

Flight Plan

STS-110/8A

(STS-110 Flight Readiness Review Trajectory)

Mission Operations Directorate
Operations Division

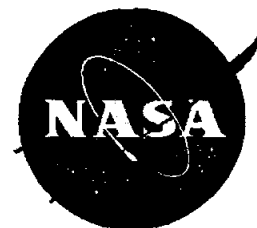
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<https://mod.jsc.nasa.gov/do4/flightplan/fp.cfm?id=110>

Final
February 26, 2002

EVENT	MET	CENTRAL				DMT	
Launch	00/00:00	Thu	04/04/02	16:14	CST	Fri	01:13
ISS Docking	01/19:16	Sat	04/06/02	11:29	CST	Sat	20:29
S0 Activation	01/16:00	Sat	04/06/02	08:13	CST	Sat	17:13
EVA 1	02/17:35	Sun	04/07/02	10:48	CDT	Sun	18:48
EVA 2	04/17:35	Tue	04/09/02	10:48	CDT	Tue	18:48
EVA 3	05/17:35	Wed	04/10/02	10:48	CDT	Wed	18:48
EVA 4	07/17:35	Fri	04/12/02	10:48	CDT	Fri	18:48
Undock	08/21:31	Sat	04/13/02	14:44	CDT	Sat	22:44
Landing	10/19:36	Mon	04/15/02	12:49	CDT	Mon	20:49

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas




Verify this is the correct version for the pending operation (training, simulation, or flight).
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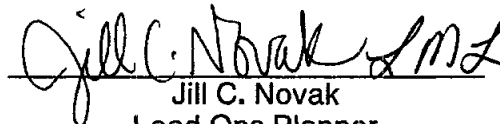
STS-110 FLIGHT PLAN

FINAL
February 26, 2002

PREPARED BY:




Roger M. Smith
Book Manager/Lead Flight Activities Officer

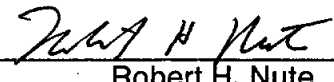


Jill C. Novak
Lead Ops Planner

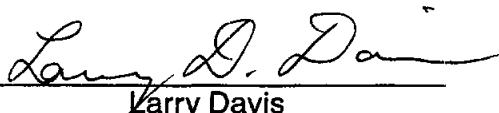
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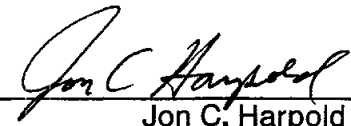
Jennifer Price
Shuttle and Station Operations
Planning Group



Robert H. Nute
Chief, Flight Planning Branch



Larry Davis
Chief, Operations Division



Jon C. Harpold
Director of Operations

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FLIGHT PLAN
STS-110

LIST OF EFFECTIVE PAGES

FINAL 02/26/02

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v	* 110/FIN	2-40	110/FIN
vi	* 110/FIN	3-1	110/FIN
vii	* 110/FIN	3-2	110/FIN
viii	* 110/FIN	3-3	110/FIN
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2-35	110/FIN	3-42	110/FIN

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3-51	110/FIN	3-100	110/FIN
3-52	110/FIN	3-101	110/FIN
3-53	110/FIN	3-102	110/FIN
3-54	110/FIN	3-103	110/FIN
3-55	110/FIN	3-104	110/FIN
3-56	110/FIN	3-105	110/FIN
3-57	110/FIN	3-106	110/FIN
3-58	110/FIN	3-107	110/FIN
3-59	110/FIN	3-108	110/FIN
3-60	110/FIN	4-1	110/FIN
3-61	110/FIN	4-2	110/FIN
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3-71	110/FIN	5-4	* 110/FIN
3-72	110/FIN	5-5	* 110/FIN
3-73	110/FIN	5-6	* 110/FIN
3-74	110/FIN	5-7	* 110/FIN
3-75	110/FIN	5-8	* 110/FIN
3-76	110/FIN	6-1	* 110/FIN
3-77	110/FIN	6-2	* 110/FIN
3-78	110/FIN	6-3	* 110/FIN
3-79	110/FIN	6-4	* 110/FIN
3-80	110/FIN	6-5	* 110/FIN
3-81	110/FIN	6-6	* 110/FIN
3-82	110/FIN	7-1	* 110/FIN
3-83	110/FIN	CC 7-2	* 110/FIN
3-84	110/FIN	CC 7-3	* 110/FIN
3-85	110/FIN	CC 7-4	* 110/FIN
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3-88	110/FIN		
3-89	110/FIN		
3-90	110/FIN		
3-91	110/FIN		

* - Omit from flight book

STS-110 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
STS-110 DAP A1 - A6 CONFIGURATIONS (FRONT TOP)	CC 7-2	FLT PLN-1a/110/O/B
STS-110 DAP B1 - B5 CONFIGURATIONS (FRONT BOTTOM)	CC 7-3	FLT PLN-1aa/110/O/B
STS-110 DAP A7 - A13 CONFIGURATIONS (BACK TOP)	CC 7-4	FLT PLN-1b/110/O/B
STS-110 DAP B7 - B13 CONFIGURATIONS (BACK BOTTOM)	CC 7-5	FLT PLN-1bb/110/O/B

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CUE CARD CONFIGURATION 7-1

INTRODUCTION

The STS-110 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 in the EVA Checklist.

The format of the summary and detailed timelines includes data bands for Mission Control Center. This data band reflects activities and commands executed by the Houston and Moscow control centers and any voice communication required to support specific events.

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive, and the requirements of the STS-110 Flight Requirements Document.

The flight profile used for this Flight Plan is for a launch date of April 4, 2002, at 16:14 CST. Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

NSTS-37326, Shuttle Crew Scheduling Constraints (SCSC), Rev A, July 2000, has been used to build the timelines contained in this Flight Plan.

The following SCSC Exceptions are in review for STS-110:

110-1A Pre/Post Sleep less than 2 hr minimum duration during EVA/RNDZ activities.

The Flight Plan timeline pages, as well as other flight planning information, are available on the Space Shuttle Flight Planning web page at the following address:
<http://mod.jsc.nasa.gov/do4/flightplan/fp.cfm?id=110>

OVERVIEW TIMELINE

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STS-110 ISS 8A

Overview Timeline 11+0+2 (4 EVAs)

MET		00/0 1 2 3 4 5 6 7 8 9 10 11												
FD 01	STS													
	ISS													
	Orb Att	-ZLV +YVV					-ZLV -XVV							
Launch ^														
MET		12 13 14 15 16 17 18 19 20 21 22 23 01/0 1 2 3 4 5 6 7 8 9 10 11												
FD 02	STS													
	ISS													
	Orb Att	-ZLV -XVV												
EMU & RMS C/O Meal Rndz/EVA Prep														
MET		12 13 14 15 16 17 18 19 20 21 22 23 02/0 1 2 3 4 5 6 7 8 9 10 11												
FD 03	STS													
	ISS													
	Orb Att	DUMP		RNDZ			Hatch open		Payload Xfer EVA Prep		EVA Rvw			
Rendezvous LVLH TEA														
^ DOCKING 01/19:16														
MET		12 13 14 15 16 17 18 19 20 21 22 23 03/0 1 2 3 4 5 6 7 8 9 10 11												
FD 04	STS													
	ISS													
	Orb Att	LVLH TEA												
Pre EVA S0 Install Fwd MTS Struts, Avionics, TUS 1 Pst EVA														
EVA 1														
^ Activate S0														
MET		12 13 14 15 16 17 18 19 20 21 22 23 04/0 1 2 3 4 5 6 7 8 9 10 11												
FD 05	STS													
	ISS													
	Orb Att	LVLH TEA				DUMP		LVLH TEA						
CNDS Xfer Ops Meal EVA Prep EVA Rvw EVA Rvw Off Duty														
MET		12 13 14 15 16 17 18 19 20 21 22 23 05/0 1 2 3 4 5 6 7 8 9 10 11												
FD 06	STS													
	ISS													
	Orb Att	TEA	DUMP*		LVLH TEA					RBST		LVLH TEA		
Waste Pre EVA Aft MTS Struts, Drag Links, TUS 2, Keel Pins Post EVA/ EVA Prep														
EVA 2														
MET		12 13 14 15 16 17 18 19 20 21 22 23 06/0 1 2 3 4 5 6 7 8 9 10 11												
FD 07	STS													
	ISS													
	Orb Att	TEA	RBST		LVLH TEA					LVLH TEA				
Reboost Pre EVA J300&400, MT Lch Rst, A/L Spur Post EVA														
EVA 3														
^ PDGF Reconfig ^SSAS C/O														
MET		12 13 14 15 16 17 18 19 20 21 22 23 07/0 1 2 3 4 5 6 7 8 9 10 11												
FD 08	STS													
	ISS													
	Orb Att	LVLH TEA												
MT C/O Xfer Ops Crew Conf Meal EVA RVW Off Duty														
MET		12 13 14 15 16 17 18 19 20 21 22 23 08/0 1 2 3 4 5 6 7 8 9 10 11												
FD 09	STS													
	ISS													
	Orb Att	TEA	DUMP		LVLH TEA					LVLH TEA				
PWR DMP Pre EVA N1 Swingarm, Lights, Handrails, Z1 MLI Post EVA														
EVA 4														
MET		12 13 14 15 16 17 18 19 20 21 22 23 09/0 1 2 3 4 5 6 7 8 9 10 11												
FD 10	STS													
	ISS													
	Orb Att	TEA	RBST		LVLH TEA			UNDOCK		DUMP		-ZLV -XVV		
Reboost Xfer Ops Meal Htch Cls Lk Ck UNDOCK Simo/Cnds Dump														
^ UNDOCKING 08/21:31														
MET		12 13 14 15 16 17 18 19 20 21 22 23 10/0 1 2 3 4 5 6 7 8 9 10 11												
FD 11	STS													
	ISS													
	Orb Att	-ZLV -XVV												
FCS C/O Cabin Stow Meal Cabin Stow														
MET		12 13 14 15 16 17 18 19 20 21 22 23												
FD 12	STS													
	ISS													
	Orb Att	-ZLV -XVV												
IMU D/O Prep Ent -XSI/ENTRY														

TIG 10/18:10 ^ ^ KSC LANDING

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SUMMARY TIMELINE AND ISS SHORT TERM PLAN

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GMT 04/04/02 23 04/05 01 02 03 04 05 06 07 08 09 10 12
 MET Day 000 00/00 01 02 03 04 05 06 07 08 09 10 12

FD01 CDR BLOOMFIELD	ASCENT	POST INSERTION	IMU	AFT EV C/O	OMS BURN	NC1 - ZLVV	PMC A/G	PRE SLEEP	SLEEP	COMPLETED PRIOR TO STS ARRIVAL LCA C/O SSRMS C/O EMU C/O REBA BATT CHARGE SAFER C/O SO DRY RUN (2) 8A TIMELINE REVIEW
PLT FRICK	ASCENT	POST INSERTION	RMS*	PLBK ACT	OMS BURN	GP RW P/D N	PRE SLEEP	SLEEP		
MS1/EV2 WALHEIM	ASCENT	POST INSERTION	GIRA INSTALL		PRE SLEEP			SLEEP		
MS2 OCHOA	ASCENT	POST INSERTION	PRE SLEEP	OMS BURN	GP RW P/D N	PRE SLEEP	SLEEP			
MS3/EV4 MORIN	ASCENT	POST INSERTION	PGSC SETUP		PRE SLEEP			SLEEP		
MS4/EV3 ROSS	ASCENT	POST INSERTION	PL STATUS	PLBK OPS	BPS STAT	PRE SLEEP	SLEEP			
MS5/EV1 SMITH	ASCENT	POST INSERTION	TP EW P/C	SEE S/U	PRE SLEEP			SLEEP		
DAY/NIGHT	[Timeline bar with day/night indicators]									
ORBIT	[Timeline bar with orbit indicators]									
DAILY ORBIT	[Timeline bar with daily orbit indicators]									
TDRS 47 171	[Timeline bar with TDRS indicators]									
ORB ATT	ASCENT	BIAS -ZLV	+YVV	NC1	-ZLV -XVV					
NOTES	*ON-ORBIT INIT					*RECONFIG				

GMT 04/05/02

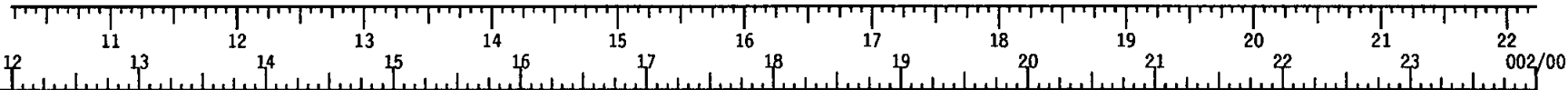
MET Day 000

	12	13	14	15	16	17	18	19	20	21	22	23	24	
FD02	SLEEP	DSO 493	POST SLEEP		OMS BURN	NC2 ZXLVV	RMS C/O	PLB SURVEY	LOAD DAPS	MEAL			EXERCISE	
PLT FRICK	SLEEP		POST SLEEP		OMS BURN	CRYO 02 SNSR CK	RMS C/O	PLB SURVEY	EXERCISE	MEAL	FUEL CELL MON		RNDZ TOOLS C/O	
MS1/EV2 WALHEIM	SLEEP		POST SLEEP		ERGO S/U	A/L PREP	EMU C/O			MEAL	SAFER C/O	EMU PREP FOR XFER	EXERCISE	HHL C/O
MS2 OCHOA	SLEEP	DSO 493	POST SLEEP		OMS BURN		MAGR SETUP	FILTER CLEAN	PEAVOENT	MEAL	ODS RING EXT	EXERCISE	RNDZ TOOLS C/O	
MS3/EV4 MORIN	SLEEP		POST SLEEP		ST A T	BPS STAT	A/L PREP	EMU C/O			MEAL	SAFER C/O	EMU PREP FOR XFER	EXERCISE
MS4/EV3 ROSS	SLEEP		POST SLEEP		P/TV 02 S/U	EXERCISE	P/TV06 S/U SSV	P/TV19 C/L CM SU	PEAVOENT	MEAL	ODS RING EXT	XFER PREP	P/TV17 S/U	
MS5/EV1 SMITH	SLEEP		POST SLEEP		ERGO S/U		EXERCISE	H2O CWC S/U		MEAL	EMU PREP FOR XFER	EVA TOOL PREP		
DAY/NIGHT	[Timeline with shaded sleep periods]													
ORBIT	9	10	11	12	13	14	15	16						
DAILY ORBIT	14	15	16	1	2	3	4	5						
TDRS	47	[Timeline with TDRS events]												
ORB ATT	-ZLV -XVV NC2 -ZLV -XVV #SWAP													
NOTES														

GMT	04/05/02	23	04/06	01	02	03	04	05	06	07	08	09	10	12
MET	Day 001	001/00	01	02	03	04	05	06	07	08	09	10	11	12
FD02	CDR BLOOMFIELD	EXERCISE	+X RCS BURN	NC3 ZLV FUT LD MNV	PMC OCA	PRE SLEEP								FUT LD MNV
	PLT FRICK	MAIN T	+X RCS BURN			PRE SLEEP								
	MS1/EV2 WALHEIM					PRE SLEEP								
	MS2 OCHOA	P/TV17 S/U	+X RCS BURN	O I U A C T		PRE SLEEP								
	MS3/EV4 MORIN			P S T A T U S		PRE SLEEP								
	MS4/EV3 ROSS	P/TV17 S/U				PRE SLEEP								
	MS5/EV1 SMITH	EVA TOOL PREP		B P S M U		PRE SLEEP								
DAY/NIGHT														
ORBIT			17	18	19	20	21	22	23	24				
DAILY ORBIT	5	6	7	8	9	10	11	12	13					
TDRS	47													
ORB ATT	171													
				NC3										
NOTES														

GMT 04/06/02

MET Day 001

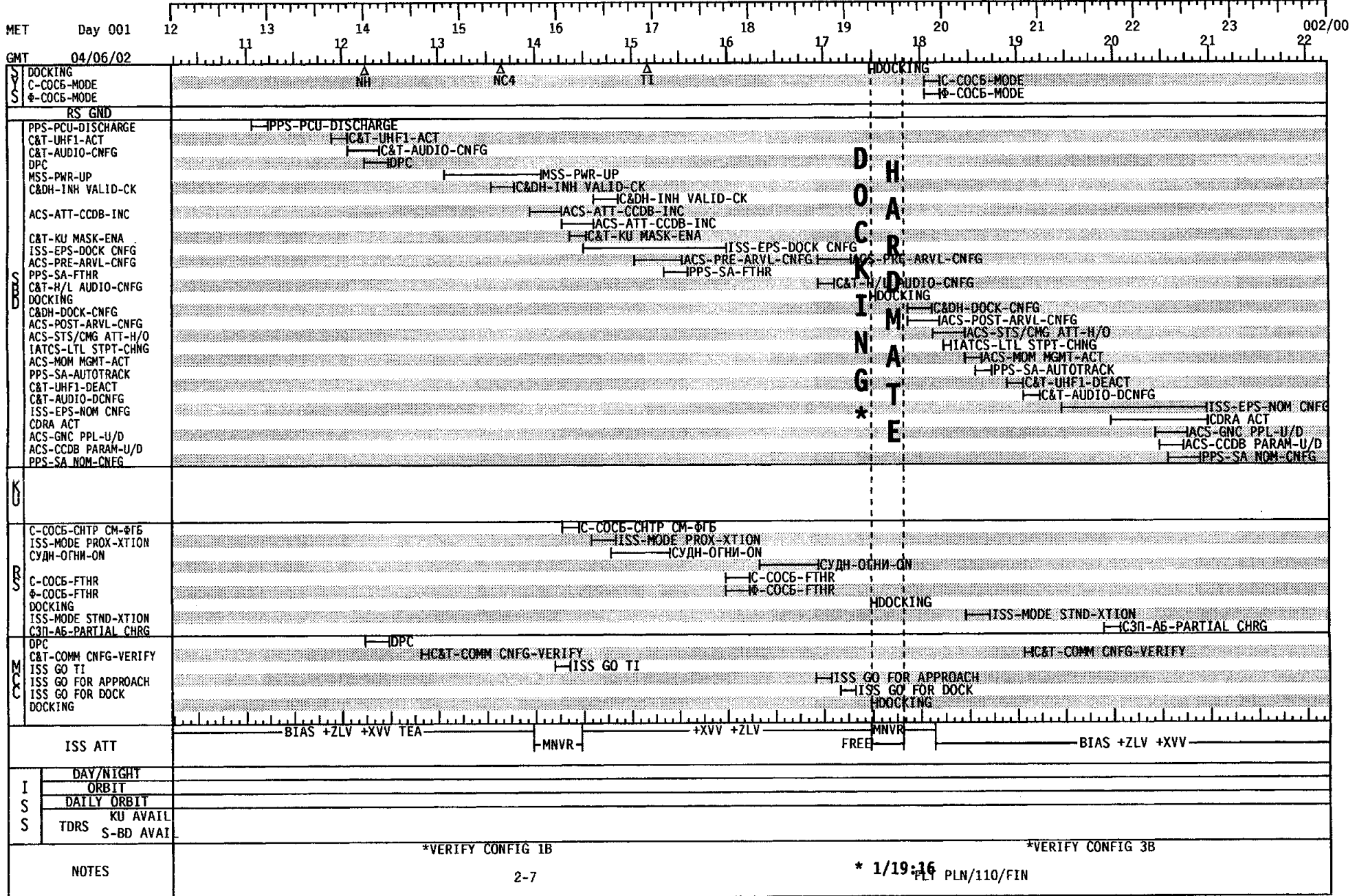


S T S	FD03	CDR BLOOMFIELD	DSO 493	POST SLEEP	POST SLEEP	GP RWR B	NH	NC4	ISS RNDZ OPS	TI	APPROACH T/L	XZLV	GP RWR B	GP RWR B	GP RWR B	GP RWR B	HNTDY	SBRFTY	CXFR	CWNCT #1	EXERCISE	CWCR #1	CWCR #2	XFER OPS
		PLT FRICK	WANSITTE	POST SLEEP	WASRTM	POST SLEEP			ISS RNDZ OPS		APPROACH T/L	DOHAR	GP RWR B	GP RWR B	GP RWR B	GP RWR B	HNTDY	SBRFTY	TV ROUTE CK	P/TV 22 ROUTE CK	SSRMS VIDEO SPPT			*
		MS1/EV2 WALHEIM		POST SLEEP					EMU RMVL	EXERCISE	ISS RNDZ OPS	APPROACH T/L	HATCH LEAK CHECK	ODS PREP	HATCH OPEN	HNTDY	SBRFTY	EMU RCNGF PRE-EVA	EMU TO A/L I/F CK	REB/A	RC/BO	E/L PREP		
		MS2 OCHOA	DSO 493	POST SLEEP		GP RWR B	POST SLEEP			ISS RNDZ OPS		APPROACH T/L	ACIMG	PCS S/U	POST RNDZ PGSC CONF	HNTDY	SBRFTY	XFER OPS	P/TV 121 RT CK	SSRMS SURV	DRY RUN			
		MS3/EV4 MORIN		POST SLEEP					EXERCISE	SM T A	BPS STAT	ISS RNDZ OPS	APPROACH T/L	PCS S/U	POST RNDZ PGSC CONF	HNTDY	SBRFTY	CGBA XFER	CPCG XFER	XFER OPS				
		MS4/EV3 ROSS		POST SLEEP					EXERCISE	P/TV 20 SETUP (DOCK)	P/TV 20	APPROACH T/L	ELCTK	PLBK OPS	P/TV 21 S/U	HNTDY	SBRFTY	CGBA XFER	CPCG XFER	XFER OPS				
		MS5/EV1 SMITH		POST SLEEP		CWC COND S/U	PS OL STEP		EXERCISE	EMU RMVL	ISS RNDZ OPS	APPROACH T/L	HATCH LEAK CHECK	ODS PREP	HATCH OPEN	HNTDY	SBRFTY	EMU RCNGF PRE-EVA	EMU TO A/L I/F CK	REB/A	RC/BO	E/L PREP		
I S S		ISS CDR ONUFRIENKO		POST SLEEP	PREP WORK	DPC	P/TV S/U	COFC AK 1M SMPL	IMS FILE PREP	EXERCISE	MIDDAY-MEAL	PMA 29 ARR					HNTDY	SBRFTY	EXERCISE IRED	COFC 1M SMPL				
		FE-1 WALZ		POST SLEEP	PREP WORK	DPC	EVARM	EVARM PRE EVA	EXERCISE IRED	IWIS-S/U	MIDDAY-MEAL	P/TV OPS					HNTDY	SBRFTY	EMU RCNGF PRE-EVA	EXERCISE TVIS	E/L PREP			
		FE-2 BURSCH		POST SLEEP	PREP WORK	DPC	PLT AT	COX-MNT	EXERCISE TVIS	EXERCISE IRED	MIDDAY-MEAL						HNTDY	SBRFTY	TV ROUTE CK	SSRMS SURV	DRY RUN			
S T S		DAY/NIGHT																						
		ORBIT	24	25	26	27	28	29	30	31	32													
	DAILY ORBIT	13	14	15	1	2	3	4	5	6														
	TDRS	47	171																					
	RS GND																							
	ORB ATT																							
	ISS ATT																							
	NOTES																							

* 1/19/16

*OFF *IWIS SHUTDOWN *INSTALL *EXERCISE
 @DOCKING @CDRA ACT SPPT *INSTALL *CPCG A
 *VERIFY CONFIG 1B *HTR *VERIFY CONFIG 3B

STS-110/8A JOINT MISSION STP



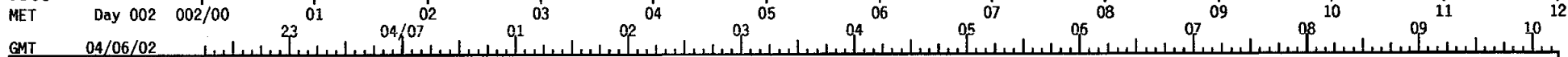
GMT 04/06/02 23 04/07 01 02 03 04 05 06 07 08 09 10 12
 MET Day 002 002/00 01 02 03 04 05 06 07 08 09 10 12

S T S	FD03 CDR BLOOMFIELD	XFER OPS	CT WE CR # M 2	CWC XFER (2)	EVA PROC RVW	PRE SLEEP	PMC OCA	PRE SLEEP	SLEEP	
	PLT FRICK	EXERCISE		EVA 1 PROCEDURE RVW		LO LN L U M		PRE SLEEP	SLEEP	
	MS1/EV2 WALHEIM	E P R L E P	EVA TOOL CONFIG	EVA 1 PROCEDURE RVW				PRE SLEEP	SLEEP	
	MS2 OCHOA		XFER OPS	EVA 1 PROCEDURE RVW				PRE SLEEP	SLEEP	
	MS3/EV4 MORIN	XFER OPS	EVA CAM S/U	EVA 1 PROCEDURE RVW				PRE SLEEP	SLEEP	
	MS4/EV3 ROSS	XFER OPS	X T I B F A I R E G I R U P	EVA 1 PROCEDURE RVW				PRE SLEEP	SLEEP	
	MS5/EV1 SMITH	E P R L E P	TOOL CNFGC/O	EVA 1 PROCEDURE RVW				PRE SLEEP	SLEEP	
I S S	ISS CDR ONUFRIENKO		C G B A	EVA 1 PROCEDURE RVW		DPC		PRE SLEEP	SLEEP	
	FE-1 WALZ	E P R L E P	EVA TOOL CONFIG	EVA 1 PROCEDURE RVW		DPC		PRE SLEEP	SLEEP	
	FE-2 BURSCH	C A P C T G	X T I B F A I R E G I R U P	EVA 1 PROCEDURE RVW		DPC		PRE SLEEP	SLEEP	
S T S	DAY/NIGHT	[Timeline with shaded blocks for day/night cycles]								
	ORBIT	32	33	34	35	36	37	38	39	40
S T S	DAILY ORBIT	6	7	8	9	10	11	12	13	14
	TDRS	47								
	171	[Timeline with horizontal bars and dots]								
	RS GND									
	ORB ATT									
	ISS ATT									
	NOTES	*CPCG STAT								

SVS TESTING →

STS-110/8A JOINT MISSION STP

FD03



S			
SBD	SBD-KEY-CHG		HSBD-KEY-CHG
K			
R			
P	SAMS-RTS/D2-OPS SAMS-RTS/D1-OPS MAMS-NOMINAL-OPS EXPRS1-PWR/THERM ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-ICU/D1-OPS PCG-STES-007-PWR PCG-STES-010-PWR CGBA-3-PROCESSING CPO/PRO-CPCG-H-CMD CPCG-H1-CRYSTAL-GRTH CGBA-PARAM-COMMAND MAMS-COMMANDING-5 MAMS-STORED-DATA-D/L SAMS-RTS/D1-DEACT CPO/PRO-CMD SAMS-RTS/D2-DEACT	ICPO/PRO-CPCG-H-CMD CGBA-PARAM-COMMAND MAMS-COMMANDING-5 MAMS-COMMANDING-5 MAMS-STORED-DATA-D/L	SAMS-RTS SAMS-RT MAMS-N EXPRS1 ADVASC BTR-OP DM-HEA EXPRS4 PLSS F SAMS-I PCG-ST PCG-ST CGBA-3 CPCG-I SAMS-RT CPO/PR SAMS-R
M/C			

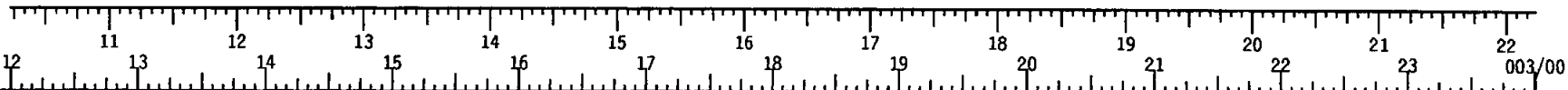
ISS ATT BIAS +ZLV +XVV

I S S	RS GND		
	DAY/NIGHT		--VHF
	ORBIT		--VHF
	DAILY ORBIT		--VHF
	TDRS S-BD AVAIL		
	CU AVAIL		

NOTES

GMT 04/07/02

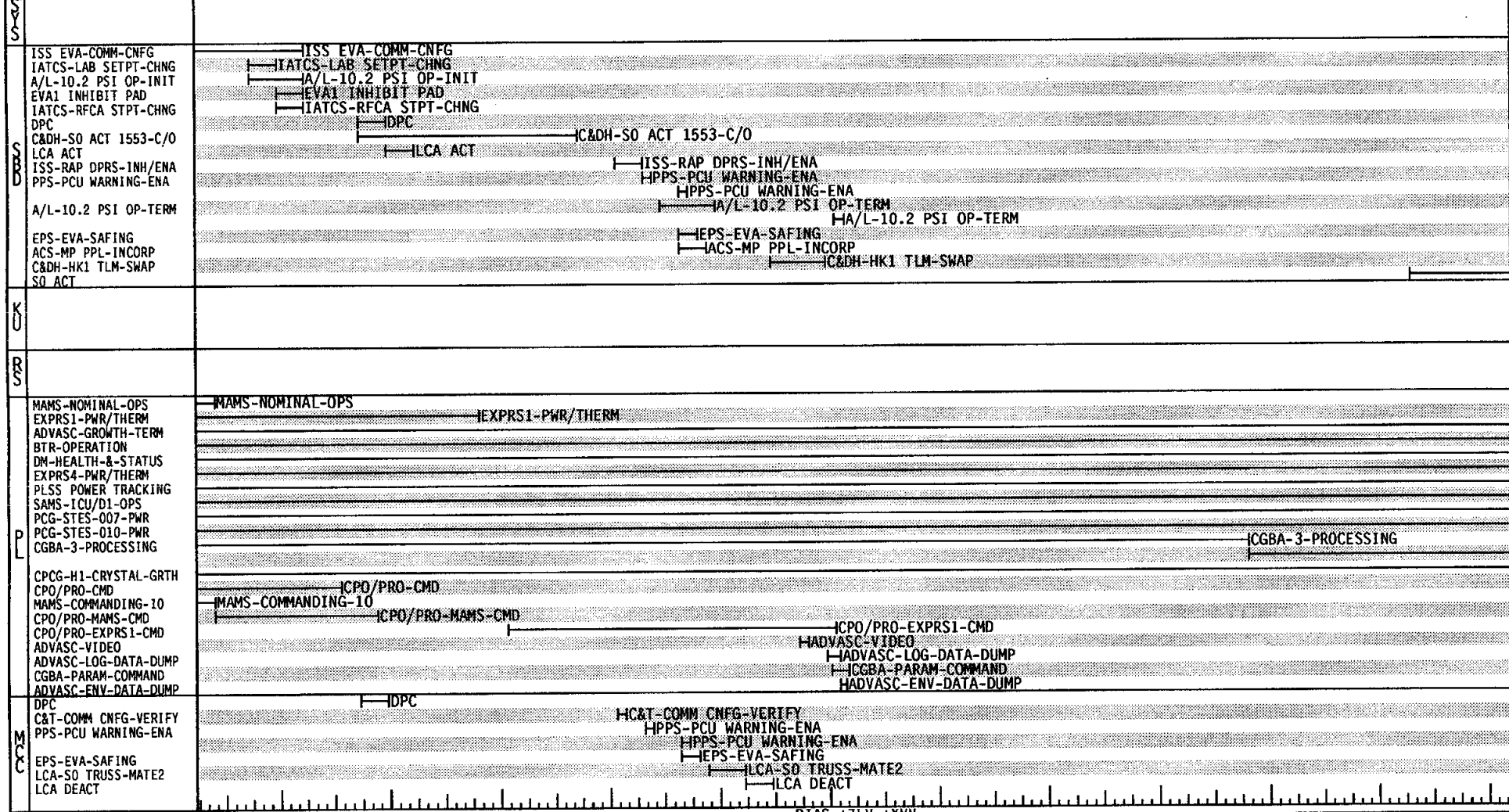
MET Day 002



S T S	FD04	CDR BLOOMFIELD	DSO 493	POST SLEEP	IPNAHDIB	PMCA/G	POST SLEEP	P/TV 22 OPS				P/TV23 S/U	SRMS & P/TV SUPPORT	MEAL	SRMS & P/TV SUPPORT			SRMS & P/TV SUPPORT
		PLT FRICK		POST SLEEP	OSVSL	GSRPL	UNBERTH SO	SO INSTALL *		UNRPL	OSVSL	P/TV23 S/U	SRMS & P/TV SUPPORT		MEAL	SRMS & P/TV SUPPORT		
		MS1/EV2 WALHEIM		POST SLEEP	EVA PREP			EMU P/B	C/L DPRSS	EGRESS/SETUP	INST FWD MTS W/TQ MT		INST STBD AVIONICS	INST PORT AVIONICS	INST TUS 1 ZNTH CBL	C/U & INGRS		
		MS2 OCHOA	DSO 493	POST SLEEP	GSRPL	UNBERTH SO	SO INSTALL *		UNRPL	SRFRMGS	SSRMS EVA1 OPS							SSRMS RCFG
		MS3/EV4 MORIN		POST SLEEP	EVA PREP	LCAACT	EXERCISE	BPSSTAT	LCAACT	← EVA 1 (6:25) PCS SPT →								
		MS4/EV3 ROSS		POST SLEEP	10.2 DPRS EVA PREP		A/L 14.7 REPR	IVA										
		MS5/EV1 SMITH		POST SLEEP	EVA PREP			EMU P/B	C/L DPRSS	EGRESS/SETUP	INST FWD MTS	DEPLOY AFT TRAY	ASST EV2	DEPLOY AFT TRAY	INST CID 7	ASST EV2	INST CID 8	INST TUS 1 ZNTH CBL
I S S		ISS CDR ONUFRIENKO		POST SLEEP	DPC	EPWR1RNTXN CDR	EXERCISE IRED		MIDDAY-MEAL		IMS FILE PREP			COX-MNT	EXERCISE TVIS			
		FE-1 WALZ		POST SLEEP	EVA PREP			A/L 14.7 REPR	IVA EVA 1 SUPPORT		NTXN FE1	MIDDAY-MEAL	IWIS XFER	PL STAT		IRED		
		FE-2 BURSCH		POST SLEEP	DPC	GSRPL	UNBERTH SO	SO INSTALL *		UNRPL	SRFRMGS	MIDDAY-MEAL	INST FWD MTS W/TQ MT	INST STBD AVIONICS	INST PORT AVIONICS	INST TUS 1 ZNTH CBL	SSRMS RCFG	
S T S	DAY/NIGHT	[Timeline bars for Day/Night]																
	ORBIT	[Timeline bars for Orbit]																
S T S	DAILY ORBIT	40	41	42	43	44	45	46	47	48								
	TDRS	47	171	[Timeline bars for TDRS]														
	RS GND	[Timeline bars for RS GND]																
	ORB ATT	[Timeline bars for ORB ATT]																
	ISS ATT	[Timeline bars for ISS ATT]																
	NOTES	*PWRUP *ON *DTO 264 ^INIT *VERIFY CONFIG 2B *PWRDN *TERM																

STS-110/8A JOINT MISSION STP

FD04
 MET Day 002 12 13 14 15 16 17 18 19 20 21 22 23 003/00
 GMT 04/07/02 11 12 13 14 15 16 17 18 19 20 21 22



ISS ATT

RS GND

DAY/NIGHT

ORBIT

DAILY ORBIT

TDRS S-BD AVAIL 2-11 FLI PLN/110/FIN

CU AVAIL

NOTES

*VERIFY CONFIG 2B

SO ACT

ADVASC

BTR-OP

DM-HEA

EXPRS4

PLSS F

SAMS-I

PCG-ST

PCG-ST

CGBA-3

CPCG-I

GMT 04/07/02 23 04/08 01 02 03 04 05 06 07 08 09 10 12
 MET Day 003 003/00 01 02 03 04 05 06 07 08 09 10 11 12

S T S	FD04	CDR BLOOMFIELD	EXERCISE	PMC OCA	PRE SLEEP	SLEEP			
		PLT FRICK	EXERCISE		PRE SLEEP	SLEEP			
		MS1/EV2 WALHEIM	POST EVA W/H2O		PRE SLEEP	SLEEP			
		MS2 OCHOA	EXERCISE		PRE SLEEP	SLEEP			
		MS3/EV4 MORIN	POST EVA W/H2O	ESMWAU P	REBA-I	PRE SLEEP	SLEEP		
		MS4/EV3 ROSS	POST EVA W/H2O	ESMWAU P	EMSA-I	PRE SLEEP	SLEEP		
		MS5/EV1 SMITH	POST EVA W/H2O			PRE SLEEP	SLEEP		
I S S		ISS CDR ONUFRIENKO	PREP WORK	PLAN REVW	DPC	PRE SLEEP	SLEEP		
		FE-1 WALZ	IREP	PLAN REVW	DPC	PRE SLEEP	SLEEP		
		FE-2 BURSCH	EXERCISE TVIS	PLAN REVW	DPC	PRE SLEEP	SLEEP		
S T S	DAY/NIGHT	[Timeline bars]							
	ORBIT	48	49	50	51	52	53	54	55
	DAILY ORBIT	6	7	8	9	10	11	12	13
	TDRS	47	171	[Timeline bars]					
	RS GND	[Timeline bars]							
	ORB ATT	[Timeline bars]							
	ISS ATT	[Timeline bars]							

NOTES *EXERCISE TVIS *INIT *DECONFIG *VERIFY CONFIG 3B *OFF

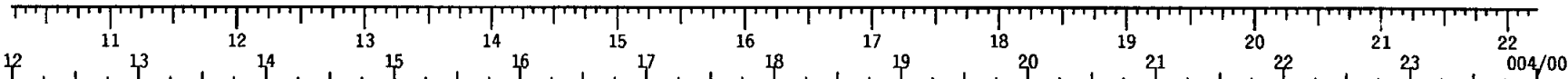
STS-110/8A JOINT MISSION STP

FD04
 MET Day 003 003/00 01 02 03 04 05 06 07 08 09 10 12
 GMT 04/07/02 23 04/08 01 02 03 04 05 06 07 08 09 10

S			
S	SO ACT ISS EVA-COMM-DECNFG MT-IMCA PWR-C/O C&DH-ERB-DUMP MT-TUS-C/O PPS-PCU WARNING-INH C&DH-SO ACT 1553-C/O MT-LDU-DISENGAGE VDS-EVSU INIT-A/C DDCU-LA2A LA4A-BDT C&DH-SO PPL-LOAD MT-TD-C/O C&DH-HK1 TLM-SWAP EVCPDS-HTR-ACT SBD-KEY-CHG	ISO ACT ISS EVA-COMM-DECNFG MT-IMCA PWR-C/O IC&DH-ERB-DUMP MT-TUS-C/O HPPS-PCU WARNING-INH C&DH-SO ACT 1553-C/O MT-LDU-DISENGAGE VDS-EVSU INIT-A/C DDCU-LA2A LA4A-BDT IC&DH-SO PPL-LOAD MT-TD-C/O IC&DH-HK1 TLM-SWAP EVCPDS-HTR-ACT HSBDO-KEY-CHG	
K			
R			
P	ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-8-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-1CU/D1-OPS PCG-STES-007-PWR PCG-STES-010-PWR CPGC-H1-CRYSTAL-GRTH CGBA-3-PROCESSING		ADVASC BTR-OF DM-HEA EXPRS4 PLSS F SAMS-1 PCG-ST PCG-ST CPGC-1 CGBA-3
M	S&M-SSAS HTR-VFY C&T-COMM CNFG-VERIFY PPS-PCU WARNING-INH	IS&M-SSAS HTR-VFY IC&T-COMM CNFG-VERIFY HPPS-PCU WARNING-INH	
	ISS ATT	BIAS +ZLV +XVV	
I	RS GND		-VHF
S	DAY/NIGHT		-VHF
S	ORBIT		-VHF
	DAILY ORBIT		
	TDRS S-BD AVAIL		
	KU AVAIL		
NOTES	*VERIFY CONFIG 3B		

GMT 04/08/02

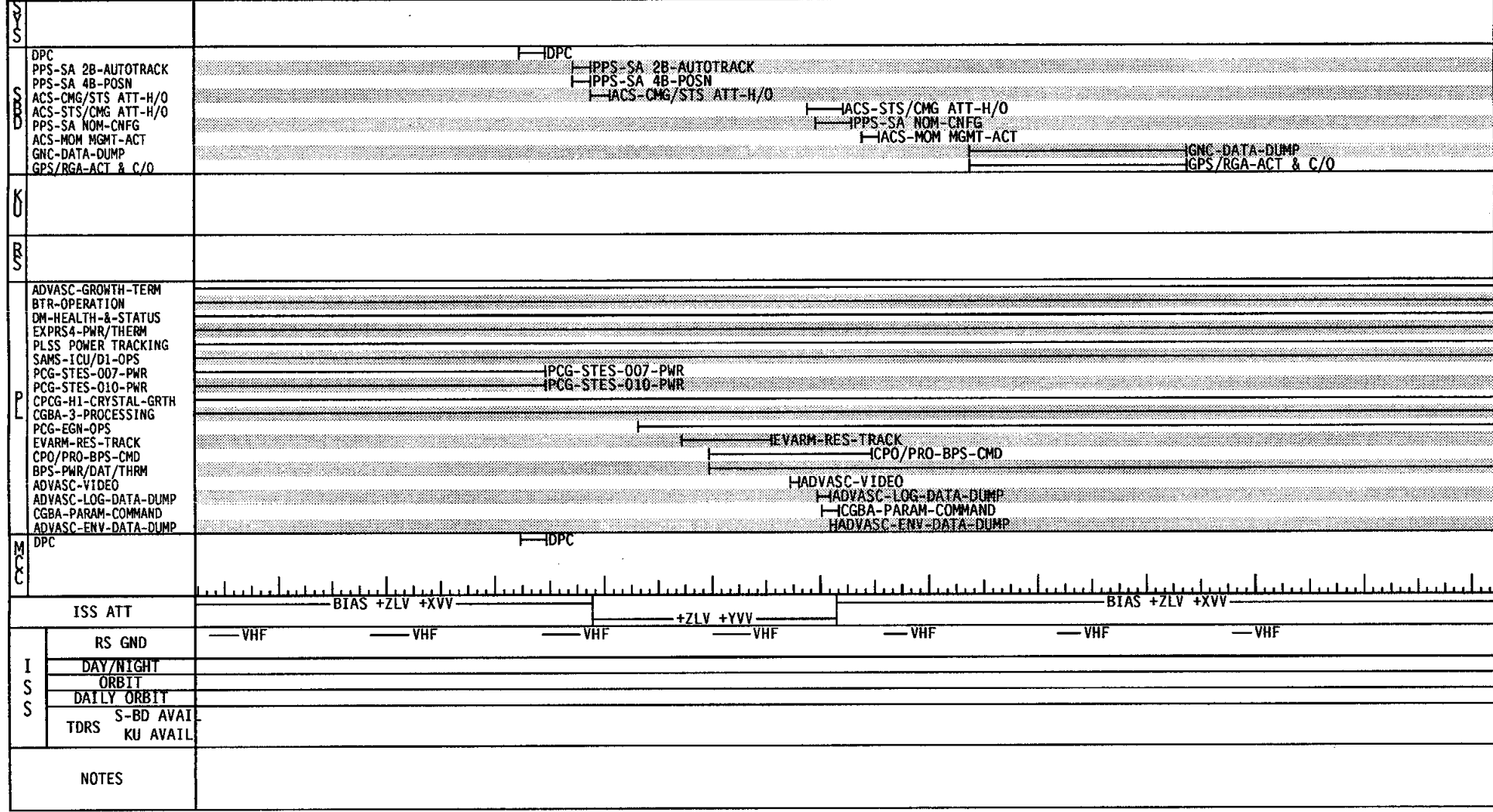
MET Day 003



STS	FD05		POST SLEEP		CX N D S R	P/TV 24 S/U	H/O ATT	-+XYLVV	CIN D I S T	EXERCISE	CT N D R L S M	-+ZXLVV	H/O ATT	XFER OPS	MEAL	PAO	CX N D S R	XFER OPS	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY										
	CDR BLOOMFIELD	DSO 493																													
	PLT FRICK		POST SLEEP						EXERCISE					XFER OPS	MEAL	PAO			EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY										
	MS1/EV2 WALHEIM		POST SLEEP			N2 XFER INIT	O2 XFER S/U	O I 2 N I T	PCG DEWAR XFER					EXERCISE	MEAL	PAO			EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY										
	MS2 OCHOA	DSO 493	POST SLEEP						PCG DEWAR XFER					EXERCISE	XFER OPS	MEAL	PAO		XFER OPS	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY									
	MS3/EV4 MORIN		POST SLEEP						EXERCISE					XFER BPS					EVA TOOL CONFIG	MEAL	PAO		E/L PREP	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY					
	MS4/EV3 ROSS		POST SLEEP						XFER BPS					EXERCISE					EVA TOOL CONFIG	MEAL	PAO		E/L PREP	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY					
	MS5/EV1 SMITH		POST SLEEP			N2 XFER INIT	O2 XFER S/U	O I 2 N I T	EXERCISE					XFER OPS	EVA CAM S/U	MEAL	PAO			EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY									
ISS	ISS CDR ONUFRIENKO		SLEEP	POST SLEEP	M 0 - 7				M 0 - 8					PREP WORK	DPC	STES 7			EXERCISE TVIS	COX-MNT	HMS PFC	MIDDAY-MEAL	PAO			EXERCISE IRED	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY		
	FE-1 WALZ		SLEEP	POST SLEEP	M 0 - 8				M 0 - 7					N2 XFER INIT	O2 XFER S/U	O I 2 N I T	EXERCISE TVIS			EXERCISE IRED			MIDDAY-MEAL	PAO		PL STAT	HMS PFC	O I 2 N I T	EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW	OFF DUTY
	FE-2 BURSCH		SLEEP	POST SLEEP	M 0 - 7				M 0 - 8					PREP WORK	DPC	STES 10			HMS PFC	EVA ARM POST EVA			MIDDAY-MEAL	PAO			E/L PREP			EVA 2 PROCEDURE RVW	EVA 3 PROCEDURE RVW
STS	DAY/NIGHT ORBIT	[Timeline bars for Day/Night Orbit]																													
	DAILY ORBIT	56		57		58		59		60		61		62		63															
TDRS	47	[Timeline bars for TDRS]																													
RS GND	171	[Timeline bars for RS GND]																													
ORB ATT		BIAS -XLV +ZVV																													
ISS ATT		BIAS +ZLV +XVV																													
NOTES		@#139-MO-8-INSTL #139-MO-8-STOW #TERM ^INSTALL 2-14 FLT PLN/110/FIN																													

STS-110/8A JOINT MISSION STP

FD05
 MET Day 003 12 13 14 15 16 17 18 19 20 21 22 23 004/00
 GMT 04/08/02 11 12 13 14 15 16 17 18 19 20 21 22



ADVASC
 BTR-OF
 DM-HEA
 EXPRS4
 PLSS F
 SAMS-I
 CPCG-I
 CGBA-3
 PCG-EG
 BPS-PA

GMT 04/08/02 23 04/09 01 02 03 04 05 06 07 08 09 10 12
 MET Day 004 004/00 01 02 03 04 05 06 07 08 09 10 11 12

S T S	FD05 CDR BLOOMFIELD	OFF DUTY	PRE SLEEP	PMC OCA	PRE SLEEP	SLEEP				
	PLT FRICK	OFF DUTY	PRE SLEEP		SLEEP					
	MS1/EV2 WALHEIM	OFF DUTY	OT 2 E R M	PRE SLEEP		SLEEP				
	MS2 OCHOA	OFF DUTY	PRE SLEEP		SLEEP					
	MS3/EV4 MORIN	OFF DUTY	S T A T	PRE SLEEP		SLEEP				
	MS4/EV3 ROSS	OFF DUTY	X T F A E G R U P	B F R I E F	PRE SLEEP	SLEEP				
	MS5/EV1 SMITH	OFF DUTY	OT 2 E R M	PRE SLEEP		SLEEP				
I S S	ISS CDR ONUFRIENKO	OFF DUTY		DPC	PRE SLEEP	SLEEP				
	FE-1 WALZ	OFF DUTY	OT 2 E R M	DPC	PRE SLEEP	SLEEP				
	FE-2 BURSCH	OFF DUTY	X T F A E G R U P	I M S F I L E P R E P	DPC	PRE SLEEP	SLEEP			
S T S	DAY/NIGHT									
	ORBIT	63	64	65	66	67	68	69	70	71
S T S	DAILY ORBIT	6	7	8	9	10	11	12	13	14
	TDRS	47 171								
RS GND										
ORB ATT		BIAS -XLV +ZVV								
ISS ATT		BIAS +ZLV +XVV								
NOTES										

STS-110/8A JOINT MISSION STP

FD05
 MET Day 004 004/00
 GMT 04/08/02

S		
S	SBD-KEY-CHG	HSBD-KEY-CHG
K		
R		
P	ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-1CU/D1-OPS CPCG-H1-CRYSTAL-GRTH CGBA-3-PROCESSING PCG-EGN-OPS BPS-PWR/DAT/THRM CPO/PRO-EXPRS2-CMD	ADVASC BTR-OP DM-HEA EXPRS4 PLSS F SAMS-1 CPCG-1 CGBA-3 PCG-EC BPS-PW CPO/PF
M		
	ISS ATT	BIAS +ZLV +XVV
I	RS GND	— VHF — VHF — VHF
S	DAY/NIGHT	
S	ORBIT	
	DAILY ORBIT	
	TDRS S-BD AVAIL	
	KU AVAIL	
	NOTES	

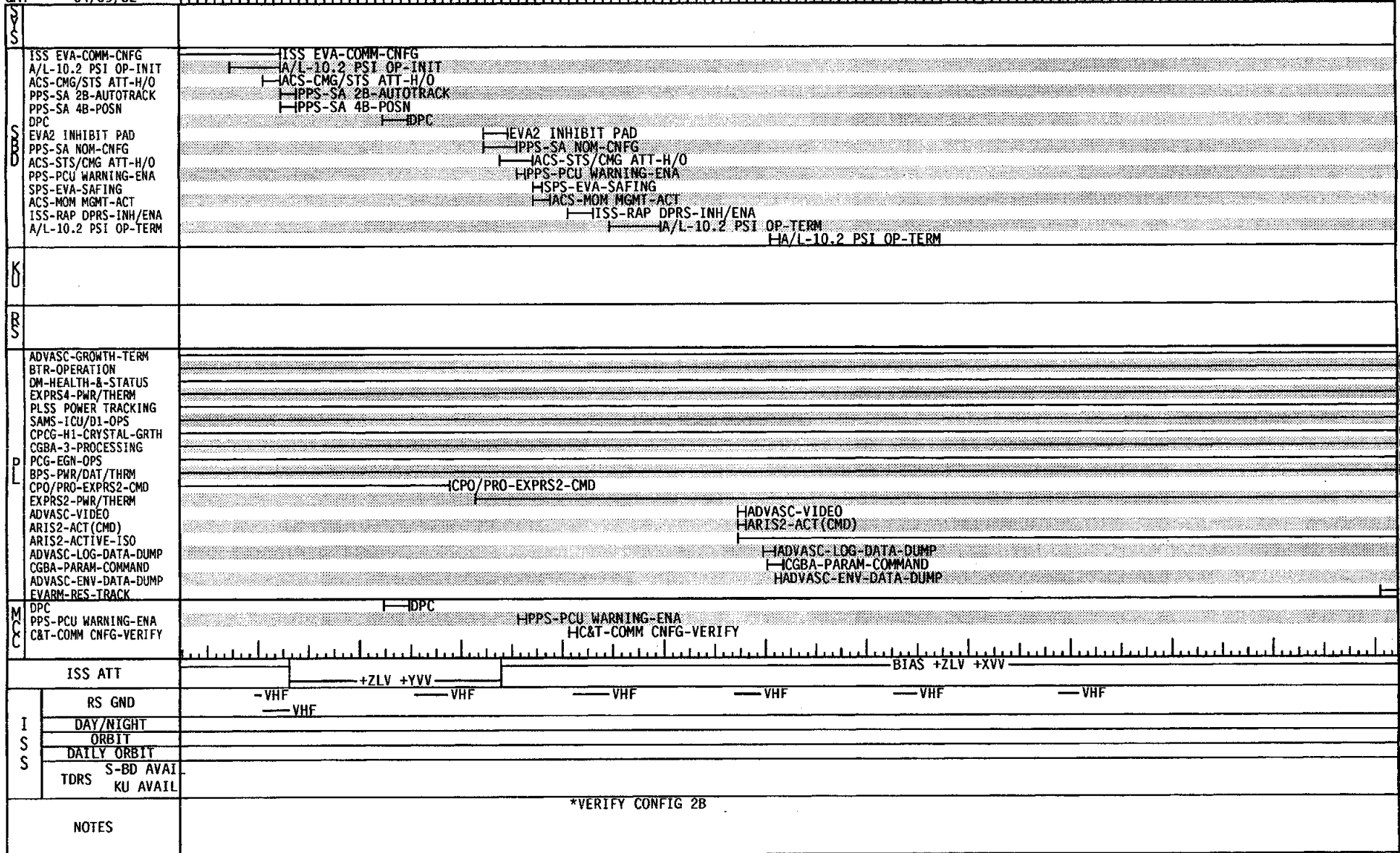
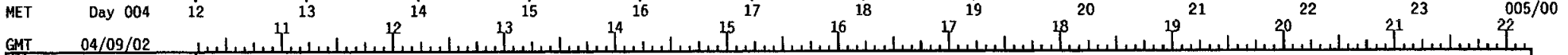
GMT 04/09/02 12 11 13 12 14 13 15 14 16 15 17 16 18 17 19 18 20 19 21 20 22 21 23 22 005/00
 MET Day 004

S T S	FD06	CDR BLOOMFIELD	DSO 493	POST SLEEP	PMC A/G	SST AM	ST EX	- + Z	H/O ATT	EXERCISE	SRMS & P/TV SUPPORT	MEAL	SRMS & P/TV SUPPORT	
	PLT FRICK	POST SLEEP	H/O ATT	- + X Y I S I N I M V V L V M I O T	POST SLEEP	I P N A H D I B	P/TV23 S/U	P/TV23 OPS	SRMS & P/TV SUPPORT					
	MS1/EV2 WALHEIM	POST SLEEP	EVA PREP	POST SLEEP	EXERCISE	E/L PREP	IVA EVA 2 SUPPORT							
	MS2 OCHOA	DSO 493	POST SLEEP	EXERCISE	← EVA 2 (6:30) →				SSRMS EVA2 SUPPORT					
	MS3/EV4 MORIN	POST SLEEP	EVA PREP	EMU P/B	C/L DPRSS	EGRS/SETUP	INST AFT STB W/TQ MT	INST PRT MTS W/TQ MT	DL R I A N G K S	INST TUS 2 NADIR	RMV/STOW KEEL PINS	I N G R S		
	MS4/EV3 ROSS	POST SLEEP	EVA PREP	EMU P/B	C/L DPRSS	EGRS/SETUP	INST AFT STBD MTS	INST AFT PRT MTS	DL R I A N G K S	INST TUS 2 NADIR	RMV/STOW KEEL PINS	I N G R S		
	MS5/EV1 SMITH	POST SLEEP	10.2 DPRS	EVA PREP	A/L 14.7 REPR	IVA EVA 2 SUPPORT								
I S S	ISS CDR ONUFRIENKO	POST SLEEP	PREP WORK	DPC	PL STAT	ER2 PWR UP	HMS PMC	EXERCISE IRED	MIDDAY-MEAL	IMS FILE PREP	EXERCISE TVIS			
	FE-1 WALZ	POST SLEEP	PREP WORK	DPC	HMS PMC	EXERCISE IRED	SSRMS EVA2 SUPPORT	INST AFT STB W/TQ MT	INST PRT MTS W/TQ MT	RMV DRAG LNKS	INST TUS 2 NADIR	RMV PRT PINS	RMV STBD PINS	*
	FE-2 BURSCH	POST SLEEP	EVA PREP	A/L 14.7 REPR	A R I S 2	HMS PMC	EXERCISE TVIS	MIDDAY-MEAL	BPS2 GAS SMPL	P1 BPS2 SMPL	P2 BPS2 SMPL	PCG EGN	P3 BPS2 SMPL	E V A R M
S T S	DAY/NIGHT	[Gantt chart showing day/night cycles]												
	ORBIT	71	72	73	74	75	76	77	78	79				
	DAILY ORBIT	14	15	1	2	3	4	5	6	7				
	TDRS	47	171	[Gantt chart showing TDRS events]										
RS GND	[Gantt chart showing RS GND events]													
ORB ATT	[Gantt chart showing ORB ATT events]													
ISS ATT	[Gantt chart showing ISS ATT events]													
NOTES	*VERIFY CONFIG 2B													

*SSRMS I

STS-110/8A JOINT MISSION STP

FD06



GMT 04/09/02 23 04/10 01 02 03 04 05 06 07 08 09 10 12
 MET Day 005 005/00 01 02 03 04 05 06 07 08 09 10 11 12

S T S	FD06	CDR BLOOMFIELD	PS RL E P	PMCH/O OCATT	BIAS +ZLV +XVV	STAT	PRE SLEEP	I X Z L V H/O ATT	PRE SLEEP	SLEEP	
		PLT FRICK	R M S R D N	EXERCISE	PRE SLEEP	REBOOST CONFIG 4	PRE SLEEP		SLEEP		
		MS1/EV2 WALHEIM		POST EVA W/H2O	EMU SWAP	E/L PREP	PRE SLEEP		SLEEP		
		MS2 OCHOA	C I W N C I T # 4		C T W E R # 4	C X W F E R	PRE SLEEP		SLEEP		
		MS3/EV4 MORIN	I N G R S	C R P L R S S	POST EVA W/H2O	EVA TOOL PREP	PRE SLEEP		SLEEP		
		MS4/EV3 ROSS	I N G R S	C R P L R S S	POST EVA W/H2O	EVA TOOL PREP	PRE SLEEP		SLEEP		
		MS5/EV1 SMITH	⊕	POST EVA W/H2O	EMU SWAP	E/L PREP	PRE SLEEP		SLEEP		
I S S		ISS CDR ONUFRIENKO	♦	ZCG AUTOCLAVE		DPC	PRE SLEEP		SLEEP		
		FE-1 WALZ	♦	EXERCISE TVIS	COX-MNT	DPC	PRE SLEEP		SLEEP		
		FE-2 BURSCH		EXERCISE IRED	EVARM POST EVA	DPC	PRE SLEEP		SLEEP		
S T S	DAY/NIGHT	[Day/Night Cycle Diagram]									
	ORBIT	79	80	81	82	83	84	85	86	87	
S T S	DAILY ORBIT	7	8	9	10	11	12	13	14	15	
	TDRS	47	171	[TDRS Activity Diagram]							
	RS GND	[RS GND Activity Diagram]									
	ORB ATT	BIAS -XLV +ZVV				REBOOST		BIAS -XLV +ZVV			
	ISS ATT	BIAS +ZLV +XVV				MNVR		BIAS +ZLV +XVV			
	NOTES	*SSRMS RCFG *VERIFY CONFIG 3B ⊕IVA EVA 2 SUPPORT *DCONRISD-VIDEO-SETUP									

STS-110/8A JOINT MISSION STP

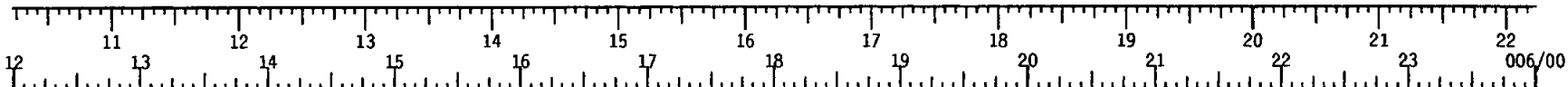
FD06
 MET Day 005 005/00 01 02 03 04 05 06 07 08 09 10 11 12
 GMT 04/09/02 23 04/10 01 02 03 04 05 06 07 08 09 10

S PPS-SA-AUTOTRACK MT-PST TUS2 HTR-ACT ISS EVA-COMM-DECNFG PPS-PCU WARNING-INH ACS-REBOOST-CONFIG MT-IMCA PWR-C/O ACS-CMG/STS ATT-H/O MT-CNTR CAM-RESET C&T-PST SO VIDEO-PPL C&DH-OCS CFG-U/L ACS-STS/CMG ATT-H/O MT-TUS-C/O ACS-MOM MGMT-ACT ACS-GNC-PPL-U/D PPS-SA NOM-CNFG MT-TD-C/O SSRMS-PREP EVA-RCNFG SBD-KEY-CHG	<p> IPPS-SA-AUTOTRACK IMT-PST TUS2 HTR-ACT ISS EVA-COMM-DECNFG IPPS-PCU WARNING-INH IACS-REBOOST-CONFIG MT-IMCA PWR-C/O IACS-CMG/STS ATT-H/O MT-CNTR CAM-RESET IC&T-PST SO VIDEO-PPL C&DH-OCS CFG-U/L IACS-STS/CMG ATT-H/O MT-TUS-C/O IACS-MOM MGMT-ACT IACS-GNC-PPL-U/D IPPS-SA NOM-CNFG MT-TD-C/O ISSRMS-PREP EVA-RCNFG HSBD-KEY-CHG </p>
K	
R S	
P ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-1CU/D1-OPS CPCG-H1-CRYSTAL-GRTH CGBA-3-PROCESSING PCG-EGN-OPS BPS-PWR/DAT/THRM EXPRS2-PWR/THERM ARIS2-ACTIVE-ISO EVARM-RES-TRACK ZCG-AUTOCLAV-CONFIG ZCG-HISD-VIDEO	<p> IEVARM-RES-TRACK IZCG-AUTOCLAV-CONFIG IZCG-HISD-VIDEO </p>
CM X PPS-PCU WARNING-INH C&T-COMM CNFG-VERIFY	<p> IPPS-PCU WARNING-INH IC&T-COMM CNFG-VERIFY </p>
ISS ATT	
I S S RS GND DAY/NIGHT ORBIT DAILY ORBIT TDRS S-BD AVAIL KU AVAIL	
NOTES	*VERIFY CONFIG 3B

