

Flight Plan

STS-98

**(FRR Trajectory:
Launch – January 18, 2001)**

**Mission Operations Directorate
Operations Division**

For the latest working copy of the Flight Plan, visit
<https://mod.jsc.nasa.gov/do4/flightplan>

**Final
December 15, 2000**

EVENT	MET	CST	GMT
Launch	00/00:00	1/18/01 01:44	1/18/01 07:44
Docking	01/18:04	1/19/01 19:48	1/20/01 01:48
PMA2 Demate	02/15:00	1/20/01 16:43	1/21/01 22:43
EVA 1	02/16:05	1/20/01 17:48	1/21/01 23:48
LAB Mate	02/19:25	1/20/01 21:08	1/21/01 03:08
LAB Ingress	03/14:00	1/21/01 15:43	1/24/01 21:43
EVA 2	04/16:30	1/22/01 18:13	1/23/01 00:13
PMA2 Remate	04/18:30	1/22/01 20:13	1/25/01 02:13
EVA 3	06/16:05	1/24/01 17:48	1/25/01 23:48
Undocking	08/14:56	1/26/01 16:40	1/26/01 22:40
Separation	08/16:44	1/26/01 18:28	1/26/01 00:28
Deorbit Burn	10/18:13	1/28/01 19:57	1/28/01 01:57
KSC Landing	10/19:19	1/28/01 21:03	1/28/01 03:03

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



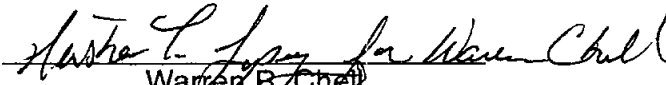
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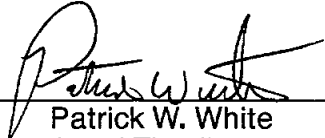
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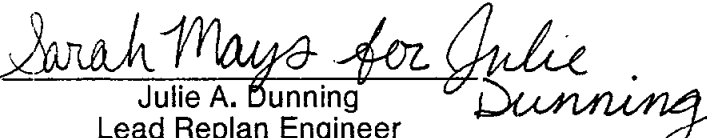
STS-98 FLIGHT PLAN

FINAL
December 15, 2000

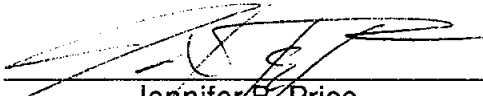
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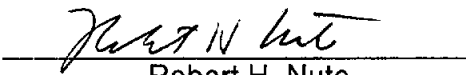

Warren R. Chaff
Book Manager, Lead FAO

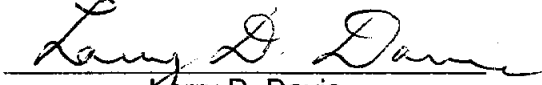

Patrick W. White
Lead Timeliner

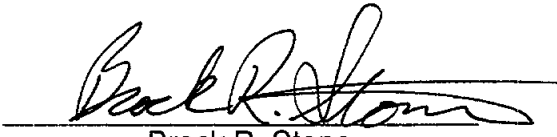

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Lead Pointer	DO4/S. Patano	281-244-1137
Lead Replan Engineer	DO4/J. Dunning	281-483-4360

FLIGHT PLAN
STS-98

LIST OF EFFECTIVE PAGES

FINAL 12/15/00

Sign Off	* 98/FIN	2-22A	98/FIN
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viii	* 98/FIN	3-1	98/FIN
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8-16 * 98/FIN

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STS-98 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
DAP A, DAP B TOC	8-2	FLT PLN-1a/98/O/A
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DAP A1	8-3	FLT PLN-2b/98/O/A
A1	8-3	FLT PLN-3a/98/O/A
DAP A2	8-3	FLT PLN-3b/98/O/A
A2	8-4	FLT PLN-4a/98/O/A
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B7	8-13	FLT PLN-21a/98/O/B
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INTRODUCTION

The STS-98 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 Flight Plan is the controlling document for the shuttle crew while on orbit.

The Flight Plan is not the controlling document from which the space station crew operates. However, the on-orbit timelines within the Flight Plan do reflect some of the station crew activities, as well as, some of the ISS ground commanding activities. The station crew operates from the On-board Short Term Plan Viewer (OSTPV). This Flight Plan includes a hardcopy of the Short Term Plan (STP) for the joint mission timeframe. The STP is published for information only and is not under configuration control.

The Basic STS-98 Flight Plan, as part of the Flight Data File, meets the specifications of the STS-98 Flight Initialization Data Pack, version 98flt-f.

The trajectory used for this STS-98 Flight Plan is based on a launch date of January 18, 2001, at 05:14 CST. Orbiter inertial attitudes are expressed relative to a mean of 1950 (M50) reference frame.

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

The following SCSC Exceptions will be submitted. These exceptions are needed to accomplish category 1 mission objectives:

- 98-1 Shifting crew sleep prior to critical flight day
- 98-2 Pre- or Post-Sleep < 2 hr minimum
- 98-3 Aggregate Pre/Post-Sleep < 5 hr minimum
- 98-4 Insufficient time to schedule exercise

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

<https://mod.jsc.nasa.gov/do4/flightplan/>

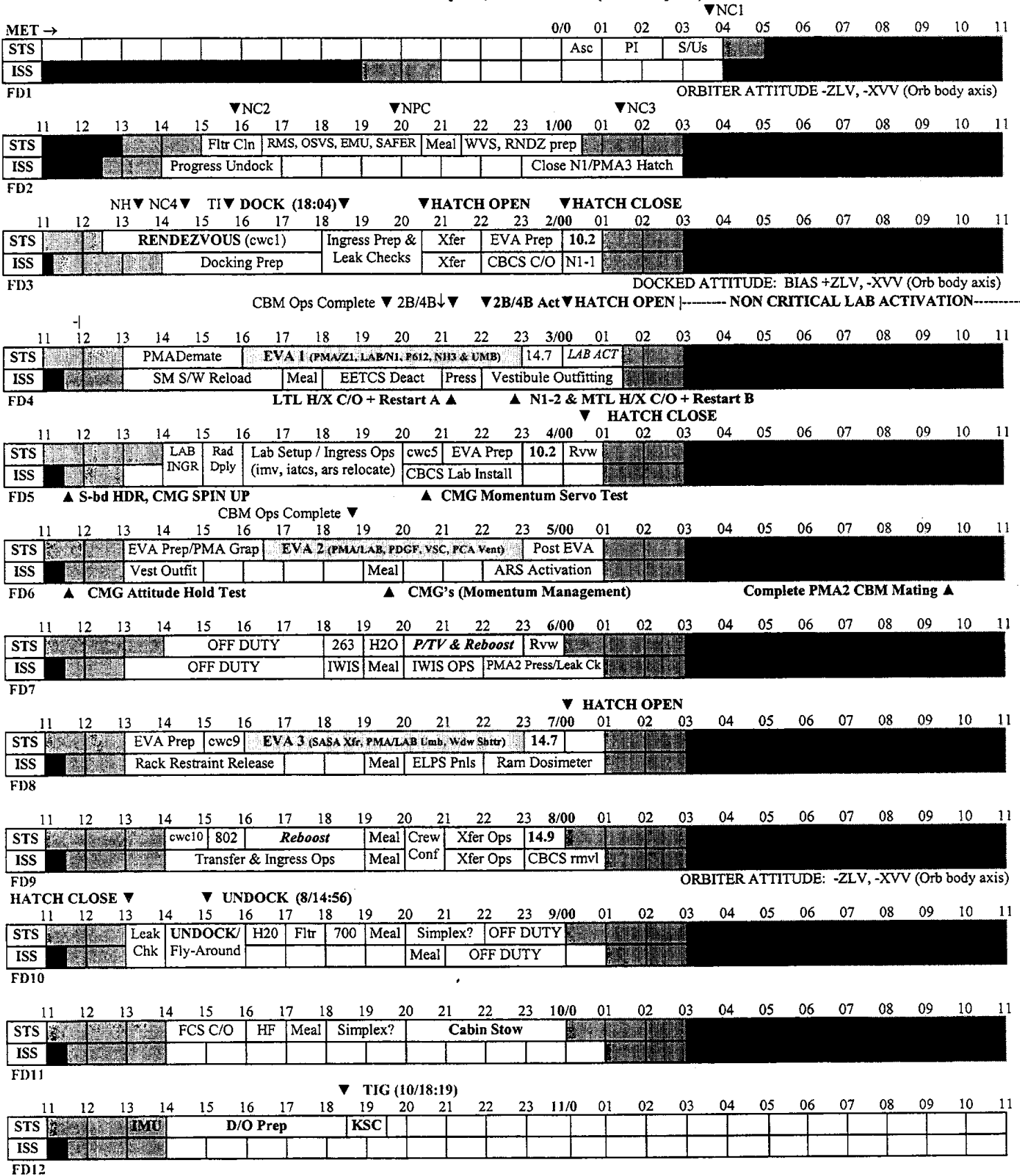
The Russian Space Agency (RSA) has received a copy of the ISS Short Term Plan associated with this joint mission. However, RSA has not yet provided comments or concurrence.

