

Flight Plan

STS-103

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(STS-103 OCF Trajectory)

**Mission Operations Directorate
Operations Division**

**Basic
July 26, 1998**

<u>EVENT</u>	<u>CST</u>	
Launch	04:42	10/14/99
OMS2	05:27	10/14/99
NC1	10:09	10/14/99
NPC	01:54	10/15/99
NSR	08:03	10/15/99
NC2	08:35	10/15/99
NC3	22:14	10/15/99
NH	23:00	10/15/99
NC4	23:49	10/15/99
TI	03:03	10/16/99
HST Grapple	05:15	10/16/99
EVA 01 Start	23:27	10/16/99
EVA 02 Start	23:37	10/17/99
EVA 03 Start	23:37	10/18/99
EVA 04 Start	23:37	10/19/99
HTS Release	01:57	10/20/99
Sep 01	01:58	10/20/99
Sep 02	02:30	10/20/99
Deorbit	01:08	10/24/99
Landing	02:20	10/24/99

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



MISSION OPERATIONS DIRECTORATE

STS-103 FLIGHT PLAN

BASIC
July 26, 1999

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FLIGHT PLAN
STS-103

LIST OF EFFECTIVE PAGES

BASIC 07/26/99

Sign Off	* 103/BAS	3-16	103/BAS
ii	* 103/BAS	3-17	103/BAS
iii	* 103/BAS	3-18	103/BAS
iv	* 103/BAS	3-19	103/BAS
v	* 103/BAS	3-20	103/BAS
vi	* 103/BAS	3-21	103/BAS
vii	* 103/BAS	3-22	103/BAS
viii	* 103/BAS	3-23	103/BAS
1-1	103/BAS	3-24	103/BAS
1-2	103/BAS	3-25	103/BAS
2-1	103/BAS	3-26	103/BAS
2-2	103/BAS	3-27	103/BAS
2-3	103/BAS	3-28	103/BAS
2-4	103/BAS	3-29	103/BAS
2-5	103/BAS	3-30	103/BAS
2-6	103/BAS	3-31	103/BAS
2-7	103/BAS	3-32	103/BAS
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2-14	103/BAS	3-39	103/BAS
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3-13	103/BAS	3-60	103/BAS
3-14	103/BAS	3-61	103/BAS
3-15	103/BAS	3-62	103/BAS

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3-64	103/BAS	3-118	103/BAS
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3-66	103/BAS	3-120	103/BAS
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3-69	103/BAS	4-3	103/BAS
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3-71	103/BAS	4-5	103/BAS
3-72	103/BAS	4-6	103/BAS
3-73	103/BAS	5-i	* 103/BAS
3-74	103/BAS	5-ii	* 103/BAS
3-75	103/BAS	5-1	* 103/BAS
3-76	103/BAS	5-2	* 103/BAS
3-77	103/BAS	5-3	* 103/BAS
3-78	103/BAS	5-4	* 103/BAS
3-79	103/BAS	5-5	* 103/BAS
3-80	103/BAS	5-6	* 103/BAS
3-81	103/BAS	5-7	* 103/BAS
3-82	103/BAS	5-8	* 103/BAS
3-83	103/BAS	5-9	* 103/BAS
3-84	103/BAS	5-10	* 103/BAS
3-85	103/BAS	6-1	* 103/BAS
3-86	103/BAS	6-2	* 103/BAS
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3-97	103/BAS	7-9	* 103/BAS
3-98	103/BAS	7-10	* 103/BAS
3-99	103/BAS	7-11	* 103/BAS
3-100	103/BAS	7-12	* 103/BAS
3-101	103/BAS	7-13	* 103/BAS
3-102	103/BAS	7-14	* 103/BAS
3-103	103/BAS	7-15	* 103/BAS
3-104	103/BAS	7-16	* 103/BAS
3-105	103/BAS	7-17	* 103/BAS
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3-112	103/BAS		
3-113	103/BAS		
3-114	103/BAS		
3-115	103/BAS		
3-116	103/BAS		

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CONTENTS

PAGE

INTRODUCTION vi

OVERVIEW TIMELINE 1-1

SUMMARY TIMELINE 2-1

DETAILED TIMELINE 3-1

STS-103 DAP TABLE 4-1

ATTITUDE TIMELINE 5-1

FLIGHT PLAN NOTES 6-1

DAP BOOK CONFIGURATION 7-1

INTRODUCTION

The STS–103 Flight Plan is the Flight Data File article that contains the on–orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Rendezvous, EVA, Deorbit Prep, and Entry Checklists. The detailed rendezvous timelines and procedures are contained in the Rendezvous Checklist. The detailed EVA task timelines and procedures are in the EVA Checklist. The Detailed Timeline pages of this Flight Plan show high–level, bulleted comments for general insight during the rendezvous and EVAs. The deploy procedures required during the deploy timeframe are in the STS–103 HST Deploy Checklist. For continuity, the summary timeline includes the entire flight.

The Servicing Mission Integrated Timeline (SMIT), Basic Update #4, dated July 12, 1999 was used in the development of these timelines.

This on–orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive, and the requirements of the STS–103 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the STS–103 Flight Initialization Data Pack.

The STS–103 OCF Cycle was used for the timeline trajectory. The flight profile used in this Flight Plan is for a launch date of October 14, 1999, at 09:42 GMT. Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

NSTS–37326, Shuttle Crew Scheduling Constraints (SCSC), Basic, July 1998, has been used to build the timelines contained in this Flight Plan.

The Flight Plan timeline pages, as well as other flight planning information, are available on the Space Shuttle Flight Planning web page at the following address:
<https://mod.jsc.nasa.gov/do4/flightplan/>

STS-103 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
DAP A, DAP B TOC	7-2	FLT PLN-1a/103/O/A
(back)	7-2	FLT PLN-1b/103/O/A
DAP A	7-3	FLT PLN-2a/103/O/A
DAP A1	7-3	FLT PLN-2b/103/O/A
A1	7-3	FLT PLN-3a/103/O/A
DAP A2	7-3	FLT PLN-3b/103/O/A
A2	7-4	FLT PLN-4a/103/O/A
DAP A3	7-4	FLT PLN-4b/103/O/A
A3	7-4	FLT PLN-5a/103/O/A
DAP A4	7-4	FLT PLN-5b/103/O/A
A4	7-5	FLT PLN-6a/103/O/A
DAP A6	7-5	FLT PLN-6b/103/O/A
A6	7-5	FLT PLN-7a/103/O/A
DAP A8	7-5	FLT PLN-7b/103/O/A
A8	7-6	FLT PLN-8a/103/O/A
DAP A5	7-6	FLT PLN-8b/103/O/A
A5	7-6	FLT PLN-9a/103/O/A
DAP A7	7-6	FLT PLN-9b/103/O/A
A7	7-7	FLT PLN-10a/103/O/A
DAP A9	7-7	FLT PLN-10b/103/O/A
A9	7-7	FLT PLN-11a/103/O/A
DAP A10	7-7	FLT PLN-11b/103/O/A
A10	7-8	FLT PLN-12a/103/O/A
DAP A13	7-8	FLT PLN-12b/103/O/A
A13	7-8	FLT PLN-13a/103/O/A
BLANK	7-8	FLT PLN-13b/103/O/A
DAP B	7-9	FLT PLN-14a/103/O/A
DAP B1	7-9	FLT PLN-14b/103/O/A
B1	7-9	FLT PLN-15a/103/O/A
DAP B2	7-9	FLT PLN-15b/103/O/A
B2	7-10	FLT PLN-16a/103/O/A
DAP B3	7-10	FLT PLN-16b/103/O/A
B3	7-10	FLT PLN-17a/103/O/A
DAP B4	7-10	FLT PLN-17b/103/O/A
B4	7-11	FLT PLN-18a/103/O/A
DAP B5	7-11	FLT PLN-18b/103/O/A
B5	7-11	FLT PLN-19a/103/O/A
DAP B6	7-11	FLT PLN-19b/103/O/A
B6	7-12	FLT PLN-20a/103/O/A
DAP B7	7-12	FLT PLN-20b/103/O/A
B7	7-12	FLT PLN-21a/103/O/A
DAP B8	7-12	FLT PLN-21b/103/O/A
B8	7-13	FLT PLN-22a/103/O/A
DAP B9	7-13	FLT PLN-22b/103/O/A
B9	7-13	FLT PLN-23a/103/O/A
DAP B10	7-13	FLT PLN-23b/103/O/A
B10	7-14	FLT PLN-24a/103/O/A
DAP B11	7-14	FLT PLN-24b/103/O/A
B11	7-14	FLT PLN-25a/103/O/A
DAP B12	7-14	FLT PLN-25b/103/O/A
B12	7-15	FLT PLN-26a/103/O/A
DAP B13	7-15	FLT PLN-26b/103/O/A
B13	7-15	FLT PLN-27a/103/O/A
DAP B14	7-15	FLT PLN-27b/103/O/A
B14	7-16	FLT PLN-28a/103/O/A
(Blank)	7-16	FLT PLN-28b/103/O/A
UNIV PTG	7-17	FLT PLN-29/103/O/A

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OVERVIEW TIMELINE

STS-103 HST-SM3 Overview Timeline 10+2 Day Mission, 2 EVA Crews, 4 EVAs

	0 /	-12	-11	-10	-9	8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
FD 1		Oct 14 Launch Date @ 09 42 GMT												POST INSERTION			Pre Sleep		Sleep						
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 2	0 /	12	13	14	15	16	17	18	19	20	21	22	23	1/0	1	2	3	4	5	6	7	8	9	10	11
FD 2		Sleep		Post Sleep		RMS C/O, SSE C/O, EMU C/O, 10.2 DEPRESS, PRE-RNDZ										Pre Sleep		Sleep							
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 3	1 /	12	13	14	15	16	17	18	19	20	21	22	23	2/0	1	2	3	4	5	6	7	8	9	10	11
FD 3		Sleep		Post Sleep		HST Grapple (2/00:33 ↑)										Pre Sleep		Sleep							
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 4	2 /	12	13	14	15	16	17	18	19	20	21	22	23	3/0	1	2	3	4	5	6	7	8	9	10	11
FD 4		Sleep		Post Sleep		Pre-EVA		EVA 1 (6:00)					Post-EVA		Pre Sleep		Sleep								
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 5	3 /	12	13	14	15	16	17	18	19	20	21	22	23	4/0	1	2	3	4	5	6	7	8	9	10	11
FD 5		Sleep		Post Sleep		Pre-EVA		EVA 2 (6:00)					Post-EVA		Pre Sleep		Sleep								
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 6	4 /	12	13	14	15	16	17	18	19	20	21	22	23	5/0	1	2	3	4	5	6	7	8	9	10	11
FD 6		Sleep		Post Sleep		Pre-EVA		EVA 3 (6:00)					Post-EVA		Pre Sleep		Sleep								
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 7	5 /	12	13	14	15	16	17	18	19	20	21	22	23	5/0	1	2	3	4	5	6	7	8	9	10	11
FD 7		Sleep		Post Sleep		Pre-EVA		EVA 4 (6:00)					Post-EVA		Pre Sleep		Sleep								
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 8	6 /	12	13	14	15	16	17	18	19	20	21	22	23	6/0	1	2	3	4	5	6	7	8	9	10	11
FD 8		Sleep		Post Sleep		HST Release					FSS STOW, 14.7 REPRS					Pre Sleep		Sleep							
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 9	7 /	12	13	14	15	16	17	18	19	20	21	22	23	7/0	1	2	3	4	5	6	7	8	9	10	11
FD 9		Sip	Post Sleep		OFF DUTY					POST EVA ENT PREP					Pre Sleep		Sleep								
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 10	8 /	12	13	14	15	16	17	18	19	20	21	22	23	7/0	1	2	3	4	5	6	7	8	9	10	11
FD 10		Post Sleep		FCS C/O, RCS HF, GPS TEST					CABIN STOW					Pre Sleep		Sleep									
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							
FD 11	9 /	12	13	14	15	16	17	18	19	20	21														
FD 11		Post Sleep		IMU		D/O PREP			ENT			KSC LANDING 9/21:38													
10.2/14.7		[Redacted]																							
GRP B		[Redacted]																							

14.7	[Redacted]
10.2	[Redacted]

Group B	[Redacted]
Group B Dual G2	[Redacted]

SUMMARY TIMELINE

BETA -4.53
 CT 10/13/99
 FD01
 MET Day 000



CDR Brown			OMS2Δ	ASCENT	POST INSERTION	TEPC* ACFN PTLR	GIRAL INSTAL	GP WR PR DN
PLT Kelly				ASCENT	POST INSERTION	TEPC* LOAD DAPS	GIRAL INSTAL	GP WR PR DN HUM SEP
MS1 Smith				ASCENT	POST INSERTION	AS CET		ERGOM SETUP
MS2 Clervoy				ASCENT	POST INSERTION	RM S*	SEE SETUP	GP WR PR DN
MS3 Grunsfeld				ASCENT	POST INSERTION	PUG S/C	OC CET AUC P	SD C TO R S ERGOM SETUP
MS4 Foale				ASCENT	POST INSERTION	PTV01 SETUP		PS TE VT OU 9 P PS TE VT 1 U OP
MS5 Nicollier				ASCENT	POST INSERTION	AS CET		
GND CMD		STO C*				STO C*	SPC	
TDRS								
DAY/NIGHT								
ORBIT								
SAA								
TDRS								
GND SITES								
ORB ATT								
SOLAR ARRAY								
FSS								
NOTES	*#3 STOWED *#4 *ON @SM CHECKPOINT *INIT							

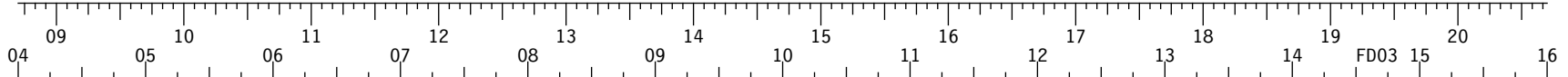
L
A
U
N
C
H

BETA -2.28
 CT 10/14/99
 FD02
 MET Day 000



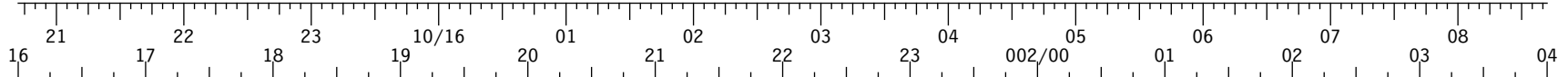
CDR Brown	POST SLEEP	PREP	10.2 DEPRESS	CONF	EXERCISE			NPCA	RCS BURN	++ZXLVV	RNDZ TOOLS C/O	MEAL						POAPPTY	10.2*	NSRA	RCS BURN	
PLT Kelly	POST SLEEP	PREP	10.2 DEPRESS	CONF	FUEL CELL MON OPS	EXERCISE			RCS BURN		RNDZ TOOLS C/O	MEAL	WFCB	SCRYO 02	FILTER CLEAN	SAMPL	PS TVT OUP	POAPPTY	10.2*	OMS BURN	RCS BURN	
MS1 Smith	POST SLEEP				EXERCISE	SSE C/O	FSS PREP FOR BRTHG					A/L PREP	MEAL		HST TOOL PREP							PRE SLEEP
MS2 Clervoy	POST SLEEP	RHMTSR	POST SLEEP	RPMSRUP	RMS C/O	SSE SURVEY		RMS PLB SURV	RPMSRDN	HHL C/O		MEAL						POAPPTY		EXERCISE	PS RLEEP	
MS3 Grunsfeld	POST SLEEP			MAGR SIGI UNSTOW	SIGDL	SSE C/O	EXERCISE			HHL C/O	A/L PREP	MEAL	EMU C/O #3,4 W/GLVS	EMU SWAP	EMU C/O #1,2 W/GLVS						HLMT*	
MS4 Foale	POST SLEEP			EXERCISE	HST PGSCA INST CNFG	PTV09 OPS	PTV10 OPS				A/L PREP	MEAL	HST TOOL PREP	VTR S/U	VTR P/B						PRE SLEEP	
MS5 Nicollier	POST SLEEP			RPMSRUP	RMS C/O	SSE SURVEY	FSS PREP FOR BRTHG	RMS PLB SURV	EXERCISE	A/L PREP	MEAL	EMU C/O #3,4 W/GLVS	EMU SWAP	EMU C/O #1,2 W/GLVS							PS RLEEP	
GND CMD													PS LBRK									
TDRS	[Timeline with black bars indicating TDRS activity]																					
DAY/NIGHT	[Timeline with alternating black and white bars]																					
ORBIT SAA	[Timeline with horizontal bars]																					
TDRS EW	[Timeline with horizontal bars and labels: -GTS, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS]																					
GND SITES	[Timeline with horizontal bars and labels: -GTS, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -MIL, -DGS, -GTS]																					
ORB ATT	[Timeline with horizontal bars and labels: -ZLV -XVV, -NPC, +ZLV +XVV, -NSR, -NC2]																					
SOLAR ARRAY	[Timeline with horizontal bars]																					
FSS	[Timeline with horizontal bars and labels: STOWED, BERTH CONFIG (-V3)]																					
NOTES	<p>♦MAGR S/U ♥SIGI S/U *MANUAL PURGE *CNTLR SWAP ®PRE SLEEP *LT RCHG TERM</p>																					

BETA -0.69
 CT 10/15/99
 FD02
 MET Day 001



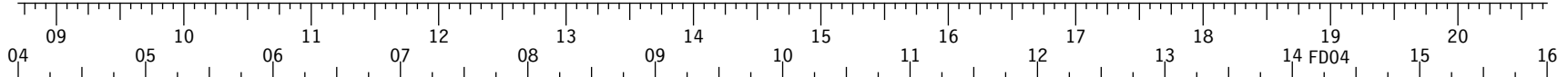
CDR Brown	Z L V V	X V V	PMC OCA	PRE SLEEP						SLEEP	POST SLEEP	
PLT Kelly	HUM SEP			PRE SLEEP						SLEEP	POST SLEEP	
MS1 Smith				PRE SLEEP						SLEEP	POST SLEEP	
MS2 Clervoy				PRE SLEEP						SLEEP	POST SLEEP	
MS3 Grunsfeld				PRE SLEEP						SLEEP	POST SLEEP	
MS4 Foale				PRE SLEEP						SLEEP	POST SLEEP	
MS5 Nicollier				PRE SLEEP						SLEEP	POST SLEEP	
GND CMD	CLOSE DOOR			P S L B R K	HST LGA	LOAD SPC ZEROS		F M H A S P T	RETRACTION OF HGAS			
TDRS	[Timeline with black bars indicating activity]											
DAY/NIGHT	[Timeline with black bars indicating day/night cycle]											
ORBIT	[Timeline with black bars indicating orbit events]											
SAA	[Timeline with black bars indicating solar array activity]											
TDRS	E	[Timeline with black bars indicating TDRS activity]										
GND SITES	—GDX —GTS -MIL —MIL —HTS —VTS	—DGS	—GDX —GTS -MIL —HTS —VTS	—DGS	—HTS —GTS	—DGS	—HTS —GTS	—DGS	—HTS —GTS	—GTS	—GTS	—GTS
ORB ATT	—ZLV -XVV											
SOLAR ARRAY												
FSS	—BERTH CONFIG (-V3)											
NOTES												

BETA 0.83
 CT 10/15/99
 FD03
 MET Day 001



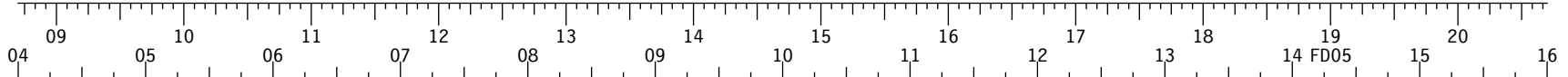
CDR Brown	POST SLEEP	GRP B PWUP	NC3 RCS BURN	10.2*	HST RNDZ										ΔNH	ΔNC4	ΔT1	HST BERTH	BCH TGT	VTR P/B	GRW P/B	10.2*	PMC OCA	FREE DRIFT	EVA RVW
PLT Kelly	POST SLEEP	GRP B PWUP	RCS BURN	10.2*	HST RNDZ										RMS	HST BERTH	VTR S/U	PTV12 OPS	GRW P/B	10.2*	PTV13	PTV12 OPS	-ZLV	+YLV	
MS1 Smith	POST SLEEP				PI CNFG	EXERCISE											GRAPPL	HST BERTH	LATCH	EPWTR*	EVA TOOL CNFG			EVA RVW	
MS2 Clervoy	POST SLEEP		EXERCISE															HST BERTH	BERTHED HST SURVEY			RPMSRDN	EVA RVW		
MS3 Grunsfeld	POST SLEEP		EXERCISE																LATCH		SIGDL	MDDK PREP	SHPG	EVA RVW	
MS4 Foale	POST SLEEP		EXERCISE																PTV12 OPS			EVA TOOL CNFG		PTV13 OPS	EVA RVW
MS5 Nicollier	POST SLEEP				PI CNFG	EXERCISE												HST BERTH	BERTHED HST SURVEY			HPST*	EVA RVW		
GND CMD			SSAL*EW																		HST EXT POWER	OTA HTR CONFIG		SNAB*OGG	ESORP
TDRS																									
DAY/NIGHT																									
ORBIT SAA																									
TDRS EW																									
GND SITES																									
ORB ATT	-ZLV -XVV		-NC3 -NH		TGT TRK										RNDZ		FREE		BATT CHG		-ZLV +YVV				
SOLAR ARRAY FSS					BERTH CONFIG (-V3)										90						0				
NOTES					*90 DEG												*180 MIN TIMER START		*ON		ΔFGE ON				

BETA 2.29
 CT 10/16/99
 FD03
 MET Day 002



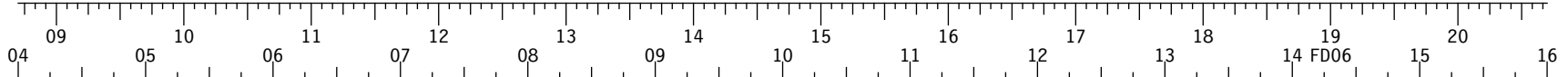
CDR Brown	EVA RVW	PRE SLEEP	SLEEP HST SURVEY (-V3 FWD) & SA STATIC TWIST ANALYSIS #1				POST SLEEP	
PLT Kelly	W I A N S I T T E	PRE SLEEP	W T A S R L T M E	- Z X L V V	P S R L E E P	SLEEP	POST SLEEP	
MS1 Smith	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	PMC A/G
MS2 Clervoy	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	
MS3 Grunsfeld	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	PMC A/G
MS4 Foale	EVA RVW	P S T E V T O U I P	PRE SLEEP	SLEEP				POST SLEEP
MS5 Nicollier	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	
GND CMD	HST PGSCA CHECKOUT	KU BAND C/O	HST PGSCA CHECKOUT	D FMT TEST	HST PGSCA CHECKOUT			
TDRS	[Timeline with black bars indicating TDRS activity]							
DAY/NIGHT	[Timeline with alternating black and white bars indicating day/night cycle]							
ORBIT	[Timeline with numerical labels 34, 35, 36, 37, 38, 39, 40, 41]							
SAA	[Timeline with horizontal bars indicating SAA activity]							
TDRS	E	W	[Timeline with horizontal bars indicating TDRS activity]					GTS
GND SITES	-GDX -GTS -MIL -MIL -HTS -VTS	-DGS -GTS	-GDX -GTS -HTS -VTS	-DGS -GTS	-HTS -GTS	-DGS -HTS	-GTS -HTS	
ORB ATT	-ZLV +YVV		-ZLV -XVV					
SOLAR ARRAY	0							
FSS	-V3							
NOTES	FGE ON							

BETA 5.10
 CT 10/17/99
 FD04
 MET Day 003



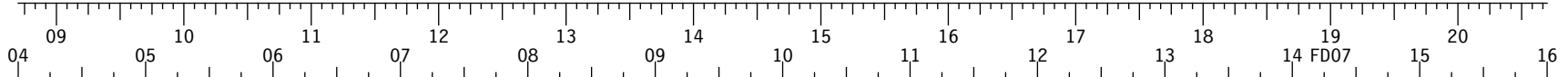
CDR Brown	EVA RVW	PRE SLEEP	SLEEP HST SURVEY (-V3 FWD) & SA STATIC TWIST ANALYSIS #2				POST SLEEP			
PLT Kelly	VFN IUN KNC *CT	RMA GNV AVR	PRE SLEEP	--Z LVV	PRE SLEEP	SLEEP	POST SLEEP			
MS1 Smith	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP			
MS2 Clervoy	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP			
MS3 Grunsfeld	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP			
MS4 Foale	EVA RVW	PSTE VT OUI P	PRE SLEEP	SLEEP				POST SLEEP	PMCS A/G	PS OL SE TP
MS5 Nicollier	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	PMCS A/G	PS OL SE TP	
GND CMD		RFR GUA ANCT T	TRG EAST RADO S	GLY DAR DO						
TDRS	[Timeline with black bars indicating activity]									
DAY/NIGHT	[Timeline with alternating black and white bars]									
ORBIT	[Timeline with numerical markers 49-56]									
SAA	[Timeline with horizontal bars]									
TDRS	[Timeline with horizontal bars]									
GND SITES	-GDX -GTS -MIL -HTS -VTS -DGS -GTS -HTS -VTS -DGS -GTS -HTS -VTS -DGS -GTS -HTS -VTS -GTS -GTS -GTS									
ORB ATT	-ZLV -XVV									
SOLAR ARRAY	0									
FSS	-V3									
NOTES	*HST PWR ON									

BETA 7.67
 CT 10/18/99
 FD05
 MET Day 004



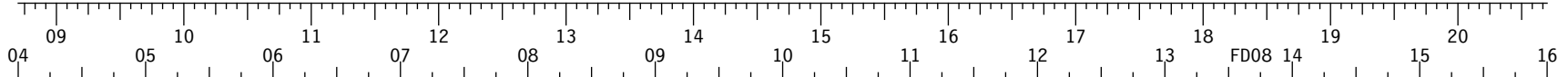
CDR Brown	EVA RVW	PRE SLEEP	SLEEP HST SURVEY (+V3 FWD) & SA STATIC TWIST ANALYSIS #3				POST SLEEP
PLT Kelly	EVA RVW	PRE SLEEP	WT ASRM	WT ZLV	SLEEP		POST SLEEP
MS1 Smith	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP PMC A/G
MS2 Clervoy	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP
MS3 Grunsfeld	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP PMC A/G
MS4 Foale	EVA RVW	PRE SLEEP	PS TE VT OU IP	SLEEP			POST SLEEP
MS5 Nicollier	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP
GND CMD	FGS AMS FUNCT TEST	RCVR SI	RE LOAD GYRO	TL LOAD MAD			
TDRS	DAY/NIGHT						
ORBIT	SAA						
TDRS	E W						
GND SITES	DGS GDX HTS VTS						
ORB ATT	-ZLV +YVV -ZLV -XVV						
SOLAR ARRAY	0						
FSS	+V3						
NOTES							

BETA 9.97
 CT 10/19/99
 FD06
 MET Day 005



CDR Brown	EVA RVW	PRE SLEEP	SLEEP HST SURVEY (+V3 FWD) & SA STATIC TWIST ANALYSIS #4				POST SLEEP	
PLT Kelly	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	
MS1 Smith	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	
MS2 Clervoy	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	R H M T S R
MS3 Grunsfeld	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	
MS4 Foale	EVA RVW P S T E V T O U I P	PRE SLEEP	SLEEP				POST SLEEP	PMC A/G
MS5 Nicollier	EVA RVW	PRE SLEEP	SLEEP				POST SLEEP	PMC A/G
GND CMD								
TDRS								
DAY/NIGHT	[Timeline with day/night indicators]							
ORBIT	[Timeline with orbit parameters]							
SAA	[Timeline with solar array activity]							
TDRS	[Timeline with TDRS activity]							
GND SITES	[Timeline with ground site activity: DGS, GDX, HTS, VTS]							
ORB ATT	[Timeline with orbital attitude: -ZLV, -XVV]							
SOLAR ARRAY	[Timeline with solar array status: 0, +V3]							
FSS	[Timeline with flight status]							
NOTES								

BETA 11.99
 CT 10/20/99
 FD07
 MET Day 006



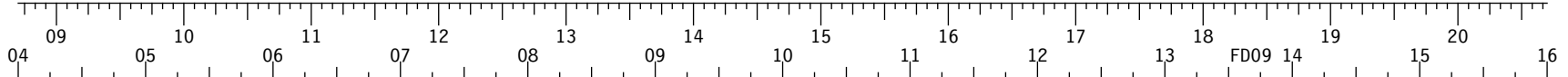
CDR Brown	PRE SLEEP	VTR P/B	PMC OCA	PRE SLEEP	SLEEP HST SURVEY (-V3 FWD) & SA STATIC TWIST ANALYSIS #5						POST SLEEP
PLT Kelly	PRE SLEEP	WT A SR T E	Z X L V V	PRE SLEEP	SLEEP						POST SLEEP
MS1 Smith	PRE SLEEP				SLEEP						POST SLEEP
MS2 Clervoy	PRE SLEEP				SLEEP						POST SLEEP
MS3 Grunsfeld	PRE SLEEP				SLEEP						POST SLEEP
MS4 Foale	PRE SLEEP				SLEEP						POST SLEEP
MS5 Nicollier	PRE SLEEP				SLEEP						POST SLEEP
GND CMD											
TDRS											
DAY/NIGHT											
ORBIT	93	94	95	96	97	98	99	100	101		
SAA											
TDRS											
GND SITES											
ORB ATT											
SOLAR ARRAY	-ZLV -XVV										
FSS	0										
	-V3										
NOTES											

BETA 12.89
 CT 10/20/99
 FD08
 MET Day 006

16 21 22 23 10/21 01 02 03 04 007/00 01 06 02 07 03 08 04

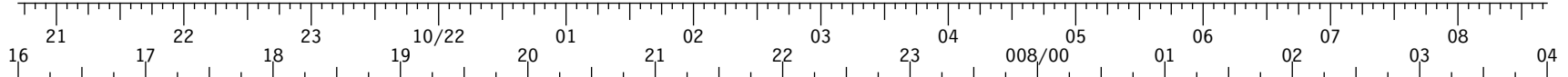
CDR Brown	POST SLEEP		FREE DRIFT	GRP B PWUP	PSTG SUP			FREE DRIFT	RAETLSE	HST RELEASE PREP	SEP1A REL HST	SEP2A RELEASE OPS	GRWRDN	MEAL		EXERCISE		14.7 RPRSS	POAPOTY	POAPOTY	PRE SLEEP
PLT Kelly	POST SLEEP	WCS*	PTV13 OPS	BAHTT	GRP B PWUP	PSTG SUP		FREE DRIFT	RAETLSE	HST RELEASE PREP	REL HST	RELEASE OPS	GRWRDN	MEAL		EXERCISE		14.7 RPRSS	POAPOTY	POAPOTY	PRE SLEEP
MS1 Smith	POST SLEEP		SA SLEW					UMBTH MNVR		HST RELEASE PREP	REL HST	FSS STOW		MEAL					POAPOTY	POAPOTY	PRE SLEEP
MS2 Clervoy	POST SLEEP				RPMSRUP	GRPL		HST UMBTH MNVR		HST RELEASE PREP	REL HST		RPMSRDN	MEAL		EXERCISE			POAPOTY	POAPOTY	PRE SLEEP
MS3 Grunsfeld	POST SLEEP							UMBTH MNVR		HST RELEASE PREP	REL HST	FSS STOW		MEAL					POAPOTY	POAPOTY	PRE SLEEP
MS4 Foale	POST SLEEP	ASPRN	PTV15 OPS					PTV15 OPS			REL HST			MEAL		VTR S/U	VTR P/B		PSVTU4P	POAPOTY	PRE SLEEP
MS5 Nicollier	POST SLEEP	ASPRN			RPMSRUP	GRPL		HST UMBTH MNVR		HST RELEASE PREP	REL HST		RPMSRDN	MEAL					POAPOTY	POAPOTY	PRE SLEEP
GND CMD	LSIF OAS DC*		PREP BATT *CHG		PSEA TEST MODE		OSPA ED NE**	CONF G*	PUM B	STFS*	DOEN	EP S*	PC RN SE PG A		NM OON MEG	RL CS TA	MM NCT VRS		FHST FOV CHECK	BATT*	ATT DET & LGBU DATA
TDRS					Z																
DAY/NIGHT																					
ORBIT																					
SAA	101				102					103											108
TDRS																					
GND SITES		DGS		-MIL		DGS		-MIL		DGS		-GD		-MIL		DGS		-GD		-MIL	
ORB ATT		-ZLV	-XVV							RELEASE ATT		TGT TRK									
SOLAR ARRAY		0				BATT CHARGE				REL											-ZLV -XVV
FSS																					
NOTES																					

BETA 13.69
 CT 10/21/99
 FD08
 MET Day 007



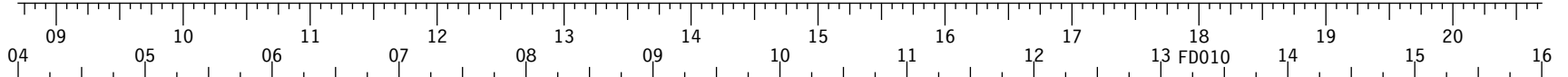
CDR Brown	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
PLT Kelly	PRE SLEEP	SLEEP	POST SLEEP	FILTER CLEAN OFF DUTY					
MS1 Smith	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
MS2 Clervoy	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
MS3 Grunsfeld	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
MS4 Foale	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
MS5 Nicollier	PRE SLEEP	SLEEP	POST SLEEP	OFF DUTY					
GND CMD	ATT DET & LGBU DATA								
TDRS	[Timeline with black bars]								
DAY/NIGHT	[Timeline with black bars]								
ORBIT	108	109	110	111	112	113	114	115	
SAA	[Timeline with horizontal bars]								
TDRS	[Timeline with horizontal bars]								
GND SITES	—DGS —HTS —GTS —DGS —HTS —GTS —GTS —GTS —GTS —GTS —DGS —MIL								
ORB ATT	—ZLV —XVV								
SOLAR ARRAY	—90								
FSS	—STOWED								
NOTES									

BETA 14.41
 CT 10/21/99
 FD09
 MET Day 007



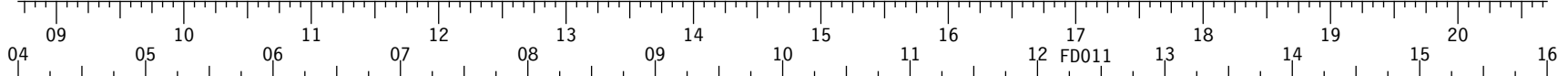
CDR Brown	PRIV	OFF DUTY	OPSS2	MEAL	OPSS2	EXERCISE	OPSS2	OFF DUTY	OPSS2	POPPITY	POPPITY	PRE SLEEP				
PLT Kelly	ODFTYV	PRIV	OFF DUTY	OPSS2	MEAL	WCS*	OPSS2	EXERCISE	OPSS2	OFF DUTY	OPSS2	POPPITY	POPPITY	PRE SLEEP	PRE SLEEP	PRE SLEEP
MS1 Smith	OFF DUTY	PRIV	OFF DUTY	MEAL	POST EVA ENT PREP		EXERCISE	OFF DUTY		POPPITY		PRE SLEEP				
MS2 Clervoy	OFF DUTY	PRIV	OFF DUTY	MEAL	EXERCISE	STVTOUP	PAO OPPTY	OFF DUTY		POPPITY	COMM*	PRE SLEEP				
MS3 Grunsfeld	OFF DUTY	PRIV	OFF DUTY	MEAL	POST EVA ENT PREP	OFF DUTY		EXERCISE		POPPITY		PRE SLEEP				
MS4 Foale	OFF DUTY	PRIV	OFF DUTY	MEAL	POST EVA ENT PREP	OFF DUTY		EXERCISE		POPPITY		PRE SLEEP				
MS5 Nicollier	OFF DUTY	PRIV	OFF DUTY	MEAL	POST EVA ENT PREP		PAO OPPTY	EXERCISE		POPPITY		PRE SLEEP				
GND CMD																
TDRS																
DAY/NIGHT																
ORBIT SAA	116	117	118	119	120	121	122	123								
TDRS E W																
GND SITES	MIL	DGS	MIL	DGS	MIL	DGS	GDX	DGS	GDX	DGS	GDX	DGS	GDX			
					MIL		MIL		MIL		MIL		MIL			
					-VTS		-HTS		-HTS		-HTS		-HTS			
					-VTS		-VTS		-VTS		-VTS		-VTS			
ORB ATT	-ZLV -XVV															
SOLAR ARRAY	-ZLV +YVV															
FSS	STOWED															
NOTES	OFF DUTY				*COMPACTION				*STRING 1 C/O INIT							

BETA 15.02
 CT 10/22/99
 FD09
 MET Day 008



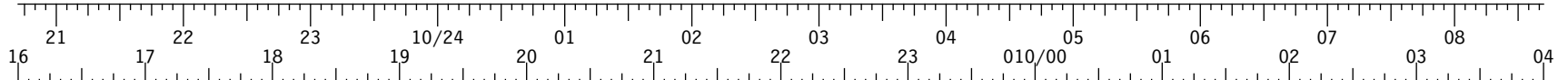
CDR Brown	SLEEP	POST SLEEP	FCS C/O
PLT Kelly	SLEEP	POST SLEEP	FCS C/O
MS1 Smith	SLEEP	POST SLEEP	EXERCISE
MS2 Clervoy	SLEEP	POST SLEEP	FCS C/O
MS3 Grunsfeld	SLEEP	POST SLEEP	
MS4 Foale	SLEEP	POST SLEEP	
MS5 Nicollier	SLEEP	POST SLEEP	
GND CMD			
TDRS			
DAY/NIGHT			
ORBIT			
SAA	123	124	125
TDRS			
GND SITES	DGS HTS GTS	DGS HTS GTS	GTS HTS
ORB ATT	-ZLV -XVV		
SOLAR ARRAY	INRTL		
FSS	STOWED		
NOTES	*APU HTR ACT		

BETA 15.91
 CT 10/23/99
 FD010
 MET Day 009



CDR Brown	SLEEP	POST SLEEP	GRP B PWUP	TE P C *	D/O IMU ALIGN			
PLT Kelly	SLEEP	POST SLEEP	GRP B PWUP		D/O IMU ALIGN			
MS1 Smith	SLEEP	POST SLEEP	P D L E A C T					
MS2 Clervoy	SLEEP	POST SLEEP	A S I A R M P		O D I C E A C T			
MS3 Grunsfeld	SLEEP	POST SLEEP	O S T A O C W		MAGR SIGI ENTRY S/U			
MS4 Foale	SLEEP	POST SLEEP			PTV07 SETUP			
MS5 Nicollier	SLEEP	POST SLEEP	P D L E A C T					
GND CMD	*							
TDRS								
DAY/NIGHT								
ORBIT	138	139	140	141	142	143	144	145
SAA								
TDRS								
GND SITES								
ORB ATT	-ZLV -YVV							
SOLAR ARRAY	IMU							
FSS	*FC PURG *OFF							
NOTES								

BETA 16.19
 CT 10/23/99
 FD011
 MET Day 009

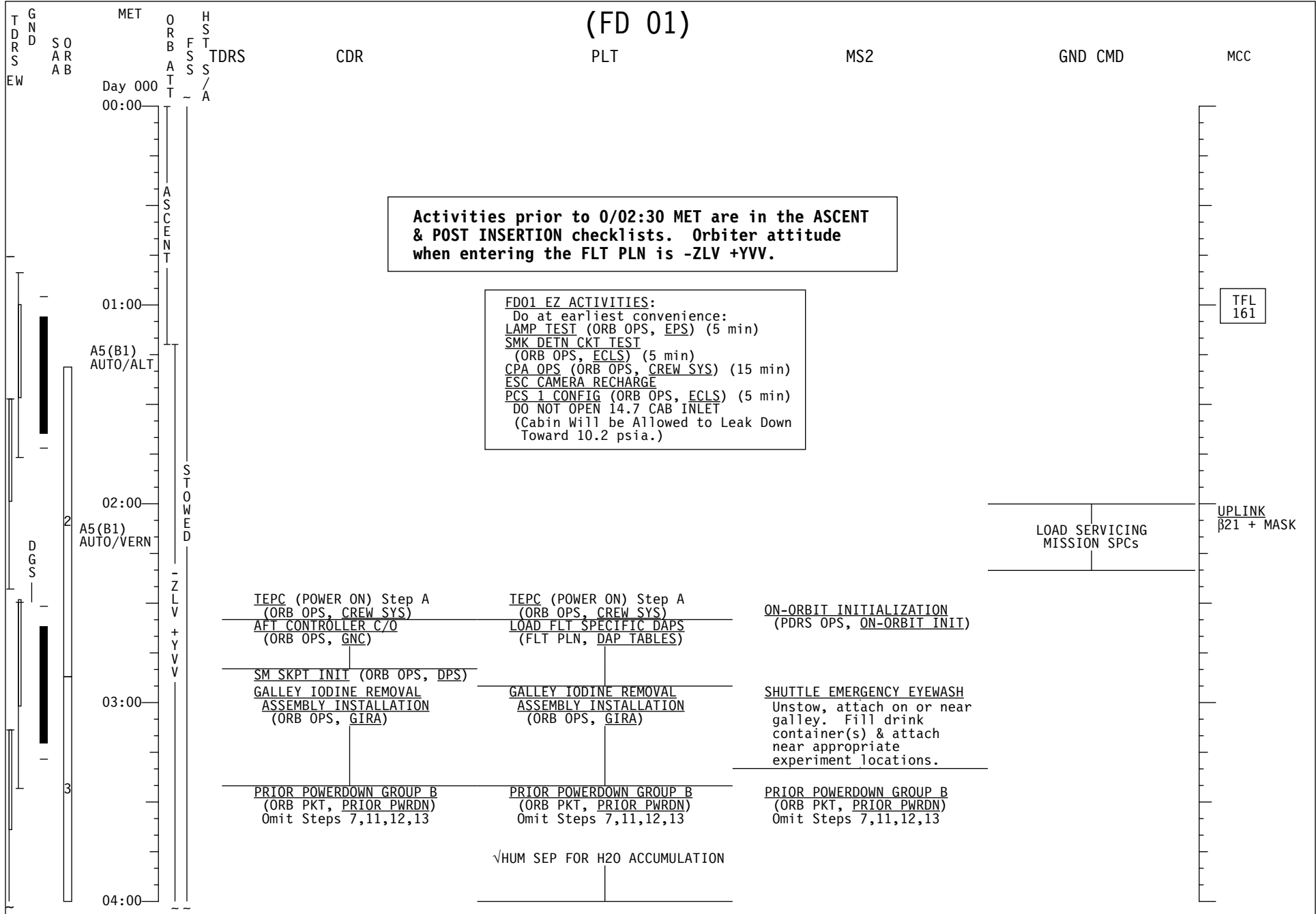


CDR Brown	D/O IMU ALIGN	DEORBIT PREP							
PLT Kelly	D/O IMU ALIGN	DEORBIT PREP	DEORBIT	LANDING					
MS1 Smith		DEORBIT PREP							
MS2 Clervoy		DEORBIT PREP							
MS3 Grunsfeld	*	DEORBIT PREP			BURN	KSC			
MS4 Foale		DEORBIT PREP							
MS5 Nicollier		DEORBIT PREP							
GND CMD									
TDRS									
DAY/NIGHT									
ORBIT									
SAA		146	147	148	149	150	151	152	153
TDRS	E W								
GND SITES		MIL DGS	MIL DGS	GDX MIL DGS	GDX MIL DGS	GDX MIL DGS	GDX MIL DGS	GDX MIL DGS	GDX MIL DGS
				HTS VTS	HTS VTS	GTS MIL HTS VTS	GTS MIL HTS VTS	GTS MIL HTS VTS	GTS MIL HTS VTS
ORB ATT		IMU		COMM		ENTRY			
SOLAR ARRAY			XSI		D/O				
FSS									
NOTES		*MAGR SIGI ENTRY S/U		*009/20:26	*009/21:38				

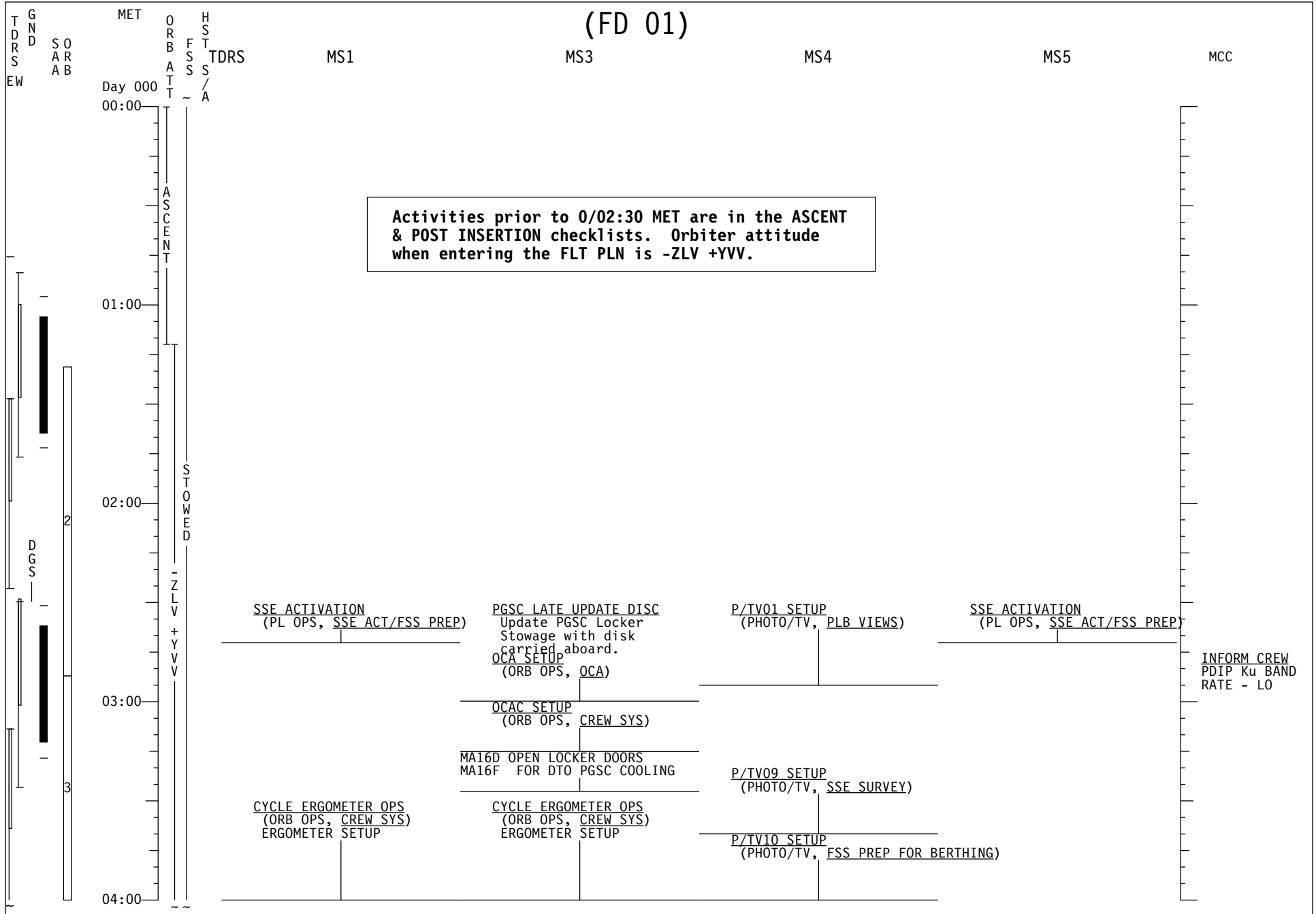
DETAILED TIMELINE

DETAILED
TIMELINE

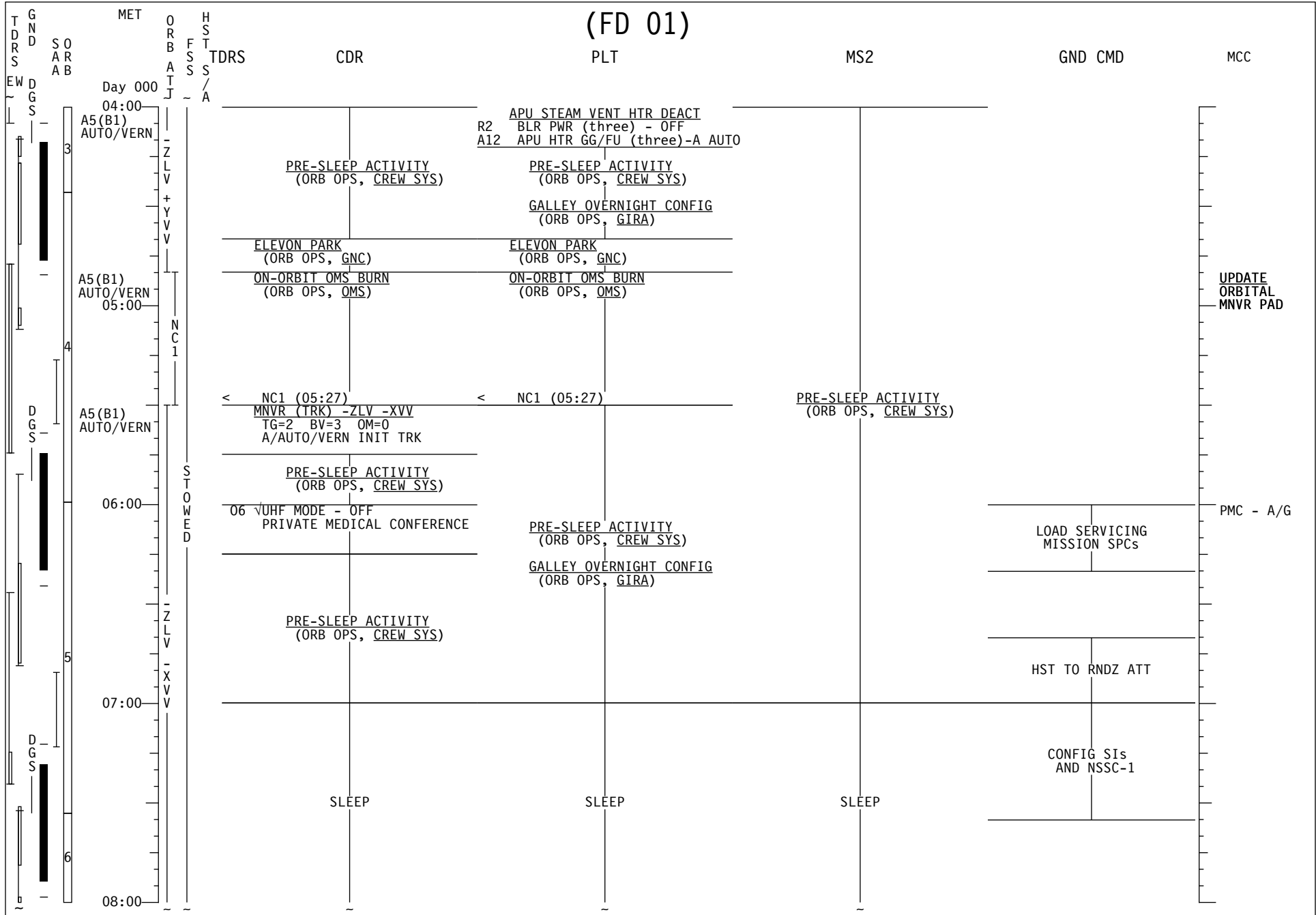
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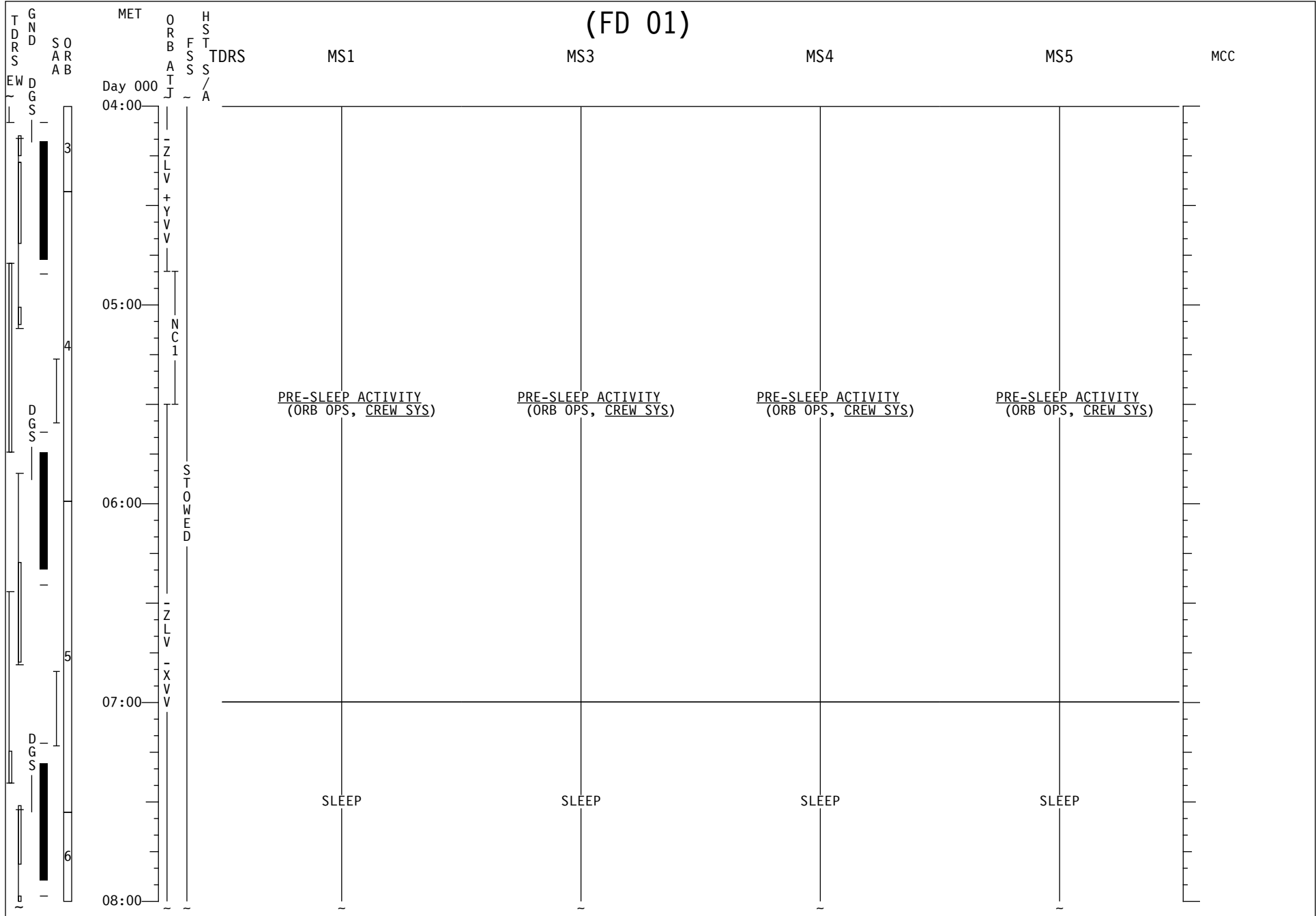
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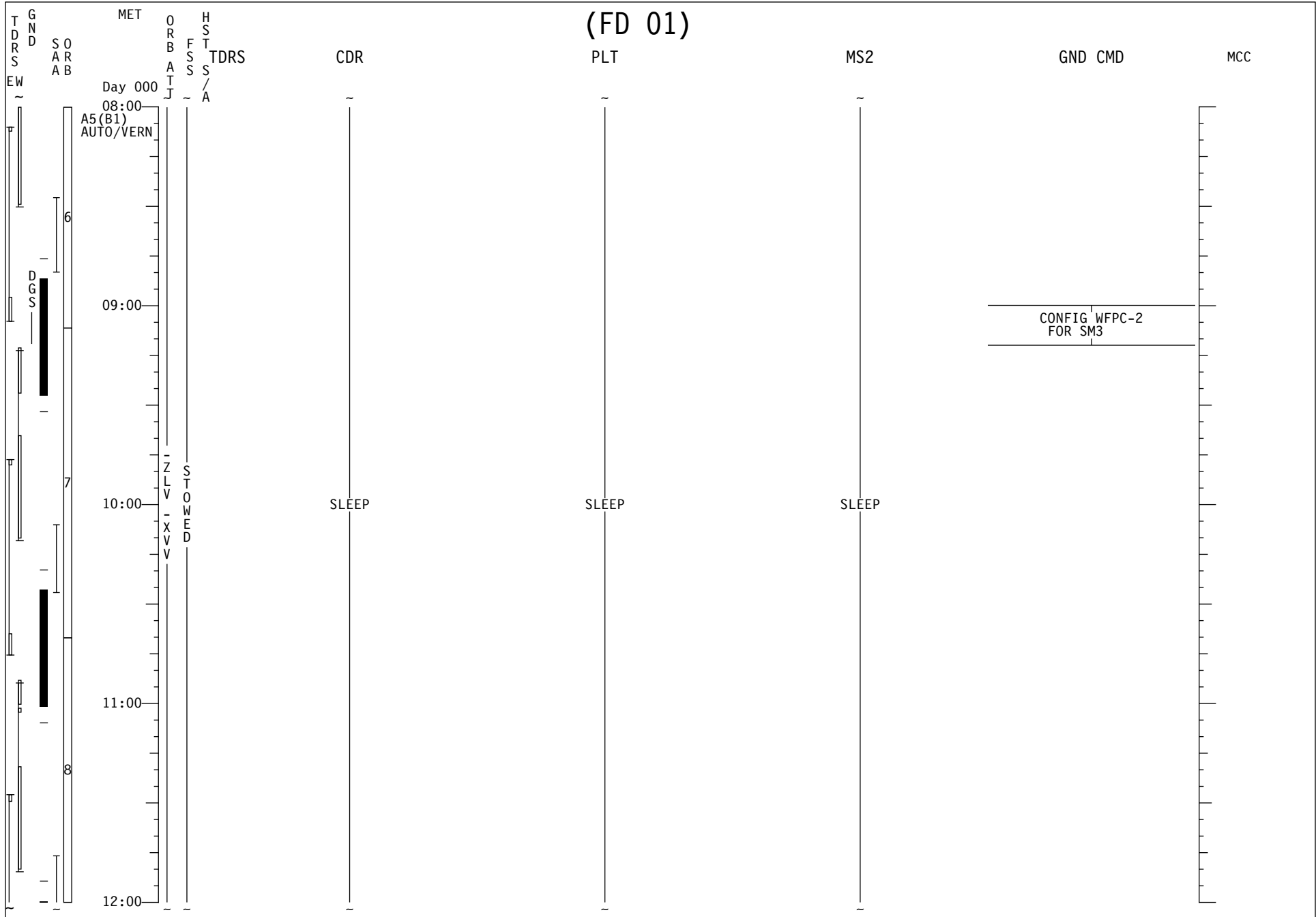
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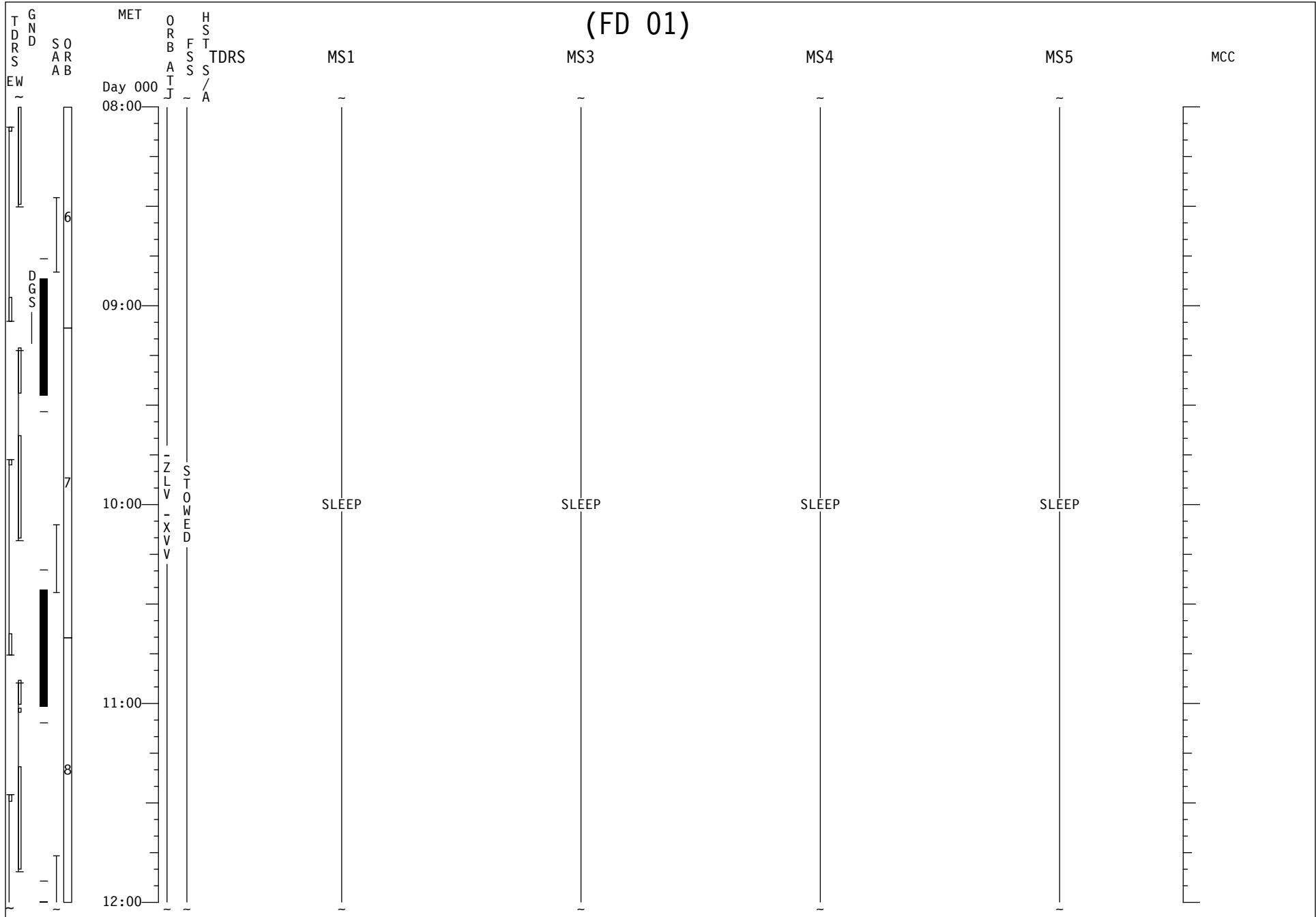
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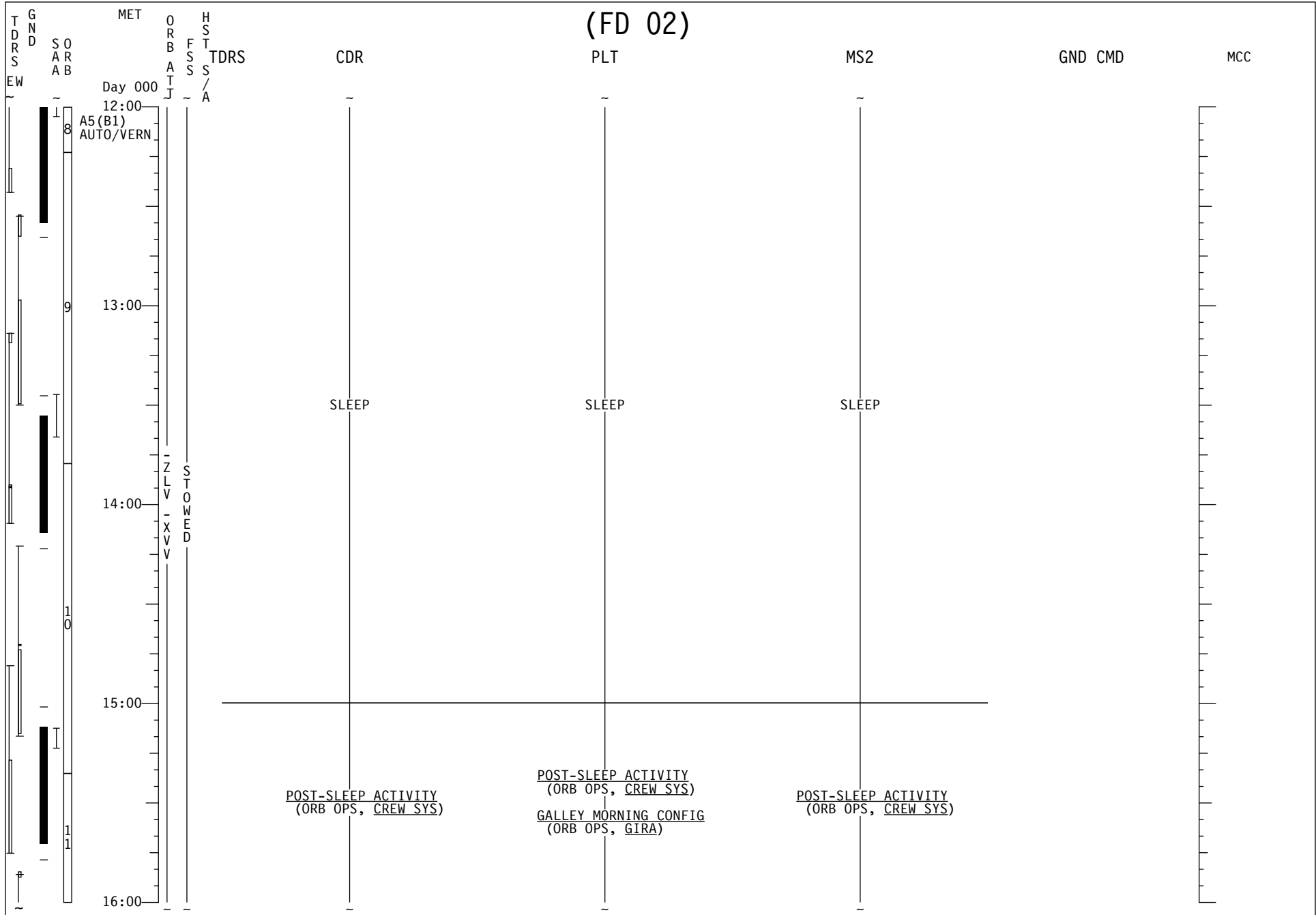
(FD 01)



