

Flight Plan

STS-107

(STS-107 FRR Cycle Trajectory)

Mission Operations Directorate
Operations Division

Final
June 21, 2002

For the latest working copy of the Flight Plan, visit
<https://mod.jsc.nasa.gov/do4/flightplan/fp.cfm?id=107>

EVENT	MET	DATE	CDT	GMT
Launch	00/00:00	07/19/2002	08:35	13:35
OMS 2	00/00:43	07/19/2002	09:18	14:18
Simplex Burn	13/20:32	08/02/2002	05:07	10:07
Deorbit	15/21:13	08/04/2002	05:48	10:48
Landing	15/22:11	08/04/2002	06:46	11:46

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



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MISSION OPERATIONS DIRECTORATE


STS-107 FLIGHT PLAN

FINAL
June 21, 2002

PREPARED BY:

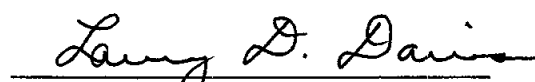



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FLIGHT PLAN
STS-107

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STS-107 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
STS-107 DAP A1 – A8 CONFIGURATIONS (FRONT TOP)	CC 7-2	FLT PLN-1a/107/O/A
STS-107 DAP B1 – B8 CONFIGURATIONS (FRONT BOTTOM)	CC 7-3	FLT PLN-1aa/107/O/A
STS-107 DAP A9 – A15 CONFIGURATIONS (BACK TOP)	CC 7-4	FLT PLN-1b/107/O/A
STS-107 DAP B9 – B15 CONFIGURATIONS (BACK BOTTOM)	CC 7-5	FLT PLN-1bb/107/O/B

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INTRODUCTION

The STS-107 Flight Plan is the Flight Data File article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. The detailed rendezvous and undocking timelines and procedures are contained in the Rendezvous Checklist. The detailed EVA task timelines and procedures are contained in the EVA Checklist.

This Flight Plan satisfies the mission requirements specified in the following documents:

- NSTS-07700 Vol III, Flight Definition and Requirements Document
- NSTS-17462-107, STS-107 Flight Requirements Document
- NSTS-37326, Shuttle Crew Scheduling Constraints

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

The STS-107 Flight Plan is based on a launch date of July 19, 2002 at 08:35 CDT. Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

The following SCSC Exceptions have been submitted in order to meet Category 1 objectives:

- 107-1 Payload activities in Pre and Postsleep timeframe
- 107-2 Entry day length exceeds 14 hr
- 107-3 Withdrawn
- 107-4 Postflight baseline data collection exceeds 4 hr

The Flight Plan and other related mission information are available on the following Space Shuttle Flight Planning web site:

<http://mod.jsc.nasa.gov/do4/flightplan/fp.cfm?id=107>

OVERVIEW TIMELINE

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STS-107 Final OV

	0/0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
R		PI			SHAB S/U			ARMS Reb																	ZCG autoclaves; BDS	
B		PI							BFD2						ARMS Reb & Musc;	Meidex c/o & ops;	Biopack;	STARS Act I;	Com2Plex I							
R		ARMS Musc;	MGM 1;	AST;	SOLSE c/o;	Biopack;	MPFE;	CIBX																	Phab-4; ARMS Pulm	
B									BFD3						Phab-4; ARMS Pulm;	FRESH;	MEIDEX									
R		MGM-2;	PAO event;	VCD-FE;	MEIDEX;	BDS-05;	MPFE																		Phab-4; LSP 2; BDS-05	
B								BFD4							Phab-4; LSP Setup;	LSP 1;	MEIDEX;	FRESH								
R		MGM 3;	LSP 3&4;	MPFE;	SOLSE Cal;	Simo Dump;	VCD-FE;	Biopack																	Phab-4; BDS-05	
B								BFD5							Phab-4; PAO Event;	LSP 5 & 6;	MEIDEX;	FRESH;								
R		LSP 7-9;	MPFE;	MGM 4;	AST;	VCD-FE;	SOLSE run 1;	MEIDEX																	Phab-4; BDS-05; VCD-FE	
B								BFD6							Solve Run 1;	LSP 11;	MGM 5;	BRIC;	MEIDEX;	FRESH						
R		MEIDEX;	LSP 12-14;	MGM 6;	MPFE;	SOLSE run 2;	AST																		OFF DUTY; waste dump; BDS-05	
B								BFD7							Solve run 2;	MEIDEX;	LSP 15;	FRESH;	OFF DUTY							
R		SOFBALL Setup;	AST;	MPFE;	VCD-FE																				BDS-05; ARMS Pulm & Musc	
B								BFD8							SOFBALL (2);	ARMS Pulm & Musc;	MEIDEX;	FRESH								
R		SOFBALL (2);	MPFE;	MEIDEX;	CIBX;	Biopack																			SOFBALL (2); Biopack; AST; BDS-05	
B								BFD9							SOFBALL (1);	ARMS Pulm & Musc;	SOLSE;	FRESH;	SHAB subsys inspection							
R		SOLSE;	STARS Act 2;	MEIDEX																					SOFBALL (2); BDS-05; MGM 8; MEIDEX	
B								BFD10							SOFBALL (1);	MGM 7;	Midlight reconfigs;	PAO Event;	MEIDEX							
R		MPFE;	MPFE GC;	Osteo Deact																					Biopack; SOFBALL (2)	
B								BFD11							MGM 9;	SOFBALL (2);	Simo dump;	FRESH;	MEIDEX;	Biopack						
R		MEIDEX;	ERISTO;	BDS-05																					Phab-4; MIST setup; BDS-05	
B								BFD12							Phab-4; SOFBALL (1);	FRESH;	SOFBALL shutdown;	SOLSE								
R		MEIDEX;	SOLSE;	MIST test 1&2;	MPFE deact;	CIBX																			Phab-4; OFF DUTY	
B								BFD13							Phab-4; OFF DUTY;	FRESH;	MEIDEX;	Biopack								
R		MIST;	BDS-05;	Simo dump																					Phab-4; Crew Conference; ARMS Pulm & Musc	
B								BFD14							Phab-4; MIST 11 & 12;	ARMS Pulm & Musc;	Biopack;	Crew Conference								
R		BDS-05;	Bkotube Act																						Phab-4; PILOT; BDS-05; SOLSE	
B								BFD15							Phab-4; MIST;	ARMS Pulm & Musc;	FRESH;	PILOT								
R		MIST 21 & 22;	SIMPLEX;	PAO event																					PILOT; D/O Briefing; FCS C/O; MEIDEX; Cabin Stow	
B								BFD16							Biopack;	ARMS teardown;	MIST shutdown;	MEIDEX;	FRESH;	PILOT;	FCS C/O;	D/O Briefing				
R		Biopack;	Cabin stow;	Phab-4 stow;	ZCG																				D/O Prep	
B								BFD17							SHAB teardown 1-3;	SOLSE deact;	FREESTAR deact;	Cabin Stow								TIG
																									Land 15/22:11	

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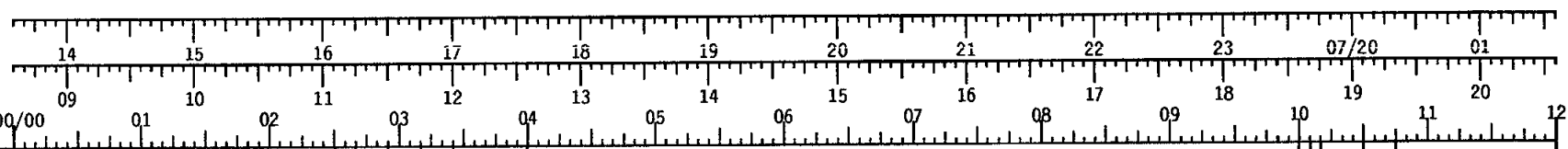
SUMMARY TIMELINE

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GMT 07/19/02

CT 07/19/02

MET Day 000



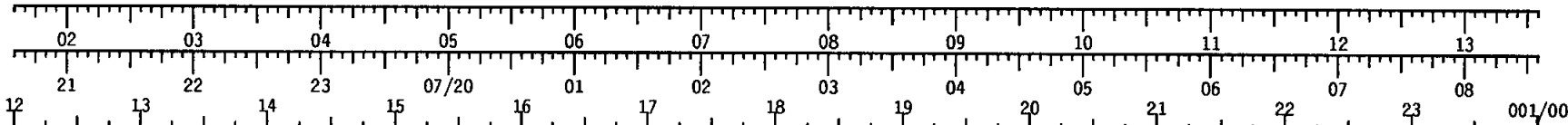
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	MS1 BROWN	POST INSERTION	FS ACT	R N L S U	F Z O S A U		PRE SLEEP	SLEEP (6:00)		SAL PE LS OAGL	PS OSET	HO AV NE DR	POST SLEEP
	MS3 ANDERSON	POST INSERTION	SEE S/U	R A S	F S L P S U		PRE SLEEP	SLEEP (6:00)		SAL PE LS OAGL	PS OSET	HO AV NE DR	POST SLEEP
MCC	KU3			OCA A/G PDIP		SMU		SMU		STAR	STAR	EXPK *A/G	STAR
	MAIL			R:U								B:U	
	DAY/NIGHT ORBIT	[Bar chart showing day/night cycle]											
	TDRS	[Bar chart showing TDRS activity]											
	ATTITUDE	-ZLV -XVV TRK TDRZ TDRZ -ZSI -ZLV -XVV (C2P HC)											
	SAA												
	CVX												
	MIST												
	SOLCON	-CAL -SUN -CAL-											
	SOLSE												
	LPT/MSTR	MLA TRK COM COMM											
	MEIDEX	#											
	STARNAV	-1-											
	NOTES	*CHECK HUMIDITY SEPARATORS											

BETA -17.38

GMT 07/20/02

CT 07/19/02

MET Day 000



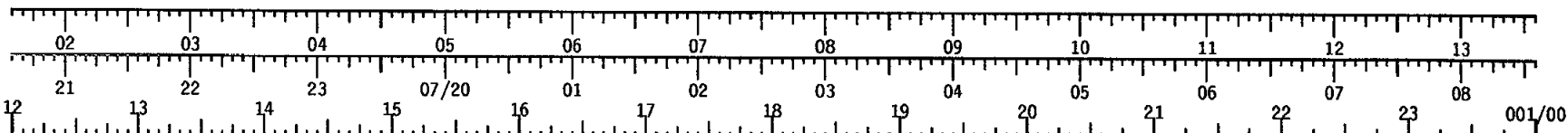
RED	CDR HUSBAND	SLEEP											POST SLEEP	AFT CO	CRYO 02 SNSR CK	EDOCK	WSB	EXERCISE			M-NZLV	F-ZLV	HES	THAND OVER
	MS2 CHAWLA	SLEEP											POST SLEEP	ZCG CLEAR AUTOCL OPS				ZCG CONFIG AUTOCL		HAND OVER				
	MS4 CLARK	SLEEP											POST SLEEP	BDS TRAY CONFIG	BDS MED SAMP & PCBA		BDS SAMP & FIX		HAND OVER					
	PS1 RAMON	SLEEP											POST SLEEP	MEIDEX OPS	PS H/A B 4	MEIDEX OPS		M X F R	B R L E D 1	HAND OVER				
MCC	KU3	SMU	SMU	STAR	MX	FAST	FAST	MAIL	FAST	FAST	SMU	EXPK	EXPK	MX	FAST	PLBK	MX	ZCG	ZCG	ZCG	SMU			
MAIL		R:D B:D																						
DAY/NIGHT ORBIT		9 10 11 12 13 14 15 16																						
TDRS		E W Z																						
ATTITUDE		-ZLV -XVV (C2P HC)										-ZLV -XVV (C2P 1)					BIAS -ZLV +YVV							
SAA		H H H																						
CVX		CVX CAL																						
MIST																								
SOLCON																								
SOLSE																								
LPT/MSTR																								
MEIDEX		M M M M																						
STARNAV																								
NOTES																								

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GMT 07/20/02

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MET Day 000



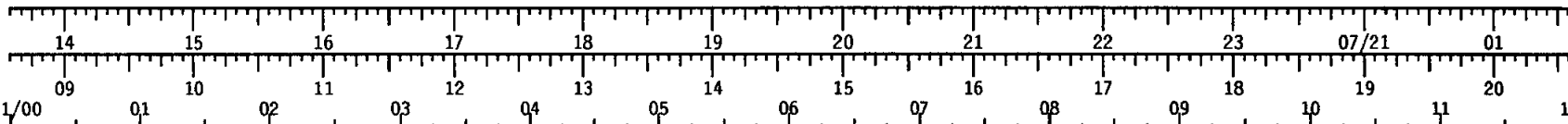
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	MS1 BROWN	SHAB SETUP IV	EORF ACT	ARMS ERGO S/U	ARMS MUSC 1A	MEIDEX OPS	MEAL	MEIDEX OPS	PHAB4 EQUIP S/U	EXERCISE	ARMS	BLUE MDDK STAT CK	PRE SLEEP	HAND OVER																	
	MS3 ANDERSON	ARMS REBREATH 1B	P/TV 10 S/U	MEIDEX CKOUT	ARMS	ARMS	MEAL	SATC TRS	CENT CNFG	PHAB4 EQUIP S/U	ARMS MUSC 1B	PRE SLEEP	HAND OVER																		
	MCC KU3	SMU	SMSTAR	MX	FAST	FAST	MAIL	FAST	SMU	EXPK	EXPK	EXPK	MX	FAST	PLBK	MX	ZCG	ZCG	ZCG	SMU											
MAIL																															
DAY/NIGHT																															
ORBIT																															
TDRS																															
ATTITUDE		-ZLV -XVV (C2P HC)										-ZLV -XVV (C2P 1)										BIAS -ZLV +VVV									
SAA																															
CVX																															
MIST																															
SOLCON																															
SOLSE																															
LPT/MSTR																															
MEIDEX																															
STARNAV																															
NOTES		*FAST ACT										*CHECK HUMIDITY SE																			

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GMT 07/20/02

CT 07/20/02

MET Day 001



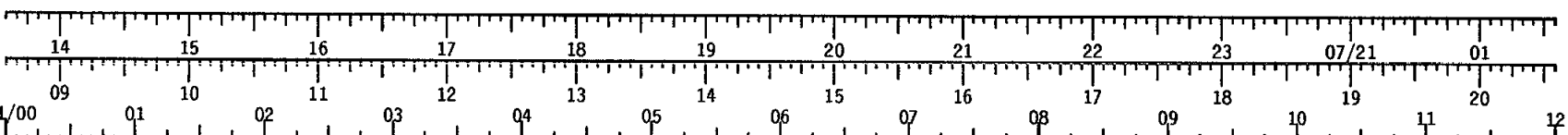
R E D	CDR HUSBAND	WPS PACT	FC MAN	FCMS	P/TV 11 S/U	SOLSE S/U	SOLSE MONITOR	SOLSE CLOSE OUT	IDLE	MEAL	GN IR GHT	FILTER CLEAN	PCBA CHECK OUT	PCBA CHECK OUT	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP
	MS2 CHAWLA	ZCG CONFIG AUTOCLAVE				ZH CE GAT	MGM S/U 1	MGM ACT 1	MEAL		BONES2	MGM DEACT 1	MOD STATUS CK RED	BDS MED SAMP & PCBA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP
	MS4 CLARK	BPH SOTO	BVD SDEO	ARMS	ARMS	AP STO 2	AST1 DNLOAD	FR AZ EVNA	MEAL	OF ST ED O2	CA ID BJ X	ARMS MUSC 1C		EXERCISE	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP
	PS1 RAMON	ARMS MUSC 1C				FR AZ EVNA	AST2 INIT	MEAL	AST2 CLOSEOUT	AP STO 2	MPFE CARD 1	ARMS	EXERCISE	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP	
	PS1 RAMON	ARMS MUSC 1C				FR AZ EVNA	AST2 INIT	MEAL	AST2 CLOSEOUT	AP STO 2	MPFE CARD 1	ARMS	EXERCISE	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP	
M C C	KU3	SMU	FAST	MAIL	STAR	MAIL	SMU	MGM		MGM	SMU	PLBK	CHC	EXPK	FAST	PMC	STAR	
MAIL		R:D				R:U				B:U								
DAY/NIGHT		ORBIT				ORBIT				ORBIT				ORBIT				
TDRS		E				W				Z								
ATTITUDE		-ZLV -XVV (C2P 1)																
SAA																		
CVX		CVX CAL																
MST																		
SOLCON																		
SOLSE		CKOUT																
LPT/MSTR		WRMUP				MSTRS				AMB MSTRS								
MEIDEX																		
STARNAV																		
NOTES		*START OF ZCG MICROGRAVITY																

BETA -16.87

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MET Day 001



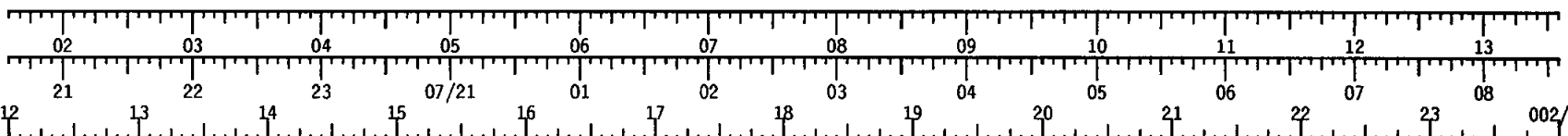
BLUE	PLT MCCOOL	* PRE SLEEP	SLEEP										POST SLEEP	HAND OVER	POST SLEEP	PCBA	CONTROL	FRZ BLD	POST SLEEP				
	MS1 BROWN	PRE SLEEP	SLEEP										POST SLEEP	FRZ S A L	HAND OVER	PREP	PHLEB	BLOOD	TRACR	CLNUP	POST SLEEP	FRZ S A L	PREP
	MS3 ANDERSON	PRE SLEEP	SLEEP										POST SLEEP	FRZ S A L	HAND OVER	PREP	BLOOD	PHLEB	TRACR	POST SLEEP	FRZ S A L	PREP	
MCC	KU3	SMU	FAST	MAIL	STAR	MAIL	SMU	MGM	MGM	SMU	PLBK	CHC	EXPK	FAST	PMC	STAR							
MAIL				R:D		R:U	B:D					B:U											
DAY/NIGHT ORBIT																							
TDRS	E W Z																						
ATTITUDE		-ZLV -XVW (C2P 1)																					
SAA																							
CVX		CVX CAL																					
MIST																							
SOLCON																							
SOLSE																							
LPT/MSTR		H	WRMUP																				
MEIDEX																							
STARNAV																							
NOTES		*CHECK HUMIDITY SEPARATORS																					

BETA -16.21

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MET Day 001



RED	CDR HUSBAND	SLEEP																			POST SLEEP	HOVAVNDR	PSOLSETP	MOPISDEX	SOLSCCK	MEIDEX OPS			MX XFR	FRISTO	CST						
	MS2 CHAWLA	SLEEP																			POST SLEEP	HOVAVNDR	POST SLEEP		VCD SETUP	ZCG	CNTRFRG	FRZBLD	BDS MED SAMP & PCBA								
	MS4 CLARK	SLEEP																			POST SLEEP	BLOOD	PHLEB	CLNUP	HOVAVNDR	FRZSACL	TRACR	POST SLEEP	FRZSACL	TISNFB	TIONFB	CLNUP	PSOLSETP	CNTRFRG	VCD ACT	FRZBLD	ZCG
	PS1 RAMON	SLEEP																			POST SLEEP	PREP	PHLEB	BLOOD	HOVAVNDR	FRZSACL	TRACR	POST SLEEP	FRZSACL	PREP	TIONFB	TIONFB	POST SLEEP	AST1 DNLOAD	PUCAB4		
MCC	KU3	SMU	FAST	MAIL	MAIL A/G	EXP MX	EXP MX	EXP MX	SMU	SMU MX	STAR	SMU MX	FAST																								
MAIL		R:D B:D B:U R:U																																			
DAY/NIGHT ORBIT		25 26 27 28 29 30 31 32 33																																			
TDRS		E W Z																																			
ATTITUDE		-ZLV -XVV (C2P 1)																																			
SAA		H																																			
CVX		CVX CAL																																			
MIST																																					
SOLCON																																					
SOLSE																																					
LPT/MSTR		AMB MSTRS																																			
MEIDEX		M M M M																																			
STARNAV																																					
NOTES																																					

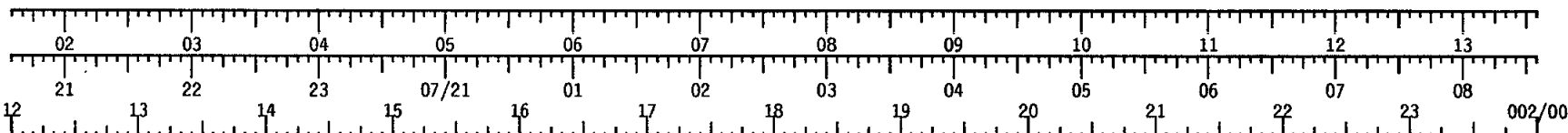
*EXERCI

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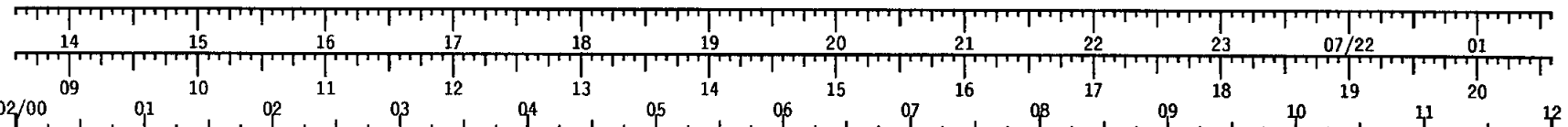
BLUE	PLT MCCOOL	POST SLEEP	CST	EXERCISE			MEAL	BLUE MOD STAT CK	MS/MEIDEX	MEIDEX OPS	ARMS	ARMS	PCBA	CHOLAVINE	FRZBLD	PRE SLEEP	PHLEB	PHLEB	PRE SLEEP			
	MS1 BROWN	TIRN	OTPR	ISNU	PSOL	BREAKFAST	FSA	FRESH AEM	ARMS PULM 1	MEAL	BLUE MDDK STAT CK	PUCAD B4	MEIDEX OPS	FSRA	CHOLAVINE	PRE SLEEP	TRN	BLOOD	TRN	FRZSAL	CLNUP	PRE SLEEP
	MS3 ANDERSON	TIRN	STUR	IOBA	CLNF	POST SLEEP	FRESH AEM CHECK	PUCAD B4	FSRA	MEAL	ARMS	ARMS	PUCAD B4	ARMS PULM 1	PUCAD B4	FSRA	CHOLAVINE	PRE SLEEP	TRN	FRZSAL	TRN	BLOOD
MCC	KU3		SMU		FAST	FAST	MAIL	MAIL		EXP	EXP	EXP	MX		SMU	SMUMX			STAR	SMU	MX	FAST
	MAIL						R:D	B:D														
	DAY/NIGHT ORBIT																					
	TDRS	E	W	Z																		
	ATTITUDE																					
	SAA																					
	CVX																					
	MIST																					
	SOLCON																					
	SOLSE																					
	LPT/MSTR																					
	MEIDEX																					
	STARNAV																					
	NOTES																					

BETA -15.40

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MET Day 002



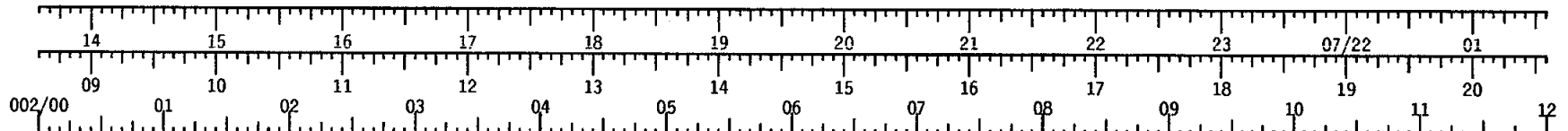
RED	CDR HUSBAND	EXERCISE	MS/IDEX	MNLVPR	M-NZLV	MOEISDEX	VPUON	MEAL	GNIRGHT	PSETTUP 2	PAO	PCBA CHECK OUT	UCBANGE	VSTRTUP	CHOICE	OUTIRAN	PREP	PHLEB	CLWUP	PRE SLEEP	PMCOCA	HAND OVER	PRE SLEEP	SLEEP	
	MS2 CHAWLA	BDS MED SAMP & PCBA	MGM S/U 2	MGM ACT 2				MEAL		PSETTUP 2	PAO	MGM DEACT 2	EXERCISE	VCHUDN	MDECK	ZCG	MOD STATUS CK RED	PRE SLEEP		HAND OVER	PRE SLEEP	SLEEP			
	MS4 CLARK	PHAB4 UCD	PDIIP	ARMS	FSROLZEVNA	ARMS		MEAL	OFSTED 3	ARMFR	PAO	PHAB4 UCD	ARMS PULM 1*			PRE SLEEP	TISRNFB	BTIOPL	PHLEB	CLWUP	HAND OVER*	PRE SLEEP	SLEEP		
	PS1 RAMON	REFRA	OUTILK	ARMS PULM 1*				MEAL	PUHAD 4	PAO	MPFE CARD 2	FSROLZEVNA	MPFECK	ARMS	ARMS	PRE SLEEP	TISRNFB	PTISRN	PHLEB	BLOOD	HAND OVER*	PRE SLEEP	SLEEP		
MCC	KU3	MAIL	MAIL	MX	MGM		FAST	STAR		PAO		SMU	CHC	EXPK					PMC		SMU				
MAIL		R:D	R:U		B:U								B:U												
DAY/NIGHT ORBIT		33		34		35		36		37		38		39		40		41							
TDRS		E		W		Z																			
ATTITUDE		-ZLV -XVV (C2P 1)		BIAS -ZLV -XVV																					
SAA																									
CVX																									
MIST																									
SOLCON																									
SOLSE																									
LPT/MSTR		M		WLP						MLA										AMB MSTRS					
MEIDEX				#		#																			
STARNAV																									
NOTES				*FROZEN SALIVA								*FROZEN SALIVA										*FROZEN SALIVA		*FROZEN SALIVA	

BETA -15.40

GMT 07/21/02

CT 07/21/02

MET Day 002



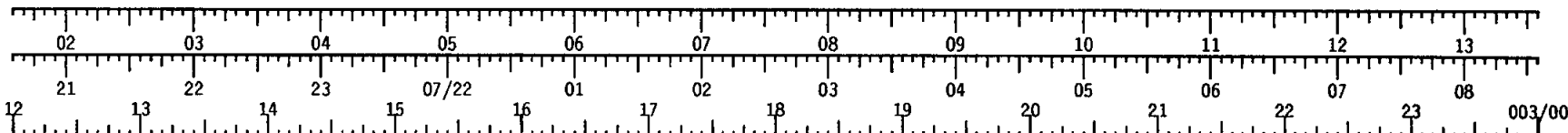
BLUE D04	PLT MCCOOL	SLEEP											PCBA	PSOLSEP	CMTRITG	FRZBLD	HAND OVER	CMTRITG	PSOLSEP	FRZBLD	POST SLEEP	CST	ACRLMSAN								
	MS1 BROWN	SLEEP											BLOOD	POST SLEEP	HAND OVER	POST SLEEP	LSP SETUP														
	MS3 ANDERSON	SLEEP											BLOOD	POST SLEEP	HAND OVER	POST SLEEP	EXERCISE														
MCC	KU3	MAIL	MAIL	MX	MGM	FAST	STAR	PAO		SMU	CHC	EXPK		PMC		SMU															
	MAIL	R:D	R:U	B:D								B:U																			
	DAY/NIGHT	[Shaded blocks indicating day/night cycles]																													
	ORBIT	33	34	35	36	37	38	39	40	41																					
	TDRS	E	W	Z	[Timeline bars for TDRS events]																										
	ATTITUDE	-ZLV -XVV (C2P 1)										BIAS -ZLV -XVV										-ZLV -XVV (C2P 1)									
	SAA																														
	CVX																														
	MIST																														
	SOLCON																														
	SOLSE																														
	LPT/MSTR	M	WLP																												
	MEIDEX																														
	STARNAV																														
	NOTES																														

BETA -14.45

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MET Day 002



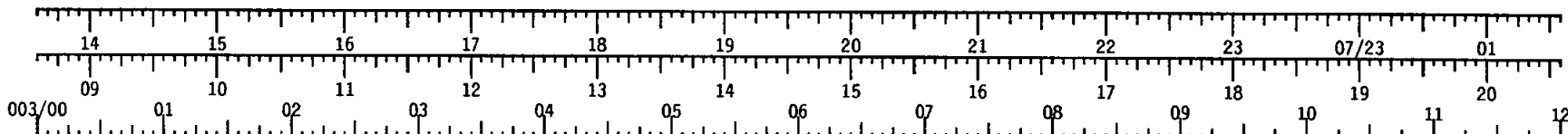
RED	CDR HUSBAND	SLEEP										SA LM PB LS OA GL	POST SLEEP	HAND OVER	PS OL SE TP	VS TE UP	MX PLAYBK	M- NZ LV RV	MO EP IS DE X	EXERCISE		
	MS2 CHAWLA	SLEEP										SA LM PB LS OA GL	POST SLEEP	HAND OVER	PS OL SE TP	M- NX LV RV	FL U SH	LSP 2	CP RG	LSP 2	MS PR ITE	CU ACT
	MS4 CLARK	SLEEP										SA LM PB LS OA GL	POST SLEEP	HAND OVER	POST SLEEP	BR CA RT LA C	Z PHAB4 UCD	BDS MED SAMP & PCBA	BDS SAMP & FIX			
	PS1 RAMON	SLEEP										SA LM PB LS OA GL	POST SLEEP	HAND OVER	MEIDEX OPS	PS OL SE TP	EXERCISE		PU HC AD B 4	MEIDEX SPRITE	M X F R	
M C C	KU3	MAIL	FAST	FAST	FAST	MAIL	LSP	SMU	MX	LSP	FAST	EXPK	SMU	MX	STAR	PL BK	LSP	SMU	MAIL			
MAIL		B:U			R:D B:D						R:U								R:D B:D			
DAY/NIGHT		[Day/Night Cycle]																				
ORBIT		[Orbit Cycle]																				
TDRS		[TDRS Cycle]																				
ATTITUDE		[Attitude Cycle]																				
SAA		[SAA Cycle]																				
CVX		[CVX Cycle]																				
MIST		[MIST Cycle]																				
SOLCON		[SOLCON Cycle]																				
SOLSE		[SOLSE Cycle]																				
LPT/MSTR		[LPT/MSTR Cycle]																				
MEIDEX		[MEIDEX Cycle]																				
STARNAV		[STARNAV Cycle]																				
NOTES		[Notes Area]																				

BETA -13.37

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CT 07/22/02

MET Day 003



RED	CDR HUSBAND	CST	MNVR TDRS COMM		MEAL	SOLSE S/U	MNVR -YLV	SCIENCE	MONITOR	MONITOR	SOLSE S/U	SCIENCE	MONITOR	SOLSE S/U	SOLSE CLOSE OUT	STEEROM	CIRNIT	IDLE	GMORRAN	CTERM	RSTADOW*	MNZLV	PSLEE	PSLEE	PSLEE	HAND OVER	PRE SLEEP	SLEEP
	MS2 CHAWLA			MNVR	FUT LD COMM	MEAL	GNIRGHT	VSTRTUP	MPLAYBK	CHOICCE	MGM S/U 3	MGM ACT 3			BONES5	RPAIR2			MOD STATUS CK RED	MNVR TDRS COMM	MGM DEACT 3	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP			
	MS4 CLARK	BDS SAMP & FIX	BVIDEO	BPHOTO	TRAYTEX	VSCAMPLE	MEAL	VSCAMPLENA	FSRALTIZEVNA	OFSTED04	PHAB4 UCD	CAIDBJX	CCDDP	VSCAMPLE	UCHUTANGE	VSCAMPLE	PHAB4 UCD	PREP	PHLEB	CLNUP	VCHUTDN	VCHGOUT	MRDECK	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP	
	PS1 RAMON	AST1 DNLOAD	LSP 3	FSRAOLZEVNA	LSP 3	MEAL		MPFE CARD 3					PUHAD4	BCRMBBA	BCR DATA DL	LSP 4	PUHAD4	LSP 4	PCBA CHECK OUT	PCBA		FRZBLD	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP		
MCC	KU3	MAIL	BDS	LSP	MAIL A/G	STAR	PLBK	CHOST	SMU	MGM	LSP								EXPK *A/G/FAST	PMC		PAO						
MAIL		R:D			R:U															B:U								
DAY/NIGHT ORBIT																												
TDRS		E																										
ATTITUDE																												
SAA																												
CVX																												
MIST																												
SOLCON																												
SOLSE																												
LPT/MSTR																												
MEIDEX																												
STARNAV																												
NOTES																												

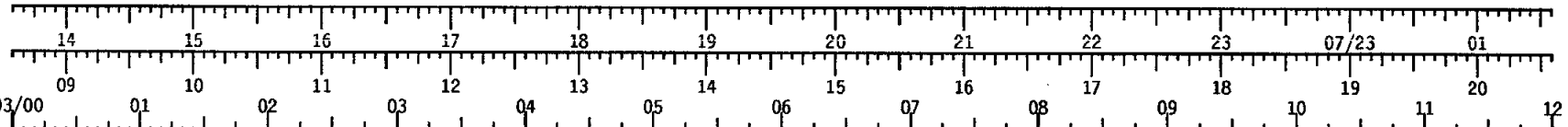
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MET Day 003



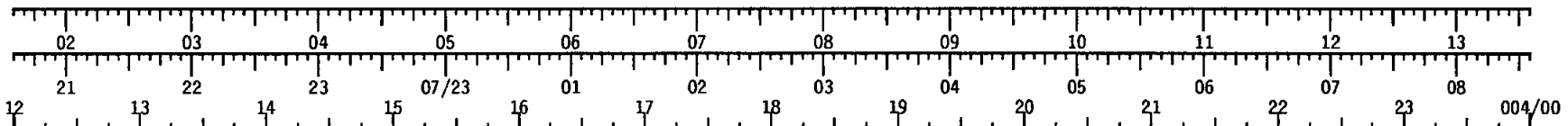
BLUE	PLT MCCOOL	SLEEP										POST SLEEP	PS/TT/VO/2	HAND OVER	PAO	EXERCISE	PUC/AD/B/4	MNVR -ZSI
	MS1 BROWN	SLEEP										POST SLEEP	HAND OVER	PAO	LSP 5			
	MS3 ANDERSON	SLEEP										POST SLEEP	HAND OVER	PAO	EXERCISE			
MCC	KU3	MAIL	BDS	LSP	MAIL A/G	STAR	PL BK	FAST	SMU	MGM	LSP	EXPK *A/G/FAST	PMC	PAO	LSP	SMU		
MAIL		R:D			R:U							B:U						
DAY/NIGHT		[Shaded bars indicating day/night cycle]																
ORBIT		[Timeline with markers 49, 50, 51, 52, 53, 54, 55, 56, 57]																
TDRS		[Timeline with markers E, W, Z]																
ATTITUDE		BIAS -ZLV -XVV, TDRZ, BIAS -YLV +ZVV, BIAS -ZLV +YVV, TDRE, BIAS +ZLV +YVV, -ZSI																
SAA																		
CVX		CVX CRIT PERIOD 1																
MIST																		
SOLCON																		
SOLSE		CAL2																
LPT/MSTR		COMM, WLP, COMM, AMB MSTRS, COMM, GPS NAV																
MEIDEX																		
STARNAV		-6- -7- -8- -9-																
NOTES																		

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RED	CDR HUSBAND	SLEEP										POST SLEEP	HAND OVER	MOE IS DEX	MNVR COMM	MNVR -ZSI	GN I RGH AHT	PUC HAD B 4	EXERCISE	
	MS2 CHAWLA	SLEEP										POST SLEEP	HAND OVER	EXERCISE			VST RT UP	MX PLAYBK	M+NZLV	MNVR -ZSI
	MS4 CLARK	SLEEP										POST SLEEP	HAND OVER	PS OL SET P	BDS MED SAMP & PCBA		BPK 9-1	VCD ACT	AST1 DNLOAD	
	PS1 RAMON	SLEEP										POST SLEEP	HAND OVER	PS OL SET P	ZCIG	LSP 7	FLSUSH	LSP 8		
MCC	KU3	CHC	SMU	MAIL	MAIL	LSP	FAST	LSP	MX	SMU	EXPK	STAR	FAST	LSP	PL BK	LSP	LSP			
	MAIL			R:D B:D	B:U						R:U									
	DAY/NIGHT ORBIT	57 58 59 60 61 62 63 64 65																		
	TDRS	E W Z																		
	ATTITUDE	-ZSI TDRE -ZSI TDRE TDRW TDRZ -ZLV+XVV +XLV+ZVV -ZLV +XVV TDRW -ZLV +XVV TDRW BIAS+ZLV -ZSI -ZSI																		
	SAA	H H																		
	CVX																			
	MIST																			
	SOLCON	SUN CAL SUN CAL																		
	SOLSE	SUN CAL SUN CAL																		
	LPT/MSTR	COMM COMM COMM COMM																		
	MEIDEX	CAL SPRT M M																		
	STARNAV	-10																		
	NOTES																			

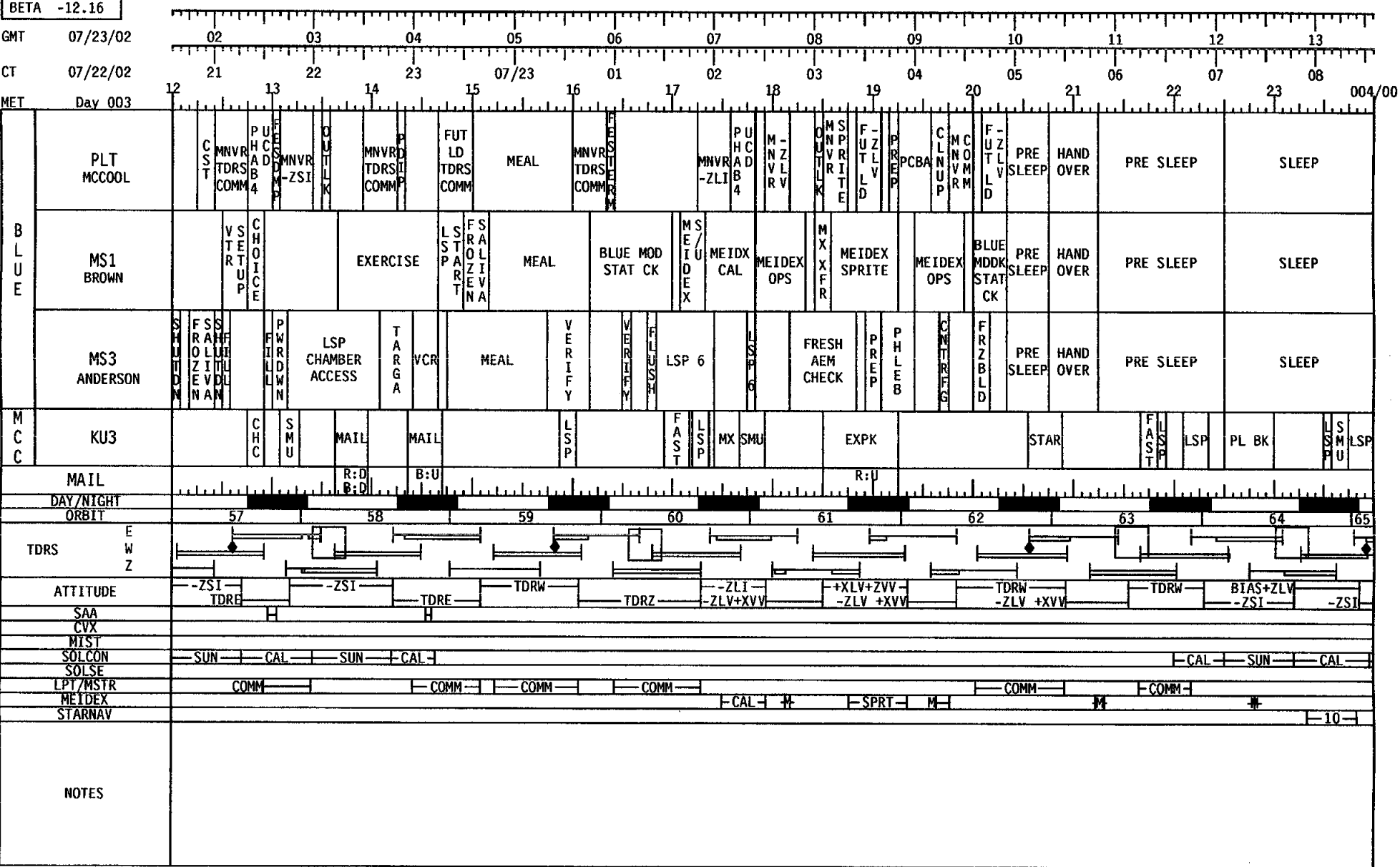
MGM S/

BETA -12.16

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MET Day 003

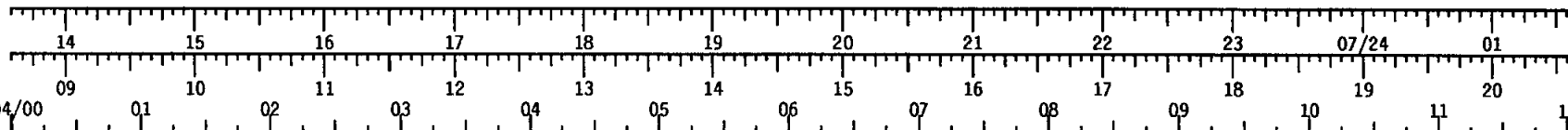


BETA -10.83

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MET Day 004



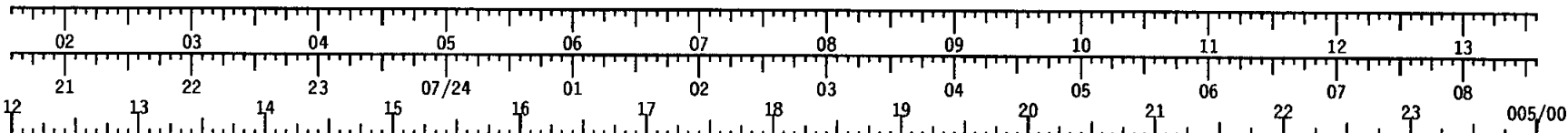
		004/00	01	02	03	04	05	06	07	08	09	10	11	12								
RED	CDR HUSBAND	CST	COM 1	MNVR TDRS COMM	MRS ANFF GET Y	M-NZLV	G-IORRAN	MSPRIT	PUCADIB4	MNVR WLP COMM	FTR LD TDRS COMM	MEAL	M-NZLV	SS/LSSE	MSNOVRSSE	SCIENCE	MONITOR	PRE SLEEP	PS RLEEP	HOMAVNEM DRR	PRE SLEEP	SLEEP
	MS2 CHAWLA	MGM S/U 4	MGM ACT 4	PHAB4UCD	MEAL	AI SN TJ 12	MGM DEACT 4	ASTRT 2	PHAB4UCD	FILTER CLEAN	LSP 10	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP							
	MS4 CLARK	EXERCISE	EXERCISE	MEAL	OF ESTE 05	MPFE CARD 4	MOD STATUS CK RED	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP											
	PS1 RAMON	EXERCISE	MEIDEX SPRITE	MEAL	LSP 9	PCBA CHECK OUT	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP												
MCC	KU3	MAIL	MAIL A/G	MGM	LSP	SMU	EXPK	LSP	FAST	PMCSMUSTAR												
MAIL		R:D	R:U			B:U																
DAY/NIGHT ORBIT		[Timeline bars for Day/Night and Orbit]																				
TDRS		[Timeline bars for TDRS]																				
ATTITUDE		[Timeline bars for Attitude: -ZSI, TDRW, -ZLV, +XLV+ZVV, -ZLV+XVV, TDRZ, BIAS-ZLV-XVV, BIAS -YLV +ZVV, -ZLV -XVV]																				
SAA		[Timeline bars for SAA]																				
CVX		[Timeline bars for CVX]																				
MIST		[Timeline bars for MIST]																				
SOLCON		[Timeline bars for SOLCON: SUN, CAL]																				
SOLSE		[Timeline bars for SOLSE]																				
LPT/MSTR		[Timeline bars for LPT/MSTR: COMM, DFRH, COMM, MLA, VIS]																				
MEIDEX		[Timeline bars for MEIDEX: A, SPRT, *]																				
STARNAV		[Timeline bars for STARNAV: -11-, -12-]																				
NOTES		[Empty space for notes]																				

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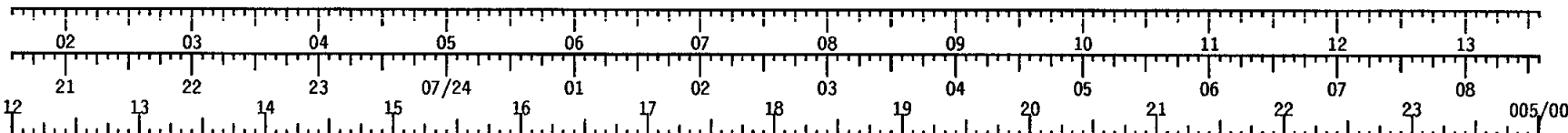
RED	CDR HUSBAND	SLEEP										SALM	POST SLEEP	HAND OVER	M-NZ	POST SLEEP	UCC	MNVR	MNVR	MNVR	M+NZ	PS	MNVR																																																																																																																						
	MS2 CHAWLA	SLEEP										SALM	POST SLEEP	HAND OVER	POST SLEEP	MEIDEX	OPS	ZCG	EXERCISE	VCD	ACT	CST	VCA	PS																																																																																																																					
	MS4 CLARK	SLEEP										SALM	POST SLEEP	HAND OVER	POST SLEEP	BDS	MED	SAMP	PCBA	BDS	SAMP	& FIX	BV	DIS	TRAY	WCD																																																																																																																			
	PS1 RAMON	SLEEP										SALM	POST SLEEP	HAND OVER	POST SLEEP	PHAB4	STOW	LSP	12	VS	TRT	UP	MX	PLAYBK																																																																																																																					
MCC	KU3	SMU	LSP	MAIL	MGM	MAIL	LSP	MX	EXPK	STAR	FAST	LSP	LSP	PL BK																																																																																																																															
MAIL		R:D		B:U		R:U																																																																																																																																							
DAY/NIGHT																																																																																																																																													
ORBIT		73										74										75										76										77										78										79										80										81																																																											
TDRS																																																																																																																																													
ATTITUDE		TDRE										-ZSI										TDRE										-ZSI										+XLV +ZVV										-ZLV +XVV										+XLV +ZVV										-ZLV +XVV										TDRW										-ZLV +XVV										TDRW										+ZLV -XVV										-ZSI										-ZSI									
SAA		H																																																																																																																																											
CVX																																																																																																																																													
MIST																																																																																																																																													
SOLCON		CAL										SUN										CAL										SUN										CAL										CAL										SUN										CAL										CAL										SUN										CAL										CAL																													
SOLSE																																																																																																																																													
LPT/MSTR		COMM										COMM										COMM										COMM										COMM										COMM										COMM										COMM										COMM										COMM										COMM										COMM																													
MEIDEX																																																																																																																																													
STARNAV																																																																																																																																													
NOTES																																																																																																																																													

BETA -9.39

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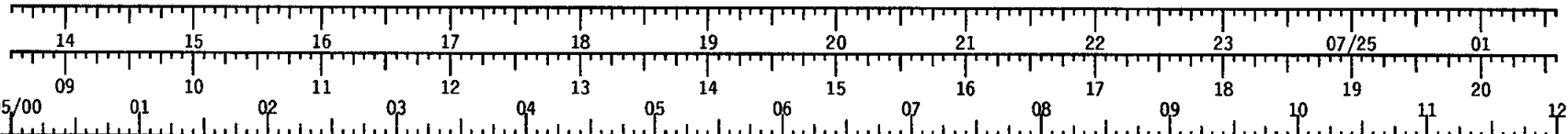
BLUE	PLT MCCOOL	MONITOR	MNVR TDRS COMM	FTR LD ZSI	SOLSE CLOSE OUT	IDLE	MCNOVM	FTR LD ZSI	MEAL	MNVR TDRS COMM	MSNVRRITE	EXERCISE	MZLV	FSTRITTE	PREP	PHLEB	MZLV	MNVR TDRS COMM	HAND OVER	PRE SLEEP	SLEEP
	MS1 BROWN	EXERCISE	VCR	LS	VERIF	FR	FR	MEAL	LSP 11	MS	MEIDEX	MEIDEX SPRITE	MEIDEX OPS	OM	MEIDEX SPRITE	MOP	MEIDEX	HAND OVER	PRE SLEEP	SLEEP	
	MS3 ANDERSON	FREIS	CS	MGM	MGM ACT 5	FR	FR	MEAL	FRESH AEM CHECK	MGM DEACT 5	BLUE MOD STAT CK	PCBA	FR	BLUE MDDK STAT CK	HAND OVER	PRE SLEEP	SLEEP				
MCC	KU3	SMU	LS	MAIL A/G	MGM	MAIL A/G	LSP	MX	EXPK	STAR	FAST	LSP	PL BK								
MAIL		R:D		B:U		R:U															
DAY/NIGHT ORBIT		73	74	75	76	77	78	79	80	81											
TDRS		[Timeline diagram showing TDRS activity across days 73-81]																			
ATTITUDE		[Timeline diagram showing attitude parameters: TDRE, -ZSI, +XLV +ZVV, -ZLV +XVV, TDRW, -ZLV +XVV, +ZLV -XVV, -ZSI, -ZSI]																			
SAA		[Timeline diagram showing SAA parameter]																			
CVX		[Timeline diagram showing CVX parameter]																			
MIST		[Timeline diagram showing MIST parameter]																			
SOLCON		[Timeline diagram showing SOLCON parameter: CAL, SUN, CAL, SUN, CAL]																			
SOLSE		[Timeline diagram showing SOLSE parameter: CAL, SUN, CAL]																			
LPT/MSTR		[Timeline diagram showing LPT/MSTR parameter: COMM, COMM, COMM]																			
MEIDEX		[Timeline diagram showing MEIDEX parameter: SPRT, SPRT, IM]																			
STARNAV		[Timeline diagram showing STARNAV parameter: -13, -14]																			
NOTES		[Empty notes section]																			

BETA -7.84

GMT 07/24/02

CT 07/24/02

MET Day 005



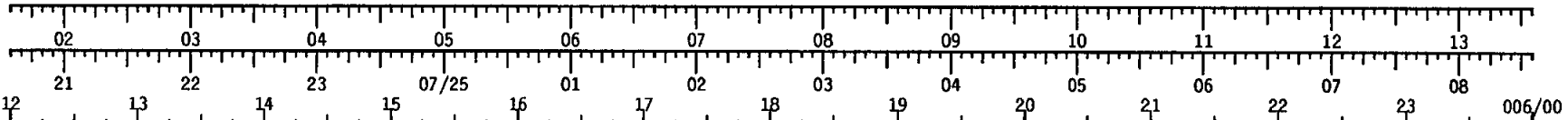
BLUE	PLT MCCOOL	SLEEP										SA LM PB LS CA GL	POST SLEEP	HAND OVER	S O M N Z L C V L R V	S O C I E T Y	MONITOR	F U T L I D	SOLSE CLOSE OUT	I D L E	M N V R I T E	S O P A	M N Z L R V																																																																			
	MS1 BROWN	SLEEP										SA LM PB LS CA GL	POST SLEEP	HAND OVER	EXERCISE		M S E U I D E X	MEIDX CAL	MNVR TDRS COMM	V E R T I C E	C H O I C E	MEIDX SPRITE	M X X F R																																																																			
	MS3 ANDERSON	SLEEP										SA LM PB LS CA GL	POST SLEEP	HAND OVER	FRESH AEM CHECK	EXERCISE					LSP 15	LSP 15																																																																				
MCC	KU3	PAO	MAIL A/G	M A I L	F A S T	SMU	L S P	M G M	S T A R	L S P S T A R	EXPK	PMC	MAIL	MX	F A S T	L S P	C H C																																																																									
MAIL		R:D	BED	R:U											B:U											R:D																																																																
DAY/NIGHT		[Timeline bars for Day/Night]																																																																																								
ORBIT		81											82											83											84											85											86											87											88											89
TDRS		E W Z	[Timeline bars for TDRS]																																																																																							
ATTITUDE		-ZSI	-TDRZ	-ZLV +XVV											BIAS -YLV +ZVV											-ZLV -XVV	-ZLI	TDRW	-ZLV -XVV	-XLV																																																												
SAA																																																																																										
CVX																																																																																										
MIST																																																																																										
SOLCON		SUN	CAL																																																																																							
SOLSE																																																																																										
LPT/MSTR																																																																																										
MEIDEX		COMM																		COMM																																																																						
STARNAV																																																																																										
NOTES																																																																																										

BETA -6.20

GMT 07/25/02

CT 07/24/02

MET Day 005



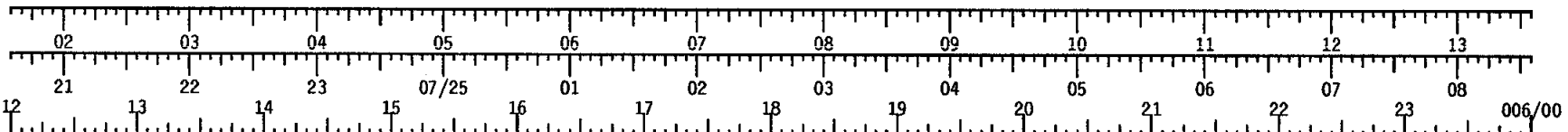
RED	CDR HUSBAND	SLEEP												SA LM PB US QA GL	POST SLEEP	HAND OVER	OFF DUTY					PFC	OFF DUTY
	MS2 CHAWLA	SLEEP												SA LM PB US QA GL	POST SLEEP	HAND OVER	OFF DUTY	PFC	OFF DUTY				
	MS4 CLARK	SLEEP												SA LM PB US QA GL	POST SLEEP	HAND OVER	OFF DUTY					PFC	OFF DUTY
	PS1 RAMON	SLEEP												SA LM PB US QA GL	POST SLEEP	HAND OVER	OFF DUTY					PFC	OFF DUTY
MCC	KU3	SMU	PFC	SMU	FAST	PFC	EXPK	PFC	MX	PFC	STAR	MX	STAR	PFC	CA	PFC	PFC						
MAIL		R:U																					
DAY/NIGHT ORBIT		89 90 91 92 93 94 95 96 97																					
TDRS		E W Z [Timeline with TDRS events]																					
ATTITUDE		--ZLV -XVV [Timeline with attitude events]																					
SAA		[Timeline with SAA events]																					
CVX		CVX CRIT PERIOD 2																					
MIST		[Timeline with MIST events]																					
SOLCON		[Timeline with SOLCON events]																					
SOLSE		[Timeline with SOLSE events]																					
LPT/MSTR		WRMUP [Timeline with LPT/MSTR events]																					
MEIDEX		MSTRS [Timeline with MEIDEX events]																					
STARNAV		[Timeline with STARNAV events]																					
NOTES		[Notes section]																					

BETA -6.20

GMT 07/25/02

CT 07/24/02

MET Day 005



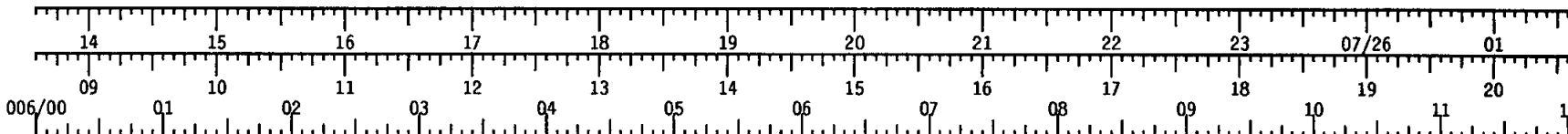
BLUE	PLT MCCOOL	CST	PFC	BLUE MDDK STAT CK	M-NZLV	PLRCDR	MEAL	OFF DUTY	OFF DUTY	M-NZLV	HAND OVER	PRE SLEEP	SLEEP							
	MS1 BROWN			BLUE MOD STAT CK		FSROLZEVNA	MEAL	OFF DUTY	OFF DUTY	PFC	HAND OVER	PRE SLEEP	SLEEP							
	MS3 ANDERSON	SHLTDN	SHUTLN	FILL	PFRDLN	FSROLZEVNA	MEAL	OFF DUTY	PFC	OFF DUTY	HAND OVER	PRE SLEEP	SLEEP							
MCC	KU3	SMU	PFC		SMU		FAST	PFC		EXPK	PFCMX	PFC	STAR MX	STAR	PFC	CO	PFC	PFC	PFC	
MAIL																				
DAY/NIGHT ORBIT		[Shaded bars indicating day/night cycle]																		
TDRS		[Timeline with E, W, Z markers and horizontal bars]																		
ATTITUDE		-ZLV -XVV																		
SAA		[Timeline with horizontal bars]																		
CVX		CVX CRIT PERIOD 2																		
MST																				
SOLCON																				
SOLSE																				
LPT/MSTR		WRMUP																		
METDEX		MSTRS																		
STARNAV		M M # MLAH																		
NOTES																				

BETA -4.46

GMT 07/25/02

CT 07/25/02

MET Day 006



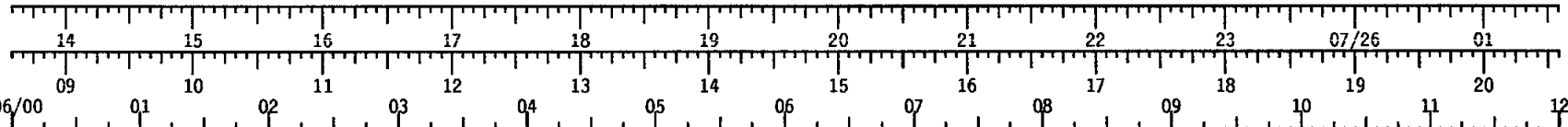
R E D	CDR HUSBAND	OFF DUTY	MEAL	M D O T S I N I R A H T	G N I R A H T		S T I E M R C O M	C I W N I T	V S T R T U P	M P L A Y B K	C T W E N C R M	M + Z V L M R V		G M O R R A N	M R E D D C K	EXERCISE	H A N D O V E R	P M C D O C A	PRE SLEEP	SLEEP		
	MS2 CHAWLA	OFF DUTY	MEAL	M N A V S R T E	D U T L K		T A R G A	L S P D E I N T G R	S B E M S I N T	S B C / O	L K C K			EXERCISE	M O D S T A T U S C K R E D	H A N D O V E R		PRE SLEEP	SLEEP			
	MS4 CLARK	OFF DUTY	MEAL	F S R A O L Z I E V N A	V C D A C T	F R E I S T O	B D S M E D S A M P & P C B A	O F S E T E D O 7	V S C A D M P L E	A S T 1 D N L O A D	A S T 1 V D I N J 1	V S C A D M P L E		V S C A D M P L E	A S T 1 V D R T 1	V S C A D M P L E	H A N D O V E R		PRE SLEEP	SLEEP		
	PS1 RAMON	OFF DUTY	MEAL	F S R A O L Z I E V N A	C S T		Z C G	EXERCISE		S B E M S	M P F E C A R D 6			S B L E A K C K	S B L E A K C H E C K	H A N D O V E R		PRE SLEEP	SLEEP			
M C C	KU3	P F C	M X	S M U	FAST	M X	F A S T	F A S T	M A I L		P L B K	S M U	E X P K * A / G	S T A R	F A S T	S T A R		S T A R	P M C		S T A R	S M U
MAIL							R:D						R:U									
DAY/NIGHT ORBIT																						
TDRS		E	W	Z																		
ATTITUDE																						
SAA																						
CVX																						
MIST																						
SOLCON																						
SOLSE																						
LPT/MSTR																						
METDEX																						
STARNAV																						
NOTES																						

BETA -4.46

GMT 07/25/02

CT 07/25/02

MET Day 006



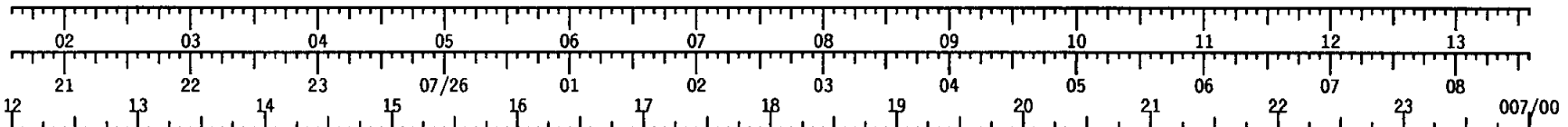
BLUE	PLT MCCOOL	SLEEP										BLUES	POST SLEEP	HAND OVER		MNVR GG	SOL SCK		ARMS		ARMS	MNVR TDRS COMM	MNVR -ZSI	
	MS1 BROWN	SLEEP										BLUES	POST SLEEP	HAND OVER	BREAK	SB PRETEST	ARMS PULM 2	FRASOLIEVA		ARMS PULM 2				
	MS3 ANDERSON	SLEEP										BLUES	POST SLEEP	HAND OVER	ARRACH	SFSV S	MOLDU		SOFBALL 14A			EXER CISE		
MCC	KU3	PF	MX	SMU	FAST	MX	FASST	FASST	MAIL		PLBK	SMU	EXPK *A/G	STAR	FAST	STAR		STAR	PMC		STAR		SMU	
MAIL		R:D B: D																						
DAY/NIGHT ORBIT		R:U B:U																						
TDRS		97	98	99	100	101	102	103	104	105														
ATTITUDE		-ZLV -XVV				BIAS -ZLV +YVV								BIAS +ZLV +YVV				FREE DRIFT						
SAA																								
CVX		CVX CRIT PERIOD 2																						
MIST																								
SOLCON																								
SOLSE		-CAL-																						
LPT/MSTR		AMB MSTRS								GPS NAV								COMM						
METDEX		-15- -16- -17- -18-																						
STARNAV																								
NOTES																								

BETA -2.64

GMT 07/26/02

CT 07/25/02

MET Day 006



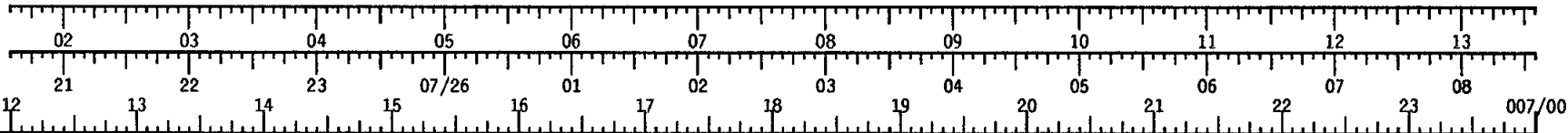
RED	CDR HUSBAND	SLEEP										SALM FBLS OAGL	POST SLEEP	HAND OVER	MMEI VIDE EX	PSO SETE	MSPR IRITE	MSE IRI DITE	M-NZ VLRV	FES LDMP	MNVR GG	BRLE D2	MS E/UX	FS TRLD	SP TRILK	BRIC INHIB	MEI DEX	SPR ITE	MRS PNA DRI GET Y																																																			
	MS2 CHAWLA	SLEEP										RED	SALM FBLS OAGL	POST SLEEP	HAND OVER	MEI DEX OPS	PSO SETE	SB PRETEST	VCR	SOFBALL 03A										VCD ACT	SC POST																																																	
	MS4 CLARK	SLEEP										FD08	SALM FBLS OAGL	POST SLEEP	HAND OVER	PSO SETE	BDS MED SAMP & PCBA	BDS SAMP & FIX	ARMS	BV DSD EO	TRAY	ARMS	EXER CISE																																																									
	PS1 RAMON	SLEEP										SALM FBLS OAGL	POST SLEEP	BR ES AT K	PSO SETE	ARMS PULM 2	ARMS PULM 2					ARMS PULM 2																																																										
MCC	KU3	MAIL	MAIL	SMU	MX	FAST	SMU	EXPK	EXPK	MX	STAR	FAST	MX	SMU	BDS	MAIL	MAIL																																																															
MAIL	R:D	B:U											R:U											R:D	R:U																																																							
DAY/NIGHT	ORBIT										ORBIT										ORBIT																																																											
TDRS	E W Z										E W Z										E W Z																																																											
ATTITUDE	-ZSI										-ZSI										-ZSI																																																											
SAA	-TDRE										-ZLI										BIAS -XLV -YVV										TORW										BIAS +XLV										-ZLV										BIAS -XLV -YVV										TDRW									
CVX	H										FREE DRIFT										-ZLV-XVV										-ZLV+XVV										-ZLV										FREE DRIFT										-XLV																			
MIST																																																																																
SOLCON	-SUN										-CAL										-SUN										-CAL																																																	
LPT/MSTR	COMM																														COMM										WLP										DFR																													
MEIDEX											-CAL																														SPRT										SPRT																													
STARNAV																																									19																																							
NOTES																																																																																

BETA -2.64

GMT 07/26/02

CT 07/25/02

MET Day 006



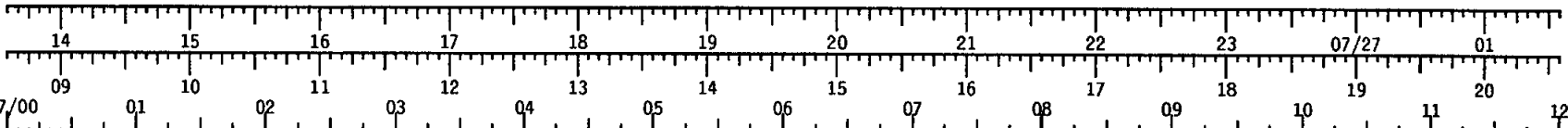
BLUE	PLT MCCOOL	PLT	MNVR TDRS COMM	MNVR -ZSI	MEAL	MS/MEIDEX	MEIDEX CAL	MX XFR	MNVR GG	SOFA	BLUE MDDK STAT CK	BLUE MOD STAT CK	BOUNTY	MNVR	MS/MEIDEX	FTDRS	EXERCISE	HAND OVER	PRE SLEEP	SLEEP	
	MS1 BROWN	ARMS PULM 2	MEAL	MNVR -ZLI	FRESH AEM CHECK	ARM PWR	FRESH AEM H2O REFILL	FREE DRIFT	ARMS MUSC 1B	HAND OVER	PRE SLEEP	SLEEP									
	MS3 ANDERSON	EXERCISE	MEAL	SB 2 BOTTLE VCR FILL	SOFBALL 02A	ARMS	SOFA	ARMS	HAND OVER	PRE SLEEP	SLEEP										
MCC	KU3	MAIL	MAIL	SMU	MX	FAST	SMU	EXPK	EXPK	MX	STAR	FAST	MX	SMU	BD	MAIL	MAIL				
	MAIL	R:D B:D	B:D					R:U								R:D B:D	R:U				
	DAY/NIGHT																				
	ORBIT	105	106	107	108	109	110	111	112	113											
	TDRS	E	W	Z																	
	ATTITUDE	-ZSI	TDRE	-ZSI	-ZLI	BIAS -XLV -YVV	FREE DRIFT	-ZLV -XVV	TDRW	BIAS +XLV	-ZLV	BIAS -XLV -YVV	FREE DRIFT	TDRW	-XLV						
	SAA		H																		
	CVX																				
	MIST																				
	SOLCON	SUN	CAL	SUN	CAL																
	SOLSE																				
	LPT/MSTR	COMM							COMM		WLP										DFR
	MEIDEX				CAL											SPRT					SPRT
	STARNAV															19					
	NOTES																				

BETA -0.74

GMT 07/26/02

CT 07/26/02

MET Day 007



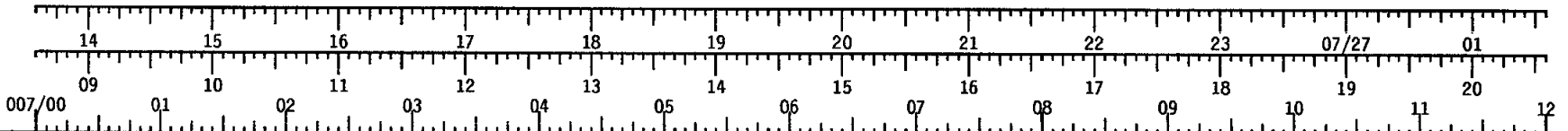
RED	CDR HUSBAND	MNERV RDI EX3	MB FND RVS	FTZ RLV	MEAL	MS NVR RTE	GN I R A	FE E S T E R M	MN V R G	MX X F R	OF S E D O	FILTER CLEAN	SO C R E M	M Z V L R V	G M I O R R I A	BR R F I X A	EXERCISE	PM C A O C A	HAND O V E R	PRE S L E E P	SLEEP						
	MS2 CHAWLA	SO R C O A	MO E P I S D E X	MEAL	SB P R E T E S T	VCR	SOFBALL 08A				V S C A M P L E	SO C R E M	V C D D E A C T	EXERCISE	HAND O V E R	PRE S L E E P	SLEEP										
	MS4 CLARK	EC X I E S E R	FS R A O L I Z E V A	MEAL	M P F E G C	MP F E C A R D 7	V S C A M P L E	M P F E C K	AST 1 D N L O A D	C A I D B J X	V S C A M P L E	C O M P L E X	A R M S	A R M S	A R M S	MOD S T A T U S C K R E D	M R E D D C K	C O N C T 4	A R M O V E R	PRE S L E E P	SLEEP						
	PS1 RAMON	A R M S P U L M 2	MEAL	M E I D E X O P S	M E I D E X S P R I T E	A R M O V E R	F S R A O L I Z E V A	A R M S M U S C 1 B				S B P R E T E S T	V C R	HAND O V E R	PRE S L E E P	SLEEP											
MCC	KU3	MX				MX						EXPK	FAST				PMO	STAR	SMU		FASTMAIL	PL B K		MAIL	C H C	SMU	
	MAIL											B:U															
	DAY/NIGHT																										
	ORBIT																										
	TDRS	E W Z																									
	ATTITUDE																										
	SAA																										
	CVX																										
	MIST																										
	SOLCON																										
	SOLSE																										
	LPT/MSTR																										
	MEIDEX																										
	STARNAV																										
	NOTES																										

BETA -0.74

GMT 07/26/02

CT 07/26/02

MET Day 007



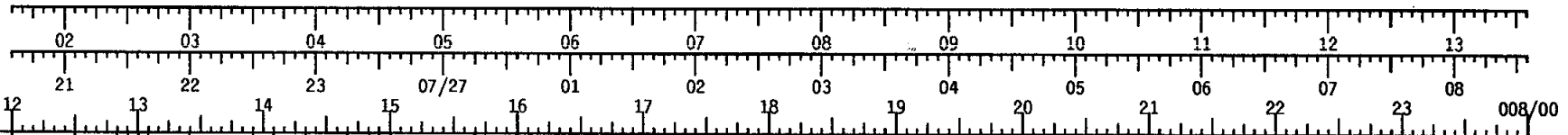
BLUE	PLT MCCOOL	SLEEP										05:00	POST SLEEP	HAND OVER	MNVR GG	09:00	VSTU	SOE	TRTU	ULPK	ARMS	MX PLBK	FTR LD TDRS	ARMS	PDIIP	VSTU	CHOICE	FTR LD -ZSI	MEAL																																																																								
	MS1 BROWN	SLEEP										05:00	POST SLEEP	HAND OVER	SOFBALL 05A										11:00	FRAO	ZI	EVNA	MEAL																																																																								
	MS3 ANDERSON	SLEEP										05:00	POST SLEEP	BR	RES	ATK	HAND OVER	ARMS PULM 2	ARMS PULM 2										11:00	FRAO	ZI	EVNA	ARMS PULM 2																																																																				
MCC	KU3	MX	MX	EXPK	FAST	B:U	PMC	STAR	SMU	FASTMAIL	PL BK	MAIL	CHC	SMU																																																																																							
MAIL		B:U										R:D										B:U																																																																															
DAY/NIGHT		DAY										NIGHT										DAY																																																																															
ORBIT		113										114										115										116										117										118										119										120										121																			
TDRS		E										W										Z																																																																															
ATTITUDE		TDRZ										-ZLV										+XLV										BIAS -XLV -YVV										FREE DRIFT										BIAS +ZLV +YVV										BIAS -XLV +YVV										FREE DRIFT										-ZSI										TDRE									
SAA		H										H										H										H										H										H										H																																							
CVX		H										H										H										H										H										H										H																																							
MIST		H										H										H										H										H										H										H																																							
SOLCON		H										H										H										H										H										H										H																																							
SOLSE		H										H										H										H										H										H										H																																							
LPT/MSTR		COMM										WLF										GPS NAV										COMM																																																																					
MEIDEX		IAPI										IAI										SPRT																																																																															
STARNAV		-20-										-21-										-22-																																																																															
NOTES																																																																																																					

BETA 1.23

GMT 07/27/02

CT 07/26/02

MET Day 007



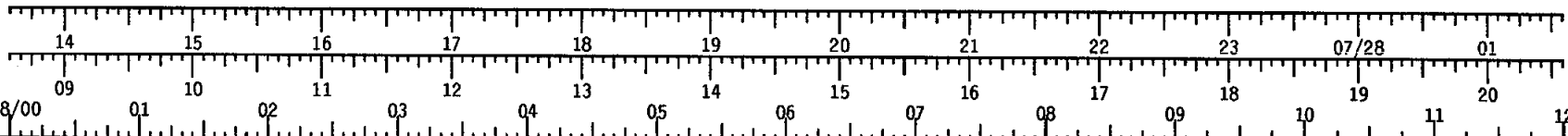
BLUE	PLT MCCOOL	MEAL	MNVR TDRS COMM	FRESH A-ZSI	SHAB SUB SYS INSPCT	SOLSE	MSNOVRS	SCIENCE	MNVR	MONITOR	SOLSE CLOSE OUT	MNVR IDLE	MEIDEX	MEIDEX OPS	M+NXLV	HAND OVER	PRE SLEEP	SLEEP			
	MS1 BROWN	MEAL	SBO SA	CST	FTR LD TDRS	EXERCISE	PWR DN	TARGA	SPWRUP	MNVR TDRS COMM	SB PRETEST	VCR	ARMS	ARMS	ARMS	HAND OVER	PRE SLEEP	SLEEP			
	MS3 ANDERSON	MEAL			FRESH AEM CHECK	BLUE MOD STAT CK	ARMPWR			BLUE MDDK STAT CK			ARMS MUSC 1B		HAND OVER	PRE SLEEP	SLEEP				
MCC	KU3	SMU							STAR	SMU		EXPK			FAST	FAST	PLBK	MAIL	MAIL	FAST	
	MAIL											R:U									R:U
	DAY/NIGHT																				
	ORBIT	121	122	123	124	125	126	127	128	129											
	TDRS	E	W	Z																	
	ATTITUDE	-ZSI	-ZSI	BIAS-YLV+XVV	-ZLV+XVV	BIAS+XLV+ZVV	-ZLV	FREE DRIFT	BIAS-ZLV	BIAS-YLV											
	SAA																				
	CVX																				
	MIST																				
	SOLCON	SUN	CAL	SUN	CAL																
	SOLSE																				
	LPT/MSTR		COMM	COMM	COMM																
	MEIDEX																				
	STARNAV																				
	NOTES	*ARMS PULM 2																			

BETA 3.26

GMT 07/27/02

CT 07/27/02

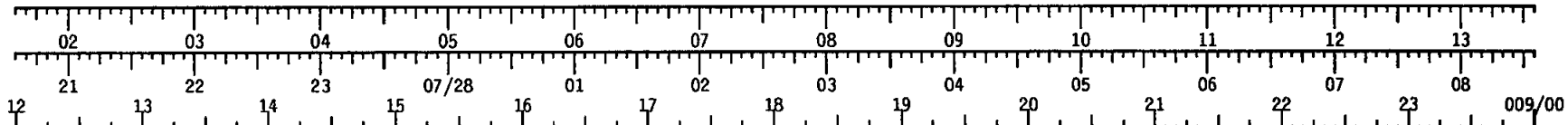
MET Day 008



BLUE	PLT MCCOOL	SLEEP				BLU	POST SLEEP	HAND OVER	EXERCISE	MNVR GG	FLIGHT	SOL SCK	WCS COMP	RCTR	HTR	PCT	CTAEMIPN	LIQH CHANGE OUT	FDIP	FTR LD	CST
	MS1 BROWN	SLEEP				E	POST SLEEP	HAND OVER	SOFBALL 06A												
	MS3 ANDERSON	SLEEP				D	POST SLEEP	HAND OVER	SB PRE TEST	VCR	MGM S/U 7		MGM ACT 7		FRESH AEM CHECK						
MCC	KU3	FAST	SMU	EXPK	STAR	PMC	STAR	MAIL	FAST	STAR	MGM	SMU	MAIL								
MAIL						B:U					R:D	B:D					B:U				
DAY/NIGHT		[Day/Night Cycle]																			
ORBIT		129 130 131 132 133 134 135 136 137																			
TDRS		[TDRS Activity]																			
ATTITUDE		-BIAS -YLV - FREE DRIFT - BIAS -XLV -YVV - BIAS +ZLV +YVV - FREE DRIFT - BIAS -XLV -YVV																			
SAA		[SAA]																			
CVX		[CVX]																			
MIST		[MIST]																			
SOLCON		[SOLCON]																			
SOLSE		[SOLSE]																			
LPT/MSTR		MLA TRK - GPS NAV																			
MEIDEX		A - #																			
STARNAV		- 25 - - 26 - - 27 - - 28 -																			
NOTES																					

BETA 5.35

GMT 07/28/02
CT 07/27/02
MET Day 008



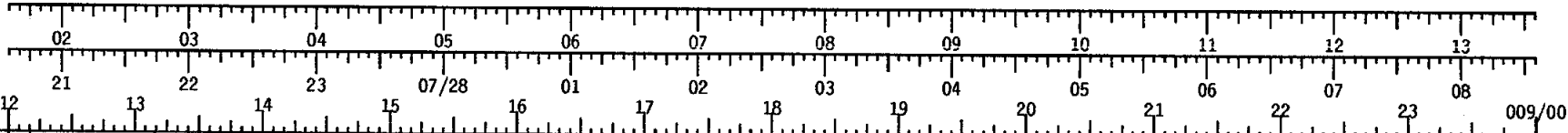
R E D	CDR HUSBAND	SLEEP	POST SLEEP	HAND OVER	POST SLEEP	MNVR GG	Z CRT UP	MP LAY BK	W F I L T E R	B B R L F E I D X R 37	M M N L V P	M M N V I R D E X	M O P I S D E X	M N V R T D R S C O M M	M R S N A N E V I R D E X	S M M N A N E V I R D E X
	MS2 CHAWLA	SLEEP	POST SLEEP	HAND OVER	M N V I R D E X	P S O L S E T P					M S E I U D E X	M G M S / U 8	M G M A C T 8			
	MS4 CLARK	SLEEP	POST SLEEP	HAND OVER	POST SLEEP	B D S M E D S A M P & P C B A	B D S S A M P & F I X	T R A Y	B P H S O T O	B V I D S E O	B A C T E R 6	E X E R C I S E				
	PS1 RAMON	SLEEP	POST SLEEP	HAND OVER	POST SLEEP	S O F B A L L 1 1 A					S B 1 1 A	S B 1 1 A	E X E R C I S E			
M C C	KU3	F A S T	S M U	P A O	E X P K	S M U	S T A R	M X	P L B K	M A I L	B D S			M A I L A / G	M G M	F A S T
MAIL		R:U														
DAY/NIGHT ORBIT		137 138 139 140 141 142 143 144 145														
TDRS		E W Z														
ATTITUDE		TDE -ZSI +ZLV -YVV -ZSI TDRW --ZLI -BIAS +XLV +ZVV -ZLV -XVV TDRW FREE DRIFT BIAS -XLV +YVV --ZLV TDRW														
SAA CVX MIST		CVX CRIT PERIOD 3														
SOLCON		CAL SUN CAL SUN CAL														
SOLSE																
LPT/MSTR		COMM COMM COMM WLB COMM B														
MEYDEX		CAL SPRT # # # #														
STARNAV		29														
NOTES																

BETA 5.35

GMT 07/28/02

CT 07/27/02

MET Day 008



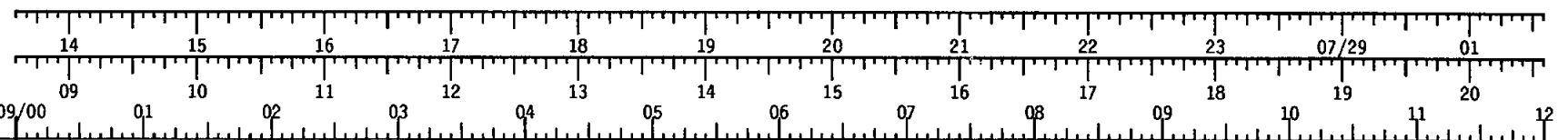
BLUE	PLT MCCOOL	MEAL	MNVR -ZSI	M+NZ VLV	FTR LD -ZSI	PAO	MEIDEX	MNVR TDRS COMM	EXERCISE	MNVR TDRS COMM	MEIDEX	HAND OVER	PRE SLEEP	SLEEP	
	MS1 BROWN	SOFBALL 06A	MEAL	SB 06A	PS E/TT VU OP 2	SB 06A	PAO	EXERCISE	EFFER IES D7	FSA OLI ZEV NA	MS PIR I D I E T X E	MEIDEX OPS	HAND OVER	PRE SLEEP	SLEEP
	MS3 ANDERSON	MEAL	MGM DEACT 7	PAO	BLUE MOD STAT CK	EXERCISE	BLUE MDDK STAT CK	FSA OLI ZEV NA	SB PRETEST	VCR	HAND OVER	PRE SLEEP	SLEEP		
MCC	KU3	FAST	SMU	PAO	EXPK	SMU	STAR	MX	PL BK	MAIL	MAIL	MAIL	MAIL	MAIL	FAST
MAIL		R:U													
DAY/NIGHT ORBIT		137 138 139 140 141 142 143 144 145													
TDRS		[Timeline diagram showing TDRS events]													
ATTITUDE		-TDE -ZSI +ZLV -YVV -ZSI TDRW -ZLI -BIAS +XLV +ZVV -ZLV -XVV -ZLV -XVV FREE DRIFT -BIAS -XLV +YVV -ZLV TDRW TDRW													
SAA															
CVX		CVX CRIT PERIOD 3													
MIST															
SOLCON		-CAL -SUN -CAL -SUN -CAL													
SOLSE															
LPT/MSTR		COMM													
MEIDEX		COMM													
STARNAV		CAL -SPRT -# -COMM -# WLP -# -COMM -#													
NOTES		*FRESH AEM CHECK													

BETA 7.50

GMT 07/28/02

CT 07/28/02

MET Day 009



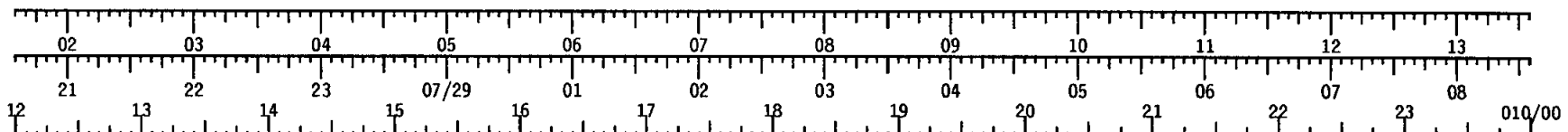
RED	CDR HUSBAND	MEAL	MNVR GG	GN IIRG AHT	EXERCISE	HAND OVER	PRE SLEEP	SLEEP							
	MS2 CHAWLA	MEAL	SB PRETEST	VCR	CST	MGM DEACT 8	AST1 DNLOAD	EXERCISE	HAND OVER	PRE SLEEP	SLEEP				
	MS4 CLARK	MEAL	FSROLZEVNA	OSSTED10	ODETACT	VSETRUP	MPFLAYBK	CHOICE	MPFE CARD 8	MPFE GC TERM	MOD STATUS CK RED	MRDDCK	HAND OVER	PRE SLEEP	SLEEP
	PS1 RAMON	MEAL	FSROLZEVNA	SOFBALL 10A			SB10A	SB10A	TARGA	SPBRUP	HAND OVER	PRE SLEEP	SLEEP		
MCC	KU3	MX	SMU	STAR	FAST PL BK	CHC	EXPK	PFC	PMC	FAST	SMU	MAIL	MGM MAIL		
MAIL		B:U													
DAY/NIGHT ORBIT		B:D													
TDRS		R:D B:U													
ATTITUDE		-ZLV -XVV													
SAA		FREE DRIFT BIAS -XLV -YVV													
CVX		BIAS +ZLV -XVV													
MIST		FREE DRIFT BIAS -XLV +YVV													
SOLCON		CVX CRIT PERIOD 3													
SOLSE															
LPT/MSTR		GPS NAV													
MEIDEX		AMB MSTRS													
STARNAV		A													
NOTES		*EXERCISE @SB PWRDN													

BETA 9.69

GMT 07/29/02

CT 07/28/02

MET Day 009



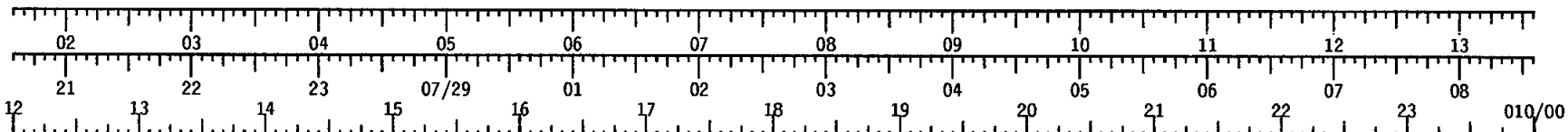
R E D	CDR HUSBAND	SLEEP	POST SLEEP	HAND OVER	MNVR GG	PSOLSEP	FILTER CLEAN	EXERCISE	MNVR								
	MS2 CHAWLA	SLEEP	POST SLEEP	HAND OVER	SOFBALL 07A					SB07A							
	MS4 CLARK	SLEEP	POST SLEEP	HAND OVER	YSTRS6	PSOLSEP	YSTRS8	YSTR10	YSTR11	YSTR13	BDS MED SAMP & PCBA						
	PS1 RAMON	SLEEP	POST SLEEP	HAND OVER	PSOLSEP	BBRCAE	AST1 DNLOAD	VSTRUP	MPXLA	CHCHOICE	MS/MEIDEX	MEIDEX OPS	MEIDEX SPRITE				
M C C	KU3	FAST	FAST	SMU	EXPK	FAST	EXPK	FAST	SMU	STAR	MAIL	FAST	PLBK	CHC	MAIL	MX	MX
MAIL		R:U															
DAY/NIGHT ORBIT		R:D															
TDRS		E W Z															
ATTITUDE		BIAS -ZLV +YVV, FREE DRIFT, BIAS -XLV +YVV, -ZLI, -ZLV +XVV, +XLV +ZVV, TDRW, BIAS -XLV -YVV, FREE DRIFT, -ZLV, -XLV															
SAA		CVX CRIT PERIOD 3															
CVX																	
MIST																	
SOLCON																	
SOLSE																	
LPT/MSTR		AMB MSTRS															
MEIDEX		-CAL- -SPRT- # -COMM- H #															
STARNAV		-34- # #															
NOTES																	

BETA 9.69

GMT 07/29/02

CT 07/28/02

MET Day 009



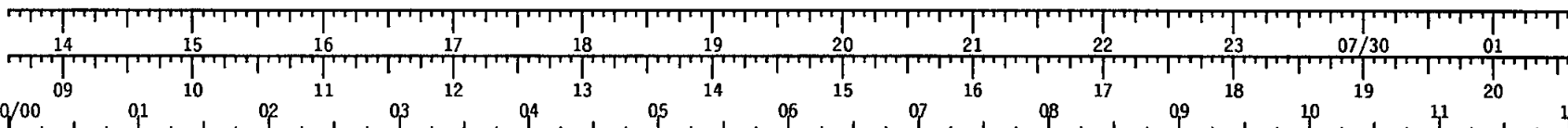
BLUE	PLT MCCOOL	MST EIA AMR LION	CIN W CIT	CT W CRM	MNVR GG	STR OM 4	STR S 2	FTR LD -ZLI	MS E/ ID EX	BI OK N 2	YS TR S 2	MS NP VR ITE	EXERCISE	YS TR S 4	MM NE ID EX	MNVR TDRS COMMA	HAND OVER	PRE SLEEP	SLEEP				
	MS1 BROWN	MEAL		FRESH AEM CHECK		BLUE MDDK STAT CK	BLUE MOD STAT CK	MEIDX CAL	MEIDEX SPRITE	MO EP IS DEX	HAND OVER		PRE SLEEP	SLEEP									
	MS3 ANDERSON	MEAL	SB PRETEST	VCR	SOFBALL 04A		SB O 4 A	SB O 4 A	PD IP	SB PRETEST	VCR	HAND OVER	PRE SLEEP	SLEEP									
MCC	KU3	FAST		FAST	SMU	EXPK	FAST	EXPK	FAST SMU STAR		MAIL	FAST	PL BK	CH C	MAIL	MX	MX						
MAIL		R:U		R:D B:D		R:U		R:U		R:U		R:U		R:U		R:U							
DAY/NIGHT ORBIT		153		154		155		156		157		158		159		160		161					
TDRS		E		W		Z		E		W		Z		E		W		Z					
ATTITUDE		BIAS -ZLV +YVV		FREE DRIFT		BIAS -XLV +YVV		-ZLI		-ZLV +YVV		+XLV +ZVV		TDRW		BIAS -XLV -YVV		FREE DRIFT		-ZLV		-XLV	
SAA		CVX CRIT PERIOD 3																					
MIST																							
SOLCON																							
SOLSE																							
LPT/MSTR		AMB MSTRS																					
MEIDEX																							
STARNAV																							
NOTES																							

BETA 11.92

GMT 07/29/02

CT 07/29/02

MET Day 010



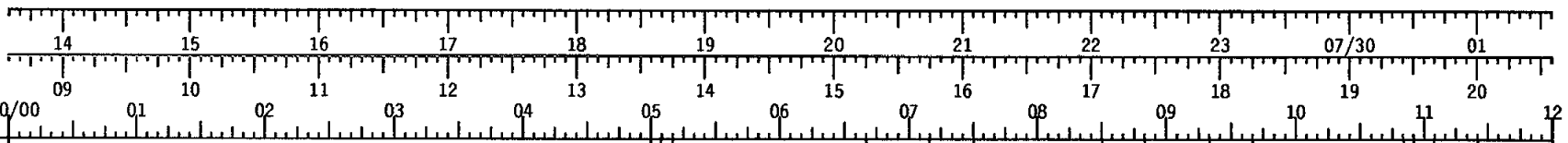
RED	CDR HUSBAND	MNEI RDEX	MNVR RIRI	GMORR RAN	MNVR RNGE	FSR RITTE	MEAL	MNVR GG	MOD STATUS CK RED	MNVR TDRS COMM	MNVR -ZSI	MNVR TDRS COMM	HO AV NER	MNVR -ZSI	PMC FOCA	PRE SLEEP	SLEEP		
	MS2 CHAWLA				MEAL	SB PRETEST	VCR	SOFBALL 14M				SB 14M	SB 14M	HAND OVER	PRE SLEEP	SLEEP			
	MS4 CLARK	TR NAVY		FSR ROLZ EVNA	MEAL	MP FECK		PHAB4 EQUIP S/U	PREP	PHLEB	COLL LUM	EXERCISE		HAND OVER	PRE SLEEP	SLEEP			
	PS1 RAMON	MO EPI S DEX	MEI DEX SPRITE	FSR ROLZ EVNA	MEAL		PHAB4 EQUIP S/U	PCBA CHECK OUT	PREP	PCBA	CON TRIFG	FRZ BLD	MR DE CK K	HAND OVER	PRE SLEEP	SLEEP			
MCC	KU3	MX	MX	SMU	FAST		EXPK				FAST	STAR	PMC	STAR	STAR	STAR	SMU	MAIL	
	MAIL						B:U												R:D B:D
	DAY/NIGHT ORBIT	[Timeline with shaded blocks for day/night cycles]																	
	TDRS	[Timeline with horizontal bars and dots for TDRS events]																	
	ATTITUDE	[Timeline with labels: -XLV, TDRW, BIAS -XLV +ZVV, FREE DRIFT, BIAS -XLV +YVV, TZ, -ZSI, TDRZ, -ZSI, TDRE, TDRW, BIAS -XLV +YVV, FREE DRIFT]																	
	SAA																		
	CVX																		
	MIST																		
	SOLCON	[Timeline with labels: CAL, SUN, CAL, SUN, CAL]																	
	SOLSE																		
	LPT/MSTR	[Timeline with labels: DFRH, COMM, COMM, COMM, COMM]																	
	MEIDEX	[Timeline with labels: IAI, SPRT, SPRT]																	
	STARNAV																		
	NOTES																		

BETA 11.92

GMT 07/29/02

CT 07/29/02

MET Day 010



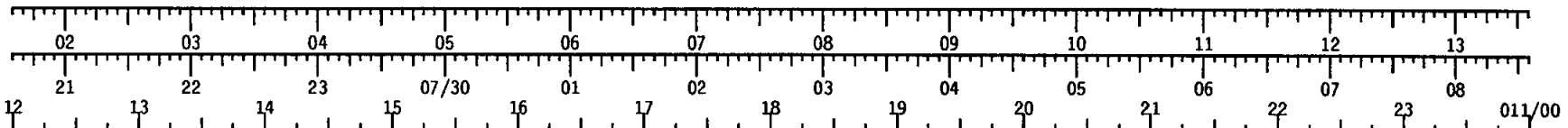
BLUE	PLT MCCOOL	SLEEP										BLU	POST SLEEP	HAND OVER	FTR LD TDRS	EXERCISE	MNVR TDRS COMM	MNVR GG	FTR LD TDRS		MEAL			
	MS1 BROWN	SLEEP										BLU	POST SLEEP	HAND OVER	FTR LD TDRS	POST SLEEP	SB PRETEST	VCR	PUC HAD B 4	FRESH AEM CHECK	FRA OL ZI EVNA	FRESH AEM H2O REFILL		
	MS3 ANDERSON	SLEEP										BLU	POST SLEEP	HAND OVER	FTR LD TDRS	POST SLEEP	PUC HAD B 4	EXERCISE	SOFBALL 13A*					
MCC	KU3	MX	MX	SMU	FAST	EXPK				FAST	STAR	PMC	STAR	STAR	SMU	MAIL								
MAIL												B:U											R:D	B:D
DAY/NIGHT ORBIT		161	162	163	164	165	166	167	168	169														
TDRS		[TDRS Activity Diagram]																						
ATTITUDE		[Attitude Profile: -XLV, BIAS-XLV+ZVV, FREE DRIFT, BIAS -XLV +YVV, TZ, -ZSI, TDRZ, TDRE, TDRW, BIAS -XLV +YVV, FREE DRIFT]																						
SAA		[SAA Profile]																						
CVX		[CVX Profile]																						
MIST		[MIST Profile]																						
SOLCON		[SOLCON Profile]																						
SOLSE		[SOLSE Profile]																						
LPT/MSTR		[LPT/MSTR Profile]																						
MEIDEX		[MEIDEX Profile]																						
STARNAV		[STARNAV Profile]																						
NOTES		*FROZEN SALIVA																						

BETA 14.18

GMT 07/30/02

CT 07/29/02

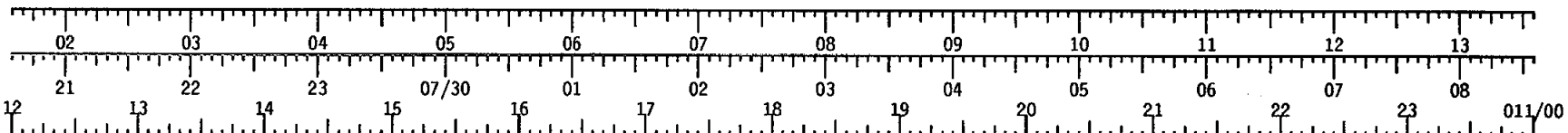
MET Day 010



RED	CDR HUSBAND	SLEEP															SAMP	PHLEB	CLUMP	POST SLEEP	HAND OVER	POST SLEEP	R D APPLY	EXERCISE	SOLSE S/U	SCIENCE	MONITOR	CLOSE OUT	IDLE				
	MS2 CHAWLA	SLEEP															RED	SAMP	POST SLEEP	HAND OVER	POST SLEEP	MIST EMS INT	MIST START	BAKE	MCB IHL SAE TME BDR	GP CD CAP							
	MS4 CLARK	SLEEP															FD 1 2	SAMP	BLOOD	POST SLEEP	FRZ SAMP	TRACR	HAND OVER	PSOL SEPT	FRZ SAMP	POST SLEEP	BDS MED SAMP & PCBA	BDS SAMP & FIX	TRAY	BV DIS E O	BDH SOTO	EXERCISE	FSRA OLZEVNA
	PS1 RAMON	SLEEP															SAMP	BLOOD	POST SLEEP	FRZ SAMP	TRACR	HAND OVER	PSOL SEPT	FRZ SAMP	POST SLEEP	MIST EMS INT	ZCG	EXERCISE	MS/ID EX	MEIDEX OPS	FSRA OLZEVNA	CST	PUCB 4
MCC	KU3	MAIL	STAR	PFC	SMU	MX	FAST	EXPK	EXPK	FAST	STAR	MAIL	BDS	MX	MAIL																		
MAIL		B:U											R:U											R:U									
DAY/NIGHT ORBIT		169	170	171	172	173	174	175	176	177																							
TDRS		E	[TDRS E W Z bars]															Z															
ATTITUDE		TDRW	-BIAS -YLV -XVV-															-ZLI-	-ZLV -XVV (C2P 2)														
SAA																																	
CVX																																	
MIST																																	
SOLCON																																	
SOLSE		-S POLAR-															UV (-ZLV)																
LPT/MSTR		-COMM-																	AMB MSTRS					M	WRMUP			MSTRS					
MEIDEX																	CAL								A								
STARNAV																																	
NOTES																																	

BETA 14.18

GMT 07/30/02
 CT 07/29/02
 MET Day 010



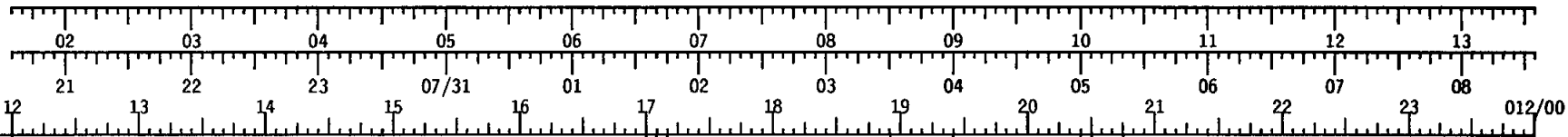
BLUE	PLT MCCOOL	MEAL	SS/OLUSE	MSNOVRSSE	SCIENCEC	MONITOR	MMNR	MMNR	MMNR	MMNR	SOLSE CLOSE OUT	MZLV	IDLEA	SOLSE	BLUE MDDKT STAT CK	BLUE MOD STAT CK	PCBA	PRE SLEEP	FRZBLD	HAND OVER	PRE SLEEP	SLEEP								
	MS1 BROWN	MEAL									MEIDX CAL	PUCAD B 4	FSRZOLZEVNA							HAND OVER*	PRE SLEEP	SLEEP								
	MS3 ANDERSON											SOFBALL SHUTDOWN*				PUCAD B 4	TRAFCSU	BLOOD	PRE SLEEP	PHLEB	CLNUP	CMTRFG	HOVNR*	FRZBLD	PRE SLEEP	SLEEP				
MCC	KU3	MAIL	STAR	PFC		SMU	MX				FAST			EXPK			EXPK						FAST		STAR	MAIL	B	MX	MAIL	
	MAIL	B:U												R:U												R:D	B:D		R:U	
	DAY/NIGHT	[Day/Night Cycle]																												
	ORBIT	[Orbit Cycle]																												
	TDRS	[TDRS Cycle]																												
	ATTITUDE	[Attitude Cycle]																												
	SAA	[SAA Cycle]																												
	CVX	[CVX Cycle]																												
	MIST	[MIST Cycle]																												
	SOLCON	[SOLCON Cycle]																												
	SOLSE	[SOLSE Cycle]																												
	LPT/MSTR	COMM	[LPT/MSTR Cycle]																							AMB MSTRS	M	WRMUP	UV (-ZLV)	MSTRS
	MEIDEX	[MEIDEX Cycle]																												
	STARNAV	[STARNAV Cycle]																												
	NOTES	*DEACT *FROZEN SALIVA *FROZEN SALIVA *FROZEN SALIVA																												

BETA 18.78

GMT 07/31/02

CT 07/30/02

MET Day 011



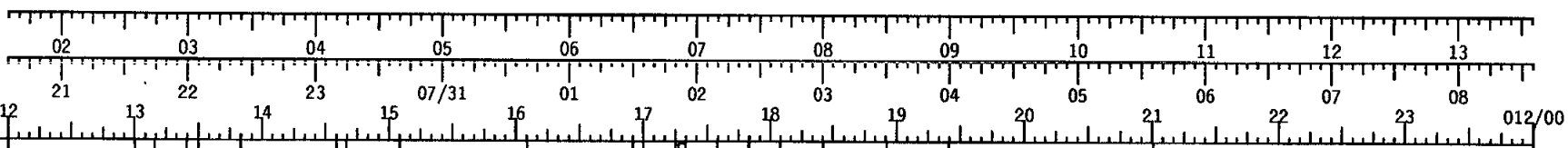
R E D	CDR HUSBAND	SLEEP	POST SLEEP	HAND OVER	OFF DUTY	P D I P	PFC	OFF DUTY
	MS2 CHAWLA	SLEEP	POST SLEEP	HAND OVER	OFF DUTY	P D I P	PFC	OFF DUTY
	MS4 CLARK	SLEEP	POST SLEEP	HAND OVER	OFF DUTY	P D I P	PFC	OFF DUTY
	PS1 RAMON	SLEEP	POST SLEEP	HAND OVER	OFF DUTY	P D I P	PFC	OFF DUTY
M C C	KU3	SSMU	FAST	FAST	EXPK	SSMU	PFC	PFC
	MAIL	SSMU	FAST	FAST	EXPK	SSMU	PFC	PFC
	DAY/NIGHT	[Timeline with day/night indicators]						
	ORBIT	185	186	187	188	189	190	191
	TDRS	[Timeline with TDRS activity bars]						
	ATTITUDE	-ZLV -XVV (C2P 2)						
	SAA							
	CVX							
	MIST	4	6	7	9	10	CVX CRIT PERIOD 4	
	SOLCON							
	SOLSE							
	LPT/MSTR	AMB MSTRS						
	MEIDEX							
	STARNAV							
	NOTES							

BETA 18.78

GMT 07/31/02

CT 07/30/02

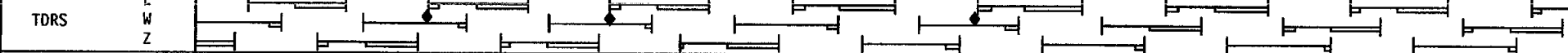
MET Day 011



BLUE	PLT MCCOOL	MEAL	CST	FRESH AEM	SOLSCCK	PUHAD B4	EXERCISE	BLUE MOD STAT CK	MEIDEX	PCBA	B I O K N 4	BLUE MDDK STAT CK	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP					
	MS1 BROWN	MEAL	FRESH AEM CHECK			PUHAD B4	EXERCISE		PCBA			FRRZOLZEVNA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP					
	MS3 ANDERSON	MEAL		BCR DATA DL		PUHAD B4	EXERCISE		PUHAD B4	PREP	PHLEB	MEIDEX OPS	FRRZOLZEVNA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP				
MCC	KU3		SSMU	FAST	FAST	MAIL	FAST	EXPK			SSMU		FAST	SSMU	PFC	PFC	PFC	SMSTAR	SMSTAR	PFC	SSMU

MAIL

DAY/NIGHT ORBIT



ATTITUDE -ZLV -XV (C2P 2)

SAA

CVX CVX CRIT PERIOD 4

MIST 4 6 7 9 10 A

SOLCON

SOLSE

LPT/MSTR AMB MSTRS M AMB MSTRS A

MEIDEX

STARNAV

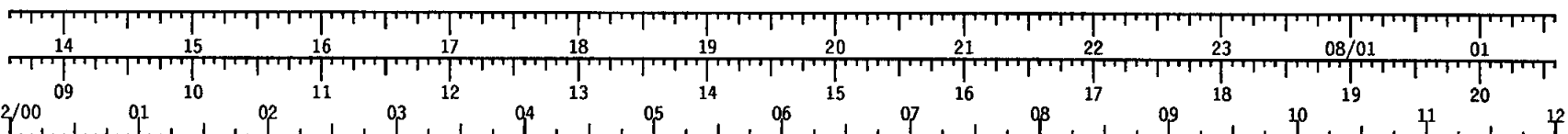
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BETA 21.10

GMT 07/31/02

CT 07/31/02

MET Day 012



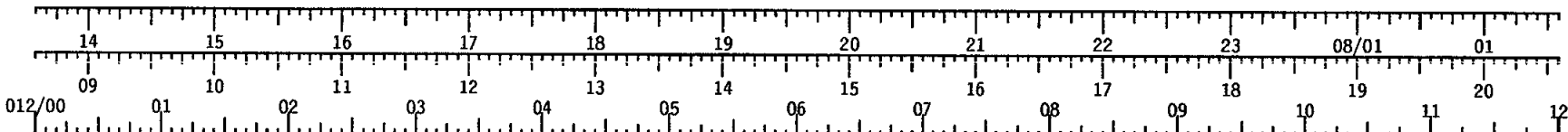
RED	CDR HUSBAND	MEAL	CST	GNIRGHT	MNYVVR	SINIMOT	PCBA CHECK OUT	STIEWR	CIWNRICT	CTWENZ	MZOLP	GMIO	MOD STATUS CK RED	PSRL	PMCP	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP	
	MS2 CHAWLA	MEAL	SHU	PWRDWN	TARGA	MIST CHAMBER ACCESS				MIST PWRUP	MCBL	SAETMBR	MREDDCK	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP			
	MS4 CLARK	MEAL	ZCG	BDS MED SAMP & PCBA	TRAY	PHAB4 UCD	EXERCISE	PCBU	DBATNGE	PHLEB	FRSAL	PCBA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP				
	PS1 RAMON	MEAL	MXO	DU	PK	PHC	AD	B	MIST	MIST	EXERCISE	AST1	DNLOAD	FRS	AL	PCBA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP
MCC	KU3	SSMU	SMU	MAIL	STAR	SMU	FAST	EXPK	SMU	PMC	FAST	MAIL	SMU	MAIL						
MAIL		R:D	B:D	R:U	B:U	R:D	B:D	R:U	B:U											
DAY/NIGHT ORBIT		193	194	195	196	197	198	199	200	201										
TDRS		E	W	Z	[Timeline bars for TDRS]															
ATTITUDE		BIAS -ZLV +YVV					-ZLV -XVV (C2P 2)													
SAA		[Timeline bars]																		
CVX		CVX CRIT PERIOD 4																		
MIST		[Timeline bars]																		
SOLCON		[Timeline bars]																		
SOLSE		[Timeline bars]																		
LPT/MSTR		[Timeline bars]																		
MEIDEX		[Timeline bars]																		
STARNAV		[Timeline bars]																		
NOTES		[Empty space for notes]																		

BETA 21.10

GMT 07/31/02

CT 07/31/02

MET Day 012



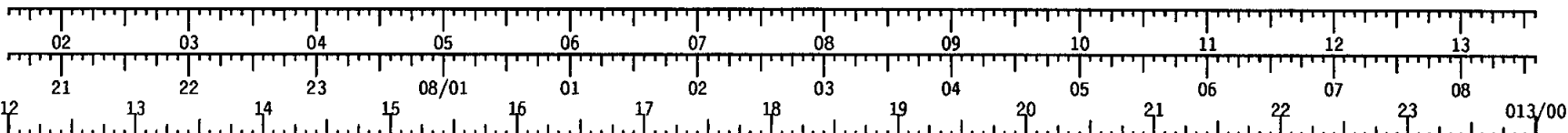
BLUE	PLT MCCOOL	SLEEP												B L U	SALM PBLS OAGL	POST SLEEP	FRZ BLD	PS OL SE TE P	HAND OVER	POST SLEEP		YSTR 15	YSTRS17		PUC AD B4	YSTR 19	YSTRS 20		CST	YSTR 22	SHC OK LA SL ETH
	MS1 BROWN	SLEEP												E F D	SALM PBLS OAGL	B L O O D	POST SLEEP	HAND OVER	POST SLEEP			ARMS PULM 3						F S P R O L I Z I P E V N A	MEAL		
	MS3 ANDERSON	SLEEP												1 4	SALM PBLS OAGL	B L O O D	POST SLEEP	HAND OVER	POST SLEEP	MIST DRY TEST 11							F S P R O L I Z I P E V N A	EXERCISE			
MCC	KU3	M SSMU	S M MAIL	STAR	SMU	F A S T	EXPK			S M P M C			F A S T	M S T	M S T	S M MAIL				S M U	MAIL										
	MAIL		R:D B:D				R:U B:U										R:D B:D				B:U										
	DAY/NIGHT	[Shaded bars indicating day/night cycle]																													
	ORBIT	193	194	195	196	197	198	199	200	201																					
	TDRS	[Timeline of TDRS events with E, W, Z markers]																													
	ATTITUDE	BIAS -ZLV +YVV										-ZLV -XVV (C2P 2)																			
	SAA																														
	CVX																														
	MIST	CVX CRIT PERIOD 4																													
	SOLCON	A																													
	SOLSE																														
	LPT/MSTR	AMB MSTRS										WRMUP																			
	MEIDEX																														
	STARNV																														
	NOTES																														

BETA 23.43

GMT 08/01/02

CT 07/31/02

MET Day 012



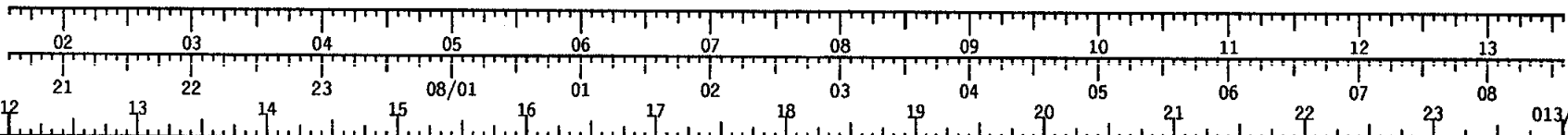
RED	CDR HUSBAND	SLEEP	POST SLEEP	HAND OVER	FZRLV	CREW CONF	EXERCISE	MEIDEX OPS	PHCAB4	UNZLVRV	FZRLV	MOEISDEX	MXEFR	CDSTP	MEAL
	MS2 CHAWLA	SLEEP	POST SLEEP	HAND OVER		CREW CONF	BDS MED SAMP & PCBA	TRAVY	MZLVRV	BDS SAMP & FIX	BPHSOTO	BVIDSE	PHAB4UCD		MEAL
	MS4 CLARK	SLEEP	POST SLEEP	HAND OVER		CREW CONF	BIOVSU	ARMS PULM 3				ZCG	EREIS9	MEAL	
	PS1 RAMON	SLEEP	POST SLEEP	HAND OVER		CREW CONF		MS/IDEX	ARMS	ARMS	BBRCAE	RTPLAC	BCR DATA DL	FSROLZEVNA	MEAL
MCC	KU3	SMU	STARS	EXPK	SMU	FAST	MST	PAO	SMU	SMU	FAST	MAIL	MXDS		MAIL
MAIL		R:U													
DAY/NIGHT ORBIT		201 202 203 204 205 206 207 208 209													
TDRS		[Timeline bars for TDRS]													
ATTITUDE		-ZLV -XVV (C2P 2) -ZLV -XVV (C2P 3) -ZLV +YVV -ZLV -XVV (C2P 3) BIAS -ZLV -XVV BIAS -ZLV -XVV -ZLV -XVV (C2P 3)													
SAA CVX		CVX CRIT PERIOD 4													
MIST		12 13 20 15 16 17													
SOLCON															
SOLSE															
LPT/MSTR		MSTRS AMB MSTRS WLP WLP AMB MSTRS													
MEIDEX		A													
STARNAV															
NOTES															