OVERVIEW TIMELINE

STS-98 / 5A OVERVIEW TIMELINE (11+1+2)

GMTLO January 18, 2001 / 7:43 (FRR Cycle)

OVERVIEW
TIMELINE

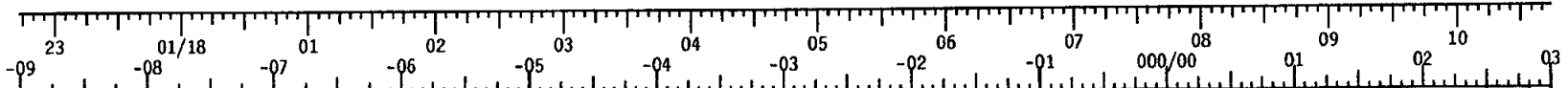


SUMMARY TIMELINE/SHORT TERM PLAN

**THE ISS CREW AND GROUND ACTIVITIES ARE PUBLISHED FOR INFORMATION
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 MET Day 000



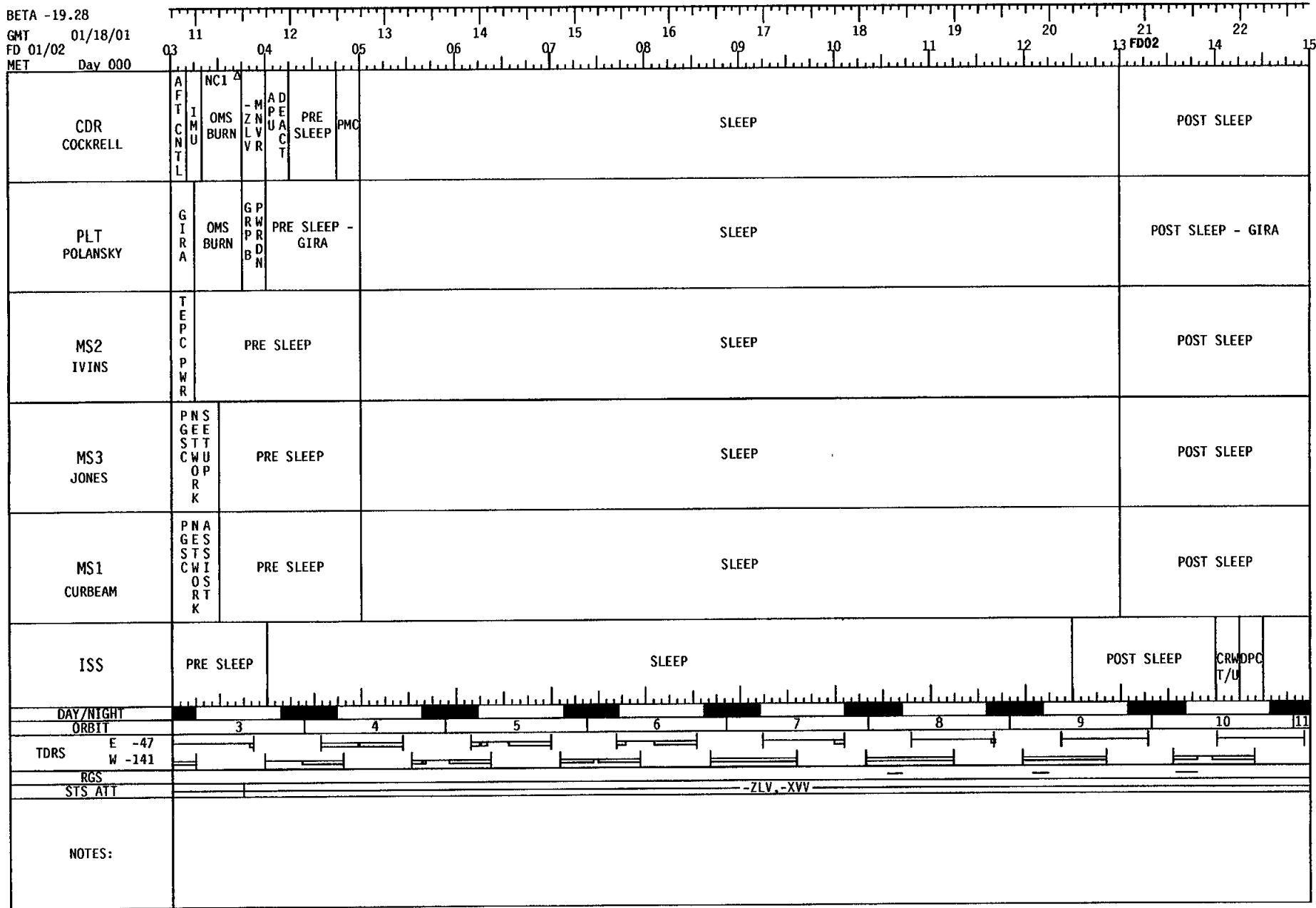
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PLT POLANSKY			0	POST INSERTION	A P C U A C T	L O A D D A P G I R A
MS2 IVINS			2	POST INSERTION	R M S I N T	S E E S / U
MS3 JONES				POST INSERTION		P N S G E E T T C W U O P R K
MS1 CURBEAM				POST INSERTION		A P C U A C T P N S G E E T T C W I O S R T K
ISS						PRE SLEEP
DAY/NIGHT ORBIT						2 3
TDRS	E -47 W -141					
RGS STS ATT						-ZLV,-YVV
NOTES:						*PGSC UNSTOW/SETUP/ACT *KU DEPLOY *OCAC SETUP