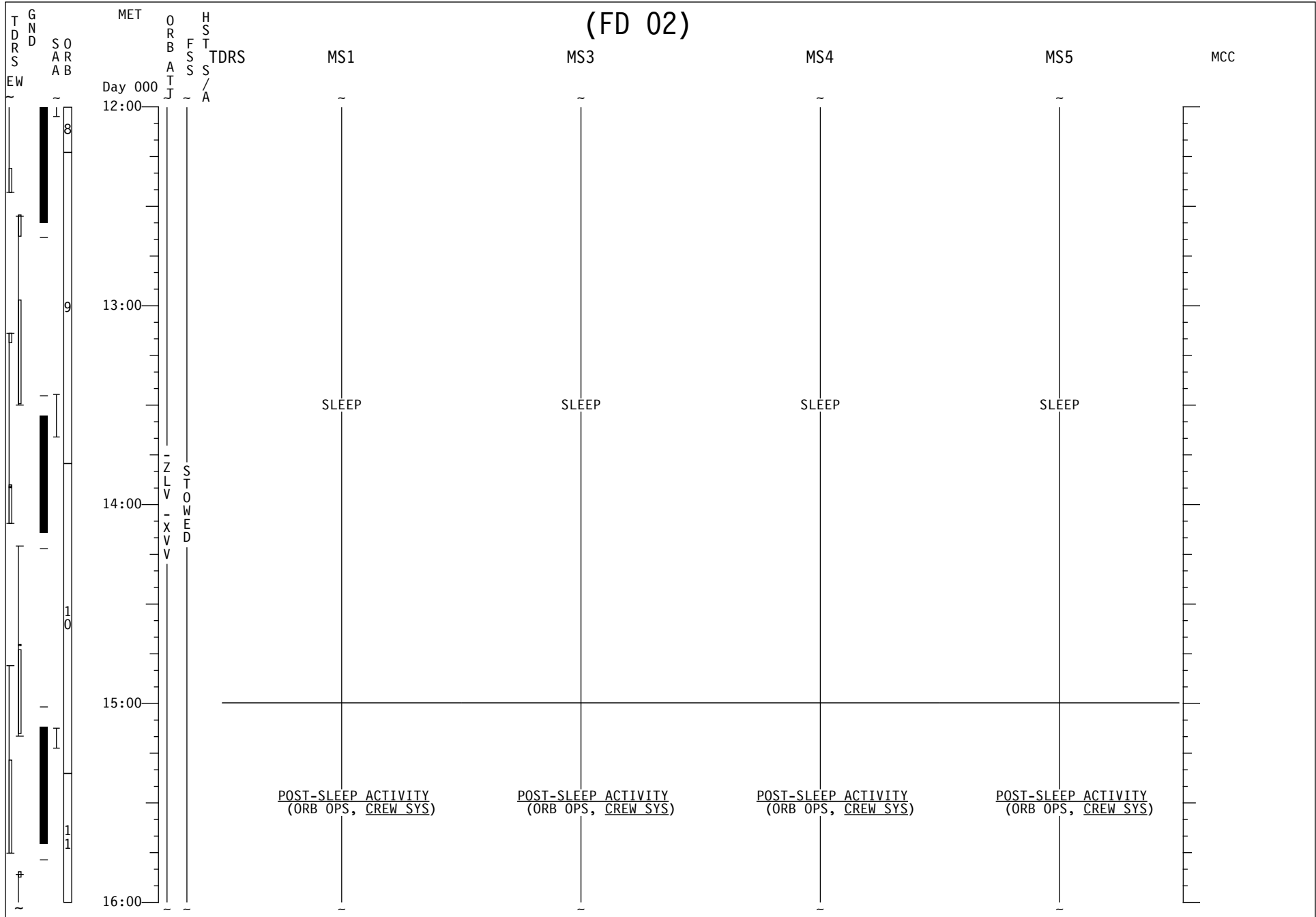
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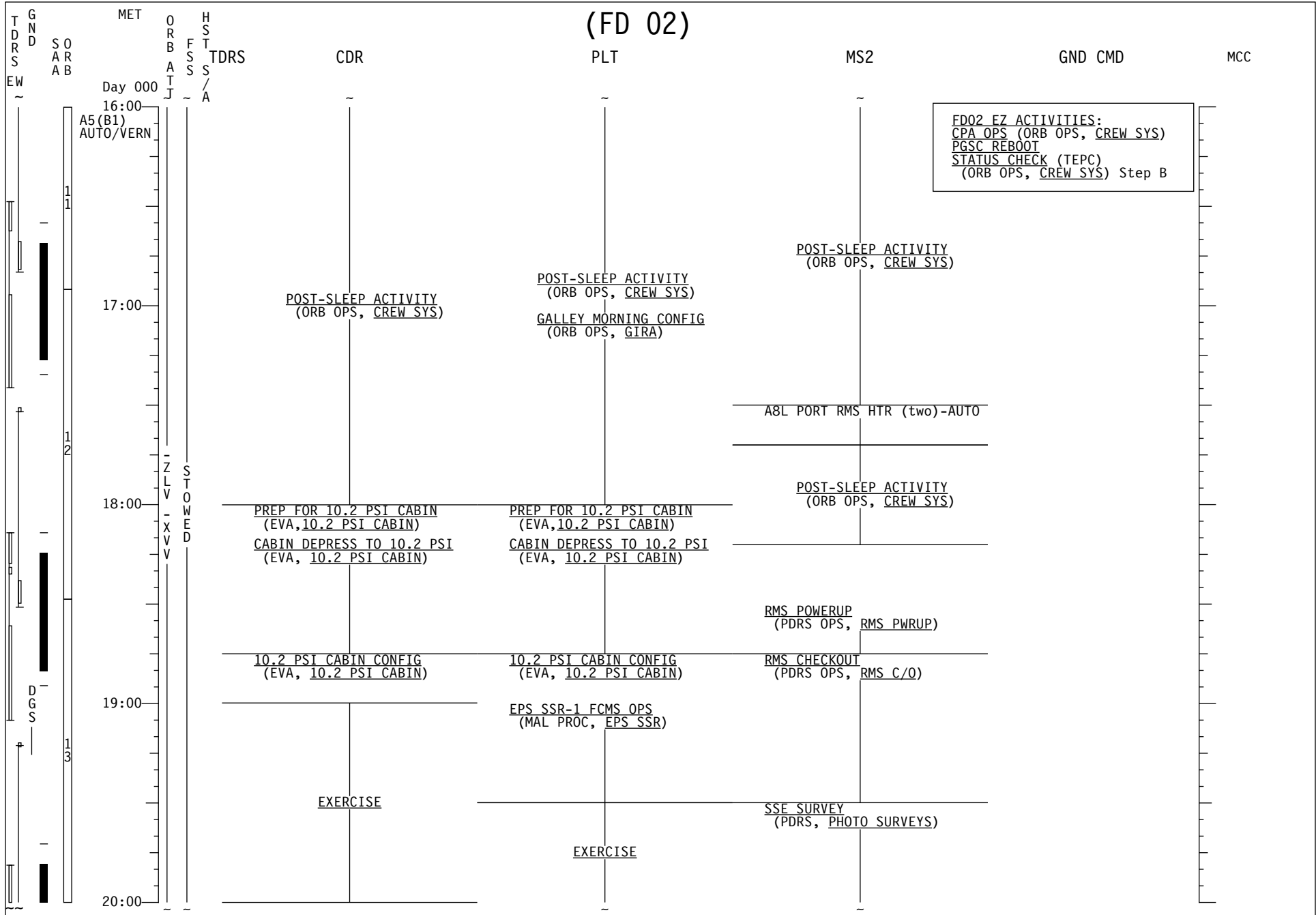
(FD 02)



(FD 02)



(FD 02)



FD02 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC REBOOT
 STATUS CHECK (TEPC)
 (ORB OPS, CREW SYS) Step B

POST-SLEEP ACTIVITY
 (ORB OPS, CREW SYS)

POST-SLEEP ACTIVITY
 (ORB OPS, CREW SYS)

POST-SLEEP ACTIVITY
 (ORB OPS, CREW SYS)

GALLEY MORNING CONFIG
 (ORB OPS, GIRA)

A8L PORT RMS HTR (two)-AUTO

POST-SLEEP ACTIVITY
 (ORB OPS, CREW SYS)

PREP FOR 10.2 PSI CABIN
 (EVA, 10.2 PSI CABIN)
 CABIN DEPRESS TO 10.2 PSI
 (EVA, 10.2 PSI CABIN)

PREP FOR 10.2 PSI CABIN
 (EVA, 10.2 PSI CABIN)
 CABIN DEPRESS TO 10.2 PSI
 (EVA, 10.2 PSI CABIN)

RMS POWERUP
 (PDRS OPS, RMS PWRUP)

10.2 PSI CABIN CONFIG
 (EVA, 10.2 PSI CABIN)

10.2 PSI CABIN CONFIG
 (EVA, 10.2 PSI CABIN)

RMS CHECKOUT
 (PDRS OPS, RMS C/O)

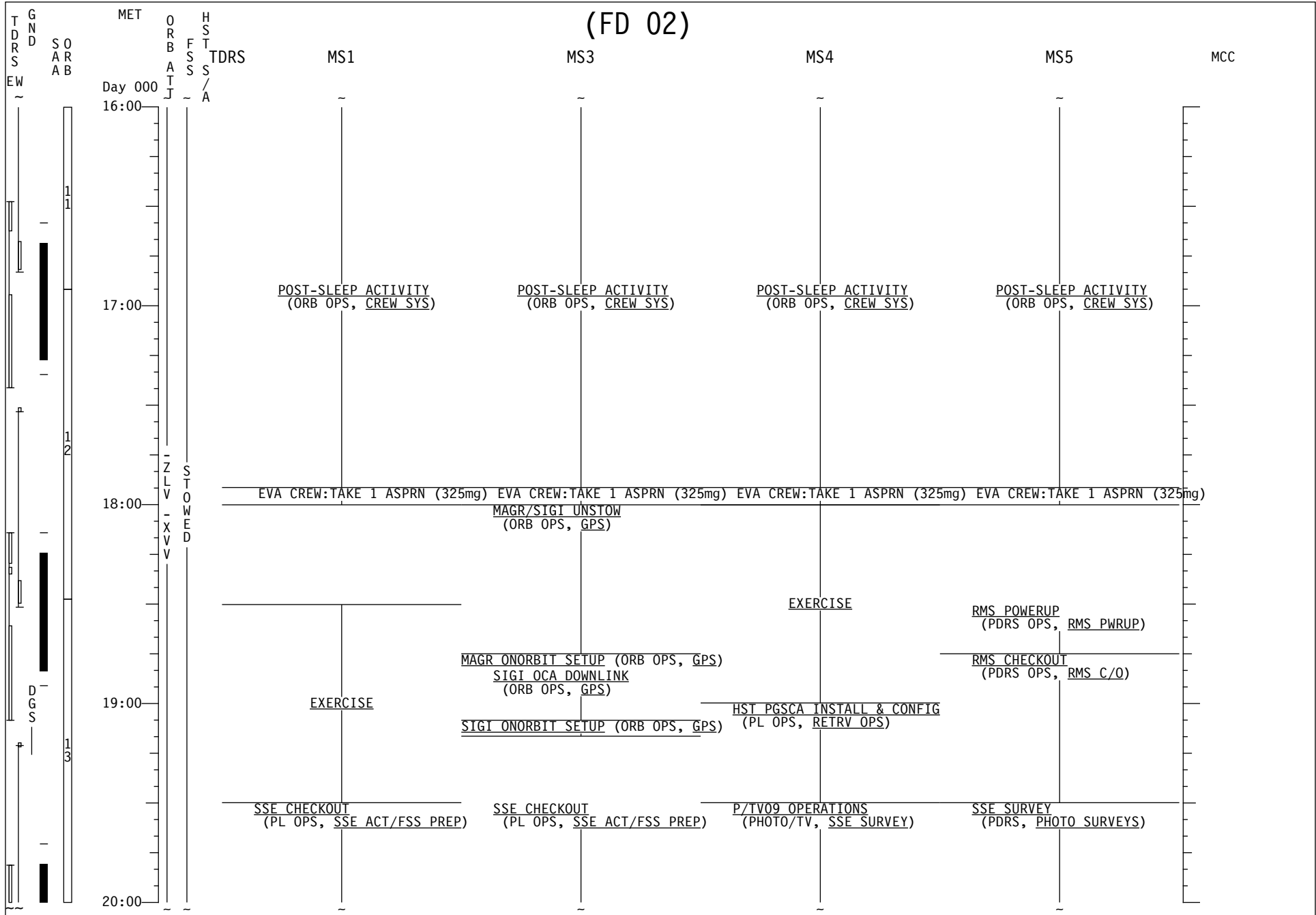
EPS SSR-1 FCMS OPS
 (MAL PROC, EPS SSR)

EXERCISE

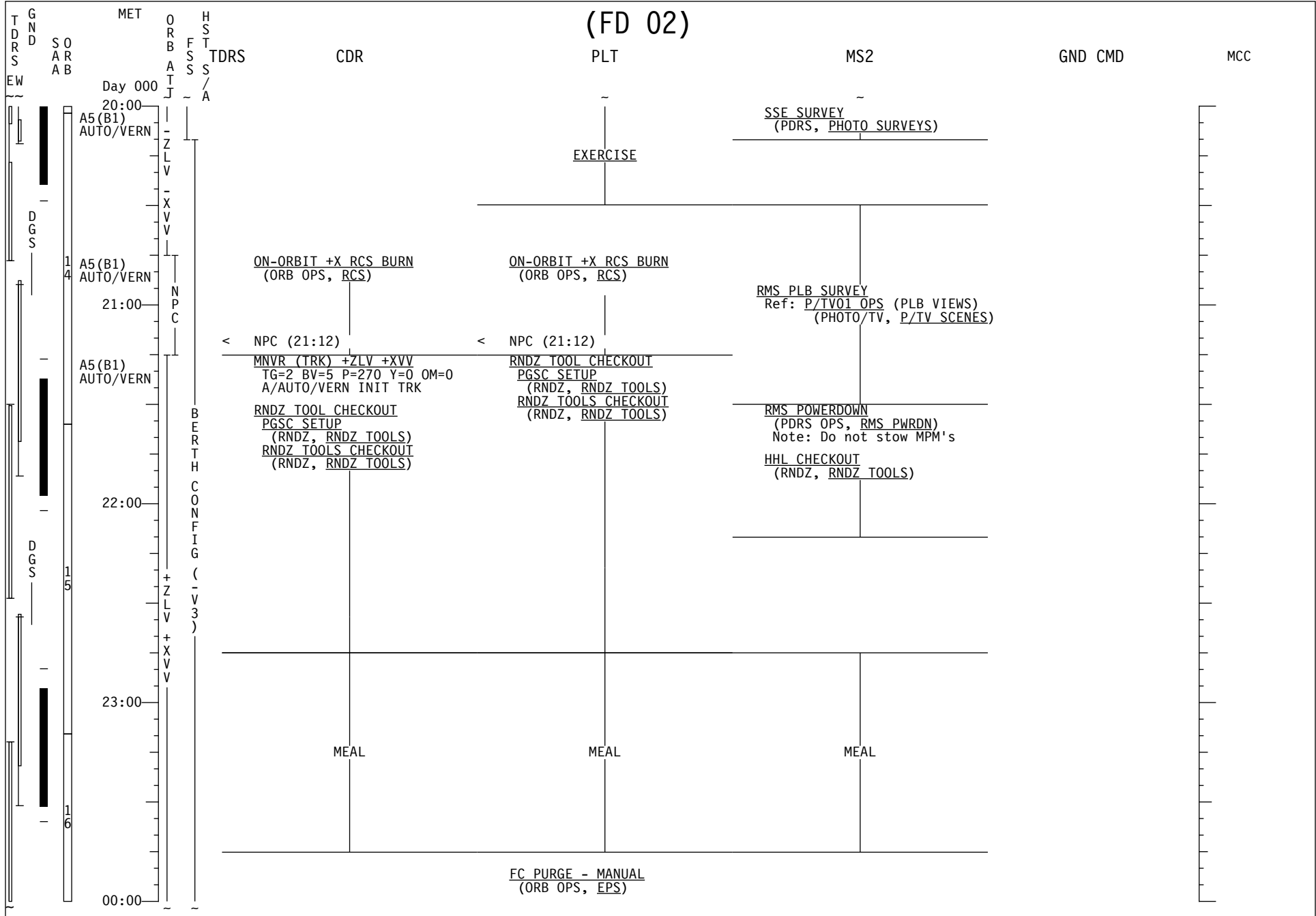
SSE SURVEY
 (PDRS, PHOTO SURVEYS)

EXERCISE

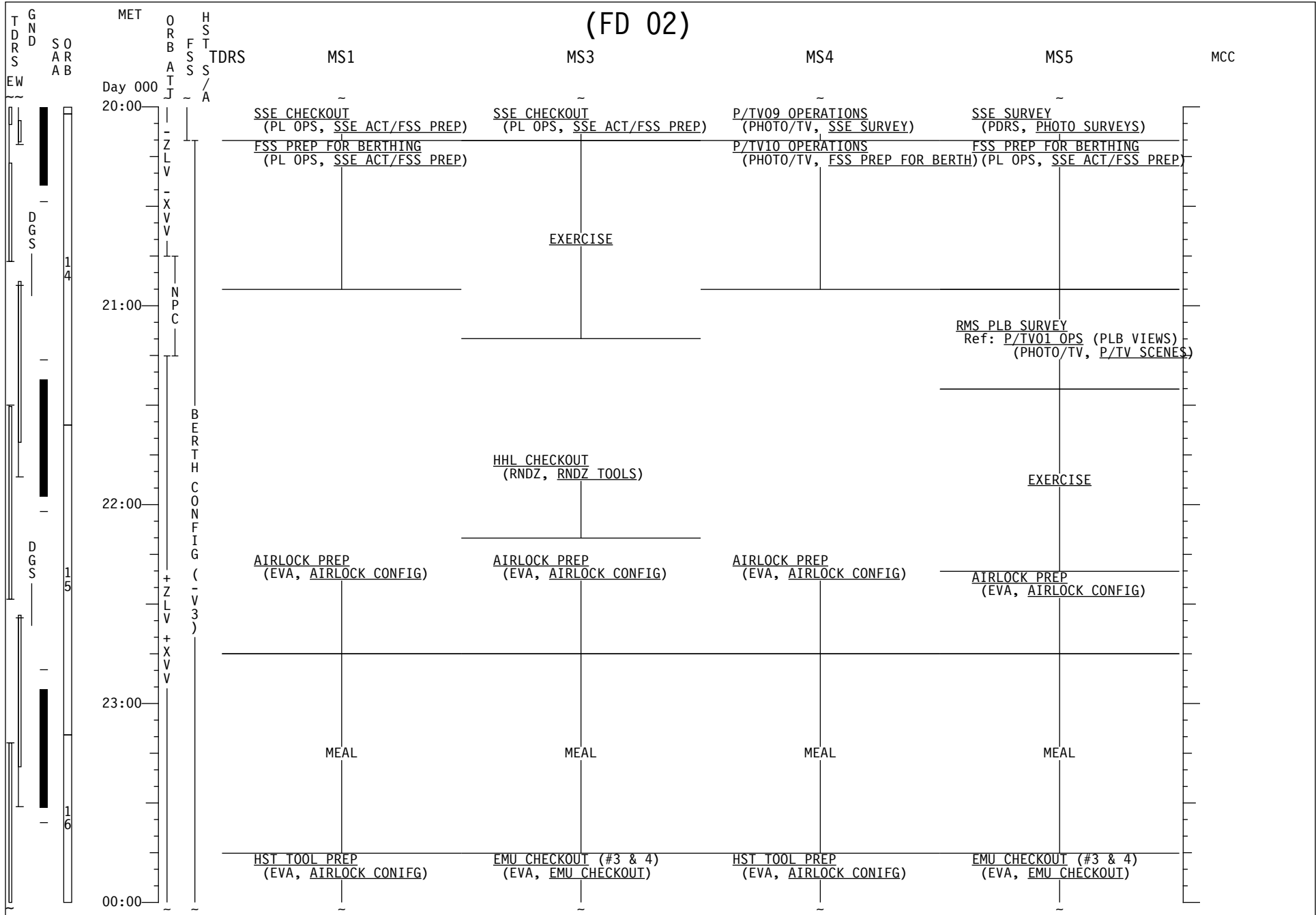
(FD 02)



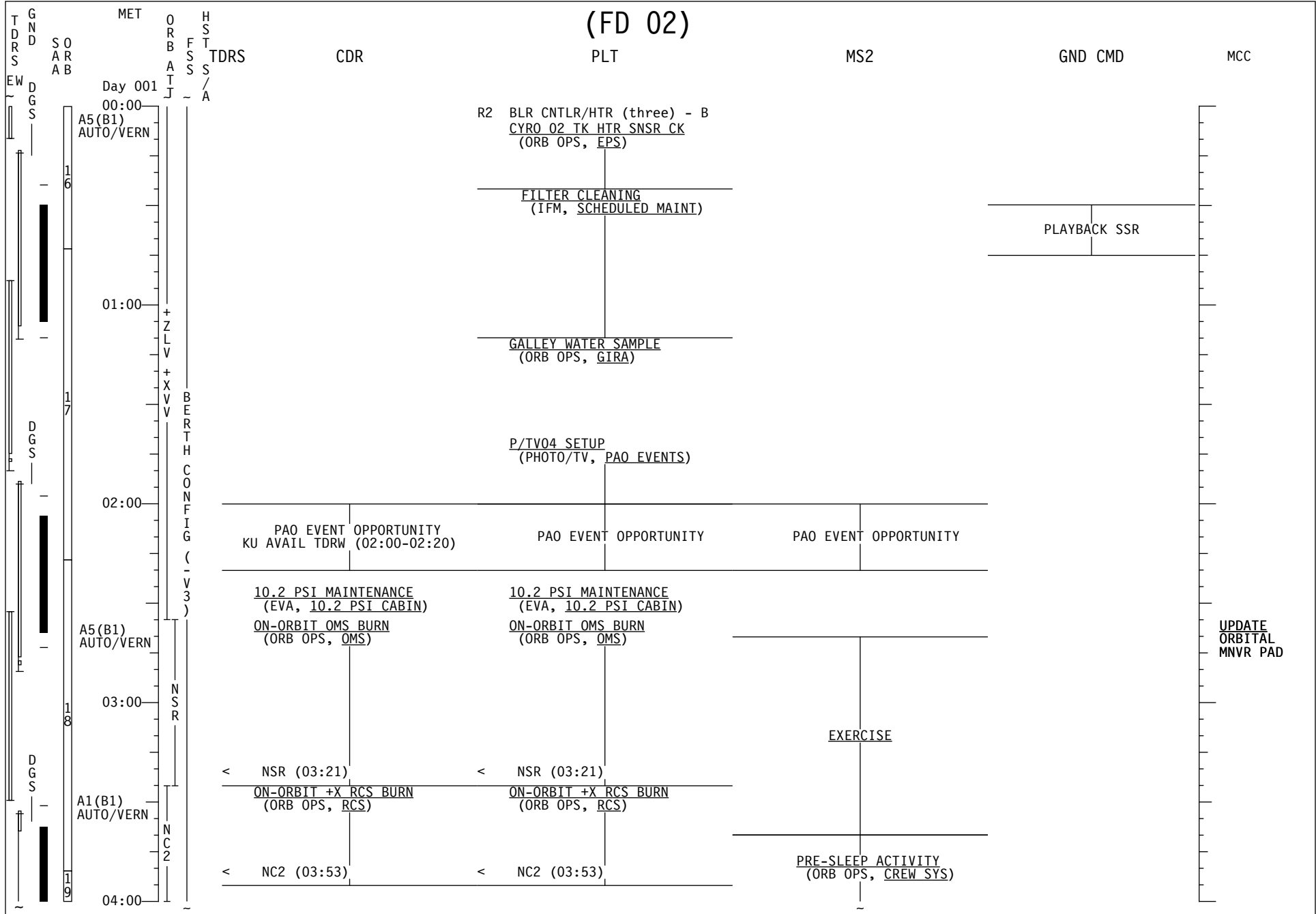
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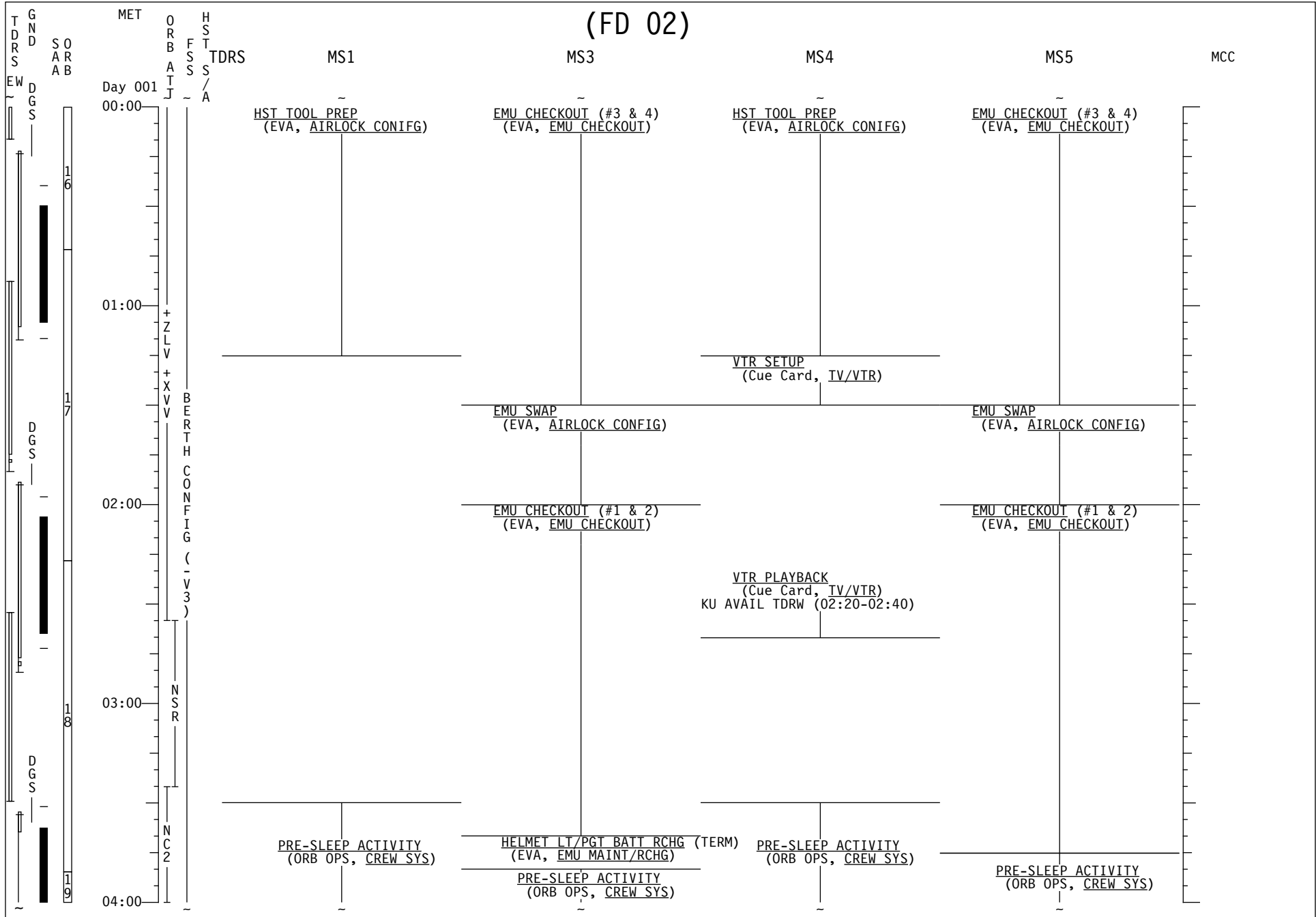
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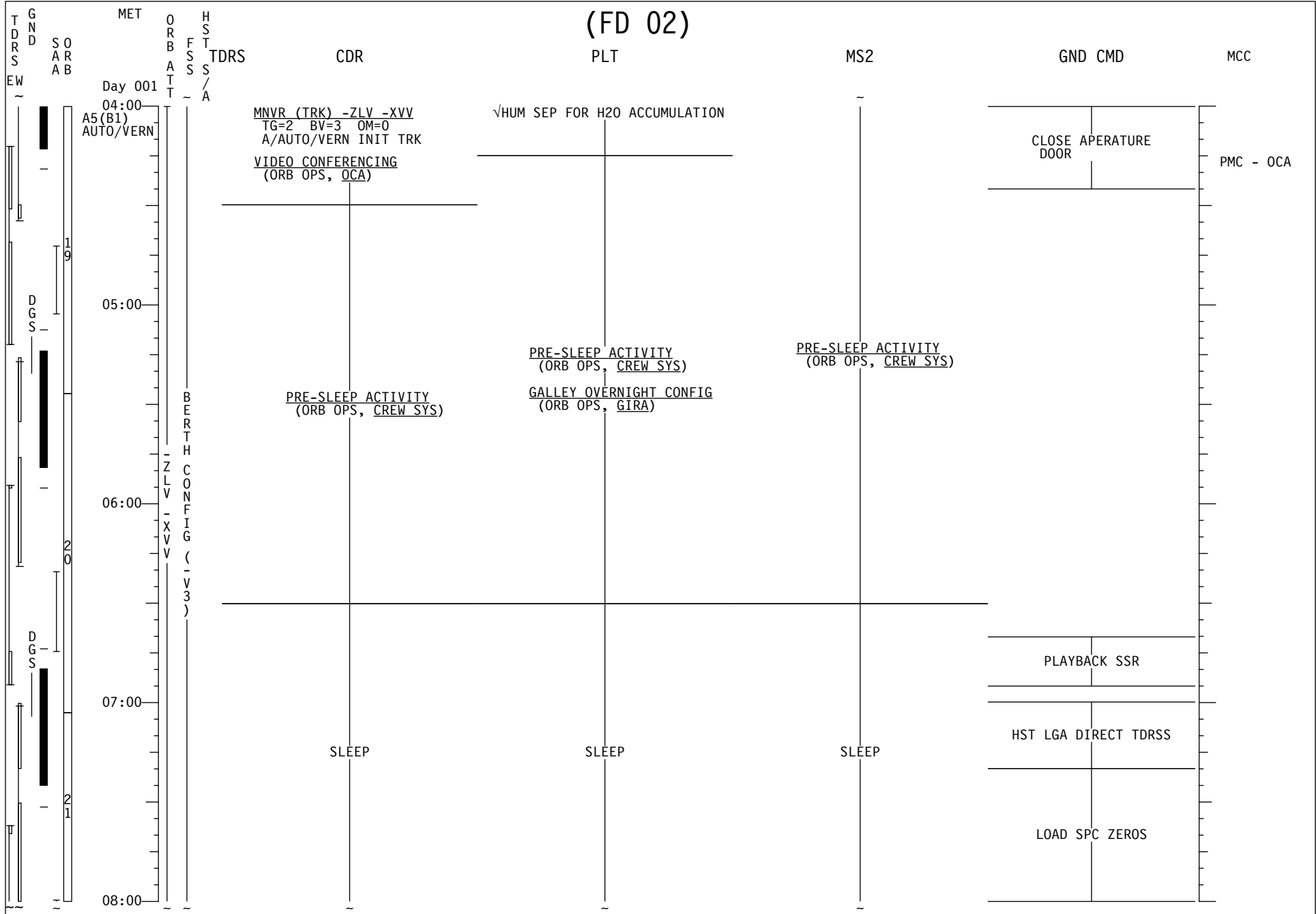
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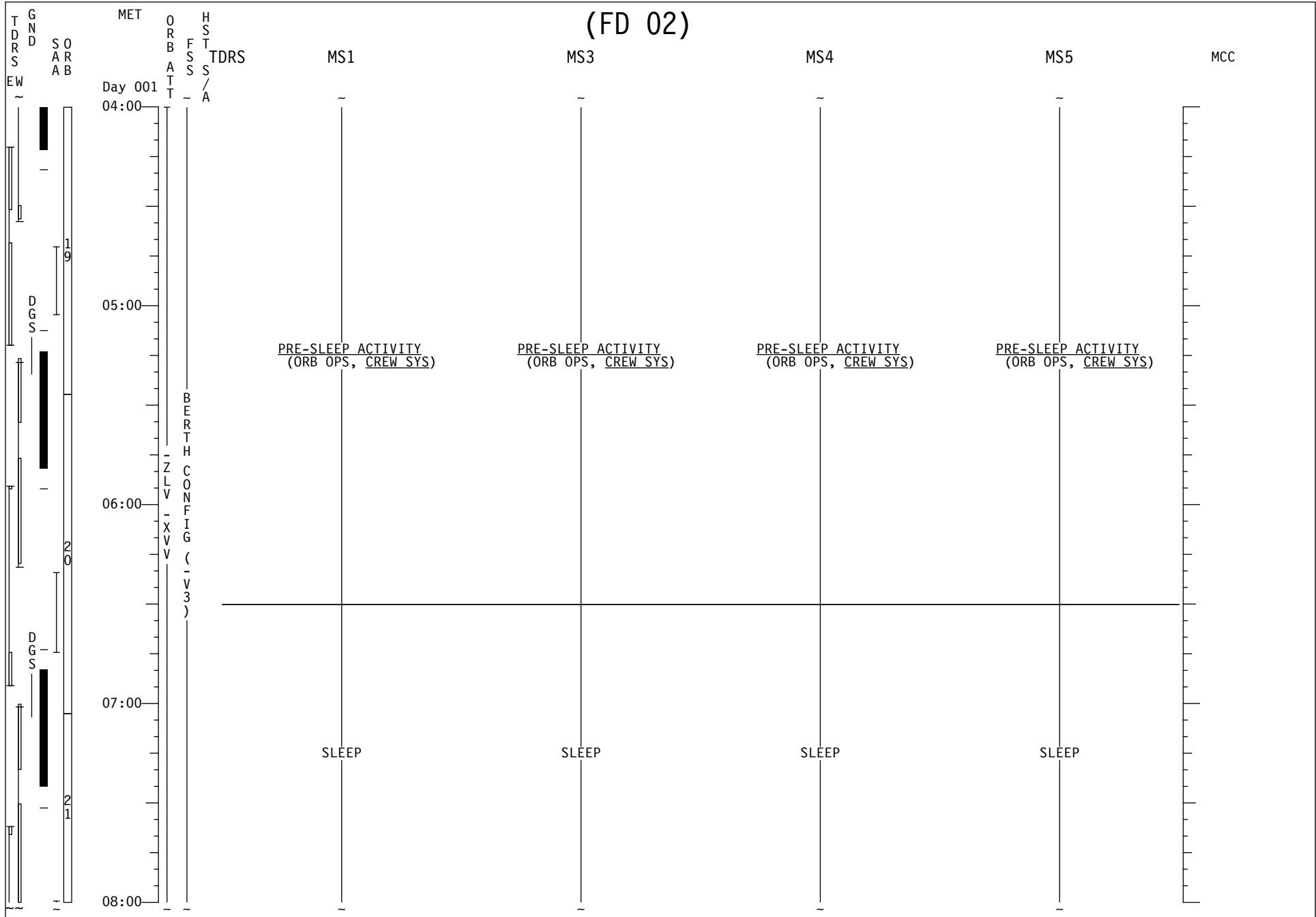
(FD 02)



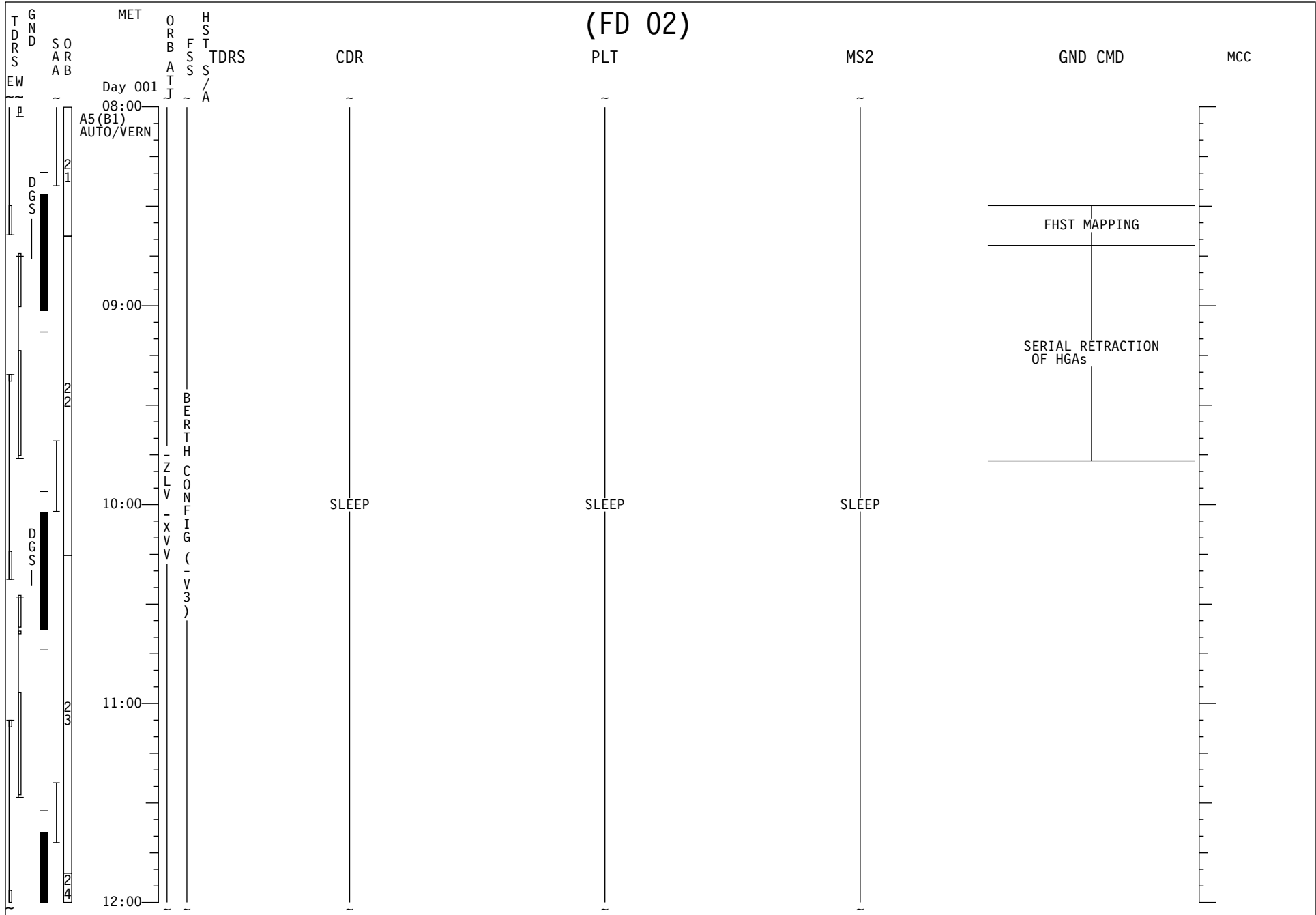
(FD 02)



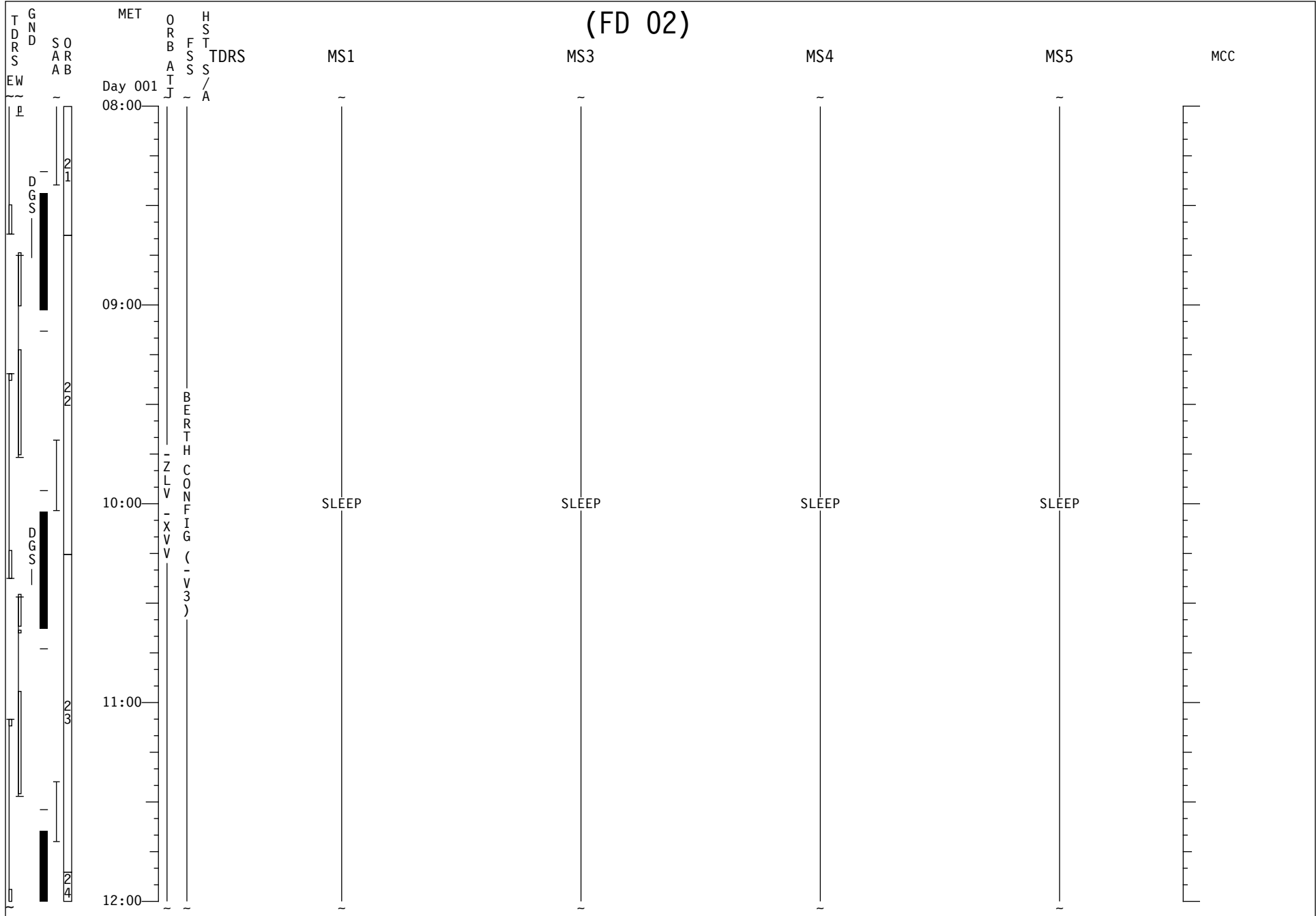
(FD 02)



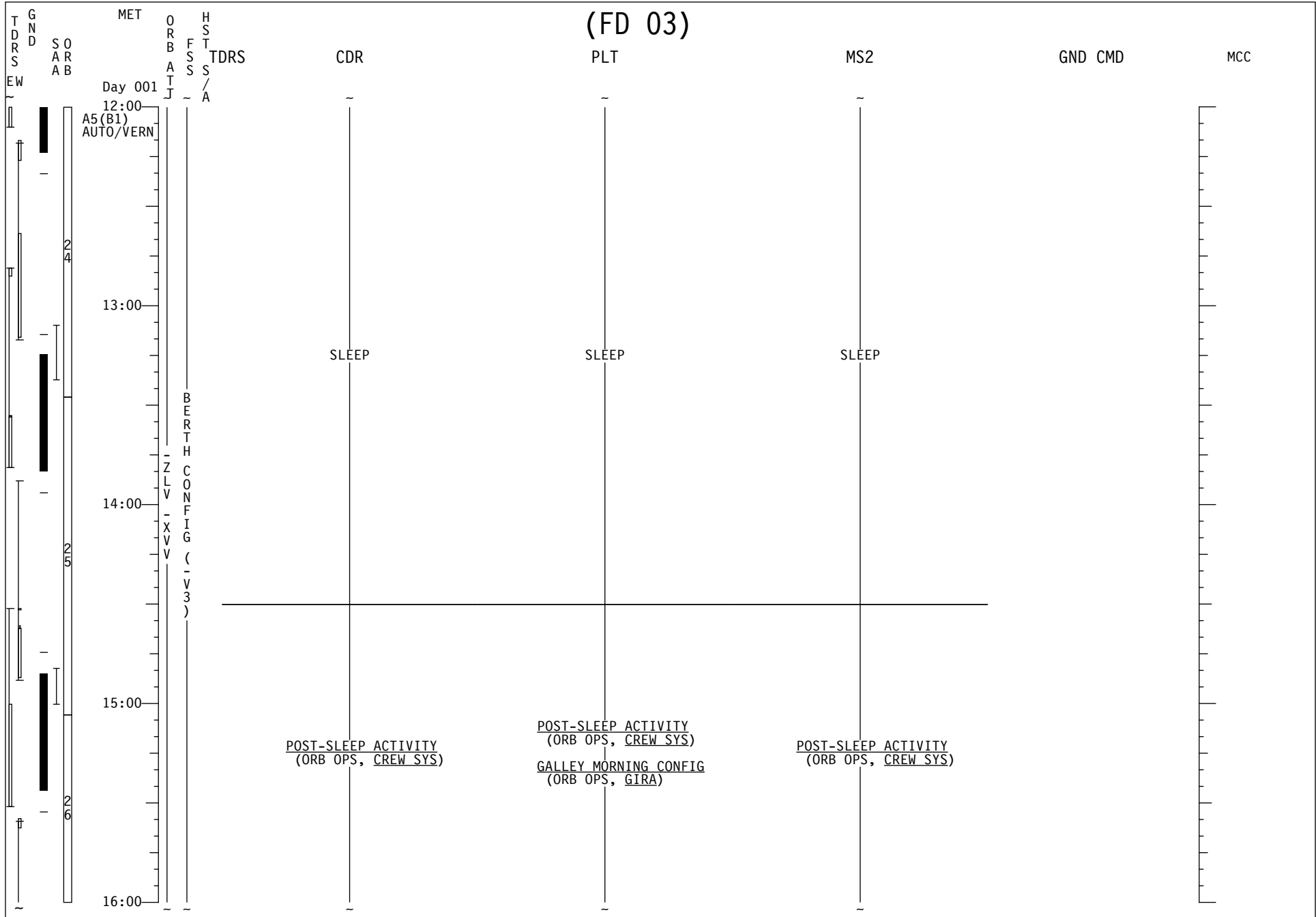
(FD 02)



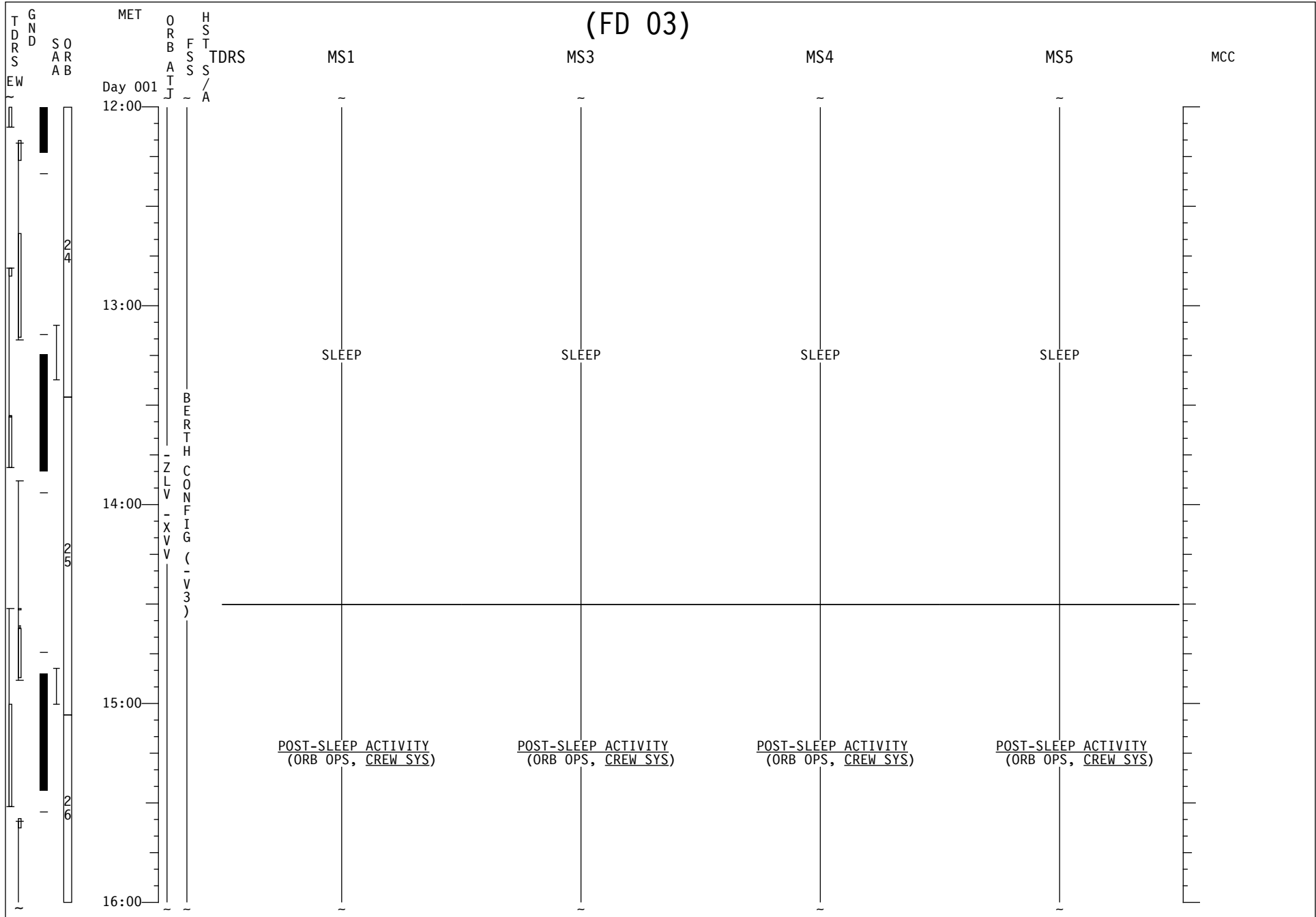
(FD 02)

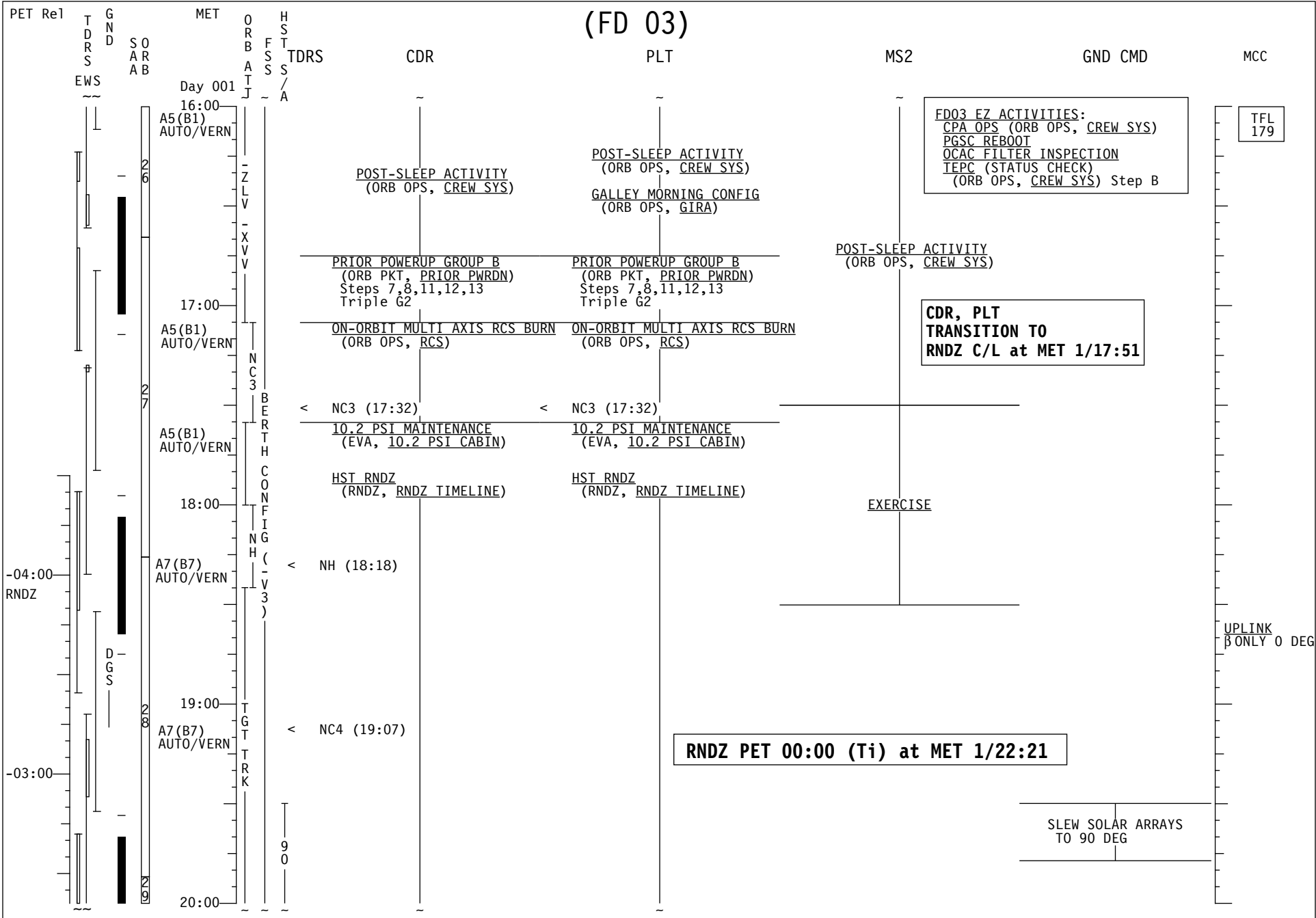


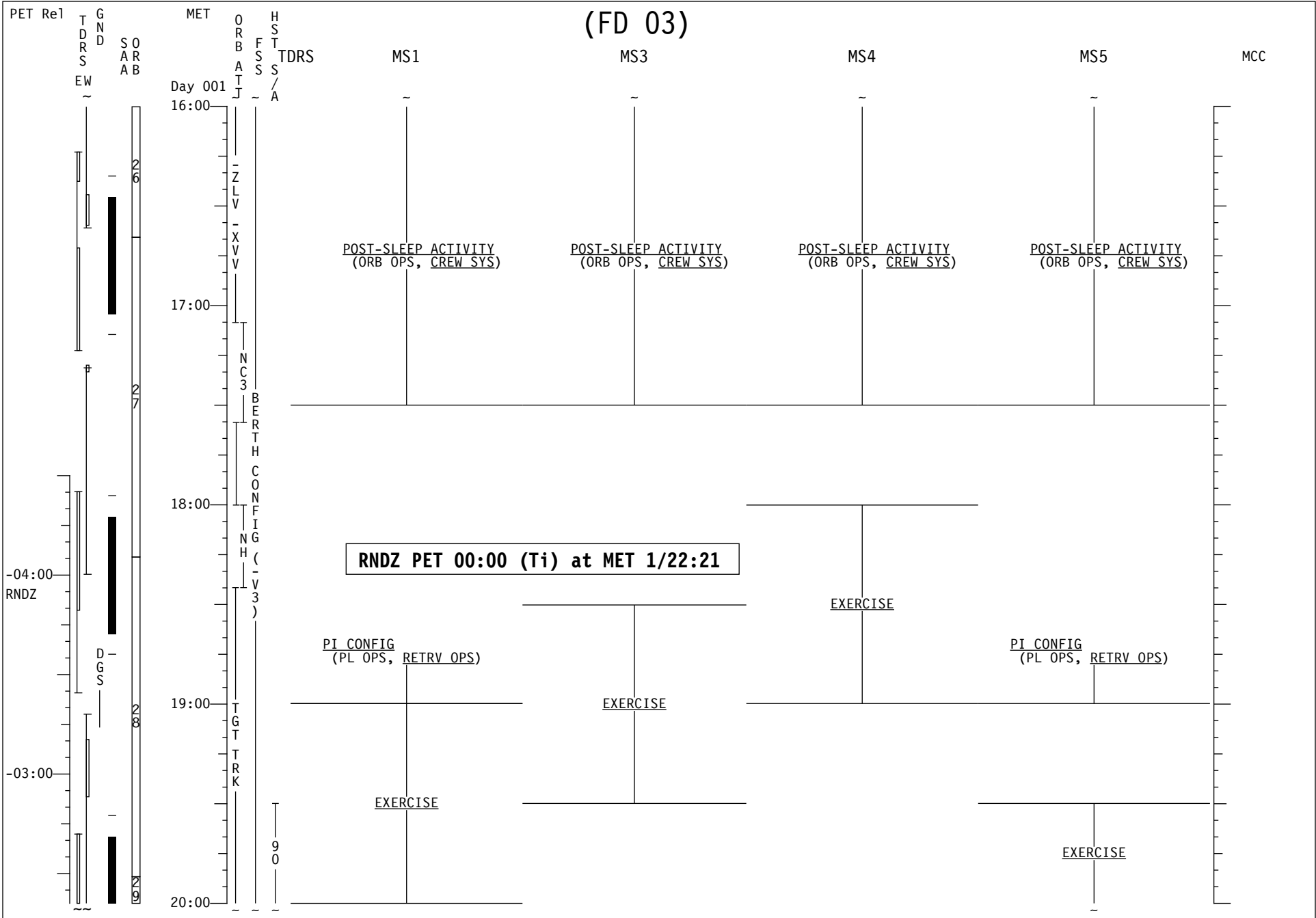
(FD 03)

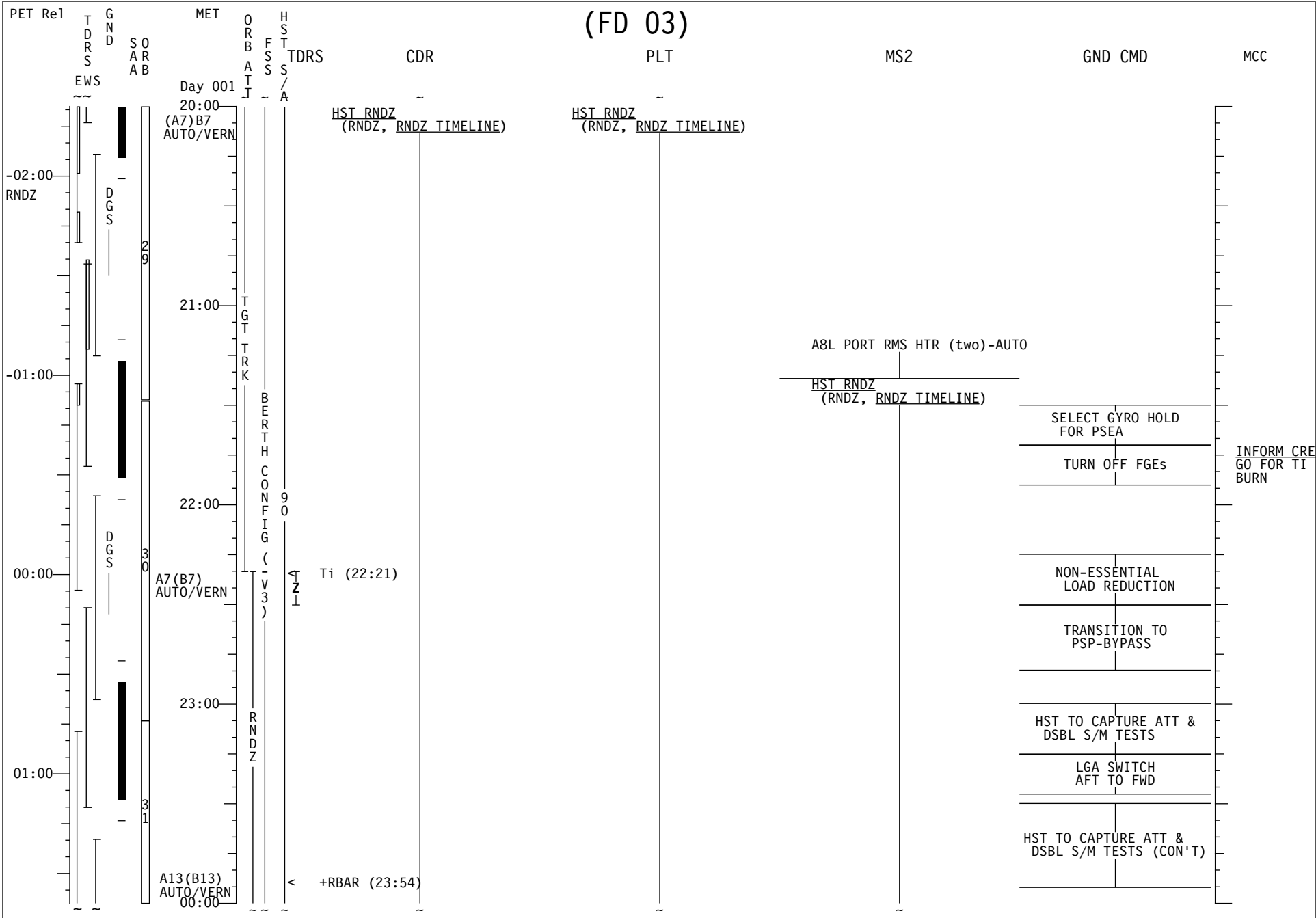


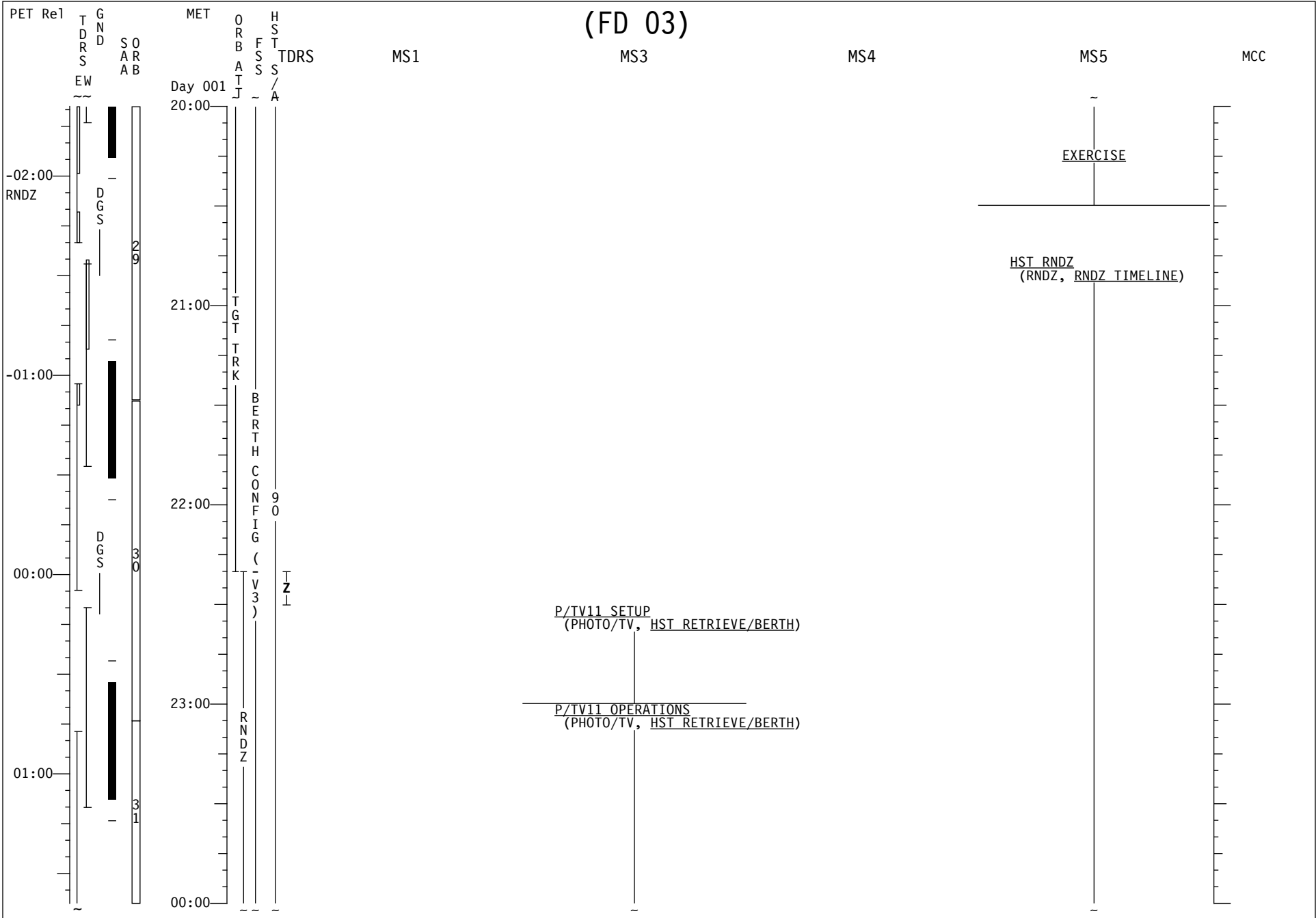
(FD 03)

