

Flight Plan

STS-87

(FRR Cycle Trajectory)

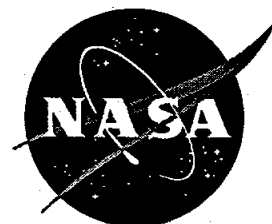
Mission Operations Directorate
Operations Division

Final
October 6, 1997

<u>EVENT</u>	<u>CST</u>		
Launch	13:46	Wed	Nov 19
Spartan Release	14:59	Thur	Nov 20
Spartan Grapple	18:30	Sat	Nov 22
A/L Egress	17:30	Mon	Nov 24
KSC Landing	06:20	Fri	Dec 5

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas




MISSION OPERATIONS DIRECTORATE

STS-87 FLIGHT PLAN

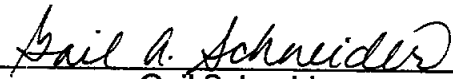
FINAL
October 6, 1997

PREPARED BY:

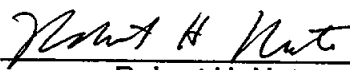


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482#:	FLT PLN-1875	MULTI-1343
	FLT PLN-1878	MULTI-1351
		MULTI-1353
Exemption #: 84		

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager/Lead FAO	DO4/R. Moore	244-1079
Lead Replanner	DO4/A. Cofrin	244-1170
Lead Pointer	DO4/T. Stockdale	244-5787

FLIGHT PLAN
STS-87

LIST OF EFFECTIVE PAGES

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* - Omit from flight book

3-57	87/FIN	3-116	87/FIN
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3-84	87/FIN	5-9	87/FIN
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3-86	87/FIN	6-i	* 87/FIN
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3-89	87/FIN	6-2	* 87/FIN
3-90	87/FIN	6-3	* 87/FIN
3-91	87/FIN	6-4	* 87/FIN
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3-99	87/FIN	CC 8-2	* 87/FIN
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3-114	87/FIN		
3-115	87/FIN		

* - Omit from flight book

STS-87 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
STS-87 GENERIC DAP A CONFIGURATIONS		
(Top/Front)	CC 8-2	FLT PLN-1a/87/O/B
STS-87 FLIGHT SPECIFIC DAP A CONFIGURATIONS		
(Bottom/Front)	CC 8-3	FLT PLN-1aa/87/O/B
STS-87 GENERIC DAP B CONFIGURATIONS		
(Top/Back)	CC 8-4	FLT PLN-1b/87/O/B
STS-87 FLIGHT SPECIFIC DAP B CONFIGURATIONS		
(Bottom/Back)	CC 8-5	FLT PLN-1bb/87/O/B

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INTRODUCTION

The STS-87 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, Rendezvous, EVA Checklist, Deorbit Prep, and Entry Checklists. For continuity, the summary level timeline includes the entire flight.

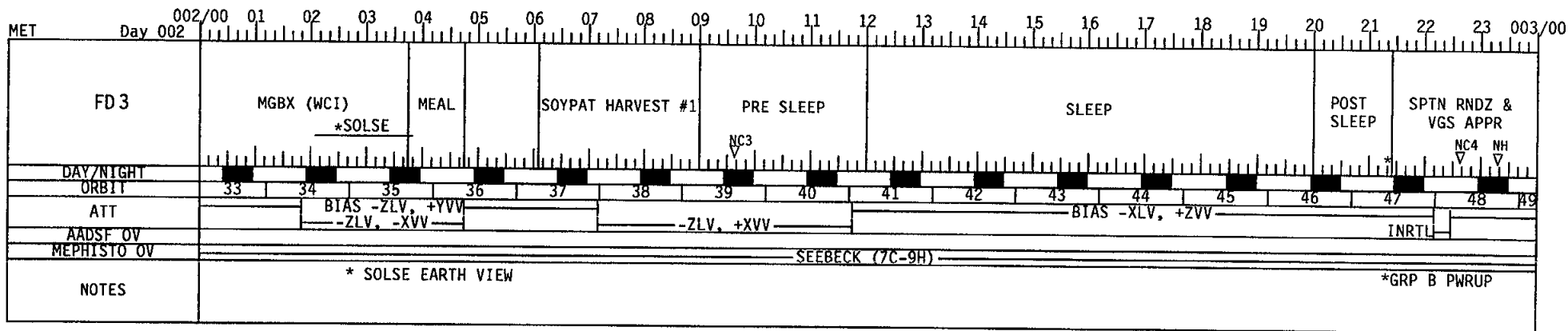
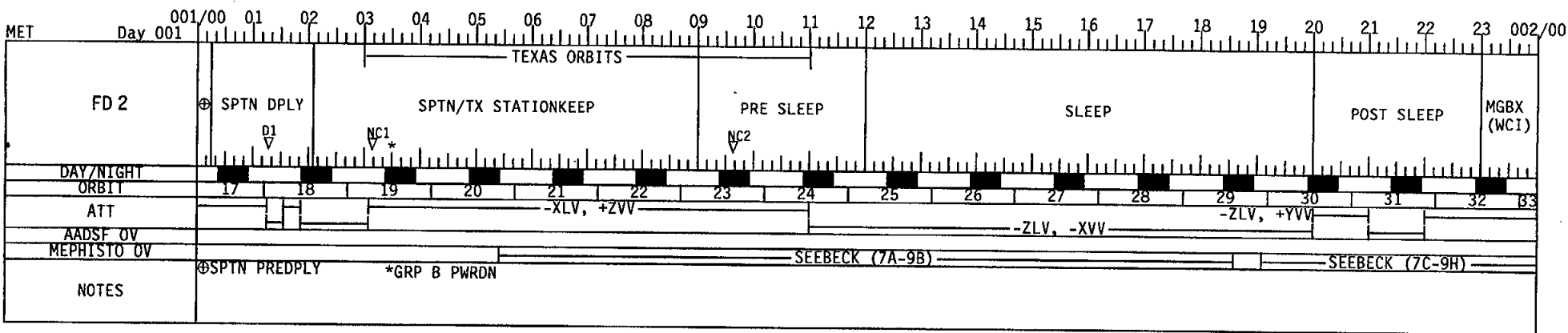
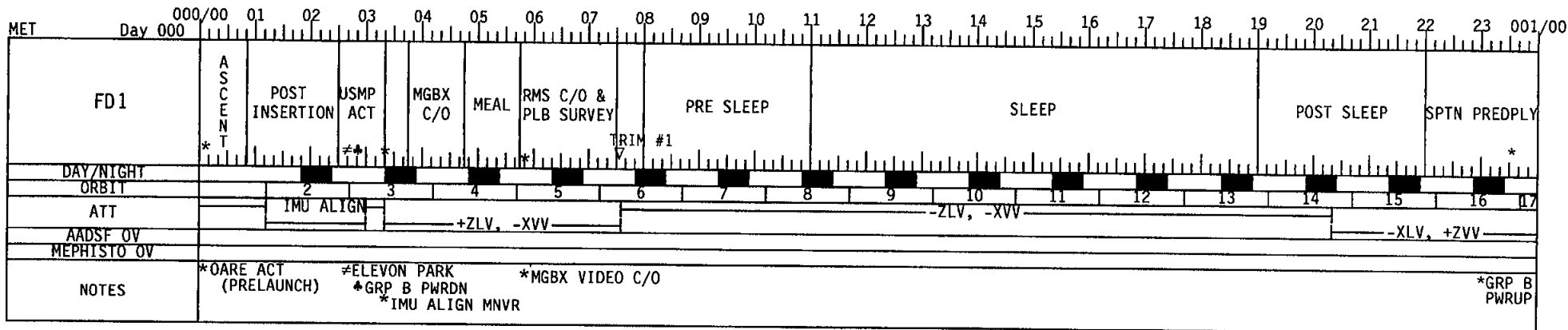
This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS-87 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the Flight Cycle version of the STS-87 Flight Initialization Data Pack.

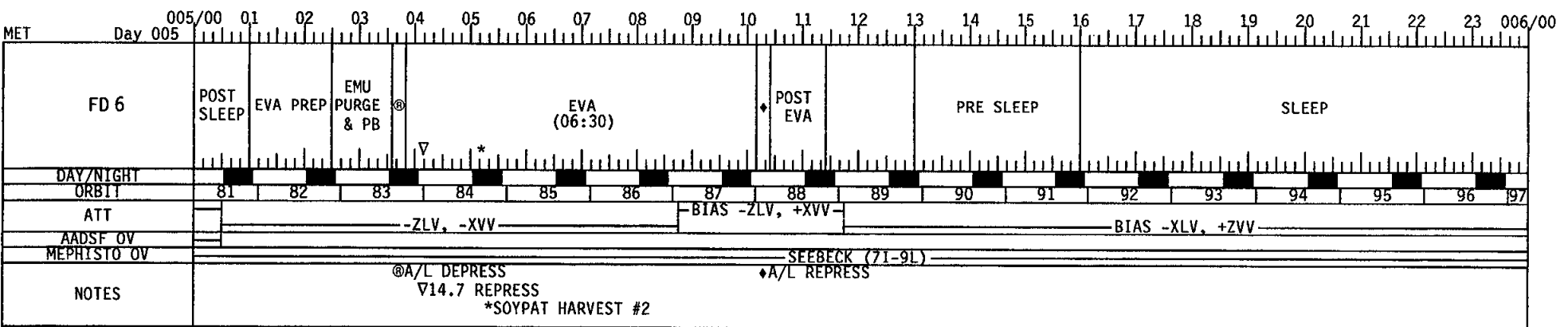
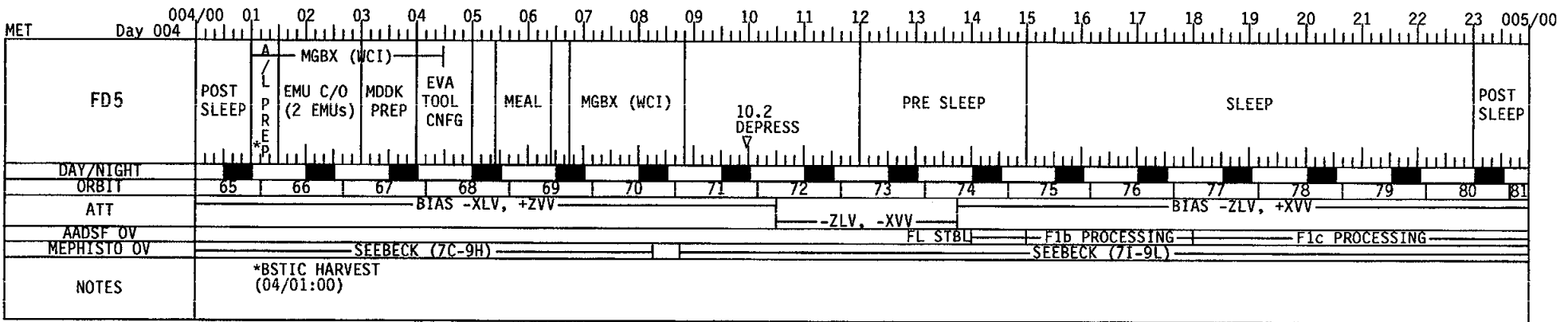
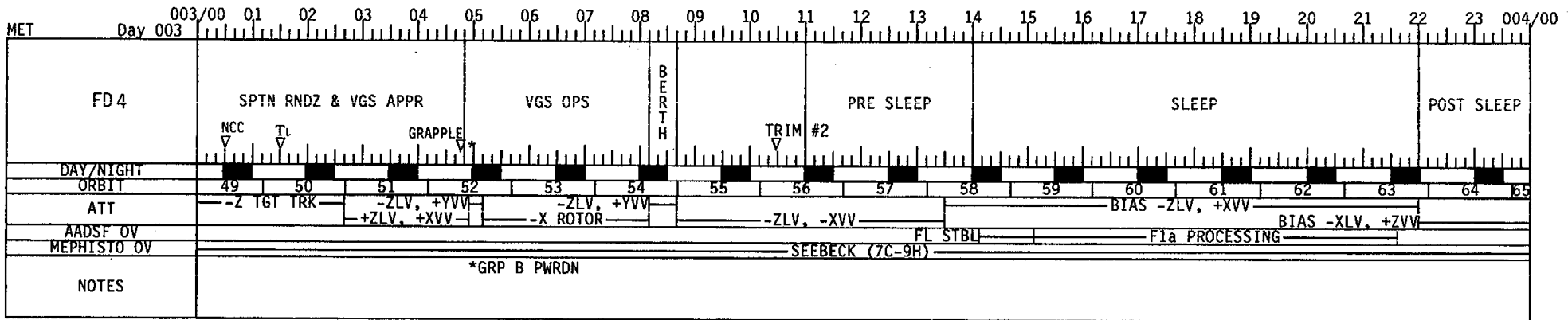
The flight profile used for this Flight Plan is for a launch date of November 19, 1997, at 19:46 GMT. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

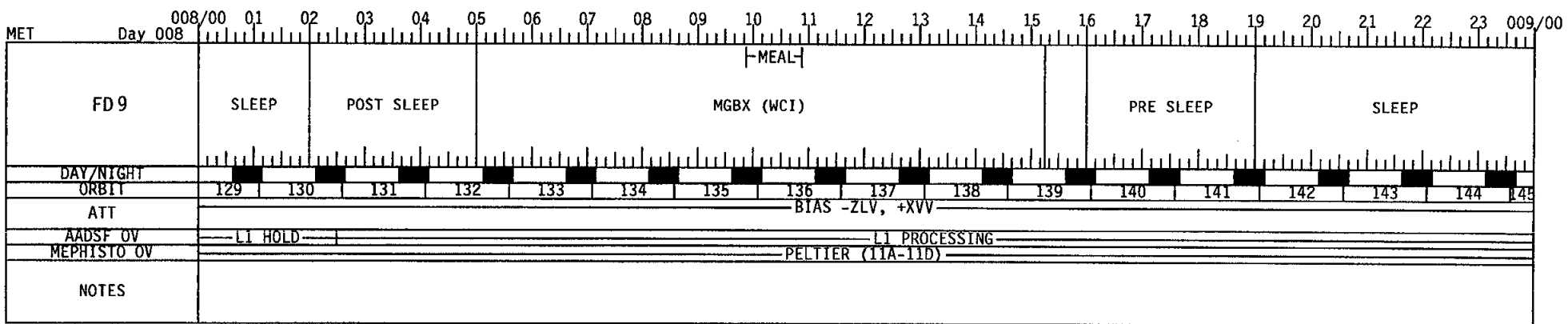
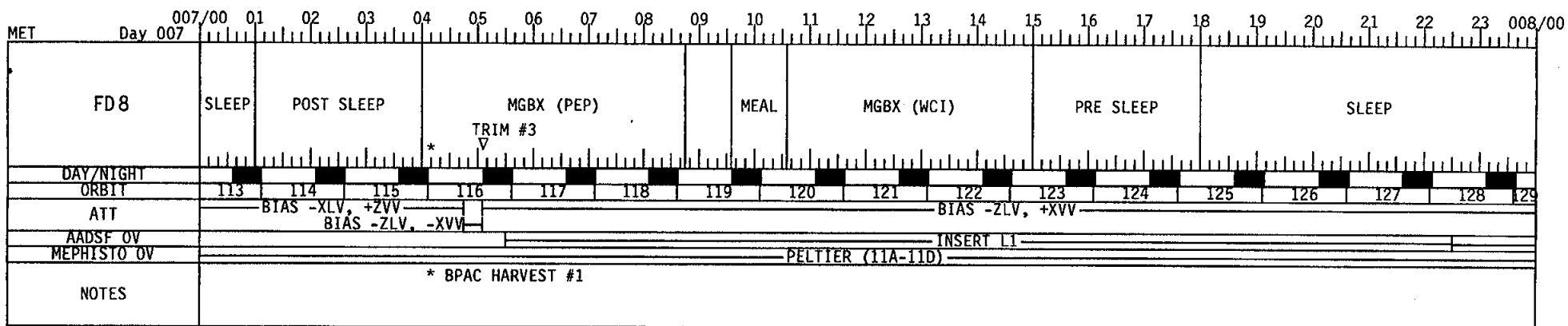
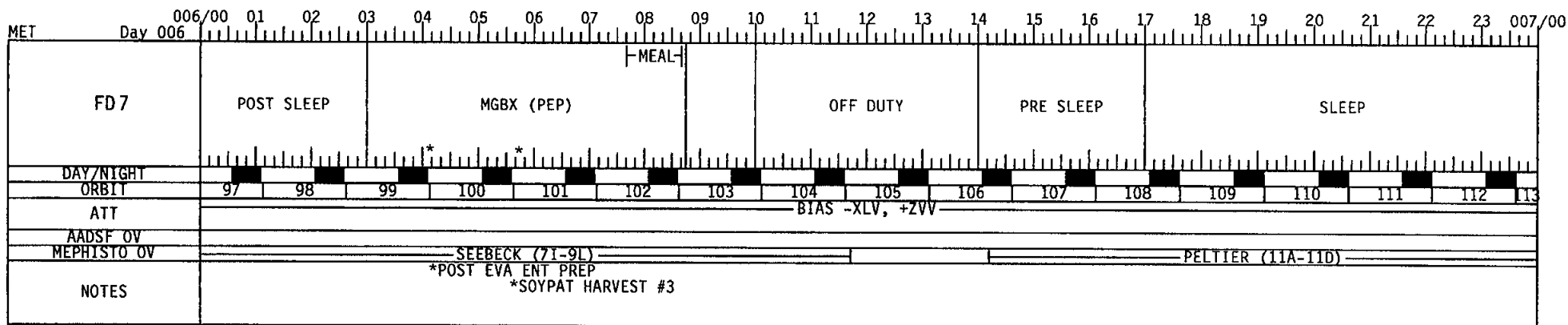
JSC-22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992 has been used to build the timelines contained in this Flight Plan. An Appendix K waiver for sleep shifting has been approved.

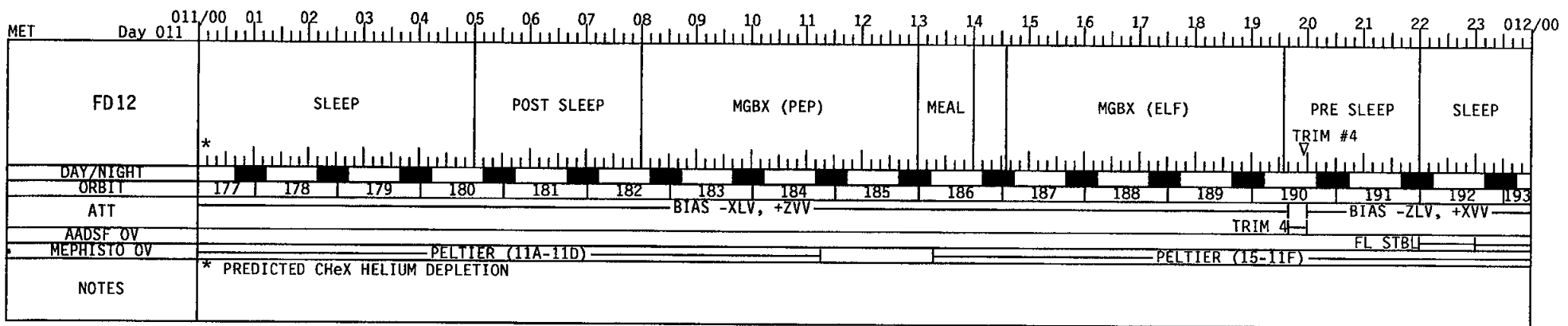
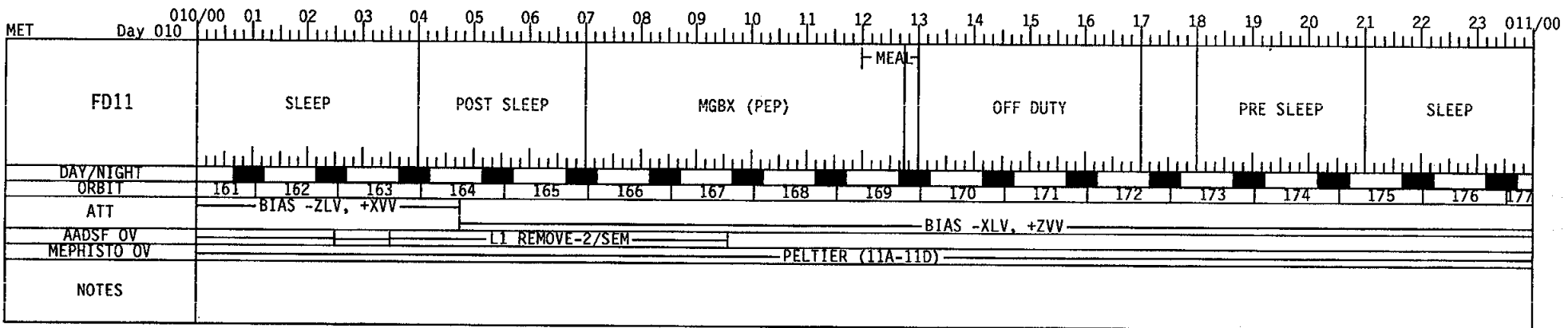
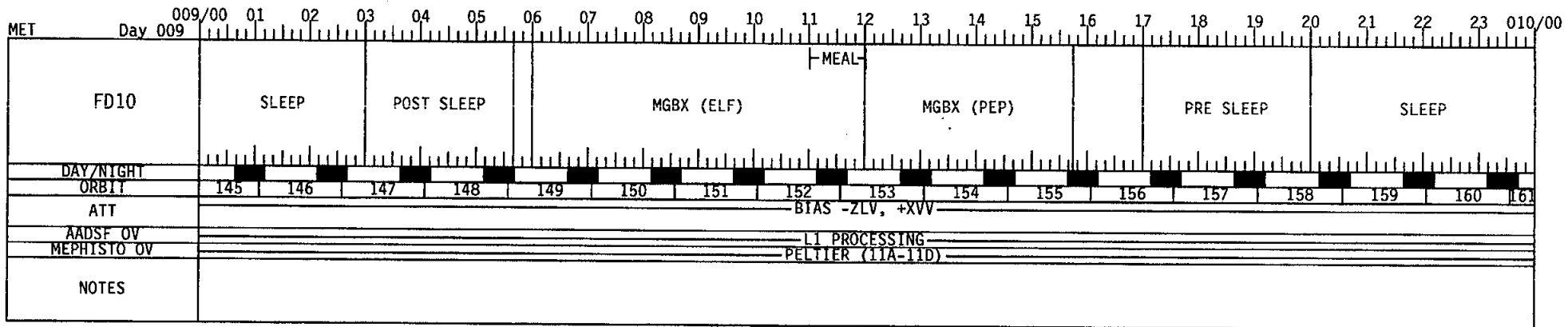
OVERVIEW TIMELINE

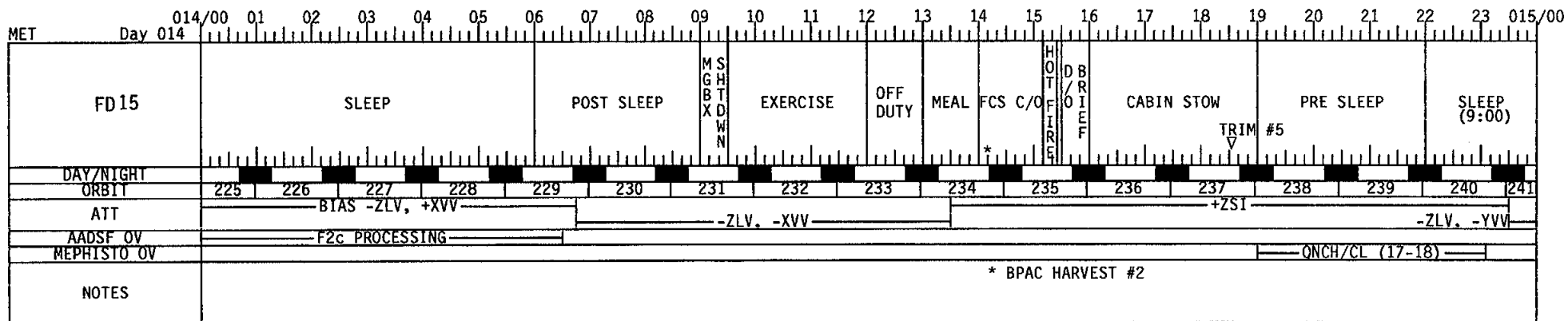
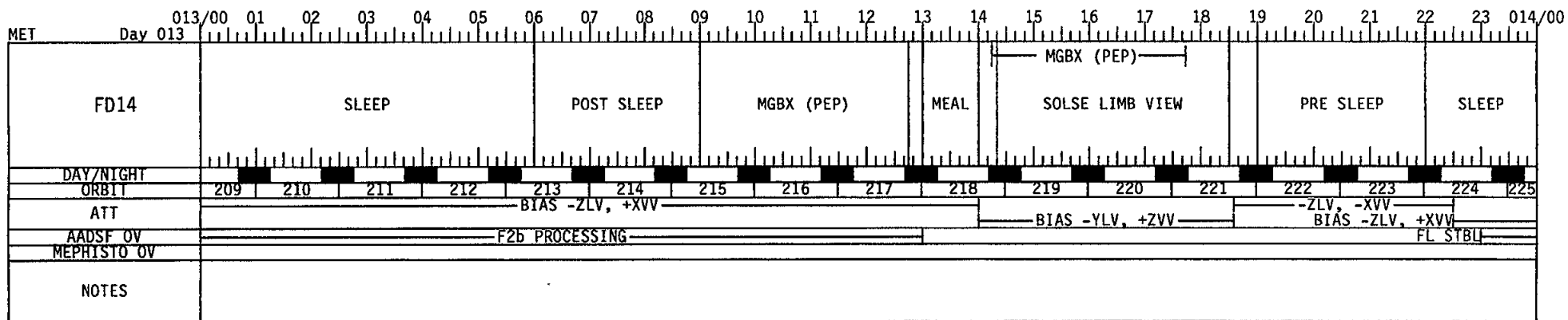
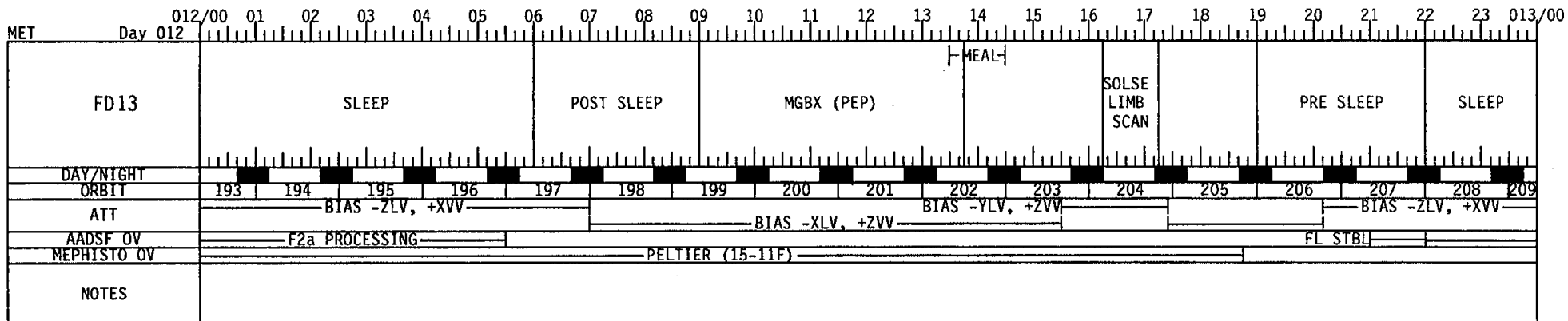
OVERVIEW TIMELINE











MET	015/00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	016/00		
Day 015																											
FD16																											
	SLEEP (9:00)					POST SLEEP					SEAT INST A/L C/O *		DEORBIT PREP					D/O	BURN	KSC	LNDG *						
DAY/NIGHT	[Day/Night Cycle]																										
ORBIT	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257										
ATT	-ZLV, -YVV										-XSI		COMM														
AADSF OV																											
MEPHISTO OV																											
NOTES	*USMP DEACT															*OARE DEACT											
																D/O TIG 15/15:34		KSC LAND 15/16:34									

MET	016/00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	017/00
Day 016																									
FD																									
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273								
ATT																									
AADSF OV																									
MEPHISTO OV																									
NOTES																									

MET	017/00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	018/00
Day 017																									
FD																									
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289								
ATT																									
AADSF OV																									
MEPHISTO OV																									
NOTES																									

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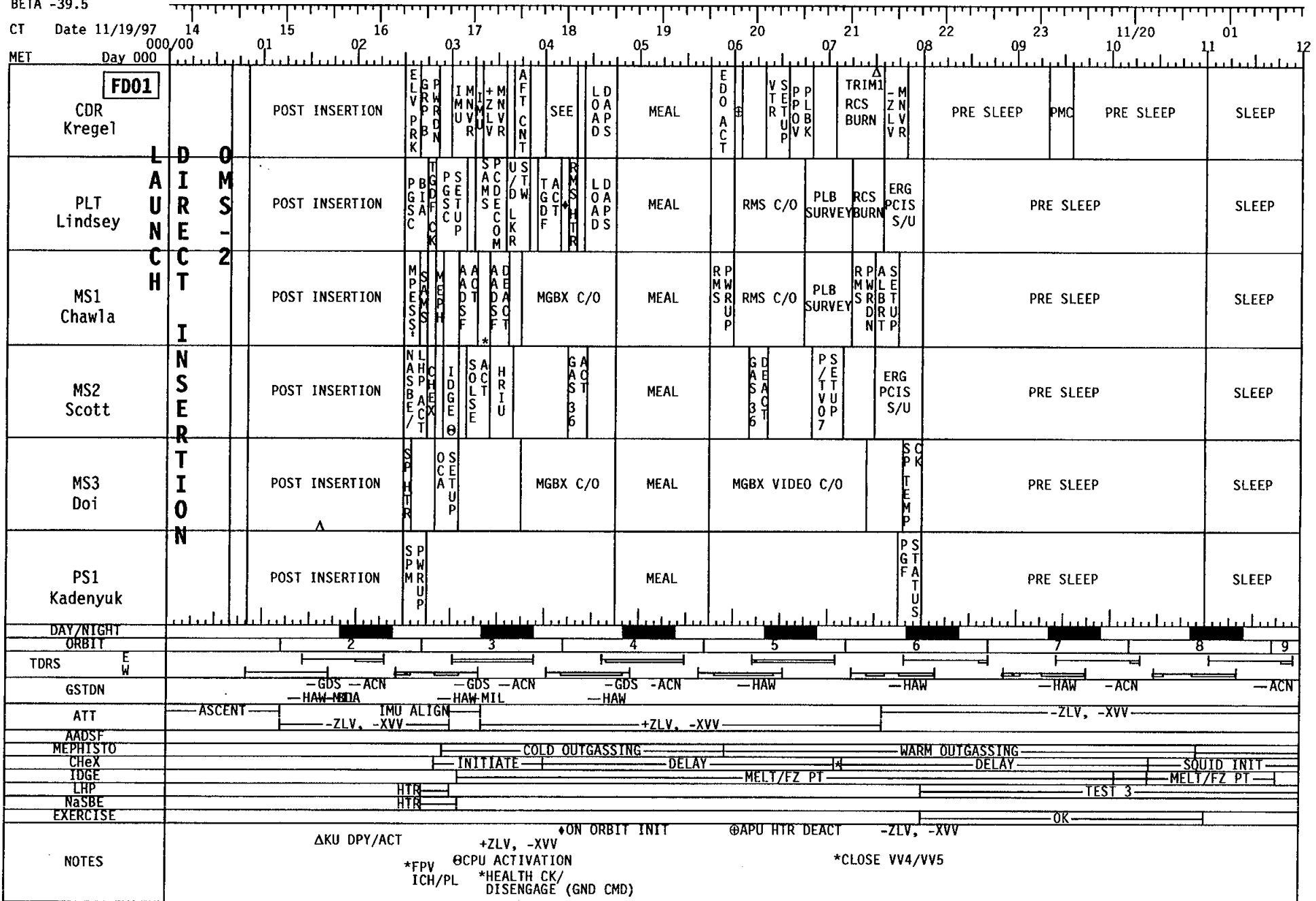
SUMMARY TIMELINE

SUMMARY TIMELINE

BETA -39.5

CT Date 11/19/97

MET Day 000/00



CT	Date	11/20/97	14	15	16	17	18	19	20	21	22	23	11/21	01	12				
MET	Day	001	001/00	01	02	03	04	05	06	07	08	09	10	11	12				
CDR Kregel	MD NPLY	FD02	SPTN DPLY	SEP1	SEP2	NC1 MULT AXIS RCS BURN	MNXLVLR	MEAL	CRYO 02 SNSR CK	EXERCISE		NC2 MULT AXIS RCS BURN	PRE SLEEP	MZLNVT	FMNVT	PSL EEP			
PLT Lindsey			SPTN DPLY			MULT AXIS RCS BURN	GPWRDN	MEAL	TDEFACT	VSTRUP	VTRPLBK	FILTER CLEANING	EXERCISE	VSTRUP	VTRPLBK	MULT AXIS RCS BURN	PRE SLEEP	OCA D/L	PRE SLEEP
MS1 Chawla			SPTN DPLY					MEAL		USMP PHOTO		EXERCISE					PRE SLEEP		
MS2 Scott	VGSACT		SPTN DPLY		VDASTA			MEAL		EXERCISE	FCMS SETUP						PRE SLEEP		
MS3 Doi	PSETTVO6		SPTN DPLY					MEAL			OCA D/L		EXERCISE				PRE SLEEP		
PS1 Kadenyuk								MEAL	BSTIC POLLIN	PGTATUS		EXERCISE		SPTATUS			PRE SLEEP		
DAY/NIGHT																			
ORBIT																			
TDRS																			
GSTDN																			
ATT																			
TEXAS PI																			
AADSF																			
MEPHYSTO																			
ChEx																			
IDGE																			
LHP																			
NaSBE																			
EXERCISE																			
NOTES																			

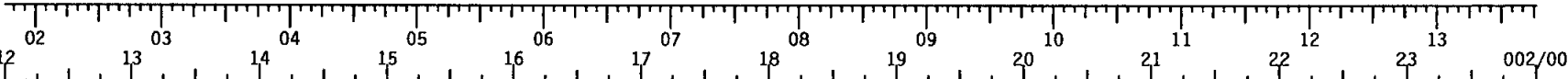
*P/TV06 OPS @FC PURGE MANUAL -HHL STOW @SPTN DEPLOY VIDEO VGS AND FCMS FILES -ZLV, -XVV

*Bubble Proc. *HRT PERF -XLV, +ZVV * FC MONITOR SYS @ DESIRE TV D/L (PCIS) *ChEx OPEN VV3 (GND CMD) *VGS VIDEO

BETA -44.1

CT Date 11/21/97

MET Day 001



CDR Kregel	SLEEP	FD03 POST SLEEP	-M XN LVR	POST SLEEP	-M XN LVR	POST SLEEP	CHEX VRCS	
PLT Lindsey	SLEEP	POST SLEEP				O C A D / L	M C I U C K	
MS1 Chawla	SLEEP	POST SLEEP					WCI SETUP	
MS2 Scott	SLEEP	POST SLEEP					CHEX VRCS	
MS3 Doi	SLEEP	POST SLEEP					WCI SETUP	
PS1 Kadenyuk	SLEEP	POST SLEEP						
DAY/NIGHT	[Timeline with shaded blocks for Day/Night]							
ORBIT	[Timeline with shaded blocks for Orbit]							
TDRS	[Timeline with shaded blocks for TDRS]							
GSTON	-ACN		-BDA		-BDA	-MIL	-BDA GDBIL	
ATT	-ZLV, -XVV			-ZLV, +YVV			-XLV, +ZVV	
AADSF	[Timeline with shaded blocks for AADSF]							
MEPHISTO	9A-FZ	9A-M	7B-PM	9B-FZ	9B-M	7C-PM		
CheX	HTR PWR CAL			WIDE RNG 1		ATT/JET SENSITIVITY		
IDGE	[Timeline with shaded blocks for IDGE]							
LHP	[Timeline with shaded blocks for LHP]							
NaSBE	TEST 4							
EXERCISE	[Timeline with shaded blocks for EXERCISE]							
NOTES	ØFUT LOADED -ZLV, +YVV BIAS -XLV, -YVV -XLV, +ZVV							

BETA -45.5

CT Date 11/21/97

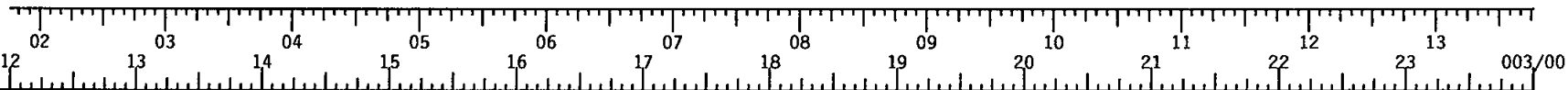
MET Day 002

	14	15	16	17	18	19	20	21	22	23	11/22	01	12		
CDR Kregel	FD03 CHEX VRCS		-M ZLV -V R		MEAL KU INHIB	-M ZLV -V R	WASTE DUMP MONITOR	-M ZLV -V R	PEAV OENT	EXERCISE	NC3Δ MULT AXIS RCS BURN	F M U N T V R	PRE SLEEP PMO PRE SLEEP		
PLT Lindsey		PS/TT V U O P 2		SOLSE SUPPORT	MEAL	P C O N F I G	V S T E U S P E	S P L O B K	EXERCISE	PS/TT V U O P 4	PEAV OENT	P R G S C O N F G	MULT AXIS RCS BURN	PRE SLEEP O C A D / L	PRE SLEEP
MS1 Chawla	WCI SETUP	WCI PROCESS		WCI PROCESSING	MEAL			P/TV04 S/U RECORD	PEAV OENT		P R G S C O N F G		PRE SLEEP		
MS2 Scott	CHEX VRCS		SOL DTP SETUP	SOLSE EARTH VIEW	SOL DTP CLOSE OUT	S O L B A Y O N	MEAL	S P O R E P O C A	EXERCISE	PEAV OENT			PRE SLEEP		
MS3 Doi	WCI SETUP	WCI PROCESS	A A C T D T F	WCI PROCESS	W C I S T W		MEAL		P/TV04 S/U RECORD	PEAV OENT			PRE SLEEP		
PS1 Kadenyuk		S S P T M A T U S		BSTIC POLLINATION	P S T A T U S		MEAL	S O Y P A T G A S		S O Y P A T H A R V E S T #1			PRE SLEEP		
DAY/NIGHT ORBIT	33	34	35	36	37	38	39	40	41						
TDRS	E W														
GSTDN	GDS -ACN -MDA	GDS -ACN -HAW-BDA	GDS -ACN -HAWMIL	-HAW	-HAW	-HAW	-ACN	-HAW	-ACN	-HAW	-ACN	-HAW	-ACN		
ATT	-XLV, +ZVV		-ZLV, -XVV		BIAS -ZLV, +YVV					-ZLV, -XVV			BIAS -XLV, +ZVV		
AADF		INIT			FURN/TEMP RAMP					INSERT F1					
MEPHISTO															
CHEX															
IDGE															
LHP															
NaSBE															
EXERCISE															
NOTES		*WIDE RANGE 2	-ZLV, -XVV	*Position F1		-ZLV, +YVV		ΔSIMO TERM	DESIRE TV D/L				θ -XLV +ZVV		

BETA -46.5

CT Date 11/22/97

MET Day 002



CDR Kregel	SLEEP	FD04 POST SLEEP	IMU GPR RUP PB	NC4 NH SPARTAN RETRIEVE
PLT Lindsey	SLEEP	POST SLEEP		SPARTAN RETRIEVE
MS1 Chawla	SLEEP	POST SLEEP		RMS HTR
MS2 Scott	SLEEP	POST SLEEP		SPARTAN RETRIEVE
MS3 Doi	SLEEP	POST SLEEP	PC CONF ING	EXERCISE
PS1 Kadenyuk	SLEEP	POST SLEEP		
DAY/NIGHT	[Timeline with shaded sleep periods]			
ORBIT	[Timeline with orbit markers 41-49]			
TDRS	[Timeline with TDRS events]			
GSTDN	[Timeline with ground station events: -ACN, -BDA -MIL, -GDS -ACN -HAW -MBA]			
ATT	[Timeline with attitude events: BIAS -XLV, +ZVV]			
AASDF	[Timeline with AASDF events: INSERT F1]			
MEPHISTO	[Timeline with MEPHISTO events: 9C-FZ, 9C-M, 7D-PM, 9D-FZ, 9D-M, 7E-PM, 9E-FZ, 9E-M, 7F-PM]			
CHeX	[Timeline with CHeX events: HI RES DATA (20)]			
IDGE	[Timeline with IDGE events]			
LHP	[Timeline with LHP events]			
NaSBE	[Timeline with NaSBE events]			
EXERCISE	[Timeline with exercise events: -OK, -OK, -OK, -DI, -OK]			
NOTES				

CT Date 11/22/97 MET Day 003/00 14 15 16 17 18 19 20 21 22 23 11/23 01 12

CDR Kregel	FD04	NCC	SPARTAN RETRIEVE	GRAPPLE	MZLV RB	EXERCISE	TRIM2 RCS BURN	PRE SLEEP	PMC					
PLT Lindsey			SPARTAN RETRIEVE		VGS ACQ	VGS DATA RECORD	BERTH	VGS ACT	VGS DATA	PRESCONFG	RCS BURN	STBLRY AD	PRE SLEEP	
MS1 Chawla		P/TV06 SETUP	SPARTAN RETRIEVE			VGS OPS	BERTH	SRCPVY POST	PRMWRDN	PRESCONFG	EXERCISE	PRE SLEEP		
MS2 Scott			SPARTAN RETRIEVE								EXERCISE	HRIU	PRE SLEEP	
MS3 Doi		P/TV06 SETUP	SPARTAN RETRIEVE			P/TV06 OPS			VSETUP	VTR PLBK		VSETUP	VTR PLBK	PRE SLEEP
PS1 Kadenyuk		EXERCISE				BSTIC POLLINATION		PSSTUS		BSTIC NUTR		PSSTUS		PRE SLEEP
DAY/NIGHT														
ORBIT														
TDRS														
GSTDN														
ATT														
AADSF														
MEPHISTO														
Chx														
IDGE														
LHP														
NaSBE														
EXERCISE														
NOTES														

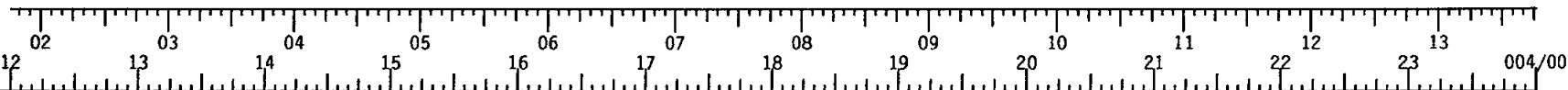
*P/TV06 OPS -ZLV, +YVV OK -ZLV, -XVV @DESIRE TV D/L-PCIS PRE SI

ASPTN RETRIEVE/ BERTH VIDEO @VGS VIDEO

BETA -48.2

CT Date 11/23/97

MET Day 003



CDR Kregel	PRE SLEEP	AM ADVSR FMNVT R	SLEEP	POST SLEEP	FD05 ø					
PLT Lindsey	PRE SLEEP	PSL E E P O C A D / L	SLEEP	POST SLEEP						
MS1 Chawla	PRE SLEEP		SLEEP	POST SLEEP						
MS2 Scott	PRE SLEEP		SLEEP	POST SLEEP						
MS3 Doi	PRE SLEEP		SLEEP	POST SLEEP						
PS1 Kadenyuk	PRE SLEEP		SLEEP	POST SLEEP						
DAY/NIGHT ORBIT	57	58	59	60	61	62	63	64	65	
TDRS	[Timeline with horizontal bars and dots representing TDRS events]									
GSTDN	[Timeline with horizontal bars and dots representing GSTDN events]									
ATT	-ZLV, -XVV BIAS -ZLV, +XVV BIAS -XLV, +ZVV									
AADSF	SOLN DIFFUSION *FL STBL* *Fla PROCESSING*									
MEPHISTO	[Timeline with horizontal bars representing MEPHISTO events]									
ChX	HIGH TEMP DATA (3)									
IDGE	[Timeline with horizontal bars representing IDGE events]									
LHP	[Timeline with horizontal bars representing LHP events]									
NaSBE	PHASE I									
EXERCISE	OK OK OK OK OK OK OK OK OK OK									
NOTES	BIAS -ZLV, +XVV øFUT LOADED BIAS -XLV,+ZVV									

BETA -48.7

CT Date 11/23/97

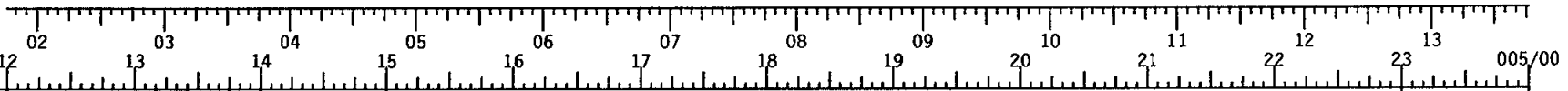
MET Day 004 14 15 16 17 18 19 20 21 22 23 11/24 01 12

CDR Kregel	FD05 SIN LIT	POST SLEEP	O C A D / L	ST P E L R Y M	WCI ABV PWRUP	WCI PROCESS	WCI PROCESS	MEAL	WCI PROCESSING	W S T I O W	P C O N F I G	EXERCISE	C C H O I C E	F I O 2 P R P	10.2 CABIN DEPRESS	- M Z N L V R	WASTE DUMP MONITOR	
PLT Lindsey		POST SLEEP	S O C K					MEAL	P E A V E N T	SPRINT EQUIP ASSY	SPRINT CHECKOUT		EXERCISE	F I O 2 P R P	10.2 CABIN DEPRESS	S O C K	FILTER CLEANING (INSPECT)	O C A D / L
MS1 Chawla		POST SLEEP		WCI ABV PWRUP	WCI PROCESS	3	4	MEAL	WCI PROCESSING	5	W S T I O W							S O C K
MS2 Scott		POST SLEEP	A/L PREP	EMU C/O (2 EMUS)	MDDK PREP	EVA TOOL CONFIG		MEAL	P E A V E N T		A S P I R I N	H G C / R O O V E	P I N / B I T			P T E R M	EXERCISE	
MS3 Doi		POST SLEEP	A/L PREP	EMU C/O (2 EMUS)	MDDK PREP	EVA TOOL CONFIG		MEAL	P E A V E N T		A S P I R I N	H G C / R O O V E	P I N / B I T			P T E R M	EXERCISE	
PS1 Kadenyuk		POST SLEEP				BSTIC HARVEST		MEAL						BSTIC WATER	P S T A T U S	EXERCISE	S S T M A T U S	
DAY/NIGHT ORBIT		65		66		67		68		69		70		71		72		73
TDRS	E																	
GSTDN	W	-GDS -ACN		-GDS -ACN		-GDS -HAW		-HAW		-HAW		-HAW		-ACN		-ACN		-ACN
ATT																		
AASDF		FURN STBL		TRANS F1														
MEPHISTO				9G-FZ		9G-M		7H-PM		9H-FZ		9H-M		7I-PM				
CHEX				COOL/STABL						MED HEAT CAPACITY		COSMIC RAY						
TDGE																		
LHP																		
NaSBE										PHASE I								
EXERCISE			OK						OK		OK	DI	OK	DI			OK	
NOTES															@DESIRE TV D/L-PCIS		φSIMO INIT	φSIMO T
																	-ZLV, -XV	

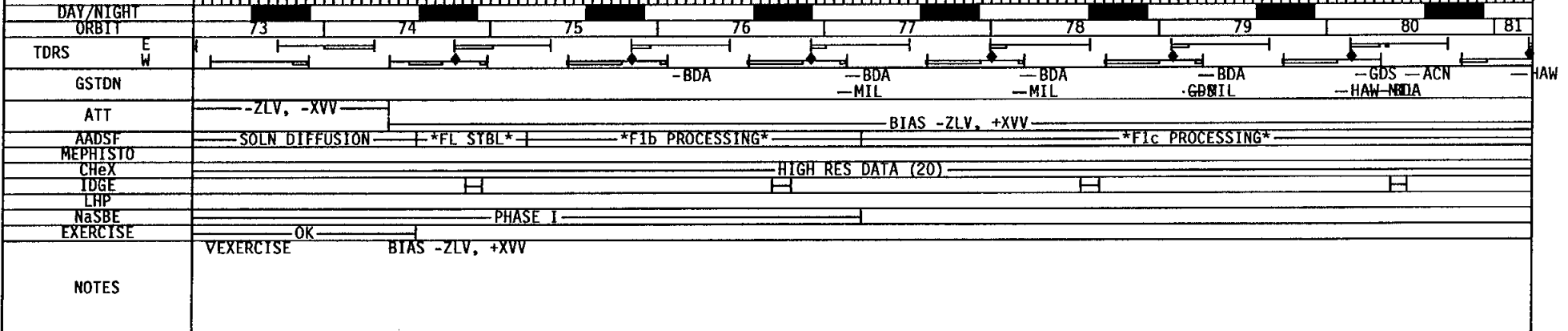
BETA -49.0

CT Date 11/24/97

MET Day 004



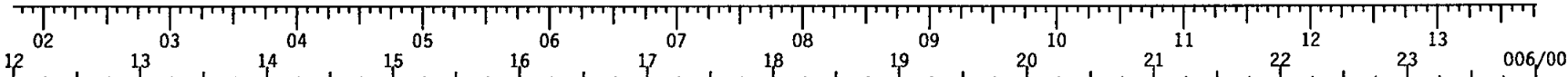
CDR Kregel	PRE SLEEP	PMC	PS RLEE E P	AM AN DV SR F	PRE SLEEP	SLEEP	FD06 POST SLEEP
PLT Lindsey	PRE SLEEP	102 MNT			PRE SLEEP	SLEEP	POST SLEEP
MS1 Chawla					PRE SLEEP	SLEEP	POST SLEEP
MS2 Scott	∇				PRE SLEEP	SLEEP	POST SLEEP
MS3 Doi					PRE SLEEP	SLEEP	POST SLEEP
PS1 Kadenyuk					PRE SLEEP	SLEEP	POST SLEEP



BETA -49.0

CT Date 11/25/97

MET Day 005

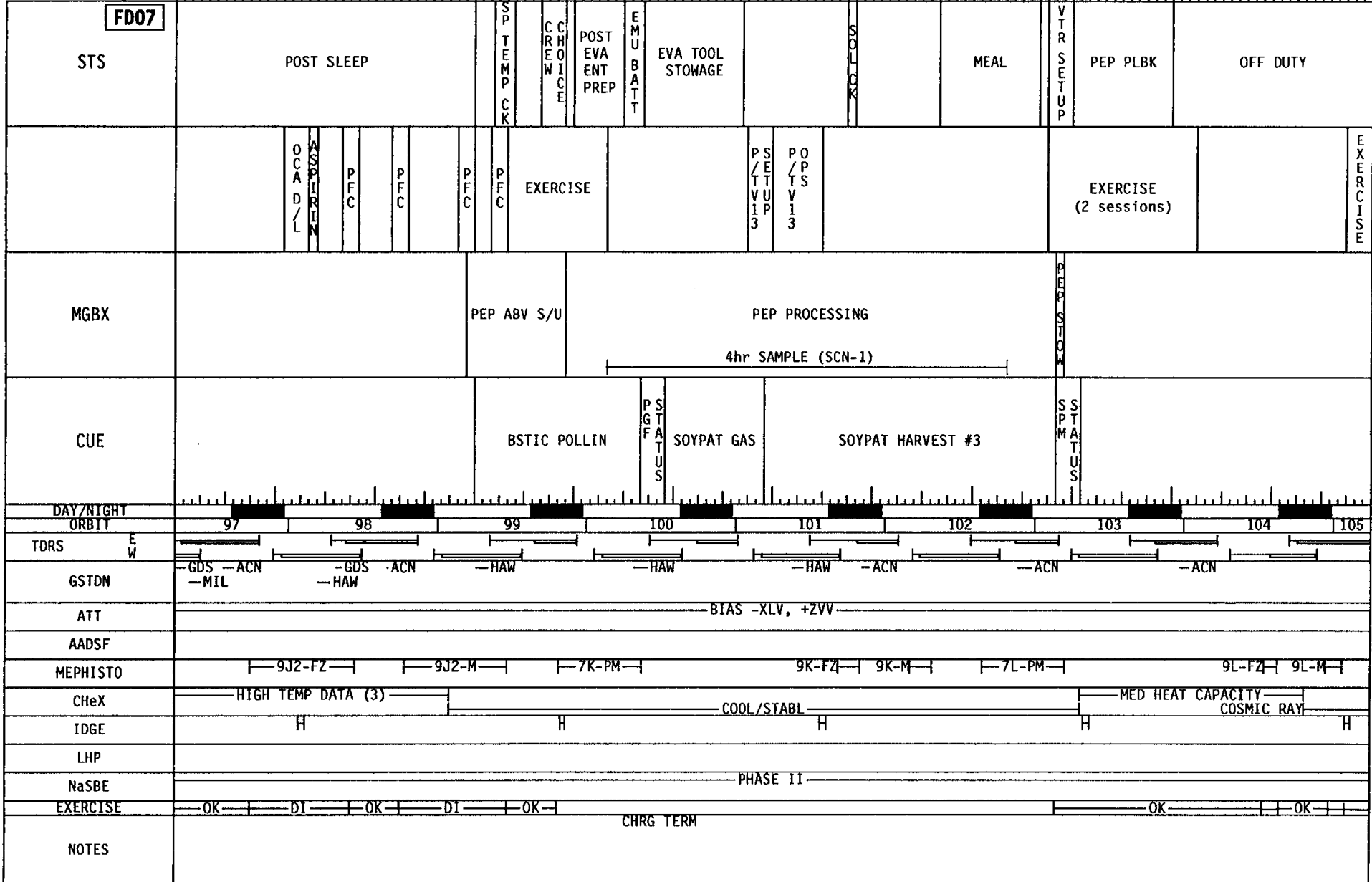


CDR Kregel	FD06	SINPLITY	PMC	PRE SLEEP	STPLRYM	PRE SLEEP	SLEEP
PLT Lindsey		SSPTROINT	SPKTEMP	PRE SLEEP	OCD/L	PRE SLEEP	SLEEP
MS1 Chawla				PRE SLEEP			SLEEP
MS2 Scott		POST EVA QUEST		PRE SLEEP			SLEEP
MS3 Doi		POST EVA QUEST		PRE SLEEP			SLEEP
PS1 Kadenyuk				PRE SLEEP			SLEEP
DAY/NIGHT							
ORBIT		89	90	91	92	93	94
TDRS							
GSTDN					-BDA -MIL	-BDA -MIL	-BDA -MIL
ATT					BIAS -XLV, +ZVV		
AADSF					FURN COOL		
MEPHISTO					91-FZ	91-M	91-M
ChEX						7J-PM	9J1-M
IDGE							
LHP							
NaSBE							
EXERCISE					OK		
NOTES							

BETA -48.6

CT Date 11/25/97

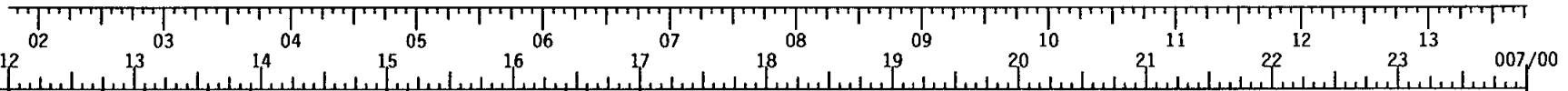
MET Day 006



BETA -48.1

CT Date 11/26/97

MET Day 006

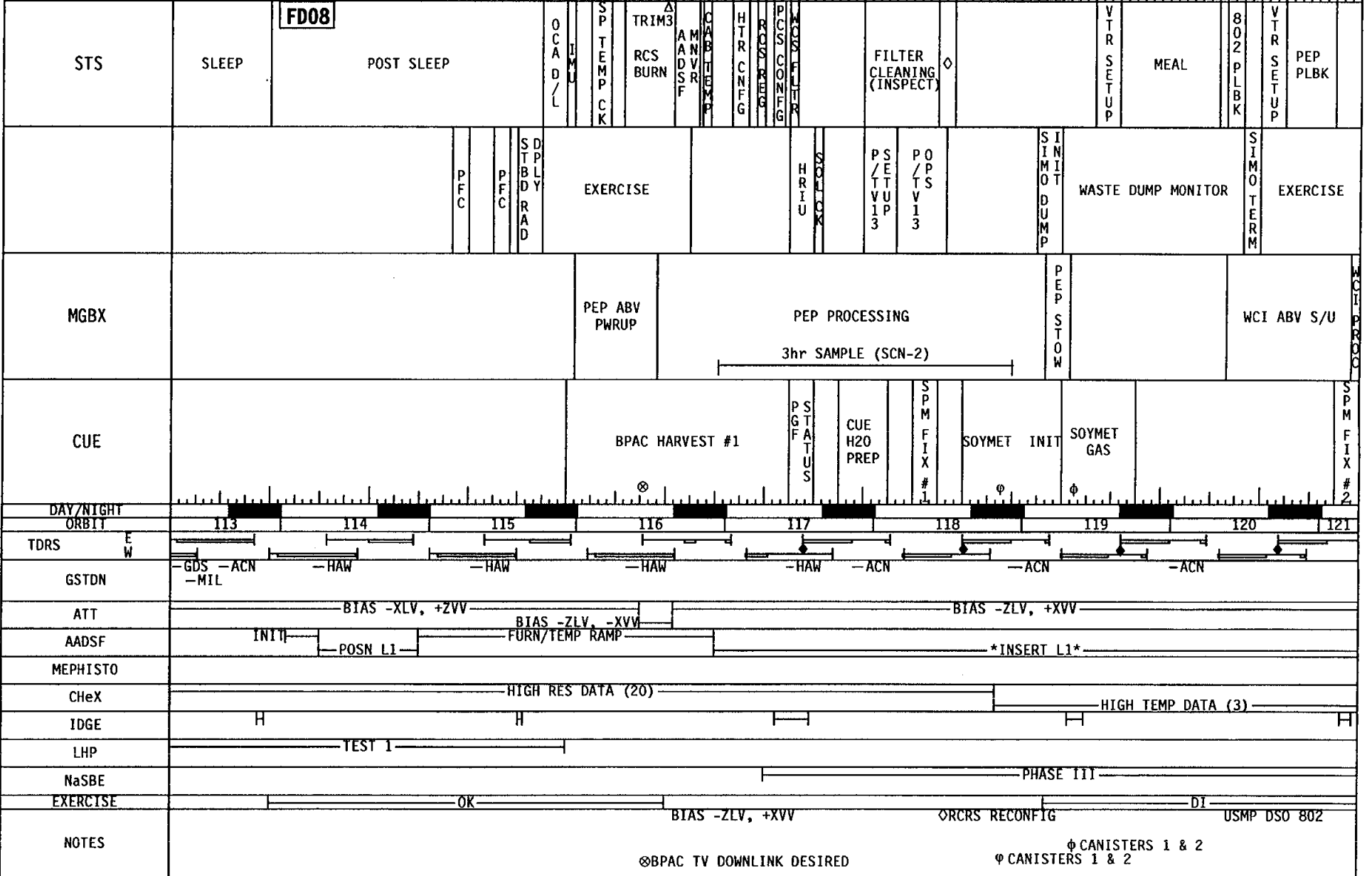


STS	OFF DUTY	PS E /TT V U O P 4	PAO EVENT *	OFF DUTY	PRE SLEEP	SPLY I N I T	PRE SLEEP	SPLY T E R M	PRE SLEEP	SLEEP
	EXERCISE (3 sessions)			S P T E M P C K	PMC	O C A D / L				
MGBX										
CUE										
DAY/NIGHT	[Timeline with alternating shaded and unshaded blocks]									
ORBIT	105	106	107	108	109	110	111	112	113	
TDRS	[Timeline with horizontal bars and labels: -BDA -MIL, -BDA -MIL, -BDA -MIL, -GDS -ACN, -BDA -HAW-MIL, -GDS -ACN, -BDA -HAW-MIL]									
GSTON	[Timeline with labels: -BDA -MIL, -BDA -MIL, -BDA -MIL, -GDS -ACN, -BDA -HAW-MIL, -GDS -ACN, -BDA -HAW-MIL]									
ATT	BIAS -XLV, +ZVV									
AADSF										
MEPHISTO	* 11A-FZ					11B-FZ				
ChEx	HRT PERF [Timeline with bars]									
IDGE	[Timeline with 'H' markers]									
LHP	[Timeline with 'TEST 1' bar]									
NaSBE										
EXERCISE	OK [Timeline with bars]									
NOTES	*VIP (CDR,MS3) *BEGIN PELTIER OPS									

BETA -47.2

CT Date 11/26/97

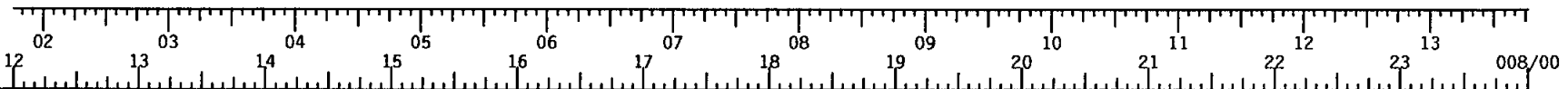
MET Day 007



BETA -46.4

CT Date 11/27/97

MET Day 007

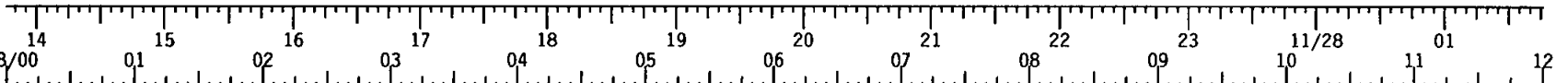


STS	FD08		PMC	PRE SLEEP	O C A D / L	PRE SLEEP	SLEEP
	PS / TT / VU / 1P / 3	PO / P / TS / V / 1 / 3	S P T E M P C K	EXERCISE (2 SESSIONS)			
MGBX	WCI PROC		WCI PROCESS	W C I S T W			
	6		7				
CUE							
DAY/NIGHT	[Bar chart showing day/night cycle]						
ORBIT	121	122	123	124	125	126	127 128 129
TDRS	[Timeline with markers for BDA, GDS, ACN, HAW, MIL]						
GSTDN			-BDA	-BDA -MIL	-BDA -MIL	-BDA -GDS -MIL	-GDS -ACN -BDA -HAW -MIL
ATT					BIAS -ZLV, +XVV		
AADSF					*INSERT LI*		*L1 HOLD*
MEPHISTO							
CHeX					HIGH TEMP DATA (3)		
IDGE			H		H		H
LHP							
NaSBE					PHASE III		
EXERCISE		DI		DI			
NOTES							

BETA -45.1

CT Date 11/27/97

MET Day 008

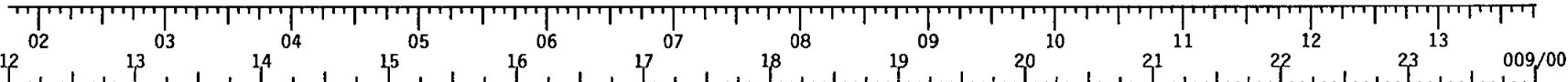


STS	SLEEP	FD09	POST SLEEP		IN-SUIT DOPPLER DON		WCSMPACT		MEAL	SPLY INIT	
				O C A D / L	S P T E M P C K	C C R H O I C E	P S E / T T U P 1 3	P O P / T V 1 3			
MGBX				WCI ABV PWRUP	WCI PROCESS	WCI PROCESS	WCI PROCESS	WCI PROCESS	WCI PROCESS	WCI PROCESS	
					8	9	10		11		
CUE						S P M F I X # 3	BSTIC POLL	BSTIC WATER	P G F F L T R	P S T A T U S	S P M F I X # 4
DAY/NIGHT	[Shaded bars indicating day/night cycle]										
ORBIT	129	130	131	132	133	134	135	136	137		
TDRS	E	W									
GSTDN	-GDS -ACN -MIL	-HAW	-HAW	-HAW	-ACN	-ACN	-ACN				
ATT	BIAS -ZLV, +XVV										
AADF	*L1 HOLD*				*L1 PROCESSING*						
MEPHISTO											
CHeX	HIGH TEMP DATA (3)						COOL/STABL				
IDGE	H		H		H		H		H		
LHP											
NaSBE	PHASE III										
EXERCISE			DI			DI		DI		DI	
NOTES											

BETA -44.0

CT Date 11/28/97

MET Day 008

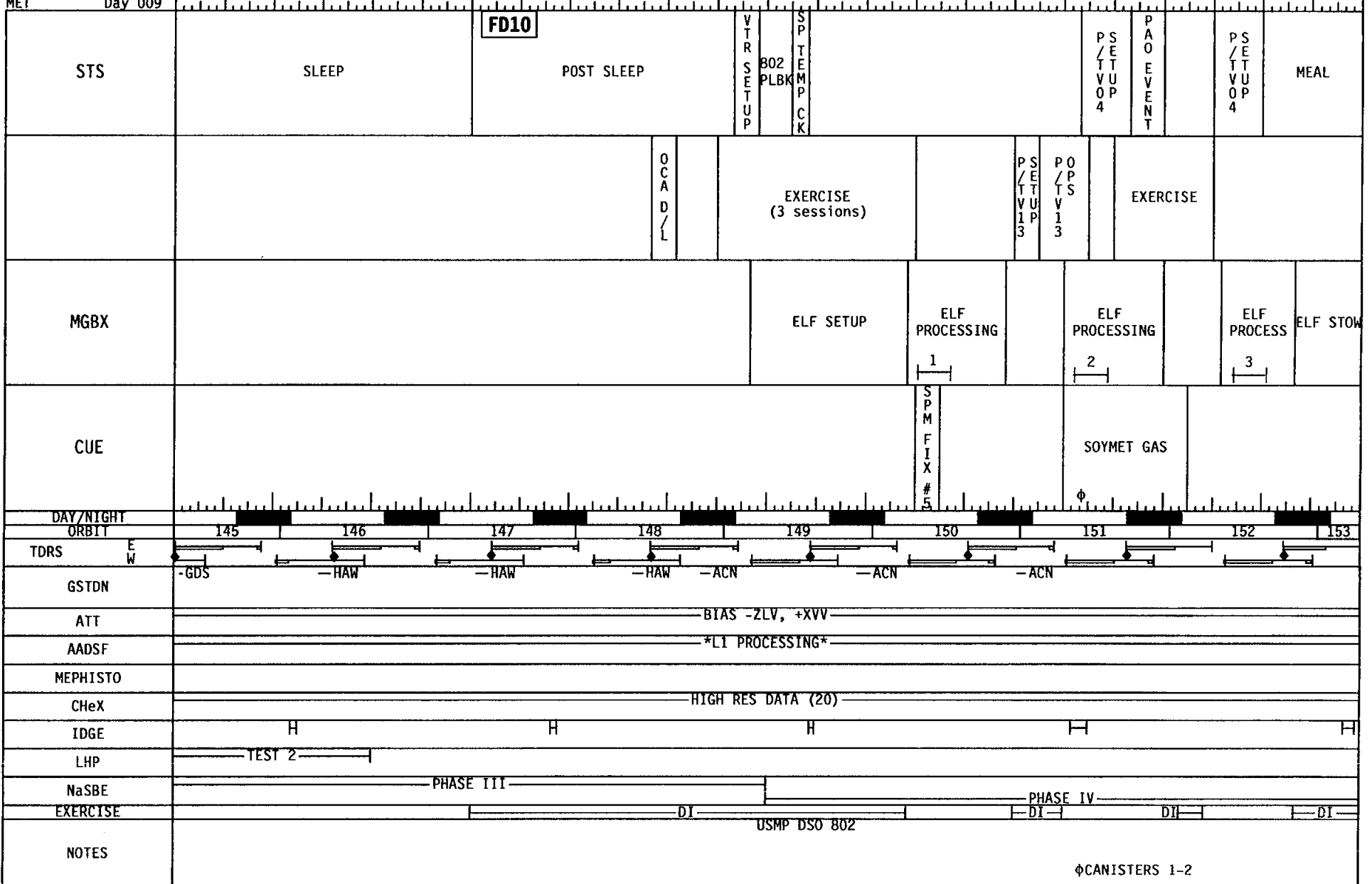


STS	FD09	SPLY TERM	SOLAR	STEMPK	IN-SUIT DOPPLER STOW	PSE/TTVUOP 4	PAO EVENT 0	PRE SLEEP	SLEEP
					P/TV04 S/U RECORD	EXERCISE	PMC	O C A D / L	
MGBX	WCI PROCESS		WCI PROCESSING	WCI STOW	MGBX FILTER C/O				
CUE									
DAY/NIGHT	[Timeline with alternating black and white bars]								
ORBIT	137	138	139	140	141	142	143	144	145
TDRS	[Timeline with dots and arrows]								
GSTDN			-BDA -MIL	-BDA -MIL	-BDA -MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -HAW -MIL	HAW
ATT	BIAS -ZLV, +XVV								
AADF	*LI PROCESSING*								
MEPHISTO									
CheX	COOL/STABL	MED HEAT CAPACITY			COSMIC RAY HRT PERF		HIGH RES DATA (20)		
IDGE		H		H		H		H	
LHP							TEST 2		
NaSBE	PHASE III								
EXERCISE		DI		DI					
NOTES	UKRAINIAN MEDIA EVENT								

