Init MNVR	P/TVO4 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)	P/TVO4 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)	
				PUBLIC AFFAIRS OPPTY KU AVAIL: TDRE @ 01:35-02:00	OPS2 GPS TEST(ORB OPS,GPS) Step 6C	PUBLIC AFFAIRS OPPTY	
		02:00		ENOSE DAILY MARKER (PL OPS, ENOSE)	FOEE STATUS CHECK (PL OPS, HOST)	PCBA CHECKOUT (PTO, NOM PROC)	
					MIDDECK STATUS CHECK (EH, STATUS CHECKS)		
				L1 FLASH EVAP CNTLR PRI A(B)-OFF MNVR (TRK) -ZSI TG=5 RA=219.17 DEC=-15.32 BV=3 OM=140 A/AUTO/VERN (02:44) Init TRK When in ATT: B/AUTO/VERN	SAMPLING W/ VIDEO-RETRACTION (ASC-8, NOM PROC) Port 3	SAMPLING W/ VIDEO-RETRACTION (ASC-8, NOM PROC) Port 3	
		03:00		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	MODULE STATUS CHECK (EH, STATUS CHECKS)		
				MNVR +Y CELESTIAL ALT R=321 P=211 Y=340 A/AUTO/VERN (03:23) Init MNVR	DAILY BRIEFING (SHAB)	PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				SPLY H2O DMP W/FES (ORB OPS, ECLS) Step I	SHAB PRESLEEP CONFIG (SH OPS, ON ORBIT)		
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	TEMP CHECK (PL OPS, SPARTAN)		
		04:00			PRE SLEEP ACTIVITY (ORB OPS, CREW SYS)		

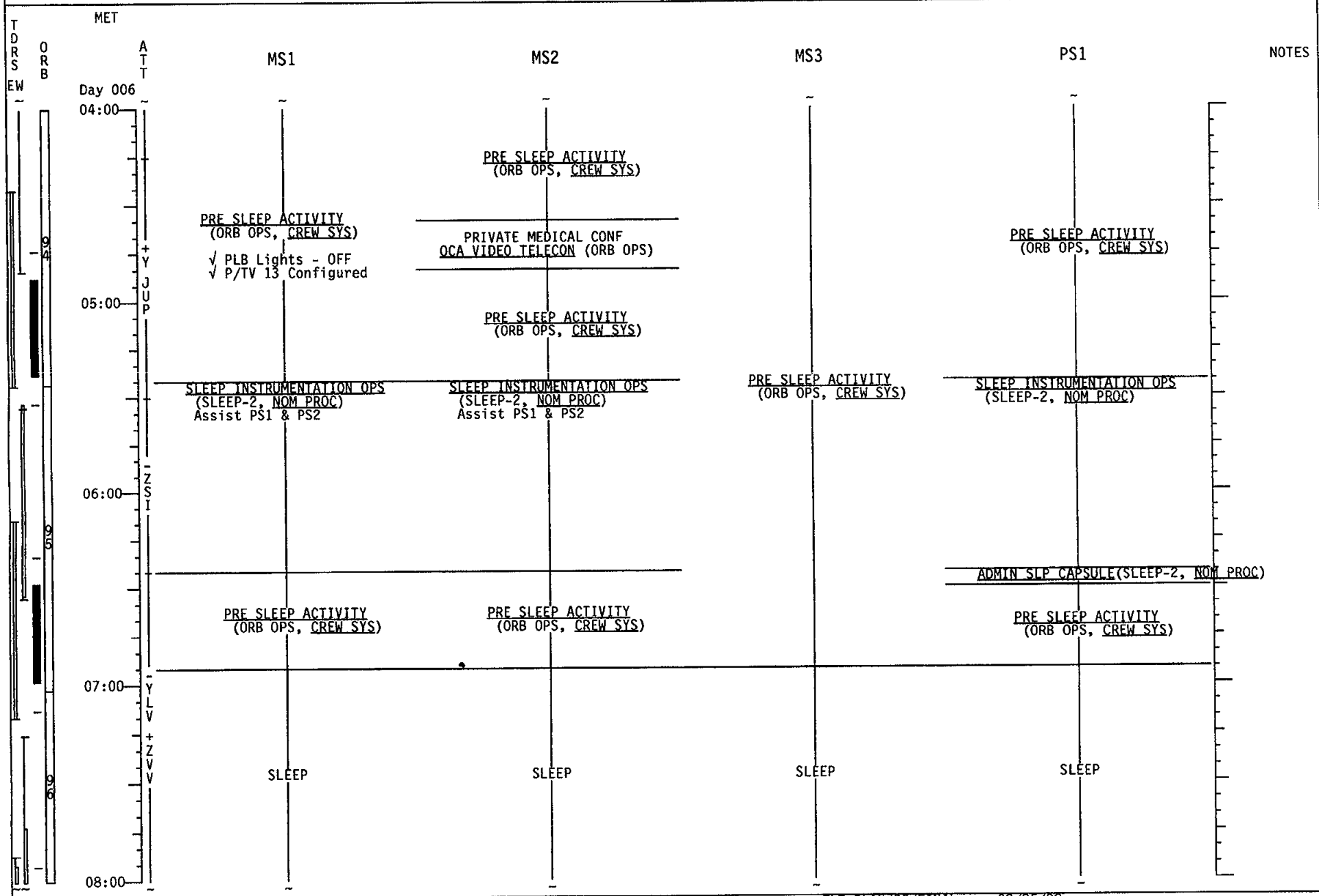
# STS-95 (FD07)



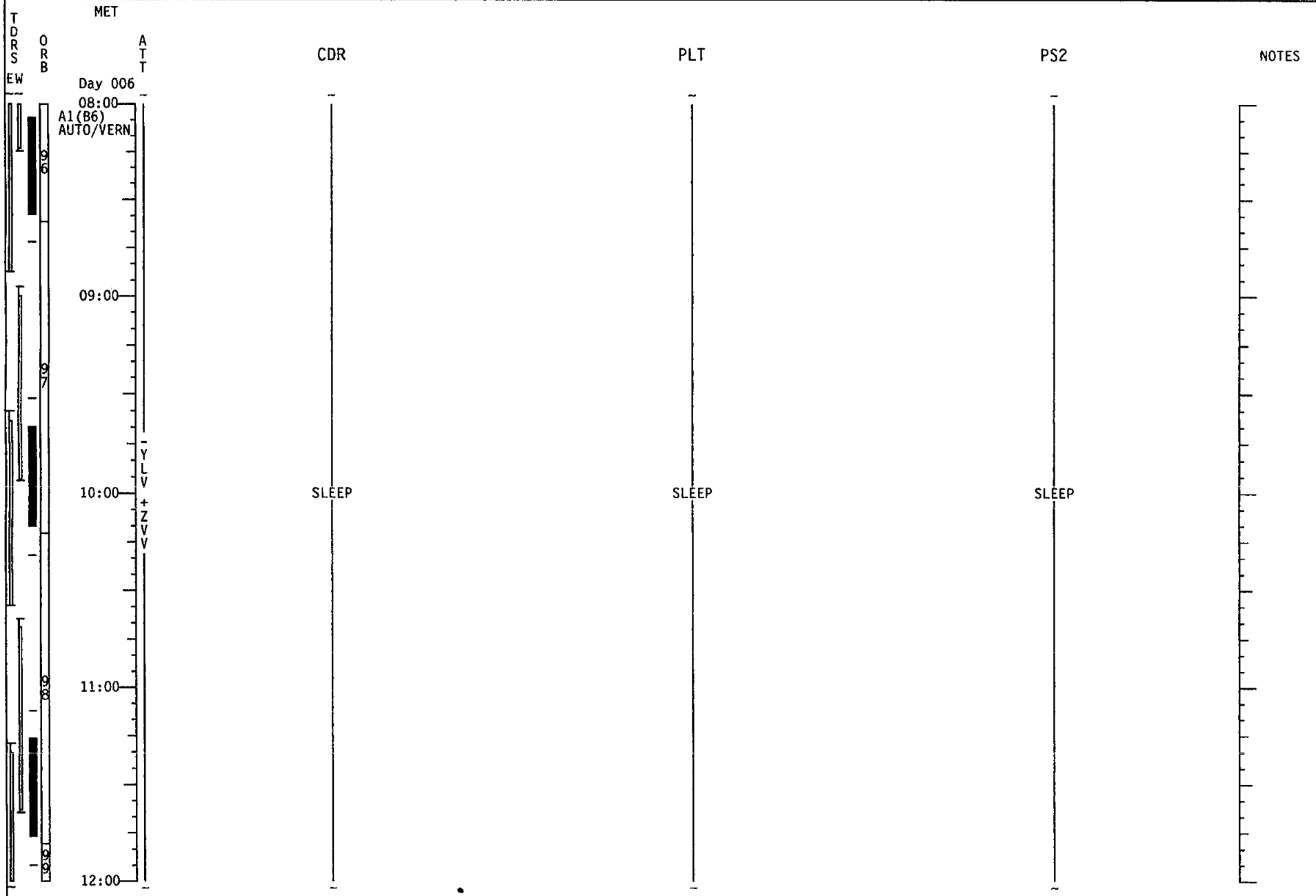
# STS-95 (FD07)



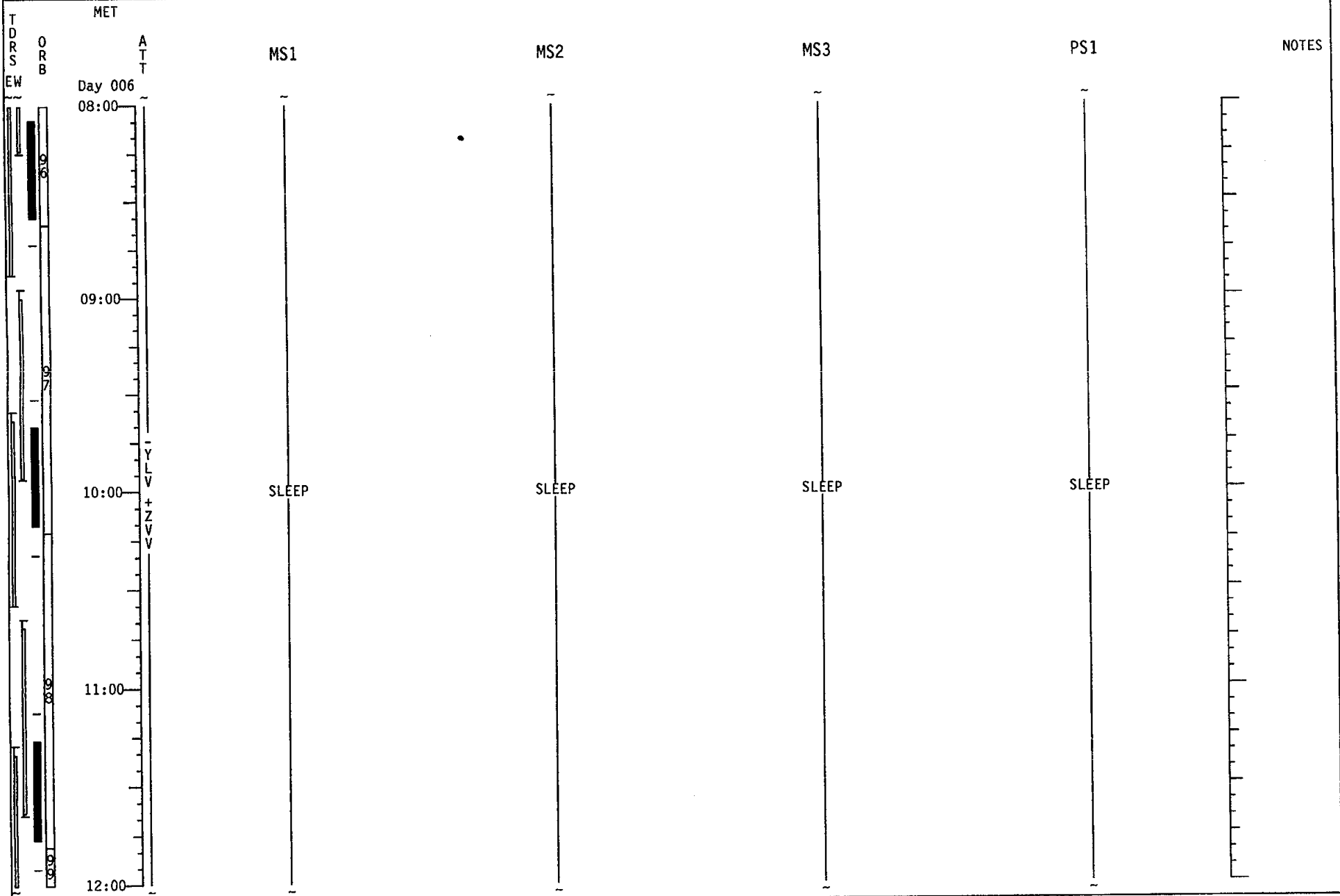
# STS-95 (FD07)



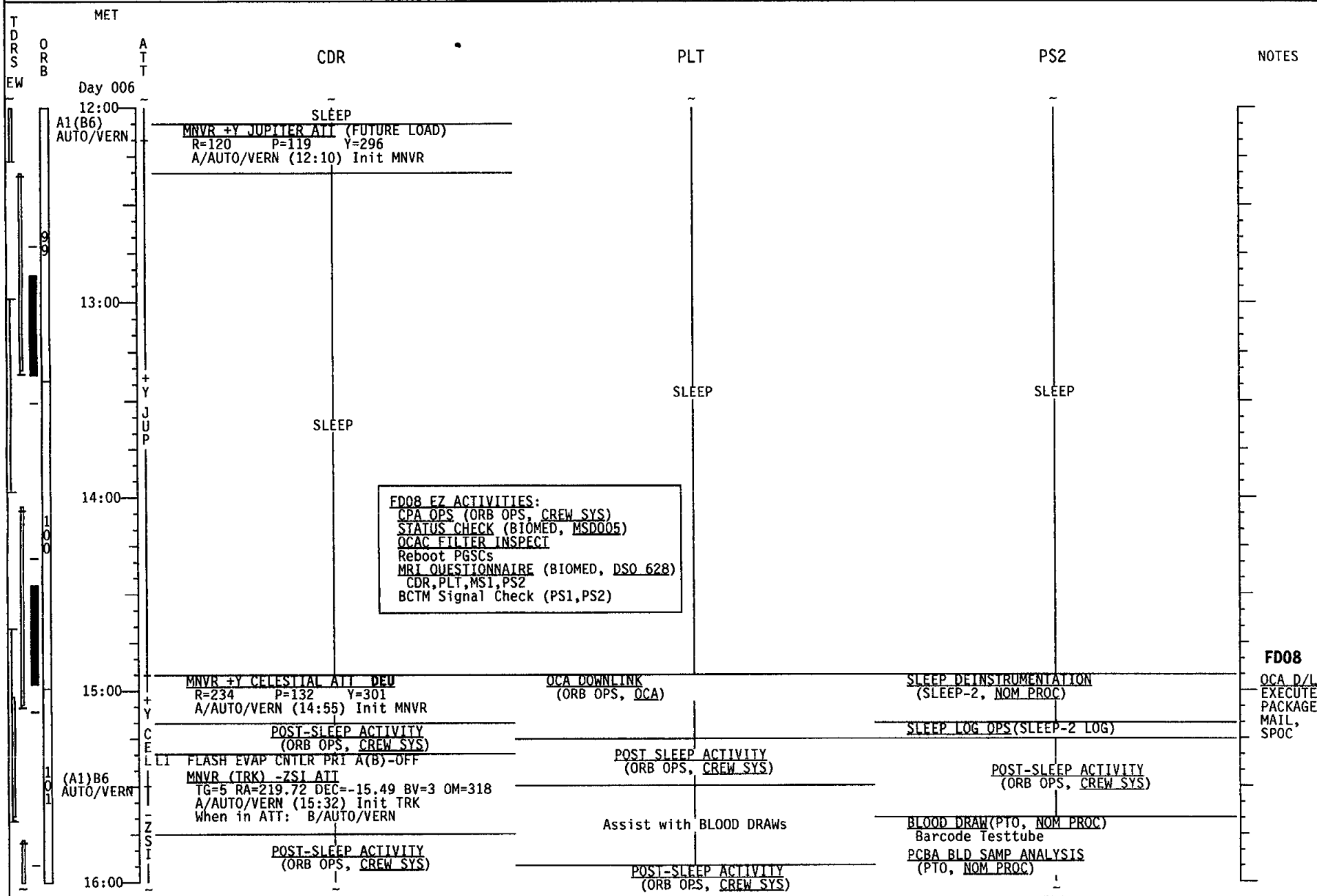
# STS-95 (FD07)



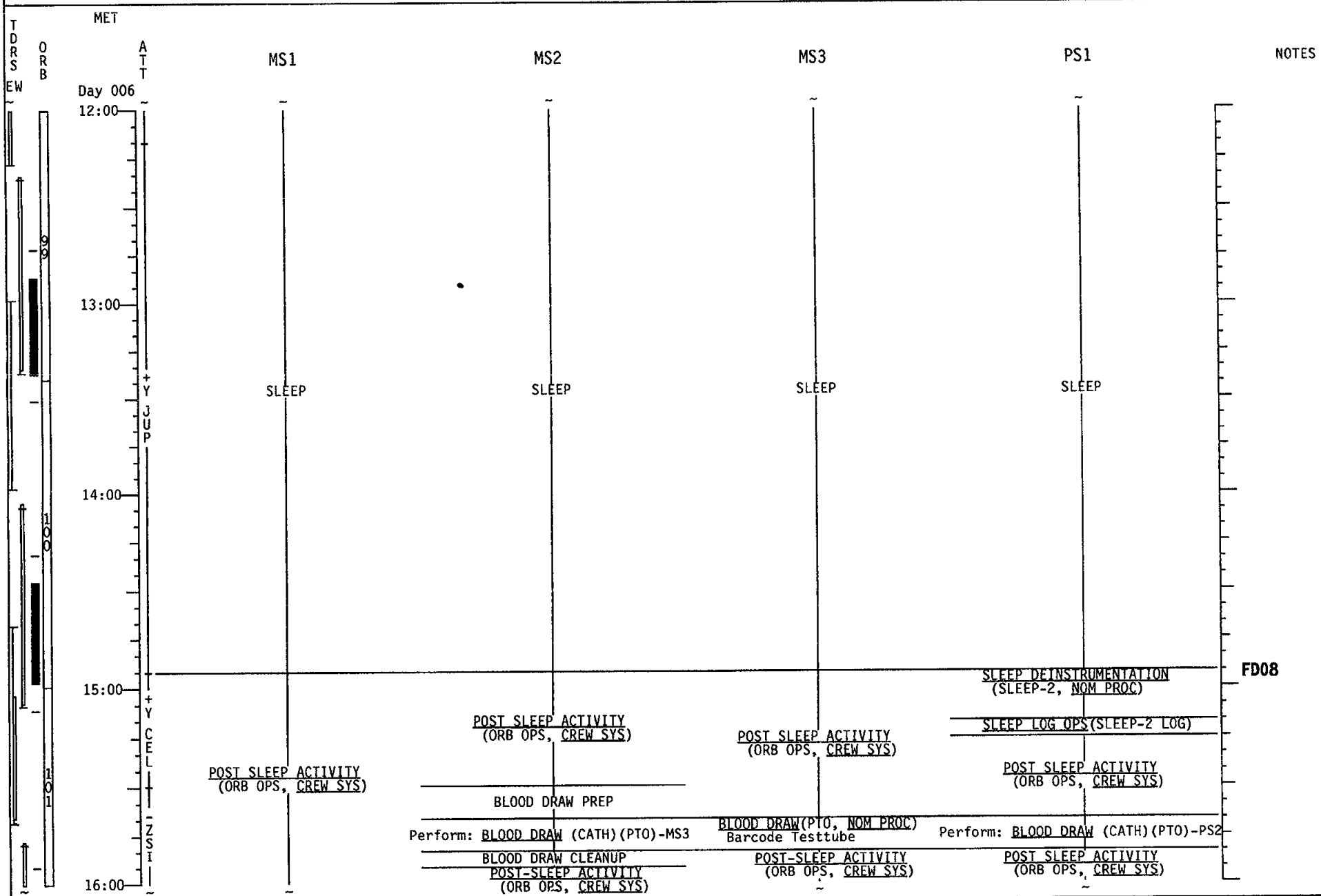
# STS-95 (FD07)