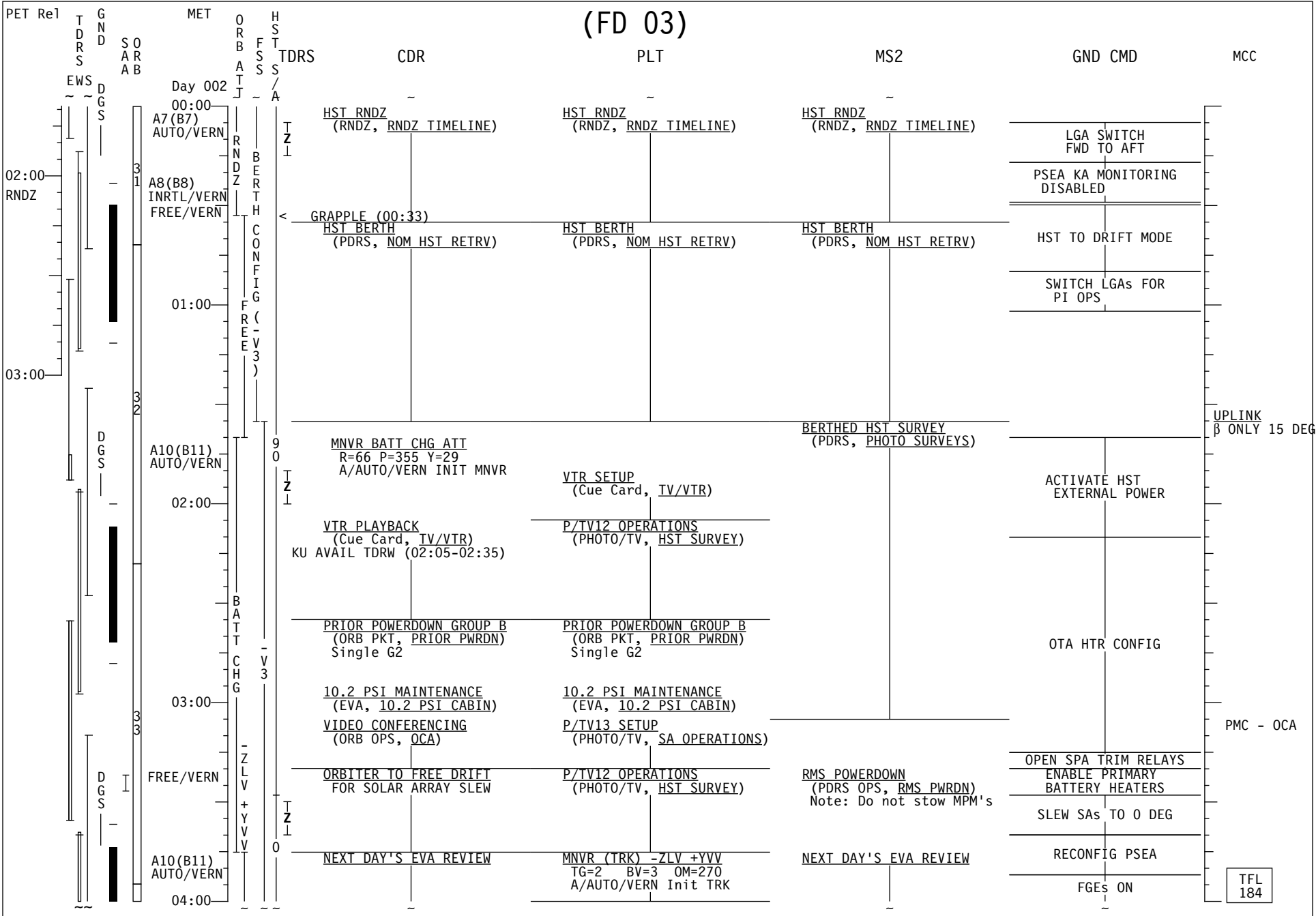


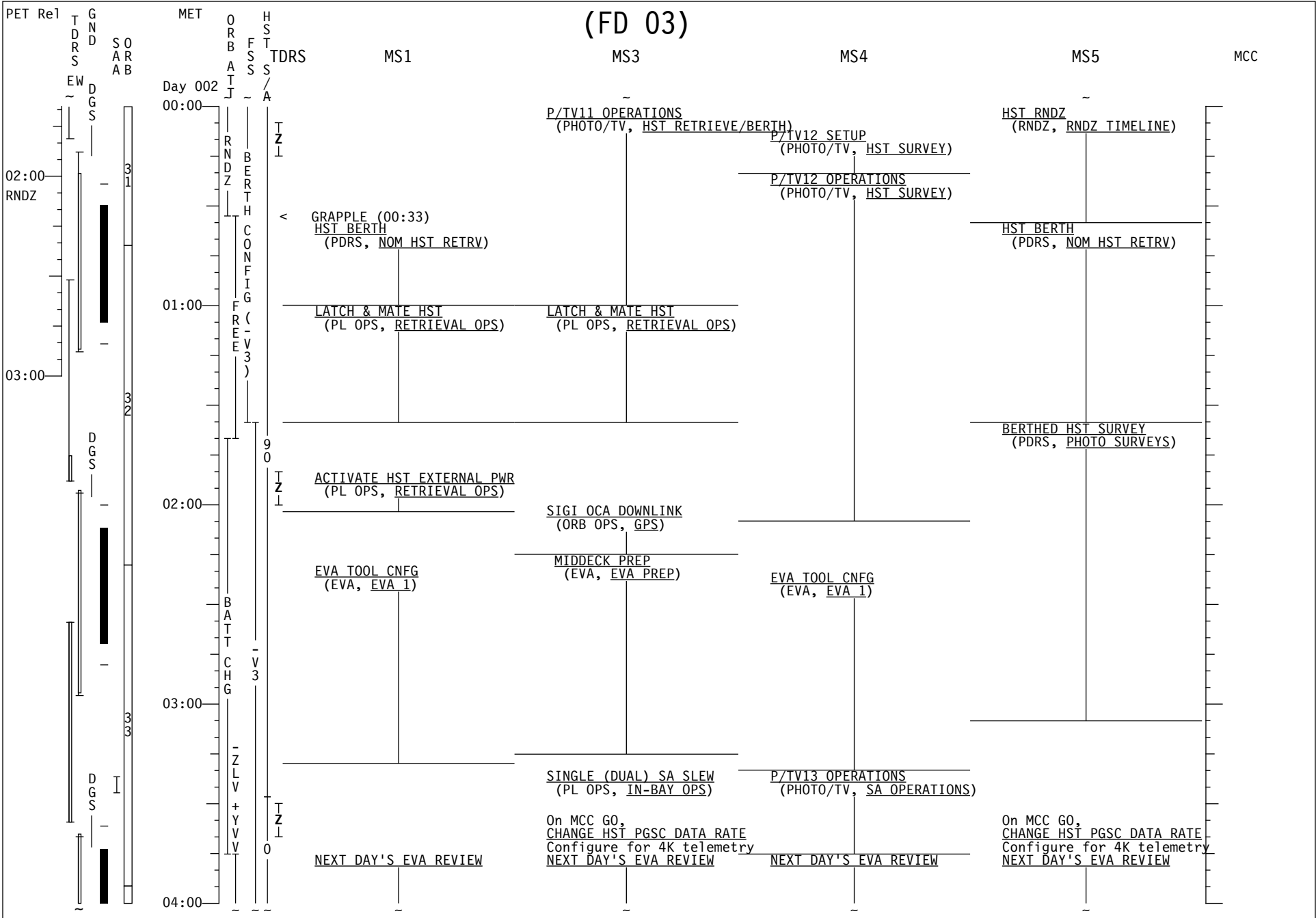




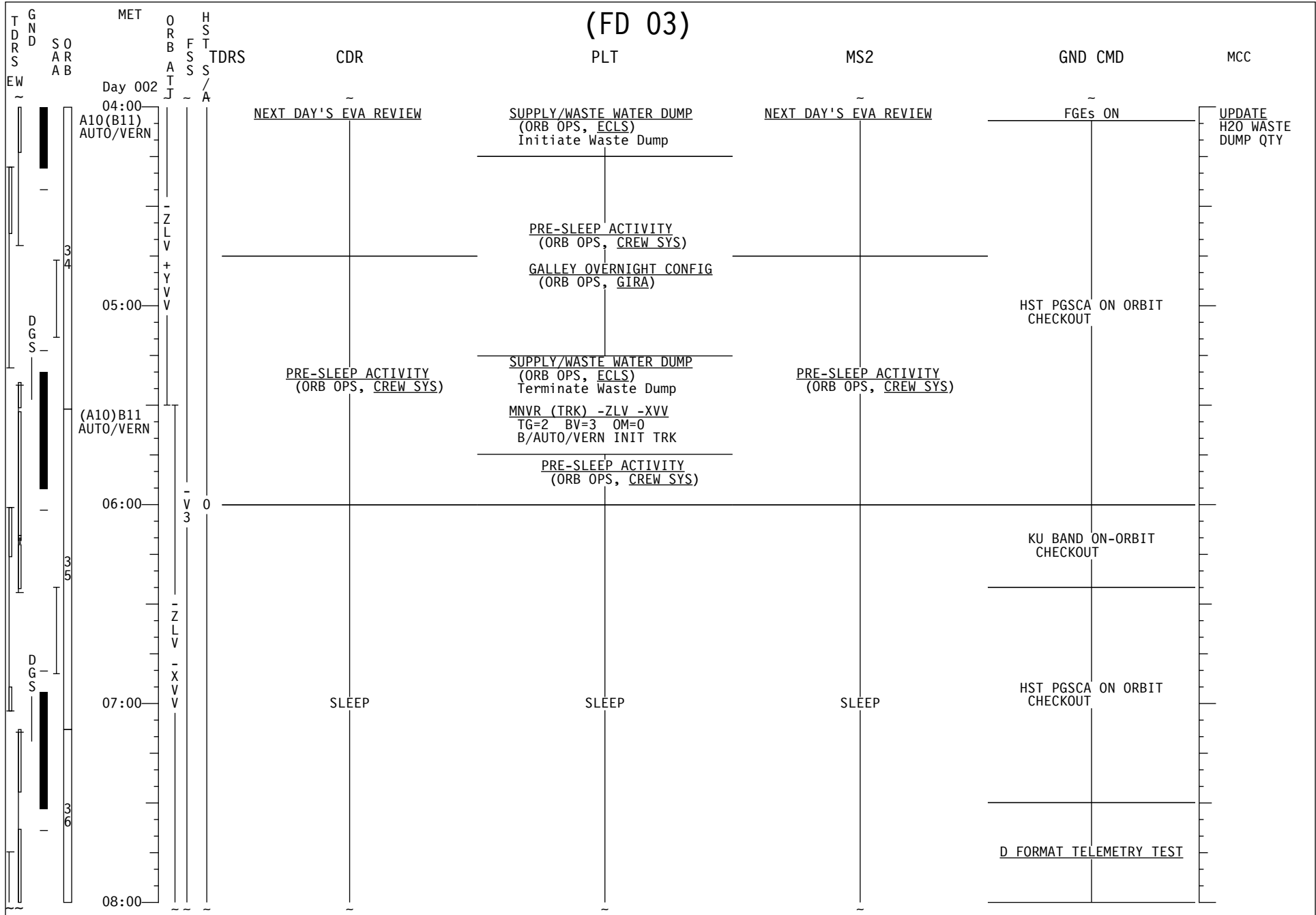




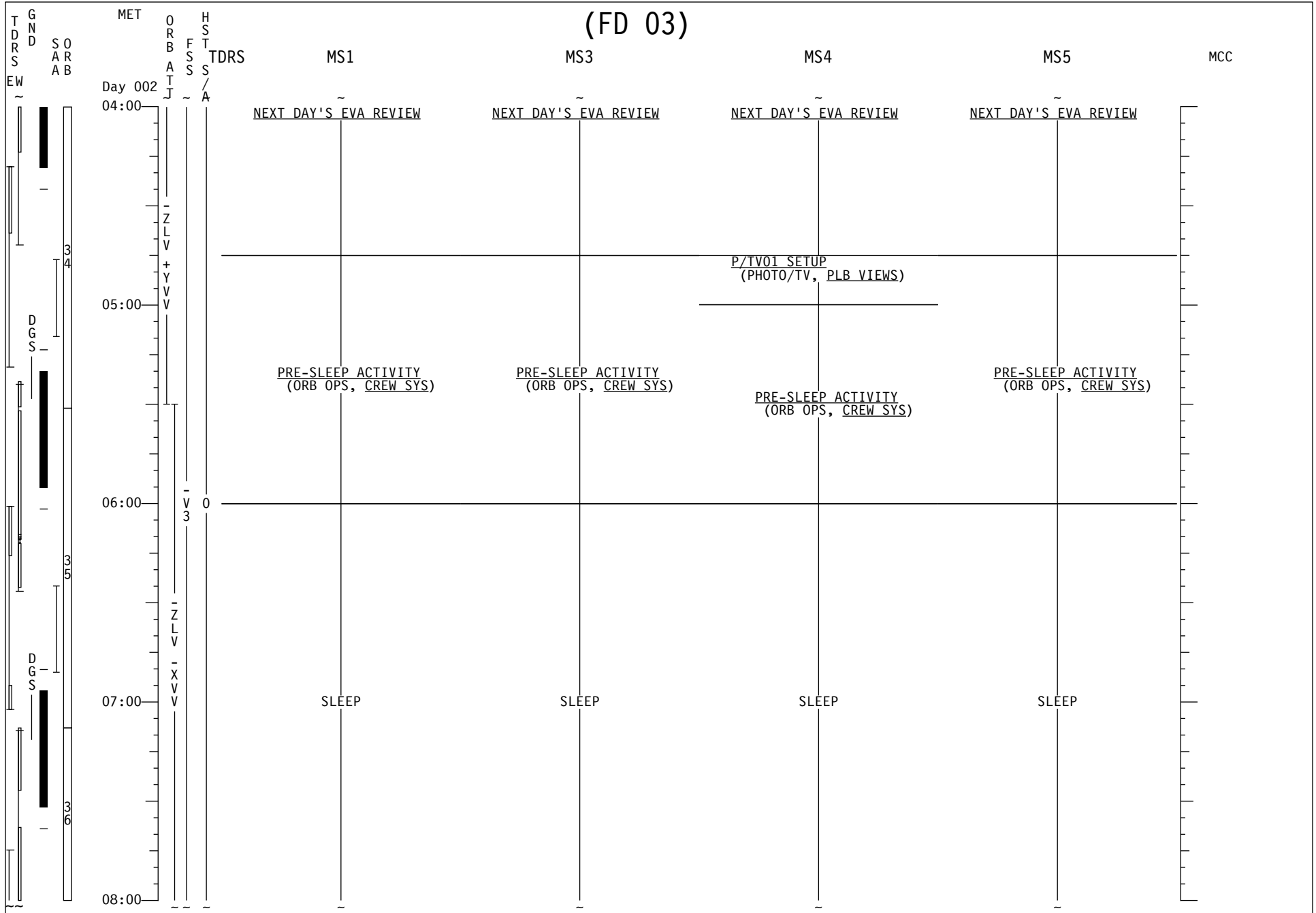




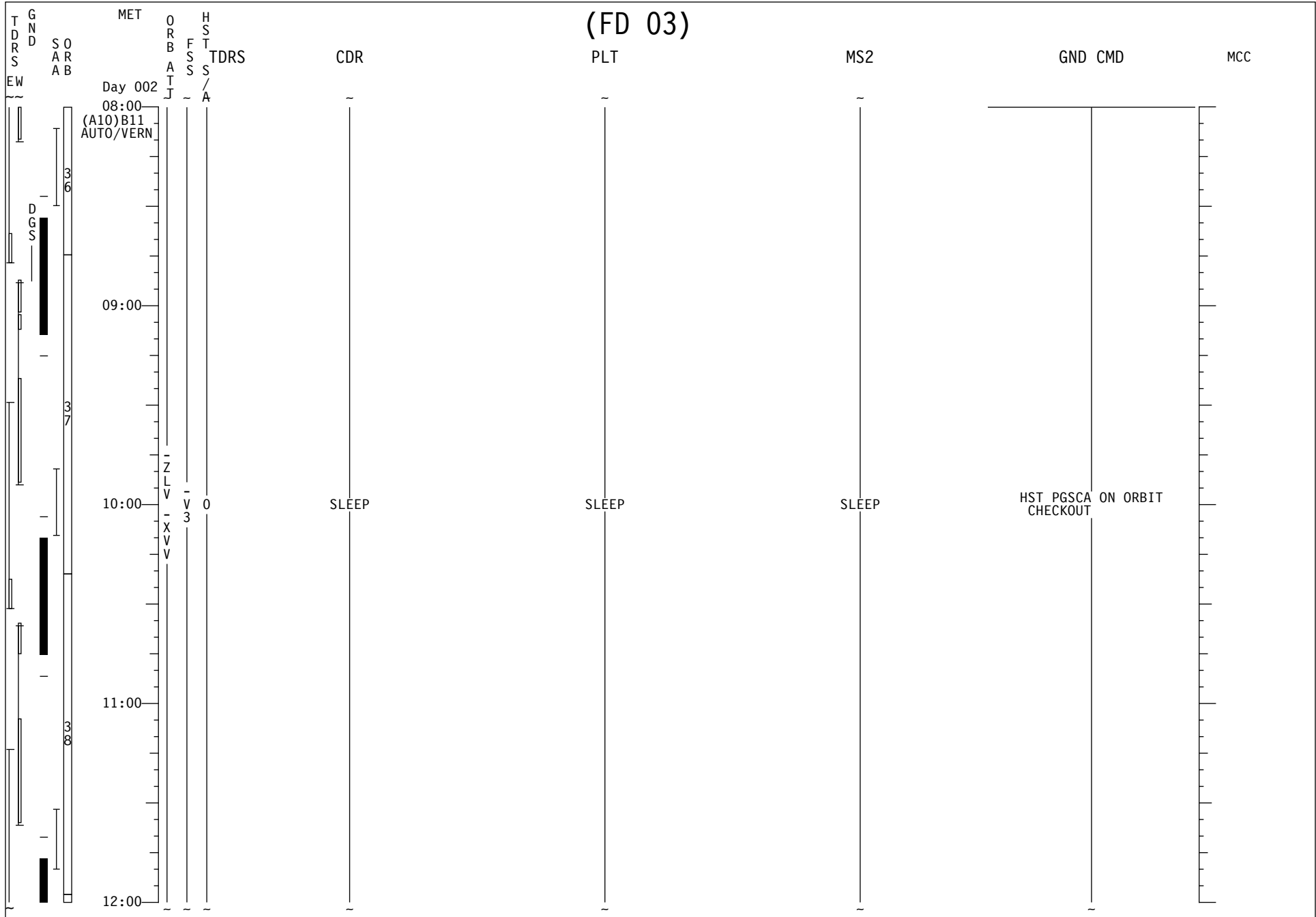
(FD 03)



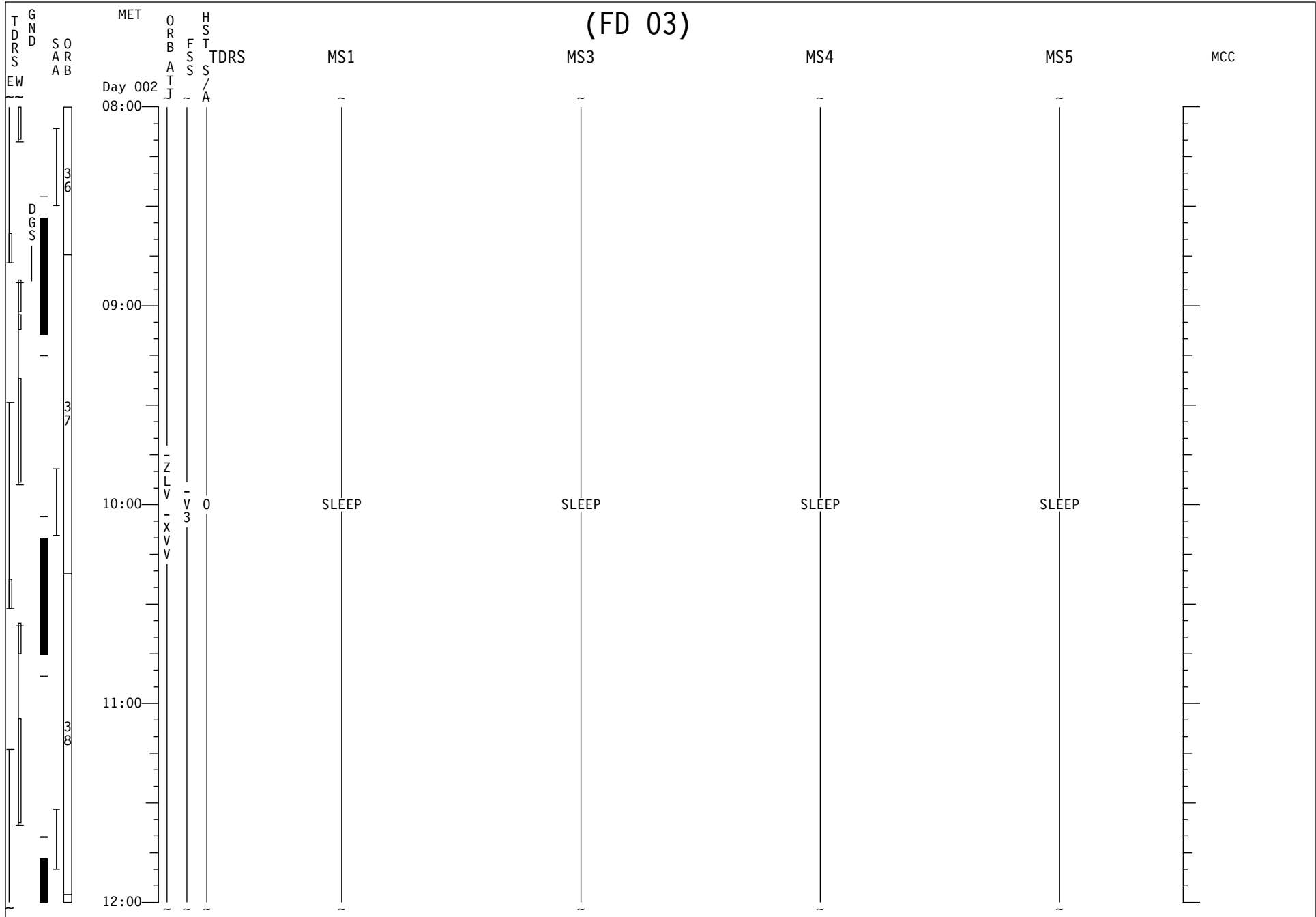
(FD 03)



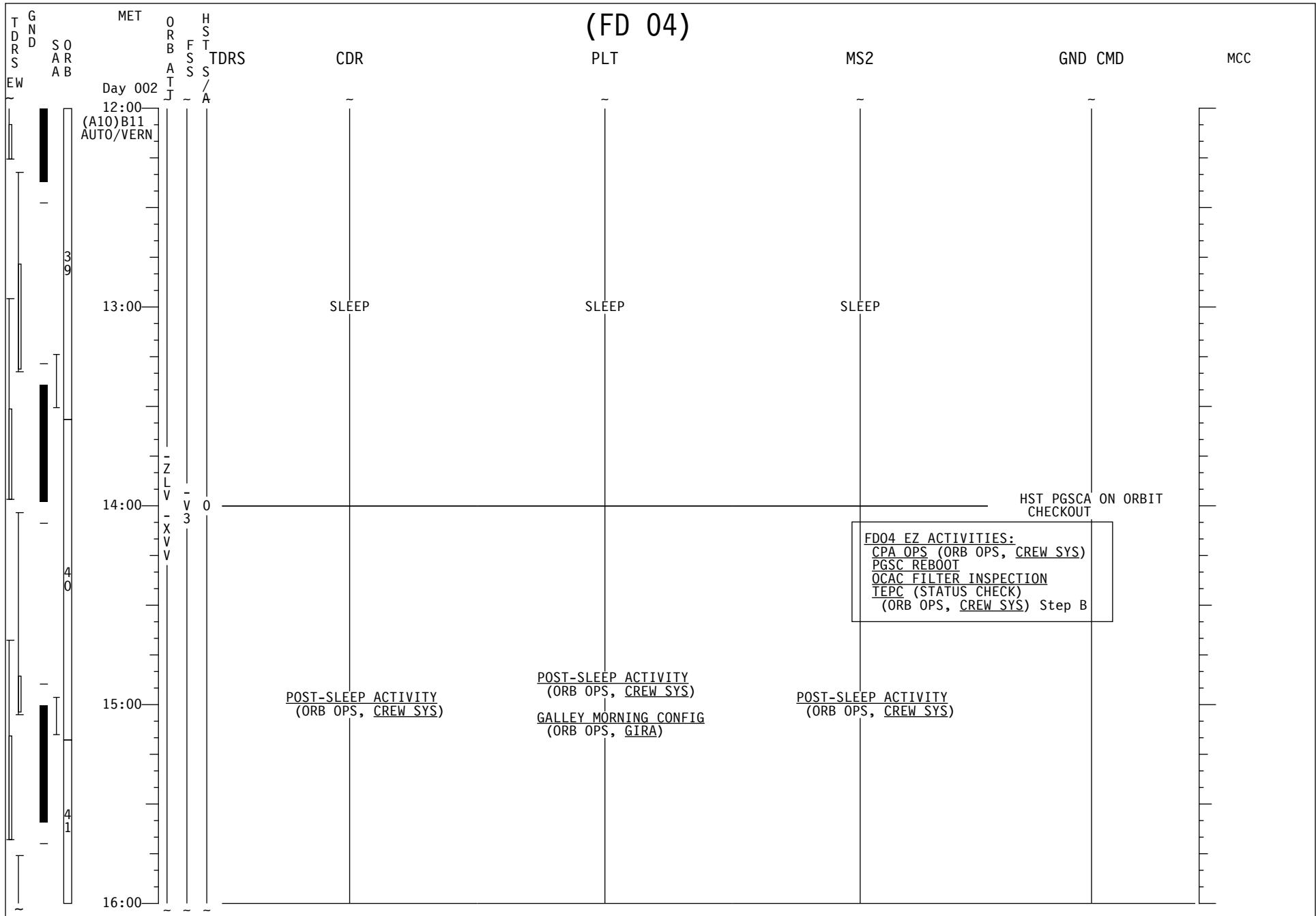
(FD 03)



(FD 03)

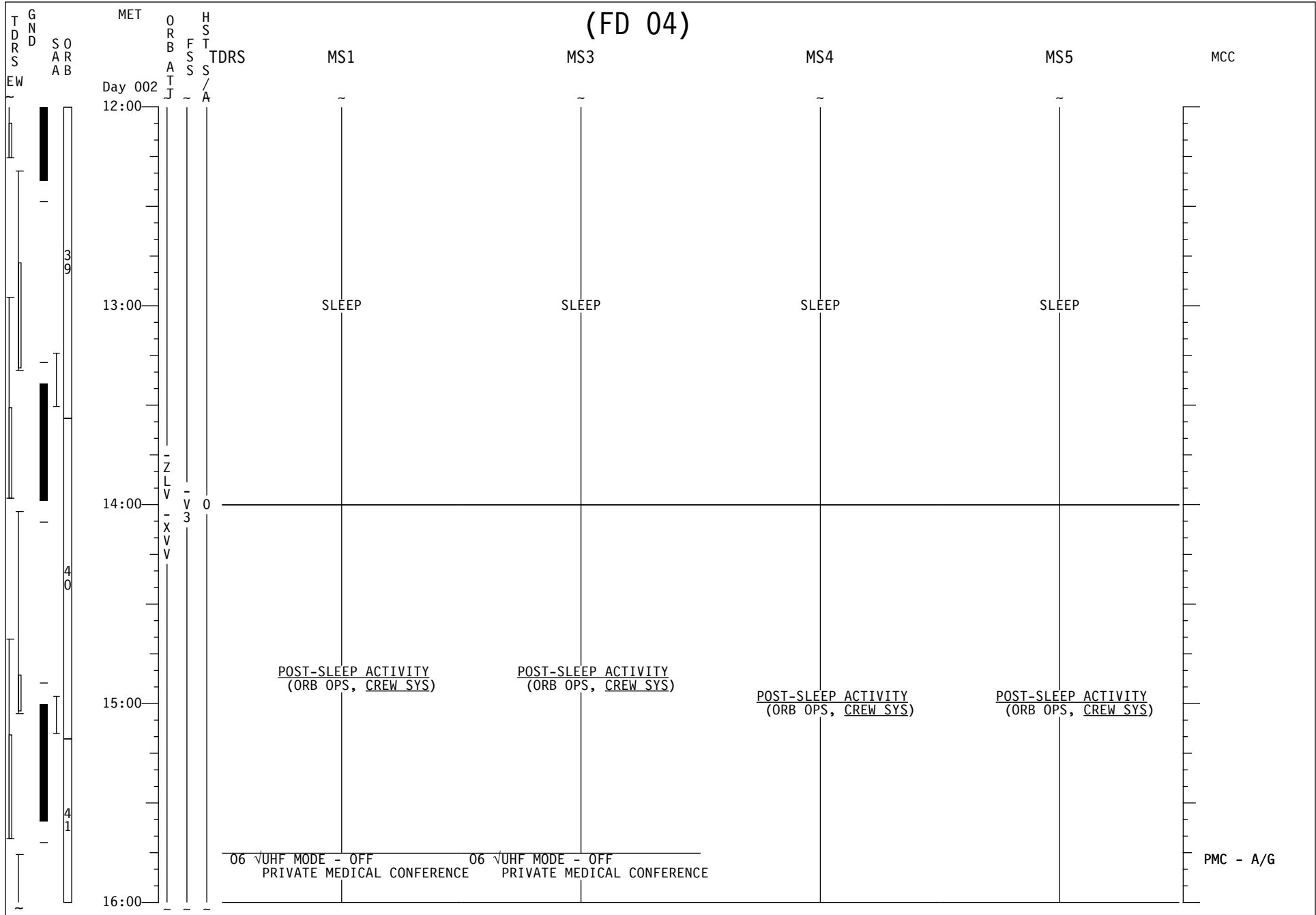


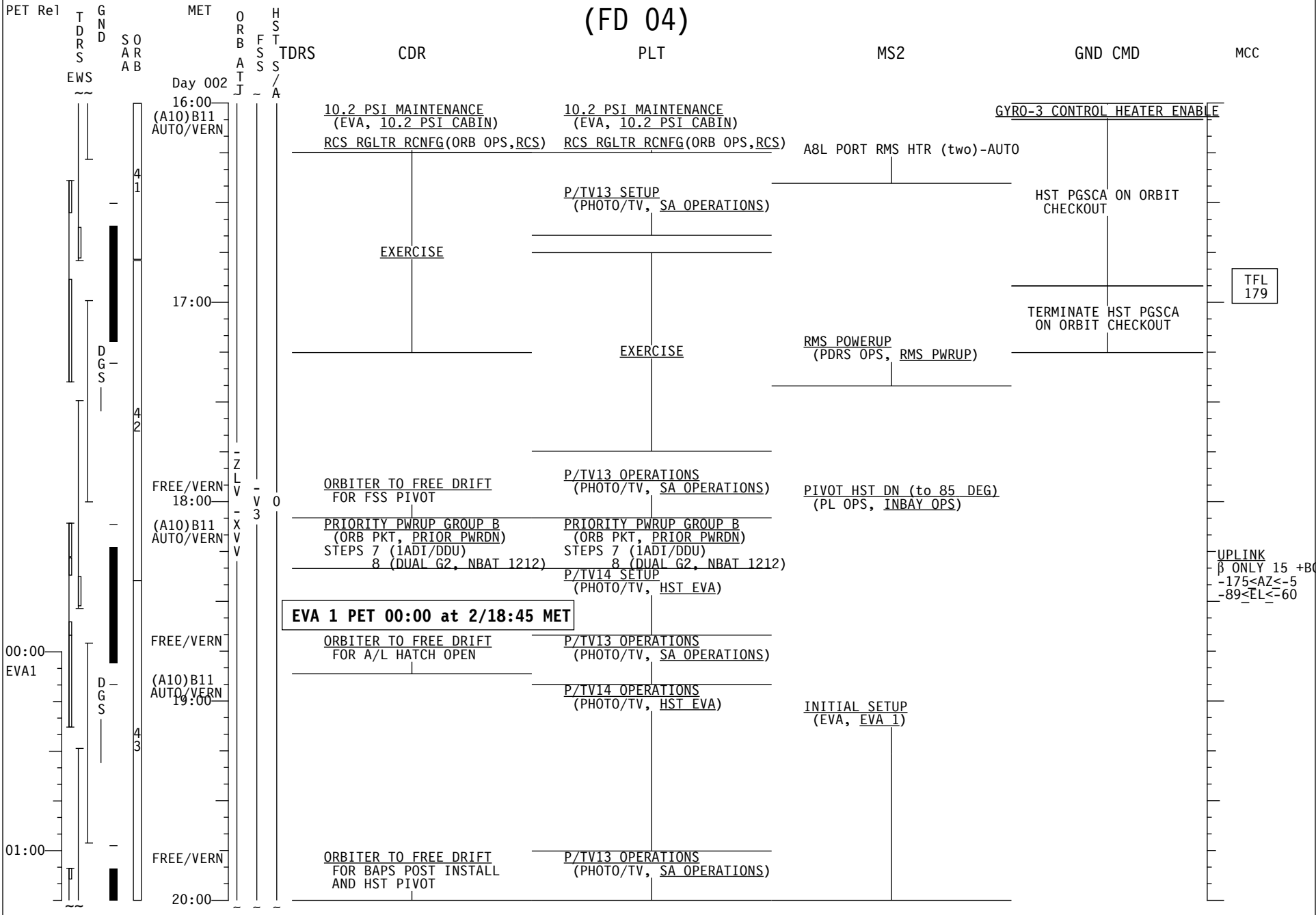
(FD 04)



FD04 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC REBOOT
 OCAC FILTER INSPECTION
 TEPC (STATUS CHECK)
 (ORB OPS, CREW SYS) Step B

(FD 04)





PET Re1

TDRS
GND
SO
AR
AB
EW

MET

Day 002

16:00

17:00

18:00

00:00

EVA1

01:00

19:00

20:00

ORBIT
FSS
TDRS

J

Z

LV

-

X

V

V

HST

/

A

-

V

0

3

(FD 04)

MS1

MS3

MS4

MS5

MCC

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

On MCC GO,
CHANGE HST PGSC DATA RATE
Configure for 32K telemetry
EVA PREP
(EVA, EVA PREP)

On MCC GO,
CHANGE HST PGSC DATA RATE
Configure for 32K telemetry
EVA PREP
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

PIVOT HST DN (to 85 DEG)
(PL OPS, INBAY OPS)
EMU PURGE/PREBREATHE
(EVA, EVA PREP)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

EVA 1 PET 00:00 at 2/18:45 MET

PST DEPRSS (DEP/REP, CUE CARD)
EVA EGRESS
(EVA CUFF, 3)

PST DEPRSS (DEP/REP, CUE CARD)
EVA EGRESS
(EVA CUFF, 3)

EVA SUPPORT
(EVA, EVA 1)

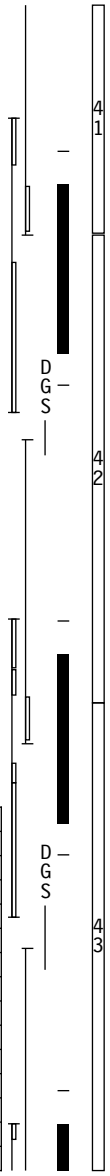
EVA SUPPORT
(EVA, EVA 1)

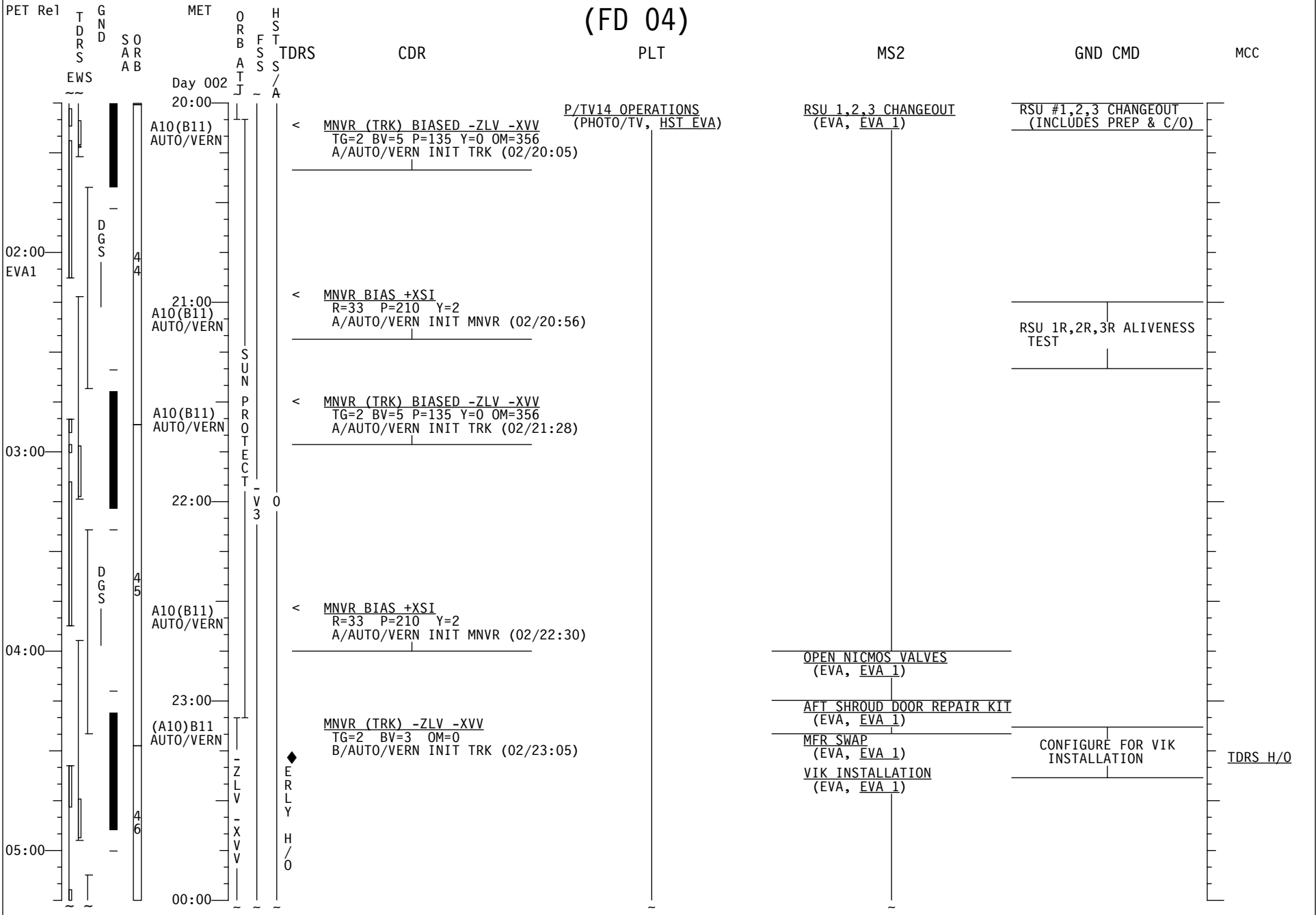
INITIAL SETUP
(EVA, EVA 1)

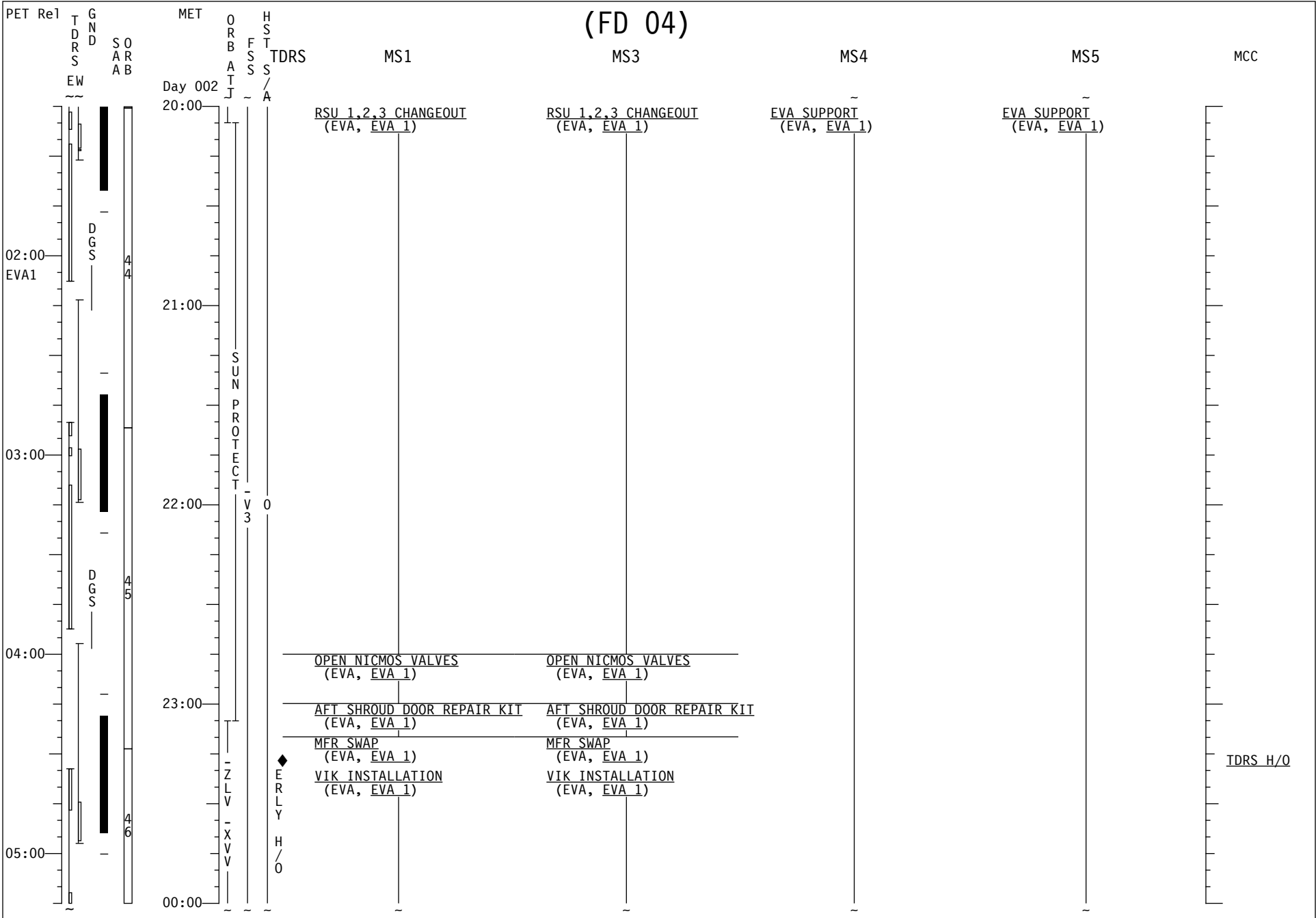
INITIAL SETUP
(EVA, EVA 1)

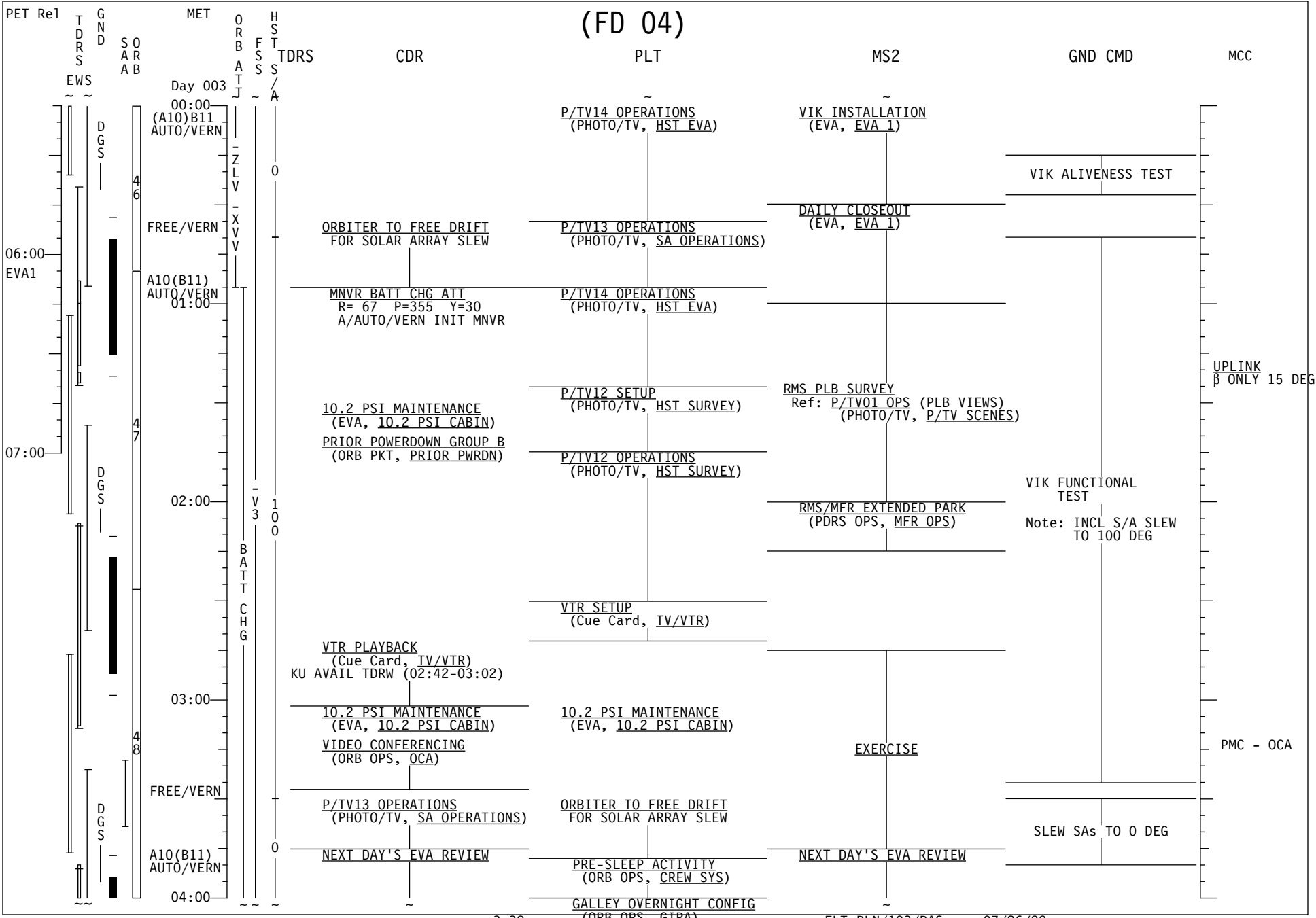
PIVOT HST UP (to 90 DEG)
(PL OPS, INBAY OPS)
EVA SUPPORT
(EVA, EVA 1)

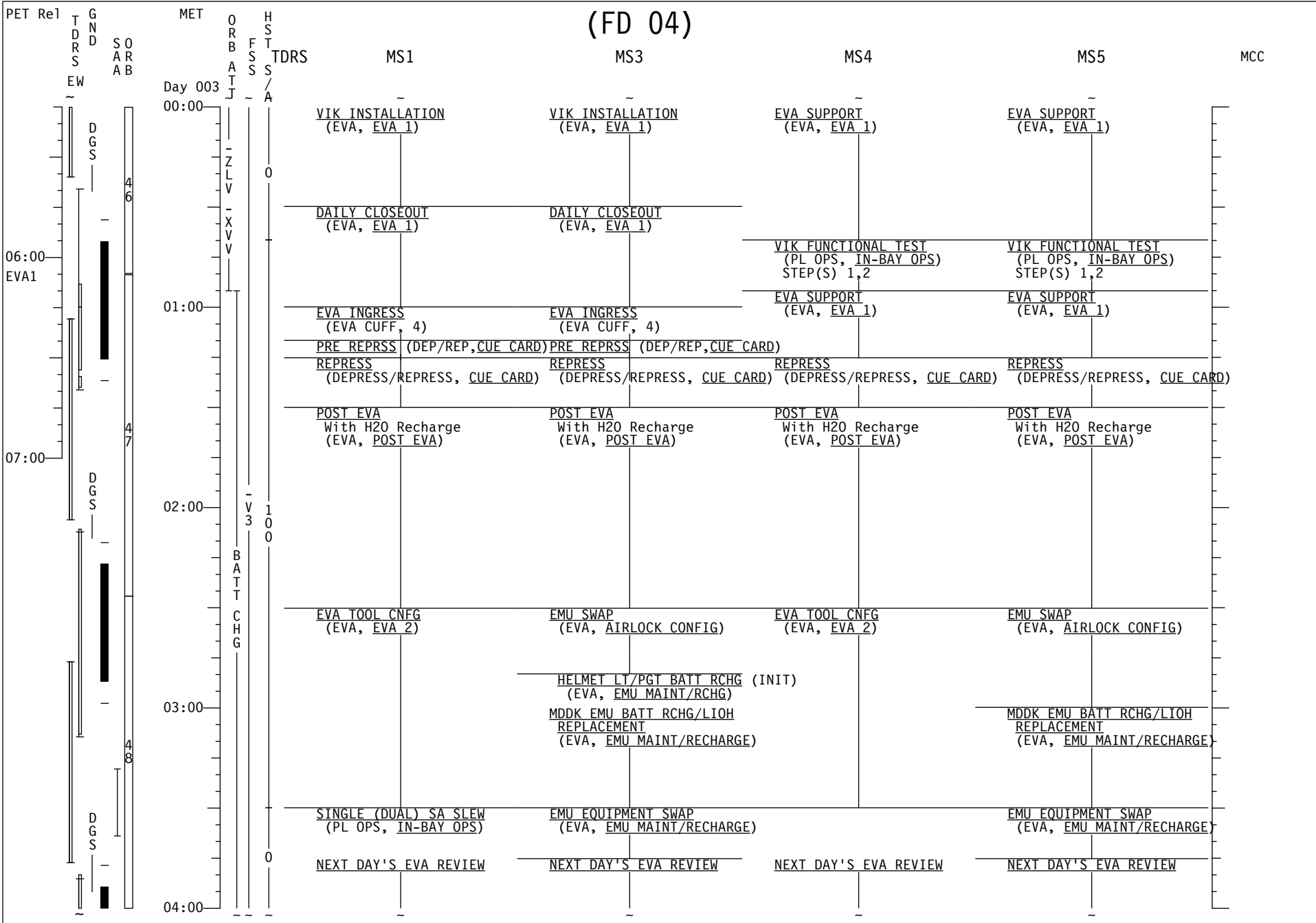
PIVOT HST UP (to 90 DEG)
(PL OPS, INBAY OPS)
EVA SUPPORT
(EVA, EVA 1)



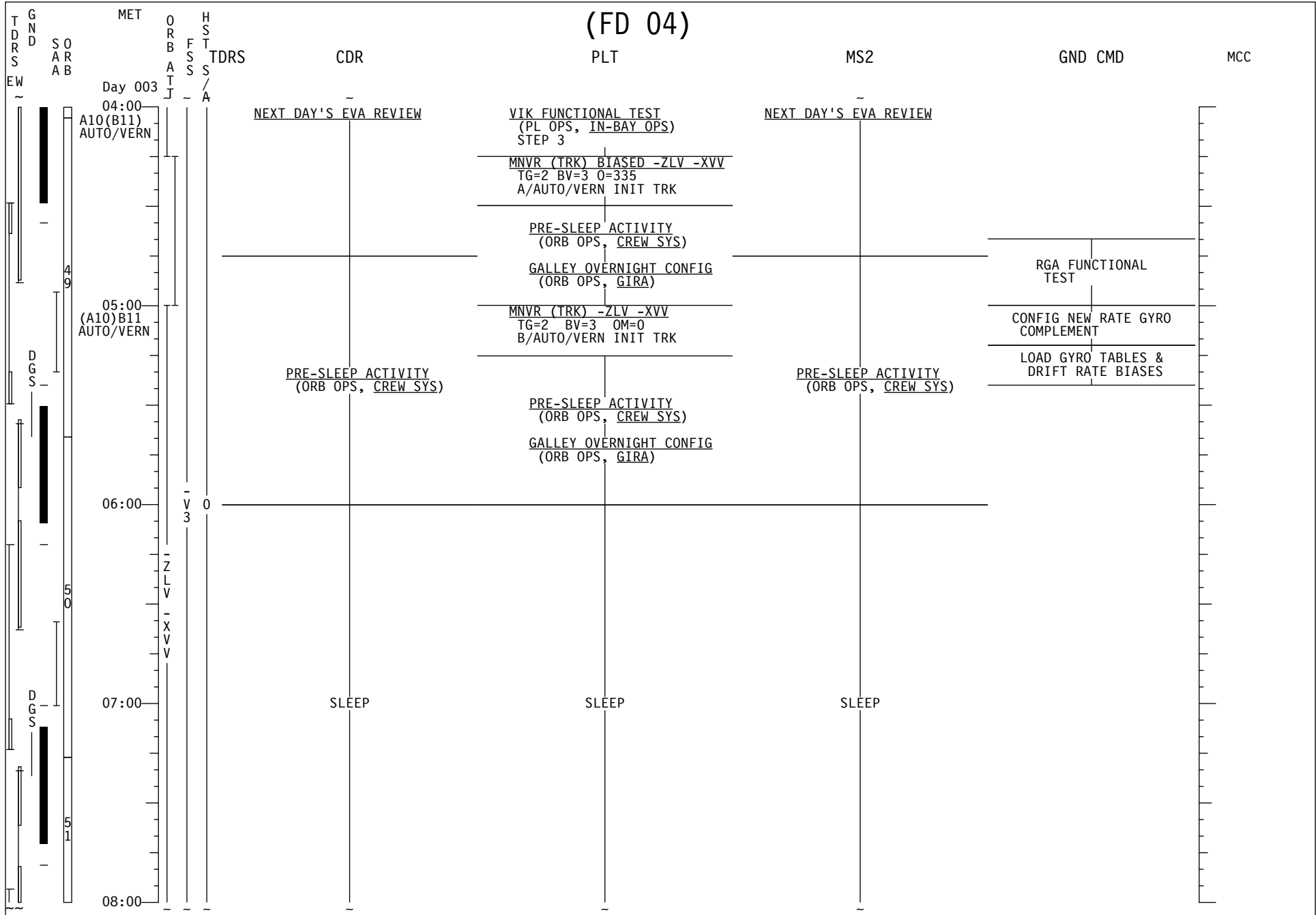




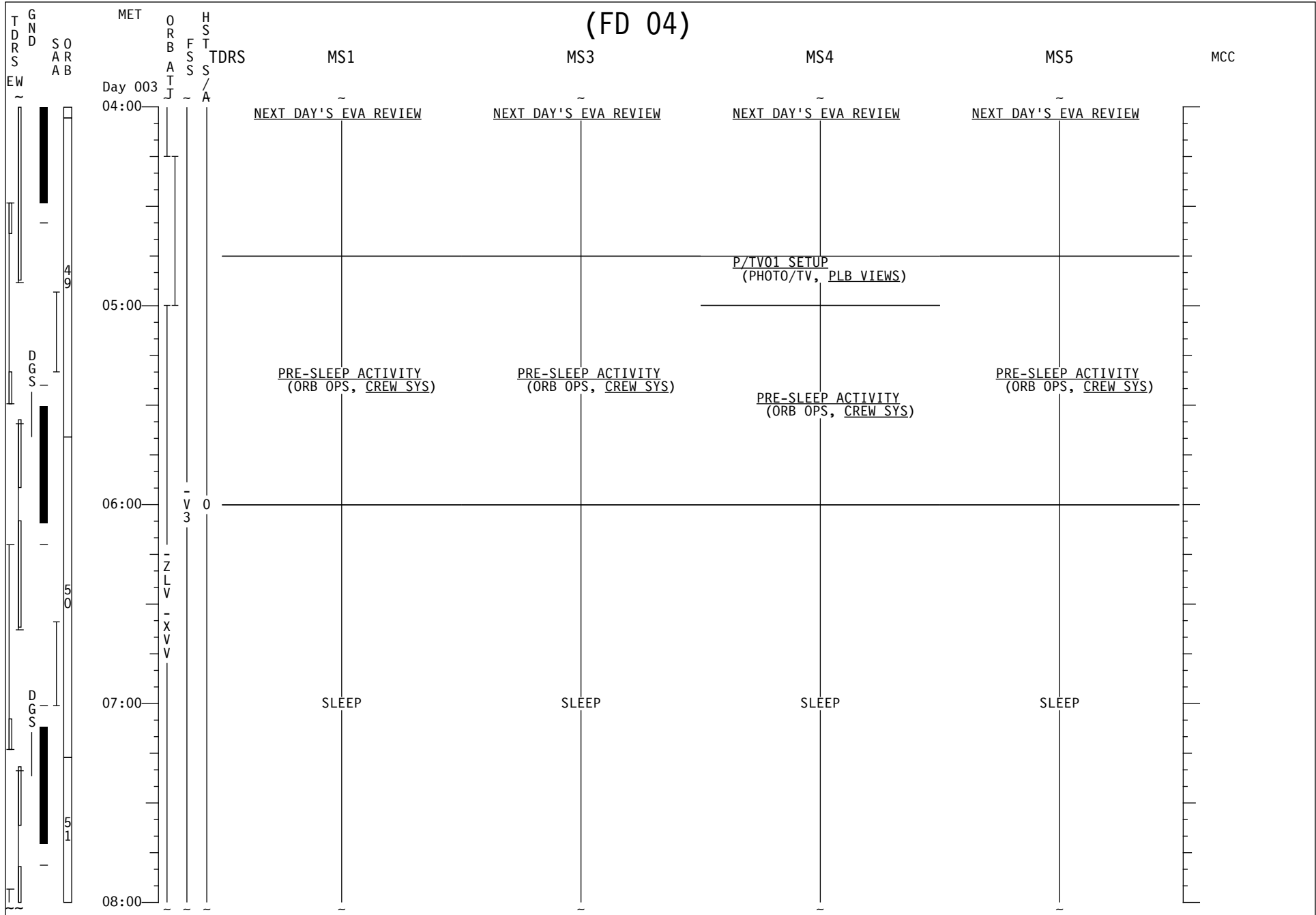




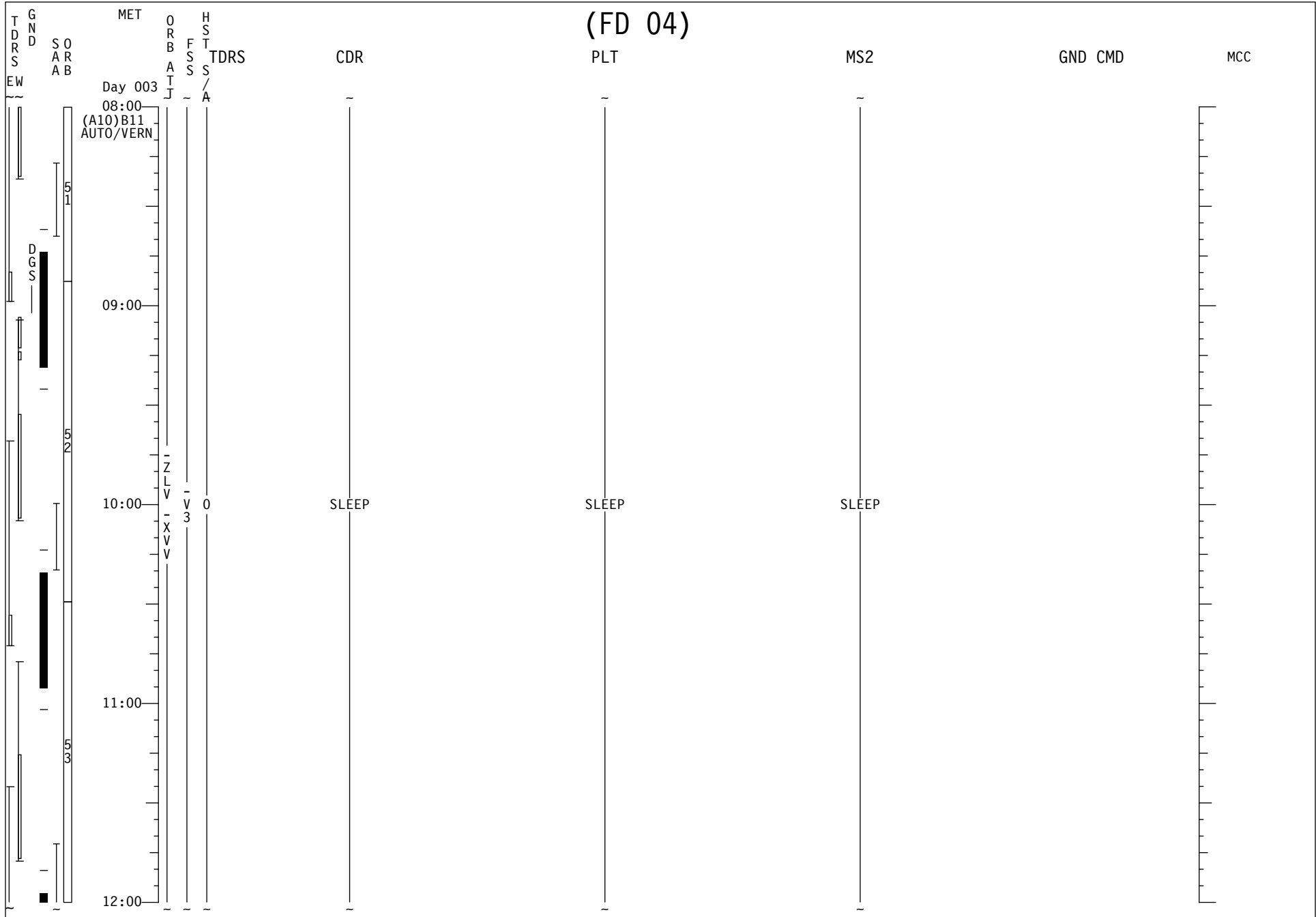
(FD 04)