BETA -42.4

CT Date 11/28/97

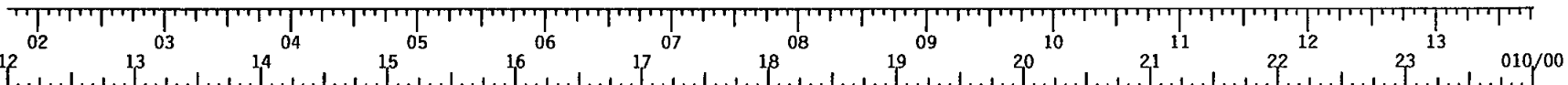
MET Day 009



BETA -40.9

CT Date 11/29/97

MET Day 009



STS	PA O E V E N T	FD10	K O L O S	S P T E M P C K	PRE SLEEP				SLEEP			

EXERCISE (2 sessions)	P/TV04 S/U RECORD	V T R S E T U P	PEP PLBK	PMC	O C A D / L
--------------------------	-------------------	--------------------------------------	-------------	-----	----------------------------

MGBX	PEP SETUP	PEP PROCESSING	P E P S T A T U S
		2hr SAMPLE (BI-3)	

CUE	P E P S T A T U S
-----	---



GSTDN	-BDA -MIL	-BDA -MIL	-BDA -MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -HAW -MIL	HAW
-------	--------------	--------------	--------------	-------------------------------	-------------------------------	---------------------------	-----

ATT	BIAS -ZLV, +XVV						
-----	-----------------	--	--	--	--	--	--

AADF	*L1 PROCESSING*						
------	-----------------	--	--	--	--	--	--

MEPHISTO							
----------	--	--	--	--	--	--	--

CHeX	HIGH TEMP DATA (3)						
------	--------------------	--	--	--	--	--	--

IDGE	H	H	H	H			
------	---	---	---	---	--	--	--

LHP	TEST 6						
-----	--------	--	--	--	--	--	--

NaSBE	PHASE IV						
-------	----------	--	--	--	--	--	--

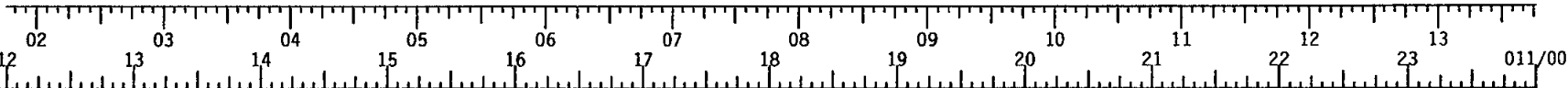
EXERCISE	DI	DI					
----------	----	----	--	--	--	--	--

NOTES	JAPANESE MEDIA						
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BETA -37.7

CT Date 11/30/97

MET Day 010

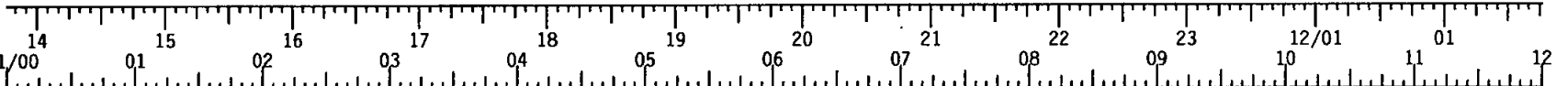


STS	MEAL	OFF DUTY	EXERCISE	PRE SLEEP	SLEEP					
		EXERCISE (4 sessions)	SPLY TEMP CK	SPLY INIT	VTR SETUP	802 PLBK	SPLY TERM	PMC	O C A D / L	P F C
MGBX	PEP PROCESSING		VTR SETUP	PEP PLBK						
CUE			P S T A T U S	S T A T U S						
DAY/NIGHT	[Day/Night Cycle Bar]									
ORBIT	169	170	171	172	173	174	175	176	177	
TORS	[TORS Cycle Bar]									
GSTDN	-BDA	-BDA -MIL	-BDA -MIL	-GDS -ACN -BDA -MIL	-GDS -ACN -BDA -MIL	-GDS -ACN -BDA -MIL	-GDS -ACN -BDA -MIL	-GDS -ACN -HAW -MIL	-GDS -ACN -HAW	-GDS -ACN -HAW
ATT	BIAS -XLV, +ZVV									
AADF	INIT POSN F2	FURN/TEMP RAMP				INSERT F2				
MEPHISTO	[MEPHISTO Cycle Bar]									
CheX	COOL/STABL			MED HEAT CAPACITY			COSMIC RAY HRT PERF		SCIENCE OF OPP	
IDGE	[IDGE Cycle Bar]									
LHP	[LHP Cycle Bar]									
NaSBE	[NaSBE Cycle Bar]									
EXERCISE	OK									
NOTES	USMP DSO 802									

BETA -35.7

CT Date 11/30/97

MET Day 011

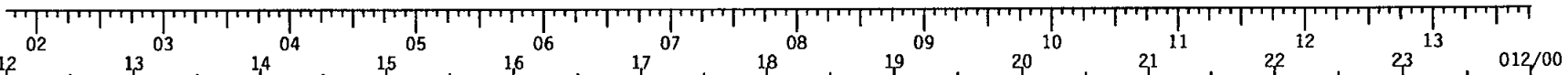


STS	SLEEP	FD12	POST SLEEP	O C A D / L	P S E T T V U P 4	P A O E V E N T	S P T E M P C K	FILTER CLEANING (INSPECT)
				P F C	P F C	EXERCISE (3 Sessions)		
MGBX						PEP ABV PWRUP	PEP PROCESSING 3hr SAMPLE (BI-4)	
CUE							SOYMET GAS	
DAY/NIGHT	<p>Diagram showing alternating shaded (night) and unshaded (day) blocks across the timeline from 177 to 185.</p>							
ORBIT	177	178	179	180	181	182	183	184
TDRS	<p>Diagram showing TDRS activity blocks with 'E' and 'W' labels, corresponding to the orbit numbers above.</p>							
GSTDN	<p>Diagram showing GSTDN activity blocks labeled HAW and -ACN.</p>							
ATT	BIAS -XLV, +ZVV							
AADF	INSERT F2							
MEPHISTO	13-F2		11C-F2		14-F2		11D-F2	
CHeX	SCIENCE OF OPP							
IDGE	H		H		H		H	H
LHP	TEST 5							
NaSBE								
EXERCISE	OK		DI		OK			
NOTES	φ CANISTERS 1-2							

BETA -33.9

CT Date 12/01/97

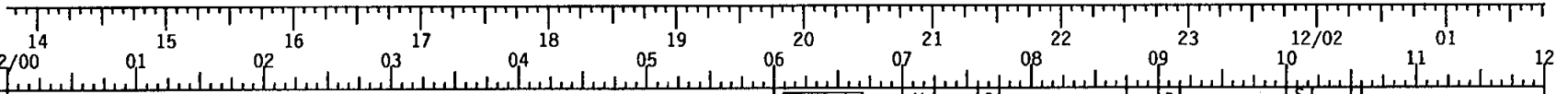
MET Day 011



STS	VTR SETUP		802 PLBKR	MEAL			SPTMPCCK			PRE SLEEP	TRIM 4	AANDSRF	PRE SLEEP		SLEEP		
	VTR SETUP		802 PLBKR	PSETTUV 13	POPTS 13 @				PSETTUV 13	POPTS 13		SPLY INIT	PMC	O CAD/L	SPLY TERM		
MGBX	PEP PROCESSING		PEP STOW	ELF SETUP			ELF PROCESSING		ELF PROCESSING	ELF PROCESS	ELF STOW						
							4		5		6						
CUE				POPTS 13						PSSGT FAMA TUS		POPTS 13					
DAY/NIGHT	ORBIT																
TDRS	E W																
GSTDN	-BDA -MIL		-BDA -MIL		-BDA -MIL		-GDS -ACN -BDA -HAW -MIL		-GDS -ACN -BDA -HAW -MIL		-GDS -ACN -HAW -MIL		-GDS -ACN -HAW -MIL		-GDS -HAW		
ATT	BIAS -XLV, +ZVV																
AADF	SOLN DIFFUSION																
MEPHISTO	-FL STBL*																
ChX	SCIENCE OF OPP																
IDGE	H H H H																
LHP	TEST 5																
NaSBE	OK																
EXERCISE	USMP DSO 802		OK		OK		OK		OK		OK		BIAS -ZLV, +XVV				
NOTES	@DSO 802 CUE (KIEV SCHOOL)						*DSO 802 CUE (JSC/KSC)										

BETA -31.9

CT Date 12/01/97
 MET Day 012

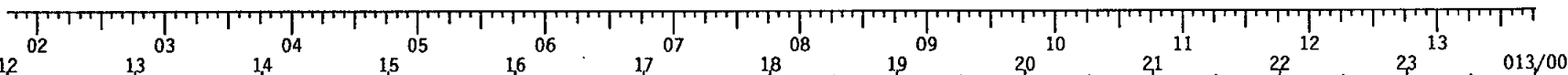


STS	SLEEP	POST SLEEP	FD13	MEPH MNVR	PSOL SETP	SPLY INIT	POST SLEEP	OCA D/L	SPLY TERM	EXERCISE	SPLY TERM	TEMP CK	SCF
						VTR SETUP	PEP PLBK		VTR SETUP	802 PLBK	CREW CHOICE	PS/TTU 13	PO/TSV 13
MGBX										PEP SETUP			PEP PROCESSING
													3HR SAMPLE (SCN-3)
CUE										SOYMET GAS			SFOR YEMEZTE
DAY/NIGHT ORBIT													
TDRS													
GSTDN													
ATT													
AADF													
MEPHISTO													
CheX													
IDGE													
LHP													
NaSBE													
EXERCISE													
NOTES	<p>φ CANISTERS 1-6 @CANISTERS 1-2</p>												

BETA -29.9

CT Date 12/02/97

MET Day 012

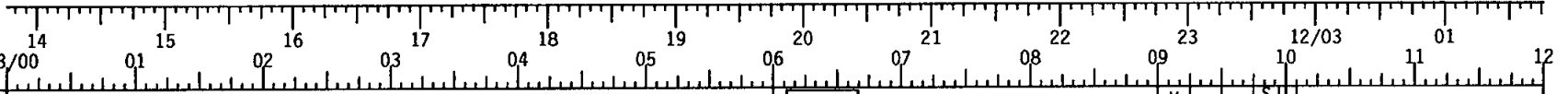


STS	FD13		MEAL	PORTY RAD	TRK MNV R		MEPH MNV R	PSET TUVOP 4	CREW CONF	CREW PHOTO	POTR RAD	PMC	PRE SLEEP	AAND SRF	PRE SLEEP	SLEEP
				VTR SETUP	PEP PLBK	SOL DTP SETUP	SOL DTP * SCAN	SOL DTP CLOSE OUT *	SOL STBY			SPT EMPC K	O C A D / L			
MGBX		PEP PROCESSING 3HR SAMPLE (SCN-3)				EXERCISE (4 sessions)										
CUE						BSTIC WATER	BSTIC POLL	PST GT F T U S	SPT A M T U S							
DAY/NIGHT																
ORBIT		201	202	203	204	205	206	207	208	209						
TDRS	E															
	W															
GSTDN		-BDA -MIL	-BDA -MIL	-BDA -MIL	-BDA -MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -BDA -HAW-MIL	-HAW						
ATT		BIAS -XLV, +ZVV			BIAS -YLV, +ZVV			BIAS -XLV, +ZVV							BIAS -ZLV, +XVV	
AADF					SOLN DIFFUSION									*FL STBL*	*F2b PROCESSING*	
MEPHISTO		11E-FZ						F-11F-FZ								
ChEX								SCIENCE OF OPP								
IDGE			H				H					H			H	
LHP																
NaSBE																
EXERCISE					OK			DI							OK	
					BIAS -YLV, +ZVV			BIAS -XLV, +ZVV							BIAS -ZLV, +XVV	
NOTES																

BETA -28.0

CT Date 12/02/97

MET Day 013

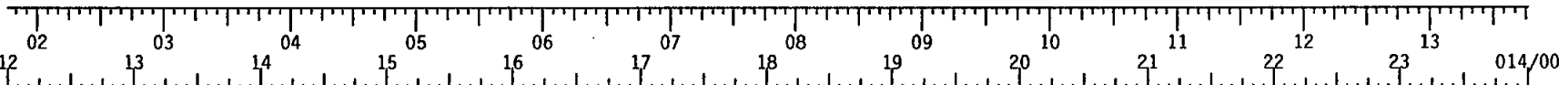


STS	SLEEP					FD14		POST SLEEP		VTR SETUP	802 PLBK	WCMPACT	SPTMPCK	
						O C A D / L				P/TV04 S/U RECORD				
MGBX										PEP ABV PWRUP		PEP PROCESSING		
												2HR SAMPLE (BI-2)		
CUE										SOYMET GAS		BPAC POLLIN		
												BSTIC POLLIN		
DAY/NIGHT														
ORBIT														
TDRS														
GSTDN														
ATT	BIAS -ZLV, +XVV													
AADF	*F2B PROCESSING*													
MEPHISTO	SCIENCE OF OPP													
CHeX														
IDGE														
LHP														
NaSBE	PHASE V													
EXERCISE														
NOTES											*APU HTR RECONFIG		*PGF S*	
											USMP DSO 802		CANISTERS 3-6	

BETA -26.2

CT Date 12/03/97

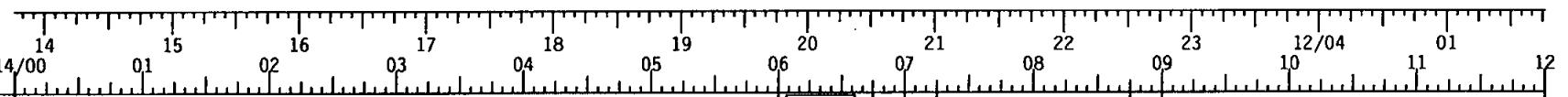
MET Day 013



STS	FD14	POP RTY R A D	MEAL	TRK M N V R		P S E T T U P V O P 4	P A O E V E N T	Z L V M N V R	F U T M N V R	P M C	O C A D / L	PRE SLEEP	SLEEP	
		S O L S T O C K	H R I U	F E E D O U T	S O L D T P S E T U P	S O L S E L I M B V I E W	S O L D T P C L O S E O U T	S O L S E L I M B V I E W	S O L D T P C L O S E O U T	S O L S T O C K	S P O T T E M P A C K	S I M O I N I T	W A U S M T P O R	S I M O T E R M
MGBX	PEP PROCESSING				PEP PROCESSING					PEP STOW				
	2HR SAMPLE				3 HR SAMPLE (SCN-4)									
CUE	⊕			S S P T A T U S										
DAY/NIGHT														
ORBIT	217	218	219	220	221	222	223	224	225					
TDRS														
GSTDN		-BDA -MIL	-BDA -MIL	-GDS -ACN -BDA -MIL	-GDS -ACN -BDA -HAW-MIL	-GDS -ACN -HAW -MIL	-GDS -ACN -HAW	-HAW						
ATT	BIAS -ZLV, +XVV			BIAS -YLV, +ZVV			-ZLV, -XVV						BIAS -ZLV, +XVV	
AADF		TRANS F2				SOLN DIFFUSION							*FL STBL*	
MEPHISTO														
CHeX						SCIENCE OF OPP								
IDGE			H			H					H		H	
LHP														
NaSBE						PHASE V								
EXERCISE	⊕PGF STATUS	OK									OK			
NOTES			BIAS -YLV, +ZVV										⊕FUT LOADED BIAS -ZLV, +XVV	

BETA -24.0

CT Date 12/03/97
 MET Day 014

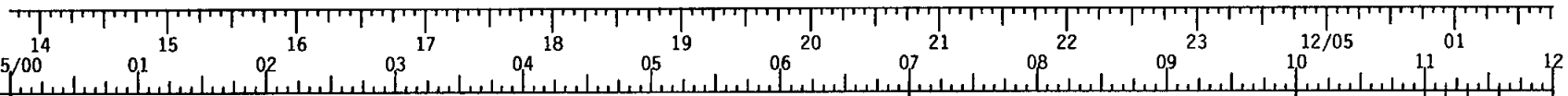


STS	SLEEP					FD15 POST SLEEP	-ZLV FUT MNV R	POST SLEEP	PCINFI G	EXERCISE (5 sessions) @				
								STTB DRA D	O C A D / L	S P T E M P C K	FILTER CLEANING	S P L Y I N I T	S P L Y T E R M	
MGBX									MGBX SHTDWN					
CUE									SOYMET GAS Φ	S # 6 / P F I R D N	BPAC POLLIN			
DAY/NIGHT	[Bar chart showing day/night cycle]													
ORBIT	225	226	227	228	229	230	231	232	233					
TDRS	[Bar chart showing TDRS activity]													
GSTDN	-HAW --HAW -ACN -ACN -ACN -BDA -MIL													
ATT	BIAS -ZLV, +XVV						-ZLV, -XVV							
AADSF	*F2c PROCESSING*						FURN COOL			STOW F2				
MEPHISTO														
CHeX	SCIENCE OF OPP													
IDGE	[Bar chart showing IDGE activity]													
LHP														
NaSBE	PHASE V													
EXERCISE									-ZLV, -XVV					OK
NOTES											Φ CANISTERS 3-6 @DESIRE TV D/L-PCIS			

BETA -20.0

CT Date 12/04/97

MET Day 015



STS	SLEEP (9:00)	FD16	POST SLEEP	SEAT INST A/L C/O	F P V I C H	- X S I M N V R	D E O R B I T
					PMC	W I R S W P	DSO 331
MGBX							
CUE							
DAY/NIGHT	[Bar chart showing day/night cycle]						
ORBIT	241	242	243	244	245	246	247 248 249
TDRS	[Bar chart showing TDRS events]						
GSTDN	[Bar chart showing GSTDN events]						
ATT	[Bar chart showing ATT events]						
AADF	[Bar chart showing AADF events]						
MEPHISTO	[Bar chart showing MEPHISTO events]						
CHeX	[Bar chart showing CHeX events]						
IDGE	[Bar chart showing IDGE events]						
LHP	[Bar chart showing LHP events]						
NaSBE	[Bar chart showing NaSBE events]						
EXERCISE	[Bar chart showing EXERCISE events]						
NOTES	[Bar chart showing NOTES events]						

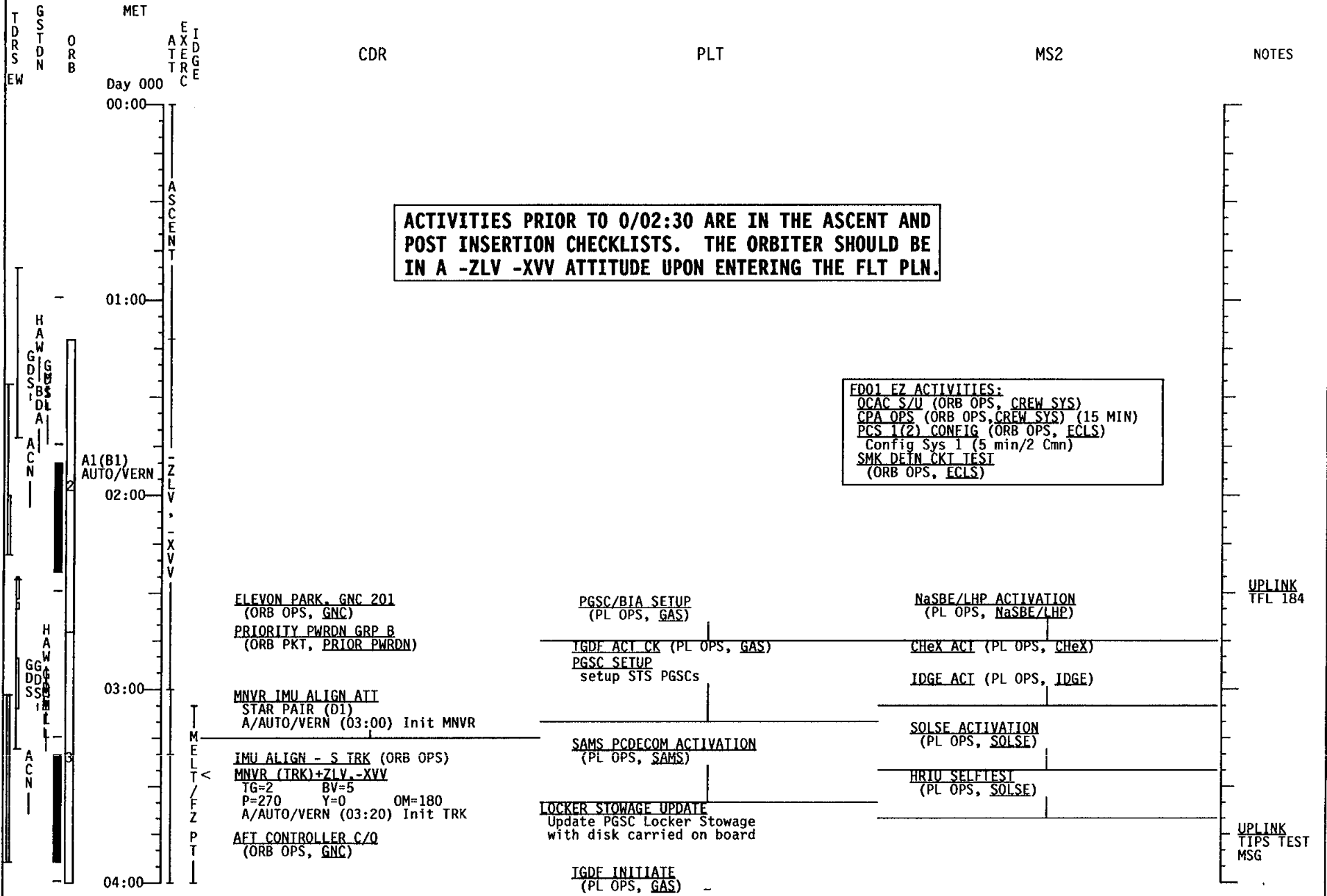
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DETAILED TIMELINE

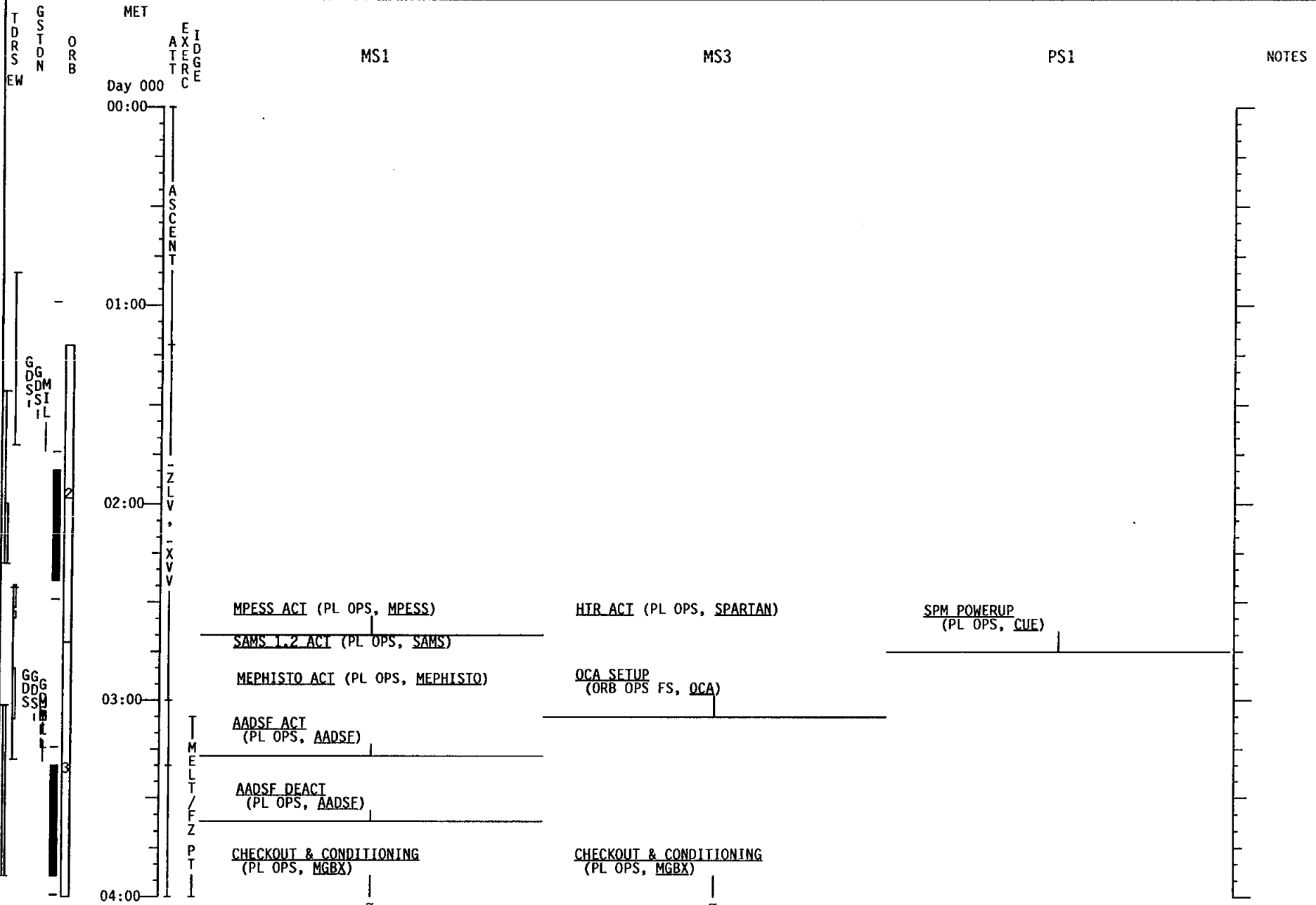
DETAILED
TIMELINE

DETAILED TIMELINE

STS-87 (FD01)



STS-87 (FD01)



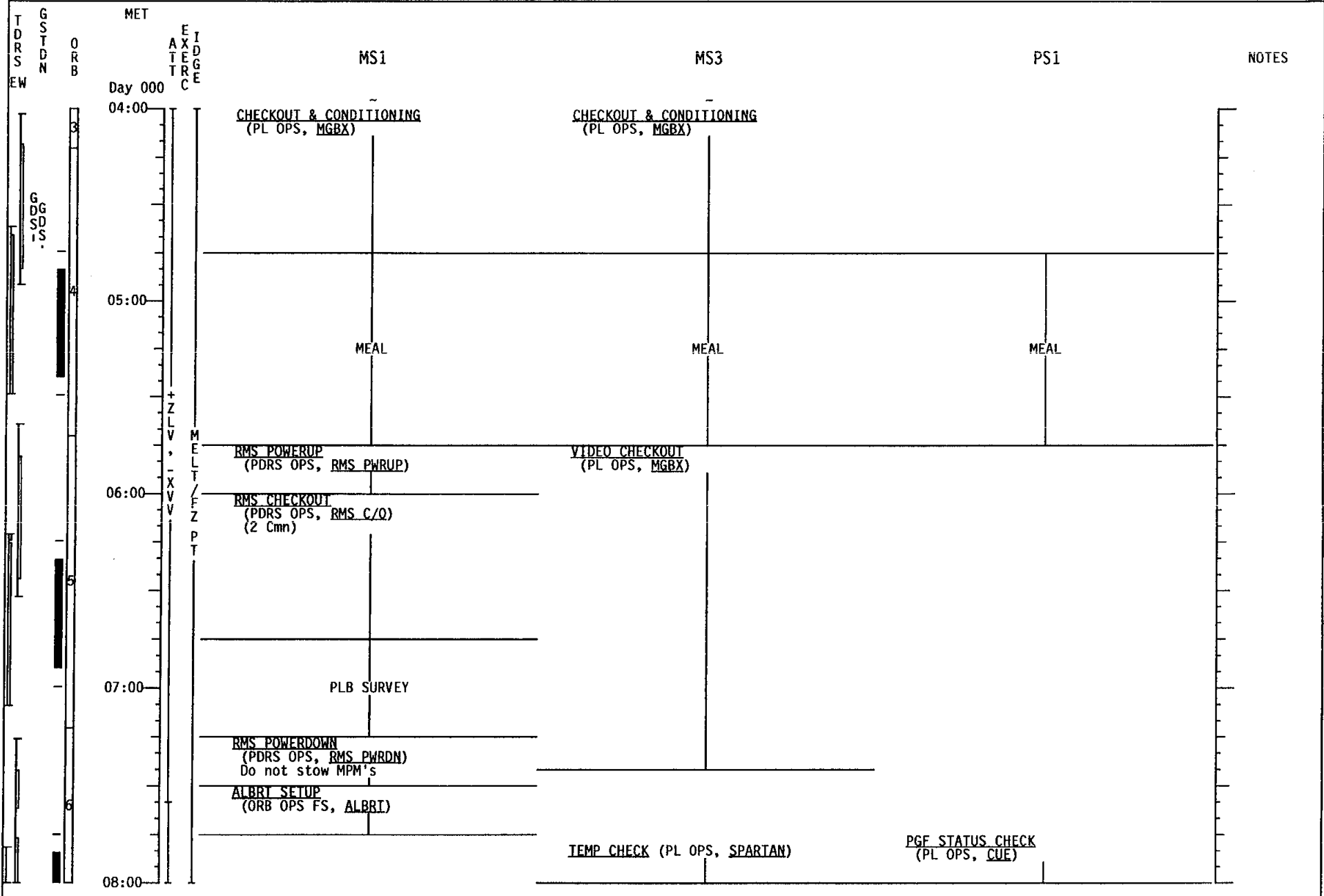
STS-87 (FD01)

TDRS	GSTDN	ORB	MET	CDR	PLT	MS2	NOTES
			Day 000 04:00	<u>SHUTTLE EMER EYEWASH (SEE)</u> Unstow, attach or near container(s) and attach near appropriate experiment location	L17 Check MCIU filter screen <u>IGDF INITIATE</u> (PL OPS, GAS)		
				<u>LOAD FLIGHT SPEC DAPS</u> (FLT PLAN, DAP TABLES)	A8L PORT RMS HTR (two)-AUTO <u>LOAD FLIGHT SPECIFIC DAPS</u> (FLT PLAN, DAP TABLES)	<u>G-036 ACTIVATION</u> (PL OPS, GAS)	
			05:00	MEAL	MEAL	MEAL	
			06:00	<u>EDD ACT</u> (ORB OPS, EPS)	<u>RMS CHECKOUT</u> (PDRS OPS, RMS C/O) (2 Cmn)	<u>G-036 DEACTIVATION</u> (PL OPS, GAS)	
				<u>APU STEAM VENT HTR DEACT</u> BLR PWR (three) - OFF			
				<u>VTR SETUP (PPOV)</u> (Cue Card, 8mm VTR)			
				<u>CREW CHOICE D/L (PPOV)</u> (CUE CARD, TV/VTR) KU avail. (06:35-06:50), TDRE			TV (TDRE) CREW CNTL-VTR
			07:00	<u>ON-ORBIT +X RCS BURN</u> (ORB OPS, RCS)	PLB SURVEY	<u>P/TV07 SETUP (IDGE)</u> (PHOTO/TV, P/TV SCENES)	
				< TRIM 1 (0/07:29)	<u>ON-ORBIT +X RCS BURN</u> (ORB OPS, RCS)		UPDATE ORBITAL MNVR PAD
				<u>MNVR (TRK) -ZLV, -XV</u> TG=2 BV=3 OM=0 A/AUTO/VERN Init TRK	<u>ERG/PCIS SETUP</u> (BIOMED, PCIS) W/RED ISOLATORS	<u>ERG/PCIS SETUP</u> (BIOMED, PCIS) W/RED ISOLATORS	
			08:00				

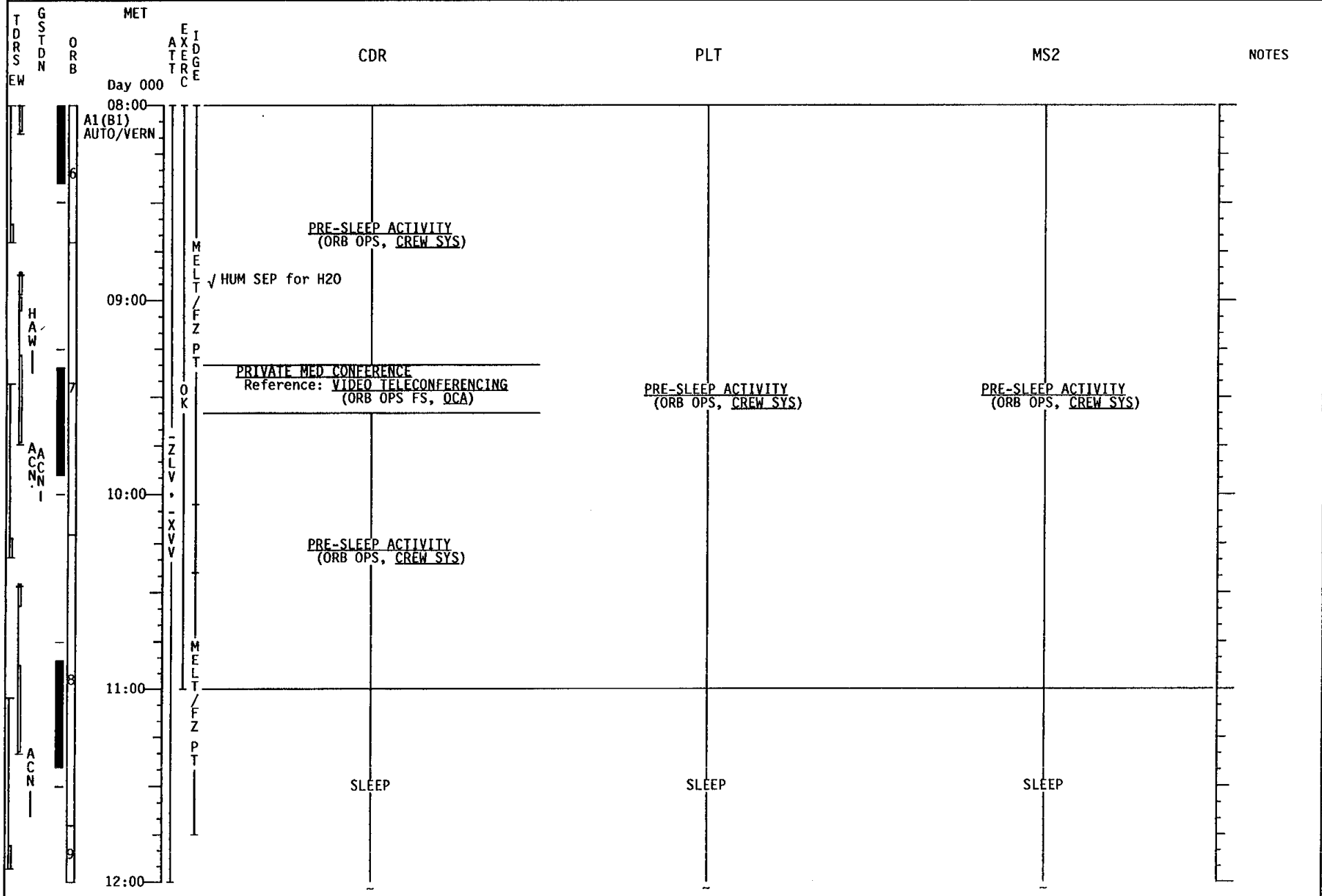
TDRS
 GSTDN
 ORB
 MET
 Day 000
 04:00
 A1(B1)
 AUTO/VERN
 HAW
 GDS
 ACN
 HAW
 HAW
 HAW
 08:00

EIDEGE
 AXTEGC
 MELT/FZPT
 +ZLV
 -XV

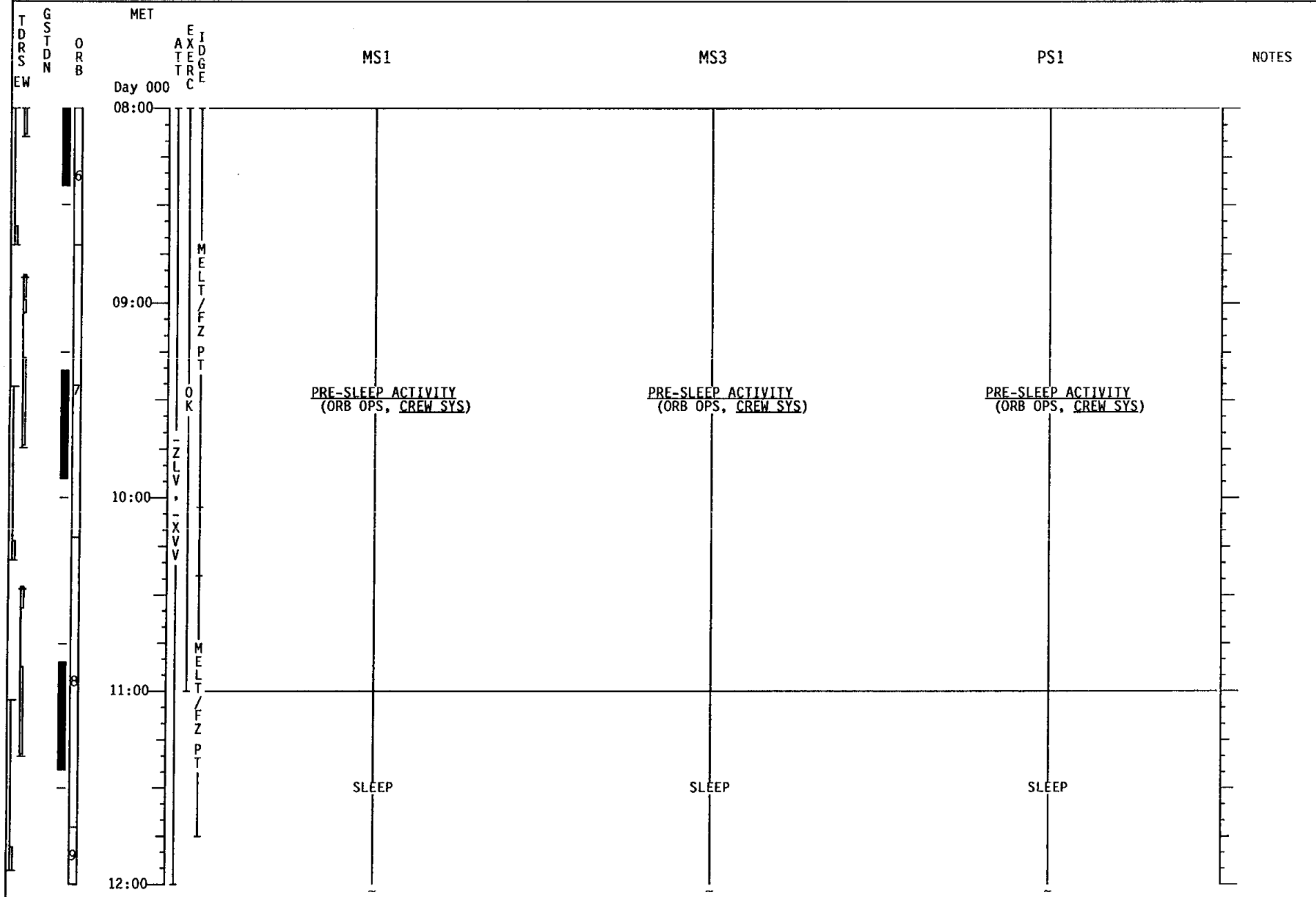
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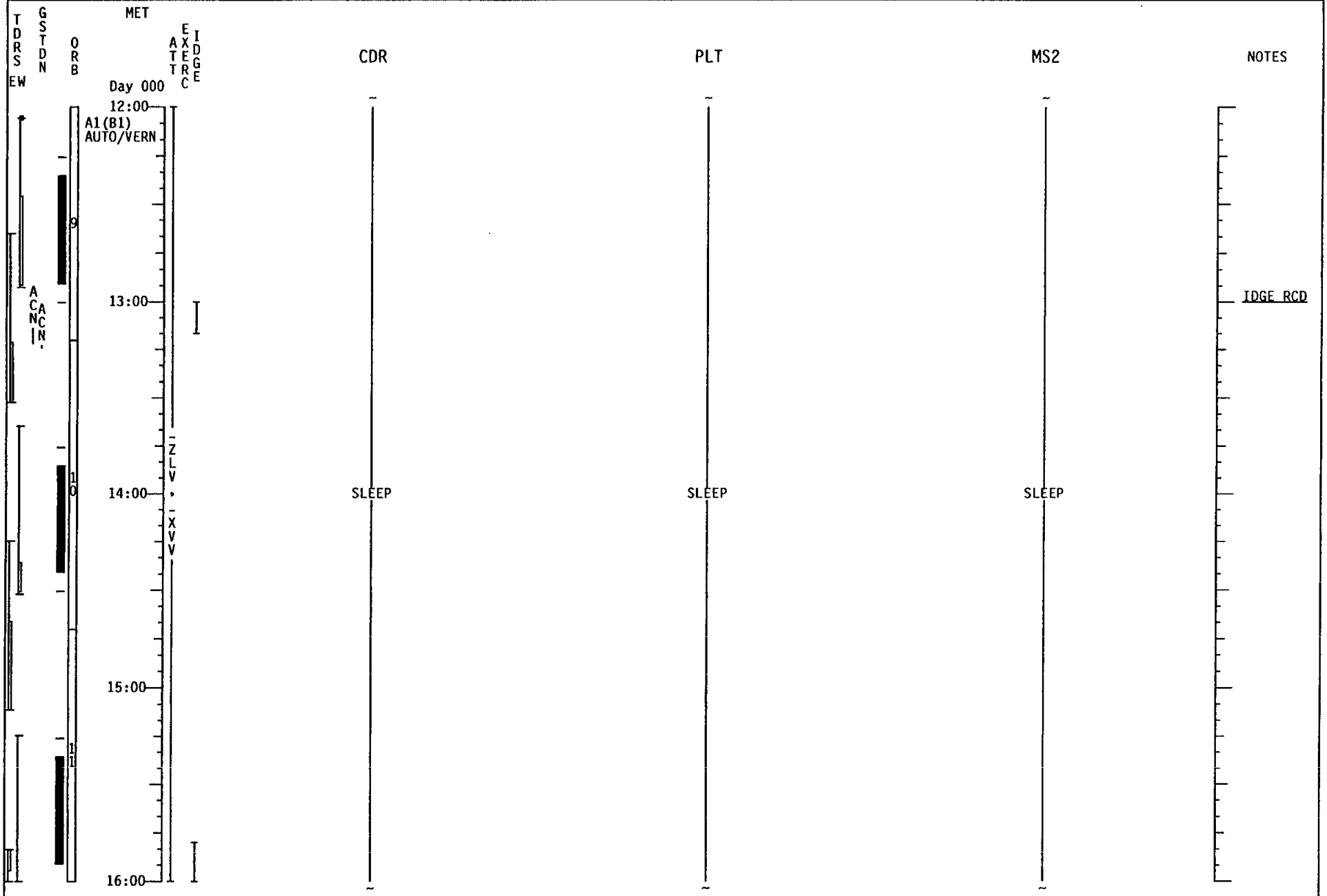
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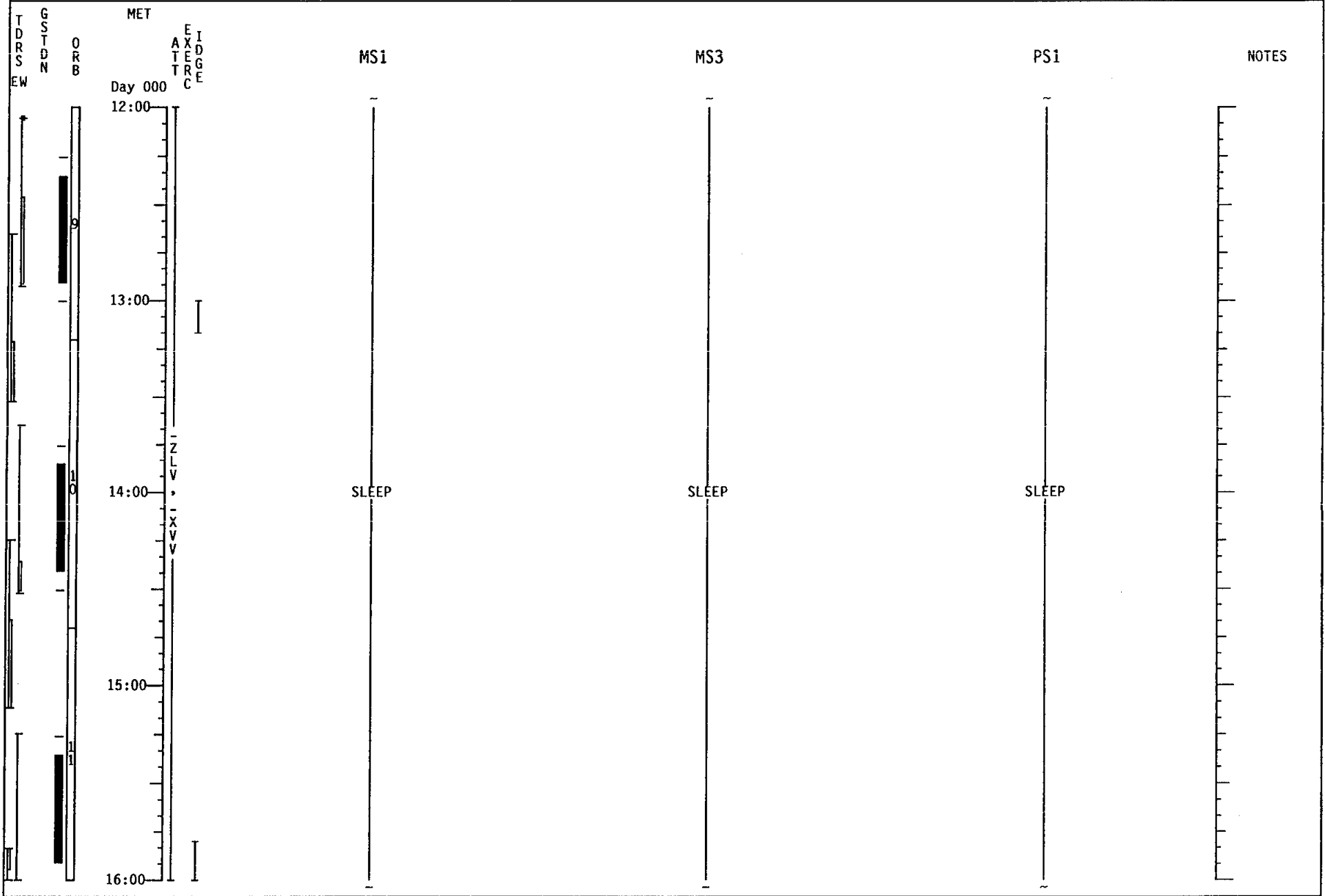
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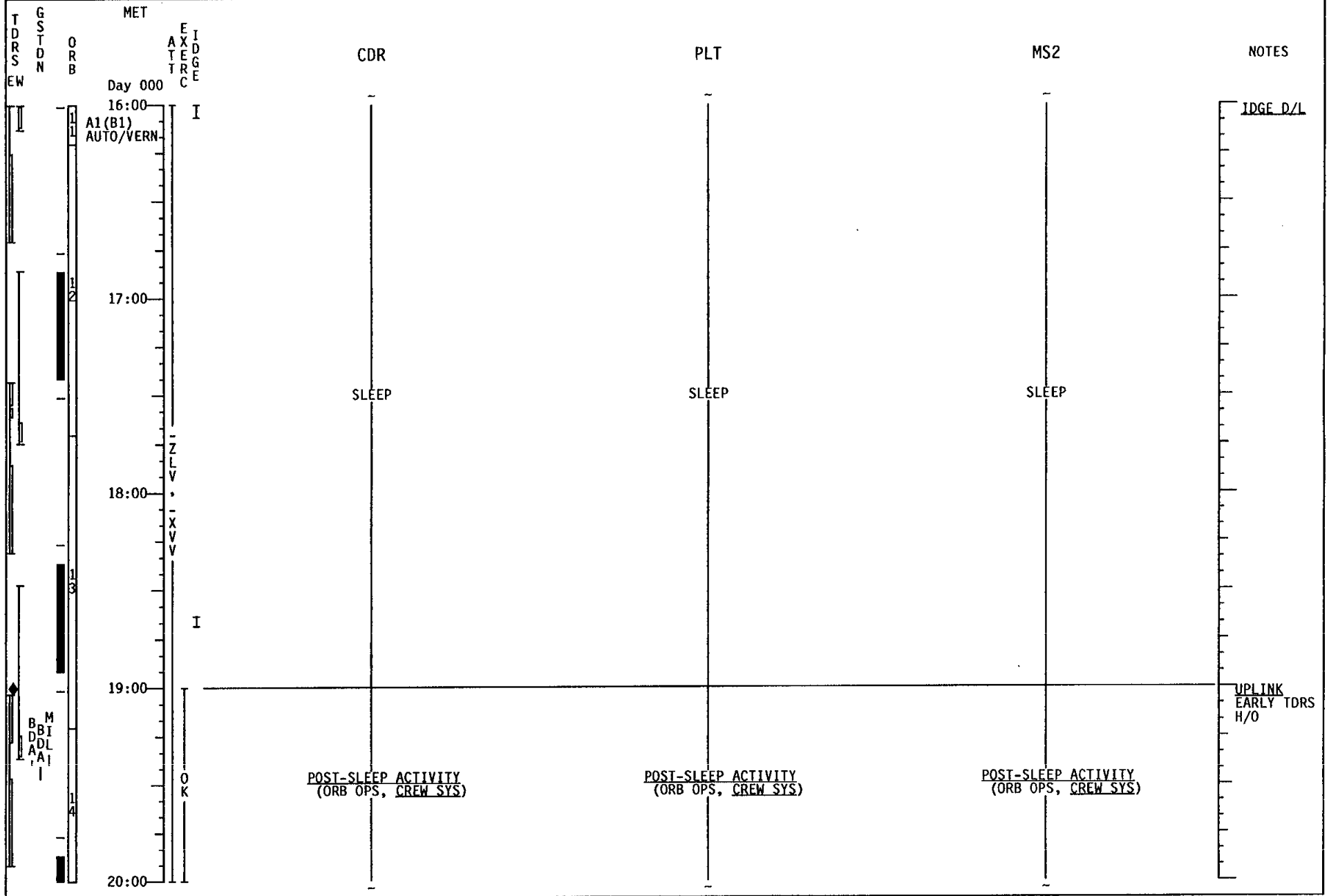
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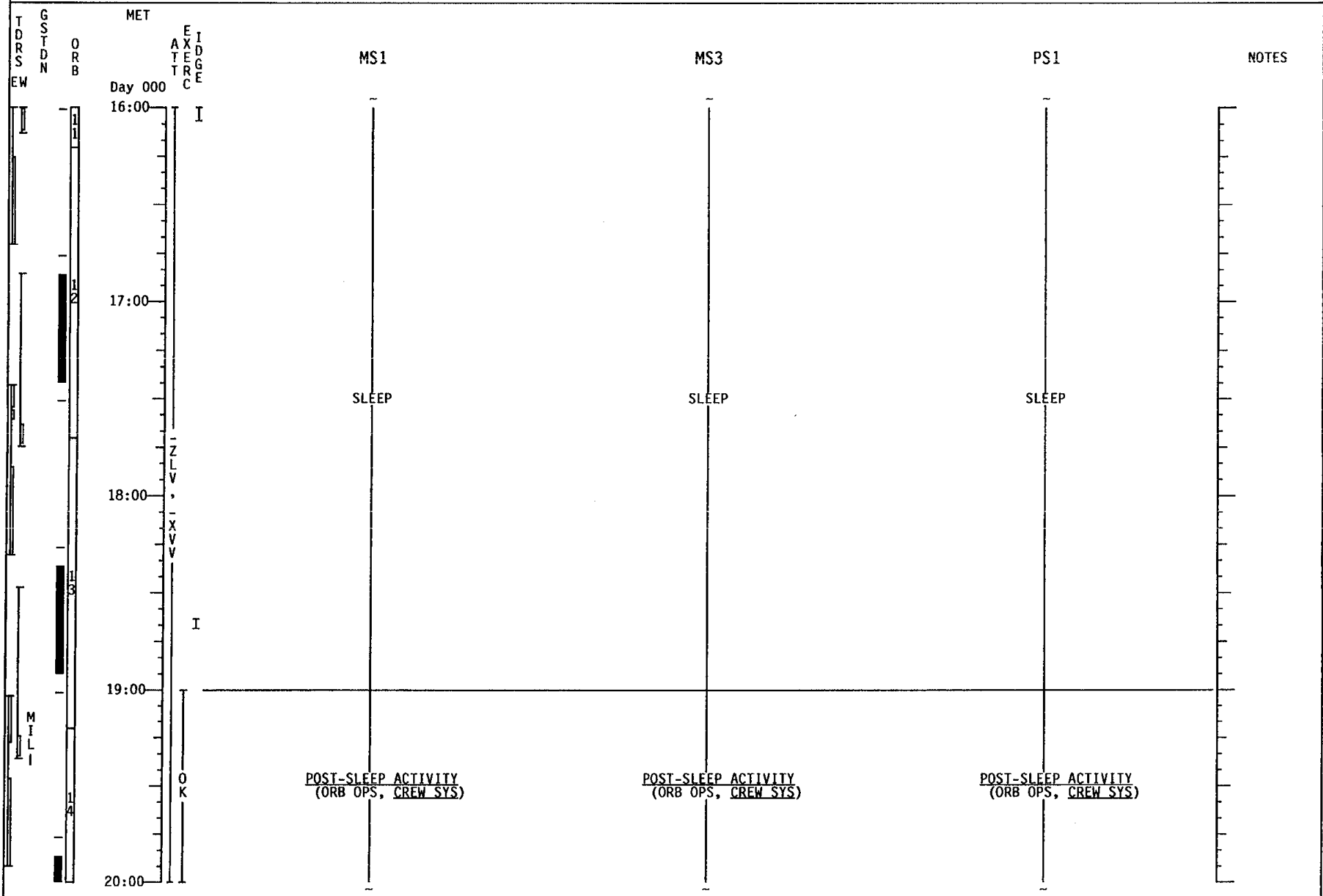
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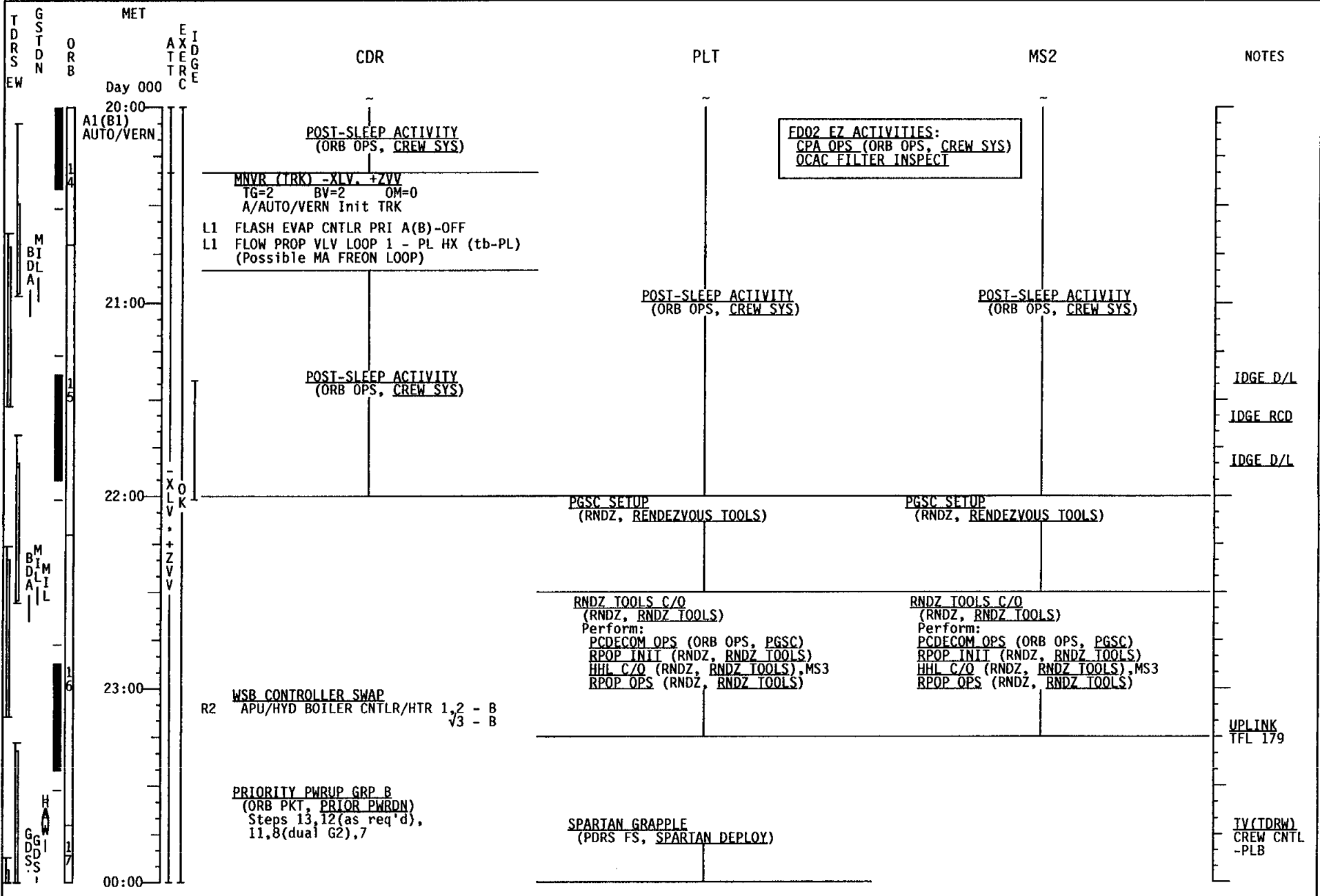
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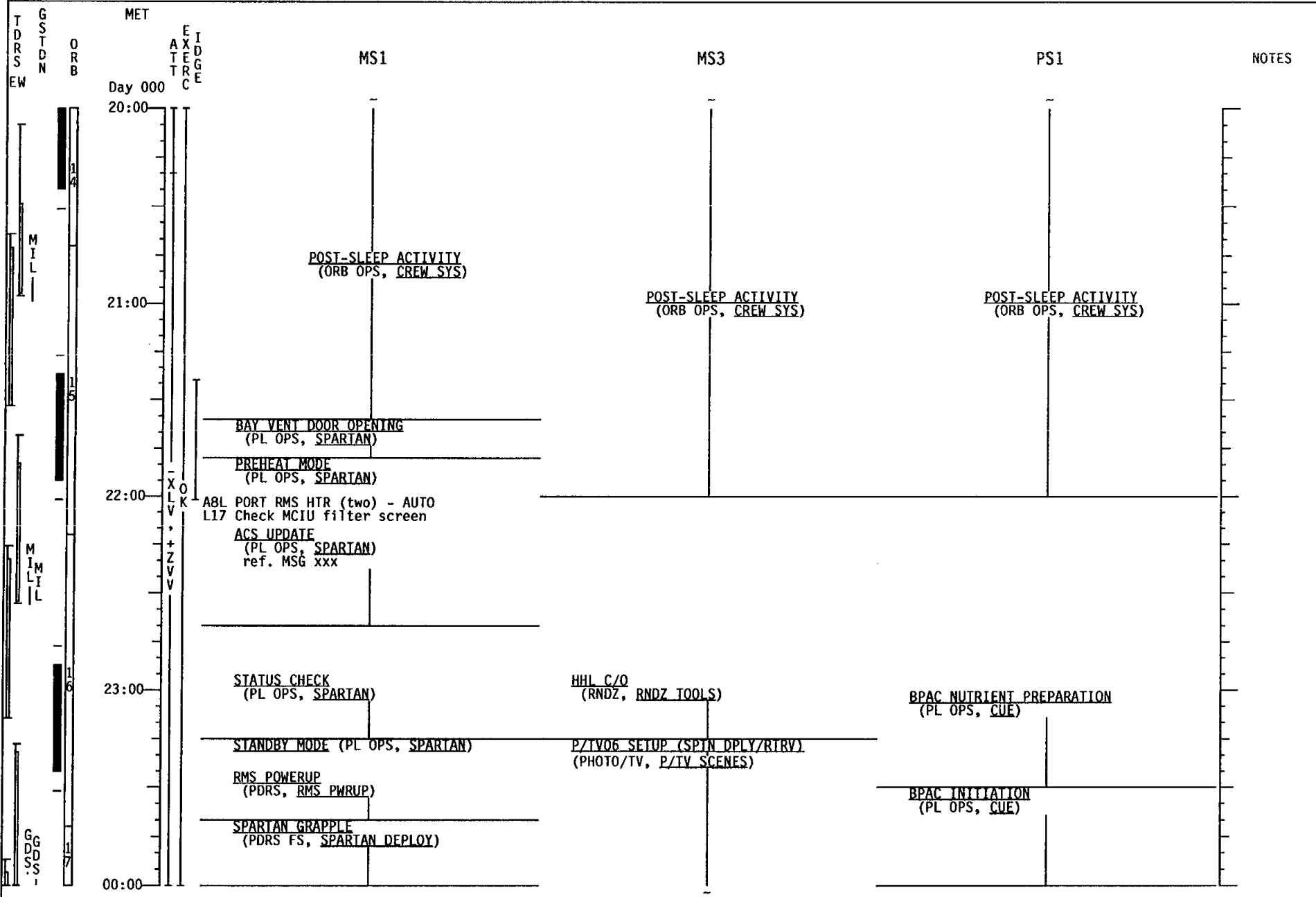
STS-87 (FD02)



STS-87 (FD02)



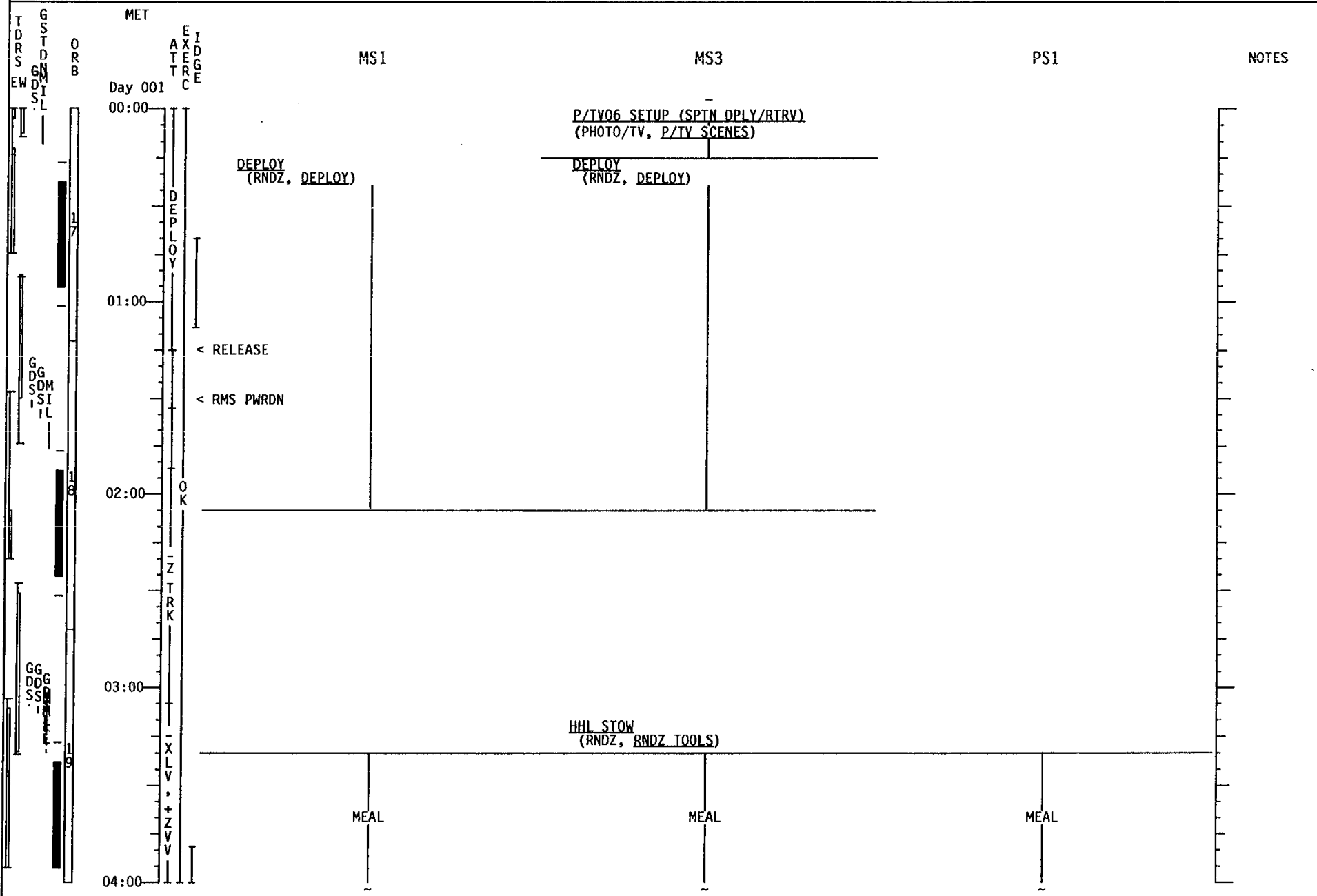
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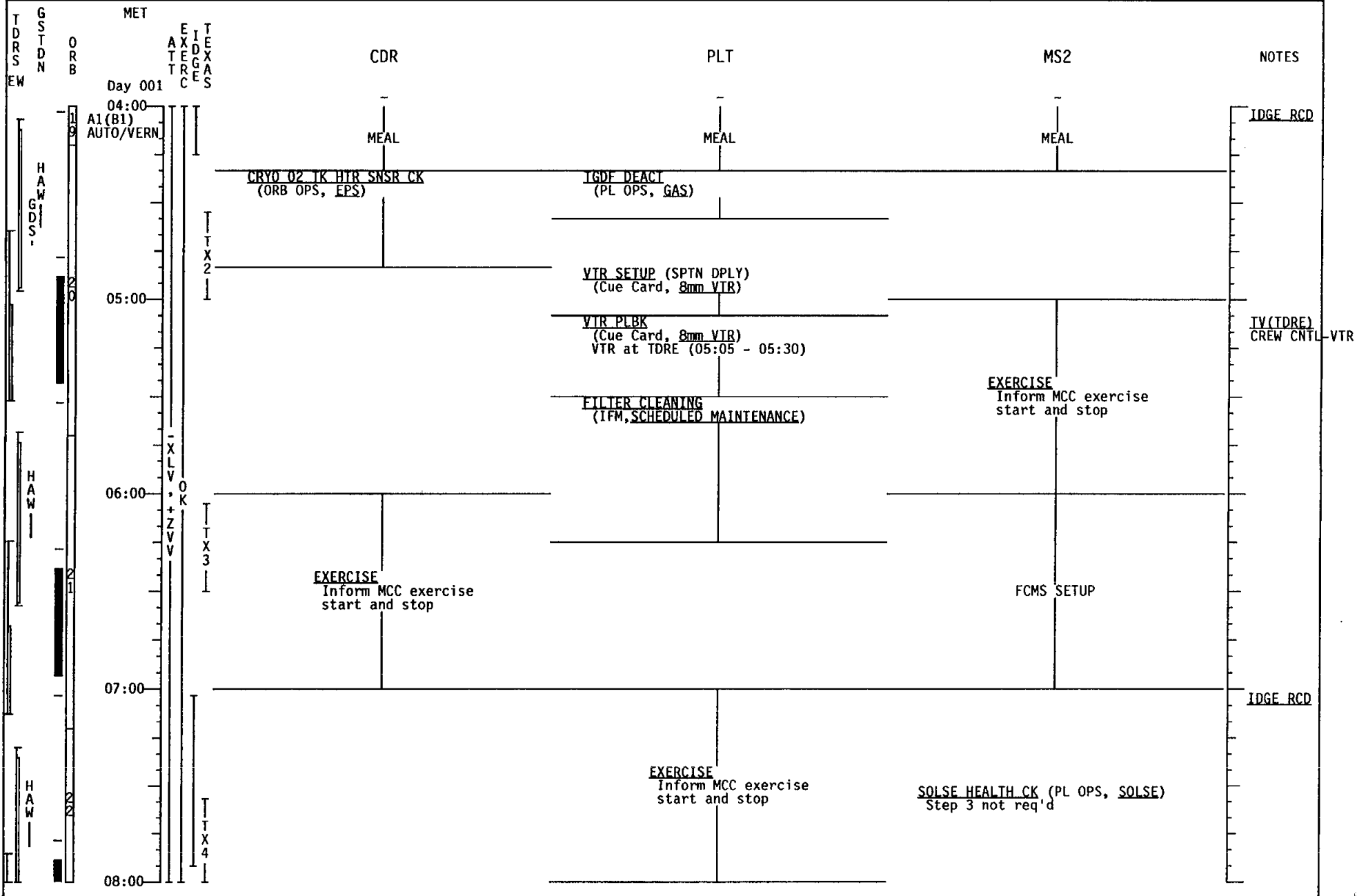
STS-87 (FD02)