ADVASC
 BTR-OF
 DM-HEA
 EXPRS4
 PLSS P
 SAMS-1
 CPCG-1
 CGBA-3
 PCG-EG
 BPS-PW
 EXPRS2
 ARIS2-

GMT 04/10/02

MET Day 005



STS	FD07	CDR BLOOMFIELD	DSO 493	POST SLEEP	PMC A/G	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	EXERCISE	STAT	P/TV23 OPS	SRMS & P/TV SUPPORT										
STS	PLT FRICK	POST SLEEP					POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	POST SLEEP	P/TV23 S/U	SRMS & P/TV SUPPORT										EXERCISE
STS	MS1/EV2 WALHEIM	POST SLEEP	EVA PREP					EMURGE	EMU P/B	C/L DPRSS	EGRS/SETUP	LCA CLAW	GET AHEAD	ASVST	RELEASE MT LCH REST	ASST EV1	GET AHEAD	ASVST	SHUTTLE TOOL XFER	INST A/L SPUR	C/U & INGRS				
STS	MS2 OCHOA	DSO 493	POST SLEEP					JR 4000 OFG	J 4000	TESS REMOVAL	EXERCISE	← EVA 3 (6:30) →					J 4000	J400 RCNFG	INST A/L SPUR	TESS INST					
STS	MS3/EV4 MORIN	POST SLEEP	EVA CAM S/U	EVA PREP	POST SLEEP					EXERCISE	IVA EVA 3 SUPPORT														
STS	MS4/EV3 ROSS	POST SLEEP	EVA PREP					10.2 DPRS	A/L 14.7 REPR	IVA EVA 3 SUPPORT					CIN #5	CIN #6	EXERCISE	CIN #6	CIN #6						
STS	MS5/EV1 SMITH	POST SLEEP	EVA PREP					EMURGE	EMU P/B	C/L DPRSS	EGRS/SETUP	INST J300 CONNECTORS	RELEASE MT LCH REST	RCNFG J400 CONNECTOR	SHUTTLE TOOL XFER	INST A/L SPUR	C/U & INGRS								
ISS	ISS CDR ONUFRIENKO	POST SLEEP	PREP WORK	DPC						COM	БКГА ИГ3 INSPC	ЭП1003 ИГ3 CK	MIDDAY-MEAL	COM FA MNT	EXERCISE TVIS					EXERCISE IRED					
ISS	FE-1 WALZ	POST SLEEP	EVA PREP					A/L 14.7 REPR	EXERCISE IRED					PL STAT	MIDDAY-MEAL										
ISS	FE-2 BURSCH	POST SLEEP	PREP WORK	DPC	JR 4000 OFG	J 4000	TESS REMOVAL	EXERCISE TVIS					MIDDAY-MEAL	J 4000	J400 RCNFG	EXERCISE IRED					J400 RCNFG	INST A/L SPUR	TESS INST		
STS	DAY/NIGHT																								
STS	ORBIT																								
STS	DAILY ORBIT	87	88	89	90	91	92	93	94																
STS	TDRS	47	171																						
STS	RS GND																								
STS	ORB ATT																								
STS	ISS ATT																								
NOTES	*HTR												*INIT						*RCNFG J400 CONNECTOR						
NOTES	*VERIFY CONFIG 2B																								

STS-110/8A JOINT MISSION STP

FD07



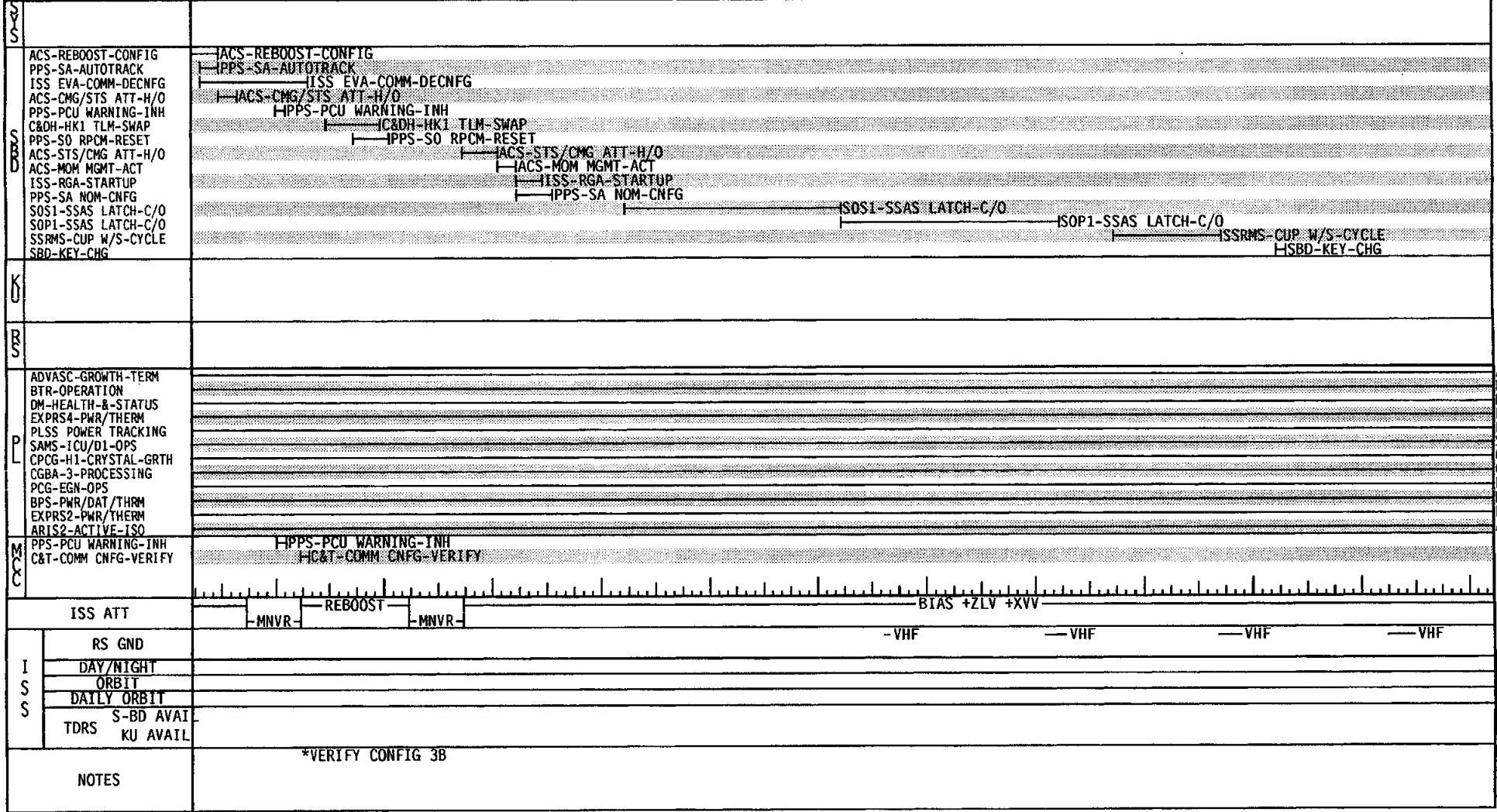
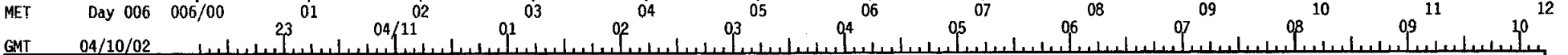
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S	ISS EVA-COMM-CNFG A/L-10.2 PSI OP-INIT ISS-RGA-SHUTDOWN ISS-GPS HEALTH-CK DPC MCC-J400 PWR-RCNFG EVA3 INHIBIT PAD PPS-PCU WARNING-ENA C&DH-HK1 TLM-SWAP ISS-RAP DPRS-INH/ENA A/L-10.2 PSI OP-TERM C&DH-EXT RCVRY-INH SOS1-SSAS RTL-C/O VDS-EVSU-ACT	ISS EVA-COMM-CNFG A/L-10.2 PSI OP-INIT ISS-RGA-SHUTDOWN ISS-GPS HEALTH-CK DPC MCC-J400 PWR-RCNFG EVA3 INHIBIT PAD PPS-PCU WARNING-ENA C&DH-HK1 TLM-SWAP ISS-RAP DPRS-INH/ENA A/L-10.2 PSI OP-TERM A/L-10.2 PSI OP-TERM IC&DH-EXT RCVRY-INH SOS1-SSAS RTL VDS-EVSU-ACT	MCC-J4 SOS1-SSAS RTL VDS-EVSU-ACT
K			
R			
P	ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-ICU/D1-OPS CPCG-H1-CRYSTAL-GRTH CGBA-3-PROCESSING PCG-EGN-OPS BPS-PWR/DAT/THERM EXPRS2-PWR/THERM ARIS2-ACTIVE-ISO ADVASC-VIDEO ADVASC-LOG-DATA-DUMP CGBA-PARAM-COMMAND ADVASC-ENV-DATA-DUMP	HADVASC-VIDEO HADVASC-LOG-DATA-DUMP HCGBA-PARAM-COMMAND HADVASC-ENV-DATA-DUMP DPC HPPS-PCU WARNING-ENA HC&T-COMM CNFG-VERIFY HJ300-PNL INH-VERIFY	ADVASC BTR-OP DM-HE/ EXPRS/ PLSS SAMS- CPCG- CGBA- PCG- BPS- EXPRS/ ARIS2-
M	DPC PPS-PCU WARNING-ENA C&T-COMM CNFG-VERIFY J300-PNL INH-VERIFY	HPPS-PCU WARNING-ENA HC&T-COMM CNFG-VERIFY HJ300-PNL INH-VERIFY	
	ISS ATT	BIAS +ZLV +XVV	
I	RS GND	-VHF -VHF -VHF -VHF -VHF -VHF -VHF	
S	DAY/NIGHT		
S	ORBIT		
S	DAILY ORBIT		
	TDRS S-BD AVAIL		
	KU AVAIL		
NOTES	*VERIFY CONFIG 2B		

GMT 04/10/02 23 04/11 01 02 03 04 05 06 07 08 09 10 12
 MET Day 006 006/00 01 02 03 04 05 06 07 08 09 10 11 12

S T S	FD07 CDR BLOOMFIELD	H/O ATT	BIAS +ZLV +XVV	PRE SLEEP	-XLV +ZVV	H/O ATT	PMC OCA	PRE SLEEP	SLEEP
	PLT FRICK	EXER- CISE	PS OS RAS	REBOOST CONFIG 4				PRE SLEEP	SLEEP
	MS1/EV2 WALHEIM	CR P LR SS	POST EVA W/H2O	O I 2 N I T				PRE SLEEP	SLEEP
	MS2 OCHOA	TESS INST						PRE SLEEP	SLEEP
	MS3/EV4 MORIN	⊕	POST EVA W/H2O	B S A - I T				PRE SLEEP	SLEEP
	MS4/EV3 ROSS		POST EVA W/H2O	B S A - I T				PRE SLEEP	SLEEP
	MS5/EV1 SMITH	CR P LR SS	POST EVA W/H2O	O I 2 N I T				PRE SLEEP	SLEEP
I S S	ISS CDR ONUFRIENKO	COX-MNT	PREP WORK	PLAN REVW	DPC			PRE SLEEP	SLEEP
	FE-1 WALZ	EXERCISE TVIS	PREP WORK	O I 2 N I T	@DPC			PRE SLEEP	SLEEP
	FE-2 BURSCH	TESS INST	PREP WORK	PLAN REVW	DPC			PRE SLEEP	SLEEP
S T S	DAY/NIGHT	[Timeline bars for Day/Night]							
	ORBIT	95 96 97 98 99 100 101 102							
S T S	DAILY ORBIT	7 8 9 10 11 12 13 14							
	TDRS 47 171	[Timeline bars for TDRS]							
	RS GND	[Timeline bars for RS GND]							
	ORB ATT	[Timeline bars for ORB ATT]							
	ISS ATT	[Timeline bars for ISS ATT]							
	NOTES	*C/U & INGRS @PLAN REVW ⊕IVA EVA 3 SUPPORT *DE/ON/INGRS*VERIFY CONFIG 3B							

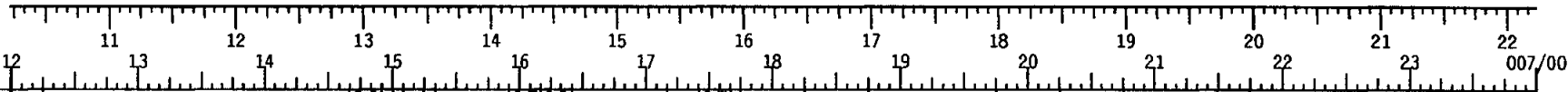
STS-110/8A JOINT MISSION STP

FD07



GMT 04/11/02

MET Day 006



STS	FD08	DSO 493	POST SLEEP	CINCRCS #7	WCS	TEMP	XFER OPS	CINCRCS #7	CINCRCS #8	XFER OPS	PXWR	CINCRCS #8	CREW PHOTO	CREW CONF	MEAL	CWC XFER (2)	EVA4 PROC RVW	OFF DUTY	PFC	OFF DUTY	EXR- CISE				
	PLT FRICK		POST SLEEP	MV NVE RW		MT TRANSLATE LS-WS4		MT TRANSLATE WS4-WS5		MT TRANSLATE WS5-WS4		CREW PHOTO	CREW CONF	MEAL	RP MWSR D N	EVA 4 PROCEDURE RVW		OFF DUTY	PFC	OFF DUTY	*				
	MS1/EV2 WALHEIM		POST SLEEP	OT 2ERM		PST EVA RCNFG		XFER OPS		EVA CAM S/U	EMU SWAP	CREW PHOTO	CREW CONF	MEAL		EVA 4 PROCEDURE RVW		EXERCISE		OFF DUTY	PFC	OFF DUTY			
	MS2 OCHOA	DSO 493	POST SLEEP				EXERCISE		XFER OPS		FILTER CLEAN	CREW PHOTO	CREW CONF	MEAL		EVA 4 PROCEDURE RVW				OFF DUTY		PFC			
	MS3/EV4 MORIN		POST SLEEP				EVA TOOL CONFIG	STAT	EXERCISE		EHS RAM DOSIMTR SWAP	CREW PHOTO	CREW CONF	MEAL		EVA 4 PROCEDURE RVW		E/L PREP			OFF DUTY				
	MS4/EV3 ROSS		POST SLEEP		P/TV 24		EVA TOOL CONFIG	BR WE T		P/TV 24 OPS	B S A - T	P/TV 21 S/U	X T F A G E R U P	B F R I E F	CREW PHOTO	CREW CONF	MEAL		EVA 4 PROCEDURE RVW		E/L PREP		OFF DUTY	EXERCISE	OD F U T Y
	MS5/EV1 SMITH		POST SLEEP		OT 2ERM		PST EVA RCNFG		XFER OPS		EMU SWAP	CREW PHOTO	CREW CONF	MEAL		EVA 4 PROCEDURE RVW		OFF DUTY		EXERCISE		OFF DUTY			
ISS	ISS CDR ONUFRIENKO	SLEEP	POST SLEEP	PREP WORK	DPC	PL STAT	ABK MNT	EXERCISE IRED		X T F A G E R U P	CREW PHOTO	CREW CONF	MIDDAY-MEAL		EVA 4 PROCEDURE RVW		OFF DUTY		EXERCISE TVIS		OFF DUTY				
	FE-1 WALZ	SLEEP	POST SLEEP	PREP WORK	OT 2ERM	MT TRANSLATE LS-WS4		MT TRANSLATE WS4-WS5		MT TRANSLATE WS5-WS4	CREW PHOTO	CREW CONF	MIDDAY-MEAL		EVA 4 PROCEDURE RVW		OFF DUTY			TVIS		OFF DUTY			
	FE-2 BURSCH	SLEEP	POST SLEEP	PREP WORK	DPC	BPS	EVA RM	BPS	EVA RM POST EVA	IMS FILE PREP	BPS	CREW PHOTO	CREW CONF	MIDDAY-MEAL		EVA 4 PROCEDURE RVW		OFF DUTY		EXERCISE IRED		OFF DUTY			
STS	DAY/NIGHT																								
	ORBIT	102	103	104	105	106	107	108	109	110															
	DAILY ORBIT	14	15	1	2	3	4	5	6	7															
TDRS	47																								
	171																								
RS GND																									
ORB ATT																									
ISS ATT																									
NOTES																									

*RCNFG ^TERM #TERM

BIAS -XLV +ZVV
BIAS +ZLV +XVV
*SPPLY CNFG

*EXERCIS @OFF DL

STS-110/8A JOINT MISSION STP

FD08
 MET Day 006 12 13 14 15 16 17 18 19 20 21 22 23 007/00
 GMT 04/11/02 11 12 13 14 15 16 17 18 19 20 21 22

S		
DPC		DPC
S		
S		
P	ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-ICU/D1-OPS CPCG-H1-CRYSTAL-GRTH CGBA-3-PROCESSING PCG-EGN-OPS BPS-PWR/DAT/THRM EXPRS2-PWR/THERM ARIS2-ACTIVE-ISO EVARM-RES-TRACK ADVASC-VIDEO ADVASC-LOG-DATA-DUMP CGBA-PARAM-COMMAND ADVASC-ENV-DATA-DUMP	EVARM-RES-TRACK ADVASC-VIDEO ADVASC-LOG-DATA-DUMP CGBA-PARAM-COMMAND ADVASC-ENV-DATA-DUMP
DPC		DPC
ISS ATT		BIAS +ZLV +XVV
I	RS GND	— VHF
S	DAY/NIGHT	— VHF
S	ORBIT	— VHF
S	DAILY ORBIT	— VHF
S	TDRS S-BD AVAIL	— VHF
S	KU AVAIL	-VHF -VHF
NOTES		

ADVASC
 BTR-OF
 DM-HEA
 EXPRS4
 PLSS F
 SAMS-1
 CPCG-1
 CGBA-3
 PCG-EC
 BPS-Pk
 EXPRS2
 ARIS2-

GMT 04/11/02 23 04/12 01 02 03 04 05 06 07 08 09 10 12
 MET Day 007 007/00 01 02 03 04 05 06 07 08 09 10 11 12

S T S	FD08 CDR BLOOMFIELD	EXERCISE	OFF DUTY	PRE SLEEP	PMC OCA	PRE SLEEP	SLEEP			
	PLT FRICK	EXERCISE	OFF DUTY	PRE SLEEP			SLEEP			
	MS1/EV2 WALHEIM		OFF DUTY	PRE SLEEP			SLEEP			
	MS2 OCHOA		OFF DUTY	PRE SLEEP			SLEEP			
	MS3/EV4 MORIN		OFF DUTY	PRE SLEEP			SLEEP			
	MS4/EV3 ROSS		OFF DUTY	PRE SLEEP			SLEEP			
	MS5/EV1 SMITH		OFF DUTY	PRE SLEEP	PFC	PRE SLEEP	SLEEP			
I S S	ISS CDR ONUFRIENKO		OFF DUTY	DPC	PRE SLEEP		SLEEP			
	FE-1 WALZ		OFF DUTY	OFF DUTY	DPC	PRE SLEEP	SLEEP			
	FE-2 BURSCH		OFF DUTY	DPC	PRE SLEEP		SLEEP			
S T S	DAY/NIGHT	[Gantt chart showing day/night cycles]								
	ORBIT	110	111	112	113	114	115	116	117	118
S T S	DAILY ORBIT	7	8	9	10	11	12	13	14	15
	TDRS	47 171	[Gantt chart showing TDRS events]							
RS GND										
ORB ATT		BIAS -XLV +ZVV								
ISS ATT		BIAS +ZLV +XVV								
NOTES										

STS-110/8A JOINT MISSION STP

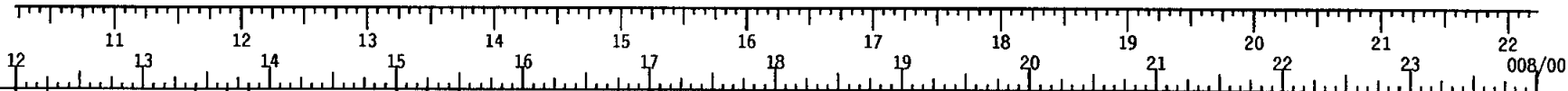
FD08

MET Day 007 007/00
 GMT 04/11/02

23 01 04/12 01 02 03 04 05 06 07 08 09 10 11 12
 01 02 03 04 05 06 07 08 09 10

S			
S	SOSI-SSAS BOLT-C/O SOP1-SSAS BOLT-C/O SBD-KEY-CHG	SOSI-SSAS BOLT-C/O ISOP1-SSAS BOLT-C/O HSBD-KEY-CHG	
K			
R			
P	ADVASC-GROWTH-TERM BTR-OPERATION DM-HEALTH-&-STATUS EXPRS4-PWR/THERM PLSS POWER TRACKING SAMS-ICU/D1-OPS CPCG-H1-CRYSTAL-GRTH CGBA-3-PROCESSING PCG-EGN-OPS BPS-PWR/DAT/THERM EXPRS2-PWR/THERM ARIS2-ACTIVE-ISO		ADVASC BTR-OP DM-HEA EXPRS4 PLSS P SAMS-I CPCG-I CGBA-3 PCG-EG BPS-PW EXPRS2 ARIS2-
M			
C		BIAS +ZLV +XVV	
I	ISS ATT		
S	RS GND	— VHF	— VHF
S	DAY/NIGHT		— VHF
S	ORBIT		
S	DAILY ORBIT		
S	TDRS S-BD AVAIL		
S	KU AVAIL		
S	NOTES		

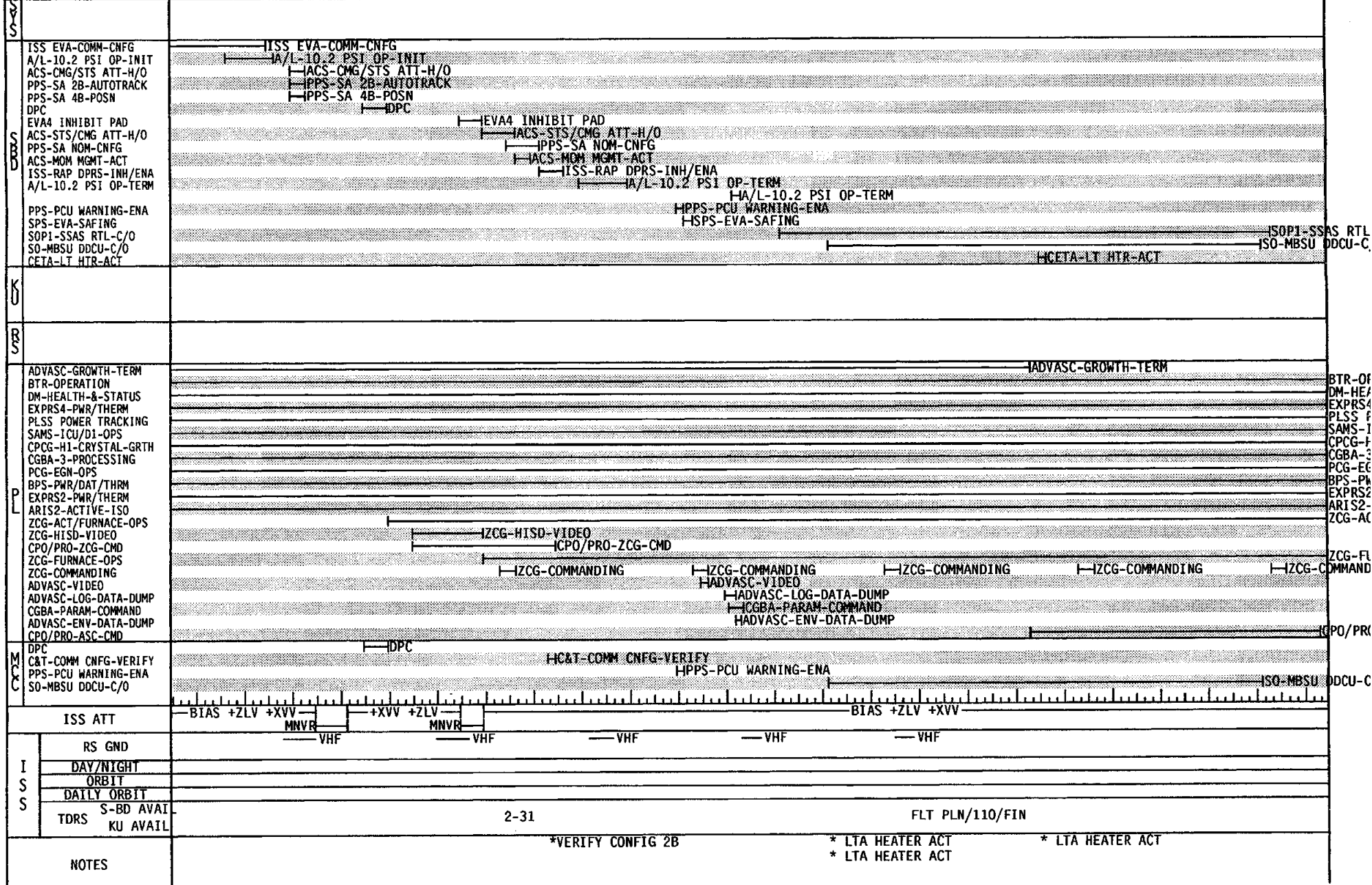
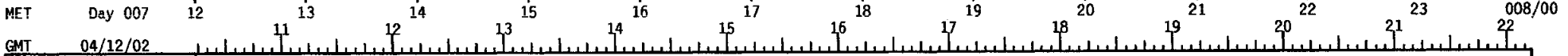
GMT 04/12/02
MET Day 007



S T S	FD09		CDR BLOOMFIELD		DSO 493	POST SLEEP	PMC A/G	ST A/T	PWR DUMP (3)	-XZLVV	H/O ATT	EXERCISE	MEAL	SRMS & P/TV SUPPORT																	
	PLT FRICK		POST SLEEP	H/O ATT	-XZLVV	ST A/T	POST SLEEP	ST P/TV	IPR	SRMS & P/TV SUPPORT	P/TV23 S/U	P/TV23 OPS	MRNVS	SRMS & P/TV SUPPORT	MEAL	SRMS & P/TV SUPPORT															
MS1/EV2 WALHEIM		POST SLEEP	OTERM	EVA PREP	POST SLEEP				IVA EVA 4 SUPPORT																						
MS2 OCHOA		DSO 493	POST SLEEP				EXERCISE	MEAL	EVA 4 (6:30) SSRMS EVA4 SUPPORT																						
MS3/EV4 MORIN		POST SLEEP	EVA PREP				EMU P/B	C/L DPRSS	EVA 4 SETUP	RELEASE LCA GUIDES	ASMBL PWP	DEPLOY EV-CPDS	DPLY ND 1 SWINGARM	RMV Z1 MLI	PHOTO CLOSEOUT	C/U & INGRS															
MS4/EV3 ROSS		POST SLEEP	EVA PREP				EMU P/B	C/L DPRSS	EVA 4 SETUP	INSTL NODE EVA LIGHT	ASMBL PWP	INSTL LAB EVA LIGHTS	INSTL ENERGY ABSRBR	INST S0 HANDRAIL	PHOTO CLOSEOUT	C/U & INGRS															
MS5/EV1 SMITH		POST SLEEP	OTERM	10.2 DPRS	EVA PREP				A/L 14.7 REPR	IVA EVA 4 SUPPORT		PCS SUPPORT																			
I S S	ISS CDR ONUFRIENKO		POST SLEEP	PREP WORK	DPC	ZCG VID S/U	ZCG FURN ACT	ZCG	EXERCISE IRED	MIDDAY-MEAL	ITCS SAMP LTL	ITCS SAMP MTL	C1 CB B3 MNT	C1 CB P/R	COX-MNT	TVIS															
	FE-1 WALZ		POST SLEEP	OTERM	POST SLEEP	PREP WORK	DPC	PL STAT	CMS EXER FILE DWLND	EXERCISE IRED	EXERCISE TVIS	MEAL	INSTL NODE EVA LIGHT	ASMBL PWP	INSTL LAB EVA LIGHTS	INSTL ENERGY ABSRBR	INST S0 HANDRAIL														
	FE-2 BURSCH		POST SLEEP	EVA PREP				A/L 14.7 REPR	IMS FILE PREP	MIDDAY-MEAL	P1 BPS3 SMPL	P2 BPS3 SMPL	AGDA	ADAC	P3 BPS3 SMPL	EXERCISE TVIS	EXERCISE IRED														
S T S	DAY/NIGHT	[Timeline bars for Day/Night]																													
	ORBIT	118	119				120				121				122				123				124				125				126
S	DAILY ORBIT	15	1				2				3				4				5				6				7				8
	TDRS	47	171				[Timeline bars]				[Timeline bars]				[Timeline bars]				[Timeline bars]				[Timeline bars]				[Timeline bars]				[Timeline bars]
RS GND		[Timeline bars]																													
ORB ATT		BIAS -XLV +ZVV																													
ISS ATT		BIAS +ZLV +XVV																													
NOTES		*HTR *VERIFY CONFIG 2B *ADVASC-STATUS-MON ^INIT #TERM ^INIT ^INIT #TERM #TERM																													

STS-110/8A JOINT MISSION STP

FD09



2-31

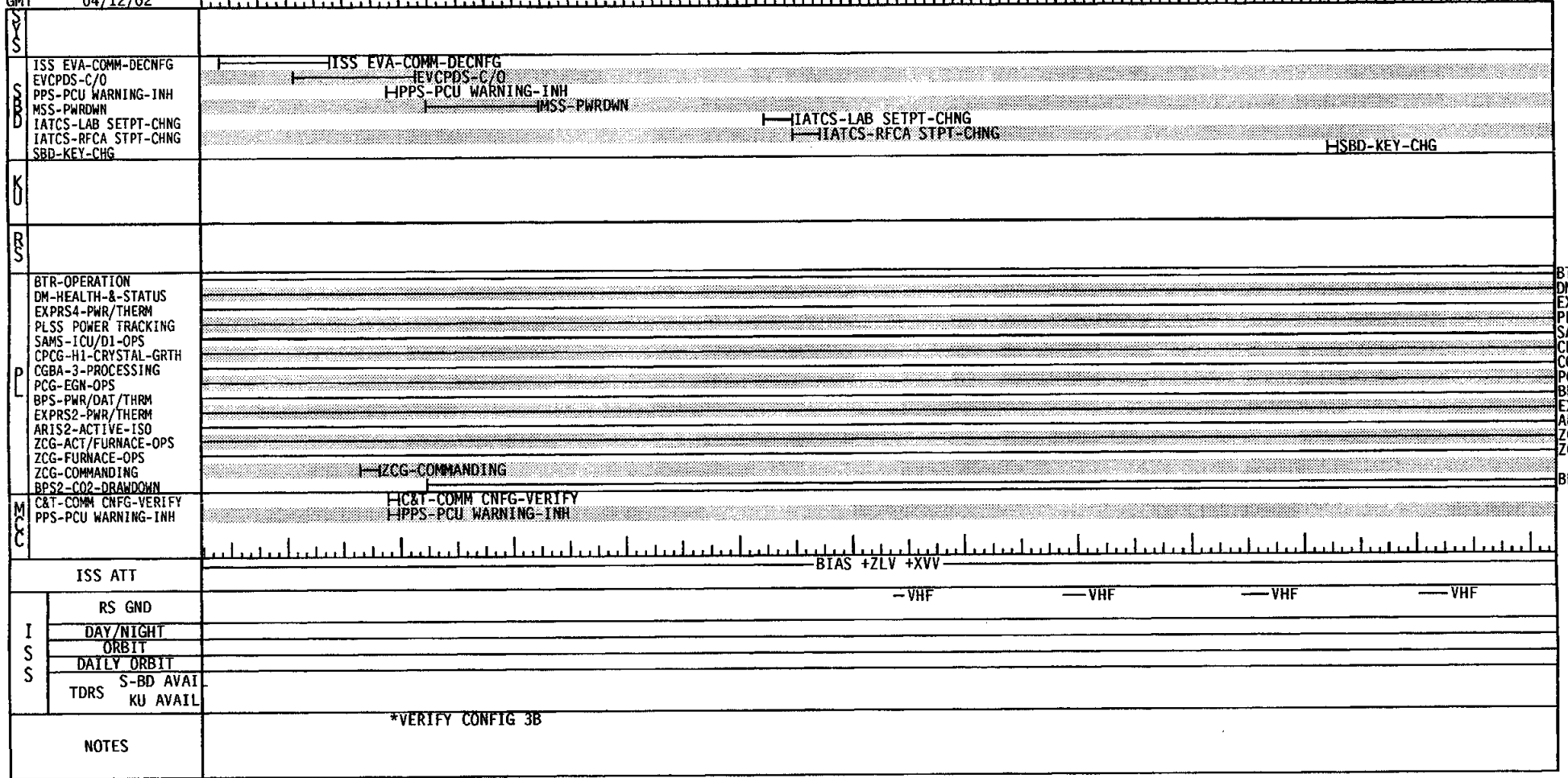
FLT PLN/110/FIN

GMT 04/12/02 23 04/13 01 02 03 04 05 06 07 08 09 10 12
 MET Day 008 008/00 01 02 03 04 05 06 07 08 09 10 11 12

STS	FD09 CDR BLOOMFIELD	EXERCISE	START	1R 4P 7S	PRE SLEEP	SLEEP	PS OLE STEP		
	PLT FRICK	COMM	RPM MW SR DOCA N	ION LUM	PRE SLEEP	ISS EXTERNAL SURVEY →	SLEEP POST SLEEP		
	MS1/EV2 WALHEIM	*	POST EVA W/O H2O	EMU RECONFIG	O I 2 N I T	PRE SLEEP	SLEEP POST SLEEP		
	MS2 OCHOA					PRE SLEEP	SLEEP PS OLE STEP		
	MS3/EV4 MORIN	⊕	CR P L R S S	POST EVA W/O H2O		PRE SLEEP	SLEEP POST SLEEP		
	MS4/EV3 ROSS	♦	CR P L R S S	POST EVA W/O H2O		PRE SLEEP	SLEEP POST SLEEP		
	MS5/EV1 SMITH		POST EVA W/O H2O	EMU RECONFIG	O I 2 N I T	PRE SLEEP	SLEEP POST SLEEP		
ISS	ISS CDR ONUFRIENKO	T V I S	PREP WORK	PLAN REVW	C O D P C	PRE SLEEP	SLEEP		
	FE-1 WALZ		PREP WORK	PLAN REVW	D P C	O I 2 N I T	PRE SLEEP SLEEP		
	FE-2 BURSCH	EXERCISE IRED	PREP WORK	PLAN REVW	D P C	PRE SLEEP	SLEEP		
STS	DAY/NIGHT	[Timeline with shaded day/night periods]							
	ORBIT	126	127	128	129	130	131	132	133
STS	DAILY ORBIT	8	9	10	11	12	13	14	15
	TDRS	47 171	[Timeline with TDRS activity bars]						
RS GND									
ORB ATT									
ISS ATT									
NOTES		*IVA EVA 4 SUPPORT*VERIFY CONFIG 3B @C/U & INGRS *DECON INGRS							

STS-110/8A JOINT MISSION STP

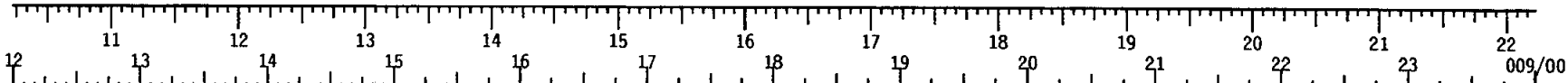
FD09
 MET Day 008 008/00
 GMT 04/12/02



BTR-OF
 DM-HEA
 EXPRS4
 PLSS F
 SAMS-1
 CPCG-F
 CGBA-3
 PCG-EG
 BPS-PW
 EXPRS2
 ARIS2-
 ZCG-AC
 ZCG-FL
 BPS2-C

GMT 04/13/02

MET Day 008



STS	FD10 CDR BLOOMFIELD	POST SLEEP	H/O ATT	MNVR -XLV -ZVV	REBOOST CONFG 3	-XLV +ZVV	H/O ATT	INVEN CK	STACK REPRESS	MEAL	FAREWELL	EXERCISE	GP RW PR H/O B U ATT V P	- + XLV LVV	UNDOCK OPS	FLYAROUND	- + ZLV LVV	GP RW PR B N
	PLT FRICK	POST SLEEP	POST SLEEP	RNDZ TOOLS C/O	XFER OPS	P/TV 21 S/U	MEAL	FAREWELL	P/TV 24	EXERCISE	UNDOCK OPS	FLYAROUND	RP RW SR S/D I O T					
	MS1/EV2 WALHEIM	POST SLEEP	O2 XFER TERM	N2 XFER TERM	EMU RECONFIG	XFER OPS	MEAL	FAREWELL	HATCH CLOSE	EXERCISE	EMU INSTL	UNDOCK OPS	FLYAROUND	CS NT D O S W	C/L CAM RMV			
	MS2 OCHOA	POST SLEEP	RNDZ TOOLS C/O	XFER OPS	COMM	MEAL	FAREWELL	HAB LU / DO I O	ODS LEAK CK	UNDOCK OPS	FLYAROUND	GP RW PR B N						
	MS3/EV4 MORIN	POST SLEEP	BTR ^	XFER BTR-2	XFER OPS	MEAL	FAREWELL	EXERCISE	EMU INSTL	UNDOCK OPS	FLYAROUND	PL STAT						
	MS4/EV3 ROSS	POST SLEEP	XFER OPS	XFB F A I R E G R U P	MEAL	FAREWELL	ODS LEAK CK	P/TV20 SETUP	UNDOCK OPS	P/TV 20	EXERCISE							
	MS5/EV1 SMITH	POST SLEEP	O2 XFER TERM	N2 XFER TERM	EMU RECONFIG	XFER OPS	MEAL	FAREWELL	HATCH CLOSE	P/TV19 C/L CM SU	P/TV20 SETUP	UNDOCK OPS	FLYAROUND	PLBK ACT	PLBK OPS			
ISS	ISS CDR ONUFRIENKO	POST SLEEP	PREP WORK	DPC @	E P I B D R W I R A U P I	BTR MOVE	EXERCISE TVIS	MIDDAY-MEAL	FAREWELL	HATCH CLOSE	COMM	PMA2 DEPART CONFIG	GOM-1-WATT/1	IMS FILE PREP	IRED			
	FE-1 WALZ	POST SLEEP	PREP WORK	DPC	O2 XFER TERM	N2 XFER TERM	EVA RM	EVARM POST EVA	PCS / SSC SWAP	MIDDAY-MEAL	FAREWELL	IWIS-S/U	P/TV P/TV S/U	EXERCISE	IRED	D P R S		
	FE-2 BURSCH	POST SLEEP	PREP WORK	DPC	EVA EQUIP XFER	ARCTIC CABLE CNCT	COX-MNT	X F A G E R U P	MIDDAY-MEAL	FAREWELL	PL STAT	EXERCISE	IRED	ARCTIC ACT	ARCTC PHOTO	I X F I E S R		
STS	DAY/NIGHT	134		135		136		137		138		139		140		141		
	DAILY ORBIT	16		1		2		3		4		5		6		7		
STS	TDRS	47																
	TDRS	171																
RS GND																		
ORB ATT	BIAS -XLV +ZVV																	
ISS ATT	BIAS +ZLV +XVV																	

UNDOCK

NOTES *ON *ON @ZCG-MONITOR ^ACT *VERIFY CONFIG 1B *UNDOCKING ACDRA DEACT SPPT

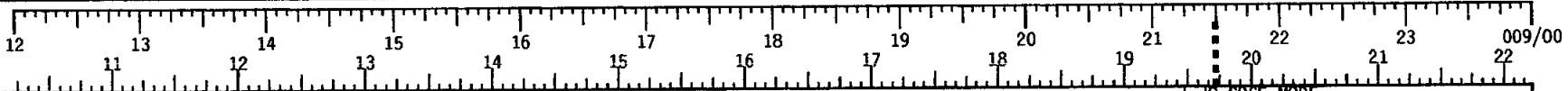
*GPS OP:
*DIU/S:
*GPS OP:

STS-110/8A JOINT MISSION STP

FD10

MET Day 008

GMT 04/13/02



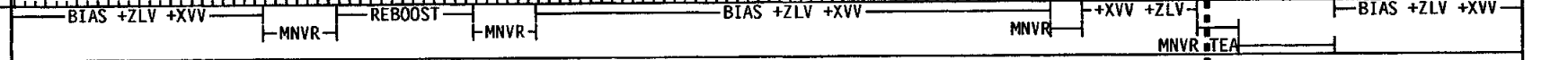
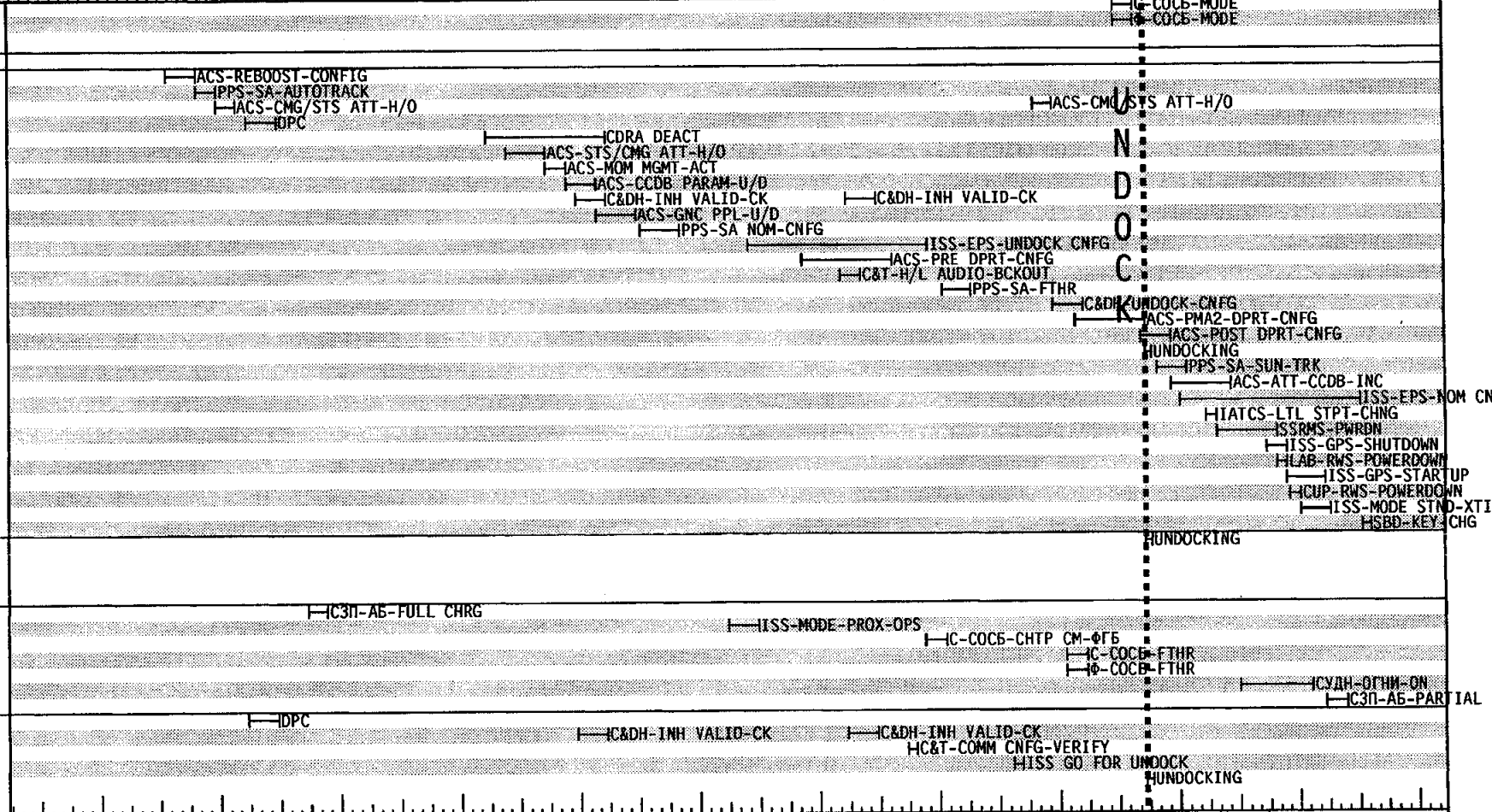
S
C-COCB-MODE
Φ-COCB-MODE

RS GND
ACS-REBOOST-CONFIG
PPS-SA-AUTOTRACK
ACS-CMG/STS ATT-H/O
DPC
CDRA DEACT
ACS-ST/CMG ATT-H/O
ACS-MOM MGMT-ACT
ACS-CCDB PARAM-U/D
C&DH-INH VALID-CK
ACS-GNC PPL-U/D
PPS-SA NOM-CNFG
ISS-EPS-UNDOCK CNFG
ACS-PRE DPRT-CNFG
C&T-H/L AUDIO-BCKOUT
PPS-SA-FTHR
C&DH-UNDOCK-CNFG
ACS-PMA2-DPRT-CNFG
ACS-POST DPRT-CNFG
UNDOCKING
PPS-SA-SUN-TRK
ACS-ATT-CCDB-INC
ISS-EPS-NOM CNFG
IATCS-LTL STPT-CHNG
SSRMS-PWRDN
ISS-GPS-SHUTDOWN
LAB-RWS-POWERDOWN
ISS-GPS-STARTUP
CUP-RWS-POWERDOWN
ISS-MODE STND-XTION
SBD-KEY-CHG

K
UNDOCKING

S
C3P-A6-FULL CHRG
ISS-MODE-PROX-OPS
C-COCB-CHTP CM-ΦG5
C-COCB-FTHR
Φ-COCB-FTHR
CUDH-OTHM-ON
C3P-A6-PARTIAL CHRG

C
DPC
C&DH-INH VALID-CK
C&T-COMM CNFG-VERIFY
ISS GO FOR UNDOCK
UNDOCKING



I
S
S
DAY/NIGHT
ORBIT
DAILY ORBIT
KU AVAIL
TDRS S-BD AVAIL

NOTES

2-35

*VERIFY CONFIG 1B *PWRDN
FLT PLN/110/FIN

ISS-4

SHORT TERM PLAN GMT

MET Day 009 009/00 01 02 03 04 05 06 07 08 09 10 11 12
 GMT 04/13/02 23 04/14 01 02 03 04 05 06 07 08 09 10

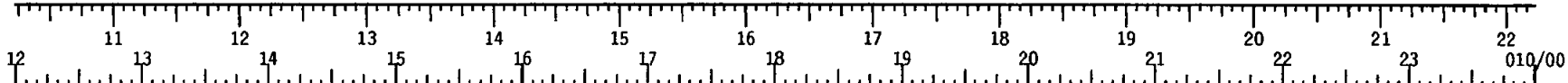
ISS	DAY/NIGHT					
	ORBIT					
	DAILY ORBIT					
	TDRS KU S-BD					
MCC	C&T-COMM CNFG-VERIFY	HC&T-COMM CNFG-VERIFY				
ISS	GND					
ISS ATTITUDE		BIAS +ZLV +XVV				
ISS POWER						
ISS	ONUFRIENKO	EXERCISE IRED	DAILY PLAN REVIEW ⊕	PRE SLEEP	SLEEP	
	WALZ	PMA2-DEPRESS	DAILY PLAN REVIEW ⊕	PRE SLEEP	SLEEP	
	BURSCH	EXERCISE TVIS	DAILY PLAN REVIEW ⊕	PRE SLEEP	SLEEP	
K						
S						
SBD	ACS-MOM MGMT-ACT	ACS-MOM MGMT-ACT				
	PPS-SA NOM-CNFG	PPS-SA NOM-CNFG				
	TCS-PMA2 HTR-RCNFG	TCS-PMA2 HTR-RCNFG				
	C&T-POST DEPART-CNFG	C&T-POST DEPART-CNFG				
	ACS-MM-PREP & ACT	ACS-MM-PREP & ACT				
	PPS-PCU1,2-STNDBY	PPS-PCU1,2-STNDBY				
SBD-KEY-CHG	SBD-KEY-CHG					
PL	ZCG-ACT/FURNACE-OPS	ZCG-ACT/FURNACE-OPS				
	ZCG-FURNACE-OPS	ZCG-FURNACE-OPS				
	ARCTIC-ACTIVATION	ARCTIC-ACTIVATION				
	ARCTIC-HI-POWER	ARCTIC-HI-POWER				
BPS1-C02-DRAWDOWN	BPS1-C02-DRAWDOWN					
SR						
NOTES:	*C&T-COMM CNFG-VERIFY ⊕IWIS-DATA-XFER ⊕DPC-EVENING *INCR COMM CNFG VFY 1B *INCR COMM CNFG VFY 1B					

ZCG-AC
 ZCG-FL
 BPS1-C

GMT	04/13/02												
MET	Day 009												
	009/00	01	02	03	04	05	06	07	08	09	10	11	12
FD10 CDR BLOOMFIELD	GPS OPS 2 TEST	PRE SLEEP		PMO OCA	Z L V V	X L V V	SLEEP					DSO 493	POST SLEEP
PLT FRICK	PRE SLEEP	ST I M R D I O M S T	C I N N I S T	PRE SLEEP		CT N E R S M	SLEEP					POST SLEEP	
MS1/EV2 WALHEIM	PRE SLEEP			SLEEP					POST SLEEP				
MS2 OCHOA	* EXERCISE	PRE SLEEP		SLEEP					DSO 493	POST SLEEP			
MS3/EV4 MORIN	G2 P T S E O S P T S	PRE SLEEP			SLEEP					POST SLEEP			
MS4/EV3 ROSS	PRE SLEEP			SLEEP					POST SLEEP				
MS5/EV1 SMITH	EXERCISE	PRE SLEEP		SLEEP					POST SLEEP				
DAY/NIGHT	[Timeline with shaded blocks for day/night cycles]												
ORBIT	141	142	143	144	145	146	147	148	149				
DAILY ORBIT	7	8	9	10	11	12	13	14	15				
TDRS	47	[Timeline with horizontal bars for TDRS events]											
ORB ATT	171	[Timeline with horizontal bars for ORB ATT events]											
	BIAS -ZLV +YVV												
	-ZLV -XVV												
NOTES	*OIU/SSOR												

GMT 04/14/02

MET Day 009

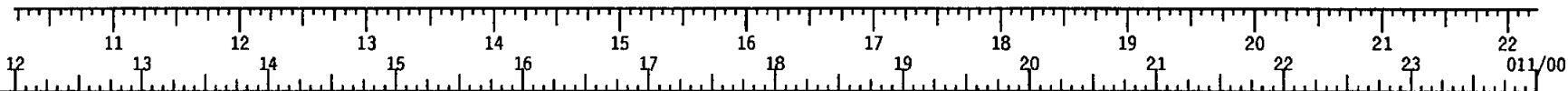


FD11	12	13	14	15	16	17	18	19	20	21	22	23	22 010/00			
CDR BLOOMFIELD	POST SLEEP		GPS OPS 3 TEST	FCS C/O	PILOT OPS	PEAV OENT	RCS HF	MEAL	D/O BRIEF	SOP IMPLY EX	-ZLVV	CABIN STOW	EXERCISE	L-1 COMM CHK	CABIN STOW	PMCT A/G
PLT FRICK	POST SLEEP		EXERCISE	FCS C/O	PILOT OPS	PEAV OENT	RCS HF	MEAL	D/O BRIEF	SOP IMPLY EX	PC RL OASE	CABIN STOW		CABIN STOW		PRE SLEEP
MS1/EV2 WALHEIM	POST SLEEP			POST EVA ENT PREP	EXERCISE	PEAV OENT		MEAL	D/O BRIEF			CABIN STOW			ERG STOW	PRE SLEEP
MS2 OCHOA	POST SLEEP		FILTER CLEAN	FCS C/O	PILOT OPS	PEAV OENT	RCS HF	MEAL	D/O BRIEF	COM M2		EXERCISE		CABIN STOW		PRE SLEEP
MS3/EV4 MORIN	POST SLEEP		GPS OPS 3 TEST	POST EVA ENT PREP		PEAV OENT		MEAL	D/O BRIEF			CABIN STOW	EXERCISE	CABIN STOW	PSLT AT TUN S	PRE SLEEP
MS4/EV3 ROSS	POST SLEEP		EXERCISE		P/TV 02 S/U	PEAV OENT		MEAL	D/O BRIEF	PD (E /ES TAS V CV OT) 6	P/TV05 S/U		CABIN STOW		ERG STOW	PRE SLEEP
MS5/EV1 SMITH	POST SLEEP			EXERCISE		PEAV OENT		MEAL	D/O BRIEF			CABIN STOW				PRE SLEEP
DAY/NIGHT	[Day/Night Cycle Indicators]															
ORBIT	149	150	151	152	153	154	155	156	157							
DAILY ORBIT	15	1	2	3	4	5	6	7	8							
TDRS	47	[TDRS Activity Bars]														
ORB ATT	171	[Orbit Attainment Bars]														
NOTES	*APU HTR ACT -ZLV -XVV SMP LX *ON *INIT ⊕ PRE SLI * TEMP CN															

GMT 04/14/02		010/00 01 02 03 04 05 06 07 08 09 10 11 12											
MET Day 010		01 02 03 04 05 06 07 08 09 10 11 12											
FD11													
CDR BLOOMFIELD	PRE SLEEP	FOUR	PRE SLEEP	SLEEP							DSO 493	POST SLEEP	
PLT FRICK	PRE SLEEP			SLEEP							POST SLEEP		
MS1/EV2 WALHEIM	PRE SLEEP			SLEEP							POST SLEEP		
MS2 OCHOA	PRE SLEEP			SLEEP							DSO 493	POST SLEEP	
MS3/EV4 MORIN	PRE SLEEP			SLEEP							POST SLEEP		
MS4/EV3 ROSS	PRE SLEEP			SLEEP							POST SLEEP		
MS5/EV1 SMITH	PRE SLEEP			SLEEP							POST SLEEP		
DAY/NIGHT	[Day/Night Cycle Diagram]												
ORBIT	157	158	159	160	161	162	163	164	165				
DAILY ORBIT	8	9	10	11	12	13	14	15	1				
TDRS	47												
	171												
ORB ATT	-ZLV -XV												
	*TERM												
NOTES													

GMT 04/15/02

MET Day 010



FD12										
CDR BLOOMFIELD	POST SLEEP	PMC A/G	IM NUR	IV MER IF	- X S I					
PLT FRICK	POST SLEEP	OD CE A CT R	PS RT OR W B	GP R PR U K	TA N K C					
MS1/EV2 WALHEIM	POST SLEEP			GS IT RO AW						
MS2 OCHOA	POST SLEEP									
MS3/EV4 MORIN	POST SLEEP	AI R	700-14 ENT S/U							
MS4/EV3 ROSS	POST SLEEP			ST AT						
MS5/EV1 SMITH	POST SLEEP	OS CT AO CW		TE PC *						
DAY/NIGHT										
ORBIT	165	166	167	168	169	170	171	172		
DAILY ORBIT	1	2	3	4	5	6	7	8	9	
TDRS	47									
	171									
ORB ATT	-ZLV	-XVV	IMJ	-XSI	COMM	ENTRY				
NOTES				*OFF						

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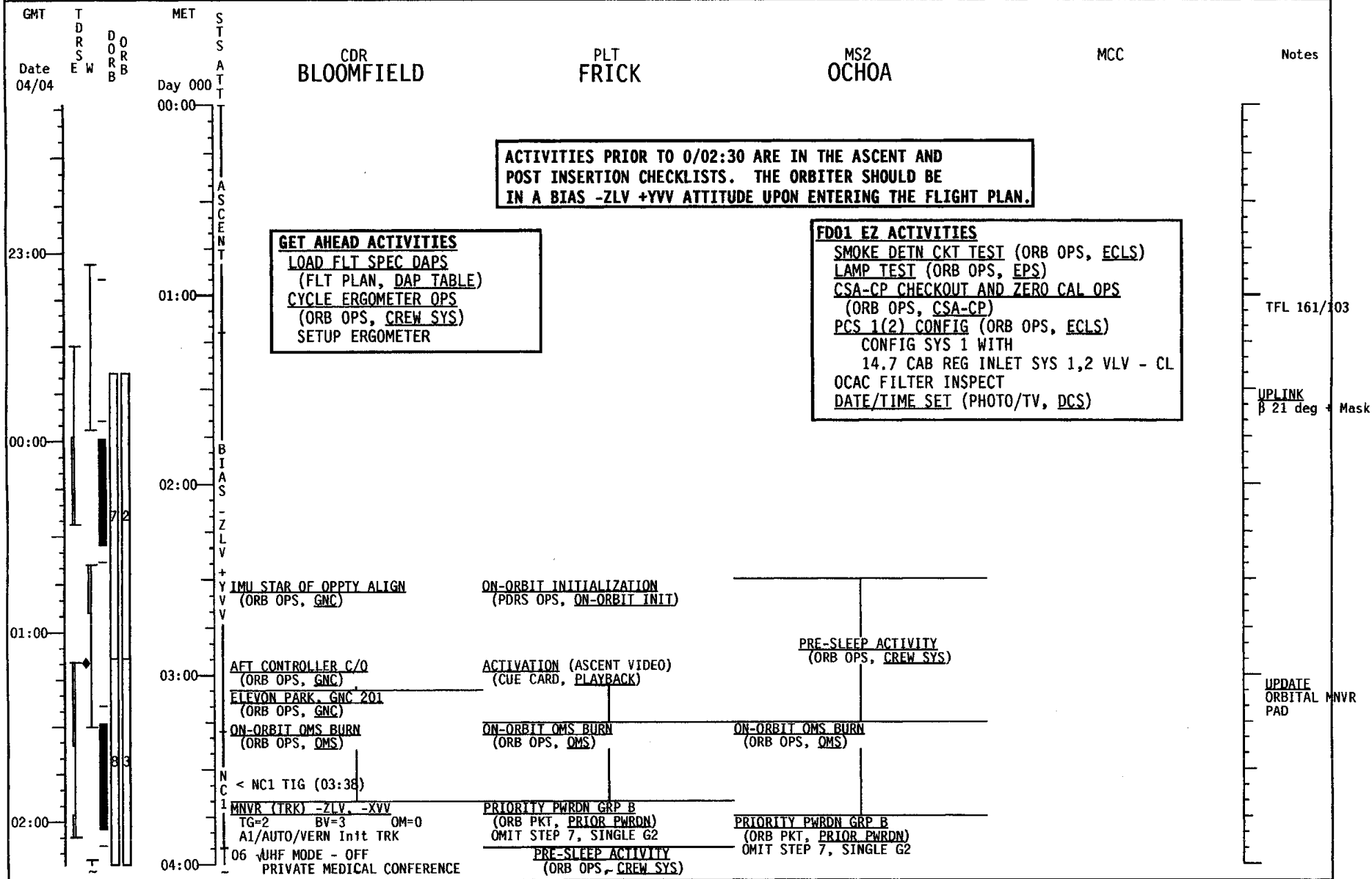
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DETAILED TIMELINE