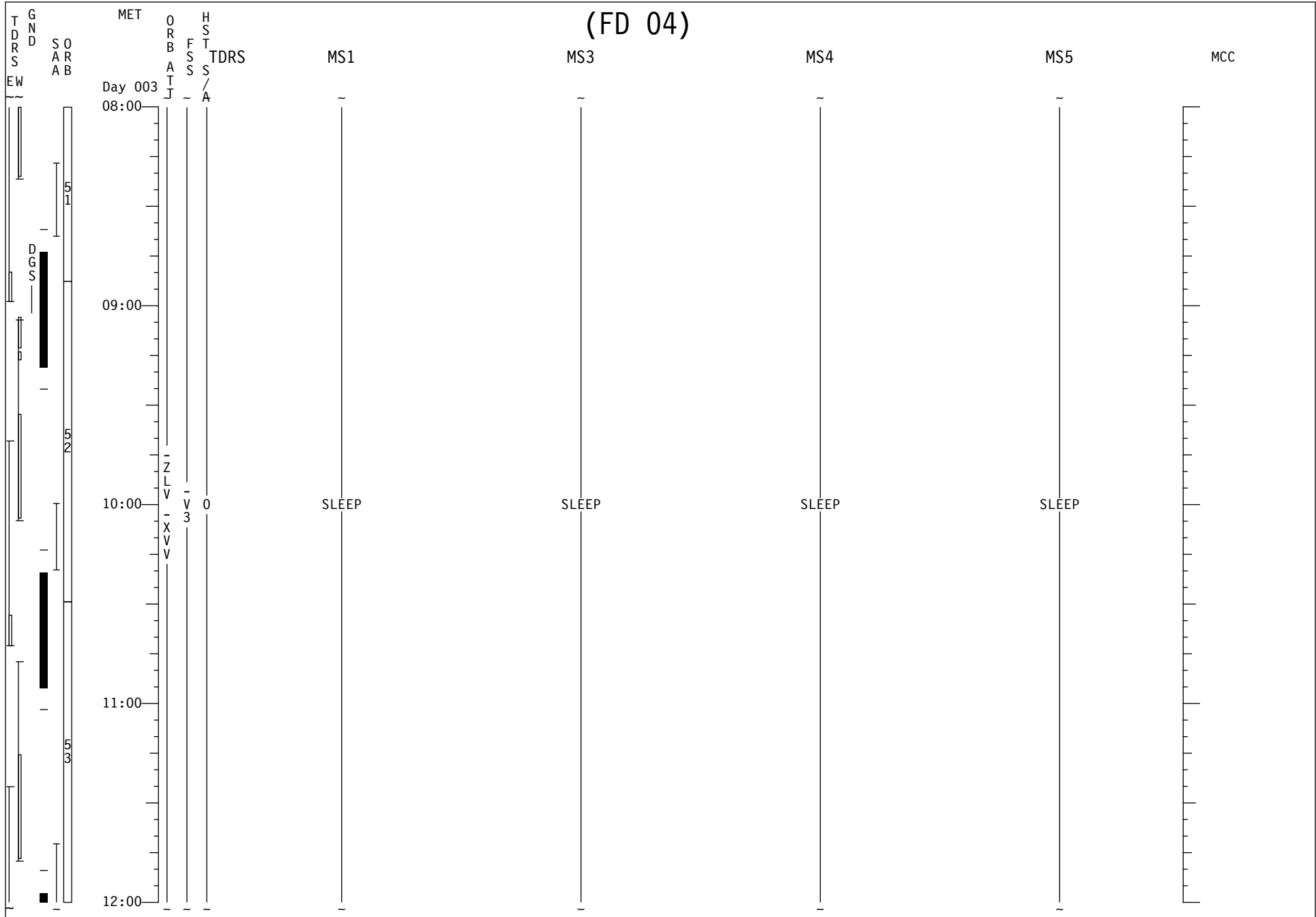
(FD 04)



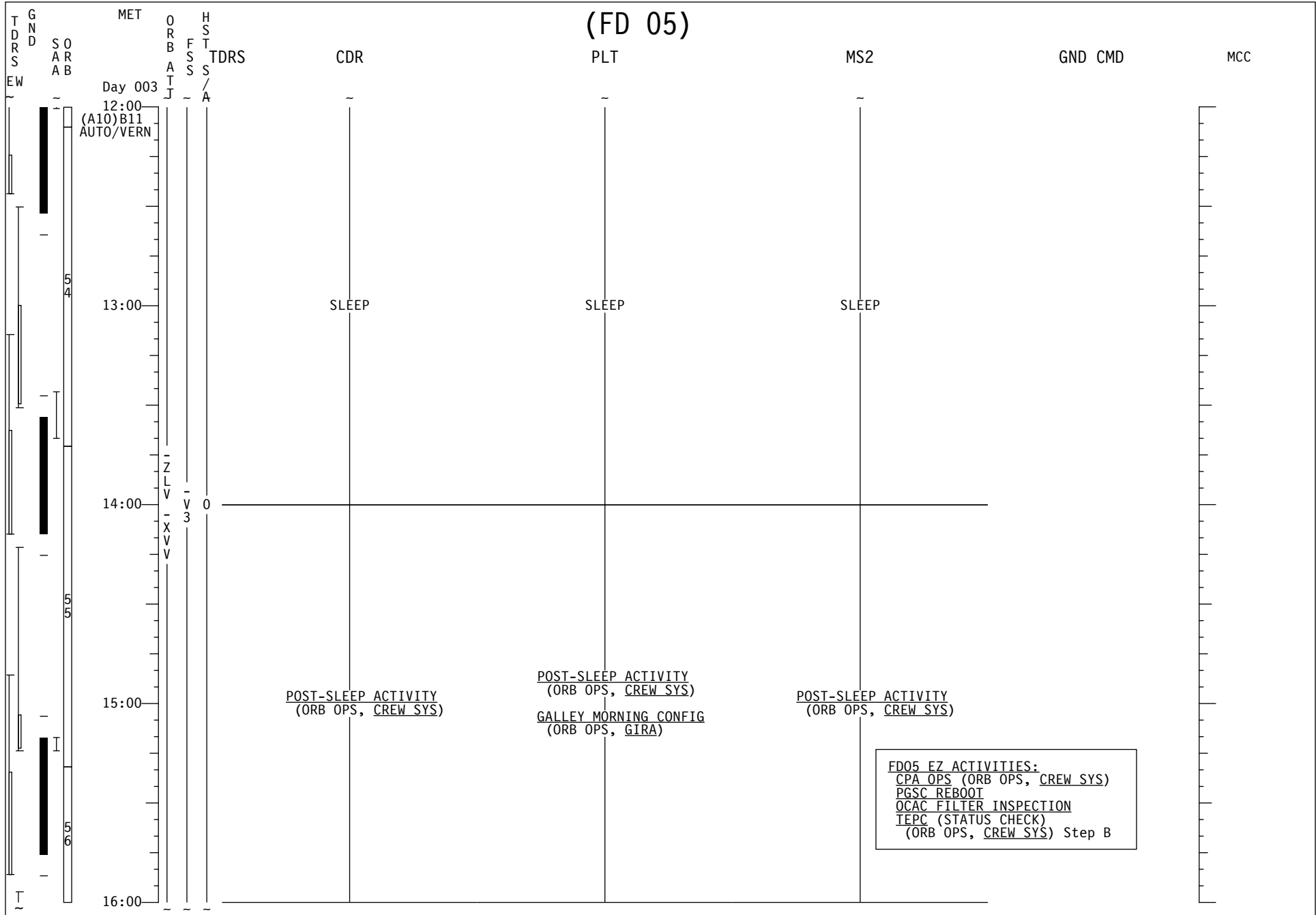
(FD 04)



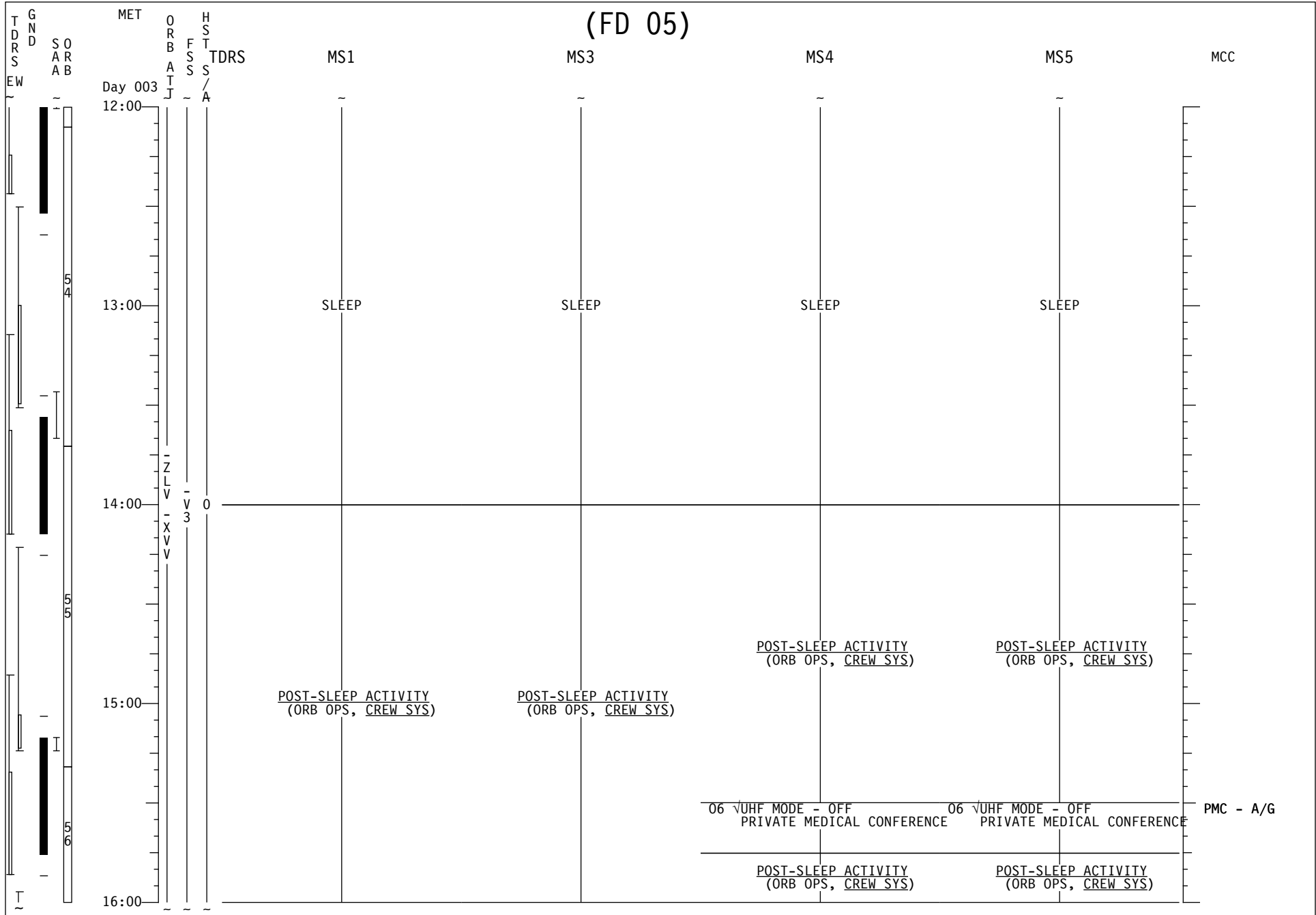
(FD 04)

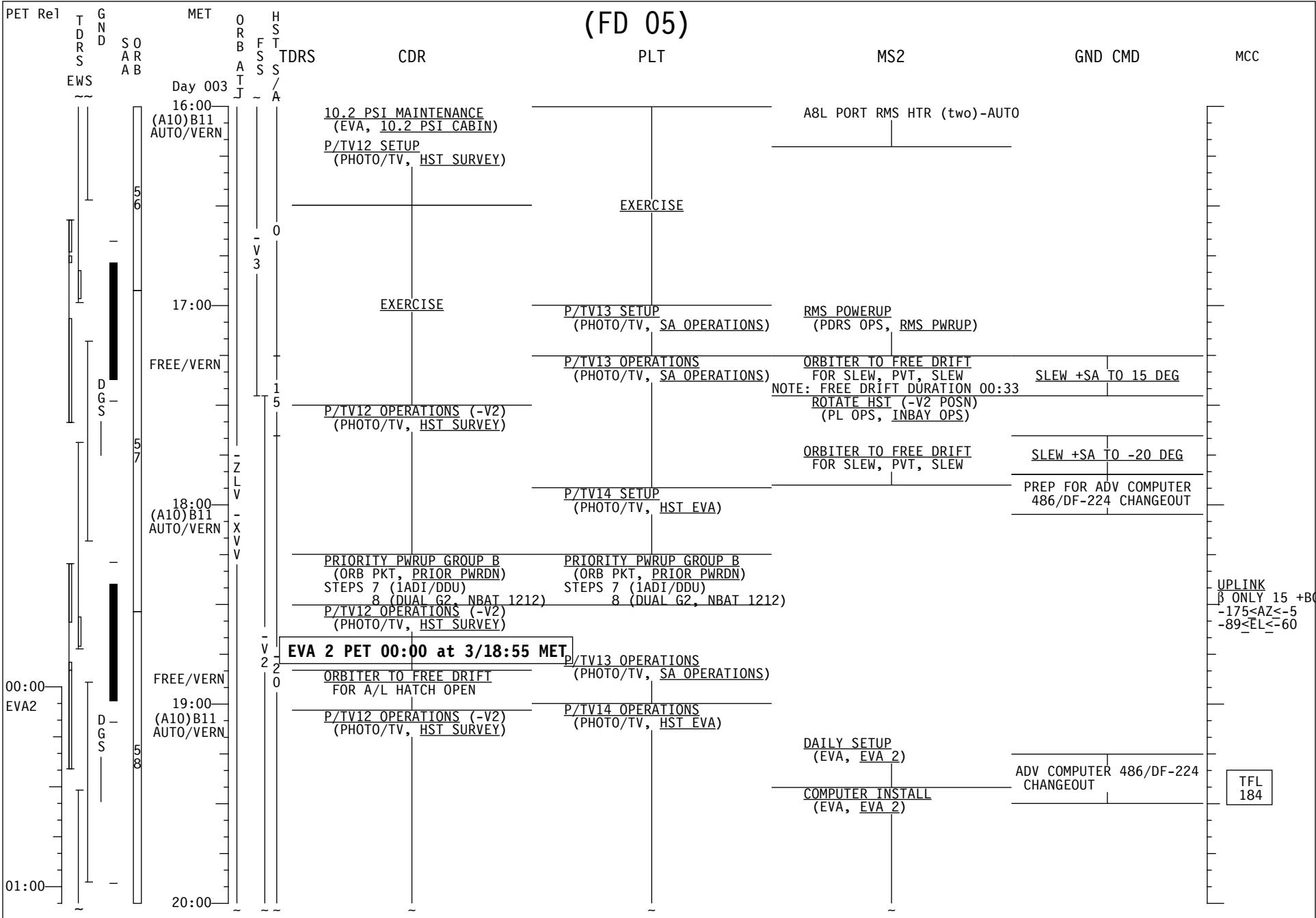


(FD 05)

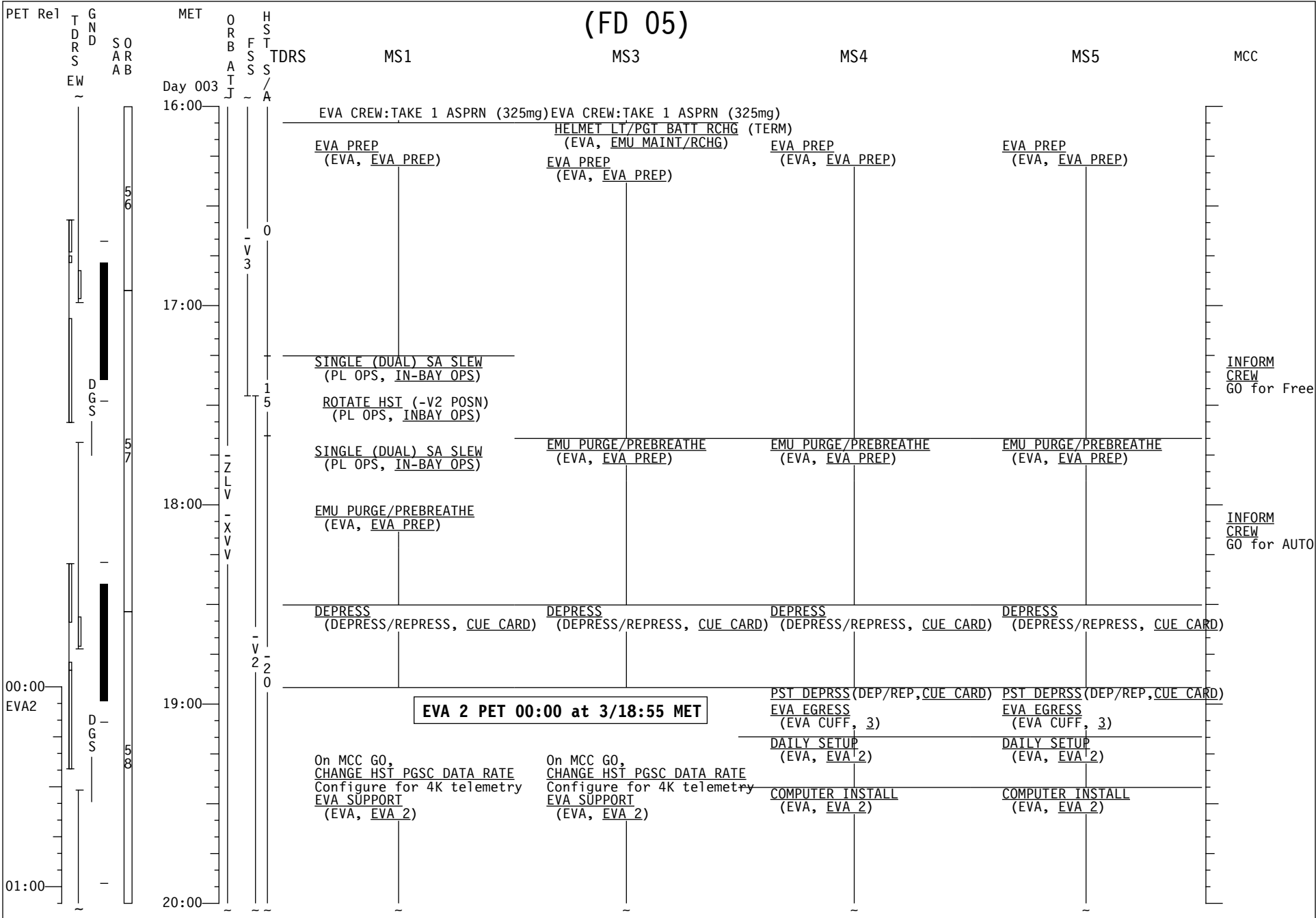


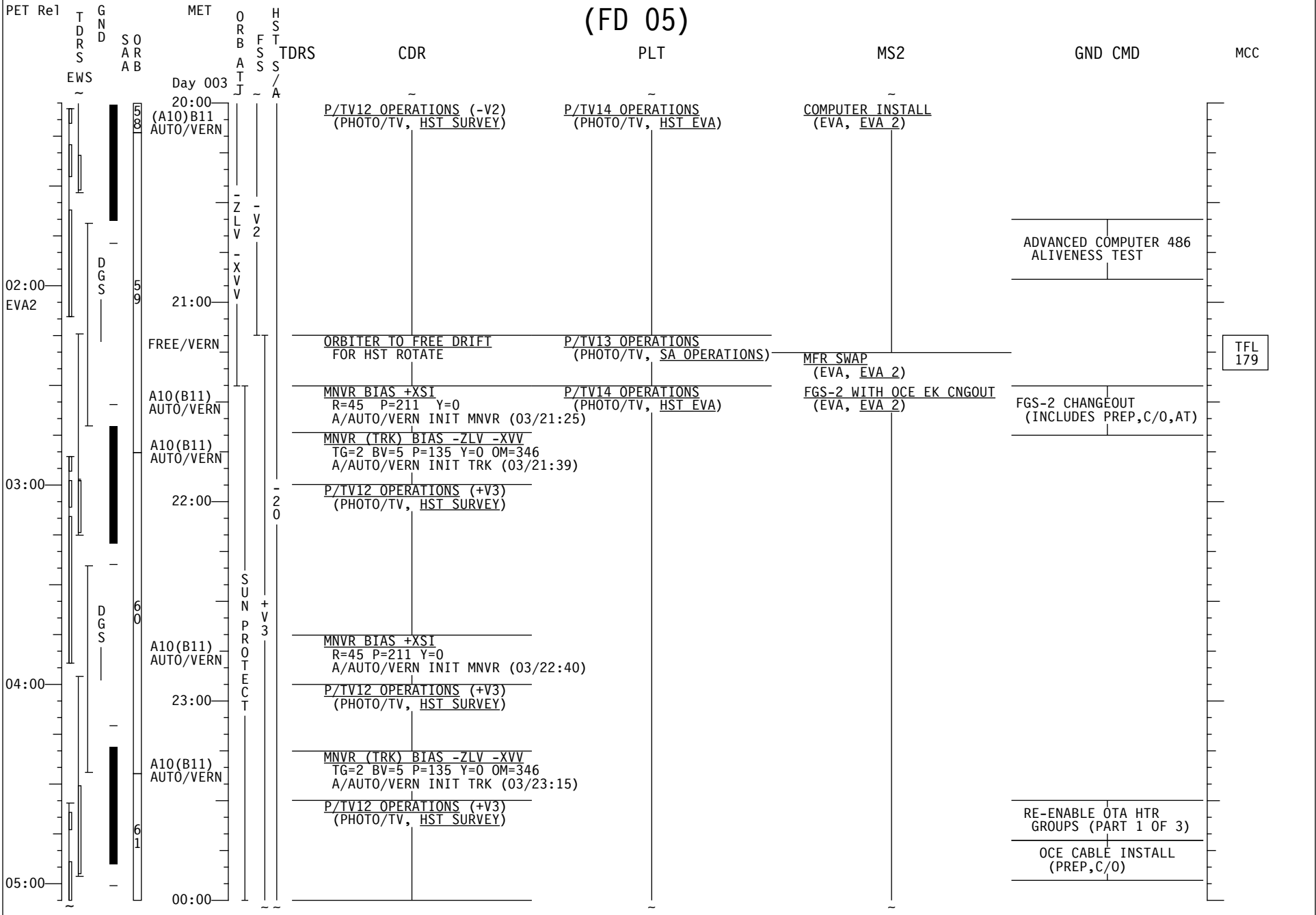
(FD 05)

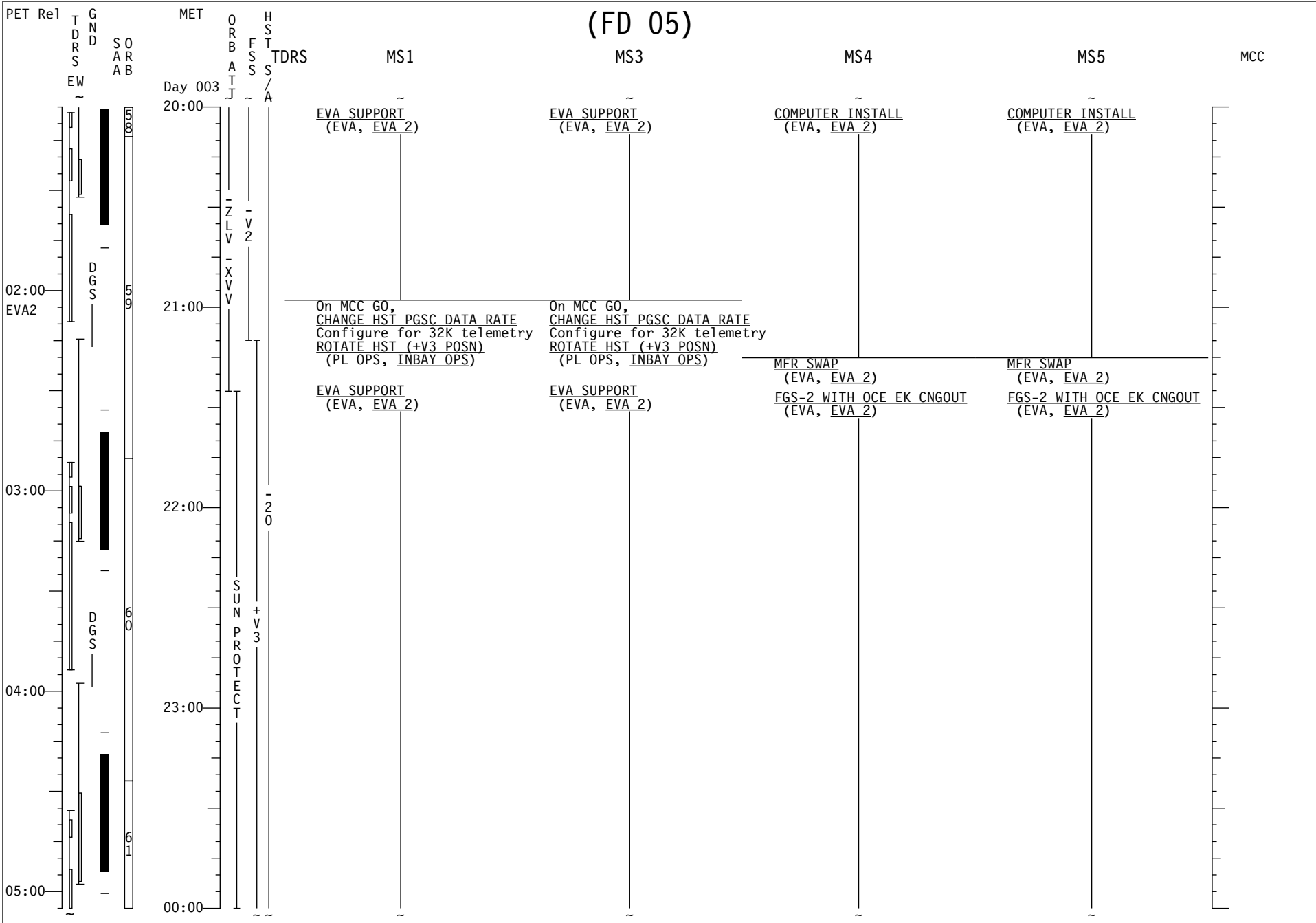


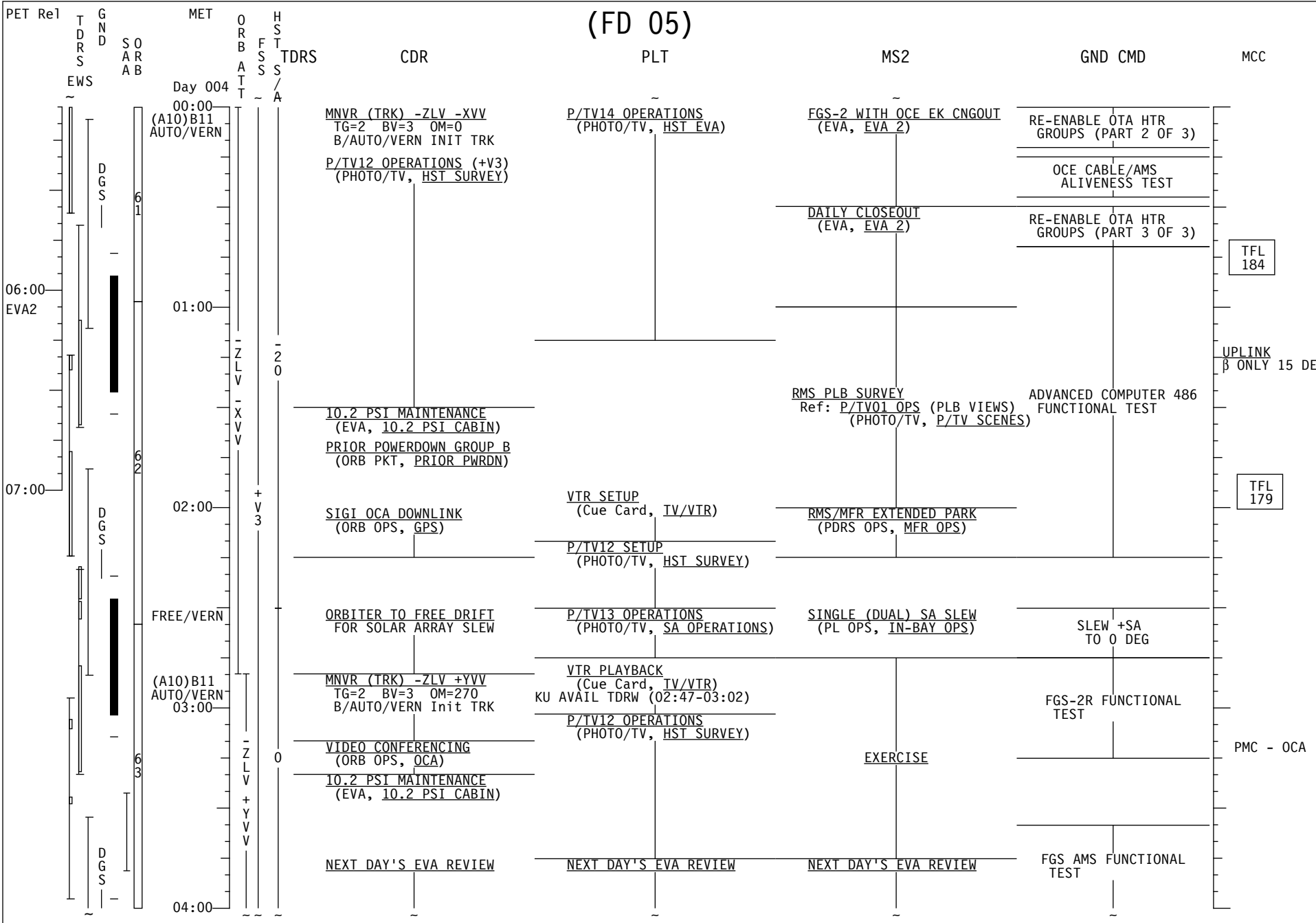


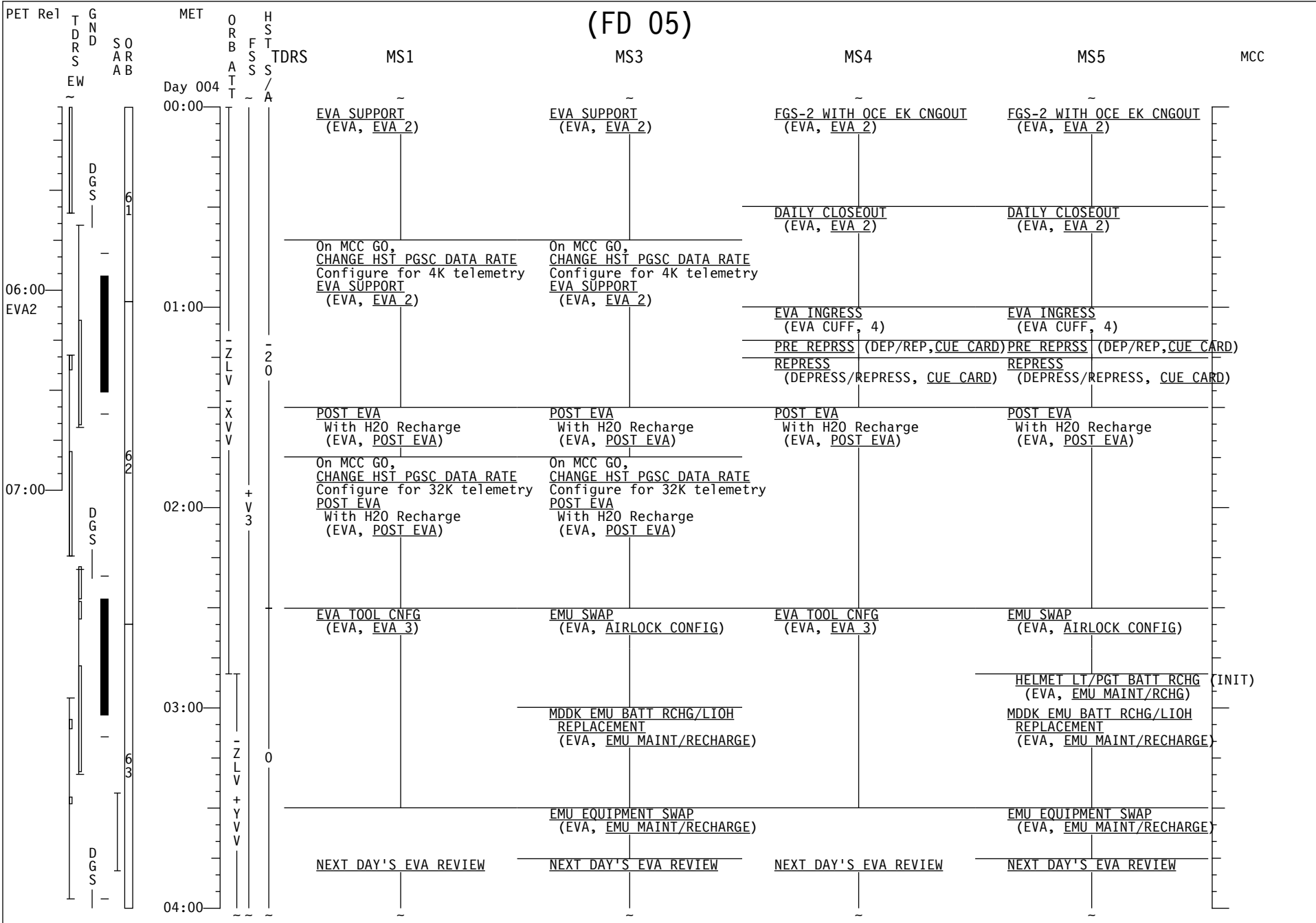
UPLINK
 β ONLY 15 +BOX
 -175<AZ<-5
 -89<EL<-60



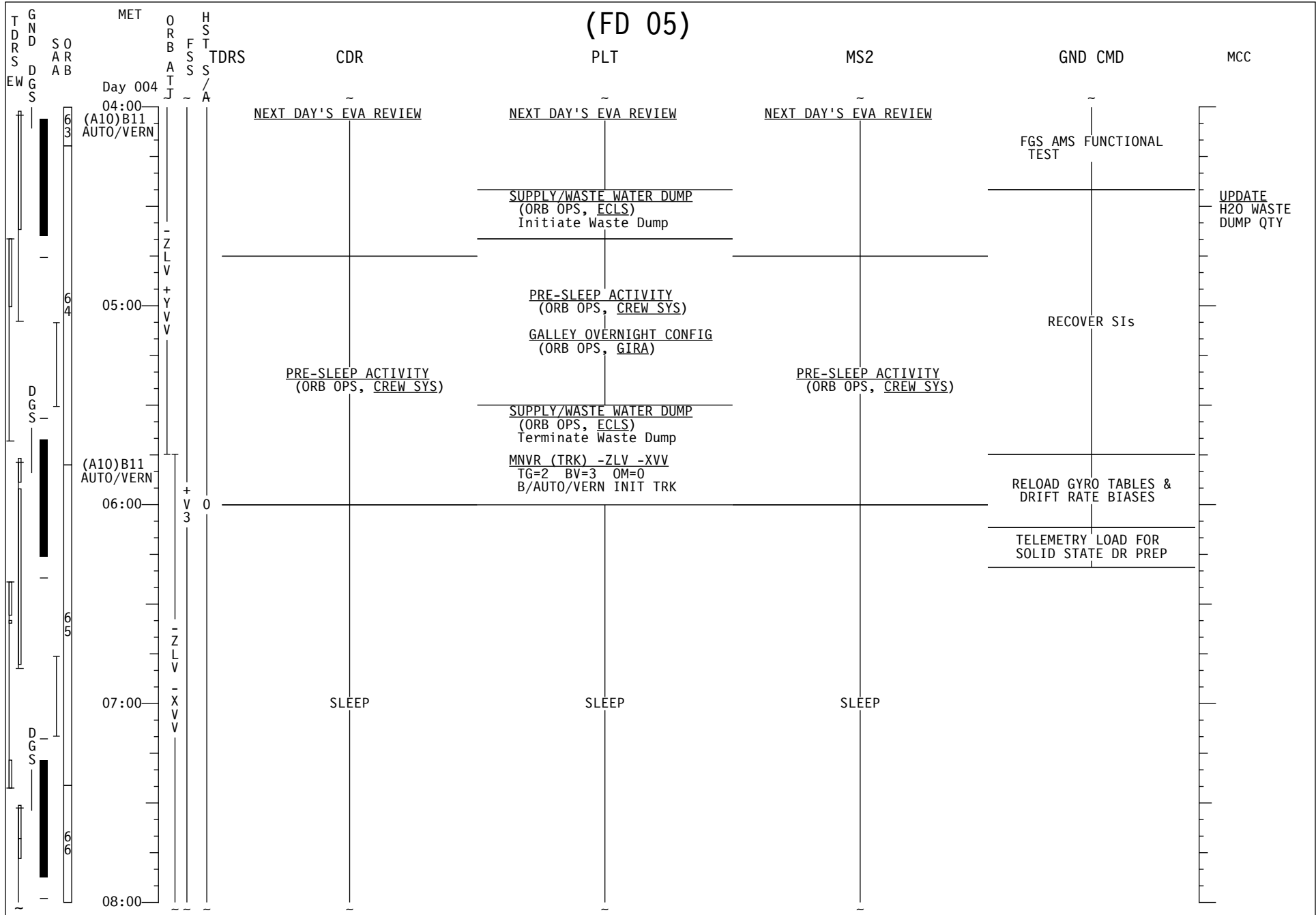




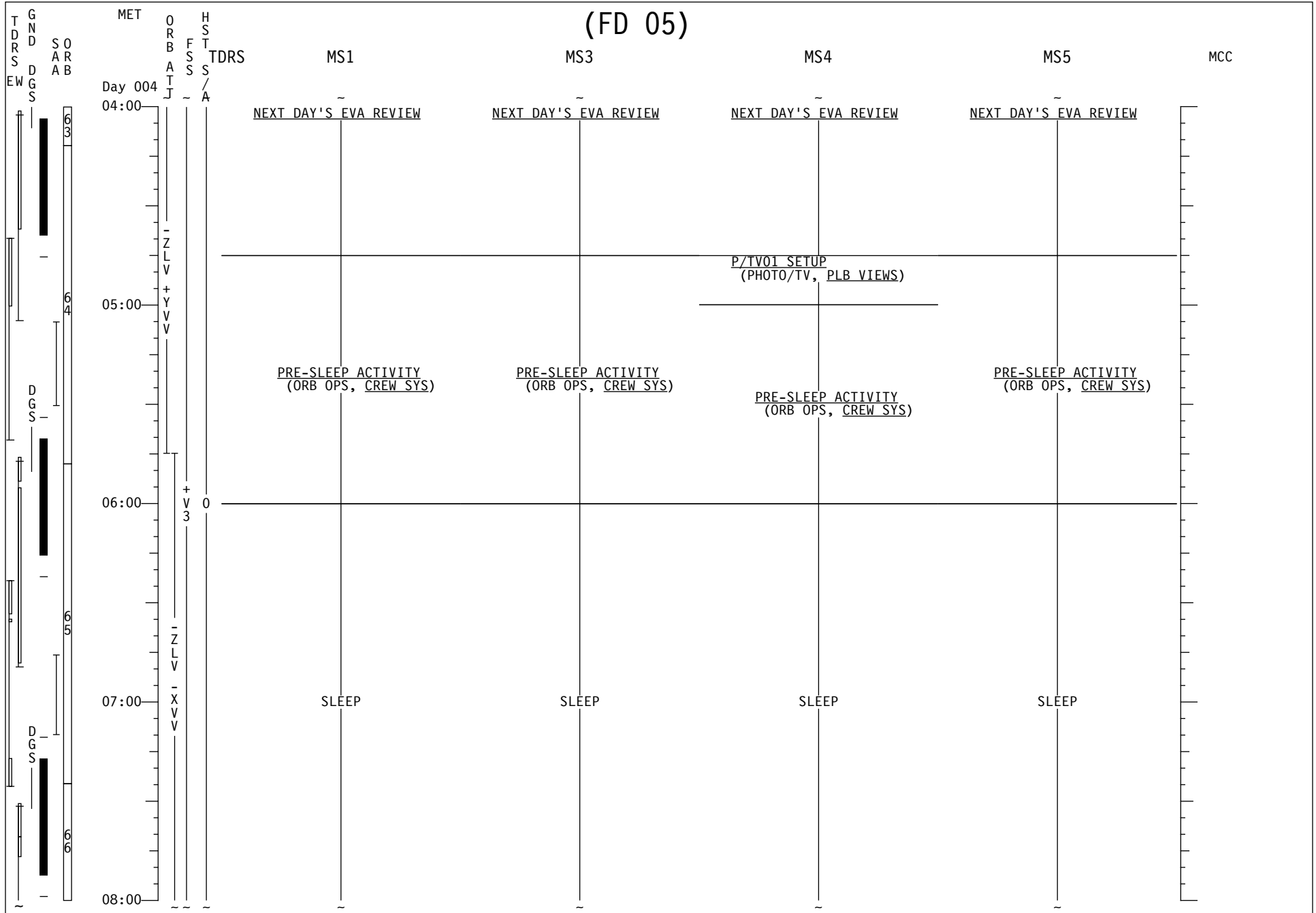




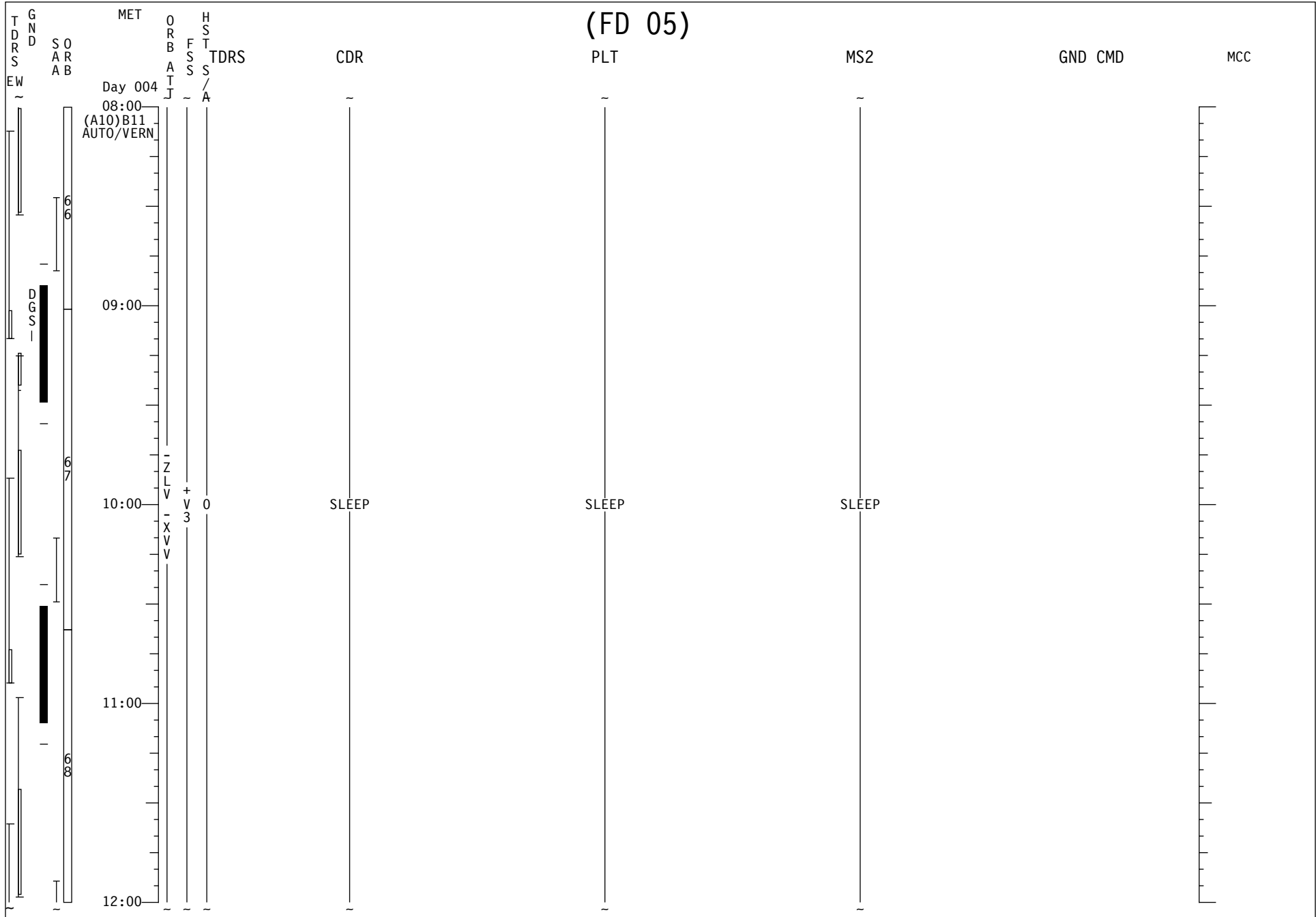
(FD 05)



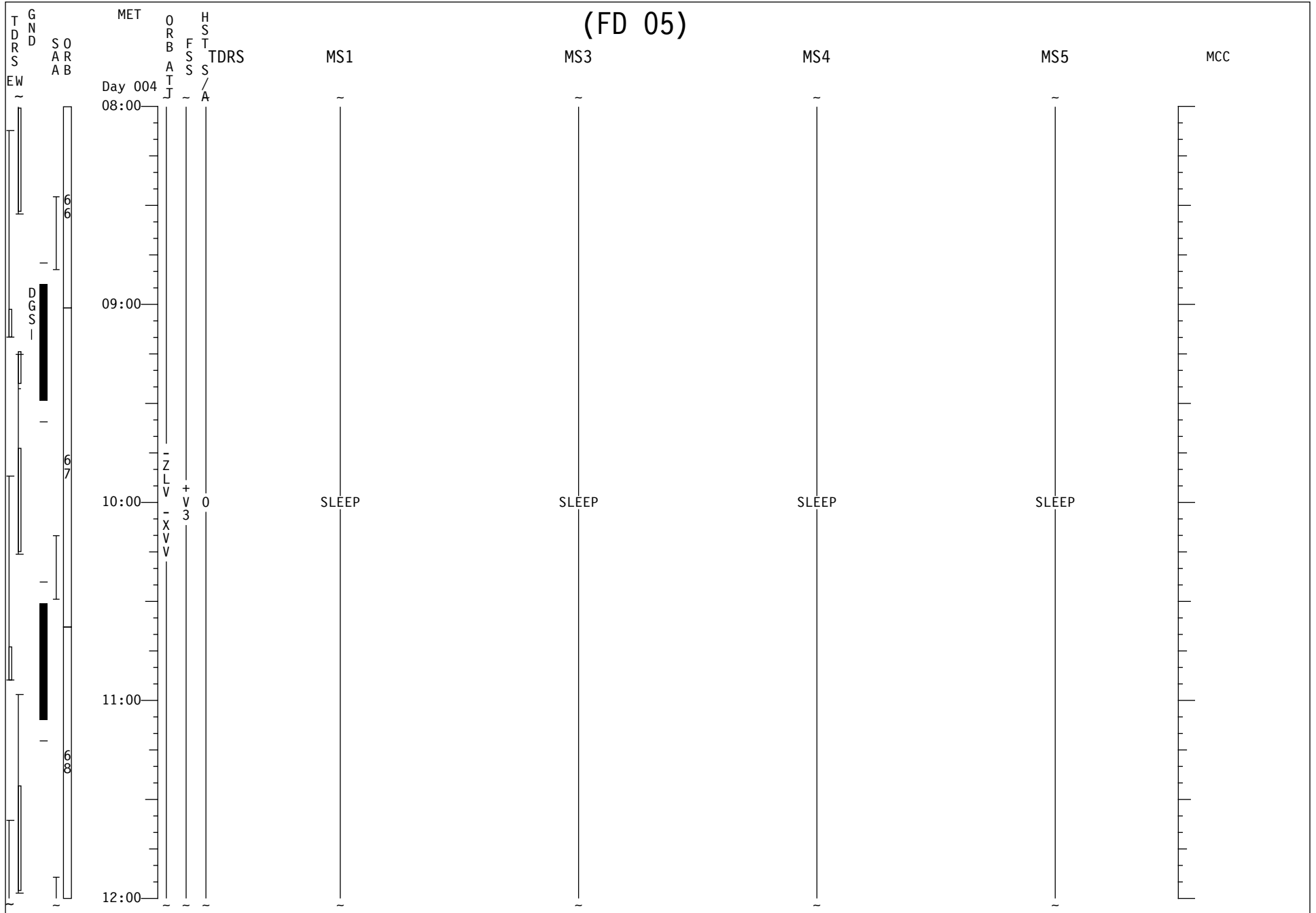
(FD 05)



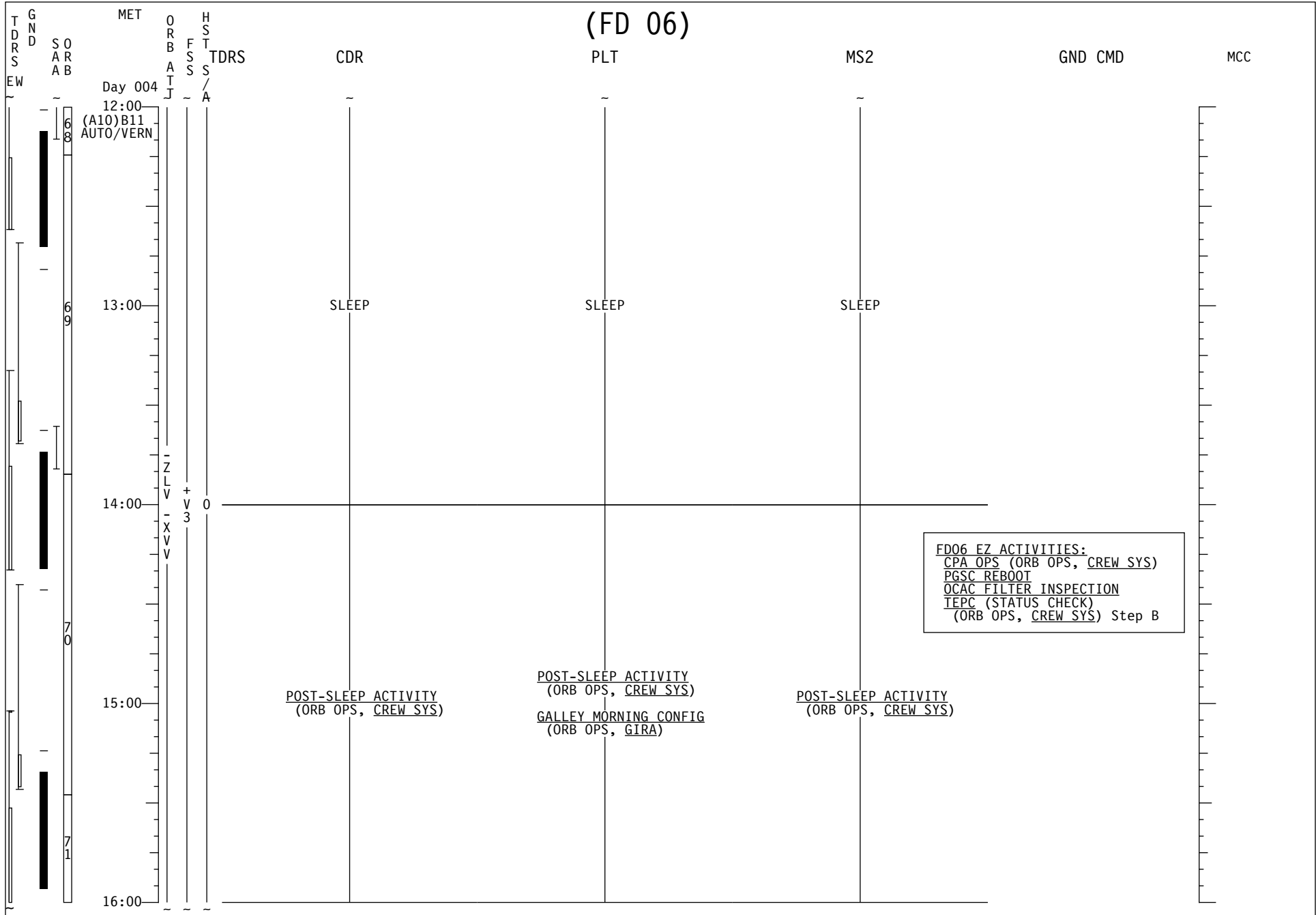
(FD 05)



(FD 05)

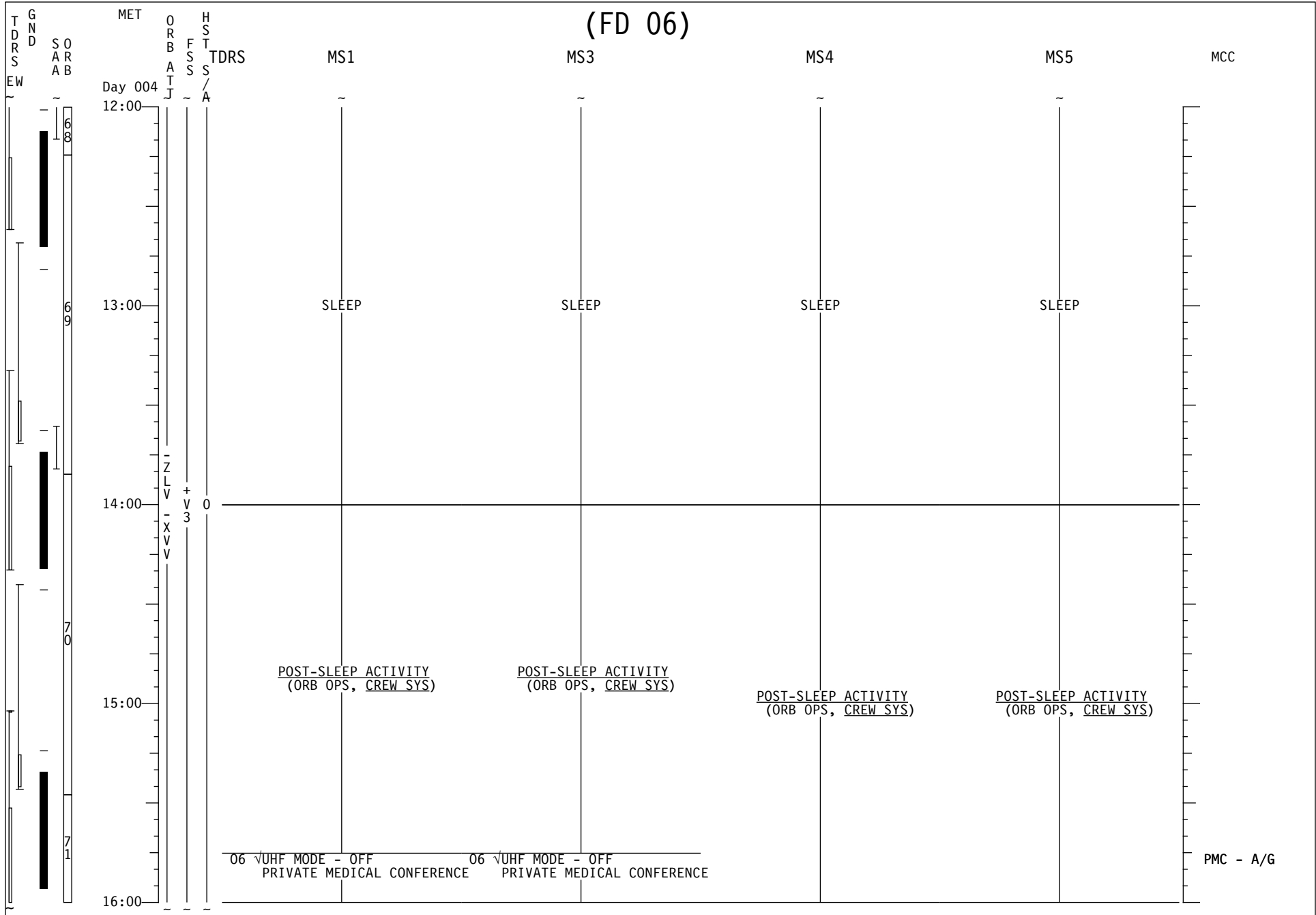


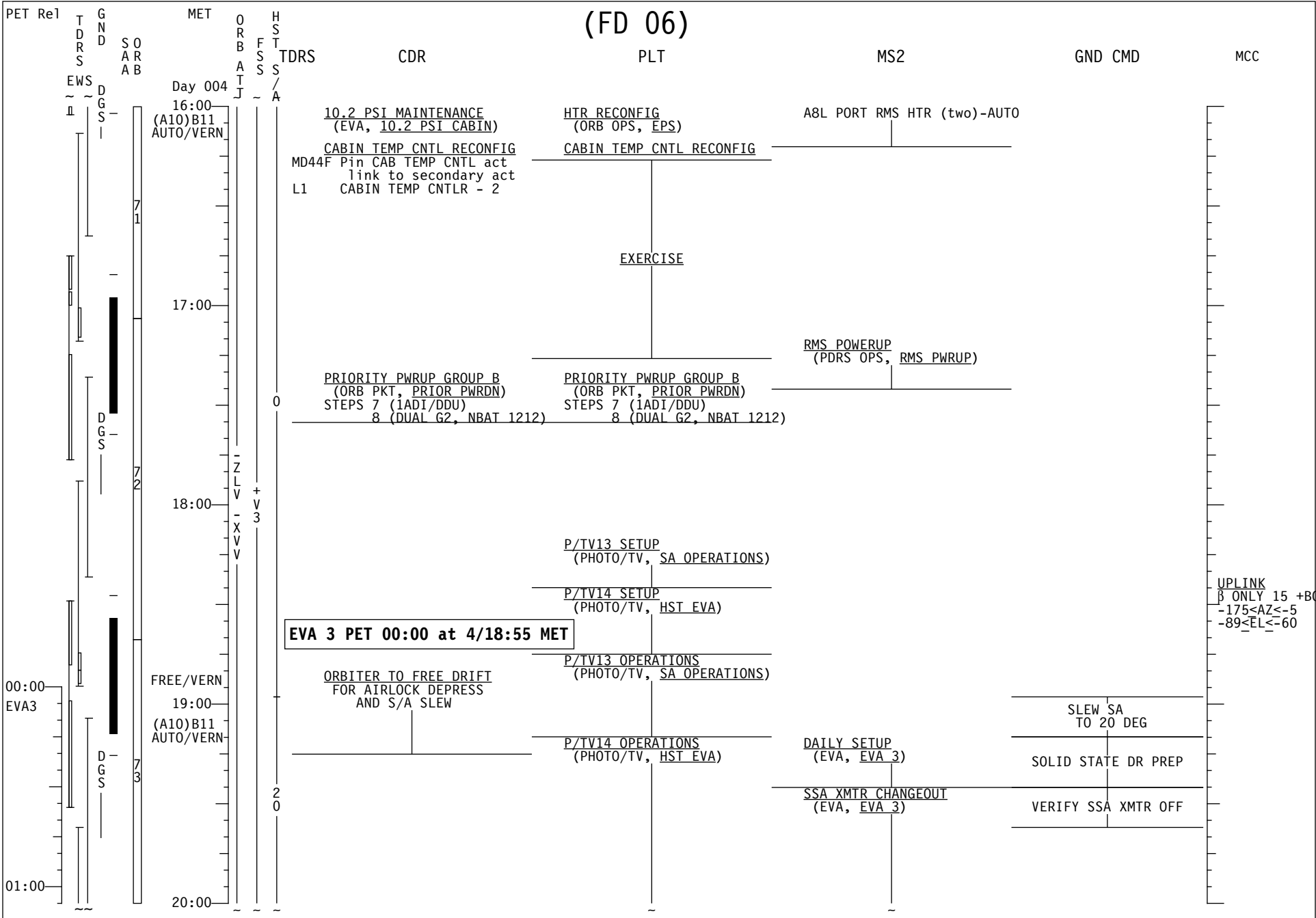
(FD 06)



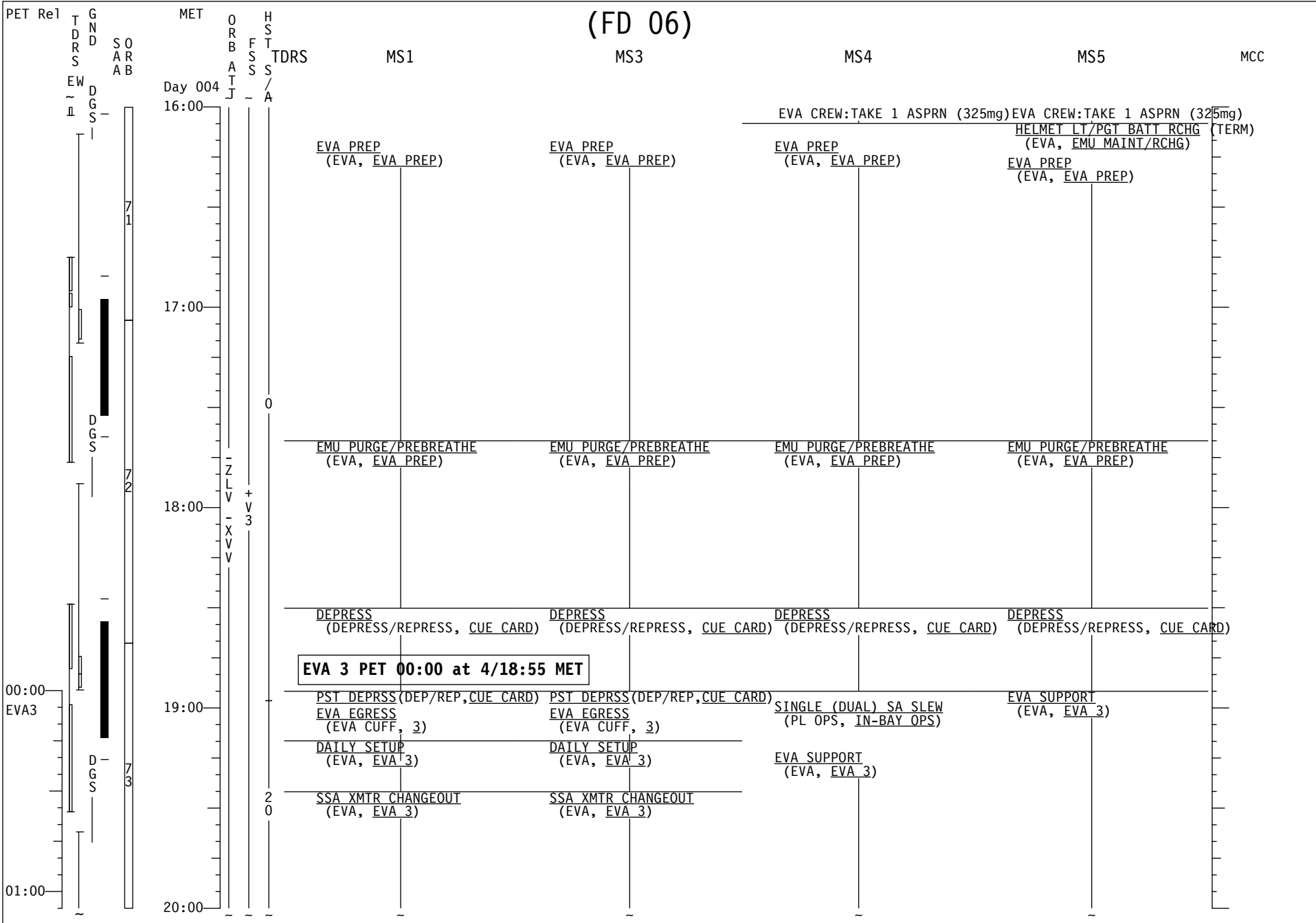
FD06 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC REBOOT
 OCAC FILTER INSPECTION
 TEPC (STATUS CHECK)
 (ORB OPS, CREW SYS) Step B

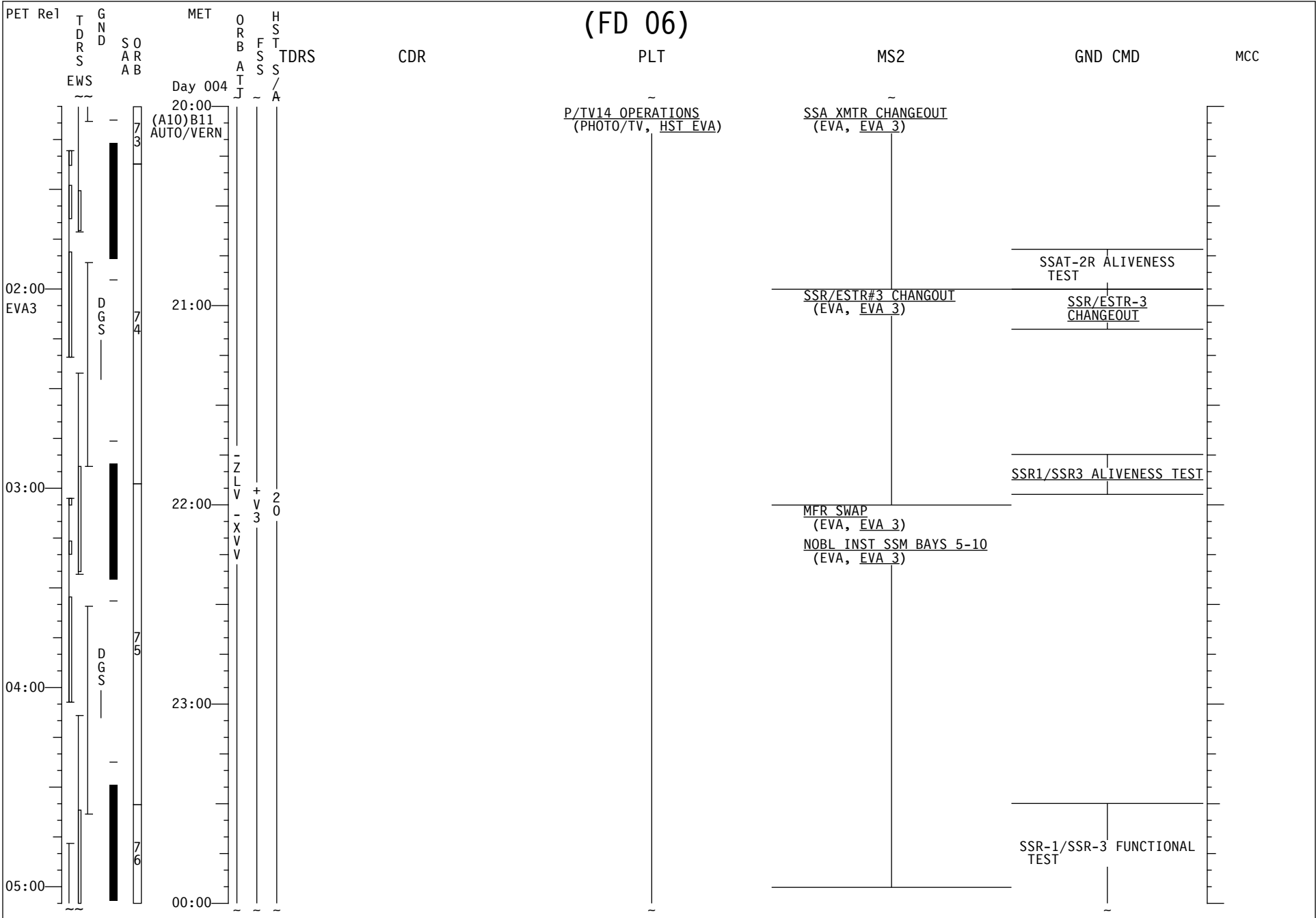
(FD 06)