TDRS	GSTDN	ORBIT	MET	CDR	PLT	MS2	NOTES
EW	BDI BSL	17	Day 001 00:00 A1(B1) AUTO/VERN	MNVR DPLY ATT R=304.04 P=201.79 Y=318.96 A/AUTO/VERN (1/00:00) Init MNVR DEPLOY (RNDZ, DEPLOY)	DEPLOY (RNDZ, DEPLOY)	VGS ACTIVATION (PL OPS, SPARTAN) DEPLOY (RNDZ, DEPLOY)	MCC UPLINK B 21 °+MASH AZ/EL BOX 0<AZ<100 -75<EL<-20 (Unberth)
			01:00	< RELEASE < SEP 1 < KU TO RADAR < SEP 2 (01:51) < MNVR TGT TRK OM=0 (01:55)			IDGE D/L IDGE RCD IDGE D/L MCC UPLINK B 0 ° ONLY (RELEASE)
	HAW GDS BDBL ADIA	18	02:00	OK CONFIGURE KU FOR COMM, (CUE CARD, KU OPS) Step4 ALL S-BD PL PWR SEL-BOTH CNTL-PNL, CMD	TOPPING FES STARTUP (ORB OPS, ECLS) FC PURGE - MANUAL (ORB OPS, EPS) ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS)	VGS DATA PREP Transfer VGS data to OCA PGSC	MCC UPLINK B 21 °+MASH TFL 184
			A1(B1)	HC CONFIG DAP A,B to A1,B1 ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS)			IDGE D/L IDGE RCD IDGE D/L
	HAW GDS BDBL SS	19	(A1)B1 03:00 A1(B1) AUTO/VERN	< NC1 (03:02) MNVR (TRK) -XLV, +ZVV TG=2 BV=2 OM=0 A/AUTO/VERN Init TRK	PRIORITY PWRDN GRP B (ORB PKT, PRIOR PWRDN)		
			04:00	TXL MEAL	MEAL	MEAL	IDGE RCD

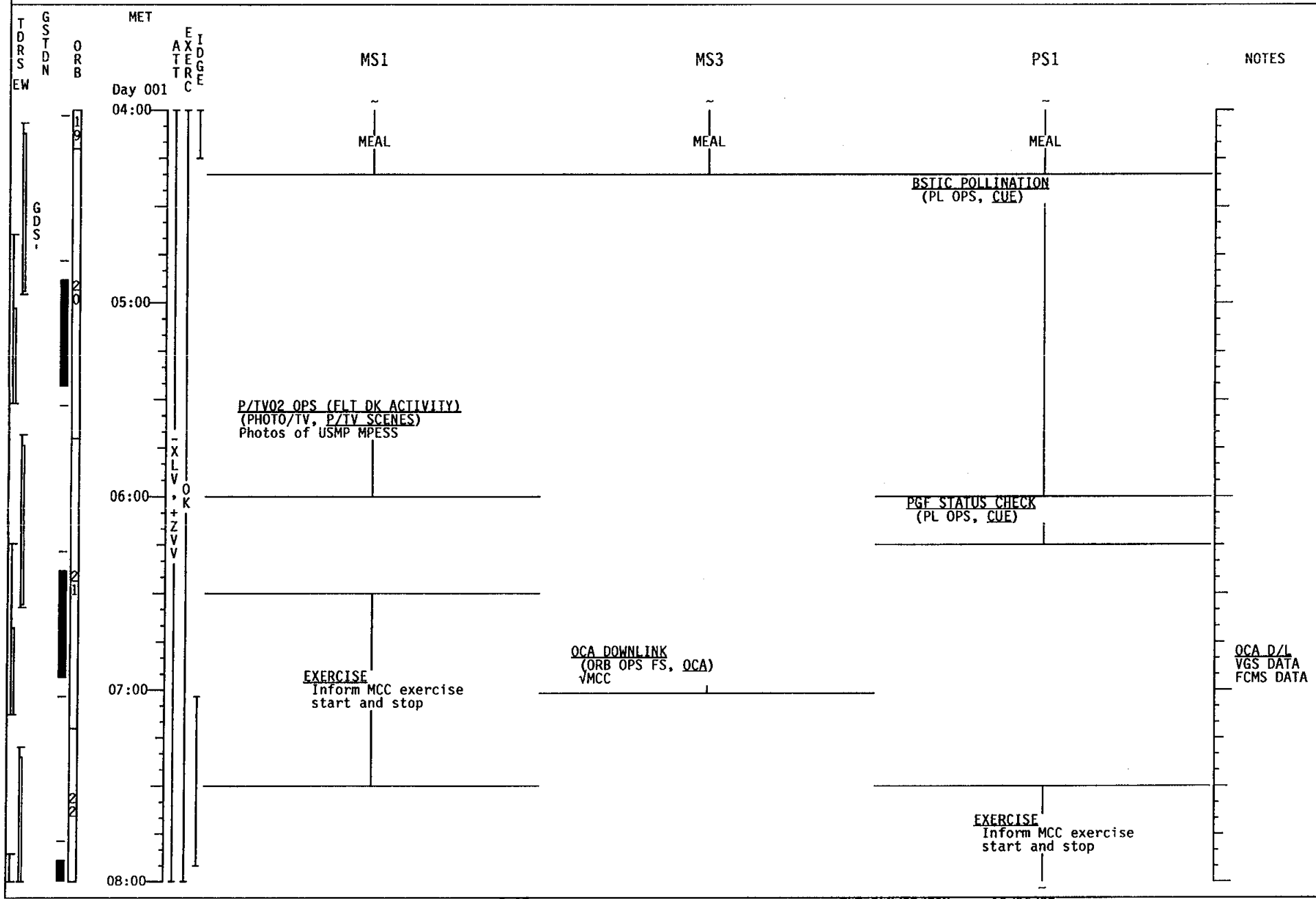
STS-87 (FD02)



STS-87 (FD02)



STS-87 (FD02)



STS-87 (FD02)

	MET	CDR	PLT	MS2	NOTES
TDRS GSTDN OR B EW	Day 001 08:00 A1(B1) AUTO/VERN 09:00 09:00 10:00 10:00 11:00 11:00 12:00	AX TE TR C E I D X G A S T R E S ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS) PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) MNVR (TRK) -ZLV, -XVV TG=2 BV=3 OM=0 A/AUTO/VERN Init TRK FUTURE LOADED MNVR (TRK)-ZLV,+YVV TG=2 BV=3 OM=270 A/AUTO/VERN (1/20:00) Init TRK 06 √UHF MODE - OFF PRIVATE MEDICAL CONF (ALL) PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	VTR SETUP (VGS) (Cue Card, 8mm VTR) VTR PLBK (Cue Card, 8mm VTR) VTR at TDRE (08:20 - 08:40) ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS) PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) √HUM SEP for H20 OCA DOWNLINK (ORB OPS FS, OCA) √MCC PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	TV(TDRE) CREW CNTL-VTR OCA D/L PGF DATA FAM MAIL SPTN C/O IDGE RCD

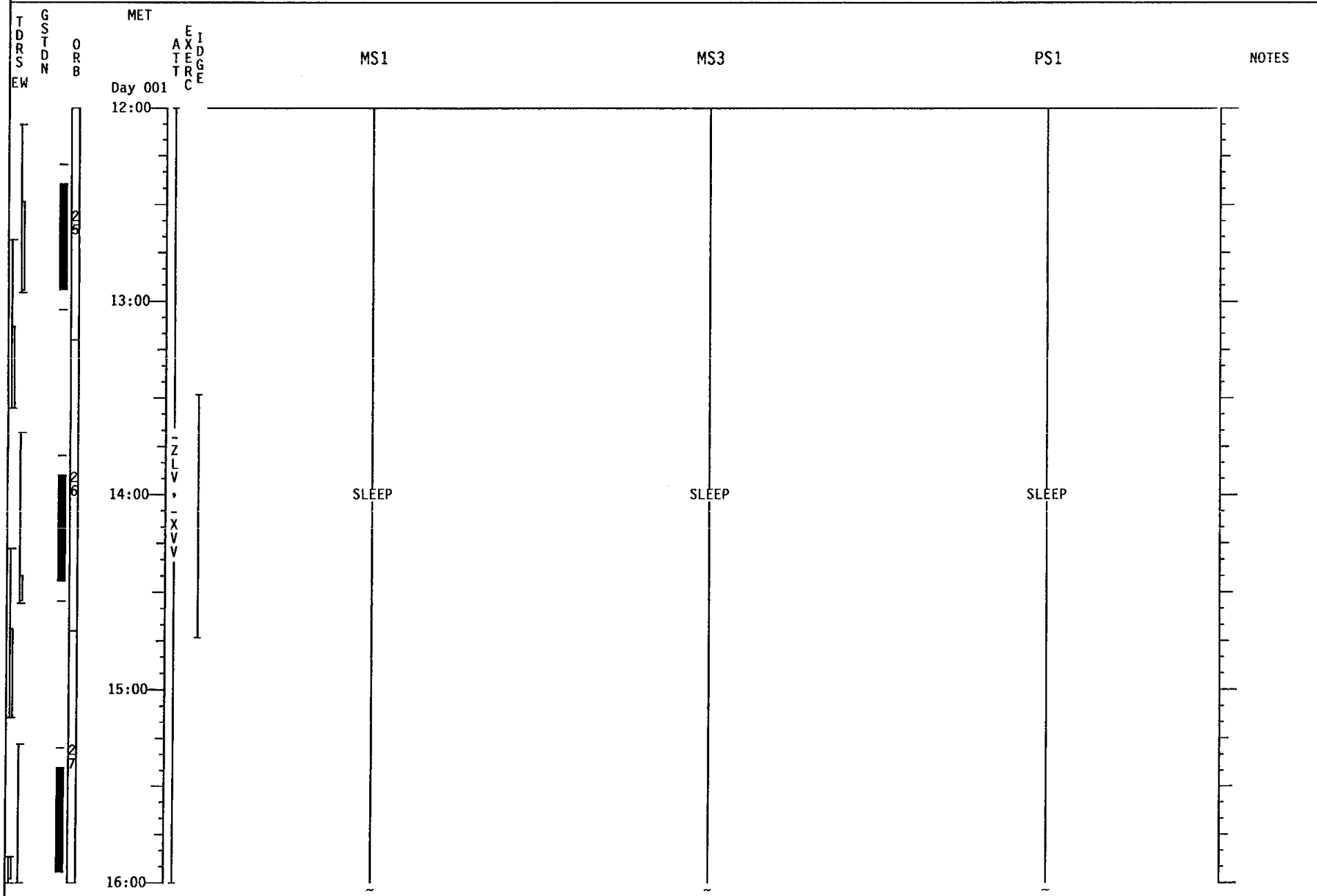
STS-87 (FD02)

	MET	MS1	MS3	PS1	NOTES
<p style="text-align: center;">TDRS GSTDN EW</p> <p style="text-align: center;">ORB</p> <p style="text-align: center;">EIDGGE AXTRC</p>	<p>Day 001</p> <p>08:00</p> <p>09:00</p> <p>10:00</p> <p>11:00</p> <p>12:00</p>	<p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>EXERCISE Inform MCC exercise start and stop</p> <p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	<p>EXERCISE Inform MCC exercise start and stop</p> <p>SPM STATUS CHECK (PL OPS, CUE)</p> <p>PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)</p>	

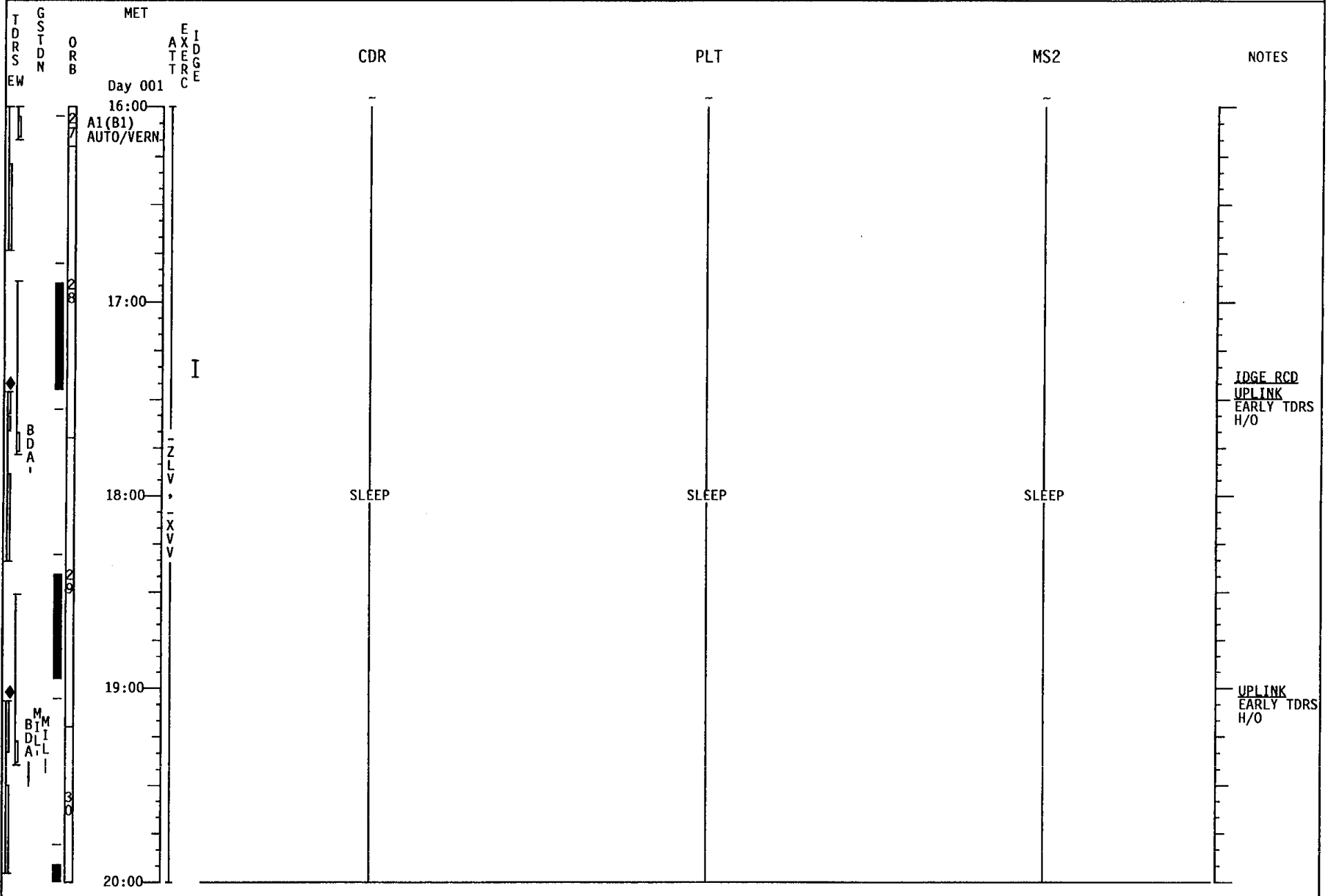
STS-87 (FD02)

TDRS EW	GSTDN ORB	MET Day 001 12:00 A1(B1) AUTO/VERN	EIDEGRE AXTRC	CDR	PLT	MS2	NOTES
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">ACANCIN</div> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S7</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S7</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">ZLV</div> <div style="margin-bottom: 10px;">XVV</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S6</div> <div style="margin-bottom: 10px;">S7</div> </div>	SLEEP	SLEEP	SLEEP	<u>IDGE RCD</u>

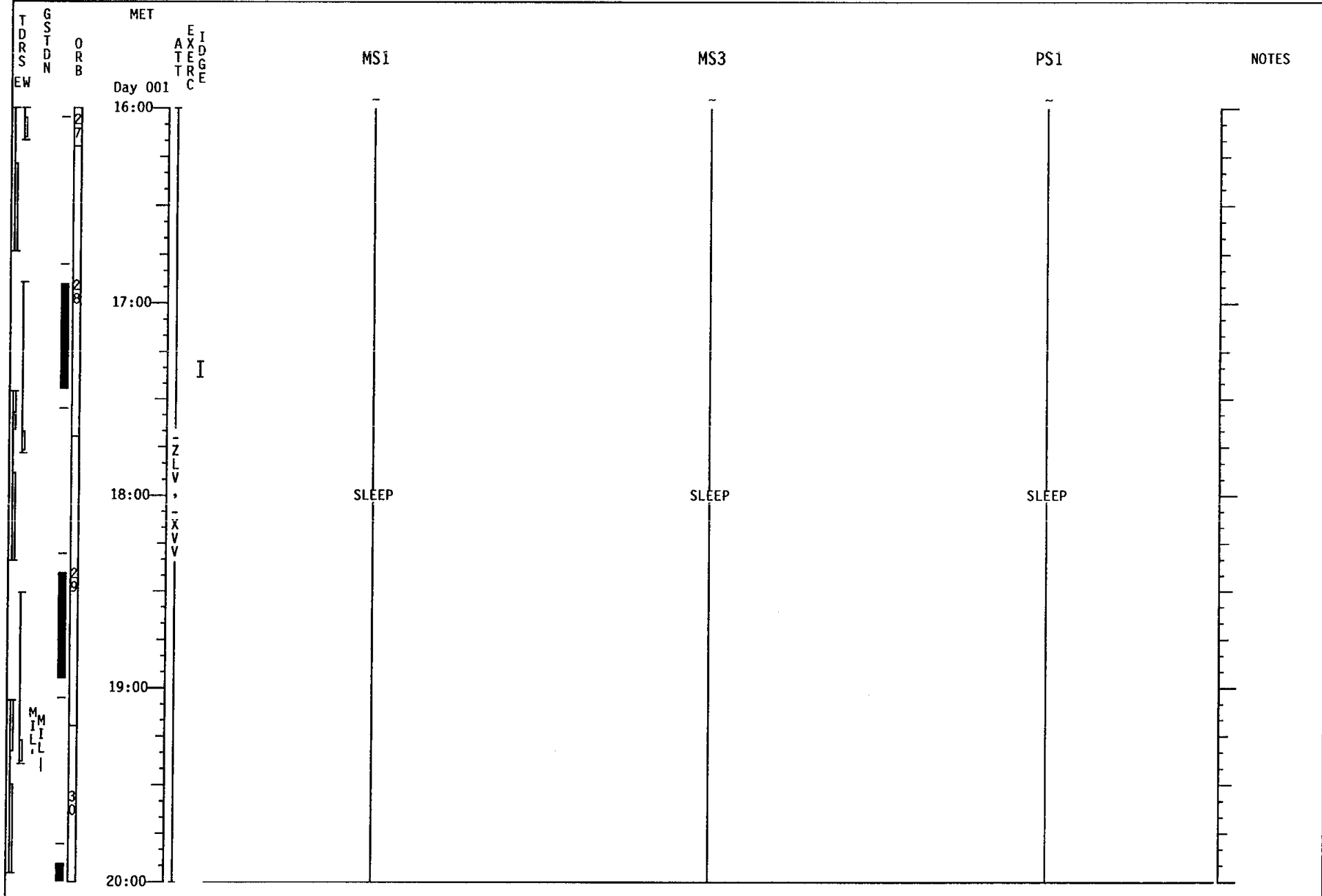
STS-87 (FD02)



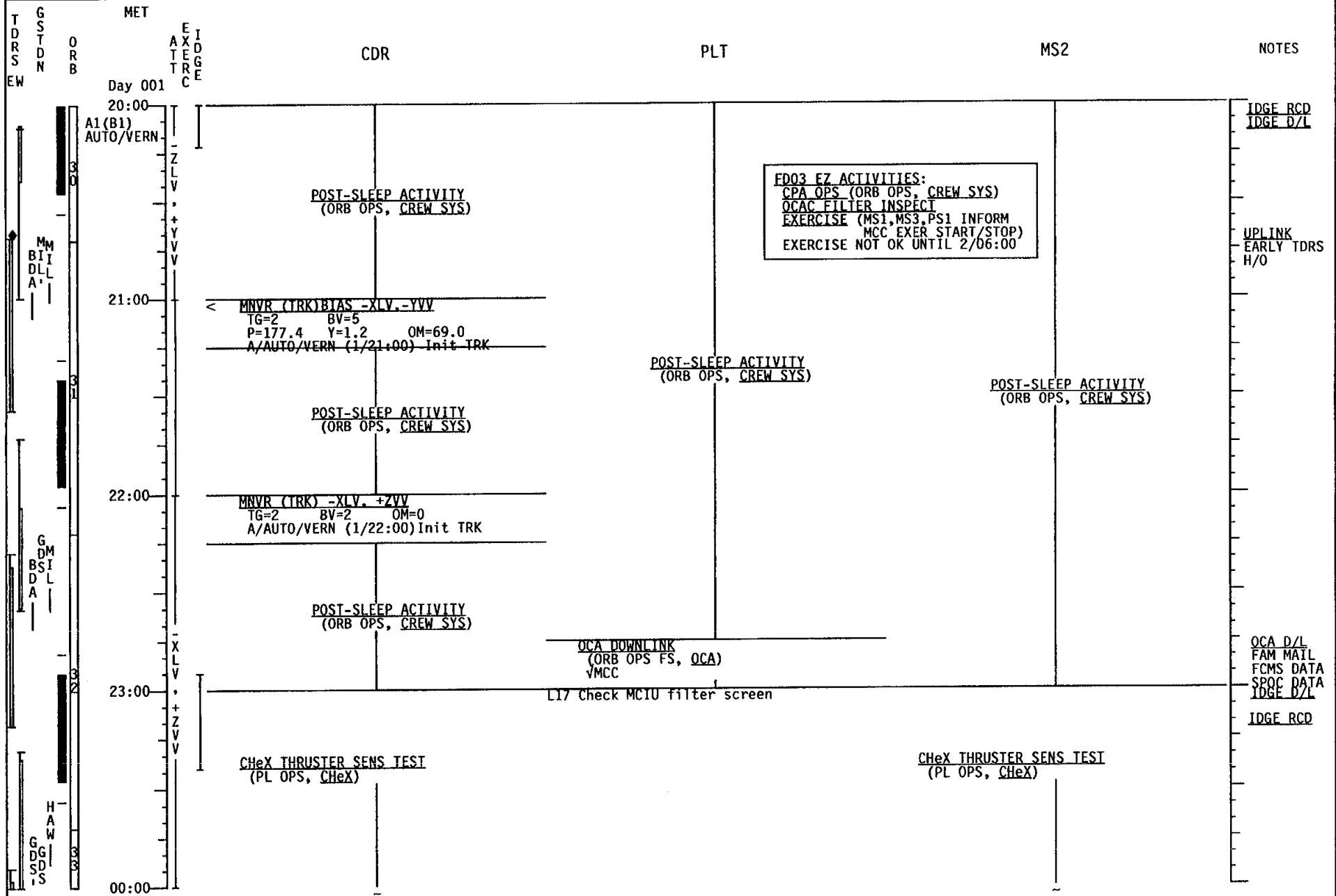
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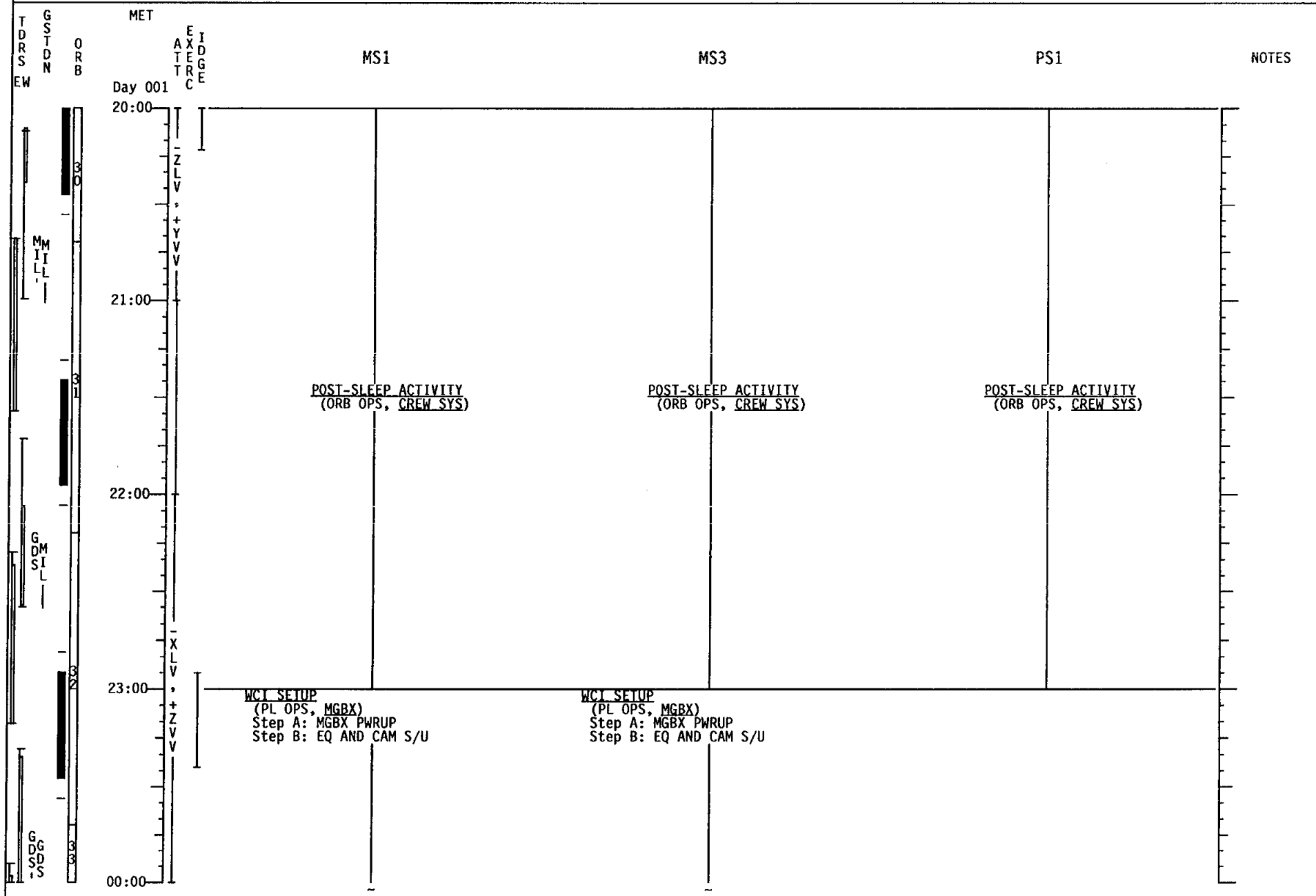
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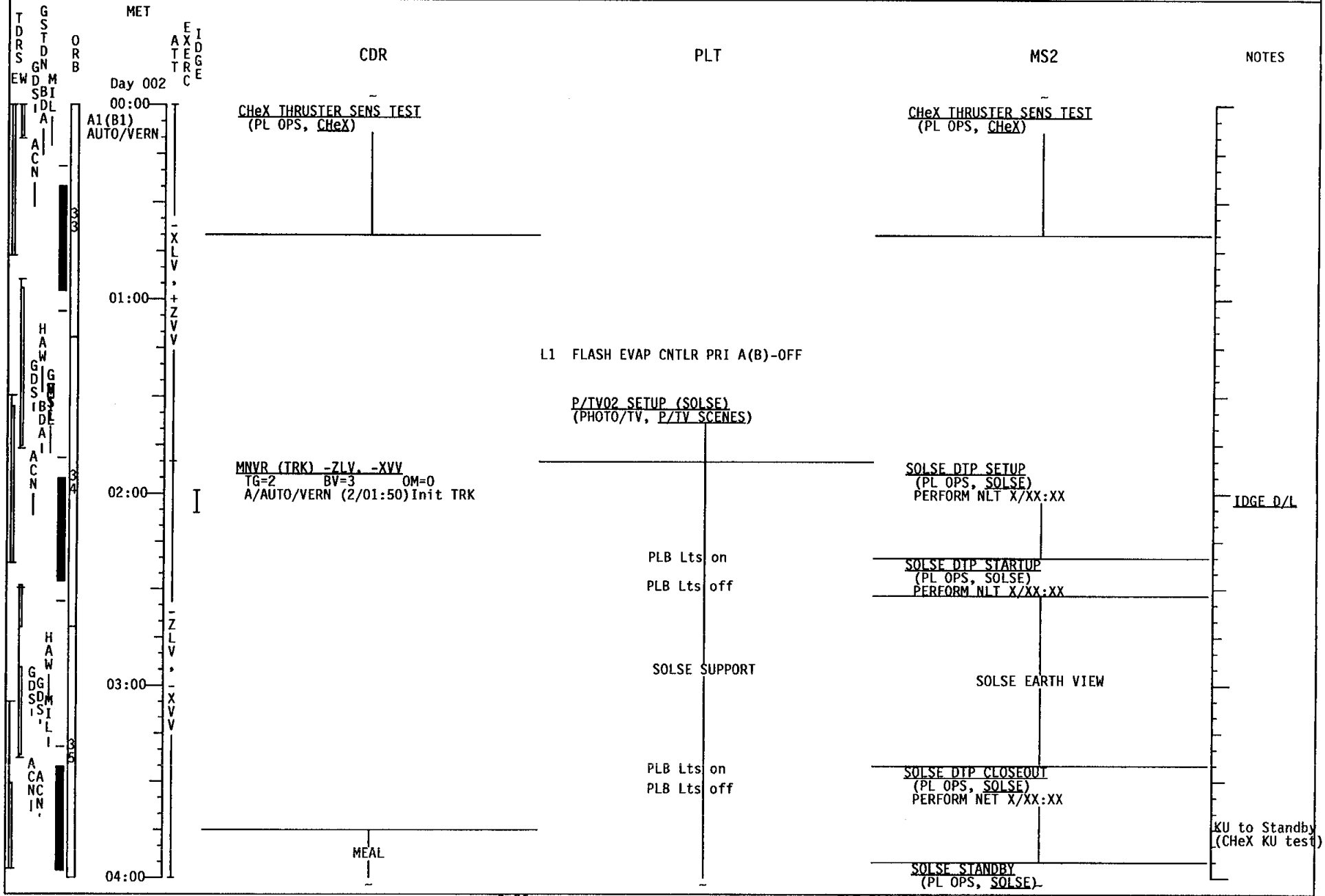
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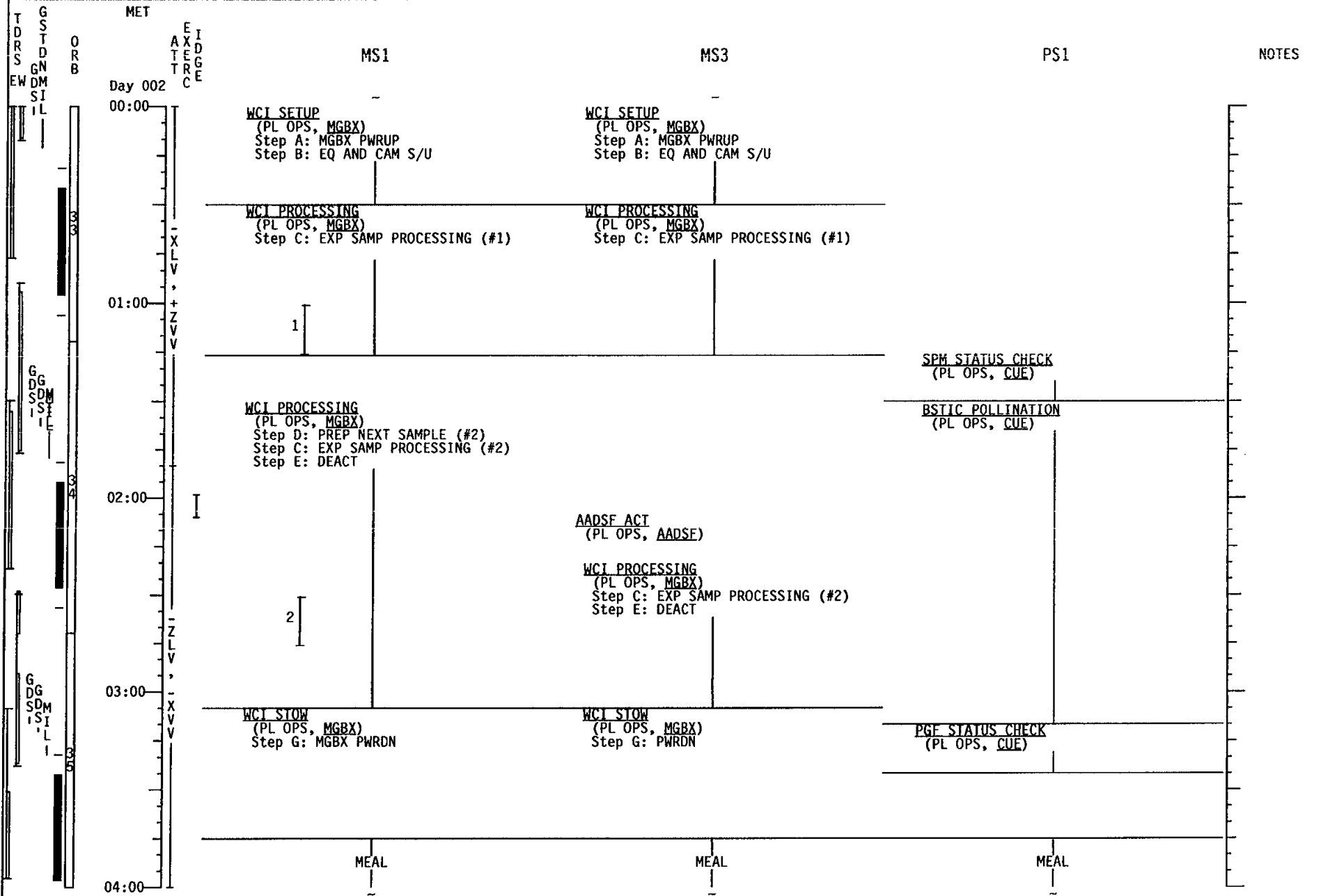
STS-87 (FD03)



STS-87 (FD03)



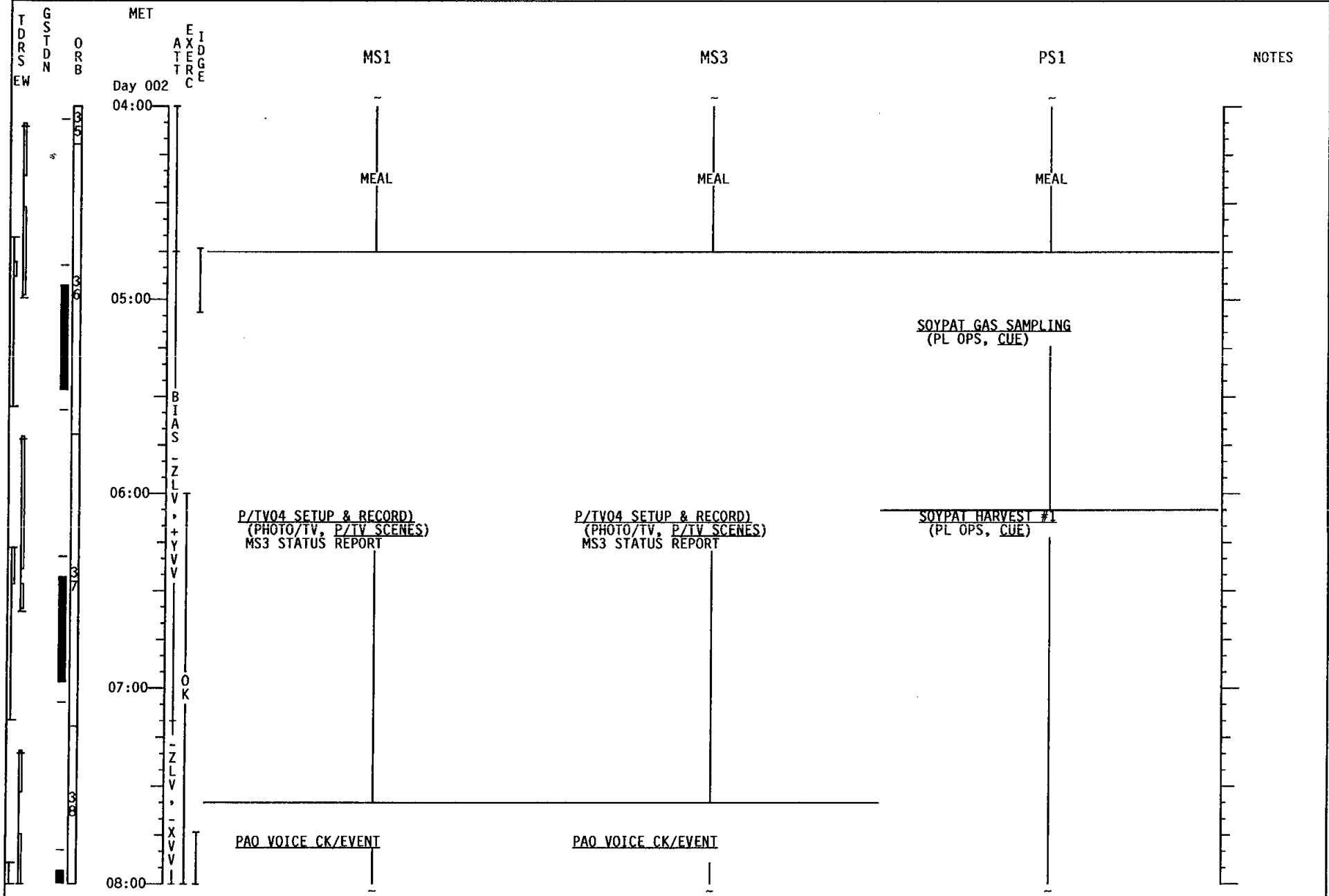
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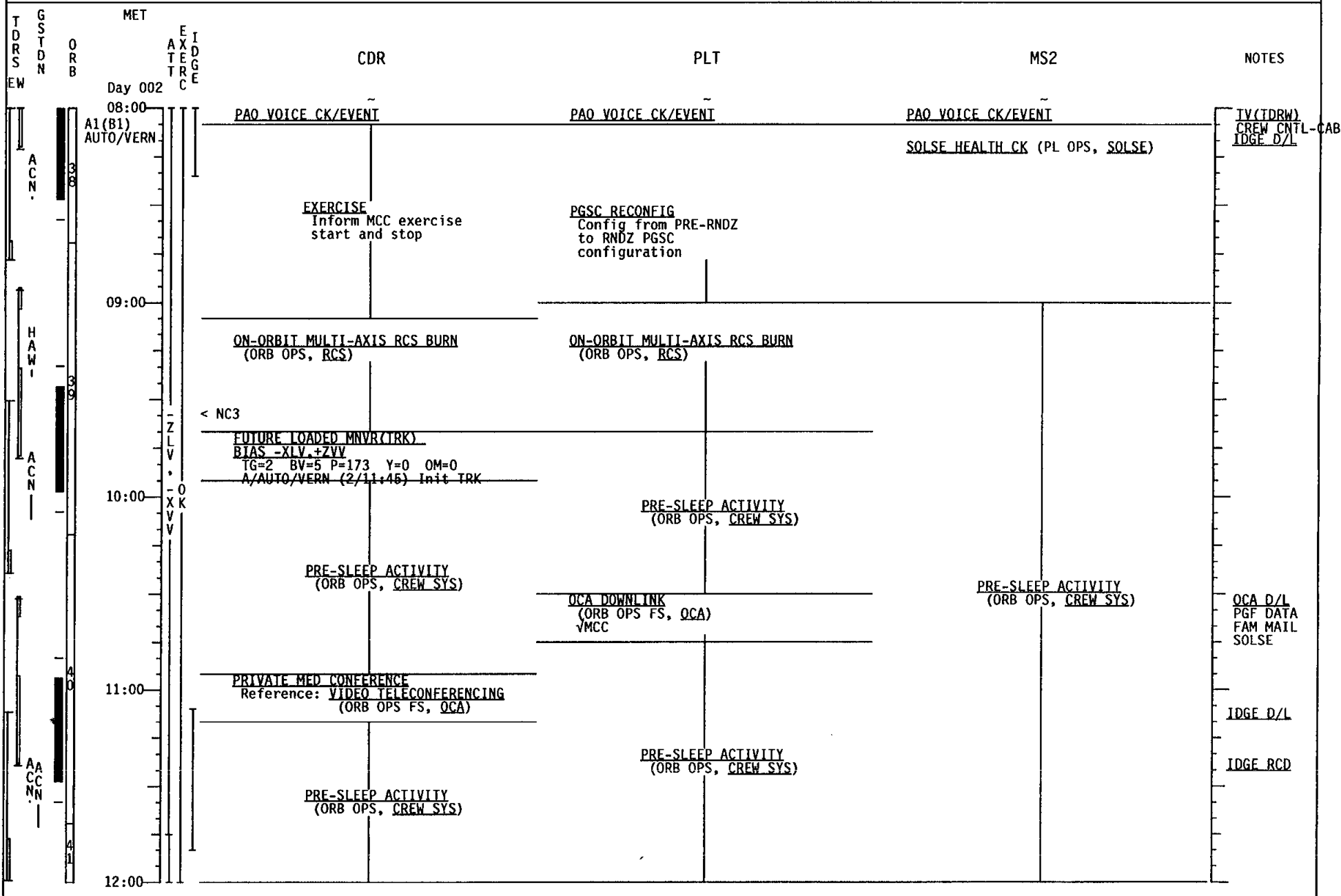
STS-87 (FD03)

	MET	CDR	PLT	MS2	NOTES
<p>TDRS GSTDN ORB EW</p> <p>Day 002</p> <p>04:00 A1(B1) AUTO/VERN</p> <p>HAWI</p> <p>05:00</p> <p>HAWI</p> <p>06:00</p> <p>HAWI</p> <p>07:00</p> <p>HAWI</p> <p>08:00</p>	<p>AXTEG TRC EDGE</p> <p>MEAL</p> <p>MNVR(TRK)=-ZLV, BIAS +YVV TG=2 BV=3 OM=310 A/AUTO/VERN (2/04:45) Init TRK</p> <p>SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Supply/Waste Dump Dump waste tank to 5%</p> <p>WASTE DUMP MONITOR</p> <p>SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Terminate Supply/Waste Dump</p> <p>MNVR (TRK) -ZLV, -XVV TG=2 BV=3 OM=0 A/AUTO/VERN (2/07:10) Init TRK</p> <p>PCIS CONFIG (BIOMED, ERGO OPS) ERGOMETER SETUP W/red front, yellow back PAO VOICE CK/EVENT TV at TDRW (07:45 - 08:05) Ref. MSG###</p>	<p>MEAL</p> <p>MEAL</p> <p>VTR SETUP (SOLSE) (Cue Card, 8mm VTR)</p> <p>VTR PLBK (SOLSE HMMA OP/CL) (Cue Card, 8mm VTR) VTR at TDRW (05:45-06:00)</p> <p>EXERCISE Inform MCC Exercise start and stop</p> <p>P/TV04 SETUP (PAO EVENT) (PHOTO/TV, P/TV SCENES)</p> <p>PAO VOICE CK/EVENT</p>	<p>SOLSE SUPPORT</p> <p>SOLSE STANDBY (PL OPS, SOLSE) TOPPING FES STARTUP (ORB OPS, ECLS)</p> <p>MEAL</p> <p>SOLSE DATA TRANSFER (PL OPS, SOLSE)</p> <p>EXERCISE Inform MCC exercise start and stop</p> <p>PAO VOICE CK/EVENT</p>	<p>KU BACK ON (CheX KU test cmlt)</p> <p>EDGE D/L</p> <p>UPDATE WASTE/SUPPLY H2O DUMP QTY</p> <p>TV (TDRW) CREW CNTL-VTR</p> <p>EDGE RCD TV (TDRW) CREW CNTL-CAB</p>	

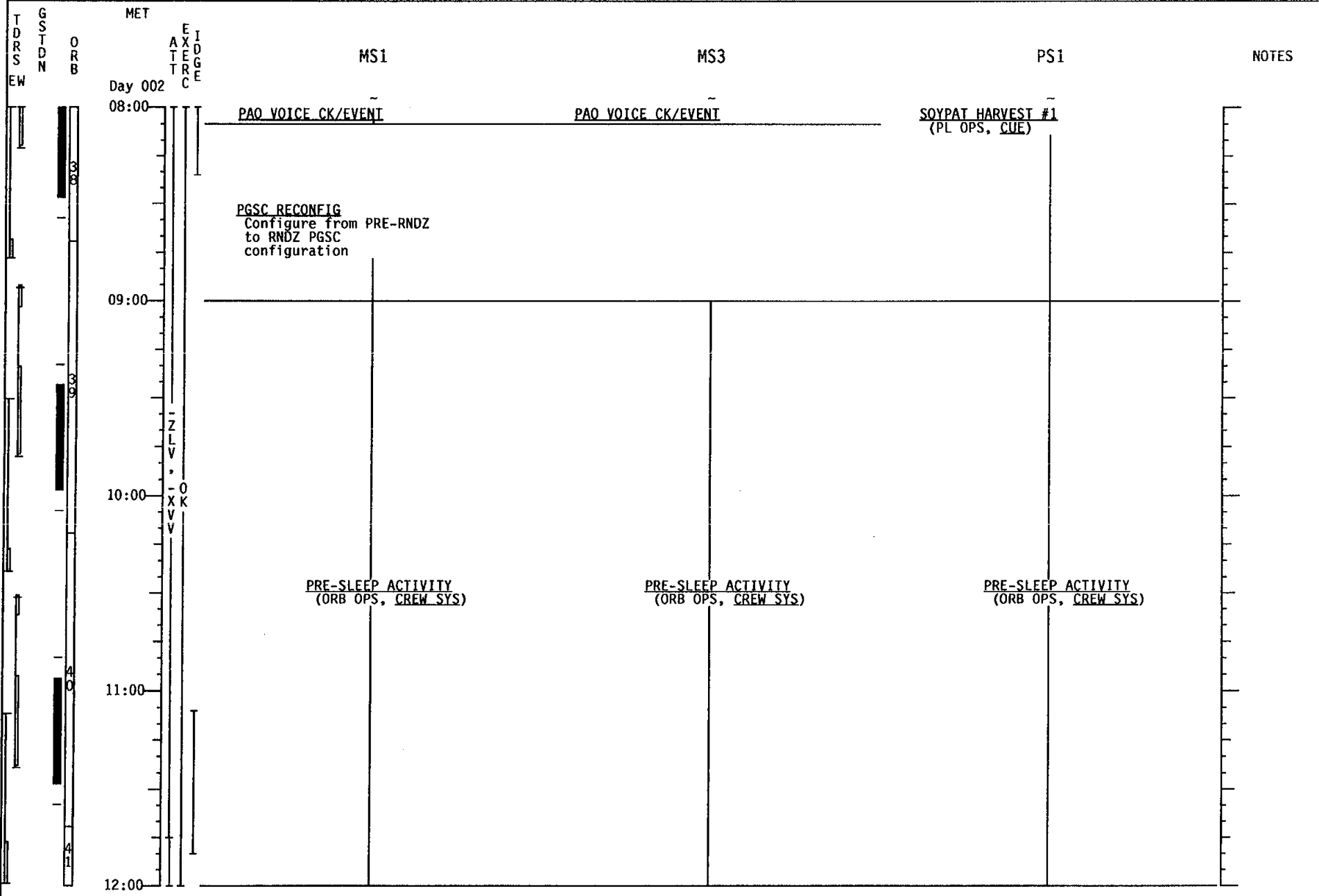
STS-87 (FD03)



STS-87 (FD03)



STS-87 (FD03)

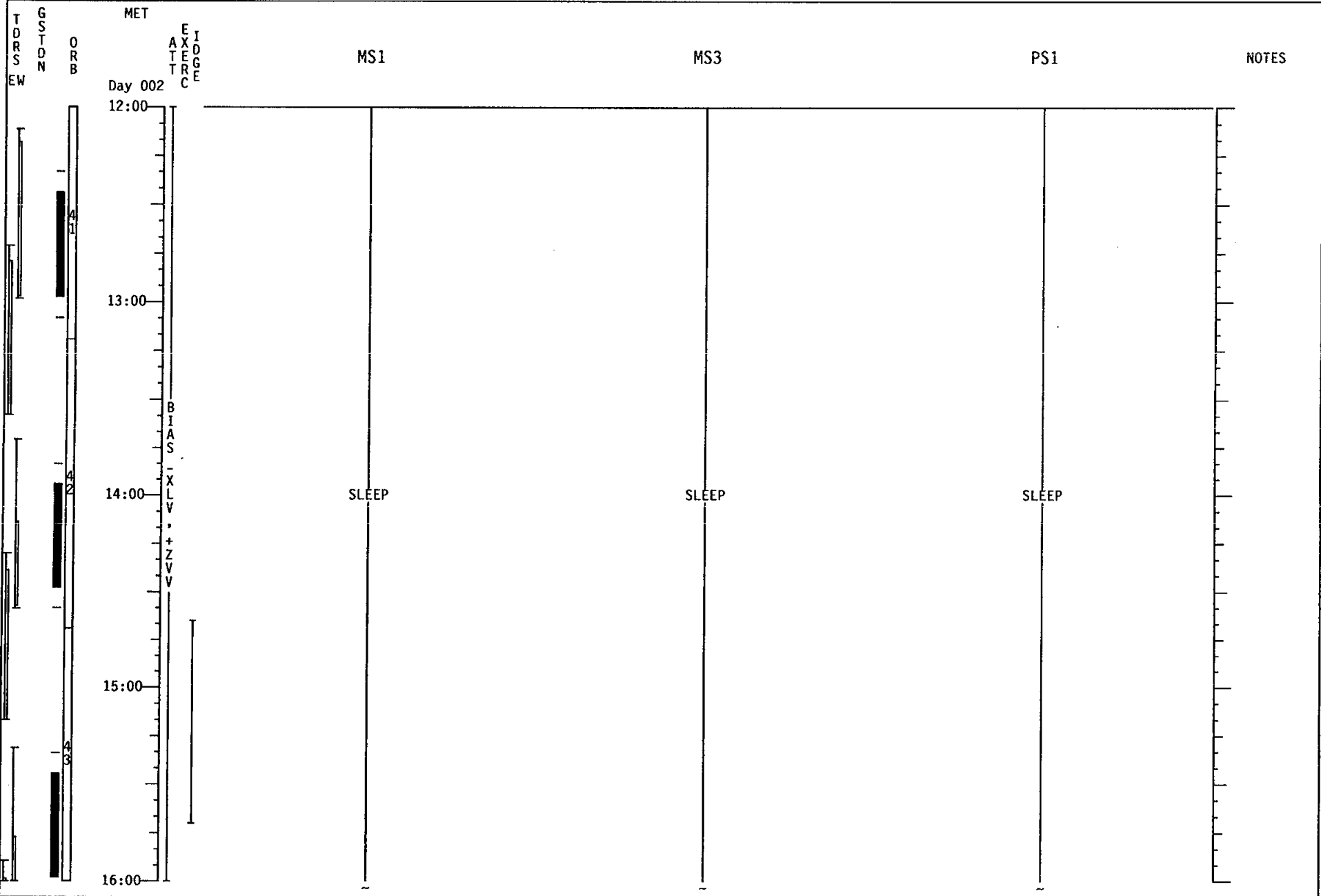


TDRS
 GSTDN
 ORB
 MET
 Day 002
 08:00
 09:00
 10:00
 11:00
 12:00
 AXTEG
 ITRC
 ZLV
 OK
 VV
 33
 33
 40
 41

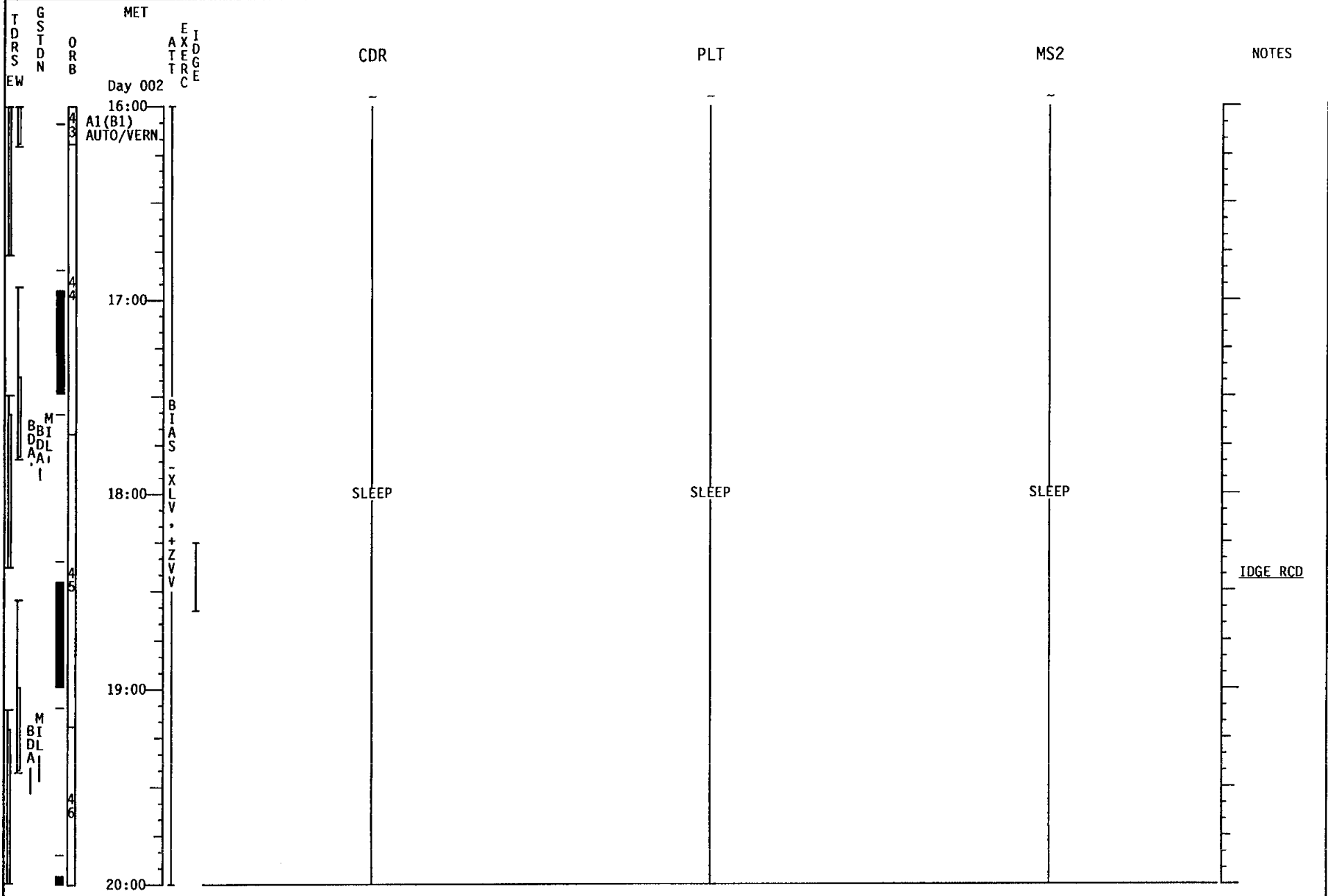
STS-87 (FD03)

TDRS EW	GSTDN ORB	MET Day 002 12:00 A1(B1) AUTO/VERN	EIDEGE AXTRC	CDR	PLT	MS2	NOTES
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">ACN1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">A1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">12:00</div> <div style="margin-bottom: 10px;">13:00</div> <div style="margin-bottom: 10px;">14:00</div> <div style="margin-bottom: 10px;">15:00</div> <div style="margin-bottom: 10px;">16:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">BIAS</div> <div style="margin-bottom: 10px;">-XLV</div> <div style="margin-bottom: 10px;">+ZVV</div> </div>	SLEEP	SLEEP	SLEEP	EDGE D/L

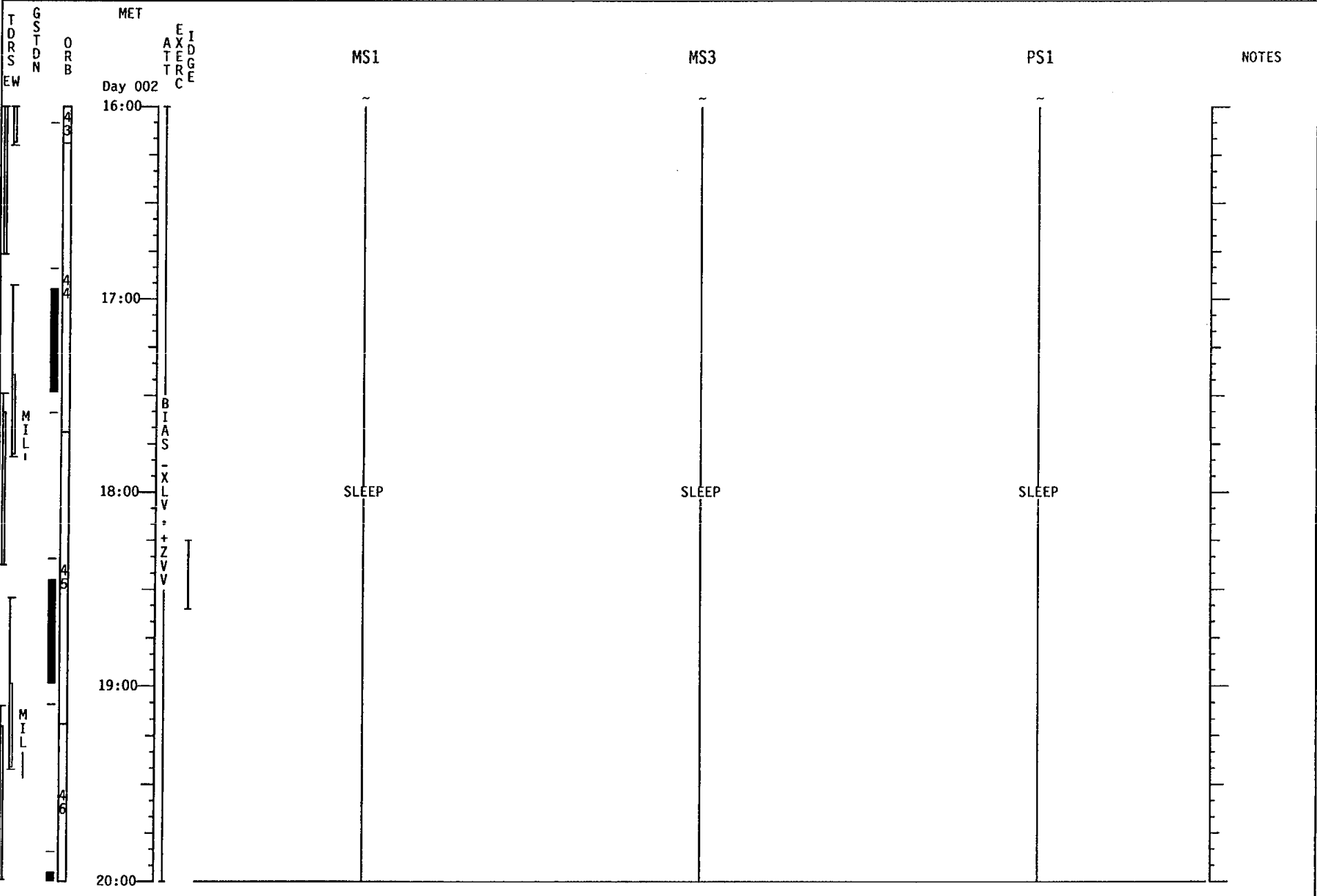
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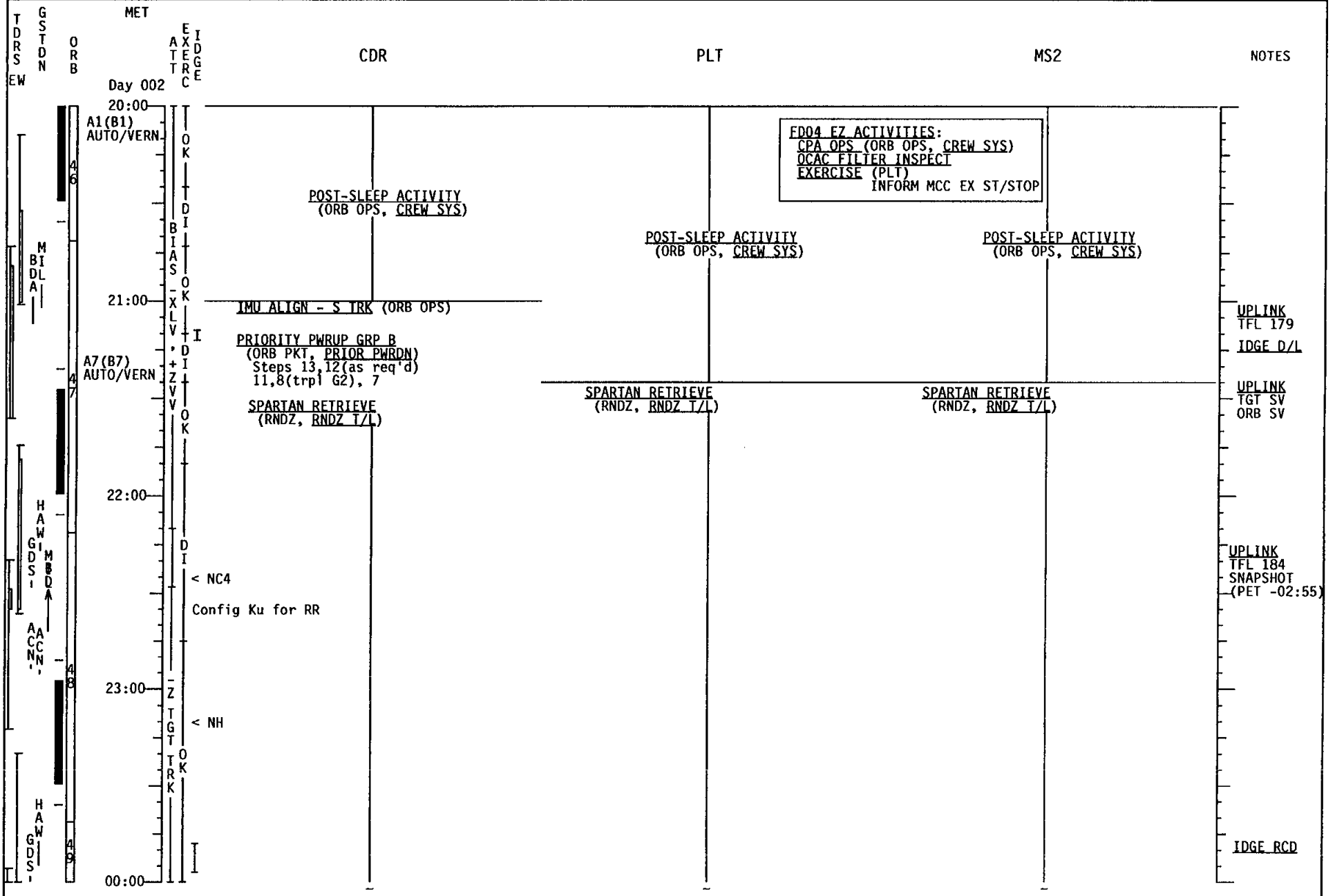
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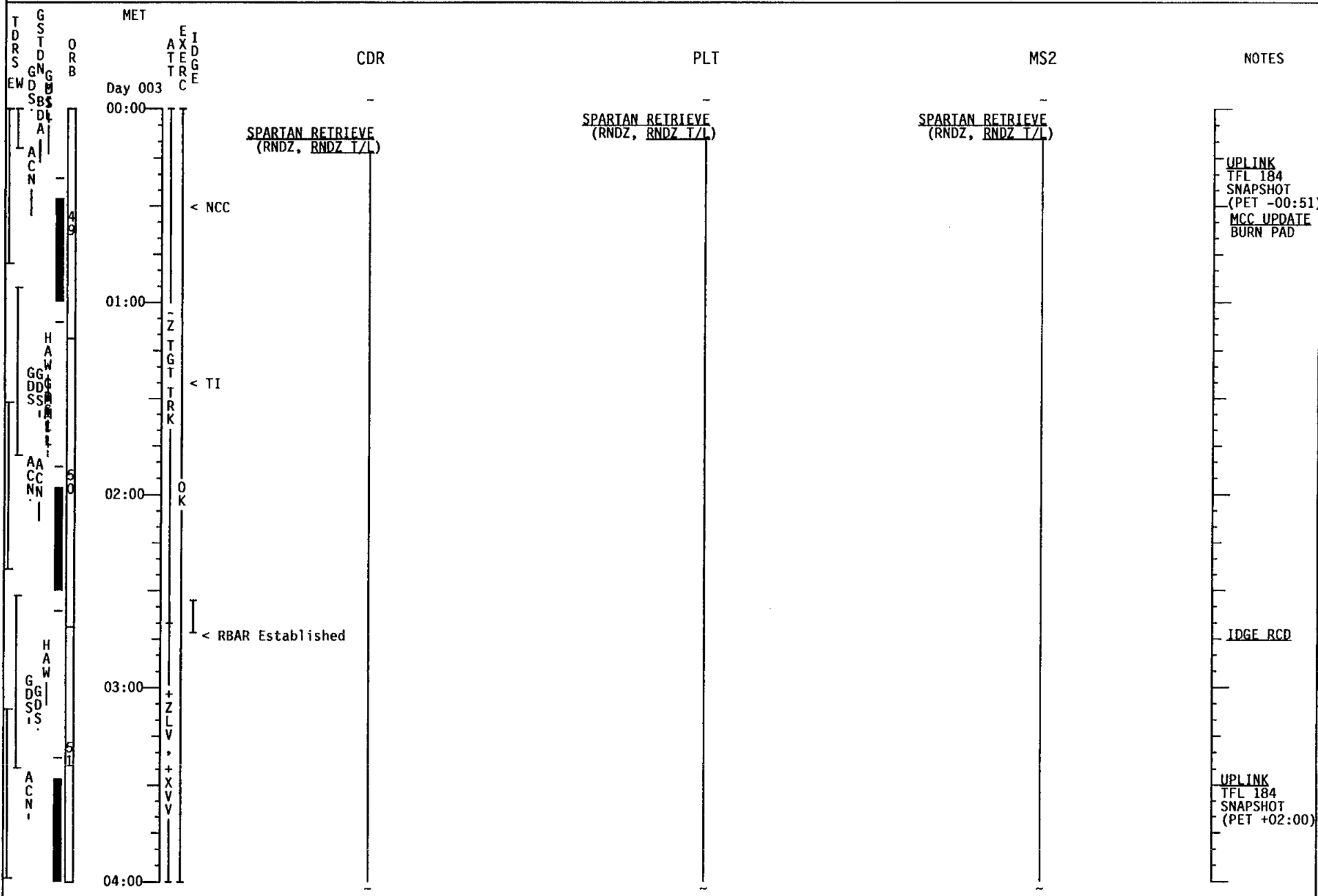
STS-87 (FD03)



STS-87 (FD04)



