

Pink

FLIGHT DATA FILE

Flight Plan

STS-84

(FRR Trajectory)

Mission Operations Directorate
Operations Division

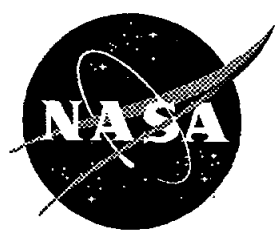
Final
April 28, 1997

NOTE
6 day docked mission

<u>EVENT</u>	<u>CDT</u>		
Launch	03:07	Thur	May 15
Mir Docking	23:10	Fri	May 16
Mir Undocking	20:39	Thur	May 22
KSC Landing	07:27	Sun	May 25

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas




MISSION OPERATIONS DIRECTORATE


STS-84 FLIGHT PLAN

FINAL
April 28, 1997

PREPARED BY:

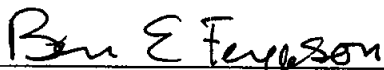


Greg N. Smith
Book Manager/Lead FAO

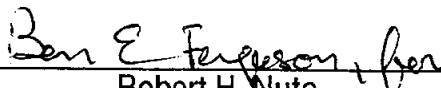


Michael Scheib
Lead FAO Planner

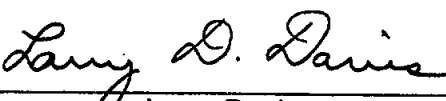
APPROVED BY:



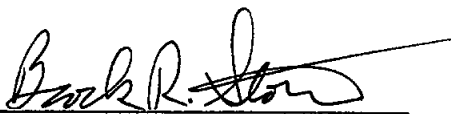
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Book Manager/Lead FAO	DO4/G. Smith	244-1138
Lead FAO Planner	DO4/M. Scheib	244-1149
Lead Pointer	DO4/W. Chell	244-5868

FLIGHT PLAN
STS-84

LIST OF EFFECTIVE PAGES

FINAL 04/28/97

Sign Off	*	84/FIN	3-21	84/FIN
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iii	*	84/FIN	3-23	84/FIN
iv	*	84/FIN	3-24	84/FIN
v	*	84/FIN	3-25	84/FIN
vi	*	84/FIN	3-26	84/FIN
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* - Omit from flight book

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3-113	84/FIN	8-6	* 84/FIN

STS-84 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
STS-84 GENERIC DAP A CONFIGURATIONS (Top/Front)	CC 8-2	FLT PLN-1a/84/O/A
STS-84 FLIGHT SPECIFIC DAP A CONFIGURATION (Bottom/Front)	CC 8-3	FLT PLN-1aa/84/O/B
STS-84 GENERIC DAP B CONFIGURATIONS (Top/Back)	CC 8-4	FLT PLN-1b/84/O/A
STS-84 FLIGHT SPECIFIC DAP B CONFIGURATIONS (Bottom/Back)	CC 8-5	FLT PLN-1bb/84/O/B

* - Omit from flight book

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INTRODUCTION

The STS-84 Flight Plan is the Flight Data File article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. 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-84 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the Flight Cycle version of the STS-84 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of May 15, 1997, at 03:07 CDT. The launch time was derived using a predicted Mir vector (L-3) and a flight day 3 rendezvous. 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 and the Shuttle/Mir Sleep Cycle Guidelines established at WGO September 1995, have been used to build the timelines contained in this Flight Plan.

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

OVERVIEW TIMELINE

**STS-84 SHUTTLE FD3 DOCKING, DAILY ORBIT 3
8:07 GMT LAUNCH, DESCENDING LANDING
EXTRA DOCKED DAY**

ЦИКЛОГРАММА ПОЛЁТА СТС-84, ПРИ СТАРТЕ В 08:07 ПО ГСВ, СТЫКОВКЕ С МИРОМ НА 3-й ДЕНЬ ПОЛЁТА НА 3-м СУТОЧНОМ ВИТКЕ, ДОПОЛНИТЕЛЬНОМ ДНЕ СОВМЕСТНОГО ПОЛЁТА, И ПОСАДКЕ ШАТТЛА С НИСХОДЯЩЕЙ ЧАСТИ ТРАЕКТОРИИ

GMT / ГСВ	08:07	10:07	12:07	14:07	16:07	18:07	20:07	22:07	00:07	02:07	04:07	06:07	08:07
МЕТ/ПВ	0/0	1	2	3	4	5	6	7	8	9	10	11	12
STS/Шат													
Mir/Мир													

МЕТ/ПВ	1/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

* Daily Orbits vary with respect to MET on a flight-by-flight basis
 * Для разных полётов соотношение между полётным временем (ПВ) и номером суточного витка (СВ) может варьироваться

|--D03--|
СВ3
↑ DO3 DOCK = 1/20:03
СТЫК. НА СВ 3

МЕТ/ПВ	2/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	3/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	4/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	5/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	6/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	7/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	8/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	9/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

МЕТ/ПВ	10/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STS/Шат																									
Mir/Мир																									

↑ KSC LANDING(10/04:20) - DESCENDING
 ↑ Посадка в КЦК(10/04:20)

Подготовка к сходу с орбиты
 Вход в атмосферу

SUMMARY TIMELINE

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BETA ANGLE:-2.00

CT Date 05/15/97
 DMT Date 05/15/97
 MET Day 000

CDR PRECOURT		POST INSERT	PLN BVR	POST INSERTION	EL L V O N	IMU K M N V R	IMU M	NC14 OMS BURN	GR P R I D B N	PM R I D V	PRE SLEEP		SLEEP	
PLT COLLINS		POST INSERTION			TE H M	AC F T L S	NC14 OMS BURN	DM EN B V R I S	PRE SLEEP	AH P T U R			SLEEP	
MS1 CLERVOY	L A U N C H	O M S - 2	POST INSERTION	SH ACT PART 1			PRE SLEEP	BR F02 ST2		PRE SLEEP			SLEEP	
MS2 NORIEGA			POST INSERTION		RR T M D V L	SM D M O	OMS BURN	CVDA ACT	PRE SLEEP				SLEEP	
MS3 LU			POST INSERTION	KU DPY & ACT	GU PN S T W	GPS OCA D/L	GPS OCA D/L		PRE SLEEP				SLEEP	
MS4 KONDAKOVA			POST INSERTION	SH ACT PART 1				PRE SLEEP						SLEEP
MS5 FOALE			POST INSERTION		OS CE A T U P			PRE SLEEP						SLEEP

DAY/NIGHT ORBIT



TDRS E W

STS ATT

ASCENT

-ZLV -XVV

IMU

NC1

BIAS -YLV +ZVV

NOTES:

*DTO 700-12 GPS/INS

*RME 1321 EPICS ACT #1

*DEACT & RECONFIG

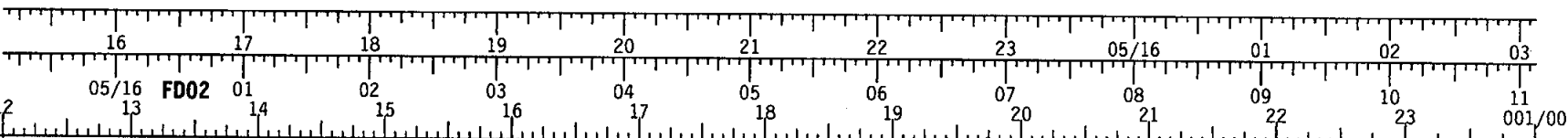
*DTO 700-12 GPS/INS INIT

BETA ANGLE: 0.13

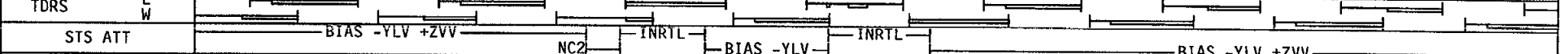
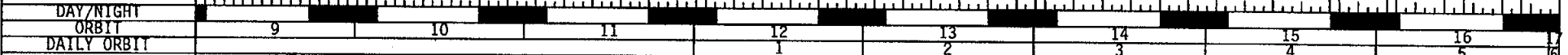
CT Date 05/15/97

DMT Date 05/15/97

MET Day 000



CDR PRECOURT	SLEEP	POST SLEEP	NC2A OMS BURN	MNV U/R C/O	CCOALS	DMEN B/R R/S	SEE S/U	GPS/INS SLM	DMEN B/R R/S	OS DE ST UP	C/L CMR MOUNT	FILTER CLEAN	MEAL	NPCA RCS BURN	RNDZ TAGUP	PAO OPTY		
PLT COLLINS	SLEEP	POST SLEEP	OMS BURN	H2O INITIAL SETUP	H2O 1 INIT	LD OA PDS	HT 2 OR M	PCG STES ACT	H2O 2 INIT	RNDZ PGSC SETUP	HT 2 OR M	EXERCISE	MEAL	RCS BURN	RTC NO/ DOO/ ZLS	ORE DIX SNT G	RNDZ TAGUP	PAO OPTY
MS1 CLERVOY	SLEEP	POST SLEEP	SH ACT PART 2		SH MODULE SETUP		BR F011 ST 1-8			FS OT 1 2	EXERCISE	FS OT 1 3 2 4	MEAL	TP EG H M C *	HHL C/O	ORE DIX SNT G	RNDZ TAGUP	PAO OPTY
MS2 NORIEGA	SLEEP	POST SLEEP	OMS BURN	GPS POCA D/L	GPS CONFIG & ACT*		RRMD SETUP	RRMD SPORE ACT	RNDZ PGSC SETUP	EXERCISE	MEAL	GPS/INS RUN #2		RTC NO/ DOO/ ZLS	RNDZ TAGUP	PAO OPTY		
MS3 LU	SLEEP	POST SLEEP	ERGO SETUP	SH CK	PO 3 T V P S	EXERCISE		GPS/INS SLM	OS DE ST UP	C/L CMR MOUNT	F0 7 2	F0 7 4	MEAL	BR F07 ST6	BR F07 ST8	RNDZ TAGUP	PAO OPTY	
MS4 KONDAKOVA	SLEEP	POST SLEEP	SH ACT PART 2	CAR RET A M L	LA SC LE 1	EB I S A N C T I T	BR F011 ST5,6	EB I S A N C T I T M E	LA SC LE 2	BR F06 ST2		MEAL	VHF RADIO S/U	BR F06 ST4	RT NA DG Z U P	RNDZ TAGUP	PAO OPTY	
MS5 FOALE	SLEEP	POST SLEEP	ERGO SETUP	OS CE TA UP	STS SURF SAMPLE		STS AIR SAMPLE	TEMP STOW ODS BAG	MEAL		VHF RADIO S/U	P/TV 04 SETUP	PAO OPTY					



STS ATT: BIAS -YLV +ZVV

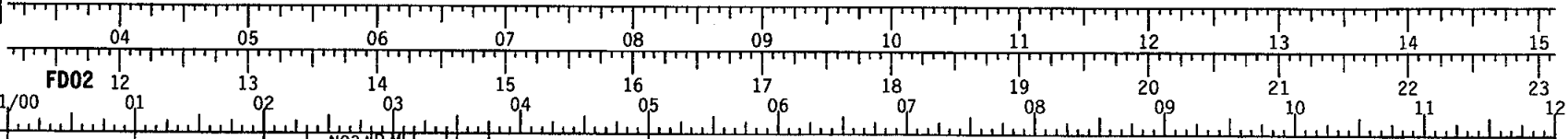
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 VMOUNT COAS *DTO 700-14 GPS
 *DTO 700-12 GPS/INS INIT
 *DTO 700-12 GPS/INS TERM
 *TEHM DATA START

BETA ANGLE: 2.47

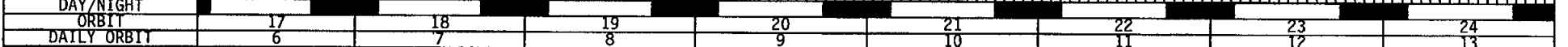
CT Date 05/16/97

DMT Date 05/16/97

MET Day 001



CDR PRECOURT	EXERCISE		PS SLEEP	NC3A OMS BURN	DM EN BVR R I S	LM ON AV DR	PM RE ID V	PRE SLEEP	SLEEP (7:00)				
									— DTO 700-10 OSVS VIDEO #1 —				
PLT COLLINS	RNDZ TOOLS C/O	COS R2 Y O	SNS R	H2O 3 INIT	MP AU NR GE H 2 O R M	PS SLEEP	OMS BURN	PRE SLEEP	SLEEP (7:00)				
MS1 CLERVOY	TP EG S C	BR F09 ST4	SH CK	ST 1 2 6	CN FG	PS SLEEP	OMS BURN	PRE SLEEP	SLEEP (7:00)				
MS2 NORIEGA	GPS DCA D/L	COS R2 Y O	SNS R	GIN SS */	MM ID N K	GAG PT S *	PS SLEEP	OMS BURN	PRE SLEEP	OCA DNLK	PRE SLEEP	GPS/INS RUN #3	SLEEP (7:00)
MS3 LU	XFER PREP			P/TV20 SETUP				PRE SLEEP	SLEEP (7:00)				
MS4 KONDAKOVA				EXERCISE				PRE SLEEP	SLEEP (7:00)				
MS5 FOALE	XFER PREP							PRE SLEEP	SLEEP (7:00)				



NOTES:
 *TEHM DATA TERM *CNTLR SWAP
 *DTO 700-12 GPS/INS ATT RE-INIT
 *DTO 700-12 GPS/INS INIT
 *GPS/INS PCDECOM CONNECT
 *DTO 700-12 GPS/INS TERM

BETA ANGLE: 4.80

DMT Date 05/16/97 05/17 01 02 03 04 05 06 07 08 09 10 11

CT Date 05/16/97 FD03 16 17 18 19 20 21 22 23 05/17 01 02 03

MET Day 001 12 13 14 15 16 17 18 19 20 21 22 23 002/00

STS-84	CDR/PLT PRECOURT/COLLINS	M I Z N L V R P	POST SLEEP	D T U M R P	I M N V U R	M I M B V R I	GR B P WUP	ΔNH	ΔNC4	ΔNCC	ΔT1	ΔRBR	FINAL APPROACH	S M T V R ;	G P R W P R D N	PRESSURE CKS	W E L C O M E /	MEAL	
	MS1 CLERVOY		POST SLEEP	S H C K	EXERCISE									ODS INGR PREP	S H INGRS	R R C / N F G	W E L C O M E /	MEAL	
	MS2 NORIEGA		POST SLEEP	RNDZ TOOLS S/U	H2O 4 INIT		H T E R O R M									P/TV 22 SETUP	A D I U N C S T	W E L C O M E /	MEAL
	MS3 LU		POST SLEEP	M M I O N D K	O S V S	G P S O C A D/L						R S H C C				P/TV20 RNDZ/OSVS	ODS INGR PREP	H A T C H	MEAL
	MS4 KONDAKOVA		POST SLEEP	C N F G	B R F O 13 S T 2	C M R D E D A K M	EXERCISE	V H F C O M M A C T	B R F O 6 S T 6	S R A F F						AIR TO AIR		W E L C O M E /	MEAL
MS5/MS6 FOALE/LINENGER		POST SLEEP															O P E N I N G	MEAL	
MIR-23	MIR-CDR TSIBLIEV		SLEEP (6:00)															MEAL	
	MIR-ENG LAZUTKIN		SLEEP (6:00)															MEAL	
	DAY/NIGHT																		
	ORBIT	24	25	26	27	28	29	30	31	32									
	DAILY ORBIT	13	14	15	16	1	2	3	4	5									
	GROUND TRACK																		
	TDRS																		
	ALTAIR 16°W ONE																		
	RUS GSTDN		-PPK -ULD		-PPK -ULD		-DJS -KLP -PPK -ULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK -ULD	SHK	
	STACK ATT		-ZLV +YVV		-IMU -BIAS														

NOTES *STEP 8 *DT0 700-12 GPS/INS TERM *PRESSURE CKS *XFER UPDATED JOINT FDF *P/TV20 DEACT *AIR SAMPLE *AIR SAMPLE *DOCKING 1/20:03

BETA ANGLE: 7.10

DMT Date 05/17/97
 CT Date 05/17/97
 MET Day 002

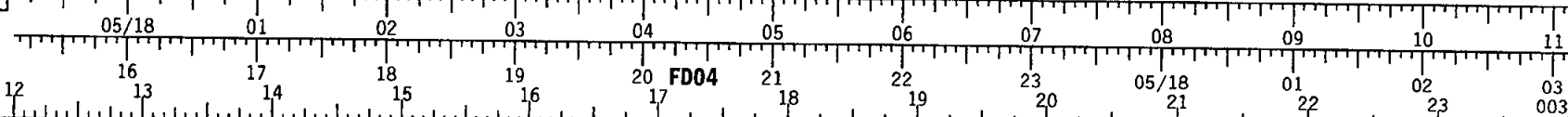
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		04		05		06		07		08		09		10		11		12		13		14		15		
		01		02		03		04		05		06		07		08		09		10		11		12		
STS-84	CDR/PLT PRECOURT/COLLINS	MIR SAFETY BRIEFING	SSB TARGET START/STG SF/HR E/H/O	EXPLC	H2O 5 INIT	EXC DR	HT 2 OR M	H2O 6 INIT	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	HT 2 OR M	SLEEP (10:00) — DTO 700-10 OSVS VIDEO #2 —
	MS1 CLERVOY	MIR SAFETY BRIEFING	VSTRU	VTR P/B			BR F09 ST6		F05 2	XFER TAGUP	SHCK	CNFG			PRE SLEEP											SLEEP (10:00)
	MS2 NORIEGA	MIR SAFETY BRIEFING	SCPHOMRBER	PS/C/S	H2O XFER 4 BAGS		EXERCISE		MMIONDK	HT 2 OR M	HT 2 OR M				PRE SLEEP		OCA DNLK									SLEEP (10:00)
	MS3 LU	MIR SAFETY BRIEFING			ELKTN UNSTW	ELKTN RETRN		XFER		XFER TAGUP					PRE SLEEP											SLEEP (10:00)
	MS4 KONDAKOVA	MIR SAFETY BRIEFING	VSTRU	VTR P/B		ELKTN RETRN		XFER			ESDIT				PRE SLEEP											SLEEP (10:00)
MS5/MS6 FOALE/LINENGER		MIR SAFETY BRIEFING	MED EQUIP XFER	H2O XFER 4 BAGS		HANDOVER		EXERCISE		UBC MAS RCHG		PMREIDV		PRE SLEEP											SLEEP (10:00) @ MS6 SLEEP	
MIR-23	MIR-CDR TSIBLIEV	MIR SAFETY BRIEFING	SSB TARGET START/STG SF/HR E/H/O			ELEKTRON INST & C/O						EXERCISE	RELAY	PRE SLEEP											SLEEP (10:00)	
	MIR-ENG LAZUTKIN	MIR SAFETY BRIEFING	SSB TARGET START/STG SF/HR E/H/O			ELEKTRON INST & C/O						EXERCISE		PRE SLEEP												SLEEP (10:00)
DAY/NIGHT																										
ORBIT		32	33	34	35	36	37	38	39	40																
DAILY ORBIT		5	6	7	8	9	10	11	12	13																
GROUND TRACK																										
TDRS																										
ALTAIR 16°W ONE																										
RUS GSTDN																										
STACK ATT		I03.1+35+0												I05.1-105+0												
NOTES		*RRMD *AIR SAMPLE												*EPICS DEACT *RME 1321 EPICS ACT #2						*AIR SAMPLE						

BETA ANGLE: 9.41

DMT Date 05/17/97

CT Date 05/17/97

MET Day 002



STS-84	CDR/PLT PRECOURT/COLLINS	SLEEP (10:00) ————— DTO 700-10 OSVS VIDEO #2 —————	POST SLEEP	DAILY PLAN	IR EM LV KL	EXERCISE (PLT)	MIR SURF SAMPLE	MIR AIR SAMPLE	MIR PHOTO SRVY*	
	MS1 CLERVOY	SLEEP (10:00)	POST SLEEP	DAILY PLAN	SH CK	BR F05 ST4		BR F05 ST6		
	MS2 NORIEGA	SLEEP (10:00)	POST SLEEP	DAILY PLAN	MM ION DK	EXERCISE	XFER	H2O 7 INIT	HT 2 ORM XFER	
	MS3 LU	SLEEP (10:00)	POST SLEEP	DAILY PLAN	RME III ACT*	XFER	F04 BR F03 ST2	XFER	DTO 1118 S/U	XFER
	MS4 KONDAKOVA	SLEEP (10:00)	POST SLEEP	CNF G	BR F013 ST4	F016 ST3	DP AL LN LY	IR EM LV KL	XFER	EXERC
MS5/MS6 FOALE/LININGER		SLEEP (10:00)	POST SLEEP @ MS6 POST SLEEP	UBC MAS TERM	EXERCISE	SX EF ATR	SEAT INSTALL & C/O	HANDOVER		
MIR-23	MIR-CDR TSIBLIEV	SLEEP (10:00)	POST SLEEP	DAILY PLAN	SX EF ATR	SEAT INSTALL & C/O	EXERCISE	XFER		
	MIR-ENG LAZUTKIN	SLEEP (10:00)	POST SLEEP	DAILY PLAN	RME III ACT*	XFER	EXERCISE	XFER		
DAY/NIGHT										
ORBIT		40 41 42 43 44 45 46 47 48								
DAILY ORBIT		13 14 15 1 2 3 4 5 6								
GROUND TRACK										
TDRS										
ALTAIR 16°W ONE										
RUS GSTON		—PPK —DJS —DJS —DJS —DJS —DJS —SHK —ULD —KLP —KLP —KLP —KLP —SHK								
STACK ATT		—ULD —ULD —ULD —ULD —ULD								
NOTES		105.1-105+0 *STEP 10 *RME-III EAST/WEST TEST MEM MODULES 1 & 2 *DTO 1118 FT DK								

BETA ANGLE: 11.74

DMT Date 05/18/97 12 13 14 15 16 17 18 19 20 21 22 23
 CT Date 05/18/97 **FD04** 04 05 06 07 08 09 10 11 12 13 14 15
 MET Day 003 00 01 02 03 04 05 06 07 08 09 10 11 12

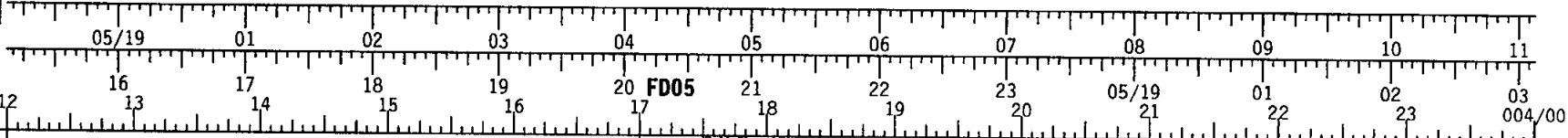
STS-84	CDR/PLT PRECOURT/COLLINS	MIR PHOTO SRVY*	MEAL		P/TV 04 SETUP	PAO OPTY	EXERCISE (CDR)	PRE IDV	SMI TNM SVU R	SMI TNM SVU R	MEAL PREP	PRE SLEEP	SLEEP — DTO 1118 MIR PHOTO SURVEY —	
	MS1 CLERVOY	MEAL	BR F05 ST8	BR F09 ST8		BR F02 ST4	EXERCISE	EXERCISE	XFER TAGUP	FS 05 10	CN TF OG	PRE SLEEP	SLEEP	
	MS2 NORIEGA	XFER	MEAL	XFER	BEETL XFER		XFER	MM ION DNK	OCA DNLK	H2O 8 INIT	MEAL PREP	HT 20 RM	PRE SLEEP	SLEEP
	MS3 LU	XFER	MEAL	XFER		EXERCISE	XFER	SH CK	SH BF		XFER TAGUP		PRE SLEEP	SLEEP
	MS4 KONDAKOVA	EXERC	MEAL		XFER	BEETL ESC PHOTOS	XFER	BR F014 ST2					PRE SLEEP	SLEEP
MS5/MS6 FOALE/LINENGER	HANDOVER	MEAL	HANDOVER	BEETL XFER	BEETLE ACT & VENT		PRE IDV			EXERCISE		PRE SLEEP	SLEEP	
MIR-23	MIR-CDR TSIBLIEV	XFER	MEAL	HANDOVER W/MS5	PAO OPTY	ONTARES XMIT INSTALL		SMI TNM SVU R		XFER TAGUP		PRE SLEEP	SLEEP (9:00)	
	MIR-ENG LAZUTKIN	XFER	MEAL	XFER		ONTARES XMIT INSTALL		SMI TNM SVU R		XFER TAGUP		PRE SLEEP	SLEEP (9:00)	
DAY/NIGHT		[Day/Night Cycle Bar]												
ORBIT		[Orbit Cycle Bar]												
DAILY ORBIT		[Daily Orbit Cycle Bar]												
GROUND TRACK		[Ground Track Map]												
TDRS		[TDRS Cycle Bar]												
ALTAIR 16°W ONE		[Altair Cycle Bar]												
RUS GSTDN		[RUS GSTDN Cycle Bar]												
STACK ATT		[Stack Att Cycle Bar]												
NOTES		*DTO 1118 FT DK												

BETA ANGLE:14.09

DMT Date 05/18/97

CT Date 05/18/97

MET Day 003



STS-84	CDR/PLT PRECOURT/COLLINS	— DTO 1118 MIR PHOTO SURVEY — SLEEP	POST SLEEP	SMG TNO SVR R	DI UNI MIT	POST SLEEP	DU M R P M	DPS M I A L T N O I A S V R L N R Y	MIR ATT CNTL	STS ATT CNTL	H2O 9 INIT	H T E R M E	M V T I R E S T	
	MS1 CLERVOY	SLEEP	POST SLEEP			POST SLEEP	DAILY PLAN	C N F G	S H C K	E R E F R / F G	XFER		E O R F	
	MS2 NORIEGA	SLEEP	POST SLEEP			POST SLEEP	DAILY PLAN				XFER			
	MS3 LU	SLEEP	POST SLEEP			POST SLEEP	DAILY PLAN	M M I O N D K	DTO 1118 PLB CAM	F S T 4 4	DTO 1118 SETUP PLB	DTO 1118 PLB CAM	XFER	
	MS4 KONDAKOVA	SLEEP	POST SLEEP			POST SLEEP	DAILY PLAN		EXERCISE	C A R / E L A M	MIR H2O SAMPLES (HOT H2O)			
	MS5/MS6 FOALE/LINENGER	SLEEP	POST SLEEP @ MS5 POST SLEEP			POST SLEEP	MISDE ACT		M M J I E S R T S D E	M D I S N D E	M I V S A D E	M N I S D E	M V T I R E S T D S T E	M I R E S T D M D C T E L E T
MIR-23	MIR-CDR TSIBLIEV	SLEEP (9:00)	POST SLEEP	SMG TNO SVR R		POST SLEEP	DAILY PLAN	FIX KV2 SA	MIR ATT CNTL	STS ATT CNTL	FIX BB SA		M V T I R E S C S D S T E	
	MIR-ENG LAZUTKIN	SLEEP (9:00)	POST SLEEP			POST SLEEP	D P S M I A L T N O I A S V R L N R Y	EXERCISE			MIR H2O SAMPLES (HOT H2O)			
	DAY/NIGHT ORBIT	56 14	57 15	58 1	59 2	60 3	61 4	62 5	63 6	64 7				
	DAILY ORBIT													
	GROUND TRACK													
	TDRS ALTAIR 16° W ONE	Timeline of TDRS contacts with ALTAIR 16° W ONE.												
	RUS GSTDN	-PPK	-DJS -KLP -PPK -ULD	-DJS -KLP -ULD	-DJS -KLP -SHK -ULD	-DJS -KLP -SHK -ULD	-DJS -SHK	-DJS -SHK						
	STACK ATT		I05.2+23+0			G04.1					I04.2+98+0			
	NOTES	ΔEXERCISE *ST 12												

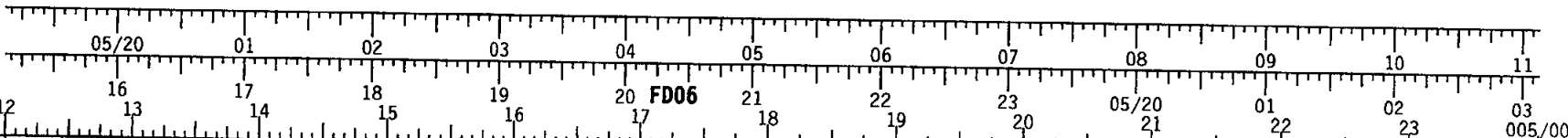
BETA ANGLE: 16.45		DMT Date 05/19/97																							
		CT Date 05/19/97																							
		MET Day 004																							
		FD05																							
		004/00																							
		04 05 06 07 08 09 10 11 12 13 14 15																							
		01 02 03 04 05 06 07 08 09 10 11 12																							
STS-84	CDR/PLT PRECOURT/COLLINS	MEAL	STS AIR SAMPLE	H2O 10 INIT	STS SURF SAMPLE	HT 2 OR M	PAO OPTY	FILTER CLEAN	EXERCISE (CDR/PLT)	SM I NO 5 SV R 2	PRE SLEEP	PM R E I V	PRIV FAM	RELAY	PRE SLEEP	SLEEP	ATO	— DTO 1118 MIR PHOTO SURVEY —							
	MS1 CLERVOY	MEAL	XFER		EXERCISE		XFER		SH CK	EP ICS	XFER TAGUP	RME III MEM*	PRE SLEEP			SLEEP									
	MS2 NORIEGA	MEAL	PCG DEWAR XFER	EXERCISE		XFER		MM I O N D K	EP I CS	MEFC ACT*	PRE SLEEP			OCA DN LK	PRE SLEEP	MEFC RUN #1 (MIR CORE) SLEEP									
	MS3 LU	MEAL	T F ER H Z MR	EXERCISE		P/TV 04 SETUP	PAO OPTY	XFER		XFER TAGUP		PRE SLEEP			SLEEP										
	MS4 KONDAKOVA	MEAL	MIR H2O SAMPLES (COLD & SVO H2O)			XFER		BR F015 ST2	BR F014 ST4	F S T O T 16 4	C N F G	PRE SLEEP			SLEEP										
MS5/MS6 FOALE/LINENGER		MEAL	HANDOVER			PAO OPTY	EXERCISE	B C D / L O	HANDOVER	PRE SLEEP	PM R E I V	PRE SLEEP			SLEEP										
MIR-23	MIR-CDR TSIBLIEV	MEAL	PCG DEWAR XFER	XFER		PAO OPTY	EXERCISE	XFER TAGUP		SM I NO 5 SV R 2	PRE SLEEP		RELAY	PRE SLEEP		SLEEP (9:00)									
	MIR-ENG LAZUTKIN	MEAL	MIR H2O SAMPLES (COLD & SVO H2O)			XFER		XFER TAGUP		MEFC ACT*	RME III MEM*	PRE SLEEP			SLEEP (9:00)										
DAY/NIGHT		[Day/Night Cycle]																							
ORBIT		64 65 66 67 68 69 70 71																							
DAILY ORBIT		7 8 9 10 11 12 13 14																							
GROUND TRACK		[Ground Track Map]																							
TDRS ALTAIR 16°W ONE		[TDRS/Altair Schedule]																							
RUS GSTDN		-PPK -PPK -PPK -ULD																							
STACK ATT		104.2+98+0												105.2+23+0											
NOTES		*RME-III MEM MODULES 3 & 4 *RME 1321 EPICS ACT #3 *EPICS DEACT *MEFC in BASE BLOCK																							

BETA ANGLE: 18.82

DMT Date 05/19/97

CT Date 05/19/97

MET Day 004



STS-84	CDR/PLT PRECOURT/COLLINS	SLEEP — DTO 1118 MIR PHOTO SURVEY —	POST SLEEP	POST SLEEP	DAILY PLAN	H2O 11 INIT	HTRN	REF	CA	HT	EXERCISE (CDR/PLT)		P/TV 22 SETUP		
	MS1 CLERVOY	SLEEP	POST SLEEP	POST SLEEP	DAILY PLAN	CN SH FG	HT	BR F012 ST14	CA	HT	EXERCISE		COLD STORAGE XFER		
	MS2 NORIEGA	SLEEP — MEFC RUN #1 (MIR CORE) —	POST SLEEP	POST SLEEP	DAILY PLAN	MEFC DEACT	HT	XFER	H2O 12 INIT	HT	EXERCISE				
	MS3 LU	SLEEP	POST SLEEP	POST SLEEP	DAILY PLAN	MM ION DN K	HT	XFER	F S OT 46	HT	EXERCISE		COLD STORAGE XFER		
	MS4 KONDAKOVA	SLEEP	POST SLEEP	POST SLEEP	DAILY PLAN		HT	XFER		HT	EXERCISE		P/TV 22 SETUP		
MS5/MS6 FOALE/LINENGER		SLEEP	POST SLEEP @MS5 POST SLEEP	POST SLEEP	EXERCISE						HANDOVER		DOSIMETER EXCHANGE		
MIR-23	MIR-CDR TSIBLIEV	SLEEP (9:00)	POST SLEEP	POST SLEEP	DAILY PLAN						EXERCISE		XFER		
	MIR-ENG LAZUTKIN	SLEEP (9:00)	POST SLEEP	POST SLEEP	DAILY PLAN	MEFC DEACT					EXERCISE		P/TV 22 SETUP		
DAY/NIGHT ORBIT		[ORBIT TRACK]													
DAILY ORBIT		71	72	73	74	75	76	77	78	79	[ORBIT TRACK]				
GROUND TRACK		[GROUND TRACK MAP]													
TDRS ALTAIR 16°W ONE		[TDRS TRACK]													
RUS GSTDN		[RUS TRACK]													
STACK ATT		[STACK ATT TRACK]													
NOTES		105.2+23+0						104.2+94+0						*RCS REG RECONFIG	*TEHM DATA START

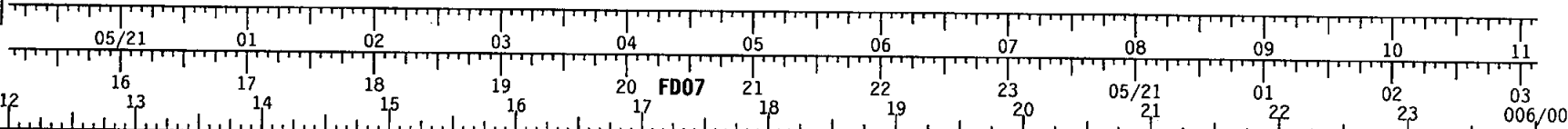
BETA ANGLE: 21.21		DMT Date 05/20/97																							
		CT Date 05/20/97																							
		MET Day 005																							
STS-84	CDR/PLT PRECOURT/COLLINS	MEAL	POP PTY*	CREW PHOTO	DTG 1118 S/U	MIR PHOTO SRVY*	SMI TNO SVR 2		PAO PTY	VRC HAND FDT ICT	XFER TAGUP	PRE ID	SMI TNV SVR	SMI TNO SVR 2	SMI TNO SVR 2	SMI TNO SVR 2	SMI TNO SVR 2	PRE SLEEP							SLEEP
	MS1 CLERVOY	MEAL		CREW PHOTO	XFER	F012 ST16 & 17	P/TV 22 SETUP	PAO PTY	XFER	SH CK	XFER TAGUP	PRE SLEEP								SLEEP					
	MS2 NORIEGA	MEAL		CREW PHOTO	GDC WCS PI SS K * INIT	H20 13	HT 2 ORM	PAO PTY	XFER	GAG PTS *	GAG PTS *	PRE SLEEP					OCA DNLK	GPS/INS PRE SLEEP	RUN #4	SLEEP					
	MS3 LU	MEAL	TEG HMC *	CREW PHOTO	EXERCISE		XFER	PAO PTY	OMM ION D K	XFER TAGUP	O S V S *	O S V S *	PRE SLEEP						SLEEP						
	MS4 KONDAKOVA	MEAL	PAO PTY	CREW PHOTO	BR F010 ST2	EXERCISE		XFER	PAO PTY	BR F015 ST4	FS 16 5	CN FG	PRE SLEEP						SLEEP						
MS5/MS6 FOALE/LINENGER		MEAL	PAO PTY	CREW PHOTO	HANDOVER			PAO PTY	EXERCISE		PRE ID	PRE SLEEP	PRIV FAM	PRE SLEEP					SLEEP						
MIR-23	MIR-CDR TSIBLIEV	MEAL	PAO PTY	CREW PHOTO	XFER	SMI TNO SVR 2	XFER	PAO PTY	XFER	XFER TAGUP	SMI TNV SVR	SMI TNO SVR 2	PRE SLEEP	PRE SLEEP	PRE SLEEP							SLEEP (9:00)			
	MIR-ENG LAZUTKIN	MEAL	PAO PTY	CREW PHOTO	XFER	P/TV SETUP MIR	PAO PTY	EXERCISE		PRE SLEEP						SLEEP (9:00)									
DAY/NIGHT		[Day/Night Cycle]																							
ORBIT		79 80 81 82 83 84 85 86 87																							
DAILY ORBIT		6 7 8 9 10 11 12 13 14																							
GROUND TRACK		[Ground Track Map]																							
TDRS		[TDRS Windows]																							
ALTAIR 16°W ONE		[Altair 16°W ONE Windows]																							
RUS GSTDN		-PPK -PPK -PPK -PPK -ULD -ULD																							
STACK ATT		104.2+94+0 105.2+23+0 105.2+23+0																							
NOTES		*ALTAIR EVENT *DTG 1118 MIR WINDOWS *DTG 700-12 GPS/INS ATT RE-INIT *WCS FILTER CK *DTG 700-14 GPS HARD DISK SWAP *DTG 700-12 GPS/INS INIT *TEHM DATA TERM *DTG 700-10 BLKHD LT-ON *DTG 700-10 BLKHD LT-OFF *DTG 700-10 BLKHD LT-OFF																							

BETA ANGLE: 23.60

DMT Date 05/20/97

CT Date 05/20/97

MET Day 005



S T S - 8 4	CDR/PLT PRECOURT/COLLINS	ΔI03.2 MNVR SLEEP	POST SLEEP	SMG TNO SV4 R.1 POST SLEEP	DI UNIT	DT0 1118 S/U	D P I A L R M E S M I T N O S V 3 R . 2	MIR PHOTO SRVY*	H2O 14 INIT	CM RED AK M	HT 20 R M	H2O 15 INIT	HT 20 R M
	MS1 CLERVOY	SLEEP	POST SLEEP			SH CK	S D P I A L R M E S M I T N O S V 3 R . 2		XFER				
	MS2 NORIEGA	SLEEP GPS/INS RUN #4	POST SLEEP	POST SLEEP			DAILY PLAN	GPS OCA D/L	XFER		EXERCISE	XFER	
	MS3 LU	SLEEP	POST SLEEP	POST SLEEP			DAILY PLAN	M M I O N D N K	XFER	F S T 48	XFER	EXERCISE	
	MS4 KONDAKOVA	SLEEP	POST SLEEP	POST SLEEP		C N F G BR F010 ST4	F013 ST8		EXERCISE	F S T 11 30		BR F013 ST12	
MS5/MS6 FOALE/LININGER		SLEEP	POST SLEEP @MS5 POST SLEEP					EXERCISE	HANDOVER				
M I R - 2 3	MIR-CDR TSIBLIEV	ΔI03.2 MNVR SLEEP (9:00)	POST SLEEP	SMG TNO SV4 R.1			DAILY PLAN	S M I T N O S V 3 R . 2	XFER	EXERCISE	XFER		
	MIR-ENG LAZUTKIN	SLEEP (9:00)	POST SLEEP				D P I A L R M E S M I T N O S V 3 R . 2		XFER				
DAY/NIGHT		[Day/Night bar chart]											
ORBIT		[Orbit bar chart]											
DAILY ORBIT		87 14	88 15	89 1	90 2	91 3	92 4	93 5	94 6	95 7			
GROUND TRACK		[World map with ground track]											
TDRS		[TDRS bar chart]											
ALTAIR 16° W ONE		[Altair 16° W ONE bar chart]											
RUS GSTDN		-DJS -KLP -PPK -ULD	-DJS -KLP -ULD	-DJS -KLP -SHK -ULD	-DJS -KLP -SHK	-DJS -KLP -SHK	-SHK						
STACK ATT		I05.2+23+0	I03.2+133+0	G04.1			I03.2+133+0						
NOTES		<p>*DT0 1118 SH WINDOW</p> <p>*RME-III MEM MODULES 5 & 6</p> <p>*DT0 700-12 GPS/INS TERM</p>											

BETA ANGLE: 26.00

DMT Date 05/21/97
 CT Date 05/21/97
 MET Day 006

S T S - 8 4	CDR/PLT PRECOURT/COLLINS	MEAL	OTO 1118 S/U	MIR PHOTO SRVY*	EXERCISE (CDR/PLT)	XFER	PAO OPTY		XFER	SH	SH	XFER TAGUP	PRE SLEEP	PRE SLEEP	SLEEP
	MS1 CLERVOY	MEAL		XFER	EXERCISE	PAO OPTY	XFER	SH	SH	XFER TAGUP	PRE SLEEP	PRE SLEEP	SLEEP	OSVS VIDEO #3	
	MS2 NORIEGA	MEAL	OR I 2 P N R I S T	XFER	H20 16 INIT	HT 2 O R M	PAO OPTY	MEFC ACT*			PRE SLEEP	PRE SLEEP	SLEEP	MEFC RUN #2 (MIR SPEKTR)	
	MS3 LU	MEAL		XFER		P/TV 22 SETUP	PAO OPTY	XFER		XFER TAGUP	RME III ACT*	PRE SLEEP	SLEEP		
	MS4 KONDAKOVA	MEAL	FS OT 11 34	BR F013 ST17	FS OT 11 38	FS OT 12 30	BFS ROT 12 32	PAO OPTY		BR F010 ST6	C N F G	PRE SLEEP	SLEEP		
MS5/MS6 FOALE/LINENGER	MEAL		HANDOVER			PAO OPTY		EXERCISE		PRE SLEEP	SLEEP				
M I R - 2 3	MIR-CDR TSIBLIEV	MEAL		XFER		PAO OPTY	MEFC ACT*			PRE SLEEP	PRE SLEEP	SLEEP (9:00)			
	MIR-ENG LAZUTKIN	MEAL		XFER		P/TV 22 SETUP	PAO OPTY	XFER	EXERCISE	RME III ACT*	PRE SLEEP	SLEEP (9:00)			

DAY/NIGHT ORBIT DAILY ORBIT



TDRS ALTAIR 16° W ONE RUS GSTDN STACK ATT

NOTES *DIO 1118 FLT DK *MEFC in SPEKTR *RME-III INITIAL CAL TEST *EPICS DEACT *EPICS PURGE FAN OFF

BETA ANGLE: 28.42

DMT Date 05/21/97 05/22 01 02 03 04 05 06 07 08 09 10 11
 CT Date 05/21/97 16 17 18 19 20 21 22 23 05/22 01 02 03
 MET Day 006 12 13 14 15 16 17 FD08 18 19 20 21 22 23 007/00

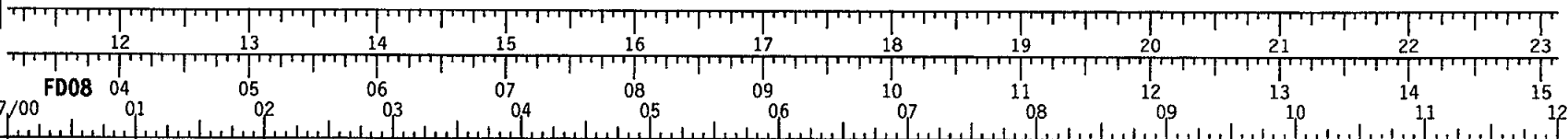
S T S - 8 4	CDR/PLT PRECOURT/COLLINS	SLEEP OSVS VIDEO #3	POST SLEEP	SMNO TSV R-2	DAILY PLAN	EXERCISE (CDR/PLT)	P/TV 22 SETUP	MIR TOUR	MEAL			
	MS1 CLERVOY	SLEEP	POST SLEEP		DAILY PLAN	SH CK B F	XFER	EXERCISE	MEAL			
	MS2 NORIEGA	MEFC RUN #2 (MIR SPEKTR) SLEEP	POST SLEEP	POST SLEEP	ORT 2 P RIS T	DAILY PLAN	MEFC DEACT	H20 17 INIT	EXERCISE	HT 2 OR M	W C S *	MEAL
	MS3 LU	SLEEP	POST SLEEP		DAILY PLAN	MM IO D N K	XFER		FS OT 4 1 0		MEAL	
	MS4 KONDAKOVA	SLEEP	POST SLEEP	C F S T 1 8 4	DAILY PLAN	FS OT 1 1 4 0	FS OT 1 1 4 2	FO14 ST14		BR FO14 ST16	MEAL	
MS5/MS6 FOALE/LINENGER		SLEEP	POST SLEEP @MS5 POST SLEEP		EXERCISE	HANDOVER	MIR TOUR	MEAL				
M I R - 2 3	MIR-CDR TSIBLIEV	SLEEP (9:00)		SMNO TSV R-2	DAILY PLAN	MEFC DEACT	XFER	MIR TOUR	MEAL			
	MIR-ENG LAZUTKIN	SLEEP (9:00)	POST SLEEP		DAILY PLAN	XFER	P/TV SETUP MIR	EXERCISE	MEAL			
DAY/NIGHT		[Day/Night Cycle]										
ORBIT		[Orbit Cycle]										
DAILY ORBIT		103 15	104 1	105 2	106 3	107 4	108 5	109 6	110 7			
GROUND TRACK		[Ground Track Map]										
TDRS		[TDRS Schedule]										
ALTAIR 16° W ONE		[Altair Schedule]										
RUS GSTDN		-DJS -KLP -PPK -ULD	-DJS -KLP -ULD	-DJS -KLP -SHK -ULD	-DJS -KLP -SHK -ULD	-DJS -SHK	-DJS -SHK					
STACK ATT		105.2+23+0				103.2+128+0						
NOTES		*WCS COMPACTION										

BETA ANGLE: 30.83

DMT Date 05/22/97

CT Date 05/22/97

MET Day 007



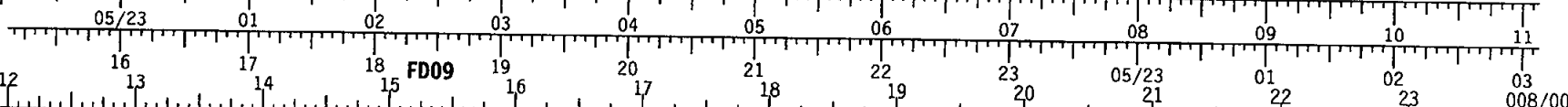
STS-84	CDR/PLT PRECOURT/COLLINS	TREADMILL SETUP	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	C/L CMR MOUNT	RNDZ PGSC SETUP	UNDCK TAGUP	PCS	SMI TNM SVU R	SMI TNM SVU R	SMI TNM SVU R	PRE SLEEP	RELAY	PRE SLEEP	SLEEP (7:00)
	MS1 CLERVOY	XFER TAGUP	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	P/TV23 SETUP UNDOCK	CCTV CAMR PREP					PRE SLEEP			SLEEP (7:00)
	MS2 NORIEGA	TREADMILL SETUP	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	P/TV 22 SETUP	UNDCK TAGUP	MM ION DNDK				PRE SLEEP	OCA DNLK	PRE SLEEP	SLEEP (7:00)
	MS3 LU	XFER TAGUP	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	SH CHK	UT NADG CUP					PRE SLEEP	PR AIMV	PRE SLEEP	SLEEP (7:00)
	MS4 KONDAKOVA	BR F014 ST18	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	UNDCK TAGUP						PRE SLEEP	PR AIMV	PRE SLEEP	SLEEP (7:00)
MS5/MS6 FOALE/LINENGER		HANDOVER		CREW CONF & FAREWELL	FINAL FAREWELL			EXERCISE				PRE SLEEP	RELAY	PRE SLEEP	SLEEP (7:00)	
MIR-23	MIR-CDR TSIBLIEV	XFER TAGUP	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	EXERCISE					PRE SLEEP	RELAY	PRE SLEEP	SLEEP (6:00)	
	MIR-ENG LAZUTKIN	XFER	XFER	CREW CONF & FAREWELL	FINAL FAREWELL	UNDK PREP HATCH CL	EXERCISE					PRE SLEEP			SLEEP (6:00)	
DAY/NIGHT																
ORBIT		110	111	112	113	114	115	116	117	118						
DAILY ORBIT		7	8	9	10	11	12	13	14	15						
GROUND TRACK																
TORS		E W														
ALTAIR 16°W ONE																
RUS GSTDN		-PPK -PPK -PPK -PPK -ULD -ULD														
STACK ATT		103.2+128+0 IMU 105.2+27+0														
NOTES		*RME-III MEM MODULES 7 & 8 *RME 1314 ACT														

BETA ANGLE: 33.25

DMT Date 05/22/97

CT Date 05/22/97

MET Day 007



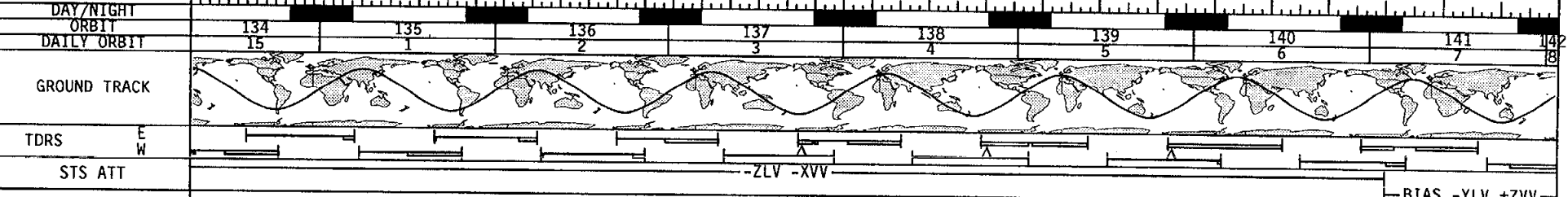
STS-84	CDR/PLT PRECOURT/COLLINS	SLEEP (7:00)	POST SLEEP	ΔOSC-7 MNVR	UNDOCK	ΔEPS TERM	EXERC (PLT)	EXERCISE (CDR)	MEAL
	MS1 CLERVOY	SLEEP (7:00)	POST SLEEP	P/TV23	OPS UNDK	POST SLEEP	XFER ITEM STOW	BR F02 STB	MEAL
	MS2 NORIEGA	SLEEP (7:00)	POST SLEEP	UNDOCK	UNDOCK	POST SLEEP	EXERCISE	LME ACT RUN 1	MEAL
	MS3 LU	SLEEP (7:00)	POST SLEEP	UNDOCK	UNDOCK	POST SLEEP	EXERCISE	XFER ITEM STOW	MEAL
	MS4 KONDAKOVA	SLEEP (7:00)	POST SLEEP	UNDOCK	UNDOCK	POST SLEEP	EXERCISE	BR F015 STB	MEAL
MS5/MS6 FOALE/LINENGER		SLEEP (7:00)	POST SLEEP	UNDOCK	UNDOCK	POST SLEEP	EXERCISE	MEAL	
MIR-23	MIR-CDR TSIBLIEV	SLEEP (6:00)	POST SLEEP	ΔOSC-7 MNVR	MIR UNDOCK				
	MIR-ENG LAZUTKIN	SLEEP (6:00)	POST SLEEP	P/TV	OPS UNDK				
DAY/NIGHT		[Day/Night Cycle]							
ORBIT		[Orbit Diagram]							
DAILY ORBIT		[Daily Orbit Diagram]							
GROUND TRACK		[Ground Track Map]							
TDRS		[TDRS Diagram]							
ALTAIR 16°W ONE		[Altair Diagram]							
RUS GSTDN		[Russian Station Diagram]							
STACK ATT		[Stack Attenuation Diagram]							
NOTES		<p>*UNDOCK 7/17:32 *ACOUSTIC DOSIMETER</p> <p>BIAS +YVV -ZLV SEP BIAS +YVV -ZLV BIAS -YLV +ZVV</p> <p>⊙DISABLE RNDZ NAV *RME 1314 DEACT *TEHM DATA TERM</p> <p>*FOR LME *EAST COAST COMM C/O *TEHM DATA START *RRMD</p>							

BETA ANGLE: 35.67		Date 05/23/97																												
CT		Date 05/23/97																												
DMT		Date 05/23/97																												
MET		Date 05/23/97																												
CDR PRECOURT	OFF - DUTY												-M Z L V R	P/TV 04 SETUP	PAO (VIP OPTY)	PRE SLEEP	PM R I D V	PRE SLEEP	SLEEP											
PLT COLLINS	OFF - DUTY	L C N O M G M *	OFF - DUTY												D 6 T 0 3 *	M M I O N D K	PAO (VIP OPTY)	PRE SLEEP						SLEEP						
MS1 CLERVOY	OFF - DUTY												EXERCISE			PAO (VIP OPTY)	S H C K	S C N F G	PRE SLEEP						SLEEP					
MS2 NORIEGA	OFF - DUTY												L D M A L E T V W	F X M I L E R	O C A D N L K	PAO (VIP OPTY)	L S M E A P T K	L M E A C T #2	PRE S L E E P	O C A D N L K	PRE S L E E P	SLEEP								
MS3 LU	OFF - DUTY												MEFC ACT*			PAO (VIP OPTY)	G A G P T S *	MEFC RUN #3 & #4 (FLT DECK)						SLEEP						
MS4 KONDAKOVA	OFF - DUTY												PAO (VIP OPTY)			PRE SLEEP						SLEEP								
MS6 LINENGER	OFF - DUTY												EXERCISE			PAO (VIP OPTY)	PRE SLEEP						SLEEP							
DAY/NIGHT	[Day/Night Cycle]																													
ORBIT	[Orbit Cycle]																													
DAILY ORBIT	126	127	128	129	130	131	132	133	134	7	8	9	10	11	12	13	14	15												
GROUND TRACK	[World Map with Ground Track]																													
TDRS	[TDRS Schedule]																													
STS ATT	BIAS -VLV +ZVV												-ZLV -XVV																	
NOTES:	*WEST COAST COMM C/O												*ACOUSTIC DOSIMETER *RME 1302 MEFC						*DTO 700-12 GPS/INS ATT RE-INIT *DTO 700-12 GPS/INS INIT											

BETA ANGLE: 38.09

CT Date 05/23/97 16 17 18 19 20 21 22 23 05/24 01 02 03
 DMT Date 05/23/97 05/24 01 02 03 04 FD10 05 06 07 08 09 10 11
 MET Day 008 12 13 14 15 16 17 18 19 20 21 22 23 009/00

CDR PRECOURT	SLEEP	POST SLEEP	MION DNDK	DSO 802 EDU ACT	FCS C/O	RCS HOT FR	EXERCISE			
PLT COLLINS	SLEEP	POST SLEEP	APU HTR	EXERCISE	FCS C/O	RH CO ST FR	DM EN BV RR FR IS	CABIN STOW P/TV 04 SETUP		
MS1 CLERVOY	SLEEP	POST SLEEP	RCT RV	SH CK	EXERCISE	XFER ITEM STOW	DSO 802 EDU ACT			
MS2 NORIEGA	SLEEP	POST SLEEP	GPS D/L	RRMD SAMPLE ACT	FCS C/O	RH CO ST FR	RRMD SPORE VID PREP	RRMD SPORE VIDEO		
MS3 LU	SLEEP	POST SLEEP	MEFC RUN #3 & #4 (FLT DECK) GPS/INS RUN #5	LS LME ACT #3	D6 T03 *	GS PT SO W *	EXERCISE	MEFC DEACT	LR ME SU ME	DSO 802 EDU ACT
MS4 KONDAKOVA	SLEEP	POST SLEEP		DSO 802 EDU ACT	XFER ITEM STOW	EXERCISE	VRS HAT FDO IWO			
MS6 LINENGER	SLEEP	POST SLEEP		EXERCISE	XFER ITEM STOW	CABIN STOW				



NOTES: *ATO 700-12 GPS/INS *APU HEATER RECONFIG
 *APU HTR ACT *ATO 700-12 GPS/INS DAY
 *ACOUSTIC DOSIMETER

BETA ANGLE: 40.50		04 05 06 07 08 09 10 11 12 13 14 15																							
CT	Date 05/24/97	04 05 06 07 08 09 10 11 12 13 14 15																							
DMT	Date 05/24/97	FD10	12 13 14 15 16 17 18 19 20 21 22 23																						
MET	Day 009	009/00	01 02 03 04 05 06 07 08 09 10 11 12																						
CDR PRECOURT	MEAL	CP RH EO WT O	PAO OPTY	D/O PREP BRIEF	ENTRY VIDEO REVIEW	CABIN STOW	DSO 802 EDU ACT		- M Z N L V R I V	P M R E I D		PRE SLEEP	SLEEP (9:00)												
PLT COLLINS	MEAL	CREW PHOTO	PAO OPTY	D/O PREP BRIEF	ENTRY VIDEO REVIEW	CABIN STOW	DSO 802 EDU ACT	ERGO STOW	PCG STES DEACT	C D R E A C T		PRE SLEEP	SLEEP (9:00)												
MS1 CLERVOY	MEAL	CP RH EO WT O		D/O PREP BRIEF	0 6 T 6 0 3 *	CABIN STOW		SH MOD TRDN PT1	SH CK	S H N F G		PRE SLEEP	SLEEP (9:00)												
MS2 NORIEGA	MEAL	CP RH EO WT O		D/O PREP BRIEF	ENTRY VIDEO REVIEW	EXERCISE	TREADMILL STOW		RRMD DEACT			PRE SLEEP	SLEEP (9:00)												
MS3 LU	MEAL	CP RH EO WT O		D/O PREP BRIEF	ENTRY VIDEO REVIEW	L F M I E L E R	L M E D E A C T	ERGO STOW	M M I O D N D K	GPS D E A C T *	K S T O W	PRE SLEEP	SLEEP (9:00)												
MS4 KONDAKOVA	MEAL	CP RH EO WT O	PAO OPTY	D/O PREP BRIEF	CABIN STOW			SH MOD TRDN PT1	O C A D N L K	O C E A A C T	K S T O W	PRE SLEEP	SLEEP (9:00)												
MS6 LINENGER	MEAL	CP RH EO WT O	PAO OPTY	D/O PREP BRIEF	EXERCISE		TREADMILL STOW	CABIN STOW				PRE SLEEP	SLEEP (9:00)												
DAY/NIGHT	ORBIT		142		143		144		145		146		147		148		149								
DAILY ORBIT	8		9		10		11		12		13		14		15										
GROUND TRACK																									
TDRS	E W																								
STS ATT	BIAS -YLV +ZVV																								
NOTES:	*ACOUSTIC DOSIMETER												*DTO 700-14 GPS												

BETA ANGLE: 42.91

CT Date 05/24/97 16 17 18 19 20 21 22 23 05/25 01 02 03
 DMT Date 05/24/97 05/25 01 02 03 04 05 06 07 08 09 10 11
 MET Day 009 12 13 14 15 16 17 18 FD11 19 20 21 22 23 010/00

CDR PRECOURT	SLEEP (9:00)	POST SLEEP	PRE ID V	PRE SLEEP	OST AOC W	GRPB PWUP	-M XSVIR	DEORBIT PREP
PLT COLLINS	SLEEP (9:00)	POST SLEEP			PS / TT VU 1 2 *	AS IARMP		DEORBIT PREP
MS1 CLERVOY	SLEEP (9:00)	ENTRY MONITORING	POST SLEEP	CN SH F G	SH FB ST10-12	F011 TRDN PT2	SH DEACT	DEORBIT PREP
MS2 NORIEGA	SLEEP (9:00)	POST SLEEP		EL GORCS *	CVDA DEACT	SM SO DM O	PS / TU V 0 7	P/TV07 OPS (SH DEAC)
MS3 LU	SLEEP (9:00)	POST SLEEP		EL GORCS *	OST AOC W	AGPTS *	TDE HOR B	DEORBIT PREP
MS4 KONDAKOVA	SLEEP (9:00)	POST SLEEP			LE SOR E	SH MOD TRDN PT2	SH DEACT	DEORBIT PREP
MS6 LININGER	SLEEP (9:00)	ENTRY MONITORING	POST SLEEP					DEORBIT PREP
DAY/NIGHT ORBIT	[Orbit diagram showing day/night cycles]							
DAILY ORBIT	[Orbit diagram showing daily cycles 1-8]							
GROUND TRACK	[World map showing ground track]							
TDRS	[Timeline for TDRS events]							
STS ATT	[Timeline for STS ATT events]							
NOTES:	*MINI-CAM ENTRY VIDEO *DSO 331 *DTO 700-12 GPS/INS ATT RE-INIT *DTO 700-12 GPS/INS ENTRY DATA INIT							

BETA ANGLE: 45.31		04 05 06 07 08 09 10 11 12 13 14 15																							
CT Date 05/25/97		01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23																							
DMT Date 05/25/97		010/00 FD11 01 02 03 04 05 06 07 08 09 10 11 12																							
MET Day 010																									
CDR PRECOURT	DEORBIT PREP																								
PLT COLLINS	DEORBIT PREP	D E O R B I T B U R N K S C L A N D I N G *																							
MS1 CLERVOY	DEORBIT PREP																								
MS2 NORIEGA	DEORBIT PREP																								
MS3 LU	DEORBIT PREP																								
MS4 KONDAKOVA	DEORBIT PREP																								
MS6 LINENGER	DEORBIT PREP																								
DAY/NIGHT																									
ORBIT																									
DAILY ORBIT																									
GROUND TRACK																									
TDRS																									
STS ATT																									
NOTES:	* KSC LANDING 10/04:20																								