# STS-95 (FD07)

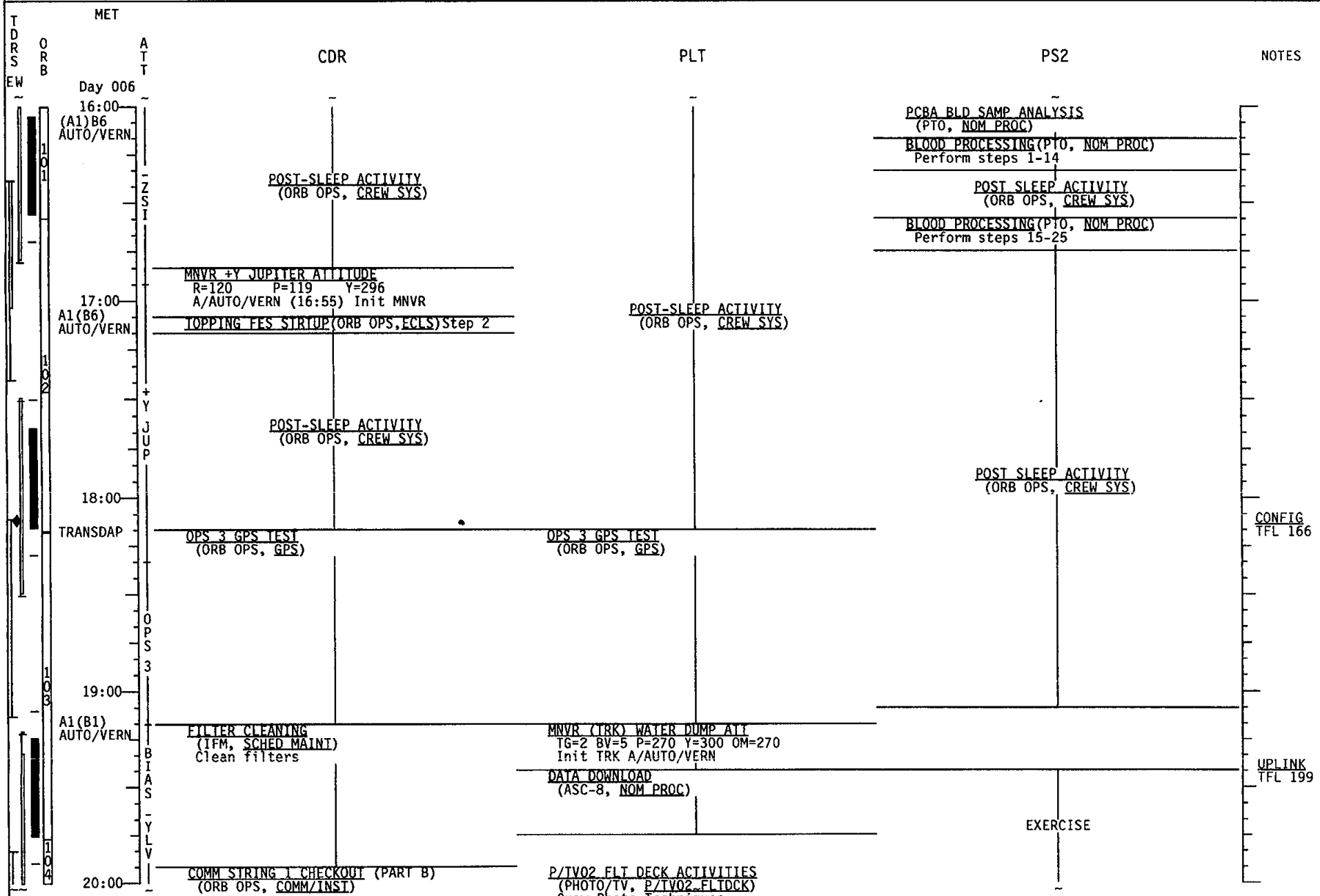


# STS-95 (FD07)

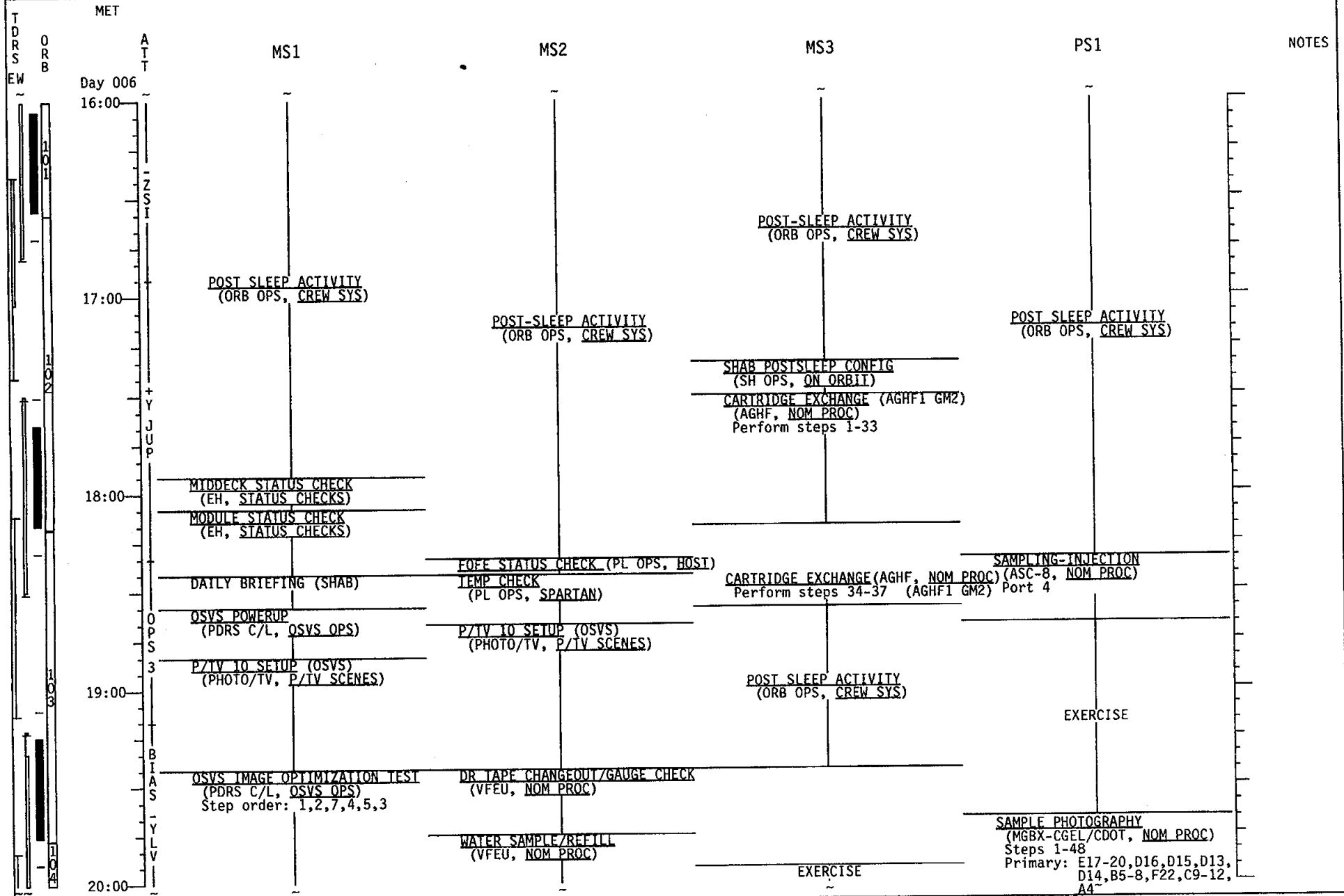




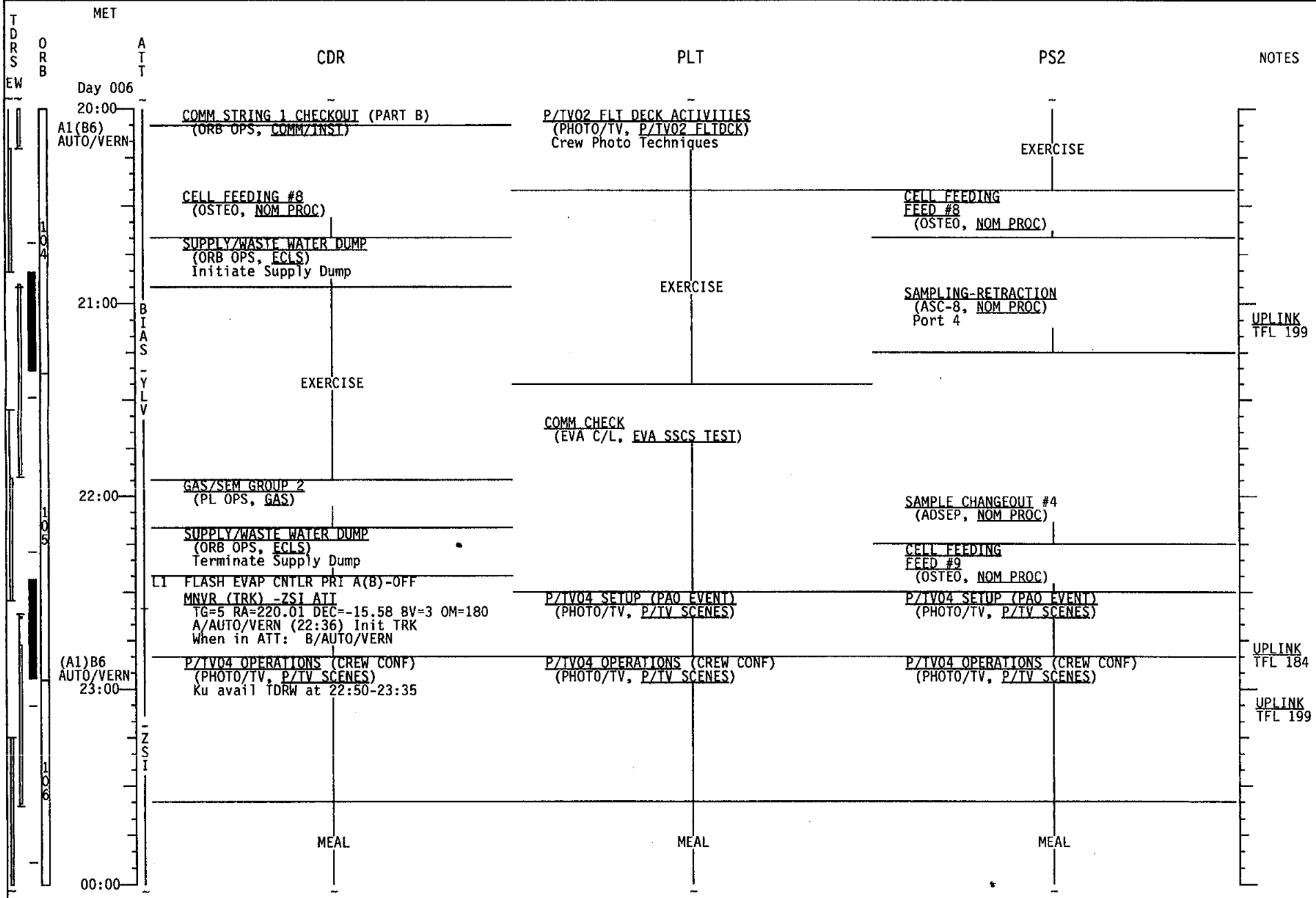
# STS-95 (FD08)



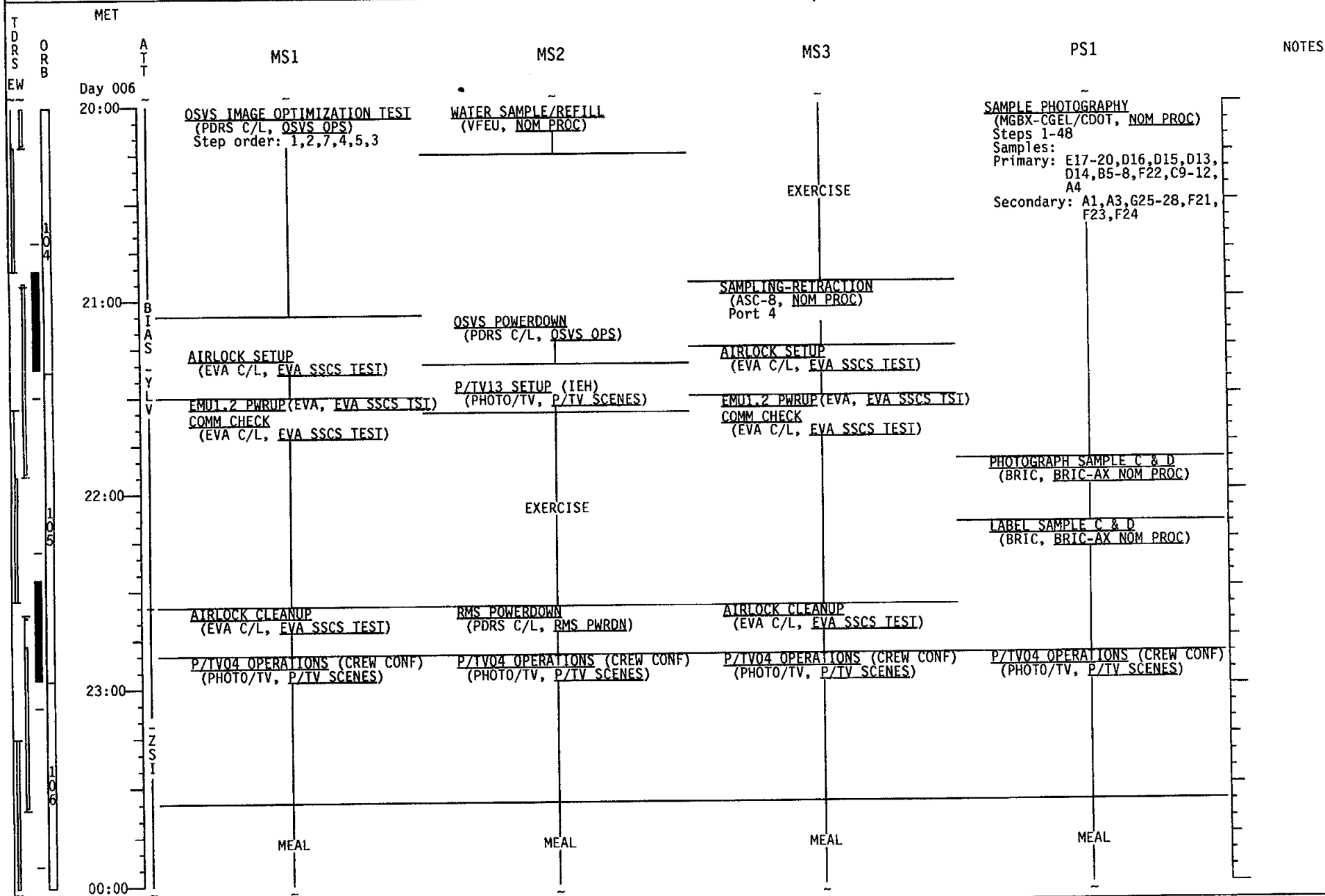
# STS-95 (FD08)



# STS-95 (FD08)



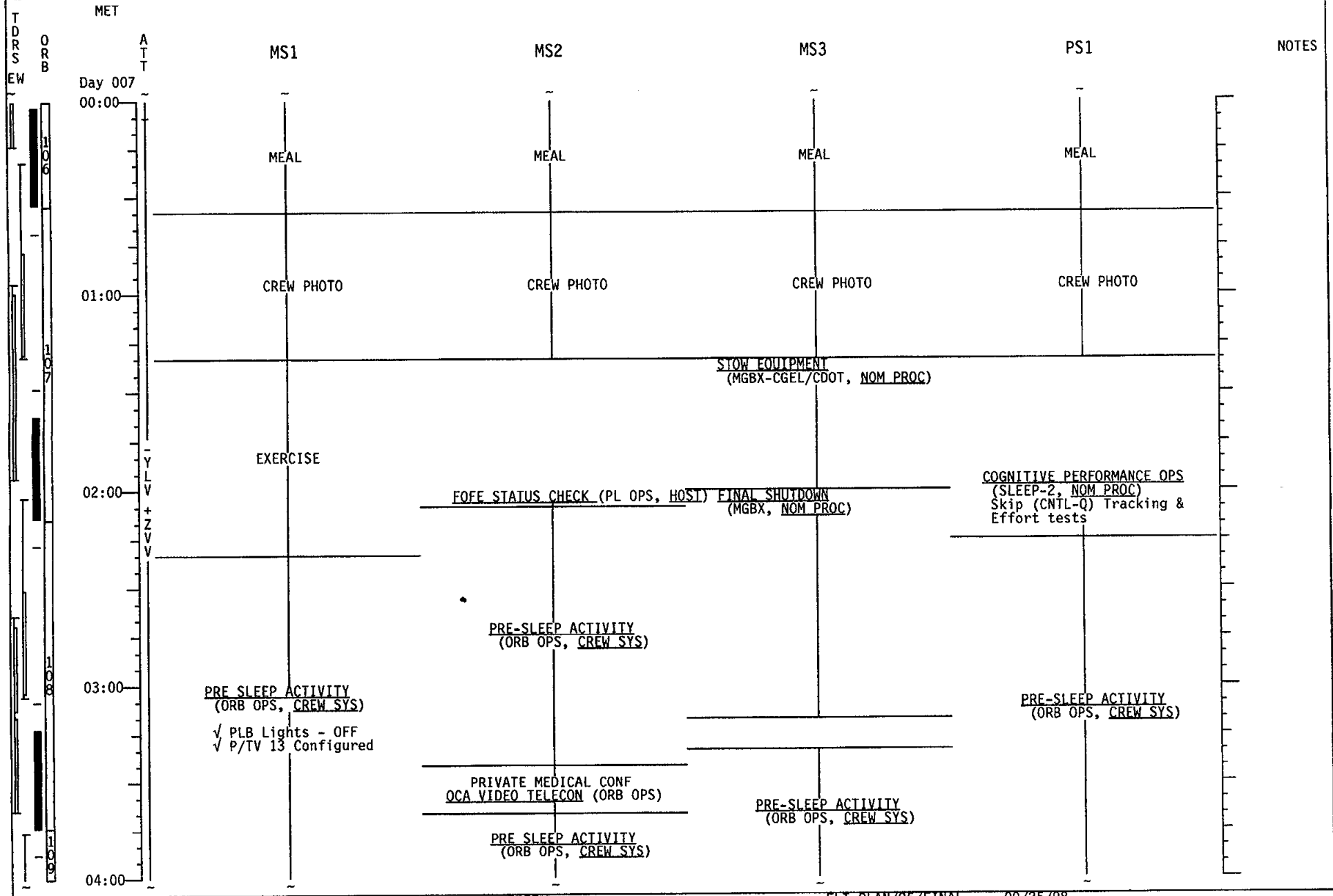
# STS-95 (FD08)



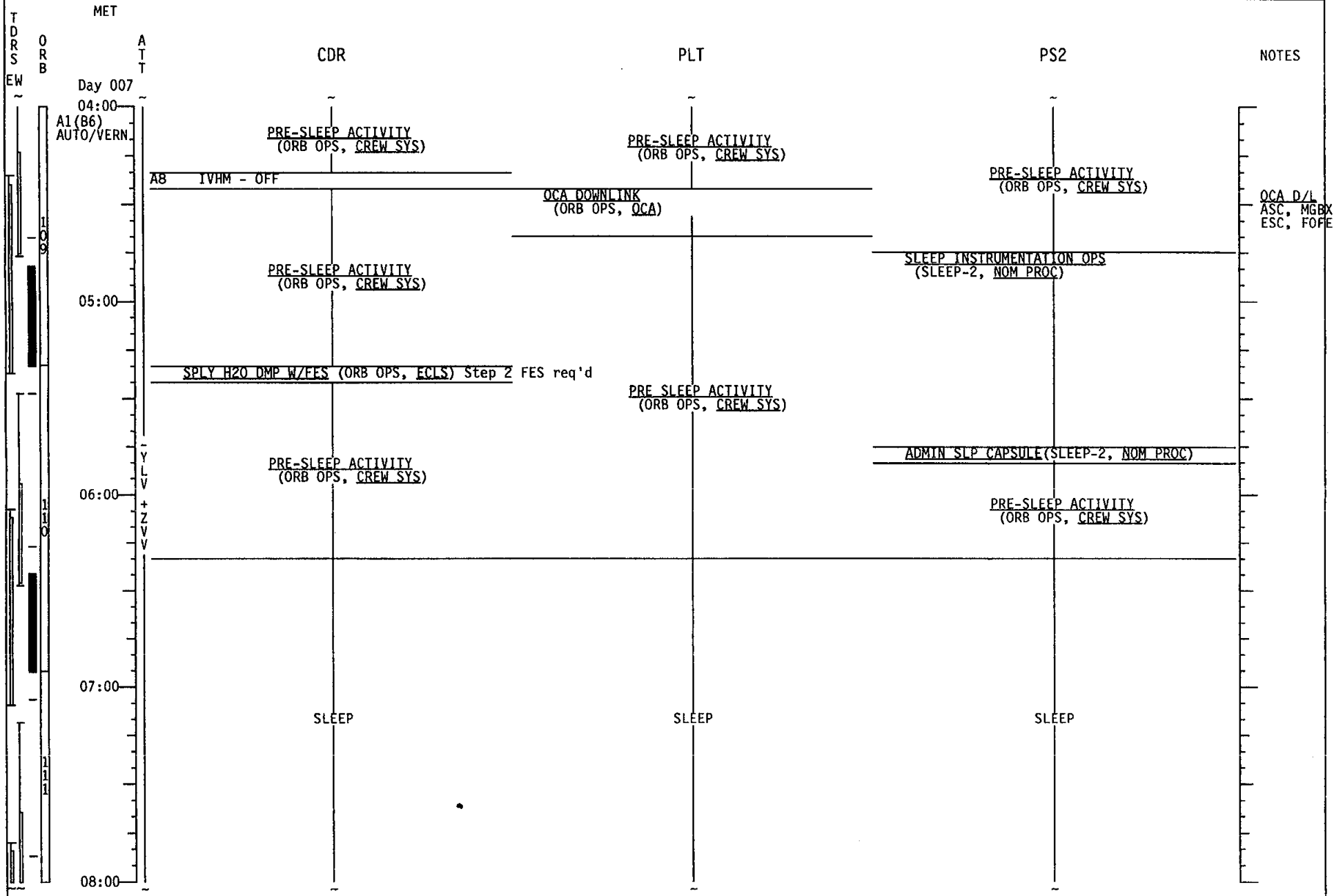
# STS-95 (FD08)

TDRS	ORB	MET	A/T	CDR	PLT	PS2	NOTES
		Day 007					
		00:00		MEAL			
				MNVR (TRK) -YLV +ZVV ATT TG=2 BV=5 P=0 Y=270 OM=90 A/AUTO/VERN (00:07) Init TRK			
			A1(B6) AUTO/VERN	SPLY H2O DMP W/FES (ORB OPS, ECLS) Step I	MEAL	MEAL	
				MEAL			
		01:00		CREW PHOTO	CREW PHOTO	CREW PHOTO	
				ENOSE DAILY MARKER (PL OPS, ENOSE)			
				ENOSE DEACTIVATION (PL OPS, ENOSE)			COGNITIVE PERFORMANCE OPS (SLEEP-2, NOM PROC) Skip (CNIL-Q) Tracking & Effort tests
		02:00	Y L V + Z V V	GAS/SEM GROUP 3 (PL OPS, GAS)	CANISTER REMOVAL #2 (BRIC, BRIC-PC NOM PROC)	PCBA CHECKOUT (PTO, NOM PROC)	
					DR TAPE CHANGEOUT/GAUGE CHECK (VFEU, NOM PROC)		
				MIDDECK STATUS CHECK (EH, STATUS CHECKS)	MANUAL ACCELERATION THRESHOLD CHANGE (VFEU, NOM PROC)		
				MODULE STATUS CHECK (EH, STATUS CHECKS)			
		03:00		DAILY BRIEFING (SHAB)			
				SHAB PRESLEEP CONFIG (SH OPS, ON ORBIT)	TEMP CHECK (PL OPS, SPARTAN)		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)
				A8 IVHM - ON			
				PRIVATE MEDICAL CONF OCA VIDEO TELECON (ORB OPS)			
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		
		04:00					

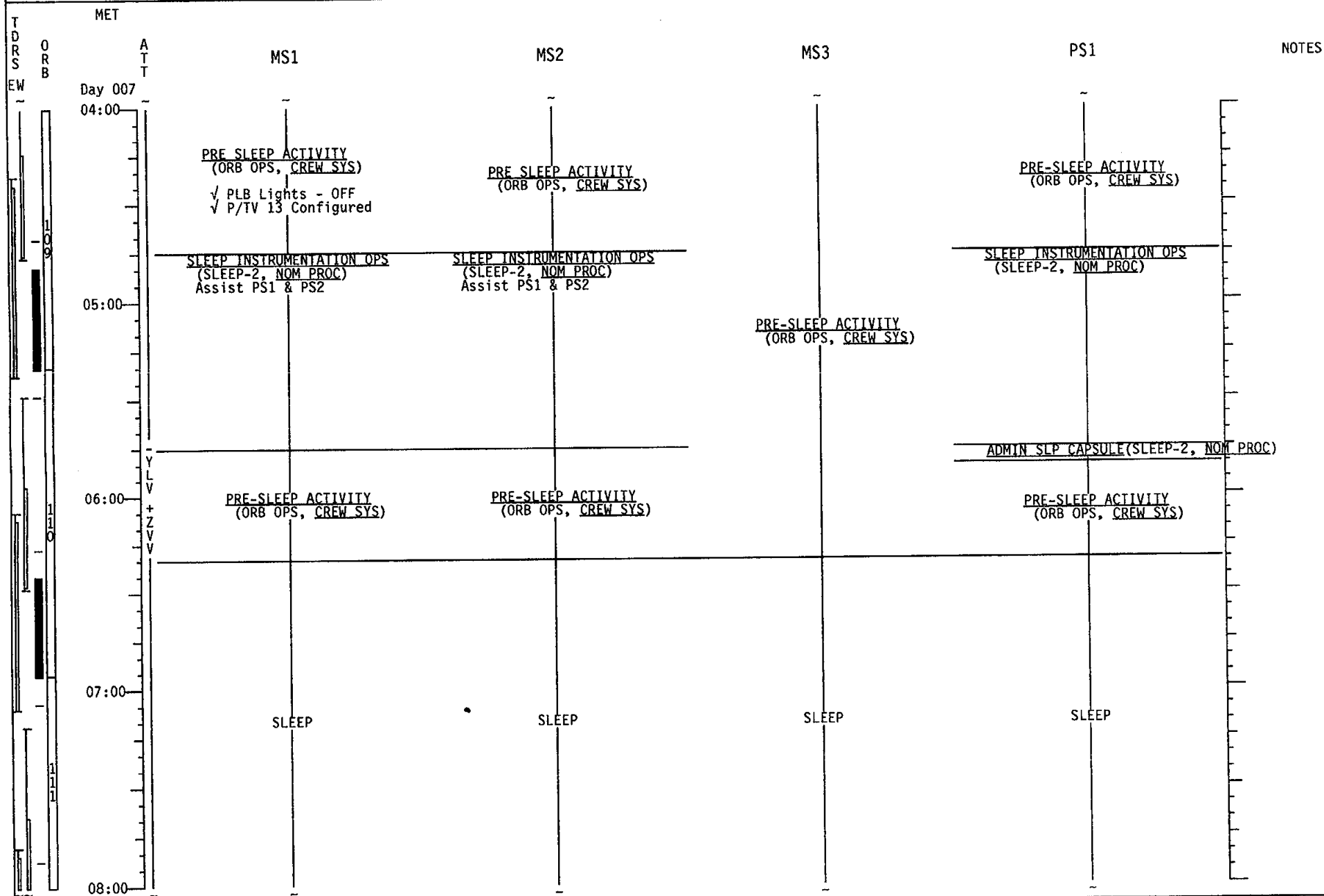
# STS-95 (FD08)