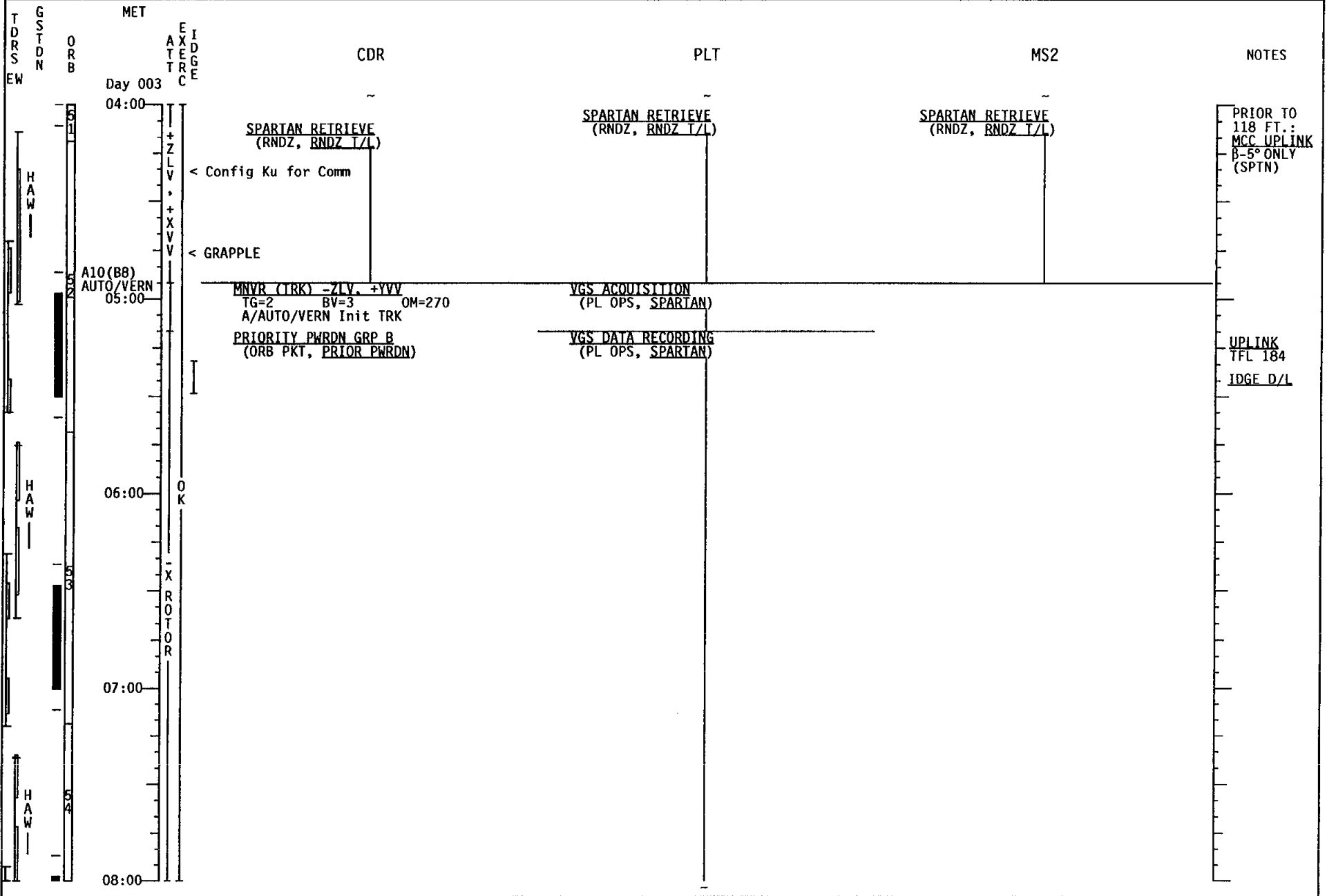
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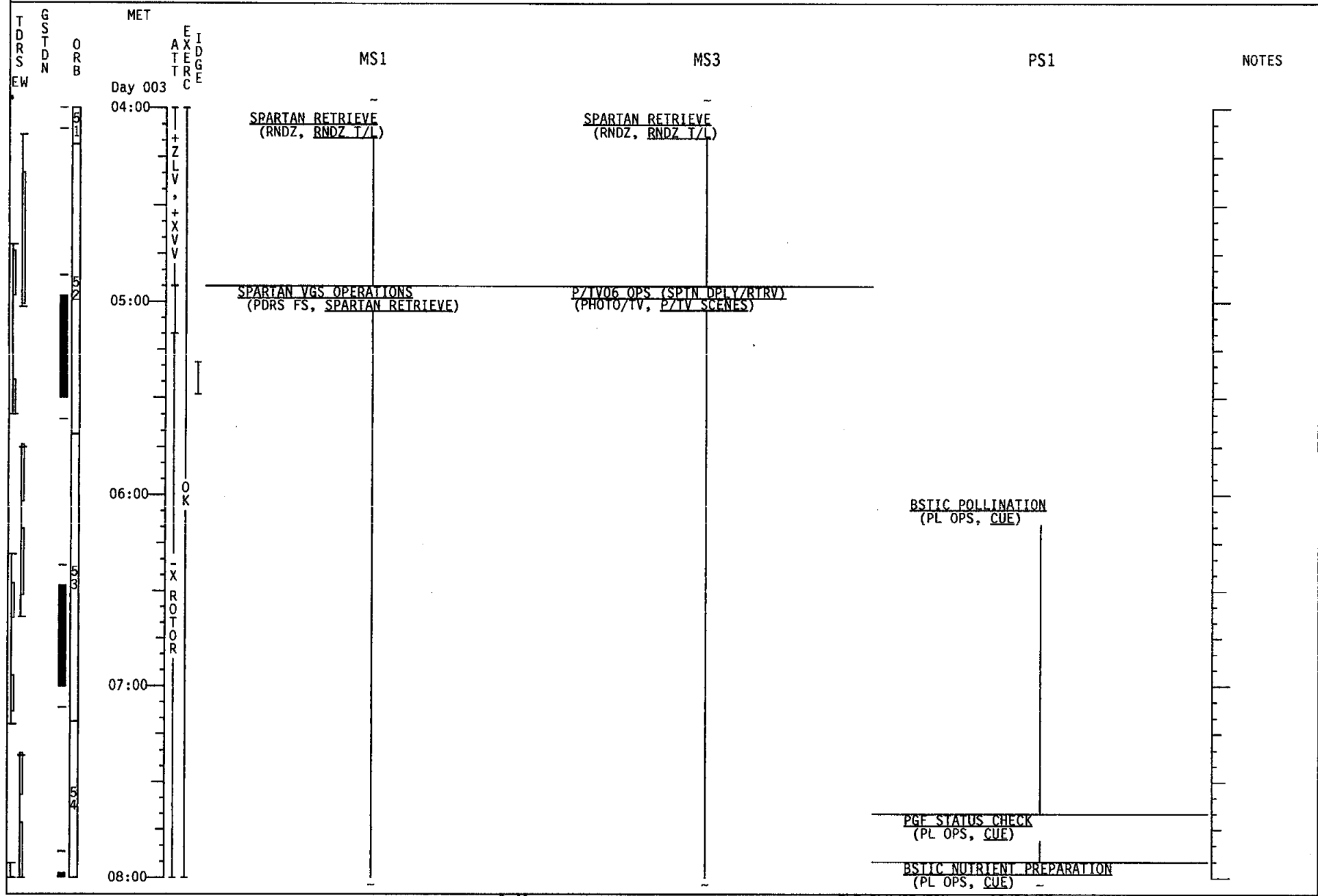
STS-87 (FD04)

	MET	MS1	MS3	PS1	NOTES
<p style="font-size: small;">TDRS GSTD GGDM SSIL ORRB</p> <p style="font-size: small;">EW</p> <p style="font-size: small;">GGDDG SSA</p> <p style="font-size: small;">GGSS S</p>	<p style="font-size: small;">AXTRGC EIDRGE</p> <p>Day 003</p> <p>00:00</p> <p style="font-size: small;">ZTGTRK</p> <p>01:00</p> <p style="font-size: small;">OK</p> <p>02:00</p> <p style="font-size: small;">+ZLV +XVV</p> <p>03:00</p> <p>04:00</p>	<p style="text-align: center;">P/TV06 SETUP (SPTN DPLY/RTRV) (PHOTO/TV, P/TV SCENES)</p> <hr/> <p style="text-align: center;">SPARTAN RETRIEVE (RNDZ, RNDZ T/L)</p>	<p style="text-align: center;">P/TV06 SETUP (SPTN DPLY/RTRV) (PHOTO/TV, P/TV SCENES)</p> <hr/> <p style="text-align: center;">SPARTAN RETRIEVE (RNDZ, RNDZ T/L)</p>	<p style="text-align: center;">EXERCISE Inform MCC exercise start and stop</p>	

STS-87 (FD04)



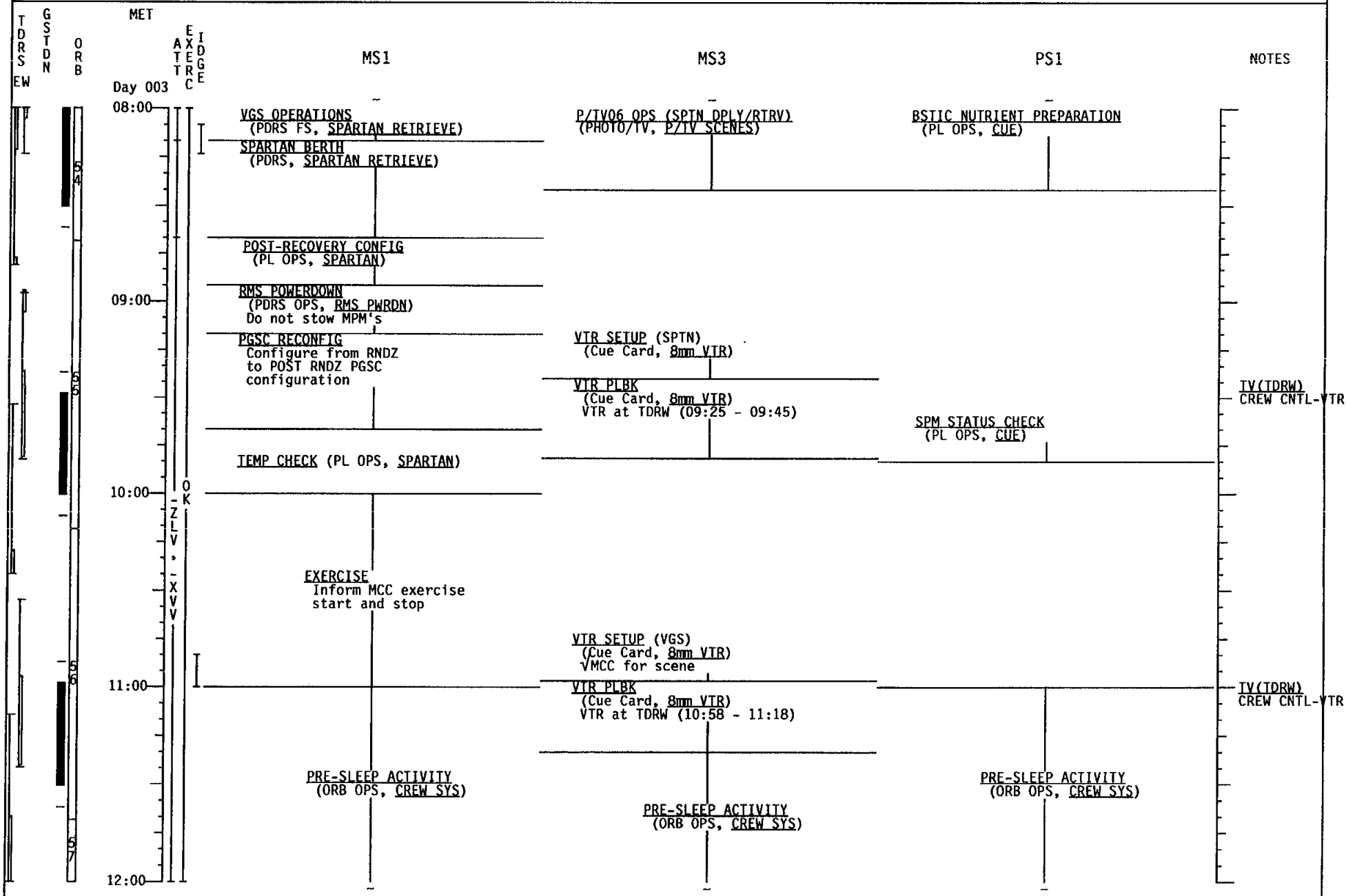
STS-87 (FD04)



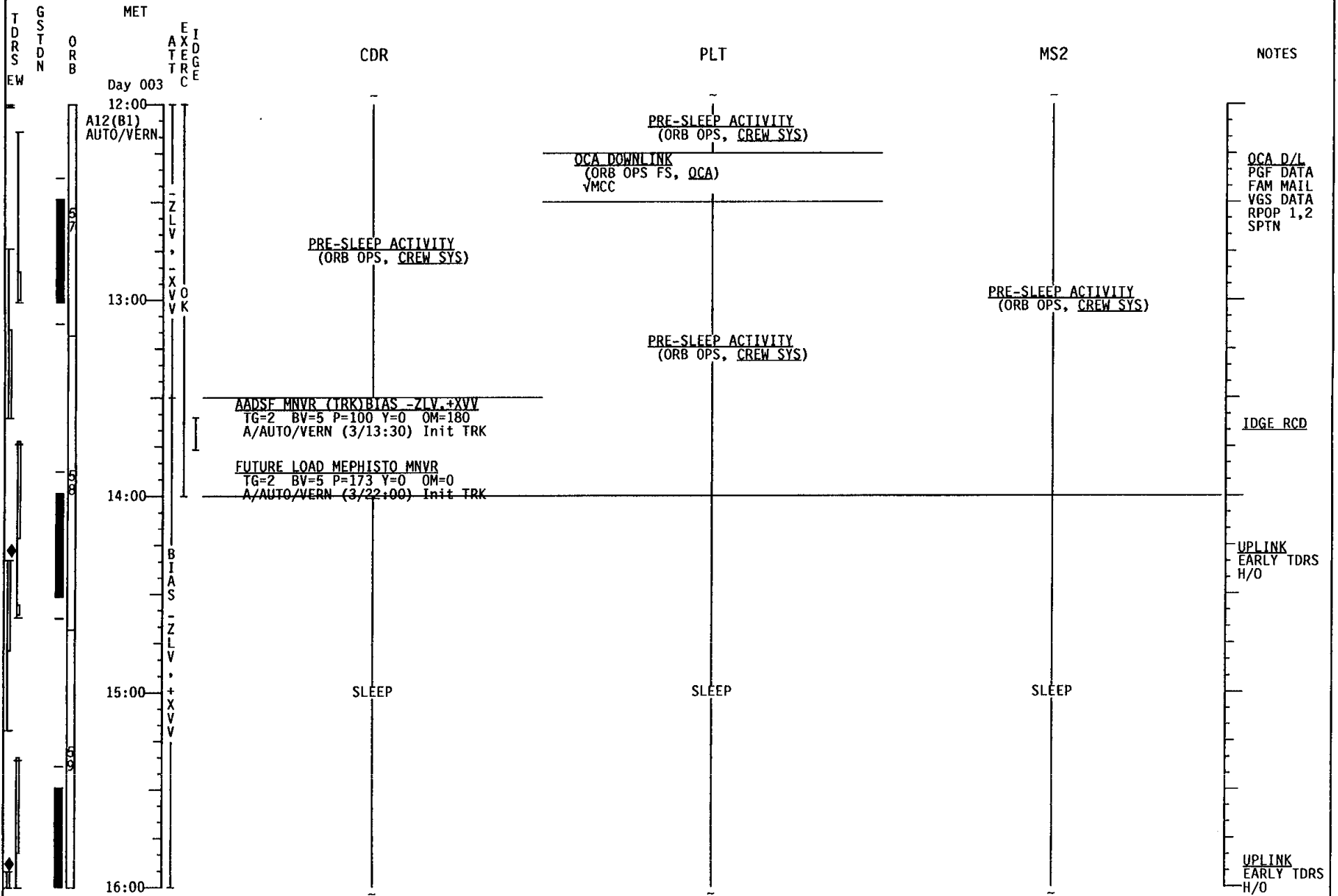
STS-87 (FD04)

TDRS	GSTDN	ORB	MET	CDR	PLT	MS2	NOTES
			Day 003				
			08:00		VGS DATA RECORDING (PL OPS, SPARTAN)		
			A9 (B8) LVLH/VERN AUTO/VERN		SPARTAN BERTH (PDRS FS, SPARTAN RETRIEVE)		IDGE D/L
			FREE/VERN				
			A12 (B1) AUTO/VERN	Config DAP A,B to A12 (B1) MNVN (TRK) -ZLV, -XVV TG=2 BV=3 OM=0 A/AUTO/VERN Init TRK	VGS DEACTIVATION (PL OPS, SPARTAN)		
			09:00		VGS DATA PREP Transfer VGS data to OCA PGSC		
					PGSC RECONFIG Configure from RNDZ to POST RNDZ PGSC configuration		
				EXERCISE Inform MCC exercise start and stop			
			10:00	ON-ORBIT +X RCS BURN (ORB OPS, RCS)	ON-ORBIT +X RCS BURN (ORB OPS, RCS)	EXERCISE Inform MCC exercise start and stop	UPDATE ORBITAL MNVN PAD
				< TRIM 2	RAD STOW/DEPLOY (ORB OPS, ECLS) Deploy STBD only		
						HRIU SELETEST (PL OPS, SOLSE)	
			11:00			SOLSE HEALTH CK (PL OPS, SOLSE) Step 3 not req'd	IDGE RCD
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				PRIVATE MED CONFERENCE Reference: VIDEO TELECONFERENCING (ORB OPS FS, OCA)			
			12:00	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			

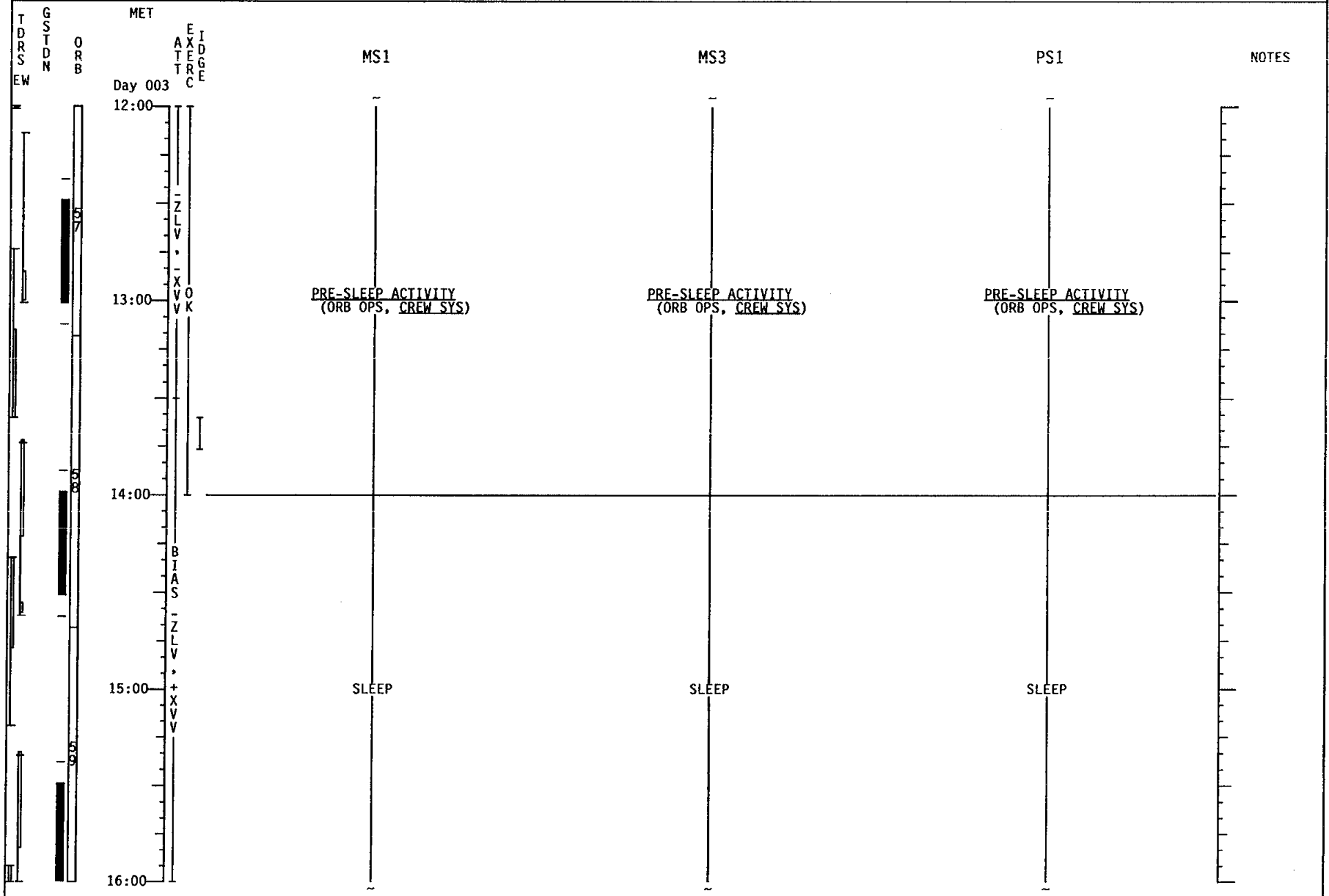
STS-87 (FD04)



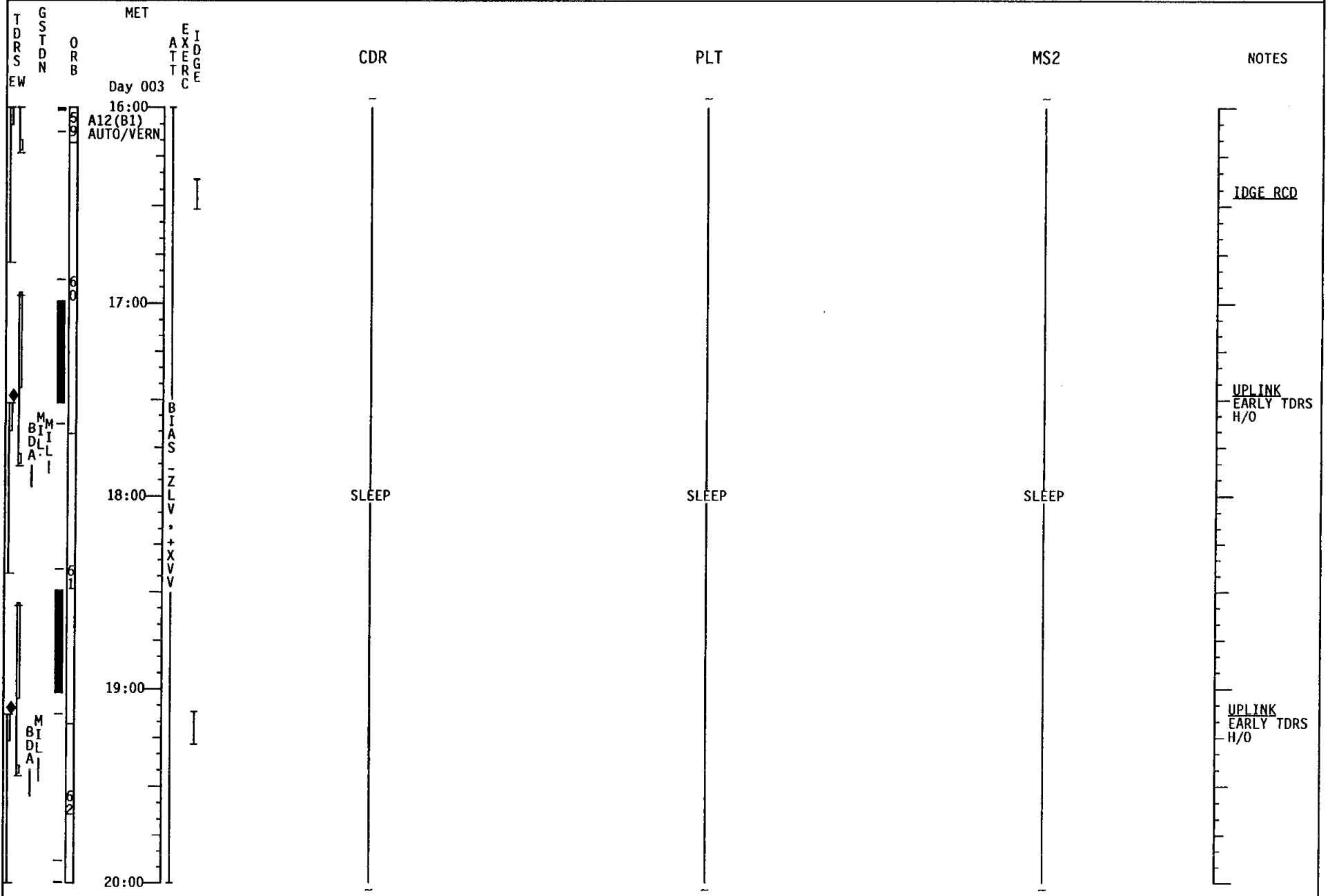
STS-87 (FD04)



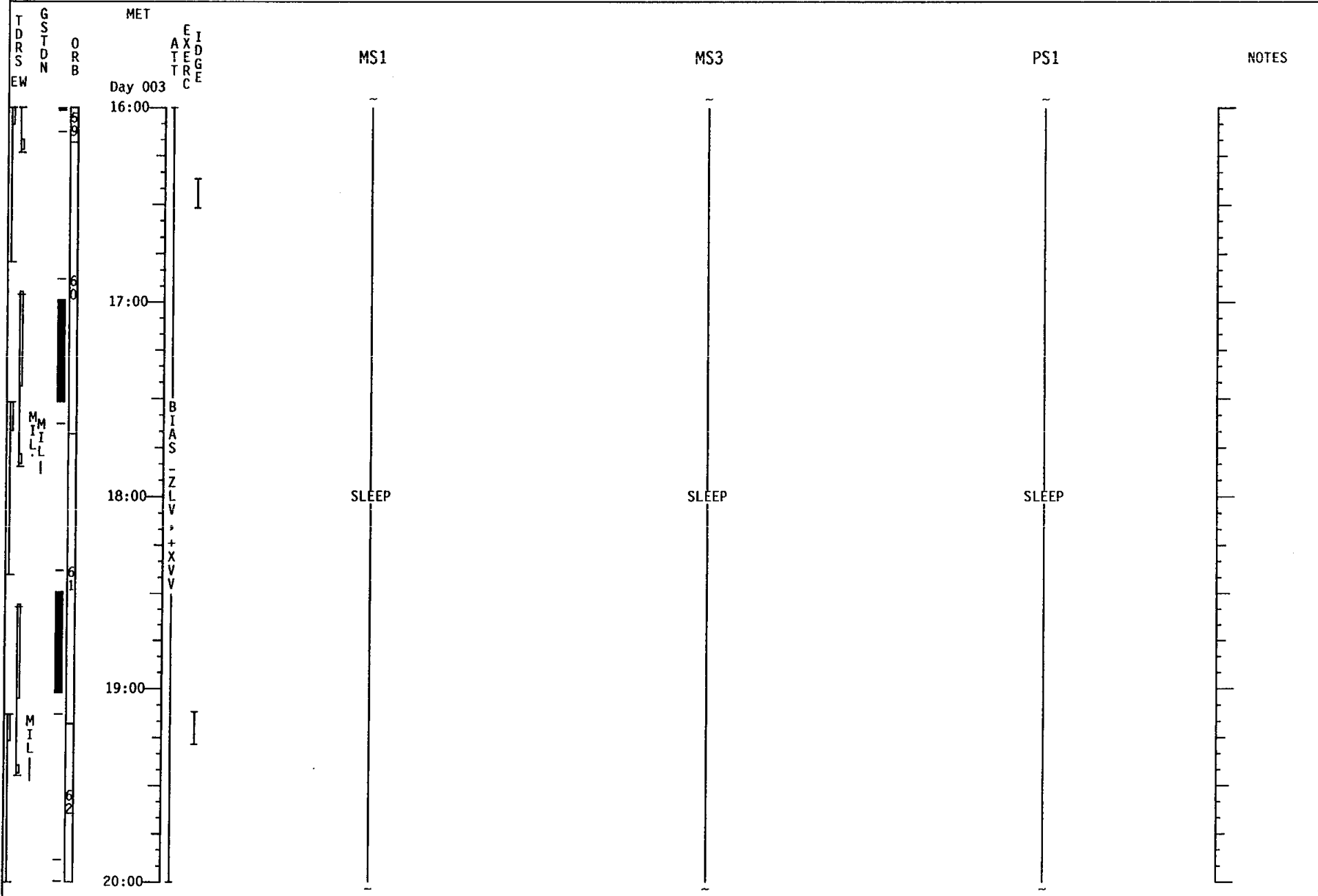
STS-87 (FD04)



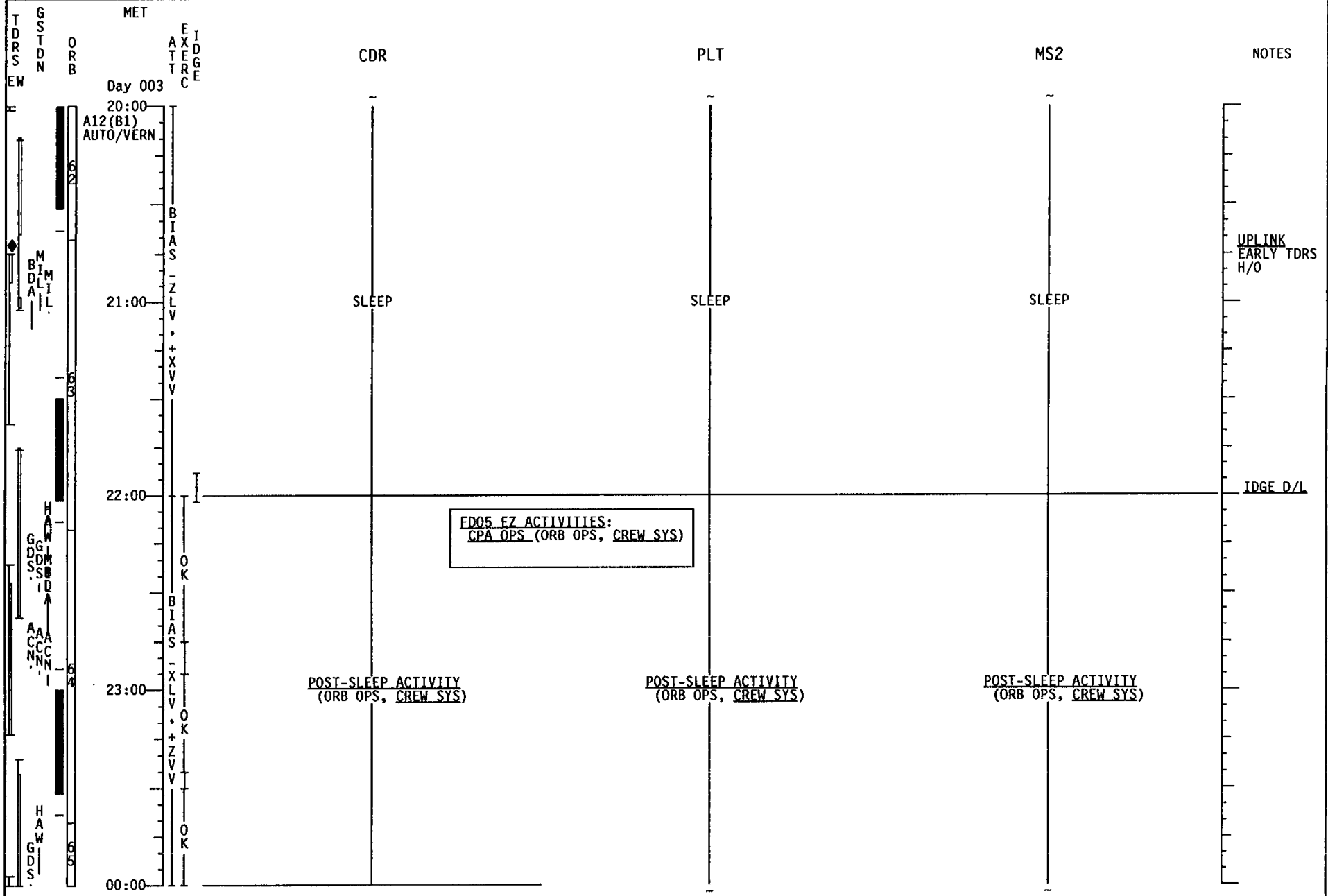
STS-87 (FD04)



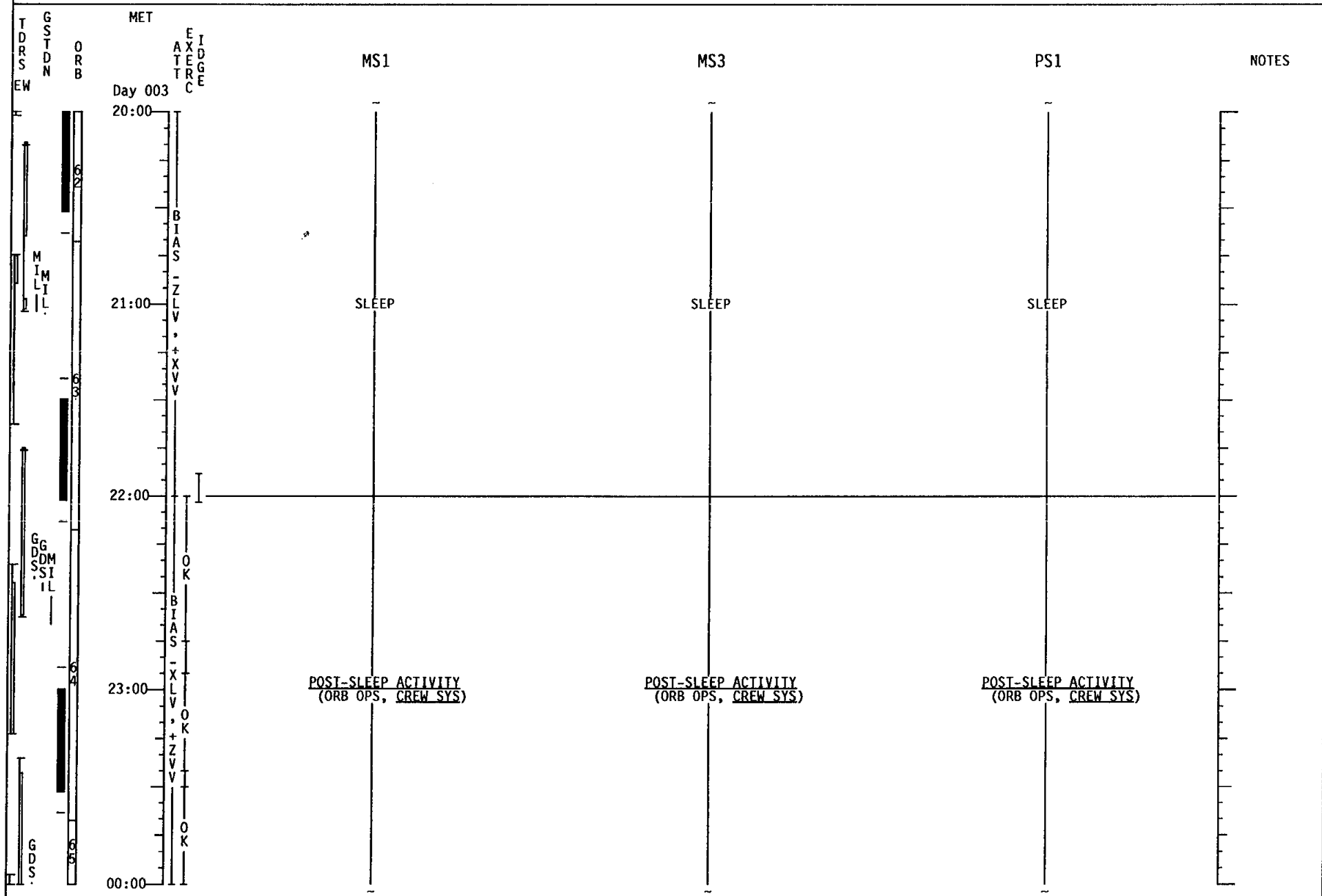
STS-87 (FD04)



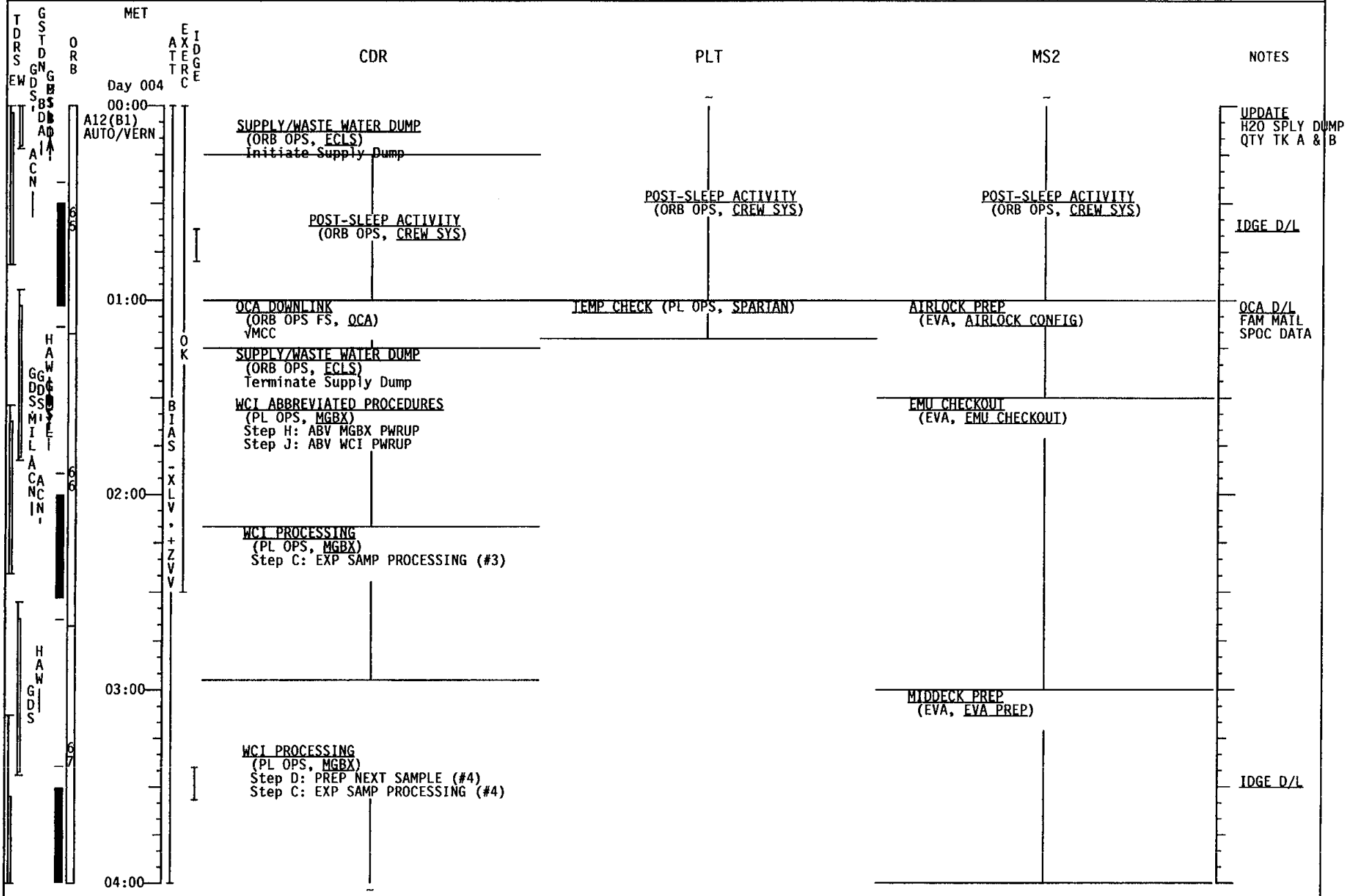
STS-87 (FD05)



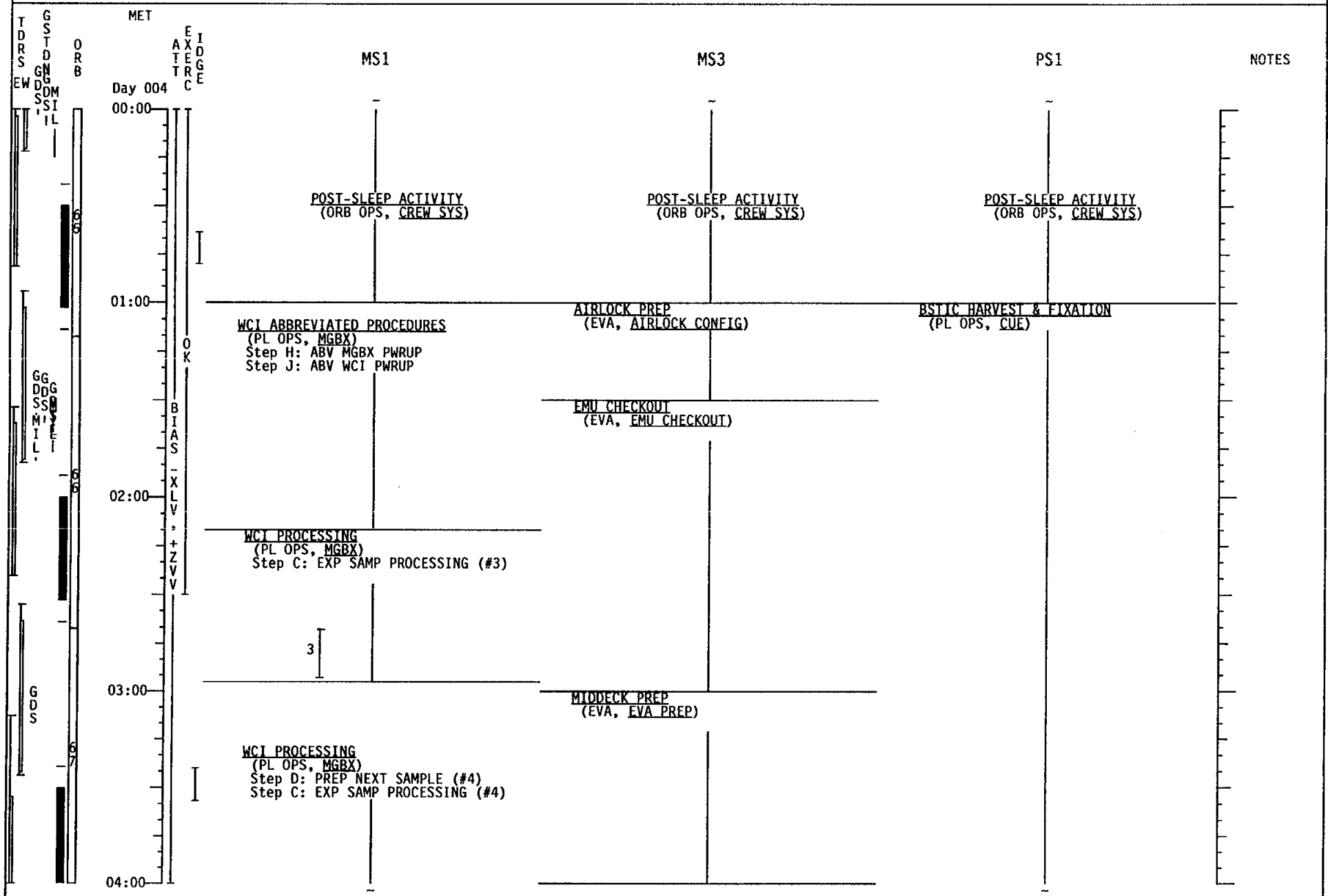
STS-87 (FD05)



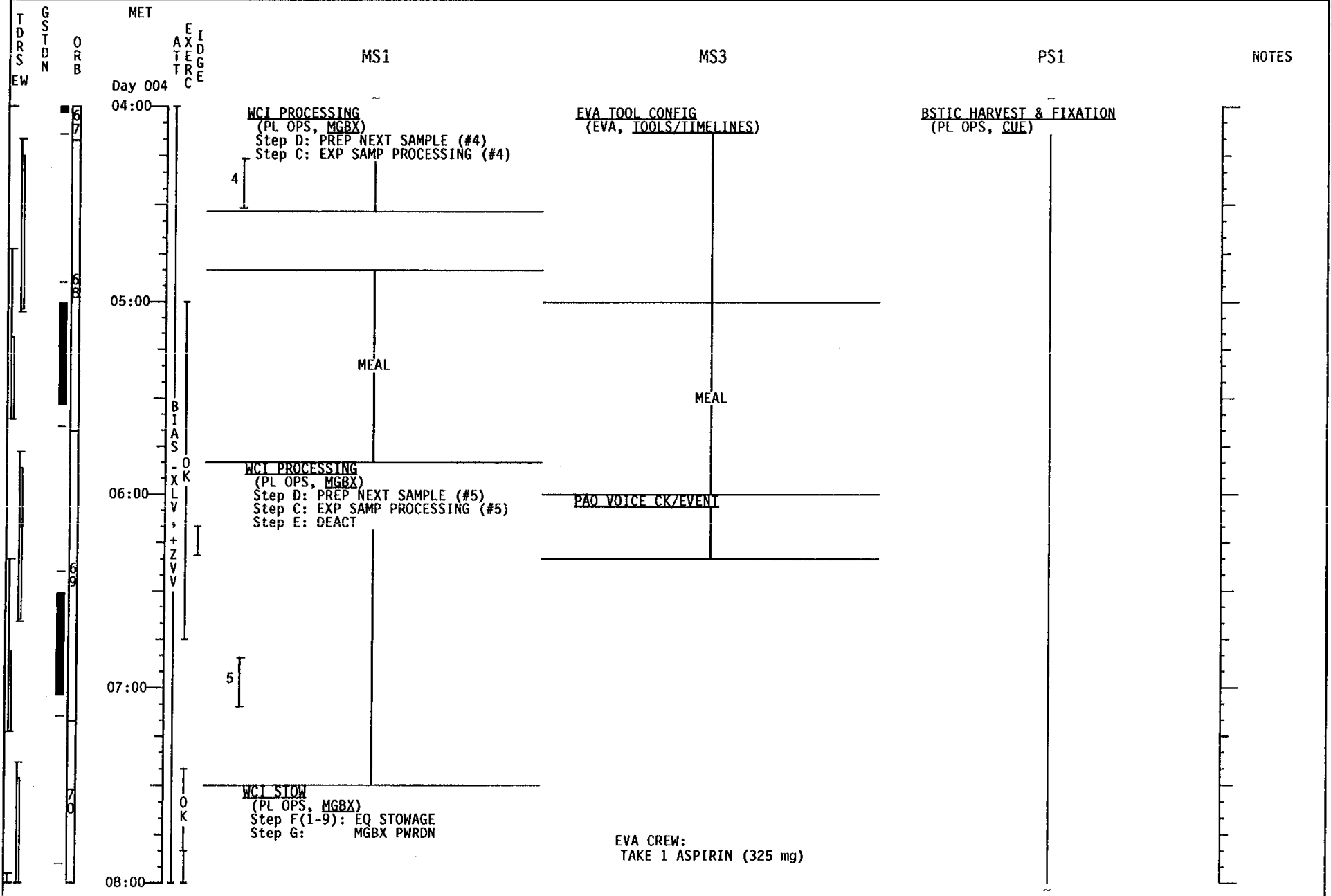
STS-87 (FD05)



STS-87 (FD05)



STS-87 (FD05)



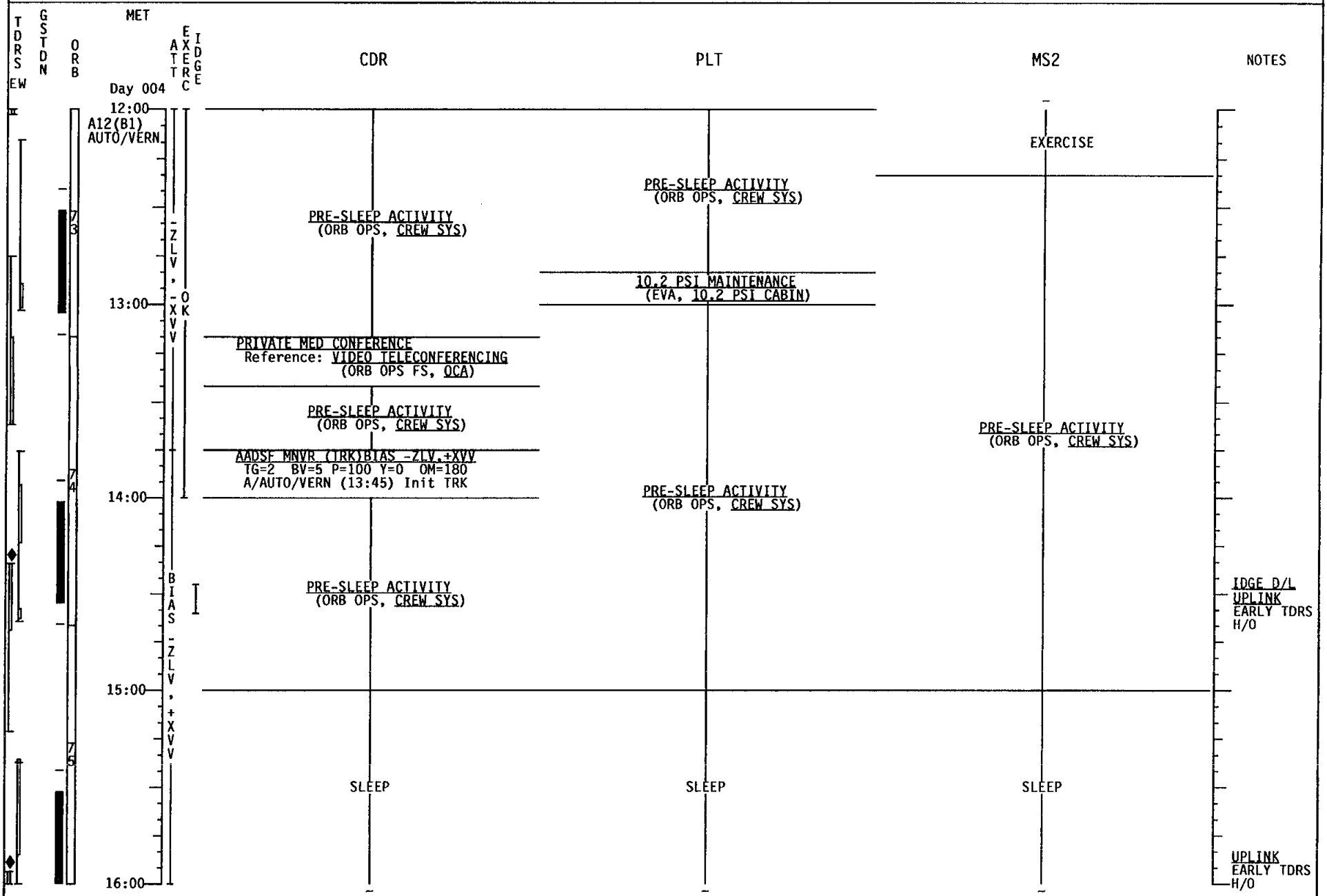
STS-87 (FD05)

TDRS	GSTDN	ORB	MET	CDR	PLT	MS2	NOTES
			Day 004				
			08:00	<u>PCIS CONFIG</u> (BIOMED, ERGO OPS) ERGOMETER SETUP W/best isolator combination	<u>SPRINT PREFLIGHT-PROCS</u> (PDRS FS, AERCAM SPRINT)	<u>HEATED GLOVE C/O</u> (EVA, ES EVA PROCS)	
			09:00	EXERCISE <u>CREW CHOICE D/L</u> (CUE CARD, TV/VTR) KU avail. 09:15-09:30, TDRW	EXERCISE	<u>MASK PREBREATHE INITIATE</u> (EVA, 10.2 PSI CABIN)	<u>IDGE RCD</u> <u>TV (TDRW)</u> CREW CNTL-VTR
			10:00	LI FLOW PROP VLV LOOP 1 - ICH (tb-ICH) (Possible MA - FREON LOOP) <u>PREP FOR 10.2 PSI CABIN</u> (EVA, 10.2 PSI CABIN) <u>CAB DEPRESS TO 10.2 PSI</u> (EVA, 10.2 PSI CABIN)	<u>PREP FOR 10.2 PSI CABIN</u> (EVA, 10.2 PSI CABIN) <u>CAB DEPRESS TO 10.2 PSI</u> (EVA, 10.2 PSI CABIN)		
			11:00	<u>MNVR (TRK) =ZLV, -XVV</u> TG=2 BV=3 OM=0 A/AUTO/VERN Init TRK <u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Initiate Supply/Waste Dump Dump waste TK to 5% WASTE DUMP MONITOR	<u>10.2 PSI CABIN CONFIG</u> (EVA, 10.2 PSI CABIN) <u>SOLSE HEALTH CK</u> (PL OPS, SOLSE) Step 3 not req'd <u>FILTER CLEANING</u> (IFM, SCHEDULED MAINTENANCE) Inspect filters and clean as necessary	<u>MASK PREBREATHE TERMINATE</u> (EVA, 10.2 PSI CABIN)	<u>UPDATE</u> WASTE/SUPPLY H2O DUMP QTY
			12:00	<u>SUPPLY/WASTE WATER DUMP</u> (ORB OPS, ECLS) Terminate Supply/Waste Dump	<u>OCA DOWNLINK</u> (ORB OPS FS, OCA) VMCC	EXERCISE	<u>IDGE D/L</u> <u>OCA D/L</u> PGF DATA FAM MAIL

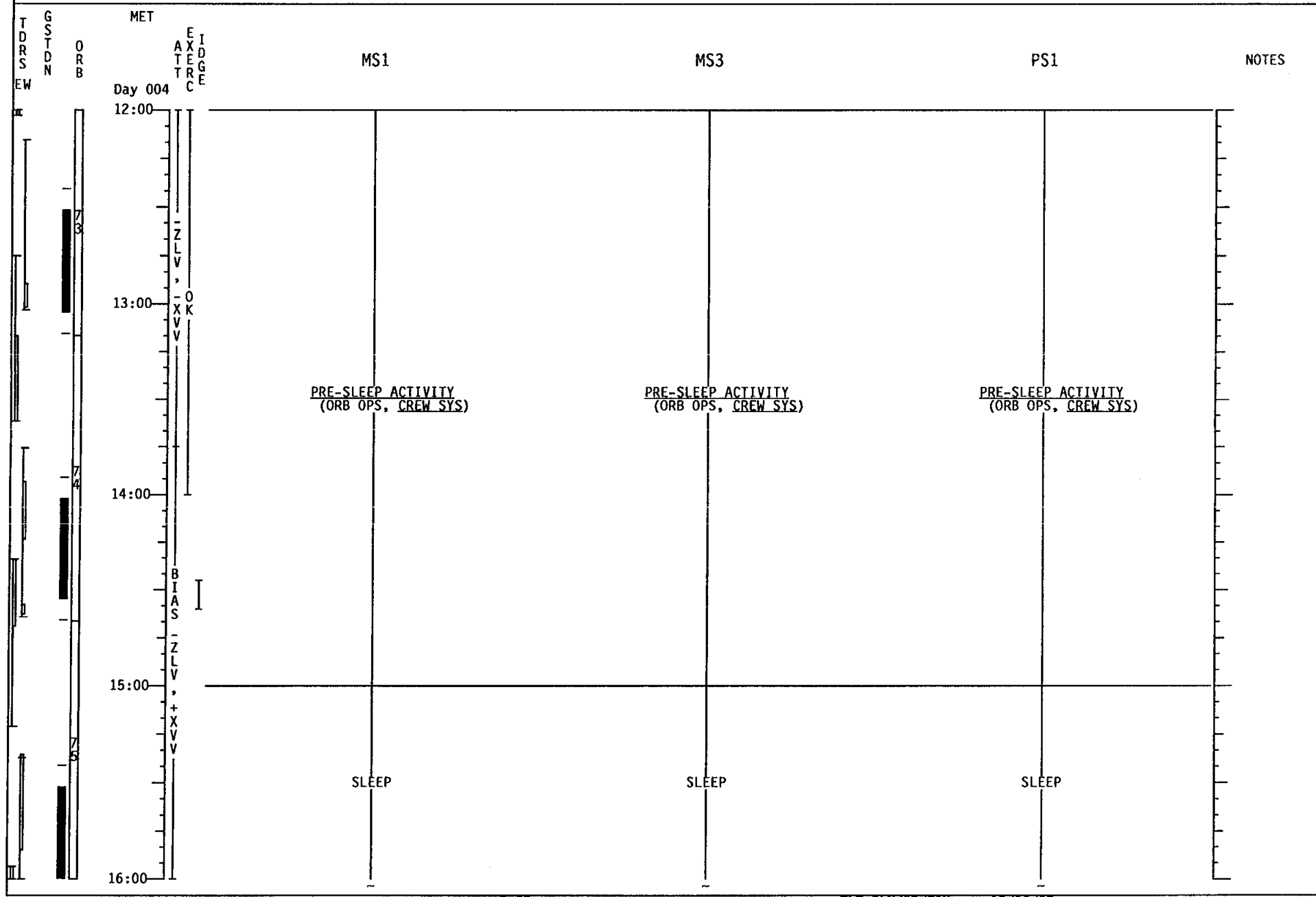
STS-87 (FD05)

	MET	MS1	MS3	PS1	NOTES
<p style="text-align: center;">TDRS EW</p> <p style="text-align: center;">GSTDN</p> <p style="text-align: center;">ORB</p> <p style="text-align: center;">Day 004</p> <p>08:00</p> <p>09:00</p> <p>10:00</p> <p>11:00</p> <p>12:00</p>	<p style="text-align: center;">E I R G G E</p> <p style="text-align: center;">A X T R C</p> <p style="text-align: center;">T D I</p> <p style="text-align: center;">O K</p> <p style="text-align: center;">B I A S</p> <p style="text-align: center;">- X L V</p> <p style="text-align: center;">+ Z V V</p> <p style="text-align: center;">O K</p> <p style="text-align: center;">- Z L V</p> <p style="text-align: center;">- X V V</p>		<p style="text-align: center;">HEATED GLOVE C/O (EVA, ES EVA PROCS)</p> <hr/> <p style="text-align: center;">MASK PREBREATHE INITIATE (EVA, 10.2 PSI CABIN)</p> <hr/> <p style="text-align: center;">MASK PREBREATHE TERMINATE (EVA, 10.2 PSI CABIN)</p> <hr/> <p style="text-align: center;">EXERCISE</p> <hr/> <p style="text-align: center;">TEMP CHECK (PL OPS, SPARTAN)</p>	<p style="text-align: center;">BSTIC HARVEST & FIXATION (PL OPS, CUE)</p> <hr/> <p style="text-align: center;">BSTIC WATERING (PL OPS, CUE)</p> <hr/> <p style="text-align: center;">PGF STATUS CHECK (PL OPS, CUE)</p> <hr/> <p style="text-align: center;">EXERCISE</p> <hr/> <p style="text-align: center;">SPM STATUS CHECK (PL OPS, CUE)</p> <hr/>	

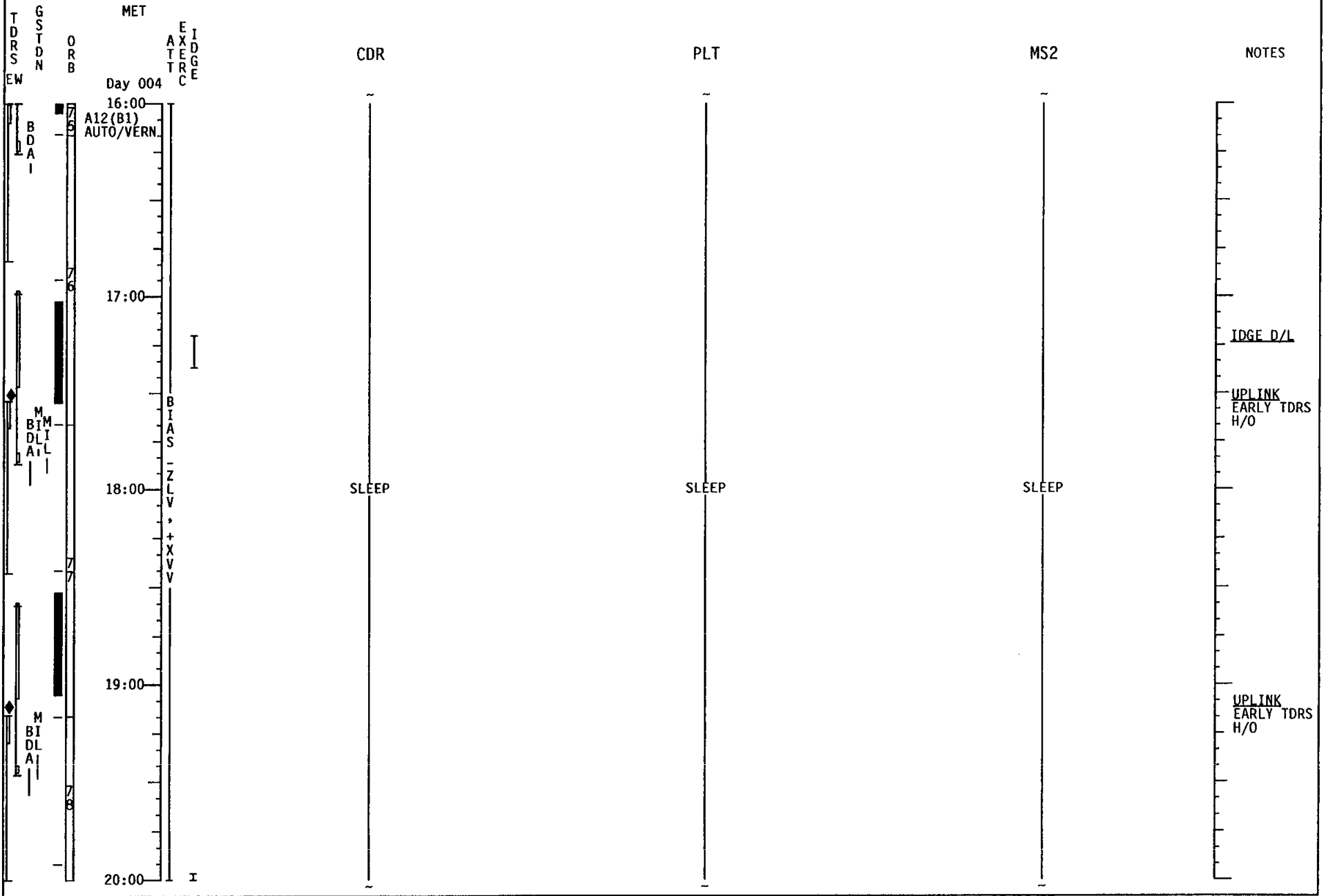
STS-87 (FD05)



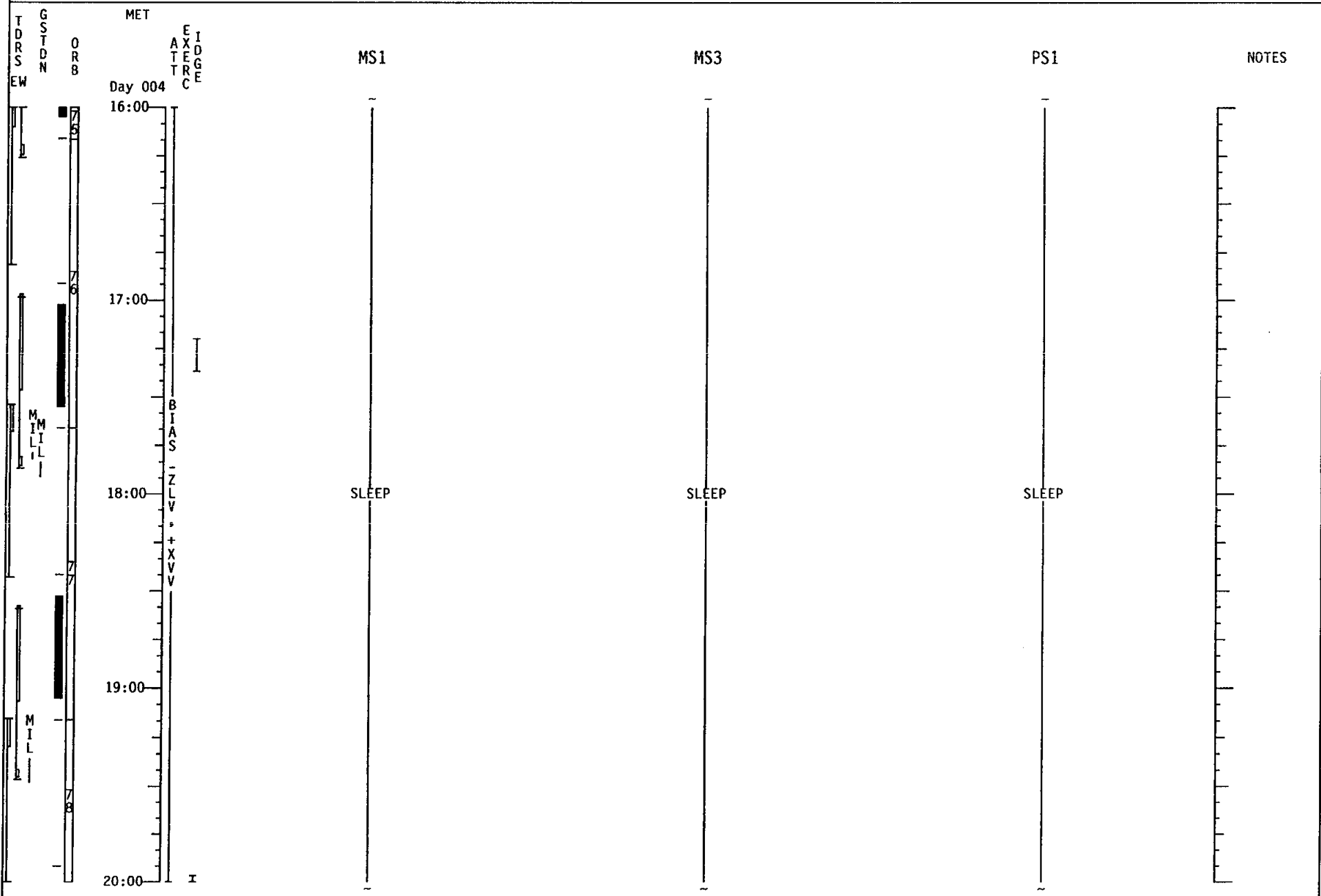
STS-87 (FD05)



