

FLIGHT DATA FILE

Flight Plan

STS-89

(L-1 Month Trajectory)

**Mission Operations Directorate
Operations Division**

**Final, Rev A
January 7, 1998**

<u>EVENT</u>	<u>CST</u>		
Launch	20:48	Thur	Jan 22, 1998
Mir Docking	14:12	Sat	Jan 24, 1998
Mir Undocking	10:53	Thur	Jan 29, 1998
KSC Landing	16:36	Sat	Jan 31, 1998

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

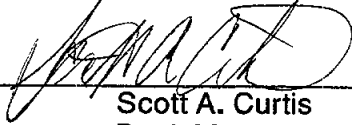


MISSION OPERATIONS DIRECTORATE

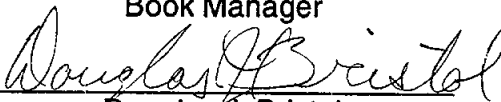
STS-89 FLIGHT PLAN

FINAL, REVISION A
January 7, 1998

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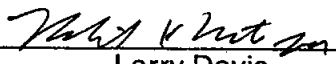
APPROVED BY:



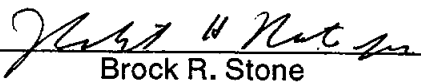
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3-75	89/FIN A	3-108	89/FIN A
3-76	89/FIN A	4-1	89/FIN A
3-77	89/FIN A	4-2	89/FIN A
3-78	89/FIN A	4-3	89/FIN A
3-79	89/FIN A	4-4	89/FIN A
3-80	89/FIN A	4-5	89/FIN A
3-81	89/FIN A	4-6	89/FIN A
3-82	89/FIN A	5-i	* 89/FIN A
3-83	89/FIN A	5-ii	* 89/FIN A
3-84	89/FIN A	5-1	* 89/FIN A
3-85	89/FIN A	5-2	* 89/FIN A
3-86	89/FIN A	5-3	* 89/FIN A
3-87	89/FIN A	5-4	* 89/FIN A
3-88	89/FIN A	5-5	* 89/FIN A
3-89	89/FIN A	5-6	* 89/FIN A
3-90	89/FIN A	5-7	* 89/FIN A
3-91	89/FIN A	5-8	* 89/FIN A
3-92	89/FIN A	6-1	* 89/FIN A
3-93	89/FIN A	6-2	* 89/FIN A
3-94	89/FIN A	6-3	* 89/FIN A
3-95	89/FIN A	6-4	* 89/FIN A
3-96	89/FIN A	6-5	* 89/FIN A
3-97	89/FIN A	6-6	* 89/FIN A
3-98	89/FIN A	6-7	* 89/FIN A
3-99	89/FIN A	6-8	* 89/FIN A
3-100	89/FIN A	6-9	* 89/FIN A
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3-105	89/FIN A	CC 7-4	* 89/FIN A
3-106	89/FIN A	CC 7-5	* 89/FIN A
3-107	89/FIN A	7-6	* 89/FIN A

STS-89 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
STS-89 GENERIC DAP A CONFIGURATIONS (Top/Front)	CC 7-2	FLT PLN-1a/89/O/A
STS-89 GENERIC DAP B CONFIGURATIONS (Top/Back)	CC 7-3	FLT PLN-1aa/89/O/A
STS-89 FLIGHT SPECIFIC DAP A CONFIGURATION (Bottom/Front)	CC 7-4	FLT PLN-1b/89/O/A
STS-89 FLIGHT SPECIFIC DAP B CONFIGURATIONS (Bottom/Back)	CC 7-5	FLT PLN-1bb/89/O/A

* - Omit from flight book

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INTRODUCTION

The STS–89 Flight Plan is the Flight Data File article that contains the on–orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists.

The Flight Plan, as part of the Flight Data File, meets the specifications of the Engineering Cycle version of the STS–89 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of January 22, 1998, at 20:48 CST. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

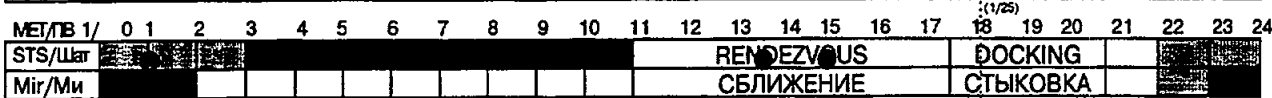
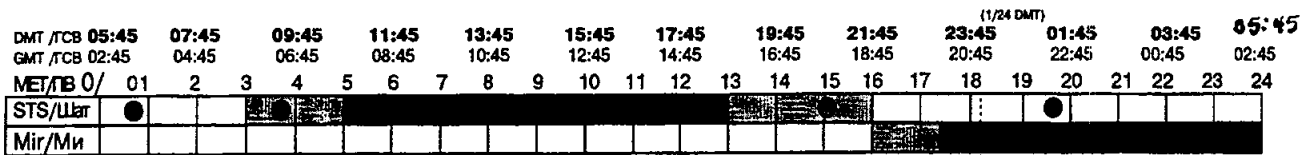
JSC–22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992 has been used to build the timelines contained in this Flight Plan. Proposed changes for Appendix K, Rev C have also been included in the Flight Plan.

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

OVERVIEW TIMELINE

STS-89 FD3 DOCKING, DAILY ORBIT 2
02:48 GMT LAUNCH(1/23/98), ASCENDING LANDING (00:24 before SS)

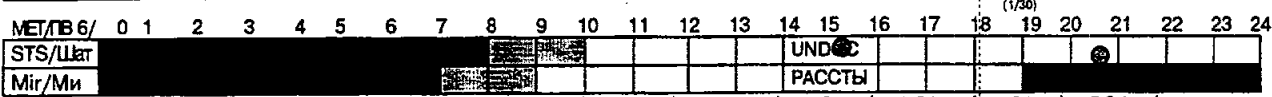
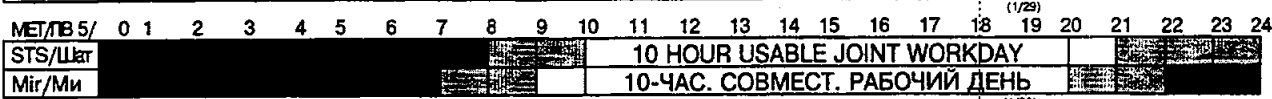
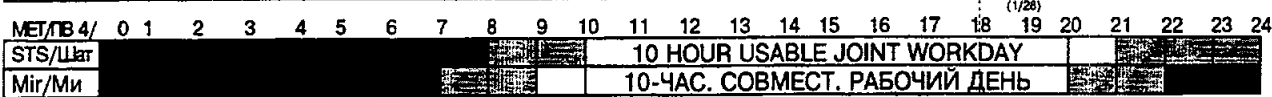
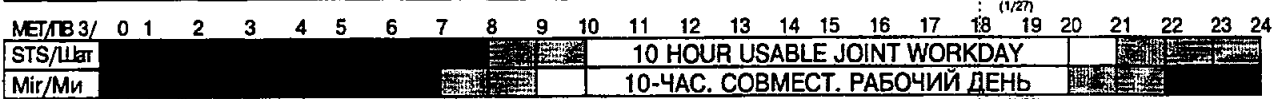
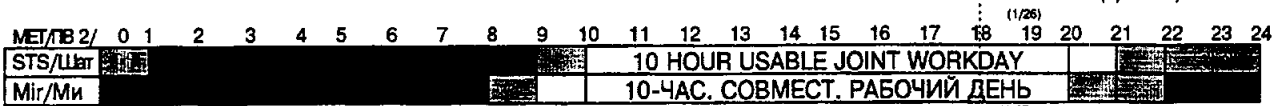
УНИВЕРСАЛЬНАЯ ЦИКЛОГРАММА СОВМЕСТНОГО ПОЛЁТА, ПРИ СТАРТЕ В 02:48
ПО ГСВ, СТЫКОВКЕ С МИРОМ НА ТРЕТИЙ ДЕНЬ ПОЛЁТА НА 2-м СУТОЧНОМ
ВИТКЕ, И ПОСАДКЕ ШАТТЛА С ВОСХОДЯЩЕЙ ЧАСТИ ТРАЕКТОРИИ



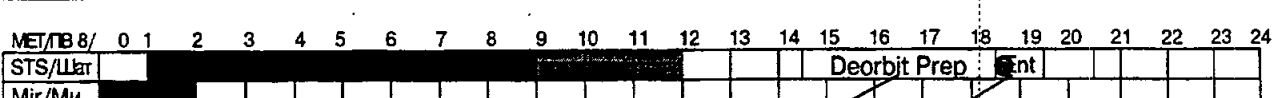
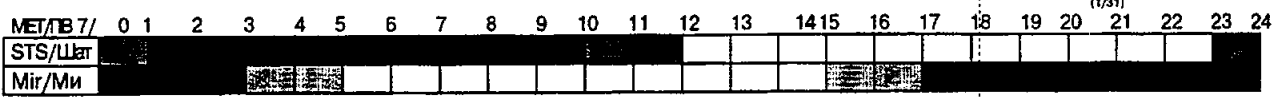
RENDEZVOUS DOCKING
СБЛИЖЕНИЕ СТЫКОВКА

* 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

---DO15---|---DO1---|---DO2---|---DO3---|
СВ 15 СВ 1 СВ 2 СВ 3
↑ DO2 DOCK = 1/17:24
↑ СТЫК НА СВ 2 (1/17:24)



---DO14---|---DO15---|---DO1---|---DO2---|---DO3---|---DO4---|
СВ 14 СВ 15 СВ 1 СВ 2 СВ 3 СВ 4



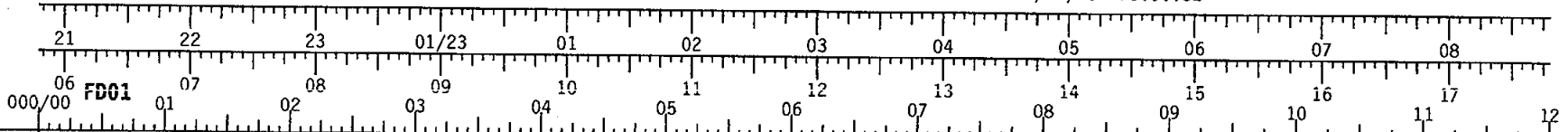
↑ KSC LANDING (08/19:48)ASC
↑ ПОСАДКА ВКЦК (08/19:48)
Вход в атмосферу
Подготовка к сходу с орбиты

Launch	0	0:00	1/22 20:48	1/22 21:48	1/23 2:48	1/23 5:48
Docking	1	17:24	1/24 14:12	1/24 15:12	1/24 20:12	1/24 23:12
Undocking	6	14:04	1/29 10:52	1/29 11:52	1/29 16:52	1/29 19:52
D/O TIG	8	18:44	1/31 15:32	1/31 16:32	1/31 21:32	2/1 0:32
Landing	8	19:48	1/31 16:36	1/31 17:36	1/31 22:36	2/1 1:36

SUMMARY TIMELINE

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CT 01/22/98
 DMT 01/23/98
 MET Day 000

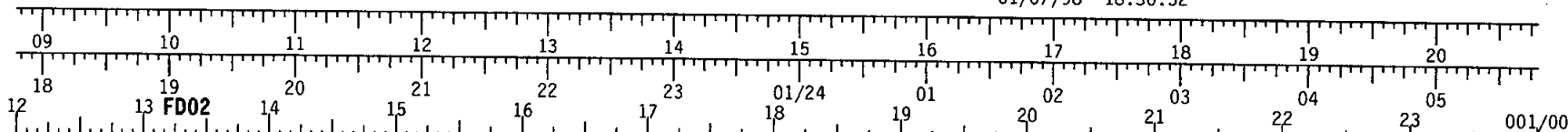


CDR T. WILCUTT		POST INSERT	PLA ERK ON		NC1 OMS BURN	+Z LV	M N LV	G R P R D N	P S L E E P	P M R E E D	P S L E E P	SLEEP
PLT J. EDWARDS		POST INSERTION	P O S T	GIRA INSTALL	OMS BURN	A C F N T L R			P R E S L E E P	A P T U R *		SLEEP
MS1 J. REILLY	L A O	POST INSERTION		SH ACT	O S E T U P	N S /	T E H M		P R E S L E E P			SLEEP
SIGI	U M S - 2											SIGI DATA RUN #1
MS2 M. ANDERSON	H - 2	POST INSERTION	K U D P Y & A C T	S I G I U N S T W	O B S E R V A T I O N	C T E A P P E R A E S	S I G I D /	S I G I A C T	G A S 1 A C T	M C H K S	P S L E E P	SLEEP
MS3 B. DUNBAR		POST INSERTION		SH ACT	V O A A C T	G A S S C	P S H A B		P R E S L E E P			SLEEP
MS4 S. SHARIPOV		POST INSERTION		P/TV06 S/U & OPS SH					P R E S L E E P			SLEEP
MS5 A. THOMAS		POST INSERTION							P R E S L E E P			SLEEP
H/O DAY/NIGHT												
ORBIT												
DAILY ORBIT												
TDRS												
STS ATT		ASCENT			-ZLV +YVV	NC1						BIAS +ZLV -XVV
NOTES:									*DEACT & RECONFIG			
									*SIGI Init			

CT 01/23/98

DMT 01/23/98

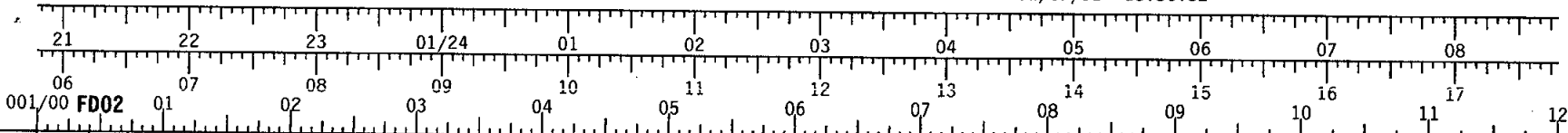
MET Day 000



CDR T. WILCUTT	SLEEP	POST SLEEP	NC2Δ OMS BURN	M Z L V R	E K M S /U	E I S C I T S	L D O A P S	SIGI STAR LINE MNVR	M N V R	H U D C L	M Z L V R	E S C R M	NPCΔ RCS BURN	EXERCISE	MEAL	P/TV 04 SETUP	PAO OPTY	O S D E S T U P	C/L C M R M O U N T	RNDZ TAGUP
PLT J. EDWARDS	SLEEP	POST SLEEP	OMS BURN	H2O INITIAL SETUP	RNDZ PGSC SETUP	H T E R M	CRYO 02 SNSR	RME 1331 S/U					RCS BURN	1331 PRE DK SAMPLE	MEAL	EXERCISE	RNDZ TOOLS C/O	H I 2 O I T	W S B T A G U P	RNDZ TAGUP
MS1 J. REILLY	SLEEP	POST SLEEP			ASH ACT	EXERCISE	EORF ACT	SAMS ACT	S A C T M S				* MGM SETUP 1	MEAL	MGM SAMPLE 1		HHL C/O		RNDZ TAGUP	
SIGI																				
SIGI DATA RUN #1																				
MS2 M. ANDERSON	SLEEP	POST SLEEP	OMS BURN	G 4 3 2	MDDK CHKS	GPS CONFIG & ACT		EXERCISE						MEAL	EMU TEMP STOW	PAO OPTY	O S D E S T U P	C/L C M R M O U N T	RNDZ TAGUP	
MS3 B. DUNBAR	SLEEP	POST SLEEP		S H A B	SH ACT	SH MODULE SETUP	V O A 1	RRMD SETUP & ACT	ADV XDT ACT	M B E C D X	RRMD 1	DTO 1125 ACT	MEAL	EMU TEMP STOW	PAO OPTY	EXERCISE		RNDZ TAGUP		
MS4 S. SHARIPOV	SLEEP	POST SLEEP		ERGO SETUP									FILTER CLEAN	MEAL		PAO OPTY		RNDZ TAGUP		
MS5 A. THOMAS	SLEEP	POST SLEEP		ERGO SETUP		STS SURF SAMPLE	STS AIR SAMPLE	EXERCISE					MEAL	TEMP STOW ODS BAG	PAO OPTY					
H2O																				
DAY/NIGHT																				
ORBIT																				
DAILY ORBIT																				
TDRS																				
STS ATT																				
BIAS +ZLV -XVV																				
-NC2- 45 BIAS -ZLV -XVV																				
-SLM- HUD																				
-NPC-																				
45 BIAS -ZLV -XVV																				
NOTES:																				
*TEHM CC																				
*EORF 2ND STAGE																				
*CNTLR SWAP																				

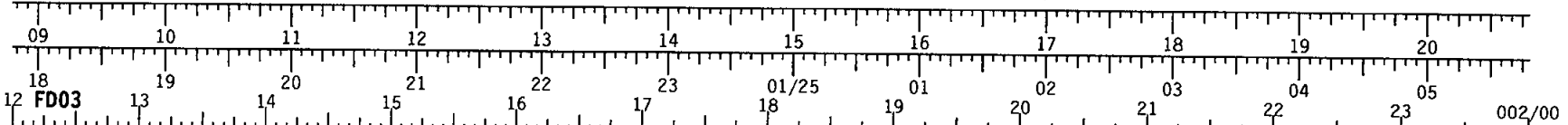
01/07/98 18:30:52

CT 01/23/98
 DMT 01/24/98
 MET Day 001



CDR T. WILCUTT	VHF RADIO S/U	NC3A OMS BURN	- M ZLV VR	P R E I D V	PRE SLEEP	SLEEP & SVS VIDEO 1	IMU MNV	GRP B UPWUP				
PLT J. EDWARDS	M P A U R G E C	H T E R M	OMS BURN	H I Z O I T 3	1331 PRE DK SAMPLE	H T E R M	PRE SLEEP	SLEEP	POST SLEEP	H I Z O I T 4		
MS1 J. REILLY	MGM DEACT	M S T P M O W	P/TV20 SETUP	OCA DNLK	PRE SLEEP	SLEEP	POST SLEEP					
SIGI		SIGI DATA RUN #2										
MS2 M. ANDERSON	G D S A E R I N G I C T	ODS EXT	S I G I	OMS BURN	S I G I & GPS D/L	S I G I A T T	M C D H D K S	PRE SLEEP	SLEEP	P S I O L S E P T	I D I L U N I T	POST SLEEP
MS3 B. DUNBAR	V O A I L	VHF RADIO S/U	E E S D I T	R R M D 2	SHAB PRE- SLP CNFG	PRE SLEEP	SLEEP	POST SLEEP				
MS4 S. SHARIPOV	EXERCISE	P/TV20 SETUP	PRE SLEEP	SLEEP	POST SLEEP							
MS5 A. THOMAS	PRE SLEEP	SLEEP	POST SLEEP									
H/Z DAY/NIGHT	[Day/Night Cycle Bar]											
ORBIT	[Orbit Cycle Bar]											
DAILY ORBIT	[Daily Orbit Cycle Bar]											
TDRS	[TDRS Cycle Bar]											
STS ATT	[STS ATT Cycle Bar]											
NOTES:	-NC3- ⊕SIGI DATA RUN #1 45 BIAS -ZLV -XVV -IMU-											

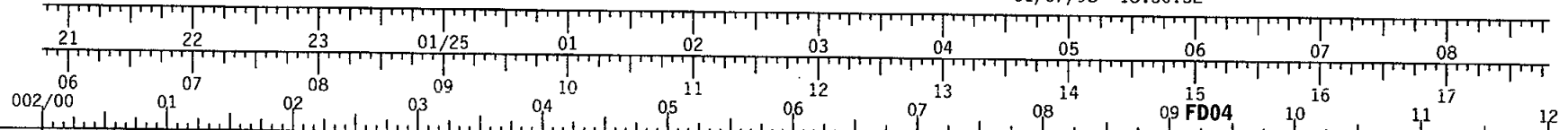
CT 01/24/98
DMT 01/24/98
MET Day 001



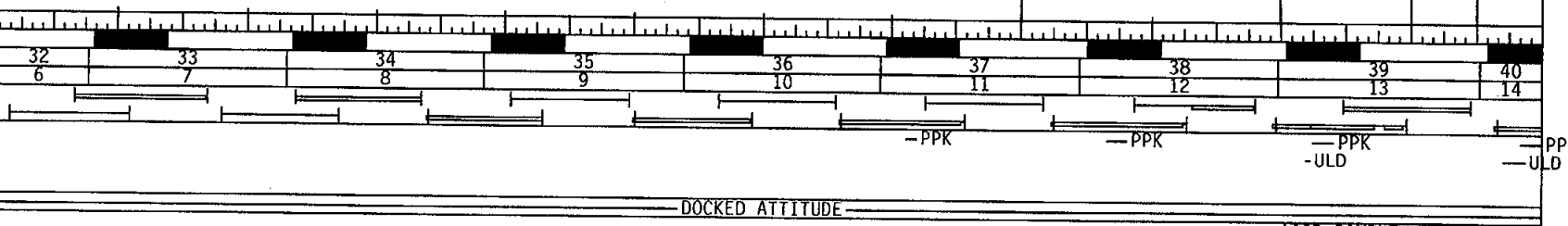
STS-89	CDR T. WILCUTT	RNDZ										FINAL APPROACH	STS DOCK MNVR	PRESS CKS	GP RW PR B N	FD F *	MIR SAFETY BRIEFING	MEAL	SSB TGT SFI XHR E/H/O	PRE SLEEP					
	PLT J. EDWARDS	RNDZ TOOLS S/U	HT 2 O R M	RNDZ										FINAL APPROACH	STS DOCK MNVR	P/TV 22 SETUP	VTR S/UBRIEFING	MIR SAFETY BRIEFING	MEAL	H2O XFER 4 BAGS	VTR P/B	HP SET-UP	PRE SLEEP		
	MS1 J. REILLY	SHAB POST SLP CNFG	RNDZ TOOLS S/U	RNDZ										SH CC	ODS PREP FOR DOCK	P/TV 22 SETUP	AIR DUCT INST	MIR SAFETY BRIEFING	MEAL	XFER	PRE SLEEP	PRE SLEEP			
	MS2 M. ANDERSON	MCDHUE RNDZ TOOLS S/U	VIEW MIR	RNDZ & P/TV20										ODS INGR PREP	P/TV 22 SETUP	AIR DUCT INST	MIR SAFETY BRIEFING	MEAL	MA P C T N T E	PCS S/U	PRE SLEEP				
	MS3 B. DUNBAR	EDK A M C T	RNDZ TOOLS S/U	R R M D	VHF COMM ACT	AIR TO AIR & P/TV20	AIR TO AIR & P/TV20										PRESS CKS & VTR P/B	V H F * S R C H N F G	H A T C H O P E N I N G	MIR SAFETY BRIEFING	MEAL	SHAB PRE-SLP CNFG	PRE SLEEP		
	MS4 S. SHARIPOV	EXERCISE			P/TV20 RNDZ												H A T C H O P E N I N G	MIR SAFETY BRIEFING	MEAL	XFER	PRE SLEEP				
MS5/MS6 A. THOMAS / D. WOLF	POST SLEEP	EXERCISE (MS5)													AIR *			H A T C H O P E N I N G	MIR SAFETY BRIEFING	MEAL	AIR *	PRE SLEEP	SLEEP		
MIR-24	MIR-CDR A. SOLOVYEV	SLEEP (9:00)	VHF COMM ACT	AIR TO AIR	AIR TO AIR										SM I T N O S V R 2	P/TV SETUP	FD F *	MIR SAFETY BRIEFING	MEAL	SSB TGT SFI XHR E/H/O	PS R L E A P *	PRE SLEEP	SLEEP		
	MIR-ENG P. VINOGRADOV	SLEEP (9:00)											MNVR OSC 6	D A C S B L	F R E T R K	PRESSURE CKS	AIR DUCT INST	MIR SAFETY BRIEFING	MEAL	SSB TGT SFI XHR E/H/O	PS R L E A P *	PRE SLEEP	SLEEP		
DAY/NIGHT		[Timeline with day/night indicators]																							
ORBIT		[Timeline with orbit indicators]																							
DAILY ORBIT		[Timeline with daily orbit indicators]																							
TDRS		[Timeline with TDRS indicators]																							
RUS GSTDN		[Timeline with RUS GSTDN indicators]																							
STACK ATT		[Timeline with STACK ATT indicators]																							
NOTES		*A/G2 RELAY ENABLE *XFER UPDATED JOINT FDF *VHF POWER OFF *AIR SAMPLE *XFER UPDATED JOINT FDF *AIR SAMPLE *AIR SAMPLE *AIR SAMPLE *DISABLE																							

01/07/98 18:30:52

CT 01/24/98
DMT 01/25/98
MET Day 002



STS-89	CDR T. WILCUTT	PRE SLEEP	SLEEP & SVS VIDEO 2						POST SLEEP	STS DOCK MNVR	POST SLEEP	DAILY PLAN	
	PLT J. EDWARDS	PRE SLEEP	SLEEP						POST SLEEP		DAILY PLAN	H2O 5 INIT	
	MS1 J. REILLY	PRE SLEEP	SLEEP						POST SLEEP		D P A L I A L N Y	TELK RMVL	
	SIGI DATA RUN #2												
	MS2 M. ANDERSON	PRE SLEEP	SLEEP						POST SLEEP		POST SLEEP	DAILY PLAN	HP DATA TAKE
	MS3 B. DUNBAR	PRE SLEEP	SLEEP						POST SLEEP		DAILY PLAN	V O A 2	V S R A T U P
	MS4 S. SHARIPOV	PRE SLEEP	SLEEP						POST SLEEP		D P A L I A L N Y	TELK RMVL	
MS5/MS6 A. THOMAS / D. WOLF		SLEEP						POST SLEEP		A I R *	MED EQUIP XFER	DAILY PLAN	SEAT XFER
MIR-24	MIR-CDR A. SOLOVYEV		SLEEP						POST SLEEP		R S M I L I T N O S V 5 M R 2	DAILY PLAN	SEAT XFER
	MIR-ENG P. VINOGRADOV		SLEEP						POST SLEEP			DAILY PLAN	
H/O													
DAY/NIGHT													
ORBIT													
DAILY ORBIT													
TDRS													
RUS GSTDN													
STACK ATT													
NOTES													



*AIR SAMPLE *ENABLE ♦SNAB PC

CT 01/25/98 09 10 11 12 13 14 15 16 17 18 19 20
 DMT 01/25/98 18 19 20 21 22 23 01/26 01 02 03 04 05
 MET Day 002 12 FD04 13 14 15 16 17 18 19 20 21 22 23 003/00

STS-89	CDR T. WILCUTT	EXERCISE	HP DATA TAKE		PAO MIR	MEAL	STS DOCK MNVR		DTO 1118 S/U	MIR PHOTO SRVY (MIR)	HP DATA TAKE	XFER TAGUP		PRE SLEEP	DSO 334 S/U	DSO 334 EXAM	3 S 3 T 4 W	PRE SLEEP					
	PLT J. EDWARDS	HP DATA TAKE	XFER	HT 2 O R M	HT 2 O R M	P/TV 22 SETUP	PAO MIR	MEAL	HT 2 O R M	HT 2 O R M	EXERCISE	HT 2 O R M	HP DATA TAKE	XFER	FUEL CELL MON ACT			PRE SLEEP					
	MS1 J. REILLY	®	MGM SETUP 2	MGM SAMPLE 2			MEAL		MGM DEACT 2	MS T G T M O W	EDU/BSTC XFER	09 T 1 0 4	XFER TAGUP	XFER	SHAB PRE-SLP CNFG	EXERCISE		PRE SLEEP					
	SIGI			SIGI DATA RUN #3																			
	MS2 M. ANDERSON	M C H D K S	S I G I	G P S S I G I	S A T D / L		XFER	PAO MIR	MEAL		XFER	EXERCISE	DTO 914 S/U	DTO 914	9 T 1 0 4	X T F A G E R U P	XFER	FUEL CELL MON ACT	M C H D K S	HP DATA TAKE	O C A D N L K	PRE SLEEP	
	MS3 B. DUNBAR	V R A A C T		HP DATA TAKE	V O A 2	XFER	EXERCISE	V O A 3 *	PAO MIR	V O A 3 *	MEAL	V R A S M P L 1		EDU/BSTC XFER	09 T 1 0 4	XFER TAGUP	V R A S M P L 2	HP DATA TAKE	M O A 3	DSO 334 S/U	DSO 334 EXAM	E E S D C I T	V R A S M P L 3
MS4 S. SHARIPOV		XFER	CREAM RET	C X F R E E R A R M	CREAM DPY & P/TV	PAO MIR	MEAL	EXERCISE		XFER		XFER TAGUP	XFER										PRE SLEEP
MS5/MS6 A. THOMAS / D. WOLF		SEAT INSTALL & C/O	EXERCISE (MS5) MIR	EXERCISE (MS6) MIR	PAO MIR	MEAL	HANDOVER	EDU/BSTC XFER	C C L T G S M A C T	EXERCISE (MS6) MIR	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP (9:00)	
MIR-24	MIR-CDR A. SOLOVYEV	SEAT INSTALL & C/O	CREAM RET	C X F R E E R A R M	CREAM DPY & P/TV	PAO MIR	MEAL	S M I T N O S V 4 R 2		EXERCISE	XFER TAGUP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP (9:00)	
MIR-24	MIR-ENG P. VINOGRADOV	EXERCISE	XFER		P/TV SETUP	PAO MIR	MEAL	XFER	EDU/BSTC XFER		XFER TAGUP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP (9:00)	
H/O DAY/NIGHT		[Timeline with day/night indicators]																					
ORBIT		[Timeline with orbit numbers 40-48]																					
DAILY ORBIT		[Timeline with orbit numbers 14-16]																					
TDRS		[Timeline with TDRS numbers 1-6]																					
RUS GSTDN		[Timeline with activity codes: PPK, -DJS, -KLP, -PPK, -SHK, -ULD]																					
STACK ATT		[Timeline with activity codes: PPK, -DJS, -KLP, -PPK, -SHK, -ULD]																					

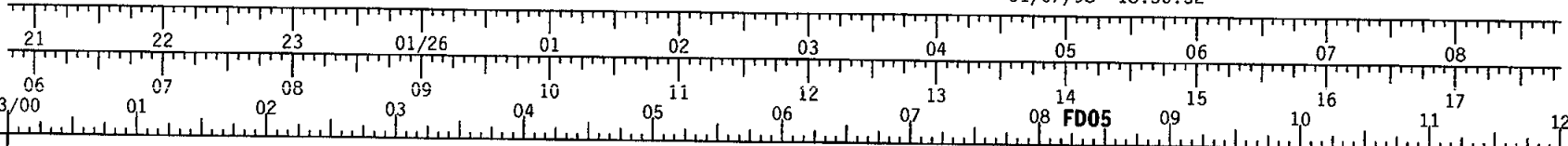
NOTES @SHAB POST SLP CNFG
 ♥SIGI DATA RUN #2
 DOCKED ATTITUDE
 *BACK PAIN QUESTIONNAIRE
 *DISABLE

01/07/98 18:30:52

CT 01/25/98

DMT 01/26/98

MET Day 003



S T S - 8 9	CDR T. WILCUTT	SLEEP & DTO 1118 SVY	POST SLEEP	STS DOCK MNV	DI UN MIT	HP DATA TAKE	DAILY PLAN	DT U MRM	STS DOCK MNV	EXERCISE			
	PLT J. EDWARDS	SLEEP	POST SLEEP	ICE MMA US	FD US	HP DATA TAKE	DAILY PLAN		EXERCISE	XFER			
	MS1 J. REILLY	SLEEP	POST SLEEP				DAILY PLAN	SHAB POST SLP CNFG	XFER	MGM SETUP 3			
	SIGI	SIGI DATA RUN #3						SIGI DATA RUN #4					
	MS2 M. ANDERSON	SLEEP	POST SLEEP	PS OL SE TE P	A T T E N T I O N	SIGI	GPS SIGI D/L	SAT I T T I	DAILY PLAN	GAS 2 ACT	MC D K S	HP DATA TAKE	XFER
	MS3 B. DUNBAR	SLEEP	POST SLEEP					V O A 4	DAILY PLAN	HP DATA TAKE	V O A 4	VRA SMPL 4	
	MS4 S. SHARIPOV	SLEEP	POST SLEEP						DAILY PLAN				
MS5/MS6 A. THOMAS / D. WOLF	SLEEP (9:00)	POST SLEEP					HANDOVER	DAILY PLAN		HANDOVER			
M I R - 2 4	MIR-CDR A. SOLOVYEV	SLEEP (9:00)	POST SLEEP	M I L A Y *	S M G T N O S V 4 R 1			DAILY PLAN	S M I T N O S V 4 R 2				
	MIR-ENG P. VINOGRADOV	SLEEP (9:00)	POST SLEEP					DAILY PLAN			XFER		
H/O DAY/NIGHT		[Timeline with shaded blocks]											
ORBIT		[Timeline with shaded blocks]											
DAILY ORBIT		[Timeline with shaded blocks]											
TDRS		[Timeline with shaded blocks]											
RUS GSTDN		- PPK - PPK - PPK - ULD											
STACK ATT		DOCKED ATTITUDE											
NOTES		*ENABLE											

CT 01/26/98
 DMT 01/26/98
 MET Day 003

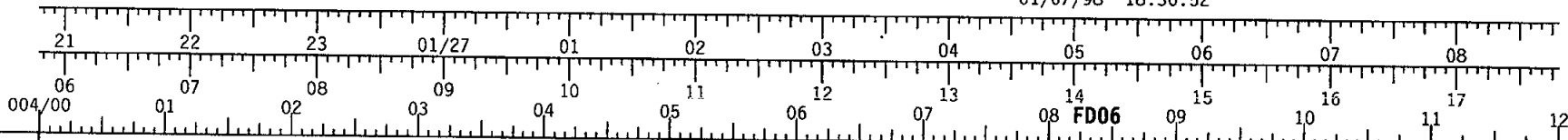
		09	10	11	12	13	14	15	16	17	18	19	20					
		18	19	20	21	22	23	01/27	01	02	03	04	05					
		12	13	14	15	16	17	18	19	20	21	22	23					
STS-89	CDR T. WILCUTT	STS AIR SAMPLE			STS DOCK MNVR	MEAL	STS SURF SAMPLE	PAO OPTY	P/TV 09 S/U	HP DATA TAKE	PRE ID 334 S/U	DSO 334 EXAM	334 STOW	PRE SLEEP				
	PLT J. EDWARDS	XFER H2O 9 INIT	XFER	HT 2 OR M	XFER		MEAL	XFER	P/TV 22 SETUP	PAO MIR	H2O 10 INIT	XFER	HT 2 OR M	HP DATA TAKE	XFER TAGUP	DSO 334 EXAM	STS DOCK MNVR	PRE SLEEP
	MS1 J. REILLY	MGM SETUP 3	MGM SAMPLE 3			MEAL	MGM DEACT	MS 12 00 W	PAO MIR	BTR TRANSER	EXERCISE	XFER TAGUP	RRMD	RRMD	SHAB PRE-SLP CNFG	PRE SLEEP		
	SIGI														SIGI DATA RUN #4			
	MS2 M. ANDERSON	XFER			PCG DEWAR XFER	XFER	MEAL	XFER	EXERCISE	XFER			XFER TAGUP	HP DATA TAKE	MCHDKS	PRE SLEEP	OCA ONLK	PRE SLEEP
	MS3 B. DUNBAR	DTO 1118 S/U	MIR PHOTO SRVY (FD)	VOA 5 RMTE SMPL	VRA 5 SMPL	MEAL	EXERCISE	PAO MIR	BTR TRANSER	EE SD C I T	XFER TAGUP	VRA 5 SMPL 6	DSO 334 EXAM	HP DATA TAKE	PRE SLEEP			
MS4 S. SHARIPOV	FILTER CLEAN INSPECT	XFER			MEAL	XFER	PAO MIR	XFER	EXERCISE	XFER TAGUP	XFER			PRE SLEEP				
MS5/MS6 A. THOMAS / D. WOLF		EXERCISE (MS5) MIR	EXER (MS6) MIR 1HR	HANDOVER	MEAL	HANDOVER	PAO MIR	BTR TRANSER	EXERCISE (MS6) MIR	BACK PAIN Q	PRE ID	PRE SLEEP			SLEEP (9:00)			
MIR-24	MIR-CDR A. SOLOVYEV	PCG DEWAR XFER			SMI TNO SVR 2	MEAL	P/TV SETUP	PAO MIR	EXERCISE			PRE SLEEP	SMI TNO SVR 2	PRE SLEEP	SLEEP (9:00)			
	MIR-ENG P. VINOGRADOV	XFER	EXERCISE	MIR AIR SAMPLE	HH 2 OAT	MEAL	H2O HOT SAMP	MIR SURF SAMPLE	PAO MIR	BTR TRANSER	H2O SVO SAMP	XFER TAGUP	PRE SLEEP			SLEEP (9:00)		
H2O DAY/NIGHT		[Bar chart showing day/night cycle]																
ORBIT		[Bar chart showing orbit data]																
DAILY ORBIT		[Bar chart showing daily orbit data]																
TDRS		[Bar chart showing TDRS data]																
RUS GSTDN		[Bar chart showing RUS GSTDN data]																
STACK ATT		[Bar chart showing STACK ATT data]																
NOTES		DOCKED ATTITUDE										*BACK PAIN QUESTIONNAIRE *DISABLE						

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MET Day 004

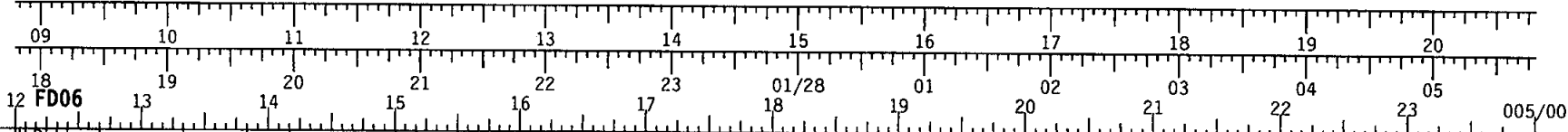


S T S - 8 9	CDR T. WILCUTT	SLEEP & OSVS VIDEO 3						POST SLEEP	HP DATA TAKE	POST SLEEP	DAILY PLAN	EXERCISE					
	PLT J. EDWARDS	SLEEP						POST SLEEP			H2O 11 INIT	HP DATA TAKE	H T E R M I N I T	H2O 12 INIT			
	MS1 J. REILLY	SLEEP						POST SLEEP			DAILY PLAN	MGM SETUP 4					
	SIG1	SIGI DATA RUN #4						SIGI DATA RUN #5									
	MS2 M. ANDERSON	SLEEP						POST SLEEP	POST SLEEP	S I G I	GPS S I G N A L	S A T I T E	DAILY PLAN	G D E A S E S	M C H D K S	HP DATA TAKE	XFER
	MS3 B. DUNBAR	SLEEP						POST SLEEP			HP DATA TAKE	DAILY PLAN	SHAB POST SLP CNFG	V R A S M P L 7	RRMD DET CHG		
	MS4 S. SHARIPOV	SLEEP						POST SLEEP			DAILY PLAN	DOSIMETER EXCHANGE					
MS5/MS6 A. THOMAS / D. WOLF		SLEEP (9:00)						POST SLEEP			COCULT SAMPLE (MS5)						
M I R - 2 4	MIR-CDR A. SOLOVYEV	SLEEP (9:00)						POST SLEEP			DAILY PLAN						
	MIR-ENG P. VINOGRADOV	SLEEP (9:00)						POST SLEEP			DAILY PLAN	DOSIMETER EXCHANGE					
H2O		[Bar chart showing H2O levels]															
DAY/NIGHT		[Bar chart showing Day/Night cycle]															
ORBIT		[Bar chart showing Orbit parameters]															
DAILY ORBIT		[Bar chart showing Daily Orbit parameters]															
TDRS		[Bar chart showing TDRS parameters]															
RUS GSTON		[Bar chart showing RUS GSTON parameters]															
STACK ATT		DOCKED ATTITUDE															
NOTES		*ENABLE															

CT 01/27/98

DMT 01/27/98

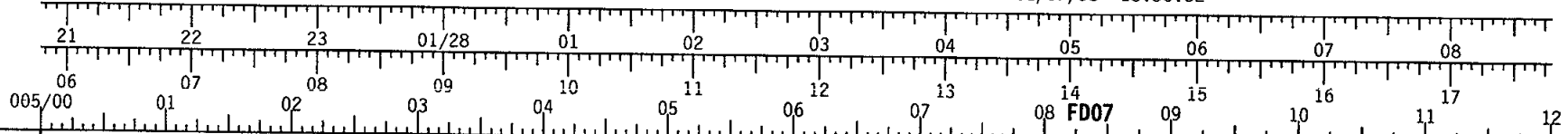
MET Day 004



STS-89	CDR T. WILCUTT	HTC RNC FS	CTA E B M P	P/TV 22 SETUP	STS DOCK MNRV	MEAL	PAO OPTY	CREW PHOTO		DTO 1118 S/U	PAO OPTY	MIR PHOTO SRVY (MIR)	HP DATA TAKE	XFER TAGUP	STS DOCK MNRV	DP M S R E D I V	334 S/U	DSO 334 EXAM	3 S T 3 4 0 W	PRE SLEEP											
	PLT J. EDWARDS		HT E O R M	XFER		MEAL	PAO MIR	CREW PHOTO	WCS	H20 13 INIT	PAO MIR	HT E O R M	XFER	HP DATA TAKE		EXERCISE				PRE SLEEP											
	MS1 J. REILLY	FREEZ STOW XFER		MGM SAMPLE 4 REFRG STOW XFER		MEAL	PAO MIR	CREW PHOTO	MGM DEACT	MS T G T M O W	PAO MIR	X D E A C T	ADV XDT TRANS	ASC XFER	XFER TAGUP		EXERCISE			PRE SLEEP											
	SIG1	SIG1 DATA RUN #5										SIG1 DATA RUN #6																			
	MS2 M. ANDERSON	XFER		EXERCISE		MEAL	PAO MIR	CREW PHOTO	XFER	P/TV 22 SETUP	PAO MIR	S I G I	S I G I D I S K	S I G I A T T	HP DATA TAKE	XFER	XFER TAGUP	M C H D H D K S	334 S/U	DSO 334 EXAM	O C A D N L K	PRE SLEEP									
	MS3 B. DUNBAR	M R T O R T A M L G D		EXERCISE	XFER	MEAL	PAO MIR	CREW PHOTO	V O A S M P L 8	V O A 7	PAO MIR	CGBA-2 XFER	CGBA-1 XFER	V O A 7	XFER TAGUP	V R A S M P L 9	SHAB PRE-SLP CNFG	E E D I C I T	HP DATA TAKE	V O A 7	PRE SLEEP										
MS4 S. SHARIPOV	FREEZ STOW XFER			REFRSTOW XFER	MEAL	PAO MIR	CREW PHOTO	EXERCISE		PAO MIR	XFER			XFER TAGUP	XFER					PRE SLEEP											
MS5/MS6 A. THOMAS / D. WOLF	EXERCISE (MS6) MIR		EXERCISE (MS5) MIR		MEAL	PAO MIR	CREW PHOTO	EXERCISE (MS6) MIR		PAO MIR	CGBA-MS5 ASC-MS6	ADV XDT-MS5 CGBA-MS6	X T F A E G R U P	P M E R I D V	B A C K K *		PRE SLEEP			SLEEP (9:00)											
MIR-24	MIR-CDR A. SOLOVYEV		P/TV SETUP	SM I T N O S V 5 R . 2	MEAL	PAO MIR	CREW PHOTO	XFER		PAO MIR	EXERCISE	XFER	SM I T N O S V 4 R . 2			PRE SLEEP				SLEEP (9:00)											
	MIR-ENG P. VINOGRADOV	FREEZ STOW XFER	EXERCISE	REFRSTOW XFER	MEAL	PAO MIR	CREW PHOTO		P/TV SETUP	PAO MIR	CGBA, ASC, XDT XFER			X T F A E G R U P		PRE SLEEP				SLEEP (9:00)											
	H/O DAY/NIGHT ORBIT	[Timeline bar with black segments]																													
	DAILY ORBIT	71	72	73	74	75	76	77	78	79																					
	TDRS	14	15	1	2	3	4	5	6	7																					
	RUS GSTDN	-DJS -KLP -PPK -ULD		-DJS -KLP -PPK -SHKULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK -ULD		-DJS -KLP -SHK		-DJS -KLP -SHK		-DJS -KLP -SHK		-DJS -SHK		-SHK													
	STACK ATT	ARRMD DET CHG										DOCKED ATTITUDE																			
	NOTES	*RCS REG RECONFIG										*WCS FILTER CK										*BACK PAIN QUESTIONNAIRE *DISABLE									

01/07/98 18:30:52

CT 01/27/98
DMT 01/28/98
MET Day 005



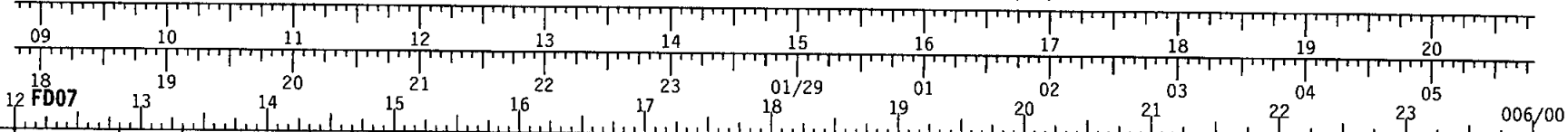
STS-89	CDR T. WILCUTT	SLEEP	POST SLEEP	HP DATA TAKE	DAILY PLAN	STG DOCK MNVR	HP DATA TAKE	STG DOCK MNVR	DTO 1118 S/U
	PLT J. EDWARDS	SLEEP	POST SLEEP	DAILY PLAN	HP DATA TAKE	H2O 14 INIT	TRANSFER		
	MS1 J. REILLY	SLEEP	POST SLEEP	DAILY PLAN	MGM SETUP 5				
	SIGI	SIGI DATA RUN #6							
	MS2 M. ANDERSON	SLEEP	POST SLEEP	POST SLEEP	DAILY PLAN	HP DATA TAKE	SIGI	GPS SIGI D/L	SAT φ
	MS3 B. DUNBAR	SLEEP	POST SLEEP	RTMLD	DAILY PLAN	SHAB POST SLP CNFG	VRA SMPL 10	HP DATA TAKE	
	MS4 S. SHARIPOV	SLEEP	POST SLEEP	DAILY PLAN	EXERCISE	XFER			
MS5/MS6 A. THOMAS / D. WOLF	SLEEP (9:00)	POST SLEEP	HANDOVER						
MIR-24	MIR-CDR A. SOLOVYEV	SLEEP (9:00)	POST SLEEP	MS MG LTNO SV4 YR.1		SMI TNO SV4 R.2			
	MIR-ENG P. VINOGRADOV	SLEEP (9:00)	POST SLEEP	DAILY PLAN	XFER				
H/O DAY/NIGHT ORBIT									
DAILY ORBIT									
TORS E W									
RUS GSTDN									
STACK ATT									
NOTES									

DOCKED ATTITUDE

*ENABLE

DJS
KLP
ULD
*SIGI D/φ EXERCISE

CT 01/28/98
DMT 01/28/98
MET Day 005



STS-89	CDR T. WILCUTT	MIR PHOTO SRVY (SH)	EXERCISE	STS DOCK MNVR	MEAL	CREW CONF & FAREWELL	HP DATA TAKE	UNDCK TAGUP	PRE SLEEP	STS DOCK MNVR	DSBL	PRE SLEEP	
	PLT J. EDWARDS	XFER	XFER	EXERCISE	MEAL	CREW CONF & FAREWELL	FINAL XFER	EXERCISE	RME 1331	UNDCK TAGUP	HP DATA TAKE	HP STOW	PRE SLEEP
	MS1 J. REILLY	MGM SAMPLE 5		MGM DEACT	MEAL	CREW CONF & FAREWELL	FINAL XFER	PTV23 S/U	UNDCK TAGUP	SHAB PRE-SLP CNFG		PRE SLEEP	
	SIGI	SIGI DATA RUN #7											
	MS2 M. ANDERSON	EXERCISE	XFER	P/TV08 S/U	MEAL	CREW CONF & FAREWELL	FINAL XFER	RNDZ PGSC SETUP	UNDCK TAGUP	PRE SLEEP	PSLOC	PRE SLEEP	
	MS3 B. DUNBAR	XFER		VRA SMPL 11	MEAL	CREW CONF & FAREWELL	FINAL XFER	VRA SMPL 12	HP DATA TAKE	UNDCK TAGUP	EXERCISE	PRE SLEEP	PRE SLEEP
MS4 S. SHARIPOV	XFER	P/TV 22 SETUP	CD REACT	MEAL	CREW CONF & FAREWELL	FINAL XFER	UNDCK TAGUP					PRE SLEEP	
MS5/MS6 A. THOMAS / D. WOLF	EXERCISE (MS6) MIR	EXER (MS5) MIR	HANDOVER	MEAL	CREW CONF & FAREWELL	HANDOVER	EXERCISE MS6	UNDCK TAGUP	PRE SLEEP	PRE SLEEP		SLEEP (9:00)	
MIR-24	MIR-CDR A. SOLOVYEV		P/TV SETUP	MEAL	CREW CONF & FAREWELL		EXERCISE		PRE SLEEP			SLEEP (9:00)	
	MIR-ENG P. VINOGRADOV	XFER	EXERCISE	MEAL	CREW CONF & FAREWELL	FINAL XFER			PRE SLEEP			SLEEP (9:00)	
H/O DAY/NIGHT ORBIT													
DAILY ORBIT													
TDRS													
RUS GSTDN													
STACK ATT													
NOTES													

01/07/98 18:30:52

CT 01/28/98 21 22 23 01/29 01 02 03 04 05 06 07 08
 DMT 01/29/98 06 07 08 09 10 11 12 13 14 15 16 17
 MET Day 006 006/00 FD07 01 02 03 04 05 06 07 08 FD08 09 10 11 12

STS-89	CDR T. WILCUTT	SLEEP	POST SLEEP	UNDK PREP HATCH CL	VHF COMM ACT
	PLT J. EDWARDS	SLEEP	POST SLEEP	UNDK PREP HATCH CL	RNDZ TOOLS S/U
	MS1 J. REILLY	SLEEP	POST SLEEP	AIR I L C C M DUCT S H L R U RMVL T T N L S T	
	SIGI SIGI DATA RUN #7				
	MS2 M. ANDERSON	SLEEP	POST SLEEP	AIR I L C C M DUCT S H L R U RMVL T T N L S T	
	MS3 B. DUNBAR	SLEEP	POST SLEEP	UNDK PREP HATCH CL	
	MS4 S. SHARIPOV	SLEEP	POST SLEEP		
MS5/MS6 A. THOMAS / D. WOLF		SLEEP (9:00)	POST SLEEP	HANDOVER	
MIR-24	MIR-CDR A. SOLOVYEV	SLEEP (9:00)	POST SLEEP	UNDK PREP HATCH CL	VHF COMM ACT
	MIR-ENG P. VINOGRADOV	SLEEP (9:00)	POST SLEEP	AIR I L C C M DUCT S H L R U RMVL T T N L S T	UNDK PREP HATCH CL
H/O DAY/NIGHT ORBIT					
DAILY ORBIT					
TDRS E W					
RUS GSTDN					
STACK ATT					
NOTES					

FINAL FAREWELL

DOCKED ATTITUDE

•EXERCISE

01/07/98 18:30:52

CT 01/29/98 09 10 11 12 13 14 15 16 17 18 19 20
 DMT 01/29/98 18 19 20 21 22 23 01/30 01 02 03 04 05
 MET Day 006 12 FD08 13 14 15 16 17 18 19 20 21 22 23 007/00

STS-89	CDR T. WILCUTT	PCS	GRP B PWUP	OM SN CV - R 6	UNDOCK	D A L V R	M N V R	I D U N I T	G P R P R D N	D T U E	M Z N L V R	EXERCISE	MEAL	OMS BURN (OA)	M Z N L V R	OFF DUTY (PFC)	P M R E I D V	PRE SLEEP	
	PLT J. EDWARDS		GRP B PWUP		UNDOCK	POST HATCH SAMPLE			G P R P R D N			EXERCISE		OMS BURN		OFF DUTY (PFC)		PRE SLEEP	
	MS1 J. REILLY				P/TV23 OPS UNDK	MGM SETUP 6						MGM DEACT	M P R E P	MEAL		OFF DUTY (PFC)	SHAB PRE- SLP CNFG	PRE SLEEP	
	SIGI				SIGI DATA RUN #7								SIGI DATA RUN #8						
	MS2 M. ANDERSON	∇	GRP B PWUP		P/TV23 OPS UNDK	M C D H K S	S I G I	G P S I G I	S A T I T	OSVS PWR P/TV		OSVS C/O	O P S W R S D N		MEAL	OMS BURN	OFF DUTY (PFC)	M C D H K S	PRE SLEEP
	MS3 B. DUNBAR				UNDOCK	SHAB POST SLP CNFG	V H F *	E K A M S /U	R T M L	OSVS PWR P/TV		OSVS C/O			MEAL		OFF DUTY (PFC)	E E S D C I T	PRE SLEEP
MS4 S. SHARIPOV				UNDOCK	VTR S/U	VTR P/B			EXERCISE		FILTER CLEAN			MEAL		OFF DUTY (PFC)		PRE SLEEP	
MS5/MS6 A. THOMAS / D. WOLF				UNDOCK				EXERCISE (MS6)		XFER ITEM STOW		XFER ITEM STOW		MEAL		OFF DUTY (PFC)		PRE SLEEP	
MIR-2 4	MIR-CDR A. SOLOVYEV			OM SN CV - R 6	MIR UNDOCK														
	MIR-ENG P. VINOGRADOV				MONITOR FLYAROUND														
	H/O																		
	DAY/NIGHT																		
	ORBIT	102	103	104	105	106	107	108	109	110									
	DAILY ORBIT	14	15	1	2	3	4	5	6	7									
	TDRS																		
	RUS GSTDN		DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	DJS KLP	
	STACK ATT		PPK ULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	PPK SHKULD	
	NOTES				DOCKED ATTITUDE														

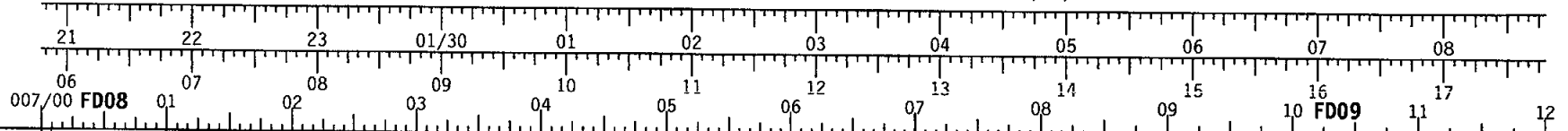
***UNDOCK 6/14:04**

*VHF POWER OFF

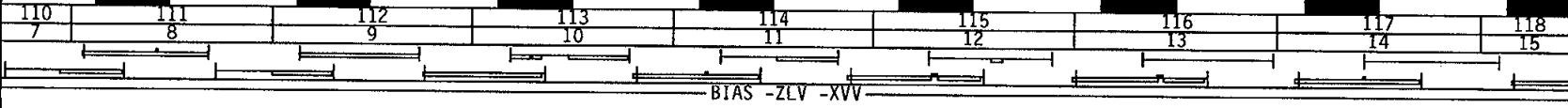
*WCS COMPACTION

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 DMT 01/30/98
 MET Day 007

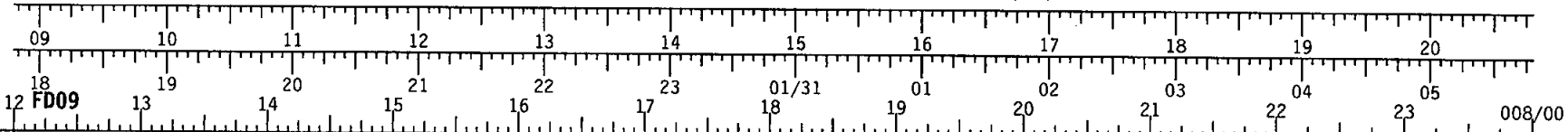


CDR T. WILCUTT	PRE SLEEP	SLEEP (9:00)	POST SLEEP
PLT J. EDWARDS	PRE SLEEP	SLEEP (9:00)	POST SLEEP
MS1 J. REILLY	PRE SLEEP	SLEEP (9:00)	POST SLEEP
SIGI		SIGI DATA RUN #8	
MS2 M. ANDERSON	PRE SLEEP	SLEEP (9:00)	POST SLEEP
MS3 B. DUNBAR	PRE SLEEP	SLEEP (9:00)	POST SLEEP
MS4 S. SHARIPOV	PRE SLEEP	SLEEP (9:00)	POST SLEEP
MS6 D. WOLF	PRE SLEEP	SLEEP (9:00)	POST SLEEP
H/O			
DAY/NIGHT			
ORBIT			
DAILY ORBIT			
TDRS			
STS ATT			
NOTES:			



*APU HTF

CT 01/30/98
 DMT 01/30/98
 MET Day 007



CDR T. WILCUTT	EXERCISE	FCS C/O	RCS HOT FR		MEAL	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF	M N Z S R I	ENTRY REVIEW	CABIN STOW	L C N O D M G *	L C N O D M G *	P R E I V	O C A D N L K	O C E A C T	L C N O D M G *	L C N O D M G *	PRE SLEEP
PLT J. EDWARDS		FCS C/O	RCS HOT FR	1331 PST UNDK SMPL	EXERCISE	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF		ENTRY REVIEW	RME 1331 TERM & STOW	L C N O D M G *		ERGO STOW			L C N O D M G *	L C N O D M G *	PRE SLEEP
MS1 J. REILLY			E U M N S T W	HUT FIT CHECK		CP RHO EWT O	PAO OPTY	D/O PREP BRIEF		EXERCISE	CABIN STOW	R R M D	S A M S D E A C T	SHAB P R E S L P C N F G		CABIN STOW			PRE SLEEP
SIGI		SIGI DATA RUN #8								SIGI DATA RUN #9									
MS2 M. ANDERSON	M C D H K S	FCS C/O	R C S F I R I	S I G I D /L	S A T I G I	CABIN STOW	MEAL	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF	ENTRY REVIEW	EXERCISE	CABIN STOW	M C D H K S	G P S D E A C T	K S T O W			PRE SLEEP
MS3 B. DUNBAR	SHAB P O S T S L P C N F G	R T M L A	EXERCISE	E U M N S T W	HUT FIT CHECK	V R S H A T F D O I W O	MEAL	E S D I T	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF	ENTRY REVIEW	D T O 1 1 2 5 T E A R D O W N	V D E A C T	R R M D D E A C T	CABIN STOW	K S T O W		PRE SLEEP
MS4 S. SHARIPOV		FILTER CLEAN	EXERCISE		P/TV 04 SETUP	MEAL	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF		CABIN STOW			ERGO STOW	CABIN STOW				PRE SLEEP
MS6 D. WOLF		EXERCISE			CABIN STOW	MEAL	CP RHO EWT O	PAO OPTY	D/O PREP BRIEF		CABIN STOW	EXERCISE		CABIN STOW					PRE SLEEP
H/O																			
DAY/NIGHT																			
ORBIT																			
DAILY ORBIT		118	119	120	121	122	123	124	125	126									
TDRS		15	1	2	3	4	5	6	7	8									
STS ATT		BIAS -ZLV -XVV										-ZSI							
NOTES:		*WEST COAST COMM C/O *WEST COAST B/U *EAST COAST COMM C/O *EAST COAST B/U																	

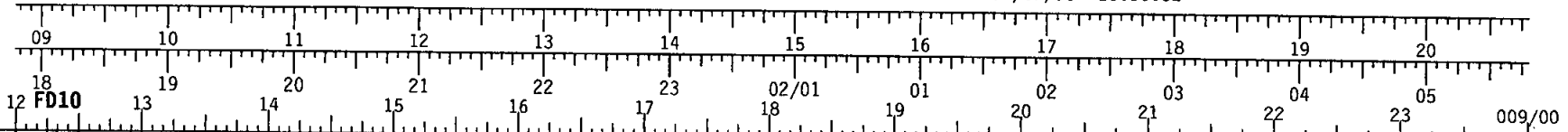
01/07/98 18:30:52

CT 01/30/98
 DMT 01/31/98
 MET Day 008



CDR T. WILCUTT	PRE SLEEP	- M Z N L V V R *	SLEEP	POST SLEEP
PLT J. EDWARDS	PRE SLEEP		SLEEP	POST SLEEP
MS1 J. REILLY	PRE SLEEP		SLEEP	ENTRY MONITORING
STGI	SIGI DATA RUN #9			
MS2 M. ANDERSON	PRE SLEEP		SLEEP	POST SLEEP
MS3 B. DUNBAR	PRE SLEEP		SLEEP	POST SLEEP
MS4 S. SHARIPOV	PRE SLEEP		SLEEP	POST SLEEP
MS6 D. WOLF	PRE SLEEP		SLEEP	ENTRY MONITORING
H/O	[Timeline with shaded blocks]			
DAY/NIGHT	[Timeline with shaded blocks]			
ORBIT	126	127	128	129
DAILY ORBIT	8	9	10	11
TDRS	E	W		
STS ATT	-ZSI		-ZLV +YVV	
NOTES:	*Future Load MNVR			

CT 01/31/98
 DMT 01/31/98
 MET Day 008



CDR T. WILCUTT	PM REM IDU V	EKAM DEACT	GRP B PWUP	OS CT AO CW	-M XN SV IR	DEORBIT PREP				
PLT J. EDWARDS	P/TV10 SETUP*	AS TAR MP	CABIN STOW			DEORBIT PREP	D E O R B I T	K S C		
MS1 J. REILLY	SHAB POST SLP CNFG	DE EOR B	SH MOD TRDN	SH DEACT		DEORBIT PREP				
SIGI						SIGI ENTRY CONFIG				
MS2 M. ANDERSON	MC DH DK KS	SI GG II	SE NA T R A Y	DM PE N A C T	PS // U P/TV07 OPS (SH DEAC)	DEORBIT PREP	B U R N *	L A N D I N G *		
MS3 B. DUNBAR	C G B A	SH MOD TRDN		SH DEACT		DEORBIT PREP				
MS4 S. SHARIPOV	CABIN STOW		P/TV07 OPS (SH DEAC)			DEORBIT PREP				
MS6 D. WOLF	CABIN STOW					DEORBIT PREP				
H/O										
DAY/NIGHT										
ORBIT										
DAILY ORBIT										
TDRS										
STS ATT										
NOTES:										