BETA -19.28

GMT 01/18/01

FD 01/02

MET Day 000

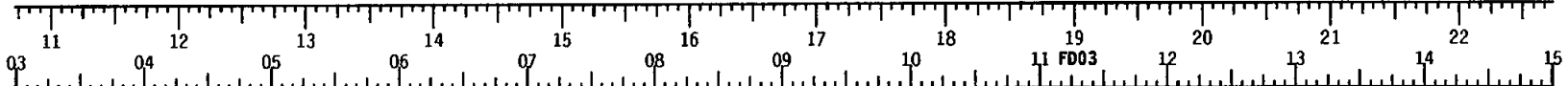


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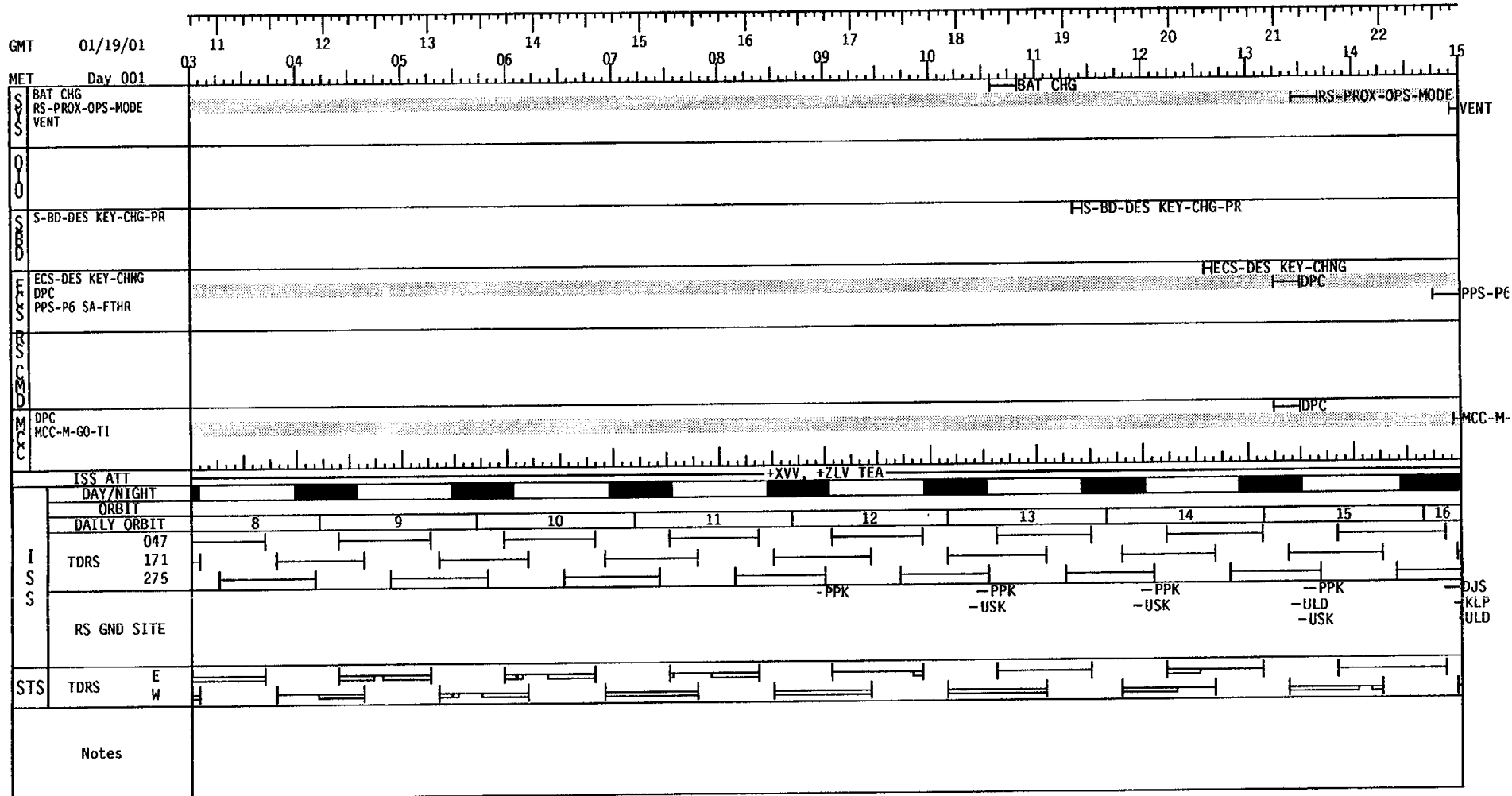
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CDR COCKRELL	GP RWR UP BURN	NC2 -M ZLV -R LV	ERGOM S/U	RMS OPS ASSIST	OSVS PWRUP	OSVS C/O	OSVS PD	Δ NPC MULT AXIS RCS BURN	OPS 2 TEST *	MEAL	EXERCISE	PMC	RNDZ PGSC S/U	EVENT	NC3 OMS BURN	-M ZLV -R LV	FUN TV R LOAD	PRE SLEEP
PLT POLANSKY	⊕	OMS BURN	GP RWR UP DN	A/L PREP	EMU C/O (3 EMUS)			MULT AXIS RCS BURN	MEAL	EXERCISE	CS RNDZ YORK OCK 2	FC PURGE E	NO ACT	GP RWR UP	OMS BURN	GP RWR UP DN	PRE SLEEP - GIRA	
MS2 IVINS	PS OL SE TE P	RMS H IT T R	P/TV 08 S/U*	FRED SETUP	RMS PWR UP	RMS C/O	P I L N B S P E C T	RMS PWR DN	P S // T U V W V S	OSVS ASSIST	EXERCISE	MEAL	P/TV18 WVS C/O	P/TV19 MT C/L CAMERA	HHL C/O	ODS EXT	PRE SLEEP	
MS3 JONES	FILTER CLEAN	A/L PREP	EMU C/O (3 EMUS)			MEAL	P/TV18 WVS C/O	P/TV 06 S/U*	RNDZ PGSC S/U	P/TV 02 S/U	PE AV EN T	RNDZ TOOLS C/O	PRE SLEEP					
MS1 CURBEAM	POST SLEEP	A/L PREP	EMU C/O (3 EMUS)			MEAL	P/TV18 EVA CMR S/U	RE BA *	EXERCISE	P/TV19 MT C/L CAMERA	PGT C/O	ODS EXT	PRE SLEEP					
ISS	PRE SLEEP																	
DAY/NIGHT	[Day/Night Cycle]																	
ORBIT	[Orbit Cycle]																	
TORS	E -47 W -141																	
RGS	[RGS Cycle]																	
STS ATT	[STS ATT Cycle]																	
NOTES:	⊕POST SLEEP - GIRA -ZLV, -XV *PLB/OSVS			*DTO 700-14 MAGR						*BATT RCHG INIT *SEQUENTIAL STILL VIDEO (SSV)								

BETA -14.22

GMT 01/19/01
 FD02/03
 MET Day 001

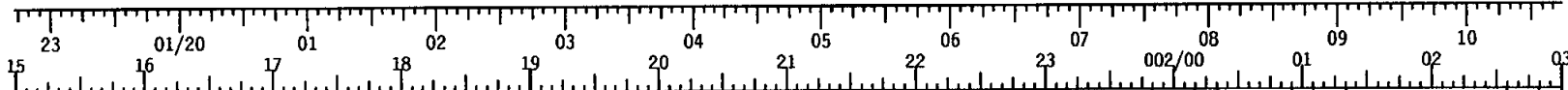


S T S	CDR COCKRELL	SLEEP	POST SLEEP	GP RWI PRM U B P	NH	NC4	Ku-RR	RNDZ		
	PLT POLANSKY	SLEEP	POST SLEEP - GIRA	PS OL SET E P	WD SUM P			RNDZ		
	MS2 IVINS	SLEEP	POST SLEEP				EXERCISE	P/TV 20 S/U	R N D Z	
	MS3 JONES	SLEEP	POST SLEEP			COND COL S/U	BATT RCHG TERM (2)	VHF RAD S/U	RNDZ	
	MS1 CURBEAM	SLEEP	POST SLEEP				BATT RCHG TERM (2)	H2O CWC S/U FILL #1		
I S S	SHEPHERD	SLEEP	POST SLEEP			CT R WU	DPC	LK CK S/U	RNDZ	
	GIDZENKO	SLEEP	POST SLEEP			CT R WU	DPC			
	KRIKALEV	SLEEP	POST SLEEP			CT R WU	DPC		RNDZ	
M C C	MCC-H								F T H R	
	MCC-M			BAT CHG					M E N U	
DAY/NIGHT		[Bar chart showing day/night cycles]								
ORBIT		19	20	21	22	23	24	25	26	27
DAILY ORBIT		8	9	10	11	12	13	14	15	16
TDRS		[Bar chart showing TDRS activity]								
ISS S-BAND		[Bar chart showing ISS S-BAND activity]								
RGS		[Bar chart showing RGS activity]								
STS ATT		-ZLV, -XVV								
ISS ATT		+XVV, +ZLV TEA								
NOTES		*RS-PROX-OPS-MODE *WASTE DUMP TERM KU TO RADAR AT 14:52 ^								