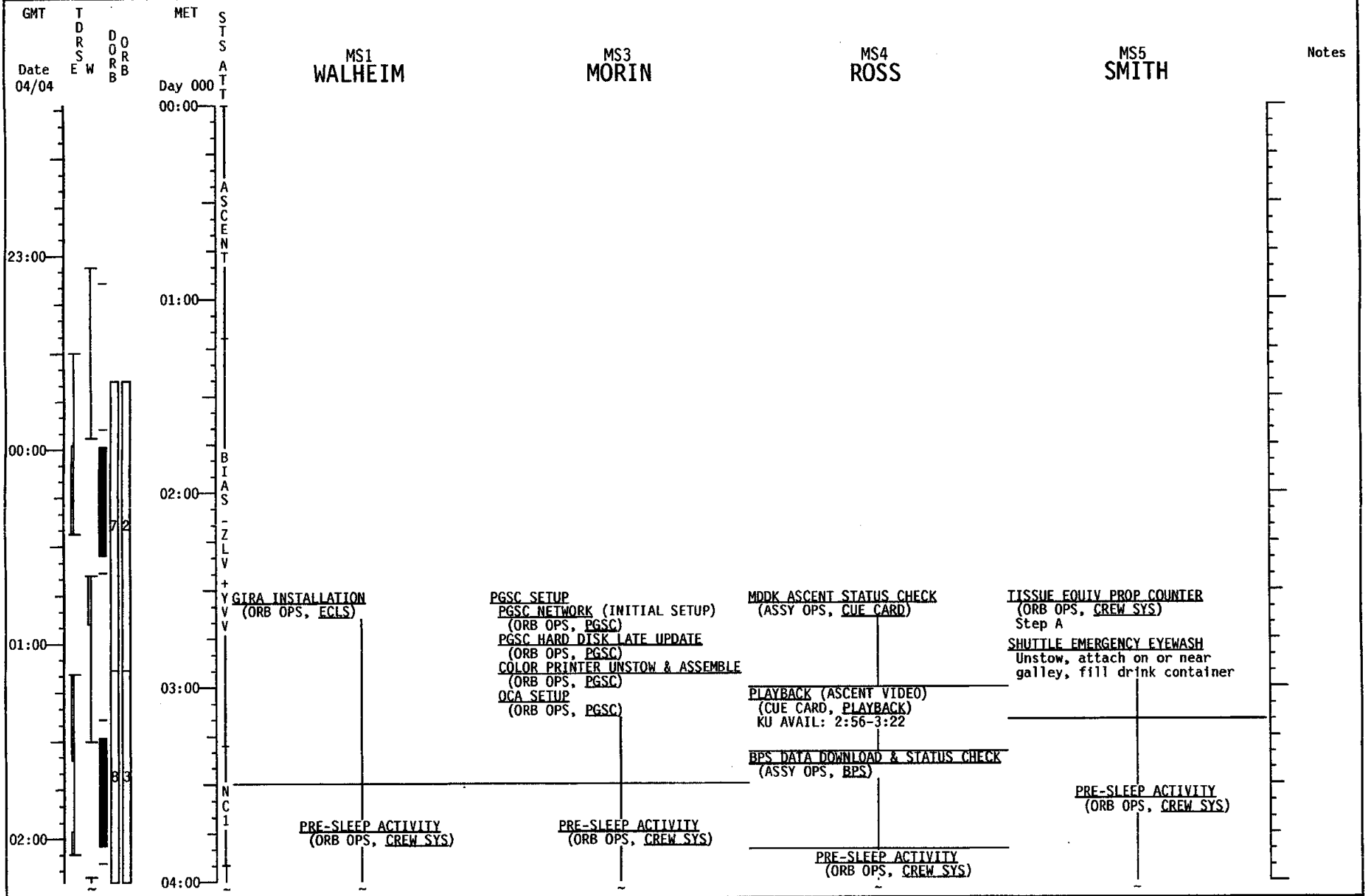
DETAILED
TIMELINE

DETAILED TIMELINE

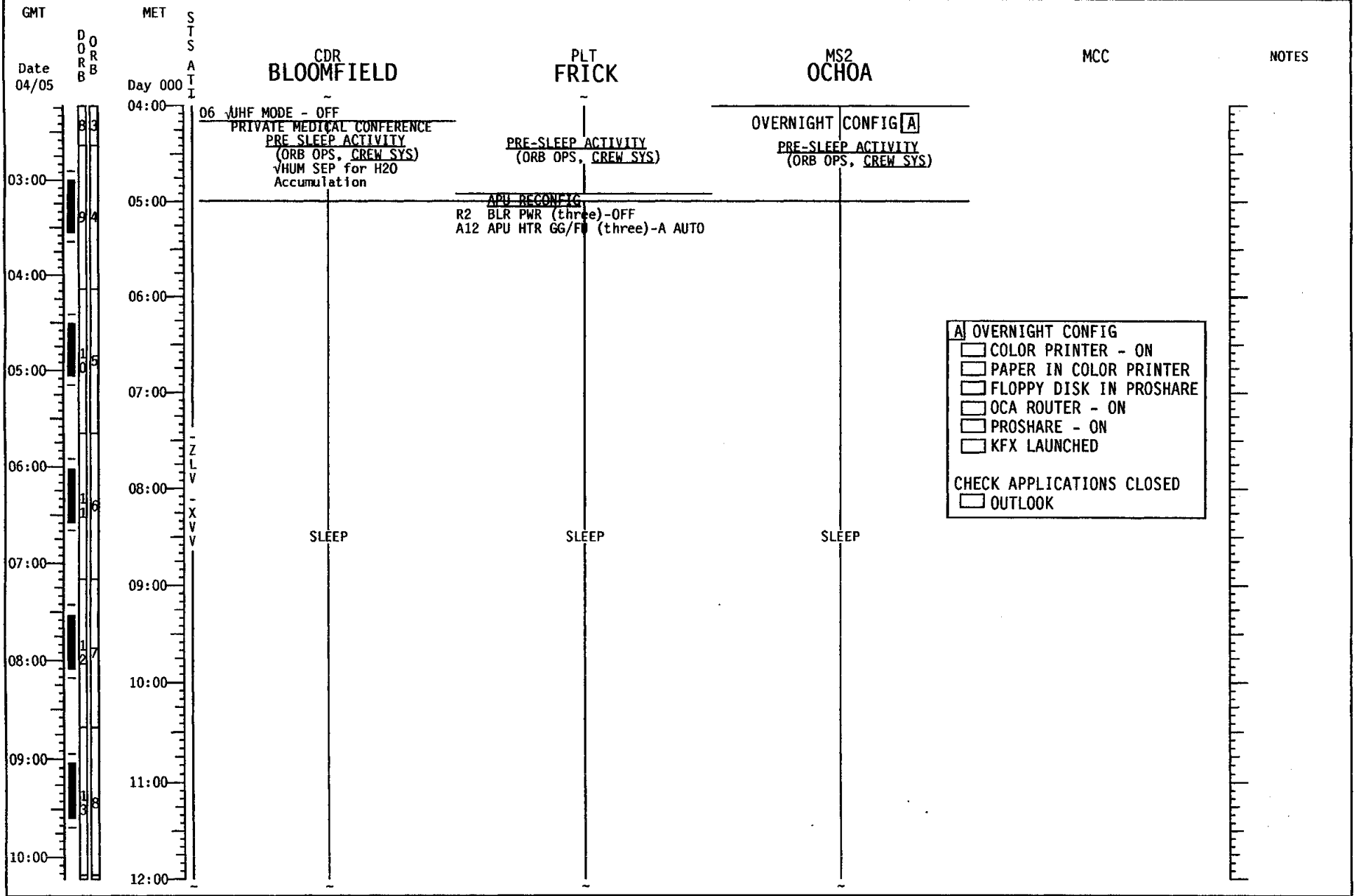
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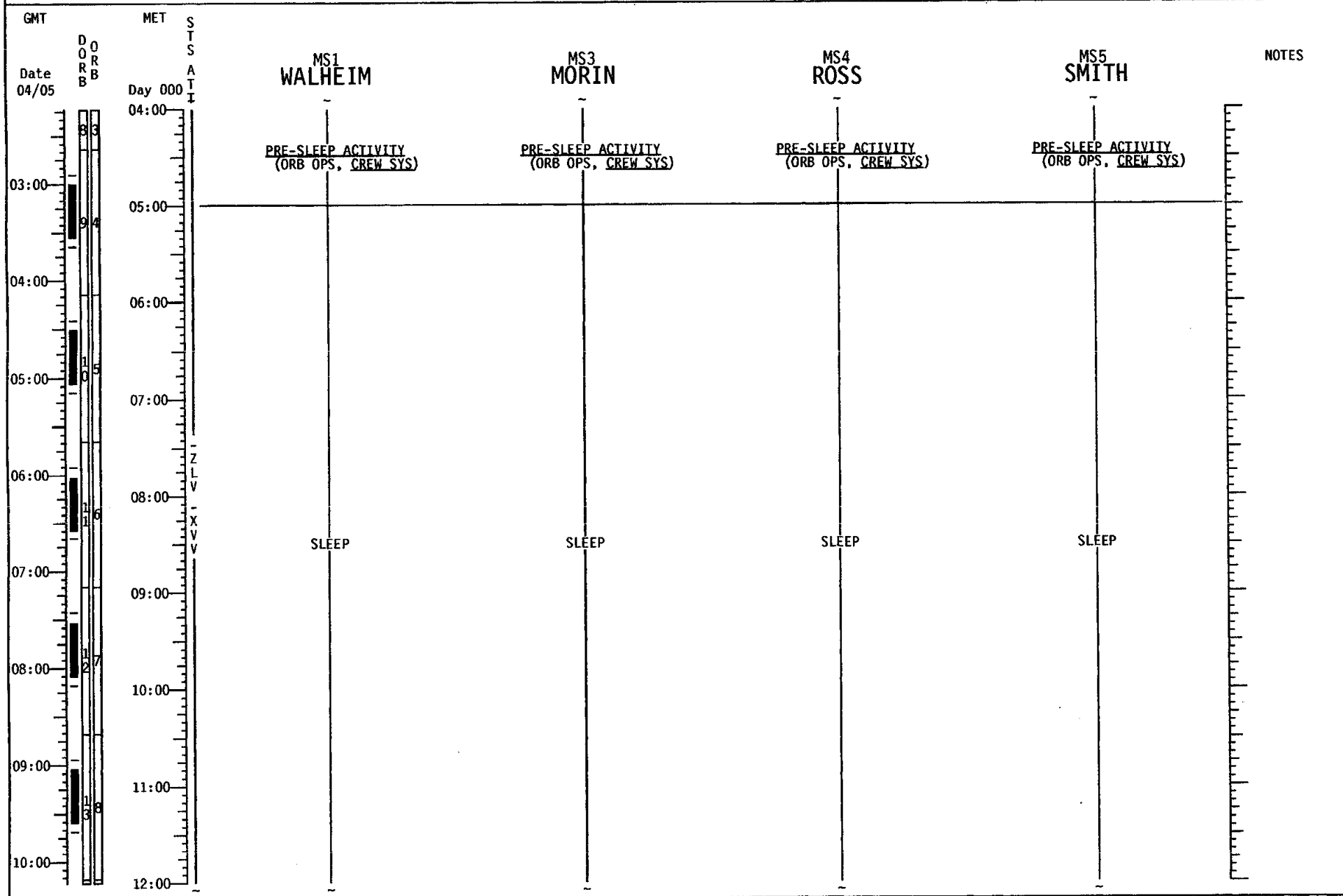
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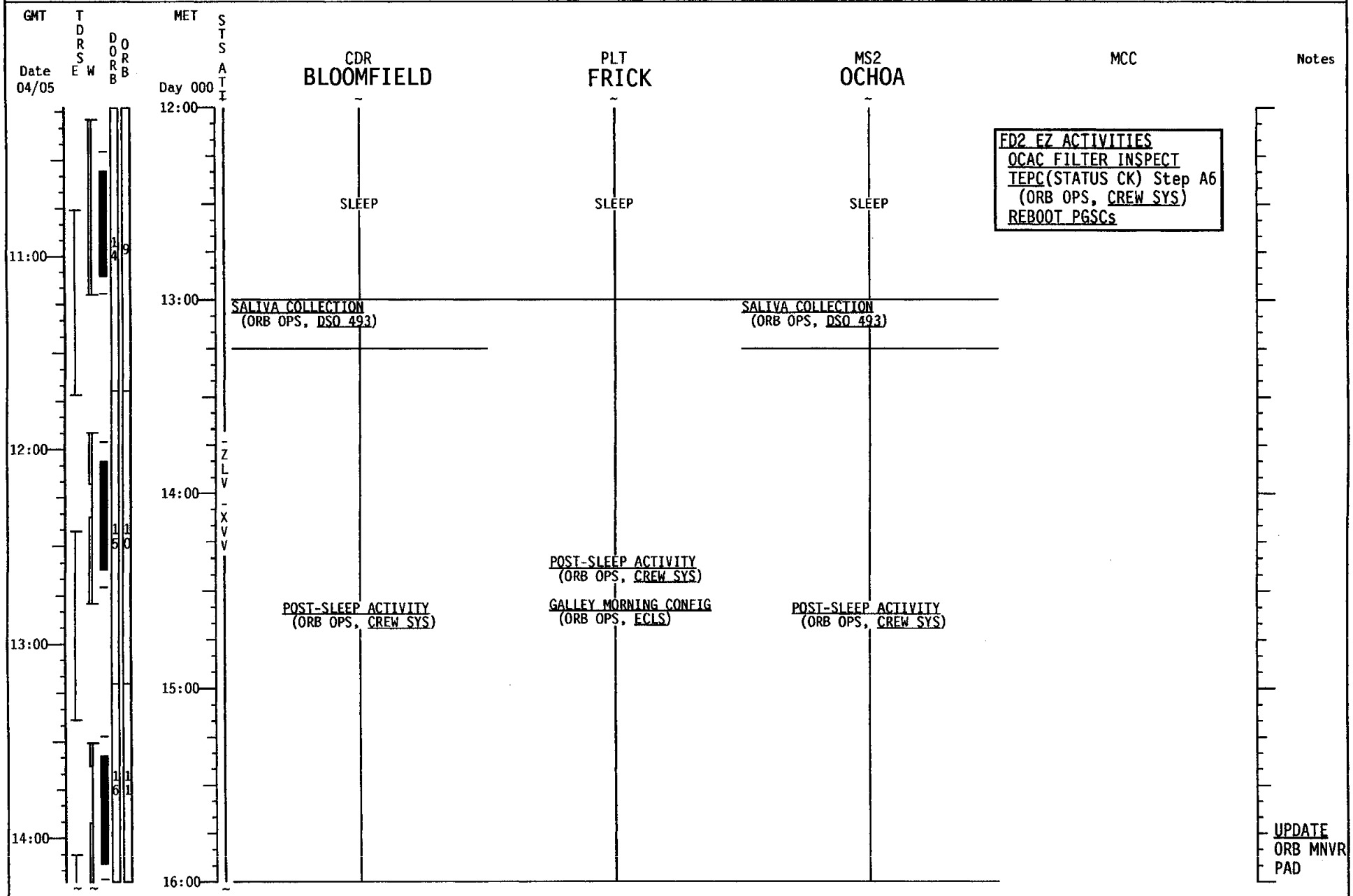
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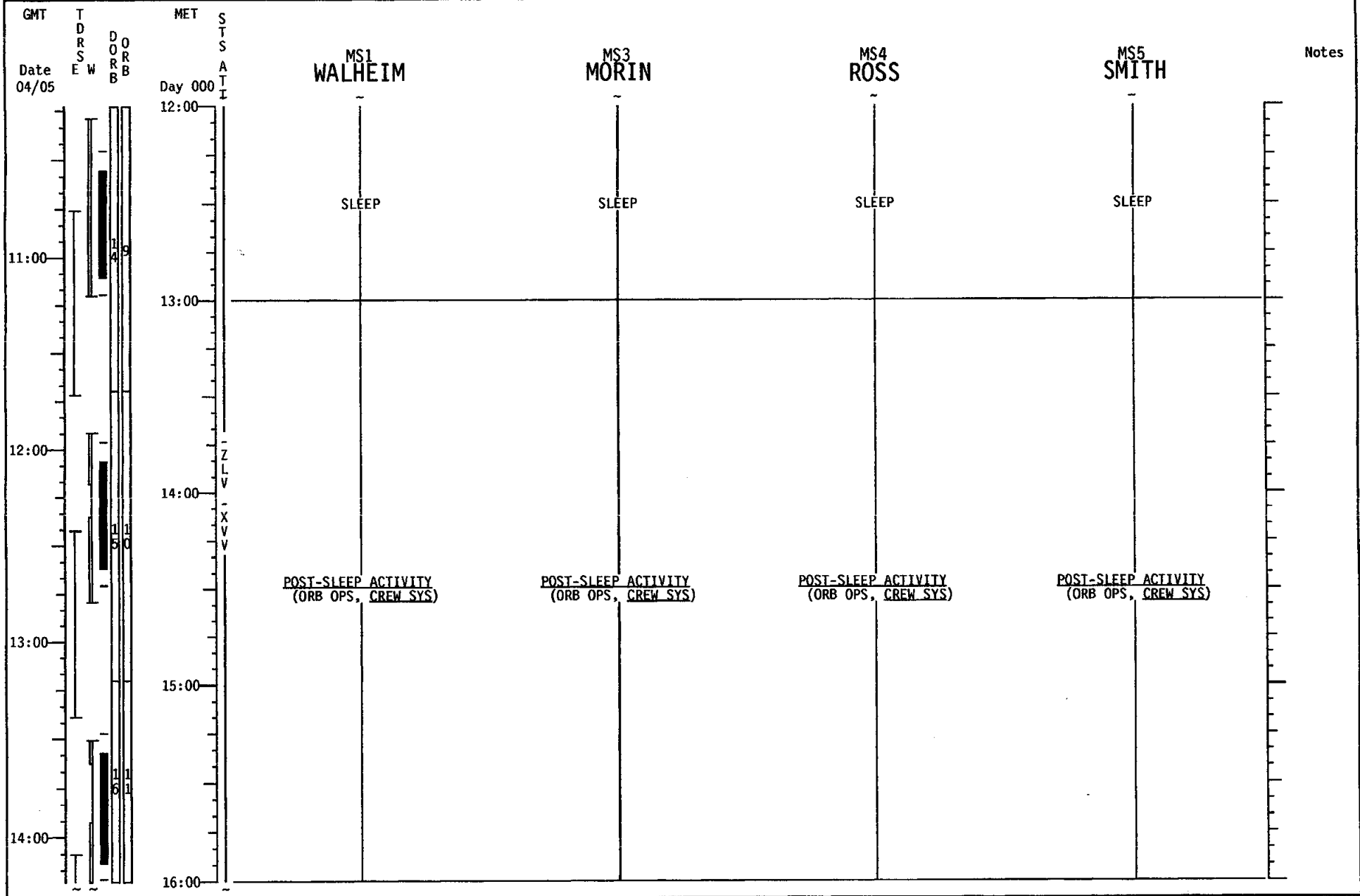
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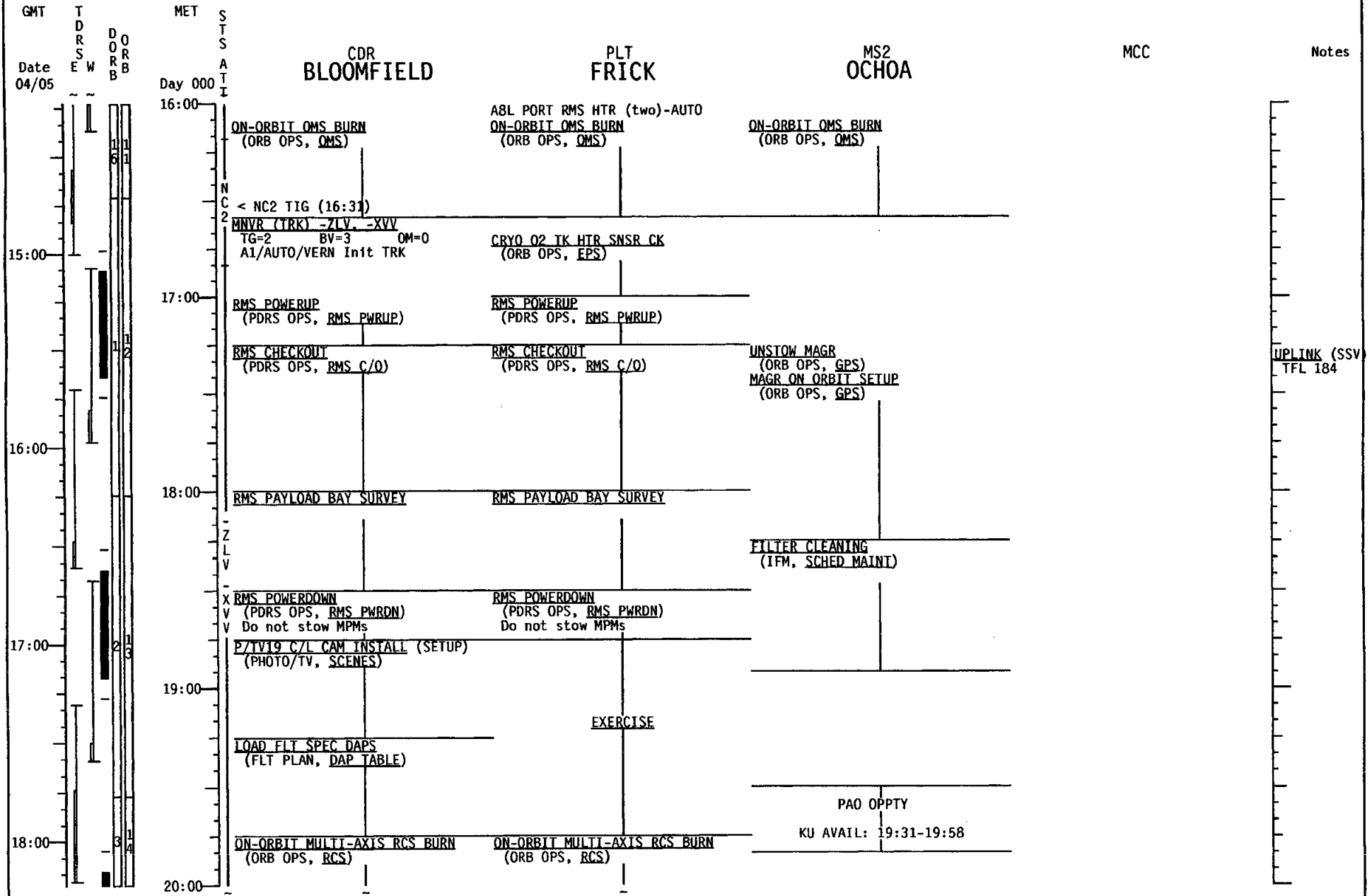
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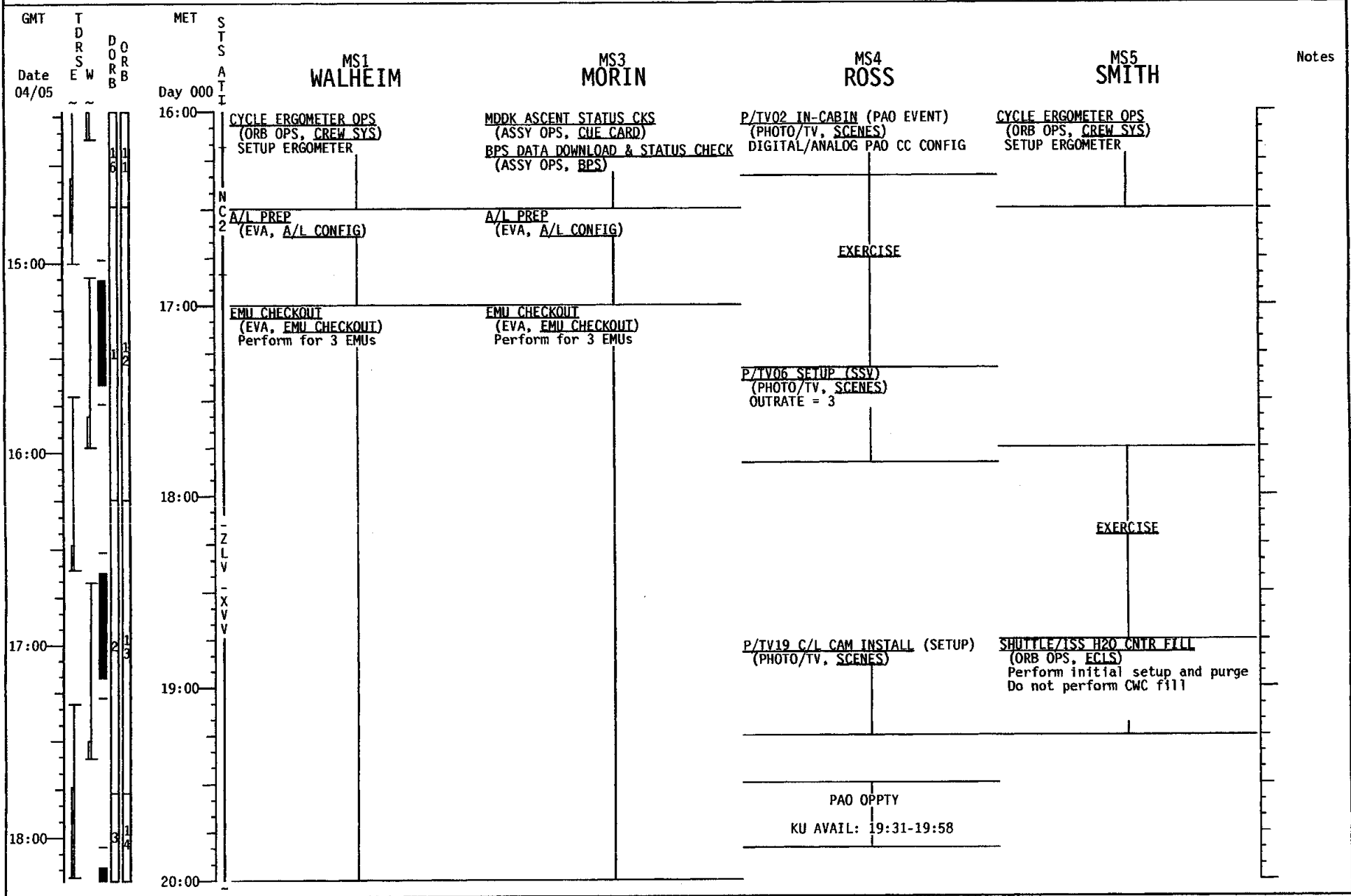
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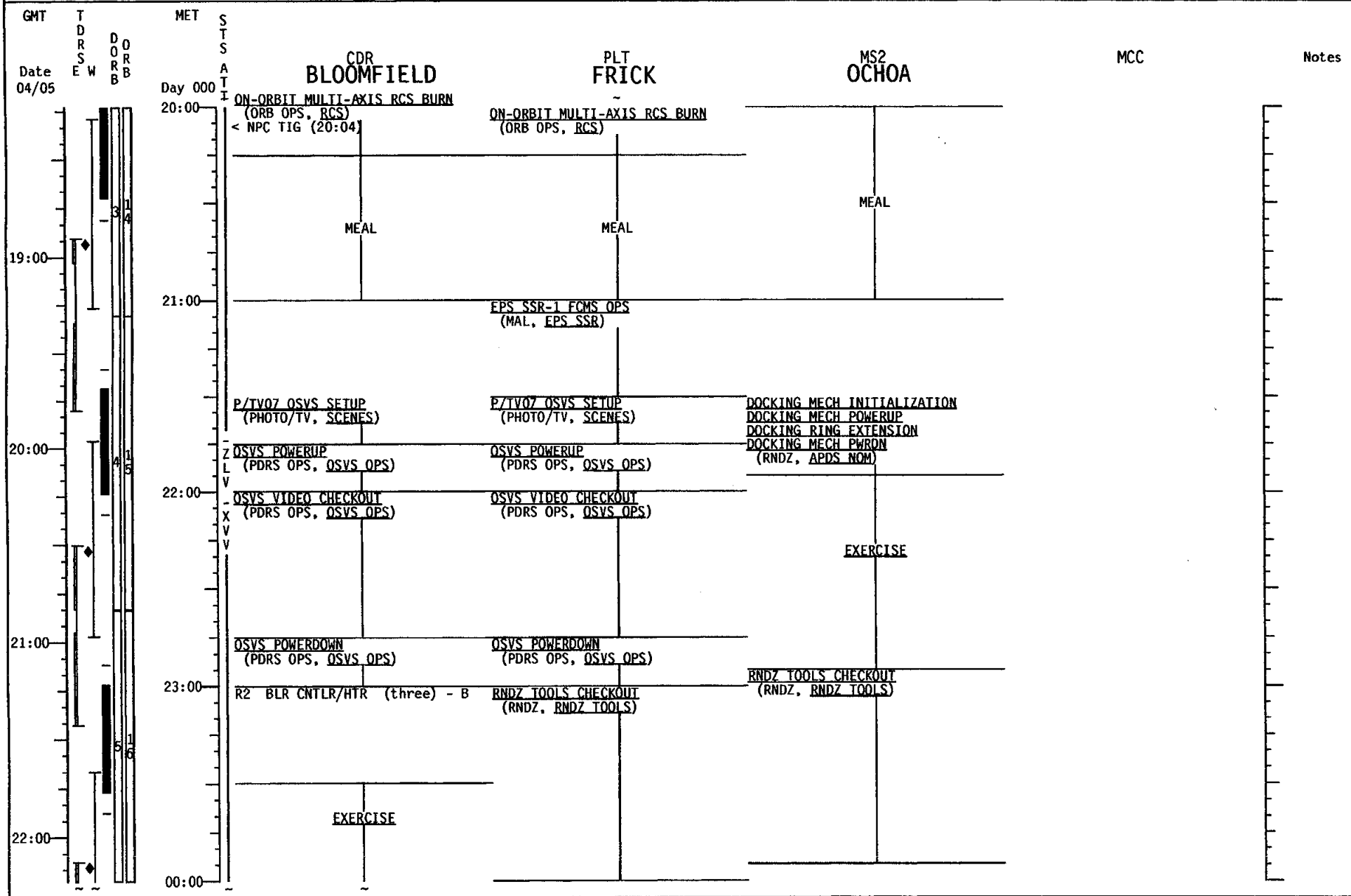
STS-110 (FD 02)



STS-110 (FD 02)



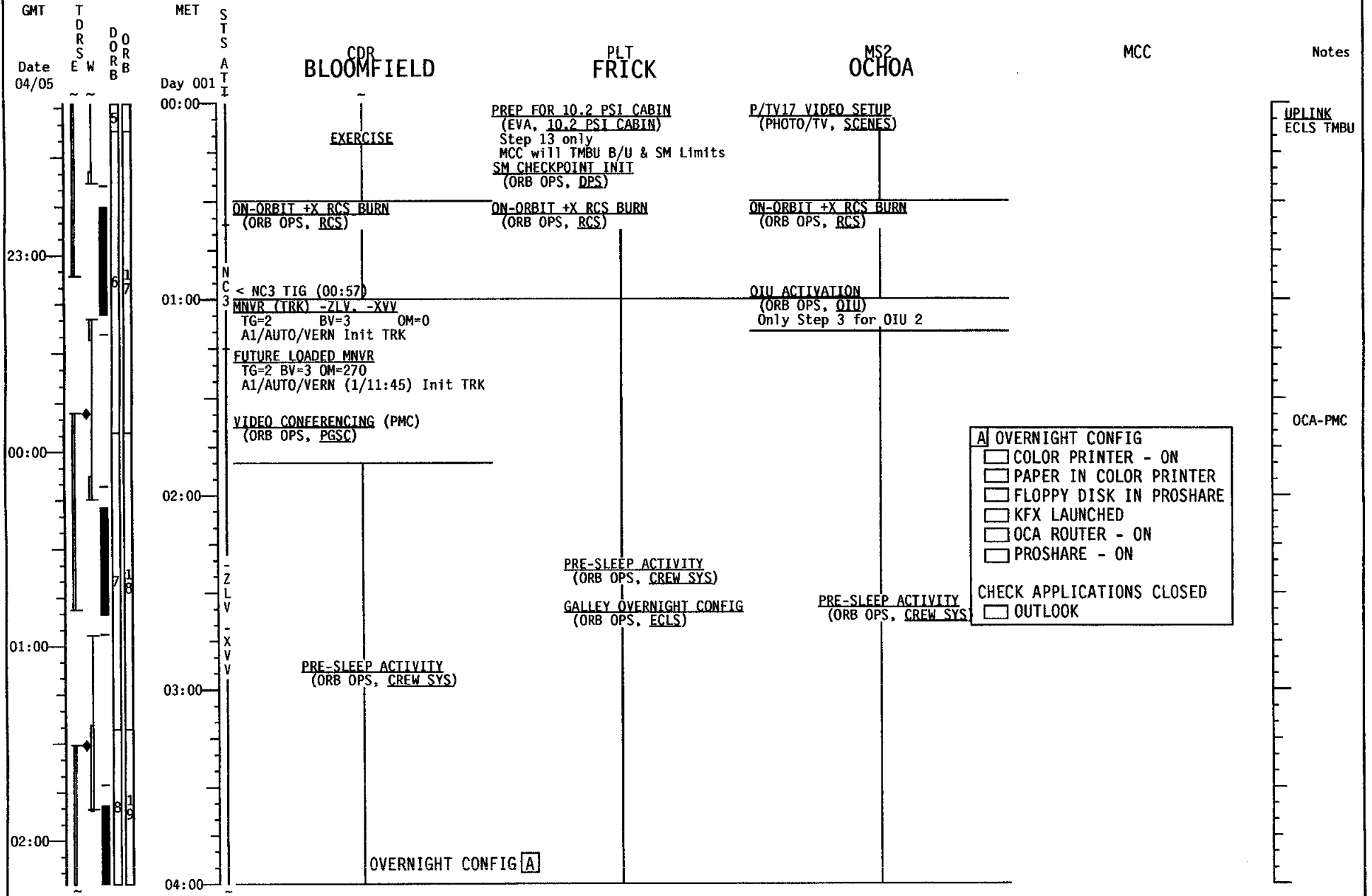
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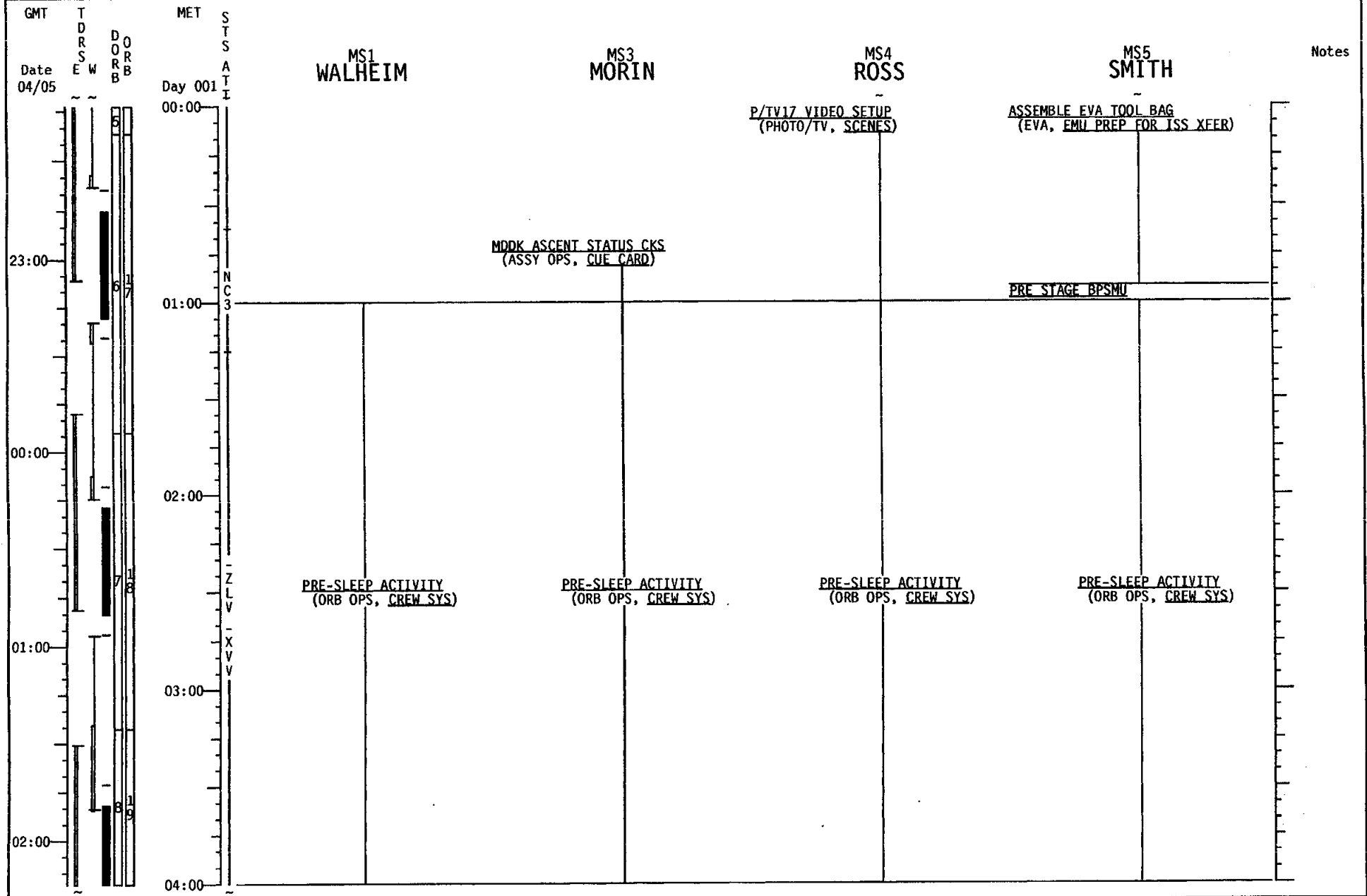
STS-110 (FD 02)

GMT Date 04/05	T D R S E W	D O R B	MET Day 000	S T S A T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
19:00					MEAL	MEAL	MEAL	MEAL	
20:00					SAFER CHECKOUT (EVA, CHECKOUTS)	SAFER CHECKOUT (EVA, CHECKOUTS)		EMU PREP FOR ISS TRANSFER (EVA, A/L CONFIG)	
21:00							DOCKING MECH INITIALIZATION DOCKING MECH POWERUP DOCKING RING EXTENSION DOCKING MECH PWRDN (RNDZ, APDS NOM)		
22:00					EMU PREP FOR ISS TRANSFER (EVA, A/L CONFIG)	EMU PREP FOR ISS TRANSFER (EVA, A/L CONFIG)	TRANSFER PREP (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	ASSEMBLE EVA TOOL BAG (EVA, EMU PREP FOR ISS XFER)	
23:00					EXERCISE				
22:00					HAND-HELD LIDAR C/O (RNDZ, RNDZ TOOLS)	EXERCISE	P/TV17 VIDEO SETUP (PHOTO/TV, SCENES)		
00:00									

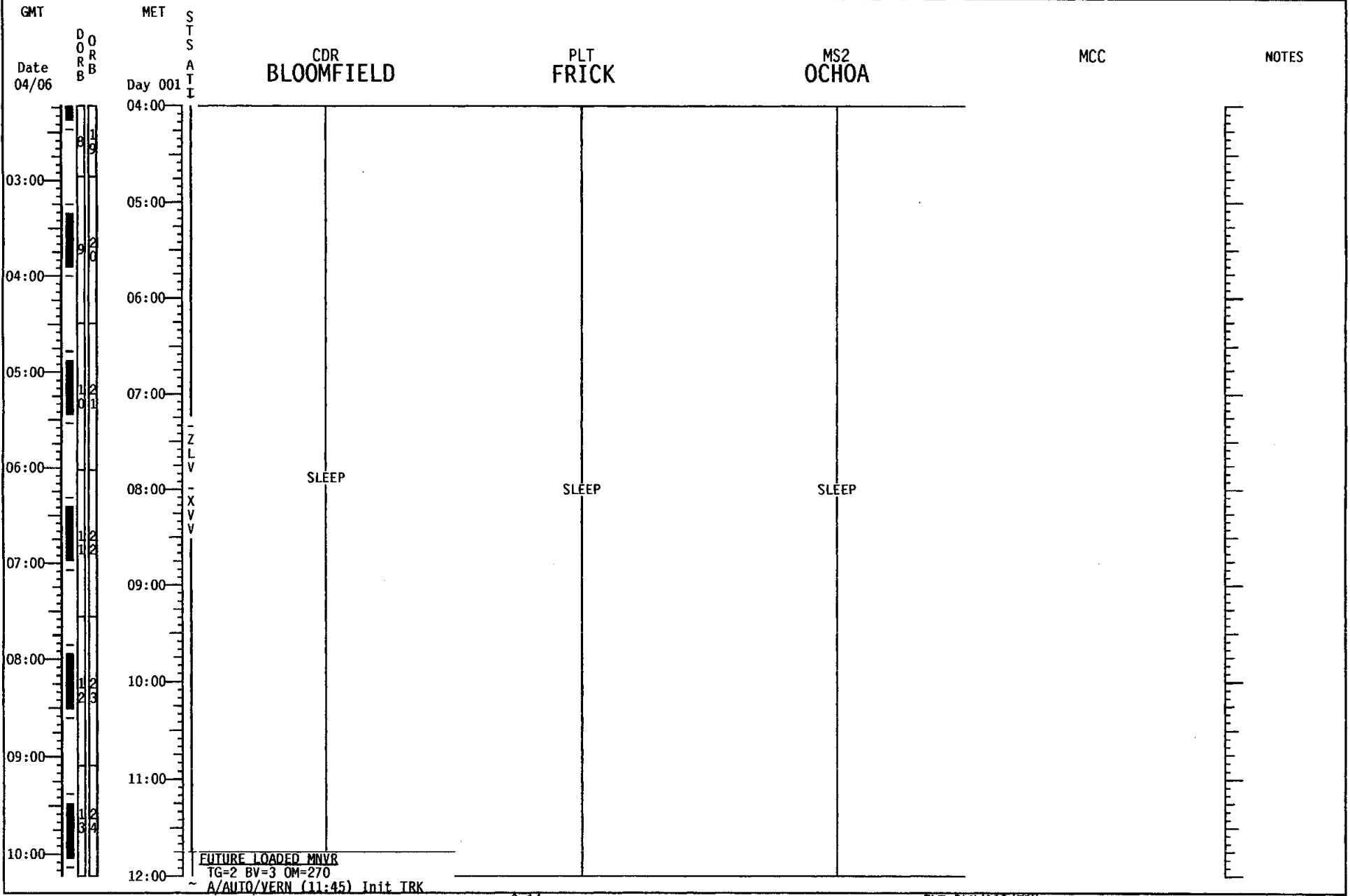
STS-110 (FD 02)



STS-110 (FD 02)

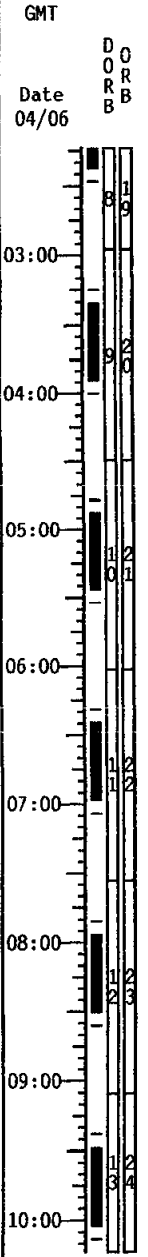


STS-110 (FD 02)

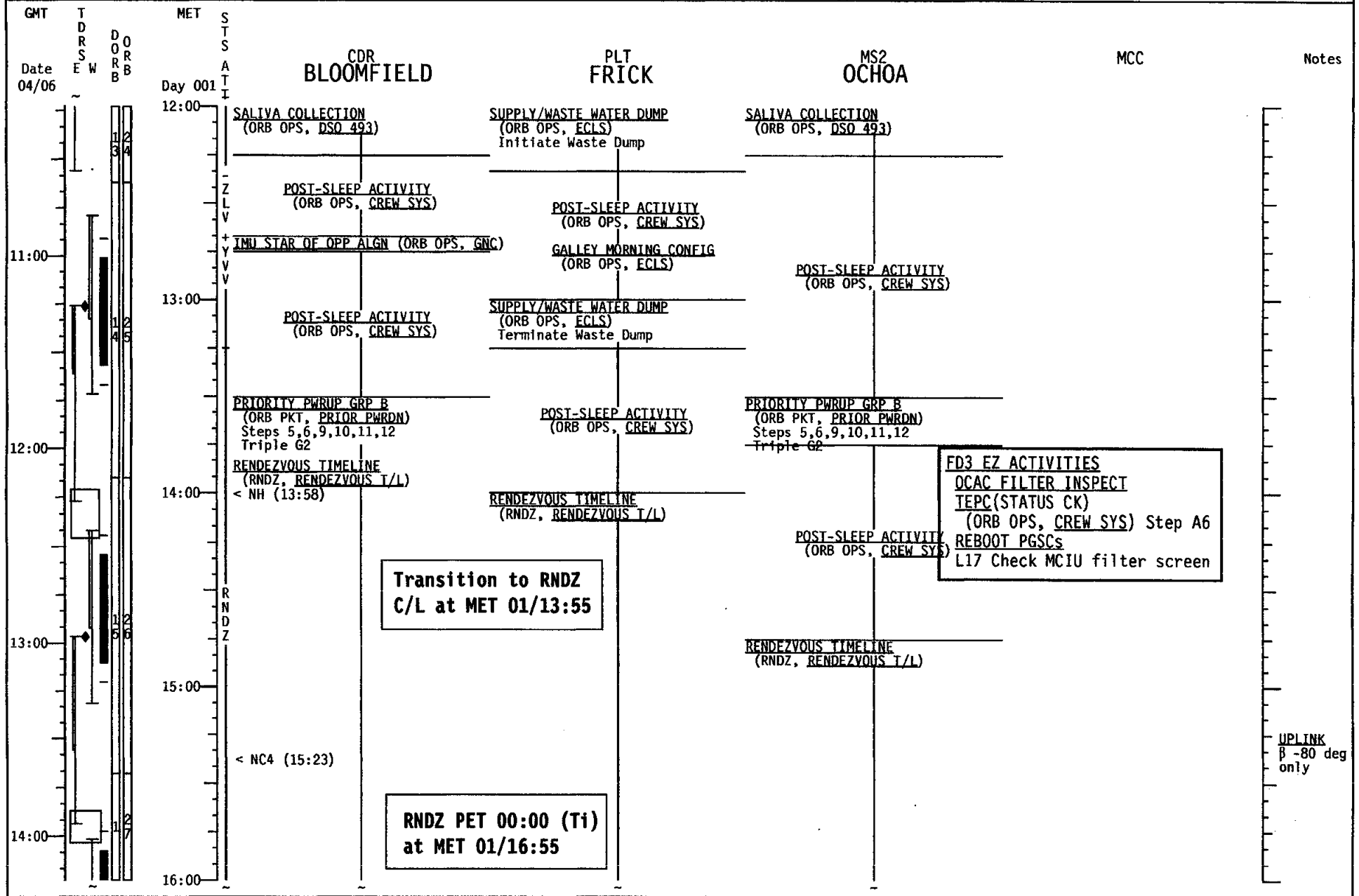


STS-110 (FD 02)

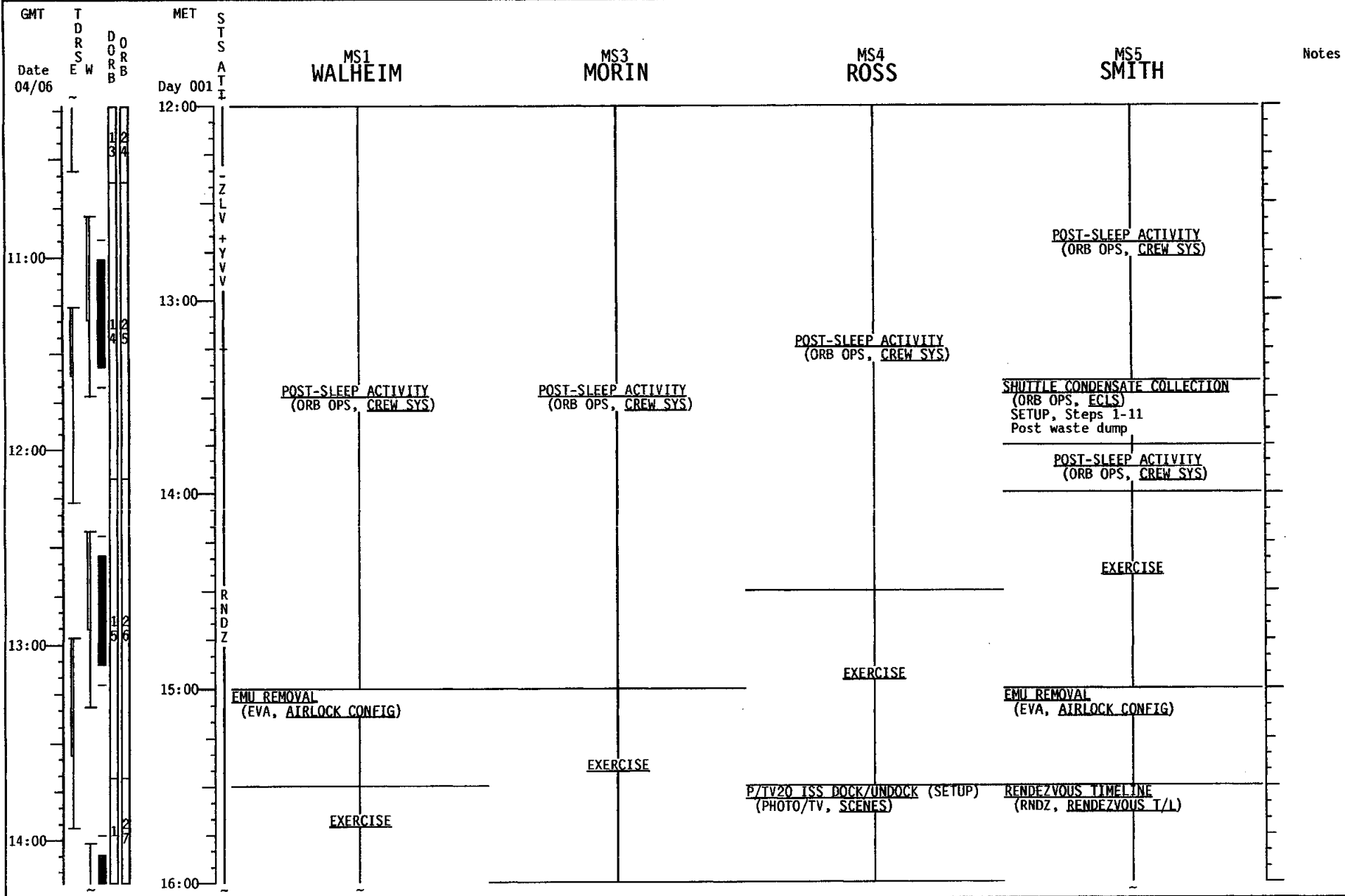
GMT	MET	S	T	S	NOTES	
Date	Day	001	A	T		
04/06	001	04:00	04:00	04:00		
			MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH
		05:00				
		06:00				
		07:00				
		08:00	SLEEP	SLEEP	SLEEP	SLEEP
		09:00				
		10:00				
		11:00				
		12:00				



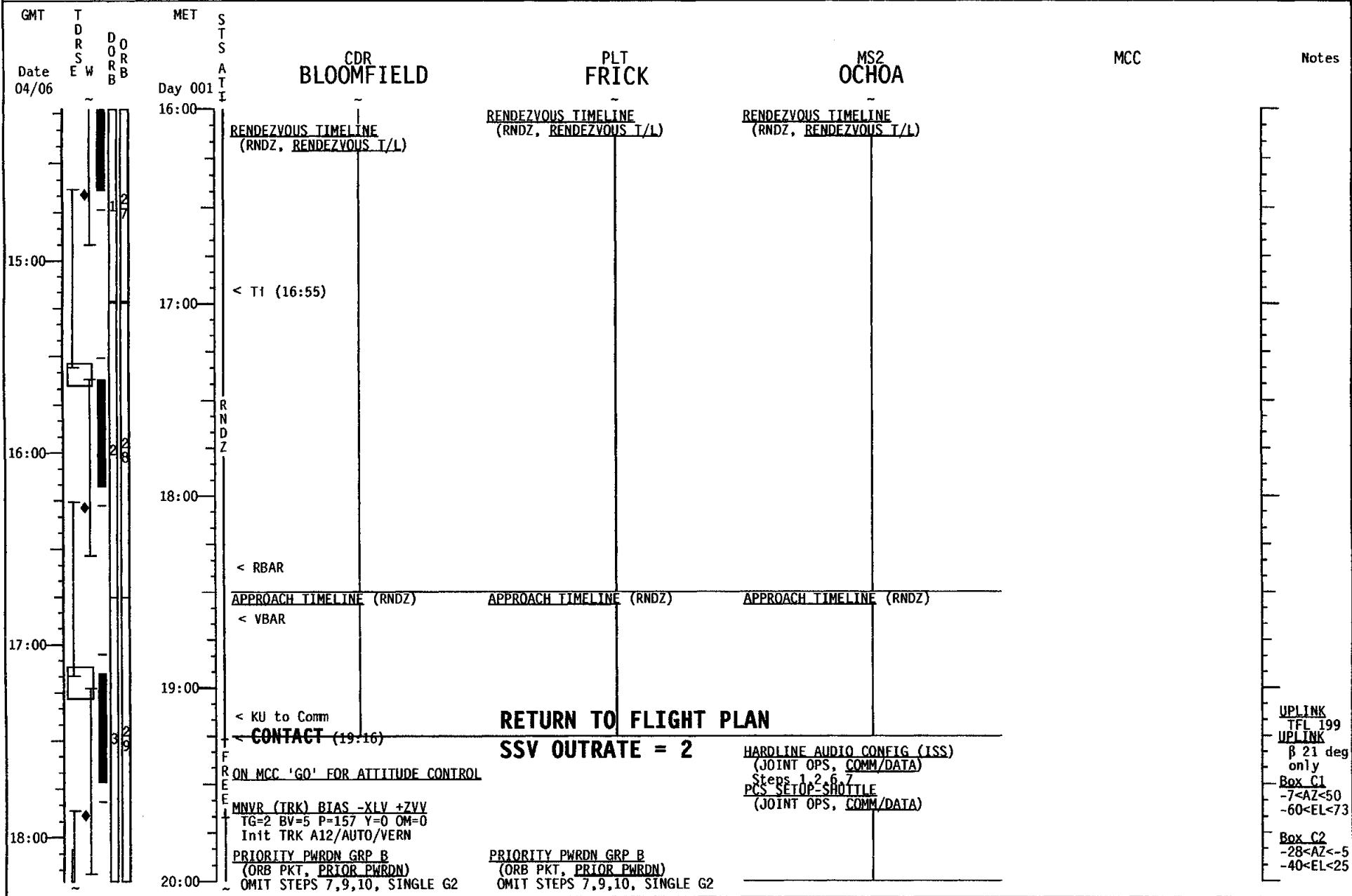
STS-110 (FD 03)



STS-110 (FD 03)



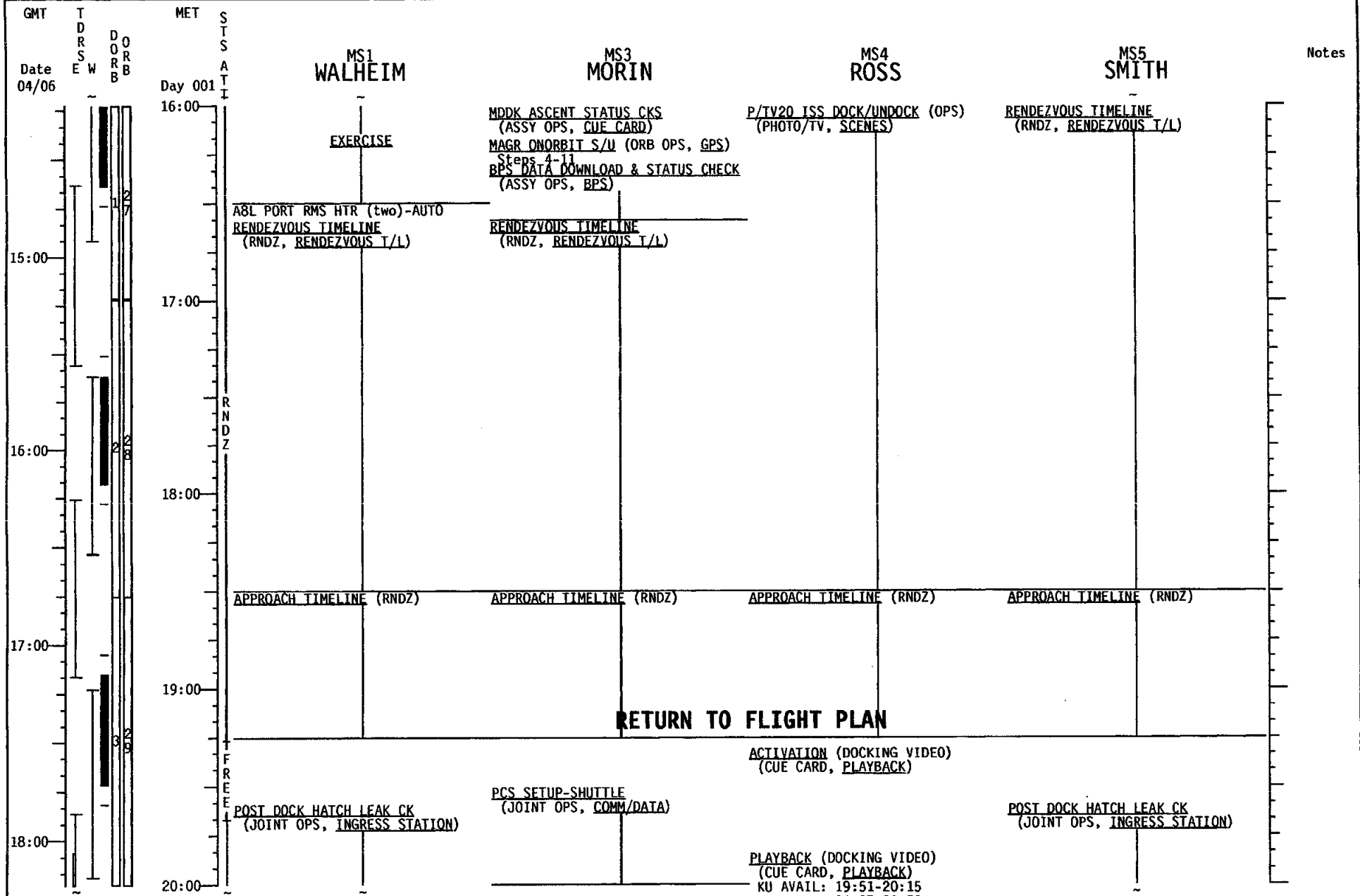
STS-110 (FD 03)



UPLINK
TFL 199
UPLINK
β 21 deg
only
Box C1
-7<AZ<50
-60<EL<73

Box C2
-28<AZ<-5
-40<EL<25

STS-110 (FD 03)



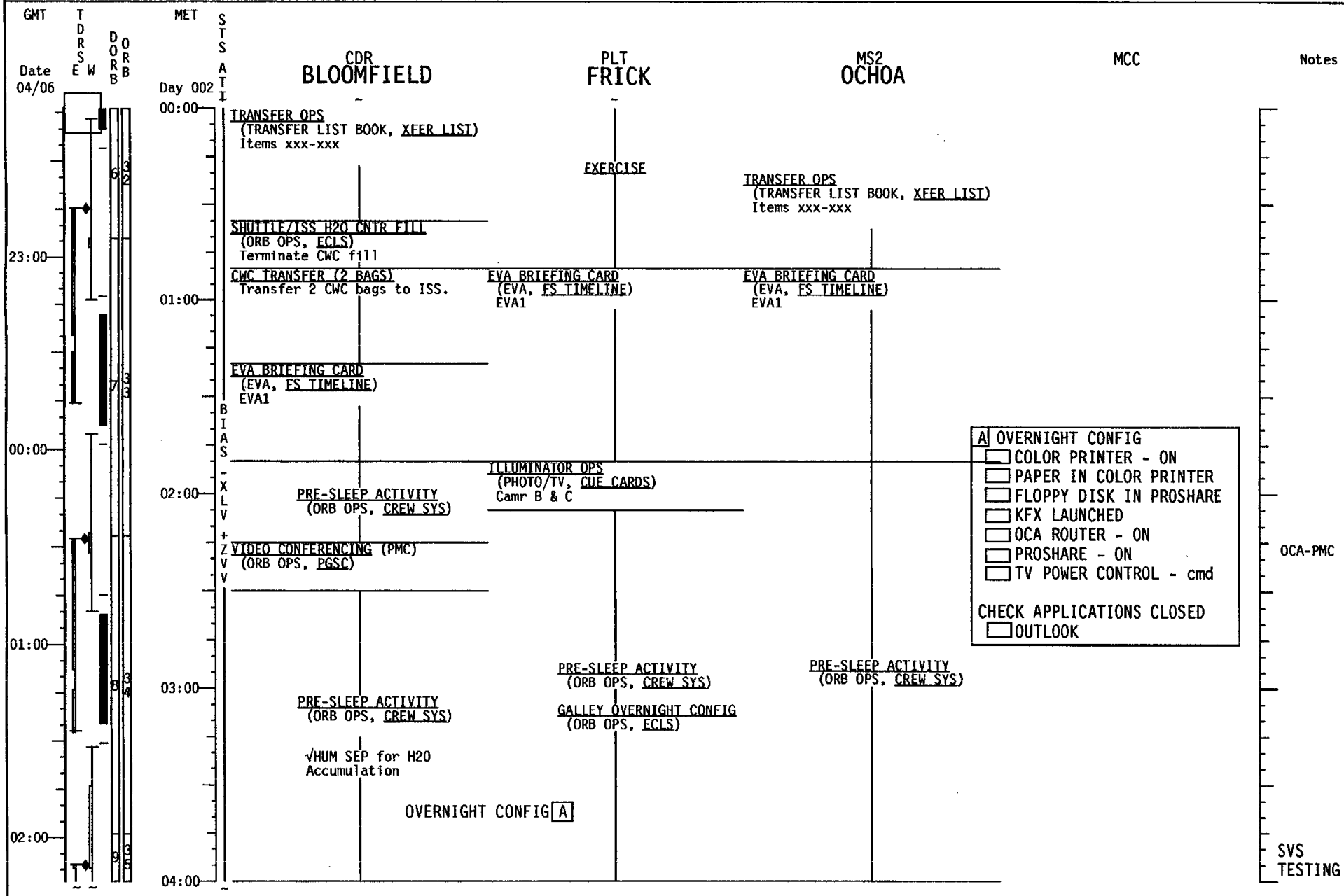
STS-110 (FD 03)

GMT	T D R S E W	D O R B	MET	S T S A T T I	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	Notes
Date 04/06			Day 001						
19:00					<u>AUTO RBST TUNING (DTO 263)</u> (ORB OPS, REBOOST/DAP) <u>H/O ATT CNTRL ORB TO CMG TA</u> (JOINT OPS, MATED OPS) <u>TOPPING FES DEACTIVATION</u> (ORB OPS, ECLS) MCC will TMBU limits	<u>RMS POWERUP</u> (PDRS OPS, RMS PWRUP) Perform after DTO 263 <u>MNVR TO SO INSTALL VIEWING</u> (PDRS OPS, EVA/SRMS SPT) Steps 1 & 2	<u>PGSC NETWORK RCNEG</u> Configure PGSCs		UPLINK ECLS TMBU
20:00					WELCOME SFTY BRF	WELCOME SFTY BRF	WELCOME SFTY BRF		
21:00					<u>CWC TRANSFER (8 BAGS)</u> Transfer 8 CWC bags to STS. <u>STS/ISS H2O CNTR FILL (CWC #1)</u> (ORB OPS, ECLS) - Prior to fill, inform MCC of bar code & S/N Ag biocide only, no samples req'd Est fill time 55 min	<u>P/TV22 SO INSTALL</u> (PHOTO/TV, SCENES) H/W Sum - Rte V10s to RWS	<u>TRANSFER OPS</u> (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx		
22:00					EXERCISE	<u>P/TV22 SO INSTALL</u> (PHOTO TV, SCENES) Video Routing Check	<u>P/TV121 DOCKED OPERATIONS</u> (ISS PHOTO/TV, SCENES) 8A RWS V10 SETUP/CHECKOUT		
23:00					<u>SHUTTLE/ISS H2O CNTR FILL</u> (ORB OPS, ECLS) Terminate CWC fill <u>STS/ISS H2O CNTR FILL (CWC #2)</u> (ORB OPS, ECLS) Prior to fill, inform MCC of bar code & S/N Ag biocide only, no samples req'd Est fill time 55 min	<u>SSRMS VIDEO SUPPORT</u>	<u>SO/PLB SURVEY</u> (ROBOTICS, SURVEYS)		UPLINK β 21 deg only Box C1 -7<AZ<50 -60<EL<73
22:00					<u>TRANSFER OPS</u> (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	EXERCISE	<u>SO TRAJECTORY DRY RUN</u> (ROBOTICS, SO TRUSS OPERATIONS)		Box C2 -28<AZ<-5 -40<EL<25 Box D1 -45<AZ<5 -75<EL<-10
00:00									