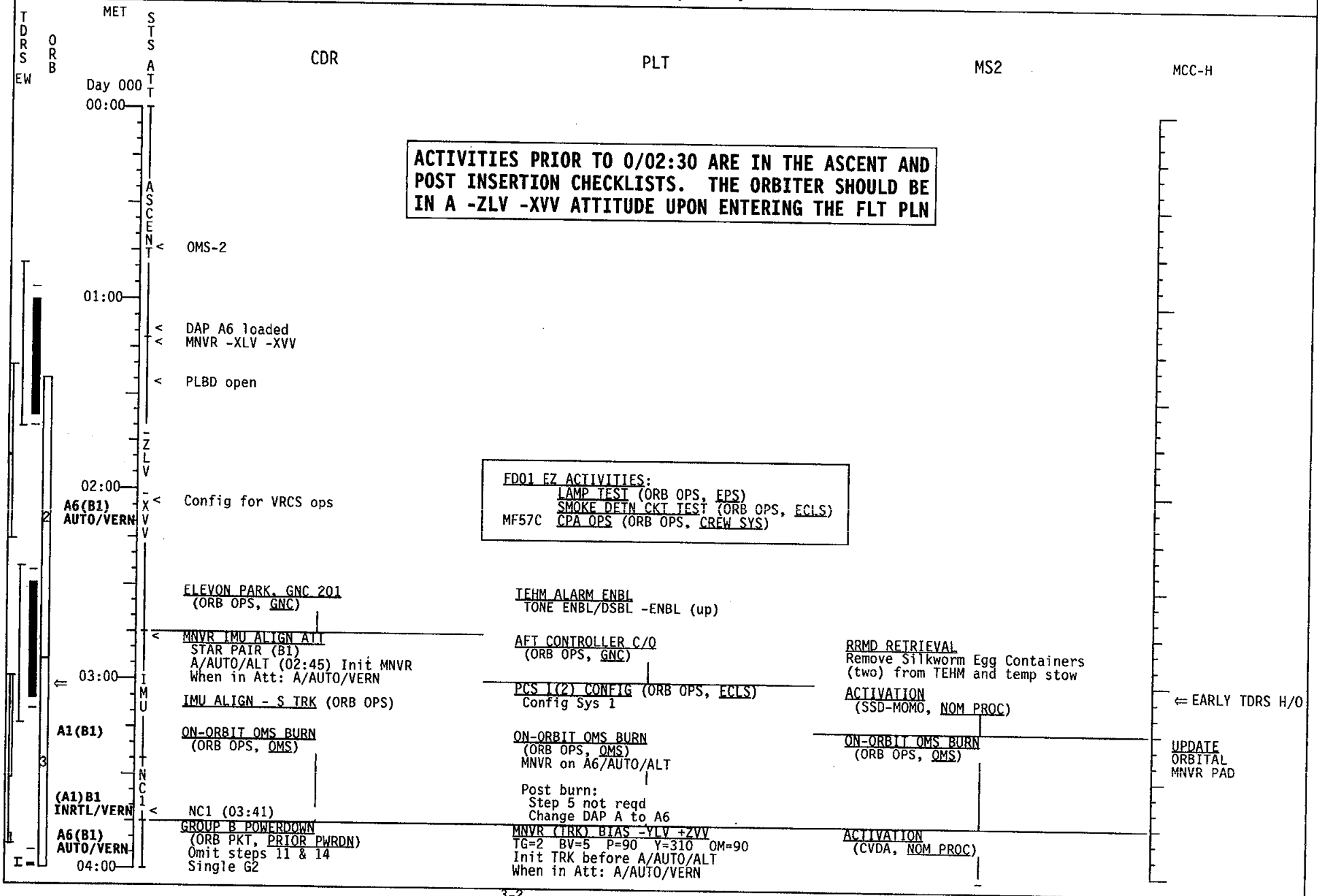
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DETAILED TIMELINE

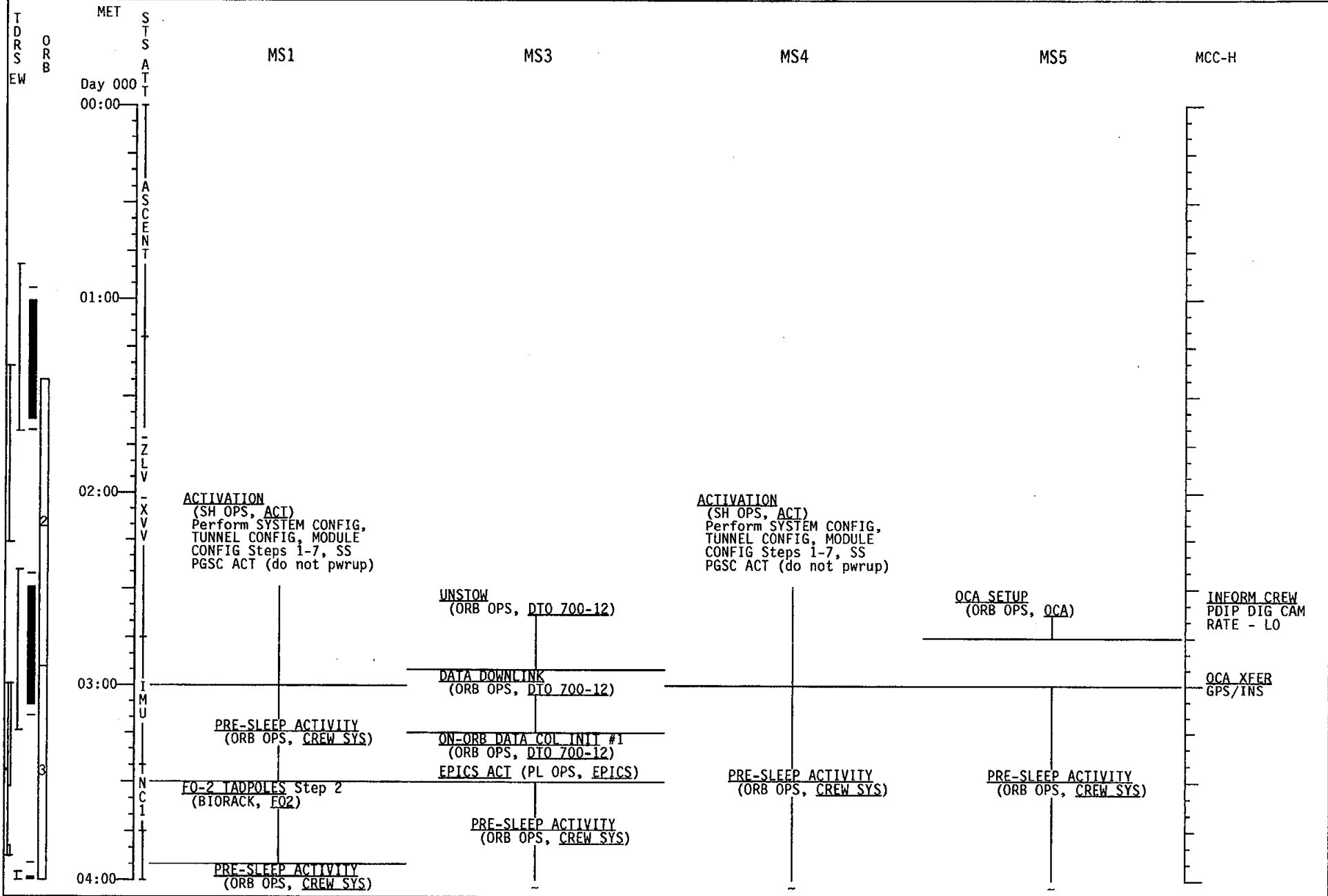
DETAILED
TIMELINE

DETAILED TIMELINE

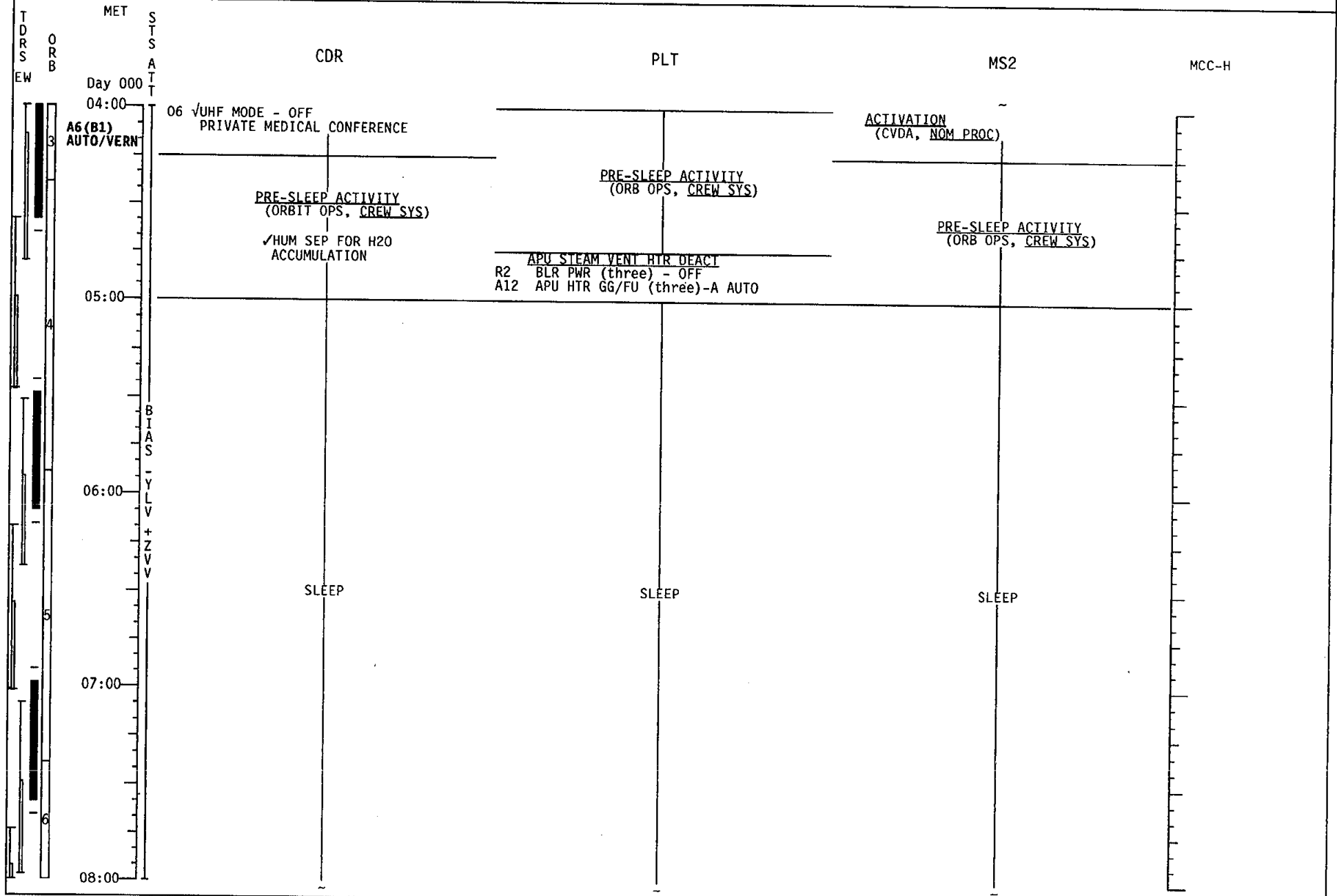
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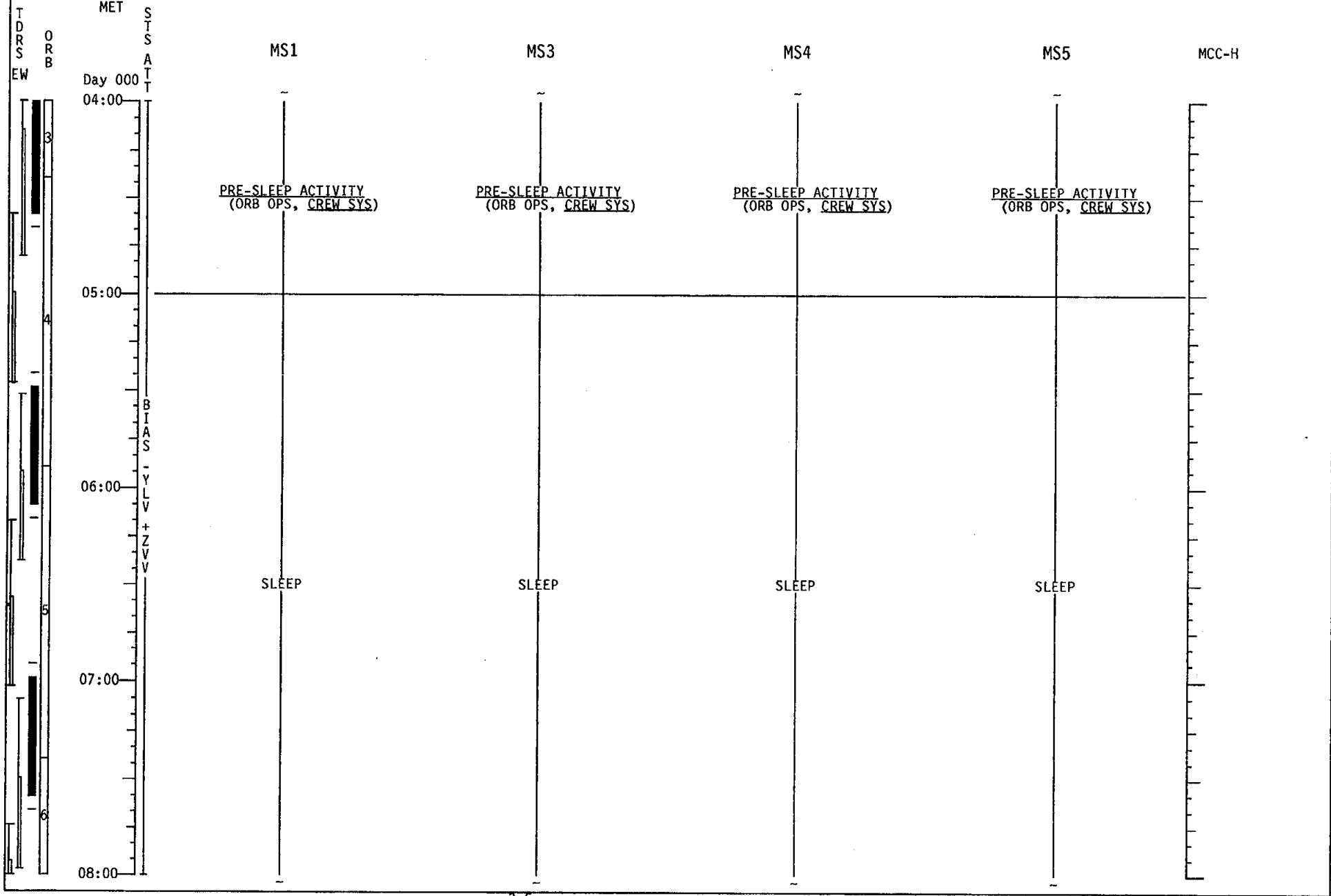
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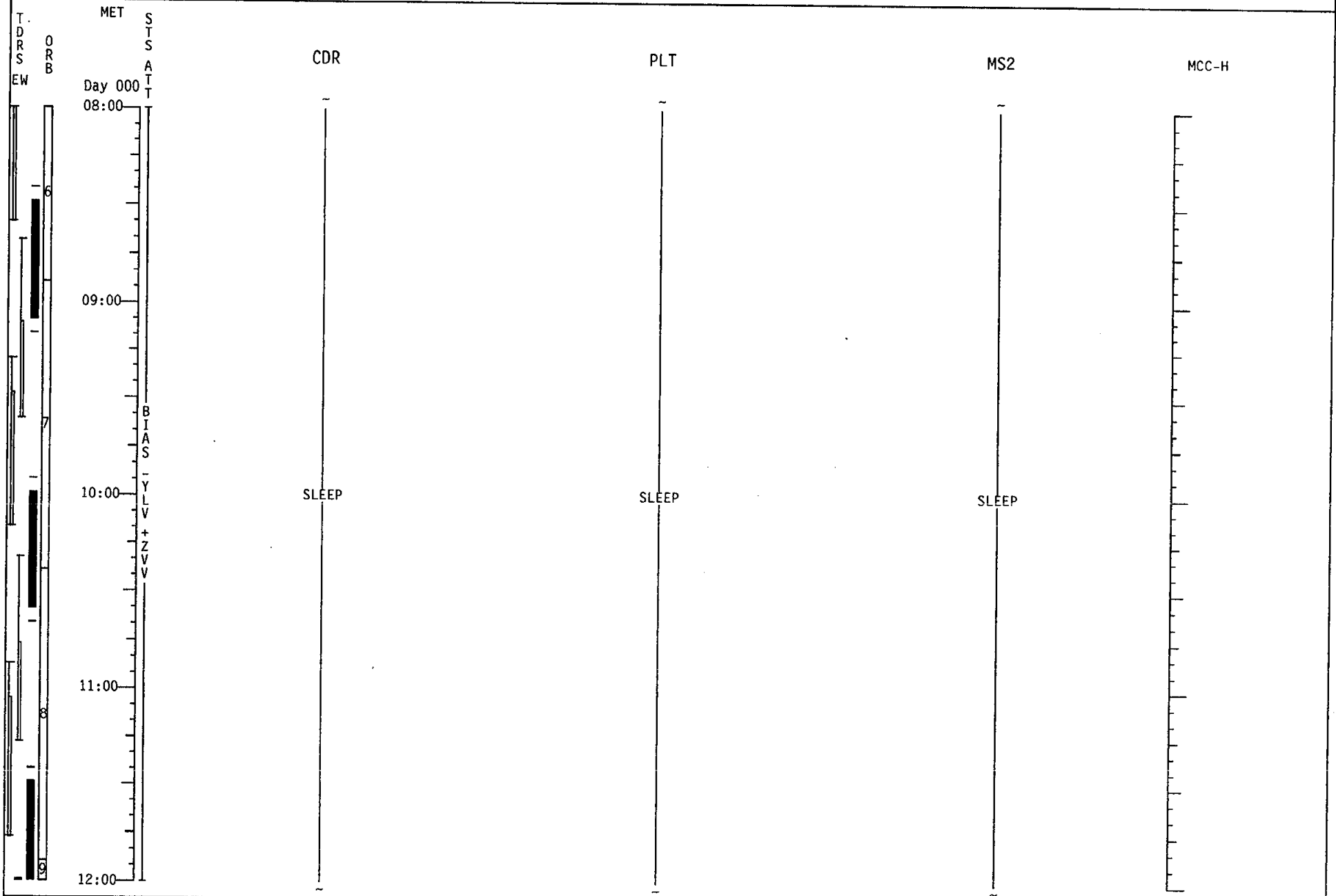
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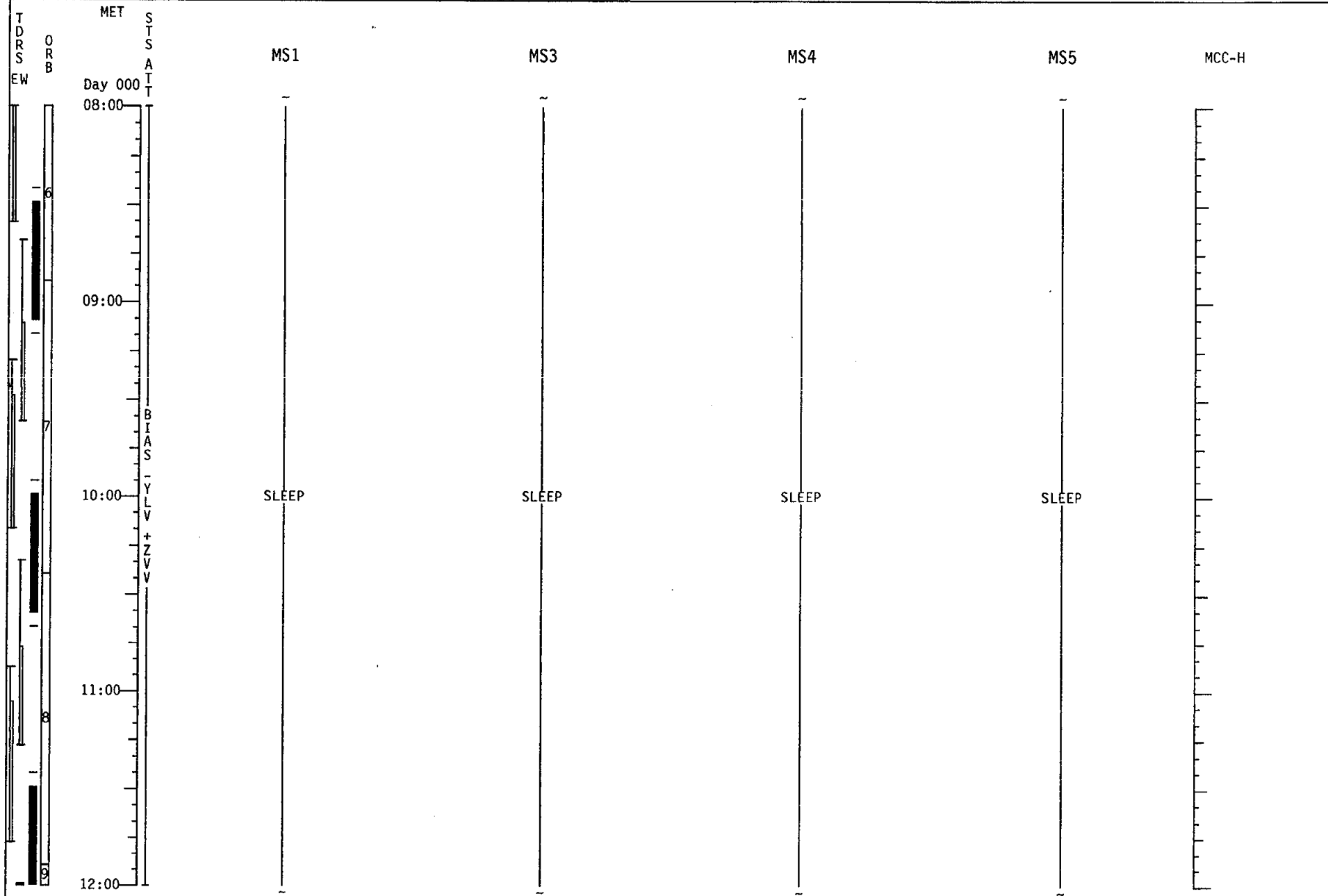
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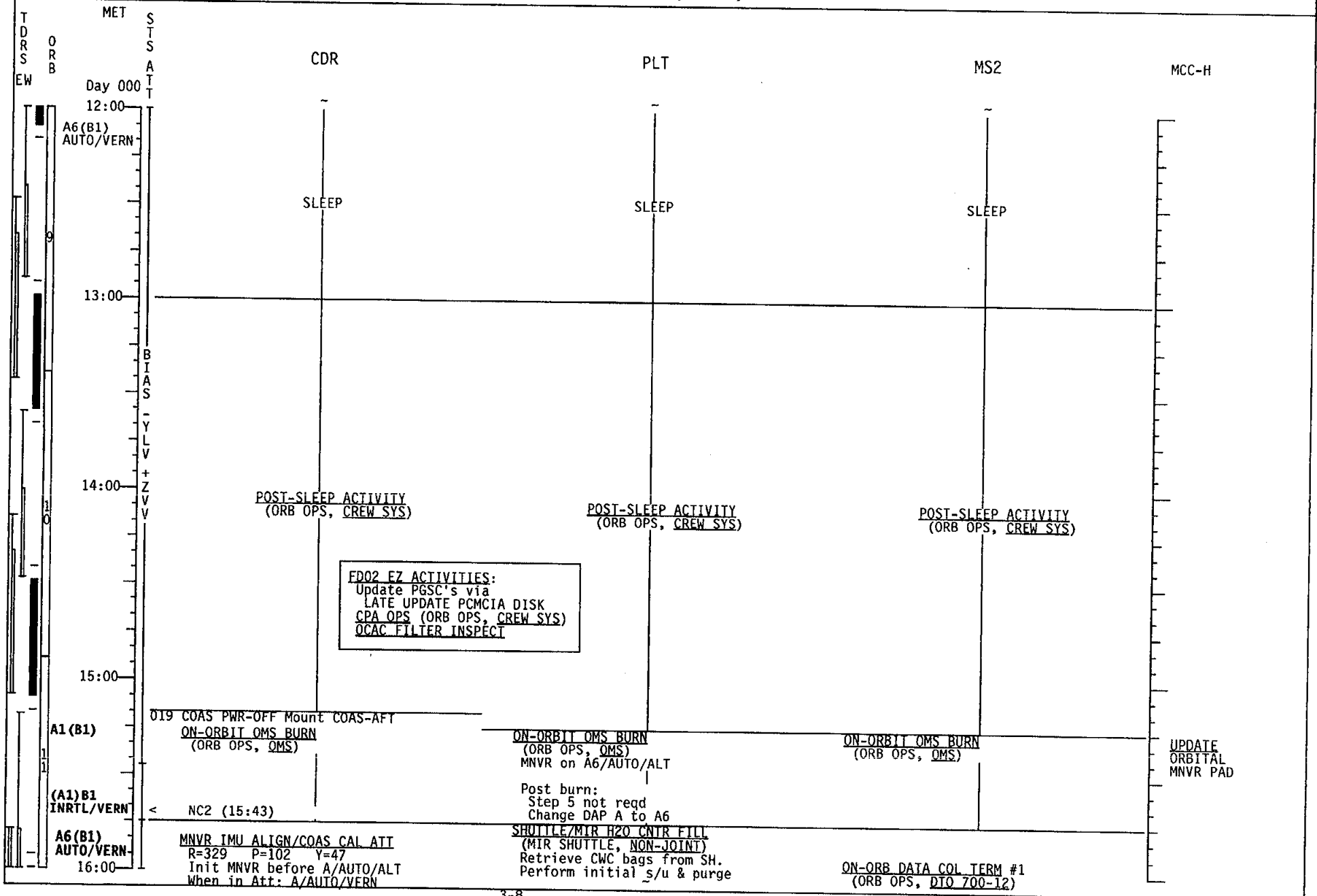
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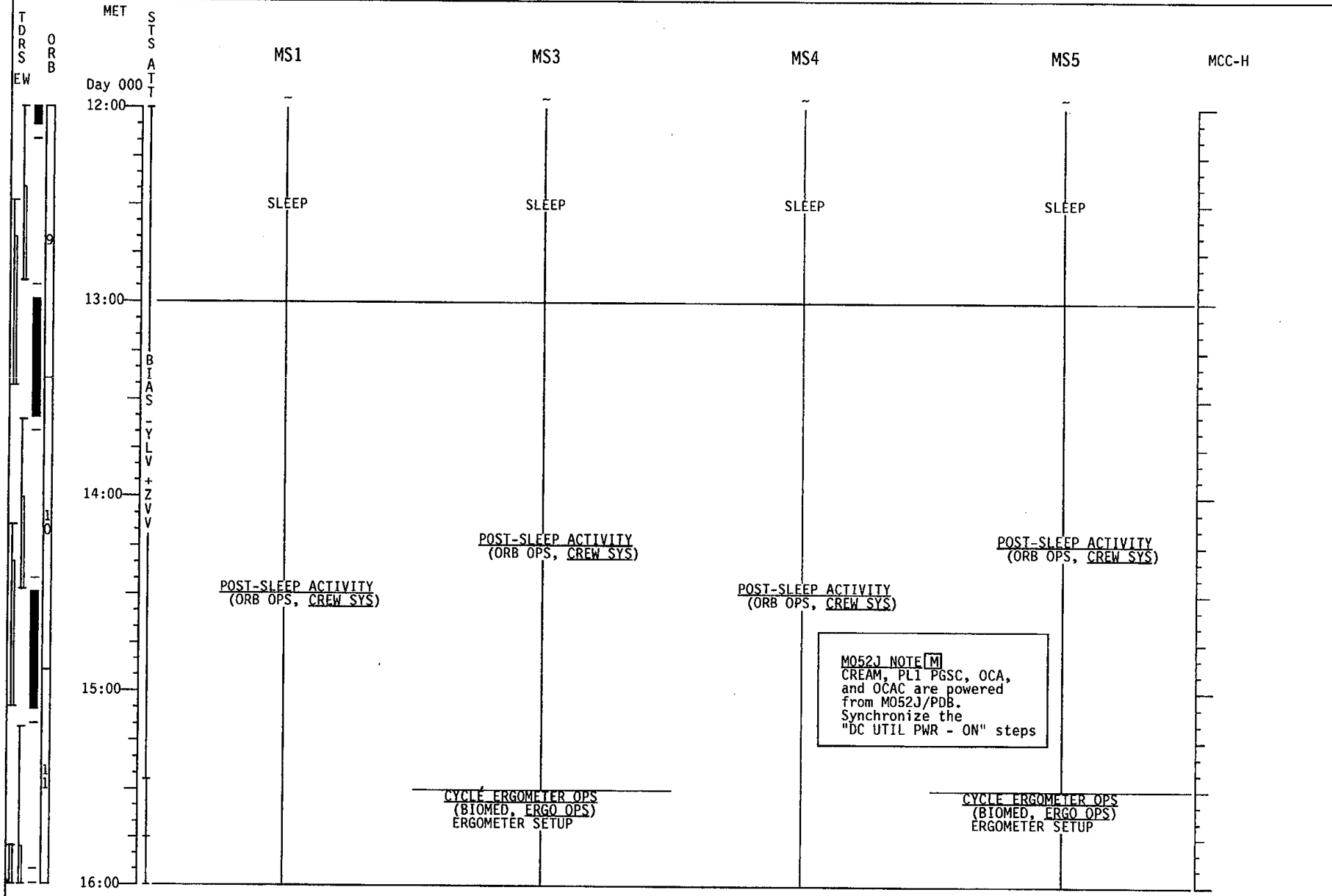
STS-84 (FD01)



STS-84 (FD02)



STS-84 (FD02)

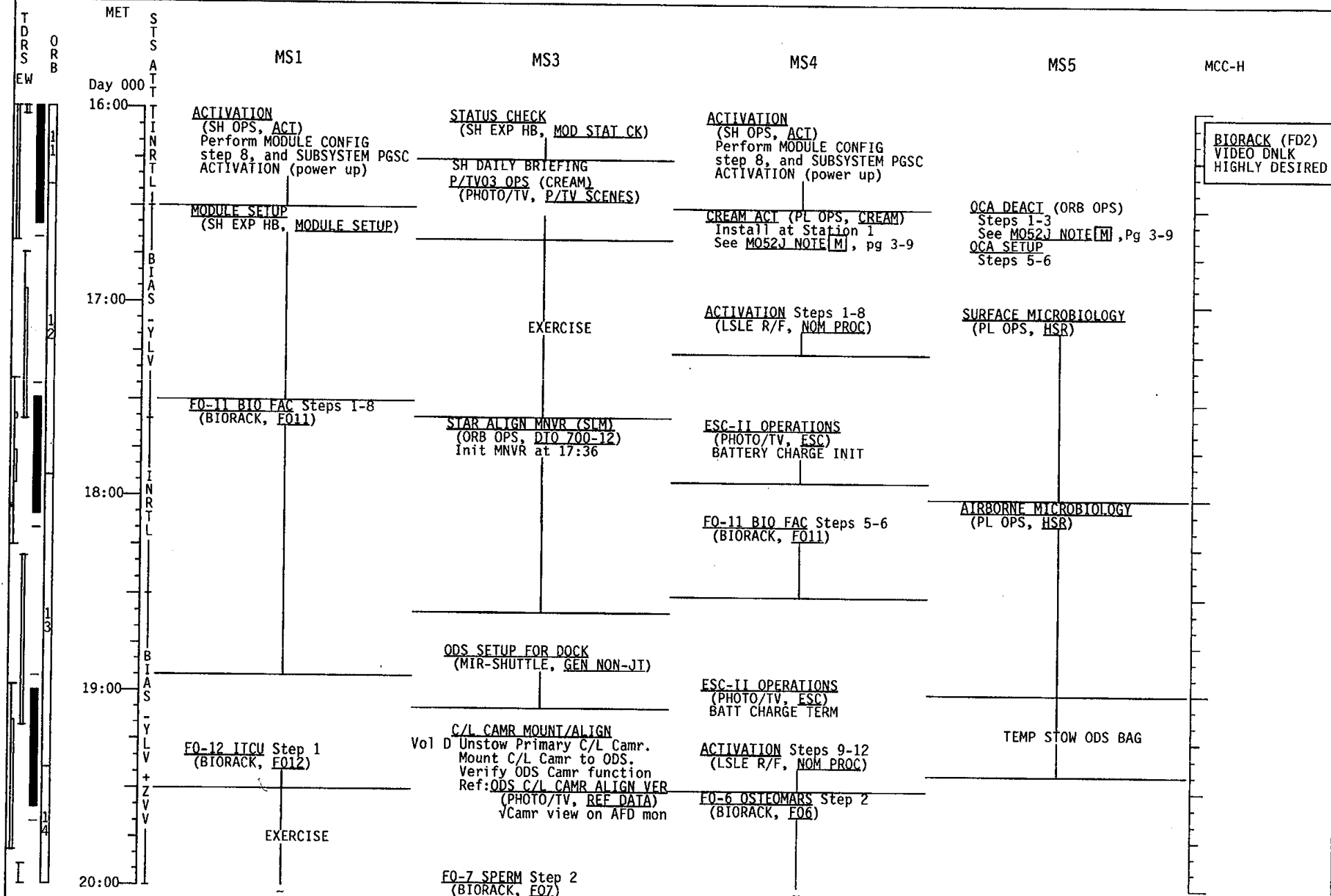


STS-84 (FD02)

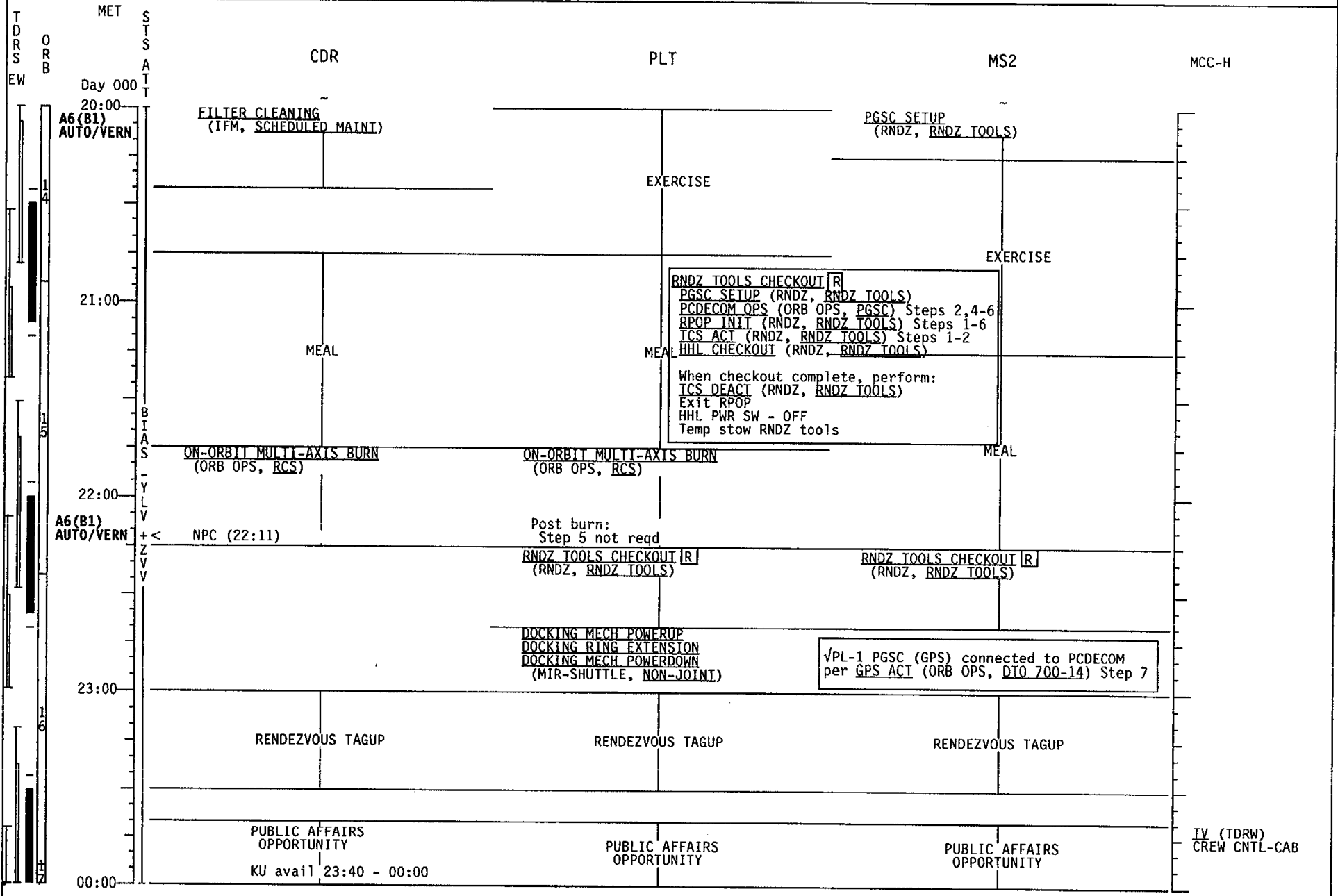
TDRS ORRB EW	MET Day 000	STS A/T	CDR	IMU STAR PAIR -Y:33 AVAIL 15:51-16:37 -Z:19 AVAIL 15:54-16:37	PLT	MS2	MCC-H
16:00 A1(B5) (A1)B5 INRTL/VERN	16:00	T I N R T L	IMU ALIGN - S TRK (ORB OPS) COAS CALIBRATION (ORB OPS, GNC)	SHUTTLE/MIR H2O CNTR FILL (MIR SHUTTLE, NON-JOINT) Retrieve CWC bags from SH. Perform initial s/u & purge	DATA DOWNLINK (ORB OPS, DTO 700-12)	OCA XFER GPS/INS	
A6(B1) AUTO/VERN		B I A S	Change DAP A,B TO A6,B1 MNVR (TRK) BIAS -YLV +ZVV TG=2 BV=5 P=90 Y=310 OM=90 Init TRK before A/AUTO/ALT When in Att: A/AUTO/VERN		GPS CONFIG & ACTIVATION (ORB OPS, DTO 700-14) See M052J NOTE[M], Pg 3-9		
17:00		S - Y L V	SHUTTLE EMERG EYEWASH SETUP MA9N Unstow, attach on or near galley. Fill drink container	SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Init fill #1. VMCC for additive & sample reqts			
				Load DAPs per DAP CUE CARD (FLT PLN, DAP TABLE)			
A14(B2)		I N R T L	STAR ALIGN MNVR (SLM) (ORB OPS, DTO 700-12) Init 1st MNVR at 17:36 Star 27 avail 17:46 - 18:33 Star 83 avail 18:13 - 18:55	SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Terminate fill	ON-ORB DATA COL INIT #2 (ORB OPS, DTO 700-12) RRMD SETUP (RRMD, NOM PROC (RRMD))		
18:00							
A6(B1) AUTO/ALT		B I A S	MNVR (TRK) BIAS -YLV +ZVV TG=2 BV=5 P=90 Y=310 OM=90 A/AUTO/ALT (18:30) Init TRK When in Att: A/AUTO/VERN	PCG-STES ACTIVATION (PL OPS, PCG-STES)			
19:00		S - Y L V	ODS SETUP FOR DOCK (MIR-SHUTTLE, GEN NON-JI)	SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Init fill #2. VMCC for additive & sample reqts	SPORE ACTIVATION (RRMD, NOM PROC (SPORE))		
		L V o l D	C/L CAMR MOUNT/ALIGN Unstow Primary C/L Camr. Mount C/L Camr to ODS. Verify ODS Camr function. Ref: ODS C/L CAMR ALIGN VER (PHOTO/TV, REF DATA) √Camr view on AFD mon	PGSC SETUP (RNDZ, RNDZ TOOLS)			
		+ Z V V	FILTER CLEANING (IFM, SCHEDULED MAINT)		PGSC SETUP (RNDZ, RNDZ TOOLS)		
20:00				SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Terminate fill			

COAS CALIBRATION LOG	
STAR ID:	-Z 19, SPICA
STAR AVAIL:	15:54 TO 16:37
-Z DELTA BIAS	___, ___
UPDATE TIME:	___/___:___

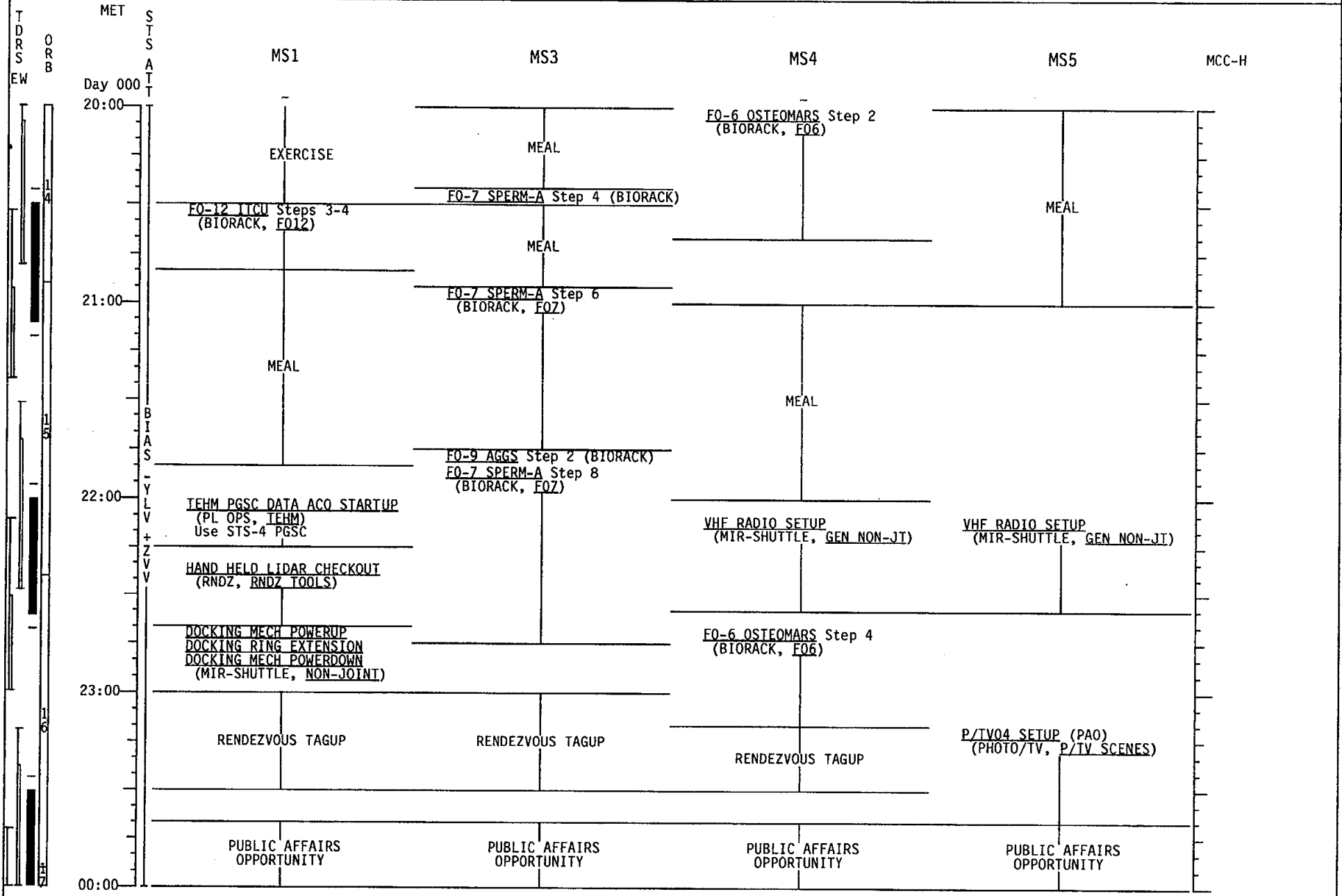
STS-84 (FD 02)



STS-84 (FD02)



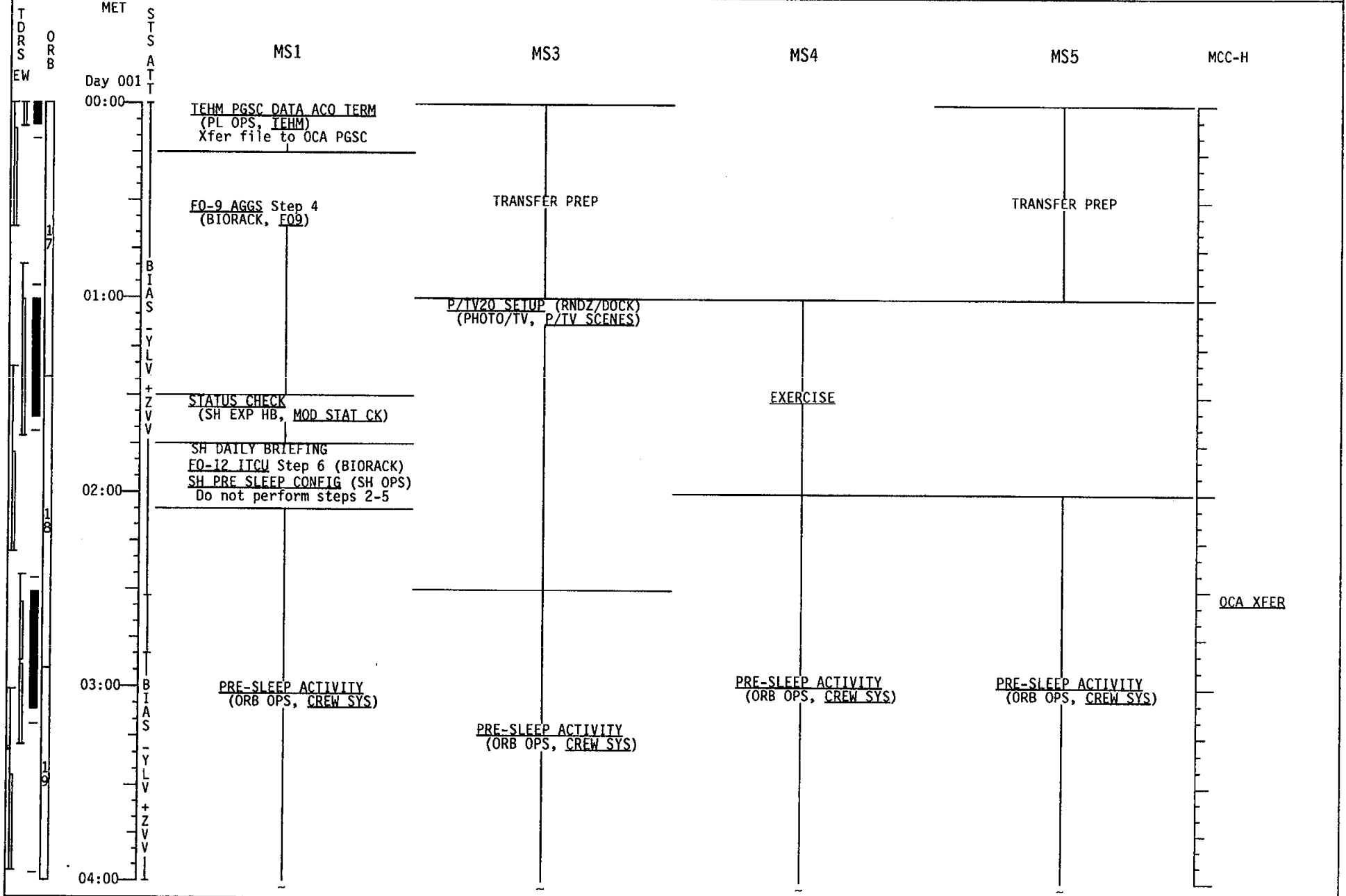
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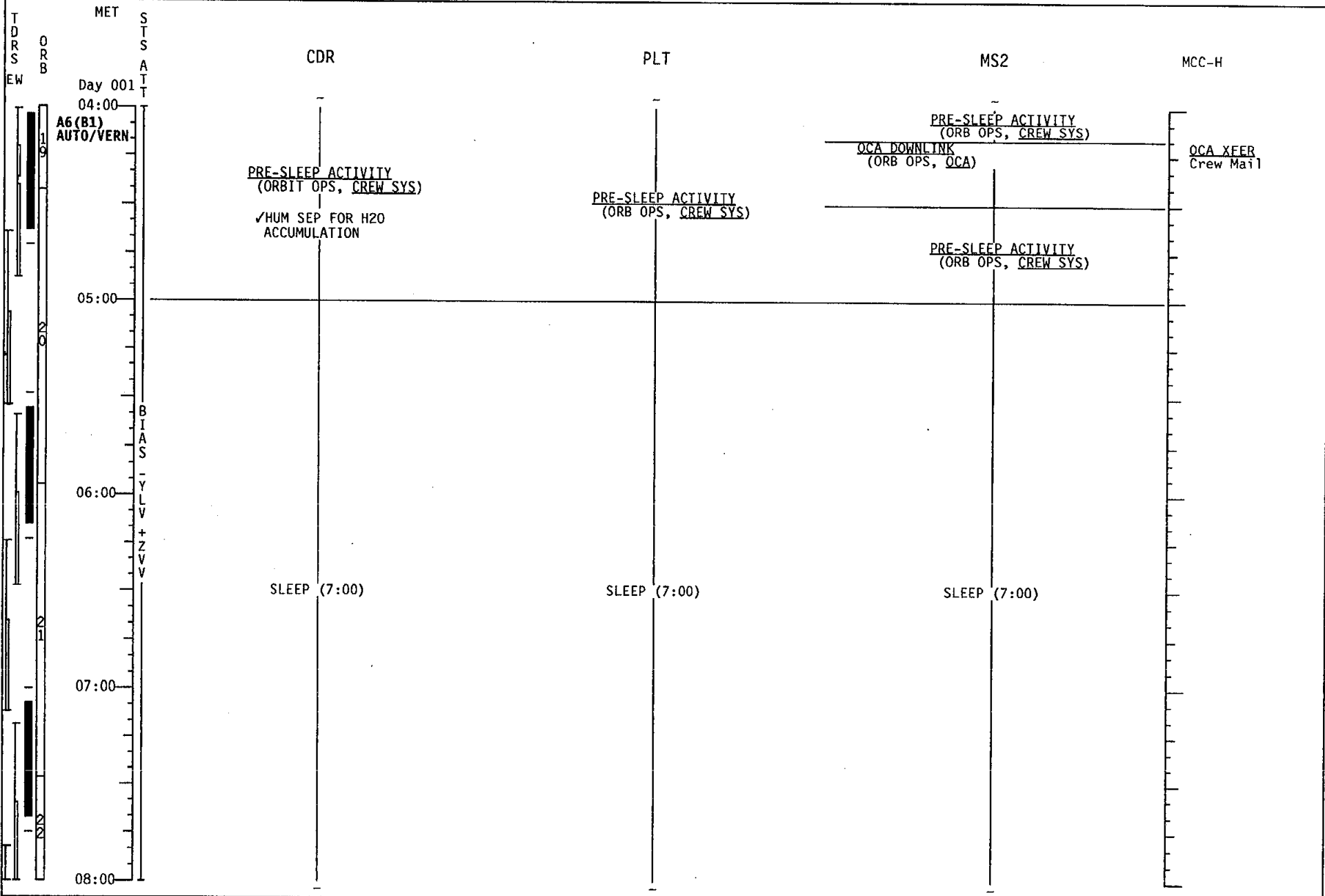
STS-84 (FD02)

TDRS	ORB	MET	STS	CDR	PLT	MS2	MCC-H
		Day 001	ATT				
		00:00			<u>RNDZ TOOLS CHECKOUT</u> (RNDZ, RNDZ TOOLS)	<u>ON-ORB DATA COL TERM #2</u> (ORB OPS, DTO 700-12)	
		A6(B1) AUTO/VERN		EXERCISE		<u>DATA DOWNLINK</u> (ORB OPS, DTO 700-12)	<u>INFORM CREW</u> GPS file to D/L
					<u>CYRO 02 TK HTR SNSR CK</u> (ORB OPS, EPS)	<u>GPS DOWNLINK</u> (ORB OPS, DTO 700-14)	<u>OCA XFER</u>
						<u>CYRO 02 TK HTR SNSR CK</u> (ORB OPS, EPS)	<u>GPS/INS</u>
							<u>GPS</u>
							<u>TEHM</u>
		01:00	BIAS		<u>SHUTTLE/MIR H2O CNTR FILL</u> (MIR-SHUTTLE, NON-JOINT) Init fill #3. VMCC for additive & sample reqts	<u>PCDECOM CONNECT</u> (ORB OPS, DTO 700-12)	
			YL			<u>MIDDECK MONITOR CUE CARD</u>	
			LV		R2 BLR CNTLR/HTR (three) - B		
			ZV		<u>FC PURGE - MANUAL</u> (ORB OPS, EPS)	<u>ALTITUDE RE-INIT</u> (ORB OPS, DTO 700-12)	
		02:00	VV			<u>ON-ORB DATA COL INIT #3</u> (ORB OPS, DTO 700-12)	
				<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>SHUTTLE/MIR H2O CNTR FILL</u> (MIR-SHUTTLE, NON-JOINT) Terminate fill	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
		(A1)B1		<u>ON-ORBIT OMS BURN</u> (ORB OPS, OMS)	<u>ON-ORBIT OMS BURN</u> (ORB OPS, OMS) MNVR on A6/AUTO/ALT	<u>ON-ORBIT OMS BURN</u> (ORB OPS, OMS)	<u>UPDATE</u> <u>ORBITAL</u> <u>MNVR PAD</u>
					Post burn: Step 5 not reqd Change DAP A to A6		
		(A1)B1 INRTL/VERN		NC3 (02:47)			
		A6(B1) AUTO/VERN		<u>MNVR (TRK) BIAS -YLV +ZVV</u> TG=2 BV=5 P=90 Y=310 OM=90 Init TRK before A/AUTO/ALT When in Att: A/AUTO/VERN			
		03:00	BIAS	<u>LOAD FUTURE MNVR (-ZLV +YVV)</u> TG=2 BV=3 OM=270 A/AUTO/VERN (1/12:00) Init TRK			
			YL	06 ✓UHF MODE - OFF	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)	
			LV	PRIVATE MEDICAL CONFERENCE			
			ZV				
			VV	<u>PRE-SLEEP ACTIVITY</u> (ORB OPS, CREW SYS)			
		04:00		✓HUM SEN FOR H2O ACCUMULATION			

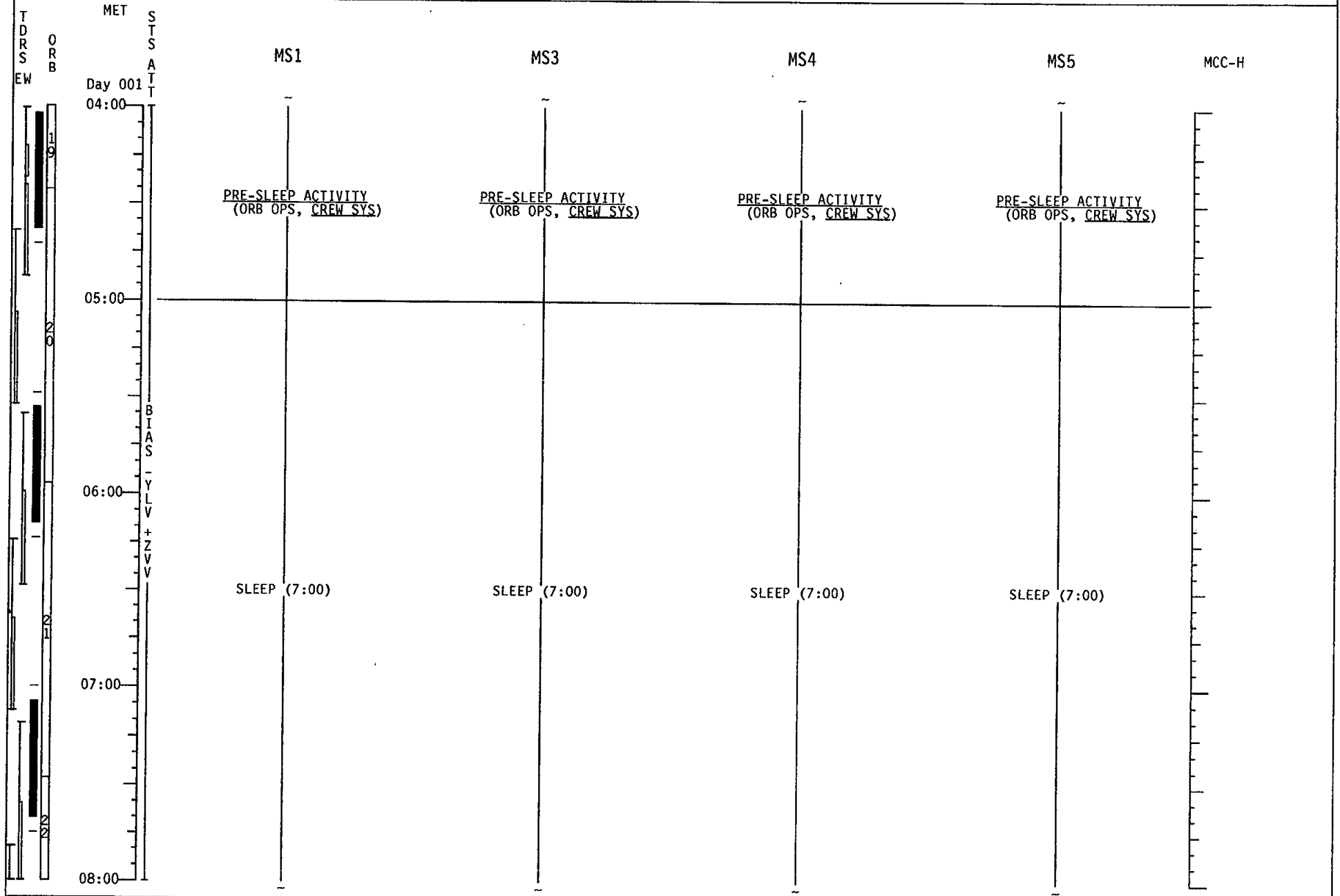
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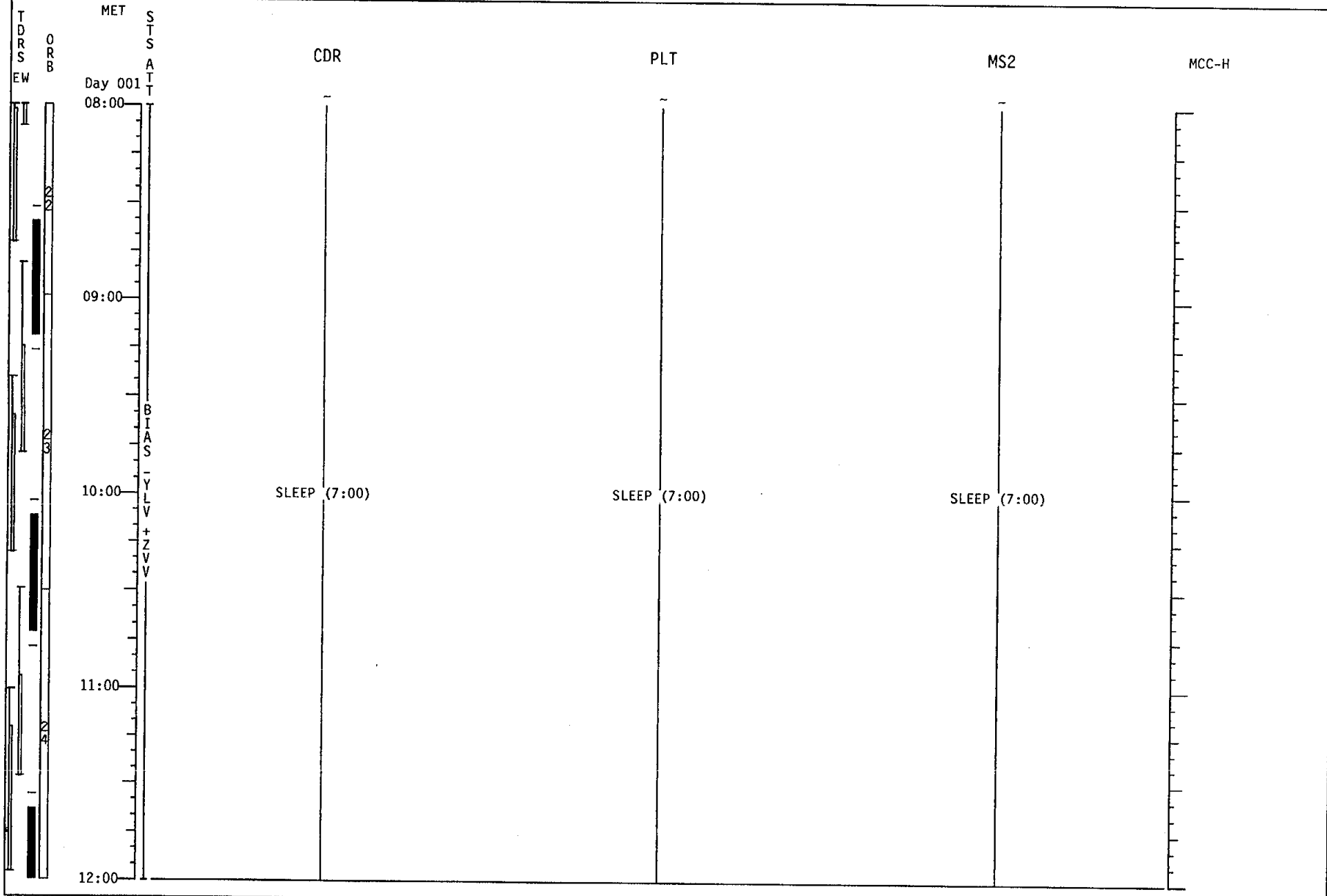
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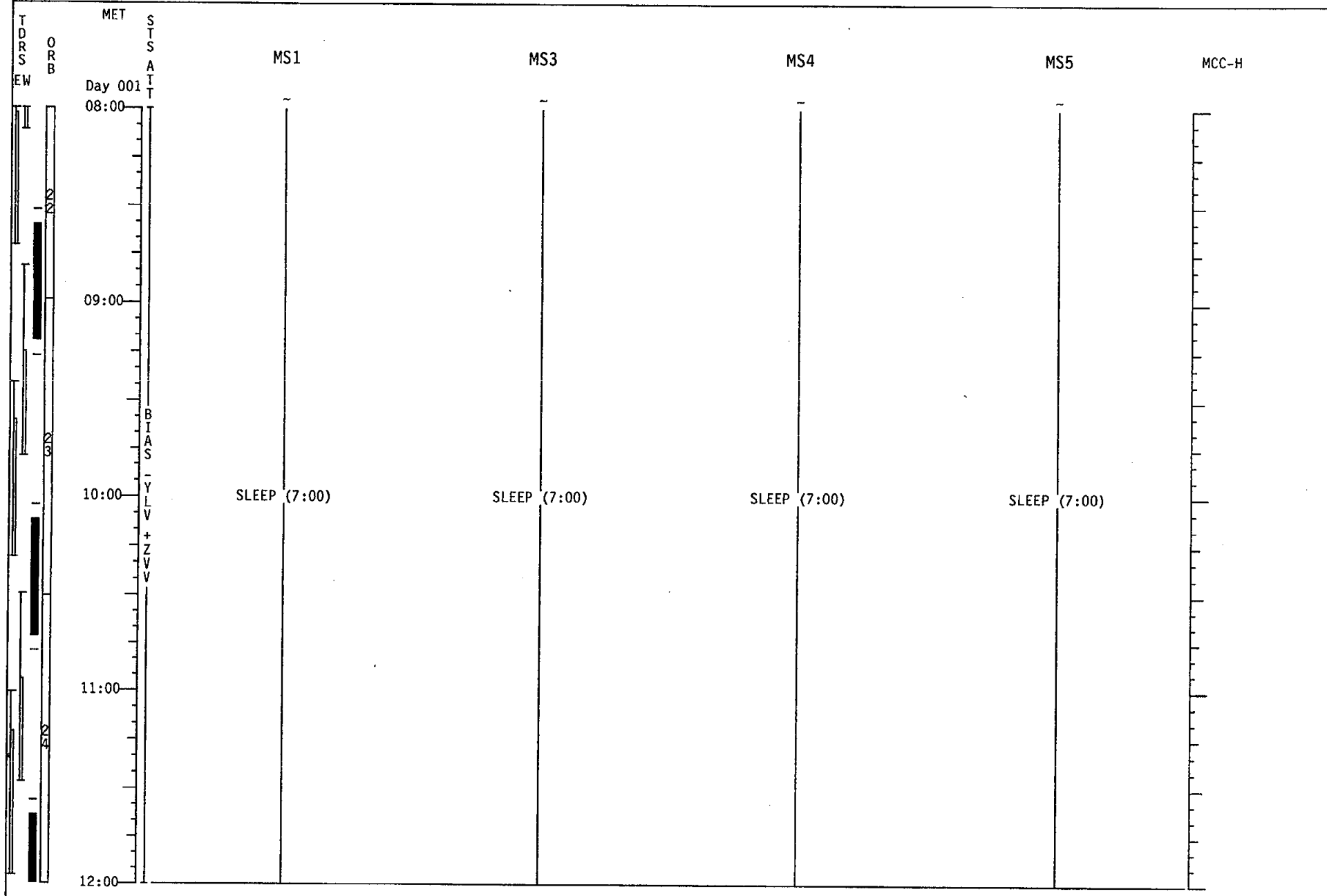
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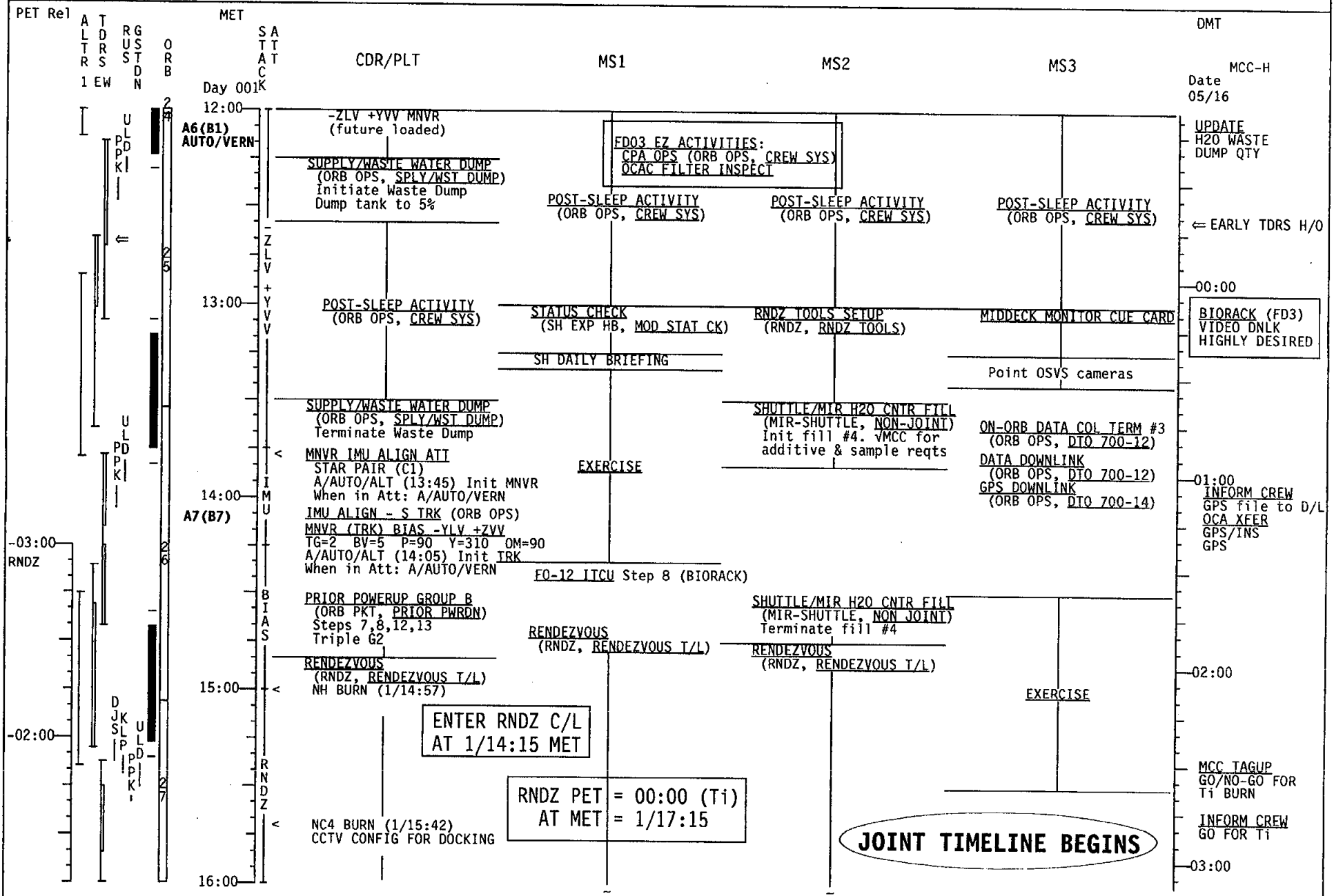
STS-84 (FD02)