◇SIGI DATA RUN #9
 *MINI-CAM ENTRY VIDEO

* D/O TIG 08/18:44
 * KSC LANDING 08/19:48

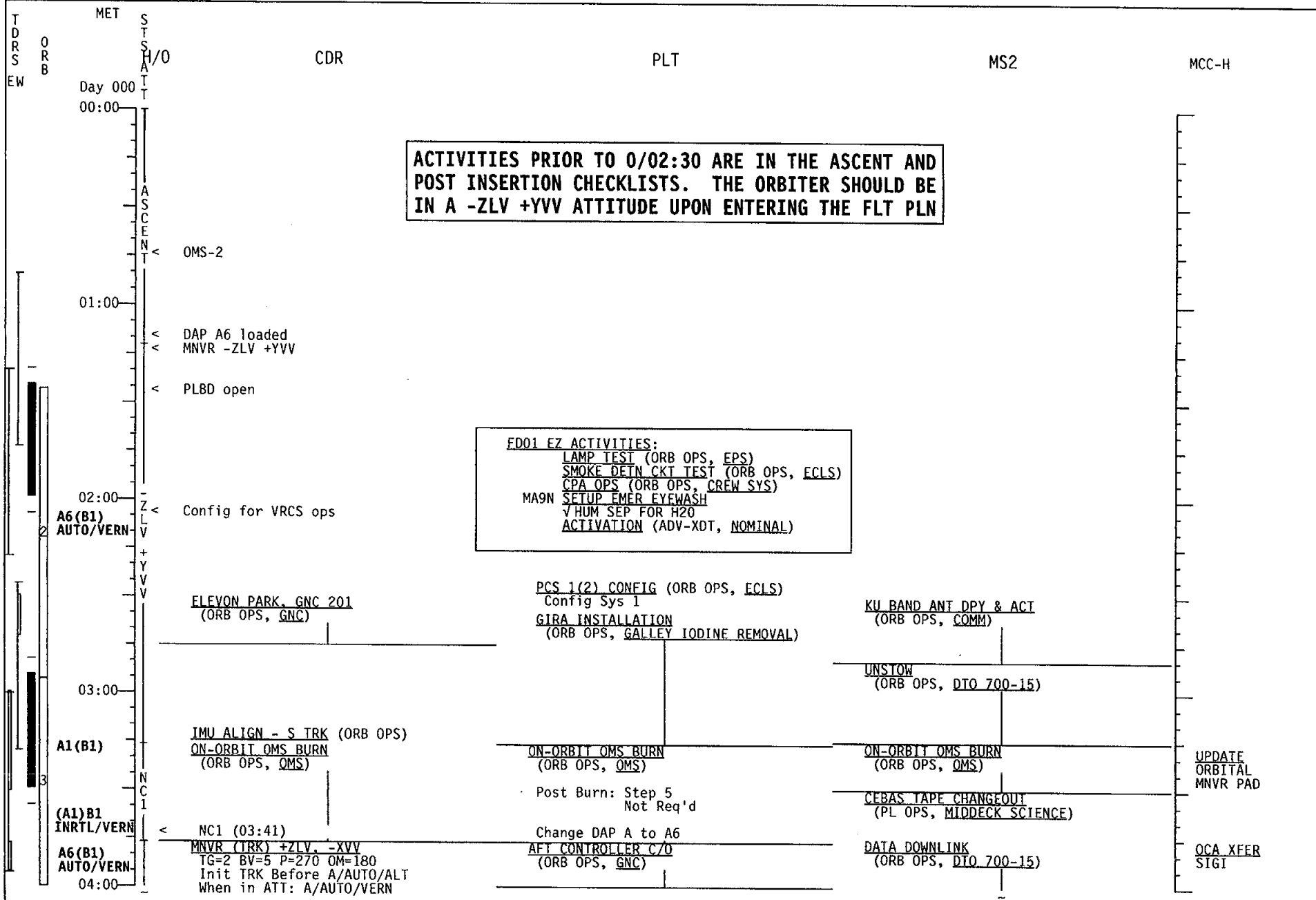
DETAILED TIMELINE

DETAILED
TIMELINE

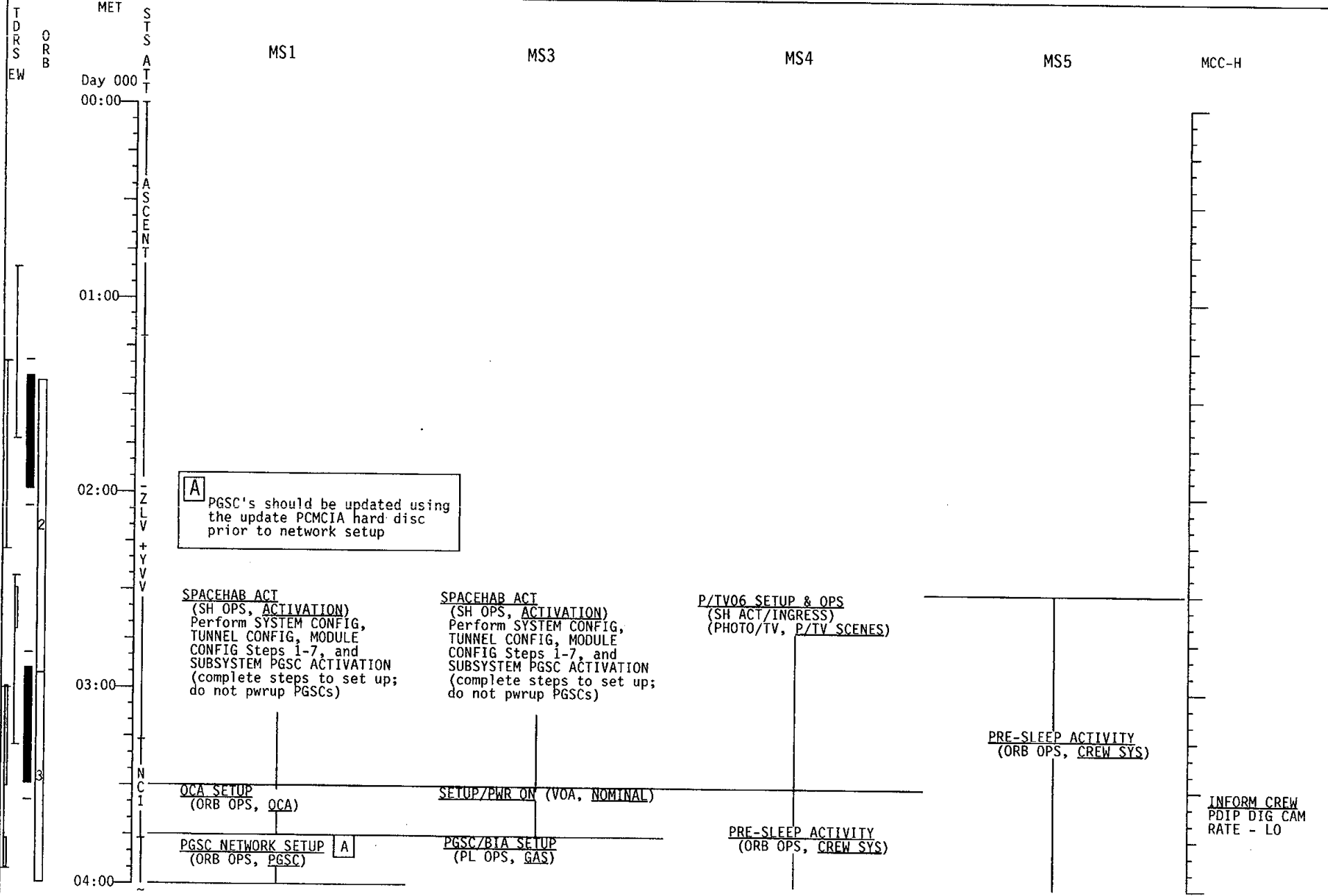
DETAILED TIMELINE

01/07/98 18:16:55

STS-89 (FD01)

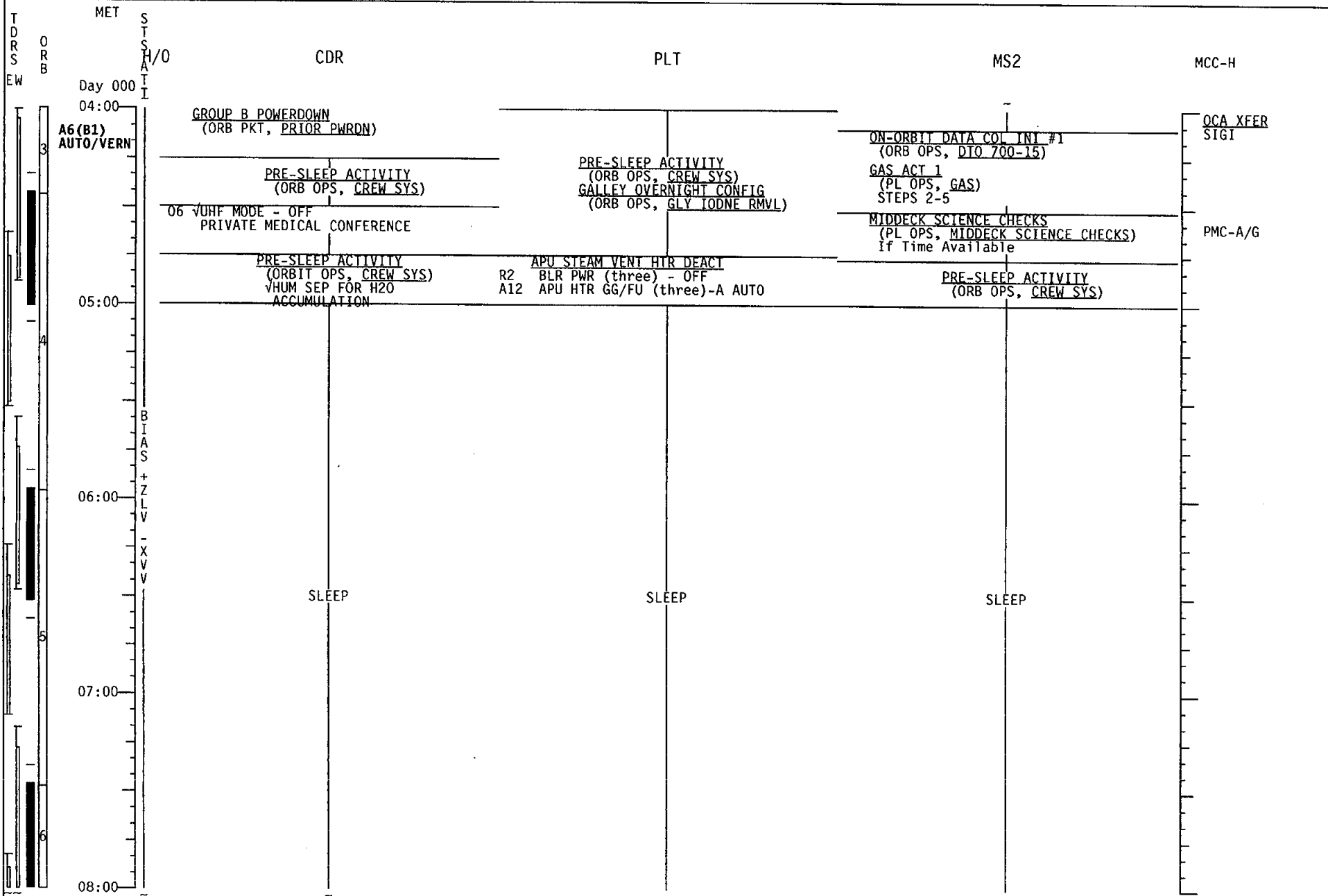


STS-89 (FD01)

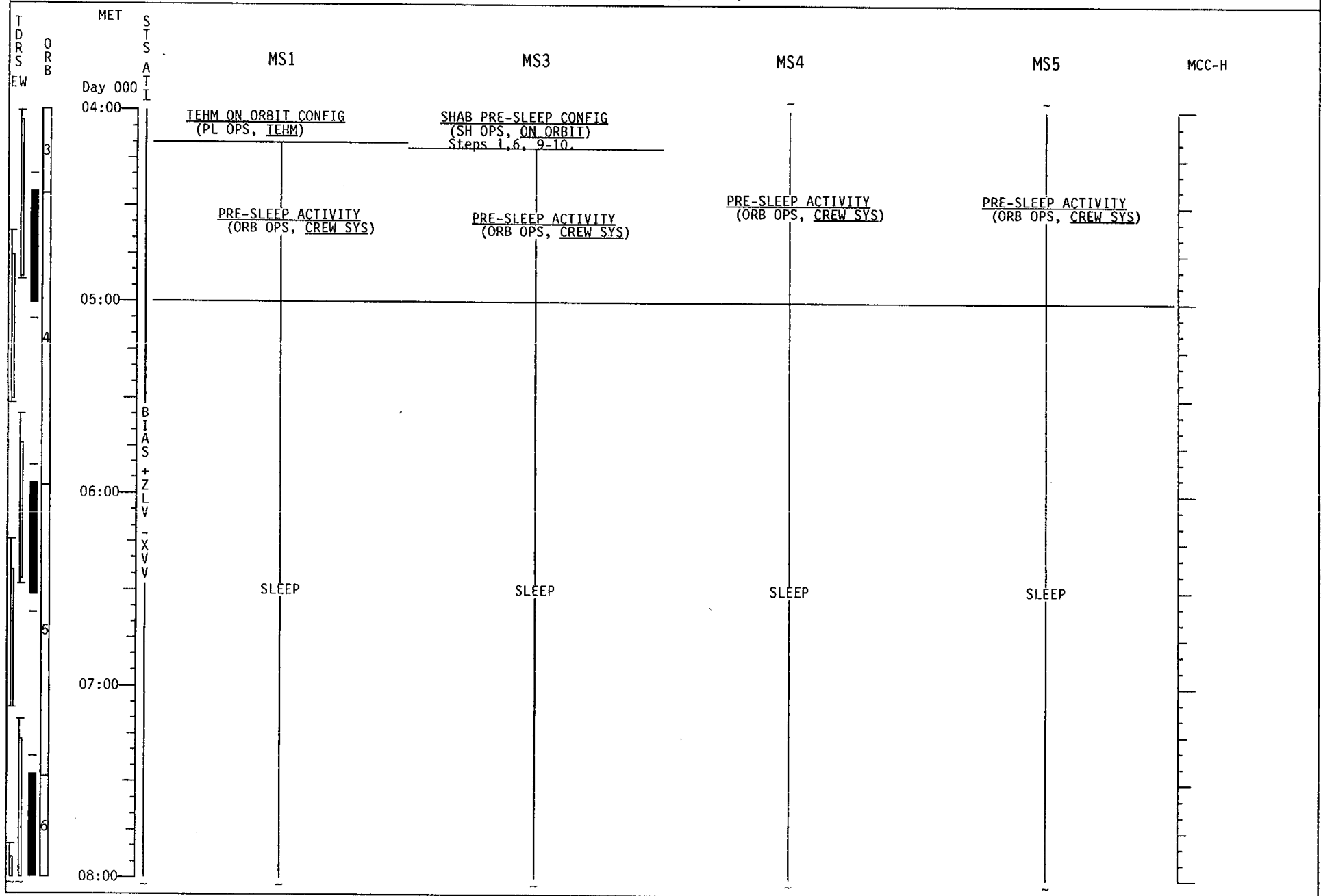


A PGSC's should be updated using the update PCMCIA hard disc prior to network setup

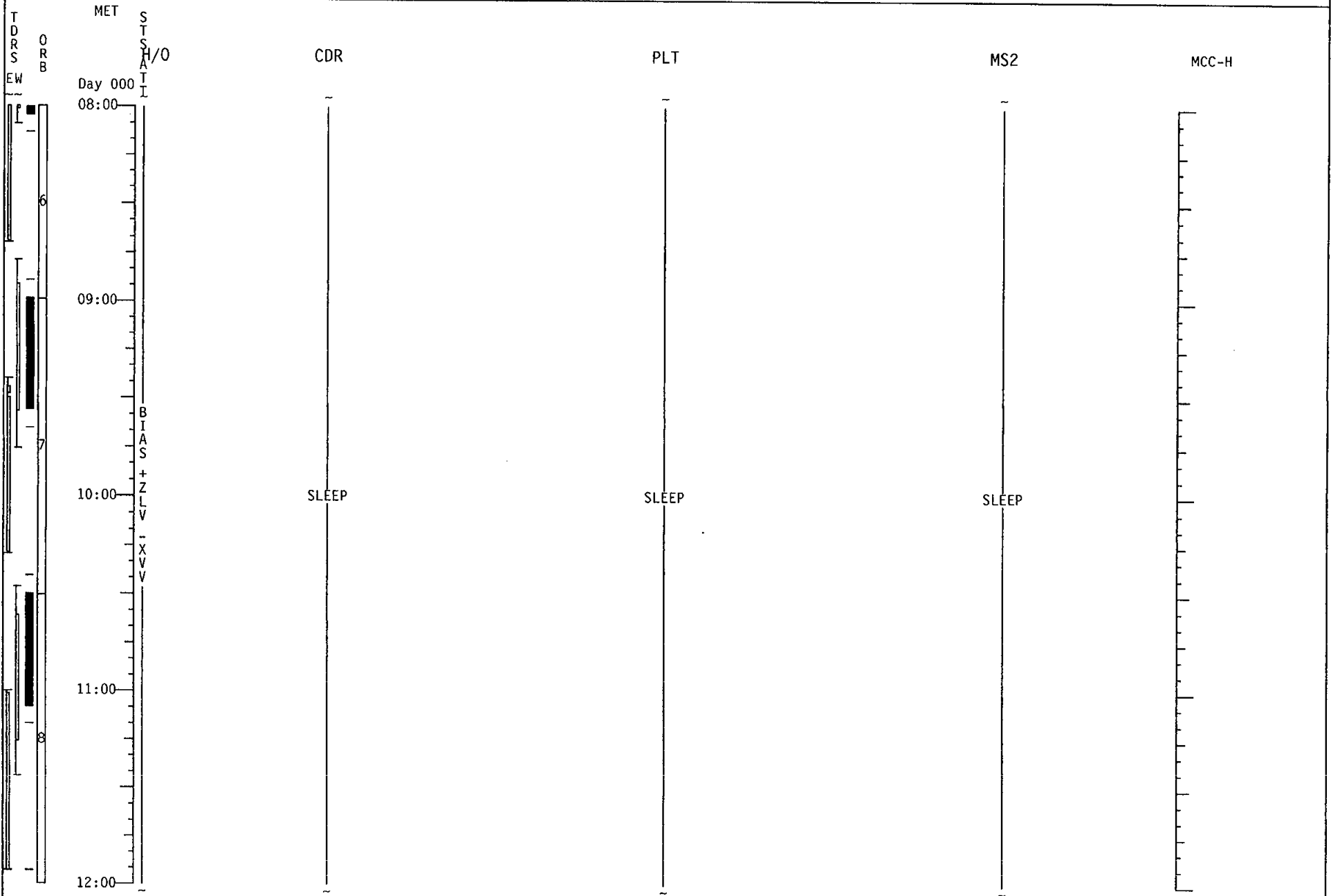
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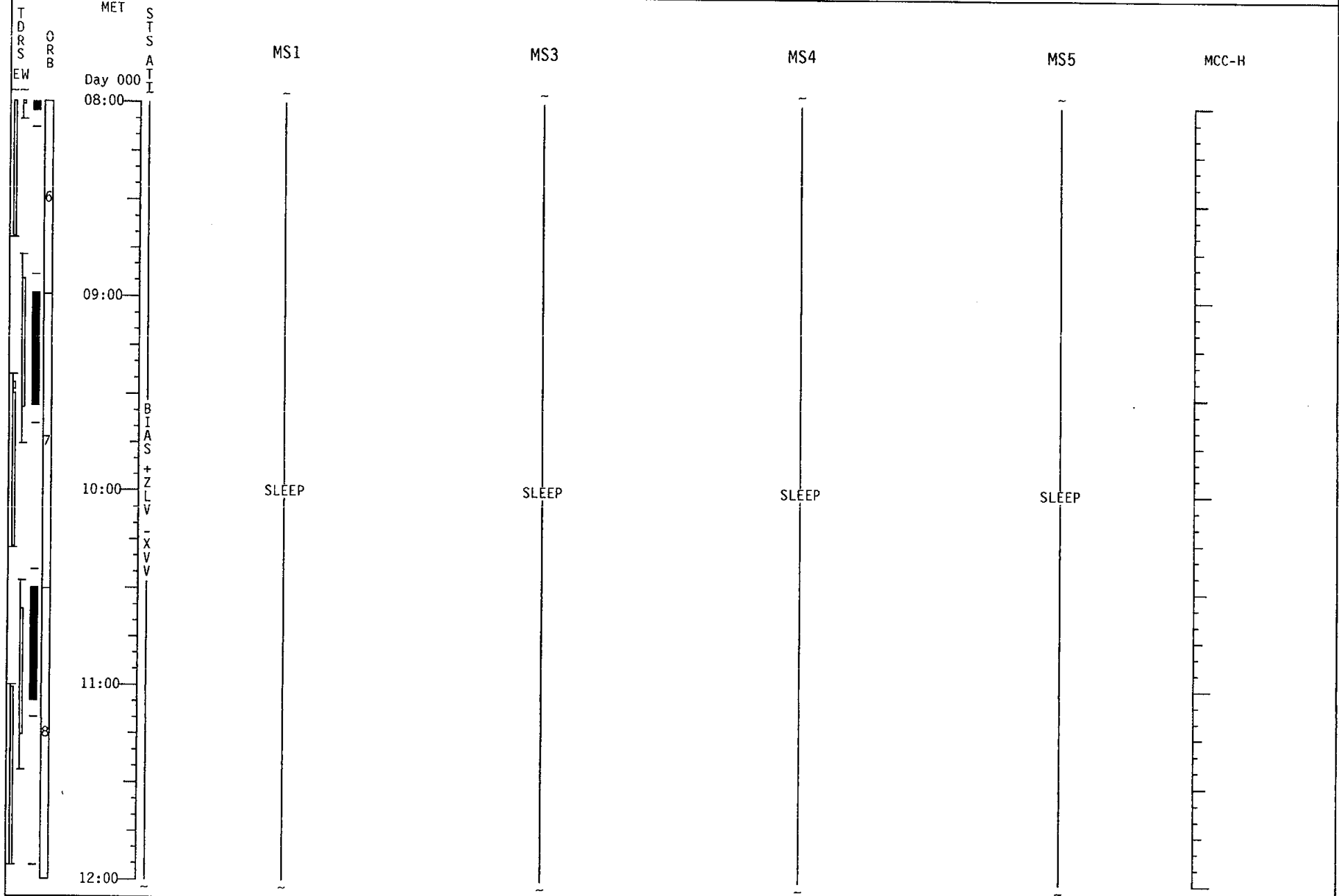
STS-89 (FD01)



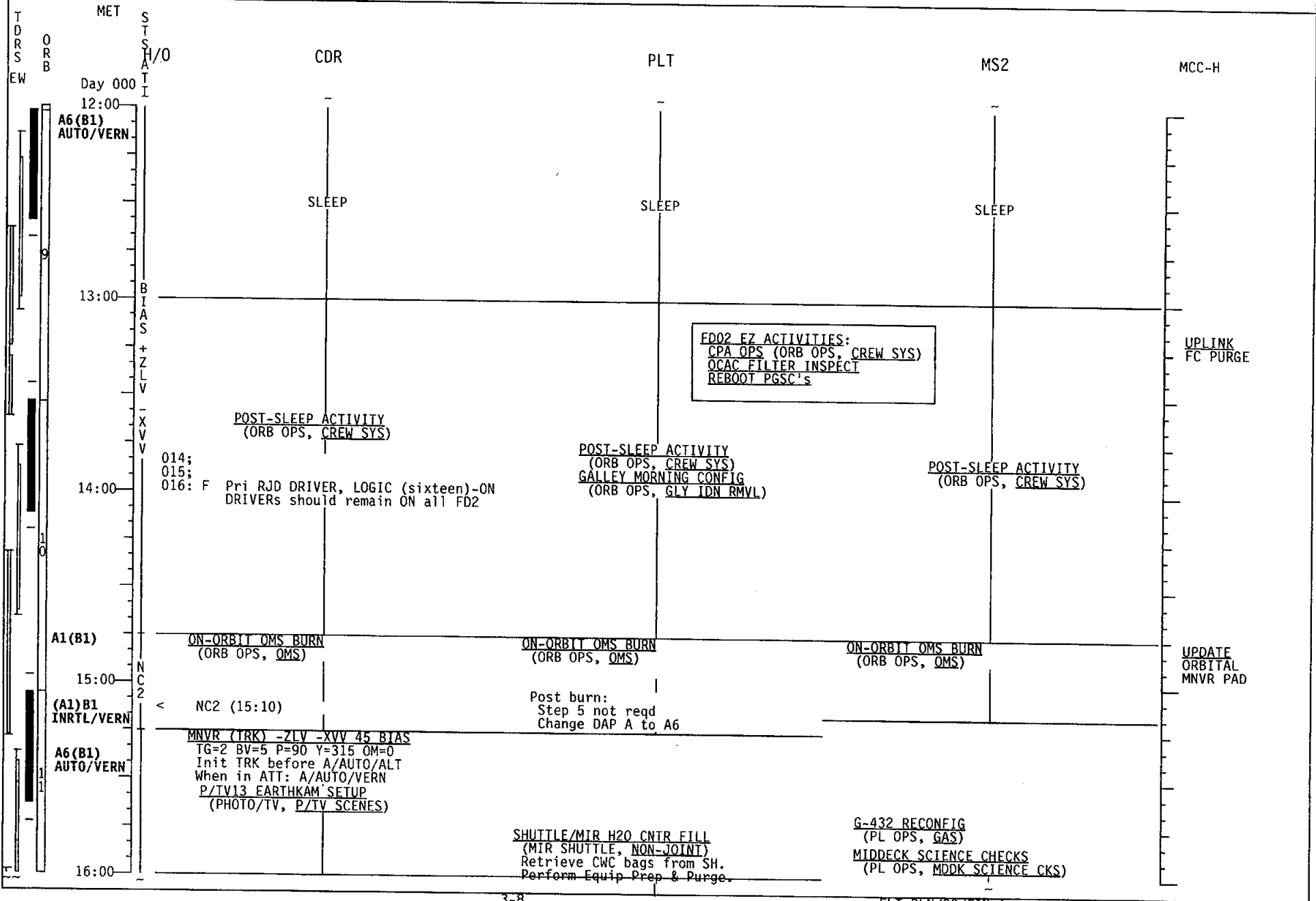
STS-89 (FD 01)



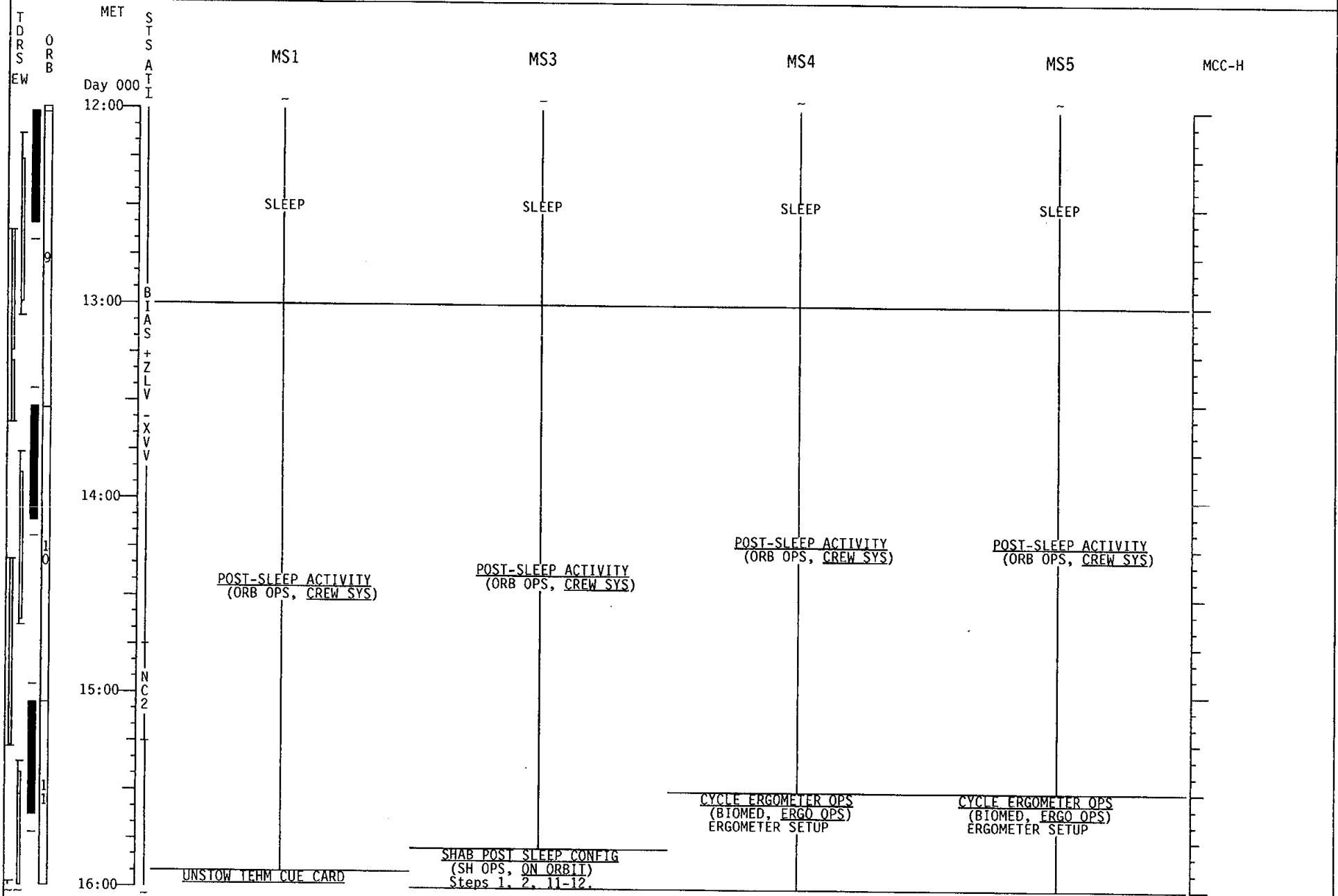
STS-89 (FD01)



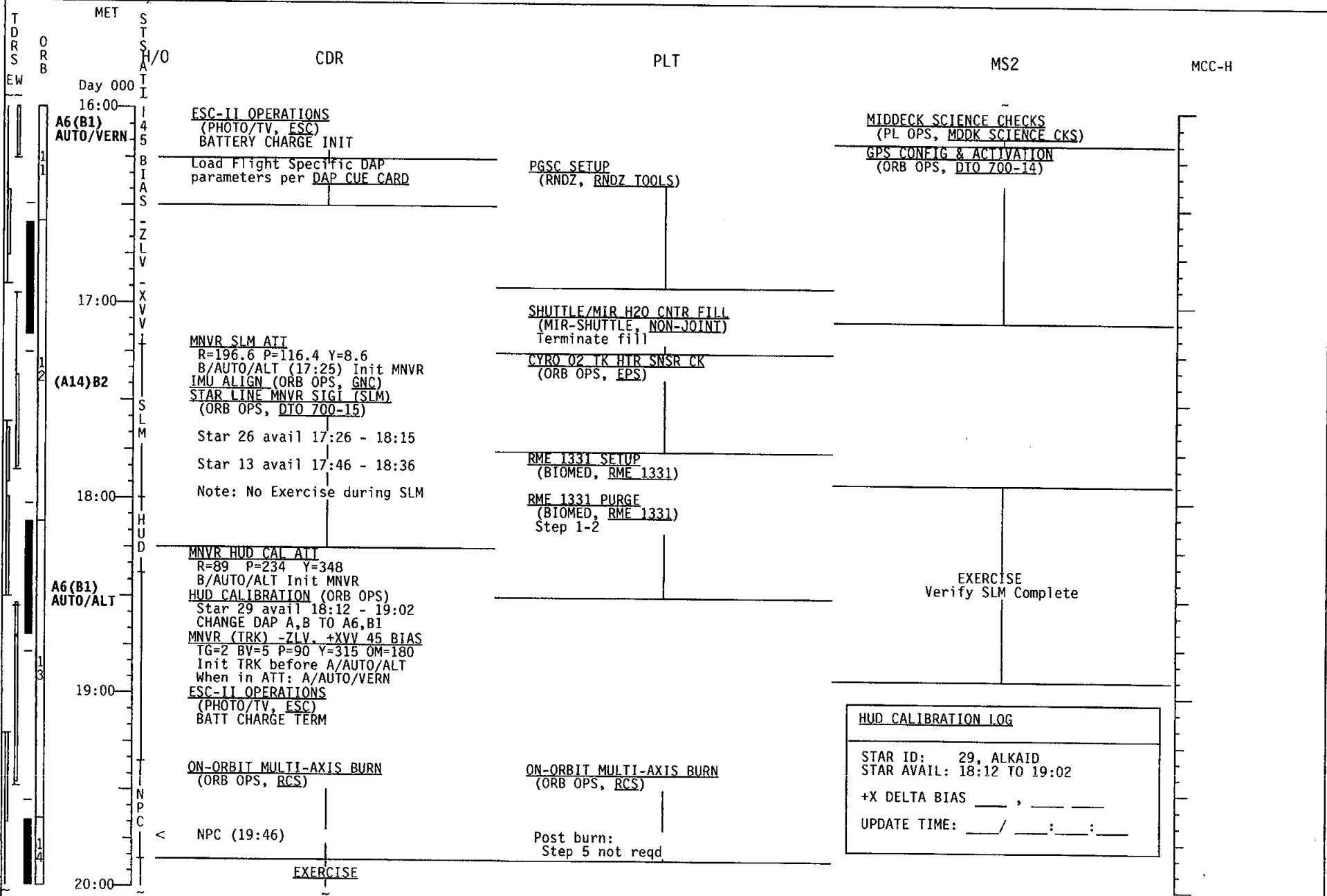
STS-89 (FD02)



STS-89 (FD02)



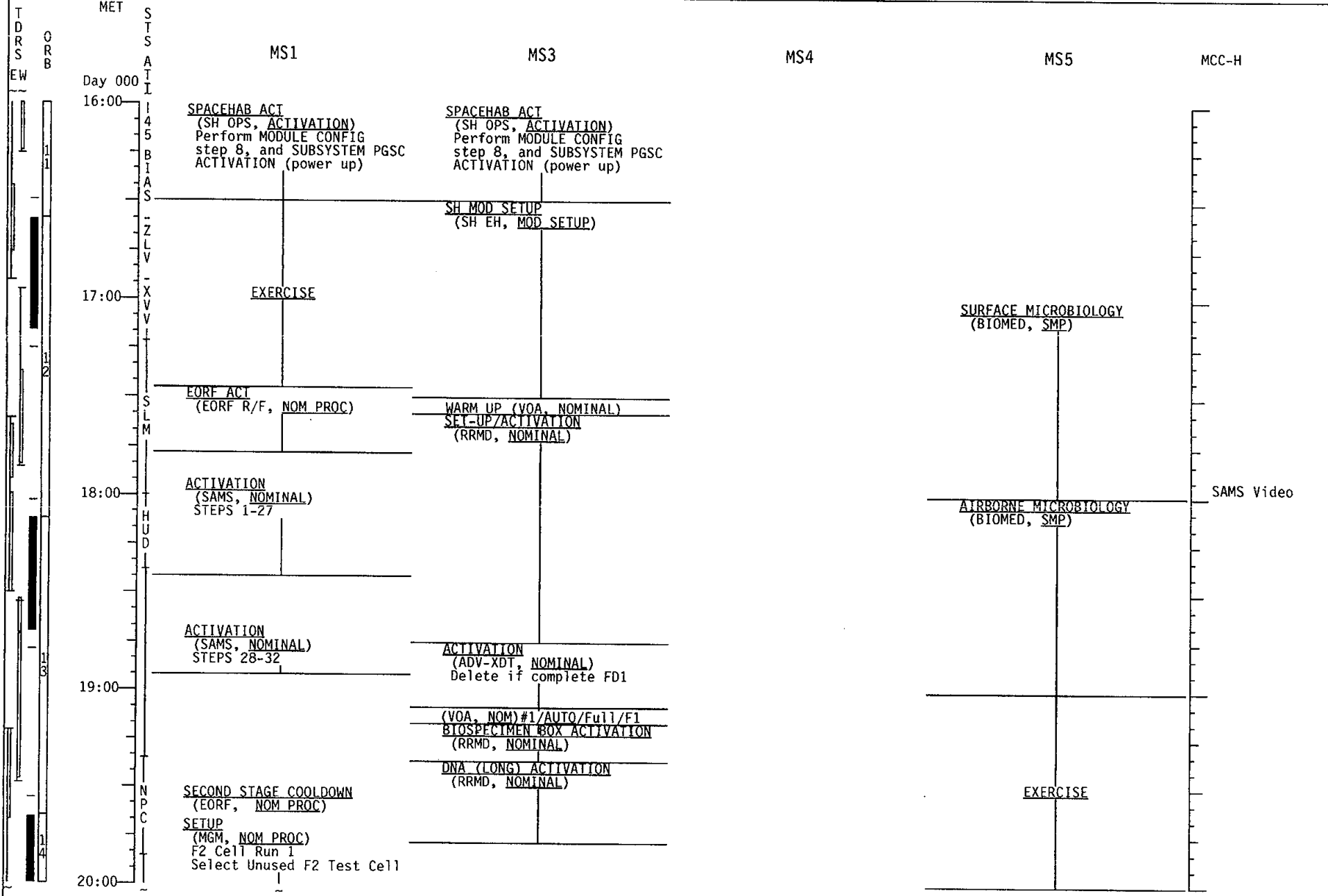
STS-89 (FD02)



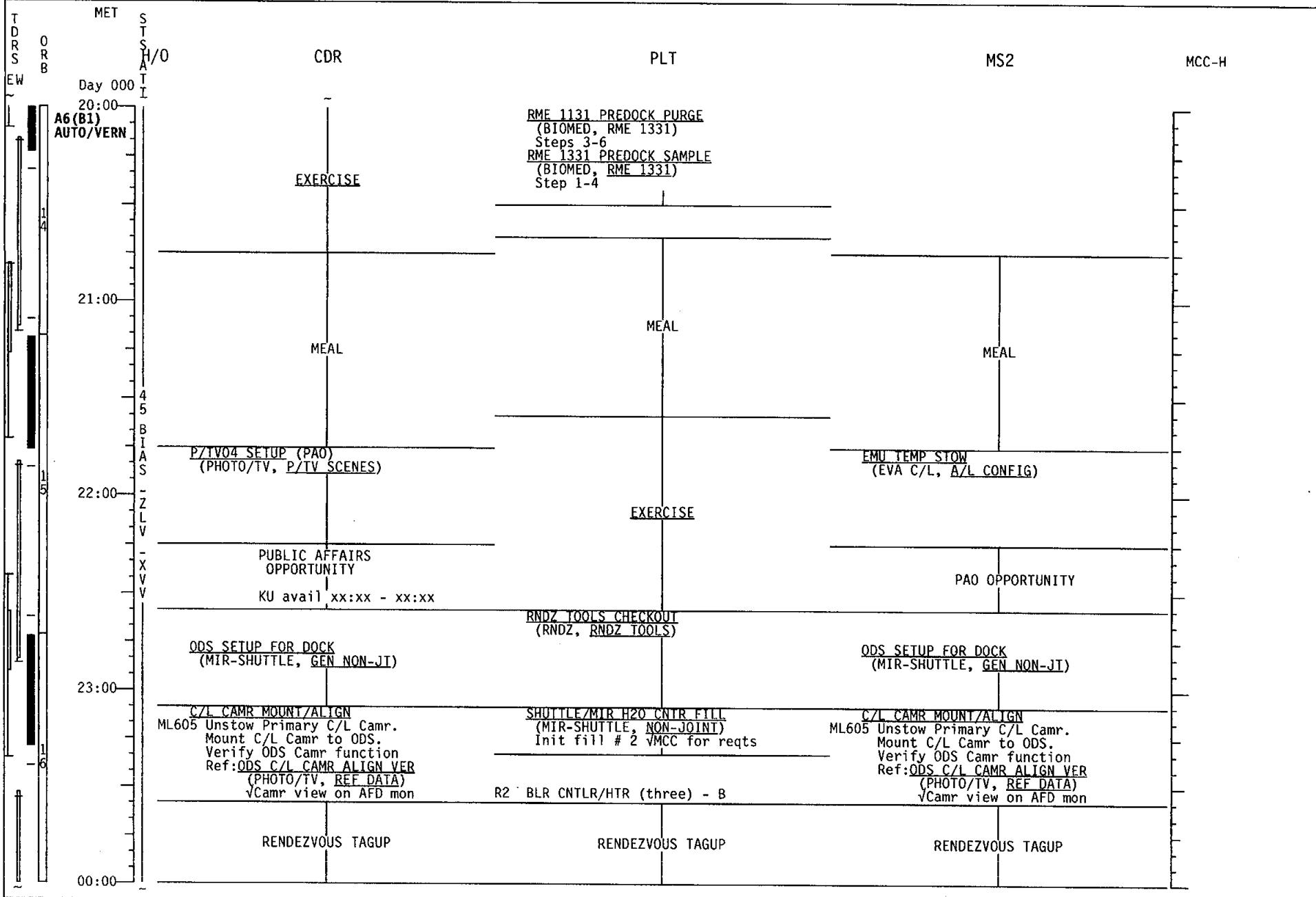
HUD CALIBRATION LOG

STAR ID: 29, ALKAID
 STAR AVAIL: 18:12 TO 19:02
 +X DELTA BIAS _____
 UPDATE TIME: ____/____:____:____

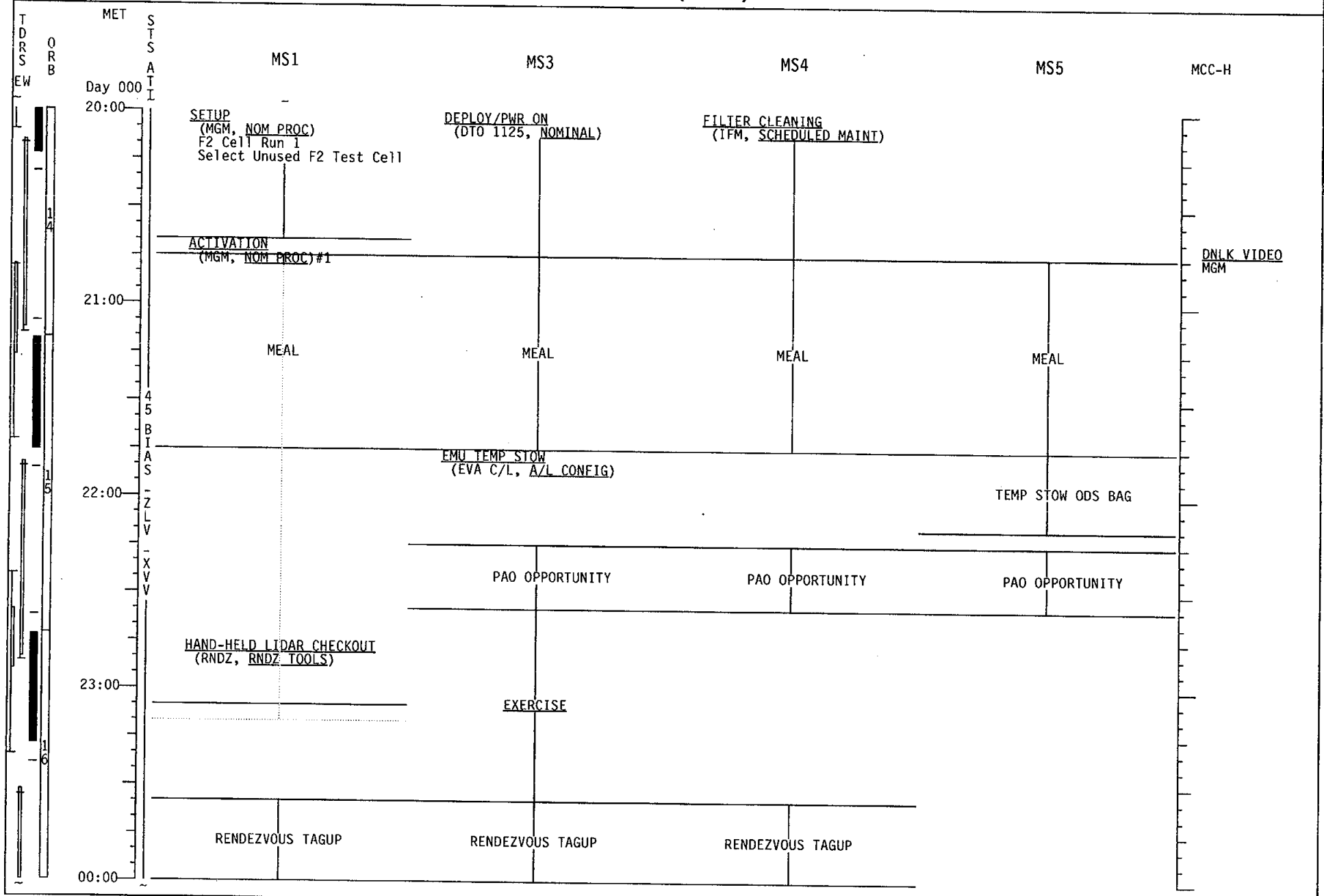
STS-89 (FD 02)



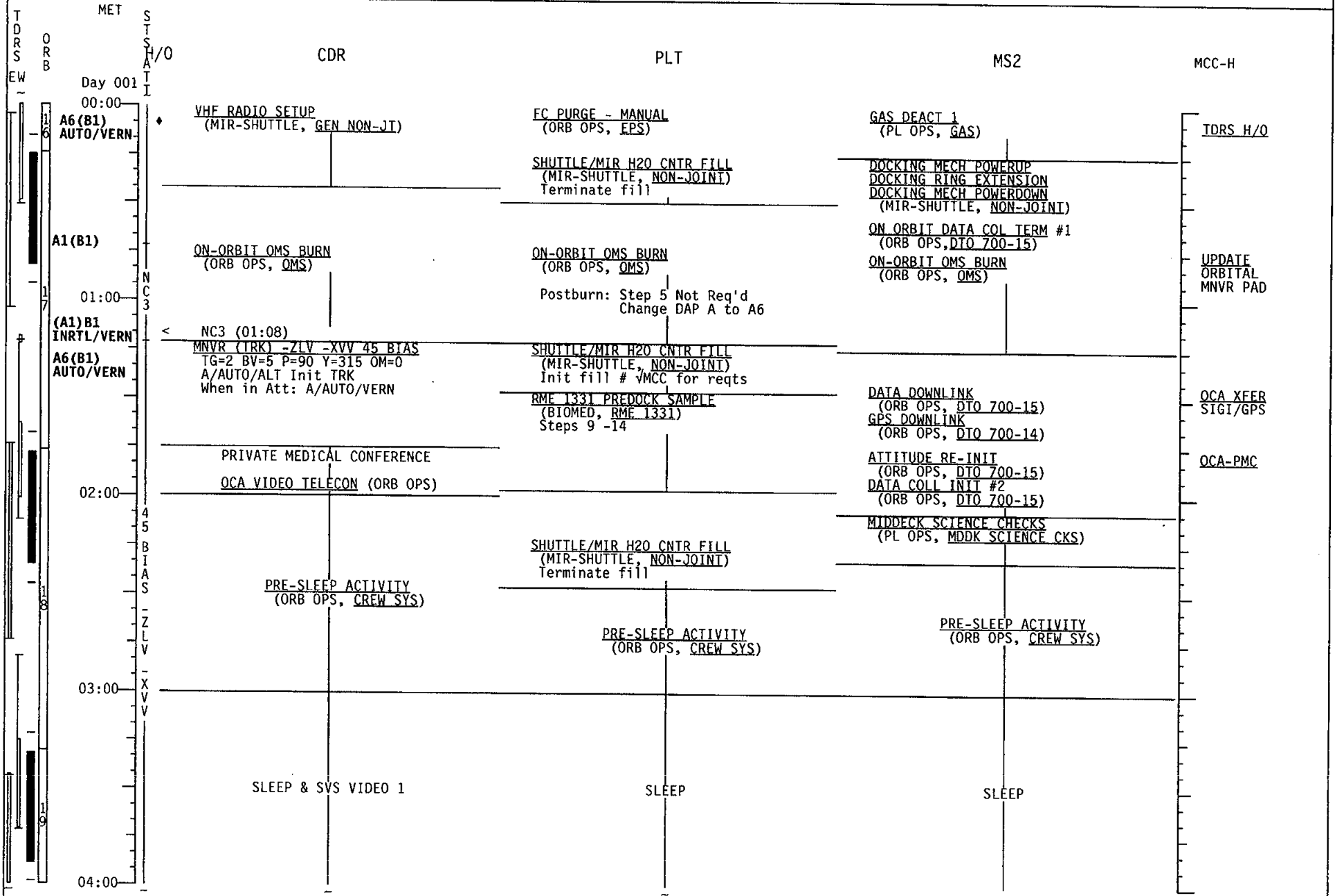
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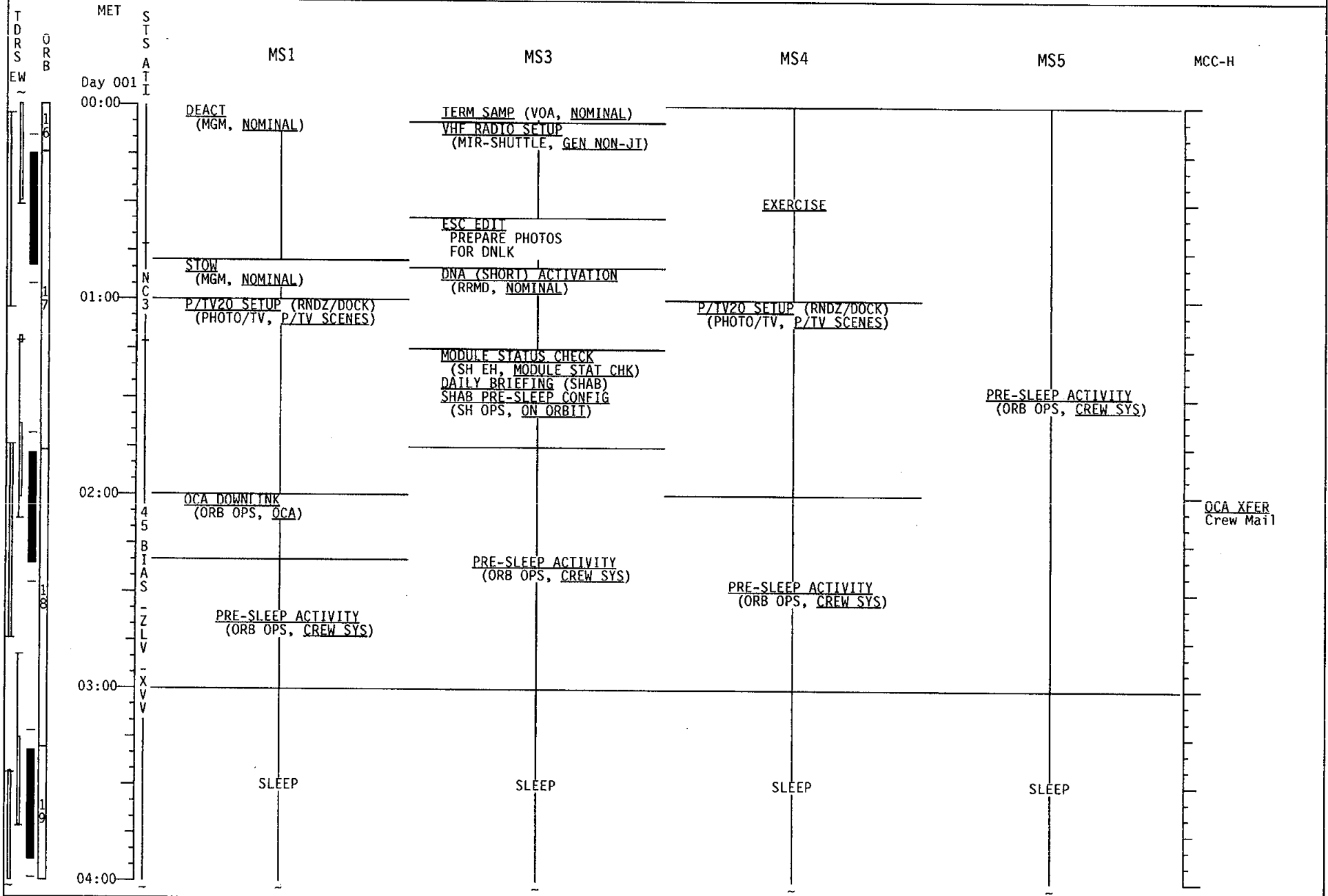
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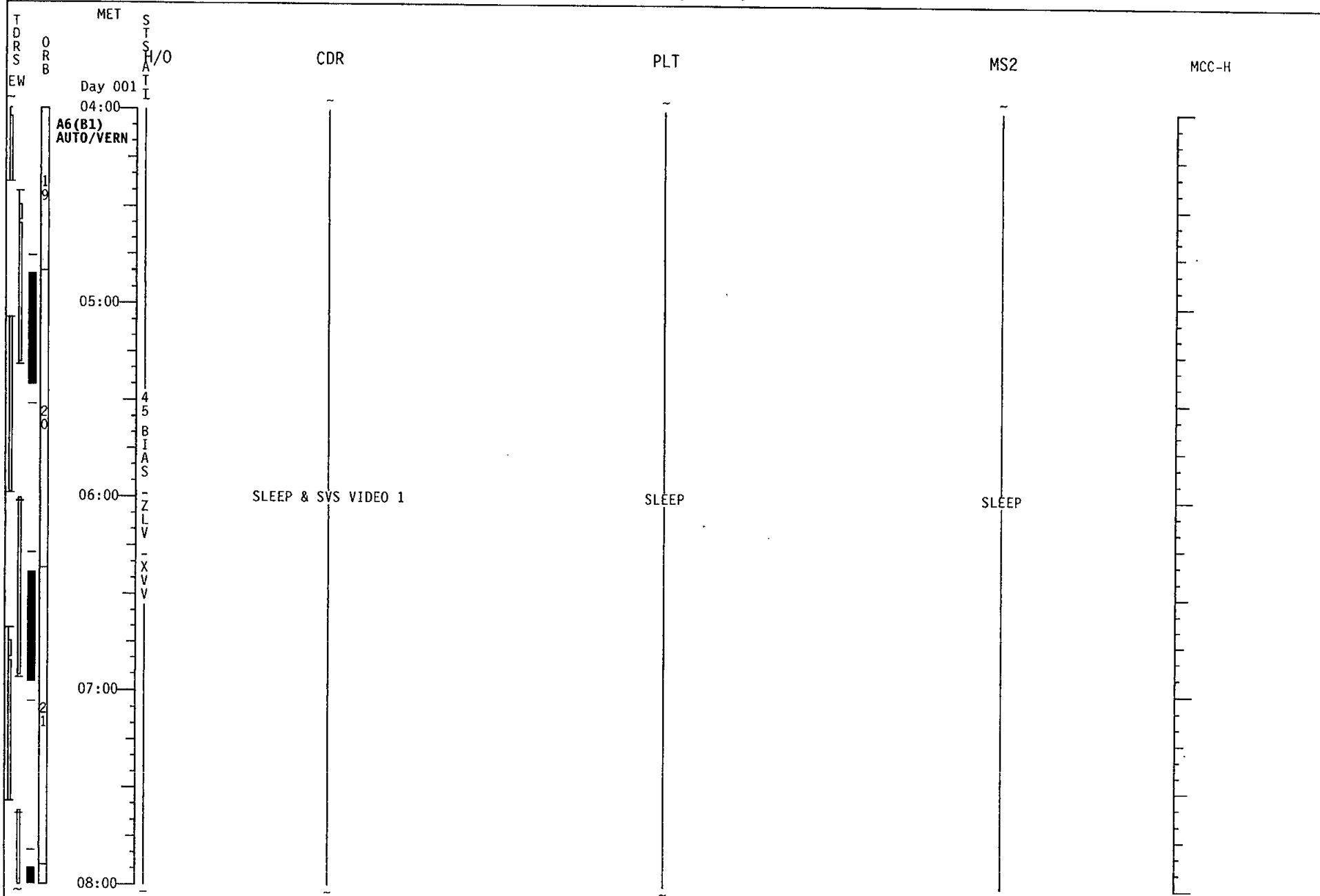
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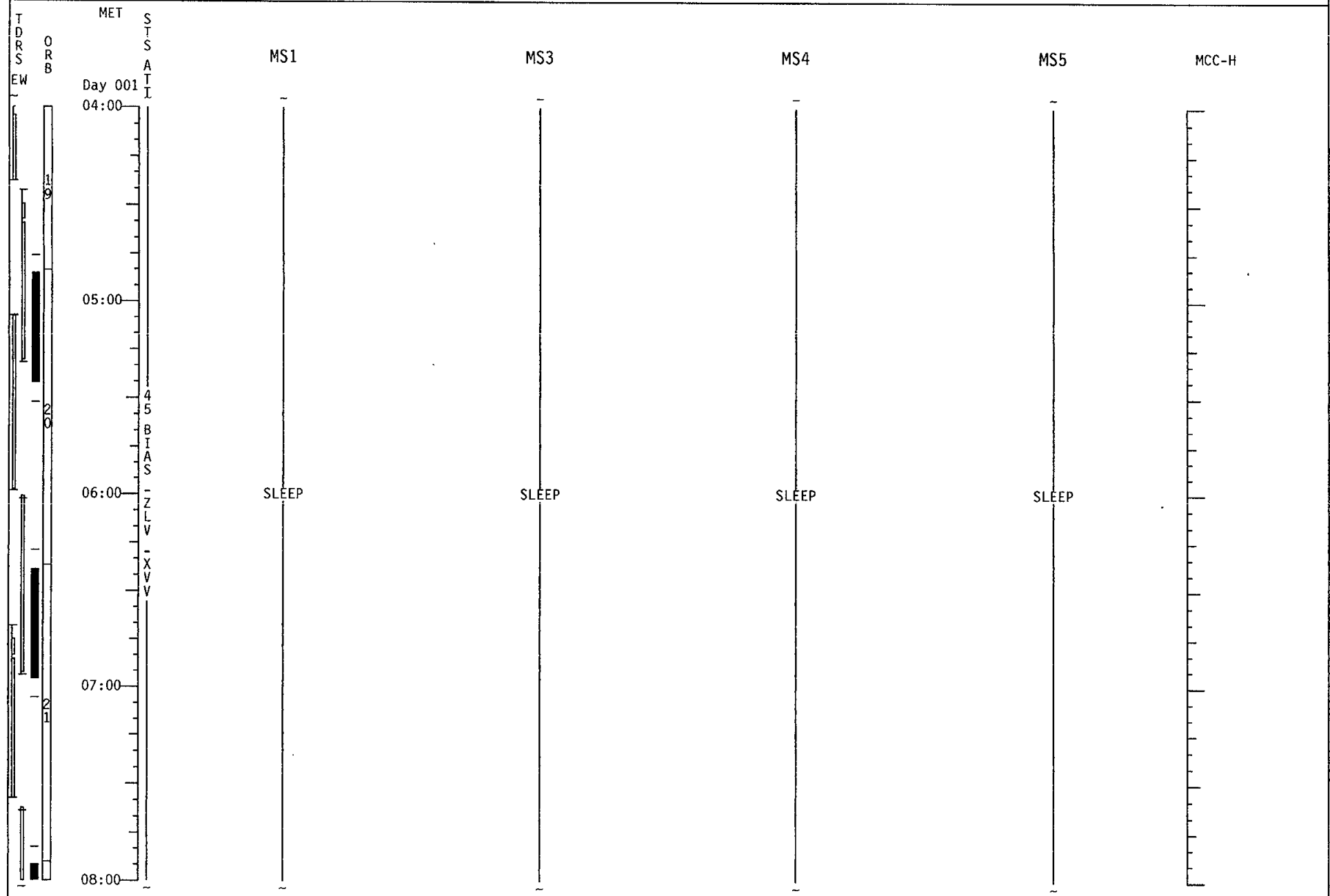
STS-89 (FD 02)



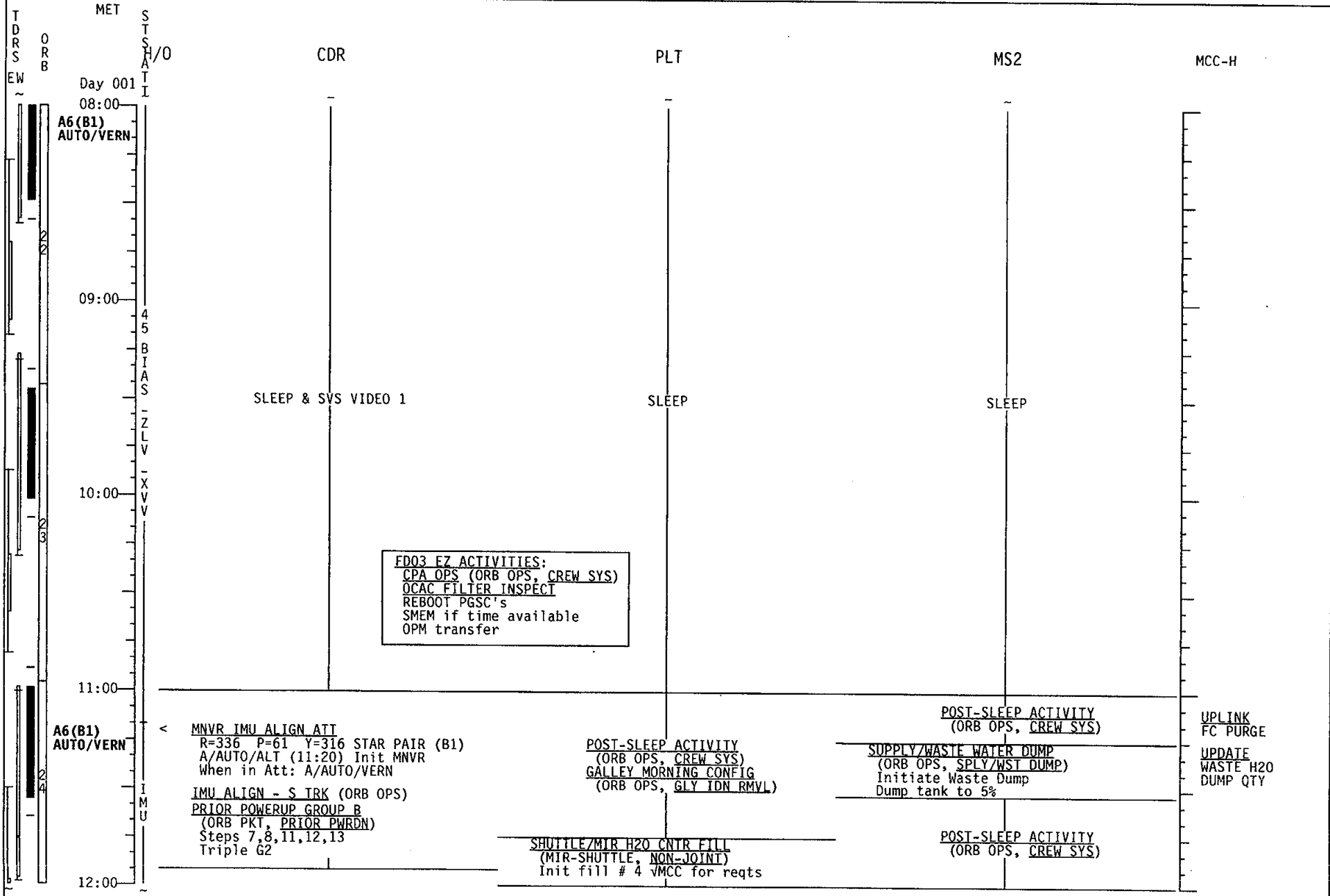
STS-89 (FD02)