# STS-95 (FD08)

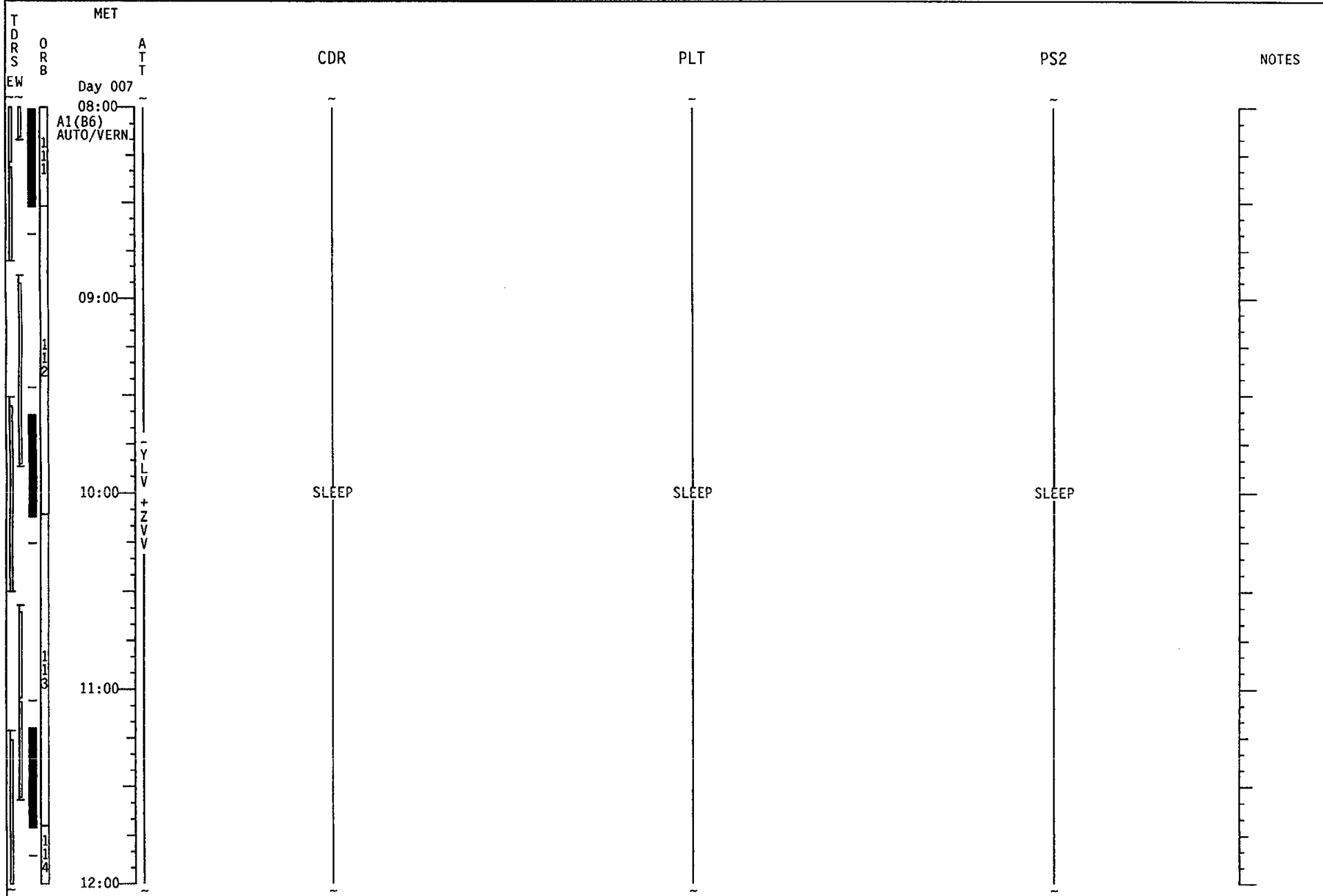


# STS-95 (FD08)

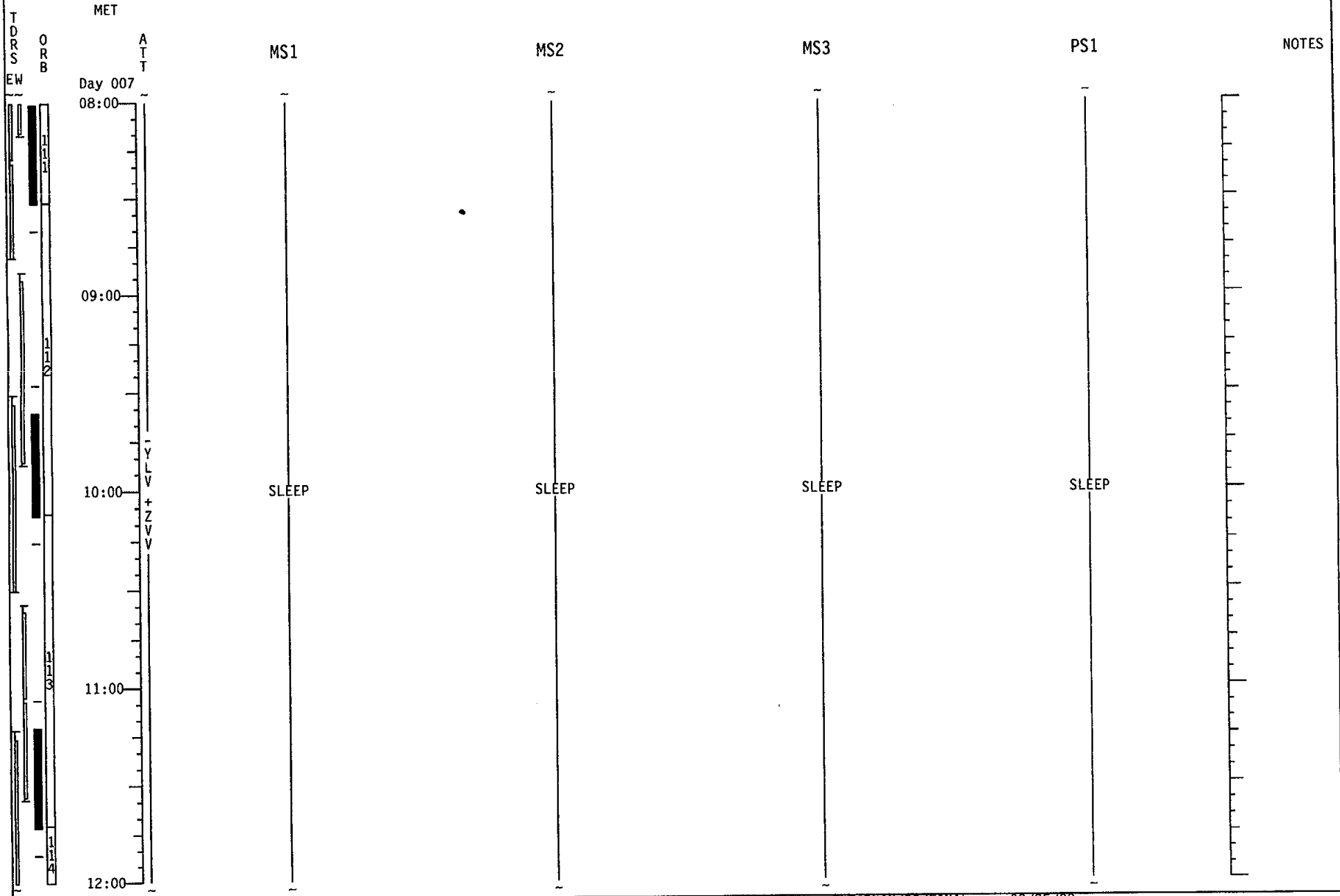




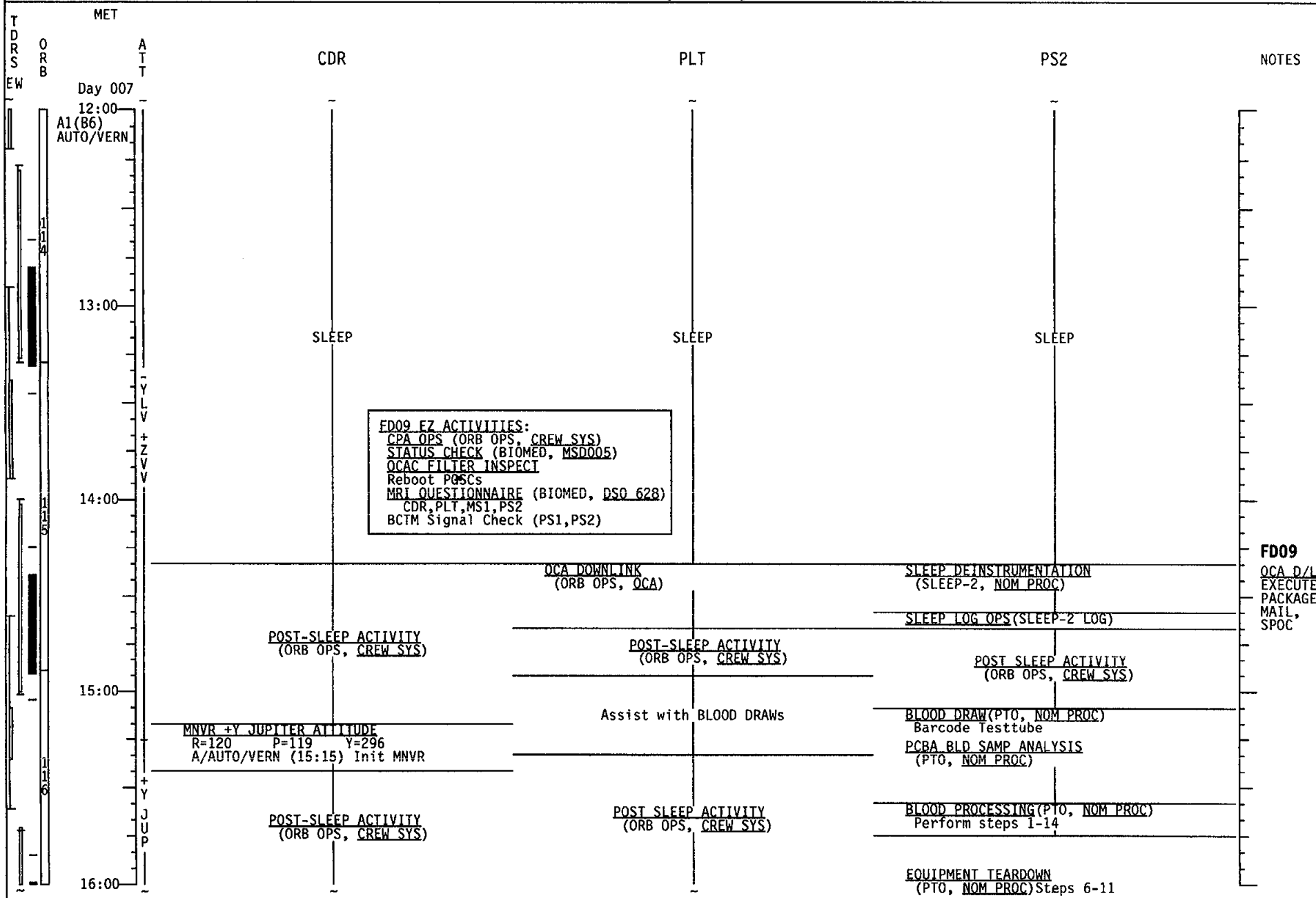
# STS-95 (FD08)



# STS-95 (FD08)

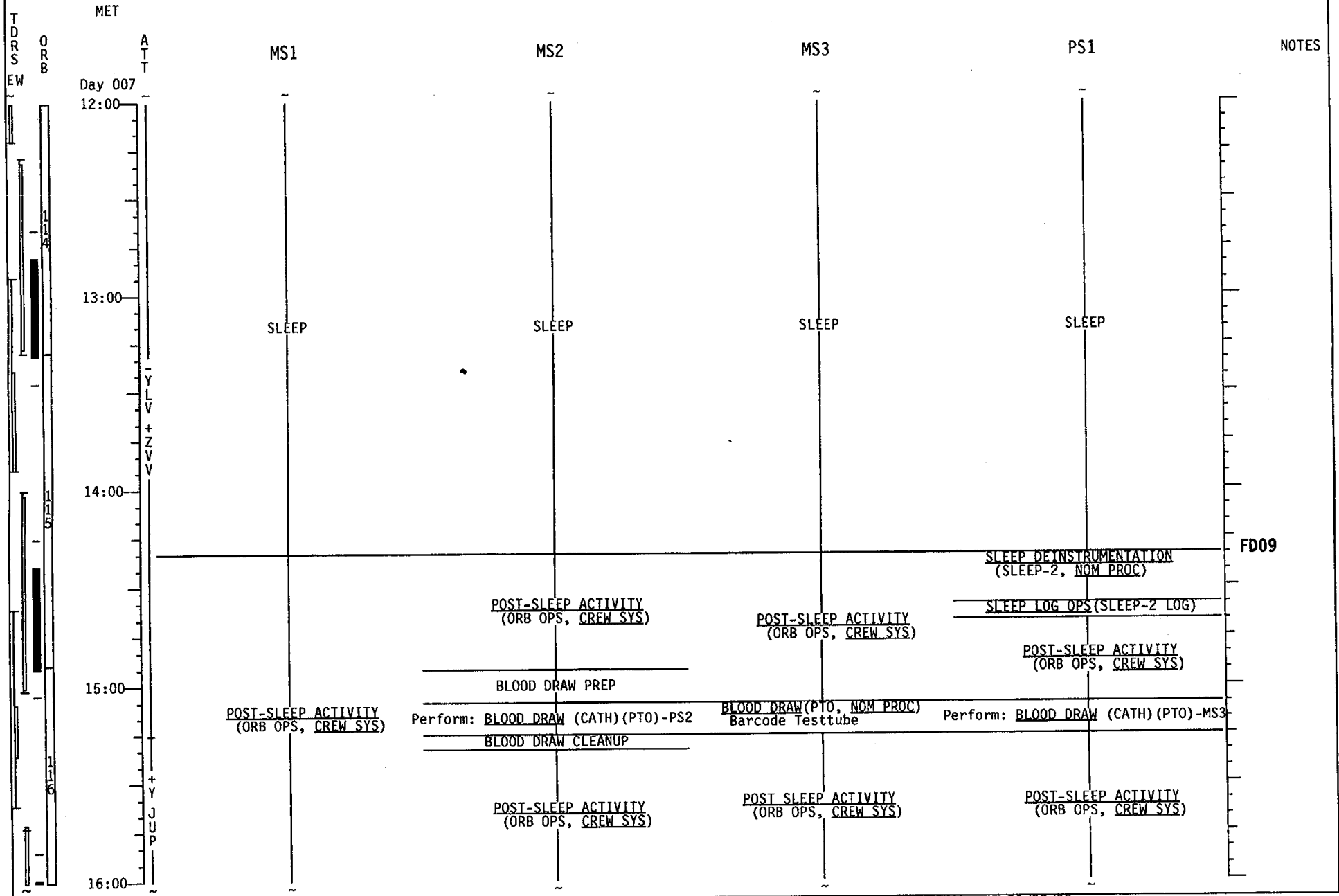


# STS-95 (FD08)



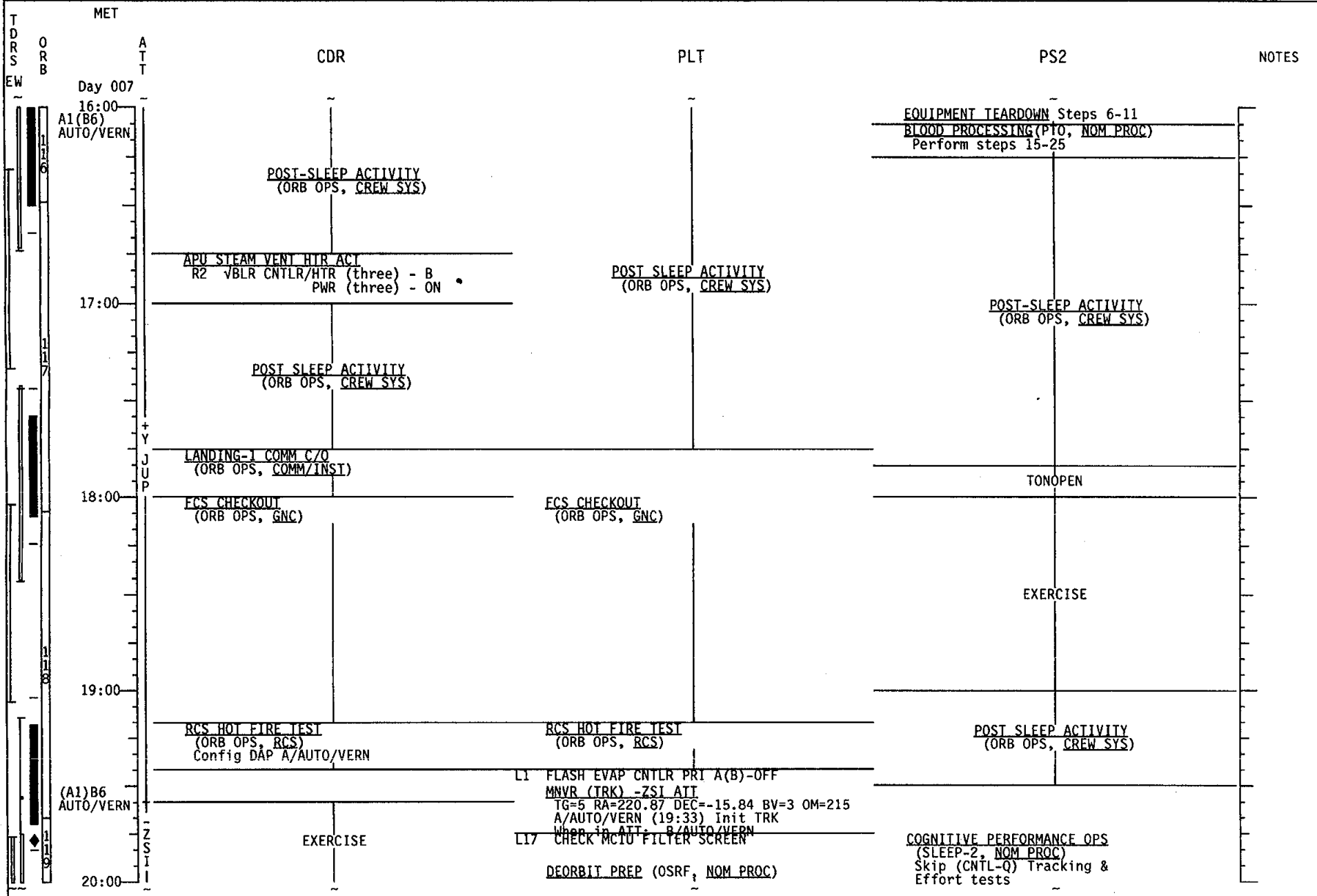
**FD09**  
OCA D/L  
EXECUTE  
PACKAGE,  
MAIL,  
SPOC

# STS-95 (FD08)

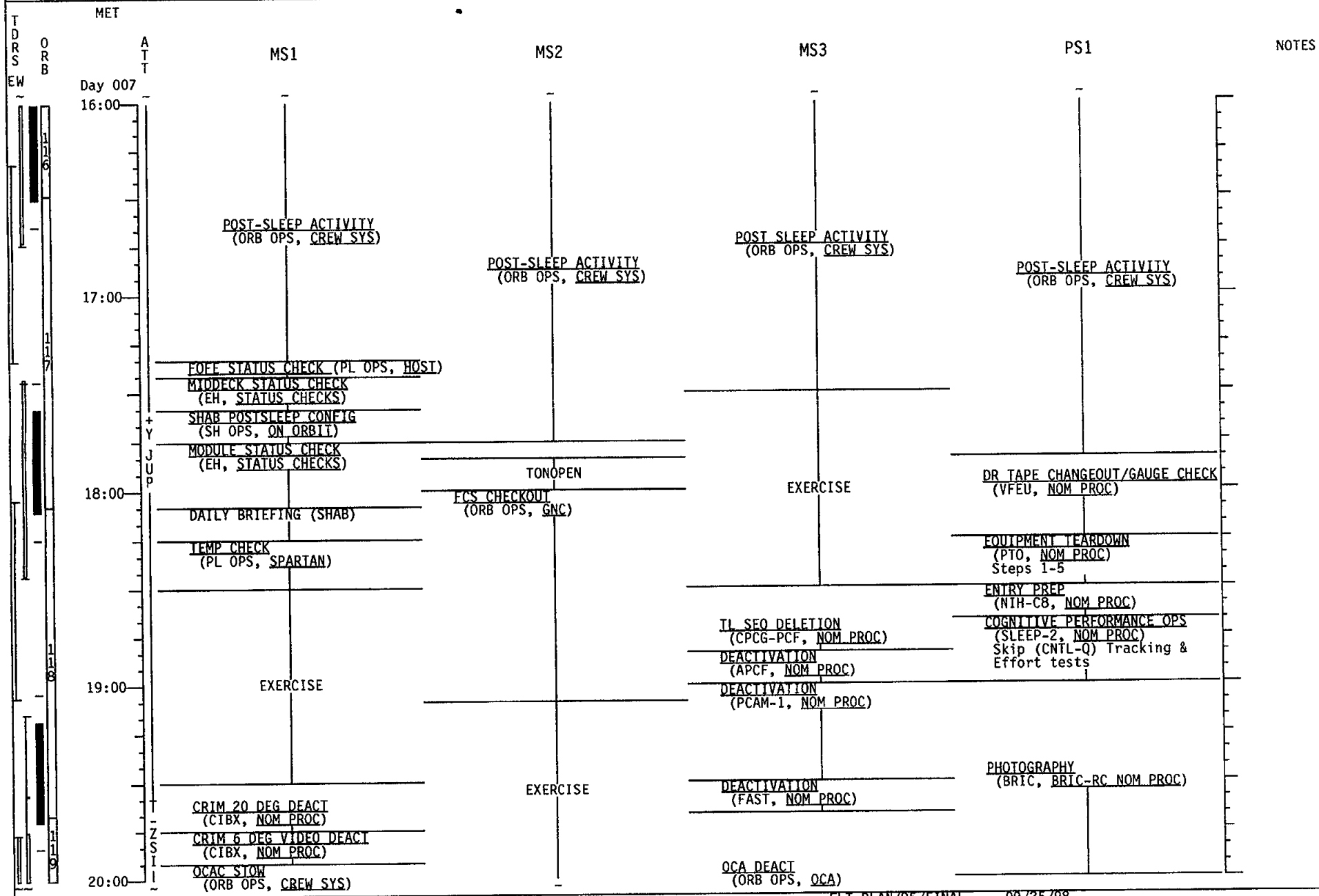


FD09

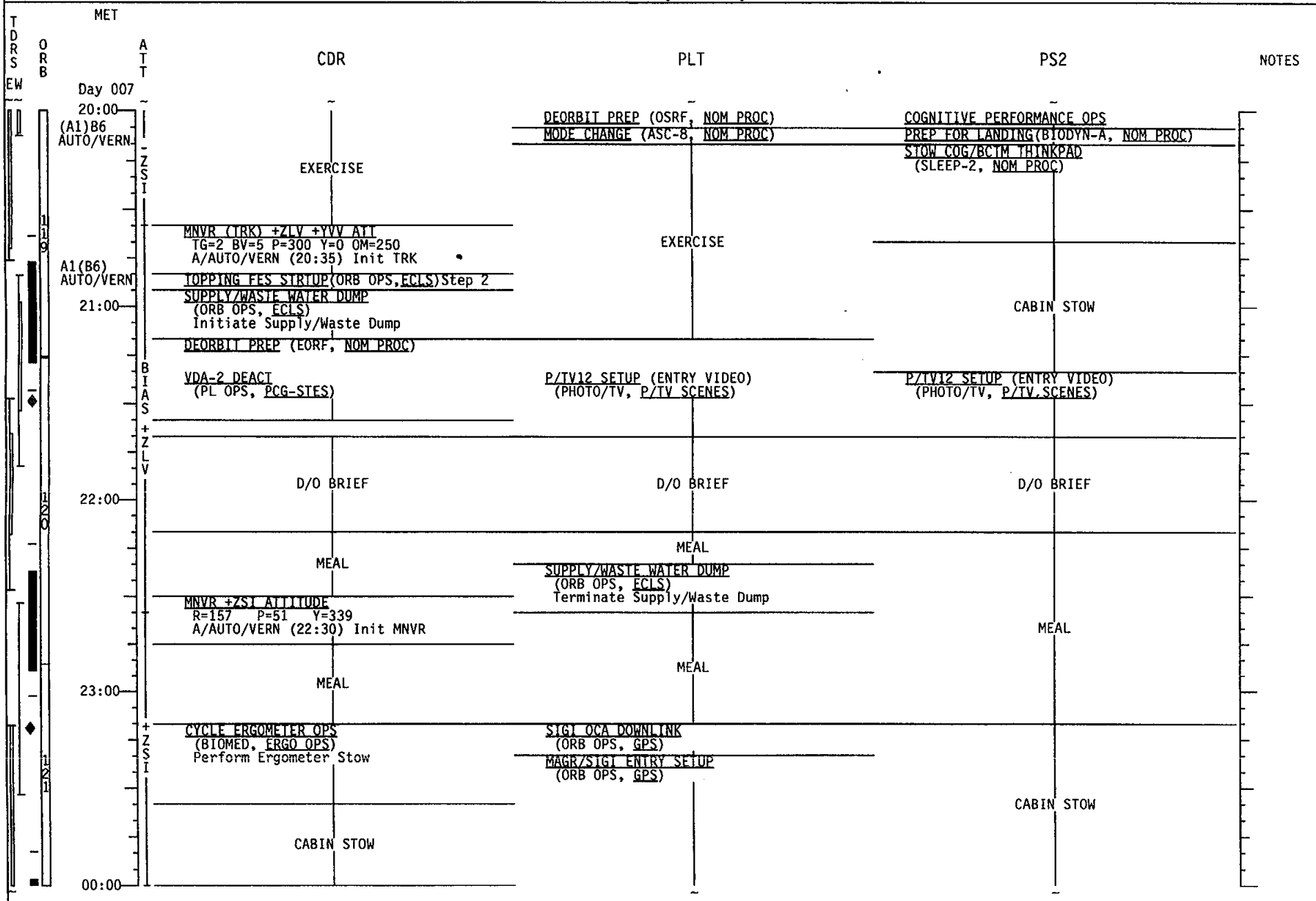
# STS-95 (FD09)