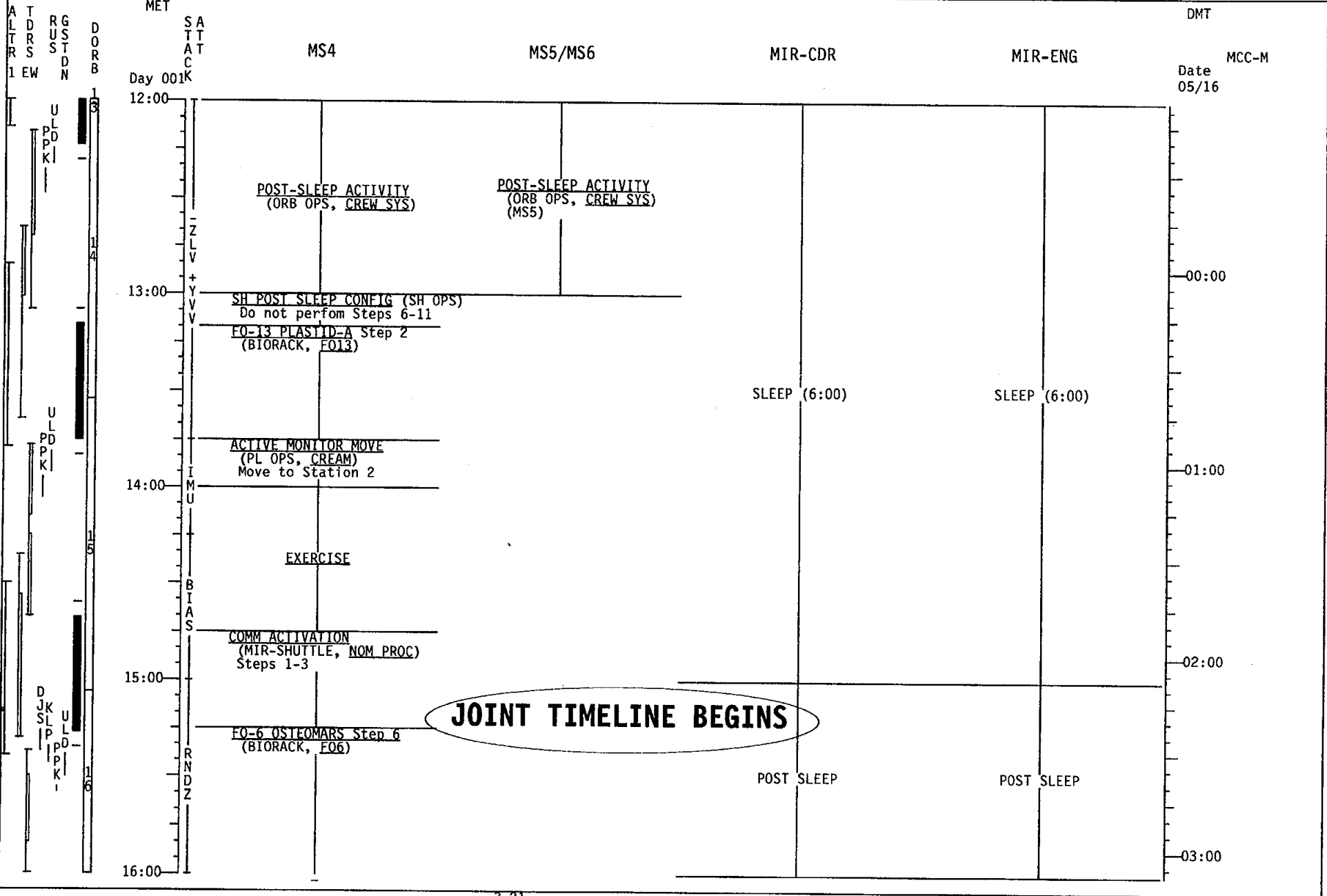
STS-84 (FD02)



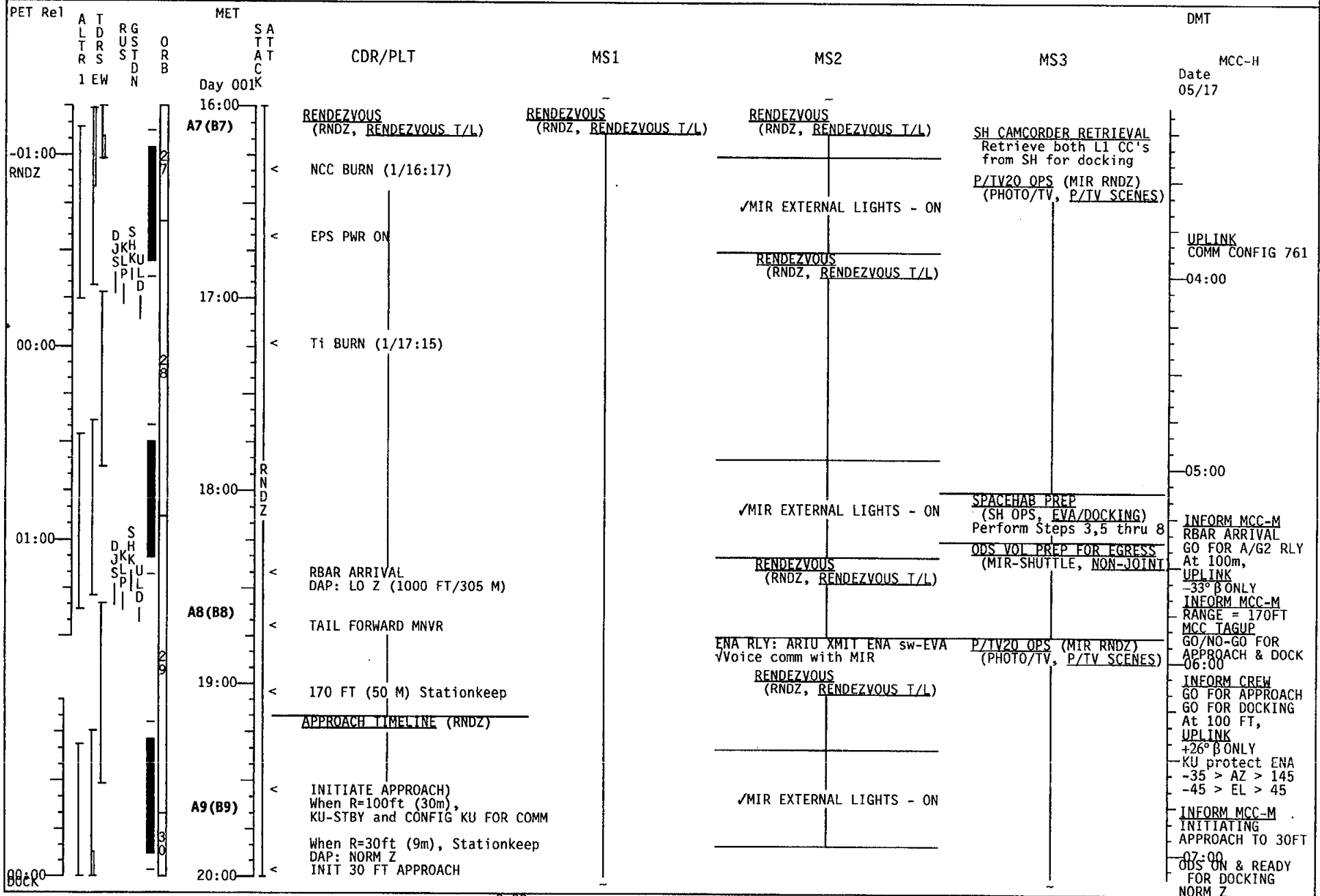
STS-84 (FD03)



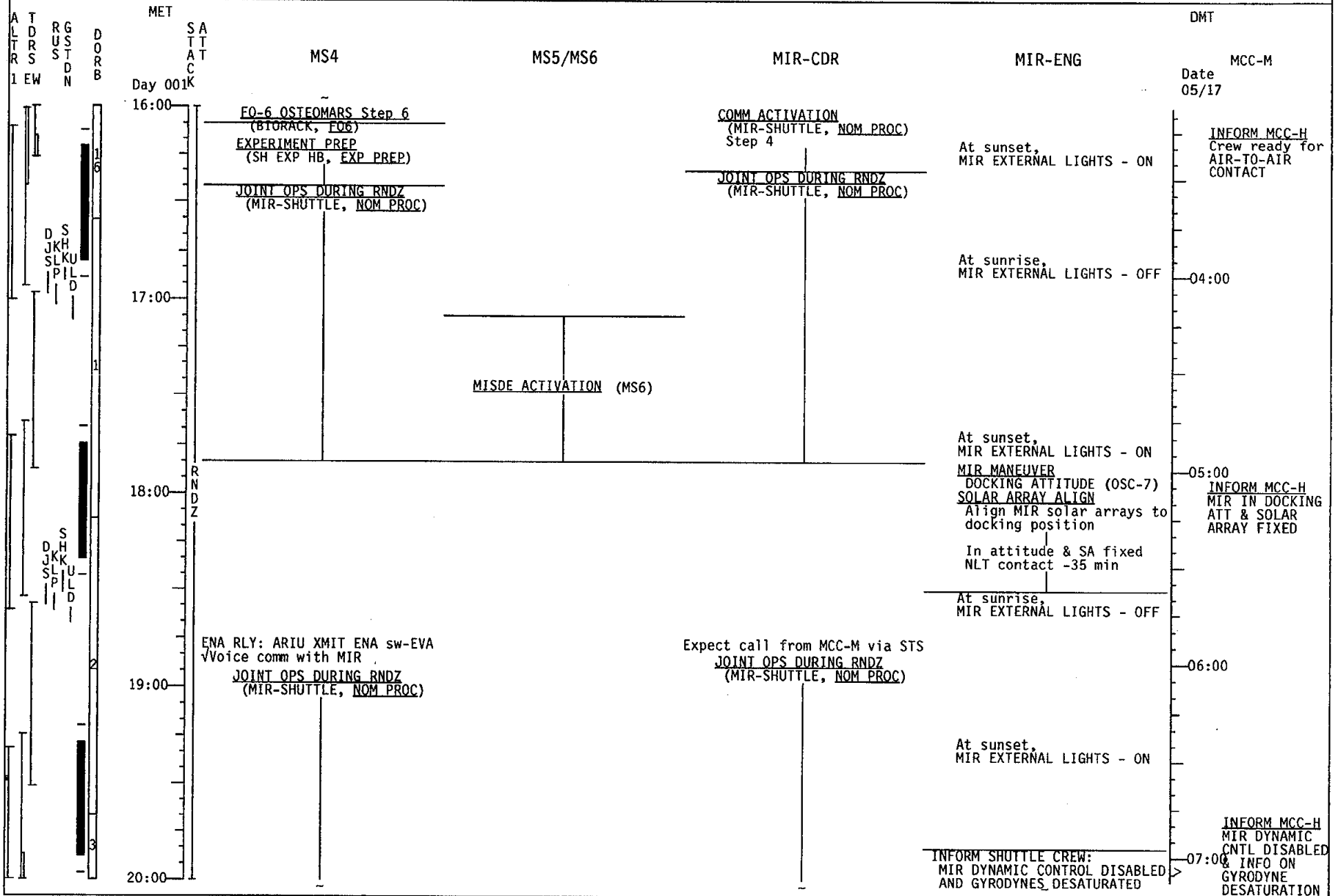
STS-84 (FD03)



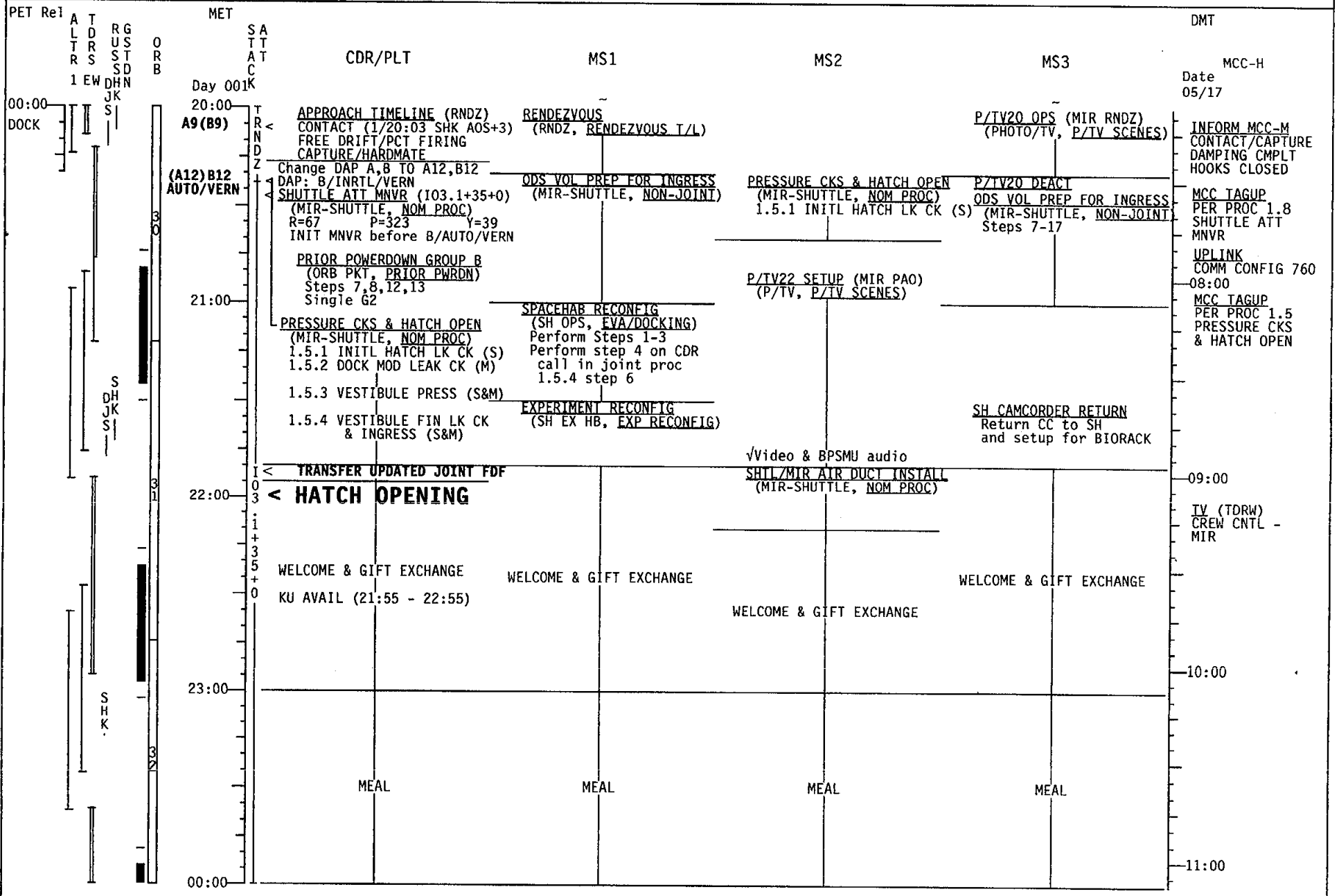
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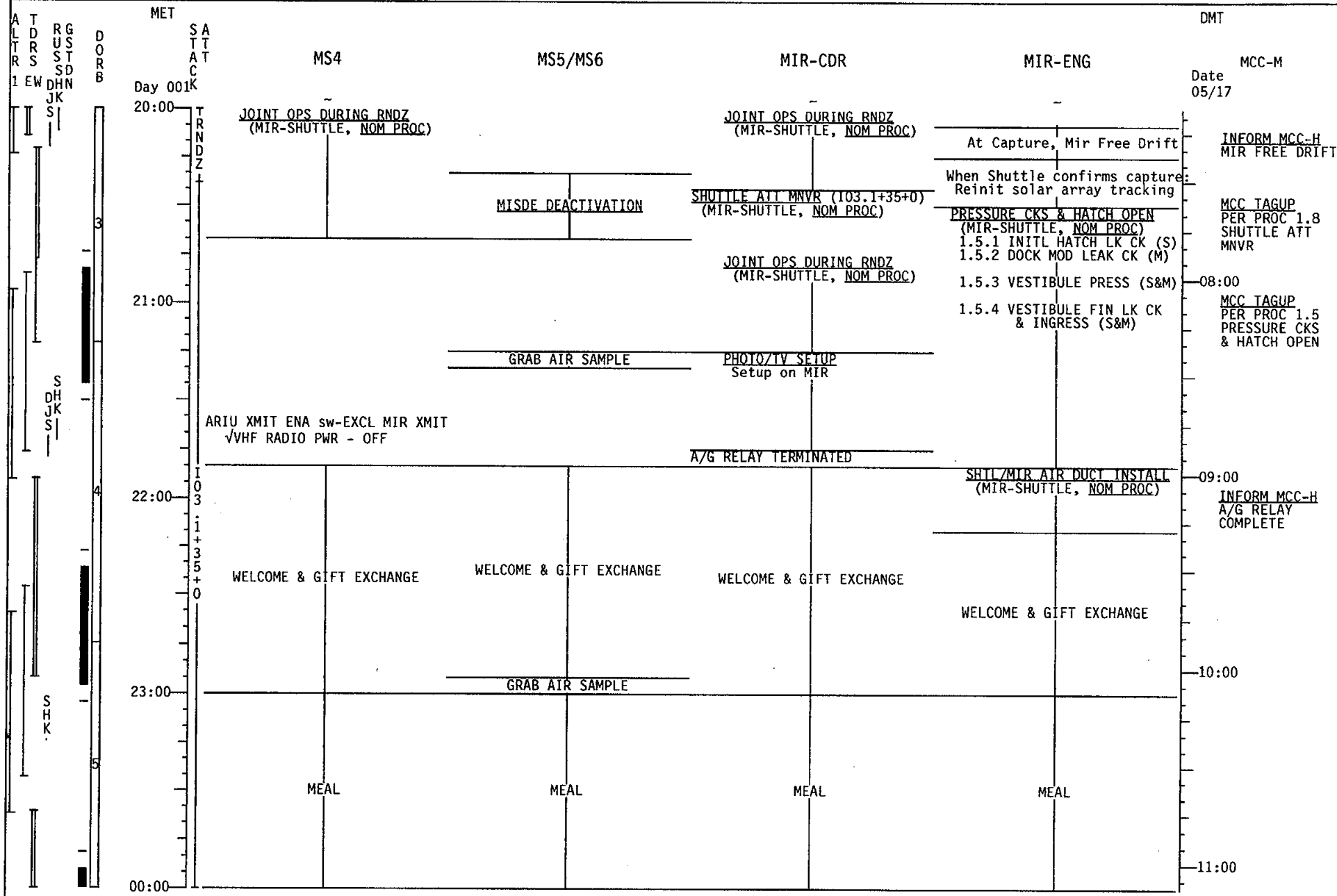
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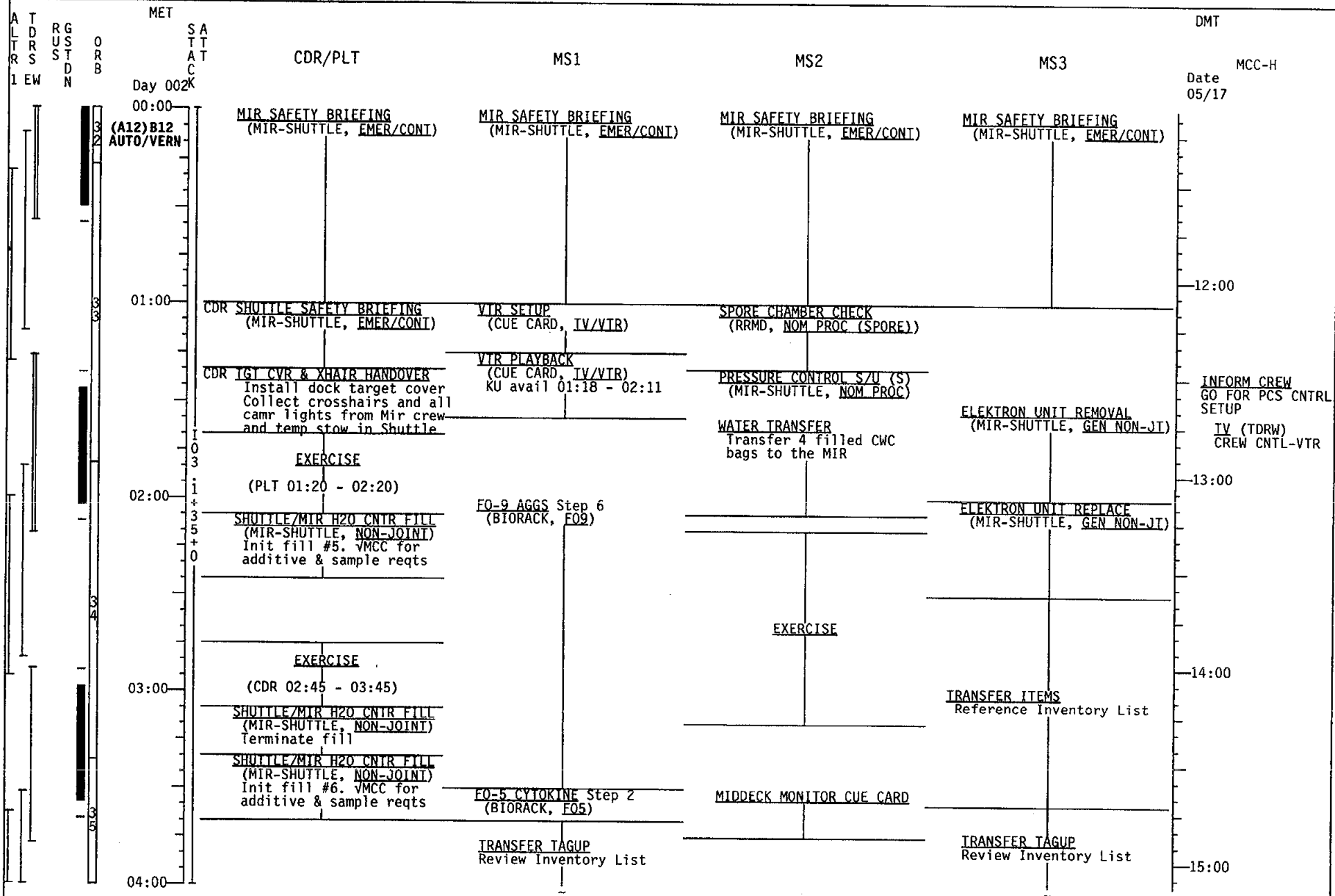
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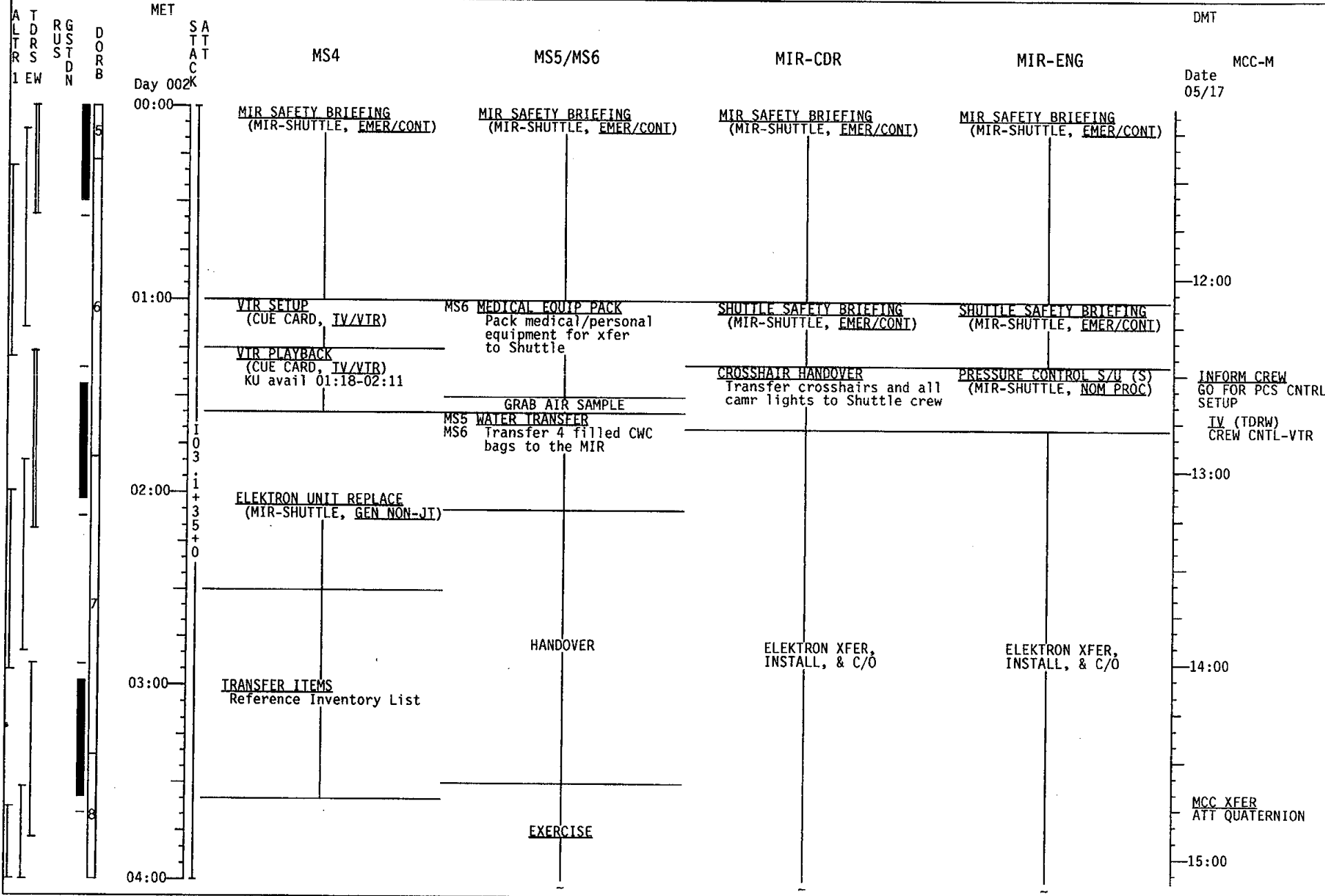
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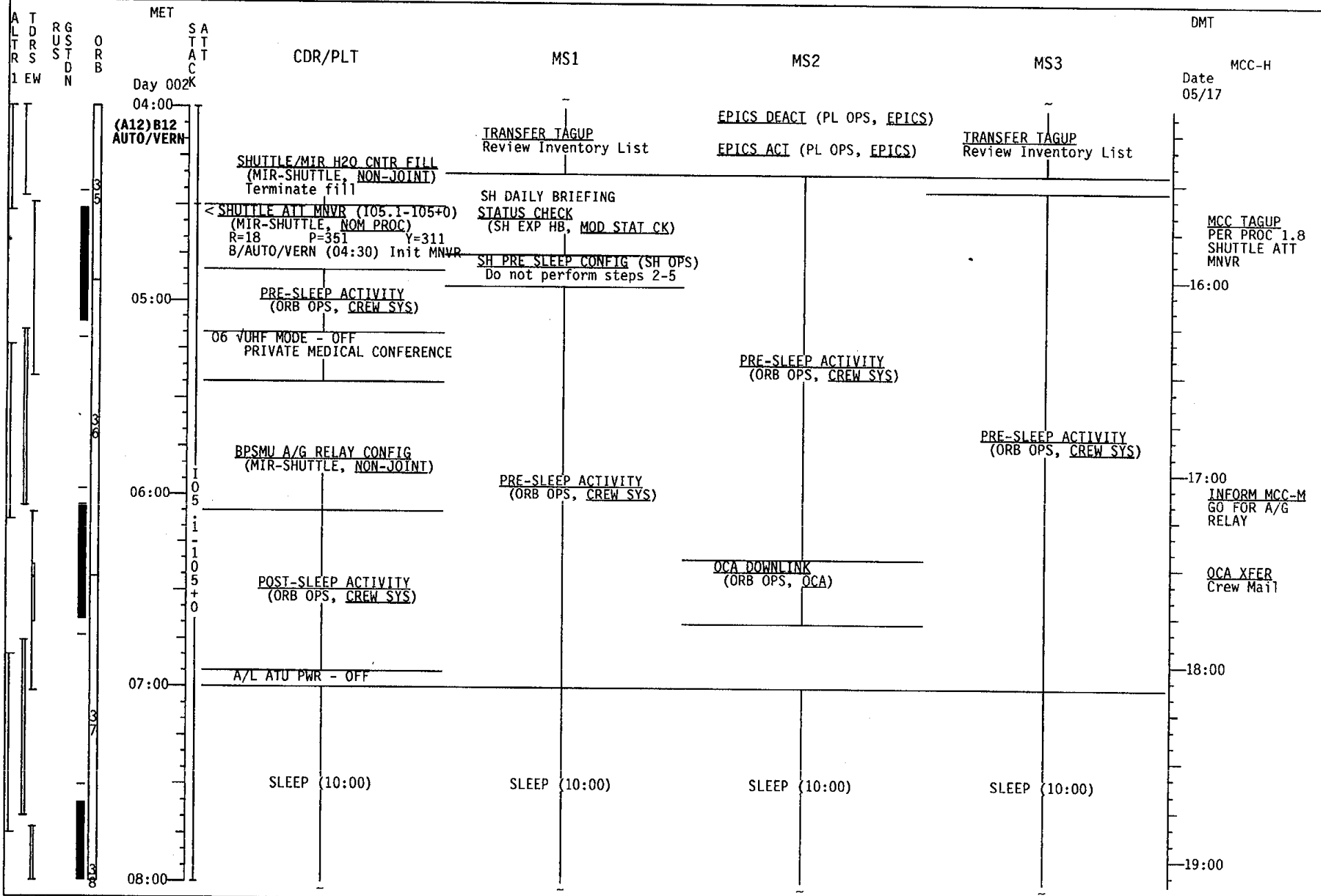
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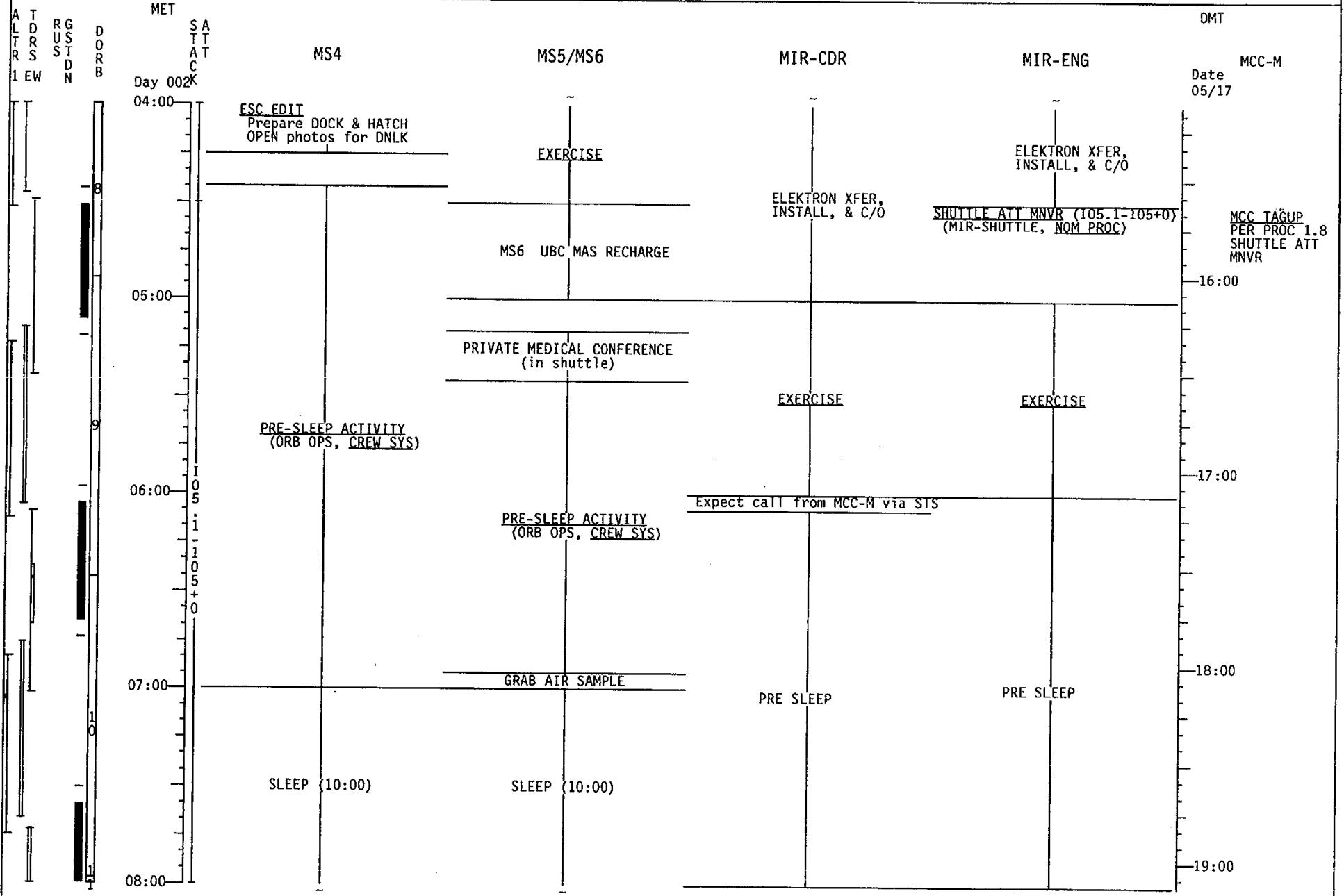
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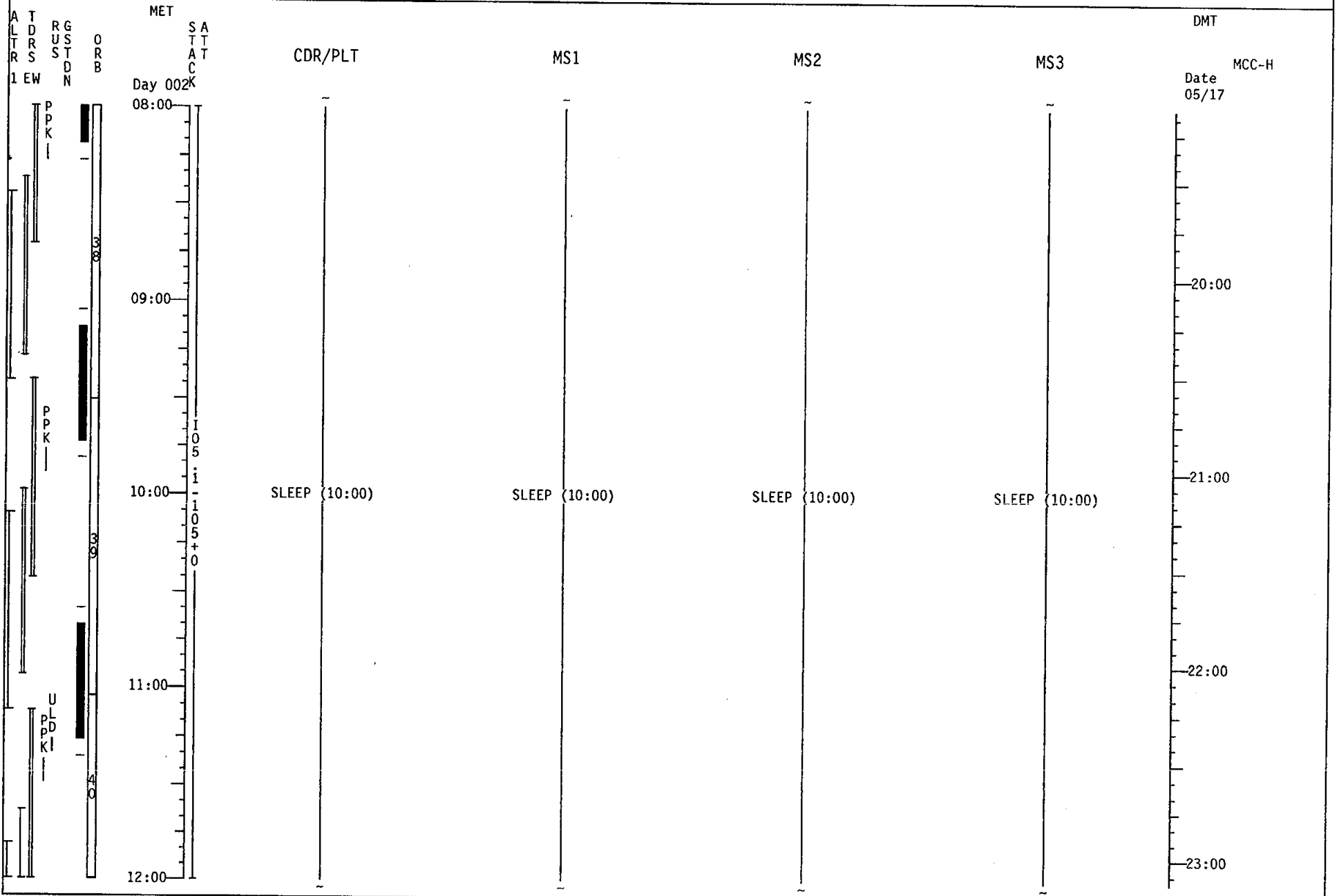
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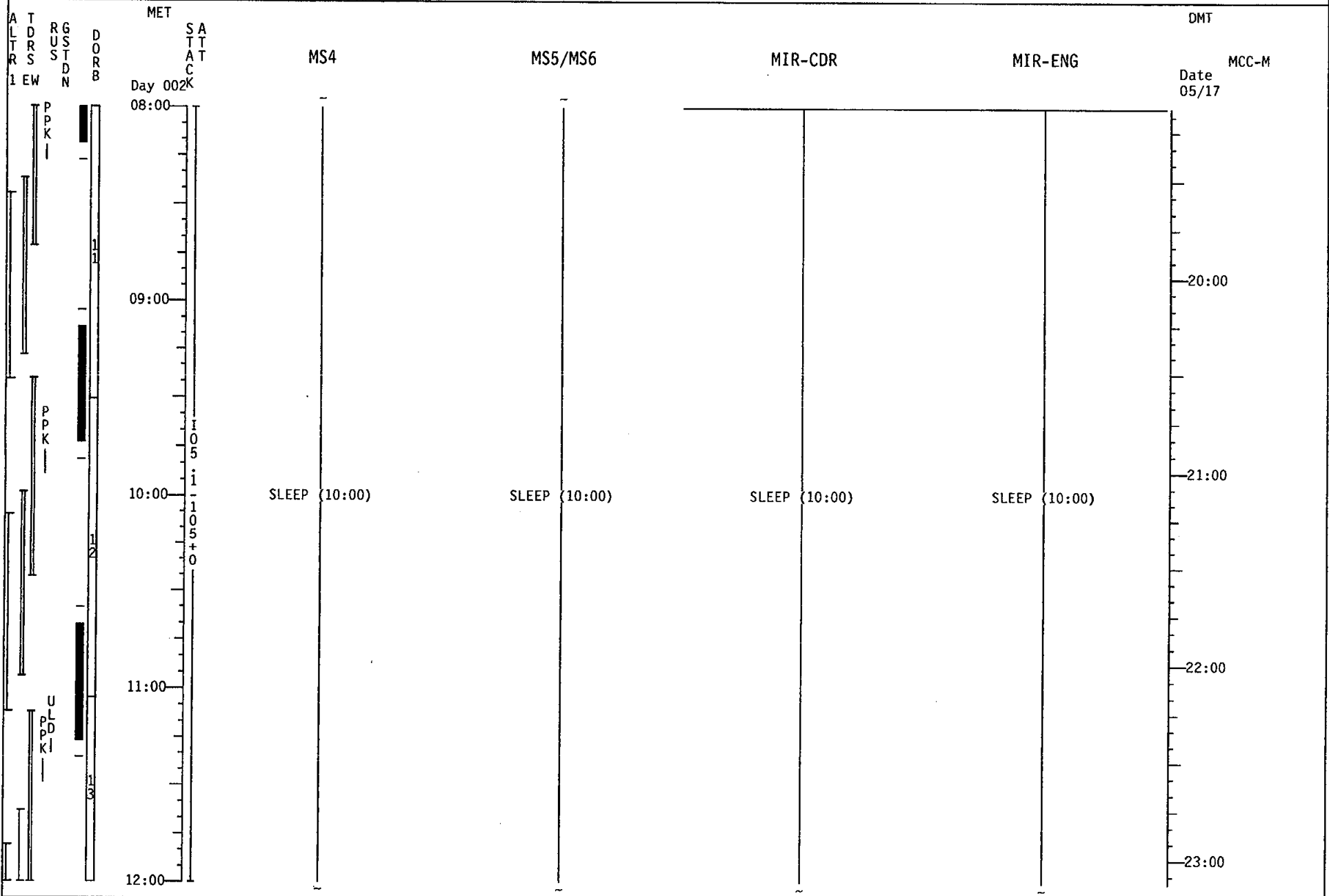
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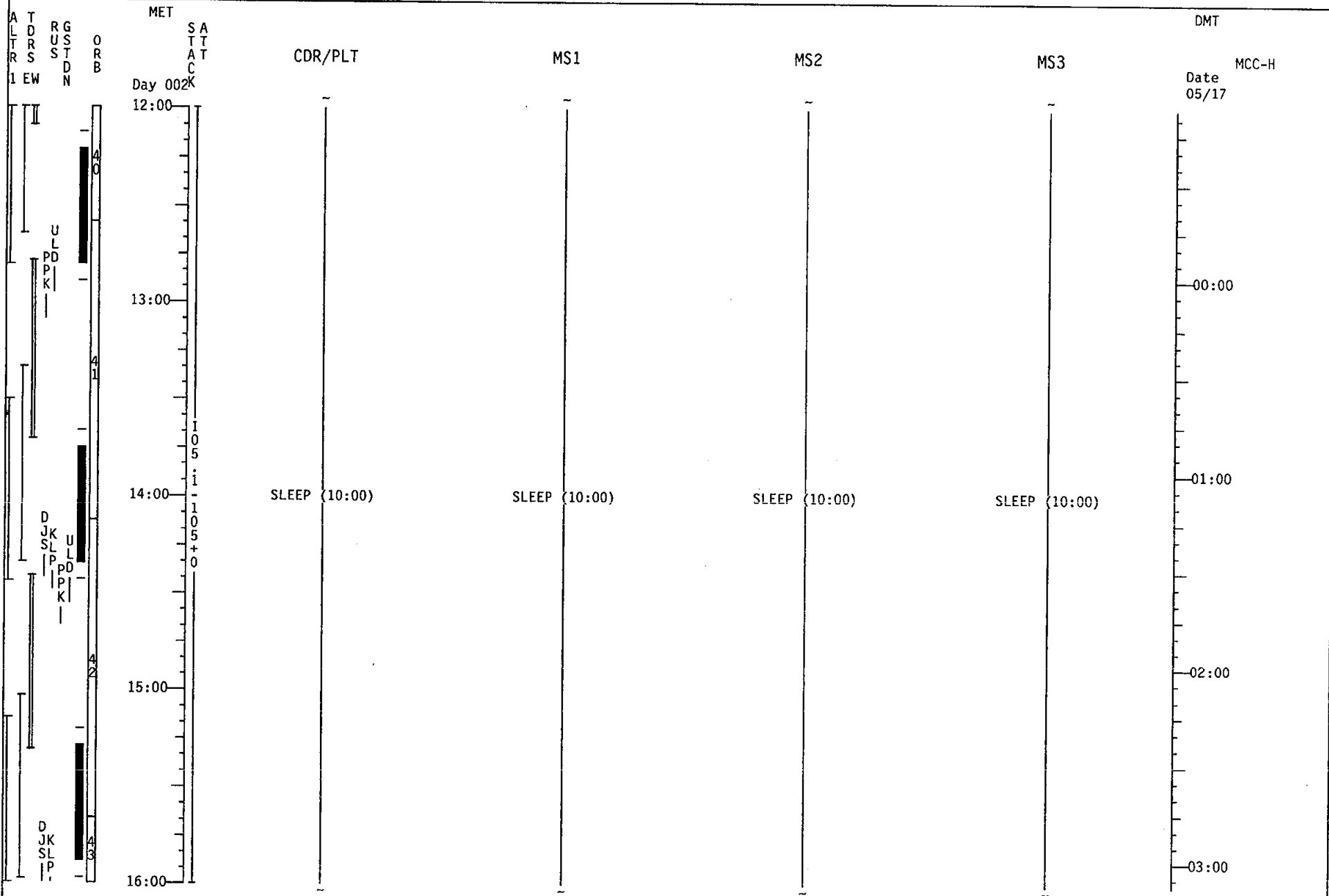
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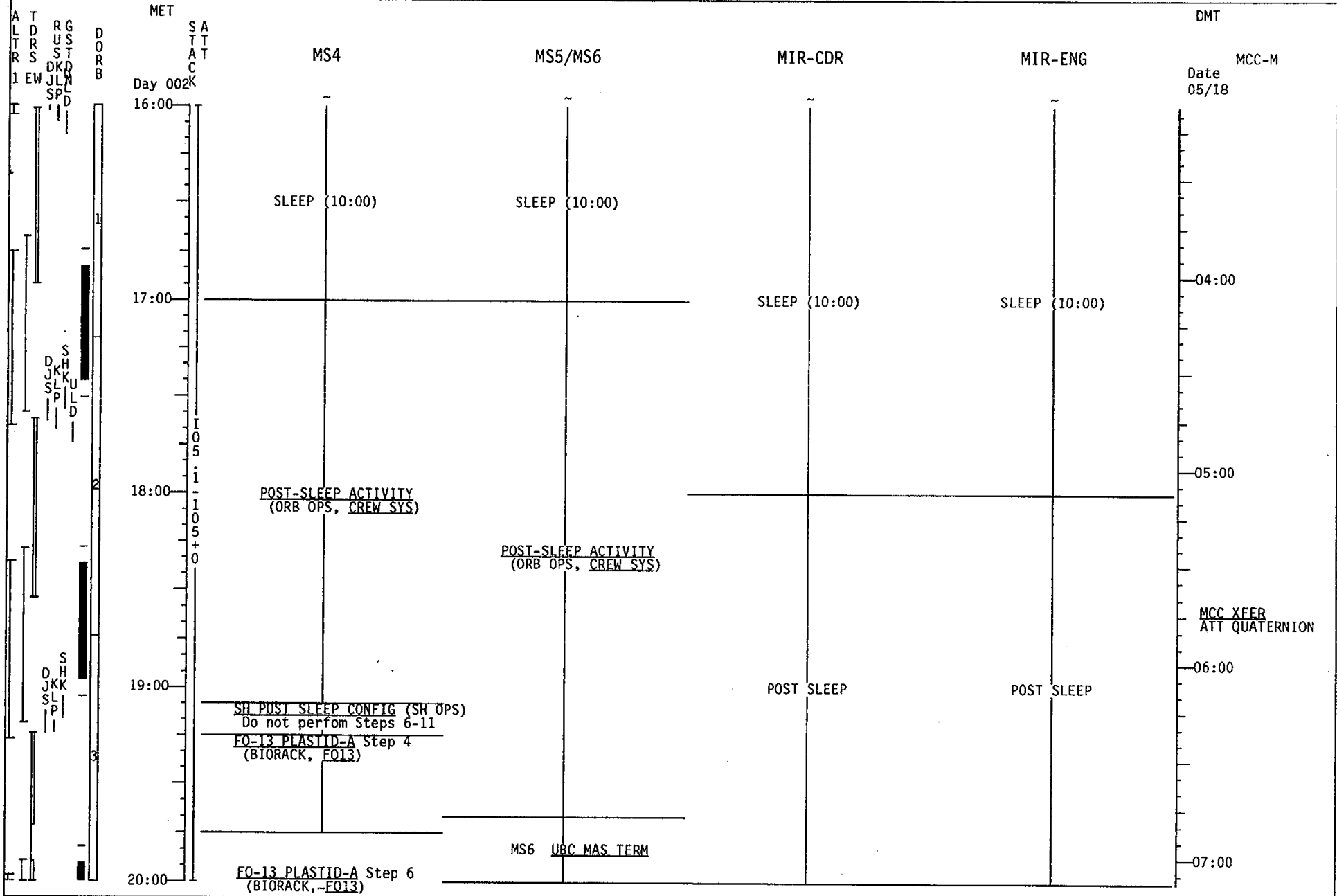
STS-84 (FD03)



STS-84 (FD03)

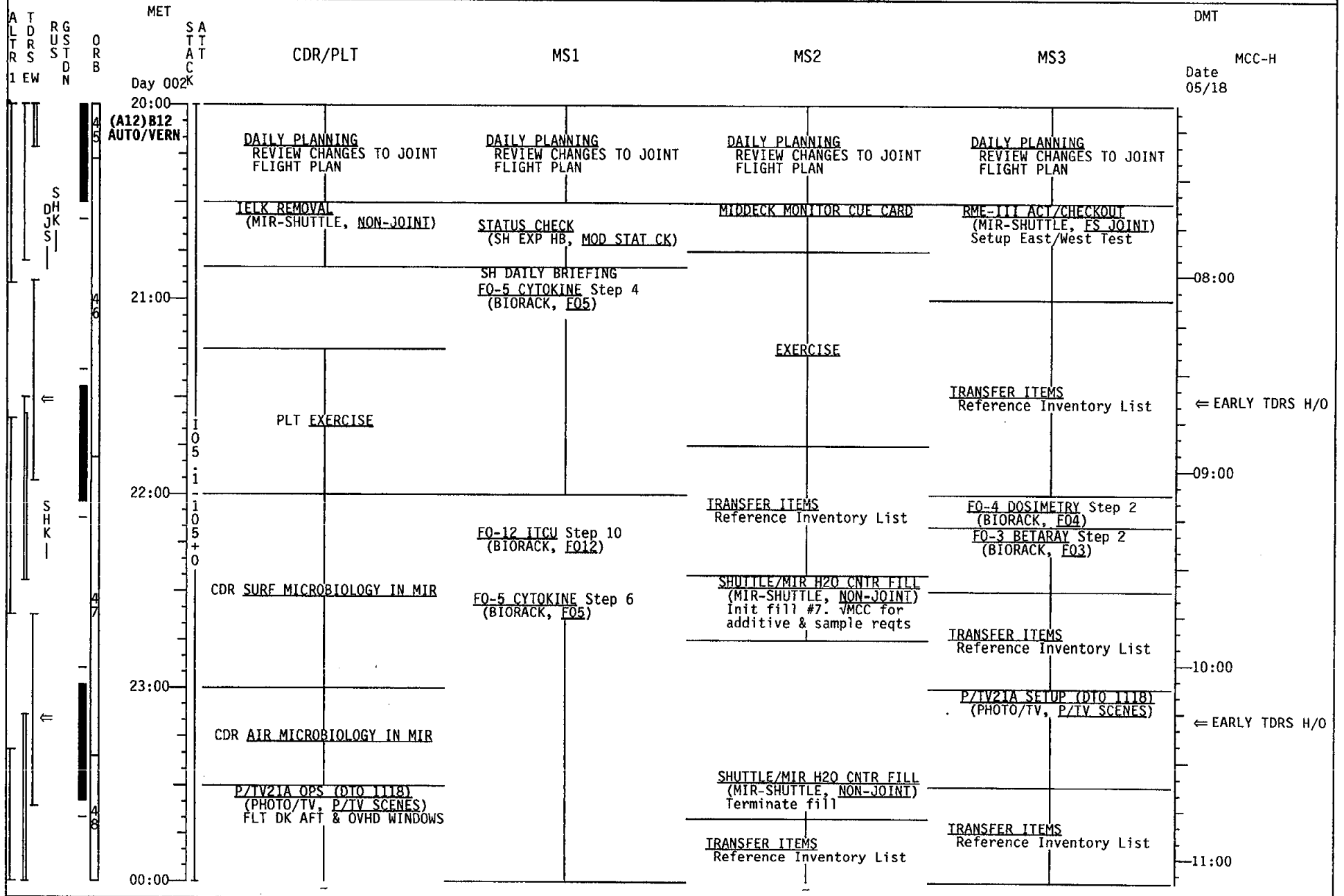


STS-84 (FD04)