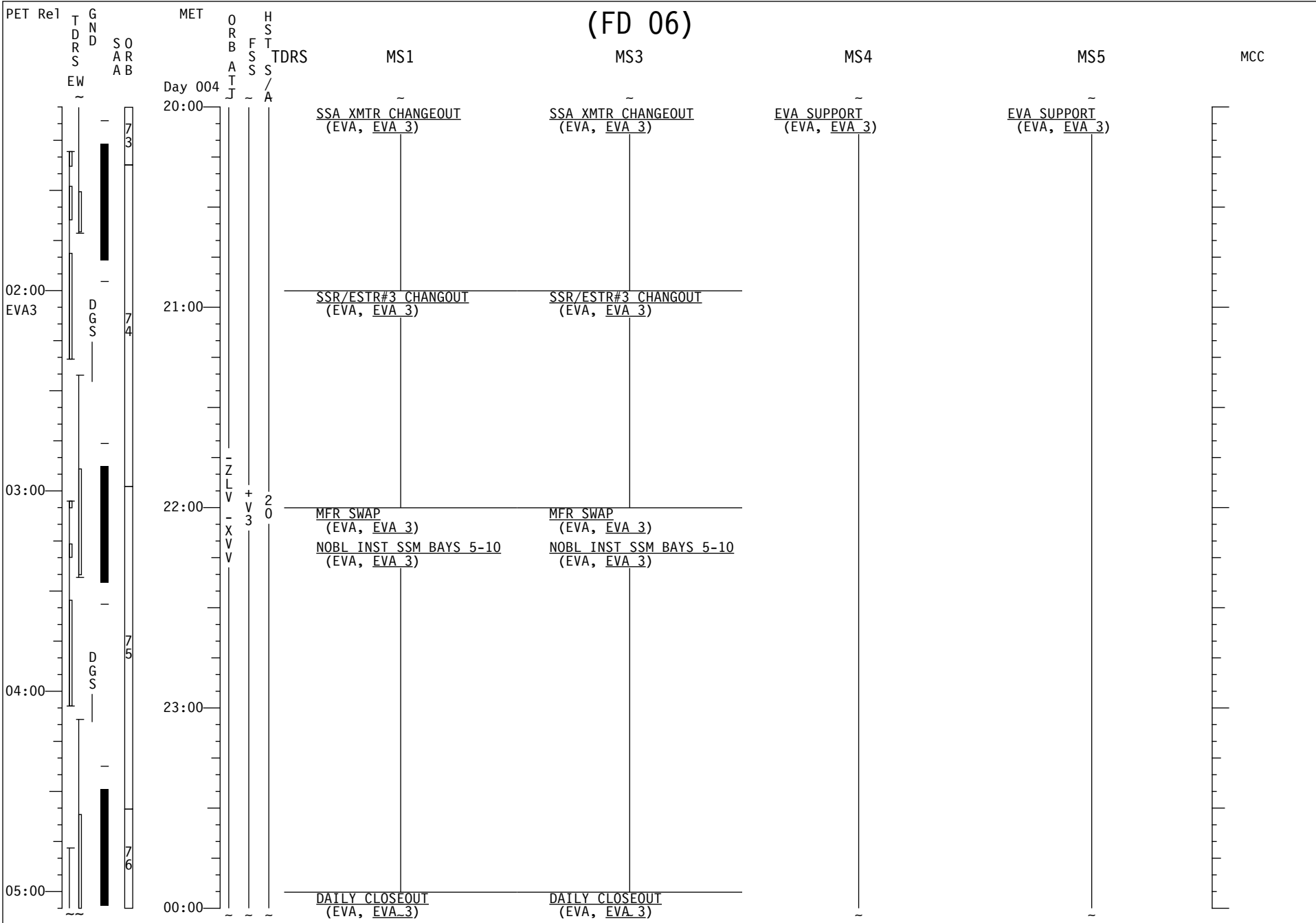


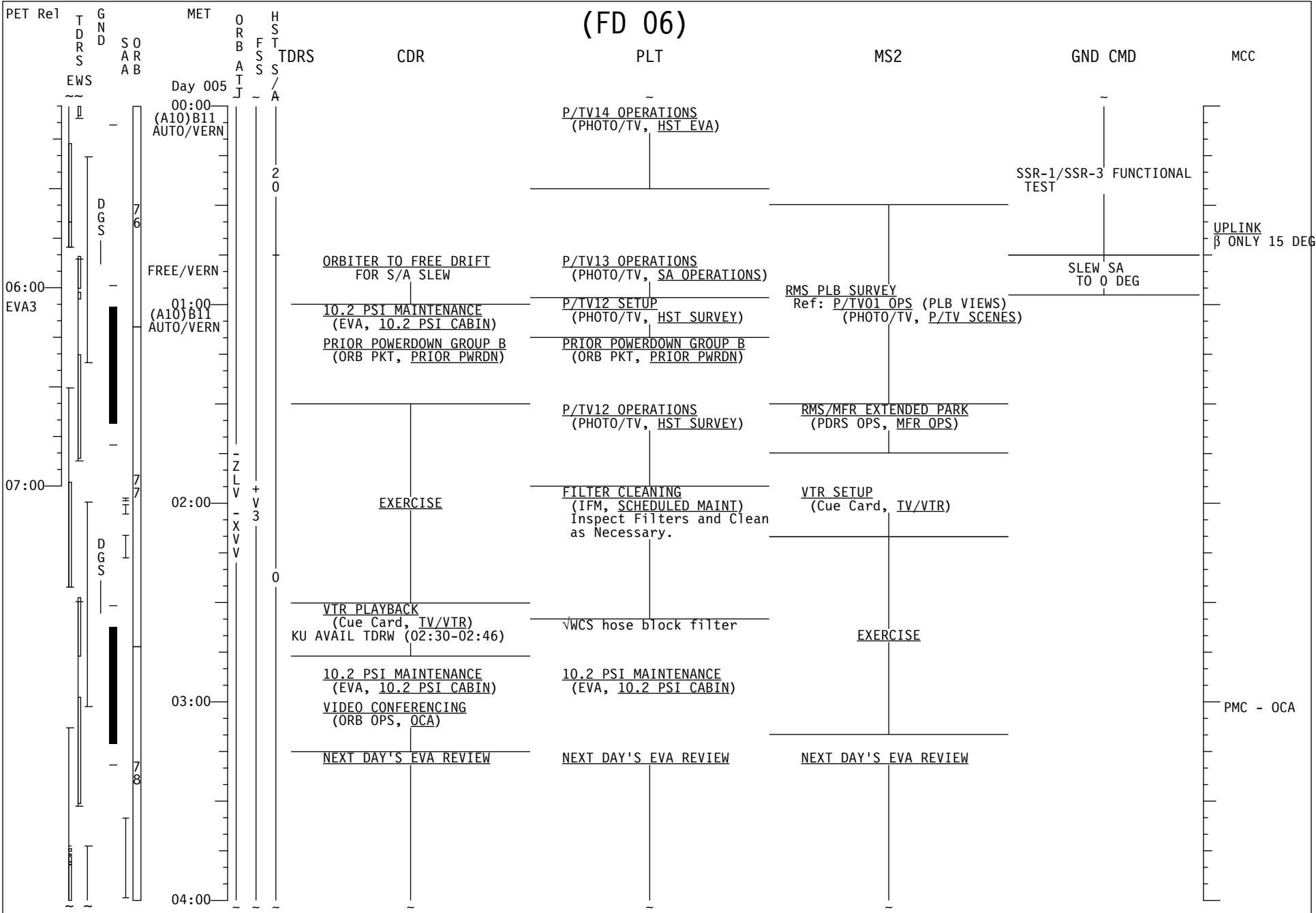


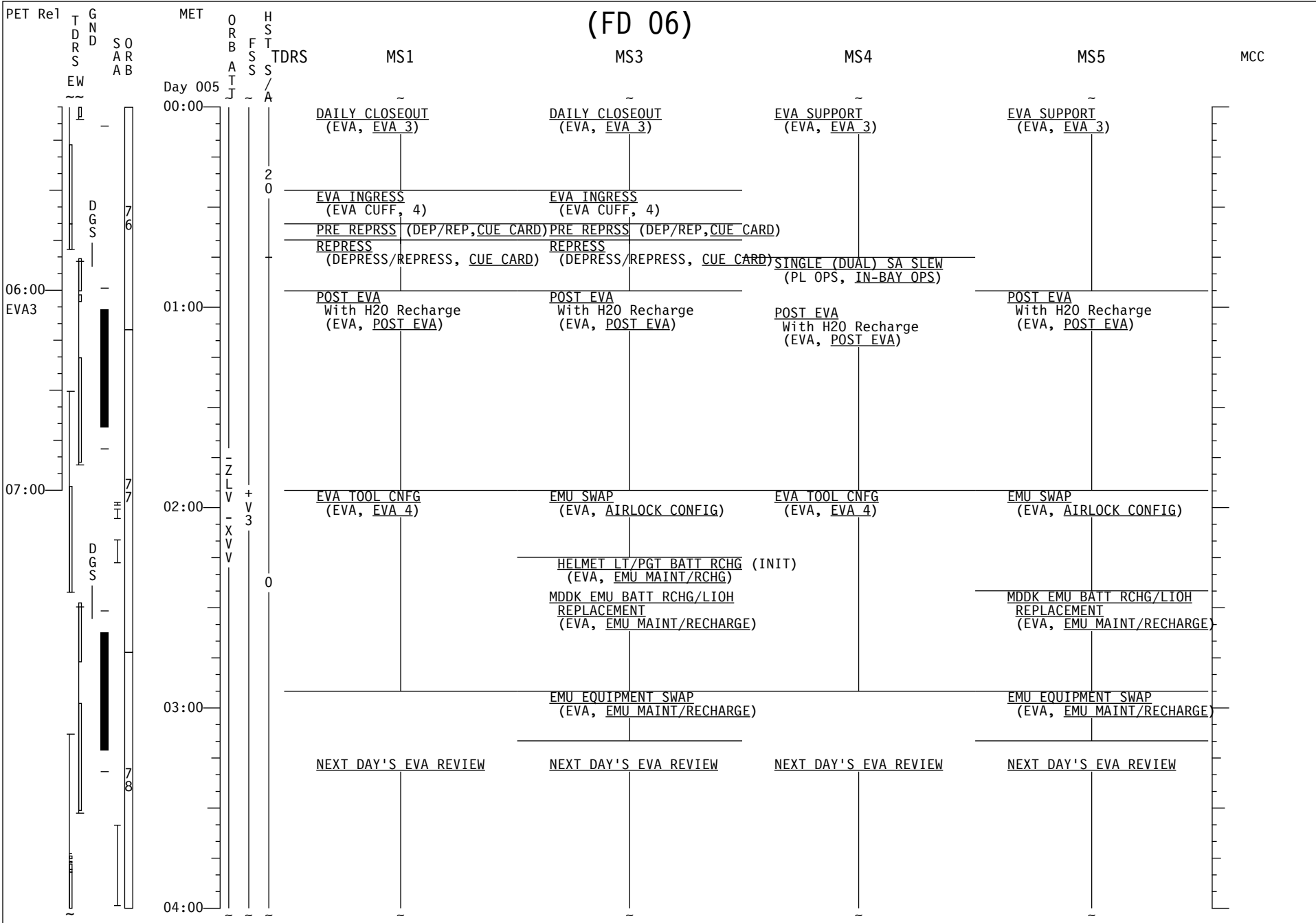
UPLINK
 β ONLY 15 +BOX
 -175<AZ<-5
 -89<EL<-60



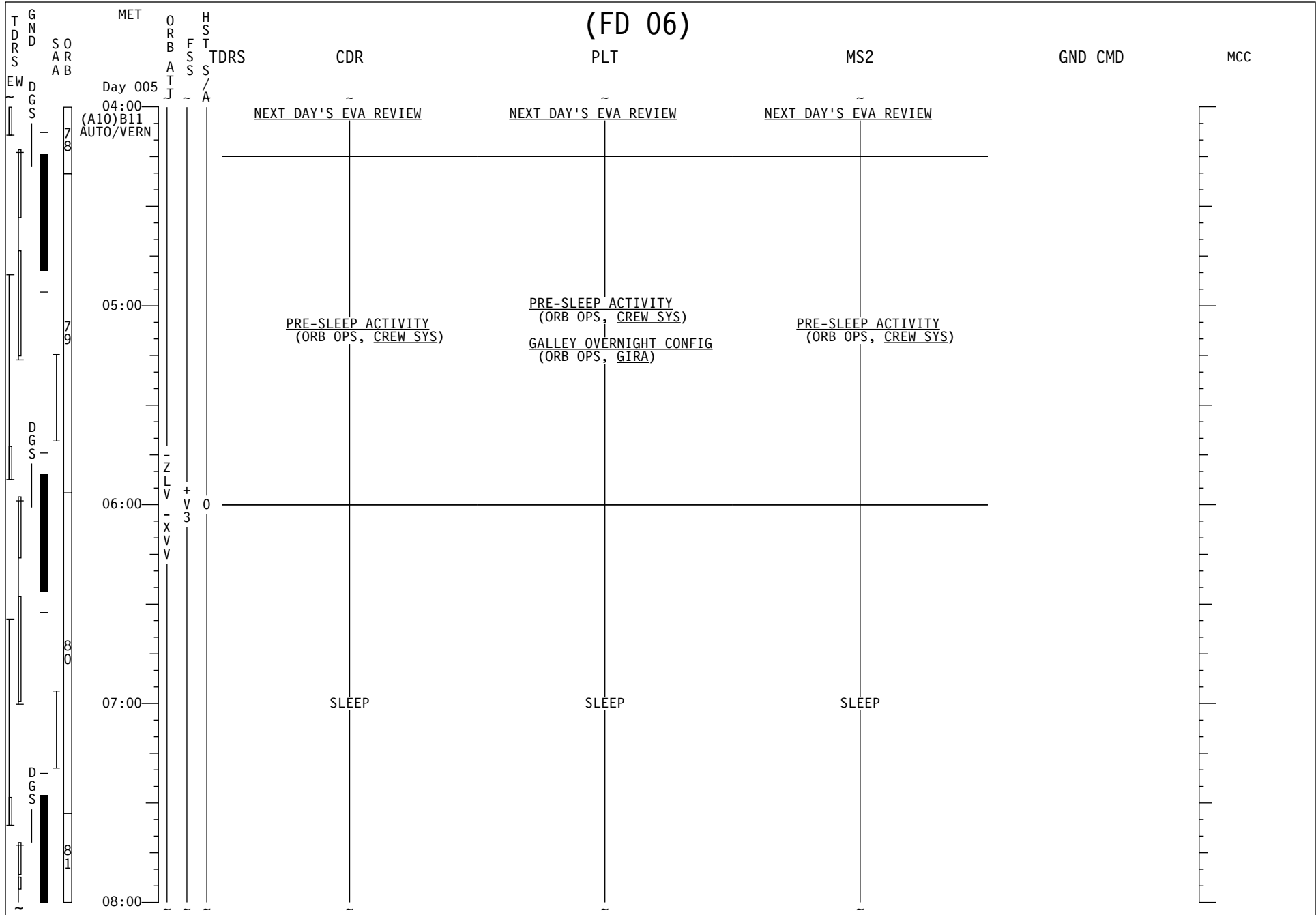




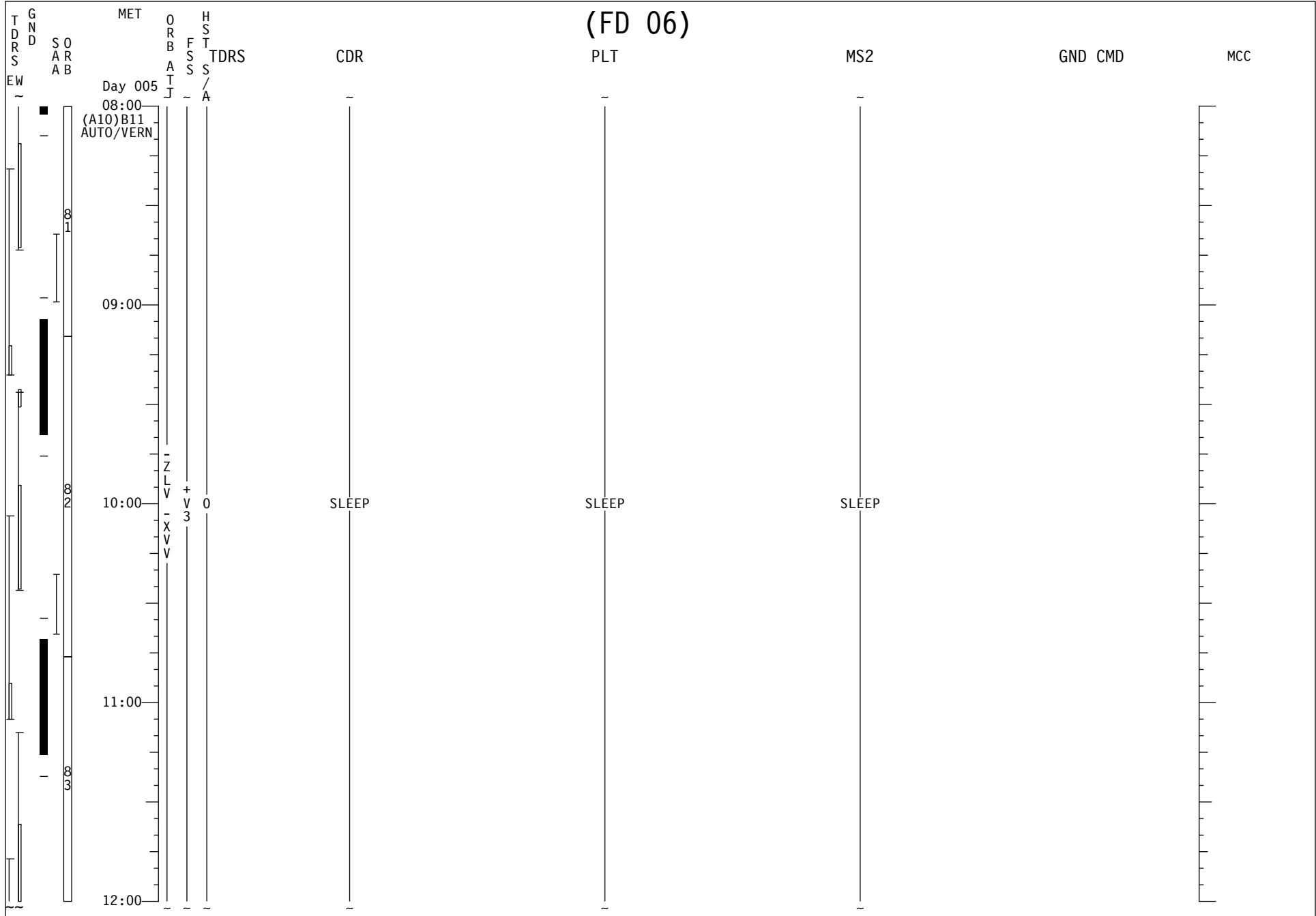




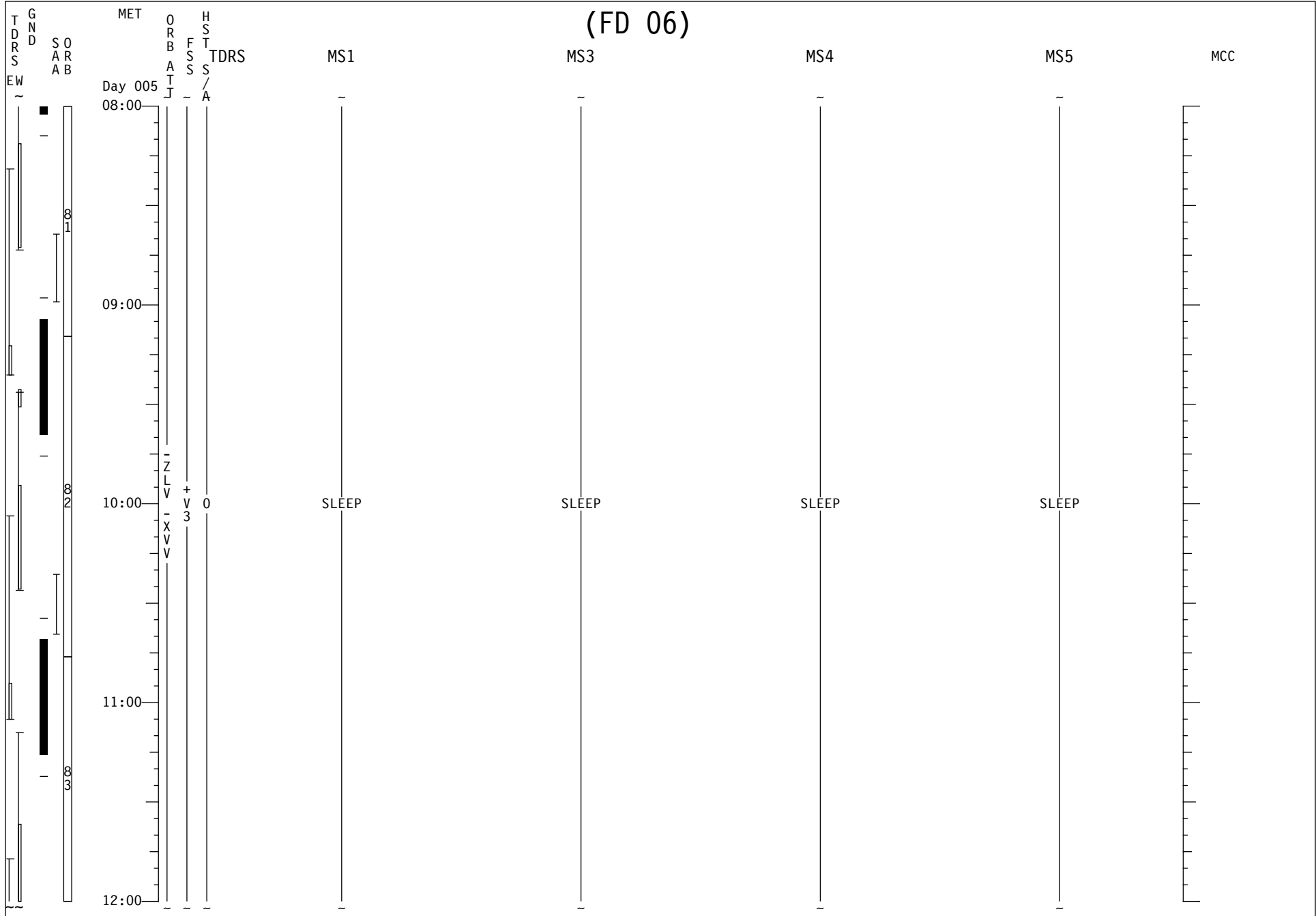
(FD 06)



(FD 06)



(FD 06)



Day 005

08:00

09:00

10:00

11:00

12:00

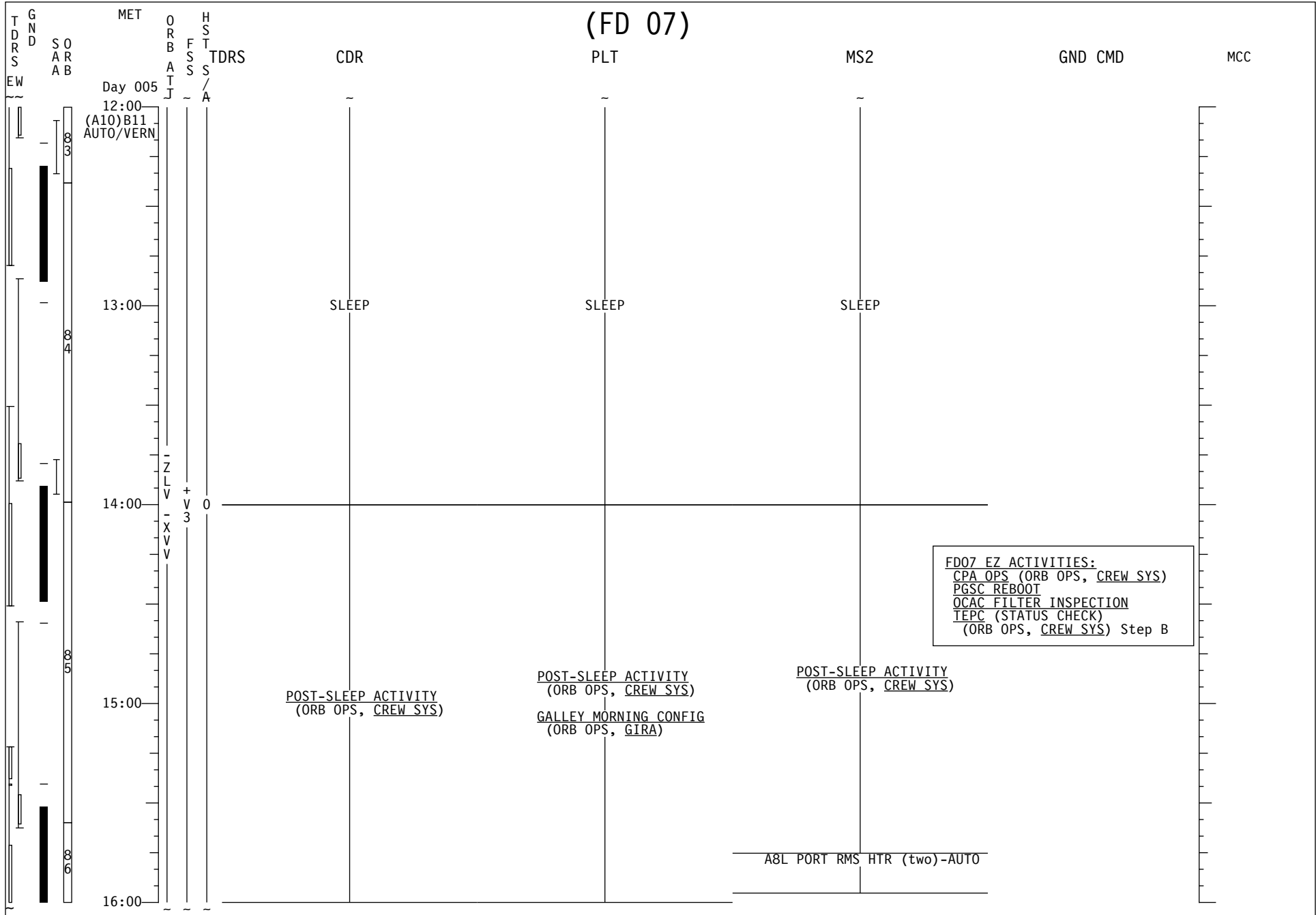
SLEEP

SLEEP

SLEEP

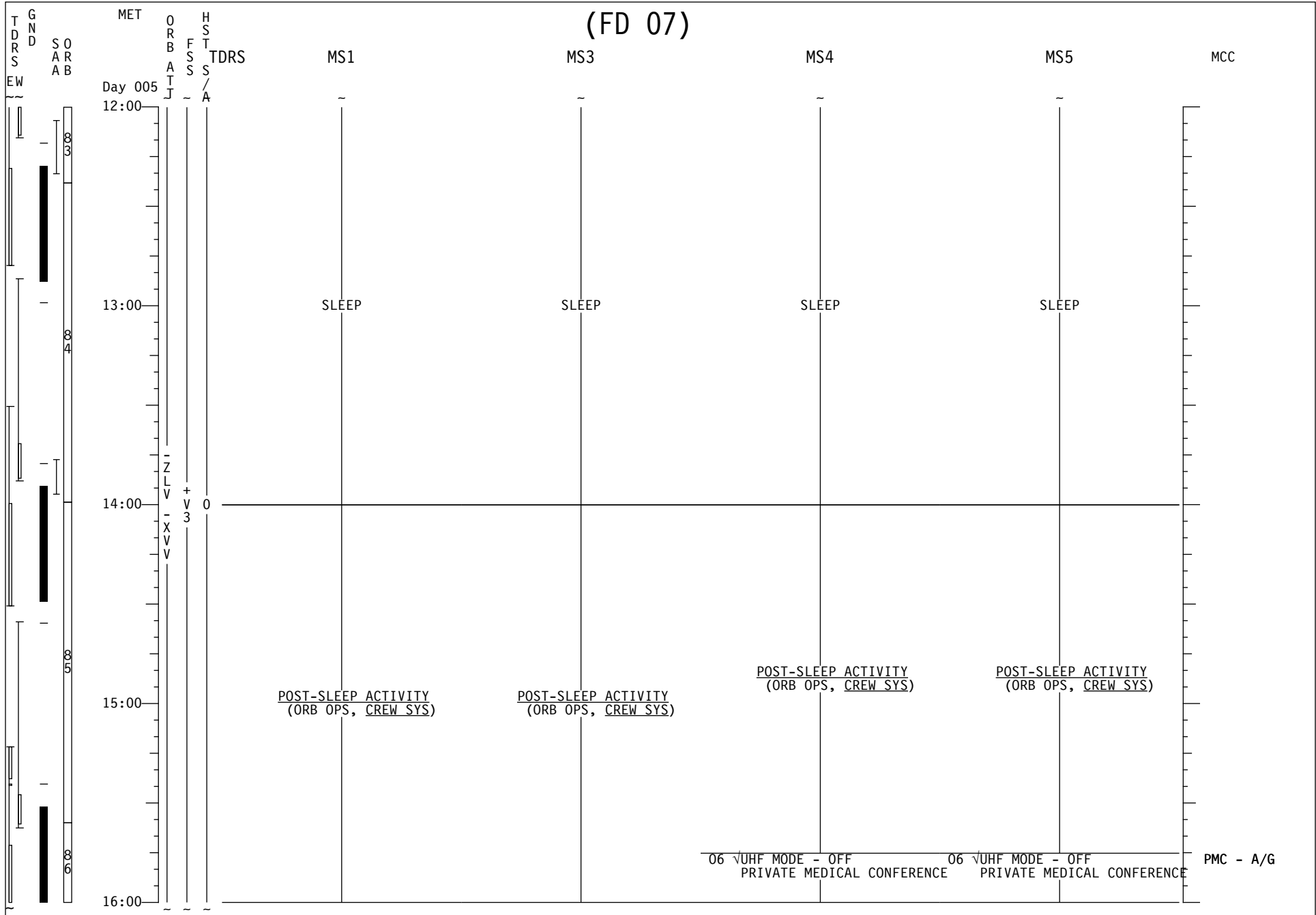
SLEEP

(FD 07)



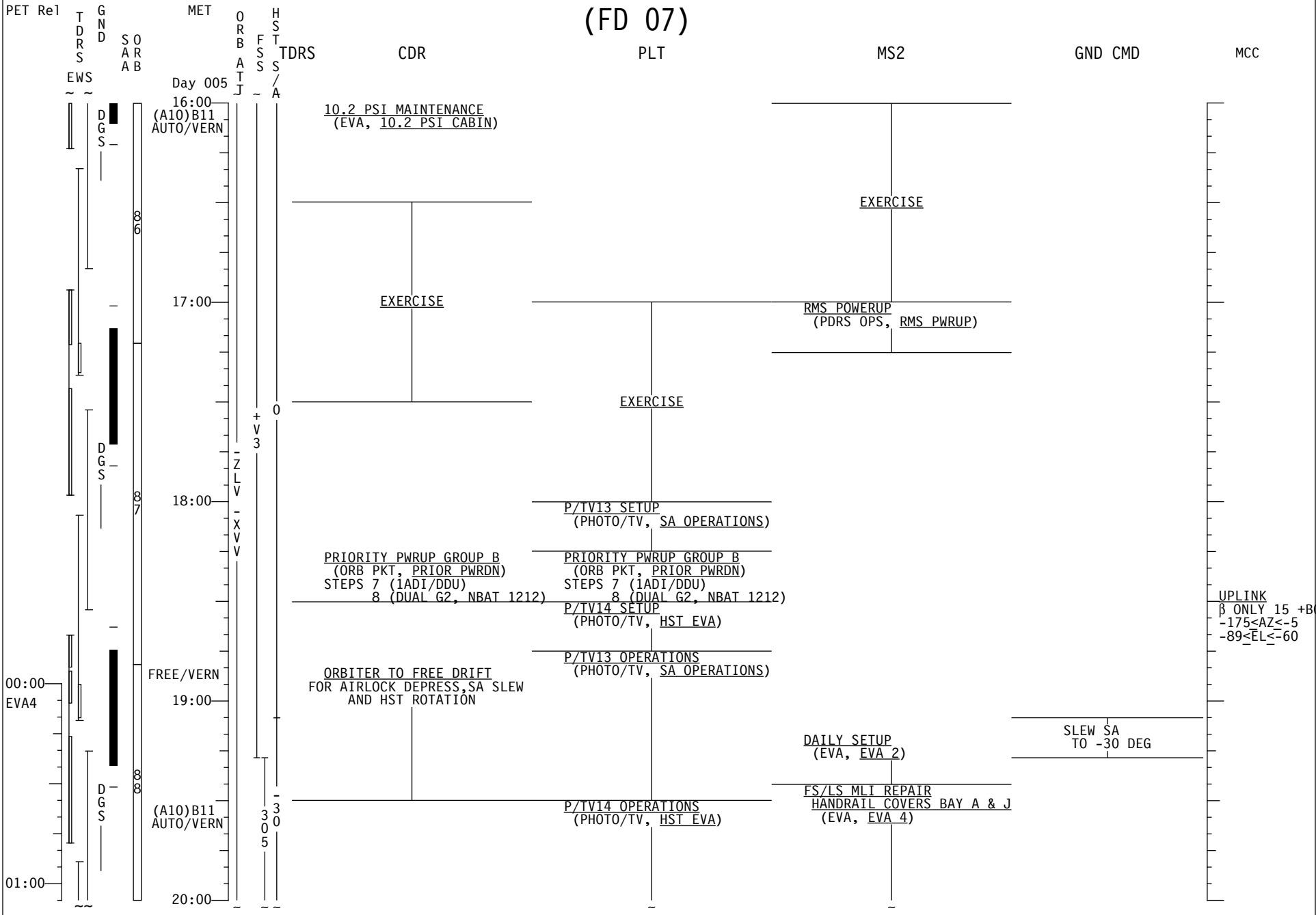
FD07 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC REBOOT
 OCAC FILTER INSPECTION
 TEPC (STATUS CHECK)
 (ORB OPS, CREW SYS) Step B

(FD 07)



PET Re1

(FD 07)



PET Re1

TDRS
GND
SO
AR
AB

MET

Day 005

(FD 07)

ORBIT
FSS
TDRS

MS1

MS3

MS4

MS5

MCC

16:00

EVA CREW: TAKE 1 ASPRN (325mg)

HELMET LT/PGT BATT RCHG (TERM)

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

EVA PREP
(EVA, EVA PREP)

17:00

0

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

18:00

EMU PURGE/PREBREATHE
(EVA, EVA PREP)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

DEPRESS
(DEPRESS/REPRESS, CUE CARD)

19:00

SINGLE (DUAL) SA SLEW
(PL OPS, IN-BAY OPS)

SINGLE (DUAL) SA SLEW
(PL OPS, IN-BAY OPS)

PST DEPRESS (DEP/REP, CUE CARD)

PST DEPRESS (DEP/REP, CUE CARD)

EVA EGRESS
(EVA CUFF, 3)

EVA EGRESS
(EVA CUFF, 3)

DAILY SETUP
(EVA, EVA 4)

DAILY SETUP
(EVA, EVA 4)

ROTATE HST (305 DEG)
(PL OPS, INBAY OPS)

ROTATE HST (305 DEG)
(PL OPS, INBAY OPS)

FS/LS MLI REPAIR
HANDRAIL COVERS BAY A & J
(EVA, EVA 4)

FS/LS MLI REPAIR
HANDRAIL COVERS BAY A & J
(EVA, EVA 4)

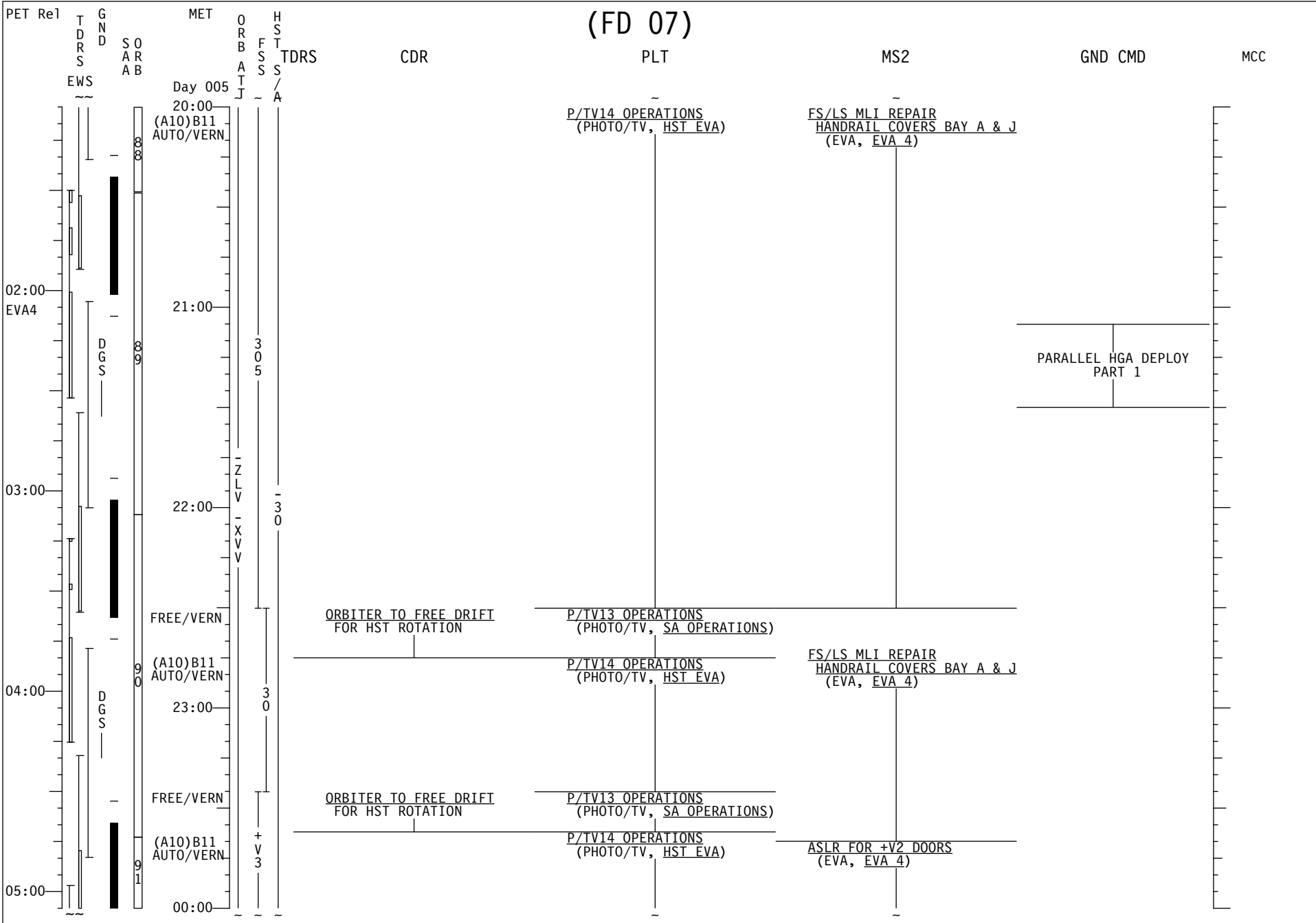
EVA SUPPORT
(EVA, EVA 4)

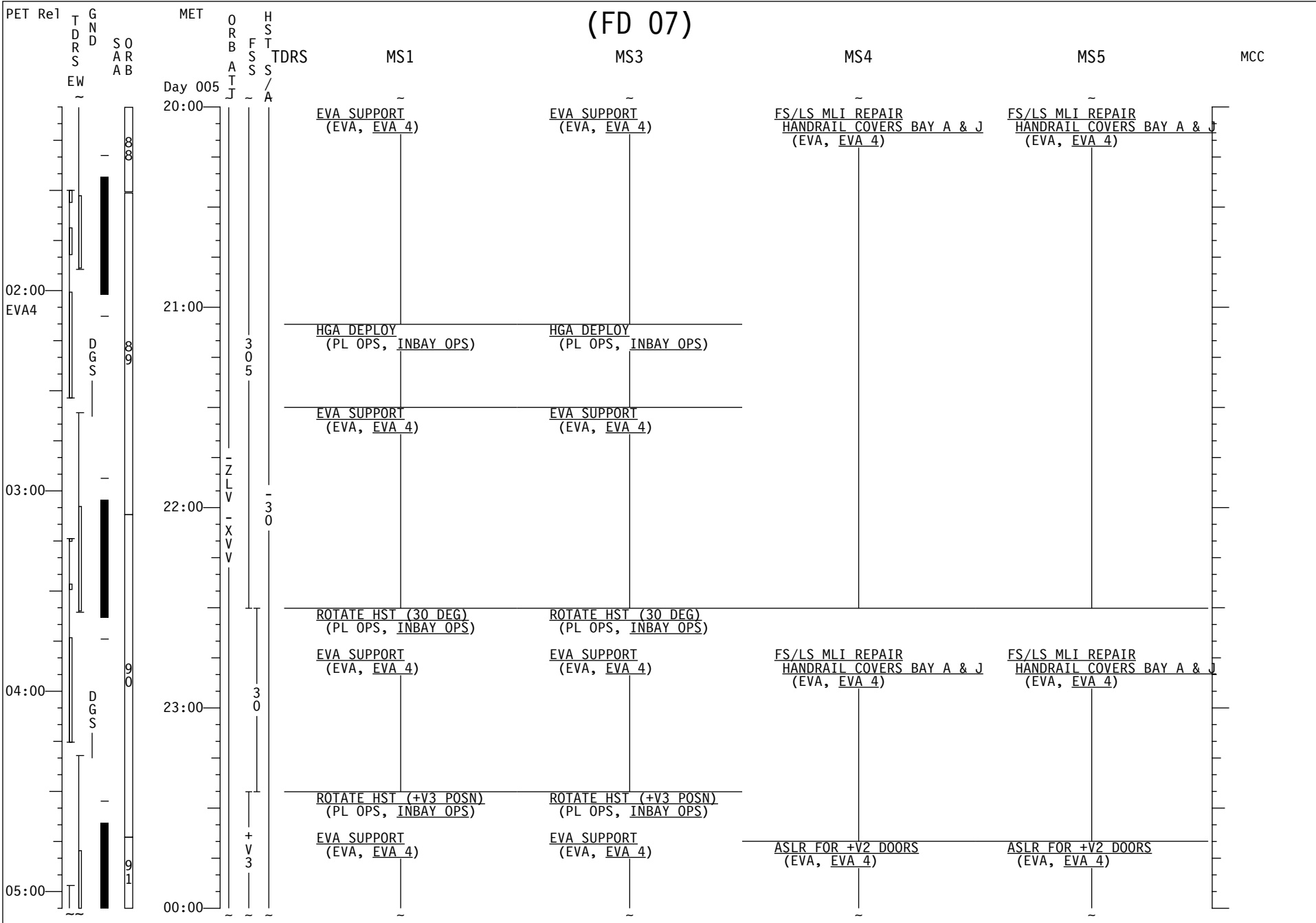
EVA SUPPORT
(EVA, EVA 4)

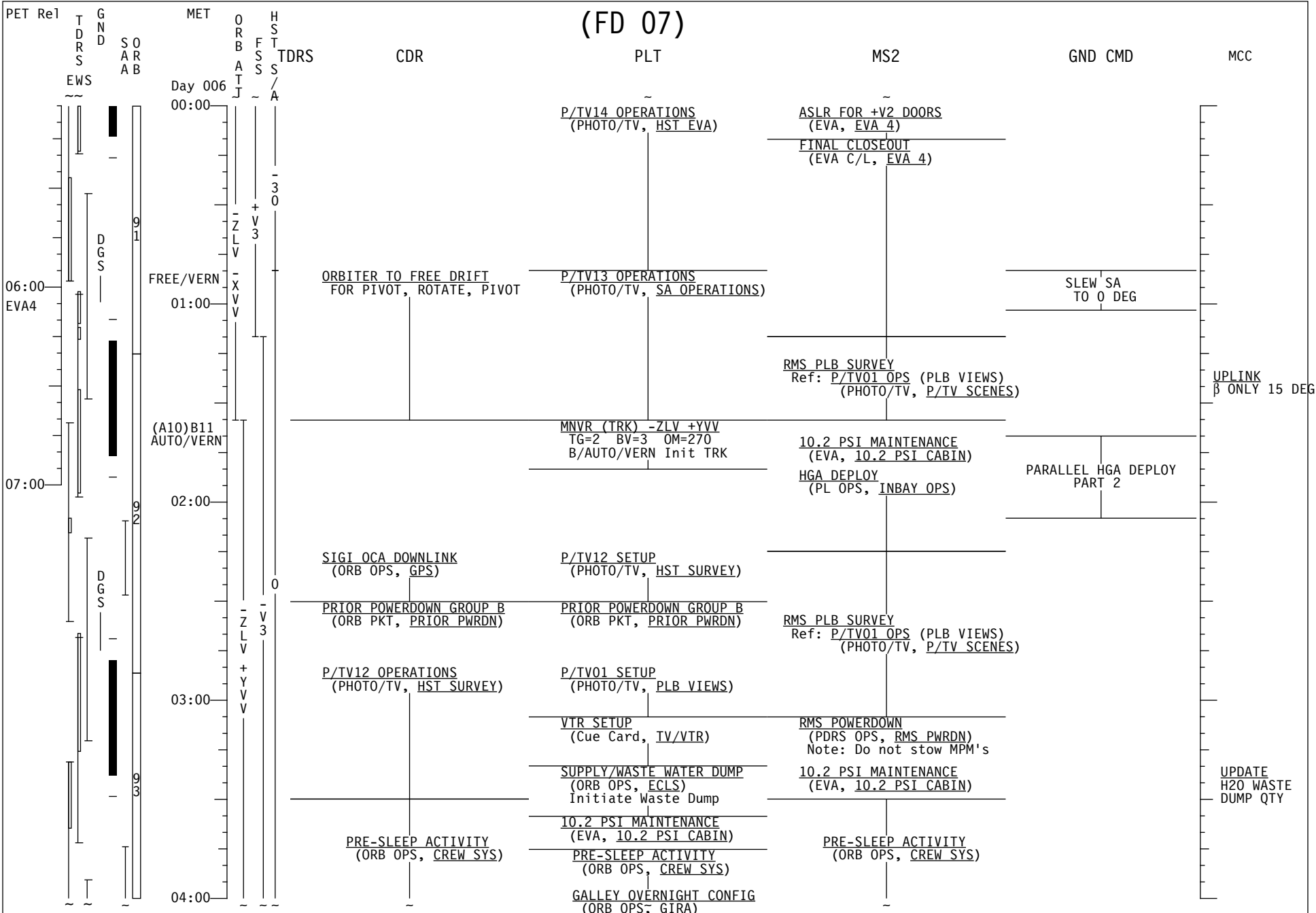
20:00

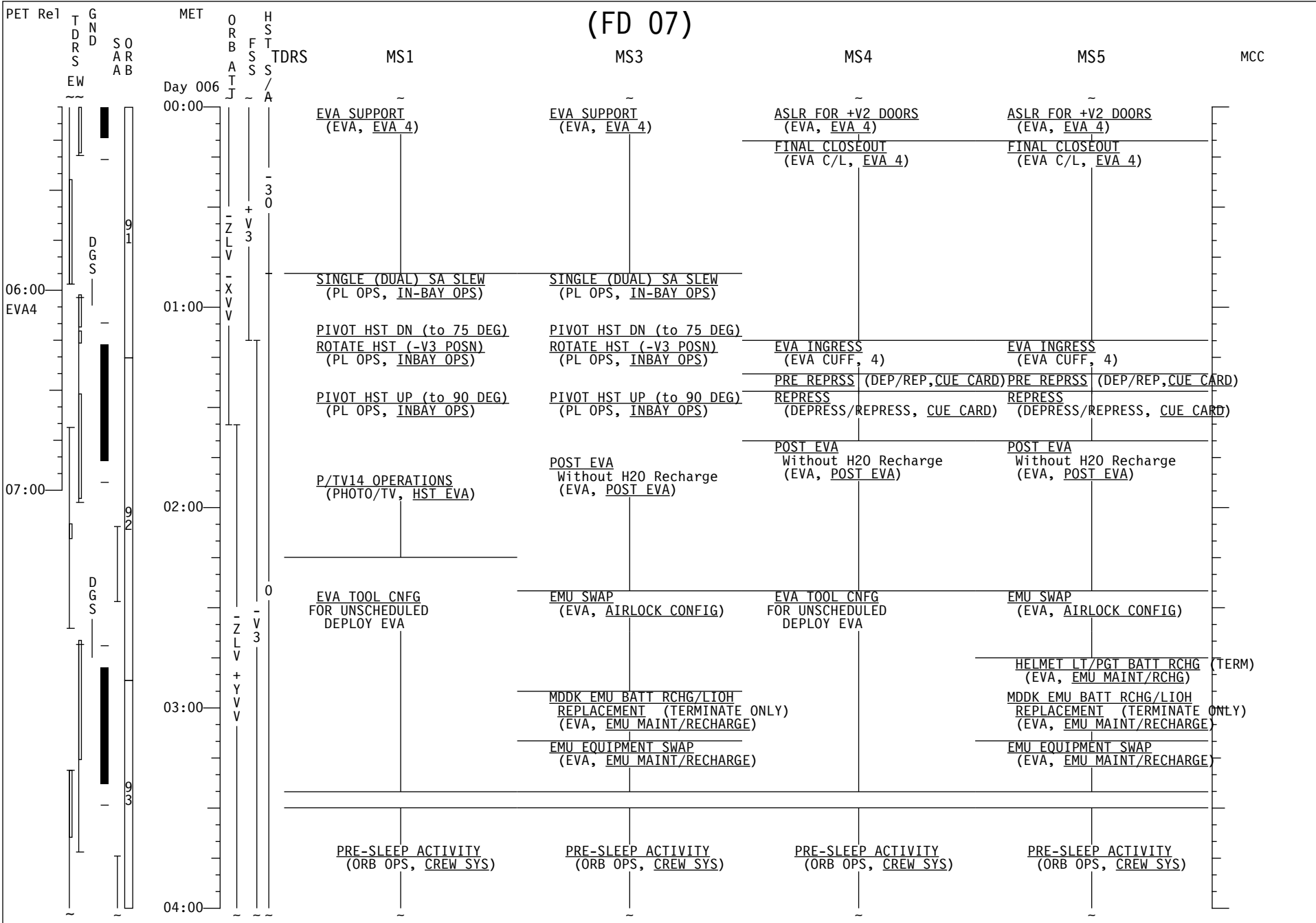
00:00
EVA4

01:00

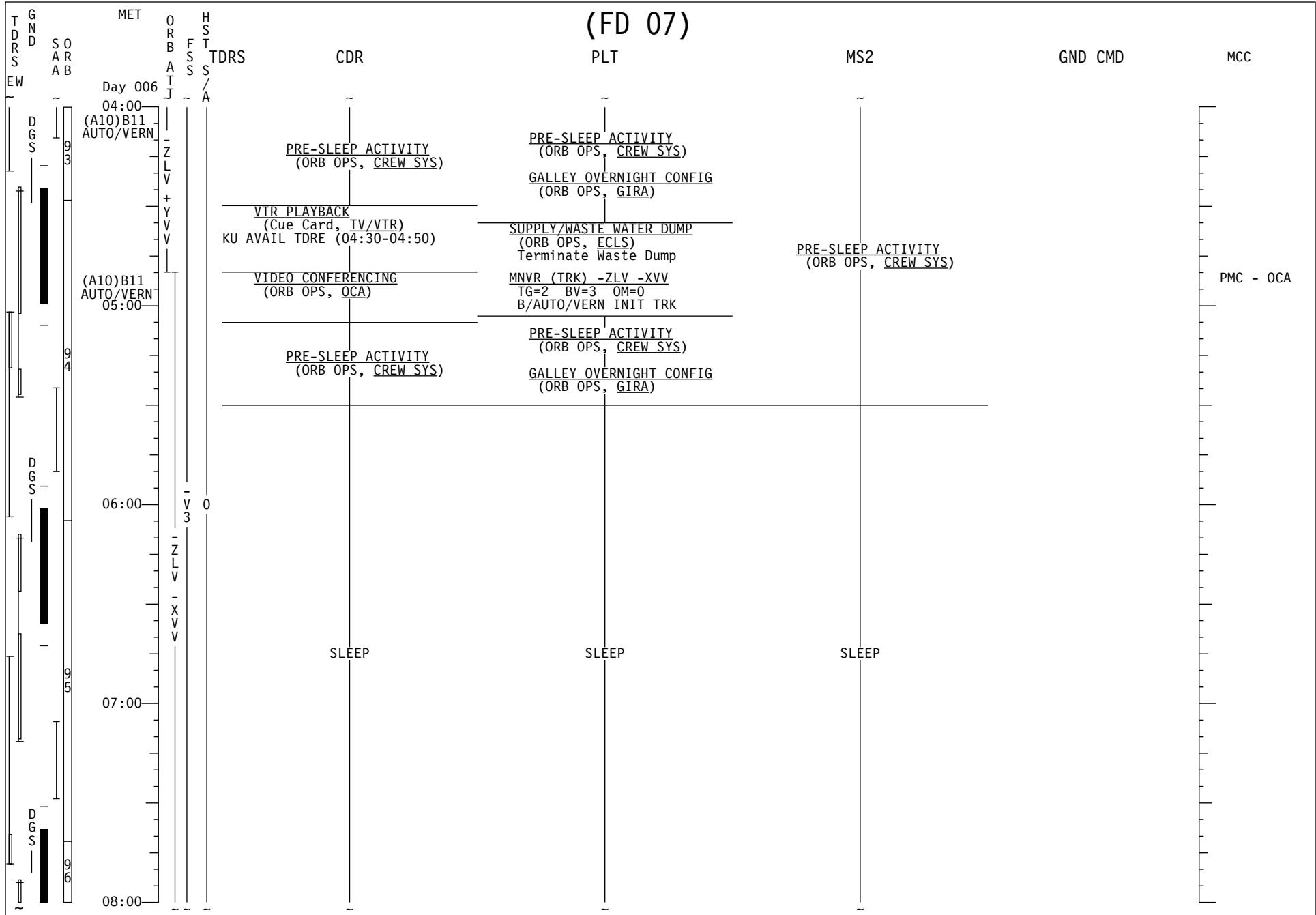




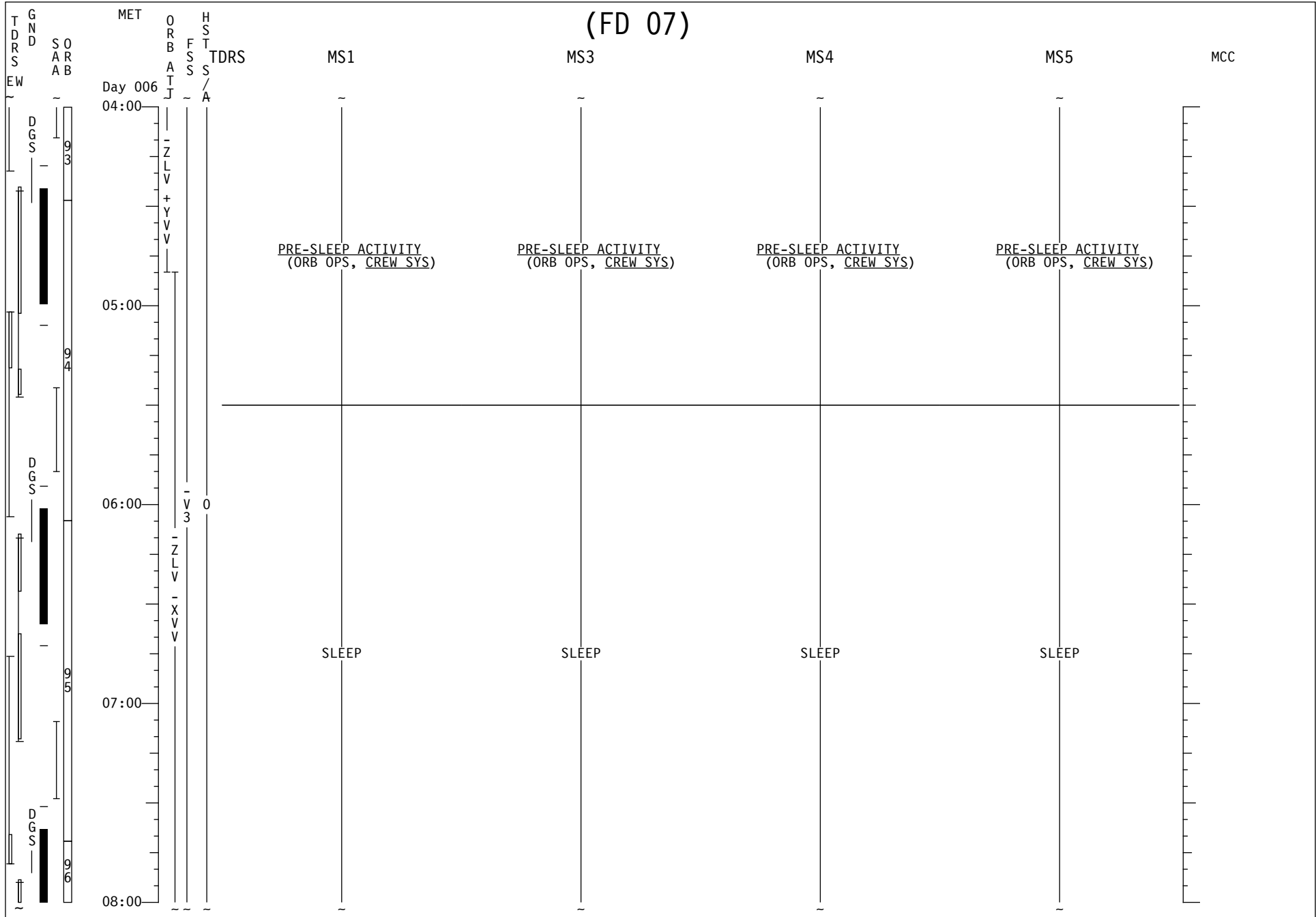




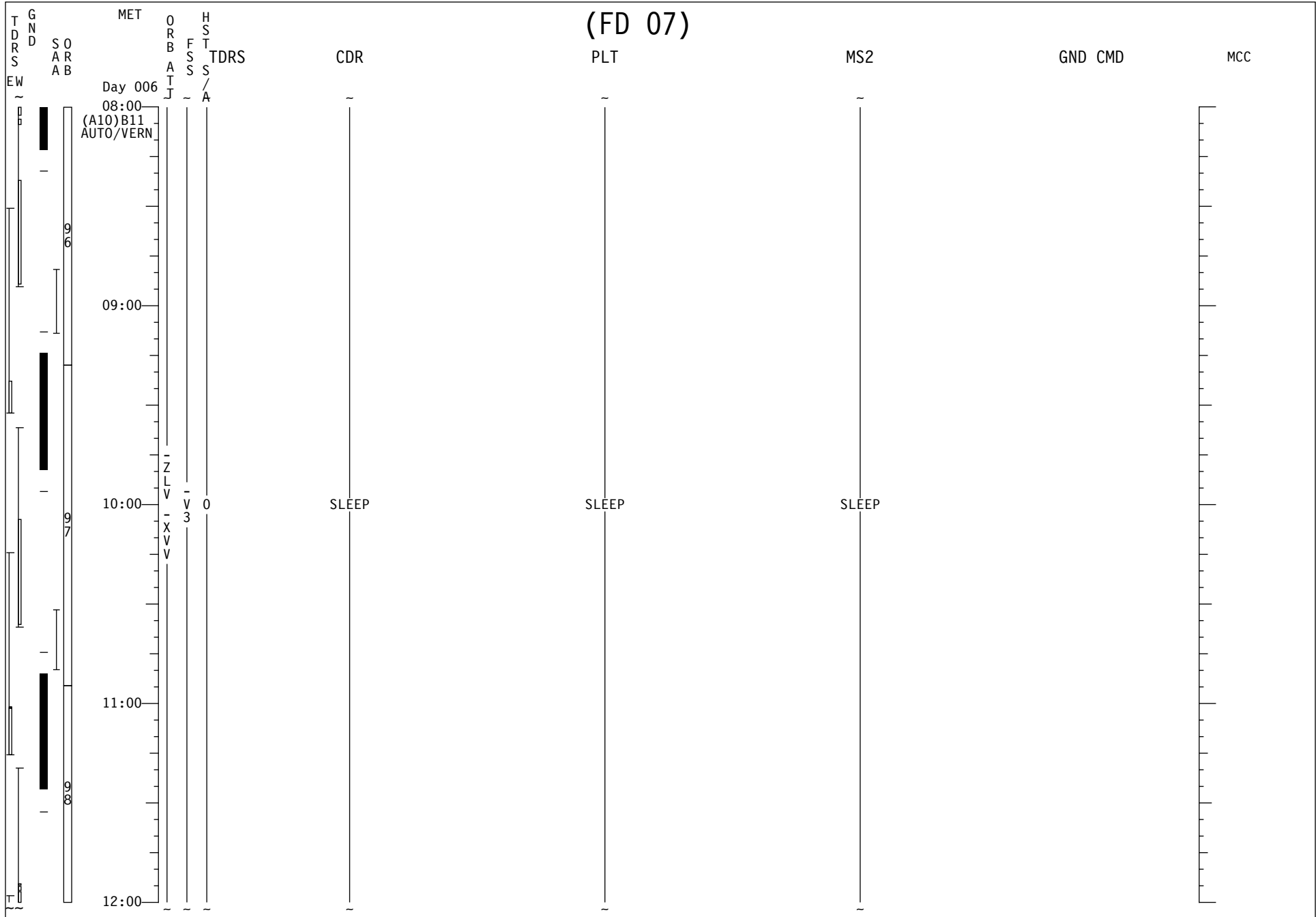
(FD 07)