BETA 23.43

GMT 08/01/02

CT 07/31/02

MET Day 012



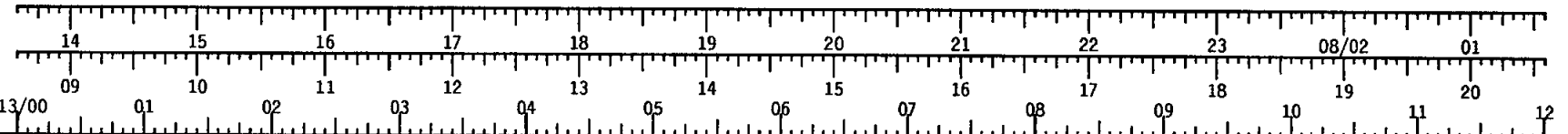
BLUE	PLT MCCOOL	SHOCK LA SETH	MEAL	PHC ADB 4	EXERCISE	PHC ADB 4	PCBA	FRZ BLD	PS/TTVUOP 2	HAND OVER	PSLEEP	CREW CONF	PRE SLEEP	SLEEP	
	MS1 BROWN	MEAL	ARMS MUSC 2	BLUE MOD STAT CK	FUYTVVLD	HAND OVER	PSLEEP	CREW CONF	PRE SLEEP	SLEEP					
	MS3 ANDERSON	MIST TEST 12	MEAL	ARMS	ARMS	ARMS	PREP	PHLEB	CLNUP	FRESH AEM CHECK	BLUE MDDK STAT CK	HAND OVER	PSLEEP	CREW CONF	PRE SLEEP
MCC	KU3	SMU	STARS	EXPK	SMU	FAST	PAO	SMU	FAST	SMU	FAST	MAIL	MXDIS	MAIL	
MAIL		R:U													
DAY/NIGHT ORBIT		201 202 203 204 205 206 207 208 209													
TDRS		E W Z													
ATTITUDE		-ZLV -XVV (C2P 2) -ZLV -XVV (C2P 3) -ZLV +YVV -ZLV -XVV (C2P 3) BIAS -ZLV -XVV BIAS -ZLV -XVV -ZLV -XVV(C2P 3)													
SAA CVX		CVX CRIT PERIOD 4													
MIST SOLCON		12 13 20 15 16 17													
LPT/MSTR		MSTRS AMB MSTRS WLP WLP AMB MSTRS													
METDEX STARNAV		A A													
NOTES															

BETA 25.76

GMT 08/01/02

CT 08/01/02

MET Day 013



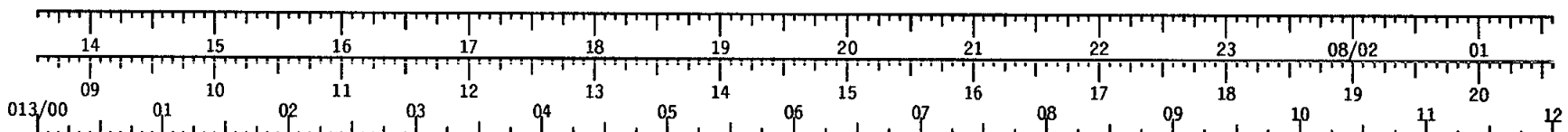
RED	CDR HUSBAND	MEAL	FEEDUP	STRAYBK	CHOICE	PCBA CHECK OUT	PUCAD B 4	WCS COMP	FILTER CLEAN	PRE SLEEP	PMC	HAND OVER	PRE SLEEP	SLEEP					
	MS2 CHAWLA	MEAL	GNIRG AHT			PHAB4 UCD	EXERCISE	BDS MED SAMP & PCBA	GMORRAN	MDEDD KCK	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP					
	MS4 CLARK	MEAL	AFSRA MOLI ZI EVNA	BTBACT		ARMS MUSC 2				PREP	PHLEB	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP				
	PS1 RAMON	MEAL				ARMS	ARMS	ARMS	MOD STATUS CK RED	PSLEEPEP	PCBA	PRE SLEEP	HAND OVER	PRE SLEEP	SLEEP				
MCC	KU3	SMU	PLBK	CHC	SMU	FAST	EXPK			SMC		STAR	SMU	SMU	MAIL *A/G	SMU	SMU	MAIL	SMU
MAIL		B:U																	
DAY/NIGHT ORBIT		209 210 211 212 213 214 215 216 217																	
TDRS		[Timeline bars for TDRS]																	
ATTITUDE		-ZLV -XVV (C2P 3)																	
SAA		[Timeline bars]																	
CVX		[Timeline bars]																	
MIST		-17- -19- -14- -18-																	
SOLCON		[Timeline bars]																	
SOLSE		[Timeline bars]																	
LPT/MSTR		AMB MSTRS																	
MEIDEX		[Timeline bars]																	
STARNAV		[Timeline bars]																	
NOTES		[Empty space for notes]																	

BETA 25.76

GMT 08/01/02

CT 08/01/02

MET Day 013



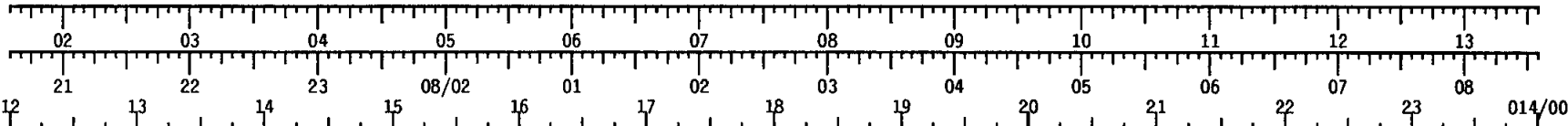
BLUE	PLT MCCOOL	SLEEP												05	SAM	POST SLEEP	06	FRZ	POSEEP	HAND OVER	POST SLEEP	08	ARMS	09	ARMS	MIST	10	SOLSE HEALTH CK	11	POST	CST	MEAL	
	MS1 BROWN	SLEEP												05	SAM	POST SLEEP	06	FRZ	HAND OVER	POST SLEEP	07	SHUT DOWN	08	PWR DOWN	TARG A	MIST CHAMBER ACCESS			11	MIST PWRUP	12	PWR UP	MEAL
	MS3 ANDERSON	SLEEP												05	SAM	POST SLEEP	06	FRZ	HAND OVER	POST SLEEP	ARMS PULM 3			10	FRESH AEM CHECK	12	MEAL						
MCC	KU3	SMU	PLBK	CHC	SMU	FAST	SMU	EXPK	SMU	SPMC	STAR	SMU	MAIL *A/G	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D	SMU	MAIL *B/D		
MAIL		B:U																															
DAY/NIGHT		[Pattern of Day/Night bars]																															
ORBIT		209 210 211 212 213 214 215 216 217																															
TDRS		[Pattern of TDRS bars]																															
ATTITUDE		-ZLV -XVV (C2P 3)																															
SAA		[Pattern of SAA bars]																															
CVX		[Pattern of CVX bars]																															
MIST		17 19 14 18																															
SOLCON		[Pattern of SOLCON bars]																															
SOLSE		[Pattern of SOLSE bars]																															
LPT/MSTR		AMB MSTRS																															
MEIDEX		[Pattern of MEIDEX bars]																															
STARNAV		[Pattern of STARNAV bars]																															
NOTES		[Empty space for notes]																															

BETA 28.08

GMT 08/02/02

CT 08/01/02

MET Day 013



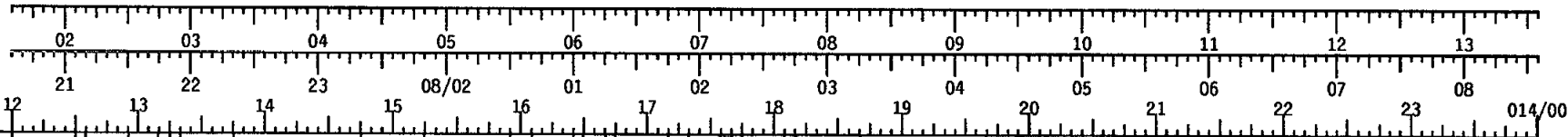
RED	CDR HUSBAND	SLEEP	POST SLEEP	HAND OVER	PILOT	UCO CHUATS BATS NGE	OMSBURN	M-NZLV RVA	SOLSE S/U	MONITOR	MONITOR	SOLSE CLOSE OUT	LCOM
	MS2 CHAWLA	SLEEP	POST SLEEP	HAND OVER	PILOT	ZC ZCG	OMSBURN	FEE SMEIDEX OPS		MEIDEX OPS			MEAL
	MS4 CLARK	SLEEP	POST SLEEP	HAND OVER	BDS MED SAMP & PCBA	TRAY	CSNTORWFG	EXERCISE	ARMS	ARMS		CS	MEAL
	PS1 RAMON	SLEEP	POST SLEEP	HAND OVER				ARMS PULM 3					MEAL
MCC	KU3	PAO	SMU	EXPK *A/G		STAR	FAST	MAIL	SMU	BIT	MAIL		
	MAIL			R:U				R:U					
	DAY/NIGHT ORBIT	217	218	219	220	221	222	223	224	225			
	TDRS EWZ												
	ATTITUDE	-ZLV -XVV (C2P 3)				BIAS -ZLV -XVV			OMS	-ZLV -XVV (C2P 3)			
	SAA												
	CVX												
	MIST	21		22			23		24		25		27
	SOLCON												
	SOLSE												
	LPT/MSTR	AMB MSTRS				M	WLP		WLP		AMB MSTRS		
	MEIDEX												
	STARNAV												
	NOTES												

BETA 28.08

GMT 08/02/02

CT 08/01/02

MET Day 013



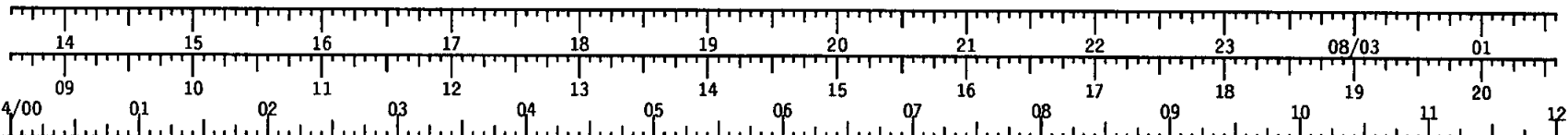
BLUE	PLT MCCOOL	MEAL	PS/TTVUP 2	PAC	EXERCISE	LIQH CHANGE OUT	PREP	PHLEB	CLNUP	FRZBLD	M-ZLVR	HESITRM	BLUE MDDK STAT CK	HAND OVER	PILOT	PRE SLEEP	OMS BURN	PRE SLEEP	SLEEP
	MS1 BROWN	MEAL	MCB IHL SAE TME BDR	MIST DRY TEST 21	ARMS	ARMS	ARMS	PREP	PCBA	MIST TEST 22	FRZBLD	BTBCK	HAND OVER	M-ZLVR	EXERCISE	PRE SLEEP	SLEEP		
	MS3 ANDERSON	MEAL	ARMS	PAC	ARMS MUSC 2	EXERCISE	FRZBLD	BTBCK	HAND OVER	BLUE MOD STAT CK	MEIDEX	PRE SLEEP	SLEEP						
MCC	KU3	PAC	SMU	EXPK *A/G	STAR	FAST	FAST	BTMX	MAIL R/D	MAIL	BTMX	MAIL	BTMX	MAIL	BTMX	MAIL	BTMX	MAIL	BTMX
MAIL		R:U																	
DAY/NIGHT		ORBIT																	
TDRS		E W Z																	
ATTITUDE		-ZLV -XVV (C2P 3)																	
SAA		BIAS -ZLV -XVV																	
CVX		OMS																	
MIST		-ZLV -XVV (C2P 3)																	
SOLCON		21 22 23 24 25 27																	
SOLSE																			
LPT/MSTR		AMB MSTRS																	
MEIDEX		WLP																	
STARNAV		UV (-ZLV) AMB MSTRS																	
NOTES																			

BETA 30.38

GMT 08/02/02

CT 08/02/02

MET Day 014



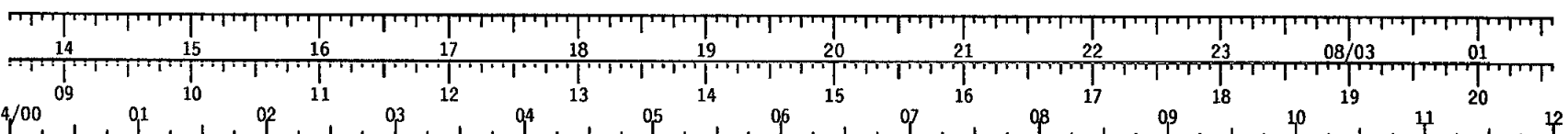
RED	CDR HUSBAND	IDLE	MEAL	LOMM	EXERCISE		OTPEST 2	GMORRAN	PRE SLEEP	PRE SLEEP	PMC A/G	HOVADR	PRE SLEEP	SLEEP											
	MS2 CHAWLA	MEAL	GNIRGHT	EXERCISE	CADJERA	TARGA	MOD STATUS CK RED	ZCIDEA	GOALL	PRE SLEEP	HOVADR	PRE SLEEP	SLEEP												
	MS4 CLARK	MEAL	VSTRTUP	CHOICE	BCR DATA DL	BCR MBA	ARMS	ARMS	BITIMB	ARMS	MREDDCK	HOVADR	PRE SLEEP	SLEEP											
	PS1 RAMON	MEAL	ARMS	ARMS MUSC 2						PRE SLEEP	HOVADR	PRE SLEEP	SLEEP												
MCC	KU3	BITB	MS	CHC	BITB	MS	BITB	MS	BITB	MS	STAR	BITB	EXPK	BITB	MS	SMU	BITB	SMU	MS	FAST	BITB	MS	MAIL		
	MAIL																								
	DAY/NIGHT																								
	ORBIT	225	226	227	228	229	230	231	232	233															
	TDRS	E																							
		W																							
		Z																							
	ATTITUDE	-ZLV -XVV (C2P 3)																							
	SAA																								
	CVX																								
	MIST																								
	SOLCON	26	28	31	34	30	29																		
	SOLSE																								
	LPT/MSTR	AMB MSTRS																							
	MEIDEX																								
	STARNAV																								
	NOTES																								

BETA 30.38

GMT 08/02/02

CT 08/02/02

MET Day 014



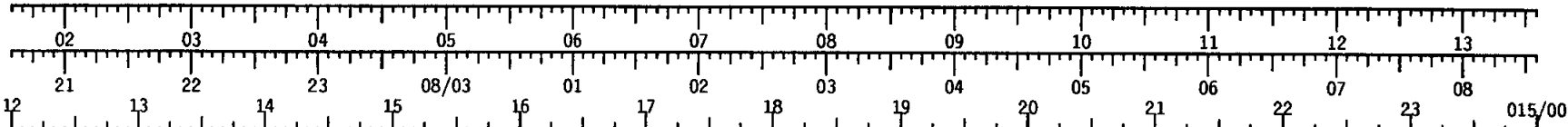
BLUE	PLT MCCOOL	SLEEP	BLU S A M P O L S E T P O S T S L E E P	HO A V E N D R	POST SLEEP	EXERCISE	YSTR24	YSTR26	SOLSK	YSTR28	YSTR29
	MS1 BROWN	SLEEP	BLU S A M P O L S E T P O S T S L E E P	HO A V E N D R	POST SLEEP	EXERCISE	ARMS TEAR DOWN	ARMS ERGO STOW			
	MS3 ANDERSON	SLEEP	BLU S A M P O L S E T P O S T S L E E P	HO A V E N D R	POST SLEEP	EXERCISE					
MCC	KU3		EXPK								
	MAIL		B:U								
	DAY/NIGHT ORBIT	225	226	227	228	229	230	231	232	233	
	TDRS										
	ATTITUDE										
	SAA										
	CVX										
	MIST										
	SOLCON	26	28	31		34		30		29	
	SOLSE										
	LPT/MSTR										
	MEIDEX										
	STARNAV										
	NOTES										

BETA 32.67

GMT 08/03/02

CT 08/02/02

MET Day 014



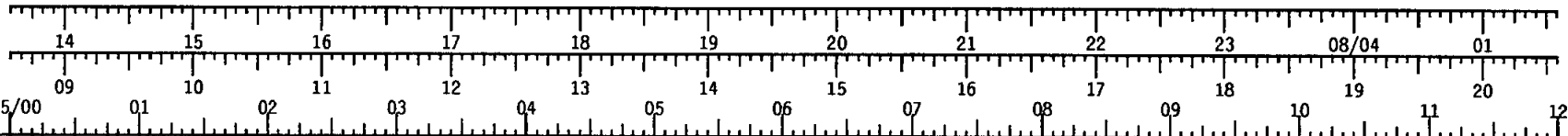
RED	CDR HUSBAND	SLEEP	POST SLEEP	PILOT	D/O BRIEF	FCS C/O	RCS HF	MNEI RDEX	EXERCISE	VPU OFF	MNVR GE	MNEI RDEX	WPPA	MNVR TDRS COMM	MNVR -ZSI
	MS2 CHAWLA	SLEEP	POST SLEEP	PILOT	D/O BRIEF	FCS C/O	MTNVR	CABIN STOW	MSNVRITTE	CABIN STOW	EXERCISE	CABIN STOW			
	MS4 CLARK	SLEEP	POST SLEEP	BDS MED SAMP & PCBA	TRAY	D/O BRIEF	FREE S100	EXERCISE	CABIN STOW					CABIN STOW	
	PS1 RAMON	SLEEP	POST SLEEP		D/O BRIEF	CABIN STOW	VSTRTUP	MX PLAYBK	MEIDEX OPS	MEIDEX SPRITE	MOPISDEX	MX XFR	EXERCISE	CSATBOWIN	
MCC	KU3		EXPK	FAST	SMU		PL BK	MX	MX	SMU	STAR				
MAIL				R:U											
DAY/NIGHT ORBIT		233	234	235	236	237	238	239	240	241					
TDRS		[Timeline diagram showing TDRS events across days 233-241]													
ATTITUDE		BIAS +XLV +ZVV -ZLV +YVV (C2P 3) TDRW -TRK DES FCS C/O HF TRK -ZLV +XLV TDRW -ZLV TDRW -ZSI													
SAA															
CVX															
MIST		-32- -33-													
SOLCON															
SOLSE															
LPT/MSTR		AMB MSTRS COMM													
MEIDEX		-SPRT- CAILH													
STARNAV		DFR COMM													
NOTES		* WPP DEACT													

BETA 34.92

GMT 08/03/02

CT 08/03/02

MET Day 015



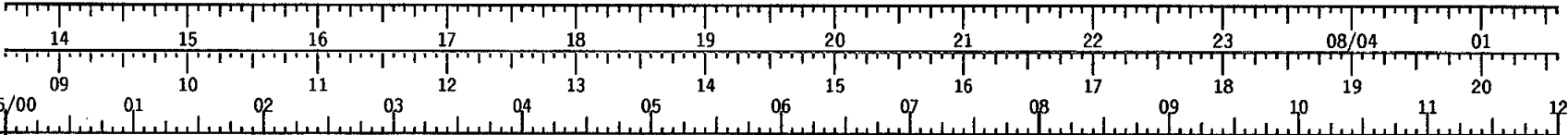
RED	CDR HUSBAND	CST M+Z NVS R I	B F R C P P W R	MEAL	CABIN STOW			OUT L K	PRE SLEEP	P M E O M D I V R	P S L E E P	H O V E N D R	P M C A / G	SLEEP		
	MS2 CHAWLA	CABIN STOW	MEAL	G N I R G H T	CABIN STOW	ZCG STOW	CABIN STOW	G M O R R A N	PRE SLEEP		H O V E N D R	P S L E E P	SLEEP			
	MS4 CLARK	CABIN STOW	MEAL	CABIN STOW	B D E S A C T	MOD STATUS CK RED	F S R A O L I E V A	PHAB4 STOW	C D E B A C T	PRE SLEEP		H O V E N D R	P S L E E P	SLEEP		
	PS1 RAMON	CABIN STOW	MEAL	CABIN STOW			F S R A O L I E V A	PHAB4 STOW	M R E D D C K	PRE SLEEP		H O V E N D R	P S L E E P	SLEEP		
MCC	KU3					SMU		MAIL *FINAL MAIL			B T B	EXPK		SMU	SMU	
	MAIL							R:D B:D								
	DAY/NIGHT ORBIT	[Timeline bars for Day/Night and Orbit]														
	TDRS	[Timeline bars for TDRS]														
	ATTITUDE	+ZSI (EOM) [Timeline bars] -ZLV -YVV (EOM)														
	SAA	[Timeline bars]														
	CVX	[Timeline bars]														
	MIST	[Timeline bars]														
	SOLCON	[Timeline bars]														
	SOLSE	[Timeline bars]														
	LPT/MSTR	[Timeline bars]														
	MEIDEX	[Timeline bars]														
	STARNAV	[Timeline bars]														
	NOTES	*BIOTUBE														

BETA 34.92

GMT 08/03/02

CT 08/03/02

MET Day 015



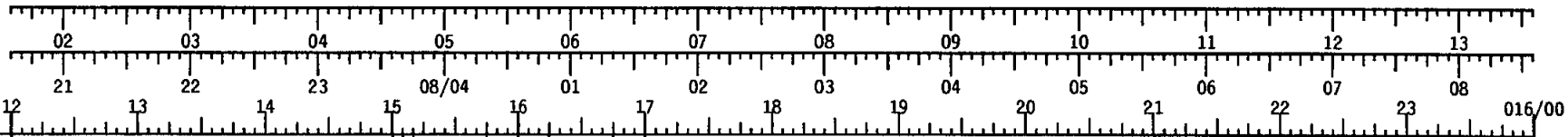
BLUE	PLT MCCOOL	SLEEP						BLU S L U E D 1 7	POST SLEEP	CUSTW	EXERCISE	ERGO STOW	CABIN STOW
	MS1 BROWN	SLEEP						BLU S L U E D 1 7	POST SLEEP	FRESH AEM CHECK	CABIN STOW	EXERCISE	SHAB TEAR DOWN 3
	MS3 ANDERSON	SLEEP						BLU S L U E D 1 7	POST SLEEP	EXERCISE	SHAB TEAR DOWN 1	SHAB TEAR DOWN 3	
MCC	KU3	BITB	SMU	MAIL *FINAL MAIL	BITB	EXPK	SMU	SMU					
MAIL		R:D											
DAY/NIGHT ORBIT		[Timeline bars for Day/Night and Orbit]											
TDRS		[Timeline bars for TDRS]											
ATTITUDE		+ZSI (EOM) -ZLV -YVV (EOM)											
SAA		[Timeline bars for SAA]											
CVX		[Timeline bars for CVX]											
MIST		[Timeline bars for MIST]											
SOLCON		[Timeline bars for SOLCON]											
SOLSE		[Timeline bars for SOLSE]											
LPT/MSTR		[Timeline bars for LPT/MSTR]											
MEIDEX		[Timeline bars for MEIDEX]											
STARNAV		[Timeline bars for STARNAV]											
NOTES		*EORF											

BETA 37.13

GMT 08/04/02

CT 08/03/02

MET Day 015



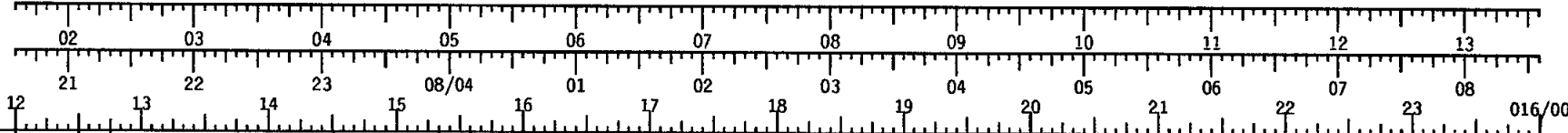
RED	CDR HUSBAND	SLEEP	POST SLEEP	PMCS A/G	PS OLSLEEP	IMU & VERIF	-M XN SVIR	DEORBIT PREP	RAD STOW	D/O BURN*	KSC LANDING*
	MS2 CHAWLA	SLEEP	POST SLEEP				TP E W PR C D W N	DEORBIT PREP			
	MS4 CLARK	SLEEP	POST SLEEP			SUPA STOW		DEORBIT PREP			
	PS1 RAMON	SLEEP	POST SLEEP					DEORBIT PREP			
MCC	KU3		*								
MAIL											
DAY/NIGHT ORBIT											
TDRS E W Z											
ATTITUDE											
SAA											
CVX											
MIST											
SOLCON											
SOLSE											
LPT/MSTR											
MEIDEX											
STARNAV											
<p>▲FC PURGE-AUTO</p> <p>*BURN 15/20:58</p> <p>*KSC LANDING 15/22:11</p>											
NOTES											

BETA 37.13

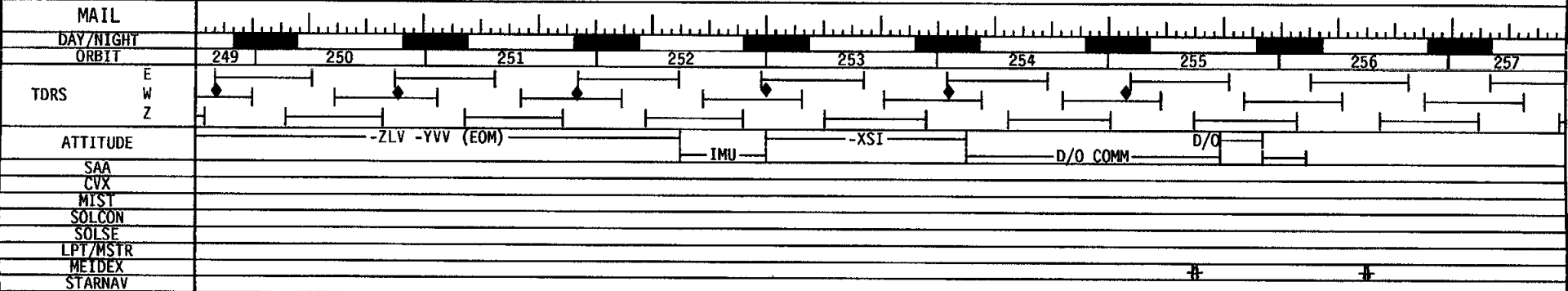
GMT 08/04/02

CT 08/03/02

MET Day 015



BLUE	PLT MCCOOL	SOLSE DEACT	S P O G L S C E	CABIN STOW		P S T I O N T R	G P R W P R U P	F L O V L V	DEORBIT PREP	D / O	K S C
	MS1 BROWN	⊕	CABIN STOW	SHAB ENTRY PREP	CABIN STOW	P S T I O N T R	S L P S T O		DEORBIT PREP	B U R N *	L A N D I N G *
	MS3 ANDERSON	♦	CABIN STOW	SHAB TEAR DOWN 2	SHAB ENTRY PREP	CABIN STOW			DEORBIT PREP		
MCC	KU3			⊗							



NOTES

⊗SHAB TEAR DOWN 3 ⊗FC PURGE-AUTO ♦FS DEACT

♦SHAB TEAR DOWN 3

*BURN 15/20:58

*KSC LANDING 15/22:11

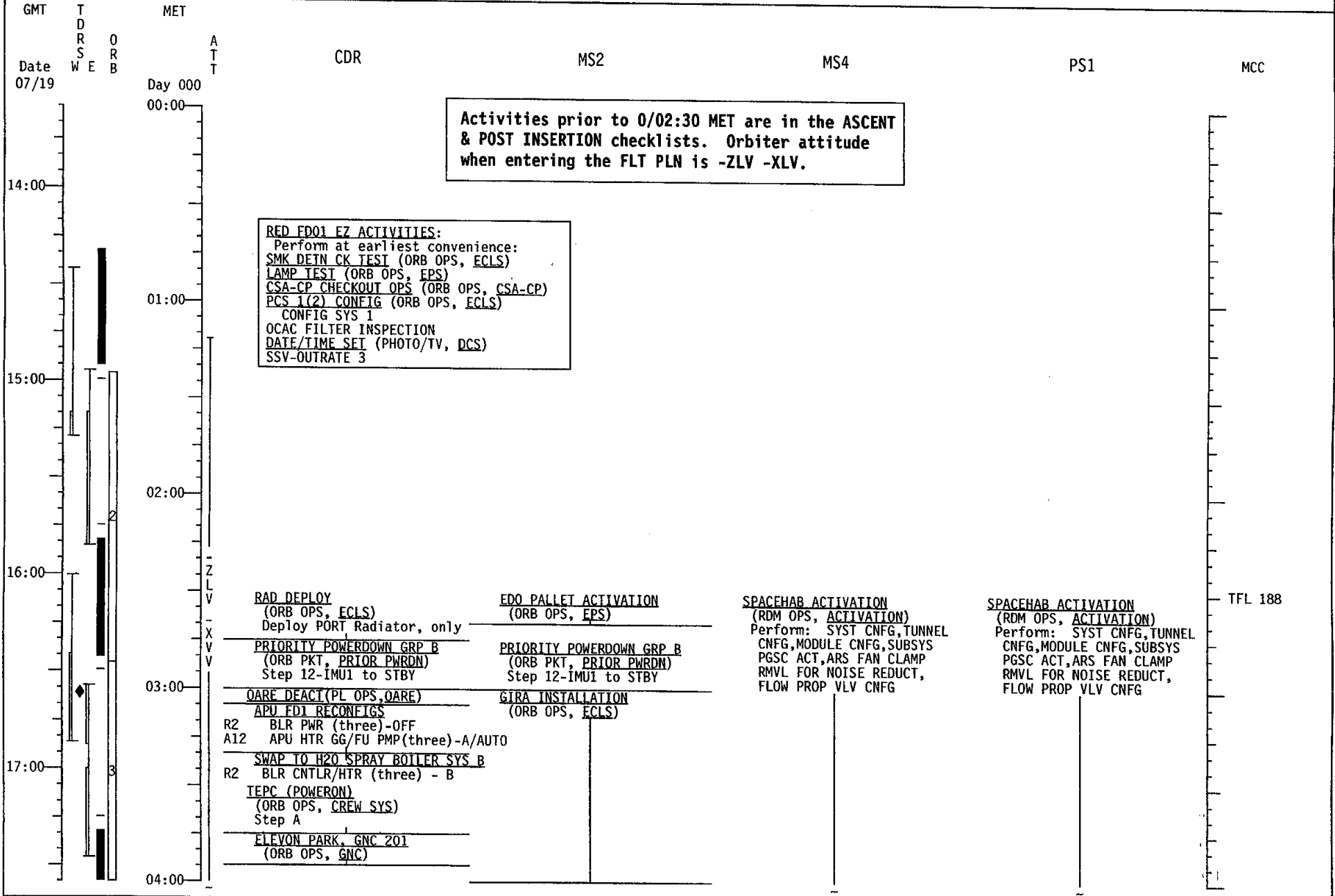
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DETAILED TIMELINE

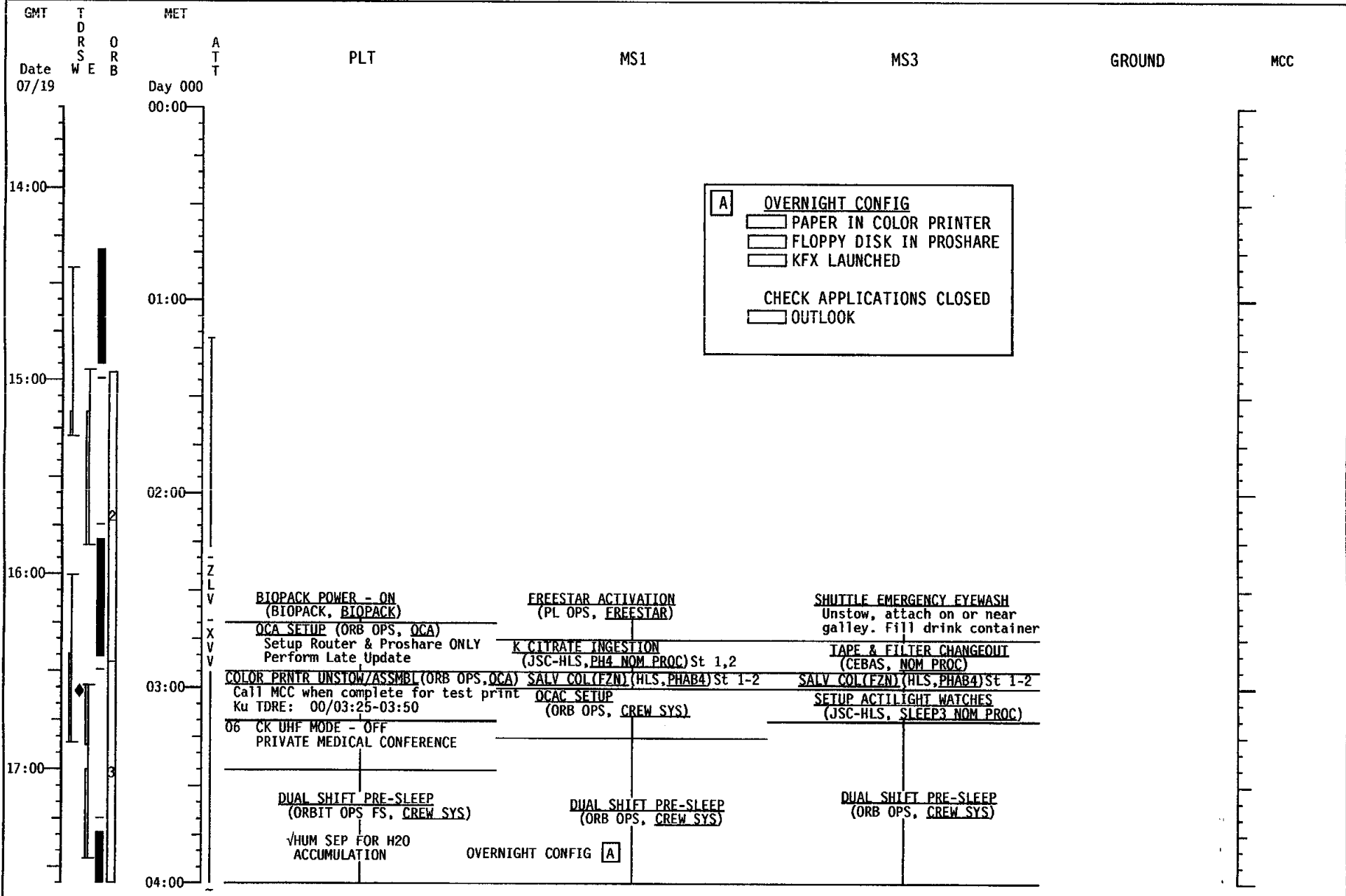
DETAILED
TIMELINE

DETAILED TIMELINE

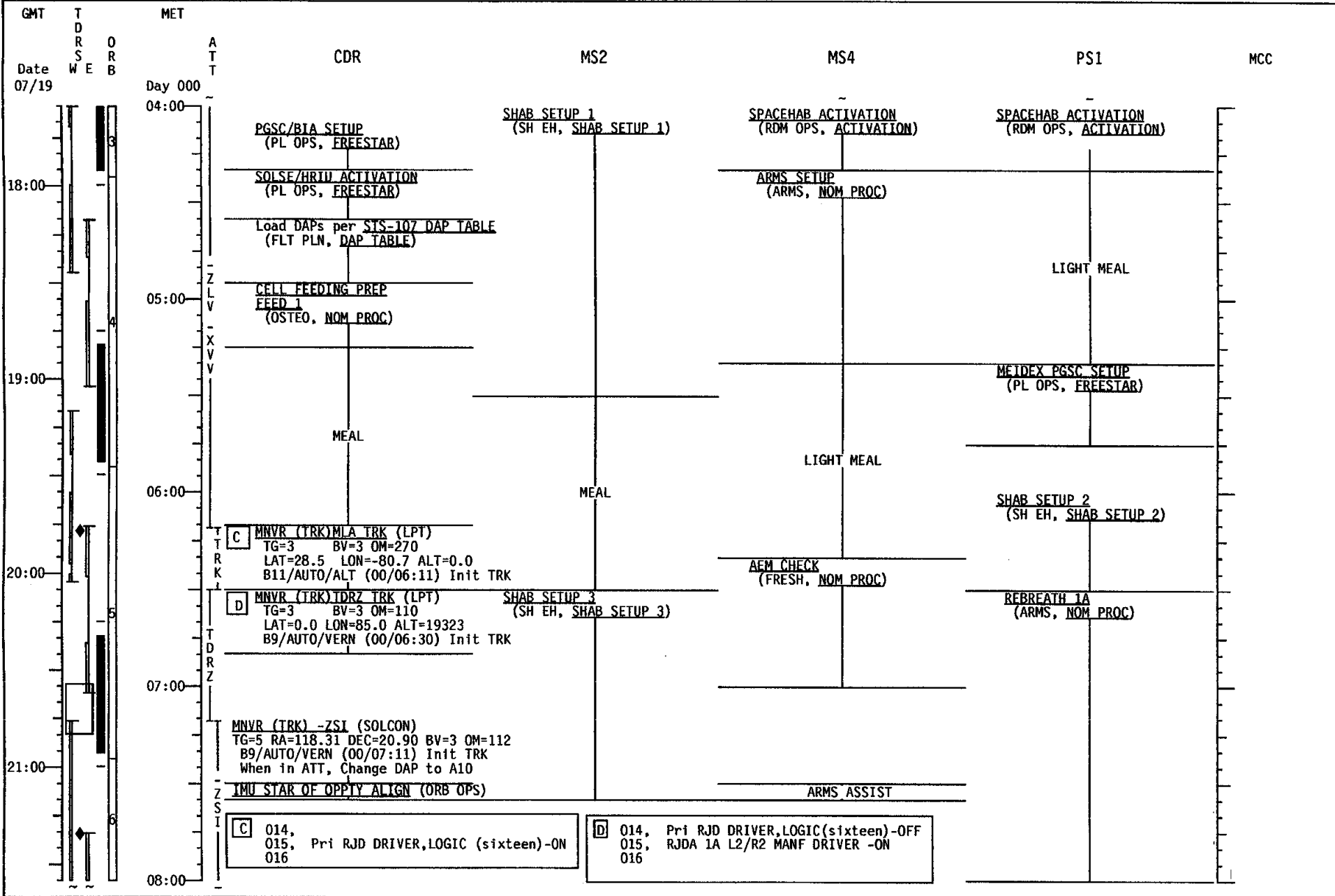
STS-107 (RED FD01)



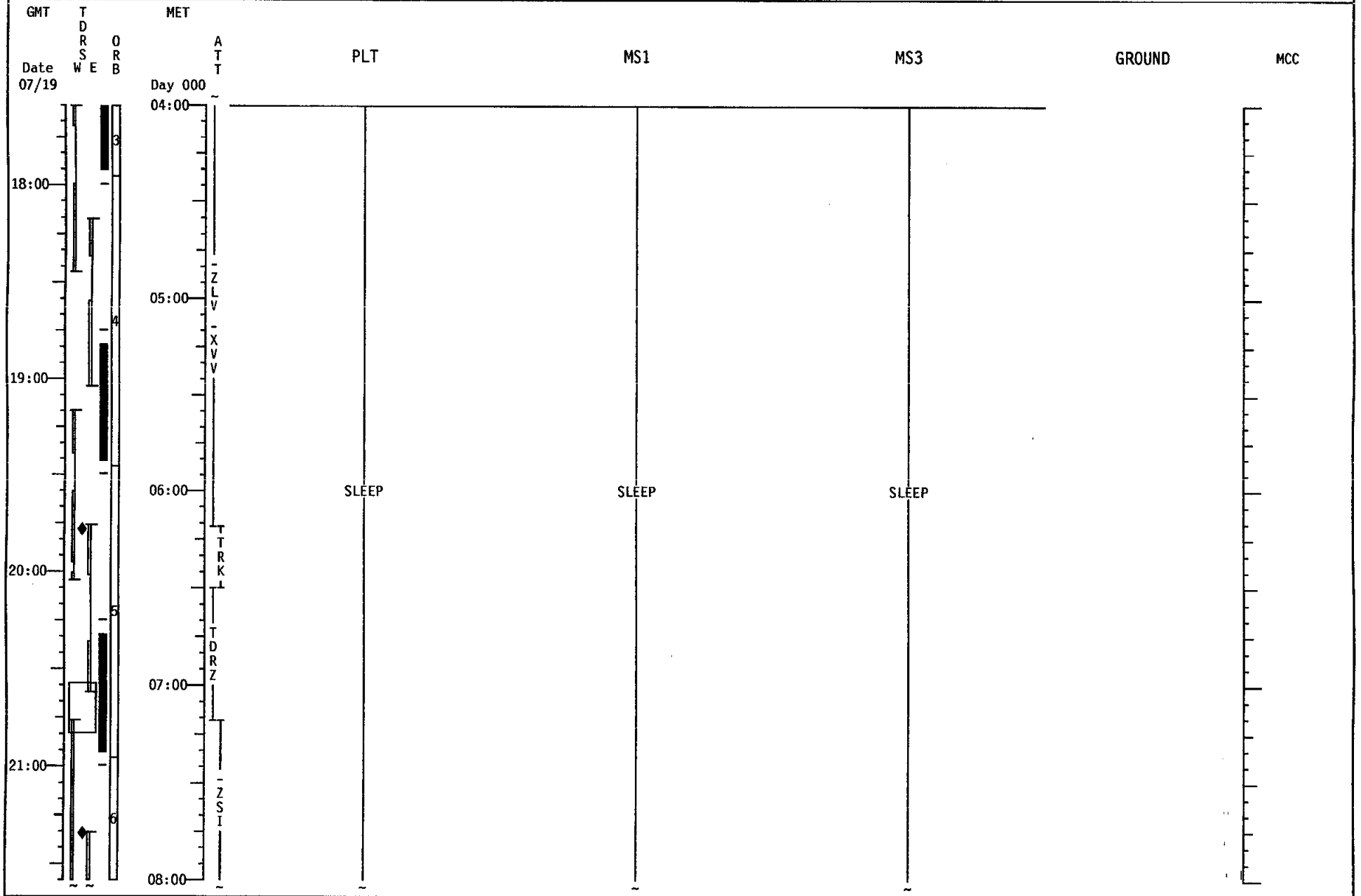
STS-107 (BLUE FD01)



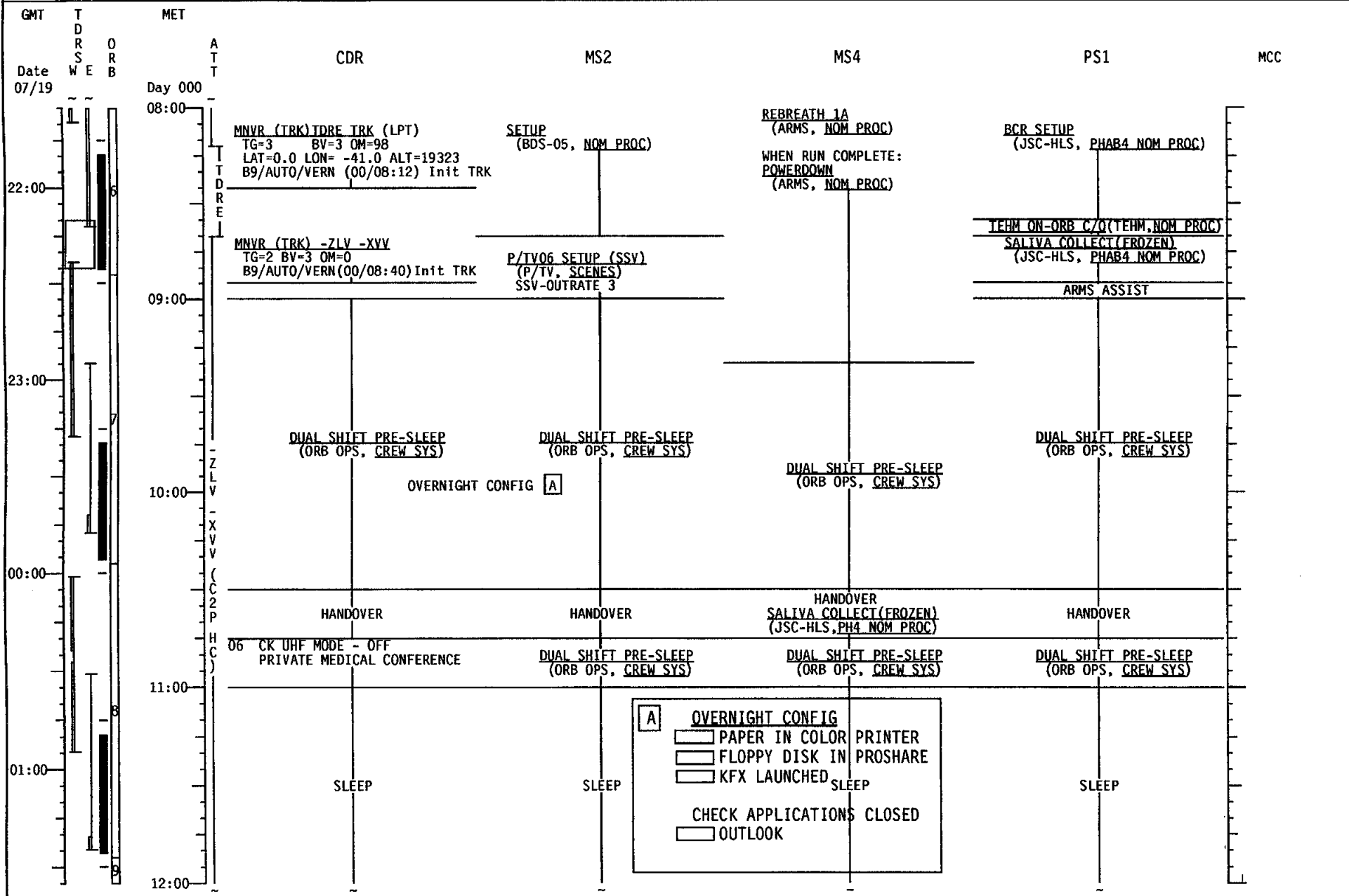
STS-107 (RED FD01)



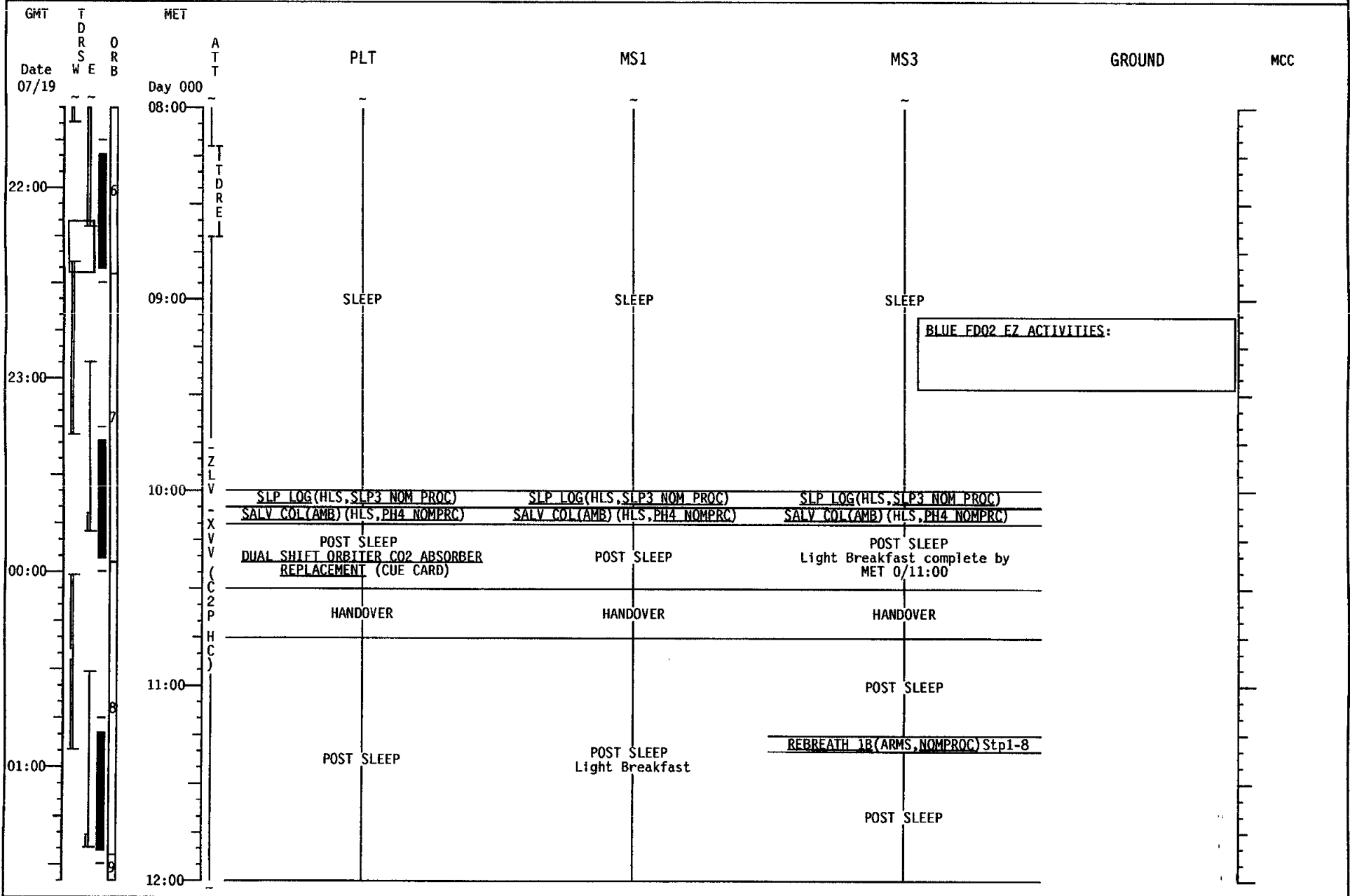
STS-107 (BLUE FD01)



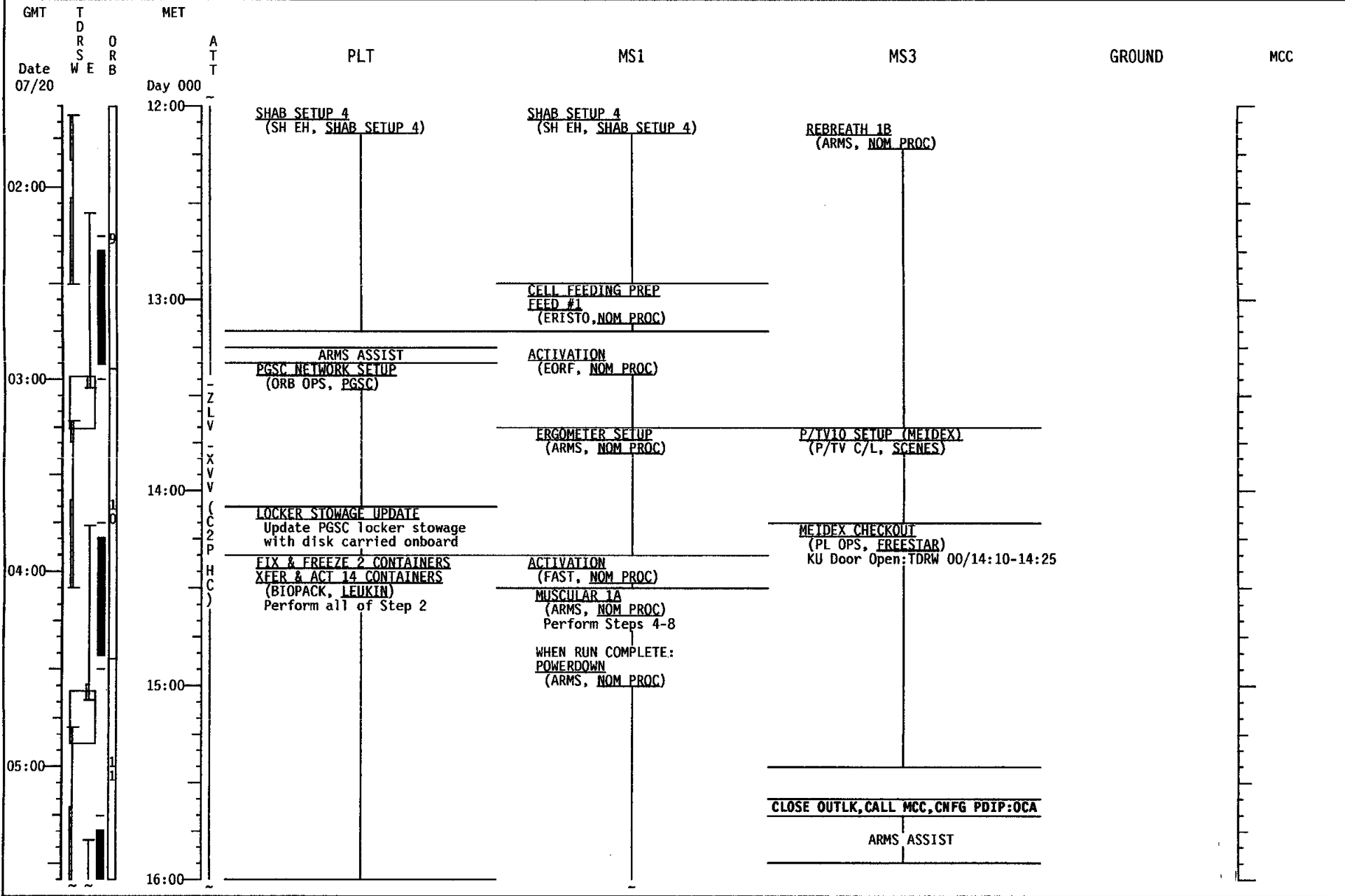
STS-107 (RED FD01)



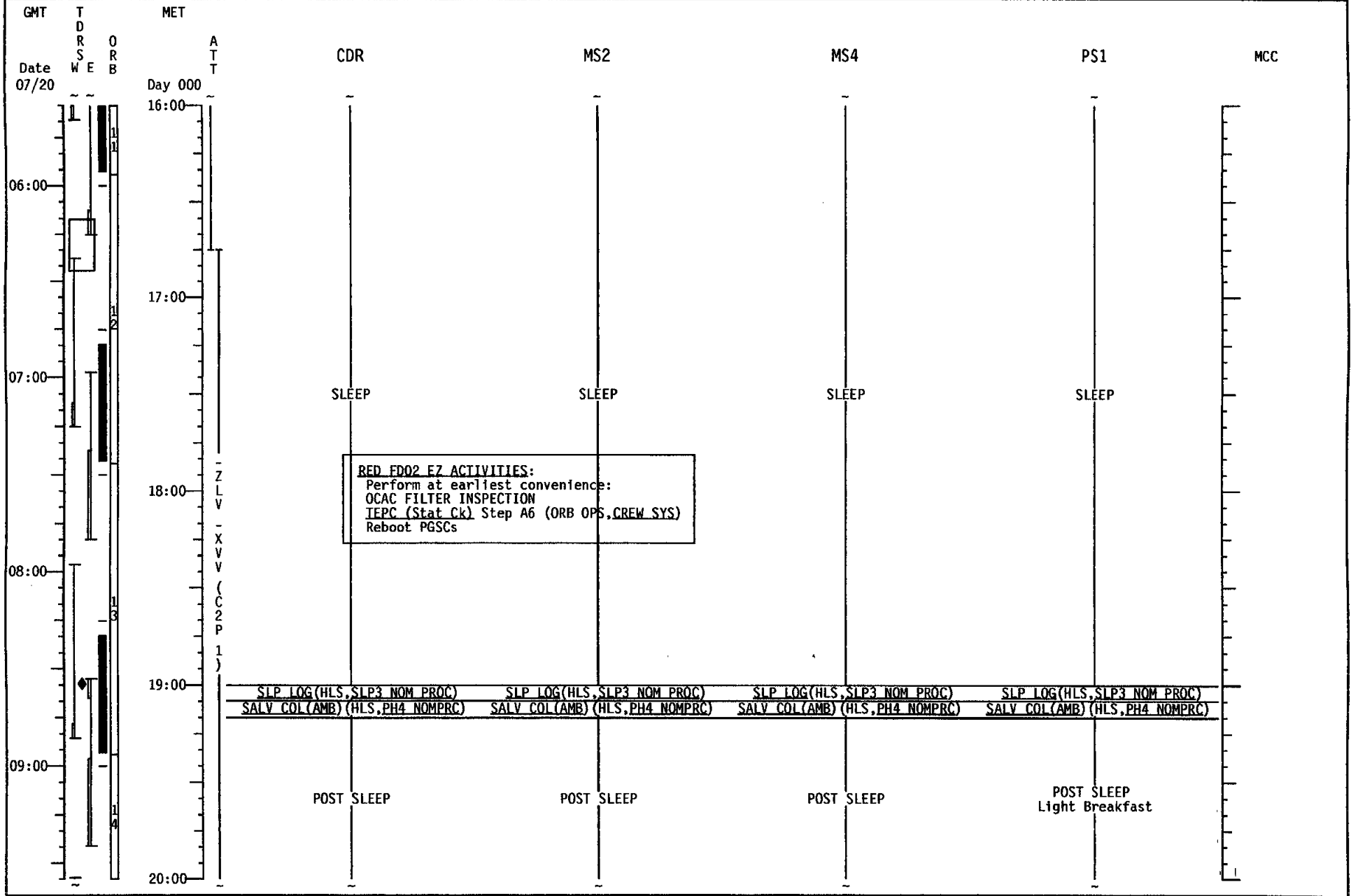
STS-107 (BLUE FD02)



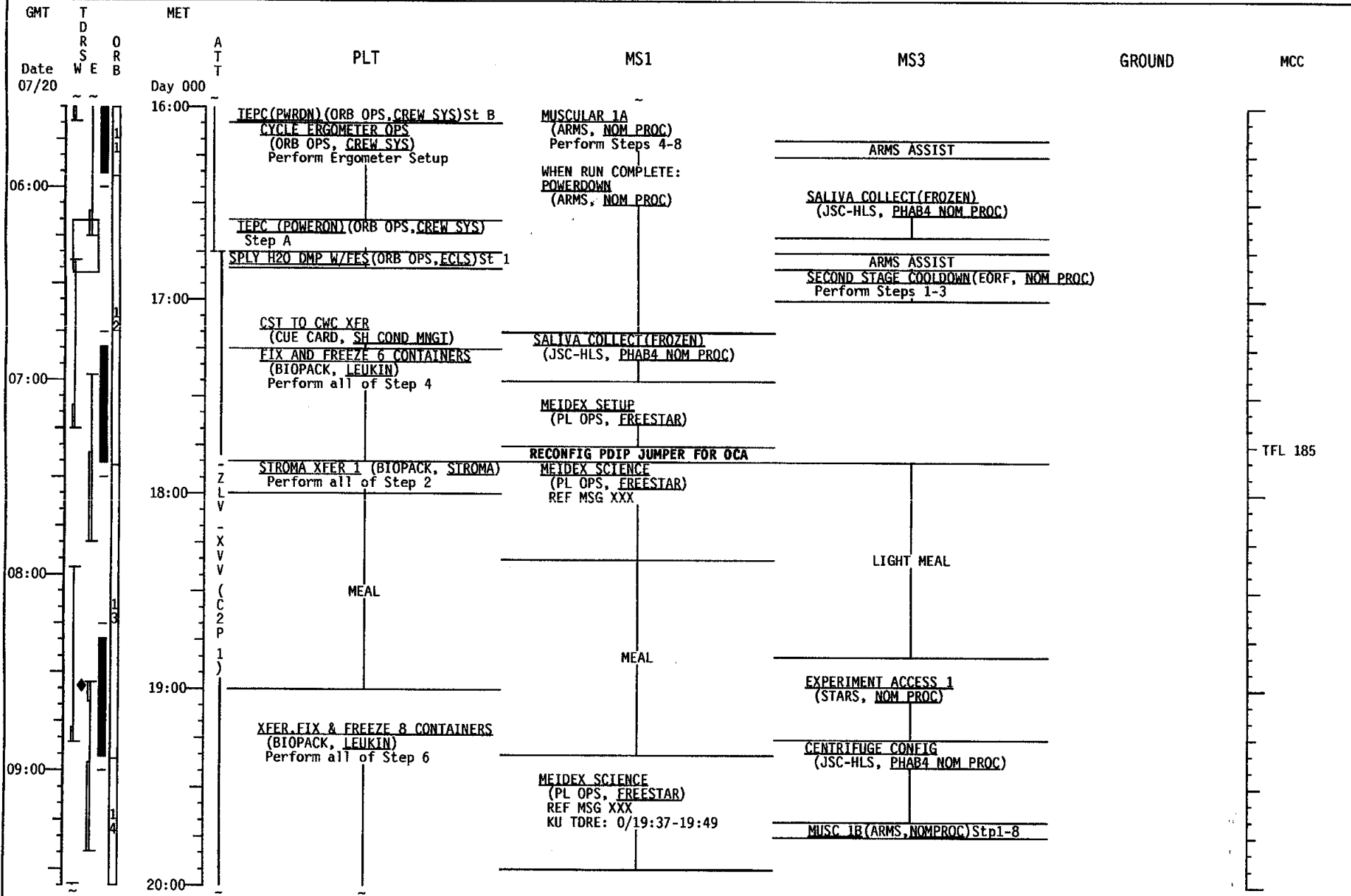
STS-107 (BLUE FD02)



STS-107 (RED FD02)

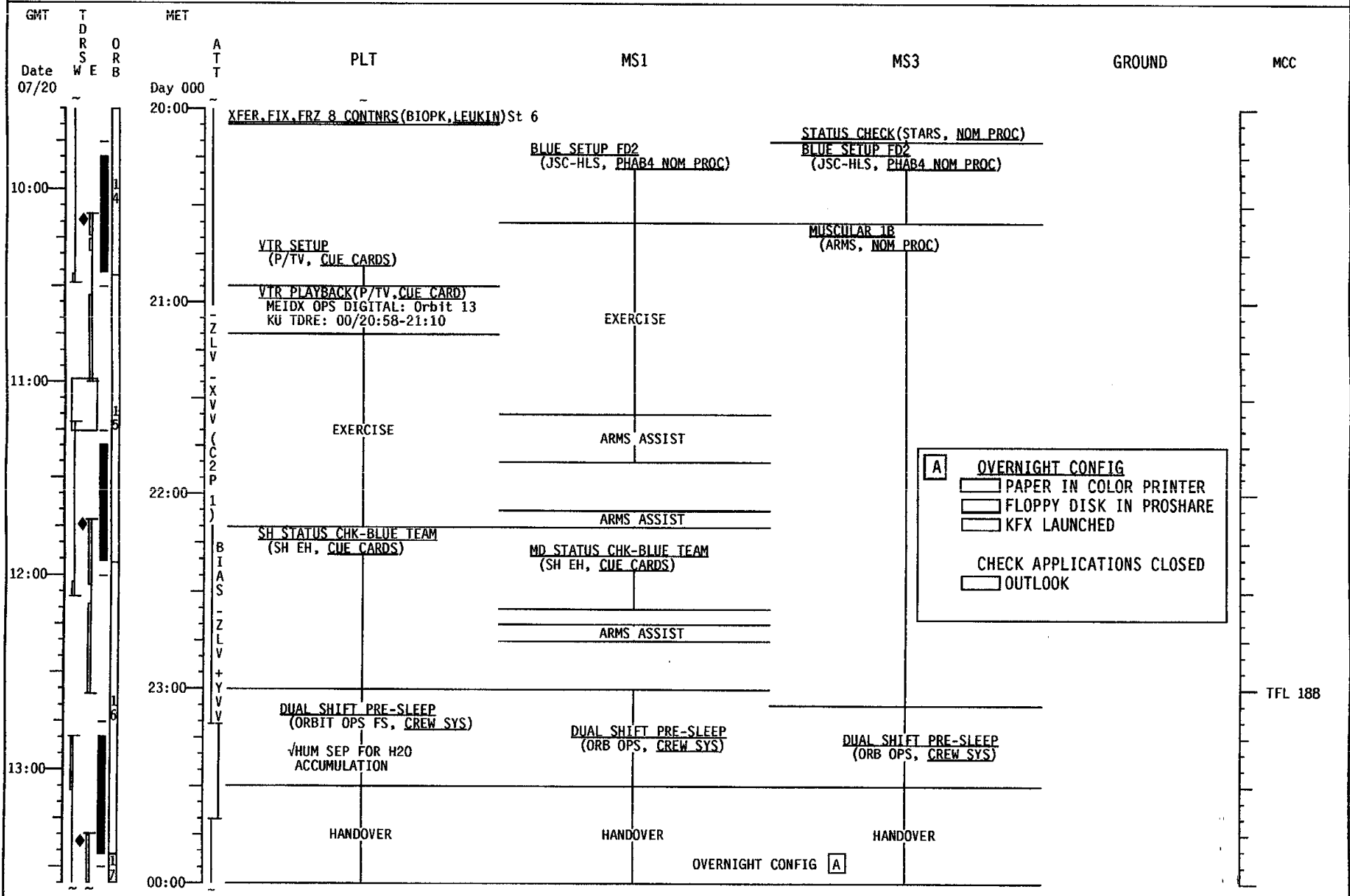


STS-107 (BLUE FD02)

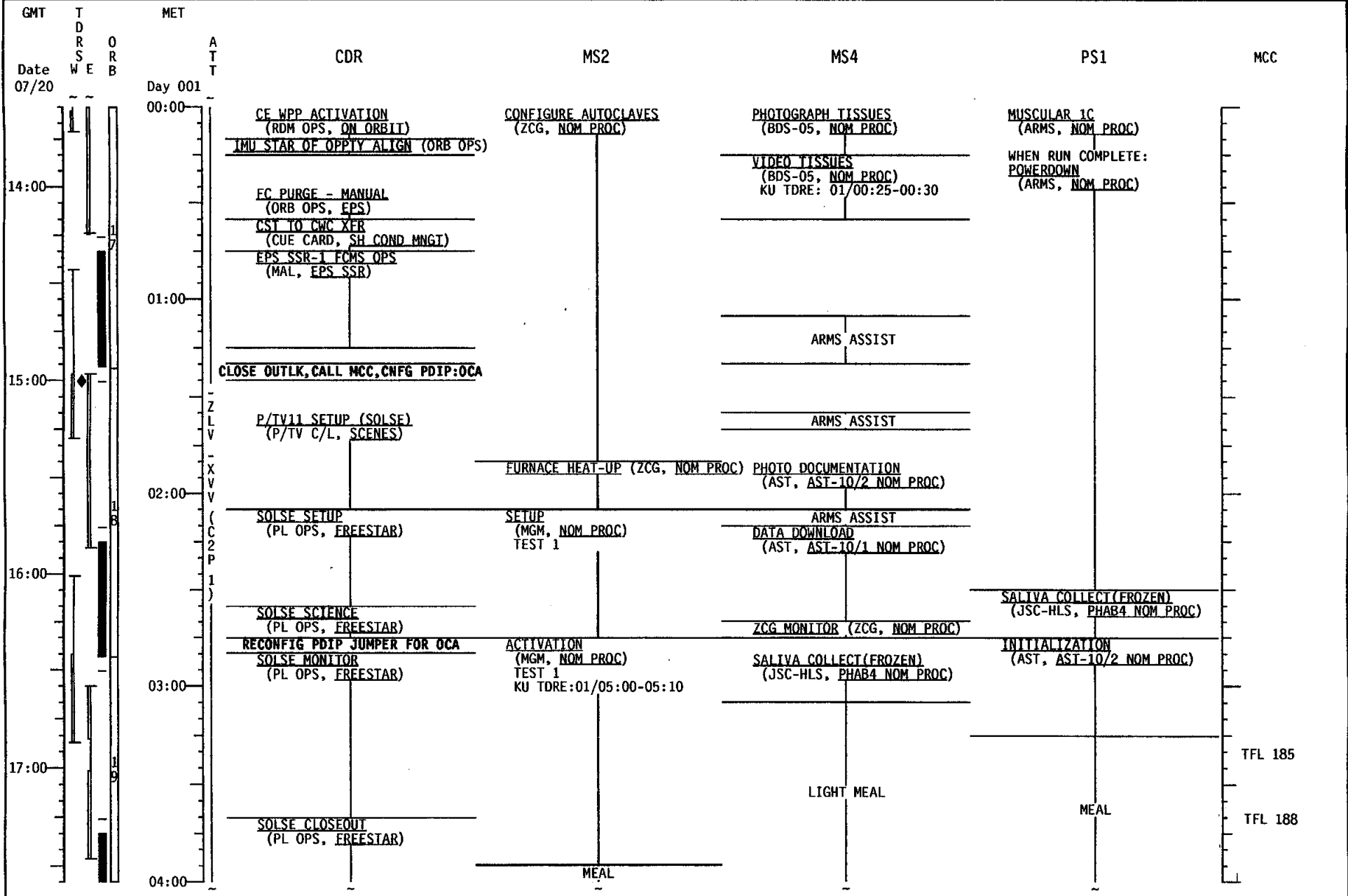


TFL 185

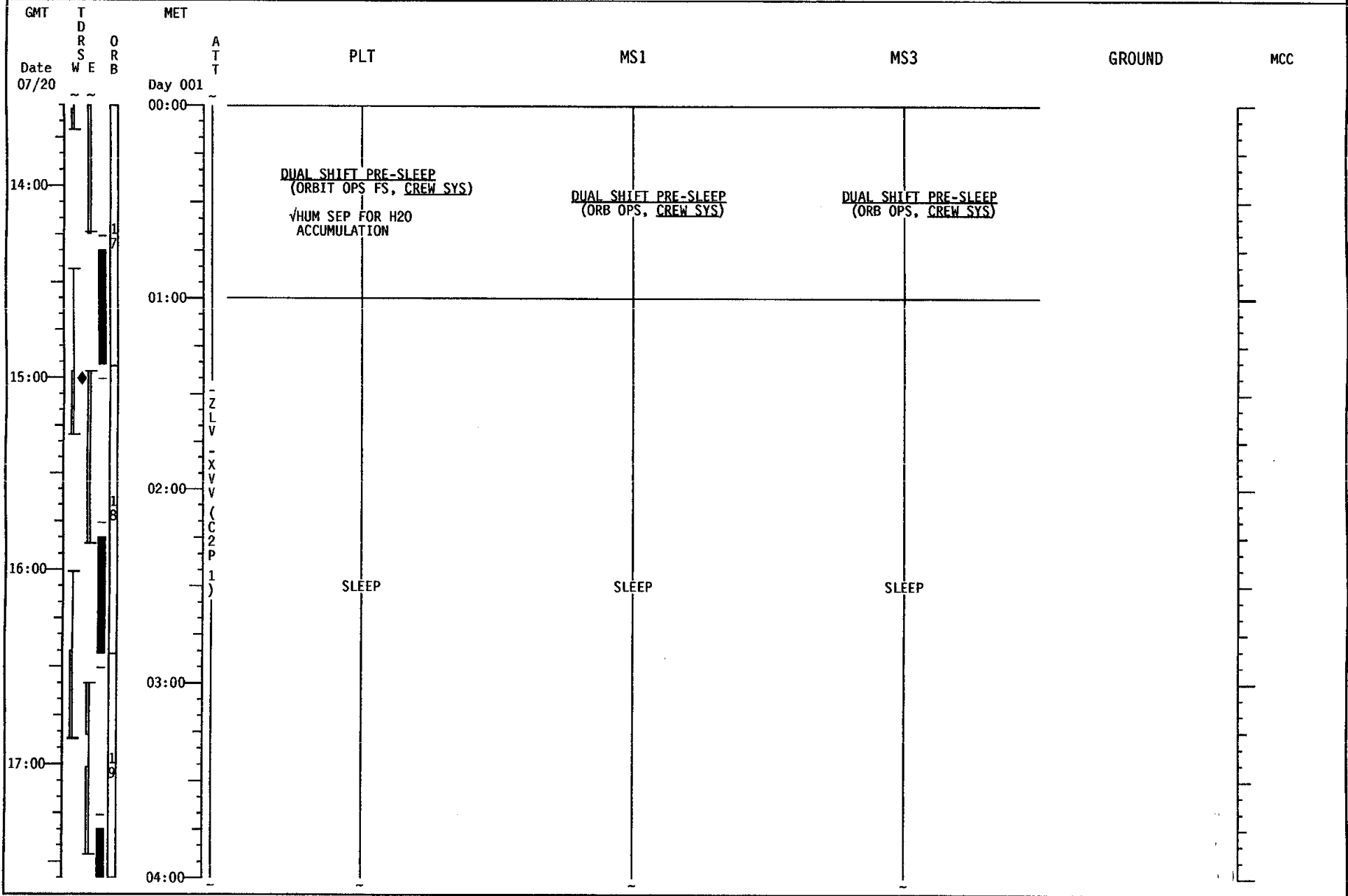
STS-107 (BLUE FD02)



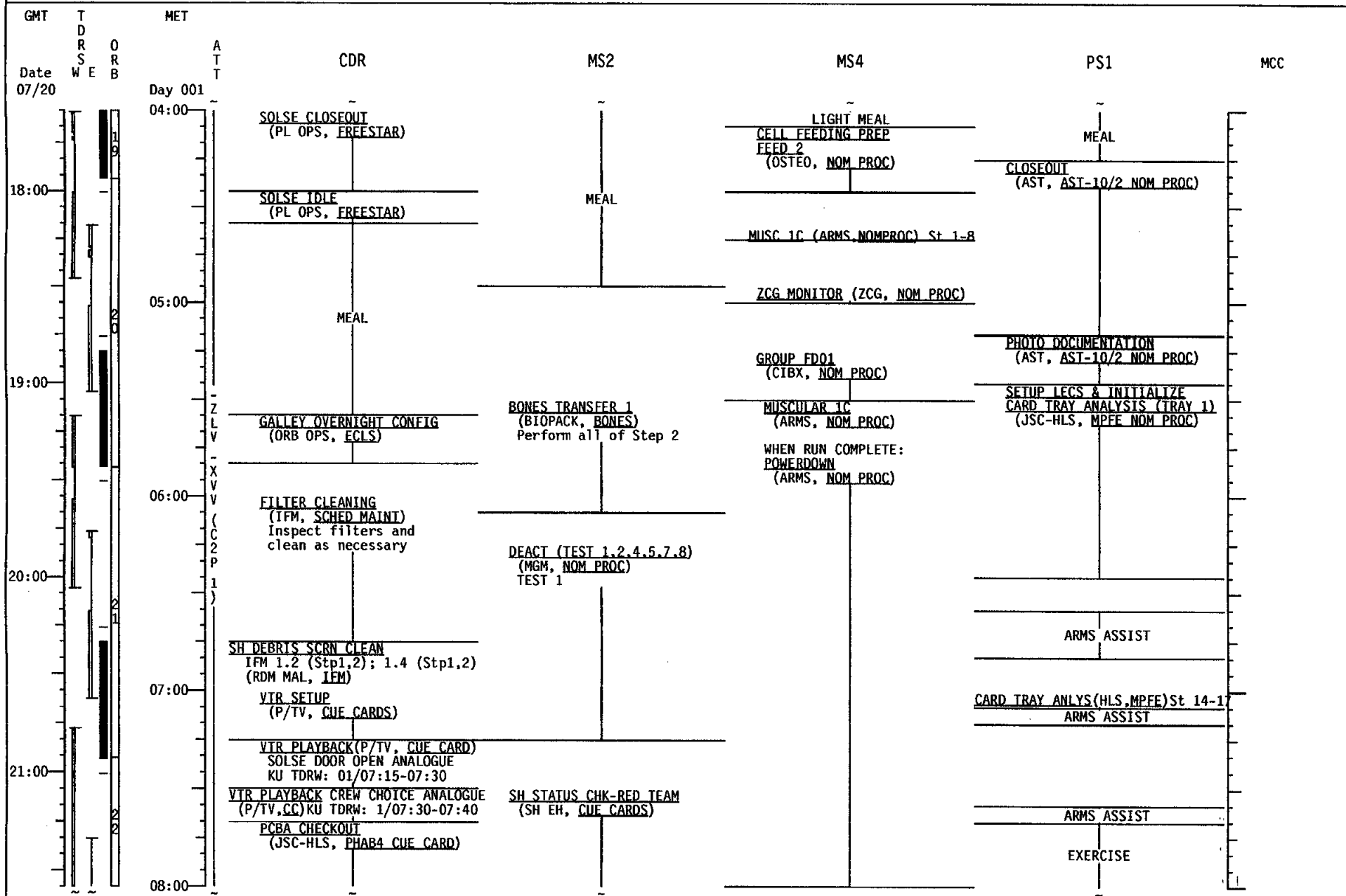
STS-107 (RED FD02)



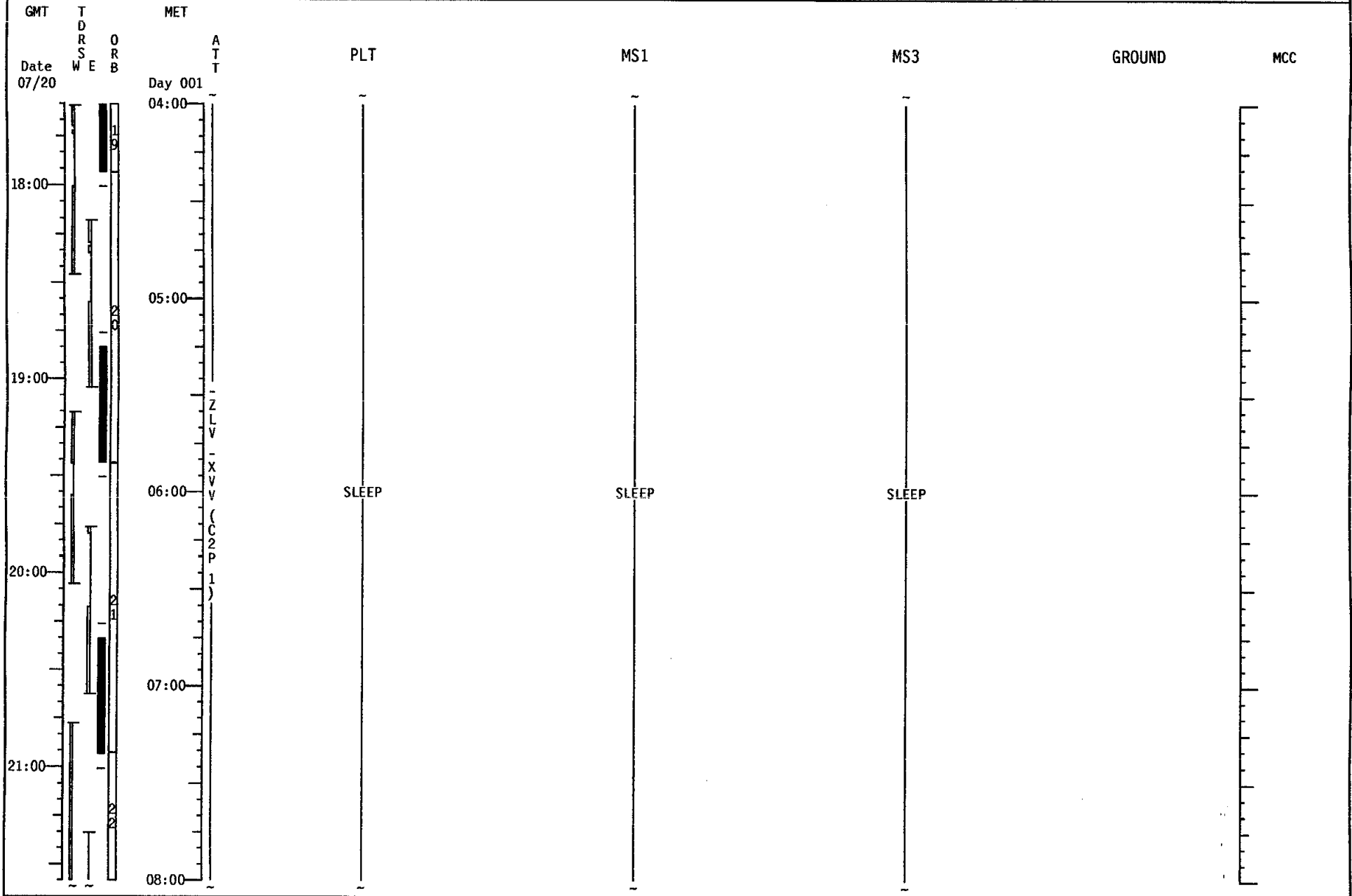
STS-107 (BLUE FD02)



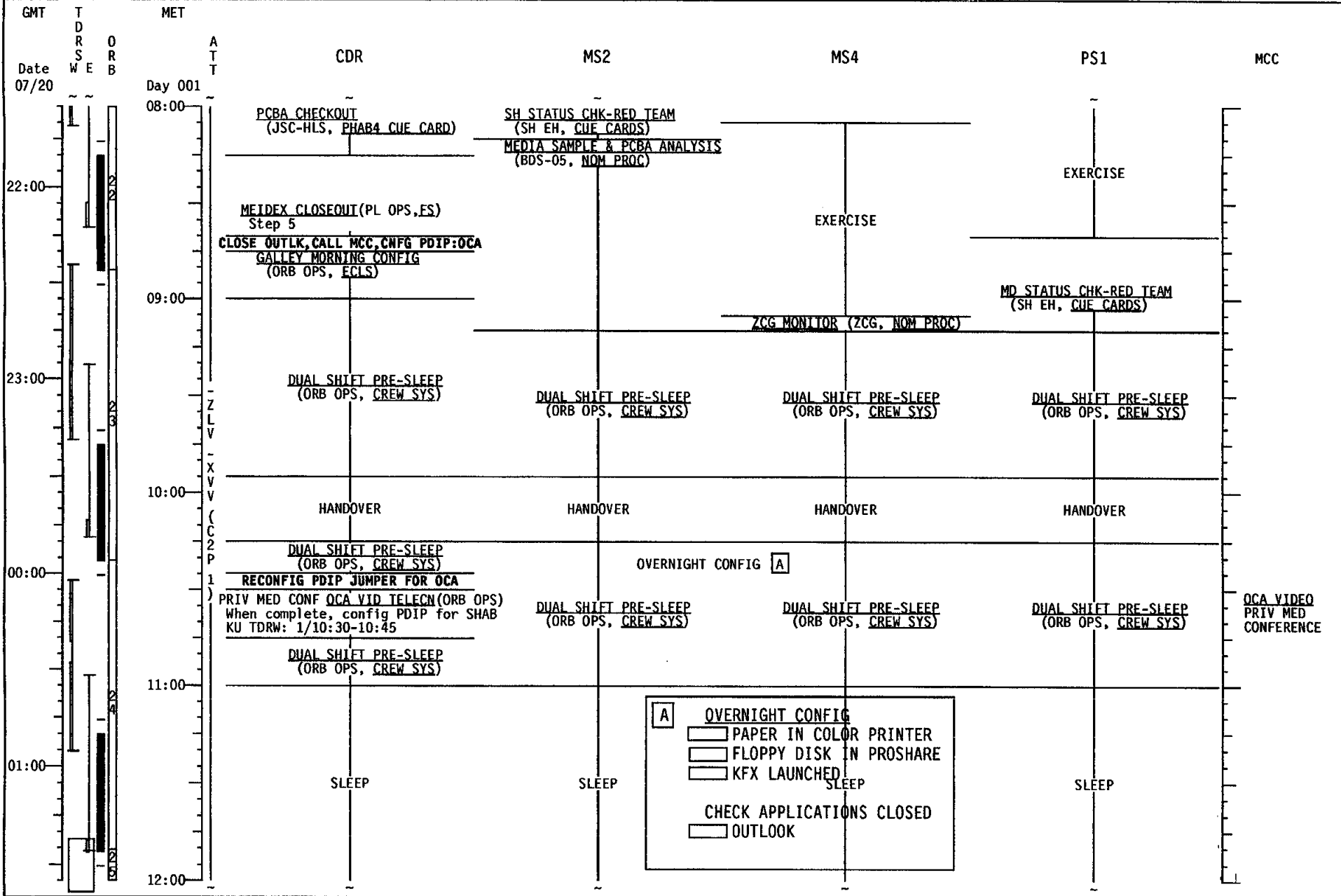
STS-107 (RED FD02)



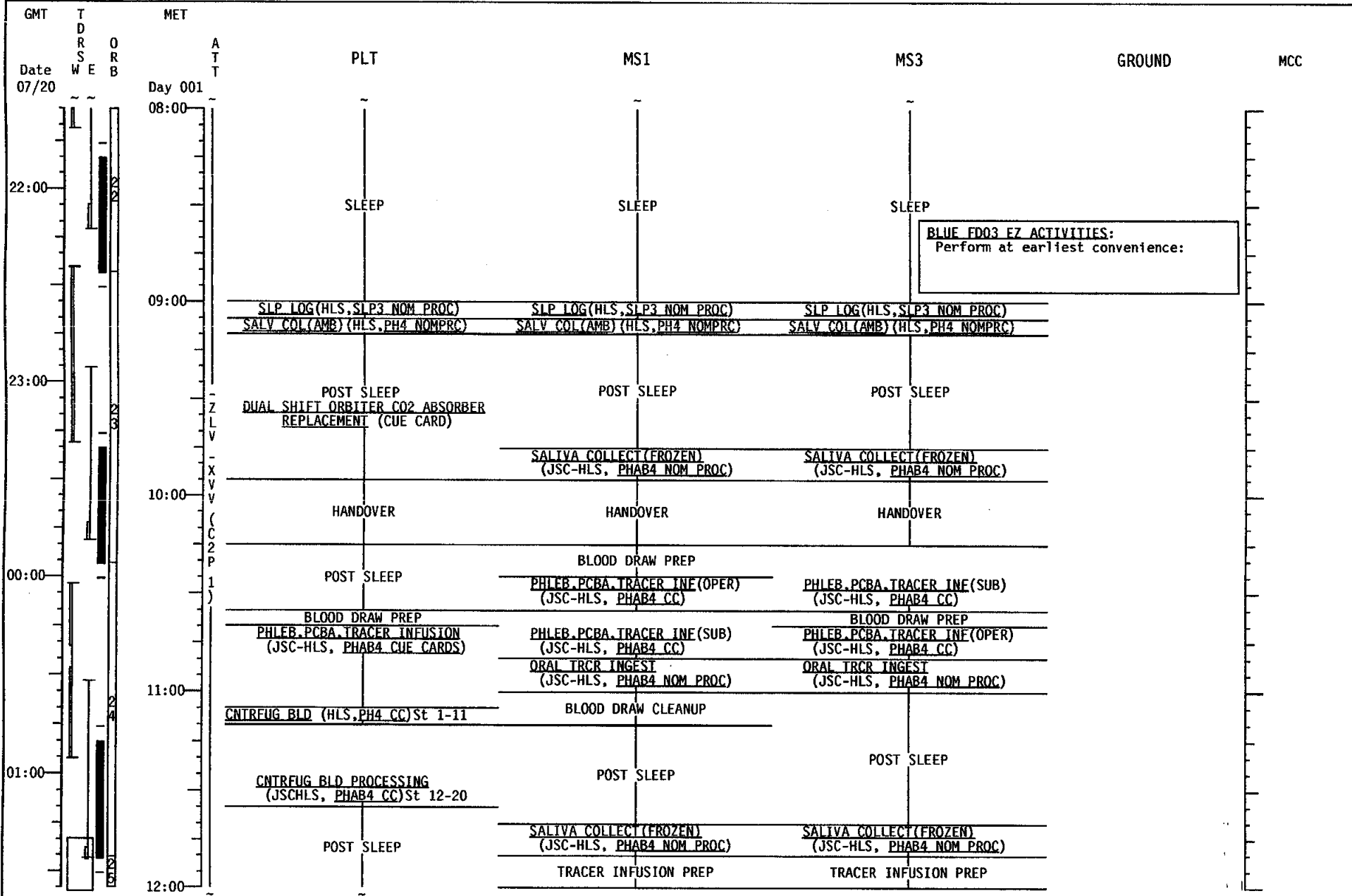
STS-107 (BLUE FD02)



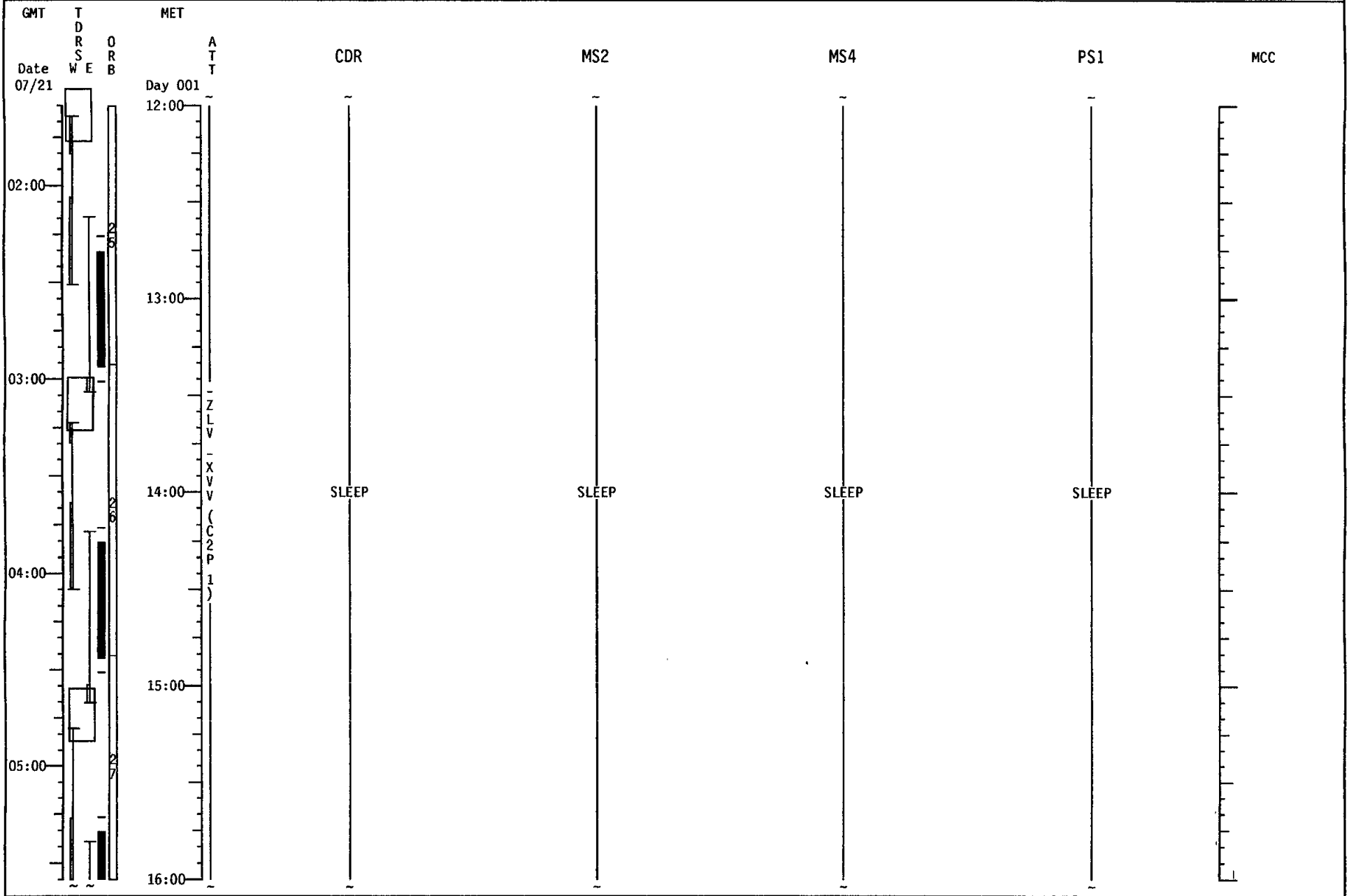
STS-107 (RED FD02)



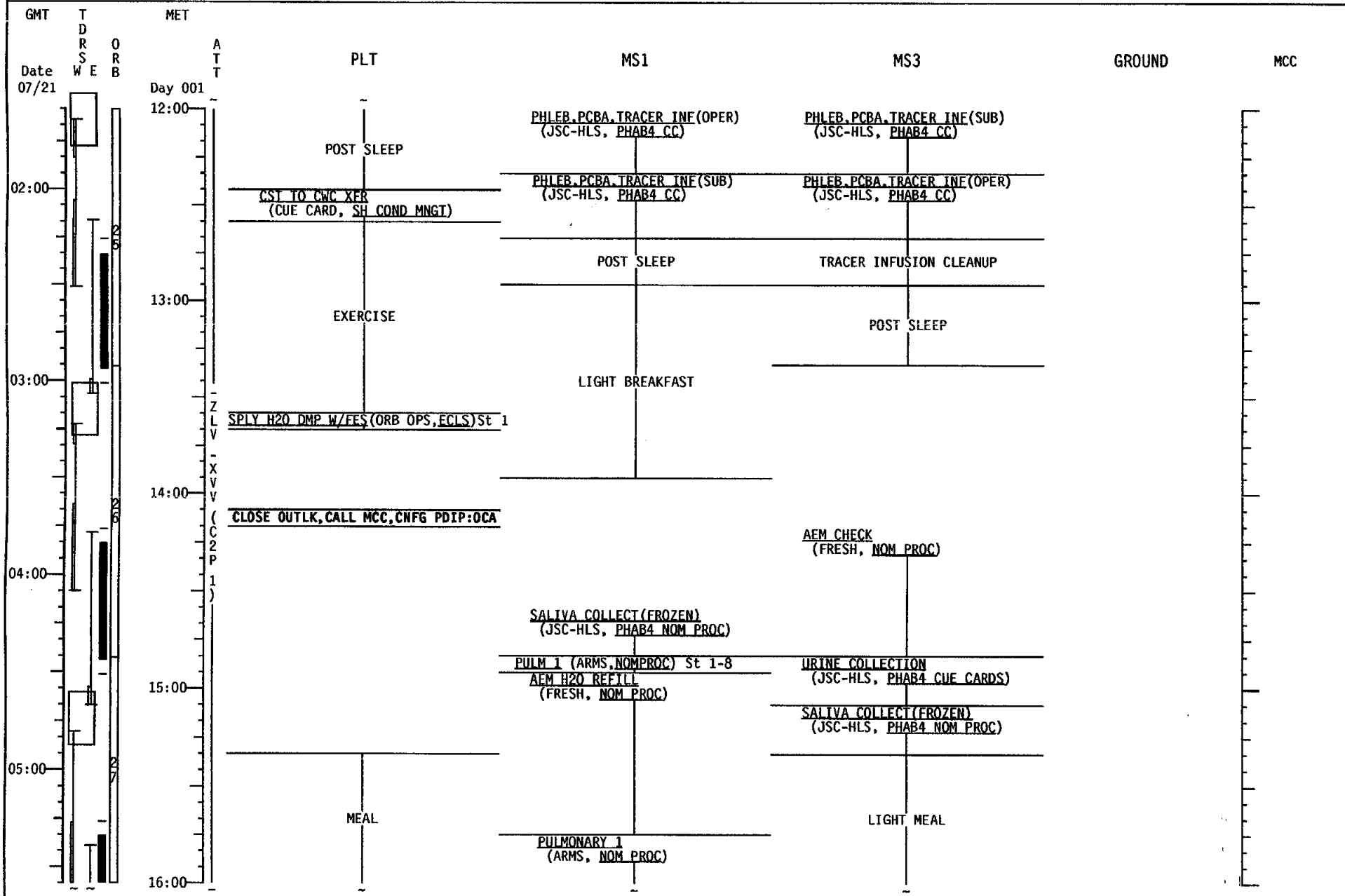
STS-107 (BLUE FD03)



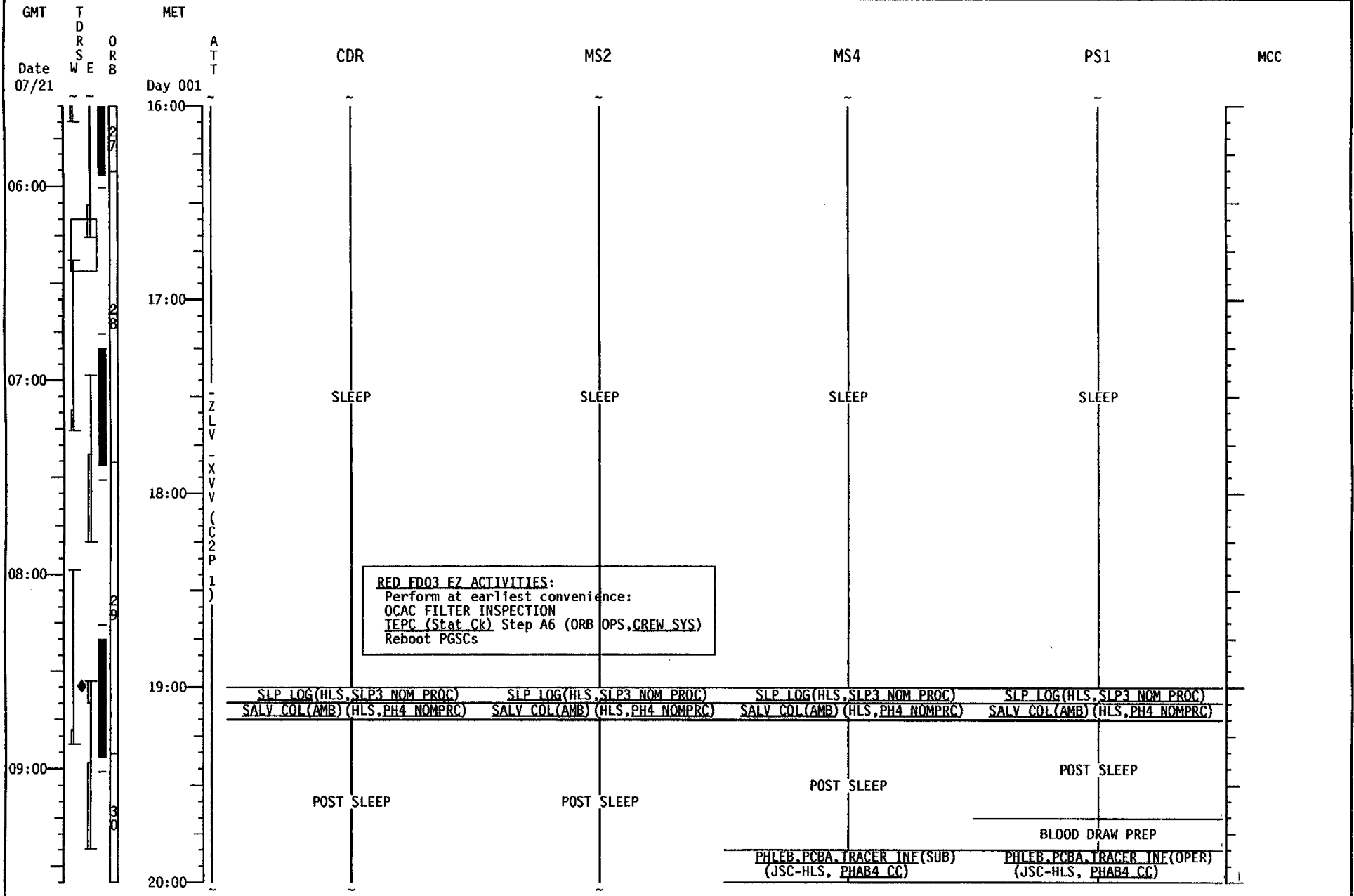
STS-107 (RED FD02)



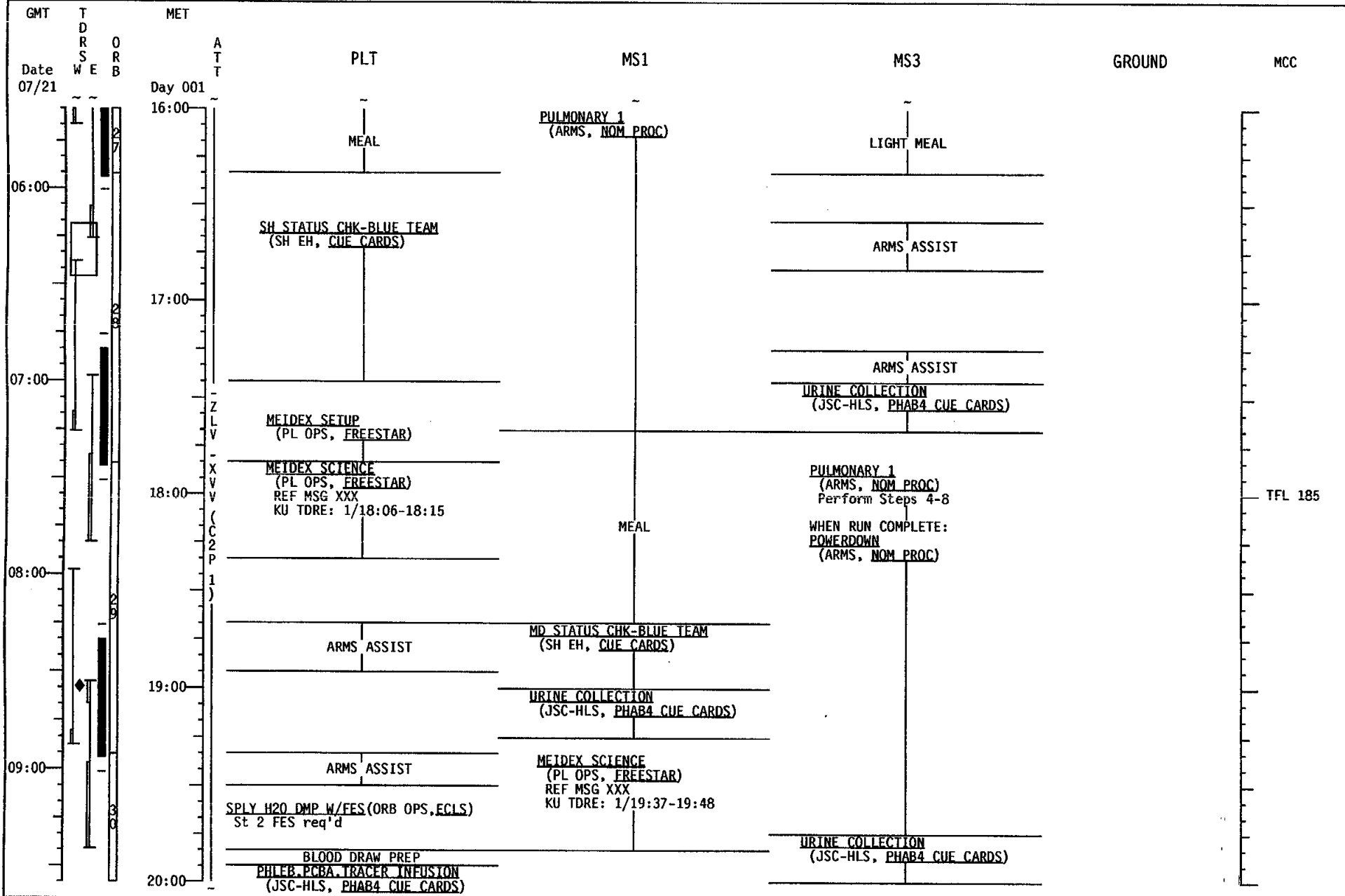
STS-107 (BLUE FD03)



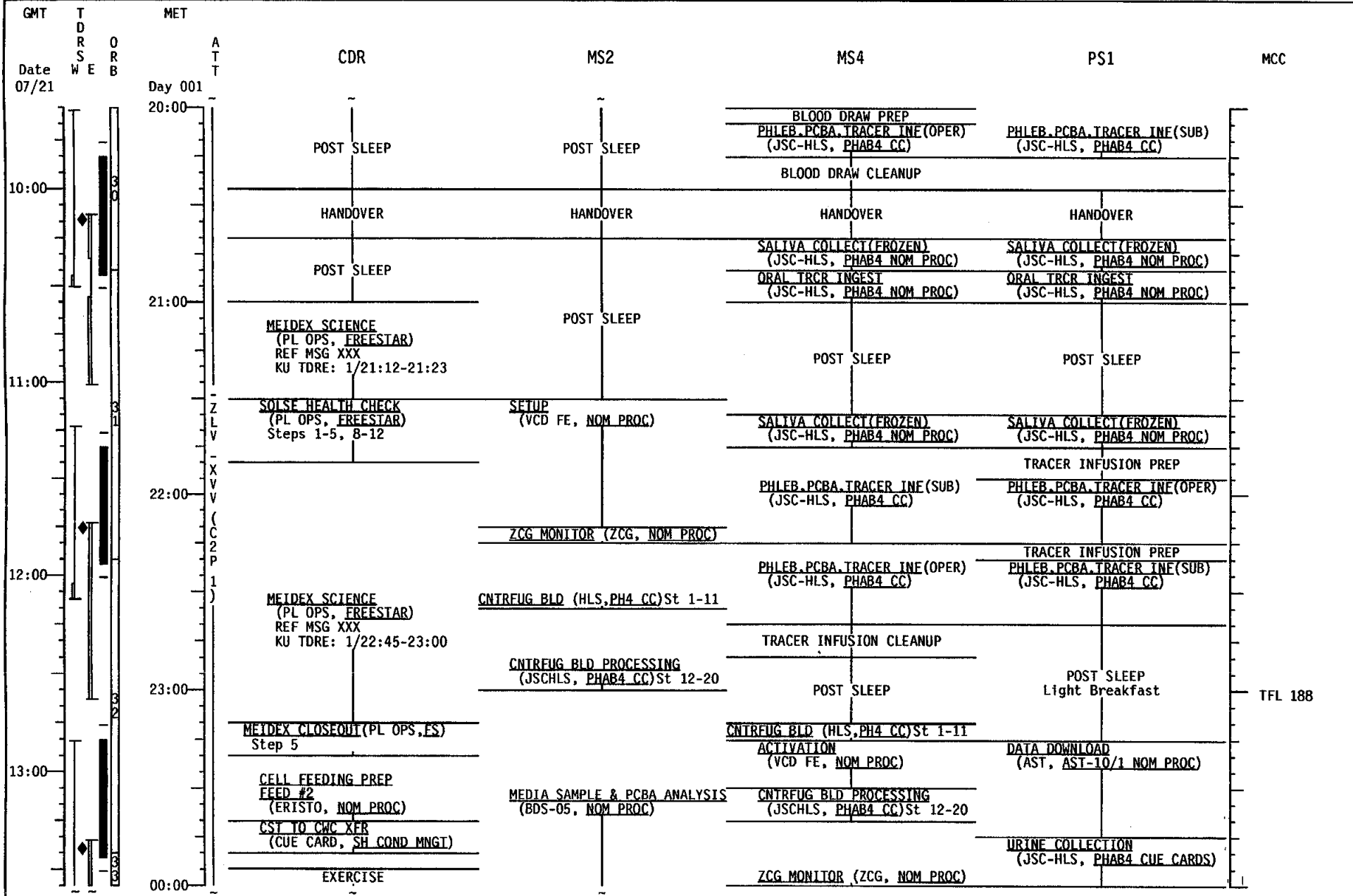
STS-107 (RED FD03)



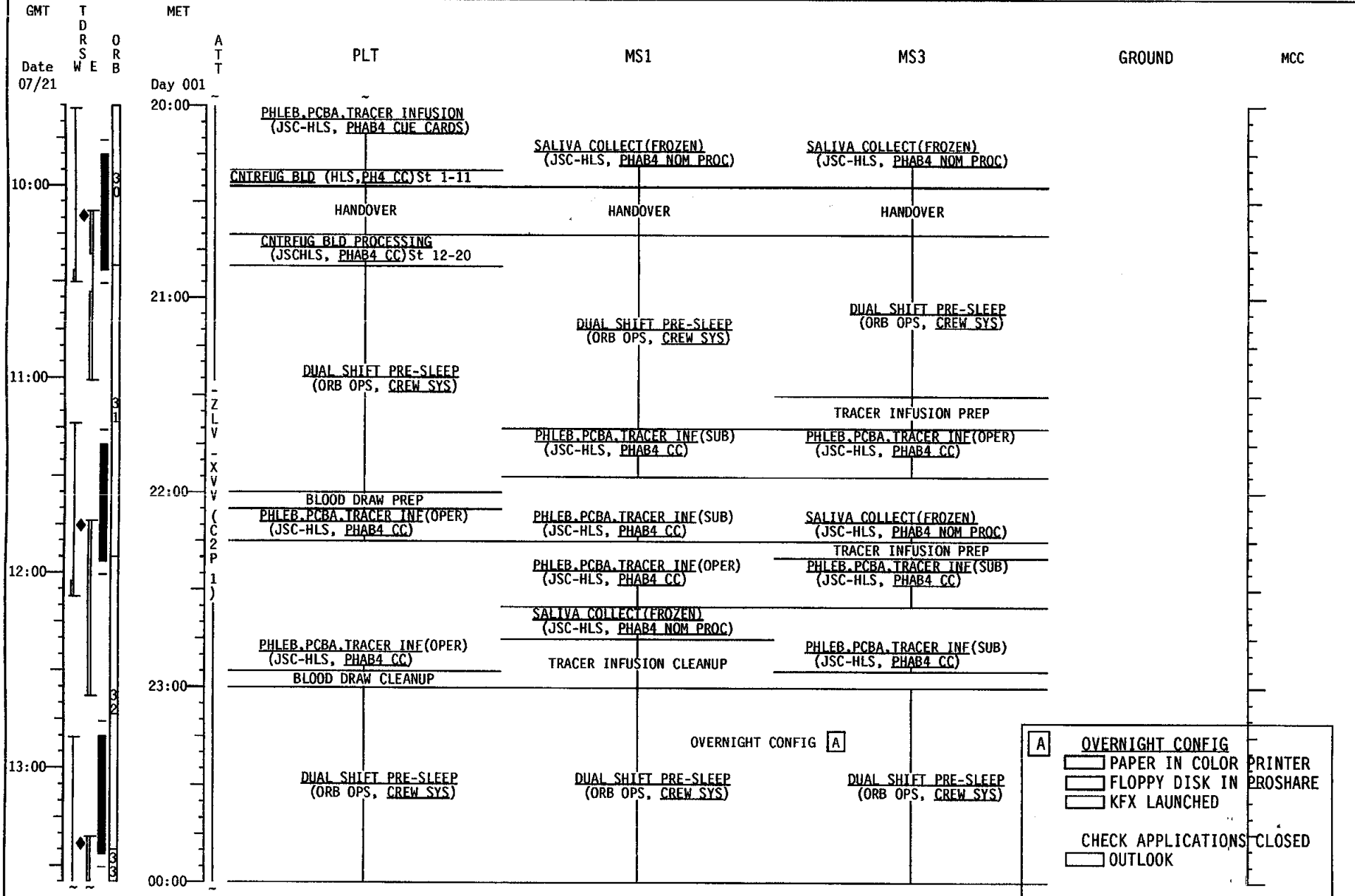
STS-107 (BLUE FD03)