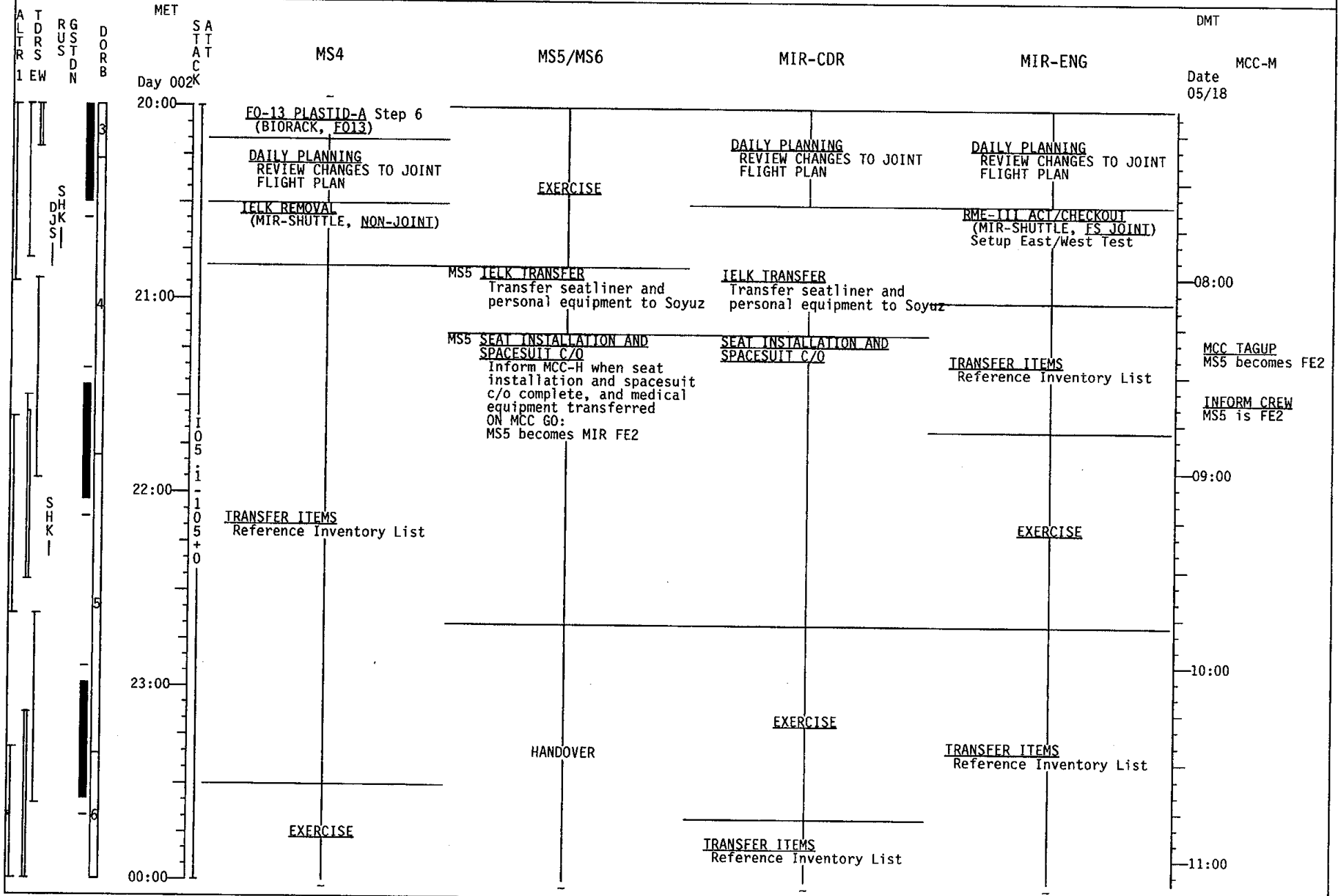


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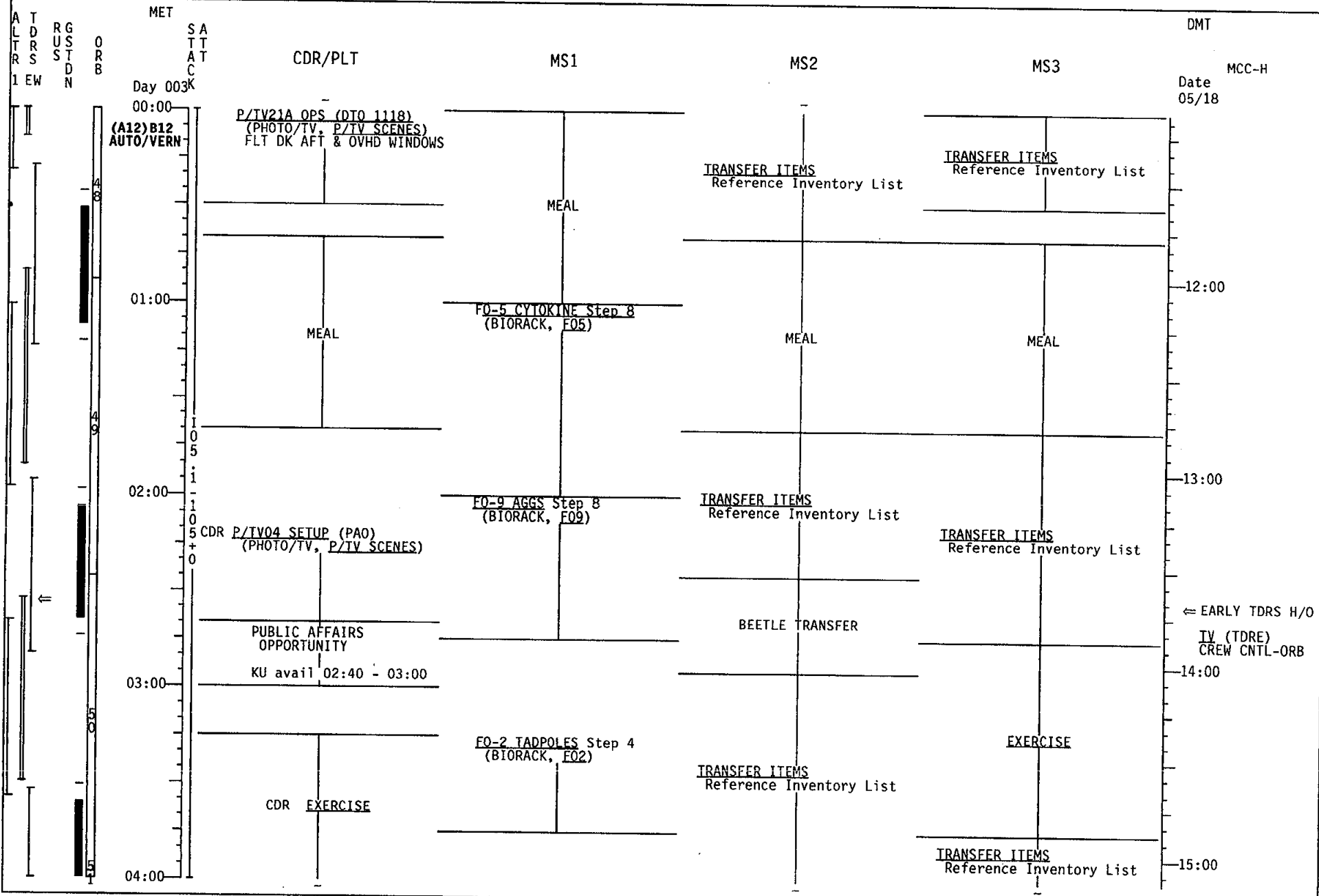
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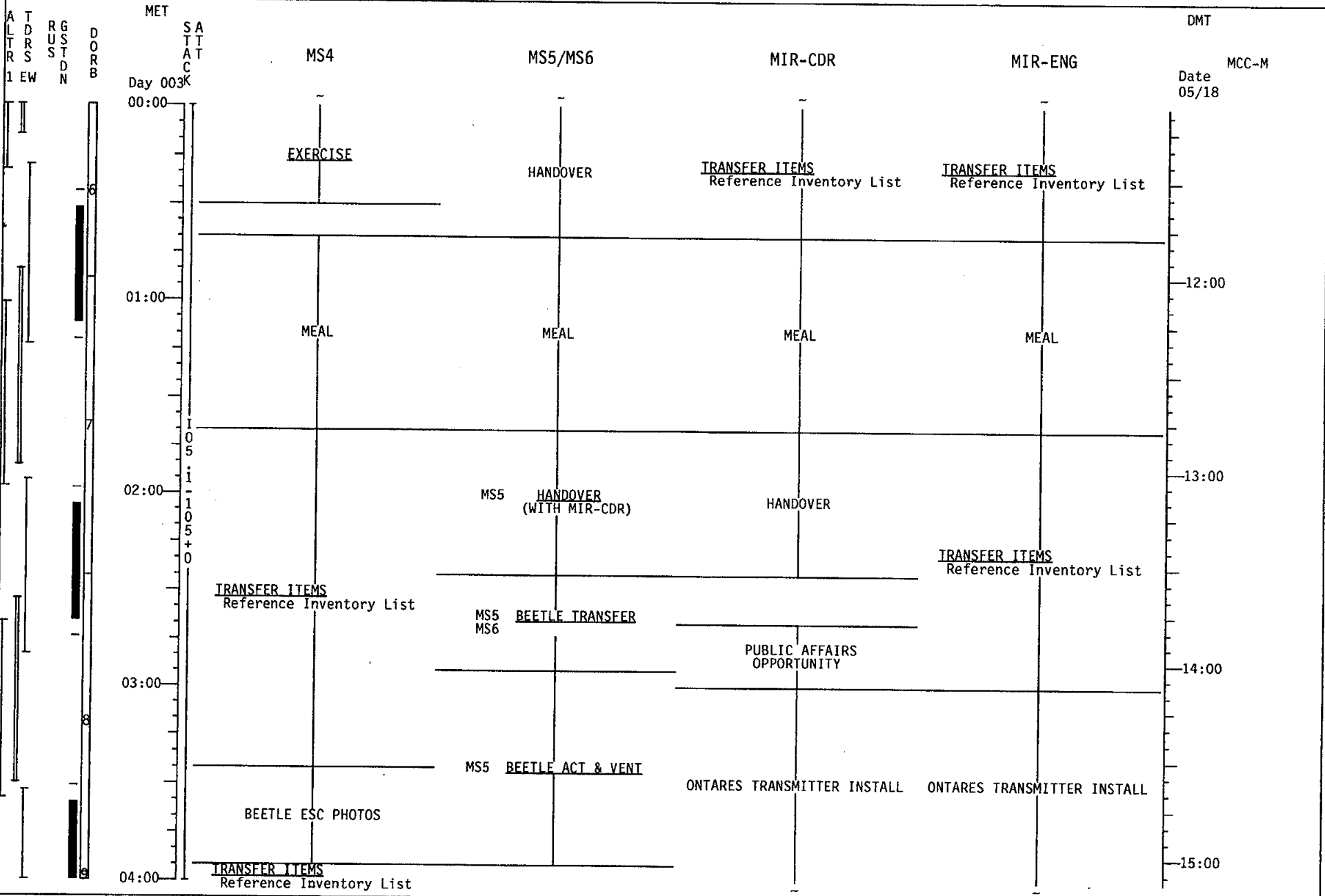
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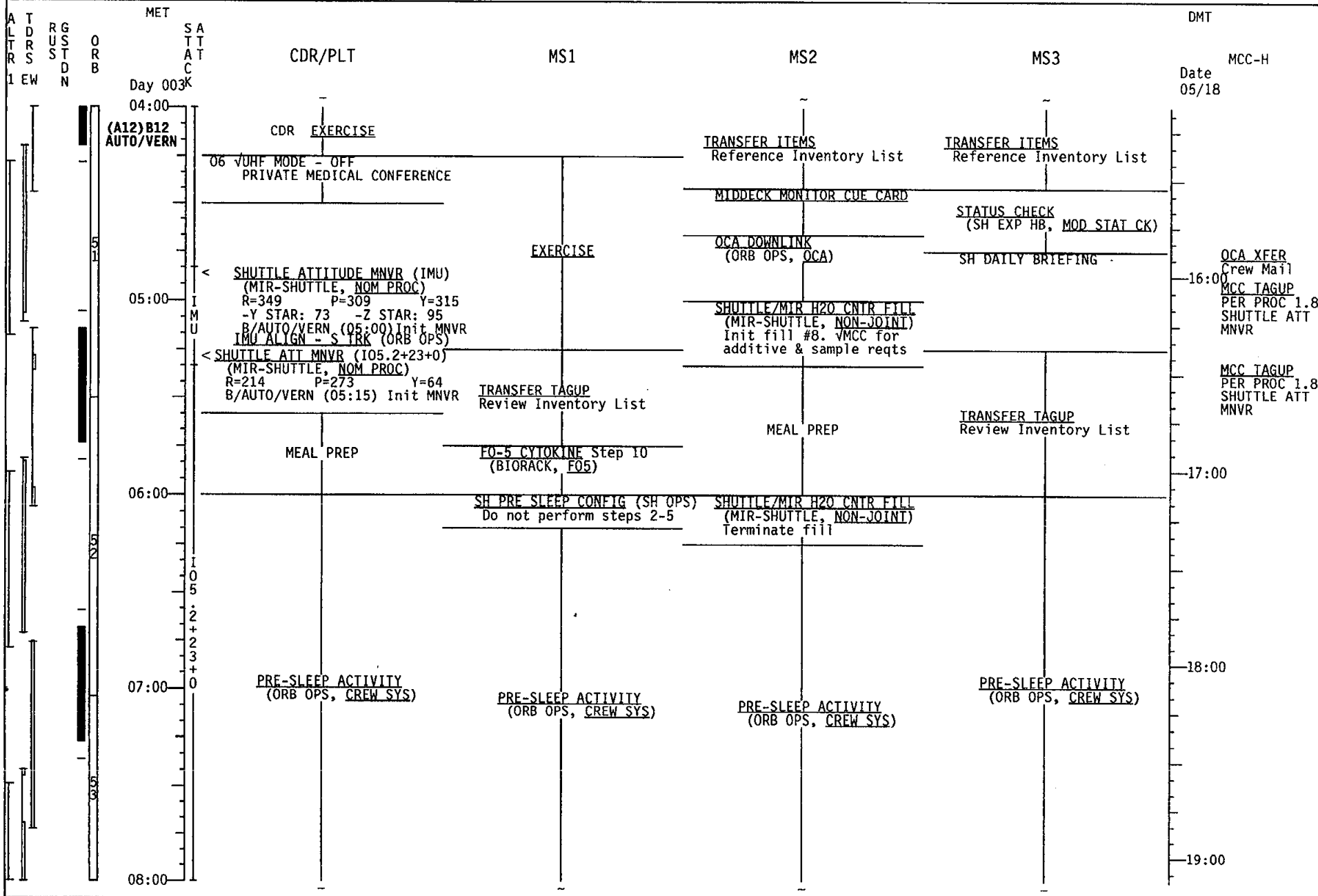
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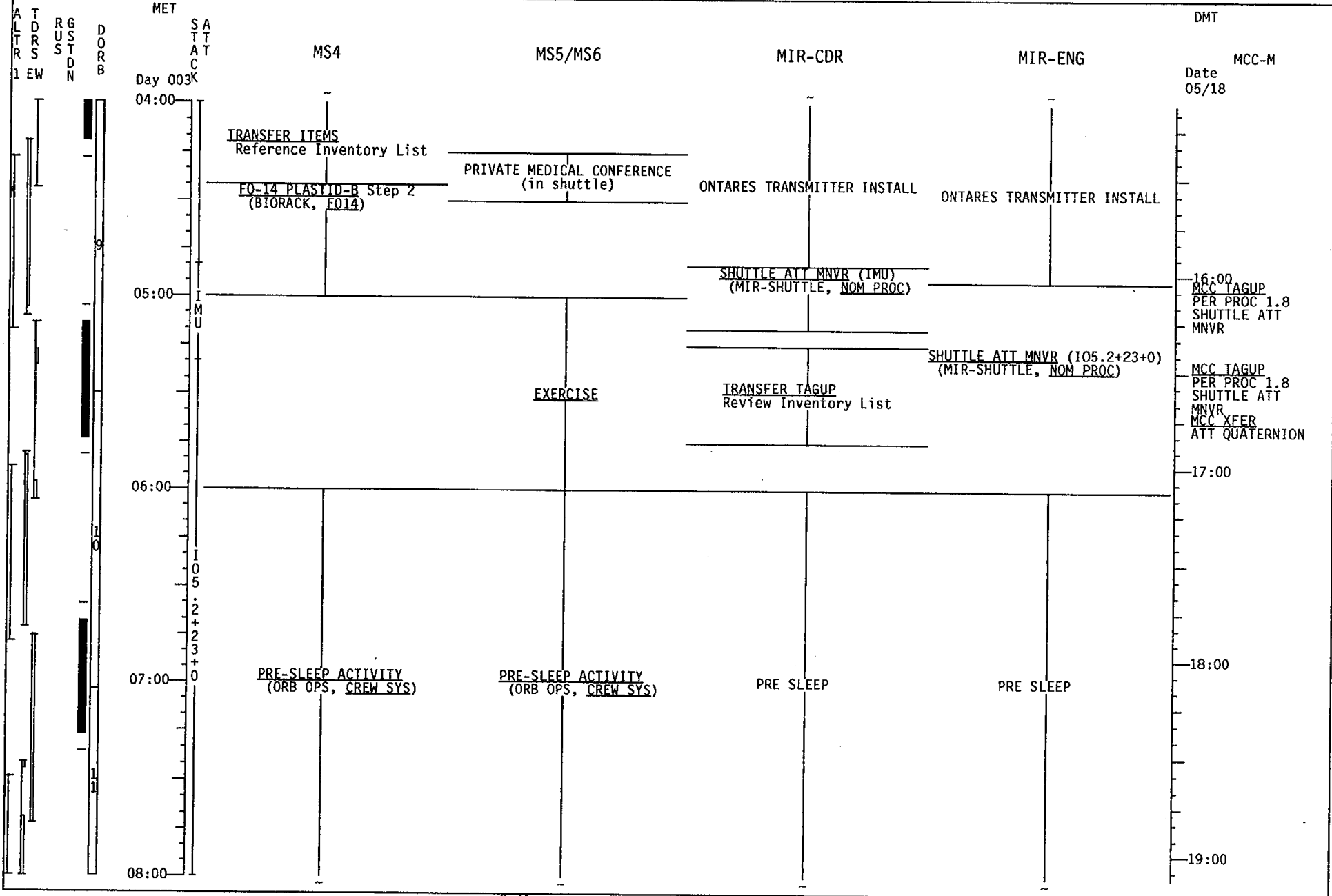
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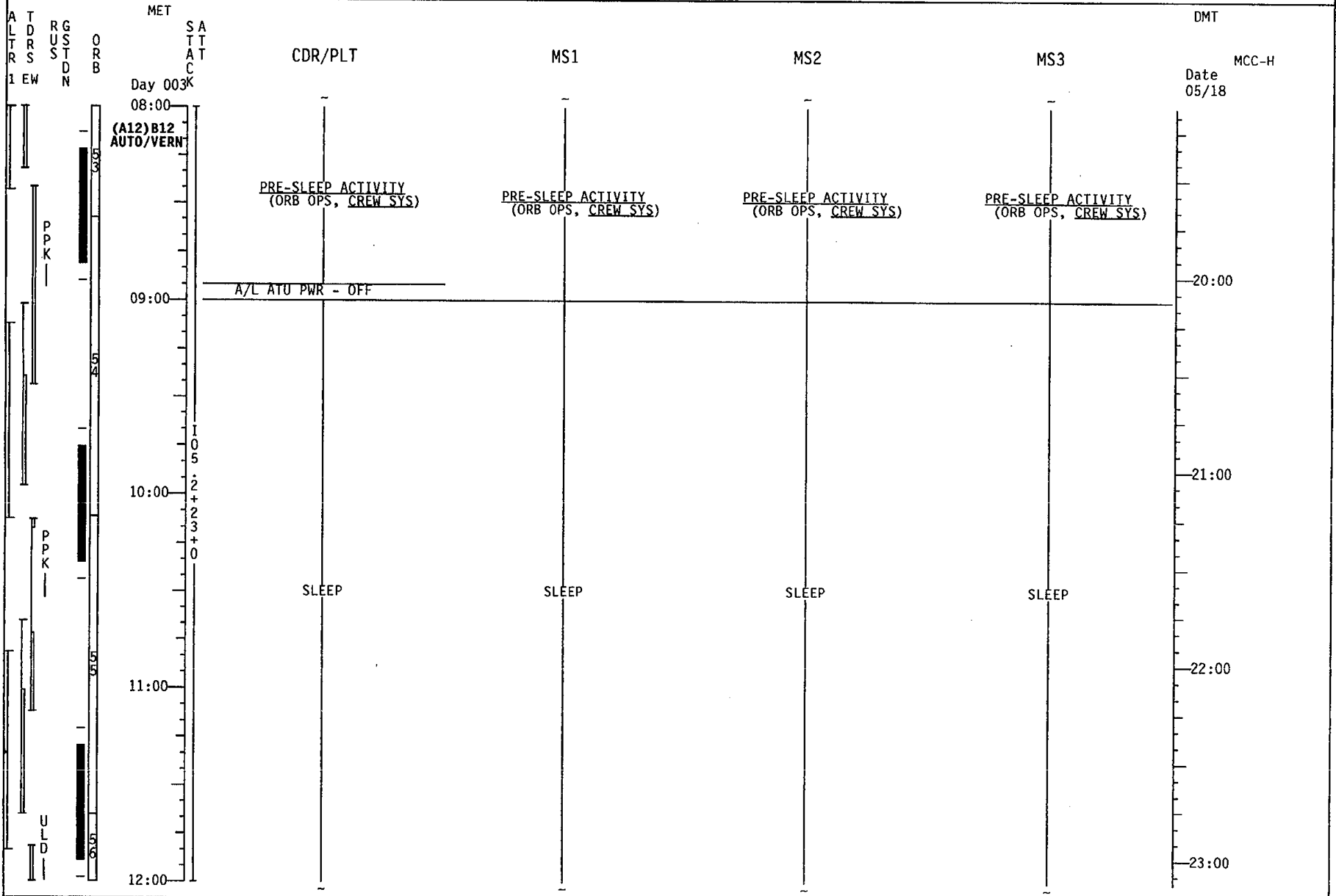
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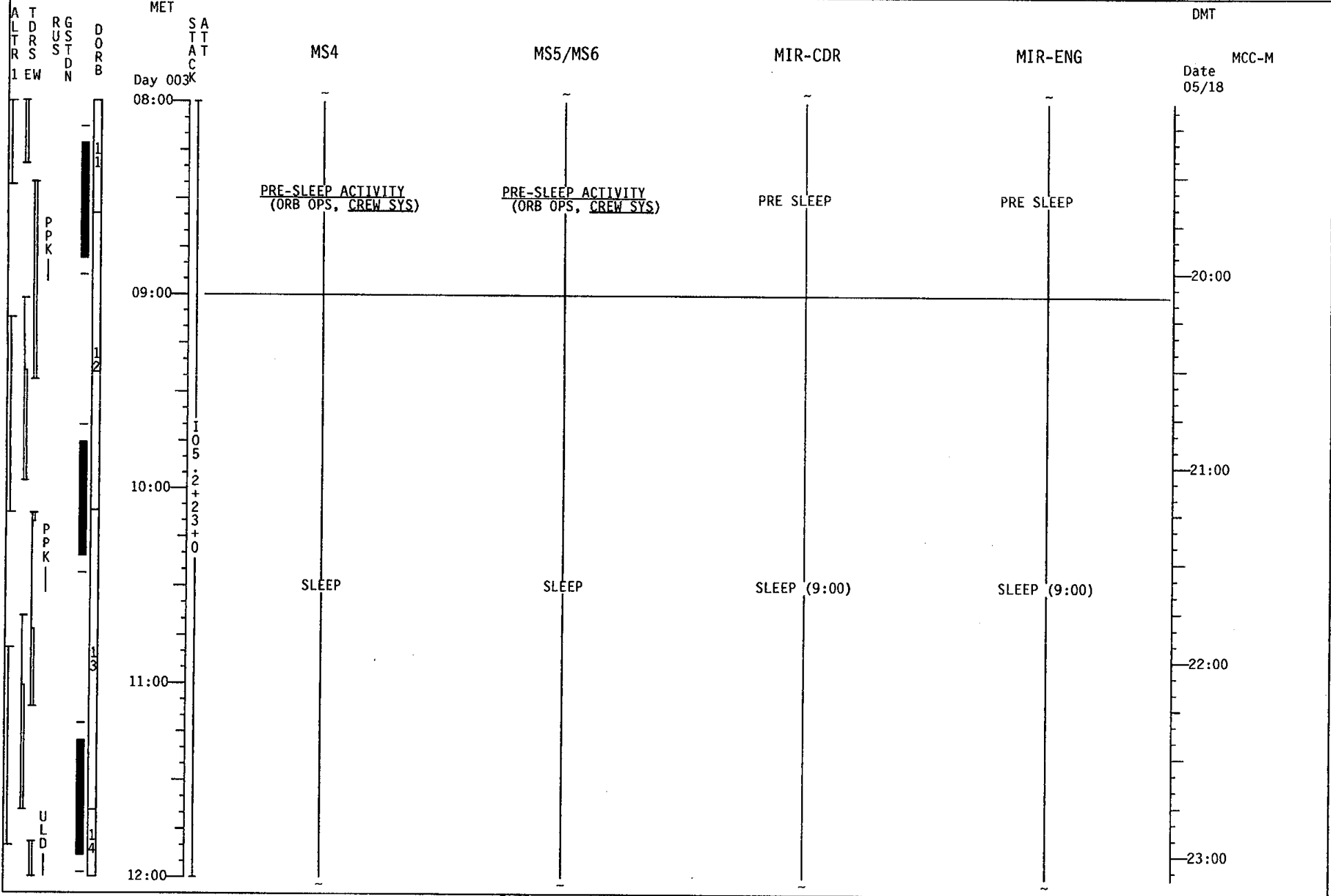
STS-84 (FD04)



STS-84 (FD04)

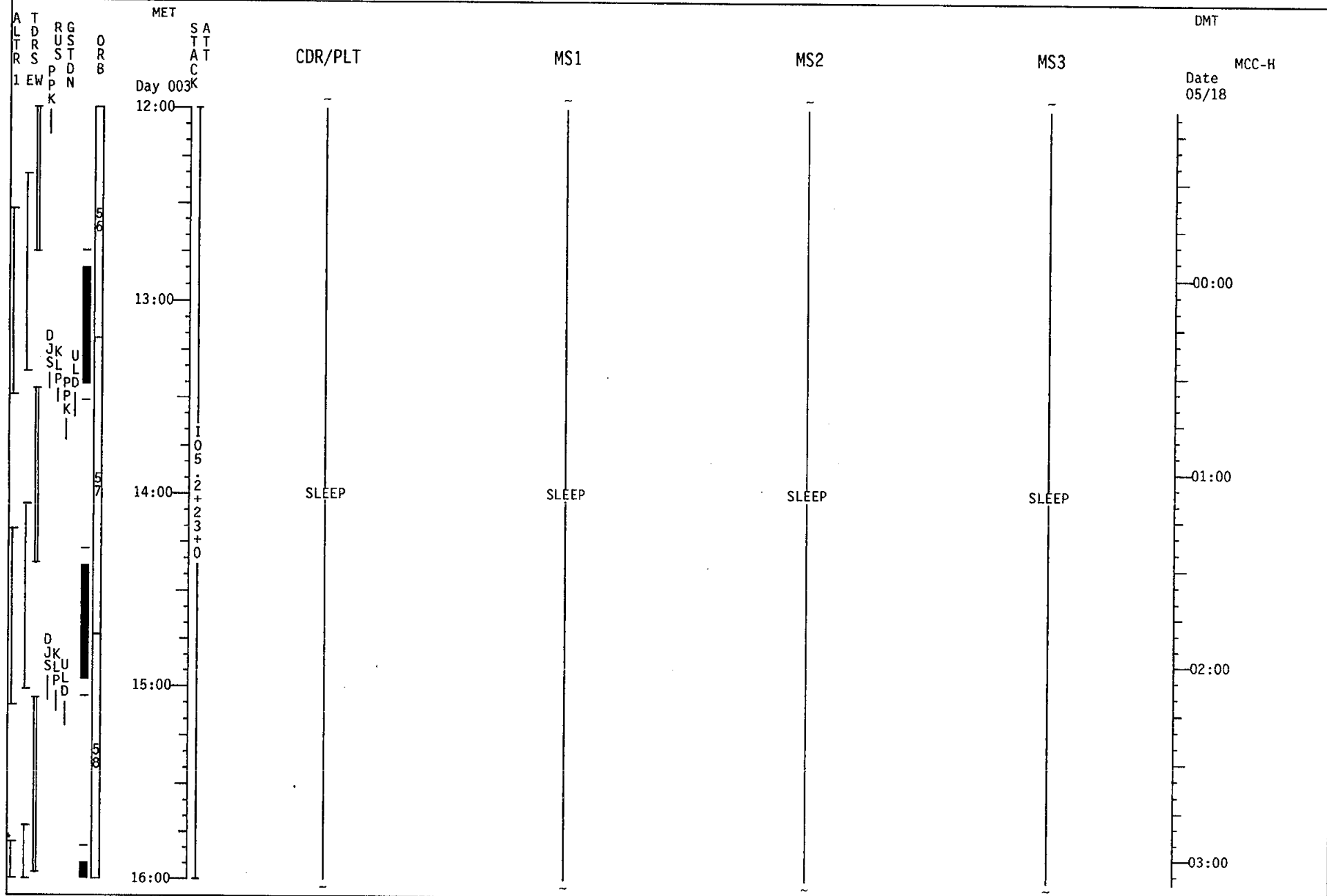


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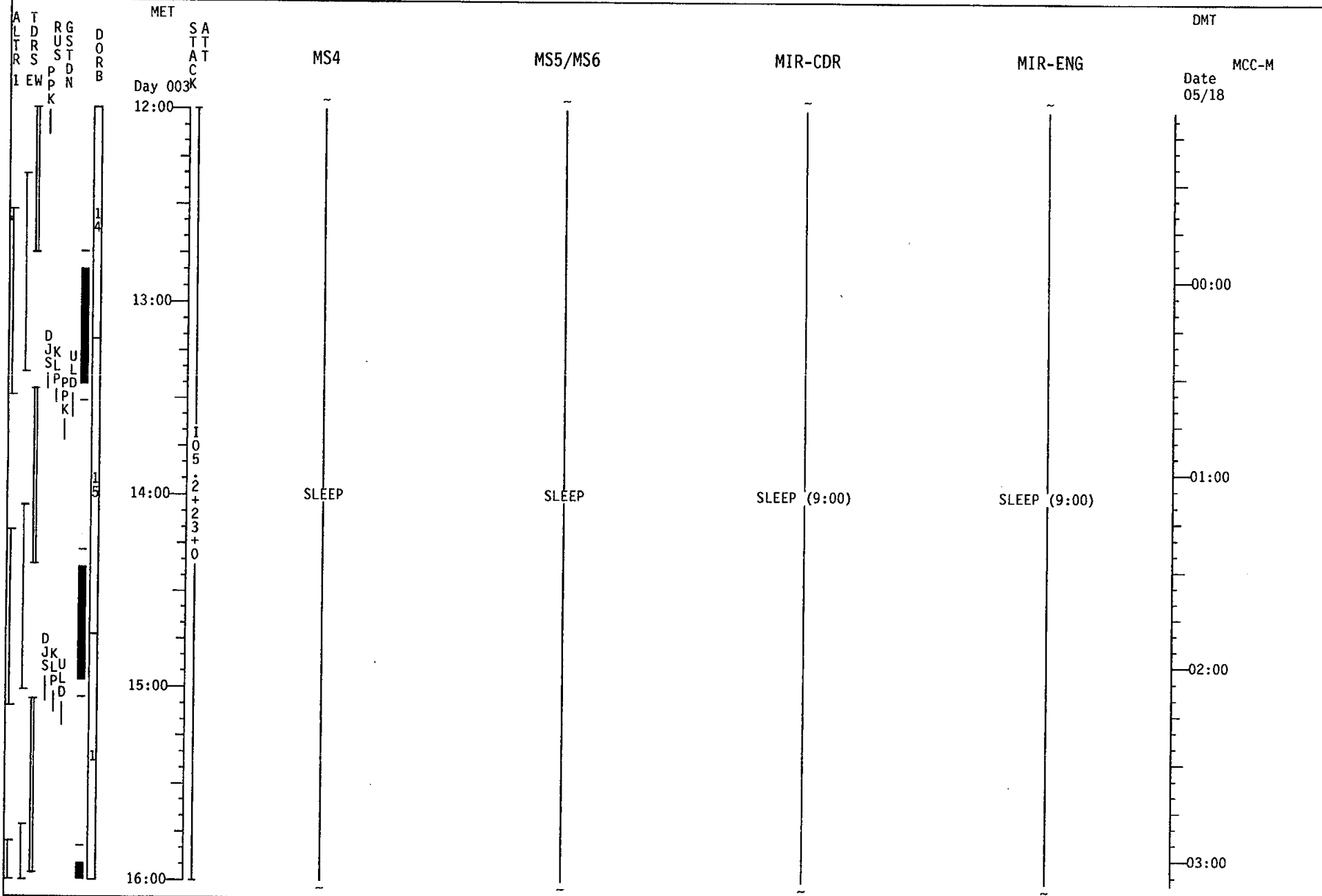


DMT
MCC-M
Date
05/18

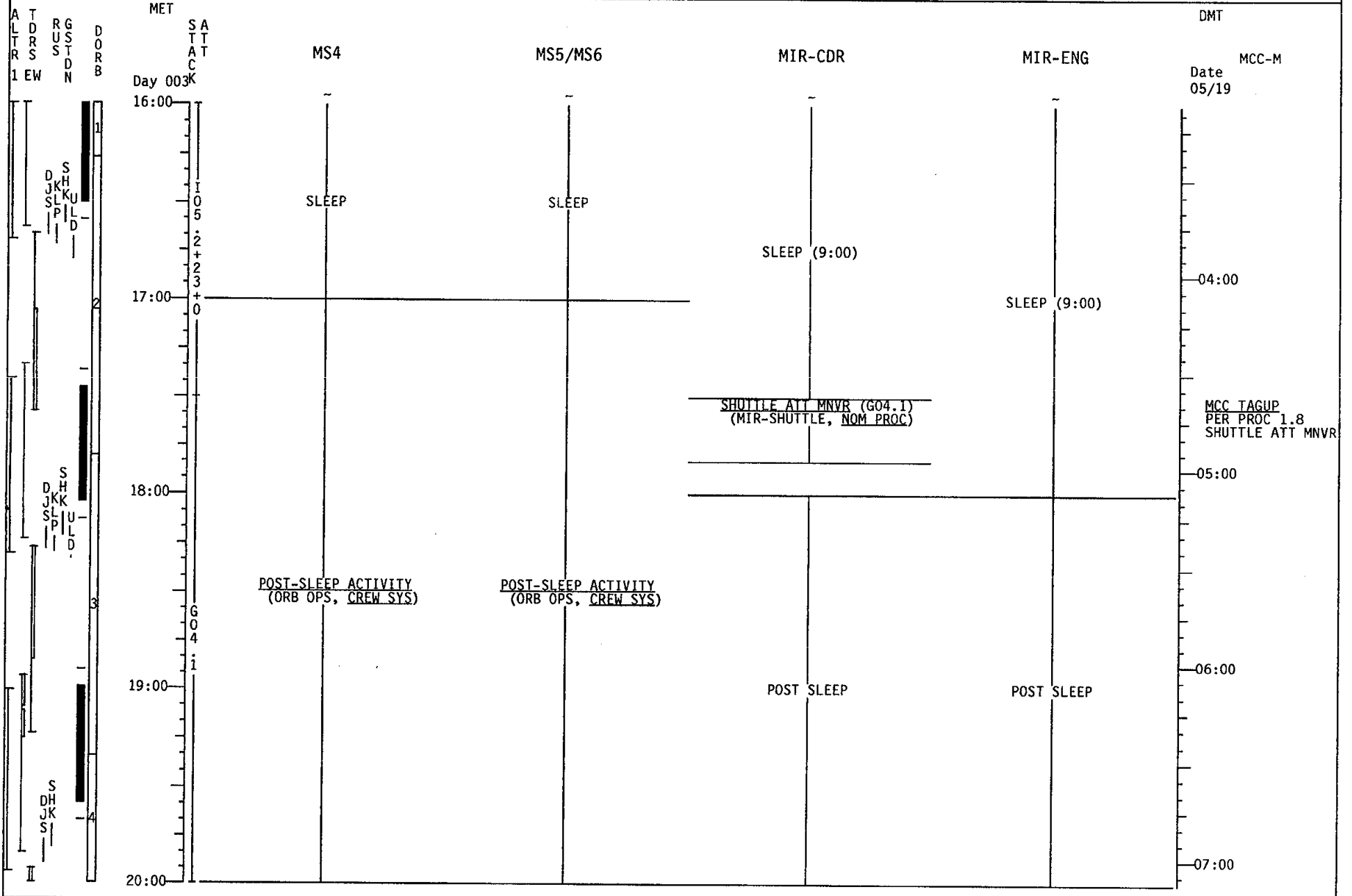
STS-84 (FD04)



STS-84 (FD04)



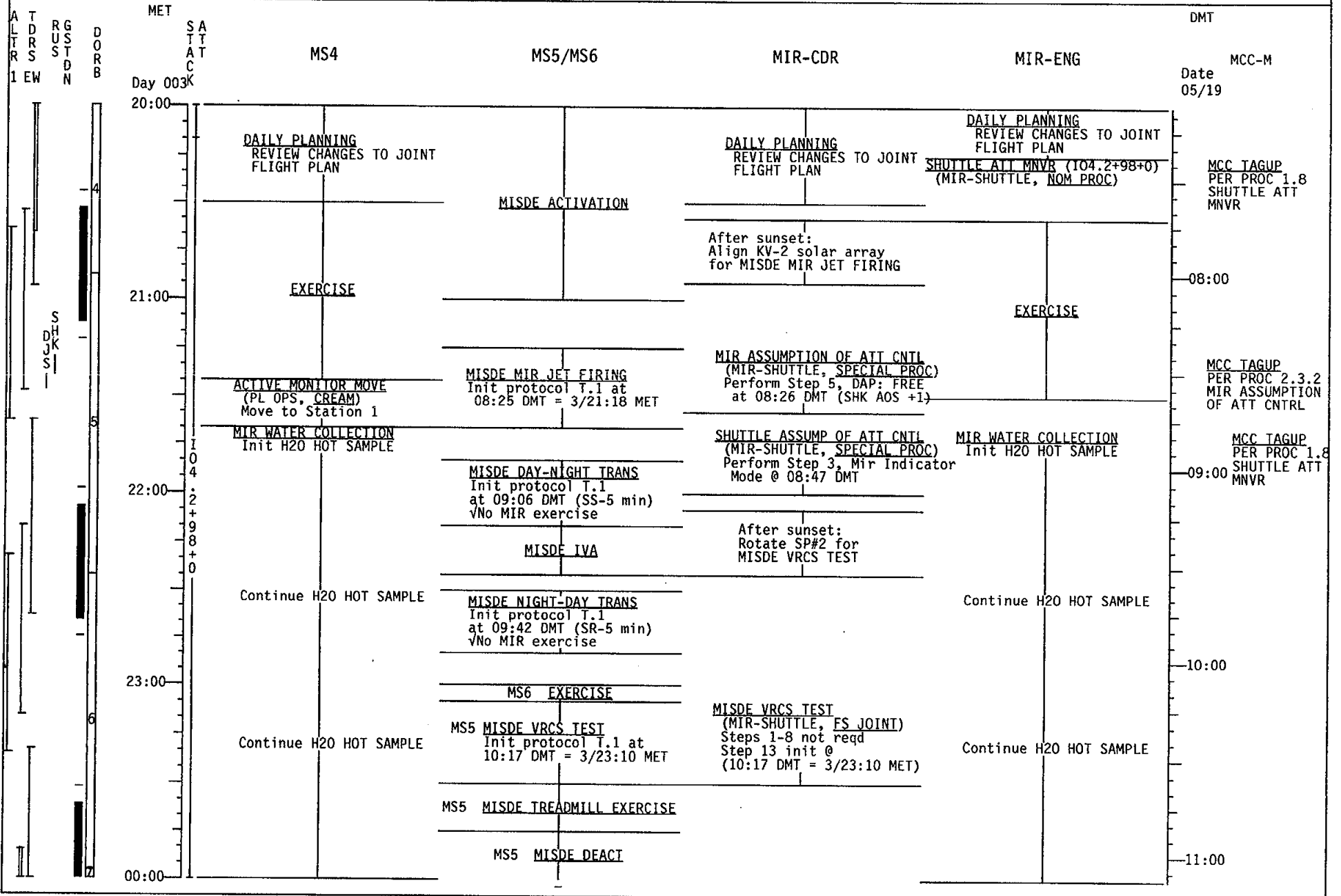
STS-84 (FD05)



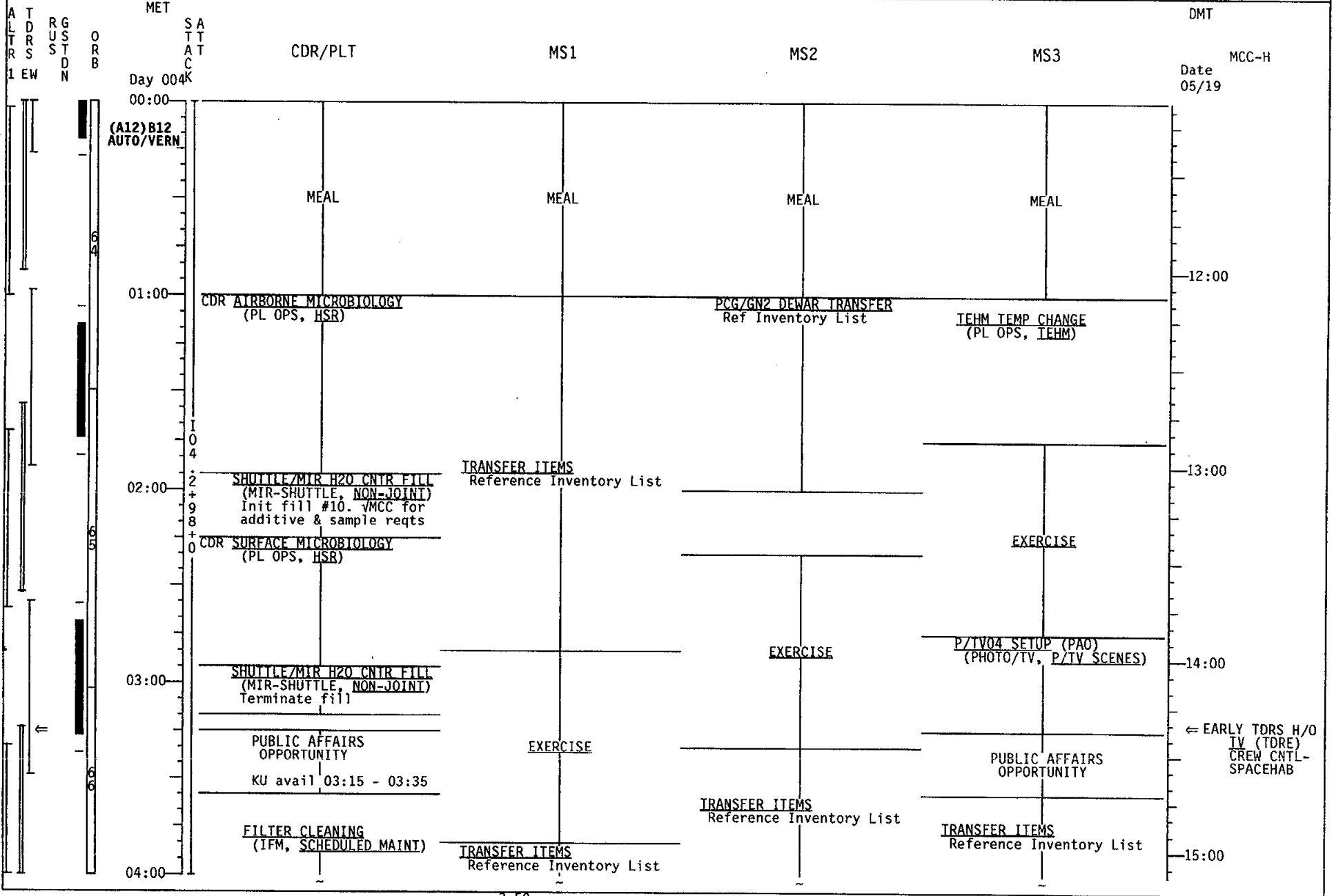
STS-84 (FD05)

	MET	CDR/PLT	MS1	MS2	MS3	DMT
	Day 003K					Date 05/19
A T R S L D R S R S 1 EW RG U S T D N O R B S A T T A C S H J K S I 6 1 6 2 1 0 4 2 + 9 8 + 0 23:00 3 6 4 00:00	(A12)B12 AUTO/VERN FREE/VERN (A12)B12 AUTO/VERN	<p>DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN</p> <p>< SHUTTLE ATT MNVR (104.2+98+0) (MIR-SHUTTLE, <u>NON PROC</u>) R=45 P=78 Y=2 B/AUTO/VERN (20:10) Init MNVR</p> <p>MIR ASSUMPTION OF ATT CNTRL (MIR-SHUTTLE, <u>SPECIAL PROC</u>) Perform Step 5, DAP: FREE at 3/21:19 MET (AOS SHK+1)</p> <p>SHUTTLE ASSUMPTION OF ATT CNTRL (MIR-SHUTTLE, <u>SPECIAL PROC</u>) Perform Step 3, Mir Indicator Mode @ 3/21:40 DAP: B/AUTO/VERN SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, <u>NON-JOINT</u>) Init fill #9. VMCC for additive & sample reqts</p> <p>SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, <u>NON-JOINT</u>) Terminate fill</p> <p>MISDE VRCS TEST (MIR-SHUTTLE, <u>FS JOINT</u>) Steps 1-8 not reqd Step 13 init @ (10:17 DMT = 3/23:10 MET)</p>	<p>DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN</p> <p>SH POST SLEEP CONEFIG (SH OPS) Do not perform Steps 6-11</p> <p>SH DAILY BRIEFING STATUS CHECK (SH EXP HB, <u>MOD STAT CK</u>)</p> <p>AP-03 EOR/F RECONFIG (EOR/F, <u>ALT PROC</u>) Steps 1,2</p> <p>TRANSFER ITEMS Reference Inventory List</p> <p>TRANSFER ITEMS Reference Inventory List</p> <p>FO-12 ITCU Step 12 (BIORACK, <u>FO12</u>)</p> <p>AP-03 EOR/F RECONFIG (EOR/F, <u>ALT PROC</u>) Step 3 XFER RRMD syringe bags from TEHM to EOR/F</p>	<p>DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN</p> <p>TRANSFER ITEMS Reference Inventory List</p> <p>TRANSFER ITEMS Reference Inventory List</p>	<p>DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN</p> <p>MIDDECK MONITOR CUE CARD</p> <p>P/TV21B OPS (DTO 1118) VTR recording of PLB camera views</p> <p>FO-4 DOSIMETRY Step 4 (BIORACK, <u>FO4</u>)</p> <p>P/TV21B SETUP (DTO 1118) (PHOTO/TV, P/TV SCENES) MISDE SHUTTLE THRUSTER BASE BLOCK SP#2</p> <p>P/TV21B OPS (DTO 1118) VTR recording of PLB camera views</p> <p>TRANSFER ITEMS Reference Inventory List</p>	<p>MCC TAGUP PER PROC 1.8 SHUTTLE ATT MNVR</p> <p>08:00</p> <p>MCC TAGUP PER PROC 2.3.2 MIR ASSUMPTION OF ATT CNTRL</p> <p>09:00</p> <p>MCC TAGUP PER PROC 1.8 SHUTTLE ATT MNVR</p> <p>10:00</p> <p>11:00</p>

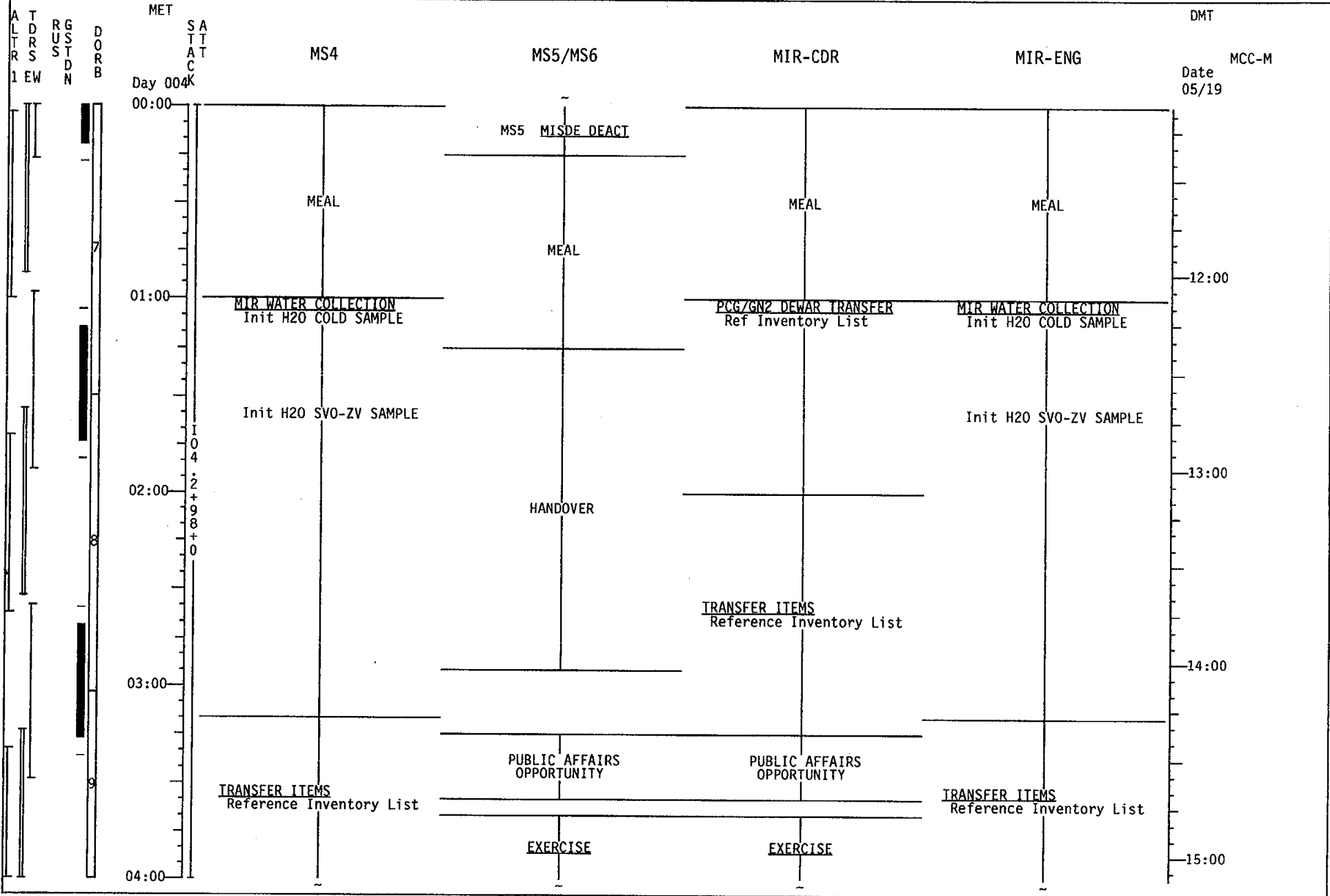
STS-84 (FD05)



STS-84 (FD05)



STS-84 (FD05)

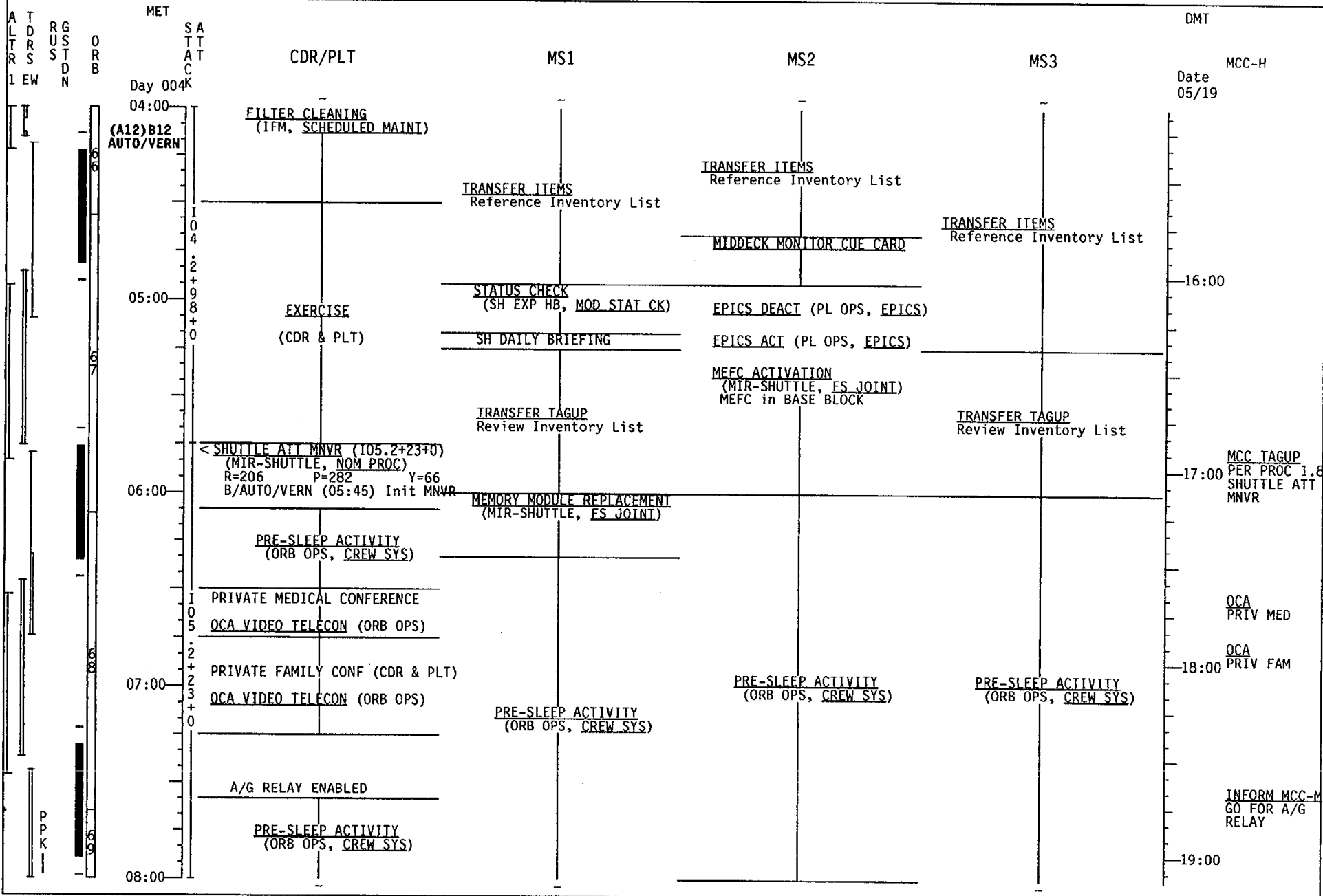


A T D R G D
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 1 E W N D
 O R B

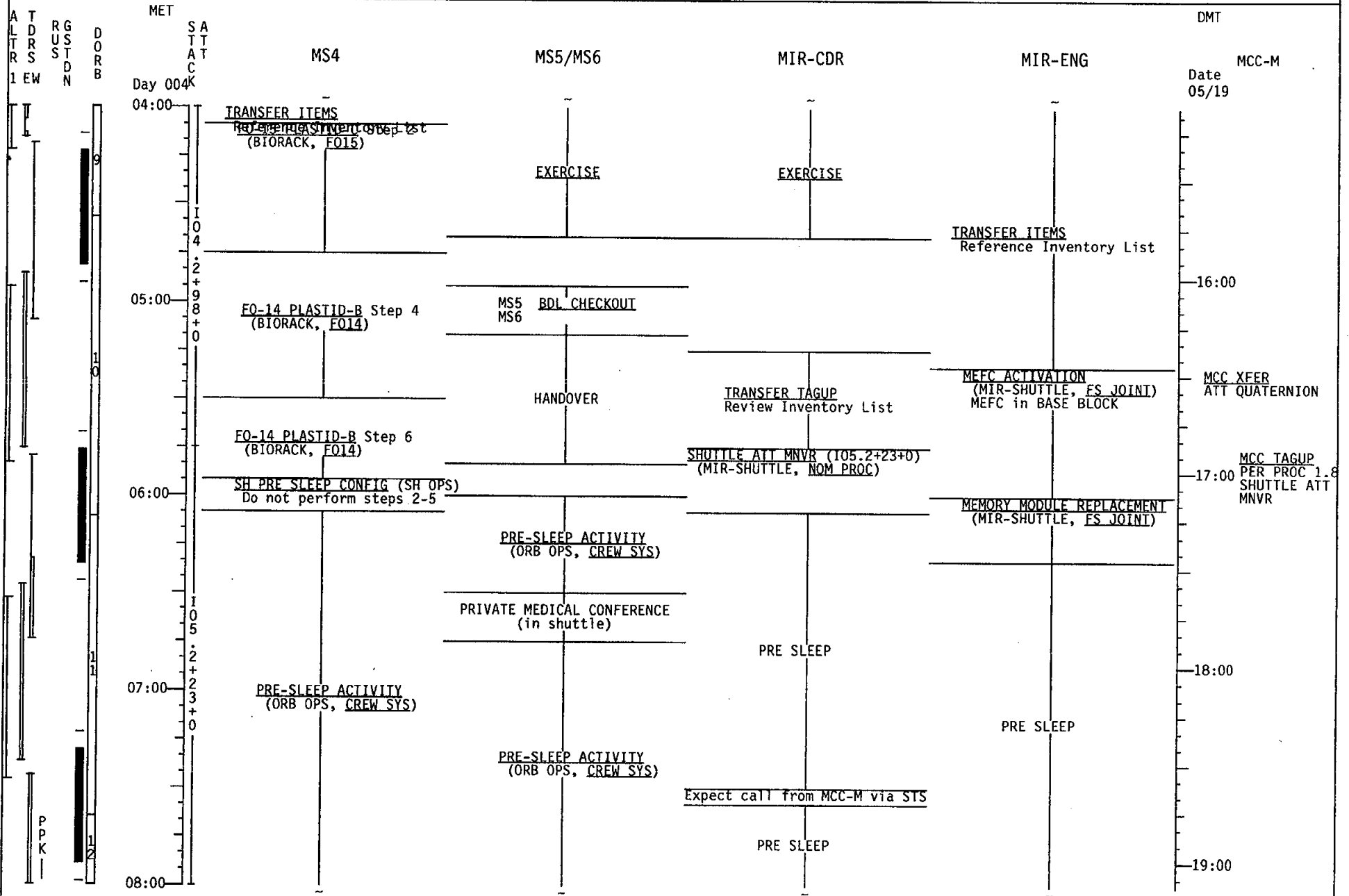
MET
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 Date
 05/19