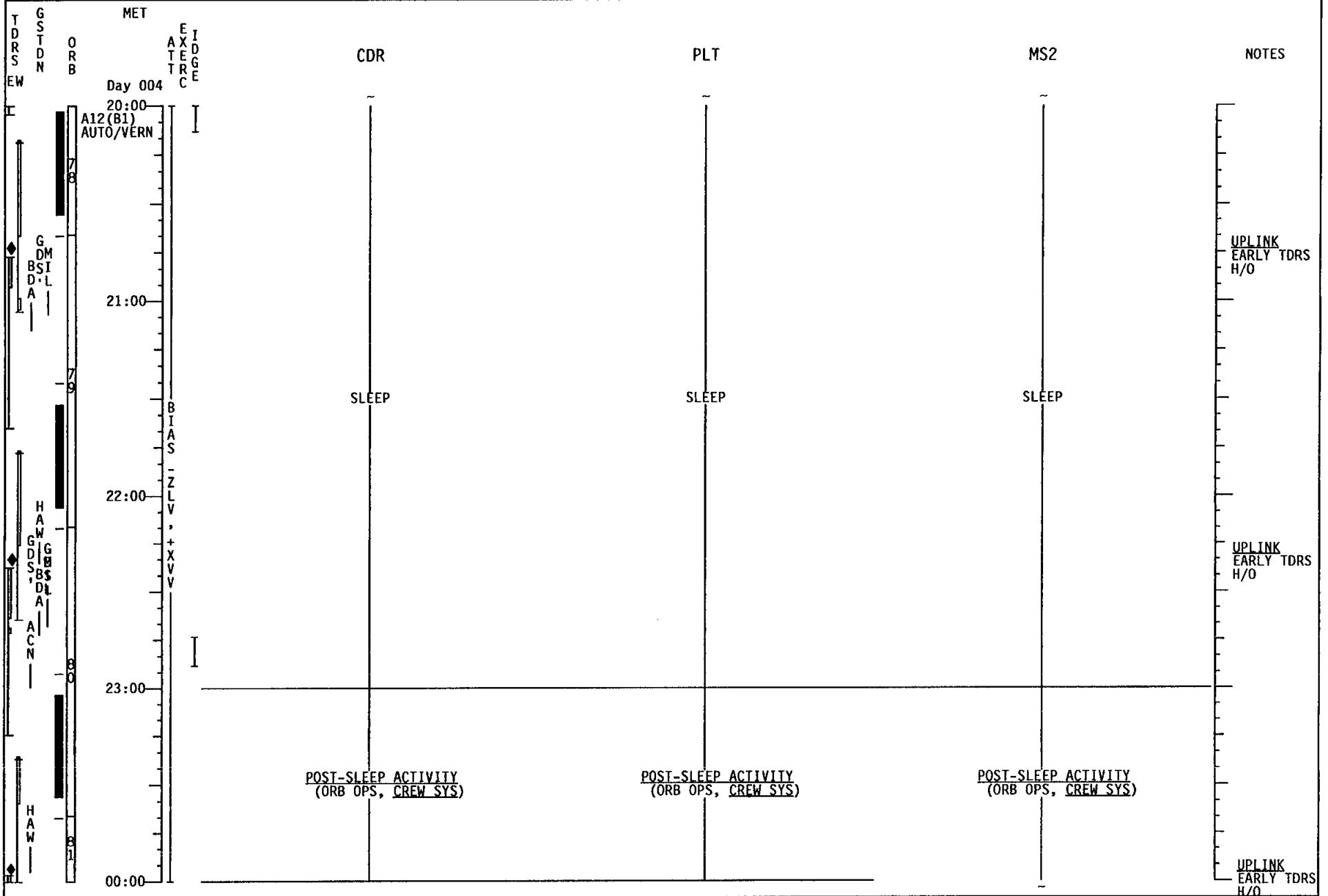
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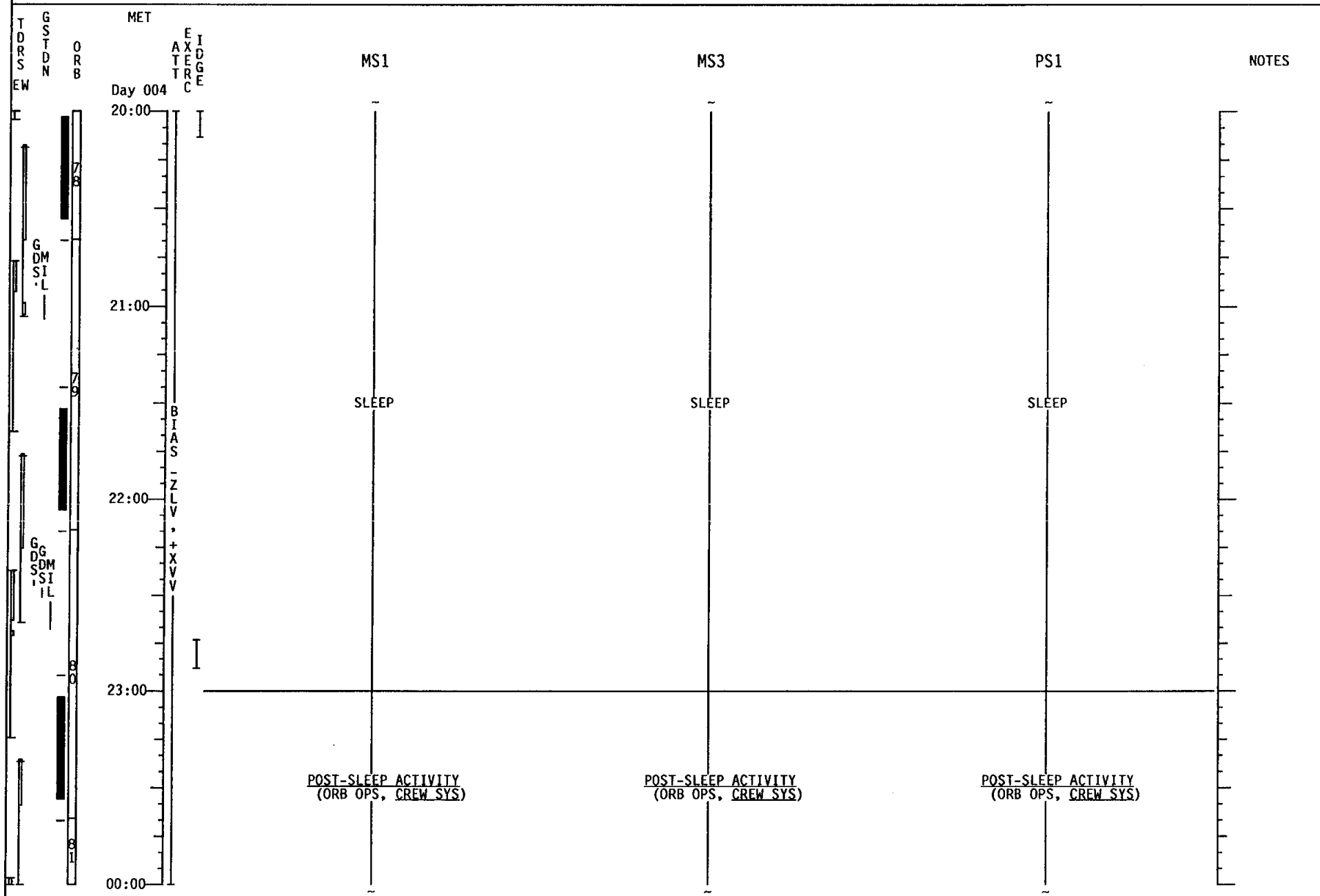
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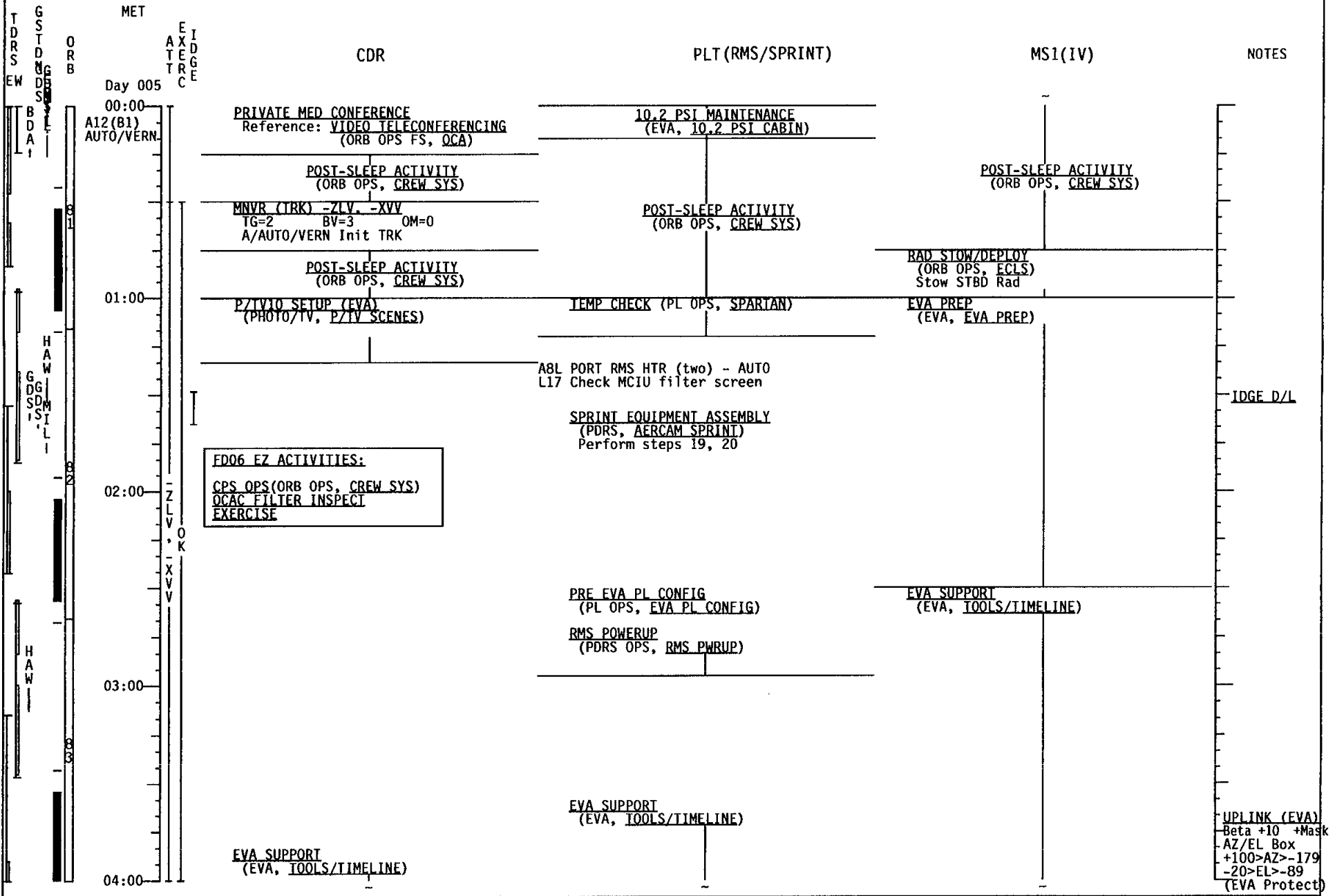
STS-87 (FD06)



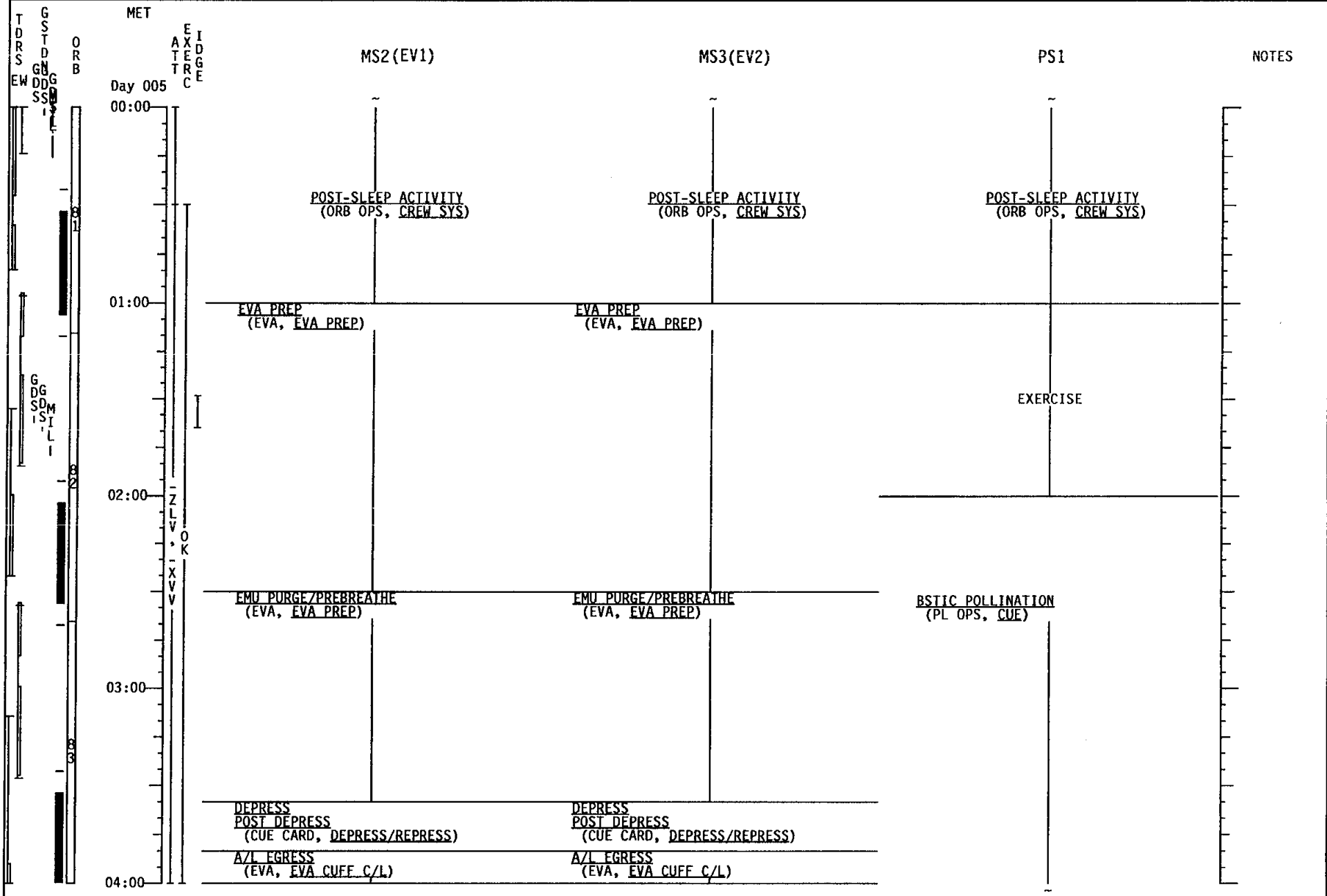
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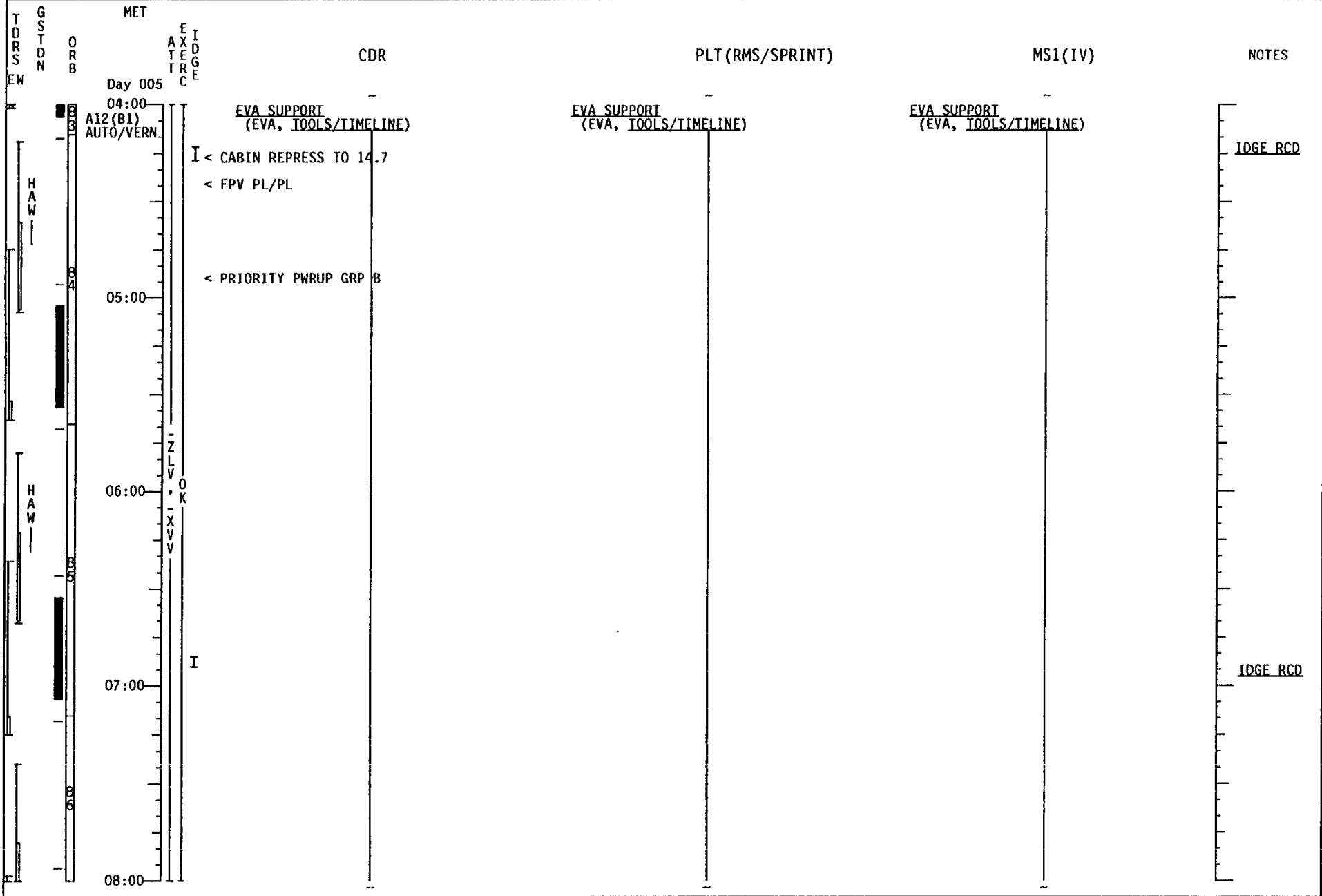
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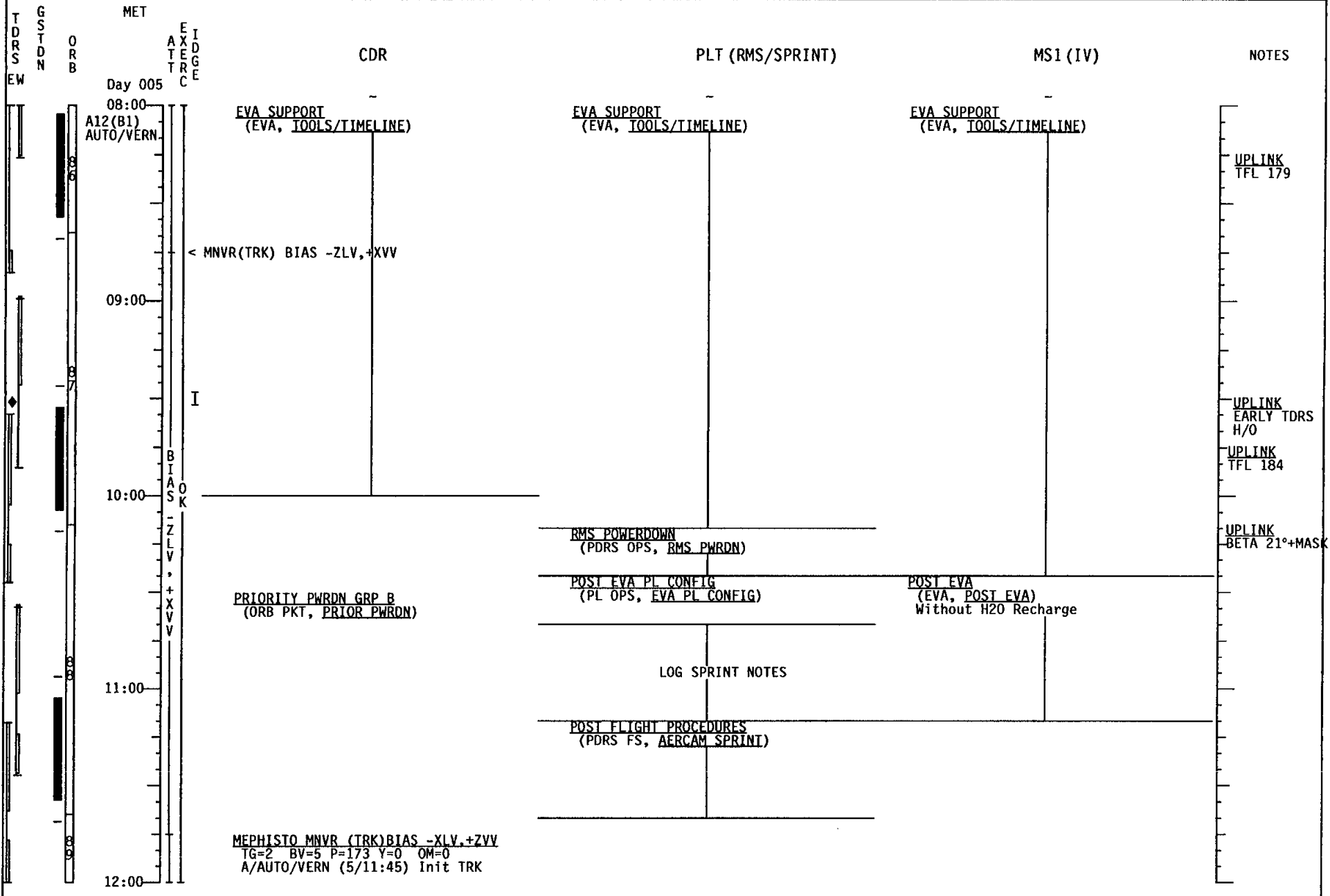
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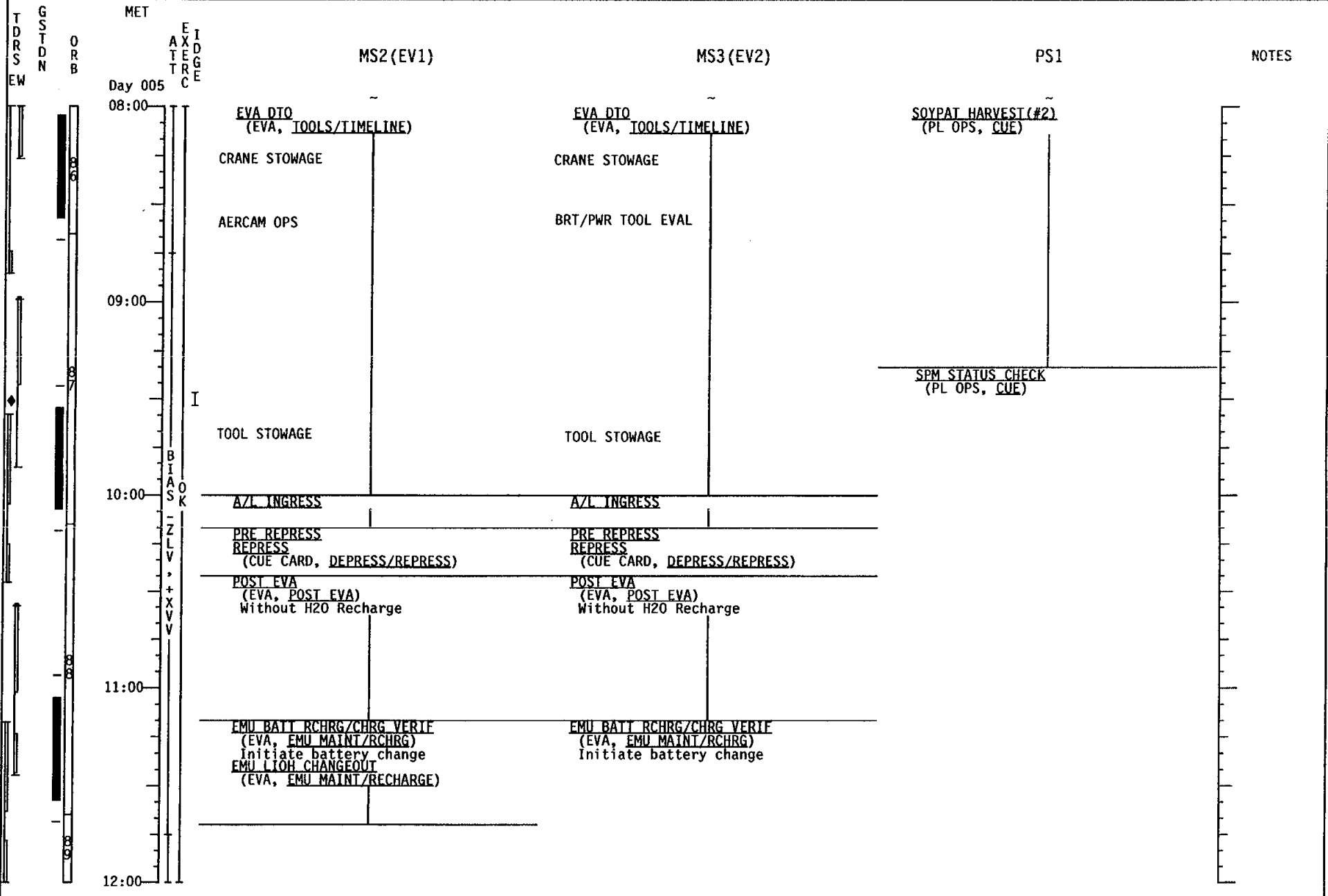
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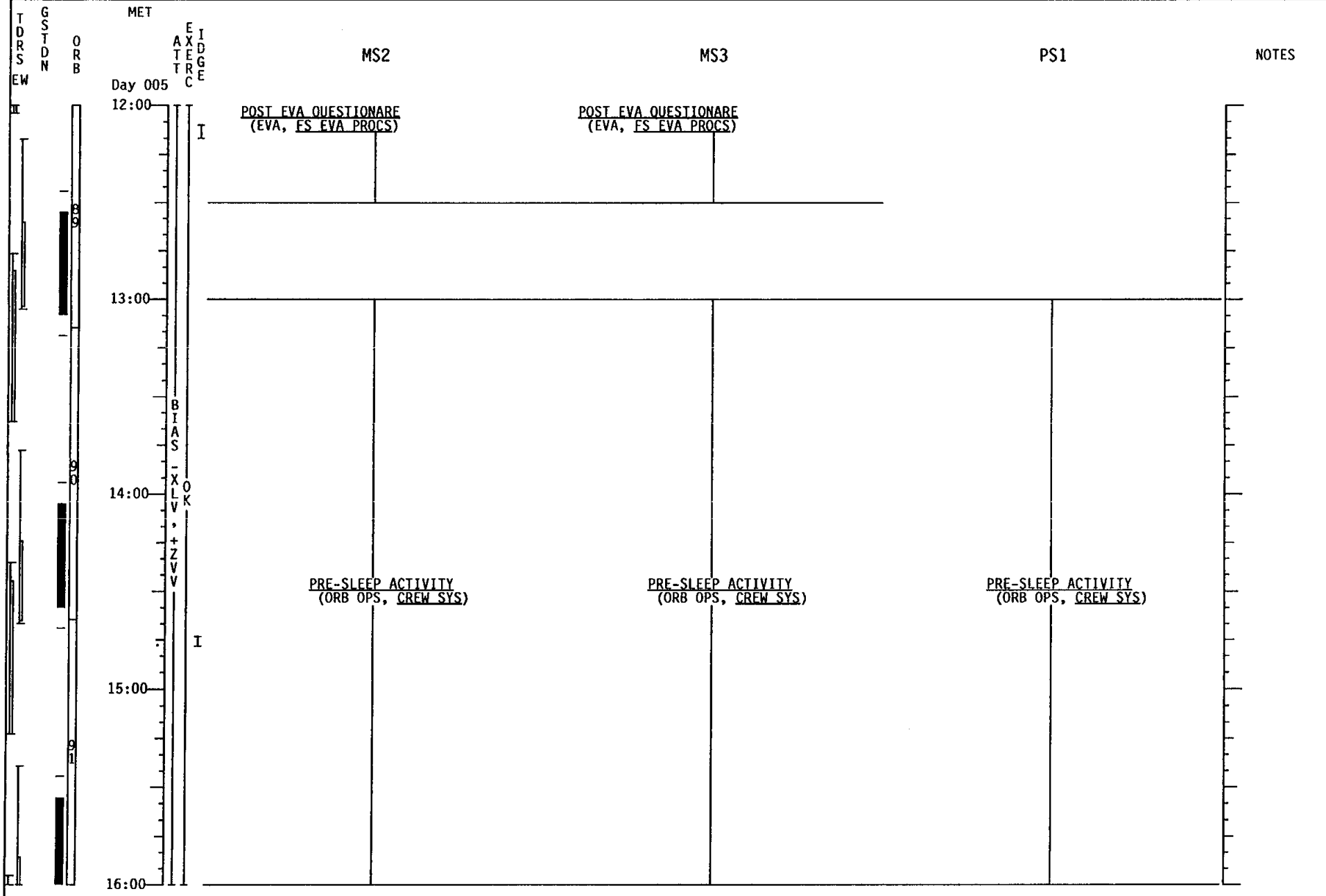
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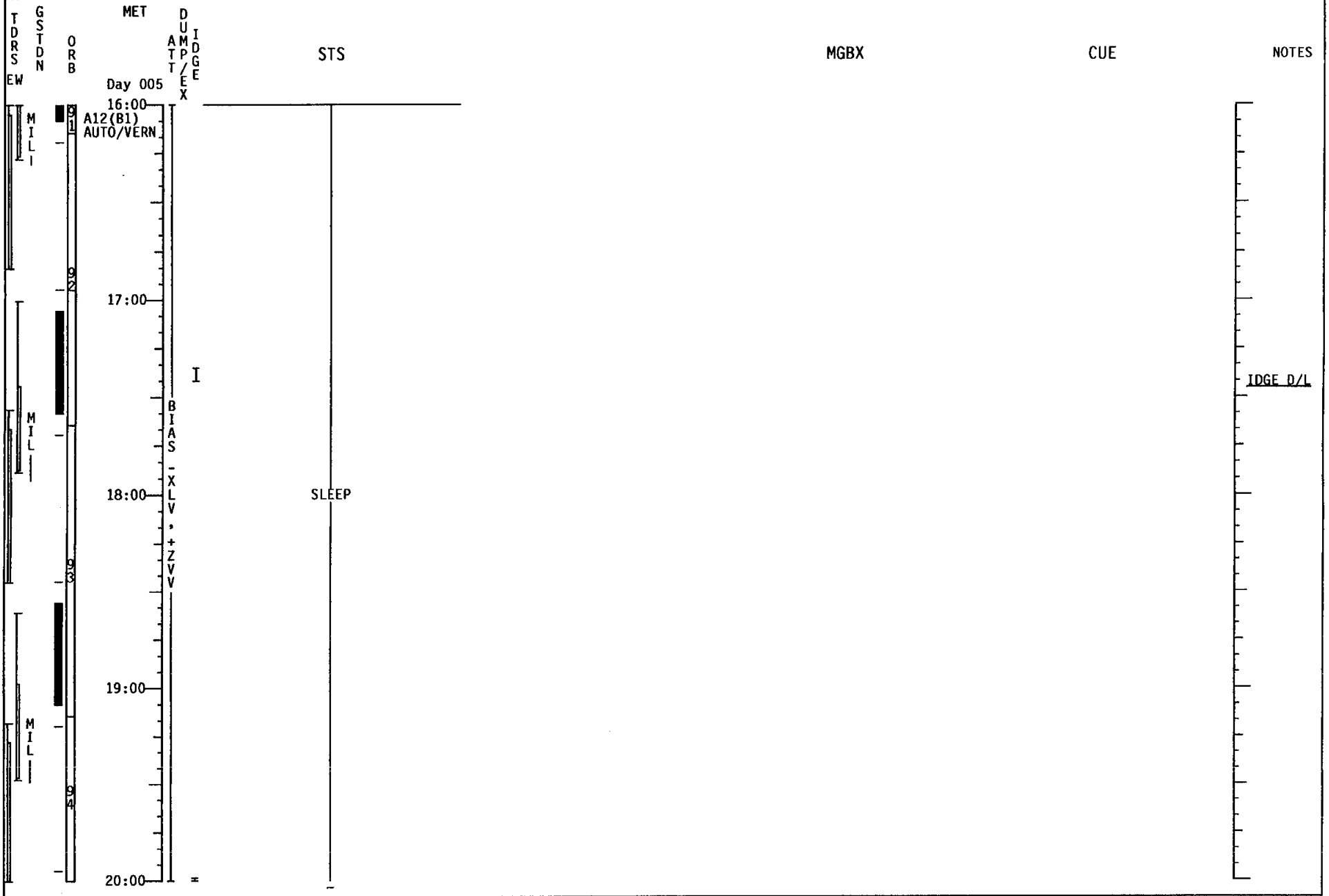
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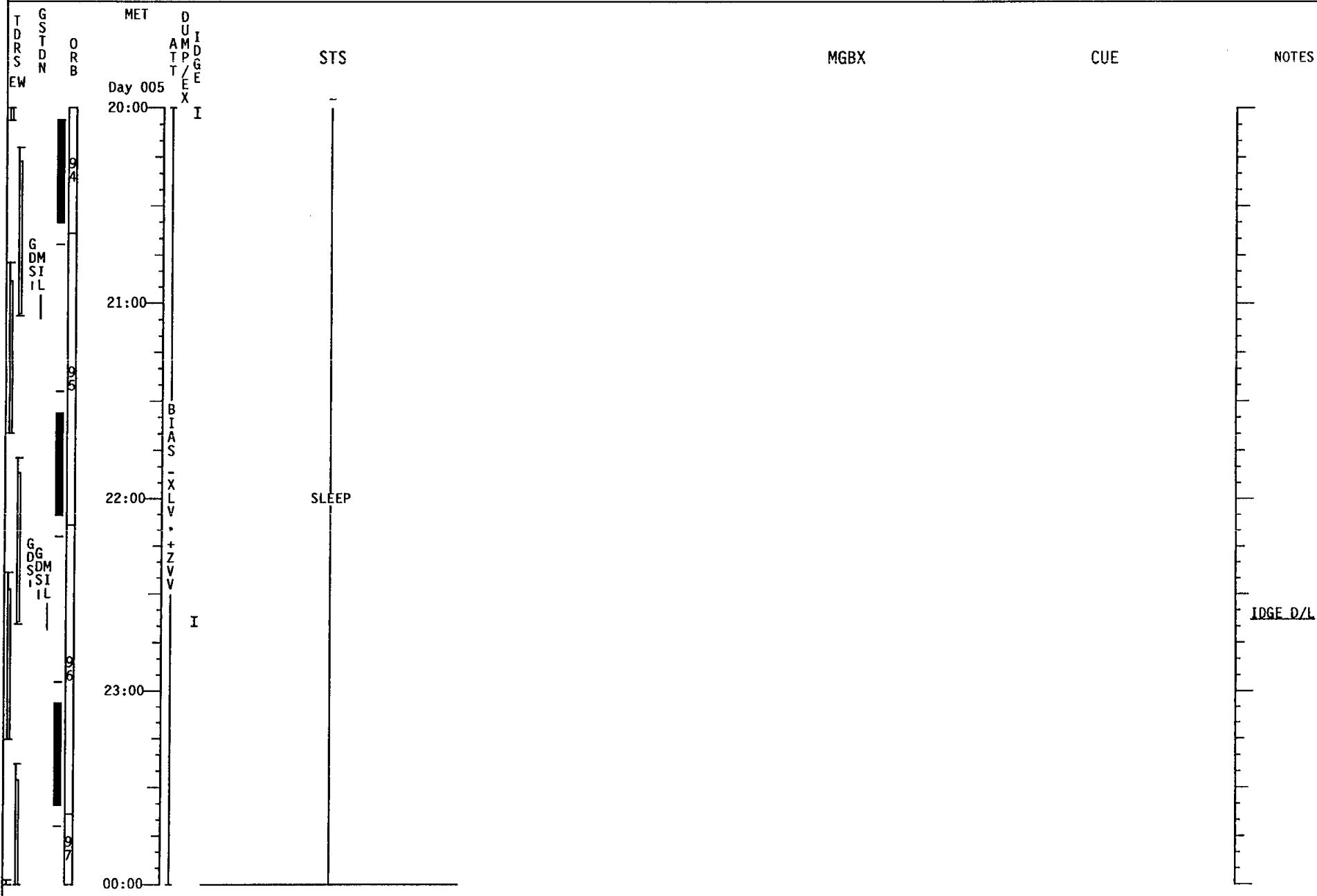
STS-87 (FD06)



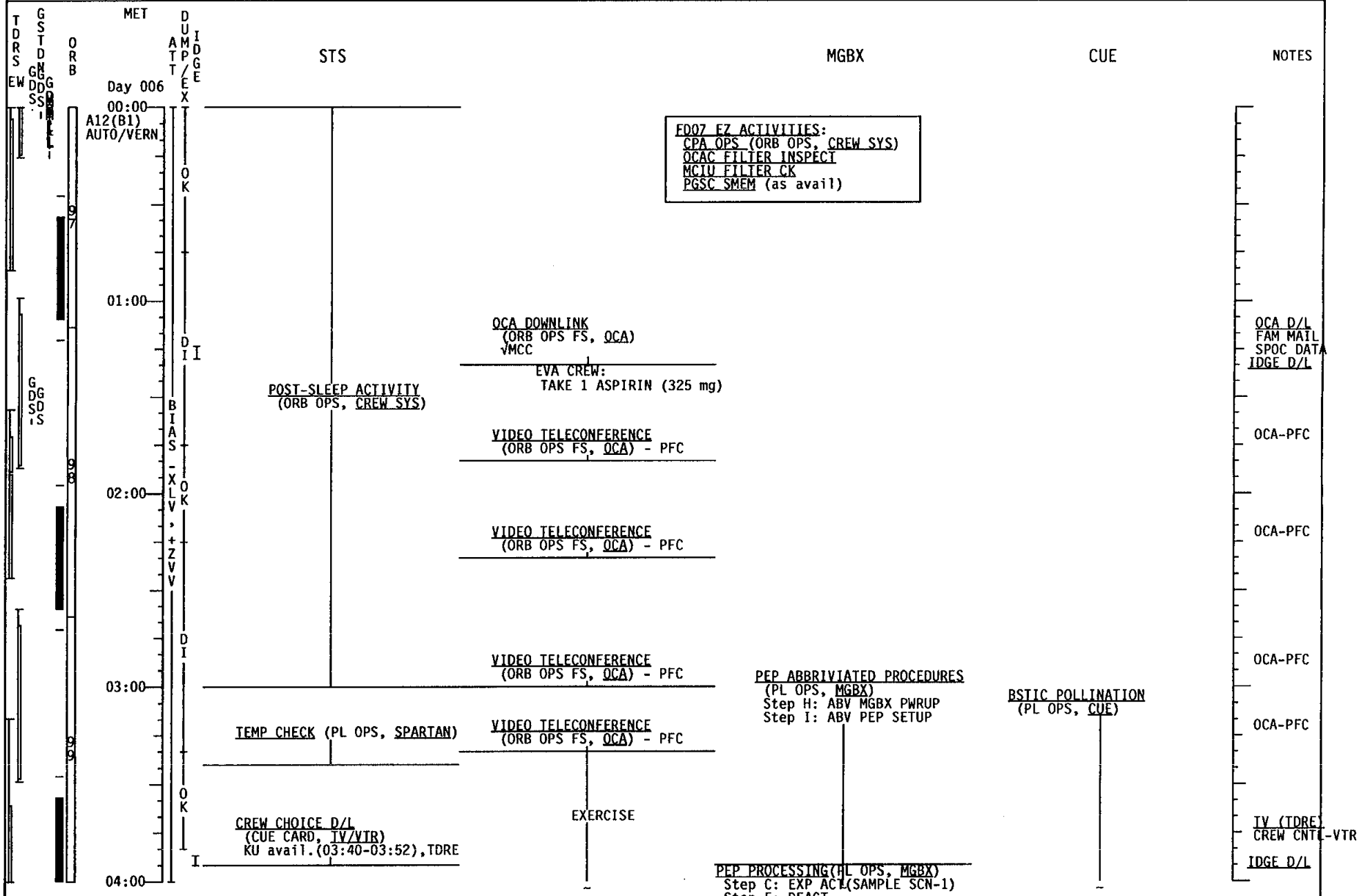
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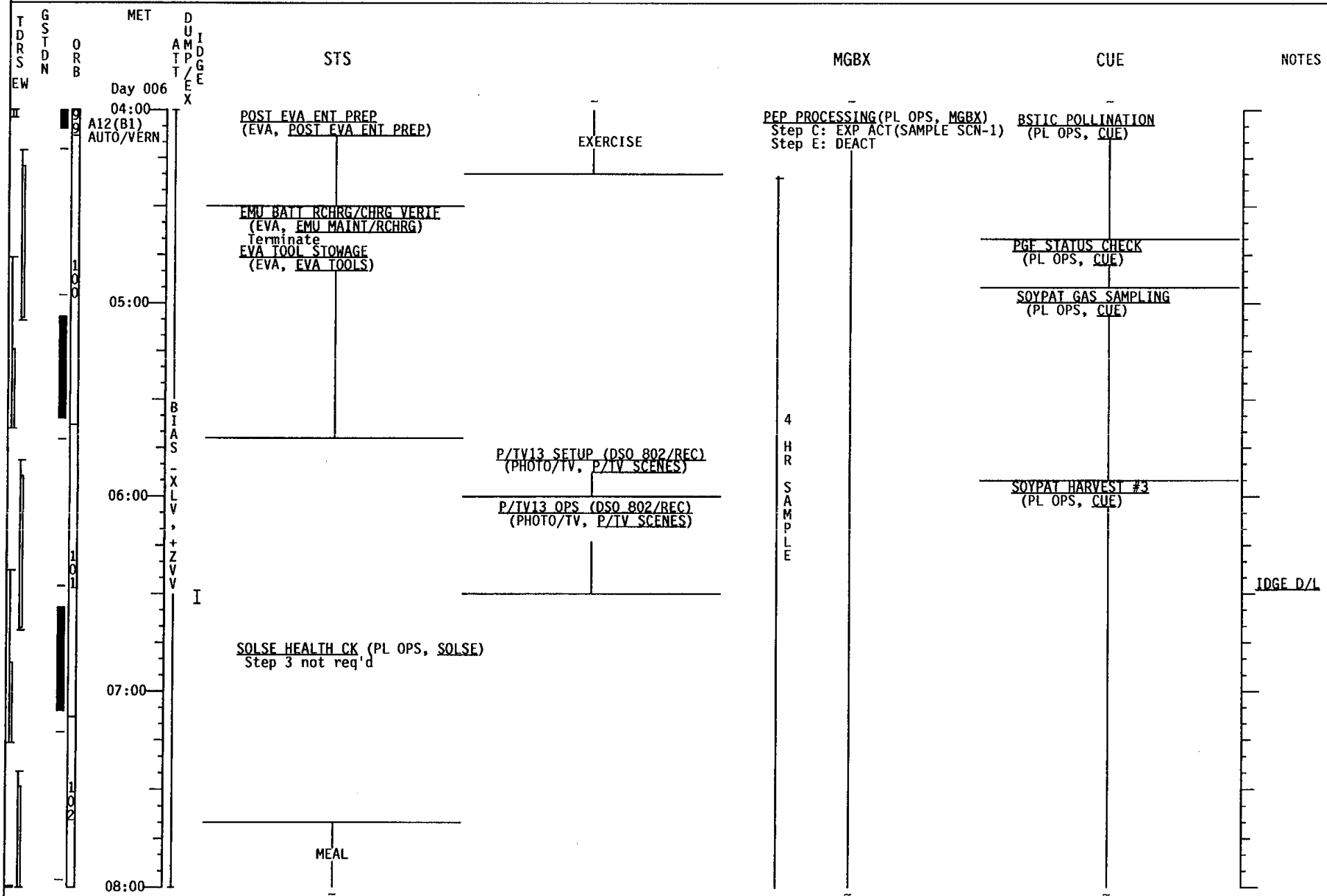
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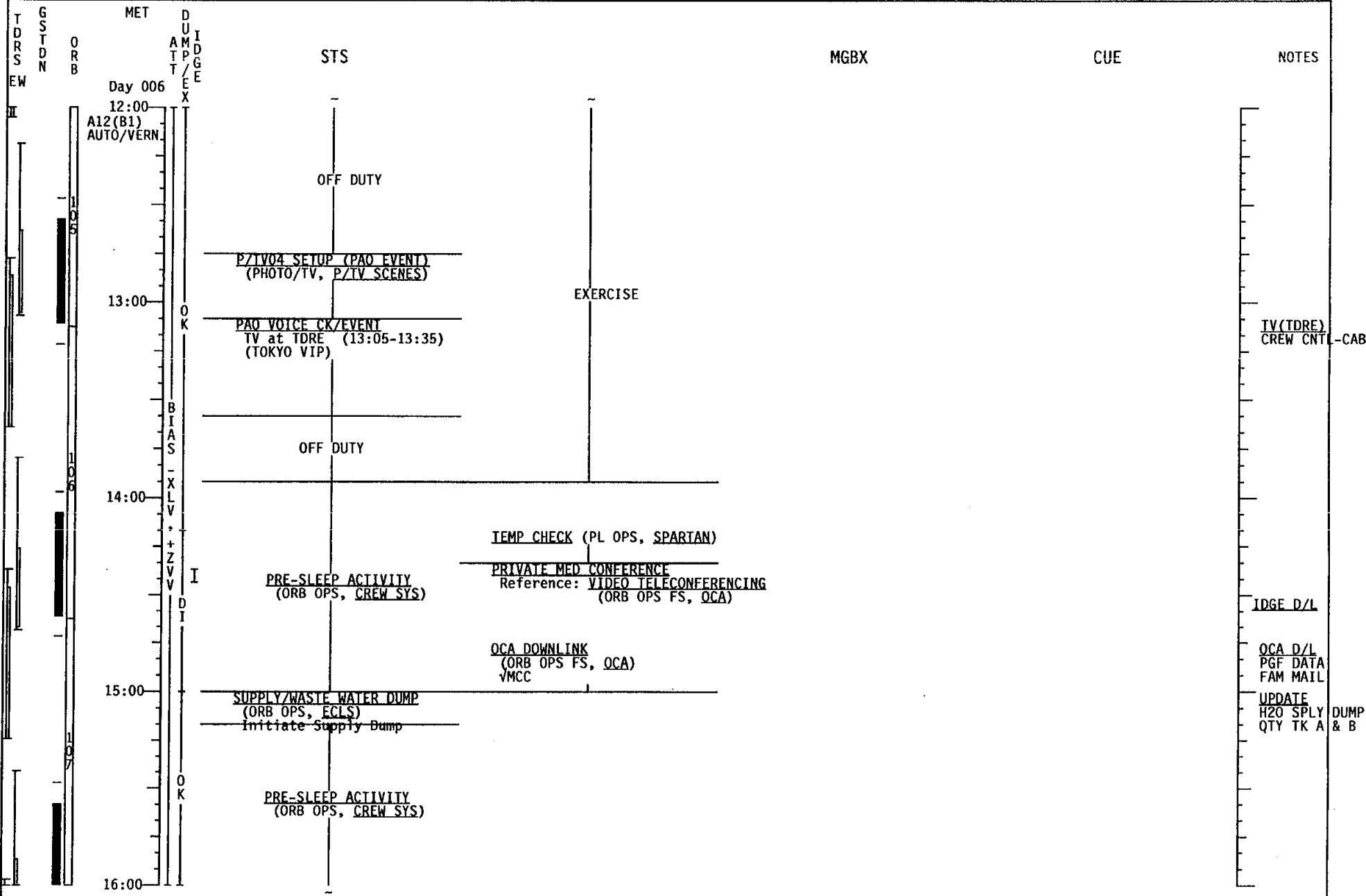
STS-87 (FD07)



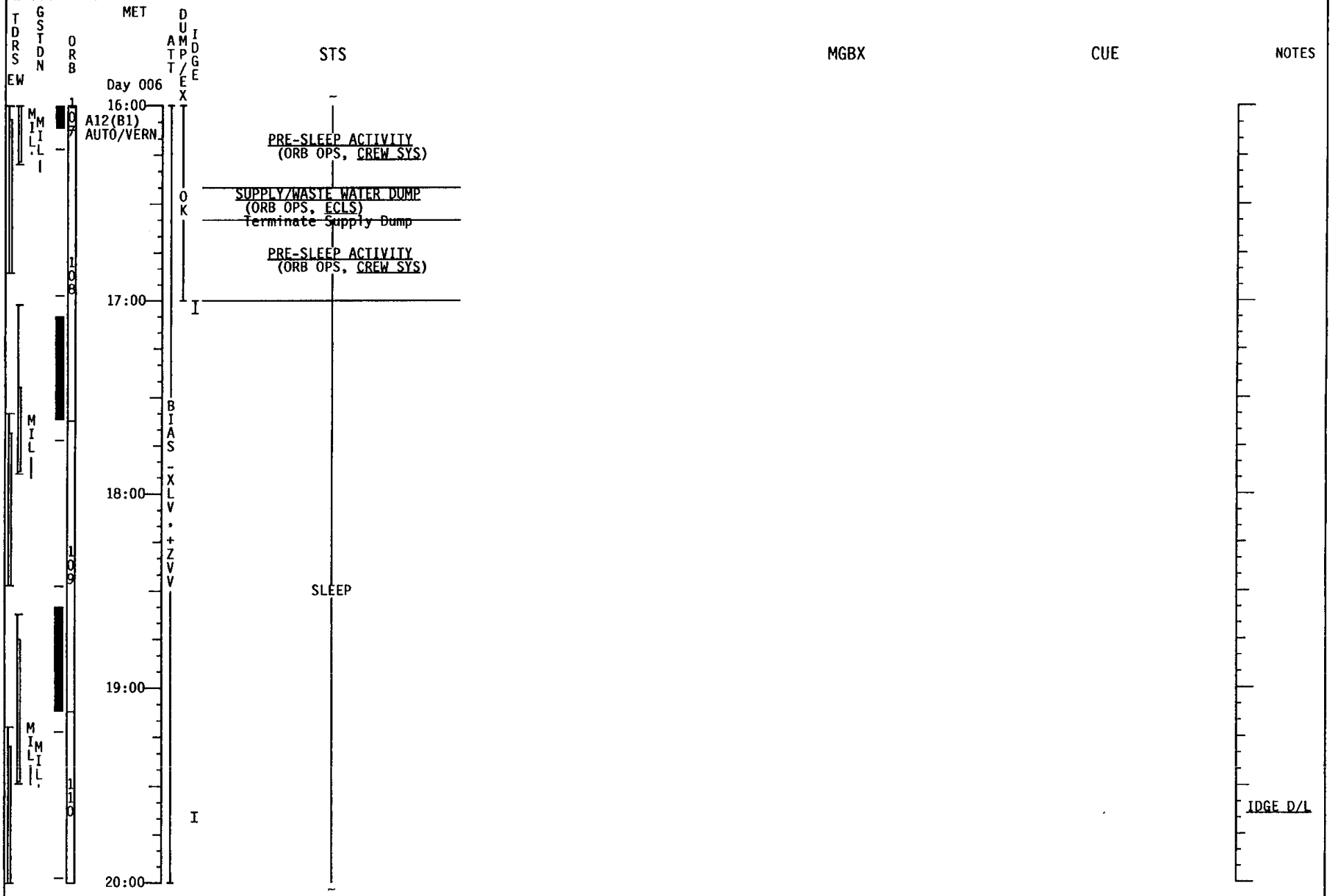
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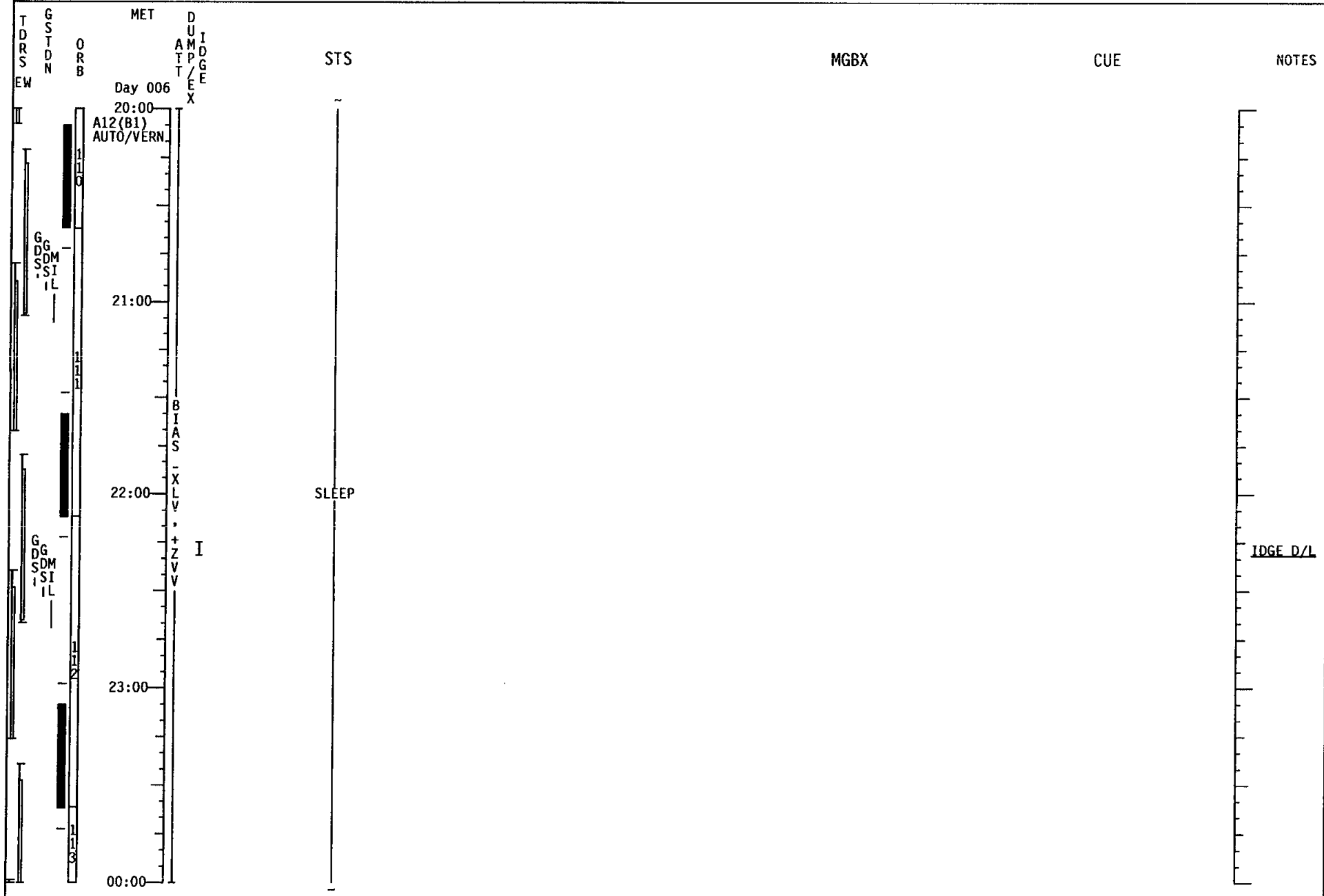
STS-87 (FD07)



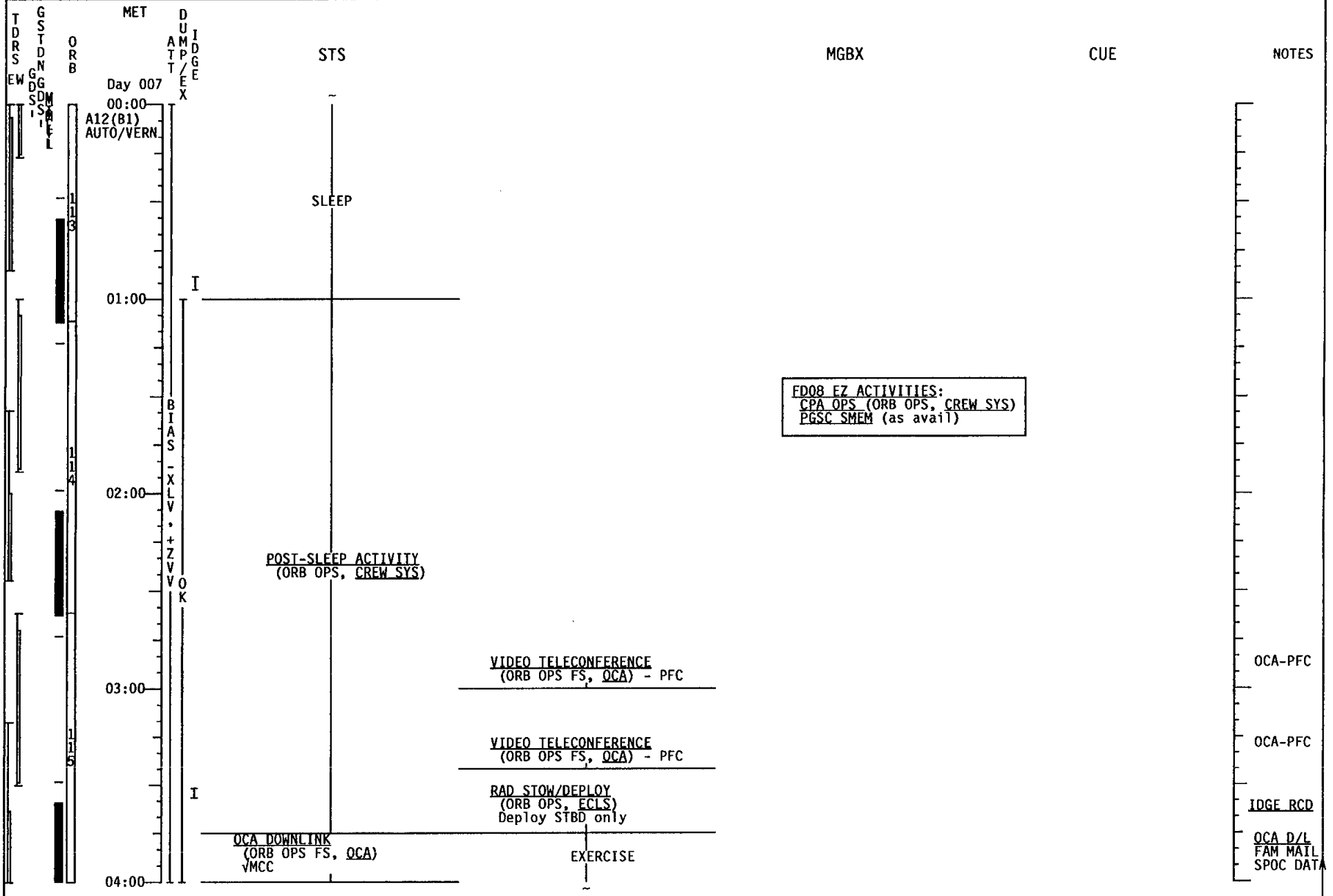
STS-87 (FD07)



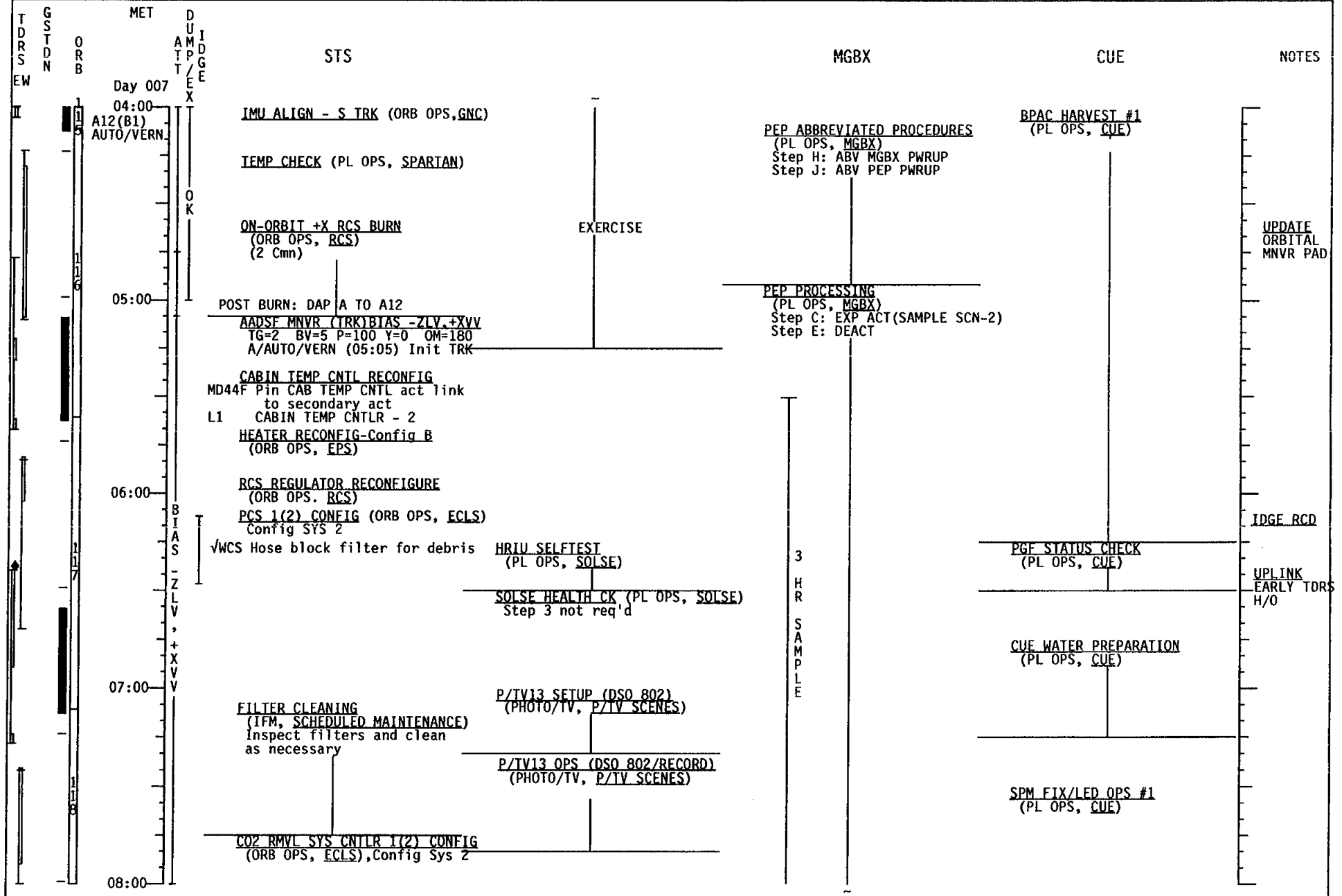
STS-87 (FD07)



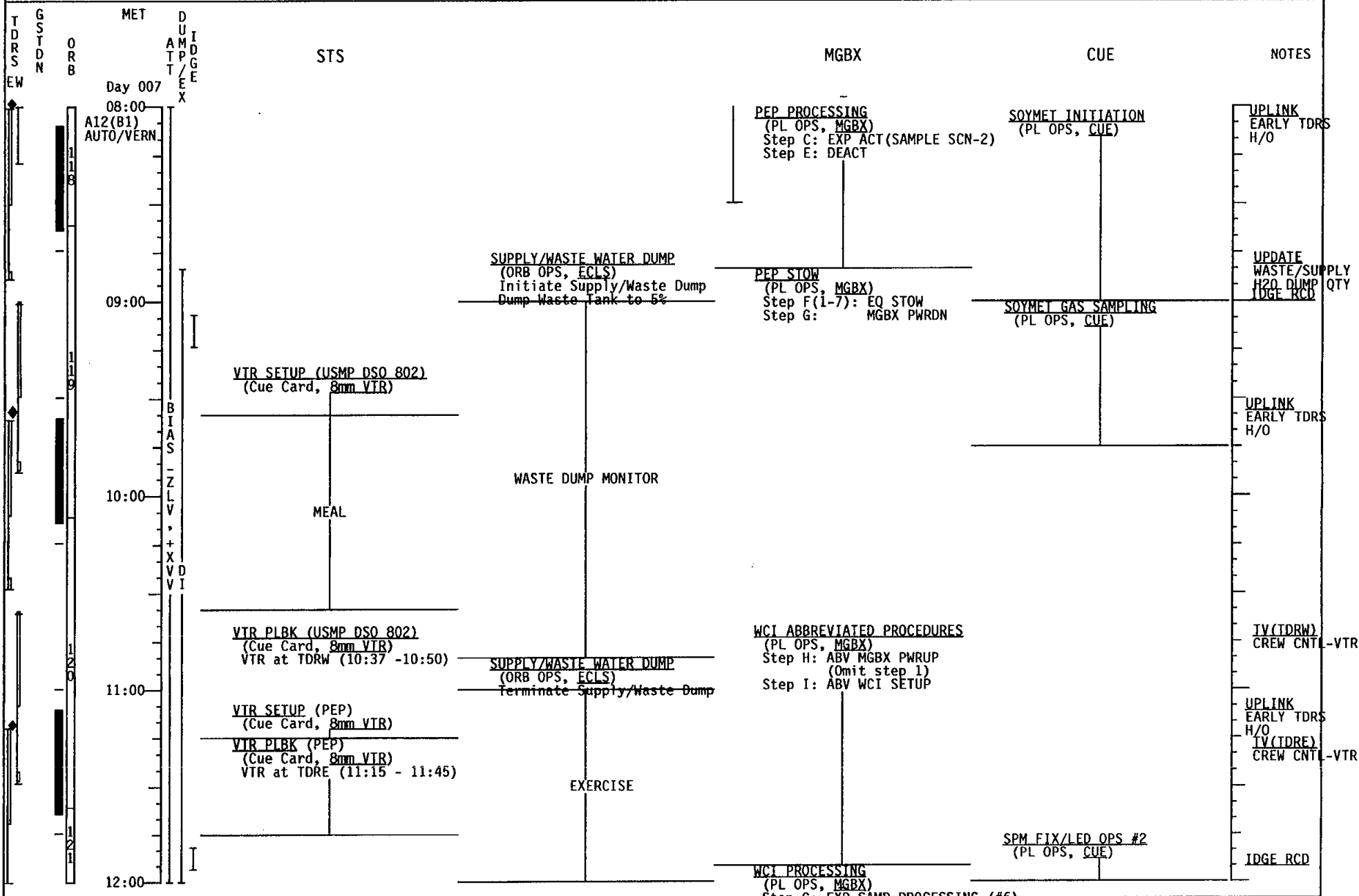
STS-87 (FD08)



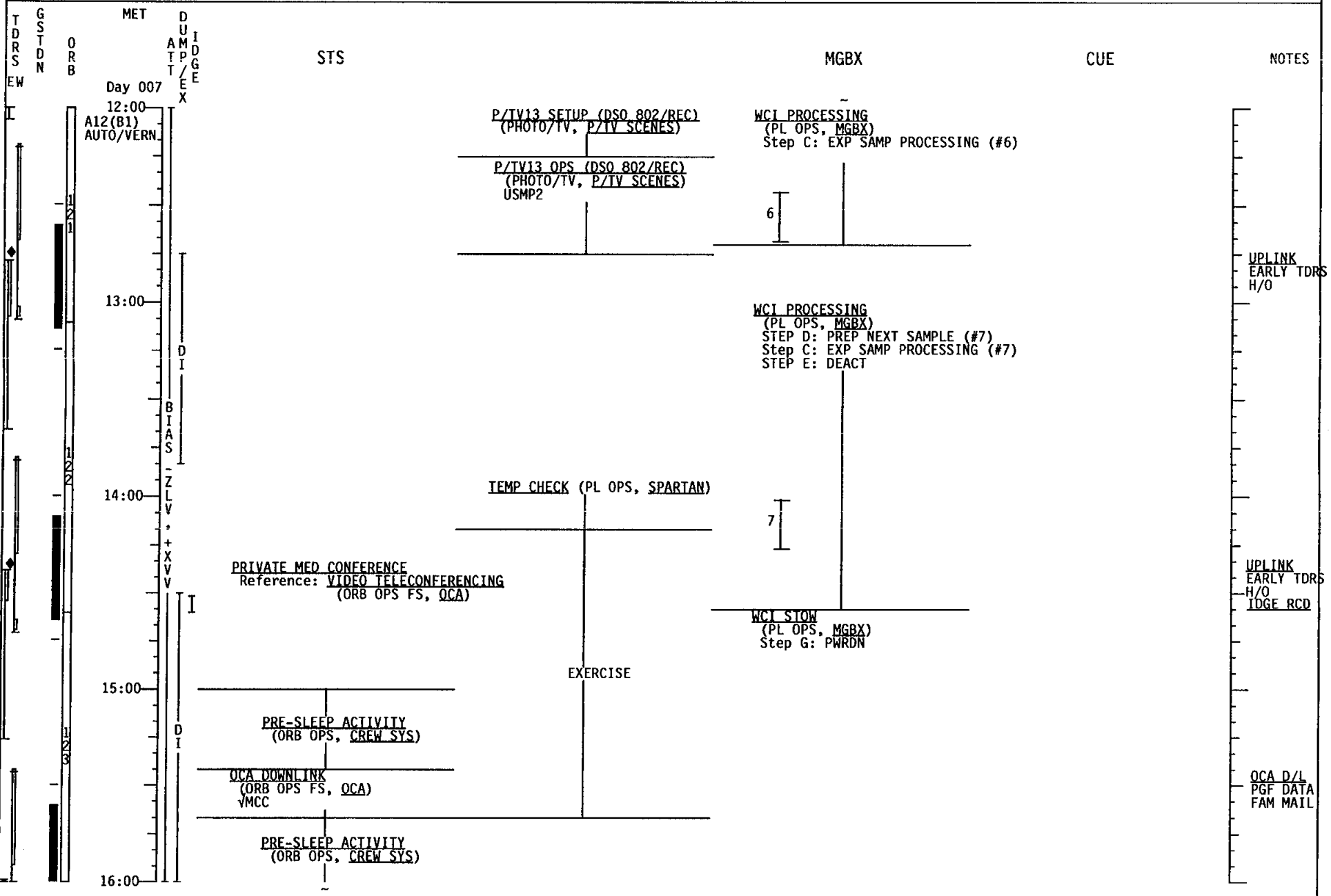
STS-87 (FD08)