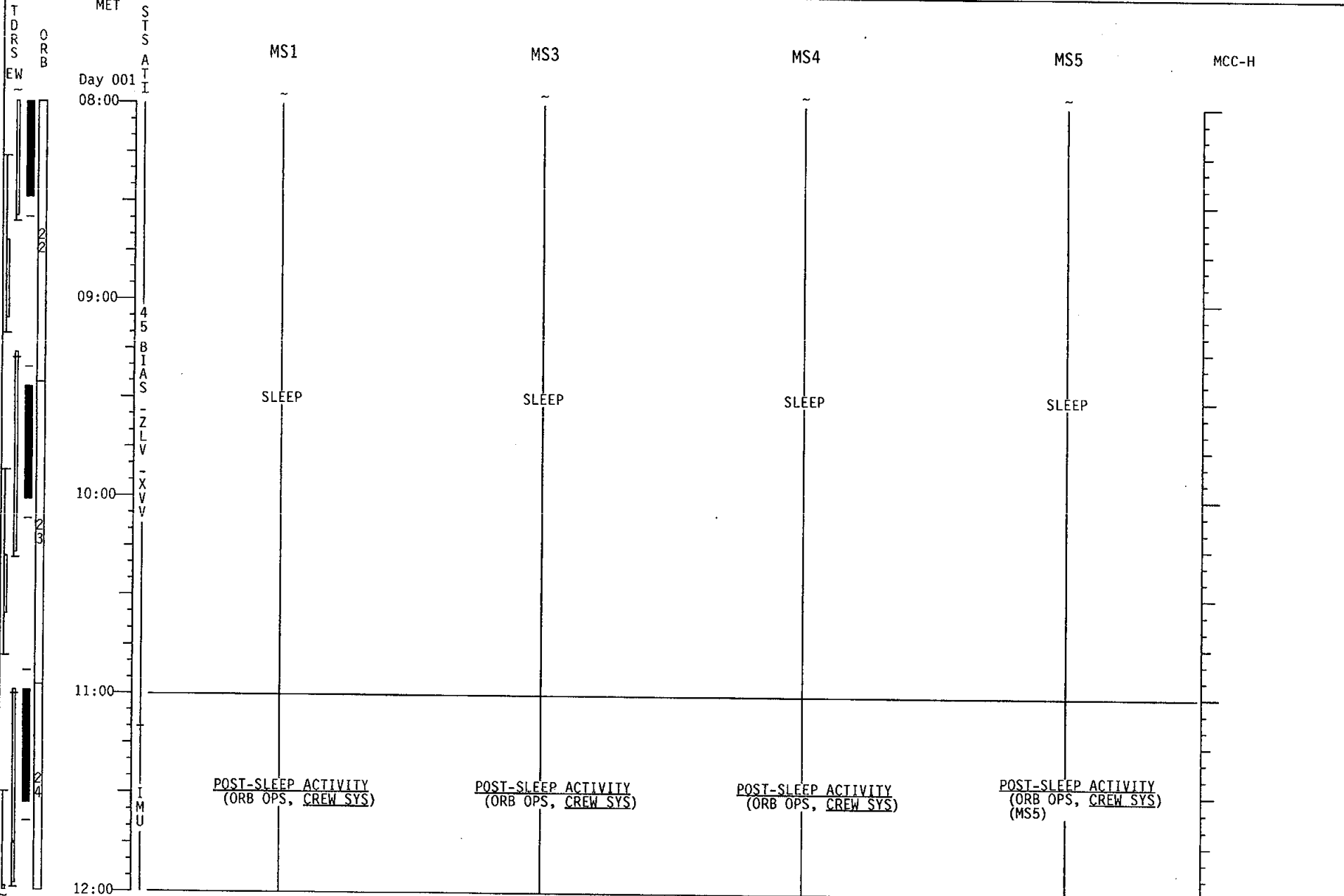
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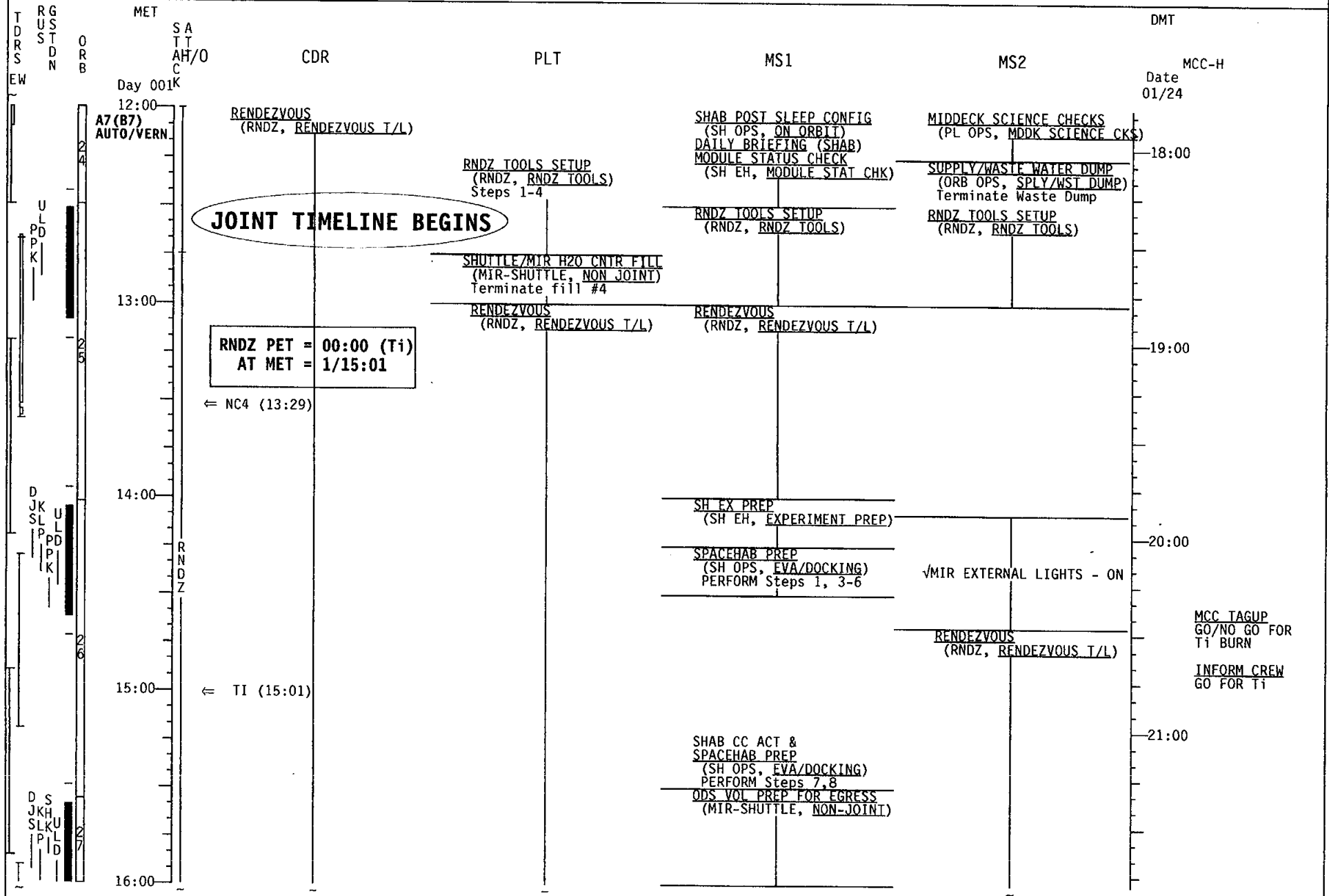
STS-89 (FD02)



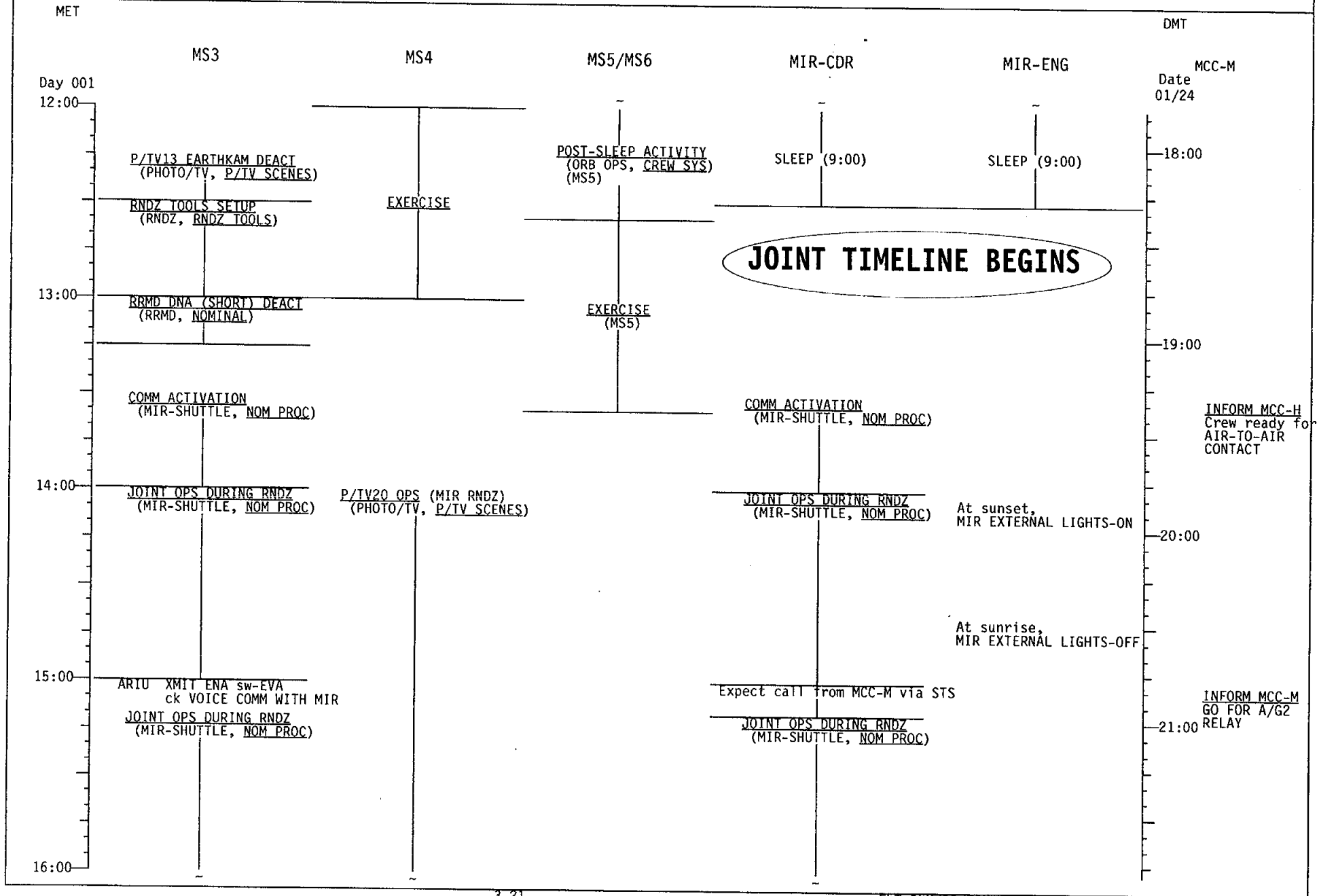
STS-89 (FD02)



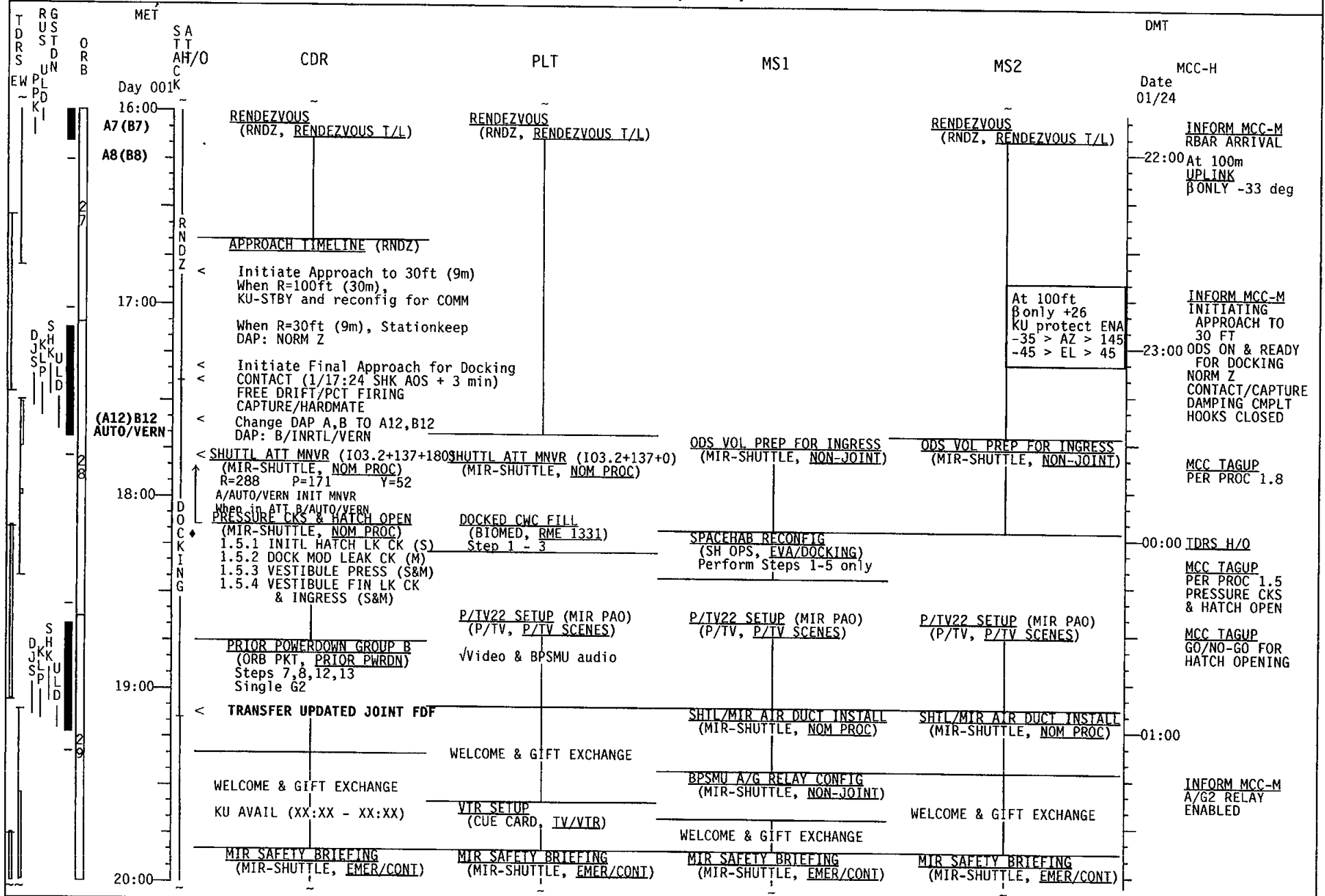
STS-89 (FD03)



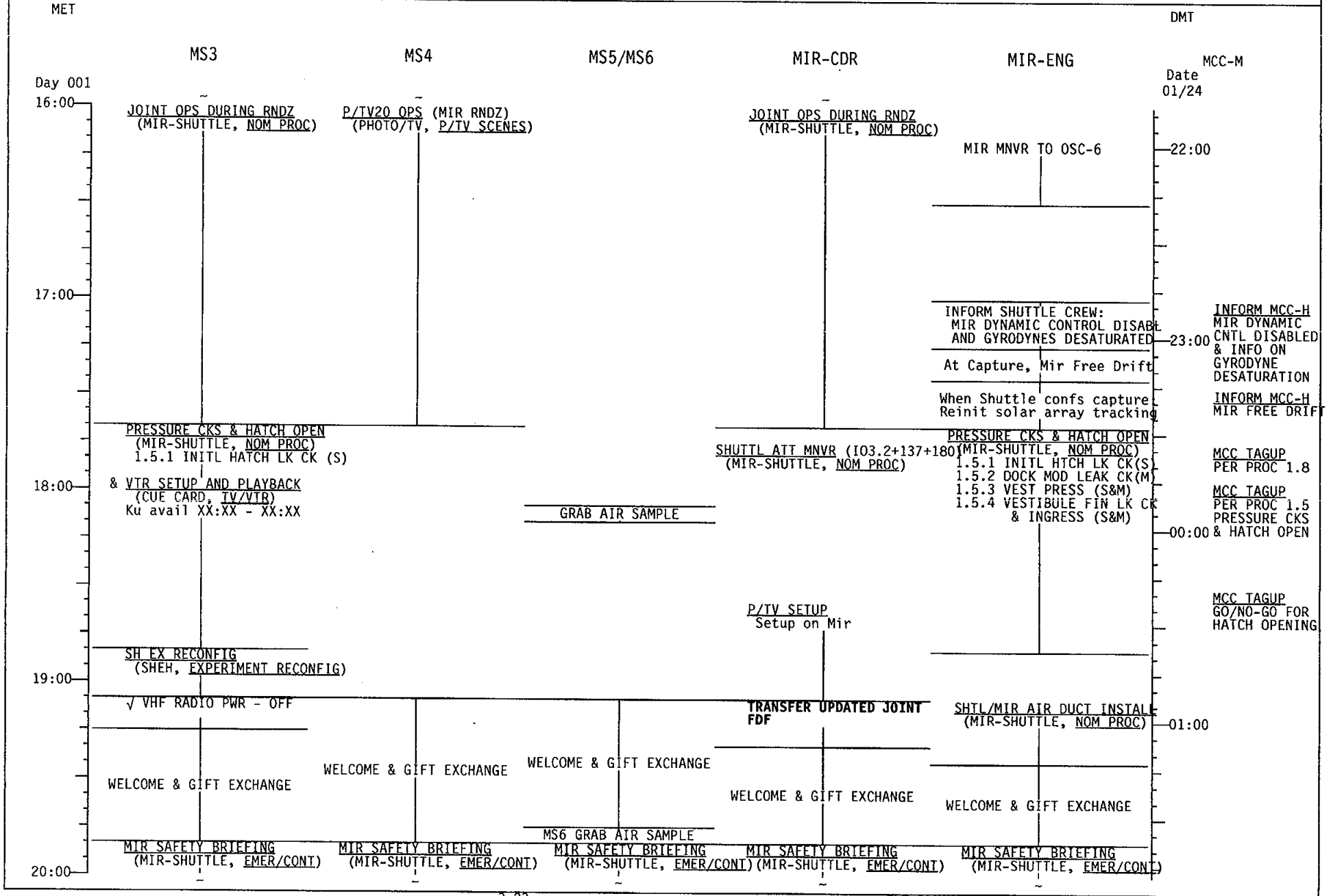
STS-89 (FD03)



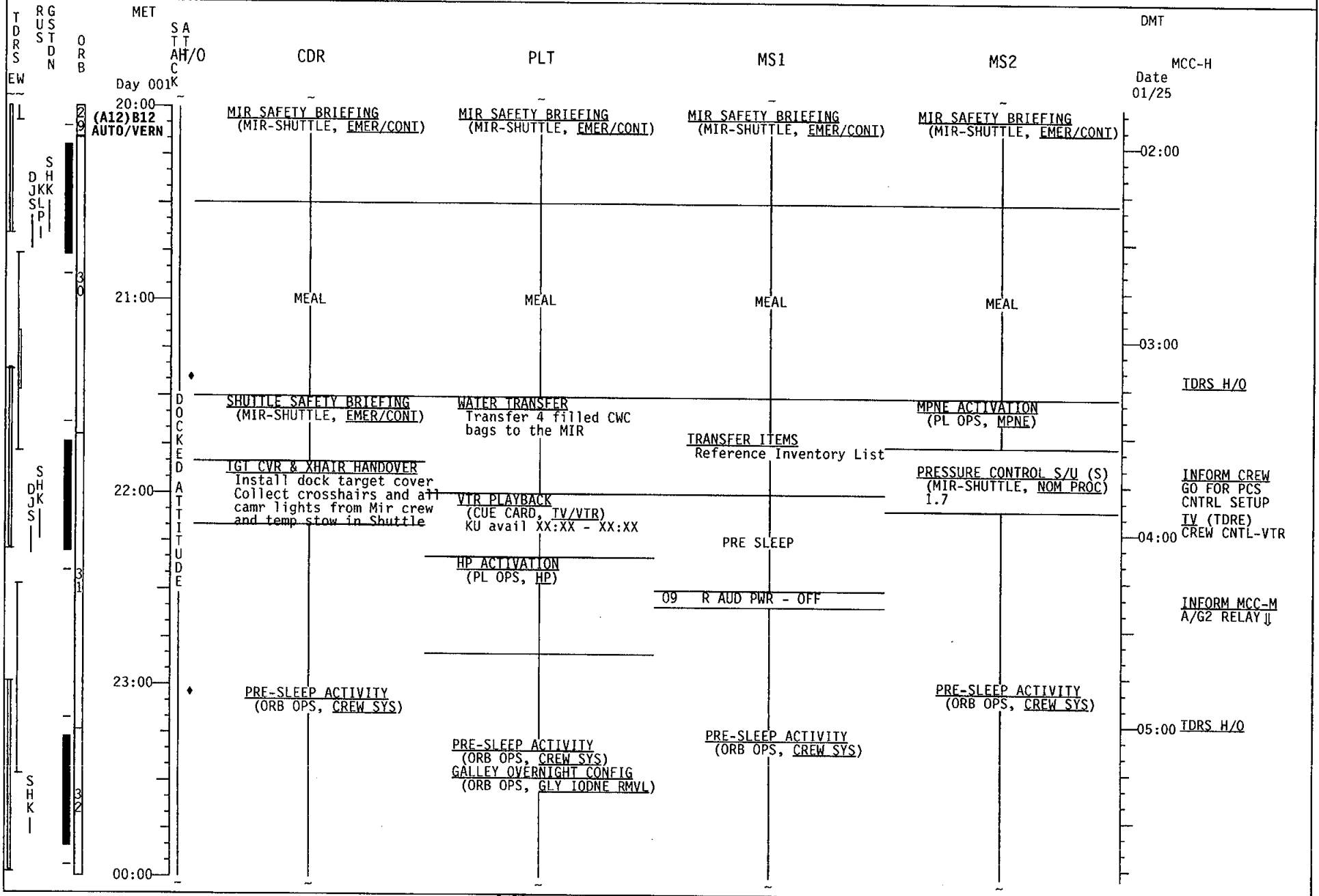
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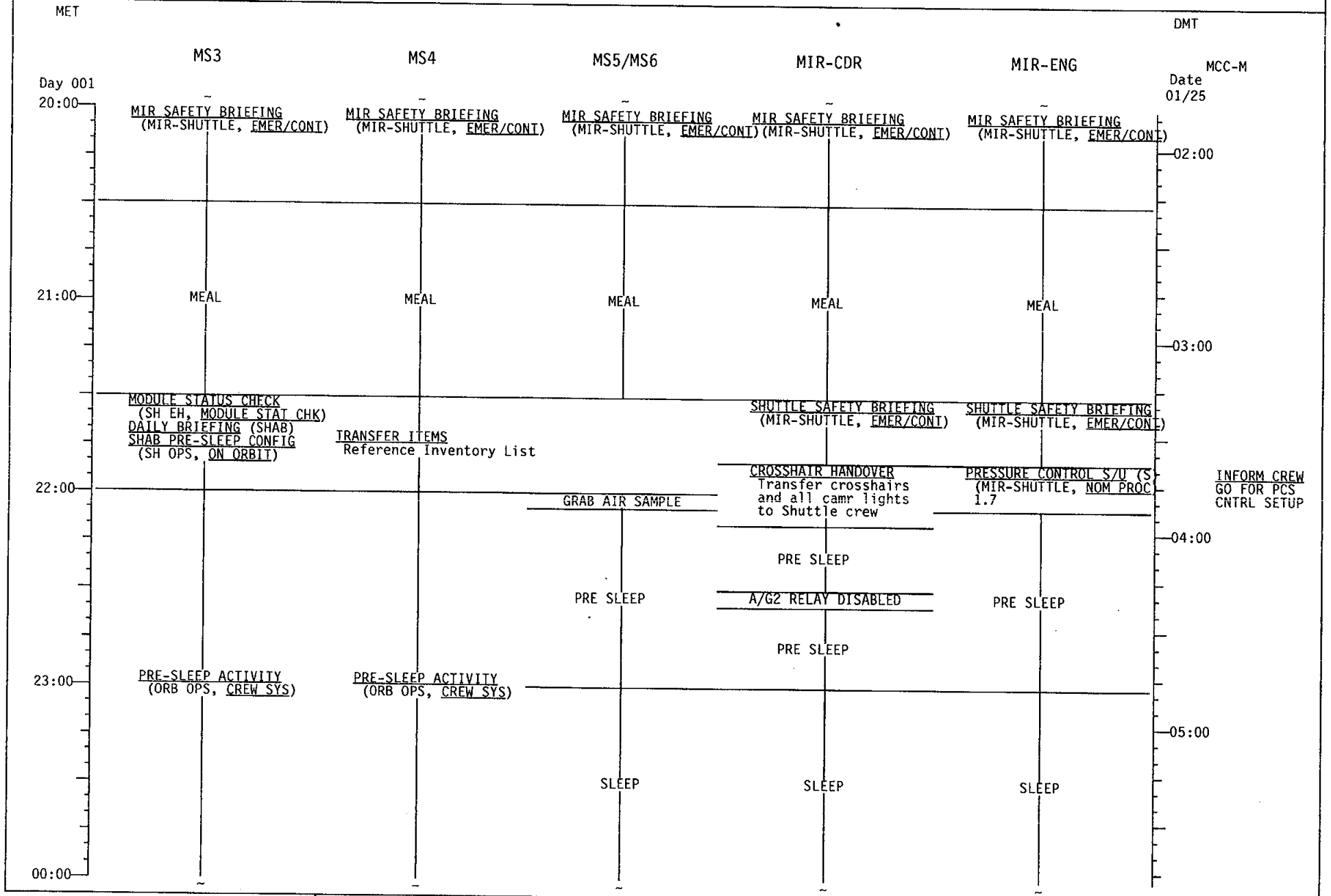
STS-89 (FD03)



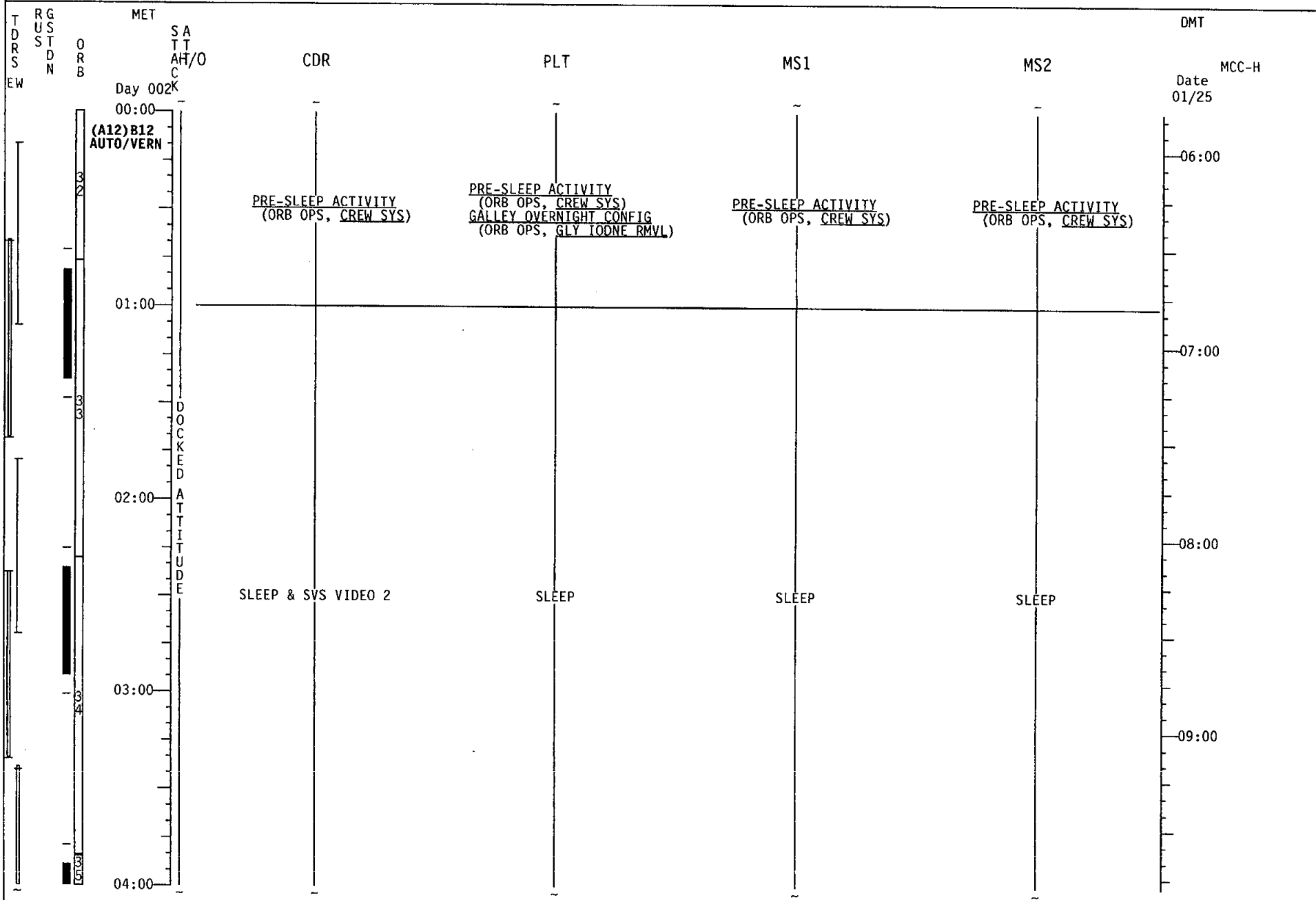
STS-89 (FD03)



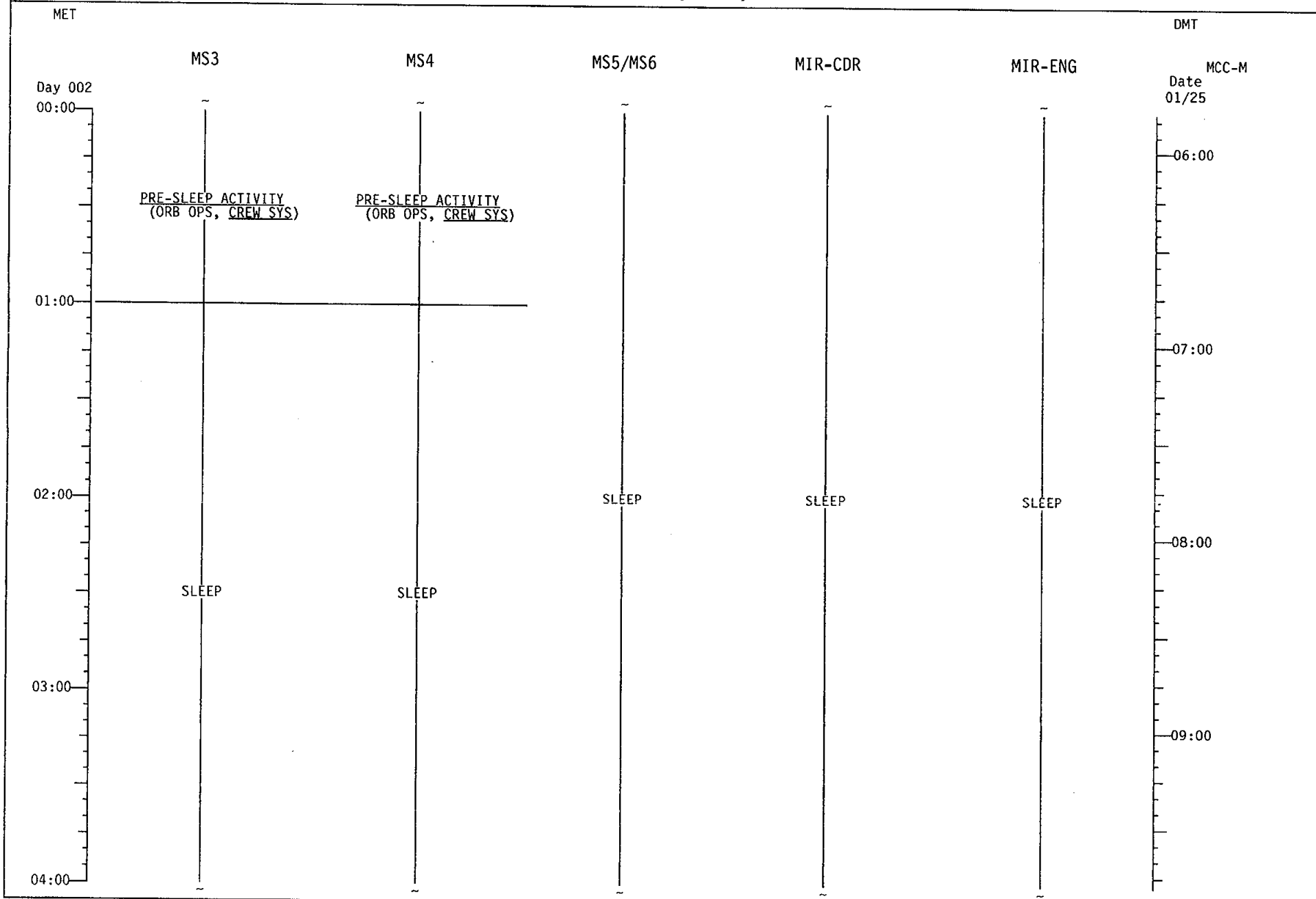
STS-89 (FD03)



STS-89 (FD03)



STS-89 (FD03)



MET

DMT

Day 002

MCC-M
Date
01/25

00:00

06:00

01:00

07:00

02:00

08:00

03:00

09:00

04:00

MS3

MS4

MS5/MS6

MIR-CDR

MIR-ENG

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

SLEEP

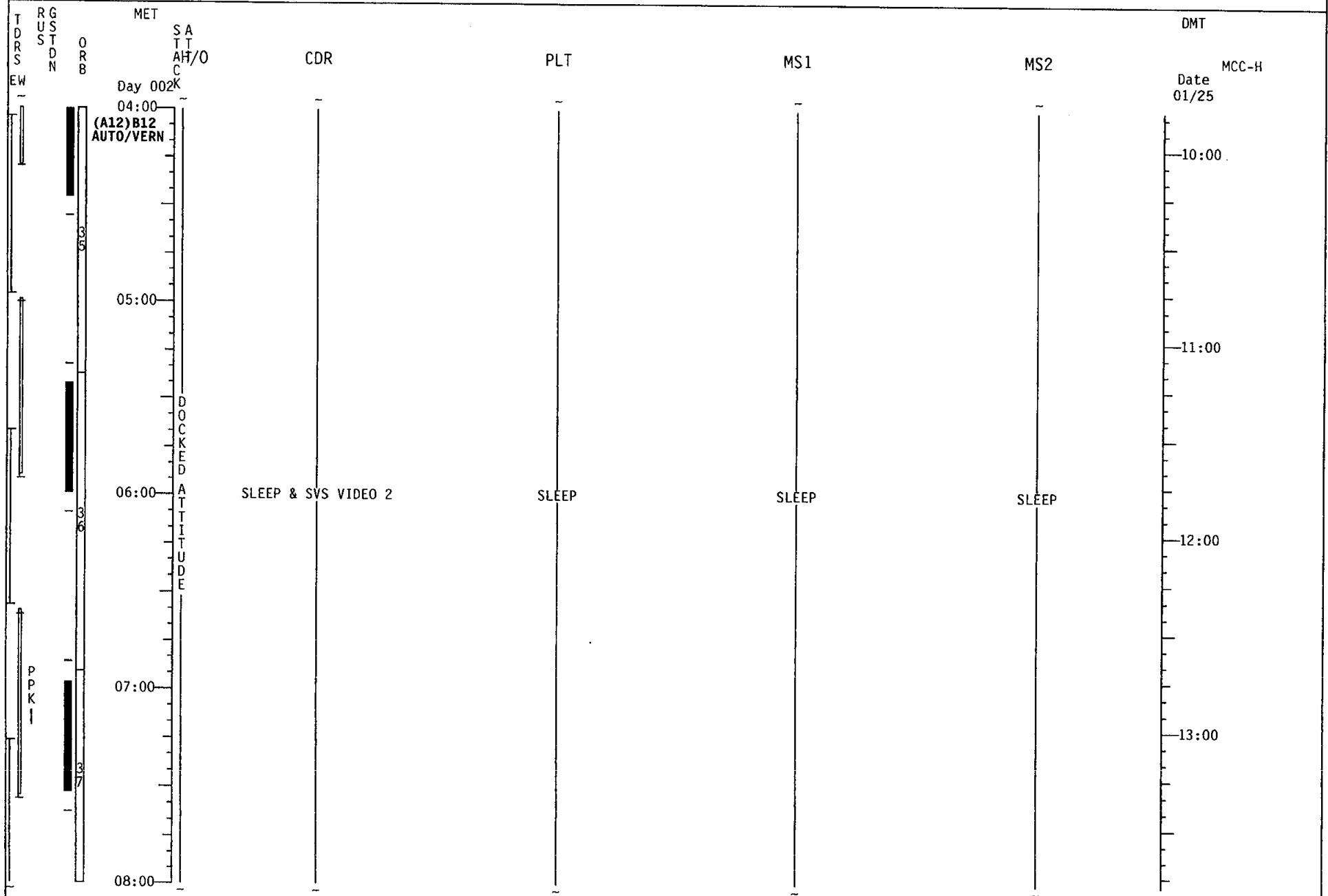
SLEEP

SLEEP

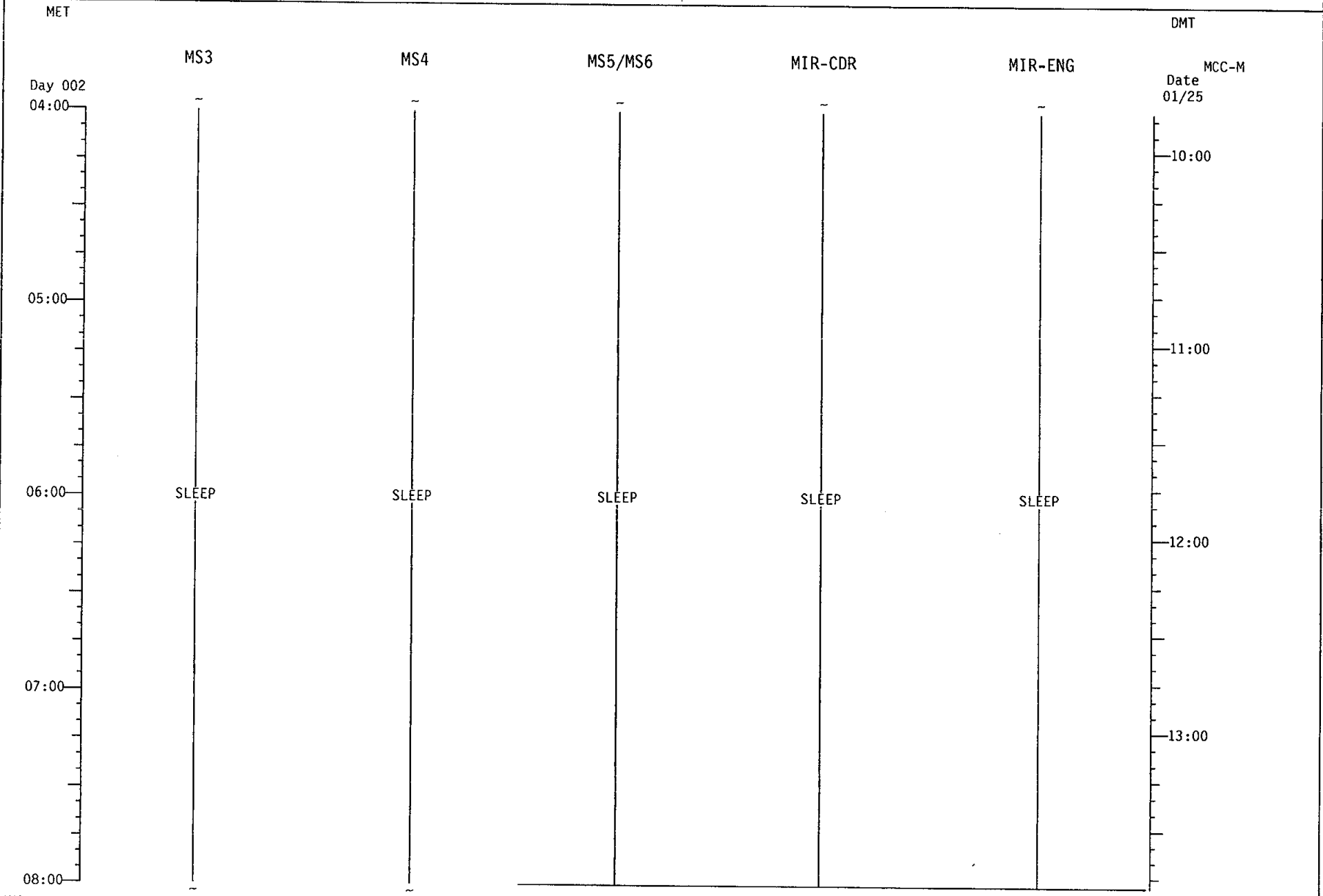
SLEEP

SLEEP

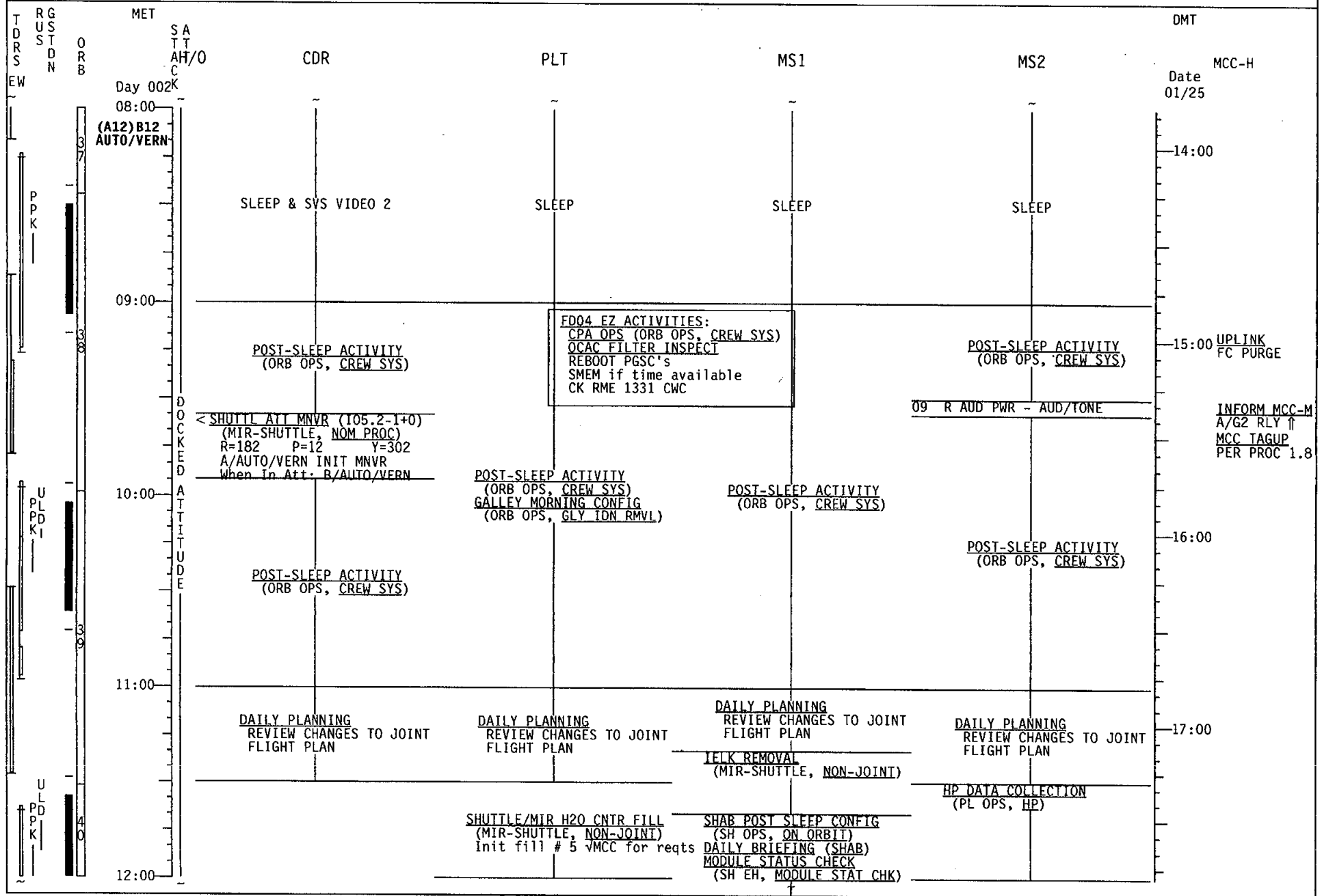
STS-89 (FD03)



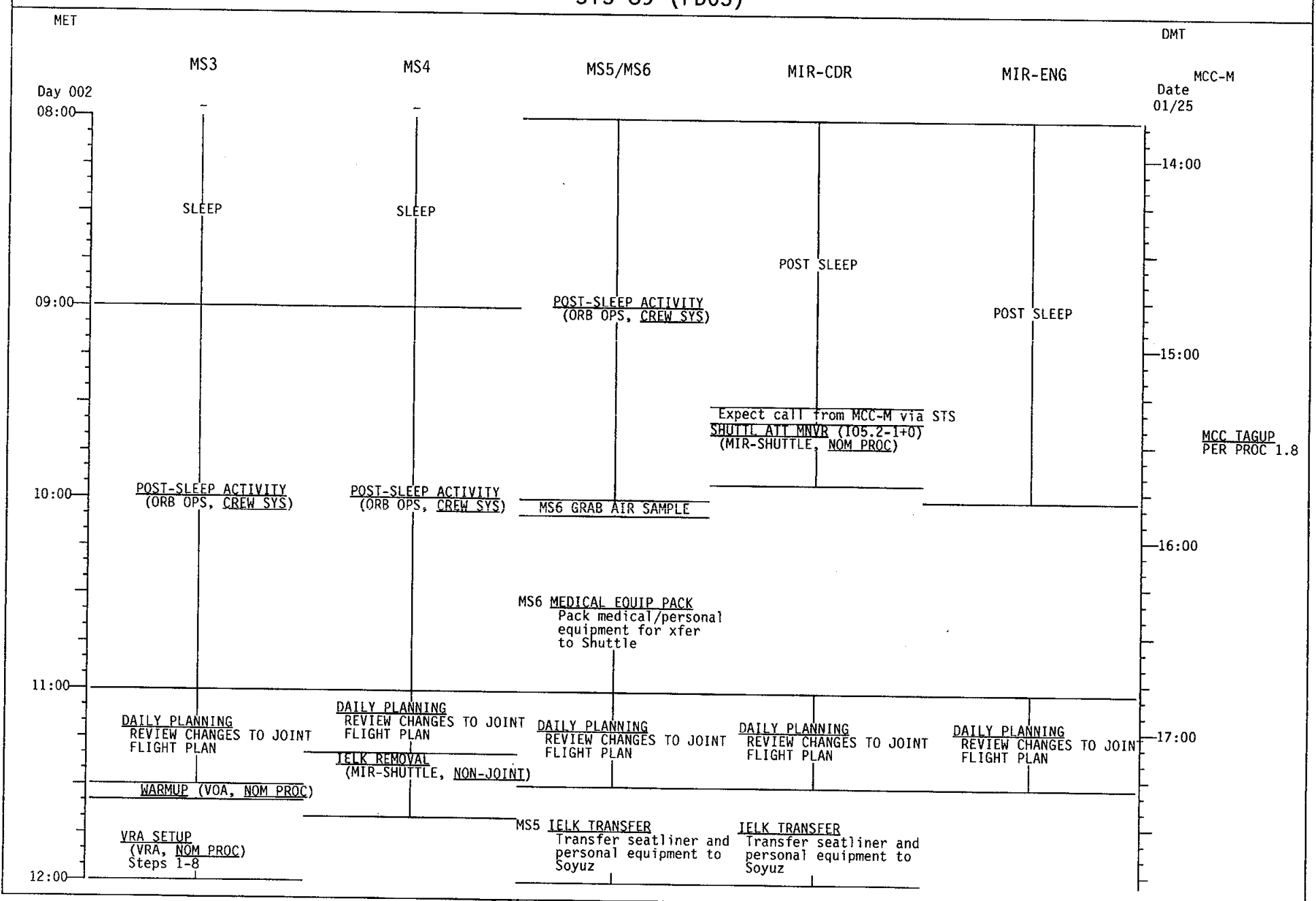
STS-89 (FD03)



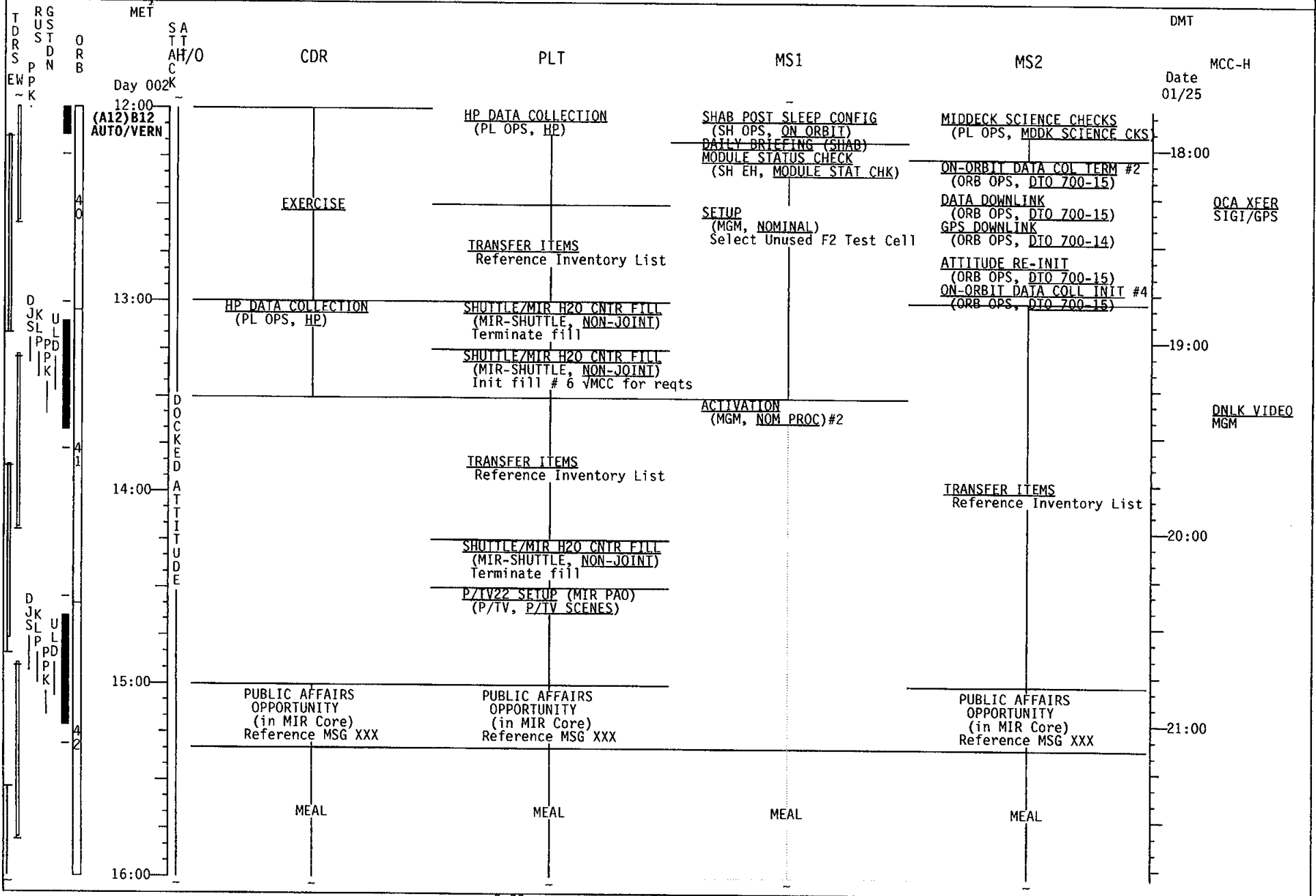
STS-89 (FD03)



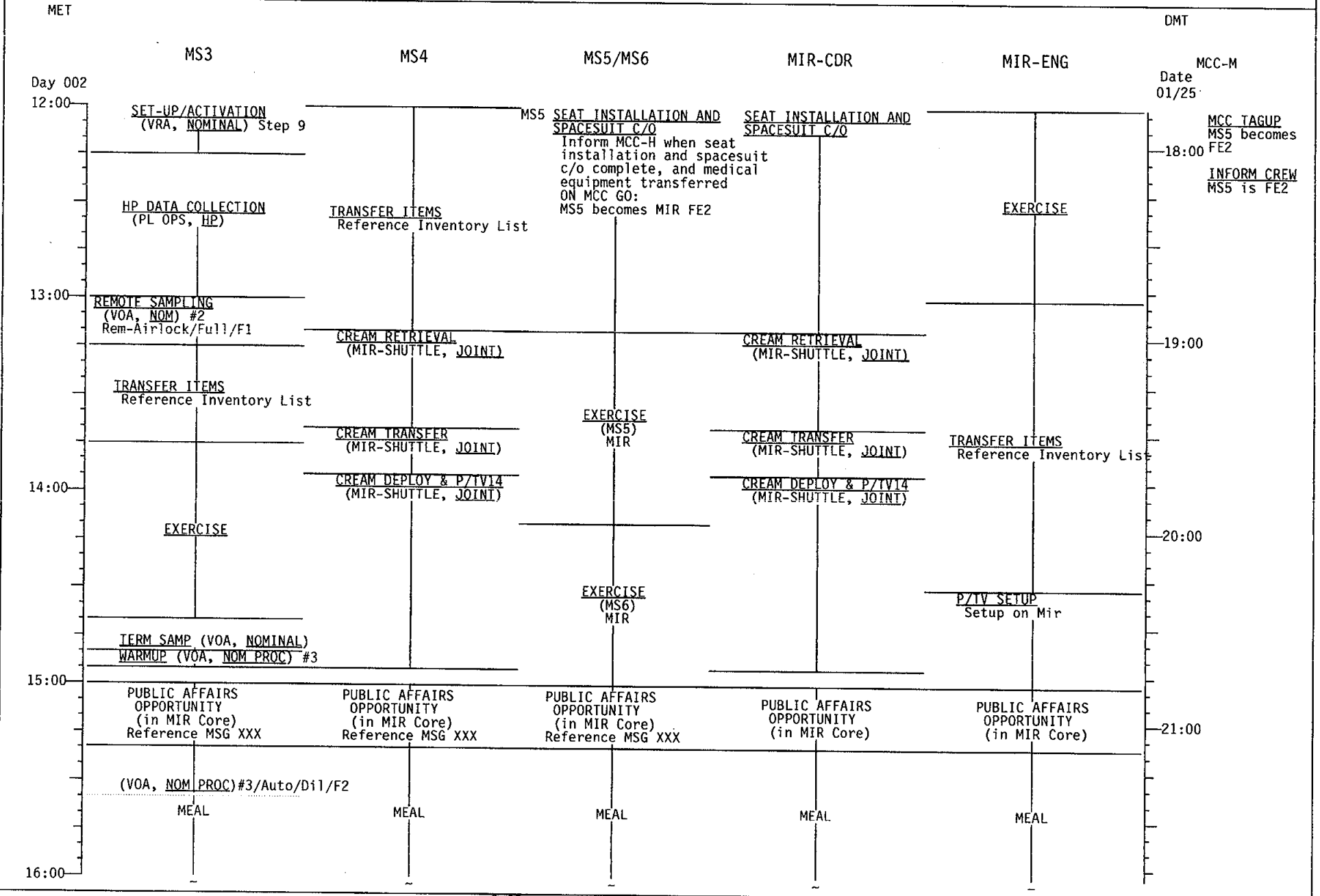
STS-89 (FD03)



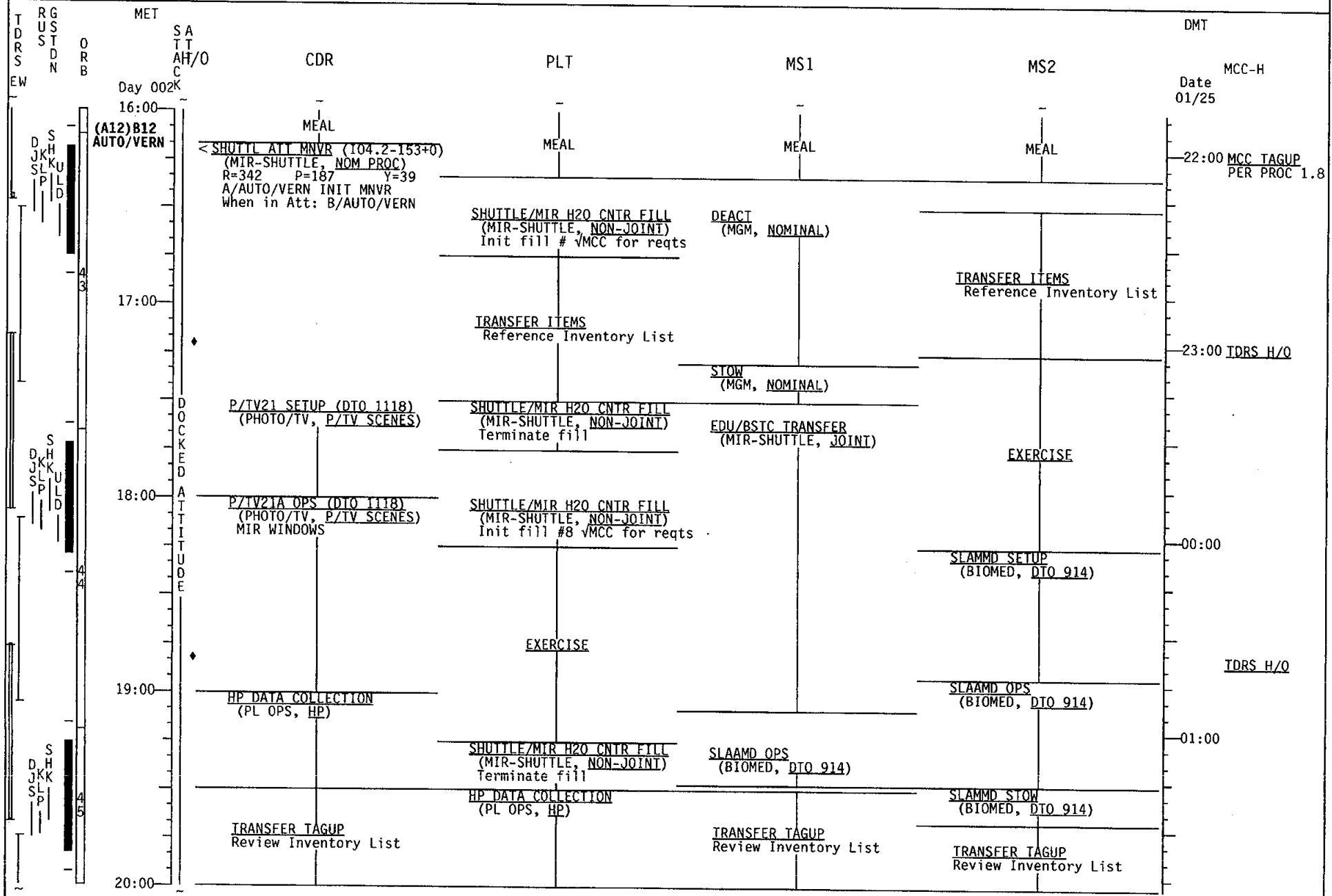
STS-89 (FD04)