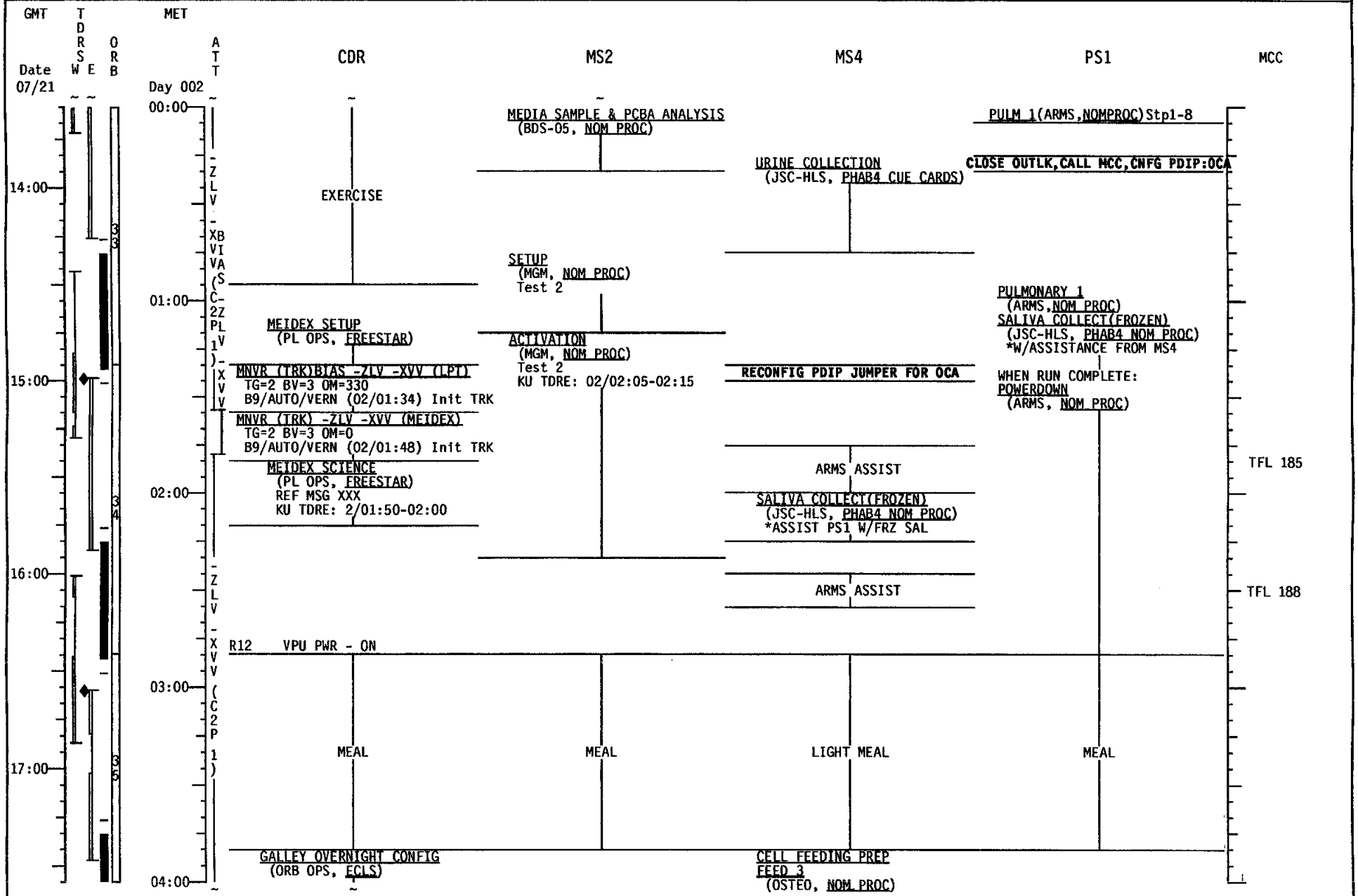
STS-107 (RED FD03)



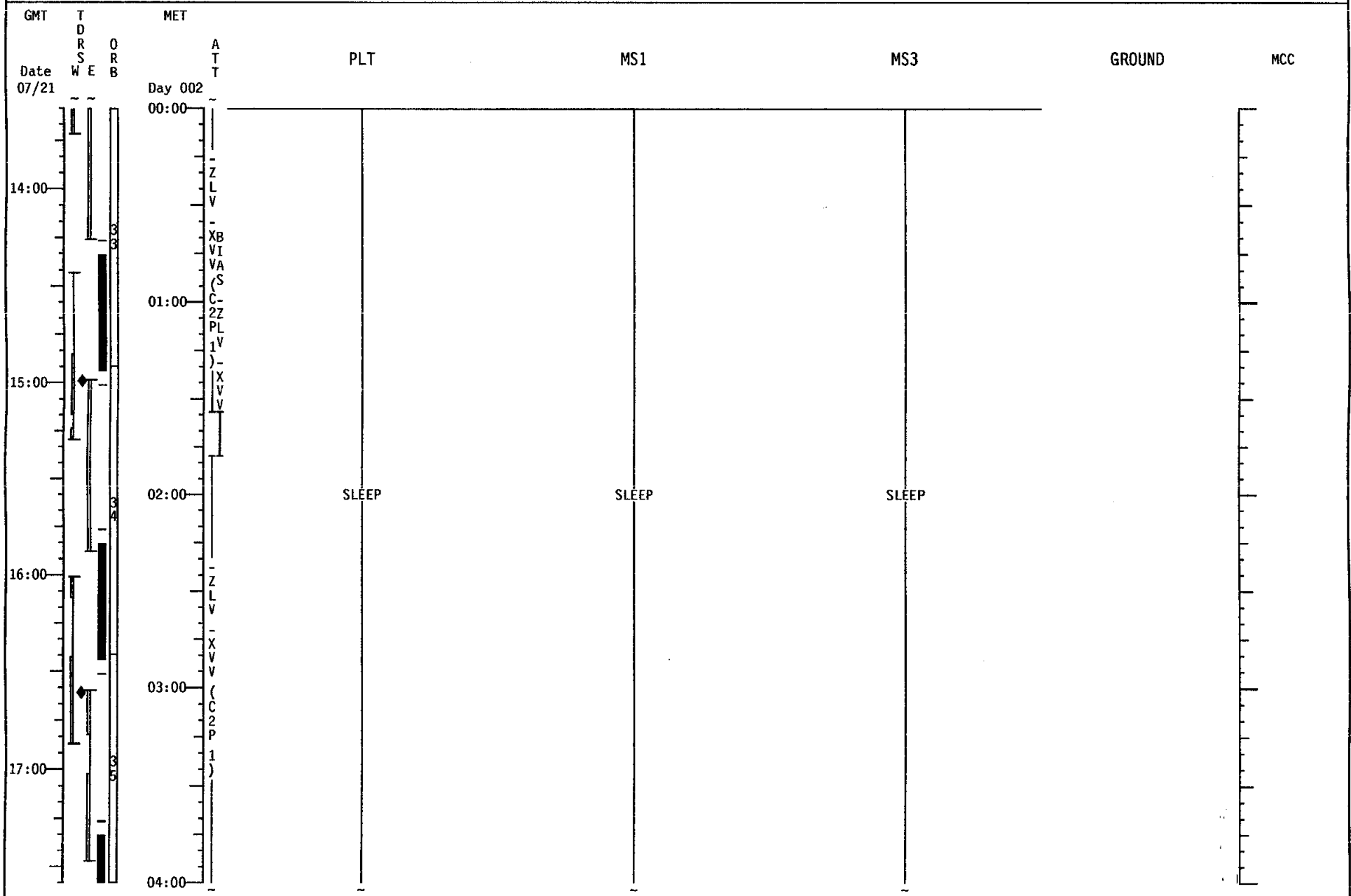
STS-107 (BLUE FD03)



STS-107 (RED FD03)



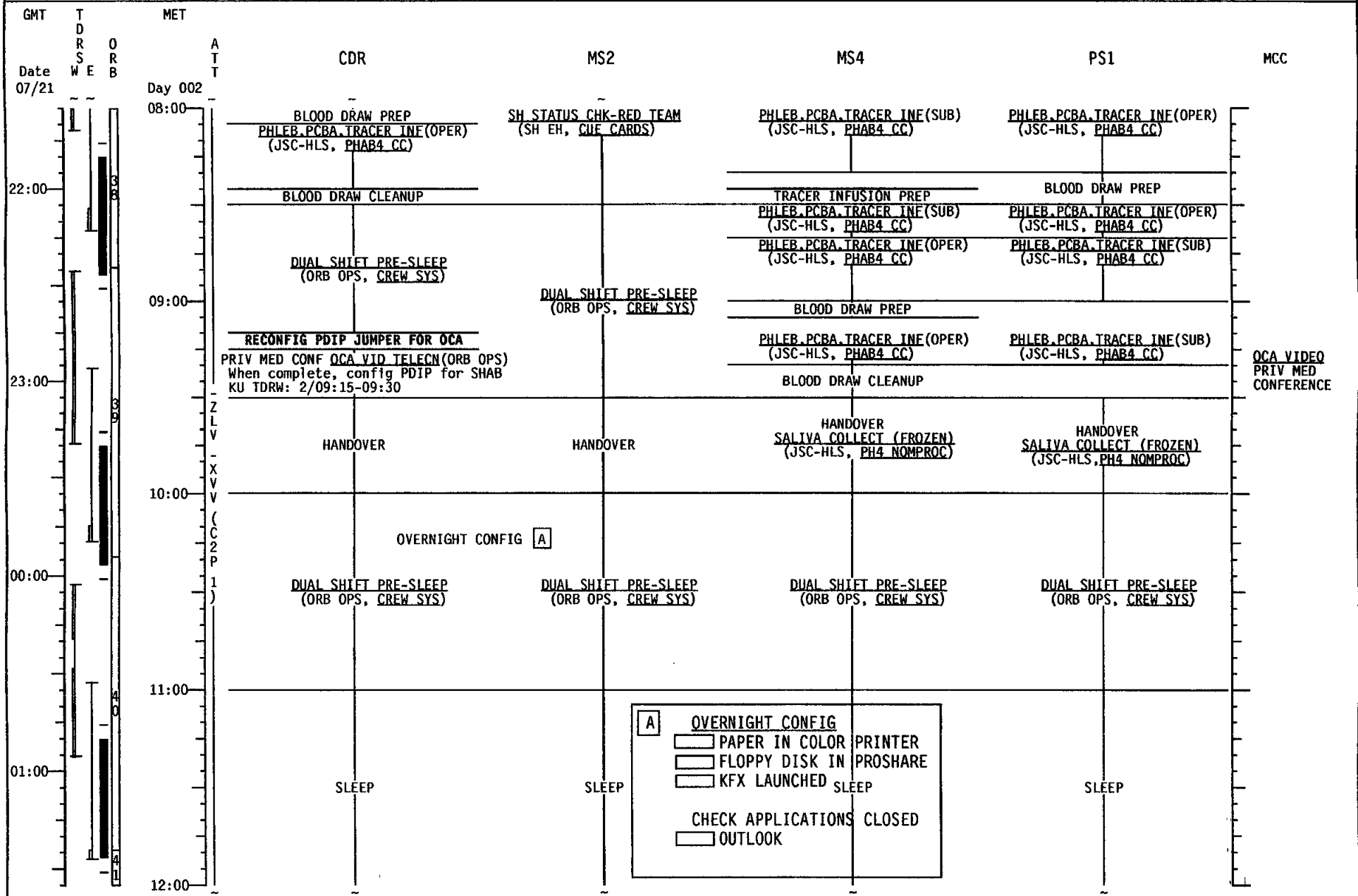
STS-107 (BLUE FD03)



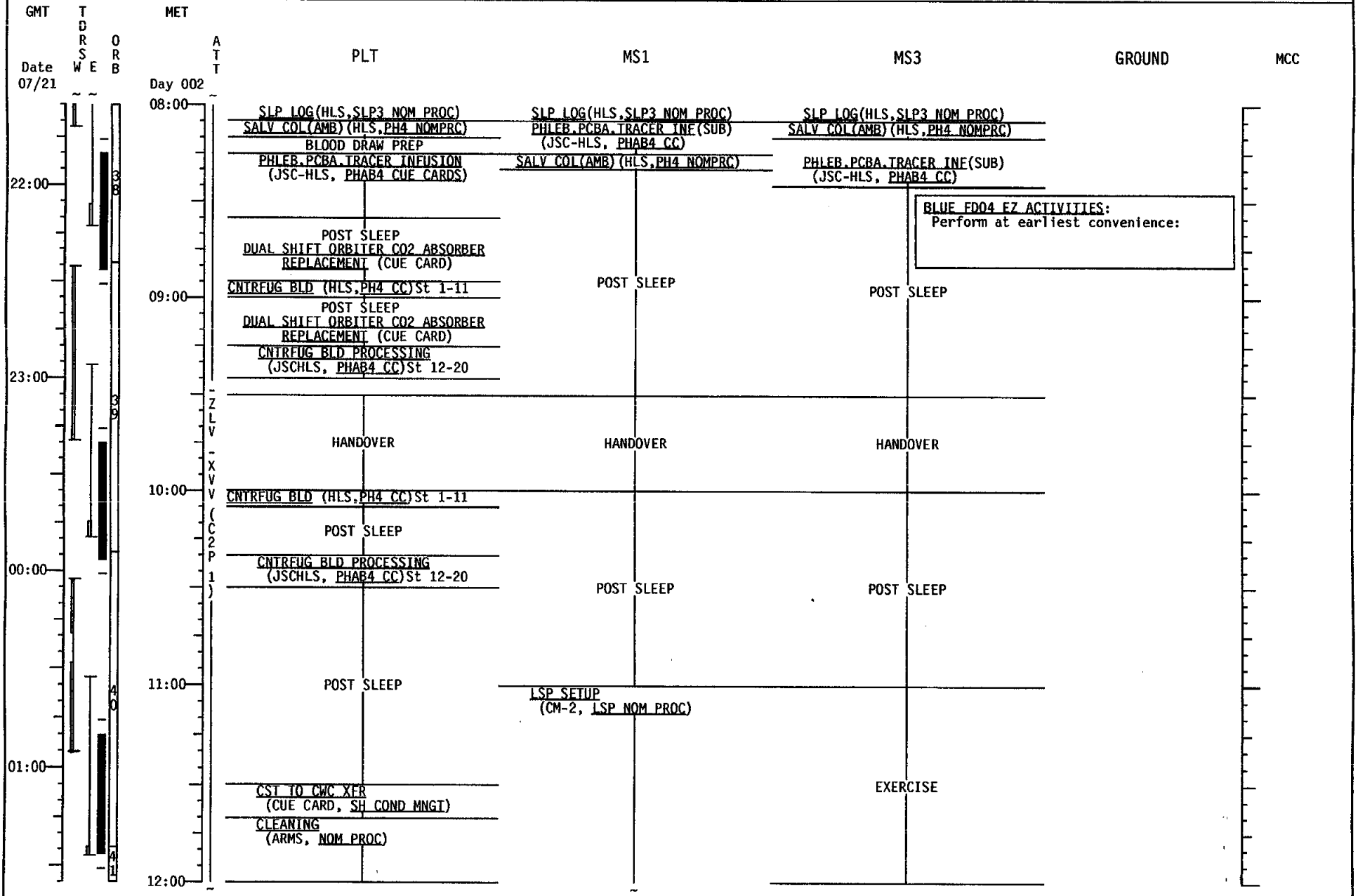
STS-107 (RED FD03)

GMT	TDRS W E B	MET	A T T	CDR	MS2	MS4	PS1	MCC
Date 07/21		Day 002						
04:00				GALLEY OVRNT CNFG (ORB OPS, ECLS) P/TV02 SETUP (IN CABIN ACTIVITIES) (PHOTO/TV, SCENES)	P/TV02 SETUP (IN CABIN ACTIVITIES) (PHOTO/TV, SCENES)	CELL FEEDING PREP FEED 3 (OSTEO, NOM PROC) PULM 1 (ARMS, NOM PROC) St 1-8	URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)	
18:00				PUBLIC AFFAIRS OPPTY KU TDRE: 02/04:25-04:45	PUBLIC AFFAIRS OPPTY	PUBLIC AFFAIRS OPPTY	PUBLIC AFFAIRS OPPTY	
05:00					DEACT (TEST 1,2,4,5,7,8) (MGM, NOM PROC) Test 2	URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)	CARD TRAY ANALYSIS (TRAYS 2-8) (JSC-HLS, MPFE NOM PROC) Tray 2	
19:00				PCBA CHECKOUT (JSC-HLS, PHAB4 CUE CARD)		PULMONARY 1 (ARMS, NOM PROC) SALIVA COLLECT (FROZEN) (JSC-HLS, PHAB4 NOM PROC) *W/ASSISTANCE FROM PS1	SALIVA COLLECT (FROZEN) (JSC-HLS, PHAB4 NOM PROC) *ASSIST MS4 W/FRZ SAL	
06:00						WHEN RUN COMPLETE: POWERDOWN (ARMS, NOM PROC)	CARD TRAY ANLYS (HLS, MPFE) St 14-1	
20:00				URINE COLLECTION (JSC-HLS, PHAB4 NOM PROC) Perform Steps 23-24	EXERCISE		ARMS ASSIST	
				VTR SETUP (P/TV, CUE CARDS)				
				VTR PLAYBACK CREW CHOICE ANALOGUE (P/TV, CC) KU TDRE: 2/06:50-07:00	SHUTDOWN (VCD FE, NOM PROC)		ARMS ASSIST	
07:00				CLOSE OUTLK, CALL MCC, CNFG PDIP: OCA GALLEY MORNING CONEIG (ORB OPS, ECLS)	MD STATUS CHK-RED TEAM (SH EH, CUE CARDS)			
21:00						DUAL SHIFT PRE-SLEEP (ORB OPS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS, CREW SYS)	
					ZCG MONITOR (ZCG, NOM PROC)			
08:00				BLOOD DRAW PREP	SH STATUS CHK-RED TEAM (SH EH, CUE CARDS)		TRACER INFUSION PREP	

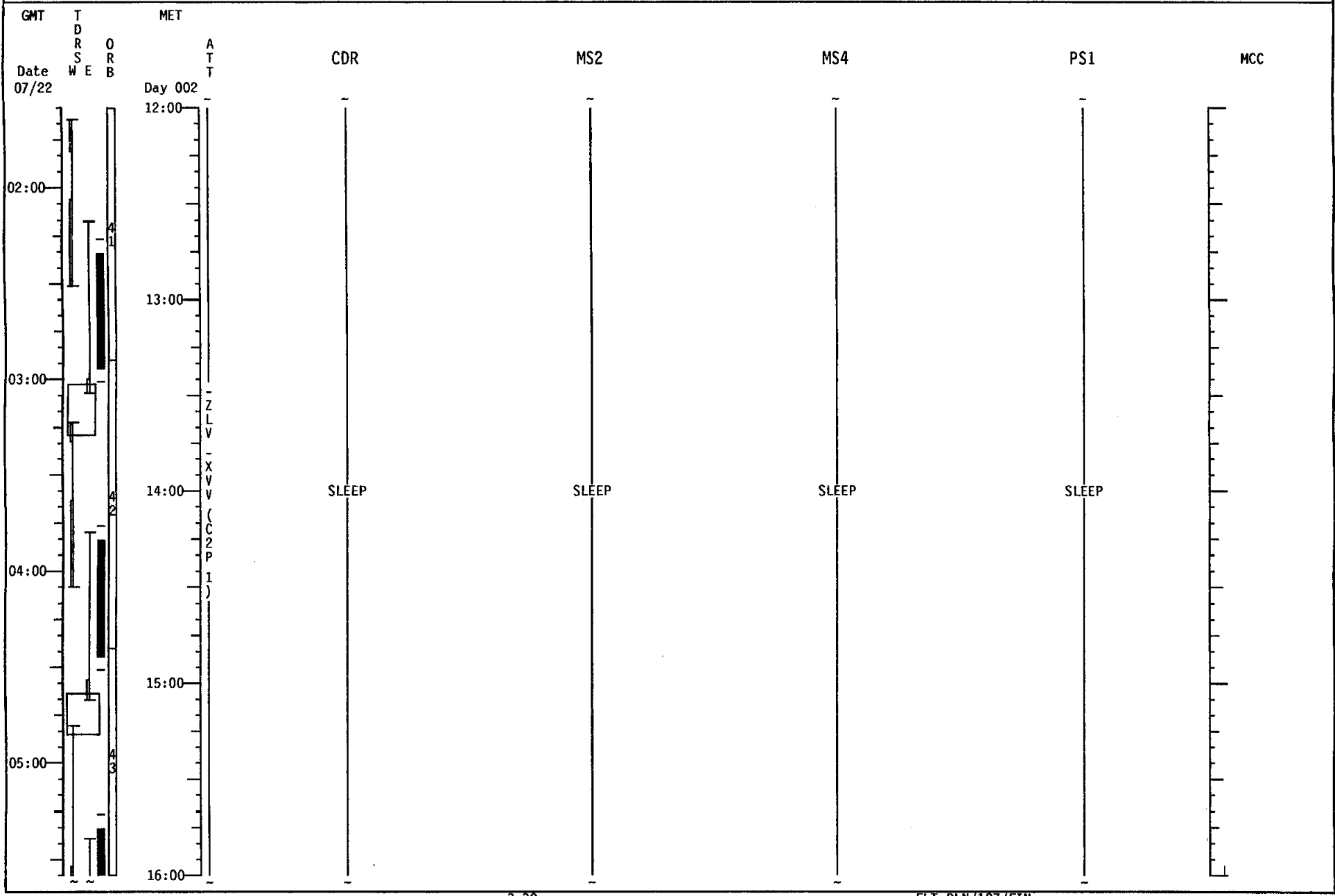
STS-107 (RED FD03)



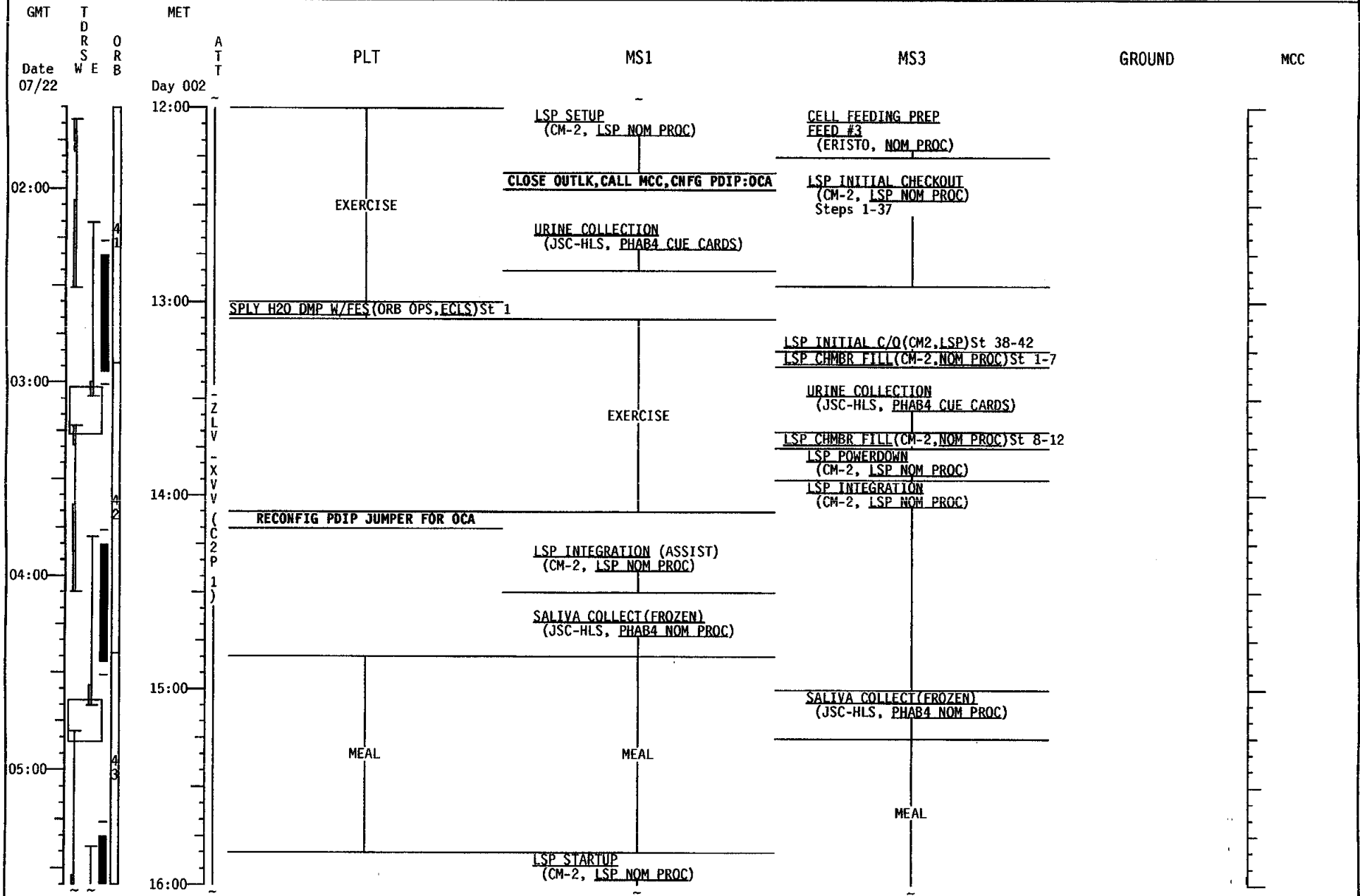
STS-107 (BLUE FD04)



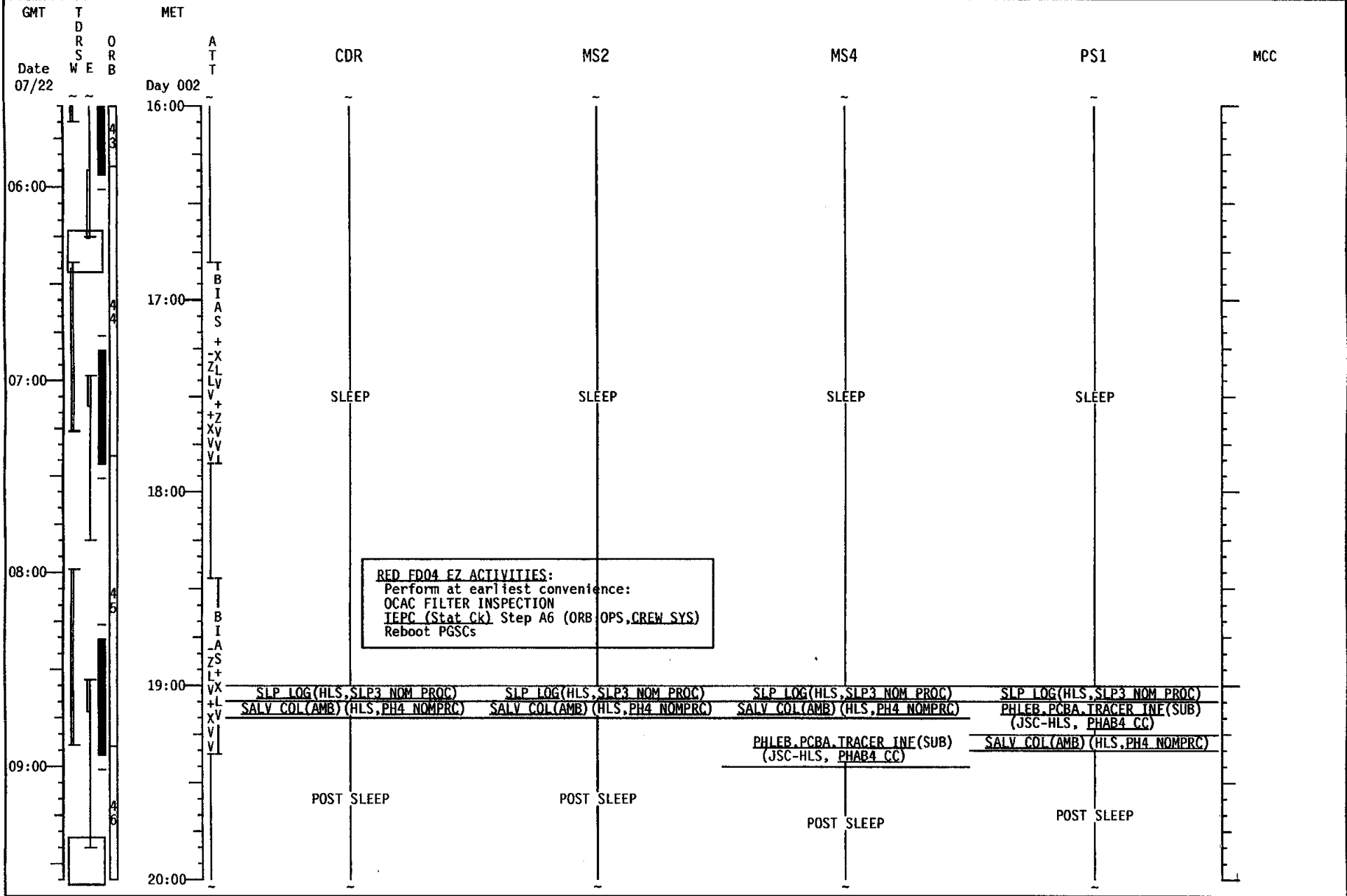
STS-107 (RED FD03)



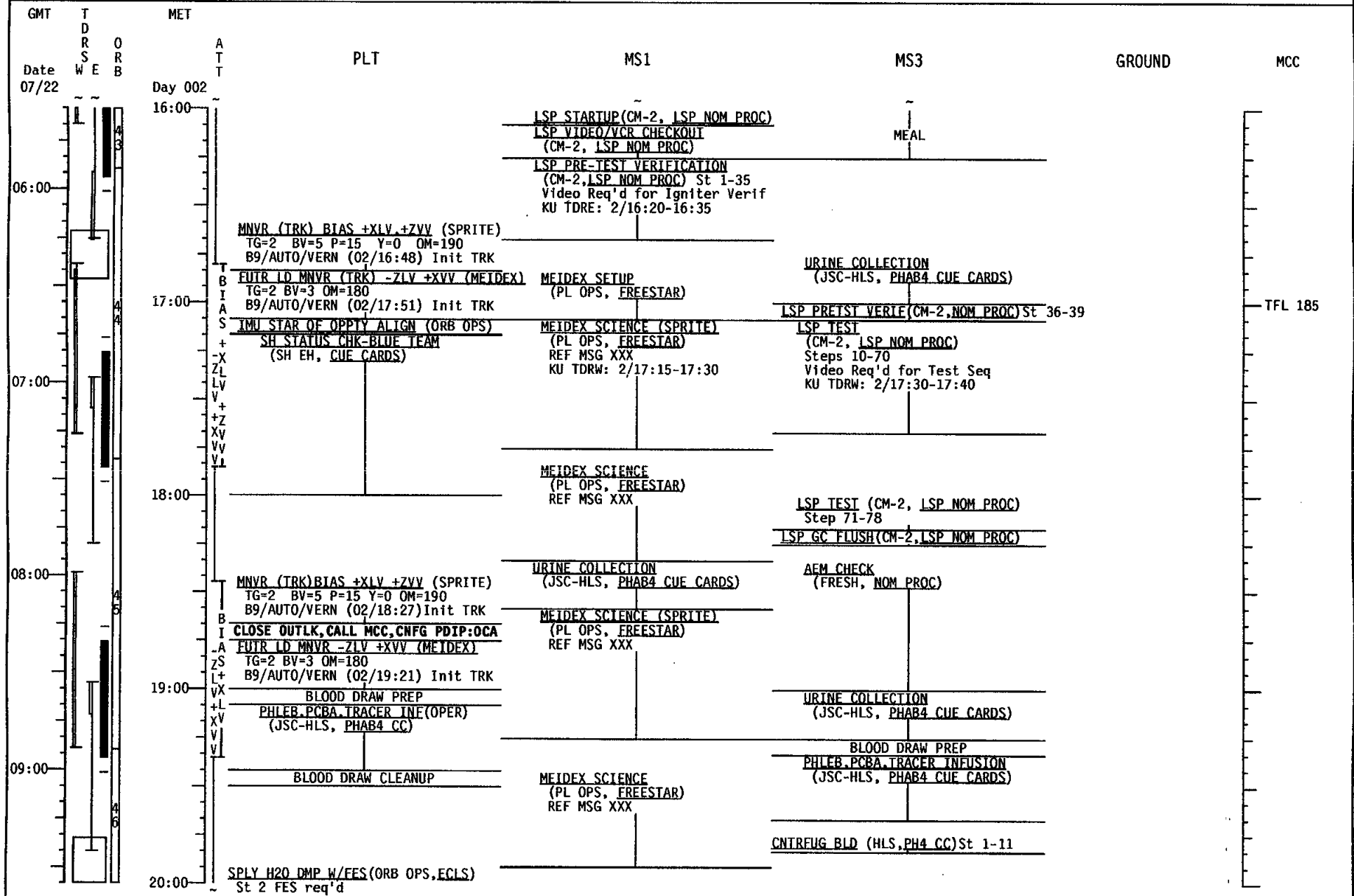
STS-107 (BLUE FD04)



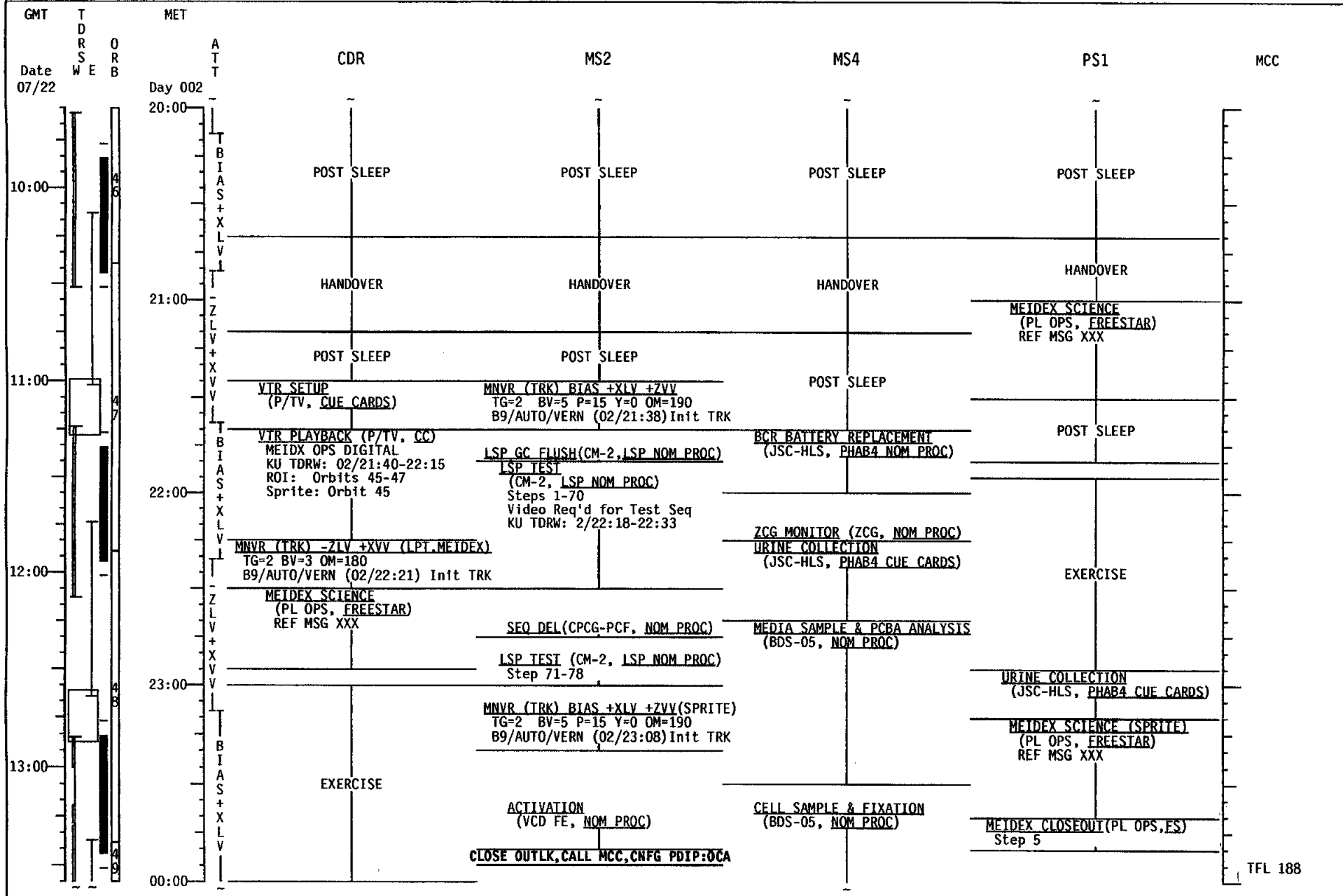
STS-107 (RED FD04)



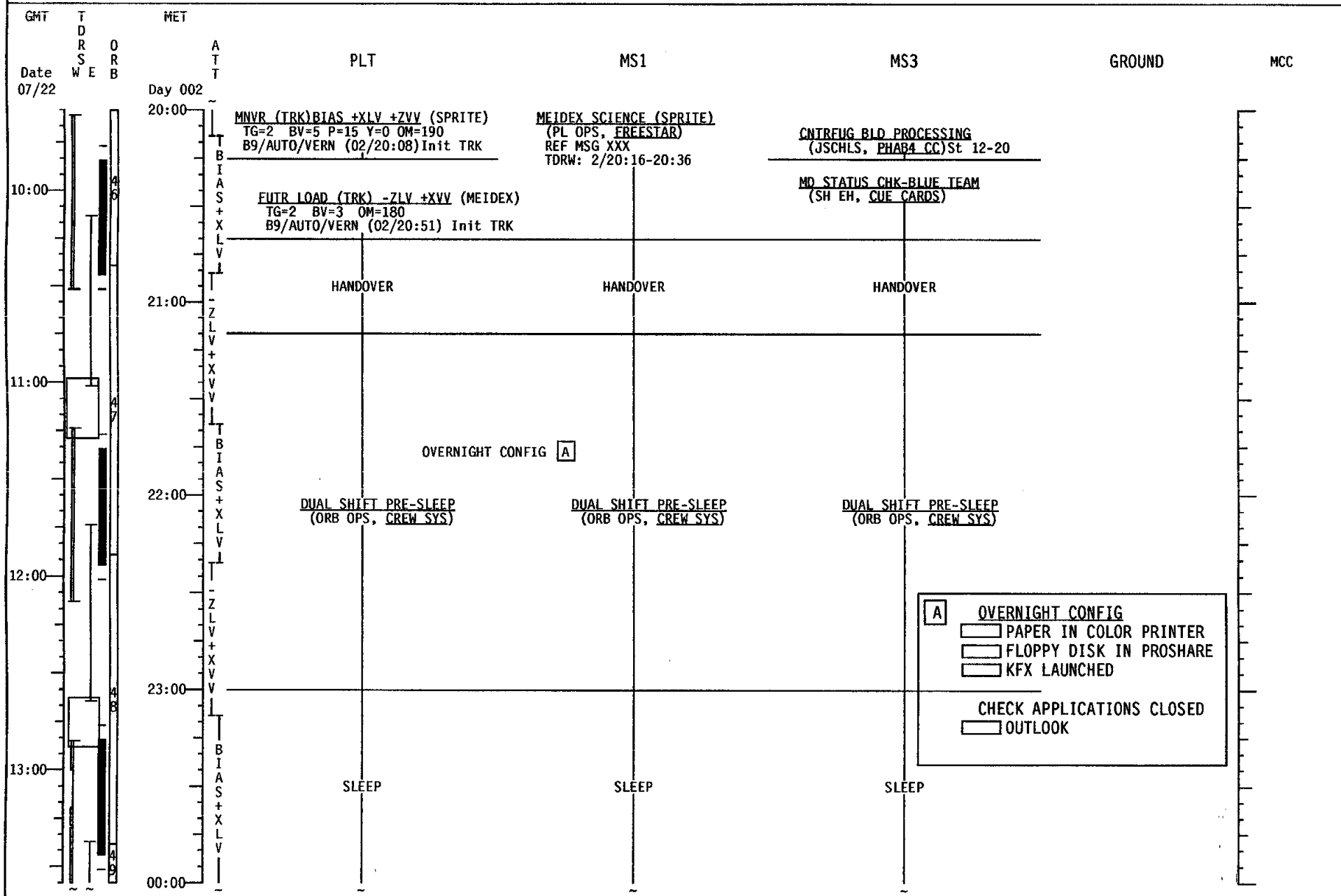
STS-107 (BLUE FD04)



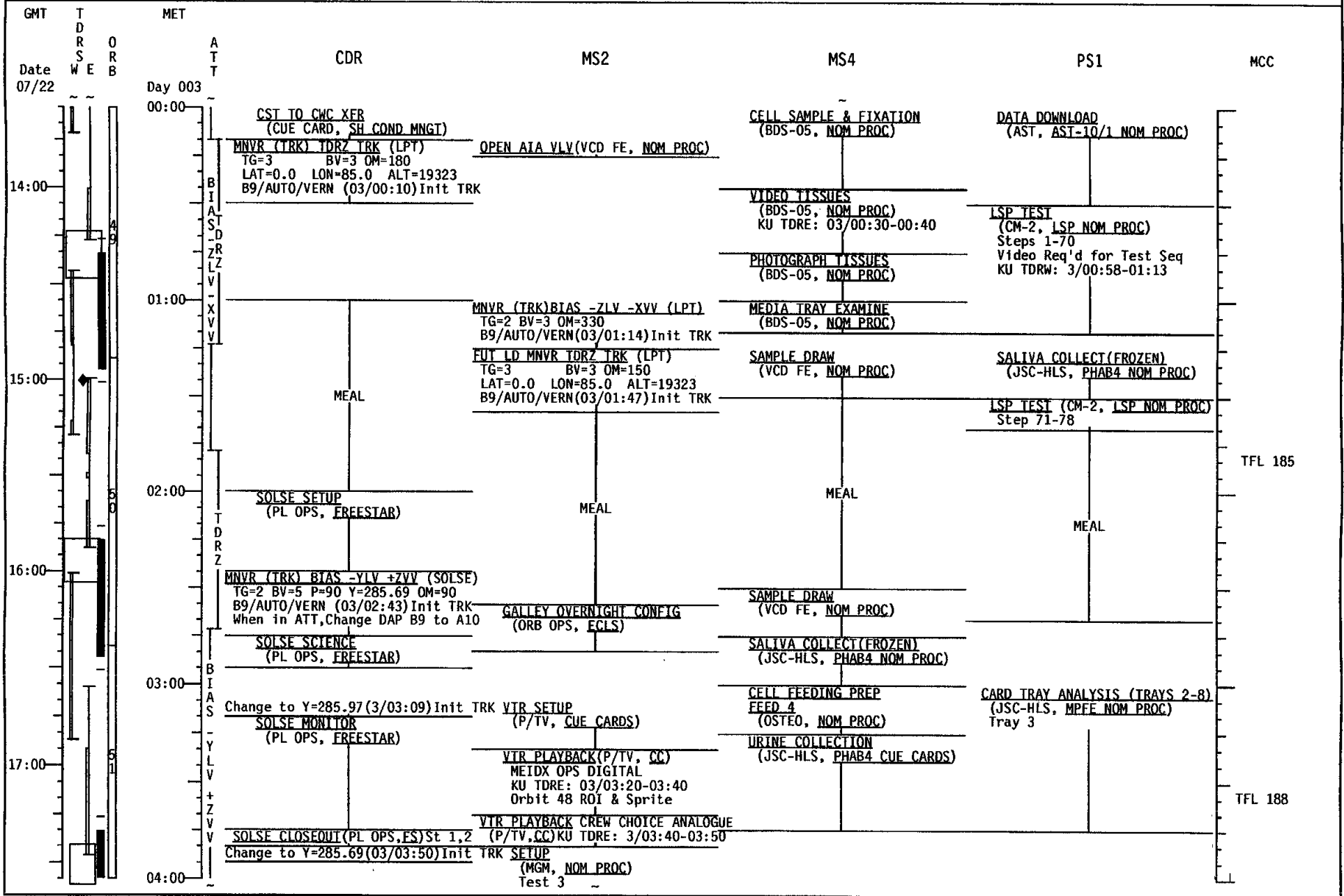
STS-107 (RED FD04)



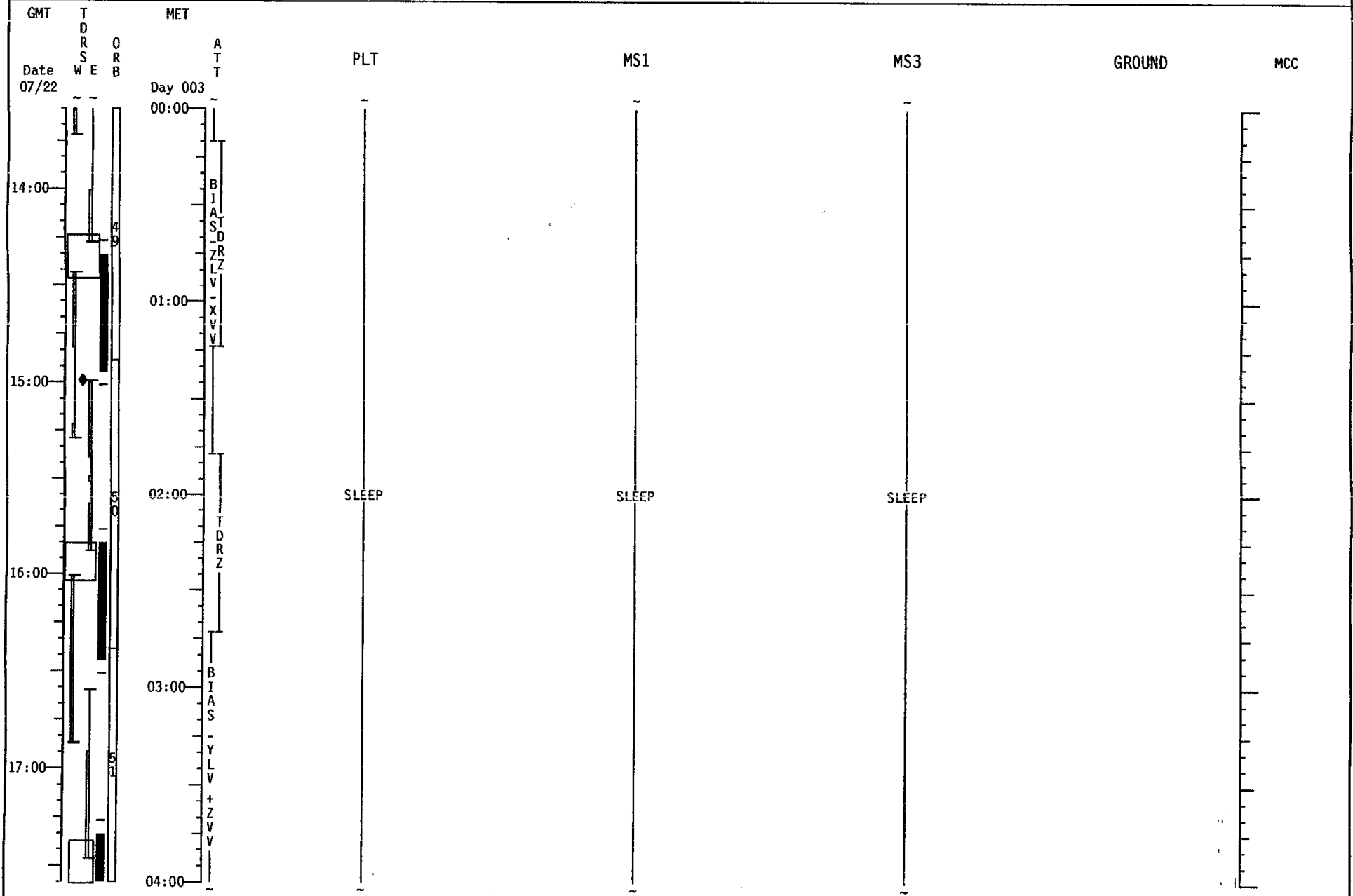
STS-107 (BLUE FD04)



STS-107 (RED FD04)



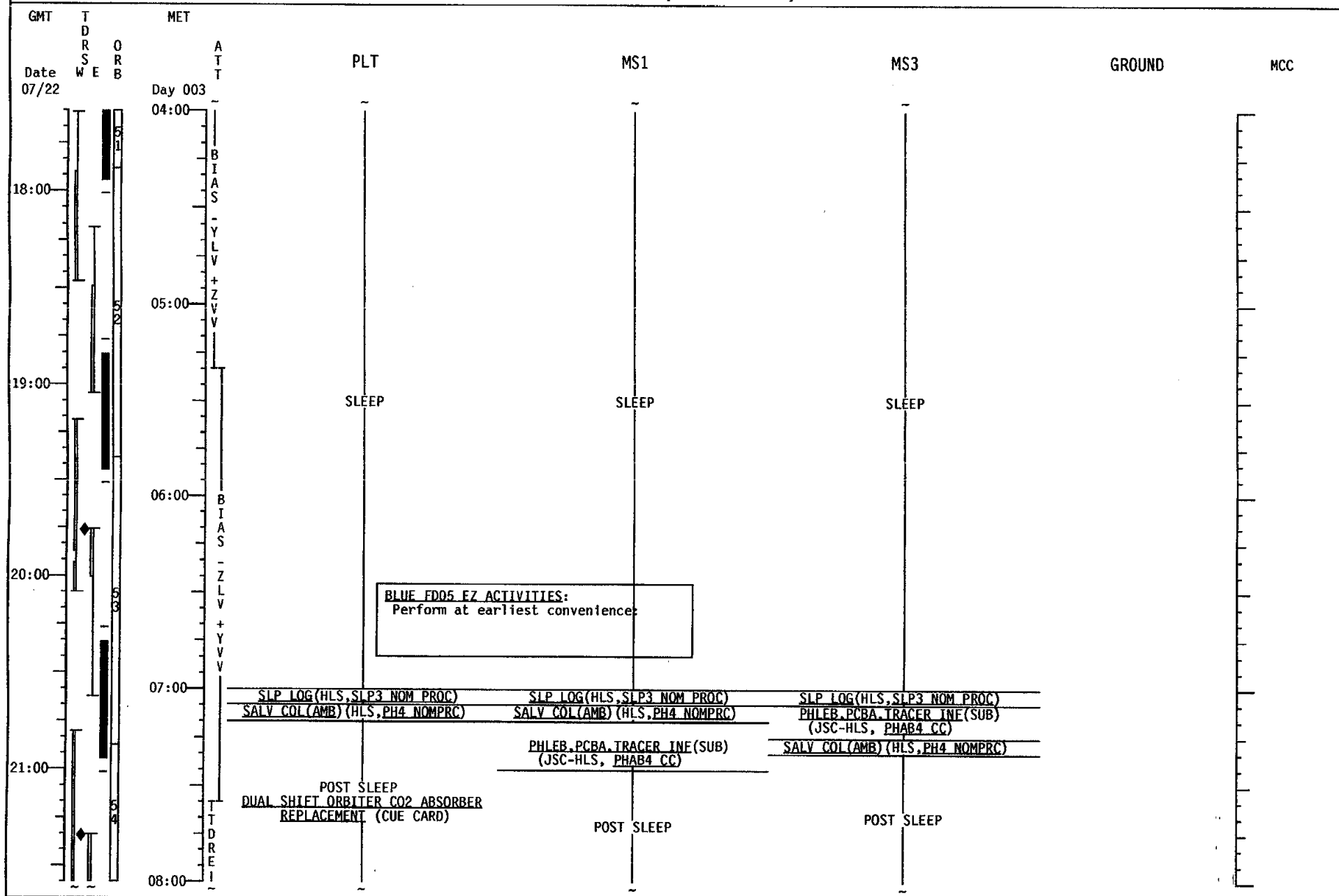
STS-107 (BLUE FD04)



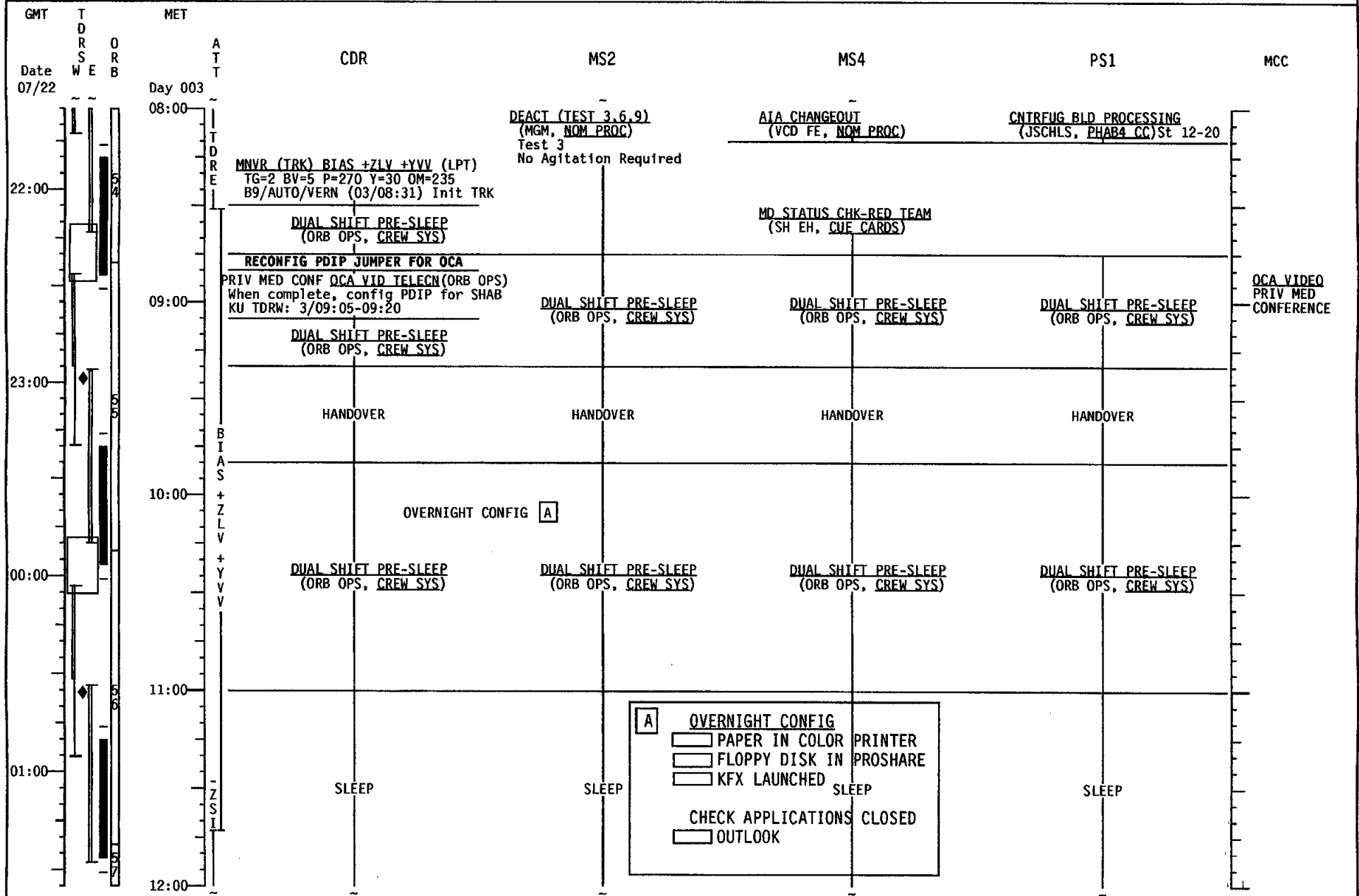
STS-107 (RED FD04)

GMT Date 07/22	T D R S W E	O R B	MET Day 003	A T T	CDR	MS2	MS4	PS1	MCC
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">18:00</div> <div style="margin-bottom: 10px;">05:00</div> <div style="margin-bottom: 10px;">19:00</div> <div style="margin-bottom: 10px;">06:00</div> <div style="margin-bottom: 10px;">20:00</div> <div style="margin-bottom: 10px;">07:00</div> <div style="margin-bottom: 10px;">21:00</div> <div style="margin-bottom: 10px;">08:00</div> </div>	B I A S	Z L V	+ Y V V	T D R E I	<p><u>SOLSE CLOSEOUT(PL OPS,ES)St 5-8</u> <u>SOLSE SCIENCE (PL OPS, FREESTAR)</u></p> <p>Change to Y=285.97(03/04:39)Init TRK <u>SOLSE MONITOR (PL OPS, FREESTAR)</u></p> <p><u>EUTR LD MNVR(TRK) BIAS -ZLV +YVV</u> TG=2 BV=3 OM=300 B9/AUTO/VERN (03/05:20) Init TRK <u>SOLSE CLOSEOUT(PL OPS,ES)St 3</u></p> <p><u>SUPPLY/WASTE WATER DUMP</u></p> <p><u>SOLSE CLOSEOUT (PL OPS, FREESTAR)</u></p> <p><u>SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS)</u> Terminate Supply/Waste Dump</p> <p><u>CWC DUMP (CUE CARD, SH COND MNGT)</u></p> <p><u>SOLSE IDLE (PL OPS, FREESTAR)</u></p> <p><u>GALLEY MORNING CONFIG (ORB OPS, ECLS)</u></p> <p><u>CWC OVERBOARD DUMP (term) (ORB OPS, ECLS)</u> Steps 4 & 5</p> <p><u>RAD STOW (ORB OPS, ECLS)</u> Stow PORT radiator</p>	<p><u>SETUP (MGM, NOM PROC)</u> Test 3</p> <p><u>ACTIVATION (MGM, NOM PROC)</u> Test 3 KU TDRE: 03/05:10-05:20</p> <p><u>COOL/FRZ 1(BIOPK,BONES)St 4</u> <u>BONES TRANSFER 2 (BIOPACK, BONES)</u> Perform all of Step 5</p> <p><u>REPAIR XFR 1(BIOPK,REPAIR)St 2</u></p> <p><u>SH STATUS CHK-RED TEAM (SH EH, CUE CARDS)</u></p> <p><u>MNVR (TRK) TDRE TRK (LPT)</u> TG=3 BV=3 OM=290 LAT=0.0 LON=-41.0 ALT=19323 B9/AUTO/VERN(03/07:35)Init TRK</p> <p><u>DEACT (TEST 3,6,9) (MGM, NOM PROC)</u> Test 3 No Agitation Required</p>	<p><u>GROUP FD03 (CIBX, NOM PROC)</u></p> <p><u>CLOSE ATA VLV (VCD FE, NOM PROC)</u></p> <p><u>SAMPLE DRAW (VCD FE, NOM PROC)</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 NOM PROC)</u> Perform Steps 23-24</p> <p><u>SAMPLE DRAW (VCD FE, NOM PROC)</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 NOM PROC)</u> Perform Steps 23-24</p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>BLOOD DRAW PREP</u></p> <p><u>PHLEB.PCBA.TRACER INF(OPER) (JSC-HLS, PHAB4 CC)</u></p> <p><u>BLOOD DRAW CLEANUP</u></p> <p><u>SHUTDOWN (VCD FE, NOM PROC)</u></p> <p><u>ATA CHANGEOUT (VCD FE, NOM PROC)</u></p>	<p><u>LSP GC FLUSH(CM-2,LSP NOM PROC)</u></p> <p><u>CARD TRAY ANLYS(HLS,MPEE)St 14-17</u></p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>BCR MBA CONFIG (JSC-HLS, PHAB4 NOM PROC)</u></p> <p><u>BCR DATA DOWNLOAD (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>LSP TEST (CM-2, LSP NOM PROC)</u> Steps 1-70 Video Req'd for Test Seq KU TDRW: 3/05:40-05:55</p> <p><u>URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>LSP TEST (CM-2, LSP NOM PROC)</u> Step 71-78</p> <p><u>PCBA CHECKOUT (JSC-HLS, PHAB4 CUE CARD)</u></p> <p><u>PCBA PREP</u></p> <p><u>PHLEB.PCBA.TRACER INFUSION (JSC-HLS, PHAB4 CUE CARDS)</u></p> <p><u>CNTRFUG BLD (HLS,PH4 CC)St 1-11</u></p>	

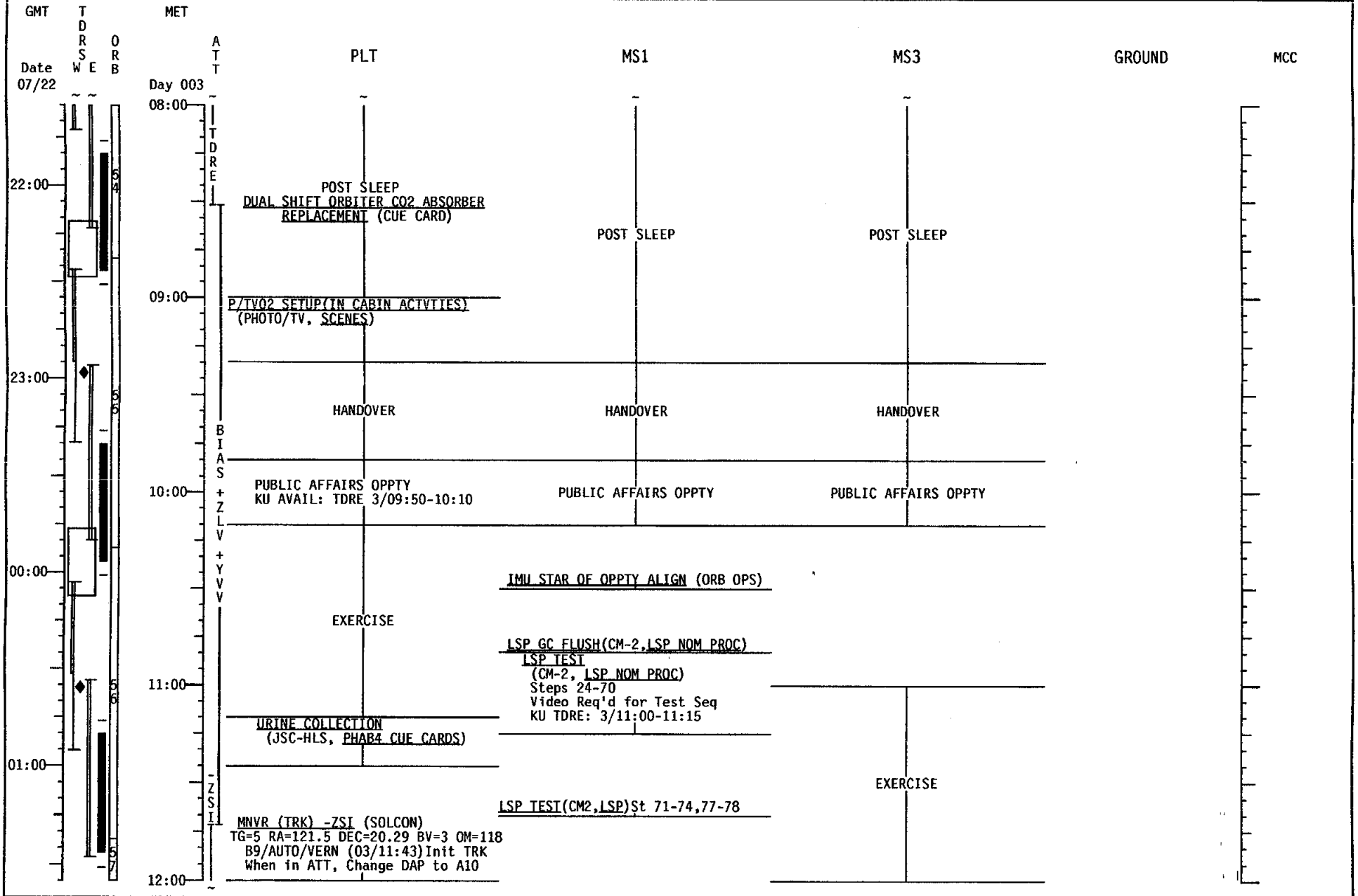
STS-107 (BLUE FD05)



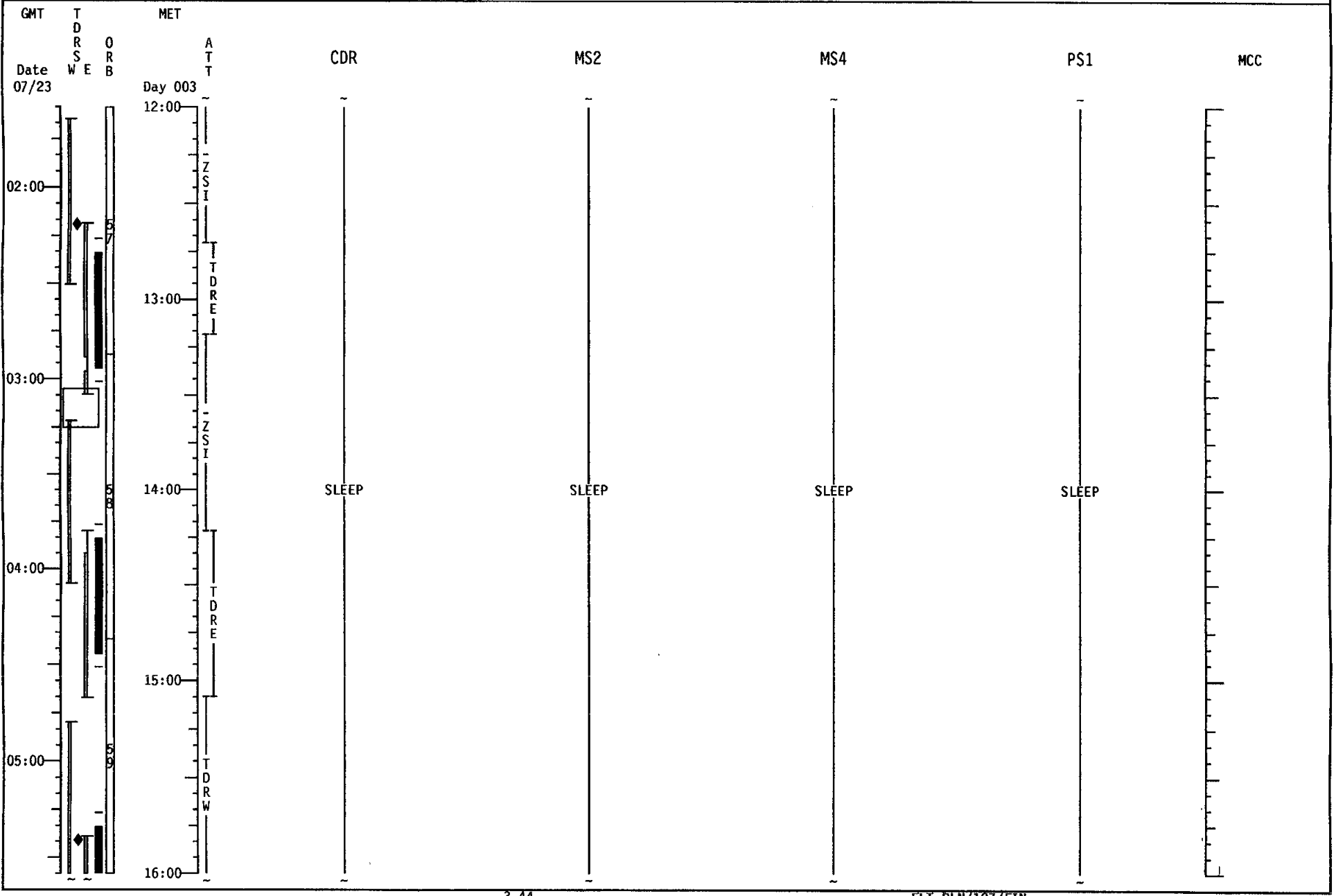
STS-107 (RED FD04)



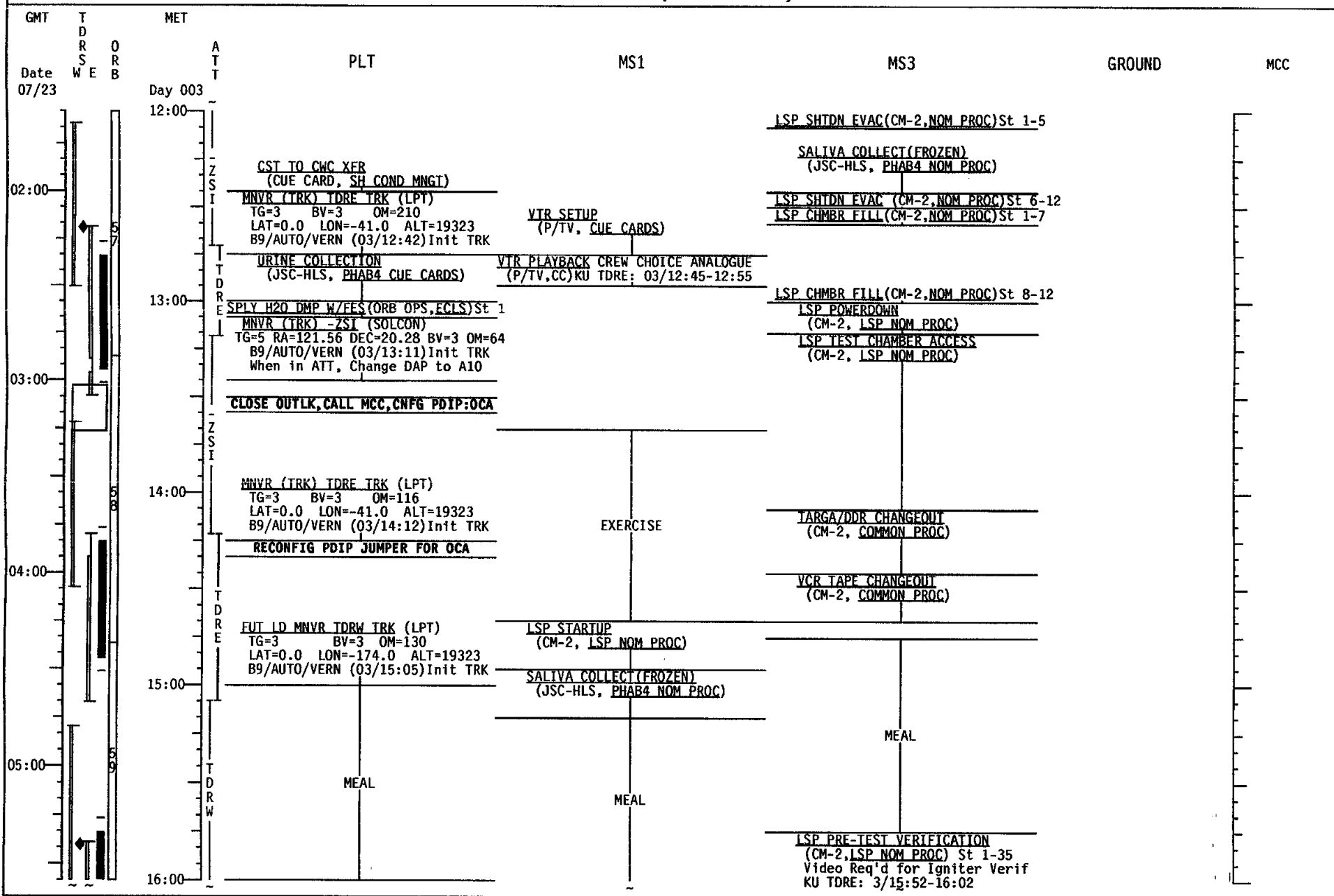
STS-107 (BLUE FD05)



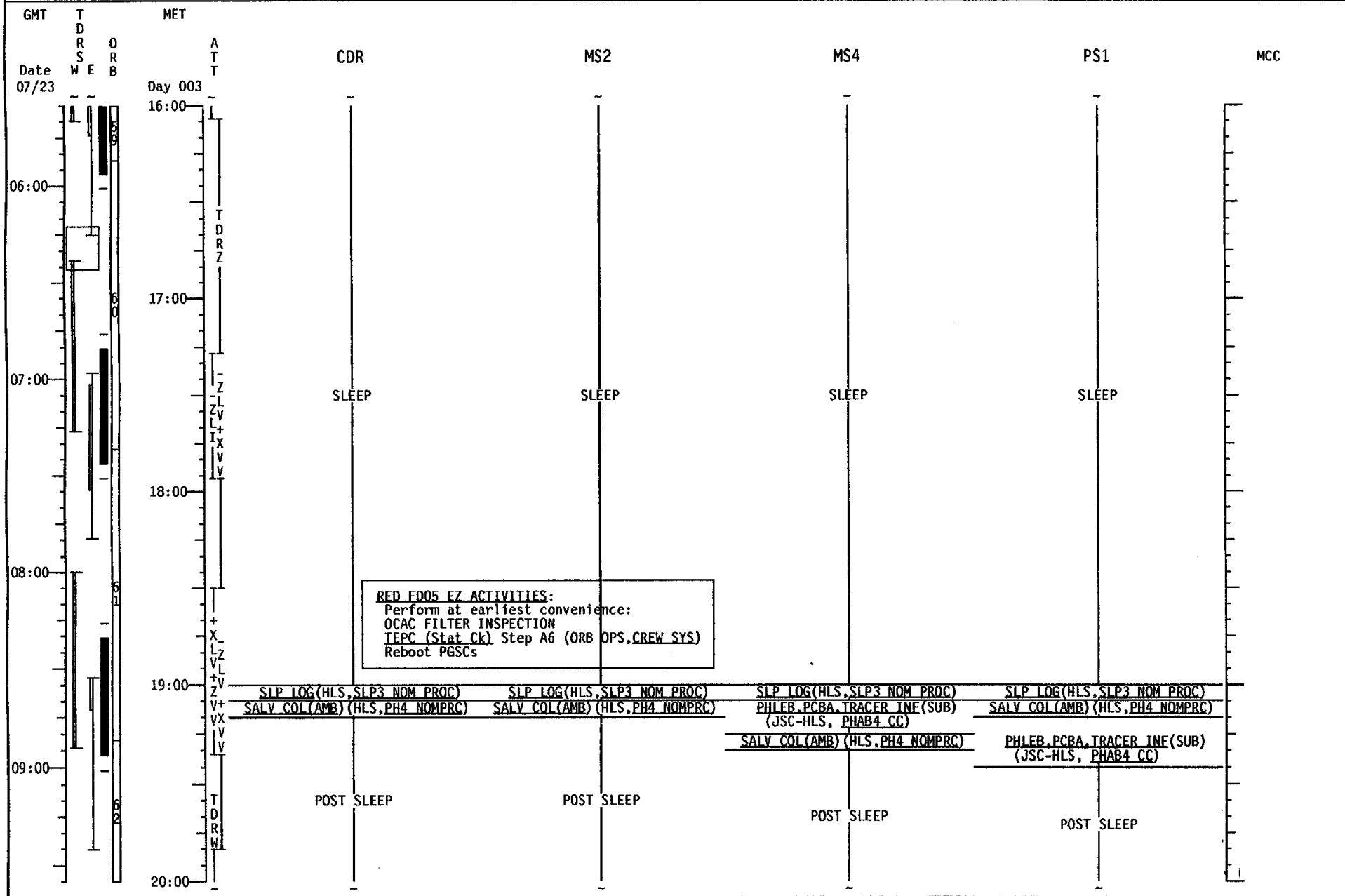
STS-107 (RED FD04)



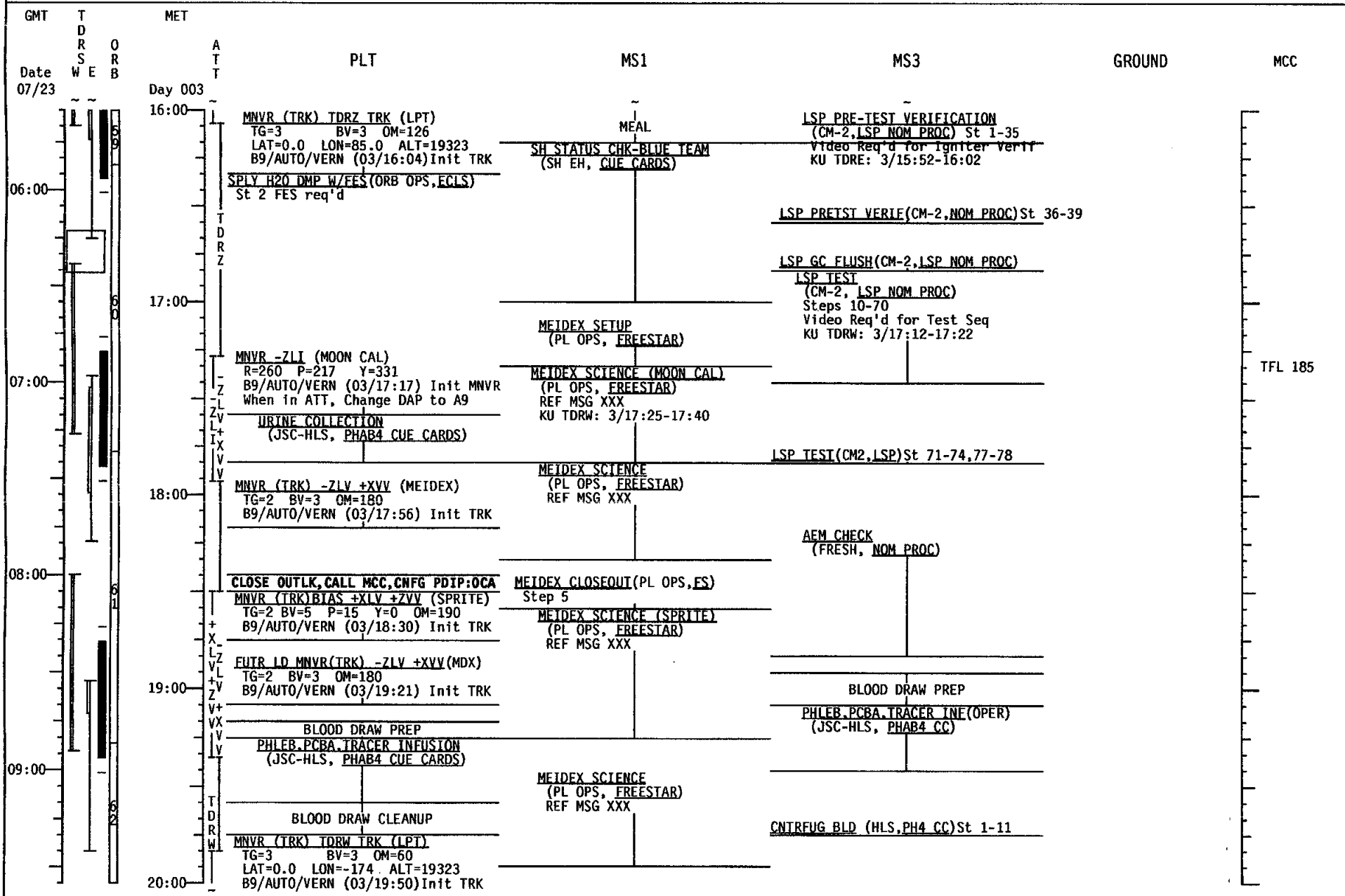
STS-107 (BLUE FD05)



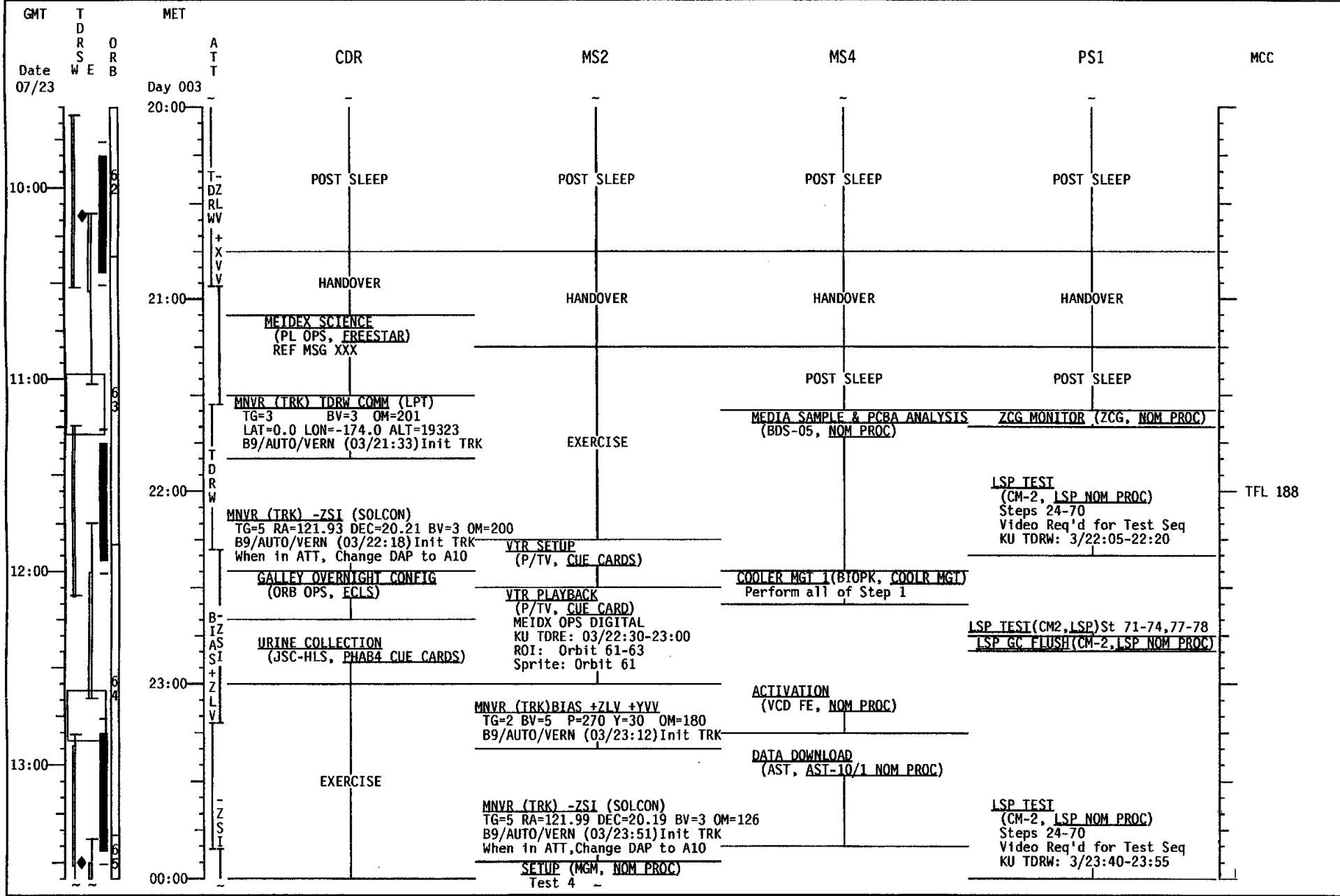
STS-107 (RED FD05)



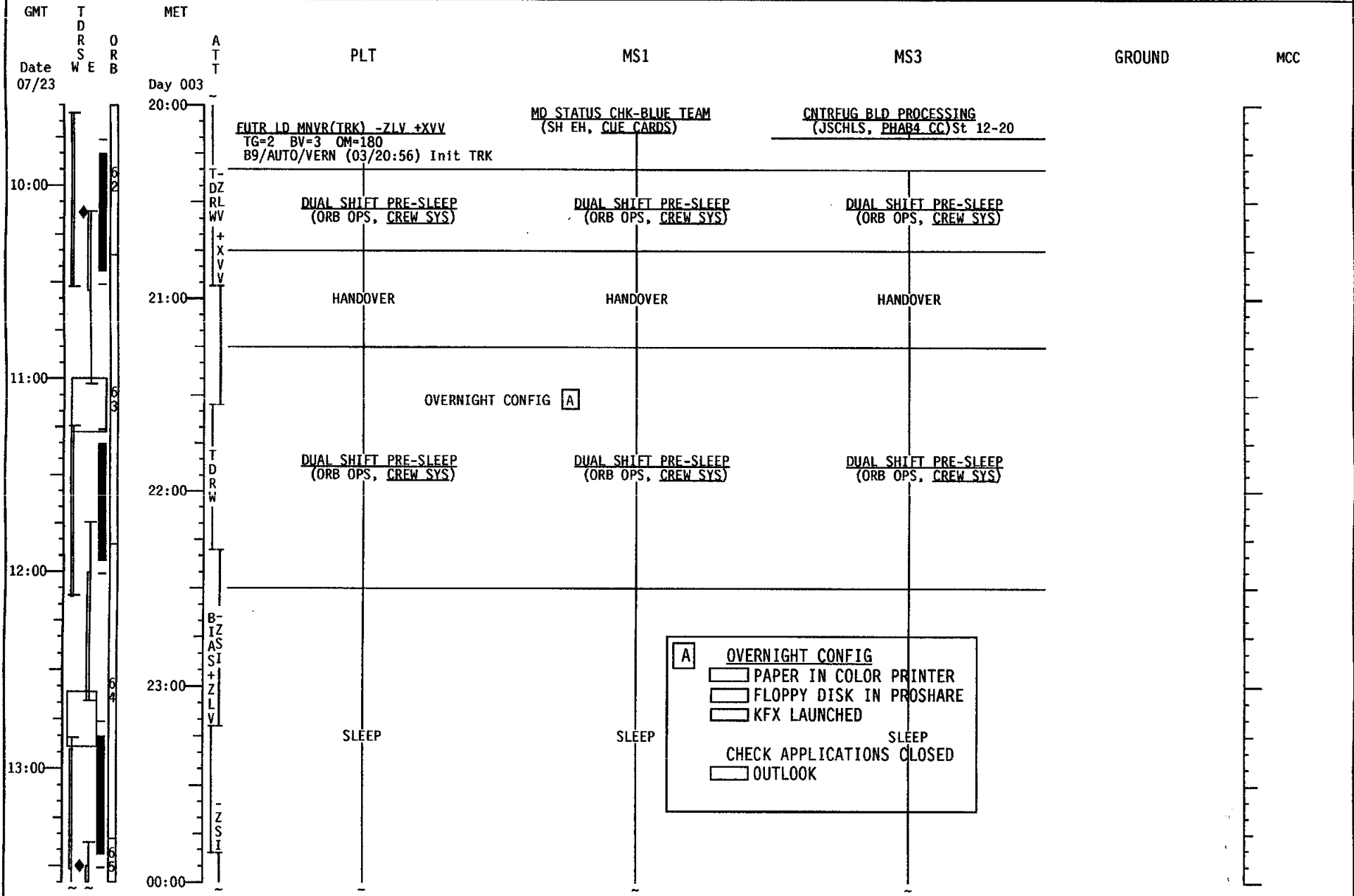
STS-107 (BLUE FD05)



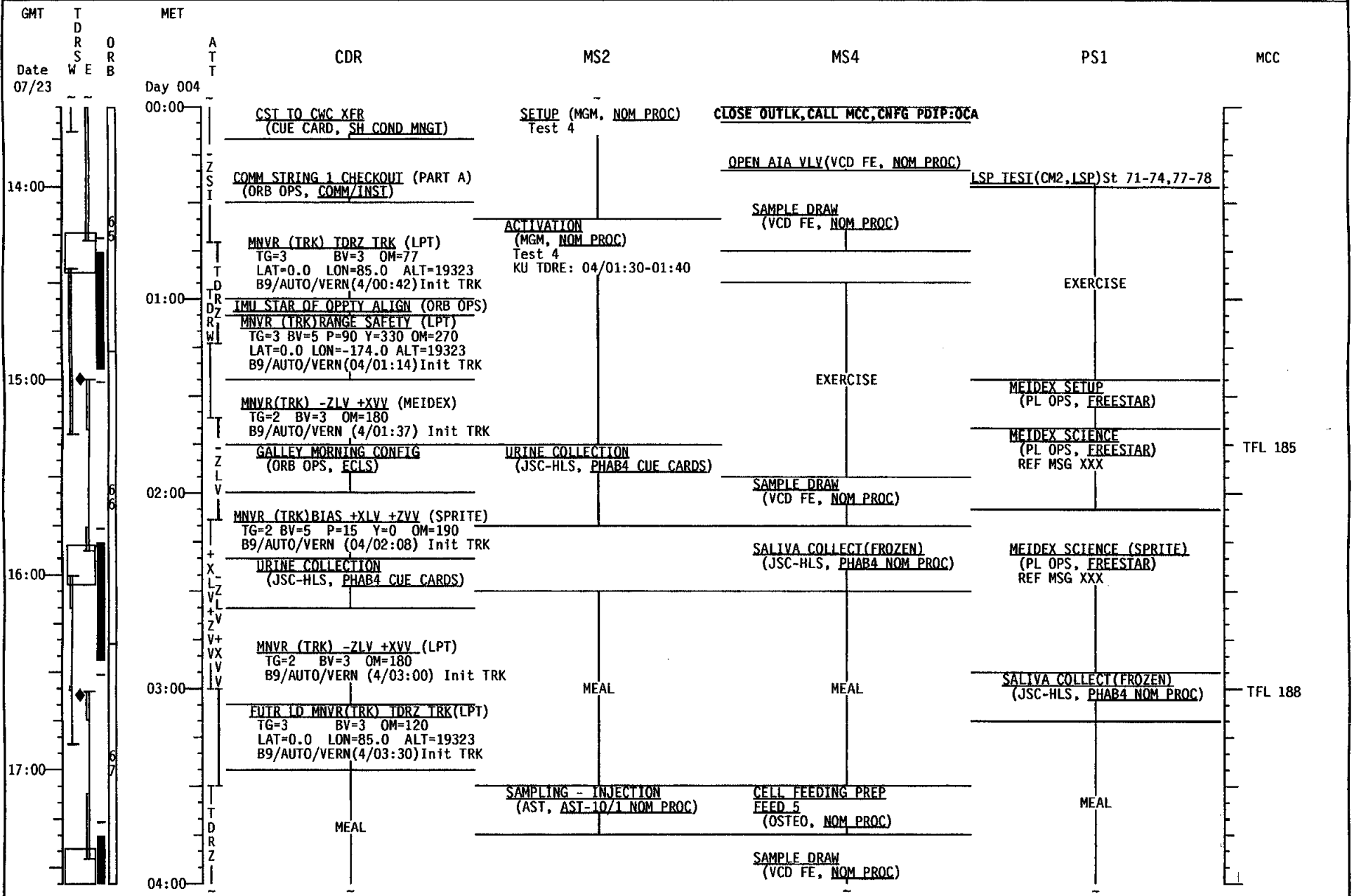
STS-107 (RED FD05)



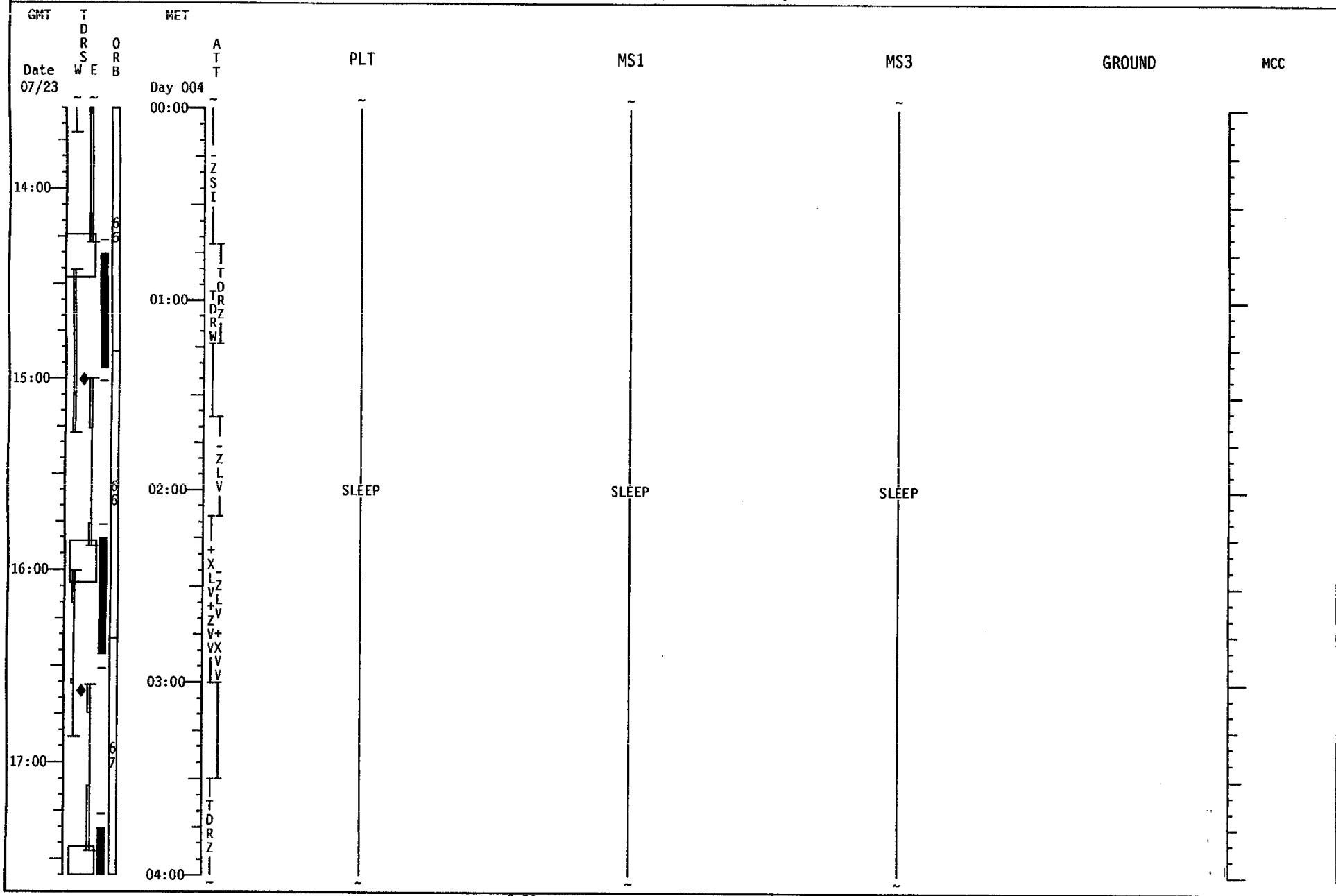
STS-107 (BLUE FD05)



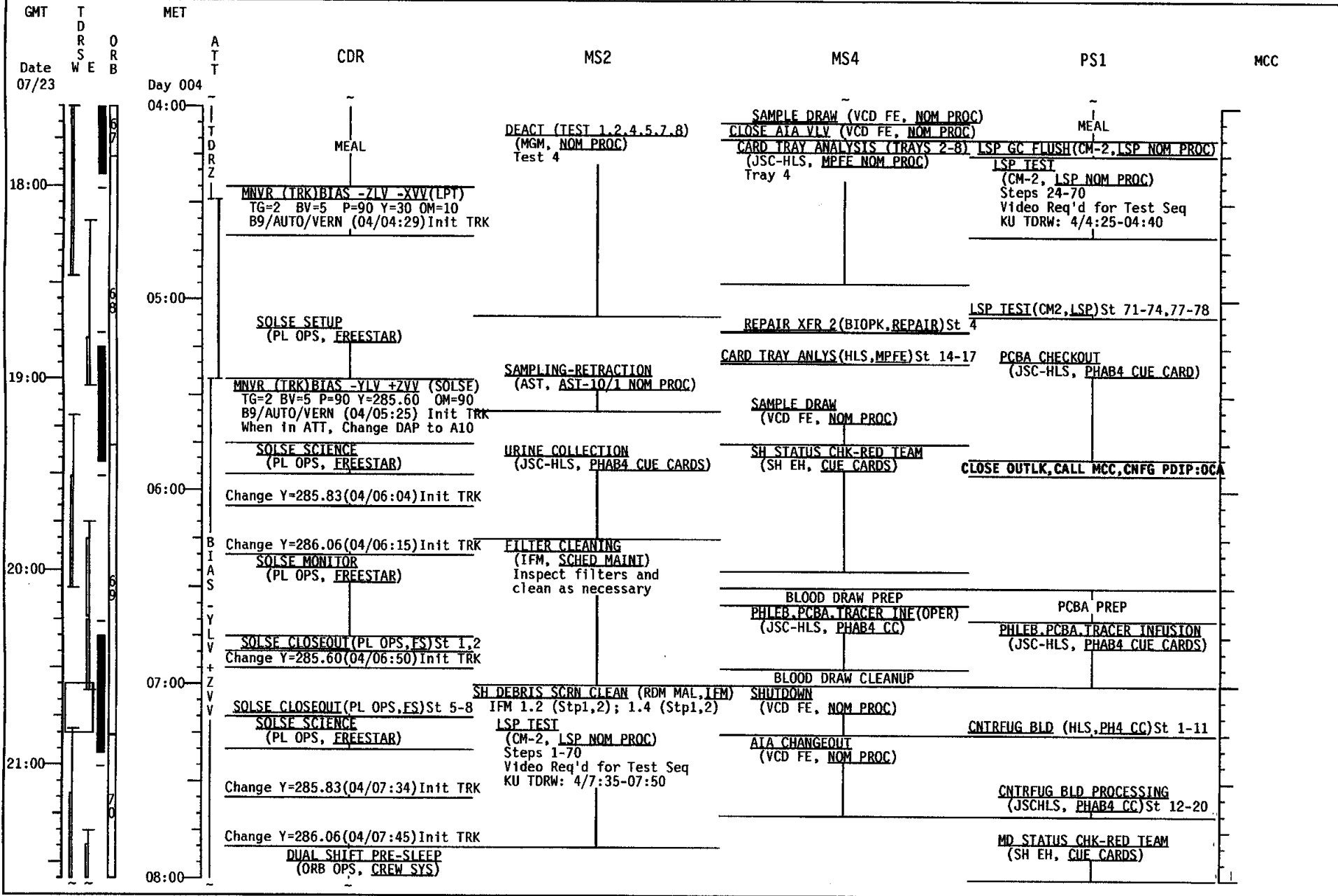
STS-107 (RED FD05)



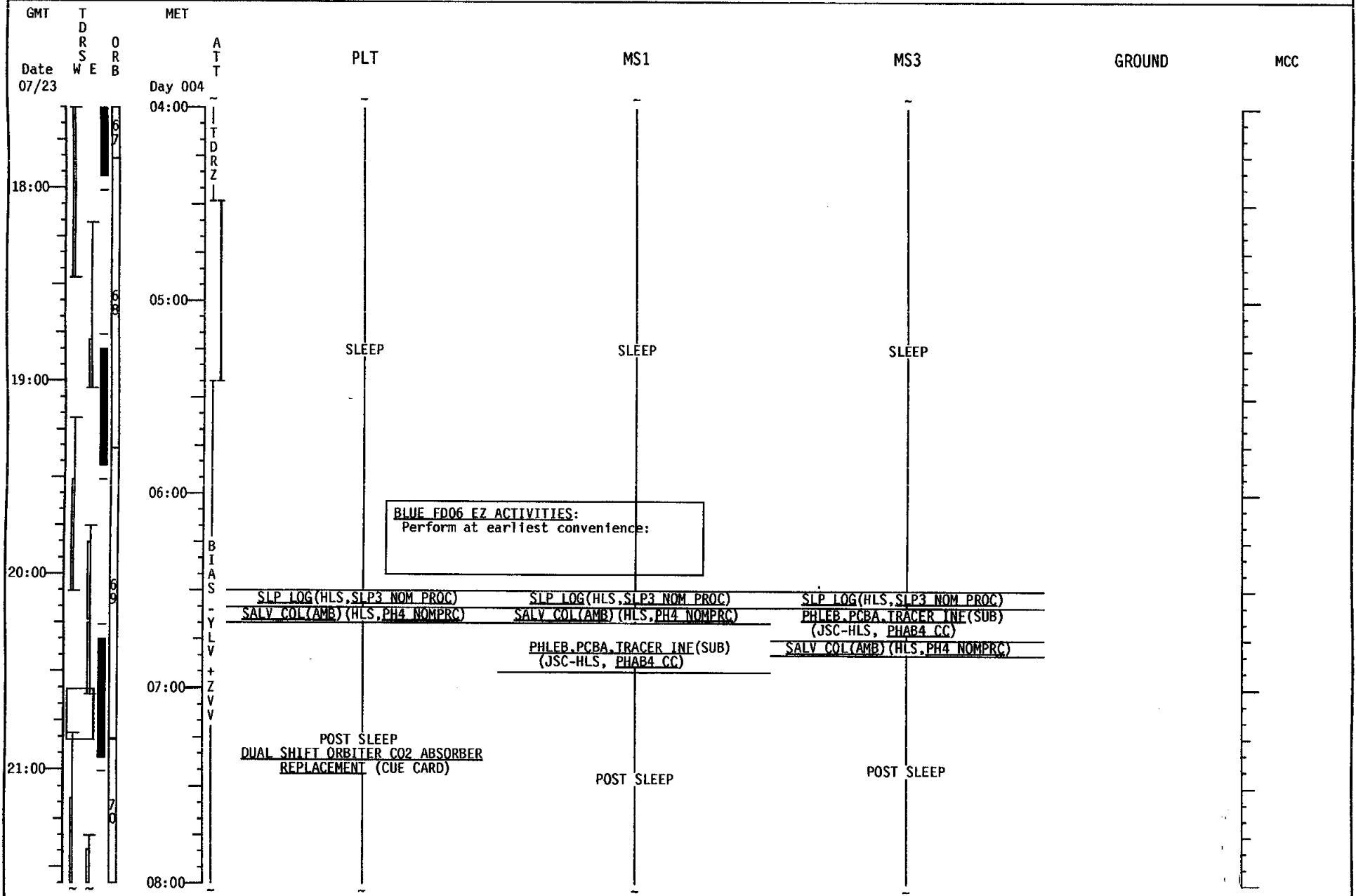
STS-107 (BLUE FD05)



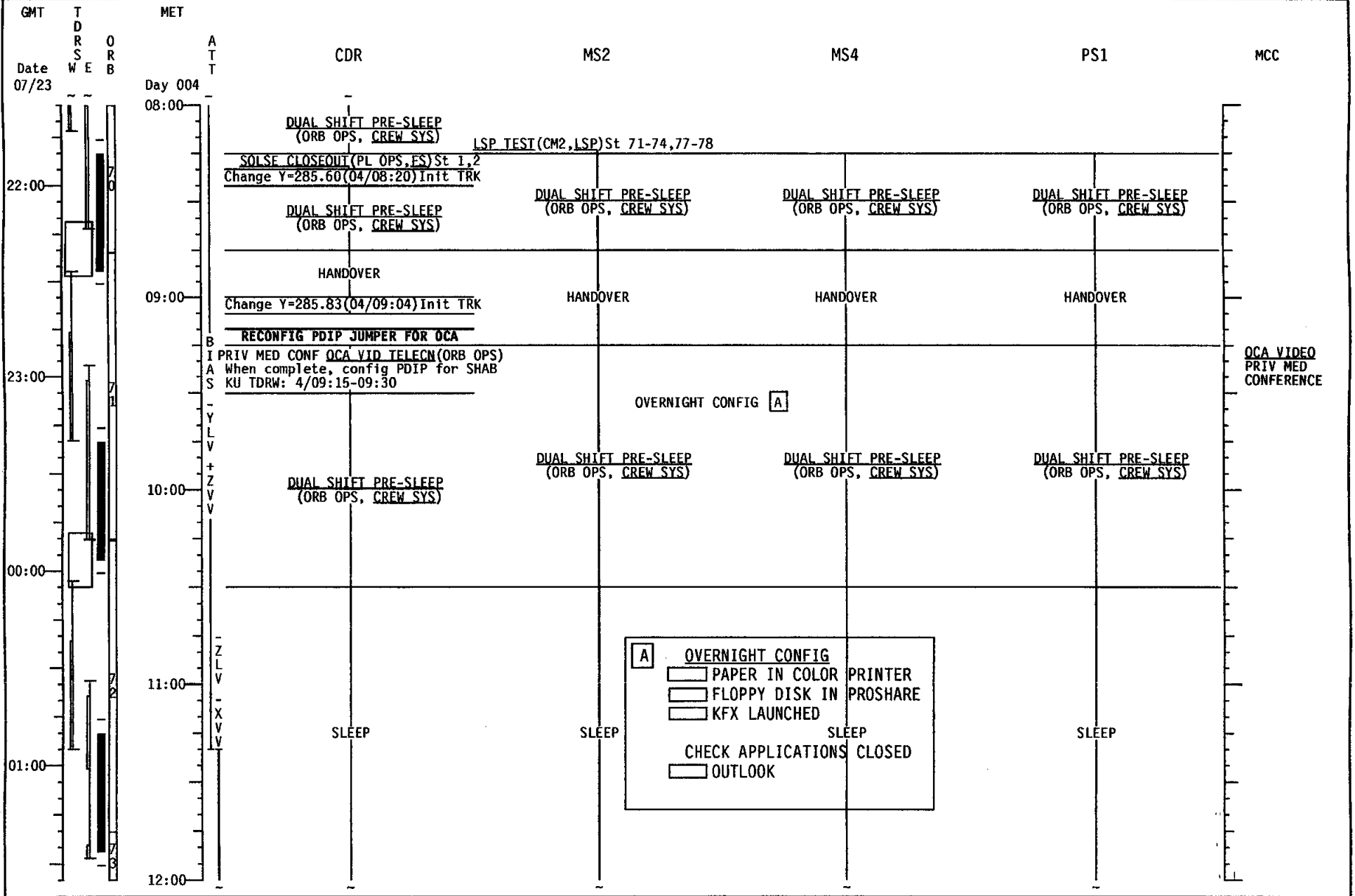
STS-107 (RED FD05)



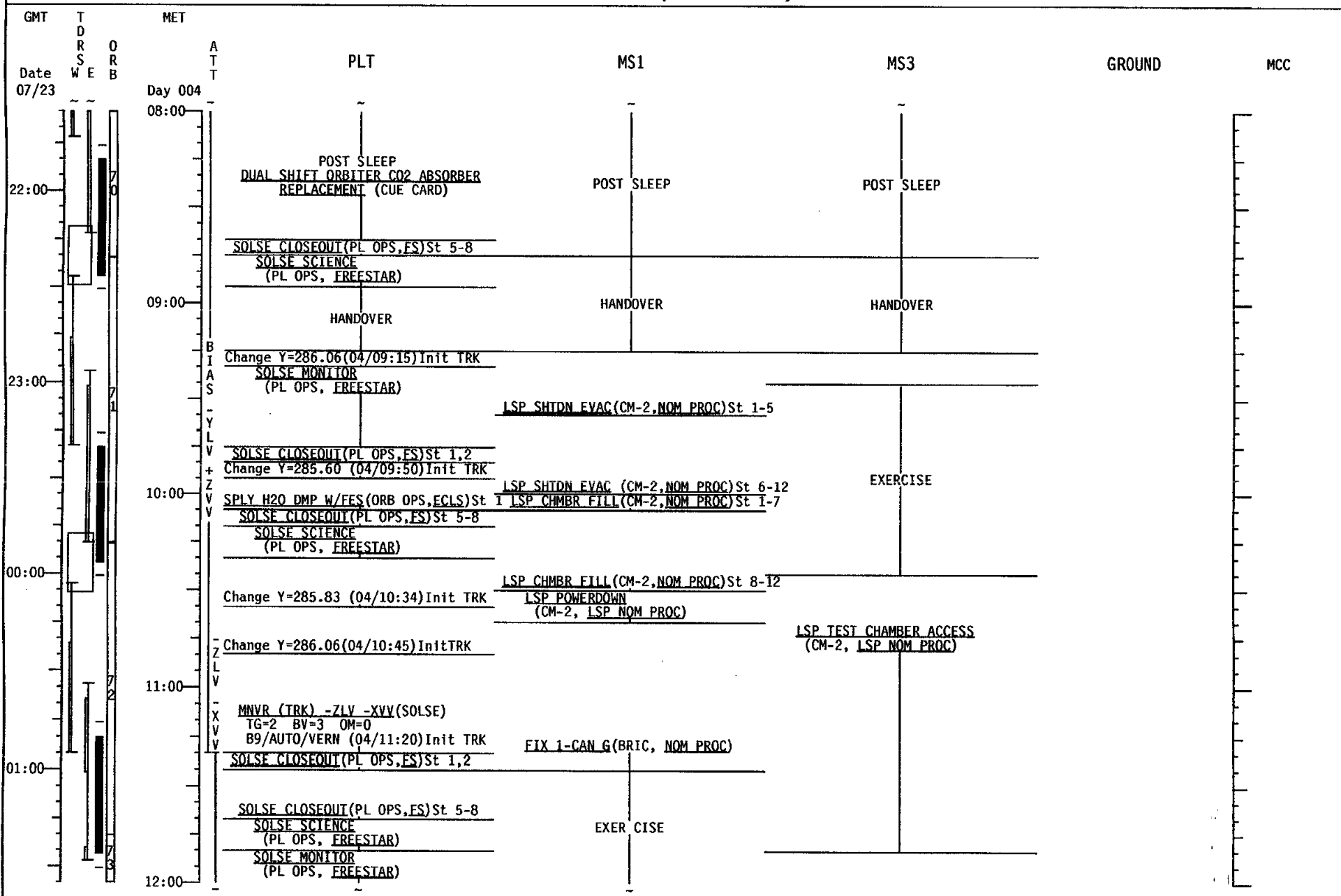
STS-107 (BLUE FD06)



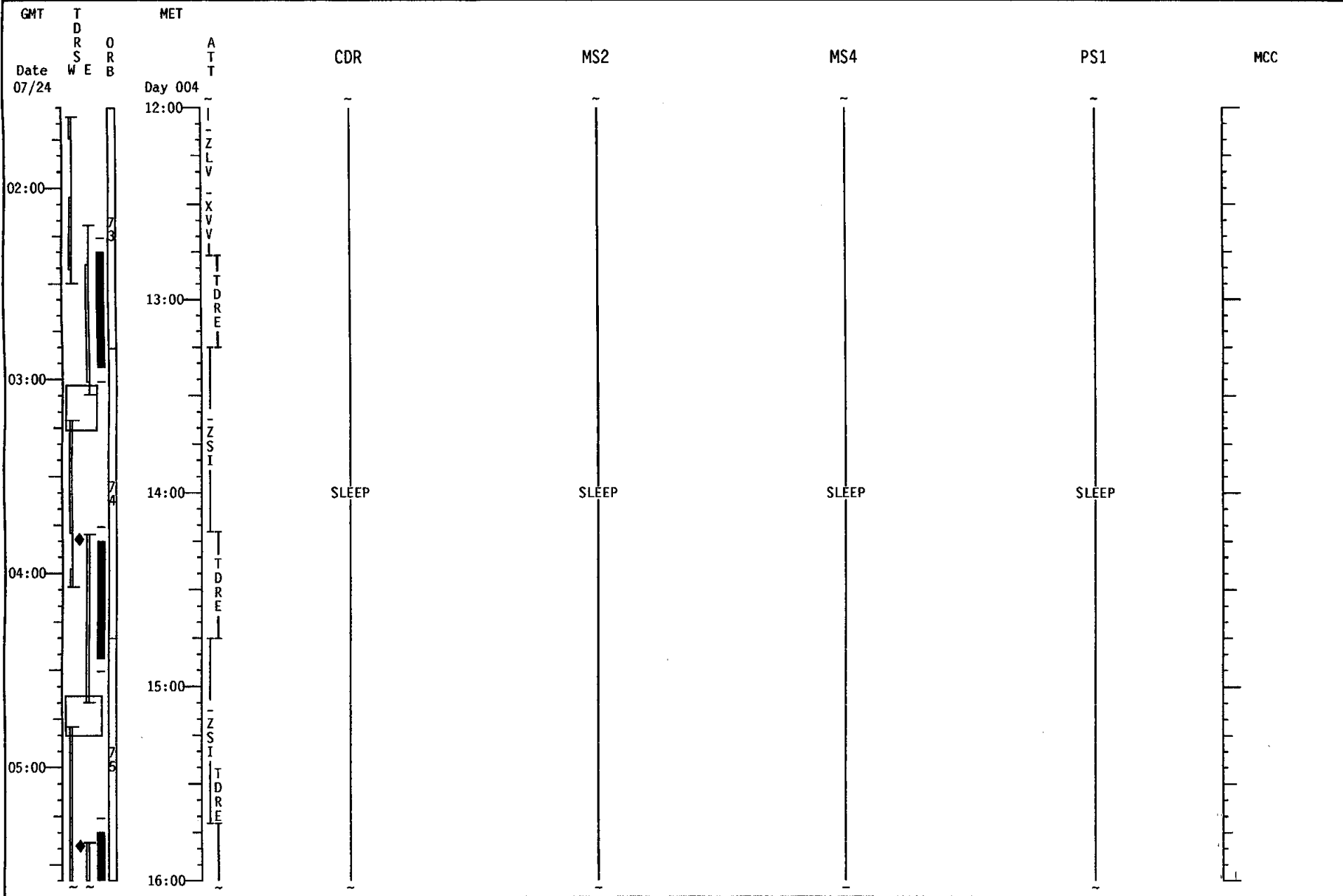
STS-107 (RED FD05)