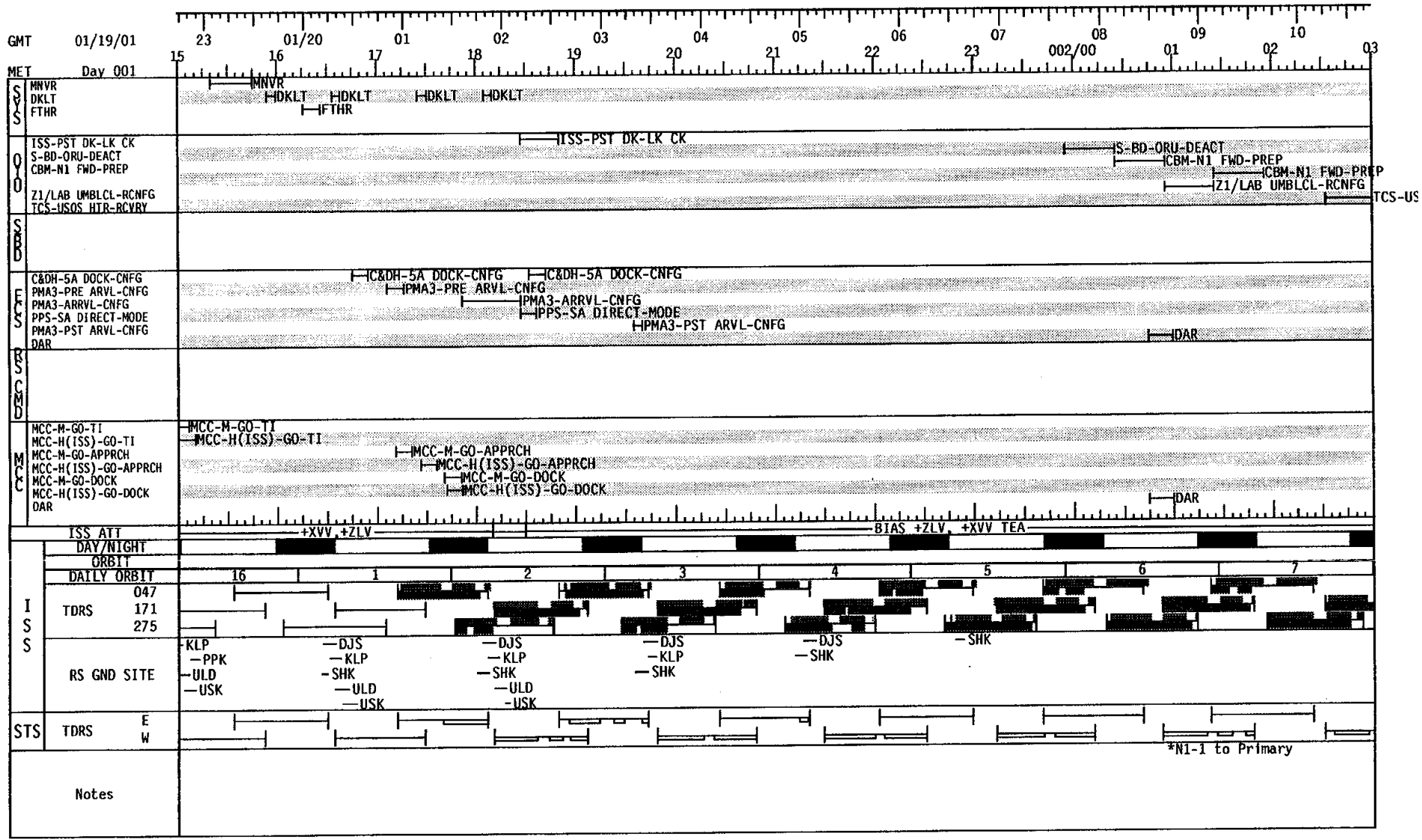


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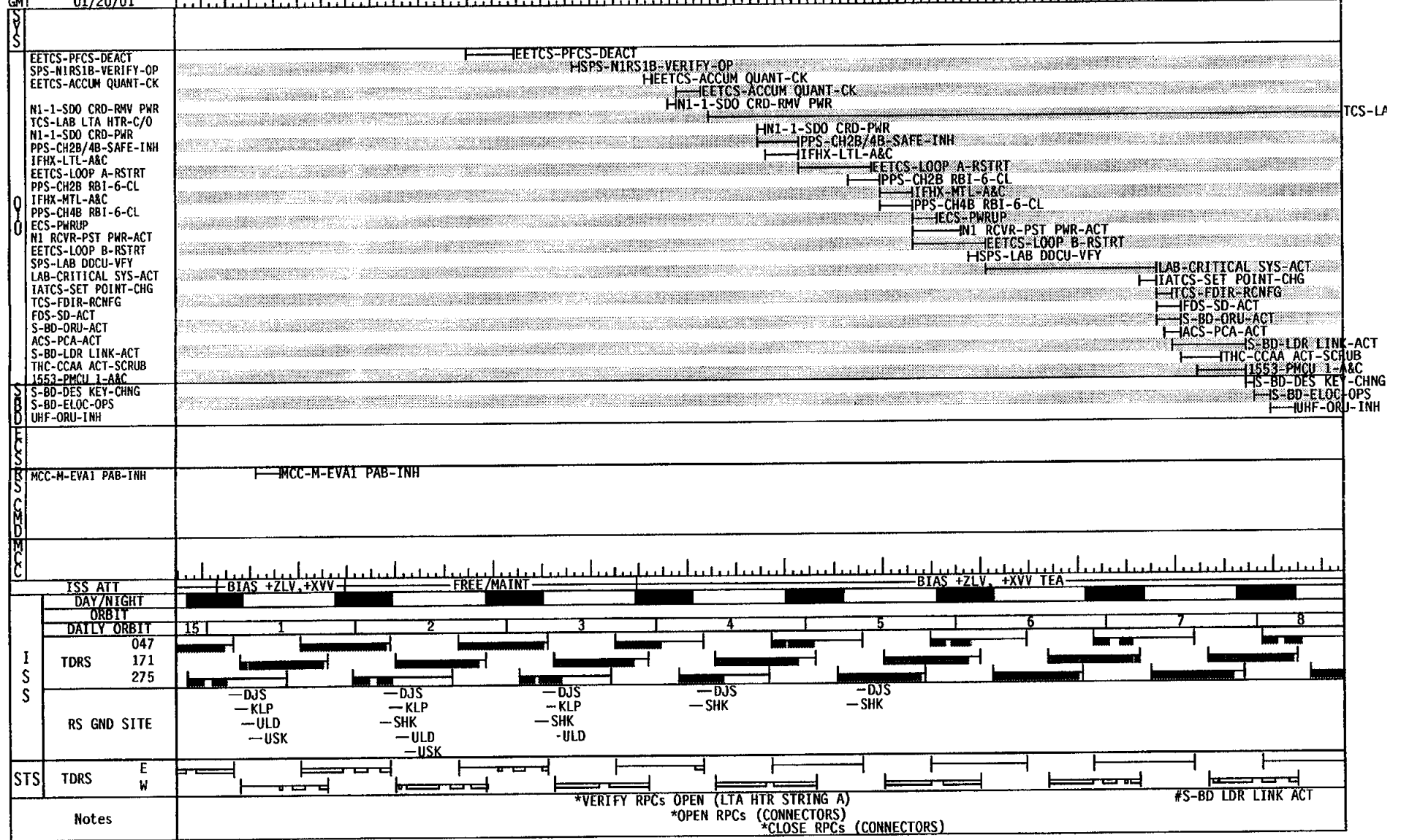
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	PLT POLANSKY	RNDZ	APPROACH	MEAL	TRANSFER OPS	EXERCISE	EVA PROC RVW	SAFER C/O	PRE SLEEP - GIRA				
	MS2 IVINS	RNDZ	CCTV CAM PREP	RNDZ	P/TV 20 OPS	MEAL	TRANSFER OPS	P/TV 09 C/O	EVA PROC RVW	10.2 DEPRESS	PRE SLEEP		
	MS3 JONES	RNDZ	APPROACH	PGSC NTWK RCNFG	ODS PREP INGRS	EXERCISE	XFER	EVA TOOL XFER	EVA PROC RVW	SAFER C/O	PRE SLEEP		
	MS1 CURBEAM	RNDZ	ODS PREP FOR DOCK	APPROACH	LK CHK	ODS PREP INGRS	XFER	EXERCISE	EVA TOOL XFER	EVA PROC RVW	SAFER C/O	PRE SLEEP	
ISS	SHEPHERD	RNDZ	ARVL CNFG	PMA LK CK	PRESS & LK CK	OP	TRANSFER OPS	CBCS C/O	EVA RVW	CL	DAR	PRE SLEEP	
	GIDZENKO	MNVR	RNDZ	DOCK	MEAL	EXERCISE	TRANSFER OPS	EVA RVW	DAR	PRE SLEEP			
	KRIKALEV	RNDZ	RNDZ	DOCK	MEAL	TRANSFER OPS	EVA RVW	EXERCISE	DAR	PRE SLEEP			
MCC	MCC-H	GO TI	GO AP	GO DK	ARVL CNFG	C & D H	PRESS & LK CK	DEACT S-BAND	CBM PREP	Z1 UMB CNFG*	CBM PREP		
	MCC-M	MNVR	D K L T	F T H R	D K L T	D K L T	R S A	B A T T					
DAY/NIGHT		[Timeline bar]											
ORBIT		27	28	29	30	31	32	33	34				
DAILY ORBIT		16	1	2	3	4	5	6	7				
TDRS		E -47	[Timeline bar]										
		W -171	[Timeline bar]										
ISS S-BAND		[Timeline bar]											
RGS		[Timeline bar]											
SYS ATT		RNDZ	+XVV, +ZLV	+ZLV -XVV	BIAS +ZLV, -XVV				BIAS +ZLV, +XVV TEA				
ISS ATT		[Timeline bar]											
NOTES		▲VHF1 CK	ΦPRE CONFIG	●LK CHK	ⓂVHF1 OFF	▼VHF1 ACT	ΔRCNCT EPCS	*N1-1 to Primary					
		*DOCKING 1/18:04											