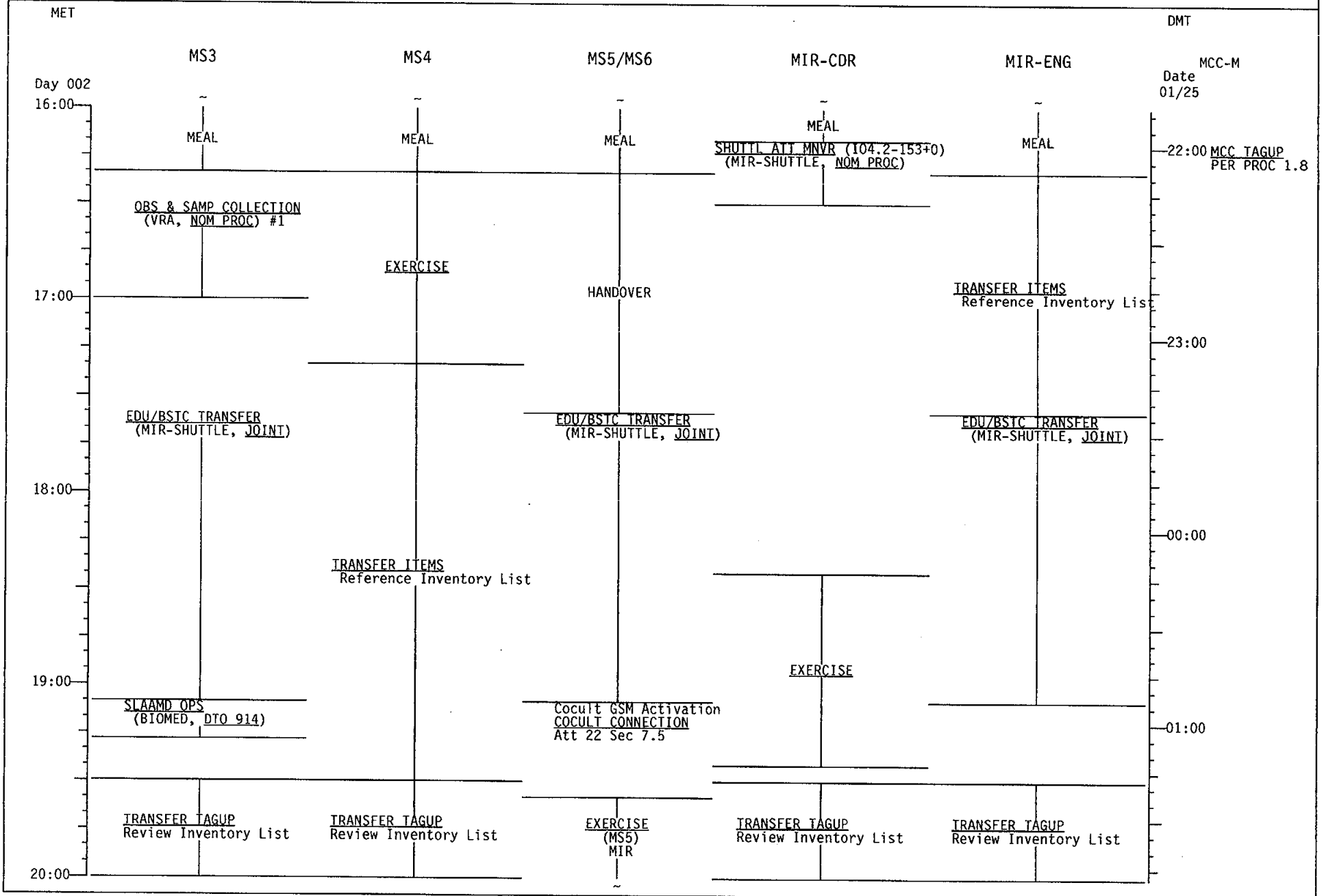
STS-89 (FD04)



STS-89 (FD04)



STS-89 (FD04)



DMT
MCC-M
Date
01/25

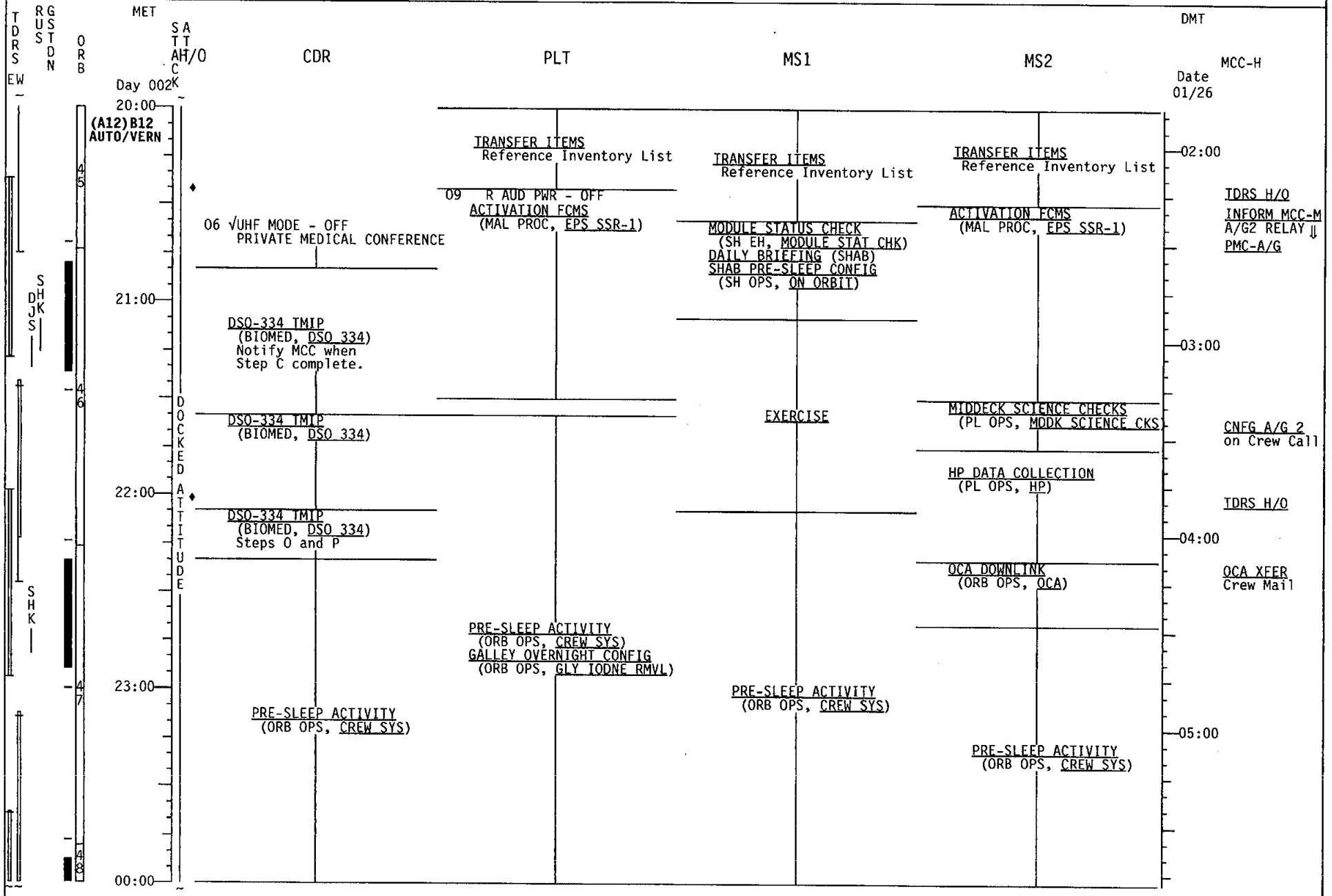
22:00 MCC TAGUP
PER PROC 1.8

23:00

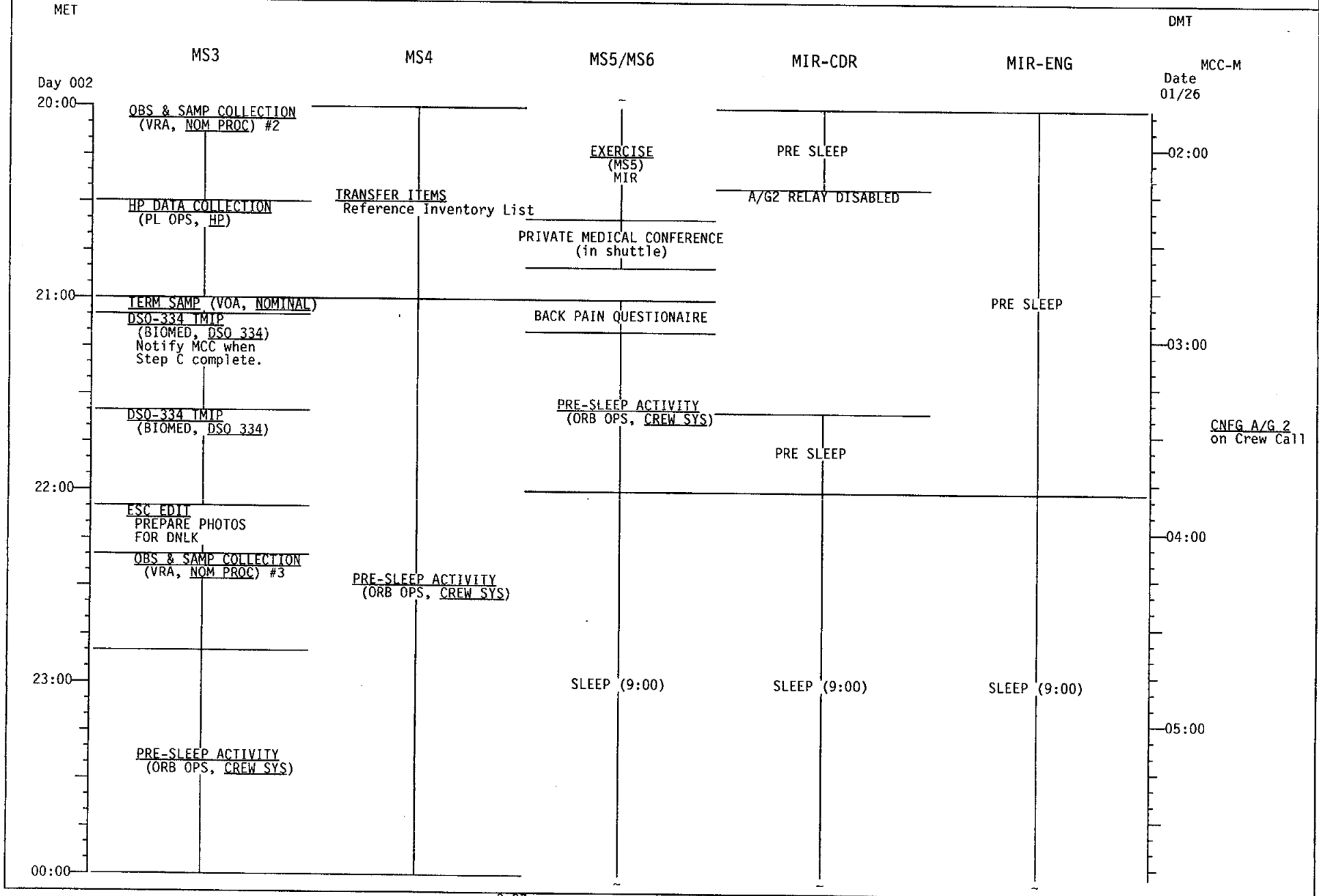
00:00

01:00

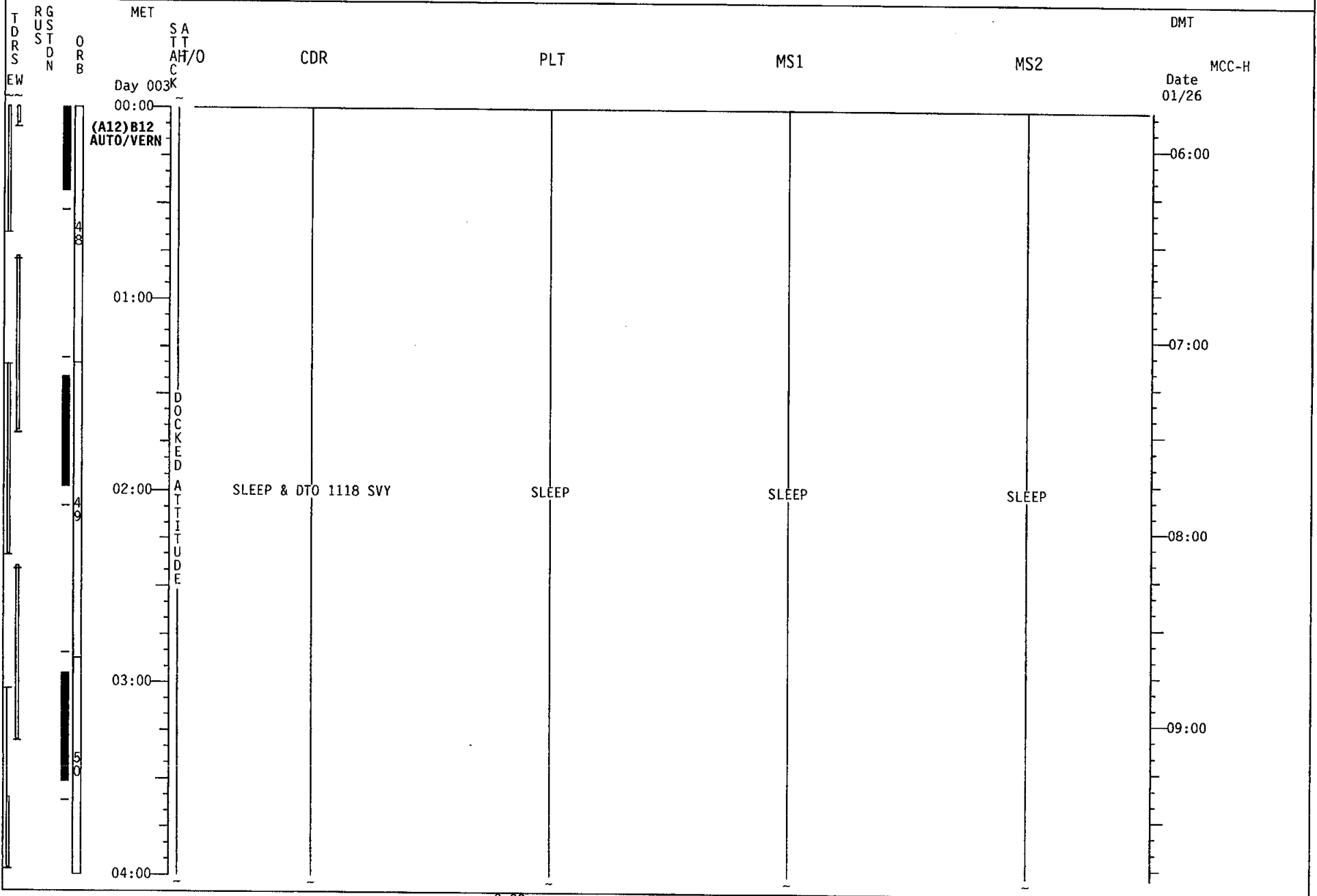
STS-89 (FD04)



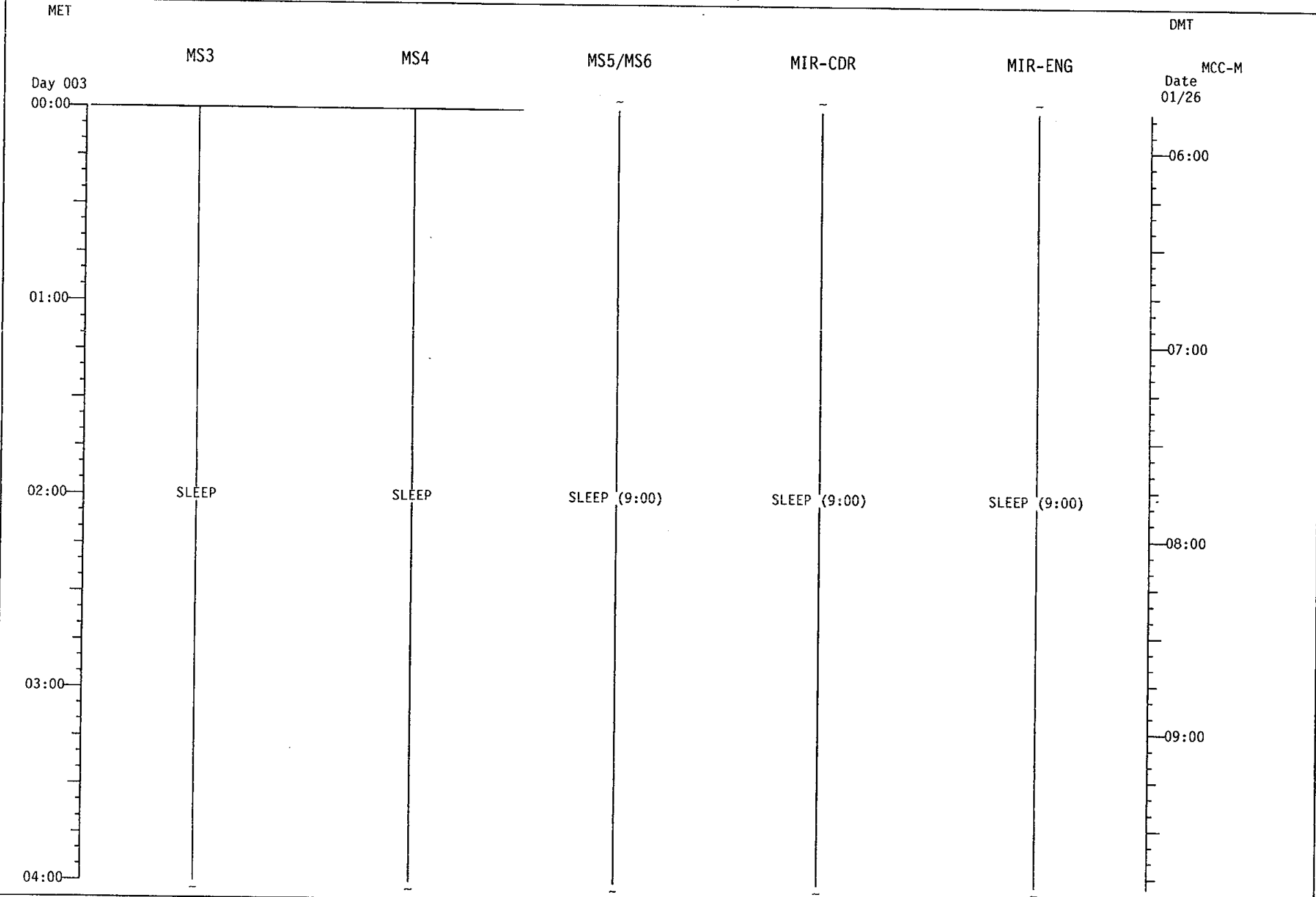
STS-89 (FD04)



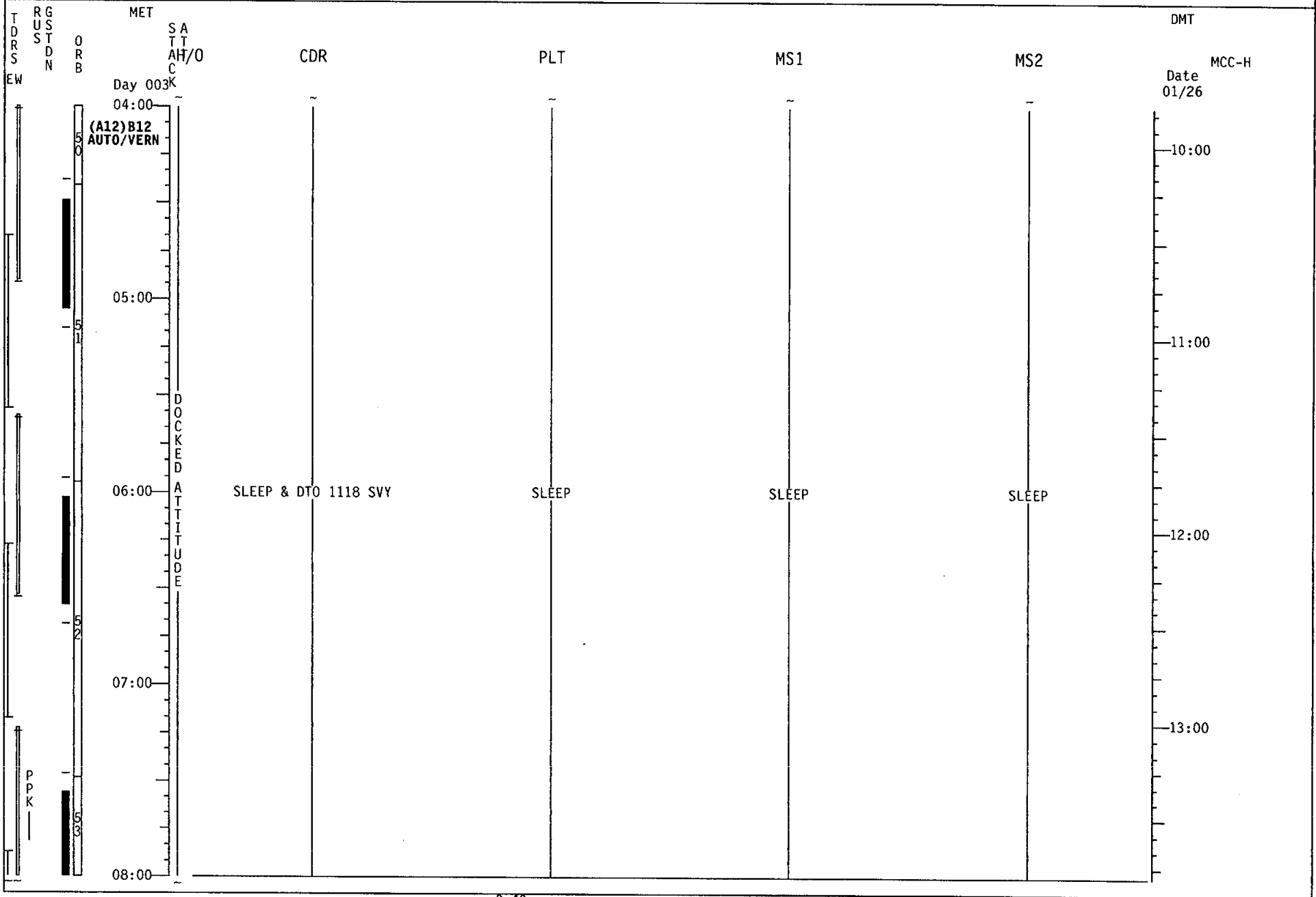
STS-89 (FD04)



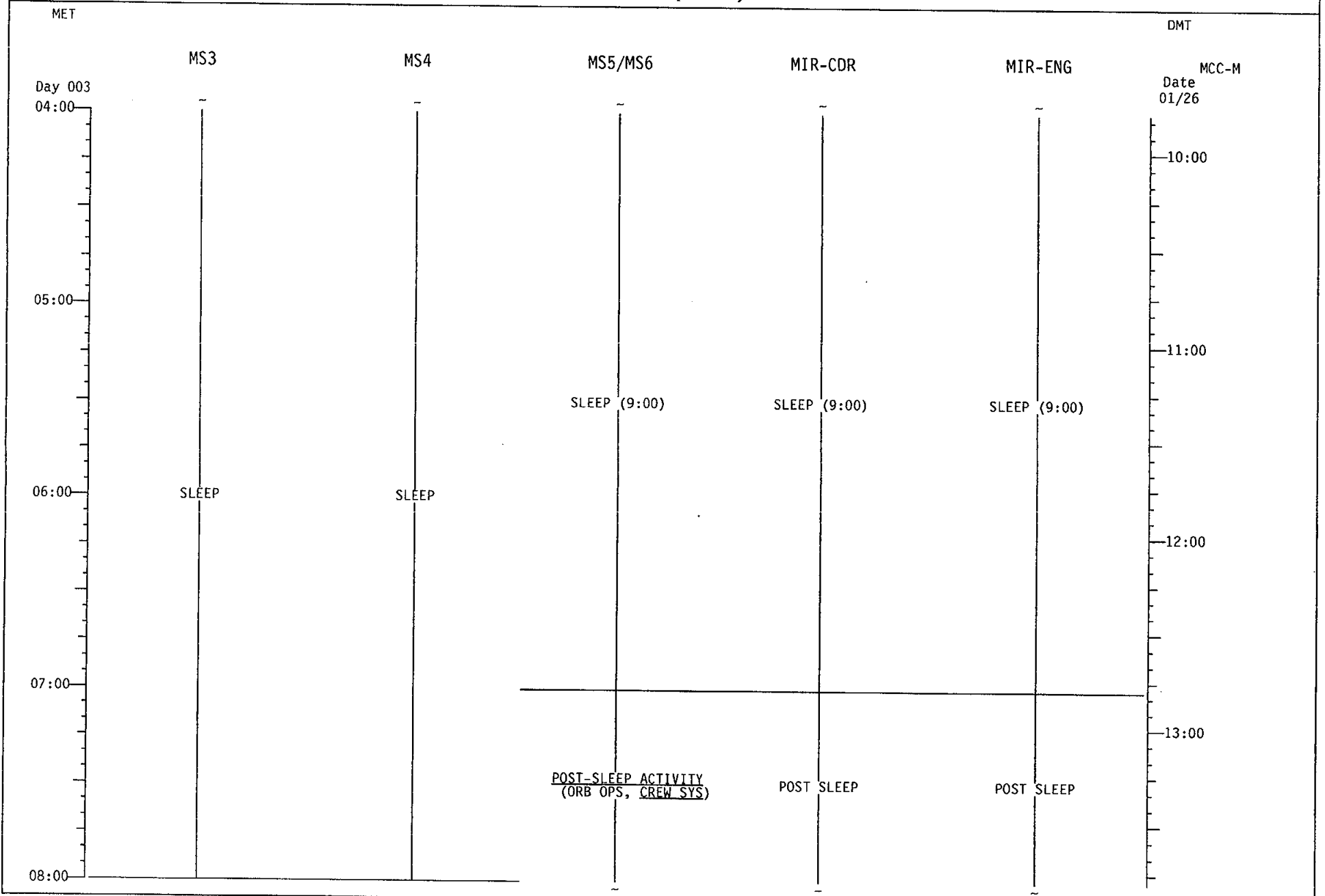
STS-89 (FD04)



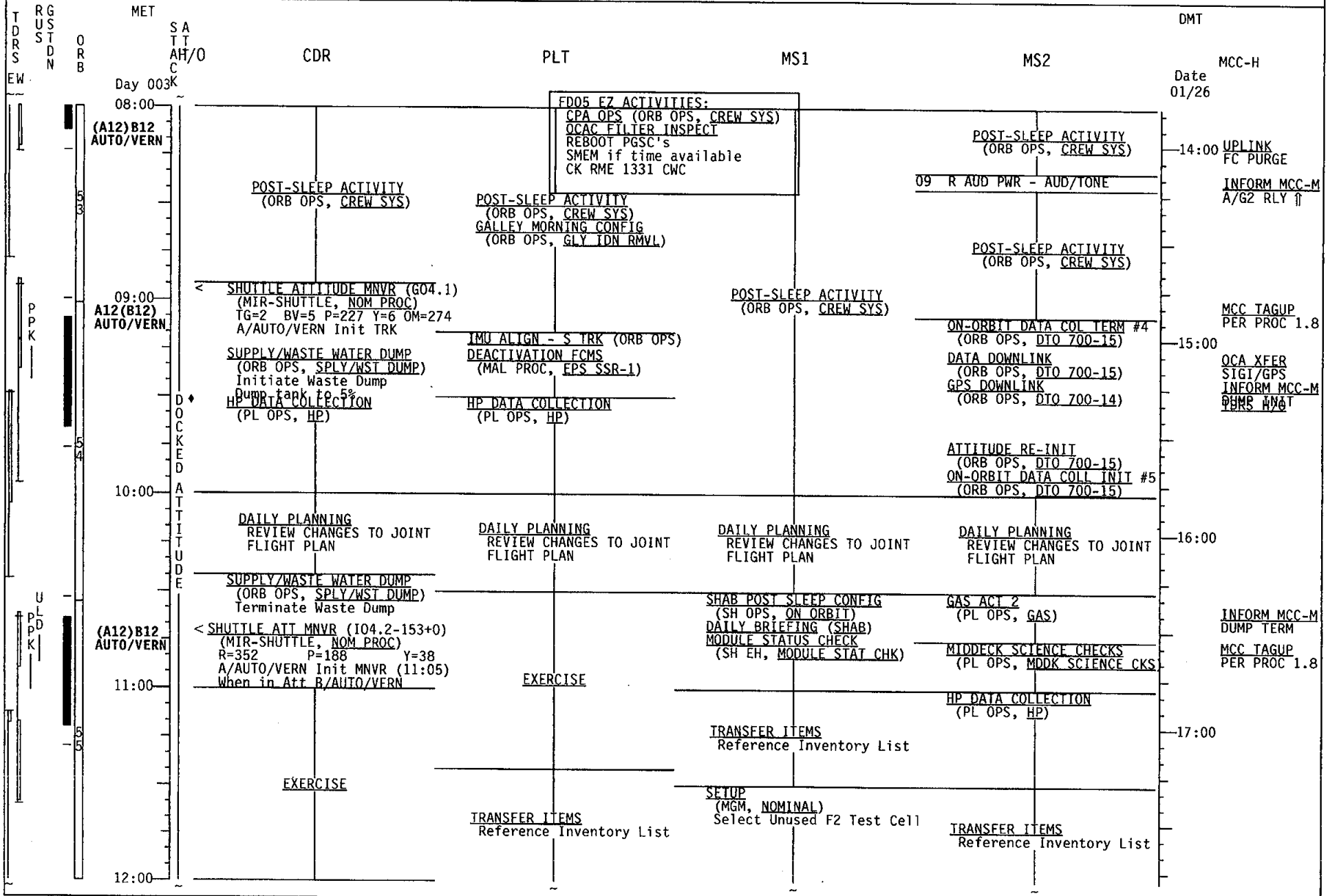
STS-89 (FD04)



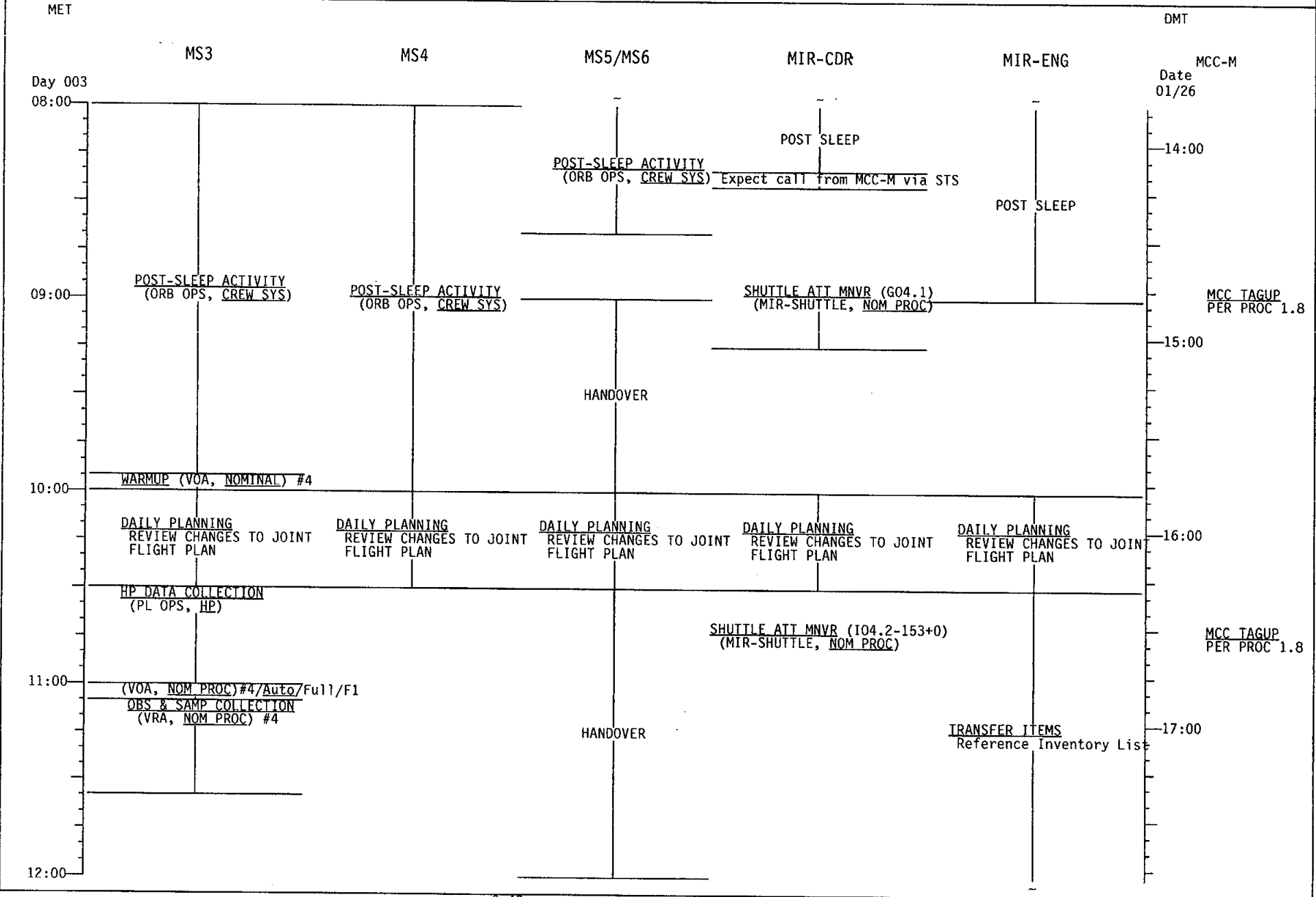
STS-89 (FD04)



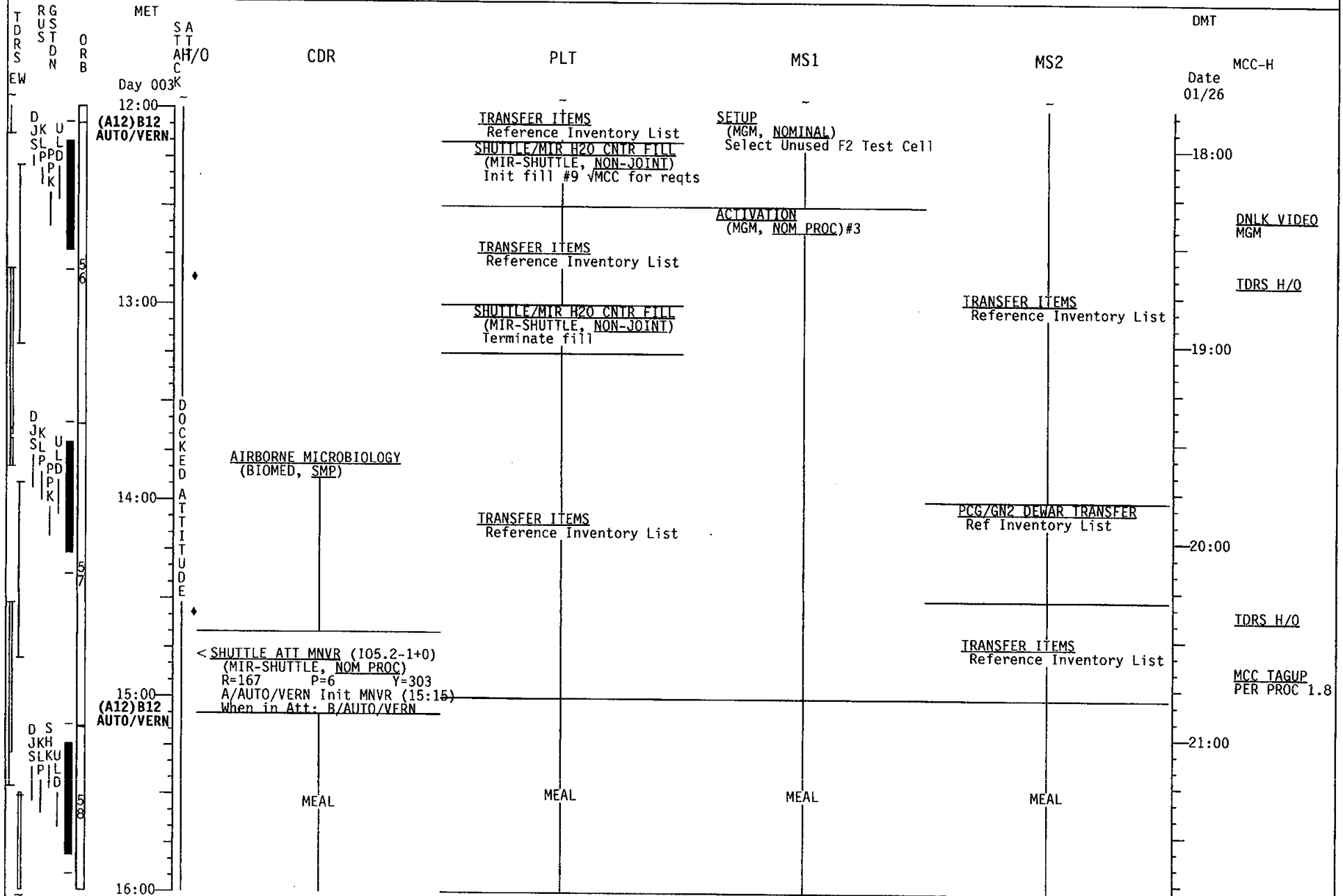
STS-89 (FD05)



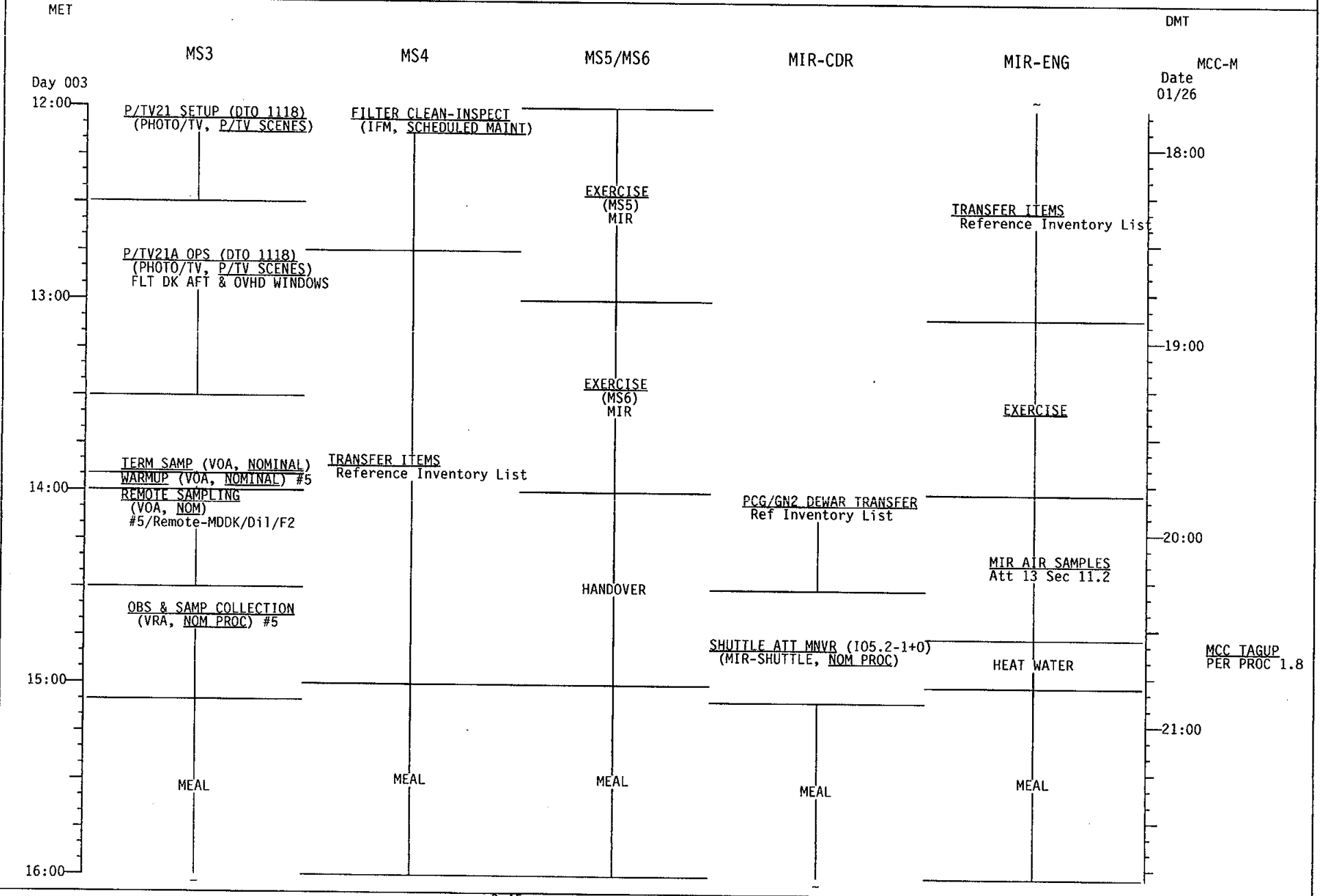
STS-89 (FD04)



STS-89 (FD04)



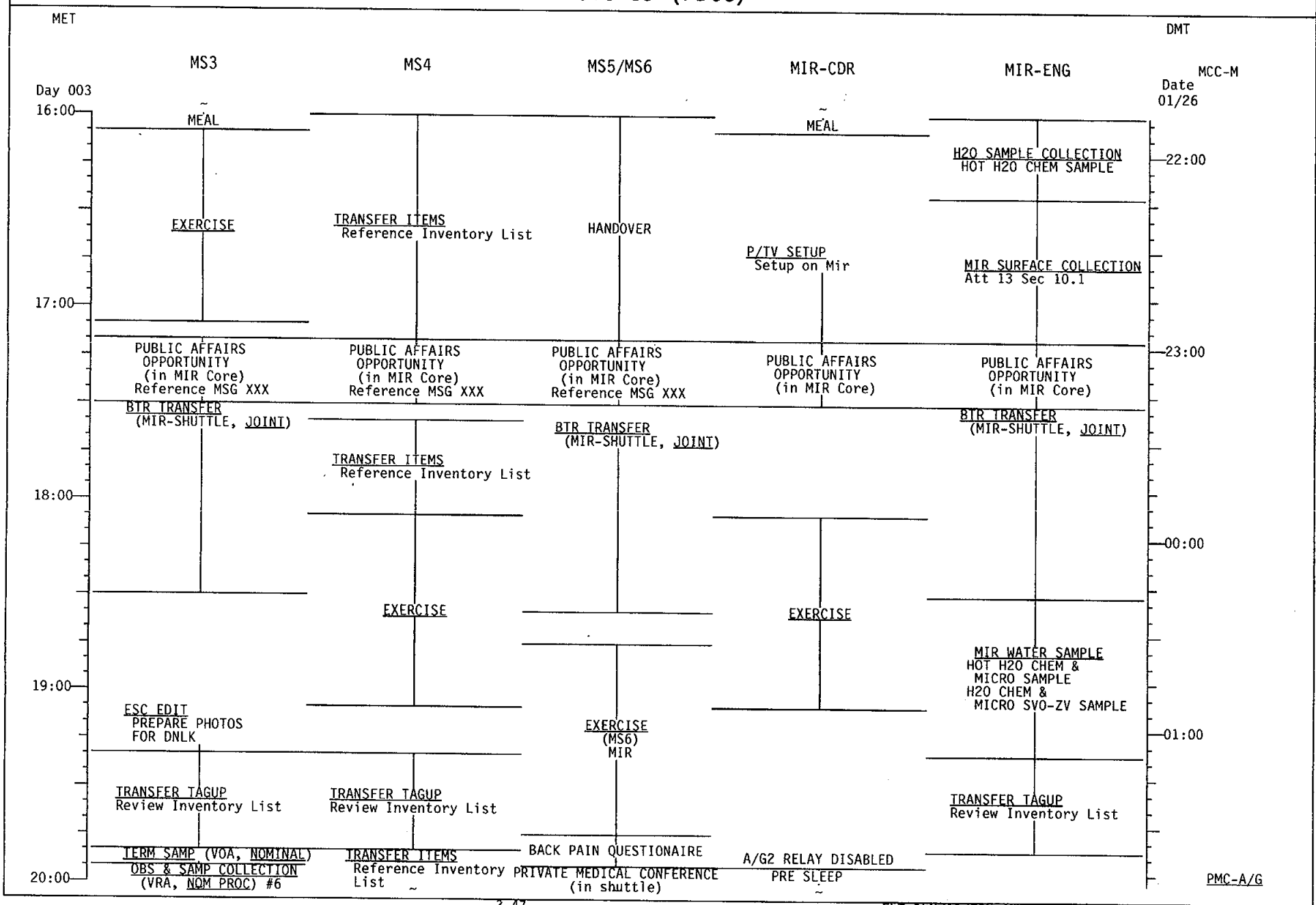
STS-89 (FD04)



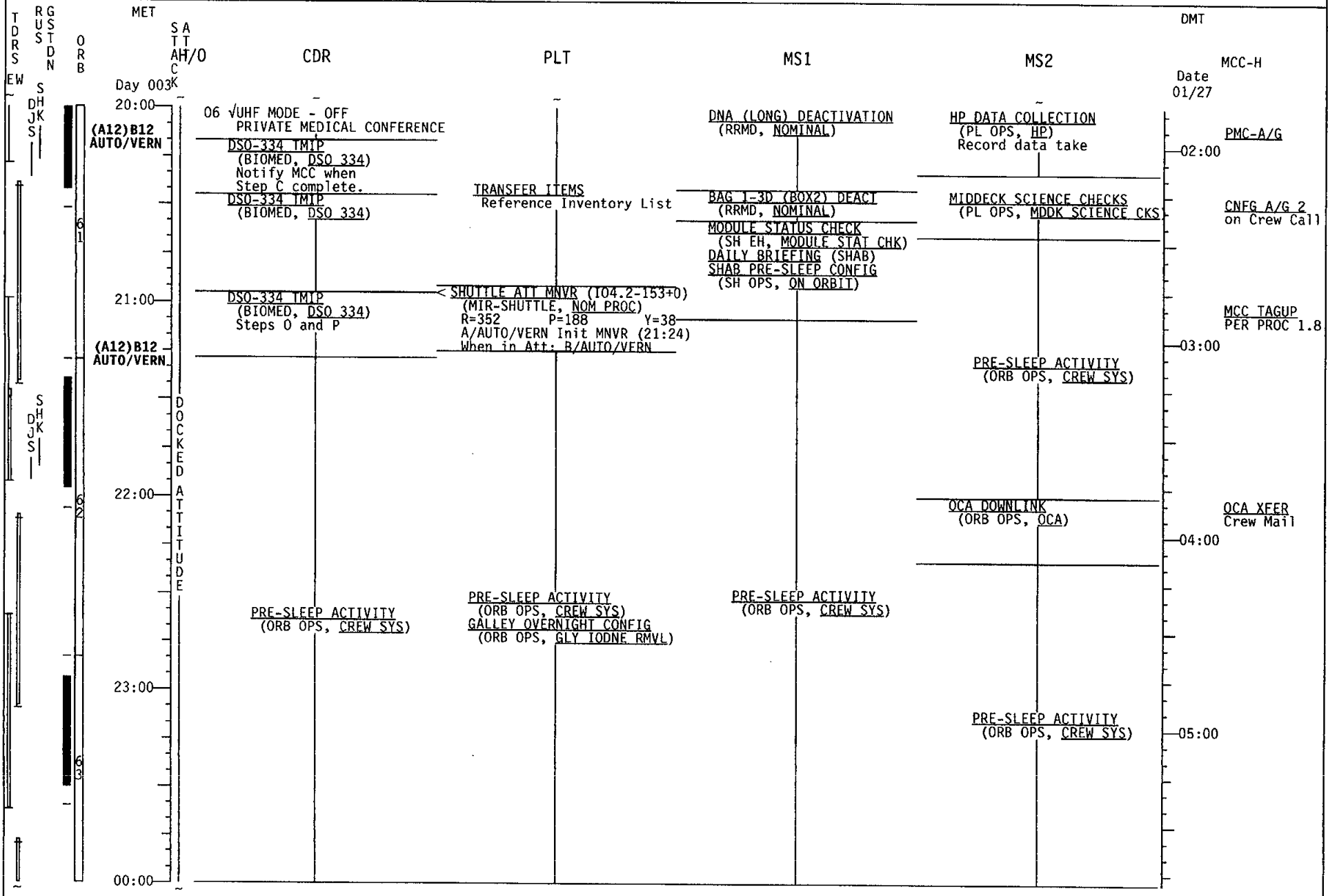
STS-89 (FD05)

TDRS EW	RG UST SDN	ORB	MET Day 003K	STS-89 (FD05)			DMT	
				CDR	PLT	MS1		MS2
			16:00	MEAL				
			(A12) B12 AUTO/VERN	<u>SURFACE MICROBIOLOGY</u> (BIOMED, SMP)	<u>TRANSFER ITEMS</u> Reference Inventory List	<u>DEACT</u> (MGM, NOMINAL)	<u>TRANSFER ITEMS</u> Reference Inventory List	22:00
					<u>P/TV22 SETUP (MIR PAO)</u> (P/TV, P/TV SCENES)			
			17:00			<u>STOW</u> (MGM, NOMINAL)	<u>EXERCISE</u>	
				<u>PUBLIC AFFAIRS OPPORTUNITY</u> KU avail XX:XX - XX:XX	<u>PUBLIC AFFAIRS OPPORTUNITY</u> (in MIR Core) Reference MSG XXX	<u>PUBLIC AFFAIRS OPPORTUNITY</u> (in MIR Core) Reference MSG XXX		23:00 TV (TDRE) CREW CNTL- SPACEHAB
					<u>SHUTTLE/MIR H2O CNTR FILL</u> (MIR-SHUTTLE, NON-JOINT) Init fill # VMCC for reqts	<u>BTR TRANSFER</u> (MIR-SHUTTLE, JOINT)		
			18:00					
				<u>P/TV09 SETUP (HP)</u> (P/TV, P/TV SCENES) Report to MCC # of Data takes recorded	<u>TRANSFER ITEMS</u> Reference Inventory List			00:00
					<u>SHUTTLE/MIR H2O CNTR FILL</u> (MIR-SHUTTLE, NON-JOINT) Terminate fill		<u>TRANSFER ITEMS</u> Reference Inventory List	
					<u>HP DATA COLLECTION</u> (PL OPS, HP) Record data take			
			19:00			<u>EXERCISE</u>		
				<u>HP DATA COLLECTION</u> (PL OPS, HP) Record data take				01:00
					<u>TRANSFER TAGUP</u> Review Inventory List	<u>TRANSFER TAGUP</u> Review Inventory List	<u>TRANSFER TAGUP</u> Review Inventory List	
			20:00	06 UHF MODE - OFF PRIVATE MEDICAL CONFERENCE	09 R AUD PWR - OFF <u>TRANSFER ITEMS</u> Reference Inventory List		<u>HP DATA COLLECTION</u> (PL OPS, HP) Record data take	<u>INFORM MCC-M</u> A/G2 RELAY J PMC-A/G

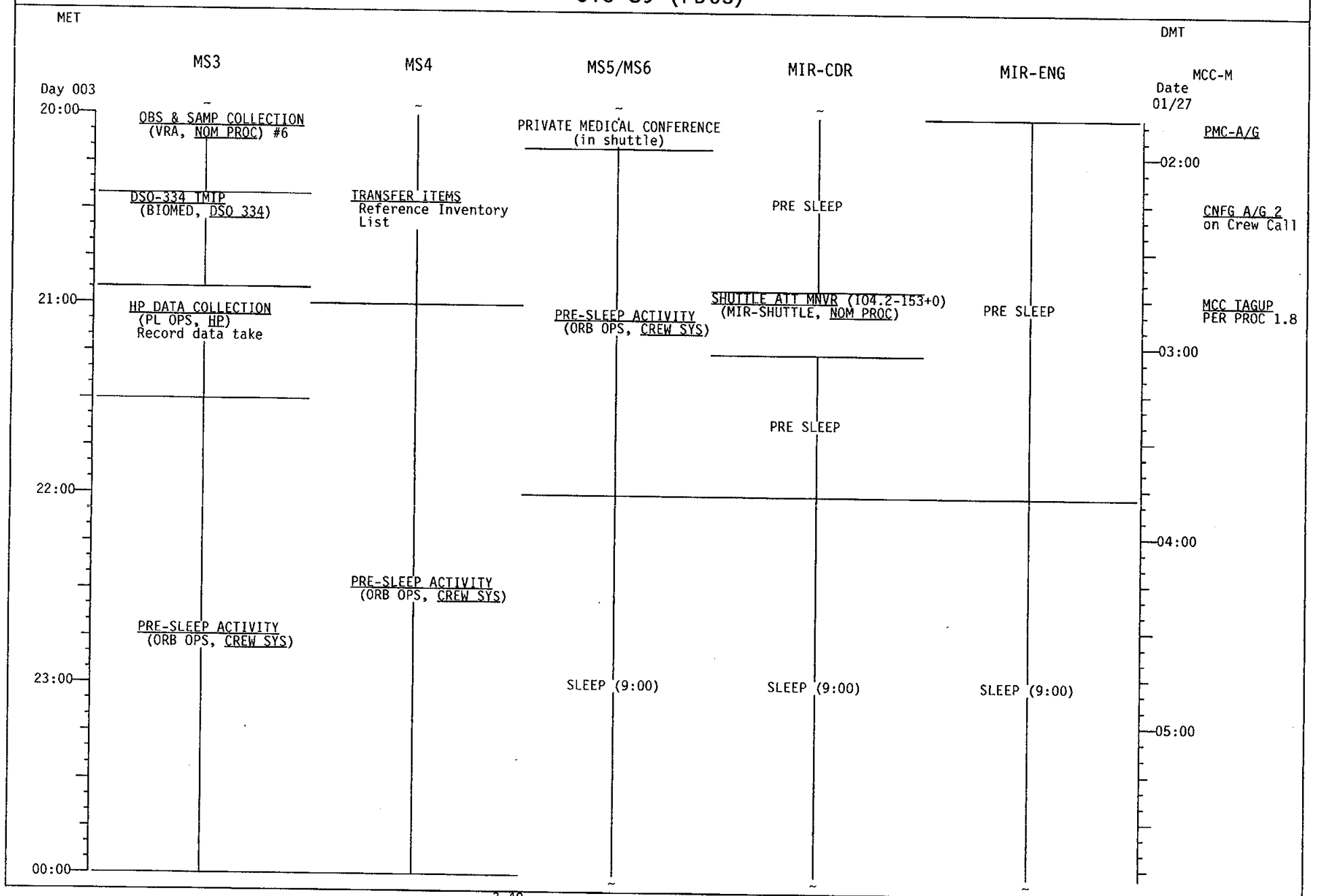
STS-89 (FD05)



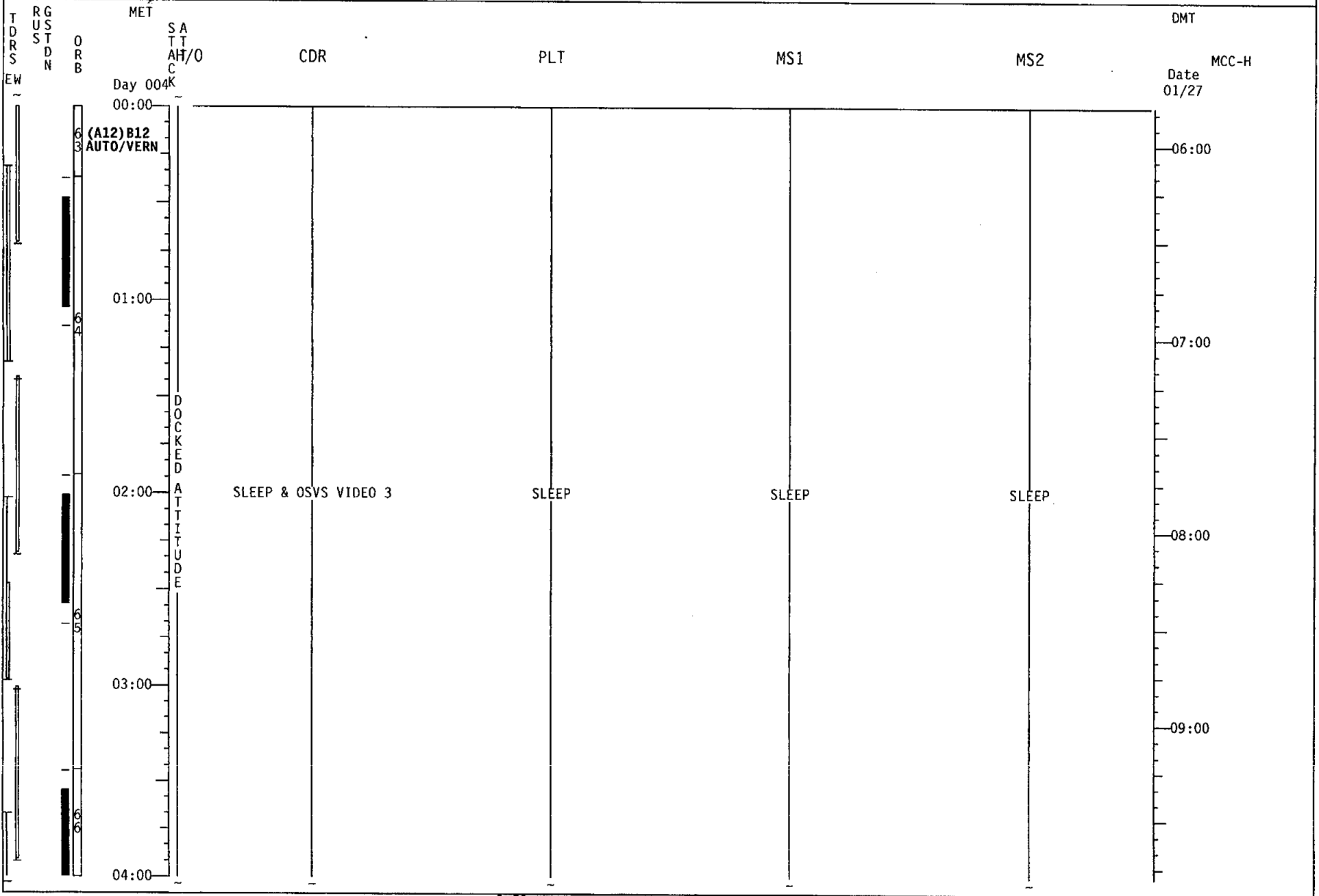
STS-89 (FD05)



STS-89 (FD05)



STS-89 (FD05)