STS-110 (FD 03)

GMT	T D R S E W	D O R B	MET	STS A T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
Date 04/06			Day 001						
			20:00		ODS VOL PREP FOR INGRESS (JOINT OPS, INGRESS STATION)	PGSC NETWORK RCNFG Configure PGSCs	PLAYBACK (DOCKING VIDEO) (CUE CARD, PLAYBACK) KU AVAIL: 19:51-20:15 21:27-21:52 P/TV21 ISS INTERNAL (SETUP) (PHOTO/TV, SCENES)	ODS VOL PREP FOR INGRESS (JOINT OPS, INGRESS STATION)	
					HATCH OPEN & STS/ISS DUCT INSTALL (JOINT OPS, INGRESS STATION)			HATCH OPEN & STS/ISS DUCT INSTALL (JOINT OPS, INGRESS STATION)	
19:00					WELCOME	WELCOME	WELCOME	WELCOME	
					SFTY BRF	SFTY BRF	SFTY BRF	SFTY BRF	
			20:00		BA EMU RCNFG PRE EVA (EVA, A/L CONFIG)	CGBA TRANSFER MDDK TO ISS (ASSY OPS, TRANSFER)	CGBA TRANSFER MDDK TO ISS (ASSY OPS, TRANSFER)	BA EMU RCNFG PRE EVA (EVA, A/L CONFIG)	
			22:00						
			21:00		EMU TO A/L INTERFACE CHECK (ISS EVA SYSTEMS, CHECKOUTS) Smith	CPCG-H(1) TRANSFER MDDK TO ISS (ASSY OPS, TRANSFER)	CPCG-H(1) TRANSFER MDDK TO ISS (ASSY OPS, TRANSFER)	EMU TO A/L INTERFACE CHECK (ISS EVA SYSTEMS, CHECKOUTS) Smith	
			23:00		REBA INSTALL (Smith) (ISS EVA SYSTEMS, EMU MAINT/RECHG)			REBA INSTALL (Smith) (ISS EVA SYSTEMS, EMU MAINT/RECHG)	
					REBA POWERED HARDWARE C/O (ISS EVA SYSTEMS, CHECKOUTS) Smith & Walheim			REBA POWERED HARDWARE C/O (ISS EVA SYSTEMS, CHECKOUTS) Smith & Walheim	
			22:00		EQUIPMENT LOCK PREP (ISS EVA SYSTEMS, EVA PREP) Smith & Walheim	TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	EQUIPMENT LOCK PREP (ISS EVA SYSTEMS, EVA PREP) Smith & Walheim	
			00:00						

STS-110 (FD 03)



STS-110 (FD 03)

GMT	T D R S E W	D O R B	MET Day 002	S T S A T	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
04/06			00:00		EQUIPMENT LOCK PREP (ISS EVA SYSTEMS, EVA PREP) Smith & Walheim	TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	EQUIPMENT LOCK PREP (ISS EVA SYSTEMS, EVA PREP) Smith & Walheim	
					PRE EVA 1 TOOL CONFIG (EVA, ES TIMELINES)	EVA E5 (SETUP) (ISS CUE CARD)	DAILY STS/ISS CREW XFER TAGUP	PRE EVA 1 TOOL CONFIG (EVA, ES TIMELINES)	
23:00					EVA BRIEFING CARD (EVA, ES TIMELINE) EVA1	EVA BRIEFING CARD (EVA, ES TIMELINE) EVA1	DAILY TRANSFER BRIEFING	PGT CHECKOUT (ISS EVA SYSTEMS, CHECKOUTS) Steps 7,13,&19	
			01:00					EVA BRIEFING CARD (EVA, ES TIMELINE) EVA1	
			00:00	B I A S					
			02:00	- X L V + Z V V					
01:00					PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
			03:00						
02:00									
			04:00						

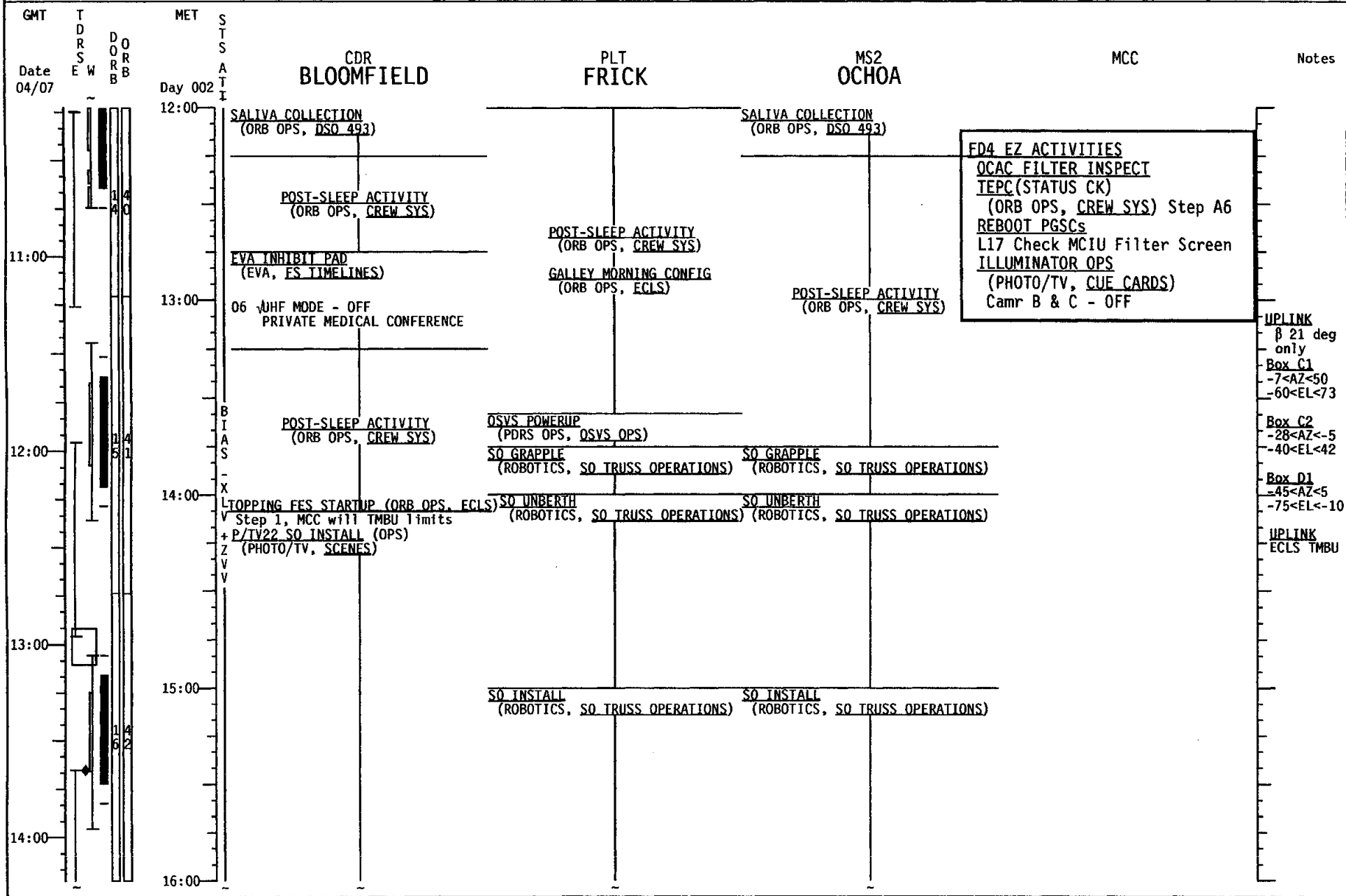
STS-110 (FD 03)

GMT	MET	COR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/07 DOORB 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00	Day 002 STS AT I 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 B I A S X L V + Z V V	SLEEP	SLEEP	SLEEP		

STS-110 (FD 03)

GMT	MET	S T S	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
Date 04/07	Day 002	A T I					
D O R B	04:00	03:00					
04:00	05:00	06:00					
05:00	07:00	08:00	SLEEP	SLEEP	SLEEP	SLEEP	
06:00	09:00	10:00					
07:00	11:00	12:00					
08:00							
09:00							
10:00							

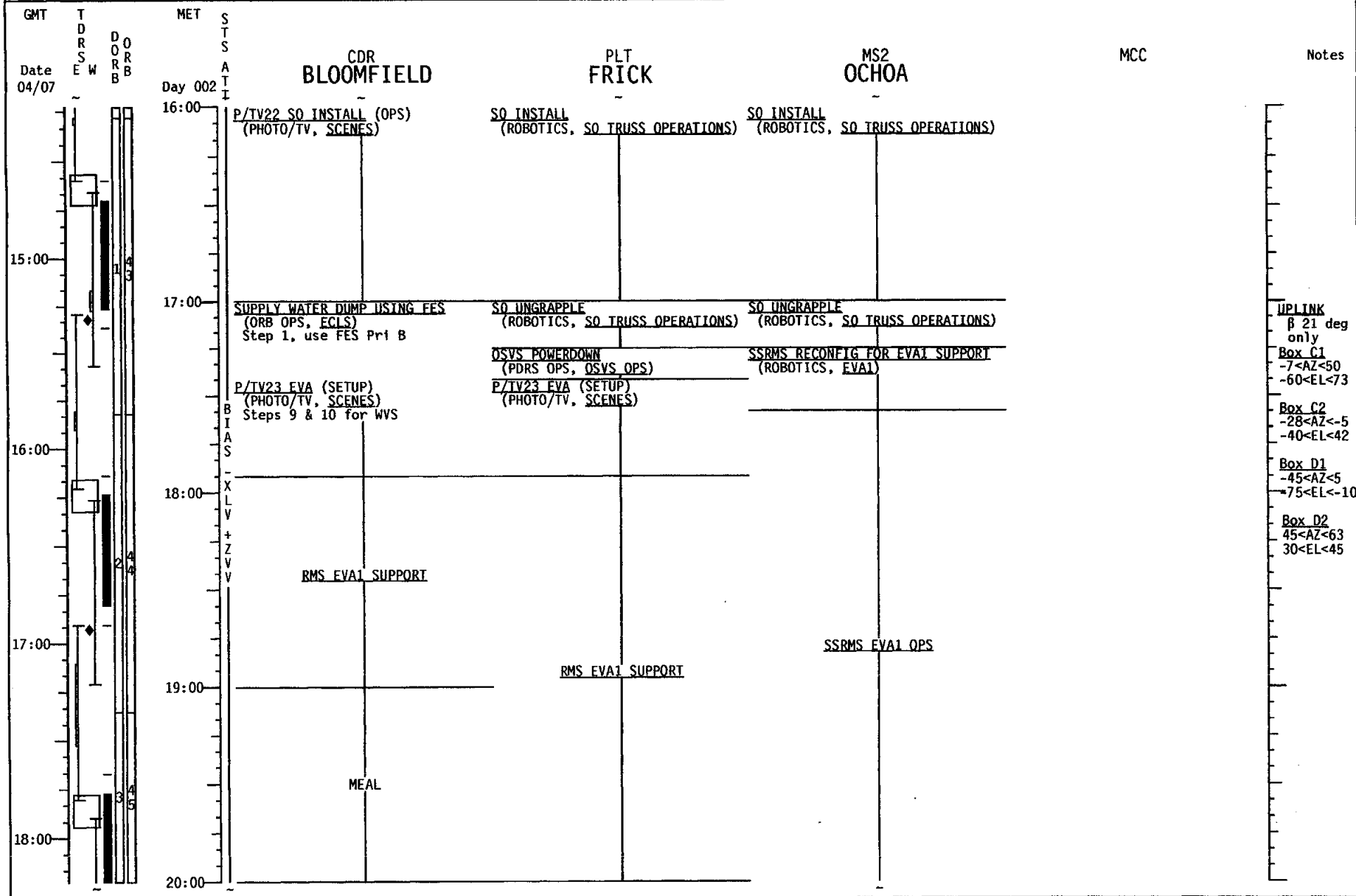
STS-110 (FD 04)



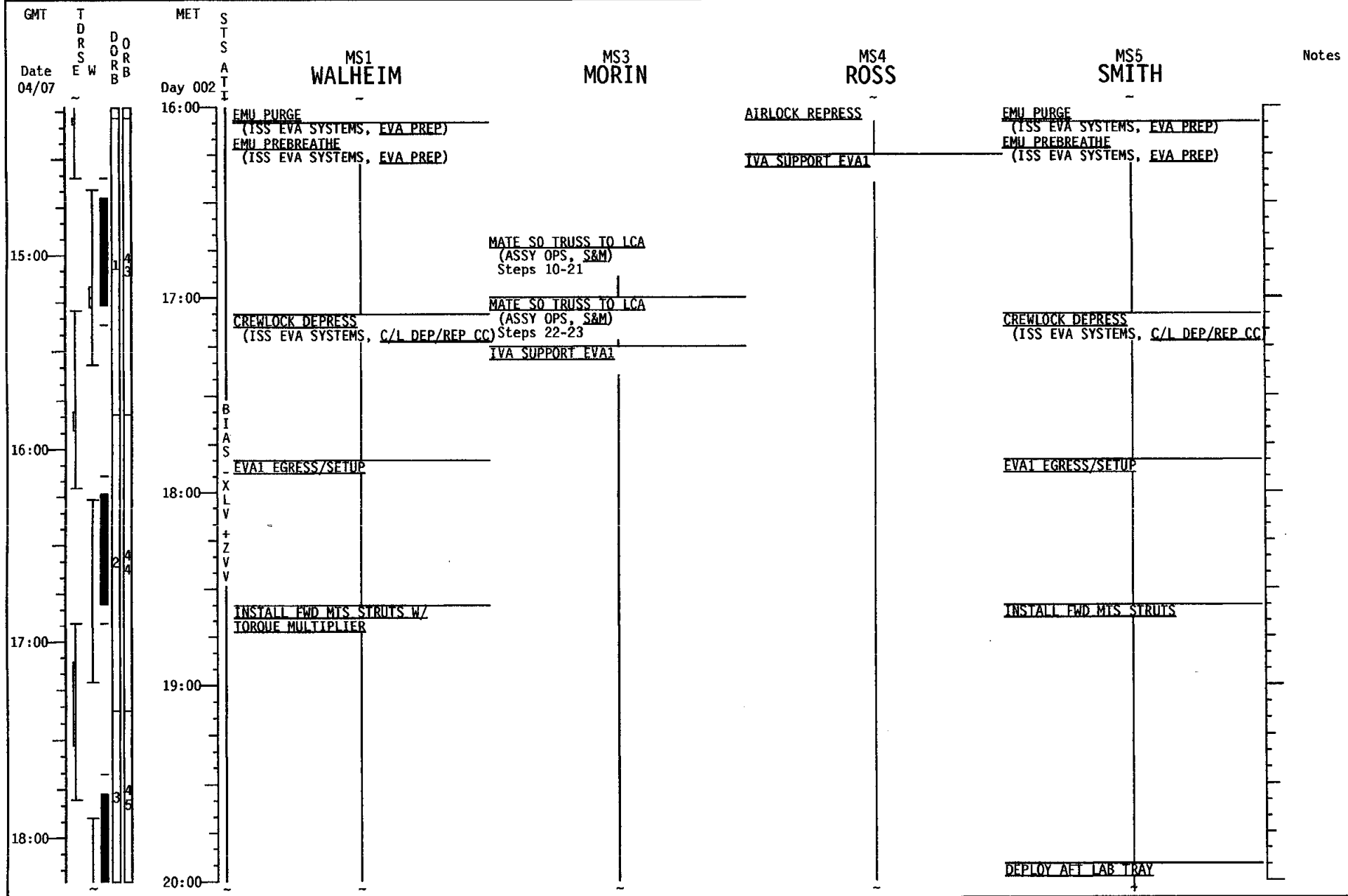
STS-110 (FD 04)

GMT Date 04/07	T D R S E W	D O R B	MET Day 002	STS A T T	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
			12:00		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
			13:00		EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	
			12:00	B I A S		MATE SO TRUSS TO LCA (ASSY OPS, S&M) Steps 1-9			
			14:00	- X L V + Z V V		EXERCISE			
			15:00			BPS DATA DOWNLOAD & STATUS CHECK (ASSY OPS, BPS)			
			14:00			MAGR ONORBIT S/U (ORB OPS, GPS) Steps 4-11			
			16:00		EMU PURGE (ISS EVA SYSTEMS, EVA PREP)		AIRLOCK REPRESS	EMU PURGE (ISS EVA SYSTEMS, EVA PREP)	

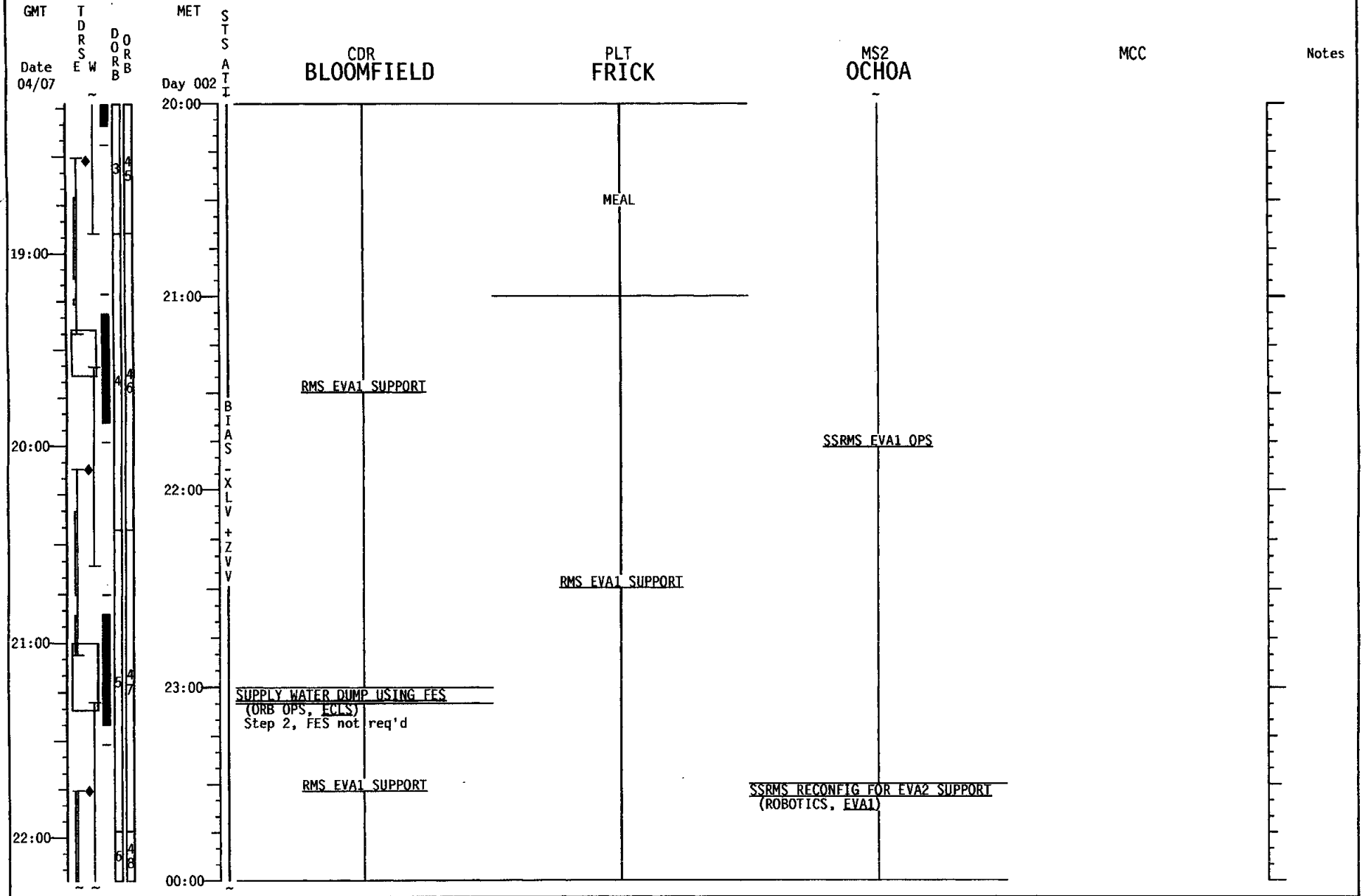
STS-110 (FD 04)



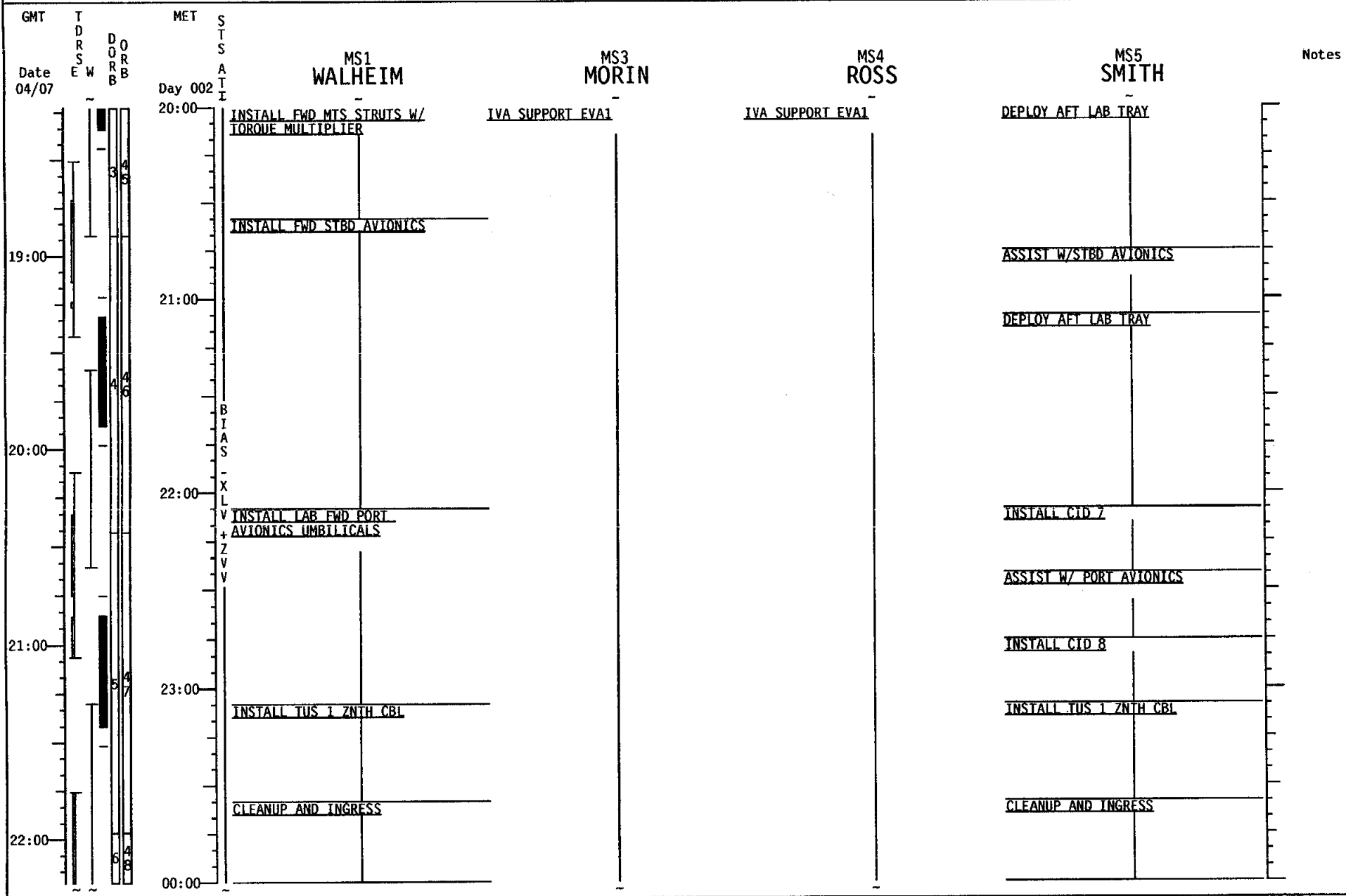
STS-110 (FD 04)



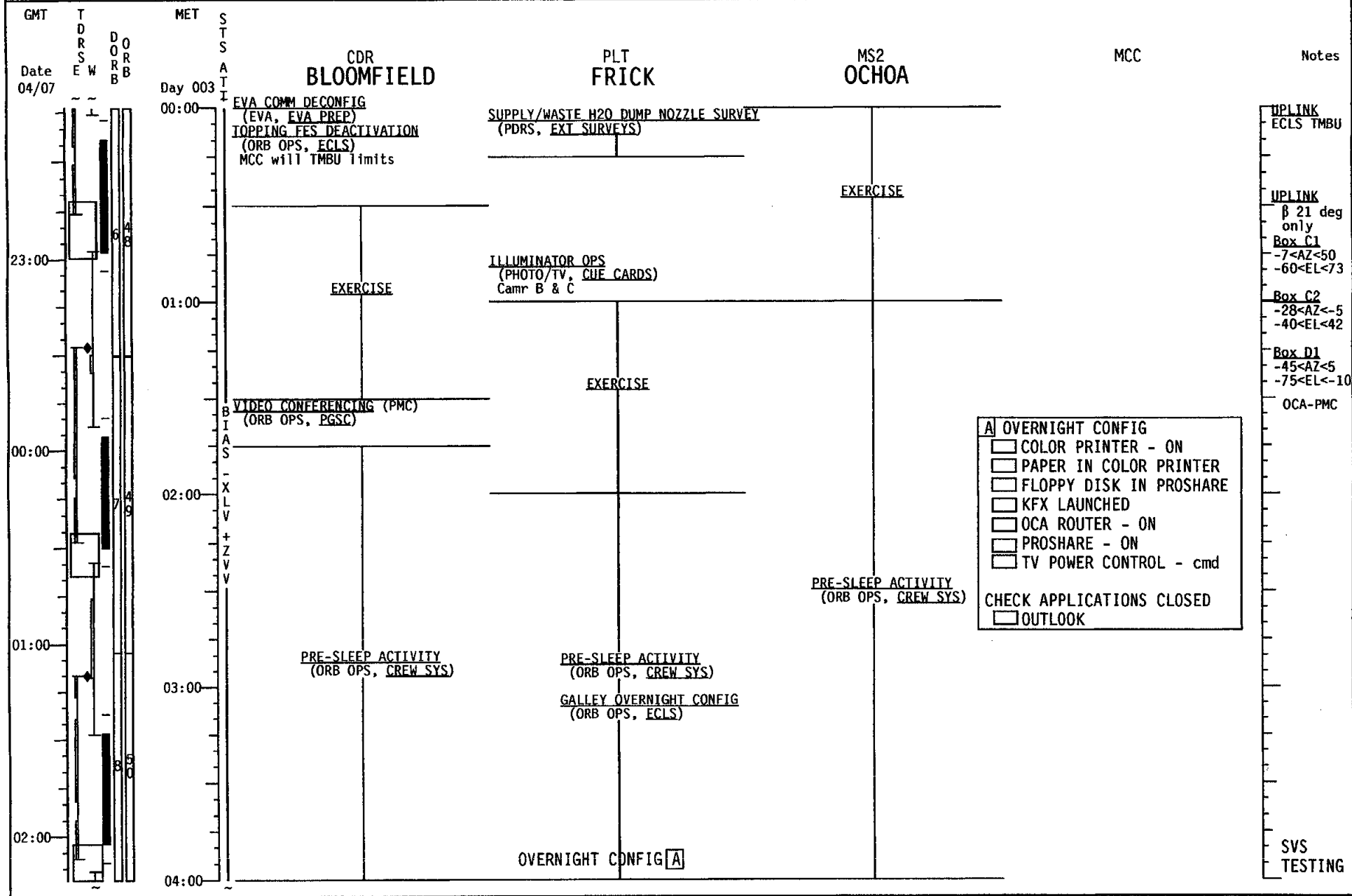
STS-110 (FD 04)



STS-110 (FD 04)

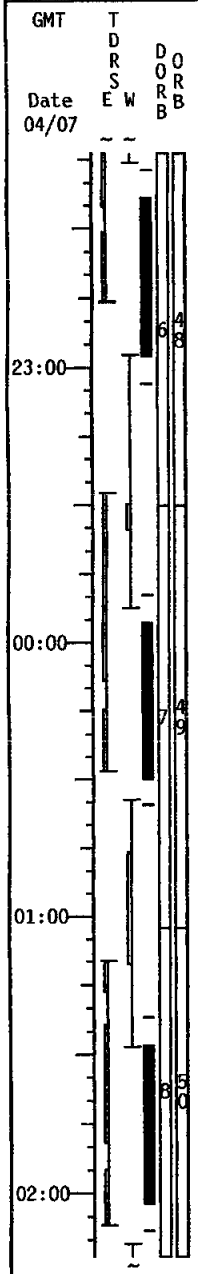


STS-110 (FD 04)



STS-110 (FD 04)

GMT Date 04/07	T D R S E W	D O R B	MET Day 003	S T S A T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
			00:00		PRE-REPRESS CREWLOCK REPRESS (ISS EVA SYSTEMS, C/L DPRS/RPRS CC)	IVA SUPPORT EVA1	IVA SUPPORT EVA1	PRE-REPRESS CREWLOCK REPRESS (ISS EVA SYSTEMS, C/L DPRS/RPRS CC)	
					POST EVA (ISS EVA SYSTEMS, POST EVA) PERFORM ALL STEPS EXCEPT METOX REGEN Use PWR S/N 1005	POST EVA (ISS EVA SYSTEMS, POST EVA) PERFORM ALL STEPS EXCEPT METOX REGEN Use PWR S/N 1005	POST EVA (ISS EVA SYSTEMS, POST EVA) PERFORM ALL STEPS EXCEPT METOX REGEN Use PWR S/N 1005	POST EVA (ISS EVA SYSTEMS, POST EVA) PERFORM ALL STEPS EXCEPT METOX REGEN Use PWR S/N 1005	
			01:00			BA ISS TO SYS EMU SWAP (EVA, A/L CONFIG) Post EVA1 steps	BA ISS TO SYS EMU SWAP (EVA, A/L CONFIG) Post EVA1 steps		
					REBA BATT RECHARGE (INIT) (EVA, EMU MAINT/RECHARGE) Smith & Walheim BA BSA BATT RCHG INIT (ISS EVA SYSTEMS, EMU MAINT/RCHG) EVA1 HL & PGT BATTs	IN-SUIT EMU BATT RECHRG/CHRG VERIE (EVA, EMU MAINT/RECHARGE) Init Smith & Walheim BA BSA BATT RCHG INIT (ISS EVA SYSTEMS, EMU MAINT/RCHG) EVA1 HL & PGT BATTs			
			02:00						
			03:00		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
			04:00						



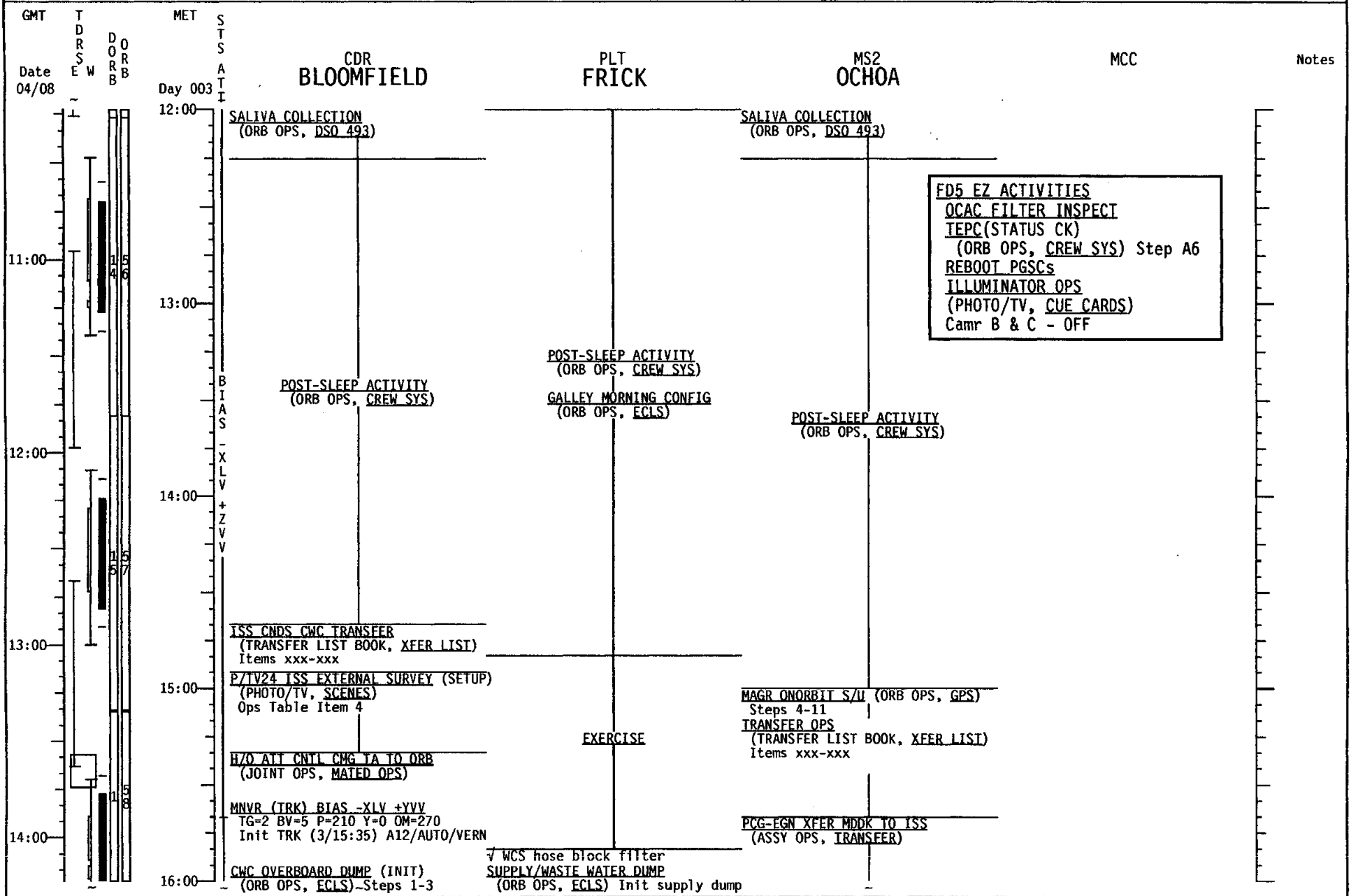
STS-110 (FD 04)

GMT	MET	S T S	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/08	Day 003	A T I					
04:00	04:00						
05:00	05:00						
06:00	06:00						
07:00	07:00						
08:00	08:00		SLEEP	SLEEP	SLEEP		
09:00	09:00						
10:00	10:00						
11:00	11:00						
12:00	12:00						

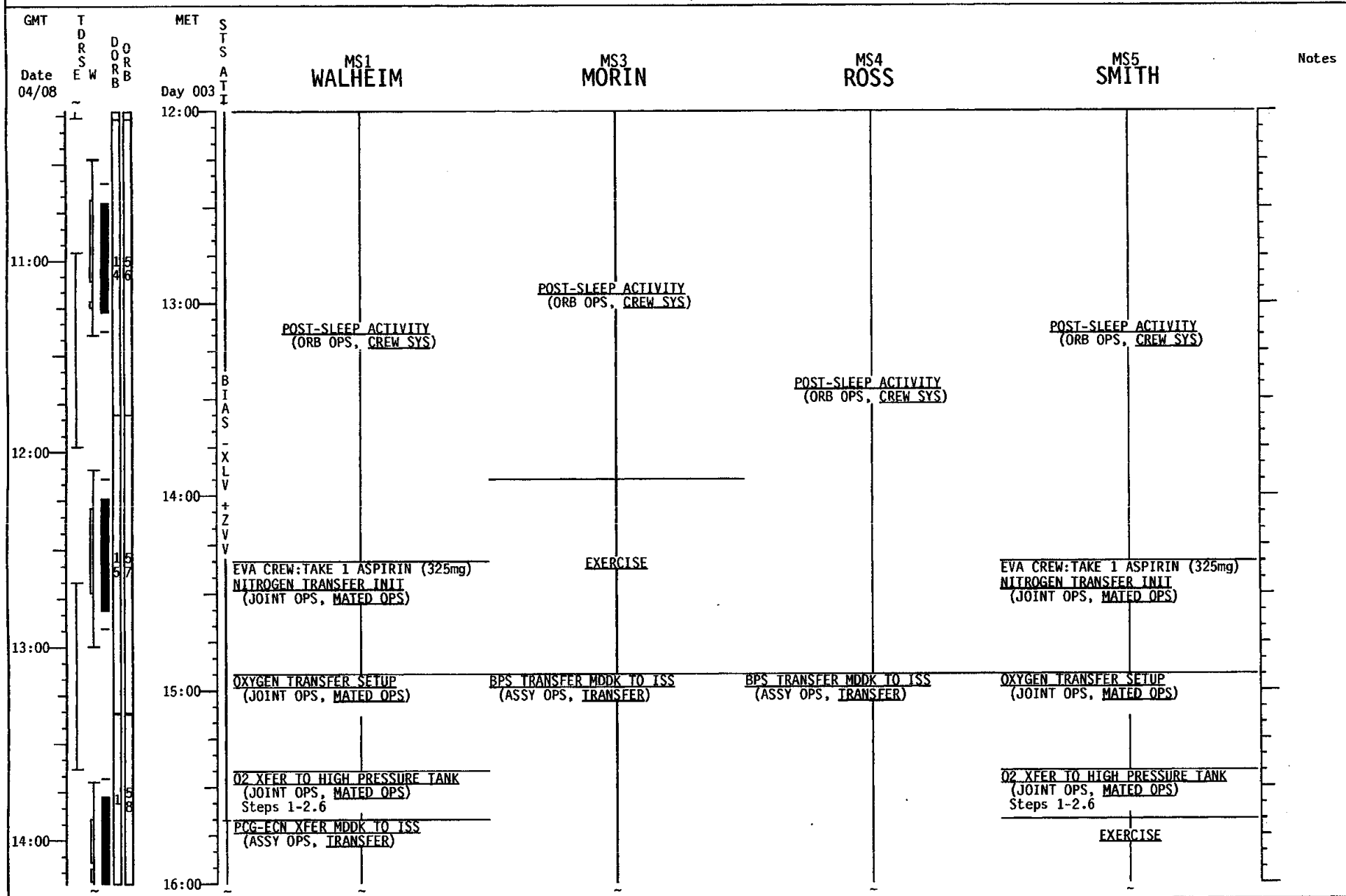
STS-110 (FD 04)

GMT	MET	ST S A T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
Date 04/08	Day 003						
04:00							
05:00							
06:00							
07:00							
08:00			SLEEP	SLEEP	SLEEP	SLEEP	
09:00							
10:00							
11:00							
12:00							

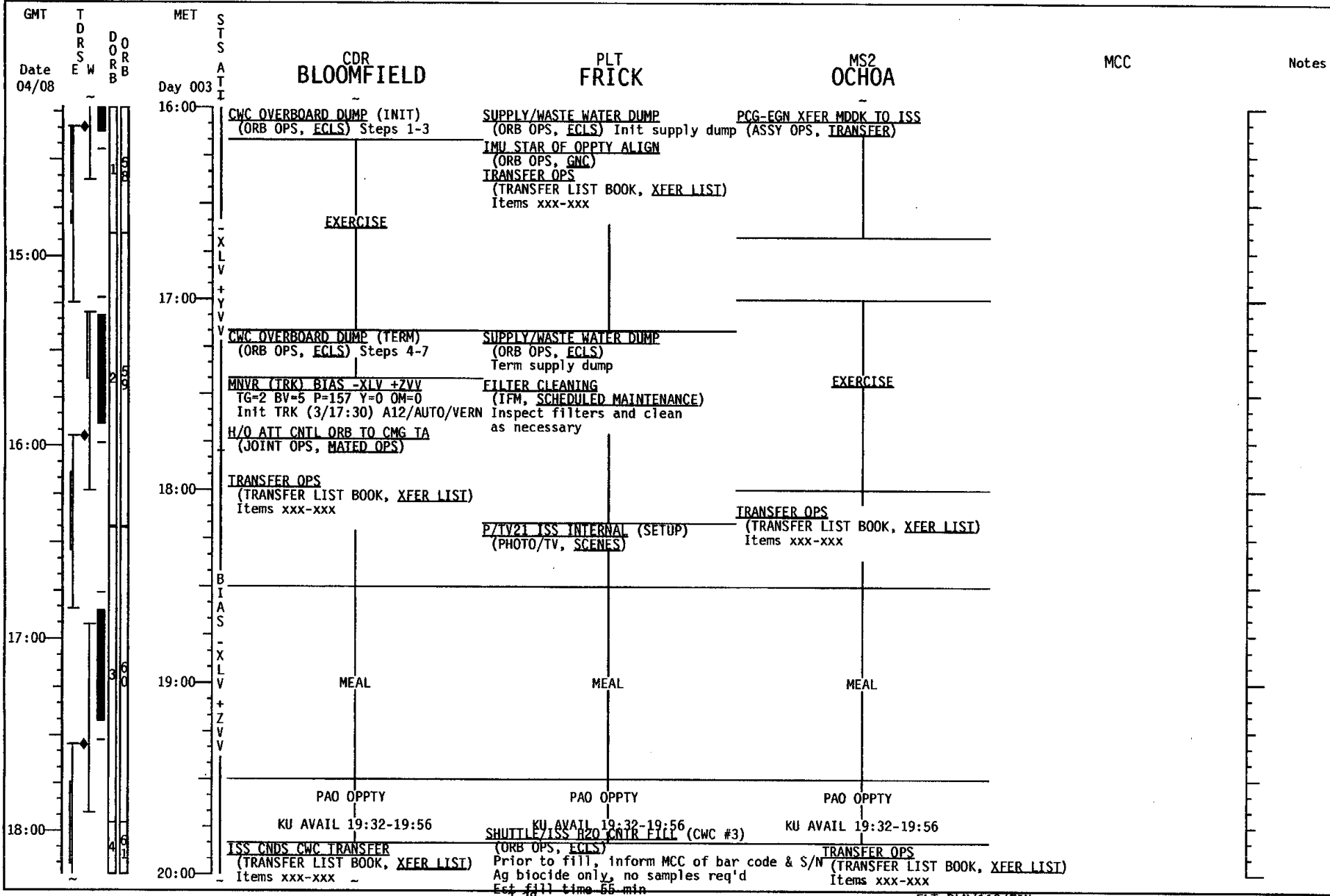
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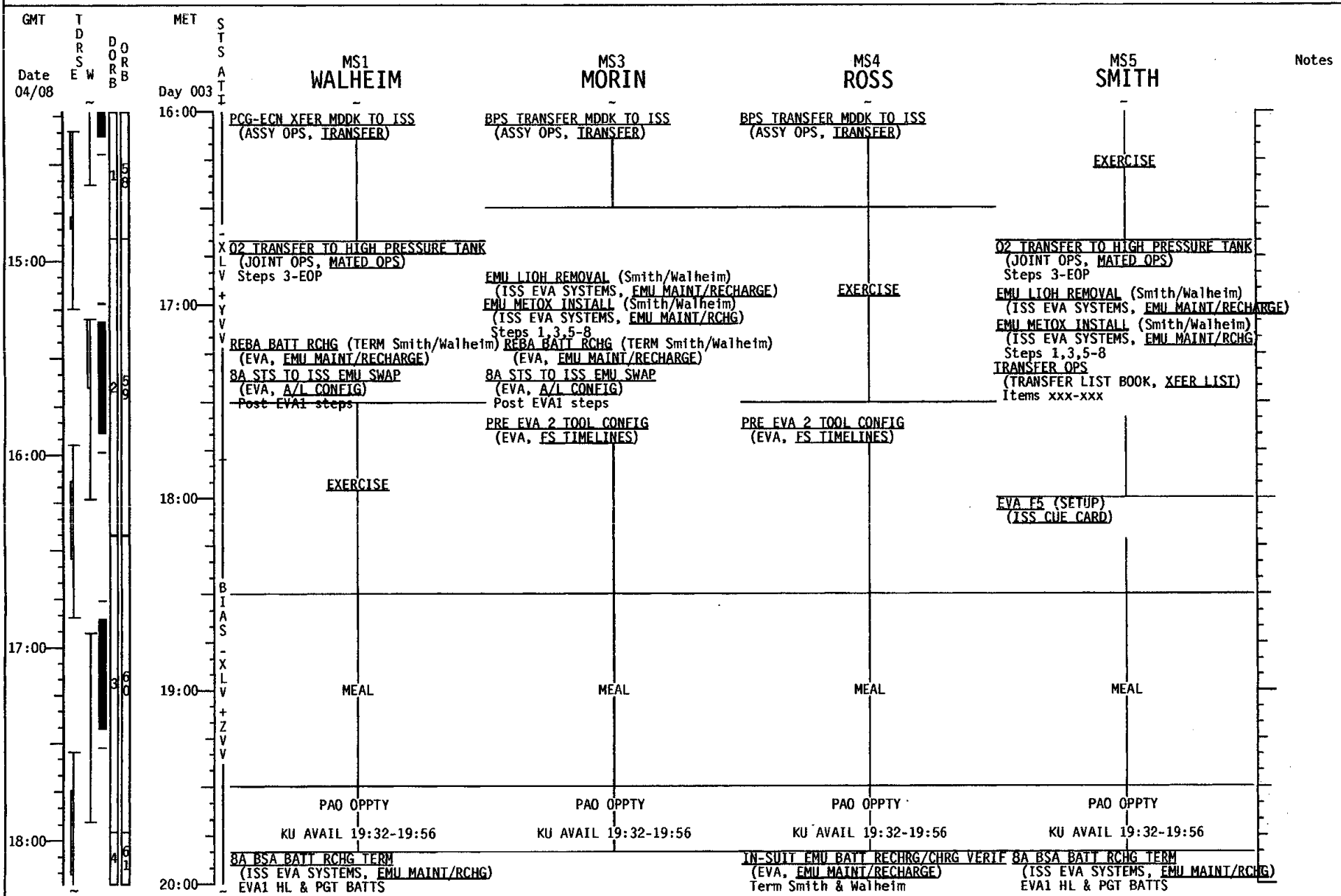
STS-110 (FD 05)



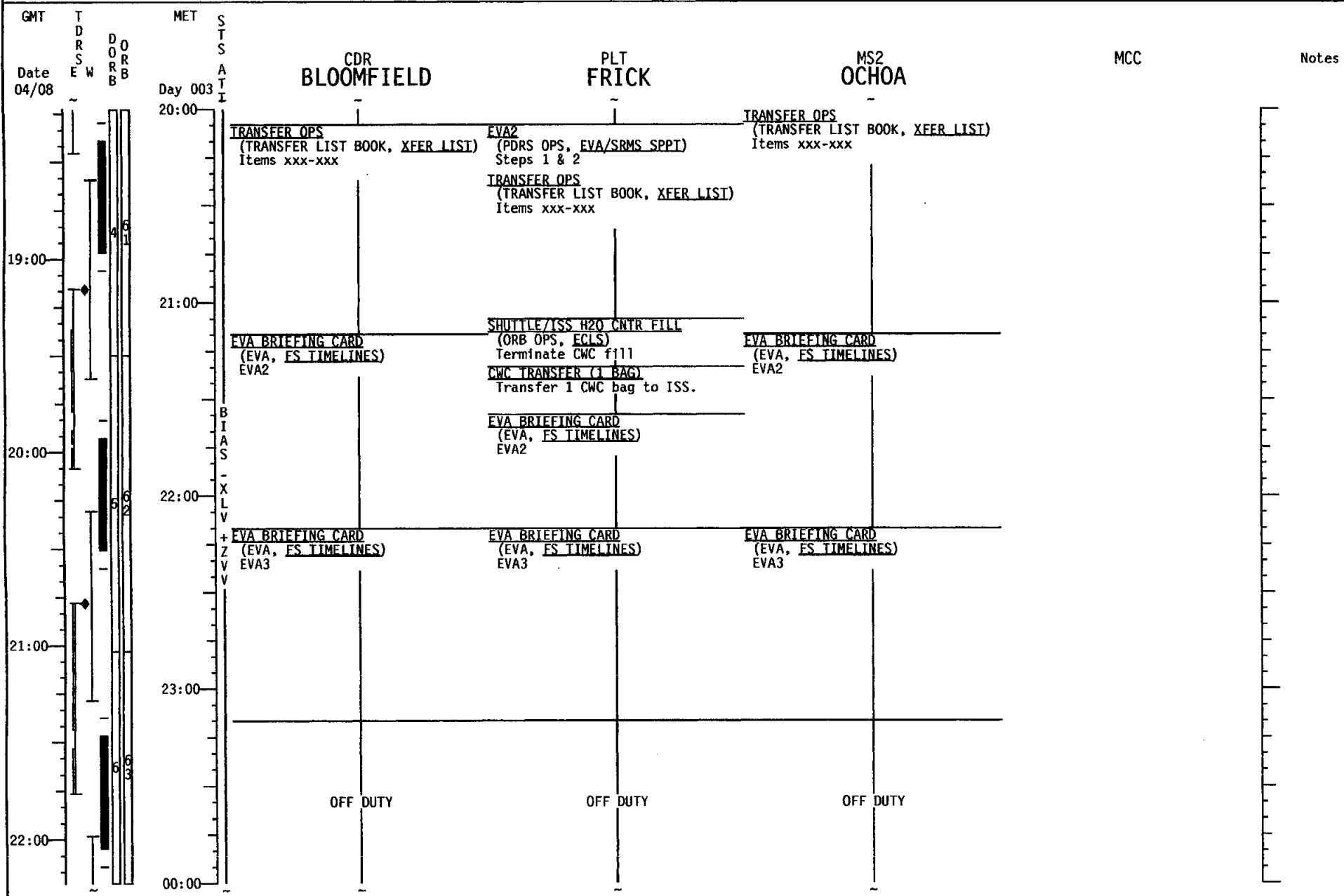
STS-110 (FD 05)



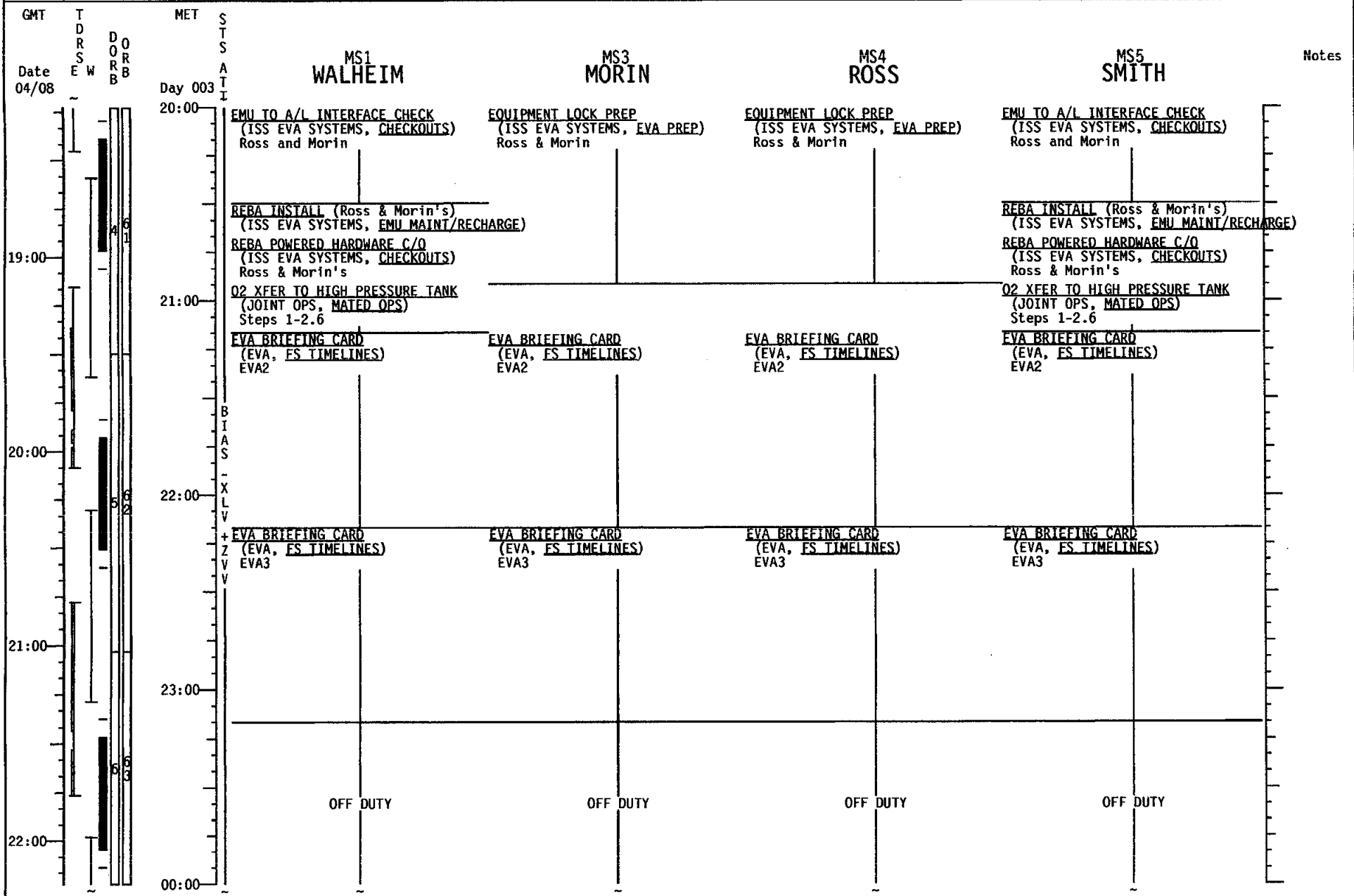
STS-110 (FD 05)



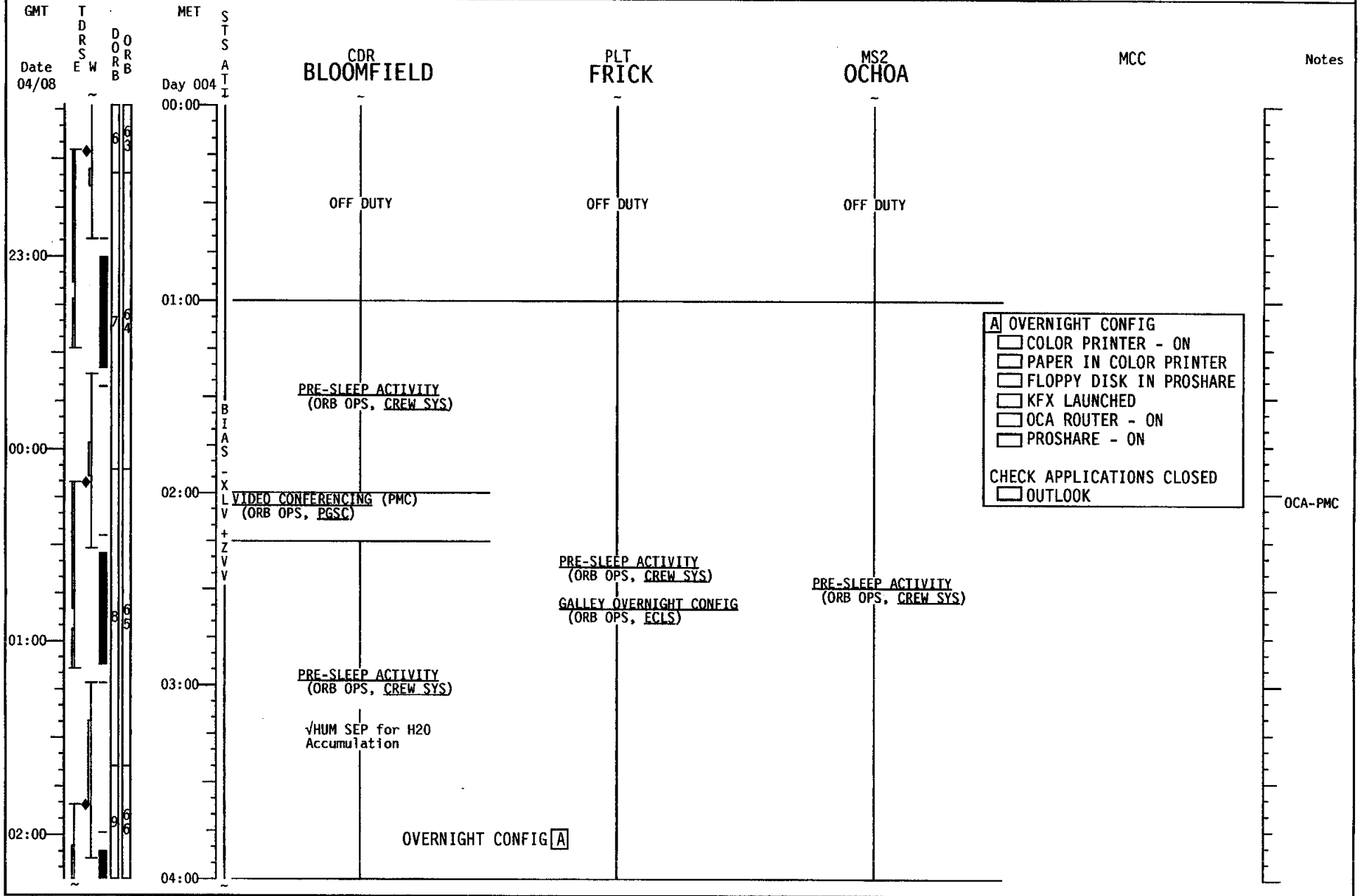
STS-110 (FD 05)



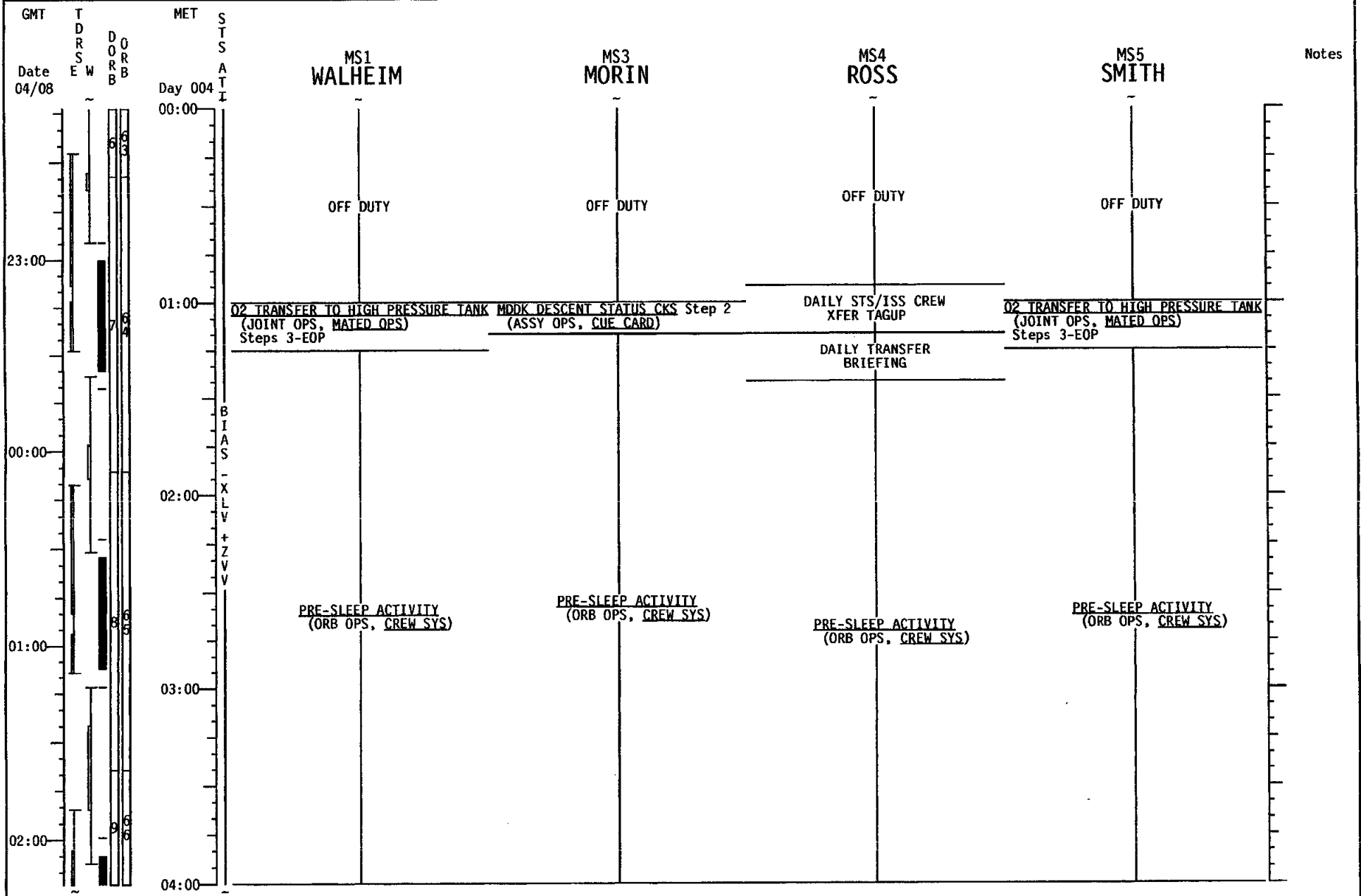
STS-110 (FD 05)



STS-110 (FD 05)



STS-110 (FD 05)