# STS-95 (FD09)



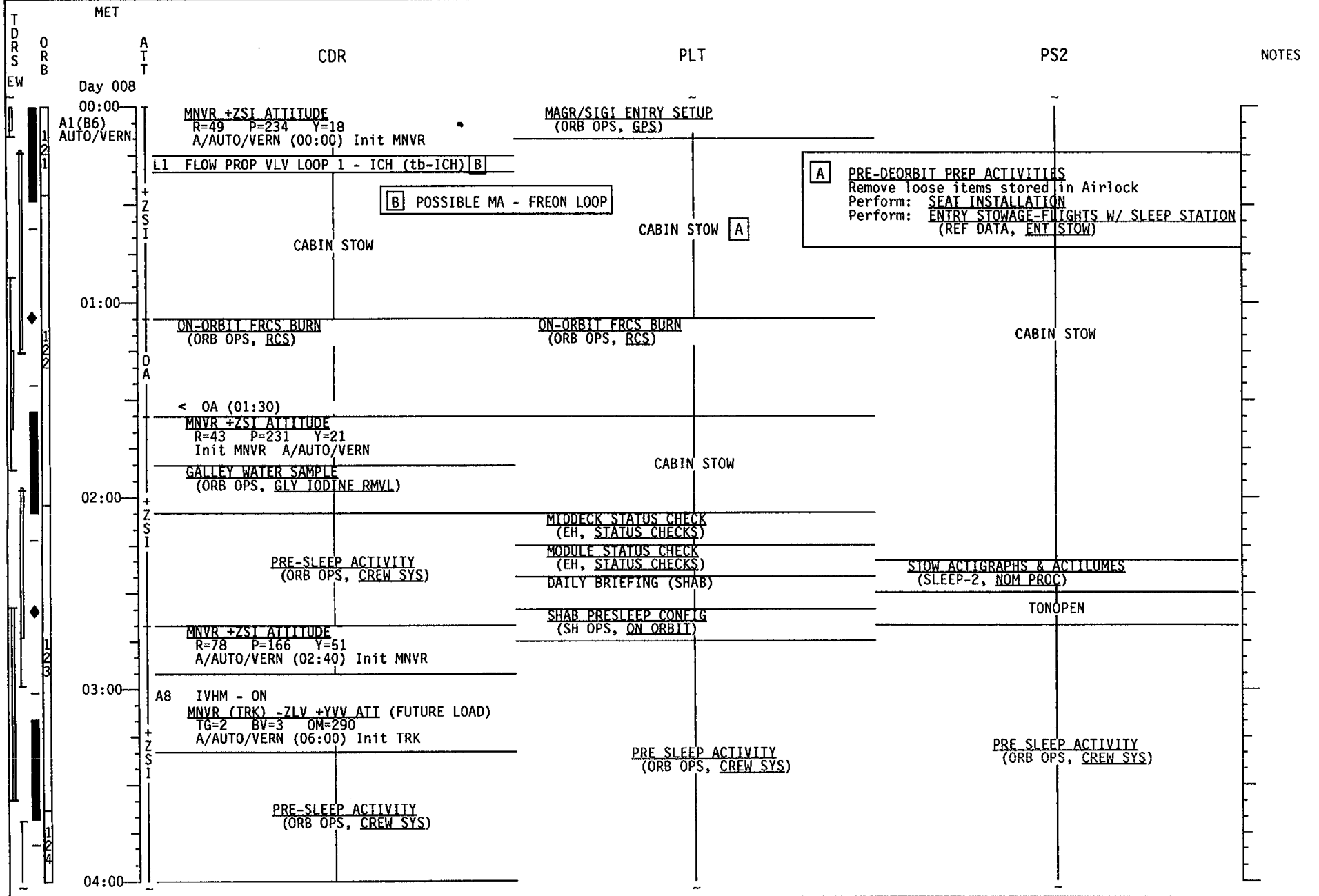
# STS-95 (FD09)



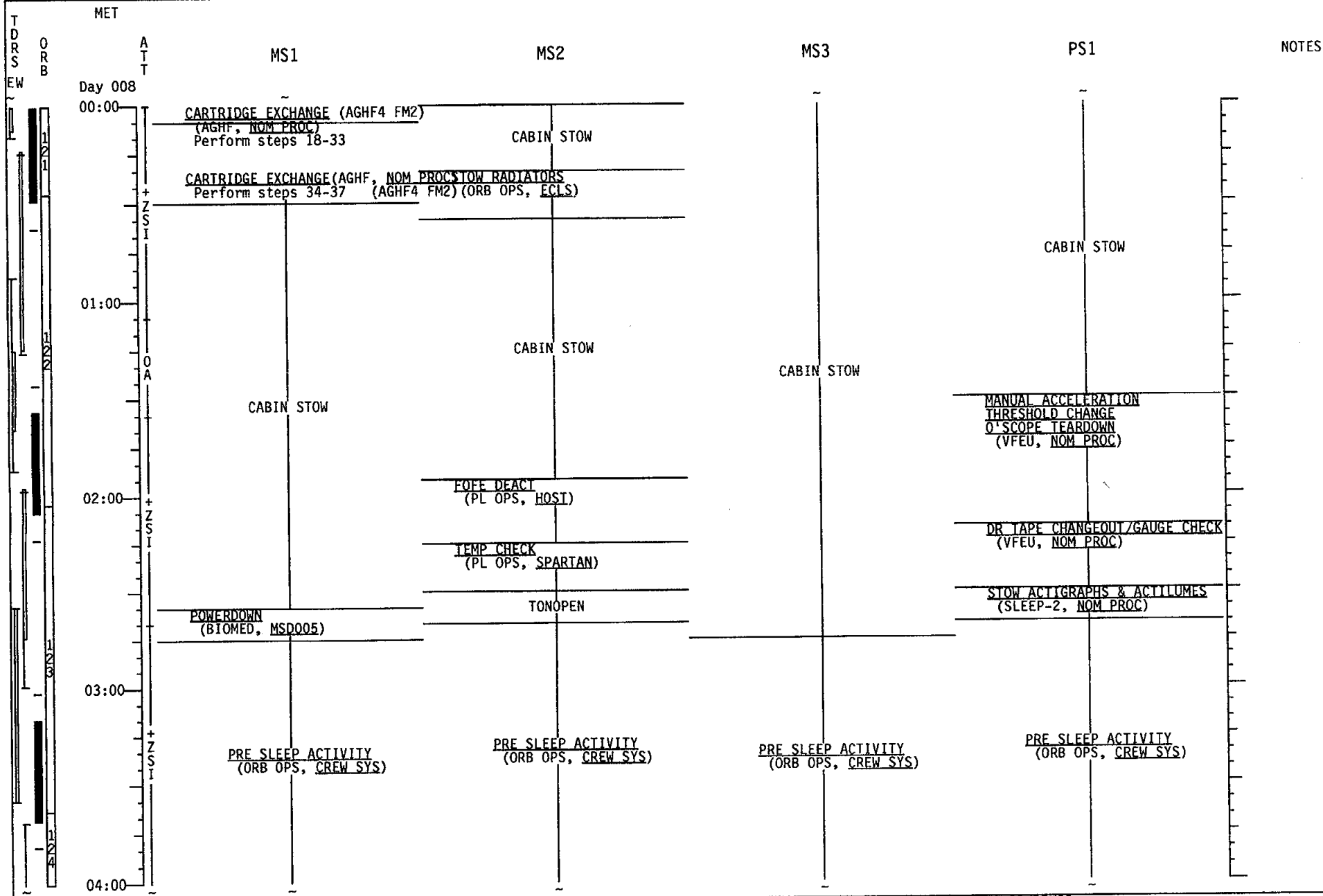




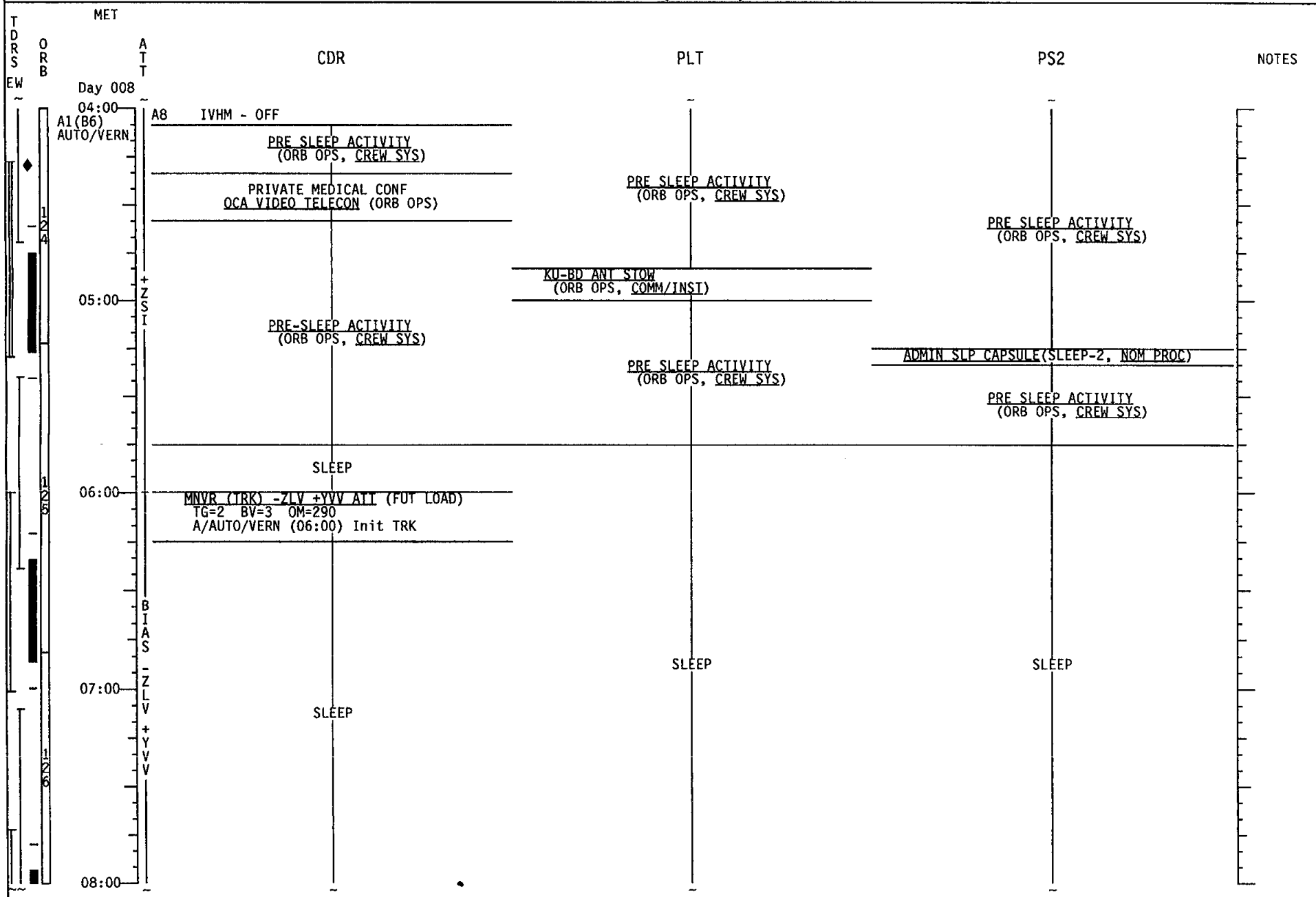
# STS-95 (FD09)



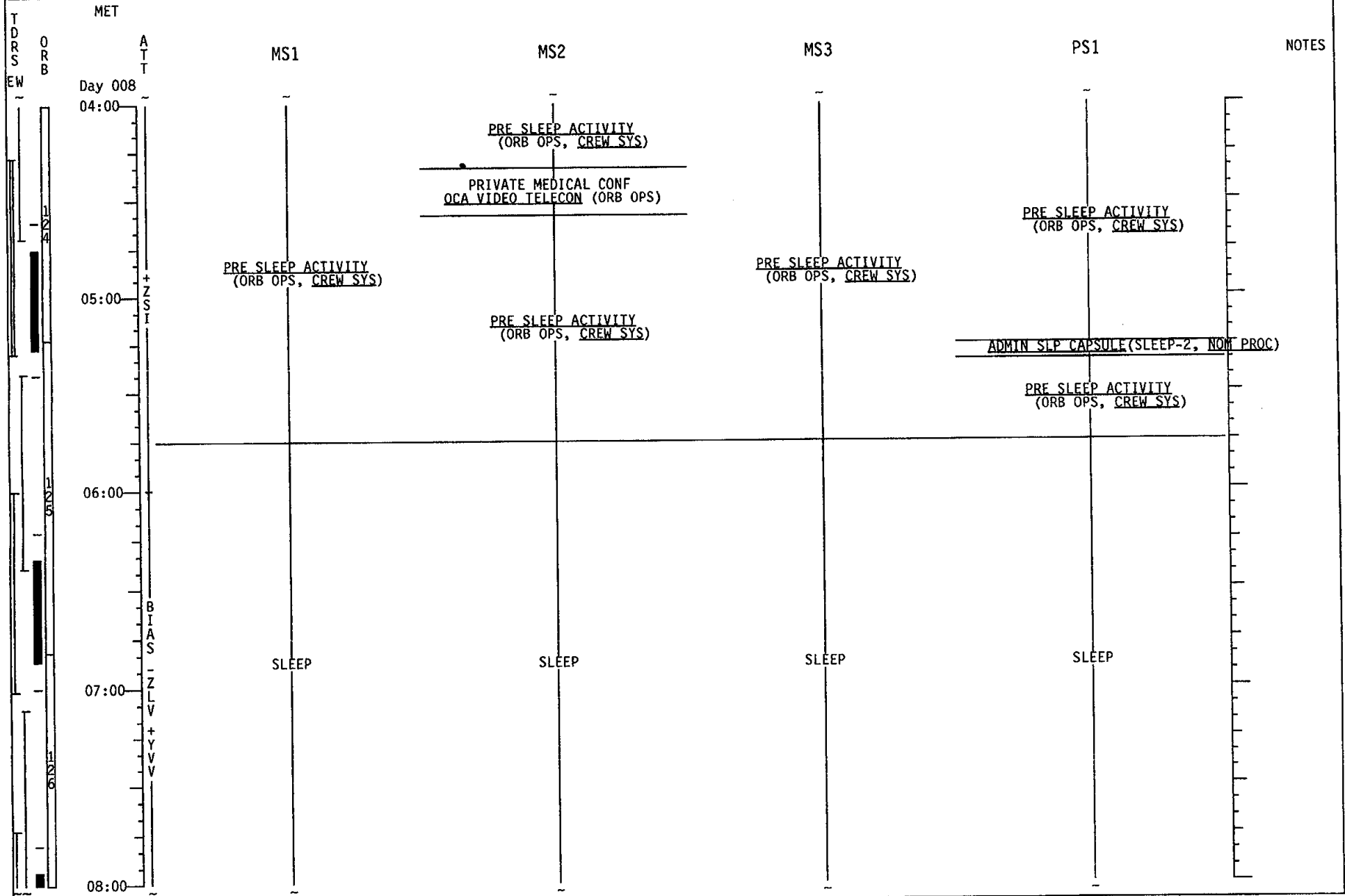
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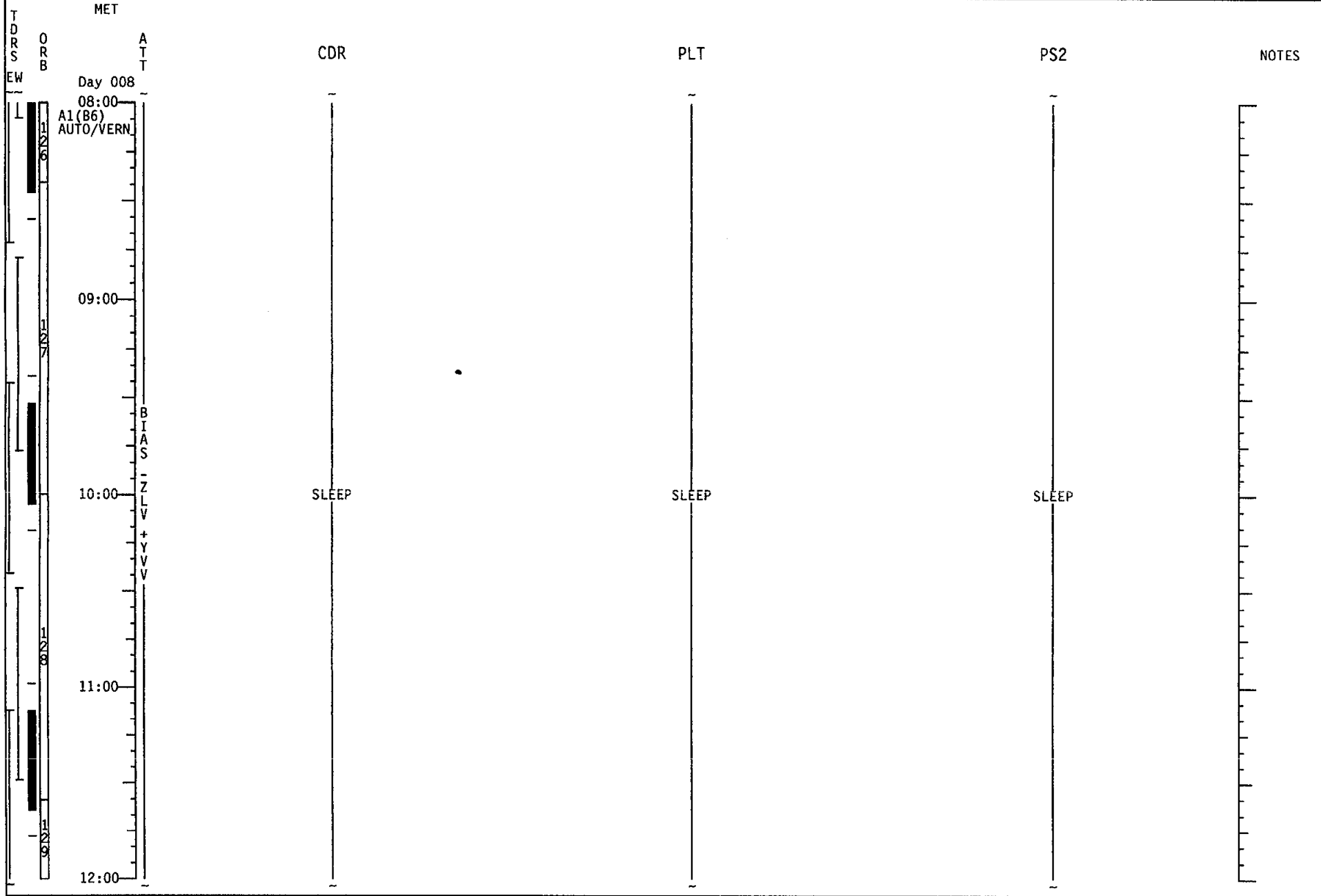
# STS-95 (FD09)