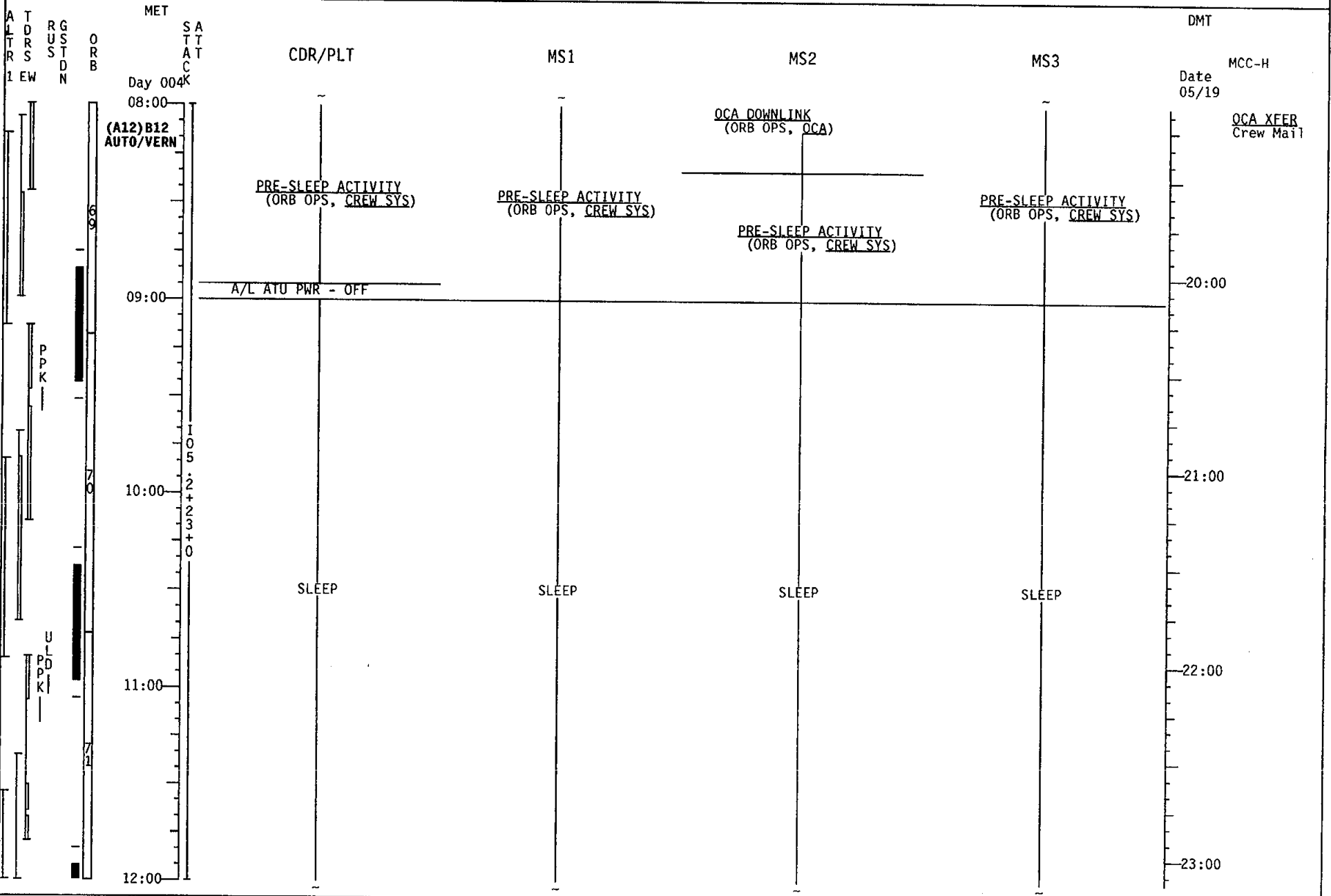
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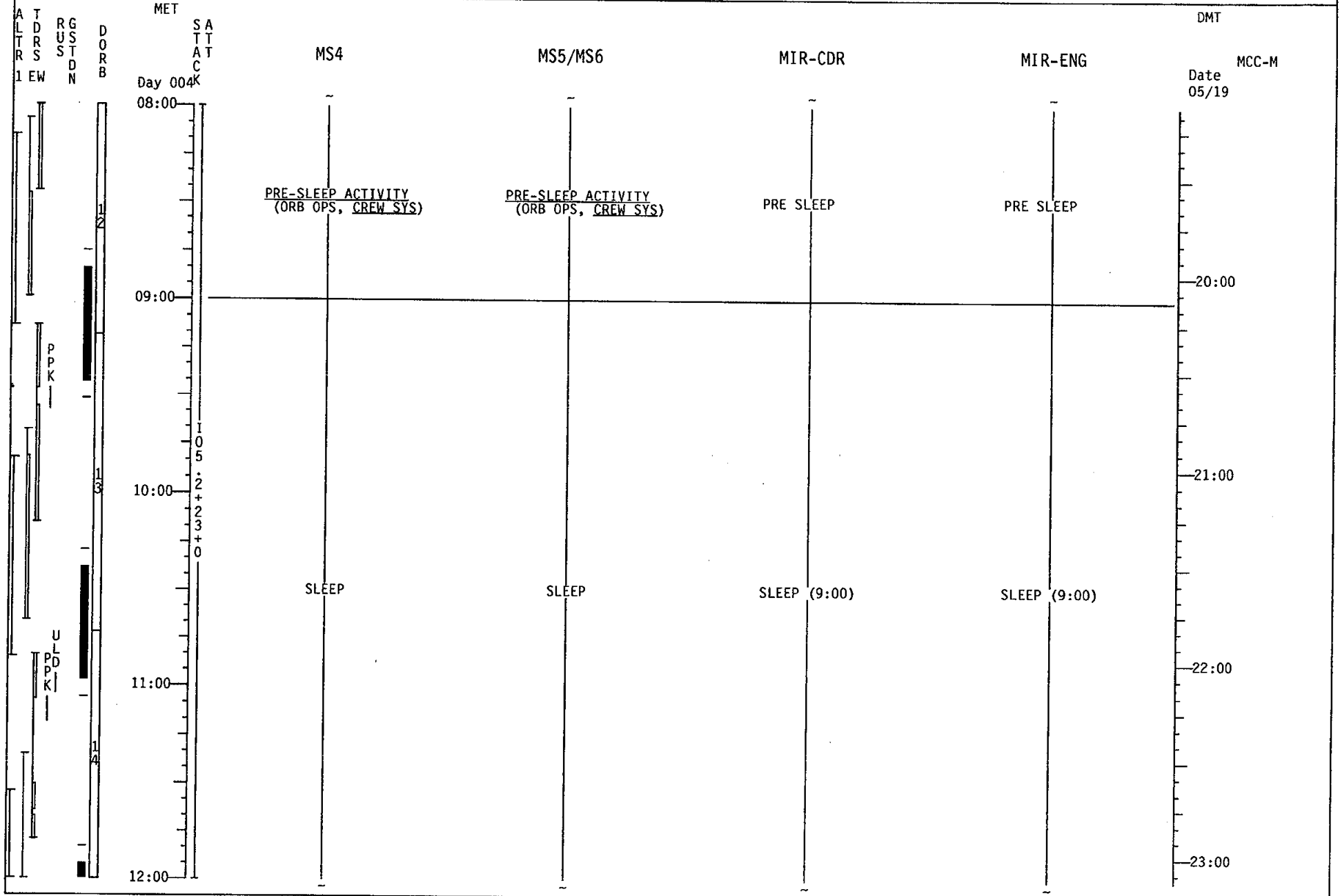
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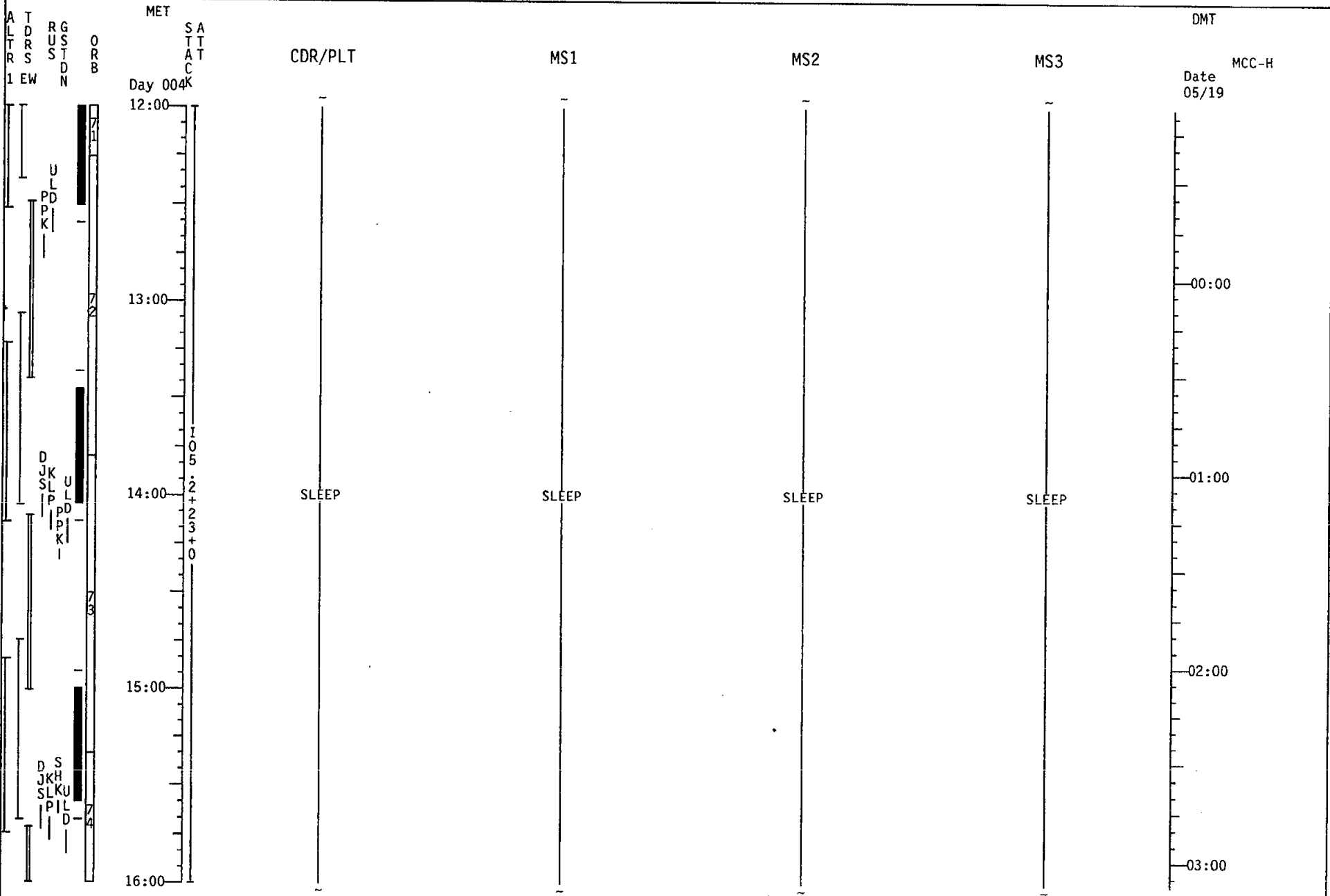
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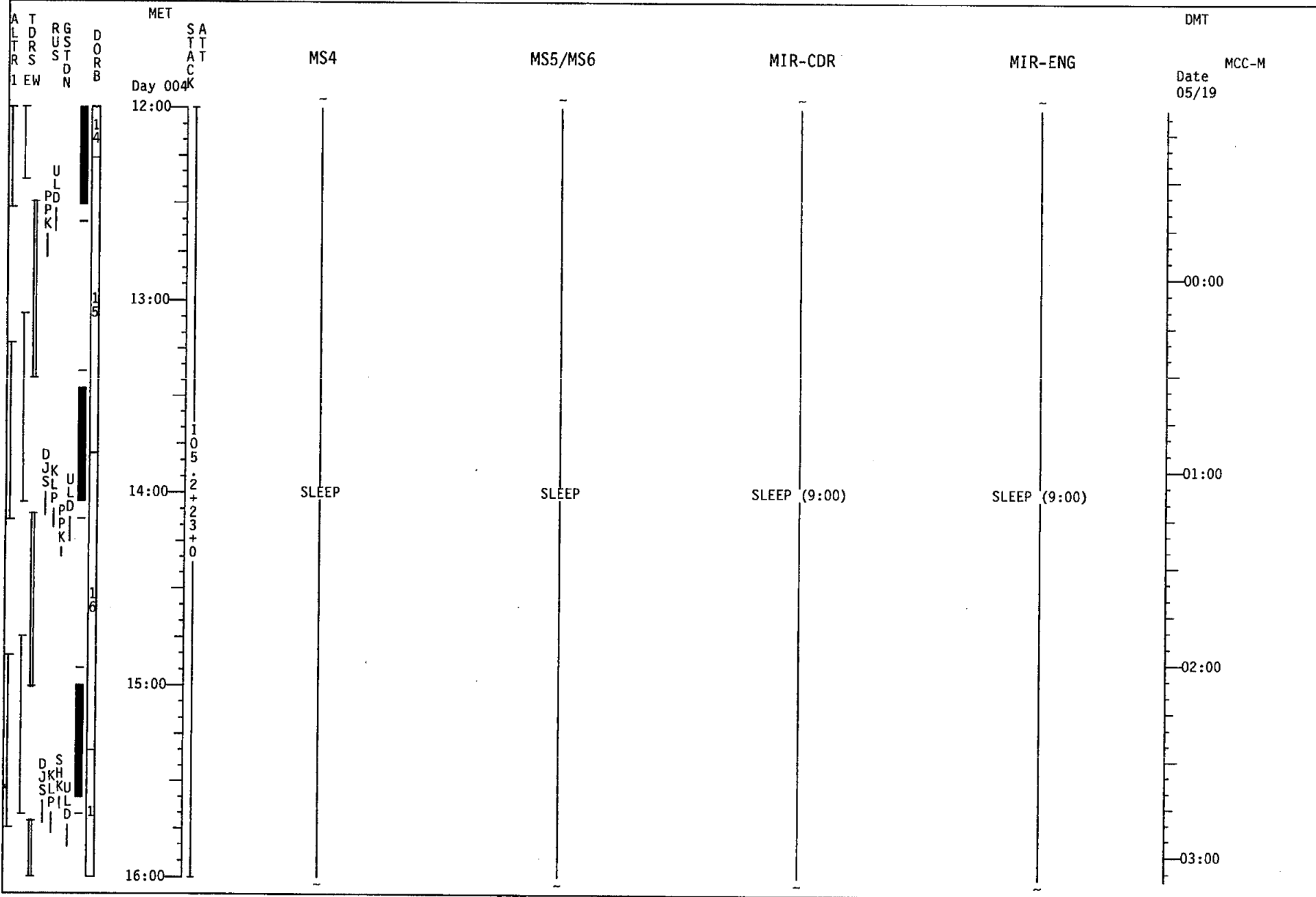
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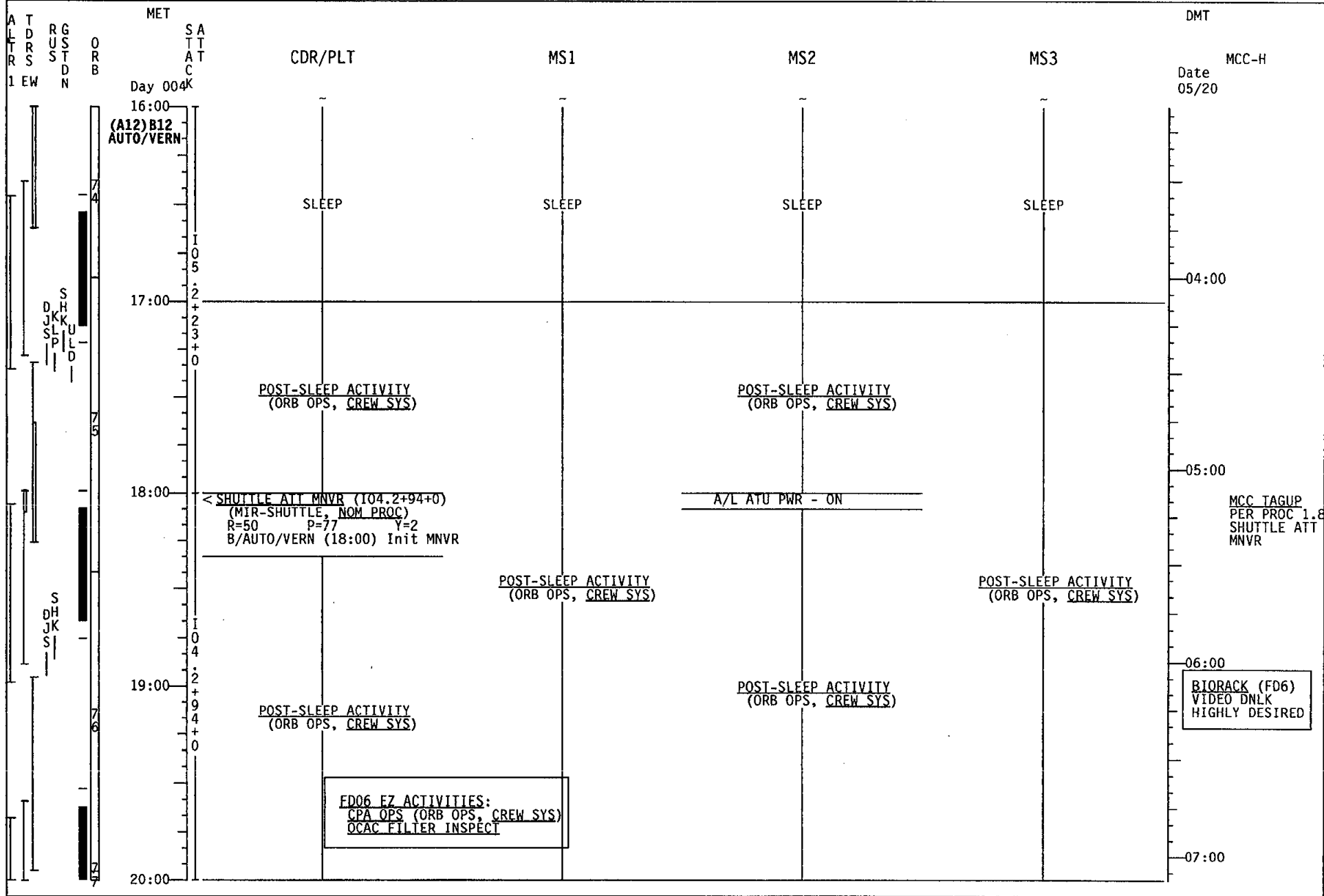
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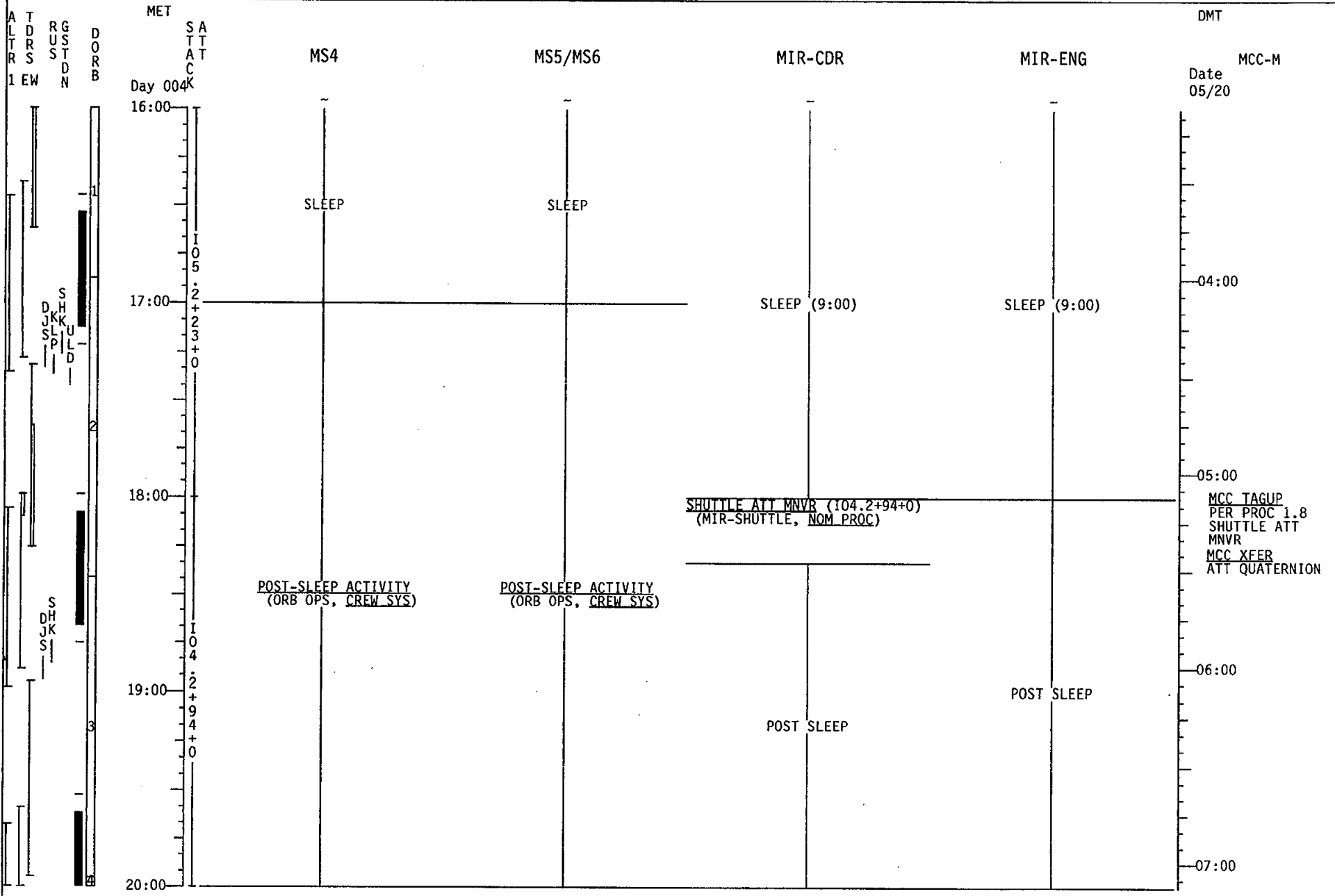
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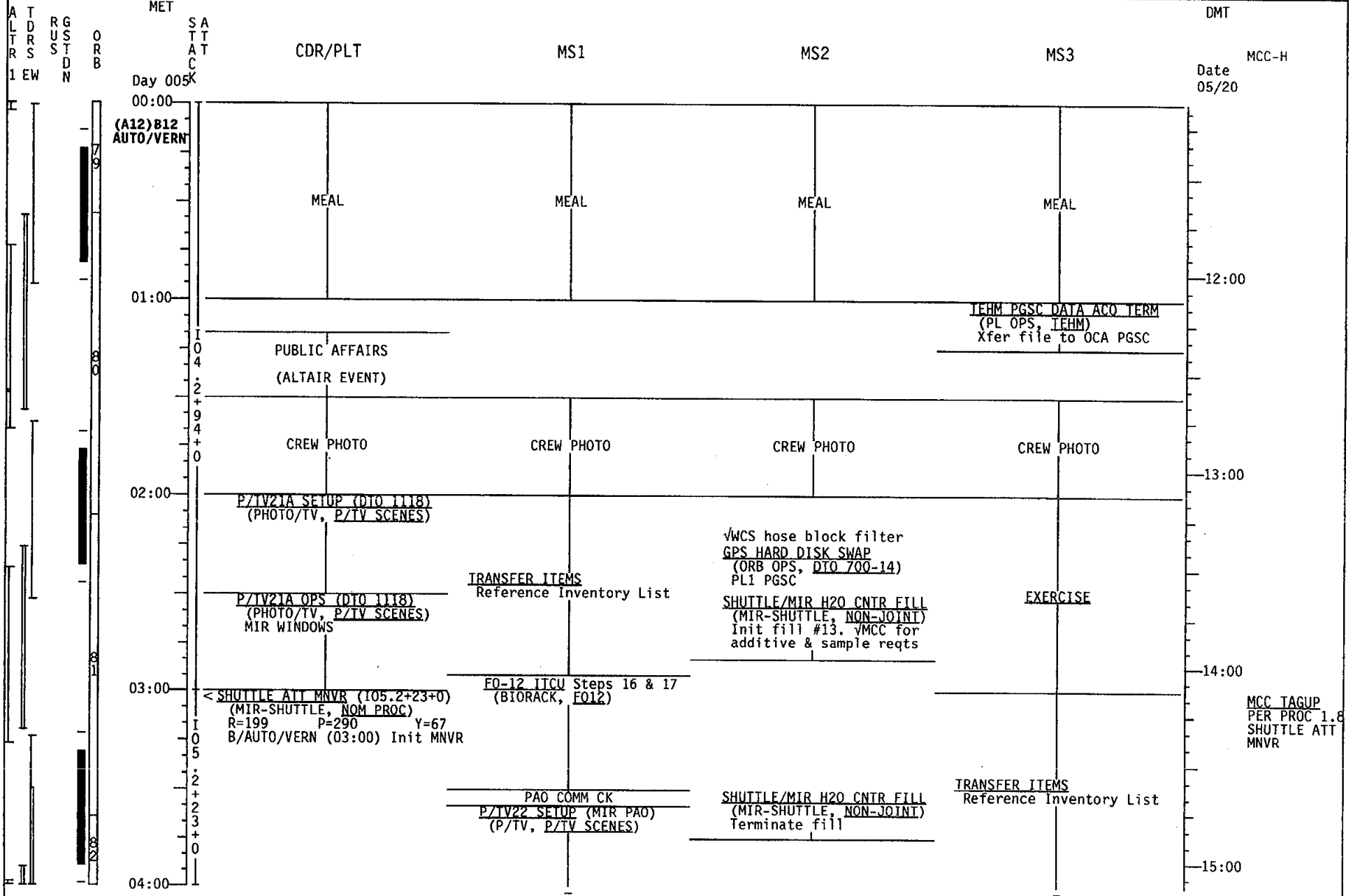
STS-84 (FD06)



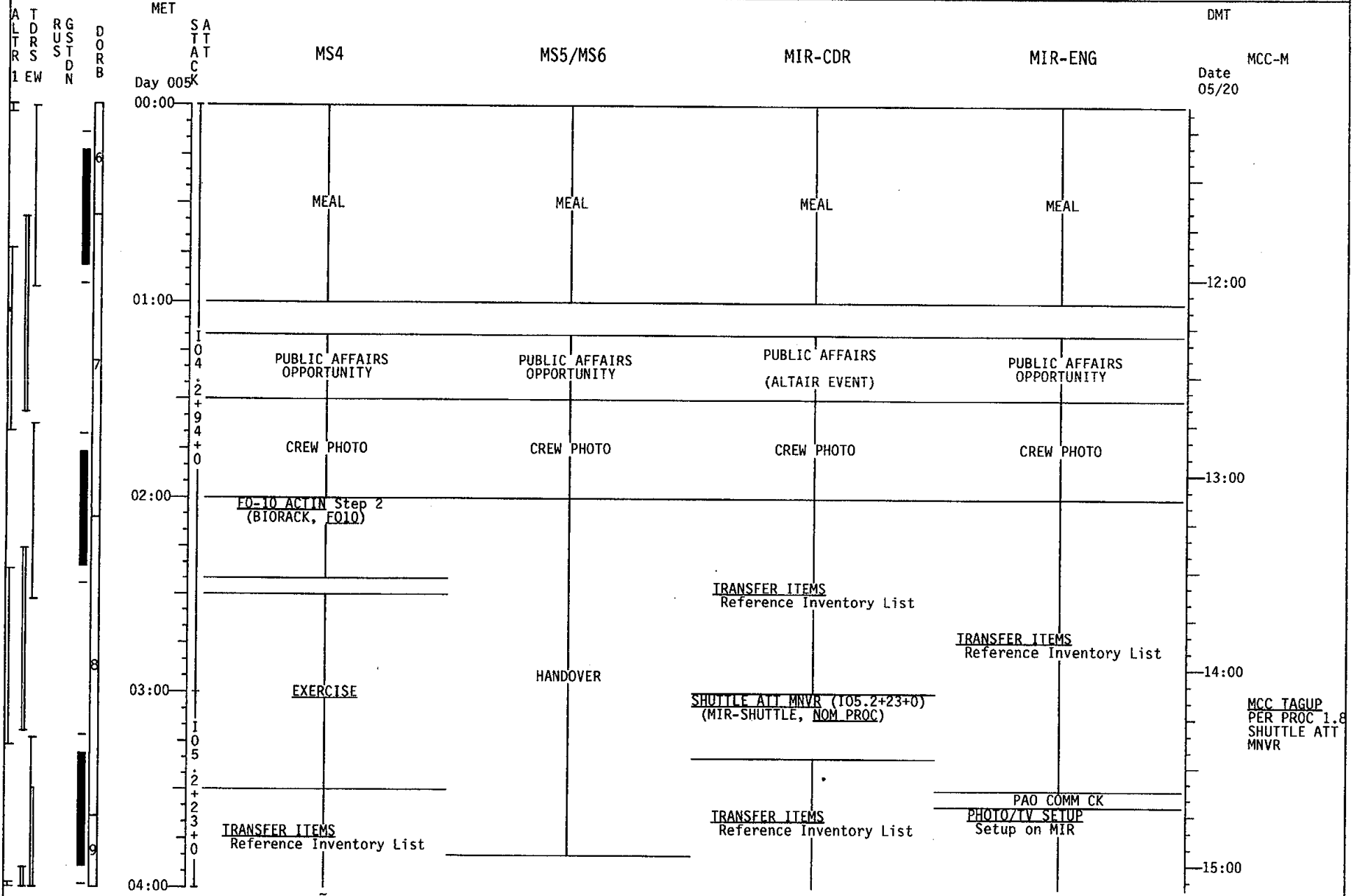
STS-84 (FD06)



STS-84 (FD06)



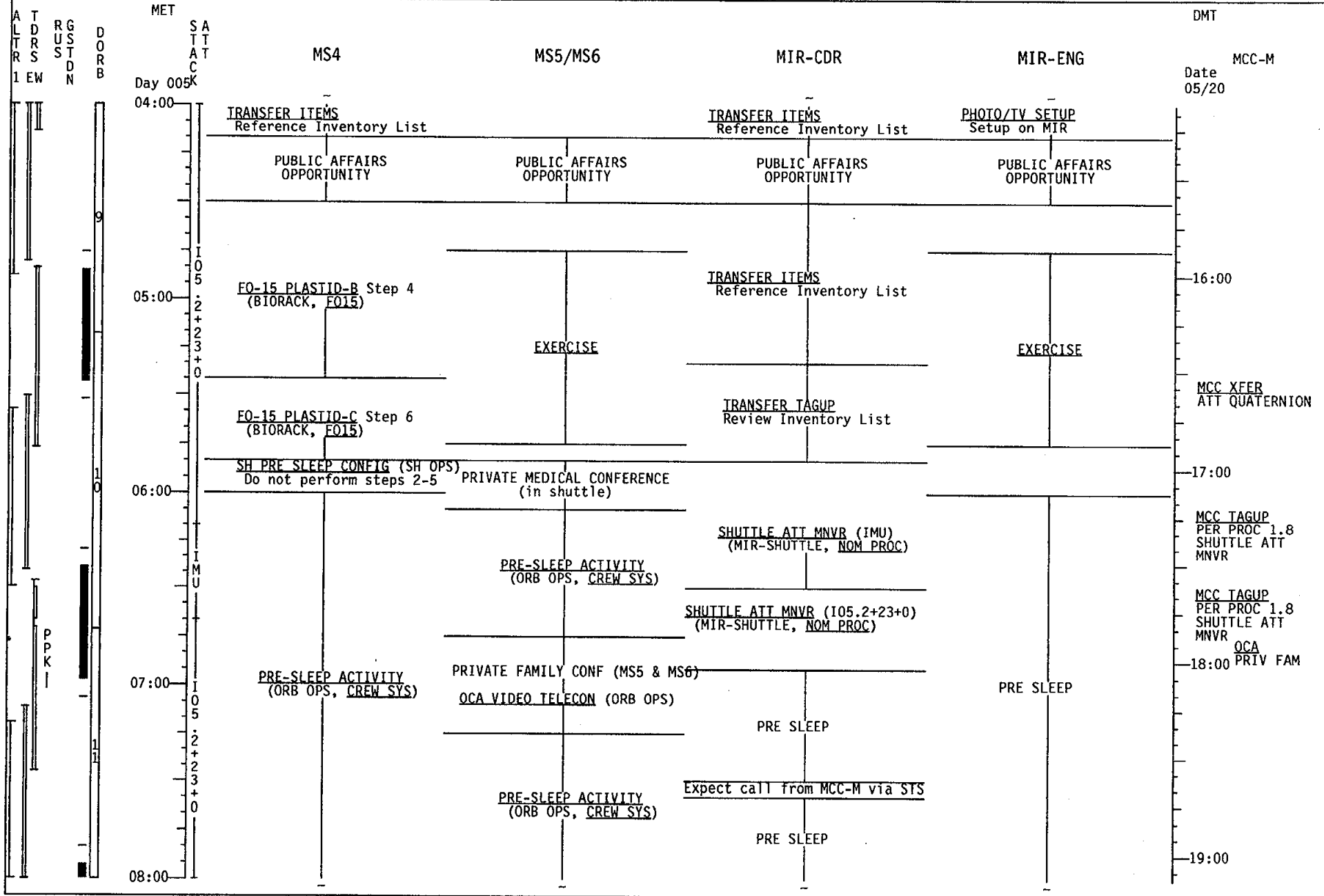
STS-84 (FD06)



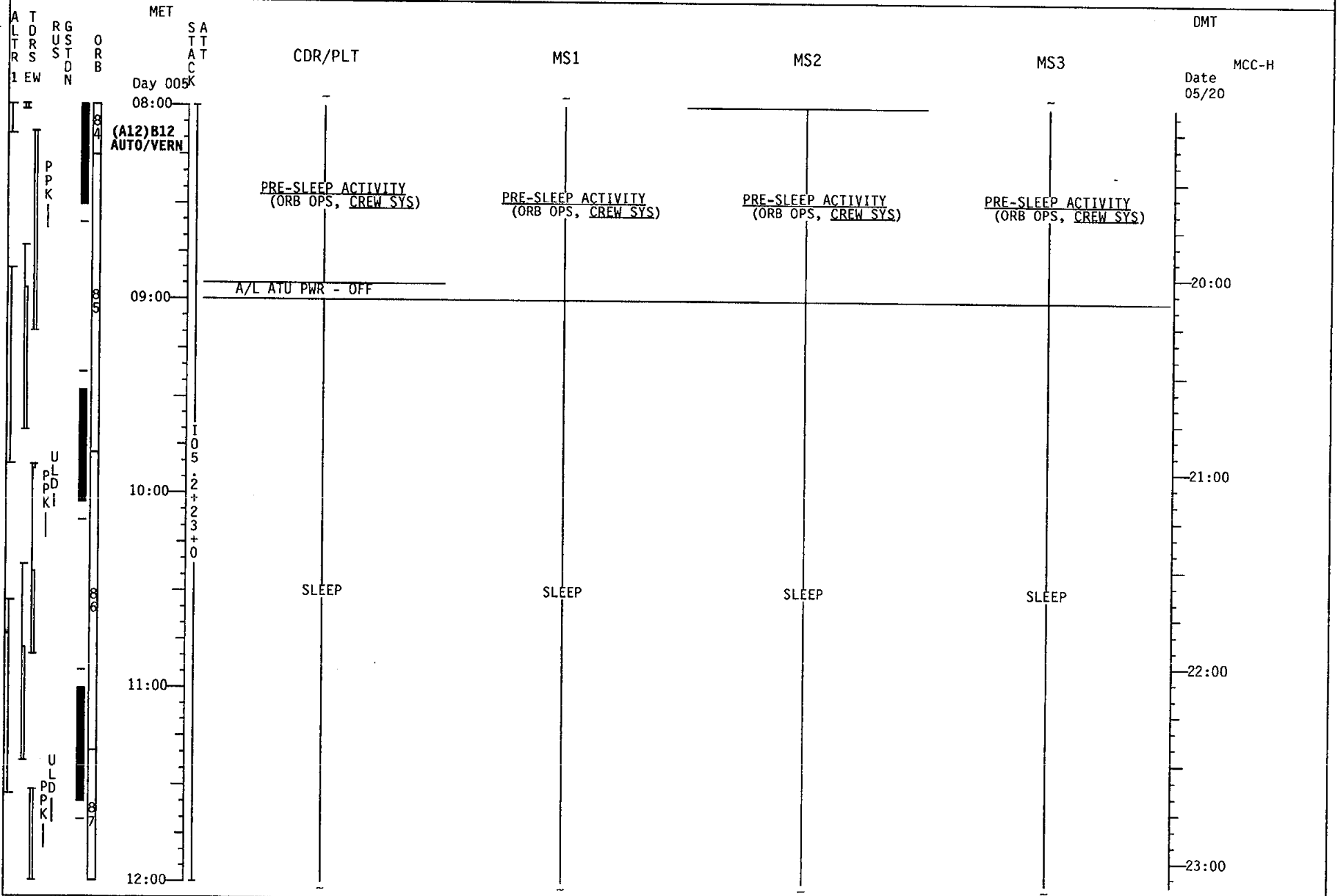
STS-84 (FD06)

A L T R S 1 EW	R G U S T D N	O R B	MET Day 005K 04:00	CDR/PLT	MS1	MS2	MS3	DMT Date 05/20	MCC-H
					P/TV22 SETUP (MIR PAO) (P/TV, P/TV SCENES)		TRANSFER ITEMS Reference Inventory List		
				PUBLIC AFFAIRS OPPORTUNITY KU avail 04:10 - 04:30	PUBLIC AFFAIRS OPPORTUNITY	PUBLIC AFFAIRS OPPORTUNITY	PUBLIC AFFAIRS OPPORTUNITY		IV (TDRW) CREW CNTL- MIR
				VHF RADIO CONTACT FROM MIR Lowell, Mass school ORISE= 04:48 SET=04:58	TRANSFER ITEMS Reference Inventory List	TRANSFER ITEMS Reference Inventory List	OSVS NIGHT VIEWS (DTO 700-10) SS or MCC GO: FWD BHD LTS - ON MIDDECK MONITOR CUE CARD	16:00	
					SH DAILY BRIEFING STATUS CHECK (SH EXP HB, MOD STAT CK)				
				TRANSFER TAGUP Review Inventory List	TRANSFER TAGUP Review Inventory List	ATTITUDE RE-INIT (ORB OPS, DTO 700-12)	TRANSFER TAGUP Review Inventory List		
				PRIVATE MEDICAL CONFERENCE		SR or MCC GO: FWD BHD LTS-OFF			
				OCA VIDEO TELECON (ORB OPS)		ON-ORB DATA COL INIT #4 (ORB OPS, DTO 700-12)		17:00	OCA PRIV MED
				< SHUTTLE ATTITUDE MNVR (IMU) (MIR-SHUTTLE, NOM PROC) R=324 P=166 Y=69 -Y STAR: 70 -Z STAR: 94 B/AUTO/VERN (06:15) Init MNVR IMU ALIGN - S TRK (ORB OPS)			OSVS NIGHT VIEWS (DTO 700-10) SS or MCC GO: FWD BHD LTS - ON		MCC TAGUP PER PROC 1.8 SHUTTLE ATT MNVR
				< SHUTTLE ATT MNVR (I05.2+23+0) (MIR-SHUTTLE, NOM PROC) R=199 P=290 Y=67 B/AUTO/VERN (06:35) Init MNVR					MCC TAGUP PER PROC 1.8 SHUTTLE ATT MNVR
				LOAD FUTURE MNVR (I03.2+133+0) R=134 P=167 Y=319 B/AUTO/VERN (5/14:00) Init MNVR	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	SR or MCC GO: FWD BHD LTS-OFF	18:00	
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)					
				A/G RELAY ENABLED			PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		INFORM MCC-M GO FOR A/G RELAY
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		OCA DOWNLINK (ORB OPS, OCA)		19:00	OCA XFER Crew Mail TEHM

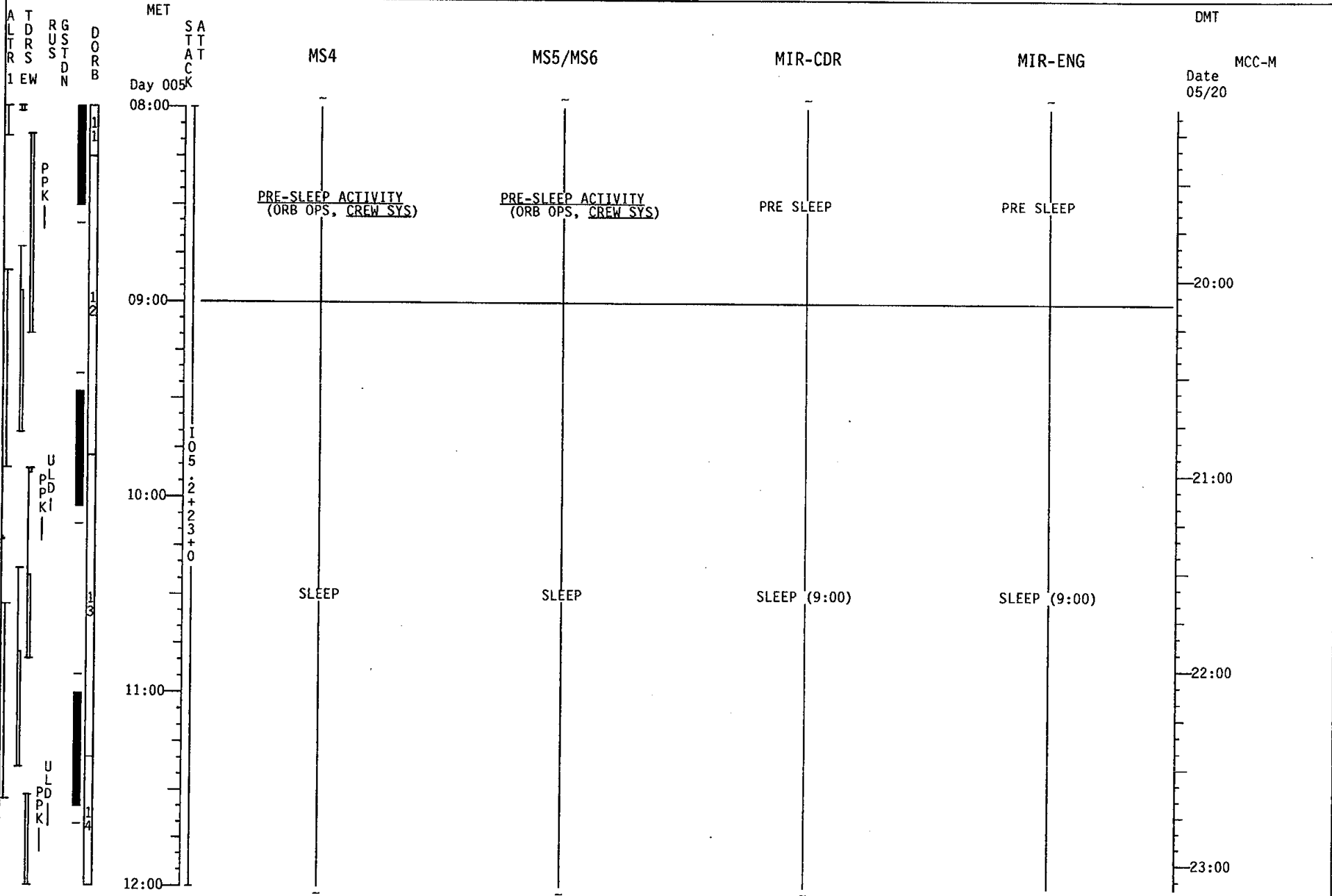
STS-84 (FD06)



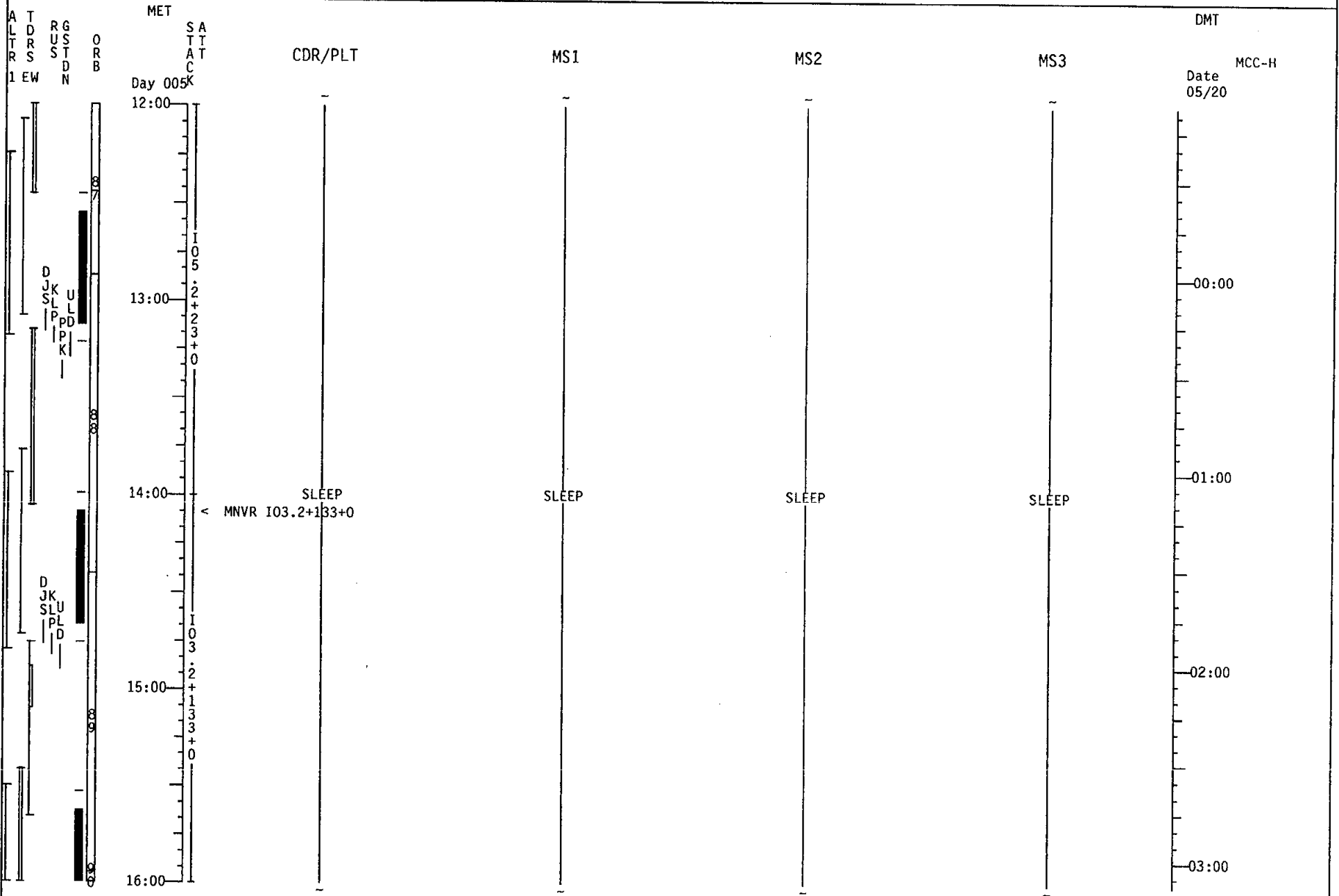
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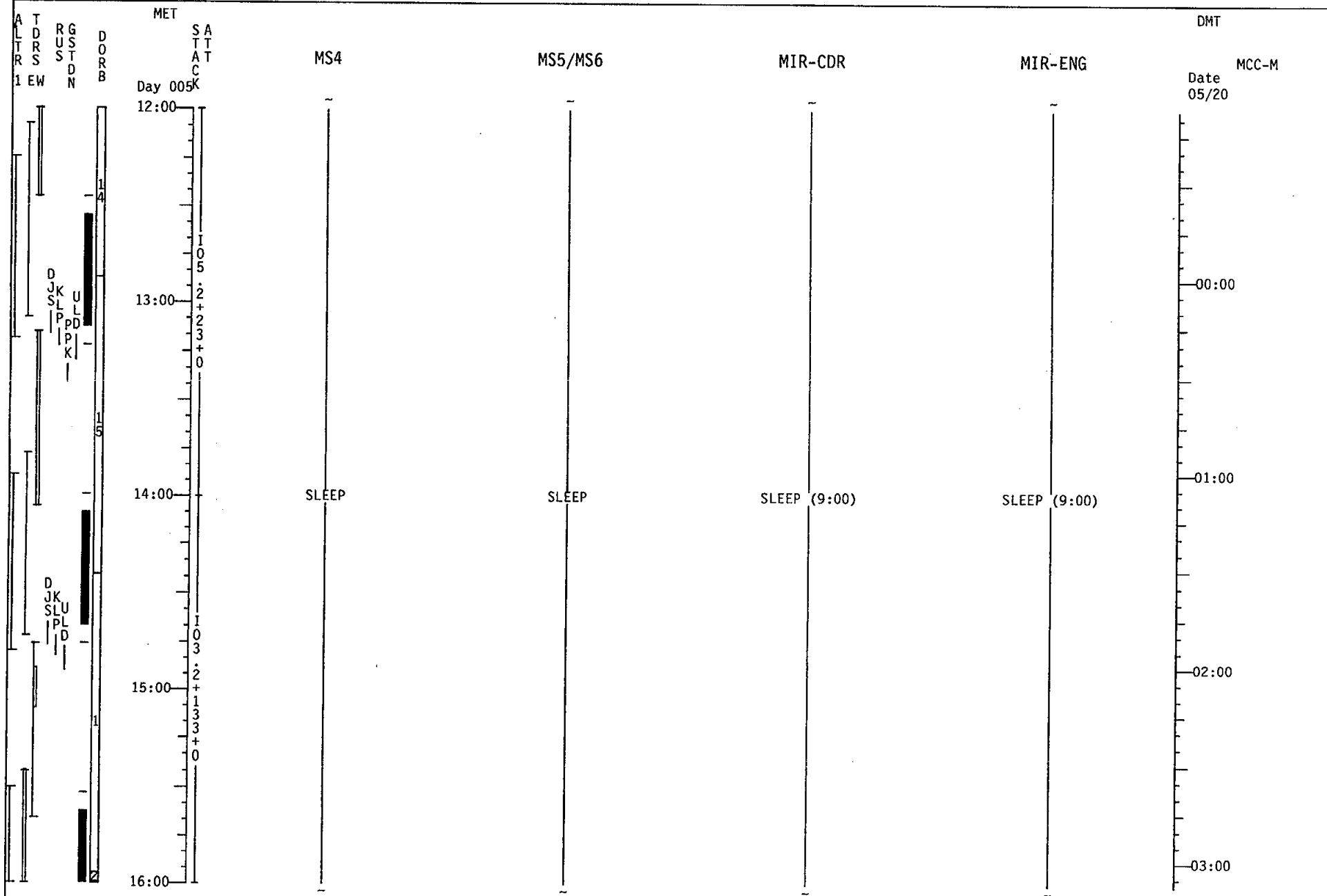
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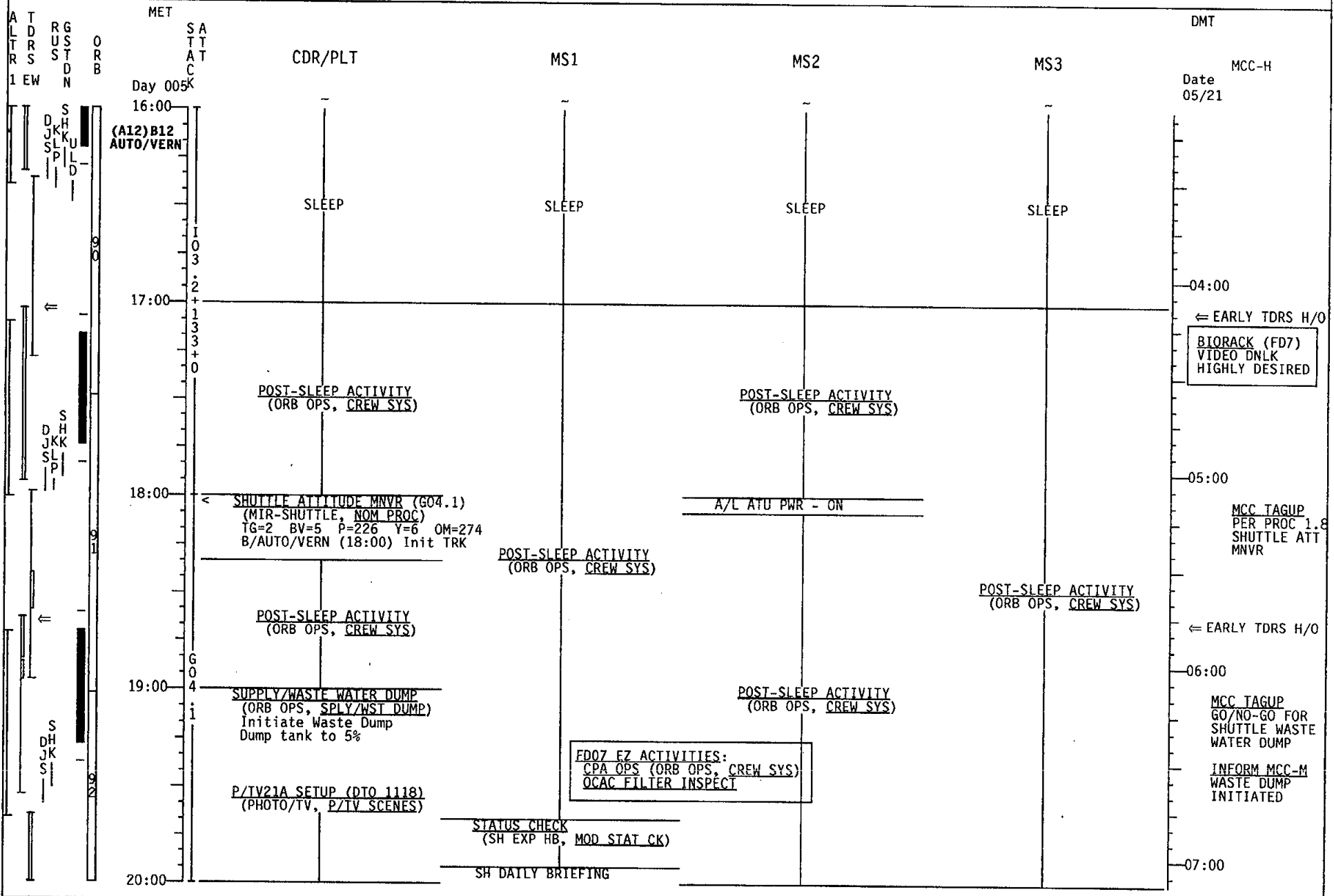
STS-84 (FD06)



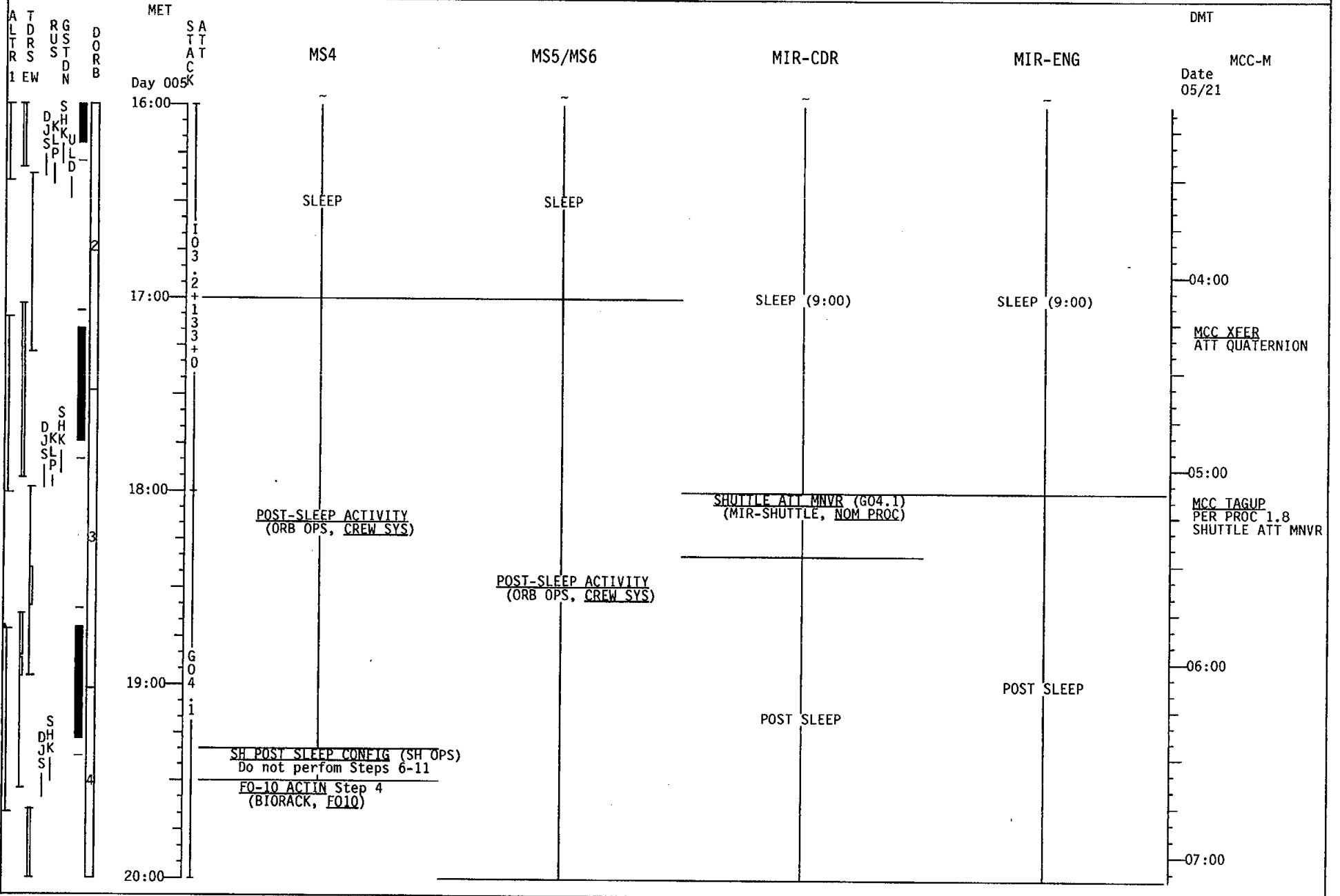
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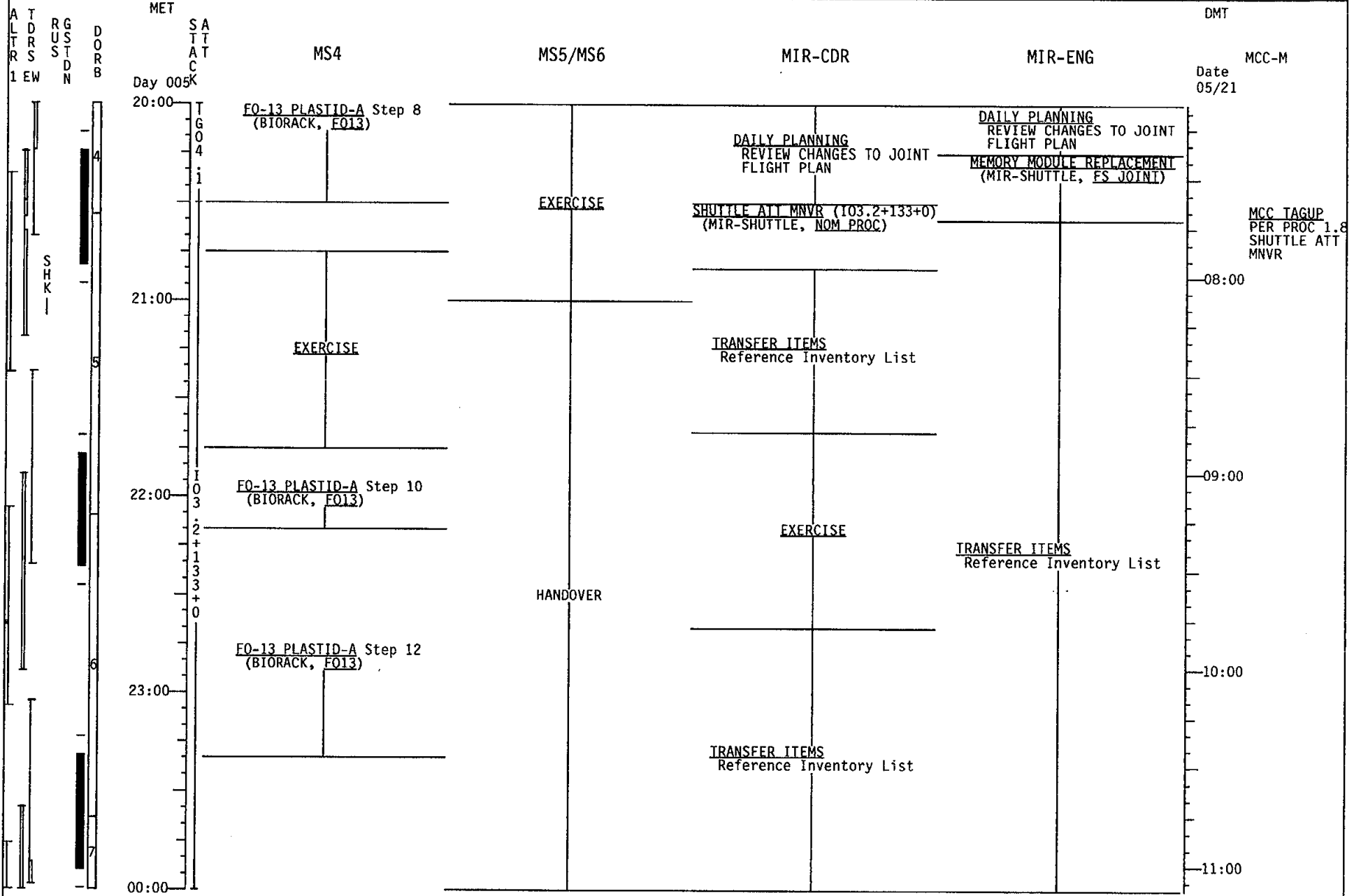
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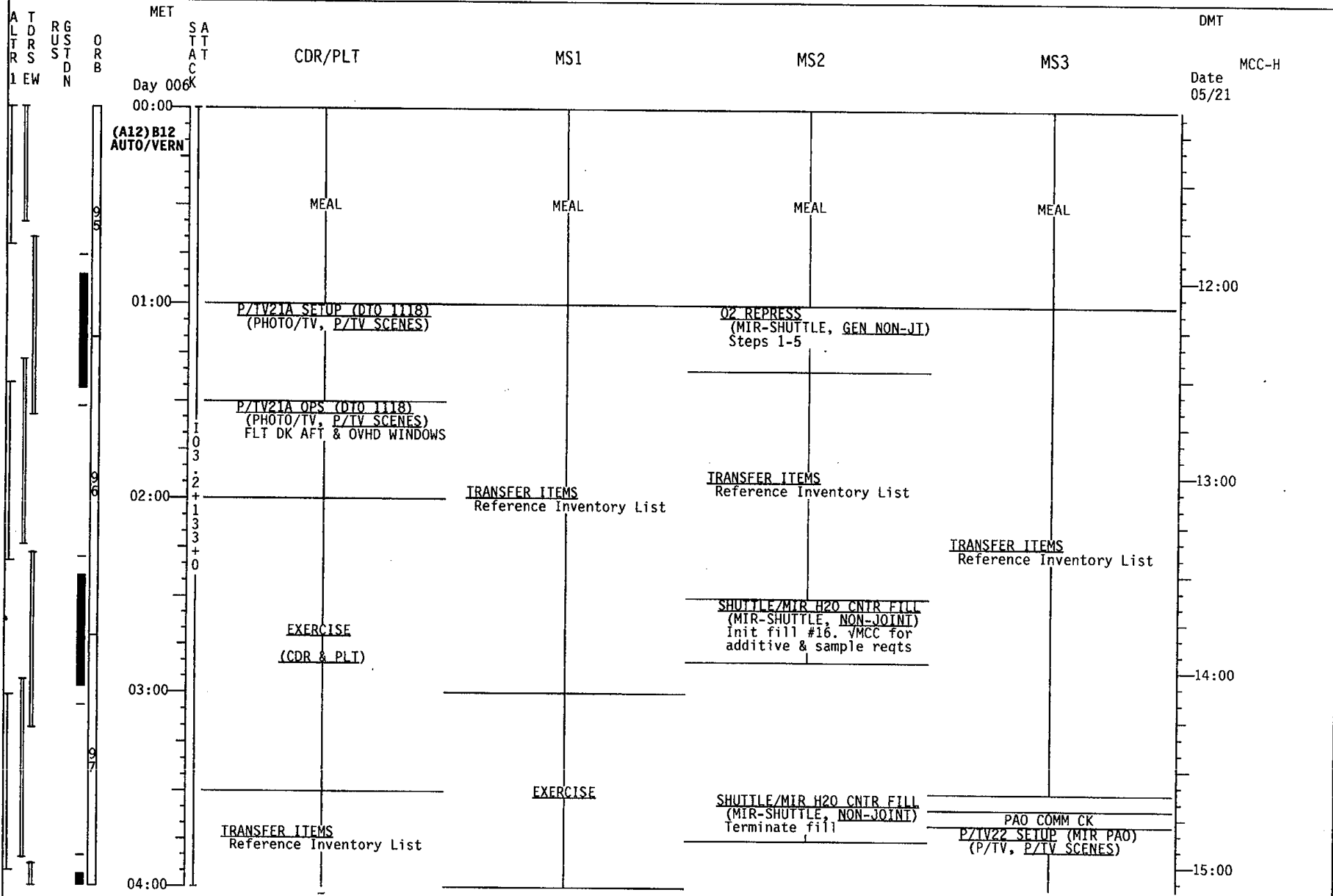
STS-84 (FD07)