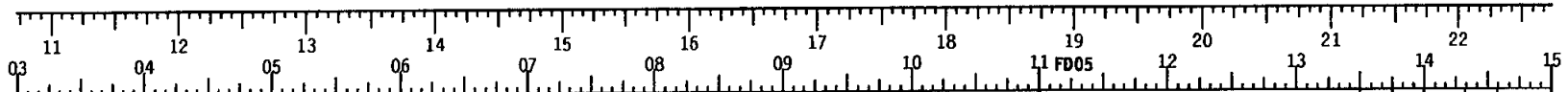
BETA -9.37
 GMT 01/20/01
 FDO3/04
 MET Day 002

		03	04	05	06	07	08	09	10	11	12	13	14	15				
S T S	CDR COCKRELL	SLEEP									POST SLEEP	PMC	POST SLEEP		M A I N P A D	OSVS PWRUP	PMA2 DEMATE	
	PLT POLANSKY	SLEEP									POST SLEEP - GIRA		POST SLEEP		EVA PREP		EMU PURGE P/B	
	MS2 IVINS	SLEEP									POST SLEEP		R M C I U	POST SLEEP	P/TV 23 S/U	P O 9 T C P W R U P	G R A P L	F R E E
	MS3 JONES	SLEEP									POST SLEEP		EVA PREP		EMU PURGE P/B			
	MS1 CURBEAM	SLEEP									POST SLEEP		EVA PREP		EMU PURGE P/B			
I S S	SHEPHERD	SLEEP									POST SLEEP		CRWDPC T/U	LAB PRE INGR EQUIP				
	GIDZENKO	SLEEP									POST SLEEP		CRWDPC T/U	LAB PRE INGR EQUIP				
	KRIKALEV	SLEEP									POST SLEEP		CRWDPC T/U	SM SOFTWARE RELOAD				
	MCC-H										◇			INH PAD				
DAY/NIGHT		[Bar chart showing day/night cycle]																
ORBIT		[Bar chart showing orbit data]																
DAILY ORBIT		35	36	37	38	39	40	41	42									
		8	9	10	11	12	13	14	15									
TDRS		[Bar chart showing TDRS data]																
ISS S-BAND		[Bar chart showing ISS S-BAND data]																
RGS		[Bar chart showing RGS data]																
STS ATT		[Bar chart showing STS ATT data]																
ISS ATT		[Bar chart showing ISS ATT data]																
NOTES		BIAS +ZLV, -XVV BIAS +ZLV, +XVV TEA OSGANT PWR VCBCS ACT																

MET Day 002 15 16 17 18 19 20 21 22 23 003/00 01 02 03
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BETA -4.77
 GMT 01/21/01
 FDO4/05
 MET Day 003