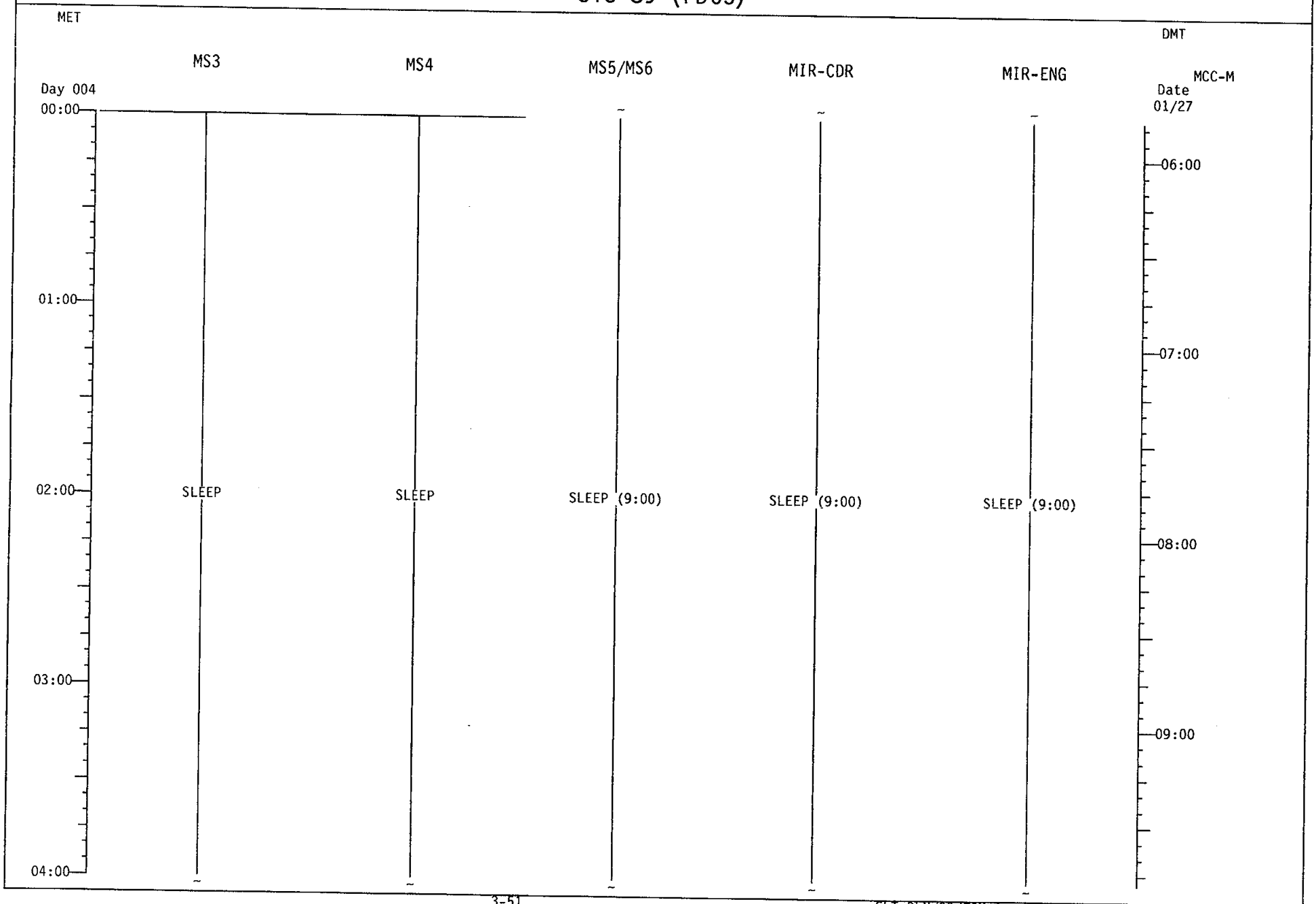
TDRS
RG
UST
D N
OR B
MET
Day 004K
00:00

(A12)B12
3 AUTO/VERN

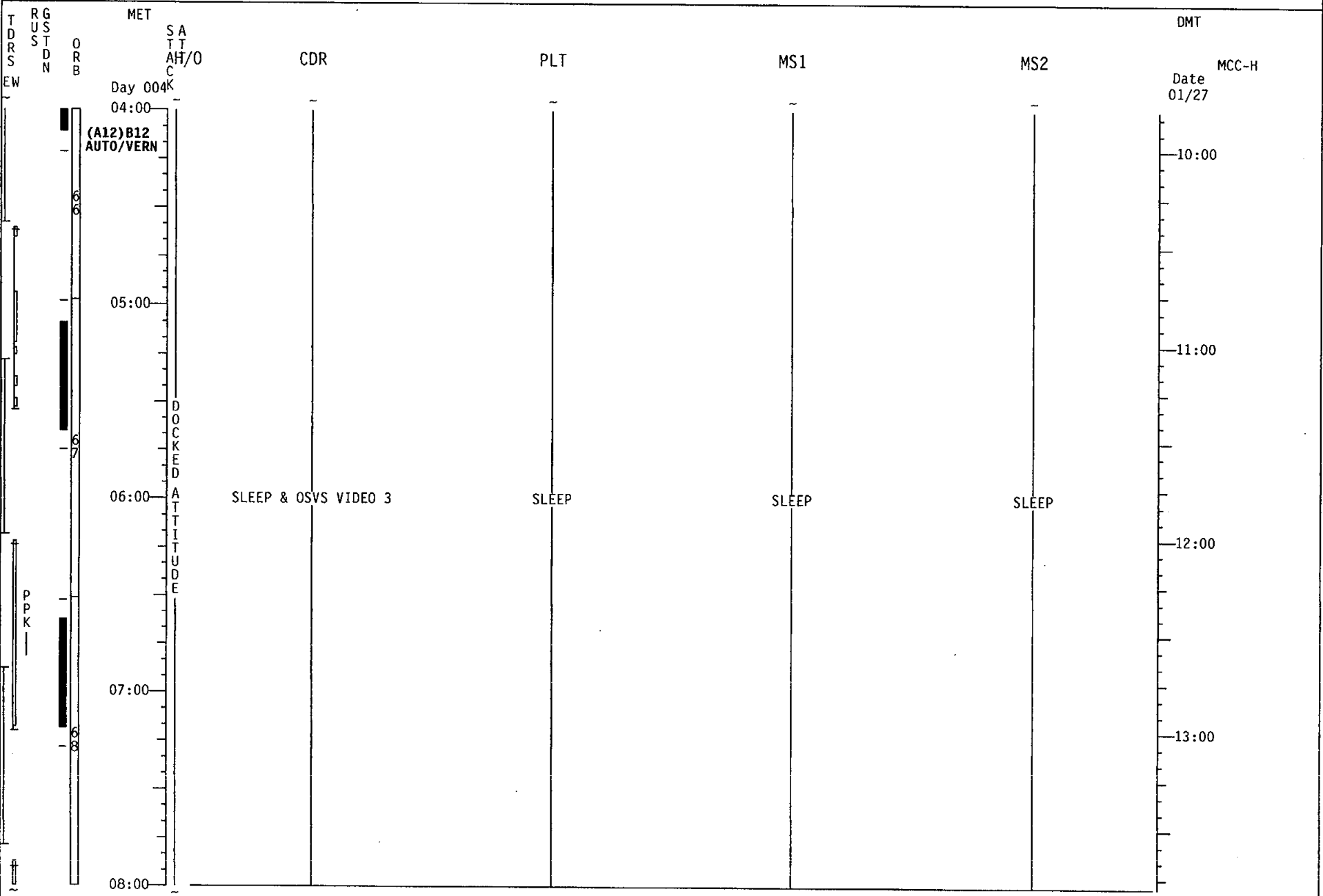
DOCKED
ATTITUDE

DMT
MCC-H
Date 01/27

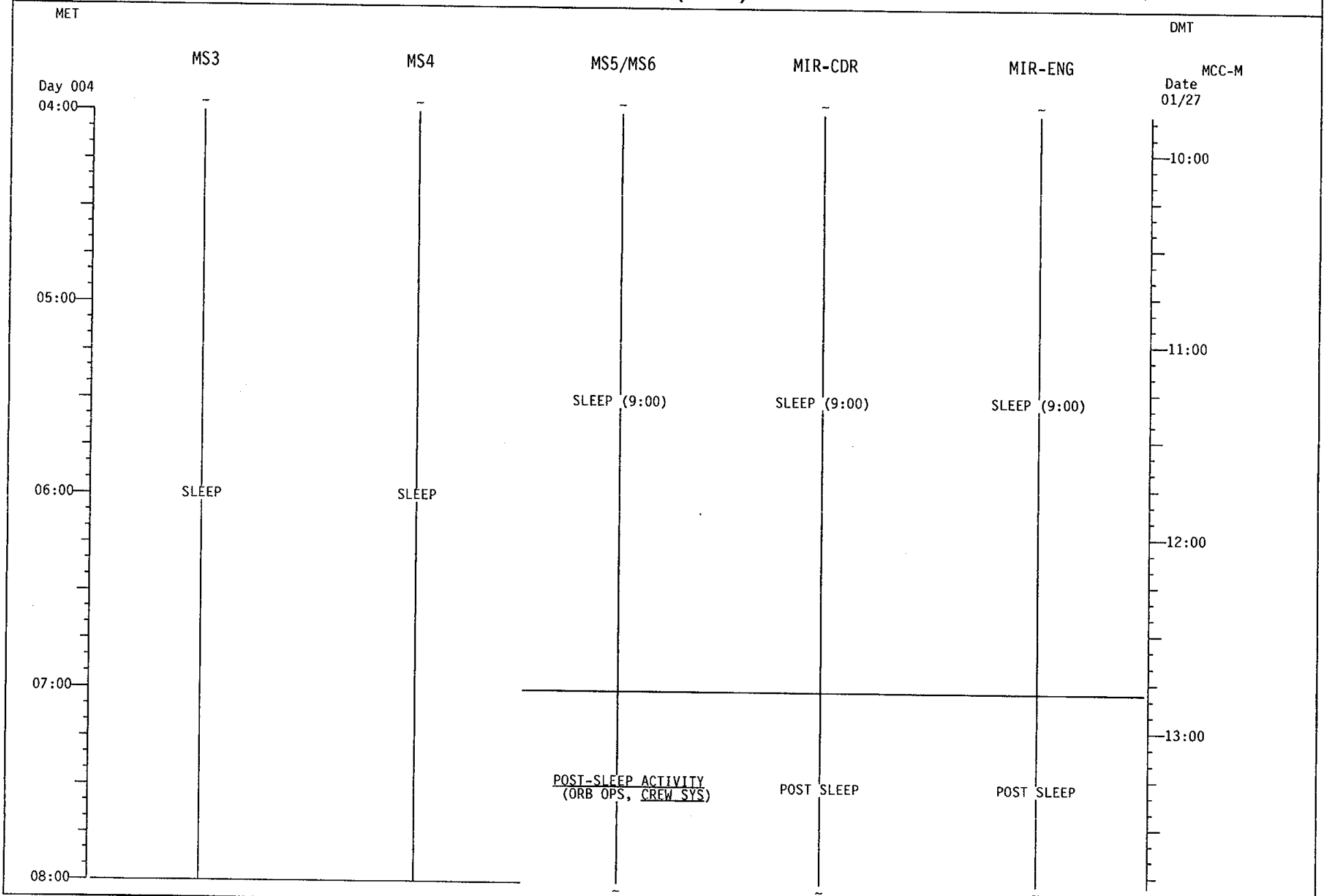
STS-89 (FD05)



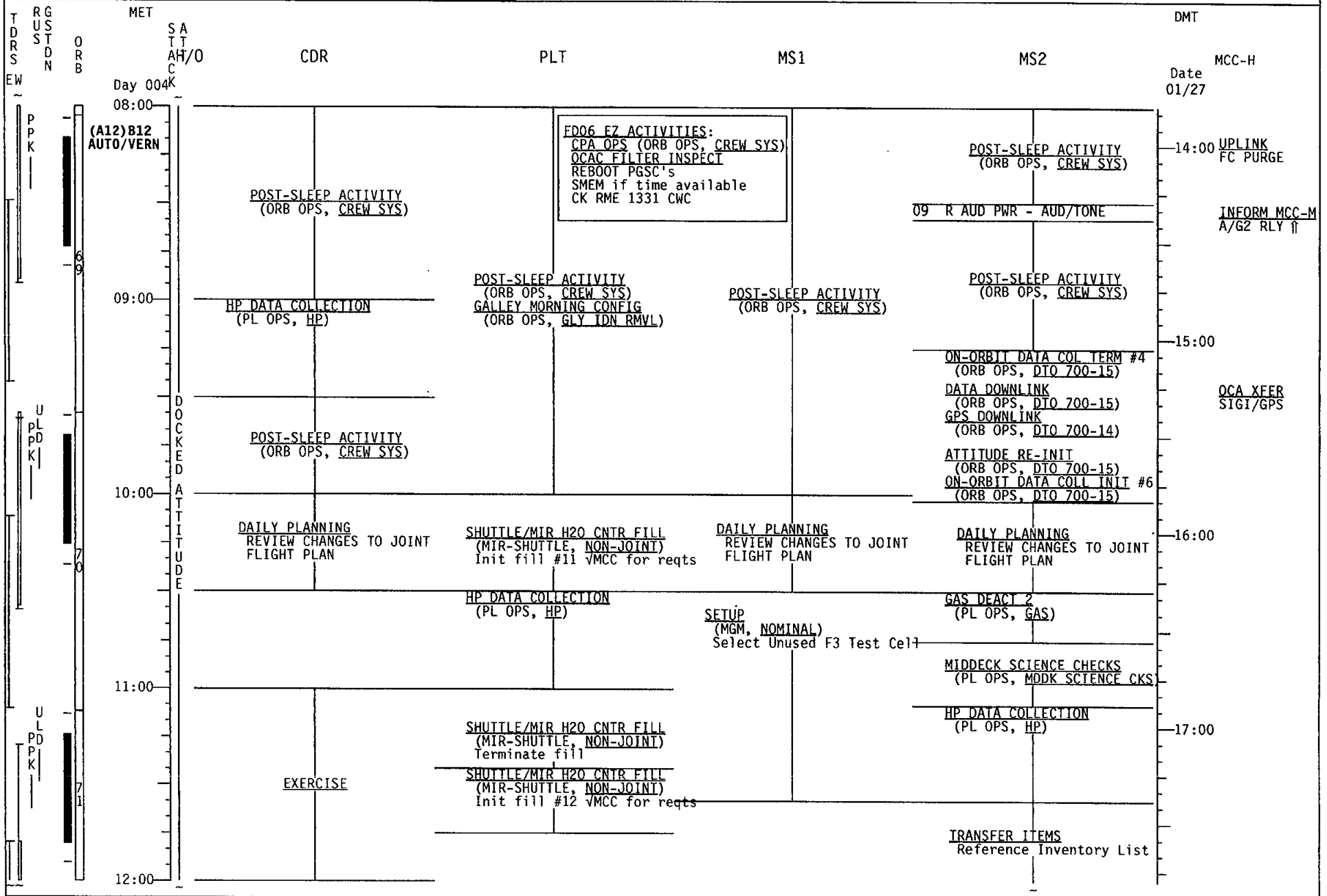
STS-89 (FD05)



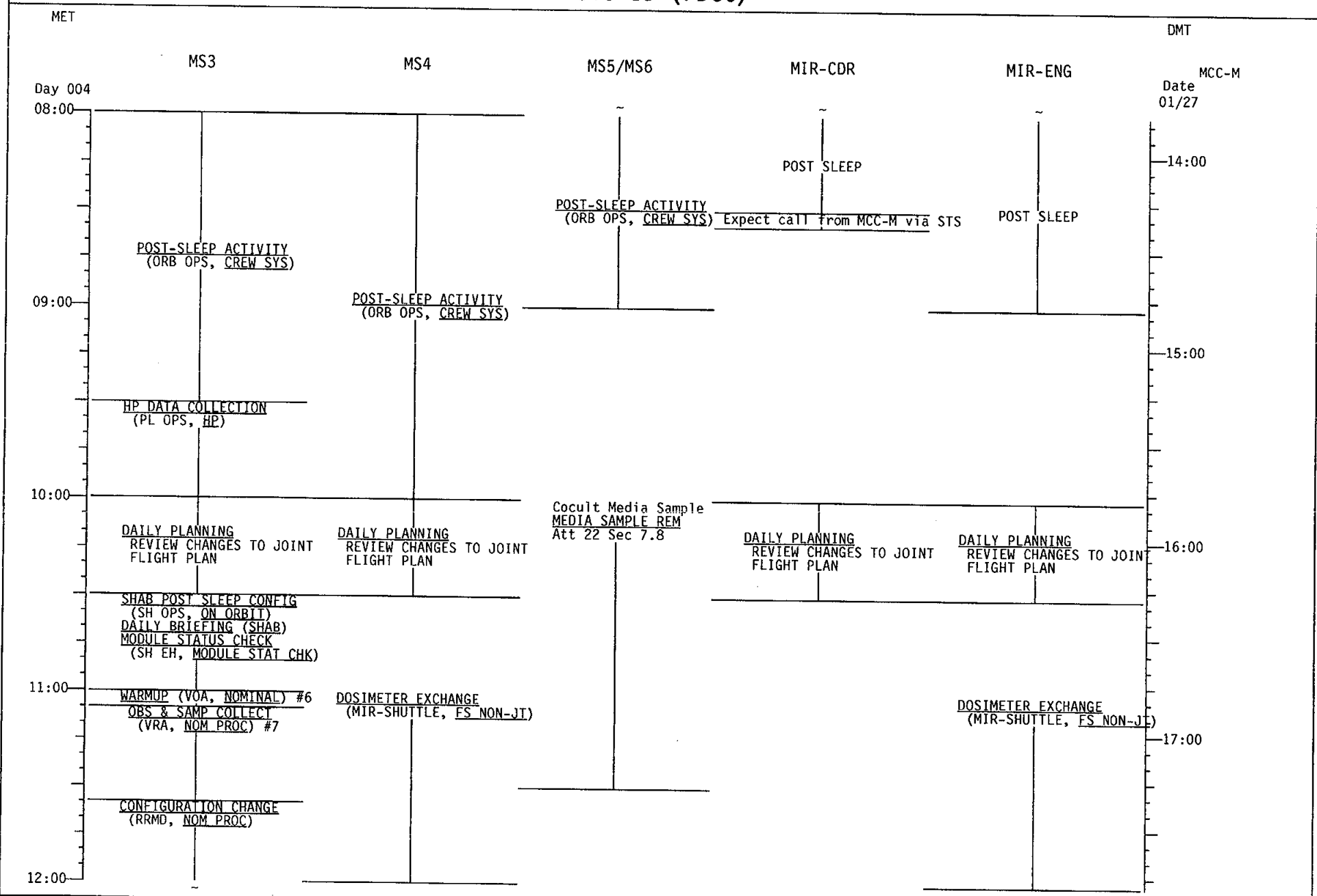
STS-89 (FD05)



STS-89 (FD06)



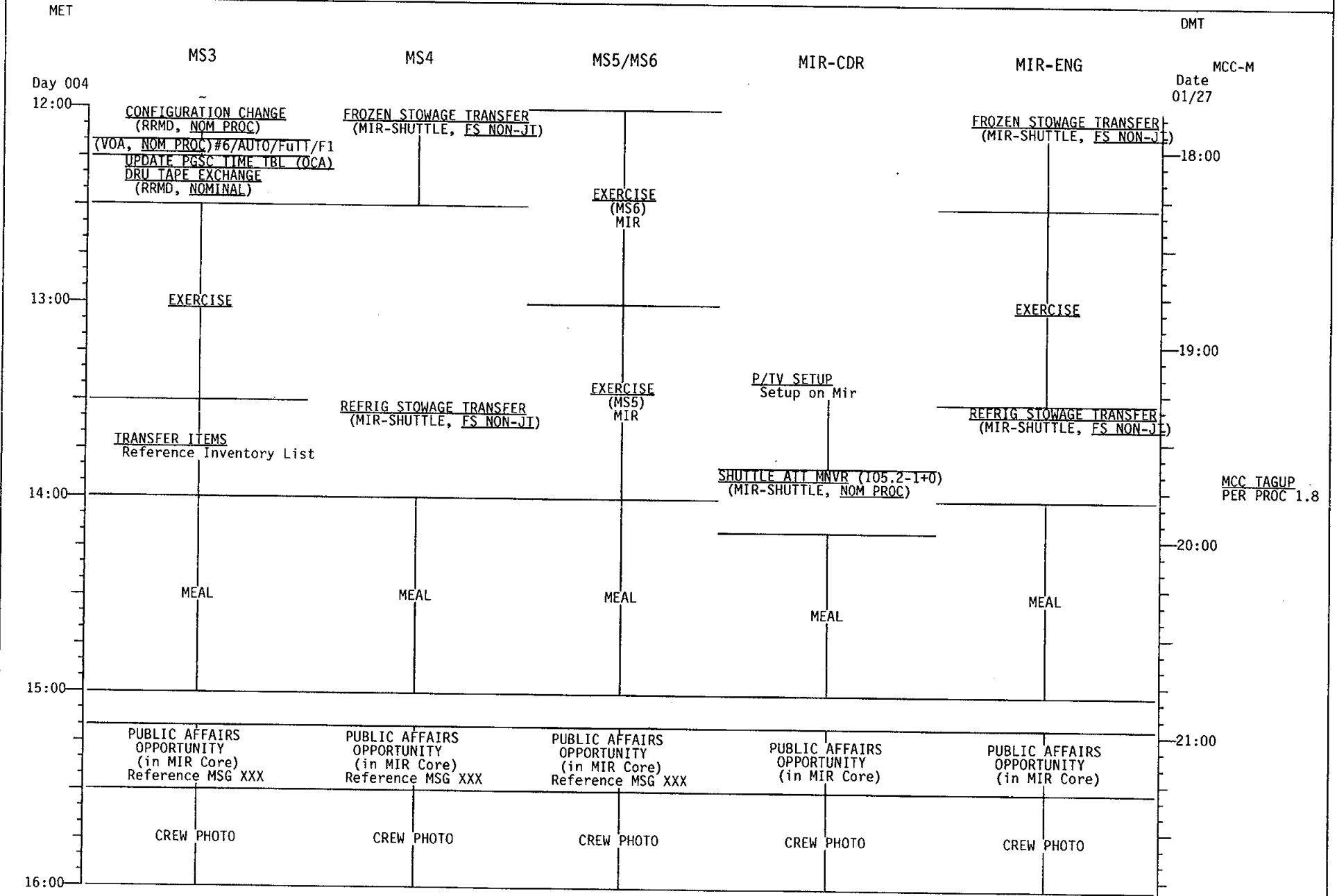
STS-89 (FD06)



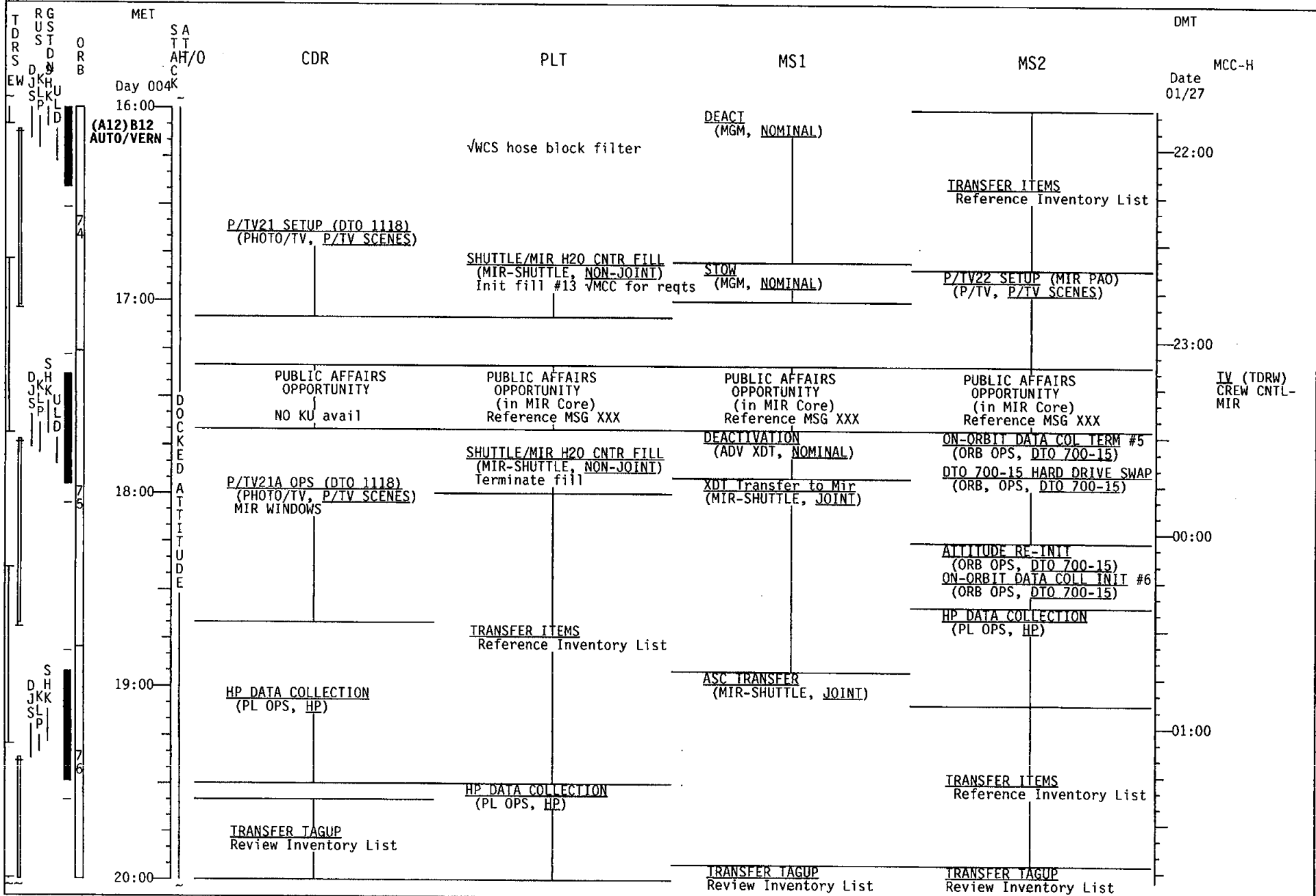
STS-89 (FD05)

TDRS EW	RG USTD N	ORB	MET				SA TT AH/O	CDR	PLT	MS1	MS2	DMT		
			Day	004K	Date	MCC-H								
			12:00	(A12) B12 AUTO/VERN			HEATER RECONFIG-Config B (ORB OPS, EPS)		ACTIVATION (MGM, NOM PROC)#4 FROZEN STORAGE TRANSFER (MIR-SHUTTLE, FS NON-JT)			18:00	DNLK VIDEO MGM	
							RCS REG RECONFIG (ORB OPS, RCS)							
							CABIN TEMP CNTL RECONFIG MD44F Pin CAB TEMP CNTL actuator link to secondary actuator	SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Terminate fill			TRANSFER ITEMS Reference Inventory List			
							L1 CABIN TEMP CNTLR - 2							
			13:00											
							P/TV22 SETUP (CREW PHOTO) (P/TV, P/TV SCENES)	TRANSFER ITEMS Reference Inventory List						
									REFRIG STORAGE TRANSFER (MIR-SHUTTLE, FS NON-JT)		EXERCISE			
													TDRE H/O	
			14:00				< SHUTTLE ATT MNVR (105.2-1+0) (MIR-SHUTTLE, NOM PROC) R=167 P=6 Y=303 A/AUTO/VERN Init MNVR (14:20) When in Att: B/AUTO/VERN						MCC TAGUP PER PROC 1.8	
							MEAL	MEAL	MEAL		MEAL			
			15:00											
							PUBLIC AFFAIRS OPPORTUNITY KU avail XX:XX - XX:XX	PUBLIC AFFAIRS OPPORTUNITY (in MIR Core) Reference MSG XXX	PUBLIC AFFAIRS OPPORTUNITY (in MIR Core) Reference MSG XXX	PUBLIC AFFAIRS OPPORTUNITY (in MIR Core) Reference MSG XXX			21:00 TV (TDRE) CREW CNTL- MIR	
							CREW PHOTO	CREW PHOTO	CREW PHOTO		CREW PHOTO			
			16:00											

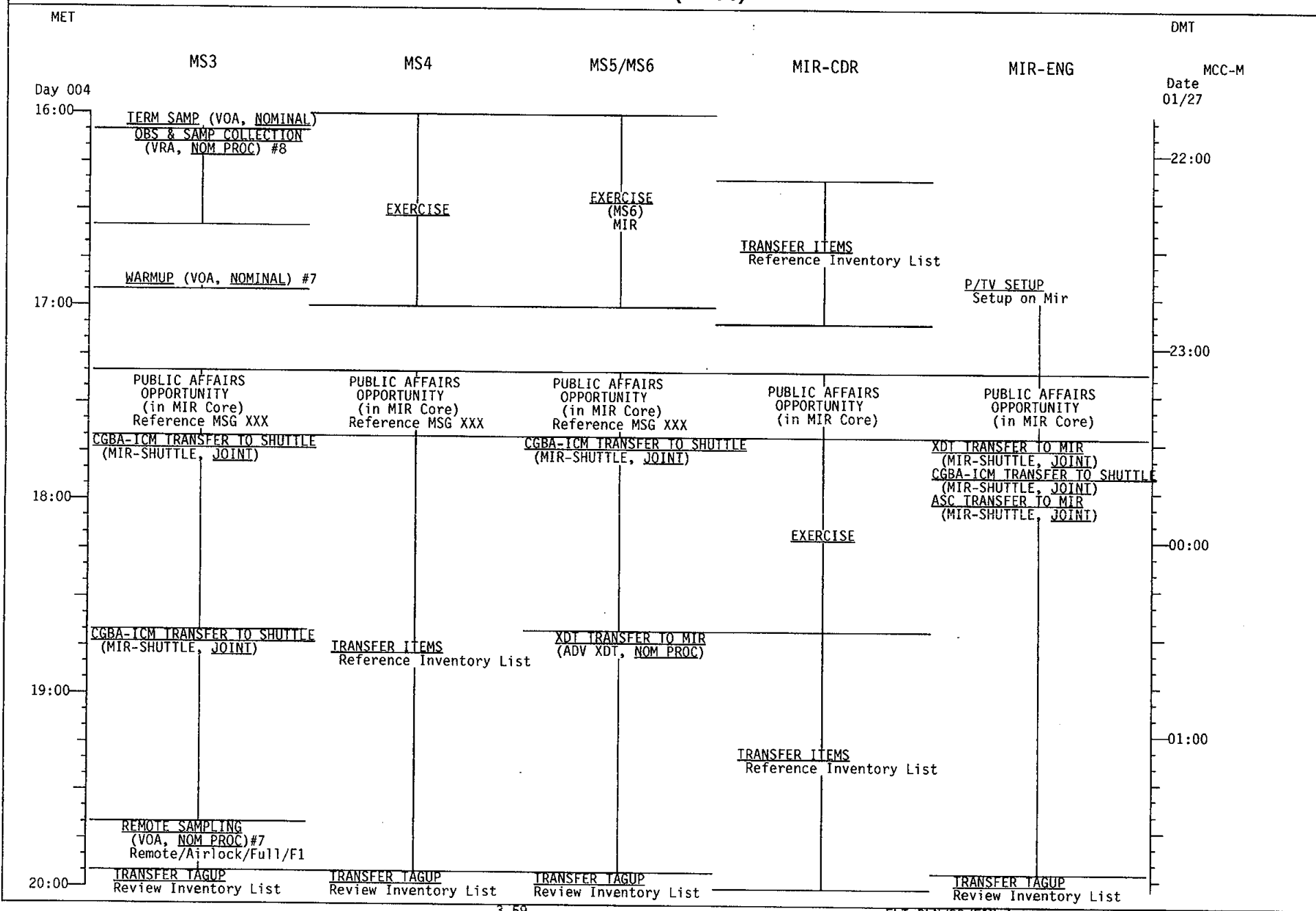
STS-89 (FD05)



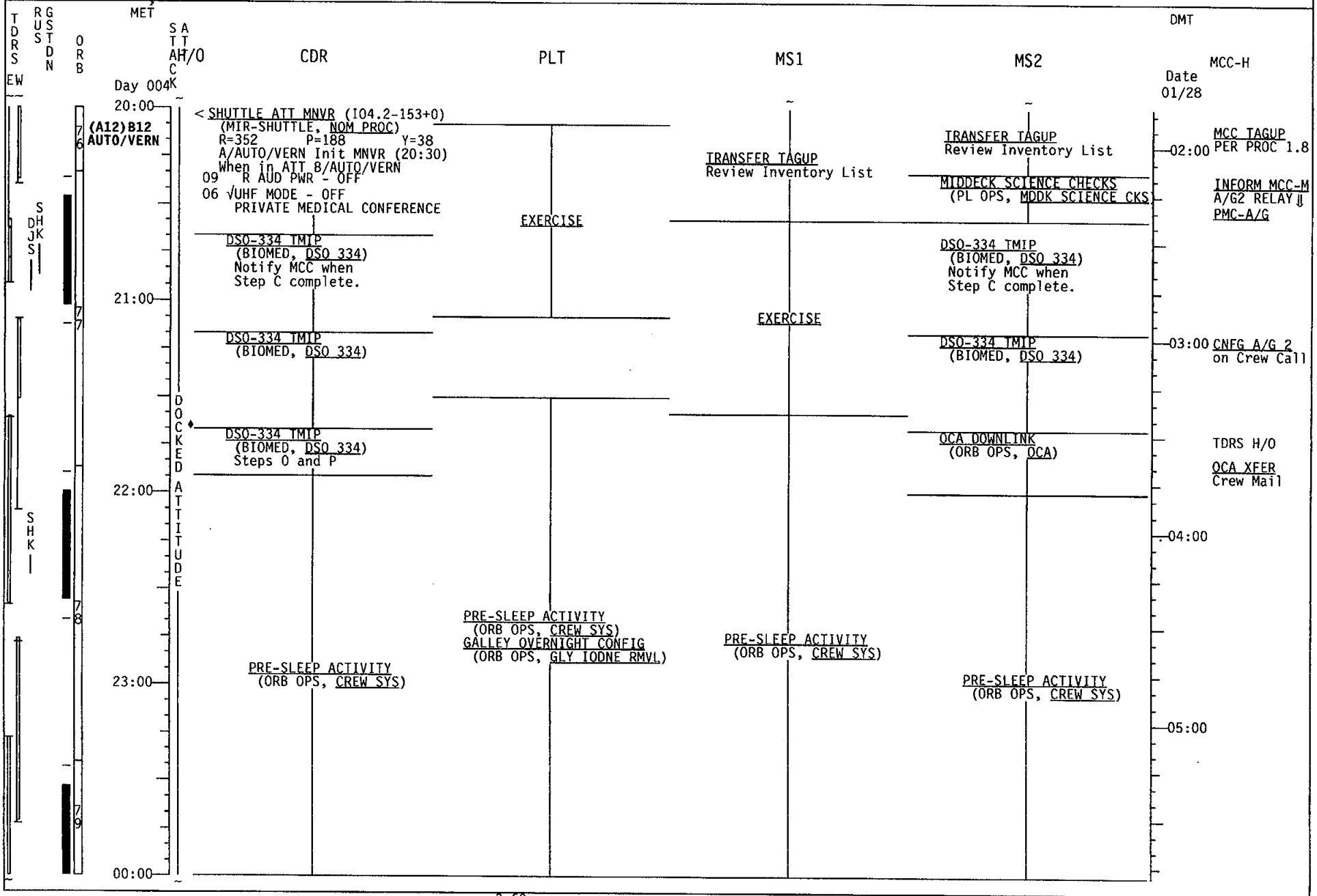
STS-89 (FD06)



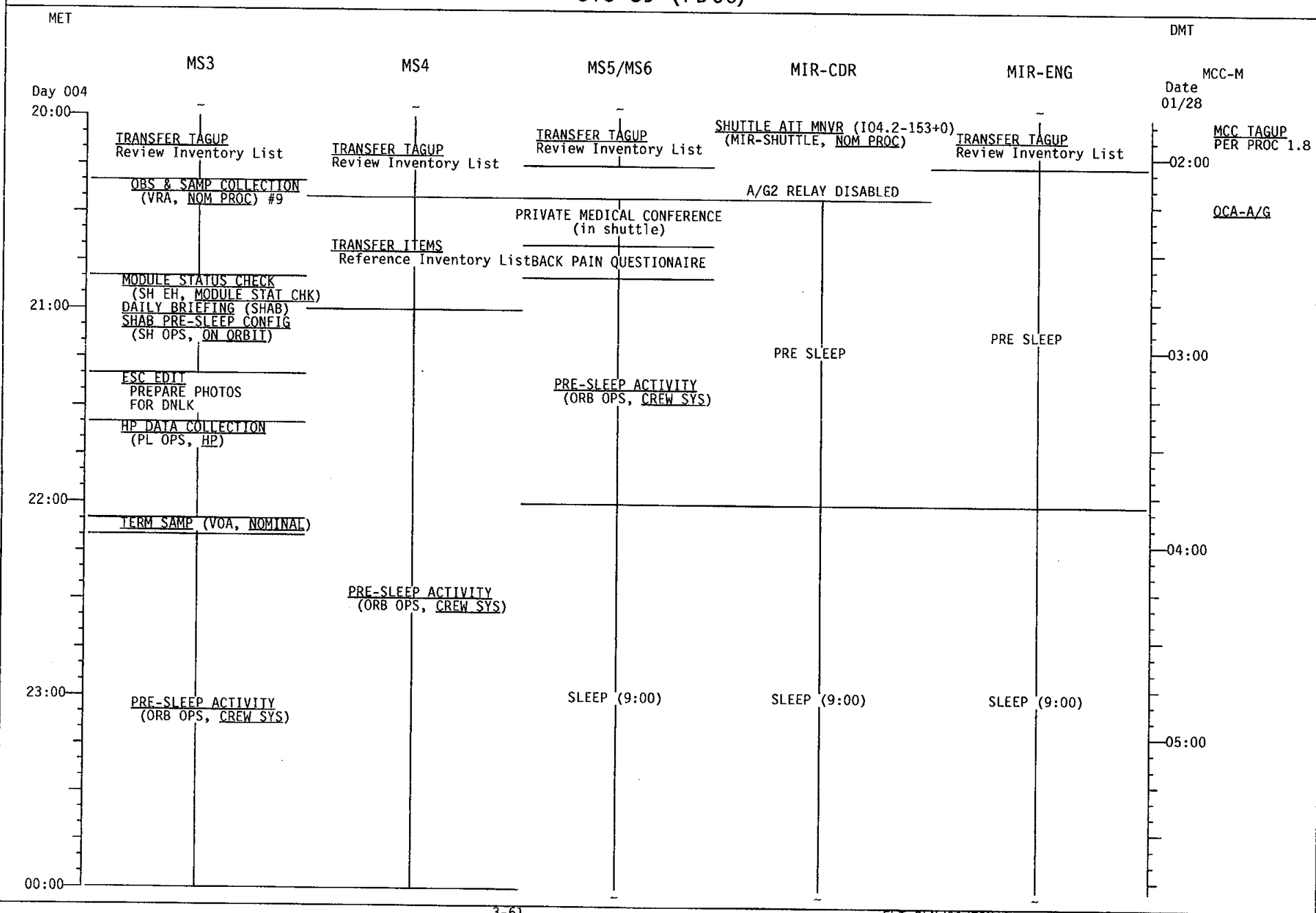
STS-89 (FD06)



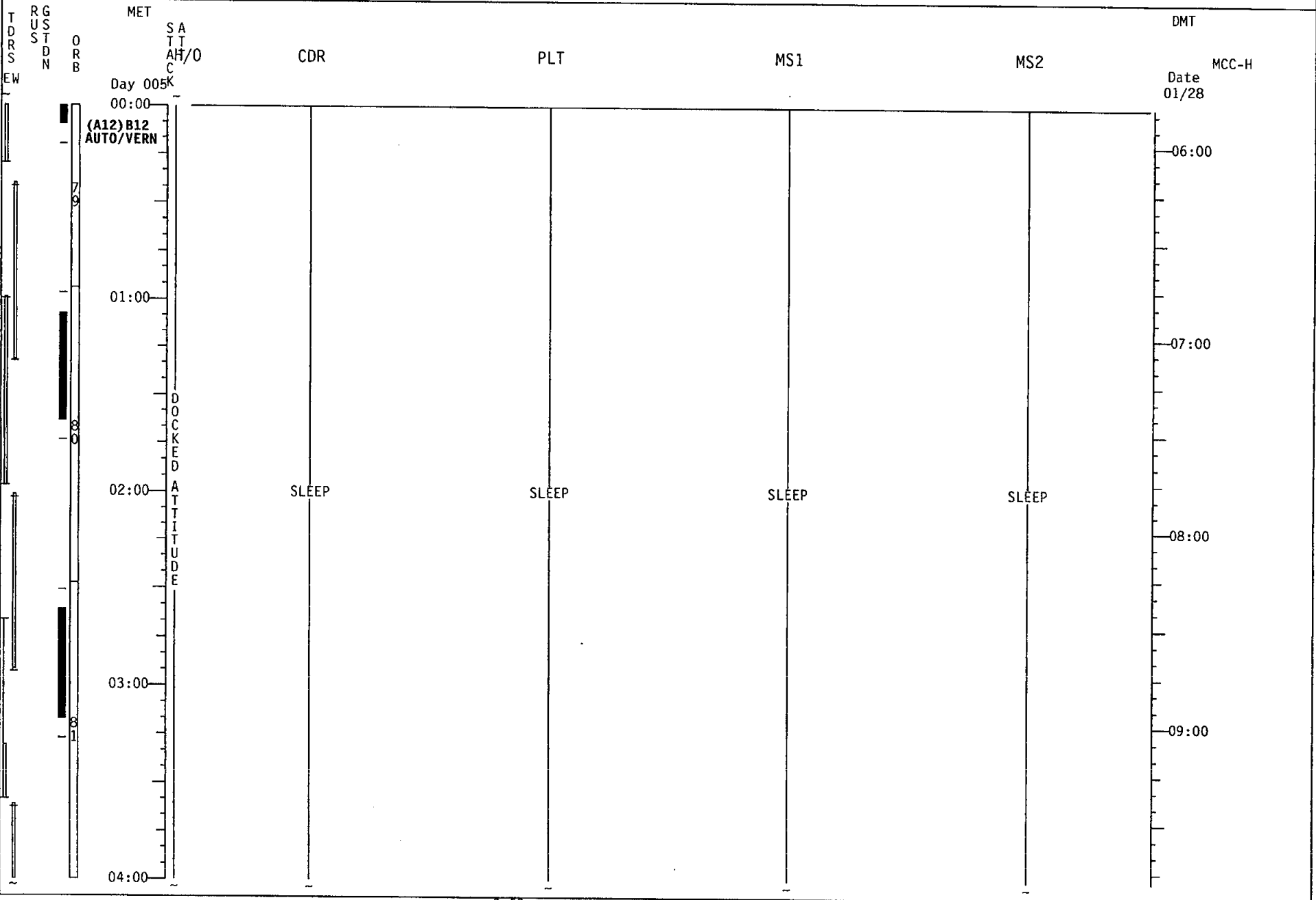
STS-89 (FD06)



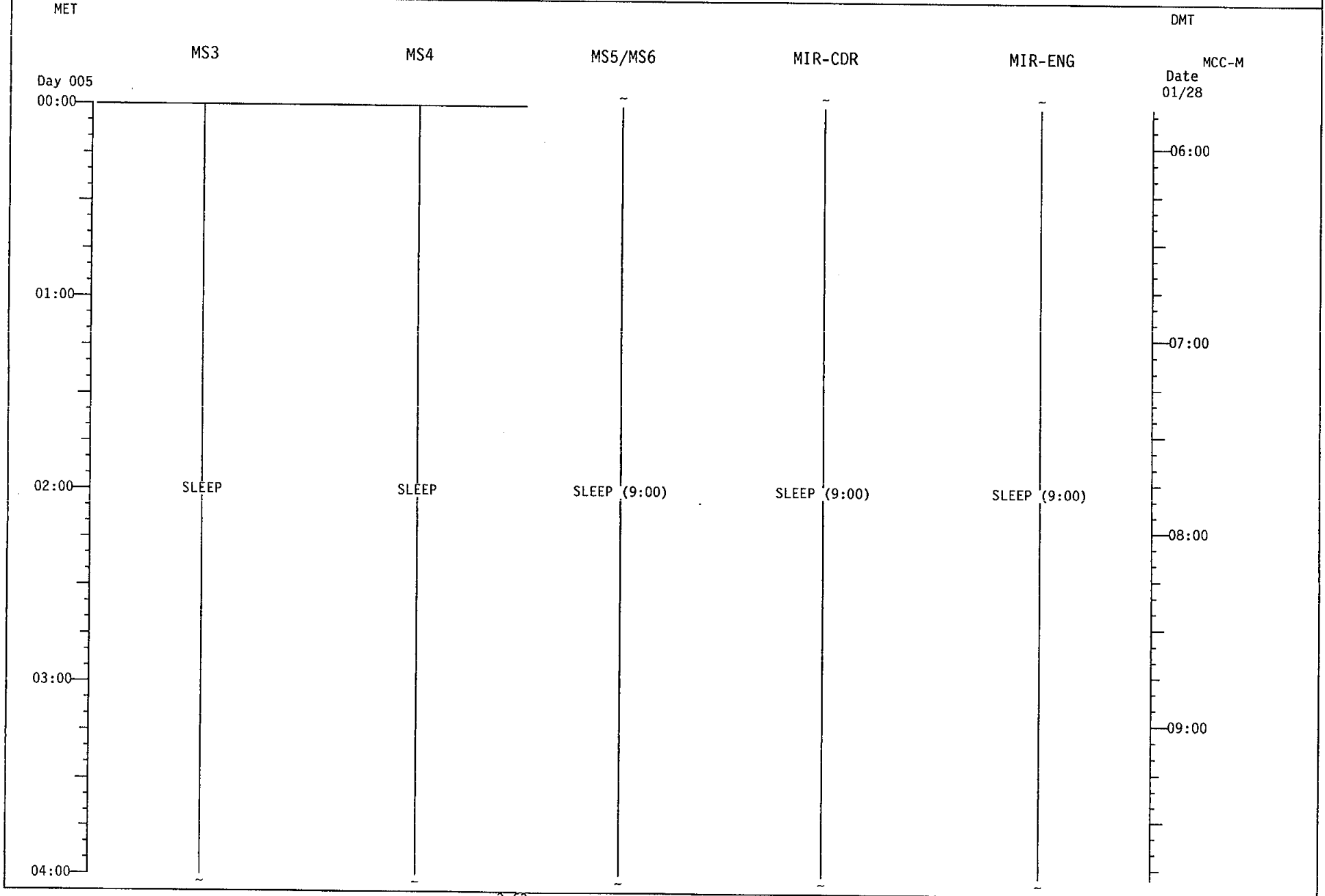
STS-89 (FD06)



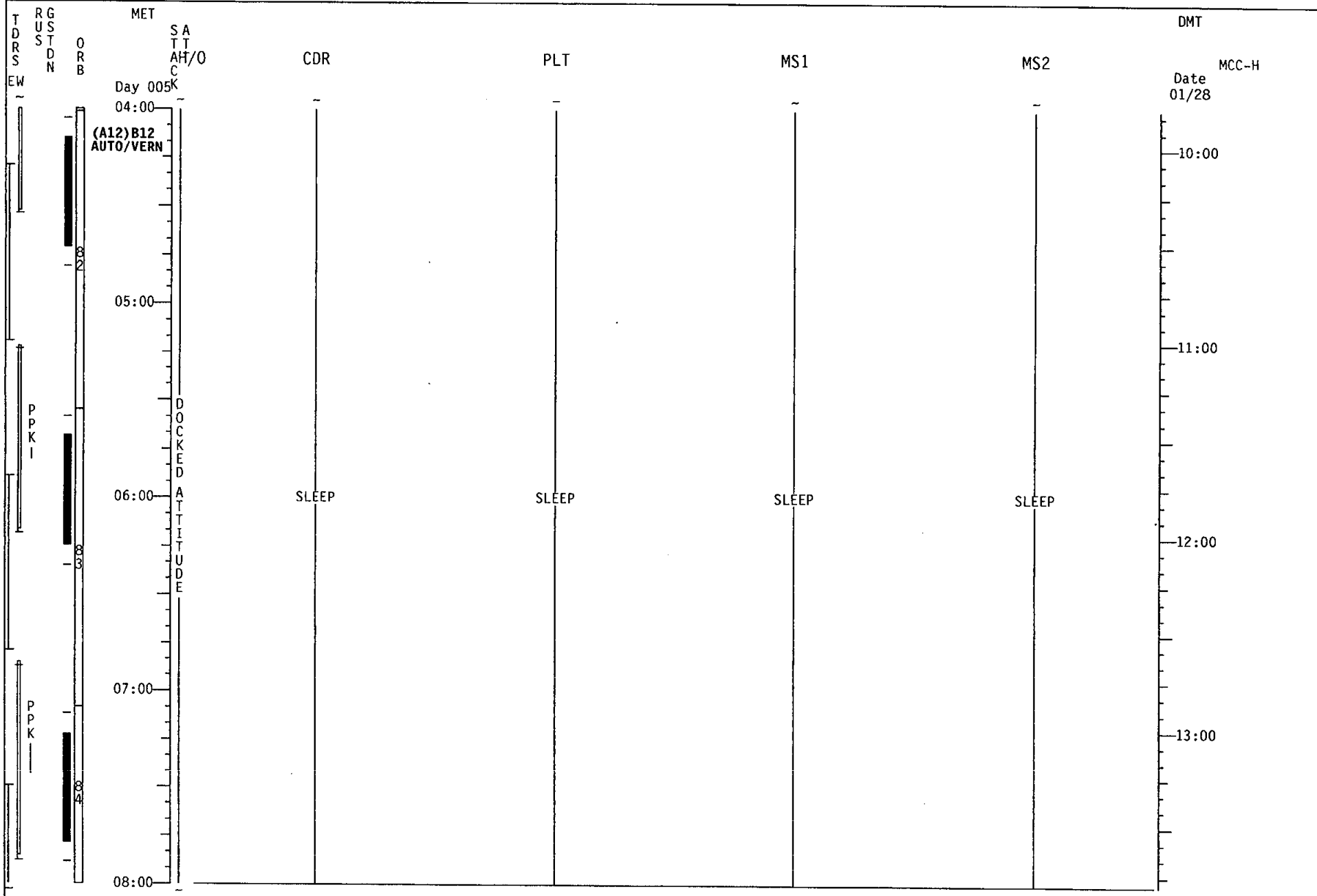
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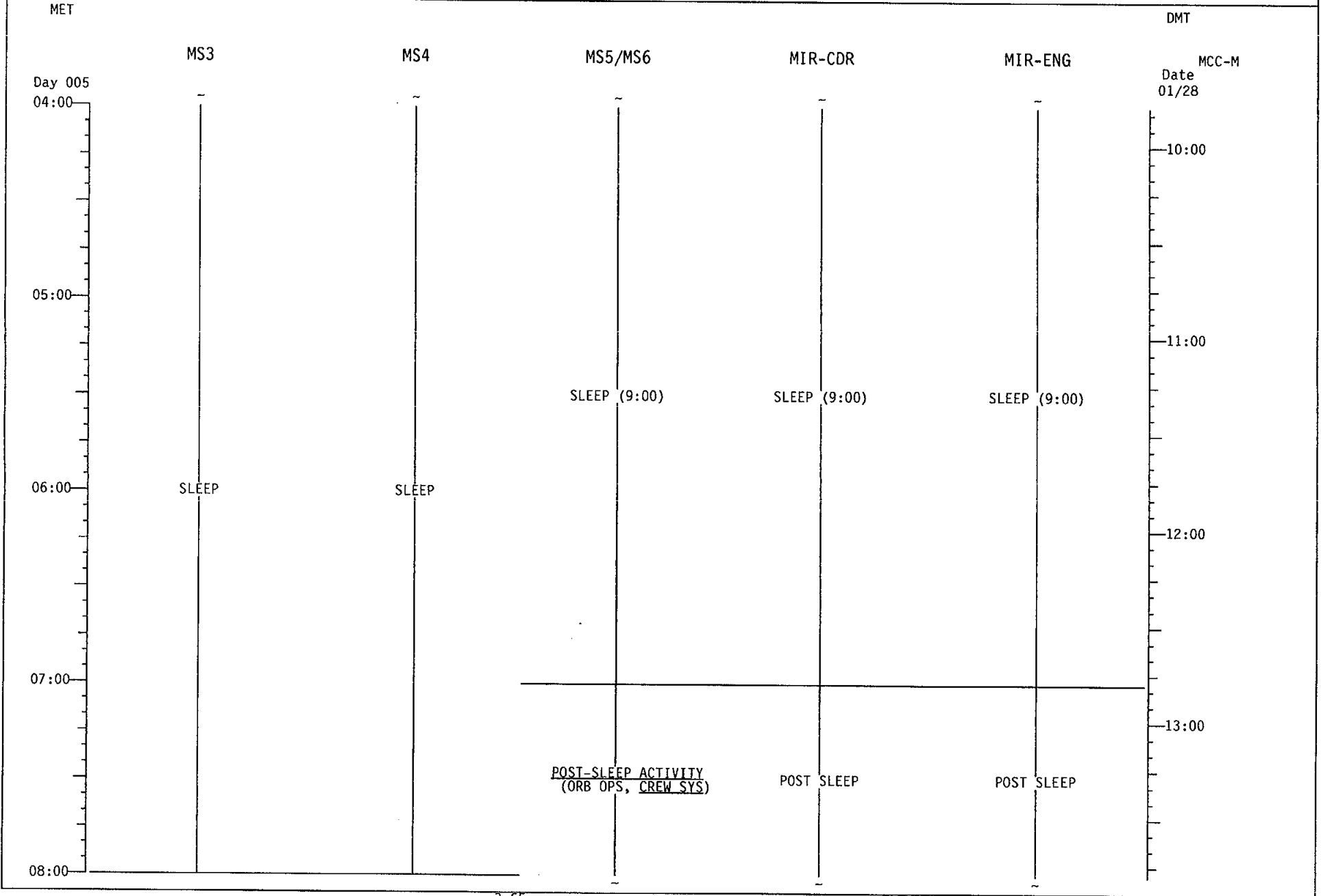
STS-89 (FD06)



STS-89 (FD06)



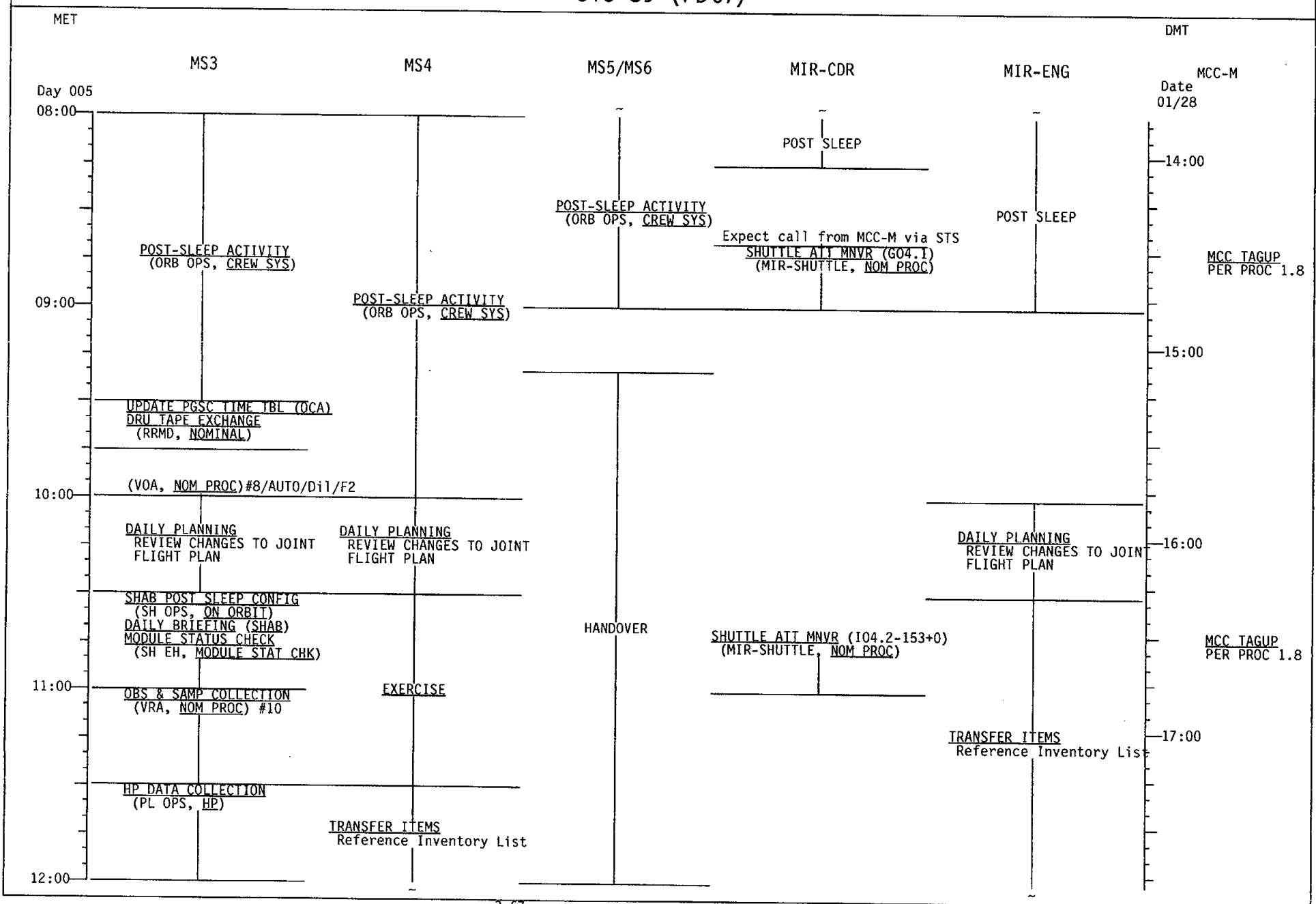
STS-89 (FD06)



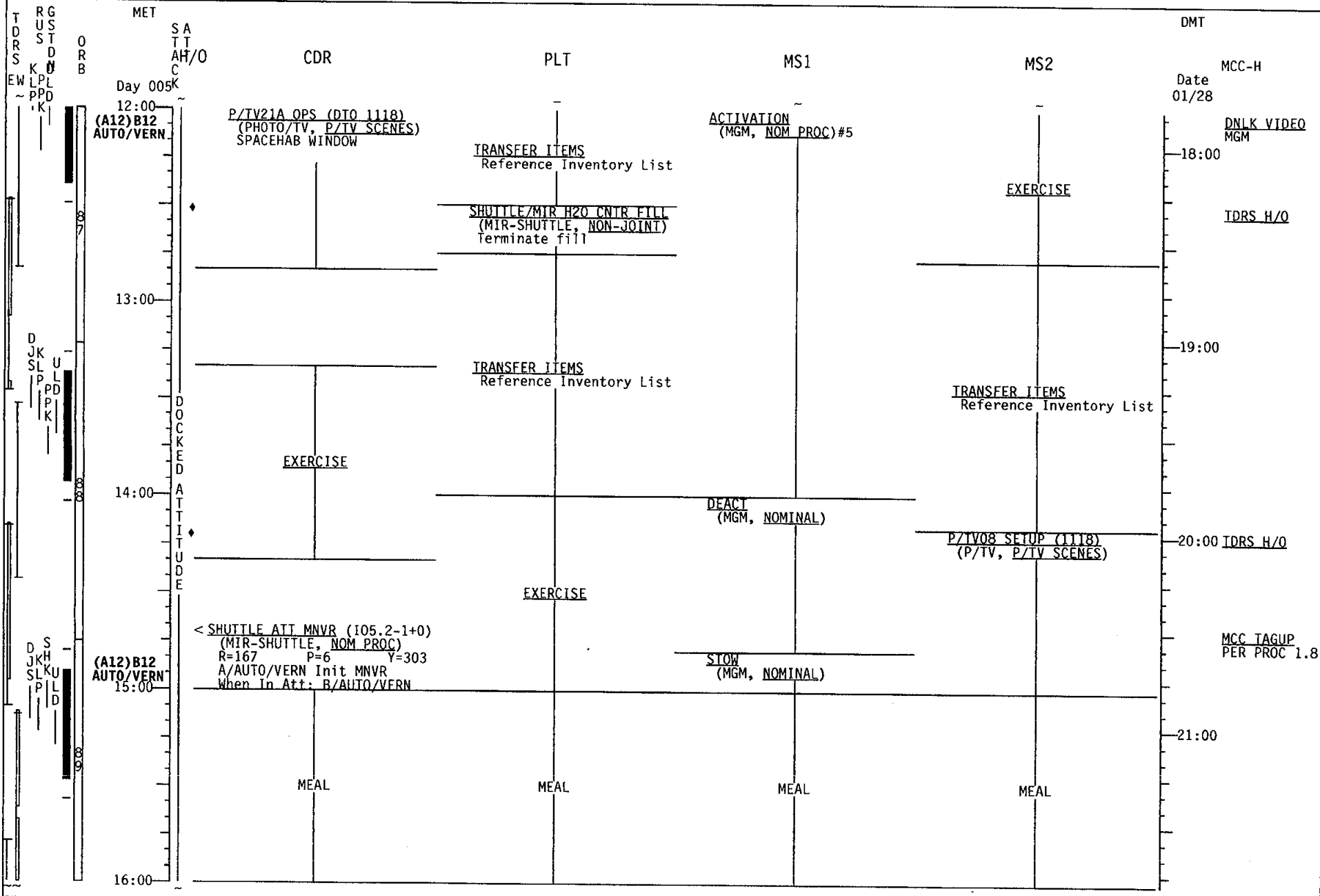
STS-89 (FD07)

DRS	RG	MET	SA	CDR	PLT	MS1	MS2	DMT
US	ST	Day	TT					Date
DN	ORB	005K	AH/O					MCC-H
EW			C					1/28
		08:00		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	FD07 EZ ACTIVITIES: CPA OPS (ORB OPS, CREW SYS) QCAC FILTER INSPECT REBOOT PGSC's CK RME1331 CWC		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	14:00 UPLINK FC PURGE
				< SHUTTLE ATTITUDE MNVR (G04.1) (MIR-SHUTTLE, NOM PROC) TG=2 BV=5 P=227 Y=6 OM=274 A/AUTO/VERN Init TRK			09 R AUD PWR - AUD/TONE	
		09:00		SUPPLY/WASTE WATER DUMP (ORB OPS, SPLY/WST DUMP) Initiate Waste Dump Dump tank to 5%	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) GALLEY MORNING CONFIG (ORB OPS, GLY IDN RMVL)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)		MCC TAGUP PER PROC 1.8 A/G2 RLY ↑
				POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)			POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	15:00 TRS H/A MCC-M DUMP INIT
		10:00		HP DATA COLLECTION (PL OPS, HP)			MIDDECK SCIENCE CHECKS (PL OPS, MDDK SCIENCE CKS)	
					DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN	DAILY PLANNING REVIEW CHANGES TO JOINT FLIGHT PLAN	16:00
				SUPPLY/WASTE WATER DUMP (ORB OPS, SPLY/WST DUMP) Terminate Waste Dump				INFORM MCC-M DUMP TERM
				IMU ALIGN - S TRK (ORB OPS) < SHUTTLE ATT MNVR (104.2-153+0) (MIR-SHUTTLE, NOM PROC) R=352 P=188 Y=38 A/AUTO/VERN Init MNVR When in Att: B/AUTO/VERN		SETUP (MGM, NOMINAL) Select Unused F3 Test Cell	HP DATA COLLECTION (PL OPS, HP)	MCC TAGUP PER PROC 1.8
		11:00		HP DATA COLLECTION (PL OPS, HP)			ON-ORBIT DATA COL TERM #6 (ORB OPS, DTO 700-15)	
				P/TV21 SETUP (DTO 1118) (PHOTO/TV, P/TV SCENES)			DATA DOWNLINK (ORB OPS, DTO 700-15) GPS DOWNLINK (ORB OPS, DTO 700-14)	17:00 OCA XFER SIGI/GPS
					SHUTTLE/MIR H2O CNTR FILL (MIR-SHUTTLE, NON-JOINT) Init fill #14 VMCC for reqts	ACTIVATION (MGM, NOM PROC)#5	ATTITUDE RE-INIT (ORB OPS, DTO 700-15) ON-ORBIT DATA COLL INIT #7 (ORB OPS, DTO 700-15)	DNLK VIDEO MGM
		12:00		TRANSFER ITEMS Reference Inventory List			EXERCISE	

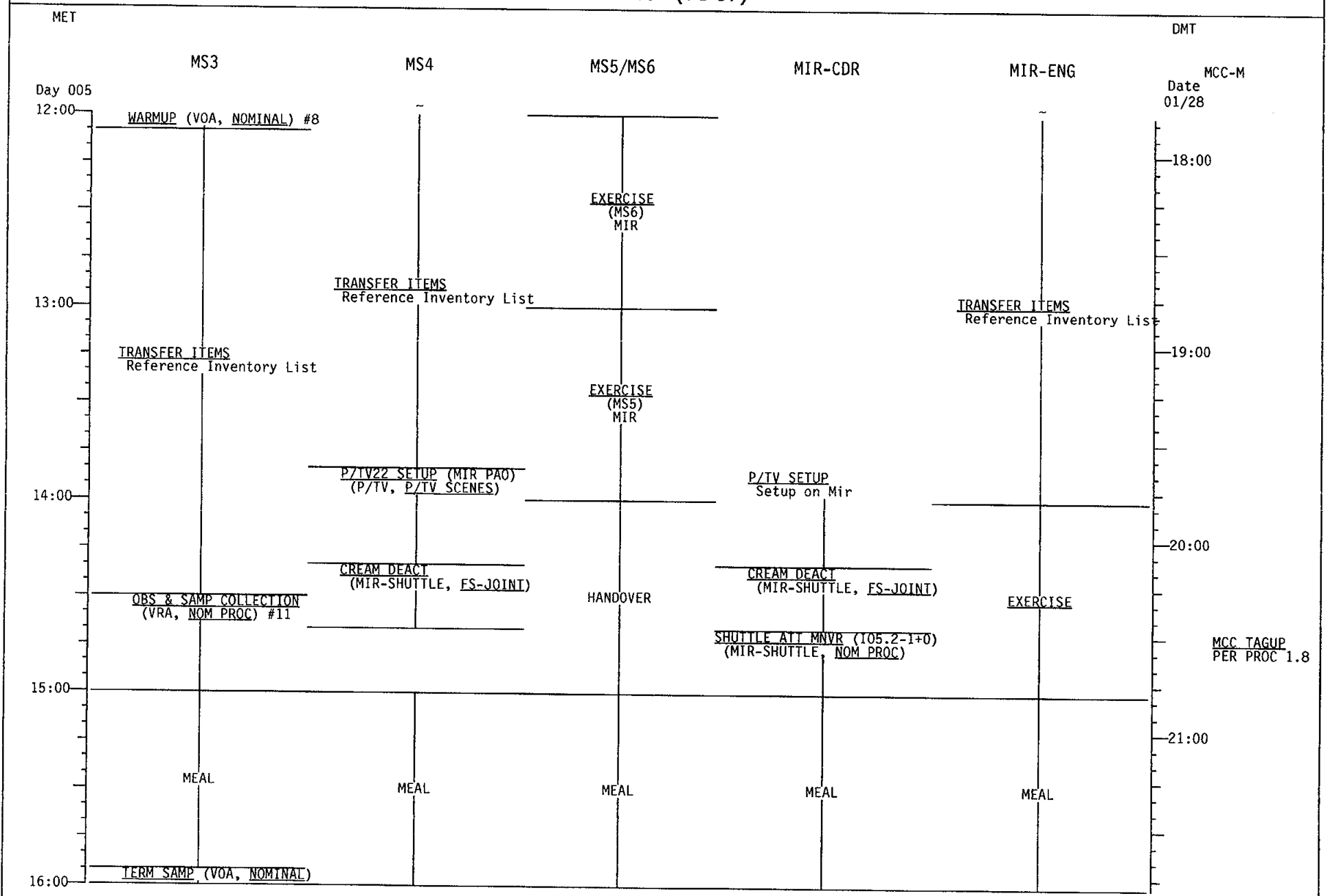
STS-89 (FD07)