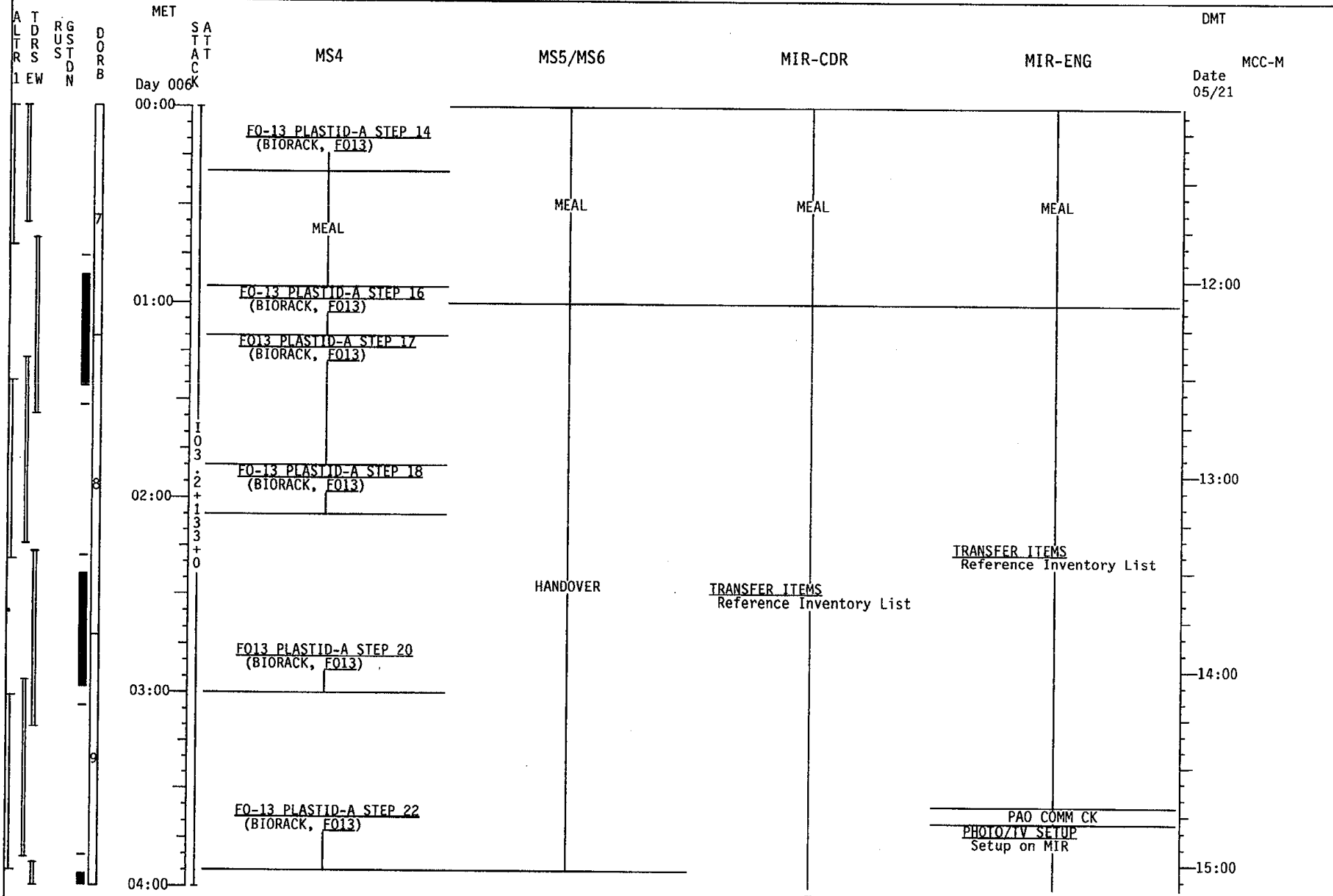
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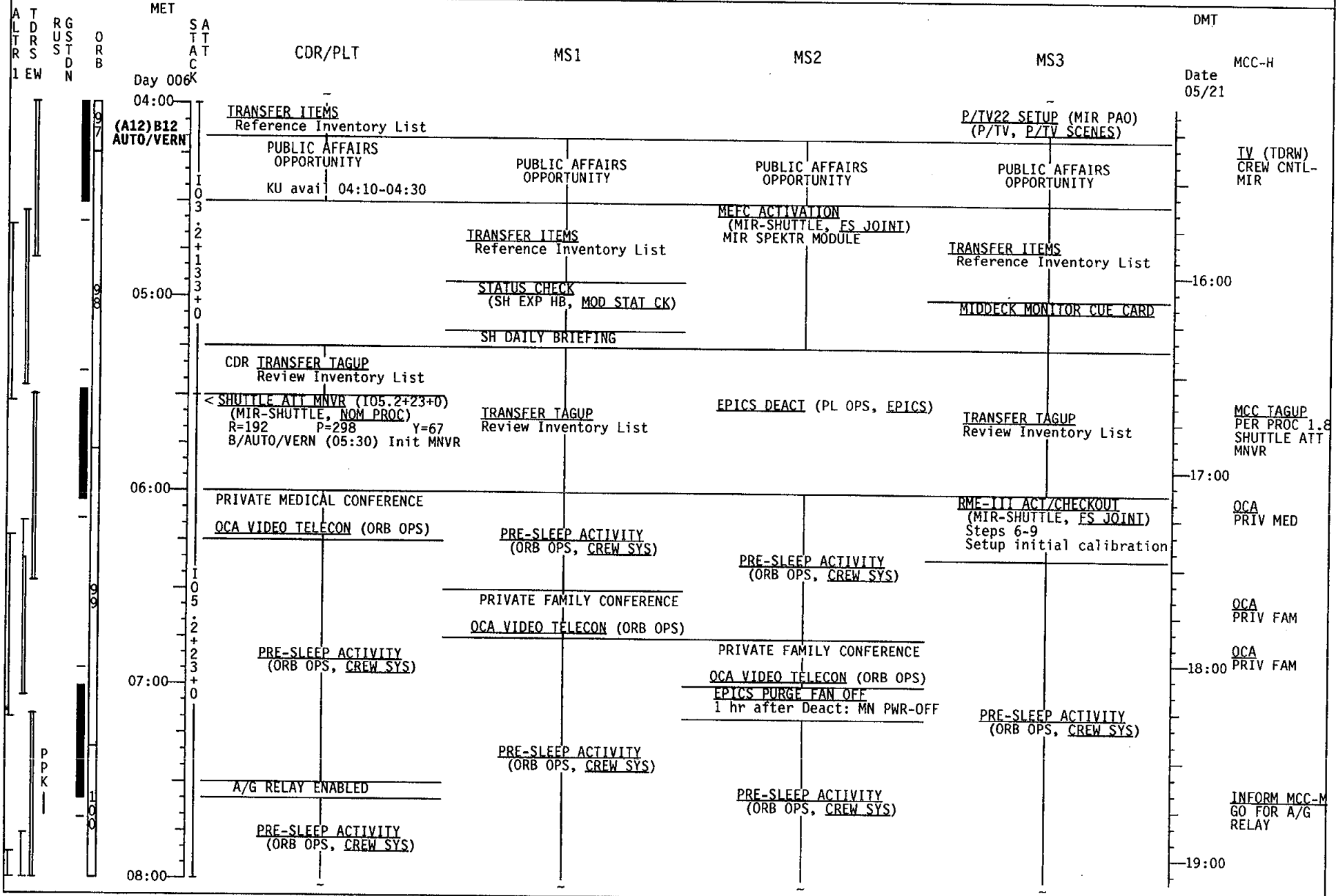
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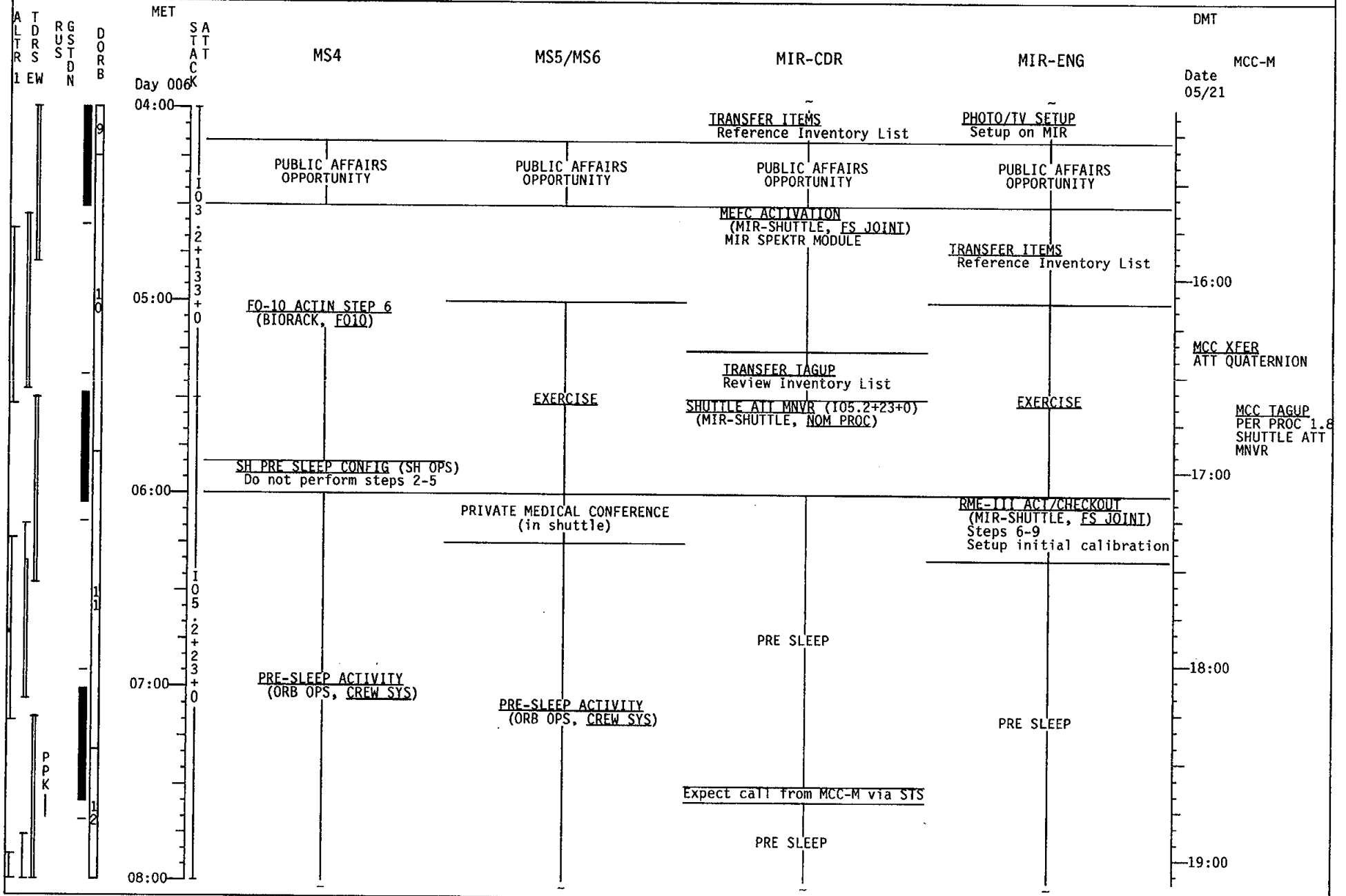
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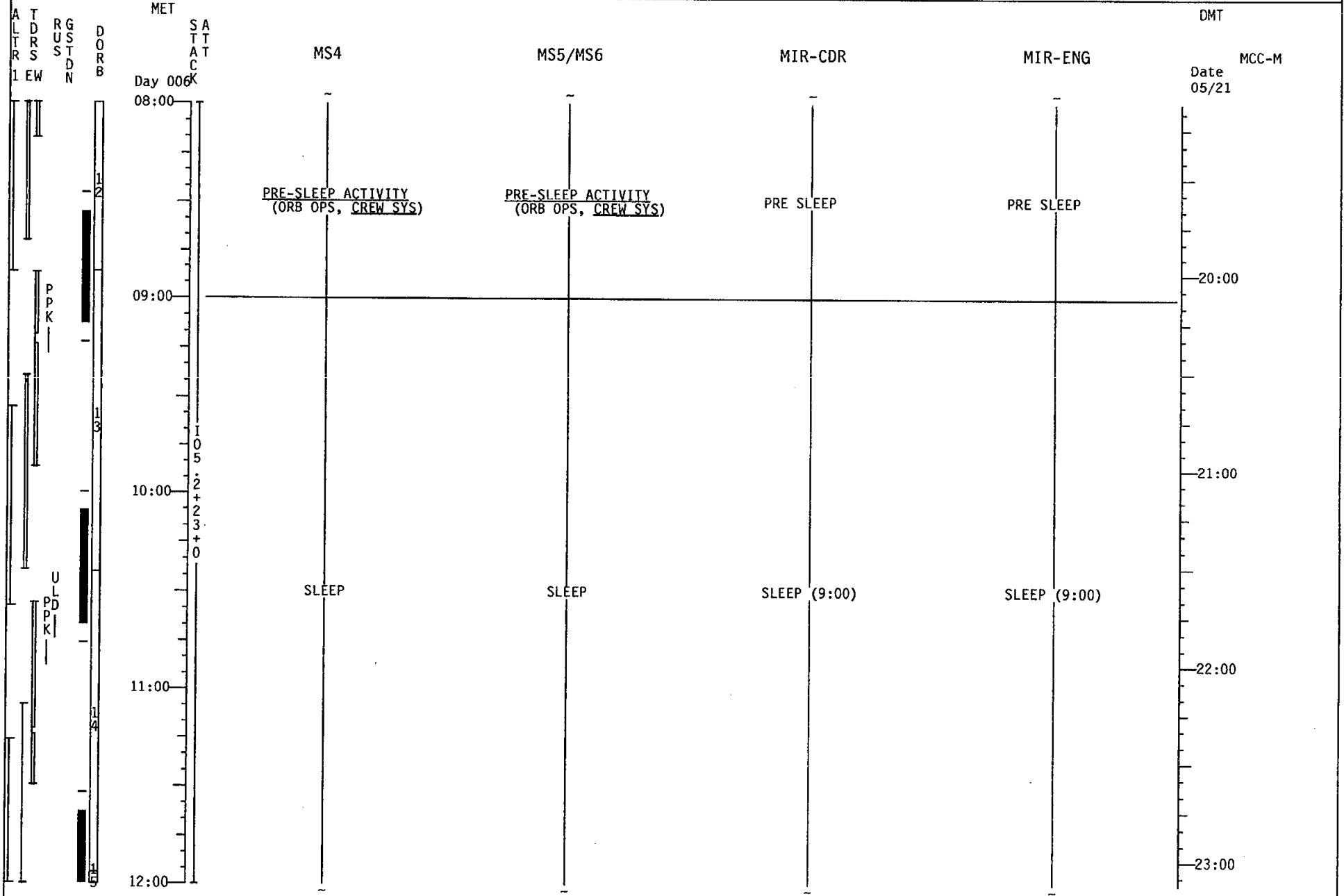
STS-84 (FD07)



STS-84 (FD07)



STS-84 (FD07)



ALTR
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Day 006K

08:00
09:00
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11:00
12:00

SAT
TAT
CCK

MS4

MS5/MS6

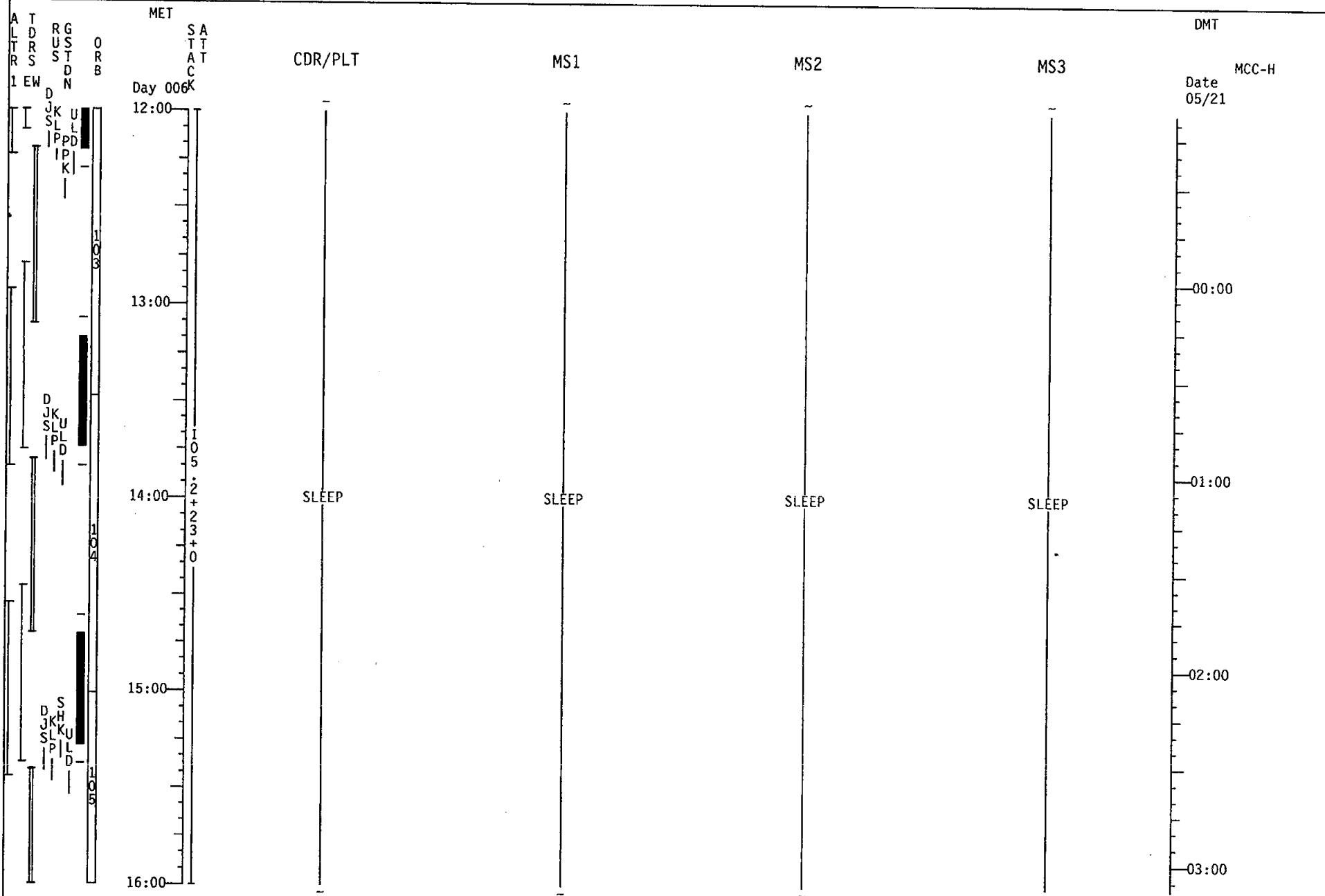
MIR-CDR

MIR-ENG

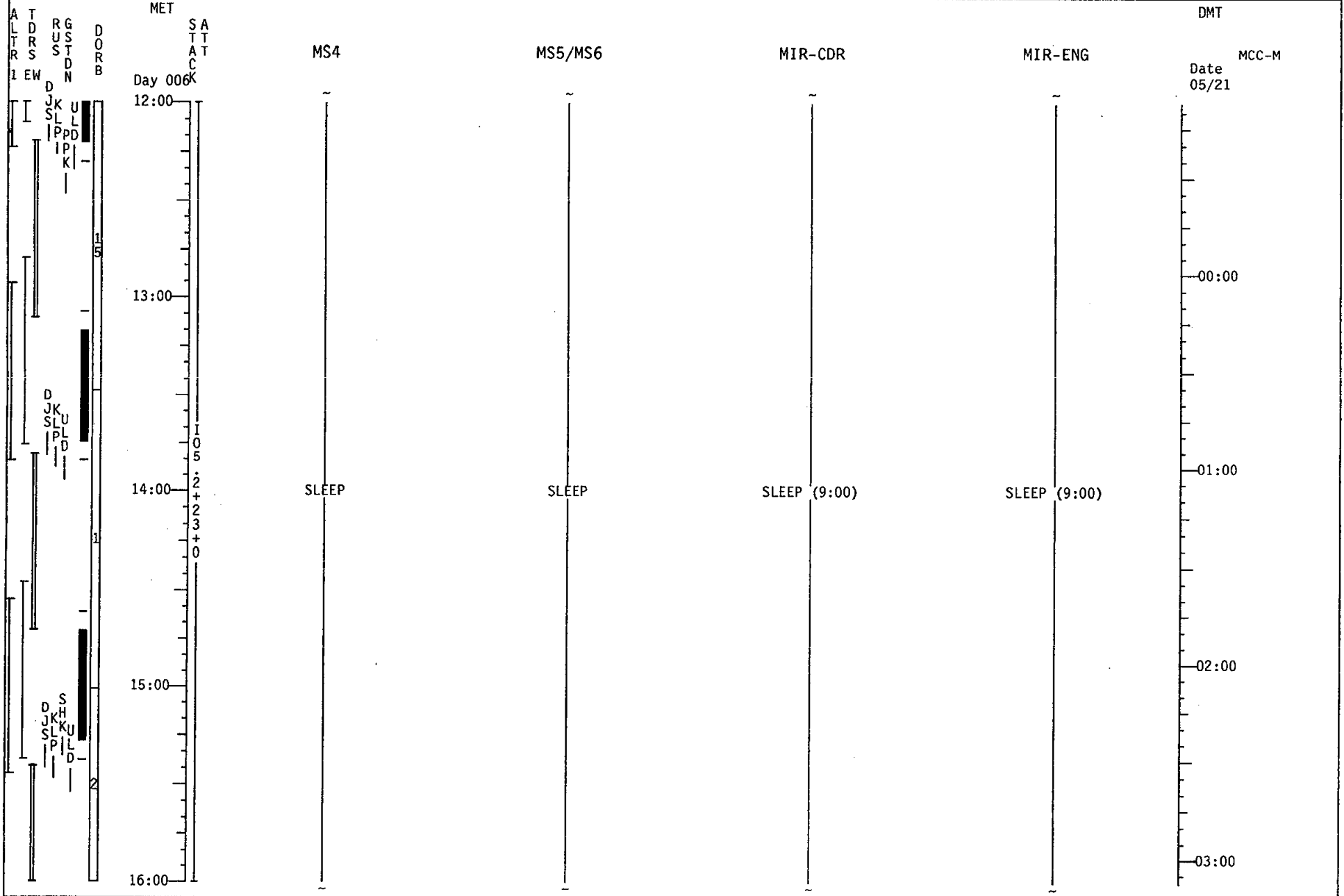
DMT
MCC-M
Date
05/21

20:00
21:00
22:00
23:00

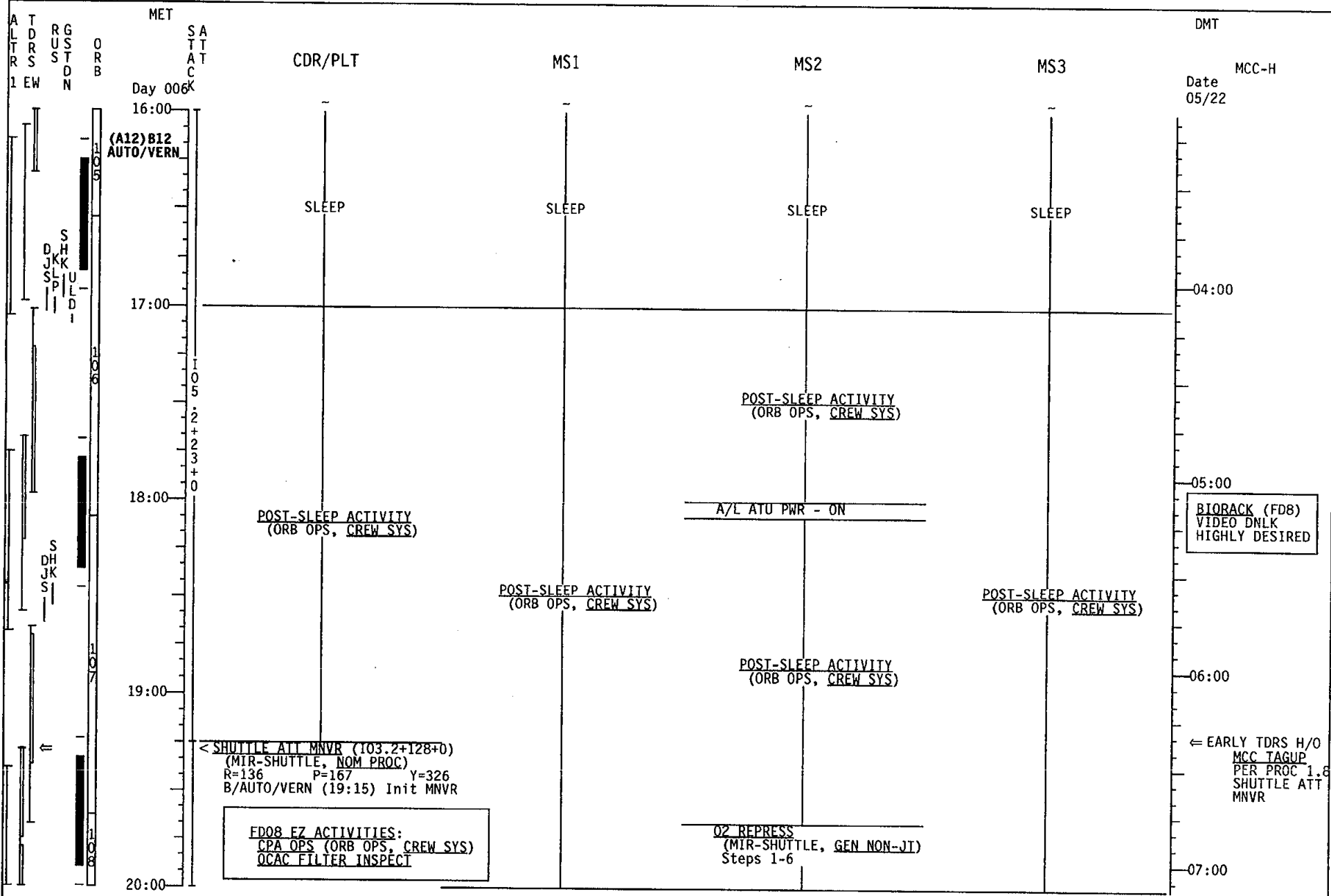
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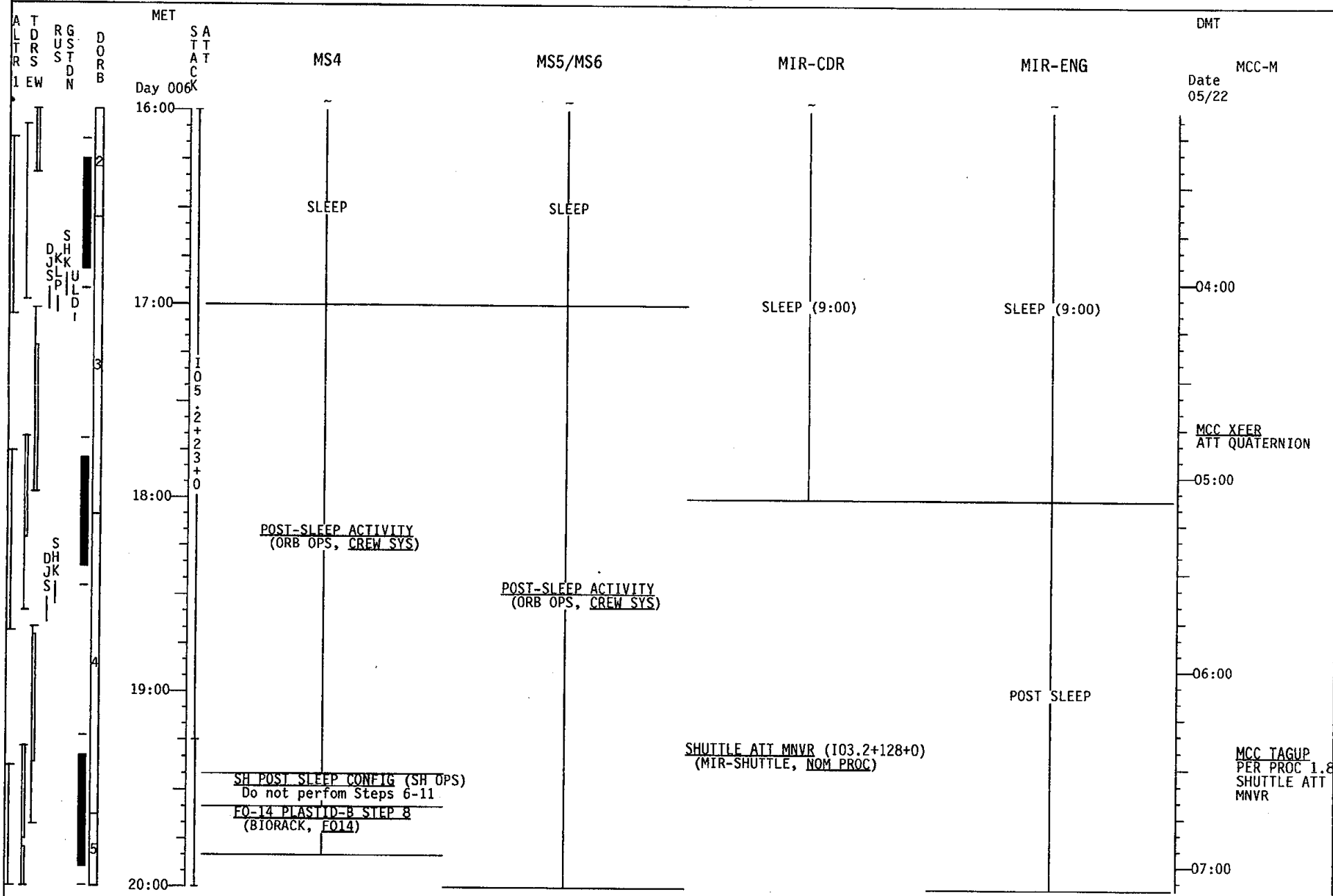
STS-84 (FD07)



STS-84 (FD08)



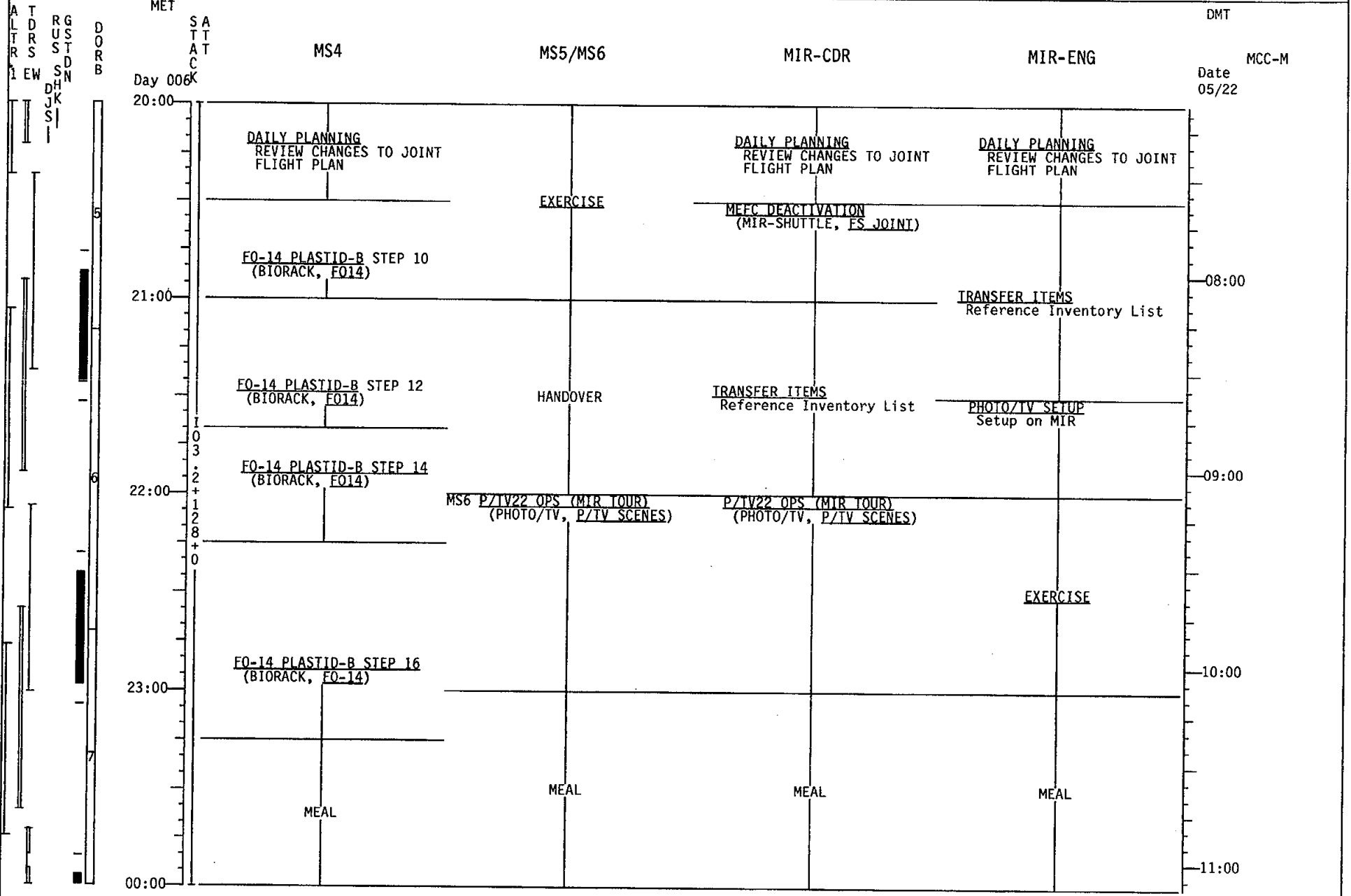
STS-84 (FD08)



STS-84 (FD08)

	MET Day 006 ^K	CDR/PLT	MS1	MS2	MS3	DMT Date 05/22
A T R S L T R S 1 EW R G U S T D S N D H J K S I O R B S A T T A T C S A T T A T C M C C - H Date 05/22	(A12)B12 AUTO/VERN 20:00 21:00 22:00 23:00 00:00	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN EXERCISE (CDR & PLT) P/TV22 SETUP (MIR PAO) (P/TV, P/TV SCENES) P/TV22 OPS (MIR TOUR) (PHOTO/TV, P/TV SCENES) KU avail 22:35 - 23:00 MEAL	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN SH DAILY BRIEFING TRANSFER ITEMS Reference Inventory List EXERCISE MEAL	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Init fill #17. VMCC for additive & sample reqts EXERCISE SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Terminate fill WCS COMPACTOR OPS (CUE CARD) Dual-Vane MEAL	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN MIDDECK MONITOR CUE CARD TRANSFER ITEMS Reference Inventory List FO-4 DOSIMETRY STEP 10 (BIORACK, FO4) MEAL	08:00 09:00 10:00 11:00 TV (TDRW) CREW CNTL- MIR ← EARLY TDRS H/O

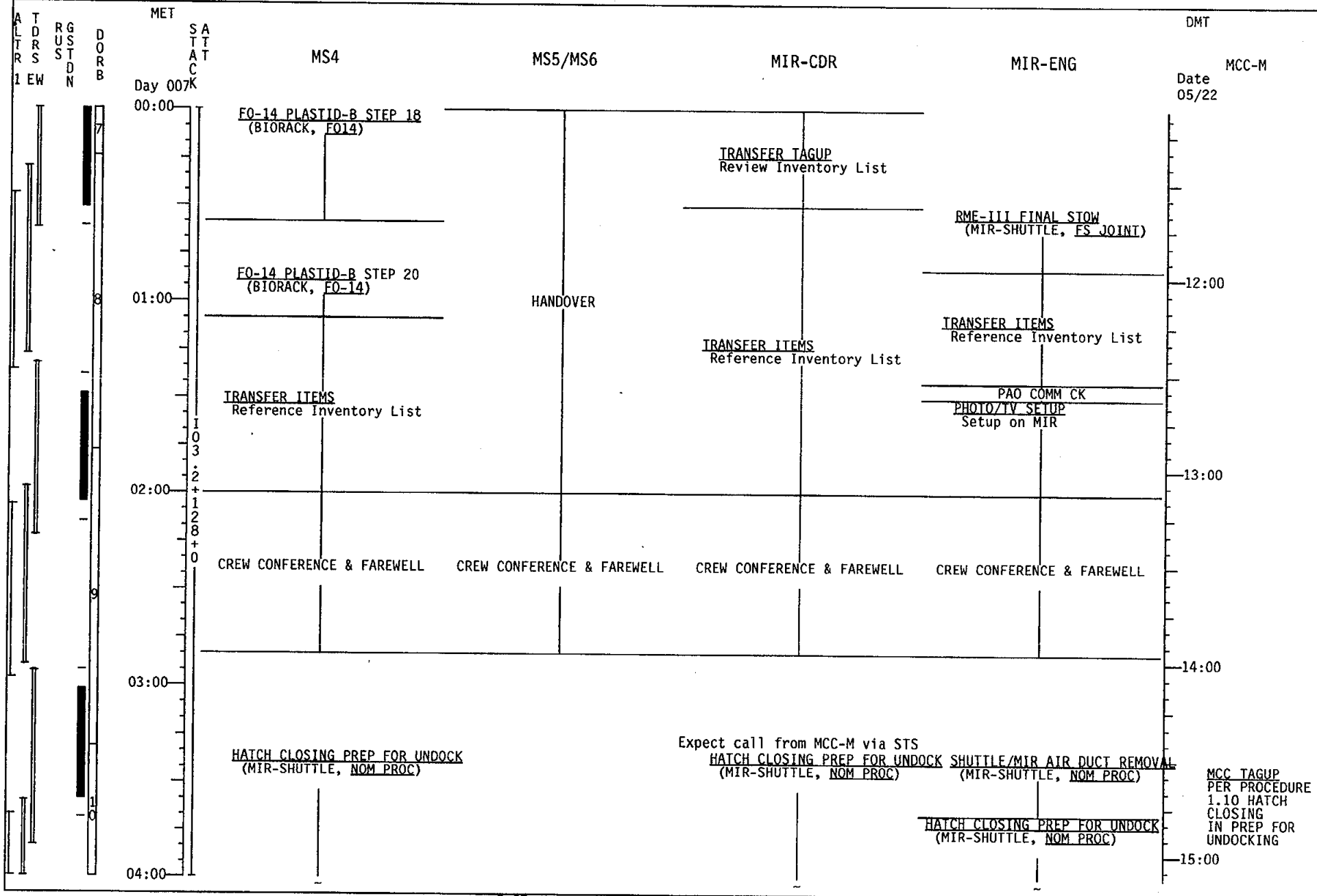
STS-84 (FD08)



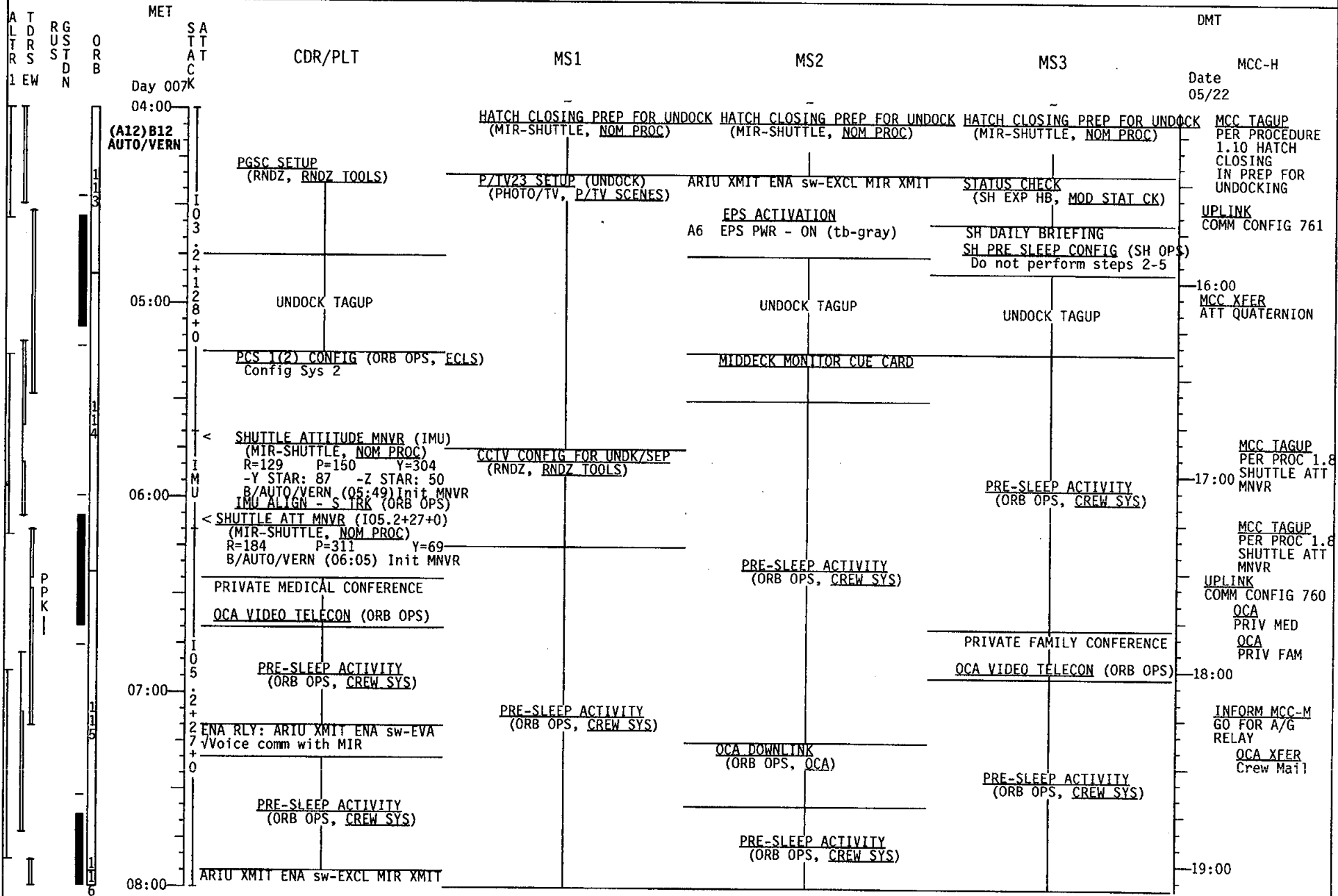
STS-84 (FD08)

	CDR/PLT	MS1	MS2	MS3	MCC-H
MET Day 007K (A12) B12 AUTO/VERN 00:00 01:00 02:00 03:00 04:00	CDR T/M HARDMOUNTED ASSEMBLY (BIOMED, TREADMILL) Do not connect DC pwr cable until final EPICS run terminated TRANSFER TAGUP Review Inventory List TRANSFER ITEMS Reference Inventory List TRANSFER ITEMS Reference Inventory List CREW CONFERENCE & FAREWELL KU AVAIL TDRE (02:00 - 02:50) √VHF RADIO PWR-ON ENA RLY: ARIU XMIT ENA sw-EVA √Voice comm with MIR C/L CAMR XHAIR & LT INSTL Install c/l camr xhairs Install c/l camr lights C/L CAMR MOUNT/ALIGN Mount C/L Camr to ODS. Verify ODS Camr function Ref: ODS C/L CAMR ALIGN VER (PHOTO/TV, REF DATA) √Camr view on AF0 mon	TRANSFER TAGUP Review Inventory List TRANSFER ITEMS Reference Inventory List CREW CONFERENCE & FAREWELL	T/M HARDMOUNTED ASSEMBLY (BIOMED, TREADMILL) Do not connect DC pwr cable until final EPICS run terminated TRANSFER ITEMS Reference Inventory List PAO COMM CK P/TV22 SETUP (MIR PAO) (P/TV, P/TV SCENES) HATCH CLOSING PREP FOR UNDOCK SHUTTLE/MIR AIR DUCT REMOVAL (MIR-SHUTTLE, NOM PROC) 1.10.1 MIR HATCH CLOSE (M) 1.10.2 ODS HATCH CLOSE (S&M) 1.10.3 VESTIBULE DEPRESS & HATCH LEAK CK (S&M) HATCH CLOSING PREP FOR UNDOCK (MIR-SHUTTLE, NOM PROC)	TRANSFER TAGUP Review Inventory List RME-III FINAL SLOW (MIR-SHUTTLE, ES JOINT) TRANSFER ITEMS Reference Inventory List CREW CONFERENCE & FAREWELL HATCH CLOSING PREP FOR UNDOCK (MIR-SHUTTLE, NOM PROC) 1.10.1 MIR HATCH CLOSE (M) 1.10.2 ODS HATCH CLOSE (S&M) 1.10.3 VESTIBULE DEPRESS & HATCH LEAK CK (S&M)	Date 05/22 ← EARLY TDRS H/O INFORM MCC-M GO FOR A/G RELAY MCC TAGUP PER PROCEDURE 1.10 HATCH CLOSING IN PREP FOR UNDOCKING

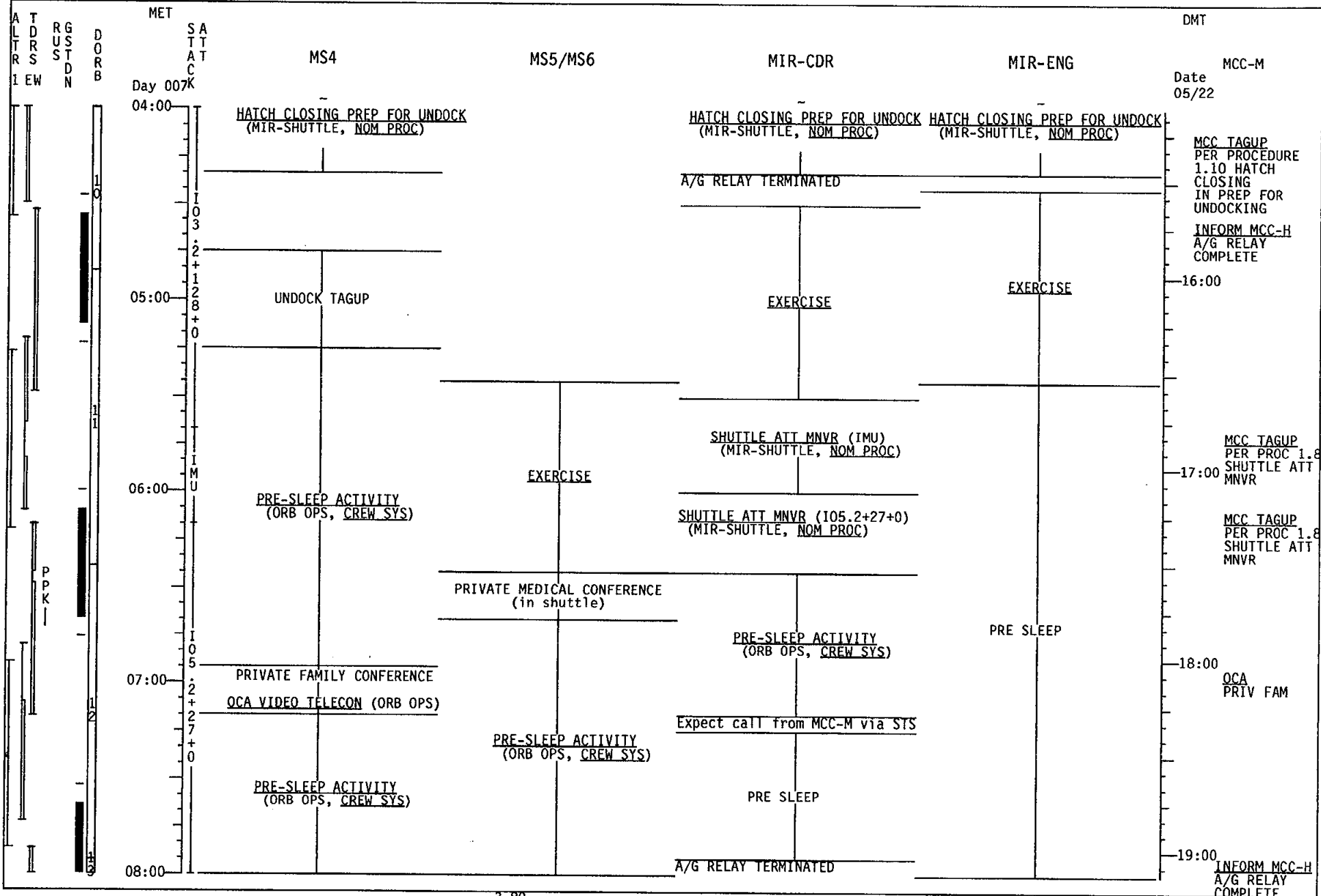
STS-84 (FD08)



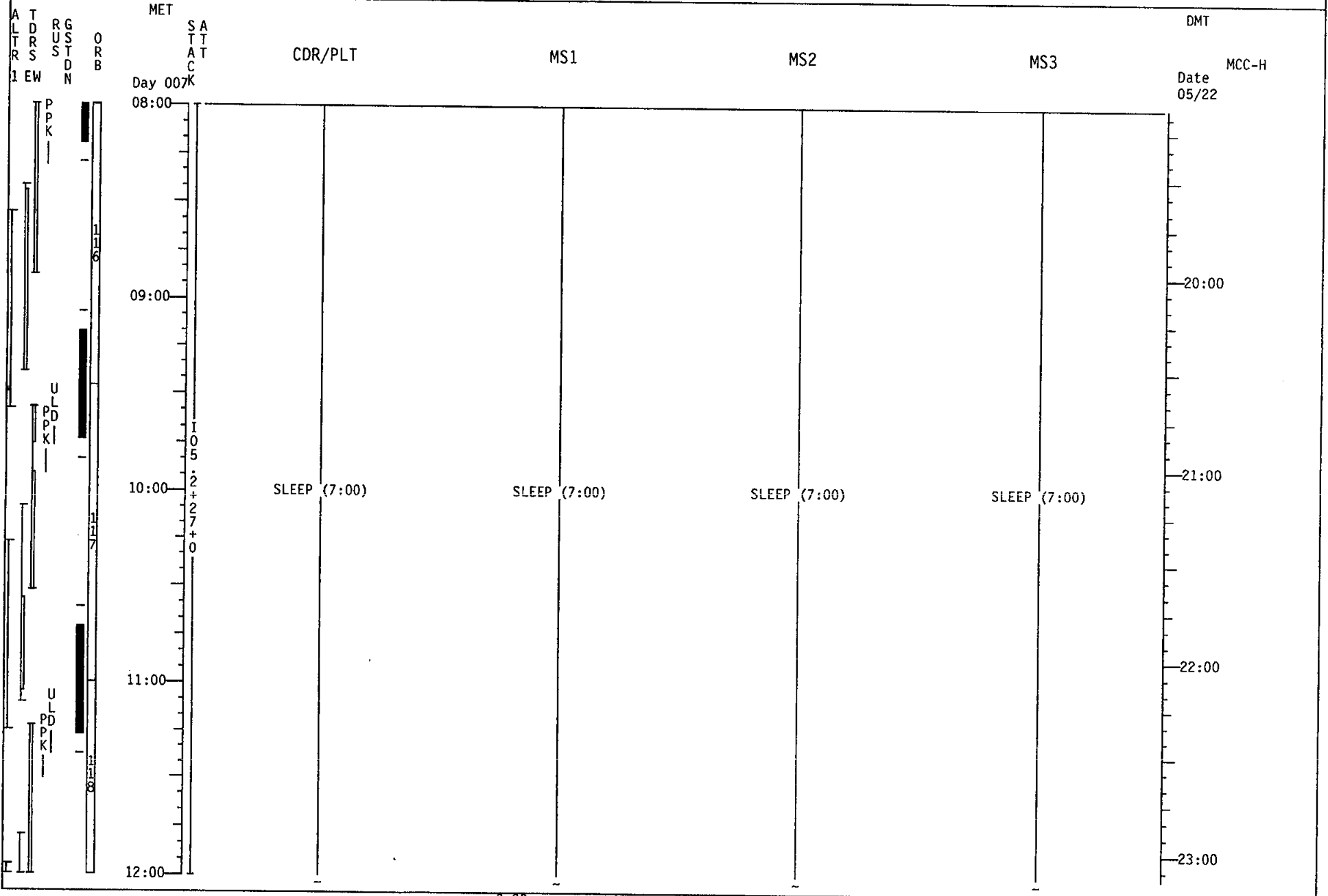
STS-84 (FD08)



STS-84 (FD08)



STS-84 (FD08)



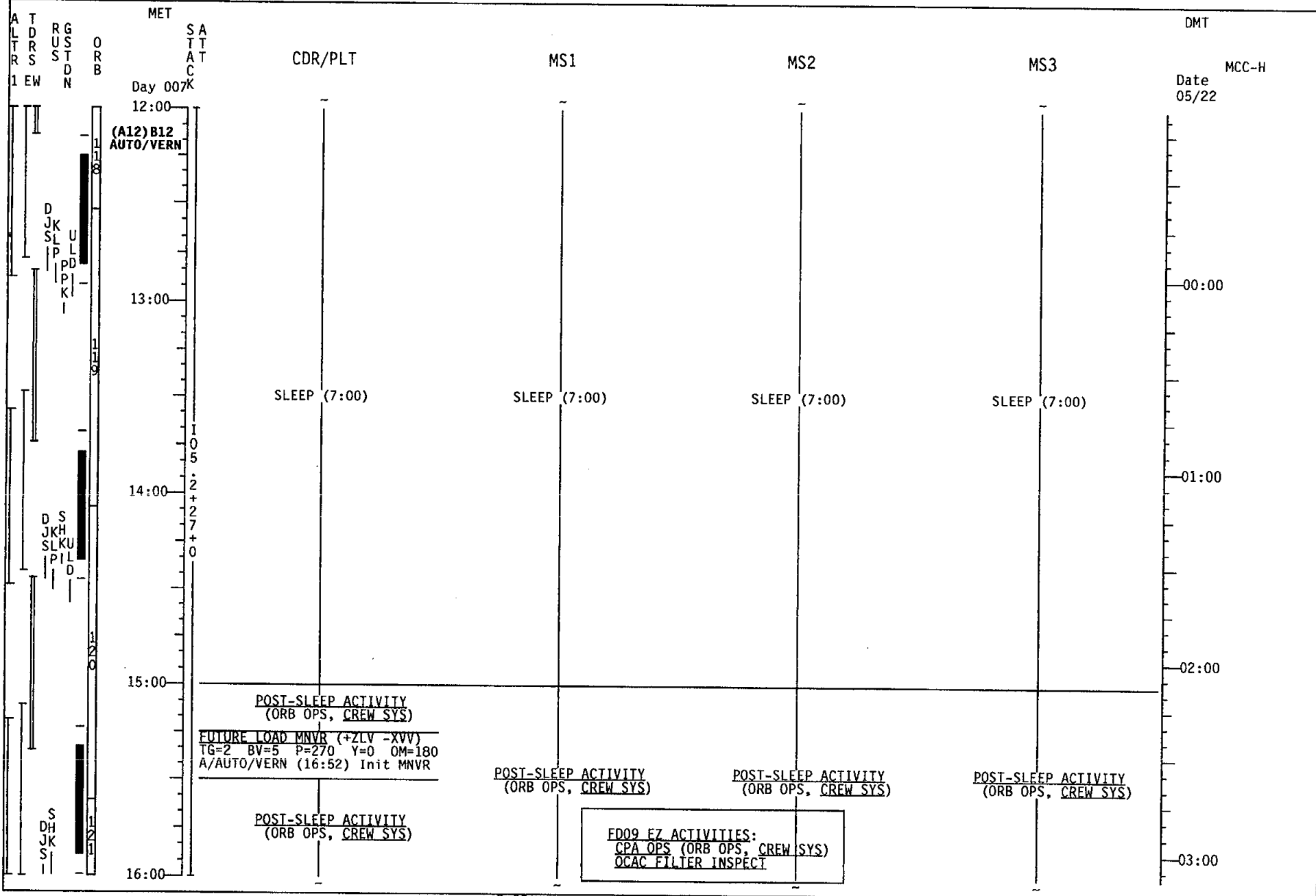
MET
Day 007K

08:00
09:00
10:00
11:00
12:00

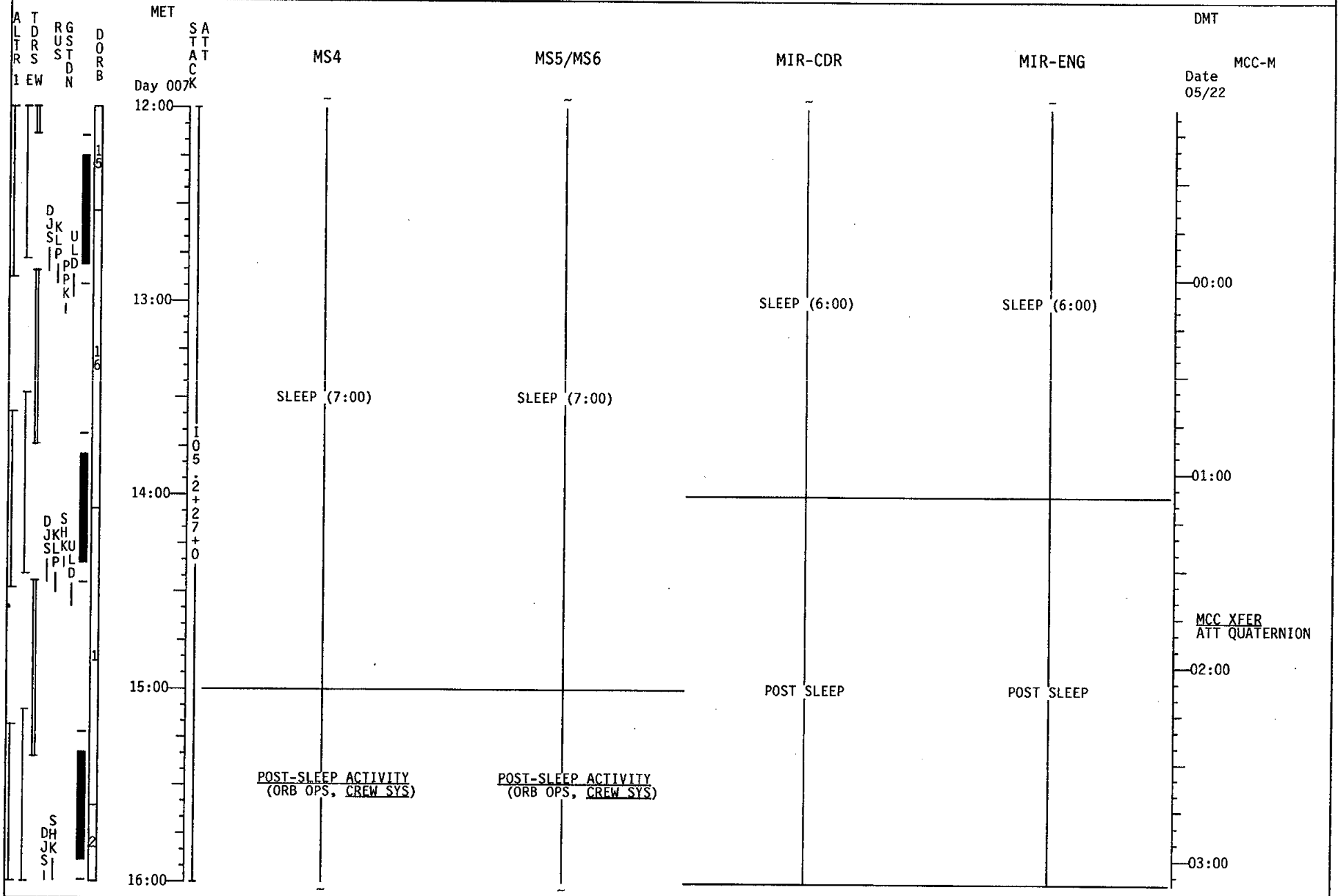
DMT
MCC-H
Date 05/22

20:00
21:00
22:00
23:00

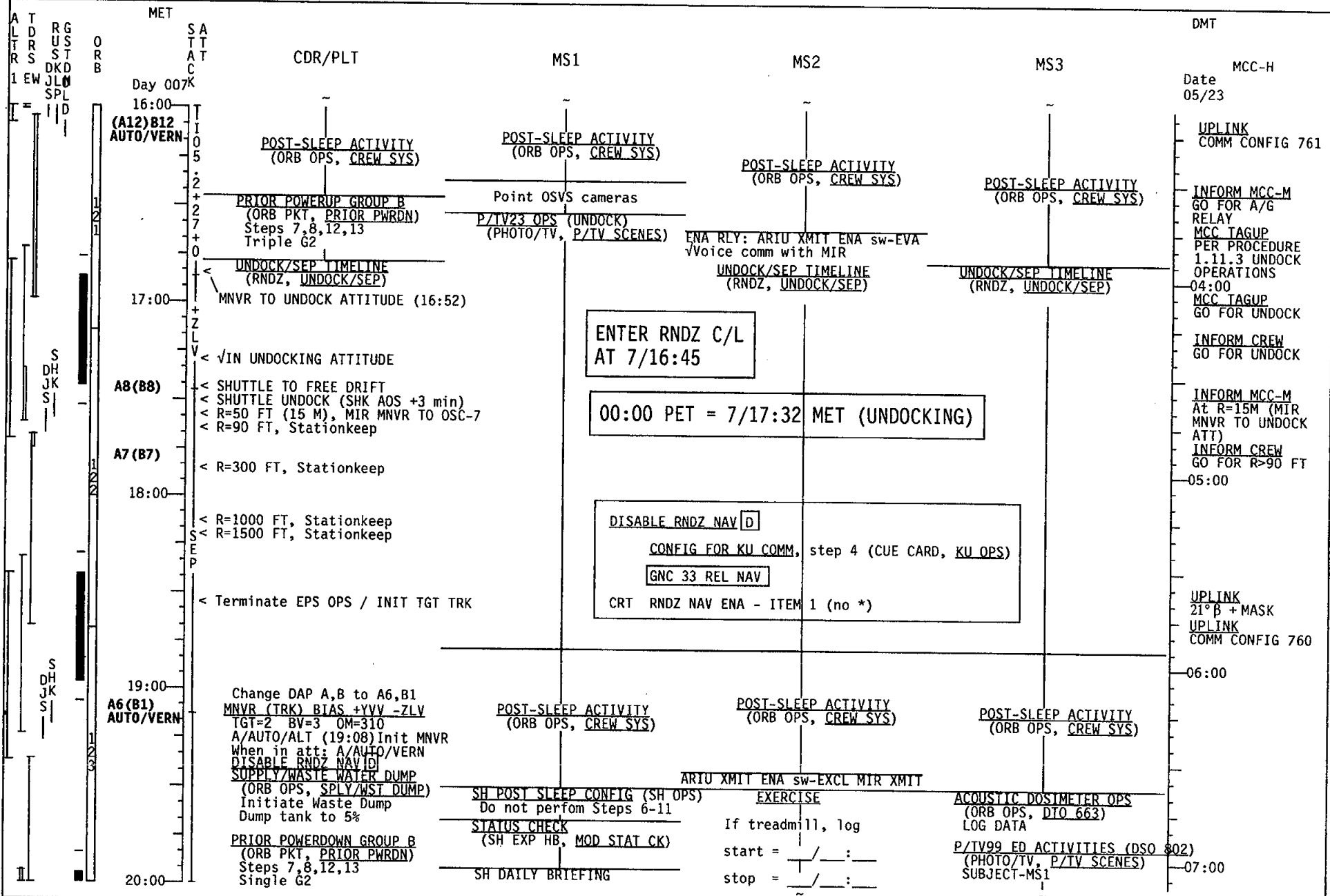
STS-84 (FD09)



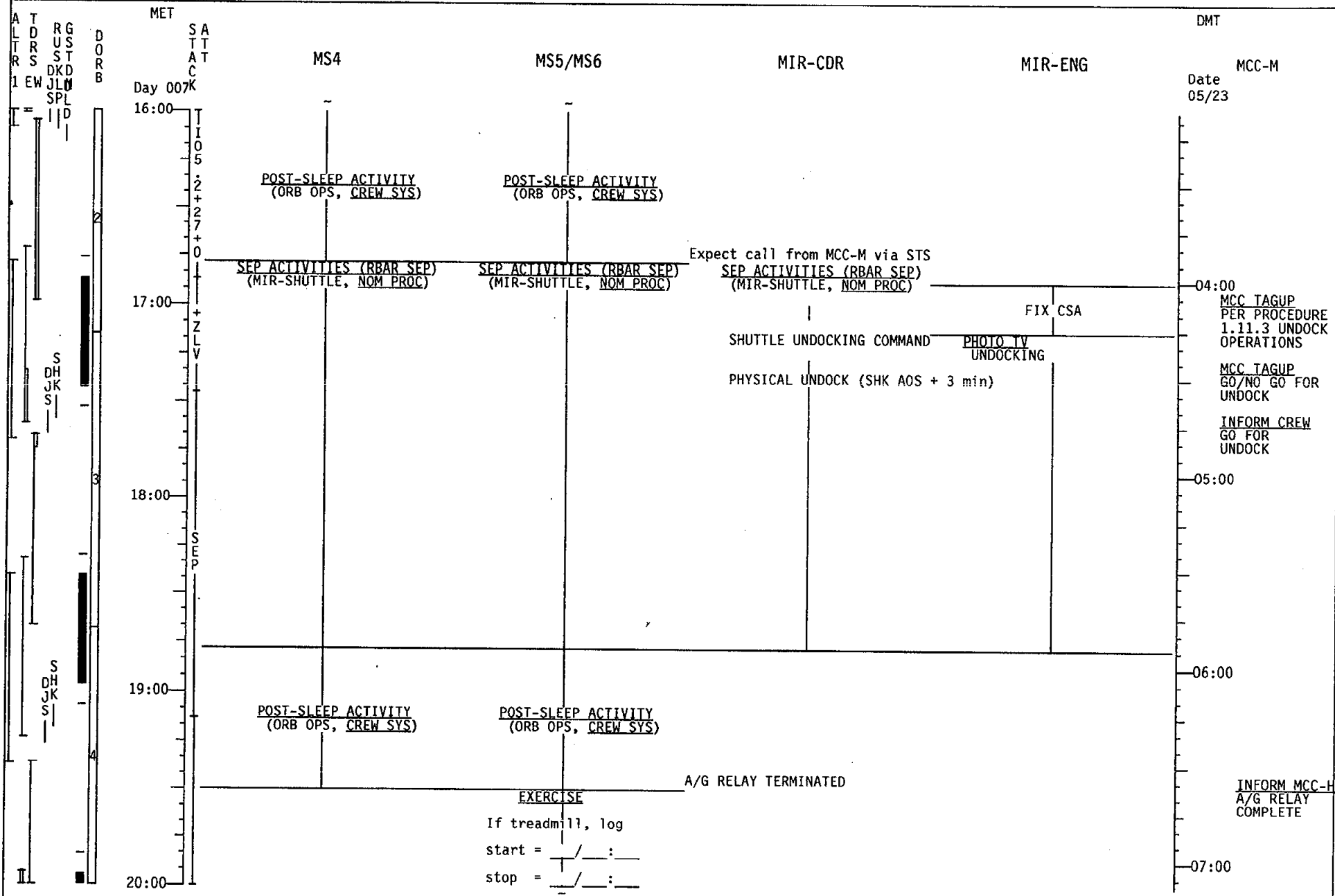
STS-84 (FD09)



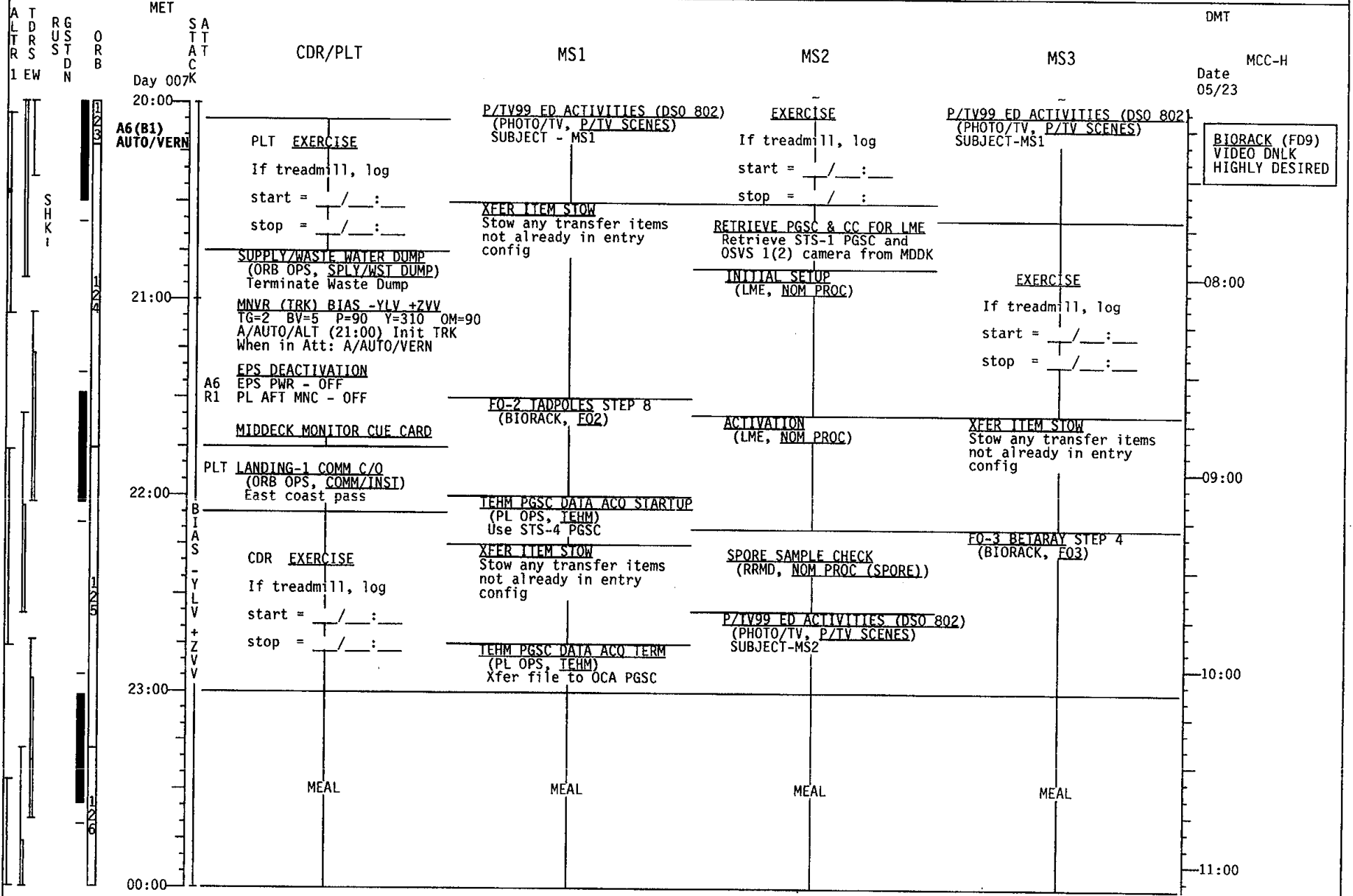
STS-84 (FD09)