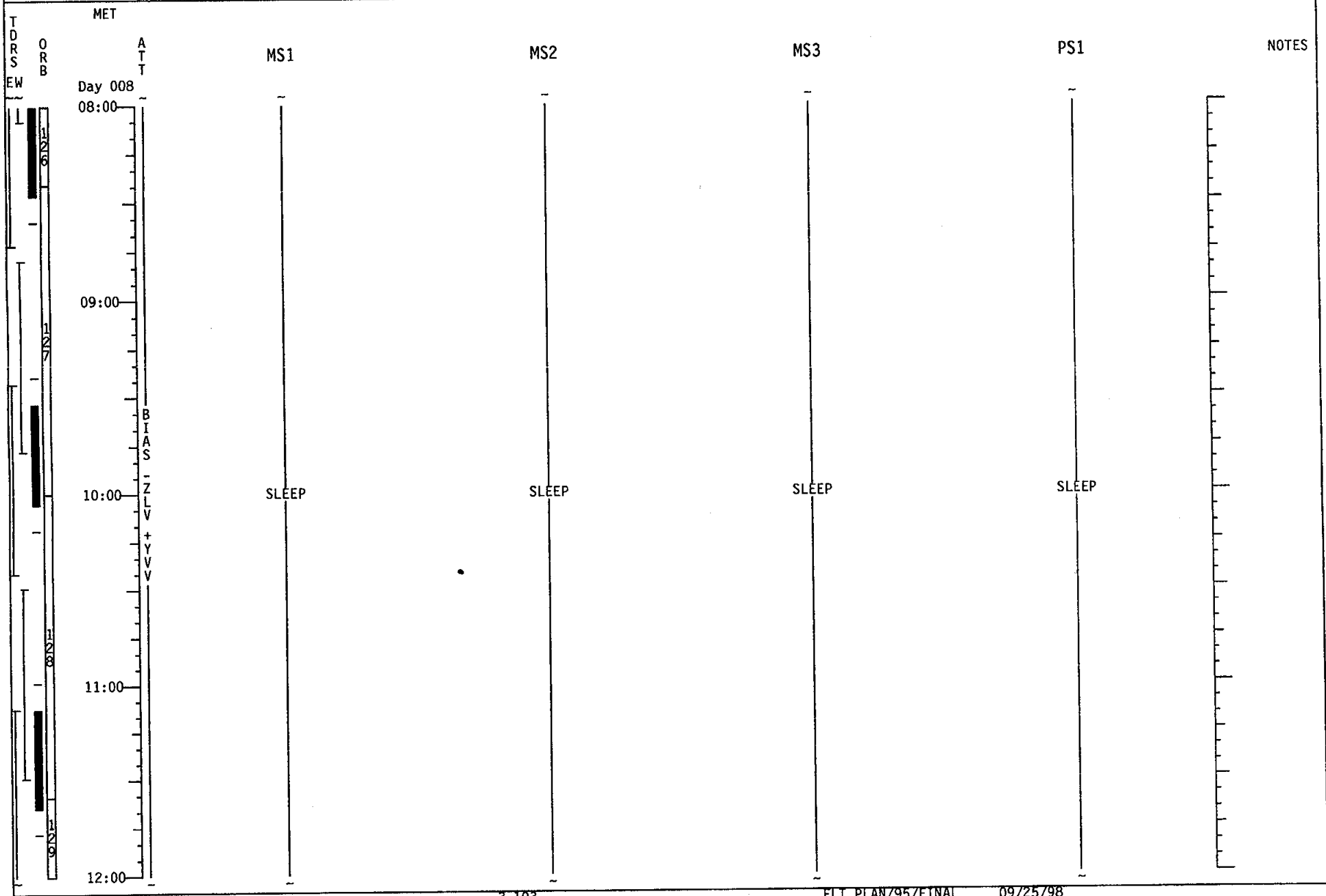
# STS-95 (FD09)



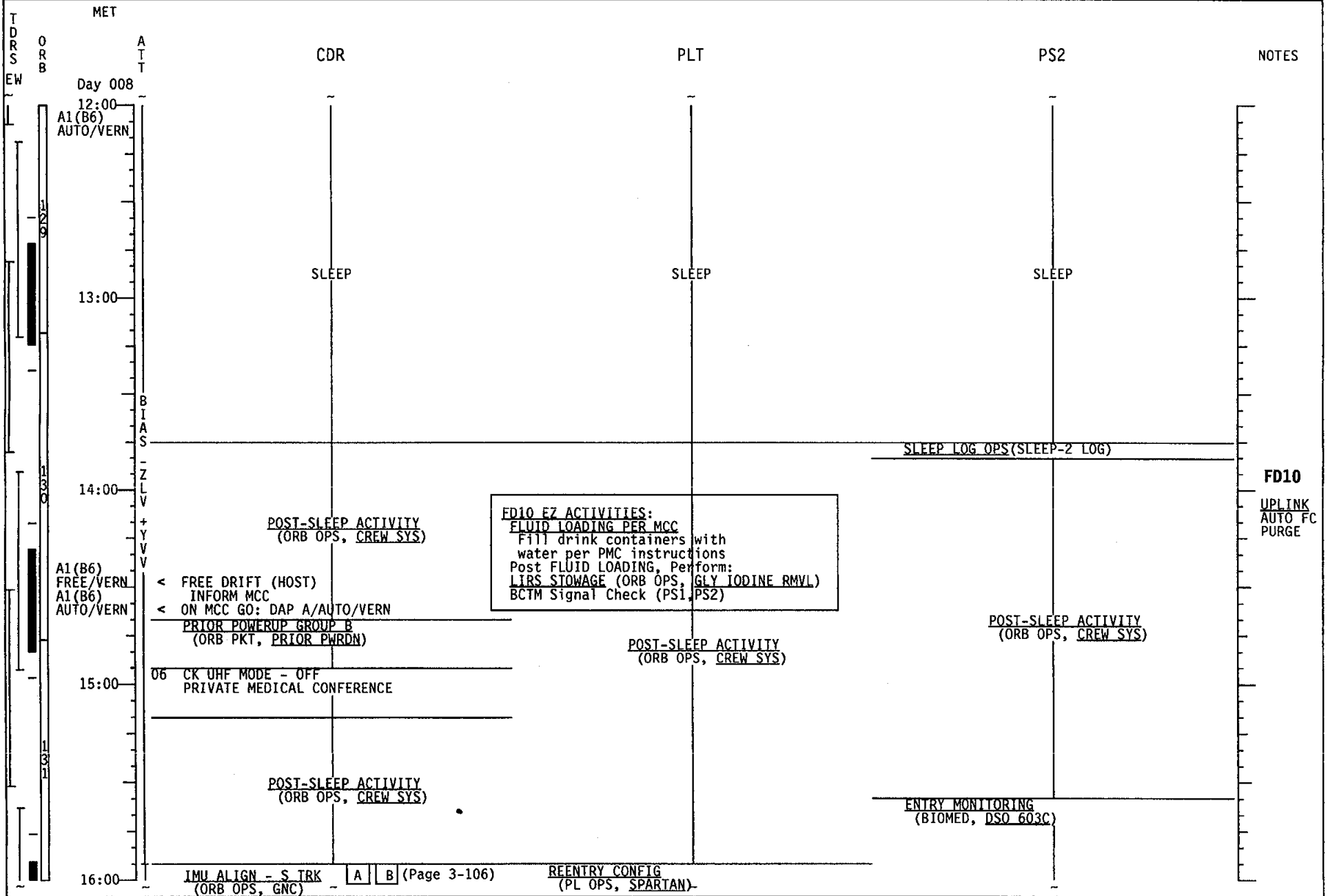
# STS-95 (FD09)



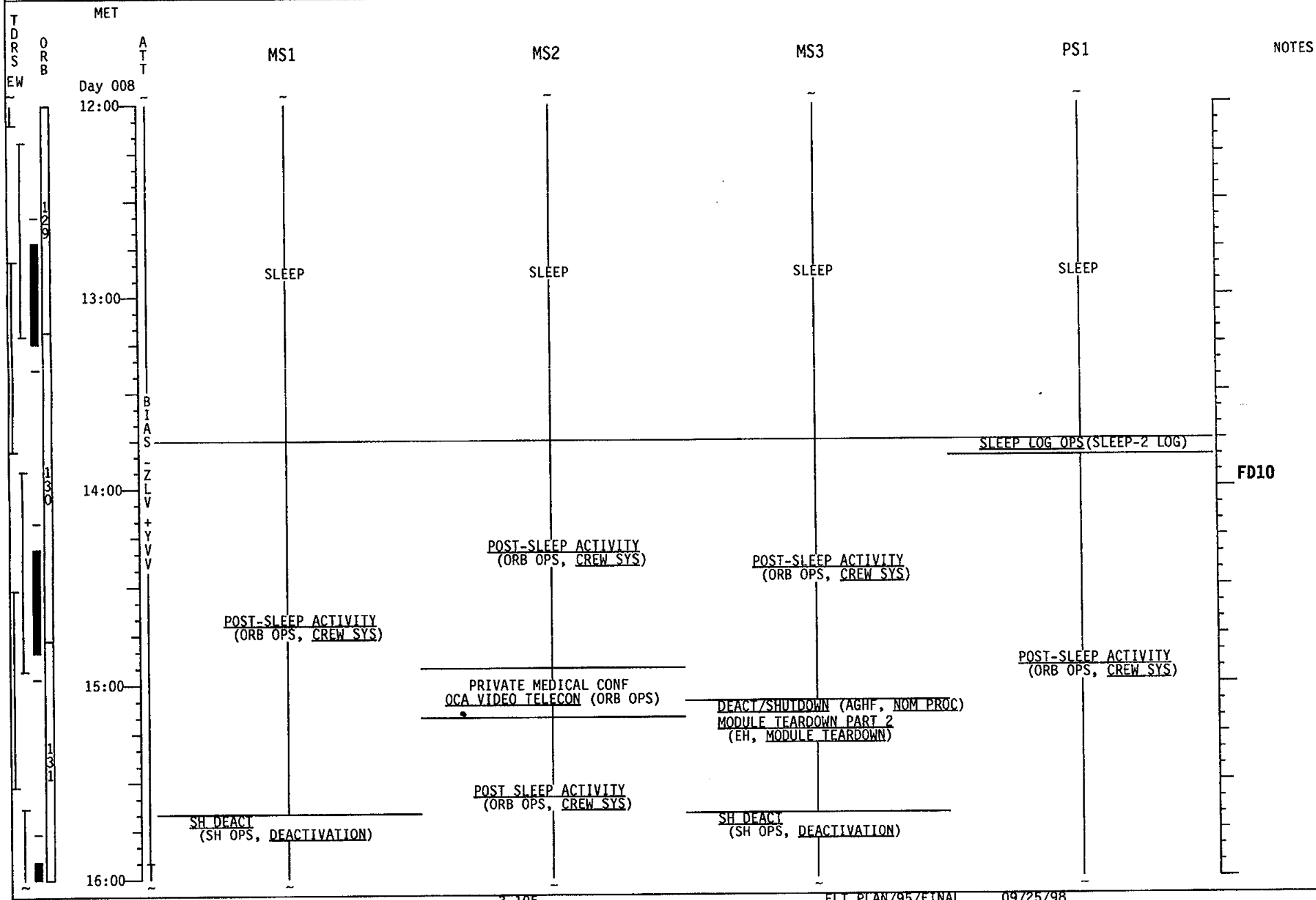
# STS-95 (FD09)



# STS-95 (FD09)



# STS-95 (FD09)

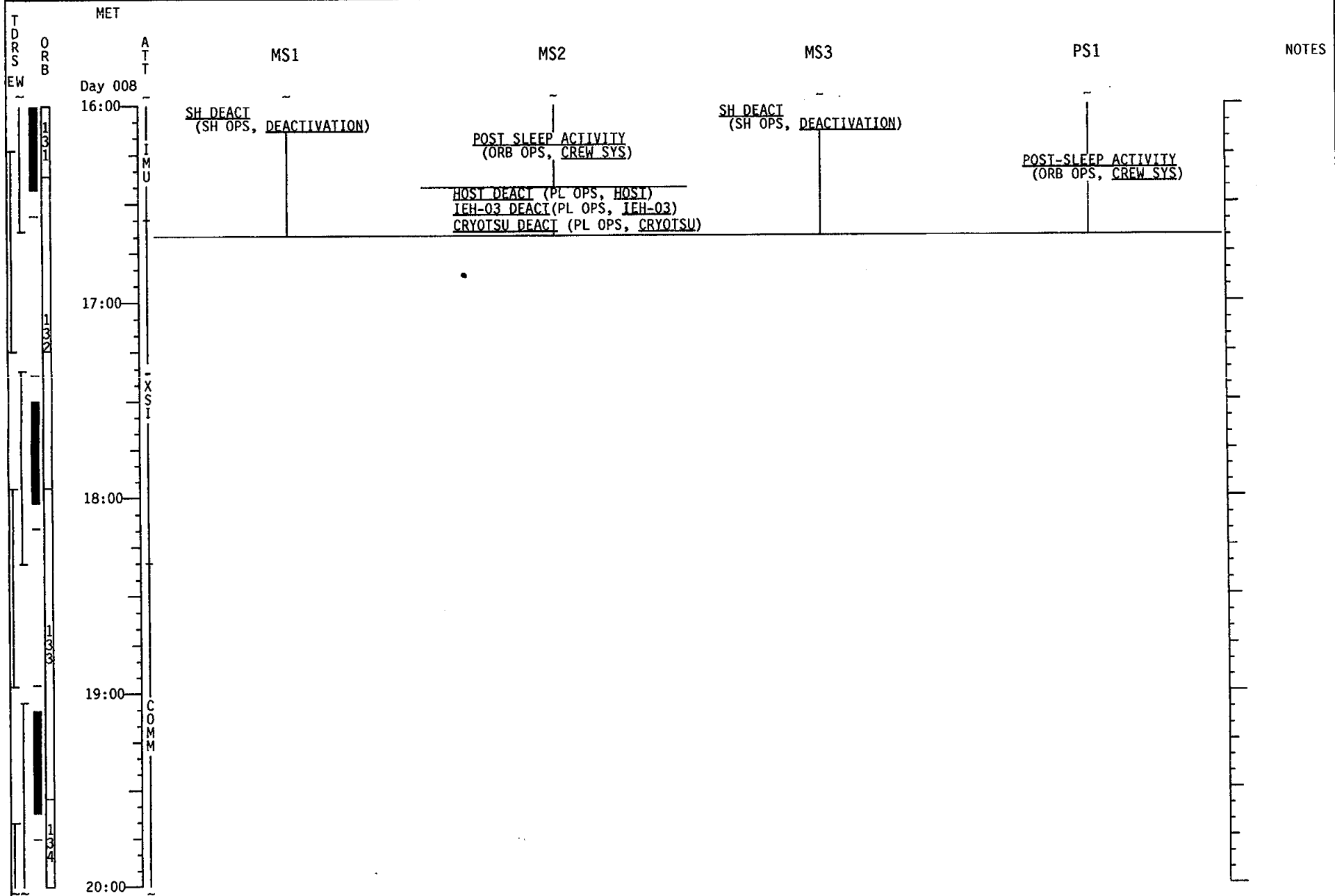




# STS-95 (FD10)

T D R S  E W	O R B	MET	CDR	PLT	PS2	NOTES
		Day 008				
16:00	A1(B6) AUTO/VERN	IMU ALIGN - S TRK (ORB OPS, GNC)	A	B	REENTRY CONFIG (PL OPS, SPARTAN)	ENTRY MONITORING (BIOMED, DSO 603C)
A5(B6) AUTO/VERN	MNVR (TRK) - XSI (COLD SOAK) TGT=4 BV=5 P=184 Y=0 OM=90 A/AUTO/VERN Init TRK	PGSC/BIA STOW (PL OPS, GAS)			AIR SAMPLE Record MET and location on bottle	
17:00	R11L SPLY H2O TKC INLET-CL (tb-CL) OUTLET-CL (tb-CL)		<b>Go to DEORBIT PREP at 8/16:40 MET</b>			
18:00	X S I	<b>A</b> IMU STAR ALIGN: Change DAP A to A5 MNVR TO DUAL S TRK ALIGN ATT R=151 P=59 Y=355 A/AUTO/VERN Init MNVR  STAR PAIR:  ID: -Y: 72, ALUDRA MET: 8/15:54 - 16:45  -Z: 52, HAMEL MET: 8/15:43 - 16:32  ANG DIFF: 92.6  <div style="text-align: right;">                     2ND ATTITUDE                      (SINGLE S TRK)                      -Z: 72      -Y: 52                      R=63      R=238                      P=66      P=45                      Y=341      Y=349                 </div>		<b>B</b> IMU ALIGN VERIFICATION:  MNVR TO DUAL S TRK ALIGN ATT R=112 P=104 Y=43 A/AUTO/VERN Init MNVR  STAR PAIR:  ID: -Y: 70, MUHLIFAIN MET: 8/16:08 - 17:02  -Z: 90, ZETA PERSEI MET: 8/15:52 - 16:42  ANG DIFF: 84.9  <div style="text-align: right;">                     2ND ATTITUDE                      (SINGLE S TRK)                      -Z: 70      -Y: 90                      R=28      R=211                      P=101      P=84                      Y=29      Y=46                 </div>		
19:00	C O M M	REQD ID: -Y: _____, -Z: _____, ANG ERR _____, _____  ANG:                    1                    2                    3  ΔX ( ) _____, _____ ( ) _____, _____ ( ) _____, _____ ΔY ( ) _____, _____ ( ) _____, _____ ( ) _____, _____ ΔZ ( ) _____, _____ ( ) _____, _____ ( ) _____, _____  EXECUTION TIME: ___/___:___:___ MET		REQD ID: -Y: _____, -Z: _____, ANG ERR _____, _____  ANG:                    1                    2                    3  ΔX ( ) _____, _____ ( ) _____, _____ ( ) _____, _____ ΔY ( ) _____, _____ ( ) _____, _____ ( ) _____, _____ ΔZ ( ) _____, _____ ( ) _____, _____ ( ) _____, _____  EXECUTION TIME: ___/___:___:___ MET		
20:00						

# STS-95 (FD10)



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STS-95 DAP TABLE

STS-95  
DAP TABLE

**STS-95  
DAP TABLE**

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOM OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (NOSE & TAIL ALT, -ZSI SEH (REQ))
A4	- PRE/POST DEPLOY	B4	- -ZSI VERN & ALT SOLCON (DES)
A5	- LOSS OF VERN (NOSE & TAIL)	B5	- COAS CAL
A6	- LOSS OF VERN (TAIL ONLY)	B6	- NOM -ZSI ALT SOLCON (REQ) SEH (DES)
A7	- RENDEZVOUS	B7	- RENDEZVOUS
A8	- PROX OPS	B8	- PROX OPS
A9	- SPARTAN - LOW HOVER, VGS POSN 1-3	B9	- SPARTAN DEADBAND COLLAPSE
A10	- SPARTAN - REL & CAP EXT PARK, VGS ACQ		
A11	- SPARTAN - VGS POSN 4-16		

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	→ OM (0-359.99)
MON AXIS	= 1 +X = 2 -X

CNTL ACC = 0 UNLOADED RMS  
 = 1 SPARTAN RELEASE & CAPTURE  
 EXTENDED PARK VGS ACQ,  
 POSN 4-16  
 = 2 SPARTAN - LOW HOVER VGS POSN 1-3  
 = 3-9 NOT USED

STS-95 DAP A - GENERIC

	ITEM #	A1	A2	A3	A4	A5	A6
<b>PRI</b>							
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000
ATT DB	11(51)	5.00	1.00	1.00	3.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10
<b>ALT</b>							
RATE DB	18(58)	0.200	0.200	0.200	0.200	0.070	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL
# JETS	20(60)	2	2	2	2	1	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	0.00	0.00	0.00	0.00
<b>VERN</b>							
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.2000	0.2000
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/ POST DEPLOY	LOSS OF VERN (NOSE & TAIL)	LOSS OF VERN (TAIL ONLY)

STS-95 DAP A CONFIGURATIONS

	ITEM #	A7	A8	A9	A10	A11
<b>PRI</b>						
ROT RATE	10(50)	0.2000	0.2000	<b>0.1000</b>	<b>0.1000</b>	<b>0.1000</b>
ATT DB	11(51)	2.00	2.00	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	<b>0.04</b>	<b>0.04</b>	<b>0.04</b>
COMP	14(54)	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	ALL	ALL	ALL
TRAN PLS	17(57)	0.10	0.05	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>
<b>ALT</b>						
RATE DB	18(58)	<b>0.100</b>	<b>0.100</b>	0.200	<b>0.200</b>	0.200
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL
# JETS	20(60)	2	2	2	2	2
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	<b>4.50</b>	<b>4.50</b>	<b>5.10</b>
<b>VERN</b>						
ROT RATE	23(63)	<b>0.0160</b>	0.2000	0.2000	0.2000	0.2000
ATT DB	24(64)	1.000	1.000	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>
RATE DB	25(65)	.020	.020	<b>.200</b>	<b>.200</b>	<b>.200</b>
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	<b>2</b>	<b>1</b>	<b>1</b>
PURPOSE		RNDZ	PROX OPS	SPARTAN		
				LOW HOVER, VGS POSN 1-3	REL & CAP EXT PARK, VGS ACQ	VGS POSN 4-16

Note: **BOLD-ITALIC** indicate a change from I-load

STS-95 DAP B - GENERIC

	ITEM #	B1	B2	B3	B5
<b>PRI</b>					
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000
ATT DB	31(51)	3.00	3.00	3.00	3.00
RATE DB	32(52)	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000
P OPTION	35(55)	ALL	TAIL	ALL	TAIL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL
TRAN PLS	37(57)	0.10	0.02	0.02	0.02
<b>ALT</b>					
RATE DB	38(58)	0.200	0.070	0.070	0.200
JET OPT	39(59)	ALL	TAIL	ALL	ALL
# JETS	40(60)	2	1	1	2
ON TIME	41(61)	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00
<b>VERN</b>					
ROT RATE	43(63)	0.2000	0.2000	0.2000	0.0160
ATT DB	44(64)	1.000	1.000	1.000	0.033
RATE DB	45(65)	.020	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0
PURPOSE		NOM OMS & RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (NOSE & TAIL) ALT-ZSI SEH (REQ)	COAS CAL



STS-95 DAP B CONFIGURATIONS

	ITEM #	B4	B6	B7	B8	B9
<b>PRI</b>						
ROT RATE	30(50)	<b>0.0500</b>	<b>0.0500</b>	0.5000	0.2000	<b>0.0500</b>
ATT DB	31(51)	0.30	<b>1.00</b>	2.00	2.00	<b>1.00</b>
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000
P OPTION	35(55)	TAIL	ALL	ALL	ALL	ALL
Y OPTION	36(56)	TAIL	ALL	ALL	ALL	ALL
TRAN PLS	37(57)	0.02	0.02	0.05	0.01	<b>0.01</b>
<b>ALT</b>						
RATE DB	38(58)	<b>0.100</b>	<b>0.100</b>	<b>0.100</b>	<b>0.100</b>	<b>0.100</b>
JET OPT	39(59)	ALL	ALL	ALL	ALL	ALL
# JETS	40(60)	<b>1</b>	<b>1</b>	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00	<b>4.50</b>
<b>VERN</b>						
ROT RATE	43(63)	<b>0.0250</b>	<b>0.0440</b>	0.2000	0.2000	<b>0.0160</b>
ATT DB	44(64)	<b>0.033</b>	<b>0.100</b>	1.000	1.000	1.000
RATE DB	45(65)	.010	<b>.010</b>	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	0.00	0.00	.000	.000
CNTL ACC	48(68)	0	0	0	0	<b>1</b>
PURPOSE		-ZSI VERN & ALT SOLCON (DES)	NOM -ZSI ALT SOLCON (REQ) SEH (DES)	RNDZ	PROX OPS	SPARTAN DEADBAND COLLAPSE

Note: **BOLD-ITALIC** indicate a change from I-load

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

ATTITUDE TIMELINE

ATTITUDE  
TIMELINE

Attitude Timeline

MET	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT	
1 000/01:00:00 MET	STS 95 Basic Launch 29 October 1998 302/19:00:00 Z			Legend for AOS 90 deg Nadair Vbar avoidance TDRS AOS	Reference Marks - blank - (V) - (T)	
2 000/01:12:00 MET 21:04	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV Tail Fwd PLBD Opening
3 000/03:35:00 MET 44:51	INRTL R=177.00 MNVR P=132.00 Y= 17.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 125 P 58	Special Star Pr -Y: 23 -Z: 106	IMU Allign AOS 0/03:41 LOS 0/04:16
4 000/04:03:00 MET 16:48	TGT=5 RA= 213.370 BV=3 DEC= -13.420S P= 90.00 Y= 0.00 OM= 0.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 360 P 90	INRTL R=257.92 P=329.71 Y=303.17	SEE HN Solcon SR 0/04:09 SS 0/05:13
5 000/04:17:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space 0/03:41 - 04:14 and 0/05:13 - 05:30	-ZSI Deadband	
6 000/05:05:00 MET 04	TGT=2 BV=2 P=180.00 Y= 0.00 OM=322.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 57 P 180	LVLH R= 38.00 P= 90.00 Y= 0.00	Solcon Space
7 000/05:30:00 MET 38:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV Tail Fwd
8 000/07:50:00 MET 08:01:44	TGT=5 RA= 213.530 BV=3 DEC= -13.470S P= 90.00 Y= 0.00 OM=200.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 0 P 90	INRTL R=305.62 P=120.29 Y= 48.64	SEE SS SR SS 0/08:24 SR 0/08:57
9 000/08:02:00 MET	When In Att:  B6/AUTO/VERN				-ZSI Deadband	
10 000/09:18:00 MET 28:13	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLV Nose North
11 000/18:25:00 MET 32:30	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	A5 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV Nose North Perth, Aust. AOS 0/21:26 LOS 0/21:35
FUTURE LOAD						
12 000/22:10:00 MET 23:36	TGT=5 RA= 214.110 BV=3 DEC= -13.670S P= 90.00 Y= 0.00 OM=180.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 0 P 90	INRTL R=276.93 P=155.36 Y= 56.71	SEE SS SR SS 0/22:46 SR 0/23:18