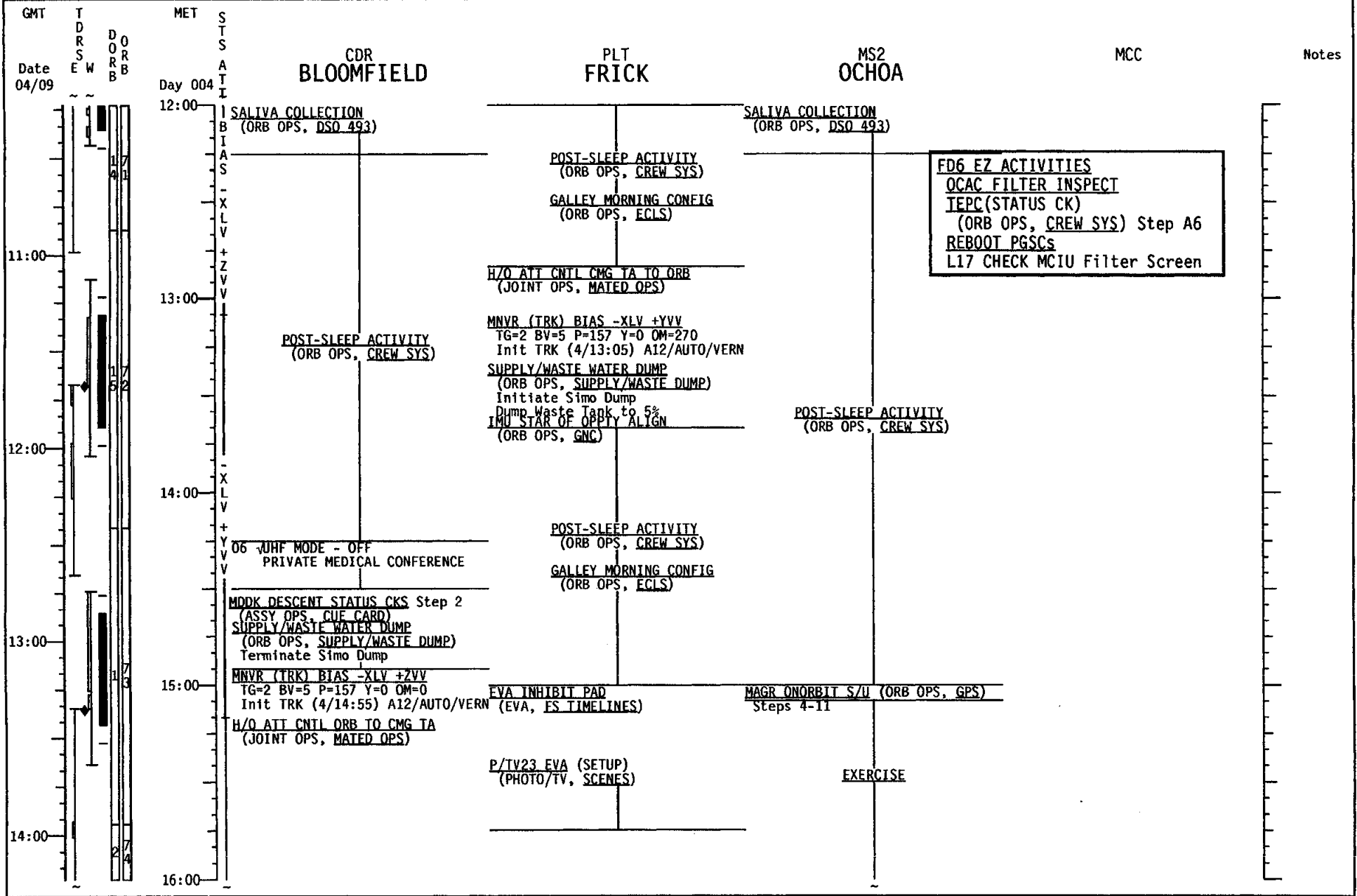
STS-110 (FD 05)

GMT	MET	S T S	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/09	Day 004	A T T					
D O R B 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00	04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	B T A S X T V + Z V V	SLEEP	SLEEP	SLEEP		

STS-110 (FD 05)

GMT	MET	S T S	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
Date 04/09	Day 004	A T I					
D O R R B B 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00	04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	B I A S - X L V + Z V V	SLEEP	SLEEP	SLEEP	SLEEP	

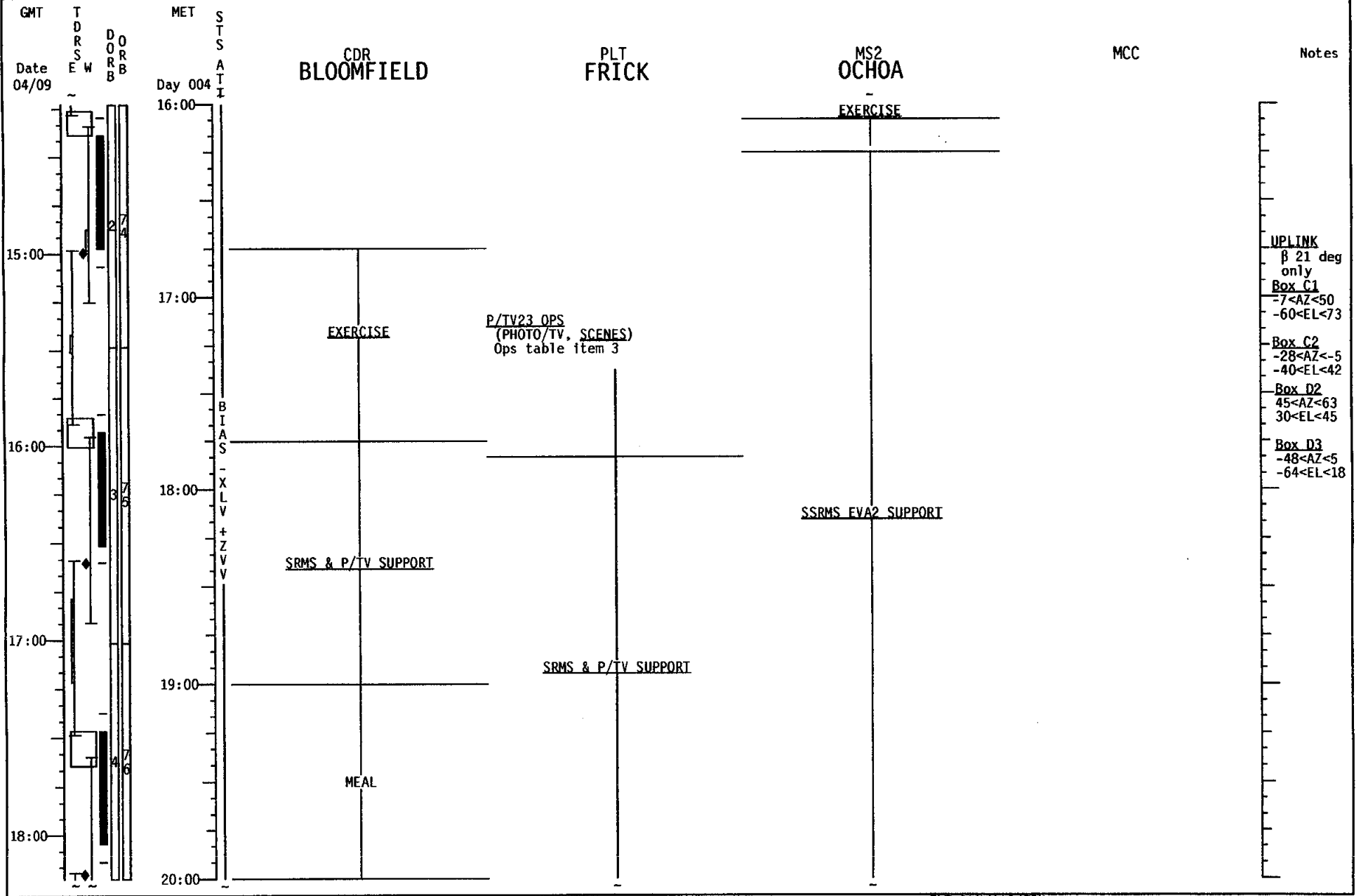
STS-110 (FD 06)



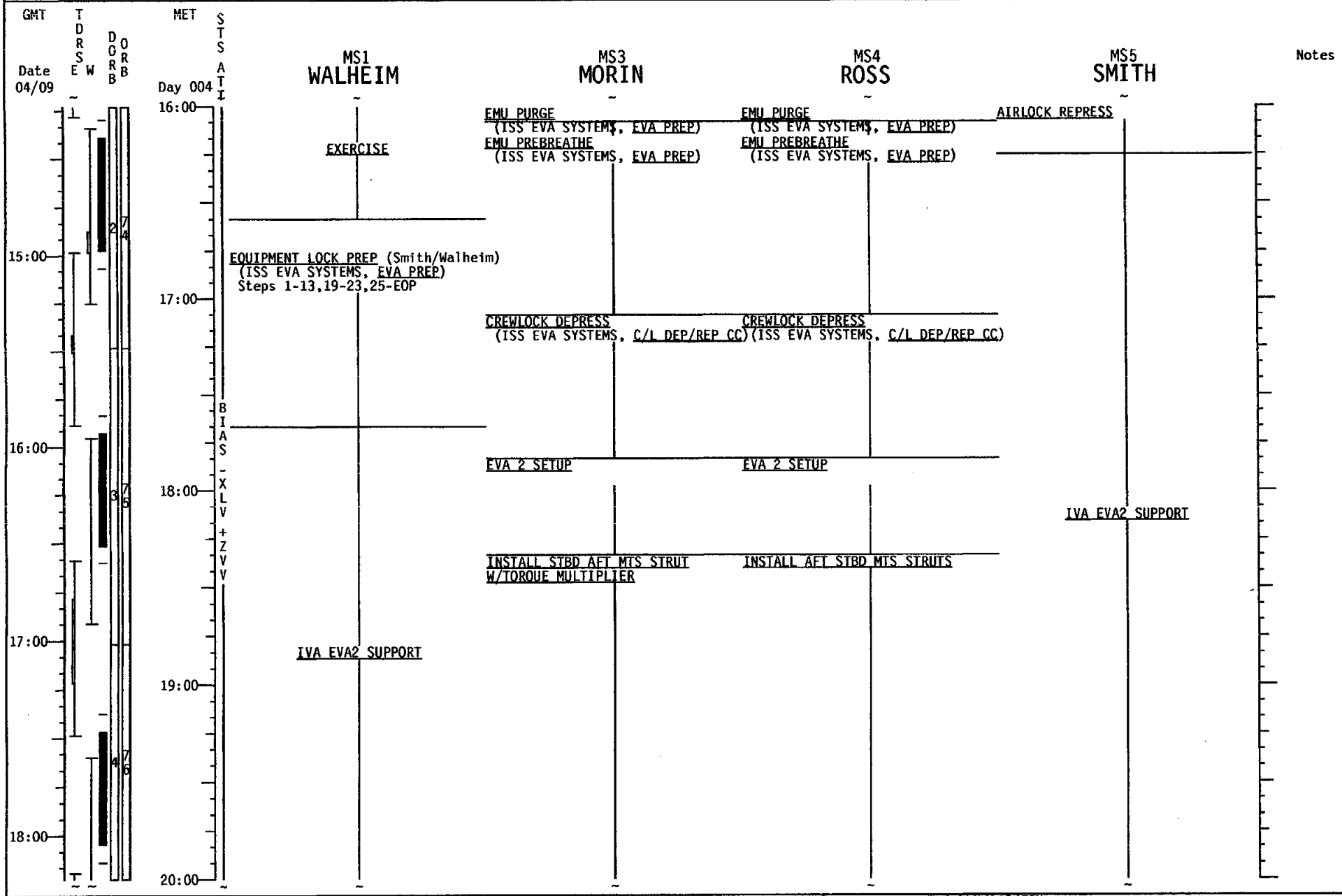
STS-110 (FD 06)

GMT Date 04/09	T D R S E W	D O R B	M E T D A Y 004	STS A T T I B I A S X L V + Z V V - X L V + Y V V	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
			Day 004		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
					EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	
					POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)				
					EXERCISE				
						EMU PURGE (ISS EVA SYSTEMS, EVA PREP)	EMU PURGE (ISS EVA SYSTEMS, EVA PREP)	ATRLOCK REPRESS	

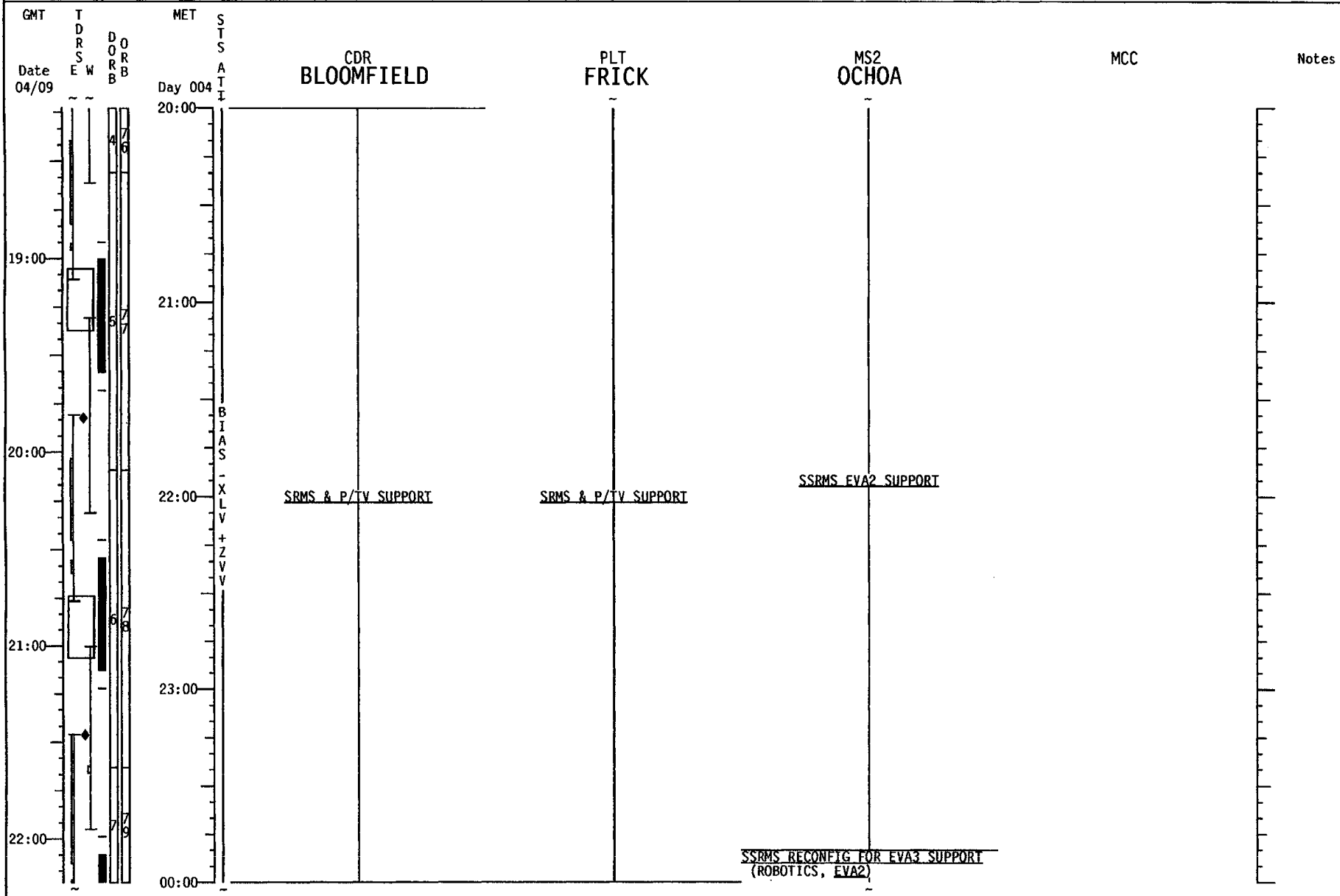
STS-110 (FD 06)



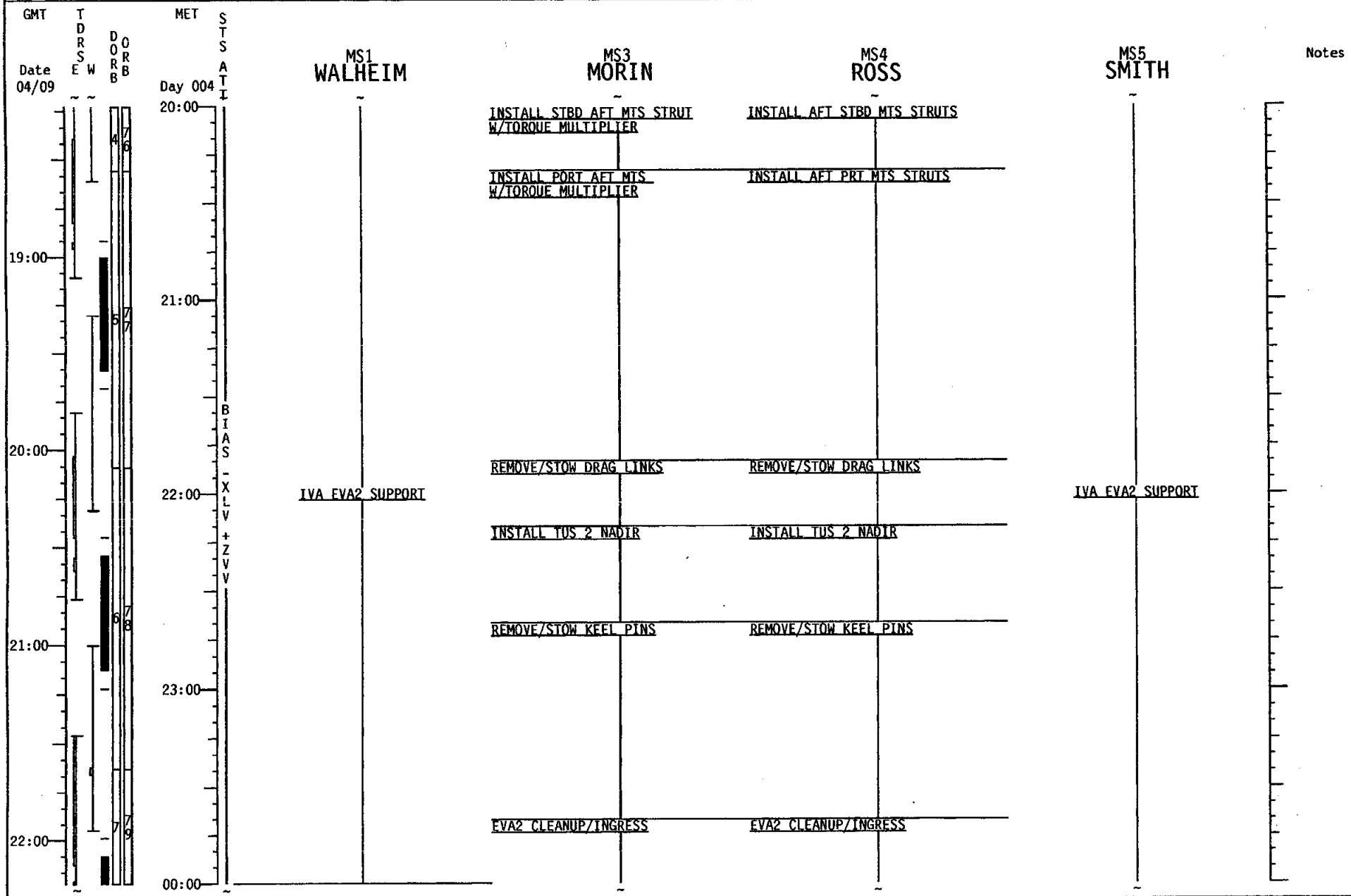
STS-110 (FD 06)



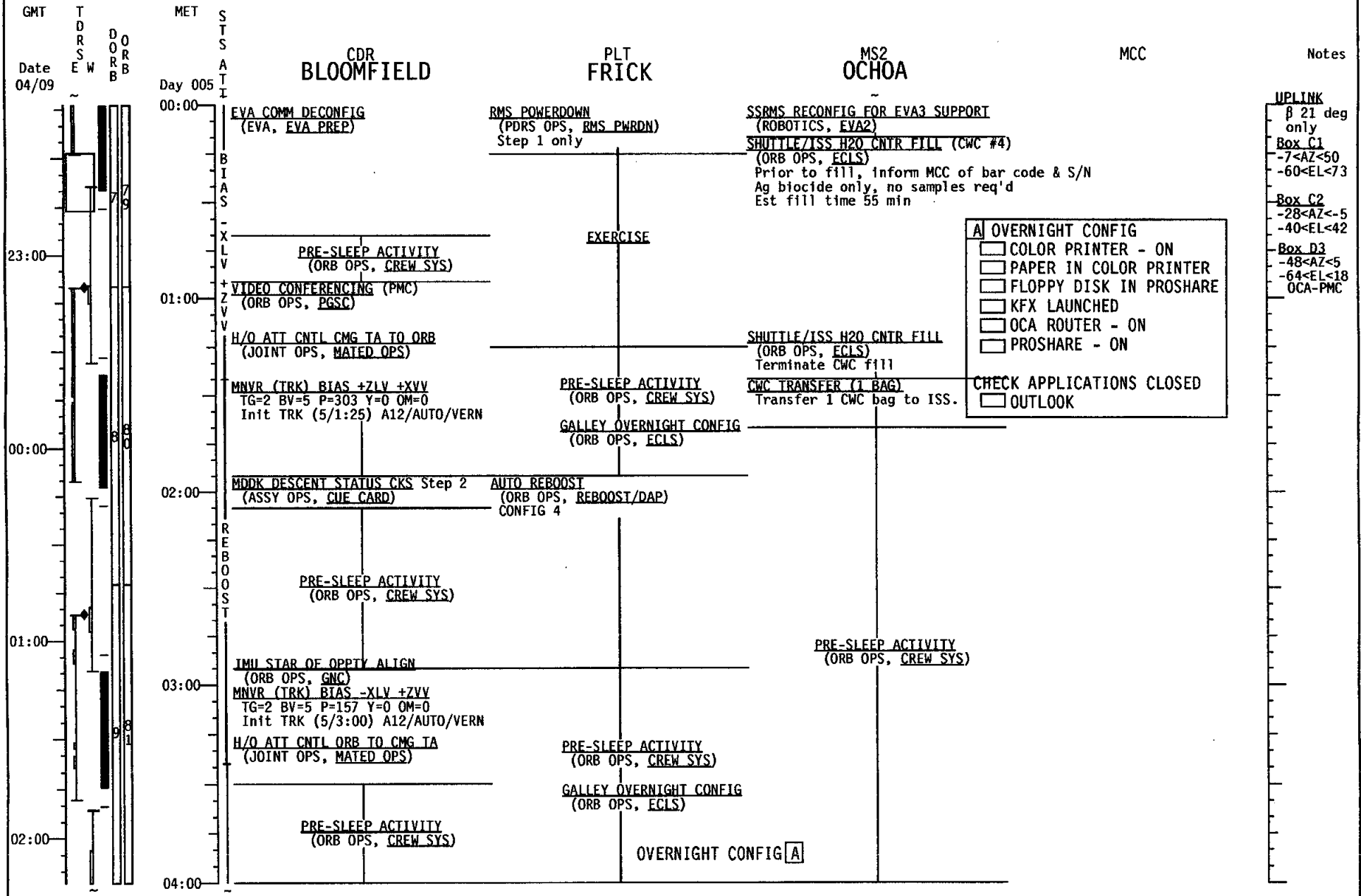
STS-110 (FD 06)



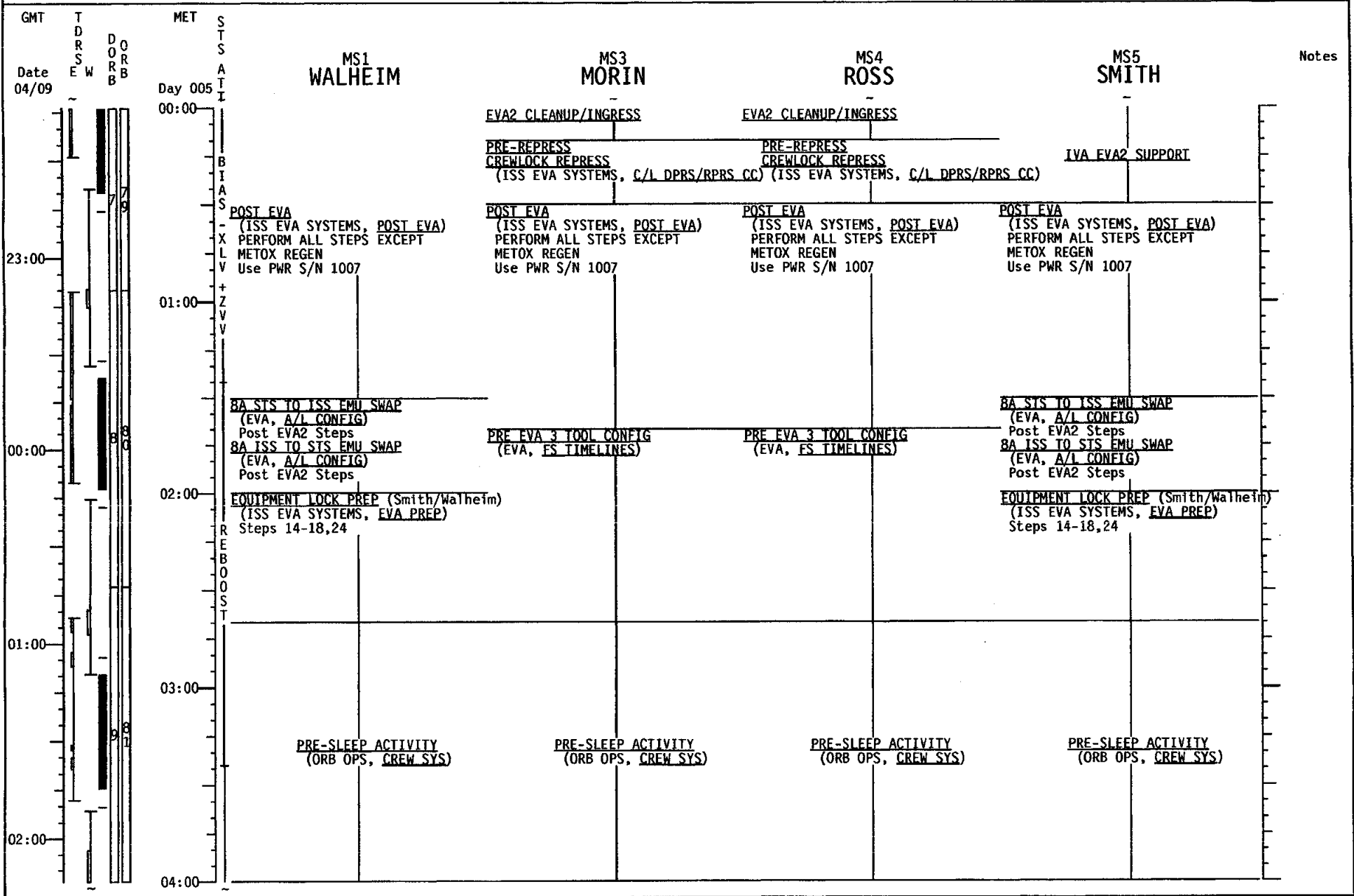
STS-110 (FD 06)



STS-110 (FD 06)



STS-110 (FD 06)



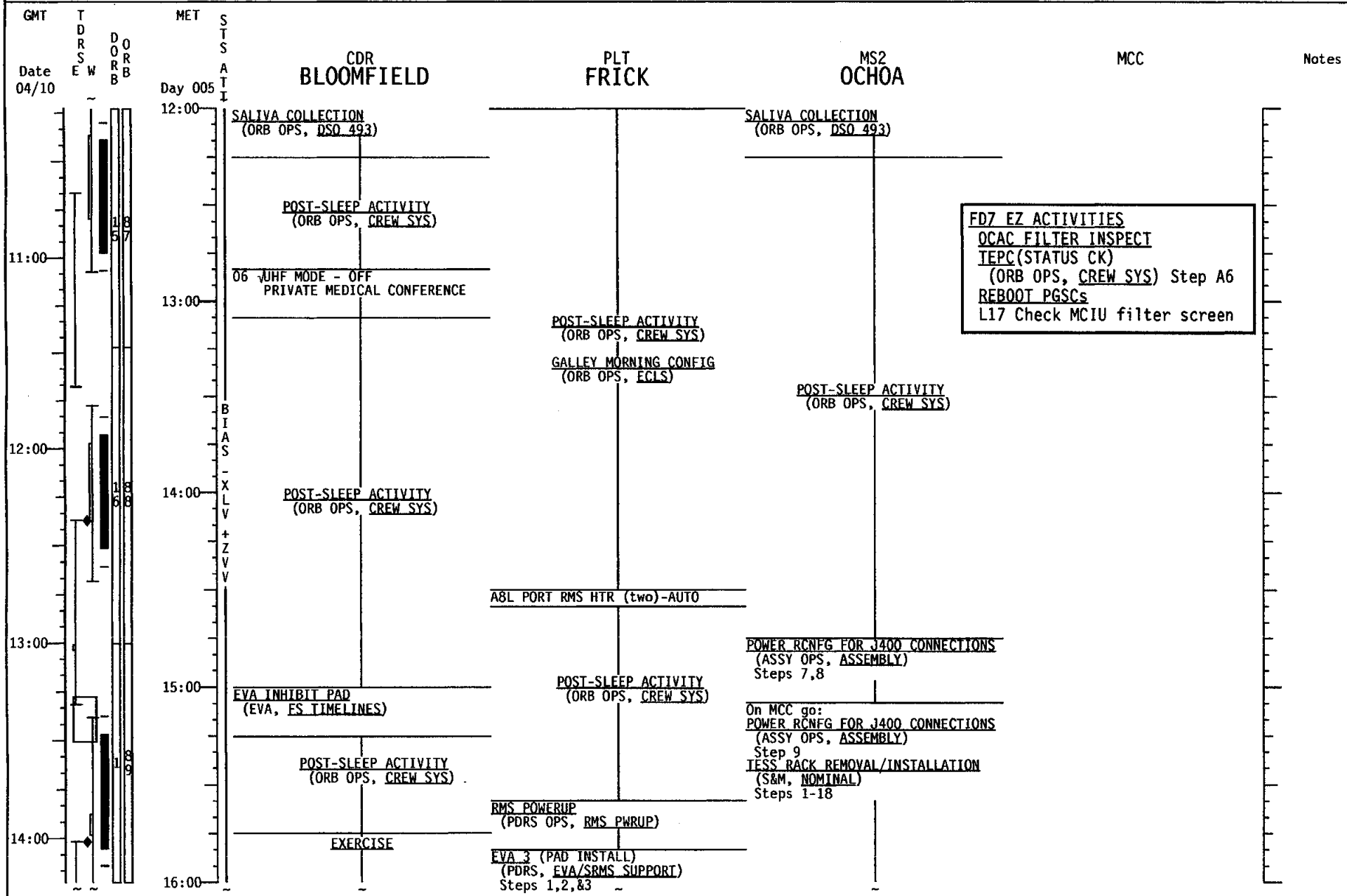
STS-110 (FD 06)

GMT	MET	S T S	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/10	Day 005	A T T					
D O R B 03:00 11802 04:00 05:00 11813 06:00 11824 07:00 08:00 11835 09:00 11846 10:00 11857	04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	B H A S X L V + Z V V	SLEEP	SLEEP	SLEEP		

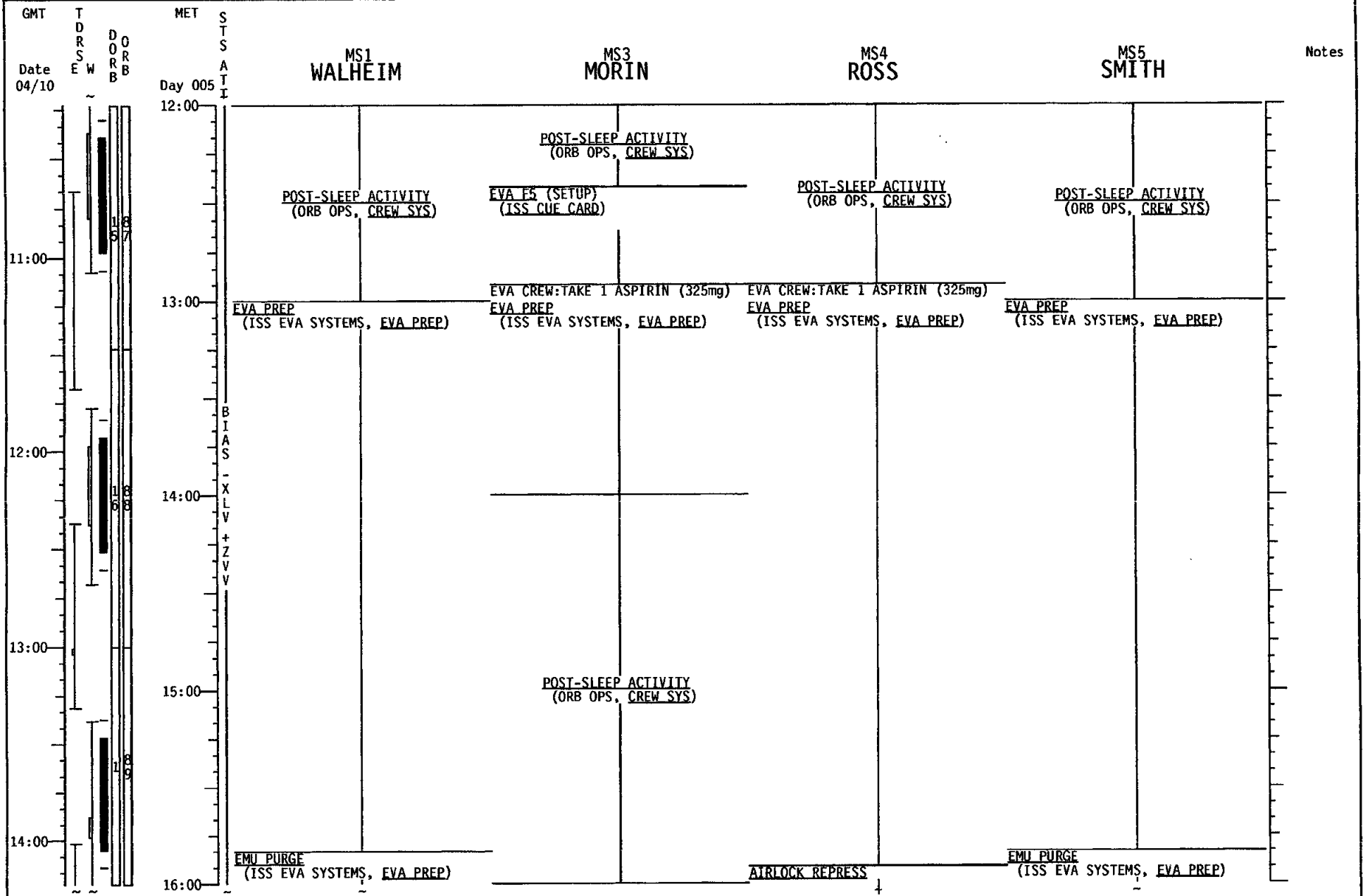
STS-110 (FD 06)

GMT	MET	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
Date 04/10 D O R B 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00	S T S A T I Day 005 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	SLEEP	SLEEP	SLEEP	SLEEP	

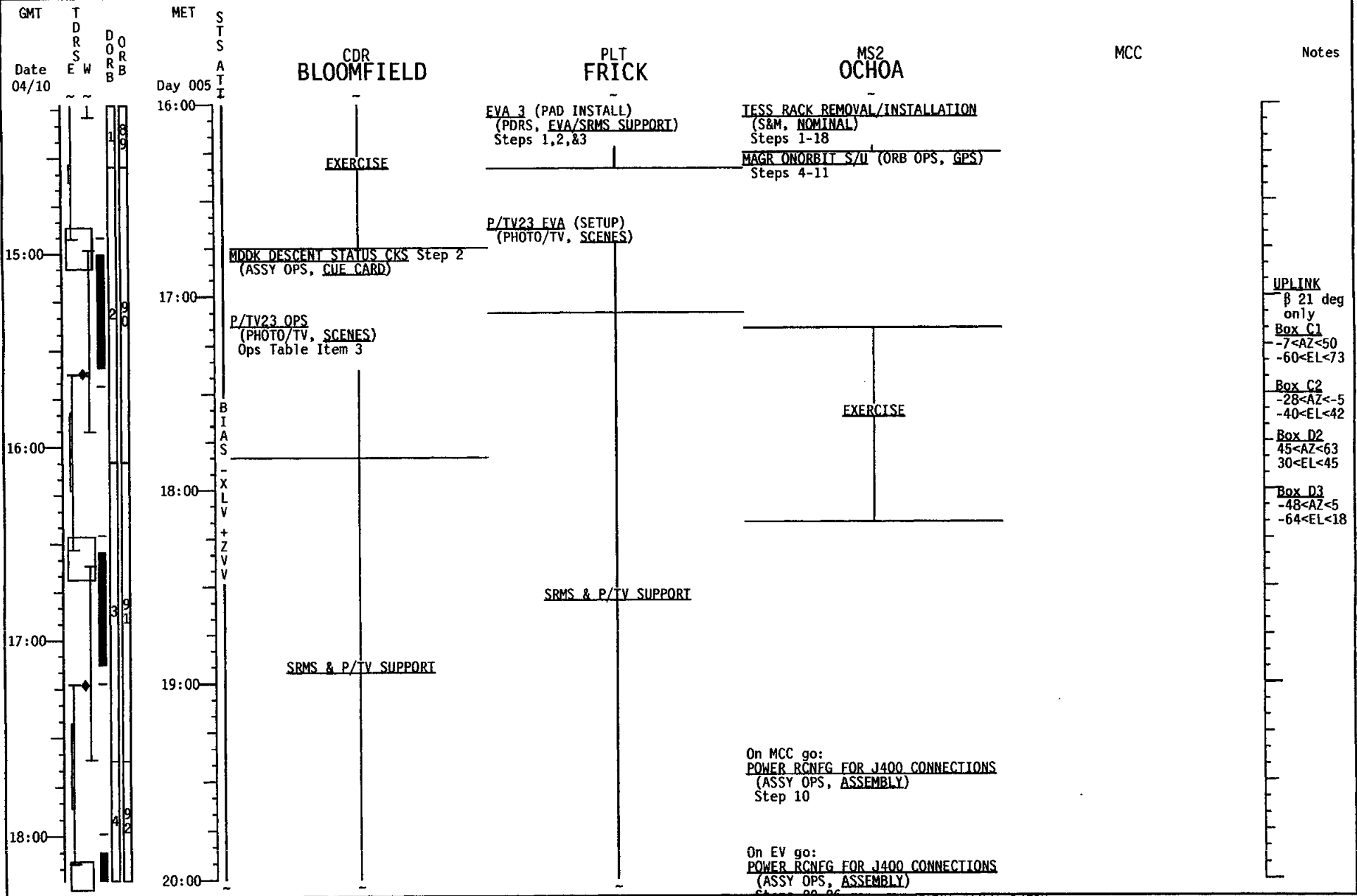
STS-110 (FD 07)



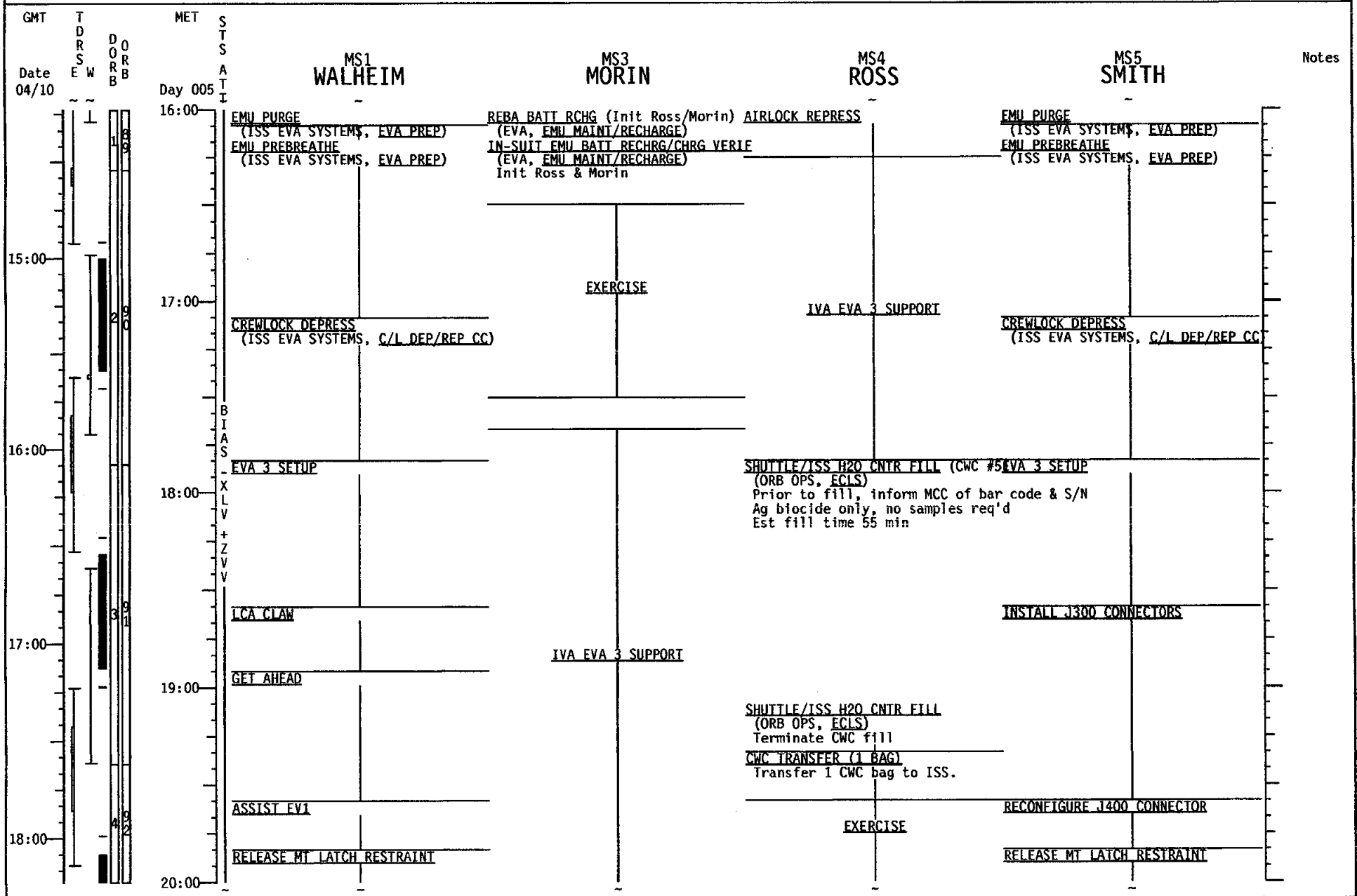
STS-110 (FD 07)



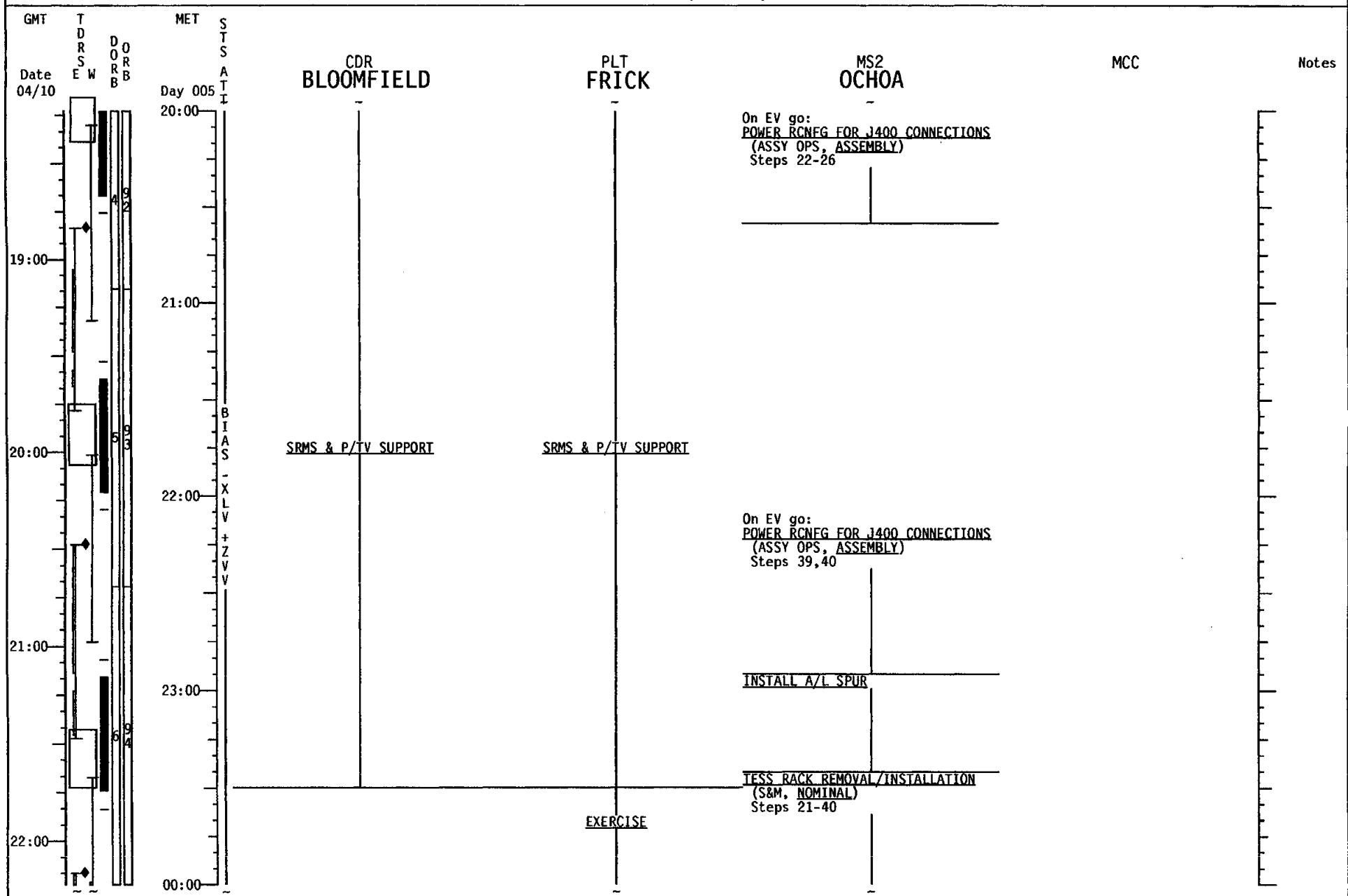
STS-110 (FD 07)



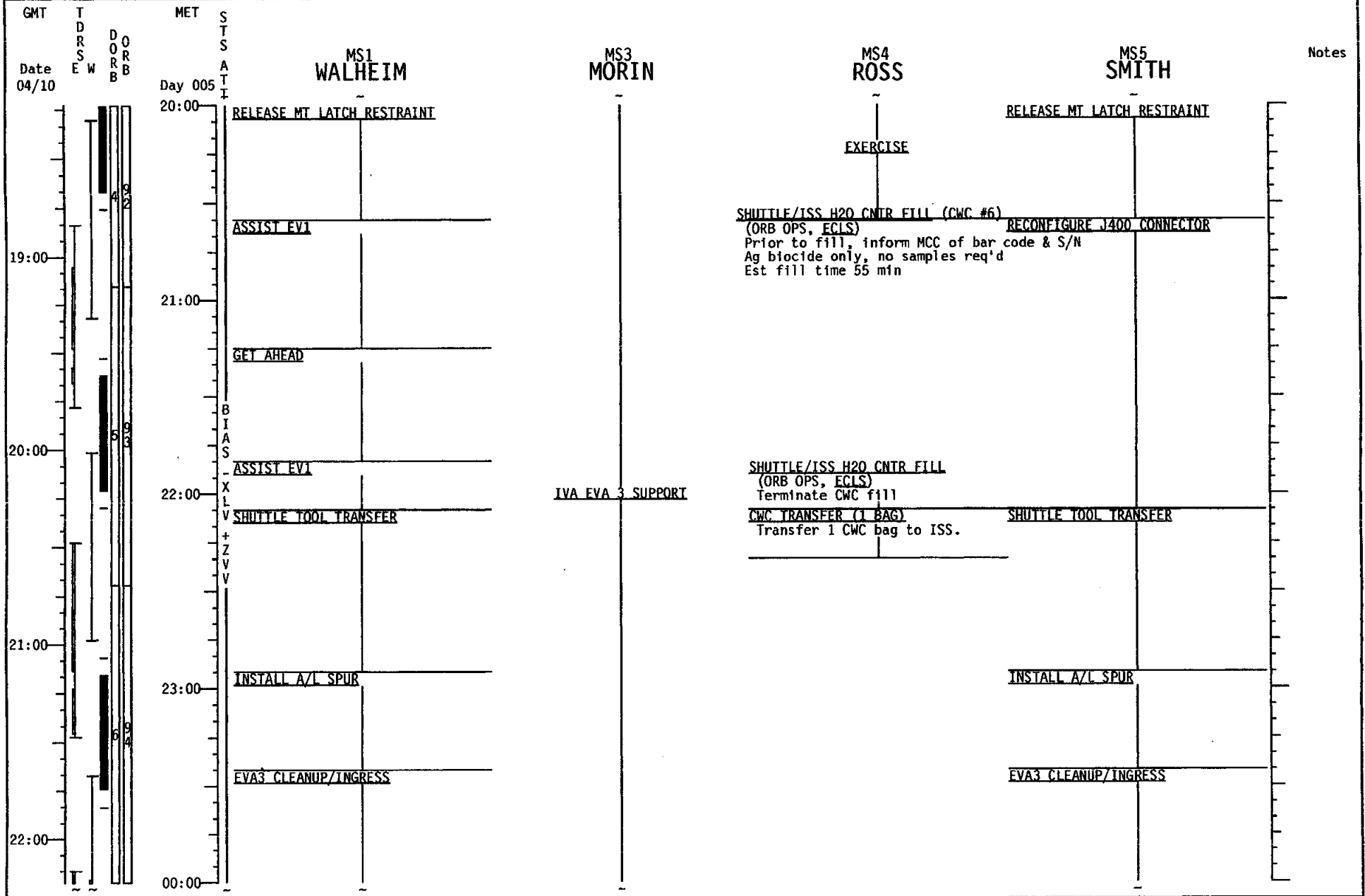
STS-110 (FD 07)



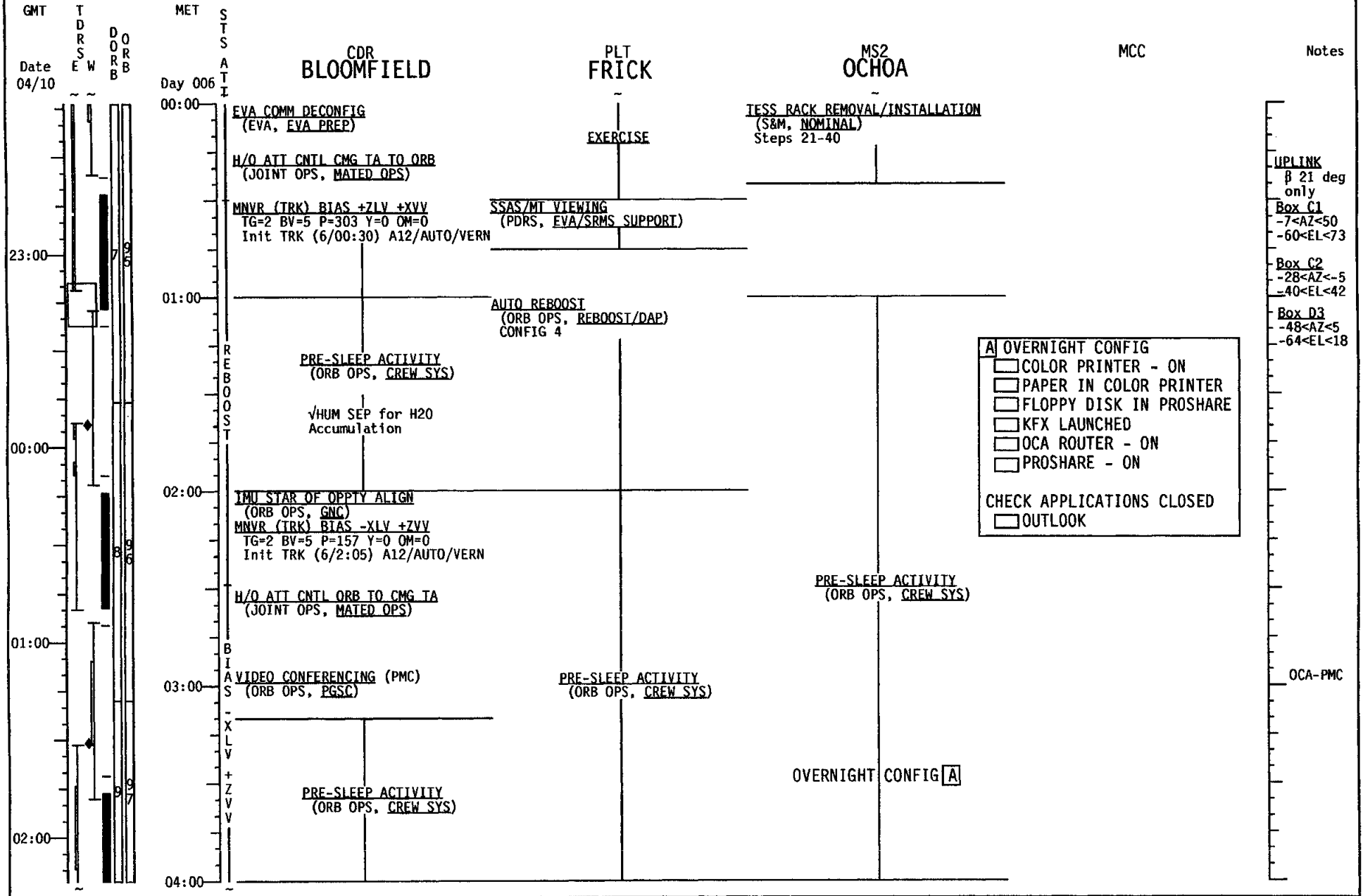
STS-110 (FD 07)



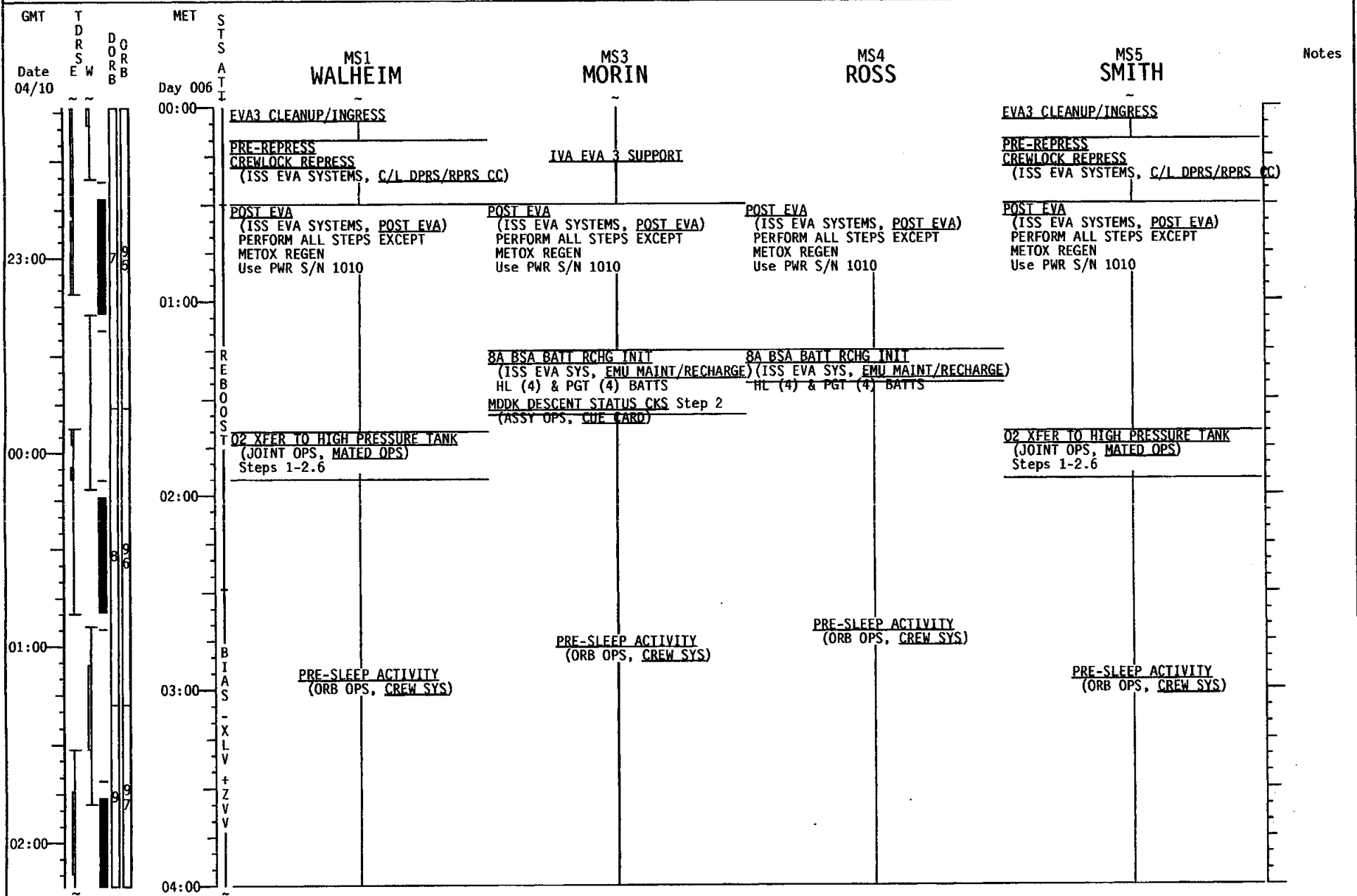
STS-110 (FD 07)



STS-110 (FD 07)



STS-110 (FD 07)



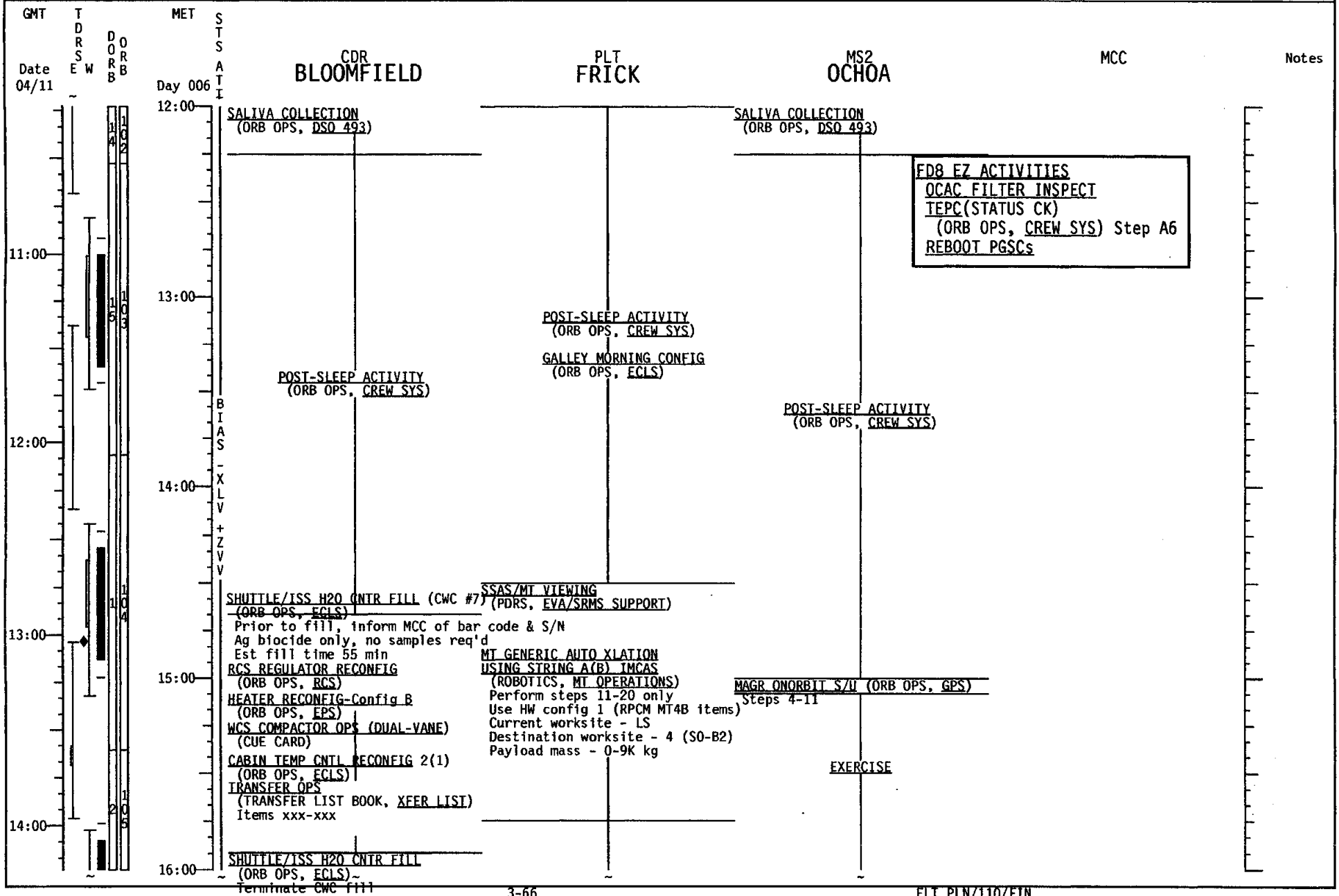
STS-110 (FD 07)

GMT	MET	S T S	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/11	Day 006	A T T					
04:00	04:00						
03:00	05:00						
04:00	06:00						
05:00	07:00						
06:00	08:00	B I A S	SLEEP	SLEEP	SLEEP		
07:00	09:00	X L V					
08:00	10:00	+ Z V V					
09:00	11:00						
10:00	12:00						