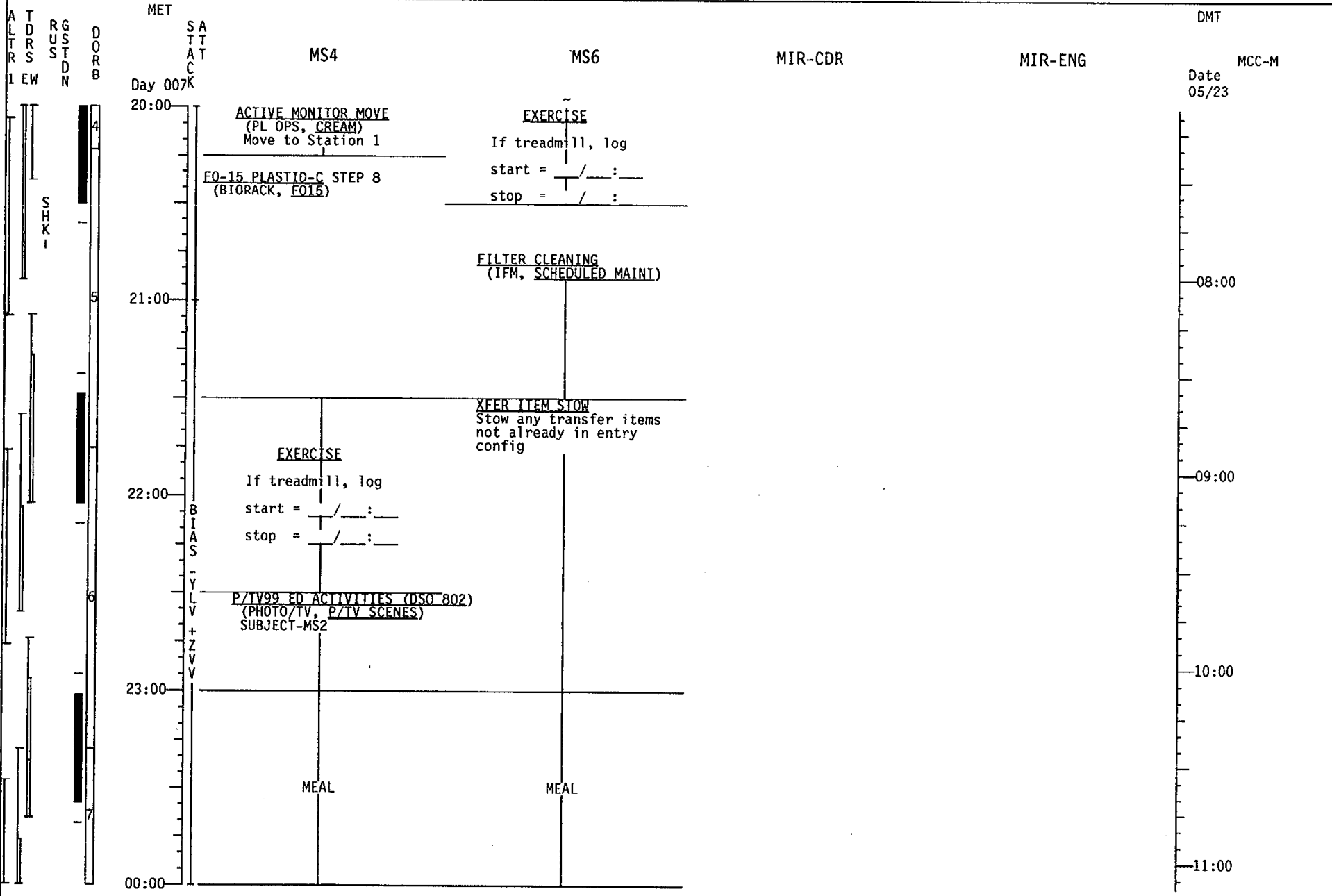
STS-84 (FD09)



STS-84 (FD09)



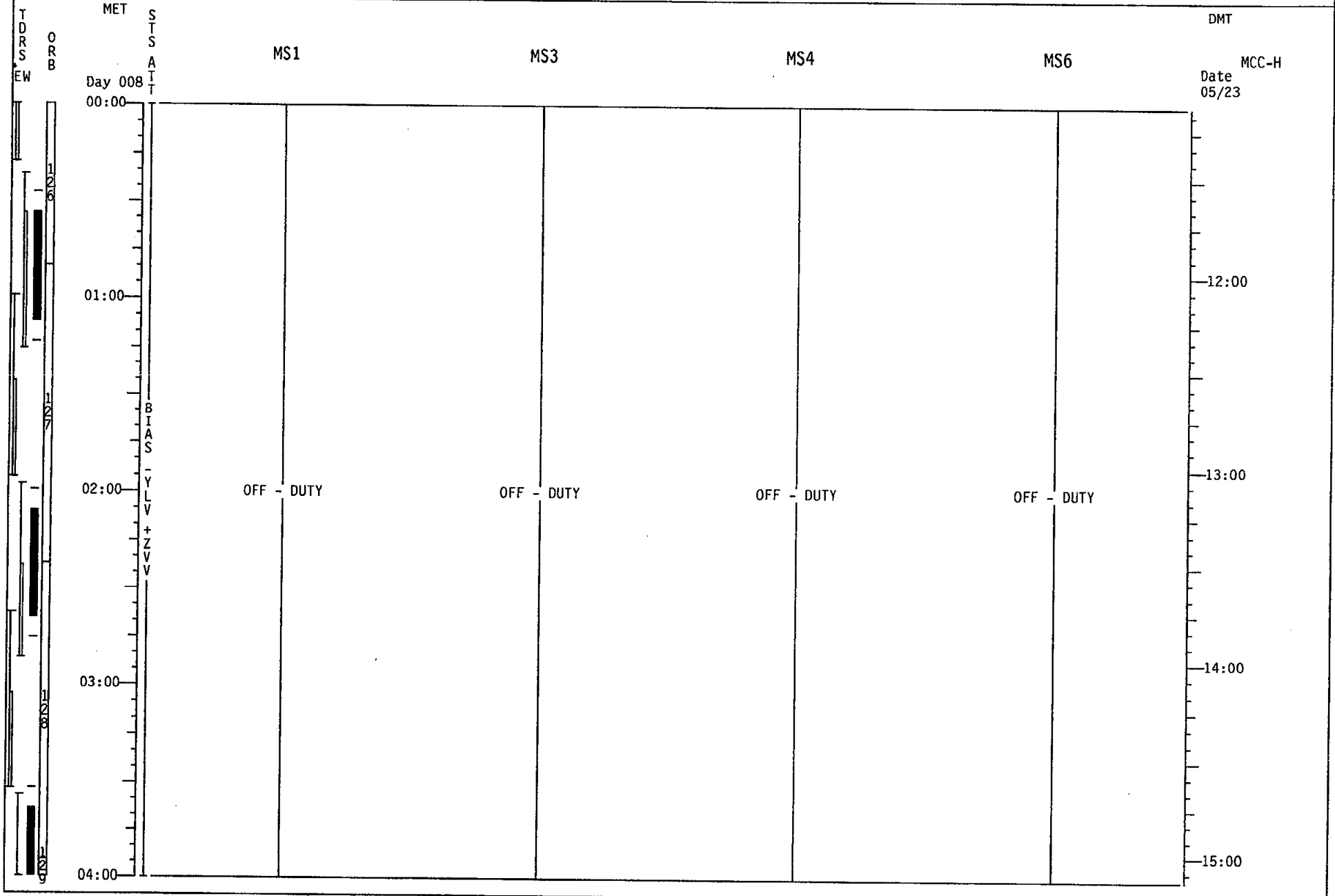
STS-84 (FD09)



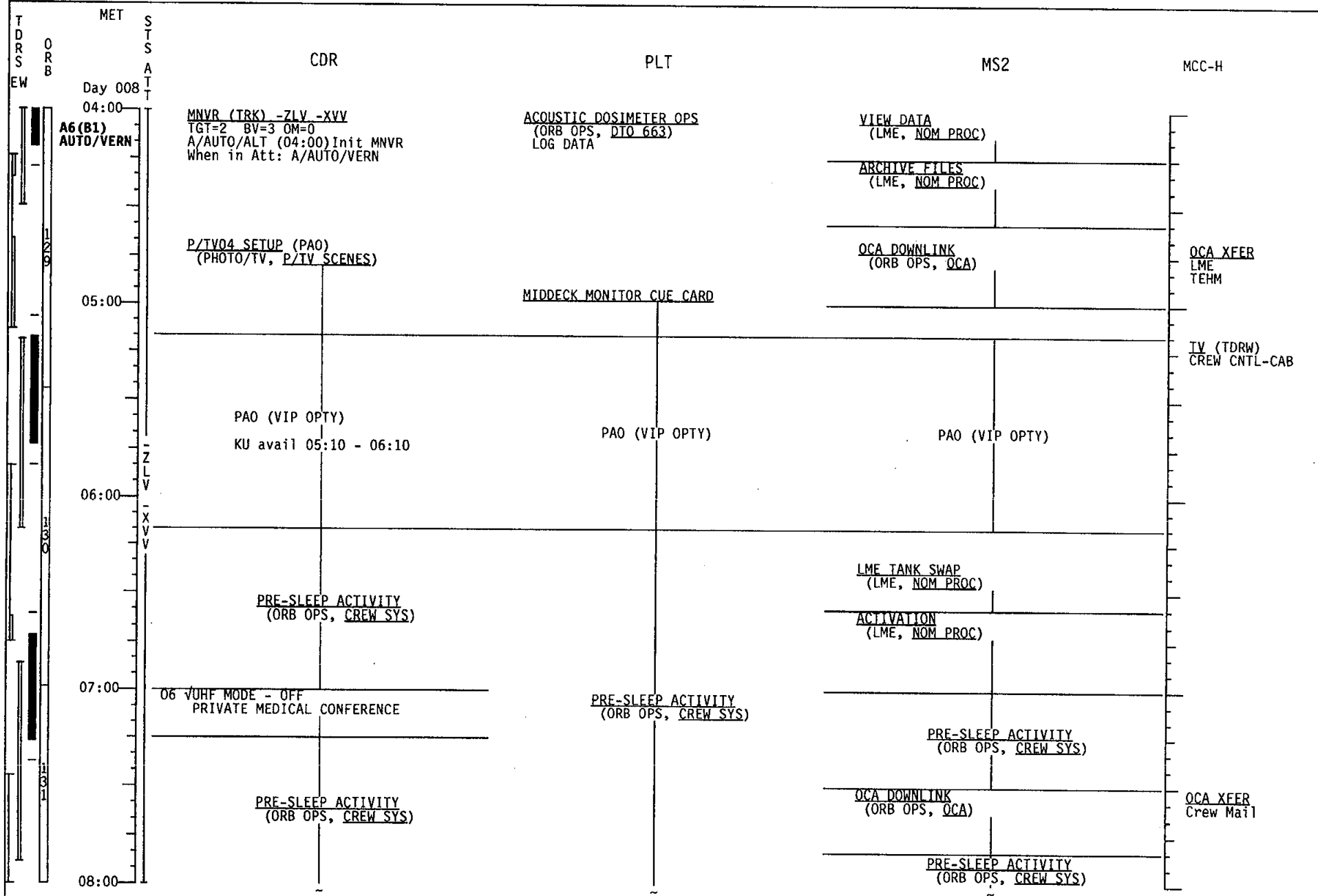
STS-84 (FD09)

		MET							
T D R S E W	O R B	C D R		P L T		M S 2		M C C - H	
		S T S A T		S T S A T		S T S A T		S T S A T	
		Day 008							
		00:00							
A6(B1) AUTO/VERN									
01:00		<p style="text-align: center;">LANDING-1 COMM C/O (ORB OPS, COMM/INST) West coast pass</p>							
02:00		OFF - DUTY		OFF - DUTY		OFF - DUTY			
03:00									
04:00									

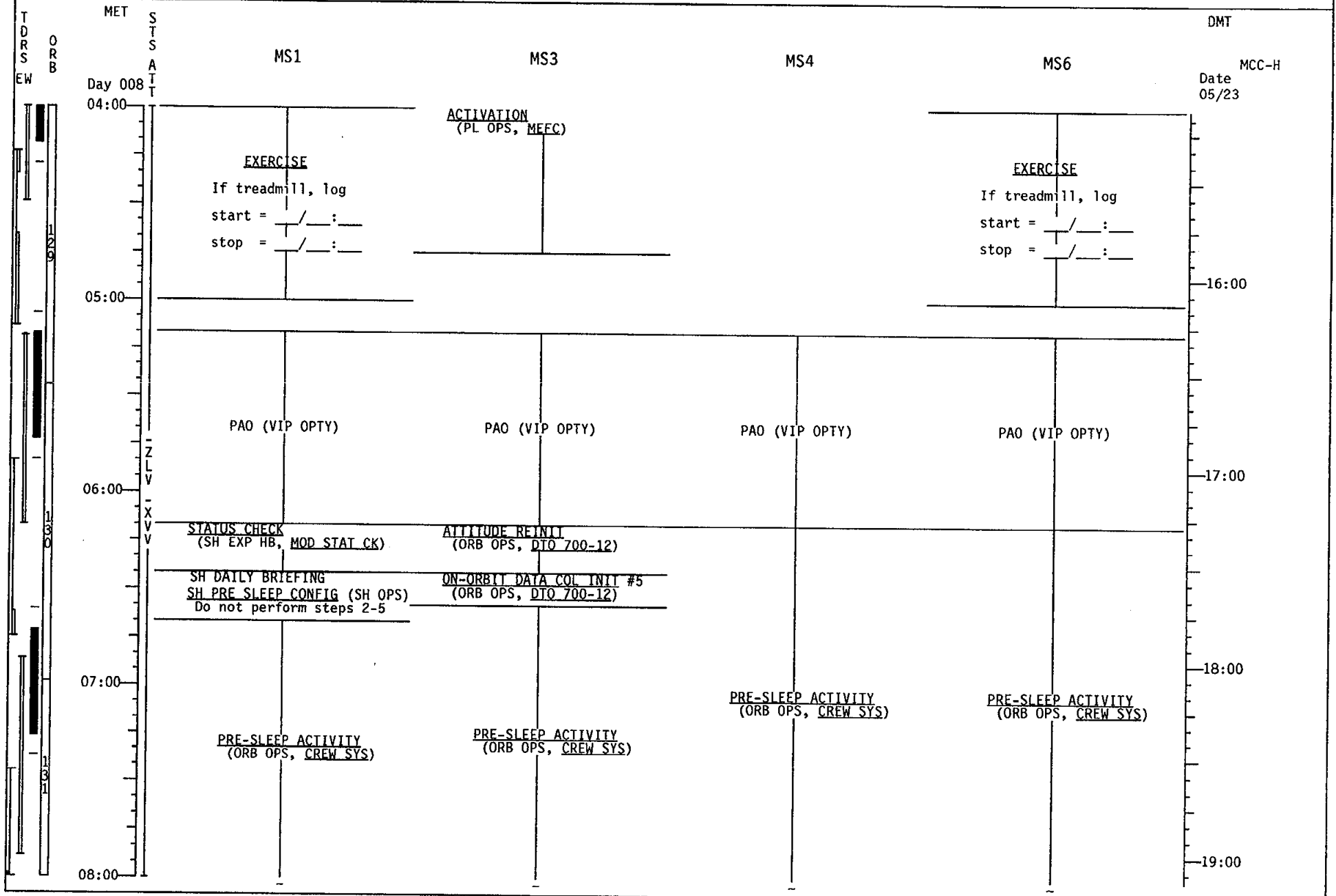
STS-84 (FD09)



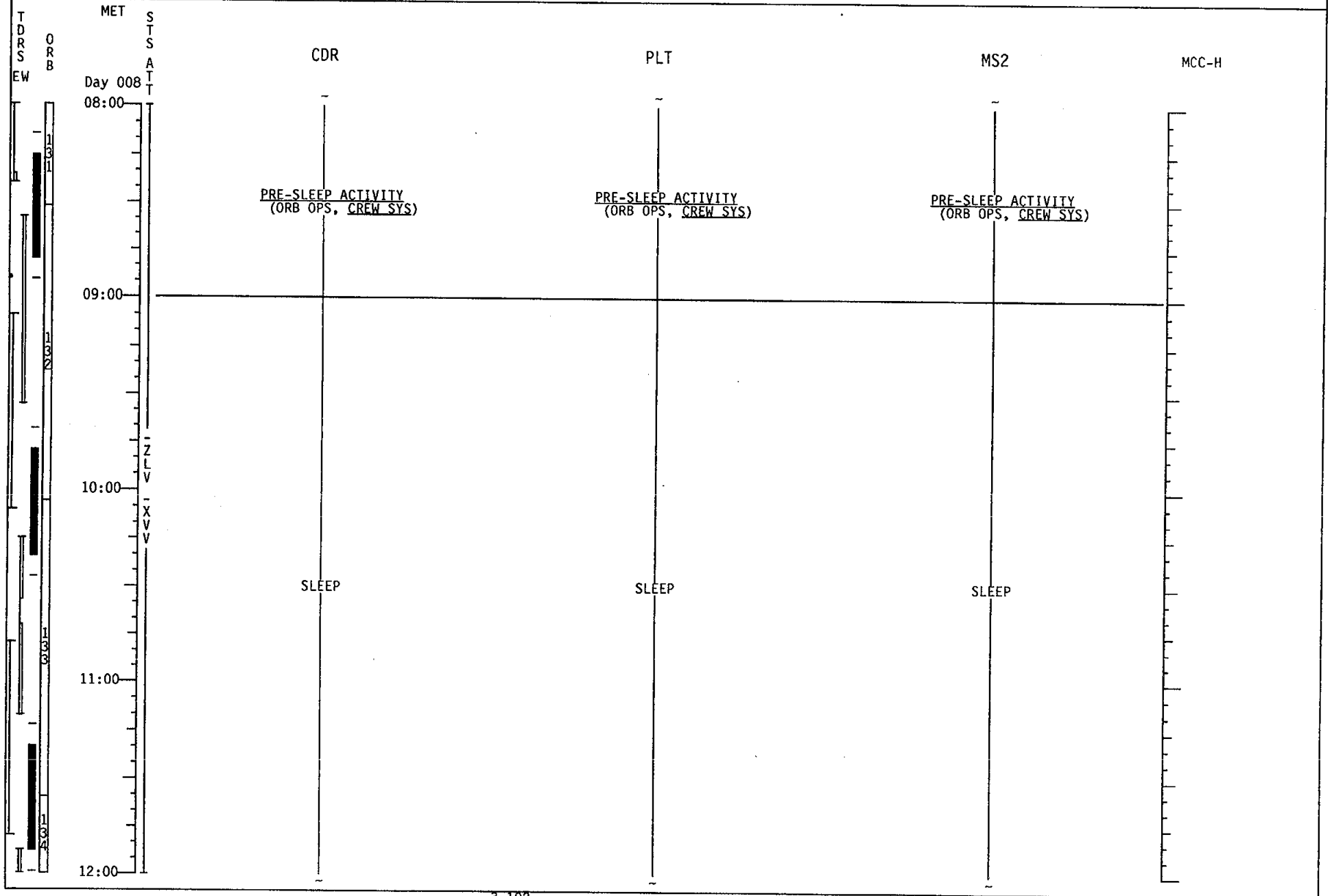
STS-84 (FD09)



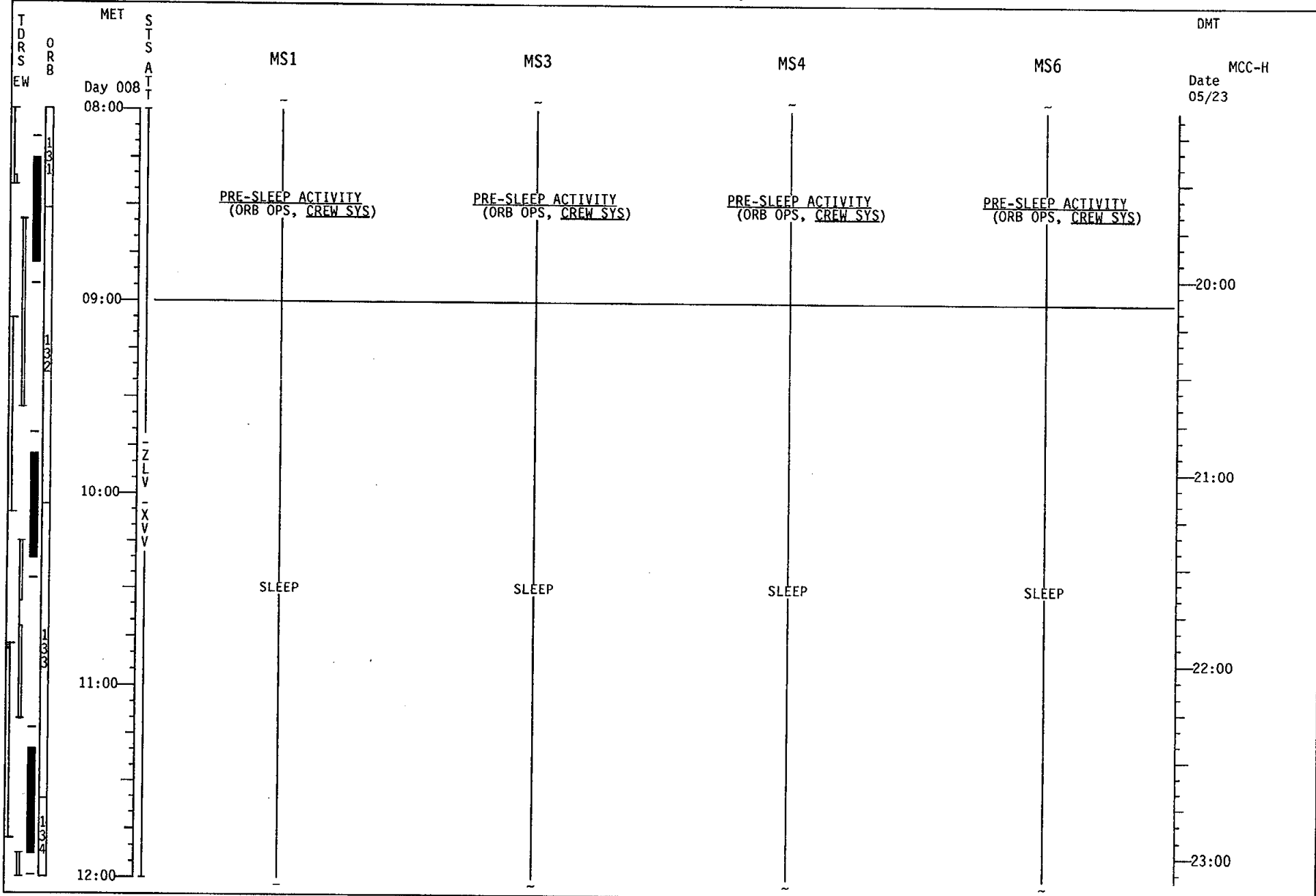
STS-84 (FD09)



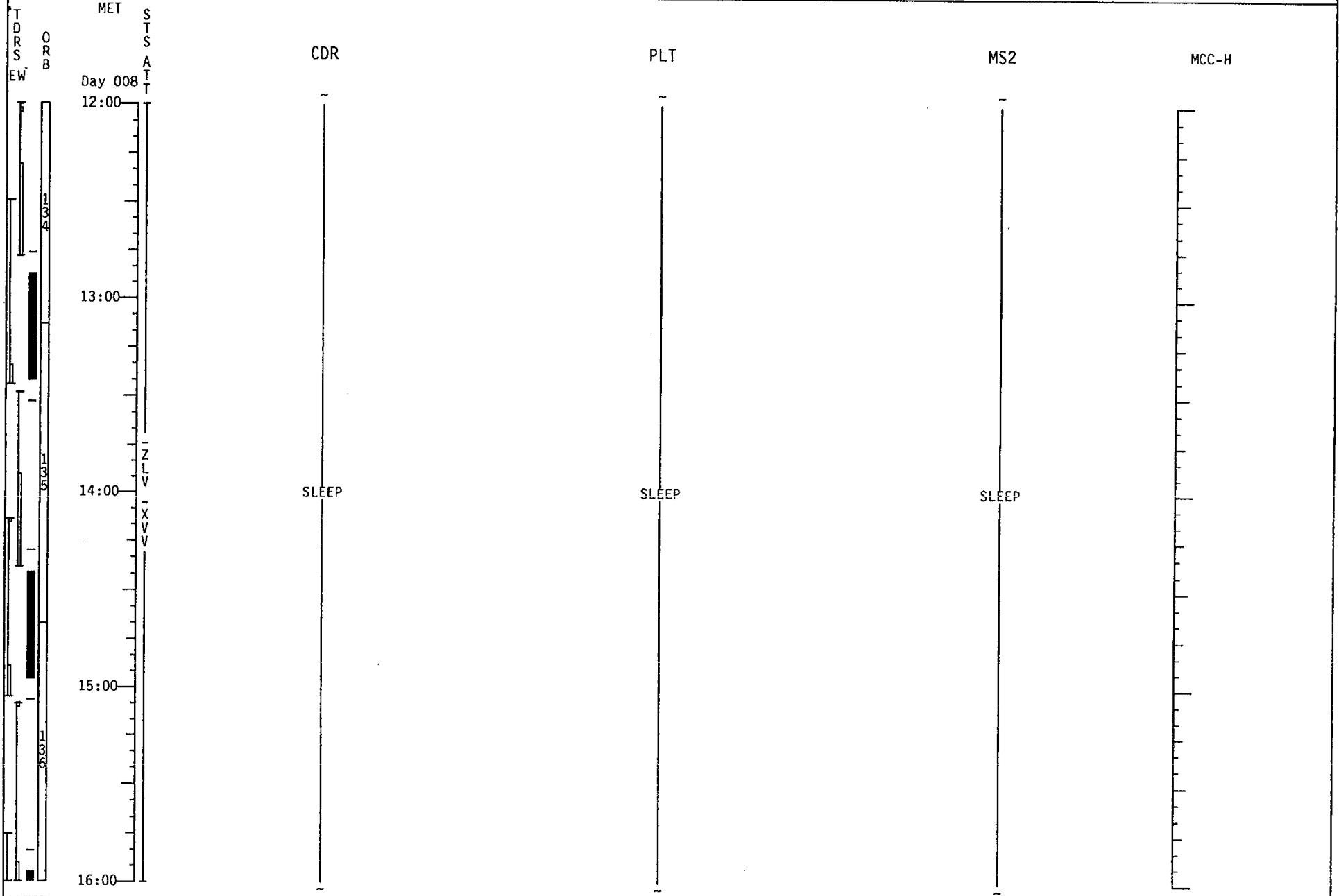
STS-84 (FD09)



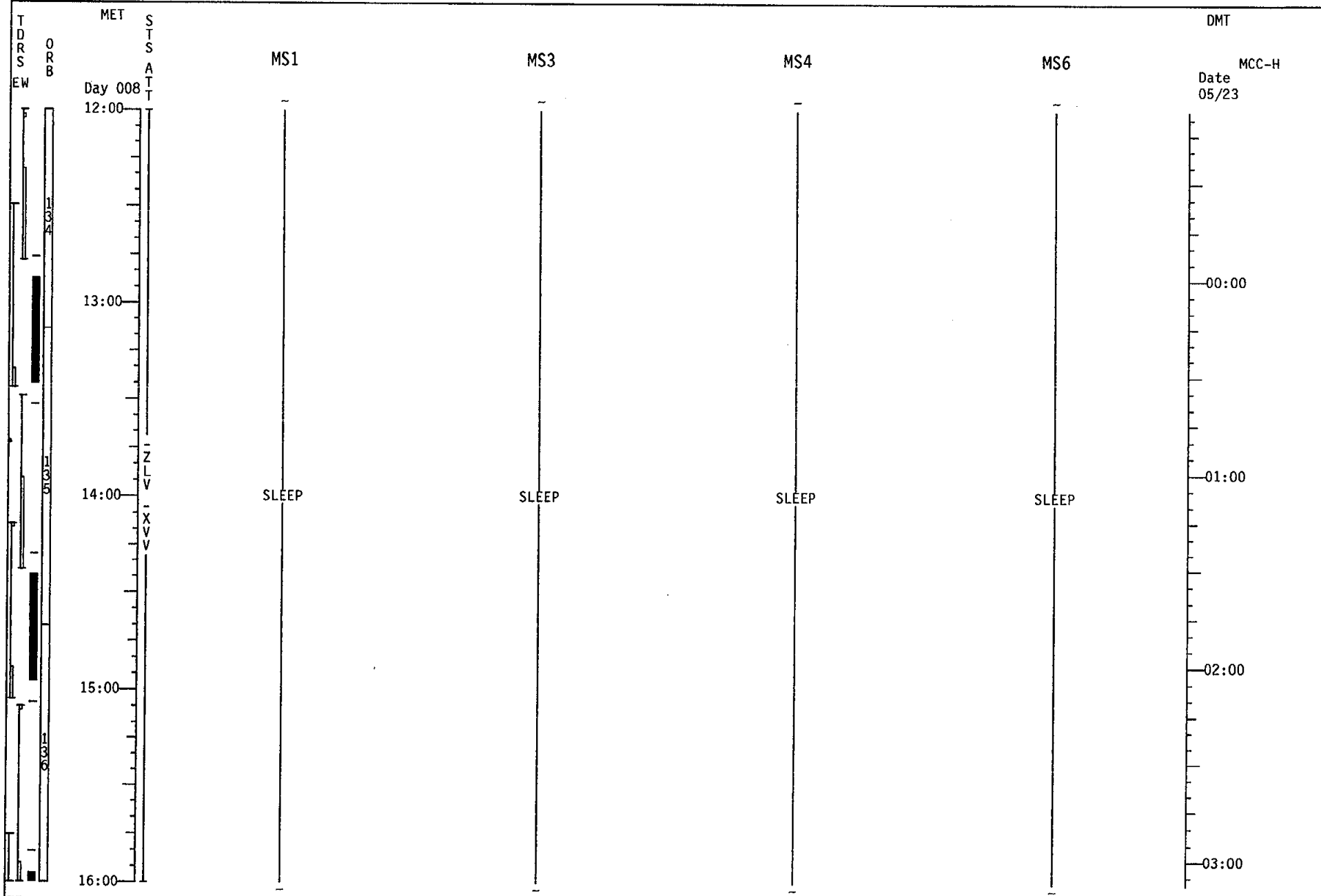
STS-84 (FD09)



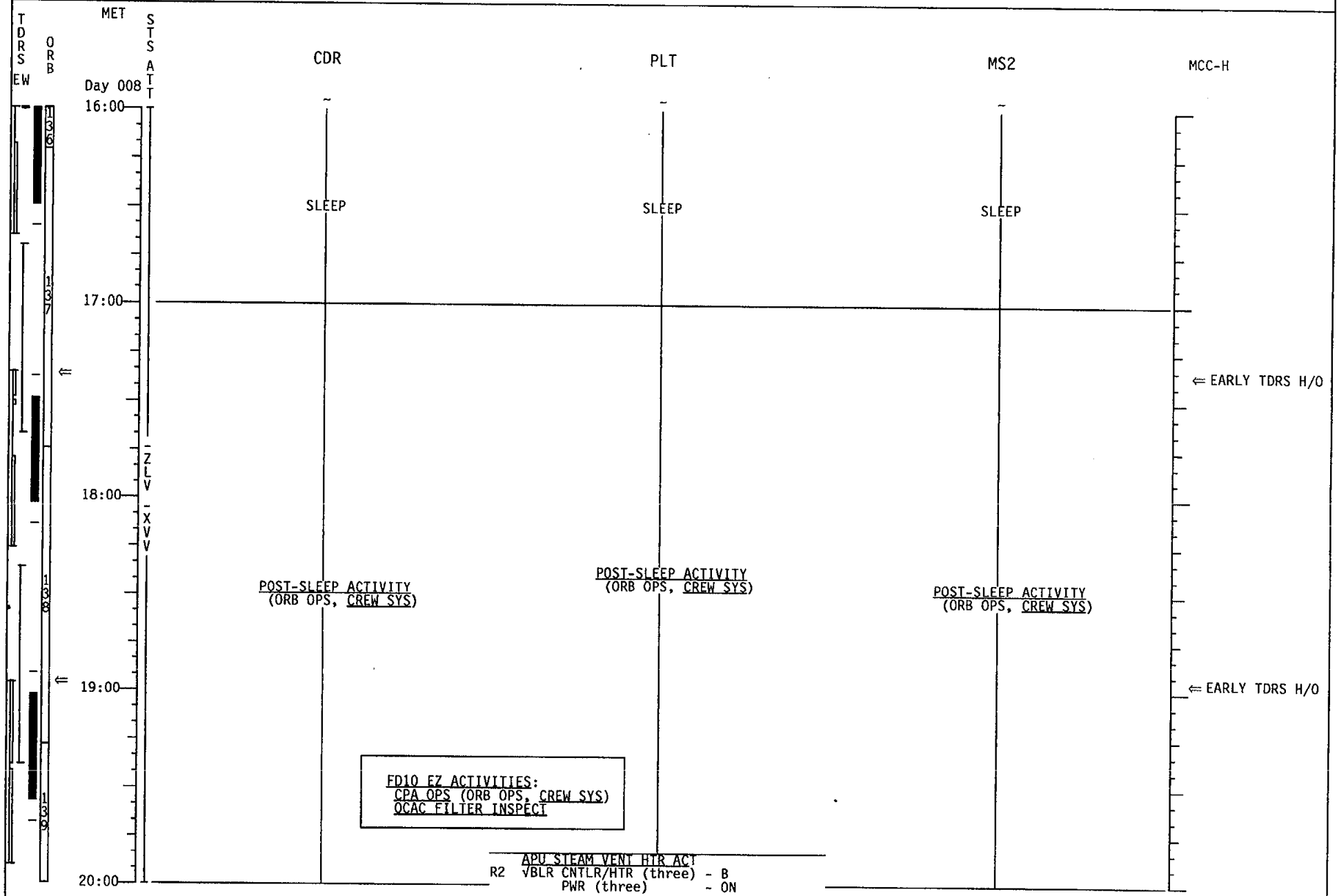
STS-84 (FD09)



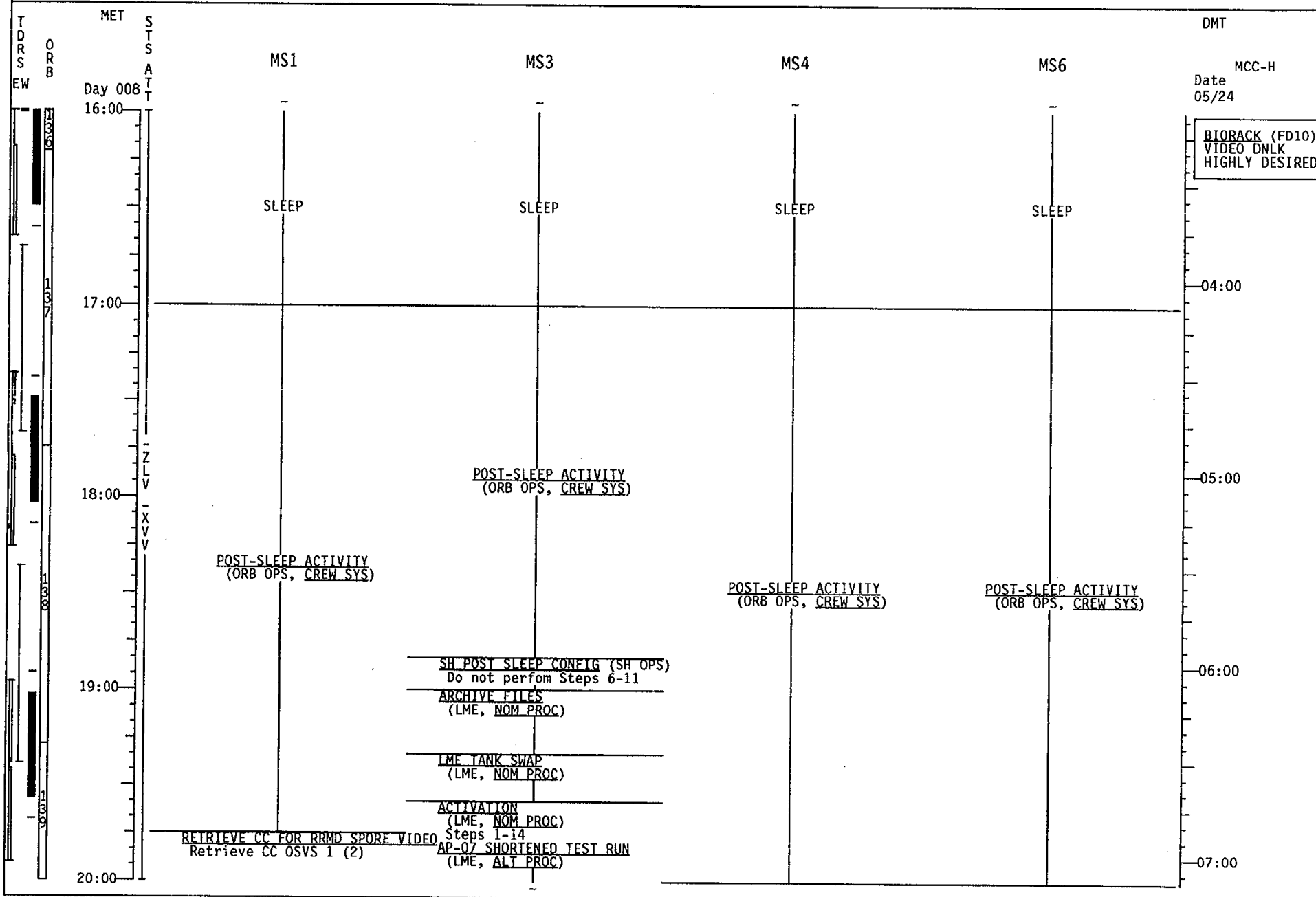
STS-84 (FD09)



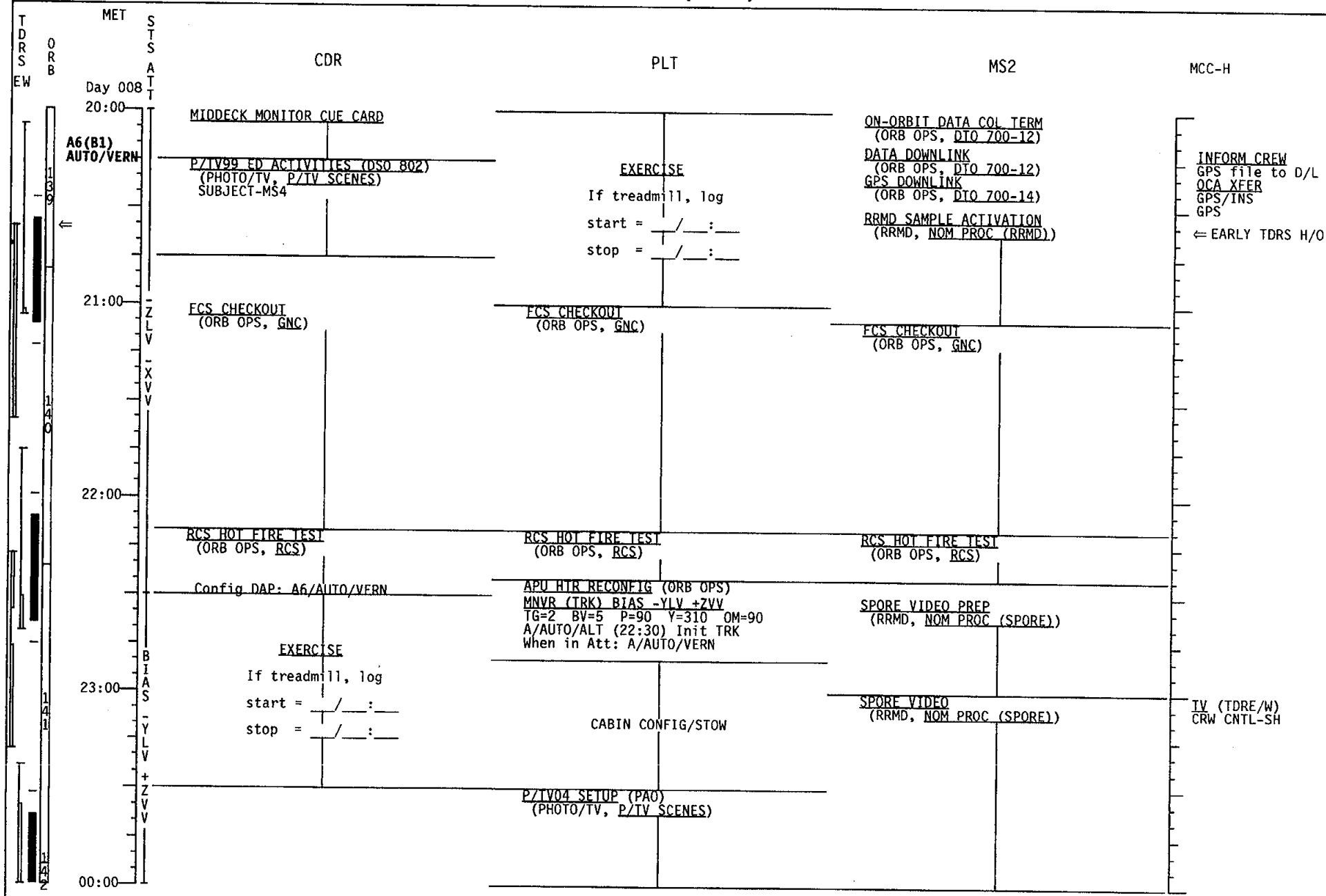
STS-84 (FD10)



STS-84 (FD10)



STS-84 (FD10)



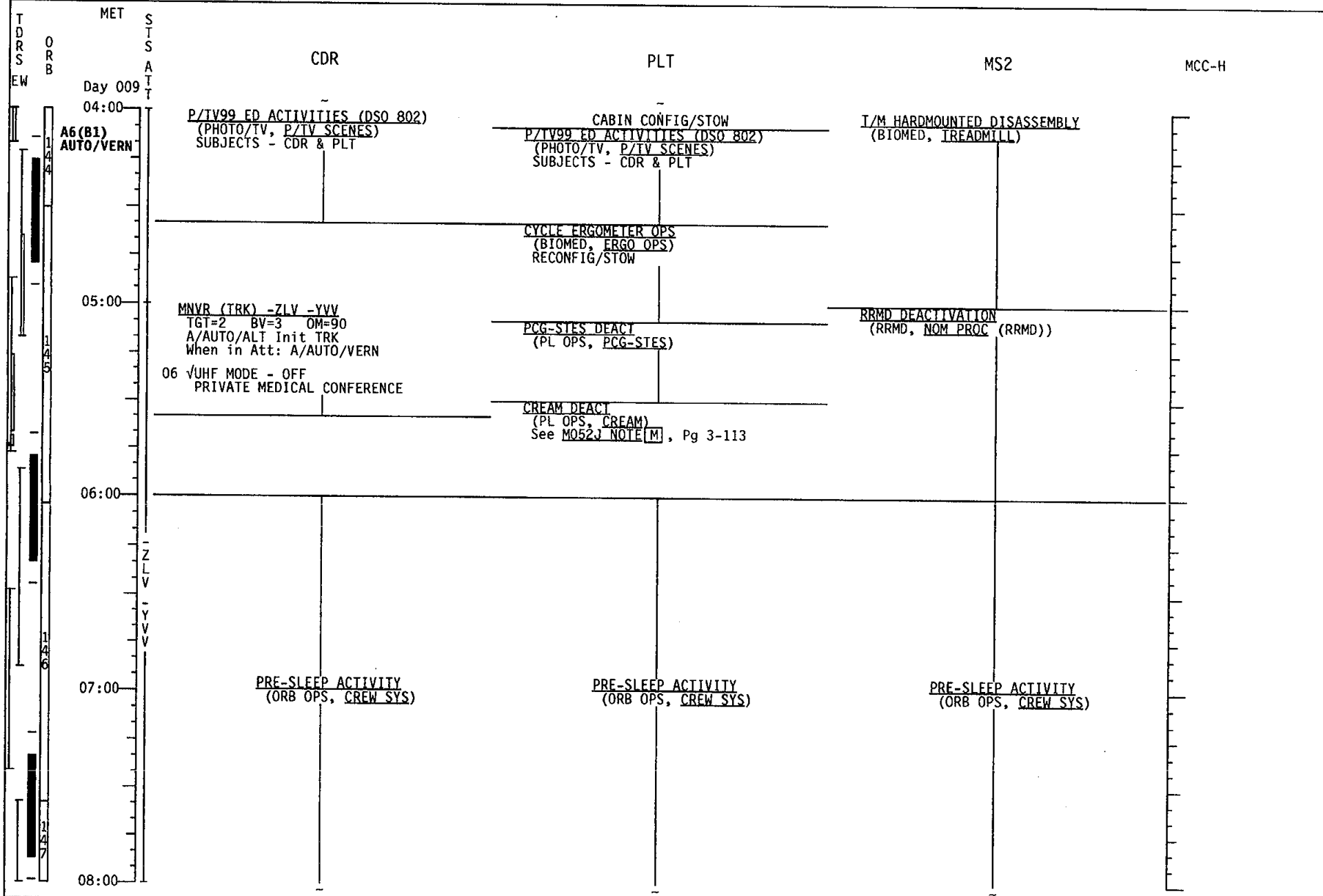
STS-84 (FD10)

	MET	CDR	PLT	MS2	MCC-H
TDRS ORBIT EW	Day 009 00:00 A6(B1) AUTO/VERN				
	S T S A T T T	MEAL	MEAL	MEAL	
	01:00	CREW PHOTO	CREW PHOTO	CREW PHOTO PRE-DEORBIT PRE ACTIVITIES [A]	
	B I A S - Y L V + Z V V	PUBLIC AFFAIRS OPPORTUNITY KU avail 01:30 - 01:50	PUBLIC AFFAIRS OPPORTUNITY	AIRLOCK CLOSEOUT Remove loose items stowed in airlock Perform AIRLOCK ENT & SW LIST VERIF (D/O PREP, ENT SW LIST VERIF) SEAT INSTALLATION (incl recumb seat)	IV (TDRW) CREW CNTL- CAB
	02:00	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	
	03:00	ENTRY VIDEO REVIEW	ENTRY VIDEO REVIEW	ENTRY VIDEO REVIEW	
	04:00	CABIN CONFIG/STOW Perform PRE-DEORBIT PREP ACTIVITIES [A]	CABIN CONFIG/STOW	EXERCISE If treadmill, log start = ___/___:___ stop = ___/___:___	
		P/TV99 ED ACTIVITIES (DSO 802) (PHOTO/TV, P/TV SCENES) SUBJECTS - CDR & PLT			

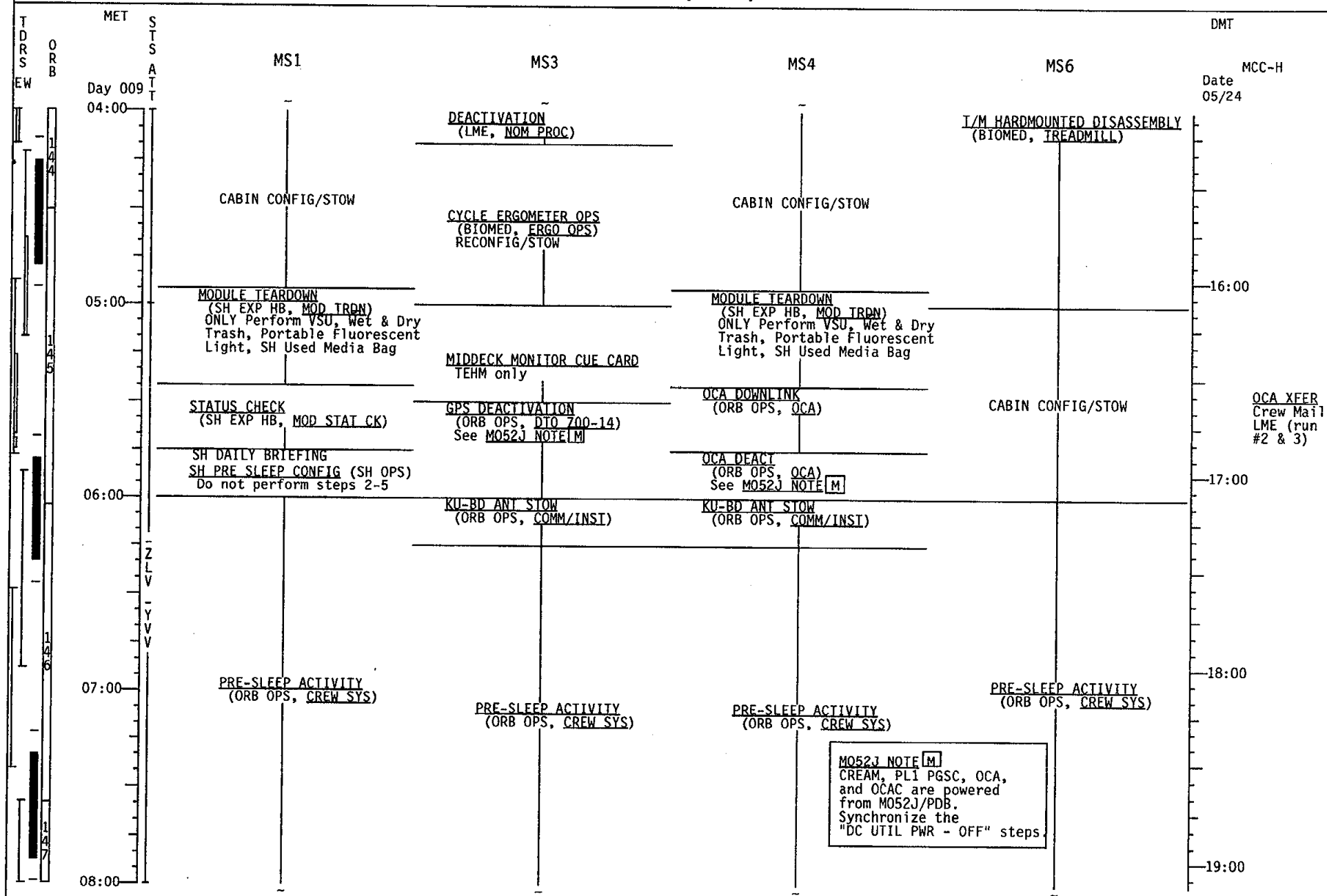
STS-84 (FD10)

	MET	MS1	MS3	MS4	MS6	DMT
TDRS EW	Day 009					MCC-H
ORRB						Date 05/24
00:00		MEAL	MEAL	MEAL	MEAL	
01:00		CREW PHOTO	CREW PHOTO	CREW PHOTO	CREW PHOTO	12:00
02:00	BIAS -Y LV +Z VV			PUBLIC AFFAIRS OPPORTUNITY	PUBLIC AFFAIRS OPPORTUNITY	13:00
03:00		DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	14:00
04:00		CABIN CONFIG/STOW	ARCHIVE FILES (LME, NOM PROC)	CABIN CONFIG/STOW	EXERCISE If treadmill, log start = ___/___:___ stop = ___/___:___	15:00
			DEACTIVATION (LME, NOM PROC)			

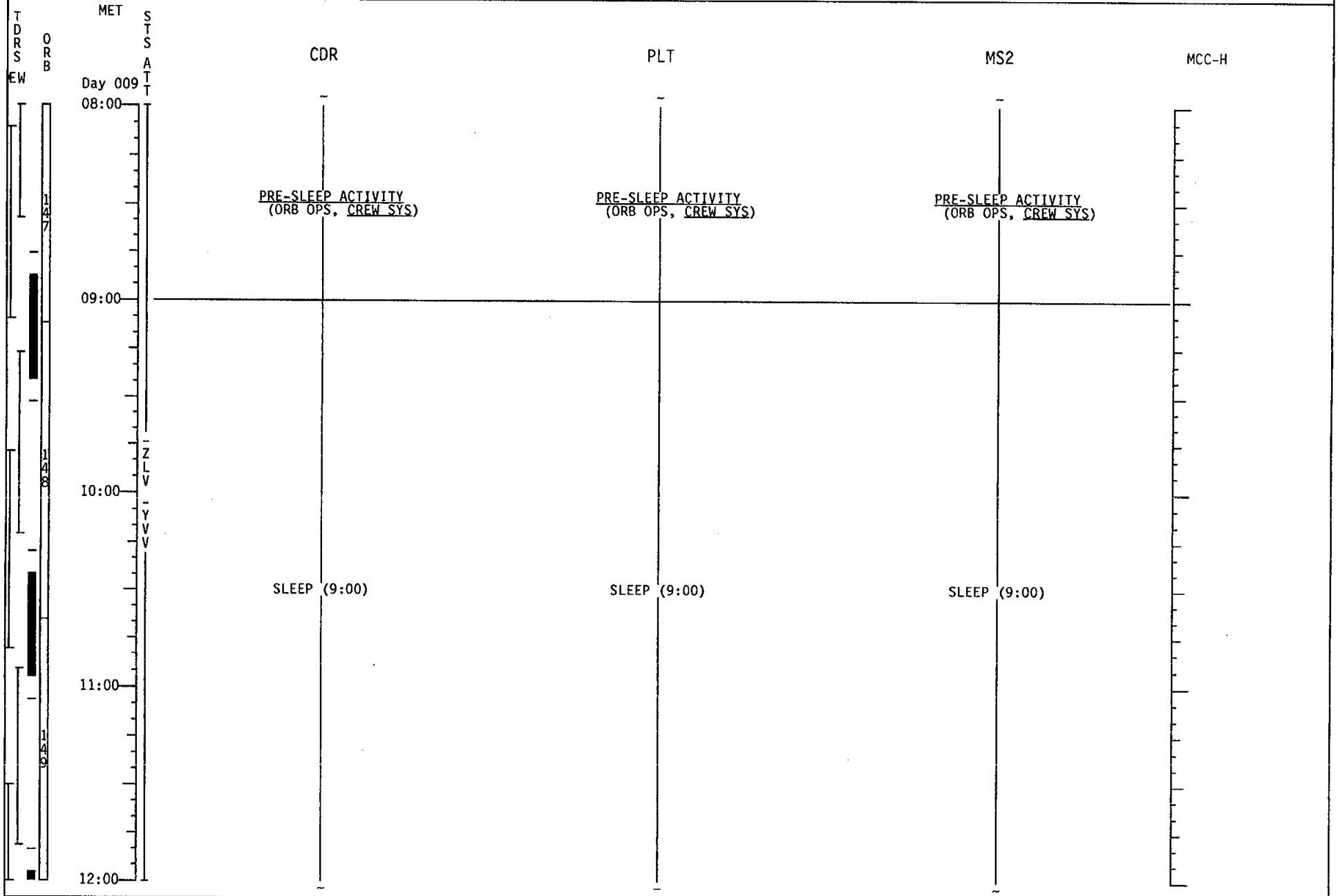
STS-84 (FD10)



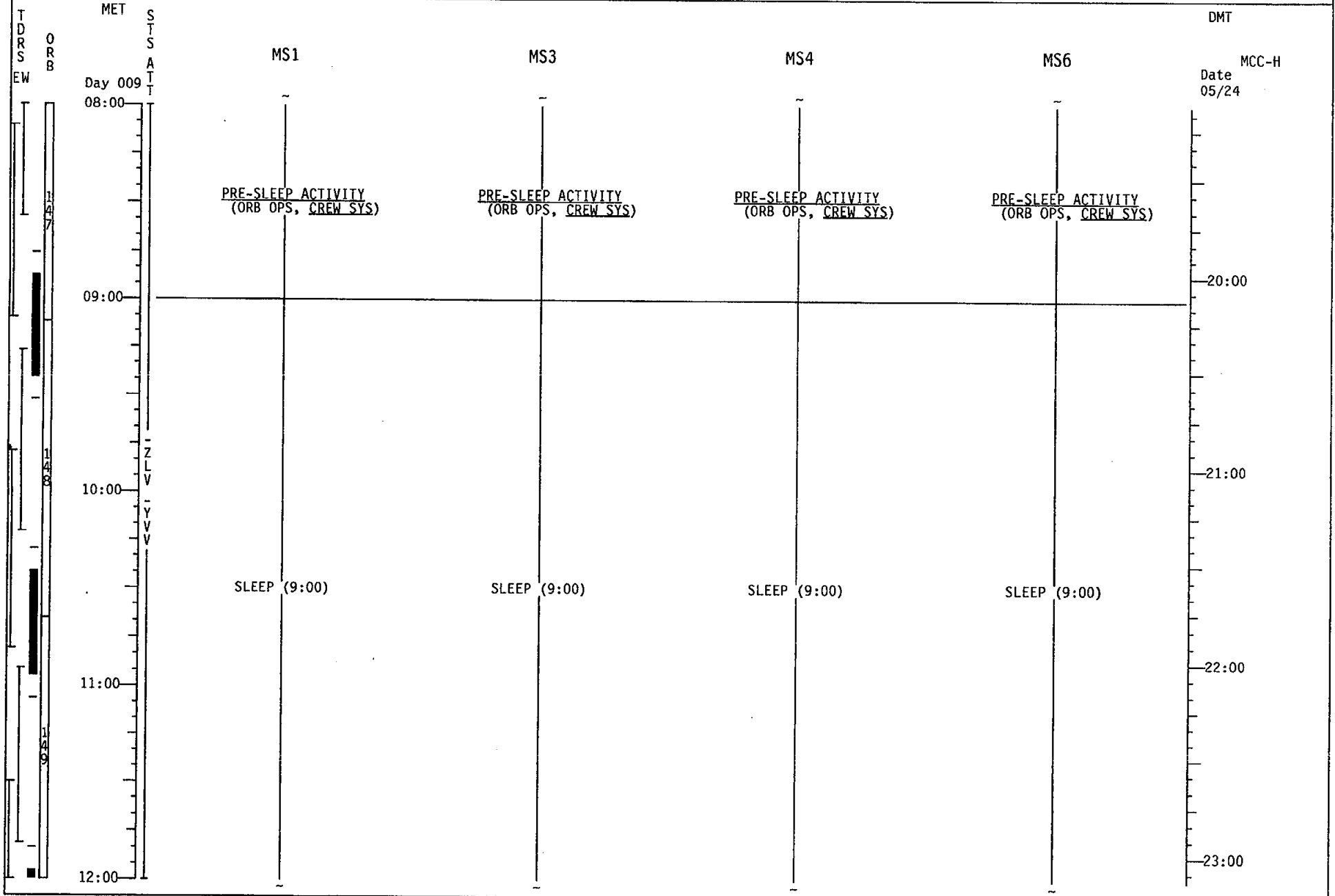
STS-84 (FD10)



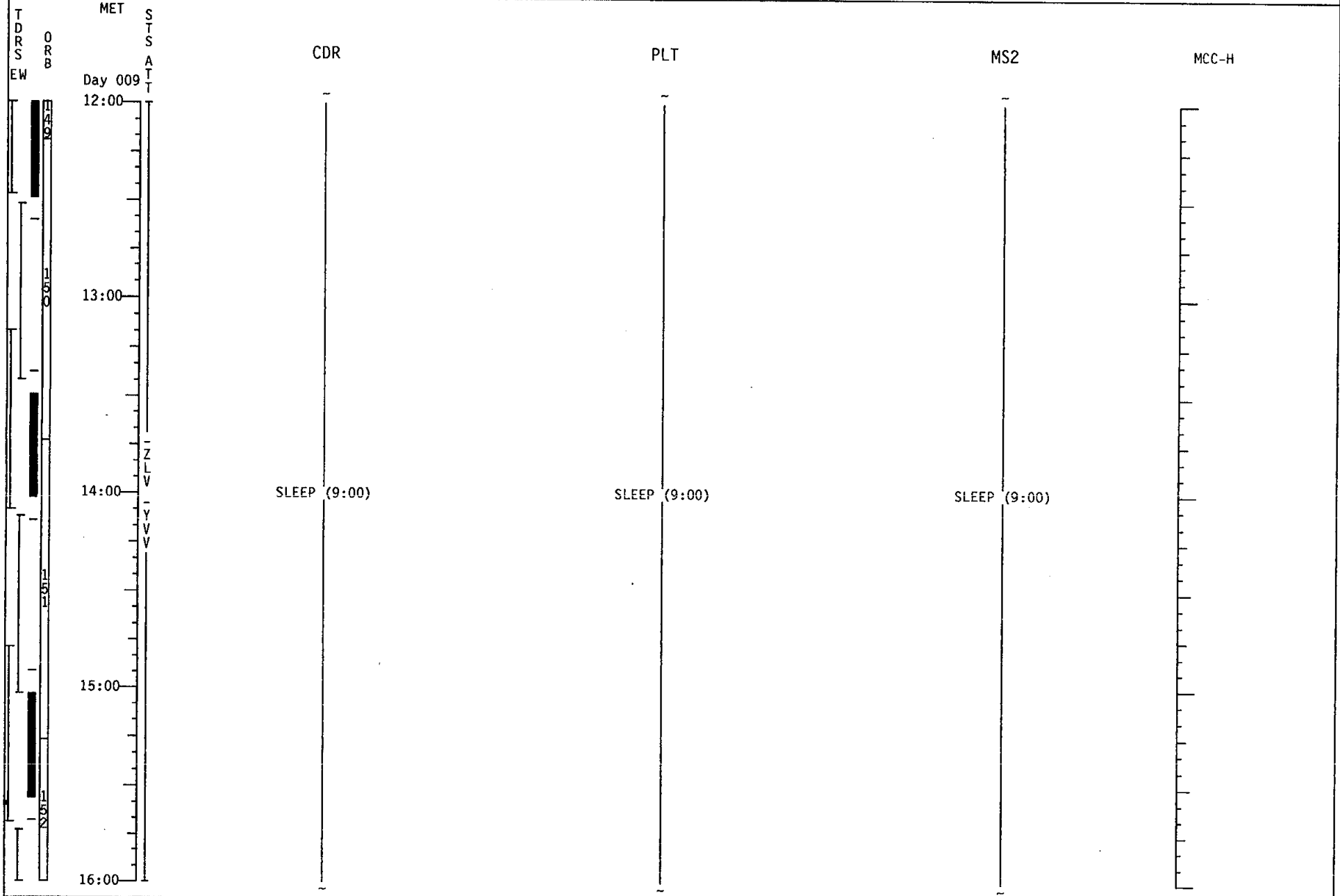
STS-84 (FD10)