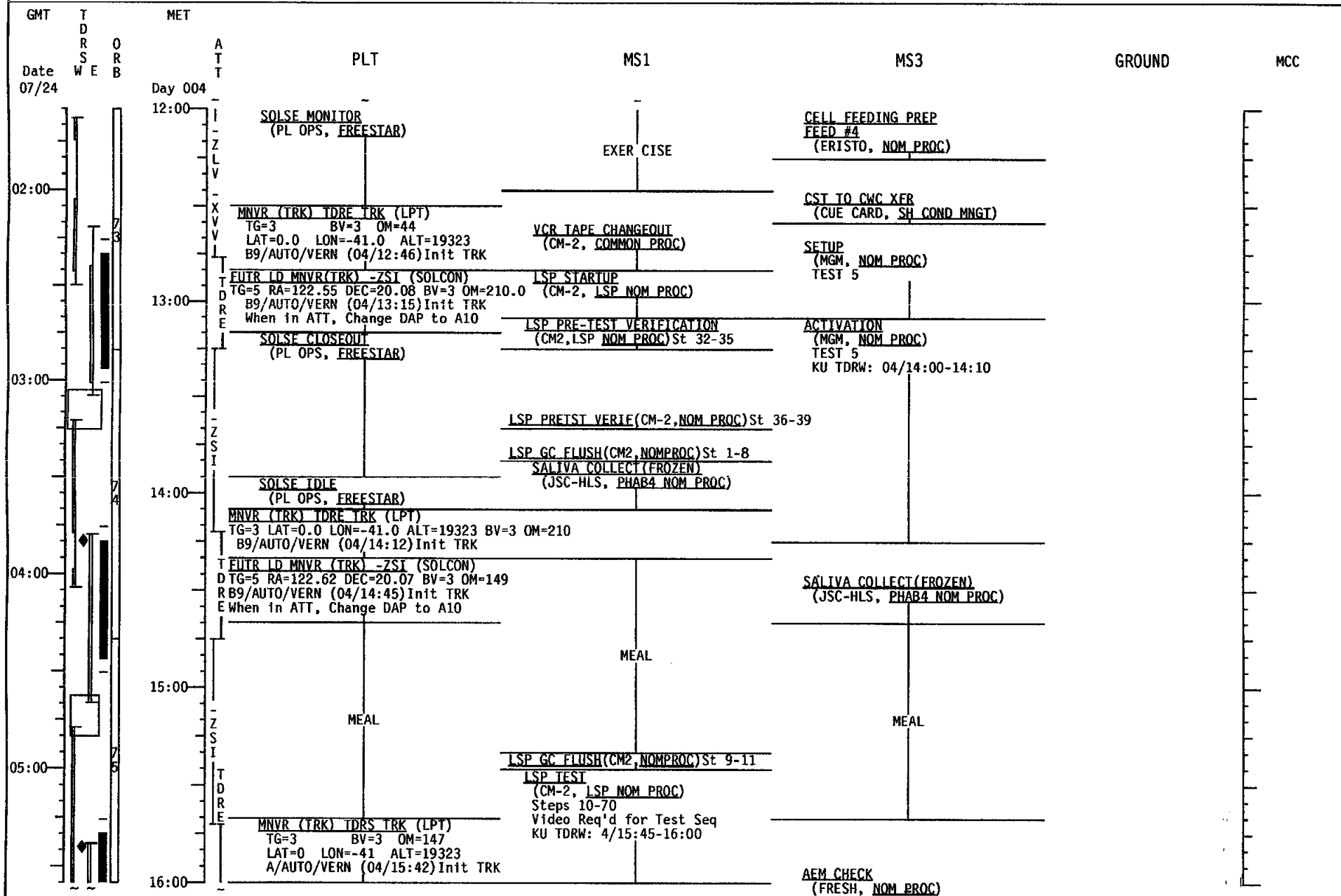
STS-107 (BLUE FD06)



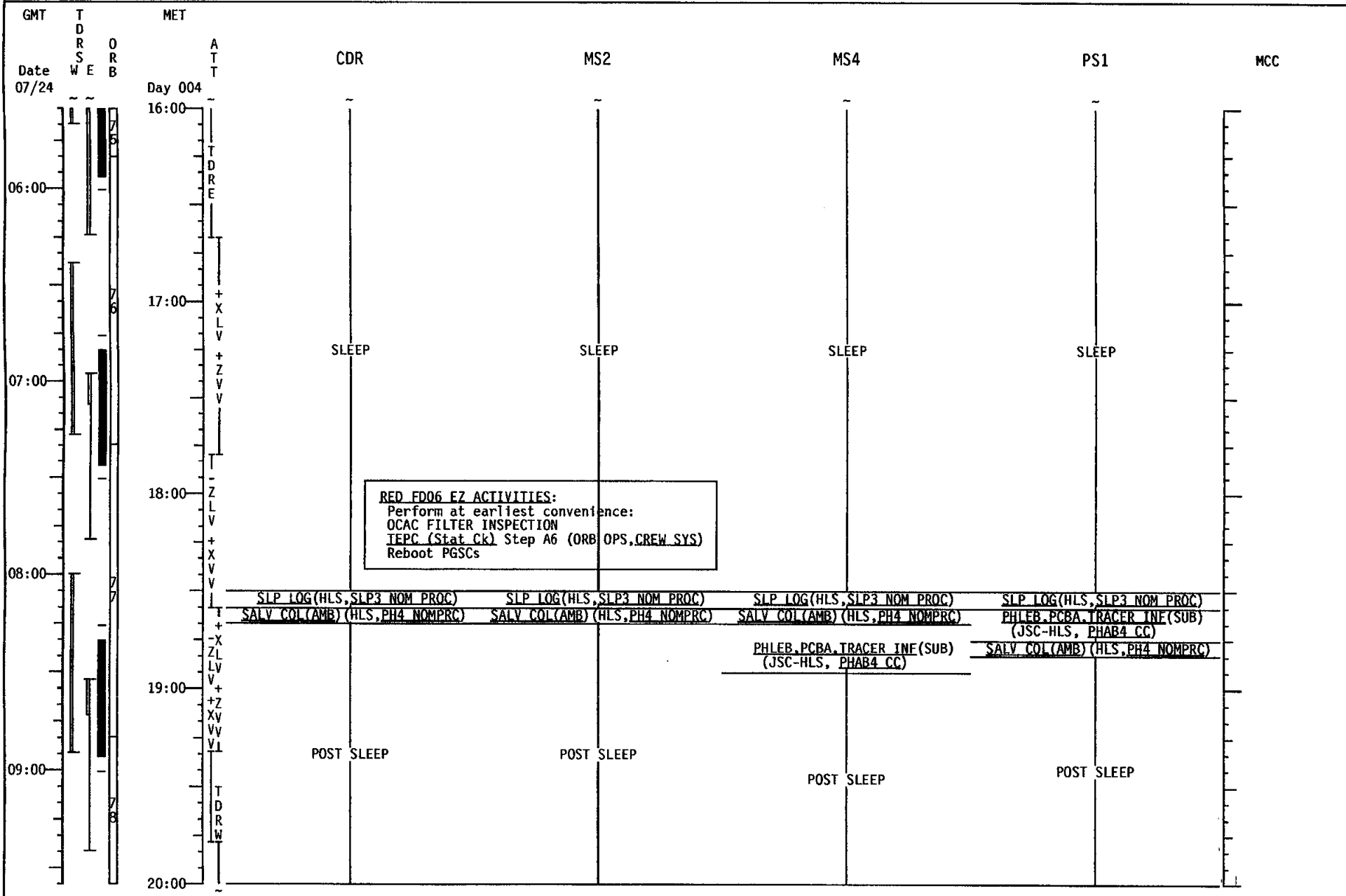
STS-107 (RED FD05)



STS-107 (BLUE FD06)



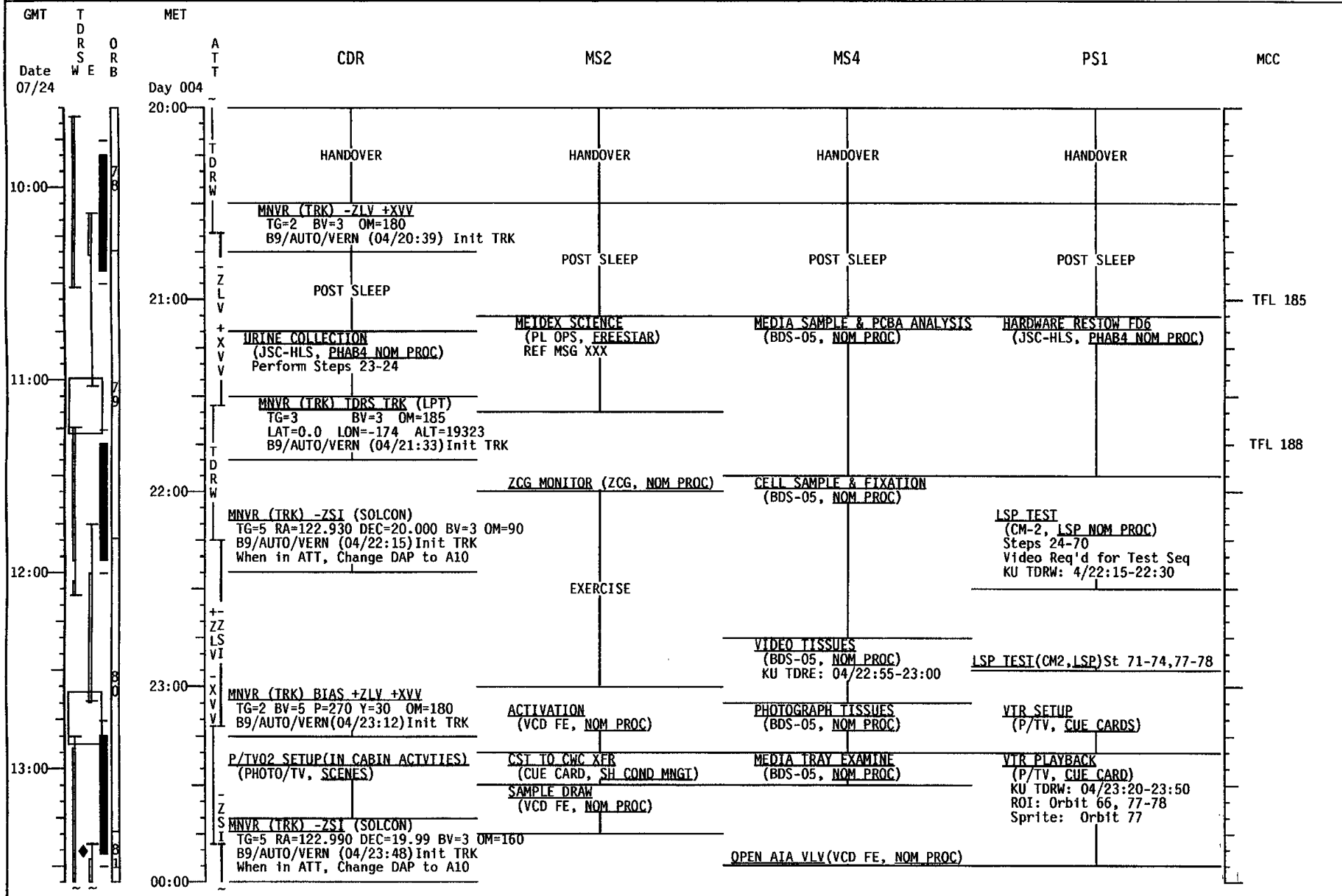
STS-107 (RED FD06)



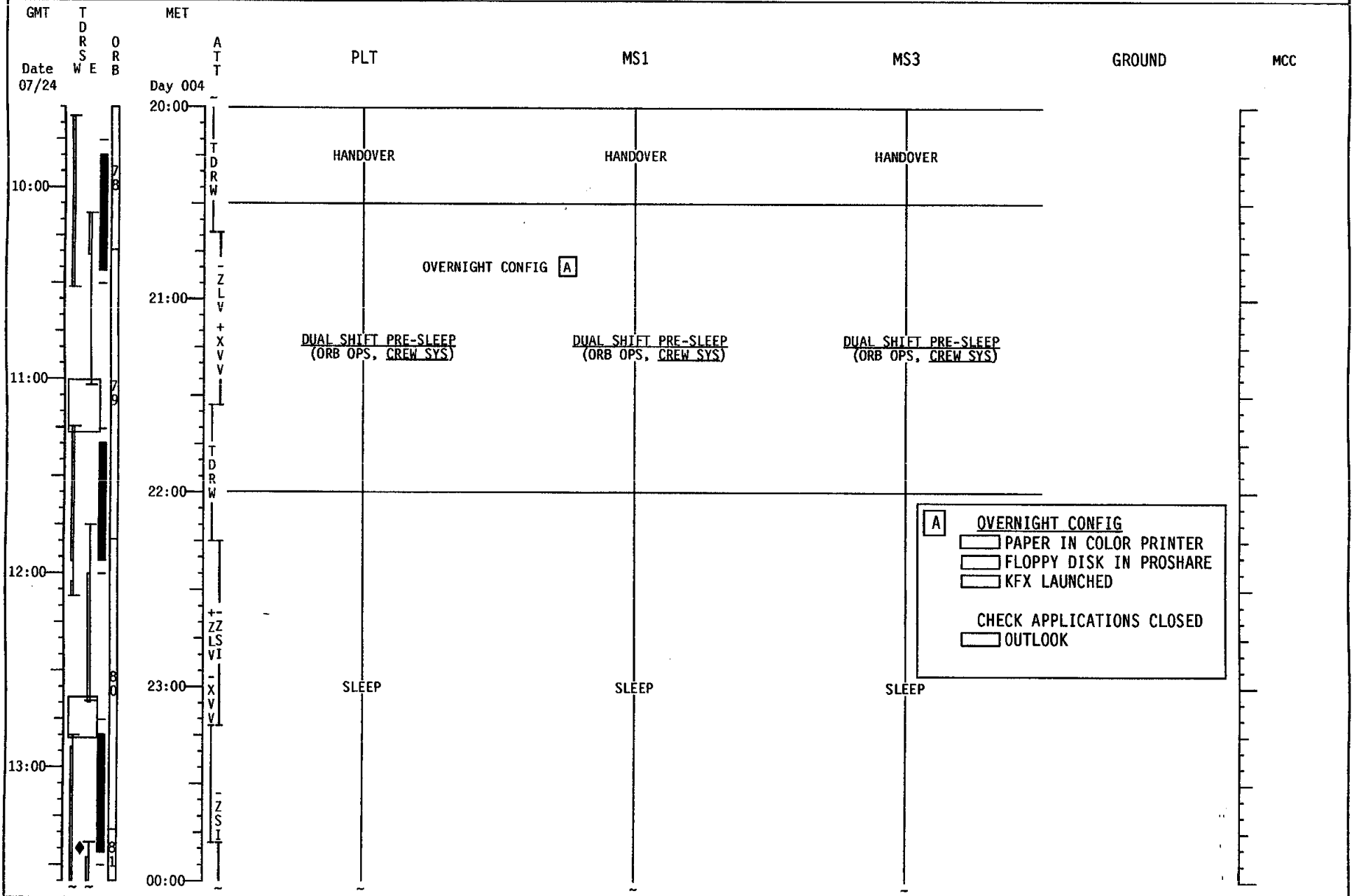
STS-107 (BLUE FD06)

GMT	TDRS ORB	MET	PLT	MS1	MS3	GROUND	MCC
Date 07/24	W E B	Day 004					
06:00	75	16:00	SPLY H2O DMP W/FES (ORB OPS, ECLS) St 2 FES req'd		AEM CHECK (FRESH, NOM PROC)		
				LSP TEST (CM2, LSP) St 71-74, 77-78			
			MNVR (TRK) BIAS +XLV +ZVV (SPRITE) TG=2 BV=5 P=15 Y=0 OM=200 B9/AUTO/VERN (04/16:40) Init TRK			DEACT (TEST 1,2,4,5,7,8) (MGM, NOM PROC) Test 5	
		17:00		MEIDEX SETUP (PL OPS, FREESTAR)			
			EXERCISE	MEIDEX SCIENCE (SPRITE) (PL OPS, FREESTAR) REF MSG XXX KU TDRW: 4/17:10-17:42			TFL 185
07:00	76						
		18:00	MNVR (TRK) -ZLV +XVV (MEIDEX) TG=2 BV=3 OM=180 B9/AUTO/VERN (04/17:48) Init TRK	MEIDEX SCIENCE (PL OPS, FREESTAR) REF MSG XXX		SH STATUS CHK-BLUE TEAM (SH EH, CUE CARDS)	
			FLIT LOAD (TRK) BIAS +XLV +ZVV (SPRITE) TG=2 BV=5 P=15 Y=0 OM=200 B9/AUTO/VERN (04/18:35) Init TRK				
08:00	77			CLOSE OUTLK, CALL MCC, CNFG PDIP: OCA			
			BLOOD DRAW PREP	MEIDEX CLOSEOUT (PL OPS, ES) Step 5			
			PHLEB. PCBA TRACER INF (OPER) (JSC-HLS, PHAB4 CC)	MEIDEX SCIENCE (SPRITE) (PL OPS, FREESTAR) REF MSG XXX		PCBA PREP PHLEB. PCBA TRACER INFUSION (JSC-HLS, PHAB4 CUE CARDS)	
		19:00	BLOOD DRAW CLEANUP				
			MNVR (TRK) -ZLV +XVV (MEIDEX) TG=2 BV=3 OM=180 B9/AUTO/VERN (04/19:19) Init TRK			CNTRFUG BLD (HLS, PH4 CC) St 1-11	
09:00	78			MEIDEX SCIENCE (PL OPS, FREESTAR) REF MSG XXX			
		20:00	MNVR (TRK) TDRW TRK (LPT) TG=3 BV=3 OM=50 LAT=0.0 LON=-174.0 ALT=19323 B9/AUTO/VERN (04/19:47) Init TRK			CNTRFUG BLD PROCESSING (JSC-HLS, PHAB4 CC) St 12-20 MD STATUS CHK-BLUE TEAM (SH EH, CUE CARDS)	TFL 188

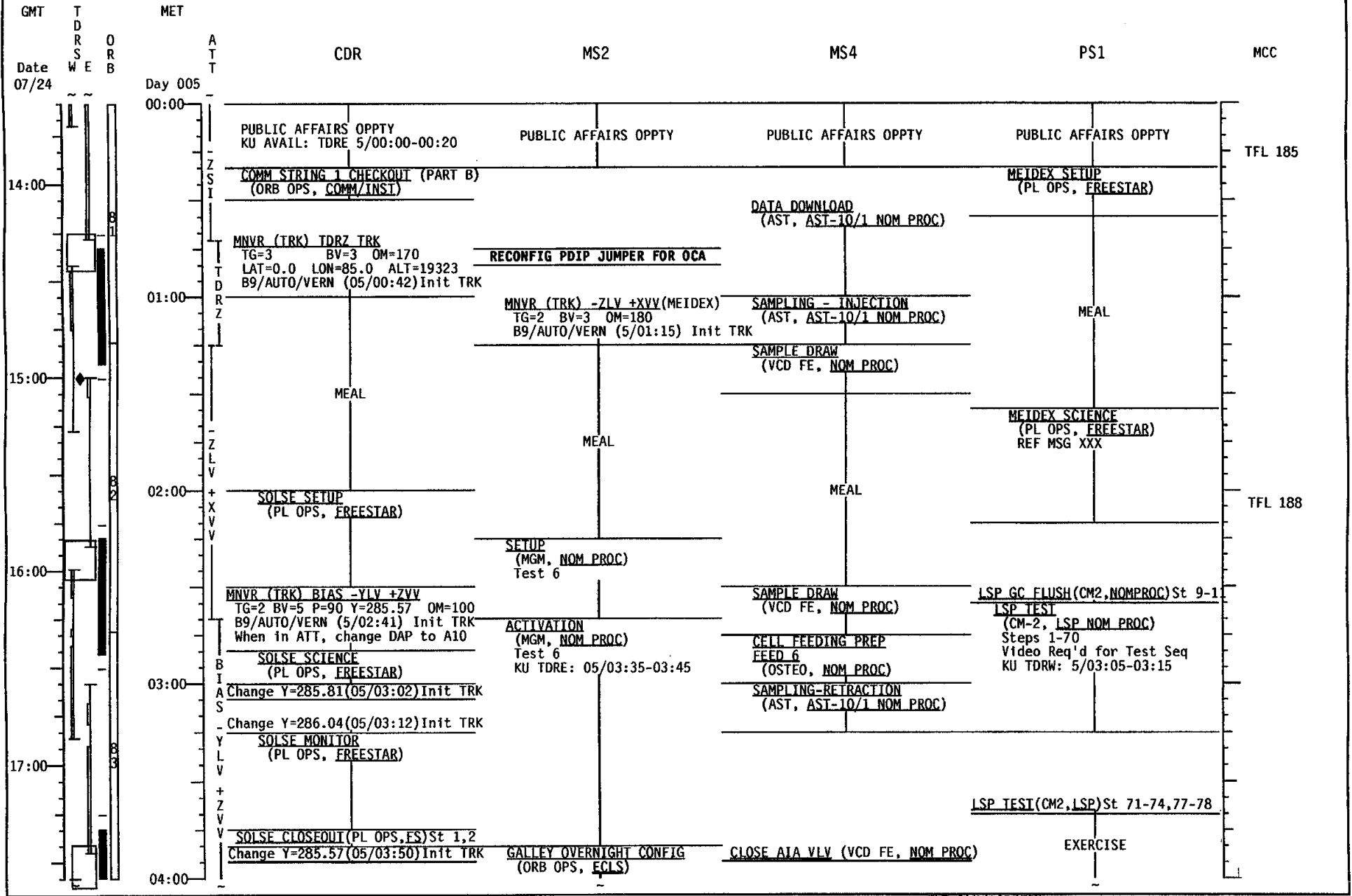
STS-107 (RED FD06)



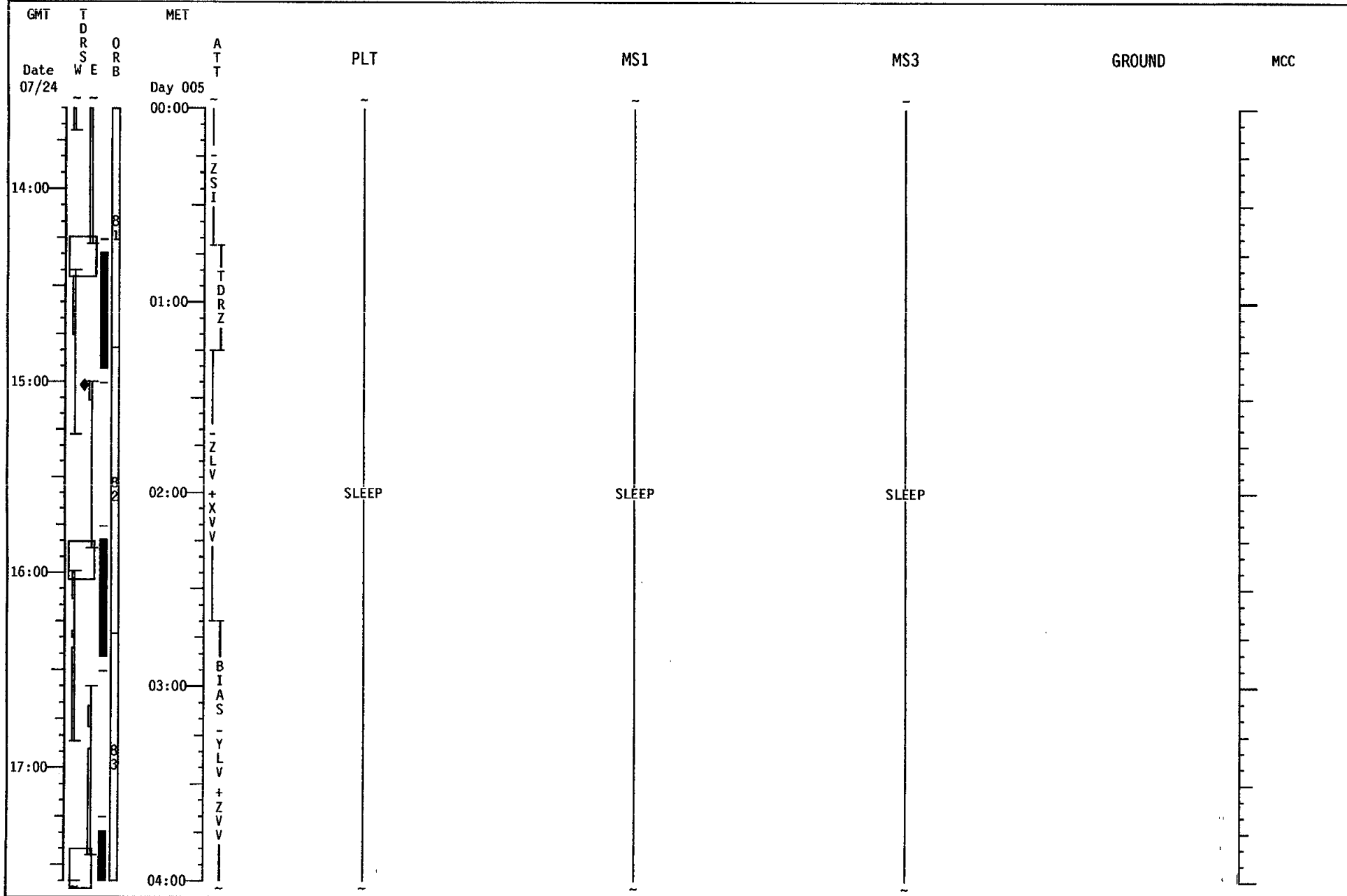
STS-107 (BLUE FD06)



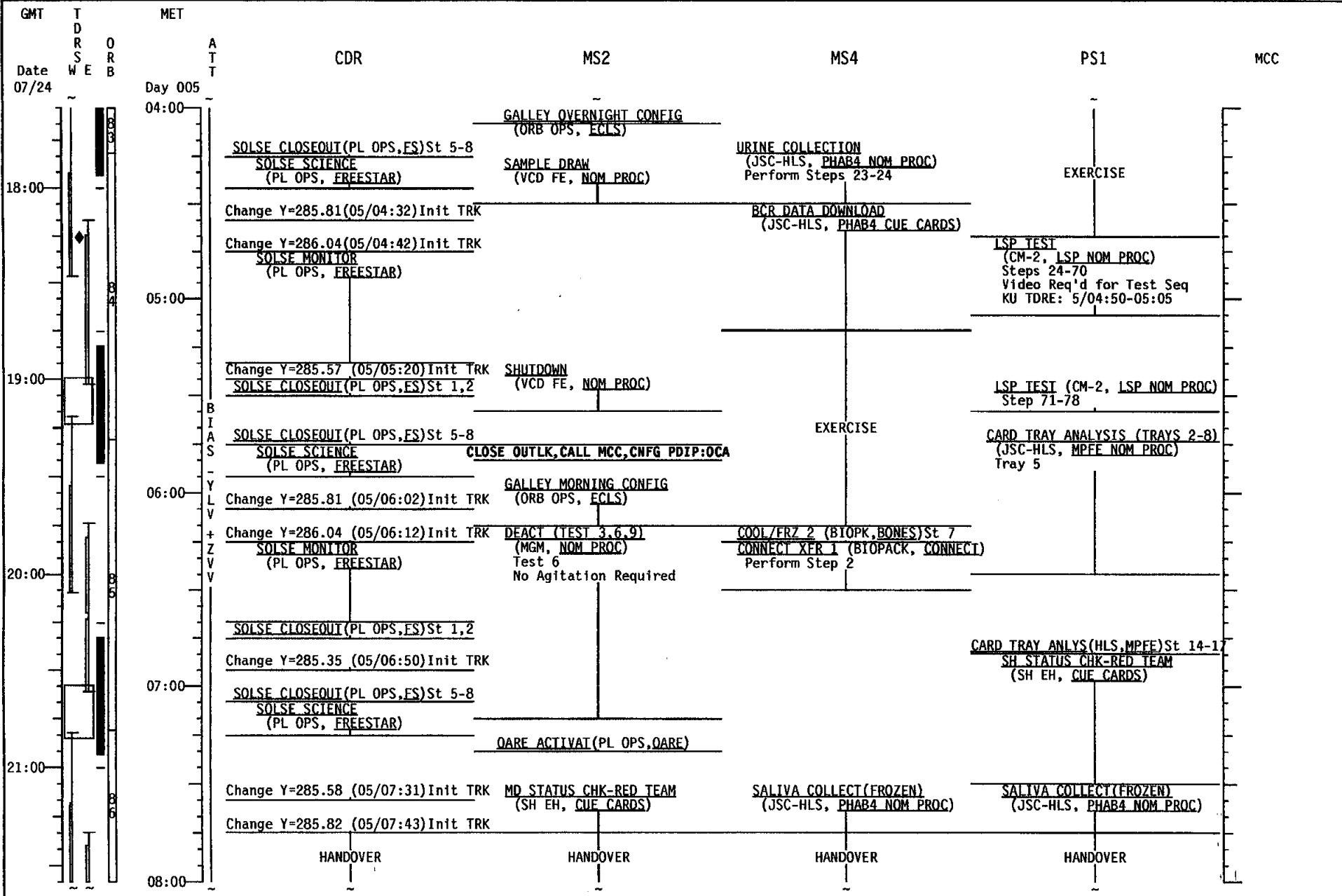
STS-107 (RED FD06)



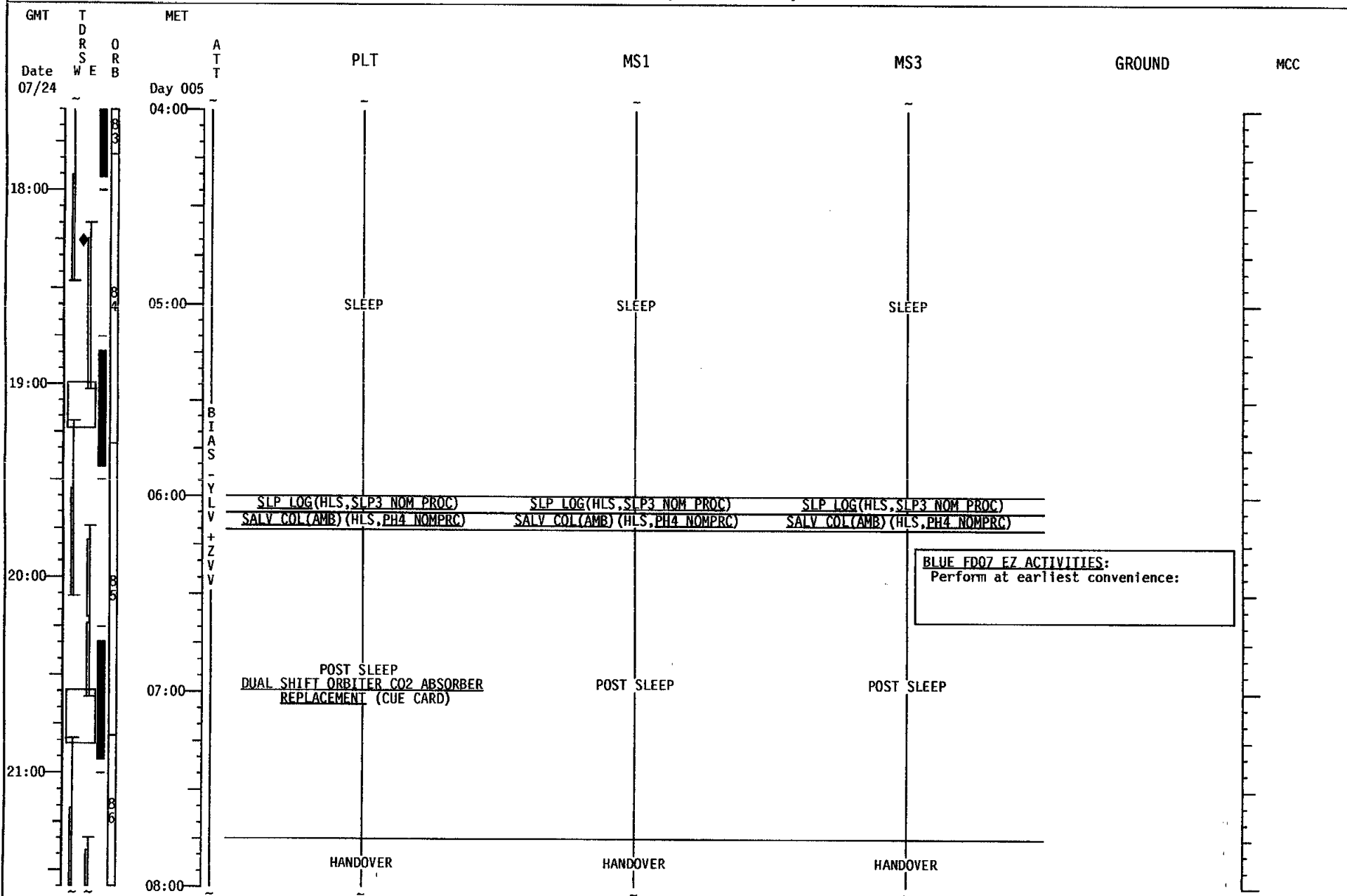
STS-107 (BLUE FD06)



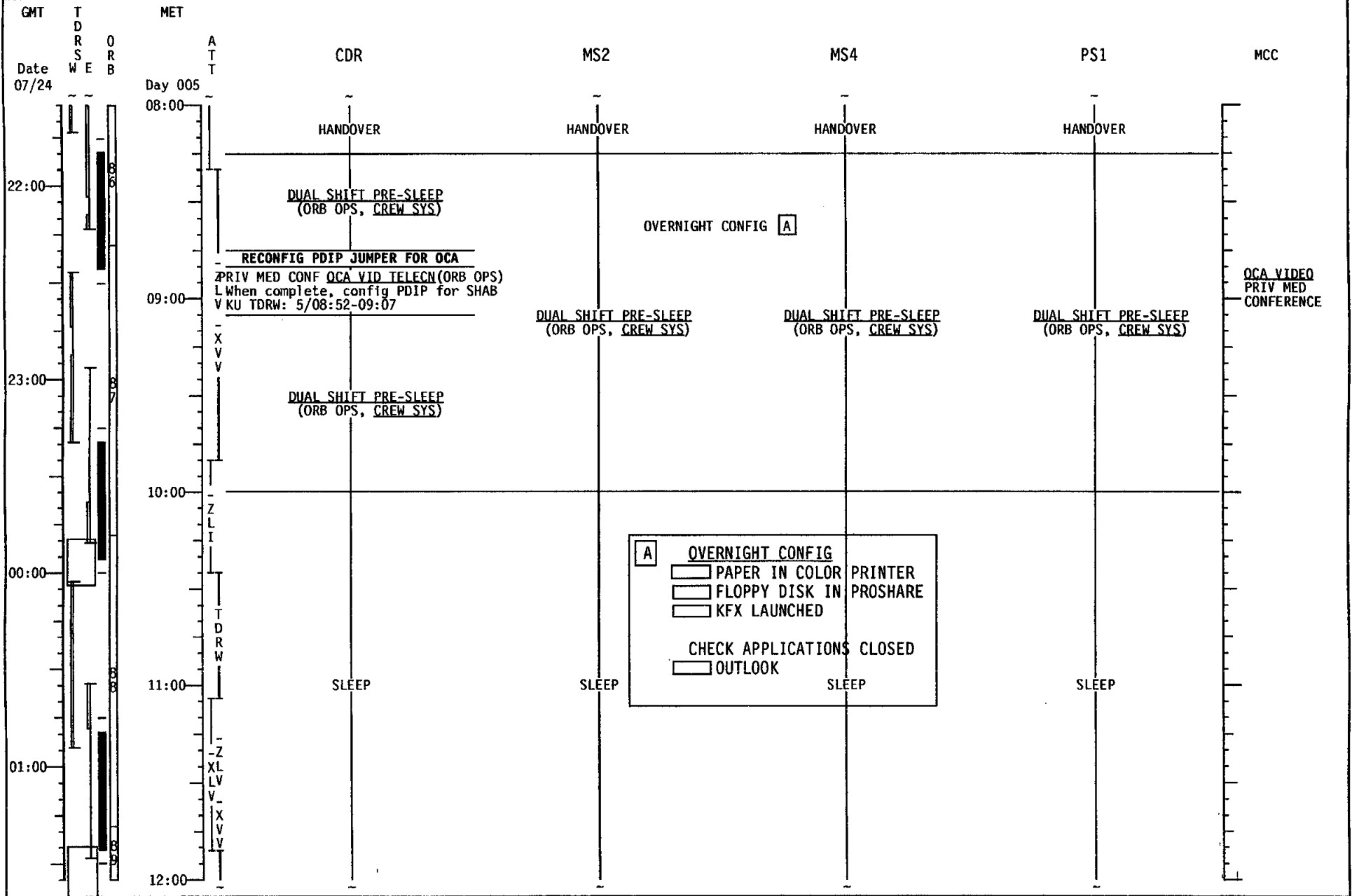
STS-107 (RED FD06)



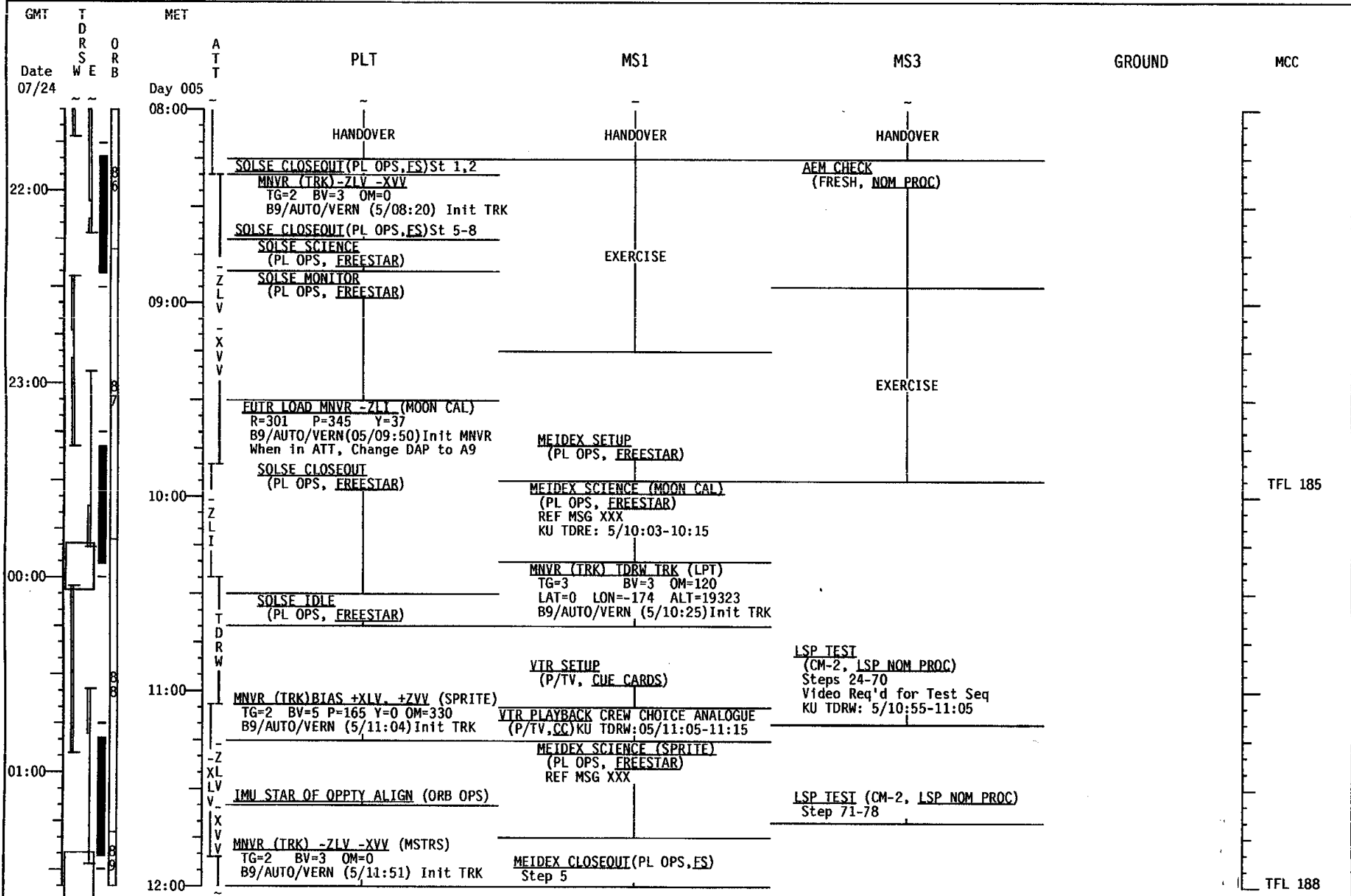
STS-107 (BLUE FD07)



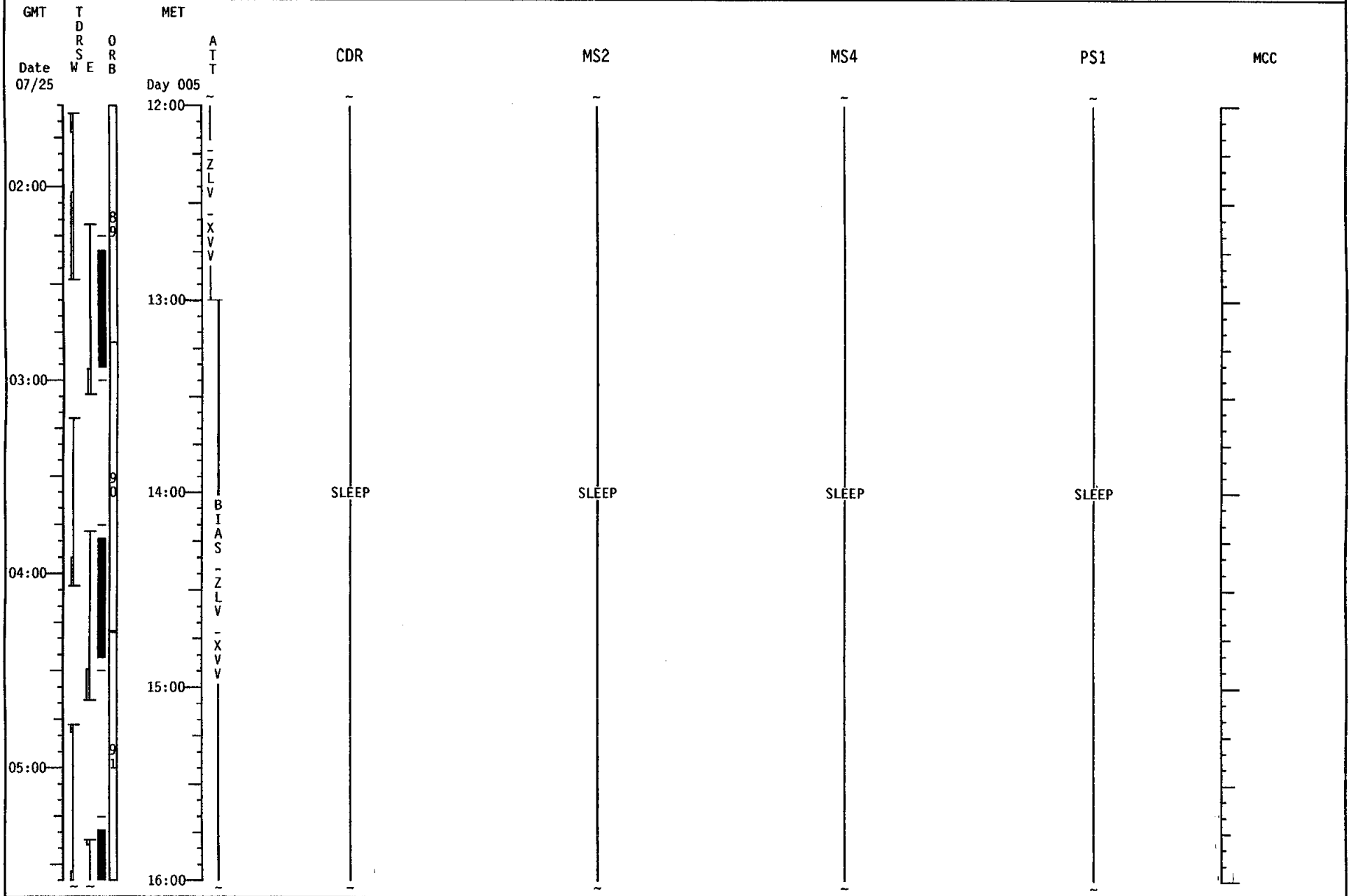
STS-107 (RED FD06)



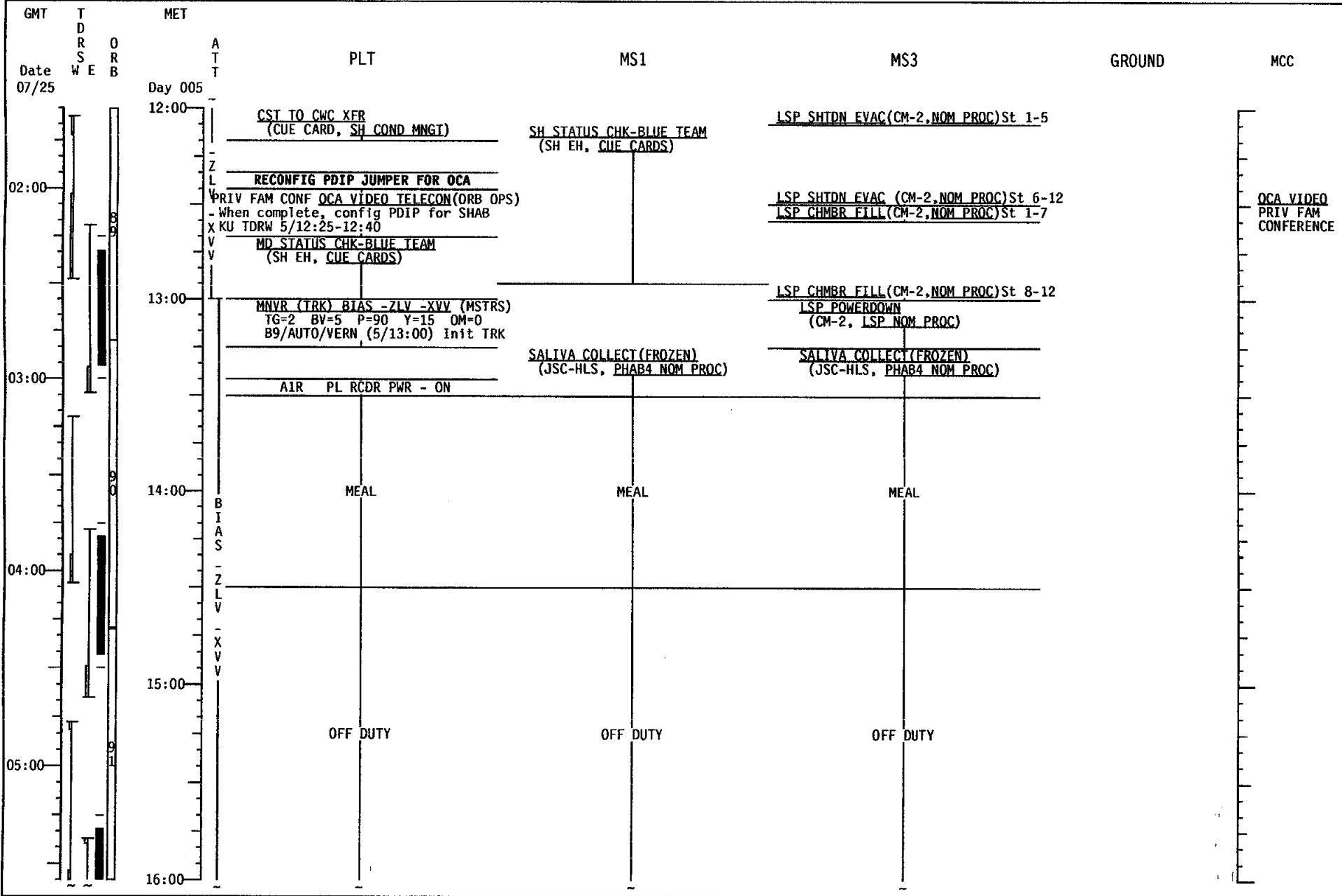
STS-107 (BLUE FD07)



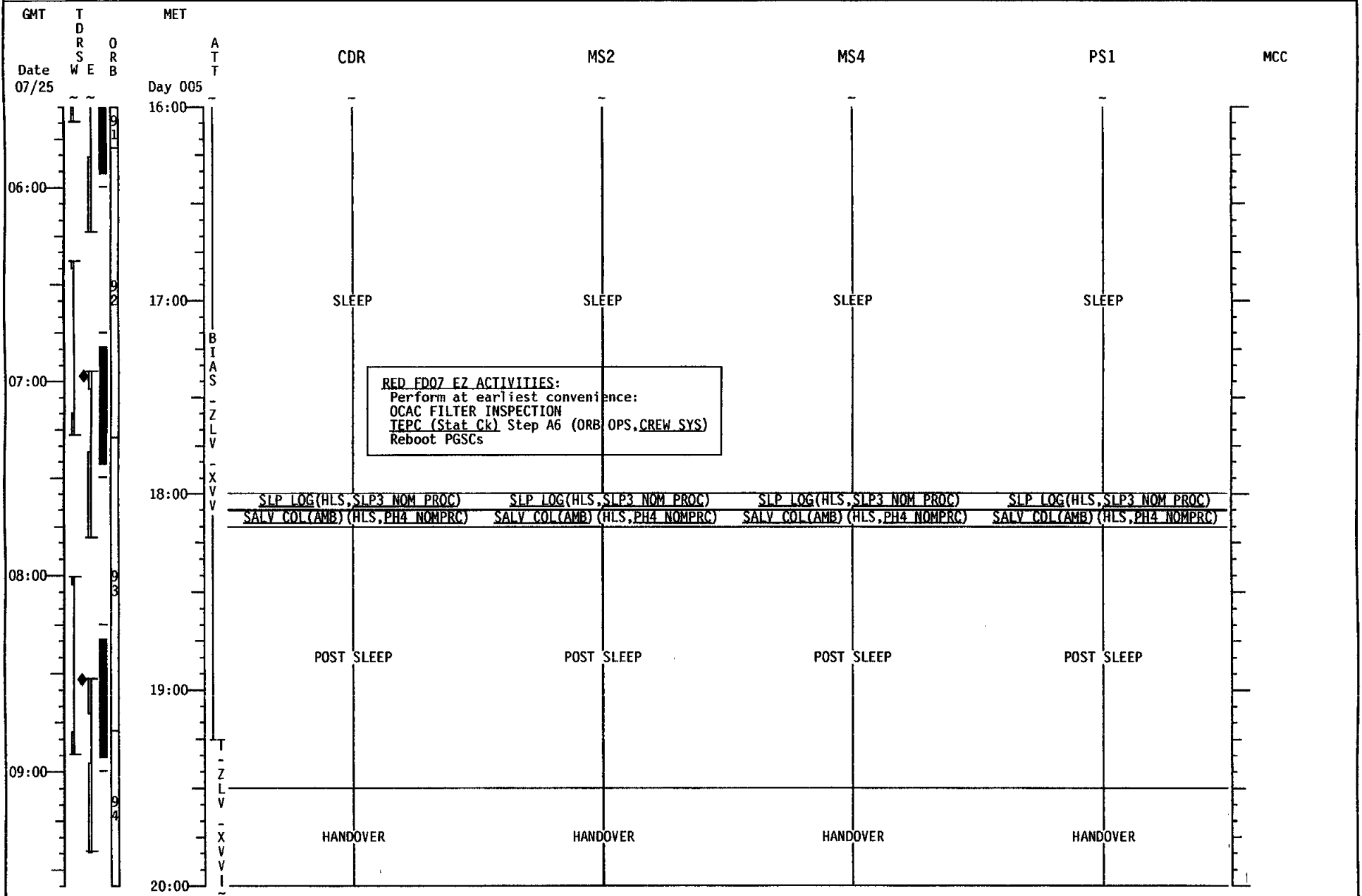
STS-107 (RED FD06)



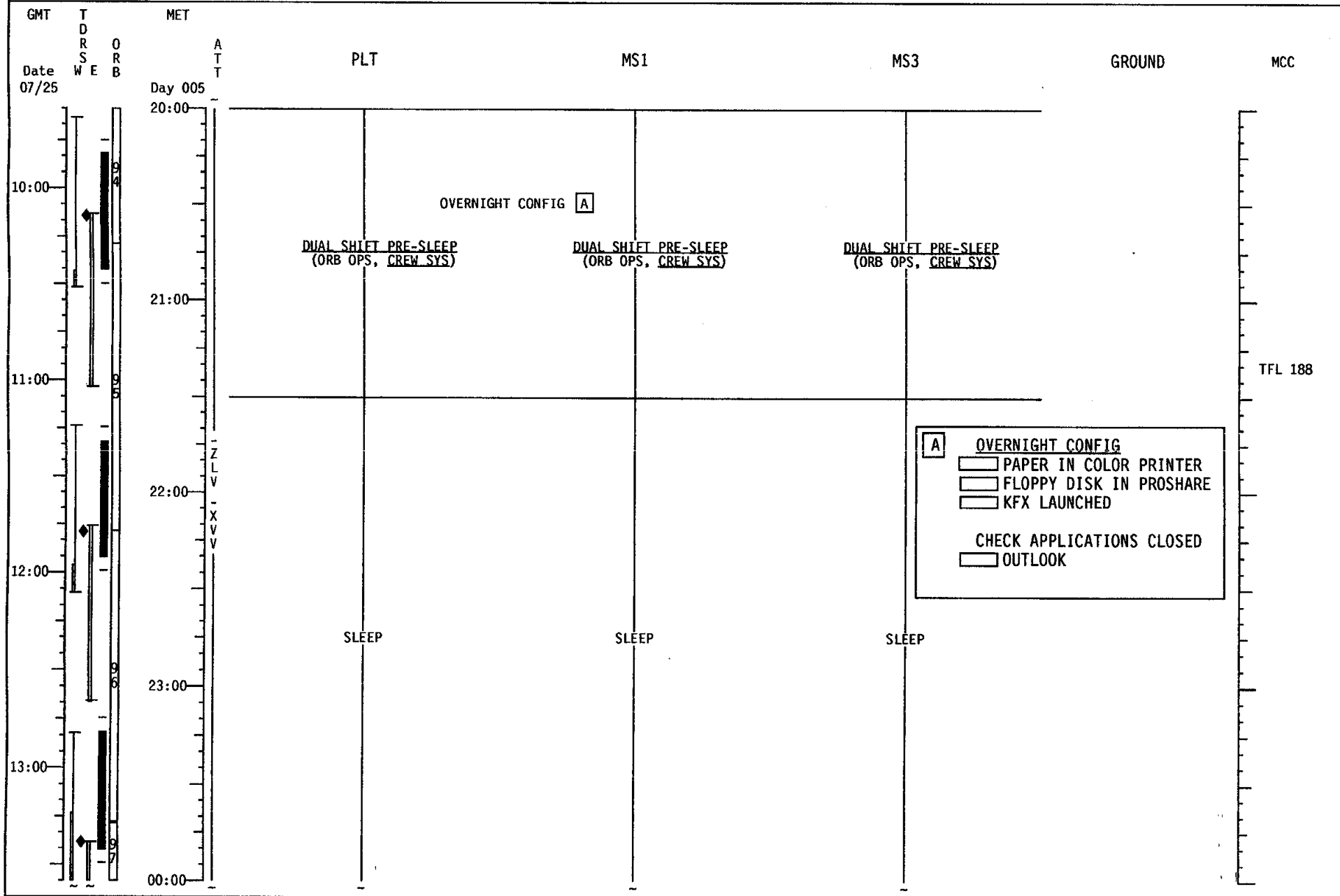
STS-107 (BLUE FD07)



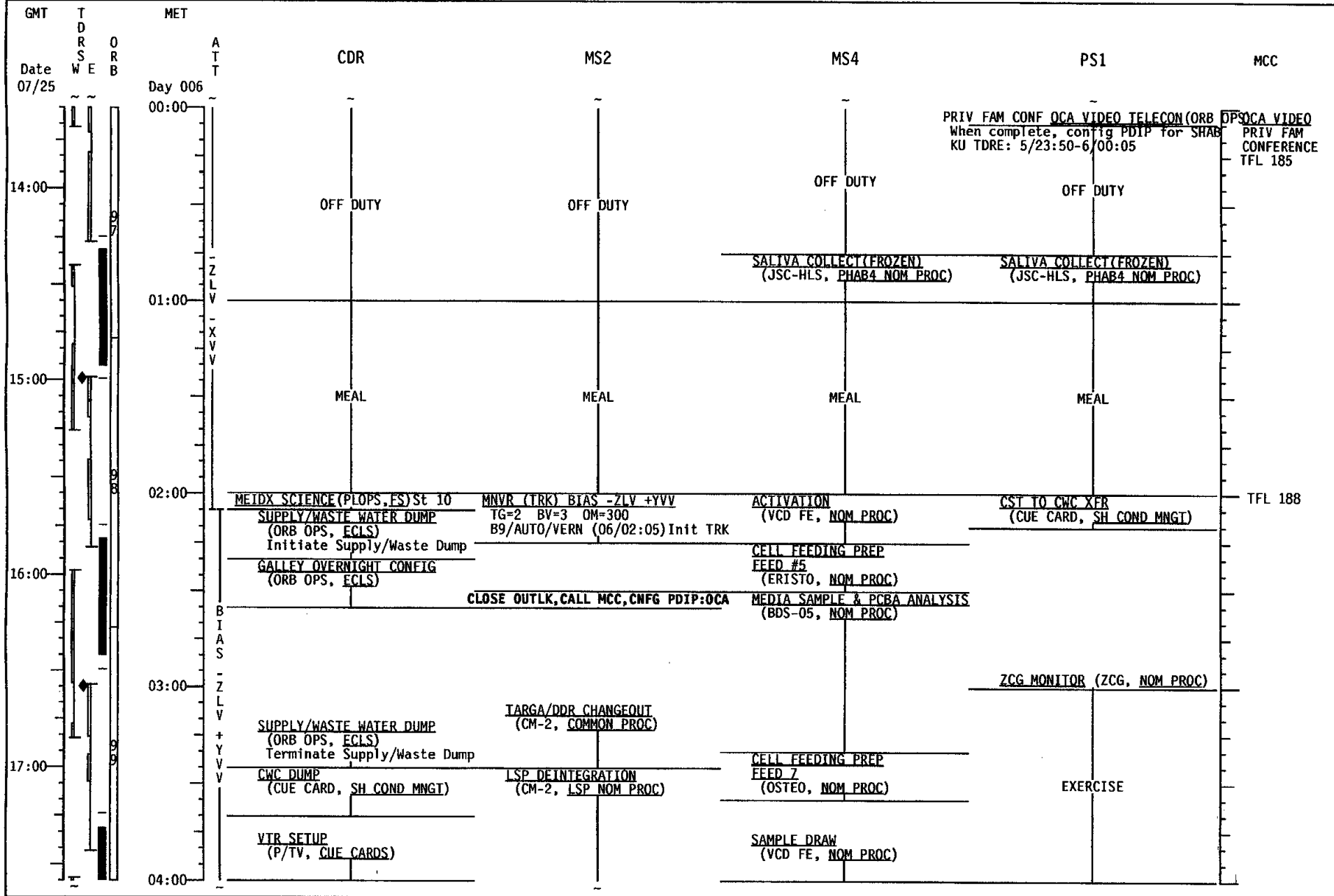
STS-107 (RED FD07)



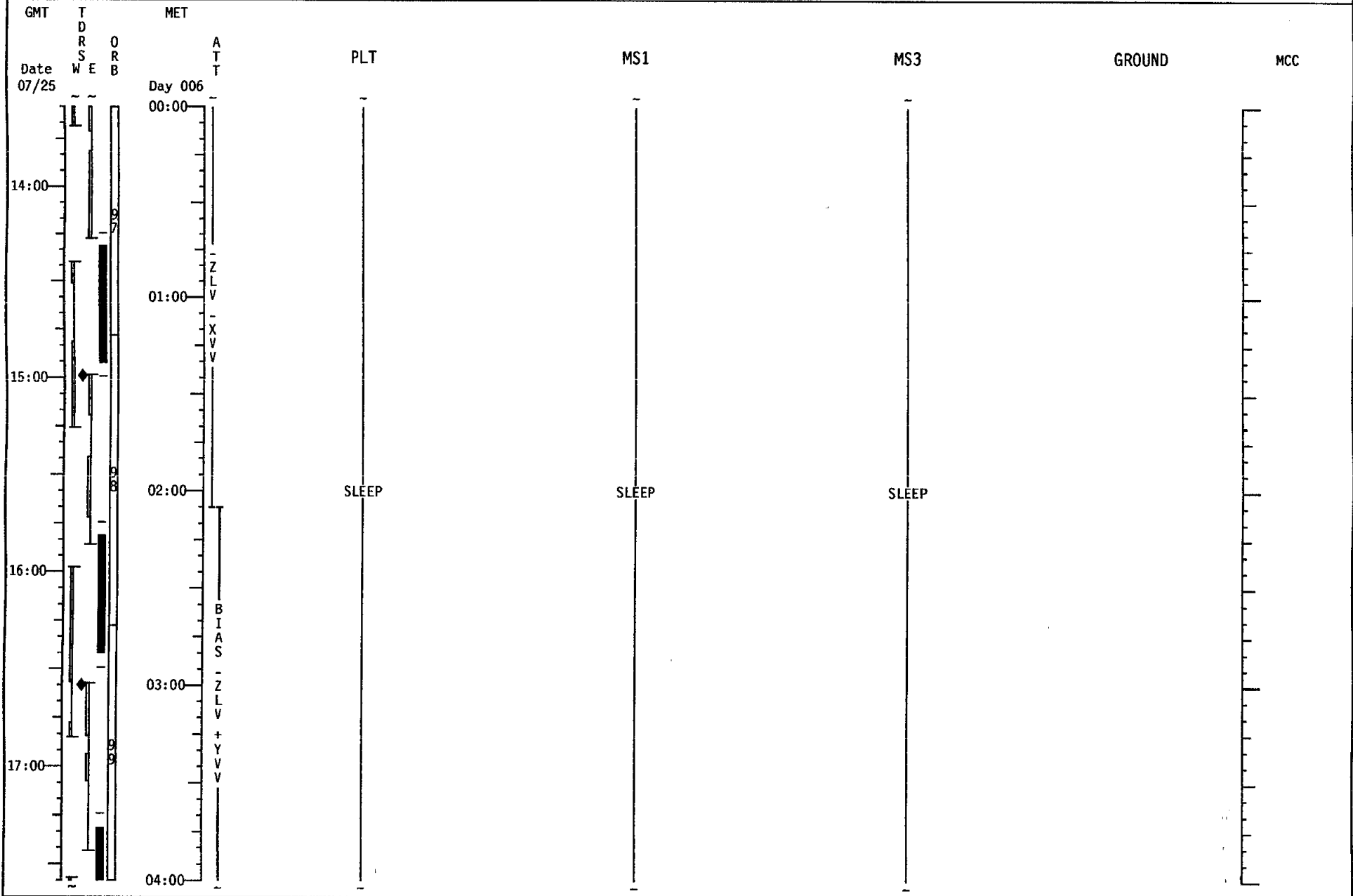
STS-107 (BLUE FD07)



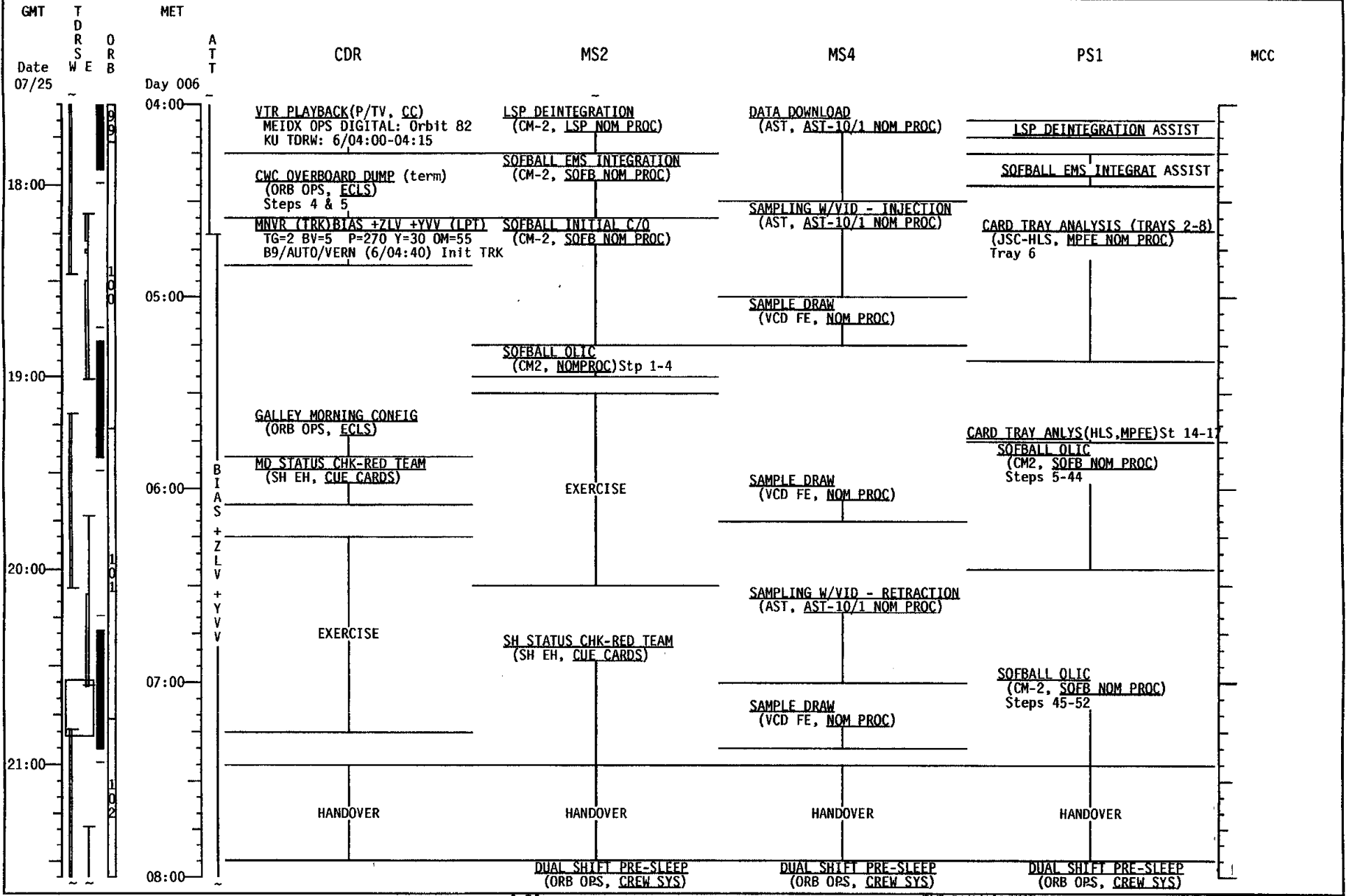
STS-107 (RED FD07)



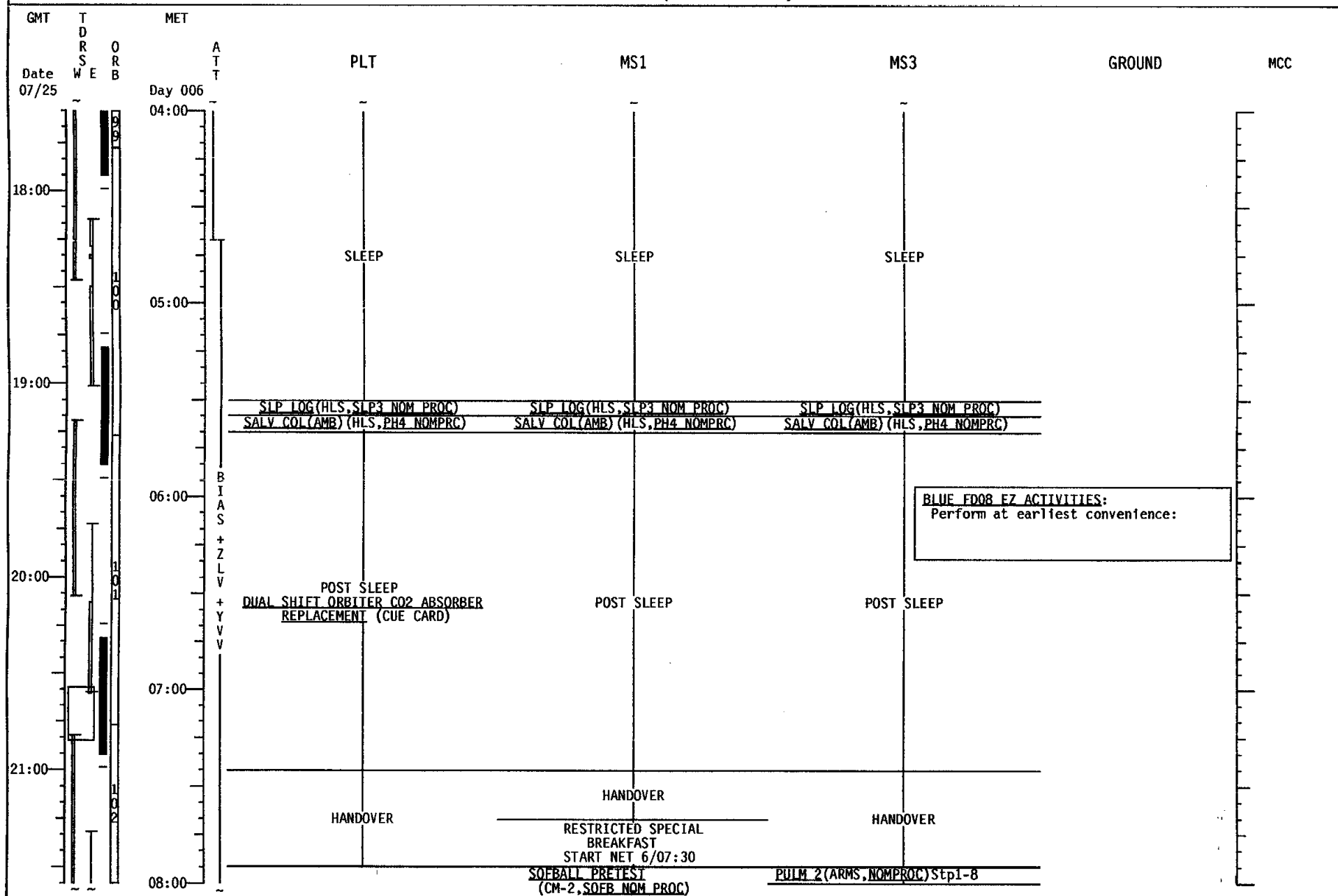
STS-107 (BLUE FD07)



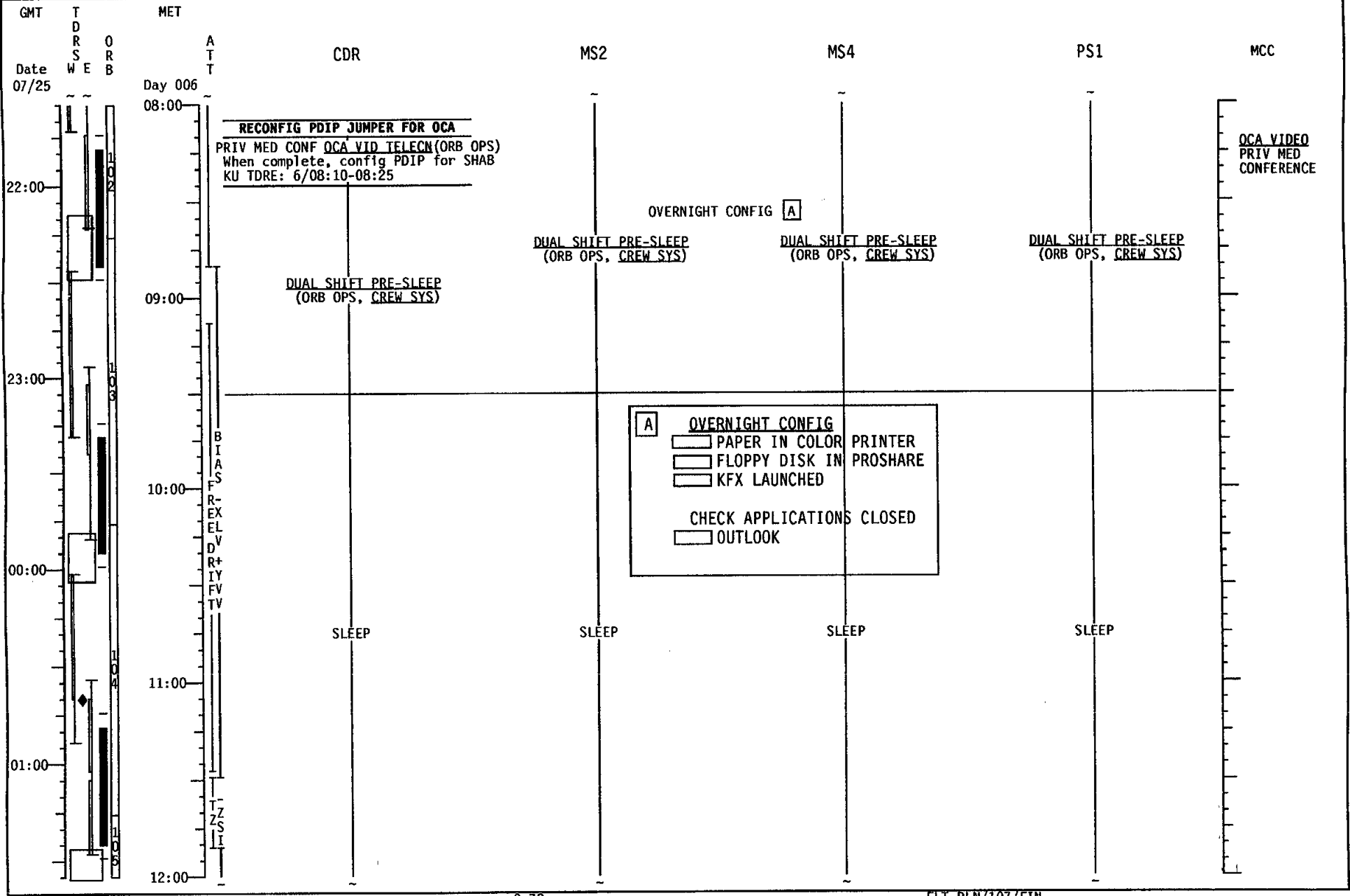
STS-107 (RED FD07)



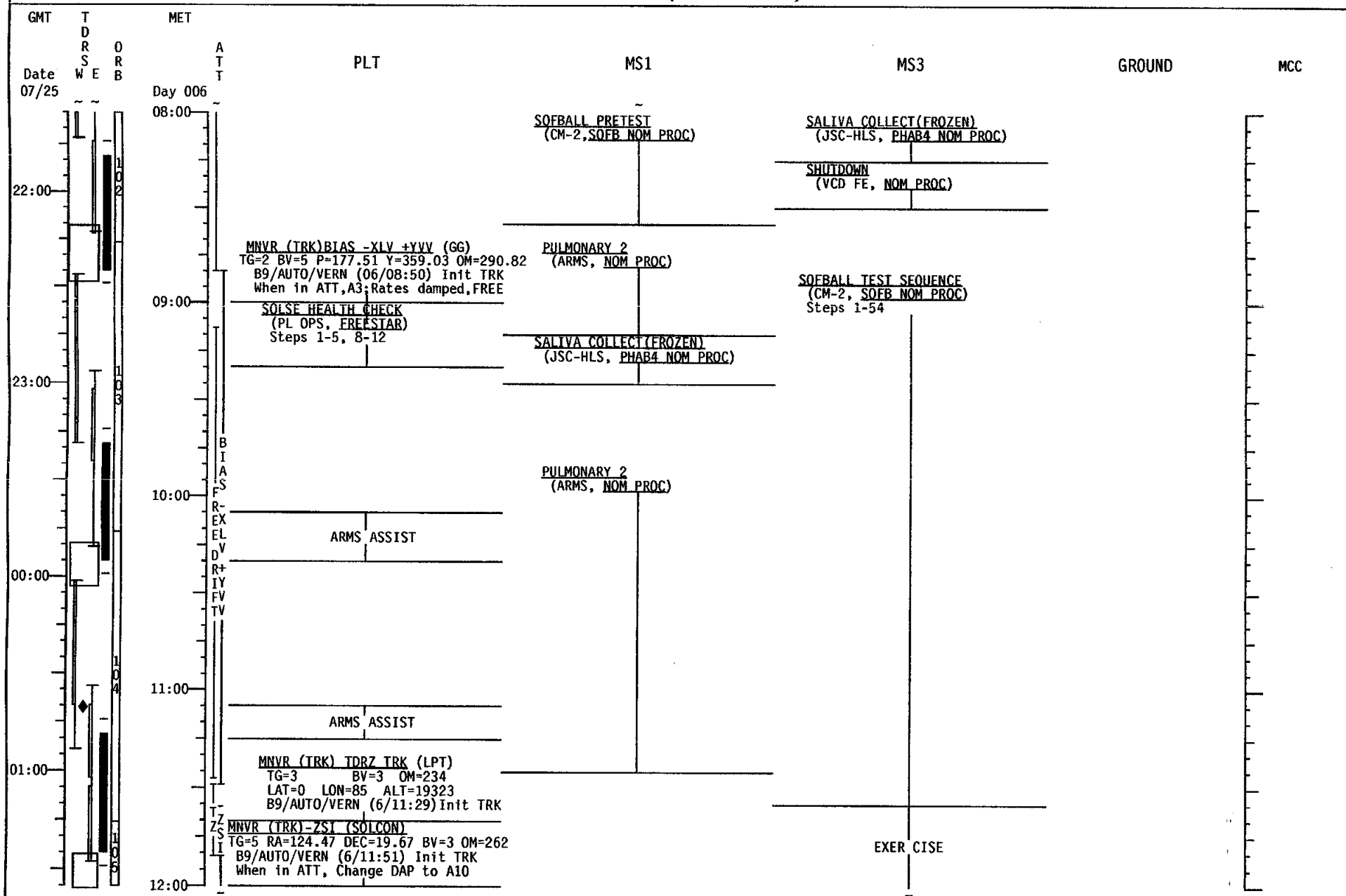
STS-107 (BLUE FD08)



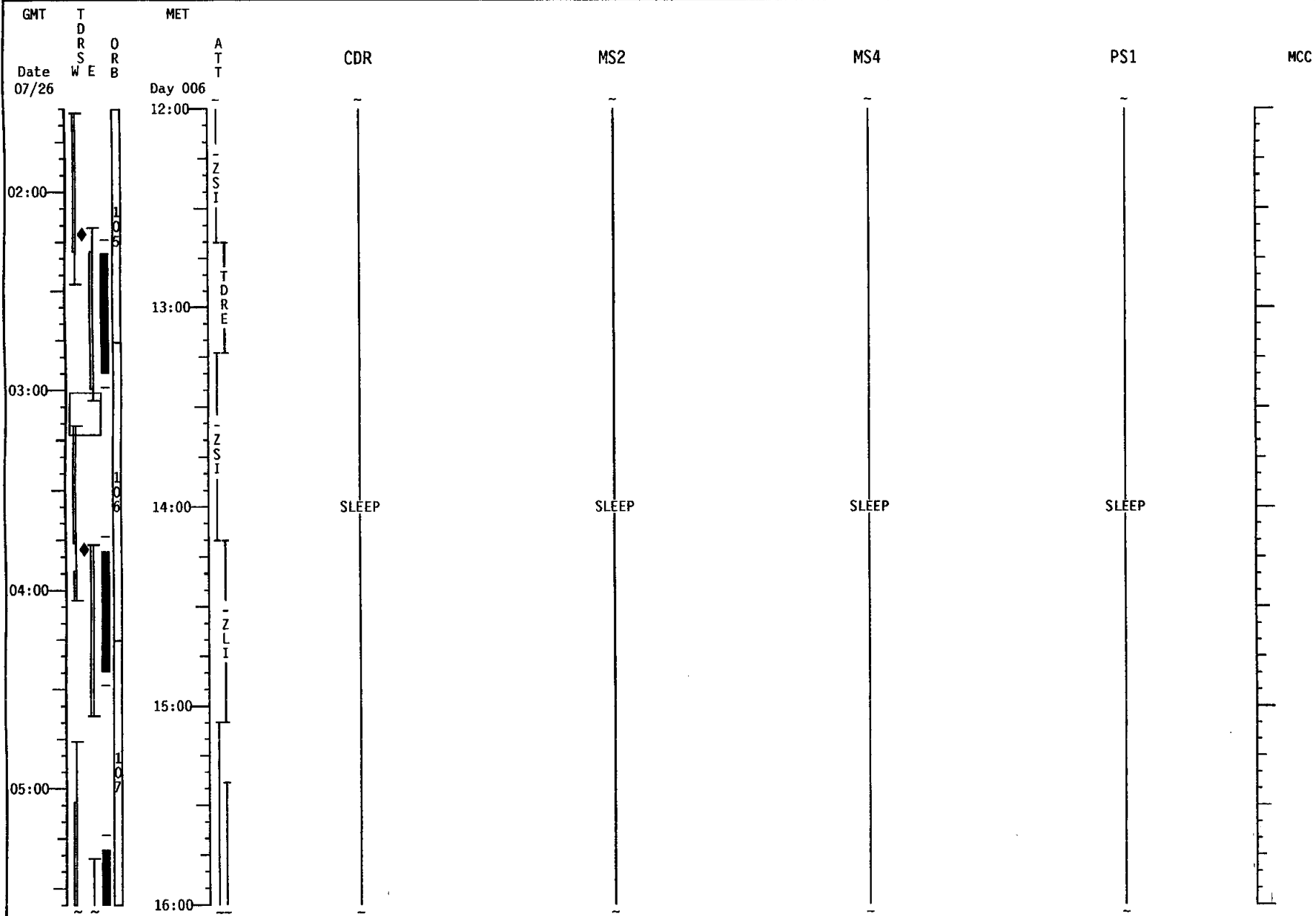
STS-107 (RED FD07)



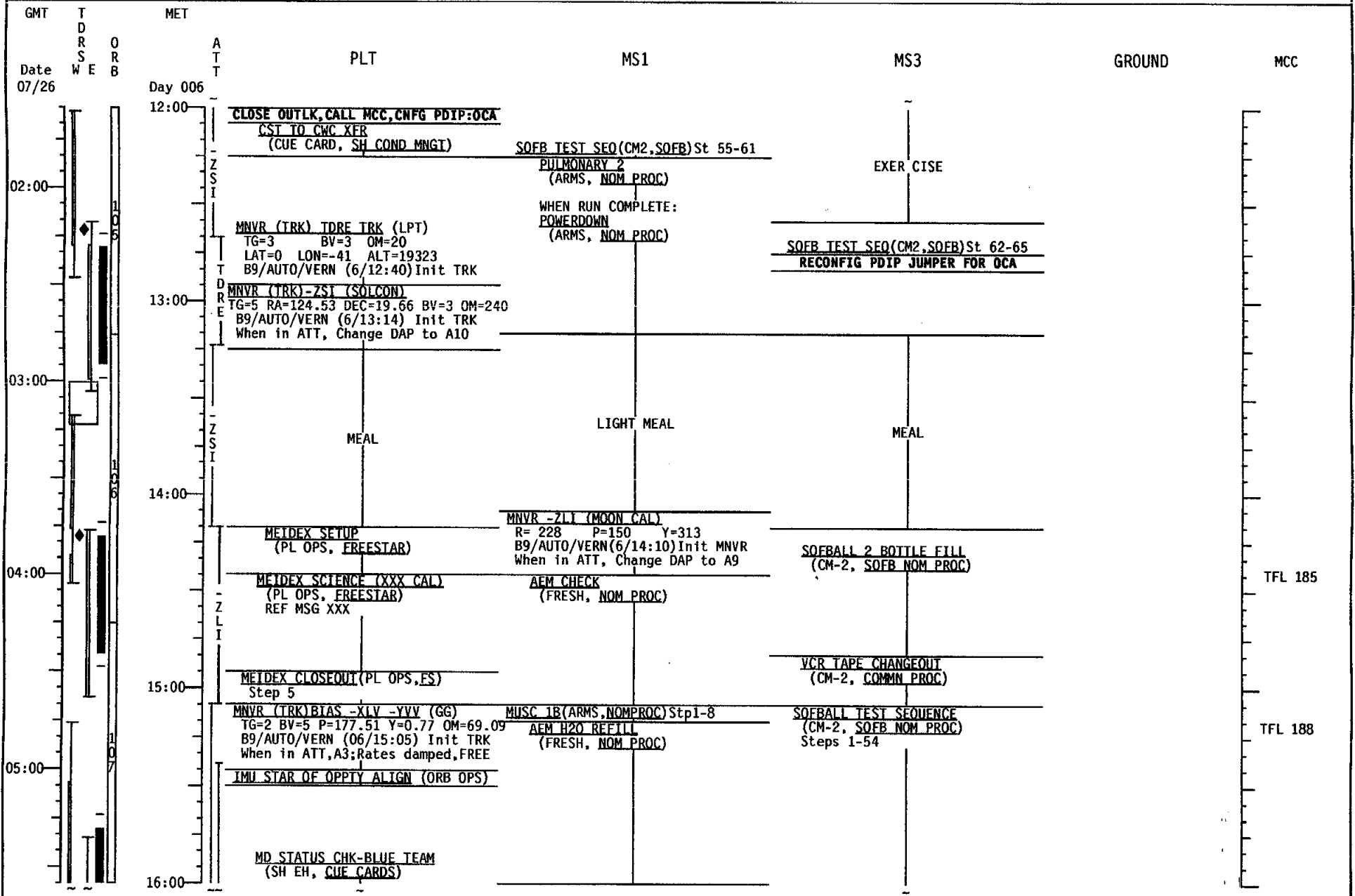
STS-107 (BLUE FD08)



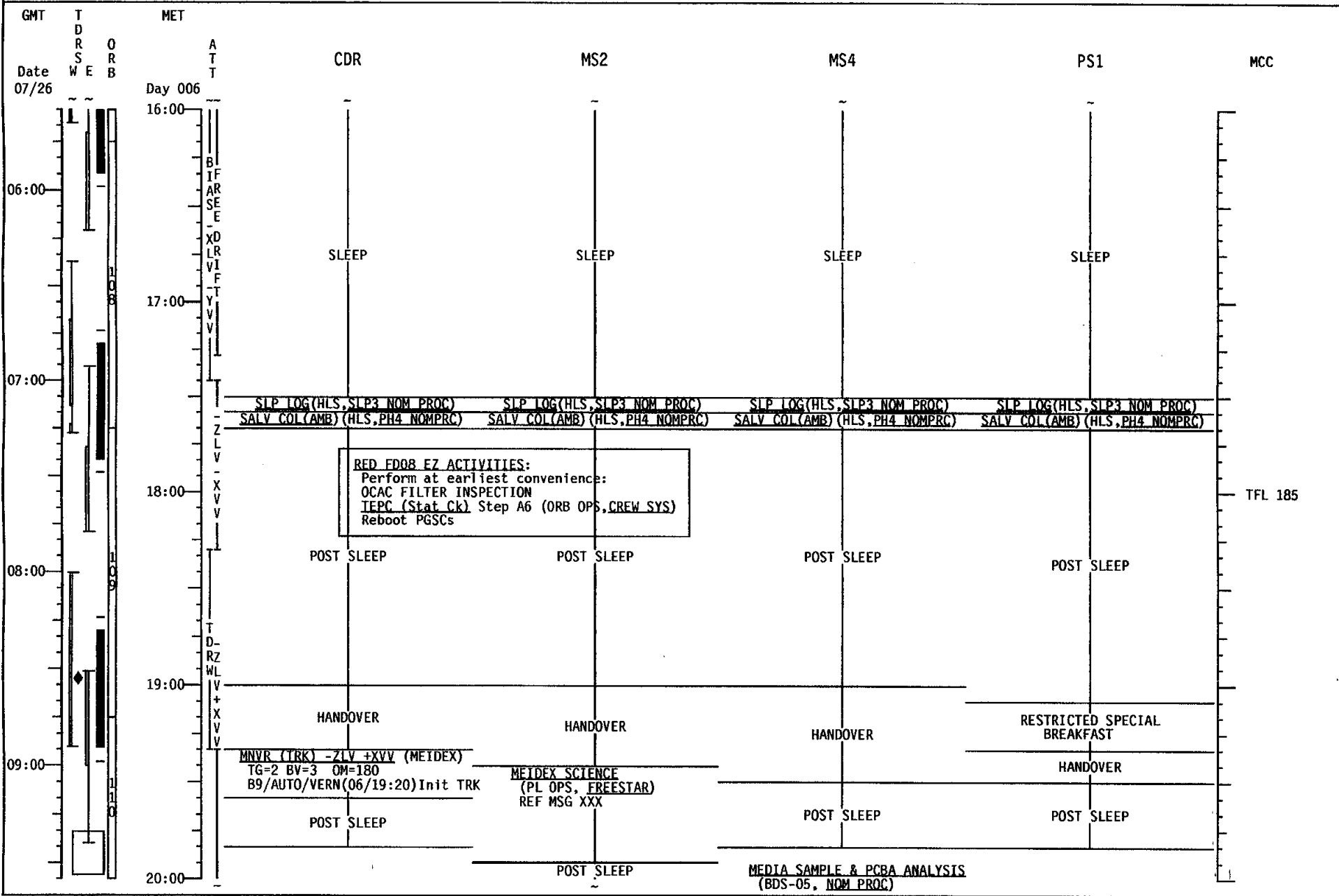
STS-107 (RED FD07)



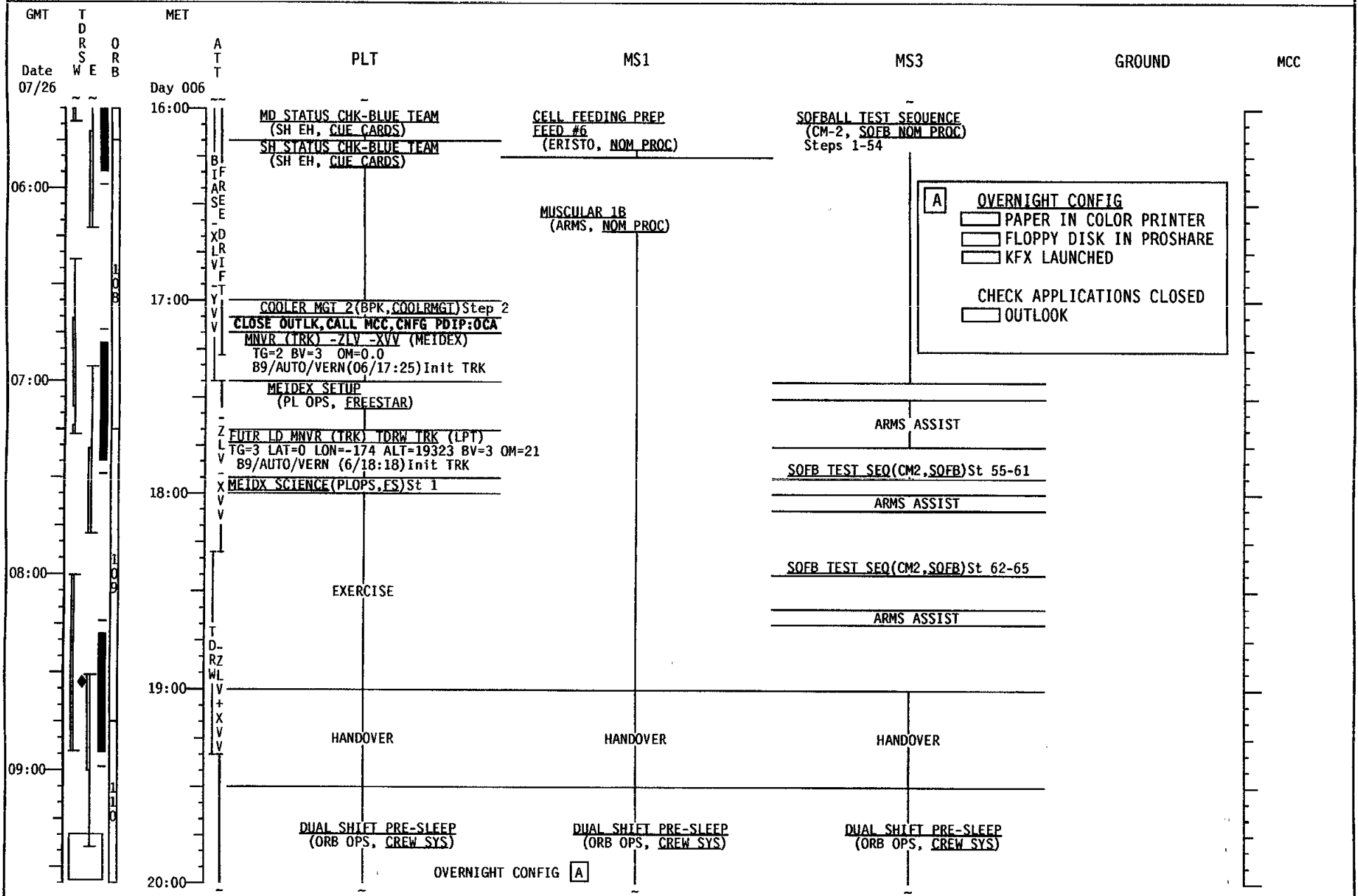
STS-107 (BLUE FD08)



STS-107 (RED FD08)



STS-107 (BLUE FD08)



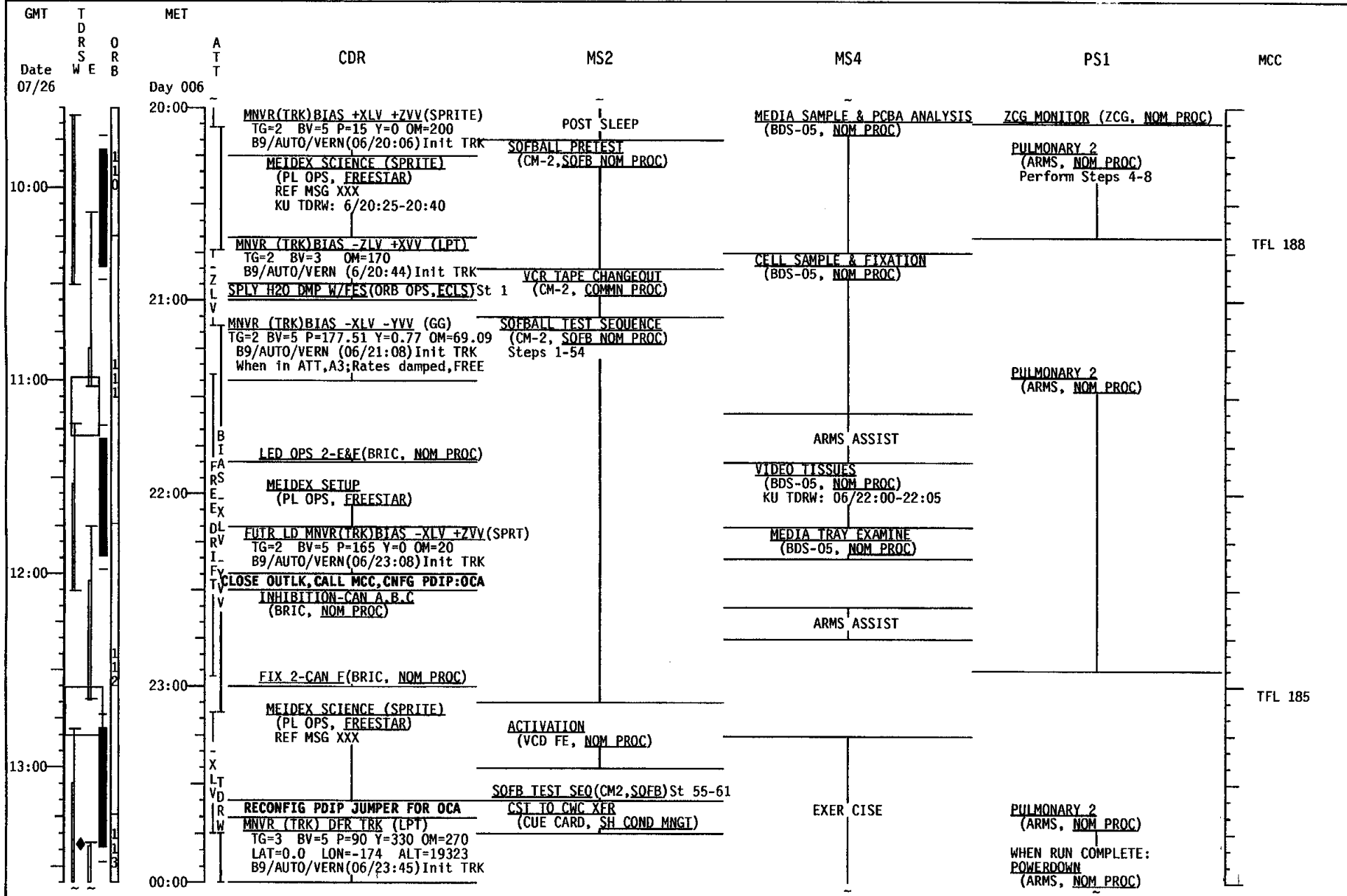
[A] OVERNIGHT CONFIG

- PAPER IN COLOR PRINTER
- FLOPPY DISK IN PROSHARE
- KFX LAUNCHED

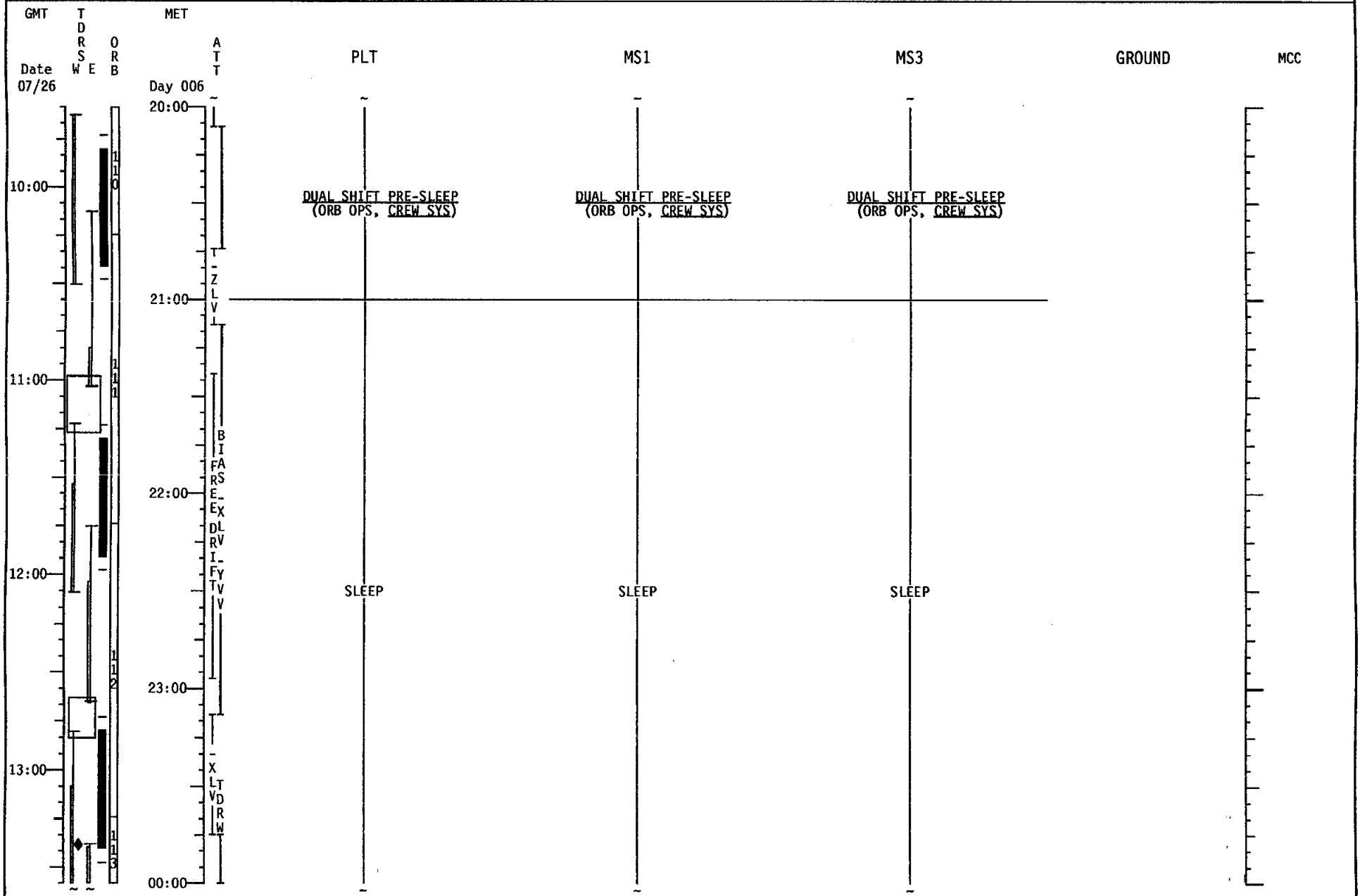
CHECK APPLICATIONS CLOSED

- OUTLOOK

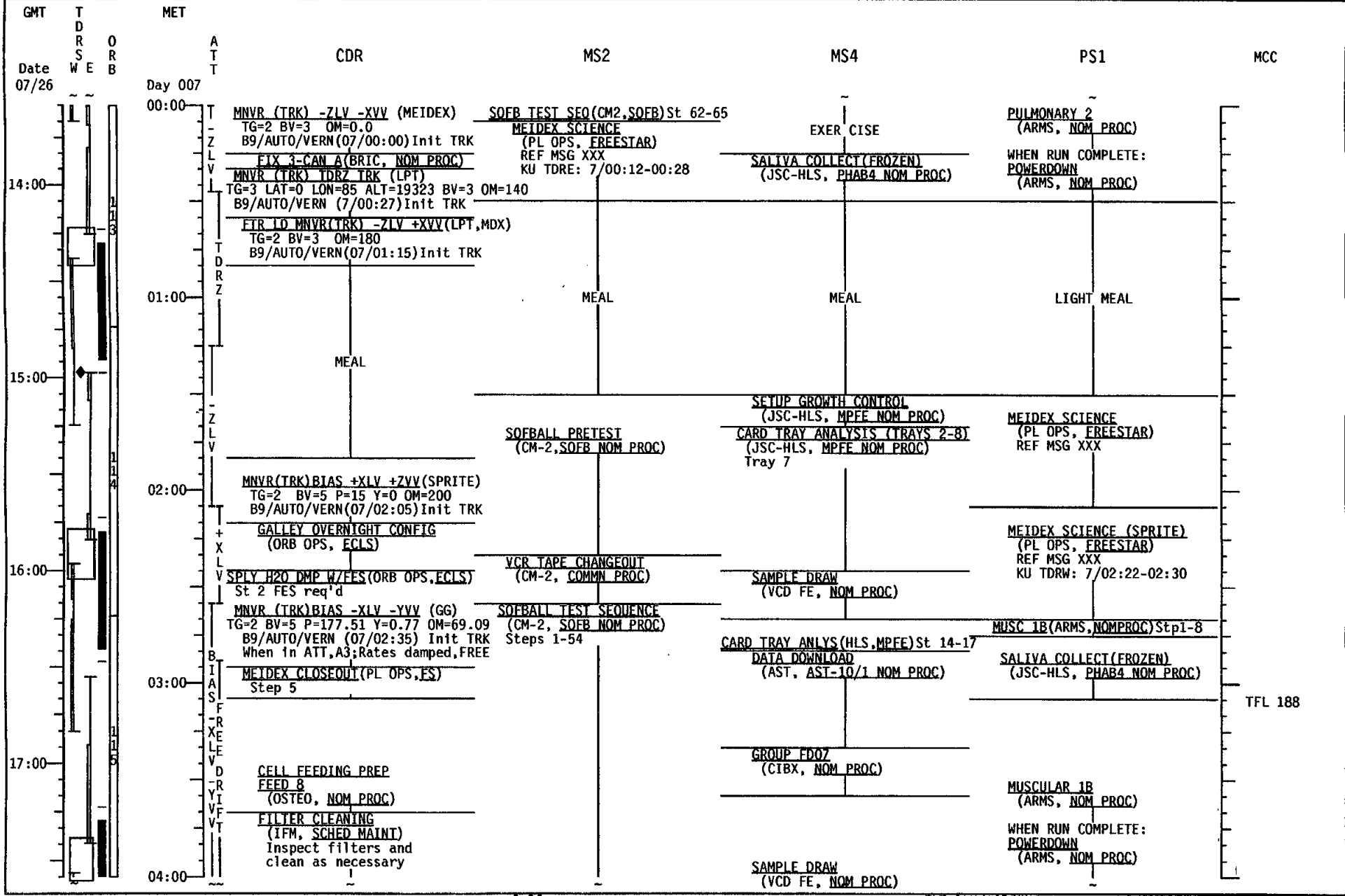
STS-107 (RED FD08)



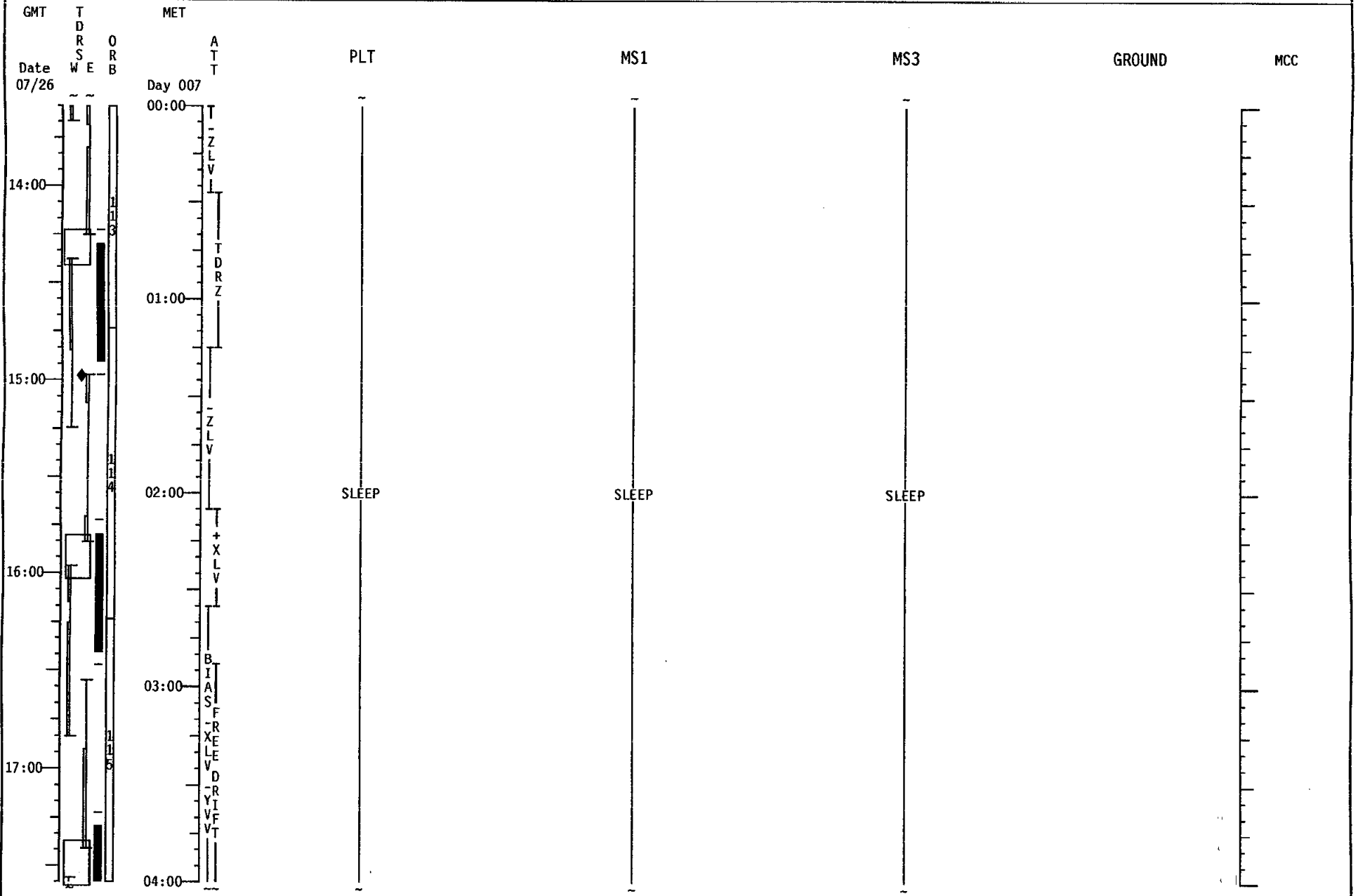
STS-107 (BLUE FD08)



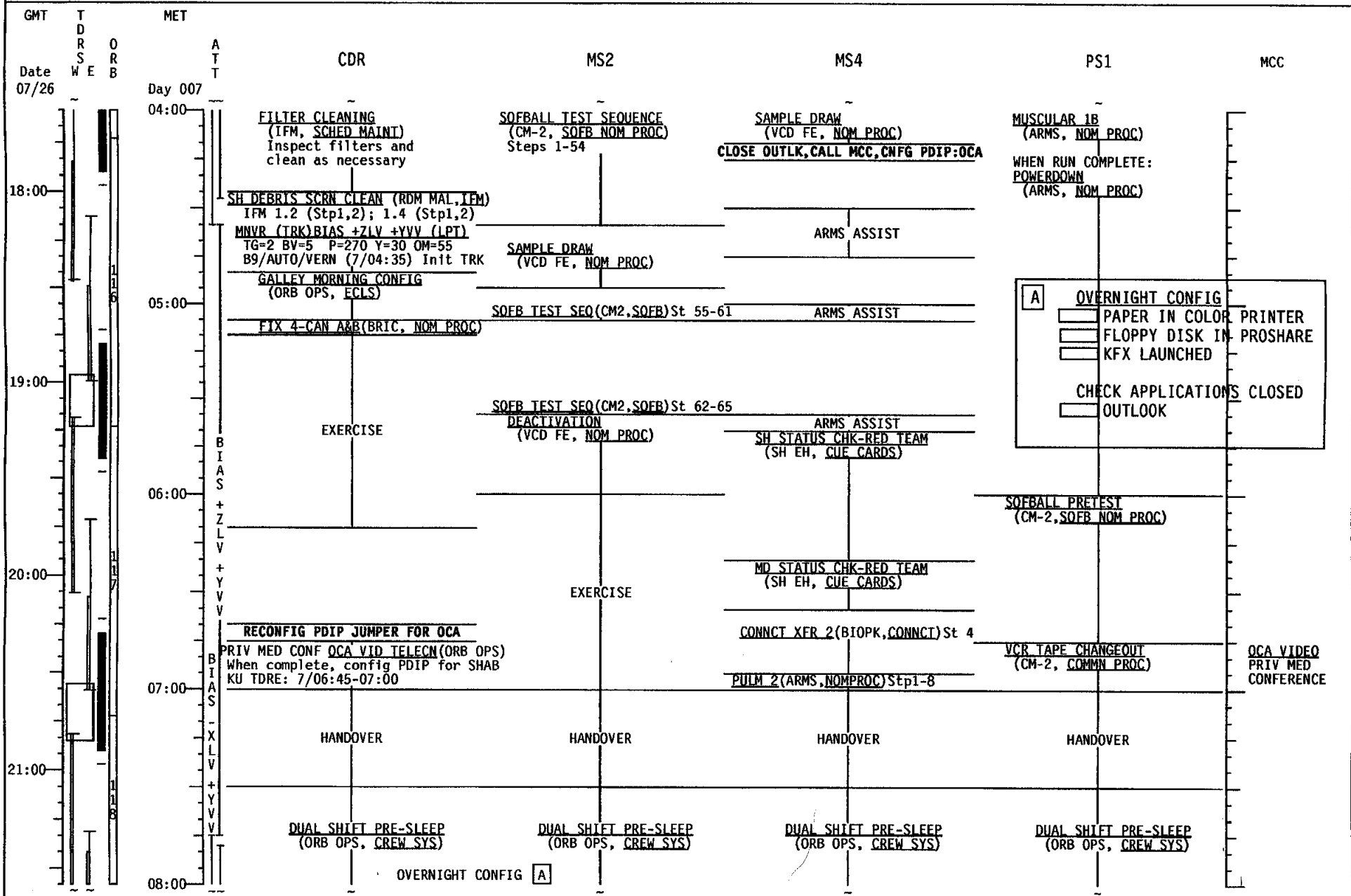
STS-107 (RED FD08)