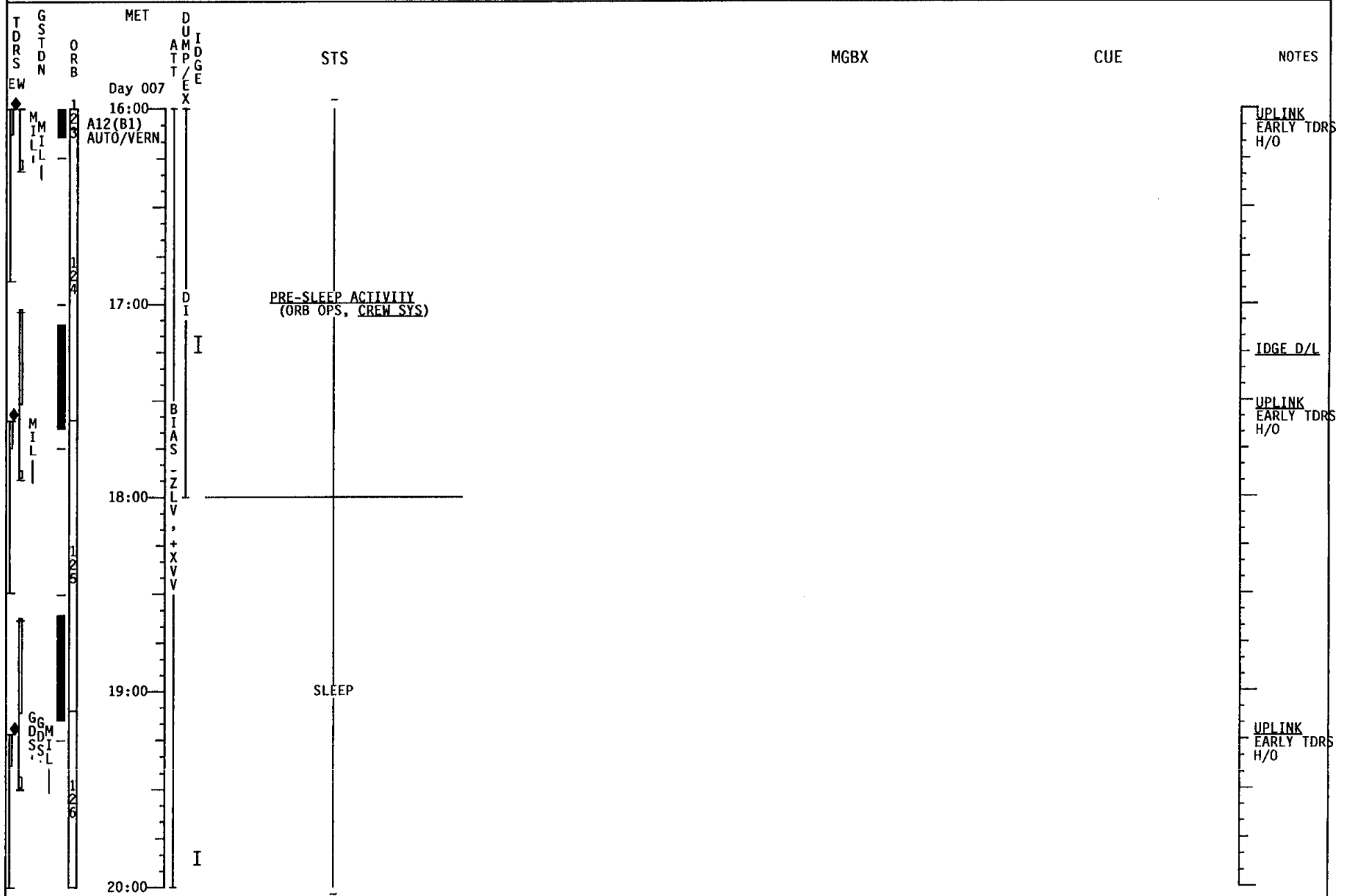
STS-87 (FD08)



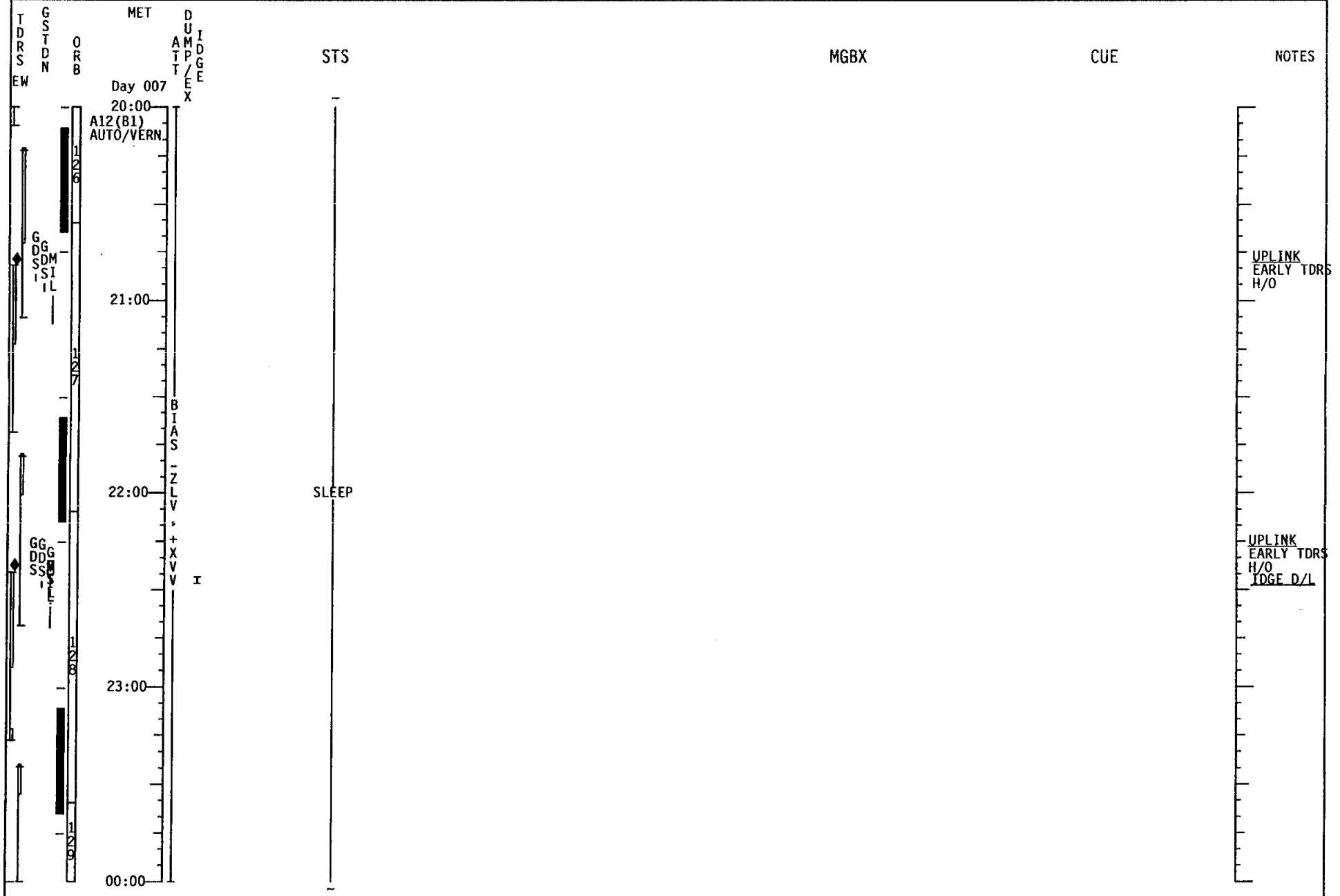
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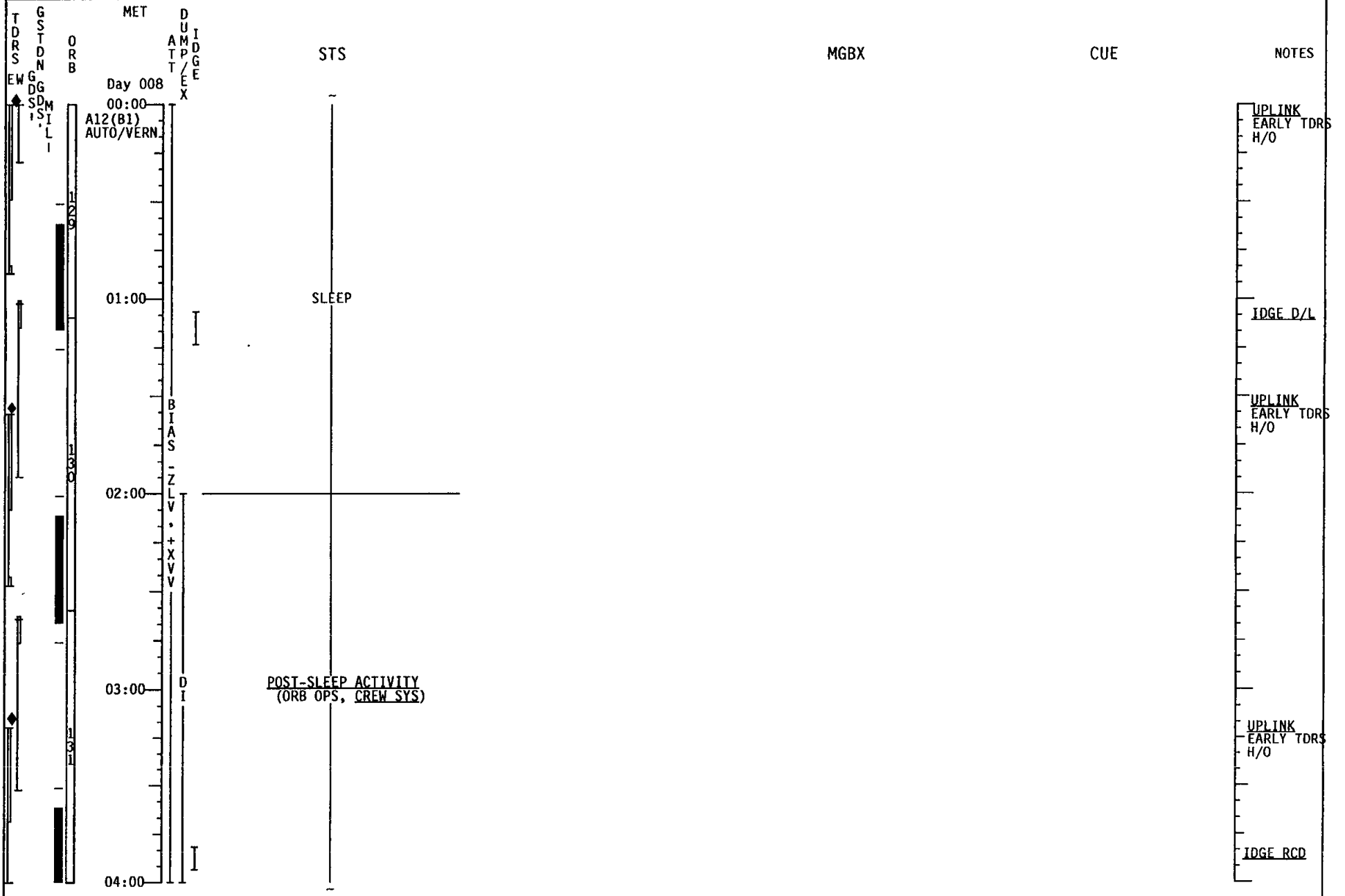
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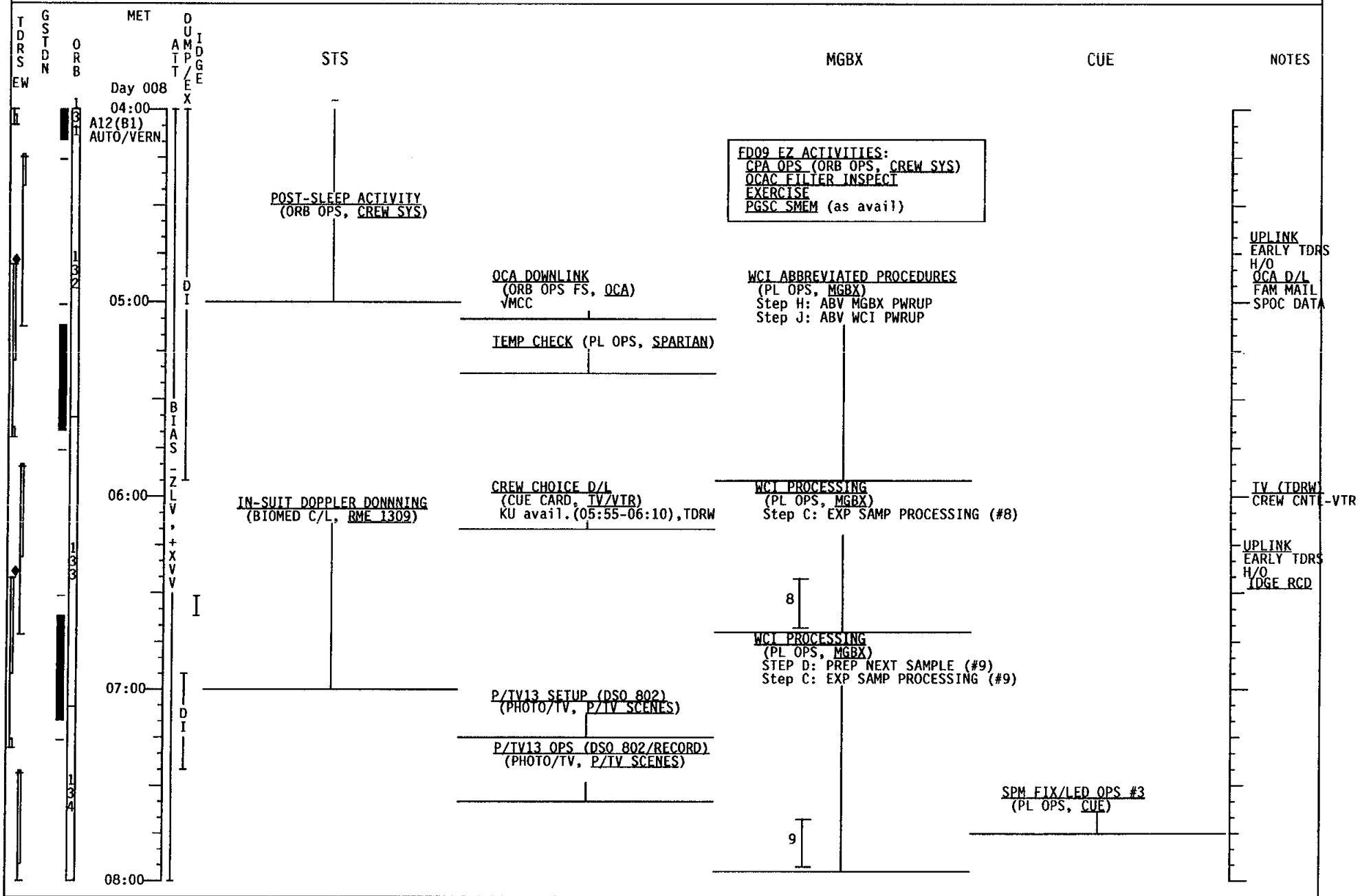
STS-87 (FD08)



STS-87 (FD09)



STS-87 (FD09)



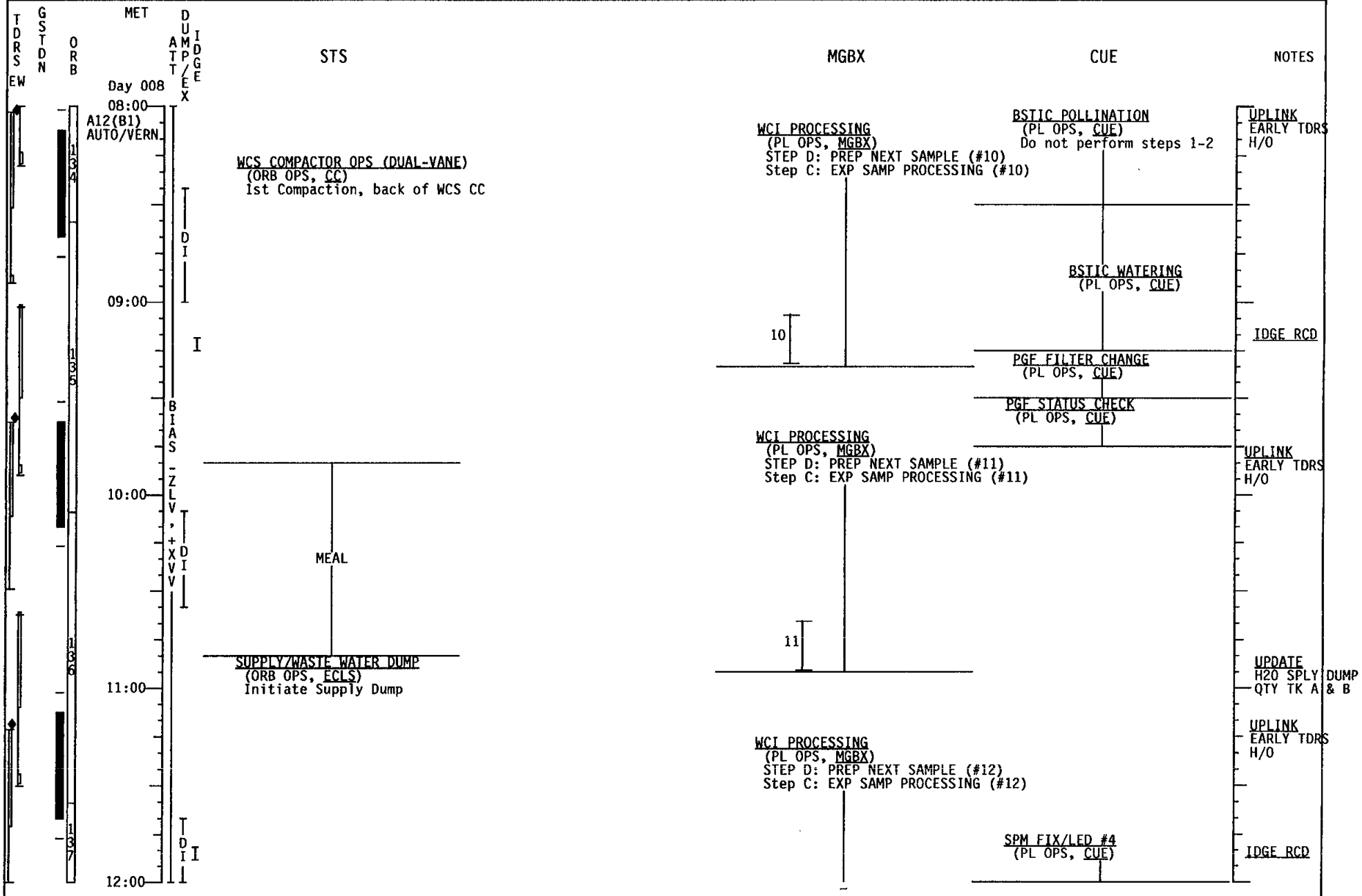
FD09 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 OCAC FILTER INSPECT
 EXERCISE
 PGSC SMEM (as avail)

WCI ABBREVIATED PROCEDURES
 (PL OPS, MGBX)
 Step H: ABV MGBX PWRUP
 Step J: ABV WCI PWRUP

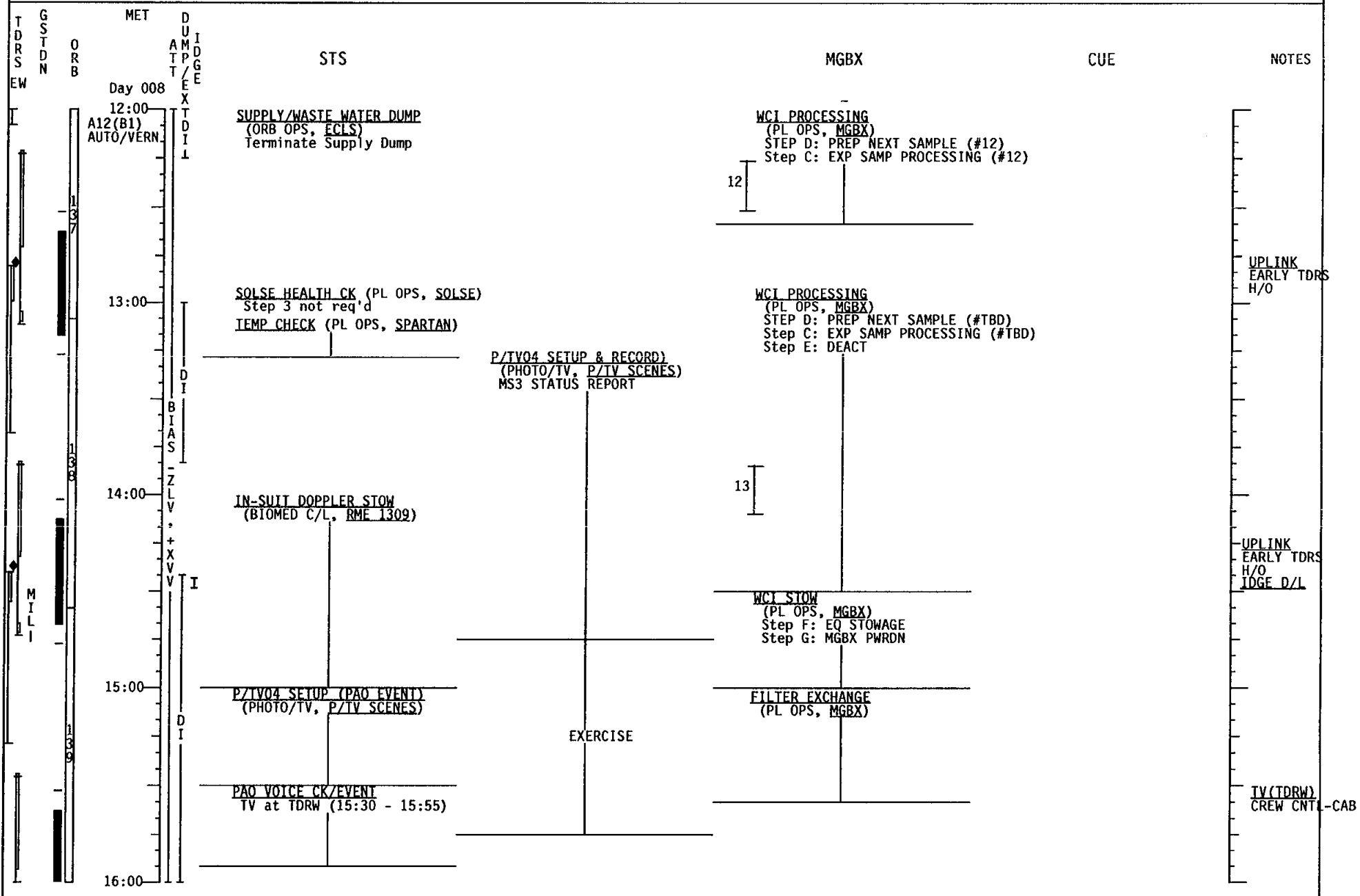
WCI PROCESSING
 (PL OPS, MGBX)
 Step C: EXP SAMP PROCESSING (#8)

WCI PROCESSING
 (PL OPS, MGBX)
 STEP D: PREP NEXT SAMPLE (#9)
 Step C: EXP SAMP PROCESSING (#9)

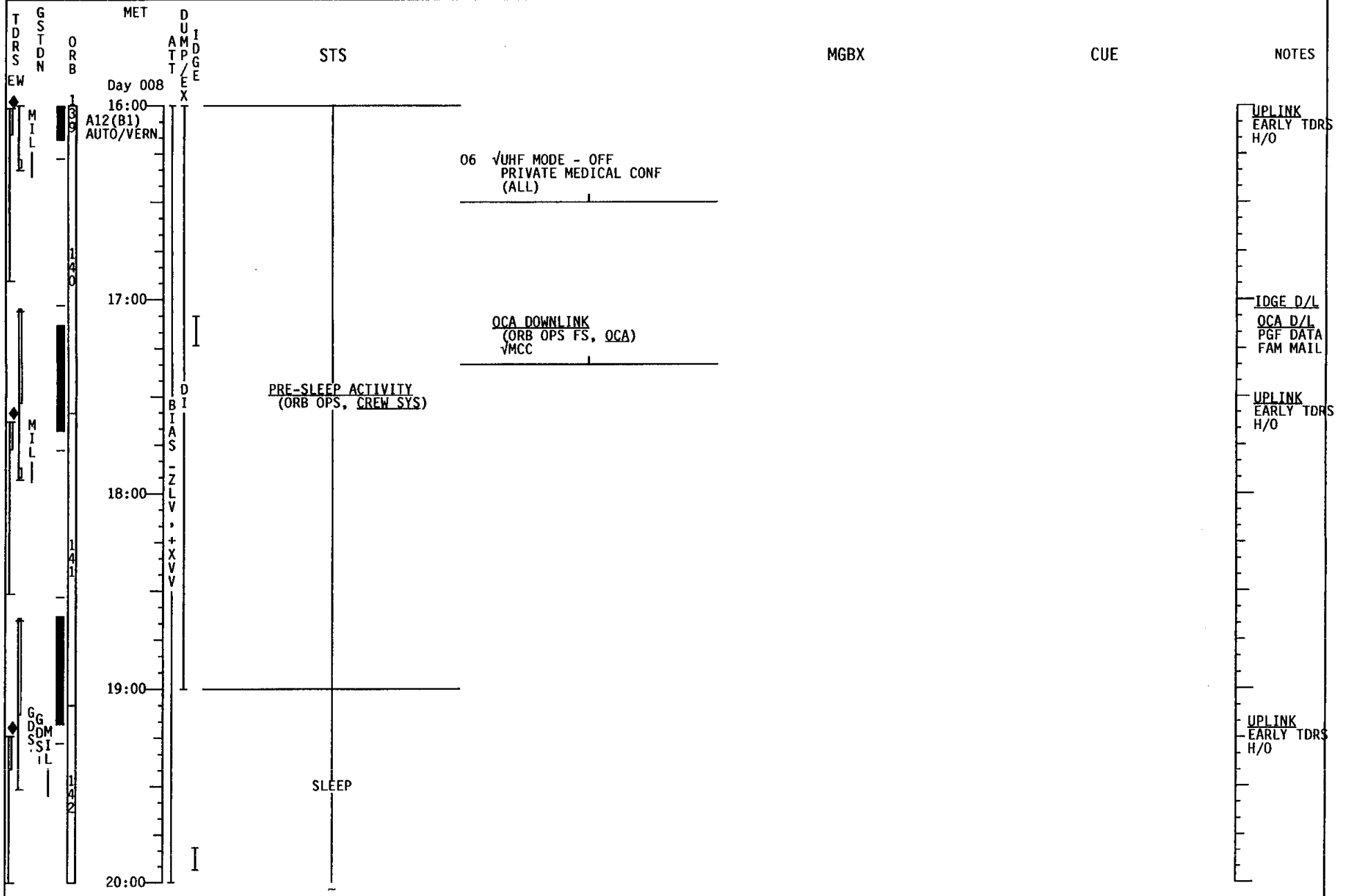
STS-87 (FD09)



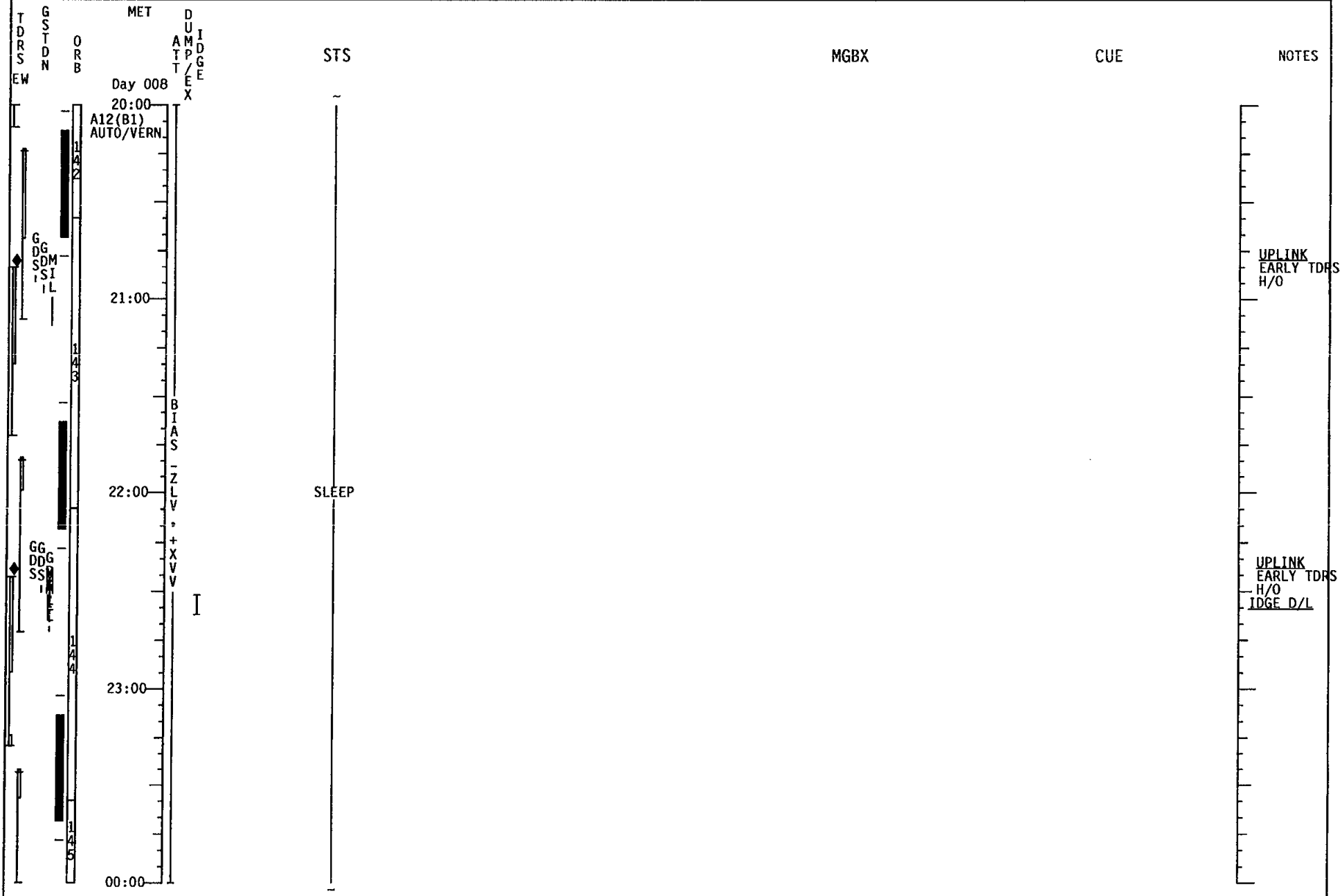
STS-87 (FD09)



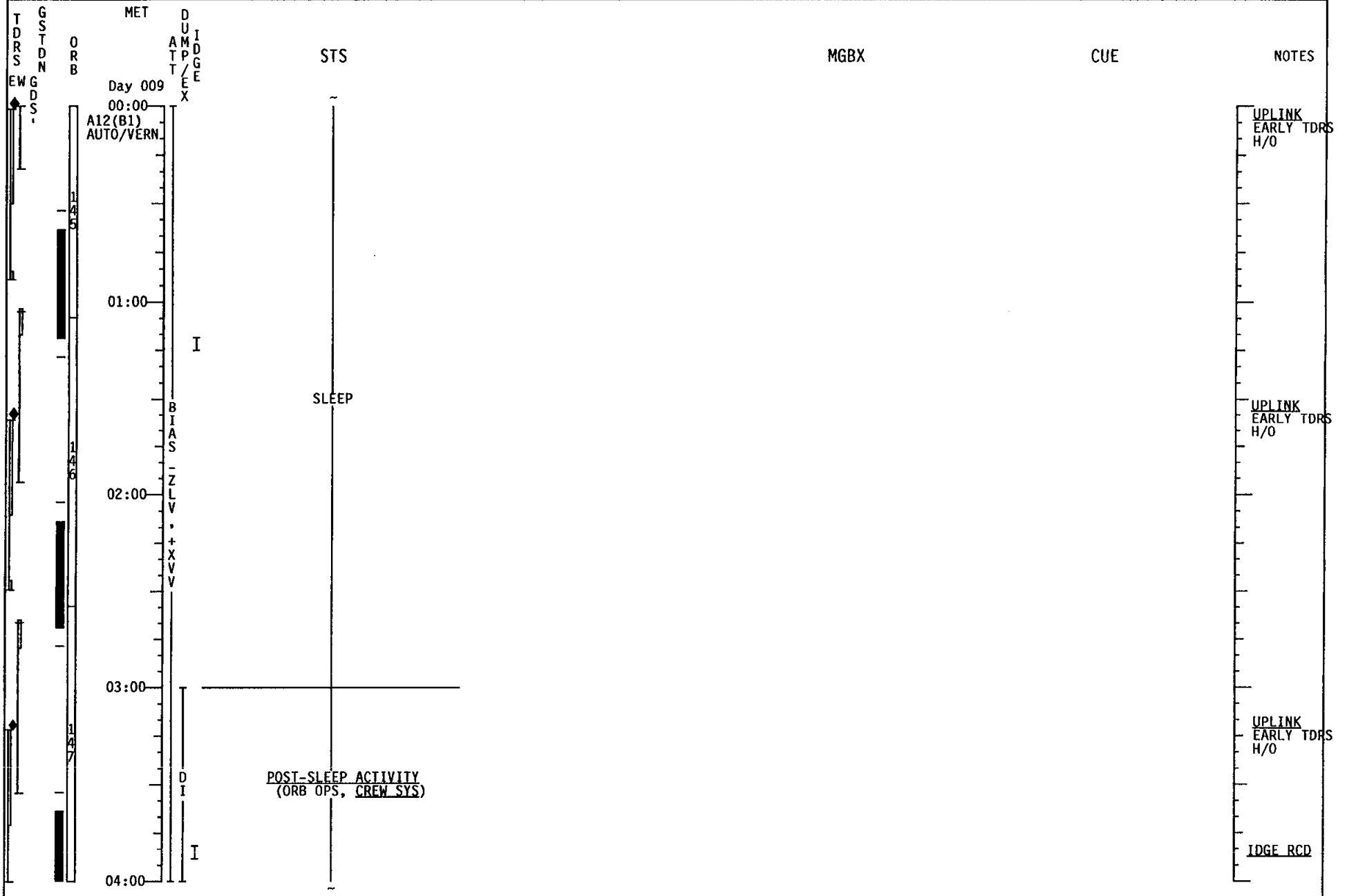
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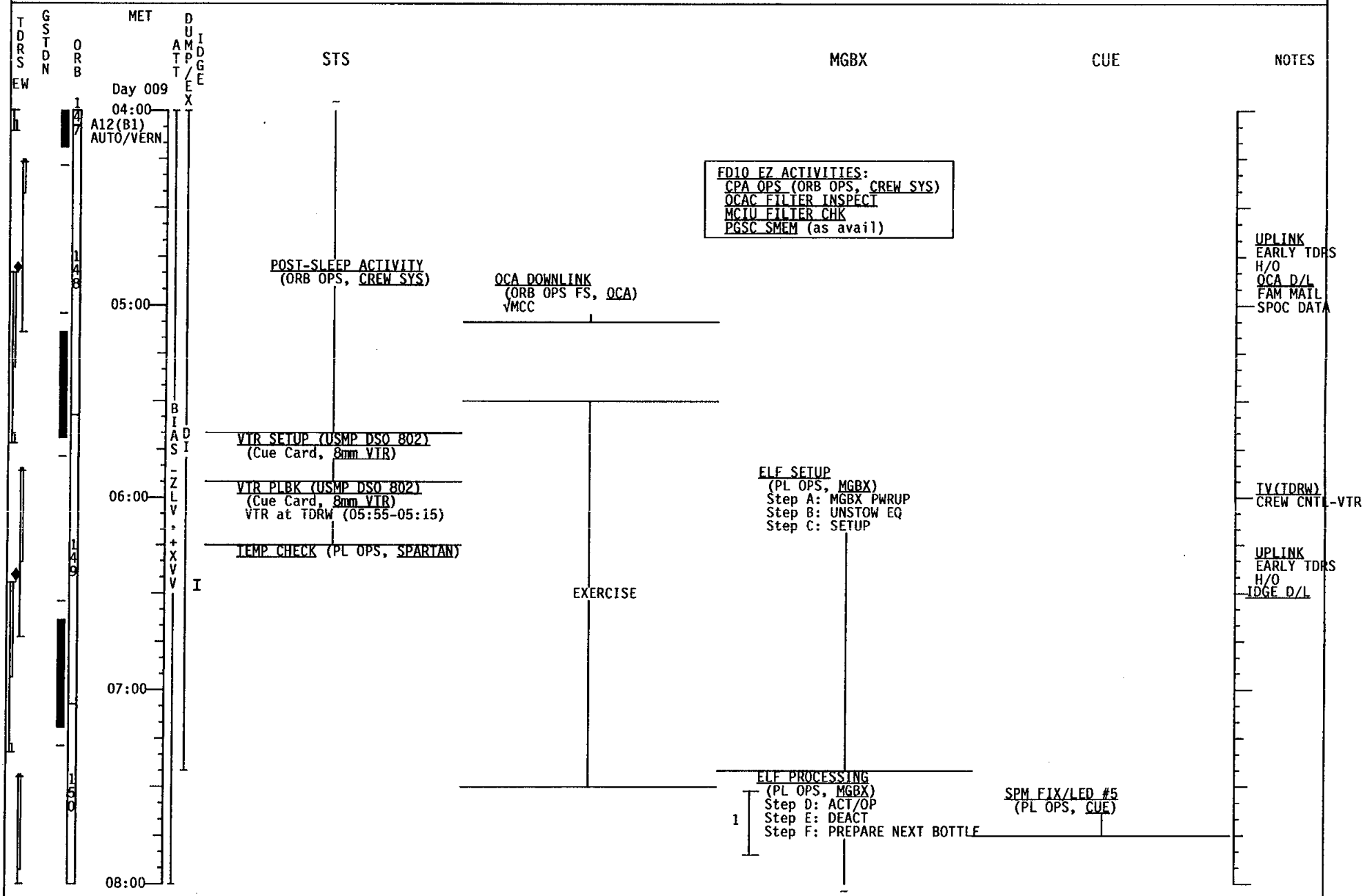
STS-87 (FD09)



STS-87 (FD10)

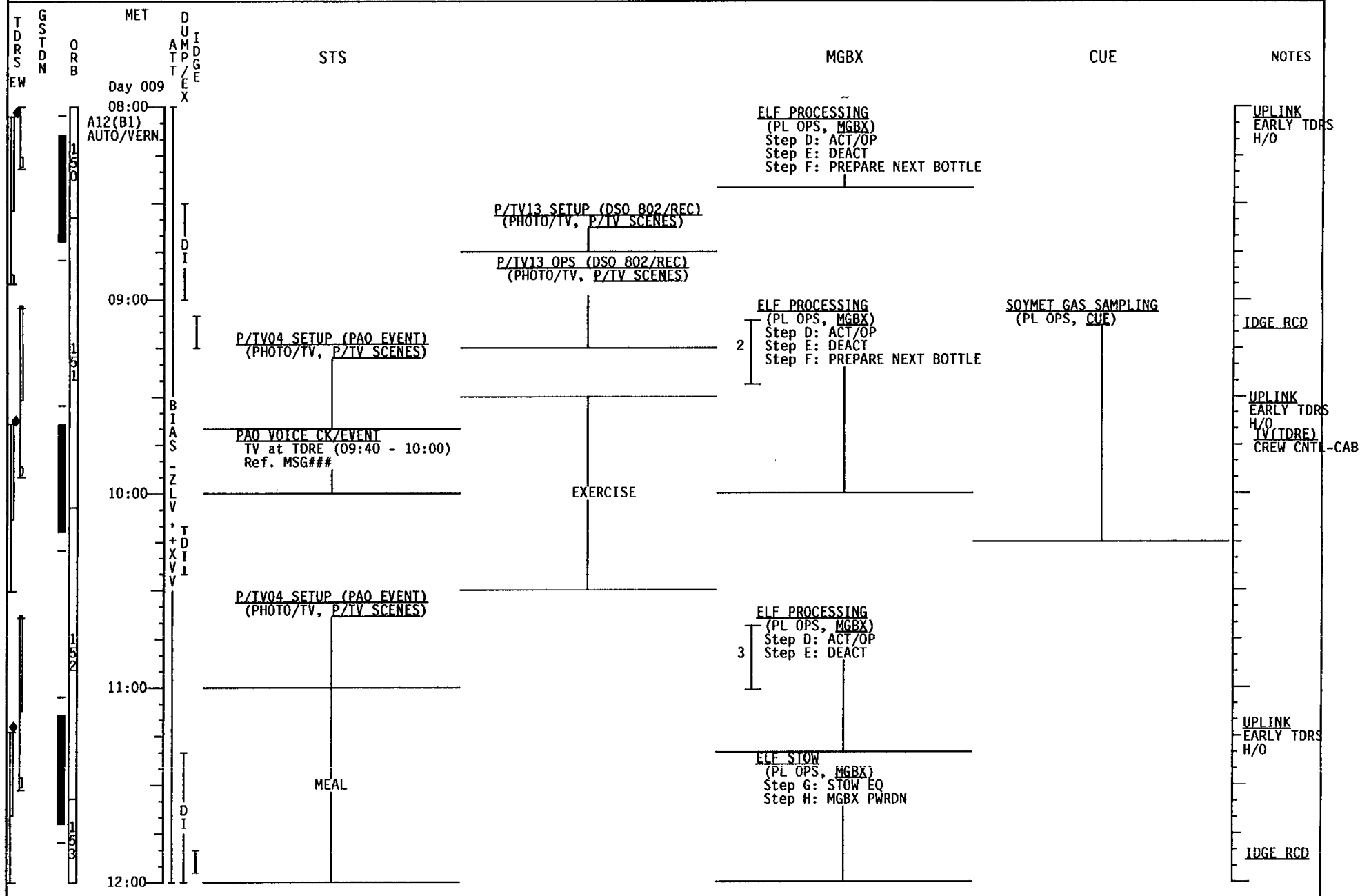


STS-87 (FD10)

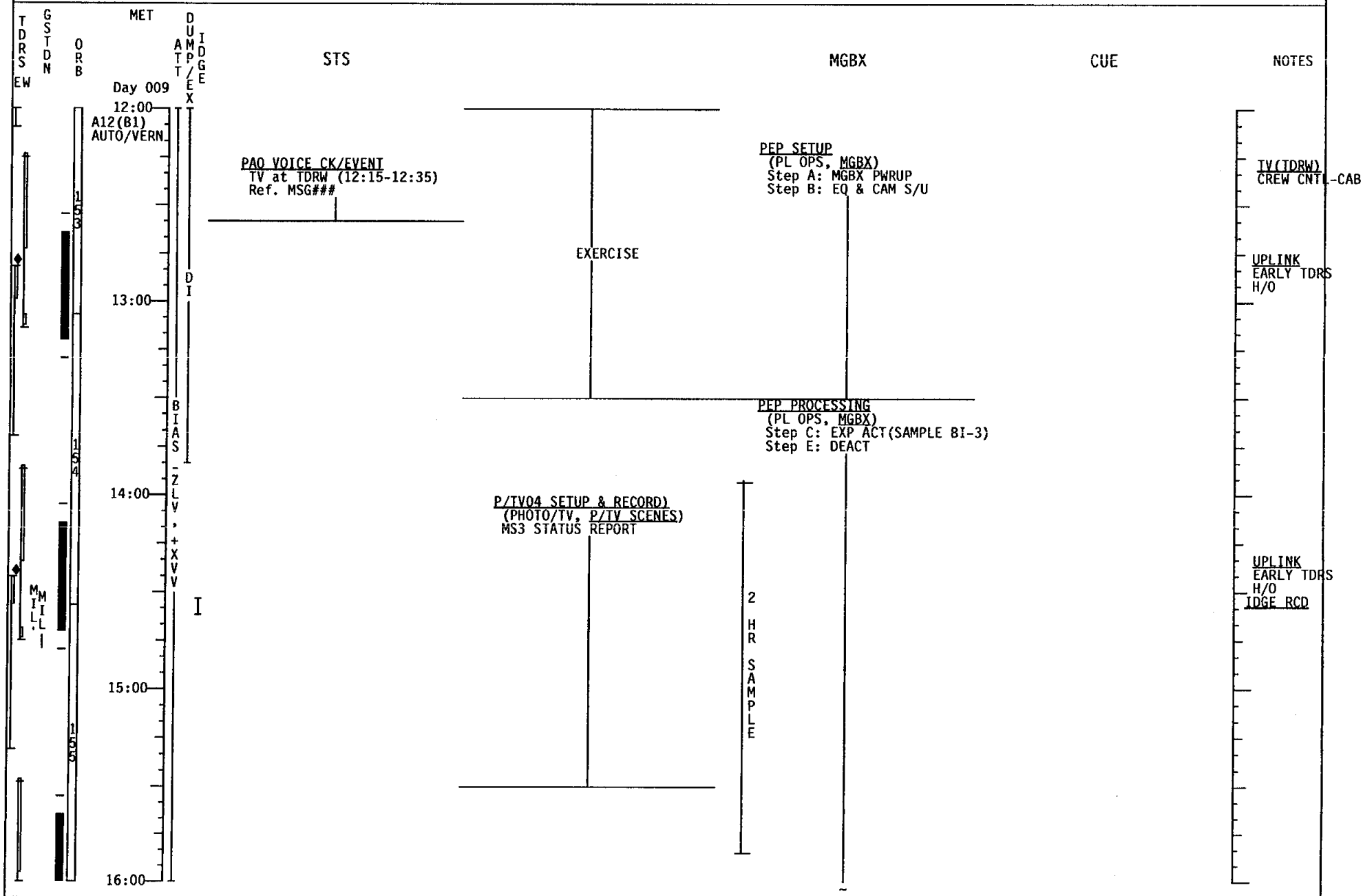


FD10 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 QCAC FILTER INSPECT
 MCIU FILTER CHK
 PGSC SMEM (as avail)

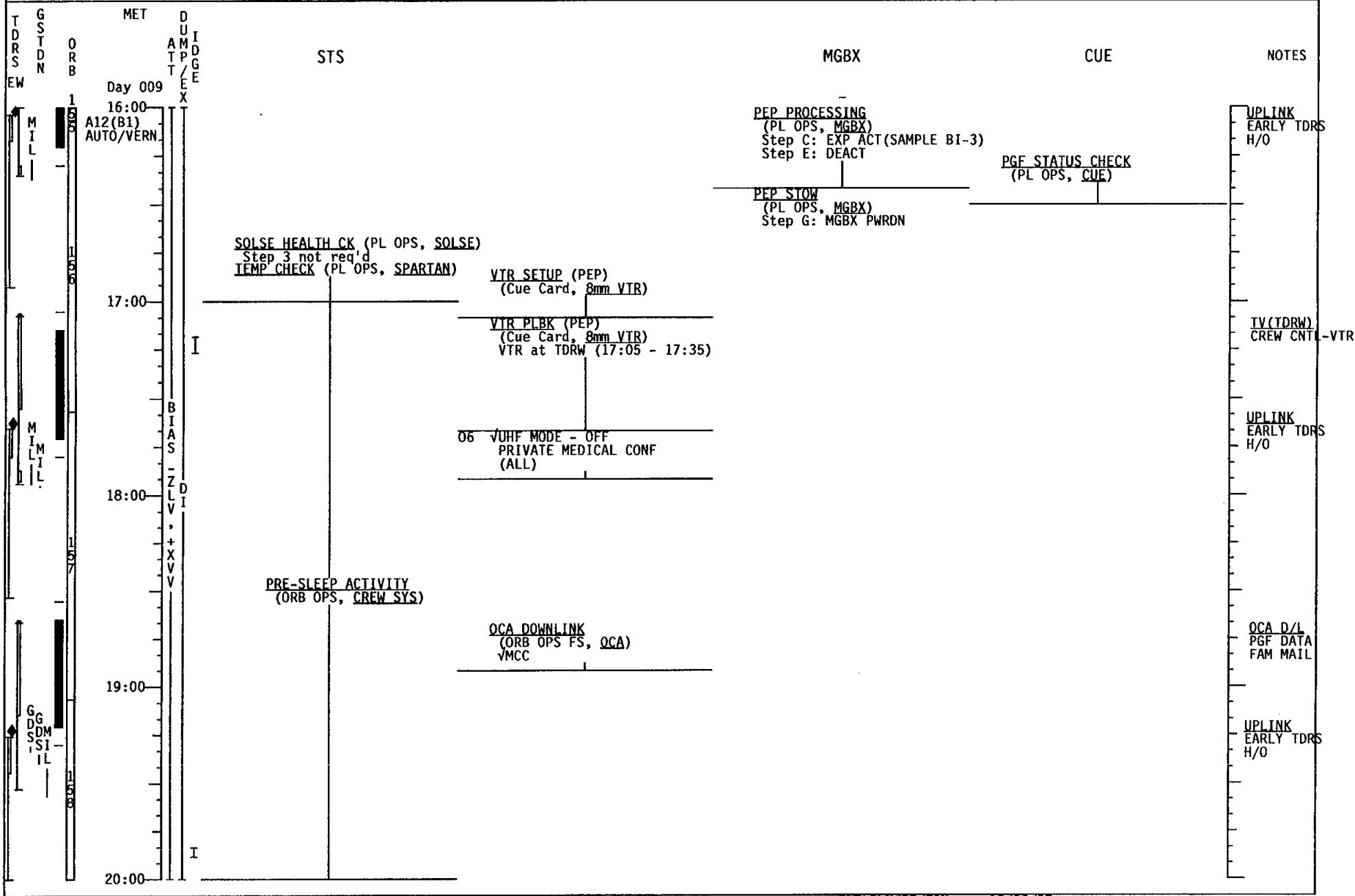
STS-87 (FD10)



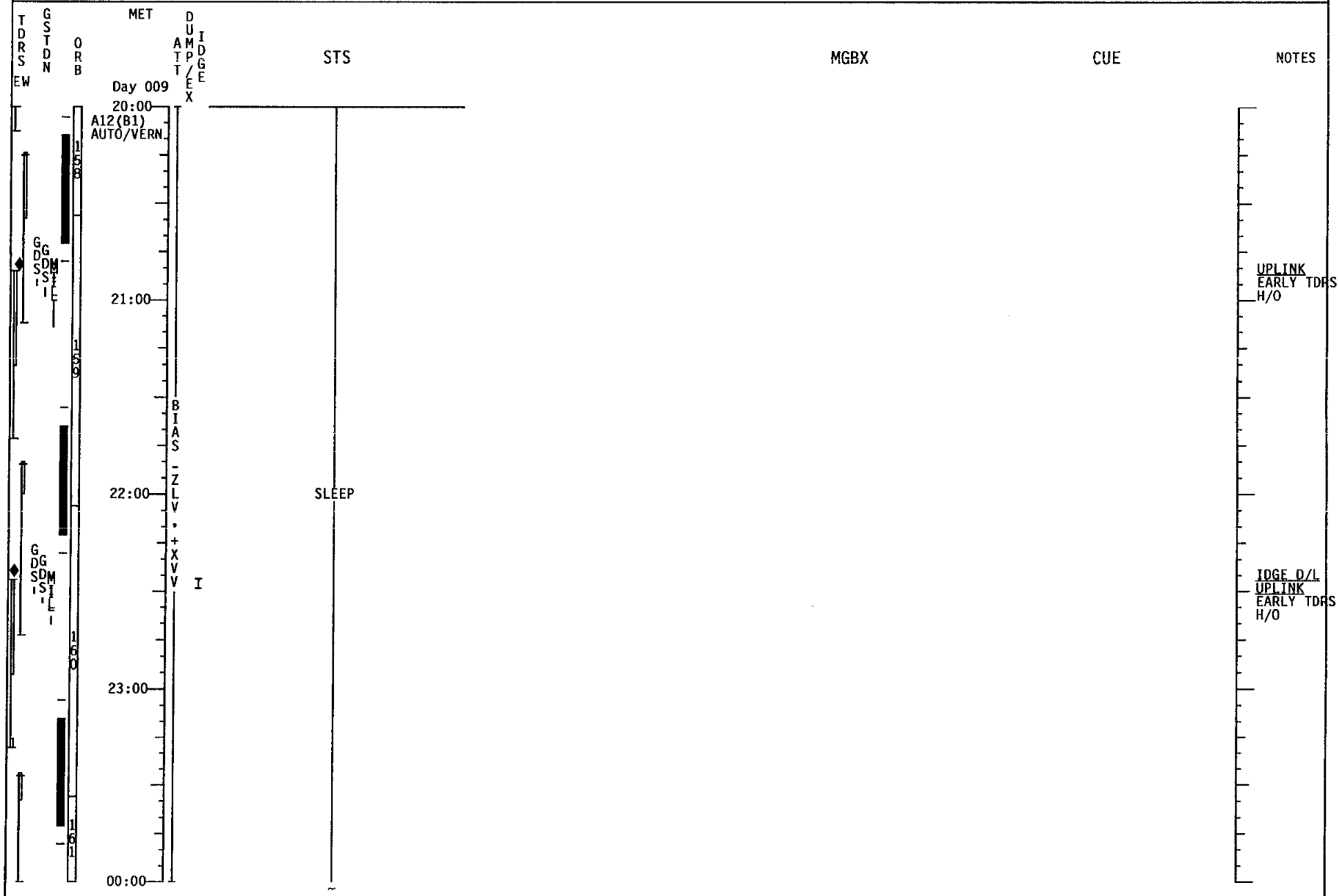
STS-87 (FD10)



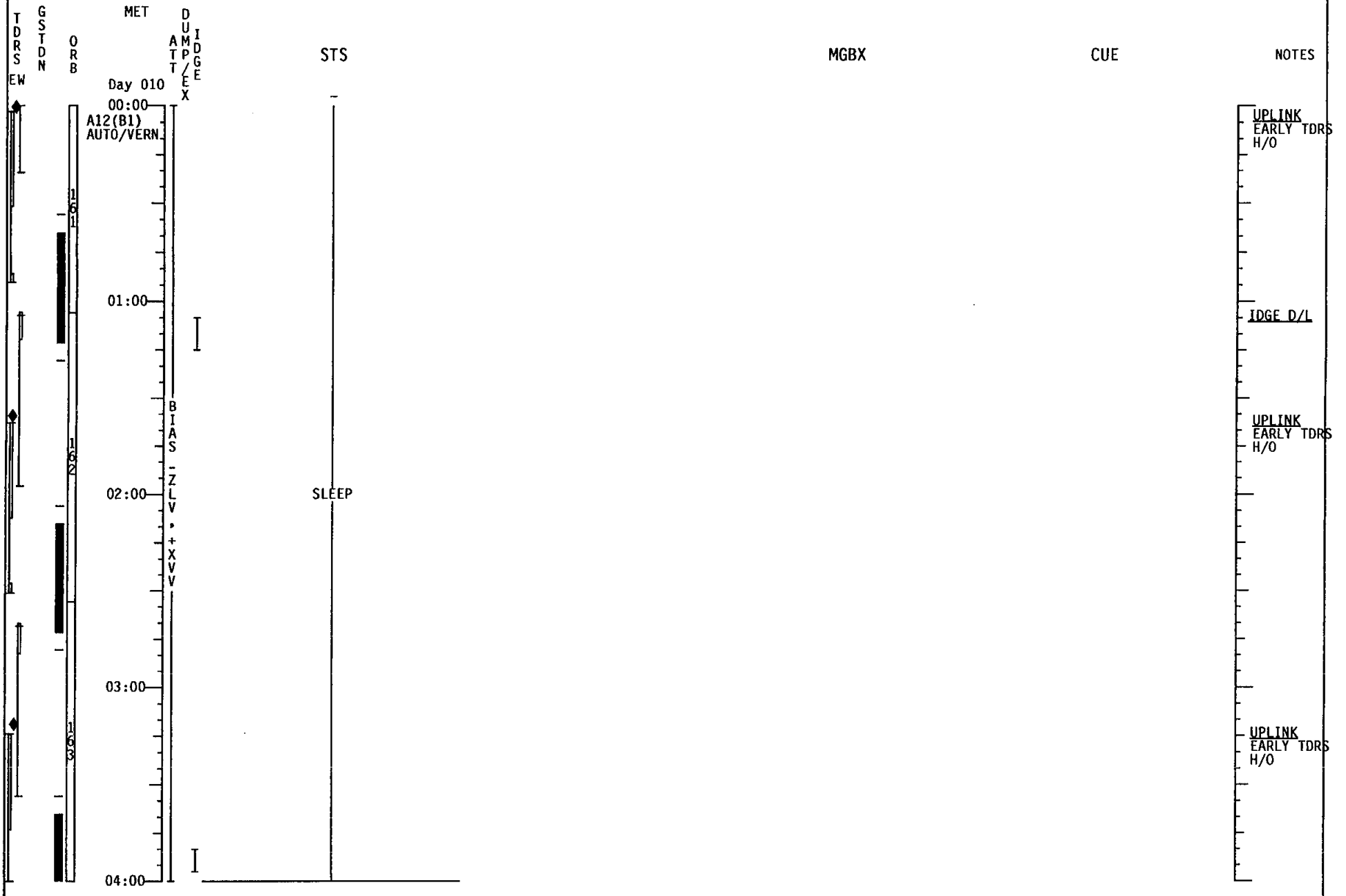
STS-87 (FD10)



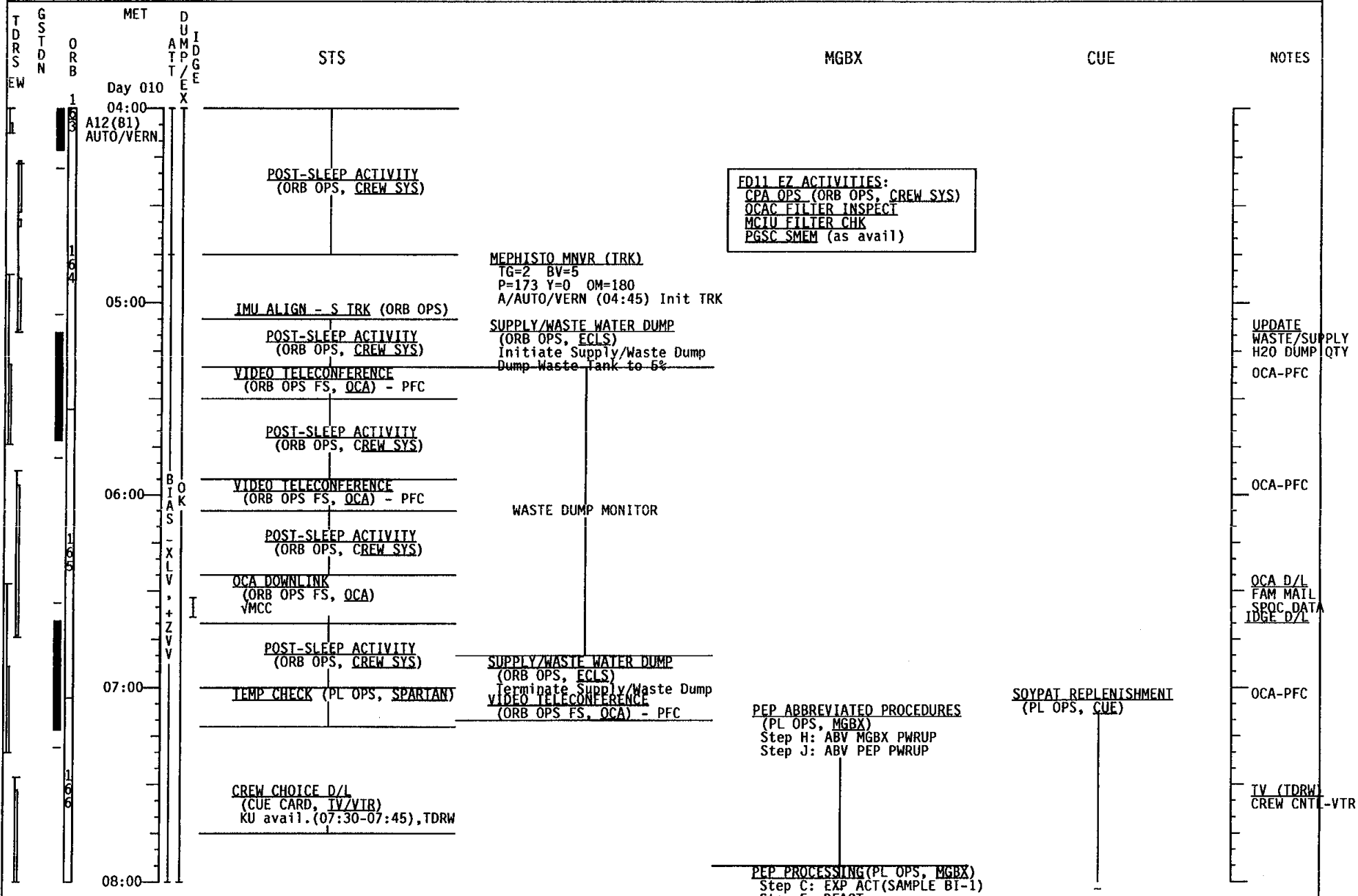
STS-87 (FD10)



STS-87 (FD10)



STS-87 (FD11)

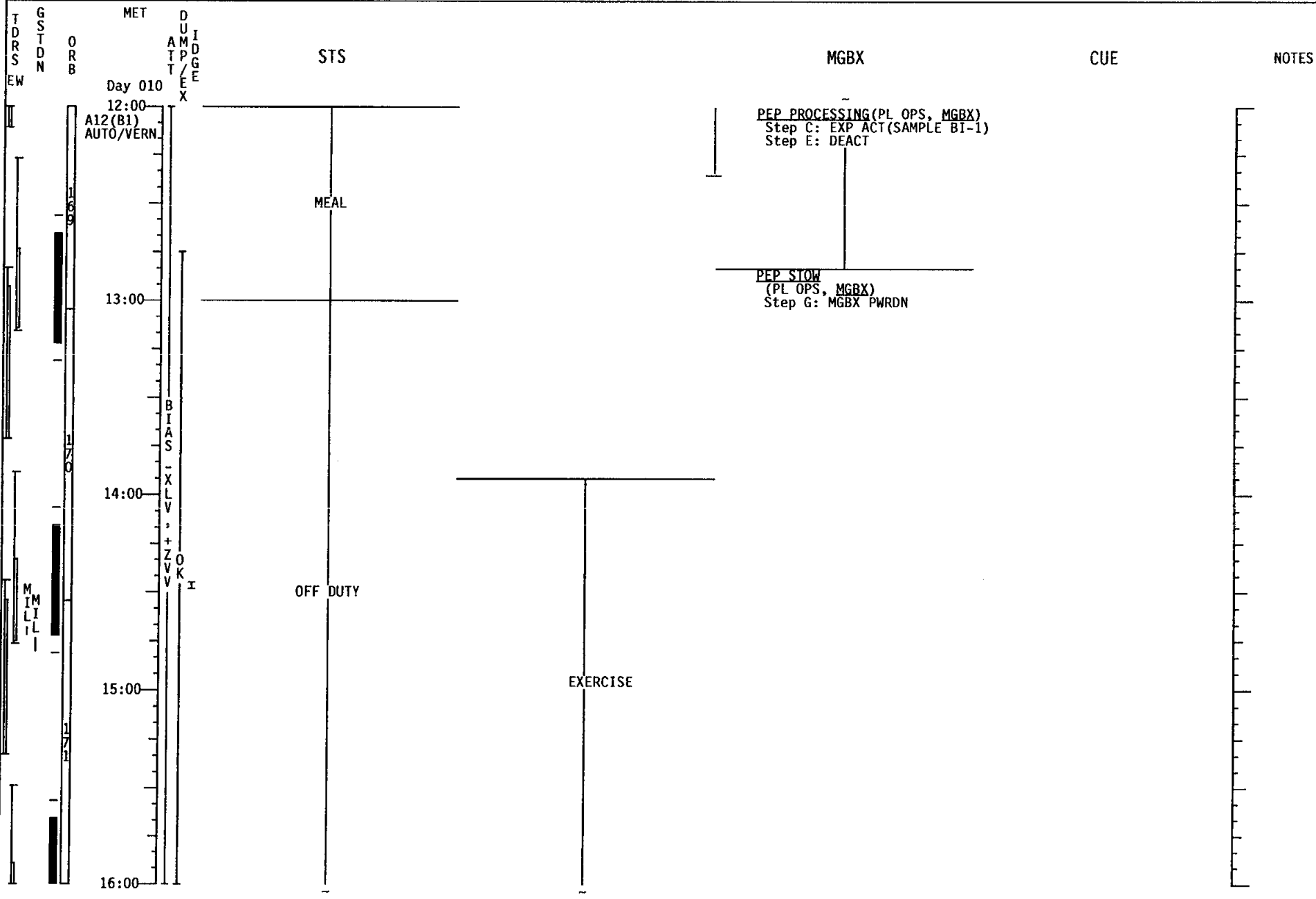


FD11 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 OCAC FILTER INSPECT
 MCIU FILTER CHK
 PGSC S MEM (as avail)

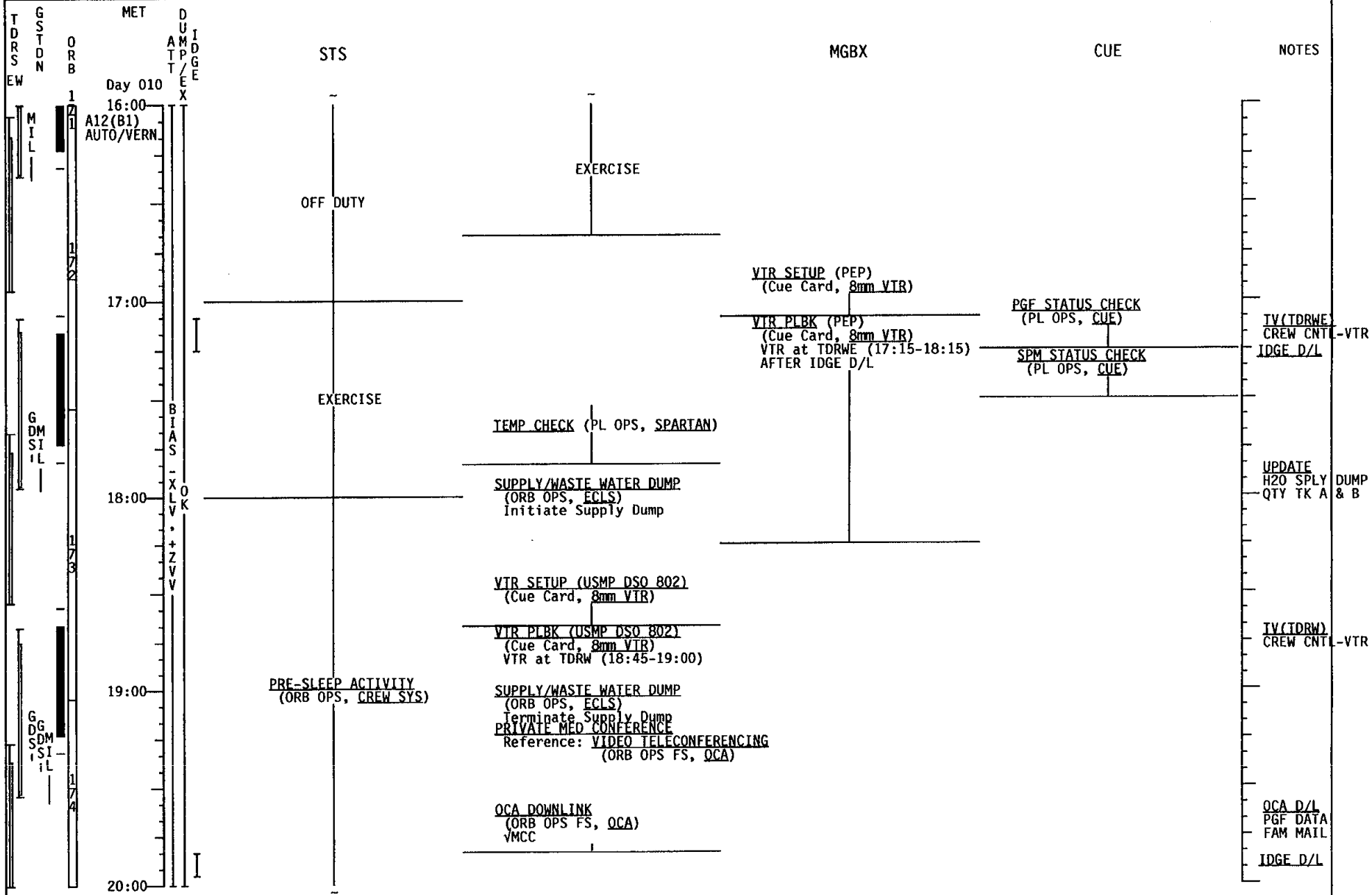
STS-87 (FD11)