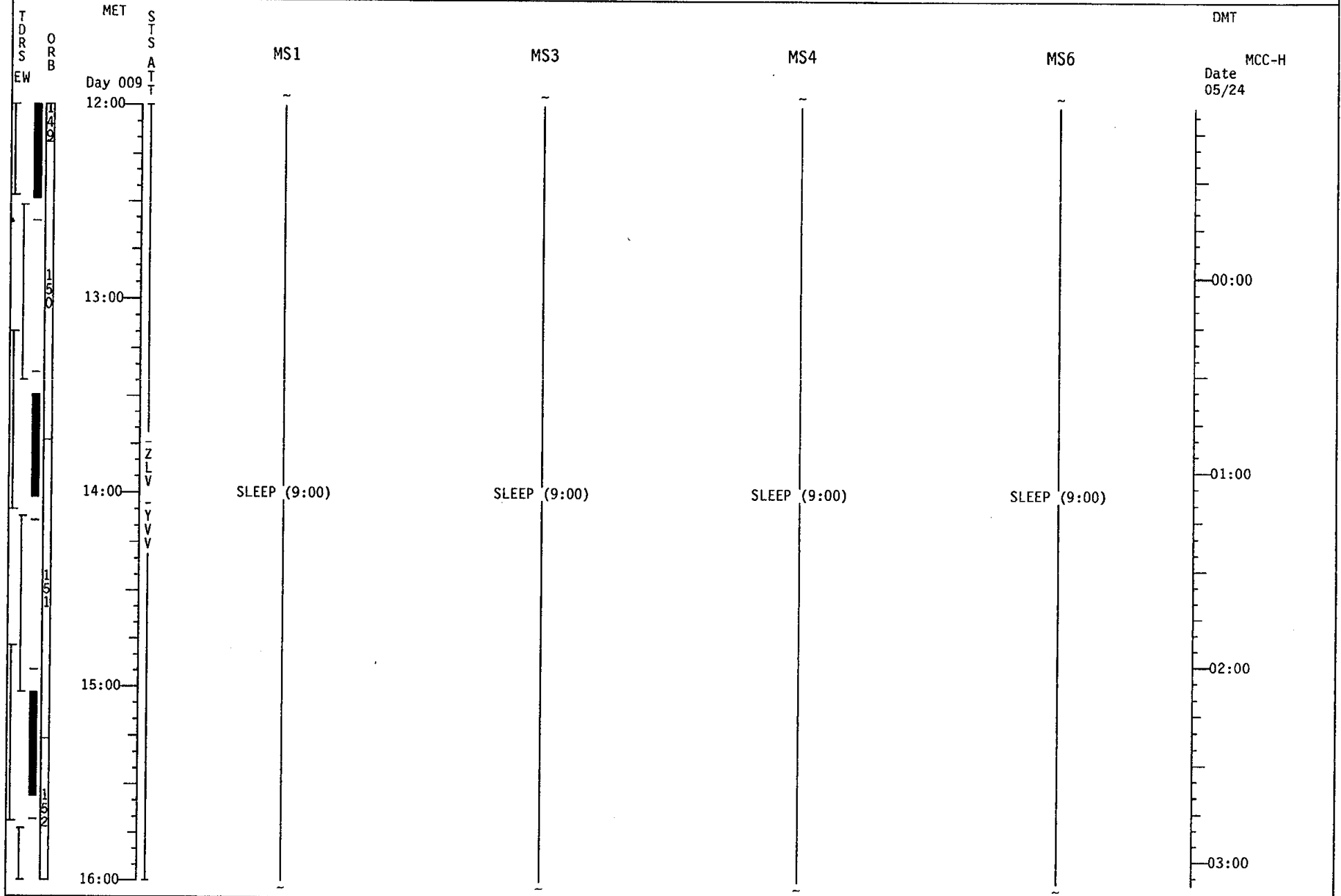
STS-84 (FD10)



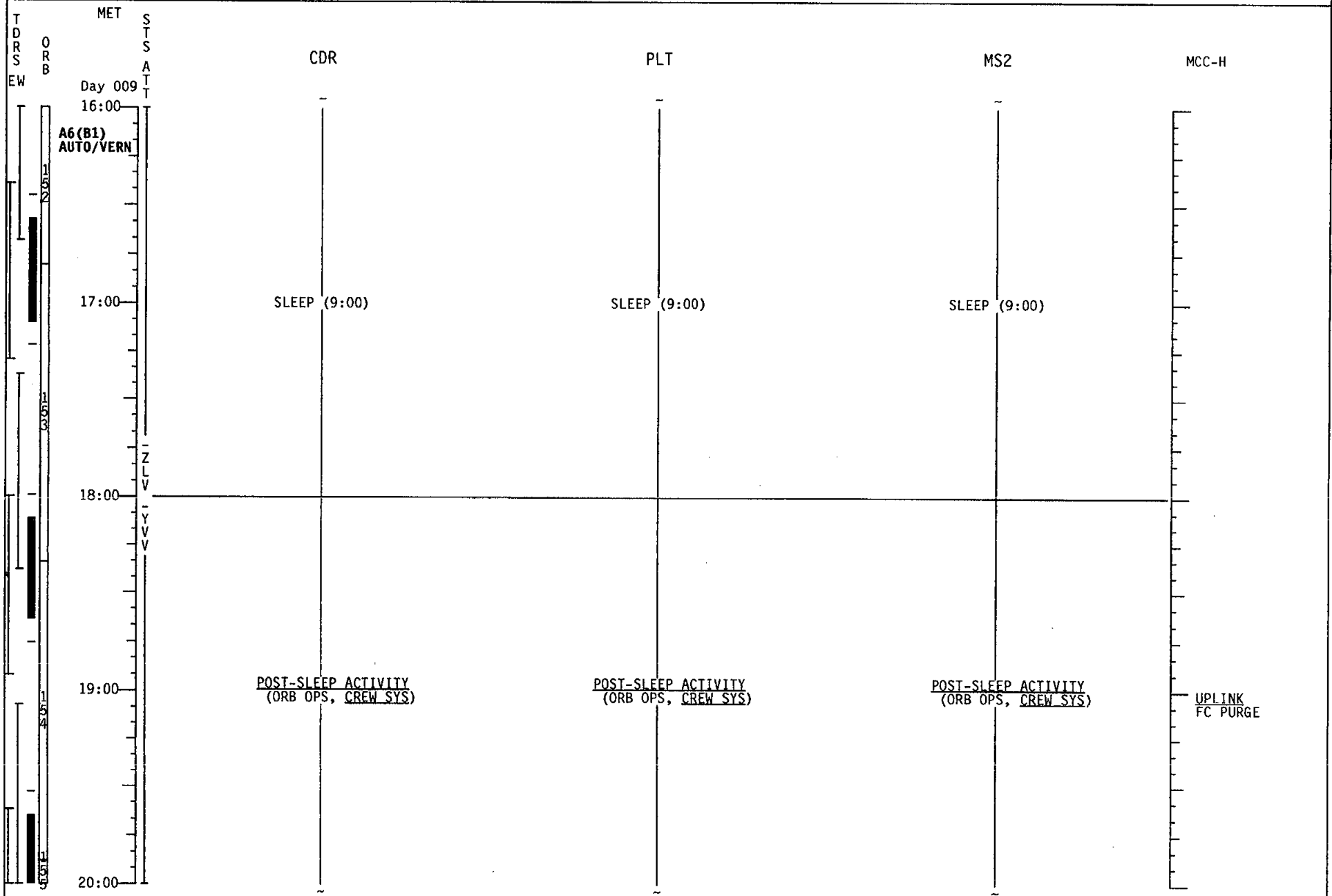
STS-84 (FD10)



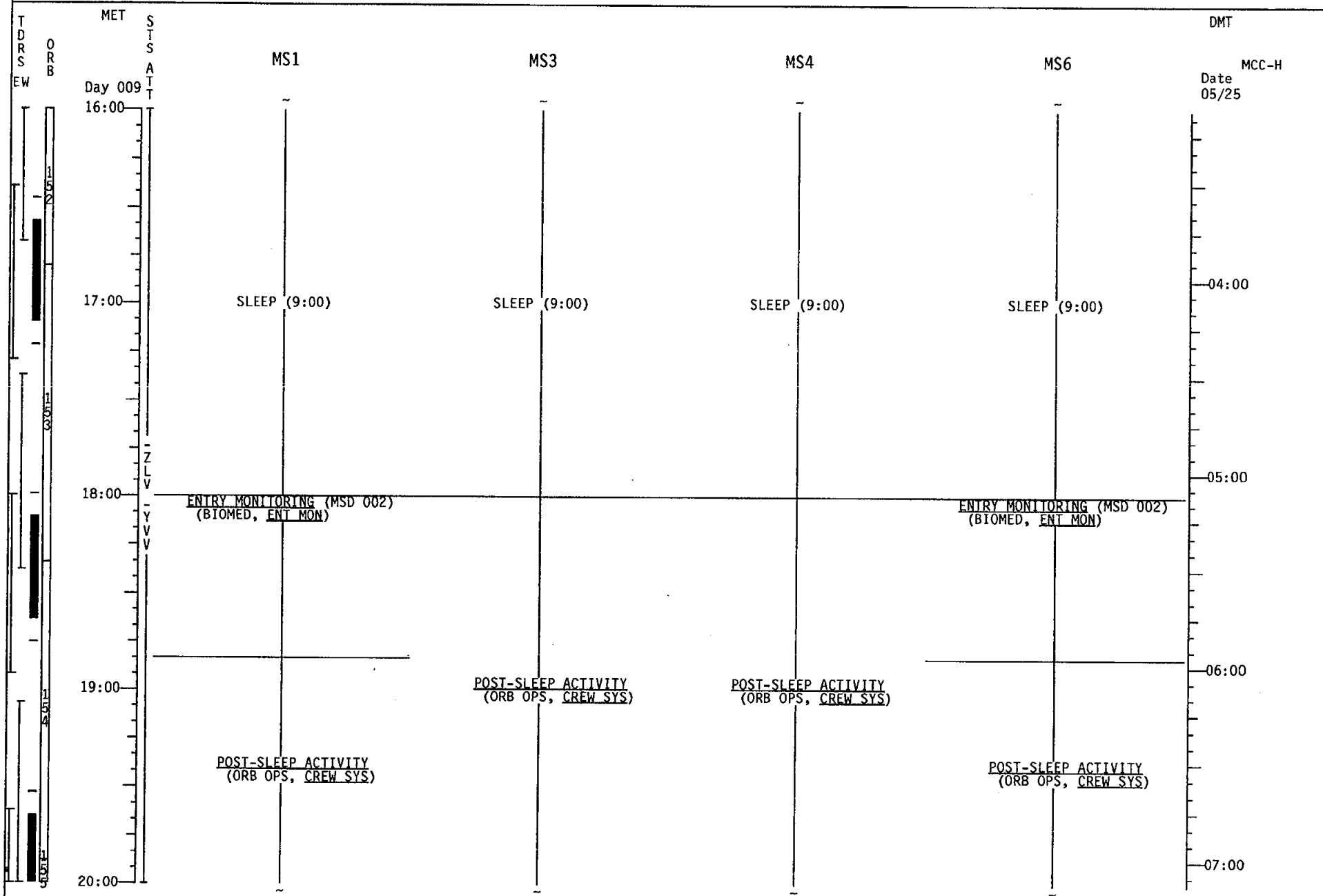
STS-84 (FD10)



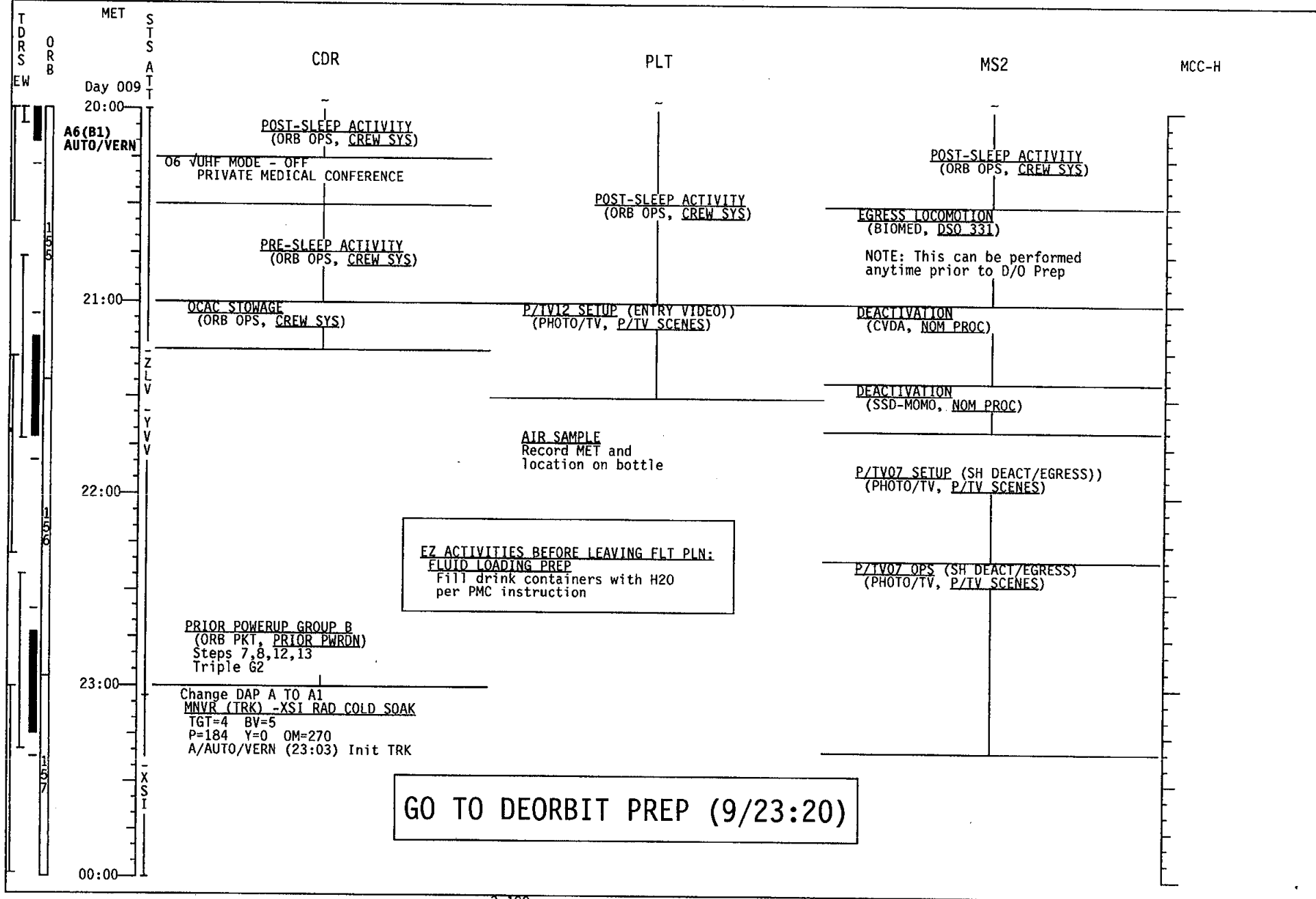
STS-84 (FD11)



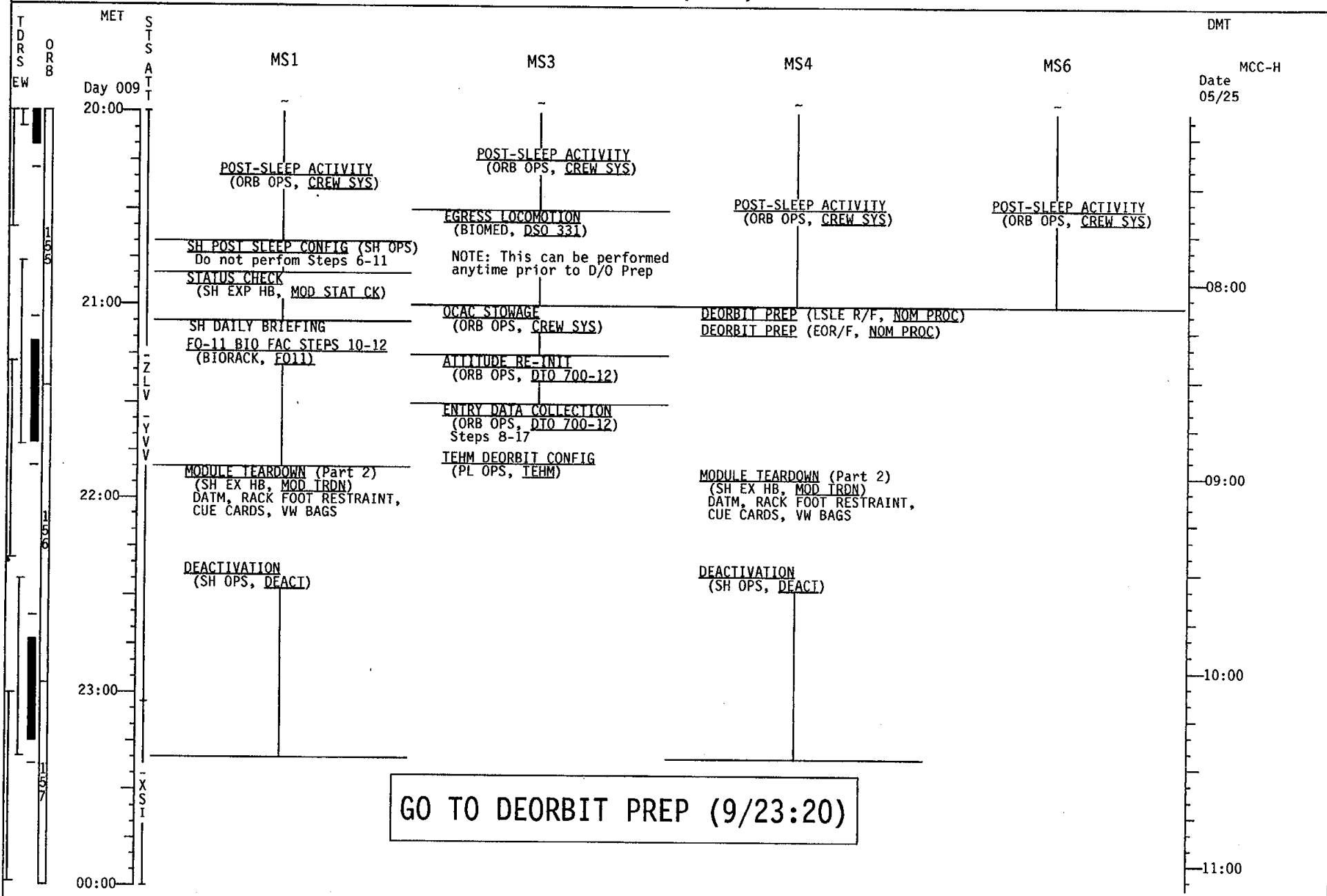
STS-84 (FD11)



STS-84 (FD11)



STS-84 (FD11)



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DAP TABLE

DAP TABLE

DAP TABLE

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOMINAL; OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERNIS (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERNIS (NOSE & TAIL)
A4	- PRE/POST DEPLOY	B4	- SSUS DEPLOY
A5	- LOSS OF VERNIS (NOSE & TAIL)	B5	- COAS CAL
A6	- LOSS OF VERN (TAIL ONLY) MIN PROP VERN	B6	- RENDEZVOUS
A7	- RENDEZVOUS	B7	- CORRIDOR
A8	- CORRIDOR	B8	- DOCKING
A9	- DOCKING	B9	- FLYAROUND
A10	- FLYAROUND	B10	- MATED STACK TIGHT CONTROL
A12	- MATED STACK MNVRS & HOLD	B12	- MATED STACK TIGHT CONTROL
A13	- FAILED CAPTURE	B13	- FAILED CAPTURE
A14	- SLM		

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

CNT ACC = 0 UNLOADED
 = 1-5 NOT USED

STS-84 GENERIC DAP A CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A7
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	2.00
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	ALL
Y OPTION	16	ALL	ALL	TAIL	ALL	ALL	ALL
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	0.200
JET OPT	19	ALL	ALL	ALL	ALL	ALL	ALL
# JETS	20	2	2	2	2	1	2
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	0.010	0.010	0.010	0.010	0.010	0.010
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)	RNDZ

STS-84 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A6	A8	A9	A10	A12	A13	A14
PRI								
ROT RATE	10	0.2000	0.2000	<i>0.0500</i>	<i>0.1300</i>	<i>0.1000</i>	<i>0.0500</i>	<i>0.1000</i>
ATT DB	11	5.00	1.00	0.50	2.00	5.00	1.00	0.30
RATE DB	12	0.20	0.10	0.10	0.10	0.20	0.10	0.20
ROT PLS	13	0.10	0.10	0.10	0.10	0.04	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	TAIL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
Y OPTION	16	TAIL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
TRAN PLS	17	0.10	0.05	0.05	0.05	0.01	0.05	0.10
ALT								
RATE DB	18	0.070	0.200	0.200	0.200	0.070	0.200	0.070
JET OPT	19	TAIL	ALL	ALL	ALL	TAIL	ALL	TAIL
# JETS	20	1	2	2	2	3	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	11.28	0.00	0.00
VERN								
ROT RATE	23	0.0500	0.2000	0.0500	0.1300	0.1500	0.0500	0.0450
ATT DB	24	1.000	1.000	0.500	2.000	5.000	1.000	0.100
RATE DB	25	.020	.020	.020	.020	.050	.020	.020
ROT PLS	26	0.010	0.010	0.050	0.050	0.002	0.050	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	8	0	0
PURPOSE		FWD PROP SAVINGS	CORRIDOR	DOCKING	FLY AROUND	MATED STACK MNVRS & HOLD	FAILED CAPTURE	SLM

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

STS-84 GENERIC DAP B CONFIGURATIONS

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

STS-84 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B8	B9	B10	B12	B13
PRI						
ROT RATE	30	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	31	1.00	0.50	2.00	5.00	1.00
RATE DB	32	0.10	0.10	0.10	0.20	0.10
ROT PLS	33	0.04	0.04	0.04	0.04	0.04
COMP	34	.000	.000	.000	.000	.000
P OPTION	35	TAIL	TAIL	TAIL	TAIL	TAIL
Y OPTION	36	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37	0.01	0.01	0.01	0.01	0.01
ALT						
RATE DB	38	0.200	0.200	0.200	0.070	0.200
JET OPT	39	ALL	ALL	ALL	TAIL	ALL
# JETS	40	2	2	2	3	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	11.28	0.00
VERN						
ROT RATE	43	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	44	1.000	0.500	2.000	1.000	1.000
RATE DB	45	.020	.020	.020	.050	.020
ROT PLS	46	0.002	0.020	0.020	0.002	0.020
COMP	47	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	8	0
PURPOSE		CORRIDOR	DOCKING	FLY- AROUND	MATED STACK TIGHT CONTROL	FAILED CAPTURE

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

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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	TRN	DAF	E/S	REF ATT/REMARKS	EVENT
1 000/00:15:00 MET 135/08:22:26 GMT	INRTL R=286.00 MNVR P=134.00 Y=347.00	TRN RATE 0.5000 AUTO DB AT 3.50 PRI DB RT 0.20		SUN R 183 P 142	TIG 0/00:43 LVLH 180/344/0	OMS-2 TV Roll 180 Posigrade
2 000/01:12:00 MET 26:59 135/09:19:26 GMT 34:25	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070		EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	Post Insertion -ZLV -XVV
3 000/02:45:00 MET 52:19 135/10:52:26 GMT 59:45	INRTL R=298.00 MNVR P=318.00 Y= 49.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070		SUN R 60 P 9	Stars -Z: 60, ENIF -Y: 49, KOCHAB	IMU Align Star Pair B1 AOS: 02:46 LOS: 03:32
4 000/03:25:00 MET 39:18 135/11:32:26 GMT 46:44	INRTL R=286.00 MNVR P=133.00 Y=351.00	B1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020		SUN R 182 P 138	TIG = 0/03:41 LVLH 180/348/0	NC-1 (OMS) TV Roll 180 Posigrade
5 000/03:45:00 MET 53:29 135/11:52:26 GMT 12:00:55	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070		EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
6 000/15:27:00 MET 34:44 135/23:34:26 GMT 42:10	INRTL R=288.00 MNVR P=135.00 Y=347.00	B1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020		SUN R 179 P 142	TIG = 0/15:43 LVLH 180/348/0	NC-2 (OMS) TV Roll 180 Posigrade
7 000/15:45:00 MET 51:02 135/23:52:26 GMT 58:28	INRTL R=329.00 MNVR P=102.00 Y= 47.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070		SUN R 152 P 76	Stars -Z: 19, SPICA -Y: 33, PEACOCK	IMU/COAS CAL AOS: 15:52 LOS: 16:36
8 000/16:30:00 MET 40:22 136/00:37:26 GMT 47:48	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070		EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
9 000/17:36:00 MET 48:01 136/01:43:26 GMT 55:27	INRTL R=219.10 MNVR P= 14.00 Y= 22.60	B2 RATE 0.2000 AUTO DB AT 3.00 ALT DB RT 0.070		SUN R 273 P 43	Stars Z: 27, DENEK Y: 83, THETA AURIGAE	SLM-1 AOS: 17:46 27 LOS: 18:33
10 000/17:55:00 MET 18:02:30 136/02:02:26 GMT 09:56	INRTL R=307.50 MNVR P=259.00 Y= 45.60	B2 RATE 0.2000 AUTO DB AT 3.00 ALT DB RT 0.070		SUN R 83 P 47	-Z: 27 Eigen P = 87.7 Y = 358 OM= 90	SLM-2
11 000/18:08:00 MET 15:29 136/02:15:26 GMT 22:55	INRTL R= 66.20 MNVR P=133.10 Y= 31.70	B2 RATE 0.2000 AUTO DB AT 3.00 ALT DB RT 0.070		SUN R 36 P 98	-Z: 83	SLM-3 AOS: 18:13 83 LOS: 18:55
12 000/18:21:00 MET 20 136/02:28:26 GMT 46	INRTL R= 70.10 MNVR P=133.20 Y= 32.30	B2 RATE 0.2000 AUTO DB AT 3.00 ALT DB RT 0.070		SUN R 32 P 98	-Z: 83	SLM-4 (4 deg MnvR)

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
13 000/18:30:00 MET 40:58 136/02:37:26 GMT 48:24	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00 DAPS TO A6,B1	A6 AUTO ALT DB AT 5.00 DB RT 0.070	RATE 0.2000 EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
14 000/22:10:30 MET 136/06:17:56 GMT		B1 LVLH PRI DB AT 3.00 DB RT 0.20	RATE 0.5000 EARTH R 310 P 90	LVLH R= 0.00 HOLD P=130.00 Y=270.00	NPC Multi-axis TIG = 0/22:11
15 000/22:15:00 MET 136/06:22:26 GMT	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 AUTO ALT DB AT 5.00 DB RT 0.070	RATE 0.2000 EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
16 001/02:32:00 MET 39:39 136/10:39:26 GMT 47:05	INRTL R= 66.00 MNVR P=298.00 Y=327.00	B1 AUTO VERN DB AT 1.000 DB RT 0.020	RATE 0.2000 SUN R 3 P 87	TIG = 01/02:47 LVLH 180/348/0	NC-3 (OMS) TV Roll 180 Posigrade
17 001/02:50:00 MET 58:22 136/10:57:26 GMT 11:05:48	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 AUTO ALT DB AT 5.00 DB RT 0.070	EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
18 001/12:00:00 MET 15:00 136/20:07:26 GMT 22:26	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00 GO TO RNDZ C/L	A6 AUTO ALT DB AT 5.00 DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Morning Dump Future Loaded for Wake-up
19 001/13:45:00 MET 55:45 136/21:52:26 GMT 22:03:11	INRTL R=169.00 MNVR P=111.00 Y= 23.00	A6 AUTO ALT DB AT 5.00 DB RT 0.070	SUN R 306 P 100	Stars -Z: 54, DIPEDA -Y: 39, ALHENA	IMU Align Star Pair C1 AOS: 13:58 LOS: 14:35
20 001/14:05:00 MET 17:48 136/22:12:26 GMT 25:14	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 AUTO ALT DB AT 5.00 DB RT 0.070	EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
21 001/14:57:00 MET 136/23:04:26 GMT					NH (No Burn) TIG = 1/14:57
22 001/15:15:00 MET 136/23:22:26 GMT		A7 LVLH VERN DB AT 1.000 DB RT 0.020	RATE 0.2000 EARTH R 310 P 90	LVLH R= 0.00 HOLD P=130.00 Y=270.00	Cancel ITEM 21 LOAD TGT TRACK Execute post NC-4
23 001/15:27:00 MET 41:48 136/23:34:26 GMT 49:14	INRTL R=128.00 MNVR P=100.00 Y= 53.00	A7 AUTO VERN DB AT 1.000 DB RT 0.020	SUN R 354 P 70	TIG = 1/15:42 LVLH 0/12/0	NC-4 (OMS) TV Roll 0 Posigrade
24 001/15:46:00 MET 49:54 136/23:53:26 GMT 57:20	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00	B7 AUTO PRI DB AT 2.00 DB RT 0.20	EARTH R 327 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRACK S TKR NAV PASS

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
25 001/16:16:30 MET 137/00:23:56 GMT		A7 RATE 0.2000 LVLH DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 0	LVLH R= 0.00 HOLD P=270.00 Y= 0.00	NCC Multi-axis TIG = 1/16:17
26 001/16:19:00 MET 30:54 137/00:26:26 GMT 38:20	TGT=2 BV=5 P=340.00 Y= 0.00 OM= 0.00	B7 RATE 0.0280 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 20	LVLH R= 0.00 P=290.00 Y= 0.00	-Z TGT TRACK KU RADAR -16:25
27 001/16:59:00 MET 17:00:38 137/01:06:26 GMT 08:04	INRTL R=126.00 MNVR P=103.00 Y= 51.00	A7 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 354 P 72	TIG = 1/17:15 LVLH 0/12/0	TI BURN (OMS) TV Roll 0 Posigrade
28 001/17:17:00 MET 20:40 137/01:24:26 GMT 28:06	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 333 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRACK
29 001/17:22:00 MET 45:49 137/01:29:26 GMT 53:15	TGT=2 BV=5 P=350.00 Y= 0.00 OM= 0.00	B7 RATE 0.0070 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 10	LVLH R= 0.00 P=280.00 Y= 0.00	-Z TGT TRACK
30 001/17:46:00 MET 54:46 137/01:53:26 GMT 02:02:12	TGT=2 BV=5 P=340.00 Y= 0.00 OM= 0.00	B7 RATE 0.0190 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 20	LVLH R= 0.00 P=290.00 Y= 0.00	-Z TGT TRACK
31 001/17:56:00 MET 18:15:14 137/02:03:26 GMT 22:40	TGT=2 BV=5 P=310.00 Y= 0.00 OM= 0.00	B7 RATE 0.0260 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 50	LVLH R= 0.00 P=320.00 Y= 0.00	-Z TGT TRACK
32 001/18:16:00 MET 20:00 137/02:23:26 GMT 27:26	TGT=2 BV=5 P=285.00 Y= 0.00 OM= 0.00	B7 RATE 0.1040 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 75	LVLH R= 0.00 P=345.00 Y= 0.00	-Z TGT TRACK
33 001/18:27:00 MET 30:51 137/02:34:26 GMT 38:17	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A7 RATE 0.0650 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
34 001/18:37:00 MET 137/02:44:26 GMT	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 90.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20			Start Tail Fwd Mnvr to Dock +ZLV -YVV/-XVV
35 001/18:39:00 MET 43:00 137/02:46:26 GMT 50:26	*** MNVR INTERRUPT *** TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	Docking Att Tail Fwd +ZLV -XVV Beta -33 -18:53
36 001/19:36:00 MET 137/03:43:26 GMT	DAPS to A8,B8			Beta +26 145 < AZ < -35 45 < EL < -45	FINAL APPROACH Range @ 100 ft KU COMM -19:38

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
37 001/20:03:00 MET 137/04:10:26 GMT				Daily Orbit 3	DOCKING 1/20:03 SHK AOS+ 3 min
38 001/20:23:00 MET 46:52 137/04:30:26 GMT 54:18	INRTL R= 67.00 MNVR P=323.00 Y= 39.00 DAPS to A12,B12	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 360 P 11	002/01:07:08	IO 3.1/+35/0 SUN P=11 Y=0 OM=180
39 002/04:30:00 MET 05:04:09 137/12:37:26 GMT 13:11:35	INRTL R= 18.00 MNVR P=351.00 Y=311.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 86 P 100	002/20:31:34	IO 5.1/-105/0 SUN P=163 Y=78 OM=295
40 003/05:00:00 MET 09:33 138/13:07:26 GMT 16:59	INRTL R=349.00 MNVR P=309.00 Y=315.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 89 P 97	Stars -Z: 95, B GRUIS -Y: 73, ACRAB	IMU Align AOS: 05:05 LOS: 05:44
41 003/05:15:00 MET 06:08:42 138/13:22:26 GMT 14:16:08	INRTL R=214.00 MNVR P=273.00 Y= 64.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 147 P 32	003/12:27:42	IO 5.2/+23/0 SUN P=333 Y=17 OM=281
42 003/17:30:00 MET 18:08:08 139/01:37:26 GMT 02:15:34	TGT=2 BV=5 P=226.30 Y= 5.80 OM=274.30	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	EARTH R 172 P 133	LVLH R= 83.87 P= 79.79 Y=314.30	GO-4.1 Waste Dump
43 003/20:10:00 MET 21:09:27 139/04:17:26 GMT 05:16:53	INRTL R= 45.00 MNVR P= 78.00 Y= 2.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 82 P 101	004/04:10:18	IO 4.2/+98/0 SUN P=145 Y=77 OM=10
44 003/21:19:00 MET 139/05:26:26 GMT		B12 RATE 0.0500 FREE DB AT 1.000 VERN DB RT 0.050	SUN R 82 P 101	INRTL R= 45.00 HOLD P= 78.00 Y= 2.00	CNTL H/O TO MIR SHK AOS + 1 min Align Event and MIR Jet Firing
45 003/21:40:00 MET 139/05:47:26 GMT		A12 RATE 0.1500 INRT DB AT 5.000 VERN DB RT 0.050	SUN R 82 P 101	INRTL R= 45.00 HOLD P= 78.00 Y= 2.00	CNTL H/O TO ORB
46 003/21:51:00 MET 139/05:58:26 GMT	INRTL R= 45.00 MNVR P= 78.00 Y= 2.00	A12 RATE 0.1500 AUTO DB AT 5.000 VERN DB RT 0.050	SUN R 82 P 101	004/04:10:18	IO 4.2/+98/0 SUN P=145 Y=77 OM=10
47 004/05:45:00 MET 06:21:54 139/13:52:26 GMT 14:29:20	INRTL R=206.00 MNVR P=282.00 Y= 66.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 143 P 27	004/14:37:20	IO 5.2/+23/0 SUN P=338 Y=16 OM=282
48 004/18:00:00 MET 36:44 140/02:07:26 GMT 44:10	INRTL R= 50.00 MNVR P= 77.00 Y= 2.00	B12 RATE 0.0500 AUTO DB AT 1.000 VERN DB RT 0.050	SUN R 77 P 101	005/00:09:34	IO 4.2/+94/0 SUN P=130 Y=73 OM=354

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
49 005/03:00:00 MET 36:01 140/11:07:26 GMT 43:27	INRTL R=199.00 MNVR P=290.00 Y= 67.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 139 P 24	005/10:37:38	IO 5.2/+23/0 SUN P=342 Y=15 OM=283
50 005/06:15:00 MET 27:58 140/14:22:26 GMT 35:24	INRTL R=324.00 MNVR P=166.00 Y= 69.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 112 P 58	Stars Z:94,COR CAROLI Y:70,MUHLIFAIN	IMU Align AOS: 06:24 LOS: 06:56
51 005/06:35:00 MET 47:58 140/14:42:26 GMT 55:24	INRTL R=199.00 MNVR P=290.00 Y= 67.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 139 P 23	005/10:37:38	IO 5.2/+23/0 SUN P=342 Y=15 OM=283
52 005/14:00:00 MET 55:00 140/22:07:26 GMT 23:02:26	INRTL R=134.00 MNVR P=167.00 Y=319.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 271 P 162	005/20:19:54	IO 3.2/+133/0 SUN P=180 Y=342 OM=359
53 005/18:00:00 MET 58:54 141/02:07:26 GMT 03:06:20	TGT=2 BV=5 P=226.30 Y= 5.80 OM=274.30	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	EARTH R 172 P 133	LVLH R= 83.87 P= 79.79 Y=314.30	GO-4.1 Waste Dump
54 005/20:30:00 MET 21:02:18 141/04:37:26 GMT 05:09:44	INRTL R=134.00 MNVR P=167.00 Y=319.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 271 P 162	005/20:19:54	IO 3.2/+133/0 SUN P=180 Y=342 OM=359
55 006/05:30:00 MET 06:25:38 141/13:37:26 GMT 14:33:04	INRTL R=192.00 MNVR P=298.00 Y= 67.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 134 P 20	006/06:37:57	IO 5.2/+23/00 SUN P=346 Y=14 OM=284
56 006/19:15:00 MET 20:10:44 142/03:22:26 GMT 04:18:10	INRTL R=136.00 MNVR P=167.00 Y=326.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 281 P 155	007/01:32:44	IO 3.2/+128/0 SUN P=175 Y=336 OM=358
57 007/05:49:00 MET 57:29 142/13:56:26 GMT 14:04:55	INRTL R=129.00 MNVR P=150.00 Y=304.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 193 P 176	Stars Z: 50, AVIOR Y: 87, ZOZCA	IMU Align AOS: 05:58 LOS: 06:27
58 007/06:05:00 MET 07:04:23 142/14:12:26 GMT 15:11:49	INRTL R=184.00 MNVR P=311.00 Y= 69.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	SUN R 115 P 17	007/11:53:16	IO 5.2/+27/0 SUN P=353 Y=15 OM=288
59 007/16:52:00 MET 17:03:26 143/00:59:26 GMT 01:10:52	TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	A12 AUTO VERN	RATE 0.1500 DB AT 5.000 DB RT 0.050	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	+ZLV -XVV Undock Attitude SS 7/16:52
60 007/17:20:00 MET 143/01:27:26 GMT	TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	B12 AUTO VERN	RATE 0.0500 DB AT 1.000 DB RT 0.050	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	DB Collapse

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
61 007/17:27:00 MET 143/01:34:26 GMT	DAP: FREE DAPS to A8,B8*			Daily Orbit 3	UNDOCK @ 17:32 SHK AOS + 3 min	
62 007/17:38:00 MET 143/01:45:26 GMT		A8 LVLH DB AT 1.000 VERN DB RT 0.020	RATE 0.1000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 HOLD P=180.00 Y= 0.00	Post Undock Range @ 2 ft
63 007/17:39:00 MET 143/01:46:26 GMT	TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	A8 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.1000 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 Range @ 30 ft KU RADAR -17:47
64 007/18:38:00 MET 43:00 143/02:45:26 GMT 50:26	TGT=2 BV=5 P=300.00 Y= 0.00 OM=180.00 DAPS TO A7,B7	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.1000 DB AT 1.000 DB RT 0.020	EARTH R 180 P 60	LVLH R=180.00 P=210.00 Y= 0.00	-Z TGT TRACK OSVS
65 007/18:43:00 MET 52:31 143/02:50:26 GMT 59:57	TGT=2 BV=5 P=320.00 Y= 0.00 OM=180.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0350 DB AT 1.000 DB RT 0.020	EARTH R 180 P 40	LVLH R=180.00 P=230.00 Y= 0.00	-Z TGT TRACK
66 007/18:53:00 MET 19:07:18 143/03:00:26 GMT 14:44	TGT=2 BV=5 P=340.00 Y= 0.00 OM=180.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0233 DB AT 1.000 DB RT 0.020	EARTH R 180 P 20	LVLH R=180.00 P=250.00 Y= 0.00	-Z TGT TRACK
67 007/19:08:00 MET 20:40 143/03:15:26 GMT 28:06	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=310.00 DAPS TO A6,B1	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 50.00	Bias +YVW -ZLV Water Dump Region C KU COMM -19:30
68 007/21:00:00 MET 11:59 143/05:07:26 GMT 19:25	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
69 008/04:00:00 MET 08:21 143/12:07:26 GMT 15:47	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV RME 1302 - MEFC
70 008/22:30:00 MET 38:21 144/06:37:26 GMT 45:47	TGT=2 BV=5 P= 90.00 Y=310.00 OM= 90.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 310 P 90	LVLH R= 0.00 P=130.00 Y=270.00	Bias -YLV +ZVV Radiator Debris Protection
71 009/05:00:00 MET 04:10 144/13:07:26 GMT 11:36	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV -YVW EOM Thermal Conditioning
72 009/23:03:00 MET 17:31 145/07:10:26 GMT 24:57	TGT=4 BV=5 P=184.00 Y= 0.00 OM=270.00 RA= 61.439 DEC= 20.853N	A1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 180 P 176	INRTL R=207.83 P=147.65 Y=306.55	-XSI COLD SOAK

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
73 010/00:22:00 MET 34:25 145/08:29:26 GMT 41:51	INRTL R=260.00 MNVR P=317.00 Y= 1.00	AI RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 187 P 54	IMU Pair Z: 43, RASALHAGUE Y: 44, MERAK	D/O IMU ALIGN
74 010/00:42:00 MET 47:50 145/08:49:26 GMT 55:16	INRTL R= 25.00 MNVR P=230.00 Y=295.00	B1 RATE 0.5000 AUTO DB AT 3.00 PRI DB RT 0.20	SUN R 5 P 139	Verif Pair Z: 38, NAVI Y: 58, DENEBA ALGEDI	D/O IMU VERIF
75 010/00:55:00 MET 59:18 145/09:02:26 GMT 06:44	INRTL R= 35.00 MNVR P=111.00 Y=326.00	TRN RATE 0.5000 AUTO DB AT 3.50 PRI DB RT 0.20	SUN R 90 P 150	Sun P = 180 Y = 30 OM= 56	D/O THERMAL & COMM
76 010/03:03:00 MET 08:56 145/11:10:26 GMT 16:22	INRTL R=209.00 MNVR P= 22.00 Y= 32.00	TRN RATE 0.5000 AUTO DB AT 3.50 PRI DB RT 0.20	SUN R 283 P 48	TIG 10/03:20	D/O BURN

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

FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

FLIGHT PLAN
NOTES

A. FLIGHT DESCRIPTION

Orbiter: OV104/Atlantis
 Inclination: 51.6°
 Insertion Altitude: 160 nm
 Mir Docking Altitude: 215 X 205 nm
 Duration: 9 +1 + 1 + 2 days
 (6 docked days, +1 for FD4 docking, +2 for Wx/Contingency)

B. SHUTTLE/MIR MISSION-6 (S/MM-06) OVERVIEW

The primary objectives of S/MM-06 are docking and exchange of MS5/MS6; transfer of science equipment, Russian logistics and hardware; and, performance of Risk Mitigation Experiments (RMEs) in support of Phase 1 program requirements. A double Spacehab module is used to transport transfer items and conduct microgravity and life science investigations.

C. MAJOR EVENTS

<u>EVENT</u>	<u>ORBIT</u>	<u>MET</u>	<u>CDT</u>
Launch	--	00/00:00	03:07
OMS-2	1	00/00:43	03:50
NC1	3	00/03:41	06:48
NC2	11	00/15:43	18:50
NPC	15	00/22:11	01:18
NC3	18	01/02:47	05:54
NH	26	01/14:57	18:04
NC4	27	01/15:42	18:49
Ti	28	01/17:15	20:22
Docking	30	01/20:03	23:10
Undocking	122	07/17:32	20:39
Deorbit	159	10/03:20	06:27
Landing	160	10/04:20	07:27

D. LANDING OPPORTUNITIES

		<u>Landing Orbit</u>	<u>Site</u>	<u>Local Time</u>	<u>MET</u>
		<u>No.</u>			
Nominal	Primary	160	KSC	08:27 EDT	10/04:20
	1 Rev Late	161	KSC	10:03 EDT	10/05:56
	Weather Alt	162	EDW	08:32 PDT	10/07:25
1 Day Late	Primary	175	KSC	07:29 EDT	11/03:22
	Weather Alt	176	EDW	05:58 PDT	11/04:51
2 Days Late	Primary	191	KSC	08:08 EDT	12/04:01
	Weather Alt	192	EDW	06:36 PDT	12/05:29

E. CREW

STS-84

CDR - Charlie Precourt
PLT - Eileen Collins
MS1 - Jean-Francois Clervoy
MS2 - Carlos Noriega
MS3 - Edward Lu
MS4 - Elena Kondakova
MS5 (UP) - Mike Foale
MS6 (DN) - Jerry Linenger

Mir-23

CDR - Vasily Tsibliev
ENG - Alexander Lazutkin

F. COMMUNICATIONS

TDRS Support:

East (41° W), West (174° W), Z (85° E)

Backup Real-Time TV:

Goldstone - GDS(GDX), Merritt Island - MIL(MLX)

Backup Comm for Russian use:

Wallops (WLP), Dryden (DFC)

Contingency GSTDN:

MIL(MLX*), Bermuda - BDA(BDX*), GDS(GDX), Wallops - WLP, and Dryden - DFR

Contingency RTS:

Hawaii (HTS), Guam (GTS), Vandenburg (VTS),
Diego Garcia (DGS), Oak Hanger (OTS*),
New Hampshire (NHS), and Colorado (CTS)

*UHF capability

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

MIR

Altair:

1/West (16° W)

Ground Sites:

Shelkovo (SHK), Dzhusali (DJS), Kolpashevo (KLP), Ulan-Udeh (ULD),
Ussurisk (USK), Petropavlosk-Kamchatski (PPK), and St. Petersburg (SPB)

G. TELEVISION/PHOTOGRAPHY

The CCTV systems provide one wide-angle Camera and one Camcorder for in-cabin coverage. There will be four PLB Color TV Cameras and two docking Color TV Cameras (mounted on the ODS truss and the airlock centerline). In addition, two Electronic Still Cameras (ESC-II) will be flown.

H. RUSSIAN LOGISTICS

The major transfer items transferred to Mir are 48 containers of food, 1400 lbs of water, hygiene supplies, clothing, film, three batteries, current converter, cosmonaut family packs and psychological support packs, Foale Soyuz seat liner (IELK), water containers (EDV), and one gyrodyne. The major items coming down are a navigation unit (Kurs), gyrodyne ring, 80 empty food containers, and Soyuz seat liner. Also personal dosimeters will be exchanged.

I. SPACEHAB

The double module will be accommodating soft stowage bags, lockers, rack mounted experiments, and supporting subsystems. The Spacehab environmental control system is designed to accommodate two crewmembers on a continuous basis. Additional crewmembers are accommodated for brief periods at the expense of reduced cabin air heat rejection capability. Payload summaries are given in the following paragraphs:

1. RUSSIAN CARGO

The Russian cargo items are located in the Spacehab module in soft stowage bags, lockers, and a Spacehab double rack. The crew will be required to detach these items from the module and transfer them to the docking tunnel where they will be transferred to the Mir. Some examples include Gyrodyne, stowage battery, IELK crew seatliners, and Elektron unit.

2. BIORACK

Biorack is a multipurpose facility enabling the investigation of the effects of microgravity and cosmic radiation on the development of plants, tissues, cells, and fungus. The Biorack is one half of a standard Spacehab double rack containing a number of modular units and stowage items. The equipment consists of two incubators, a glovebox, two Passive Thermal Conditioning Units (PTCU), an Inflatable Thermal Control Unit (ITCU), two types of experiment containers, and a photobox.

3. LIFE SCIENCES LABORATORY EQUIPMENT (LSLE)

The LSLE refrigerator/freezer will be activated on FD2 and will be used through landing for cold storage of Biorack samples and Mir return samples. LSLE requires daily status checks.

4. ENHANCED ORBITER REFRIGERATOR/FREEZER (EOR/F)

The EOR/F is launched powered as a freezer. On FD5 it is converted to a refrigerator in support of cold stowage returns from Mir.

5. INTRA-VEHICULAR RADIATION ENVIRONMENT MEASUREMENT EXPERIMENT (RME 1312 - MANIFESTED AS PART OF S/MM-06 COMPLEMENT)

The Intra-Vehicular Radiation Environment Measurement by the Real-time Radiation Monitor (RRMD) measures elemental composition and energy spectra of cosmic radiation levels for ions with high charge and high energy (HZE) as the shuttle orbits the Earth. Collected data is downlinked. The RRMD is partially stowed in the Spacehab with flight unique middeck stowage provided.

6. LIQUID MOTION EXPERIMENT (LME)

The objective of the LME payload is to investigate inertia wave oscillations of liquids in tanks spinning around an exterior axis that is nutating under microgravity conditions. The LME hardware consists of a spin table and experiment computer mounted on a middeck double adapter plate/payload mounting panels, three sets of four model tanks containing liquids, an SSP-provided Payload and General Support Computer (PGSC), two SSP-provided video camcorders, and other associated hardware. Operations commence post-undocking and will last approximately 1.5 flight days (mostly unattended).

7. COMMERCIAL VAPOR DIFFUSION APPARATUS (CVDA)

The CVDA experiment will produce large, high-quality protein crystals under controlled conditions in microgravity for protein crystallographic analysis of molecular structures via x-ray diffraction and computer modeling. The experiment is housed in one CR/IM set at 20 degC. CVDA is activated as soon as possible and deactivated as late as possible.

8. SELF STANDING DRAWER/MORPHOLOGICAL TRANSITIONS AND MODEL SUBSTANCES (SSD-MOMO)

The SSD provides the user with a sealed container for the accommodation of an internal payload which may require electrical power and cooling. The MOMO experiment is aimed to observe the solidification of a modal substance. The experiment comprises a low temperature furnace, a camera unit, and a data handling and recording unit. The modal substance is a mixture of Succinonitril and Acetone. SSD-MOMO is activated as soon as possible and deactivated as late as possible.

J. MIDDECK SCIENCE

The middeck science complement consists of an exchange of science hardware and science samples transferred to and from Mir. Examples of items being transferred to Mir include Beetle Kits, PCG-GN2 Freezer/Dewar, and Mir Science Flight Data File. The Thermoelectric Holding Module (TEHM) is used in support of cold stowage returns from Mir. The TEHM is launched powered as a refrigerator and on FD5 it is converted to a freezer. Reference the Flight Requirements Document (FRD) Phase - 1 Requirements for further details.

K. SHUTTLE IONOSPHERIC MODIFICATION WITH PULSED LOCAL EXHAUST (SIMPLEX)

SIMPLEX is an experiment of opportunity with no manifested hardware. Hardware which utilizes orbiter OMS thruster firings to create ionospheric disturbances for observation by ground based radar sites. Three radar sites (Arecibo, Kwajalein, and Jicamarca) will also use a low-level laser to observe the thruster firing. The objective of SIMPLEX is to determine the source of Very High Frequency (VHF) radar echoes.

L. MIDCOURSE SPACE EXPERIMENT (MSX)

An experiment of opportunity with no manifested hardware. Utilizes orbiter OMS or PRCS thruster firings, S-band transmissions or surface structure for MSX satellite sensor calibrations. The space-based MSX sensors may collect data during any encounter opportunity when the orbiter support activities can be planned to meet any of the forty test criteria.

M. PROTEIN CRYSTAL GROWTH - SINGLE LOCKER THERMAL ENCLOSURE SYSTEM (PCG-STES)

The PCG-STES payload is designed to conduct experiments which will supply information on the scientific methods and dynamics of growing large high-quality protein crystals in microgravity. The PCG-STES will be installed and operated in the orbiter middeck. The PCG-STES payload consists of an STES (a refrigeration and incubation module), its contents, and various stowed items. PCG-STES is activated as soon as possible on FD2 and deactivated as late as possible. The requirements have been modified to be manifested on STS-84.

N. RISK MITIGATION EXPERIMENTS (RMEs)

1. COSMIC RADIATION EFFECTS AND ACTIVATION MONITOR (CREAM)

CREAM consists of one active and four passive units. On FD2 the passive units will be installed on the airlock ceiling, airlock floor, middeck floor, and starboard middeck wall. The active unit will be installed on the airlock ceiling or starboard middeck wall every 48 hours.

2. RADIATION MONITORING EQUIPMENT-III (RME-III)

The Radiation Monitoring Equipment-III experiment consists of two handheld instruments with replaceable memory modules that will be transferred to Mir for data taking, then returned to the shuttle prior to undocking.

3. MIR ELECTRONIC FIELDS CHARACTERIZATION (MEFC) (RME 1302)

RME 1302 is a study of radio frequency interference in a 400 MHz to 18 GHz range resulting from ground based communication and radar transmitters and internal Mir environment. Test 1 is performed with an antenna and spectrum analyzer mounted in the shuttle port overhead window post undocking. Test 2 is performed with the same spectrum analyzer and a Mir antenna inside the Mir core and Spektr modules.

4. SHUTTLE/MIR EXPERIMENT KITS (RME 1303)

RME 1303 is a group of technology demonstration experiments transported to and from Mir. STS-84 will bring down data disks for Experiment Kit 1 - Enhanced Dynamic Loads Sensor, Experiment Kit 2 - MASU (Mir Auxiliary Sensor Unit) for MiSDE, and Experiment Kit 3 - Water Experiment.

5. EUROPEAN SPACE AGENCY (ESA) PROXIMITY OPERATIONS SENSOR (EPS) (RME 1314)

The function of the ESA proximity operations sensor is to perform Rendezvous Sensor (RVS) and Relative Global Positioning Satellite (RGPS) experiments and evaluate the performance of the related technology. The results of the experiment are to be used to evaluate technology which will be applied to space and ground systems used during ATV rendezvous and proximity operations with the International Space Station (ISS). The mission objectives are performed during rendezvous and during separation with the Russian space station Mir by gathering data using one Global Positioning Satellite (GPS) receiver and two antennas mounted in the orbiter and another GPS receiver and antennas mounted on the Mir. Data is also gathered during proximity operations using the RVS mounted in the orbiter and retroreflectors mounted on the Mir.

6. MIR STRUCTURAL DYNAMICS EXPERIMENT (MiSDE) (RME 1317)

RME 1317 obtains structural dynamics response data on the Mir and shuttle/Mir mated configuration from shuttle docking, day/night and night/day transitions, Mir and shuttle thruster firings, and crew activity onboard the Mir. Data will also be recorded during quiescent periods defined as no crew exercise and non-quiescent periods defined as treadmill or ergometer activity.

7. TREADMILL VIBRATION ISOLATION AND STABILIZATION (TVIS) -
CONFIGURATION B - TREADMILL HARDMOUNTED ONLY
(RME 1318)

This RME manifests the treadmill for MS6 exercise requirements. The treadmill is hardmounted during operations and only used post-undocking.

8. ELECTROLYSIS PERFORMANCE IMPROVEMENT CONCEPT STUDY
(EPICS) (RME 1321)

The EPICS consists of three different Integrated Electrolysis Units (IEUs), each containing an integrated electrolysis cell with a thermal control plate and two accumulators. The integrated electrolysis cell consists of an electrolysis cell and a recombiner cell. The electrolysis cell is used to electrolyze water and its performance is of prime interest in this experiment. The recombiner cell is used to recombine hydrogen (H₂) and oxygen (O₂) produced by the electrolysis cell to form water and thereby eliminate the need for external feed water or product gas interfaces.

O. ON-ORBIT DETAILED TEST OBJECTIVES (DTOs)

1. ACOUSTICAL NOISE DOSIMETER DATA (DTO 663)

DTO 663 obtains noise level data during shuttle hardmounted exercise treadmill operations post-undocking.

2. ORBITER SPACE VISION SYSTEM FLIGHT VIDEO TAPING (OSVS)
(DTO-700-10)

DTO-700-10 records camera video of targets mounted on the Orbiter Docking System (ODS) and Mir Docking Module (DM) under varying on-orbit conditions for post flight analysis. Planned video consists of recording DM targets during approach and docking, DM and ODS targets while mated during 4-5 day passes and 2 night passes with orbiter bulkhead lights on, and ODS targets over 2 day passes while unmated in a -ZLV attitude.

3. GLOBAL POSITIONING SYSTEM/INERTIAL NAVIGATION SYSTEM (GPS/INS)
(DTO-700-12)

DTO-700-12 demonstrates GPS/INS inertial navigation performance in a space vehicle environment during all mission phases. GPS/INS data recorded during ascent, on-orbit, and entry along with orbiter GPC data will be transferred to a dedicated PGSC and periodically downlinked via OCA PGSC. A Star Line Maneuver (SLM) is required during one of the early data take periods to determine GPS/INS orientation with respect to orbiter body after orbiter flexure in zero-G.

4. SINGLE STRING GLOBAL POSITION SYSTEM (DTO-700-14)

DTO-700-14 demonstrates performance of the GPS during ascent, on-orbit, and entry phases using a modified GPS receiver and existing orbiter GPS antennas. Ascent and entry data will be downlinked during BFS operations. On-orbit data will be recorded on a dedicated PGSC hard drive.

5. MICROMETEOROID/ORBITAL DEBRIS PHOTO AND VIDEO SURVEY OF MIR (DTO-1118)

DTO-1118 conducts a photographic and video survey of Mir from shuttle and Mir windows to assess the overall condition of Mir, document shuttle approach and separation, assess relative motion, and analyze plume impingement. Real-time or recorded video will be downlinked when practical.

P. ON-ORBIT DETAILED SUPPLEMENTAL OBJECTIVES (DSOs)

1. LES AND SUSTAINED WEIGHTLESSNESS ON EGRESS LOCOMOTION (DSO 331)

This study is designed to investigate the effect of the Space Shuttle Launch Entry Suit/Advanced Crew Escape Suit (LES/ACES) on crew locomotion and the emergency egress capacity of crewmembers at wheels stop.

2. EDUCATIONAL ACTIVITIES (DSO 802)

The purpose of this DSO is to produce an educational video lesson, approximately 20 minutes in length, with scenes recorded on-orbit and on the ground. The crew will film several scenes per storyboard on-orbit, using a Camcorder.

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CUE CARD
CONFIGURATION

CUE CARD CONFIGURATION

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VELCRO

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VELCRO

STS-84 GENERIC DAP A CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A7
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	2.00
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	ALL
Y OPTION	16	ALL	ALL	TAIL	ALL	ALL	ALL
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	0.200
JET OPT	19	ALL	ALL	ALL	ALL	ALL	ALL
# JETS	20	2	2	2	2	1	2
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	0.010	0.010	0.010	0.010	0.010	0.010
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)	RNDZ

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"STS-84 GENERIC DAP A CONFIGURATIONS"
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STS-84 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A6	A8	A9	A10	A12	A13	A14
PRI								
ROT RATE	10	0.2000	0.2000	0.0500	0.1300	0.1000	0.0500	0.1000
ATT DB	11	5.00	1.00	0.50	2.00	5.00	1.00	0.30
RATE DB	12	0.20	0.10	0.10	0.10	0.20	0.10	0.20
ROT PLS	13	0.10	0.10	0.10	0.10	0.04	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	TAIL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
Y OPTION	16	TAIL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
TRAN PLS	17	0.10	0.05	0.05	0.05	0.01	0.05	0.10
ALT								
RATE DB	18	0.070	0.200	0.200	0.200	0.070	0.200	0.070
JET OPT	19	TAIL	ALL	ALL	ALL	TAIL	ALL	TAIL
# JETS	20	1	2	2	2	3	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	11.28	0.00	0.00
VERN								
ROT RATE	23	0.0500	0.2000	0.0500	0.1300	0.1500	0.0500	0.0450
ATT DB	24	1.000	1.000	0.500	2.000	5.000	1.000	0.100
RATE DB	25	.020	.020	.020	.020	.050	.020	.020
ROT PLS	26	0.010	0.010	0.050	0.050	0.002	0.050	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	8	0	0
PURPOSE		FWD PROP SAVINGS	CORRIDOR	DOCKING	FLY-- AROUND	MATED STACK MNVRS & HOLD	FAILED CAPTURE	SLM

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

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VELCRO

STS-84 GENERIC DAP B CONFIGURATIONS

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

HINGE

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TOP
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"STS-84 GENERIC DAP B CONFIGURATIONS"
HINGE

STS-84 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B8	B9	B10	B12	B13
PRI						
	30					
ROT RATE	31	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	32	1.00	0.50	2.00	5.00	1.00
RATE DB	33	0.10	0.10	0.10	0.20	0.10
ROT PLS	34	0.04	0.04	0.04	0.04	0.04
COMP	35	.000	.000	.000	.000	.000
P OPTION	36	TAIL	TAIL	TAIL	TAIL	TAIL
Y OPTION	37	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS		0.01	0.01	0.01	0.01	0.01
ALT						
RATE DB	38	0.200	0.200	0.200	0.070	0.200
JET OPT	39	ALL	ALL	ALL	TAIL	ALL
# JETS	40	2	2	2	3	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	11.28	0.00
VERN						
ROT RATE	43	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	44	1.000	0.500	2.000	1.000	1.000
RATE DB	45	.020	.020	.020	.050	.020
ROT PLS	46	0.002	0.020	0.020	0.002	0.020
COMP	47	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	8	0
PURPOSE		CORRIDOR	DOCKING	FLY- AROUND	MATED STACK TIGHT CONTROL	FAILED CAPTURE

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

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ZC01/JENKINS, L.W.
ZC20/MEREDITH, M.

BNA-DOWNEY
841-2, AC85/TAYLOR, B.N.
AA05/WOOLHOUSE, D.L.
AC28/HARPER, L.
AD60/MC MILLAN, B.J.
AD75/STS DATA MGMT
AE70/GALLARDO, J.A.
AE85/BRYON, K.
FA19/FERGUS, E.M.
FA35/GULSBY, J.A.
FA43/SINCLAIR, G.M.
FA99/LARSON, J.J.
FB13/INGRAM, K.
FB14/ITO, J.K.
FB75/MC DERMOTT, W.A.
FC94/GOOSSENS, M.H.
FC94/IMPASTATO, J.
FC95/FRIEND, R.

NASA GSFC
530/MORSE, G.
542.2/HILL, P.
553.3/DELL, G. (3)
724.0/SWANSON, T.
740.3/OLDEN, S.

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

NASA KSC
CV-PSD-1/MACKEY, A.J.
F264/LINTEREUR, P.
KSC/KSC TECH LIBRARY-D
PA-PIB/GRINTER, K.
TP-LOD-1/SOWASH, S. (2)
TP-PED-3/VITT OFFICE
TP-PED-3A/CREW QUARTERS
USK-215/KELLY, T.E.
USK-247/HOOPER, J. (2)

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

NASA MSFC
CA10/BERG, J.
CN31D/TECH DOC REPOSITORY
EL23/JOHNSON, DALE
EO02/MELTON, T. (2)
EO26/PDF MGR (2)
EO46/BRANCH CHIEF
EO52/CHIEF DATA MGMT
NTI/MARSHAL OPERATIONS

FALCON AIR FORCE BASE
LAUNCH OPS
50 OSS/OSPL
300 O'MALE AVENUE
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LAUNCH OPERATIONS OFF

** U.S. MAIL **

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32B3/JASKOLKA, C.

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442/OLSON, K.

ROCKWELL INTERNATIONAL CORP.
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