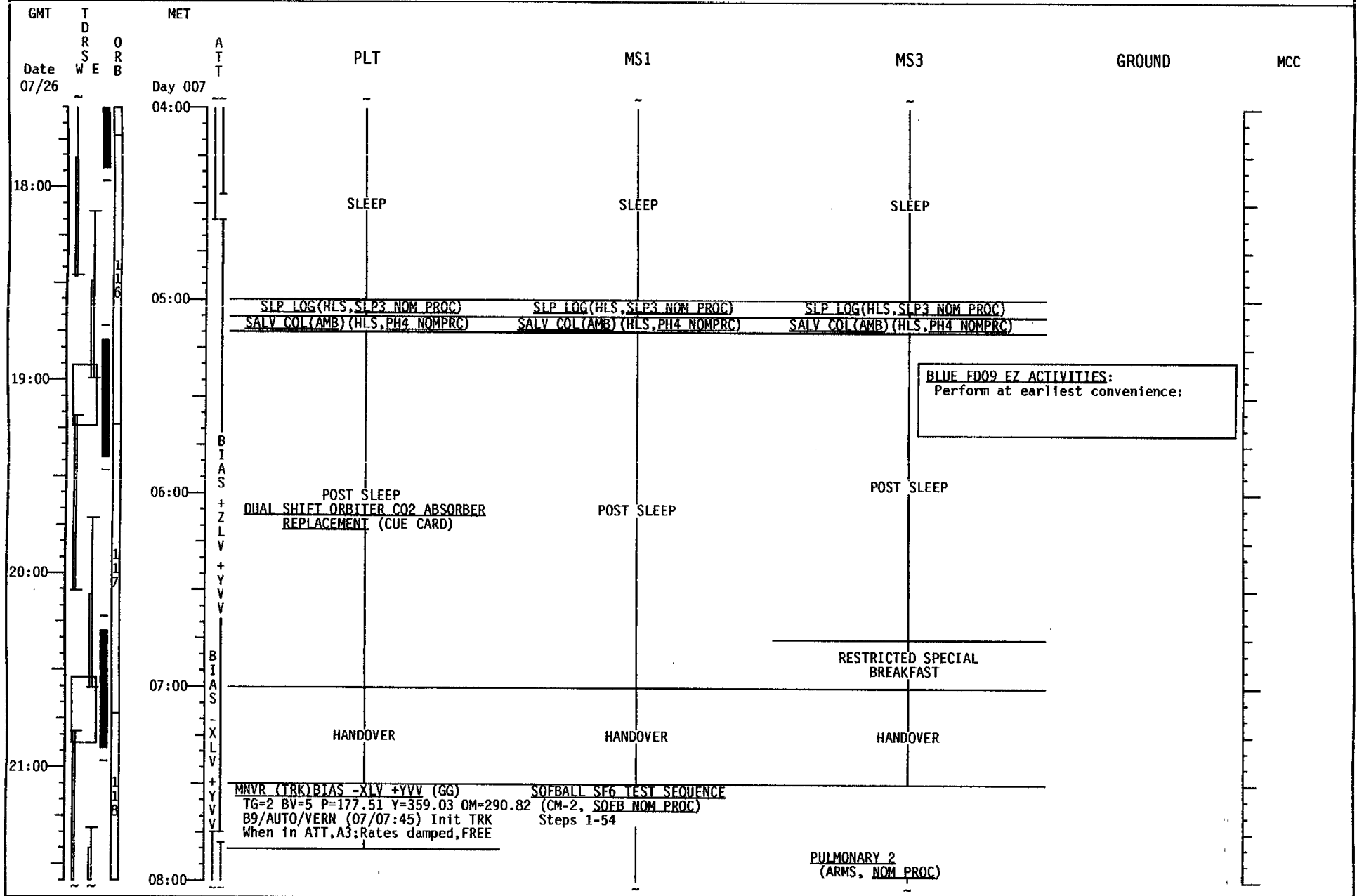
STS-107 (BLUE FD08)



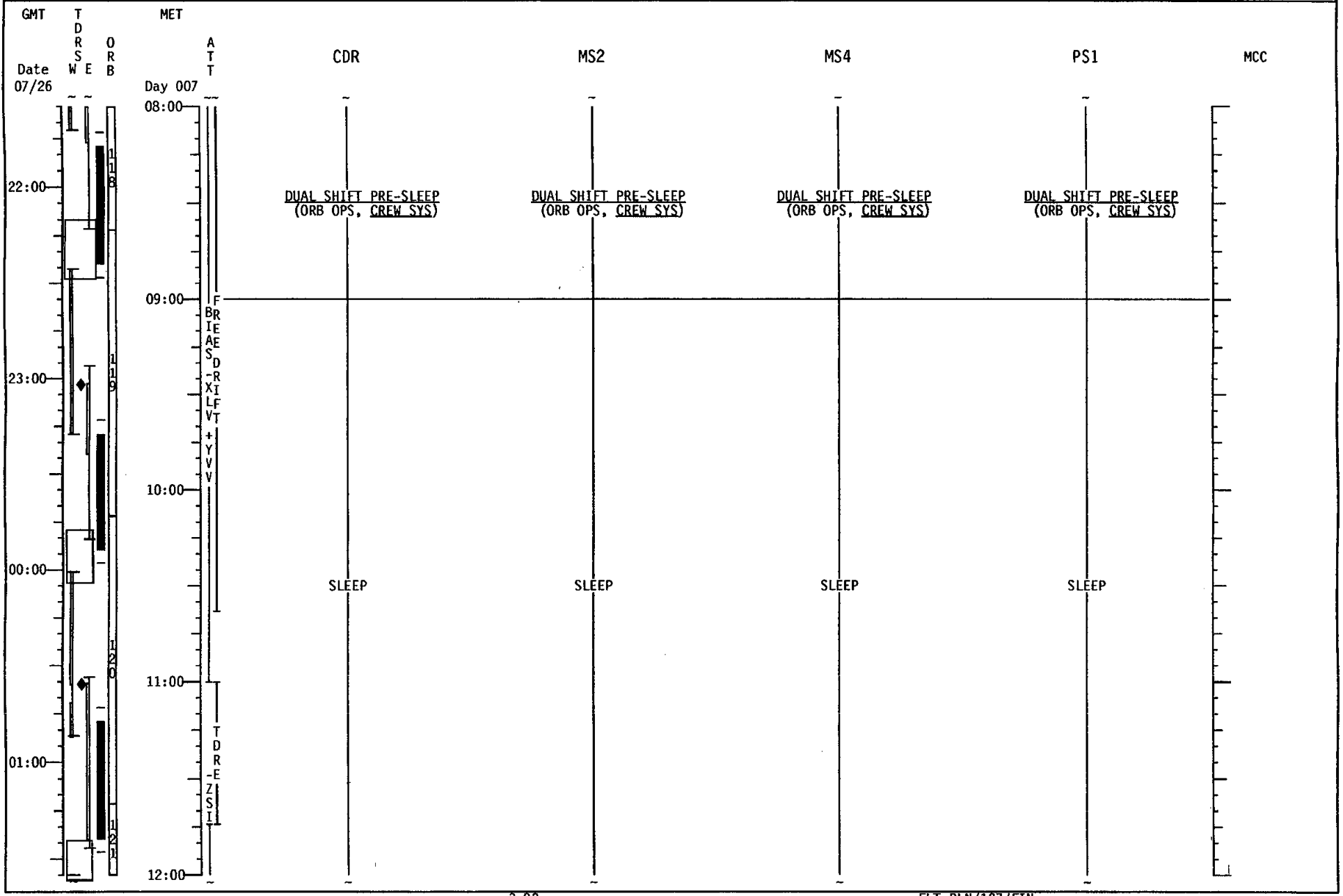
STS-107 (RED FD08)



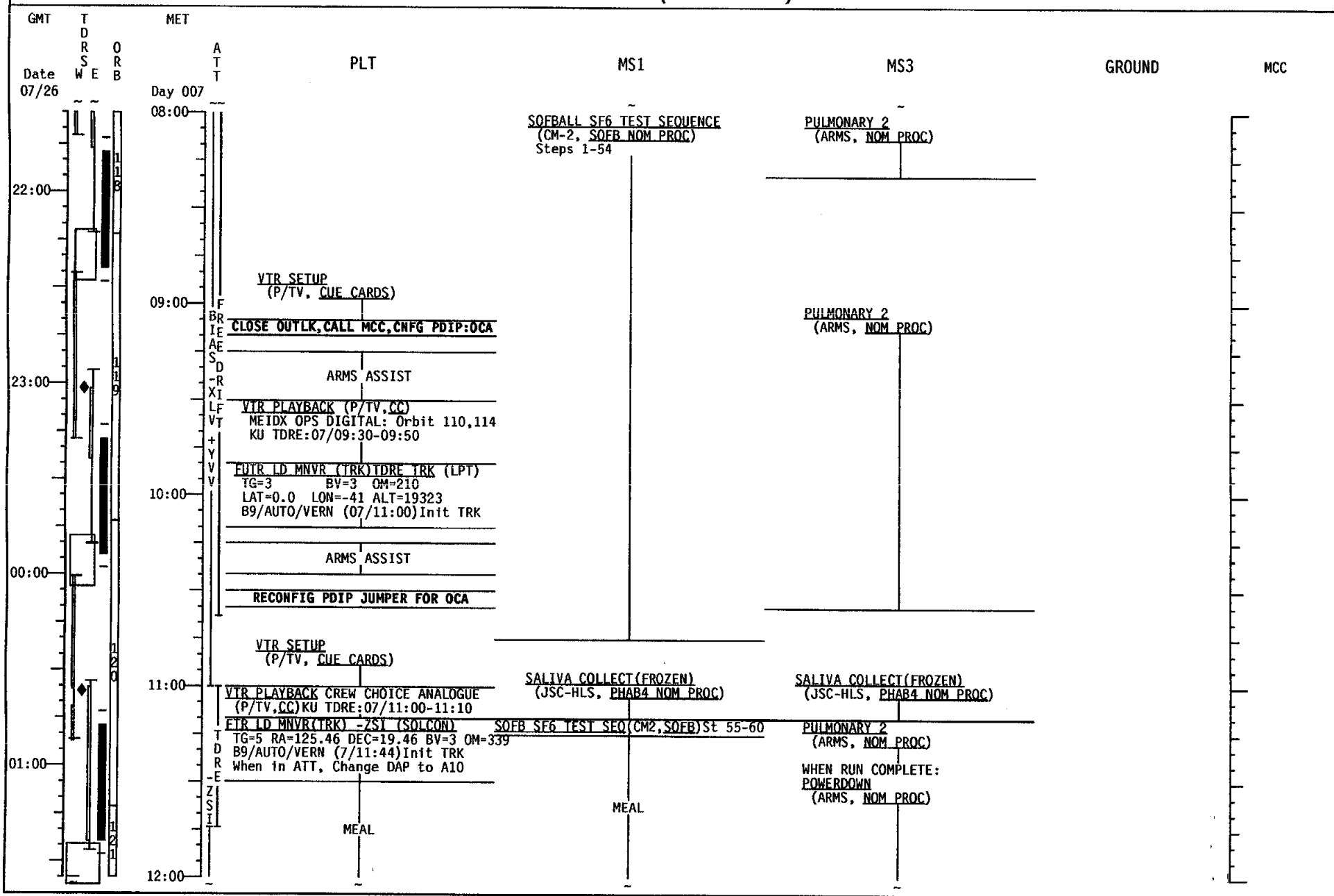
STS-107 (BLUE FD09)



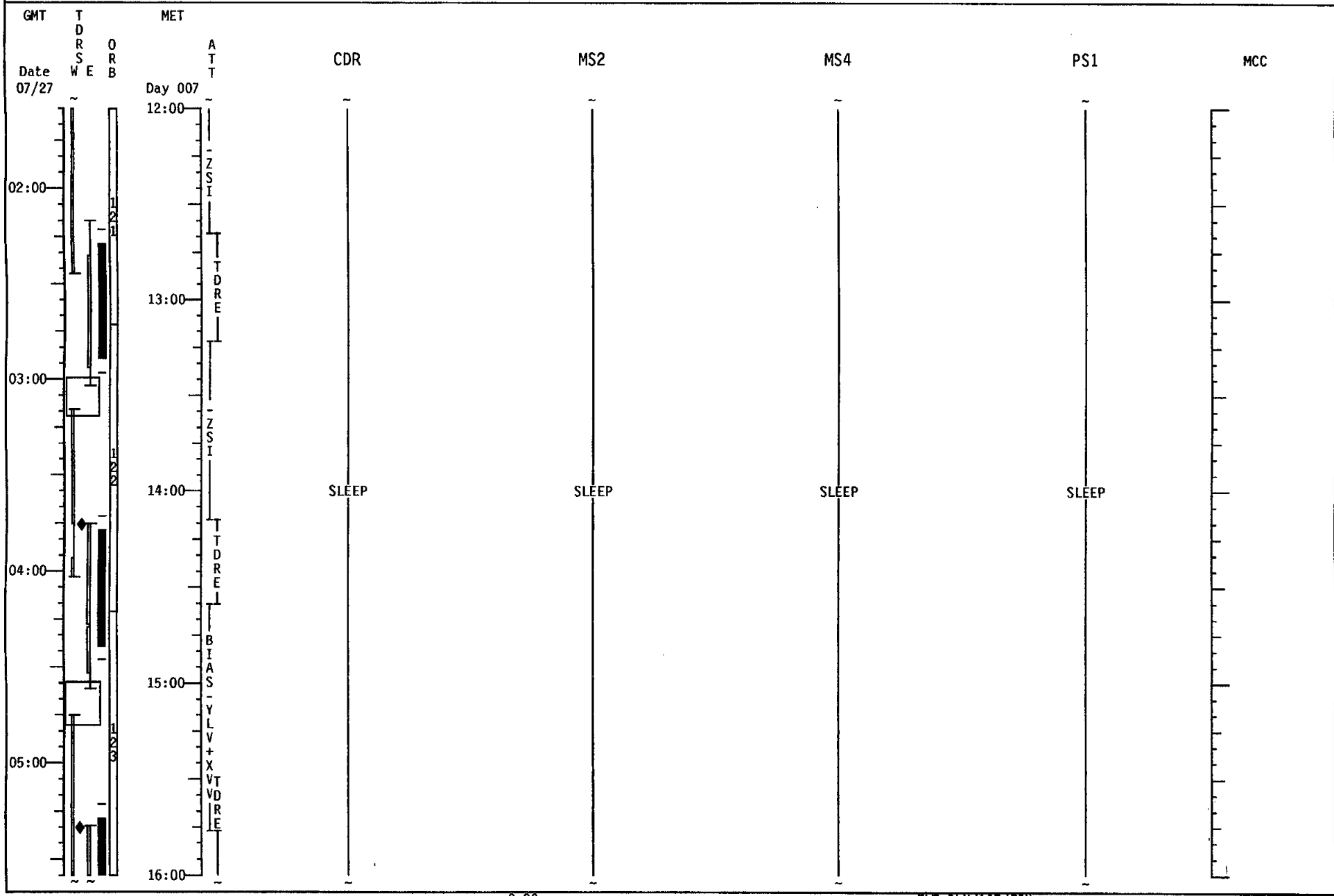
STS-107 (RED FD08)



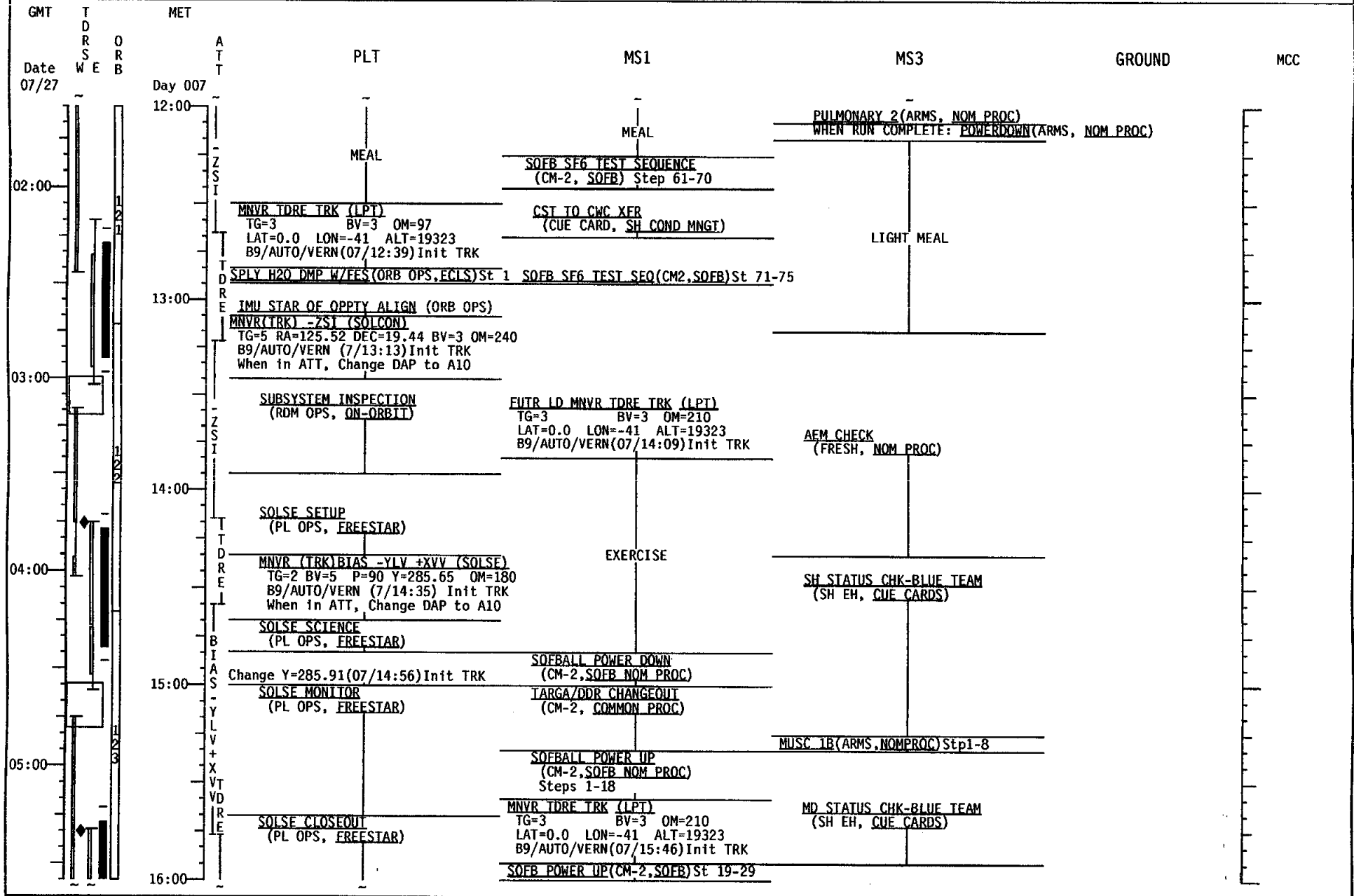
STS-107 (BLUE FD09)



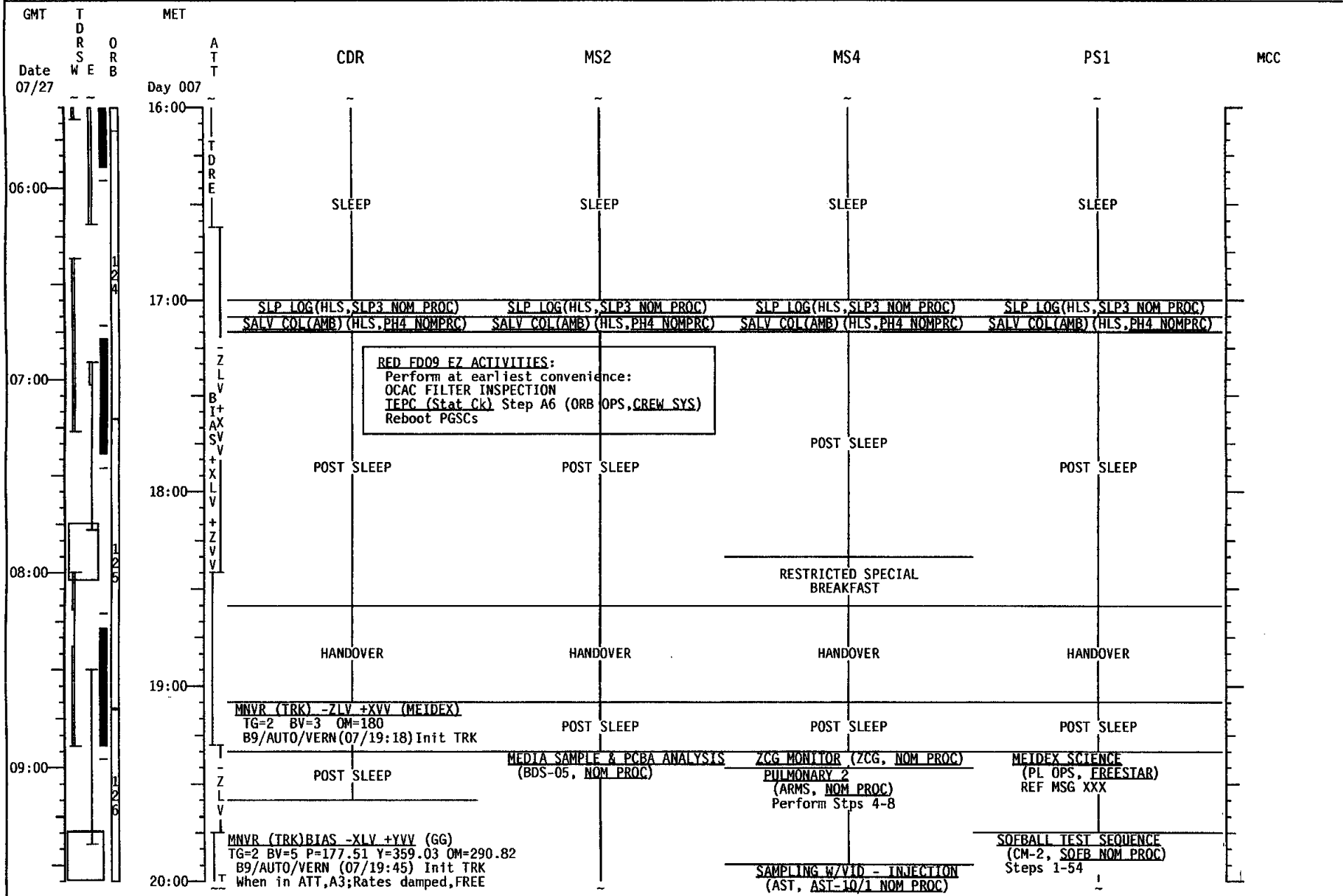
STS-107 (RED FD08)



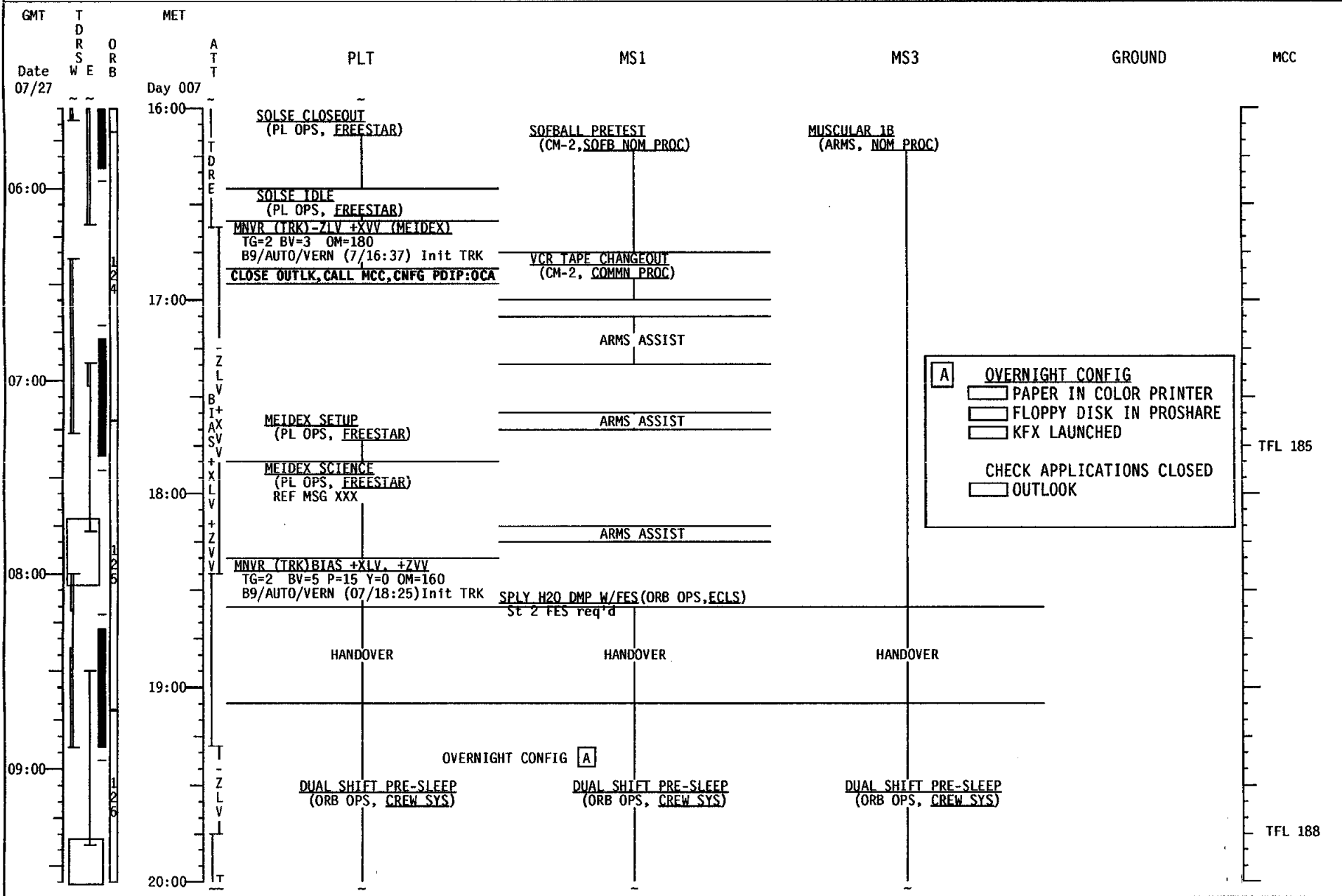
STS-107 (BLUE FD09)



STS-107 (RED FD09)



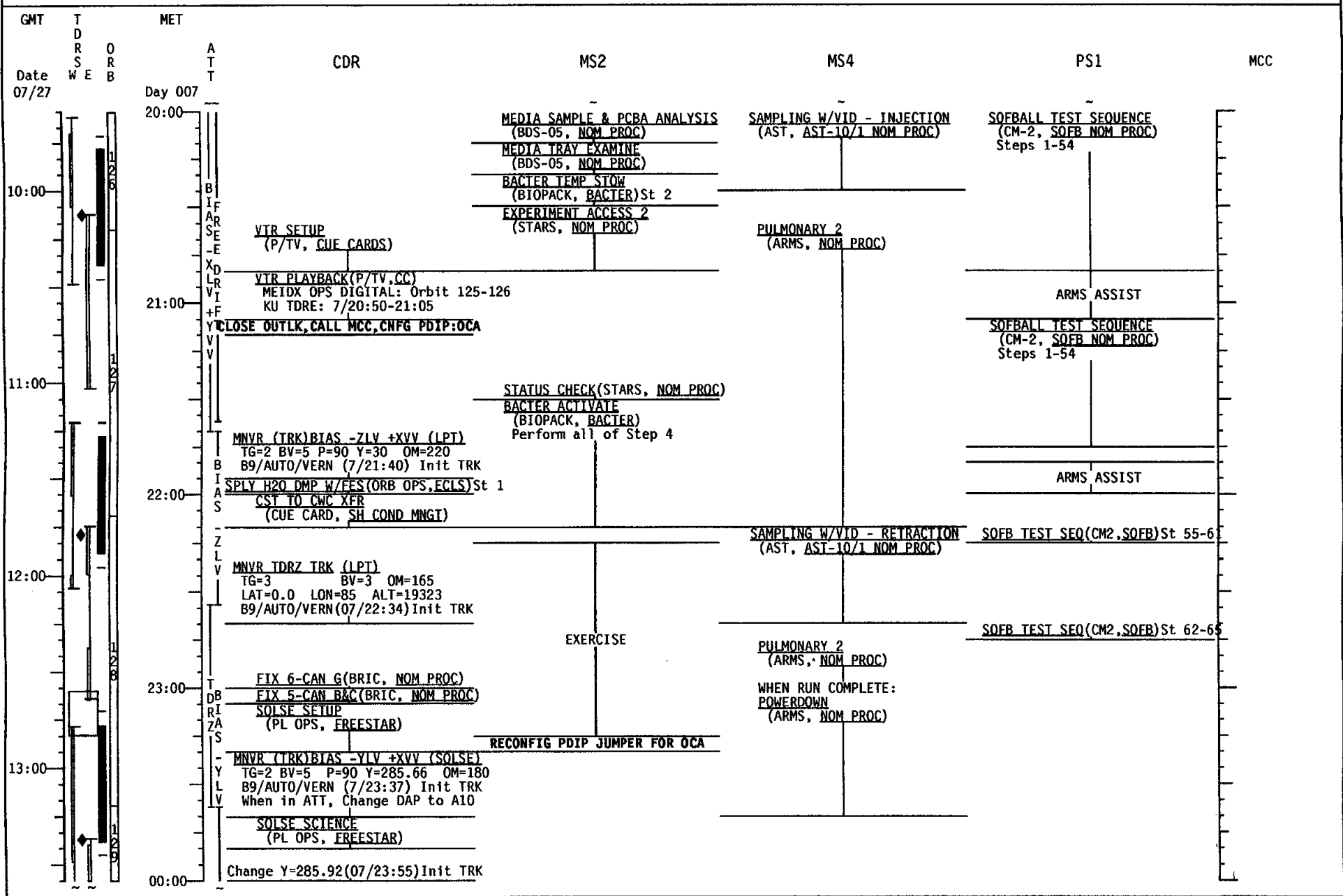
STS-107 (BLUE FD09)



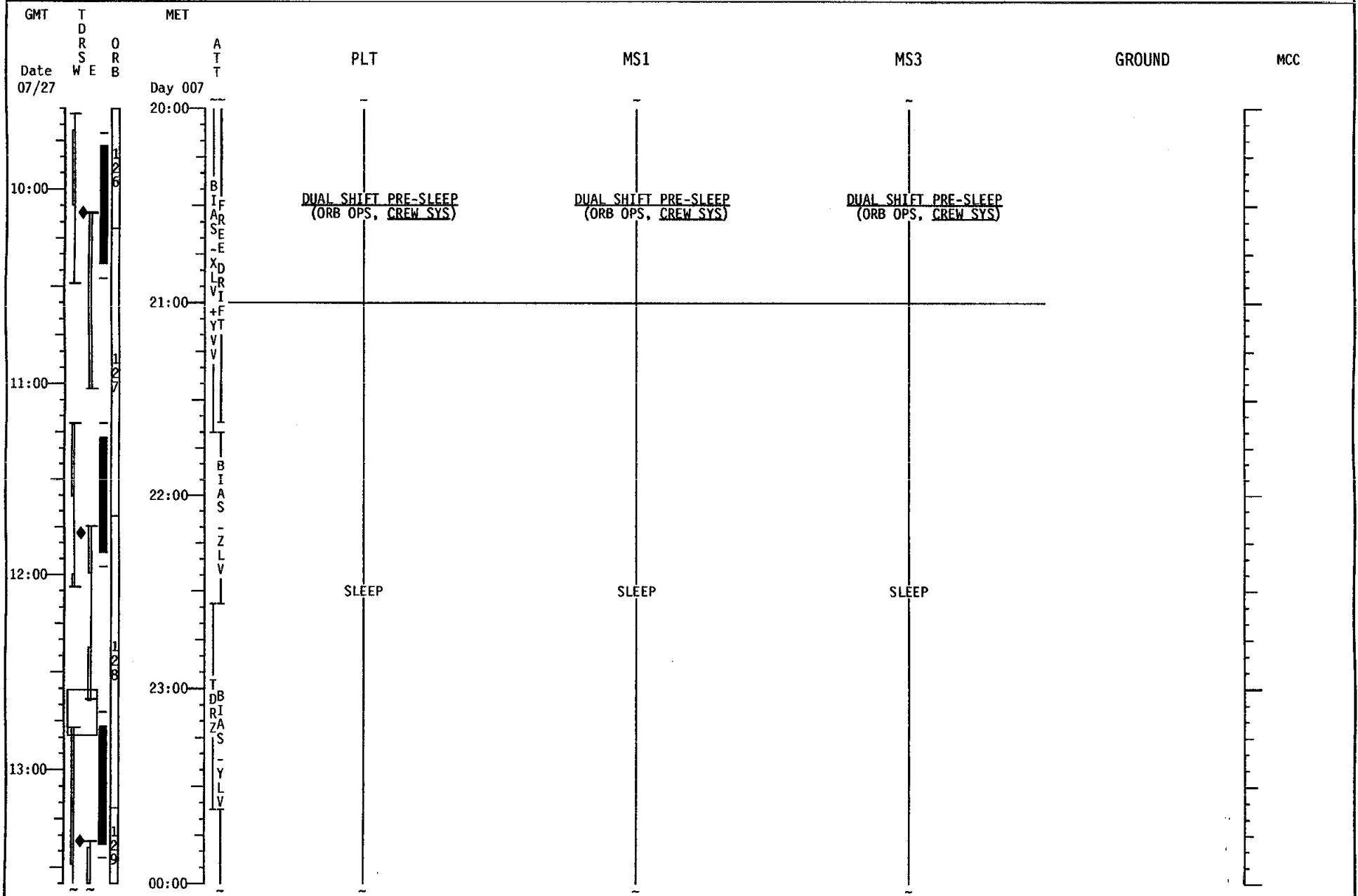
TFL 185

TFL 188

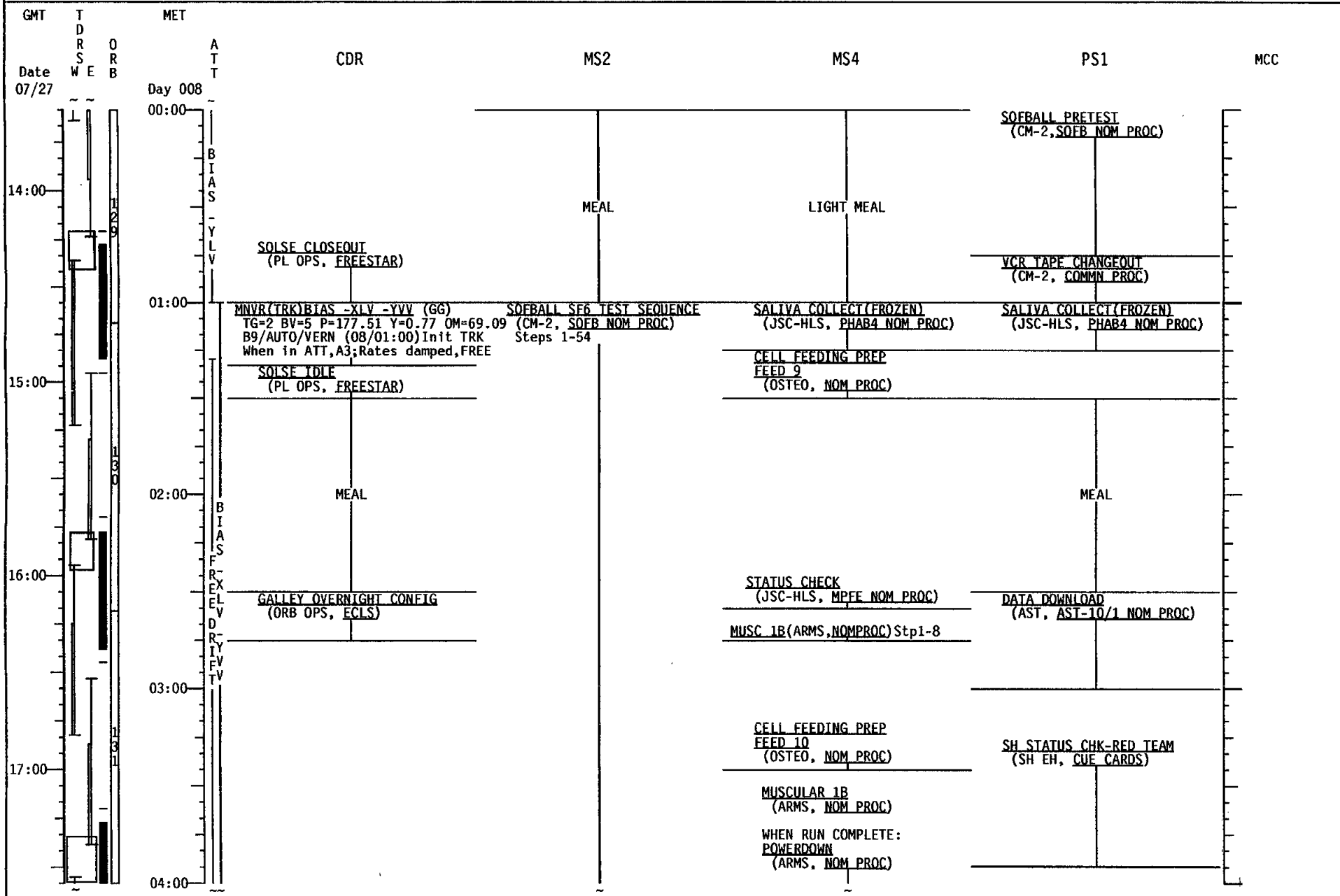
STS-107 (RED FD09)



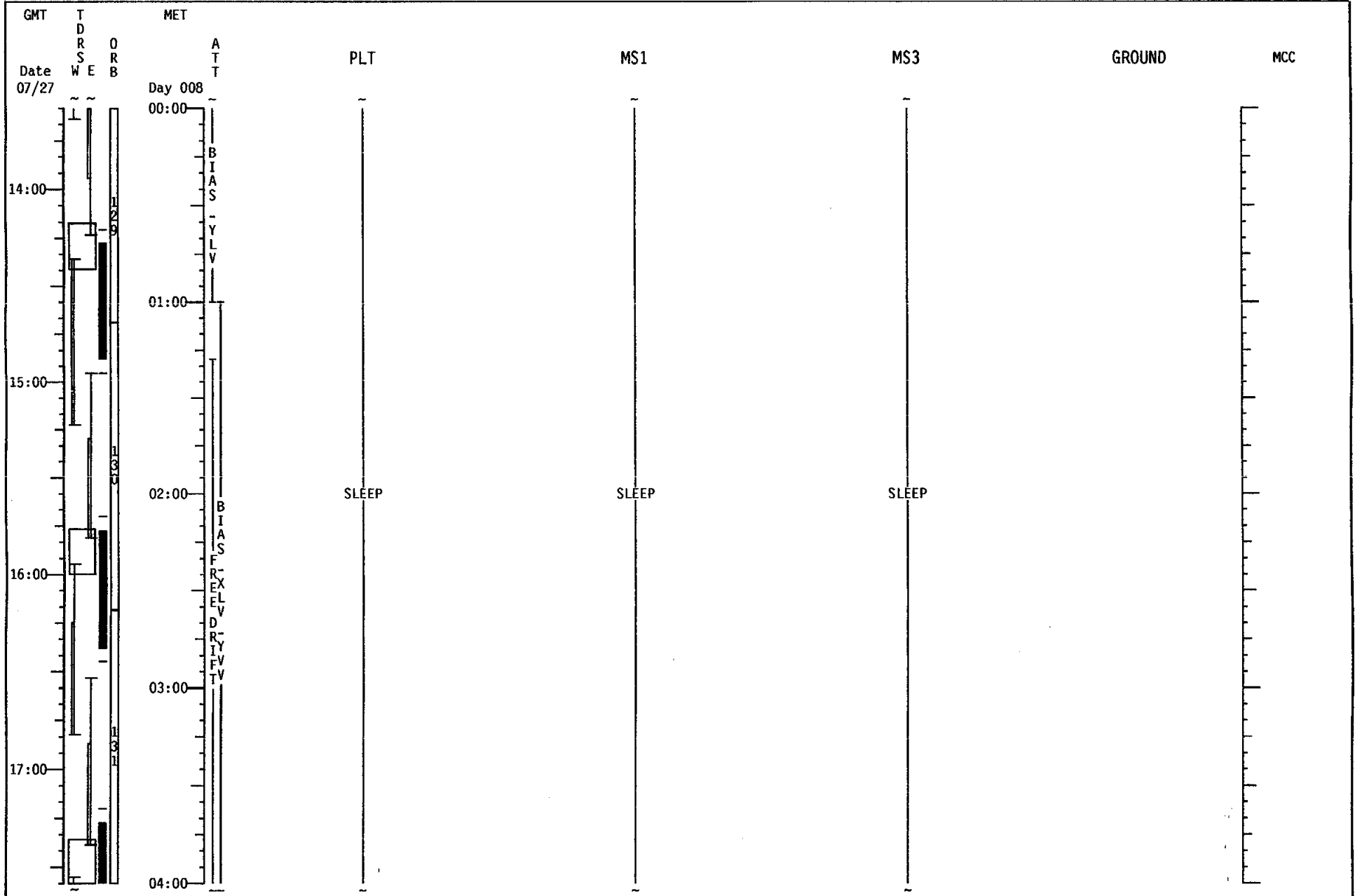
STS-107 (BLUE FD09)



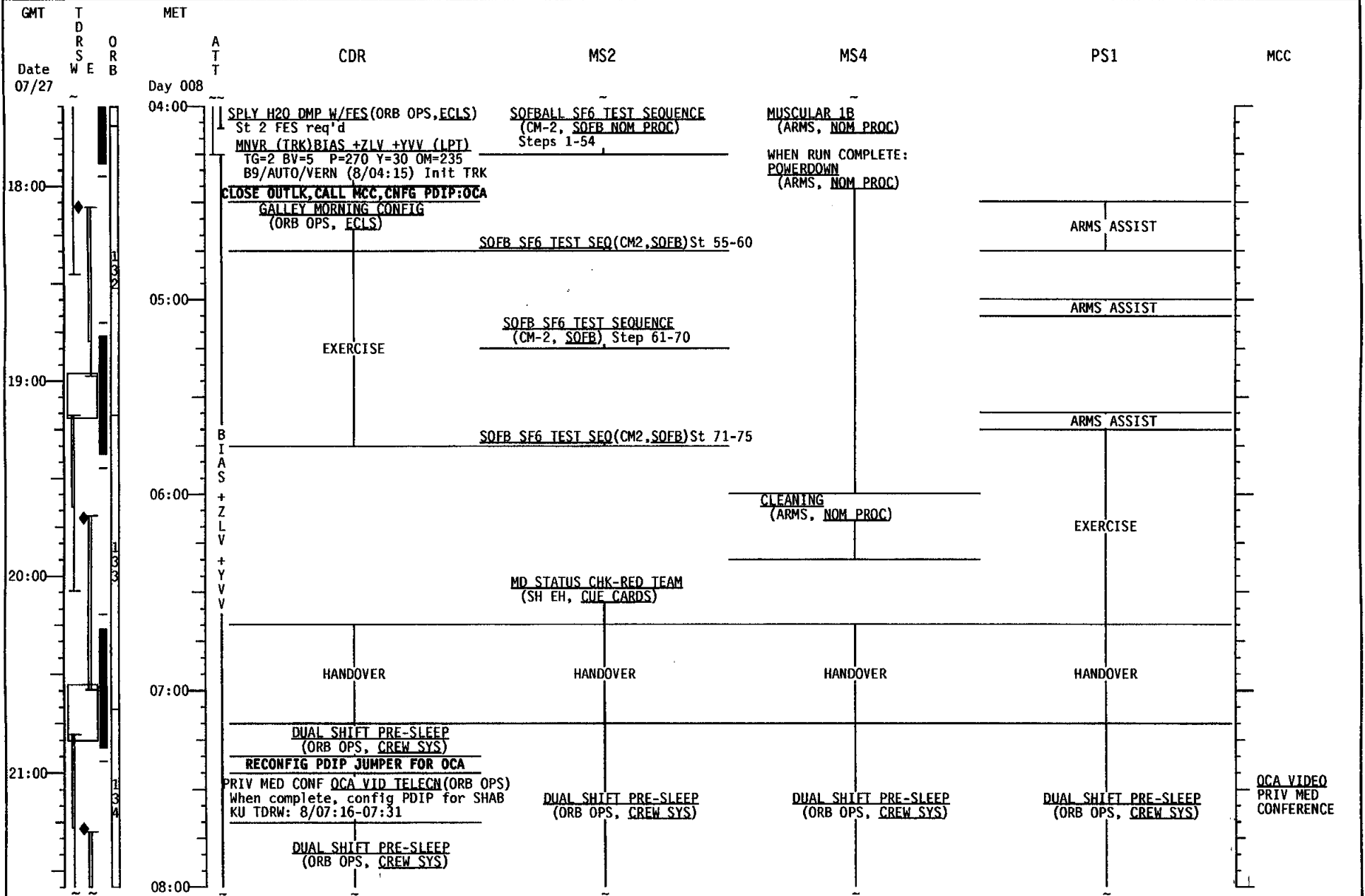
STS-107 (RED FD09)



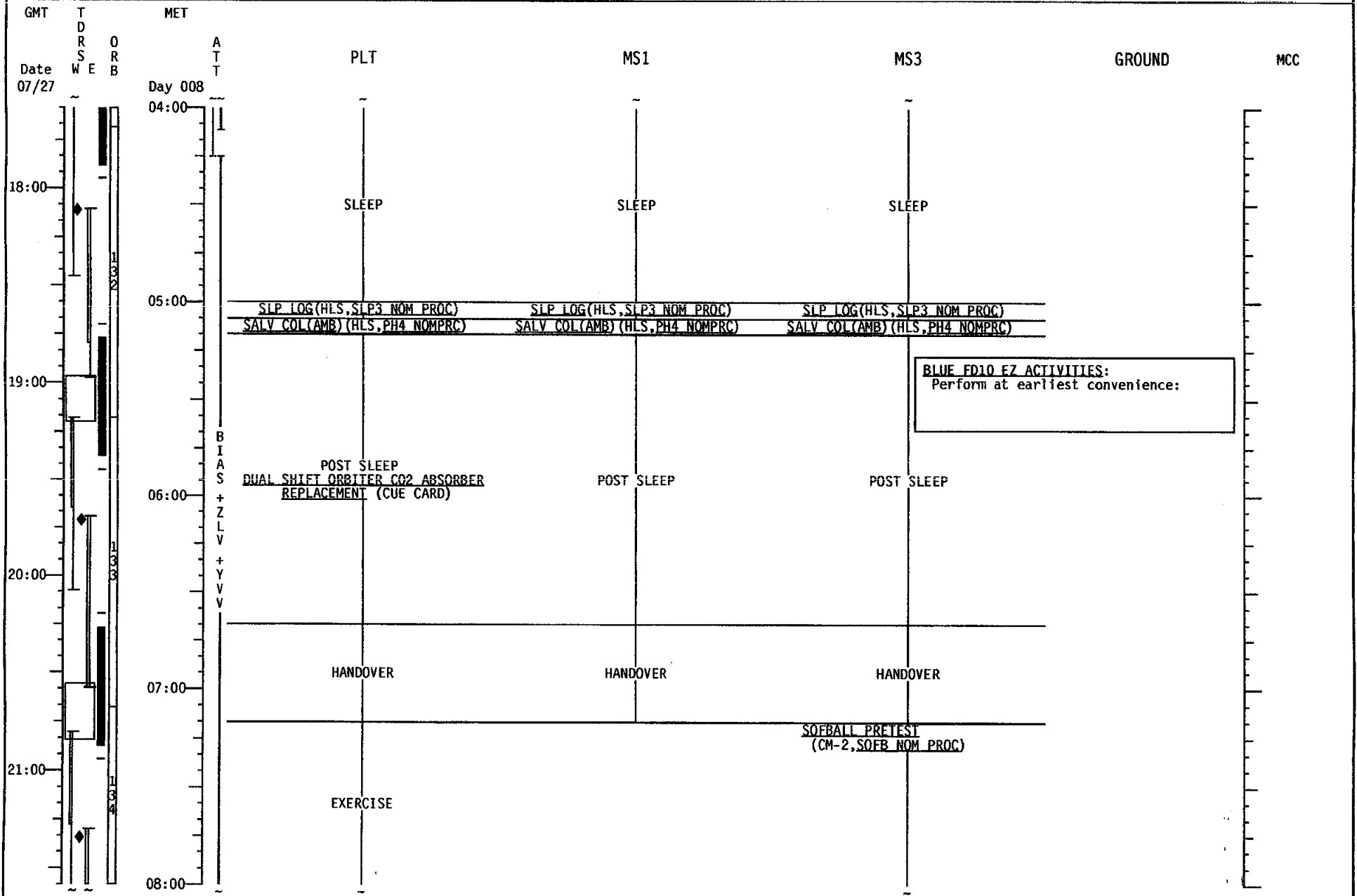
STS-107 (BLUE FD09)



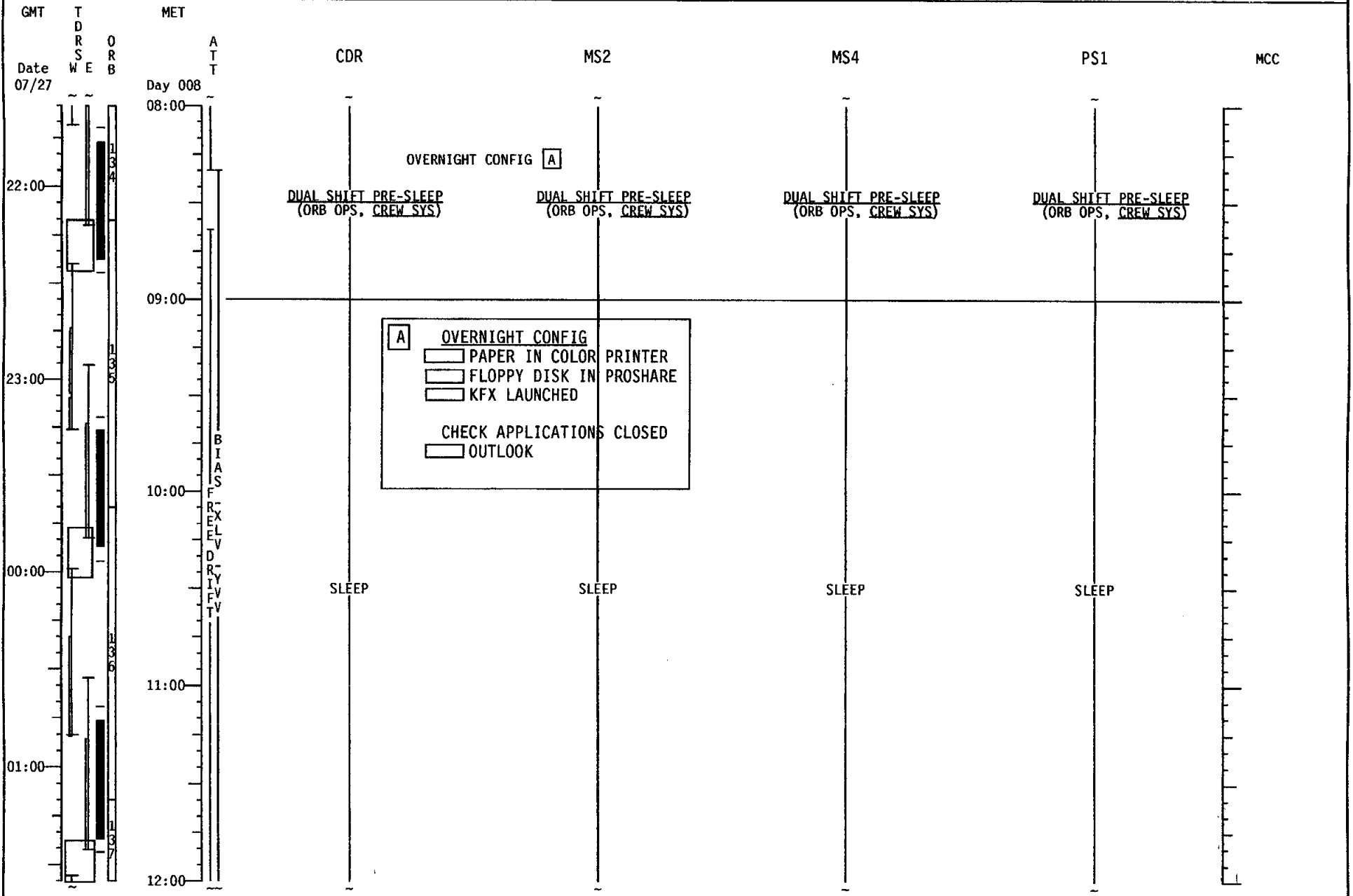
STS-107 (RED FD09)



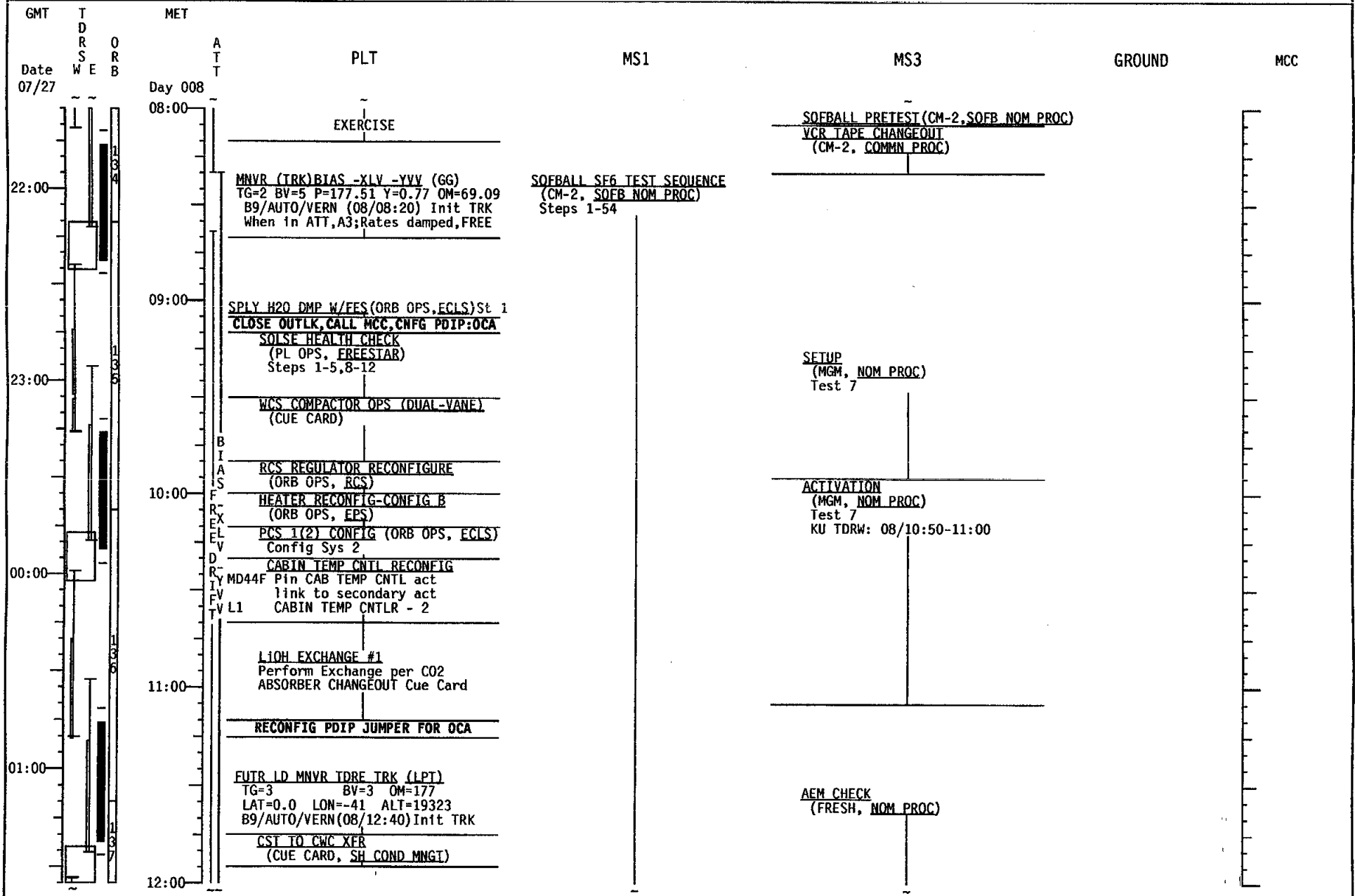
STS-107 (BLUE FD10)



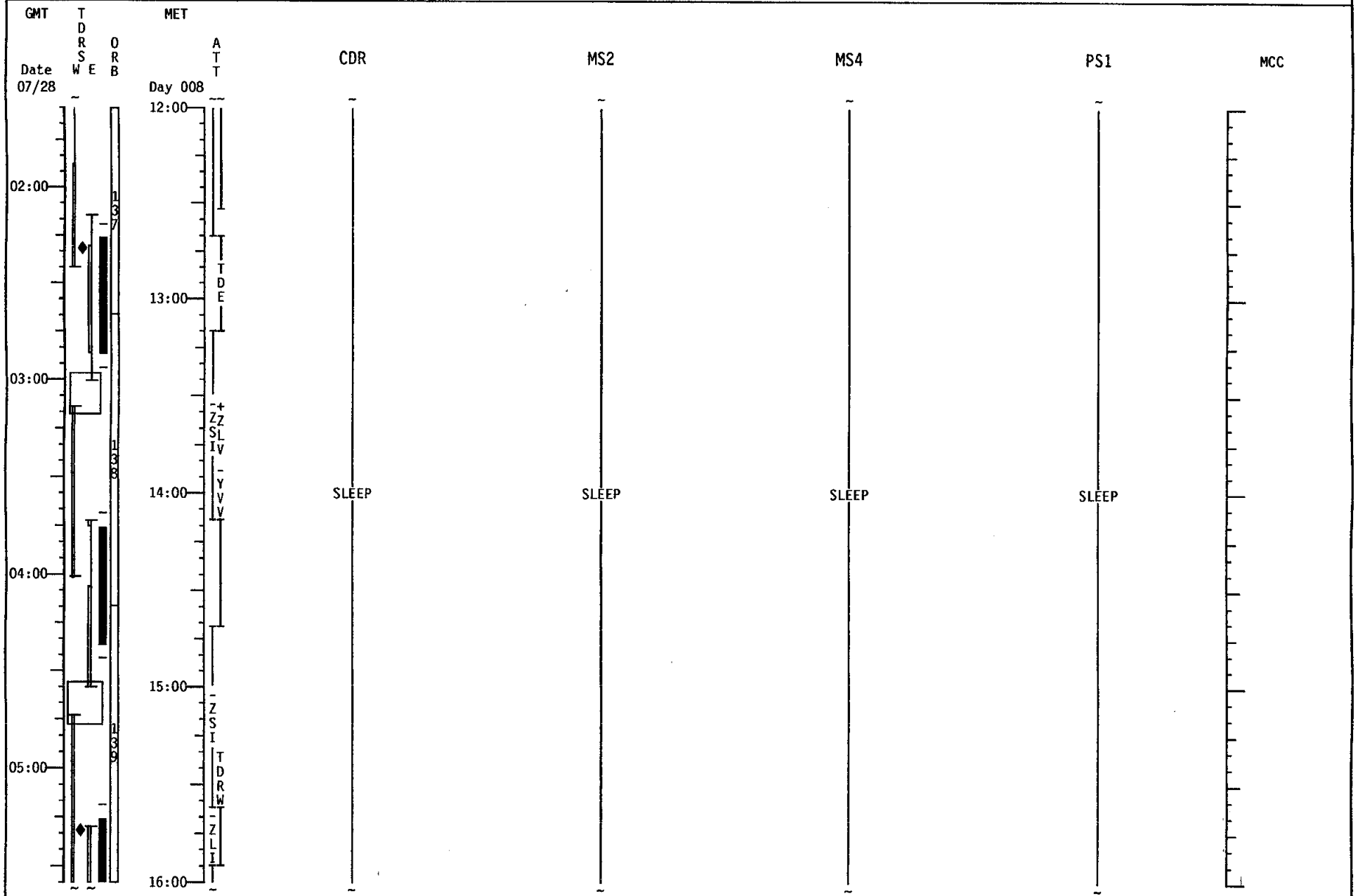
STS-107 (RED FD09)



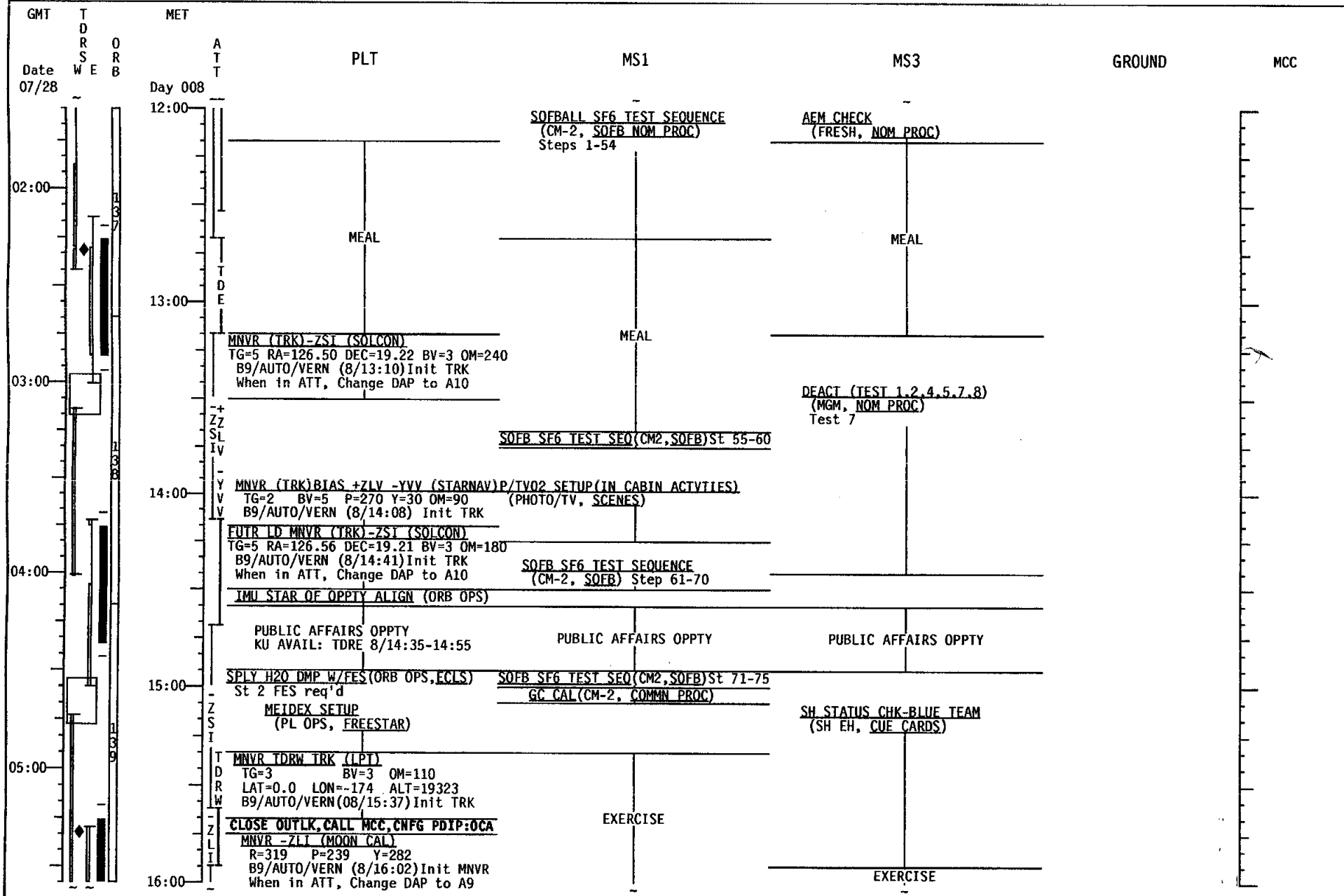
STS-107 (BLUE FD10)



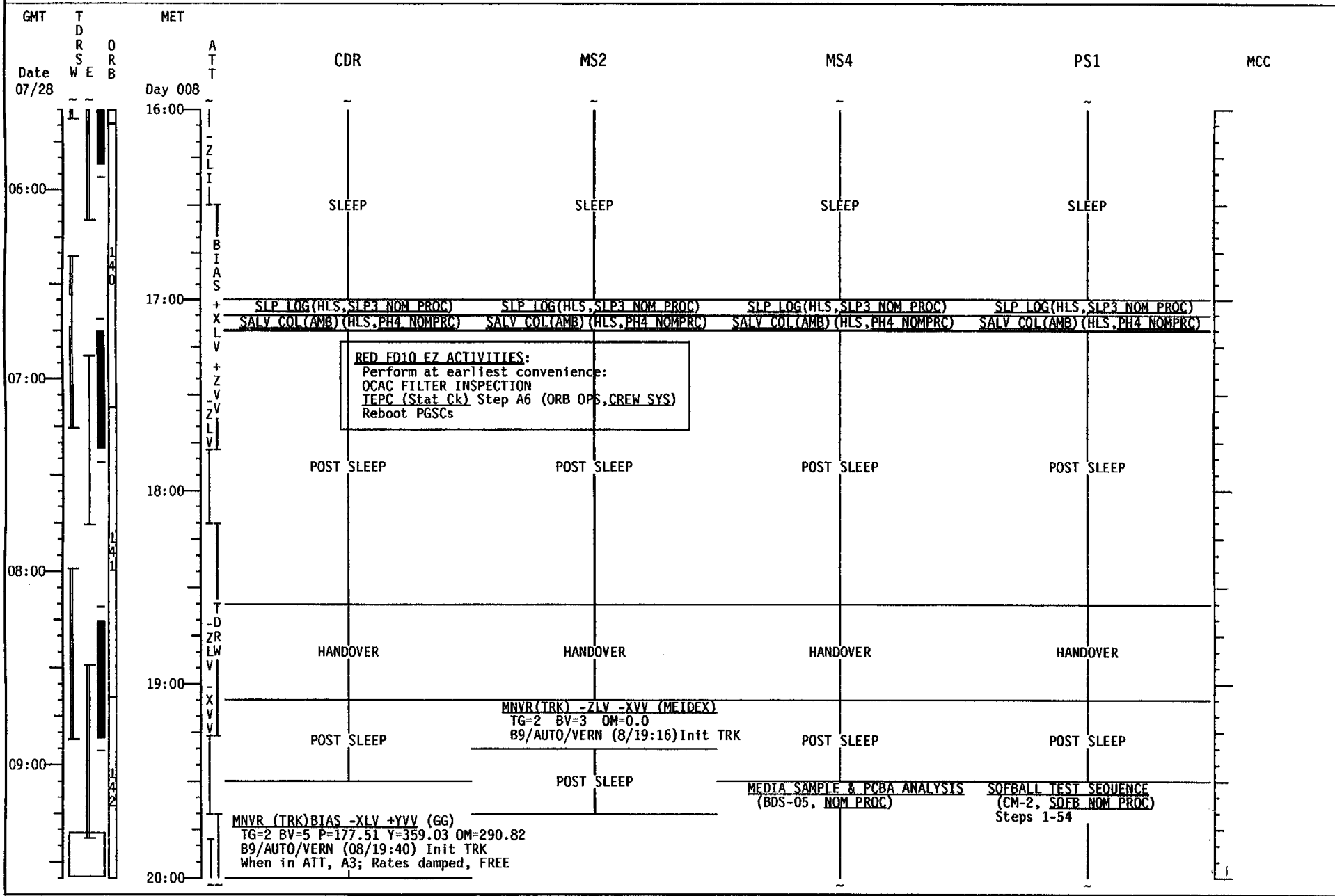
STS-107 (RED FD09)



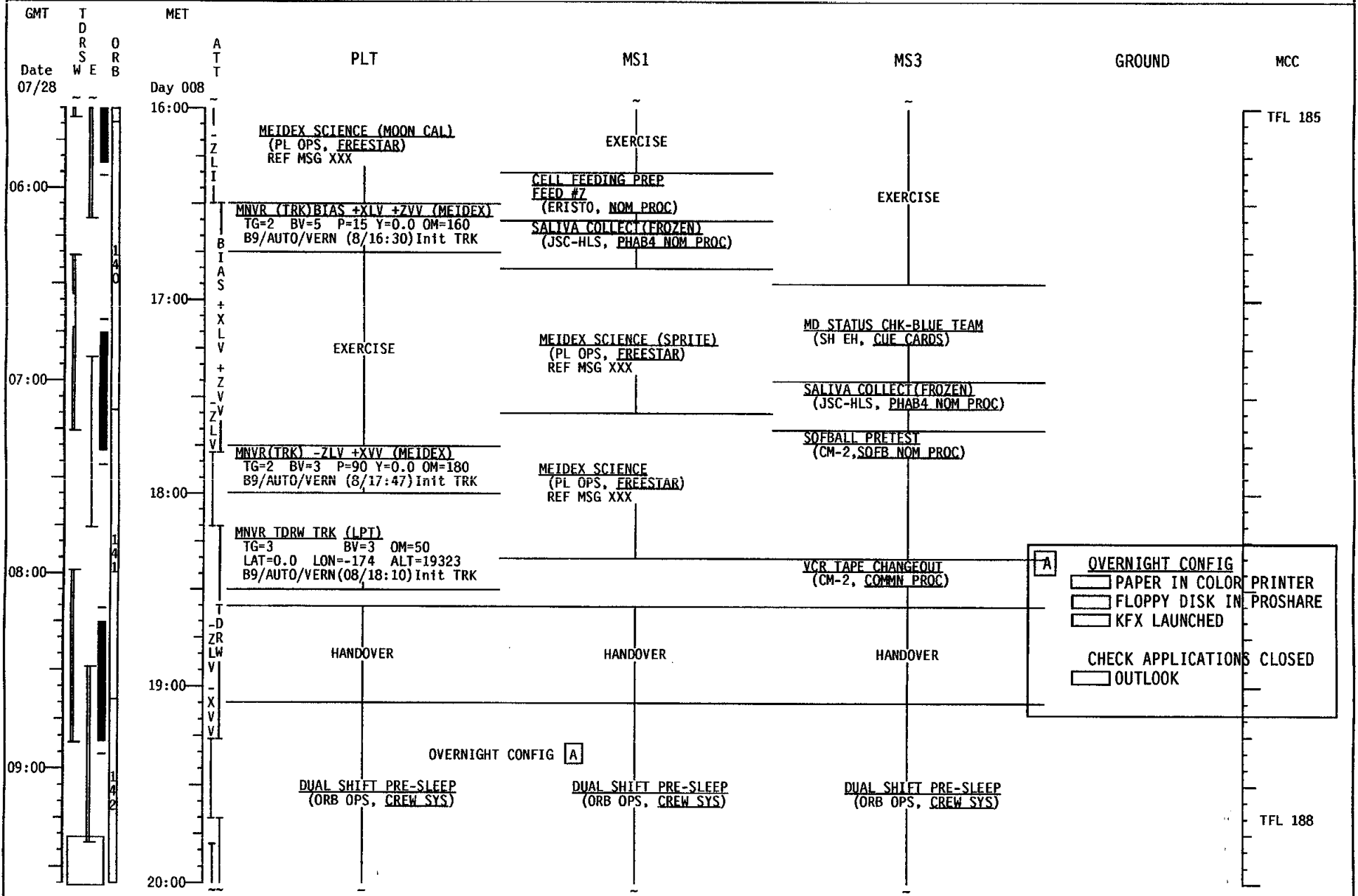
STS-107 (BLUE FD10)



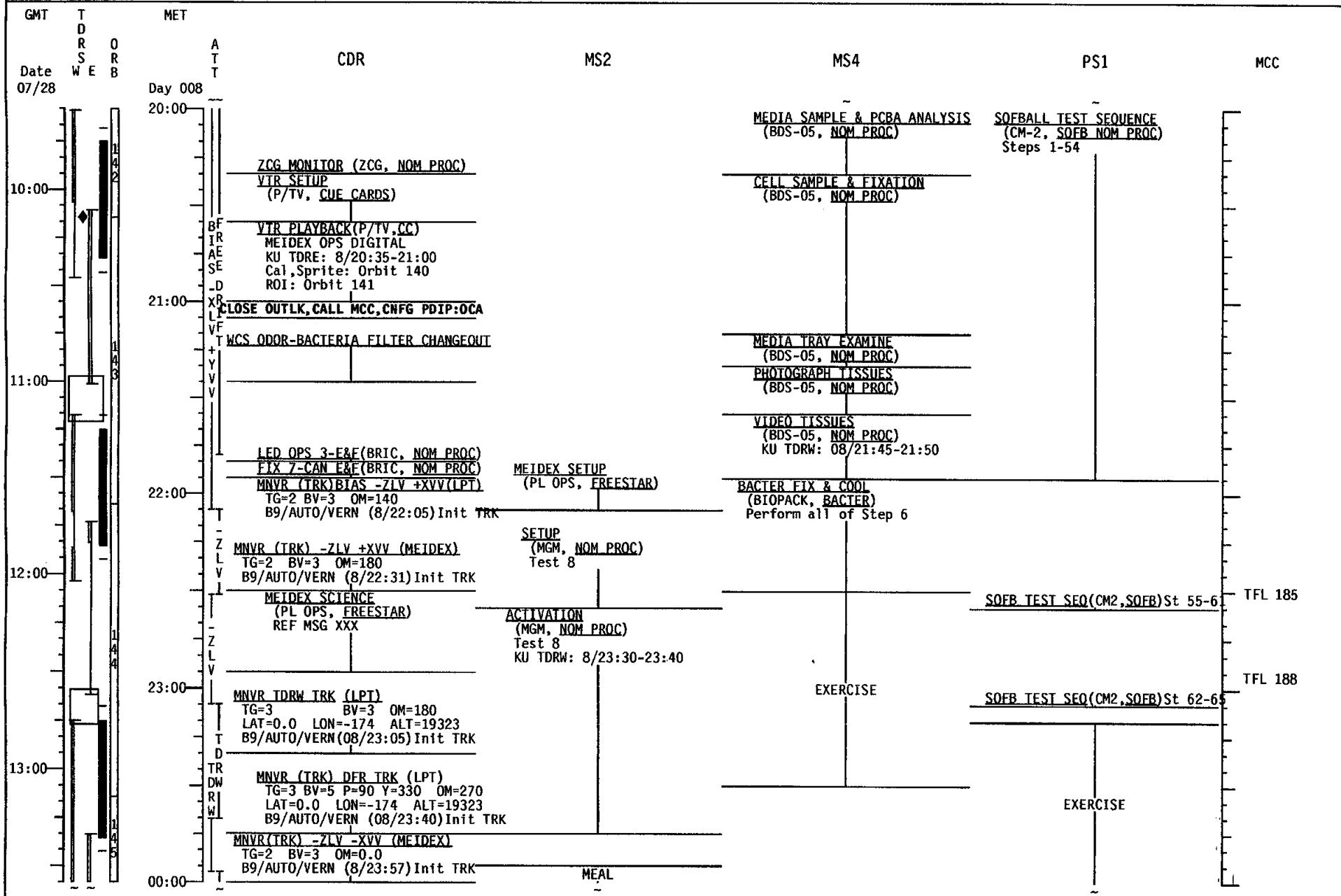
STS-107 (RED FD10)



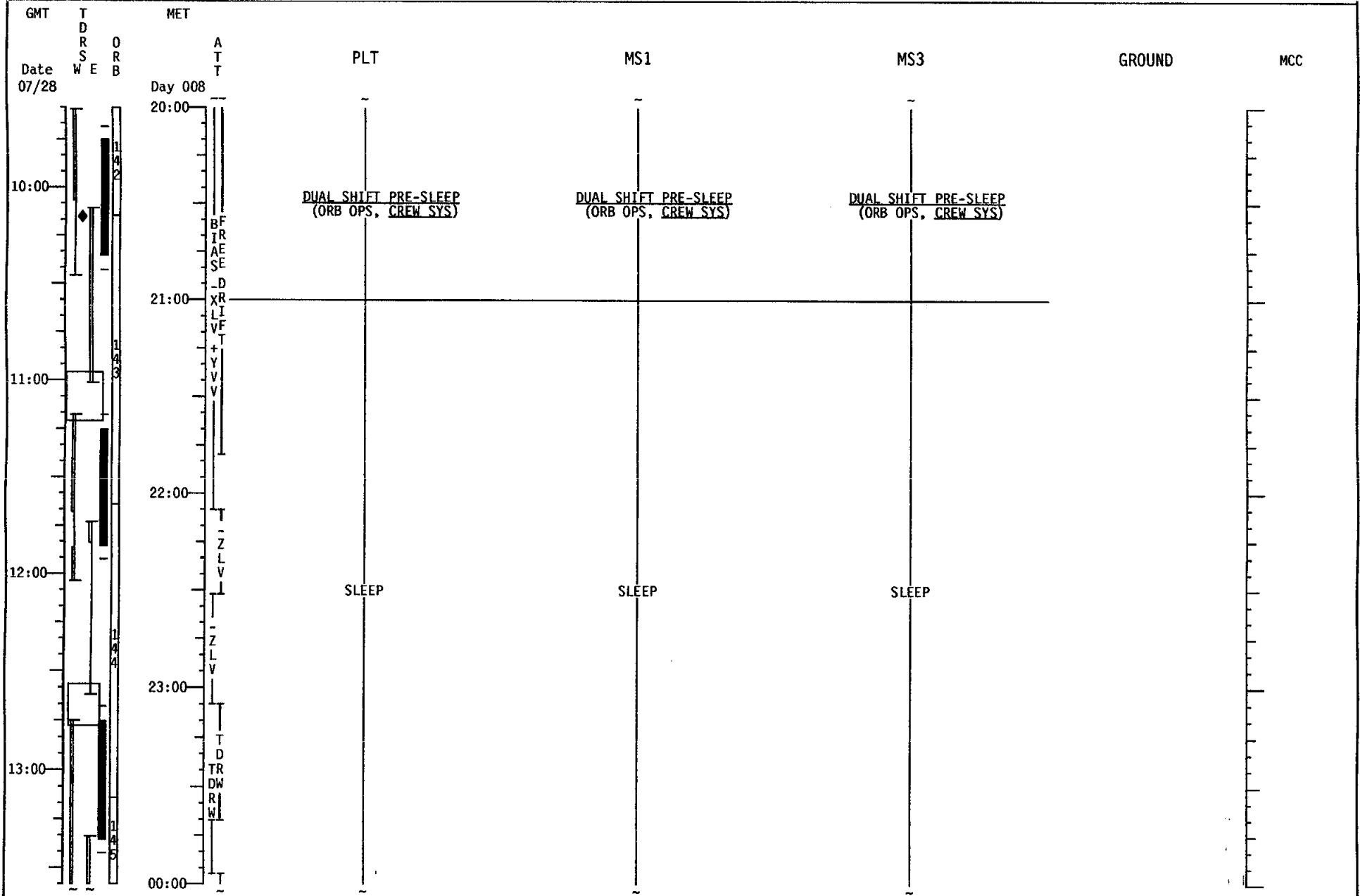
STS-107 (BLUE FD10)



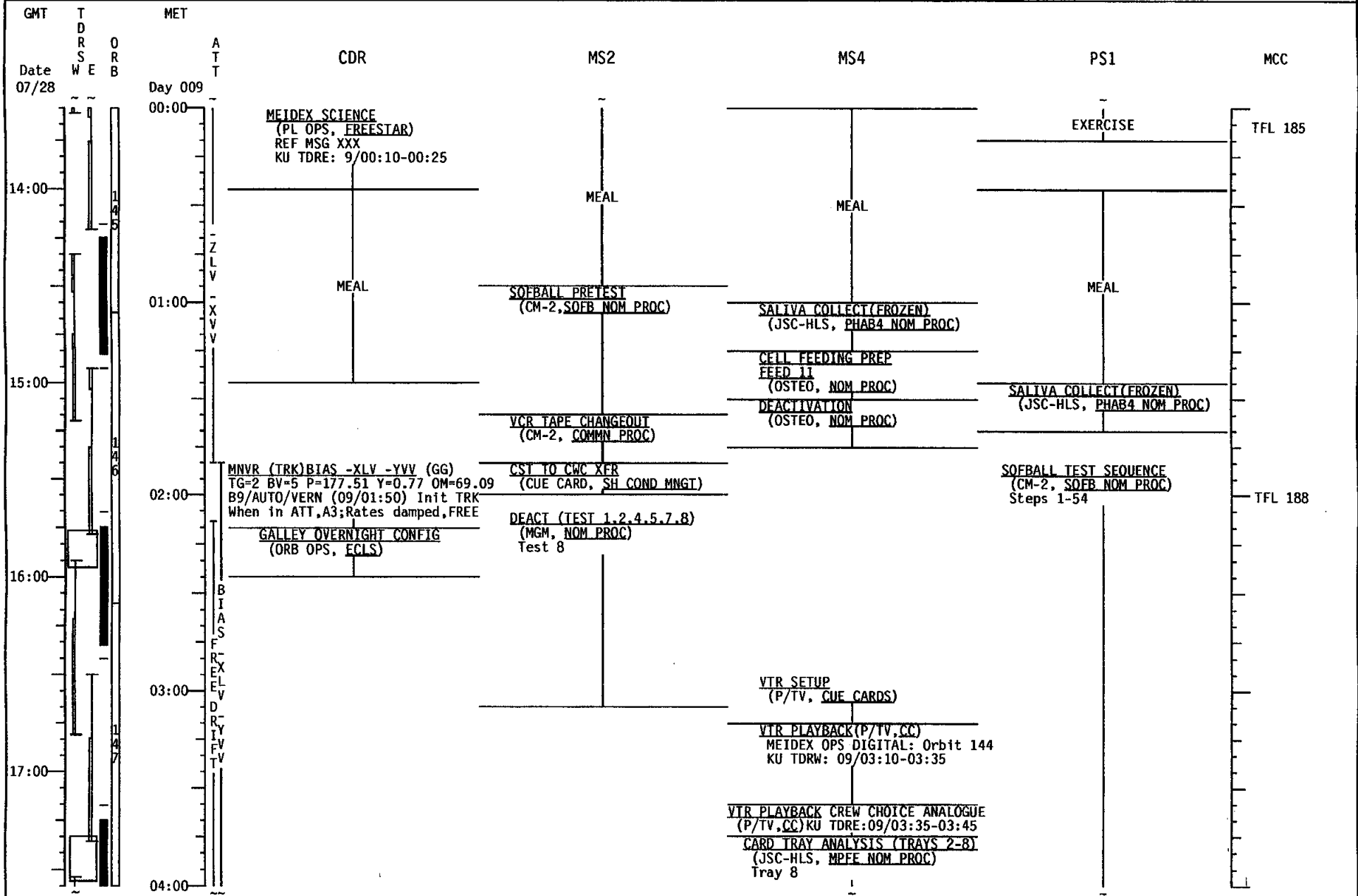
STS-107 (RED FD10)



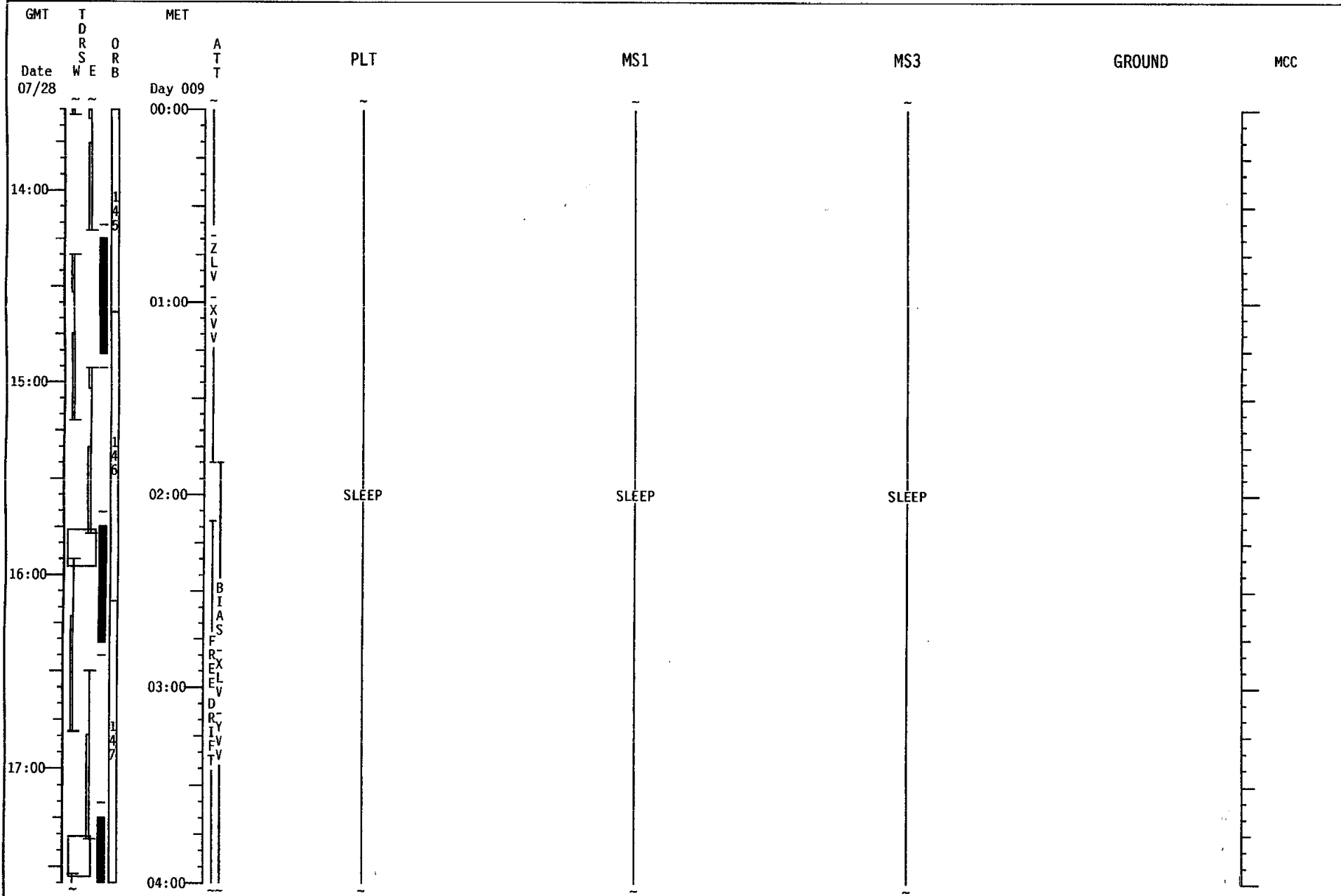
STS-107 (BLUE FD10)



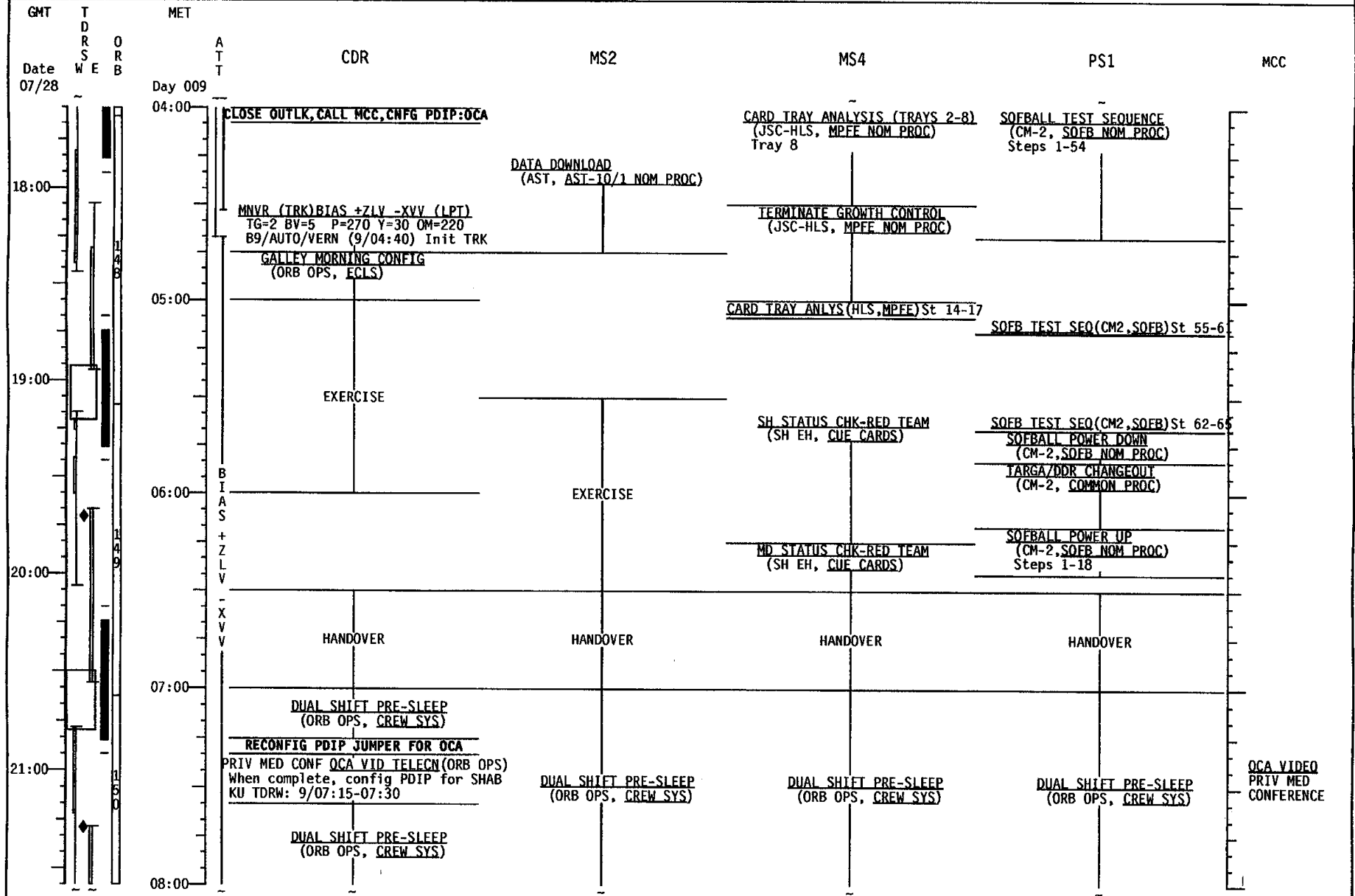
STS-107 (RED FD10)



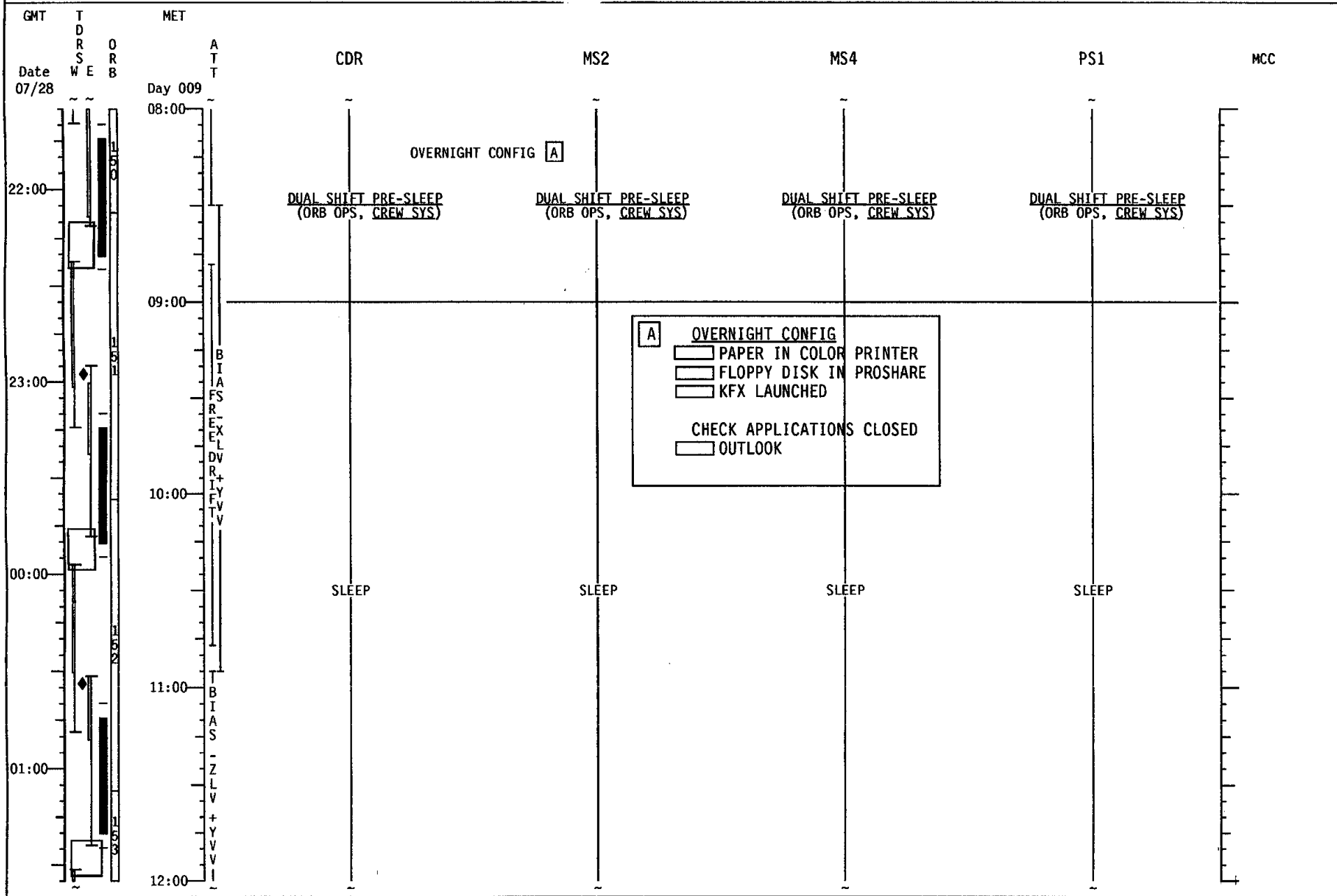
STS-107 (BLUE FD10)



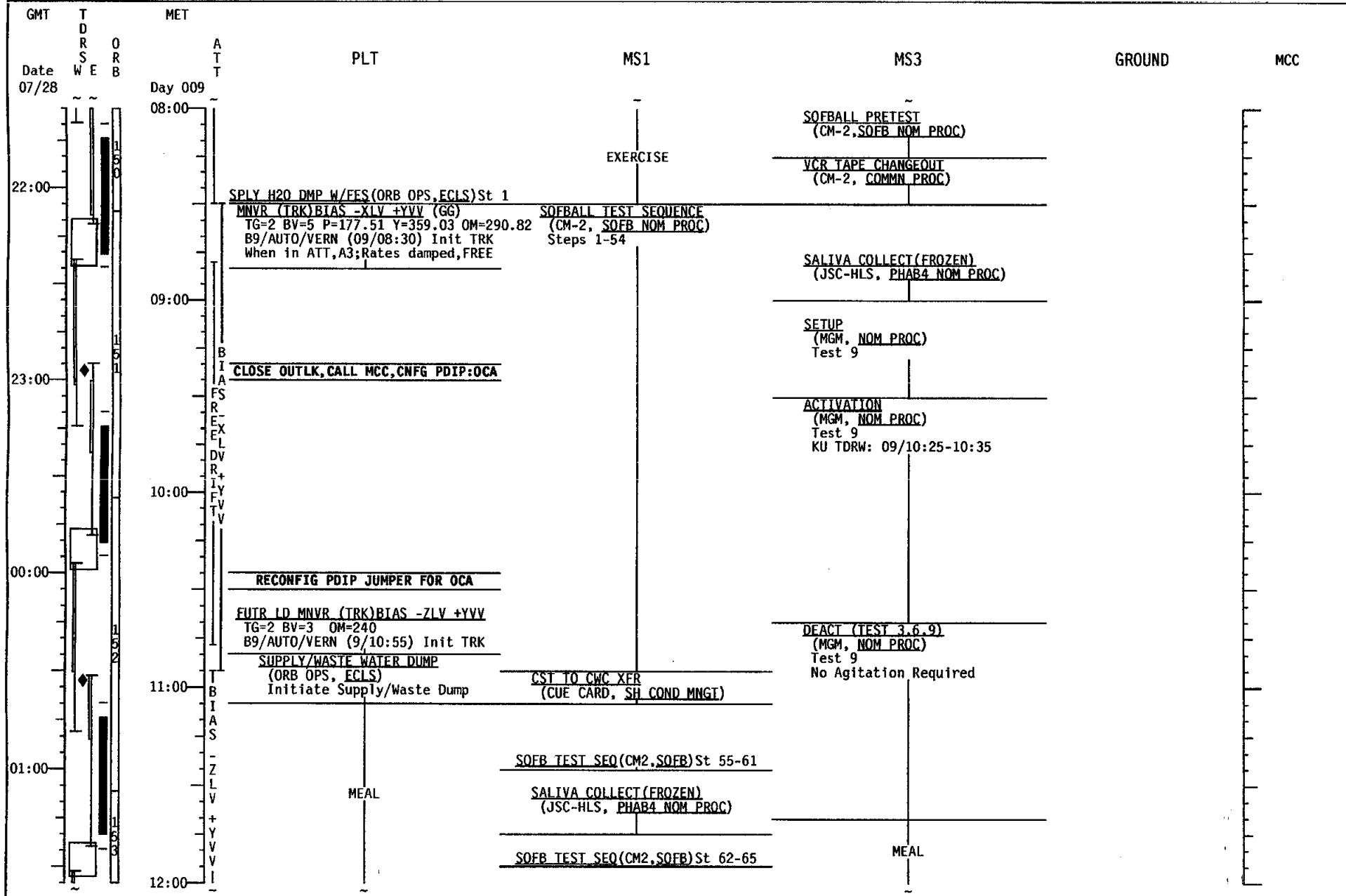
STS-107 (RED FD10)



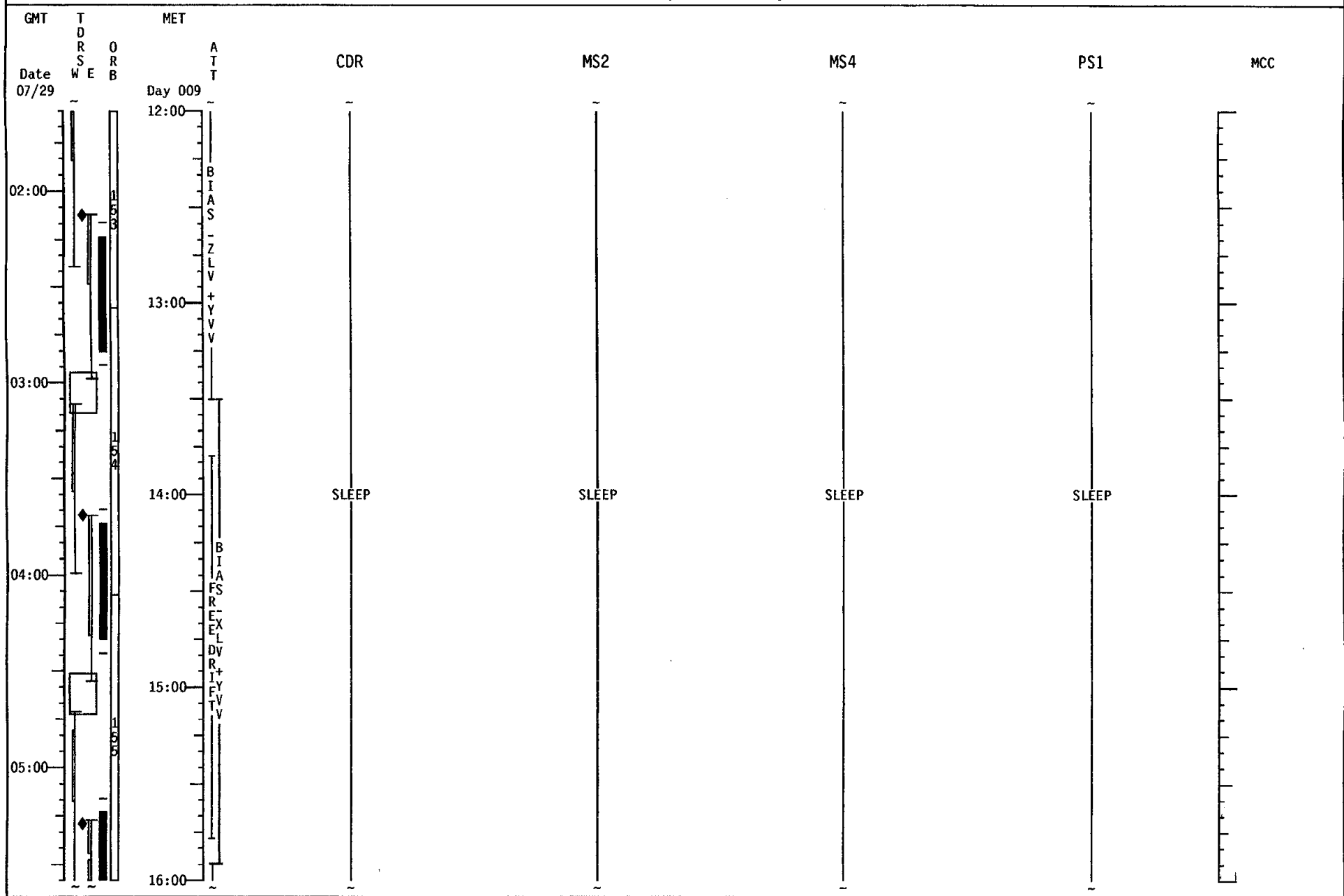
STS-107 (RED FD10)



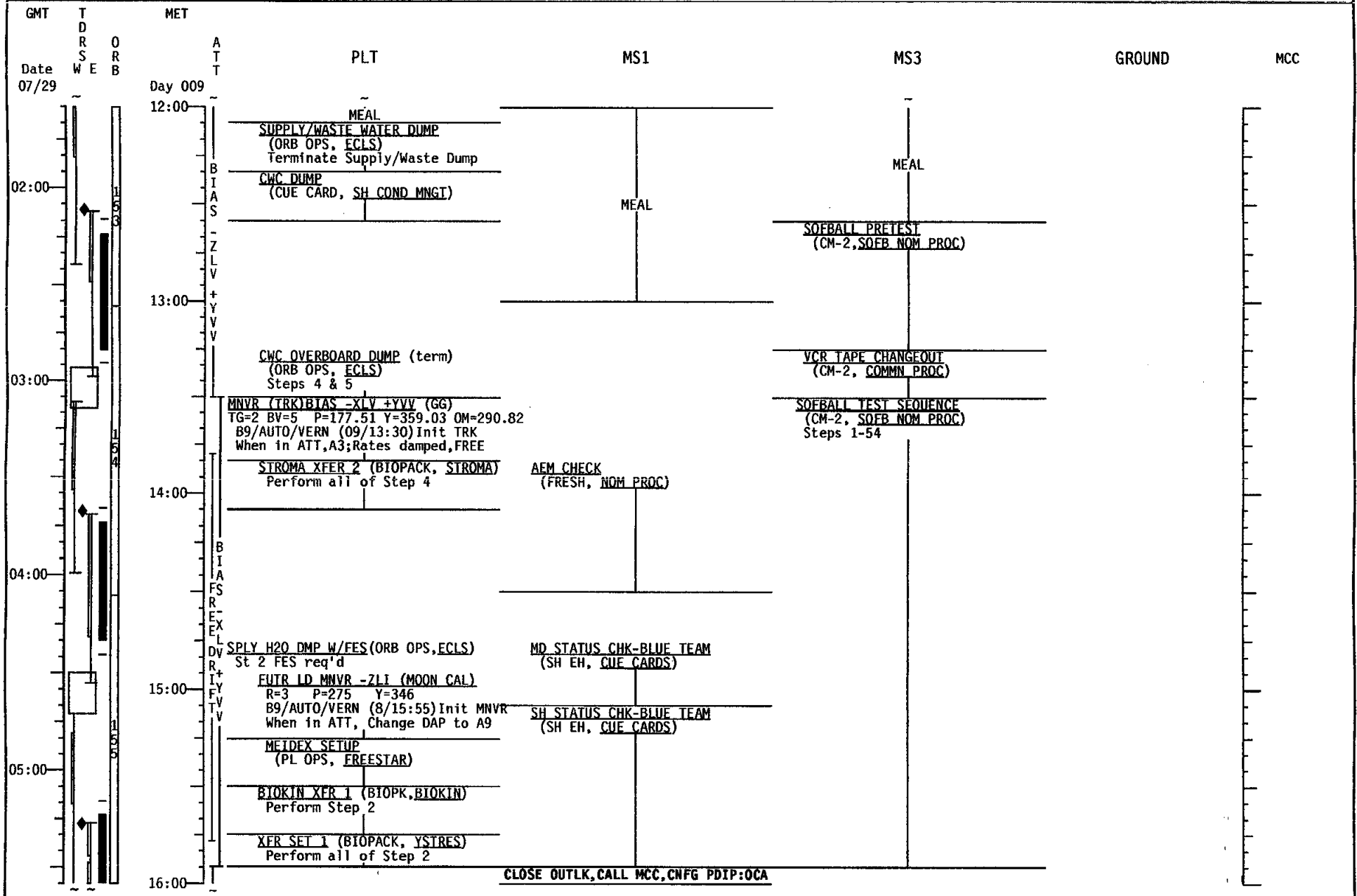
STS-107 (BLUE FD11)



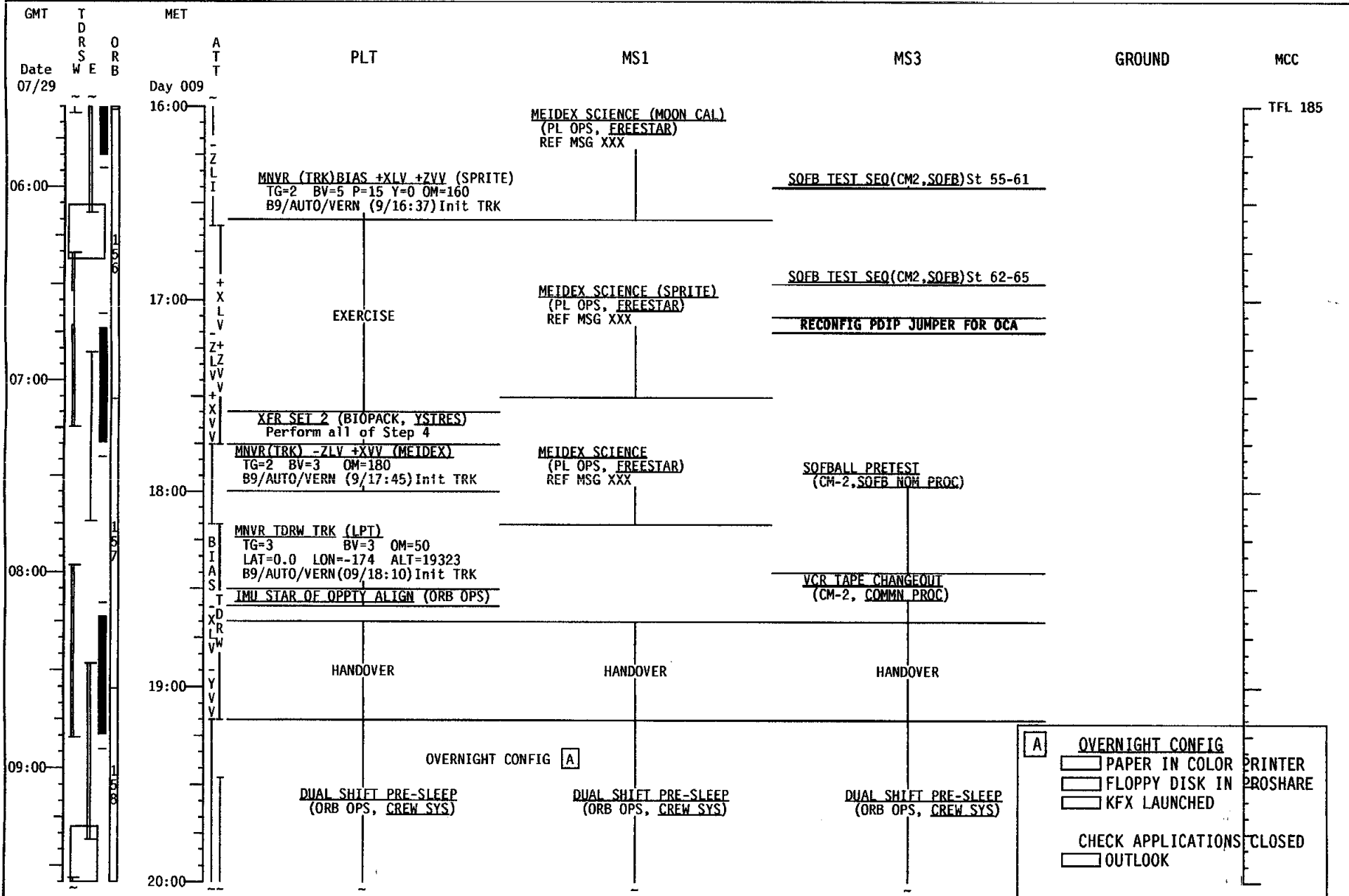
STS-107 (RED FD10)



STS-107 (BLUE FD11)