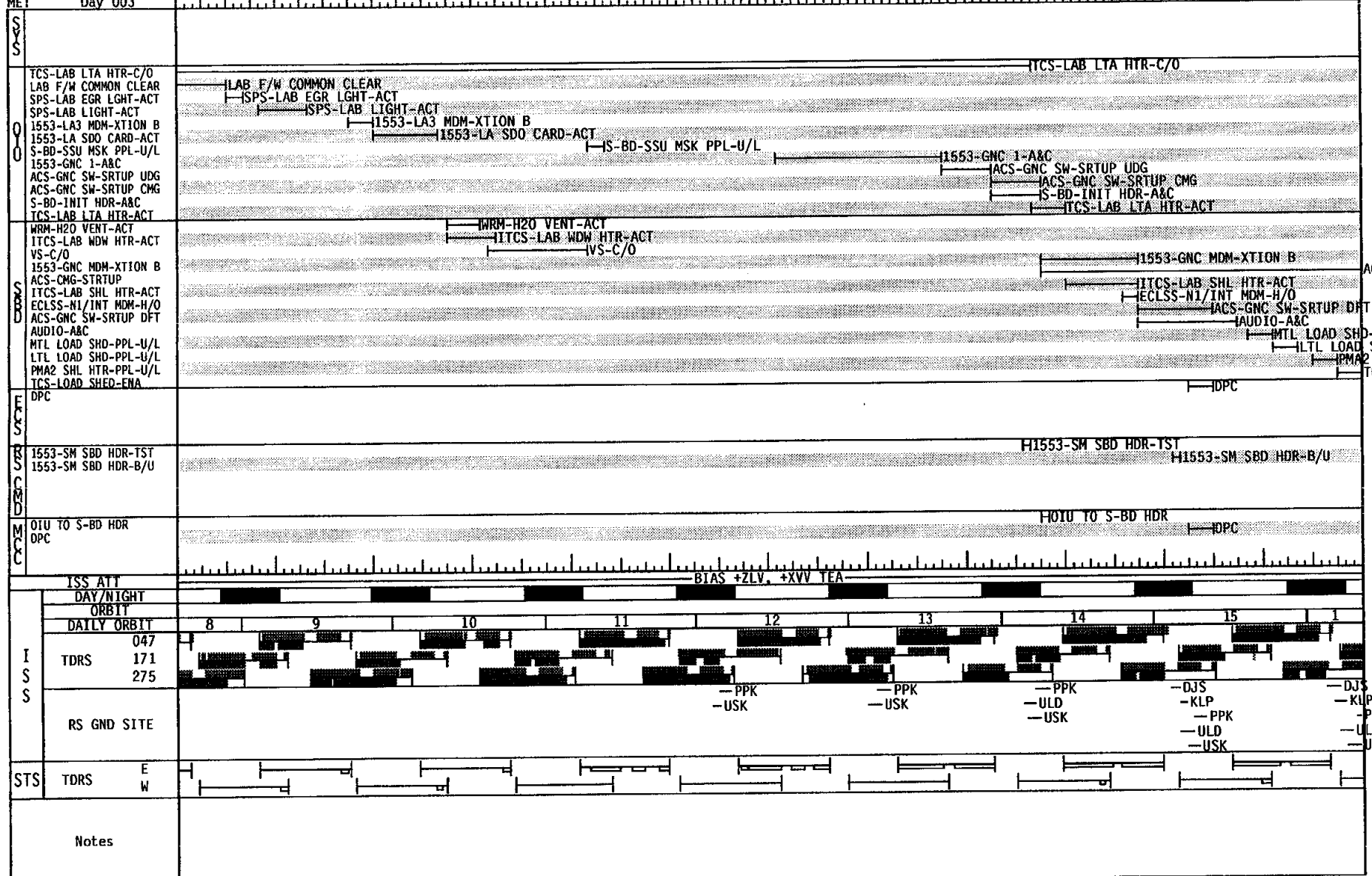
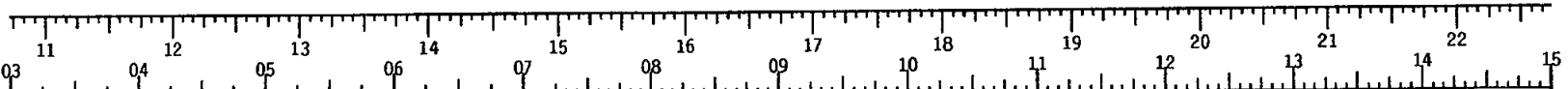
S T S	CDR COCKRELL	SLEEP	POST SLEEP	C I W C I T #2	LAB I N G R	C T W E R # M #2			
	PLT POLANSKY	SLEEP	POST SLEEP - GIRA	C C O O M M F F I I G G	LAB I N G R	LAB S E T U P T A S K S			
	MS2 IVINS	SLEEP	POST SLEEP	M C I U	P/TV 22 S/U	LAB I N G R	P/TV 24 S/U		
	MS3 JONES	SLEEP	POST SLEEP	BATT R C H G T E R M (3)	LAB I N G R	PBA P F E I N S P	A S I U R P L Y		
	MS1 CURBEAM	SLEEP	POST SLEEP	BATT R C H G T E R M (3)	LAB I N G R	NPRV R M V L /I M V I N S T L			
I S S	SHEPHERD	SLEEP	POST SLEEP	C R W D P C T /U	VEST P R E S S	LAB I N G R	P B A F E S C		
	GIDZENKO	SLEEP	POST SLEEP	C R W D P C T /U		LAB I N G R	NPRV R M V L /I M V I N S T L		
	KRIKALEV	SLEEP	POST SLEEP	C R W D P C T /U			IMAX		
MCC-H		LAB WINDOW HTR	LAB ACT NON CRIT	S-BD HDR ACT	@ CMG STARTUP		♥		
DAY/NIGHT									
ORBIT	50	51	52	53	54	55	56	57	58
DAILY ORBIT	8	9	10	11	12	13	14	15	1
TDRS	E -47								
	W -171								
ISS S-BAND									
RGS									
STS ATT									
ISS ATT									
NOTES									