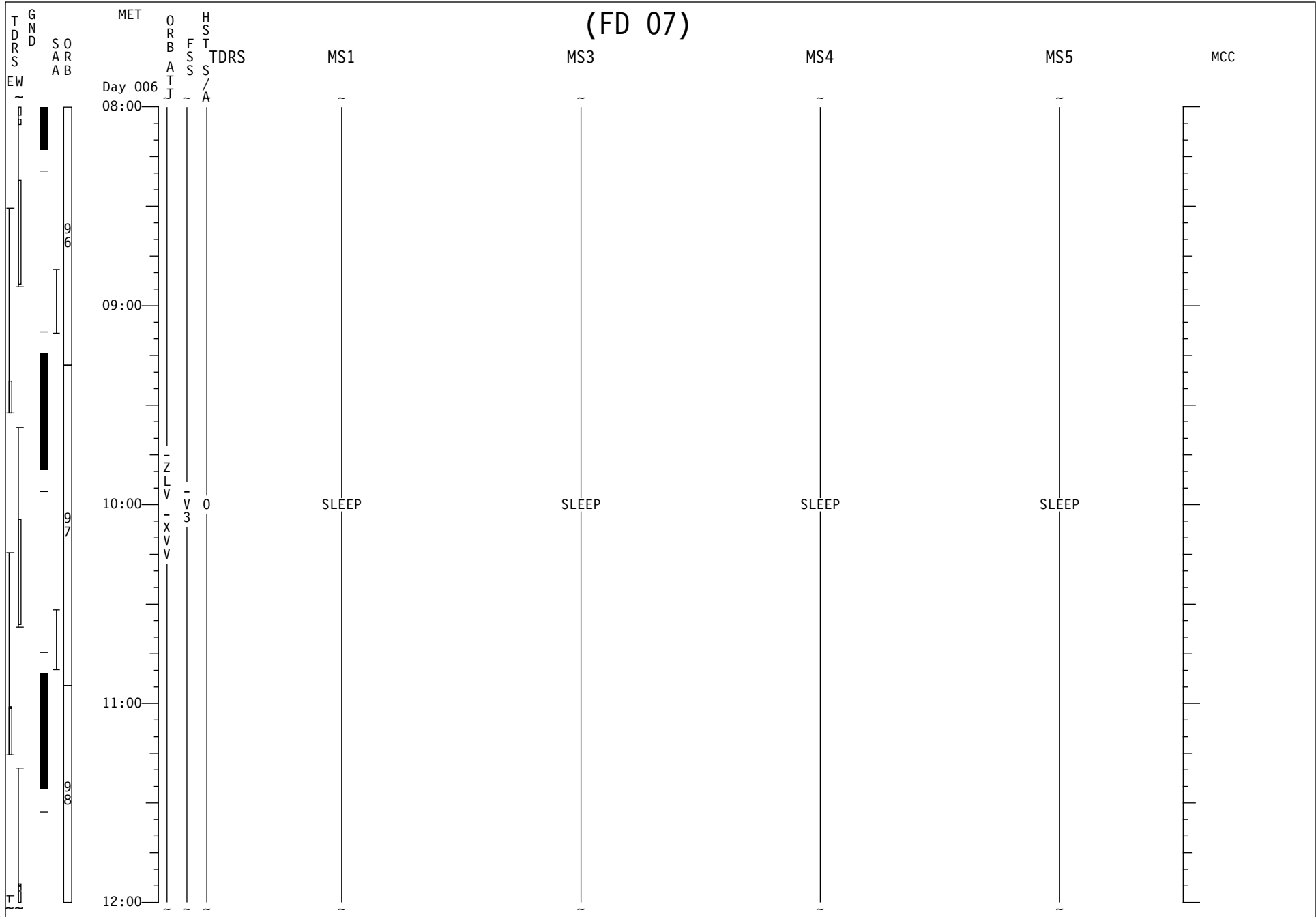
(FD 07)



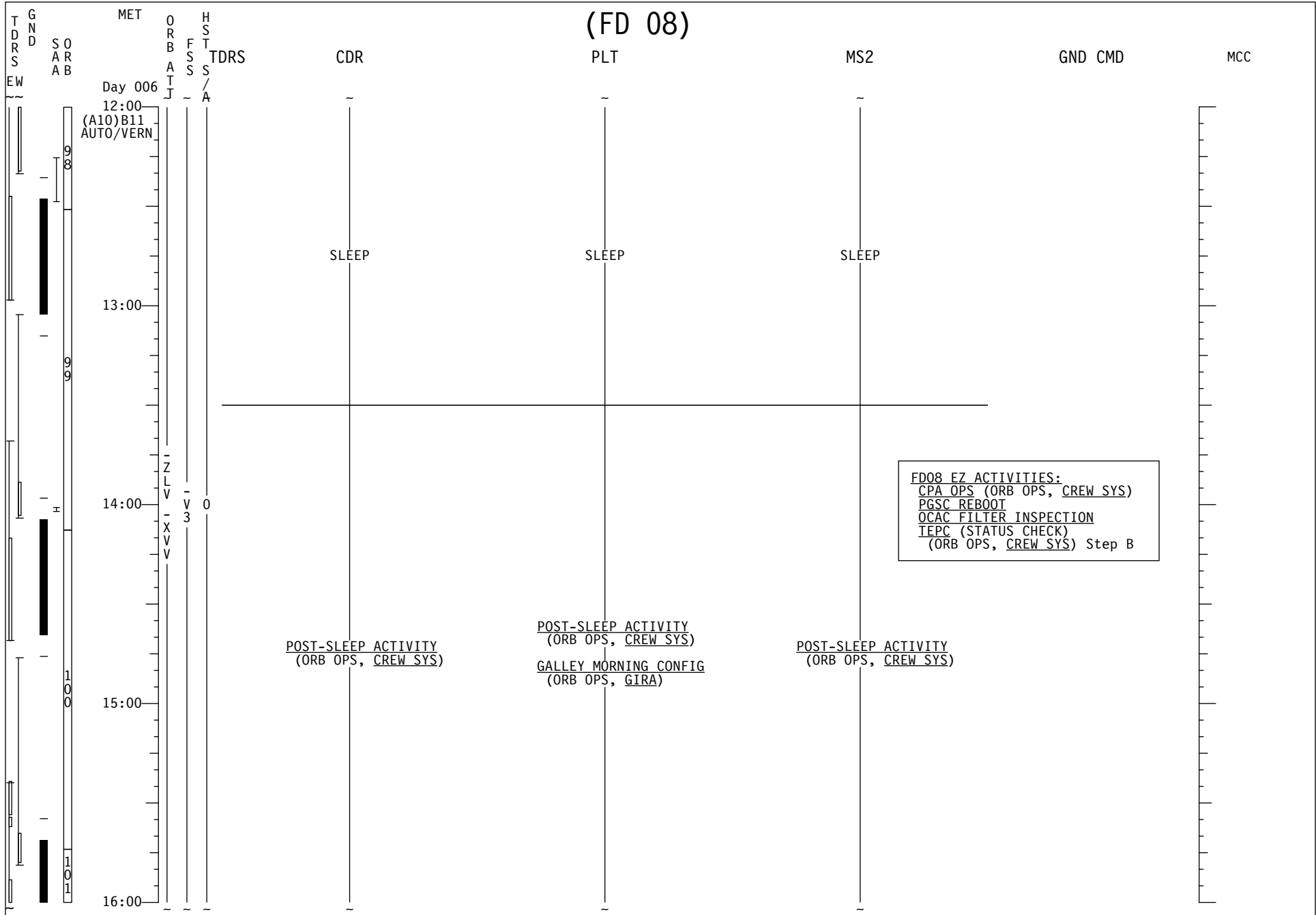
(FD 07)



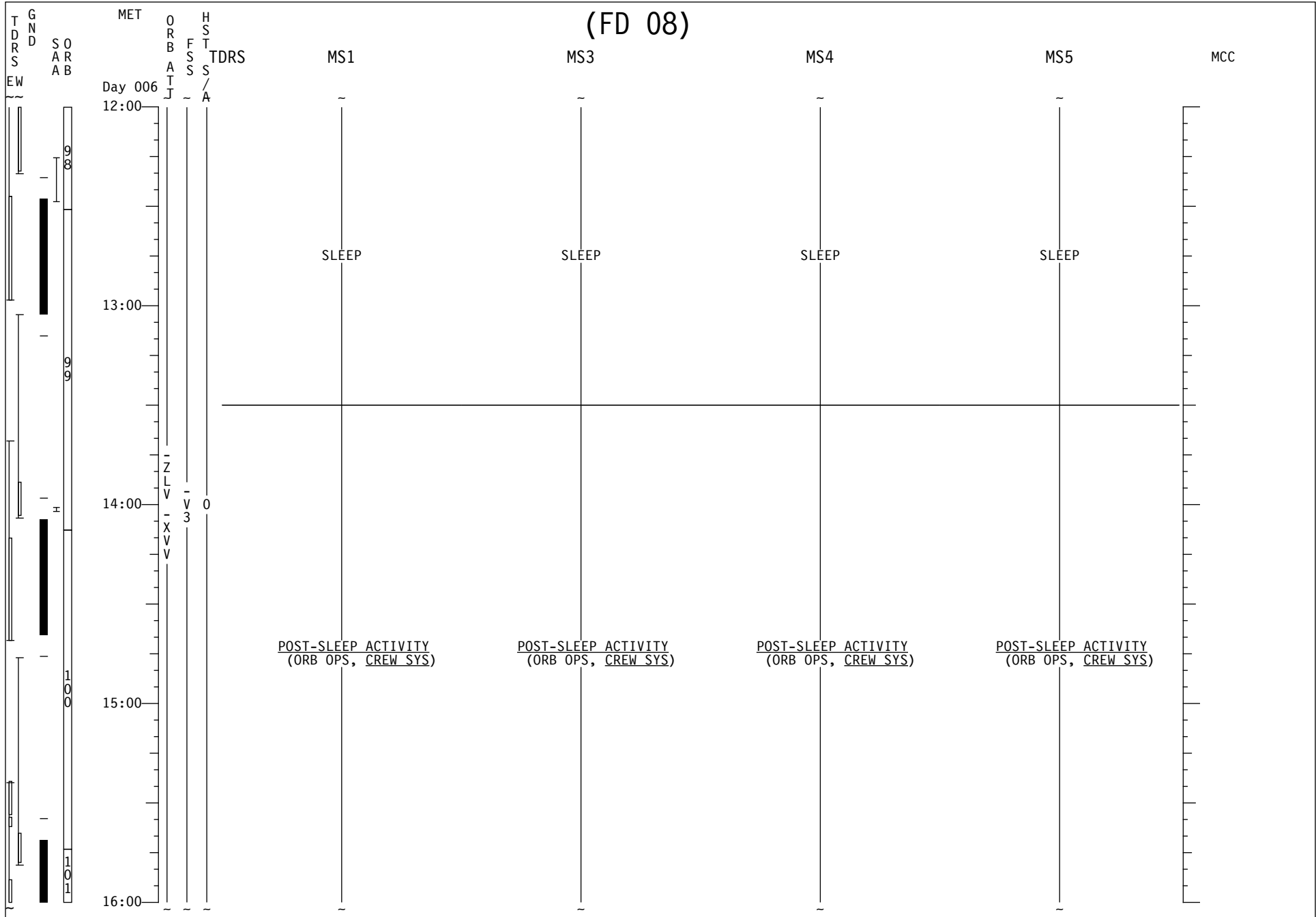
(FD 07)



(FD 08)



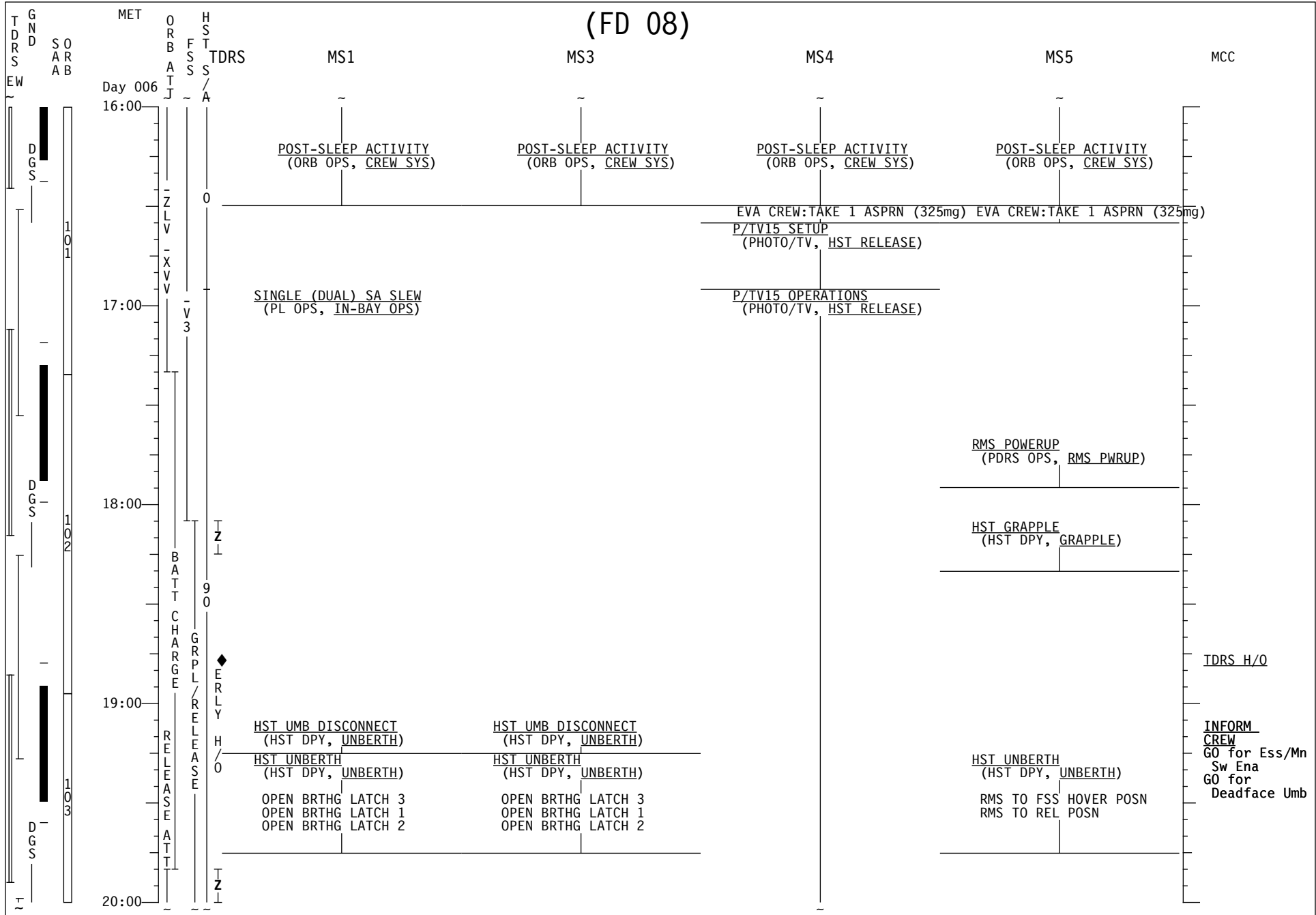
(FD 08)



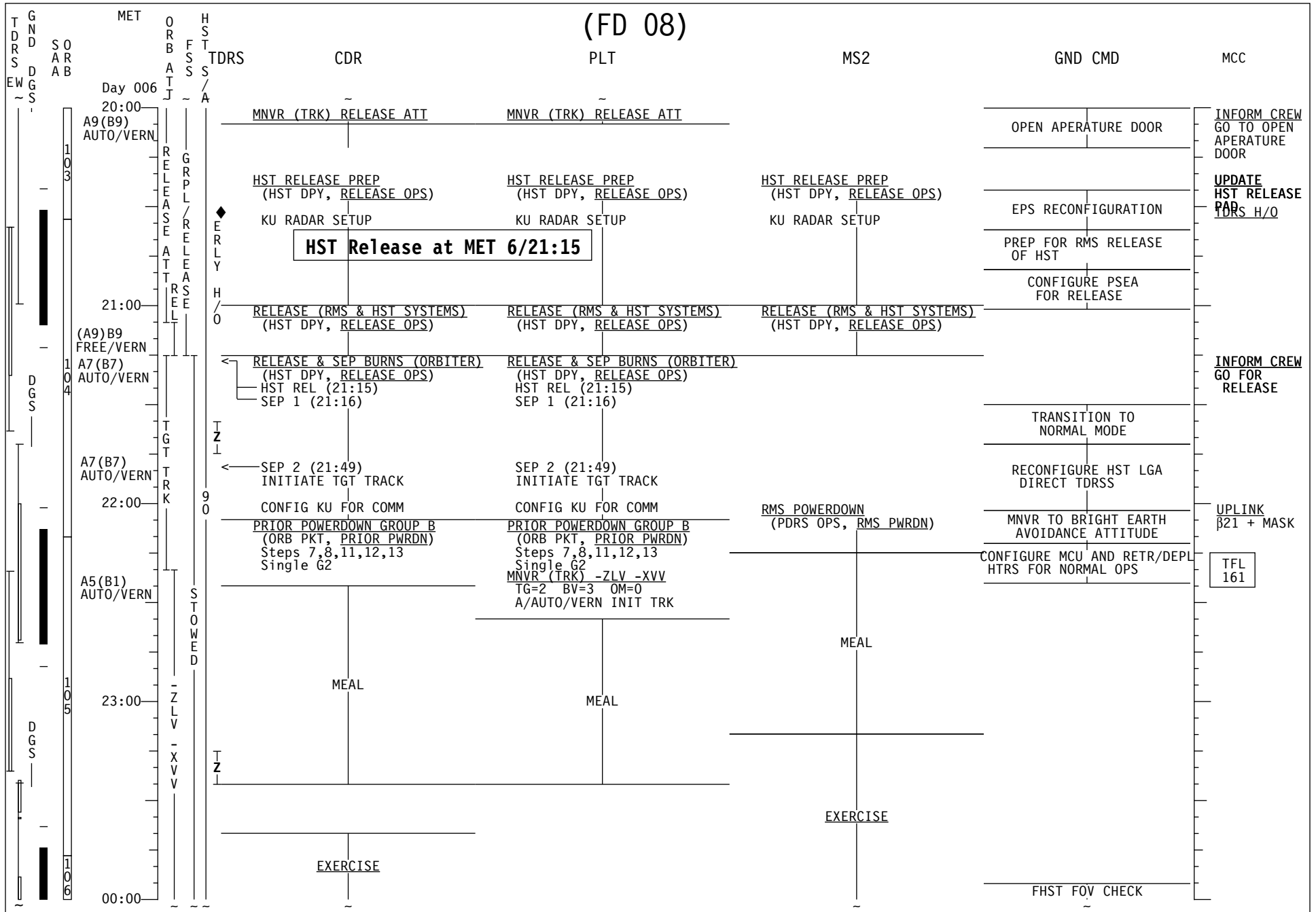
(FD 08)

DRS	GND	SOR	MET	ORBIT	FSS	HST	TDRS	CDR	PLT	MS2	GND CMD	MCC
EW	AB	AB	Day 006	16:00	0	0		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS) GALLEY MORNING CONFIG (ORB OPS, GIRA)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	LOAD EPHEMERIS TABLES RELOAD SMACs VERIFY INITIAL FSW CONFIG	
DGS			(A10)B11 AUTO/VERN	ZLV					WCS COMPACTOR OPS (CUE CARD) Dual-Vane			
			FREE/VERN 17:00	XVV				ORBITER TO FREE DRIFT FOR SOLAR ARRAY SLEW	P/TV13 SETUP (PHOTO/TV, SA OPERATIONS)	A8L PORT RMS HTR (two)-AUTO		
			A10(B11) AUTO/VERN	V3					P/TV13 OPERATIONS (PHOTO/TV, SA OPERATIONS)		PREP FOR BATTERY CHARGING	
DGS			18:00					PRIOR POWERUP GROUP B (ORB PKT, PRIOR PWRDN) Steps 7,8,11,12,13 Triple G2	MNVR BATT CHG ATT R=70 P=353 Y=34 A/AUTO/VERN INIT MNVR	PRIOR POWERUP GROUP B (ORB PKT, PRIOR PWRDN) Steps 7,8,11,12,13 Triple G2	RMS POWERUP (PDRS OPS, RMS PWRUP)	
			PGSC SETUP (RNDZ, RNDZ TOOLS)					PGSC SETUP (RNDZ, RNDZ TOOLS)				
			19:00							HST GRAPPLE (HST DPY, GRAPPLE)	PSEA TEST MODE	
			FREE/VERN					ORBITER TO FREE DRIFT	ORBITER TO FREE DRIFT	HST UNBERTH (HST DPY, UNBERTH)	OPEN TRIM RELAYS SADE*	TDRS H/O
			A9(B9) AUTO/VERN 20:00					MNVR (TRK) RELEASE ATT TG=5 BV=5 P=180 Y=55 OM=270 A/AUTO/VERN Init MNVR	MNVR (TRK) RELEASE ATT TG=5 BV=5 P=180 Y=55 OM=270 A/AUTO/VERN Init MNVR	RMS TO FSS HOVER POSN RMS TO REL POSN	CONFIG LGAs FOR RELEASE OPS EXT PWR OFF & UMB DISCONNECT	UPLINK ONLY 0 DEG
											DMS: VERIFY STFS PRE-RELEASE CONFIG	

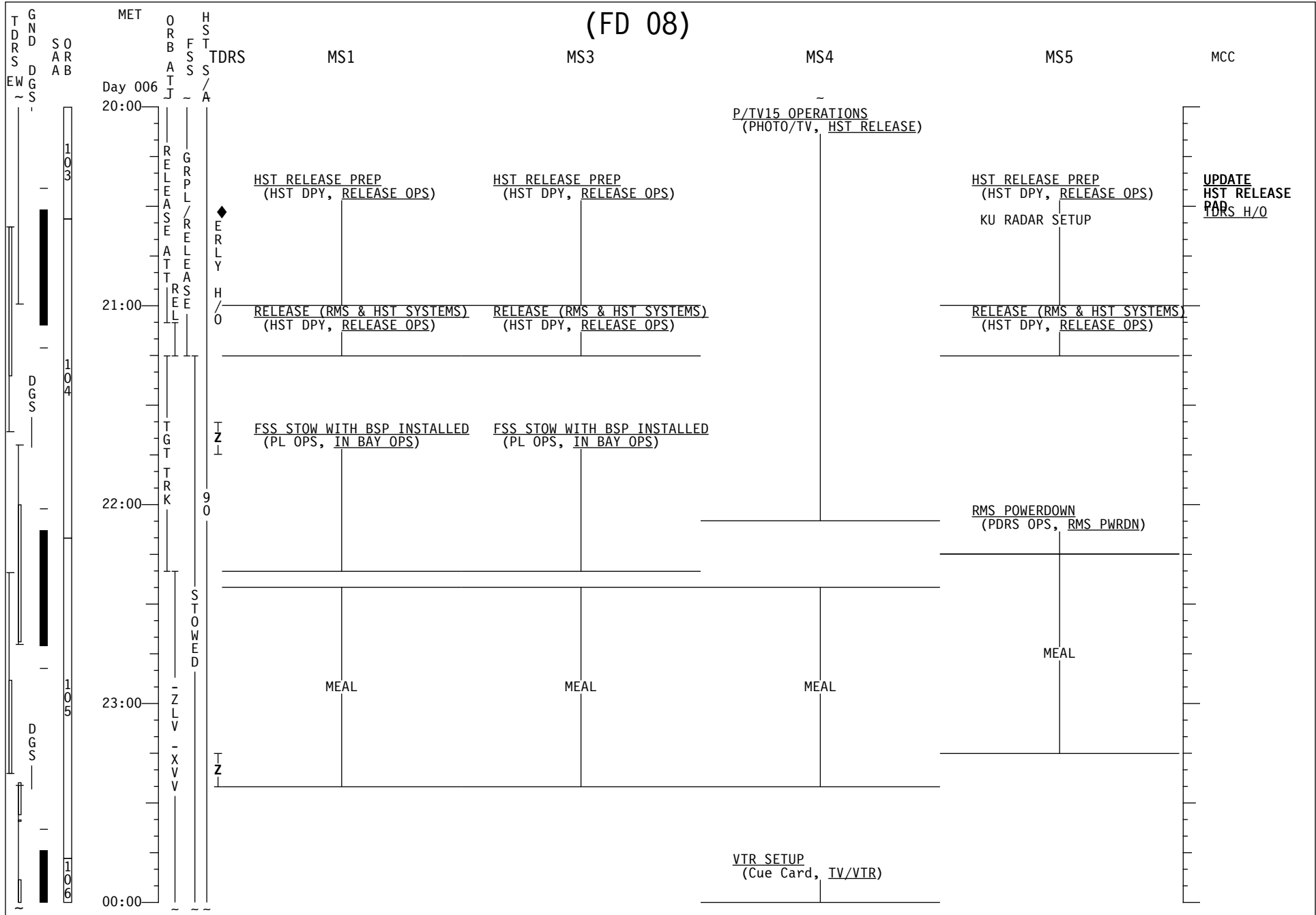
(FD 08)



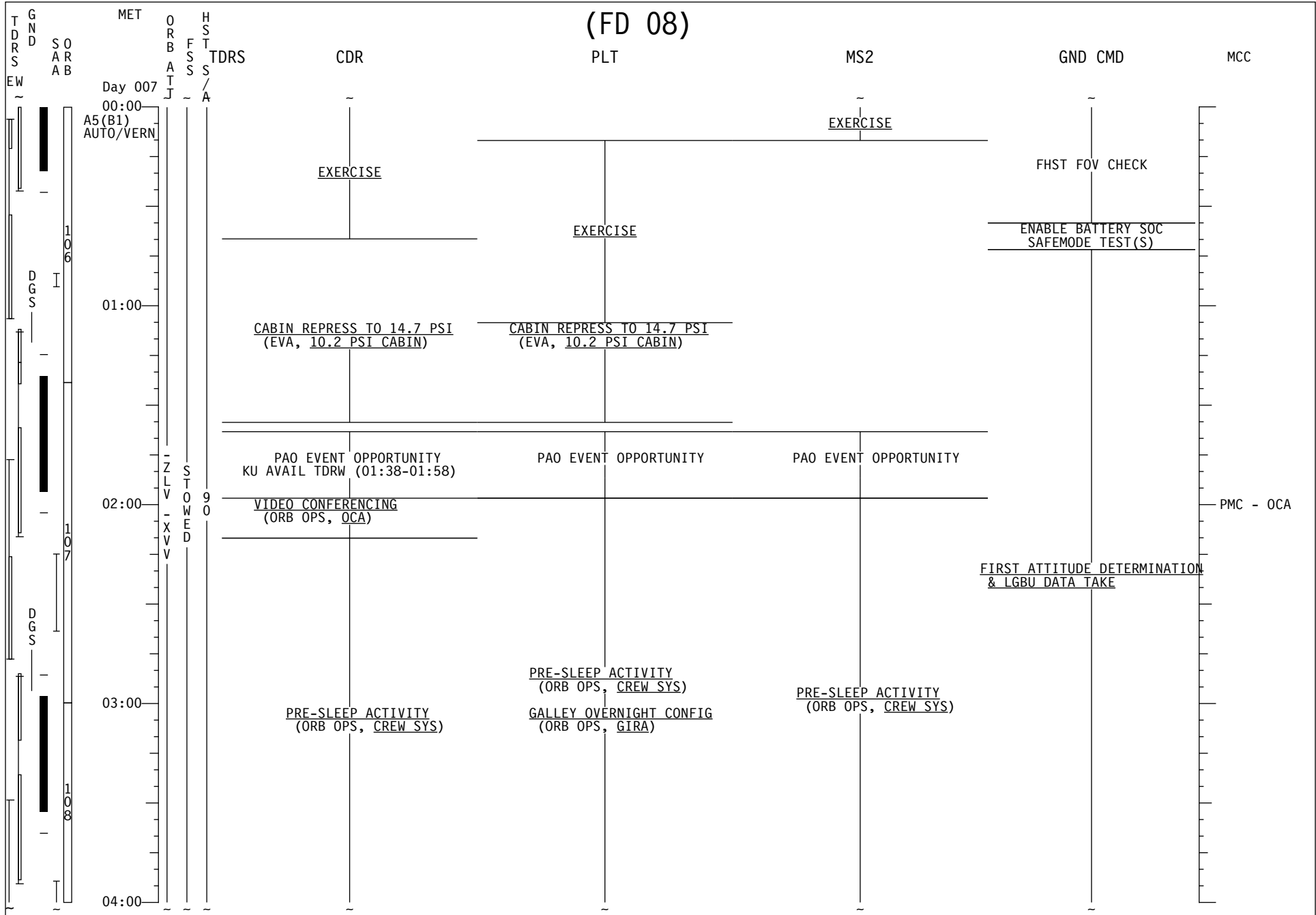
(FD 08)



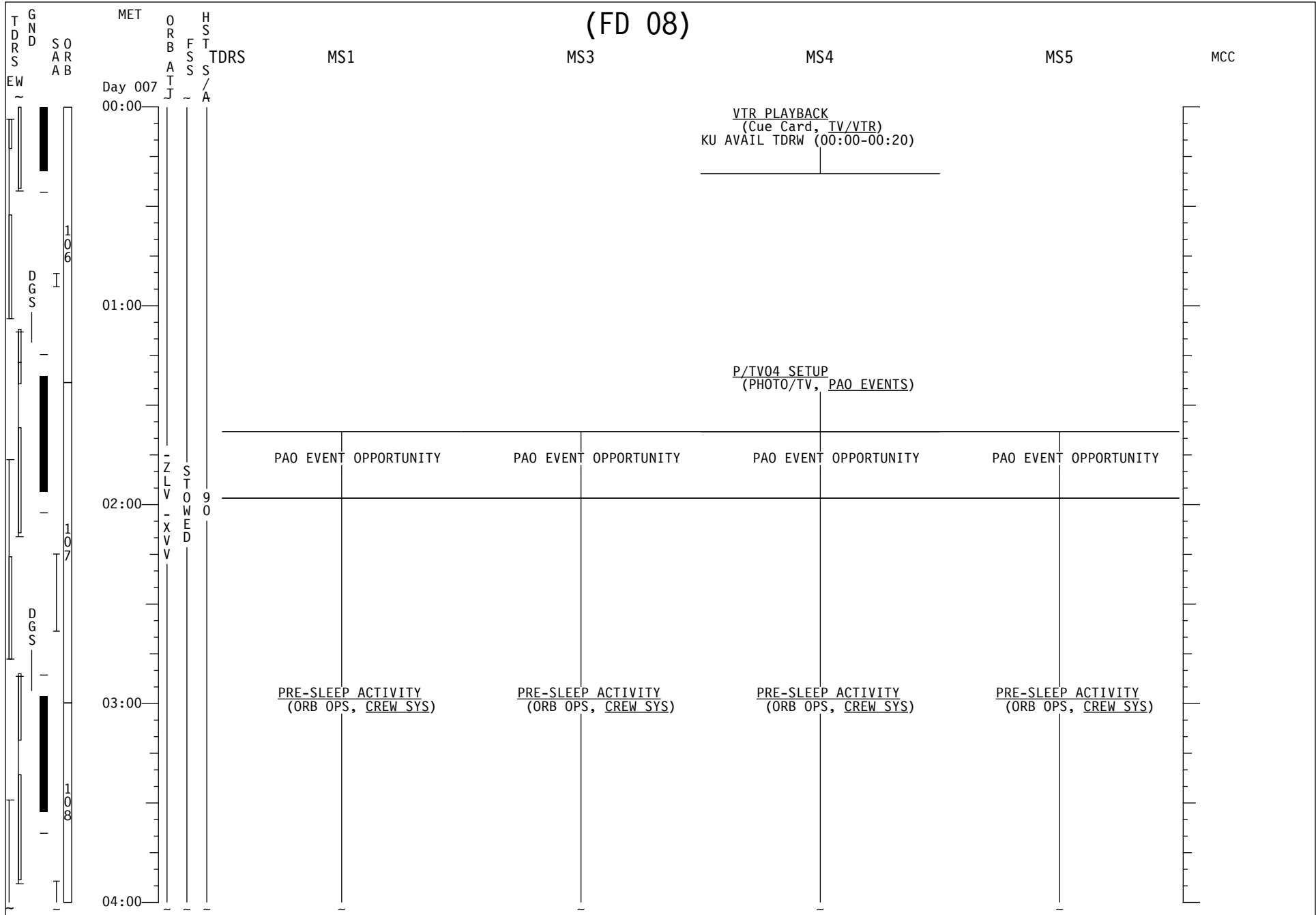
(FD 08)



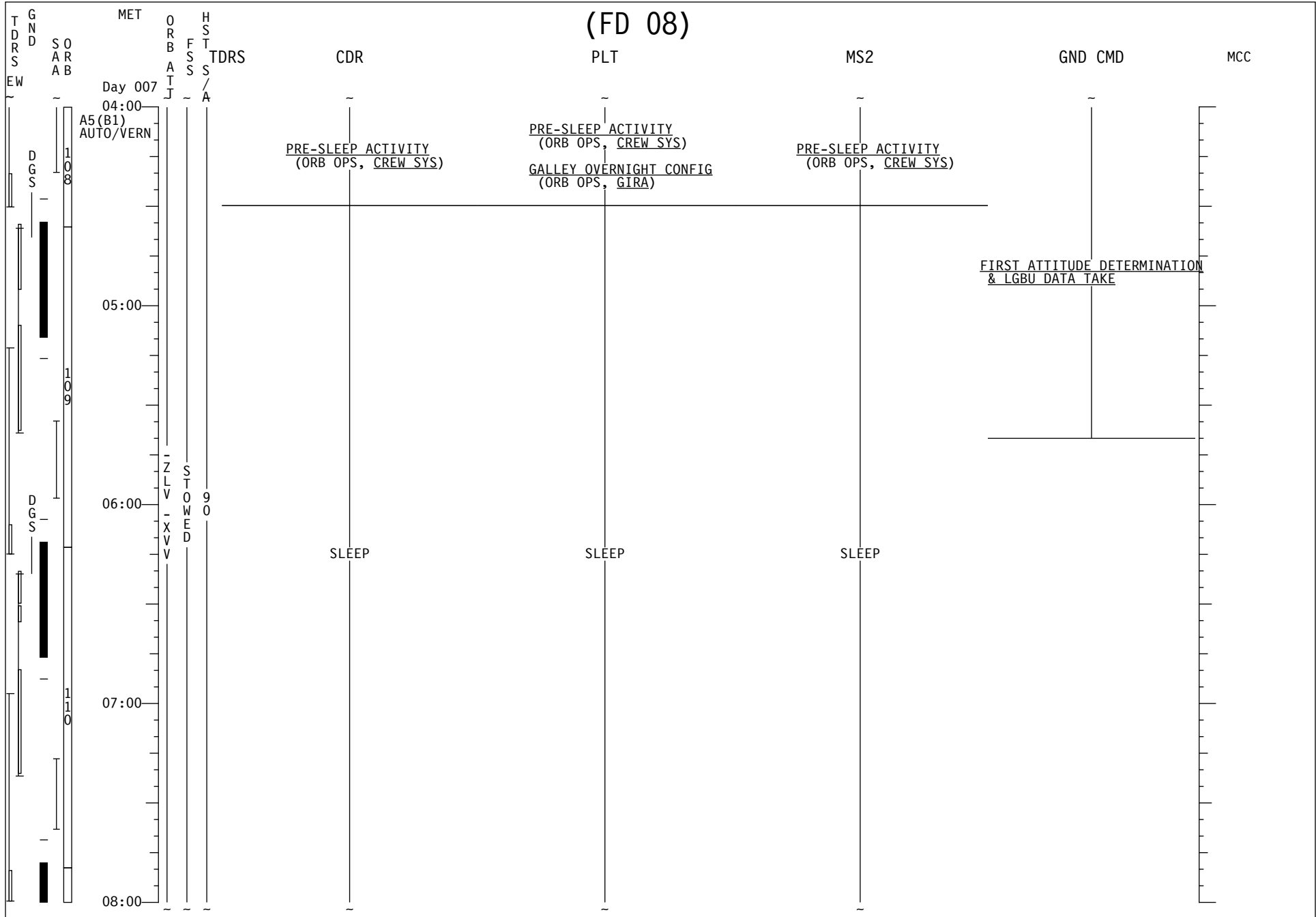
(FD 08)



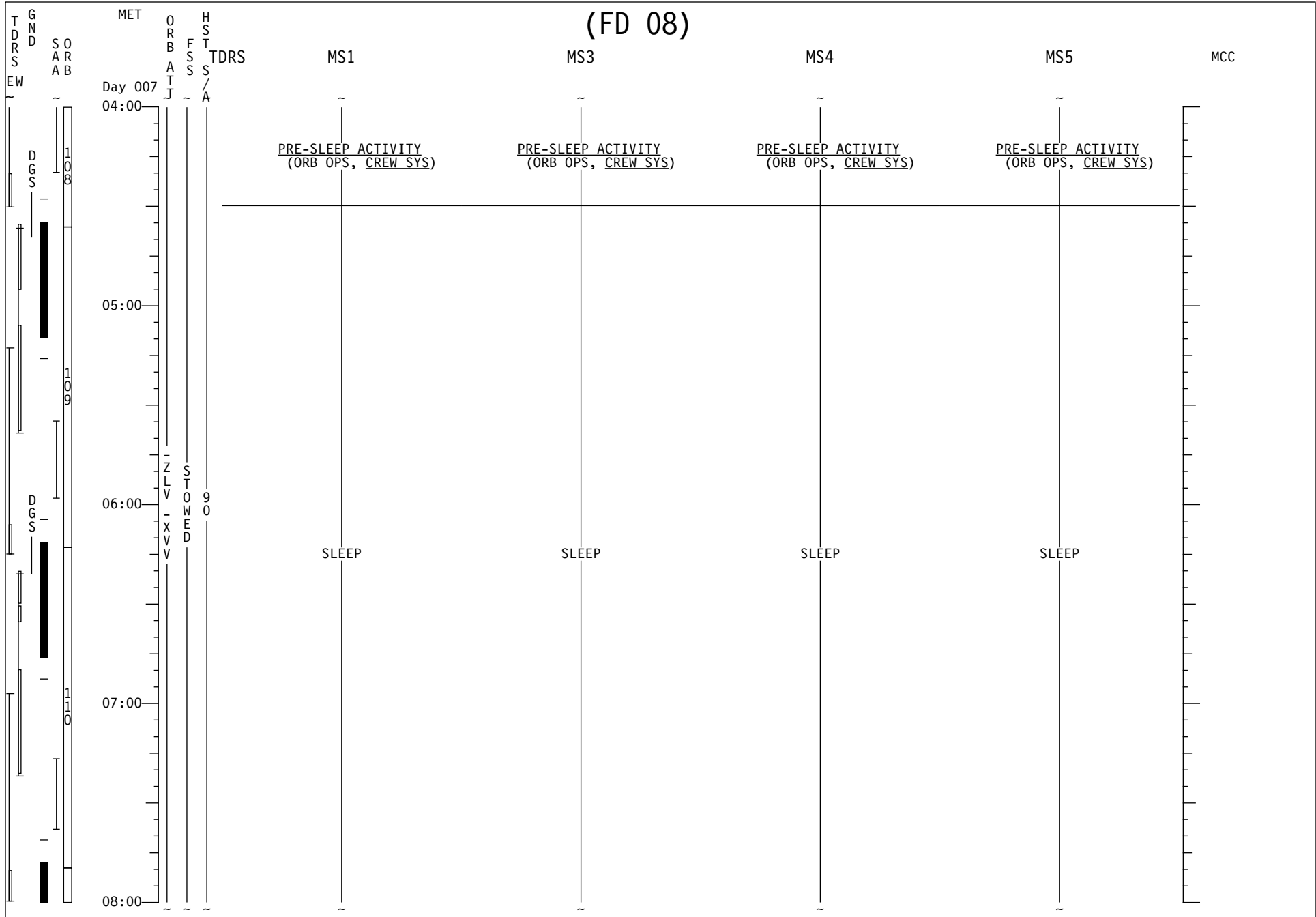
(FD 08)



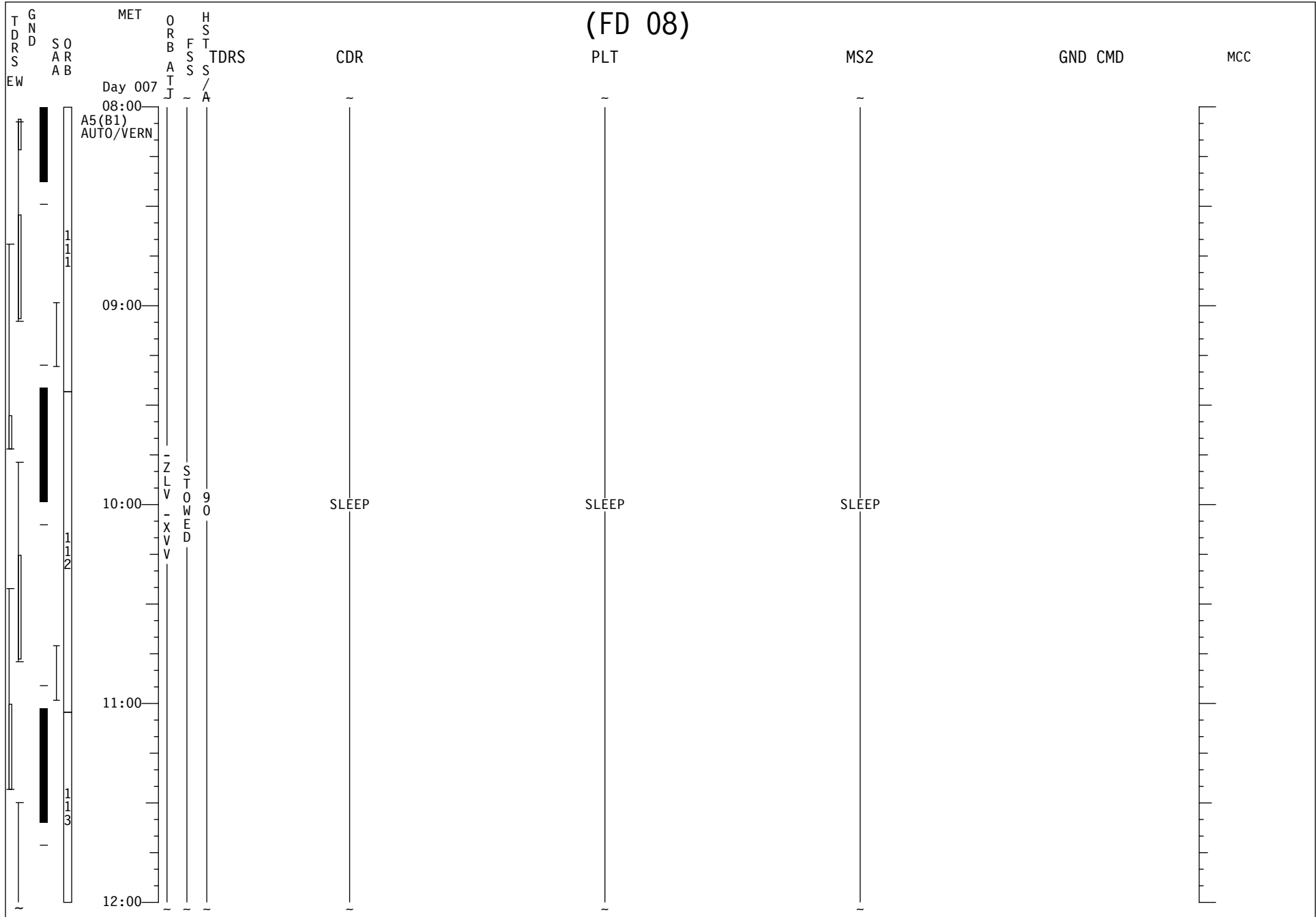
(FD 08)



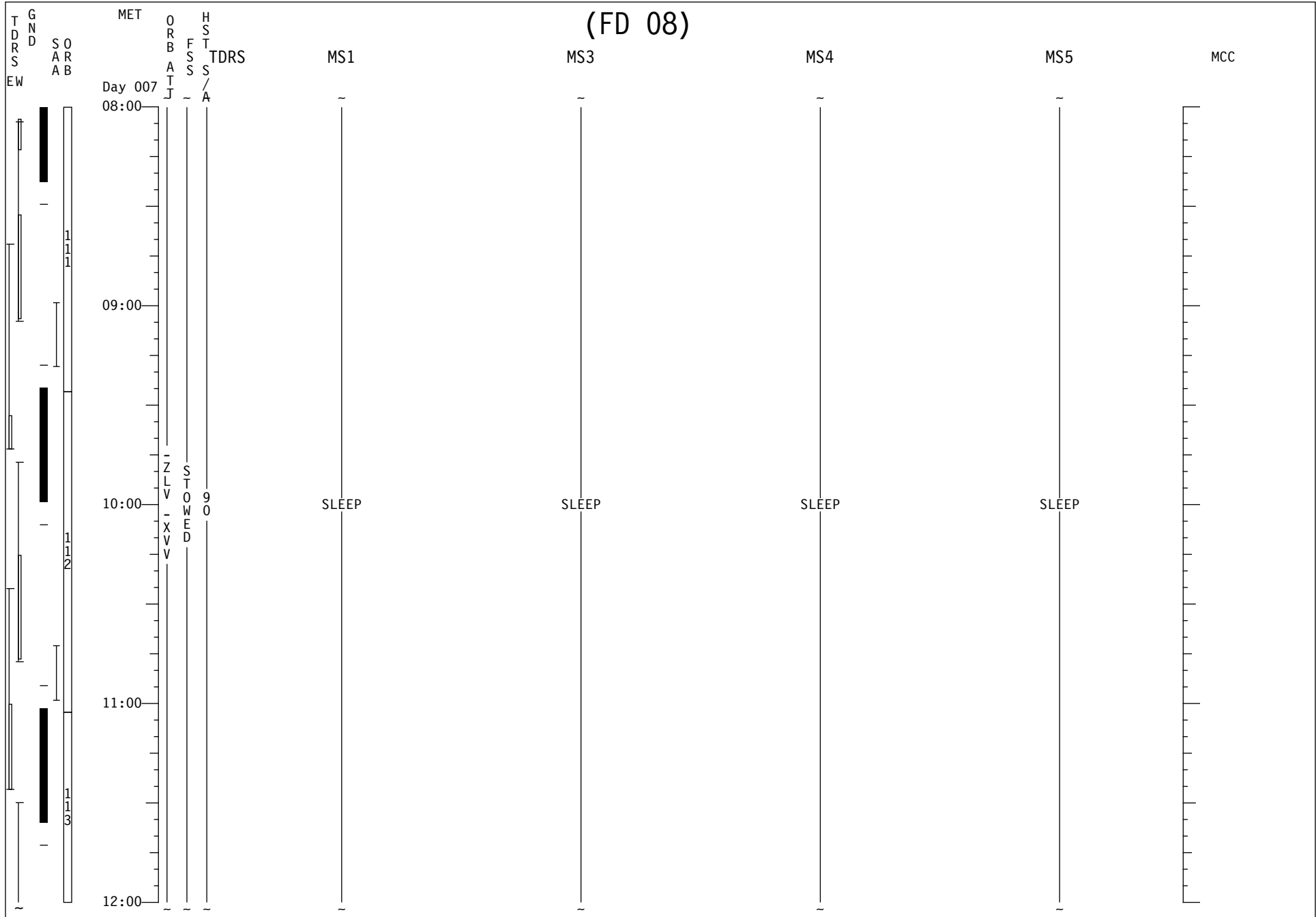
(FD 08)



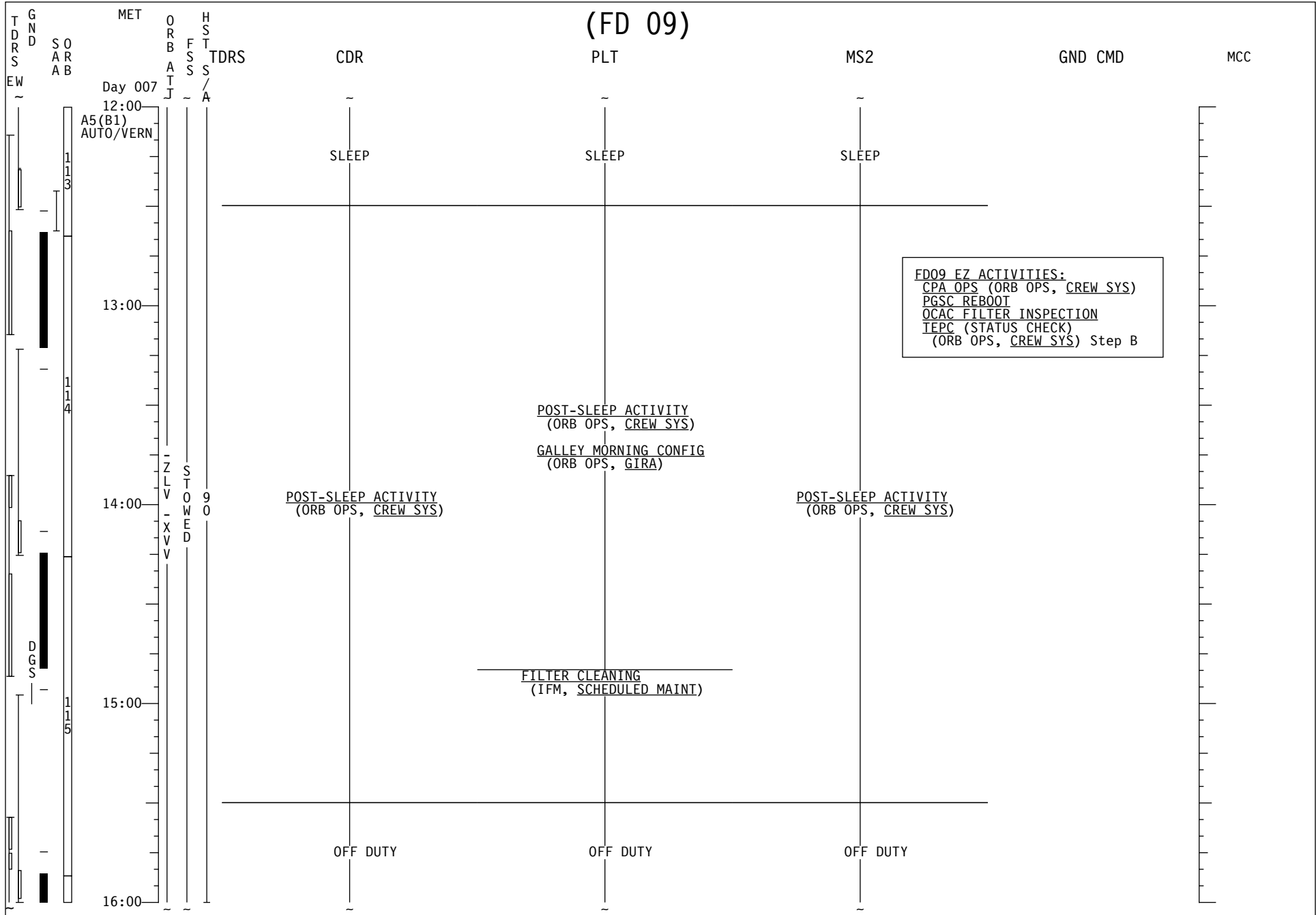
(FD 08)



(FD 08)

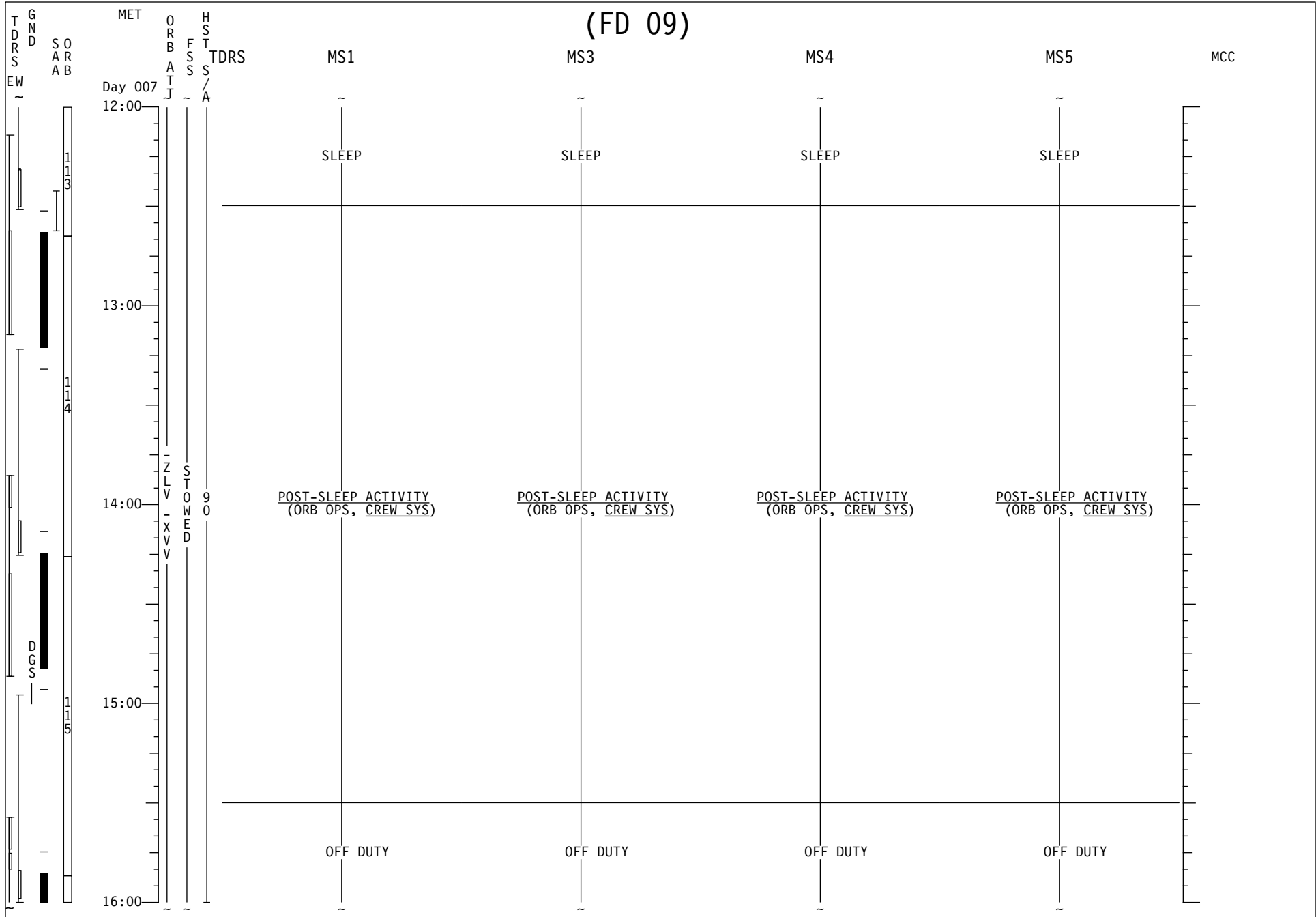


(FD 09)

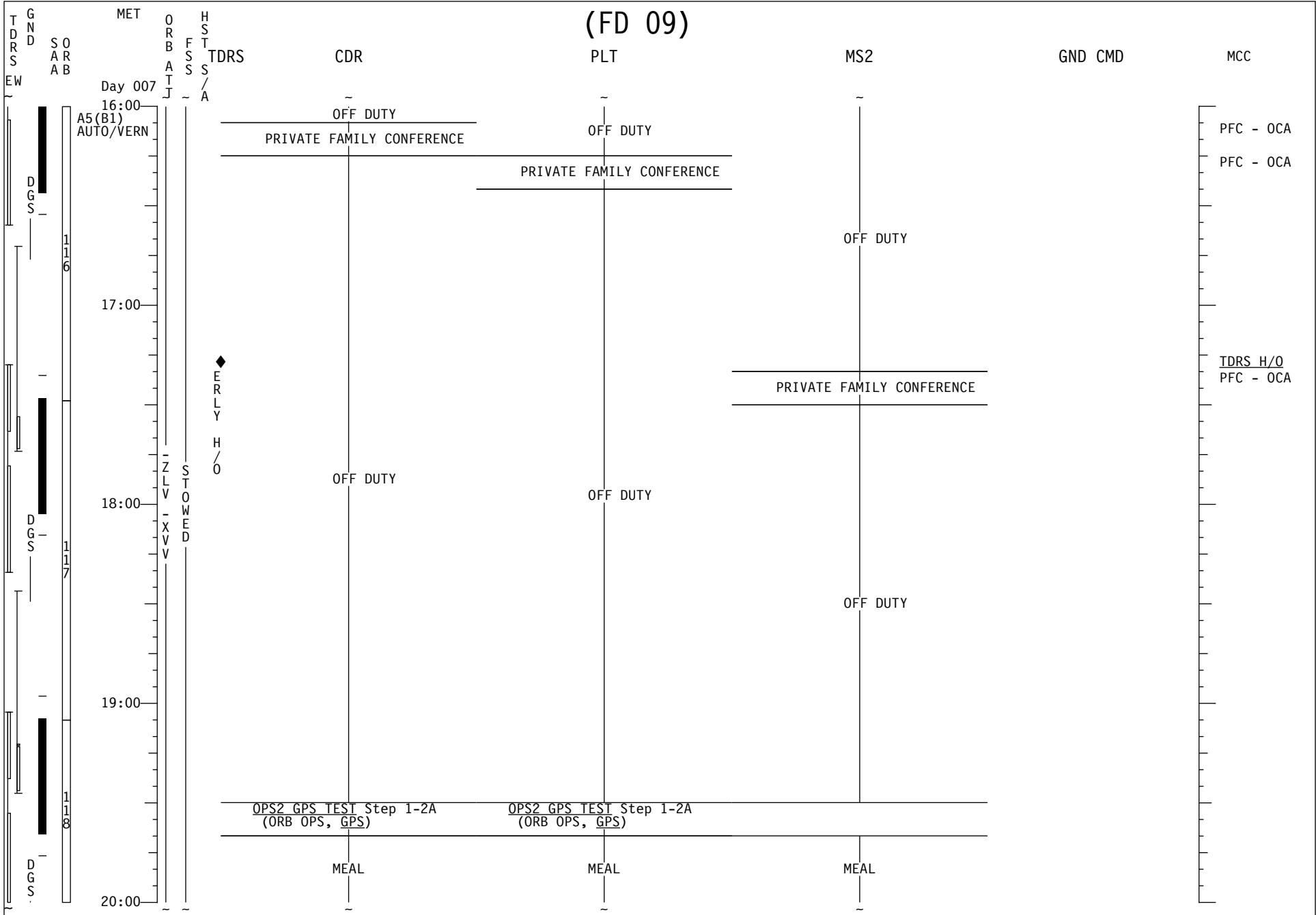


FD09 EZ ACTIVITIES:
 CPA OPS (ORB OPS, CREW SYS)
 PGSC REBOOT
 OCAC FILTER INSPECTION
 IEPC (STATUS CHECK)
 (ORB OPS, CREW SYS) Step B

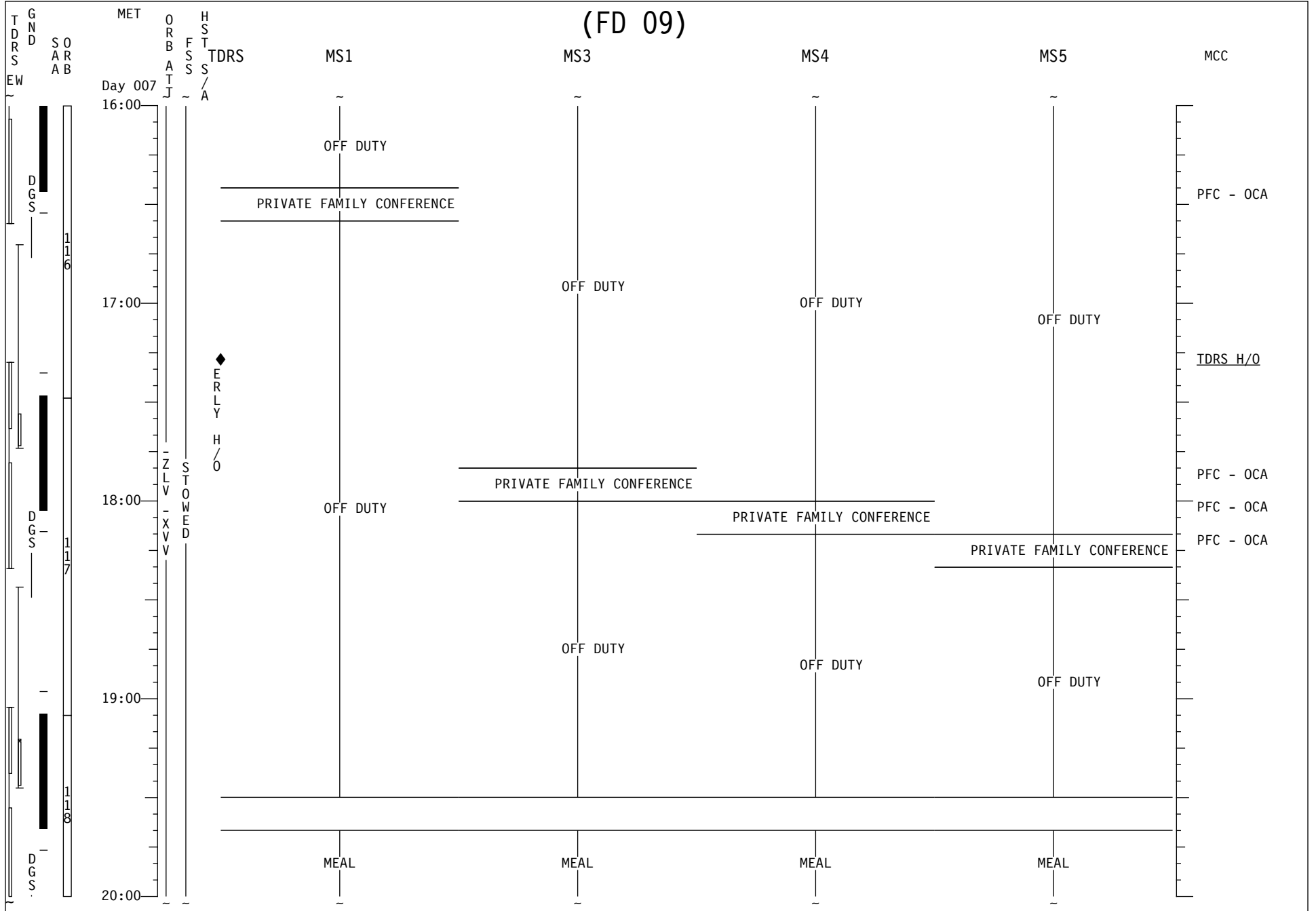
(FD 09)



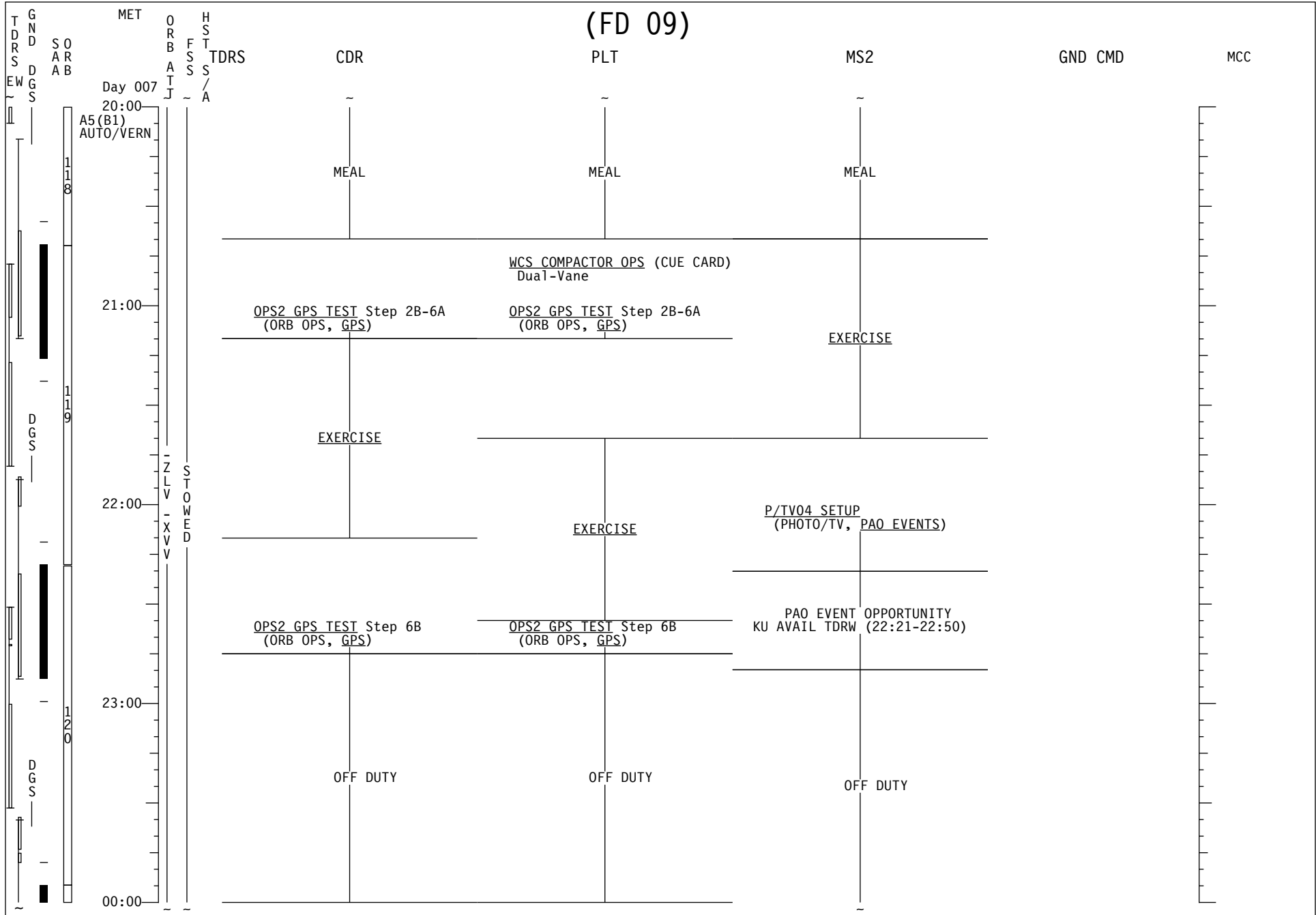
(FD 09)