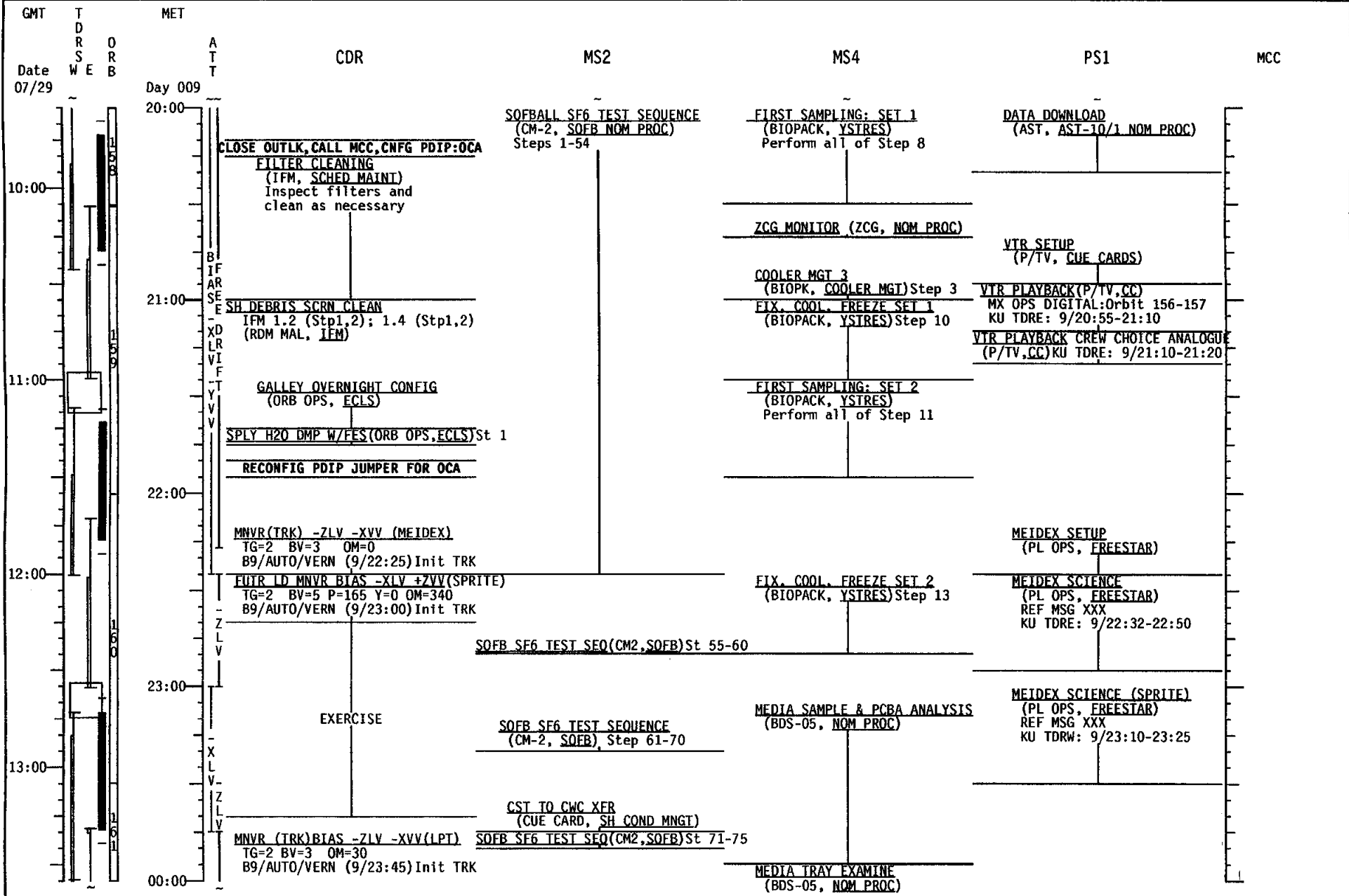
STS-107 (BLUE FD11)



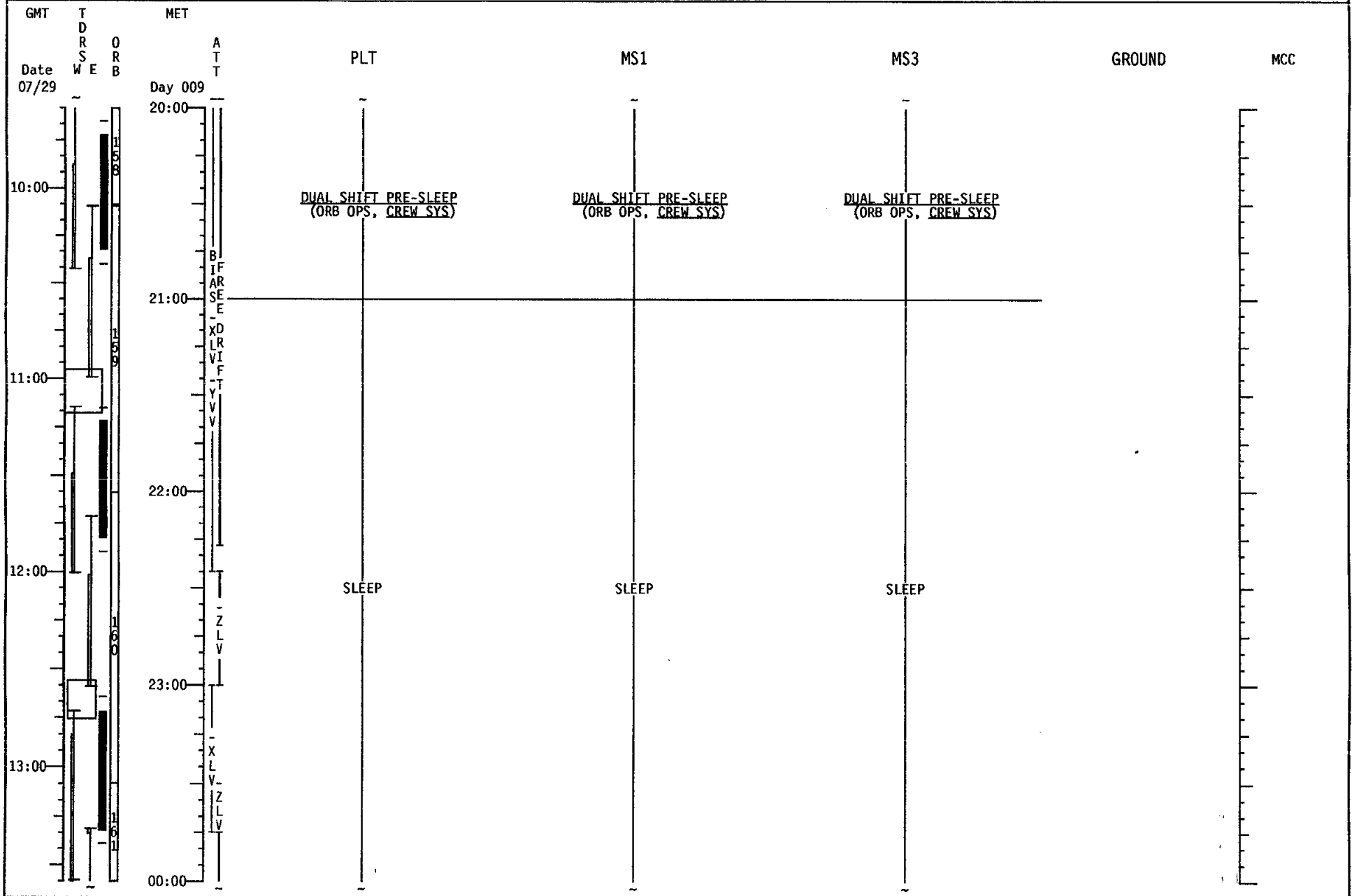
[A] OVERNIGHT CONFIG

- PAPER IN COLOR PRINTER
- FLOPPY DISK IN PROSHARE
- KFX LAUNCHED
- CHECK APPLICATIONS CLOSED
- OUTLOOK

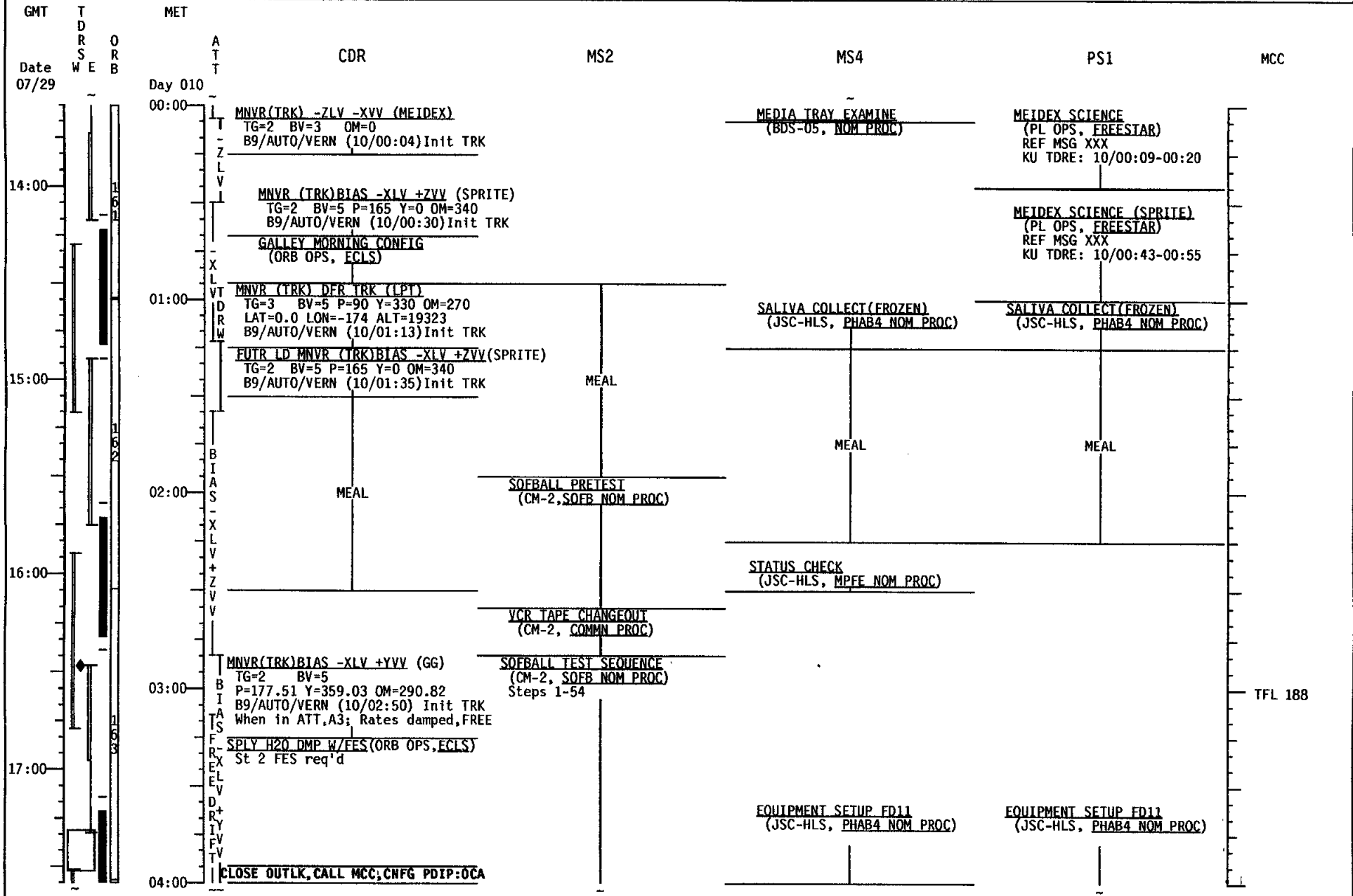
STS-107 (RED FD11)



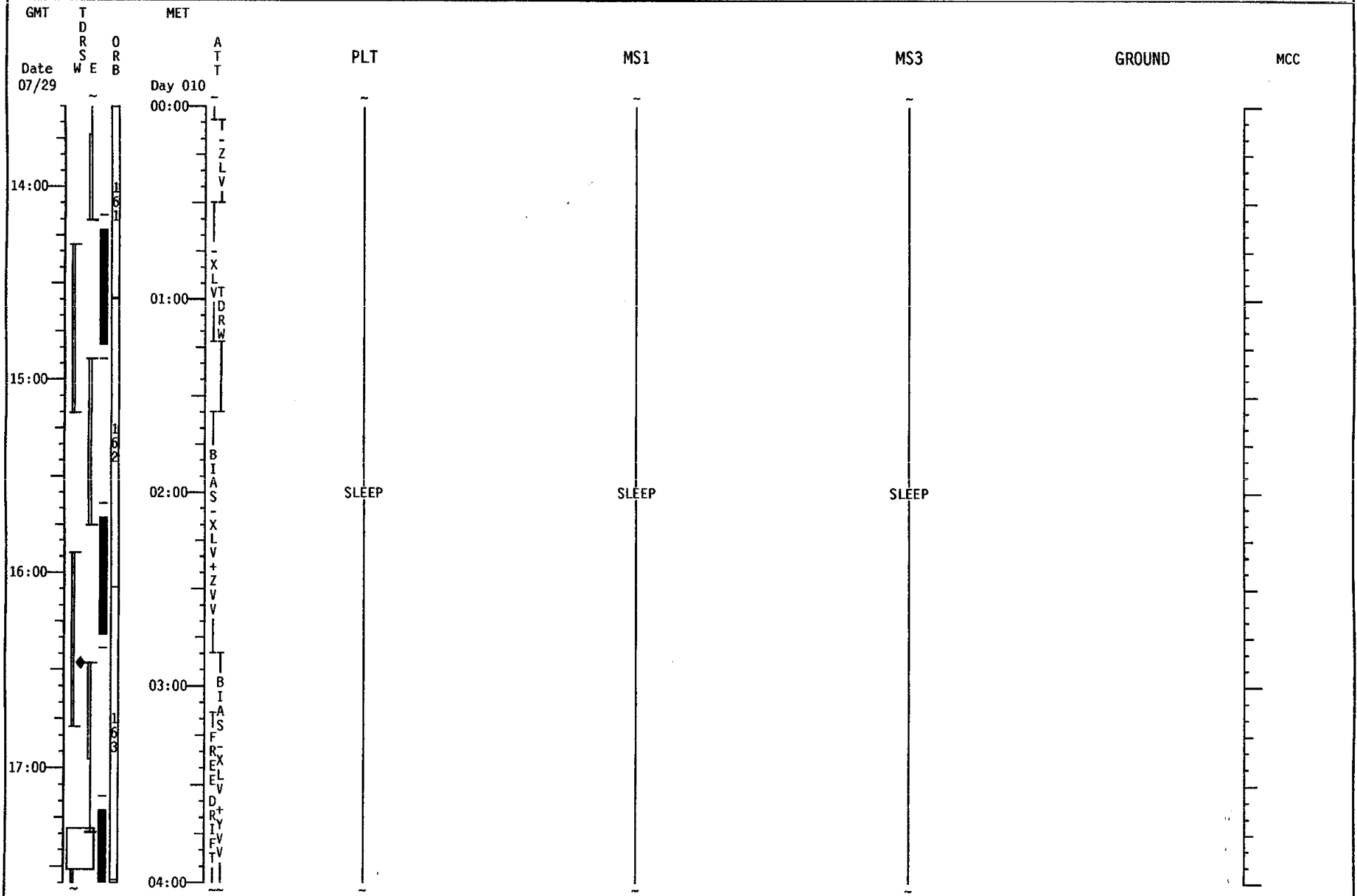
STS-107 (BLUE FD11)



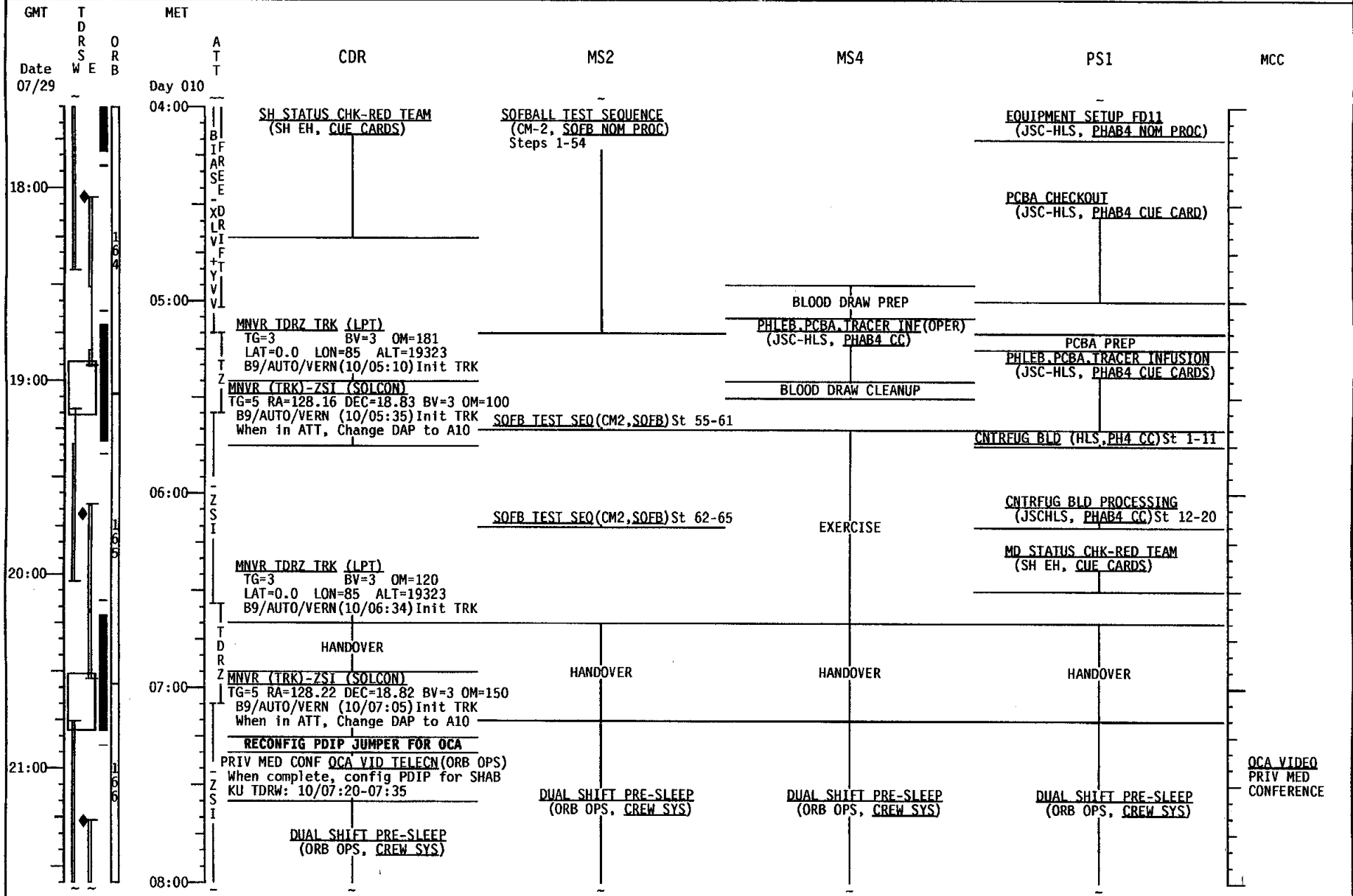
STS-107 (RED FD11)



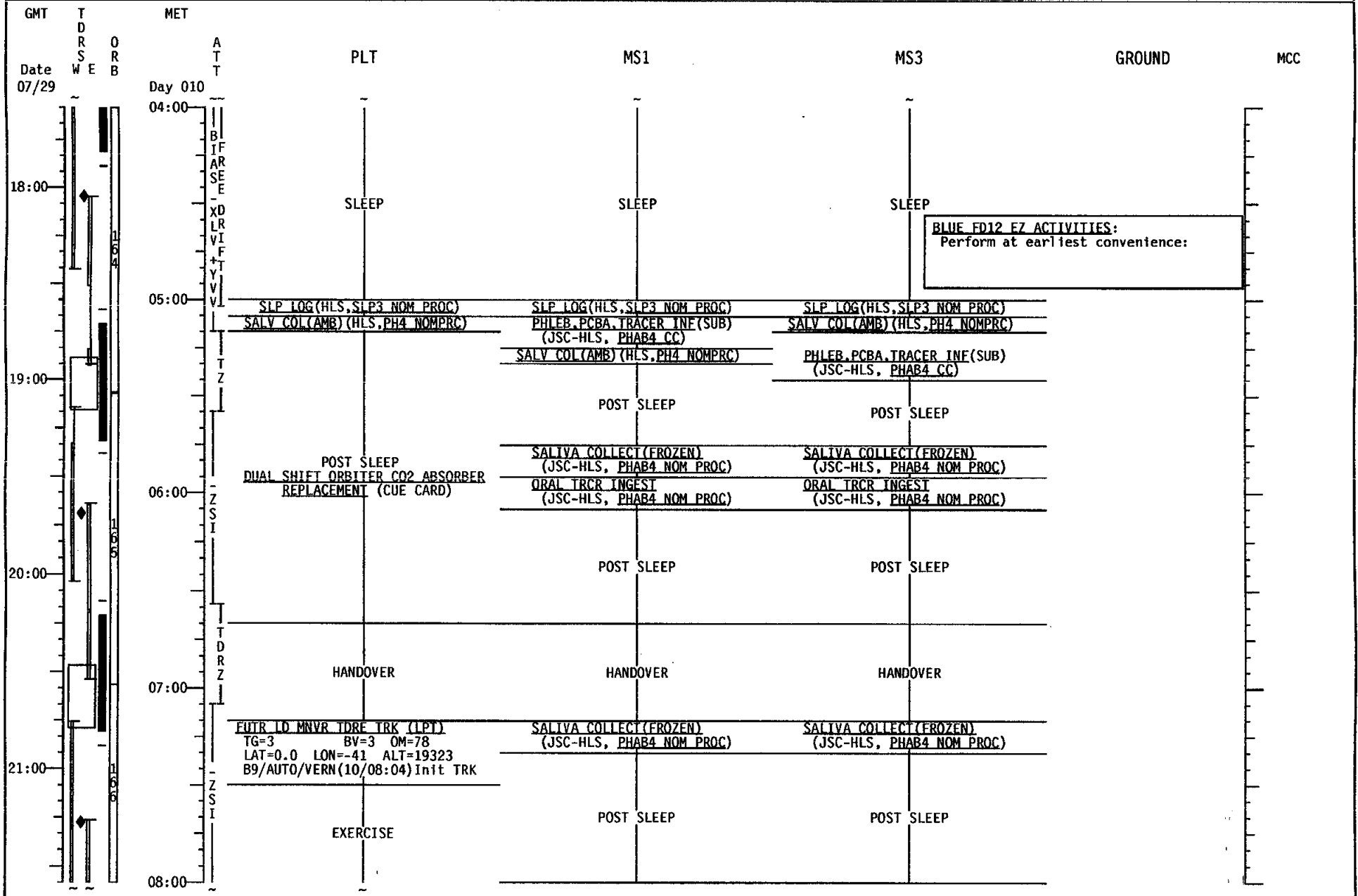
STS-107 (BLUE FD11)



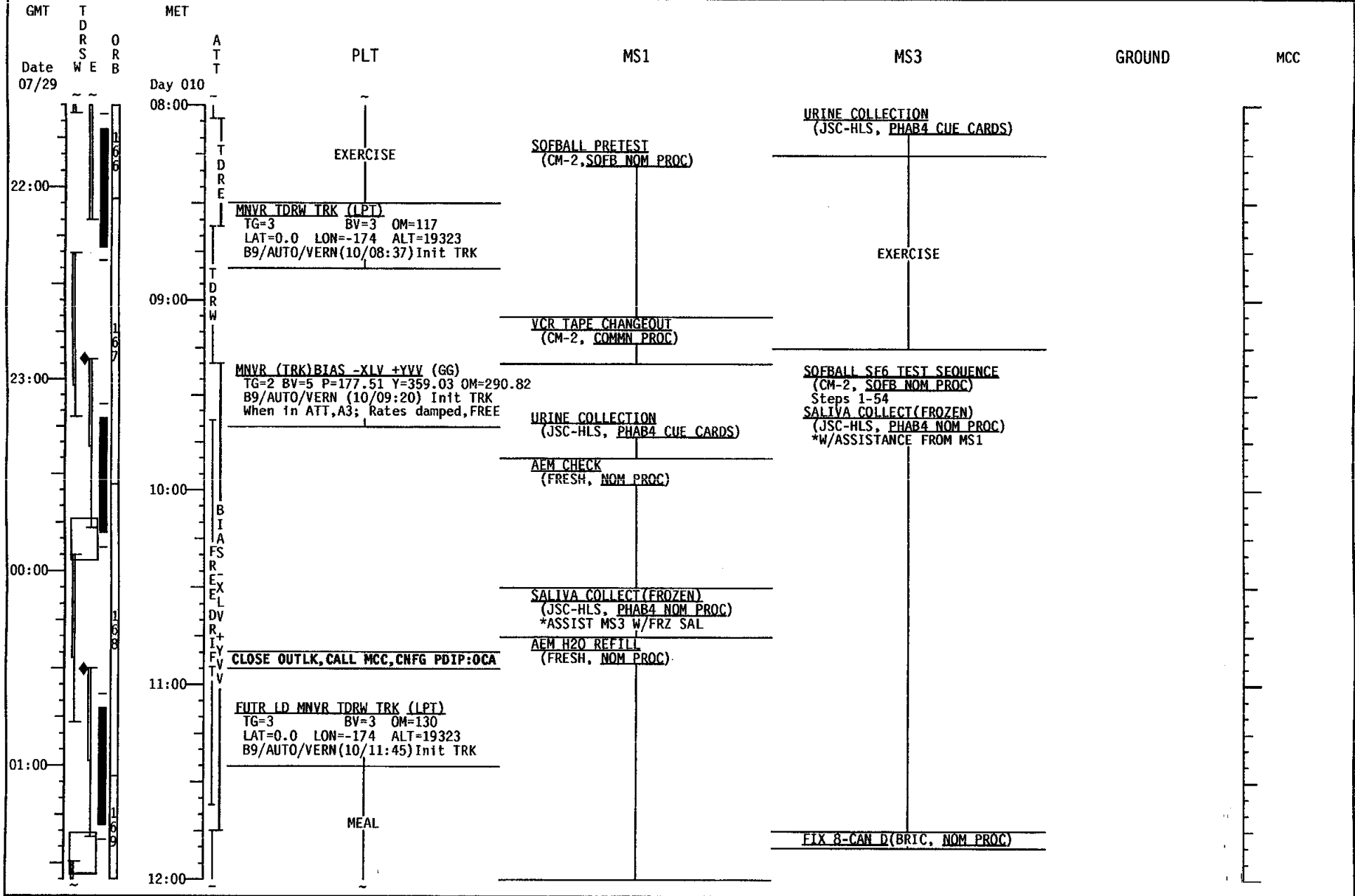
STS-107 (RED 1)



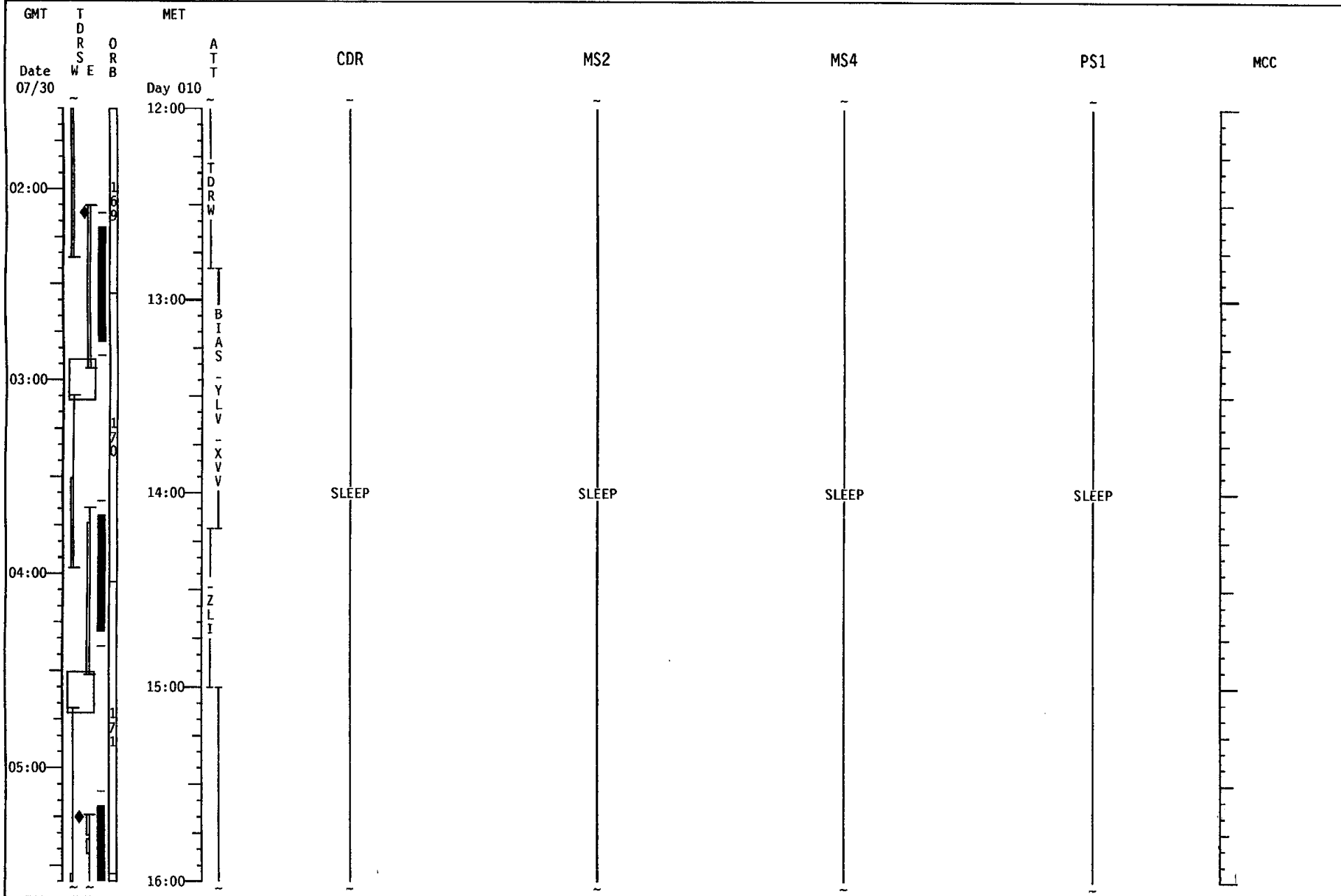
STS-107 (BLUE FD12)



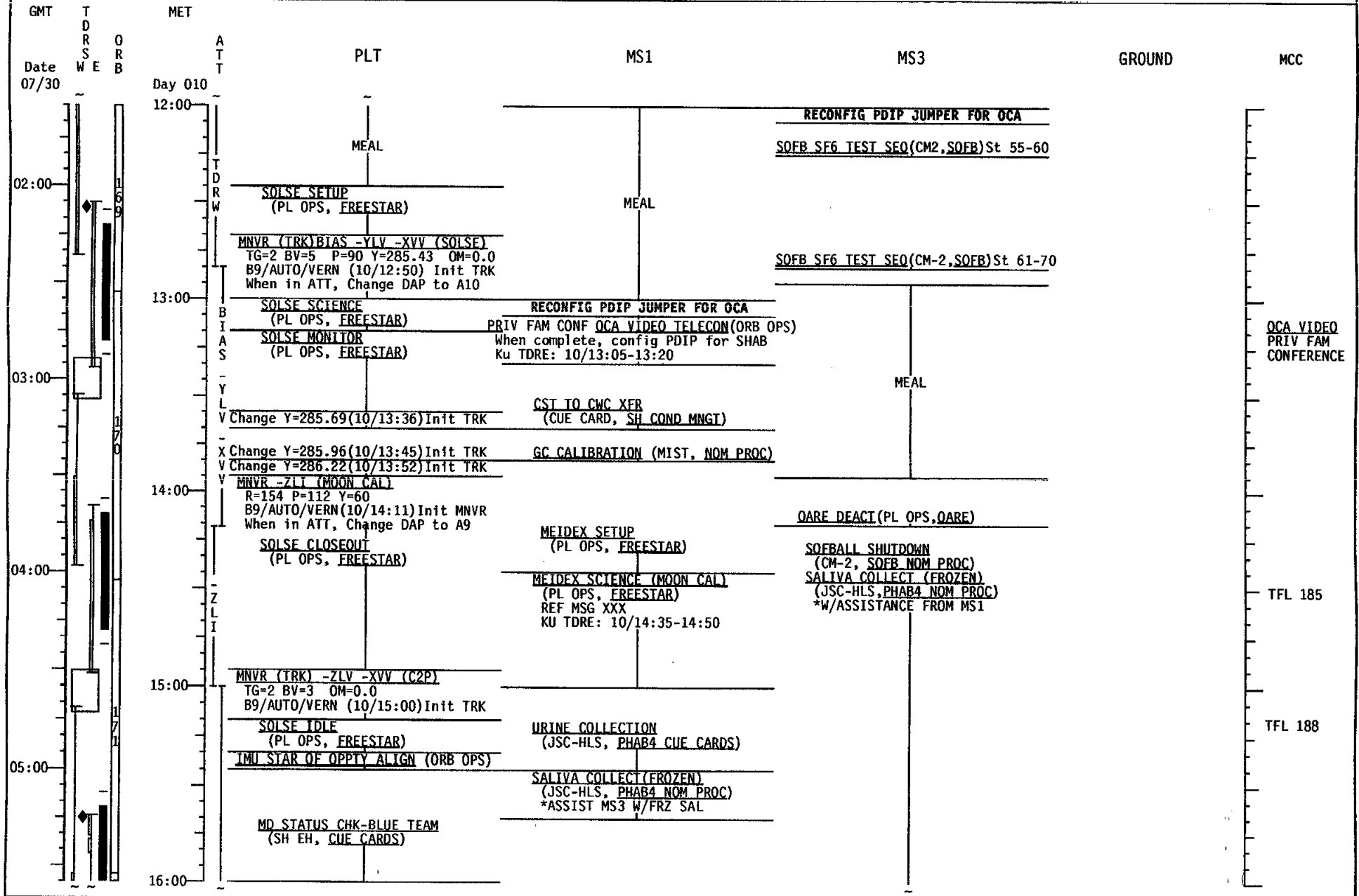
STS-107 (BLUE FD12)



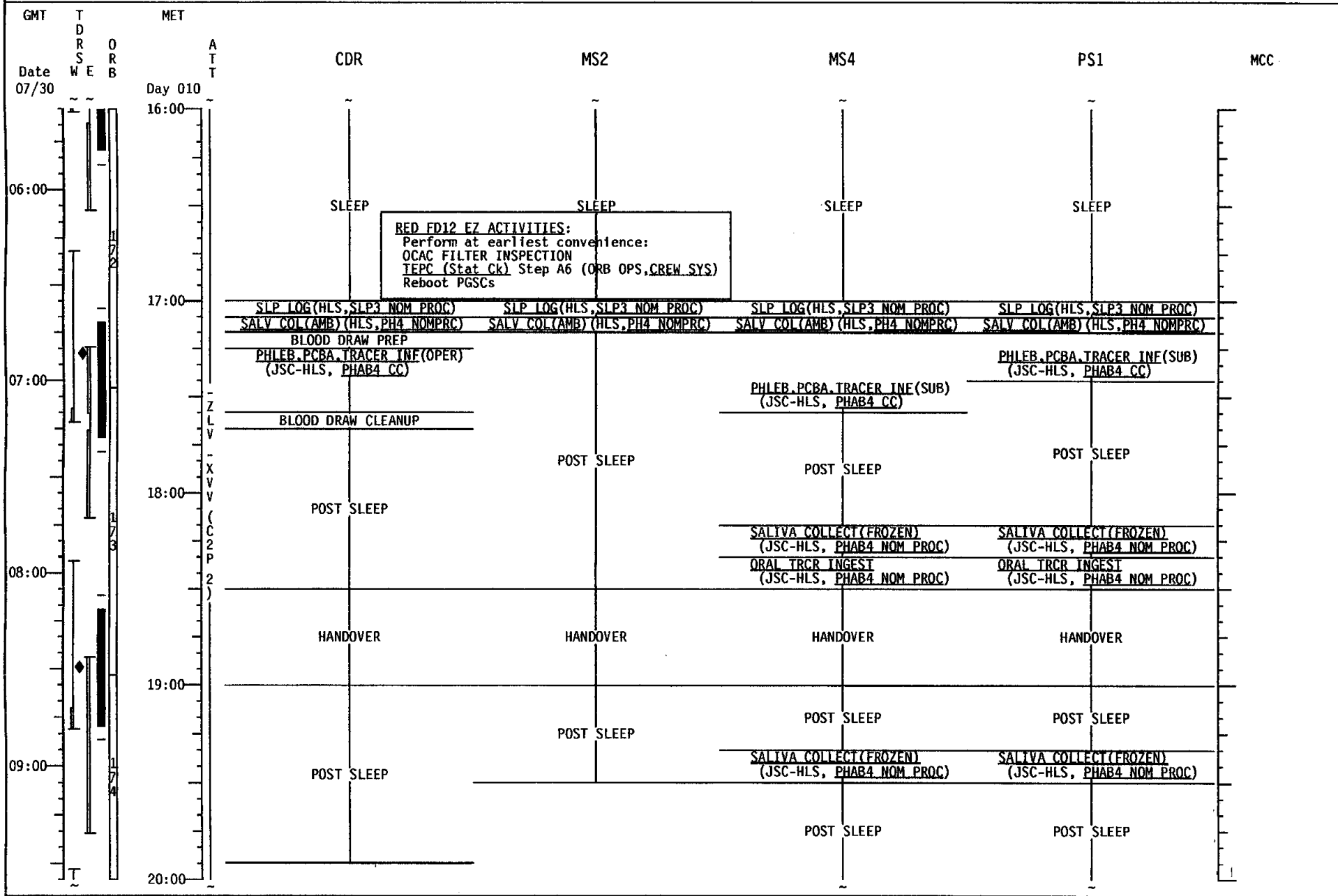
STS-107 (RED FD11)



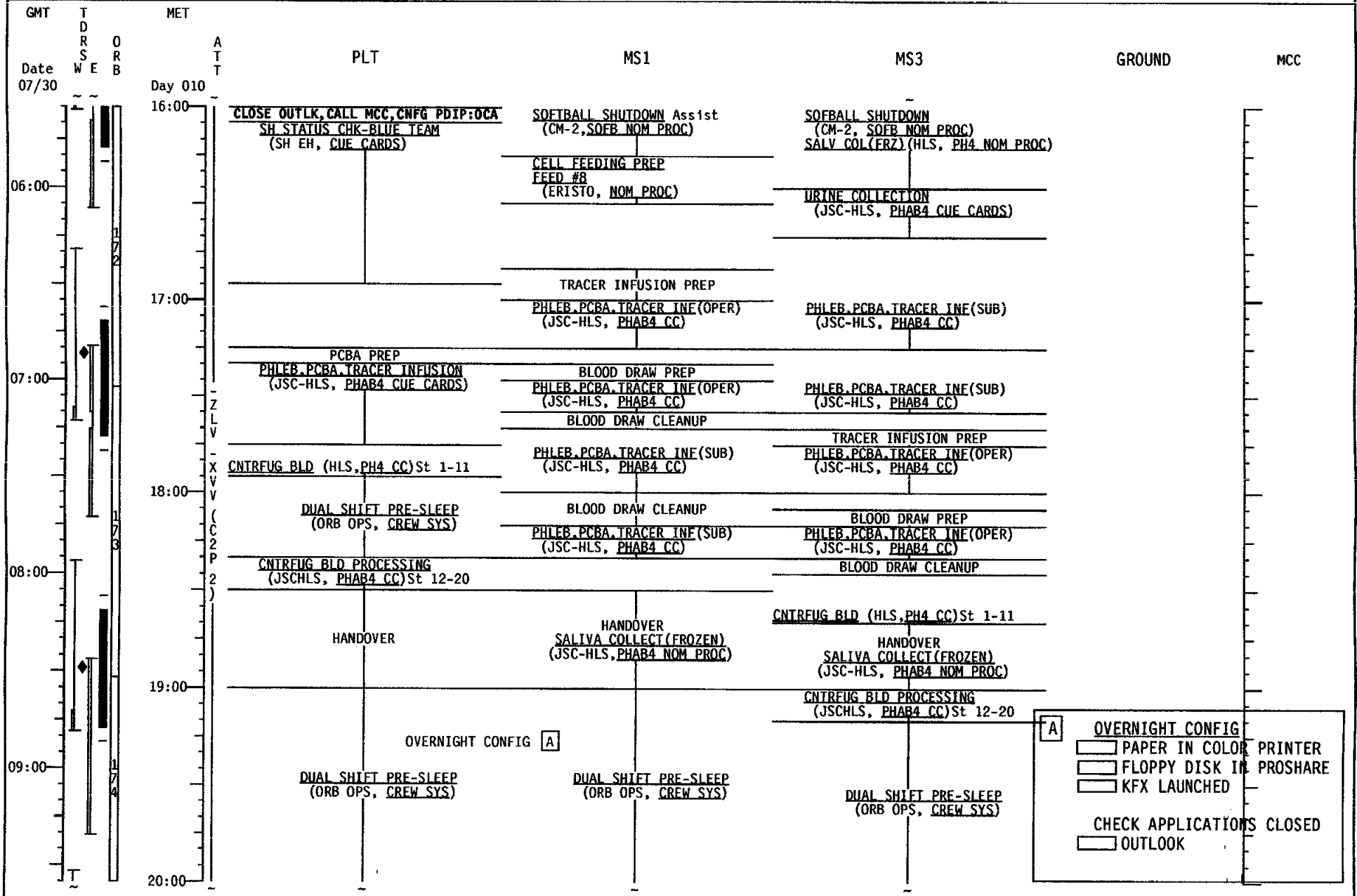
STS-107 (BLUE FD12)



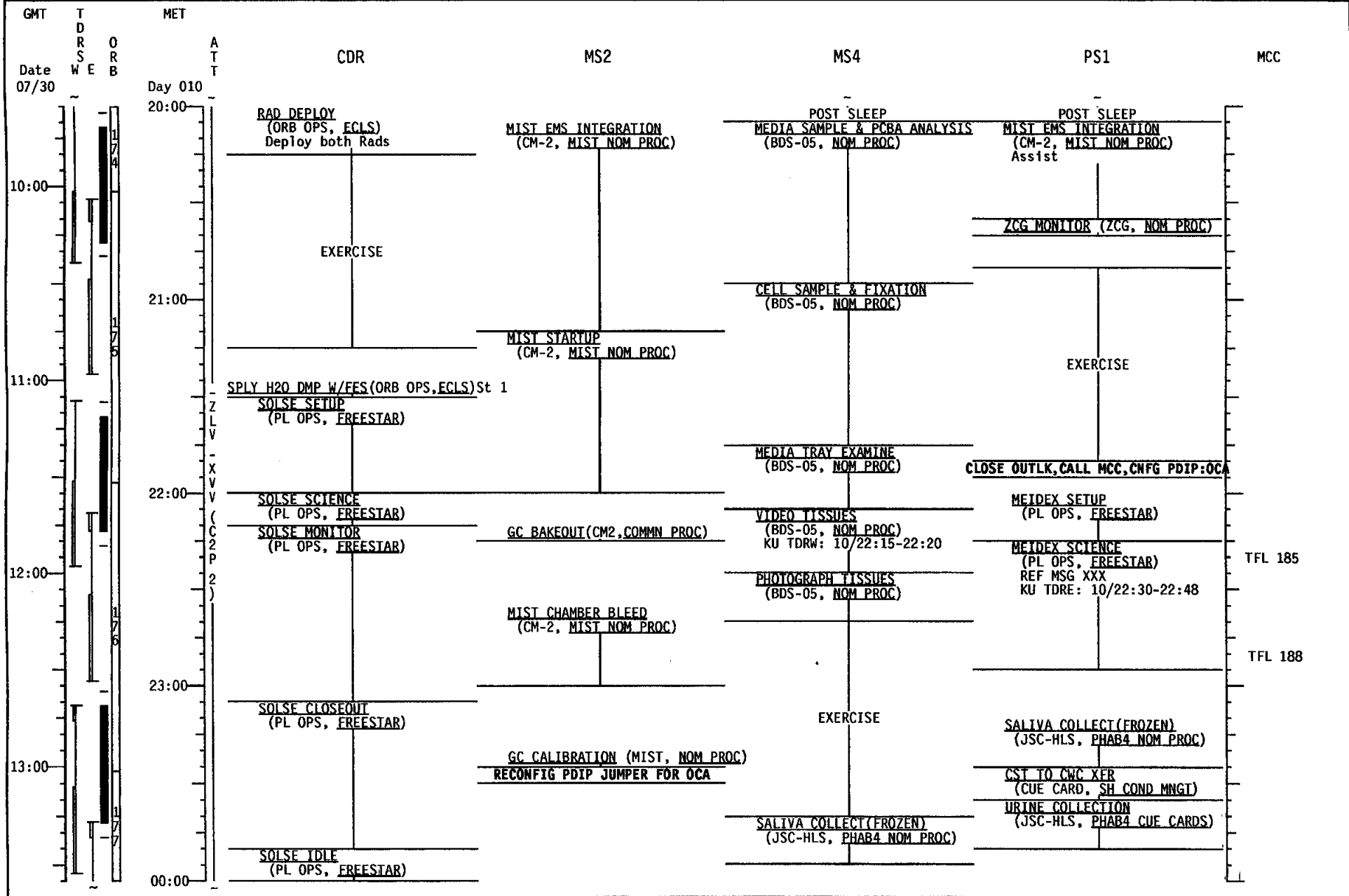
STS-107 (RED FD12)



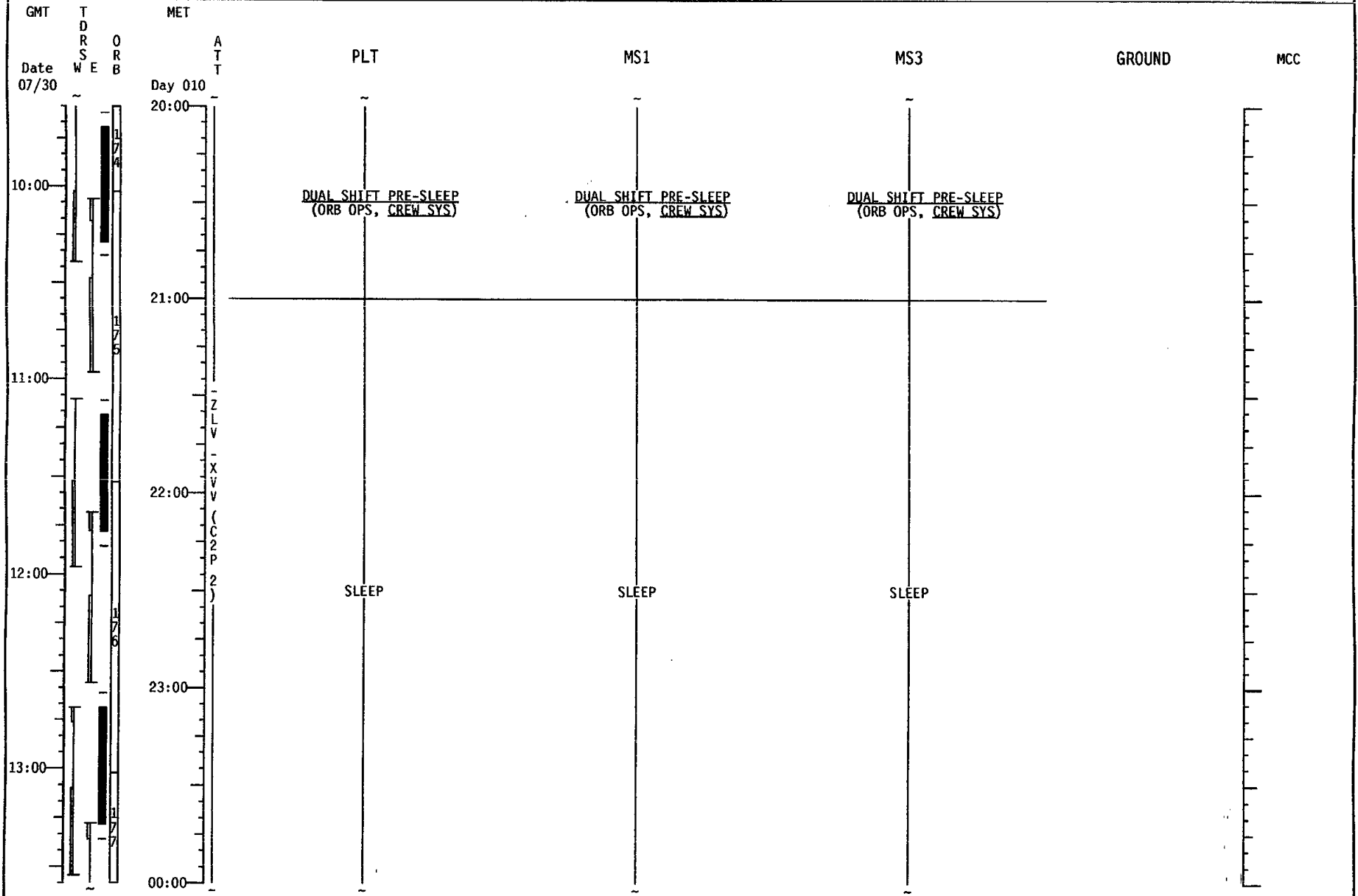
STS-107 (BLUE FD12)



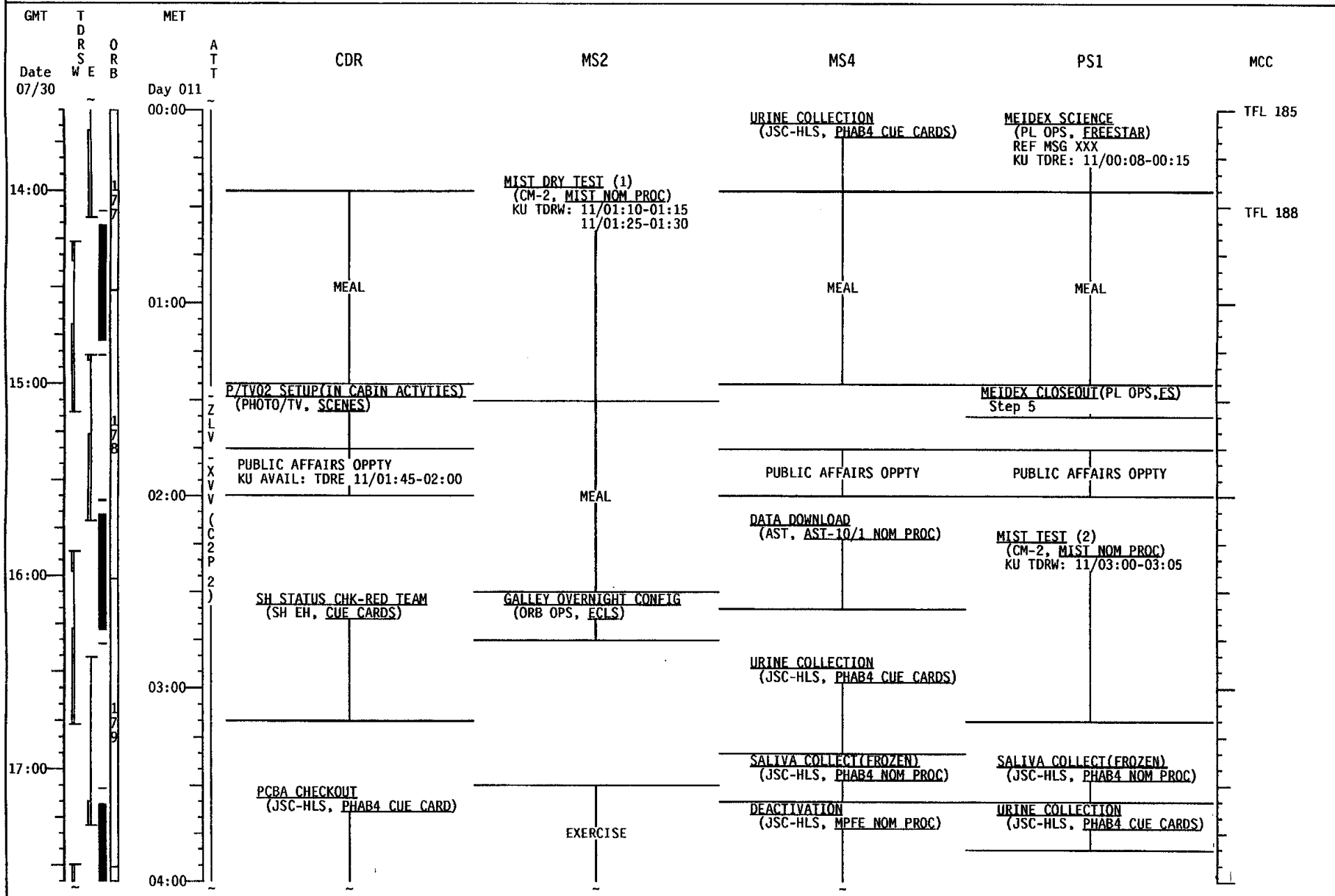
STS-107 (RED FD12)



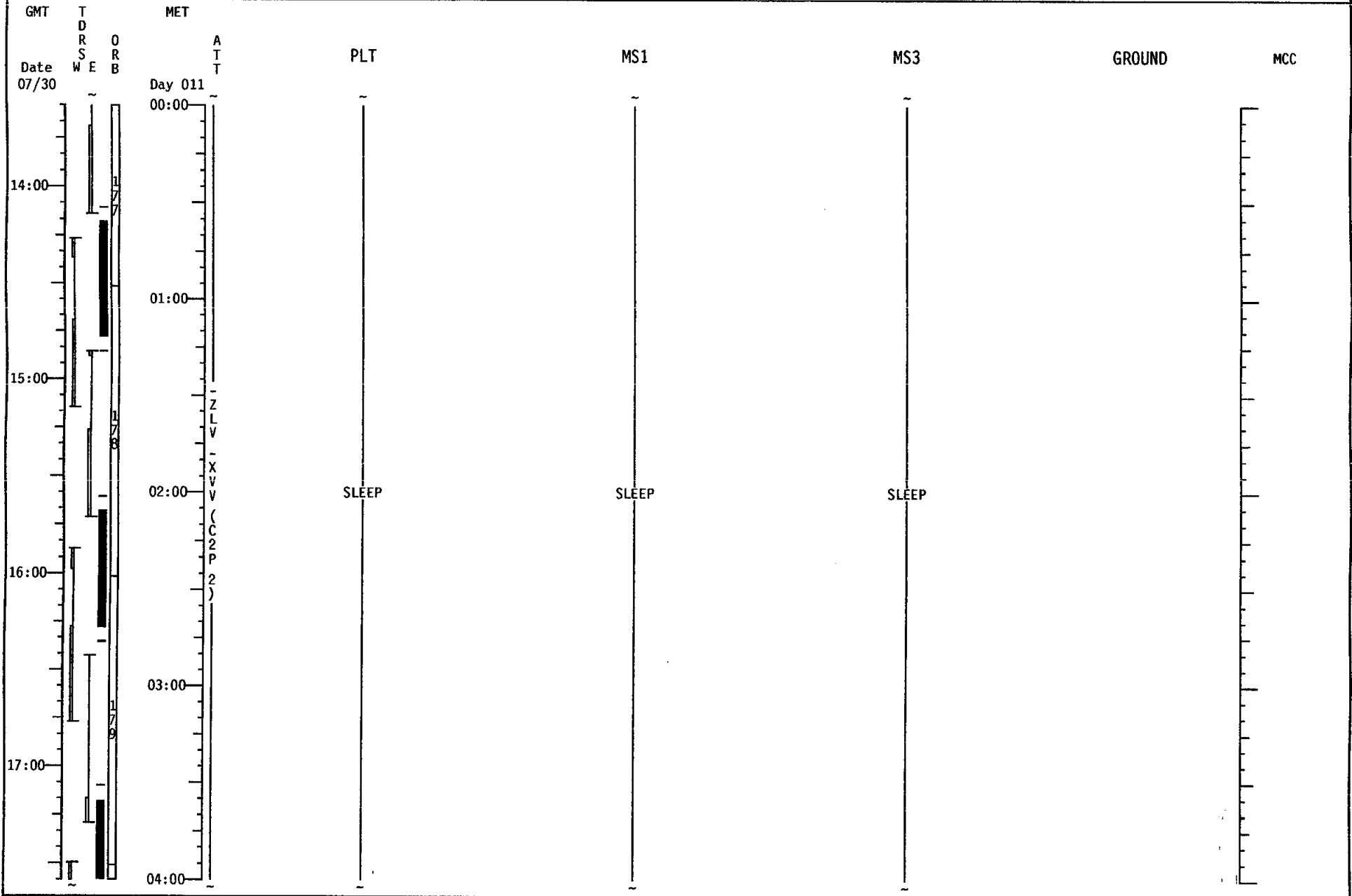
STS-107 (BLUE FD12)



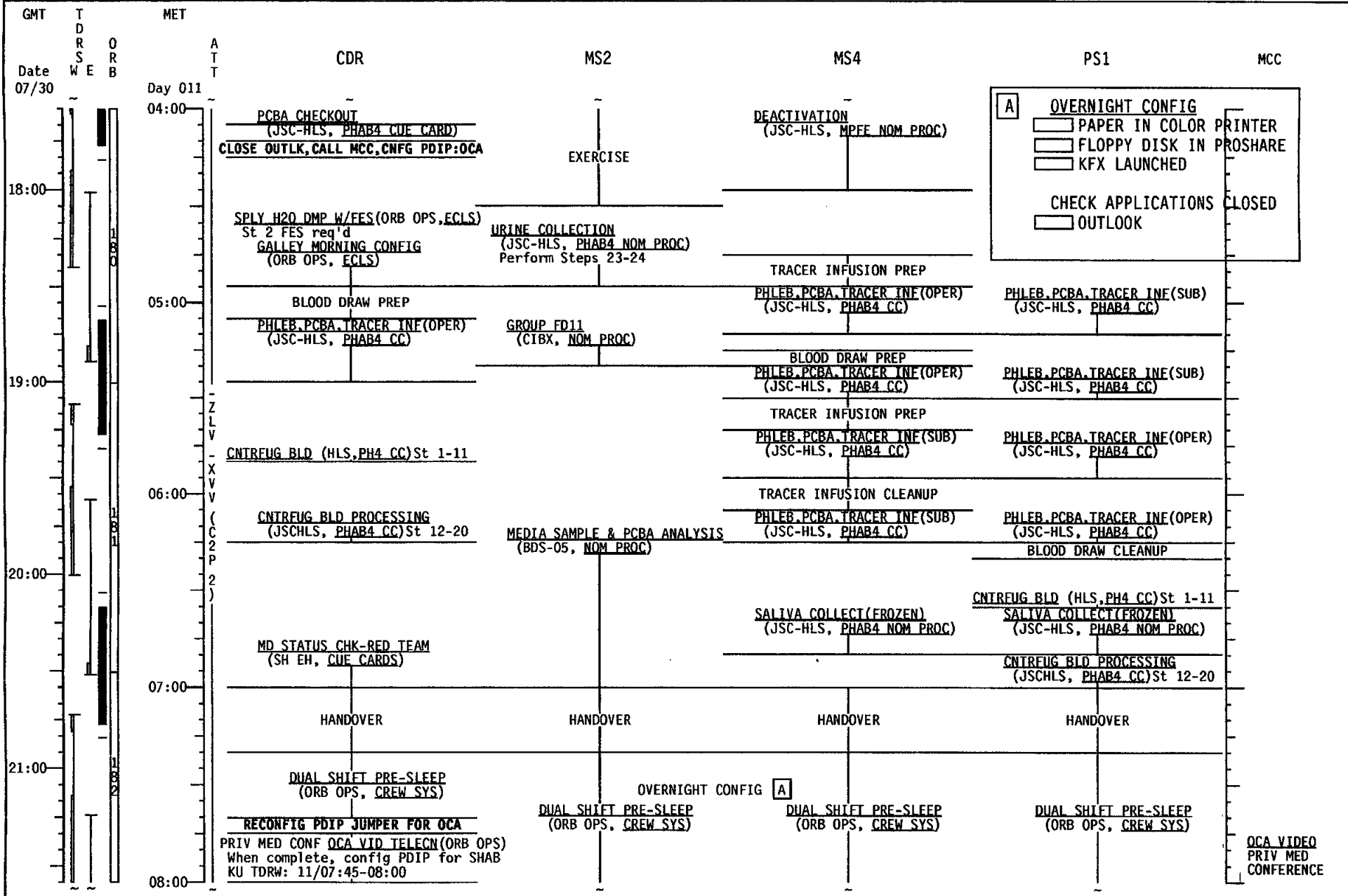
STS-107 (RED FD12)



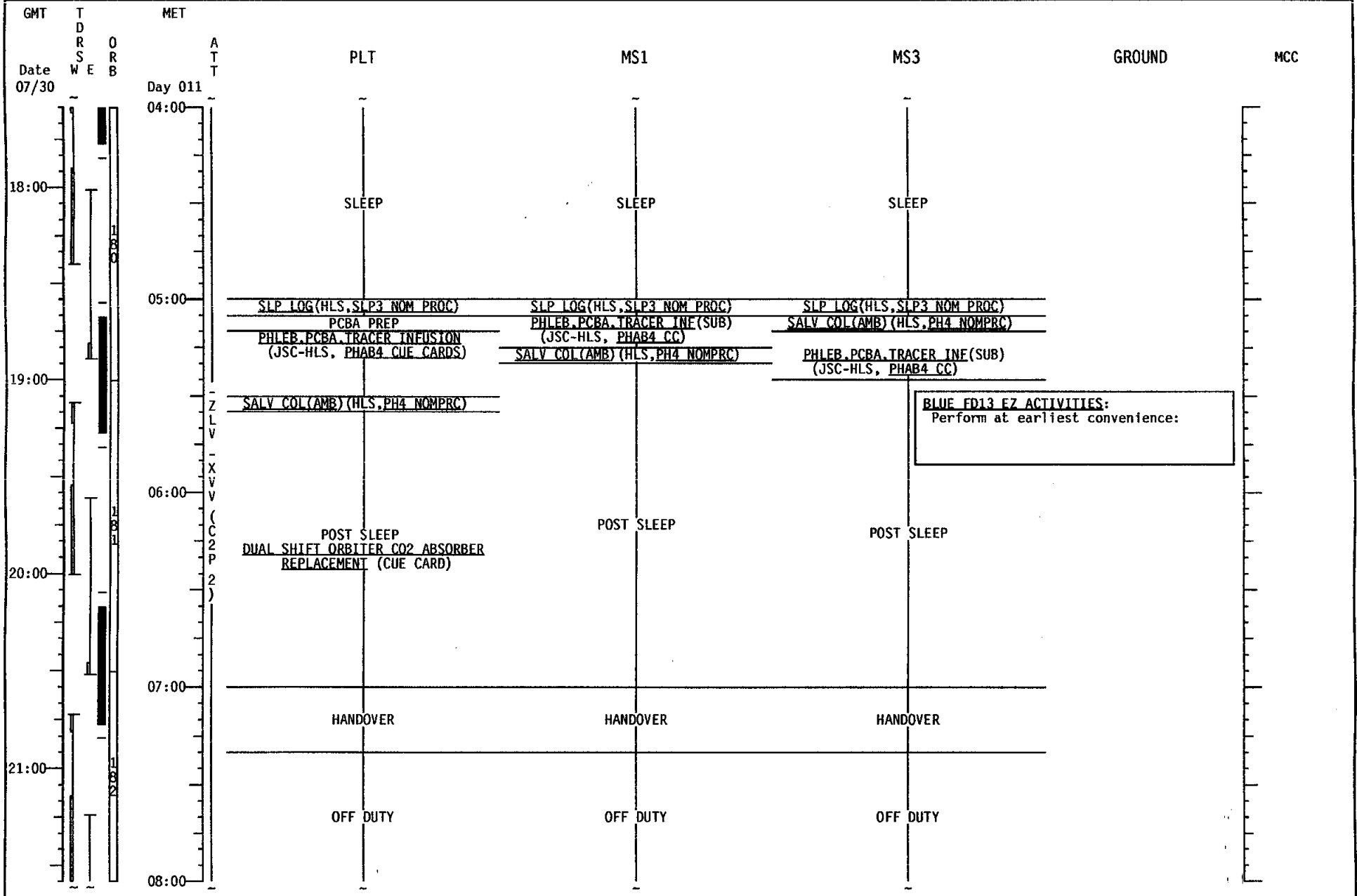
STS-107 (BLUE FD12)



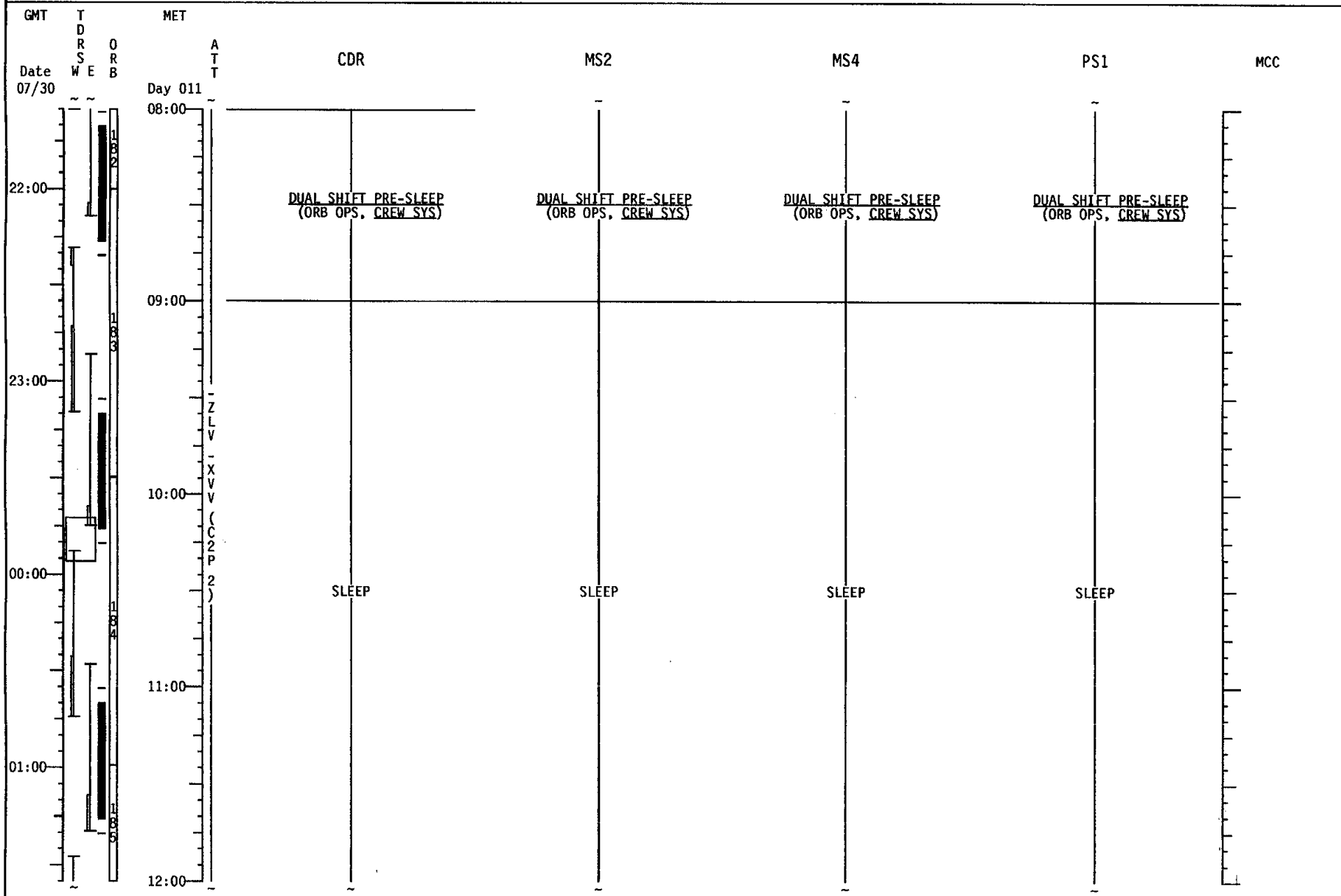
STS-107 (RED FD12)



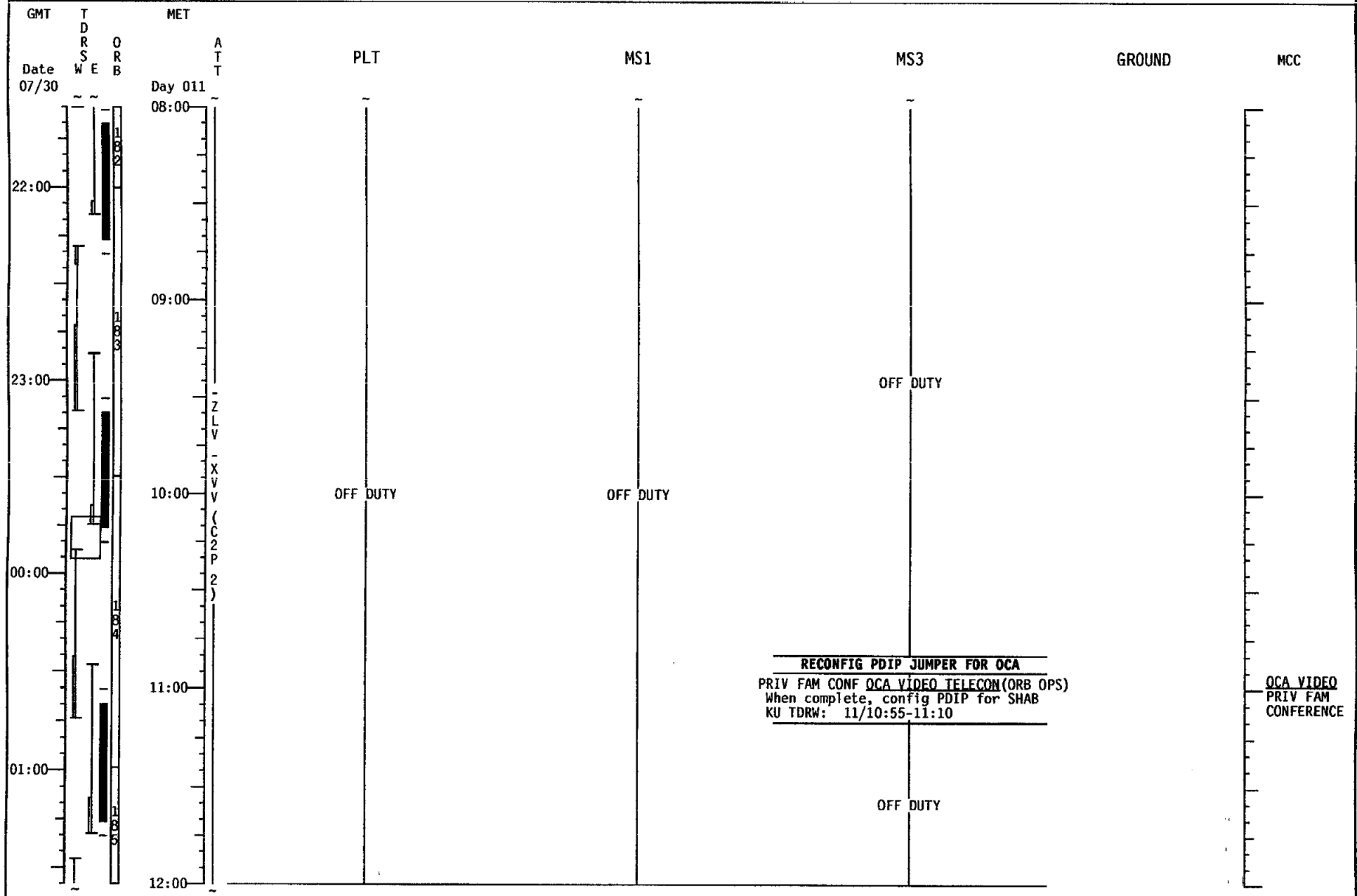
STS-107 (BLUE FD12)



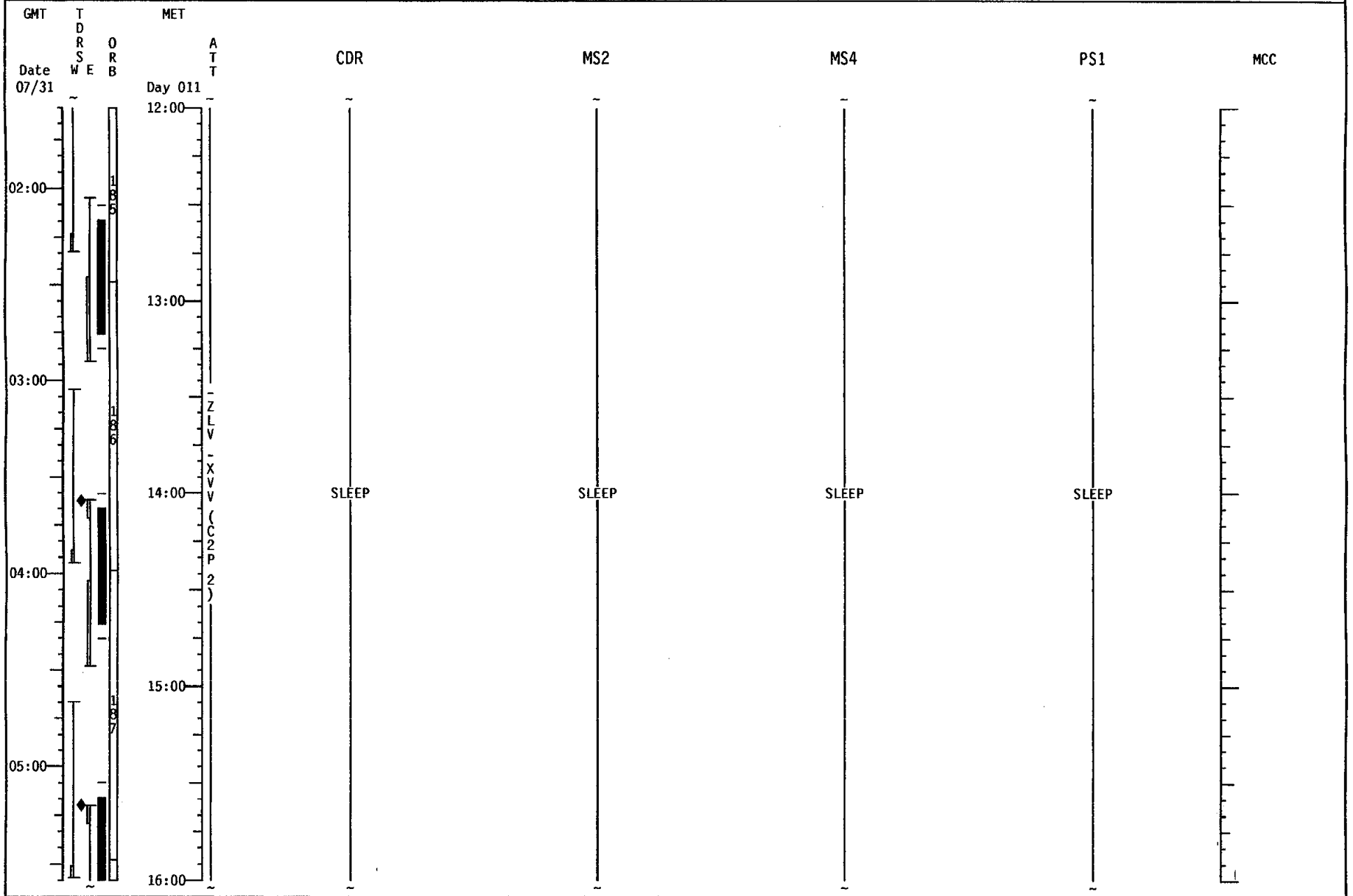
STS-107 (RED FD12)



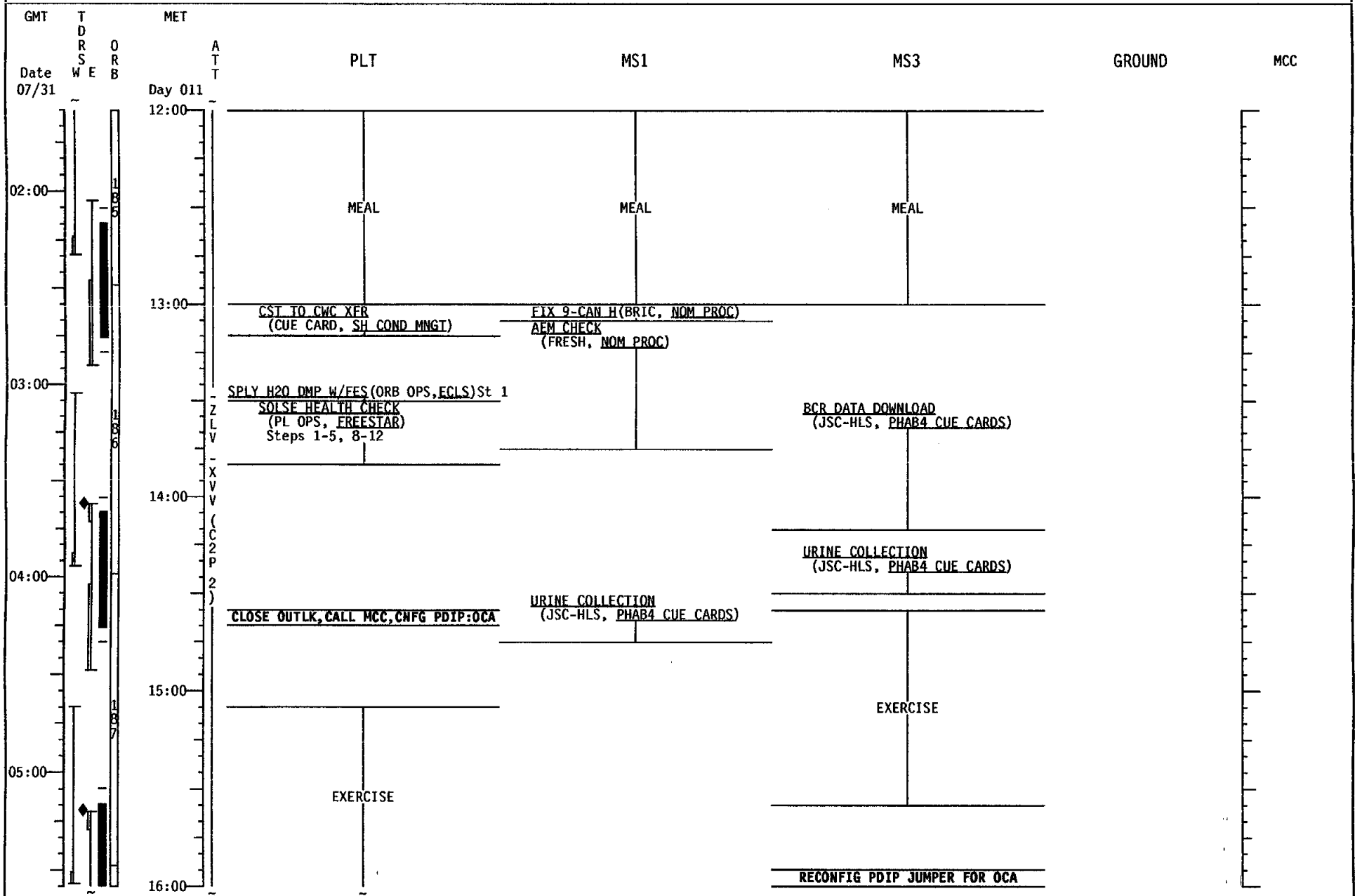
STS-107 (BLUE FD13)



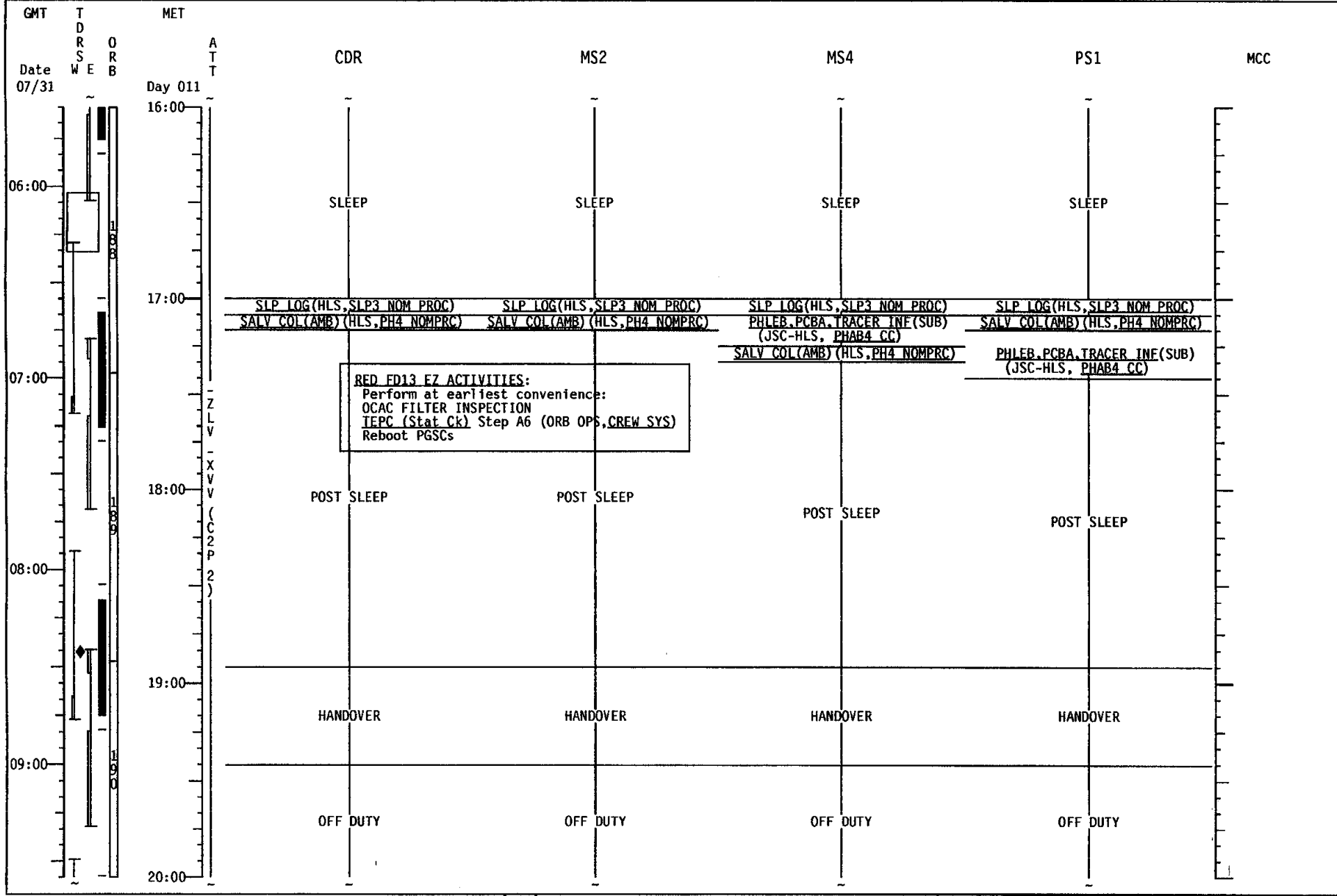
STS-107 (RED FD12)



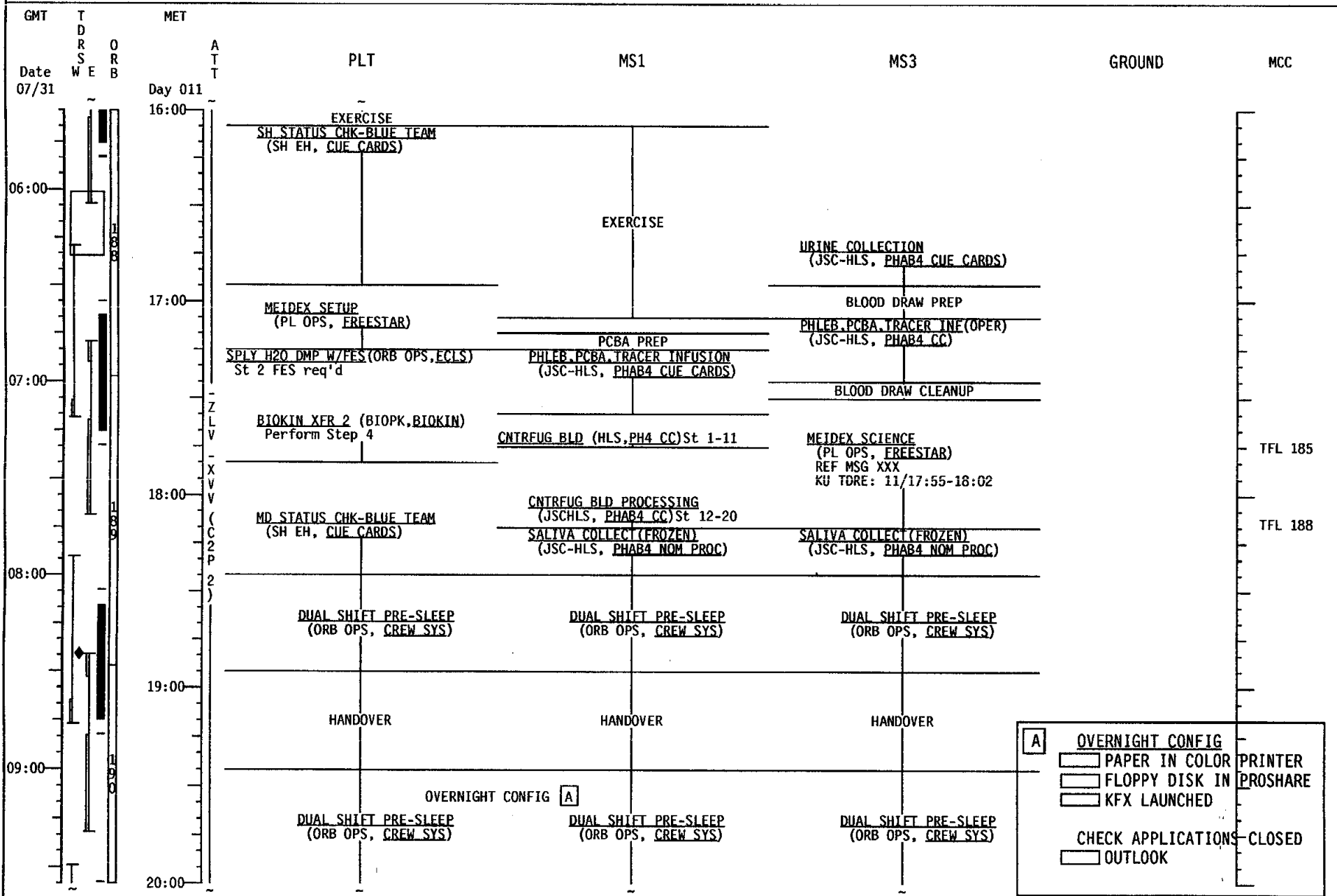
STS-107 (BLUE FD13)



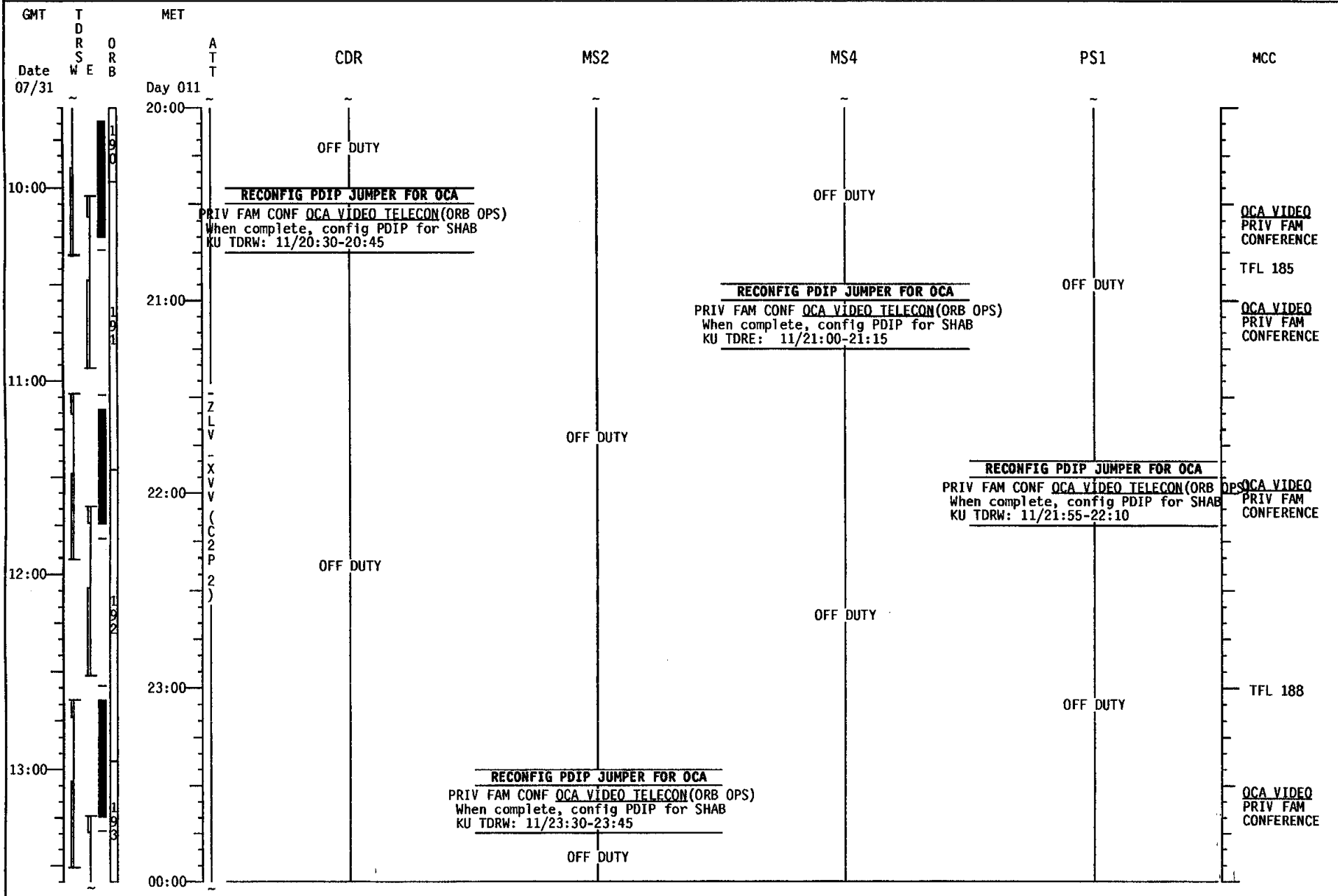
STS-107 (RED FD13)



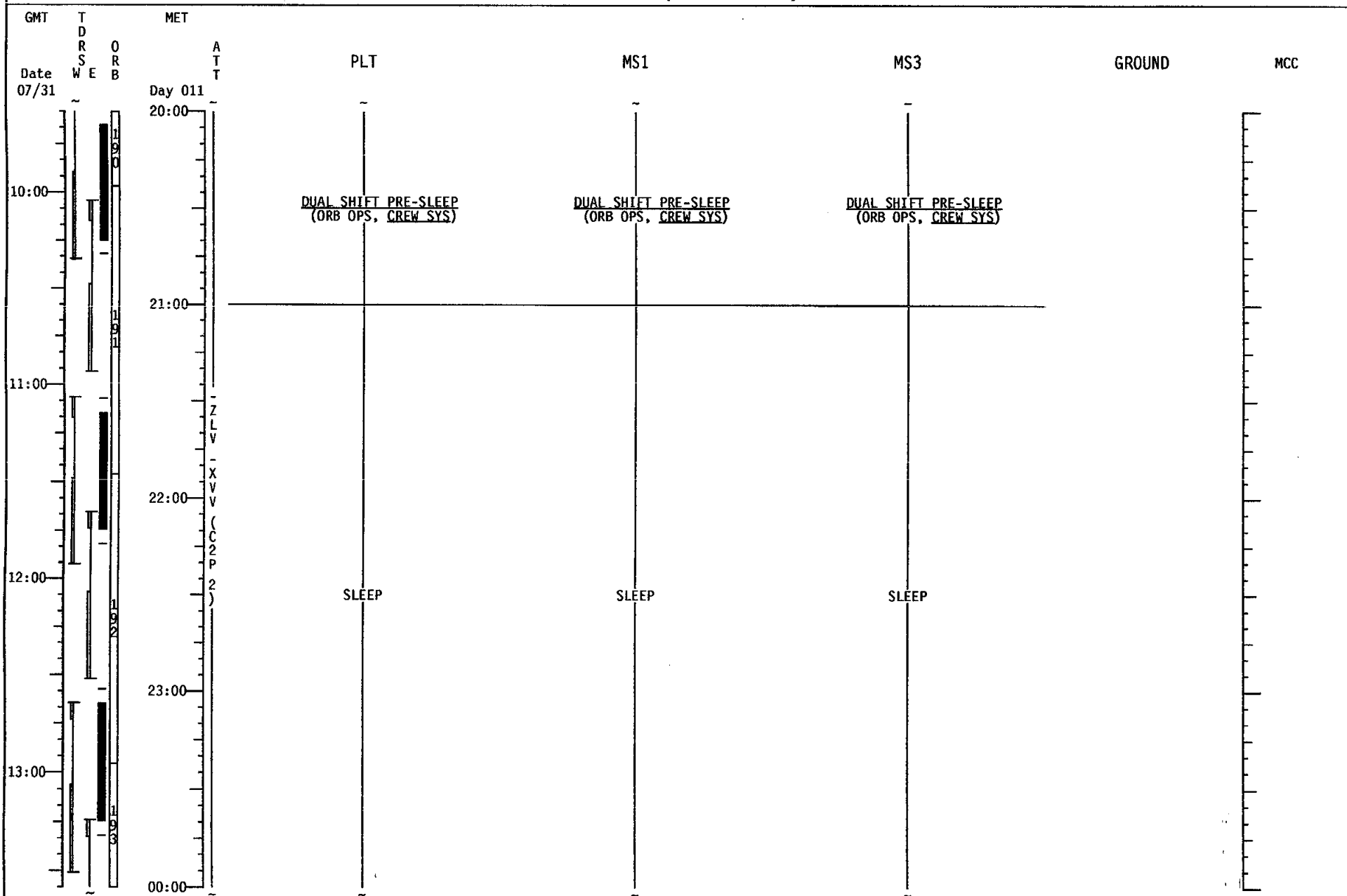
STS-107 (BLUE FD13)



STS-107 (RED FD13)



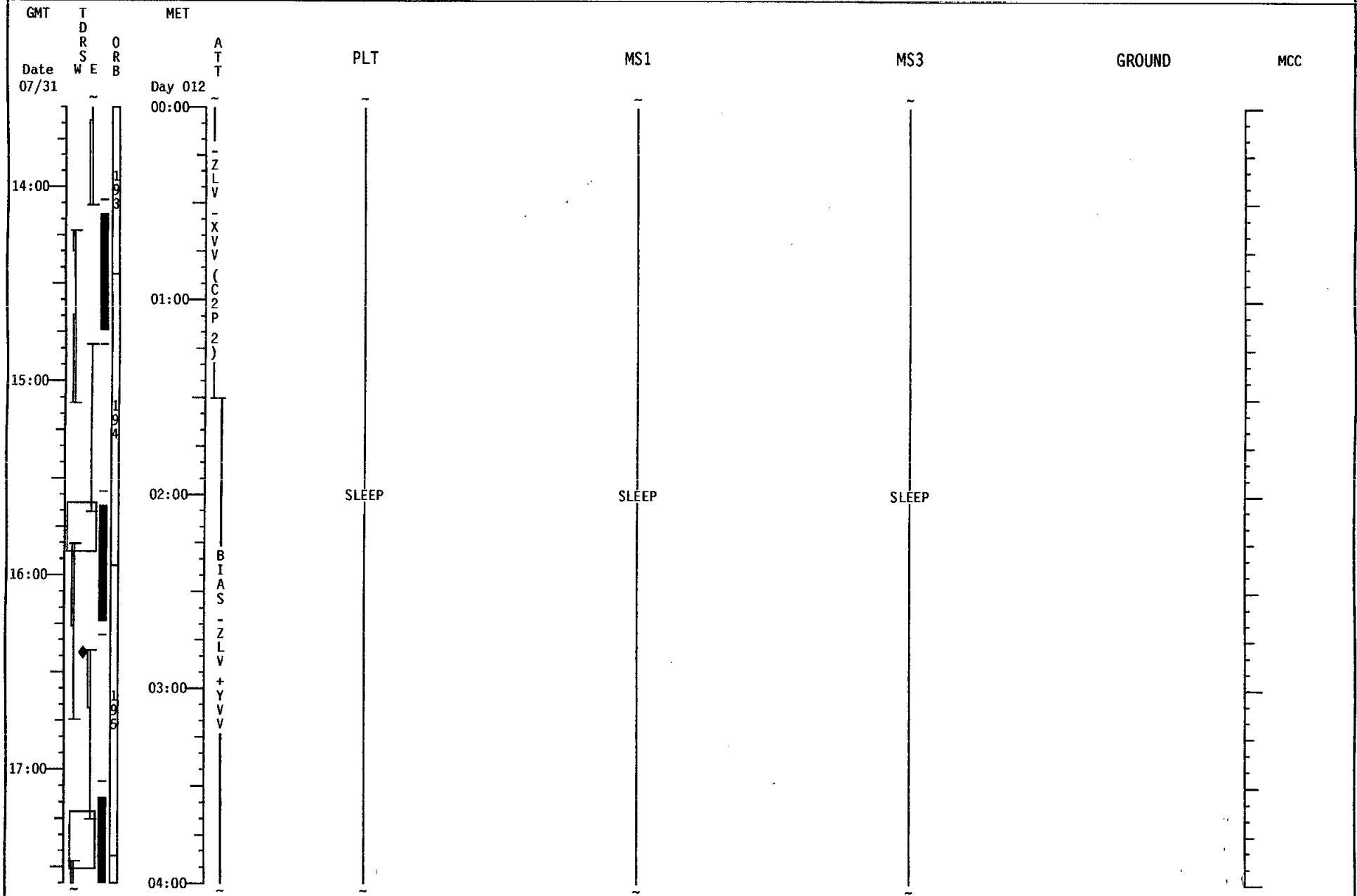
STS-107 (BLUE FD13)



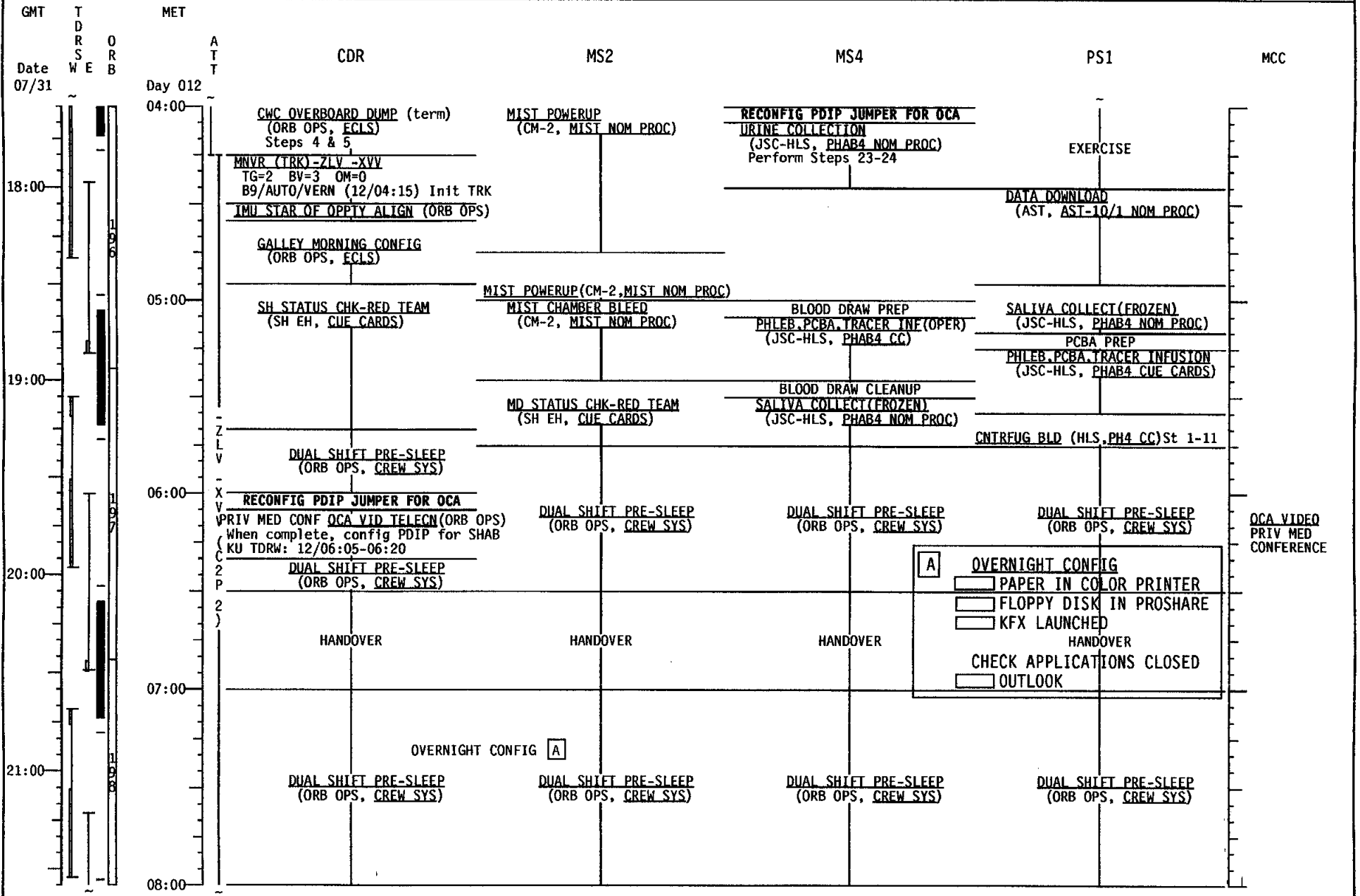
STS-107 (RED FD13)

GMT	TDRS W E B	MET Day 012	ATT Z L V X V V (C 2 P 2)	CDR	MS2	MS4	PS1	MCC
07/31		00:00						TFL 185
		14:00		MEAL	MEAL	MEAL	MEAL	TFL 188
		01:00		CST TO CWC XER (CUE CARD, SH COND MNGT)	MIST SHUTDOWN (CM-2, MIST NOM PROC)	ZCG MONITOR (ZCG, NOM PROC)		
				GALLEY OVERNIGHT CONFIG (ORB OPS, ECLS)	MIST POWERDOWN (CM-2, MIST NOM PROC)	MEDIA SAMPLE & PCBA ANALYSIS (BDS-05, NOM PROC)	MEIDX SCIENCE (PLOPS, FS) St 10	CLOSE OUTLK, CALL MCC, CNFG PDIP:OCA
		15:00		MNVYR (TRK)BIAS -ZLV +YVV(H2O DUMP) TG=2 BV=3 OM=240 B9/AUTO/VERN (12/01:30)Init TRK	TARGA/DDR CHANGEOUT (CM-2, MIST NOM PROC)			
		02:00		SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Initiate Supply/Waste Dump	MIST CHAMBER ACCESS (CM-2, MIST NOM PROC)	MEDIA TRAY EXAMINE (BDS-05, NOM PROC)	URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)	
		16:00		PCBA CHECKOUT (JSC-HLS, PHAB4 CUE CARD)		URINE COLLECTION (JSC-HLS, PHAB4 CUE CARDS)		
		03:00		SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS) Terminate Supply/Waste Dump		EXERCISE	MIST CHAMBER ACCESS ASSIST	
		17:00		CWC DUMP (CUE CARD, SH COND MNGT)				
		04:00					EXERCISE	

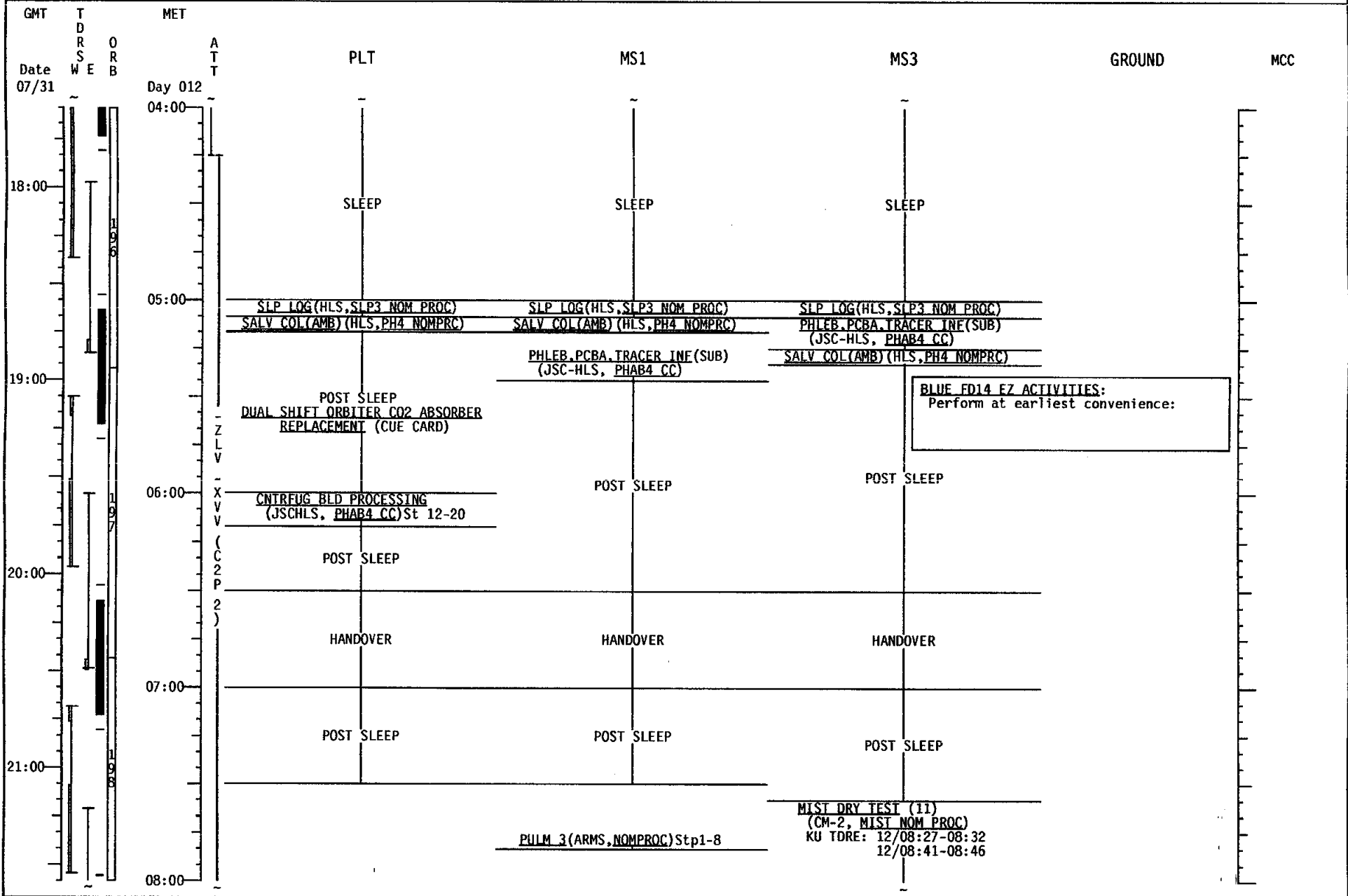
STS-107 (BLUE FD13)



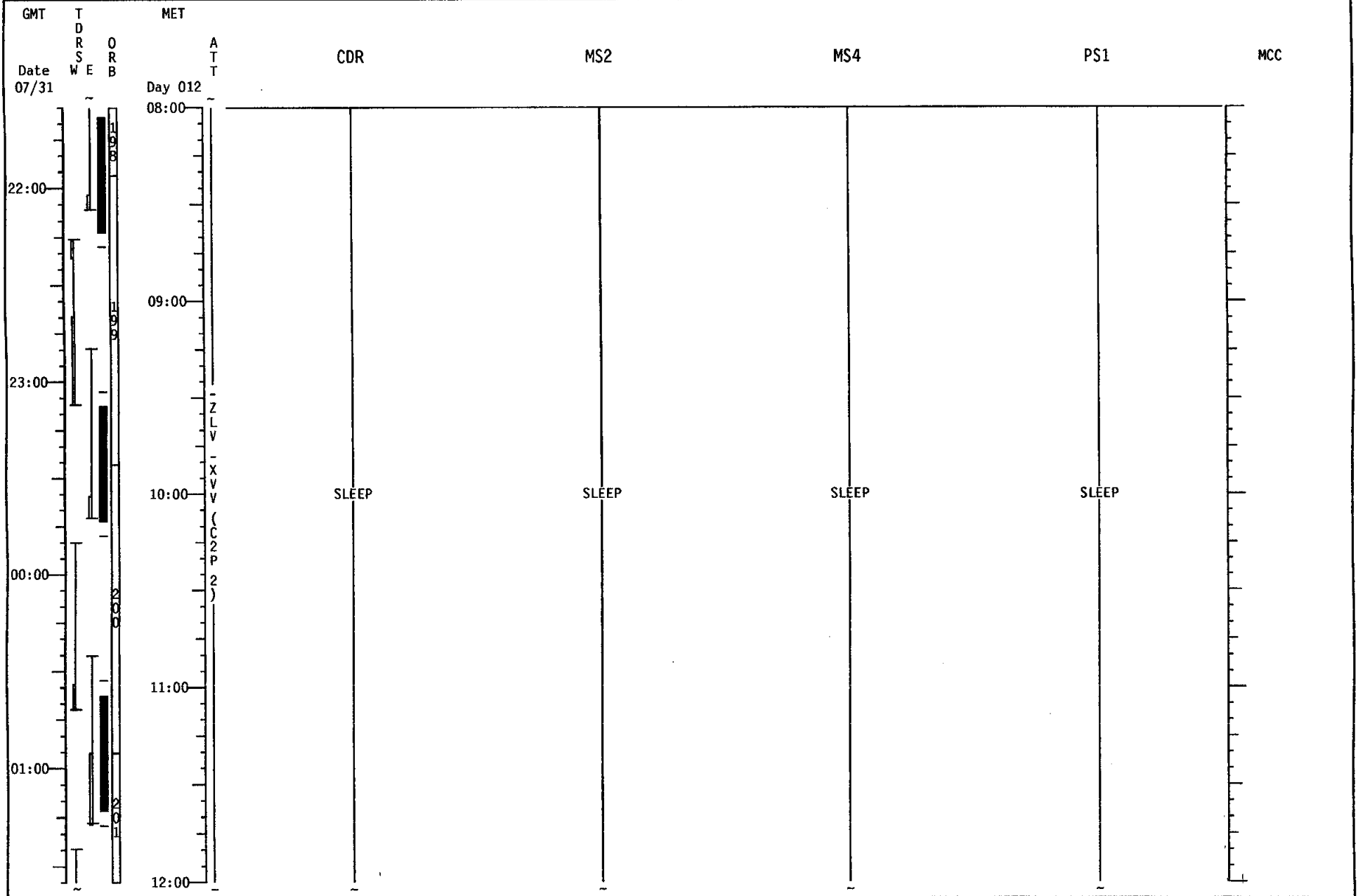
STS-107 (RED FD13)