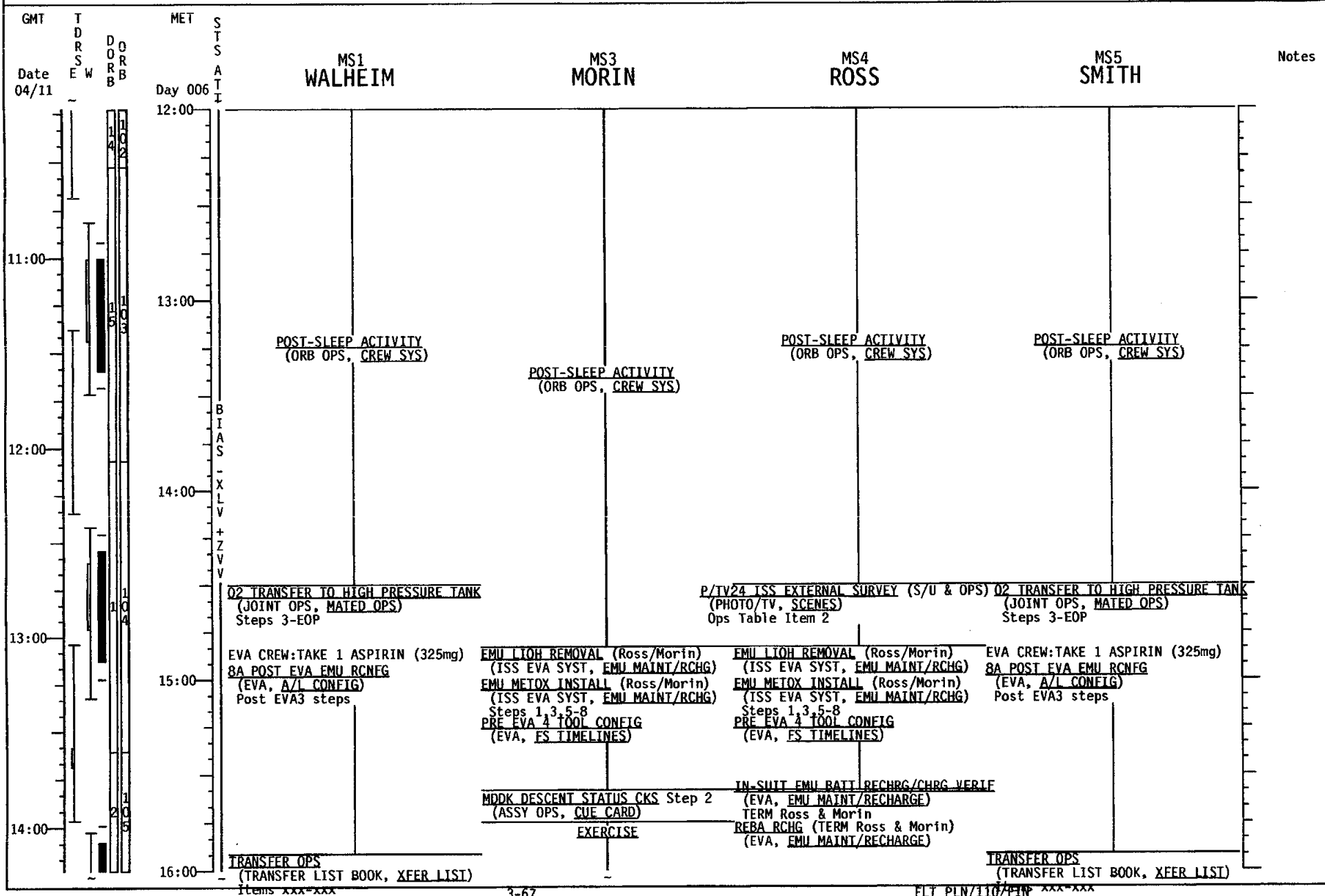
STS-110 (FD 07)

GMT Date 04/11	MET Day 006	S T S A T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
04:00	04:00						
05:00	05:00						
06:00	06:00						
07:00	07:00						
08:00	08:00	B I A S - X I V + Z V V	SLEEP	SLEEP	SLEEP	SLEEP	
09:00	09:00						
10:00	10:00						
11:00	11:00						
12:00	12:00						

STS-110 (FD 08)



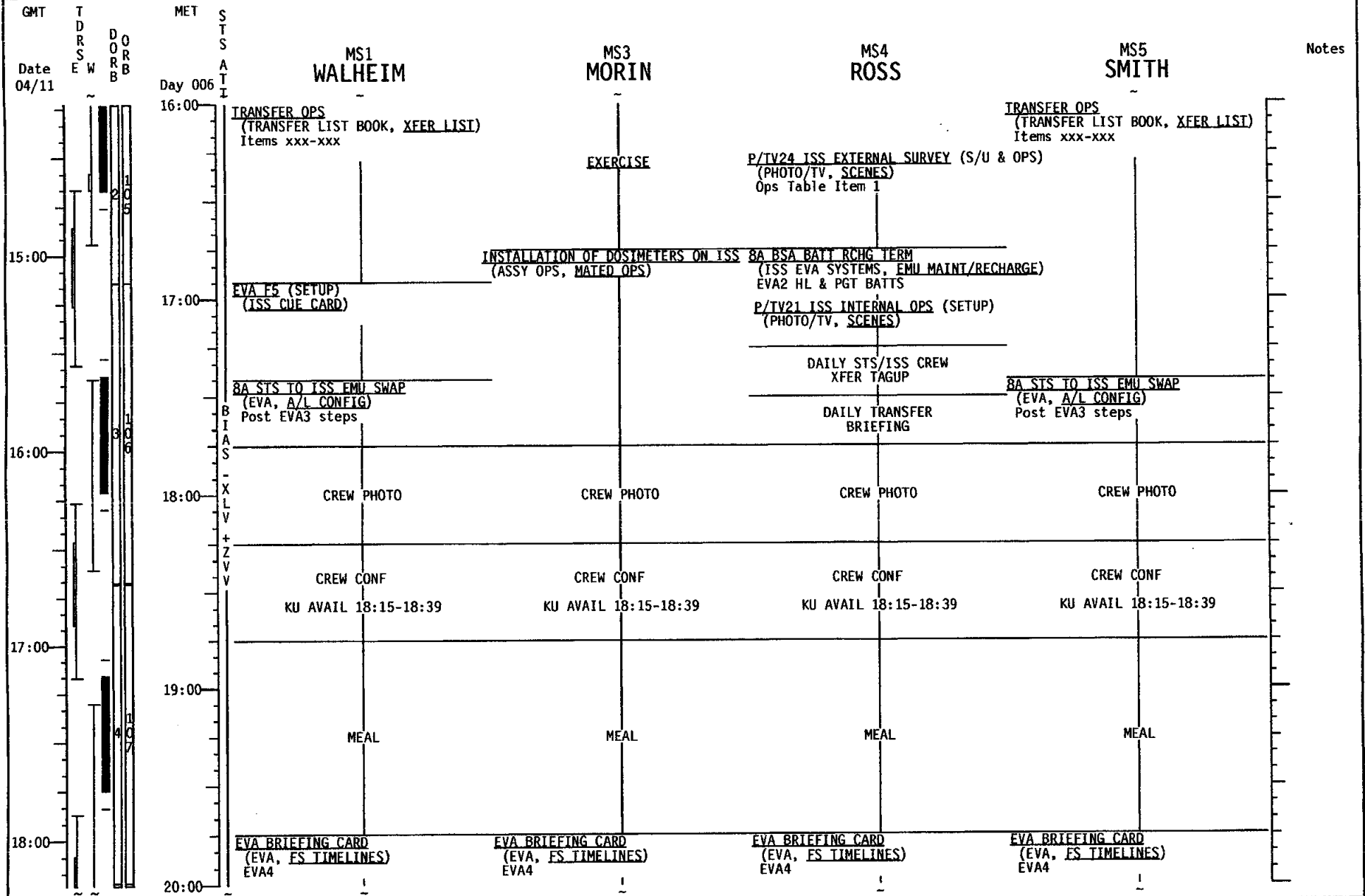
STS-110 (FD 08)



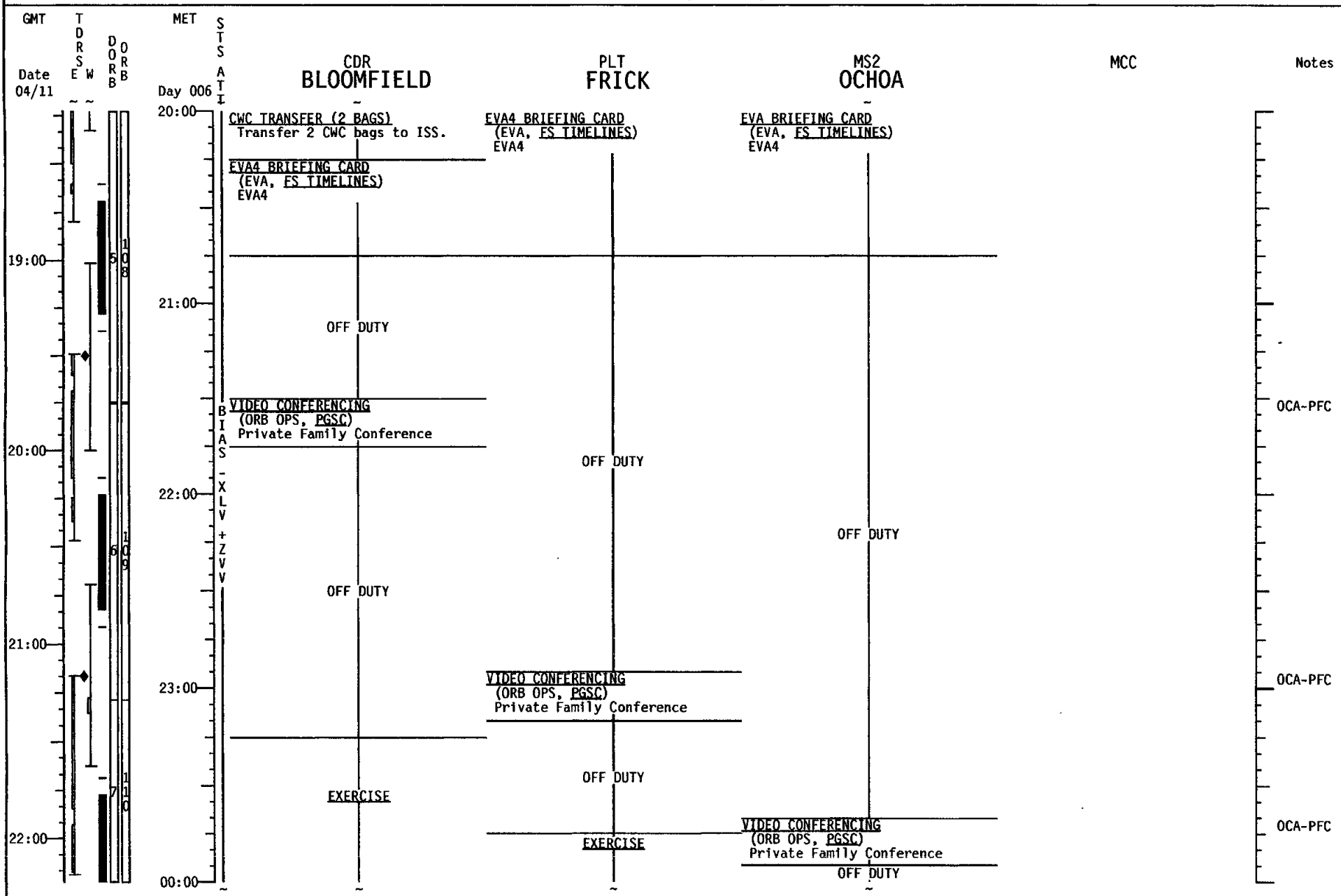
STS-110 (FD 08)

GMT	TDRSEW	DORB	MET	SATS	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	Notes
Date 04/11			Day 006						
16:00					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Terminate CWC fill	MT GENERIC AUTO XLATION USING STRING A(B) IMCAS	EXERCISE		
					SHUTTLE/ISS H2O CNTR FILL (CWC #8) (ORB OPS, ECLS) Ag biocide only, No samples req'd Est fill tim 55 min	(ROBOTICS, MT GENERIC XLATIONS) Perform steps 3-6,8-20 only Use HW Config 2 (PRCM MT3A items) Current WS - 4 (S0-B5) Destination WS - 5 (S0-B2) Payload Mass - 0-9K kg	TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx		
15:00					TRANSFER OPS (TRANSFER LIST BOOK, XFER LIST) Items xxx-xxx	MT TRANSLATE FROM WORKSITE 5 TO WORKSITE 4 (ROBOTICS, MT GENERIC XLATIONS) Perform steps 3-6,8-18 only Use HW Config 1 (RPCM MT4B items) Current WS - 5 (S0-B5) Destination WS - 4 (S0-B2) Payload Mass - 0-9K kg			
					TRANSFER OPS (PWR) (TRANSFER LIST BOOK, XFER LIST) Items XXX-XXX	FILTER CLEANING (IFM, SCHED MAINT)			
16:00					SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Terminate CWC fill				
					NOMINAL H2O CONFIG (ORB OPS, ECLS)				
18:00					CREW PHOTO	CREW PHOTO	CREW PHOTO		
					CREW CONF KU AVAIL 18:15-18:39	CREW CONF KU AVAIL 18:15-18:39	CREW CONF KU AVAIL 18:15-18:39		
17:00					MEAL	MEAL	MEAL		
19:00									
18:00					CWC TRANSFER (2 BAGS) Transfer 2 CWC bags to ISS.	RMS POWERDOWN (PDRS OPS, RMS PWRDN) Do not stow MPMS	EVA BRIEFING CARD (EVA, ES TIMELINES) EVA4		
20:00									

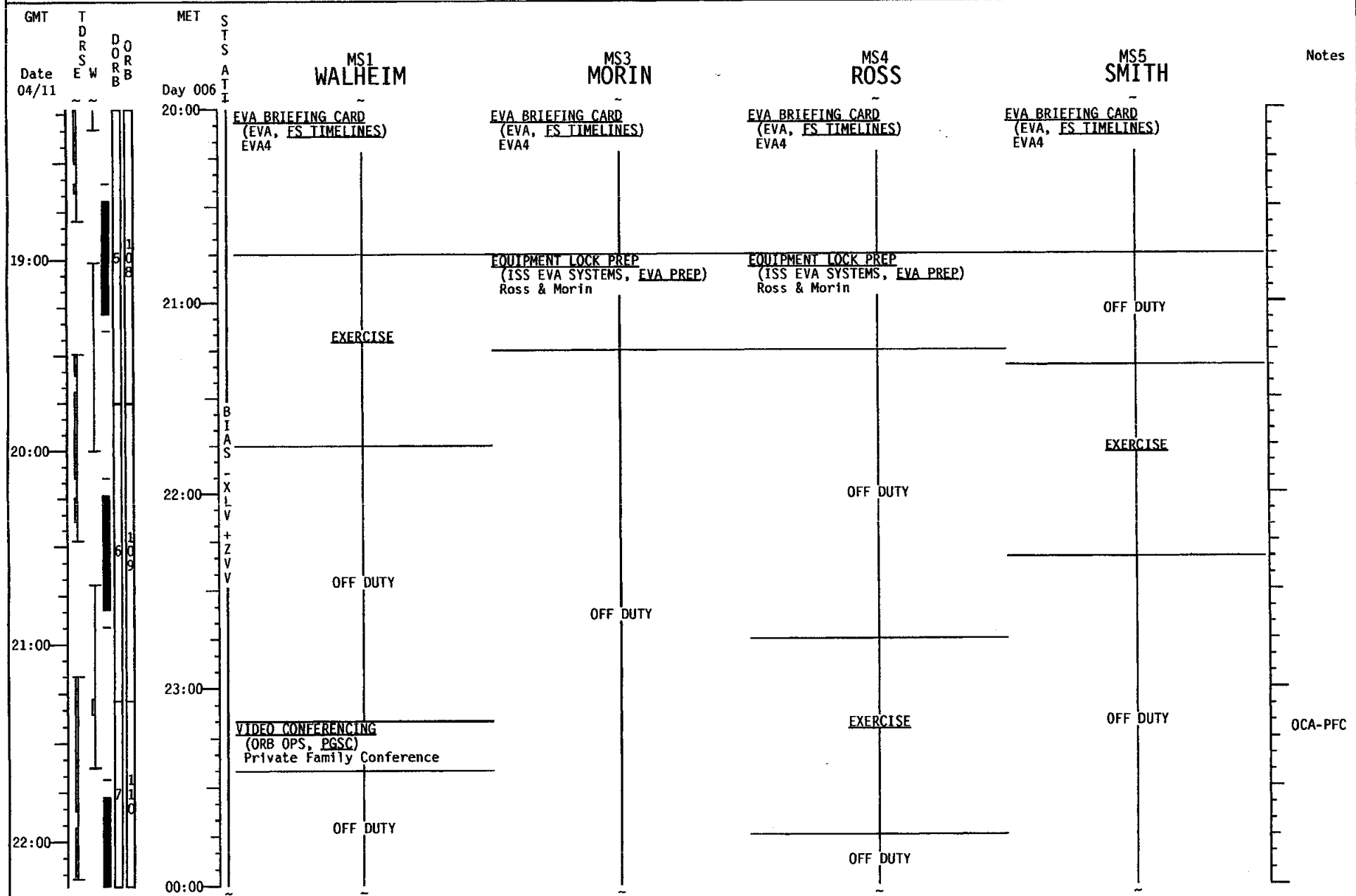
STS-110 (FD 08)



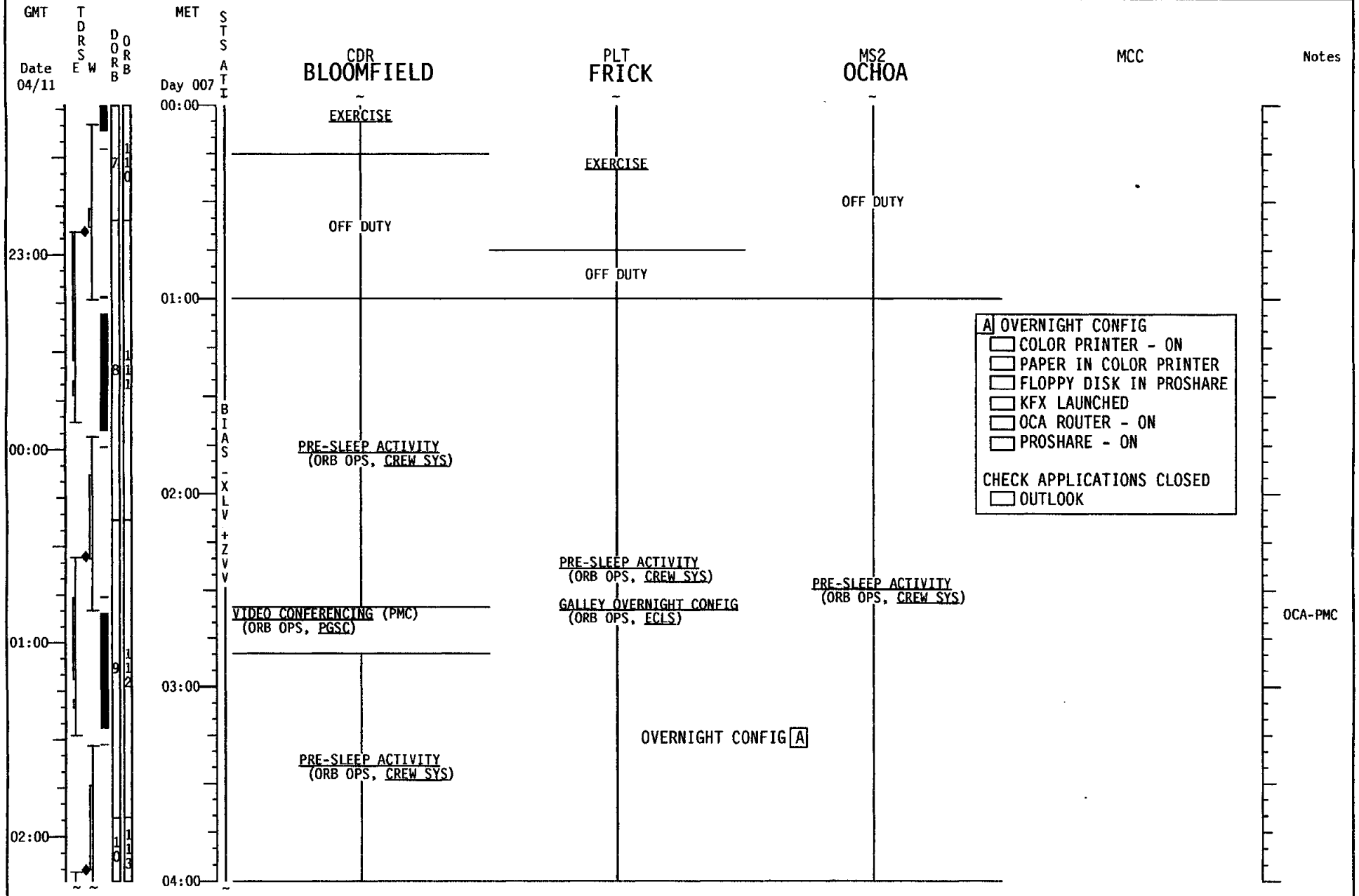
STS-110 (FD 08)



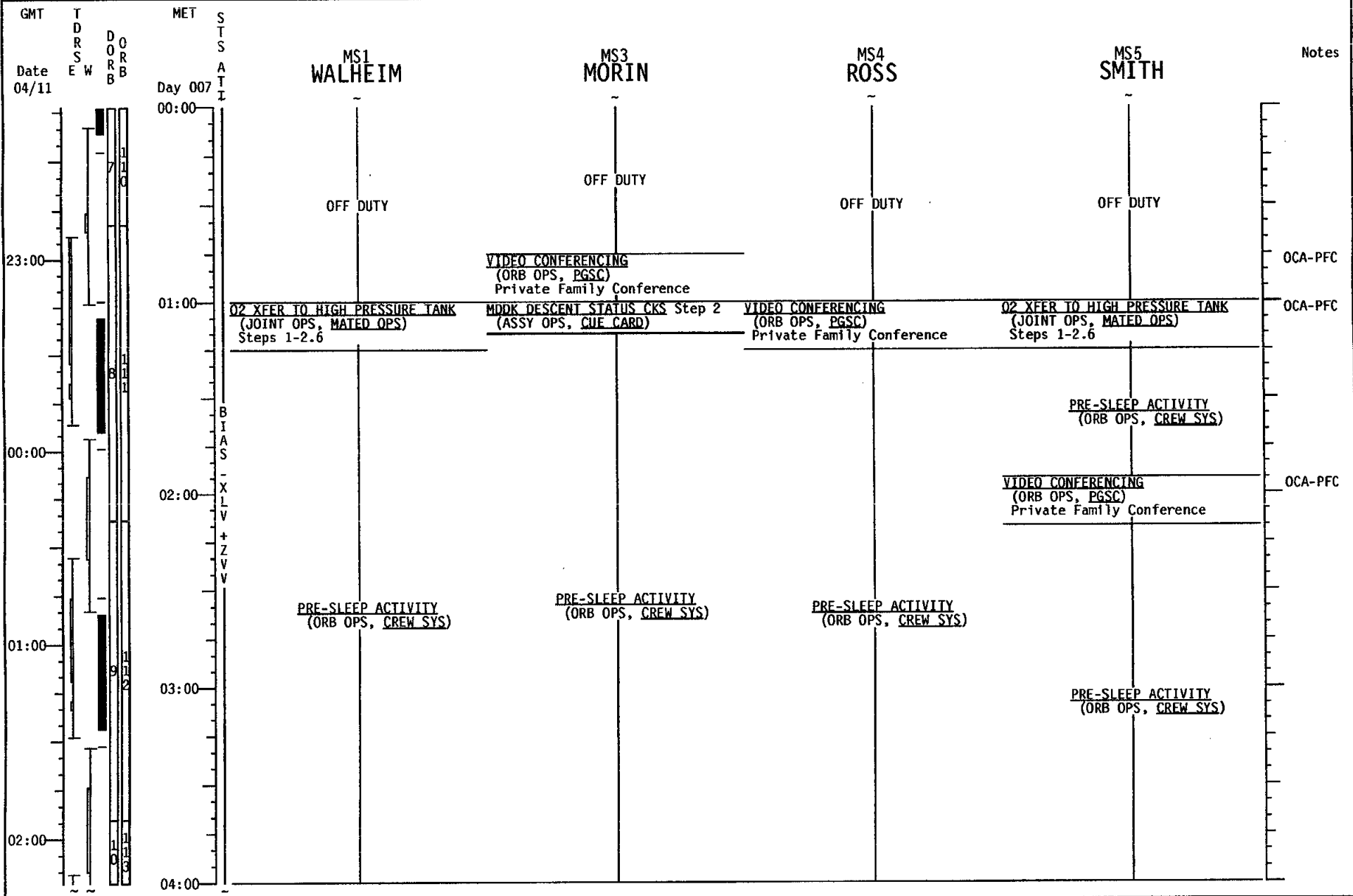
STS-110 (FD 08)



STS-110 (FD 08)



STS-110 (FD 08)



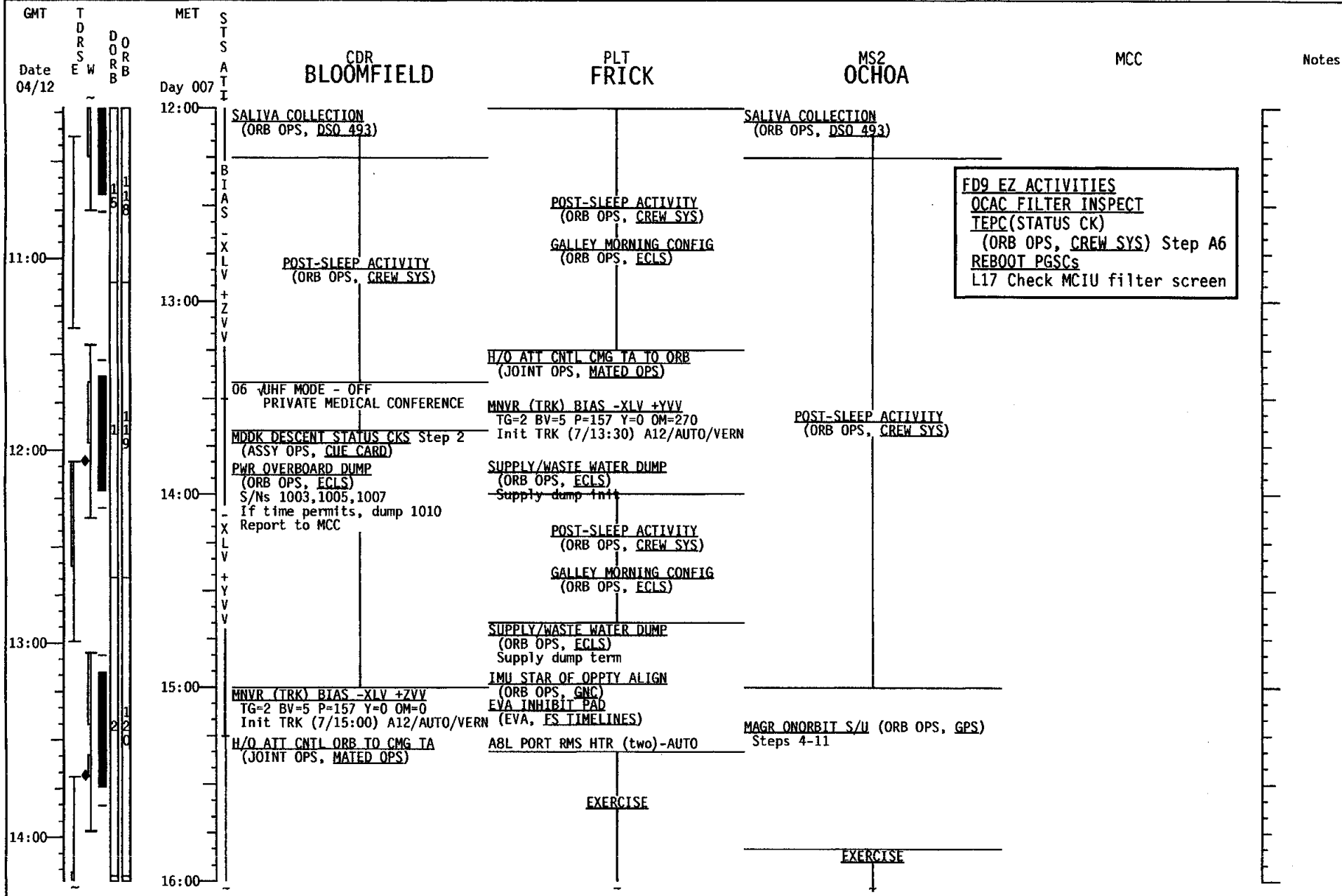
STS-110 (FD 08)

GMT	MET	S T S	CDR BLOOMFIELD	PLT FRICK	MS2 OCHOA	MCC	NOTES
Date 04/12	Day 007	A T I					
<div style="writing-mode: vertical-rl; transform: rotate(180deg);">D R O O B B</div>		B A S X L V + N V V	SLEEP	SLEEP	SLEEP		

STS-110 (FD 08)

GMT	MET	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	NOTES
Date 04/12	Day 007					
03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00	04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	SLEEP	SLEEP	SLEEP	SLEEP	

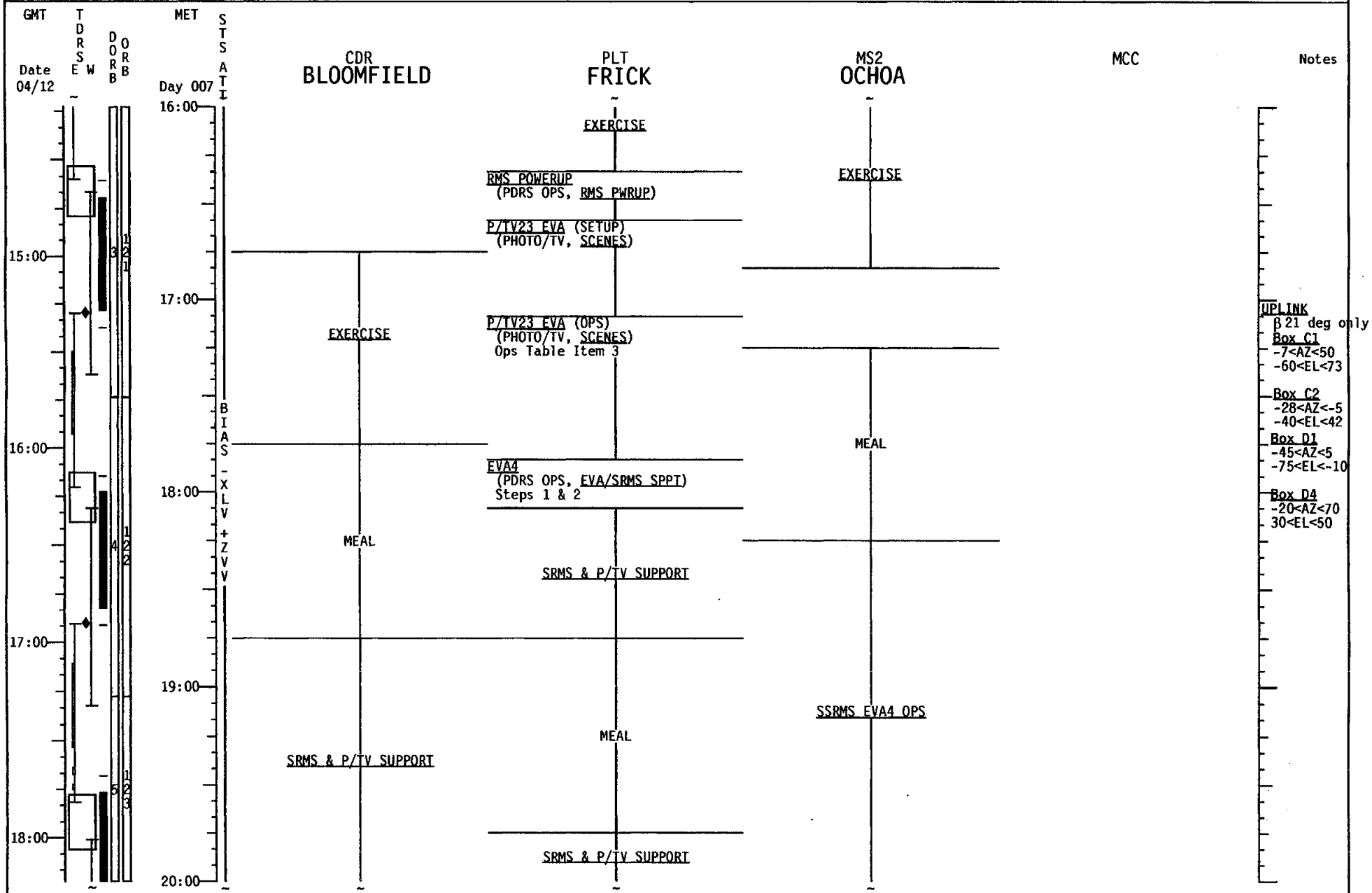
STS-110 (FD 09)



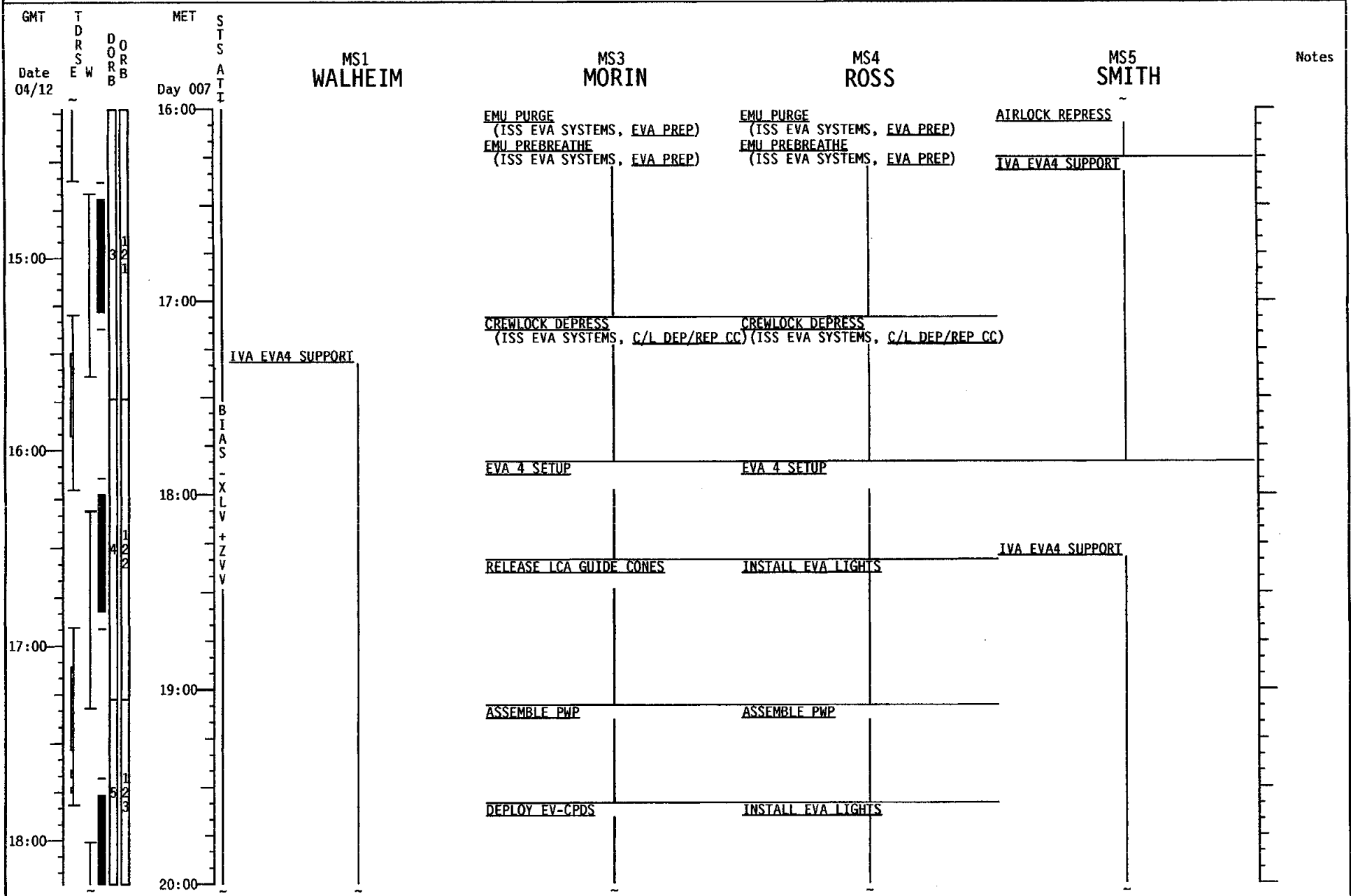
STS-110 (FD 09)

GMT Date 04/12	T D R S E W	D O R B	M E T D O Y	MET Day 007	S T S A T T I	MS1 WALHEIM	MS3 MORIN	MS4 ROSS	MS5 SMITH	Notes
				12:00		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
				11:00	B I A S - X L V					
				13:00	+ Z V V	02 TRANSFER TO HIGH PRESSURE TANK (JOINT OPS, MATED OPS) Steps 3-EOP EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	EVA PREP (ISS EVA SYSTEMS, EVA PREP)	02 TRANSFER TO HIGH PRESSURE TANK (JOINT OPS, MATED OPS) Steps 3-EOP EVA PREP (ISS EVA SYSTEMS, EVA PREP)	
				12:00						
				14:00	- X L V + Y V V					
				15:00		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)				
				16:00			EMU PURGE (ISS EVA SYSTEMS, EVA PREP)	EMU PURGE (ISS EVA SYSTEMS, EVA PREP)	AIRLOCK REPRESS	

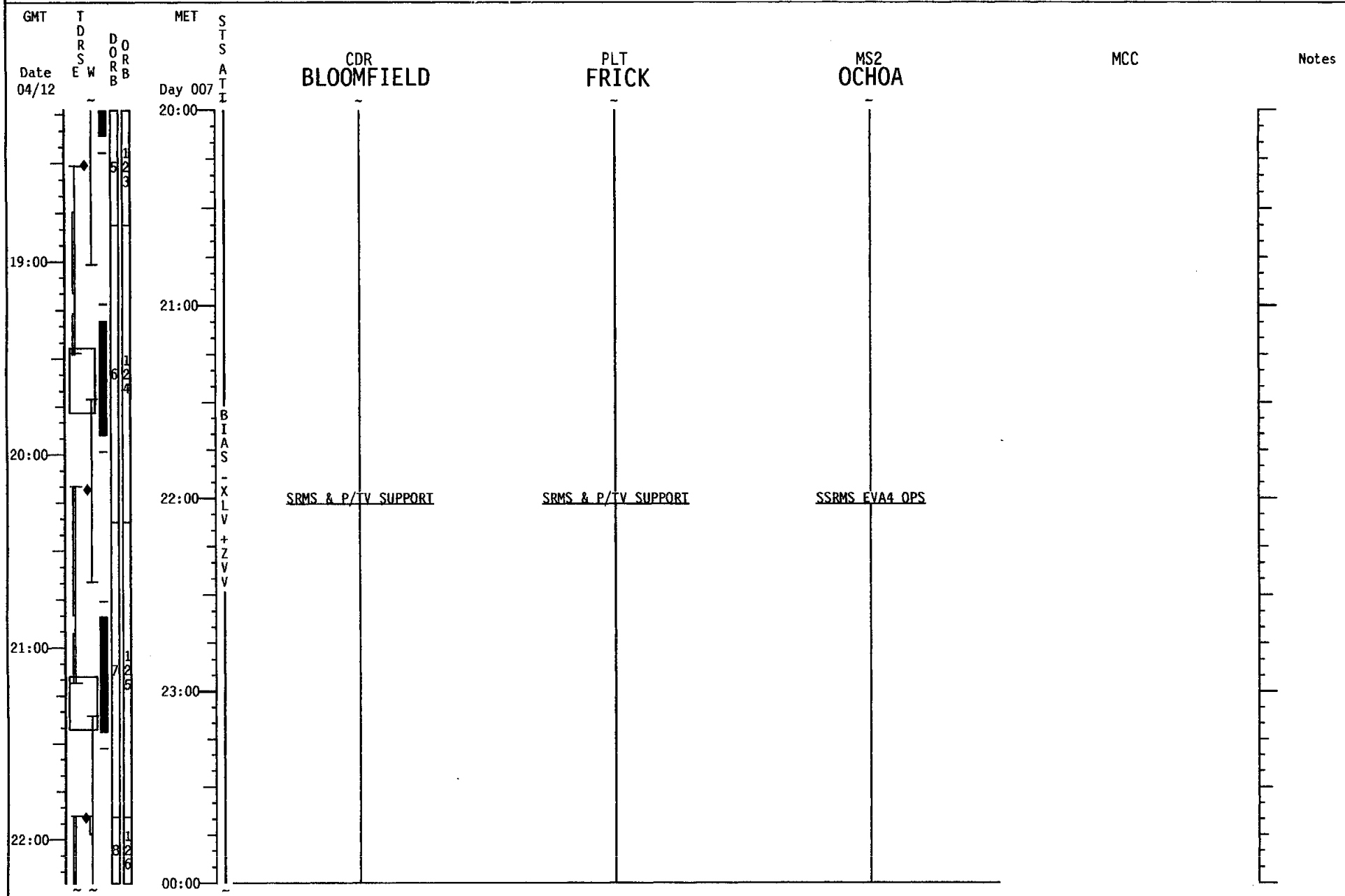
STS-110 (FD 09)



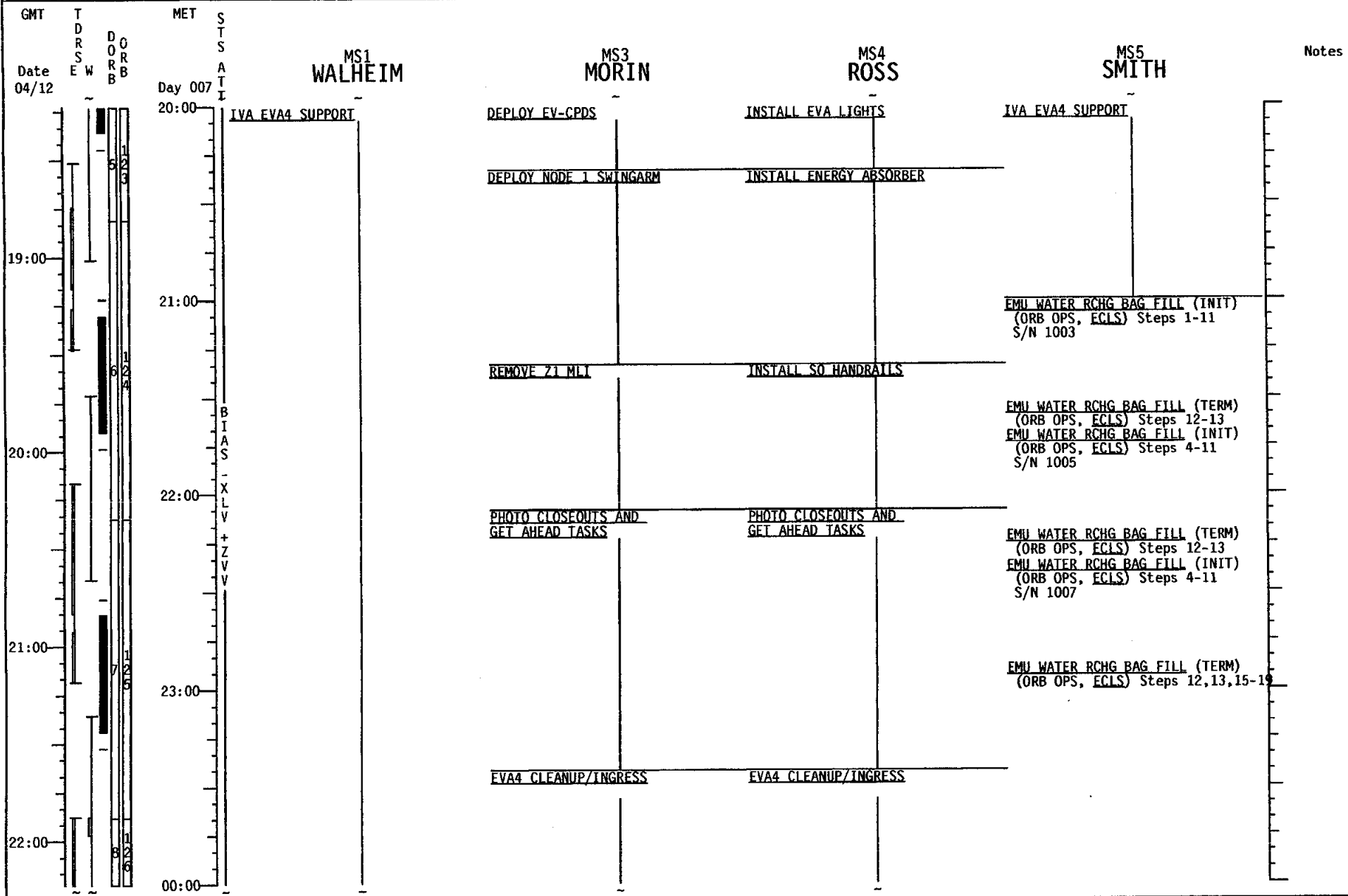
STS-110 (FD 09)



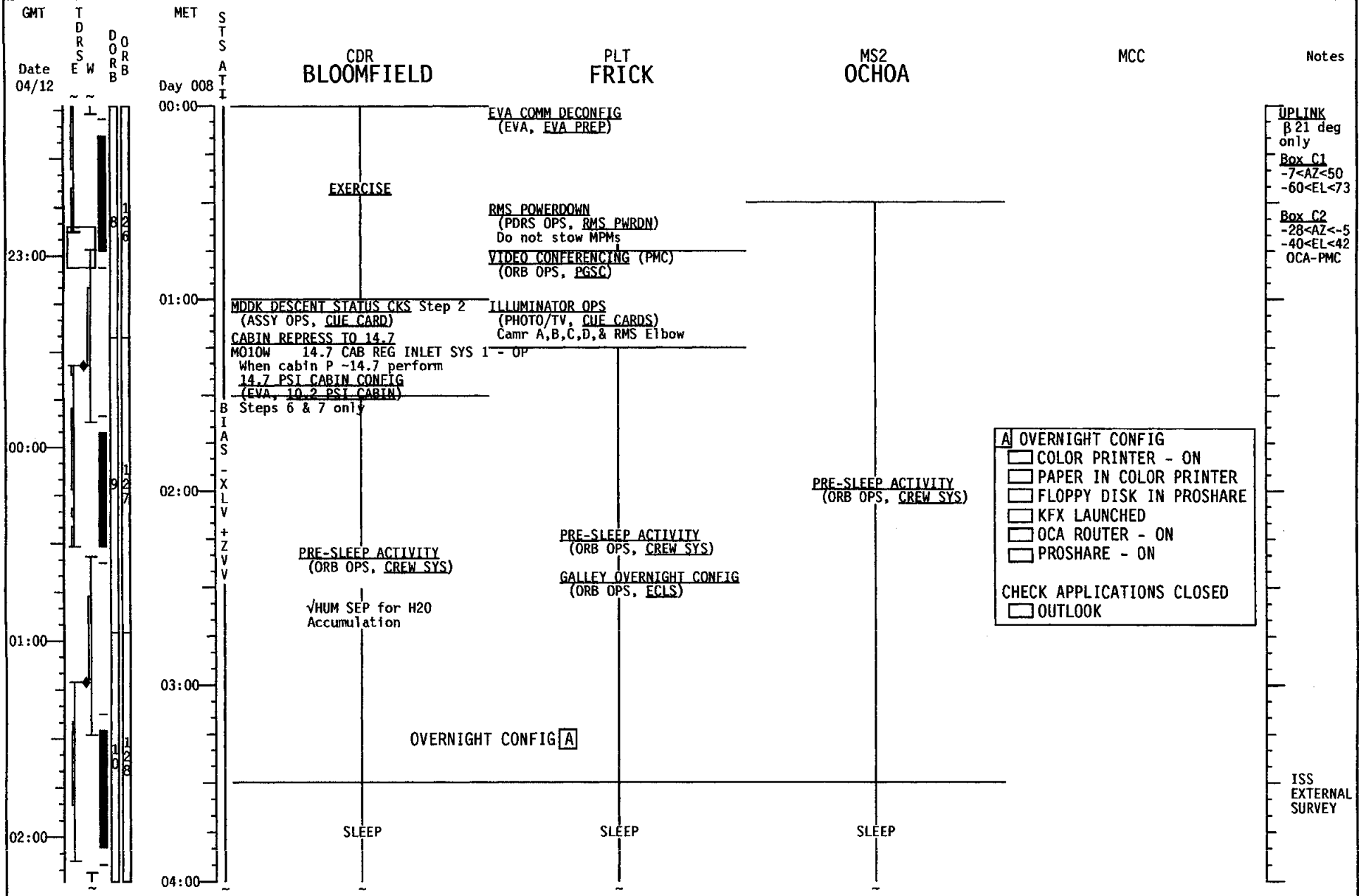
STS-110 (FD 09)



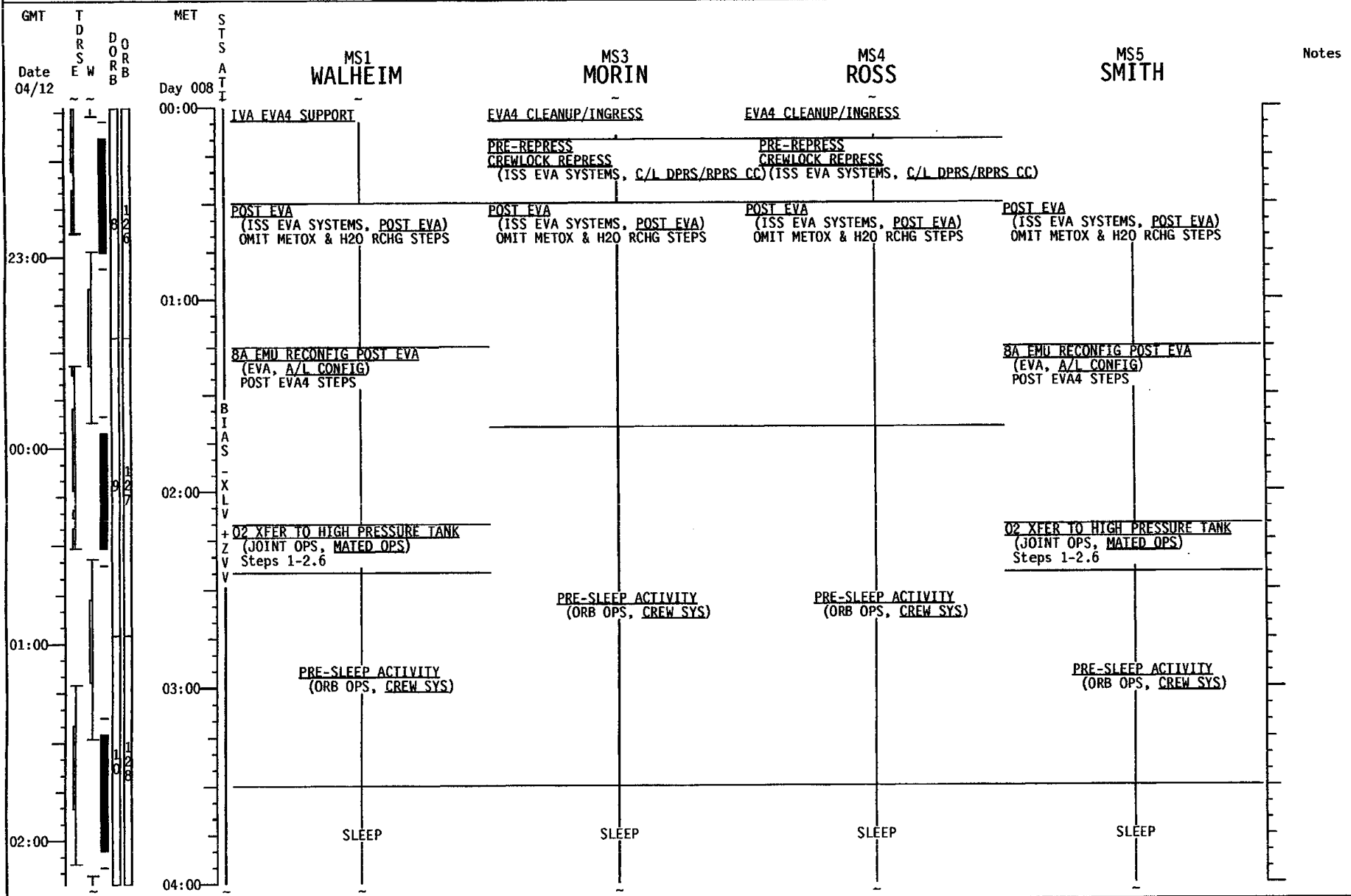
STS-110 (FD 09)



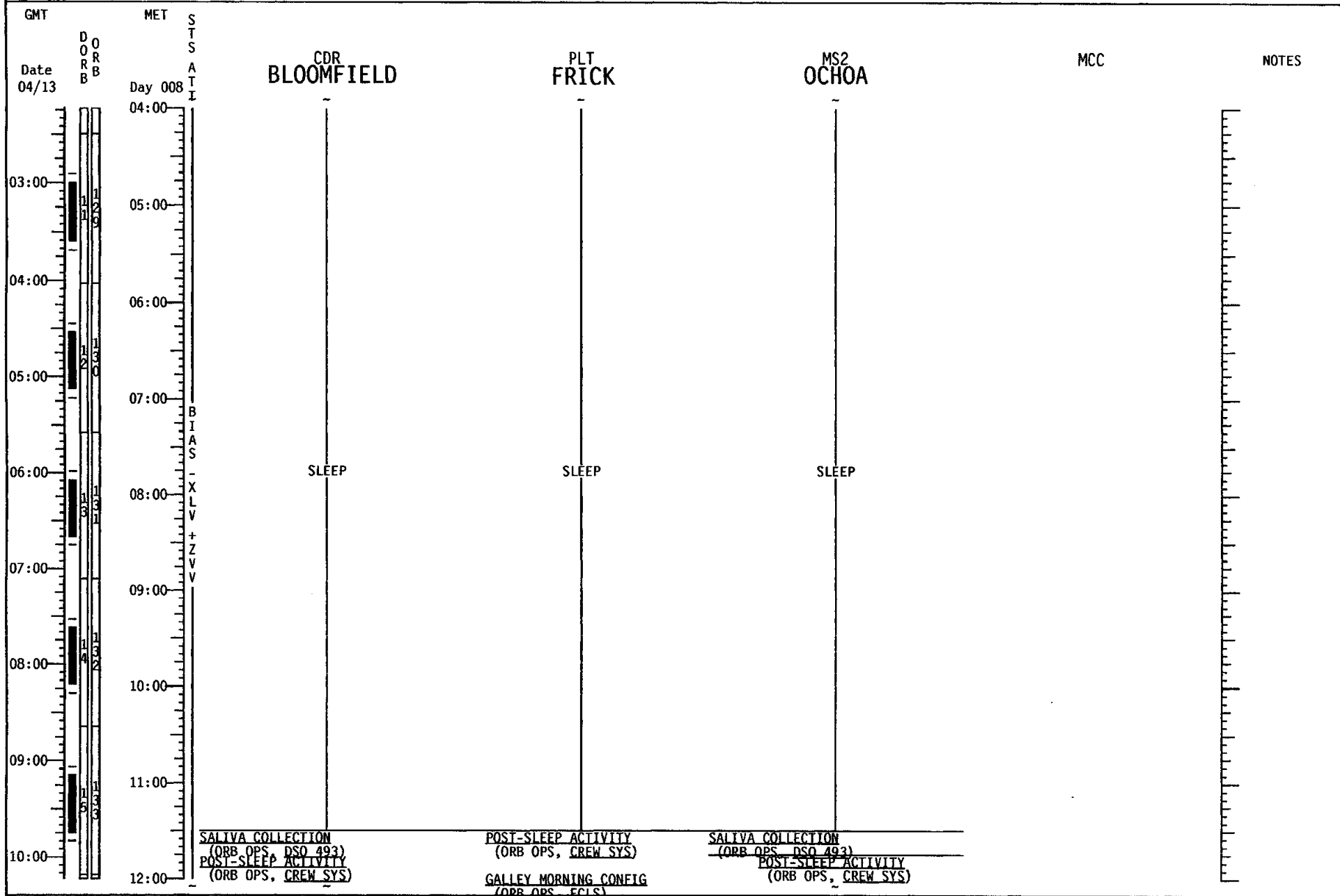
STS-110 (FD 09)



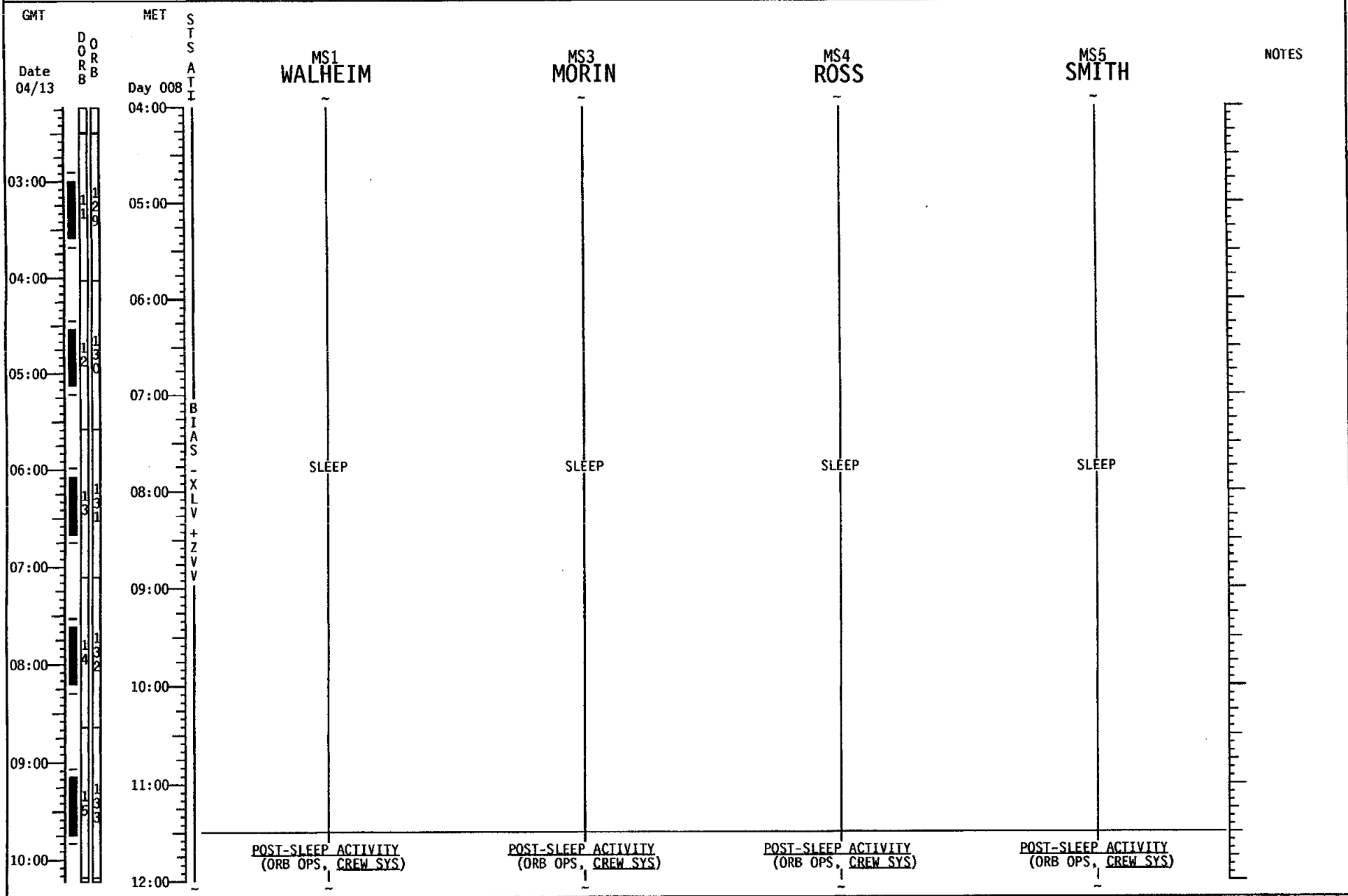
STS-110 (FD 09)