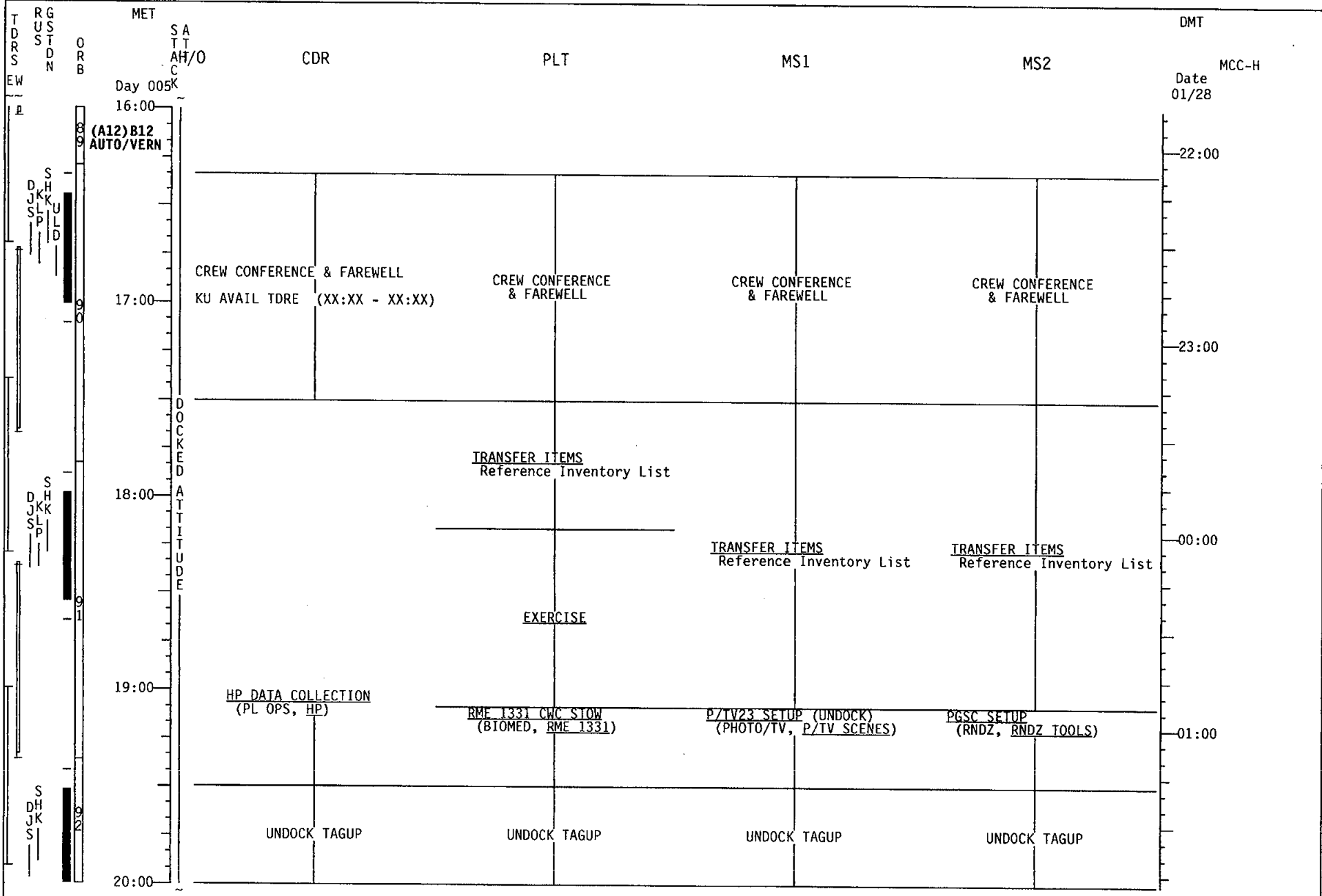
STS-89 (FD07)



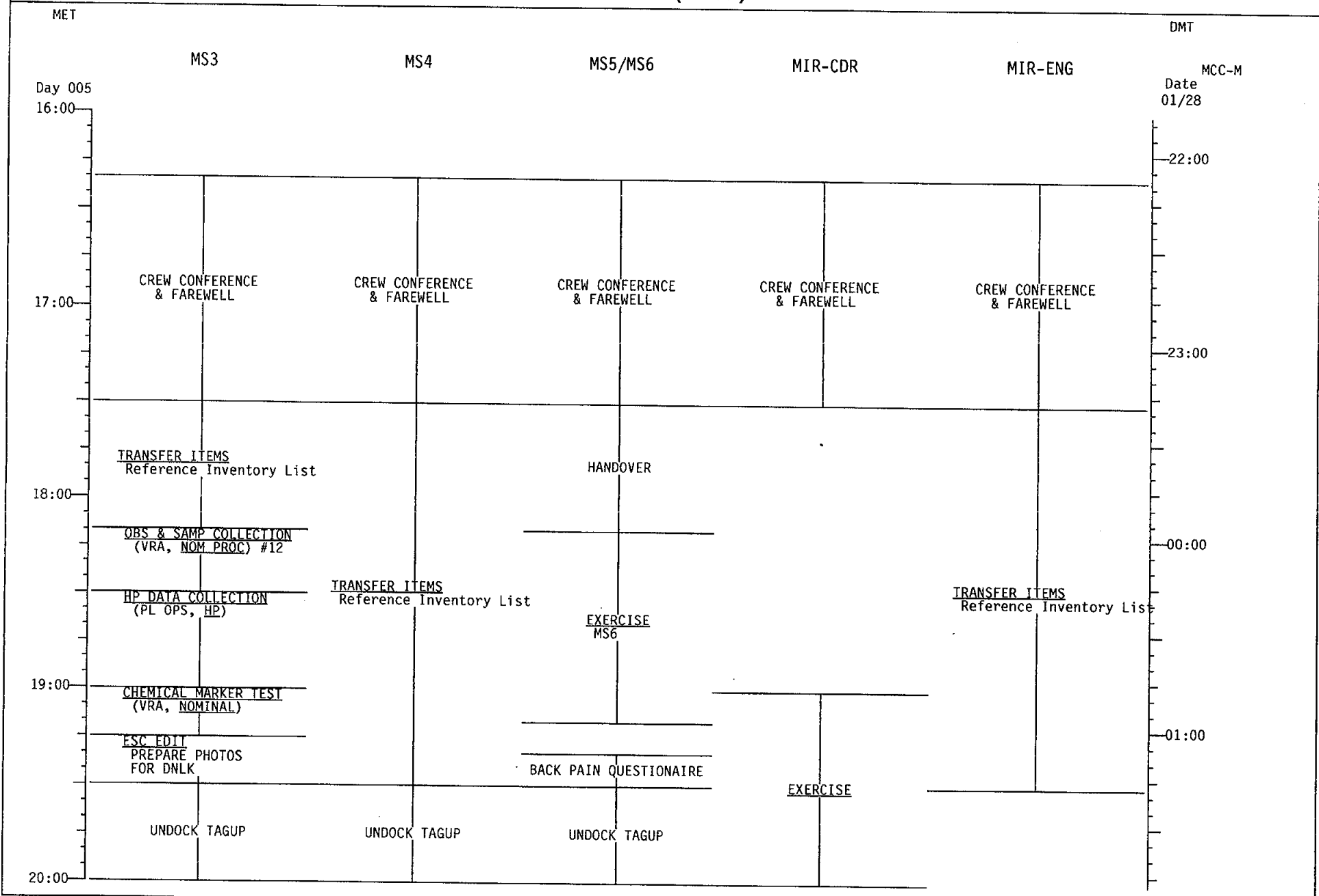
STS-89 (FD07)



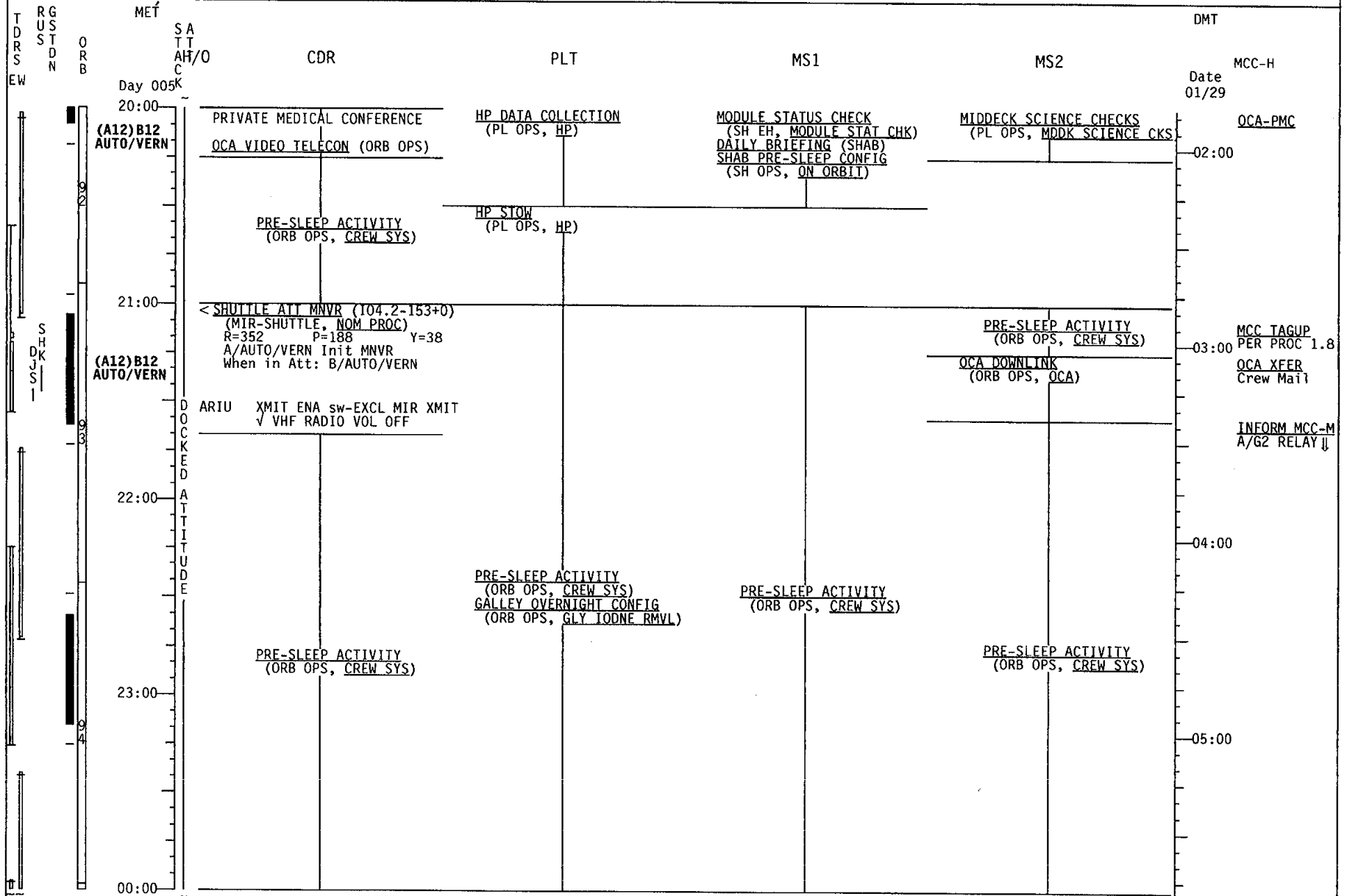
STS-89 (FD07)



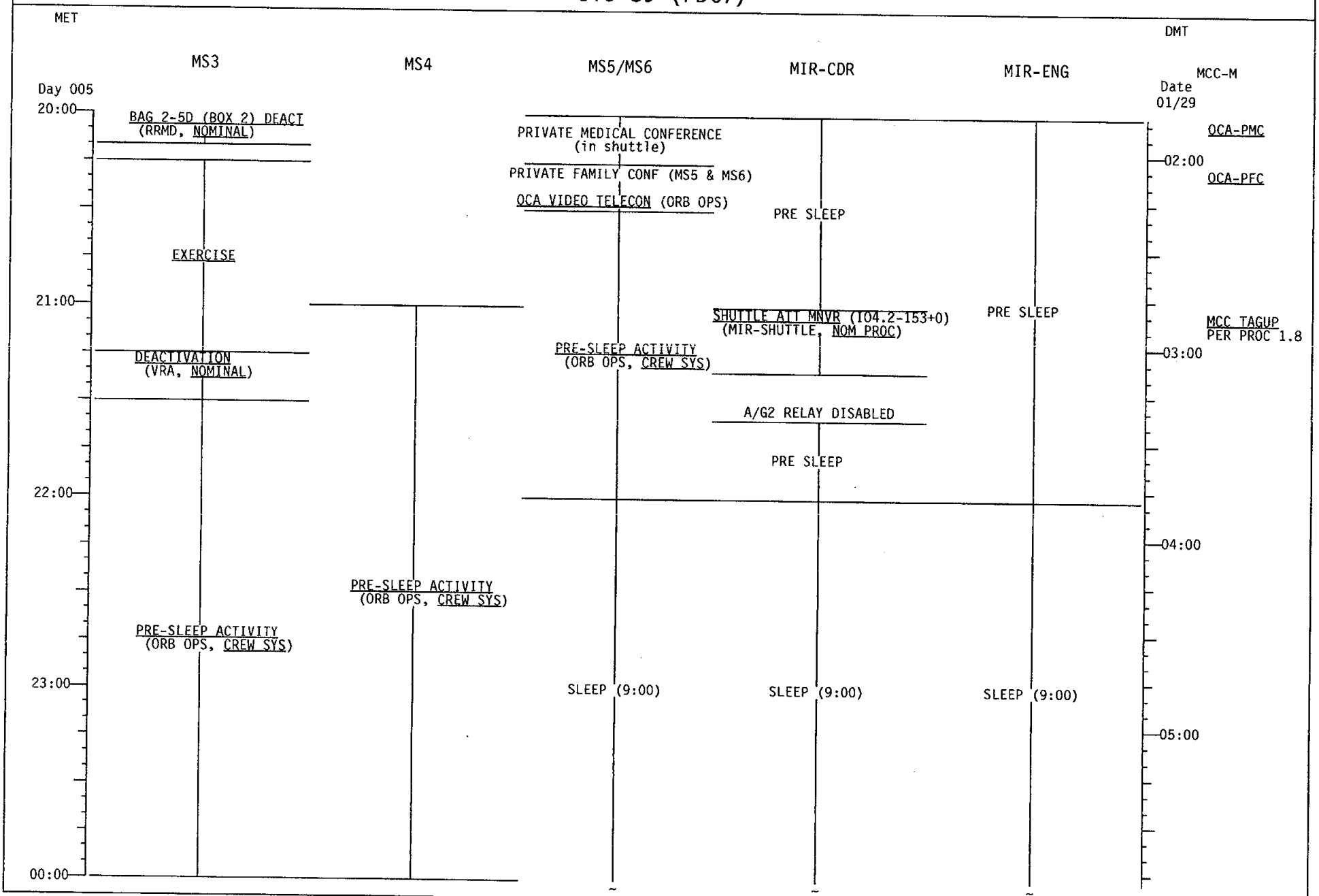
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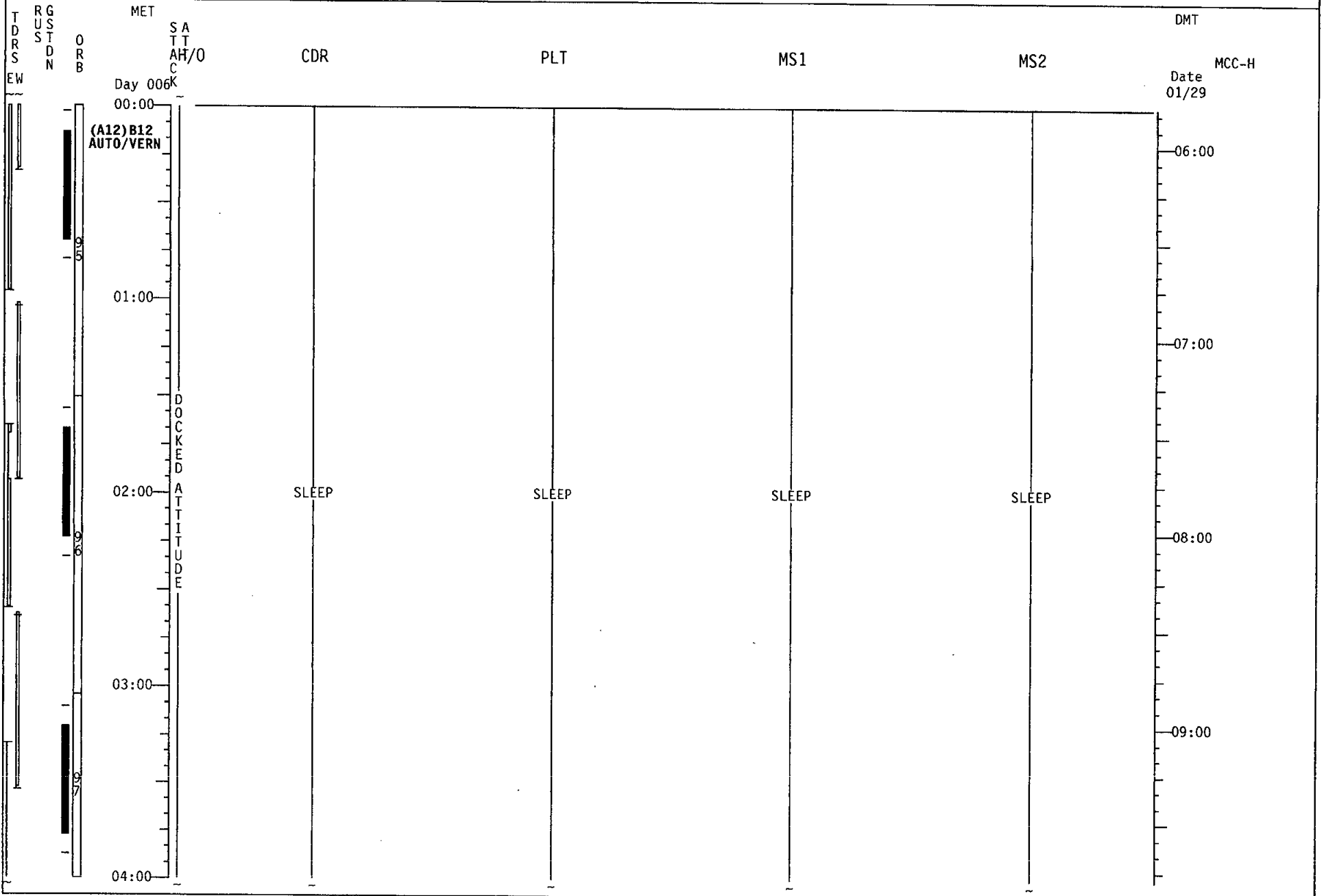
STS-89 (FD07)



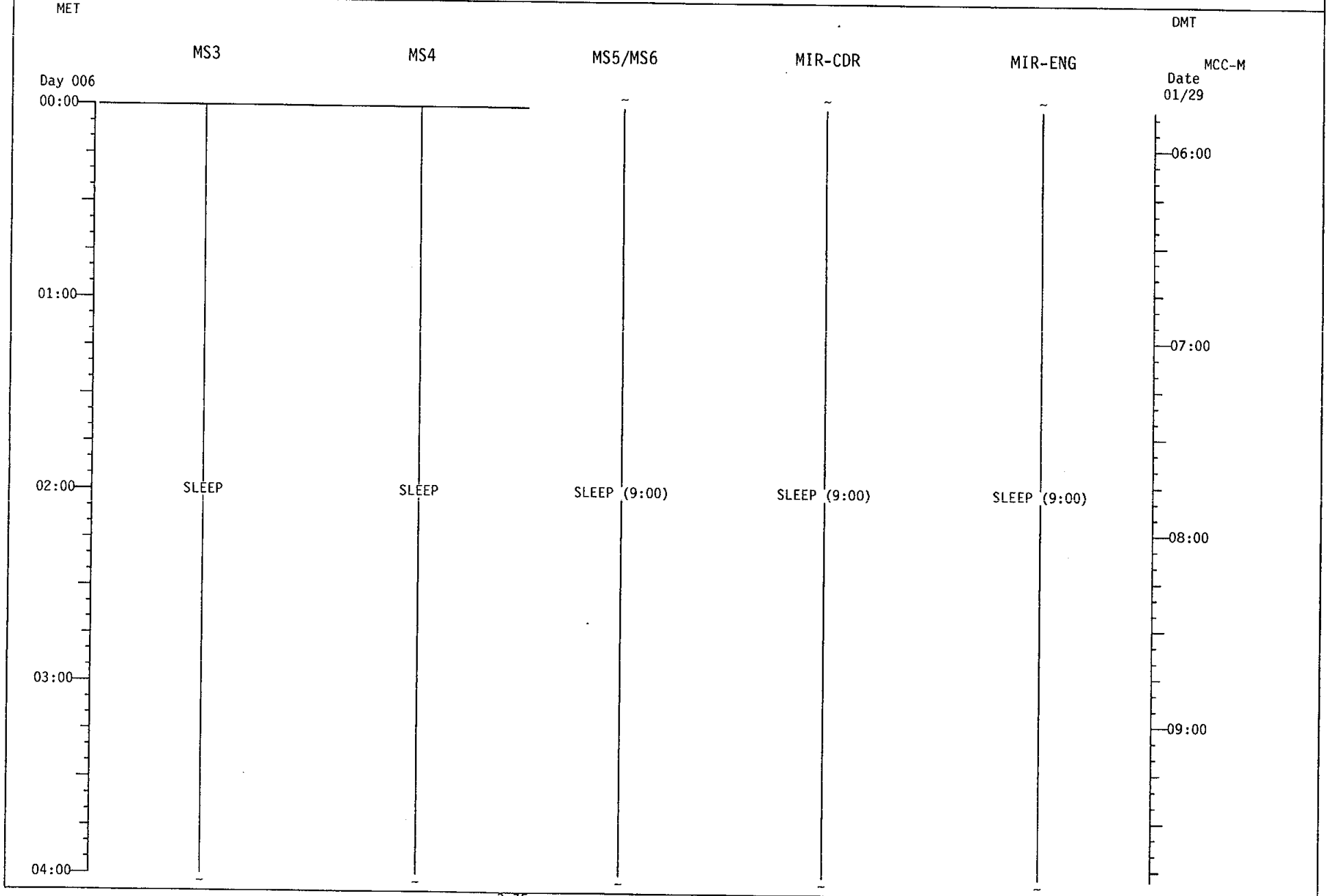
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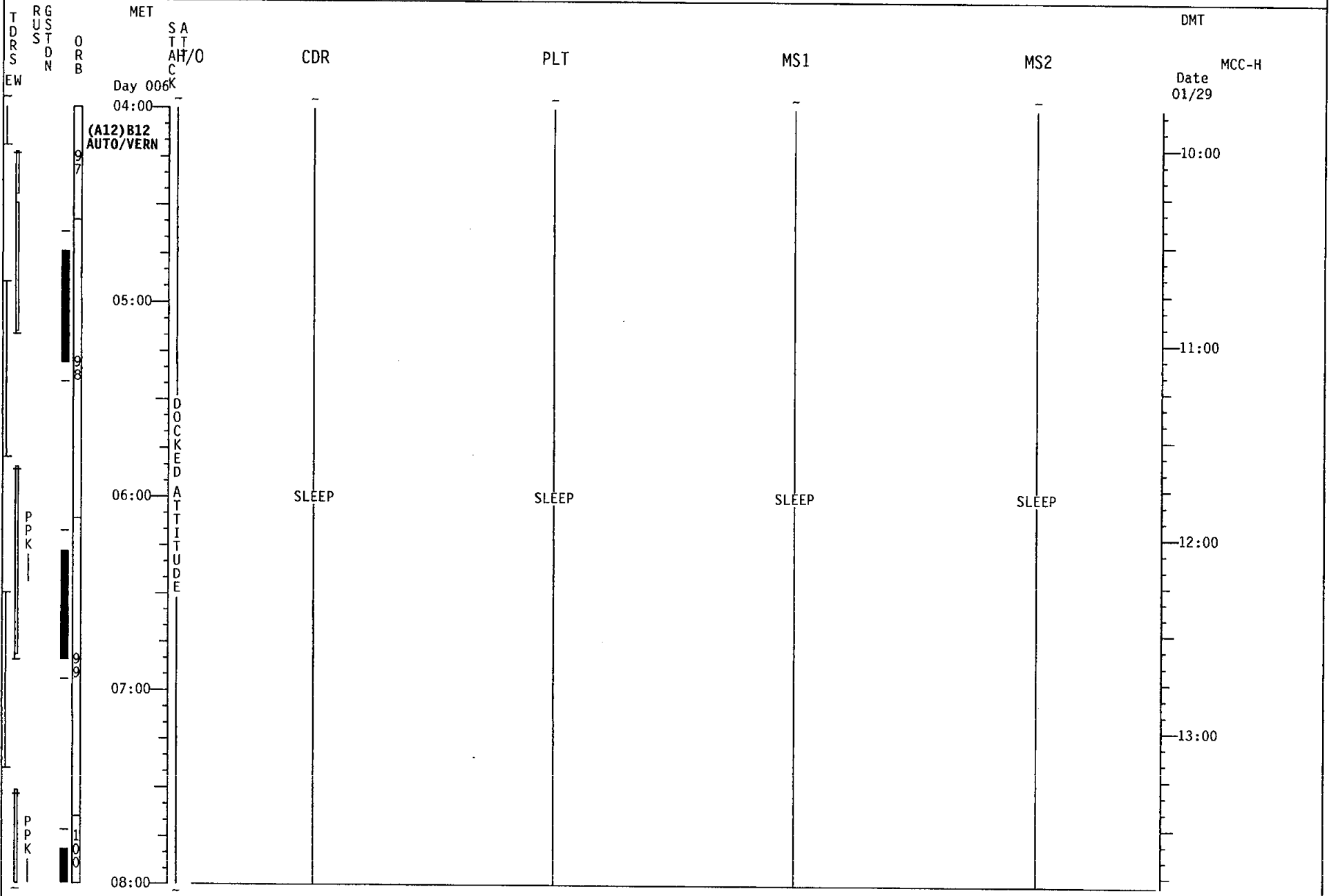
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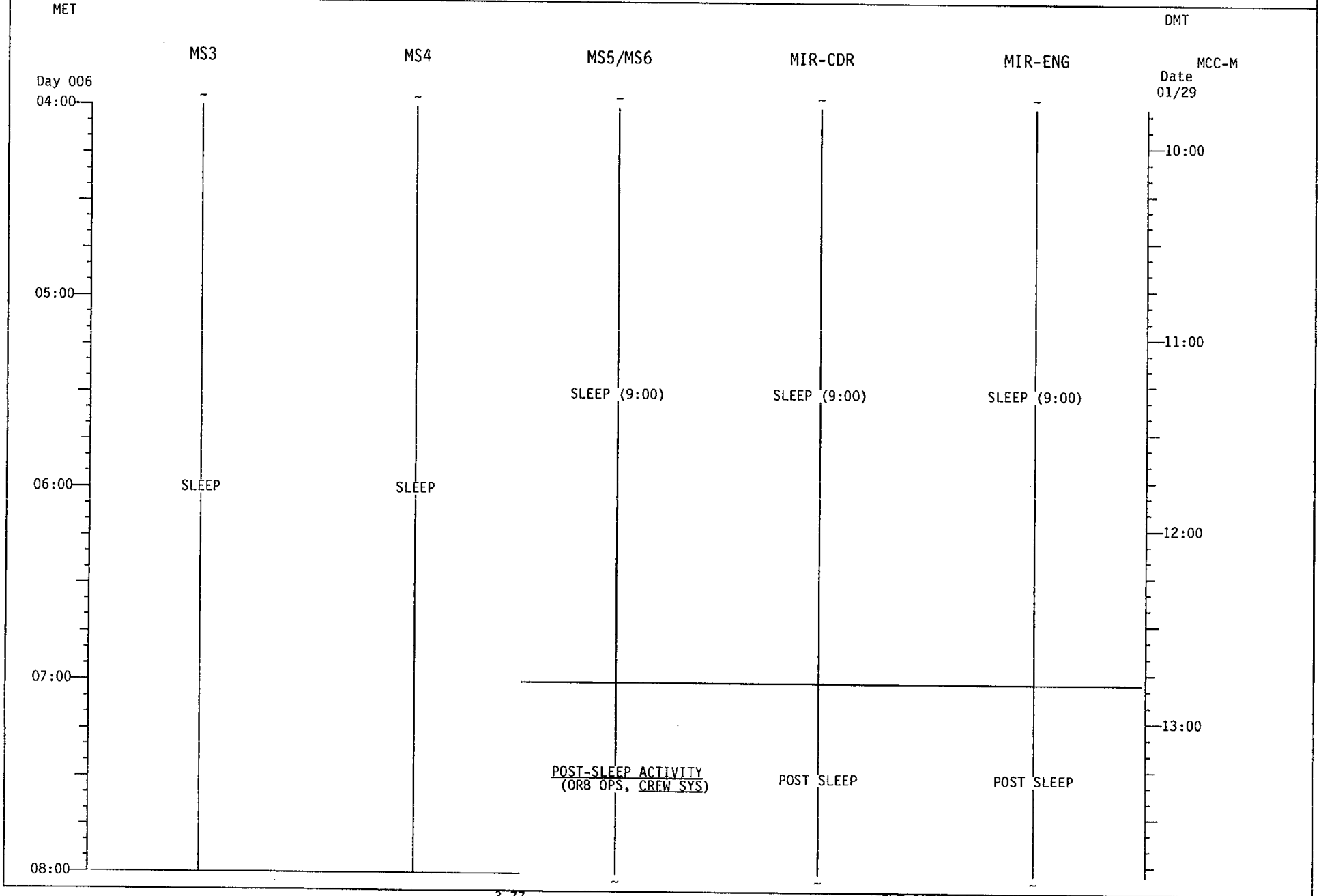
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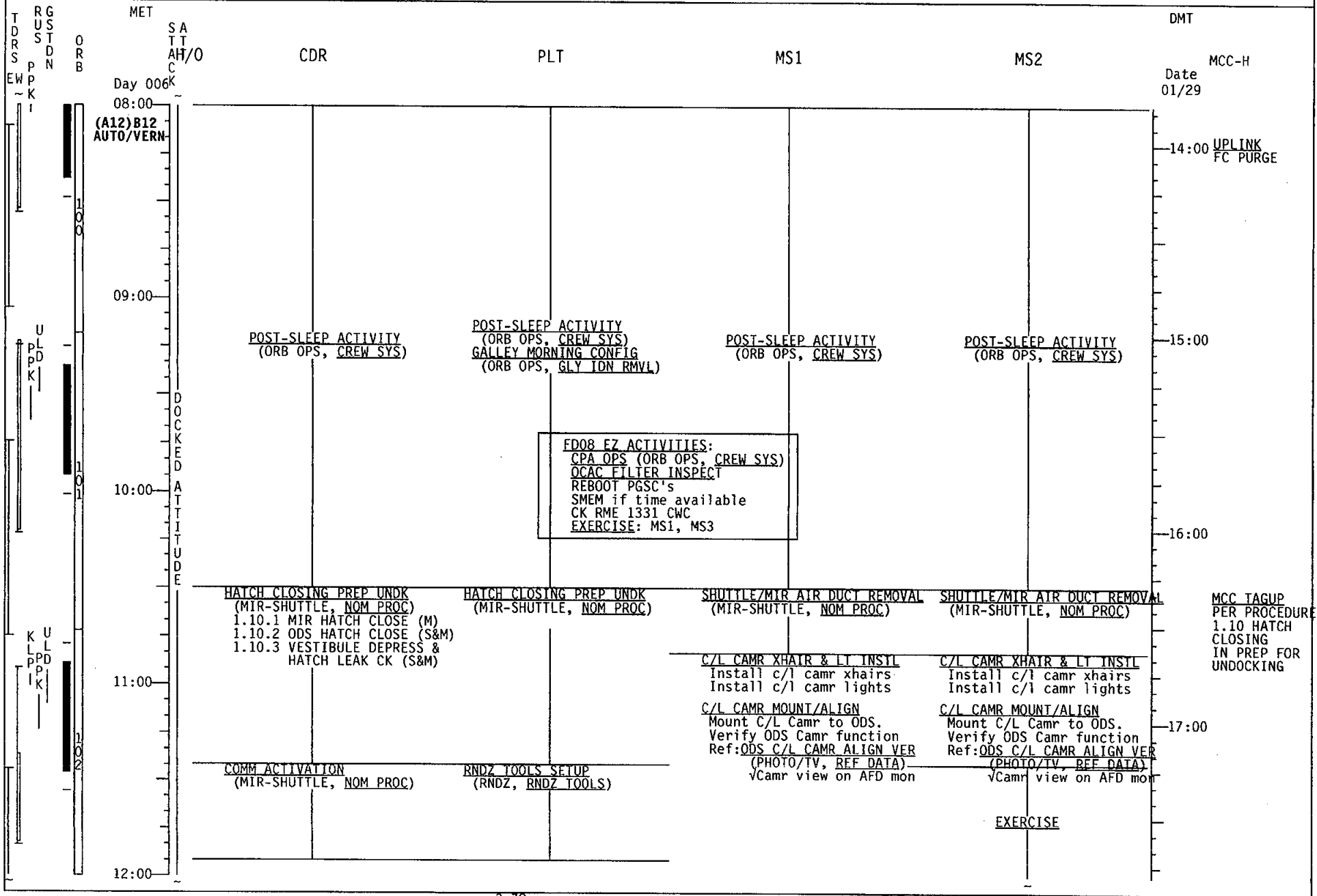
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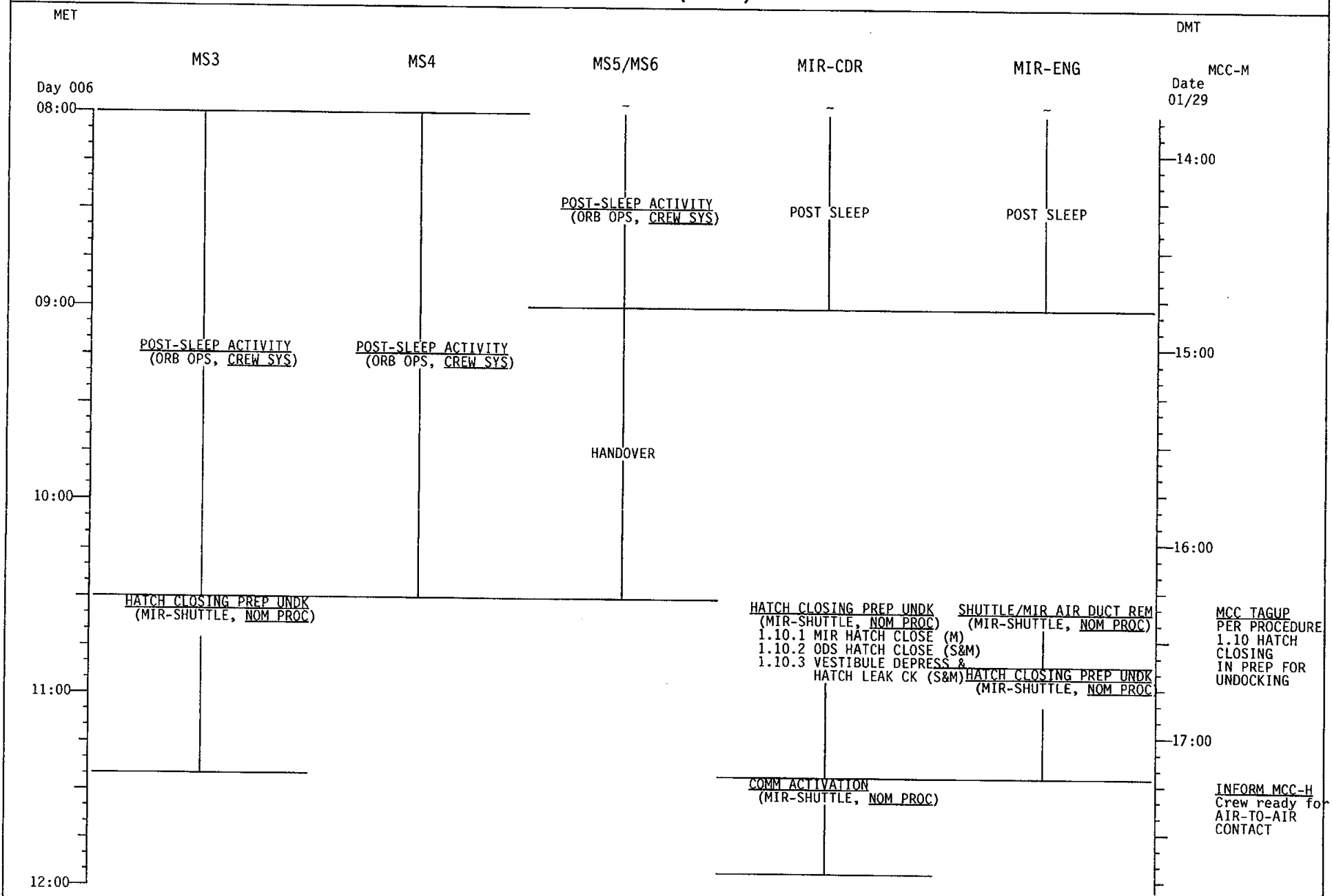
STS-89 (FD07)



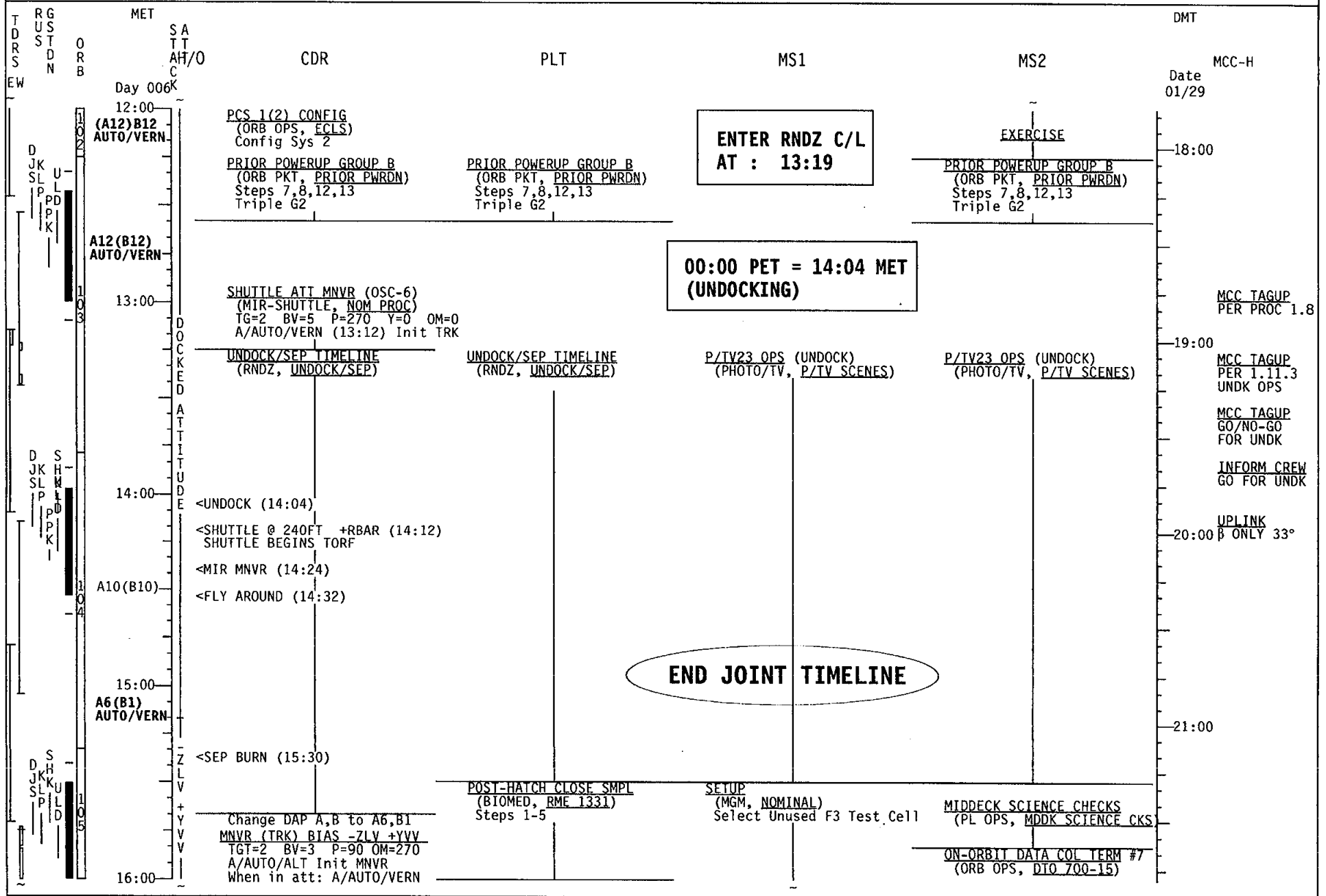
STS-89 (FD08)



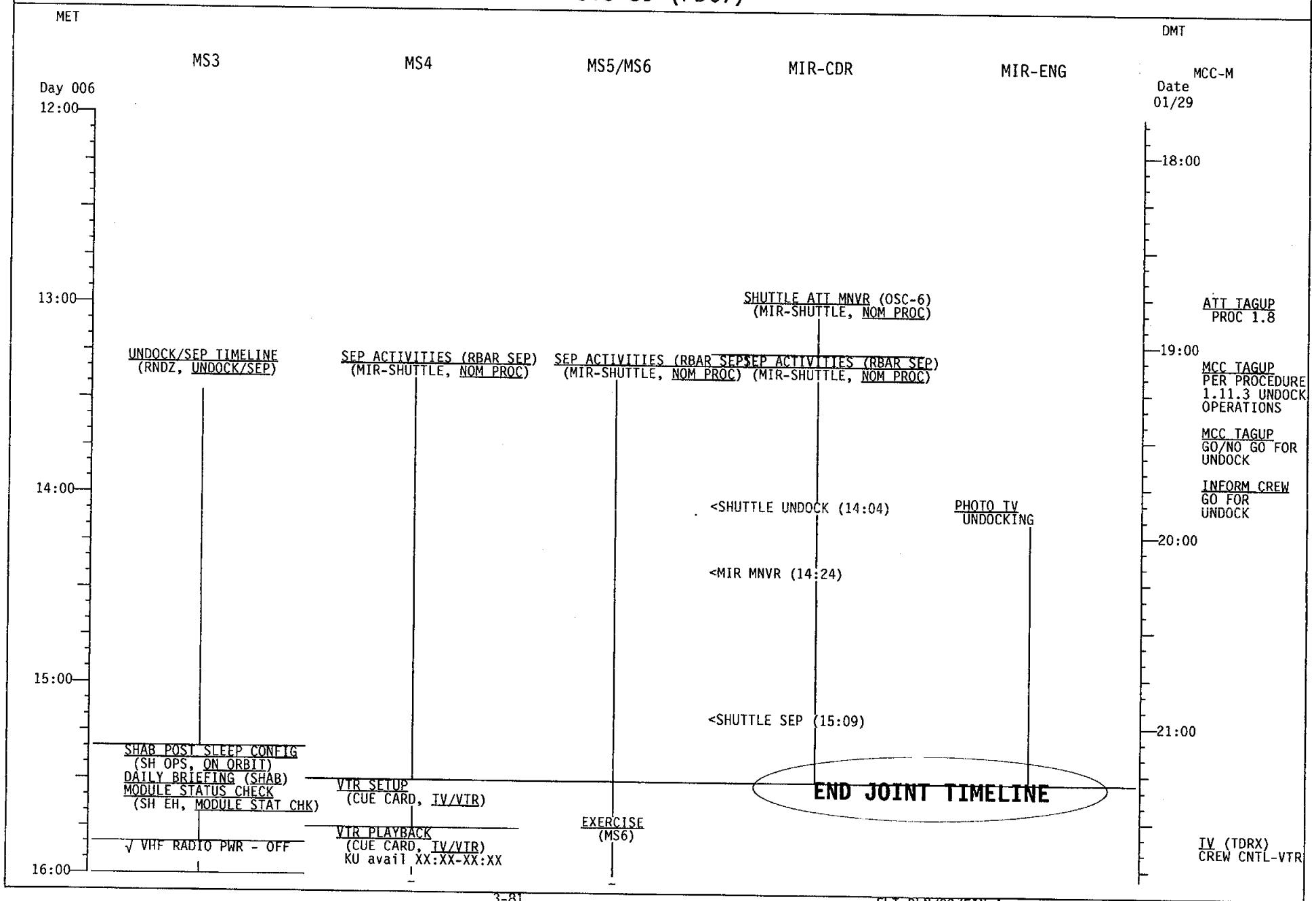
STS-89 (FD08)



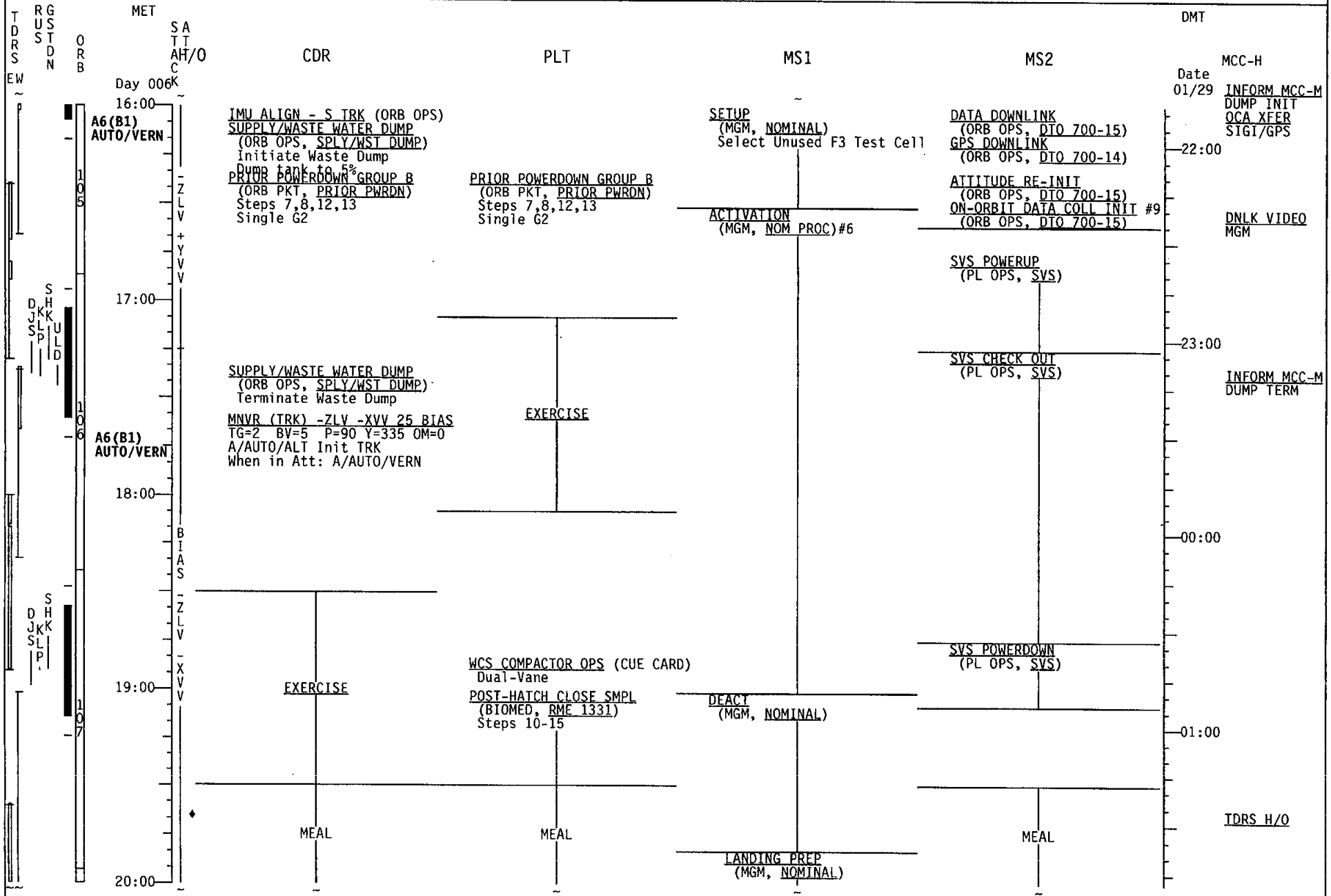
STS-89 (FD08)



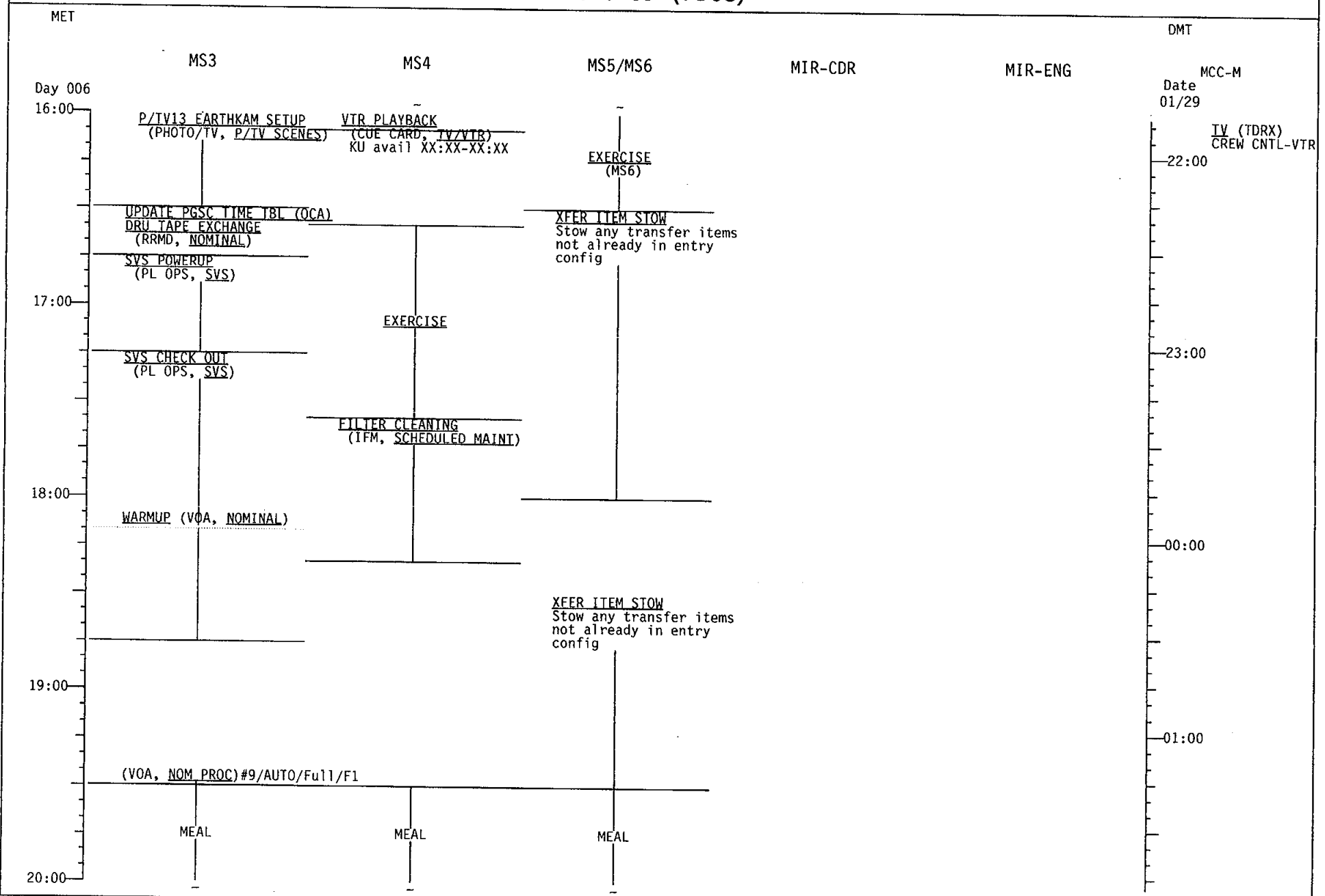
STS-89 (FD07)



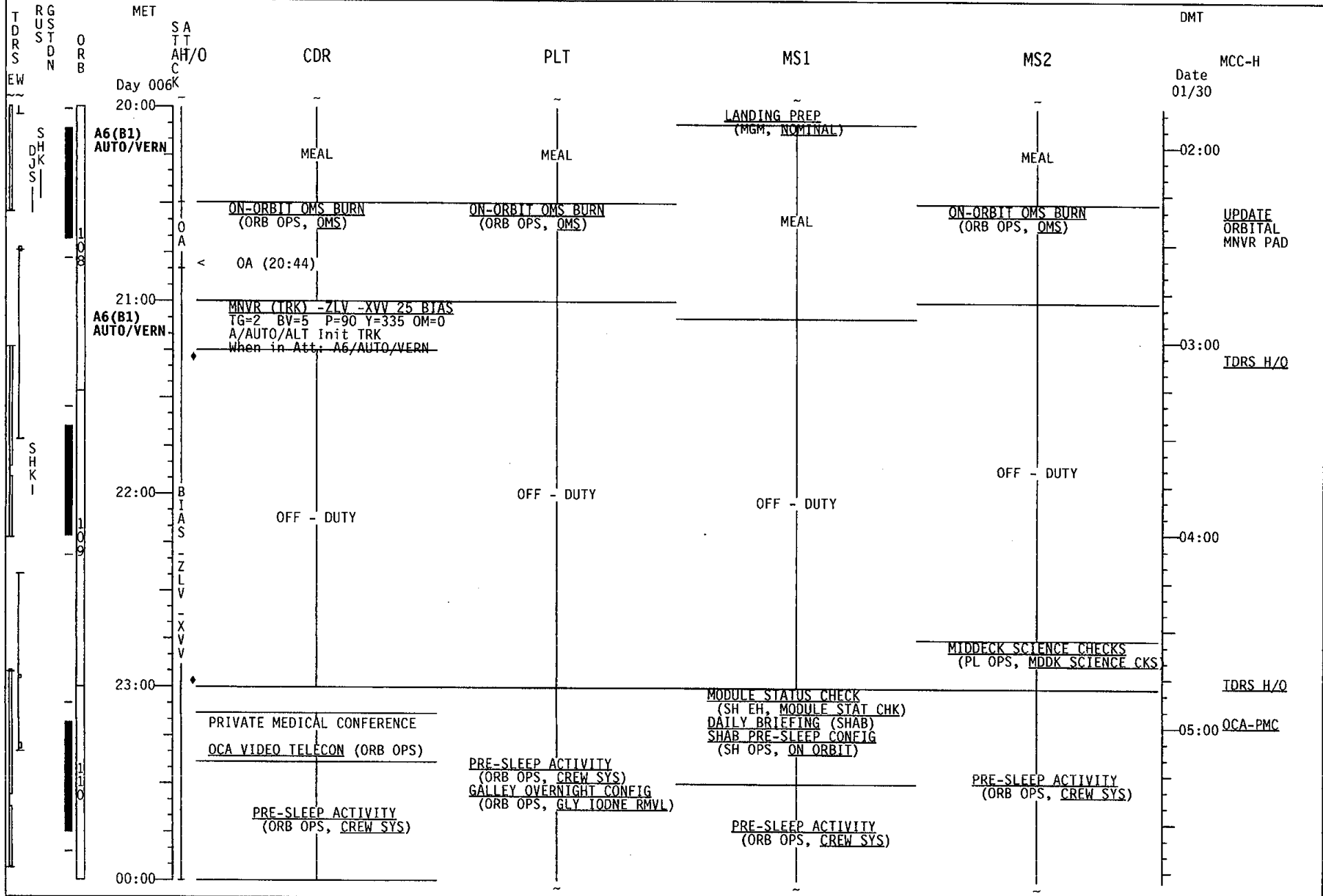
STS-89 (FD08)



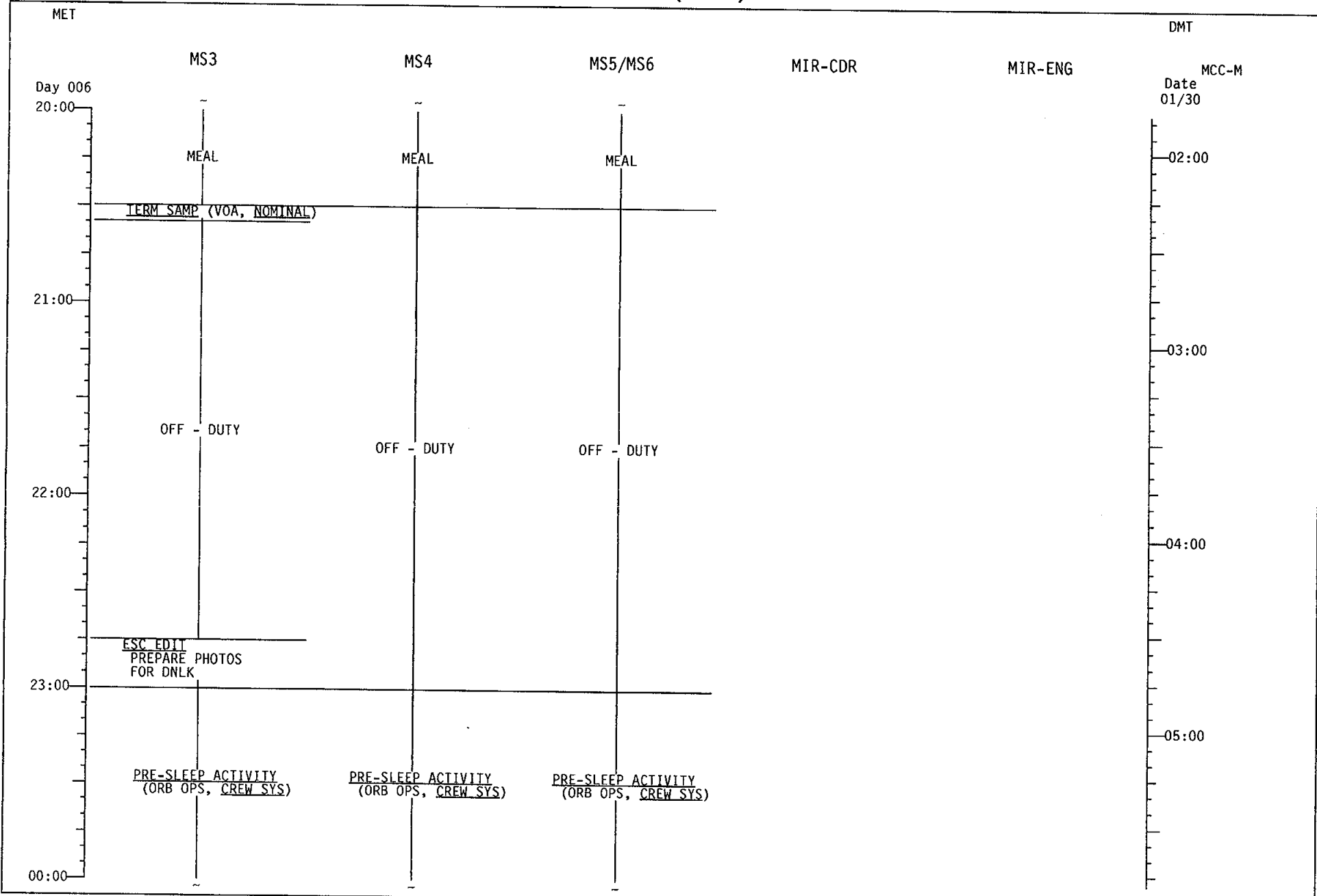
STS-89 (FD08)