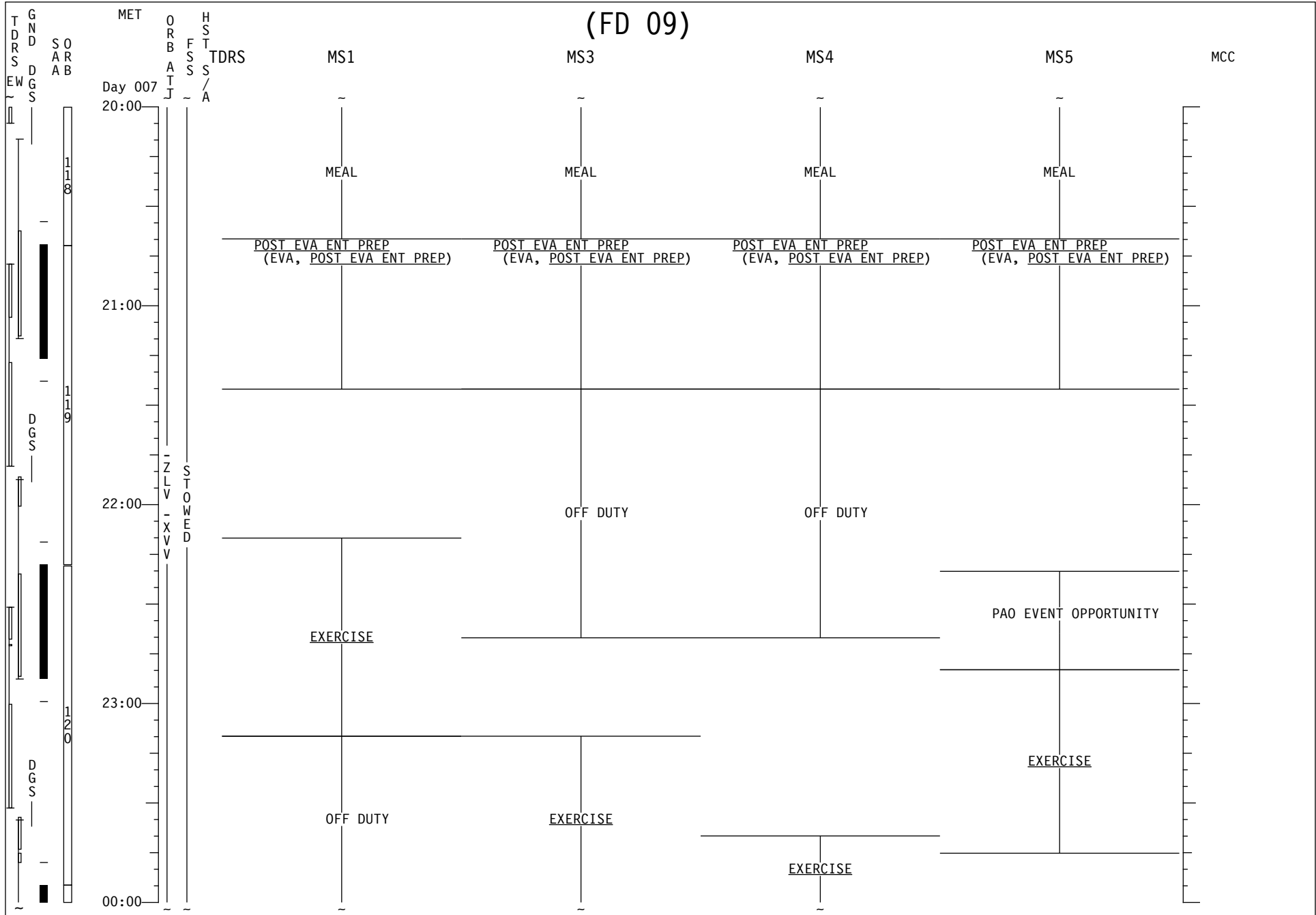
(FD 09)



(FD 09)



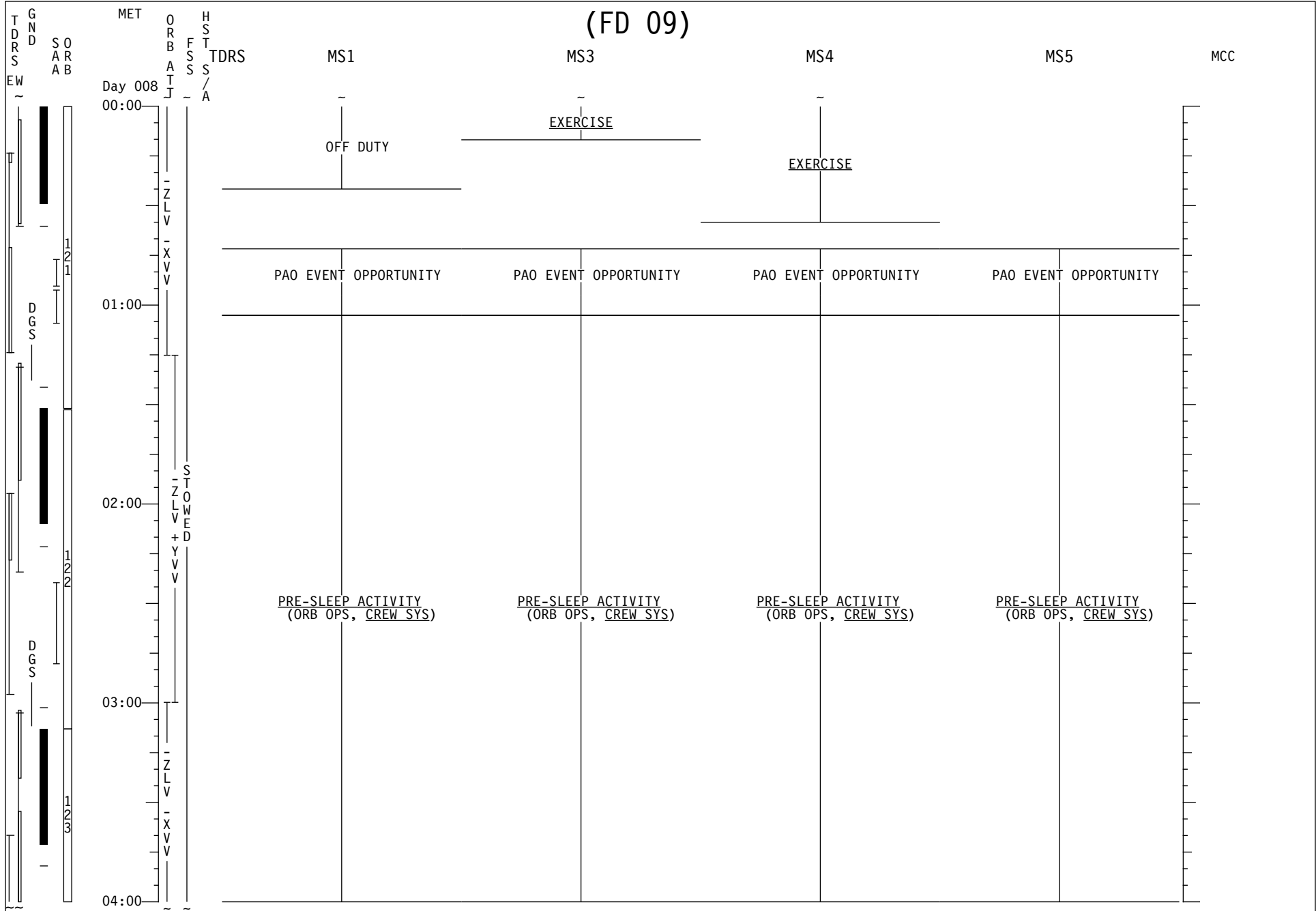
(FD 09)



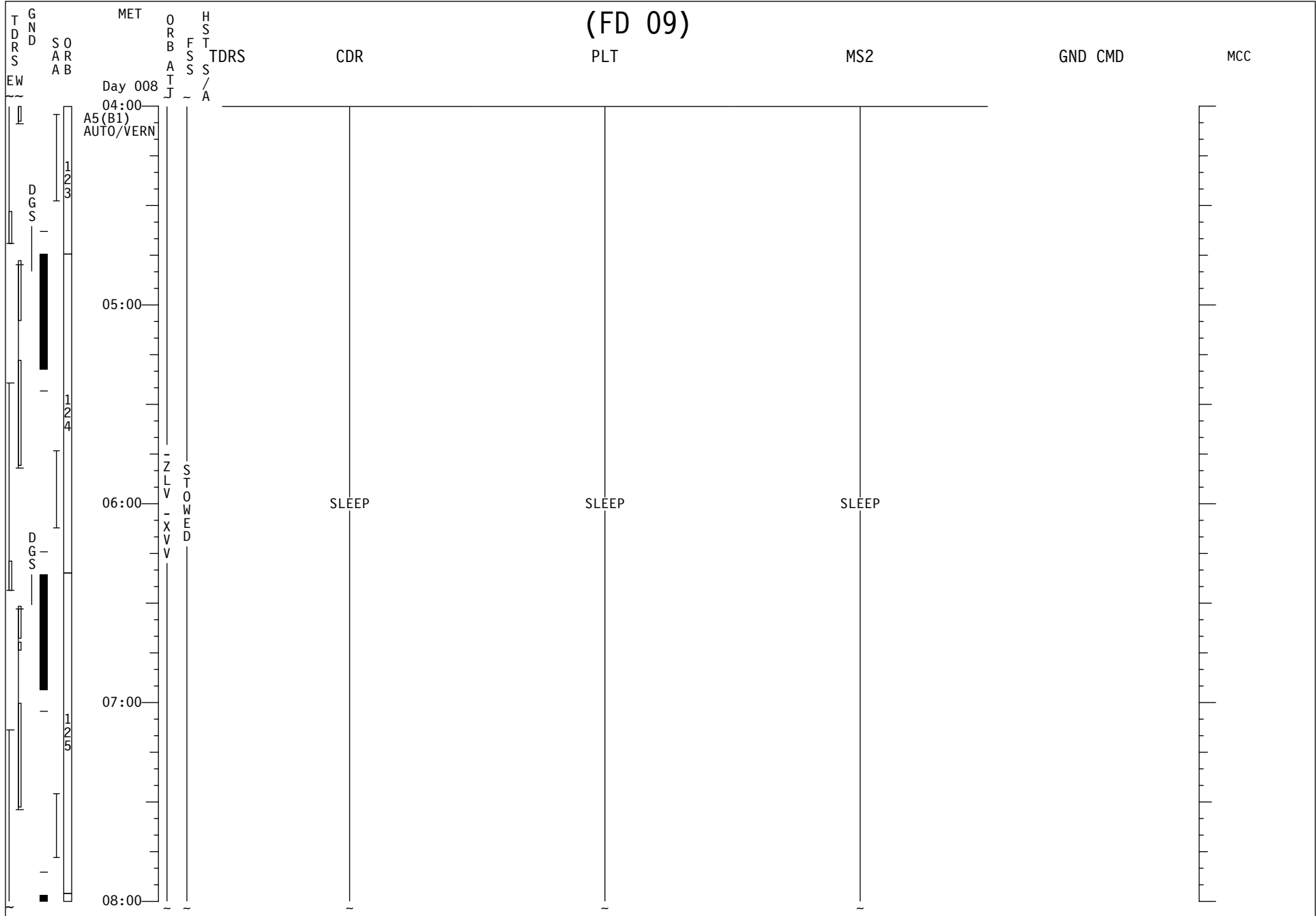
(FD 09)

		TDRS	CDR	PLT	MS2	GND CMD	MCC
MET Day 008 00:00 A5 (B1) AUTO/VERN 01:00 A5 (B1) AUTO/VERN 02:00 03:00 A5 (B1) AUTO/VERN 04:00	TDRS GND SO AR AB EW DGS DGS DGS		OPS2 GPS TEST Step 6C (ORB OPS, GPS)	OPS2 GPS TEST Step 6C (ORB OPS, GPS)	OFF DUTY		
			PAO EVENT OPPORTUNITY KU AVAIL TDRE (00:43-01:03)	PAO EVENT OPPORTUNITY	PAO EVENT OPPORTUNITY		
			VIDEO CONFERENCING (ORB OPS, OCA)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) GALLEY OVERNIGHT CONFIG	COMM STRING 1 C/O (PART A) (ORB OPS, COMM/INST)		PMC - OCA
				MNVR (TRK) -ZLV +YVV TG=2 BV=3 OM=270 A/AUTO/VERN Init TRK			UPDATE H2O WASTE DUMP QTY
				SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Waste Dump			
				PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) GALLEY OVERNIGHT CONFIG (ORB OPS, GIRA)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
					SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Terminate Waste Dump		
					MNVR (TRK) -ZLV -XVV TG=2 BV=3 OM=0 A/AUTO/VERN INIT TRK		
					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) GALLEY OVERNIGHT CONFIG (ORB OPS, GIRA)		

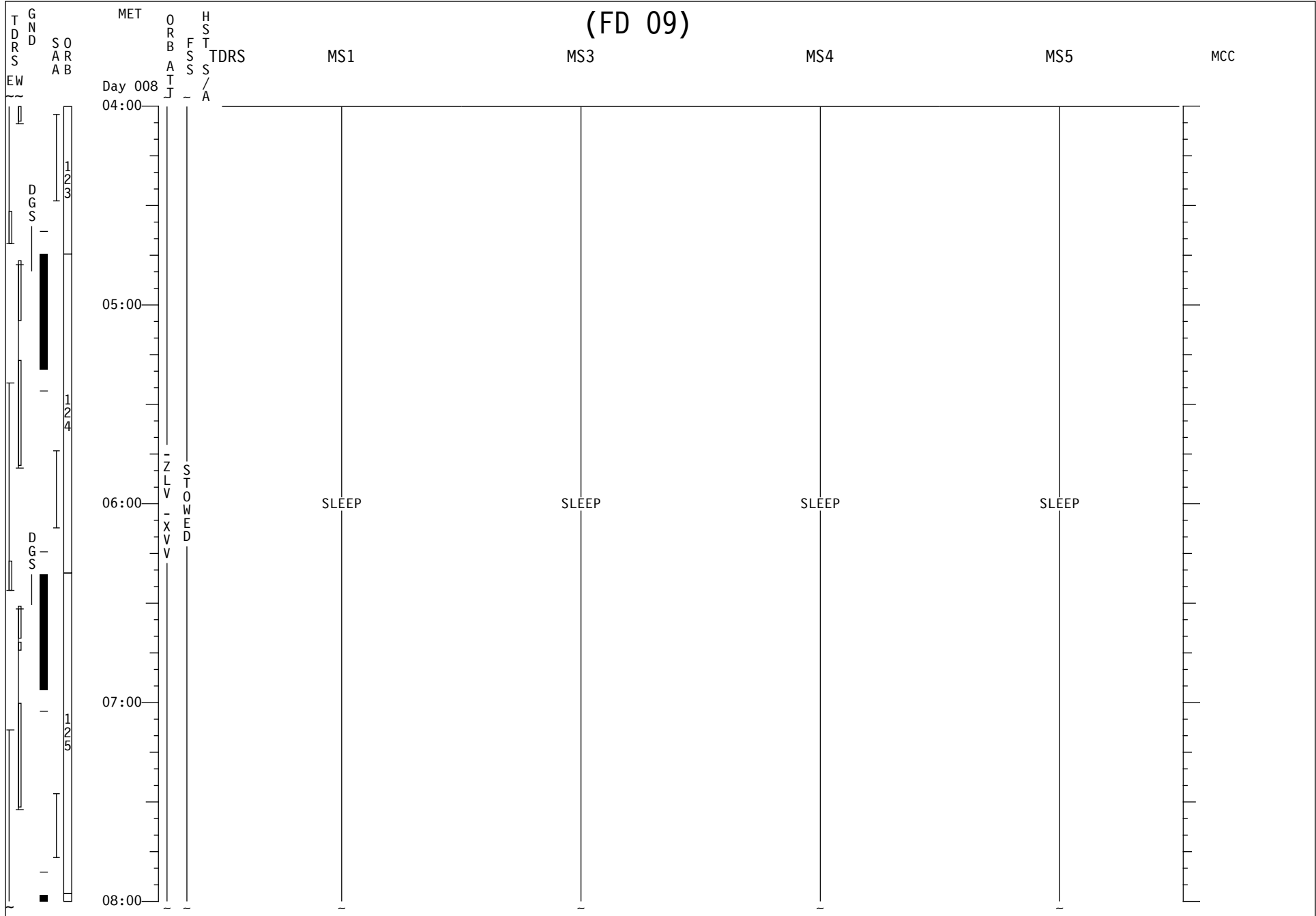
(FD 09)



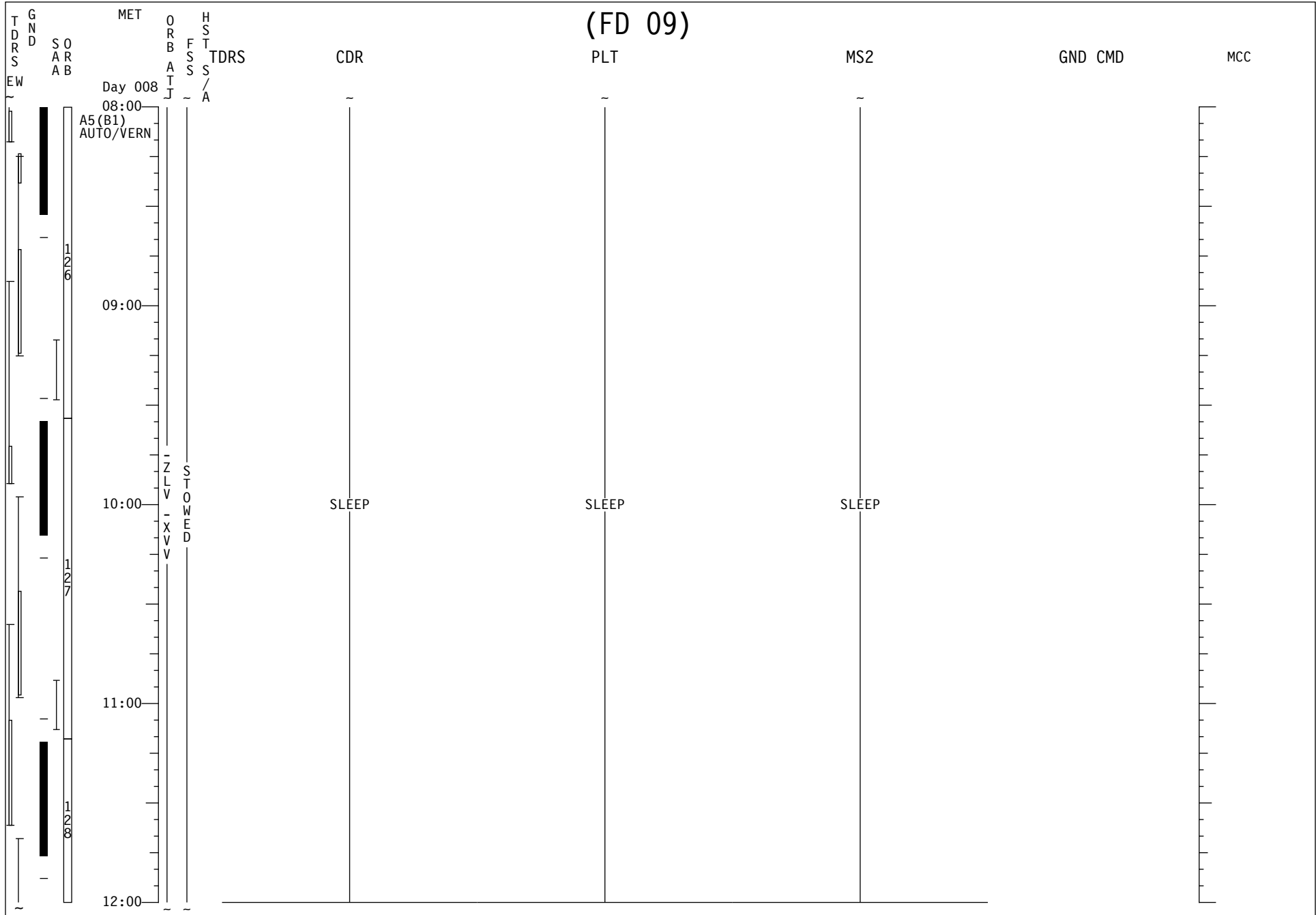
(FD 09)



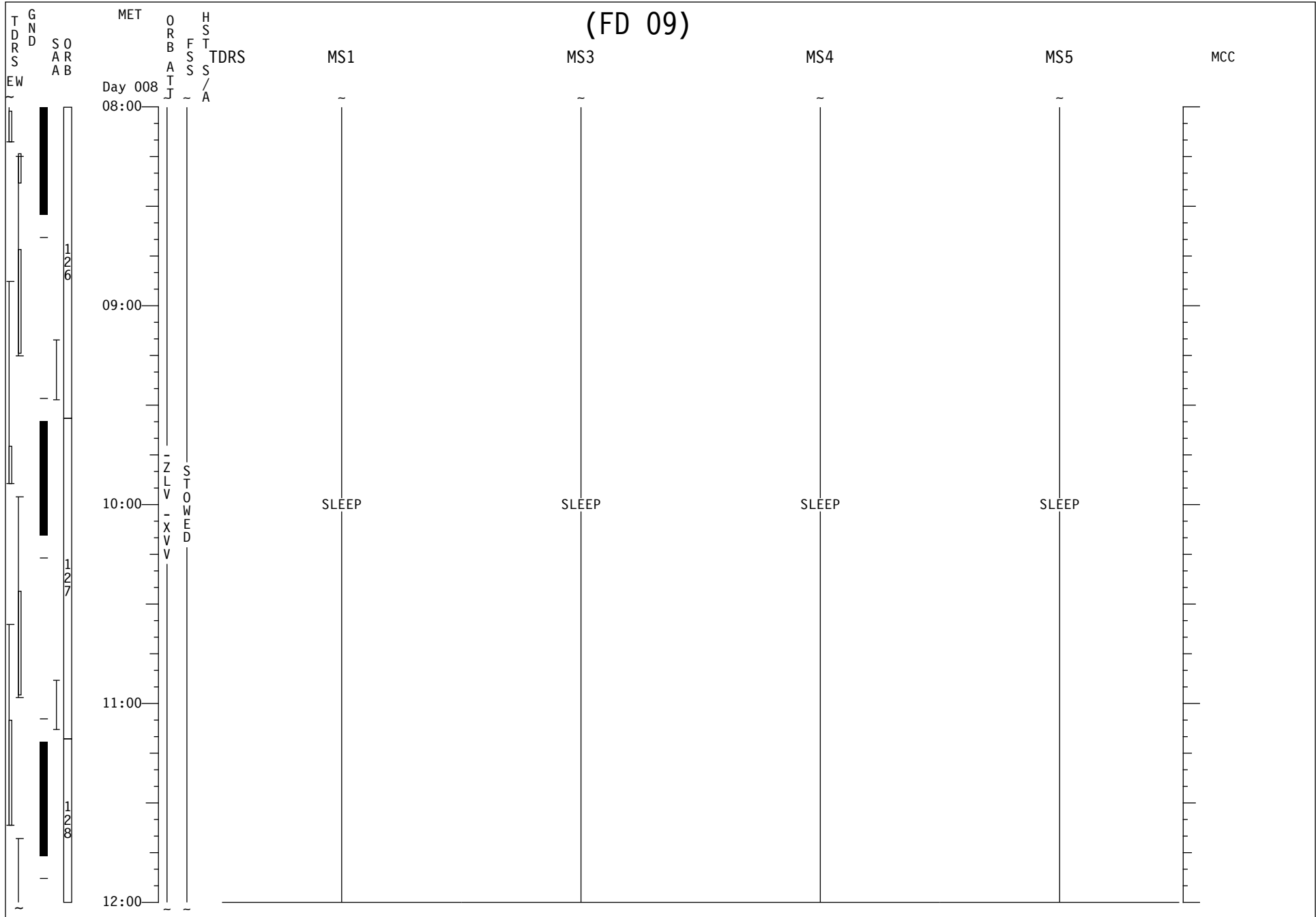
(FD 09)



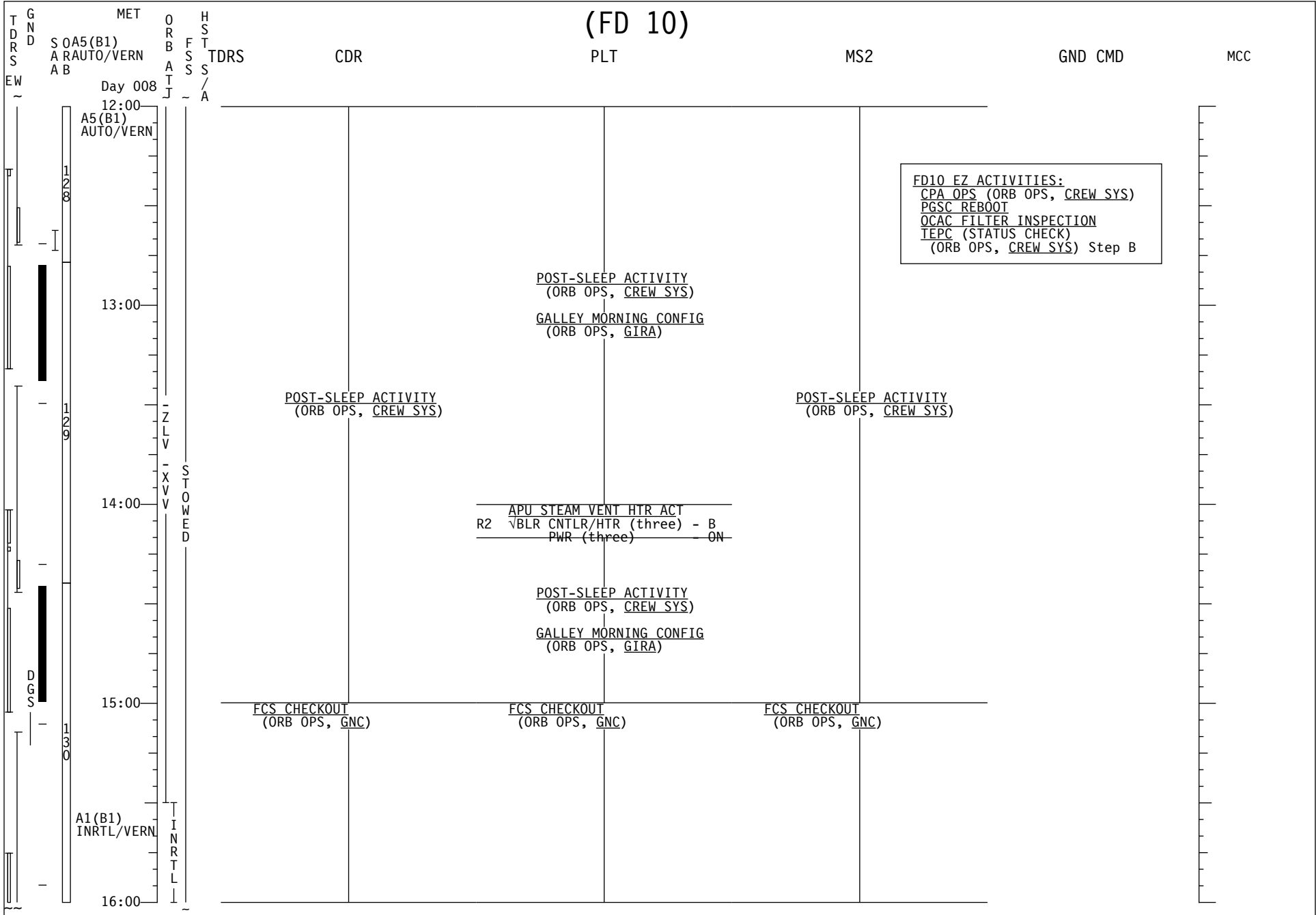
(FD 09)



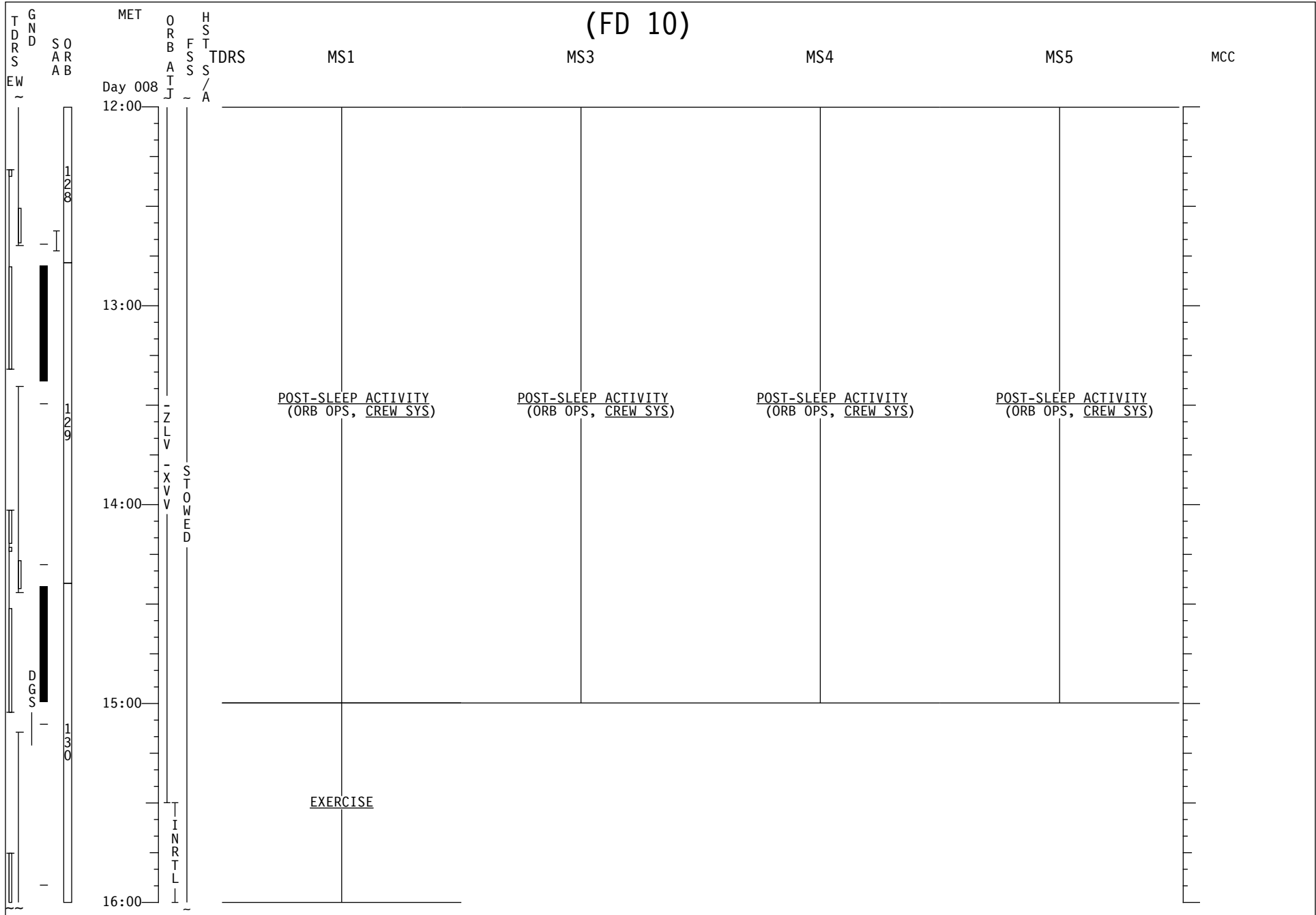
(FD 09)



(FD 10)



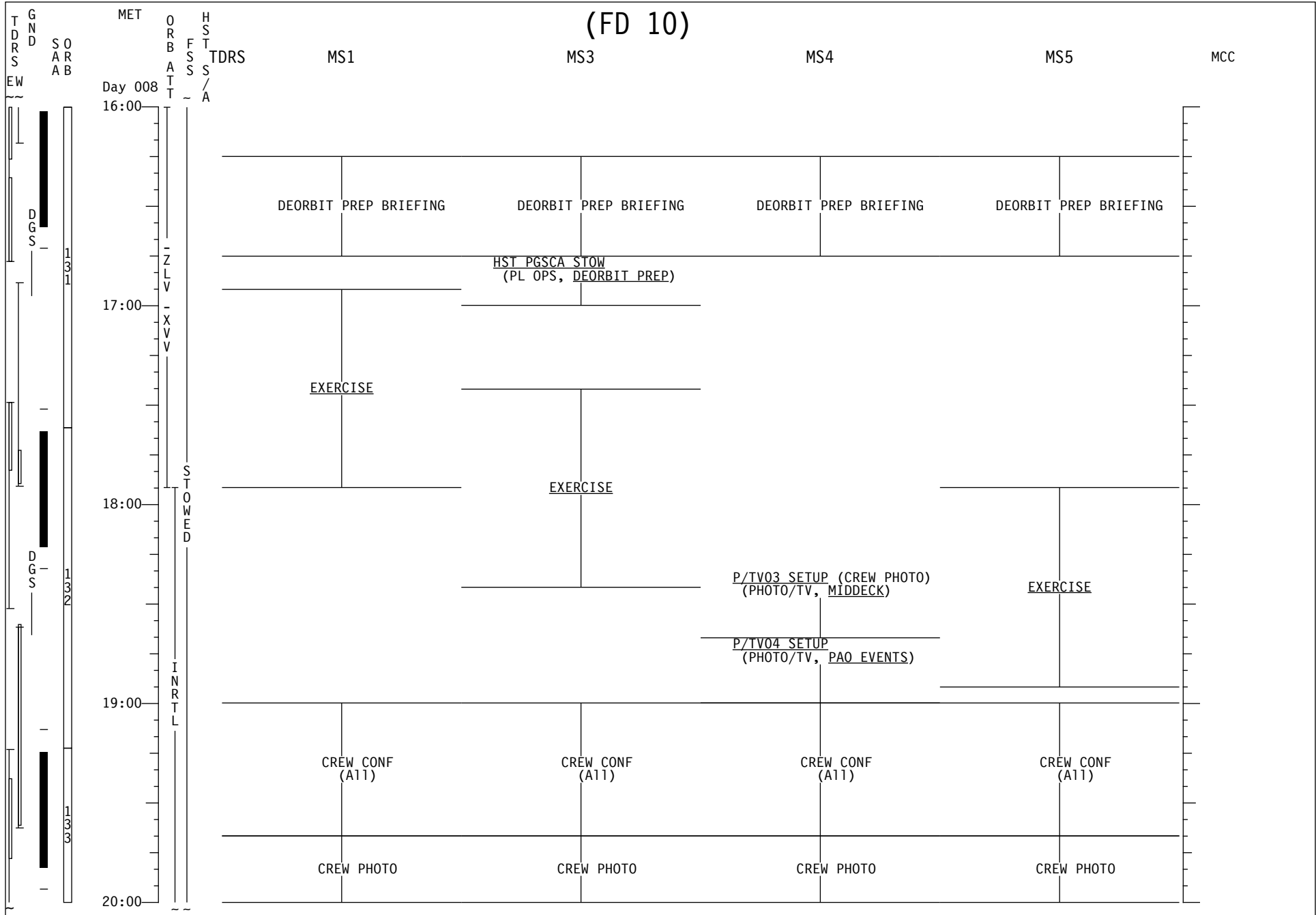
(FD 10)



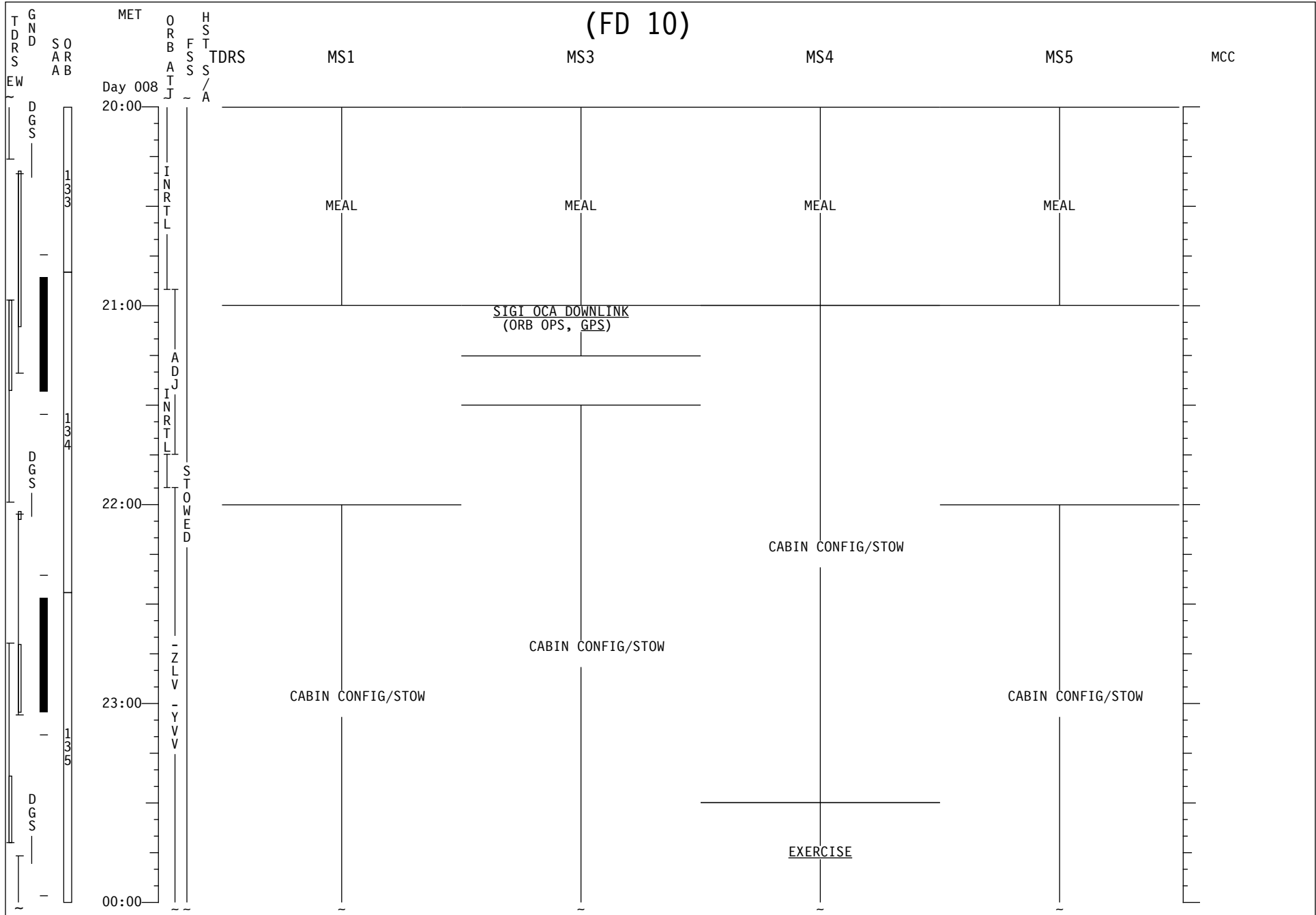
(FD 10)

		TDRS	CDR	PLT	MS2	GND CMD	MCC
TDRS GND S O AR AB EW Day 008 16:00 A5(B1) AUTO/VERN 17:00 A5(B1) AUTO/VERN 18:00 TRN INRTL/PRI 19:00 20:00 D G S 1 3 1 1 3 2 1 3 3	MET ORB A T T F S S H S T S / A Z L V X V V S T O W E D I N R T L	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING	DEORBIT PREP BRIEFING		
		RCS HOT FIRE TEST (ORB OPS, RCS)	RCS HOT FIRE TEST (ORB OPS, RCS)	RCS HOT FIRE TEST (ORB OPS, RCS)	RCS HOT FIRE TEST (ORB OPS, RCS)		
		OPS 3 GPS TEST (ORB OPS, GPS)	OPS 3 GPS TEST (ORB OPS, GPS)				
		CREW CONF (A11) KU AVAIL TDRW (19:00-19:37)	CREW CONF (A11)	CREW CONF (A11)			
		CREW PHOTO	CREW PHOTO	CREW PHOTO			

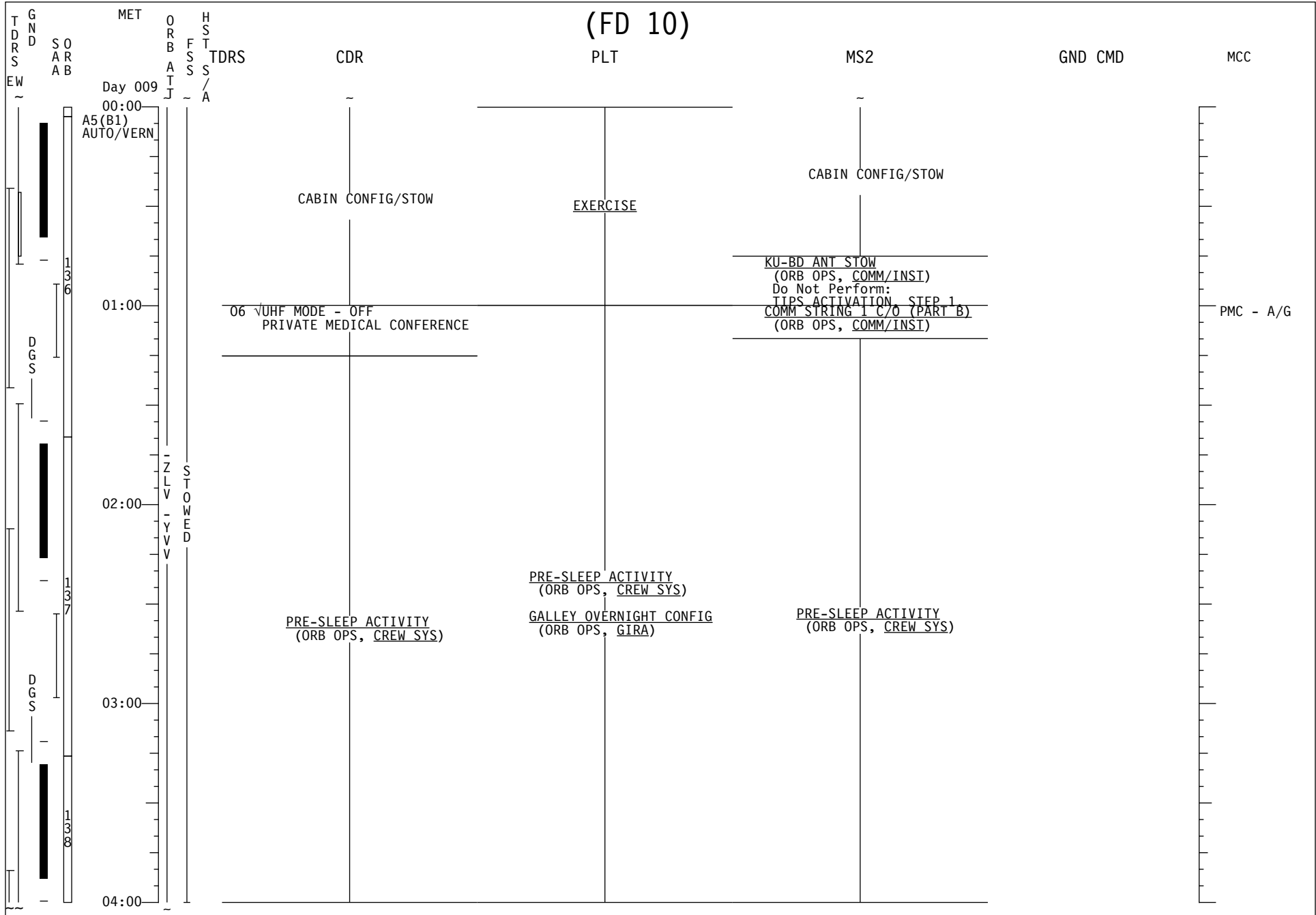
(FD 10)



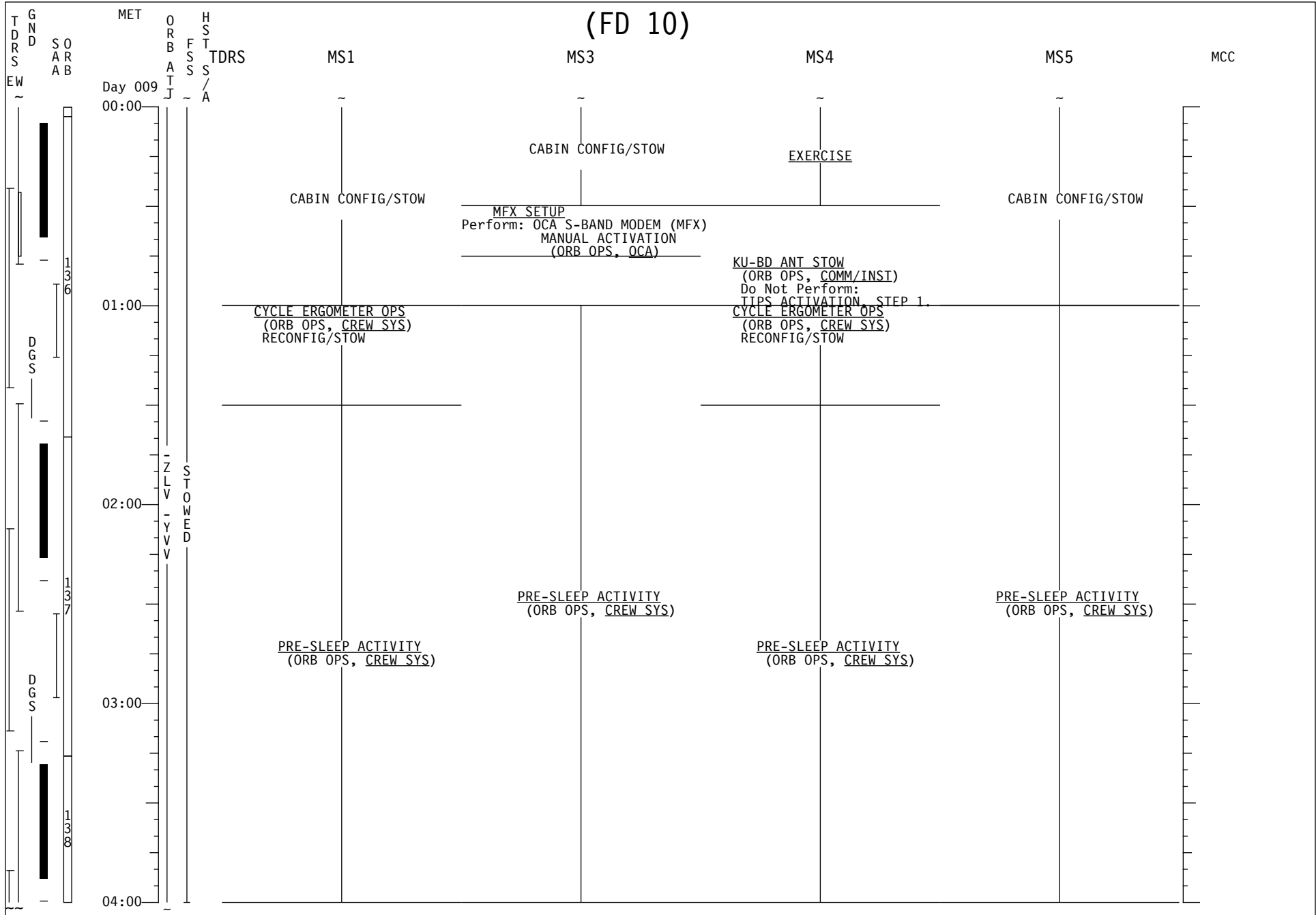
(FD 10)



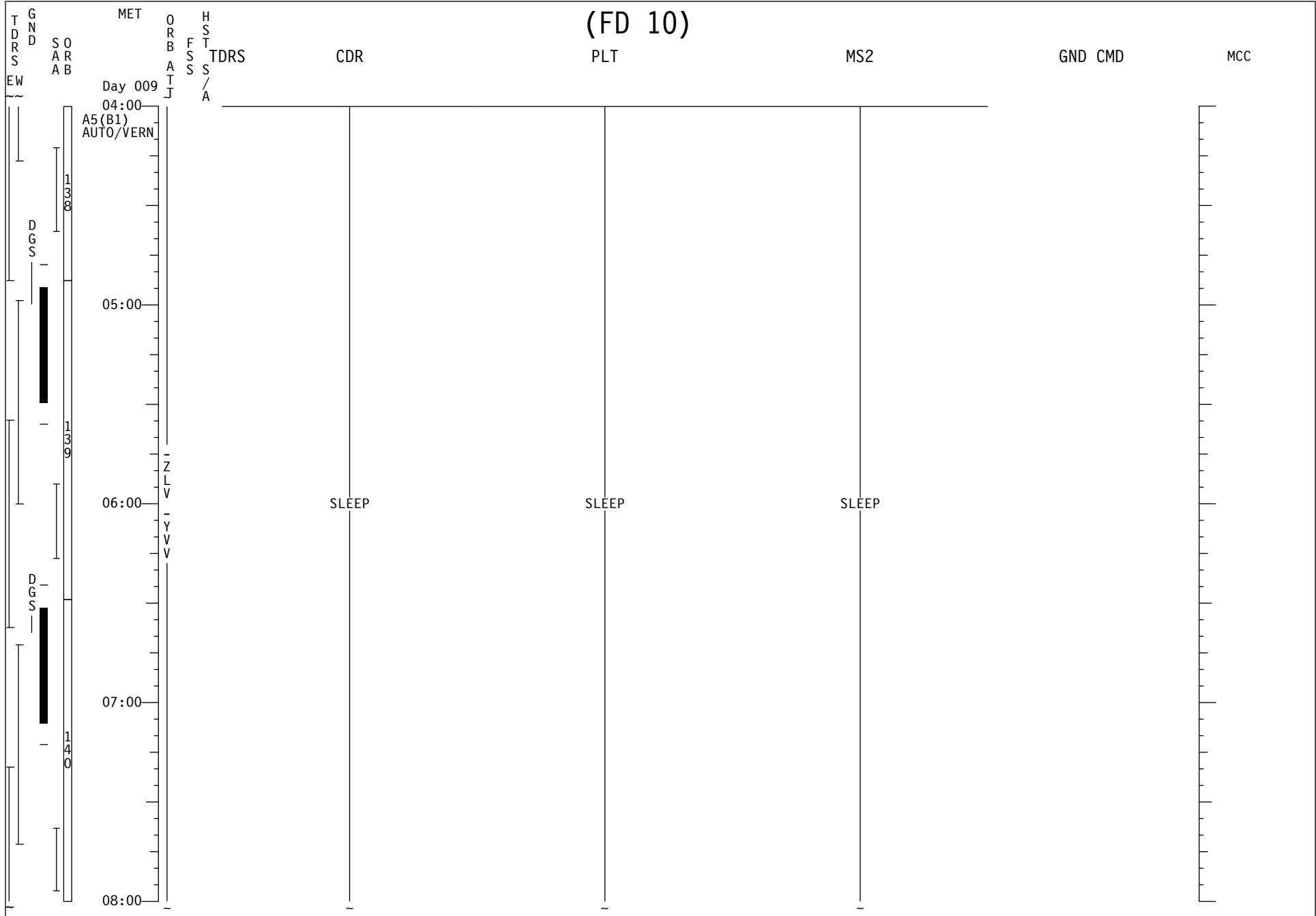
(FD 10)



(FD 10)



(FD 10)



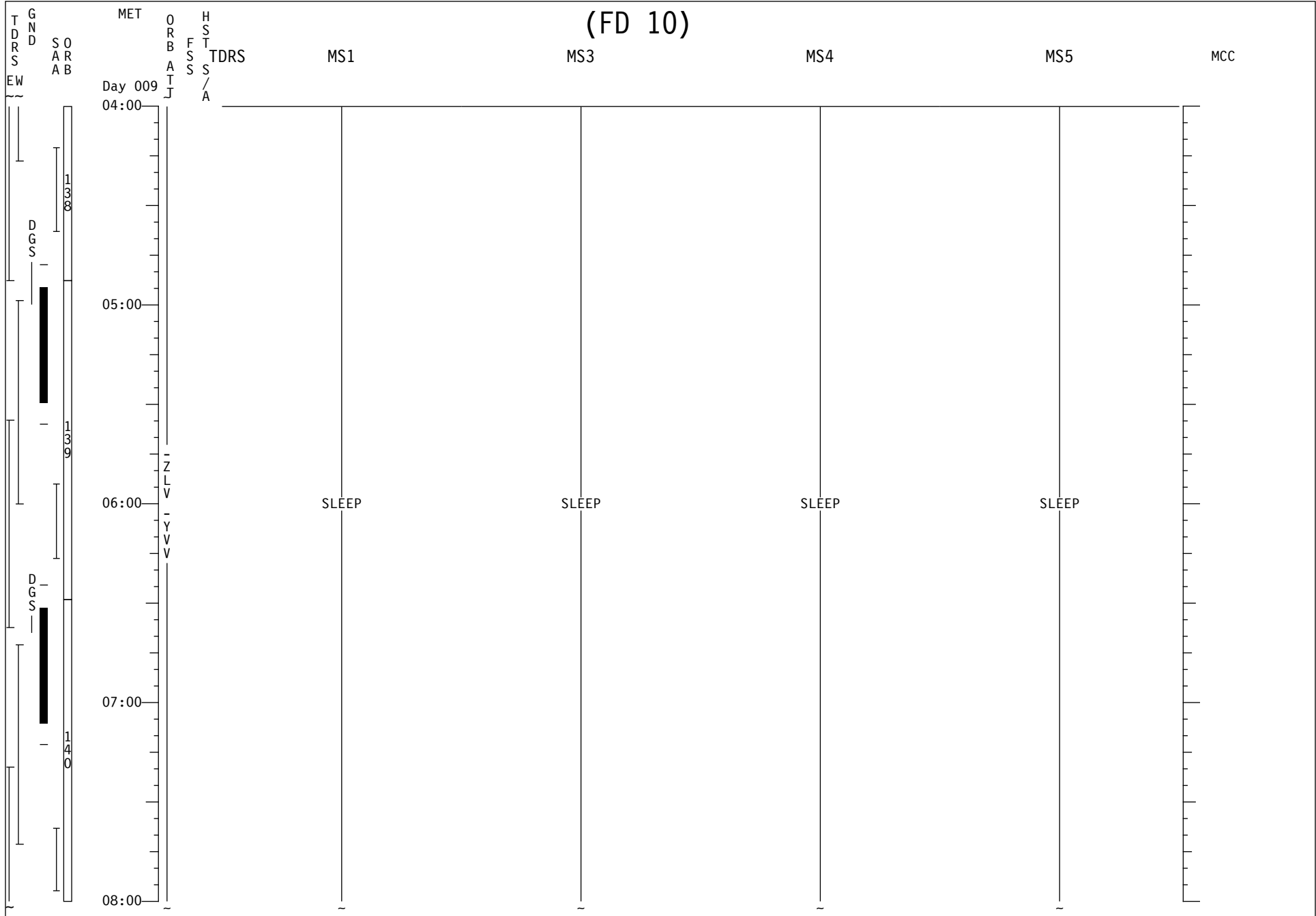
Day 009
04:00
A5 (B1)
AUTO/VERN

06:00
ZLV
YVV

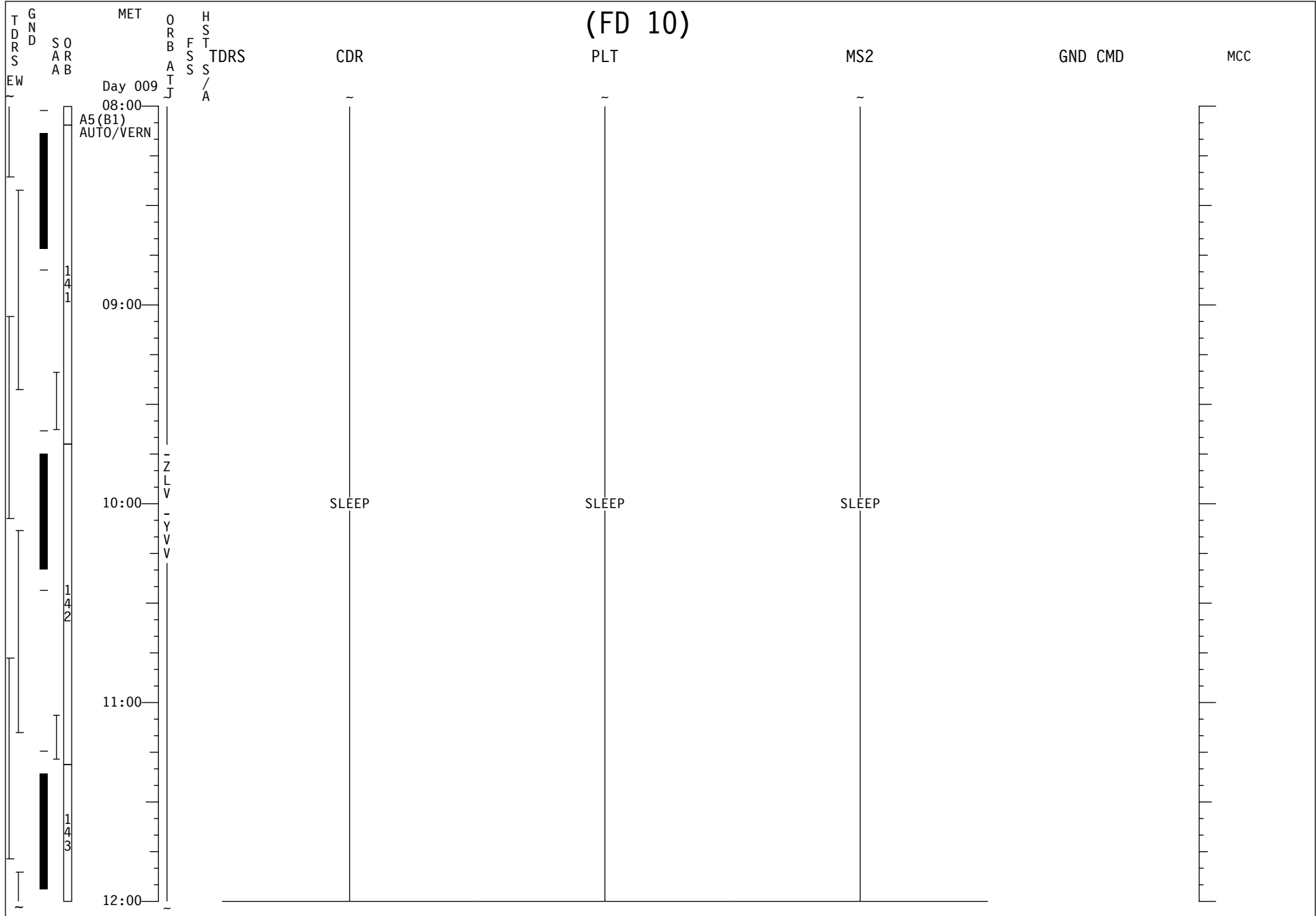
07:00
1440

08:00

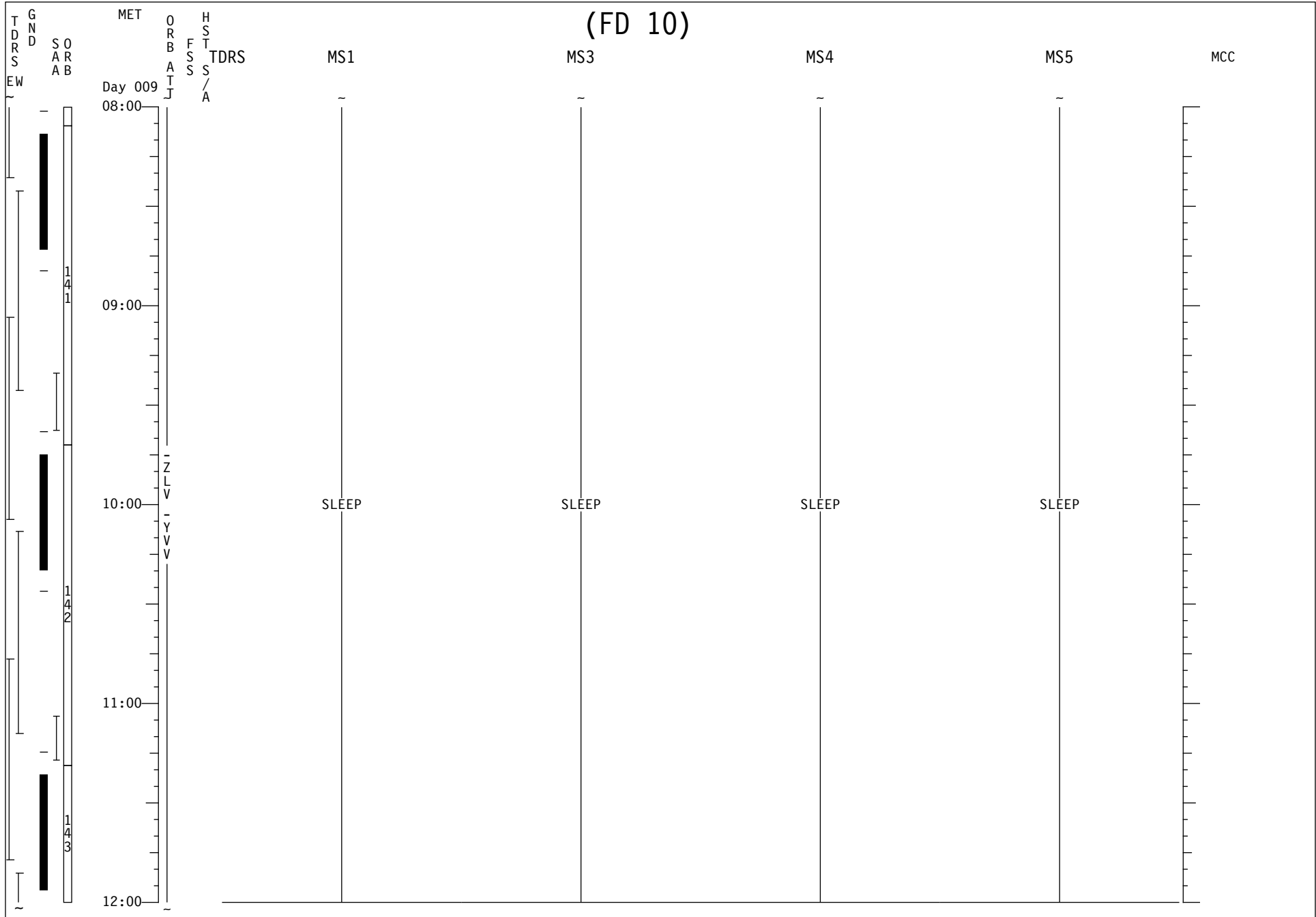
(FD 10)



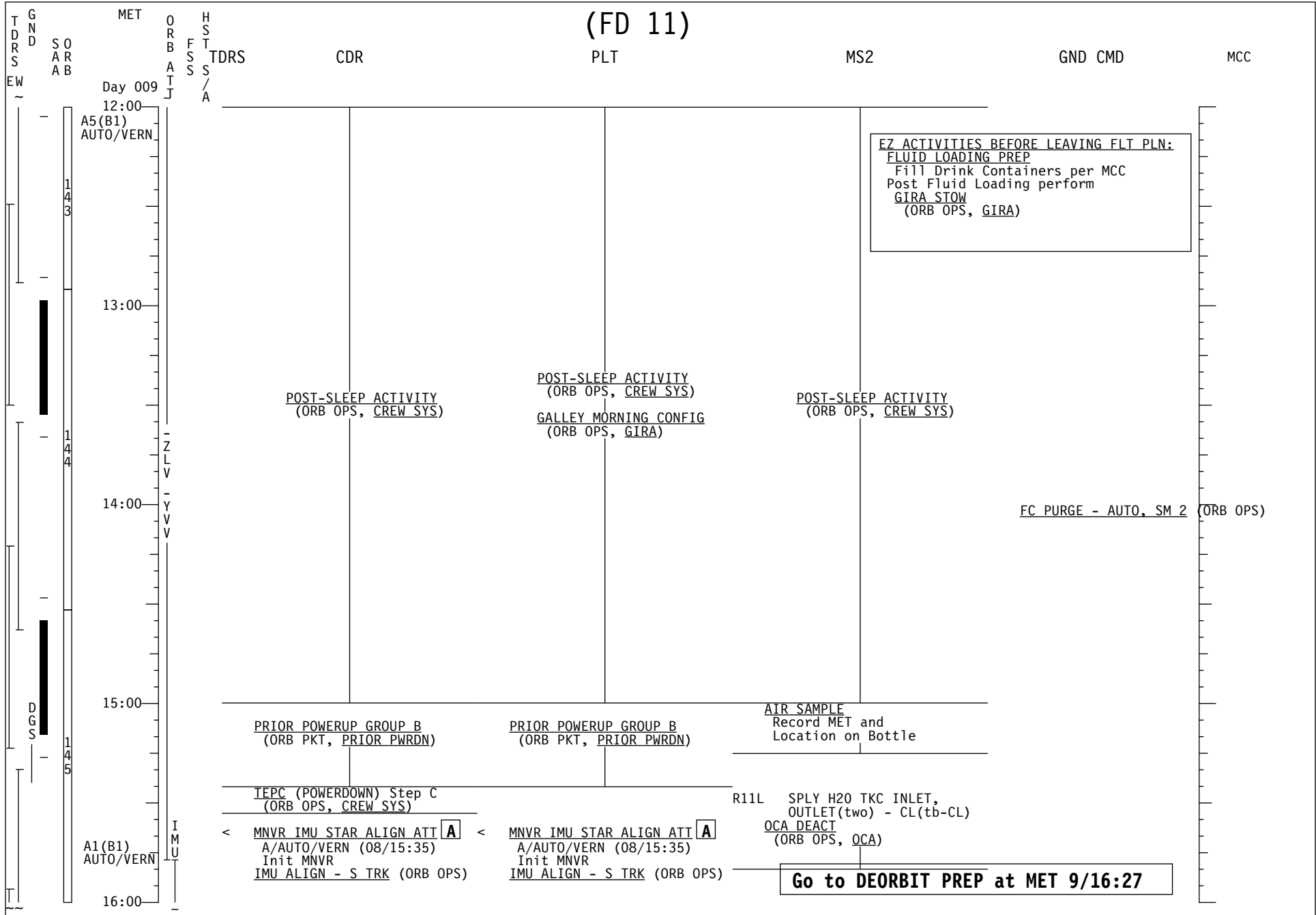
(FD 10)