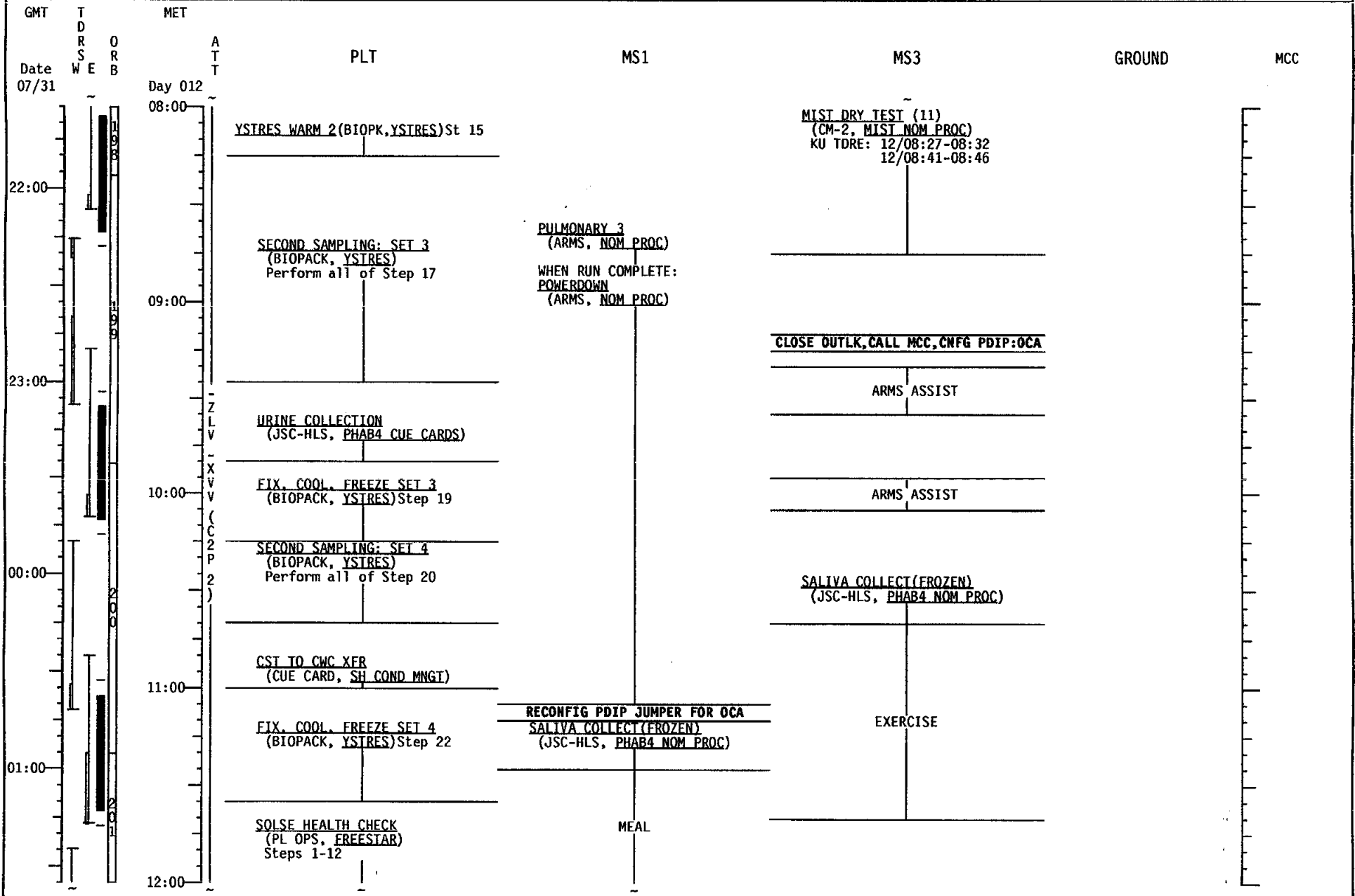
STS-107 (BLUE FD14)



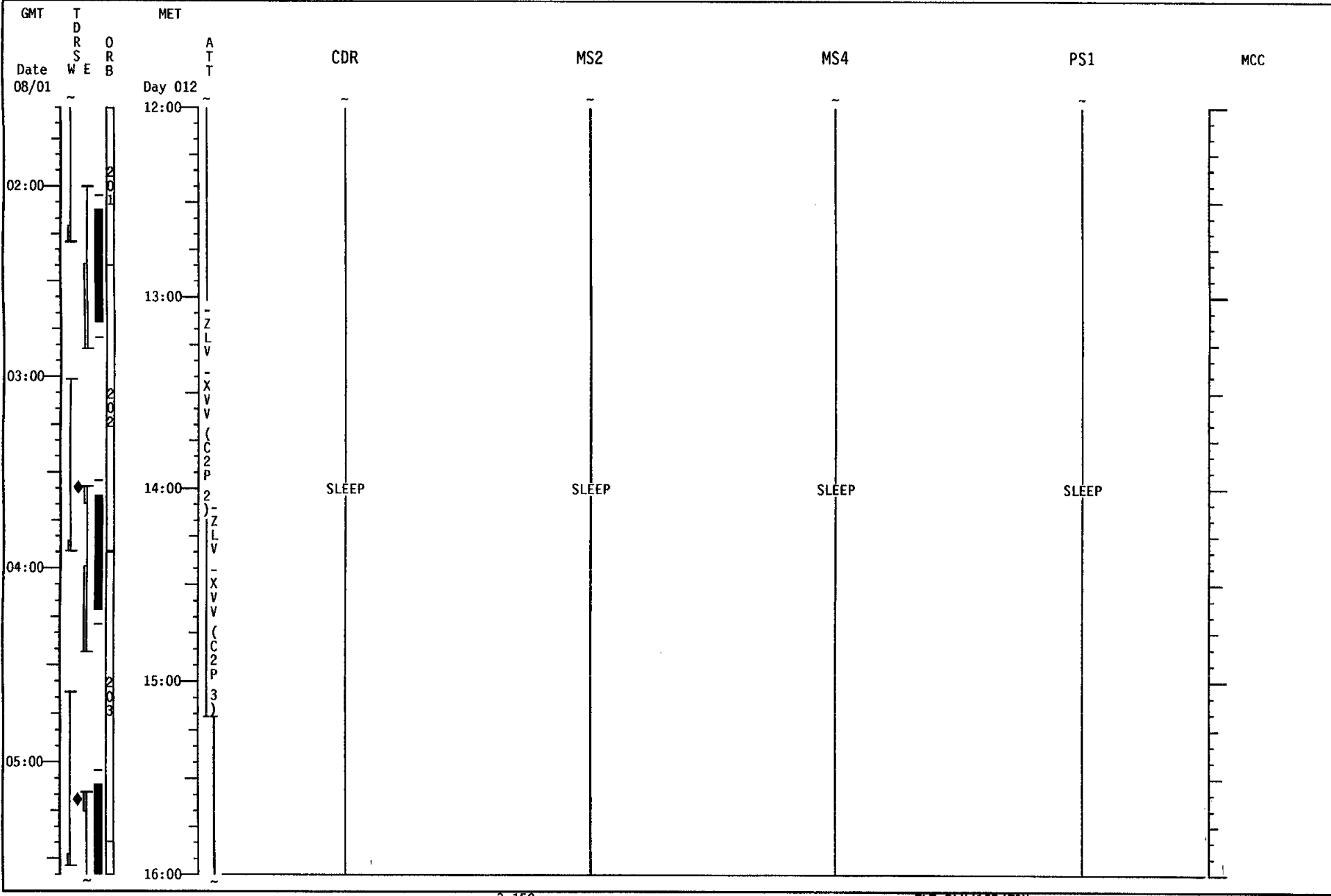
STS-107 (RED FD13)



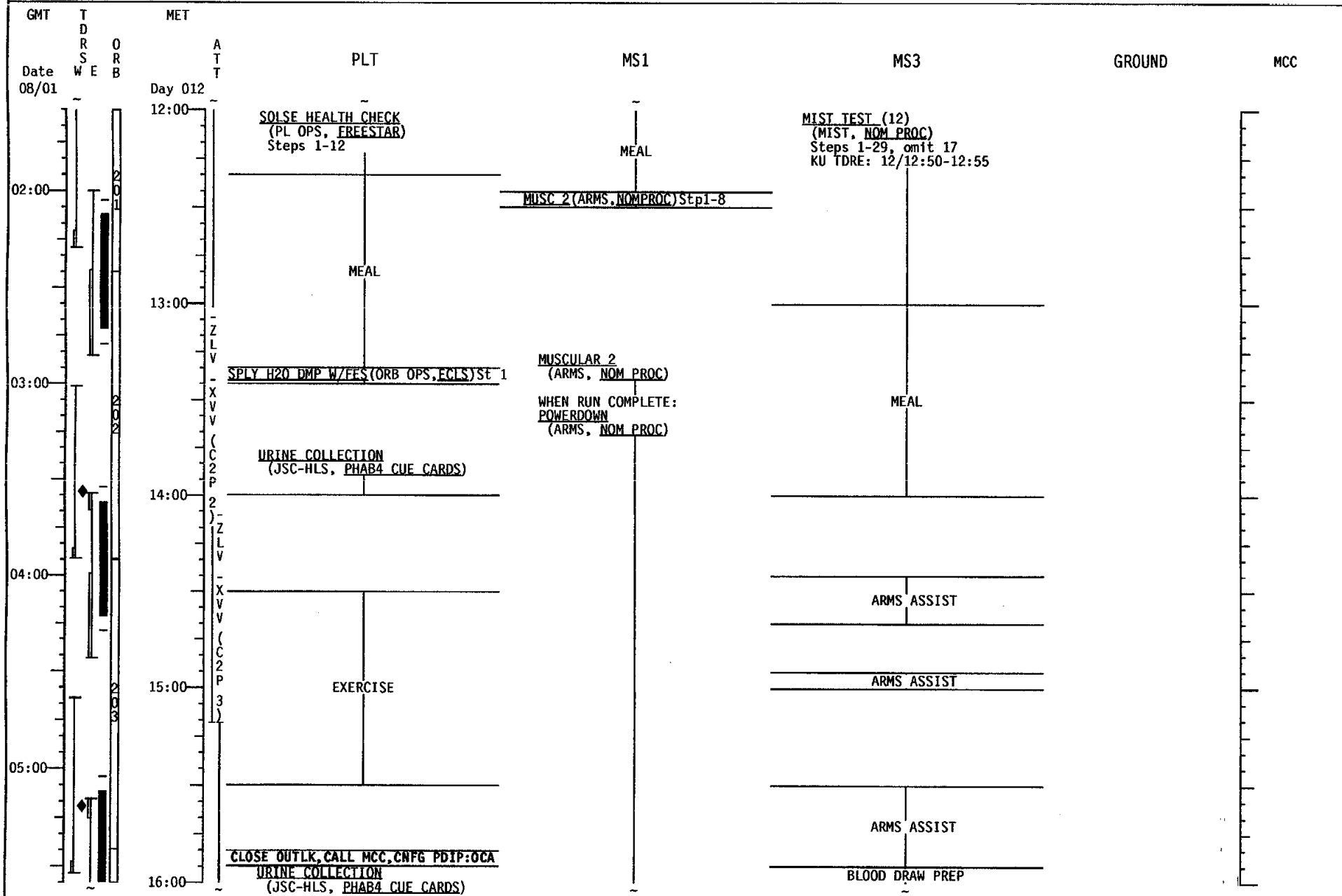
STS-107 (BLUE FD14)



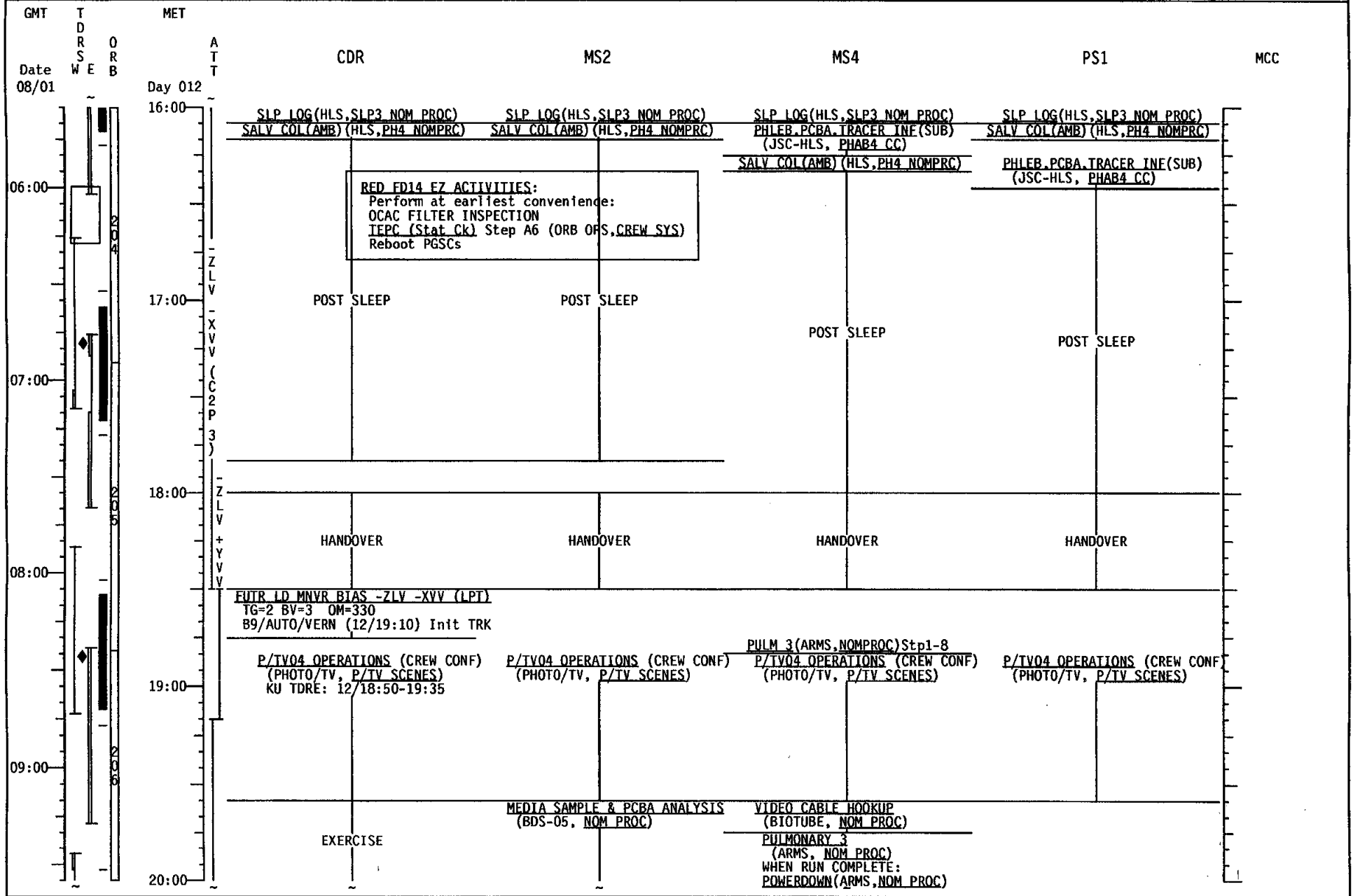
STS-107 (RED FD13)



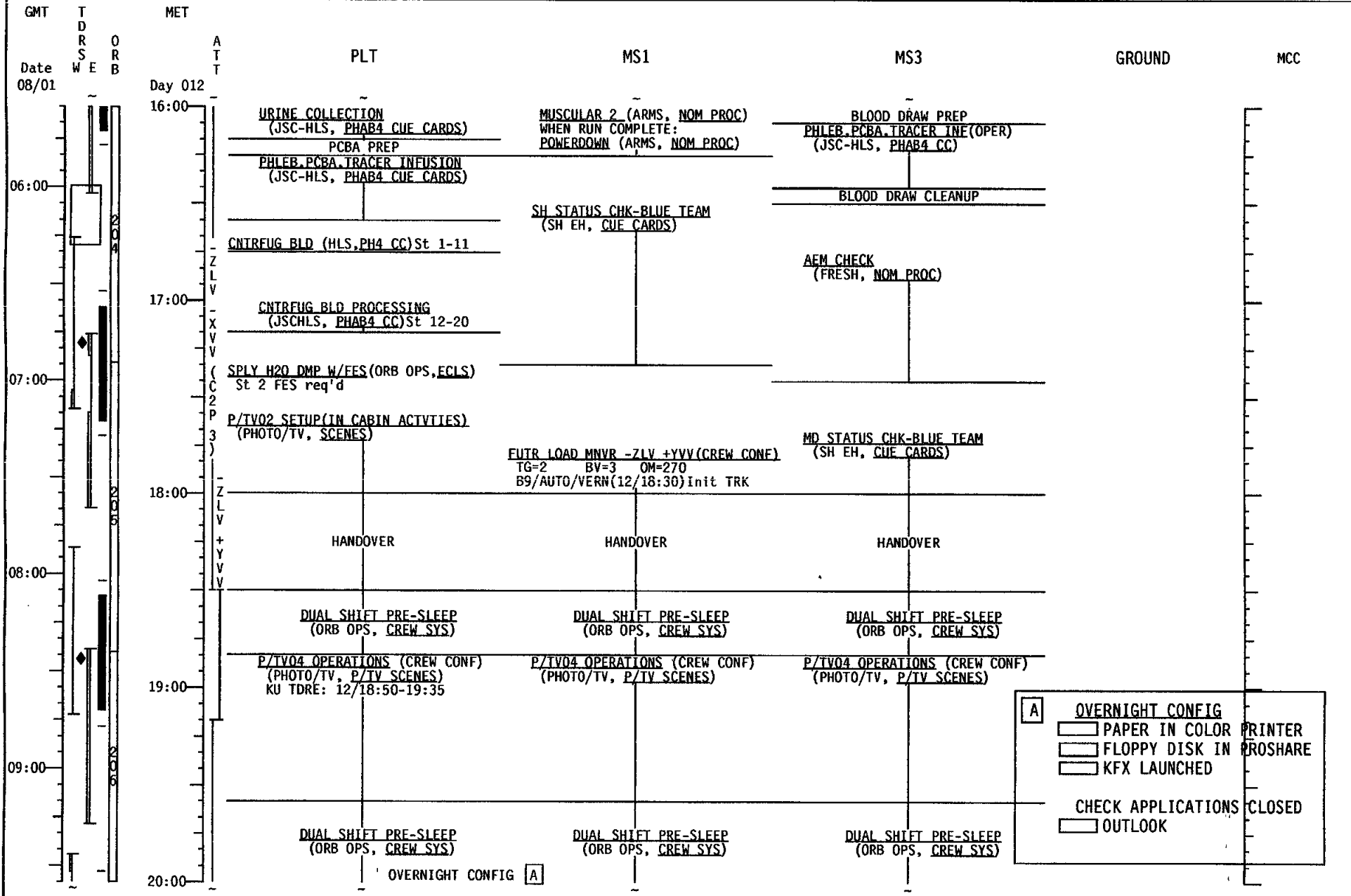
STS-107 (BLUE FD14)



STS-107 (RED FD14)



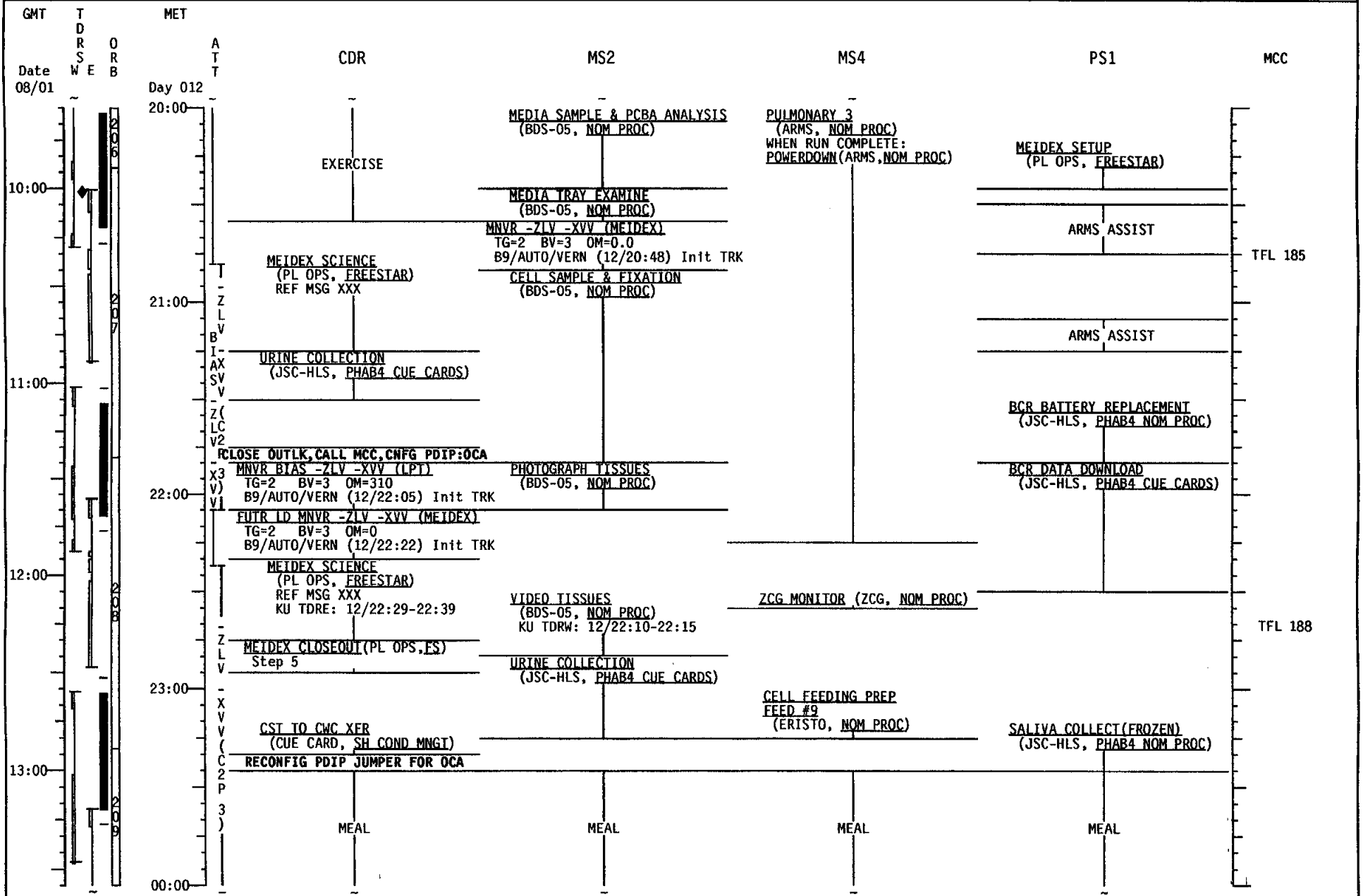
STS-107 (BLUE FD14)



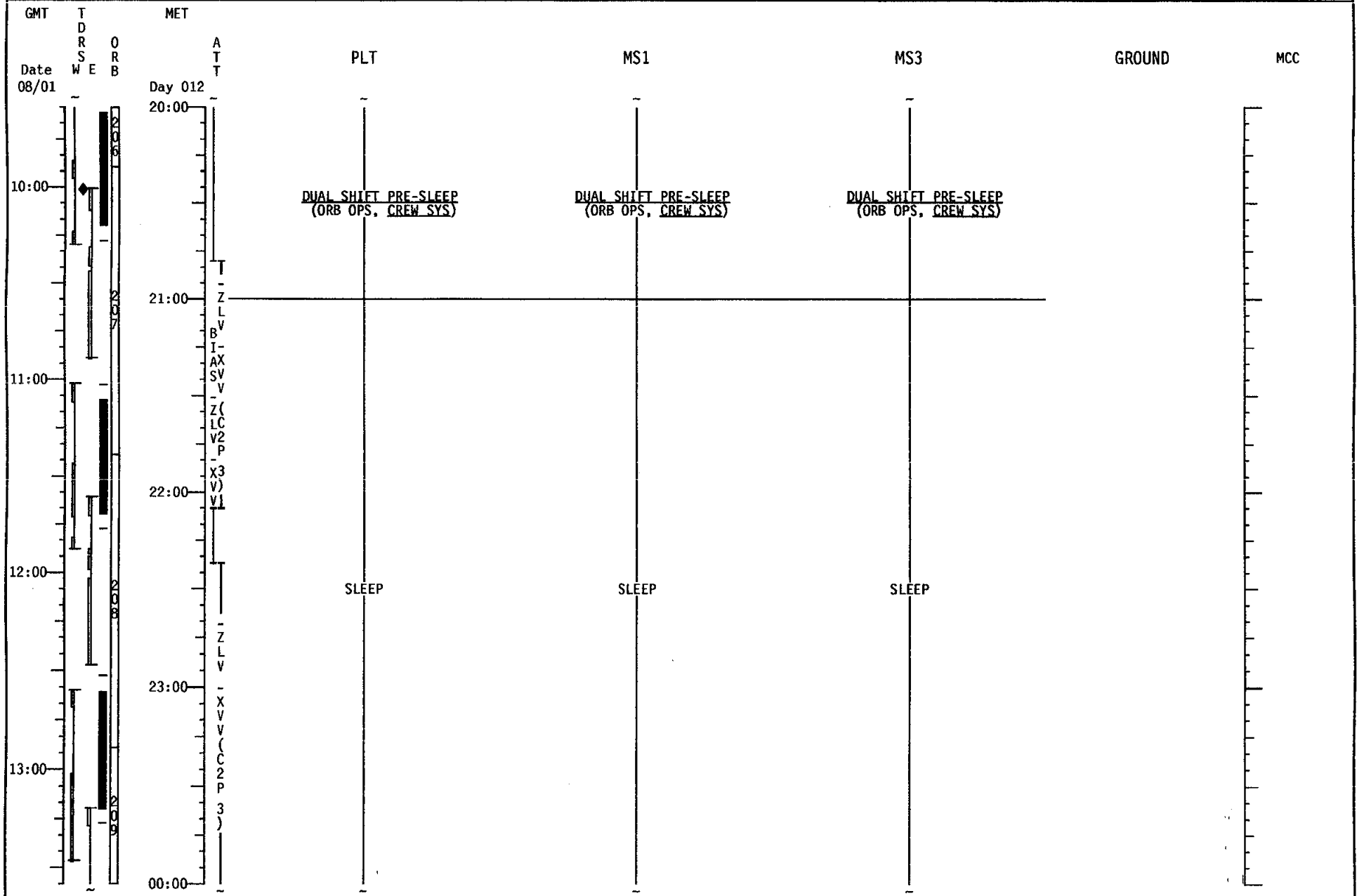
[A] OVERNIGHT CONFIG

- PAPER IN COLOR PRINTER
- FLOPPY DISK IN PROSHARE
- KFX LAUNCHED
- CHECK APPLICATIONS CLOSED
- OUTLOOK

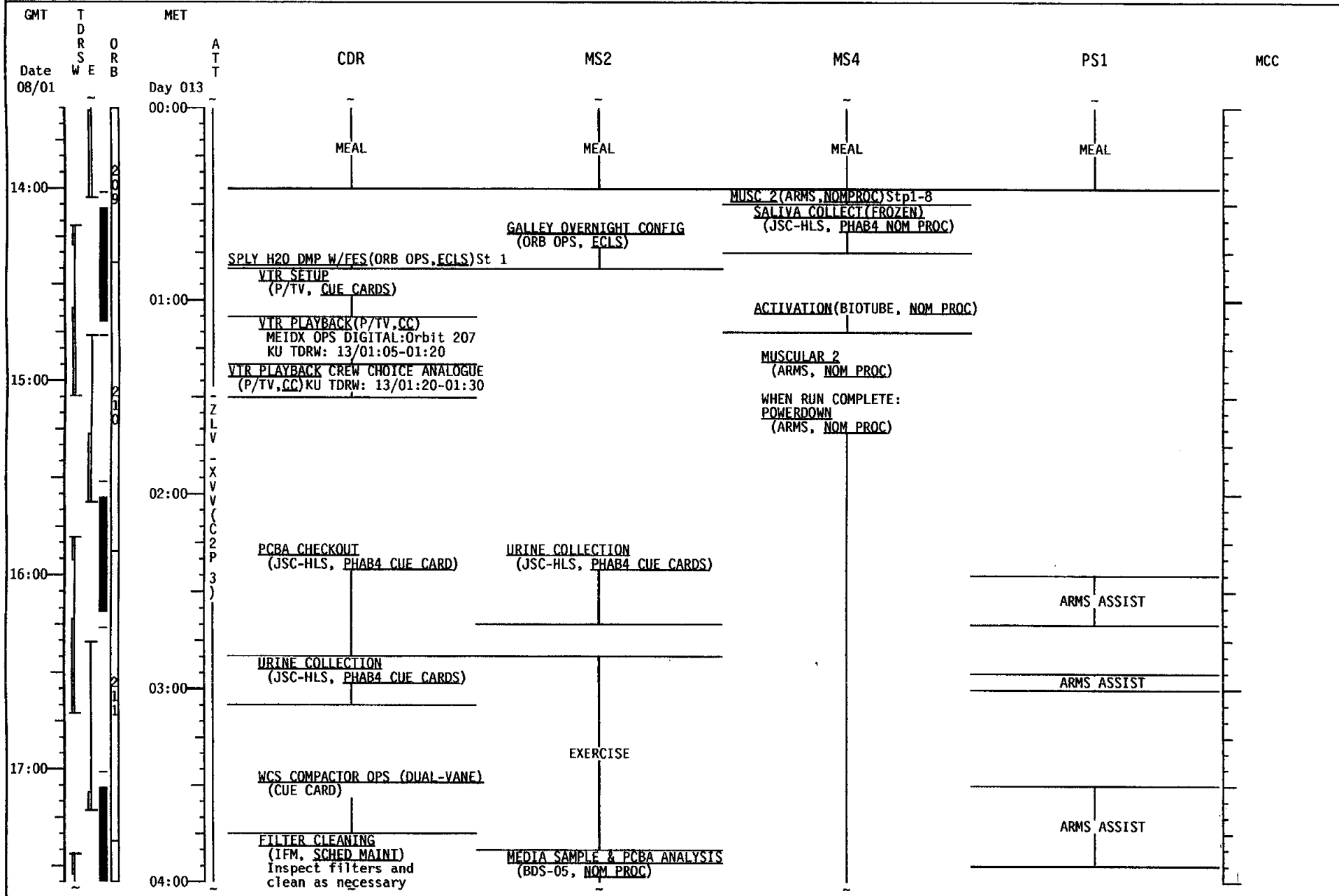
STS-107 (RED FD14)



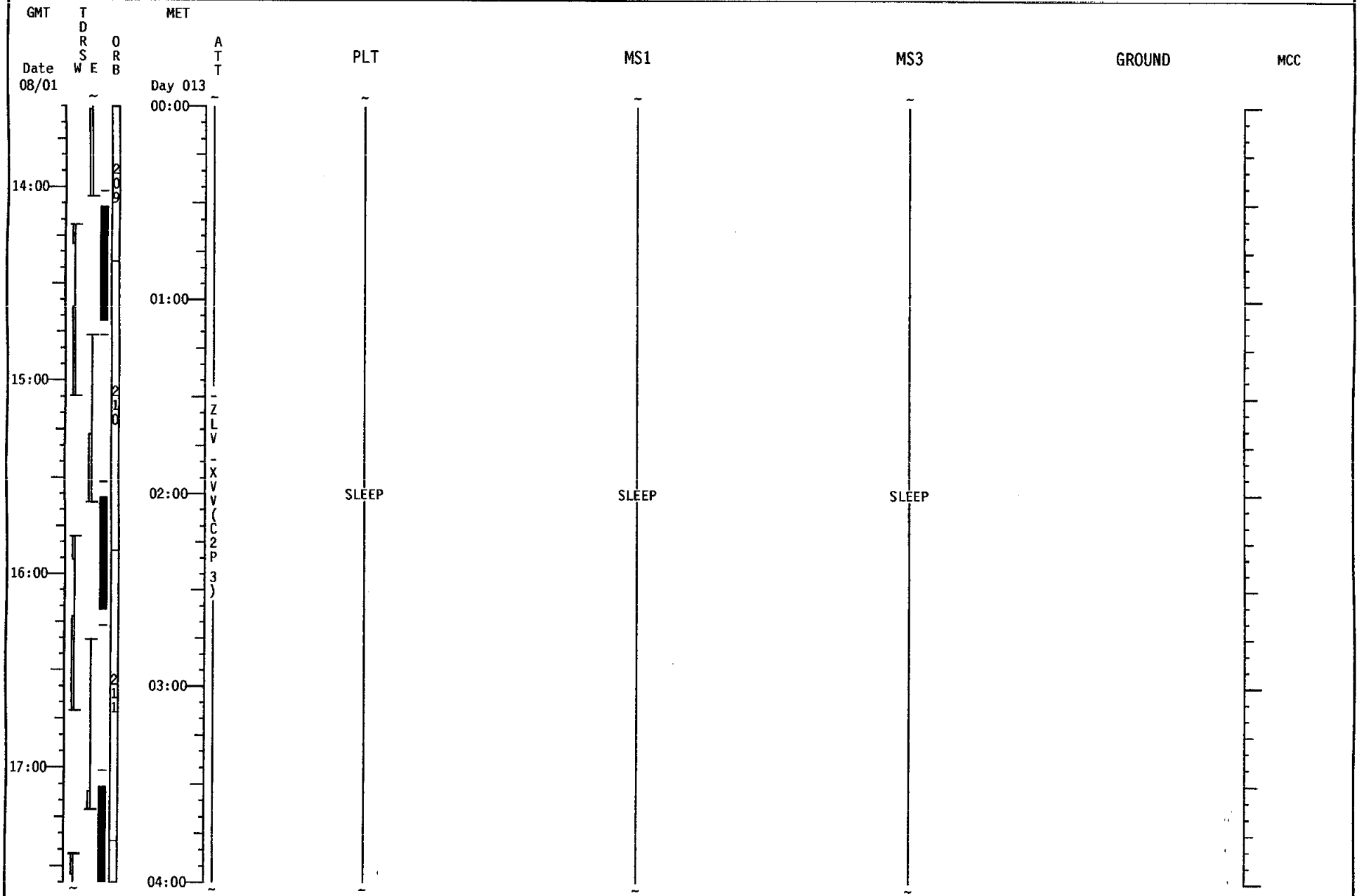
STS-107 (BLUE FD14)



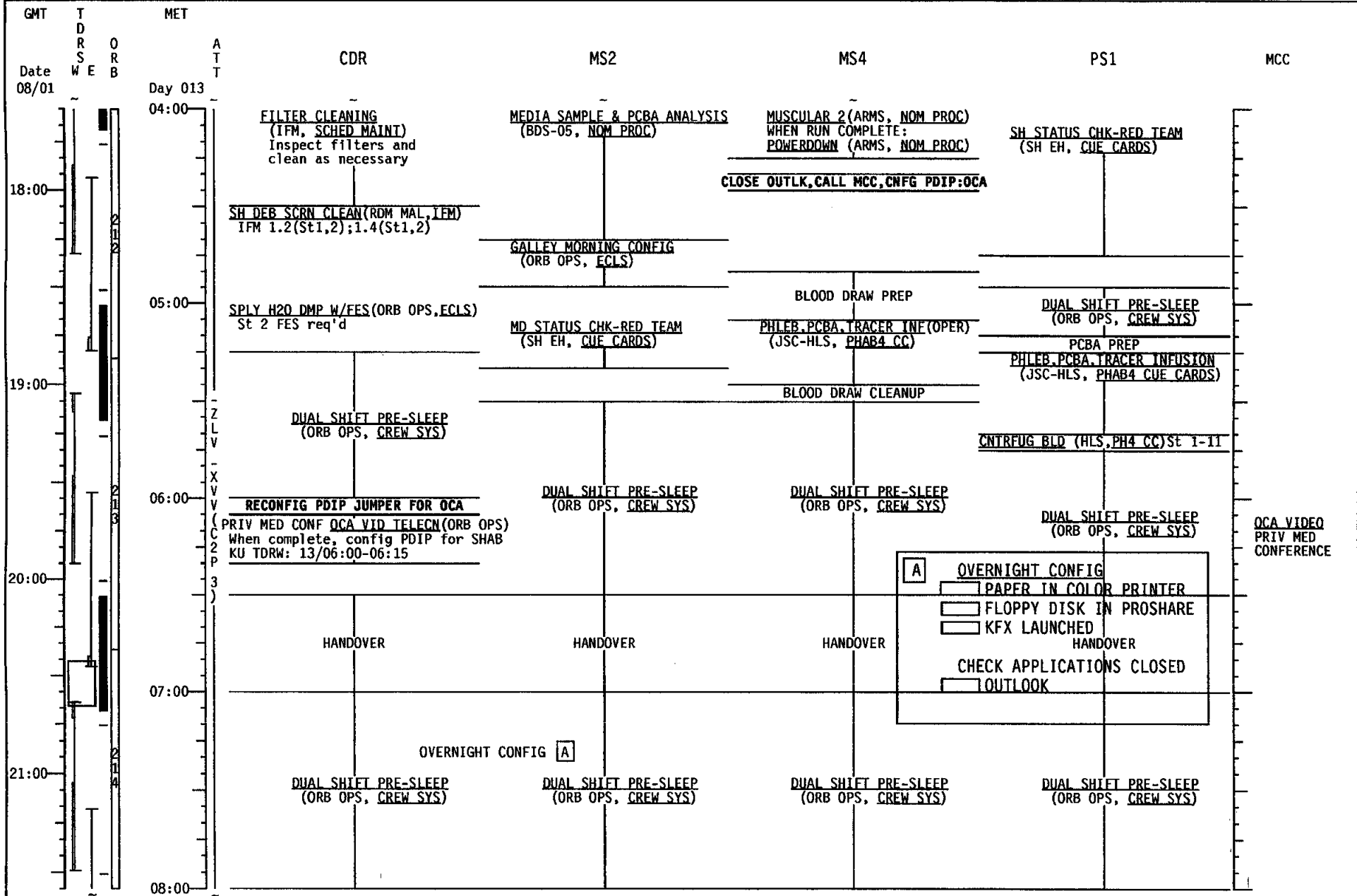
STS-107 (RED FD14)



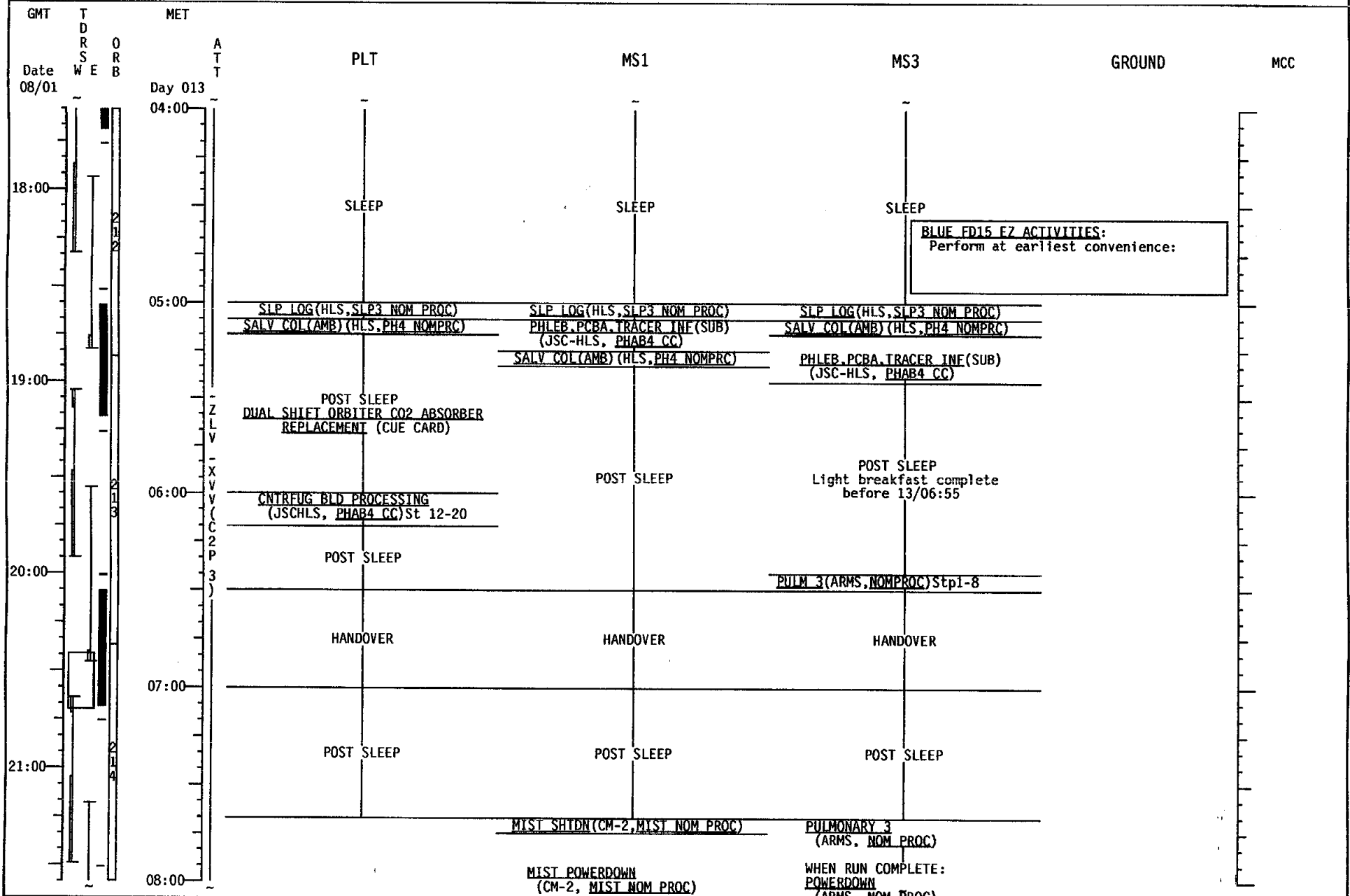
STS-107 (BLUE FD14)



STS-107 (RED FD14)

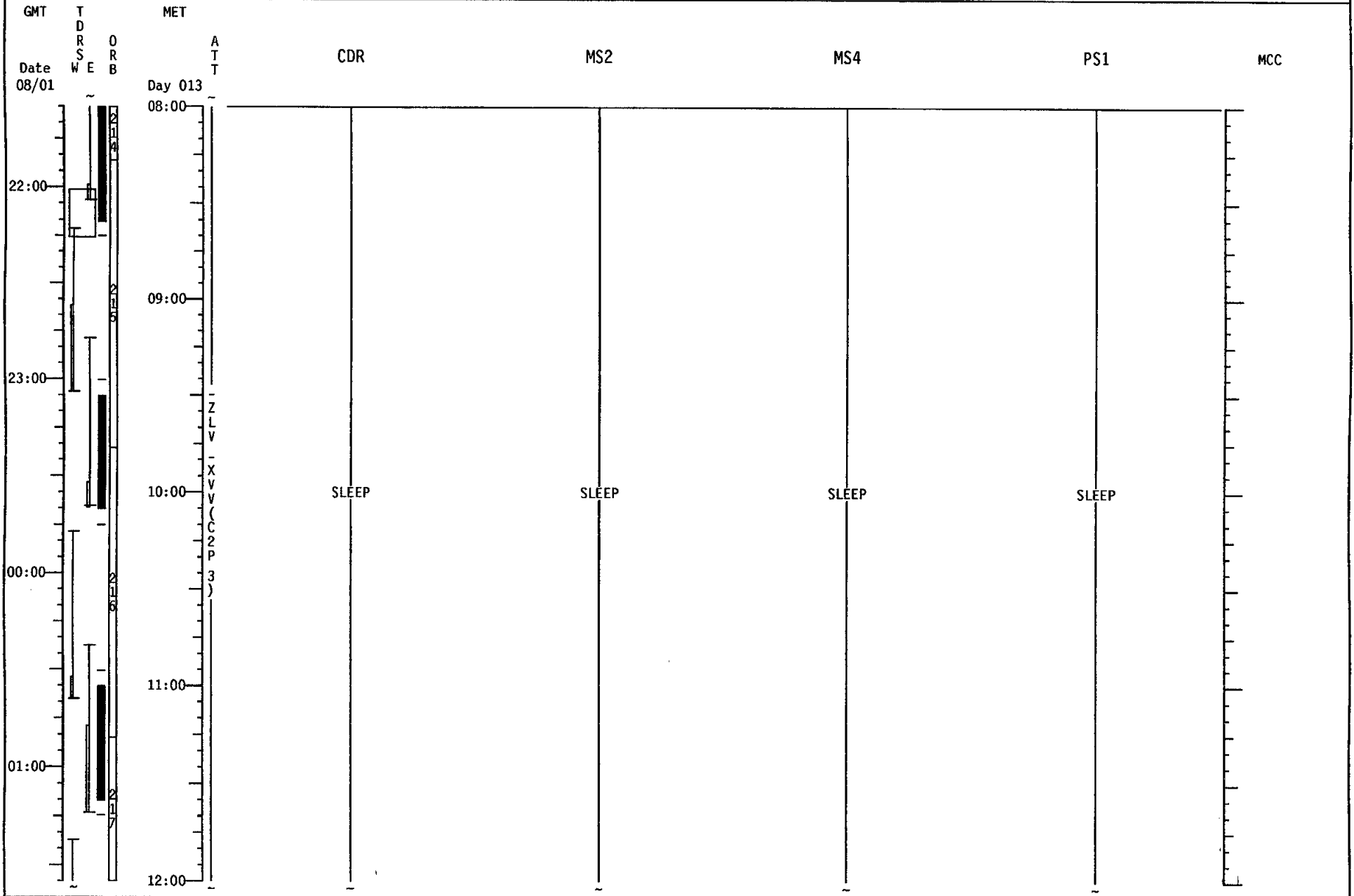


STS-107 (BLUE FD15)

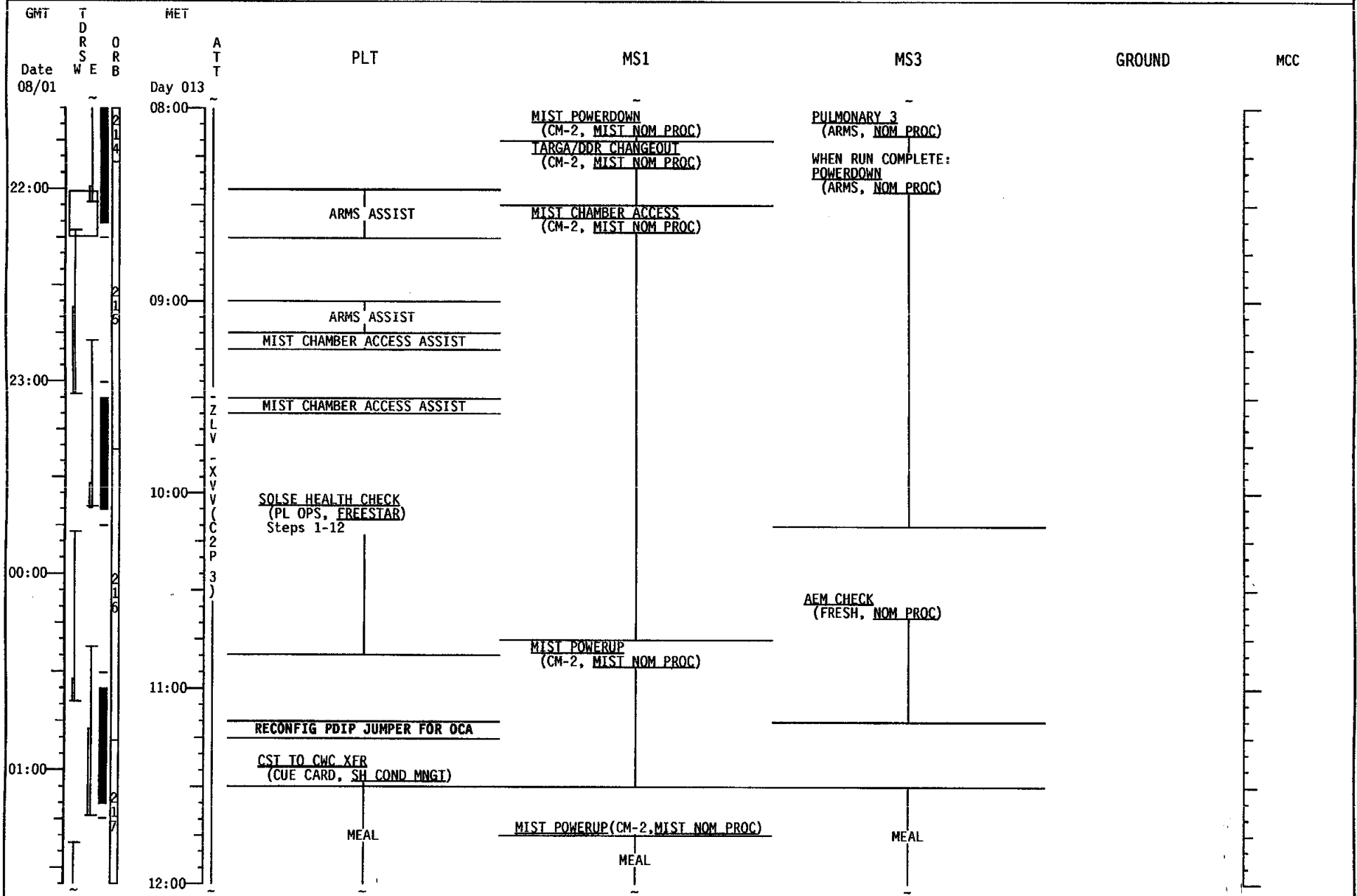


BLUE FD15 E2 ACTIVITIES:
Perform at earliest convenience:

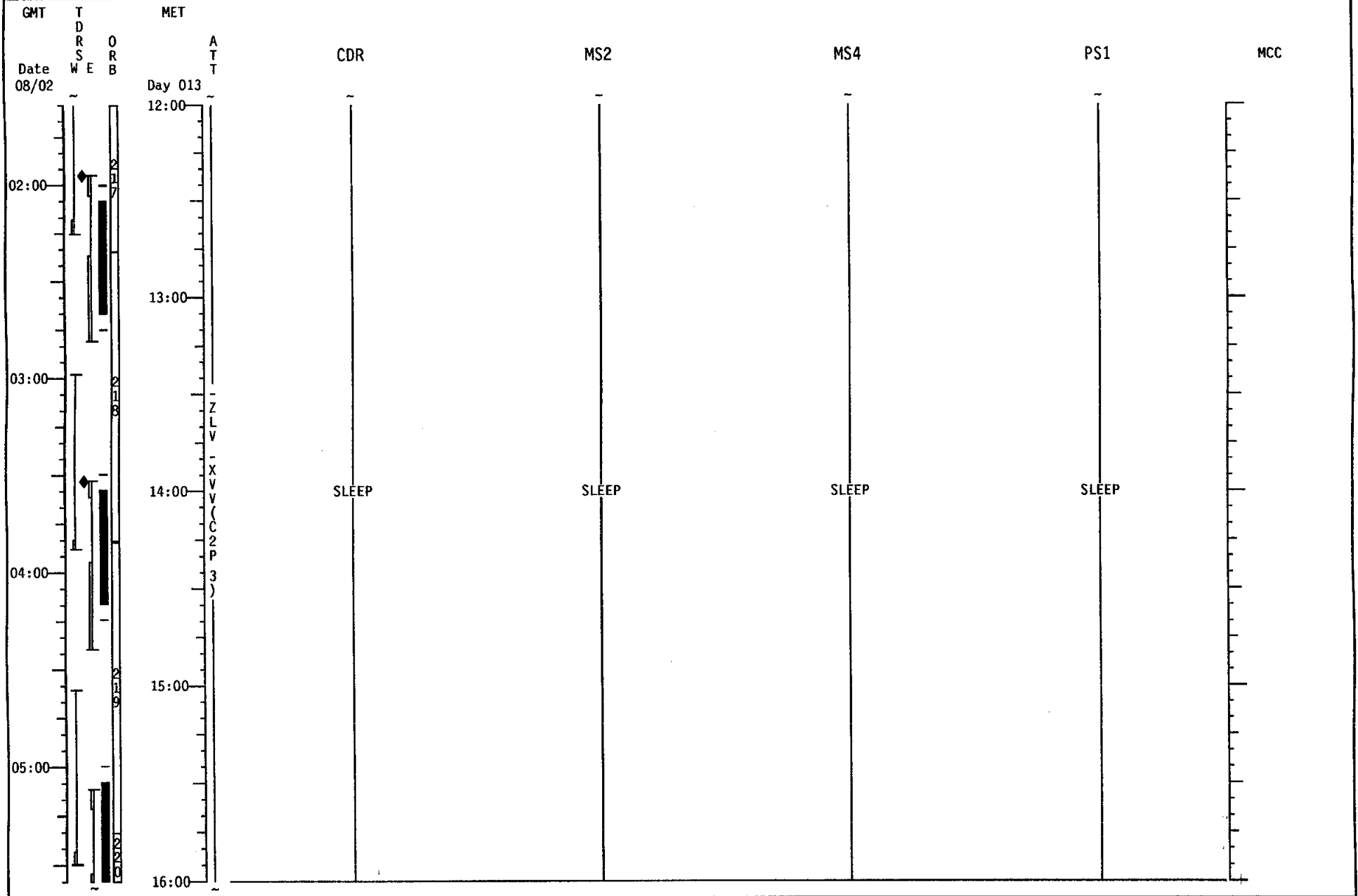
STS-107 (RED FD14)



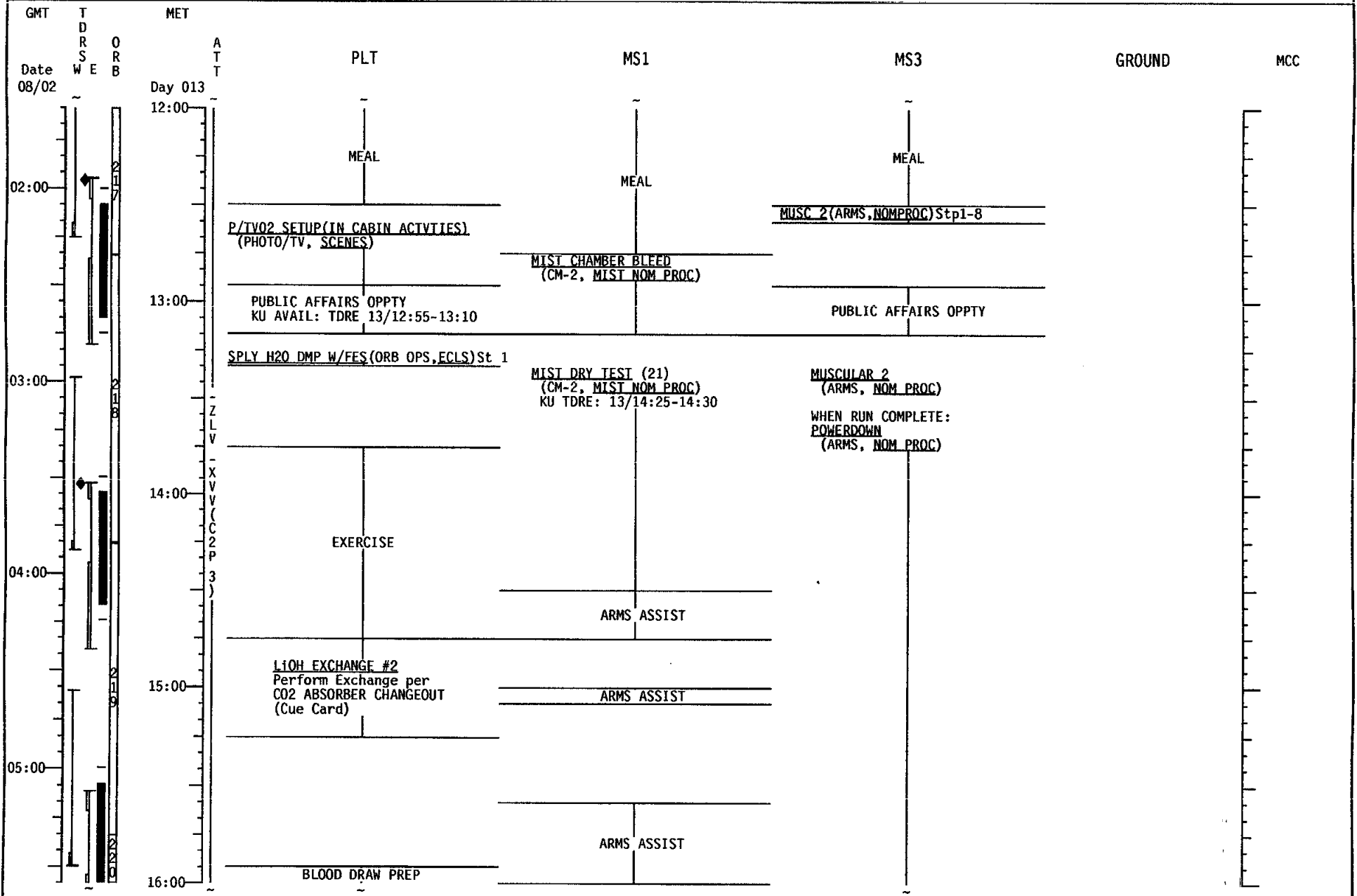
STS-107 (BLUE FD15)



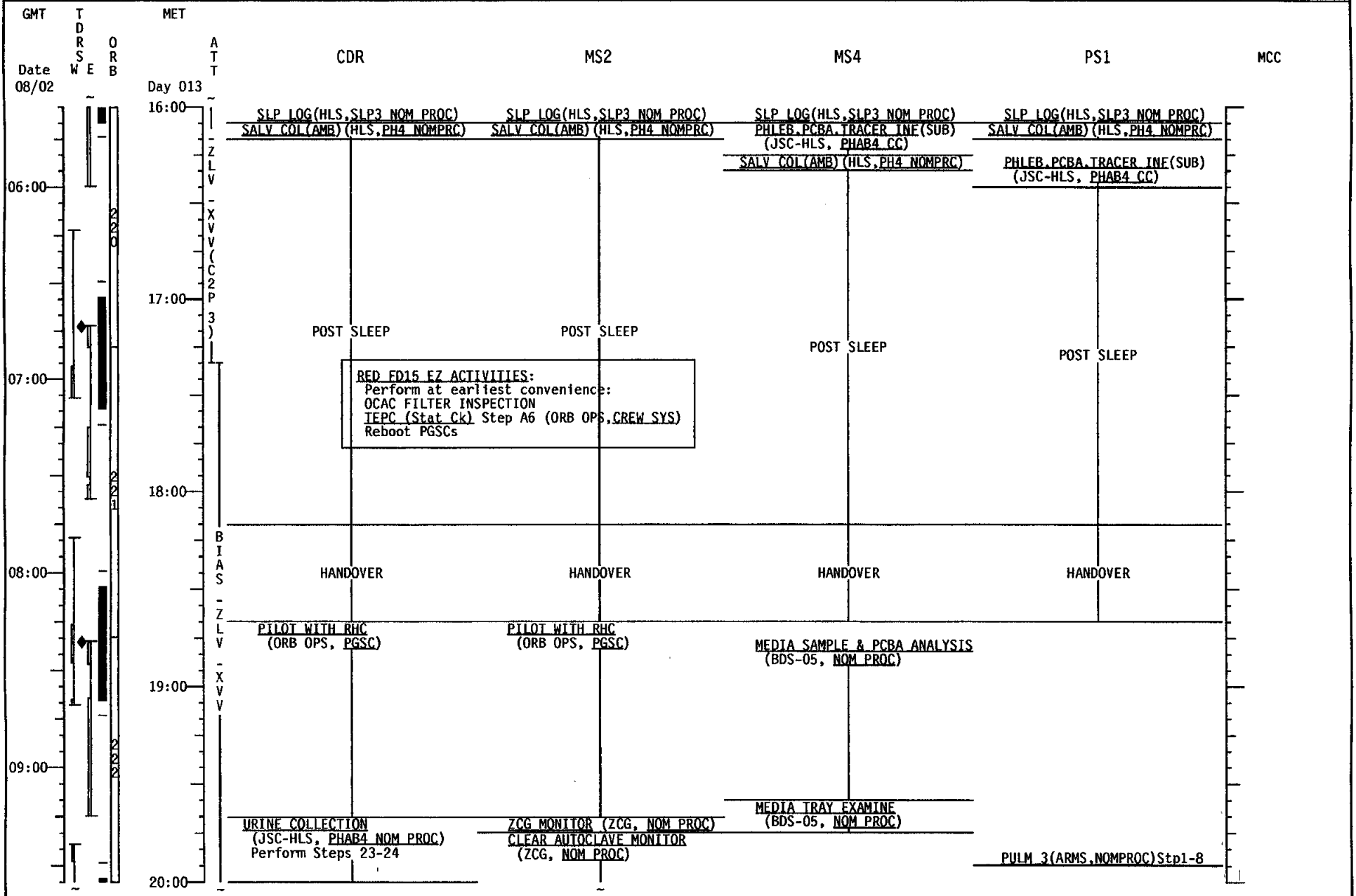
STS-107 (RED FD14)



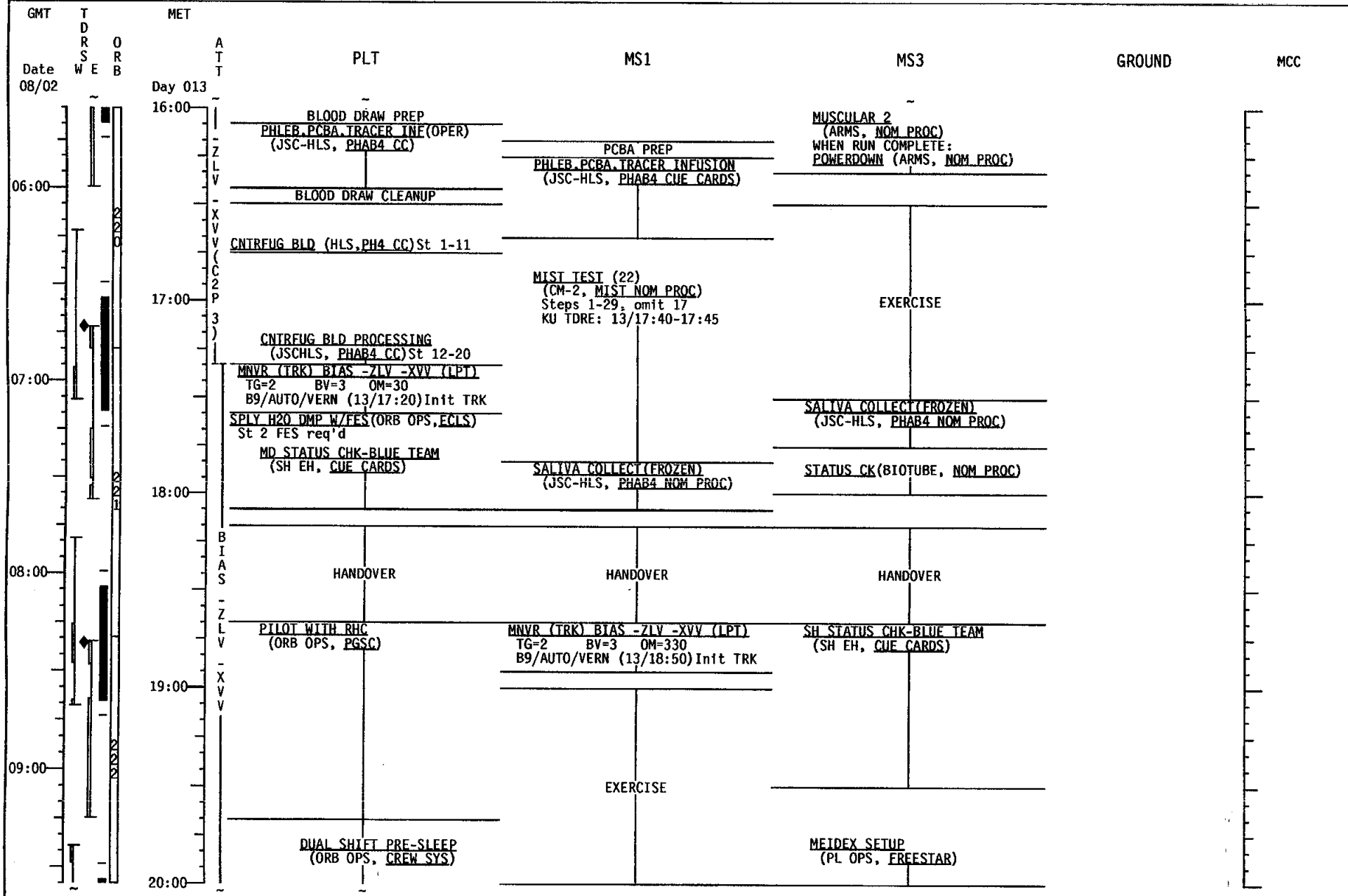
STS-107 (BLUE FD15)



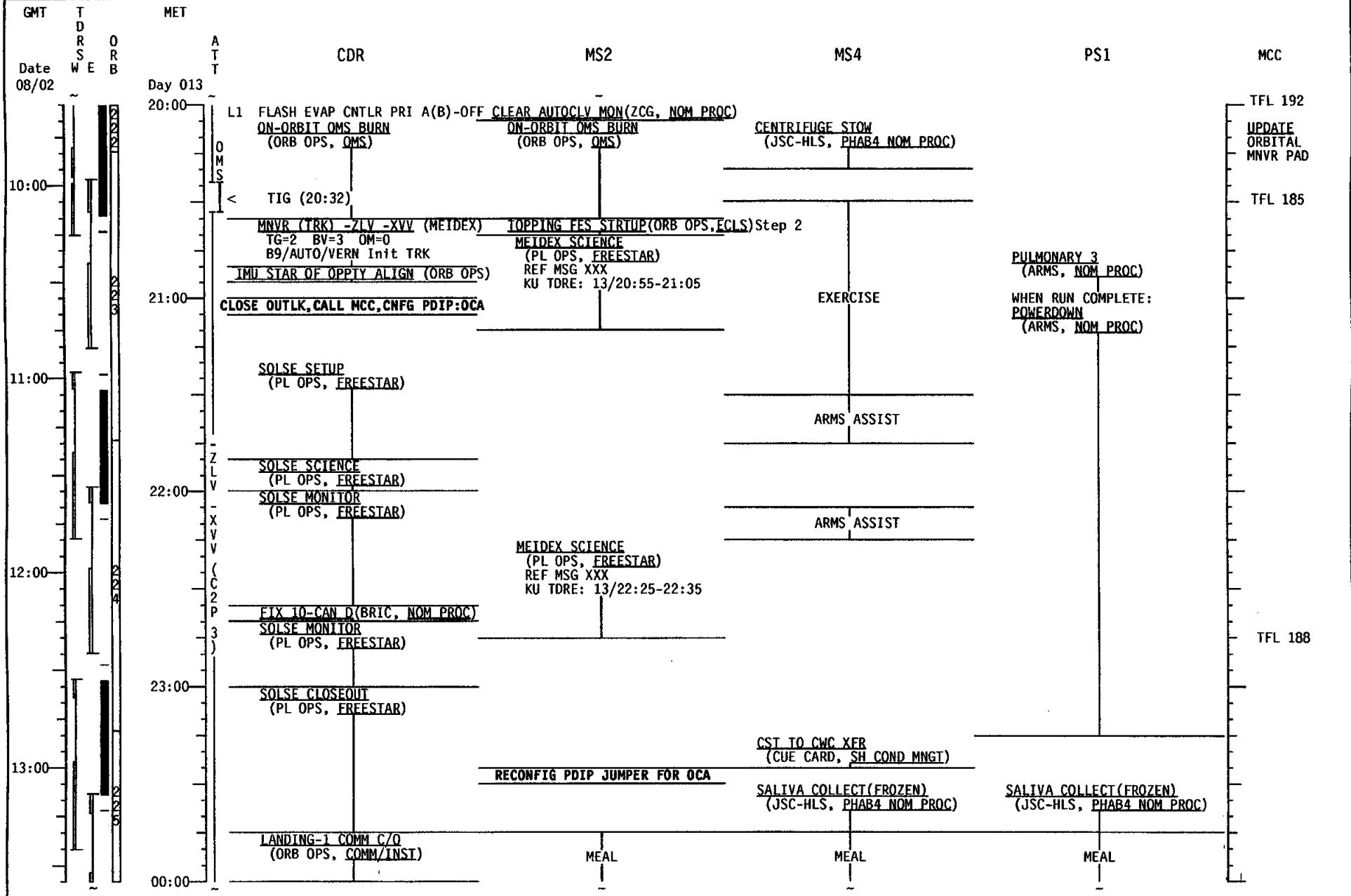
STS-107 (RED FD15)



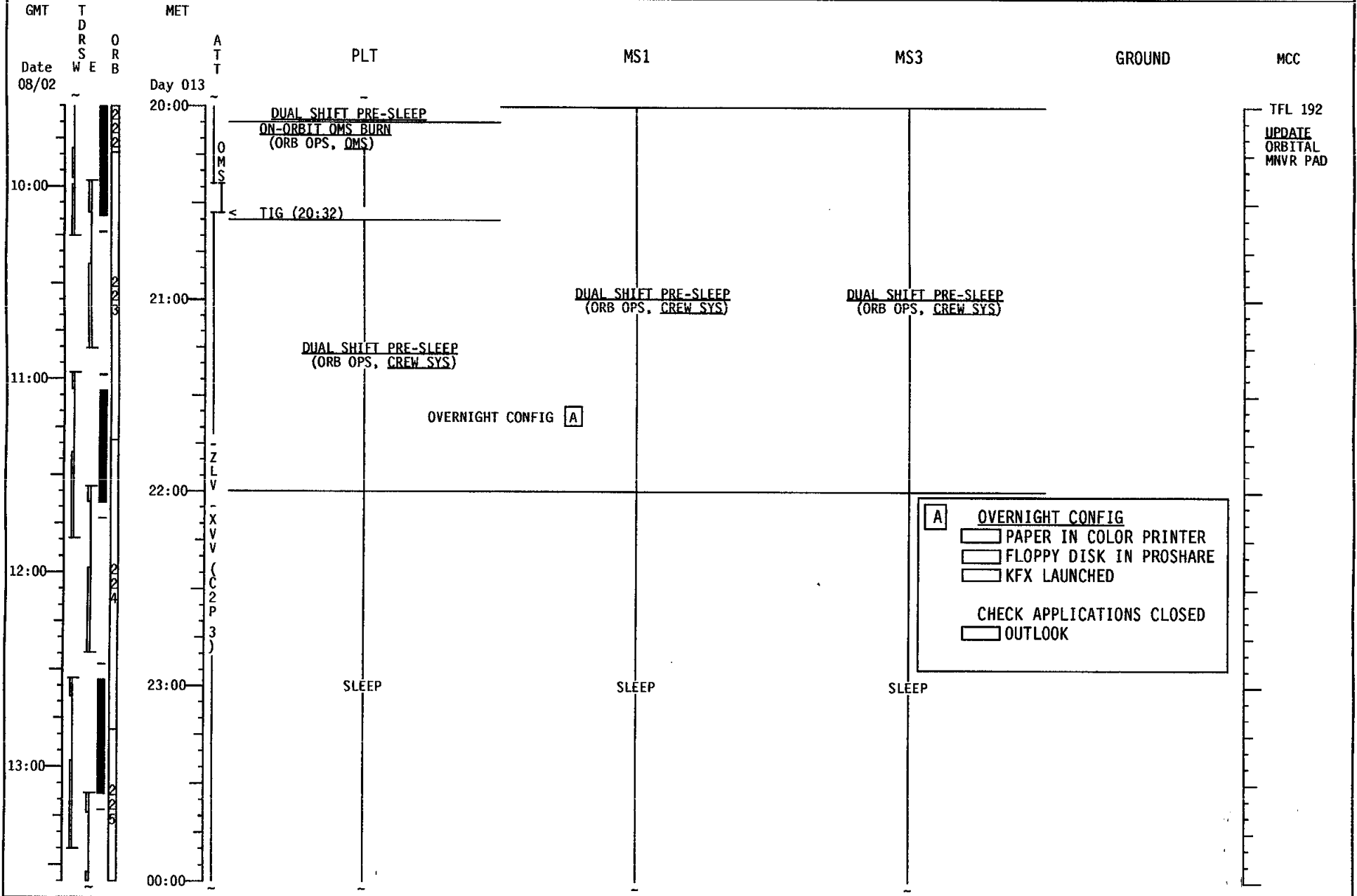
STS-107 (BLUE FD15)



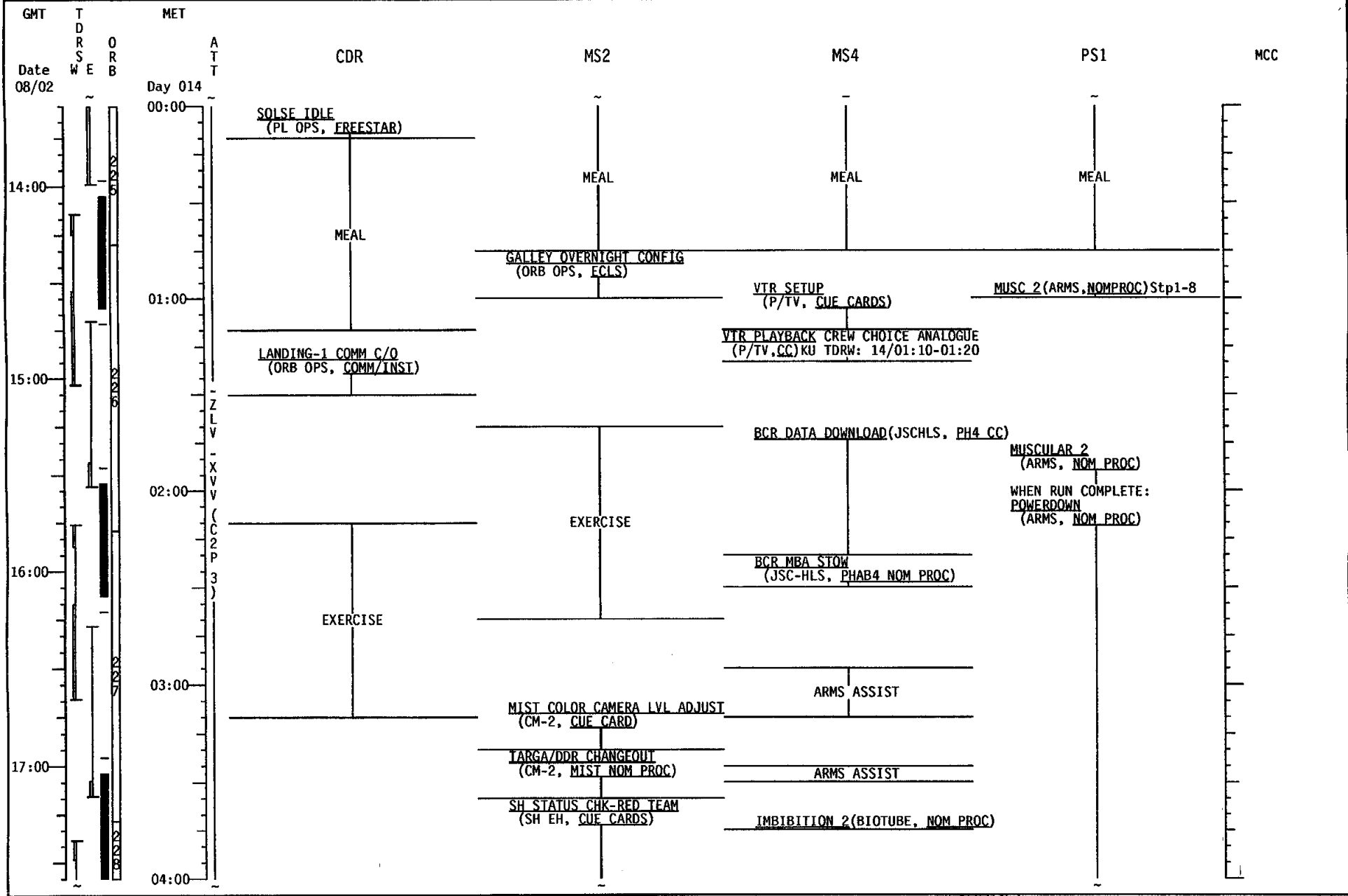
STS-107 (RED FD15)



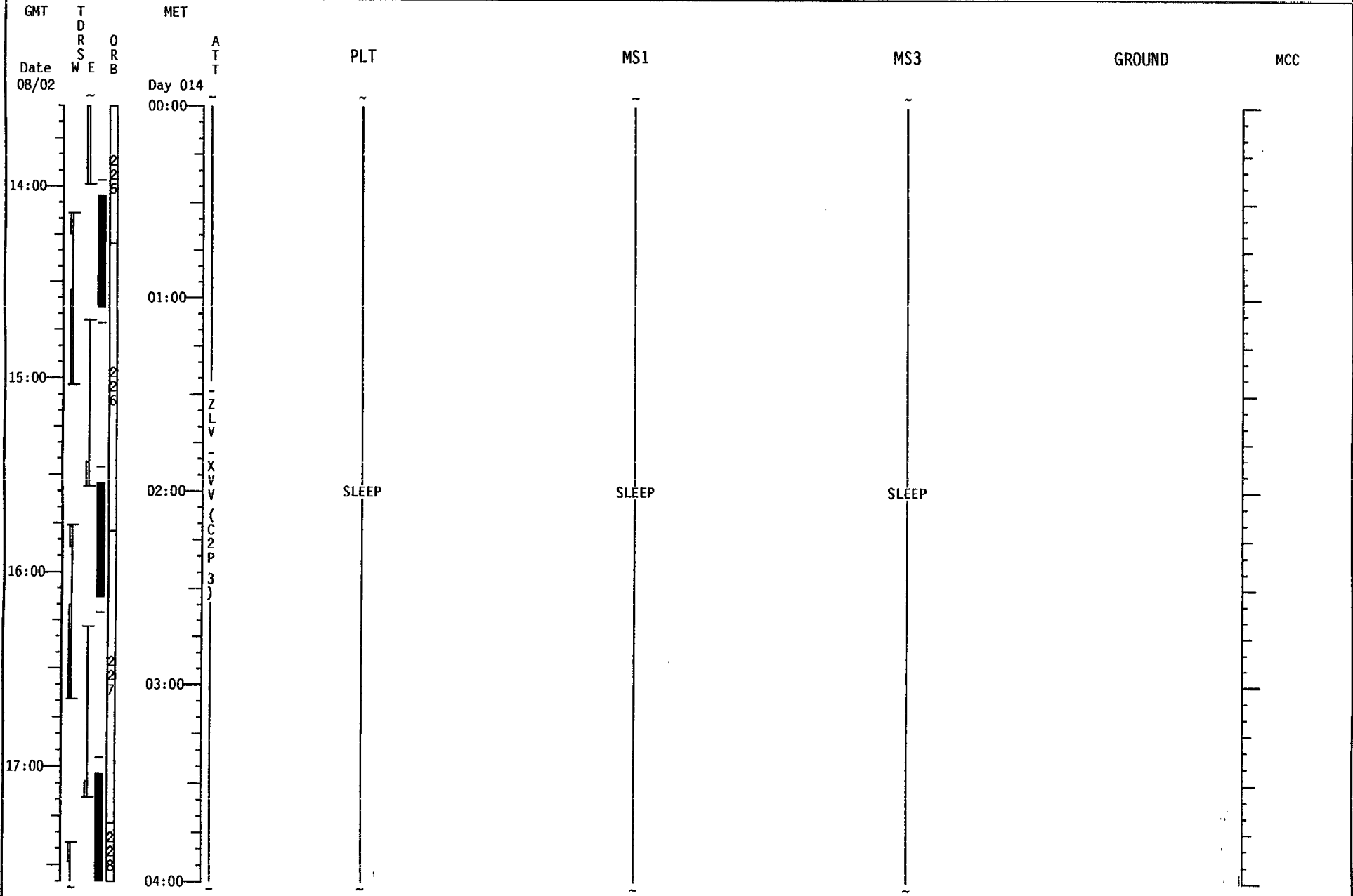
STS-107 (BLUE FD15)



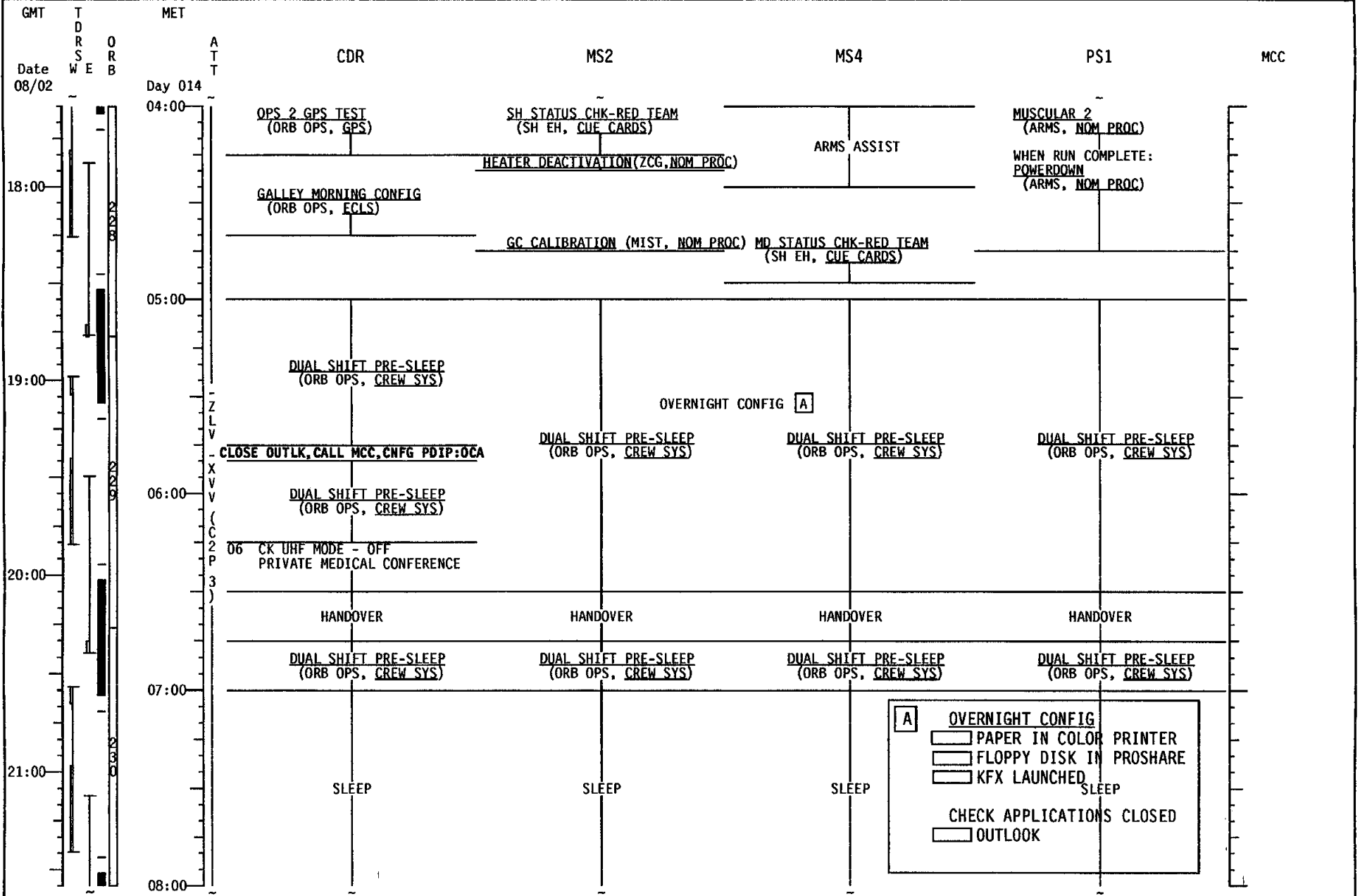
STS-107 (RED FD15)



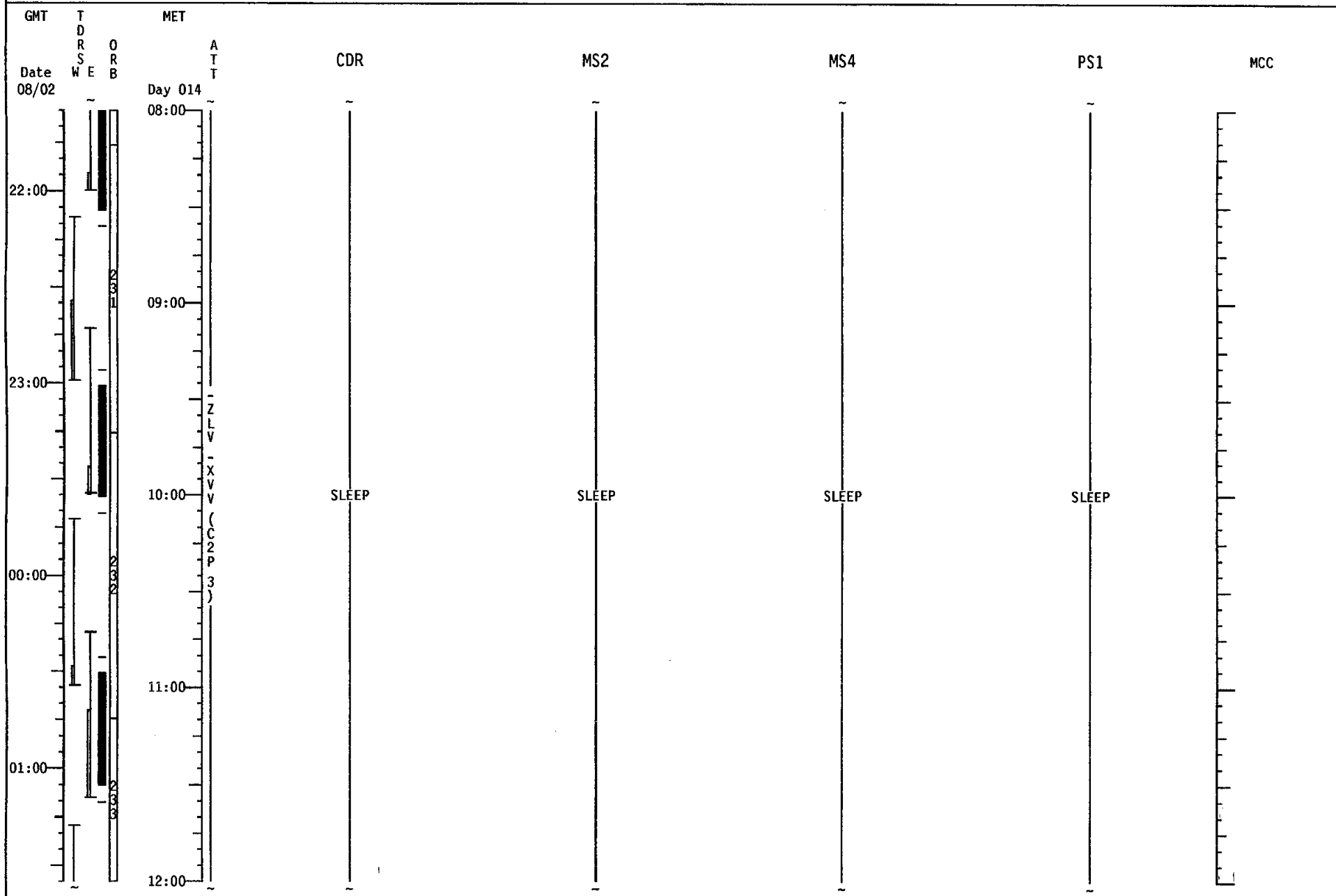
STS-107 (BLUE FD15)



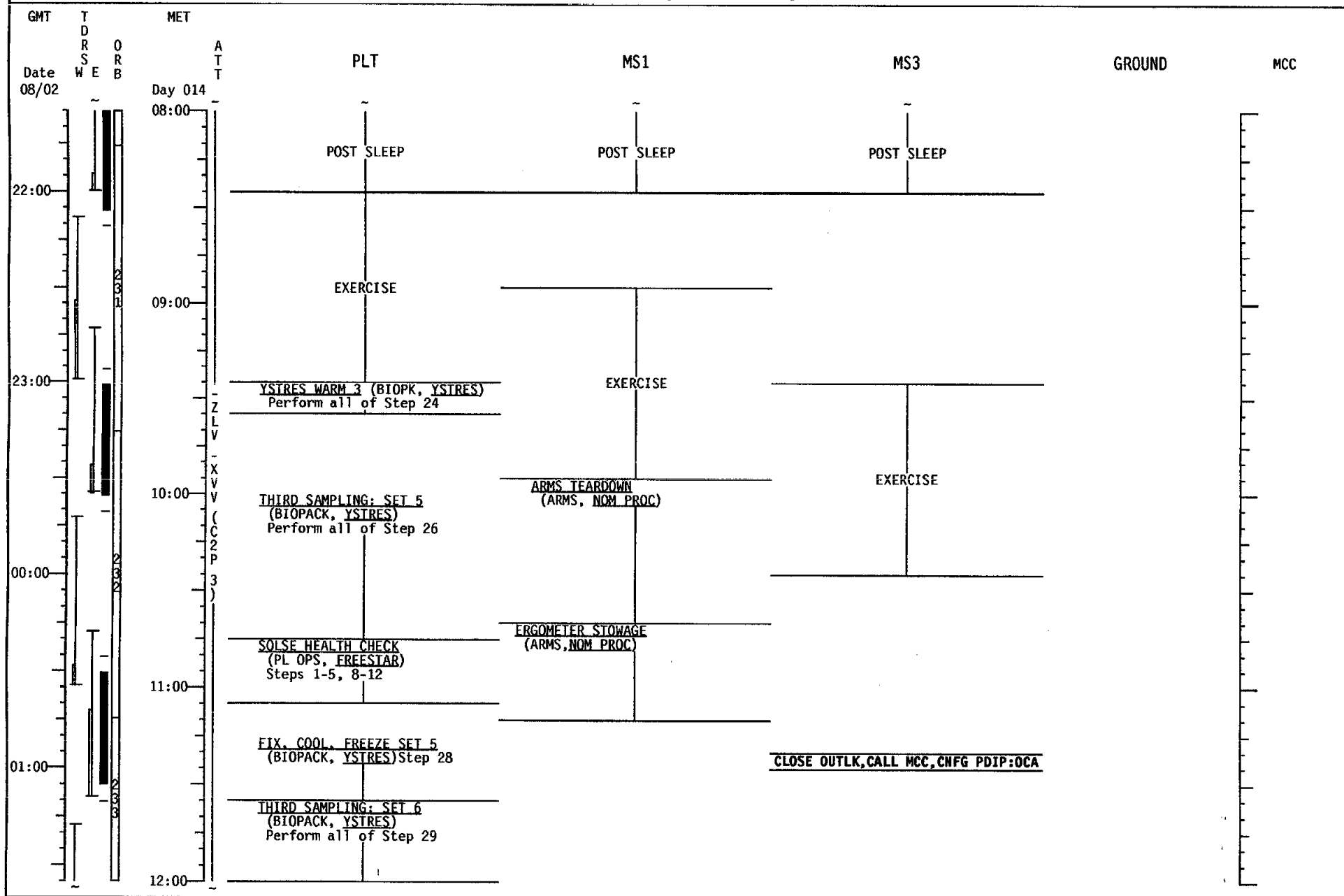
STS-107 (RED FD15)



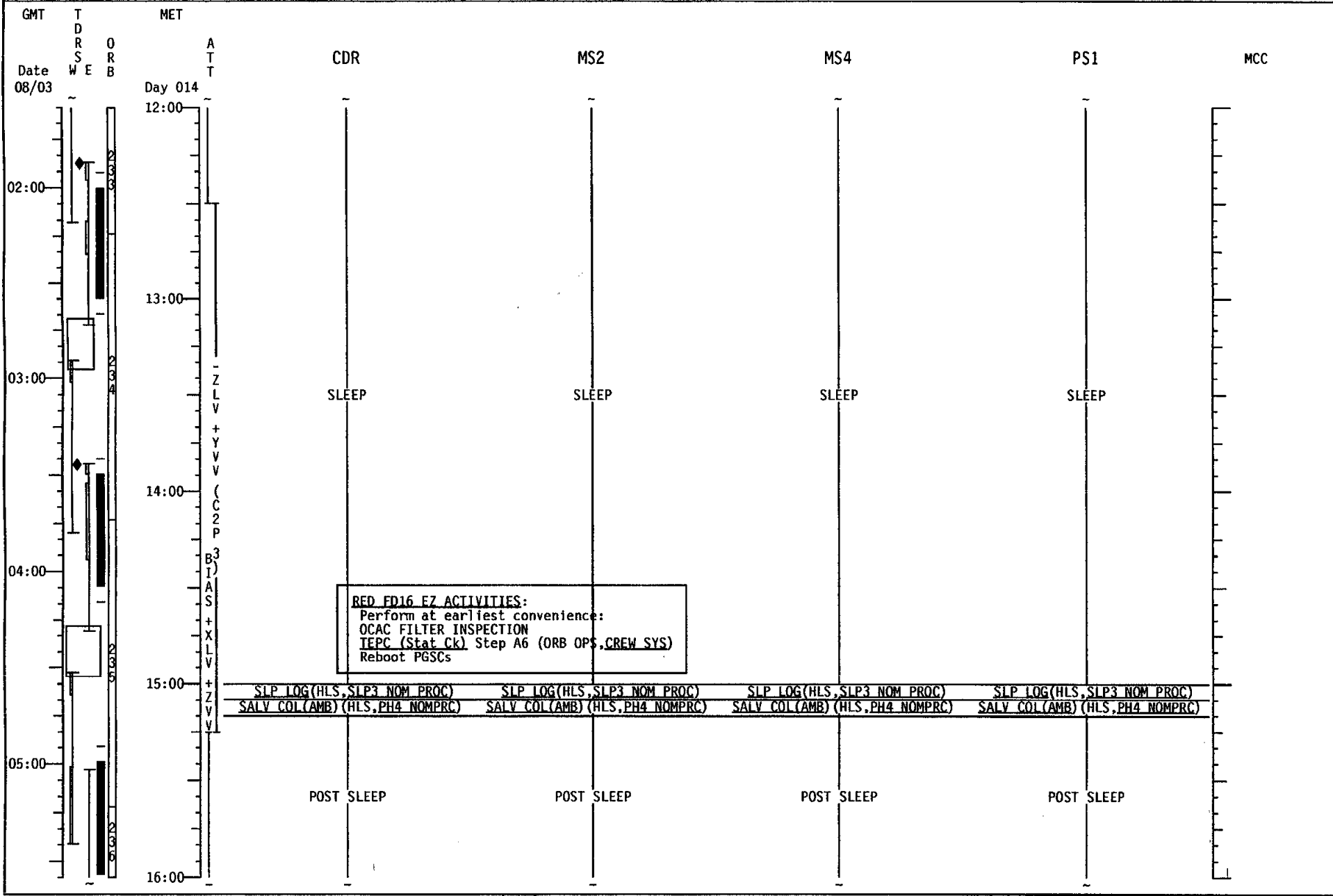
STS-107 (RED FD15)



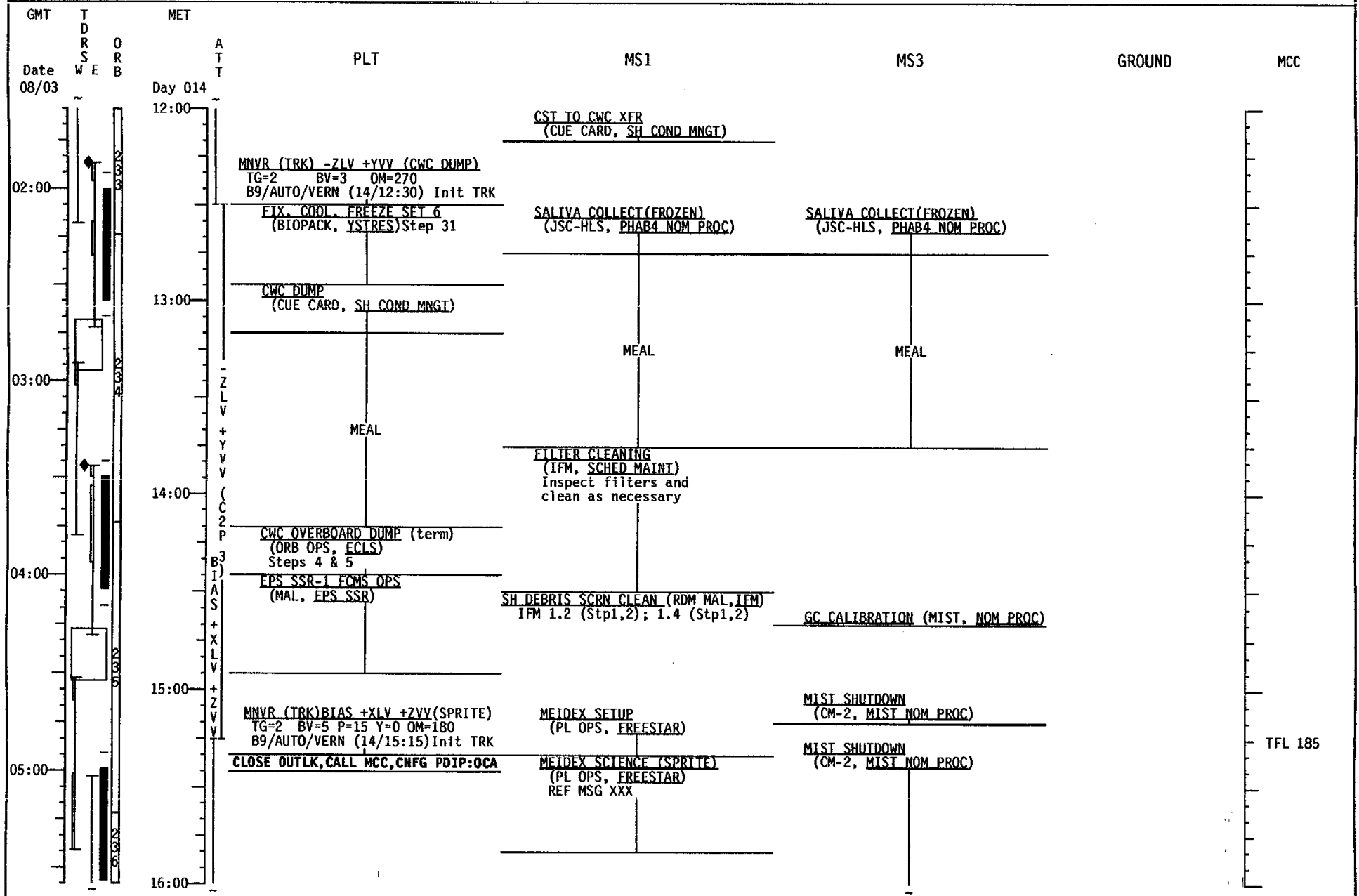
STS-107 (BLUE FD16)



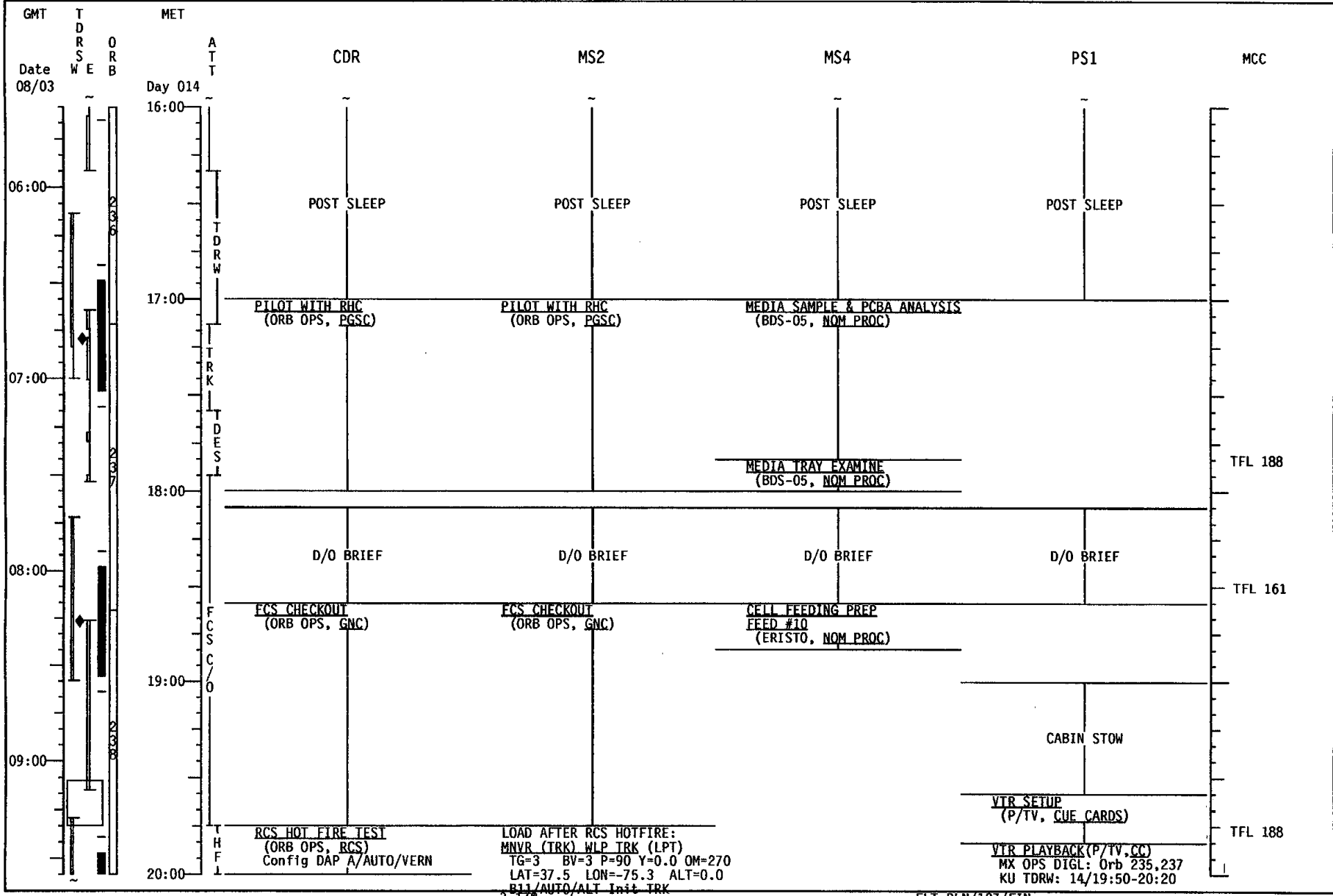
STS-107 (RED FD16)



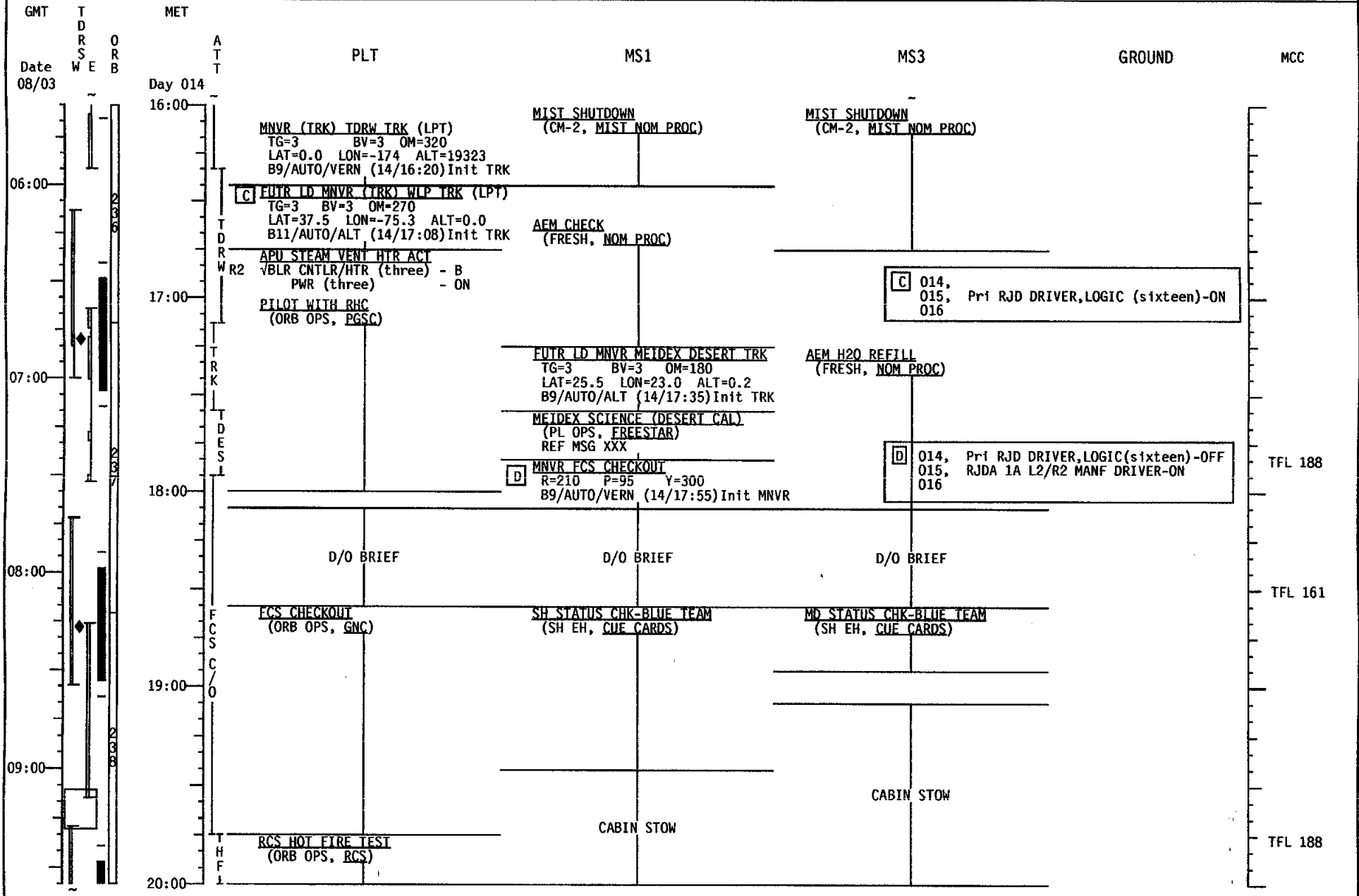
STS-107 (BLUE FD16)



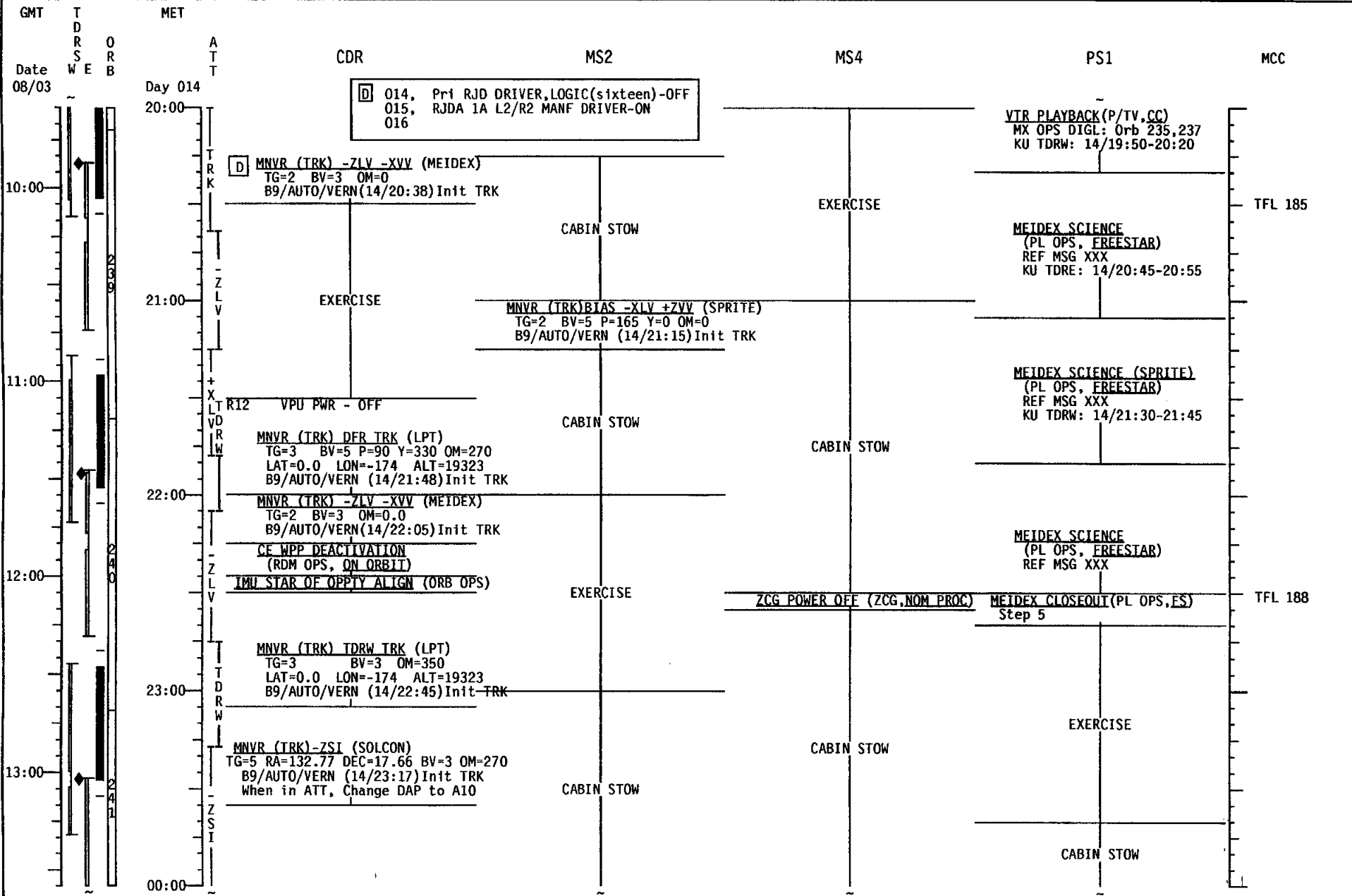
STS-107 (RED FD16)



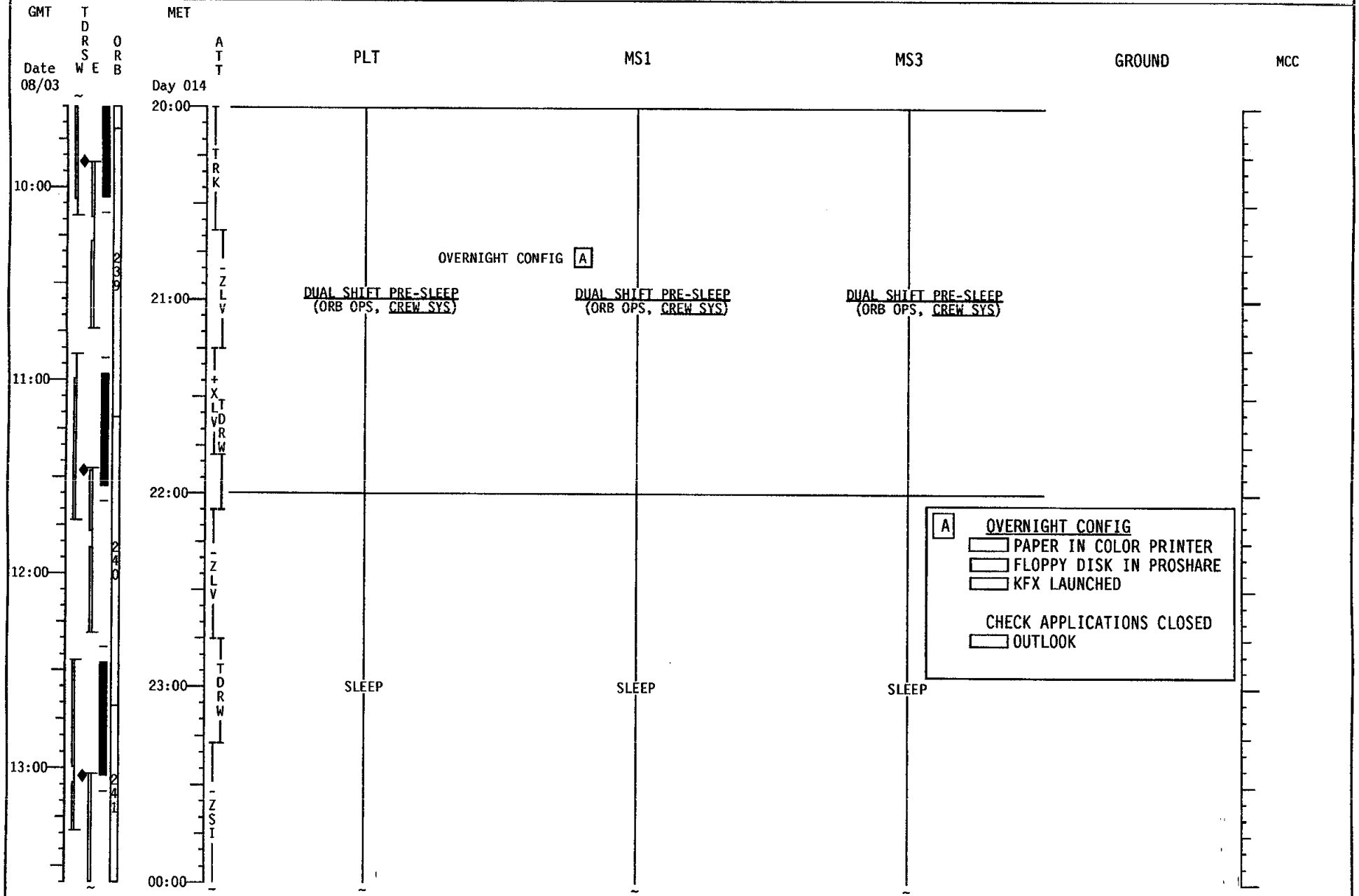
STS-107 (BLUE FD16)