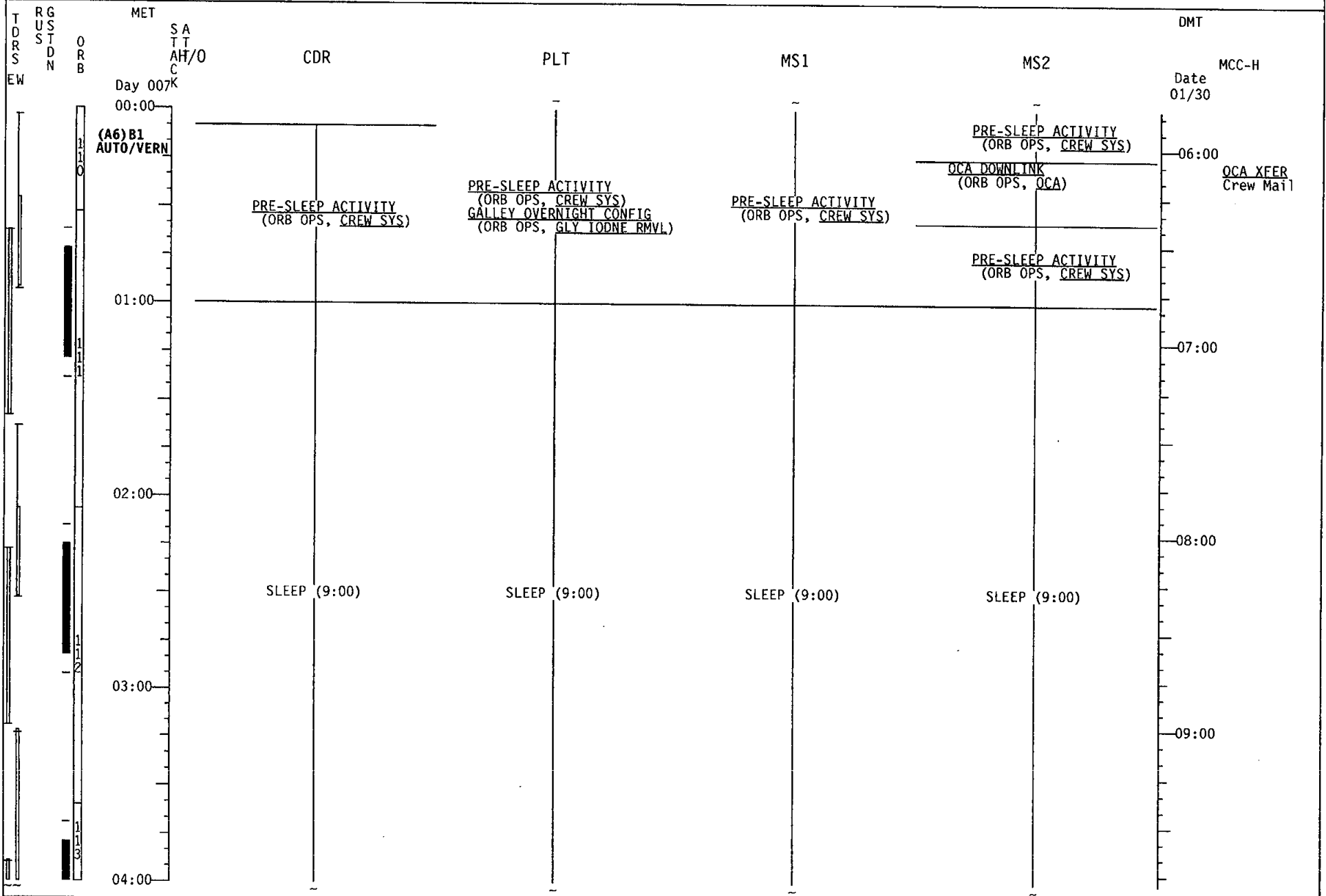
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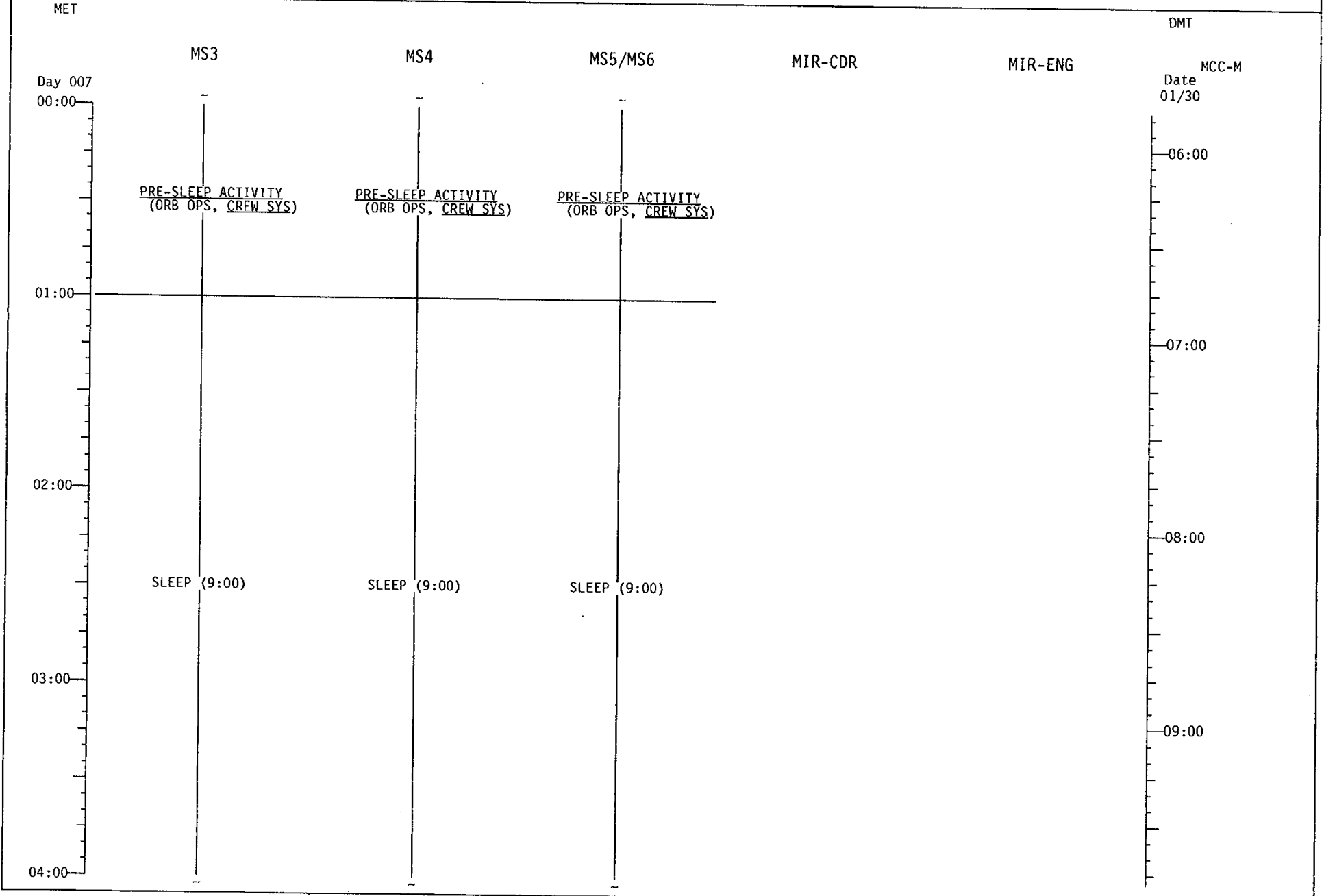
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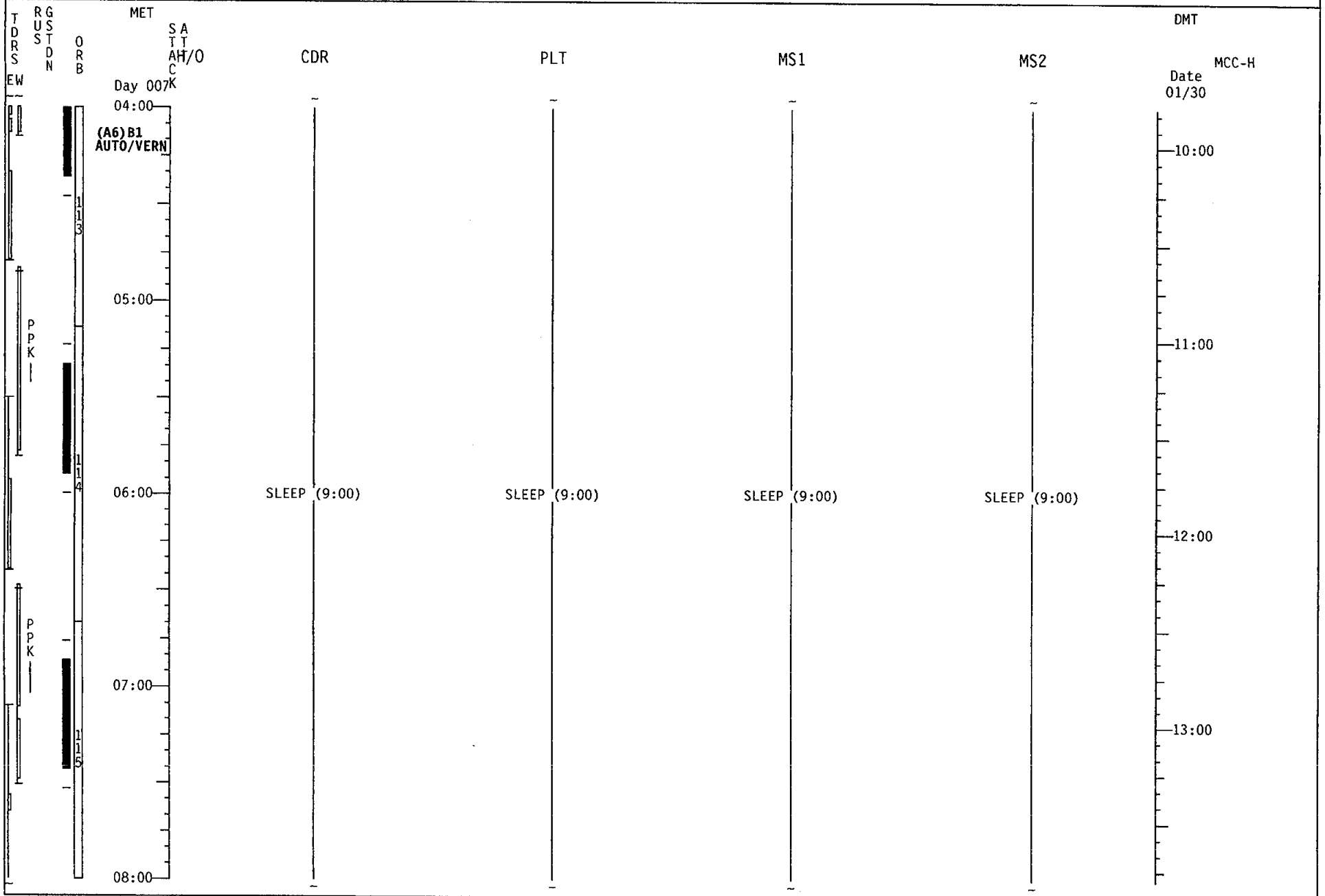
STS-89 (FD08)



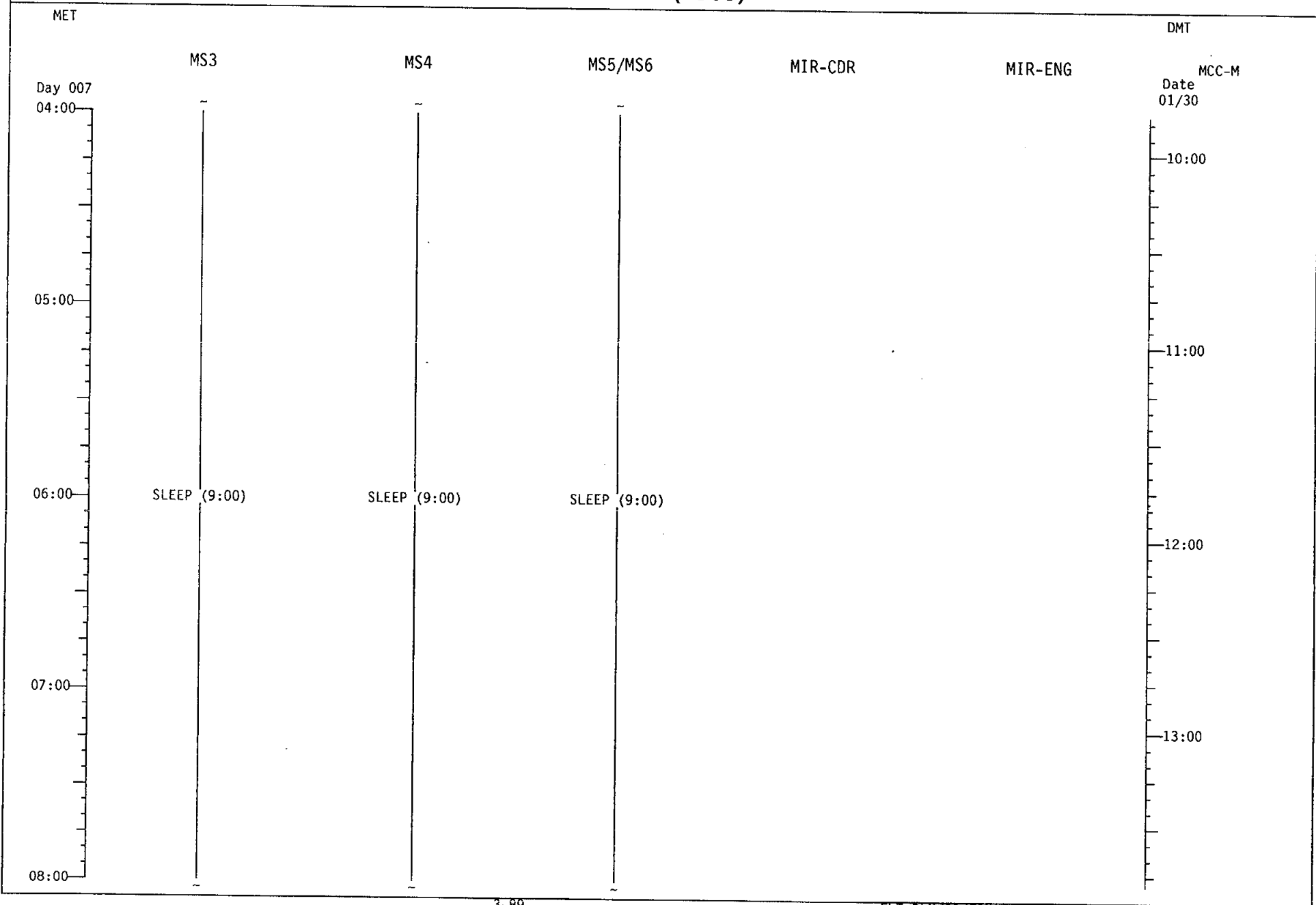
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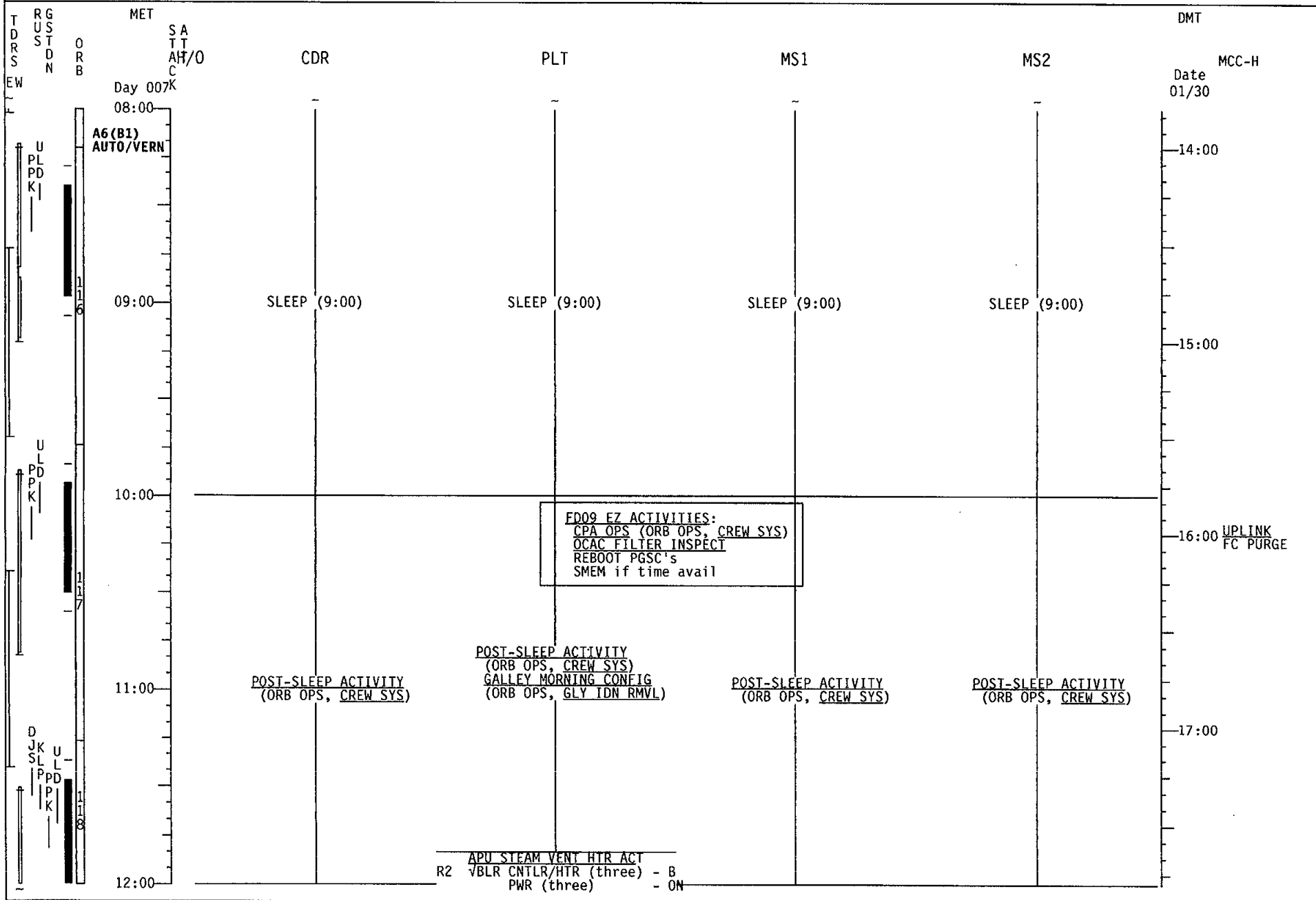
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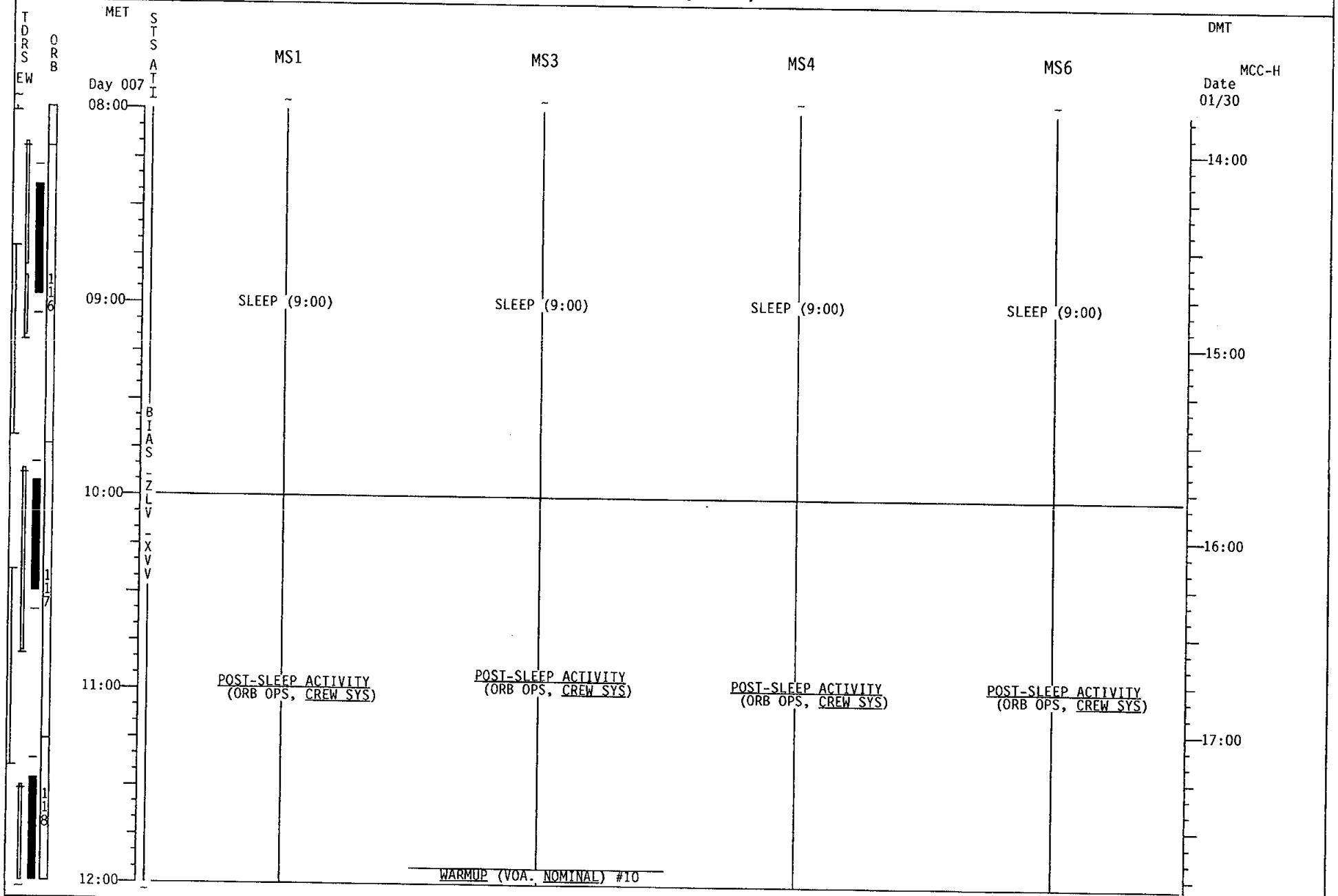
STS-89 (FD08)



STS-89 (FD08)

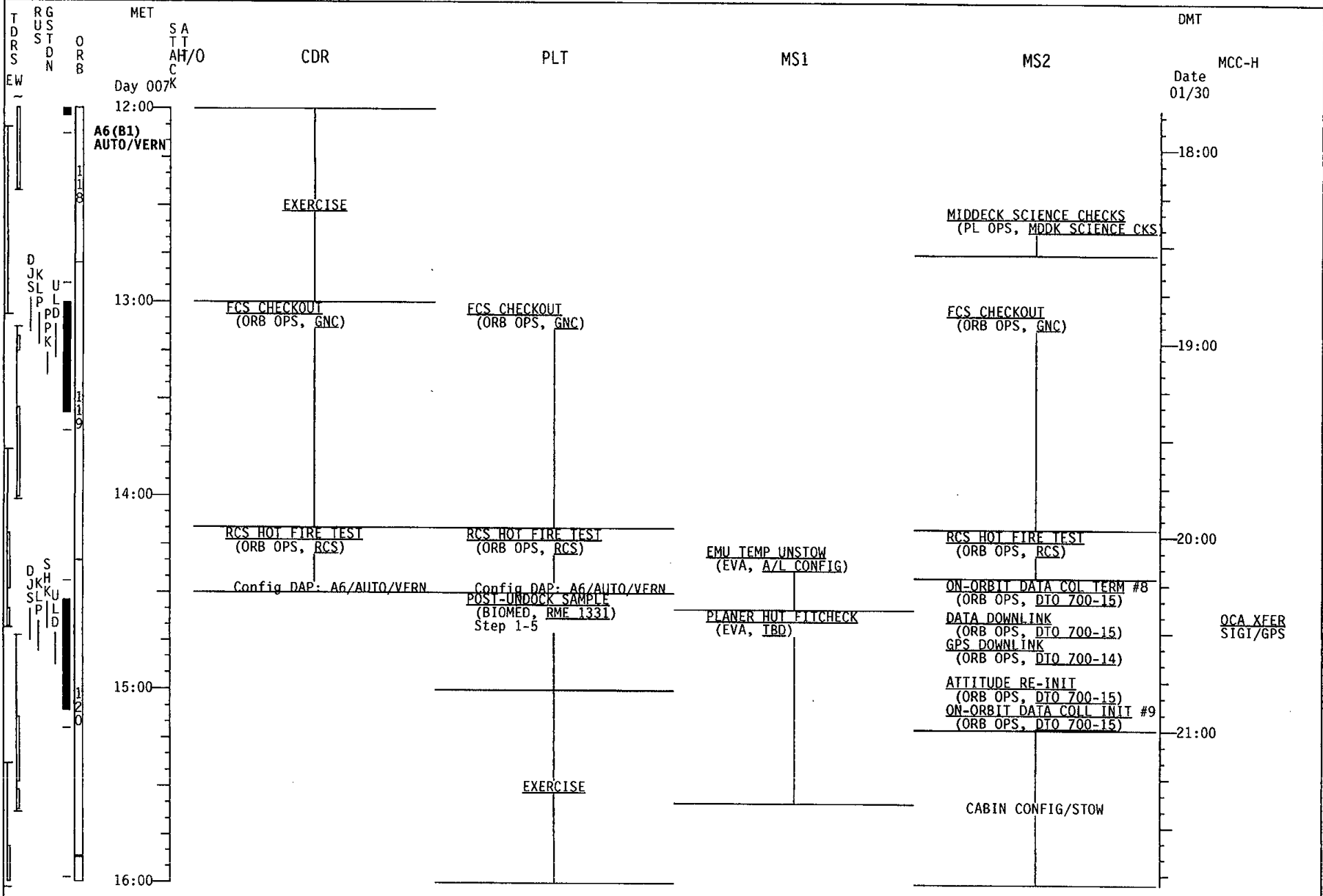


STS-89 (FD08)

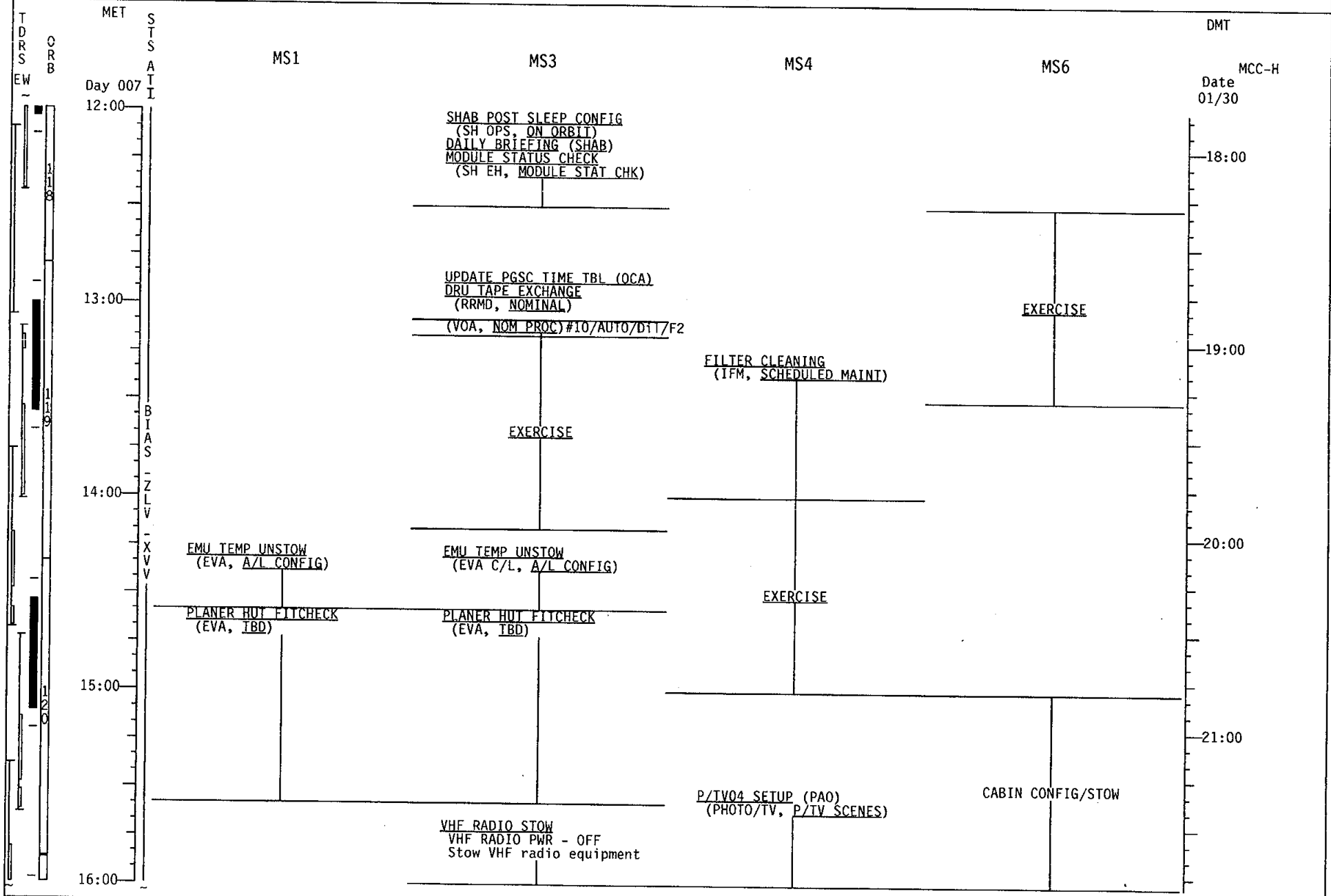


STS-89 (FD09)

01/07/98 18:16:55



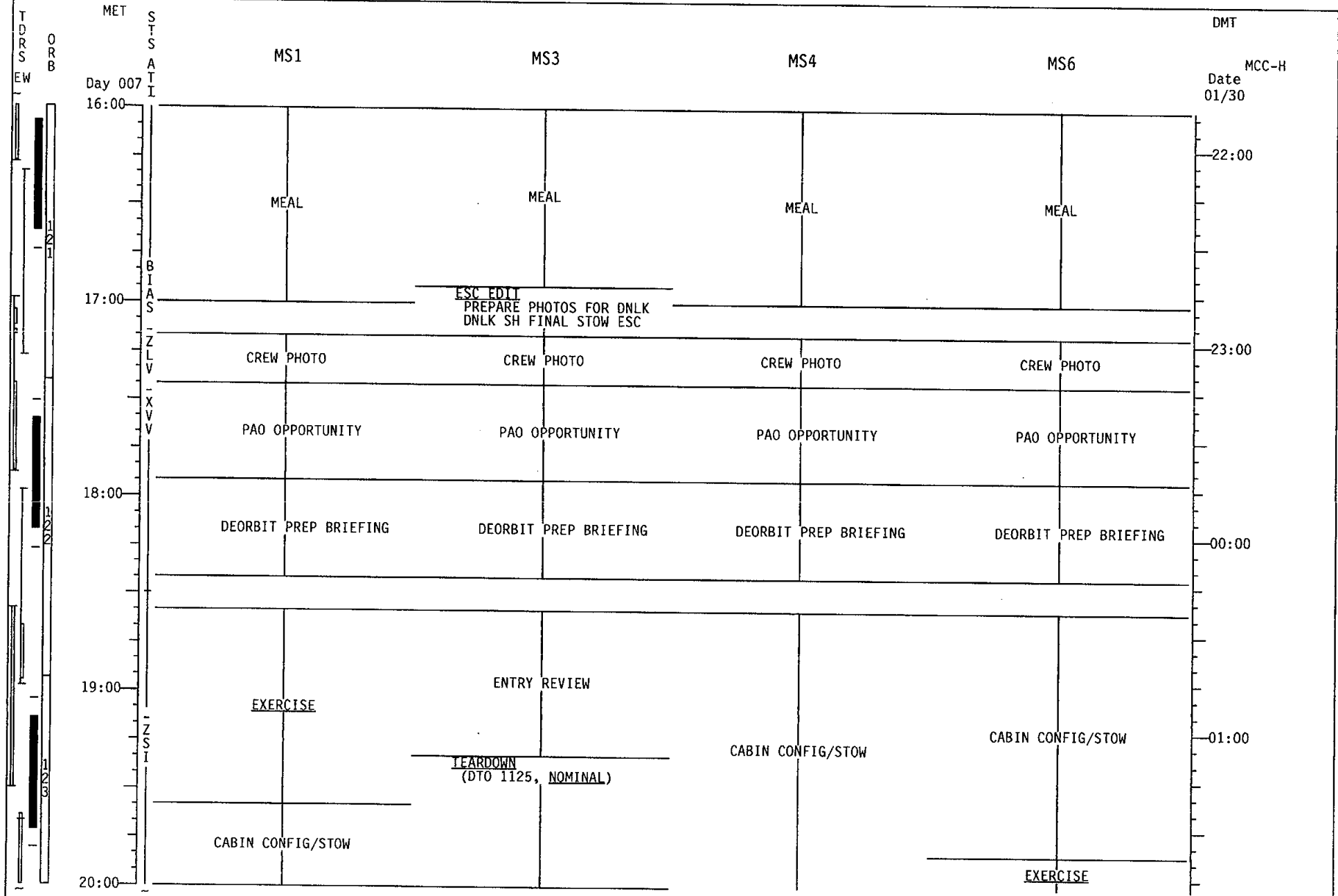
STS-89 (FD09)



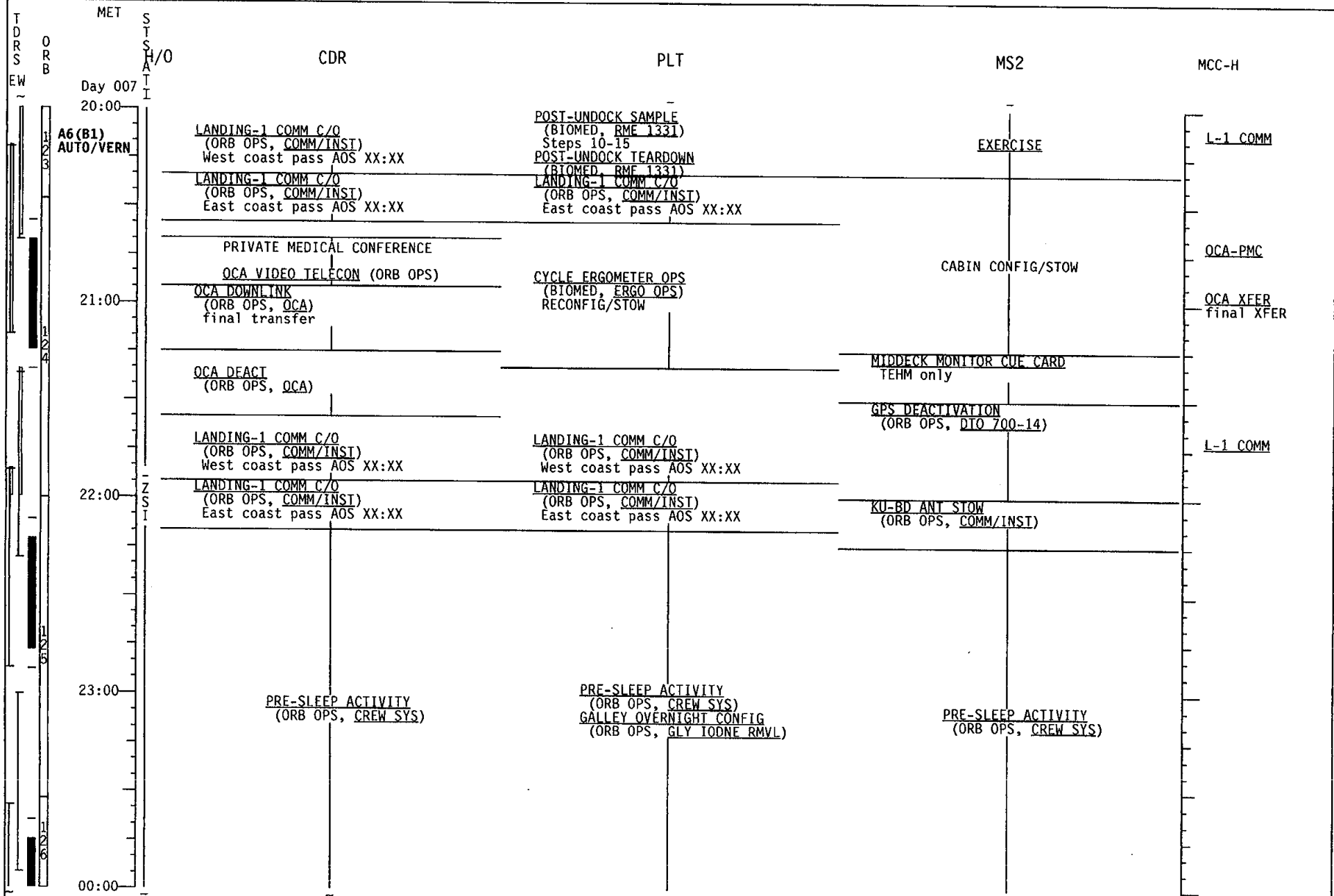
STS-89 (FD09)

TDRS OR B EW	MET Day 007	STS H/O			
		CDR	PLT	MS2	MCC-H
A6 (B1) AUTO/VERN 1 2 3	16:00	MEAL	MEAL	MEAL	
	17:00	CREW PHOTO	CREW PHOTO	CREW PHOTO	TV (TDRW) CREW CNTL- CAB
		PUBLIC AFFAIRS OPPORTUNITY KU avail XX:XX - XX:XX	PAO OPPORTUNITY	PAO OPPORTUNITY	
	18:00	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	
		MNVR (TRK) -ZSI TGT=4 BY=3 P=90 OM=330 A1/AUTO/ALT Init TRK			
	19:00	ENTRY REVIEW	ENTRY REVIEW	ENTRY REVIEW	
	20:00	CABIN CONFIG/STOW Perform PRE-DEORBIT PREP ACTIVITIES [A]	POST-UNDOCK SAMPLE (BTOMED, RME 1331) Steps 10-15 POST-UNDOCK TEARDOWN (BTOMED, RME 1331)	PRE-DEORBIT PRE ACTIVITIES [A] AIRLOCK CLOSEOUT Remove loose items stowed in airlock EXERCISE Perform AIRLOCK ENT & SW LIST VERIE (D/O PREP, ENT SW LIST VERIF) SEAT INSTALLATION (incl recumb seat)	

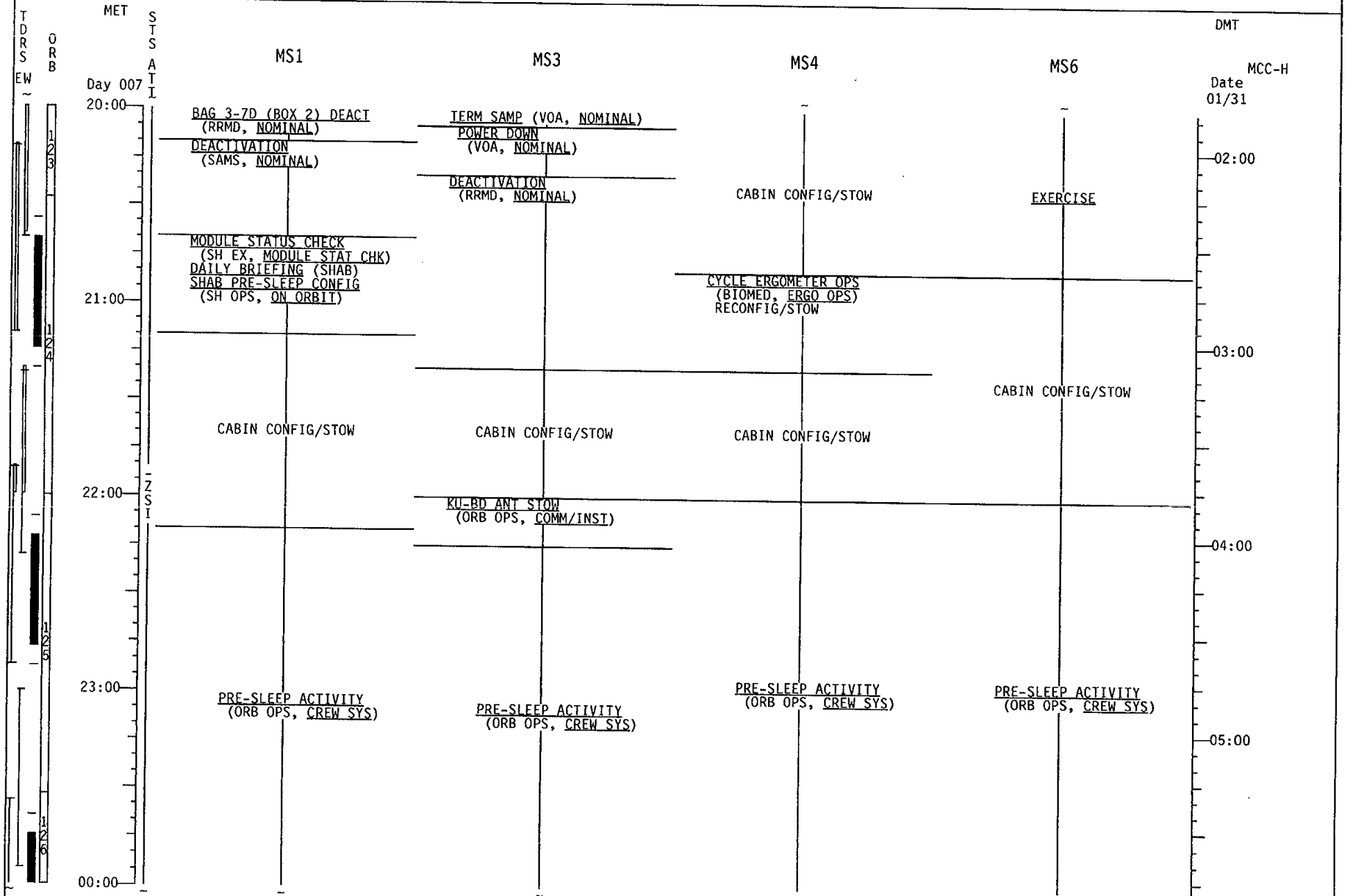
STS-89 (FD09)



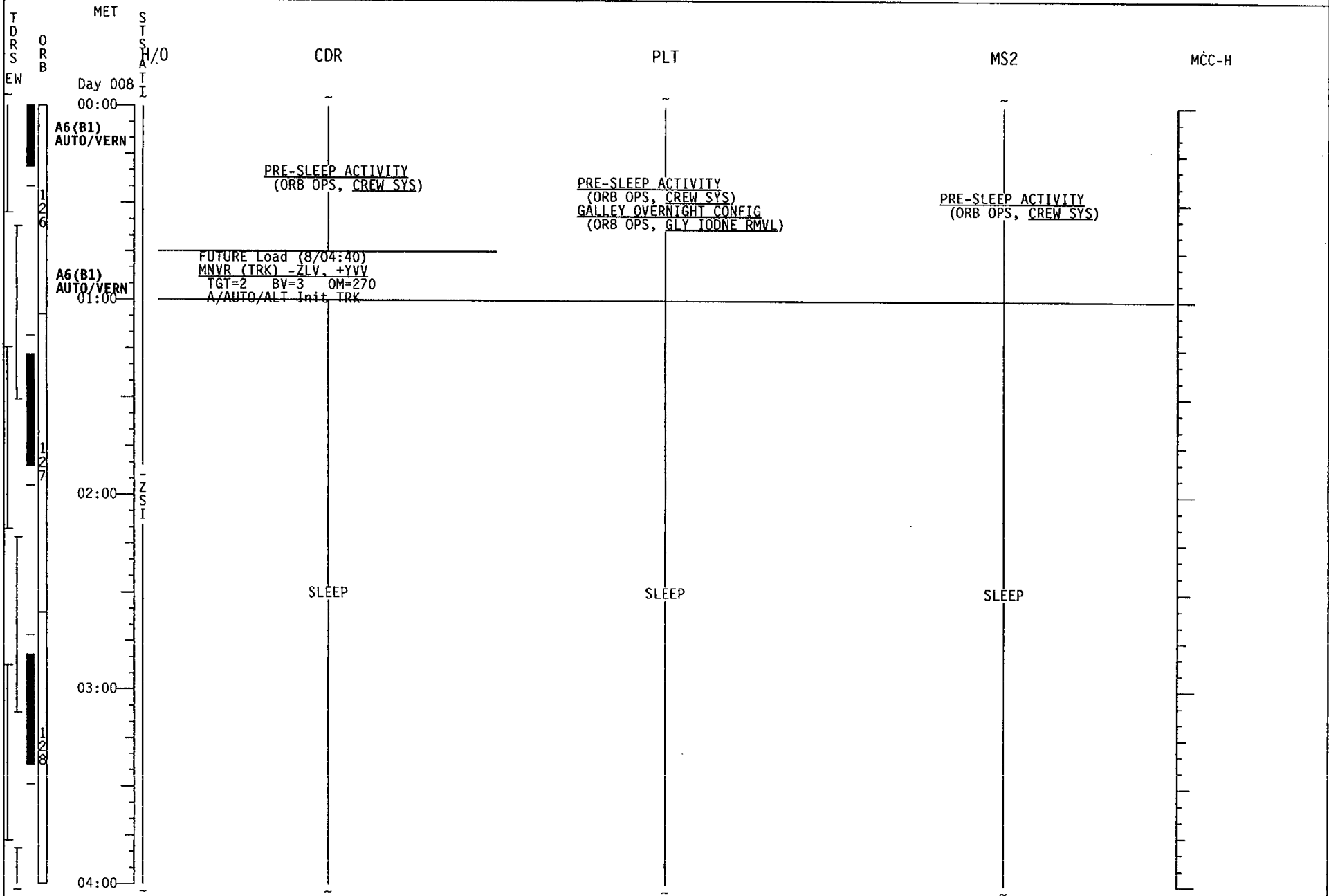
STS-89 (FD09)



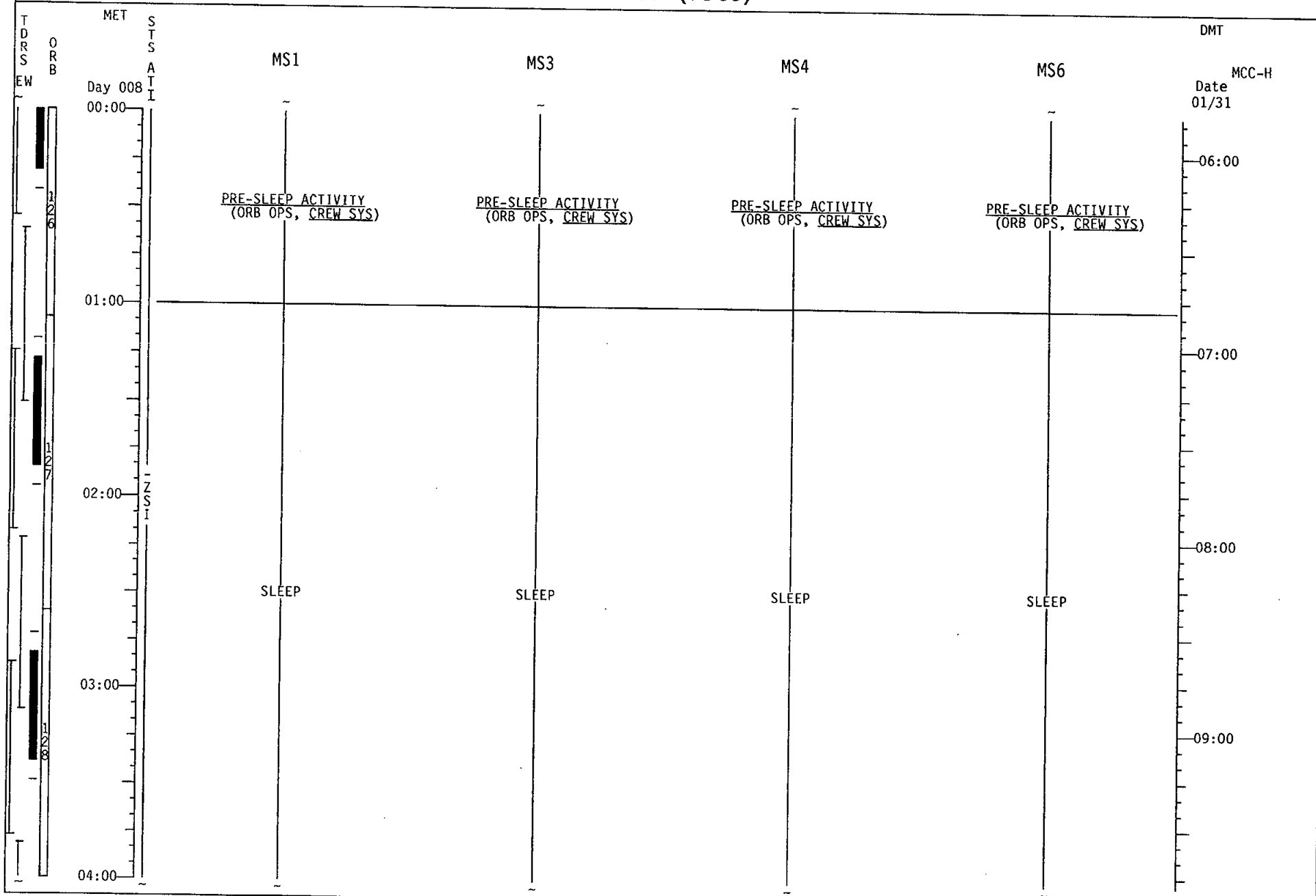
STS-89 (FD09)



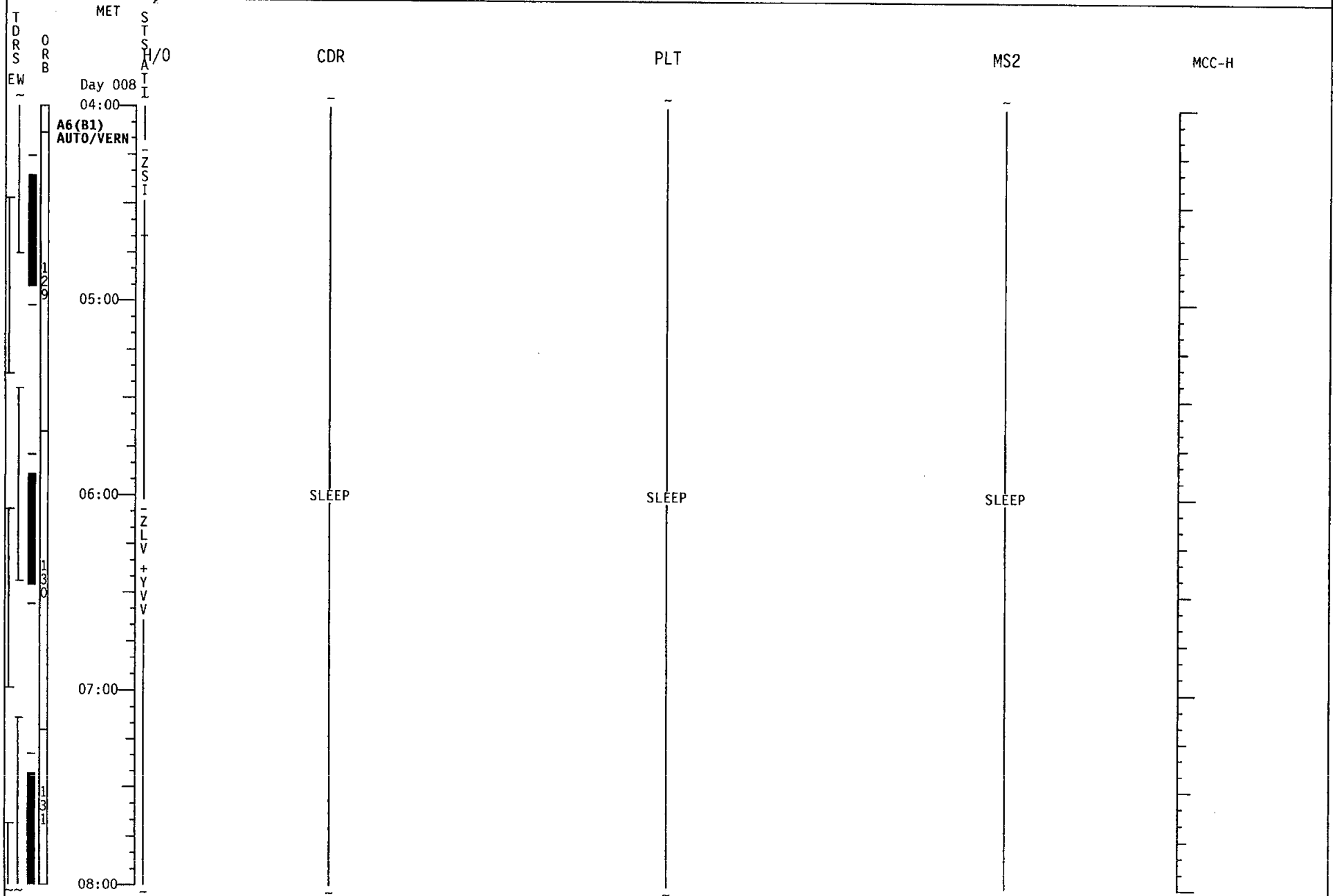
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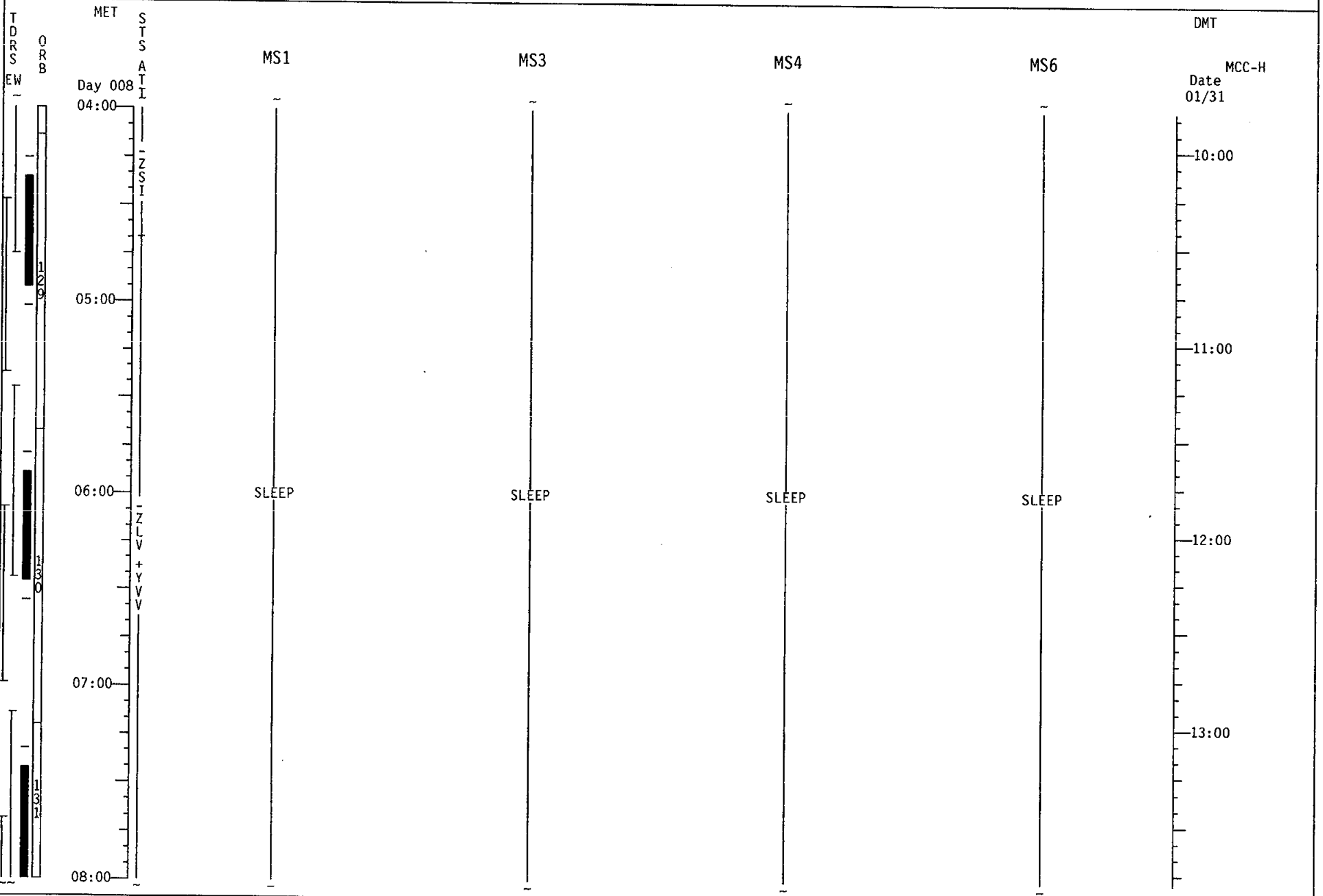
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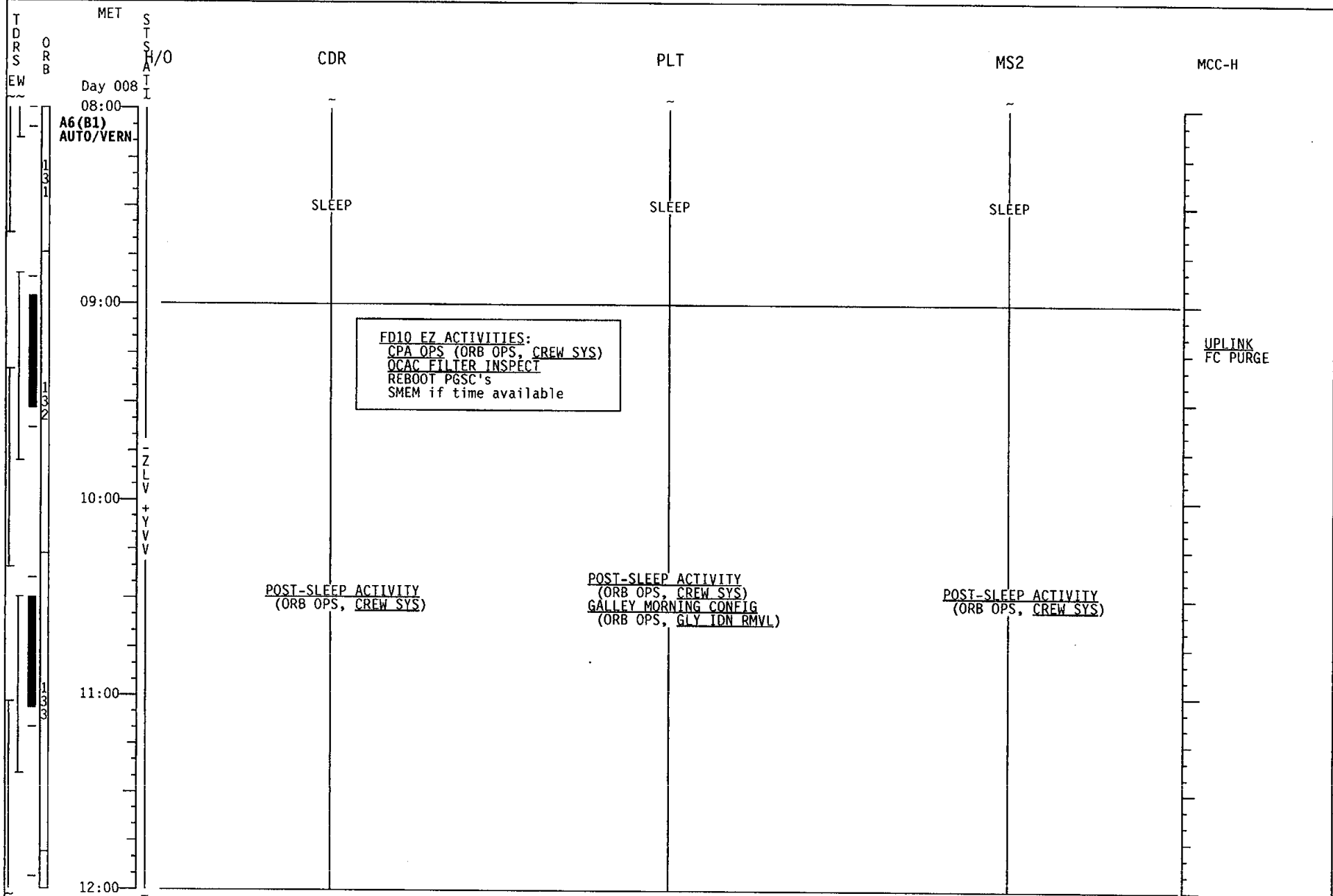
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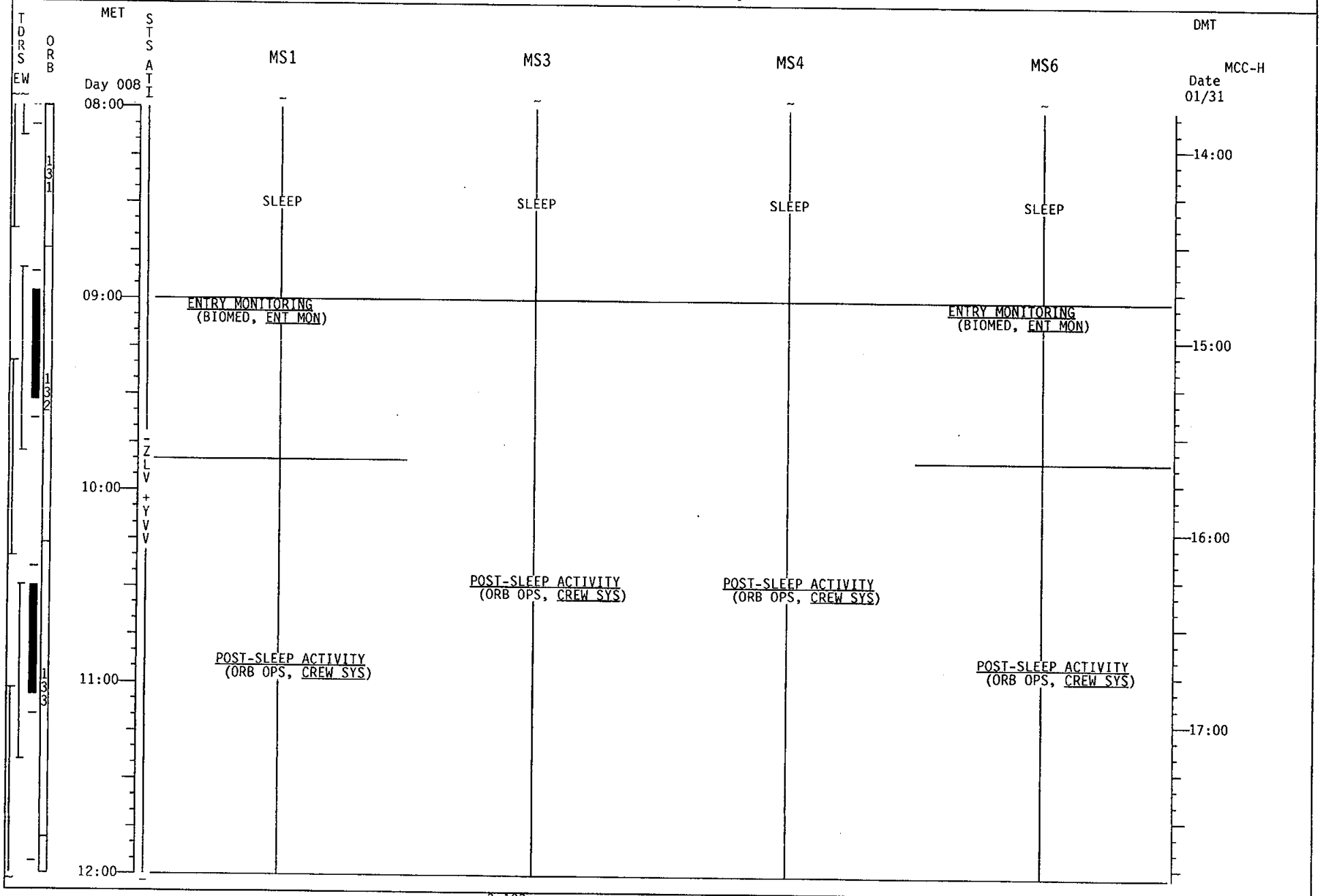
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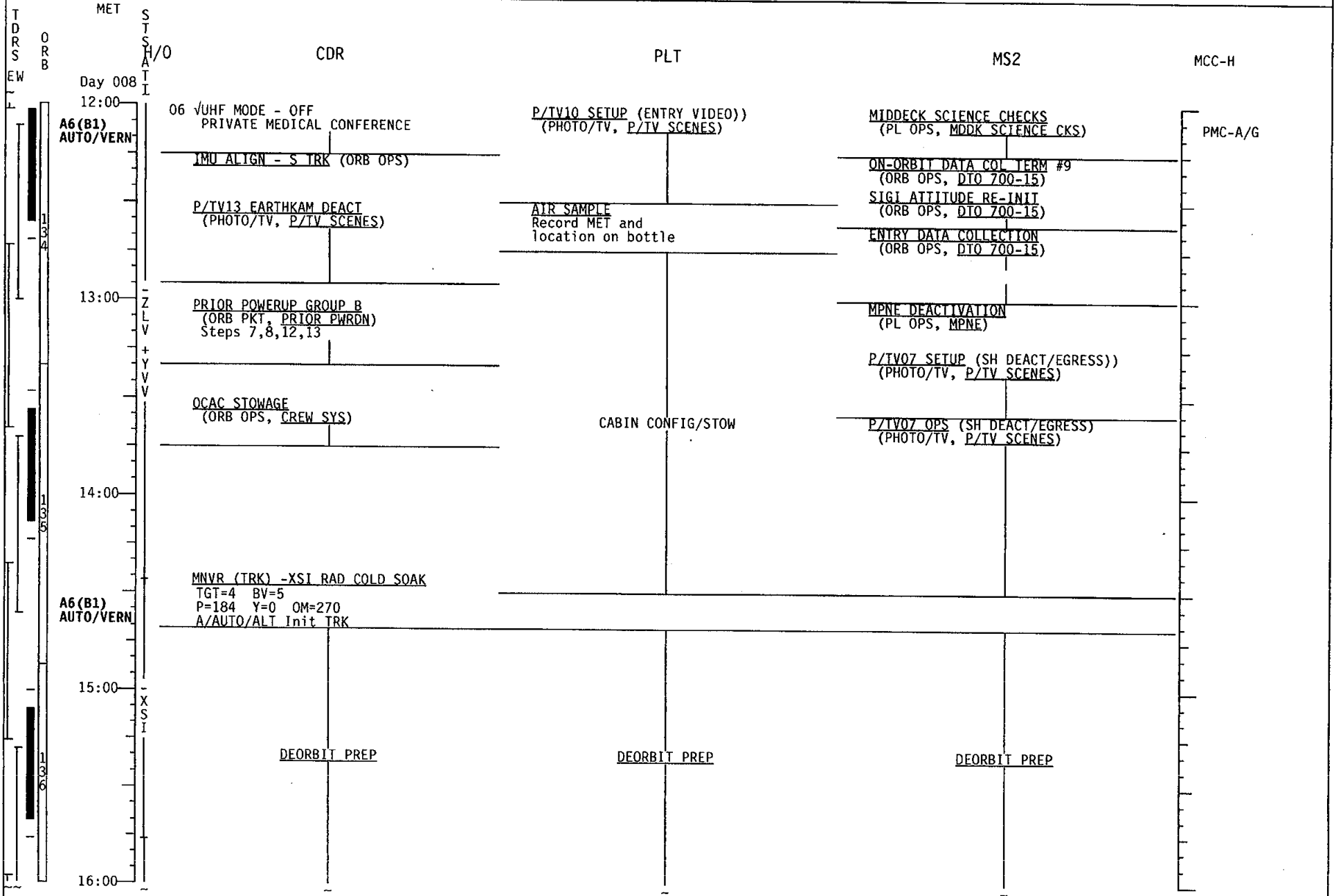
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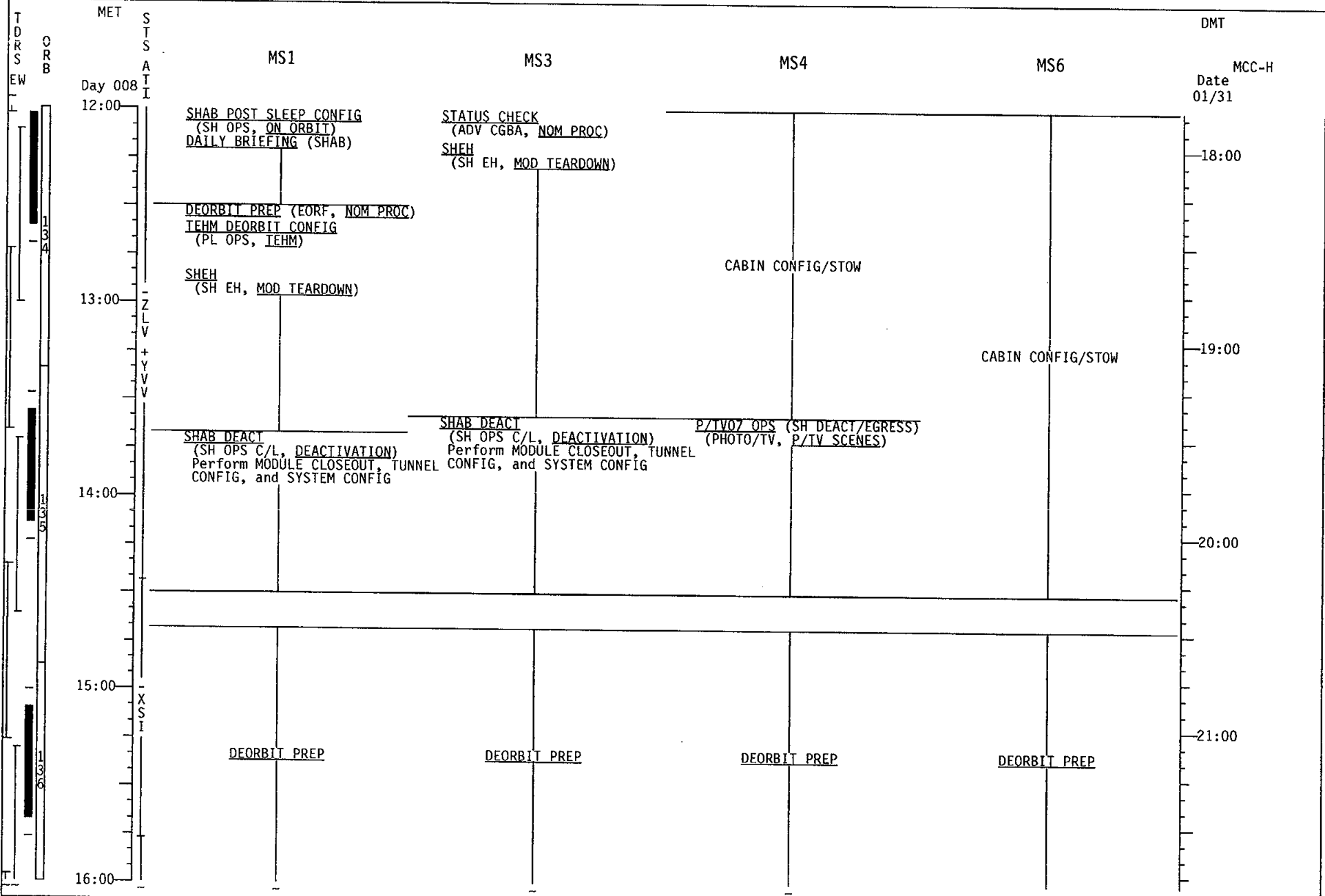
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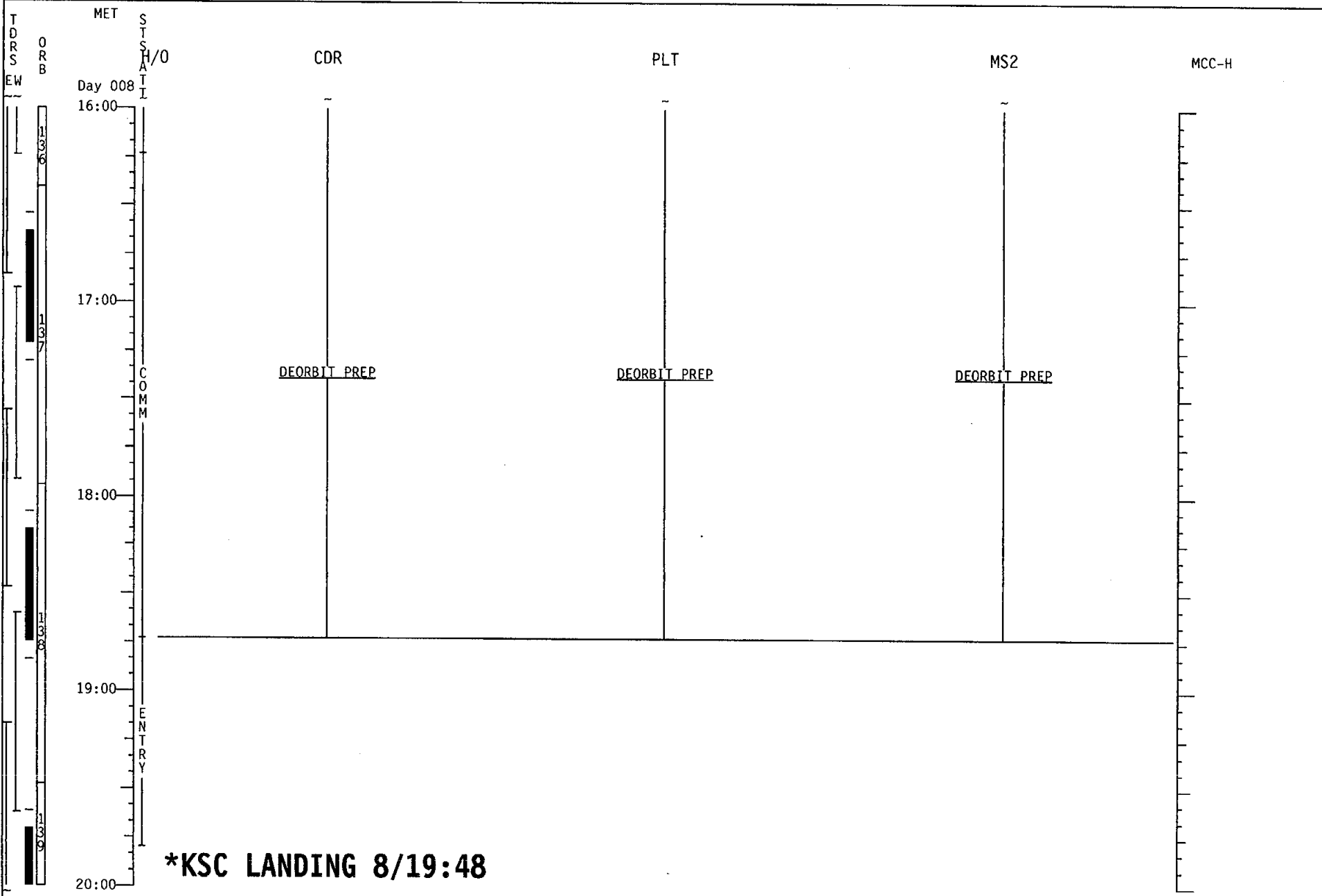
STS-89 (FD10)