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

FLT PLN/95/FIN

Attitude Timeline

MET	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
13 000/22:25:00 MET	When In Att:  B6/AUTO/VERN				-ZSI Deadband
14 000/23:40:00 MET 48:37	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH LVLH R= 0.00 R 240 P= 60.00 P 90 Y=270.00		H2O Dump
15 001/02:25:00 MET 36:43	TGT=5 RA= 214.270 BV=3 DEC= -13.7205 P= 90.00 Y= 0.00 OM= 0.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN INRTL R=264.37 R 360 P=336.81 P 90 Y=303.34		SEH HN Solcon SR 1/02:31 SS 03:33
16 001/02:37:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space > - 02:28 and 1/03:29 - >	-ZSI Deadband
17 001/03:25:00 MET 33:06	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH LVLH R= 0.00 R 270 P= 90.00 P 90 Y=270.00		-YLV Nose North
18 001/19:32:00 MET 44:33	INRTL R= 37.00 MNVR P=200.00 Y=357.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN Eps Canis Major R 189 P 46 AOS 1/19:44 (V) LOS 1/20:28		UV* Calibration SS 1/19:32 SR 1/20:02
19 001/20:28:00 MET 42:42	INRTL R=194.00 MNVR P=157.00 Y=298.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 245 P 28 AOS 1/20:38 LOS 1/21:26		UV* C112 SS 1/21:08 SR 1/21:38
20 001/21:20:00 MET 31:14	TGT=5 RA= 215.050 BV=3 DEC= -13.9805 P= 90.00 Y= 0.00 OM=185.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN INRTL R=277.26 R 0 P=154.33 P 90 Y= 55.82		SEH STS Solcon SR 1/21:38 SS 22:43
21 001/21:32:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space 1/20:57 - 21:27 and 1/23:05 - 01:40	-ZSI Deadband
22 001/22:49:00 MET 23:01:10	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH LVLH R= 0.00 R 240 P= 60.00 P 90 Y=270.00		H2O Dump
23 002/01:40:00 MET 46:49	INRTL R=311.00 MNVR P=248.00 Y= 71.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 246 P 120 AOS 2/01:45 (V) LOS 02:29		UV* C101 SS 2/01:55 SR 2/02:26
24 002/02:35:00 MET 38:18	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH LVLH R=270.00 R 94 P= 90.00 P 180 Y= 0.00		SVS

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
25 002/04:50:00 MET 05:02:44	INRTL R=350.00 MNVR P=282.00 Y= 69.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 176 P 132		UV* C104 SS 2/05:06 SR 2/05:37
26 002/05:36:00 MET 47:30	TGT=5 RA= 215.370 BV=3 DEC= -14.090S P= 90.00 Y= 0.00 OM=325.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 0 P 90	INRTL R=311.48 P= 36.07 Y=318.54	SEH HN Solcon SR 2/05:37 SS 06:41
27 002/05:48:00 MET	When in Att:  B6/AUTO/VERN			Solcon Space 2/04:57 - 05:36 and 2/06:47 - >	-ZSI Deadband
28 002/06:36:00 MET 46:28	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLV Nose North
29 002/13:15:00 MET 27:46	INRTL R= 52.00 MNVR P= 6.00 Y=355.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 245 P 135		UV* C103 SS 2/13:05 SR 13:35
FUTURE LOAD					
30 002/14:16:00 MET 24:09	INRTL R=119.00 MNVR P=120.00 Y=296.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 269 P 39	Moon at 10 deg ACS 2/14:24 (V) LOS 14:41	UV* Jupiter SS 2/13:05 SR 15:11
DEU					
31 002/15:00:00 MET	When in Att: Change DAP A  VERN ROT = 0.02				
DEU					
32 002/15:15:00 MET 34:27	TGT=79 RA= 345.568 BV=5 DEC= 14.935N P= 90.00 Y= 85.00 OM=231.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 246 P 44	INRTL R=131.72 P=108.92 Y=293.75	UV* Vbar Protect
DEU					
33 002/15:44:00 MET 16:03:27	INRTL R=119.00 MNVR P=120.00 Y=296.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 269 P 39	Moon at 10 deg ACS 2/16:03 (T) LOS 16:44	UV* Jupiter SS 2/16:17 SR 16:47
DEU					
34 002/16:50:00 MET 17:09:27	TGT=79 RA= 345.568 BV=5 DEC= 14.935N P= 90.00 Y= 85.00 OM=231.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 246 P 44	INRTL R=131.61 P=108.80 Y=293.82	UV* Vbar Protect
DEU					
35 002/17:26:00 MET 45:27	INRTL R=119.00 MNVR P=120.00 Y=296.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 269 P 39	Moon at 12 deg ACS 2/17:47 (T) LOS 18:20	UV* Jupiter SS 2/17:53 SR 18:23
DEU					
36 002/18:00:00 MET	When in Att:  Change DAP A to A1				

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
37 002/18:20:00 MET 32:29	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 240 P 90	LVLH R= 0.00 P= 60.00 Y=270.00	H2O Dump
38 002/20:28:00 MET 41:30	TGT=5 BV=3 P= 90.00 Y= 0.00 OM=325.00	RA= 215.970 DEC= -14.290S A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 0 P 90	INRTL R=312.92 P= 38.45 Y=321.01	SEH SS SS 2/21:03
39 002/20:41:00 MET	When in Att:  B6/AUTO/VERN					-ZSI Deadband
40 002/21:09:00 MET 21:59	INRTL R= 76.00 MNVR P=226.00 Y= 64.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 142 P 111	AOS 2/21:15 LOS 2/22:03	UV* C107 SS 2/21:04 SR 2/21:34
41 002/22:30:00 MET 40:35	INRTL R=304.94 MNVR P=255.77 Y=355.25	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 270 P 90		Spartan Deploy Rel 02/23:42 Noon - 1 min
42 003/00:01:00 MET 05:03	TGT=2 BV=5 P=260.00 Y= 0.00 OM=180.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 100	LVLH R=180.00 P=170.00 Y= 0.00	SEP 2
43 003/00:23:00 MET 29:00	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	B1 AUTO PRI	RATE 0.5000 DB AT 3.00 DB RT 0.20	EARTH R 0 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	Spatran Pi Comm
44 003/01:37:00 MET	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00 INIT TRK THEN DAP: AUTO	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-XLV Belly Fwd Perform ASAP Post NCI
45 003/07:59:00 MET 08:06:30	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00 INIT TRK THEN DAP: AUTO	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLX Nose North Perform ASAP Post NC2
46 003/14:07:00 MET 21:17	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 267 P 39	AOS 3/14:19 (V) LOS 3/15:04	UV* Jupiter SS 3/14:38 SR 3/15:07
FUTURE LOAD						
47 003/14:30:00 MET	When in Att: Change DAP A  VERN ROT = 0.02					
DEU						
48 003/15:10:00 MET 27:50	TGT=79 BV=5 P= 90.00 Y= 85.00 OM=229.00	RA= 345.568 DEC= 14.935N A1 AUTO VERN	RATE 0.0200 DB AT 1.000 DB RT 0.020	SUN R 247 P 43	INRTL R=132.58 P=109.86 Y=293.26	UV* Vbar Protect
DEU						

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
49 003/15:40:00 MET 57:50	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 39	AOS 3/15:59 (T) LOS 3/16:40	UV* Jupiter SS 3/16:14 SR 3/16:43
DEU					
50 003/16:45:00 MET 17:02:50	TGT=79 RA= 345.568 BV=5 DEC= 14.935N P= 90.00 Y= 85.00 OM=229.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 247 P 43	INRTL R=132.43 P=109.69 Y=293.34	UV* Vbar Protect
DEU					
51 003/17:24:00 MET 41:50	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.0200 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 39	AOS 3/17:43 (T) LOS 3/18:15	UV* Jupiter SS 3/17:49 SR 3/18:19
DEU					
52 003/17:45:00 MET	When in Att:  Change DAP A to A1				
53 003/18:20:00 MET 28:49	INRTL R=150.00 MNVR P= 41.00 Y=294.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 168 P 69	AOS 3/18:32 LOS 19:19	UV* C108 In Daylight
DEU					
54 003/19:08:00 MET	Multi Axis PRCS Burn				NC 2A FIG 3/19:08 (?)
55 003/19:35:00 MET 48:03	TGT=5 RA= 216.920 BV=3 DEC= -14.600S P= 90.00 Y= 0.00 OM=200.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 0 P 90	INRTL R=283.23 P=145.62 Y= 53.33	SEH SR SR 3/19:55
DEU					
56 003/19:50:00 MET	When In Att:  B6/AUTO/VERN				-ZSI Deadband
57 003/20:16:00 MET 30:35	INRTL R=142.00 MNVR P= 61.00 Y=333.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 182 P 83	AOS 3/20:22 LOS 21:09	UV* C111 In Daylight
DEU					
58 003/21:01:00 MET 14:48	INRTL R=357.00 MNVR P=204.00 Y=359.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 229 P 52	AOS 3/21:08 LOS 21:55	UV* C106 SS 3/21:01 SR 21:31
DEU					
59 003/22:02:00 MET 13:55	TGT=5 RA= 217.030 BV=3 DEC= -14.640S P= 90.00 Y= 0.00 OM=306.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 0 P 90	INRTL R=321.64 P= 56.63 Y=339.85	SEH SS SR UV* C117
DEU					
60 003/22:14:00 MET	When In Att:  B6/AUTO/VERN			UV* C117 AOS 3/22:46 LOS 3/23:33	-ZSI Deadband SS 3/22:36 SR 3/23:07

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



Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
61 003/23:28:00 MET 39:22	INRTL R=132.00 MNVR P=109.00 Y=293.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 247 P 43		UV* Vbar Protect
62 003/23:41:00 MET	When In Att: Change DAP A  VERN ROT = 0.04				
63 003/23:44:00 MET 53:03	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.0400 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 38	AOS 3/23:53 (V) LOS 4/00:38	UV* Jupiter SS 4/00:13 SR 4/00:42
64 004/00:00:00 MET	When In Att:  Change DAP A to A1				
65 004/00:50:00 MET 57:40	TGT=5 RA= 217.130 BV=3 DEC= -14.670S P= 90.00 Y= 0.00 OM= 37.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 360 P 90	INRTL R=239.15 P=302.65 Y=312.86	SEH SS Solcon SS 4/01:48:00
66 004/00:58:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space 4/00:06 - 00:55 and 4/01:58 - >	-ZSI Deadband
67 004/01:55:00 MET 02:02:30	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 240 P 90	LVLH R= 0.00 P= 60.00 Y=270.00	H2O Dump
68 004/04:40:00 MET 48:41	INRTL R=290.00 MNVR P=320.00 Y= 45.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 229 P 161	AOS 4/04:48 LOS 4/05:35	UV* C102 SS 4/05:00 SR 4/05:30
69 004/05:35:00 MET 46:33	INRTL R=157.00 MNVR P= 54.00 Y=337.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 164 P 90	AOS 4/05:52 LOS 4/06:40 AOS 4/07:27 LOS 4/08:16	UV* C110 (2) (Belly Sun) SS 4/08:11 SR 4/08:41
70 004/07:20:00 MET	Multi Axis PRCS Burn				NC 3 TIG 4/07:20 (?)
71 004/08:20:00 MET 33:31	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=290.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 70.00	-ZLV Nose South Biased for UV* Vbar protect
FUTURE LOAD					
72 004/15:45:00 MET 50:00	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 38	AOS 4/15:49 (V) LOS 16:35 AOS 17:39 (T) LOS 18:11	UV* Jupiter (2) +3 EL Vbar Protect 17:23 17:25

DEU  
\*\*\* ALL ATTITUDES IN MEAN OF 1950 \*\*\*  
\*\*\* DTD FILED SEQUENCE \*\*\*

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
73 004/18:10:00 MET 15:10	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	B7 RATE 0.5000 AUTO DB AT 2.00 ALT DB RT 0.200	EARTH R 315 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-Z Tgt Track Spartan Rndz
74 004/18:52:00 MET 54:40	TGT=2 BV=5 P=100.00 Y= 0.00 OM= 0.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 360 P 100	LVLH R= 0.00 P=170.00 Y= 0.00	NC 4 -X RCS LVLH Set Up Posigrade
75 004/18:55:42 MET		B7 RATE 0.2000 INRT DB AT 1.000 VERN DB RT 0.020	SUN R 131 P 65	INRTL R=105.00 HOLD P=200.74 Y= 16.52	-X RCS Burn TIG - 30 Sec Inertial Hold
76 004/18:57:00 MET 59:50	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 346 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-Z Tgt Track Spartan Rndz
77 004/21:30:00 MET 37:30	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-Z Tgt Track Spartan Rndz
78 004/22:00:00 MET 07:30	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 304 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z Tgt Track Spartan Rndz
79 004/23:00:00 MET 07:30	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y= 0.00	-Z Tgt Track Spartan Rndz
80 005/01:55:00 MET 02:08:37	TGT=5 RA= 218.170 BV=3 DEC= -15.000S P= 90.00 Y= 0.00 OM= 0.00 Init TRK then DAP AUTO	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 360 P 90	INRTL R=291.83 P= 8.80 Y=310.02	SEH SR SS Solcon Init ASAP post Spartan Berth
81 005/02:10:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space 5/00:09 - 02:00 and (?????) 5/03:33 - >	-ZSI Deadband
82 005/03:27:00 MET 34:35	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLV Nose Nth
83 005/16:28:00 MET 40:02	TGT=5 RA= 218.760 BV=3 DEC= -15.190S P= 90.00 Y= 0.00 OM=270.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 0 P 90	INRTL R=320.98 P= 83.64 Y= 16.33	SEH HN Solcon SR 5/16:37 SS 5/17:42
84 005/16:40:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space > - 16:31 and 5/17:34 - >	-ZSI Deadband

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
85 005/17:28:00 MET 39:48	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 47 P 180	LVLH R=270.00 P= 90.00 Y= 0.00	-XLV Bay North
86 005/22:30:00 MET 41:33	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00 INIT TRK THEN DAP: AUTO	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 240 P 90	LVLH R= 0.00 P= 60.00 Y=270.00	H2O Dump Init ASAP post Spartan Berth
87 006/01:25:00 MET 36:27	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 36	AOS 6/01:18 LOS 02:05	UV* Jupiter SS 6/01:41 SR 02:11
88 006/02:44:00 MET 54:06	TGT=5 RA= 219.170 BV=3 DEC= -15.320S P= 90.00 Y= 0.00 OM=140.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 360 P 90	INRTL R=220.79 P=233.22 Y= 21.18	SEH SS SS 6/03:17
89 006/02:55:00 MET	When In Att:  B6/AUTO/VERN				-ZSI Deadband
90 006/03:23:00 MET 31:58	INRTL R=321.00 MNVR P=211.00 Y=340.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 252 P 47	AOS 6/03:26 LOS 04:14	UV* C103 SS 6/03:17 SR 03:47
91 006/04:15:00 MET 26:32	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 36	AOS 6/04:29 LOS 05:16	UV= Jupiter SS 6/04:53 SR 05:23
92 006/05:30:00 MET 37:39	TGT=5 RA= 219.300 BV=3 DEC= -15.360S P= 90.00 Y= 0.00 OM= 50.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 360 P 90	INRTL R=239.96 P=301.24 Y=314.87	SEH HN Solcon SR 6/05:23 SS 06:28
93 006/05:38:00 MET	When In Att:  B6/AUTO/VERN			Solcon Space 6/04:53 - 05:35 and 6/06:28 ->	-ZSI Deadband
94 006/06:25:00 MET 29:38	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLV Nose North
95 006/12:10:00 MET 24:22	INRTL R=120.00 MNVR P=119.00 Y=296.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 267 P 36	AOS 6/12:28 LOS 13:15 AOS 14:03 LOS 14:51	UV* Jupiter (2) SS 6/12:52 SR 13:22 SS 14:27
FUTURE LOAD					
96 006/14:55:00 MET 15:03:34	INRTL R=234.00 MNVR P=132.00 Y=301.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 163 P 28	AOS 6/15:05 LOS 15:52	UV* C108 In Daylight
DEU					

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

Attitude Timeline

MET	MNVR OPTION	RA	DEC	DA1	RATE	DB AT	DB RT	E/S	REP ATT/REMARKS	EVENT
97 006/15:32:00 MET 44:17	TGT=5 BV=3 P= 90.00 Y= 0.00 OM=318.00	219.720	-15.490S	A1 AUTO VERN	0.2000	1.000	0.020	SUN R 0 P 90	INRTL R=319.80 P= 55.99 Y=342.58	SEH SS + SR UV* C118 SS 6/16:02:47 SS 16:33:44
98 006/15:45:00 MET	When In Att:  B6/AUTO/VERN								SEH SS Obs only 16 min Due to TDRS W AOS @ 7/15:47	-ZSI Deadband UV* C118 6/16:10 - 16:57
99 006/16:55:00 MET 17:05:20	INRTL R=120.00 MNVR P=119.00 Y=296.00			A1 AUTO VERN	0.2000	1.000	0.020	SUN R 267 P 36	AOS 6/17:30 (T) LOS 18:02	UV* Jupiter SS 6/17:39 SR 18:09
100 006/18:10:00 MET	Pri Jets in Use  Early H/O 6/18:07									OPS 3 DTO 700-15 MAGR
101 006/19:10:00 MET 20:31	TGT=2 BV=5 P=270.00 Y=300.00 OM=270.00 INIT TRK, THEN DAP: AUTO			A1 AUTO VERN	0.2000	1.000	0.020	EARTH R 240 P 90	LVLH R= 0.00 P= 60.00 Y=270.00	H2O Dump Stay INRTL post OPS 2 PRO until Init TRK
102 006/22:36:00 MET 48:45	TGT=5 BV=3 P= 90.00 Y= 0.00 OM=180.00	220.010	-15.580S	A1 AUTO VERN	0.2000	1.000	0.020	SUN R 0 P 90	INRTL R=239.98 P=199.58 Y= 44.34	SEH SR + SS Solcon SR 6/22:57 SS 7/00:02
103 006/22:50:00 MET	When In Att:  B6/AUTO/VERN								Solcon Space >- 22:35 and 7/00:17 ->	-ZSI Deadband
104 007/00:07:00 MET 17:11	TGT=2 BV=5 P= 0.00 Y=270.00 OM= 90.00			A1 AUTO VERN	0.2000	1.000	0.020	EARTH R 270 P 90	LVLH R= 0.00 P= 90.00 Y=270.00	-YLV Nose North
105 007/15:15:00 MET 28:59	INRTL R=120.00 MNVR P=119.00 Y=296.00			A1 AUTO VERN	0.2000	1.000	0.020	SUN R 267 P 35	AOS 7/15:43 (T) LOS 16:22 AOS 17:26 (T) LOS 17:58	UV* Jupiter (3) AOS 7/18:46 LOS 19:33
106 007/19:33:00 MET 46:36	TGT=5 BV=3 P= 90.00 Y= 0.00 OM=215.00	220.870	-15.840S	A1 AUTO VERN	0.2000	1.000	0.020	SUN R 0 P 90	INRTL R=274.65 P=153.45 Y= 50.83	SEH HN Solcon SR 7/19:42 SS 20:46
107 007/19:47:00 MET	When In Att:  B6/AUTO/VERN								Solcon Space 7/18:57 - 19:33 and 7/20:37 ->	-ZSI Deadband
108 007/20:35:00 MET 46:12	TGT=2 BV=5 P=300.00 Y= 0.00 OM=250.00			A1 AUTO VERN	0.2000	1.000	0.020	EARTH R 180 P 60	LVLH R=233.95 P=239.36 Y=305.53	+ZLV Nose Nth H2O Dump Protect UV* Vbr & HOST Sun

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

FLT PLN/95/PIN

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
109 007/22:30:00 MET 40:44	INRTL R=157.00 MNVR P= 51.00 Y=339.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 160 P 90	AOS 8/23:10 LOS 23:58	Belly Sun UV* C124
110 008/00:00:00 MET 14:40	INRTL R= 49.00 MNVR P=234.00 Y= 18.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 173 P 90	AOS 8/00:14 (T) LOS 8/00:51	Belly Sun UV* C117
111 008/01:10:00 MET 22:10	TGT=2 BV=5 P=290.00 Y= 0.00 OM=180.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 70	LVLH R=180.00 P=200.00 Y= 0.00	EOM Orbit Adj -X RCS LVLH Set Up Retrograde
112 008/01:29:30 MET		B1 RATE 0.2000 INRT DB AT 1.000 VERN DB RT 0.020	SUN R 275 P 40	INRTL R=276.69 HOLD P=213.08 Y=315.32	-X RCS Burn TIG - 30 Sec Inertial Hold
113 008/01:32:00 MET 43:02	INRTL R= 43.00 MNVR P=231.00 Y= 21.00  Init MNVR rhen DAP: AUTO	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 90	Init ASAP post Orb Adj	Belly Sun No UV* TGT
114 008/02:40:00 MET 44:53	INRTL R= 78.00 MNVR P=166.00 Y= 51.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 187 P 90	AOS 8/02:52 LOS 03:40 AOS 04:27 LOS 05:15	Belly Sun UV* C102 (2)
115 008/06:00:00 MET 05:05	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=290.00  FUTURE LOAD	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 70.00	-ZLV Nose Sth EOM Passive Thermal Conditioning
116 008/15:55:00 MET 16:08:44	INRTL R=151.00 MNVR P= 59.00 Y=355.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 168 P 94	IMU Pair -Y: 72 -Z: 52	D-O IMU Align Belly Sun
117 008/16:15:00 MET 20:32	INRTL R=112.00 MNVR P=104.00 Y= 43.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 197 P 96	IMU Pair -Y: 70 -Z: 90	D-O IMU Verif Belly Sun
118 008/16:35:00 MET 41:39	TGT=4 BV=5 P=184.00 Y= 0.00 OM= 90.00 RA= 221.716 DEC= -16.098S	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 176	INRTL R=211.98 P=343.28 Y= 41.95	Rad Coldsoak Tail Sun
119 008/18:15:00 MET 18:51	INRTL R=122.00 MNVR P=306.00 Y= 27.00	B1 RATE 0.5000 AUTO DB AT 3.00 PRI DB RT 0.20	SUN R 92 P 150		D-O Thermal and Comm
120 008/20:20:00 MET 24:12	INRTL R=190.00 MNVR P=309.00 Y=272.00	TRN RATE 0.5000 AUTO DB AT 3.500 VERN DB RT 0.200	SUN R 51 P 52	TIG 08/20:40:00	DEORBIT BURN Dual OMS

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

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**FLIGHT PLAN NOTES**

FLIGHT PLAN NOTES  
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV103/Discovery  
 Inclination: 28.5°  
 Insertion Altitude: 300 nm X 295 nm  
 Duration: 9 + 2 days

B. FLIGHT OVERVIEW

The primary objectives of the STS-95 mission are to successfully perform the planned operations of the four primary payloads: SpaceHab; Hubble Orbital Systems Test (HOST); International Extreme Ultraviolet Hitchhiker (IEH-03); and Spartan-201. The mission launch date is October 29, 1998, a 300 nm by 295 nm orbit, a 28.5 degree inclination, and a mission duration of 9 days.