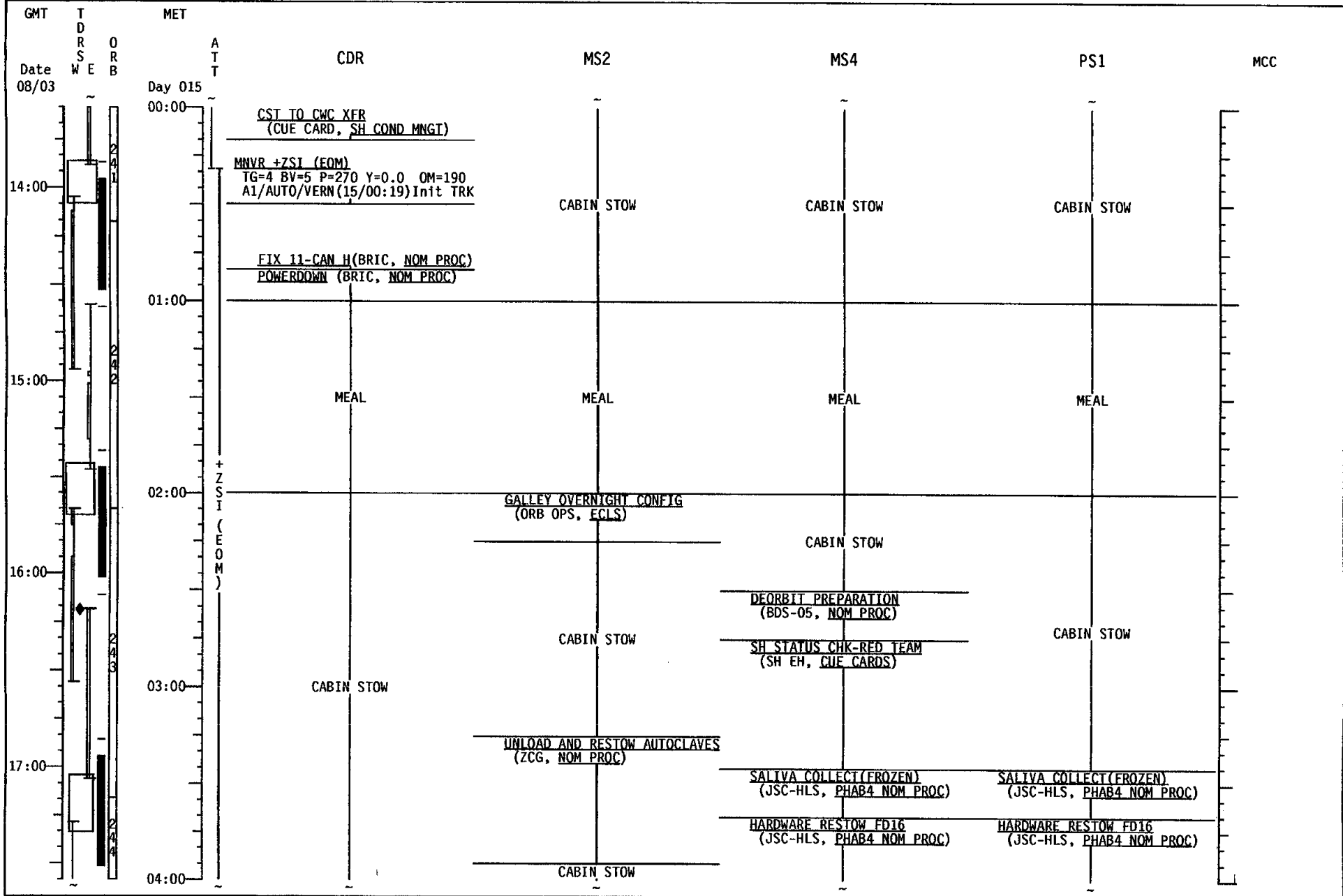
STS-107 (RED FD16)



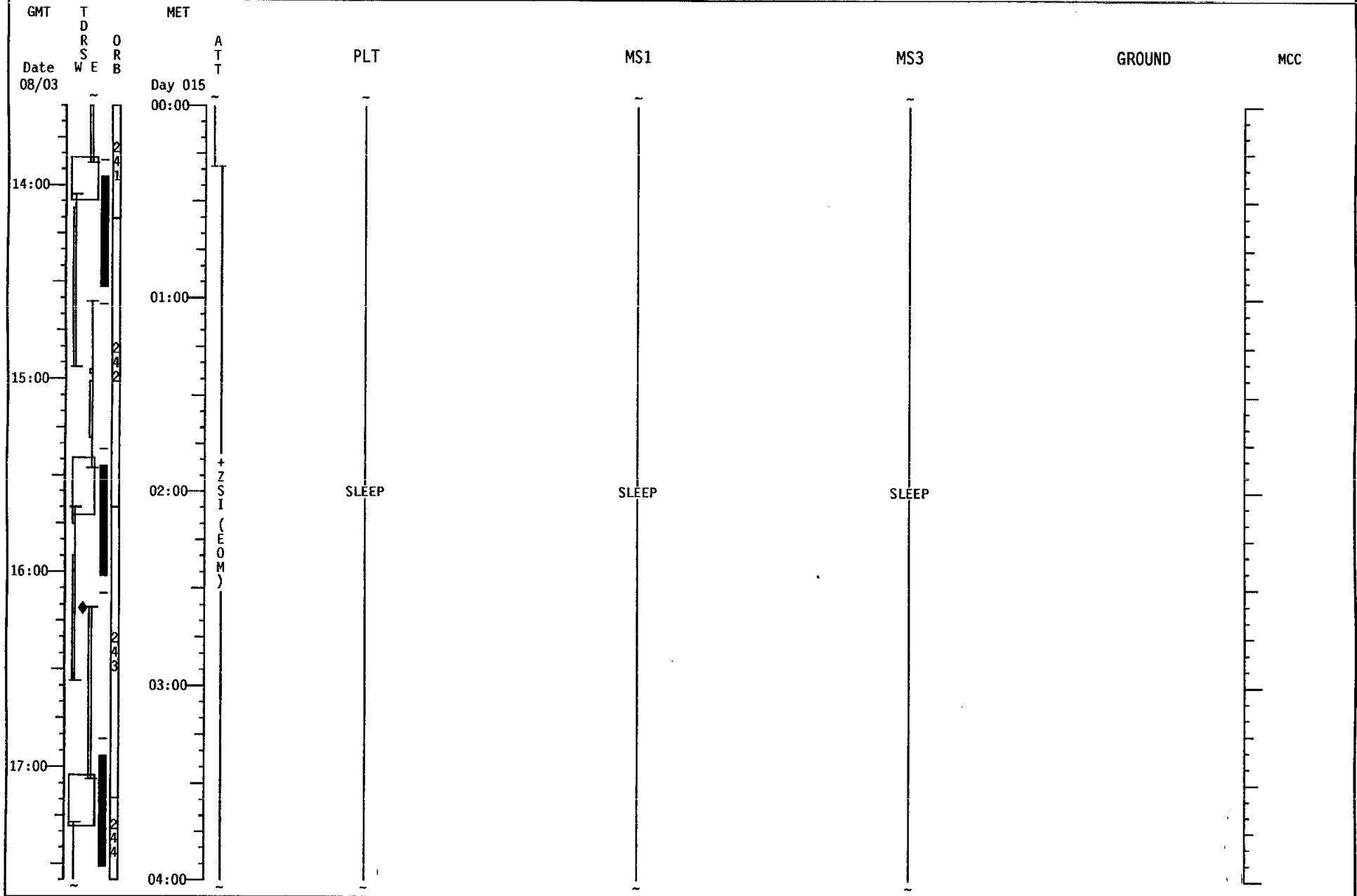
STS-107 (BLUE FD16)



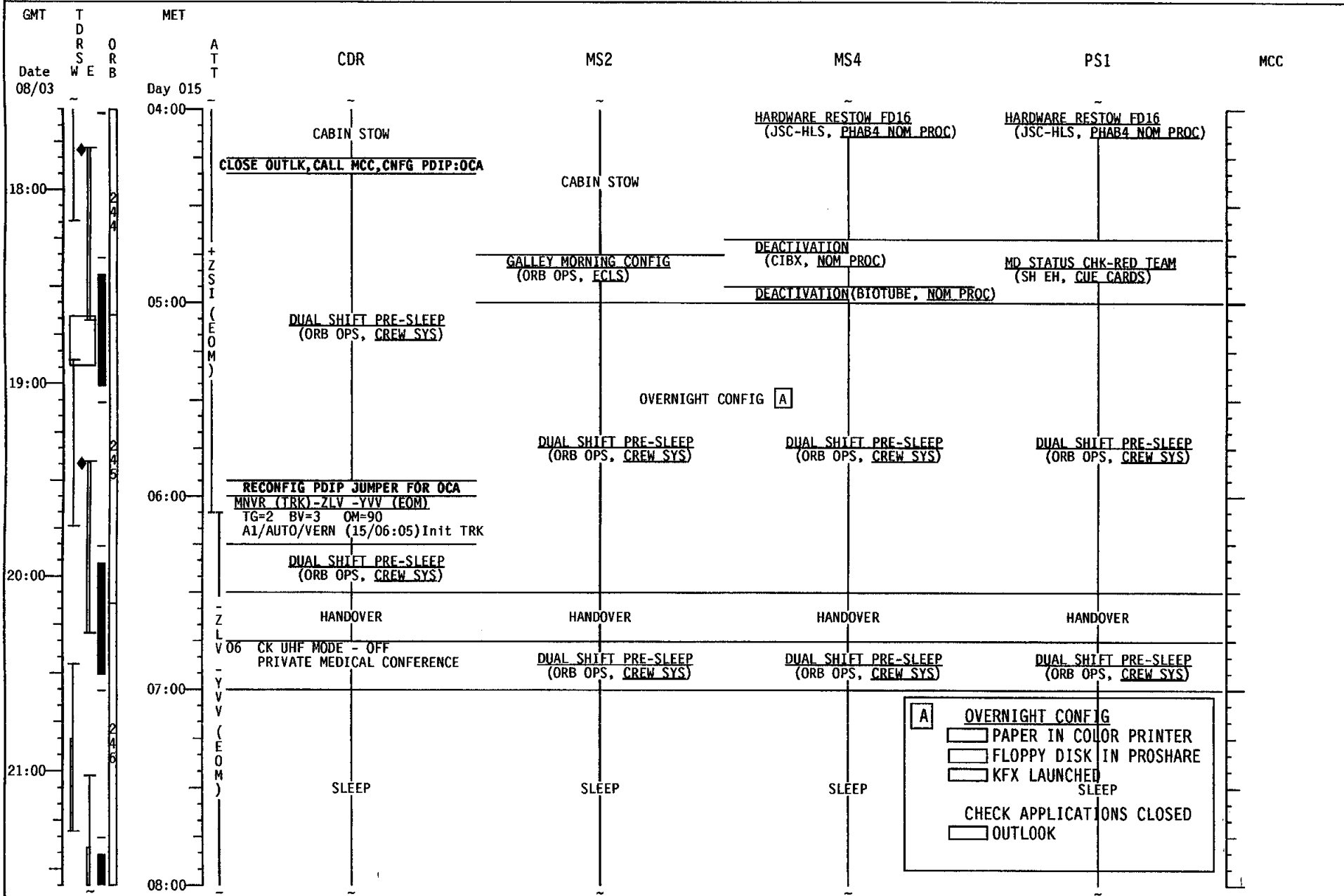
STS-107 (RED FD16)



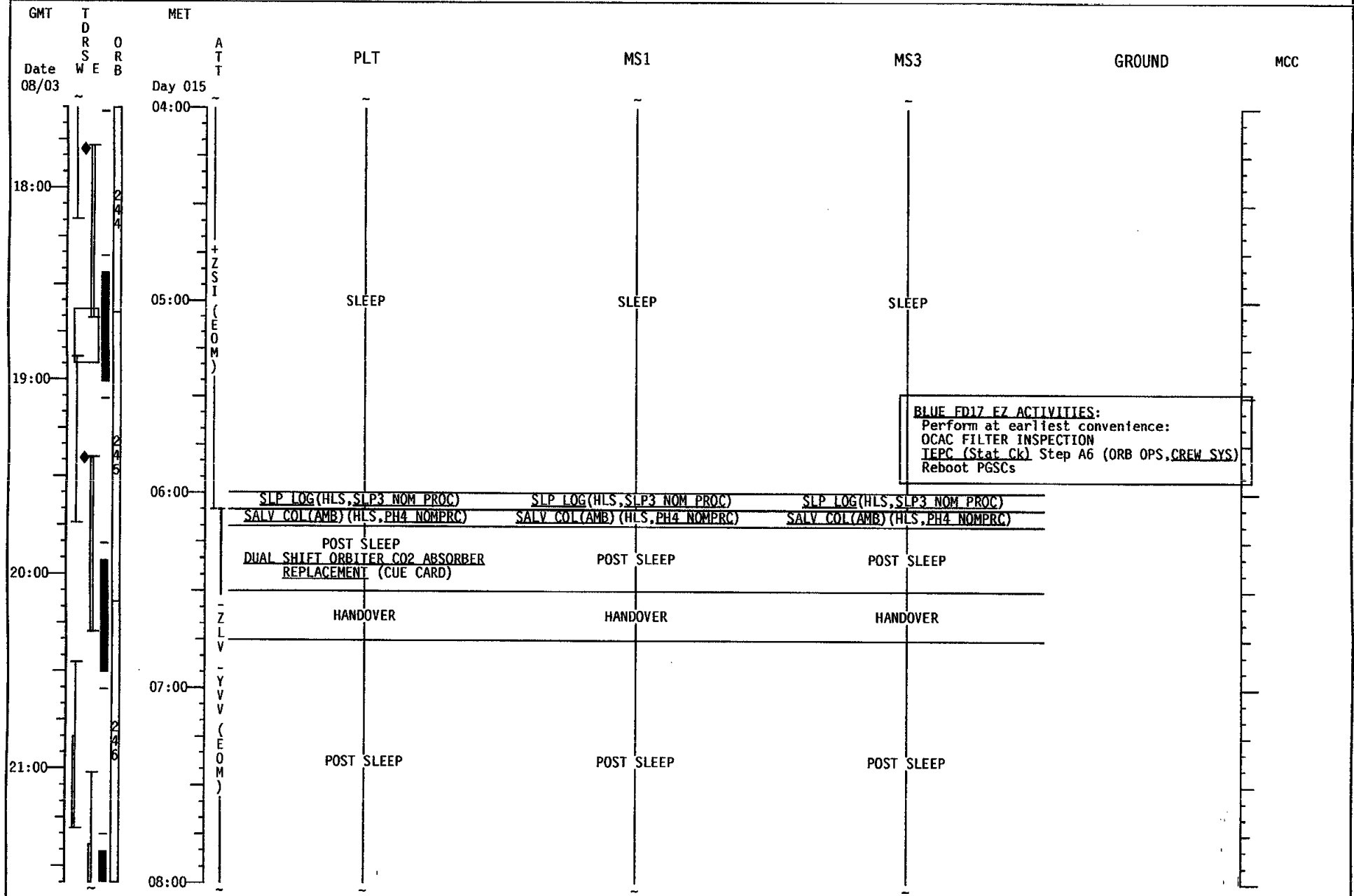
STS-107 (BLUE FD16)



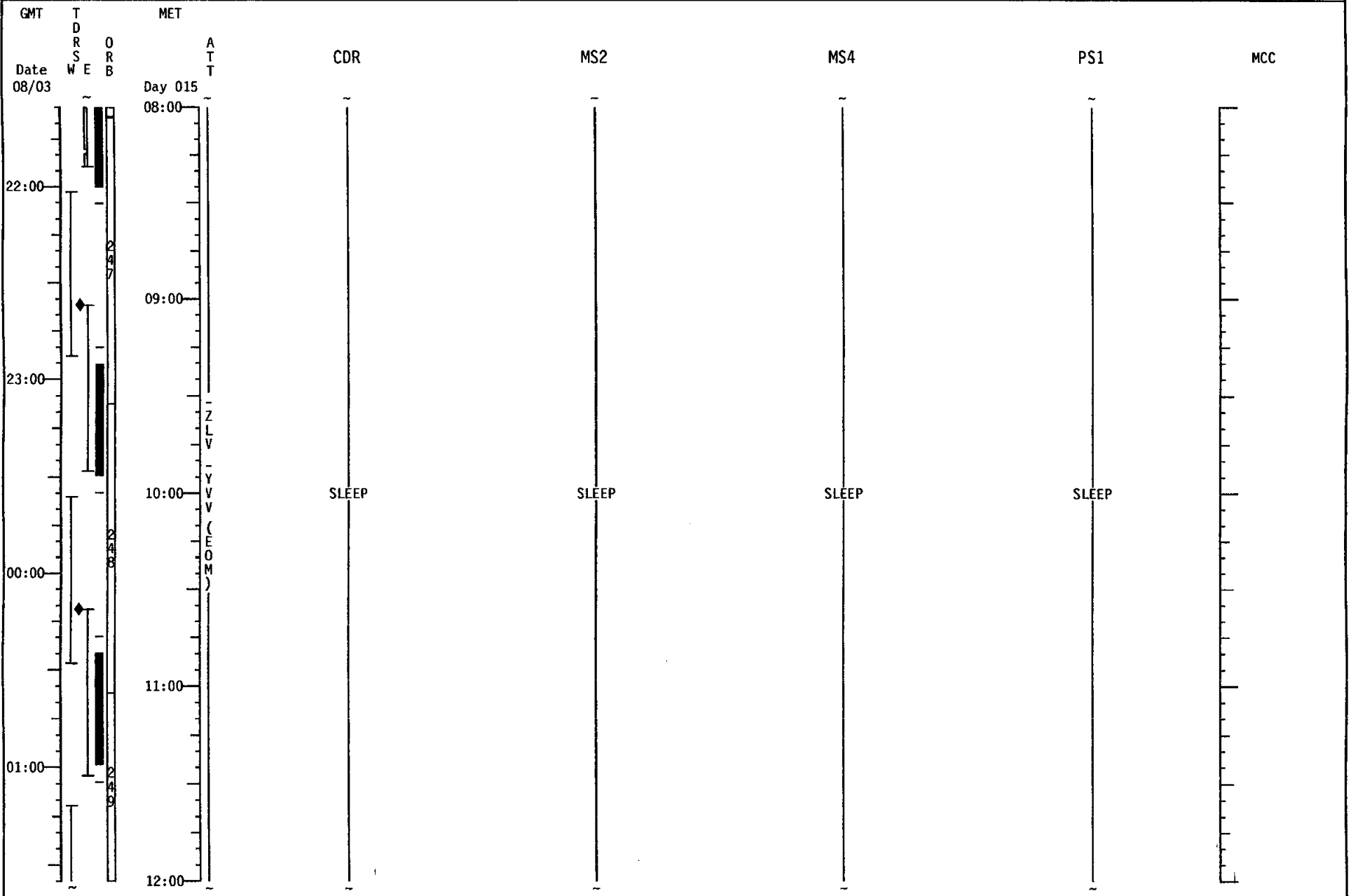
STS-107 (RED FD16)



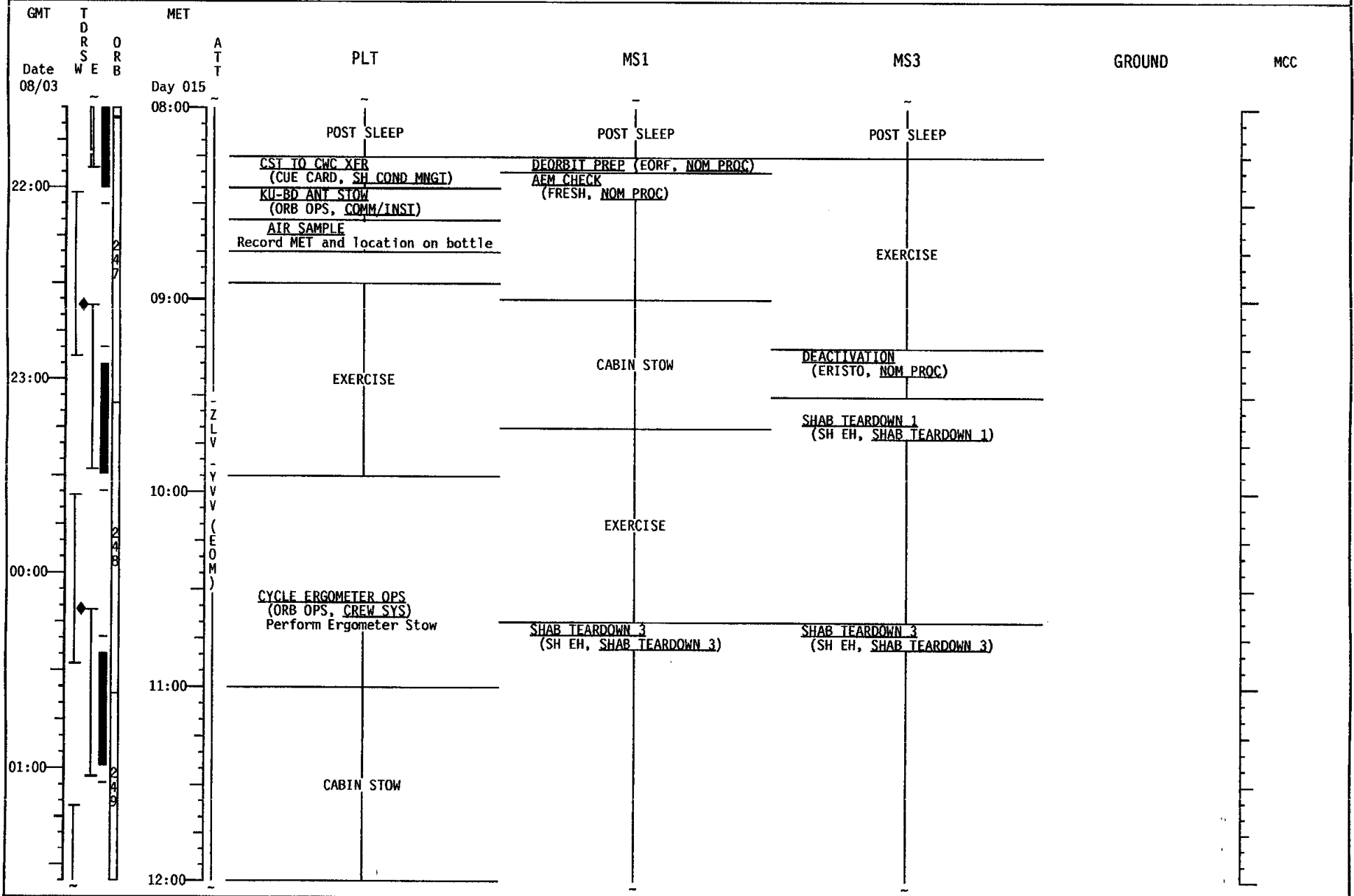
STS-107 (BLUE FD17)



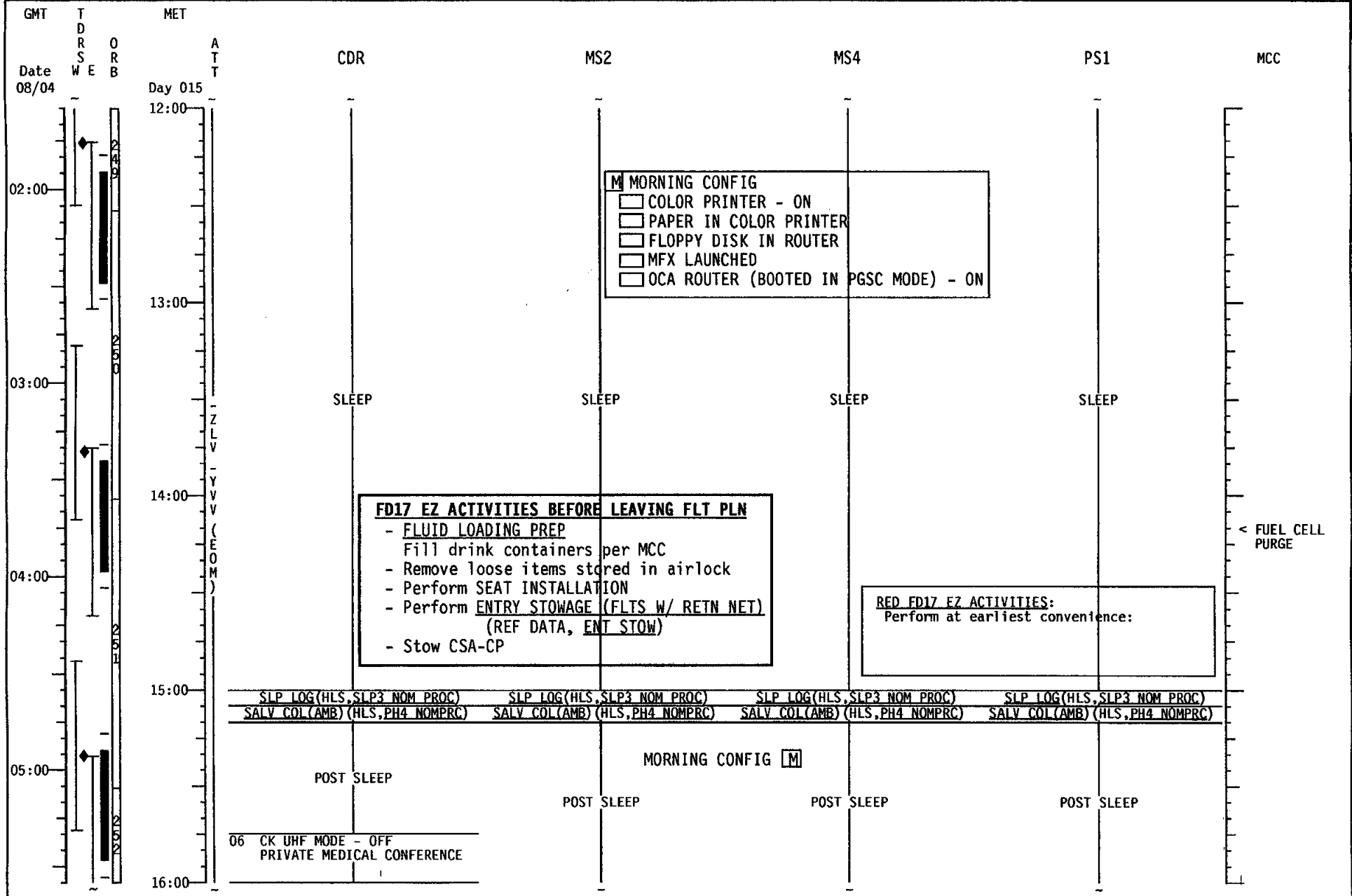
STS-107 (RED FD16)



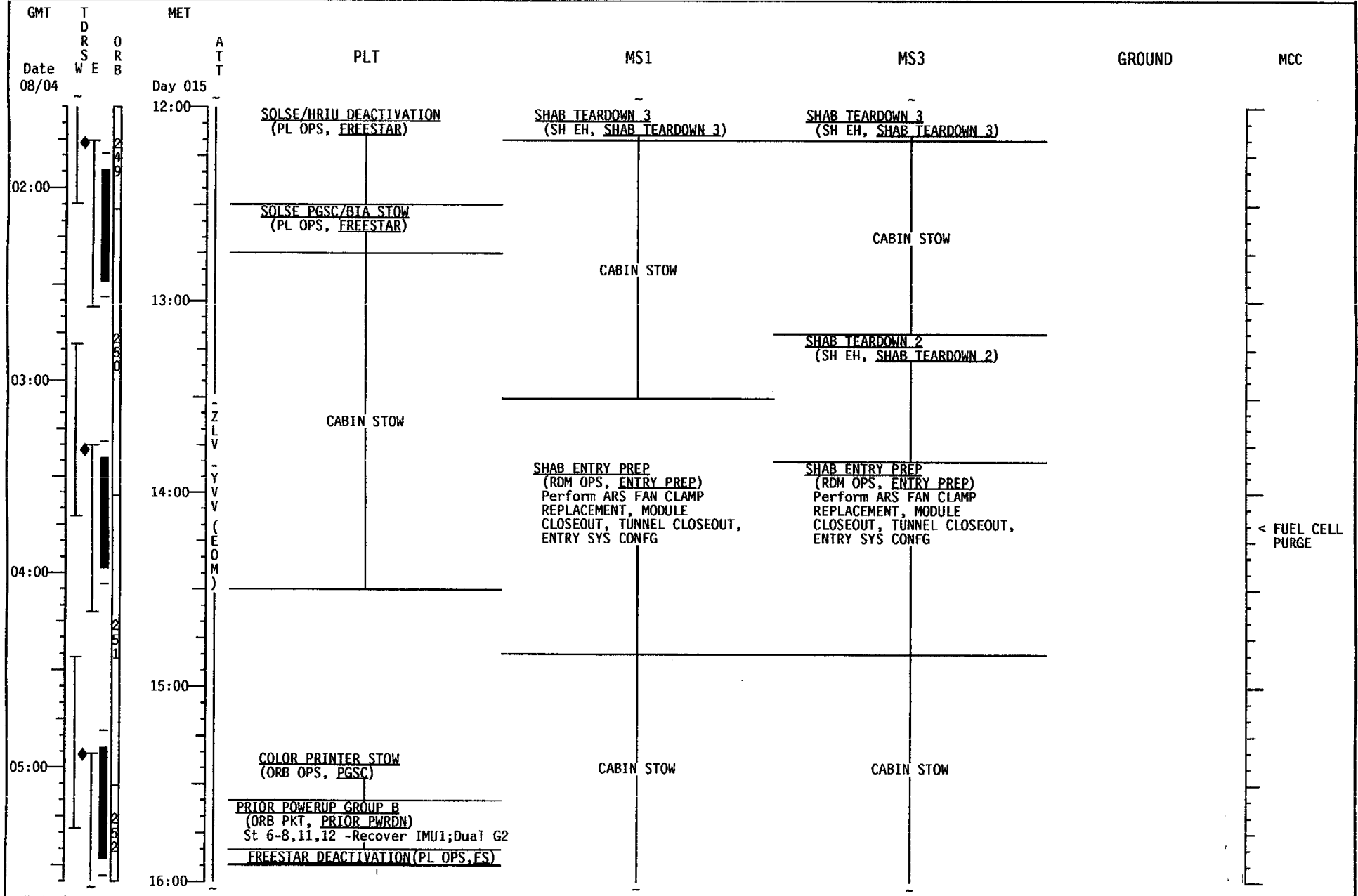
STS-107 (BLUE FD17)



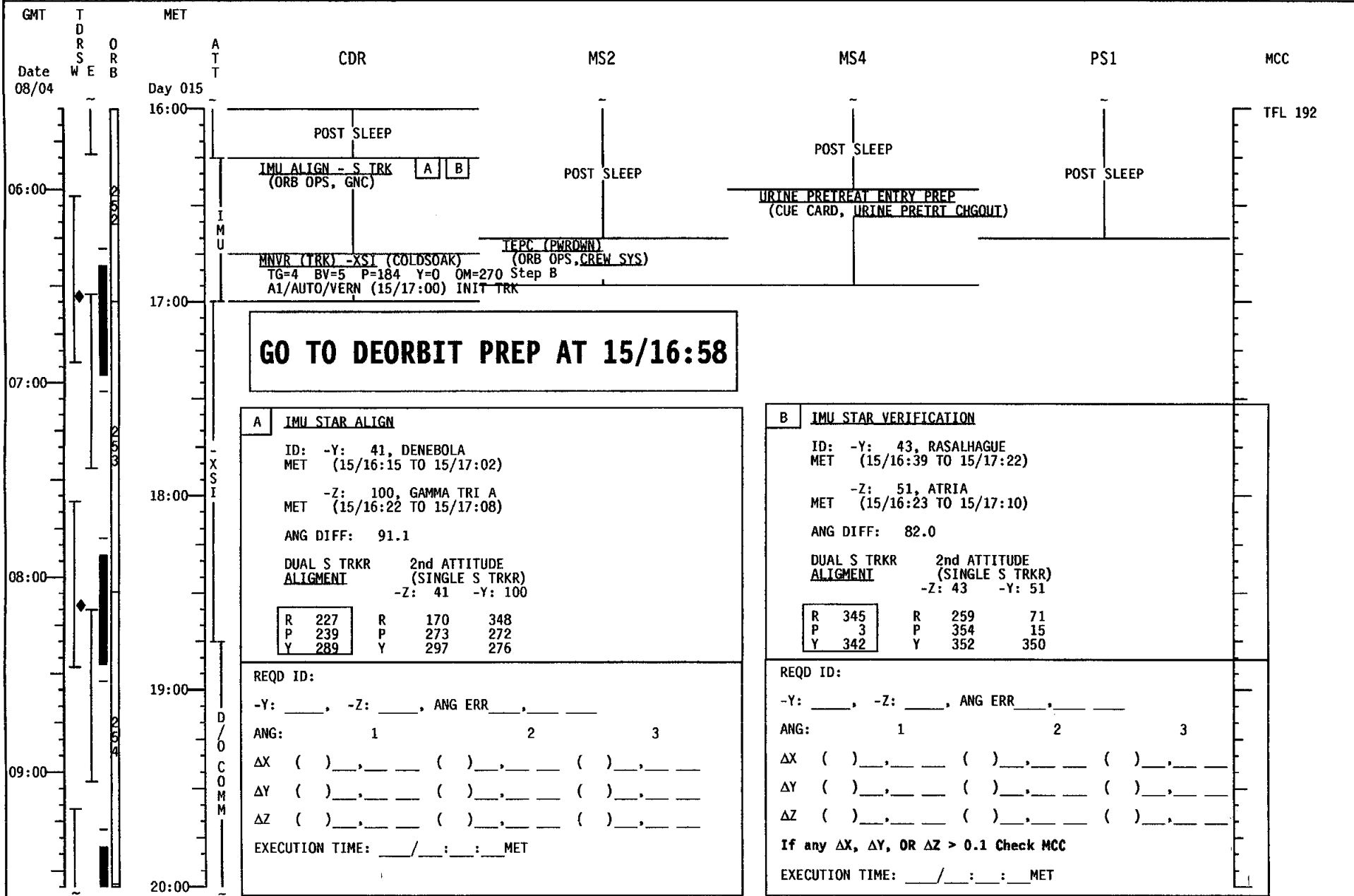
STS-107 (RED FD17)



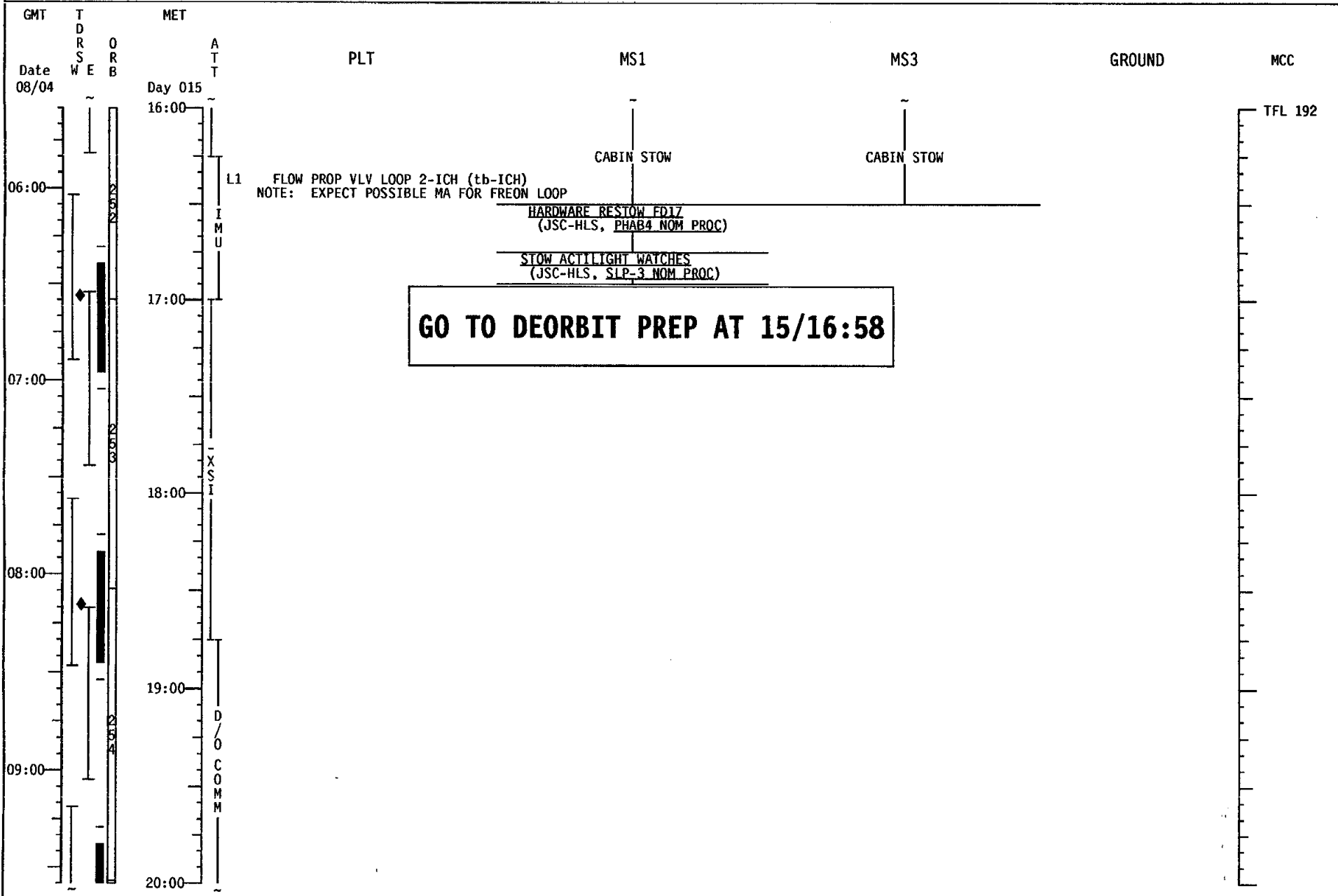
STS-107 (BLUE FD17)



STS-107 (RED FD17)



STS-107 (BLUE FD17)



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STS-107 DAP TABLE

STS-107
DAP TABLE

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<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL
A2	- PTC
A3	- GG
A4	-
A5	- LOSS OF VERN (ALL)
A6	- LOSS OF VERN (TAIL ONLY)
A7	- RENDEZVOUS
A8	- TERMINAL PHASE
A9	- MEIDEX MOON CAL
A10	- SOLSE LIMB/SOLCON
A11	-
A12	-
A13	-
A14	-
A15	-

<u>DAP</u>	<u>PURPOSE</u>
B1	- OMS/RCS BURNS
B2	- LOSS OF VERN (TAIL ONLY)
B3	- LOSS OF VERN (ALL)
B4	-
B5	- COAS/HUD CAL
B6	-
B7	- RENDEZVOUS
B8	- TERMINAL PHASE
B9	- FREESTAR SPACEHAB OPS
B10	- SOLSE POLAR SWEEP
B11	- LPT GN SURFACE TRACK
B12	-
B13	-
B14	-
B15	-

UNIV PTG	
TGT ID	= 1 Orbiting Vehicle = 2 Earth ctr = 3 Earth tgt Input LAT (± 90) LON (± 180 , + = Earth) 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

STS-107 DAP A1 THROUGH A8 CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6	A7	A8
PRI									
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000	0.2000	0.0500
ATT DB	11(51)	5.00	1.00	0.30	3.00	5.00	5.00	2.00	2.00
RATE DB	12(52)	0.20	0.20	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	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL	ALL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ALT									
RATE DB	18(58)	0.200	0.200	0.070	0.200	0.070	0.070	0.100	0.100
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
# JETS	20(60)	2	2	1	2	1	1	2	2
ON TIME	21(61)	0.08	0.08	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	0.00	0.00
VERN									
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.0500	0.0500	0.0160	0.0500
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.050
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG		LOSS OF VERN (ALL)	LOSS OF VERN (TAIL ONLY)	RNDZ	TERMINAL PHASE

STS-107 DAP A9 THROUGH A15 CONFIGURATIONS

	ITEM #	A9	A10	A11	A12	A13	A14	A15
PRI								
ROT RATE	10(50)	0.1000	0.0500	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	11(51)	3.00	1.00	5.00	5.00	5.00	5.00	5.00
RATE DB	12(52)	0.20	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	0.100
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
Y OPTION	16(56)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ALT								
RATE DB	18(58)	0.070	0.070	0.200	0.200	0.200	0.200	0.200
JET OPT	19(59)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
# JETS	20(60)	1	1	2	2	2	2	2
ON TIME	21(61)	0.08	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	0.00
VERN								
ROT RATE	23(63)	0.1000	0.0100	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24(64)	2.000	0.100	1.000	1.000	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.020	.020	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0	0
PURPOSE		MEIDEX MOON CAL	SOLSE LIMB/ SOLCON					

BOLD-ITALIC indicate a change from the I-load

STS-107 DAP B1 THROUGH B8 CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5	B6	B7	B8
PRI									
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000	0.5000	0.0500
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00	3.00	2.00	2.00
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	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
TRAN PLS	37(57)	0.10	0.02	0.02	0.02	0.02	0.02	0.05	0.05
ALT									
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200	0.200	0.100	0.100
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	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	0.00	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	0.2000	0.0500
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033	1.000	1.000	1.000
RATE DB	45(65)	.020	.020	.020	.010	.020	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.020
COMP	47(67)	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0	0	0
PURPOSE		OMS/RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (ALL)		COAS/HUD CAL		RNDZ	TERMINAL PHASE

STS-107 B9 THROUGH B15 DAP CONFIGURATIONS

	ITEM #	B9	B10	B11	B12	B13	B14	B15
PRI								
ROT RATE	30(50)	0.2000	0.2000	0.2000	0.5000	0.5000	0.5000	0.5000
ATT DB	31(51)	3.00	1.00	3.00	3.00	3.00	3.00	3.00
RATE DB	32(52)	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	0.040
COMP	34(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
Y OPTION	36(56)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
TRAN PLS	37(57)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ALT								
RATE DB	38(58)	0.070	0.070	0.100	0.200	0.200	0.200	0.200
JET OPT	39(59)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
# JETS	40(60)	1	1	2	2	2	2	2
ON TIME	41(61)	0.08	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	0.00
VERN								
ROT RATE	43(63)	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	44(64)	1.000	1.000	1.000	1.000	1.000	1.000	1.000
RATE DB	45(65)	.020	.020	.020	.020	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0	0
PURPOSE		FREESTAR/ SPACEHAB OBS	SOLSE POLAR SWEEP	LPT GN SURFACE TRACK				

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

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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

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Attitude Timeline

MET/GMT		ORBITER		REF ATT/REMARKS	EVENT
		MNVR OPTION	DAP E/S/ β		
1	000/01:00:00 M 200/14:35:00 G				STS 107 Final Launch 19 July 2002 200/13:35:00 Z
2	000/01:12:00 M 16:10 200/14:47:00 G 51:10	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A5/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 5.00 DB RT 0.070 EARTH R 0 P 90 $\beta = -17$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Must be in -ZLV B4 PLBD open (Payload Thermal)
3	000/06:11:00 M 19:41 200/19:46:00 G 54:41	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B11/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 3.00 DB RT 0.100 $\beta = -17$	LVLH R= 90.00 P=163.03 Y= 89.34 LAT = 28.500N LON = -80.700W ALT = 0.0nm	-ZMILA LPT: Ground Comm MLA 06:22 - 06:28
4	000/06:30:00 M 44:30 200/20:05:00 G 19:30	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 110.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -17$	LVLH R=236.61 P=114.88 Y=303.48 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 06:47-07:39
5	000/07:11:00 M 22:41 200/20:46:00 G 57:41	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 112.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -17$	INRTL R=123.21 P=293.16 Y=349.41 RA= 118.310 DEC= 20.900N	-ZSI SOLCON 7:24 - 8:11 SPACE 6:52 - 7:18 SPACE 8:11 - 8:34
6	000/08:12:00 M 20:44 200/21:47:00 G 55:44	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 98.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -17$	LVLH R=248.89 P=285.05 Y=291.32 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 07:47-08:38
7	000/08:40:00 M 50:18 200/22:15:00 G 25:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -17$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV COM2PLEX Loop Health Ck
8	000/09:00:00 M 200/22:35:00 G			SAA 09:48-09:59 SAA 11:25-11:34 SAA 13:01-13:11 SAA 14:34-14:45 SAA 16:09-16:16	-ZLV -XVV STARNAV FD1 OBS
9	000/16:45:00 M 201/06:20:00 G				-ZLV -XVV COM2PLEX Frequent 1 Start MSTRS
10	000/18:07:00 M 201/07:42:00 G	ROI1 18:07 - 18:11 ROI1 19:38 - 19:46 ROI1 21:13 - 21:21 ROI1 22:48 - 22:53			-ZLV -XVV MEIDEX: Dust

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
11 000/23:11:00 M 17:55 201/12:46:00 G 52:55	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 277.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -16$	LVLH R= 0.00 P=180.00 Y= 83.00	BIAS -ZLV +YVV MSTRS: IMU Align
12 000/23:40:00 M 46:55 201/13:15:00 G 21:55	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -16$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MSTRS: Warm Up MSTRS: Phase 1 18 - 01:21:22 22 - 07:21:02
13 001/00:03:00 M 201/13:38:00 G	MLA 00:03 - 00:08			-ZLV -XVV LPT: Ground Comm
14 001/02:50:00 M 201/16:25:00 G				-ZLV -XVV SOLSE: Earth C/O TR 02:55:30 TS 03:40:31 Hilo TCA 02:57:54
15 001/03:26:00 M 201/17:01:00 G	ROI2 03:26 - 03:28 ROI1 18:08 - 18:11 ROI1 19:39 - 19:46 ROI1 21:13 - 21:21 ROI1 22:48 - 22:52			-ZLV -XVV MEIDEX: Dust
16 001/22:53:00 M 202/12:28:00 G				-ZLV -XVV MEIDEX: Desert TCA 22:53:59 LPT: Ground Comm MLA 00:03-00:08
17 002/01:34:00 M 36:30 202/15:09:00 G 11:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 330.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -15$	LVLH R= 0.00 P=180.00 Y= 30.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 01:39-01:45
18 002/01:48:00 M 50:30 202/15:23:00 G 25:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -15$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 01:54 - 01:56 03:27 - 03:29 LPT: Ground Comm MLA 04:49 - 04:54
19 002/16:45:00 M 203/06:20:00 G				-ZLV -XVV COM2PLEX Frequent 1 Stop
20 002/16:48:00 M 17:02:20 203/06:23:00 G 37:20	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -13$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 17:16-17:51 STARNAV: 1

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT		ORBITER		REF AT/REMARKS	EVENT
		MNVR OPTION	DAP E/S/ β		
21	002/17:51:00 M 57:18 203/07:26:00 G 32:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -13$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:08 - 18:11
22	002/18:27:00 M 33:18 203/08:02:00 G 08:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -13$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 18:46-19:21 STARNAV: 1
23	002/19:21:00 M 27:18 203/08:56:00 G 09:02:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -13$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 19:39 - 19:46
24	002/20:08:00 M 14:18 203/09:43:00 G 49:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -13$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 20:16-20:51 STARNAV: 1
25	002/20:51:00 M 57:18 203/10:26:00 G 32:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -13$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 21:13 - 21:20
26	002/21:38:00 M 44:18 203/11:13:00 G 19:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -13$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 21:46-22:21 STARNAV: 1
27	002/22:21:00 M 27:18 203/11:56:00 G 12:02:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -13$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV LPT: Ground Comm WLP 22:30 - 22:35 MEIDEX: Dust 22:48 - 22:50
28	002/23:08:00 M 14:18 203/12:43:00 G 49:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -13$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 23:16-23:51 STARNAV: 1
29	003/00:10:00 M 19:23 203/13:45:00 G 54:23	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -13$	LVLH R=209.41 P= 67.64 Y= 0.00 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 00:21-01:13
30	003/01:14:00 M 25:25 203/14:49:00 G 15:00:25	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 330.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -13$	LVLH R= 0.00 P=180.00 Y= 30.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 01:39-01:45

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER MNVR OPTION	DAP E/S/ β	REF ATT/REMARKS	EVENT
31 003/01:47:00 M 02:01:08 203/15:22:00 G 36:08	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 150.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -13$	LVLH R=222.31 P=102.70 Y=336.88 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 01:58-02:51
32 003/02:43:00 M 49:52 203/16:18:00 G 24:52	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.69 OM = 90.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 286 P 90 $\beta = -13$	LVLH R= 0.00 P=105.69 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb Cal TR 02:56:01 Hilo TCA 02:57:48
33 003/03:09:00 M 28 203/16:44:00 G 28	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.97 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -13$	LVLH R= 0.00 P=105.97 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb Cal TS 03:41:00
34 003/03:50:00 M 28 203/17:25:00 G 28	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.69 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -12$	LVLH R= 0.00 P=105.69 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb Cal TR 04:26:00
35 003/04:39:00 M 28 203/18:14:00 G 28	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.97 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -12$	LVLH R= 0.00 P=105.97 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb Cal TS 05:11:00
36 003/05:20:00 M 33:01 203/18:55:00 G 19:08:01	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 300.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -12$	LVLH R= 0.00 P=180.00 Y= 60.00	BIAS -ZLV +YVV Water Dump
37 003/07:35:00 M 38:22 203/21:10:00 G 13:22	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 290.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -12$	LVLH R=310.63 P=268.02 Y= 60.80 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 07:47-08:39
38 003/08:31:00 M 42:16 203/22:06:00 G 17:16	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 235.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = -12$	LVLH R=210.00 P=180.00 Y=305.00	BIAS +ZLV +YVV LPT: GPS NAV STARNAV: 3 + 1M SAA 09:51 - 10:00 SAA 11:26 - 11:36
39 003/11:43:00 M 52:55 204/01:18:00 G 27:55	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 118.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -12$	INRTL R=124.54 P=286.09 Y=346.14 RA= 121.500 DEC= 20.290N	-ZSI SOLCON 11:55 - 12:42 SPACE -11:51 SPACE 12:53-13:15
40 003/12:42:00 M 55:09 204/02:17:00 G 30:09	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -12$	LVLH R=220.65 P=116.74 Y= 23.65 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 12:39-13:31

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT		ORBITER		REF ATT/REMARKS	EVENT
		MNVR OPTION	DAP E/S/ β		
41	003/13:11:00 M 24:03 204/02:46:00 G 59:03	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 64.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -11$	INRTL R= 99.10 P=230.49 Y=324.04 RA= 121.560 DEC= 20.280N	-ZSI SOLCON 13:25 - 14:12 SPACE 12:53-13:15 SPACE 14:24-15:00
42	003/14:12:00 M 24:23 204/03:47:00 G 59:23	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 116.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -11$	LVLH R=224.18 P=147.65 Y=304.22 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 14:15-15:06
43	003/15:05:00 M 15:18 204/04:40:00 G 50:18	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 130.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -11$	LVLH R=202.41 P=101.41 Y=312.23 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 15:13-16:04
44	003/16:04:00 M 11:34 204/05:39:00 G 46:34	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 126.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -11$	LVLH R=135.40 P=354.39 Y=315.58 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 16:25-17:17
45	003/17:17:00 M 30:24 204/06:52:00 G 07:05:24	INRTL R = 260.00 MNVR P = 217.00 Y = 331.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 191 P 82 $\beta = -11$		-ZLI MEIDEX: Moon Cal MOON SET 17:56
46	003/17:56:00 M 18:03:06 204/07:31:00 G 38:06	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -11$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:08 - 18:11
47	003/18:30:00 M 36:18 204/08:05:00 G 11:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -11$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 18:46-19:21 STARNAV: 1 - NO
48	003/19:21:00 M 27:18 204/08:56:00 G 09:02:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -11$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 19:38 - 19:46 RAM AT 19:53
49	003/19:50:00 M 20:01:11 204/09:25:00 G 36:11	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 60.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -11$	LVLH R=303.47 P=201.79 Y=316.31 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 20:02-20:55
50	003/20:56:00 M 21:05:34 204/10:31:00 G 40:34	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -11$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 21:13 - 21:18 RAM AT 21:35

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
51 003/21:33:00 M 37:44 204/11:08:00 G 12:44	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 201.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -11$	LVLH R=212.63 P= 55.09 Y= 17.91 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 21:39-22:32
52 003/22:18:00 M 32:43 204/11:53:00 G 12:07:43	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 200.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -11$	INRTL R=112.34 P=355.90 Y= 30.56 RA= 121.930 DEC= 20.210N	-ZSI SOLCON 22:25 - 23:12 SPACE 21:45-22:30 SPACE 23:14-23:58 RAM IF MNVR EARLY
53 003/23:12:00 M 20:16 204/12:47:00 G 55:16	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = -10$	LVLH R=210.00 P=180.00 Y= 0.00	BIAS +ZLV -XVV STARNAV: 1
54 003/23:51:00 M 004/00:00:31 204/13:26:00 G 35:31	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 126.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -10$	INRTL R=126.03 P=291.14 Y=349.85 RA= 121.990 DEC= 20.190N	-ZSI SOLCON 23:55 - 00:42 SPACE 23:14-23:58 SPACE 00:45-01:08 RAM IF MNVR EARLY
55 004/00:42:00 M 51:55 204/14:17:00 G 26:55	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 77.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -10$	LVLH R=283.99 P=310.00 Y=313.68 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 00:21-01:14
56 004/01:14:00 M 25:59 204/14:49:00 G 15:00:59	GND TRACK TGT = 3 P = 90.00 BV = 5 Y = 330.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -10$	LVLH R=300.34 P=134.92 Y= 89.98 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: Range Safety Dryden 01:32:12-01:35:27
57 004/01:37:00 M 45:36 204/15:12:00 G 20:36	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -10$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 01:51 - 01:59
58 004/02:08:00 M 14:18 204/15:43:00 G 49:18	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 190.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -10$	LVLH R=189.67 P=284.78 Y= 2.58	BIAS +XLV +ZVV MEIDEX: Sprite NITE 02:16-02:51 STARNAV: 1
59 004/03:00:00 M 06:18 204/16:35:00 G 41:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -10$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV LPT: Ground Comm WLP 03:13 - 03:18 MEIDEX: Dust 03:28 - 03:29 RAM AT 03:32
60 004/03:30:00 M 37:46 204/17:05:00 G 12:46	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 120.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -10$	LVLH R=234.36 P=122.32 Y=314.74 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 03:36-04:28

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
61 004/04:29:00 M 41:59 204/18:04:00 G 16:59	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 30.00 OM = 10.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 30 P 90 $\beta = -10$	LVLH R=330.00 P=180.00 Y=350.00	BIAS -ZLV -XVV LPT: Ground Comm MLA 04:47 - 04:53 STARNAV: 1
62 004/05:25:00 M 35:20 204/19:00:00 G 10:20	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.60 OM = 90.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 286 P 90 $\beta = -10$	LVLH R= 0.00 P=105.60 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TR 05:55:47
63 004/06:04:00 M 23 204/19:39:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.83 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -10$	LVLH R= 0.00 P=105.83 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view
64 004/06:15:00 M 23 204/19:50:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.06 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -10$	LVLH R= 0.00 P=106.06 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TS 06:40:46
65 004/06:50:00 M 46 204/20:25:00 G 46	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.60 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.60 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TR 07:25:46
66 004/07:34:00 M 23 204/21:09:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.83 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.83 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view
67 004/07:45:00 M 23 204/21:20:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.06 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=106.06 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TS 08:10:45
68 004/08:20:00 M 46 204/21:55:00 G 46	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.60 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.60 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TR 08:55:44
69 004/09:04:00 M 23 204/22:39:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.83 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.83 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view
70 004/09:15:00 M 23 204/22:50:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.06 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=106.06 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TS 09:40:43

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
71 004/09:50:00 M 46 204/23:25:00 G 46	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.60 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.60 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TR 10:25:43
72 004/10:34:00 M 23 205/00:09:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.83 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=105.83 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view
73 004/10:45:00 M 23 205/00:20:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.06 OM = 90.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -9$	LVLH R= 0.00 P=106.06 Y=270.00	BIAS -YLV +ZVV SOLSE: Limb view TS 11:10:42
74 004/11:20:00 M 29:16 205/00:55:00 G 01:04:16	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -9$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV SOLSE: Earth view TR 11:55:42 TS 12:40:40
75 004/12:46:00 M 54:08 205/02:21:00 G 29:08	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 44.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -9$	LVLH R=318.03 P=283.87 Y=324.32 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 12:39-13:31
76 004/13:15:00 M 28:16 205/02:50:00 G 03:03:16	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -9$	INRTL R=107.69 P= 4.36 Y= 33.80 RA= 122.550 DEC= 20.080N	-ZSI SOLCON 13:24 - 14:12 SPACE 12:52-13:19 SPACE 14:24-14:55 RAM IF MNVR EARLY
77 004/14:12:00 M 24:27 205/03:47:00 G 59:27	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -9$	LVLH R=201.17 P=100.44 Y= 28.30 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 14:15-15:06
78 004/14:45:00 M 57:50 205/04:20:00 G 32:50	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 149.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -9$	INRTL R=127.63 P=307.63 Y= 2.70 RA= 122.620 DEC= 20.070N	-ZSI SOLCON 14:54 - 15:42 SPACE 14:24-14:55 SPACE 15:55-16:35 RAM IF MNVR EARLY
79 004/15:42:00 M 53:02 205/05:17:00 G 28:02	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 147.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -8$	LVLH R=184.22 P= 89.51 Y=327.07 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 15:50-16:40
80 004/16:40:00 M 43:42 205/06:15:00 G 18:42	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 200.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -8$	LVLH R=199.37 P=284.13 Y= 5.08	BIAS +XLV +ZVV MEIDEX: Sprite NITE 17:12-17:48 STARNAV: 1 SUN30 16:48-17:03

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT		ORBITER		REF ATT/REMARKS	EVENT
		MNVR OPTION	DAP E/S/ β		
81	004/17:48:00 M 54:26 205/07:23:00 G 29:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -8$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:07 - 18:10
82	004/18:35:00 M 41:26 205/08:10:00 G 16:26	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 200.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -8$	LVLH R=199.37 P=284.13 Y= 5.08	BIAS +XLV +ZVV MEIDEX: Sprite NITE 18:42-19:18 STARNAV: 1
83	004/19:19:00 M 25:26 205/08:54:00 G 09:00:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -8$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 19:38 - 19:45 RAM AT 19:51
84	004/19:47:00 M 58:35 205/09:22:00 G 33:35	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 50.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -8$	LVLH R=312.28 P=203.67 Y=321.28 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 20:02-20:55
85	004/20:39:00 M 49:43 205/10:14:00 G 24:43	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -8$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV LPT: Ground Comm MLA 20:52 - 20:57 MEIDEX: Dust 21:12 - 21:16 RAM AT 21:35
86	004/21:33:00 M 37:41 205/11:08:00 G 12:41	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 185.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -8$	LVLH R=207.86 P= 64.28 Y= 4.42 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 21:39-22:31
87	004/22:15:00 M 28:31 205/11:50:00 G 12:03:31	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 90.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -8$	INRTL R=113.91 P=255.05 Y=329.63 RA= 122.930 DEC= 20.000N	-ZSI SOLCON 22:24 - 23:12 SPACE 21:45-22:26 SPACE 23:14-23:48 RAM IF MNVR EARLY
88	004/23:12:00 M 23:38 205/12:47:00 G 58:38	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = -7$	LVLH R=210.00 P=180.00 Y= 0.00	BIAS +ZLV -XVV STARNAV: 1
89	004/23:48:00 M 58:03 205/13:23:00 G 33:03	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 160.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -7$	INRTL R=127.08 P=315.28 Y= 8.87 RA= 122.990 DEC= 19.990N	-ZSI SOLCON 23:54 - 00:42 SPACE 23:14-23:48 SPACE 00:45-01:08 RAM IF MNVR EARLY
90	005/00:42:00 M 52:57 205/14:17:00 G 27:57	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 170.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -7$	LVLH R=224.28 P=211.66 Y=352.80 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 00:21-01:14

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
91 005/01:15:00 M 21:11 205/14:50:00 G 56:11	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -7$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 01:51 - 01:59
92 005/02:41:00 M 49:44 205/16:16:00 G 24:44	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.57 OM = 100.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=254.43 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TR 02:55:20
93 005/03:02:00 M 24 205/16:37:00 G 24	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.81 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=254.19 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view
94 005/03:12:00 M 23 205/16:47:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.04 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=253.96 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TS 03:40:19
95 005/03:50:00 M 47 205/17:25:00 G 47	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.57 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=254.43 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TR 04:25:18
96 005/04:32:00 M 24 205/18:07:00 G 24	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.81 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=254.19 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view
97 005/04:42:00 M 23 205/18:17:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.04 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=253.96 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TS 05:10:16
98 005/05:20:00 M 47 205/18:55:00 G 47	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.57 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -7$	LVLH R=254.43 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TR 05:55:15
99 005/06:02:00 M 24 205/19:37:00 G 24	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.81 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -6$	LVLH R=254.19 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view
100 005/06:12:00 M 23 205/19:47:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.04 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -6$	LVLH R=253.96 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TS 06:40:14

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
101 005/06:50:00 M 51:09 205/20:25:00 G 26:09	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.35 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 285 P 90 $\beta = -6$	LVLH R=254.65 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TR 07:25:13
102 005/07:31:00 M 23 205/21:06:00 G 23	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.58 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -6$	LVLH R=254.42 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view
103 005/07:43:00 M 24 205/21:18:00 G 24	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.82 OM = 100.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = -6$	LVLH R=254.18 P= 0.00 Y=280.00	BIAS -YLV +ZVV SOLSE: Limb view TS 08:10:11
104 005/08:20:00 M 29:52 205/21:55:00 G 22:04:52	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -6$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV SOLSE: Earth view TR 08:55:10 Hilo TCA 09:19:01 TS 09:40:09
105 005/09:50:00 M 10:00:18 205/23:25:00 G 35:18	INRTL R = 301.00 MNVR P = 345.00 Y = 37.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 177 P 82 $\beta = -6$		-ZLI MEIDEX: Moon Cal RAM TIL 10:00 MOON SET 10:30 RAM AT 10:35
106 005/10:25:00 M 38:58 206/00:00:00 G 13:58	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 120.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -6$	LVLH R=142.84 P= 88.17 Y=305.92 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 10:27-11:18
107 005/11:04:00 M 13:28 206/00:39:00 G 48:28	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 330.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = -6$	LVLH R= 29.15 P=103.06 Y= 7.44	BIAS -XLV +ZVV MEIDEX: Sprite NITE 11:15-11:50 SAA 11:24 - 11:35
108 005/11:51:00 M 57:40 206/01:26:00 G 32:40	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -6$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MSTRS: Warm Up Crew Off Duty
109 005/13:00:00 M 01:15 206/02:35:00 G 36:15	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 15.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 15 P 90 $\beta = -5$	LVLH R=345.00 P=180.00 Y= 0.00	BIAS -ZLV -XVV MSTRS: Phase 2 90 - 13:13:09 94 - 19:12:33
110 005/18:06:00 M 206/07:41:00 G	ROI1 18:06 - 18:10			BIAS -ZLV -XVV Crew Off Duty MEIDEX: Dust MSTRS

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MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER MNVR OPTION	DAP E/S/ β	REF ATT/REMARKS	EVENT
111 005/19:15:00 M 16:15 206/08:50:00 G 51:15	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -5$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 19:37 - 19:44 21:12 - 21:14 LPT: Ground Comm MLA 22:26 - 22:31
112 006/00:16:00 M 206/13:51:00 G	ROI2 00:16 - 00:19 ROI2 00:25 - 00:27 ROI2 01:50 - 01:58			-ZLV -XVV MEIDEX: Dust MSTRS
113 006/02:05:00 M 10:00 206/15:40:00 G 45:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 300.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -4$	LVLH R= 0.00 P=180.00 Y= 60.00	BIAS -ZLV +YVV Water Dump
114 006/04:40:00 M 52:54 206/18:15:00 G 27:54	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 55.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = -3$	LVLH R= 30.00 P= 0.00 Y= 55.00	BIAS +ZLV +YVV LPT: GPS NAV STARNAV: 4 SAA 05:02 - 05:14 SAA 06:37 - 06:47 SAA 08:13 - 08:22
115 006/08:50:00 M 09:00:18 206/22:25:00 G 35:18	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = -3$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 14A
116 006/11:29:00 M 35:15 207/01:04:00 G 10:15	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 234.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -2$	LVLH R=128.95 P=121.07 Y= 40.87 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 11:32-12:25
117 006/11:51:00 M 57:00 207/01:26:00 G 32:00	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 262.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -2$	INRTL R= 72.12 P= 61.43 Y= 35.34 RA= 124.470 DEC= 19.670N	-ZSI SOLCON 11:53 - 12:40 SPACE 11:38-11:54 SPACE 12:51-13:25 RAM IF MNVR EARLY
118 006/12:40:00 M 52:59 207/02:15:00 G 27:59	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 20.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -2$	LVLH R=334.12 P=303.39 Y=341.87 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 12:38-13:29
119 006/13:14:00 M 27:25 207/02:49:00 G 03:02:25	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 240.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = -2$	INRTL R= 88.95 P= 33.89 Y= 39.11 RA= 124.530 DEC= 19.660N	-ZSI SOLCON 13:23 - 14:10 SPACE 12:51-13:25 SPACE 14:21-14:58 RAM IF MNVR EARLY
120 006/14:10:00 M 23:11 207/03:45:00 G 58:11	INRTL R = 228.00 MNVR P = 150.00 Y = 313.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 185 P 111 $\beta = -2$		-ZLI MEIDEX: Moon Cal RAM TIL 14:29 MOON SET 15:02

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Attitude Timeline

MET/GMT	ORBITER MNVR OPTION	DAP E/S/ β	REF ATT/REMARKS	EVENT
121 006/15:05:00 M 17:44 207/04:40:00 G 52:44	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = -2$	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 2A
122 006/17:25:00 M 33:53 207/07:00:00 G 08:53	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -1$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 18:05 - 18:09 RAM AT 18:20
123 006/18:18:00 M 22:49 207/07:53:00 G 57:49	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 21.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = -1$	LVLH R=321.11 P=231.69 Y=343.36 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 18:24-19:18
124 006/19:20:00 M 32:04 207/08:55:00 G 09:07:04	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -1$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 19:36 - 19:41
125 006/20:06:00 M 12:26 207/09:41:00 G 47:26	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 200.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = -1$	LVLH R=199.37 P=284.13 Y= 5.08	BIAS +XLV +ZVV MEIDEX: Sprite NITE 20:13-20:49 STARNAV: 1
126 006/20:44:00 M 50:40 207/10:19:00 G 25:40	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 170.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = -1$	LVLH R=180.00 P= 0.00 Y=350.00	BIAS -ZLV +XVV LPT: Ground Comm WLP 20:52 - 20:58
127 006/21:08:00 M 18:29 207/10:43:00 G 53:29	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = -1$	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 3A
128 006/23:08:00 M 12:12 207/12:43:00 G 47:12	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 20.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = 0$	LVLH R=340.63 P=104.13 Y=354.92	BIAS -XLV +ZVV MEIDEX: Sprite NITE 23:13-23:49
129 006/23:45:00 M 53:00 207/13:20:00 G 28:00	GND TRACK TGT = 3 P = 90.00 BV = 5 Y = 330.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 0$	LVLH R=300.01 P=153.26 Y= 89.49 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: Range Safety Dryden 23:54:57-23:58:08
130 007/00:00:00 M 08:43 207/13:35:00 G 43:43	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 0$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 00:14 - 00:19 00:22 - 00:26 RAM AT 00:32

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Attitude Timeline

MET/GMT	ORBITER			REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β			
131 007/00:27:00 M 37:30 207/14:02:00 G 12:30	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 140.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 0$	LVLH R=231.35 P=165.48 Y=332.34 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 00:21-01:14	
132 007/01:15:00 M 21:08 207/14:50:00 G 56:08	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 0$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV LPT: Ground Comm WLP 01:35-01:40 MEIDEX: Dust 01:50 - 01:56	
133 007/02:05:00 M 11:26 207/15:40:00 G 46:26	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 200.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = 0$	LVLH R=199.37 P=284.13 Y= 5.08	BIAS +XLV +ZVV MEIDEX: Sprite NITE 02:13-02:49	
134 007/02:35:00 M 49:27 207/16:10:00 G 24:27	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = 0$	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 8A	
135 007/04:35:00 M 43:22 207/18:10:00 G 18:22	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 55.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = 0$	LVLH R= 30.00 P= 0.00 Y= 55.00	BIAS +ZLV +YVV LPT: GPS NAV STARNAV: 3 SAA 05:00 - 05:12 SAA 06:36 - 06:46	
136 007/07:45:00 M 55:18 207/21:20:00 G 30:18	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = 0$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 5A	
137 007/11:00:00 M 11:34 208/00:35:00 G 46:34	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 1$	LVLH R=216.87 P= 94.29 Y= 24.79 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 11:01-11:53	
138 007/11:44:00 M 56:06 208/01:19:00 G 31:06	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 339.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 1$	INRTL R= 50.51 P=128.15 Y=354.36 RA= 125.460 DEC= 19.460N	-ZSI SOLCON 11:52 - 12:39 SPACE 11:09-11:45 SPACE 12:49-13:17 RAM IF MNVR EARLY	
139 007/12:39:00 M 51:58 208/02:14:00 G 26:58	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 97.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 1$	LVLH R=251.35 P=202.79 Y=291.00 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 12:37-13:28	
140 007/13:13:00 M 26:42 208/02:48:00 G 03:01:42	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 240.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 1$	INRTL R= 90.21 P= 30.95 Y= 39.87 RA= 125.520 DEC= 19.440N	-ZSI SOLCON 13:22 - 14:09 SPACE 12:49-13:17 SPACE 14:21-14:57 RAM IF MNVR EARLY	

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
141 007/14:09:00 M 21:43 208/03:44:00 G 56:43	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 1$	LVLH R=184.58 P=110.13 Y= 29.92 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 14:12-15:02
142 007/14:35:00 M 47:48 208/04:10:00 G 22:48	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.65 OM = 180.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 286 P 90 $\beta = 1$	LVLH R=254.35 P= 0.00 Y= 0.00	BIAS -YLV +XVV SOLSE: N Polar TR 14:52:47 37N 14:54:30
143 007/14:56:00 M 26 208/04:31:00 G 26	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.91 OM = 180.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = 1$	LVLH R=254.09 P= 0.00 Y= 0.00	BIAS -YLV +XVV SOLSE: N Polar 39N 15:00:00 37N 15:04:30 TS 15:37:45
144 007/15:46:00 M 54:06 208/05:21:00 G 29:06	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 210.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 1$	LVLH R=166.65 P=110.23 Y= 29.33 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 15:46-16:37
145 007/16:37:00 M 43:26 208/06:12:00 G 18:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 2$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:04 - 18:07
146 007/18:25:00 M 31:26 208/08:00:00 G 06:26	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 160.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = 2$	LVLH R=160.63 P=284.13 Y=354.92	BIAS +XLV +ZVV MEIDEX: Sprite NITE 18:42-19:18 STARNAV: 1
147 007/19:18:00 M 24:26 208/08:53:00 G 59:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 2$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 19:36 - 19:41
148 007/19:45:00 M 56:01 208/09:20:00 G 31:01	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = 2$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 9A LPT: Ground Comm MLA 20:49-20:54
149 007/21:40:00 M 48:01 208/11:15:00 G 23:01	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 30.00 OM = 220.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 30 P 90 $\beta = 2$	LVLH R=150.00 P= 0.00 Y= 40.00	BIAS -ZLV +XVV LPT: Ground Comm WLP 22:26 - 22:31 STARNAV: 1
150 007/22:34:00 M 42:23 208/12:09:00 G 17:23	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 165.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 3$	LVLH R=215.34 P= 78.91 Y=347.67 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 22:43-23:36

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MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER MNVR OPTION	DAP E/S/ β	REF ATT/REMARKS	EVENT
151 007/23:37:00 M 42:26 208/13:12:00 G 17:26	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.66 OM = 180.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 286 P 90 $\beta = 3$	LVLH R=254.34 P= 0.00 Y= 0.00	BIAS -YLV +XVV SOLSE: N Polar TR 23:52:16 37N 23:54:30
152 007/23:55:00 M 26 208/13:30:00 G 26	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.92 OM = 180.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = 3$	LVLH R=254.08 P= 0.00 Y= 0.00	BIAS -YLV +XVV SOLSE: N Polar 39N 23:57:45 37N 00:03:30 TS 00:37:12
153 008/01:00:00 M 08:03 208/14:35:00 G 43:03	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = 3$	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 12A LPT: Ground Comm MLA 01:34 - 01:39
154 008/04:15:00 M 27:22 208/17:50:00 G 18:02:22	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 235.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = 4$	LVLH R=210.00 P=180.00 Y=305.00	BIAS +ZLV +YVV LPT: GPS NAV STARNV: 4 SAA 04:59-05:10 SAA 06:35-06:44 SAA 08:12-08:21
155 008/08:20:00 M 32:22 208/21:55:00 G 22:07:22	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = 4$	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 6A
156 008/12:40:00 M 47:59 209/02:15:00 G 22:59	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 177.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 5$	LVLH R=195.12 P=123.01 Y=357.10 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 12:35-13:26
157 008/13:10:00 M 24:35 209/02:45:00 G 59:35	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 240.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 5$	INRTL R= 91.19 P= 28.55 Y= 40.61 RA= 126.500 DEC= 19.220N	-ZSI SOLCON 13:20 - 14:08 SPACE 12:44-13:13 SPACE 14:10-14:52 RAM IF MNVR EARLY
158 008/14:08:00 M 14:10 209/03:43:00 G 49:10	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 90.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 $\beta = 5$	LVLH R= 0.00 P= 30.00 Y= 90.00	BIAS +ZLV -YVV STARNV: 1M 14:08 - 14:41 SUN 14:47 - 14:48
159 008/14:41:00 M 54:33 209/04:16:00 G 29:33	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 5$	INRTL R=127.04 P=322.75 Y= 18.15 RA= 126.560 DEC= 19.210N	-ZSI SOLCON 14:50 - 15:37 SPACE 14:10-14:52 SPACE 15:40-15:55 RAM IF MNVR EARLY
160 008/15:37:00 M 44:08 209/05:12:00 G 19:08	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 110.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 6$	LVLH R=248.47 P=282.40 Y=314.76 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 15:08-16:02

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
161 008/16:02:00 M 14:22 209/05:37:00 G 49:22	INRTL R = 319.00 MNVR P = 239.00 Y = 282.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 155 P 129 $\beta = 6$		-ZLI MEIDEX: Moon Cal MOON SET 16:35 SUN AT 16:53
162 008/16:30:00 M 34:35 209/06:05:00 G 09:35	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 160.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = 6$	LVLH R=160.63 P=284.13 Y=354.92	BIAS +XLV +ZVV MEIDEX: Sprite NITE 17:11-17:46 STARNAV: 1
163 008/17:47:00 M 53:26 209/07:22:00 G 28:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 6$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:03 - 18:06 RAM AT 18:13
164 008/18:10:00 M 21:46 209/07:45:00 G 56:46	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 50.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 6$	LVLH R=313.04 P=211.48 Y=320.88 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 18:23-19:16
165 008/19:16:00 M 24:23 209/08:51:00 G 59:23	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 6$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 19:33 - 19:36
166 008/19:40:00 M 48:53 209/09:15:00 G 23:53	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = 6$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 11A
167 008/22:05:00 M 18:18 209/11:40:00 G 53:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 140.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 7$	LVLH R=180.00 P= 0.00 Y=320.00	BIAS -ZLV +XVV LPT: Ground Comm WLP 22:23 - 22:29
168 008/22:31:00 M 34:20 209/12:06:00 G 09:20	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 7$	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 22:38 - 22:40 22:46 - 22:48 RAM AT 23:06
169 008/23:05:00 M 09:44 209/12:40:00 G 44:44	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 7$	LVLH R=177.81 P= 73.62 Y= 0.00 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 23:10-00:01
170 008/23:40:00 M 47:49 209/13:15:00 G 22:49	GND TRACK TGT = 3 P = 90.00 BV = 5 Y = 330.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 7$	LVLH R=120.00 P=324.87 Y= 80.75 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: Range Safety Dryden 23:51:44-23:54:56

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/β		
171 008/23:57:00 M 009/00:06:18 209/13:32:00 G 41:18	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 β = 7	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 00:11 - 00:20 01:49 - 01:50 LPT: Ground Comm MLA 01:33 - 01:38
172 009/01:50:00 M 58:53 209/15:25:00 G 33:53	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 β = 7	LVLH R=290.92 P= 91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 10A
173 009/04:40:00 M 51:33 209/18:15:00 G 26:33	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 30.00 OM = 220.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 150 P 90 β = 8	LVLH R=210.00 P=180.00 Y=320.00	BIAS +ZLV -XVV LPT: GPS NAV STARNAV: 4 SAA 04:58 - 05:08 SAA 06:34 - 06:43 SAA 08:10 - 08:20
174 009/08:30:00 M 40:40 209/22:05:00 G 15:40	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 β = 9	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 10M
175 009/10:55:00 M 11:03:15 210/00:30:00 G 38:15	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 240.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 β = 9	LVLH R=180.00 P= 0.00 Y= 60.00	BIAS -ZLV +YVV Water Dump MSTRS STARNAV SUN 11:03 - 11:06 12:33 - 12:37
176 009/13:30:00 M 38:15 210/03:05:00 G 13:15	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 β = 10	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 4A
177 009/15:55:00 M 16:03:43 210/05:30:00 G 38:43	INRTL R = 3.00 MNVR P = 275.00 Y = 346.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 124 P 85 β = 10		-ZLI MEIDEX: Moon Cal RAM IF MNVR EARLY MOON SET 16:37
178 009/16:37:00 M 45:23 210/06:12:00 G 20:23	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 160.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 β = 10	LVLH R=160.63 P=284.13 Y=354.92	BIAS +XLV +ZVV MEIDEX: Sprite NITE 17:09-17:45 STARNAV: 1
179 009/17:45:00 M 51:26 210/07:20:00 G 26:26	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 β = 10	LVLH R=180.00 P= 0.00 Y= 0.00	-ZLV +XVV MEIDEX: Dust 18:01 - 18:02 RAM AT 18:13
180 009/18:10:00 M 21:50 210/07:45:00 G 56:50	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 50.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 β = 10	LVLH R=315.15 P=217.36 Y=319.81 LAT = 0.000N LON = -174.000W ALT = 19323.0m	-ZTDRS LPT: TDRS Comm TDRW 18:22-19:15

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
181 009/19:10:00 M 15:14 210/08:45:00 G 50:14	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 0.77 OM = 69.09 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 17 P 177 $\beta = 11$	LVLH R=290.92 P=91.61 Y=357.95	BIAS -XLV -YVV SOFBALL: GG TEST 7A LPT: Ground Comm WLP 19:14 - 19:19
182 009/22:25:00 M 33:53 210/12:00:00 G 08:53	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 11$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 22:34 - 22:39 22:43 - 22:47
183 009/23:00:00 M 06:26 210/12:35:00 G 41:26	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 340.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = 11$	LVLH R= 19.37 P=104.13 Y= 5.08	BIAS -XLV +ZVV MEIDEX: Sprite NITE 23:09-23:44
184 009/23:45:00 M 52:20 210/13:20:00 G 27:20	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 30.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 11$	LVLH R= 0.00 P=180.00 Y=330.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 23:56 - 00:02
185 010/00:04:00 M 06:30 210/13:39:00 G 41:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 12$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 00:10 - 00:17
186 010/00:30:00 M 36:26 210/14:05:00 G 11:26	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 340.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = 12$	LVLH R= 19.37 P=104.13 Y= 5.08	BIAS -XLV +ZVV MEIDEX: Sprite NITE 00:38-01:14
187 010/01:13:00 M 23:34 210/14:48:00 G 58:34	GND TRACK TGT = 3 P = 90.00 BV = 5 Y = 330.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 12$	LVLH R=120.00 P=336.45 Y= 61.28 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: Range Safety Dryden 01:24:18-01:27:39
188 010/01:35:00 M 42:33 210/15:10:00 G 17:33	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 340.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = 12$	LVLH R= 19.37 P=104.13 Y= 5.08	BIAS -XLV +ZVV MEIDEX: Sprite NITE 02:08-02:44
189 010/02:50:00 M 54:13 210/16:25:00 G 29:13	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = 12$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 14M
190 010/05:10:00 M 19:07 210/18:45:00 G 54:07	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 181.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 12$	LVLH R=176.72 P=129.17 Y= 1.00 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 05:05-05:56

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER MNVR OPTION	DAP E/S/ β	REF ATT/REMARKS	EVENT
191 010/05:35:00 M 48:34 210/19:10:00 G 23:34	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 100.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 13$	INRTL R=118.75 P=254.96 Y=328.09 RA= 128.160 DEC= 18.830N	-ZSI SOLCON 05:47 - 06:34: - SPACE 05:13-05:46 SPACE 06:46-07:17
192 010/06:34:00 M 45:50 210/20:09:00 G 20:50	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 120.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 13$	LVLH R=148.55 P= 69.80 Y=304.09 LAT = 0.000N LON = 85.000E ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRZ 06:40-07:31
193 010/07:05:00 M 16:49 210/20:40:00 G 51:49	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 150.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 13$	INRTL R=131.93 P=297.11 Y=358.44 RA= 128.220 DEC= 18.820N	-ZSI SOLCON 07:17 - 08:04 SPACE 06:46-07:14 SPACE 08:07-08:30
194 010/08:04:00 M 12:36 210/21:39:00 G 47:36	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 78.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 13$	LVLH R=282.14 P=298.23 Y=315.31 LAT = 0.000N LON = -41.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRE 07:43-08:37
195 010/08:37:00 M 46:53 210/22:12:00 G 21:53	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 117.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 13$	LVLH R=152.92 P= 56.83 Y=299.78 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 08:45-09:36
196 010/09:20:00 M 28:34 210/22:55:00 G 23:03:34	LVLH TRACK TGT = 2 P = 177.51 BV = 5 Y = 359.03 OM = 290.82 MNVR B9/AUTO/VERN HOLD A3/FREE/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 339 P 177 $\beta = 13$	LVLH R= 69.17 P= 91.79 Y= 1.98	BIAS -XLV +YVV SOFBALL: GG TEST 13A
197 010/11:45:00 M 57:34 211/01:20:00 G 32:34	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 130.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 14$	LVLH R=205.27 P=105.54 Y=312.86 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 11:54-12:46
198 010/12:50:00 M 13:00:42 211/02:25:00 G 35:42	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.43 OM = 0.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 285 P 90 $\beta = 14$	LVLH R= 74.57 P=180.00 Y= 0.00	BIAS -YLV -XVV SOLSE: S Polar TR 13:17:29
199 010/13:36:00 M 26 211/03:11:00 G 26	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.69 OM = 0.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = 14$	LVLH R= 74.31 P=180.00 Y= 0.00	BIAS -YLV -XVV SOLSE: S Polar
200 010/13:45:00 M 27 211/03:20:00 G 27	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 285.96 OM = 0.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = 14$	LVLH R= 74.04 P=180.00 Y= 0.00	BIAS -YLV -XVV SOLSE: S Polar

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
201 010/13:52:00 M 26 211/03:27:00 G 26	LVLH TRACK TGT = 2 P = 90.00 BV = 5 Y = 286.22 OM = 0.00 MNVR A10/AUTO/VERN HOLD (same)	RATE 0.0100 DB AT 0.100 DB RT 0.020 EARTH R 286 P 90 $\beta = 14$	LVLH R= 73.78 P=180.00 Y= 0.00 EARTH R 286 P 90 $\beta = 14$	BIAS -YLV -XVV SOLSE: S Polar 37S 14:00:45 TS 14:02:25
202 010/14:11:00 M 15:00 211/03:46:00 G 50:00	INRTL R = 154.00 MNVR P = 112.00 Y = 60.00 MNVR B9/AUTO/VERN HOLD A9/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 239 P 53 $\beta = 14$		-ZLI MEIDEX: Moon Cal RAM TIL 14:34 MOON SET 15:09
203 010/15:00:00 M 10:57 211/04:35:00 G 45:57	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 14$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV COM2PLEX FREQUENT 2 Start MSTRS
204 010/19:09:00 M 211/08:44:00 G	MLA 19:09 - 19:14			-ZLV -XVV LPT: Ground Comm
205 010/19:26:56 M 211/09:01:56 G				-ZLV -XVV MSTRS: Warm Up MSTRS: Phase 1 175 - 20:26:56 179 - 02:25:59
206 010/22:32:00 M 211/12:07:00 G				-ZLV -XVV MEIDEX: Dust 22:32 - 22:44 SOLSE: Earth view TR 22:16:40 TS 23:01:36
207 011/00:09:00 M 211/13:44:00 G	ROI2 00:09 - 00:13			-ZLV -XVV MEIDEX: Dust
208 011/17:58:00 M 212/07:33:00 G				-ZLV -XVV MEIDEX: Desert 11/17:58 LPT: Ground Comm MLA 19:06 - 19:11
209 011/20:50:00 M 212/10:25:00 G	ROI2 20:57 - 20:59 ROI2 22:30 - 22:40 ROI2 00:07 - 00:09			-ZLV -XVV MEIDEX: Dust
210 012/01:30:00 M 40:00 212/15:05:00 G 15:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 240.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 21$	LVLH R=180.00 P= 0.00 Y= 60.00	BIAS -ZLV +YVV Water Dump STARNAV SUN 01:57 - 02:00 03:28 - 03:30

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MEAN OF 1950 AND PYR EULER SEQUENCE

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FLTPLN/107/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
211 012/04:15:00 M 25:00 212/17:50:00 G 18:00:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 21$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV COM2PLEX FREQ 2 Continues
212 012/08:50:46 M 212/22:25:46 G				-ZLV -XVV MSTRS: Warm Up MSTRS: Phase 2 200 - 09:50:46 204 - 15:49:42
213 012/15:11:00 M 213/04:46:00 G				-ZLV -XVV COM2PLEX FREQUENT 2 Stop FREQUENT 3 Start MSTRS
214 012/18:30:00 M 37:30 213/08:05:00 G 12:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 24$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Crew Conference LPT: Ground Comm WLP 19:05 - 19:11
215 012/19:10:00 M 15:00 213/08:45:00 G 50:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 330.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 24$	LVLH R= 0.00 P=180.00 Y= 30.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 20:40 - 20:45
216 012/20:48:00 M 50:30 213/10:23:00 G 25:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 25$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 20:55 - 20:57 21:01 - 21:04
217 012/22:05:00 M 09:10 213/11:40:00 G 44:10	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 310.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 25$	LVLH R= 0.00 P=180.00 Y= 50.00	BIAS -ZLV +YVV LPT: Ground Comm WLP 22:14 - 22:19
218 012/22:22:00 M 26:10 213/11:57:00 G 12:01:10	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 25$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 22:29 - 22:36
219 012/23:00:00 M 213/12:35:00 G				-ZLV -XVV COM2PLEX FREQ 3 Continues
220 013/17:20:00 M 22:30 214/06:55:00 G 57:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 30.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 29$	LVLH R= 0.00 P=180.00 Y=330.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 17:28 - 17:33

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
221 013/18:50:00 M 55:00 214/08:25:00 G 30:00	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 330.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 29$	LVLH R= 0.00 P=180.00 Y= 30.00	BIAS -ZLV -XVV LPT: Ground Comm WLP 19:02 - 19:08
222 013/20:24:00 M 26:55 214/09:59:00 G 10:01:55	M50 (CALC) INRTL R = 64.00 MNVR P = 118.00 PYR Y = 293.00 MNVR B1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 319 P 130 $\beta = 29$	+X PYR R = 0.28 P = 195.78 Y = 359.91 LVLH 013/20:32:24 M 214/10:07:24 G	SIMPLEX / OA VLA TCA 20:32:24 MNVR between 20:23:40-20:33:20
223 013/20:33:00 M 34:31 214/10:08:00 G 09:31	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 29$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 20:53 - 21:01
224 013/22:00:00 M 214/11:35:00 G				-ZLV -XVV MEIDEX: Dust 22:25 - 22:31 SOLSE: Earth view TR 22:08:34 TS 22:53:22
225 013/23:00:00 M 214/12:35:00 G				-ZLV -XVV COM2PLEX FREQ 3 Continues
226 013/23:43:00 M 214/13:18:00 G				-ZLV -XVV L-2 Comm Checks MIL TCA 13/23:47 EDW TCA 14/01:13
227 014/12:30:00 M 37:30 215/02:05:00 G 12:30	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 32$	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Water Dump
228 014/15:11:00 M 215/04:46:00 G				-ZLV +YVV COM2PLEX FREQUENT 3 Stop
229 014/15:15:00 M 24:19 215/04:50:00 G 59:19	LVLH TRACK TGT = 2 P = 15.00 BV = 5 Y = 0.00 OM = 180.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 15 $\beta = 33$	LVLH R=180.00 P=285.00 Y= 0.00	BIAS +XLV +ZVV MEIDEX: Sprite NITE 15:25-15:59 STARNAV: 1 SUN 15:15-15:17
230 014/16:20:00 M 31:14 215/05:55:00 G 06:06:14	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 320.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 33$	LVLH R=324.76 P=269.50 Y= 34.42 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 16:33-17:24

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Attitude Timeline

MET/GMT	ORBITER			REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β			
231 014/17:08:00 M 20:52 215/06:43:00 G 55:52	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B11/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 3.00 DB RT 0.100 $\beta = 33$	LVLH R=270.00 P=343.77 Y= 81.18 LAT = 37.500N LON = -75.300W ALT = 0.0nm	-ZWALLOPS LPT: Ground Comm Wallops 17:22 - 17:27	
232 014/17:35:00 M 40:12 215/07:10:00 G 15:12	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 180.00 MNVR B9/AUTO/ALT HOLD (same)	RATE 0.5000 DB AT 3.00 DB RT 0.070 $\beta = 33$	LVLH R=203.52 P= 71.35 Y= 0.00 LAT = 25.500N LON = 23.000E ALT = 0.2nm	-ZDESERT MEIDEX: DESERT 17:43 - 17:48 RAM TIL 17:45	
233 014/17:55:00 M 58:06 215/07:30:00 G 33:06	INRTL R = 210.00 MNVR P = 95.00 Y = 300.00 MNVR B9/AUTO/VERN HOLD A1/INRT/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 162 P 137 $\beta = 33$		FCS CHECKOUT RCS HOTFIRE	
234 014/20:00:00 M 07:12 215/09:35:00 G 42:12	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B11/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 3.00 DB RT 0.100 $\beta = 34$	LVLH R= 90.00 P=129.78 Y= 89.29 LAT = 37.500N LON = -75.300W ALT = 0.0nm	-ZWALLOPS LPT: Ground Comm Wallops 20:30 - 20:36	
235 014/20:38:00 M 47:15 215/10:13:00 G 22:15	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 34$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 20:48 - 20:54 RAM TIL 20:33	
236 014/21:15:00 M 21:15 215/10:50:00 G 56:15	LVLH TRACK TGT = 2 P = 165.00 BV = 5 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 165 $\beta = 34$	LVLH R= 0.00 P=105.00 Y= 0.00	BIAS -XLV +ZVV MEIDEX: Sprite NITE 21:23-21:57	
237 014/21:48:00 M 57:38 215/11:23:00 G 32:38	GND TRACK TGT = 3 P = 90.00 BV = 5 Y = 330.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 34$	LVLH R=120.00 P=338.35 Y= 69.45 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: Range Safety Dryden 21:58:14-22:01:22	
238 014/22:05:00 M 14:47 215/11:40:00 G 49:47	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 34$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV MEIDEX: Dust 22:20 - 22:23	
239 014/22:45:00 M 49:34 215/12:20:00 G 24:34	GND TRACK TGT = 3 P = 90.00 BV = 3 Y = 0.00 OM = 350.00 MNVR B9/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 $\beta = 34$	LVLH R= 25.39 P=242.65 Y= 9.05 LAT = 0.000N LON = -174.000W ALT = 19323.0nm	-ZTDRS LPT: TDRS Comm TDRW 22:51-23:43	
240 014/23:17:00 M 30:31 215/12:52:00 G 13:05:31	INRTL TRACK TGT = 5 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR B9/AUTO/VERN HOLD A10/AUTO/VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 0 P 90 $\beta = 34$	INRTL R= 61.09 P= 67.70 Y= 36.96 RA= 132.770 DEC= 17.660N	-ZSI SOLCON 23:31 - 00:19 SPACE 23:01-23:28 SPACE 00:22-01:02	

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
241 015/00:19:00 M 33:57 215/13:54:00 G 14:08:57	TGT= 4 BV = 5 P = 270.00 Y = 1.00 OM = 190.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 179 P 90 β = 35	INRTL R=234.15 P=148.07 Y=330.92 RA= 132.783 DEC= 17.656N	+ZSI EOM THERMAL
242 015/06:05:00 M 13:56 215/19:40:00 G 48:56	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 90.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 β = 36	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV -YVV EOM THERMAL
243 015/16:15:00 M 21:56 216/05:50:00 G 56:56	INRTL R = 227.00 MNVR P = 239.00 Y = 289.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 250 P 117 β = 37	-Y: 41 -Z: 100	IMU ALIGN 16:15 - 17:02 16:22 - 17:08
244 015/16:35:00 M 41:57 216/06:10:00 G 16:57	INRTL R = 345.00 MNVR P = 3.00 Y = 342.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 135 P 148 β = 37	-Y: 43 -Z: 51	IMU VERIF 16:39 - 17:22 16:23 - 17:10
245 015/17:00:00 M 05:28 216/06:35:00 G 40:28	TGT= 4 BV = 5 P = 184.00 Y = 0.00 OM = 270.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 180 P 176 β = 38	INRTL R= 52.81 P= 21.24 Y=312.94 RA= 133.455 DEC= 17.475N	-XSI
246 015/18:45:00 M 55:52 216/08:20:00 G 30:52	INRTL R = 308.00 MNVR P = 58.00 Y = 331.00 MNVR A5/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 5.00 DB RT 0.070 SUN R 90 P 150 β = 38		Deorbit Comm
247 015/20:58:00 M 21:03:36 216/10:33:00 G 38:36	M50 (CALC) INRTL R = 83.00 MNVR P = 148.00 PYR Y = 77.00 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 256 P 40 β = 38	+X PYR R = 359.85 P = 195.84 Y = 359.95 LVLH 015/21:13:00 M 216/10:48:00 G	Deorbit Burn

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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

FLIGHT PLAN NOTES

A. FLIGHT DESCRIPTION

Orbiter: OV102/Columbia
 Launch Window: 2.5 hr
 Inclination: 39°
 Insertion Altitude: 150 nm
 Duration: 16 + 2 days

B. CREW

CDR – Rick Husband
 PLT – William McCool
 MS1 – Dave Brown
 MS2 – Kalpana Chawla
 MS3 – Michael Anderson (PL CDR)
 MS4 – Laurel Clark
 MS5 – Ilan Ramon

C. MAJOR EVENTS

<u>EVENT</u>	<u>ORB</u>	<u>MET</u>	<u>HOU</u> <u>DATE</u>	<u>CDT</u>	<u>GMT</u>	<u>ΔV</u> <u>(ft/s)</u>	<u>HP/HA</u>
Launch	01	00/00:00	07/19/02	08:35	13:35	—	—
OMS-2	01	00/00:43	07/19/02	09:18	14:18	185.5	146/153
Simplex Burn	223	13/20:32	08/02/02	05:07	10:07	16	136/141
Deorbit	255	15/21:13	08/04/02	05:48	10:48	240.0	—
Landing	256	15/22:11	08/04/02	06:46	11:46	—	—

D. LANDING OPPORTUNITIES

		<u>Landing Orbit</u>		<u>CDT</u>	<u>MET</u>
		<u>No.</u>	<u>Site</u>		
Nominal	Primary	256	KSC	07:46	15/22:11
	1 Rev Late	257	KSC	09:20	15/23:45
	Weather Alt.	258	EDW	07:46	16/01:11
Nominal +1	Primary	272	KSC	07:39	16/22:04
	1 Rev Late	273	KSC	09:13	16/23:38
	Weather Alt.	274	EDW	07:39	16/01:04
Nominal +2	Primary	288	KSC	07:32	17/21:57
	1 Rev Late	289	KSC	05:58	17/23:23
	Weather Alt.	290	EDW	07:32	17/00:57

E. COMMUNICATIONS

The Summary Timeline contains several data bands for ground site and TDRS events. The TDRS band reflects the three TDRS satellites that will be used for orbiter coverage (East, West, and Z) and their longitudinal position. The data shown contain Ku-band coverage (unshaded bars), as well as the TDRS SHO schedule (solid bars). The SHO schedule depicts early handovers and Z satellite coverage.

Shuttle

TDRS Support: East (47° W), West (171° W), Z (-275° E)

NASA Sites (*): MIL, WLP, and DFR

Contingency RTS: DGS, GTS, HTS, OTS, CTS, VTS, and NHS

F. PAYLOADS

SPACEHAB RESEARCH DOUBLE MODULE (RDM)

Commercial Payloads

1. ADVANCED RESPIRATORY MONITORING SYSTEM (ARMS)

ARMS investigates the pulmonary and cardiovascular changes in humans during rest and exercise, both in the early phase of microgravity and in later phases of flight.

2. CLOSED EQUILIBRATED BIOLOGICAL AQUATIC SYSTEMS (CEBAS)

CEBAS, a habitat for aquatic organisms, is a facility for conducting various microgravity experiments in zoology, botany, developmental biology, as well as for scientific research of artificial ecosystems.

3. MINIATURE SATELLITE THREAT REPORTING SYSTEM (MSTRS)

MSTRS detects ground-based radiofrequency (RF) sources in specific frequency ranges and geolocates the source. MSTRS will also collect ambient environmental data.

4. COMMERCIAL MACROMOLECULAR PROTEIN CRYSTAL GROWTH (CMPCG)

CMPCG uses the vapor diffusion process in suspended drops of protein solution to create protein crystals.

5. COMBINED 2-PHASE LOOP EXPERIMENT (COM2PLEX)

COM2PLEX investigates the microgravity behavior of capillary pumped loops. Different amounts of heat are transported from the evaporator to the condenser and radiated to space.

6. SPACE TECHNOLOGY & RESEARCH STUDENTS BOOTES (STAR BOOTES)

Insect, crystal growth, and microenvironment experiments developed and run by students in an Isothermal Containment Module.

7. STAR NAVIGATION (STARNAV)

STARNAV will validate a new algorithm for determining precise spacecraft attitude without prior knowledge of position using the Lost In Space Algorithm (LISA). This experiment has nationwide student participation for those interested in science and engineering.

8. OSTEOPOROSIS EXPERIMENT IN ORBIT (OSTEO)

This is an in-vitro evaluation of bone cell activity under microgravity conditions. Bone cell activity by osteoblasts and osteoclasts, and the effects of specific pharmaceutical agents in microgravity are assessed.

9. EUROPEAN RESEARCH IN SPACE & TERRESTRIAL OSTEOPOROSIS (ERISTO)

This is an in-vitro evaluation of bone cell activity under microgravity conditions. Bone cell activity by osteoblasts and osteoclasts and the effects of specific pharmaceutical agents in microgravity are assessed.

10. PHYSIOLOGY AND BIOCHEMISTRY (PHAB4)

This is a suite of four metabolic experiments to study skeletal muscle decline during space flight (Protein Turnover); calcium homeostasis, kinetics and bone mineral metabolism (Calcium Kinetics); renal stone development in space (Renal Stone Risk); and latent virus reactivation (Incidence of Latent Virus Shedding).

11. ENHANCED ORBITER REFRIGERATOR/FREEZER (EORF)

The EORF will be used as a freezer on orbit to store samples from metabolic studies.

12. THERMO ELECTRIC HOLDING MODULE (TEHM)

The TEHM will be used as a refrigerator on orbit to store the VCD-FE sample box.

ESA/NASA Barter Payloads:

13. BIOPACK

These are experiments that discriminate between the effects of gravity and cosmic radiation on cells and tissues. The tests will determine gravity perception threshold levels and the impact of radiation.

14. FACILITY FOR ADSORPTION & SURFACE TENSION (FAST)

Investigates the relationship between adsorption dynamics and the dynamic elasticity of a liquid-liquid interface in the presence of an adsorbing surfactant using a device that measures the surface tension of droplets.

15. ADVANCED PROTEIN CRYSTALLIZATION FACILITY (APCF)

APCF uses three different protein crystallization processes to produce large crystals. This is a key to understanding biological processes at the molecular level.

16. BIOBOX

This is a set of four experiments that studies the effects of weightlessness and cosmic radiation on living systems (cell cultures and microorganisms).

NASA ISS RME Payloads:

17. VAPOR COMPRESSION DISTILLATION FLIGHT EXPERIMENT (VCD-FE)

VCD-FE processes waste water into clean product water, and will establish the readiness of VCD technology for use on the International Space Station.

NASA Code U Payloads:

18. COMBUSTION MODULE-2 (CM-2)

CM-2 consists of three experiments: Laminar Soot Processes (LSP) studies soot formation, oxidation, and radiation of diffusion flames; Structure of Flameballs at Low Lewis Numbers (SOFBALL) investigates stationary spherical flames; and Water Mist (Mist) aims to understand how water mist inhibits flame spread for designing more efficient fire suppression systems.

19. SPACE ACCELERATION MEASUREMENT SYSTEM FREE FLYER (SAMS-FF)

SAMS-FF is flown in support of the CM-2 and MGM payloads by providing microgravity measurements and the general microgravity environment of the module.

20. MECHANICS OF GRANULAR MATERIALS (MGM)

MGM intends to develop a quantitative understanding of the constitutive behavior of saturated sand when crushed under very low confining pressures in a microgravity environment.

21. BIOREACTOR DEMONSTRATION SYSTEM-05 (BDS-05)

BDS-05 will develop a 3-D model to be used to assess the effects of gene therapy on the growth of prostate cancer cell aggregates.

22. MICROBIAL PHYSIOLOGY FLIGHT EXPERIMENT (MPFE)

Microgravity increases the rate of microbial growth and/or resistance to antibiotics. MPFE studies genetic induction of dormant metabolic pathways in response to adaptation to difficult environmental conditions and variations.

23. SLEEP-3 (ACTIGRAPHY)

This experiment documents the prevalence and severity of sleep disruption. Measurement of sleep-wake light exposure patterns allows predictions of the effects of space flight on circadian rhythms that affect sleep, and waking alertness and performance.

24. ASTROCULTURE (AST)

AST-01 examines the production of volatile compounds and the physiochemical biosynthesis of living plants for potential commercial value to the food industry. AST-02 studies the efficiency of gene transfer in microgravity.

25. COMMERCIAL PROTEIN CRYSTAL GROWTH-PROTEIN CRYSTALLIZATION FACILITY-13A (CPCG-PCF)

CPCG-PCF conducts experiments to grow large, well ordered protein crystals in microgravity under controlled conditions.

26. ZEOLITE CRYSTAL GROWTH (ZCG)

The ZCG facility processes multiple samples of Zeolite crystals, which are used as highly selective catalysts, absorbents, and ion exchangers.

27. FUNDAMENTAL RODENT EXPERIMENTS SUPPORTING HEALTH-2 (FRESH-2)

FRESH-2 is made up of three rodent experiments that study the effects of microgravity on the smooth muscle and endothelial cell function of arteries; morphologic alterations of the cerebellar cortex; and aquaporin behavior in various organs.

28. GRAVISENSING & RESPONSE SYSTEMS OF PLANTS (BIOTUBE/MFA)

Biotube tests whether High Gradient Magnetic Fields (HGMF) can simulate a gravitational effect by providing a directional stimulus for plants growing in space.

29. BIOLOGICAL RESEARCH IN CANISTERS (BRIC)

BRIC will confirm that spiral growth of moss cells is a predictable response to microgravity and will identify factors that contribute to the non-random orientation and distribution of amyloplasts in the tip of moss cells.

30. COMMERCIAL ITA BIOMEDICAL EXPERIMENT (CIBX)

CIBX seeks to obtain urokinase and Bence-Jones protein enzyme crystals to define the molecular structure and possibly develop a drug to prevent the metastasis of a variety of cancers.

FAST RESPONSE EXPERIMENTS ENABLING SCIENCE, TECHNOLOGY, APPLICATIONS, AND RESEARCH (FREESTAR)

1. MEDITERRANEAN ISRAELI DUST EXPERIMENT (MEIDEX)

MEIDEX primarily investigates the geographical variation of the optical, physical, and chemical properties of desert aerosol properties. Secondary objectives include Transient Luminous Event (sprite) observations.

2. SOLAR CONSTANT EXPERIMENT-3 (SOLCON-3)

SOLCON accurately measures the solar constant and identifies variations during a solar cycle.

3. SHUTTLE OZONE LIMB SOUNDING EXPERIMENT-2 (SOLSE-2)

SOLSE-2 is a new technique to measure the vertical distribution of ozone in the atmosphere.

4. CRITICAL VISCOSITY OF XENON-2 (CVX-2)

CVX-2 measures the critical viscosity of Xenon at temperatures very near its liquid-vapor critical point.

5. LOW POWER TRANSCEIVER (LPT)

LPT is a low power, lightweight, programmable transceiver prototype used as an S-band spacecraft navigational and communication device.

6. SPACE EXPERIMENT MODULE (SEM)

SEM contains 10 small enclosed modules, each containing a separate passive experiment designed and constructed by students.

SHUTTLE IONOSPHERIC MODIFICATION WITH PULSED LOCALIZED EXHAUST (SIMPLEX)

SIMPLEX requires the orbiter to fire an OMS engine over a pre-determined ground based radar site.

ORBITAL ACCELERATION RESEARCH EXPERIMENT (OARE)

OARE is an instrument that acquires accurate data of low-level and low-frequency accelerations along the orbiter principal axes. OARE was manifested as a tool for CM-2 rather than as an experiment.

G. ON ORBIT DETAILED TEST OBJECTIVES (DTOs)

1. Single String Global Positioning System (DTO 700-14)

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

2. CROSSWIND LANDING PERFORMANCE (DTO 805)(DTO of opportunity)

The purpose of this experiment is to demonstrate the capability to perform a manually controlled landing in the presence of a crosswind.

H. PRE AND POSTFLIGHT DETAILED SUPPLEMENTAL OBJECTIVES (DSOs)

1. PHARMACOKINETICS & CONTRIBUTING PHYSIOLOGIC CHANGES DURING SPACE FLIGHT—PROTOCOL B (DSO 632)

Changes in gastrointestinal function and physiology as a result of space flight affect drug absorption and bioavailability of oral medications, and thus compromise therapeutic effectiveness. This DSO will lead to the design and development of effective pharmacological countermeasures and therapeutic adjustments.

2. SPATIAL REORIENTATION FOLLOWING SPACE FLIGHT (DSO 635)

A previous observation suggested that discordant sensory stimuli caused by an unusual motion environment disrupted spatial orientation and balance control in a returning crewmember by triggering a state change in central vestibular processing. The findings of the current investigation are expected to demonstrate the degree to which challenging motion environments may affect postflight (re)adaptation.

3. SPACE FLIGHT AND IMMUNE FUNCTION (DSO 498)

This DSO studies the effects of space flight on the essential functions of neutrophils, monocytes, and cytotoxic cells. The role of these cells is critical to immune system functioning and to fighting off infectious agents. The study intends to develop countermeasures to reduce the risk of the spread of infectious diseases in long duration space flight.

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CUE CARD CONFIGURATION

**CUE CARD
CONFIGURATION**

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STS-107 DAP A1 THROUGH A8 CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6	A7	A8
PRI									
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000	0.2000	0.0500
ATT DB	11(51)	5.00	1.00	0.30	3.00	5.00	5.00	2.00	2.00
RATE DB	12(52)	0.20	0.20	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	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL	ALL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ALT									
RATE DB	18(58)	0.200	0.200	0.070	0.200	0.070	0.070	0.100	0.100
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
# JETS	20(60)	2	2	1	2	1	1	2	2
ON TIME	21(61)	0.08	0.08	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	0.00	0.00
VERN									
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.0500	0.0500	0.0160	0.0500
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.050
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG		LOSS OF VERN (ALL)	LOSS OF VERN (TAIL ONLY)	RNDZ	TERMINAL PHASE

FLT PLN-1a/107/O/A

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'STS-107 A1 THROUGH A8 DAP CONFIGURATIONS'

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STS-107 DAP B1 THROUGH B8 CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5	B6	B7	B8
PRI									
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000	0.5000	0.0500
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00	3.00	2.00	2.00
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	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
TRAN PLS	37(57)	0.10	0.02	0.02	0.02	0.02	0.02	0.05	0.05
ALT									
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200	0.200	0.100	0.100
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	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	0.00	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	0.2000	0.0500
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033	1.000	1.000	1.000
RATE DB	45(65)	.020	.020	.020	.010	.020	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.020
COMP	47(67)	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0	0	0
PURPOSE		OMS/RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (ALL)		COAS/HUD CAL		RNDZ	TERMINAL PHASE

FLT PLN-1aa/107/O/A

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BACK OF 'STS-107 A1 THROUGH A8 DAP CONFIGURATIONS'

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VELCRO**

STS-107 DAP A9 THROUGH A15 CONFIGURATIONS

	ITEM #	A9	A10	A11	A12	A13	A14	A15
PRI								
ROT RATE	10(50)	0.1000	0.0500	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	11(51)	3.00	1.00	5.00	5.00	5.00	5.00	5.00
RATE DB	12(52)	0.20	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	0.100
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
Y OPTION	16(56)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ALT								
RATE DB	18(58)	0.070	0.070	0.200	0.200	0.200	0.200	0.200
JET OPT	19(59)	TAIL	TAIL	ALL	ALL	ALL	ALL	ALL
# JETS	20(60)	1	1	2	2	2	2	2
ON TIME	21(61)	0.08	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	0.00
VERN								
ROT RATE	23(63)	0.1000	0.0100	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24(64)	2.000	0.100	1.000	1.000	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.020	.020	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0	0
PURPOSE		MEIDEX MOON CAL	SOLSE LIMB/ SOLCON					

BOLD-ITALIC indicate a change from the I-load

FLT PLN-1b/107/O/A

HINGE

TOP
 BACK OF 'STS-107 B1 THROUGH B8 DAP CONFIGURATIONS'
 HINGED AT BOTTOM OF
 'STS-107 A8 THROUGH A 15 DAP CONFIGURATIONS'

HINGE

STS-107 B9 THROUGH B15 DAP CONFIGURATIONS

	ITEM #	B9	B10	B11	B12	B13	B14	B15
PRI								
ROT RATE	30(50)	0.2000	0.2000	0.2000	0.5000	0.5000	0.5000	0.5000
ATT DB	31(51)	3.00	1.00	3.00	3.00	3.00	3.00	3.00
RATE DB	32(52)	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	0.040
COMP	34(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
Y OPTION	36(56)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
TRAN PLS	37(57)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ALT								
RATE DB	38(58)	0.070	0.070	0.100	0.200	0.200	0.200	0.200
JET OPT	39(59)	TAIL	TAIL	TAIL	ALL	ALL	ALL	ALL
# JETS	40(60)	1	1	2	2	2	2	2
ON TIME	41(61)	0.08	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	0.00
VERN								
ROT RATE	43(63)	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	44(64)	1.000	1.000	1.000	1.000	1.000	1.000	1.000
RATE DB	45(65)	.020	.020	.020	.020	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0	0
PURPOSE		FREESTAR/ SPACEHAB OBS	SOLSE POLAR SWEEP	LPT GN SURFACE TRACK				

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

FLT PLN-1bb/107/O/B

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VELCRO**

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107 FLT PLN FS FIN

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