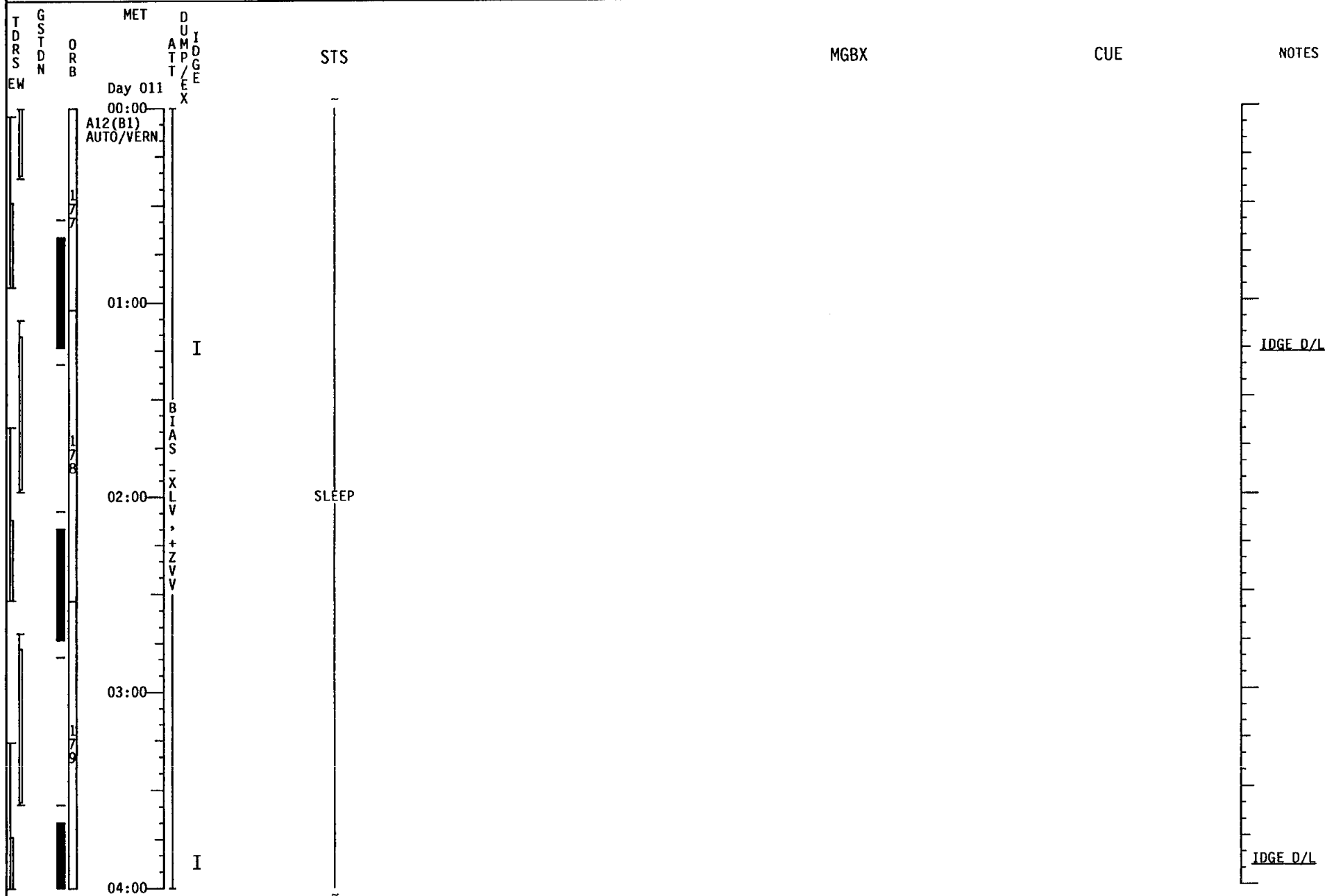
STS-87 (FD11)



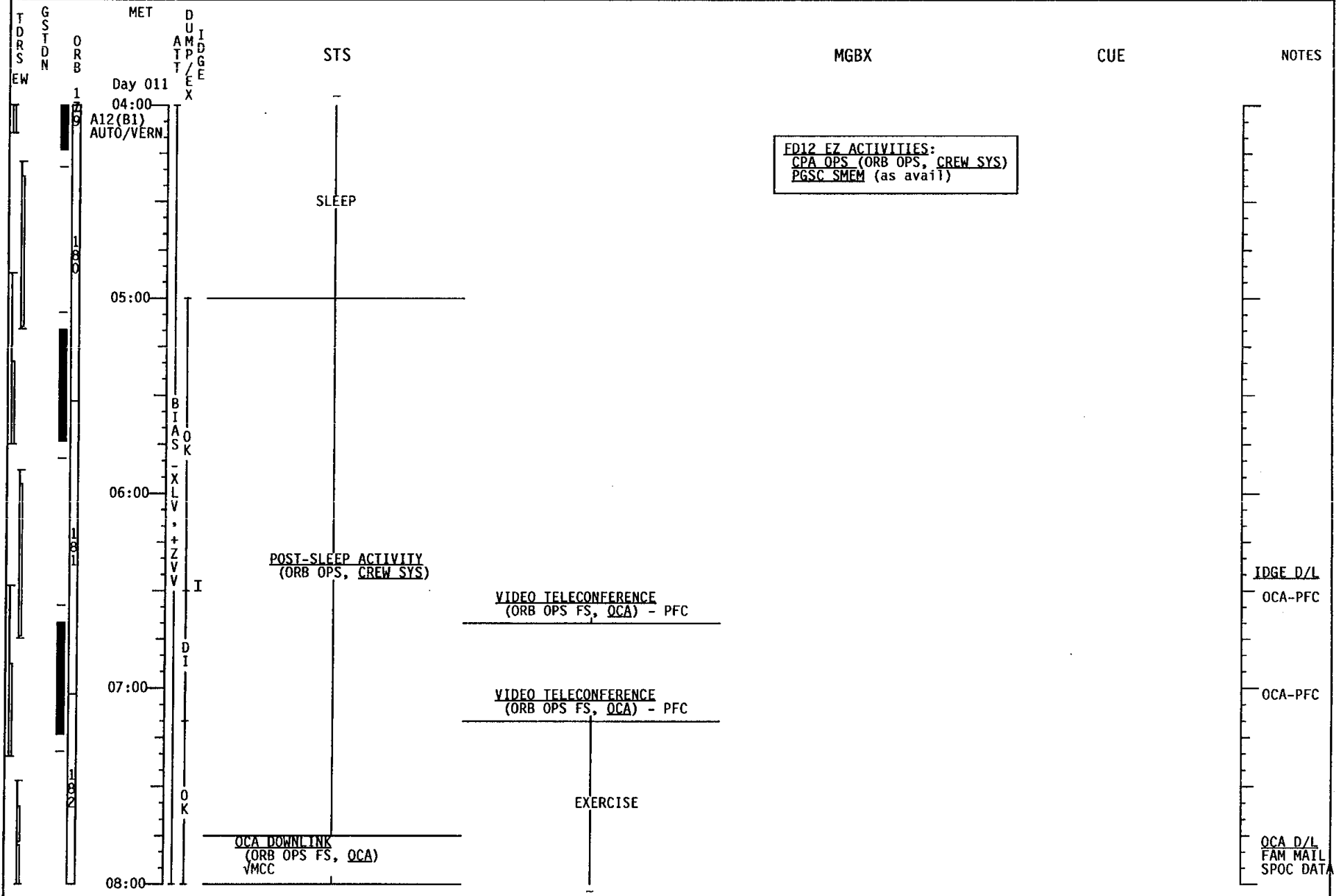
STS-87 (FD11)



STS-87 (FD11)

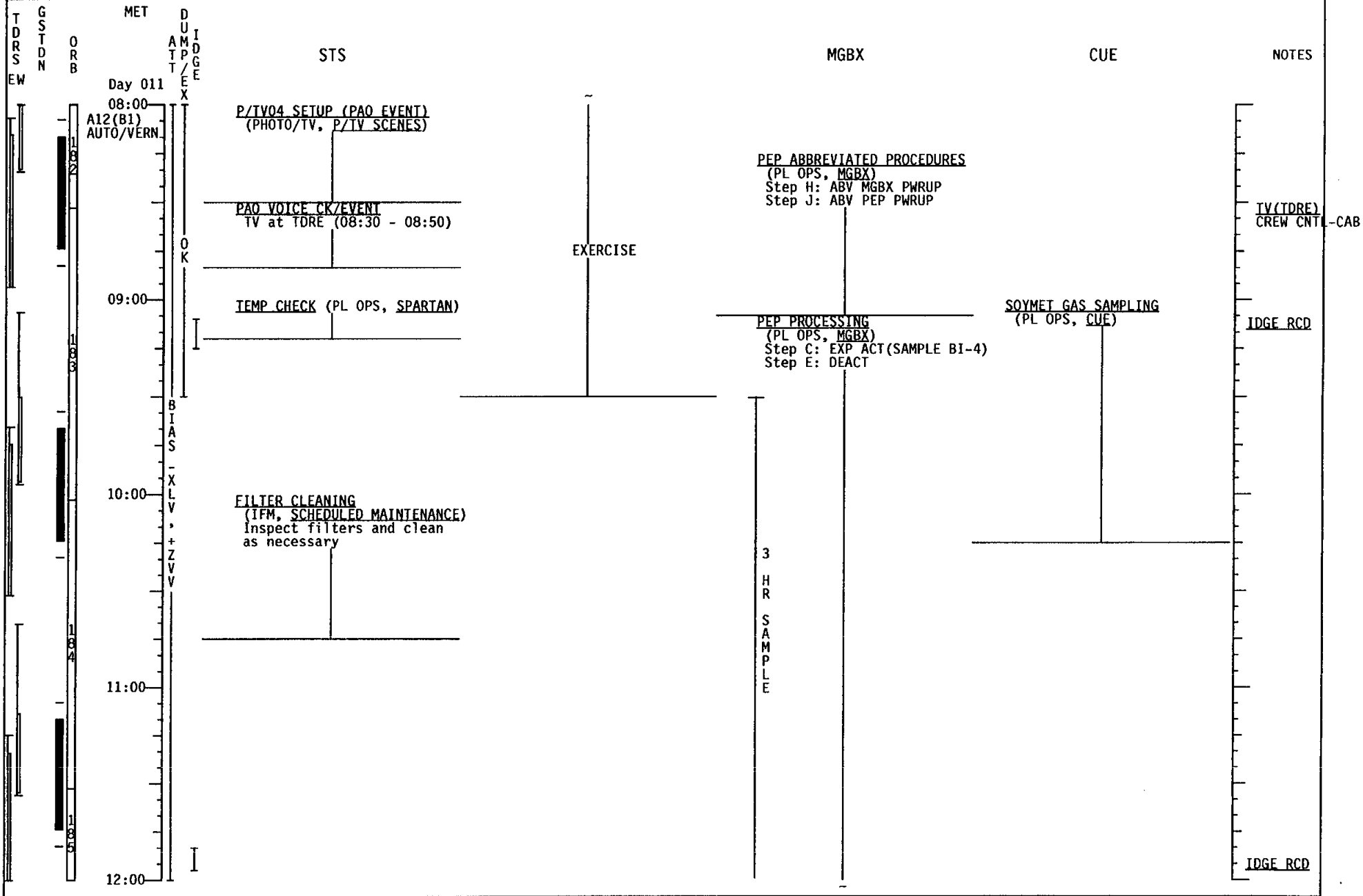


STS-87 (FD12)

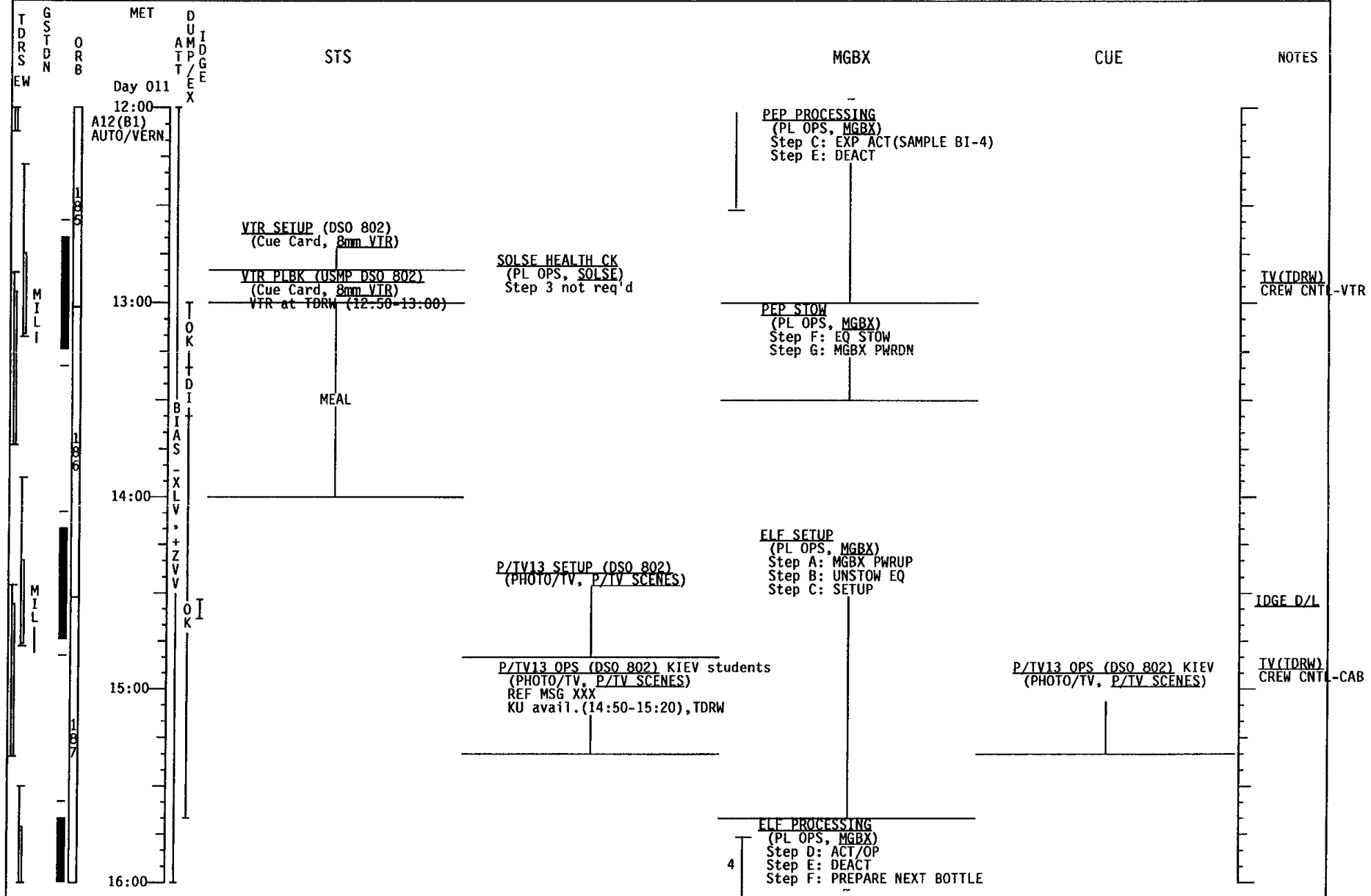


FD12 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC SMEM (as avail)

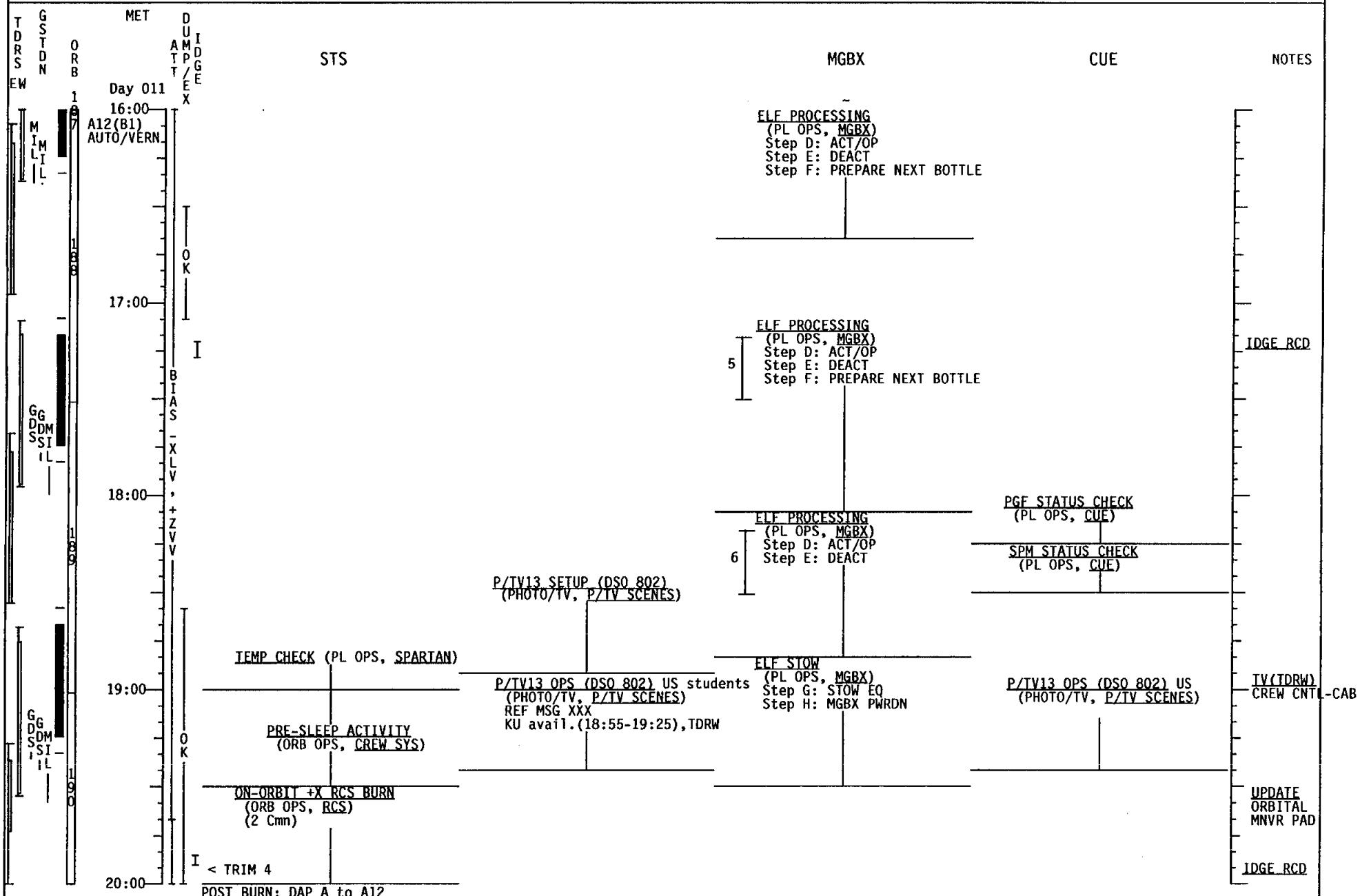
STS-87 (FD12)



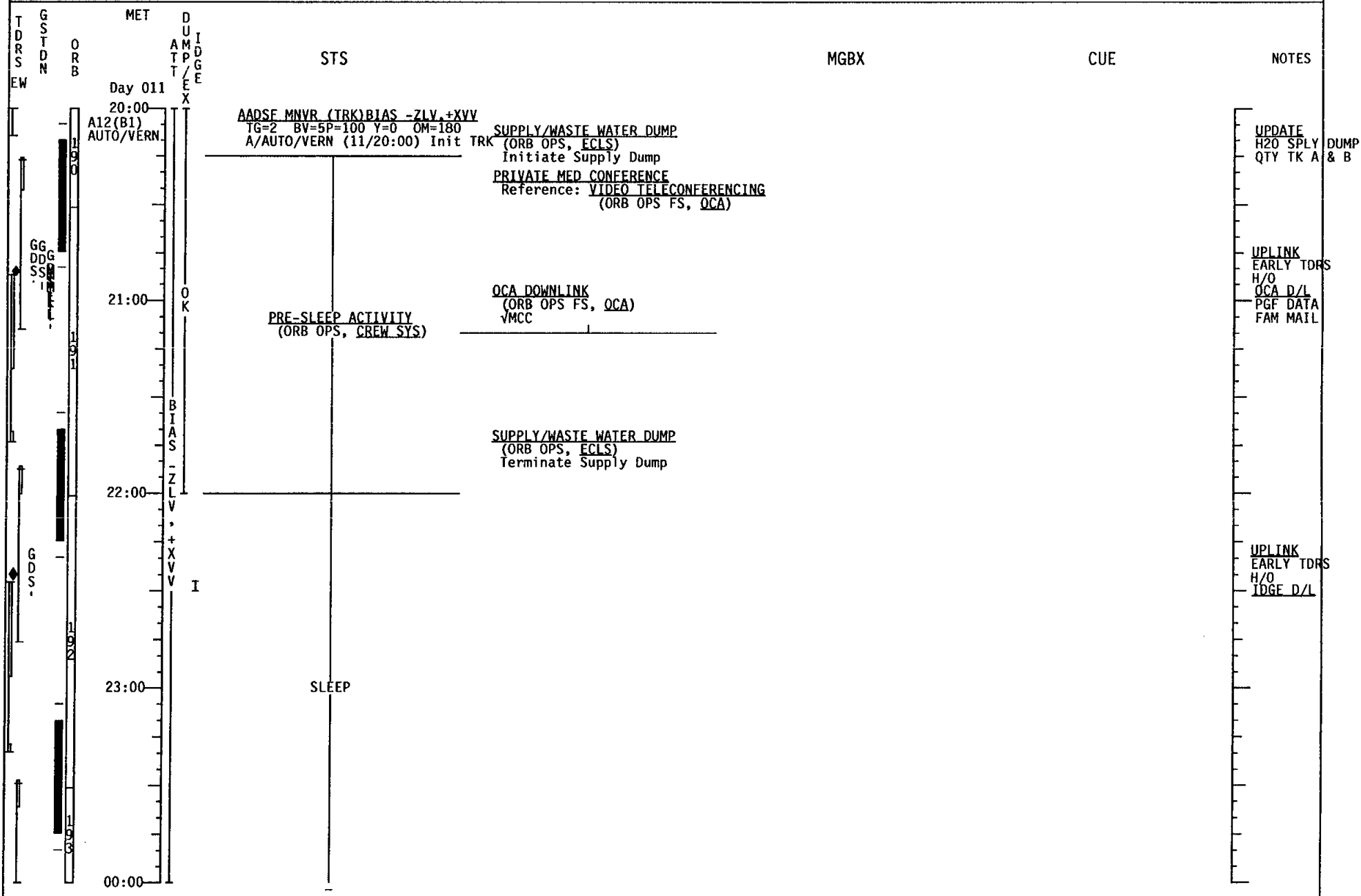
STS-87 (FD12)



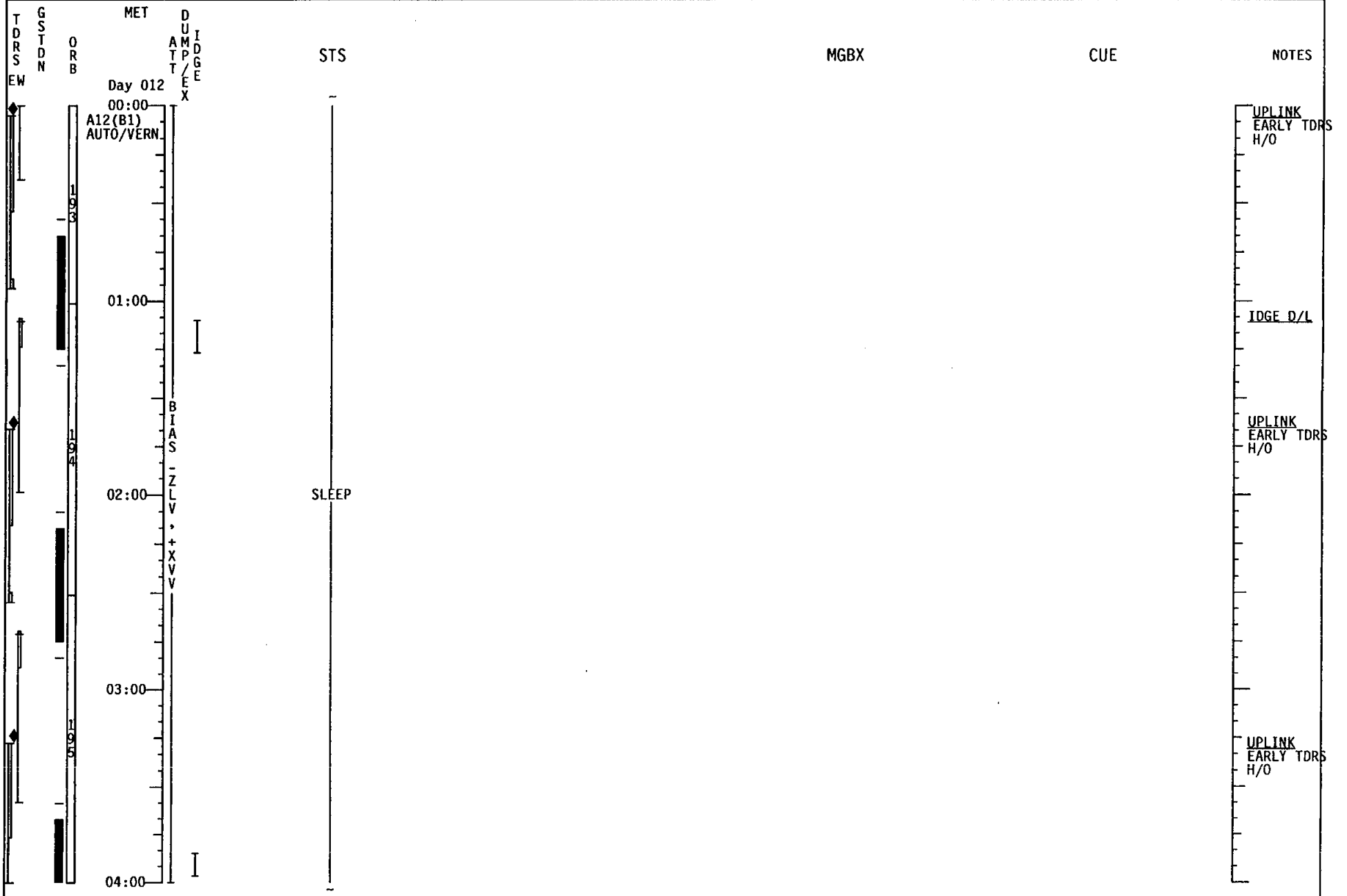
STS-87 (FD12)



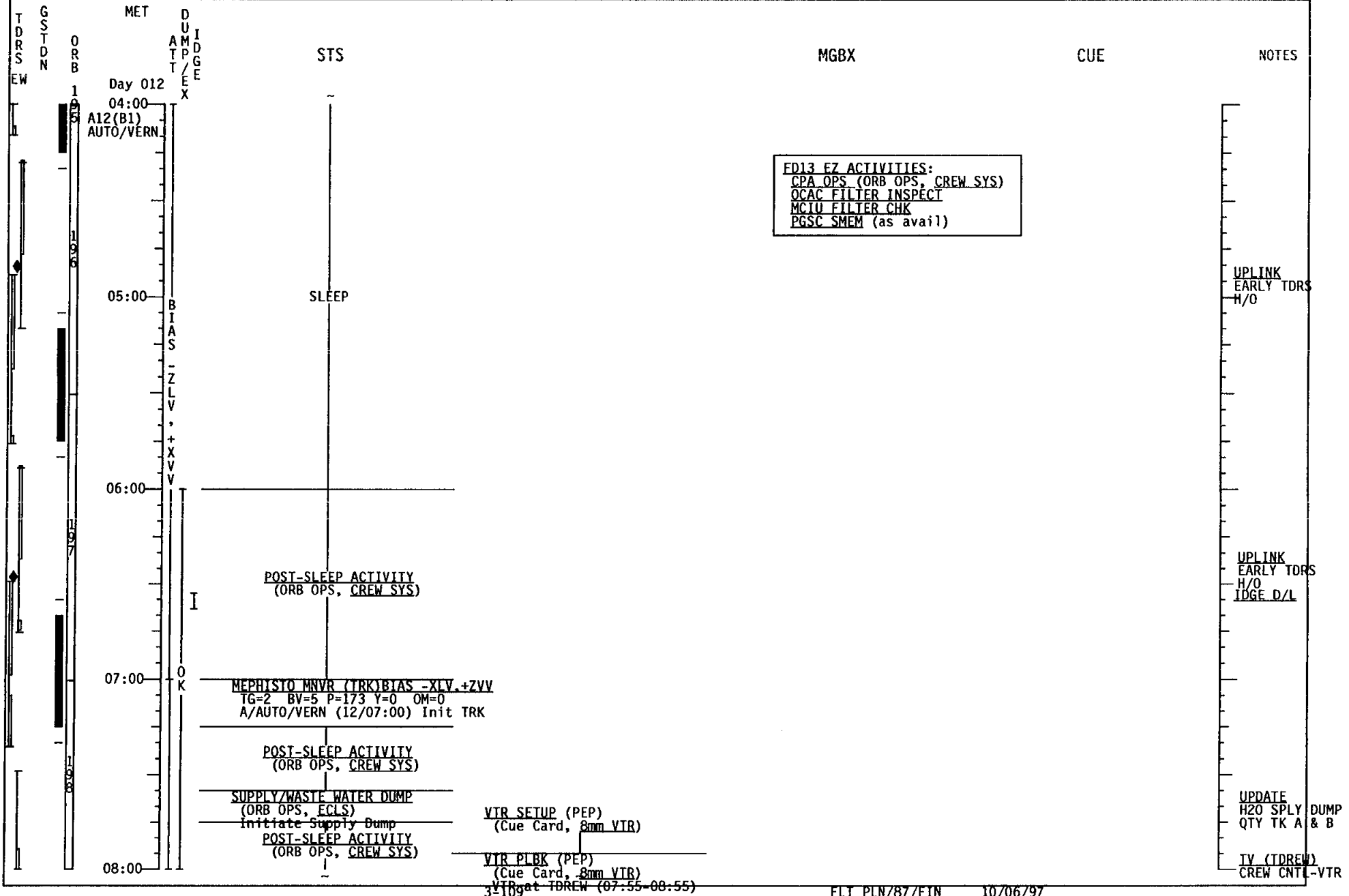
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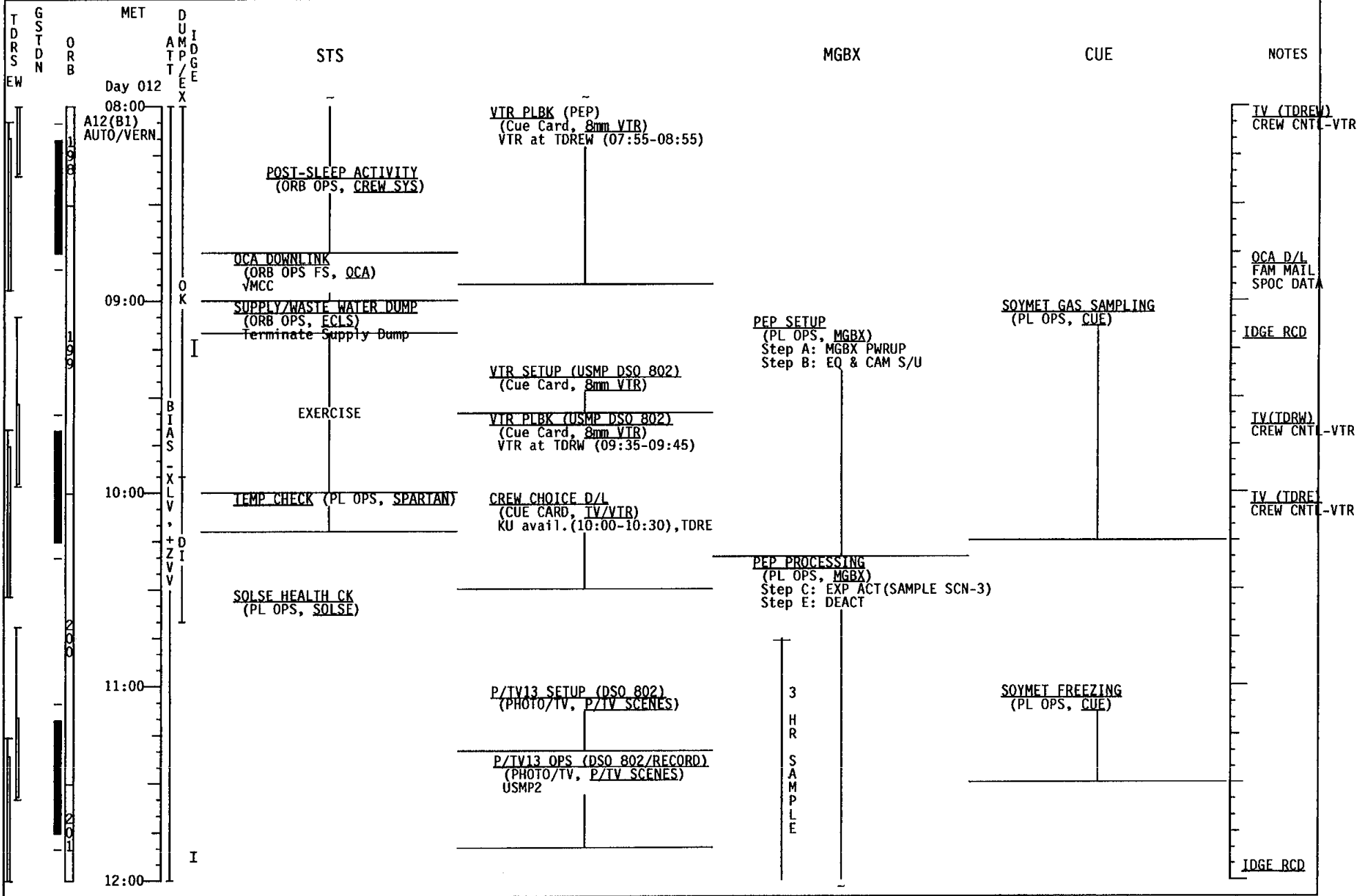
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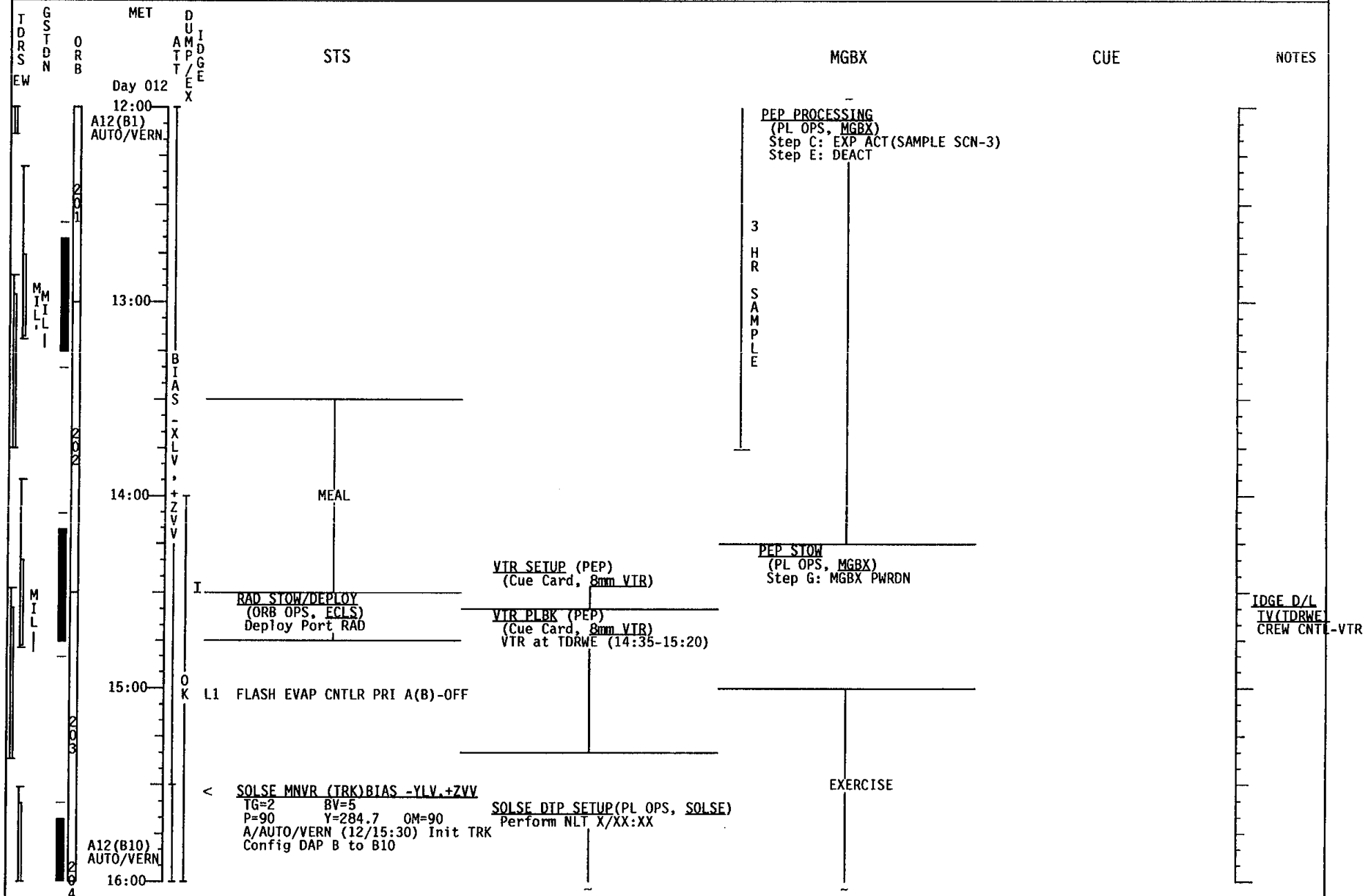
STS-87 (FD13)



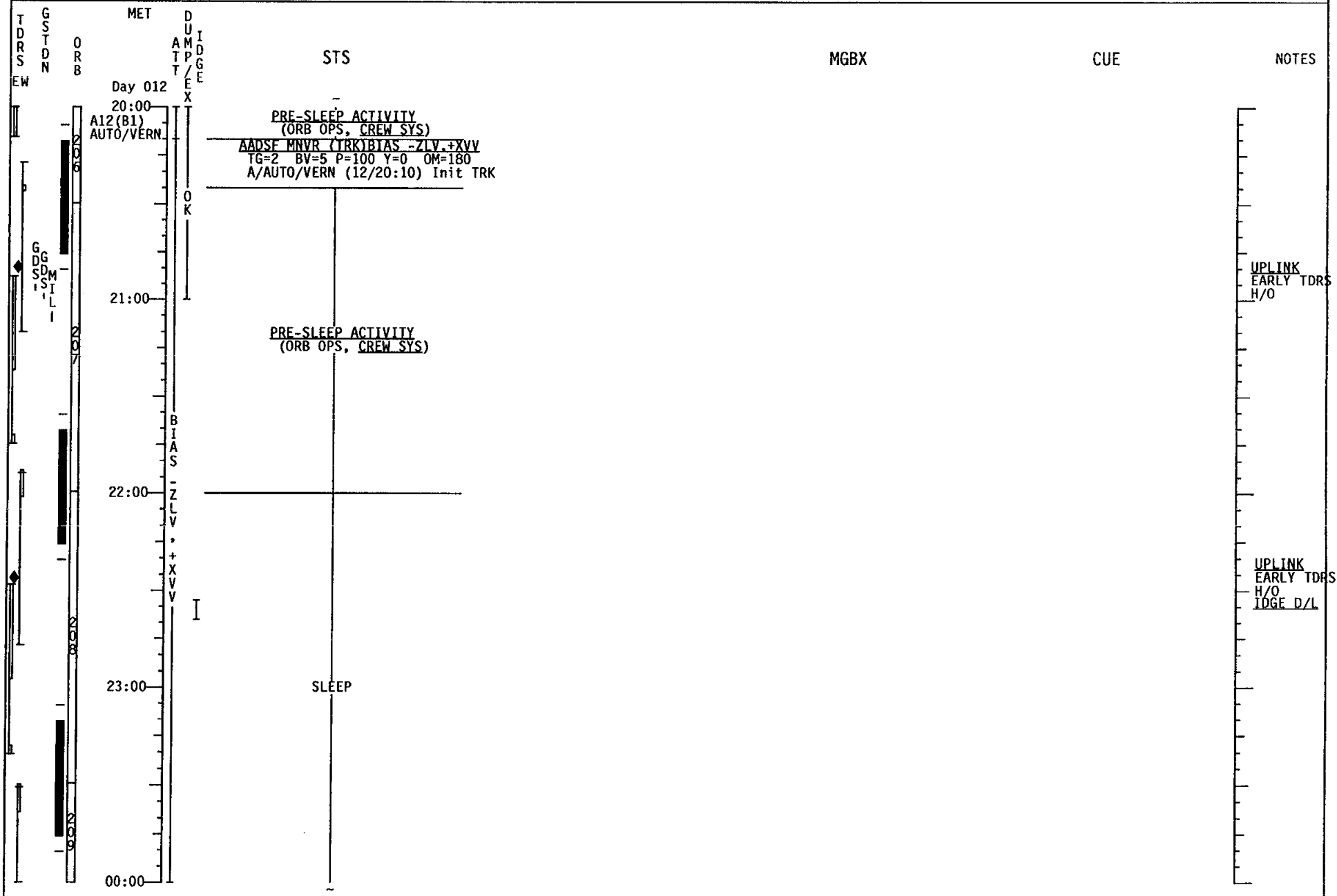
STS-87 (FD13)



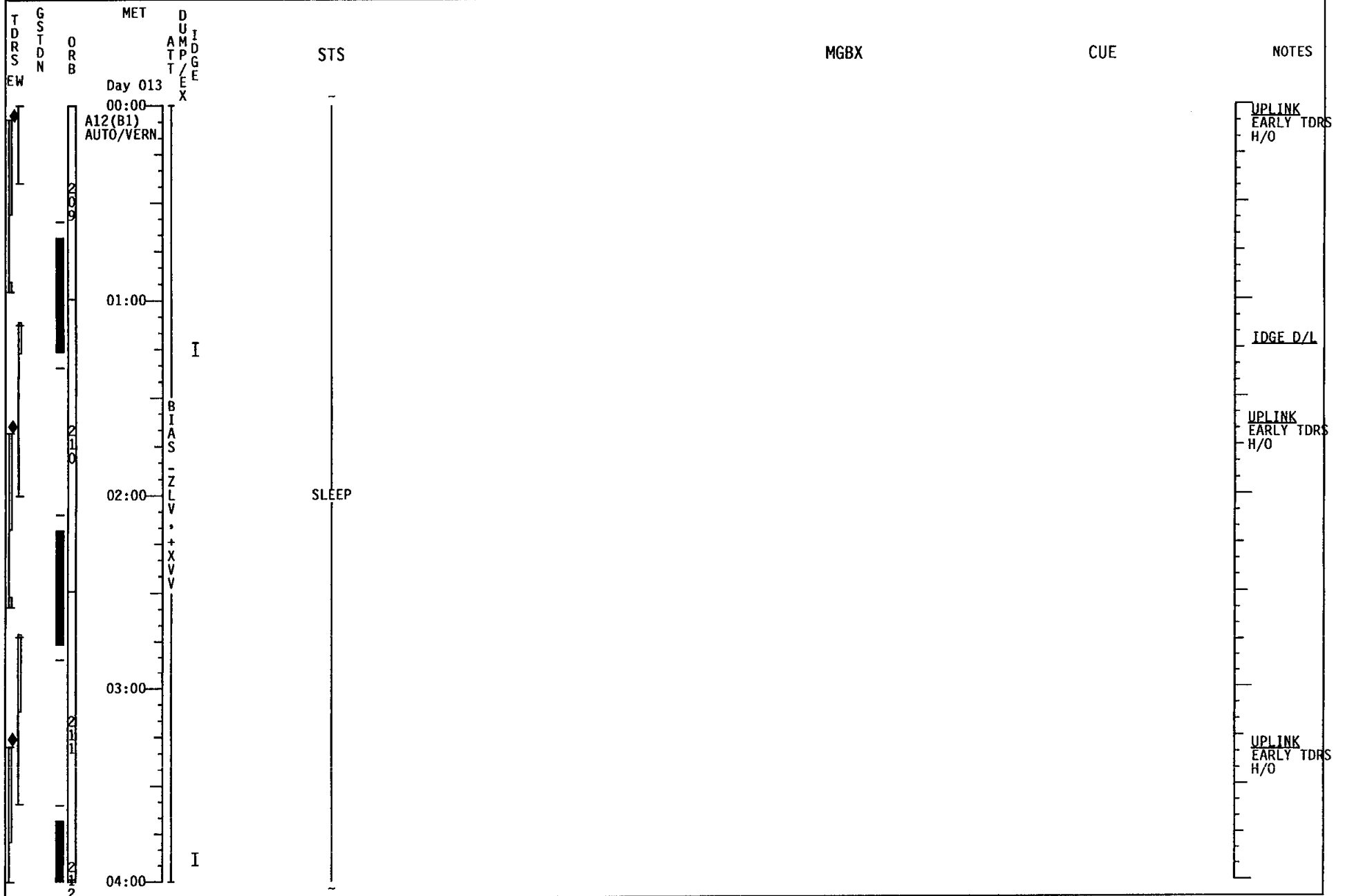
STS-87 (FD13)



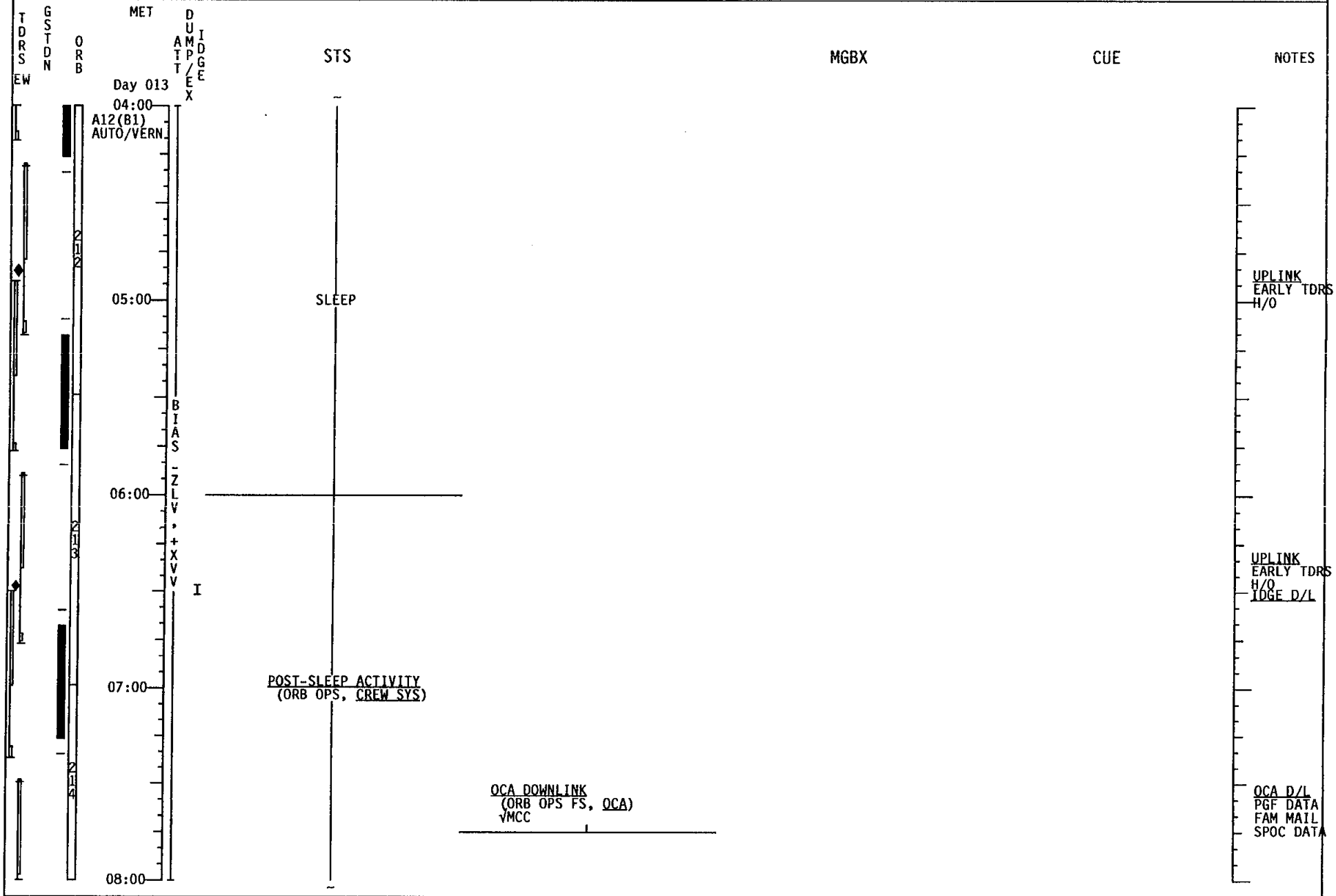
STS-87 (FD13)



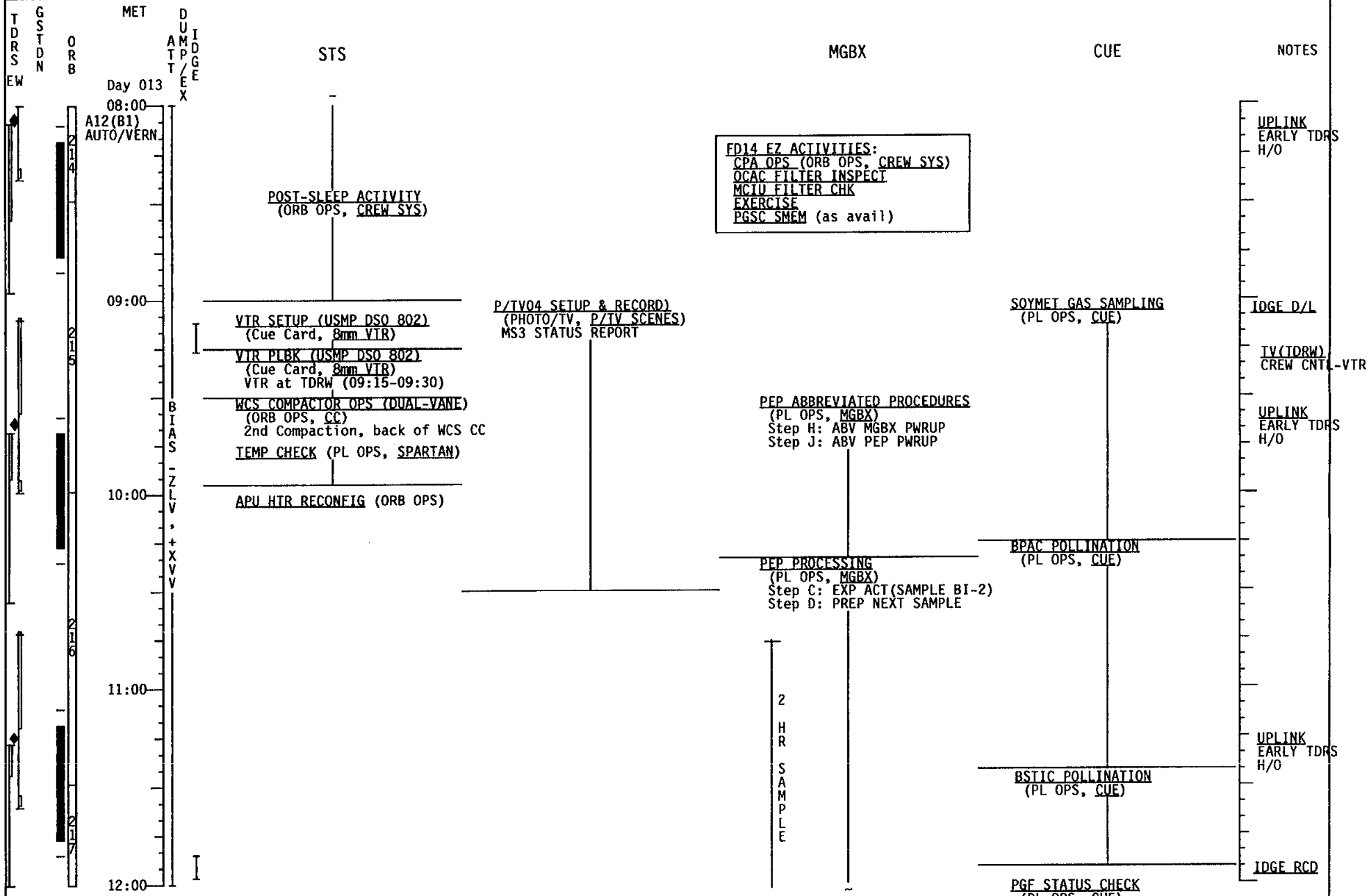
STS-87 (FD13)



STS-87 (FD14)

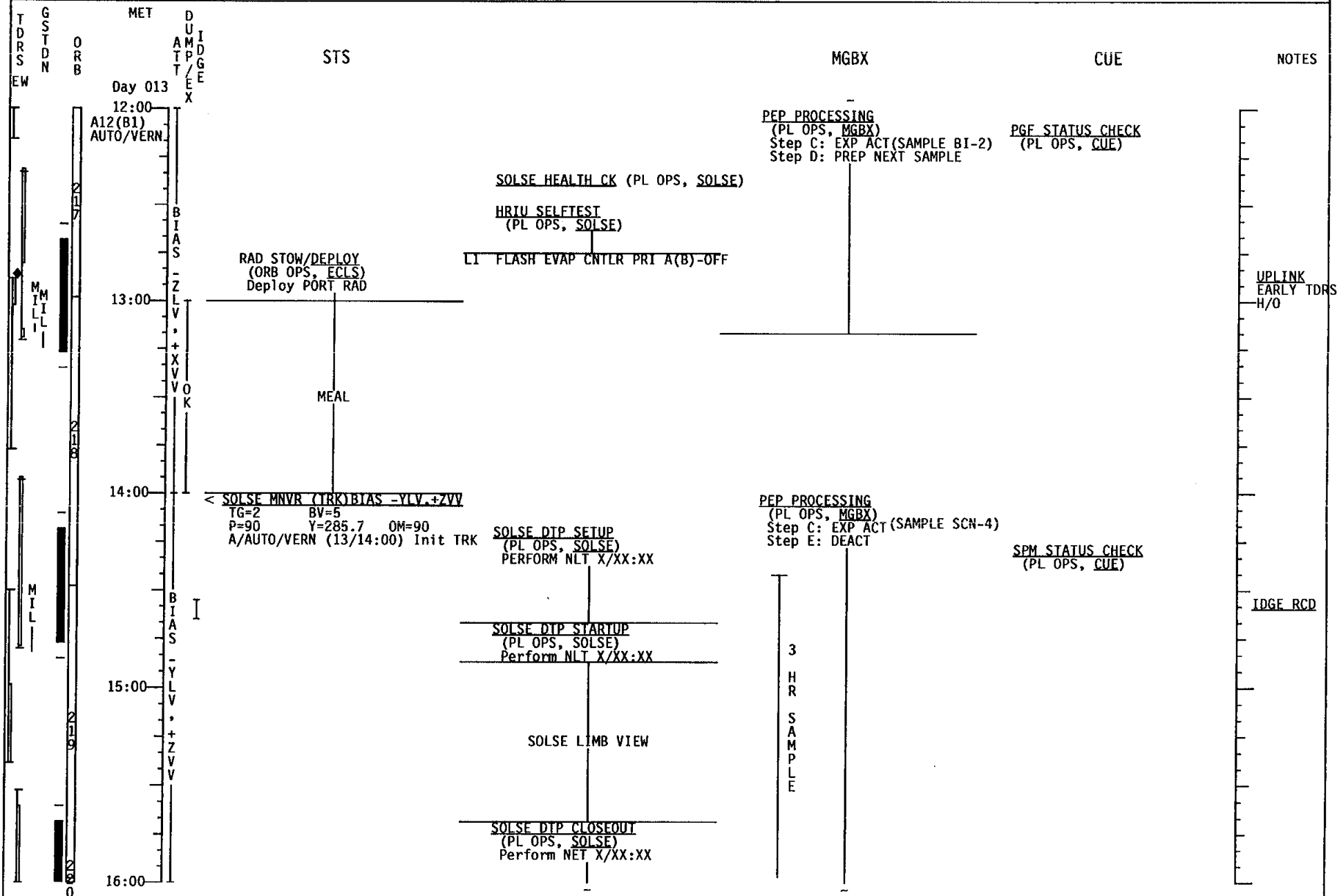


STS-87 (FD14)

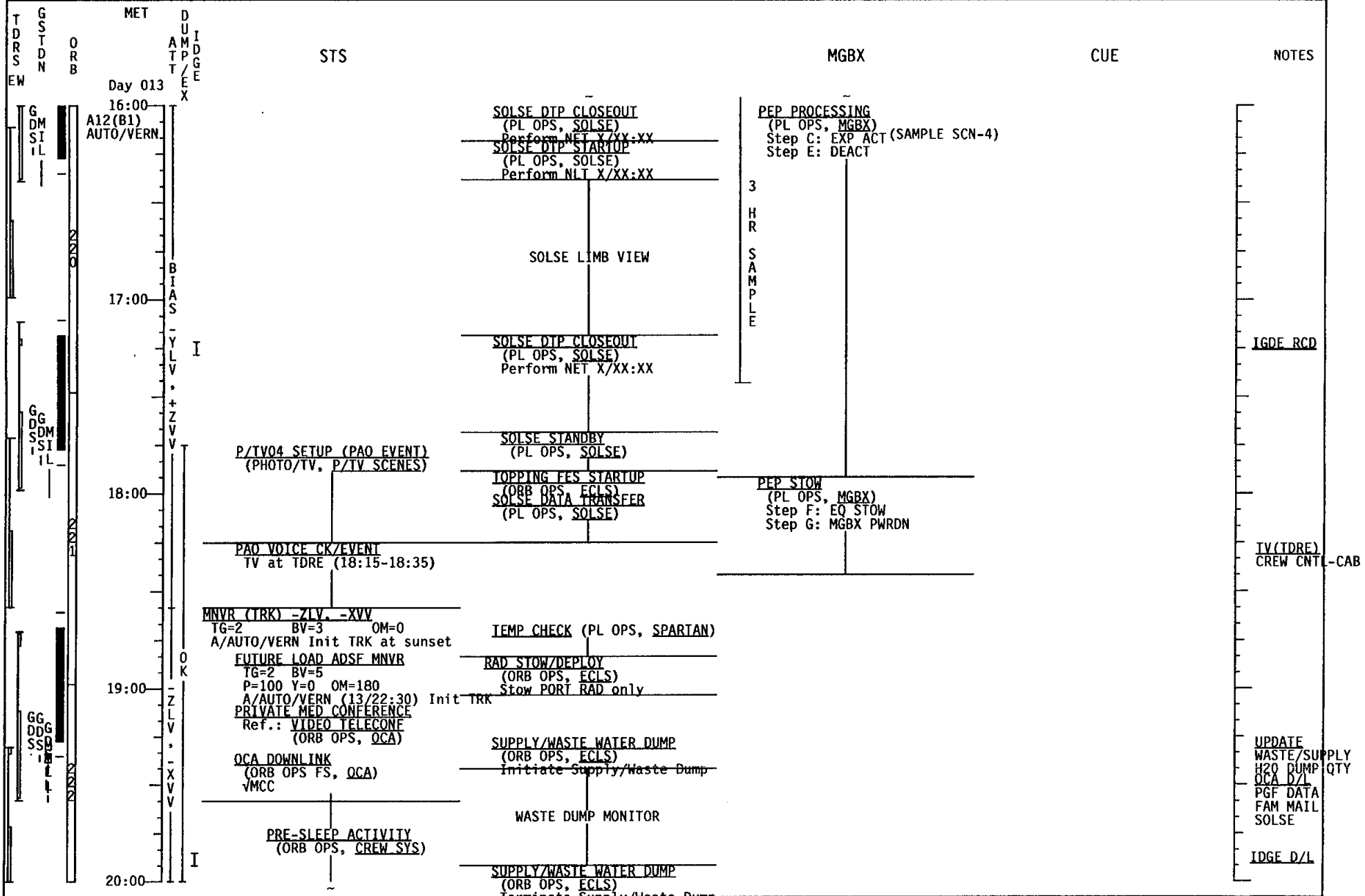


FD14 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 OCAC FILTER INSPECT
 MCIU FILTER CHK
 EXERCISE
 PGSC SMEM (as avail)

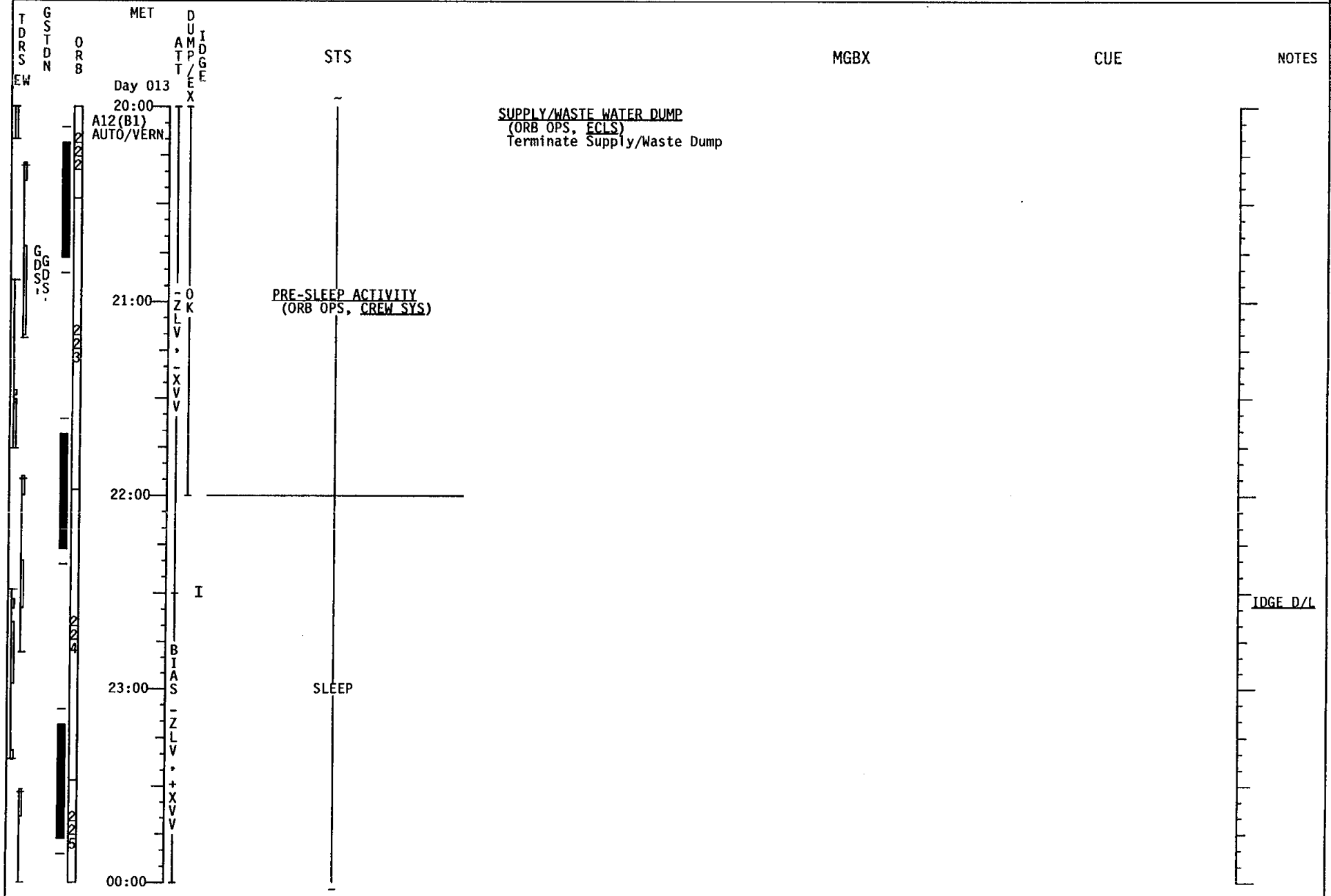
STS-87 (FD14)



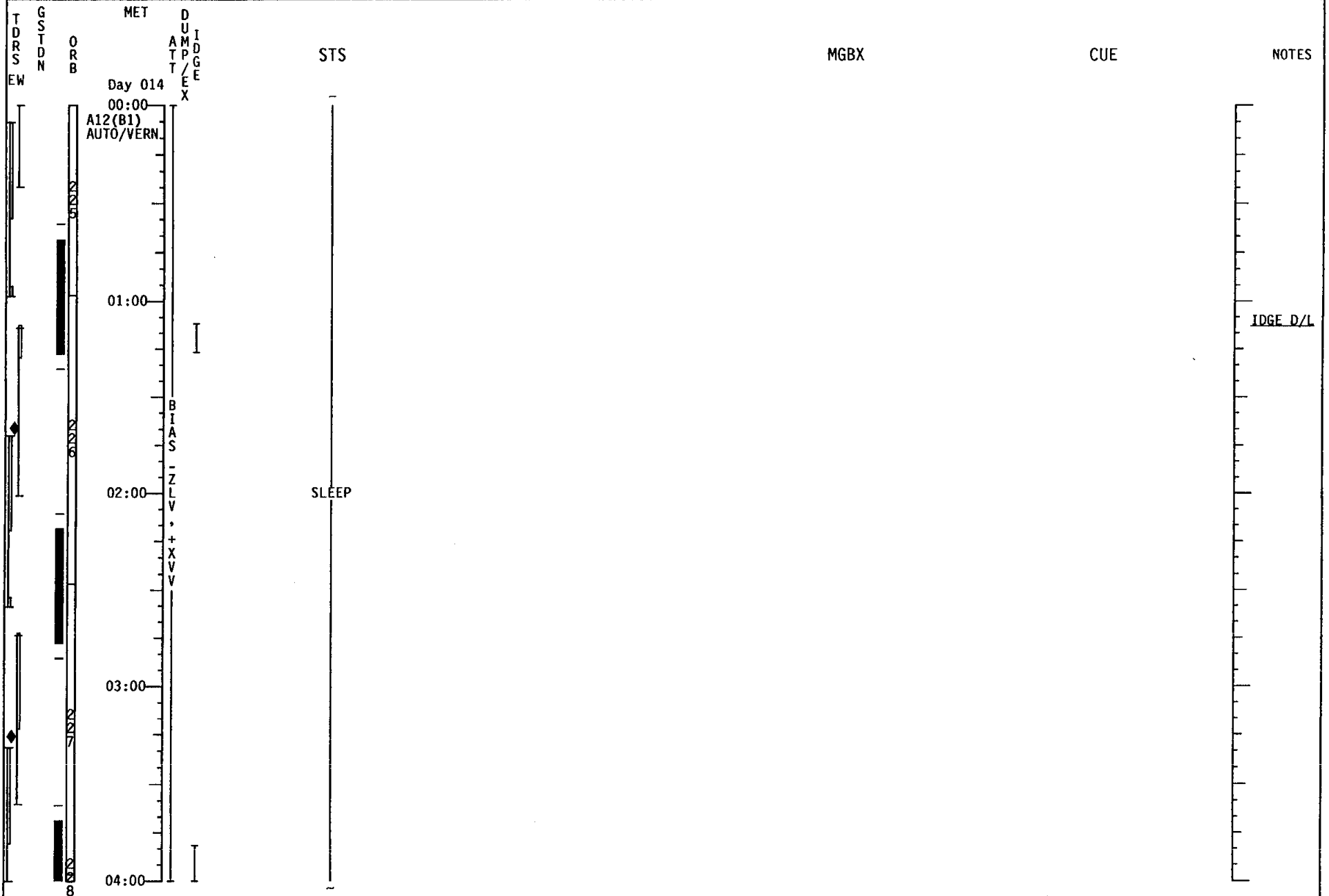
STS-87 (FD14)