C. MAJOR EVENTS

<u>EVENT</u>	<u>ORBIT</u>	<u>MET</u>	<u>CST</u>	<u>ΔV</u> (fps)	<u>HP/HA</u> (nm)
Launch	--	00/00:00	13:00	--	--
OMS-2	1	00/00:45	13:45	463	295/303
PanSat Dply	15	00/23:18	12:18	--	295/303
Spartan Rise	46	02/23:42	12:42	--	295/303
Sep-1	46	02/23:48	12:48	0.9	295/303
Sep-2	47	03/00:18	13:18	1.0	295/303
NC1	47	03/01:34	14:34	2.0	295/303
NC2	51	03/07:57	21:57	0.7	295/303
NC3	65	04/07:20	21:20	0.6	295/303
NC4	73	04/18:56	07:56	6.7	295/303
NH	73	04/19:44	08:44	0.2	295/303
TI	75	04/22:05	11:05	9.4	295/303
GRAPPLE	77	05/01:24	14:24	--	295/303
ORB ADJUST	134	08:01:30	10:30	11.5	290/301
DEORBIT	134	08:20:40	09:40	TBD	--
LANDING	135	08/21:50	10:50	--	--

D. LANDING OPPORTUNITIES

		<u>Landing Orbit</u>	<u>Site</u>	<u>Local Time</u>	<u>MET</u>
		<u>No.</u>			
Nominal	Primary	135	KSC	11:50	08/21:50
	1 Rev Late	136	KSC	13:31	08/23:31
	Weather Alt	135	EDW	08:41	08/21:41
1 Day Late	Primary	149	KSC	10:02	09/20:02
	1 Rev Late	150	KSC	11:44	00/21:44
	Weather Alt	149	EDW	06:53	09/19:53
2 Days Late	Primary	164	KSC	09:55	10/19:55
	1 Rev Late	165	KSC	11:37	10/21:37
	Weather Alt	164	EDW	06:47	10/19:47

FLIGHT PLAN NOTES



## E. CREW

### STS-95

CDR – Curt Brown  
PLT – Steve Lindsey  
MS1 – Steve Robinson  
MS2 – Scott Parazynski  
MS3 – Pedro Duque  
PS1 – Chiaki Mukai  
PS2 – John Glenn

## F. COMMUNICATIONS

TDRS Support: East (41° W), West (174° W), Z (275° W)  
Backup Real-time TV: Merritt Island – (MIL/MLX), Dryden (DFR)  
Contingency GSTDN/UHF: MIL/MLX, DFR, Wallops (WLP)  
Contingency RTS: Hawaii (HTS), Diego Garcia (DGS), Vandenberg (VTS)  
Colorado Springs (CTS), Guam (GTS), and New Boston  
(NHS)

Lead time for site callup: GSTDN – 2 hr, RTS – 4 hr

## G. TELEVISION/PHOTOGRAPHY

The CCTV system provides two miniature cameras and four Hi8mm camcorders for in-cabin video. PLB video is available from six cameras—one in each of the four corners and two on the RMS.

Still photography equipment includes three 70mm cameras, three 35mm cameras, and one electronic still camera.

## H. PAYLOADS

### 1. SPACEHAB

The STS-95 payload consists of a pressurized module accommodating rack mounted experiments, soft stowage bags, lockers, and supporting subsystems. The module is located in the Orbiter payload bay. Crew access is through a tunnel system located between the Orbiter middeck and the SPACEHAB module.

Generally two crewmembers are required for crew activities for SPACEHAB operations. The SPACEHAB environmental control system is designed to nominally accommodate two crewmembers on a continuous basis. An additional crewmember is accommodated for brief periods at the expense of reduced cabin air heat rejection capability. Payload summaries are given in the following paragraphs:

- a. Vestibular Function Experiment Unit (VFEU) – VFEU consists of fish holding tanks for the study of vestibular function. The crew will manually slide the fish packages, take water samples, and video record activities.
- b. Biological Research in Canisters (BRIC) – The BRIC experiment consists of plant samples contained in petri dishes and support hardware. The crew will manipulate the samples on orbit and record plant growth with video and 35mm cameras.
- c. Oceaneering SPACEHAB Refrigerator Freezer (OSRF) – The OSRF is a refrigerator/freezer unit that will be powered throughout all mission phases

(prelaunch through landing) for cold storage of samples taken during the mission. The crew will monitor status once daily.

- d. Organic Crystal Growth Cell (OCC) – The OCC will be used to mix materials in a growth medium in order to grow a large organic crystal. The crew will deploy the hardware, initiate cell growth by combining materials, and stow the hardware.
- e. Advanced Gradient Heating Facility (AGHF) – The AGHF facility will be used on orbit to process advanced alloys and semiconductor materials using directional solidification. The crew will set up the facility, change out samples as processes are completed, and tear down the facility at the end of the mission.
- f. Facility for Adsorption and Surface Tension (FAST) – FAST is a fluid physics facility for studying fluid and/or gas surface phenomena. The crew will activate, status check, and deactivate the hardware. Experiment operations and monitoring are performed from the POCC.
- g. Advanced Protein Crystallization Facility (APCF) – APCF consists of 2 individual units that will hold 48 sample reactors each, and will maintain a temperature of 20° C. The crew will activate, status check, and deactivate the hardware.
- h. BIOBOX – BIOBOX is an incubator/refrigerator that will house several groups of samples that relate to human bone and cell growth. Experiment operations and monitoring are performed from the POCC.
- i. Self-Standing Drawer – Morphological Transition and Model Substances (SSD/MOMO) – SSD/MOMO is a reflight experiment from STS-84 that will melt a low temperature solid sample and record the melt zone on video. The crew will activate, status check, and deactivate the hardware.
- j. Osteoporosis Experiment in Orbit (OSTEO) – The OSTEO experiment is designed for the in-vitro evaluation of bone cell activity under microgravity conditions. The crew will perform sample feeding and fixation operations, daily status checks, and experiment deactivation.
- k. National Institutes of Health Cell Culture Module – (NIH-C8) – The Cell Culture Module (CCM) is a hardware unit designed specifically to aid in the study of microgravity effects at the cellular level. It utilizes hollow fiber bioreactor cartridges as the basic cell support structure and allows controlled physiologic maintenance, manipulation, and testing of cellular biology. Crew interaction involves in-flight activation, temperature recording twice per day, and deactivation.
- l. Clinical Trial of Melatonin as Hypnotic for Space Crew (Sleep-2) – The Sleep-2 experiment will evaluate the normal sleep patterns of crewmembers before, during, and after space flight in order to identify the factors that may be contributing to sleep disturbances that are known to occur during space flight. This experiment will also perform a preliminary evaluation of the effectiveness of the pineal hormone melatonin as a hypnotic during space flight. Crew activities include donning the sleep gear and manual testing of alertness during several flight days, as well as providing and processing urine samples.
- m. Protein Turnover Experiment (PTO) – The PTO experiment will study the effects of space flight on whole-body and skeletal muscle protein

metabolism. Blood samples will be taken premission, on orbit, and postmission. Two 24-hour urine collections are also required.

- n. Commercial Protein Crystal Growth (CPCG) – CPCG will produce high quality protein crystals in microgravity. The crew will activate and deactivate the experiments.
- o. Microgravity Glovebox (MGBX) – MGBX is a facility that allows safe manipulation of samples and the performance of experiments within a contained environment. Once the crew has set up the facility, the CDOT, CGEL, and IFFD experiments will be performed using the glovebox.
- p. Commercial ITA Biomedical Experiments (CIBX) – The CIBX experiment consists of two Commercial Refrigerator Incubator Modules (CRIMs) capable of containing various apparatus for the study of fluid and solid mixing and diffusion. The crew will set up, activate, monitor, log data, photograph, deactivate, and stow the hardware on-orbit.
- q. Commercial Generic Bioprocessing Apparatus (CGBA) – CGBA is designed to store, mix, and process biological samples in a microgravity environment. The crew will perform daily status checks.
- r. Enhanced Orbiter Refrigerator Freezer (EORF) – The EORF refrigerator/freezer will be powered on orbit and will remain powered through landing for cold storage of samples taken during the mission. The crew will activate the EORF, set the temperature, and monitor status twice daily.
- s. ASTROCULTURE (ASC-8) – ASC-8 is a facility designed to support and study plant growth in a microgravity environment. The crew is required to initiate experiments, download data, and terminate experiments.
- t. Advanced Organic Separations (ADSEP) – The ADSEP hardware provides the capability to separate and purify biological materials in microgravity with minimum crew interaction. The crew will activate the hardware, exchange sample modules, and deactivate the hardware.
- u. Protein Crystallization Apparatus for Microgravity (PCAM 1) – PCAM 1 is a crystal growth facility for the production of large, high-quality protein crystals. The crew is required for activation and deactivation.
- v. Biotechnology Dynamics – A (BIODYN-A) – BIODYN-A will perform experiments aimed at providing aid in organ transplantation, diseases of the elderly, and diabetics. The crew will activate the hardware, perform daily status checks, and deactivate the hardware.
- w. AEROGEL – The Aerogel experiment will study the effects of microgravity on the formation of ceramic materials. The crew will activate and deactivate the hardware.
- x. Microencapsulation Electrostatic Processing System (MEPS) – The MEPS experiment will form microcapsules containing medicines to be used in the treatment of various diseases. The crew will activate the hardware, exchange processing chambers as runs are completed, and deactivate the hardware.
- y. NHK Camera – The NHK Camera is a high definition camcorder that will be flown as a replacement for an Orbiter camcorder and to certify this hardware for future flights on the International Space Station. The crew

will destow, adjust and set up the hardware, record as required, disassemble and stow the hardware.

## 2. SPARTAN 201-5

The Spartan 201-5 free flying satellite will make solar observations to investigate the heating of the corona and acceleration of the solar wind. The Video Guidance Sensor (VGS) Flight Experiment, integrated into a GAS canister under the Spartan support structure, senses target assemblies attached to an exterior panel of Spartan during both free flying and attached operations. Technology Experiment Augmenting Spartan (TEXAS) is the test of an RF communications system planned for future Spartan missions. The Space Experiment Module (SEM) is another GAS-type payload housing various educational experiments and is likewise mounted under Spartan support structure.

## 3. HUBBLE SPACE TELESCOPE (HST) ORBITAL SYSTEMS TEST PLATFORM (HOST)

HOST provides an on-orbit test bed for HST Servicing Mission (SM3) hardware and Orbiter fiber optic interfaces. The mission will test the performance of the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) Cooling System (NCS), Capillary Pump Loop (CPL), and radiator; analyze the SM3 electronics for performance acceptability within the radiation levels of the space environment; and finally, to analyze the performance of Fiber Optic Flight Experiment (FOFE).

## 4. INTERNATIONAL EXTREME ULTRAVIOLET HITCHHIKER-3 (IEH-3)

IEH-3 is an attached complex of seven secondary payloads in the shuttle payload bay:

- a. Solar Extreme Ultraviolet Hitchhiker (SEH) – SEH is designed to obtain absolute solar Extreme Ultraviolet (EUV) and far UV fluxes that are required to interpret emissions from other solar system and earth atmospheric measuring instruments. SEH is mounted on the side of the HH MPSS (HH-M) bridge and is contained in an extended GAS can with an HMDA. SEH support electronics are mounted in the second can. Sun-pointing attitude maneuvers are the only crew activities required.
- b. Ultraviolet Spectrograph Telescope for Astronomical Research (UVSTAR) – UVSTAR is an EUV spectral imager devoted to solar system and stellar astronomy. UVSTAR will spectrally resolve images and atomic emission lines from a variety of stellar sources including Io plasma torus at Jupiter, hot stars, and the Earth's atmosphere. UVSTAR is mounted on top of the carrier. The associated electronics are mounted on the side of the carrier. Maneuvering the Orbiter to the required attitude is the only crew activity required.
- c. STAR-LITE – STAR-LITE targets include diffuse sky background emission, scattered starlight from dust and recombination emission lines from the hot interstellar medium, supernova remnants, star forming regions in external galaxies, the blue star component in globular cluster reflection nebulae, and the Jupiter Io Torus while in Earth's shadow. Crew activities include establishing Orbiter attitudes and configuring the CCTV system.
- d. Petite Amateur Navy Satellite (PANSAT) – PANSAT is a small, nonrecoverable satellite that will provide, store, and forward digital communications using direct sequence, broad spectrum modulation. It

has 18 body-mounted solar panels and 4 monopole antennas that provide omnidirectional coverage, thus not requiring an Attitude Control System. The crew is required for establishing Orbiter attitudes, ejecting the satellite from the canister via the SSP, and providing CCTV and still camera documentation of deploy. It is mounted on the forward side of the HH-M bridge in a GAS can with an HH Ejection System.

- e. Solar Constant Experiment (SOLCON) – SOLCON is designed to accurately measure the solar constant and identify variations in the value during a solar cycle. These data will ensure continuity of the solar constant level obtained by instruments mounted on free flyers, over climate time scale duration.
- f. Get Away Special (GAS) 238 – The objective of the G-238 experiment is to determine the effects of space environment on the life cycle of the American cockroach and termites.
- g. Get Away Special (GAS) 764 – The objective of the G-764 experiment is to simulate dust aggregation and the dynamics of dust clouds of the early solar system. Small glass particles in a vacuum chamber will be used to simulate the cosmic/planetary dust aggregation and the motion of aggregated particles.

#### 5. CRYOGENIC THERMAL STORAGE UNIT FLIGHT EXPERIMENT (CRYOTSU)

The CRYOTSU payload is a compilation of four cryogenic experiments: a 60K Thermal Storage Unit (TSU); a Cryogenic Capillary Pumped Loop (CCPL); a Cryogenic Thermal Switch (CTSW); and a Phase Change Upper End Plate (PCUEP). The 60K TSU, CCPL, and CTSW benefit future integrated cryogenic bus systems. The PCUEP will benefit future cooling test bed missions and spacecraft requiring load-leveling for power dissipating components. CRYOTSU is mounted in a HH canister attached to an adapter beam mounted on the side wall of the Orbiter.

#### 6. GET-AWAY SPECIALS (GAS canisters)

- a. G-238 – See IEH description listed above.
- b. G-467 – Provides additional microgravity data on two-phase Capillary Pumped Loop (CPL) behavior and assessment of two advanced evaporators; and the aspects of CPL setpoint and vapor quality control.
- c. G-764 – See IEH description listed above.
- d. G-779 – The payload consists of a fluid circuit simulator of the heart and mock circulation system to examine the role of gravitationally dependent hydrostatic pressure effects of the adaptation of the cardiovascular system to the microgravity environment of space flight.

#### 7. BIOLOGICAL RESEARCH IN CANISTERS (BRIC)

Studies the effect of microgravity on physiological processes of orchard grass. Hardware includes three BRIC-100 sample canisters in a single middeck locker.

## 8. ELECTRONIC NOSE (ENOSE)

An array of thin polymer sensors that respond to both organic and inorganic contaminants such as solvents, coolant, combustion and metabolic products. Its operational design is based on the human nose.

## 9. PROTEIN CRYSTAL GROWTH (PCG)

PCG will conduct experiments which will supply information on the scientific methods and dynamics of growing large high quality protein crystals in microgravity.

# I. ON-ORBIT DETAILED TEST OBJECTIVES (DTOS)

## 1. ORBITER SPACE VISION SYSTEM FLIGHT VIDEO TAPING (OSVS) (DTO 700 – 11)

OSVS utilizes video signals and software algorithms to assist in remote manipulator assembly of the International Space Station. The Spartan will be used to simulate assembly operations on STS-95.

## 2. SINGLE STRING GLOBAL POSITIONING SYSTEM (MAGR)(DTO700-14)

The purpose of this experiment is to demonstrate the performance and operations of the GPS during Orbiter ascent, on-orbit operations, and entry and landing phases, utilizing a modified military GPS receiver processor and the existing Orbiter GPS antennas.

## 3. SPACE INTEGRATED GLOBAL POSITIONING SYSTEM/INERTIAL NAVIGATION SYSTEM (SIGI) (DTO 700-15)

The SIGI is intended to replace the shuttle onboard TACAN and, eventually, the HAINS Inertial Measurement Units. The SIGI DTO will mitigate the technical and schedule risks of applying this new technology to the shuttle navigation systems by evaluating the system's performance in space flight. The SIGI unit will be mounted in Avionics Bay 3B and will be commanded by the PGSC.

## 4. SPACE TO SPACE COMM FLIGHT DEMO (DTO 700-18)

The SSCS allows for direct communications between orbiting spacecraft in close proximity. This enables the Orbiter, the ISS, and EVA astronauts to use the same system for communicating voice and data independent of ground support. The SSCS general command capability augments the S-band system and provides enhanced safety. It will replace the current EVA frequency comm bands.

## 5. AUTOMATIC TARGETING AND REFLECTIVE ALIGNMENT CONCEPT COMPUTER VISION SYSTEM (ACVS)(DTO 842)

The objective of ACVS is to assess video quality of a new wireless camera system mounted on the RMS.

## 6. SPACE STATION/SPACE SHUTTLE-TEST OF COLOR PRINTER (DTO 1215)

This test will ensure that a candidate Inkjet printer (specifically, the Inkjet head and cartridge assemblies and the internal paper handling mechanism) can operate in zero-g.

J. ON-ORBIT DETAILED SUPPLEMENTAL OBJECTIVES (DSO)

1. ORTHOSTATIC FUNCTION DURING ENTRY, LANDING, AND EGRESS (DSO 603C)

This DSO will document the relationship between mission duration and changes in orthostatic function of crewmembers during the actual stresses of entry, landing, and egress from the seat and from the cabin. These data will be used to determine whether precautions and countermeasures other than (or perhaps instead of) the operational saline countermeasure are needed to protect crewmembers in the event of an emergency egress.

2. MAGNETIC RESONANCE IMAGING (MRI) AFTER EXPOSURE TO MICROGRAVITY (DSO 628)

Investigates the muscle, intervertebral disc, and bone marrow changes in several crewmembers of varying ages and compares the results to the current data base. The crewmembers will fill out a back pain questionnaire each day on orbit.

3. IN-FLIGHT HOLTER MONITORING (DSO 630)

Investigates whether heart rate exhibits less variability in microgravity than on Earth; if electrocardiographic (ECG) changes during flight are present; and if changes in ECG related to age occur during flight.

4. EDUCATION ACTIVITIES (DSO 802)

The purpose of this DTO is to use the attraction of space flight to capture the interest of students and motivate them toward careers in science, engineering, and mathematics. One 30-minute voice-only session will be performed.

K. HUMAN EXPLORATION AND DEVELOPMENT OF SPACE TECHNOLOGY DEMONSTRATIONS (HTD)

1. INTEGRATED VEHICLE HEALTH MONITORING (IVHM)

Remote sensors and avionics mounted to the payload bay starboard sill that monitor and record Orbiter systems data during ascent and on orbit.

L. RISK MITIGATION EXPERIMENTS (RME)

1. WIRELESS NETWORK CONNECTIVITY EXPERIMENT (RME 1334)

Tests the operational and physical characteristics of the Radio Frequency (RF) Local Area Network (LAN) in an environment similar to the ISS. It will also test the distribution of data from the 1553 bus to the RF LAN. Hardware includes portable computers (equivalent to the Station Support Computer (SSC)) with wireless Ethernet cards installed. RME 1334 will only be performed if time becomes available.

DAP BOOK CONFIGURATION





TOP



<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOM OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (NOSE & TAIL ALT, -ZSI SEH (REQ))
A4	- PRE/POST DEPLOY	B4	- -ZSI VERN & ALT SOLCON (DES)
A5	- LOSS OF VERN (NOSE & TAIL)	B5	- COAS CAL
A6	- LOSS OF VERN (TAIL ONLY)	B6	- NOM -ZSI ALT SOLCON (REQ) SEH (DES)
A7	- RENDEZVOUS	B7	- RENDEZVOUS
A8	- PROX OPS	B8	- PROX OPS
A9	- SPARTAN - LOW HOVER, VGS POSN 1-3	B9	- SPARTAN DEADBAND COLLAPSE
A10	- SPARTAN - REL & CAP EXT PARK, VGS ACQ		
A11	- SPARTAN - VGS POSN 4-16		

CNT ACC = 0 UNLOADED RMS  
 = 1 SPARTAN RELEASE & CAPTURE  
 EXTENDED PARK VGS ACQ,  
 POSN 4-16  
 = 2 SPARTAN - LOW HOVER VGS  
 POSN 1-3  
 = 3-9 NOT USED



FLT PLN-1a/95/O/A



TOP



DAP BOOK

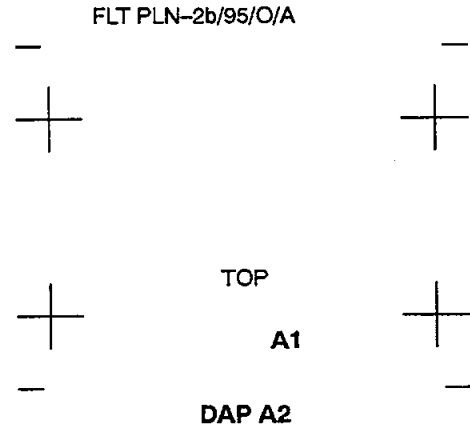
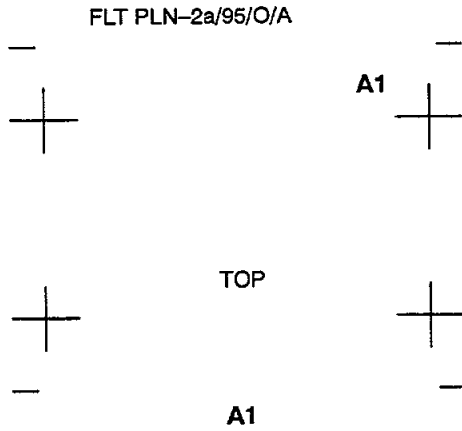
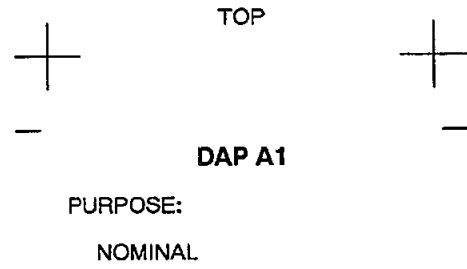
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FLT PLN-1b/95/O/A

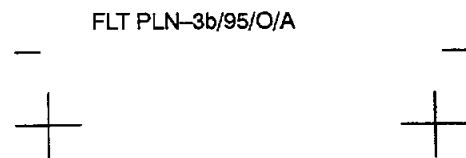
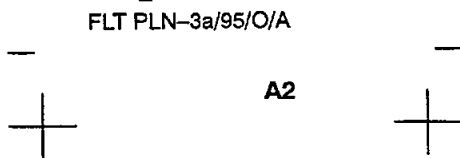


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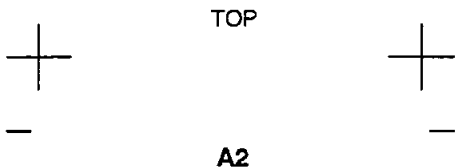


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<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
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ALL	16	Y OPTION
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		ALT
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ALL	19	JET OPT
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		VERN
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<u>0</u>	28	CNTL ACC

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PTC

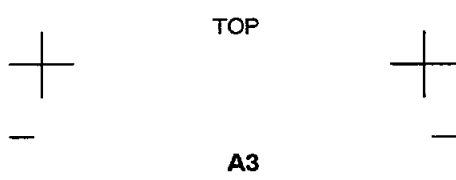
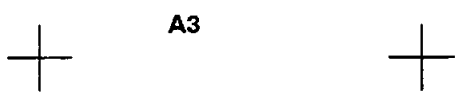