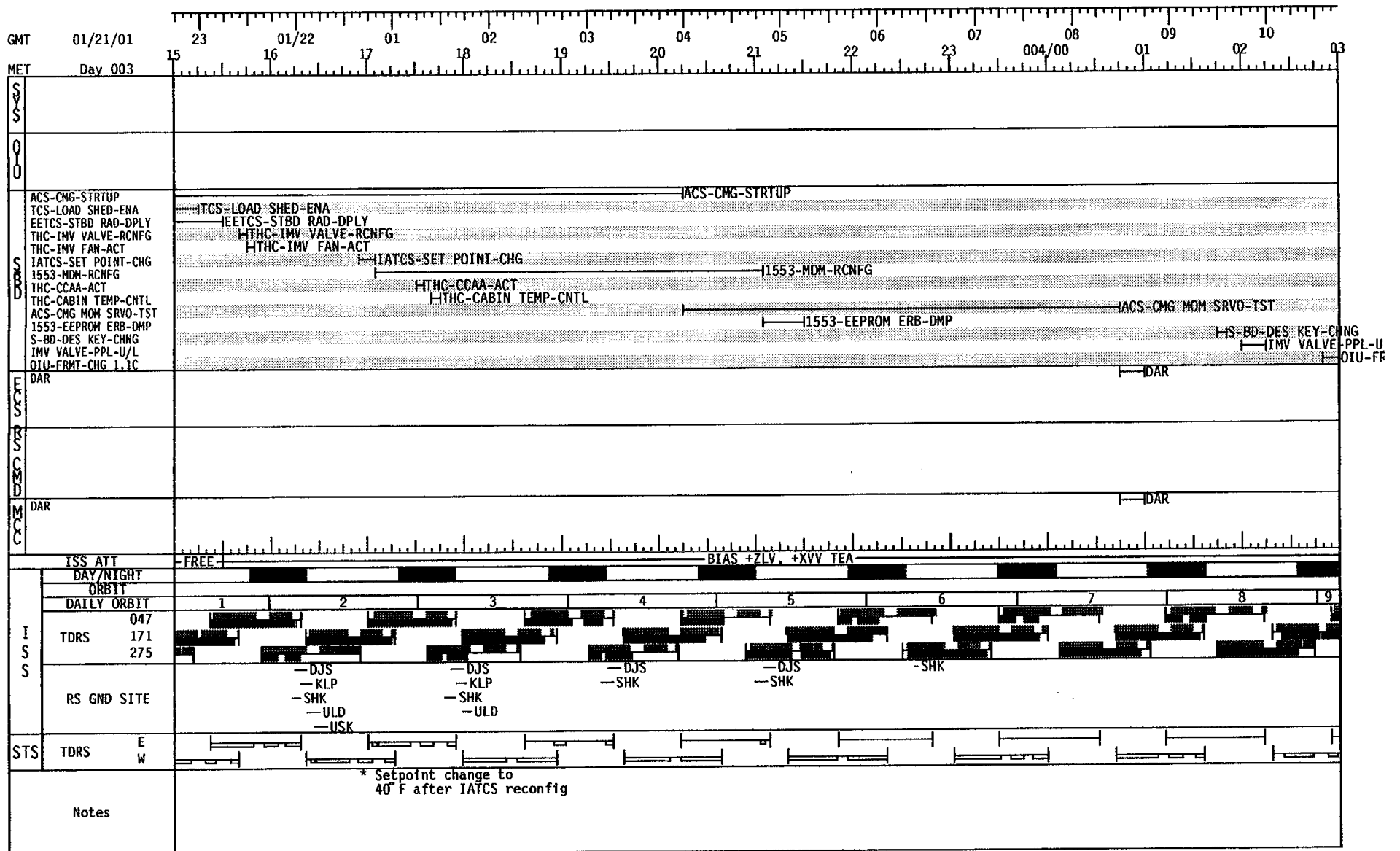
BIAS +ZLV, -XVV
 BIAS +ZLV, +XVV TEA

♦VHF1 OFF
 @LAB HTR ACT

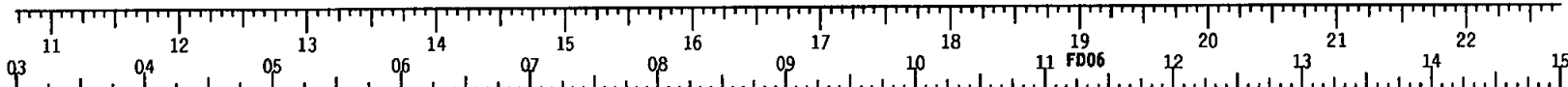
♥CS-LOA

GMT 01/21/01



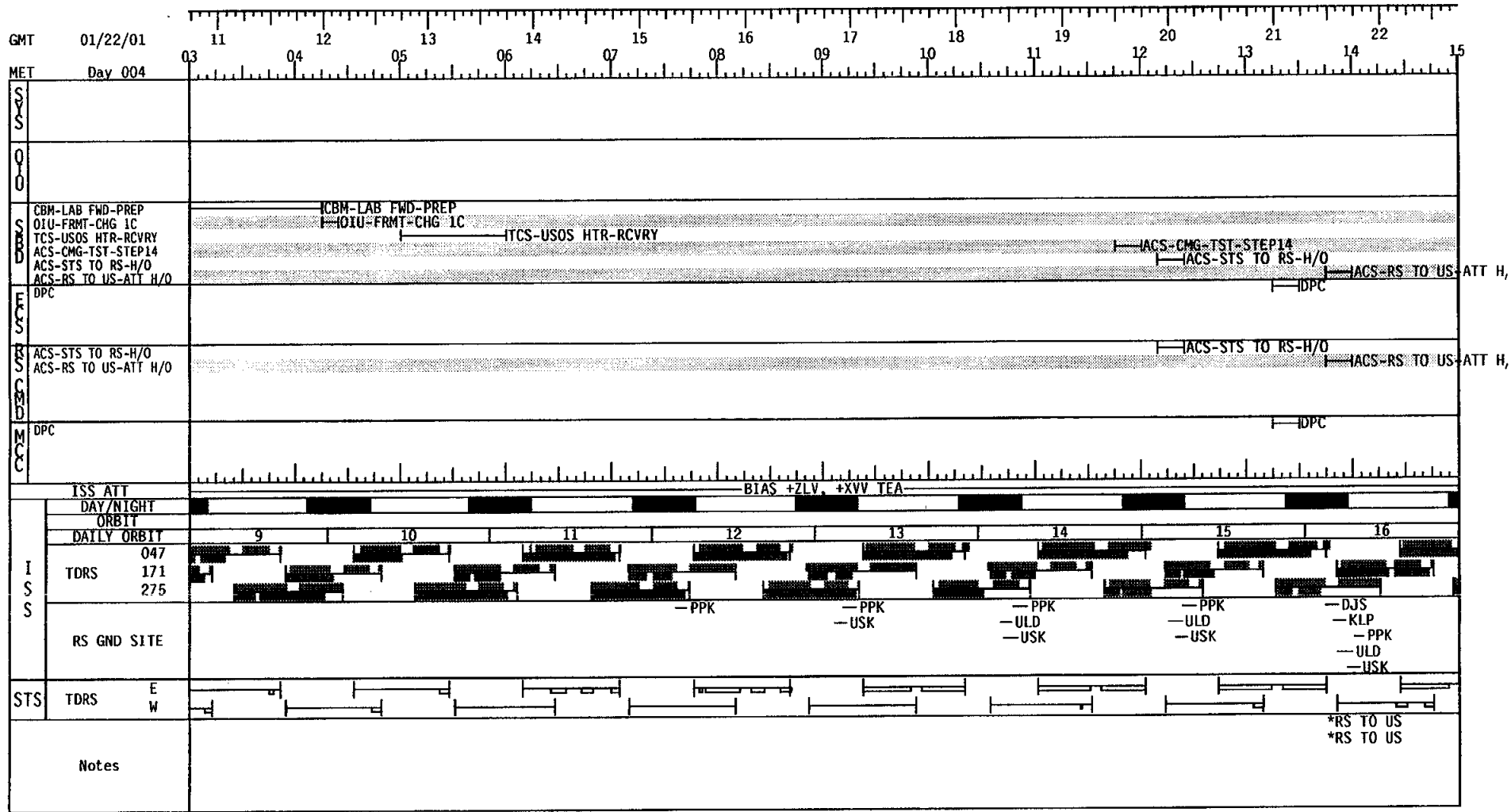


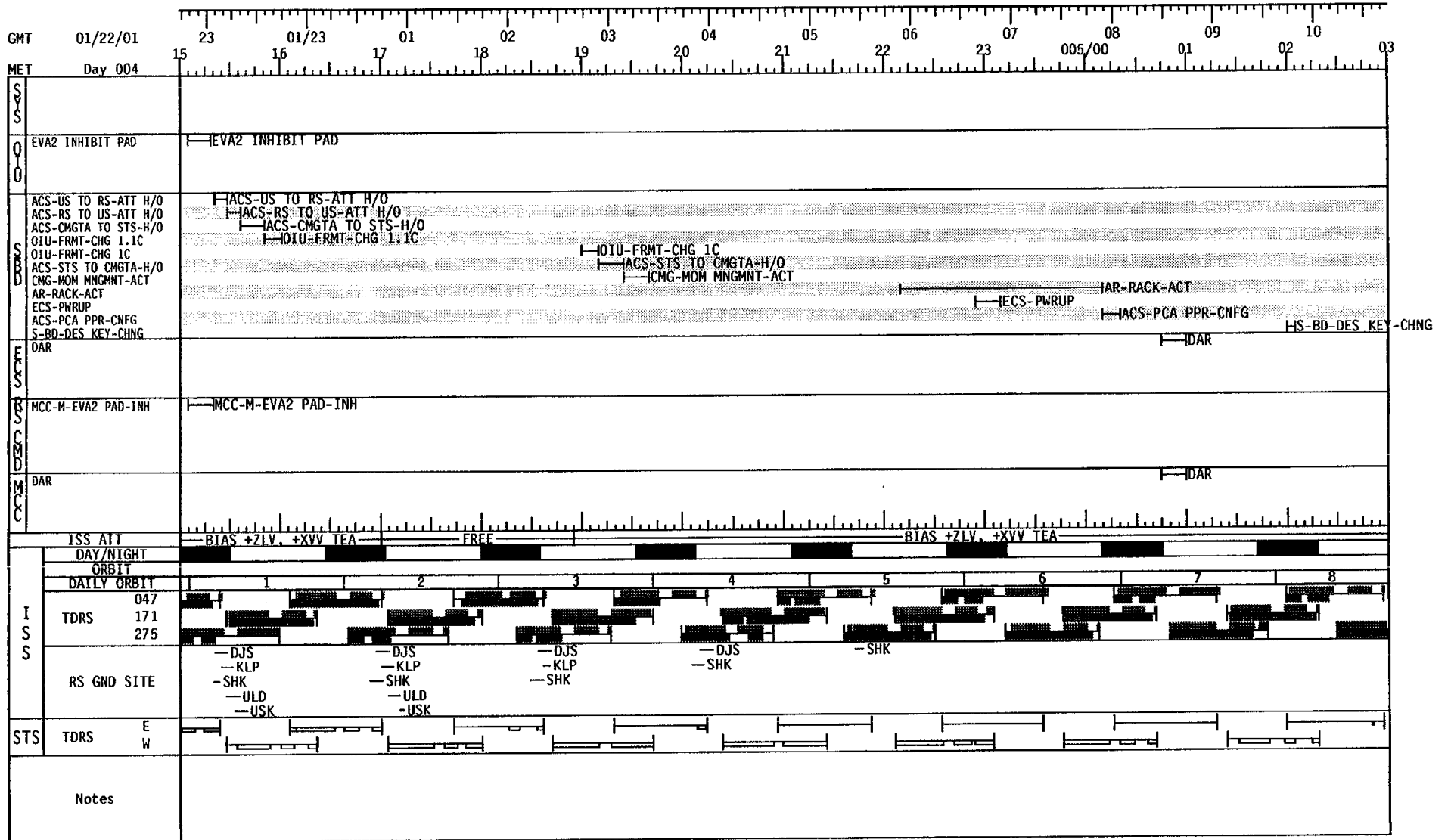
BETA -0.28
 GMT 01/22/01
 FD05/06
 MET Day 004