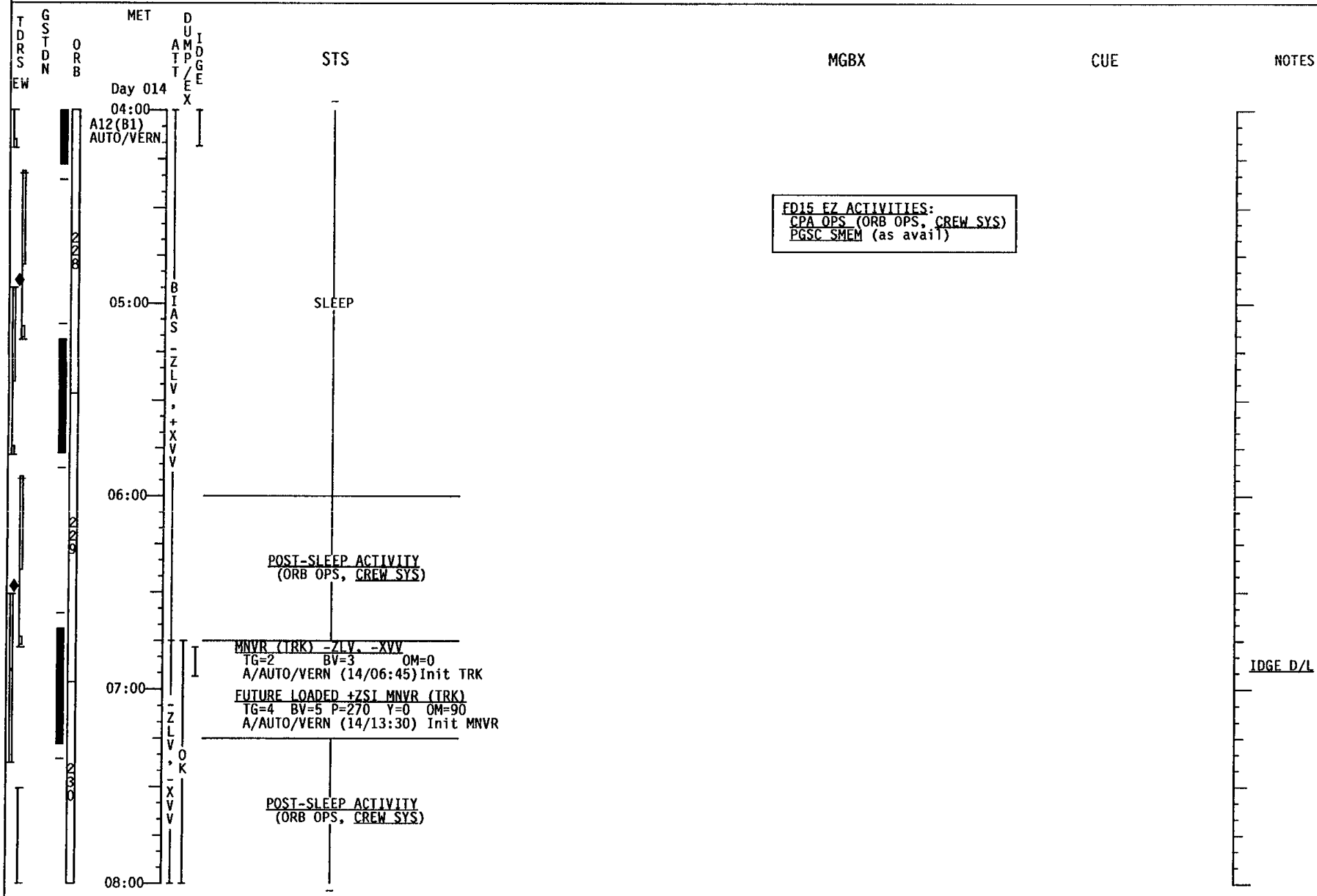
STS-87 (FD14)



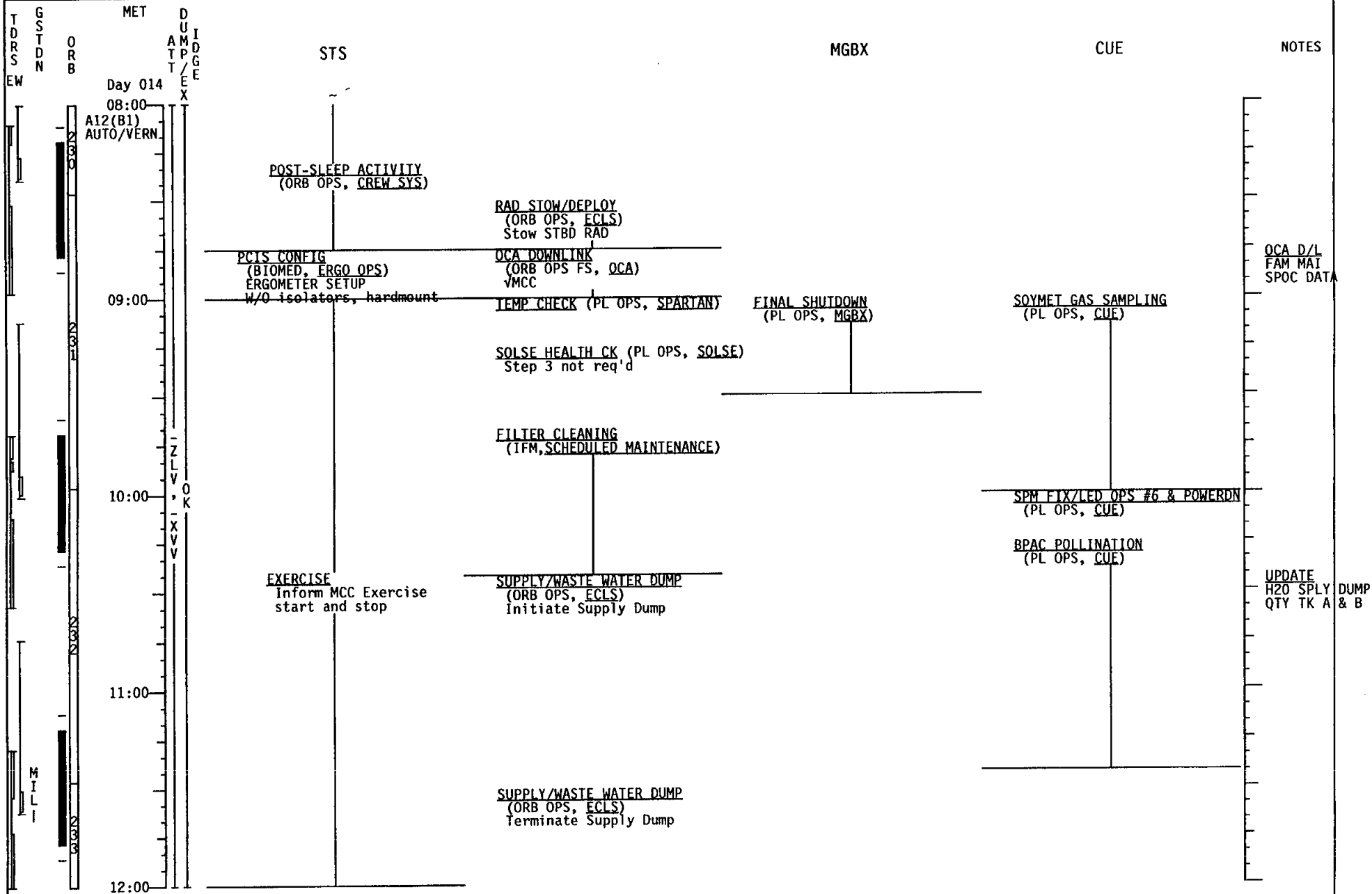
STS-87 (FD14)



STS-87 (FD15)



STS-87 (FD15)

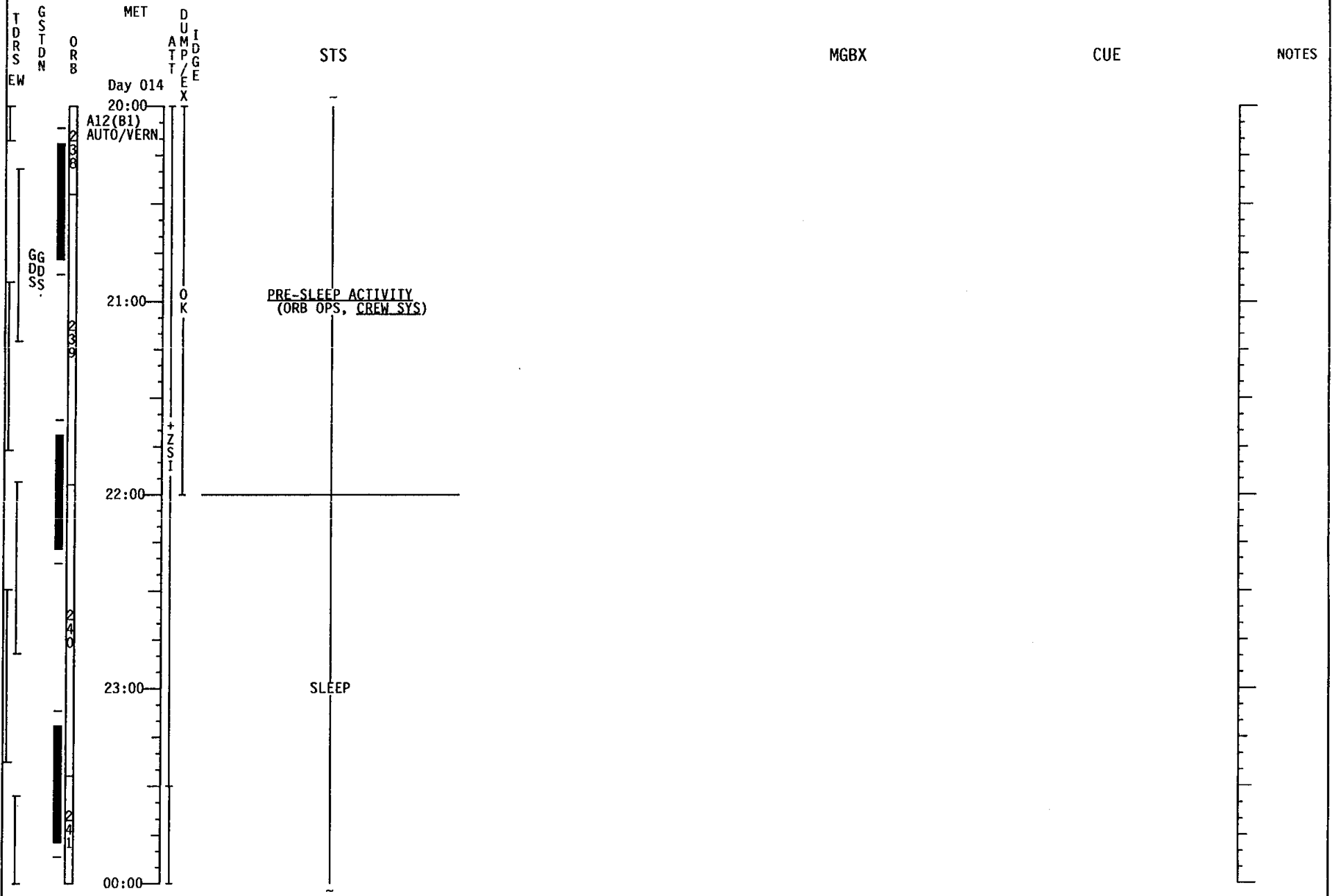


STS-87 (FD15)

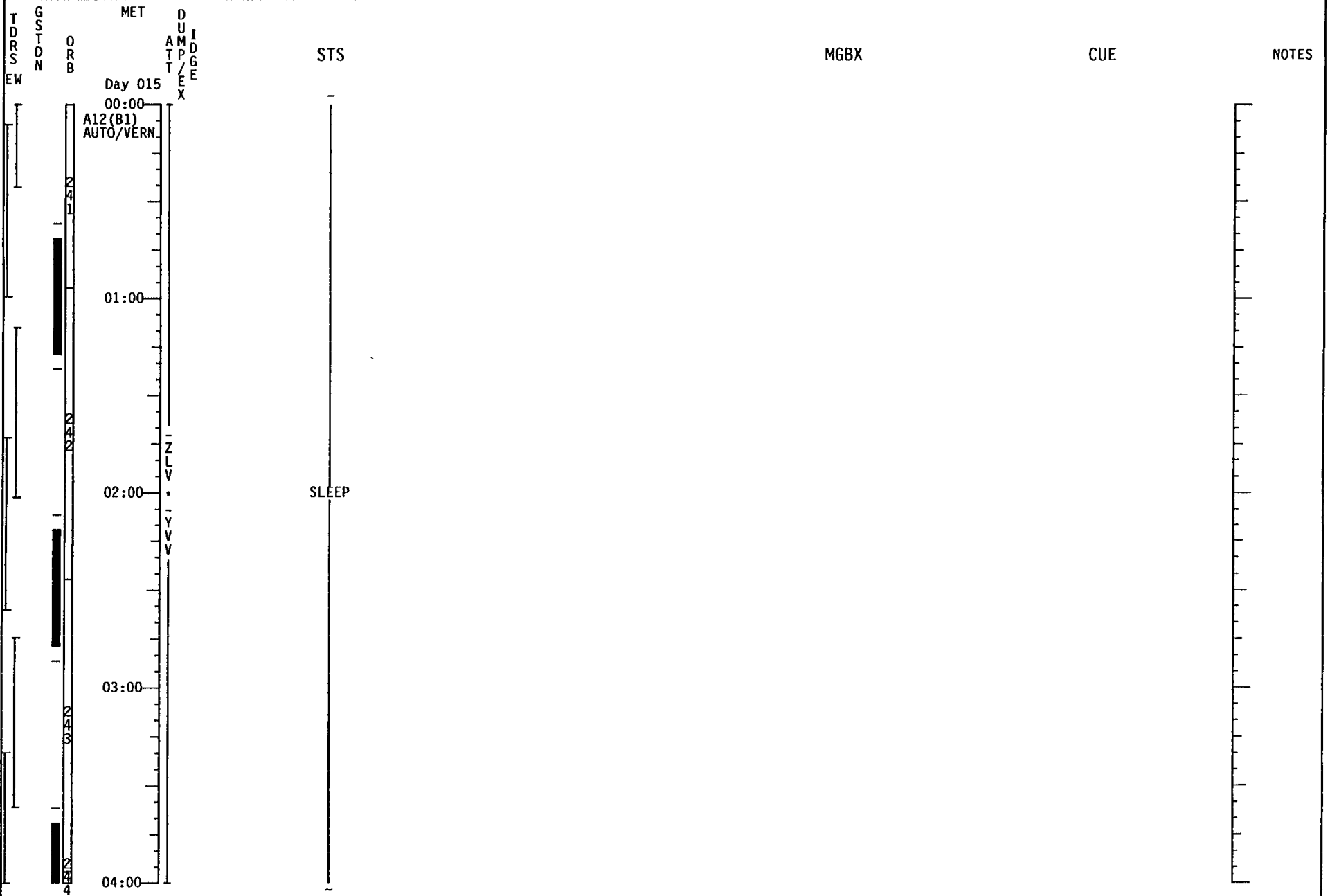
TDRS	GSTDN	ORB	MET	DU	I	A	M	P	G	E	STS	MGBX	CUE	NOTES
EW	GG DD SS MI IL	GG DD SS MI IL	Day 014 16:00 A12(B1) AUTO/VERN	X							ERG/PCIS STOW (BIOMED, PCIS)		BPAC HARVEST #2 (PL OPS, CUE) PGE STATUS CHECK (PL OPS, CUE)	
											OCAC STOW (ORB OPS, CREW SYS)			
											PGSC STOW stow STS PGSCs OCA DEACT (ORB OPS, OCA) SAMS PCDECOM DEACT (PL OPS, SAMS)			
			17:00								P/TV12 S/U (PPOV/mini-CAM) (PHOTO/TV, P/TV SCENES)			
	GG DD SS MI IL	GG DD SS MI IL									LI FLOW PROP VLV LOOP 1 - ICH (tb-ICH) (Possible MA - FREON LOOP) LANDING-1 COMM C/O (ORB OPS, COMM/INST)	CABIN CONFIG/STOW (All)		
			18:00								TEMP CHECK (PL OPS, SPARTAN) ON-ORBIT +X RCS BURN (ORB OPS, RCS) (2 Cmn)			
											< TRIM 5 KU-BD ANT STOW (ORB OPS, COMM/INST)			
	GG DD SS MI IL	GG DD SS MI IL	19:00								FUTURE LOADED MNVR TG=2 BV=3 OM=90 A/AUTO/VERN (14/23:30) Init TRK			
											PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)			
			20:00									06 VUHF MODE - OFF PRIVATE MEDICAL CONF (ALL)		

UPDATE
ORBITAL
MNVR PAD

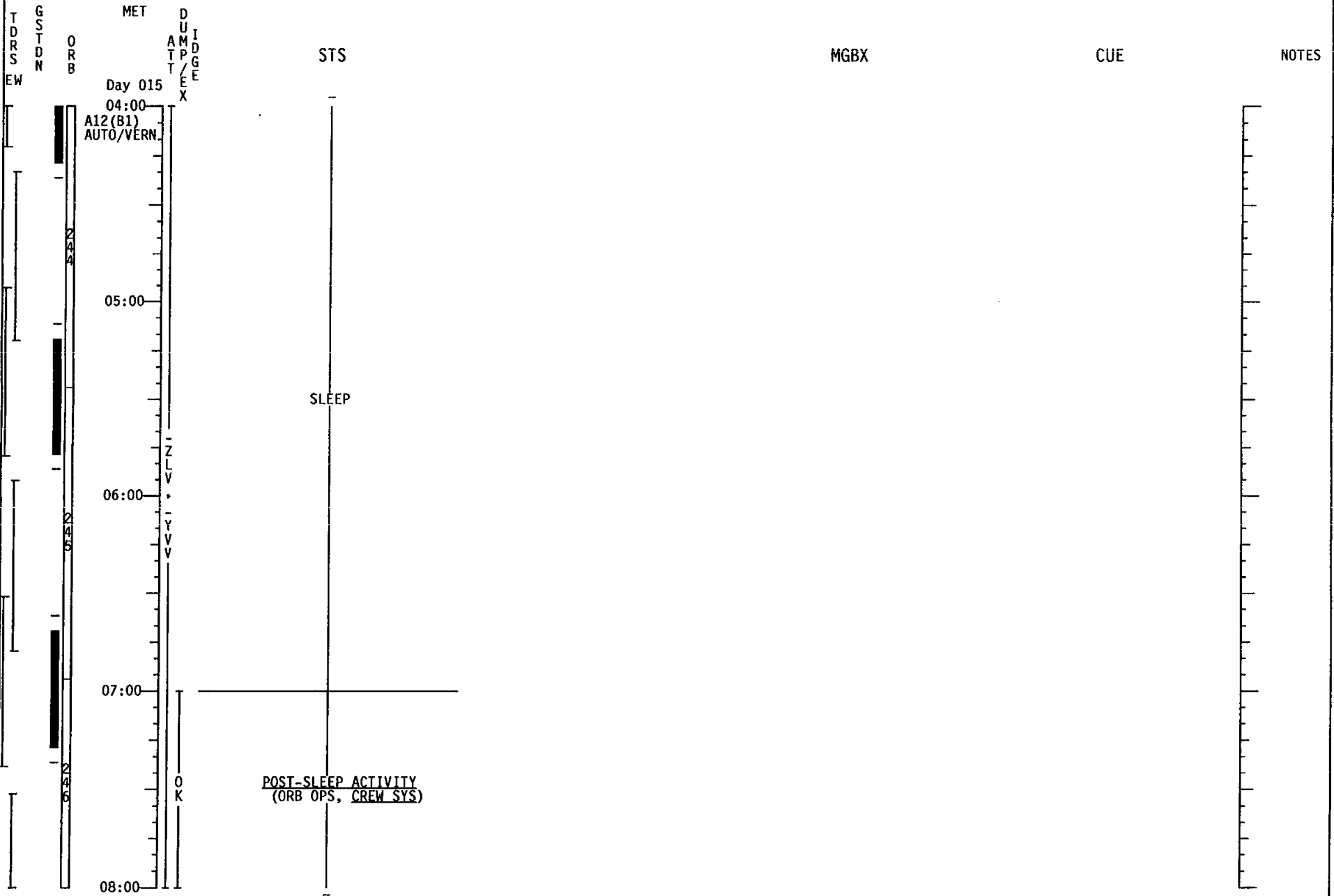
STS-87 (FD15)



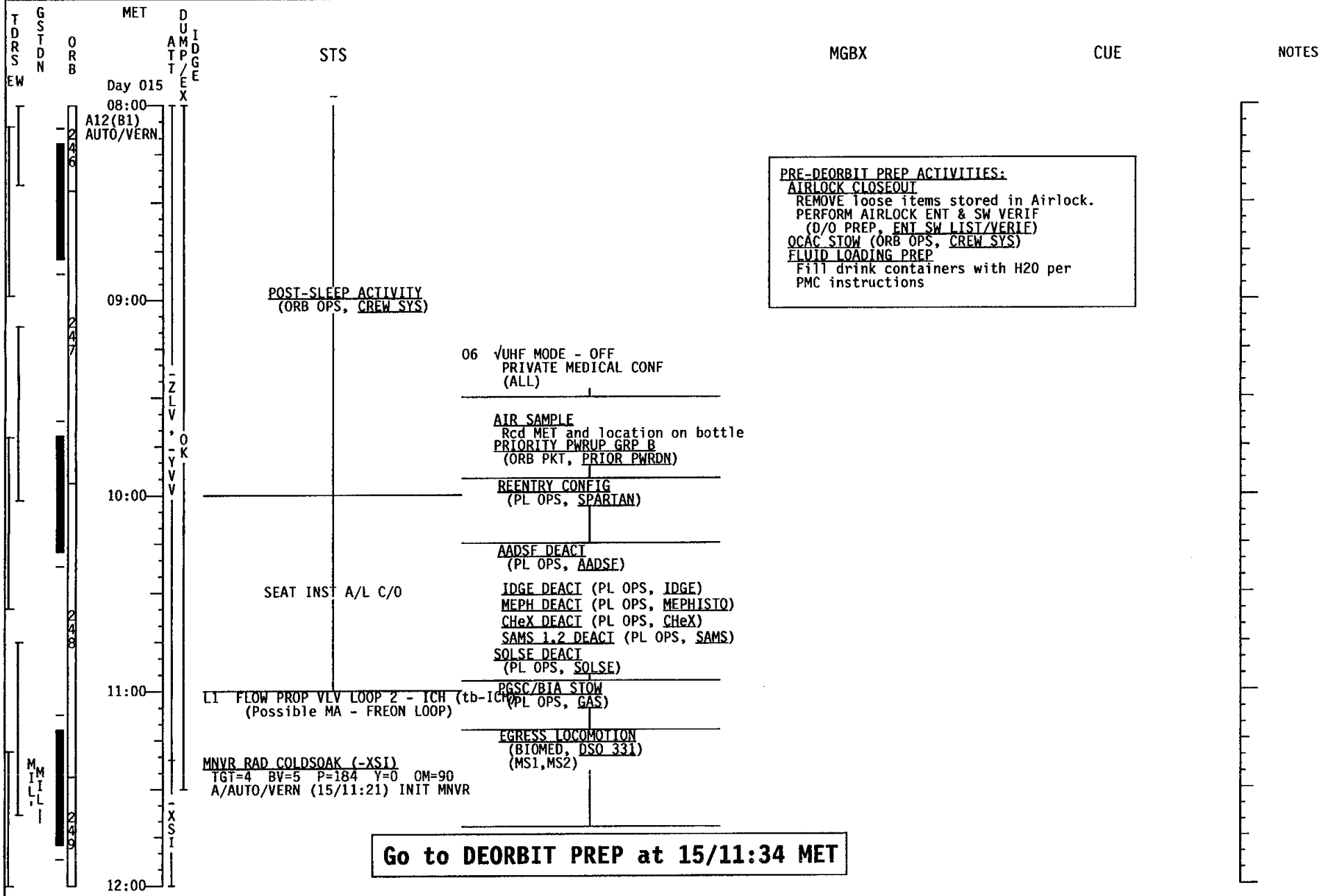
STS-87 (FD15)



STS-87 (FD16)



STS-87 (FD16)



PRE-DEORBIT PREP ACTIVITIES:
AIRLOCK CLOSEOUT
 REMOVE loose items stored in Airlock.
 PERFORM AIRLOCK ENT & SW VERIF
 (D/O PREP, ENT SW LIST/VERIF)
OCAC STOW (ORB OPS, CREW SYS)
FLUID LOADING PREP
 Fill drink containers with H2O per
 PMC instructions

Go to DEORBIT PREP at 15/11:34 MET

DAP TABLE

DAP TABLE

DAP TABLE

STS-87 GENERIC DAP A CONFIGURATIONS

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

STS-87 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A7	A8	A9	A10	A11	A12
PRI							
ROT RATE	10(50)	0.2000	0.2000	0.1000	0.1000	0.1000	0.1000
ATT DB	11(51)	2.00	2.00	3.00	3.00	3.00	3.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.04	0.04	0.04	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	ALL	ALL	ALL	ALL
TRAN PLS	17(57)	0.10	0.05	0.01	0.05	0.01	0.10
ALT							
RATE DB	18(58)	0.100	0.100	0.200	0.200	0.200	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL
# JETS	20(60)	2	2	2	2	2	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	3.60	4.50	5.10	1.00
VERN							
ROT RATE	23(63)	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24(64)	1.000	1.000	3.000	3.000	3.000	1.000
RATE DB	25(65)	.020	.020	.200	.200	.200	.020
ROT PLS	26(66)	.010	.010	.010	.010	.010	.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	2	1	1	0
PURPOSE		RNDZ	PROX OPS	SPARTAN LOW HOVER VGS, RMS POSN 1-4, 16	RELEASE CAPTURE EXT PARK VGS, RMS ACQ POSN	VGS/RMS POSN 5-15	USMP LOSS OF VERNS

Note: **BOLD/ITALICS** = not l-Loaded

STS-87 GENERIC DAP B CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5
PRI						
ROT RATE	30	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	31	3.00	3.00	3.00	0.30	3.00
RATE DB	32	0.20	0.20	0.20	0.20	0.20
ROT PLS	33	0.04	0.04	0.04	0.04	0.40
COMP	34	.000	.000	.000	.000	.000
P OPTION	35	ALL	TAIL	ALL	TAIL	TAIL
Y OPTION	36	ALL	TAIL	ALL	TAIL	TAIL
TRAN PLS	37	0.10	0.02	0.02	0.02	0.02
ALT						
RATE DB	38	0.200	0.070	0.070	0.200	0.200
JET OPT	39	ALL	TAIL	ALL	ALL	ALL
# JETS	40	2	1	1	2	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	0.00	0.00
VERN						
ROT RATE	43	0.2000	0.2000	0.2000	0.0080	0.0160
ATT DB	44	1.000	1.000	1.000	0.100	0.033
RATE DB	45	.020	.020	.020	.010	.020
ROT PLS	46	.002	.002	.002	.002	.002
COMP	47	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	0
PURPOSE		NOMINAL OMS & RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (N & T)		COAS CAL

STS-87 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B7	B8	B9	B10
PRI					
ROT RATE	30(50)	0.5000	0.2000	0.0500	0.0500
ATT DB	31(51)	2.00	2.00	1.00	1.00
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	ALL	ALL	ALL
Y OPTION	36(56)	ALL	ALL	ALL	ALL
TRAN PLS	37(57)	0.05	0.01	0.01	0.02
ALT					
RATE DB	38(58)	0.100	0.100	0.100	0.100
JET OPT	39(59)	ALL	ALL	ALL	ALL
# JETS	40(60)	2	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	4.50	0.00
VERN					
ROT RATE	43(63)	0.2000	0.2000	0.0160	0.0050
ATT DB	44(64)	1.000	1.000	1.000	0.100
RATE DB	45(65)	.020	.020	.020	.020
ROT PLS	46(66)	.002	.002	.002	.002
COMP	47(67)	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	1	0
PURPOSE		RNDZ	PROX OPS	SPARTAN DEADBAND COLLAPSE	SOLSE LIMB SCAN

Note: **BOLD/ITALICS** = not I-Loaded

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	NOMINAL	B1	NOMINAL
A2	PTC		OMS & RCS BURNS
A3	GG	B2	LOSS OF VERN (TAIL ONLY)
A4	PRE/POST DEPLOY	B3	LOSS OF VERN (NOSE & TAIL)
A5	LOSS OF VERN (NOSE & TAIL)	B4	
A6	LOSS OF VERN (TAIL ONLY)	B5	COAS CAL
A7	RENDEZVOUS	B7	RENDEZVOUS
A8	PROX OPS	B8	PROX OPS
A9	SPARTAN LOW HOVER VGS, RMS POSN 1-4, 16	B9	SPARTAN DB COLLAPSE
A10	RELEASE CAPTURE EXT PARK VGS, RMS ACQ POSN	B10	SOLSE LIMB SCAN
A11	VGS/RMS POSN 5-15		
A12	USMP LOSS OF VERN		
	CNT ACC = 0		UNLOADED
	= 1		SPARTAN RELEASE/CAPTURE/EXT PARK/VGS FOV TESTS 5-15
	= 2		SPARTAN LOW HOVER/VGS FOV TESTS 1-4
	= 3-5		NOT USED

UNIV PTG	
TGT ID =	Orbiting Vehicle
	= 2 Earth ctr
	= 3 Earth tgt
	Input LAT (± 90)
	LON (± 180 , + = East)
	ALT (-3444.0 to 20000.0 nm)
	= 4 Sun ctr
	= 5 Celestial tgt
	Input RA (0-359.99)
	DEC (± 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

ATTITUDE TIMELINE

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
1 000/01:00:00 MET 323/20:46:00 GMT	STS 87 Final Launch Nov 19, 1997 323/19:46:00 Z				
2 000/01:12:00 MET 27:00 323/20:58:00 GMT 21:13:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 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 -XVV LHP/NasBE Act
3 000/03:00:00 MET 13:20 323/22:46:00 GMT 59:20	INRTL R= 68.00 MNVR P=278.00 Y=279.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 159 P 46	Star Pair D1 -Y:26 -Z:38	IMU ALIGN PAIR AOS= 03:05 LOS= 03:46
4 000/03:20:00 MET 25:11 323/23:06:00 GMT 11:11	TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	+ZLV -XVV H2O PRODUCTION
5 000/07:29:00 MET 324/03:15:00 GMT		A1 LVLH VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 HOLD P=180.00 Y= 0.00	RCS TRIM 1 RCS +X Retrograde TV Roll = 0
	TIG = 0/07:29				
6 000/07:35:00 MET 50:00 324/03:21:00 GMT 36:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 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 -XVV
7 000/20:20:00 MET 27:30 324/16:06:00 GMT 13:30	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 99 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-XLV +ZVV FES OFF
8 001/00:00:00 MET 14:56 324/19:46:00 GMT 20:00:56	INRTL R=304.04 MNVR P=201.79 Y=318.96	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 270 P 38	DAP A9 FOR RMS UNBERTH DAPS A10/B9 FOR RELEASE	DPLY ATT
	DAPS A9,A10/B9				
9 001/01:05:00 MET 324/20:51:00 GMT D1 - 10:00	INRTL R=304.04 MNVR P=201.79 Y=318.96	B9 AUTO VERN RATE 0.0160 DB AT 1.000 DB RT 0.020	SUN R 270 P 38		DB COLLAPSE
	DAP A to A7				
10 001/01:14:15 MET 324/21:00:15 GMT D1 - 00:45		B9 FREE VERN RATE 0.0160 DB AT 1.000 DB RT 0.020	SUN R 270 P 38	INRTL R=304.04 HOLD P=201.79 Y=318.96	SPARTAN RELEASE Rel Window: Op Noon - 9 min Cl Noon+ 5 min
	Rel Open 01:15				
11 001/01:16:00 MET 01 324/21:02:00 GMT 01	INRTL R=304.00 MNVR P=202.00 Y=319.00	B8 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 270 P 38		SK POST RELEASE
	DAP B TO B8				
12 001/01:21:00 MET 324/21:07:00 GMT PET+00:06		A7 INRT VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 270 P 38	INRTL R=304.00 HOLD P=202.00 Y=319.00	SEP 1 When R > 400ft KU OUTPUT - HI
	DAP B to B7				

ATTITUDE
TIMELINE

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
13						
001/01:34:00 MET 37:22	TGT=2 BV=5 P=260.00	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	Bias +ZLV -XVV SEP 2 BURN ATT
324/21:20:00 GMT 23:22	Y= 0.00 OM=180.00					
PET+00:19						
14						
001/01:50:30 MET		A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 100	LVLH R=180.00 HOLD P=170.00 Y= 0.00	SEP 2 RCS +X 1 fps retro
324/21:36:30 GMT						
PET+00:36	TIG = 1/01:51					
15						
001/01:55:00 MET 02:01:00	TGT=2 BV=5 P=240.00	B7 AUTO ALT	RATE 0.5000 DB AT 2.000 DB RT 0.200	EARTH R 180 P 120	LVLH R= 0.00 P= 30.00 Y= 0.00	-Z TRK OM=0 KU MODE - COMM TX/PI HEALTE CK (2:08 - 2:42)
324/21:41:00 GMT 47:00	Y= 0.00 OM= 0.00					
PET+00:40	IN ATT: A/VERN					
16						
001/02:02:00 MET	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.016	A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020		LVLH R= 0.00 P= 30.00 Y= 0.00	-Z TRK OM=0
324/21:48:00 GMT						
17						
001/03:02:00 MET		A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 178	LVLH R= 0.00 HOLD P= 87.60 Y= 0.00	NC-1 -XLV +ZVV Multiaxis 2 fps posigrade
324/22:48:00 GMT						
18						
001/03:05:00 MET 12	TGT=2 BV=2 P=180.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 278 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-XLV +ZVV 5 ORBITS TX/PI AOS- SS- 17 min LOS- SS + 9 min
324/22:51:00 GMT 12	Y= 0.00 OM= 0.00					
19						
001/09:34:00 MET					NC-2 -XLV +ZVV Multiaxis 1 fps retro	
325/05:20:00 GMT						
20						
001/11:00:00 MET 07:30	TGT=2 BV=3 P= 90.00	A1 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 -XVV
325/06:46:00 GMT 53:30	Y= 0.00 OM= 0.00					
21						
001/20:00:00 MET 07:30	TGT=2 BV=3 P= 90.00	A1 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= 90.00	-ZLV +YVV CheX Attitude Sensitivity
325/15:46:00 GMT 53:30	Y= 0.00 OM=270.00					
22						
001/21:00:00 MET 13:40	TGT=2 BV=5 P=177.40	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 25 P 177	LVLH R=291.01 P= 92.05 Y=358.00	BIAS -XLV -YVV GG CheX Attitude Sensitivity
325/16:46:00 GMT 59:40	Y= 1.20 OM= 69.00					
23						
001/22:00:00 MET 05:45	TGT=2 BV=2 P=180.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-XLV +ZVV CheX Att Thrstr Sensitivity
325/17:46:00 GMT 51:45	Y= 0.00 OM= 0.00					
24						
002/02:00:00 MET 07:30	TGT=2 BV=3 P= 90.00	A1 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 -XVV
325/21:46:00 GMT 53:30	Y= 0.00 OM= 0.00					

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

Attitude Timeline

MET/GMT	MNVR OPTION		DAP	E/S	REF ATT/REMARKS	EVENT
25 002/04:45:00 MET 49:10 326/00:31:00 GMT 35:10	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=310.00	A1 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= 50.00	Waste Dump Bias -ZLV +YVV
26 002/07:10:00 MET 14:10 326/02:56:00 GMT 03:00:10	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 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 -XVV
27 002/09:35:00 MET 326/05:21:00 GMT						NC-3 Multiaxis 1.4 fps posi
28 002/11:45:00 MET 51:55 326/07:31:00 GMT 37:55	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -XLV +ZVV
29 002/22:10:00 MET 13:09 326/17:56:00 GMT 59:09 Ti - 02:59	INRTL R=118.00 MNVR P=189.00 Y=353.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 122 P 58	TIG = 2/22:26	NC-4 RCS +X 5.9 fps posi TV Roll 0
30 002/22:28:00 MET 29:23 326/18:14:00 GMT 15:23	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	B7 AUTO PRI	RATE 0.5000 DB AT 2.00 DB RT 0.20	EARTH R 180 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-Z TGT TRK LVLH EQUIV KU MODE - RDR
31 002/23:10:00 MET 50 326/18:56:00 GMT 50	TGT=2 BV=5 P=170.00 Y= 0.00 OM= 0.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 170	LVLH R= 0.00 P=100.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
32 002/23:45:00 MET 50 326/19:31:00 GMT 50	TGT=2 BV=2 P=180.00 Y= 0.00 OM= 0.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 49 P 180	LVLH R= 0.00 P= 90.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
33 003/00:00:00 MET 326/19:46:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.020	A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020		LVLH R= 0.00 P= 90.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
34 003/00:29:00 MET 326/20:15:00 GMT Ti - 00:56		B7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 145	LVLH R= 0.00 HOLD P=124.80 Y= 0.00	NCC RCS Multi Axis 0 fps
35 003/00:30:00 MET 326/20:16:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.064	A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020		LVLH R= 0.00 P=124.80 Y= 0.00	-Z TGT TRK LVLH EQUIV
36 003/01:00:00 MET 326/20:46:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.017	A7 LVLH VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020		LVLH R= 0.00 P=240.00 Y= 0.00	-Z TGT TRK LVLH EQUIV

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
37 003/01:10:00 MET 19:51 326/20:56:00 GMT 21:05:51	INRTL R=143.00 MNVR P=142.00 Y= 55.00	B7 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 129 P 108	Prel TIG 03/01:25:00	Ti TV Roll 180 Retrograde
38 003/01:29:00 MET 31:04 326/21:15:00 GMT 17:04	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 76 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
39 003/01:35:00 MET 326/21:21:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.010	A7 RATE 0.2000 LVLH DB AT 1.000 VERN DB RT 0.020		LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
40 003/02:10:00 MET 326/21:56:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.033	A7 RATE 0.2000 LVLH DB AT 1.000 VERN DB RT 0.020		LVLH R= 0.00 P=291.00 Y= 0.00	-Z TGT TRK LVLH EQUIV
41 003/02:40:00 MET 48 326/22:26:00 GMT 48	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00 DAF A8/B8	B7 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	ESTABLISH RBAR MAN TRAJ CNTL
42 003/03:10:00 MET 11:15 326/22:56:00 GMT 57:15	TGT=2 BV=5 P=255.00 Y= 0.00 OM= 0.00	A8 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 105	LVLH R= 0.00 P= 15.00 Y= 0.00	VGS POS PITCH FOV Ops Step 1 Pitch up 15 deg
43 003/03:12:00 MET 14:30 326/22:58:00 GMT 23:00:30	TGT=2 BV=5 P=285.00 Y= 0.00 OM= 0.00	A8 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 75	LVLH R= 0.00 P=345.00 Y= 0.00	VGS NEG PITCH FOV Ops Step 2 Pitch dn 15 deg
44 003/03:15:00 MET 16:15 326/23:01:00 GMT 02:15	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A8 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	VGS RETURN +ZLV FOV Ops Step 3
45 003/03:17:00 MET 18:40 326/23:03:00 GMT 04:40	TGT=2 BV=5 P=270.00 Y=340.00 OM= 0.00	A8 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 200 P 90	LVLH R=340.00 P= 0.00 Y= 0.00	VGS NEG ROLL FOV Ops Step 5 20 deg neg roll
46 003/03:20:00 MET 23:20 326/23:06:00 GMT 09:20	TGT=2 BV=5 P=270.00 Y= 20.00 OM= 0.00	A8 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 160 P 90	LVLH R= 20.00 P= 0.00 Y= 0.00	VGS POS ROLL FOV Ops Step 6 20 deg pos roll
47 003/03:25:00 MET 26:40 326/23:11:00 GMT 12:40	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A8 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	VGS RETURN +ZLV FOV Ops Step 7
48 003/04:20:00 MET 327/00:06:00 GMT				Prior to 118ft Beta Only -5deg	When R - 80 ft RR loses lock KU MODE - COMM

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
49 003/04:44:00 MET 327/00:30:00 GMT	Post Capture: DAP: A10 (B8)			Post Capture Beta 21 + mask -10<AZ<100 -85<EL<-10	SPARTAN GRAPPLE
50 003/04:55:00 MET 05:10:00 327/00:41:00 GMT 56:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A10 AUTO DB AT 3.000 VERN DB RT 0.200	RATE 0.2000 EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	VGS/RMS SETUP -ZLV +YVV Nose South
51 003/05:10:00 MET 327/00:56:00 GMT	INRTL BV=5 ROTR P=180.00 Y= 0.00 VGS DAPS:A9,A11	A10 AUTO DB AT 3.000 VERN DB RT 0.200	RATE 0.2000 EARTH R 360 P 90	INRTL R=326.16 P=100.23 Y=333.21	VGS ROTOR -X ROLL
52 003/08:10:00 MET 03 327/03:56:00 GMT 03	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00 DAP: A9	A10 AUTO DB AT 3.000 VERN DB RT 0.200	RATE 0.2000 EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	SPARTAN BERTH -ZLV +YVV
53 003/08:40:00 MET 47:30 327/04:26:00 GMT 33:30	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
54 003/10:25:00 MET 327/06:11:00 GMT				Post Burn: Deploy Stbd Rad	RCS TRIM 2 Multiaxis
55 003/13:30:00 MET 45:00 327/09:16:00 GMT 31:00	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00 DAP: A12 (B1)	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 360 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
56 003/22:00:00 MET 15:00 327/17:46:00 GMT 18:01:00	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 360 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -ZLV +ZVV
57 004/10:30:00 MET 36:55 328/06:16:00 GMT 22:55	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
58 004/13:45:00 MET 14:00:00 328/09:31:00 GMT 46:00	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 0 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
59 005/00:30:00 MET 45:00 328/20:16:00 GMT 31:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	EVA -ZLV -XVV Stow Stbd Rad
60 005/08:45:00 MET 59:10 329/04:31:00 GMT 45:10	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=170.00	A12 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 EARTH R 0 P 90	LVLH R=180.00 P= 0.00 Y=350.00	SPRINT BIAS -ZLV +XVV KU Optimize OM

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
61 005/11:45:00 MET 59:23 329/07:31:00 GMT 45:23	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -XLV +ZVV
62 007/04:45:00 MET 52:45 331/00:31:00 GMT 38:45	TGT=2 BV=5 P= 80.00 Y= 0.00 OM= 0.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 80	LVLH R= 0.00 P=190.00 Y= 0.00	RCS TRIM 3 +X Retrograde Deploy Stbd Rad
63 007/05:05:00 MET 20:00 331/00:51:00 GMT 01:06:00	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
64 010/04:45:00 MET 05:00:00 334/00:31:00 GMT 46:00	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -XLV +ZVV
65 011/19:40:00 MET 55:00 335/15:26:00 GMT 41:00	TGT=2 BV=5 P= 80.00 Y= 0.00 OM=180.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 80	LVLH R=180.00 P=350.00 Y= 0.00	RCS TRIM 4 Bias -ZLV +XVV +X Posigrade
66 011/20:00:00 MET 01:40 335/15:46:00 GMT 47:40	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
67 012/07:00:00 MET 15:00 336/02:46:00 GMT 03:01:00	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -XLV +ZVV
68 012/15:30:00 MET 37:31 336/11:16:00 GMT 23:31	TGT=2 BV=5 P= 90.00 Y=284.70 OM= 90.00	A12 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 285 P 90	LVLH R= 0.00 P=104.70 Y=270.00	SOLSE SETUP LIMB SCAN BIAS -YLV +ZVV
69 012/16:15:00 MET 31:40 336/12:01:00 GMT	TGT=2 BV=5 P= 90.00 Y=284.70 OM= 90.00	B10 AUTO VERN RATE 0.0050 DB AT 0.100 DB RT 0.020	EARTH R 285 P 90	LVLH R= 0.00 P=104.70 Y=270.00	DB COLLAPSE SOLSE LIMB SCAN BIAS -YLV +ZVV
70 012/16:25:00 MET 31:40 336/12:11:00 GMT 17:40	TGT=2 BV=5 P= 90.00 Y=286.70 OM= 90.00	B10 AUTO VERN RATE 0.0050 DB AT 0.100 DB RT 0.020	EARTH R 287 P 90	LVLH R= 0.00 P=106.70 Y=270.00	LIMB SCAN BIAS -YLV +ZVV
71 012/16:32:00 MET 38:40 336/12:18:00 GMT 24:40	TGT=2 BV=5 P= 90.00 Y=284.70 OM= 90.00	B10 AUTO VERN RATE 0.0050 DB AT 0.100 DB RT 0.020	EARTH R 285 P 90	LVLH R= 0.00 P=104.70 Y=270.00	RETURN BIAS -YLV +ZVV
72 012/16:39:00 MET 45:40 336/12:25:00 GMT 31:40	TGT=2 BV=5 P= 90.00 Y=286.70 OM= 90.00	B10 AUTO VERN RATE 0.0050 DB AT 0.100 DB RT 0.020	EARTH R 287 P 90	LVLH R= 0.00 P=106.70 Y=270.00	LIMB SCAN BIAS -YLV +ZVV

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
73 012/16:46:00 MET 52:40 336/12:32:00 GMT 38:40	TGT=2 BV=5 P= 90.00 Y=284.70 OM= 90.00	B10 RATE 0.0050 AUTO DB AT 0.100 VERN DB RT 0.020	EARTH R 285 P 90	LVLH R= 0.00 P=104.70 Y=270.00	RETURN BIAS -YLV +ZVV
74 012/16:53:00 MET 59:40 336/12:39:00 GMT 45:40	TGT=2 BV=5 P= 90.00 Y=286.70 OM= 90.00	B10 RATE 0.0050 AUTO DB AT 0.100 VERN DB RT 0.020	EARTH R 287 P 90	LVLH R= 0.00 P=106.70 Y=270.00	LIMB SCAN BIAS -YLV +ZVV
75 012/17:00:00 MET 06:40 336/12:46:00 GMT 52:40	TGT=2 BV=5 P= 90.00 Y=284.70 OM= 90.00	B10 RATE 0.0050 AUTO DB AT 0.100 VERN DB RT 0.020	EARTH R 285 P 90	LVLH R= 0.00 P=104.70 Y=270.00	RETURN BIAS -YLV +ZVV
76 012/17:07:00 MET 13:40 336/12:53:00 GMT 59:40	TGT=2 BV=5 P= 90.00 Y=286.70 OM= 90.00	B10 RATE 0.0050 AUTO DB AT 0.100 VERN DB RT 0.020	EARTH R 287 P 90	LVLH R= 0.00 P=106.70 Y=270.00	LIMB SCAN BIAS -YLV +ZVV
77 012/17:25:00 MET 32:32 336/13:11:00 GMT 18:32	TGT=2 BV=5 P=173.00 Y= 0.00 OM= 0.00	A12 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 173	LVLH R= 0.00 P= 97.00 Y= 0.00	MEPHISTO Bias -XLV +ZVV
78 012/20:10:00 MET 25:00 336/15:56:00 GMT 16:11:00	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00	A12 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
79 013/14:00:00 MET 09:44 337/09:46:00 GMT 55:44	TGT=2 BV=5 P= 90.00 Y=285.70 OM= 90.00	A12 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 286 P 90	LVLH R= 0.00 P=105.70 Y=270.00	SOLSE LIMB VIEW BIAS -YLV +ZVV
80 013/18:40:00 MET 49:17 337/14:26:00 GMT 35:17	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A12 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	-ZLV -XVV
81 013/22:30:00 MET 45:00 337/18:16:00 GMT 31:00	TGT=2 BV=5 P=100.00 Y= 0.00 OM=180.00	A12 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 360 P 100	LVLH R=180.00 P= 10.00 Y= 0.00	AADSF Bias -ZLV +XVV
82 014/06:45:00 MET 07:00:00 338/02:31:00 GMT 46:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A12 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	-ZLV -XVV Stow rads
83 014/13:30:00 MET 37:55 338/09:16:00 GMT 23:55	TGT=4 BV=5 P=270.00 Y= 0.00 OM= 90.00 RA= 250.067 DEC= -22.181S	A12 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 90	INRTL R= 97.15 P=115.26 Y= 28.68	+ZSI
84 014/18:33:00 MET 338/14:19:00 GMT				Ku Stow 18:40	RCS TRIM Placeholder EOM Crossrange

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
85 014/23:30:00 MET 43:19 338/19:16:00 GMT 29:19	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	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=270.00	-ZLV -YVV
86 015/11:21:00 MET 27:49 339/07:07:00 GMT 13:49	TGT=4 RA= 251.056 BV=5 DEC= -22.303S P=184.00 Y= 0.00 OM= 90.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 176	INRTL R=256.54 P=310.28 Y= 64.96	-XSI COLDSOAK
87 015/12:38:00 MET 50:39 339/08:24:00 GMT 36:39	INRTL R= 86.00 MNVR P=252.00 Y= 14.00	A1 RATE 0.2000 AUTO DB AT 5.00 PRI DB RT 0.20	SUN R 157 P 118	IMU Pair -Y: 37 -Z: 13	D/O IMU ALIGN
88 015/12:56:00 MET 59:18 339/08:42:00 GMT 45:18	INRTL R=177.00 MNVR P=279.00 Y=324.00	B1 RATE 0.5000 AUTO DB AT 3.00 PRI DB RT 0.20	SUN R 79 P 80	Verif Pair -Y: 18 -Z: 41	D/O IMU VERIF
89 015/13:11:00 MET 13:27 339/08:57:00 GMT 59:27	INRTL R=157.00 MNVR P=284.00 Y= 35.00	TRN RATE 0.5000 AUTO DB AT 3.50 PRI DB RT 0.20	SUN R 90 P 150		COMM
90 015/15:21:00 MET 25:18 339/11:07:00 GMT 11:18	INRTL R= 66.00 MNVR P=185.00 Y=297.00	TRN RATE 0.5000 AUTO DB AT 3.500 VERN DB RT 0.200	SUN R 136 P 26	Prel TIG 15/15:36:00	DEORBIT BURN TV Roll 180

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

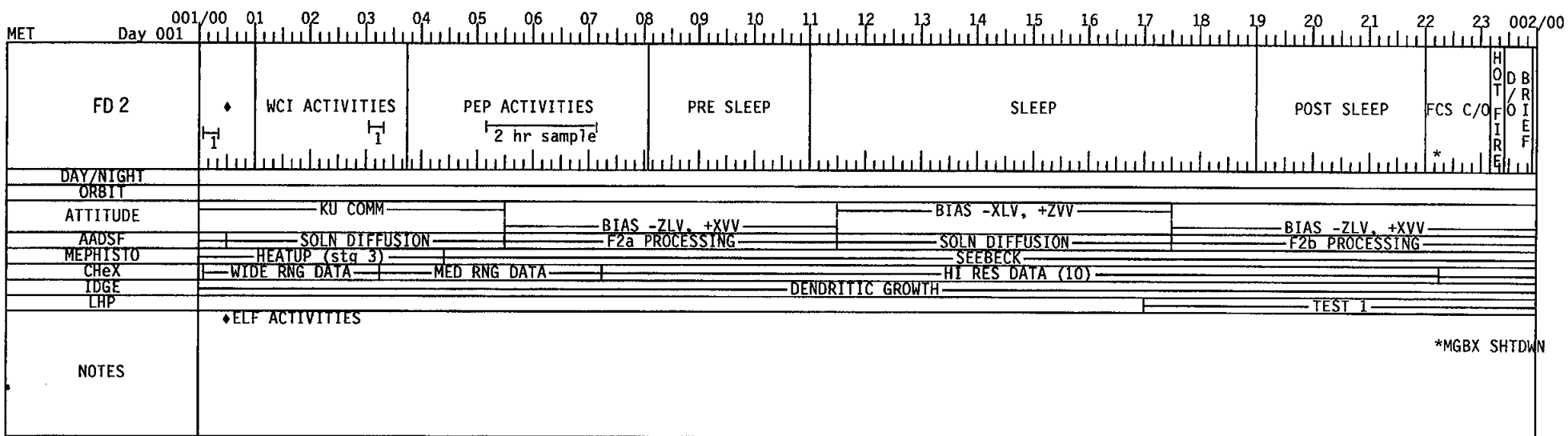
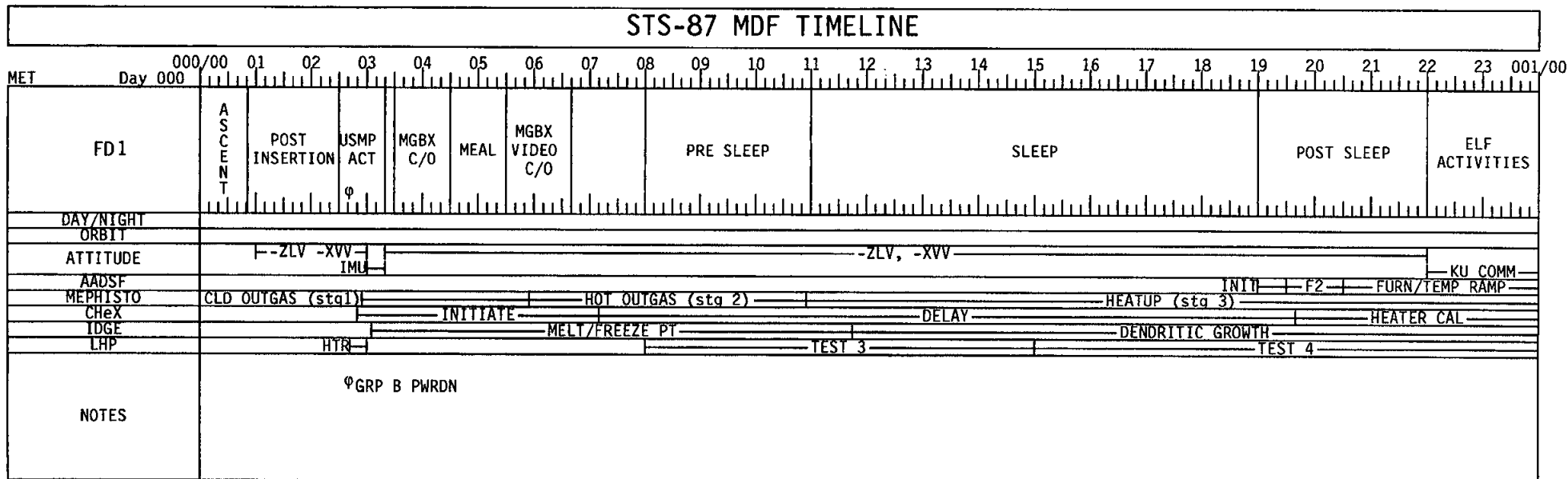
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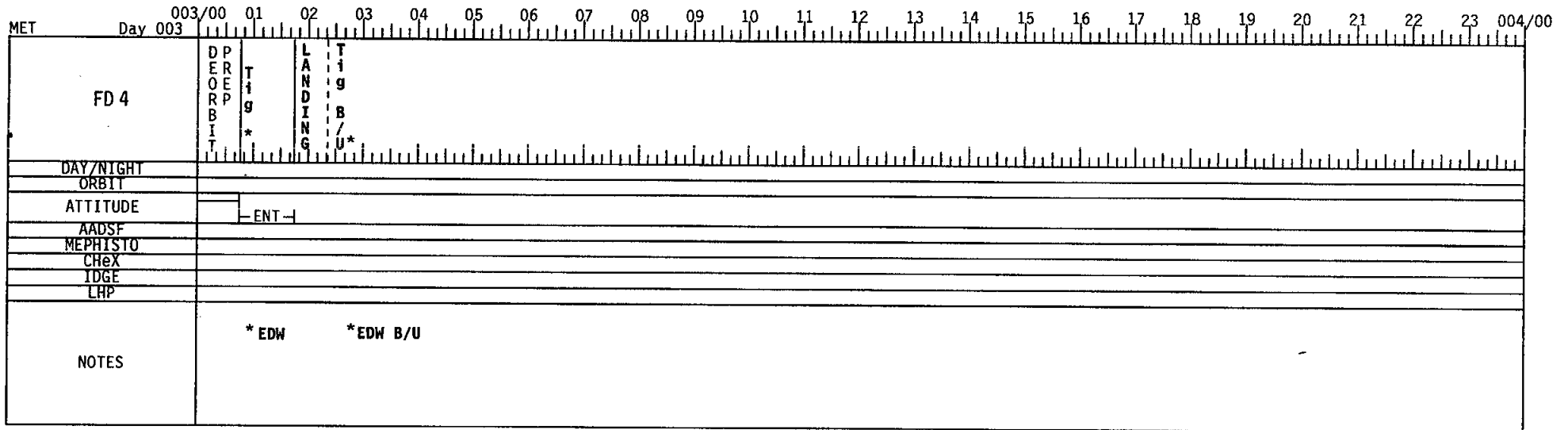
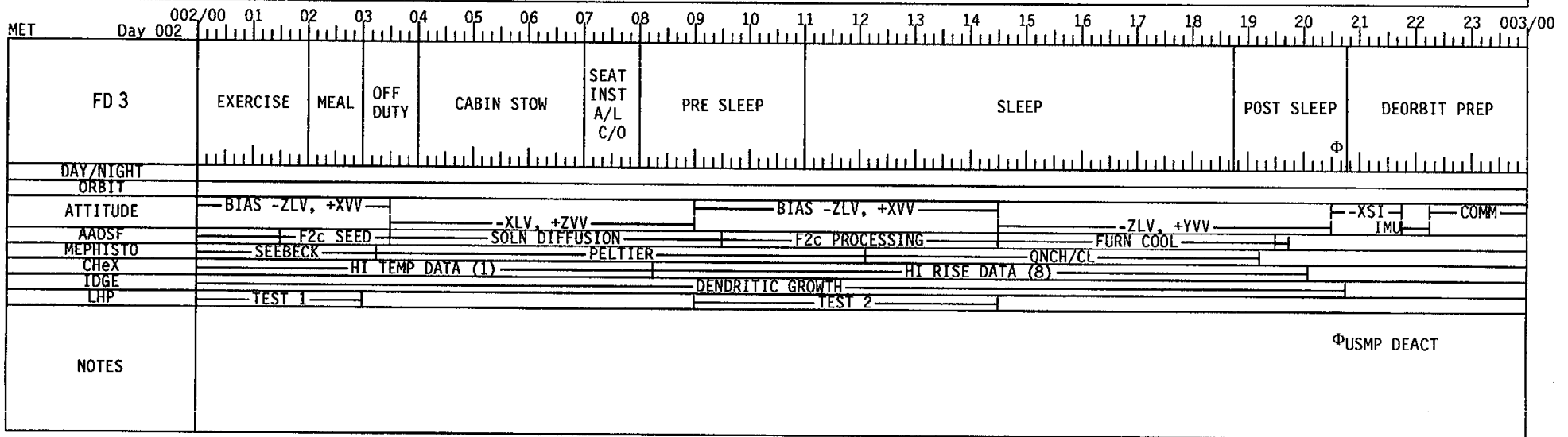
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MDF TIMELINE

STS-87 MDF TIMELINE



STS-87 MDF TIMELINE



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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV102/Columbia
Inclination: 28.45°
Insertion Altitude: 150 nm
Duration: 16 + 2 days

B. CREW

STS-87

CDR - Kevin Kregel
PLT - Steve Lindsey (RMS2,IV)
MS1 - Kalpana Chawla (RMS1)
MS2 - Winston Scott (EV1)
MS3 - Takao Doi (EV2)
PS1 - Leonid Kadenyuk

C. COMMUNICATIONS

TDRS Support:

East (41° W), West (174° W), Z (85° E)
Backup Real-Time TV: Goldstone - GDS(GDX),
Merritt Island - MIL(MLX)

Contingency GSTDN:

(MLX*), Bermuda - BDA(BDX*), Goldstone - GDS(GDX*), and Dryden - DFRC

Contingency RTS:

Hawaii (HTS), Guam (GTS), Vandenburg (VTS), Diego Garcia (DGS)

*UHF capability

Lead time for site callup: GSTDN - 2 hr

D. PAYLOADS

1. UNITED STATES MICROGRAVITY PAYLOAD - 4 (USMP-4)

The USMP-4 payload consists of two Multipurpose Equipment Support Structures (MPESs) with supporting subsystems, two bridge structures, six payload bay experiments, and Middeck Glovebox (MGBX). The six payload bay experiments are as follows:

- a. Advanced Automated Directional Solidification Furnace (AASDF) - AASDF is a furnace designed to grow high quality crystals for electro-optical materials, as well as produce alloys and metals. It is a multizone-type furnace capable of establishing very steep thermal gradients as well as long isothermally heated regions.
- b. Material Pour L'Etude Des Phenomenes Interessant La Solidification Sur Terre Et En Orbite (MEPHISTO) - MEPHISTO is a sophisticated furnace that will perform fundamental studies of different parameters which influence crystalline growth, such as the thermal gradient, the solidification rate, and the characteristics of the solidified sample in microgravity.

- c. **Isothermal Dendritic Growth Experiment (IDGE)** – IDGE’s goal is to develop and verify a mathematical model relating dendrite growth rates and tip radii to tip undercooling. The materials studied are transparent, crystalline organics whose behavior mimics that of pure metal and metal alloy systems.
- d. **Confined Helium Experiment (CHeX)** – CHeX will measure the effect of the proximity of walls on the transition from normal to super fluid (lambda transition) in liquid helium.
- e. **Space Acceleration Measurement System (SAMS)** – SAMS is capable of measuring, storing, and downlinking large blocks of acceleration data in the 0 to 100 Hertz frequency range. SAMS provides acceleration measurements in support of MEPHISTO, AADSF, and IDGE.
- f. **Orbital Acceleration Research Experiment (OARE)** – OARE will measure low frequency accelerations along the orbiter’s principal axes and provide near real-time downlink of acceleration data.

The Microgravity Glovebox (MGBX) is a facility designed for materials science and biological science experiment handling. The MGBX facility is installed in the middeck and provides an enclosed working area for experiment manipulation and observation. The three MGBX experiments are:

- a. **Particle Engulfment and Pushing by Solidifying Interfaces (PEP)** – The PEP experiment will improve the understanding of the physics associated with solidification of mixtures of liquid metal/ceramic particles.
- b. **Wetting Characteristics of Immiscibles (WCI)** – WCI will investigate the influence of alloy/ampoule wetting characteristics on the segregation of immiscible liquids during microgravity processing.
- c. **Enclosed Laminar Flames (ELF)** – The ELF experiment will study the flow characteristics of laminar flames in microgravity.

2. SPARTAN-201 (SP-201)

SP-201 will carry two instruments that will study the Sun. The Ultraviolet Coronal Spectrometer (UCS) from the Smithsonian Astrophysical Observatory and a White Light Coronagraph (WLC) from the High Altitude Observatory will examine the physics of the solar wind acceleration region during a free-flight period of approximately two days duration. SP-201 has three secondary experiments:

- a. **Technology Experiment Augmenting Spartan (TEXAS)** – TEXAS is a Goddard Space Flight Center (GSFC) Radio Frequency (RF) communications experiment which will provide flight experience for components baselined on future Spartan missions, and a real-time communications and control link with the primary SP-201 experiments. The link for this Spartan mission will provide fine pointing adjustment to the WLC based on solar images downlinked real time.
- b. **Video Guidance Sensor (VGS)** – VGS is a George C. Marshall Space Flight Center (MSFC) laser guidance system which will test a key component of the Automated Rendezvous and Capture (AR&C) system.

- c. Spartan Auxiliary Mounting Plate (SPAM) – SPAM is a test of a small equipment mounting plate which will provide a mounting location for small experiments or auxiliary equipment on the Spartan Flight Support Structure (SFSS). SPAM is passive and requires no crew interaction.

3. EVA DEVELOPMENT FLIGHT TEST – 05 (EDFT-05)

The EDFT-05's main objective is to demonstrate International Space Station (ISS) on-orbit, end-to-end EVA assembly and maintenance operations. A secondary objective is expanding the EVA experience base for the ground and flight crews. A single EVA is planned for STS-87.

4. COLLABORATIVE UKRAINIAN EXPERIMENT (CUE)

The CUE will study the effects of microgravity on plant growth and is composed of a group of experiments flown in the middeck. The experiments have been selected from investigators in the Ukraine and the United States as a model for scientific collaboration between the two countries. CUE will be supported by an Ukrainian Payload Specialist (PS) and will use the MGBX facility to harvest CUE samples.

5. LOOP HEAT PIPE (LHP) FLIGHT EXPERIMENT

The LHP will test advanced thermal energy management technology, validating technology readiness for the LHP to be incorporated into an upcoming commercial spacecraft application. It is mounted in a standard unsealed 5-cubic foot Hitchhiker (HH) canister on the starboard side of the PLB and will share avionics with the Sodium Sulfur Battery Experiment (NaSBE).

6. SODIUM SULFUR BATTERY EXPERIMENT (NaSBE)

The NaSBE will characterize the performance of four 40 amp-hour sodium-sulfur battery cells. It is installed in a Hitchhiker (HH) canister on the starboard side of the PLB and will share avionics with the LHP.

7. SHUTTLE OZONE LIMB SOUNDING EXPERIMENT (SOLSE)

The SOLSE will perform limb and Earth viewing observations to determine the altitude distribution of ozone in an attempt to understand its behavior and quantitative changes in the composition of our atmosphere.

8. GET-AWAY SPECIAL PAYLOAD 036 (G-036)

The G-036 studies the effects of microgravity on the formation of concrete and on a sample of asphalt.

9. TURBULENT GAS JET DIFFUSION FLAMES (TGDF)

The TGDF will gain an understanding of the fundamental characteristics of transitional and turbulent gas jet diffusion flames under microgravity conditions.

D. RISK MITIGATION EXPERIMENTS (RMEs)

- 1. IN-SUIT DOPPLER ULTRASOUND FOR DETERMINING THE RISK OF DECOMPRESSION SICKNESS DURING EXTRAVEHICULAR ACTIVITIES (RME 1309)**

RME 1309 will use an In-Suit Doppler System to evaluate the possibility of reduced prebreath requirements for EVA, without compromising operational safety of increasing the risk of decompression sickness (DCS) to astronauts.

- 2. AUTONOMOUS EVA ROBOTIC CAMERA/SPRINT FLIGHT TEST (AERCAM/Sprint) (RME 1323)**

AERCAM/Sprint will demonstrate that a free flying camera platform can be designed to augment on-orbit operations for both the orbiter and space station.

E. ON-ORBIT DETAILED SUPPLEMENTAL OBJECTIVES (DSOs)

- 1. EDUCATION TV (DSO 802)**

Two live educational events, one with an American school and one with an Ukrainian school will be scheduled using the CUE experiment as the focus of discussion. Five events using USMP as the focus will be recorded for playback during the mission, but will not be live, interactive events.

- 2. LES AND SUSTAINED WEIGHTLESSNESS ON EGRESS LOCOMOTION (DSO 331)**

Instrumentation will be donned prior to entering the Deorbit Prep Checklist so that egress biomedical data may be recorded for post flight analysis.

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STS-87 GENERIC DAP A CONFIGURATIONS

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

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STS-87 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A7	A8	A9	A10	A11	A12
PRI							
ROT RATE	10(50)	0.2000	0.2000	0.1000	0.1000	0.1000	0.1000
ATT DB	11(51)	2.00	2.00	3.00	3.00	3.00	3.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.04	0.04	0.04	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	ALL	ALL	ALL	ALL
TRAN PLS	17(57)	0.10	0.05	0.01	0.05	0.01	0.10
ALT							
RATE DB	18(58)	0.100	0.100	0.200	0.200	0.200	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL
# JETS	20(60)	2	2	2	2	2	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	3.60	4.50	5.10	1.00
VERN							
ROT RATE	23(63)	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24(64)	1.000	1.000	3.000	3.000	3.000	1.000
RATE DB	25(65)	.020	.020	.200	.200	.200	.020
ROT PLS	26(66)	.010	.010	.010	.010	.010	.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	2	1	1	0
PURPOSE		RNDZ	PROX OPS	SPARTAN LOW HOVER VGS, RMS POSN 1-4, 16	RELEASE CAPTURE EXT PARK VGS/RMS ACQ POSN	VGS/RMS POSN 5-15	USMP LOSS OF VERNS

Note: **BOLD/ITALICS** = not l-Loaded

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STS-87 GENERIC DAP B CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5
PRI						
ROT RATE	30	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	31	3.00	3.00	3.00	0.30	3.00
RATE DB	32	0.20	0.20	0.20	0.20	0.20
ROT PLS	33	0.04	0.04	0.04	0.04	0.40
COMP	34	.000	.000	.000	.000	.000
P OPTION	35	ALL	TAIL	ALL	TAIL	TAIL
Y OPTION	36	ALL	TAIL	ALL	TAIL	TAIL
TRAN PLS	37	0.10	0.02	0.02	0.02	0.02
ALT						
RATE DB	38	0.200	0.070	0.070	0.200	0.200
JET OPT	39	ALL	TAIL	ALL	ALL	ALL
# JETS	40	2	1	1	2	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	0.00	0.00
VERN						
ROT RATE	43	0.2000	0.2000	0.2000	0.0080	0.0160
ATT DB	44	1.000	1.000	1.000	0.100	0.033
RATE DB	45	.020	.020	.020	.010	.020
ROT PLS	46	.002	.002	.002	.002	.002
COMP	47	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	0
PURPOSE		NOMINAL OMS & RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (N & T)		COAS CAL

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STS-87 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B7	B8	B9	B10
PRI					
ROT RATE	30(50)	0.5000	0.2000	0.0500	0.0500
ATT DB	31(51)	2.00	2.00	1.00	1.00
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	ALL	ALL	ALL
Y OPTION	36(56)	ALL	ALL	ALL	ALL
TRAN PLS	37(57)	0.05	0.01	0.01	0.02
ALT					
RATE DB	38(58)	0.100	0.100	0.100	0.100
JET OPT	39(59)	ALL	ALL	ALL	ALL
# JETS	40(60)	2	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	4.50	0.00
VERN					
ROT RATE	43(63)	0.2000	0.2000	0.0160	0.0050
ATT DB	44(64)	1.000	1.000	1.000	0.100
RATE DB	45(65)	.020	.020	.020	.020
ROT PLS	46(66)	.002	.002	.002	.002
COMP	47(67)	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	1	0
PURPOSE		RNDZ	PROX OPS	SPARTAN DEADBAND COLLAPSE	SOLSE LIMB SCAN

Note: **BOLD/ITALICS** = not l--Loaded

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