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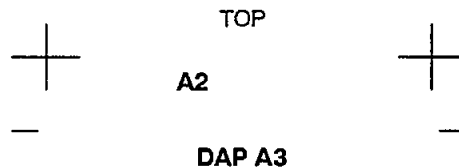
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		ALT
0.2 0 0	18	RATE DB
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- 0.0 0	22	DELAY
		VERN
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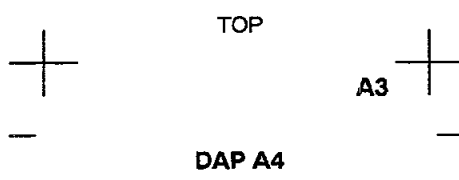
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0	28	CNTL ACC

FLT PLN-5a/95/O/A



PURPOSE:  
GG

FLT PLN-4b/95/O/A

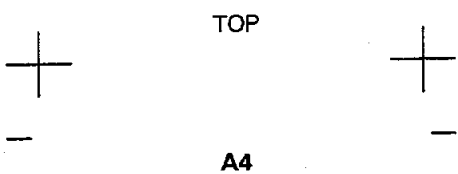


PURPOSE:  
PRE/POST DEPLOY

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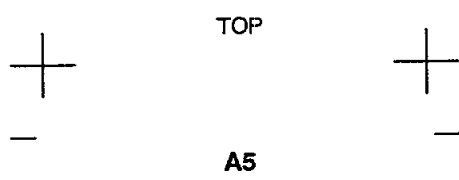


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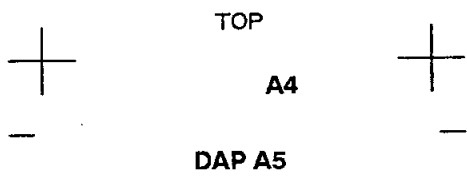
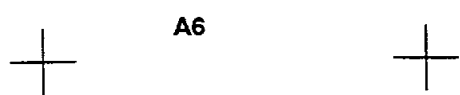
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ALL	15	P OPTION
ALL	16	Y OPTION
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		ALT
0.2 0 0	18	RATE DB
ALL	19	JET OPT
2	20	#JETS
0.0 8	21	ON TIME
- 0.0 0	22	DELAY
		VERN
0.2 0 0 0	23	ROT RATE
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FLT PLN-6a/95/O/A



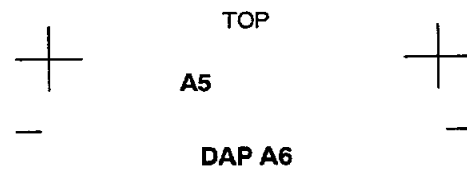
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0.0 0	14	COMP
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ALL	16	Y OPTION
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		ALT
0.0 7 0	18	RATE DB
ALL	19	JET OPT
1	20	#JETS
0.0 8	21	ON TIME
- 0.0 0	22	DELAY
		VERN
0.2 0 0 0	23	ROT RATE
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0.2 0	25	RATE DB
0.0 1 0	26	ROT PLS
0.0 0	27	COMP
0	28	CNTL ACC

FLT PLN-7a/95/O/A



PURPOSE:  
LOSS OF VERN  
(NOSE & TAIL)

FLT PLN-6b/95/O/A



PURPOSE:  
LOSS OF VERN (TAIL ONLY)

FLT PLN-7b/95/O/A



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TOP  
+  
-  
**A6**

DAP A 0 6	1	PRI
<u>0.2 0 0 0</u>	10	ROT RATE
- 5.0 0	11	ATT DB
<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
<u>0 0 0</u>	14	COMP
TAIL	15	P OPTION
TAIL	16	Y OPTION
<u>0.1 0</u>	17	TRAN PLS
		ALT
<u>0.0 7 0</u>	18	RATE DB
TAIL	19	JET OPT
<u>1</u>	20	#JETS
<u>0.0 8</u>	21	ON TIME
- <u>0.0 0</u>	22	DELAY
		VERN
<u>0.2 0 0 0</u>	23	ROT RATE
- <u>1.0 0 0</u>	24	ATT DB
<u>0.2 0</u>	25	RATE DB
<u>0.0 1 0</u>	26	ROT PLS
<u>0.0 0</u>	27	COMP
<u>0</u>	28	CNTL ACC

FLT PLN-8a/95/O/A

+  
-  
**A7**  
+

TOP  
+  
-  
**A6**

**DAP A7**

PURPOSE:  
RENDEZVOUS

FLT PLN-8b/95/O/A

+  
-  
**A7**  
+

TOP  
+  
-  
**A7**

DAP A 0 7	1/3	PRI
<u>0.2 0 0 0</u>	10/50	ROT RATE
- 2.0 0	11/51	ATT DB
<u>0.2 0</u>	12/52	RATE DB
<u>0.1 0</u>	13/53	ROT PLS
<u>0 0 0</u>	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
<u>0.1 0</u>	17/57	TRAN PLS
		ALT
<u>0.1 0 0</u>	18/58	RATE DB
ALL	19/59	JET OPT
<u>2</u>	20/60	#JETS
<u>0.0 8</u>	21/61	ON TIME
- <u>0.0 0</u>	22/62	DELAY
		VERN
<u>0.0 1 6 0</u>	23/63	ROT RATE
- <u>1.0 0 0</u>	24/64	ATT DB
<u>0.2 0</u>	25/65	RATE DB
<u>0.0 1 0</u>	26/66	ROT PLS
<u>0.0 0</u>	27/67	COMP
<u>0</u>	28/68	CNTL ACC

FLT PLN-9a/95/O/A

+  
-  
**A8**  
+

TOP  
+  
-  
**A7**

**DAP A8**

PURPOSE:  
PROX OPS

FLT PLN-9b/95/O/A

+  
-  
**A8**  
+

(reduced copy)

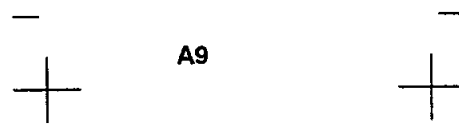


TOP

A8

DAP A 0 8	1/3	PRI
<u>0.2 0 0 0</u>	10/50	ROT RATE
<u>- 2.0 0</u>	11/51	ATT DB
<u>0.2 0</u>	12/52	RATE DB
<u>0.1 0</u>	13/53	ROT PLS
<u>0.0 0</u>	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
<u>0.0 5</u>	17/57	TRAN PLS
		ALT
<u>0.1 0 0</u>	18/58	RATE DB
ALL	19/59	JET OPT
<u>2</u>	20/60	#JETS
<u>0.0 8</u>	21/61	ON TIME
<u>- 0.0 0</u>	22/62	DELAY
		VERN
<u>0.2 0 0 0</u>	23/63	ROT RATE
<u>- 1.0 0 0</u>	24/64	ATT DB
<u>0.2 0</u>	25/65	RATE DB
<u>0.0 1 0</u>	26/66	ROT PLS
<u>0.0 0</u>	27/67	COMP
<u>0</u>	28/68	CNTL ACC

FLT PLN-10a/95/O/A



A9



TOP

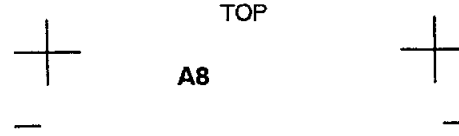
A9

DAP A 1 0	1/3	PRI
<u>0.1 0 0 0</u>	10/50	ROT RATE
<u>- 3.0 0</u>	11/51	ATT DB
<u>0.2 0</u>	12/52	RATE DB
<u>0.0 4</u>	13/53	ROT PLS
<u>0.0 0</u>	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
<u>0.0 1</u>	17/57	TRAN PLS
		ALT
<u>0.2 0 0</u>	18/58	RATE DB
ALL	19/59	JET OPT
<u>2</u>	20/60	#JETS
<u>0.0 8</u>	21/61	ON TIME
<u>- 4.5 0</u>	22/62	DELAY
		VERN
<u>0.2 0 0 0</u>	23/63	ROT RATE
<u>- 3.0 0 0</u>	24/64	ATT DB
<u>2.0 0</u>	25/65	RATE DB
<u>0.0 1 0</u>	26/66	ROT PLS
<u>0.0 0</u>	27/67	COMP
<u>2</u>	28/68	CNTL ACC

FLT PLN-11a/95/O/A



A10



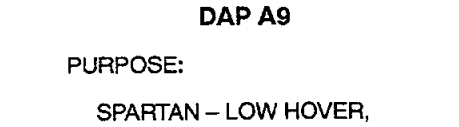
TOP

A8

DAP A9

PURPOSE:

SPARTAN - LOW HOVER,  
VGS POSN 1-3



FLT PLN-10b/95/O/A



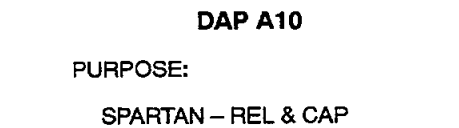
TOP

A9

DAP A10

PURPOSE:

SPARTAN - REL & CAP  
EXT PARK, VGS ACQ



FLT PLN-11b/95/O/A



(reduced copy)



TOP

A10

DAP A 1 0	1/3	PRI
<u>0.1 0 0 0</u>	10/50	ROT RATE
<u>- 3.0 0</u>	11/51	ATT DB
<u> 0.2 0</u>	12/52	RATE DB
<u> 0.0 4</u>	13/53	ROT PLS
<u> 0.0 0</u>	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
<u> 0.0 5</u>	17/57	TRAN PLS
		ALT
<u> 0.2 0 0</u>	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
<u> 0.0 8</u>	21/61	ON TIME
<u>- 4.5 0</u>	22/62	DELAY
		VERN
<u> 0.2 0 0 0</u>	23/63	ROT RATE
<u>- 3.0 0 0</u>	24/64	ATT DB
<u> 0.2 0 0</u>	25/65	RATE DB
<u> 0.0 1 0</u>	26/66	ROT PLS
<u> 0.0 0</u>	27/67	COMP
1	28/68	CNTL ACC

FLT PLN-12a/95/O/A



TOP

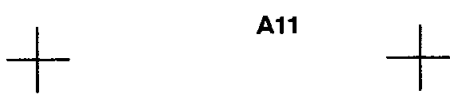
A10

DAP A11

PURPOSE:

SPARTAN - VGS POSN 4-16

FLT PLN-12b/95/O/A



A11



TOP

A11

DAP A 1 1	1/3	PRI
<u>0.1 0 0 0</u>	10/50	ROT RATE
<u>- 3.0 0</u>	11/51	ATT DB
<u> 0.2 0</u>	12/52	RATE DB
<u> 0.0 4</u>	13/53	ROT PLS
<u> 0.0 0</u>	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
<u> 0.0 1</u>	17/57	TRAN PLS
		ALT
<u> 0.2 0 0</u>	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
<u> 0.0 8</u>	21/61	ON TIME
<u>- 5.1 0</u>	22/62	DELAY
		VERN
<u> 0.2 0 0 0</u>	23/63	ROT RATE
<u>- 3.0 0 0</u>	24/64	ATT DB
<u> 0.2 0 0</u>	25/65	RATE DB
<u> 0.0 1 0</u>	26/66	ROT PLS
<u> 0.0 0</u>	27/67	COMP
1	28/68	CNTL ACC

FLT PLN-13a/95/O/A



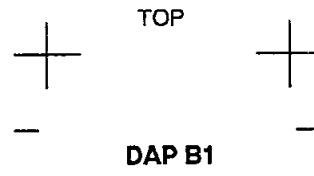
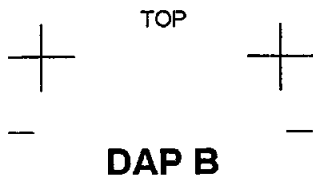
TOP

A11

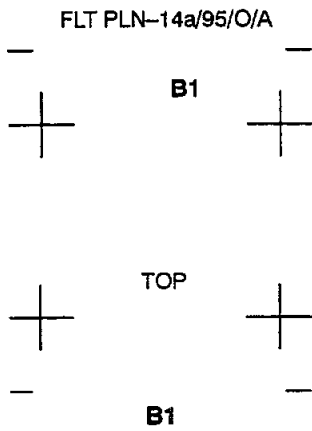
FLT PLN-13b/95/O/A



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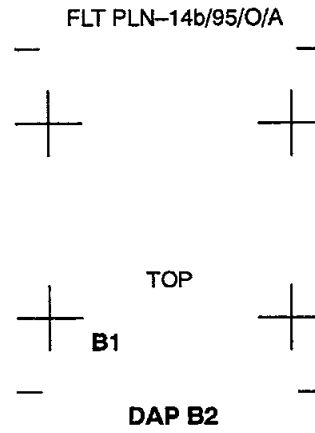


PURPOSE:  
NOM OMS & RCS  
BURNS



2	DAP B 0 1
30	<u>0.5 0 0 0</u>
31	<u>- 3.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	ALL
36	ALL
37	<u>0.1 0</u>
38	<u>0.2 0 0</u>
39	ALL
40	2
41	<u>0.0 8</u>
42	<u>- 0.0 0</u>
43	<u>0.2 0 0 0</u>
44	<u>- 1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	<u>0</u>

FLT PLN-15a/95/O/A



PURPOSE:  
LOSS OF VERN  
(TAIL ONLY)

FLT PLN-15b/95/O/A



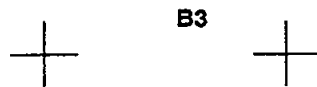
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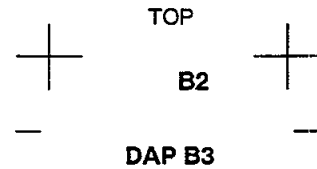
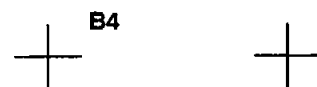
2	DAP B 0 2
30	0.2 0 0 0
31	- 3.0 0
32	0.2 0
33	0.0 4
34	0.0 0 0
35	TAIL
36	TAIL
37	0.0 2
38	0.0 7 0
39	TAIL
40	1
41	0.0 8
42	- 0.0 0
43	0.2 0 0 0
44	- 1.0 0 0
45	0.2 0
46	0.0 0 2
47	0.0 0 0
48	0

FLT PLN-16a/95/O/A



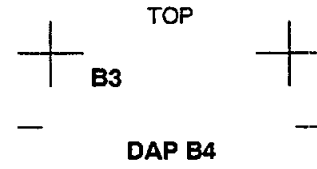
2	DAP B 0 3
30	0.2 0 0 0
31	- 3.0 0
32	0.2 0
33	0.0 4
34	0.0 0 0
35	ALL
36	ALL
37	0.0 2
38	0.0 7 0
39	ALL
40	1
41	0.0 8
42	- 0.0 0
43	0.2 0 0 0
44	- 1.0 0 0
45	0.2 0
46	0.0 0 2
47	0.0 0 0
48	0

FLT PLN-17a/95/O/A



PURPOSE:  
LOSS OF VERN  
(NOSE & TAIL ALT,  
-ZSI SEH (REQ))

FLT PLN-16b/95/O/A



PURPOSE:  
-ZSI VERN & ALT  
SOLCON (DES)

FLT PLN-17b/95/O/A

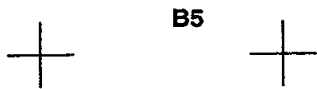


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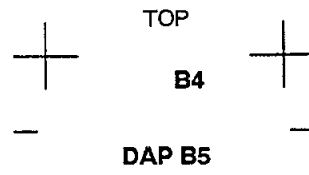
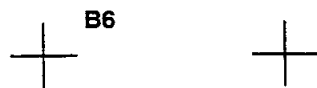
2/4	DAP B 0 4
30/50	<u>0.0 5 0 0</u>
31/51	- <u>0.3 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 2</u>
38/58	<u>0.1 0 0</u>
39/59	ALL
40/60	1
41/61	<u>0.0 8</u>
42/62	- <u>0.0 0</u>
43/63	<u>0.0 2 5 0</u>
44/64	- <u>0.0 3 3</u>
45/65	<u>0.1 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>0.0 0</u>
48/68	<u>0</u>

FLT PLN-18a/95/O/B



2	DAP B 0 5
30	<u>0.2 0 0 0</u>
31	- <u>3.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>0.0 0</u>
35	TAIL
36	TAIL
37	<u>0.0 2</u>
38	<u>0.2 0 0</u>
39	ALL
40	2
41	<u>0.0 8</u>
42	- <u>0.0 0</u>
43	<u>0.0 1 6 0</u>
44	- <u>0.0 3 3</u>
45	<u>0.2 0</u>
46	<u>0.0 0 2</u>
47	<u>0.0 0</u>
48	<u>0</u>

FLT PLN-19a/95/O/A



DAP B5

PURPOSE:  
COAS CAL

FLT PLN-18b/95/O/A



DAP B6

PURPOSE:  
NOM - ZSI ALT  
SOLCON (REQ)  
SEH (DES)

FLT PLN-19b/95/O/A

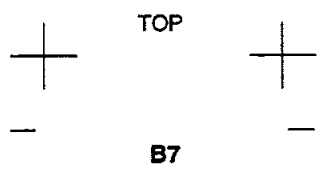
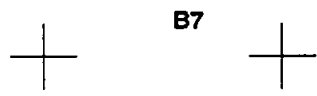


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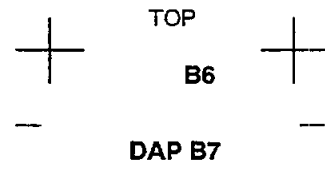
2/4	DAP B 0 6
30/50	0.0 5 0 0
31/51	- 1.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 2
38/58	0.1 0 0
39/59	ALL
40/60	1
41/61	0.0 8
42/62	- 0.0 0
43/63	0.0 4 4 0
44/64	- 0.1 0 0
45/65	.0 1 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-20a/95/O/A



2/4	DAP B 0 7
30/50	0.5 0 0 0
31/51	- 2.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 5
38/58	0.1 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

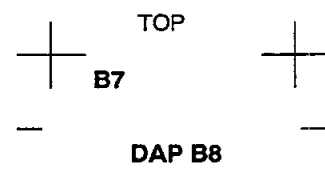
FLT PLN-21a/95/O/A



PURPOSE:  
RENDEZVOUS

DAP B7

FLT PLN-20b/95/O/A



PURPOSE:  
PROX OPS

DAP B8

FLT PLN-21b/95/O/A



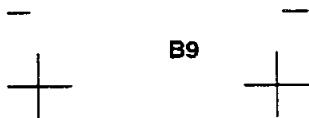
(reduced copy)



**B8**

2/4	DAP B 0 8
30/50	0.2 0 0 0
31/51	- 2.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 1
38/58	0.1 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-22a/95/O/A



**B9**



**B9**

2/4	DAP B 0 9
30/50	0.0 5 0 0
31/51	- 1.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 1
38/58	0.1 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 4.5 0
43/63	0.0 1 6 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	1

FLT PLN-23a/95/O/A



**B8**

**DAP B9**

PURPOSE:

SPARTAN  
DEADBAND  
COLLAPSE

FLT PLN-22b/95/O/A



**TOP**

**B9**

FLT PLN-23b/95/O/A



(reduced copy)

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 →	OM (0-359.99)
MON AXIS	= 1 +X = 2 -X

FLT PLN-25/95/O/A

FLT PLN-25/95/O/A is mounted on the back of the DAP Book

NASA HEADQUARTERS  
ME/PERRY, C.F. (2)  
ME/POSEY, G.  
MZD/MILLER, H.  
PM/MC CULLA, J.W.  
UO/DOARN, C.  
US/ZWIERKO, R.

NASA KSC  
CV-PSD-1/MACKEY, A.J.  
F264/LINTEREUR, P.  
FF-S-A/CREW QUARTERS  
KSC/KSC TECH LIBRARY-D  
PA-PIB/GRINTER, K.  
PZ-A3/SOWASH, S. (2)  
USK-215/KELLY, T.E.  
USK-247/HOOPER, J. (2)  
USK-550/VITT OFFICE

NASA LERC  
TSC 333-1/CARLISLE-MORGAN, K.L.

NASA MSFC  
ATO1D/TECH DOC REPOSITORY  
CA10/BERG, J.  
EL23/JOHNSON, DALE  
EO46/BRANCH CHIEF  
EO52/CHIEF DATA MGMT  
NTI/MARSHAL OPERATIONS

FALCON AIR FORCE BASE  
LAUNCH OPS  
50 OSS/OSPL  
300 O'MALEY AVENUE  
SUITE 26  
FALCON, CO 80912-5000  
LAUNCH OPERATIONS OFF

HANSCOM AFB  
29 RANDOLPH RD  
MA 01731-3010  
GARDNER, J.

\*\* U.S. MAIL \*\*

CARSO  
AREA SCIENCE PARK  
PADRICIANO 99, 34012  
TRIESTE, ITALY  
STALIO, R. (2)

DYNATHERM CORPORATION  
1 BEAVER COURT  
HUNT VALLEY, MD 21030  
BIENERT, W.

JET PROPULSION LABORATORY  
4800 OAK GROVE DRIVE  
PASADENA  
CA 91109  
303-300/KARMON, D.

PHILLIPS LABORATORY  
3550 ABERDEEN AVE. SE  
KIRTLAND AFB, NM 87117  
STOYANOF, LT.M.

ROYAL METEOR INST OF BELG  
3, AVENUE CIRCULAIRE  
B-1180 BRUSSELS  
BELGIUM  
CROMMELYNCK, D. (2)

SWALES AEROSPACE  
5050 POWDER MILL ROAD  
BELTSVILLE, MD 20705  
BRENNAN, P.

US NAVAL RESEARCH LAB  
4555 OVERLOOK AVE. SW  
WASHINGTON D.C., 20375  
ATTN: MR. J.C. GARNER  
CODE: 8134  
8134/GARNER, J.C.

BOEING  
P.O. BOX 240002  
HUNTSVILLE, AL 35824  
JC-32/JASKOLKA, C.

ALLIED SIGNAL CORPORATION  
GODDARD CORPORATE PARK  
7515 MISSION DRIVE  
LANHAM, MD 20706  
NOG/MMU/SIDOTTIL, J. (2)

BOEING-HUNTSVILLE  
BLDG 48-19  
P.O. BOX 240002  
HUNTSVILLE, AL 35824-6402  
ATTN: SPACELAB DCC  
MAILSTOP: JC64  
JC64/SPACELAB DCC  
JR-08/SCOTT, C.

CANADIAN SPACE AGENCY  
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ST. HUBERT, QUEBEC  
CANADA  
J3Y 8Y9  
ATTN: LIBRARY  
CANADA/GAGNON, M.

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81/SARGENT, D.  
KACHMAR, P.

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LAS CRUCES, NM 88004  
ETGT/HENDERSON, J.  
GC/GOMEZ, N.

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BRADLEY FIELD RD.  
WINDSOR LOCKS, CT 06096  
1A-2-X65/AUMAN, J.

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1100 HERCULES SUITE 300  
HOUSTON, TX 77058  
ATTN:/COLE, D.

INTERMETRICS, INC., WV  
100 UNIVERSITY DRIVE  
FAIRMONT, WV 26554  
SHRIVER, SELENA

NASA GSFC-AL  
116 JETPLEX CIRCLE  
MADISON, AL 35758  
442/OLSON, K.

OMITRON, INC.  
6411 IVY LANE, SUITE 600  
GREENBELT, MD 20770  
BARTHELME, K. (2)  
MURPHY, B.

SPAR AEROSPACE  
9445 AIRPORT ROAD  
BRAMPTON, ONTARIO  
CANADA L6S4J3  
WOODLAND, C. (2)

SWALES AEROSPACE  
5026 HERZEL PLACE  
BELTSVILLE, MD 20705  
MD20705/FALLOR, M.

UNIVERSITY OF ARIZONA  
901 GOULD-SIMPSON BLDG  
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BERENS, K.

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