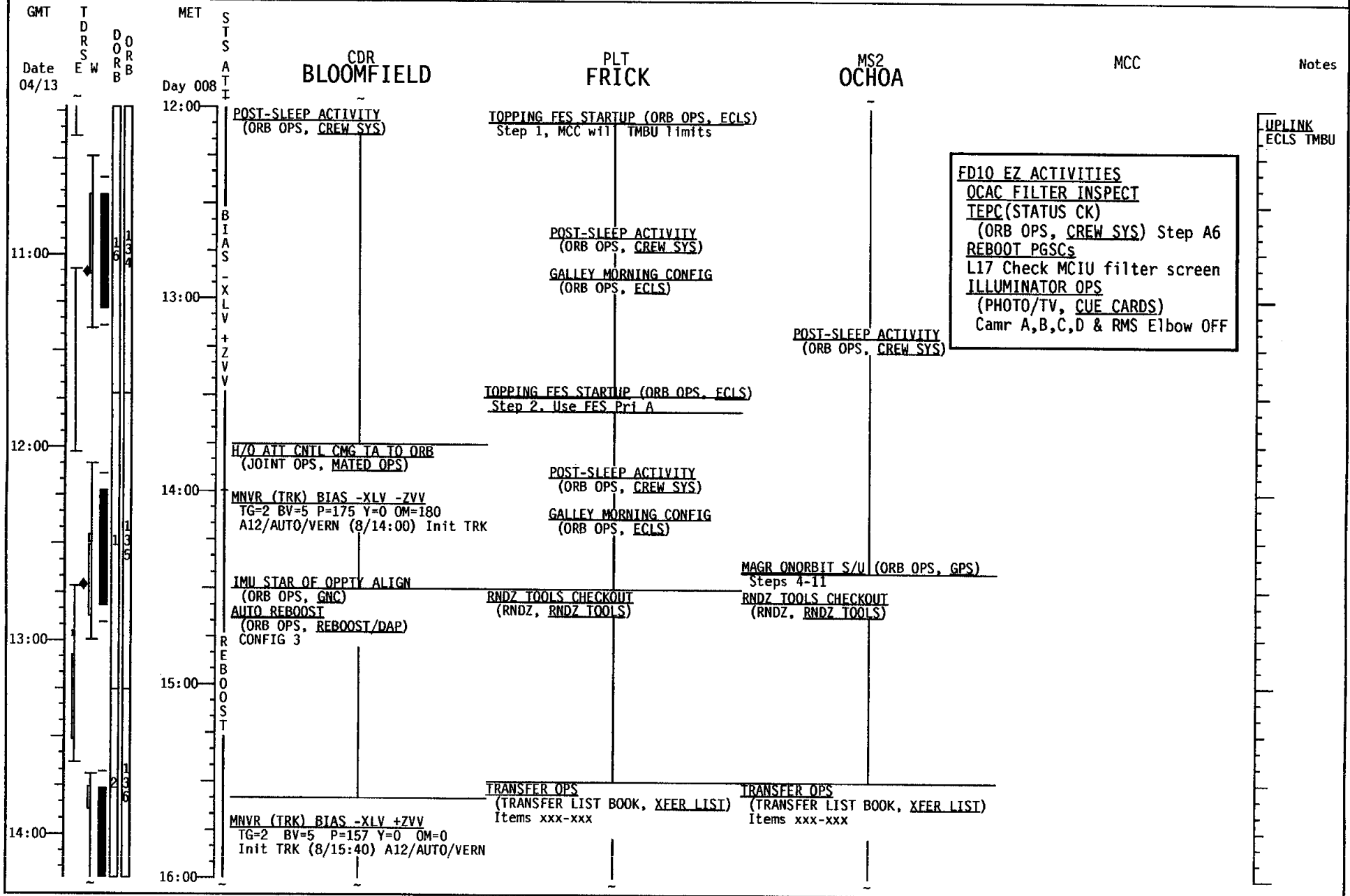
STS-110 (FD 09)



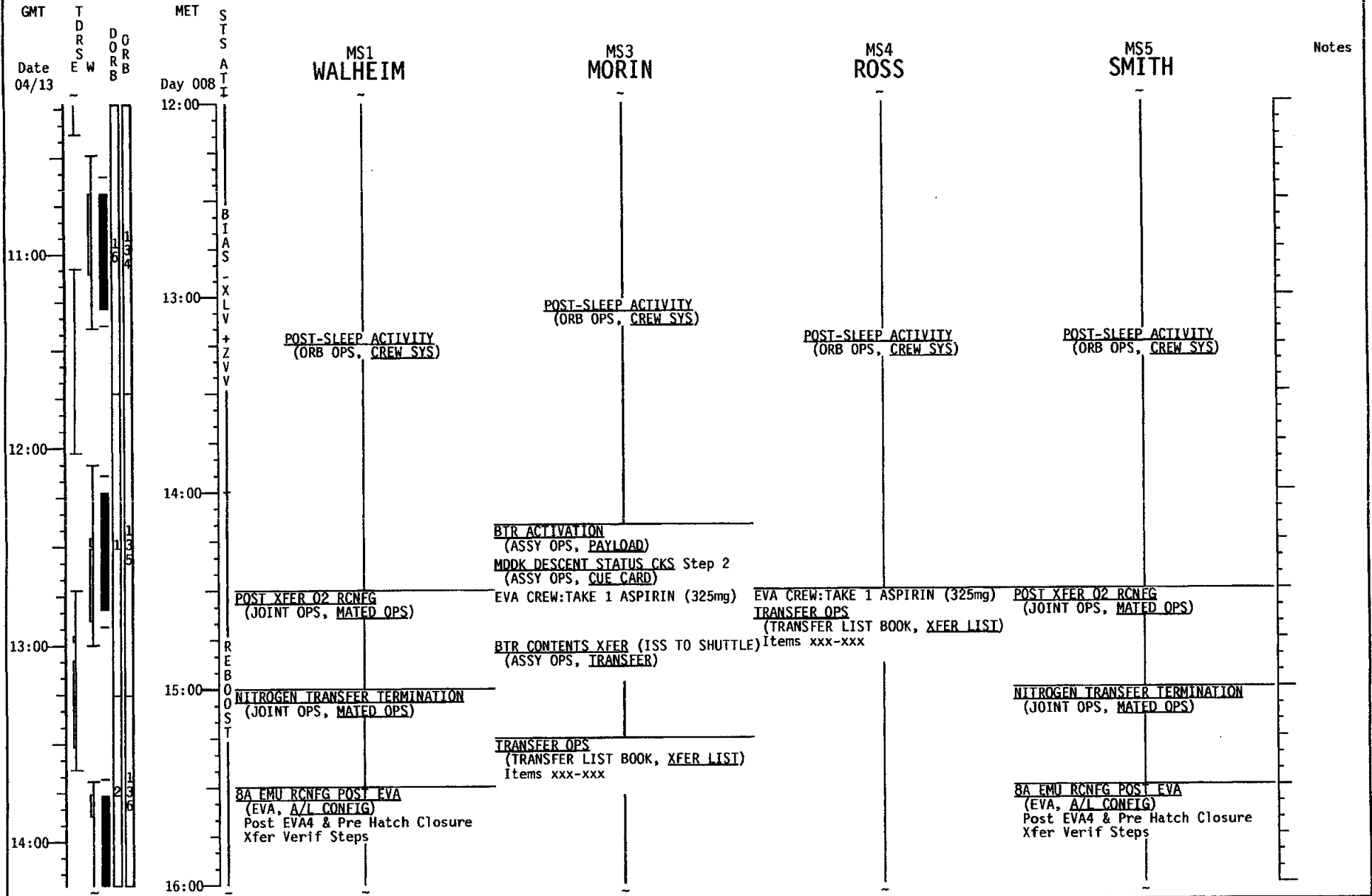
STS-110 (FD 09)



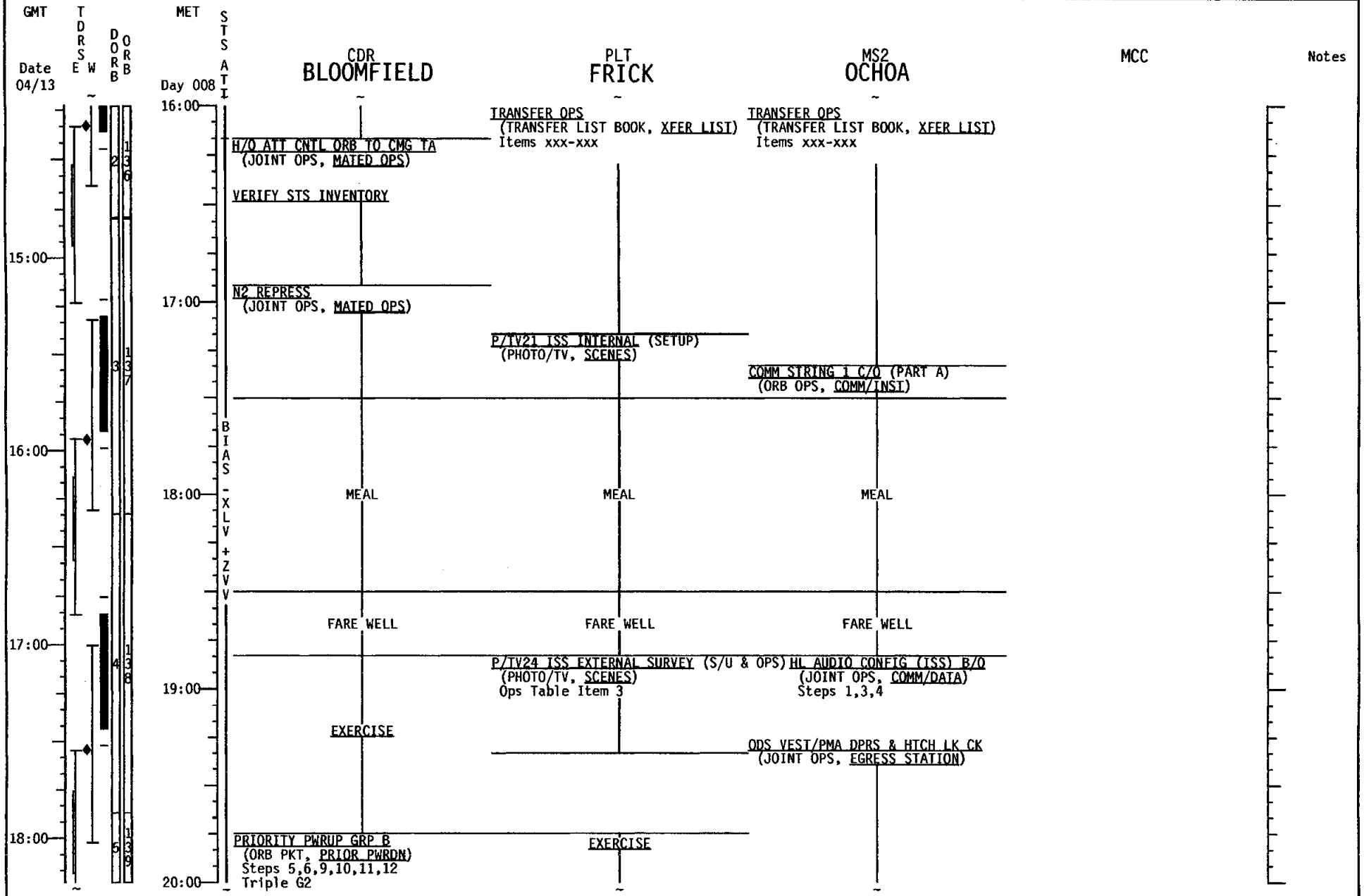
STS-110 (FD 10)



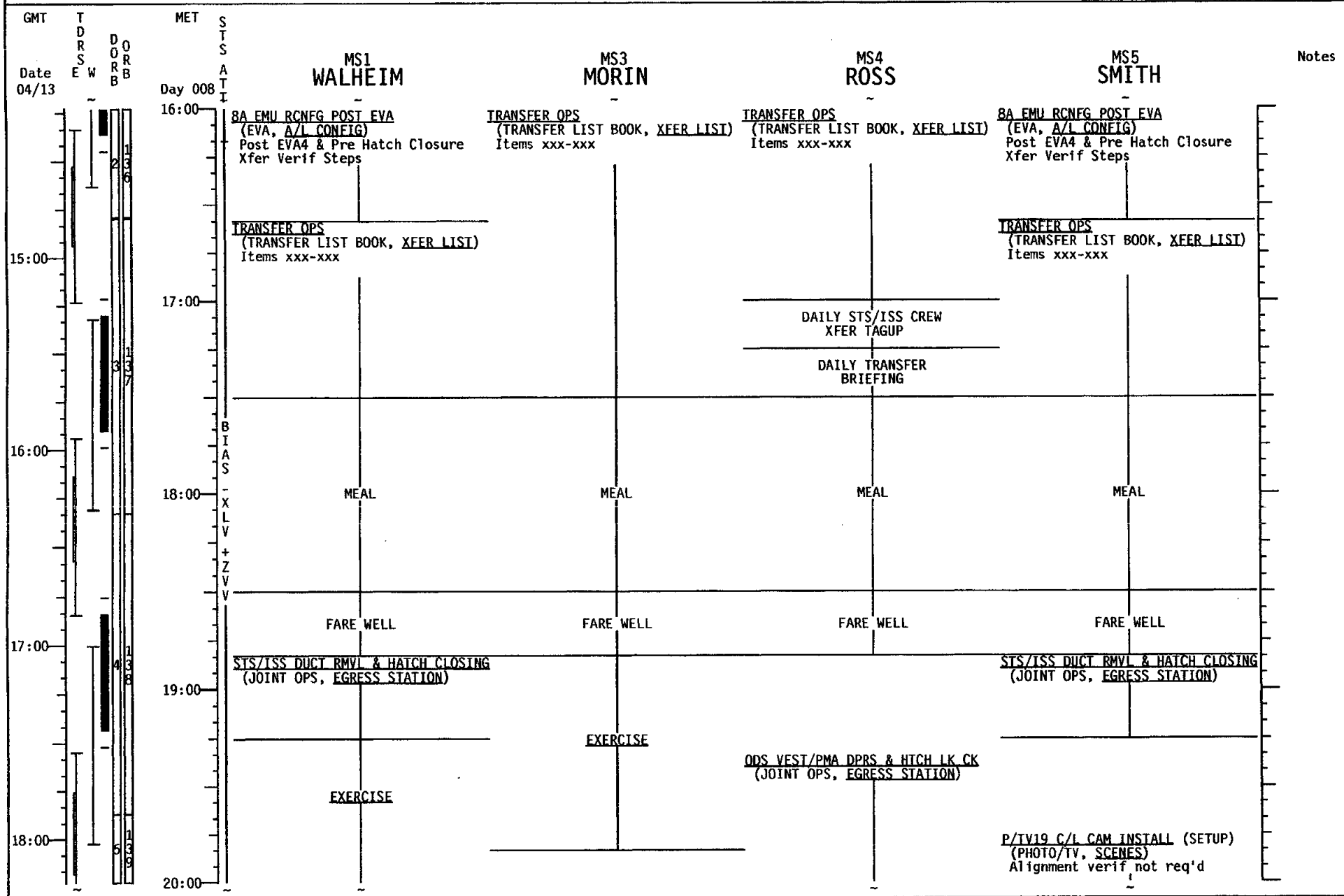
STS-110 (FD 10)



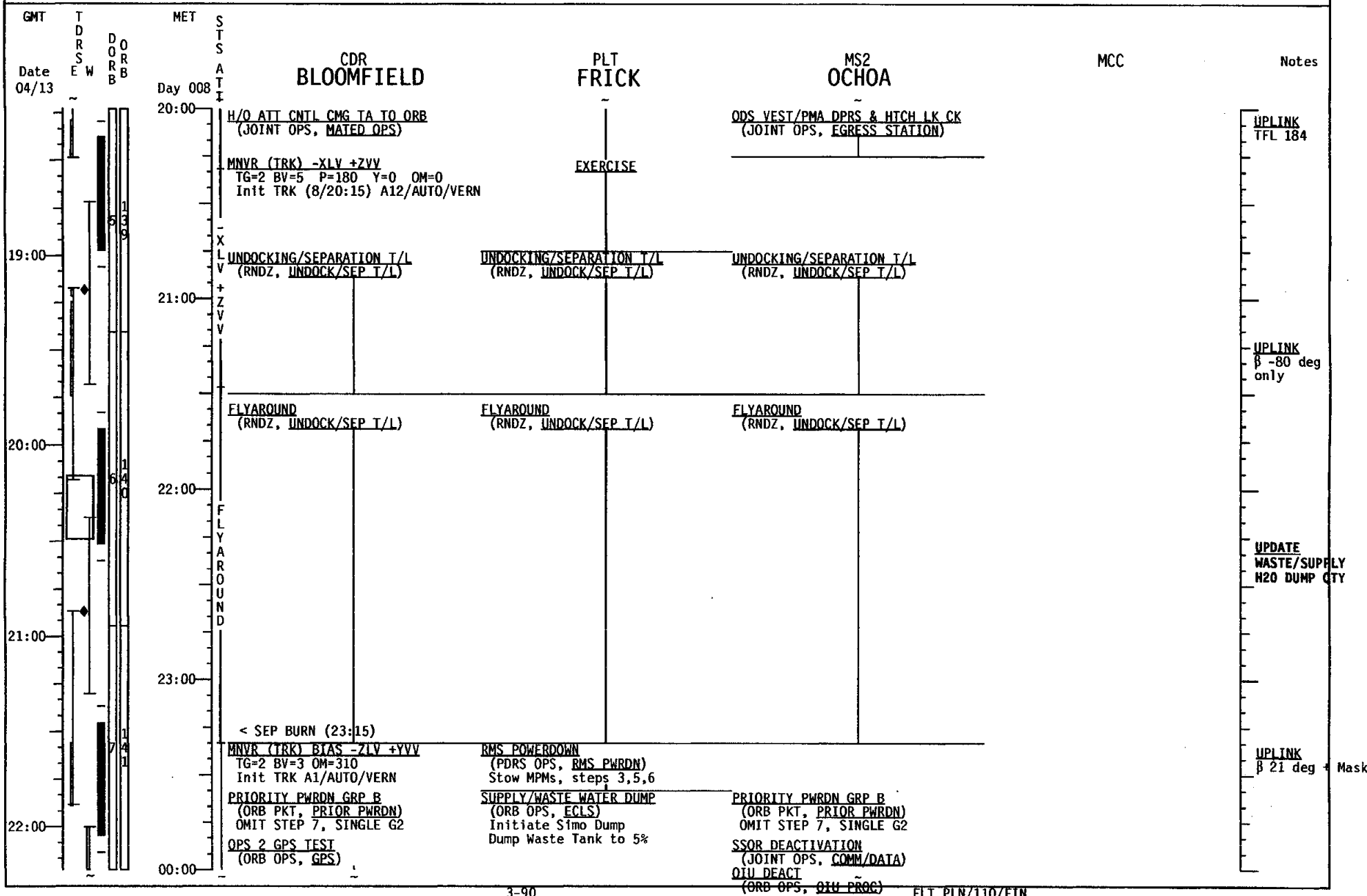
STS-110 (FD 10)



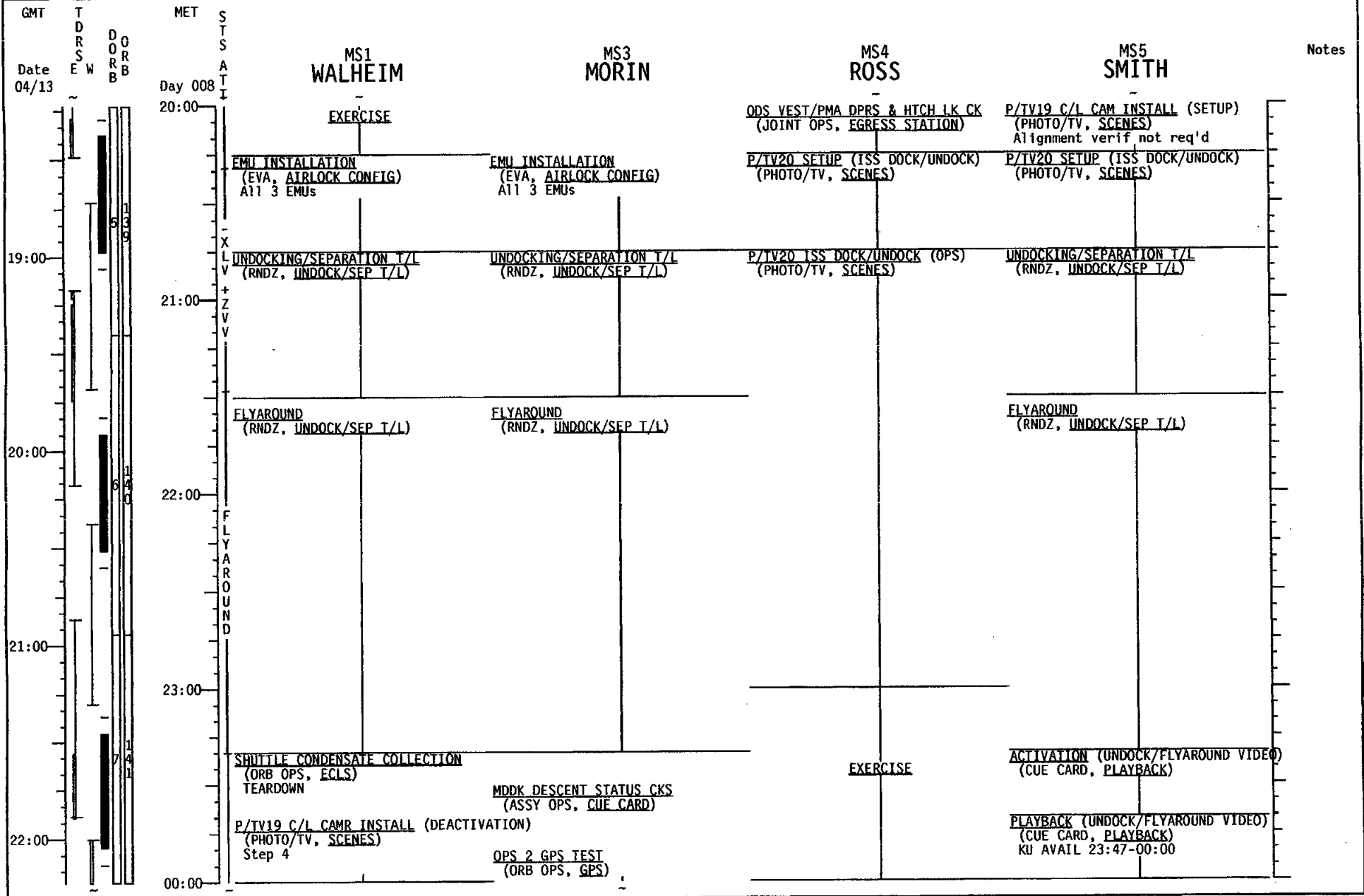
STS-110 (FD 10)



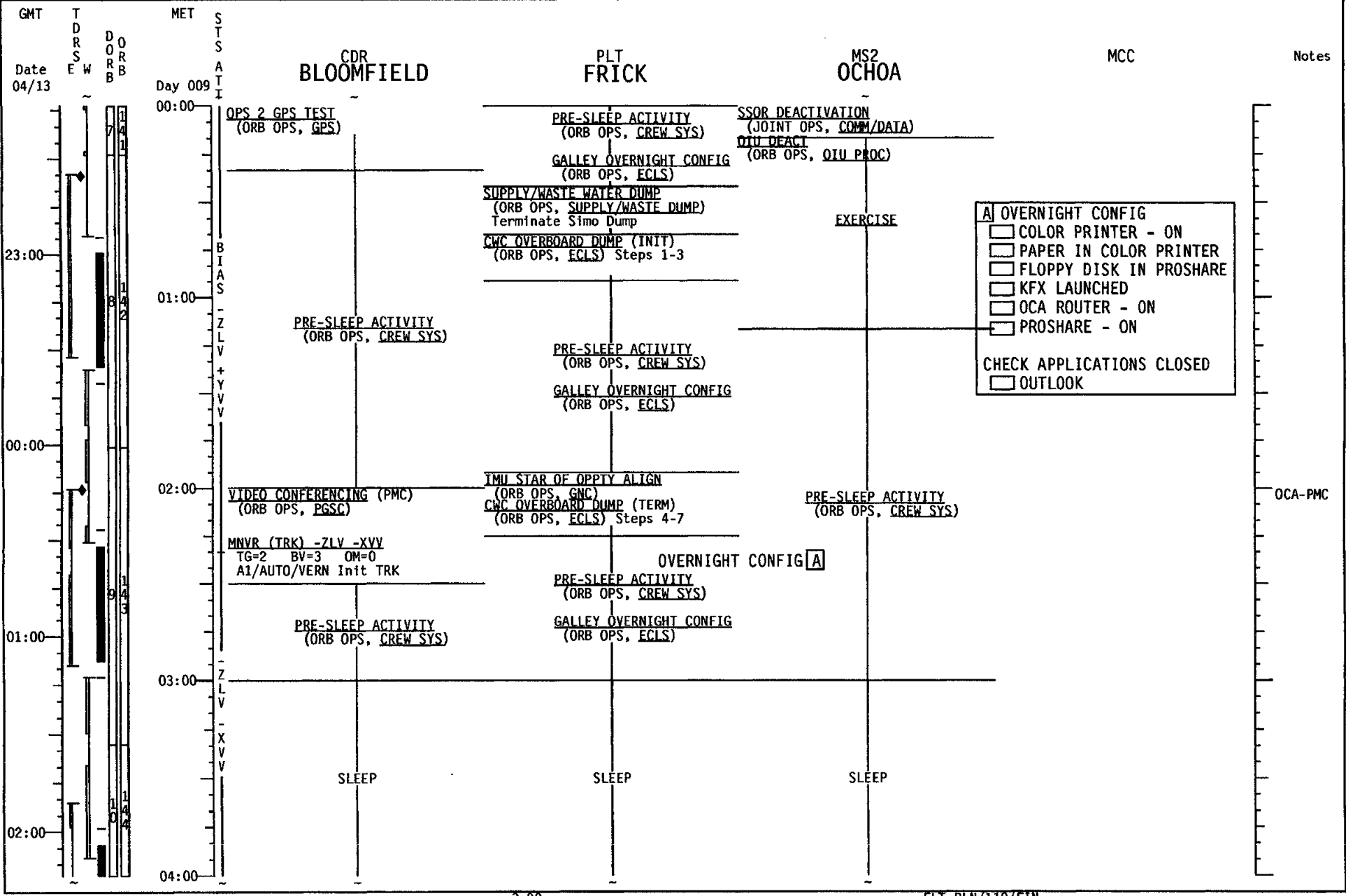
STS-110 (FD 10)



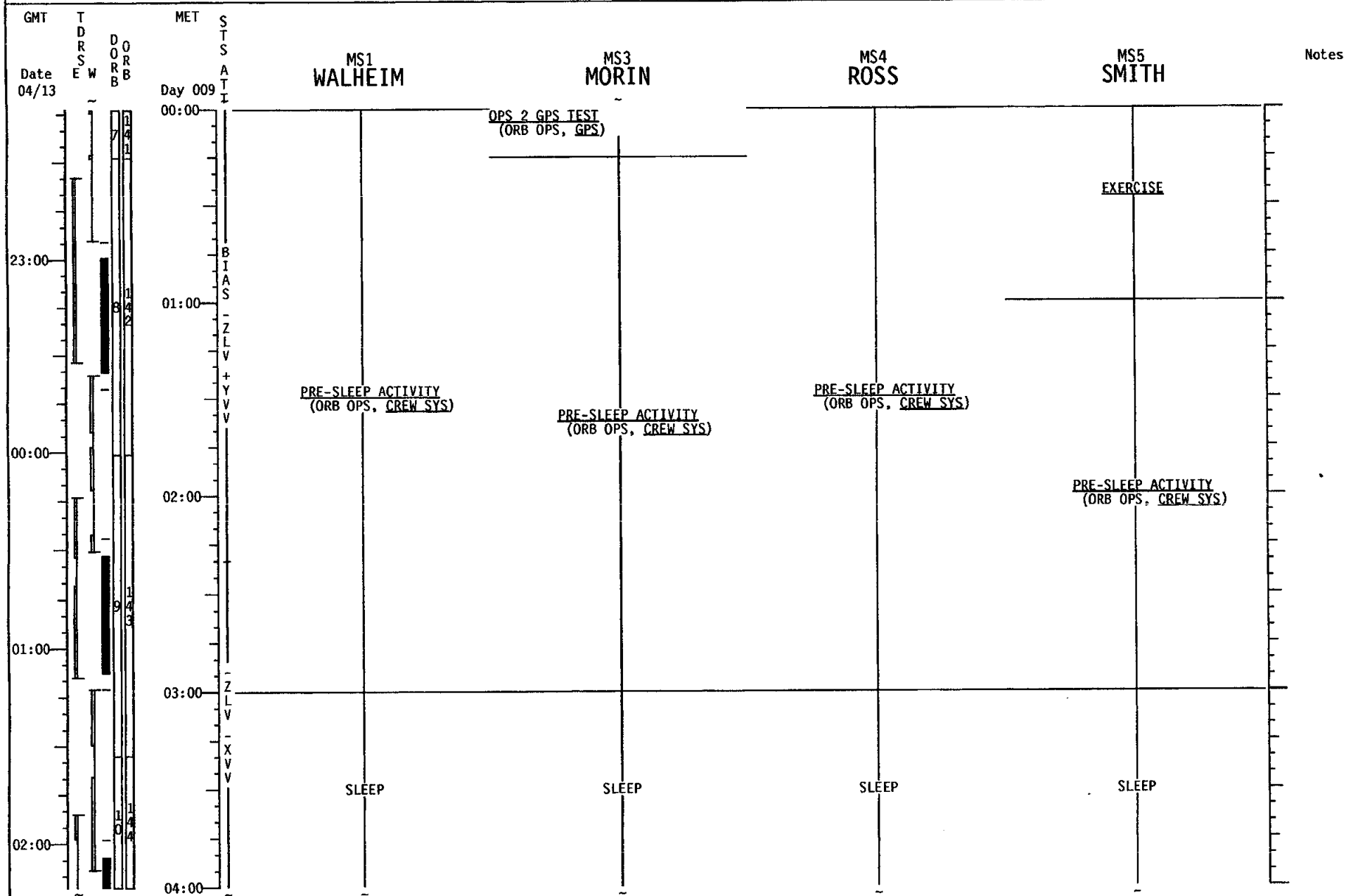
STS-110 (FD 10)



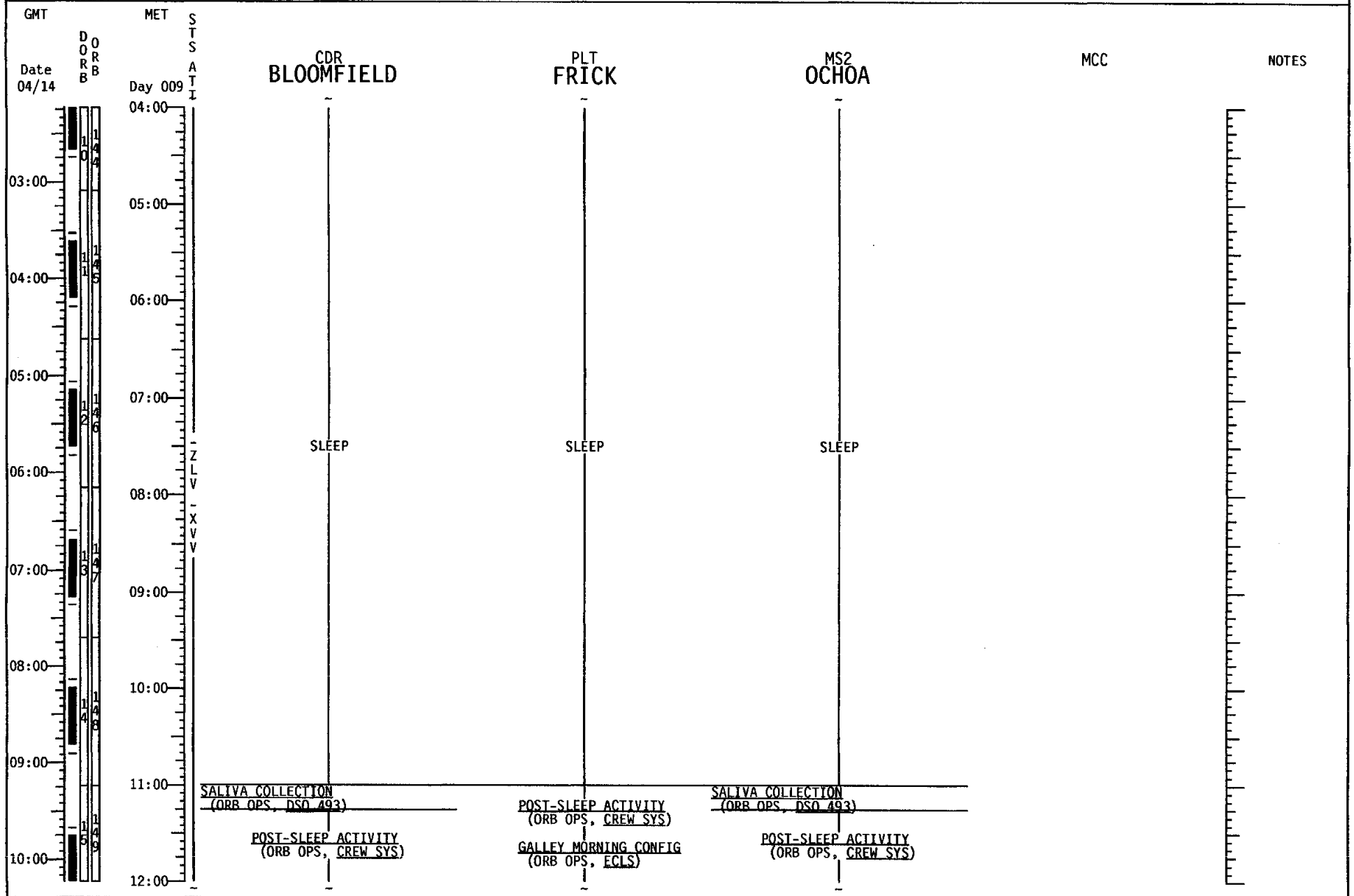
STS-110 (FD 10)



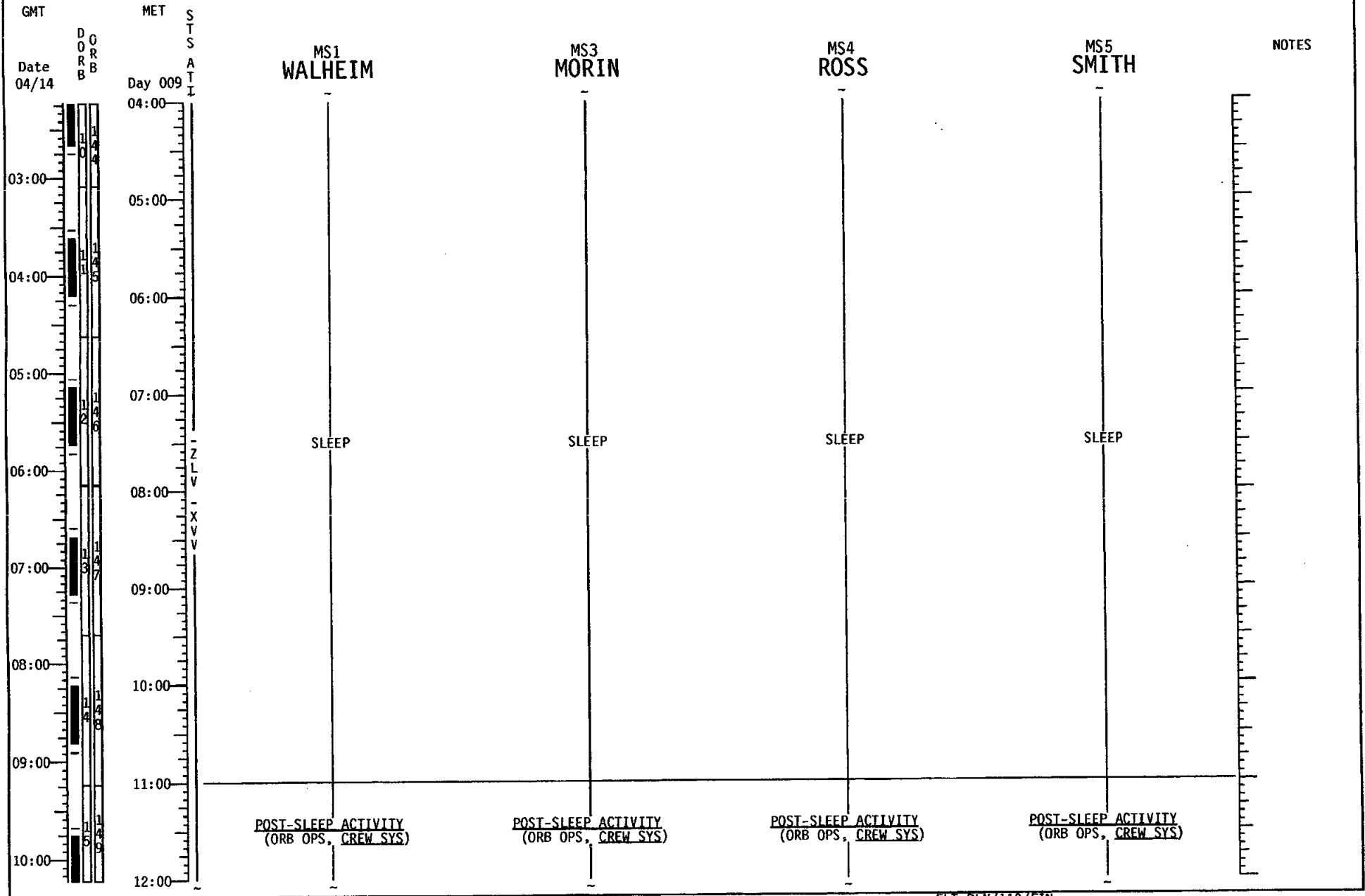
STS-110 (FD 10)



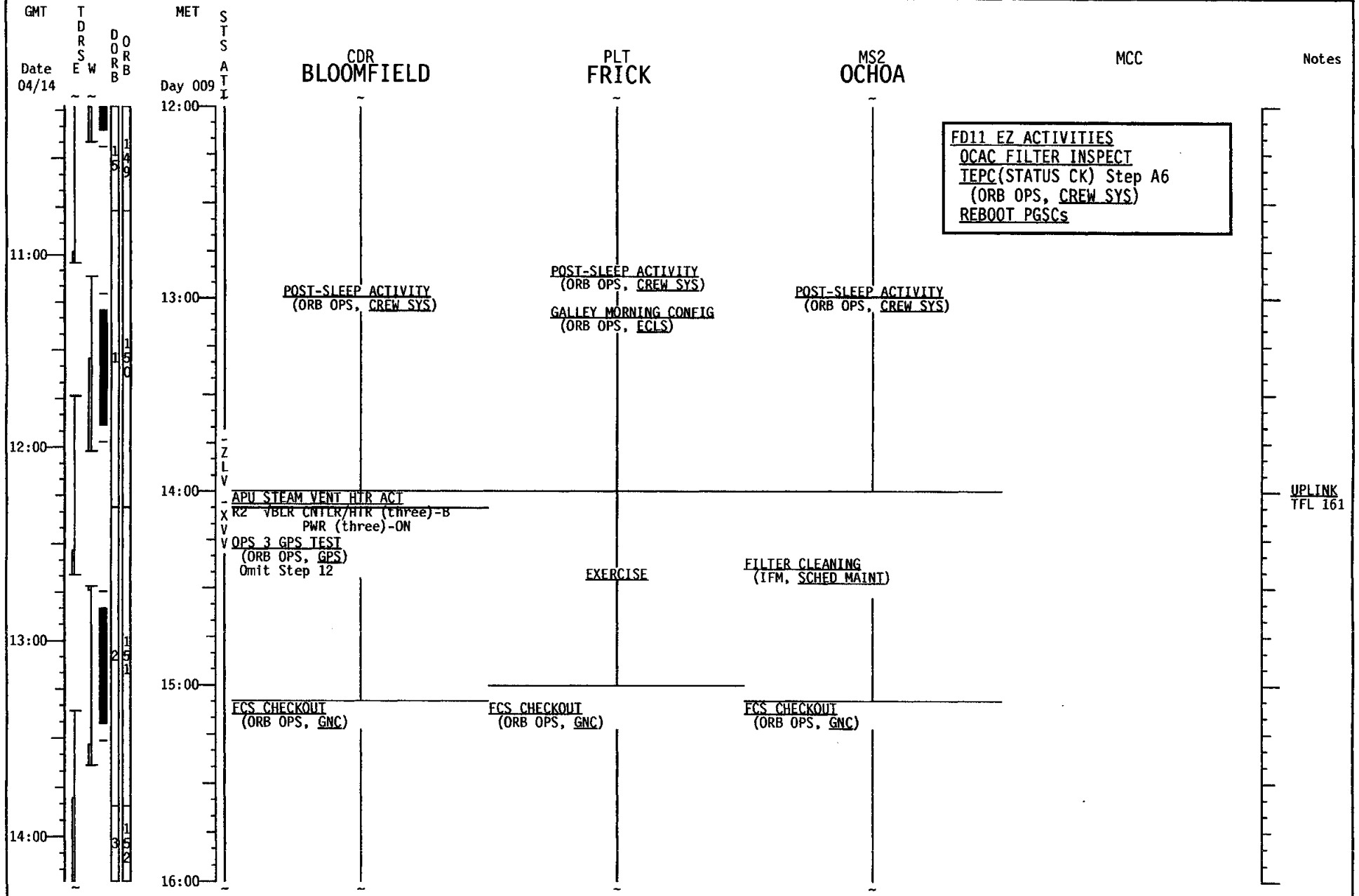
STS-110 (FD 10)



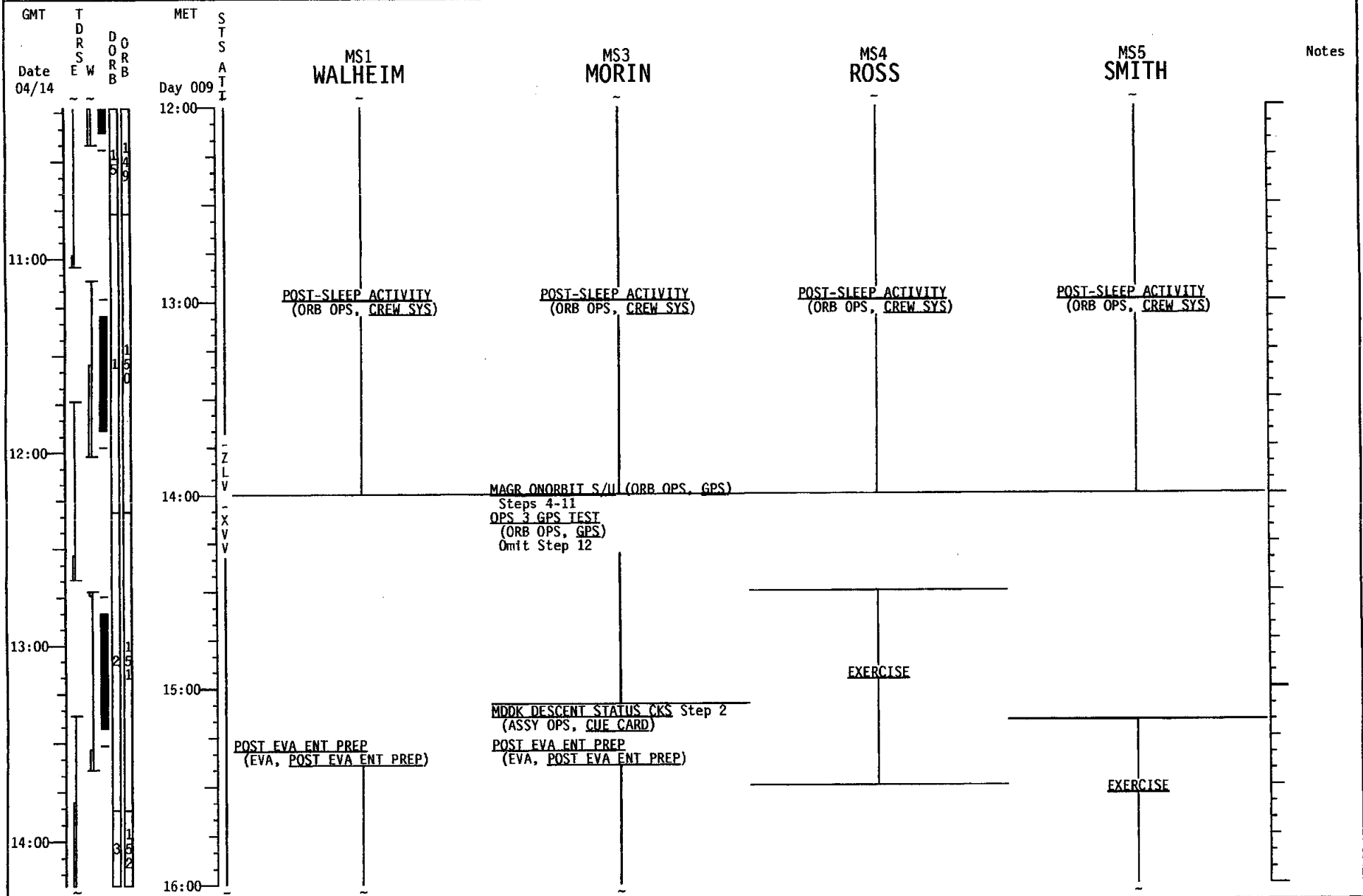
STS-110 (FD 10)



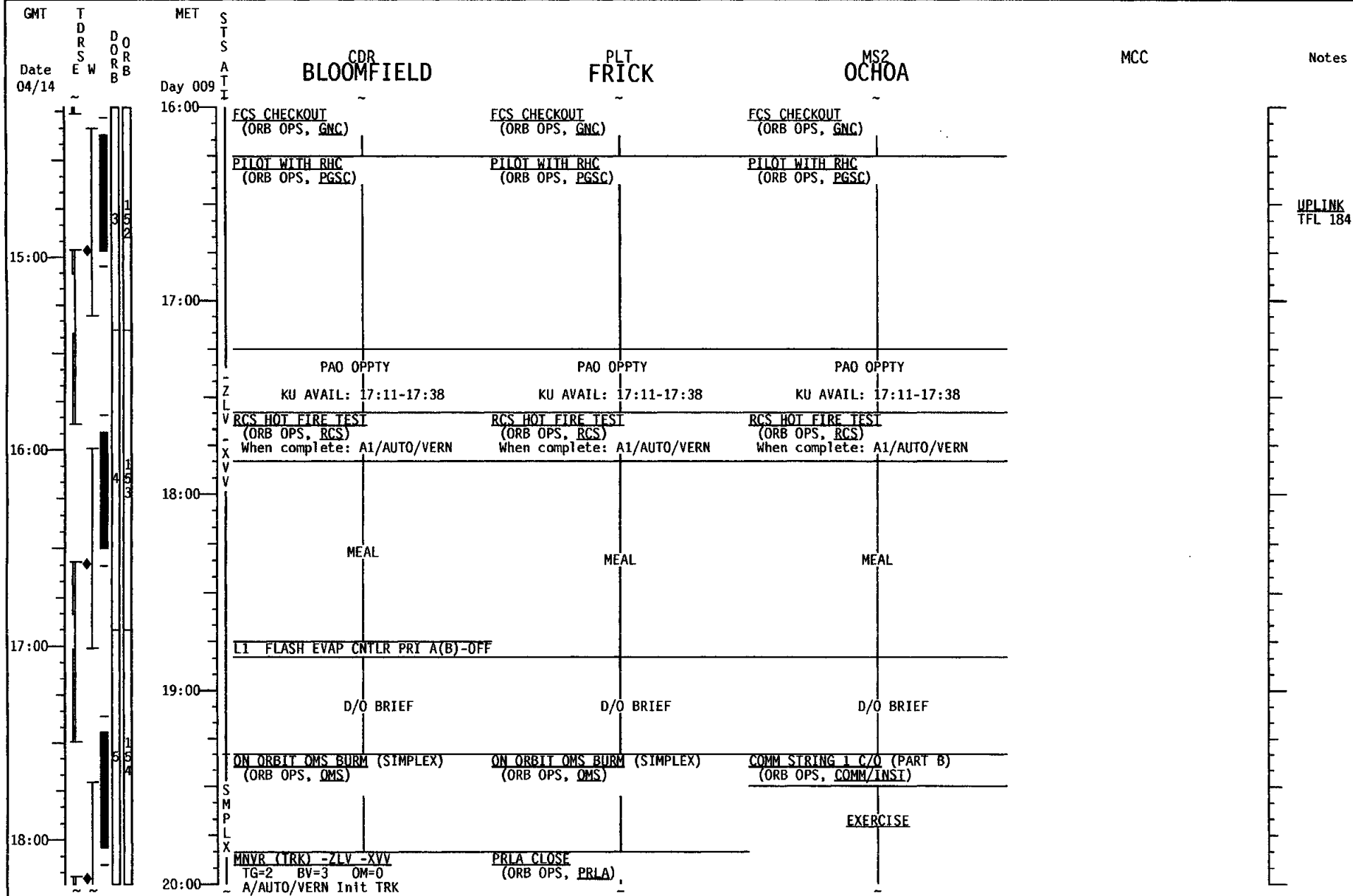
STS-110 (FD 11)



STS-110 (FD 11)

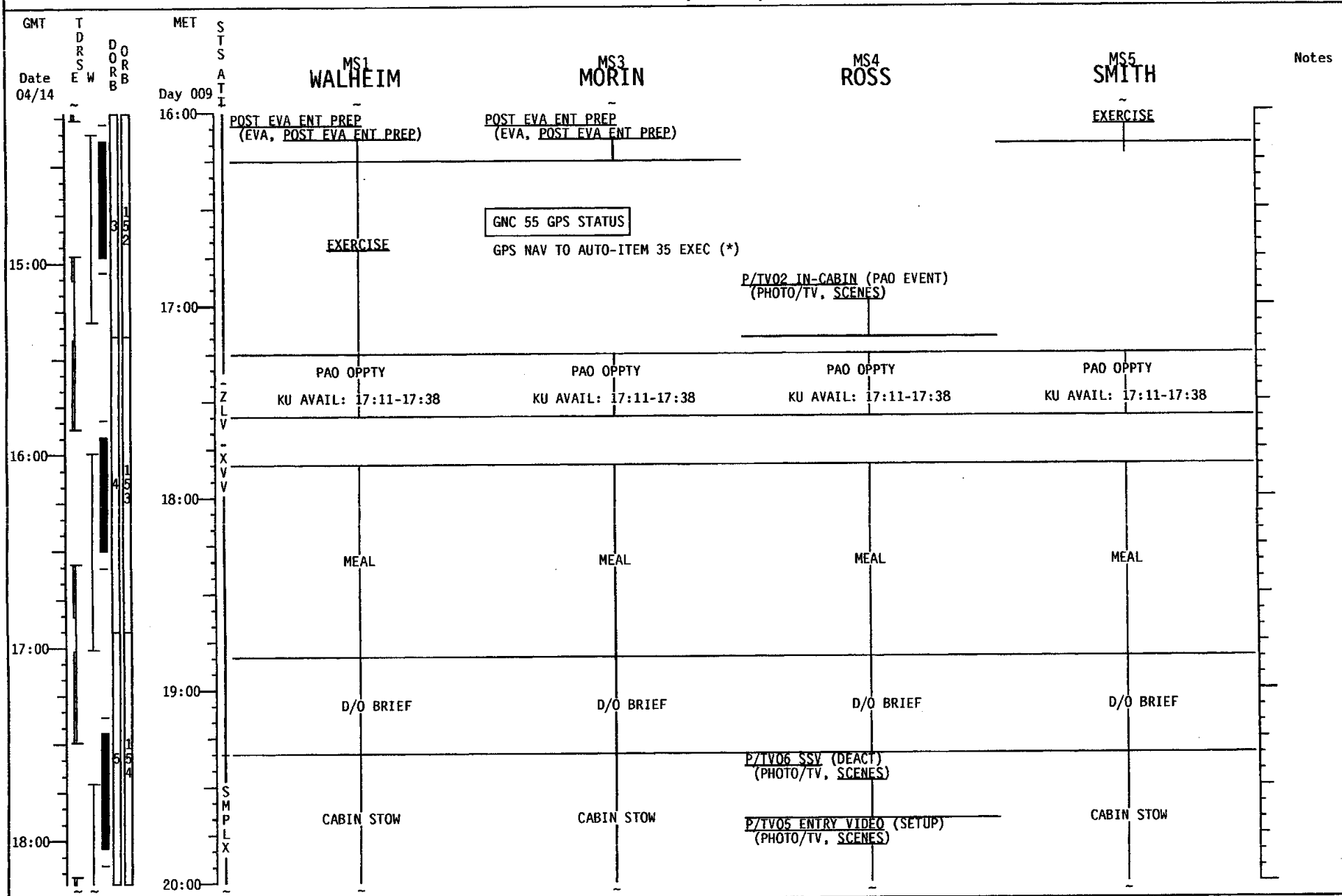


STS-110 (FD 11)

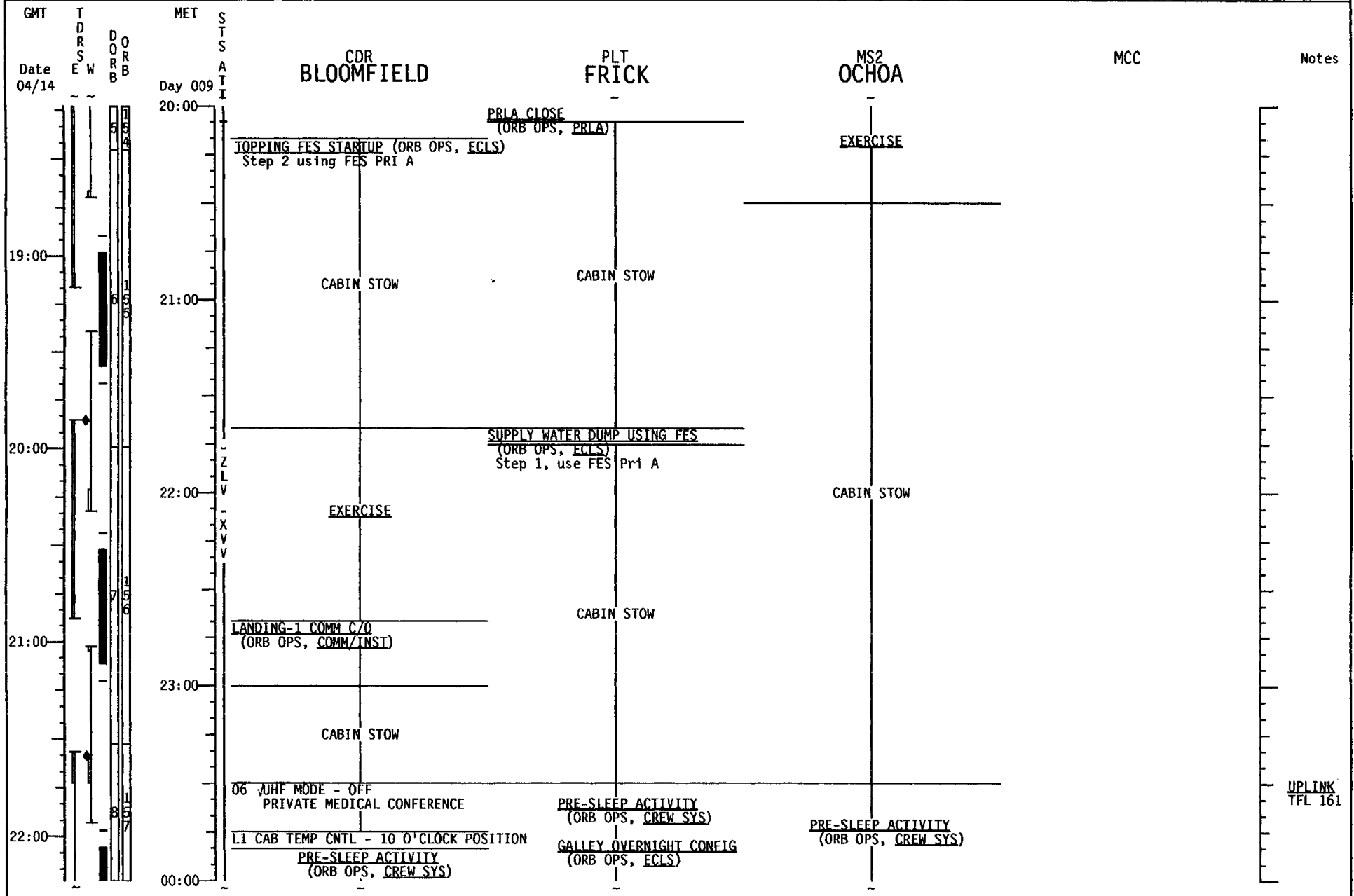


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TFL 184

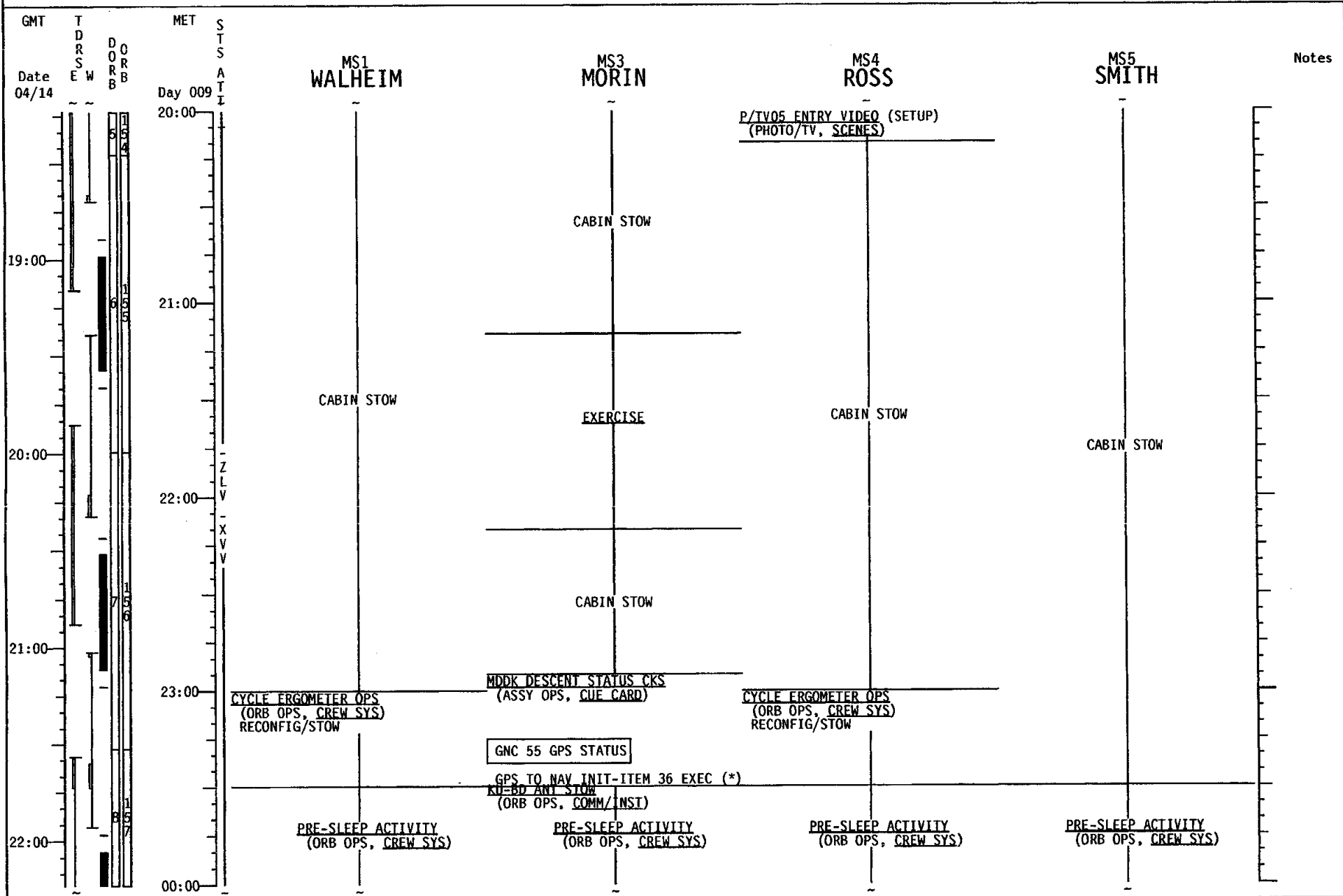
STS-110 (FD 11)



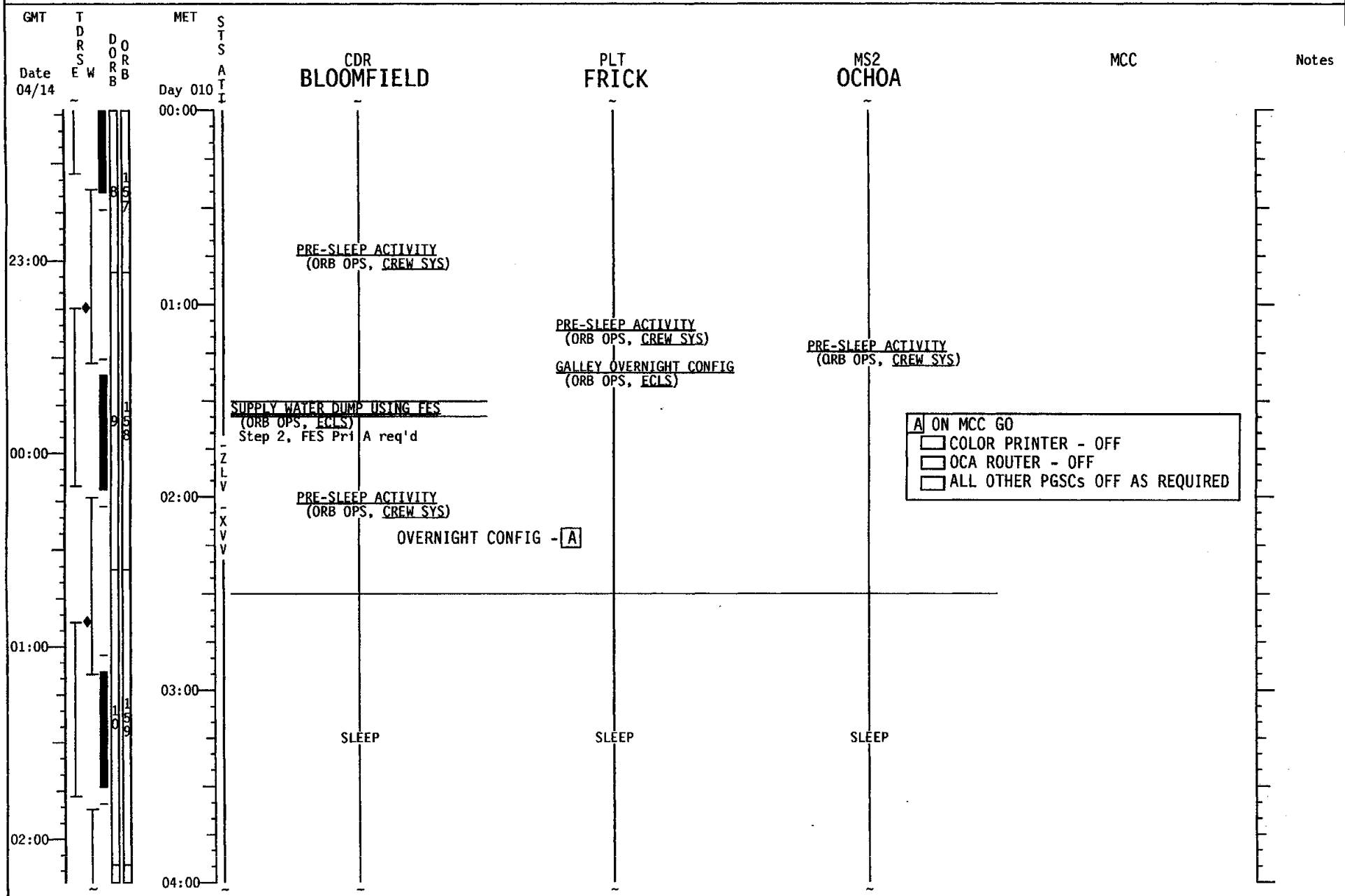
STS-110 (FD 11)