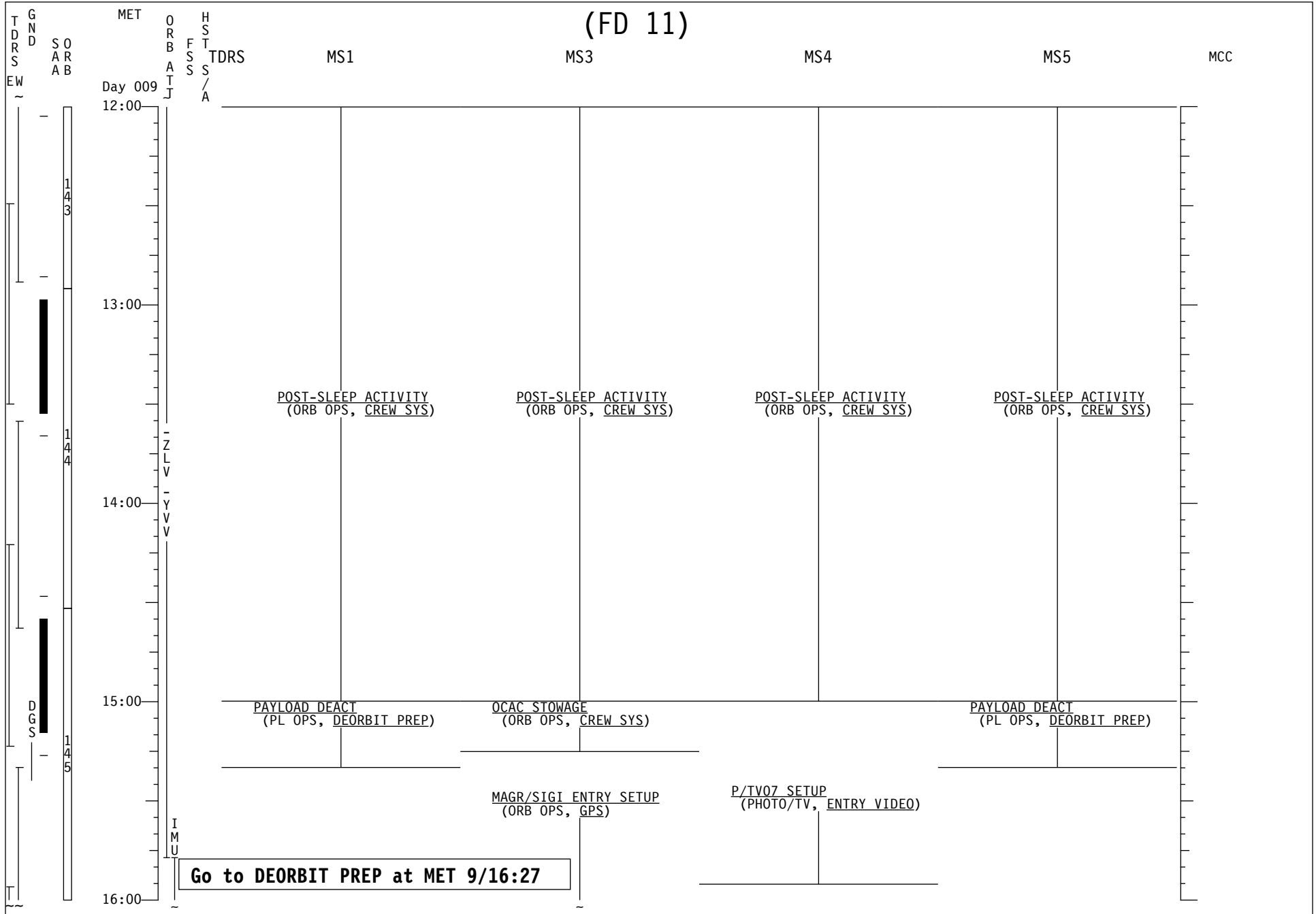
(FD 10)



(FD 11)



(FD 11)



(FD 11)

TDRS GND SOR AR AB MET ORB ATJ HST TDRS CDR PLT MS2 GND CMD MCC

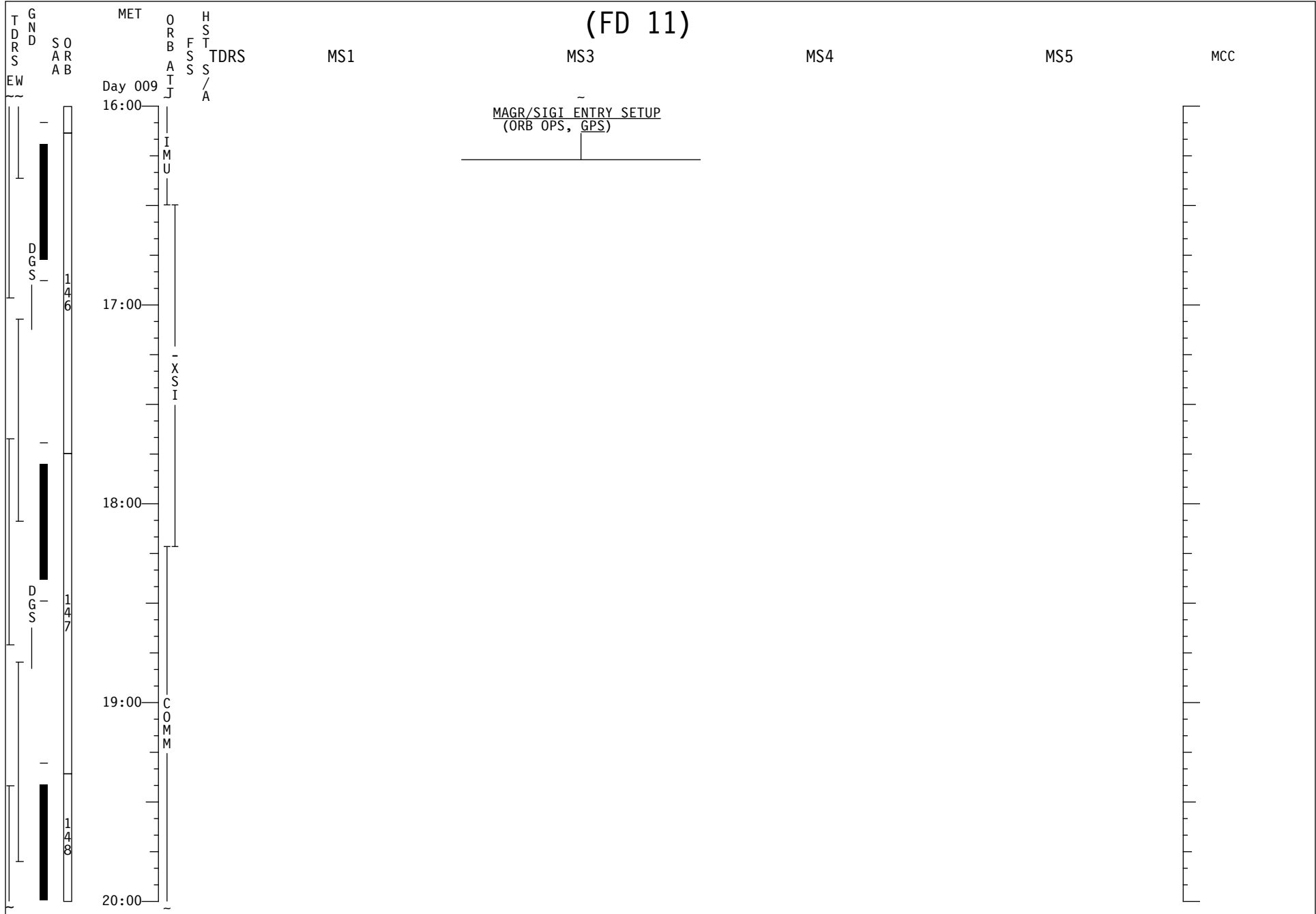
Day 009 16:00 17:00 18:00 19:00 20:00

MNVR IMU ALIGN ATT B A/AUTO/VERN Init MNVR IMU ALIGN - S TRK (ORB OPS) Steps 1-3,5 Only Modify Step 3 per pad MNVR (TRK) BIAS -XSI TG=4 BV=5 P=184 Y=0 OM=270 A/AUTO/VERN Init TRK

A IMU STAR ALIGN ID: -Y: 14, VEGA MET 15:41 to 16:39 -Z: 26, FORMALHAUT MET 15:46 to 16:43 ANG DIFF: 94.1 DUAL S TRKR ALIGNMENT 2nd ATTITUDE (SINGLE S TRKR) R 344 P 310 Y 25 -Z: 14 -Y: 26 261 75 298 313 36 6

B IMU STAR VERIFICATION ID: -Y: 52, HAMAL MET 16:05 to 16:55 -Z: 95, BETA GRUIS MET 15:41 to 16:40 ANG DIFF: 84.1 DUAL S TRKR ALIGNMENT 2nd ATTITUDE (SINGLE S TRKR) R 222 P 102 Y 64 -Z: 52 -Y: 95 56 306 195 104 57 49

(FD 11)



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STS-103 DAP TABLE

STS-103
DAP TABLE

**STS-103
DAP TABLE**

<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL
A2	- PTC
A3	- GG
A4	- PRE/POST DEPLOY
A5	- AFT PROP SAVINGS (NOSE & TAIL)
A6	- LOSS OF VERN (TAIL ONLY)
A7	- RNDZ
A8	- PROX OPS
A9	- HST RMS
A10	- HST BERTHED
A13	- RBAR CONFIG

<u>DAP</u>	<u>PURPOSE</u>
B1	- NOM OMS & RCS BURNS
B2	- LOSS OF VERN (TAIL ONLY)
B3	- LOSS OF VERN (NOSE & TAIL)
B4	- SSUS DEPLOY
B5	- COAS CAL
B6	-
B7	- RNDZ
B8	- PROX OPS
B9	- HST RELEASE
B10	- NORMAL HST BERTHED
B11	- SLO HST BERTHED
B12	- SLO HST RMS
B13	- RBAR CONFIG
B14	- VRCS REBOOST/ORBIT CONJUNC

POST DOCKING FLIGHT PLAN WILL DIRECT A
PERMANENT CHANGE TO DAPs A10 & B10

PRI	
RATE DEAD BAND	= 0.10
ALT	
RATE DEAD BAND	= 0.20
JET OPTION	= ALL
DELAY	= 0.00
VERN	
ATTITUDE DEAD BAND	= 2.000
RATE DEAD BAND	= 0.020
CNTL ACC	= 0

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

CNTL ACC = 0	UNLOADED RMS
= 1	NODE LOW HOVER
= 2	NODE PRE-INSTALL
= 3	NODE ON ODS
= 4	FGB GRAPPLE (VERNS)
= 5	FGB GRAPPLE (PRCS)
= 6	FGB PRE-INSTALL (VERNS)
= 7	FGB PRE-INSTALL (PRCS)
= 8	MATED STACK
= 9	REBOOST OF MATED STACK

STS-103 GENERIC DAP A CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A6	A8
PRI							
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000
ATT DB	11(51)	5.00	1.00	1.00	3.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	TAIL	ALL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	TAIL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10
ALT							
RATE DB	18(58)	0.200	0.200	0.200	0.200	0.070	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	TAIL	ALL
# JETS	20(60)	2	2	2	2	1	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	0.00	0.00	0.00	0.00
VERN							
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.2000	0.2000
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/POST DEPLOY	LOSS OF VERN (TAIL ONLY)	PROX OPS

STS-103 FLT SPECIFIC DAP A CONFIGURATIONS

	ITEM #	A5	A7	A9	A10	A13
PRI						
ROT RATE	10(50)	0.0650	0.2000	0.1000	0.1000	0.0500
ATT DB	11(51)	5.00	2.00	5.00	10.00	2.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.04	0.04	0.10
COMP	14(54)	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	TAIL	TAIL	ALL
Y OPTION	16(56)	ALL	ALL	TAIL	TAIL	ALL
TRAN PLS	17(57)	0.10	0.20	0.05	0.05	0.10
ALT						
RATE DB	18(58)	0.070	0.100	0.100	0.100	0.100
JET OPT	19(59)	ALL	ALL	TAIL	TAIL	ALL
# JETS	20(60)	1	2	2	2	2
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	7.50	12.30	0.00
VERN						
ROT RATE	23(63)	0.0650	0.0160	0.1000	0.1000	0.0500
ATT DB	24(64)	1.000	1.000	2.000	1.000	1.000
RATE DB	25(65)	.020	.020	.050	.020	.020
ROT PLS	26(66)	0.010	0.010	0.005	0.005	0.010
COMP	27(67)	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	1(2,3)	4(5)	0
PURPOSE		AFT PROP SAVINGS (NOSE & TAIL)	RNDZ	HST RMS	HST BERTHED	RBAR CONFIG

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

STS-88 DAP B – GENERIC

	ITEM #	B1	B2	B3	B4	B5	B6
PRI							
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00	3.00
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	TAIL	ALL	TAIL	TAIL	TAIL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL	TAIL
TRAN PLS	37(57)	0.10	0.02	0.02	0.02	0.02	0.02
ALT							
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200	0.200
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00	0.00	0.00
VERN							
ROT RATE	43(63)	0.2000	0.2000	0.2000	0.0080	0.0160	0.2000
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033	1.000
RATE DB	45(65)	.020	.020	.020	.010	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0
PURPOSE		NOM OMS & RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (NOSE & TAIL)	SSUS DEPLOY)	COAS CAL	

STS-88 DAP B CONFIGURATIONS

	ITEM #	B7	B8	B9	B10	B11	B12	B13	B14
PRI									
ROT RATE	30(50)	0.5000	0.2000	0.1000	0.1000	0.0500	0.0500	0.0500	0.1000
ATT DB	31(51)	2.00	2.00	2.00	5.00	10.00	5.00	2.00	5.00
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	ALL	TAIL
Y OPTION	36(56)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	ALL	TAIL
TRAN PLS	37(57)	0.05	0.01	0.01	0.01	0.01	0.05	0.05	0.01
ALT									
RATE DB	38(58)	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
JET OPT	39(59)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	ALL	TAIL
# JETS	40(60)	2	2	2	2	2	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	11.04	7.50	12.30	12.30	7.50	0.00	12.30
VERN									
ROT RATE	43(63)	0.2000	0.2000	0.1240	0.2000	0.0160	0.0400	0.0500	0.4000
ATT DB	44(64)	1.000	1.000	0.500	3.000	1.000	2.000	1.000	1.00
RATE DB	45(65)	.020	.010	.030	.020	.020	.050	.020	.020
ROT PLS	46(66)	0.002	0.010	0.005	0.005	0.005	0.005	0.002	0.040
COMP	47(67)	0.00	0.00	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	1	4(5)	4(5)	1(2,3)	0	4(5)
PURPOSE		RNDZ	PROX OP	HST RE- LEASE	NORMAL HST BERTHED	SLOW HST BERTHED	SLOW HST RMS	RBAR CONFIG	VRCS REBOOST/ ORBIT CONJUNC

Note: **BOLD-ITALIC** indicate a change from I-load or prior flight DAP configuration

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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
1 000/01:00:00 MET 287/10:42:00 GMT					STS 103 Flight Launch 14 October 1999 287/09:42:00 Z	
2 000/01:12:00 MET 41:46 287/10:54:00 GMT 11:23:46	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A5 AUTO ALT	RATE 0.0650 DB AT 5.00 DB RT 0.070	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV PLBD Open Att Stars
3 000/04:50:00 MET 05:17:46 287/14:32:00 GMT 59:46	INRTL R=300.00 MNVR P= 19.00 Y=325.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	SUN R 0 P 121	Up better Sband	NC-1 OMS L Posi Heads Up TIG 00/05:26:42
4 000/05:30:00 MET 06:08:54 287/15:12:00 GMT 50:54	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
5 000/20:45:00 MET 21:08:07 288/06:27:00 GMT 50:07	INRTL R=298.00 MNVR P= 6.00 Y=357.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	SUN R 5 P 154	Up faster Sband same U/D Up stars	NPC RCS +X Posi Heads Up TIG 00/21:12:19
6 000/21:15:00 MET 20:38 288/06:57:00 GMT 07:02:38	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y= 0.00	+ZLV +XVV Stars
7 001/02:35:00 MET 03:16:15 288/12:17:00 GMT 58:15	INRTL R=302.00 MNVR P= 19.00 Y=333.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	SUN R 1 P 127	Up better Sband but still bad 2way tail KU Up stars	NSR OMS 2ENG Posi Heads Up TIG 01/03:20:58
8 001/03:25:00 MET 39:59 288/13:07:00 GMT 21:59	INRTL R=220.00 MNVR P=226.00 Y= 52.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 359 P 86	Down better Sbd	NC-2 RCS +X Posi Heads Down TIG 01/03:53:13
9 001/04:00:00 MET 46:04 288/13:42:00 GMT 14:28:04	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
10 001/17:31:42 MET 289/03:13:42 GMT					NC-3 Multi-axis TIG 01/17:31:42	
11 001/18:00:00 MET 10:40 289/03:42:00 GMT 52:40	INRTL R=350.00 MNVR P=282.00 Y= 61.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 182 P 117	Up FDO request Need early H/O	NH OMS 2ENG Posi Heads Up TIG 01/18:18:10
12 001/18:20:00 MET 34:41 289/04:02:00 GMT 16:41	INRTL R= 2.00 MNVR P= 94.00 Y=299.00	A7 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 359 P 66	Up FDO request Sband same U/D	NC-4 OMS 2ENG Posi Heads Up TIG 01/19:07:22

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
13 001/19:10:00 MET 13:52 289/04:52:00 GMT 55:52	TGT=2 BV=1 P= 0.00 Y= 0.00 OM= 0.00	B7 RATE 0.5000 AUTO DB AT 2.00 PRI DB RT 0.20	EARTH R 234 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	Tgt Trk Att Post NC-4
14 001/22:20:36 MET 289/08:02:36 GMT					TI Multi-axis TIG 01/22:20:36
15 001/22:51:06 MET 23:10:20 289/08:33:06 GMT 52:20	TGT=2 BV=5 P=345.00 Y= 0.00 OM= 0.00	A7 RATE 0.0130 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 15	LVLH R= 0.00 P=285.00 Y= 0.00	LVLH Equiv
16 001/23:11:06 MET 21:31 289/08:53:06 GMT 09:03:31	TGT=2 BV=5 P=335.00 Y= 0.00 OM= 0.00	A7 RATE 0.0160 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 25	LVLH R= 0.00 P=295.00 Y= 0.00	LVLH Equiv
17 001/23:27:06 MET 41:59 289/09:09:06 GMT 23:59	TGT=2 BV=5 P=310.00 Y= 0.00 OM= 0.00	A7 RATE 0.0280 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 50	LVLH R= 0.00 P=320.00 Y= 0.00	LVLH Equiv
18 001/23:42:06 MET 54:00 289/09:24:06 GMT 36:00	TGT=2 BV=5 P=270.00 Y= 0.00 OM= 0.00	A7 RATE 0.0560 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y= 0.00	RBAR Crossing @ Noon -5 min 1/23:54:00
19 002/00:31:00 MET 289/10:13:00 GMT		A7 RATE 0.2000 INRT DB AT 1.000 VERN DB RT 0.020	SUN R 184 P 152	INRTL R=310.13 HOLD P=330.53 Y= 42.29	INERTIAL for Grapple
20 002/00:33:00 MET 289/10:15:00 GMT					HST GRAPPLE @ SS +3 min
21 002/00:35:00 MET 289/10:17:00 GMT				HST at -V3 FSS pivot at 90 SA slew at 90	FREE Drift for HST Berth
22 002/01:40:00 MET 02:01:55 289/11:22:00 GMT 43:55	INRTL R= 66.00 MNVR P=355.00 Y= 29.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 0 P 170	-Y: 889 2/01:39-2/02:35 -Z: 72 2/02:17-2/03:17	Battery Charge also IMU Align Sband off nose
23 002/03:20:00 MET 289/13:02:00 GMT				SA slew to 0	FREE Drift for SA slew
24 002/03:45:00 MET 58:59 289/13:27:00 GMT 40:59	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV H2O Dump stars

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
25 002/05:30:00 MET 07:03:45 289/15:12:00 GMT 16:45:45	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 RATE 0.0160 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
26 002/17:55:00 MET 290/03:37:00 GMT				FSS Pivot to 85	FREE Drift for FSS Pivot
27 002/18:40:00 MET 290/04:22:00 GMT					FREE Drift for A/L depress
28 002/19:45:00 MET 290/05:27:00 GMT				FSS pivot to 90	FREE Drift for BSP install and FSS pivot
29 002/20:05:00 MET 12:32 290/05:47:00 GMT 54:32	TGT=2 BV=5 P=135.00 Y= 0.00 OM=356.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 135	LVLH R= 2.83 P=134.93 Y= 2.83	BIAS -ZLV -XVV for RSU EVA Sunrise Protect
30 002/20:56:00 MET 21:02:34 290/06:38:00 GMT 44:34	INRTL R= 33.00 MNVR P=210.00 Y= 2.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 45		BIAS +XSI for RSU EVA Sunset Protect
31 002/21:28:00 MET 48:37 290/07:10:00 GMT 30:37	TGT=2 BV=5 P=135.00 Y= 0.00 OM=356.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 135	LVLH R= 2.83 P=134.93 Y= 2.83	BIAS -ZLV -XVV for RSU EVA Sunrise Protect
32 002/22:30:00 MET 36:45 290/08:12:00 GMT 18:45	INRTL R= 33.00 MNVR P=210.00 Y= 2.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 180 P 45		BIAS +XSI for RSU EVA Sunset Protect
33 002/23:05:00 MET 003/00:31:13 290/08:47:00 GMT 10:13:13	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 RATE 0.0160 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV VIK EVA
34 003/00:35:00 MET 290/10:17:00 GMT				SA slew to 100	FREE Drift for SA slew
35 003/00:55:00 MET 01:18:43 290/10:37:00 GMT 11:00:43	INRTL R= 67.00 MNVR P=355.00 Y= 30.00	A10 RATE 0.1000 AUTO DB AT 1.000 VERN DB RT 0.020	SUN R 358 P 170	-Y: 889 3/01:48-3/02:45 -Z: 72 3/00:52-3/01:51	Battery Charge for VIK funct also IMU Align
36 003/03:30:00 MET 290/13:12:00 GMT				SA slew to 0	FREE Drift for SA slew

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
37 003/04:15:00 MET 34:58 290/13:57:00 GMT 14:16:58	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=335.00	A10 AUTO VERN RATE 0.1000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 25.00	BIAS -ZLV -XVV for RSU Test +25 Y better sb
38 003/05:00:00 MET 26:02 290/14:42:00 GMT 15:08:02	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV for Crew Sleep
39 003/17:15:00 MET 291/02:57:00 GMT				SA slew to 15 HST to -V2 stop rotation when near tail	FREE Drift for SA slew and FSS rotate
40 003/17:40:00 MET 291/03:22:00 GMT				SA slew to -20 SA no hit tail HST to -V2	FREE Drift for SA slew and FSS rotate
41 003/18:50:00 MET 291/04:32:00 GMT					FREE Drift for A/L depress
42 003/19:00:00 MET 291/04:42:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Computer EVA
43 003/21:10:00 MET 291/06:52:00 GMT				HST to +V3	FREE Drift for FSS rotate
44 003/21:25:00 MET 31:51 291/07:07:00 GMT 13:51	INRTL R= 45.00 MNVR P=211.00 Y= 0.00	A10 AUTO VERN RATE 0.1000 DB AT 1.000 DB RT 0.020	SUN R 166 P 45		BIAS +XSI for FGS EVA Sunset Protect
45 003/21:39:00 MET 22:00:15 291/07:21:00 GMT 42:15	TGT=2 BV=5 P=135.00 Y= 0.00 OM=346.00	A10 AUTO VERN RATE 0.1000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 135	LVLH R= 10.00 P=134.14 Y= 9.85	BIAS -ZLV -XVV for FGS EVA Sunrise Protect
46 003/22:40:00 MET 48:01 291/08:22:00 GMT 30:01	INRTL R= 45.00 MNVR P=211.00 Y= 0.00	A10 AUTO VERN RATE 0.1000 DB AT 1.000 DB RT 0.020	SUN R 166 P 45		BIAS +XSI for FGS EVA Sunset Protect
47 003/23:15:00 MET 35:54 291/08:57:00 GMT 09:17:54	TGT=2 BV=5 P=135.00 Y= 0.00 OM=346.00	A10 AUTO VERN RATE 0.1000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 135	LVLH R= 10.00 P=134.14 Y= 9.85	BIAS -ZLV -XVV for FGS EVA Sunrise Protect
48 004/00:00:00 MET 48:59 291/09:42:00 GMT 10:30:59	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV OCE EK EVA

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
49 004/02:30:00 MET 291/12:12:00 GMT				SA slew to 0	FREE Drift for SA slew	
50 004/02:50:00 MET 04:23:45 291/12:32:00 GMT 14:05:45	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV H2O Dump stars
51 004/05:45:00 MET 07:18:45 291/15:27:00 GMT 17:00:45	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
52 004/18:50:00 MET 292/04:32:00 GMT					FREE Drift for A/L depress	
53 004/19:00:00 MET 292/04:42:00 GMT				SA slew to 20	FREE Drift for SA slew	
54 004/19:15:00 MET 292/04:57:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV SSAT-2 SSR-3 NOBL EVAs
55 005/00:45:00 MET 292/10:27:00 GMT				SA slew to 0	FREE Drift for SA slew	
56 005/01:00:00 MET 292/10:42:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
57 005/18:50:00 MET 293/04:32:00 GMT					FREE Drift for A/L depress	
58 005/19:05:00 MET 293/04:47:00 GMT				SA slew to -30	FREE Drift for SA slew	
59 005/19:15:00 MET 293/04:57:00 GMT				HST to bias +V2 Bias is 305 deg	FREE Drift for HST rotate	
60 005/19:30:00 MET 293/05:12:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MLI repair Hand rail cover

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

Attitude Timeline

MET/GMT	MNVR OPTION		DAP	E/S	REF ATT/REMARKS	EVENT
61 005/22:30:00 MET 293/08:12:00 GMT					HST to bias -V3 Bias is 30 deg	FREE Drift for HST rotate
62 005/22:45:00 MET 293/08:27:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MLI repair Hand Rail cover
63 005/23:25:00 MET 293/09:07:00 GMT					HST to +V3	FREE Drift for HST rotate
64 005/23:40:00 MET 293/09:22:00 GMT	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV AS Latch Repair
65 006/00:50:00 MET 293/10:32:00 GMT					SA slew to 0	FREE Drift for SA slew
66 006/01:05:00 MET 293/10:47:00 GMT					FSS pivot to 75 HST to -V3 FSS pivot to 90	FREE Drift for BSP pin rmv and FSS PRP for release setup
67 006/01:35:00 MET 03:08:45 293/11:17:00 GMT 12:50:45	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV H2O Dump
68 006/04:50:00 MET 06:23:45 293/14:32:00 GMT 16:05:45	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	B11 AUTO VERN	RATE 0.0160 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
69 006/16:55:00 MET 294/02:37:00 GMT					SA slew to 90	FREE Drift for SA slew
70 006/17:20:00 MET 45:41 294/03:02:00 GMT 27:41	INRTL R= 70.00 MNVR P=353.00 Y= 34.00	A10 AUTO VERN	RATE 0.1000 DB AT 1.000 DB RT 0.020	SUN R 358 P 170	-Y: 889 6/18:21-6/19:20 -Z: 107 6/17:35-6/18:31	Battery Charge also IMU Align
71 006/19:15:00 MET 294/04:57:00 GMT						FREE Drift for HST unberth
72 006/19:50:00 MET 20:01:53 294/05:32:00 GMT 43:53	TGT=5 BV=5 P=180.00 Y= 55.00 OM=270.00 RA= 204.781 DEC= -10.303S	A9 AUTO VERN	RATE 0.1000 DB AT 2.000 DB RT 0.050	SUN R 90 P 125	INRTL R= 65.03 P=294.08 Y= 69.09	RELEASE Setup Beta = +13.2

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

Attitude Timeline

MET/GMT	MNVR OPTION		DAP	E/S	REF ATT/REMARKS	EVENT
73 006/21:15:00 MET 294/06:57:00 GMT						HST RELEASE @ Noon - 22 min
74 006/21:20:00 MET 48:44 294/07:02:00 GMT 30:44	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=180.00	A7 AUTO VERN	RATE 0.0890 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R=180.00 P= 0.00 Y= 0.00	Target Track -RBAR (above)
75 006/21:48:50 MET 294/07:30:50 GMT						SEP2 RCS -X Retro when -ZADI P270 TIG 05/21:48:50
76 006/21:49:00 MET 22:07:31 294/07:31:00 GMT 49:31	TGT=2 BV=2 P=180.00 Y= 0.00 OM=180.00	A7 AUTO VERN	RATE 0.0810 DB AT 1.000 DB RT 0.020	EARTH R 336 P 180	LVLH R=180.00 P= 90.00 Y= 0.00	Target Track -VBAR
77 006/22:20:00 MET 23:06:09 294/08:02:00 GMT 48:09	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep Off Duty Day
78 008/01:15:00 MET 38:05 295/10:57:00 GMT 11:20:05	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Water dump
79 008/03:00:00 MET 23:05 295/12:42:00 GMT 13:05:05	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
80 008/15:30:00 MET 296/01:12:00 GMT		A1 INRT VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 195 P 91	INRTL R= 44.06 HOLD P=202.17 Y= 60.82	FCS Checkout 2 RCS Hot Fire Inertial Hold
81 008/16:00:00 MET 28:33 296/01:42:00 GMT 02:10:33	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
82 008/17:55:00 MET 296/03:37:00 GMT		TRN INRT PRI	RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 344 P 88	INRTL R=315.97 HOLD P= 22.07 Y=298.83	OPS3 GPS Test DTO 700-14
83 008/20:55:00 MET 21:41:06 296/06:37:00 GMT 07:23:06	TGT=2 BV=5 P= 97.00 Y= 0.00 OM=180.00	A5 AUTO VERN	RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 0 P 97	LVLH R=180.00 P= 7.00 Y= 0.00	PERIGEE ADJUST RCS -X Posi Heads Down Setup
84 008/21:45:30 MET 296/07:27:30 GMT		B1 INRT PRI	RATE 0.5000 DB AT 3.00 DB RT 0.20	SUN R 156 P 43	INRTL R=231.52 HOLD P=125.89 Y=303.23	INERTIAL Hold

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
85 008/21:55:00 MET 22:20:00 296/07:37:00 GMT 08:02:00	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	A5 AUTO VERN RATE 0.0650 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV -YVV Crew Sleep EOM Thermal
86 009/15:47:00 MET 54:42 297/01:29:00 GMT 36:42	INRTL R=344.00 MNVR P=310.00 Y= 25.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 207 P 147	-Y: 14 -Z: 26	IMU Align 9/15:47-9/16:39
87 009/16:00:00 MET 07:31 297/01:42:00 GMT 49:31	INRTL R=222.00 MNVR P=102.00 Y= 64.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 105 P 104	-Y: 52 -Z: 95	IMU Verif 9/16:05-9/16:40
88 009/16:30:00 MET 37:31 297/02:12:00 GMT 19:31	TGT=4 RA= 207.465 BV=5 DEC= -11.3128 P=184.00 Y= 0.00 OM=270.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 180 P 176	INRTL R= 14.37 P=342.95 Y= 25.96	-XSI Coldsoak
89 009/18:13:00 MET 15:54 297/03:55:00 GMT 57:54	INRTL R=109.00 MNVR P=315.00 Y= 20.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 90 P 150		COMM Attitude
90 009/20:14:00 MET 19:36 297/05:56:00 GMT 06:01:36	INRTL R=335.00 MNVR P=274.00 Y= 70.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 199 P 121		D/O Burn TIG 9/20:26:00

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

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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV103/Discovery
 Launch Window: 42 min
 Inclination: 28.45°
 Rendezvous Altitude: 324 nm
 Duration: 10 + 2 days

B. MAJOR EVENTS

<u>EVENT</u>	<u>MET</u>	<u>DATE</u>	<u>CST</u>	<u>GMT</u>	<u>ΔV</u>	<u>HP/HA</u>
Launch	00/00:00	10/14/99	04:42	09:42	--	--
OMS2	00/00:45	10/14/99	05:27	10:27	252.4	174/317
NC1	00/05:27	10/14/99	10:09	15:09	10.0	180/318
NPC	00/21:12	10/15/99	01:54	06:54	1.5	180/317
NSR	02/03:21	10/15/99	08:03	13:03	211.6	304/318
NC2	01/03:53	10/15/99	08:35	13:35	4.0	305/320
NC3	01/17:32	10/15/99	22:14	03:14	0.0	305/320
NH	01/18:18	10/15/99	23:00	04:00	17.3	306/330
NC4	01/19:07	10/15/99	23:49	04:49	16.4	315/330
TI	01/22:21	10/16/99	03:03	08:03	2.9	316/331
HST Grapple	02/00:33	10/16/99	05:15	10:15	--	317/331
EVA-1 Start	02/18:45	10/16/99	23:27	04:27	--	--
EVA-2 Start	03/18:55	10/17/99	23:37	04:37	--	--
EVA-3 Start	04/18:55	10/18/99	23:37	04:37	--	--
EVA-4 Start	05/18:55	10/19/99	23:37	04:37	--	--
HST Release	05/21:15	10/20/99	01:57	06:57	--	317/331
Sep - 1	05/21:16	10/20/99	01:58	06:58	1.0	317/332
Sep - 2	05/21:49	10/20/99	02:31	07:31	2.5	316/332
Deorbit	09/20:26	10/24/99	01:08	06:08	513.0	--
Landing	09/21:38	10/24/99	02:20	07:20	--	--

C. LANDING OPPORTUNITIES

		<u>Landing Orbit</u>	<u>Site</u>	<u>Local Time</u>	<u>MET</u>
		<u>No.</u>			
Nominal	Primary	149	KSC	02:20	09/21:38
	1 Rev Late	150	KSC	04:02	09/23:20
	Weather Alt	149	EDW	00:11	09/21:29
1 Day Late	Primary	164	KSC	03:30	10/21:48
	1 Rev Late	165	KSC	05:13	10/23:31
	Weather Alt	164	EDW	00:21	10/21:39

FLIGHT PLAN NOTES

D. CREW

CDR – Curtis L. Brown
PLT – Scott J. Kelly
MS1 – Steven L. Smith
MS2 – Jean-Francois Clervoy (France/ESA)
MS3 – John M. Grunsfeld
MS4 – C. Michael Foale
MS5 – Claude Nicollier (Switzerland/ESA)

E. COMMUNICATIONS

TDRS Support: East (41° W), West (174° W), Z (85° E)
Back-up Real-time TV: Merritt Island – MIL (MLX)
Contingency GSTDN: MLX*, WLP
Contingency RTS: HTS, IOS*, DGS, OTS*, and HNS

*UHF capability

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

F. IMU ALIGNS

Routine IMU aligns are expected to occur every 72 hours. If stars of opportunity are not available in the flown attitude, the orbiter will be required to maneuver to an IMU attitude for alignment or will use the uplinkable star capability for IMU alignment.

The timeline reflects the recent change of moving the end-of-mission IMU alignments out of Deorbit Prep to just prior to Deorbit Prep, as directed from the April 1998 Ascent/Entry Flight Techniques Panel.

G. OFF DUTY

Off duty periods for the crew are scheduled for Flight Day 9 (5.25 hr).

H. PAYLOADS

The primary objective of this flight is to perform the operations necessary to fulfill the on-orbit servicing of the Hubble Space Telescope Servicing Mission 3A (HST SM3A). The primary servicing task is to install three new Rate Sensor Units (RSUs). The secondary servicing tasks are to install Voltage Improvement Kits (VIKs) for the batteries, replace the DF-224 computer with a 486 computer, replace the fine Guidance Sensor (FGS) #2, replace the S-band Single Axis Transmitter (SSAT) #2, replace the Engineering/Science Tape Recorder (E/ST) 3 with a Solid State Recorder (SSR), install New Outer Blanket Layers (NOBL) on the support systems module (SSM) bays, and to open the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) cooland valves. Scheduled EVA get-ahead tasks include Forward Shroud/Light Shield (FS/LS) Multilayer Insulation (MLI) repair with Shield/Shell Replacement Fabric (SSRF), installation of covers on several HST handrails, and perform maintenance on the Aft Shroud Koor latches by installing Aft Shroud Door Latch Repair (ASLR) kits.

I. DETAILED TEST OBJECTIVES (DTO)

1. SINGLE STRING GLOBAL POSITIONING SYSTEM (MAGR) (DTO 700-14)

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

2. SPACE INTEGRATED GLOBAL POSITIONING SYSTEM/INERTIAL NAVIGATION SYSTEM (SIGI) (DTO 700–15)

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

J. DETAILED SUPPLEMENTAL OBJECTIVES (DSO)

There are no on-orbit DSOs scheduled for this flight.

K. MEDICAL SCIENCES DIVISION (MSD)

1. TISSUE EQUIVALENT PROPORTIONAL COUNTER (MSD 005)

TEPC monitors the amount of radiation exposure undergone by the crew while on orbit. It measures radiation cumulatively, but also has a real-time liquid crystal display readout. This experiment allows flight surgeons to analyze data and will aid in designing better shielding for the future crews on the International Space Station. TEPC will be premounted to the starboard Middeck Wall. It will be activated on FD01 and deactivated on FD11. Daily status checks are scheduled in each day's Easy Block.

DAP BOOK CONFIGURATION



TOP

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOM OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (NOSE & TAIL)
A4	- PRE/POST DEPLOY	B4	- SSUS DEPLOY
A5	- AFT PROP SAVINGS (NOSE & TAIL)	B5	- COAS CAL
A6	- LOSS OF VERN (TAIL ONLY)	B6	-
A7	- RNDZ	B7	- RNDZ
A8	- PROX OPS	B8	- PROX OPS
A9	- HST RMS	B9	- HST RELEASE
A10	- HST BERTHED	B10	- NORMAL HST BERTHED
A13	- RBAR CONFIG	B11	- SLOW HST BERTHED
		B12	- SLOW HST RMS
		B13	- RBAR CONFIG
		B14	- VRCS REBOOST/ORBIT CONJUNC

CNTL ACC = 0	UNLOADED RMS
= 1	NODE LOW HOVER
= 2	NODE PRE-INSTALL
= 3	NODE ON ODS
= 4	FGB GRAPPLE (VERNS)
= 5	FGB GRAPPLE (PRCS)
= 6	FGB PRE-INSTALL (VERNS)
= 7	FGB PRE-INSTALL (PRCS)
= 8	MATED STACK
= 9	REBOOST OF MATED STACK



FLT PLN-1a/103/O/A

TOP

POST DOCKING FLIGHT PLAN WILL DIRECT A PERMANENT
CHANGE TO DAPs A10 & B10

PRI		
RATE DEAD BAND	=	0.10
ALT		
RATE DEAD BAND	=	0.20
JET OPTION	=	ALL
DELAY	=	0.00
VERN		
ATTITUDE DEAD BAND	=	2.000
RATE DEAD BAND	=	0.020
CNTL ACC	=	0

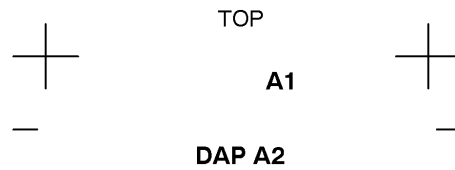
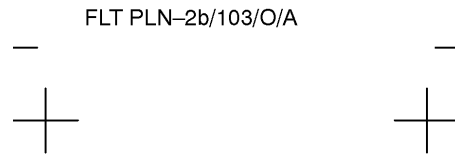
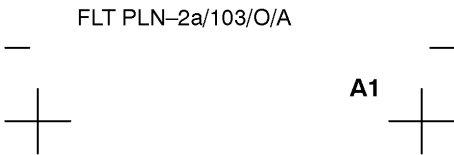


FLT PLN-1b/103/O/A

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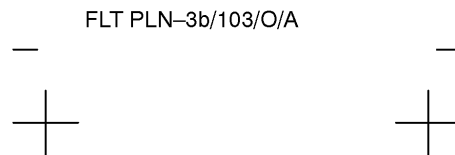
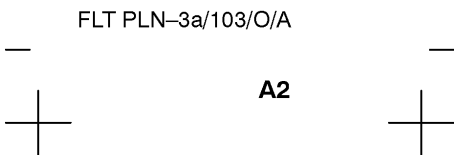


PURPOSE:
NOMINAL



PURPOSE:
PTC

DAP A 0 1	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 5.0 0 0	11/51	ATT DB
0.2 0 0	12/52	RATE DB
0.1 0 0	13/53	ROT PLS
0.0 0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0 0	17/57	TRAN PLS
		ALT
0.2 0 0 0	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0 0	22/62	DELAY
		VERN
0.2 0 0 0	23/63	ROT RATE
- 1.0 0 0 0	24/64	ATT DB
0.2 0 0	25/65	RATE DB
0.0 1 0 0	26/66	ROT PLS
0.0 0 0	27/67	COMP
0	28/68	CNTL ACC

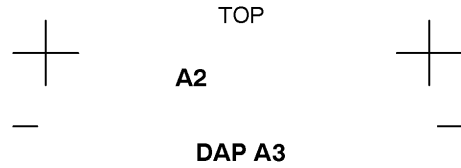


(reduced copy)



DAP A 0 2	1	PRI
0.4 0 0 0	10/50	ROT RATE
- 1.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
0.0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.2 0 0	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0	22/62	DELAY
		VERN
0.4 0 0 0	23/63	ROT RATE
- 1.0 0 0	24/64	ATT DB
0.2 0	25/65	RATE DB
0.0 1 0	26/66	ROT PLS
0.0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-4a/103/O/A



PURPOSE:
GG

FLT PLN-4b/103/O/A



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

FLT PLN-5a/103/O/A

PURPOSE:
PRE/POST DEPLOY

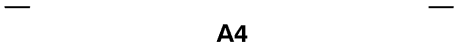
FLT PLN-5b/103/O/A



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TOP



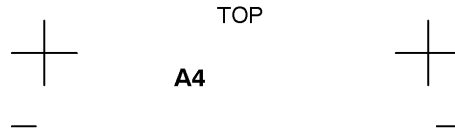
A4

DAP A 0 4	1	PRI
0.5 0 0 0	10/50	ROT RATE
- 3.0 0 0	11/51	ATT DB
0.2 0 0	12/52	RATE DB
0.1 0 0	13/53	ROT PLS
0.0 0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0 0	17/57	TRAN PLS
		ALT
0.2 0 0 0	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0 0	22/62	DELAY
		VERN
0.2 0 0 0	23/63	ROT RATE
- 1.0 0 0 0	24/64	ATT DB
0.2 0 0	25/65	RATE DB
0.0 1 0 0	26/66	ROT PLS
0.0 0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-6a/103/O/A



A6



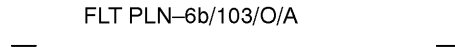
TOP



A4

DAP A6

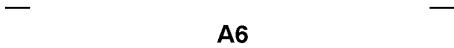
PURPOSE:
LOSS OF VERN (TAIL ONLY)



FLT PLN-6b/103/O/A



TOP



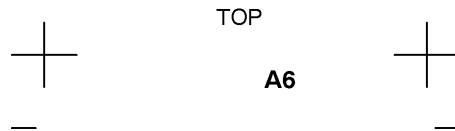
A6

DAP A 0 6	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 5.0 0 0	11/51	ATT DB
0.2 0 0	12/52	RATE DB
0.1 0 0	13/53	ROT PLS
0.0 0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.1 0 0	17/57	TRAN PLS
		ALT
0.0 7 0 0	18/58	RATE DB
TAIL	19/59	JET OPT
1	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0 0	22/62	DELAY
		VERN
0.2 0 0 0	23/63	ROT RATE
- 1.0 0 0 0	24/64	ATT DB
0.2 0 0	25/65	RATE DB
0.0 1 0 0	26/66	ROT PLS
0.0 0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-7a/103/O/A



A8



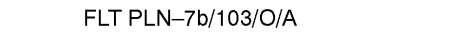
TOP



A6

DAP A8

PURPOSE:
PROX OPS



FLT PLN-7b/103/O/A



(reduced copy)



TOP

A8

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

FLT PLN-8a/103/O/A

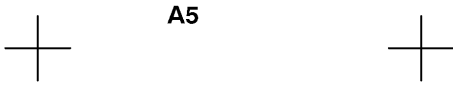


TOP

A8

DAP A5

PURPOSE:
AFT PROP SAVINGS
(NOSE & TAIL)



A5



TOP

A5

DAP A 0 5	1	PRI
0.0 6 5 0	10/50	ROT RATE
- 5.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
0.0 0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.0 7 0	18/58	RATE DB
ALL	19/59	JET OPT
1	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0	22/62	DELAY
		VERN
0.0 6 5 0	23/63	ROT RATE
- 1.0 0 0	24/64	ATT DB
0.2 0	25/65	RATE DB
0.0 1 0	26/66	ROT PLS
0.0 0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-9a/103/O/A

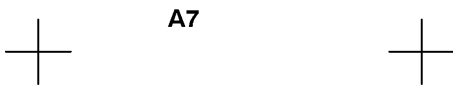


TOP

A5

DAP A7

PURPOSE:
RENDEZVOUS



A7

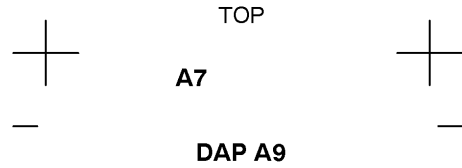


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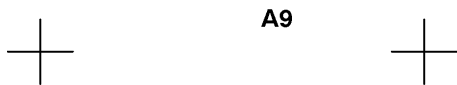
DAP A 0 7	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 2.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
.0 0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
0 0.0 0	22/62	DELAY
		VERN
0.0 1 6 0	23/63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

FLT PLN-10a/103/O/A



PURPOSE:
HST RMS

FLT PLN-10b/103/O/A

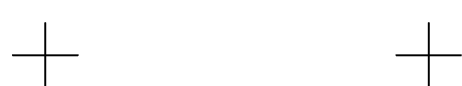


DAP A 0 9	1	PRI
0.1 0 0 0	10/50	ROT RATE
- 5.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.0 4	13/53	ROT PLS
.0 0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.0 5	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
7.5 0	22/62	DELAY
		VERN
0.1 0 0 0	23/63	ROT RATE
- 2.0 0 0	24/64	ATT DB
.0 5 0	25/65	RATE DB
0.0 0 5	26/66	ROT PLS
.0 0 0	27/67	COMP
1	28/68	CNTL ACC

FLT PLN-11a/103/O/A

PURPOSE:
HST BERTHED

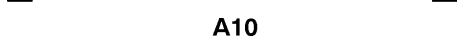
FLT PLN-11b/103/O/A



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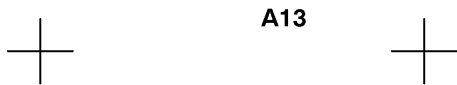
TOP



A10

DAP A 1 0	1	PRI
0.1 0 0 0	10/50	ROT RATE
1 0.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.0 4	13/53	ROT PLS
.0 0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.0 5	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
1 2.3 0	22/62	DELAY
		VERN
0.1 0 0 0	23/63	ROT RATE
- 1.0 0 0	24/64	ATT DB
.0 2 0	25/65	RATE DB
0.0 0 5	26/66	ROT PLS
.0 0 0	27/67	COMP
4	28/68	CNTL ACC

FLT PLN-12a/103/O/A



A13



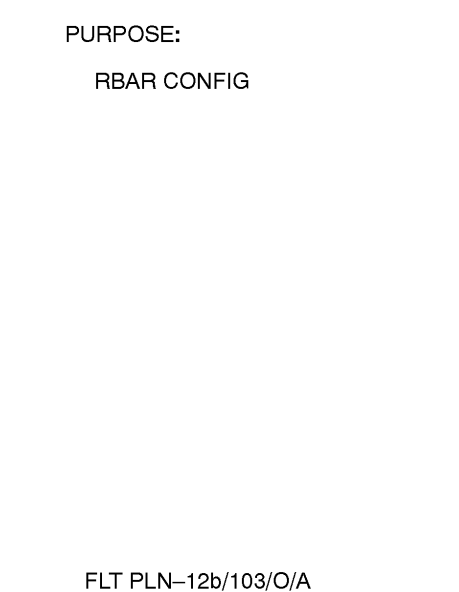
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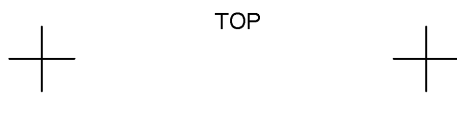
A10

DAP A13

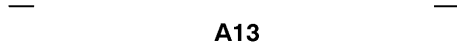
PURPOSE:
RBRAR CONFIG



FLT PLN-12b/103/O/A



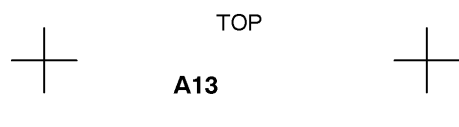
TOP



A13

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

FLT PLN-13a/103/O/A



TOP



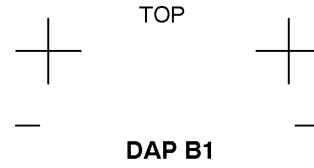
A13



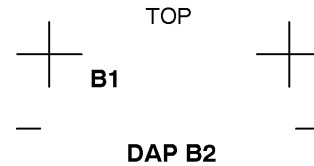
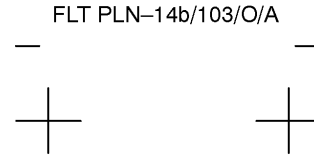
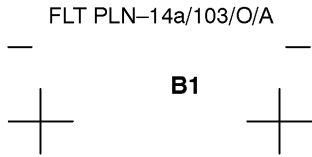
FLT PLN-13b/88/O/A



(reduced copy)



PURPOSE:
NOM OMS & RCS
BURNS

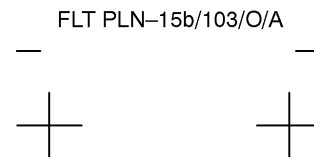
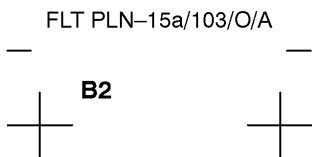


PURPOSE:
LOSS OF VERN
(TAIL ONLY)

2	DAP B 0 1
30/50	<u>0.5 0 0 0</u>
31/51	- 3.0 0
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0 0 0</u>
35/55	ALL
36/56	ALL
37/57	<u>0.1 0</u>

38/58	<u>0.2 0 0</u>
39/59	ALL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	- <u>0.0 0</u>

43/63	<u>0.2 0 0 0</u>
44/64	- <u>1.0 0 0</u>
45/65	<u>0 2 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>0 0 0</u>
48/68	<u>0</u>



(reduced copy)

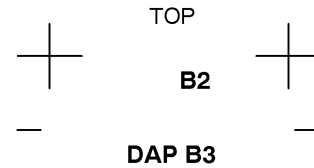
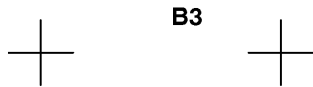


2	DAP B 0 2
30/50	0.2 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 2

38/58	0.0 7 0
39/59	TAIL
40/60	1
41/61	0.0 8
42/62	- 0.0 0

43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-16a/103/O/A



PURPOSE:

LOSS OF VERN
(NOSE & TAIL)

FLT PLN-16b/103/O/A

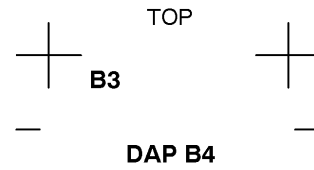


2	DAP B 0 3
30/50	0.2 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 2

38/58	0.0 7 0
39/59	ALL
40/60	1
41/61	0.0 8
42/62	- 0.0 0

43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-17a/103/O/A



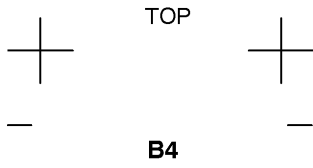
PURPOSE:

SSUS DEPLOY

FLT PLN-17b/103/O/A



(reduced copy)

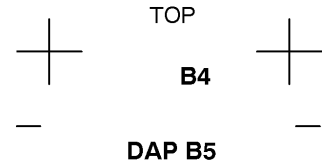
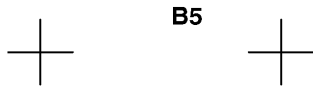


2/4	DAP B 0 4
30/50	<u>0.2 0 0 0</u>
31/51	<u>- 0.3 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 2</u>

38/58	<u>0.2 0 0</u>
39/59	ALL
40/50	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>- 0.0 0</u>

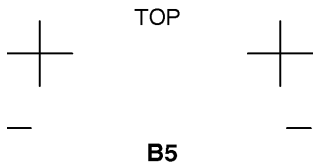
43/63	<u>0.0 0 8 0</u>
44/64	<u>- 0.1 0 0</u>
45/65	<u>0.1 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>0.0 0 0</u>
48/68	<u>0</u>

FLT PLN-18a/103/O/A



PURPOSE:
COAS CAL

FLT PLN-18b/103/O/A

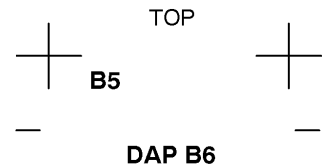


2	DAP B 0 5
30/50	<u>0.2 0 0 0</u>
31/51	<u>- 3.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 2</u>

38/58	<u>0.2 0 0</u>
39/59	ALL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>- 0.0 0</u>

43/63	<u>0.0 1 6 0</u>
44/64	<u>- 0.0 3 3</u>
45/65	<u>0.2 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>0.0 0 0</u>
48/68	<u>0</u>

FLT PLN-19a/103/O/A



PURPOSE:

FLT PLN-19b/103/O/A



(reduced copy)

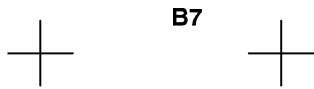


2/4	DAP B 0 6
30/50	<u>0.5 0 0 0</u>
31/51	- <u>3.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>.0 0 0</u>
35/55	ALL
36/56	ALL
37/57	<u>0.0 2</u>

38/58	<u>0.2 0 0</u>
39/59	ALL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	- <u>0.0 0</u>

43/63	<u>0.2 0 0 0</u>
44/64	- <u>1.0 0 0</u>
45/65	<u>.0 2 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>.0 0 0</u>
48/68	<u>3</u>

FLT PLN-20a/103/O/A

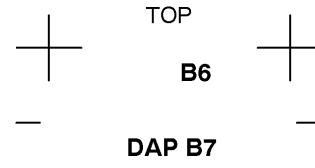


2/4	DAP B 0 7
30/50	<u>0.5 0 0 0</u>
31/51	- <u>2.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>.0 0 0</u>
35/55	ALL
36/56	ALL
37/57	<u>0.0 5</u>

38/58	<u>0.1 0 0</u>
39/59	ALL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>0.0 0</u>

43/63	<u>0.2 0 0 0</u>
44/64	- <u>1.0 0 0</u>
45/65	<u>.0 2 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>.0 0 0</u>
48/68	<u>0</u>

FLT PLN-21a/103/O/A



PURPOSE:
RNDZ

FLT PLN-20b/103/O/A



PURPOSE:
PROX OPS

FLT PLN-21b/103/O/A



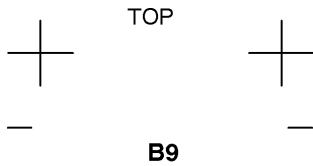
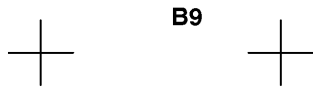


2/4 DAP B 0 8
 30/50 0.2 0 0 0
 31/51 - 2.0 0
 32/52 0.2 0
 33/53 0.0 4
 34/54 .0 0 0
 35/55 ALL
 36/56 ALL
 37/57 0.0 1

38/58 0.2 0 0
 39/59 ALL
 40/60 2
 41/61 0.0 8
 42/62 0.0 0

43/63 0.2 0 0 0
 44/64 - 1.0 0 0
 45/65 .0 2 0
 46/66 0.0 1 0
 47/67 .0 0 0
 48/68 0

FLT PLN-22a/103/O/A

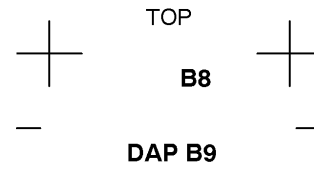


2/4 DAP B 0 9
 30/50 0.5 0 0 0
 31/51 - 2.0 0
 32/52 0.2 0
 33/53 0.0 4
 34/54 .0 0 0
 35/55 TAIL
 36/56 TAIL
 37/57 0.0 1

38/58 0.1 0 0
 39/59 TAIL
 40/60 2
 41/61 0.0 8
 42/62 7.5 0

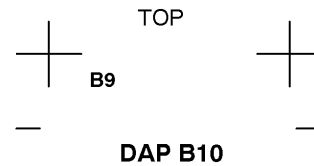
43/63 0.0 2 4 0
 44/64 - 0.5 0 0
 45/65 .0 3 0
 46/66 0.0 0 5
 47/67 .0 0 0
 48/68 4

FLT PLN-23a/103/O/A



PURPOSE:
 HST RELEASE

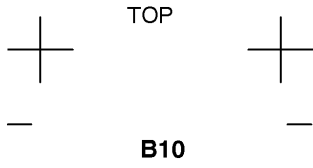
FLT PLN-22b/103/O/A



PURPOSE:
 NORMAL HST
 BERTHED

FLT PLN-23b/103/O/A



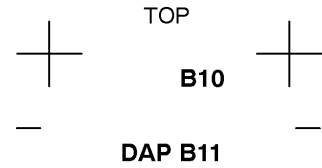
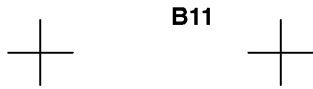


2/4	DAP B 1 0
30/50	<u>0.1 0 0 0</u>
31/51	<u>5.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 1</u>

38/58	<u>0.1 0 0</u>
39/59	TAIL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>1 2.3 0</u>

43/63	<u>0.2 0 0 0</u>
44/64	<u>- 3.0 0 0</u>
45/65	<u>.0 2 0</u>
46/66	<u>0.0 0 5</u>
47/67	<u>.0 0 0</u>
48/68	<u>4</u>

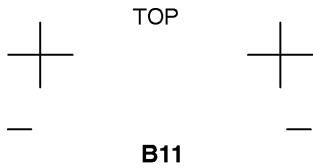
FLT PLN-24a/103/O/A



PURPOSE:

SLOW HST
BERTHED

FLT PLN-24b/103/O/A

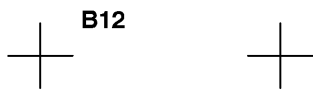


2/4	DAP B 1 1
30/50	<u>0.0 5 0 0</u>
31/51	<u>1 0.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 5</u>

38/58	<u>0.1 0 0</u>
39/59	TAIL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>1 2.3 0</u>

43/63	<u>0.0 1 6 0</u>
44/64	<u>- 1.0 0 0</u>
45/65	<u>.0 2 0</u>
46/66	<u>0.0 0 5</u>
47/67	<u>.0 0 0</u>
48/68	<u>4</u>

FLT PLN-25a/103/O/A



PURPOSE:

SLOW HST RMS

FLT PLN-25b/103/O/A



(reduced copy)



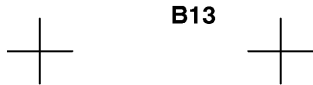
B12

2/4	DAP B 1 2
30/50	<u>0.0 5 0 0</u>
31/51	<u>5.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>.0 0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 5</u>

38/58	<u>0.1 0 0</u>
39/59	TAIL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>7.5 0</u>

43/63	<u>0.0 4 0 0</u>
44/64	<u>- 2.0 0 0</u>
45/65	<u>.0 5 0</u>
46/66	<u>0.0 0 5</u>
47/67	<u>.0 0 0</u>
48/68	<u>1</u>

FLT PLN-26a/103/O/A



B13



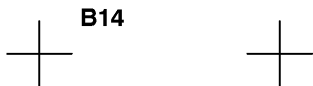
B13

2/4	DAP B 1 3
30/50	<u>0.0 5 0 0</u>
31/51	<u>2.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>.0 0 0</u>
35/55	ALL
36/56	ALL
37/57	<u>0.0 5</u>

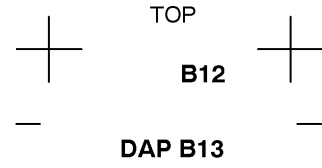
38/58	<u>0.1 0 0</u>
39/59	ALL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>0.0 0</u>

43/63	<u>0.0 5 0 0</u>
44/64	<u>- 1.0 0 0</u>
45/65	<u>.0 2 0</u>
46/66	<u>0.0 0 2</u>
47/67	<u>.0 0 0</u>
48/68	<u>0</u>

FLT PLN-27a/103/O/A



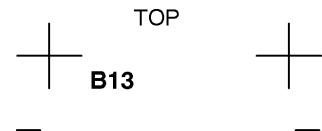
B14



DAP B13

PURPOSE:
RBAR CONFIG

FLT PLN-26b/103/O/A



DAP B14

PURPOSE:
VRCS REBOOST/
ORBIT CONJUNC

FLT PLN-27b/103/O/A



(reduced copy)



B14

2/4	DAP B 1 4
30/50	<u>0.1 0 0 0</u>
31/51	<u>5.0 0</u>
32/52	<u>0.2 0</u>
33/53	<u>0.0 4</u>
34/54	<u>0.0 0</u>
35/55	TAIL
36/56	TAIL
37/57	<u>0.0 1</u>
38/58	<u>0.1 0 0</u>
39/59	TAIL
40/60	<u>2</u>
41/61	<u>0.0 8</u>
42/62	<u>1 2.3 0</u>
43/63	<u>0.4 0 0 0</u>
44/64	<u>1.0 0</u>
45/65	<u>0.2 0</u>
46/66	<u>0.0 4 0</u>
47/67	<u>0.0 0</u>
48/68	<u>4</u>

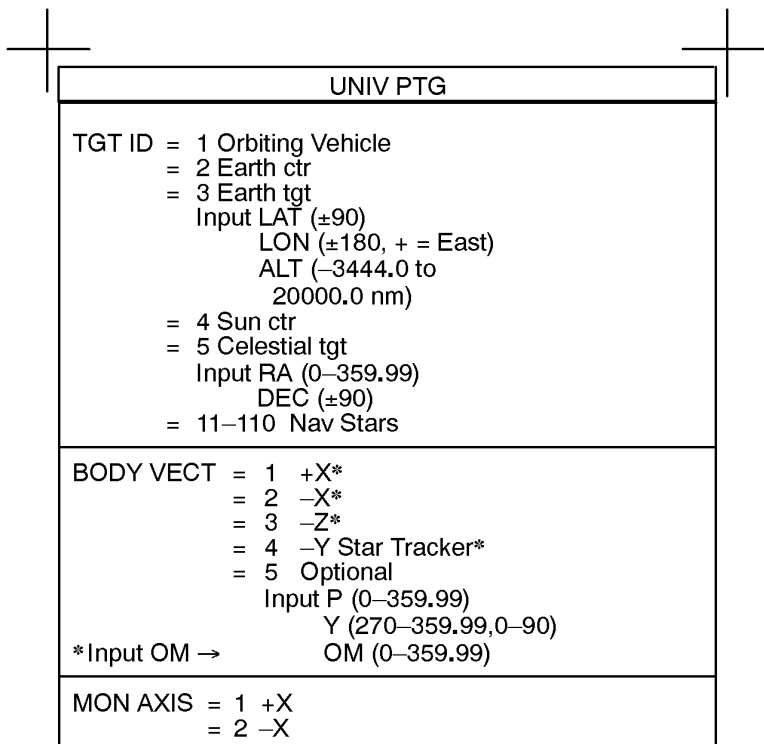
FLT PLN-28a/103/O/A



FLT PLN-28b/103/O/A



TOP



FLT PLN-29/103/O/A

FLT PLN-33/103/O/A is mounted on the back of the DAP Book

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FLIGHT PLAN

STS
103