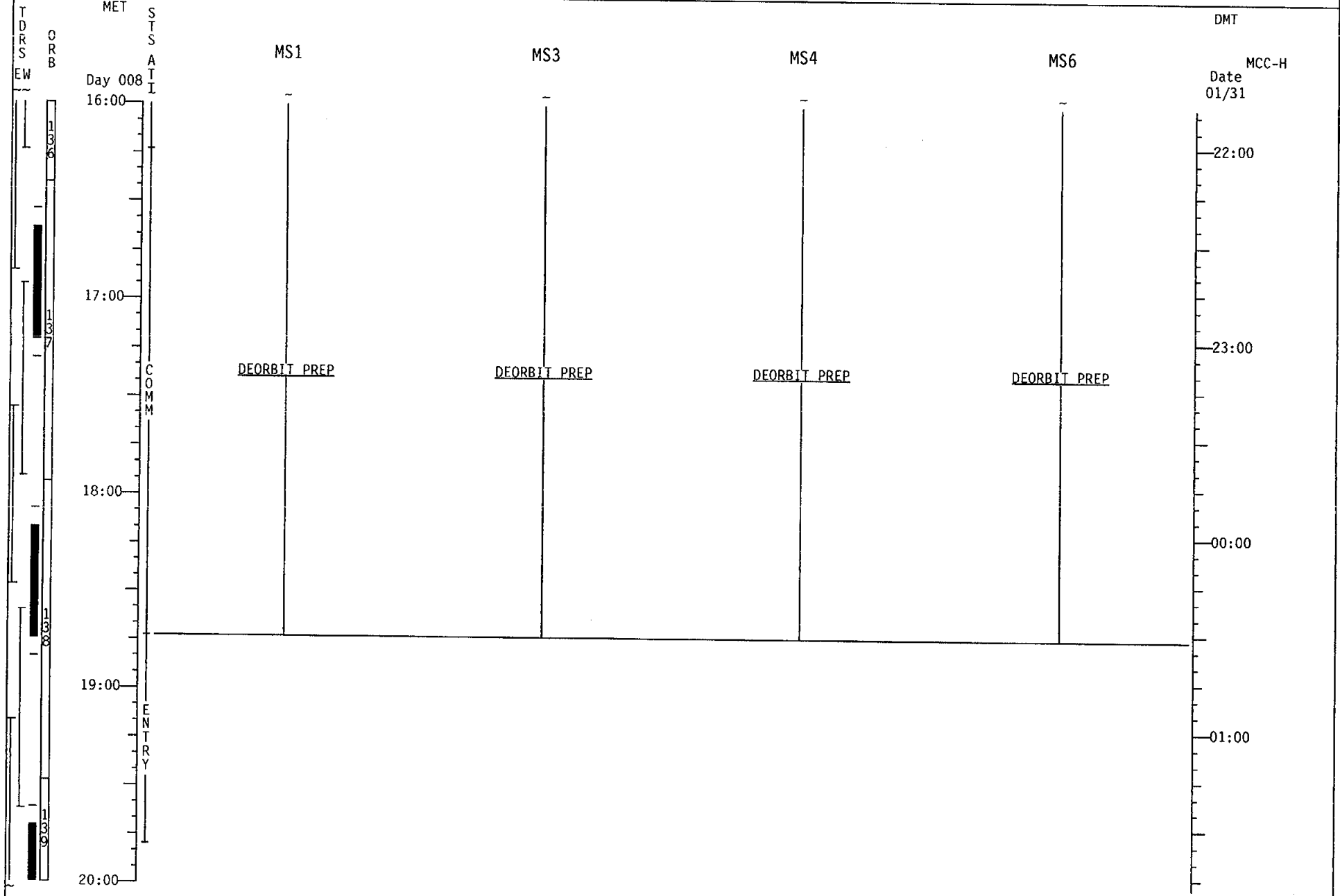
STS-89 (FD10)



STS-89 (FD10)



STS-89 (FD10)



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	B7	RENDEZVOUS
A7	RENDEZVOUS	B8	CORRIDOR
A8	CORRIDOR	B9	DOCKING
A9	DOCKING	B10	FLYAROUND
A10	FLYAROUND	B12	MATED STACK TIGHT CONTROL
A12	MATED STACK MNVRS & HOLD	B13	FAILED CAPTURE
A13	FAILED CAPTURE		
A14	SLM		

UNIV PTG	
TGT ID =	1 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-89 GENERIC DAP A CONFIGURATIONS

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

STS-89 GENERIC DAP B CONFIGURATIONS

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

STS-89 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A6	A7	A8	A9	A10	A12	A13	A14
PRI									
ROT RATE	10	0.2000	0.2000	0.2000	0.0500	0.1300	0.1000	0.0500	0.1000
ATT DB	11	5.00	2.00	1.00	0.50	2.00	5.00	1.00	0.30
RATE DB	12	0.20	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	0.10	0.04	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	TAIL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
Y OPTION	16	TAIL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
TRAN PLS	17	0.10	0.10	0.05	0.05	0.05	0.01	0.05	0.10
ALT									
RATE DB	18	0.070	0.100	0.200	0.200	0.200	0.070	0.200	0.070
JET OPT	19	TAIL	ALL	ALL	ALL	ALL	TAIL	ALL	TAIL
# JETS	20	1	2	2	2	2	3	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	0.00	11.28	0.00	0.00
VERN									
ROT RATE	23	0.0500	0.0160	0.2000	0.0500	0.1300	0.1500	0.0500	0.0450
ATT DB	24	1.000	1.000	1.000	0.500	2.000	5.000	1.000	0.100
RATE DB	25	.020	.020	.020	.020	.020	.050	.020	.020
ROT PLS	26	0.010	0.010	0.010	0.050	0.050	0.002	0.050	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	0	7	0	0
PURPOSE		FWD PROP SAVINGS	RNDZ	CORRIDOR	DOCKING	FLY AROUND	MATED STACK MNVRS & HOLD	FAILED CAPTURE	SLM

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

STS-89 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B7	B8	B9	B10	B12	B13
PRI							
ROT RATE	30	0.5000	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	31	2.00	1.00	0.50	2.00	5.00	1.00
RATE DB	32	0.20	0.10	0.10	0.10	0.20	0.10
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	TAIL	TAIL	TAIL	TAIL
Y OPTION	36	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37	0.05	0.01	0.01	0.01	0.01	0.01
ALT							
RATE DB	38	0.100	0.200	0.200	0.200	0.070	0.200
JET OPT	39	ALL	ALL	ALL	ALL	TAIL	ALL
# JETS	40	2	2	2	2	3	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	11.28	0.00
VERN							
ROT RATE	43	0.2000	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	44	1.000	1.000	0.500	2.000	1.000	1.000
RATE DB	45	.020	.020	.020	.020	.050	.020
ROT PLS	46	0.002	0.002	0.020	0.020	0.002	0.020
COMP	47	.000	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	7	0
PURPOSE		RNDZ	CORRIDOR	DOCKING	FLY- AROUND	MATED STACK TIGHT CONTROL	FAILED CAPTURE

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

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

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ATTITUDE TIMELINE

Attitude Timeline

NET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
1 000/00:15:00 MET 023/03:03:16 GMT	INRTL R=296.00 MNVR P= 57.00 Y=339.00	TRN AUTO DB AT 3.50 PRI DB RT 0.20	RATE 0.5000 R 307 P 36	SUN 0/12/0	LVLH EQUIV	OMS-2 TV Roll 0 Posigrade TIG 00:43
2 000/01:12:00 MET 20:26 023/04:00:16 GMT 08:42	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 R 0 P 90	EARTH	LVLH R= 0.00 P=180.00 Y= 90.00	Post Insertion -ZLV +YVV Nose South SOPA
3 000/03:30:00 MET 38:50 023/06:18:16 GMT 27:06	INRTL R=114.00 MNVR P= 48.00 Y= 0.00	B1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 R 143 P 53	SUN 180/348/0	LVLH EQUIV	NC-1 (OMS) TV Roll 180 Posigrade TIG 03:43
4 000/03:44:00 MET 58:21 023/06:32:16 GMT 46:37	TGT=2 BV=5 P=270.00 Y=335.00 OM=180.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 R 205 P 90	EARTH	LVLH R=155.00 P=180.00 Y= 0.00	Bias +ZLV -XVV 25 deg Make H20 Crew Sleep
5 000/14:55:00 MET 15:04:14 023/17:43:16 GMT 52:30	INRTL R=243.00 MNVR P=220.00 Y=346.00	B1 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 R 33 P 115	SUN 180/348/0	LVLH EQUIV	NC-2 (OMS) TV Roll 180 Posigrade TIG 15:10
6 000/15:11:00 MET 25:43 023/17:59:16 GMT 18:13:59	TGT=2 BV=5 P= 90.00 Y=315.00 OM= 0.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 R 315 P 90	EARTH	LVLH R= 45.00 P=180.00 Y= 0.00	Bias -ZLV -XVV 45 deg
7 000/17:35:00 MET 46:30 023/20:23:16 GMT 34:46	INRTL R=196.60 MNVR P=116.40 Y= 8.60 DAPS TO A14,B2	B2 AUTO DB AT 3.00 ALT DB RT 0.070	RATE 0.2000 R 34 P 93	SUN Star 26 17:26 - 18:15 Star 13 17:46 - 18:36		SLM-1 -Z:26 FOMALHAUT -Y:13 RIGEL
8 000/17:55:00 MET 18:02:30 023/20:43:16 GMT 50:46	INRTL R=301.60 MNVR P= 0.40 Y= 71.10	B2 AUTO DB AT 3.00 ALT DB RT 0.070	RATE 0.2000 R 352 P 123	SUN		SLM-2 -Z:26 FOMALHAUT
9 000/18:05:00 MET 12:28 023/20:53:16 GMT 21:00:44	INRTL R= 91.70 MNVR P=223.90 Y= 17.00	B2 AUTO DB AT 3.00 ALT DB RT 0.070	RATE 0.2000 R 192 P 145	SUN		SLM-3 -Z:13 RIGEL
10 000/18:15:00 MET 20 023/21:03:16 GMT 36	INRTL R= 87.80 MNVR P=224.00 Y= 16.10	B2 AUTO DB AT 3.00 ALT DB RT 0.070	RATE 0.2000 R 196 P 144	SUN		SLM-4 -Z:13 RIGEL
11 000/18:17:00 MET 19:29 023/21:05:16 GMT 07:45	INRTL R= 89.00 MNVR P=234.00 Y=348.00 DAPS TO A1,B5	B2 AUTO DB AT 3.00 ALT DB RT 0.070	RATE 0.2000 R 197 P 115	SUN Star 29 18:12 - 19:02 Sunrise 18:42		HUD CAL +X:29 ALKAID
12 000/18:40:00 MET 53:07 023/21:28:16 GMT 41:23	TGT=2 BV=5 P= 90.00 Y=315.00 OM=180.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	RATE 0.2000 R 315 P 90	EARTH	LVLH R=225.00 P= 0.00 Y= 0.00	Bias -ZLV +XVV 45 deg

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

MET/GMT		MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
13	000/19:46:00 MET 023/22:34:16 GMT		A6 LVLH PRI	RATE 0.2000 DB AT 5.00 DB RT 0.20	EARTH R 315 P 90	LVLH R=225.00 HOLD P= 0.00 Y= 0.00	NPC Multi-axis TIG 19:46
14	001/01:00:00 MET 05:09 024/03:48:16 GMT 53:25	INRTL R=119.00 MNVR P= 37.00 Y= 16.00	A6 AUTO ALT	RATE 0.2000 DB AT 5.00 DB RT 0.070	SUN R 147 P 66	LVLH EQUIV 180/348/0	NC-3 TV Roll 180 Posigrade TIG 01:08
15	001/01:09:00 MET 23:43 024/03:57:16 GMT 04:11:59	TGT=2 BV=5 P= 90.00 Y=315.00 OM= 0.00	A6 AUTO ALT	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 315 P 90	LVLH R= 45.00 P=180.00 Y= 0.00	Bias -ZLV -XV 45 deg
16	001/11:20:00 MET 29:06 024/14:08:16 GMT 17:22	INRTL R=336.00 MNVR P= 61.00 Y=316.00	A6 AUTO ALT	RATE 0.2000 DB AT 5.00 DB RT 0.070	SUN R 230 P 21		IMU ALIGN Star Pair B1
17	001/11:35:00 MET 48:58 024/14:23:16 GMT 37:14	TGT=2 BV=5 P= 90.00 Y=315.00 OM= 0.00	A6 AUTO ALT	RATE 0.2000 DB AT 5.00 DB RT 0.070	EARTH R 315 P 90	LVLH R= 45.00 P=180.00 Y= 0.00	Bias -ZLV -XV 45 deg
18	001/12:47:00 MET 024/15:35:16 GMT		A6 LVLH PRI	RATE 0.2000 DB AT 5.00 DB RT 0.20	EARTH R 315 P 90	LVLH R= 45.00 HOLD P=180.00 Y= 0.00	NH Multi-axis Placeholder
		DAPS TO A7,B7					
19	001/13:10:00 MET 20:16 024/15:58:16 GMT 16:08:32	INRTL R=300.00 MNVR P= 37.00 Y= 13.00	A7 AUTO ALT	RATE 0.2000 DB AT 2.00 DB RT 0.100	SUN R 325 P 63	LVLH EQUIV 0/12/0	NC-4 (OMS) TV Roll 0 Posigrade TIG 13:29
20	001/13:30:00 MET 33:32 024/16:18:16 GMT 21:48	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00	B7 AUTO ALT	RATE 0.5000 DB AT 2.00 DB RT 0.200	EARTH R 36 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRACK Noon 13:34 Sunset 14:03
21	001/13:34:00 MET 14:02:44 024/16:22:16 GMT 51:00	TGT=2 BV=5 P=350.00 Y= 0.00 OM= 0.00	A7 AUTO VERN	RATE 0.0058 DB AT 1.000 DB RT 0.020	EARTH R 180 P 10	LVLH R= 0.00 P=280.00 Y= 0.00	-Z TGT TRACK
22	001/14:03:00 MET 024/16:51:16 GMT		A7 LVLH PRI	RATE 0.2000 DB AT 2.00 DB RT 0.20	EARTH R 180 P 10	LVLH R= 0.00 HOLD P=280.00 Y= 0.00	NCC Multi-axis Placeholder
23	001/14:04:00 MET 33:34 024/16:52:16 GMT 17:21:50	TGT=2 BV=5 P=339.00 Y= 0.00 OM= 0.00	A7 AUTO VERN	RATE 0.0062 DB AT 1.000 DB RT 0.020	EARTH R 180 P 21	LVLH R= 0.00 P=291.00 Y= 0.00	-Z TGT TRACK
24	001/14:34:00 MET 53:56 024/17:22:16 GMT 42:12	TGT=2 BV=5 P=350.00 Y= 0.00 OM= 0.00	A7 AUTO VERN	RATE 0.0092 DB AT 1.000 DB RT 0.020	EARTH R 180 P 10	LVLH R= 0.00 P=280.00 Y= 0.00	-Z TGT TRACK

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
25 001/14:54:00 MET 59:23 024/17:42:16 GMT 47:39	INRTL R=301.00 MNVR P= 37.00 Y= 13.00	A7 AUTO DB AT 2.00 ALT DB RT 0.100	RATE 0.2000 SUN R 324 P 63	LVLH EQUIV 0/12/0	TI BURN (OMS) TV Roll 0 Posigrade TIG 15:01
26 001/15:02:00 MET 05:32 024/17:50:16 GMT 53:48	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00.	B7 AUTO DB AT 2.00 ALT DB RT 0.200	RATE 0.5000 EARTH R 0 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	-Z TGT TRACK Moon 15:07 Sunset 15:35
27 001/15:06:00 MET 24:56 024/17:54:16 GMT 18:13:12	TGT=2 BV=5 P=350.00 Y= 0.00 OM= 0.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0088 EARTH R 180 P 10	LVLH R= 0.00 P=280.00 Y= 0.00	-Z TGT TRACK
28 001/15:25:00 MET 39:53 024/18:13:16 GMT 28:09	TGT=2 BV=5 P=340.00 Y= 0.00 OM= 0.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0112 EARTH R 180 P 20	LVLH R= 0.00 P=290.00 Y= 0.00	-Z TGT TRACK
29 001/15:40:00 MET 16:00:00 024/18:28:16 GMT 48:16	TGT=2 BV=5 P=310.00 Y= 0.00 OM= 0.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0250 EARTH R 180 P 50	LVLH R= 0.00 P=320.00 Y= 0.00	-Z TGT TRACK
30 001/16:00:00 MET 04:00 024/18:48:16 GMT 52:16	TGT=2 BV=5 P=285.00 Y= 0.00 OM= 0.00	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.1040 EARTH R 180 P 75	LVLH R= 0.00 P=345.00 Y= 0.00	-Z TGT TRACK
31 001/16:04:00 MET 19:37 024/18:52:16 GMT 19:07:54	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00 DAPS TO A0,B0	A7 AUTO DB AT 1.000 VERN DB RT 0.020	RATE 0.0160 EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y= 0.00	ESTABLISH RBAR Modify DAP A,B ROT RATE 0.05
32 001/17:07:00 MET 024/19:55:16 GMT					FINAL APPROACH DAPS to A9,B9 at RNG = 75 ft
33 001/17:24:00 MET 024/20:12:16 GMT	DAP: PCT/FREE DAPS TO A12,B12				DOCKING Nose-forward 1/17:24 SHK AOS+ 3 min
34 001/17:45:00 MET 58:52 024/20:33:16 GMT 47:08	INRTL R=288.00 MNVR P=171.00 Y= 52.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 SUN R 262 P 155	002/00:54:40	IO 3.2/+137/180 SUN P=184 Y=336 OM=179
35 002/10:02:00 MET 20:40 025/12:50:16 GMT 13:08:56	INRTL R=182.00 MNVR P= 12.00 Y=302.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 SUN R 211 P 14	002/12:37:14	IO 5.2/-1/0 SUN P=348 Y=352 OM=272
36 002/16:11:00 MET 28:52 025/18:59:16 GMT 19:17:08	INRTL R=342.00 MNVR P=187.00 Y= 39.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 SUN R 236 P 161	003/00:16:17	IO 4.2/-153/0 SUN P=191 Y=345 OM=106

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
37 003/09:05:00 MET 24:51 026/11:53:16 GMT 12:13:07	TGT=2 BV=5 P=226.44 Y= 5.80 OM=274.30	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 172 P 133	EARTH LVLH R= 83.85 P= 79.77 Y=314.16	GO-4.1 Waste Dump
38 003/11:05:00 MET 23:58 026/13:53:16 GMT 14:12:14	INRTL R=352.00 MNVR P=188.00 Y= 38.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 228 P 162	SUN 002/23:46:30	IO 4.2/-153/0 SUN P=193 Y=344 OM=105
39 003/15:15:00 MET 32:53 026/18:03:16 GMT 21:09	INRTL R=167.00 MNVR P= 6.00 Y=303.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 217 P 16	SUN 002/12:07:30	IO 5.2/-1/0 SUN P=345 Y=353 OM=273
40 003/21:24:00 MET 41:53 027/00:12:16 GMT 30:09	INRTL R=352.00 MNVR P=188.00 Y= 38.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 228 P 162	SUN 002/23:46:30	IO 4.2/-153/0 SUN P=193 Y=344 OM=105
41 004/14:20:00 MET 37:53 027/17:08:16 GMT 26:09	INRTL R=167.00 MNVR P= 6.00 Y=303.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 220 P 17	SUN 002/12:07:30	IO 5.2/-1/0 SUN P=345 Y=353 OM=273
42 004/20:30:00 MET 47:53 027/23:18:16 GMT 36:09	INRTL R=352.00 MNVR P=188.00 Y= 38.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 226 P 163	SUN 002/23:46:30	IO 4.2/-153/0 SUN P=193 Y=344 OM=105
43 005/08:45:00 MET 09:03:14 028/11:33:16 GMT 51:30	TGT=2 BV=5 P=226.44 Y= 5.80 OM=274.30	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 172 P 133	EARTH LVLH R= 83.85 P= 79.77 Y=314.16	GO-4.1 Waste Dump
44 005/10:45:00 MET 11:03:16 028/13:33:16 GMT 51:32	INRTL R=352.00 MNVR P=188.00 Y= 38.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 225 P 164	SUN 002/23:46:30	IO 4.2/-153/0 SUN P=193 Y=344 OM=105
45 005/14:55:00 MET 15:12:53 028/17:43:16 GMT 18:01:09	INRTL R=167.00 MNVR P= 6.00 Y=303.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 224 P 17	SUN 002/12:07:30	IO 5.2/-1/0 SUN P=345 Y=353 OM=273
46 005/21:05:00 MET 22:53 028/23:53:16 GMT 029/00:11:09	INRTL R=352.00 MNVR P=188.00 Y= 38.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 224 P 164	SUN 002/23:46:30	IO 4.2/-153/0 SUN P=193 Y=344 OM=105
47 006/13:12:00 MET 30:19 029/16:00:16 GMT 18:35	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A12 AUTO DB AT 5.000 VERN DB RT 0.050	RATE 0.1500 R 180 P 90	EARTH LVLH R= 0.00 P= 0.00 Y= 0.00	Undock Attitude +ZLV +XVV
48 006/13:49:00 MET 029/16:37:16 GMT					DAPS: B12 PET-15 min FREE PET-3 min Config to A8,88

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
49 006/14:04:00 MET 029/16:52:16 GMT					UNDOCKING 6/14:04 SHK ACS+ 3 min
50 006/14:32:00 MET 029/17:20:16 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.130	A10 RATE 0.1300 LVLH DB AT 2.000 VERN DB RT 0.020		LVLH R= 0.00 P= 0.00 Y= 0.00	Fly Around RNG = 240 ft DAPS TO A10,B10 Sunrise 14:32
51 006/14:44:00 MET 029/17:32:16 GMT					+VBAR 14:44 -RBAR 14:55 -VBAR 15:07
52 006/15:18:10 MET 029/18:06:26 GMT		A10 RATE 0.1300 LVLH DB AT 2.00 PRI DB RT 0.10	EARTH R 180 P 90	LVLH R= 0.00 HOLD P= 0.10 Y= 0.00	Hold on +RBAR Sep Burn TIG 15:30 DAPS TO A6,B1
53 006/15:40:00 MET 55:00 029/18:28:16 GMT 43:16	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Waste Dump
54 006/17:45:00 MET 52:43 029/20:33:16 GMT 40:59	TGT=2 BV=5 P= 90.00 Y=335.00 OM= 0.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 335 P 90	LVLH R= 25.00 P=180.00 Y= 0.00	Bias -ZLV -XVV 25 deg
55 006/20:30:00 MET 34:05 029/23:18:16 GMT 22:21	INRTL R= 28.00 MNVR P=256.00 Y= 36.00	B1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 302 P 142	LVLH Equiv 0/192/0	Orbit Adjust TV Roll 180 Retrograde TIG 20:44
56 006/20:45:00 MET 47:27 029/23:33:16 GMT 35:43	TGT=2 BV=5 P= 90.00 Y=335.00 OM= 0.00	A6 RATE 0.2000 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 335 P 90	LVLH R= 25.00 P=180.00 Y= 0.00	Bias -ZLV -XVV 25 deg
57 007/18:30:00 MET 42:27 030/21:18:16 GMT 30:43	TGT=4 RA= 312.569 BV=3 DEC= -17.713S P= 90.00 Y= 0.00 OM=330.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 360 P 90	INRTL R=278.81 P= 12.86 Y= 44.77	-ZSI Omicron for Ku
58 008/04:40:00 MET 45:25 031/07:28:16 GMT 33:41	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	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= 90.00	-ZLV +YVV EOM Thermal Conditioning
59 008/14:30:00 MET 43:03 031/17:18:16 GMT 31:19	TGT=4 RA= 313.424 BV=5 DEC= -17.483S P=184.00 Y= 0.00 OM=270.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 176	INRTL R=135.20 P=208.55 Y= 41.09	-XSI COLDSOAK
60 008/15:46:00 MET 56:23 031/18:34:16 GMT 44:39	INRTL R=343.00 MNVR P= 15.00 Y= 13.00	A1 RATE 0.2000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 295 P 57	IMU Pair -Z:51 -Y:22	D/O IMU ALIGN

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EV
61 008/16:06:00 MET 11:35 031/18:54:16 GMT 59:51	INRTL R=198.00 MNVR P= 71.00 Y=315.00	B1 AUTO PRI RATE 0.5000 DB AT 3.00 DB RT 0.20	SUN R 357 P 33	Verif Pair -Z:59 -Y:57	D/O IMU
62 008/16:14:00 MET 19:31 031/19:02:16 GMT 07:47	INRTL R=232.00 MNVR P=238.00 Y= 29.00	B1 AUTO PRI RATE 0.5000 DB AT 3.00 DB RT 0.20	SUN R 90 P 150		Comm
63 008/18:29:00 MET 34:16 031/21:17:16 GMT 22:32	INRTL R= 14.00 MNVR P=266.00 Y= 38.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 318 P 134	LVLE Equiv 0/192/0	D/O Bur TIG 08/
64 008/18:49:00 MET 52:40 031/21:37:16 GMT 40:56	INRTL R=319.40 MNVR P= 20.20 Y=358.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 315 P 42		EI-5 In
65 008/19:09:00 MET 031/21:57:16 GMT	TGT=2 BV=5 P=230.00 Y= 0.00 OM= 0.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	EARTH R 180 P 130	LVLE R= 0.00 P= 40.00 Y= 0.00	EI-5 LV

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

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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV105/Endeavour
 Inclination: 51.6°
 Insertion Altitude: 160 nm
 Mir Docking Altitude: 212 X 208 nm
 Duration: 9 + 1 + 2 days
 (5 docked days, + 1 for FD04 RNDZ)

B. SHUTTLE/MIR MISSION-8 (S/MM-08) OVERVIEW

The primary objectives of S/MM-08 are docking and exchange of MS-5; transfer of science equipment and Russian materials; 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>DAILY ORBIT</u>	<u>MET</u>	<u>CST</u>	<u>ΔV (fps)</u>	<u>HP/HA (nm)</u>
Launch	--	--	00/00:00	20:48	--	--
OMS-2	1	--	00/00:43	21:31	192.0	160/149
NC1	3	--	00/03:43	00:31	77.3	194/160
NC2	11	--	00/15:10	11:58	77.7	206/191
NPC	13	3	00/19:46	16:34	3.1	206/191
NC3	17	7	01/01:08	21:56	3.0	206/192
NC4	25	15	01/13:29	10:17	11.8	206/199
Ti	26	16	01/15:01	11:49	8.8	206/204
Dock	28	2	01/17:24	14:12	--	208/205
Undock	104	3	06/14:04	10:53	--	207/205
Sep Burn	104	3	06/15:10	11:58	3 retro	207/203
Orb Adjust	108	3	06/20:44	17:33	7 retro	205/201
Deorbit	138	--	08/18:44	15:32	--	--
Landing	139	--	08/19:48	16:36	--	--

D. LANDING OPPORTUNITIES

		<u>Landing Orbit</u>		<u>Local Time</u>	<u>MET</u>
		<u>No.</u>	<u>Site</u>		
Nominal	Primary	138	KSC	16:36	08/19:48
	1 Rev Late	139	KSC	18:12	08/21:23
	Weather Alt	140	EDW	19:43	08/22:54
1 Day Late	Primary	154	KSC	17:10	09/20:22
	1 Rev Late	155	KSC	18:47	09/21:58
	Weather Alt	155	EDW	18:42	09/21:53
2 Day Late	Primary	169	KSC	16:09	10/19:21
	1 Rev Late	170	KSC	17:45	10/20:57
	Weather Alt	171	EDW	19:16	10/22:28

FLIGHT PLAN NOTES

E. CREW

STS-89

CDR – Terrence W. Wilcutt
PLT – Joe F. Edwards Jr.
MS1 – James F. Reilly
MS2 – Michael P. Anderson
MS3 – Bonnie J. Dunbar
MS4 – Salizhan S. Sharipov
MS5 (UP) – Andrew S. W. Thomas
MS6 (DN) – David A. Wolf

Mir-25

CDR – Anatoly Solovyev
ENG – Pavel Vinogradov

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:

(MLX*), Bermuda – BDA(BDX*), Goldstone – GDS(GDX*), and WLP

Contingency RTS:

Hawaii (HTS), Goldstone (GTS), Vandenburg (VTS),
Indian Ocean (IOS*), CGS, Diego Garcia (DGS),
Oak Hanger (OTS*), and New Hampshire (NHS)

*UHF capability

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

MIR

Altair:

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 four camcorders (two in shuttle, two in Spacehab) for in-cabin coverage. There will be four PLB TV cameras (three color, and one black and white) and one docking color TV camera (mounted on the airlock centerline). In addition, two Electronic Still Cameras (ESC-II) will be flown.

H. RUSSIAN LOGISTICS

The major transfer items going up are containers of food, water, hygiene supplies, clothing, batteries, current converters, cosmonaut family packs and psychological support packs, Andy Thomas' Soyuz seat liner (IELK), water containers (EDV), one gyrodyne, and three Air Pressurization Units. The major items coming down are empty food containers, Dave Wolf's Soyuz seat liner, Solar Array Panels, and a gyrodyne.

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:

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.

2. ENHANCED ORBITER REFRIGERATOR/FREEZER (EORF)

The EORF refrigerator/freezer will be activated on FD2 and will be used through landing for cold storage of Mir transfer samples. EORF requires daily status checks by crewmembers.

3. POWERED TRANSFER ITEMS

Three powered experiments will be transferred between Mir and the shuttle during STS-89. The experiments are BIO3D, COCULT, and CGBA. BIO3D and COCULT experiments will be stowed in the middeck; CGBA will be stowed in Spacehab.

J. MIR SCIENCE

1. ADVANCED COMMERCIAL GENERIC BIOPROCESSING APPARATUS (ADV CGBA)

The objective of this experiment is to gather data on scientific methods and commercial potential of biomedical and fluid science applications; return only.

2. COCULT (MICROGRAVITY CO-CULTURE)

This experiment will demonstrate the ability to culture, subculture cells and tissues, and inoculate experiment-specific biotechnology hardware in the Mir environment.

3. COSMIC RADIATION EFFECTS AND ACTIVATION MONITOR (CREAM)

CREAM consists of one active and two passive units. On FD2 the passive units will be installed on the airlock ceiling and starboard sleep station wall. Crewmembers will move the active monitor every 48 hours from one to the other passive monitor.

K. SPACEHAB SCIENCE

1. ADVANCED X-RAY DETECTOR (ADV XDT)

The objective is to obtain background radiation data to be used to support the development of an X-ray Diffraction Camera located within the X-ray Crystallography Facility which is planned to operate on the International Space Station (ISS).

2. MECHANICS OF GRANULAR MATERIALS (MGM)

The MGM experiment is designed to study the behavior of cohesionless granular materials at low confining pressures in a microgravity environment. It will help develop a quantitative understanding of the behavior of dry sand when crushed under very low confining pressures in a microgravity environment.

3. THERMO ELECTRIC HOLDING MODULE (TEHM)

The TEHM utilizes thermoelectric technology to maintain the temperature of pre-frozen samples for the duration of flight and recovery.

L. SECONDARY SCIENCE

1. EarthKAM

The EarthKAM payload will allow students, grades K-12, access to real-time images of the Earth from their own observing instruments in space, and will incorporate these images into a full range of disciplinary and interdisciplinary study. The overall objective of EarthKAM is to engage teachers and students in a collaborative learning process by conducting scientific investigations during human space exploration using existing NASA resources. Earth observations will be conducted on-board the orbiter using the Electronic Still Camera (ESC) which will be installed in the starboard overhead window. Script files uplinked from the ground will command the ESC to photograph specific land areas. These images will then be downlinked real-time via Orbiter Communication Adaptor (OCA) during periods of Ku coverage.

2. CLOSED EQUILIBRATED BIOLOGICAL AQUATIC SYSTEM (CEBAS)

The CEBAS Minimodule, a habitat for aquatic organisms, enables scientists to conduct various gravity-related experiments in the areas of zoology, botany, and developmental biology, as well as in interdisciplinary areas such as scientific research on artificial ecosystems.

3. HUMAN PERFORMANCE (HP)

The HP experiment investigates crew performance across scheduled work shifts and over the duration of the mission.

4. MICROGRAVITY PLANT NUTRIENT EXPERIMENT (MPNE)

The MPNE is the first in a series which will investigate a unique approach to germinate, sustain, and grow plants in microgravity.

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

Simplex is an experiment of opportunity with no manifested hardware. SIMPLEX utilizes orbiter Orbiter Maneuvering System (OMS) thruster firings to create ionospheric disturbances for observation by ground based radar sites. One radar site (Arecibo) 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.

6. GET-AWAY SPECIAL (GAS) PAYLOAD G-093

The GAS payload G-093 is sponsored by the University of Michigan. The objective of this experiment is to investigate the propagation of a vortex ring through a liquid-gas interface in microgravity.

7. GET-AWAY SPECIAL (GAS) PAYLOAD G-141

The experiment will use two independently controlled chambers, each containing a floating half zone (NaNO_3 melt suspended as a cylinder between two graphite rods). The zones are launched in crystalline state and will be heated to a molten state under microgravity. A Charged Coupled Device (CCD) - Camera and video cassette recorder will film the experiment when activated.

8. GET-AWAY SPECIAL (GAS) PAYLOAD G-145

The objective of the G-145 payload is to gain further insight into the process of removing all visible gaseous inhomogeneities from a glass melt. This process is known as glass fining.

9. GET-AWAY SPECIAL (GAS) PAYLOAD G-432

The payload is divided into three experiments. The first experiment will measure the degree of undercooling of a Palladium-Nickel-Phosphorus alloy under microgravity. The second experiment will process a single crystal of High-Technetium Bismuth-system Oxide superconductor in microgravity. The third experiment will obtain a rod Gallium-Antimony single crystal through remelting and recrystallization to study the behavior of molten Gallium-Antimony in microgravity and its wettability with quartz, as well as the influence of gravity on the chemical homogeneity of the Gallium-Antimony crystal.

M. RISK MITIGATION EXPERIMENTS (RMEs)

1. SHUTTLE/MIR EXPERIMENT KIT TRANSPORT (RME-1303)

The primary objective of this RME is to provide a means of transporting different technology demonstration experiments to and from the Mir via the shuttle. These experiments will provide experience and test data to reduce technical risks for the ISS construction and operation.

2. OPTICAL PROPERTIES MONITOR (OPM) (RME-1307)

This RME deals with the retrieval of the OPM from Mir. This configuration is for Shuttle-Mir Mission 8. During this mission U. S. astronauts will perform an Extravehicular Activity (EVA) to retrieve the OPM from the exterior of the Mir, and transfer it to the orbiter for stowage and return to the ground.

3. REAL-TIME RADIATION MONITORING DEVICE (RME-1312)

The Real-Time Radiation Monitoring Device is used to monitor cosmic radiation, especially charged particles real time. The detector, which is made of a large silicon crystal, is a Linear Energy Transfer (LET) spectrometer and allows for the direct calculation of precisely absorbed radiation doses.

4. VOLATILE ORGANIC ANALYZER (VOA) (RME-1324)

The VOA is a gas chromatograph/ion mobility spectrometer which is capable of detection and identification of all trace contaminants in the Mir atmosphere. The VOA will be stowed in the Spacehab module and does not require orbiter interfaces. For information regarding this RME, refer to the Spacehab Phase 1 documentation.

5. VOLATILE REMOVAL ASSEMBLY (VRA) (RME-1326)

The VRA is a catalytic oxidation-based water treatment process to be used for the recovery of water from wastewater onboard the International Space Station. The VRA will be stowed in the Spacehab module.

6. SHUTTLE CONDENSATE COLLECTION FOR ISS (SCCI) TESTING (RME-1331)

The objectives of this RME are:

to collect condensate during a joint Shuttle/Mir mission. The condensate will be collected in a water collection device during the docked phase (shared environment) of the Shuttle/Mir mission. Also, one liter samples of condensate will be collected prior to docking and post docking to determine the effect of the Mir environment has on the shuttle condensate; to analyze the condensate collected on the Shuttle to determine the organic and inorganic compounds in the condensate; to demonstrate the removal of efficiency of the Russian potable water processor in processing condensate collected during Shuttle/Mir missions; to analyze the water produced by the Russian potable water processor to verify its potability.

7. SPACE STATION TEST OF PCS HARDWARE (RME-1332)

This RME will test the suitability of PCS hardware in an ISS radiation environment. Two PCS laptop computers and 1553 PC cards will be tested. The PCS memory susceptibility to single event upsets (SEUs) will be measured.

8. COSMIC RAY EFFECTS AND ACTIVATION MONITOR (CREAM)

CREAM is a United States Air Force payload designed to measure cosmic ray fluxes at various predetermined points in the Russian Space Station Mir once the payload is transferred from the orbiter.

N. ON-ORBIT DETAILED TEST OBJECTIVES (DTOs)

1. SHUTTLE PROX OPS (DTO-258)

This test will directly build experience and validation for shuttle engineering and operations in a benign environment prior to critical ISS missions. Normal Operational Instrumentation (OI) real-time downlink is required to monitor crew and shuttle performance and provide post flight data for engineering assessment. Normal proximity operations constraints for Mir docking.

2. ORBITER SPACE VISION SYSTEM FLIGHT UNIT TESTING, CONFIG A (DTO-700-11)

This Space Vision System uses views of targets on payloads and payload bay hardware to provide precise relative position, attitude, and rate cues in a concise graphical and digital format. This DTO will evaluate the operation and performance of SVS in conjunction with the orbiter Closed Circuit Television (CCTV) system in the on-orbit environment.

3. SINGLE STRING GLOBAL POSITIONING SYSTEM (GPS) (DTO-700-14)

This DTO demonstrates performance of GPS during orbit using a modified GPS receiver and existing orbiter GPS antennas. Via OCA: One sample data file per day (desirable, not required) for health check purposes, or up to 110 data files per day in contingencies.

4. INTEGRATED GLOBAL POSITIONING SYSTEM/INERTIAL NAVIGATION SYSTEM (SIGI) (DTO-700-15)

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

5. CROSSWIND LANDING PERFORMANCE (DTO-805)

The purpose of this DTO is to demonstrate the capability to perform a manually controlled landing in the presence of a crosswind. No on-orbit activities are required.

6. SPACE LINEAR ACCELERATION MASS MEASUREMENT DEVICE (SLAMMD) (DTO-914)

The SLAMMD was developed to improve the quality of in-flight mass data and facilitate vehicle integration compared to the Body Mass Measurement Device (BMMD) flown on previous life science missions.

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

The purpose of DTO-1118 is to conduct a photographic and video survey of Mir from the shuttle to assess the overall condition of Mir, document shuttle approach and separation, assess relative motion, and analyze plume impingement. A real-time or recorded video will be downlinked when practical.

O. ON-ORBIT DETAILED SUPPLEMENTAL OBJECTIVES (DSOs)

1. IN-FLIGHT EVALUATION OF THE TELEMEDICINE INSTRUMENTATION PACK (TMIP) (DSO-334)

The primary objectives of this DSO are:

to evaluate the ability of the Telemedicine Instrumentation Pack (TMIP) to capture video, audio, and biomedical data aboard the orbiter, and send those data to the Aeromedical Multi-purpose Support Room (MPSR) at Johnson Space Center (JSC); to evaluate the quality of this data, from a clinical perspective; to evaluate the usability of the TMIP in the microgravity environment; and to evaluate the operational feasibility of using the TMIP for interactive Air to Ground (A/G) medical examination and diagnosis.

2. INDIVIDUAL SUSCEPTIBILITY TO POST-SPACEFLIGHT ORTHOSTATIC INTOLERANCE (DSO-496)

Significant alteration of cardiovascular function by spaceflight is well documented. One of the most important changes negatively affecting flight operations and crew safety is the postflight loss of orthostatic tolerance. Astronauts who have orthostatic intolerance have difficulty ambulating independently, experience presyncope (lightheadedness) or syncope (fainting), and may be impaired in their ability to egress the shuttle after landing. Recent evidence implicates postflight autonomic dysfunction as a contributor to orthostatic intolerance. Susceptibility to postflight orthostatic intolerance is highly individual. The goal of the proposed studies is to elucidate mechanisms responsible for these differences in order to customize countermeasure protocols.

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STS-89 GENERIC DAP A CONFIGURATIONS

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

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STS-89 GENERIC DAP B CONFIGURATIONS

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

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STS-89 FLIGHT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A6	A7	A8	A9	A10	A12	A13	A14
PRI									
ROT RATE	10	0.2000	0.2000	0.2000	0.0500	0.1300	0.1000	0.0500	0.1000
ATT DB	11	5.00	2.00	1.00	0.50	2.00	5.00	1.00	0.30
RATE DB	12	0.20	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	0.10	0.04	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	TAIL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
Y OPTION	16	TAIL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL	ALL
TRAN PLS	17	0.10	0.10	0.05	0.05	0.05	0.01	0.05	0.10
ALT									
RATE DB	18	0.070	0.100	0.200	0.200	0.200	0.070	0.200	0.070
JET OPT	19	TAIL	ALL	ALL	ALL	ALL	TAIL	ALL	TAIL
# JETS	20	1	2	2	2	2	3	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	0.00	11.28	0.00	0.00
VERN									
ROT RATE	23	0.0500	0.0160	0.2000	0.0500	0.1300	0.1500	0.0500	0.0450
ATT DB	24	1.000	1.000	1.000	0.500	2.000	5.000	1.000	0.100
RATE DB	25	.020	.020	.020	.020	.020	.050	.020	.020
ROT PLS	26	0.010	0.010	0.010	0.050	0.050	0.002	0.050	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	0	7	0	0
PURPOSE		FWD PROP SAVINGS	RNDZ	CORRIDOR	DOCKING	FLY-AROUND	MATED STACK MNVRS & HOLD	FAILED CAPTURE	SLM

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

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STS-89 FLIGHT SPECIFIC DAP B CONFIGURATIONS

	ITEM #	B7	B8	B9	B10	B12	B13
PRI							
ROT RATE	30	0.5000	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	31	2.00	1.00	0.50	2.00	5.00	1.00
RATE DB	32	0.20	0.10	0.10	0.10	0.20	0.10
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	TAIL	TAIL	TAIL	TAIL
Y OPTION	36	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37	0.05	0.01	0.01	0.01	0.01	0.01
ALT							
RATE DB	38	0.100	0.200	0.200	0.200	0.070	0.200
JET OPT	39	ALL	ALL	ALL	ALL	TAIL	ALL
# JETS	40	2	2	2	2	3	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	11.28	0.00
VERN							
ROT RATE	43	0.2000	0.2000	0.0500	0.1300	0.0500	0.0500
ATT DB	44	1.000	1.000	0.500	2.000	1.000	1.000
RATE DB	45	.020	.020	.020	.020	.050	.020
ROT PLS	46	0.002	0.002	0.020	0.020	0.002	0.020
COMP	47	.000	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	7	0
PURPOSE		RNDZ	CORRIDOR	DOCKING	FLY- AROUND	MATED STACK TIGHT CONTROL	FAILED CAPTURE

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

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FLIGHT DATA FILE
Distribution
89 FLT PLN FSP FIN A

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BT4/SLATER, RICK
BT53/STI LIBRARY (3)
C44/HANCOCK, L.
CA/LEESTMA, D.C.
CA44/BERTRAND, O.J.
CB/CB FDF REP
CB/CHIEF
CB/FAMILY ESCORT MGR
CB/STS-89 FLIGHT CREW (7)
DA2/STONE, B.R.
DA8/ENGELAUF, P.L.
DA82/ACTION CENTER
DF/WOOD, C. (4)
DF22/DPS FDF REP (4)
DF24/INCO FDF REP (6)
DF42/EVA (4)
DF44/MILLS, I.
DF44/ROBOTICS SECTION (5)
DF5/MMACS LEAD OFFICER (3)
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DF54/CREW SYSTEMS
DF55/BOOSTER (3)
DF62/GNC GROUP LEAD (3)
DF63/PROP SYS GROUP LEAD (3)
DF73/ELEC SYS GROUP LEAD (4)
DF73/LEAD EGIL
DF73/SYSTEMS LIBRARY
DF74/SAVOY, M.G.
DF82/EECOM (5)
DJ4/QUICK, T.K. (3)
DM2/FLIGHT DESIGN MANAGER
DM21/LOWES, F.B.
DM32/ORBIT FDO GROUP LEAD (7)
DM43/HEAD
DM43/LIBRARY (4)
DM46/ENTRY FDO
DM46/LSO

DO12/OPS SAFETY OFFICE
DO2/SALINAS, L.
DO35/NELSON, C.O.
DO352/TECH EDITOR
DO353/BOND/BLUE SHELF (10)
DO353/FDF FLIGHT LEAD
DO353/FDF MNGR/RESERVE (15)
DO4/BOOK MANAGER FLT PLN (15)
DO4/FAO TEAM (15)
DO4/FDF LIBRARY
DO4/POINTING
DO4/SHUTTLE FLT PLANNING (3)
DO44/HEAD
DO45/SECTION HEAD
DO45/TIMELINE - FAO SSR#1
DP/CHIEF
DT32/TEAM LEAD
DT34/CONTROL PROP (4)
DT35/DPS/NAV TRAIN LEAD (4)
DT35/RMS TRAINING GROUP (2)
DT36/SHUTTLE SYSTEMS (2)
DT36/SPENCER, J.
DT36/SYS/COMM TNG (2)
DT37/CARGO SYSTEMS (3)
DT37/ROWEN, G.C.
DT45/THARP, D. (2)
EC/CTSD LIBRARY
EC3/ROTTER, H.A.
EC5/ANDERSON, S. (2)
EC5/CHANG, C.M.
EE2/RCA SUPPORT
EG/CRITELLI, S. (2)
EG/LIBRARY
EG1/MCSWAIN, G.
ER6/HESS, C. (3)
ES3/CHANG, Y. PHD
ES32/SERNA, R.
ES62/DAVIS, R.
EV/111/LIBRARY
EV14-LIB/ASD-14-LIB
EV3/PHAN, C. (2)
JL5/SUPPORT (2)
MA2/RICHARDS, R.N.
MER/30 LIBRARY
MG/BANKS, W.R.
MO/P2/WOLFER, J.
MT3/MANAGER (3)
MV/MC CULLOUGH, C.E.
MV3/LIBRARY
MV3/OLIVER, P.
MV6/RMS INTEGRATION (3)
NS2/CHIEF
NS4/LIBRARY

NS4/STEISSLINGER, N.
NS43/THIessen, M.
NS44/GUIDRY, B. (2)
NS44/LLOYD, S.
OA/WARD, D.K.
R11E/ODRC GROUP
R12B-16/CB SAIL REP
SD/CLIFTON, J. (4)
SD-KI/SCARLETT, J.
SD24/SURGEON (2)
SD26/PANDER, L. (5)
SD3/COVINGTON, CAROLE (4)
SD3/PUTCHA, L.
SD361/ROBINSON, S.H.
SM2/CARDENAS, J. (2)
SM3/BAHR, P.A.
SM4/KAMMAN, M.
SN3/CHRISTIANSEN, E.
SN3/HARDY, A.C.
SN5/EOL
SP33/HARRIS, C.D.
SP43/HEINOL, C.
SP44/KLOERIS, V.
YA/LIBRARY (2)
ZR1/BREWINGTON, P.
ZR1/HOLS, T.
ZR1/USAF TECHNICAL LIBRARY (5)
ZS8/ASSGND LEAD FORECASTER

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F9110F/PROJECT OFFICE (3)

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TSC/LIBRARY

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C42/BECKHAM, W.
C42/GIBSON, L.A.
C42/SHERRILL, L.
C70/KEENER, J.F.

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HOUSTON, TX 77062
B1/BROUSSARD, A.

BOEING AEROSPACE-HOUSTON
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HOUSTON, TX 77058
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HF-10/WIBLE, L.

BOEING-HOUSTON
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ZC01/BATTLE, H.H.
ZC01/CORONADO, D.J.
ZC01/CUNNINGHAM, N.
ZC01/WOODALL, J.W.
ZC01-555/DE VAULT, G.M.
ZC03-17/BRYAN, L.W.

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R16D/MISSION ENGINEER
R16E/NAVIGATION LIBRARY (2)
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USH-423E/TRAJECTORY LIBRARY
USH-444E/SPRIGGS, K. (4)
USH423-E/PROX OPS LIBRARY
USH423-E/RENDEZVOUS LIBRARY
USH423-H/KOCEN, M.
ZC01/BEATTY, C.C.
ZC01/DISTEFANO, F.J.
ZC01/JENKINS, L.W.
ZC20/MEREDITH, M.

BNA-DOWNEY
841-2, AC85/TAYLOR, B.N.
AA10/BUIS, A.
AA05/WOOLHOUSE, D.L.
AC28/HARPER, L.
AD60/MC MILLAN, B.J.
AD75/STS DATA MGMT
AE70/GALLARDO, J.A.
AE85/BRYON, K.

BNA-DOWNEY
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FA35/GULSBY, J.A.
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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.
740.3/OLDEN, S.

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

NASA KSC
BIO-3/ANDERSON, K.
BIO-3/WELLS, D.
BR/ETHERIDGE, G.
BR/MACEO, J.
CV-PSD-1/MACKEY, A.J.
F264/LINTEREUR, P.
FF-S-A/CREW QUARTERS
KSC/KSC TECH LIBRARY-D
PA-PIB/GRINTER, K.
TP-L0D-1/SOWASH, S. (2)
USK-215/KELLY, T.E.
USK-247/HOOPER, J. (2)
USK-550/VITT OFFICE

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

NASA MSFC
CA10/BERG, J.
CN310/TECH DOC REPOSITORY
EL23/JOHNSON, DALE

EO26/PDF MGR (2)
EO46/BRANCH CHIEF
EO52/CHIEF DATA MGMT
JA61/SPRINKLE, C.F.
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KACHMAR, P.

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GC/GOMEZ, N.

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HOUSTON, TX 77058
ATTN:/HUTCHINS, J.

INTERMETRICS, INC., WV
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FAIRMONT, WV 26554
SHRIVER, SELENA

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

NASA-AMES RESEARCH CENTER
MOFFETT FIELD, CA
94035-1000
240A-3/SAVAGE, P.

OMITRON, INC.
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GREENBELT, MD 20770
MURPHY, B.

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

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