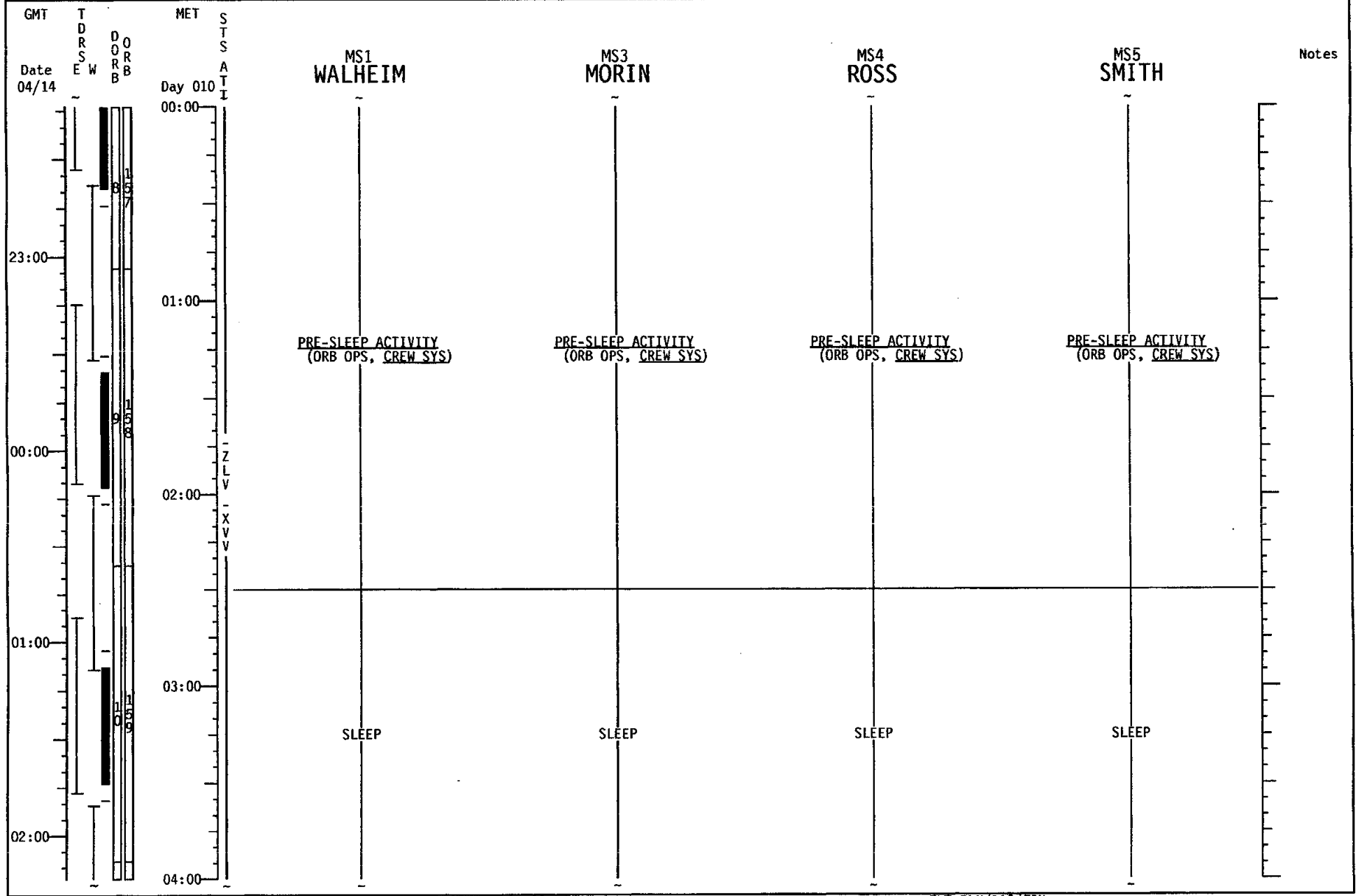
STS-110 (FD 11)



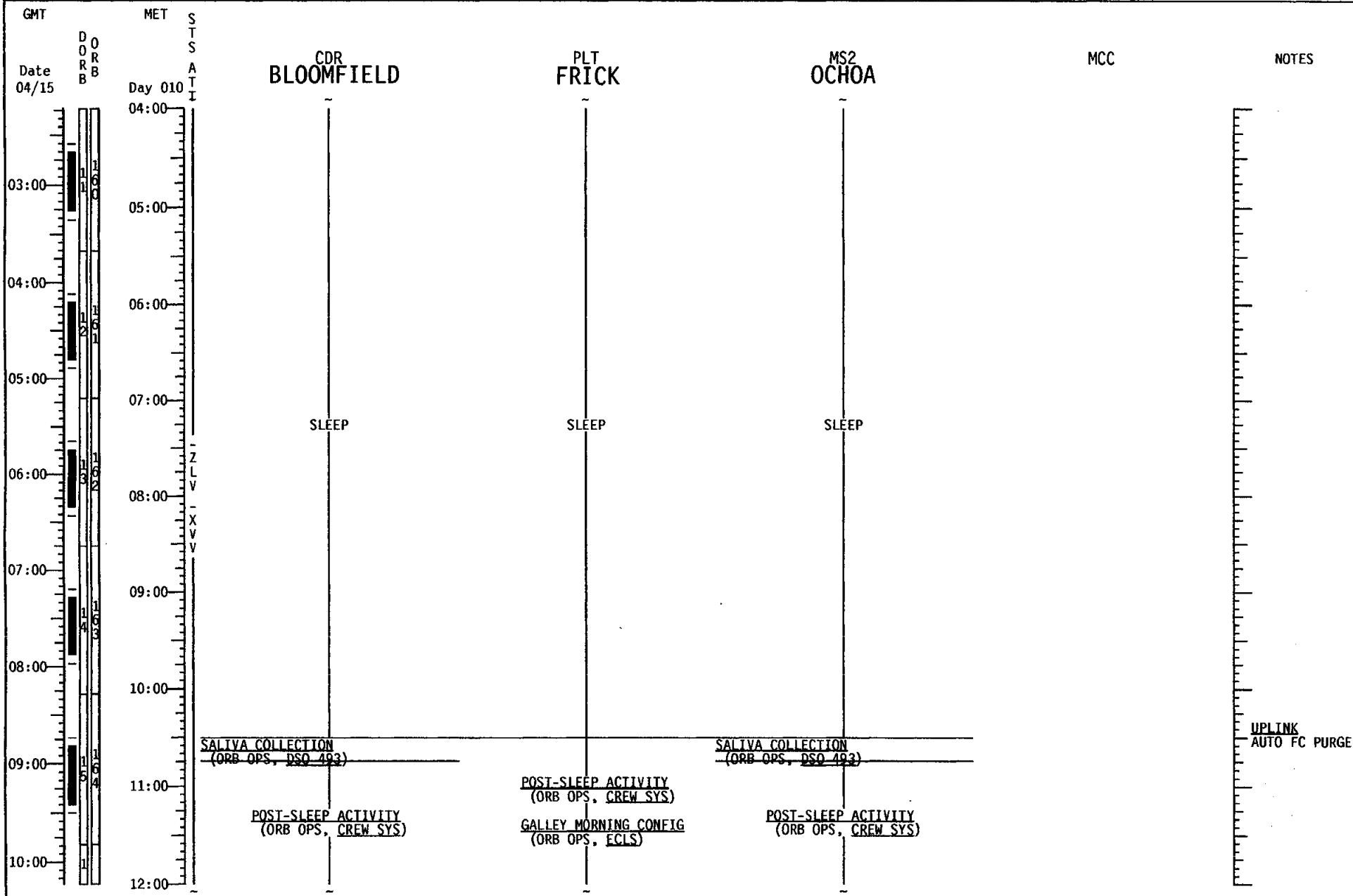
STS-110 (FD 11)



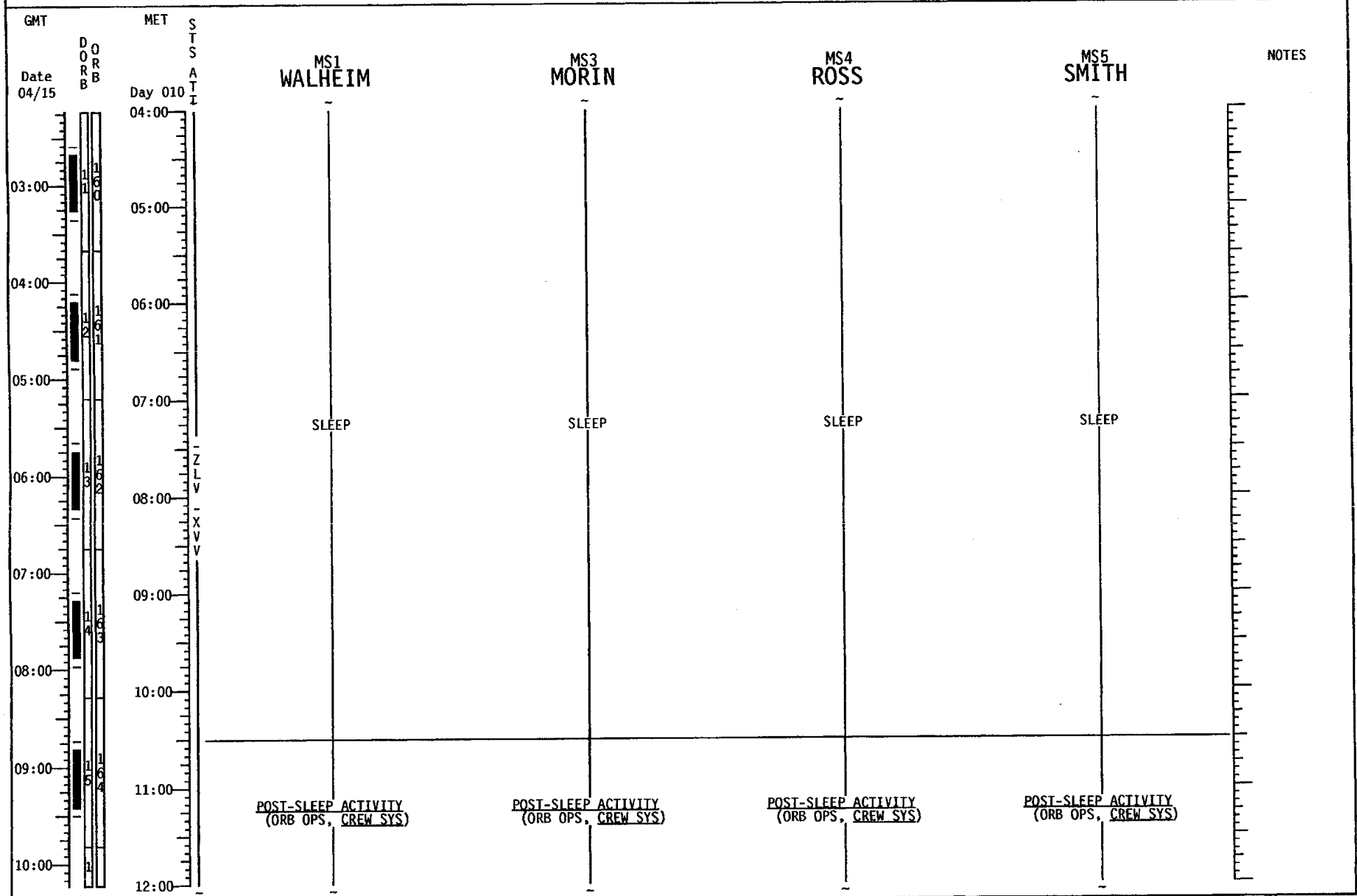
STS-110 (FD 11)



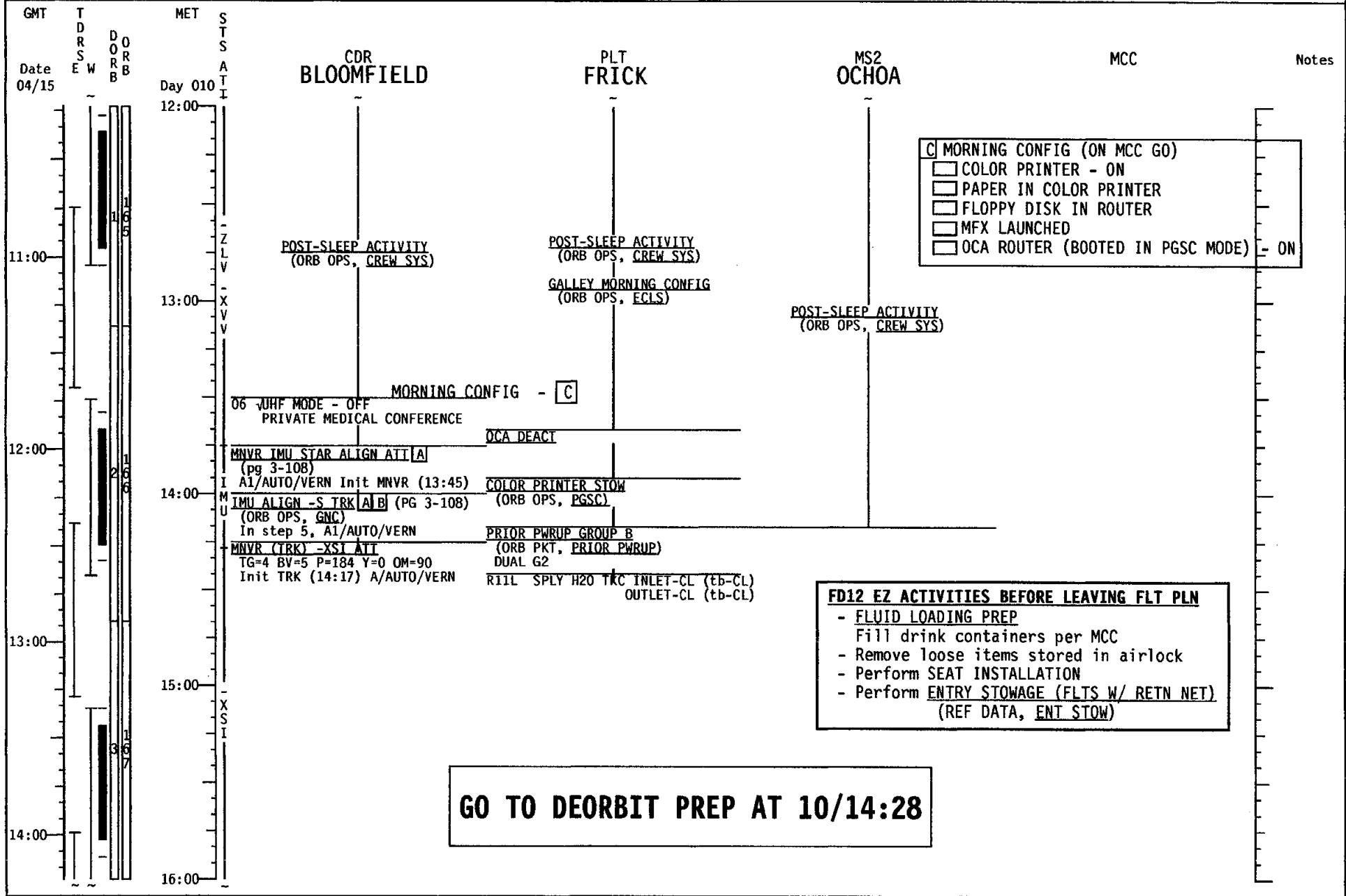
STS-110 (FD 11)



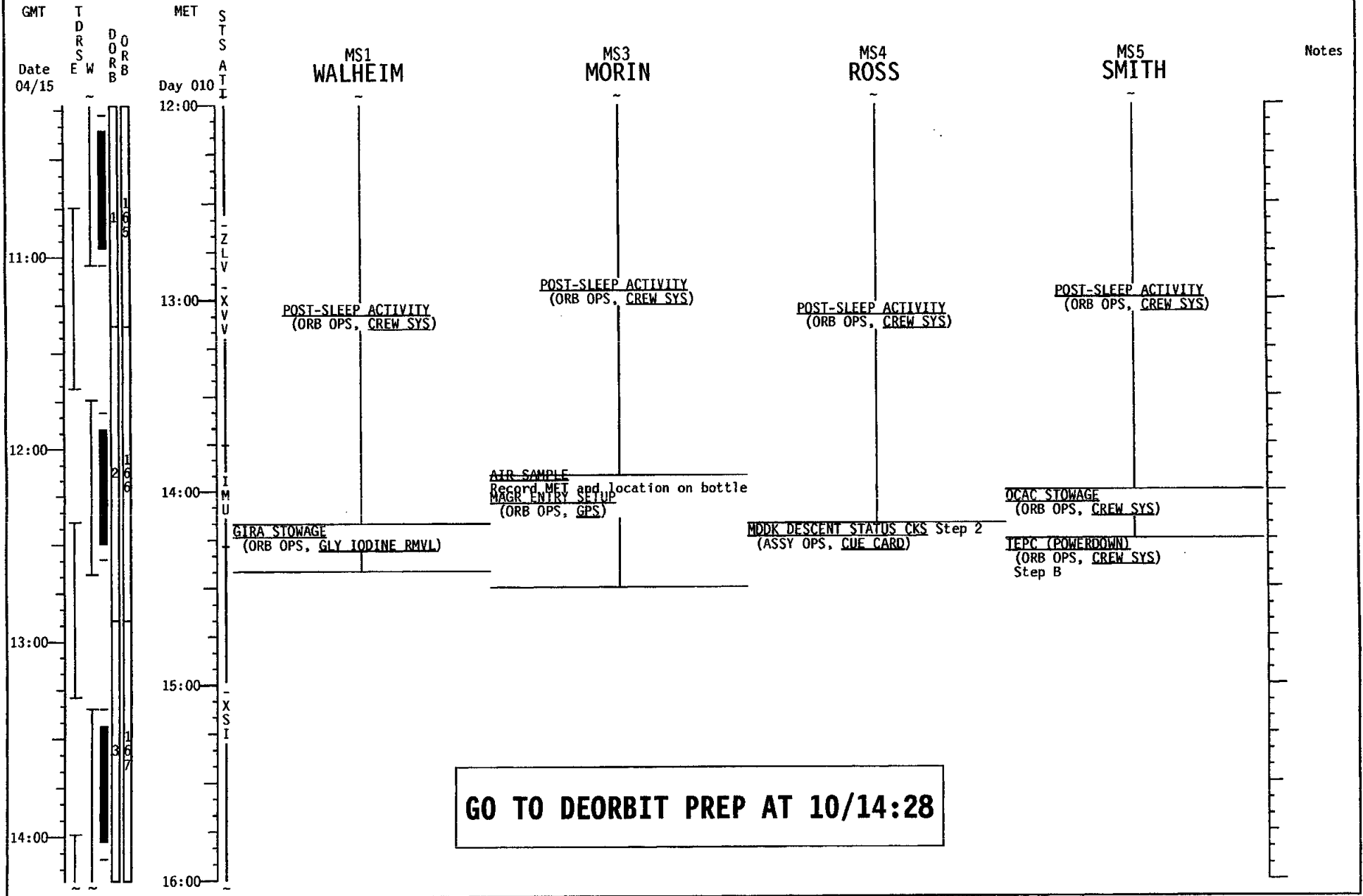
STS-110 (FD 11)



STS-110 (FD 12)



STS-110 (FD 12)



STS-110 (FD 12)

GMT	T D R S E W	D O R B	MET	S T S A T	CDR	PLT	MS2	MCC	Notes															
Date 04/15			Day 010																					
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">19:00</div> <div style="margin-bottom: 10px;">20:00</div> <div style="margin-bottom: 10px;">21:00</div> <div style="margin-bottom: 10px;">22:00</div> <div style="margin-bottom: 10px;">23:00</div> <div style="margin-bottom: 10px;">22:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">20:00</div> <div style="margin-bottom: 10px;">21:00</div> <div style="margin-bottom: 10px;">22:00</div> <div style="margin-bottom: 10px;">23:00</div> <div style="margin-bottom: 10px;">00:00</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">170</div> <div style="margin-bottom: 10px;">171</div> <div style="margin-bottom: 10px;">172</div> <div style="margin-bottom: 10px;">173</div> <div style="margin-bottom: 10px;">174</div> <div style="margin-bottom: 10px;">175</div> </div>																						
					<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> A IMU STAR ALIGN ID: -Y: 35, NUNKI MET (10/13:51 TO 10/14:40) -Z: 50, AVIOR MET (10/13:40 TO 10/14:32) ANG DIFF: 92.3 DUAL S TRKR 2nd ATTITUDE ALIGNMENT (SINGLE S TRKR) -Z: 35 -Y: 50 <table style="font-family: monospace; border-collapse: collapse;"> <tr><td style="border: 1px solid black; padding: 2px;">R</td><td style="padding: 2px;">24</td><td style="padding: 2px;">R</td><td style="padding: 2px;">301</td><td style="padding: 2px;">116</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">P</td><td style="padding: 2px;">17</td><td style="padding: 2px;">P</td><td style="padding: 2px;">343</td><td style="padding: 2px;">32</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">Y</td><td style="padding: 2px;">9</td><td style="padding: 2px;">Y</td><td style="padding: 2px;">2</td><td style="padding: 2px;">357</td></tr> </table> </div> <div style="border: 1px solid black; padding: 5px;"> REQD ID: -Y: _____, -Z: _____, ANG ERR _____, _____ ANG: 1 2 3 ΔX () _____, _____ () _____, _____ () _____ ΔY () _____, _____ () _____, _____ () _____ ΔZ () _____, _____ () _____, _____ () _____ EXECUTION TIME: ____/____:____ MET </div>					R	24	R	301	116	P	17	P	343	32	Y	9	Y	2	357
R	24	R	301	116																				
P	17	P	343	32																				
Y	9	Y	2	357																				
					<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> B IMU STAR VERIFICATION ID: -Y: 30, ANTARES MET (10/13:42 TO 10/14:32) -Z: 16, ACHERNAR MET (10/13:59 TO 10/14:50) ANG DIFF: 88.9 DUAL S TRKR 2nd ATTITUDE ALIGNMENT (SINGLE S TRKR) -Z: 30 -Y: 16 <table style="font-family: monospace; border-collapse: collapse;"> <tr><td style="border: 1px solid black; padding: 2px;">R</td><td style="padding: 2px;">20</td><td style="padding: 2px;">R</td><td style="padding: 2px;">282</td><td style="padding: 2px;">110</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">P</td><td style="padding: 2px;">344</td><td style="padding: 2px;">P</td><td style="padding: 2px;">326</td><td style="padding: 2px;">348</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">Y</td><td style="padding: 2px;">319</td><td style="padding: 2px;">Y</td><td style="padding: 2px;">324</td><td style="padding: 2px;">334</td></tr> </table> </div> <div style="border: 1px solid black; padding: 5px;"> REQD ID: -Y: _____, -Z: _____, ANG ERR _____, _____ ANG: 1 2 3 ΔX () _____, _____ () _____, _____ () _____ ΔY () _____, _____ () _____, _____ () _____ ΔZ () _____, _____ () _____, _____ () _____ If any ΔX, ΔY, OR ΔZ > 0.1 Check MCC EXECUTION TIME: ____/____:____ MET </div>					R	20	R	282	110	P	344	P	326	348	Y	319	Y	324	334
R	20	R	282	110																				
P	344	P	326	348																				
Y	319	Y	324	334																				

STS-110 DAP TABLE

STS-110
DAP TABLE

**STS-110
DAP TABLE**

<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOM OMS/RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (ALL)
A4	- PRE/POST DEPLOY	B4	- SSUS DEPLOY
A5	- LOSS OF VERN (ALL)	B5	- COAS/HUD CAL
A6	- LOSS OF VERN (TAIL ONLY)	B7	- RNDZ
A7	- RNDZ	B8	- TERMINAL PHASE
A8	- TERMINAL PHASE	B9	- PROX OPS/FLYAROUND
A9	- PROX OPS/FLYAROUND	B10	- DOCKING
A10	- DOCKING	B12	- MATED MNVRS & HOLD (PRCS)
A11	- AUTO REBOOST	B13	- A/L DEPRESS RATE DAMPING
A12	- MATED MNVR & HOLD (VRCS)		
A13	- A/L DEPRESS ATT CNTL		

DAPs for MATED OPS ARE BASED ON ANALYSIS
FROM GNC, ROBOTICS, PDRS, AND DRAPER LABS

UNIV PTG	
TGT ID	= 1 Orbiting Vehicle = 2 Earth ctr = 3 Earth tgt Input LAT (± 90) LON (± 180 , + = East) ALT (-3444.0 to 20000.0 nm)
	= 4 Sun ctr = 5 Celestial tgt Input RA (0-359.99) DEC (± 90) = 11-110 Nav Stars
BODY VECT	= 1 +X* = 2 -X* = 3 -Z* = 4 -Y Star Tracker* = 5 Optional Input P (0-359.99) Y (270-359.99, 0-90)
* input OM	→ OM (0-359.99)
MON AXIS	= 1 +X = 2 -X

CNTL ACC = 0	UNMATED FLIGHT
= 1	MATED STACK ATTITUDE CONTROL (VRCS) (All periods except from S0 PLB HOVER unti S0 PRE-INSTALL)
= 2	MATED STACK ATTITUDE CONTROL (ALT PRCS) (All periods except from S0 PLB HOVER unti S0 PRE-INSTALL)
= 3	ORBITER A/L DEPRESS ATTITUDE CONTROL (VRCS)
= 4	ORBITER A/L DEPRESS ATTITUDE CONTROL (ALT PRCS)
= 5	S0 PLB HOVER (VRCS)
= 5**	S0 LAB APPROACH CORRIDOR (ALT PRCS)
= 6	S0 ORBITER PORT (VRCS)
= 7	S0 LAB APPROACH CORRIDOR (VRCS)
= 8	S0 PLB HOVER (ALT PRCS)
= 9	S0 ORBITER PORT (ALT PRCS)

** CONTINGENCY UPLINK

STS-110 DAP A1 - A6 CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6
PRI							
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000
ATT DB	11(51)	5.00	1.00	0.30	3.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL
TRAN PLS	17(57)	0.100	0.100	0.100	0.100	0.100	0.100
ALT							
RATE DB	18(58)	0.200	0.200	0.070	0.200	0.070	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL
# JETS	20(60)	2	2	1	2	1	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	0.00	0.00	0.00	0.00
VERN							
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.0500	0.0500
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/POST DEPLOY	LOSS OF VERN (ALL)	LOSS OF VERN (TAIL ONLY)

STS-110 DAP A7 - A13 CONFIGURATIONS

	ITEM #	A7	A8	A9	A10	A11	A12	A13
PRI								
ROT RATE	10(50)	0.2000	0.0500	0.1300	0.0500	0.1000	0.1000	0.1000
ATT DB	11(51)	2.00	2.00	1.00	0.50	15.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.10	0.10	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.04	0.04
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
Y OPTION	16(56)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	17(57)	0.100	0.100	0.050	0.050	0.100	0.010	0.010
ALT								
RATE DB	18(58)	0.100	0.100	0.100	0.100	0.070	0.070	0.070
JET OPT	19(59)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
# JETS	20(60)	2	2	2	2	3	3	3
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	12.00	11.04	11.04
VERN								
ROT RATE	23(63)	0.0160	0.0500	0.1300	0.0500	0.1000	0.1000	0.1000
ATT DB	24(64)	1.000	1.000	1.000	0.500	5.000	3.000	3.000
RATE DB	25(65)	.020	.020	.020	.020	.050	.050	.080
ROT PLS	26(66)	0.010	0.050	0.050	0.050	0.010	0.002	0.002
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	1,2*	1**	3,4***
PURPOSE		RNDZ	TERMINAL PHASE	PROX OPS/ FLYAROUND	DOCKING	AUTO REBOOST	MATED MNVRS & HOLD (VRCS)	A/L DEPRESS ATTITUDE CONTROL

NOTE: **BOLD-ITALIC** indicate a change from I-load

* 1 for VERN, 2 for ALT

** During SSRMS operations for S0 Install, CNTL ACC setting will be temporarily changed from CNTL ACC 1 to CNTL ACC 5-7

*** 3 for VERN, 4 for ALT

STS-110 DAP B1 - B5 CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5
PRI						
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	TAIL	ALL	TAIL	TAIL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL
TRAN PLS	37(57)	0.100	0.020	0.020	0.020	0.020
ALT						
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	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
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033
RATE DB	45(65)	.020	.020	.020	.010	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0
PURPOSE		NOM OMS RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (ALL)	SSUS DEPLOY	COAS/ HUD CAL

STS-110 DAP B7 - B13 CONFIGURATIONS

	ITEM #	B7	B8	B9	B10	B12	B13
PRI							
ROT RATE	30(50)	0.5000	0.0500	0.1300	0.0500	0.1000	0.1000
ATT DB	31(51)	2.00	2.00	1.00	0.50	5.00	40.00
RATE DB	32(52)	0.20	0.20	0.10	0.10	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
Y OPTION	36(56)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37(57)	0.050	0.050	0.010	0.010	0.010	0.010
ALT							
RATE DB	38(58)	0.100	0.100	0.100	0.100	0.070	0.070
JET OPT	39(59)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
# JETS	40(60)	2	2	2	2	3	3
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00	11.04	11.04
VERN							
ROT RATE	43(63)	0.2000	0.0500	0.1300	0.0500	0.1000	0.1000
ATT DB	44(64)	1.000	1.000	1.000	0.500	3.000	40.000
RATE DB	45(65)	.020	.020	.020	.020	.050	.050
ROT PLS	46(66)	0.002	0.020	0.020	0.020	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	2*	3,4**
PURPOSE		RNDZ	TERMINAL PHASE	PROX OPS/ FLYAROUND	DOCKING	MATED MNVRS & HOLD (PRCS)	A/L DEPRESS RATE DAMPING

NOTE: **BOLD-ITALIC** indicate a change from I-load

* During SSRMS operations for S0 Install, CNTL ACC setting will be temporarily changed from CNTL ACC 2 to CNTL ACC 5, 8, and 9

** 3 for VERN, 4 for ALT

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ATTITUDE TIMELINE

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Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
1 000/00:39:00 M 094/22:52:35 G	M50 (CALC) INRTL R = 297.00 MNVR P = 65.00 PYR Y = 324.00 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 221 P 83 $\beta = 40$	+X PYR R = 0.14 P = 15.85 Y = 359.94 LVLH 000/00:39:00 M 094/22:52:35 G	OMS-2 Posi Heads Up TIG 0/00:39
2 000/00:45:00 M 094/22:58:35 G				STS-110 Launch 4 Apr. 2002 22:13:35 GMT
3 000/01:12:00 M 18:42 094/23:25:35 G 32:17	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 285.00 MNVR A1/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 5.00 DB RT 0.200 EARTH R 0 P 90 $\beta = 40$	LVLH R= 0.00 P=180.00 Y= 75.00	Biased -ZLV +YVV PLBD OPEN SOPA
4 000/03:18:00 M 29:03 095/01:31:35 G 42:38	M50 (CALC) INRTL R = 112.00 MNVR P = 51.00 PYR Y = 352.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 48 P 60 $\beta = 40$	+X PYR R = 179.87 P = 344.00 Y = 359.50 LVLH 000/03:38:00 M 095/01:51:35 G	NC-1 Posi Heads Down TIG 0/03:38
5 000/03:40:00 M 54:57 095/01:53:35 G 02:08:32	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 40$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
6 000/16:11:00 M 25:58 095/14:24:35 G 39:33	M50 (CALC) INRTL R = 246.00 MNVR P = 226.00 PYR Y = 358.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 130 P 127 $\beta = 38$	+X PYR R = 180.09 P = 344.20 Y = 0.54 LVLH 000/16:31:00 M 095/14:44:35 G	NC-2 Posi Heads Down TIG 0/16:31
7 000/16:35:00 M 49:57 095/14:48:35 G 15:03:32	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 38$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
8 000/20:04:00 M 095/18:17:35 G				NPC TIG 0/20:04
9 001/00:37:00 M 51:59 095/22:50:35 G 23:05:34	M50 (CALC) INRTL R = 115.00 MNVR P = 47.00 PYR Y = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 48 P 54 $\beta = 36$	+X PYR R = 179.64 P = 348.86 Y = 0.07 LVLH 001/00:57:00 M 095/23:10:35 G	NC-3 Posi Heads Down TIG 1/00:57
10 001/01:00:00 M 15:00 095/23:13:35 G 28:35	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 36$	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV

ALL ORBITER DATA IN
MEAN OF 1950 AND PYR EULER SEQUENCE

5-3

FLT PLN/110/FIN

Attitude Timeline

MET/GMT	ORBITER		REF ATT/REMARKS	EVENT
	MNVR OPTION	DAP E/S/ β		
11 001/11:45:00 M 52:30 096/09:58:35 G 10:06:05	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 270.00 MNVR A1/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= 90.00	-ZLV +YVV Waste Dump SOPA
12 001/13:58:00 M 096/12:11:35 G				NH Place Hold TIG 1/13:58
13 001/15:03:00 M 14:24 096/13:16:35 G 27:59	M50 (CALC) INRTL R = 46.00 MNVR P = 261.00 PYR Y = 48.00 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 326 P 81 $\beta = 34$	+X PYR R = 359.54 P = 15.73 Y = 0.15 LVLH 001/15:23:00 M 096/13:36:35 G	NC-4 Posi Heads Up TIG 1/15:23
14 001/15:25:00 M 28:47 096/13:38:35 G 42:22	LVLH TRACK TGT = 2 P = 0.00 BV = 1 Y = 0.00 OM = 0.00 MNVR B7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.5000 DB AT 2.00 DB RT 0.100 EARTH R 102 P 0 $\beta = 34$	LVLH R= 0.00 P=270.00 Y= 0.00	-Z Target Track
15 001/15:30:00 M 16:01:15 096/13:43:35 G 14:14:50	LVLH TRACK TGT = 2 P = 345.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0080 DB AT 1.000 DB RT 0.020 EARTH R 180 P 15 $\beta = 34$	LVLH R= 0.00 P=285.00 Y= 0.00	-Z Target Track
16 001/16:02:00 M 23:44 096/14:15:35 G 37:19	LVLH TRACK TGT = 2 P = 0.00 BV = 1 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0115 DB AT 1.000 DB RT 0.020 EARTH R 196 P 0 $\beta = 34$	LVLH R= 0.00 P=270.00 Y= 0.00	-Z Target Track
17 001/16:35:00 M 37:21 096/14:48:35 G 50:56	M50 (CALC) INRTL R = 45.00 MNVR P = 262.00 PYR Y = 49.00 MNVR A7/AUTO/ALT HOLD (same)	RATE 0.2000 DB AT 2.00 DB RT 0.100 SUN R 326 P 80 $\beta = 34$	+X PYR R = 359.49 P = 16.19 Y = 0.51 LVLH 001/16:55:00 M 096/15:08:35 G	TI Posi Heads Up TIG 1/16:55
18 001/16:57:00 M 17:00:48 096/15:10:35 G 14:23	LVLH TRACK TGT = 2 P = 0.00 BV = 5 Y = 0.00 OM = 0.00 MNVR B7/AUTO/ALT HOLD A7/AUTO/VERN	RATE 0.5000 DB AT 2.00 DB RT 0.100 EARTH R 7 P 0 $\beta = 34$	LVLH R= 0.00 P=270.00 Y= 0.00	-Z Target Track
19 001/17:02:00 M 18:00:20 096/15:15:35 G 16:13:55	LVLH TRACK TGT = 2 P = 290.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0200 DB AT 1.000 DB RT 0.020 EARTH R 180 P 70 $\beta = 34$	LVLH R= 0.00 P=340.00 Y= 0.00	-Z Target Track
20 001/18:02:00 M 10:20 096/16:15:35 G 23:55	LVLH TRACK TGT = 2 P = 270.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A7/AUTO/VERN HOLD (same)	RATE 0.0400 DB AT 1.000 DB RT 0.020 EARTH R 180 P 90 $\beta = 33$	LVLH R= 0.00 P= 0.00 Y= 0.00	+ZLV +XVV Establish RBAR after MC4

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		
21 001/18:17:00 M 28:32 096/16:30:35 G 42:07	LVLH TRACK TGT = 2 P = 180.00 BV = 2 Y = 0.00 OM = 0.00 MNVR A9/AUTO/PRI HOLD (same)	RATE 0.1300 DB AT 1.00 DB RT 0.10 EARTH R 210 P 180 $\beta = 33$	LVLH R= 0.00 P= 90.00 Y= 0.00	+Rbar to +Vbar
22 001/19:16:00 M 096/17:29:35 G	FREE DRIFT Config DAP:A12 for Att Cntl			DOCKING
23 001/19:37:00 M 40:50 096/17:50:35 G 54:25	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 33$	LVLH R= 0.00 P=113.00 Y= 0.00	BIAS -XLV +ZVV
24 003/15:35:00 M 51:55 098/13:48:35 G 14:05:30	LVLH TRACK TGT = 2 P = 210.00 BV = 5 Y = 0.00 OM = 270.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 180 P 150 $\beta = 25$	LVLH R= 90.00 P= 90.00 Y=330.00	Bias -XLV +YVV Condensate Dump RMS Dump Survey Video Oppty 16:37 - 17:05
25 003/17:30:00 M 46:55 098/15:43:35 G 16:00:30	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 25$	LVLH R= 0.00 P=113.00 Y= 0.00	BIAS -XLV +ZVV
26 004/13:05:00 M 20:00 099/11:18:35 G 33:35	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 270.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 21$	LVLH R= 90.00 P= 90.00 Y= 23.00	Bias -XLV +YVV STS Waste Dump SOPA
27 004/14:55:00 M 15:10:00 099/13:08:35 G 23:35	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 21$	LVLH R= 0.00 P=113.00 Y= 0.00	Bias -XLV +ZVV Docked TEA
28 005/01:25:00 M 49:20 099/23:38:35 G 100/00:02:55	LVLH TRACK TGT = 2 P = 303.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 180 P 57 $\beta = 19$	LVLH R= 0.00 P=327.00 Y= 0.00	Reboost Bias +ZLV +XVV Config 4 Reboost Duration: 5/01:55-02:55 SOPA
29 005/03:00:00 M 24:20 100/01:13:35 G 37:55	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 19$	LVLH R= 0.00 P=113.00 Y= 0.00	Bias -XLV +ZVV Docked TEA
30 006/00:30:00 M 54:20 100/22:43:35 G 23:07:55	LVLH TRACK TGT = 2 P = 303.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 180 P 57 $\beta = 15$	LVLH R= 0.00 P=327.00 Y= 0.00	Reboost Bias +ZLV +XVV Config 4 Reboost Duration: 6/01:00-02:00 SOPA

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		
31 006/02:05:00 M 29:20 101/00:18:35 G 42:55	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 15$	LVLH R= 0.00 P=113.00 Y= 0.00	Bias -XLV +ZVV Docked TEA
32 007/13:30:00 M 45:00 102/11:43:35 G 58:35	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 270.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 8$	LVLH R= 90.00 P= 90.00 Y= 23.00	Bias -XLV +YVV ISS PWR Dump SOPA
33 007/15:00:00 M 15:00 102/13:13:35 G 28:35	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 8$	LVLH R= 0.00 P=113.00 Y= 0.00	Bias -XLV +ZVV Docked TEA
34 008/14:00:00 M 30:00 103/12:13:35 G 43:35	LVLH TRACK TGT = 2 P = 175.00 BV = 5 Y = 0.00 OM = 180.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 175 $\beta = 3$	LVLH R=180.00 P= 85.00 Y= 0.00	Reboost Bias -XLV -ZVV Config 3 Reboost Duration: 8/14:35-15:35 SOPA
35 008/15:40:00 M 16:10:00 103/13:53:35 G 14:23:35	LVLH TRACK TGT = 2 P = 157.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 0 P 157 $\beta = 3$	LVLH R= 0.00 P=113.00 Y= 0.00	Bias -XLV +ZVV Docked TEA
36 008/20:15:00 M 18:50 103/18:28:35 G 32:25	LVLH TRACK TGT = 2 P = 180.00 BV = 5 Y = 0.00 OM = 0.00 MNVR A12/AUTO/VERN HOLD (same)	RATE 0.1000 DB AT 3.000 DB RT 0.080 EARTH R 27 P 180 $\beta = 2$	LVLH R= 0.00 P= 90.00 Y= 0.00	-XLV +ZVV Undocking Att.
37 008/21:28:00 M 103/19:41:35 G				Free Drift for Undocking at 8/21:31:00
38 008/22:17:00 M 103/20:30:35 G	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.130 MNVR A9/LVLH/VERN HOLD (same)	RATE 0.1300 DB AT 1.000 DB RT 0.020 $\beta = 2$	LVLH R= 0.00 P= 90.00 Y= 0.00	Flyaround Twice Orb Rate to -Rbar
39 008/23:13:15 M 103/21:26:50 G		RATE 0.0500 DB AT 0.500 DB RT 0.020 EARTH R 0 P 101 $\beta = 2$	LVLH R= 0.00 HOLD P=168.75 Y= 0.00	LVLH Hold Final Sep
40 008/23:14:15 M 103/21:27:50 G		RATE 0.0500 DB AT 0.500 DB RT 0.020 SUN R 356 P 34 $\beta = 2$	INRTL R=343.12 HOLD P=316.54 Y= 38.40	Inrtl Hold for Sep Burn TIG: 8/23:15

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		
41 008/23:20:00 M 24:16 103/21:33:35 G 37:51	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 310.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 EARTH R 0 P 90 $\beta = 2$	LVLH R= 0.00 P=180.00 Y= 50.00	Bias. -ZLV +YVV Waste Dump Region C SOPA
42 009/02:15:00 M 19:10 104/00:28:35 G 32:45	LVLH TRACK TGT = 2 P = 90.00 BV = 3 Y = 0.00 OM = 0.00 MNVR A1/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
43 009/19:20:00 M 104/17:33:35 G				SIMPLEX OPPTY Placeholder
44 010/13:45:00 M 52:58 105/11:58:35 G 12:06:33	INRTL R = 24.00 MNVR P = 17.00 Y = 9.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 126 P 29 $\beta = -4$	-Y: 35 13:51 - 14:40 -Z: 50 13:40 - 14:32	IMU ALIGN PAIR AOS: 13:51 LOS: 14:32
45 010/14:03:00 M 07:54 105/12:16:35 G 21:29	INRTL R = 20.00 MNVR P = 344.00 Y = 319.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 64 P 64 $\beta = -4$	-Y: 30 13:42 - 14:32 -Z: 16 13:59 - 14:50	IMU VERIF PAIR AOS: 13:59 LOS: 14:32
46 010/14:17:00 M 28:50 105/12:30:35 G 42:25	TGT= 4 BV = 5 P = 184.00 Y = 0.00 OM = 90.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 180 P 176 $\beta = -4$	INRTL R=305.28 P=167.16 Y=340.76 RA= 22.826 DEC= 9.551N	-XSI D/O PREP
47 010/16:04:00 M 15:41 105/14:17:35 G 29:16	M50 (CALC) INRTL R = 75.00 MNVR P = 138.00 PYR Y = 343.00 MNVR A1/AUTO/VERN HOLD (same)	RATE 0.2000 DB AT 1.000 DB RT 0.020 SUN R 89 P 150 $\beta = -5$	+Y PYR R = 0.47 P = 359.89 Y = 30.20 TCSUM 010/16:16:27 M 105/14:30:02 G	Comm Attitude
48 010/18:09:00 M 13:57 105/16:22:35 G 27:32	M50 (CALC) INRTL R = 353.00 MNVR P = 291.00 PYR Y = 38.00 MNVR TRN/AUTO/PRI HOLD (same)	RATE 0.5000 DB AT 3.50 DB RT 0.20 SUN R 8 P 52 $\beta = -5$	+X PYR R = 359.82 P = 195.75 Y = 359.49 LVLH 010/18:29:00 M 105/16:42:35 G	D/O Burn Retro Head Down TIG 10/18:29

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**FLIGHT PLAN
NOTES**

FLIGHT PLAN NOTES

**FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)**

A. FLIGHT DESCRIPTION

Orbiter: OV104/Atlantis
 Launch Window: 5 min
 Inclination: 51.6°
 Insertion Altitude: 105 nm
 Rendezvous Altitude: 205 nm
 Duration: 11 + 0 + 2 days

B. CREW

CDR – Mike Bloomfield
 PLT/RMS – Steve Frick
 MS1/EV2 – Rex Walheim
 MS2/RMS – Ellen Ochoa
 MS3/EV4 – Lee Morin
 MS4/EV3 – Jerry Ross
 MS5/EV1 – Steve Smith

ISS CDR – Yuri Onufrienko
 FE-1 – Carl Walz
 FE-2 – Dan Bursch

**FLIGHT PLAN
NOTES**

C. MAJOR EVENTS

<u>EVENT</u>	<u>FD</u>	<u>MET</u>	<u>LOCAL DATE</u>	<u>LOCAL TIME</u>	<u>GMT</u>
Launch	01	0:00:00	04/04/2002	16:14 (CST)	094/22:14
OMS-2	01	0:00:39	04/04/2002	16:53 (CST)	094/22:53
NC1	01	0:03:38	04/04/2002	19:52 (CST)	095/01:52
NC2	02	0:16:31	04/05/2002	08:45 (CST)	095/14:45
NPC	02	0:20:04	04/05/2002	12:18 (CST)	095/18:18
NC3	02	1:00:57	04/05/2002	17:11 (CST)	095/23:11
NH	03	1:13:58	04/06/2002	06:12 (CST)	096/12:12
NC4	03	1:15:23	04/06/2002	07:37 (CST)	096/13:37
S0 Activation	03	1:16:00	04/06/2002	08:13 (CST)	096/14:13
TI	03	1:16:55	04/06/2002	09:09 (CST)	096/15:09
ISS docking	03	1:19:16	04/06/2002	11:30 (CST)	096/17:30
Ingress ISS	03	1:20:05	04/06/2002	12:18 (CST)	096/18:18
EVA 1	04	2:17:35	04/07/2002	10:48 (CDT)	097/15:48
EVA 2	06	4:17:35	04/09/2002	10:48 (CDT)	099/15:48
EVA 3	07	5:17:35	04/10/2002	10:48 (CDT)	100/15:48
EVA 4	09	7:17:35	04/12/2002	10:48 (CDT)	102/15:48
Egress ISS	10	8:18:15	04/13/2002	11:28 (CDT)	103/16:28
Undock	10	8:21:31	04/13/2002	14:45 (CDT)	103/19:45
Sep	10	8:23:15	04/13/2002	16:29 (CDT)	103/21:29
Deorbit	12	10:18:29	04/15/2002	11:43 (CDT)	105/16:43
Landing	12	10:19:36	04/15/2002	12:50 (CDT)	105/17:50

D. LANDING OPPORTUNITIES

		<u>Landing Orbit No.</u>	<u>Site</u>	<u>Local Time</u>	<u>MET</u>
Nominal	Primary	170	KSC	13:50	10:19:36
	1 Rev Late	171	KSC	23:38	10/21:27
	Weather Alt	172	EDW	15:26	10/21:12
1 Day Late	Primary	185	KSC	12:51	11/18:38
	1 Rev Late	186	KSC	14:27	11/20:14
	Weather Alt	187	EDW	12:58	11/21:45
2 Days Late	Primary	201	KSC	13:29	12/19:15
	1 Rev Late	202	KSC	15:05	12/20:52
	Weather Alt	202	EDW	12:00	12/20:46

E. COMMUNICATIONS

The Summary Timeline contains several databands 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 TDRS SHO schedule (solid bars). The SHO schedule depicts early handovers and Z satellite coverage.

The RGS band contains the AOS/LOS of the Russian Ground sites used by the FGB and SM. The data displayed is a summation of AOS/LOS times of all the ground sites on each respective pass.

Shuttle

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

Ground Sites: MIL, WLP, and DFR

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

ISS

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

US Ground Sites: MIL, WLP, DFR,

Russian Ground Sites: DJS, PPK, BRN, SPB, KLP, ULD, SHK, USK

F. PAYLOADS

LAUNCH PACKAGE (LP) 8A

The Flight 8A LP consists of the S0 truss segment and the Mobile Transporter (MT). The ITS S0 Segment is structurally attached to the U. S. Lab Module and is the center section of the ISS truss assembly. Fluid, power, and data umbilicals are also attached to the ITS S0 Segment for connecting the truss-based distributed systems with the pressurized modules. The S0 Segment provides Extravehicular Activity (EVA) Airlock Spur and electrical power control and distribution; guidance, navigation and control; telemetry, command, and control; video signal switching; and passive and active thermal control. The MT provides the truss translation capability for the Mobile Servicing System (MSS) as well as the structural, power, data and video link between the Integrated Truss Structure and Mobile Remote Servicer. The Airlock Spur is deployed between the ITS S0 Segment and the Airlock to provide an EVA translation path from the Airlock to the ITS.

Also part of the LP are five powered payloads to be transferred to/from the shuttle middeck. ISS logistics are also transferred to/from the shuttle.

G. PAYLOADS OF OPPORTUNITY

1. SIMPLEX (Shuttle Ionospheric Modification with Pulsed Local Exhaust)

The Shuttle Ionospheric Modification with Pulsed Local Exhaust (SIMPLEX) requires cooperative Orbital Maneuvering System (OMS) firings over certain specific ground-based radar sites. There is no flight hardware required for the SIMPLEX payload. Flight control personnel are required to identify and plan cooperative opportunities and the Crew is required to attain/maintain attitudes and perform OMS firings at designated times over the radar sites.

2. RAMBO (Ram Burn Observation)

The objective of the Ram Burn Observation (RAMBO) payload is to help calibrate the RAMBO satellite. RAMBO data will be collected during normally planned retrograde, posigrade, and out-of-plane burns.

H. ON ORBIT DETAILED TEST OBJECTIVES (DTOs)

3. Shuttle Automatic Reboost Tuning (DTO 263)

Shuttle reboost of ISS using the automatic reboost software requires jet firing separation to avoid excitation of the joined shuttle/ISS structural natural frequencies. Accurate specification of this jet firing separation requires measurement of the on-orbit joined structure natural frequencies. A brief execution of the reboost software utilizing benign parameters such as burn length, will allow acquisition of structural dynamics data to validate the preflight estimate of the structural natural frequencies and damping, and thus the jet firing separation time. The structural natural frequencies can be measured using the shuttle IMU downlinked data, and the jet firing separation time can be implemented by display inputs by the Shuttle crew.

4. Validation of Space Station Remote Manipulator System (SSRMS) Dynamic Input To Shuttle Attitude Control System (DTO 264)

Confirmation of ground test verification and engineering margin adequacy is needed for the SSRMS operation while Shuttle is mated to ISS. This will assure stable shuttle control system performance, and acceptable loads on the SSRMS induced by the shuttle jet firings. The SSRMS is a dynamically complex mechanism and control system, and confirmation of the SSRMS dynamic characteristics is needed in the zero-g of space to assure successful operation and that engineering constraints are not excessive based on "as-built" SSRMS characteristics.

5. 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.

I. ON ORBIT DETAILED SUPPLEMENTARY OBJECTIVES (DSOs)

IN FLIGHT:

1. Monitoring Latent Virus Reactivation and Shedding in Astronauts (DSO 493)

The objective of this DSO is to determine the frequency of induced reactivation of latent viruses, latent virus shedding, and clinical disease after exposure to the physical, physiological, and psychological stressors associated with space flight.

Space flight – induced alterations in the immune response will become increasingly important on long-duration missions, with one focus being the potential for reactivation and dissemination (shedding) of latent viruses. An example of a latent virus is herpes simplex type-1 (HSV-1), which infects 70-80 percent of adults. Its manifestation is classically associated with the presence of cold sores, pharyngitis, and tonsillitis, and is usually acquired through contact with the saliva, skin, or mucous membranes of an infected individual. However, many recurrences are asymptomatic, resulting in shedding of the virus. Twenty subjects have been studied for Epstein-Barr virus. Three additional viruses will be focused upon with an increase in subject allotment.

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CUE CARD CONFIGURATION

CUE CARD
CONFIG

CUE CARD CONFIG

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VELCRO**

**PILE
VELCRO**

STS-110 DAP A1 - A6 CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6
PRI							
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000
ATT DB	11(51)	5.00	1.00	0.30	3.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL
TRAN PLS	17(57)	0.100	0.100	0.100	0.100	0.100	0.100
ALT							
RATE DB	18(58)	0.200	0.200	0.070	0.200	0.070	0.070
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL
# JETS	20(60)	2	2	1	2	1	1
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	0.00	0.00	0.00	0.00
VERN							
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.0500	0.0500
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/POST DEPLOY	LOSS OF VERN (ALL)	LOSS OF VERN (TAIL ONLY)

FLT PLN-1a/110/O/B

HINGE

CC 7-2

FLT PLN/110/FIN

TOP
HINGED AT BOTTOM OF
'STS 110 DAP A1 - A6 CONFIGURATIONS'

HINGE

STS-110 DAP B1 - B5 CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5
PRI						
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	TAIL	ALL	TAIL	TAIL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL
TRAN PLS	37(57)	0.100	0.020	0.020	0.020	0.020
ALT						
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	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
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033
RATE DB	45(65)	.020	.020	.020	.010	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0
PURPOSE		NOM OMS RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (ALL)	SSUS DEPLOY	COAS/ HUD CAL

FLT PLN-1aa/110/O/B

HOOK
VELCRO

HOOK
VELCRO

CC 7-3

FLT PLN/110/FIN

TOP
BACK OF 'STS-110 DAP A1 - A6 CONFIGURATIONS'

**PILE
VELCRO**

**PILE
VELCRO**

STS-110 DAP A7 - A13 CONFIGURATIONS

	ITEM #	A7	A8	A9	A10	A11	A12	A13
PRI								
ROT RATE	10(50)	0.2000	0.0500	0.1300	0.0500	0.1000	0.1000	0.1000
ATT DB	11(51)	2.00	2.00	1.00	0.50	15.00	5.00	5.00
RATE DB	12(52)	0.20	0.20	0.10	0.10	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.04	0.04
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
Y OPTION	16(56)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	17(57)	0.100	0.100	0.050	0.050	0.100	0.010	0.010
ALT								
RATE DB	18(58)	0.100	0.100	0.100	0.100	0.070	0.070	0.070
JET OPT	19(59)	ALL	ALL	TAIL	TAIL	TAIL	TAIL	TAIL
# JETS	20(60)	2	2	2	2	3	3	3
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	12.00	11.04	11.04
VERN								
ROT RATE	23(63)	0.0160	0.0500	0.1300	0.0500	0.1000	0.1000	0.1000
ATT DB	24(64)	1.000	1.000	1.000	0.500	5.000	3.000	3.000
RATE DB	25(65)	.020	.020	.020	.020	.050	.050	.080
ROT PLS	26(66)	0.010	0.050	0.050	0.050	0.010	0.002	0.002
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	1,2*	1**	3,4***
PURPOSE		RNDZ	TERMINAL PHASE	PROX OPS/ FLYAROUND	DOCKING	AUTO REBOOST	MATED MNVRS & HOLD (VRCS)	AIL DEPRESS ATTITUDE CONTROL

NOTE: **BOLD-ITALIC** indicate a change from I-load

* 1 for VERN, 2 for ALT

** During SSRMS operations for S0 Install, CNTL ACC setting will be temporarily changed from CNTL ACC 1 to CNTL ACC 5-7

*** 3 for VERN, 4 for ALT

FLT PLN-1b/110/O/B

HINGE

CC 7-4

FLT PLN/110/FIN

TOP
 BACK OF 'STS-100 DAP B1 - B5 CONFIGURATIONS'
 HINGED AT BOTTOM OF
 'STS 110 DAP A7 - A13 CONFIGURATIONS'

HINGE

STS-110 DAP B7 - B13 CONFIGURATIONS

	ITEM #	B7	B8	B9	B10	B12	B13
PRI							
ROT RATE	30(50)	0.5000	0.0500	0.1300	0.0500	0.1000	0.1000
ATT DB	31(51)	2.00	2.00	1.00	0.50	5.00	40.00
RATE DB	32(52)	0.20	0.20	0.10	0.10	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
Y OPTION	36(56)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37(57)	0.050	0.050	0.010	0.010	0.010	0.010
ALT							
RATE DB	38(58)	0.100	0.100	0.100	0.100	0.070	0.070
JET OPT	39(59)	ALL	ALL	TAIL	TAIL	TAIL	TAIL
# JETS	40(60)	2	2	2	2	3	3
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00	11.04	11.04
VERN							
ROT RATE	43(63)	0.2000	0.0500	0.1300	0.0500	0.1000	0.1000
ATT DB	44(64)	1.000	1.000	1.000	0.500	3.000	40.000
RATE DB	45(65)	.020	.020	.020	.020	.050	.050
ROT PLS	46(66)	0.002	0.020	0.020	0.020	0.002	0.002
COMP	47(67)	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	2*	3,4**
PURPOSE		RNDZ	TERMINAL PHASE	PROX OPS/ FLYAROUND	DOCKING	MATED MNVRS & HOLD (PRCS)	A/L DEPRESS RATE DAMPING

NOTE: **BOLD-ITALIC** indicate a change from I-load

* During SSRMS operations for S0 Install, CNTL ACC setting will be temporarily changed from CNTL ACC 2 to CNTL ACC 5, 8, and 9

** 3 for VERN, 4 for ALT

FLT PLN-1bb/110/O/B

**HOOK
VELCRO**

**HOOK
VELCRO**

CC 7-5

FLT PLN/110/FIN

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FLIGHT DATA FILE
Distribution
110 FLT PLN FS FIN

** JSC **

AP/LEAD PAO
CB/CHIEF, ASTRONAUT OFF.
CB/FLIGHT CREW (7)
CB/STS-110 FLIGHT CREW (7)
DA8/LEAD ISS FD (4)
DA8/LEAD STS FD (4)
DA82/ACTION CENTER
DF22/LEAD DPS (3)
DF23/LEAD CATO (3)
DF24/INCO FDF REP (4)
DF25/LEAD ODIN (3)
DF52/LEAD MMACS (3)
DF53/LEAD OSO (3)
DF62/LEAD GNC (3)
DF63/LEAD PROP (3)
DF64/ADCO (3)
DF73/LEAD EGIL (3)
DF74/PHALCON LIBRARY (5)
DF82/LEAD EECOM (3)
DF83/LEAD ECLSS (3)
DF84/LEAD THOR (3)
DM3/LEAD RNDZ (3)
DM3/LEAD TOPO (3)
DM32/LEAD FDO (3)
DO13/HSG-H LIBRARY (3)
DO13/HSG-M LIBRARY (2)
DO13/HSG-MTLO
DO13/MSR LIBRARY (2)
DO13/TTI LIBRARY (2)
DO35/BARNARD, D.
DO353/FDF MNGR/RESERVE (15)
DO4/FAO TEAM (25)
DO4/LEAD FAO (3)
DO4/LEAD OPS PLANNER (6)
DO4/NUTE, R.H.
DO4/POINTING (3)
DO4/SHUTTLE FLT PLANNING (3)
DO44/SMITH, R.M.
DO5/LEAD ACO/PLO (15)
DT32/TEAM LEAD
DT34/CONTROL PROP (2)
DT35/DPS/NAV LIBRARY (2)
DT36/SHUTTLE SYSTEMS

DT37/SHUTTLE COMMUNICATIONS
DT37A/PAYLOAD TRAINING GROUP (5)
DX22/LEAD PDRS (4)
DX22/LEAD ROBO (3)
DX25/RMS TRAINING GROUP (3)
DX32/LEAD EVA (3)
DX32/PERSON, S.
DX34/PHOTO/TV
EA4/ORTIZ, E. (2)
GP23/STIC (3)
MER/30 LIBRARY
MT3/IPT
NC62/MORAN, S. (2)
OM2/CONSOLE SUPPORT (2)
OV/LEAD ISS GC
OV/LEAD SHUTTLE GC
SD24/SURGEON (3)
SK-KI/LEE, L. (2)
ZR1/USAF TECHNICAL LIBRARY (3)

** JSC OFFSITE **

LOCKHEED-MARTIN-HOUSTON
C42/DYKE-EIZHBLATH, J. (3)

BOEING-HOUSTON
13100 SPACE CENTER BLVD.
HOUSTON, TX 77059
HS-22/FLIGHT/STAGE MANAGER
HS-22/OPERATIONS LEAD

HERNANDEZ ENGINEERING, INC.
1150 GEMINI
HOUSTON, TX 77058
H10H-150/CARABELOS, L.
H10H-150/CARABELOS, L.

** POUCH MAIL **

NASA KSC
KSC/KSC TECH LIBRARY-D (2)
TA-E-A/CREW QUARTERS
XA-E1/GRINTER, K.

** U.S. MAIL **

BOEING-HUTINGTON BEACH
5301 BOLSA AVENUE
HUNTINGTON BEACH, CA 92647
HO19-F754/GOOSSENS, M.H.

BOEING-CALIFORNIA
5301 BOLSA AVE. BLDG 17-7
7D-45 HUNTINGTON BEACH
CA 92647-2099
HO17-D415/MUHAR, M.M.
HO17-D416/GARAY, L.
HO17-D307/WARD, J.
HO19-E7522/FERGUS, E.M.

HAMILTON STANDARD
BRADLEY FIELD RD.
WINDSOR LOCKS, CT 06096
IA-2-X65/ALMAN, J.

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

=====
Total 227
(02/27/02 - FERNANCA)

NOTE
* FOR CHANGES *
* IN DISTRIBUTION *
* OR ADDRESS CORRECTIONS *
* CONTACT THE *
* PROCEDURES MANAGEMENT *
* OFFICE AT MAILCODE D035 *
* OR (281) 244-1184 *