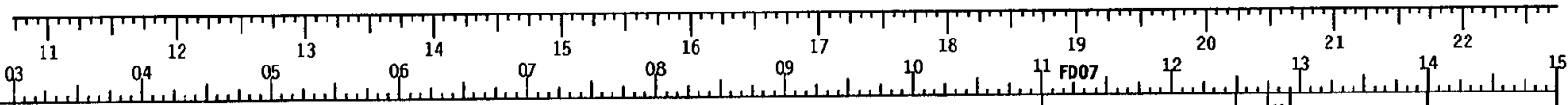
S T S	CDR COCKRELL	SLEEP	POST SLEEP	AH T/ TO*	POST SLEEP	MA I N T	PM C	C I W N C I T # 6	C T W E R M # 6	
	PLT POLANSKY	SLEEP	POST SLEEP - GIRA		POST SLEEP	C R A B S U		EVA PREP		
	MS2 IVINS	SLEEP			POST SLEEP			M C I U	P/TV 23 S/U	
	MS3 JONES	SLEEP			POST SLEEP	A S P R N		EVA PREP		
	MS1 CURBEAM	SLEEP			POST SLEEP	A S P R N		EVA PREP		
I S S	SHEPHERD	SLEEP			POST SLEEP	C R W D P C T/ U		VESTIBULE OUTFIT 2		
	GIDZENKO	SLEEP			POST SLEEP	C R W D P C T/ U		VESTIBULE OUTFIT 2		
	KRIKALEV	SLEEP			POST SLEEP	C R W D P C T/ U				
	MCC-H	LAB FWD CBM PREP				C T M S G T *	A H T/ TO*		A H T/ TO*	
DAY/NIGHT		[Bar chart showing day/night cycle]								
ORBIT		66	67	68	69	70	71	72	73	
DAILY ORBIT		9	10	11	12	13	14	15	16	
TDRS		[Bar chart showing TDRS activity]								
ISS S-BAND		[Bar chart showing ISS S-BAND activity]								
RGS		[Bar chart showing RGS activity]								
STS ATT		[Bar chart showing STS ATT activity]								
ISS ATT		[Bar chart showing ISS ATT activity]								
NOTES		BIAS +ZLV, -XVV BIAS +ZLV, +XVV TEA *Step 14 OCBSC ACT *RS TO US *ORB TO RS								

VEMU PU

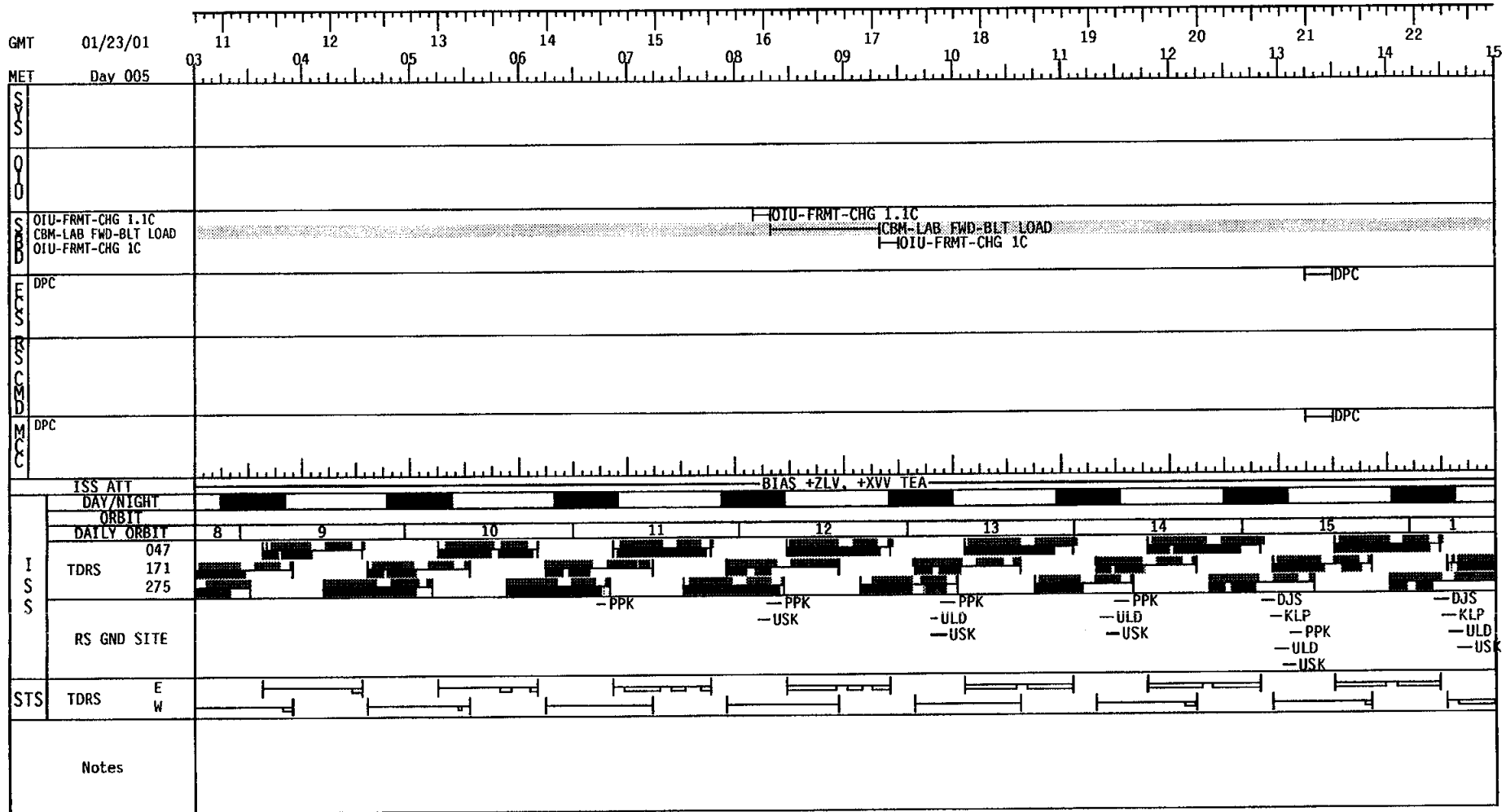




BETA 4.12
 GMT 01/23/01
 FD06/07
 MET Day 005

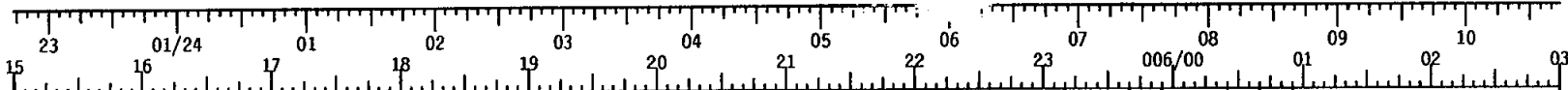


S T S	CDR COCKRELL	SLEEP	POST SLEEP	PFC M A I N T	POST SLEEP	OFF DUTY			
	PLT POLANSKY	SLEEP	POST SLEEP - GIRA	POST SLEEP	EXERCISE	PFC			
	MS2 IVINS	SLEEP	POST SLEEP	I O L N U M	PFC OFF DUTY	OFF DUTY			
	MS3 JONES	SLEEP	POST SLEEP	BATT RCHG TERM (3)	PFC	OFF DUTY			
	MS1 CURBEAM	SLEEP	POST SLEEP	P S O L S E T P	BATT RCHG TERM (3)	OFF DUTY			
I S S	SHEPHERD	SLEEP	POST SLEEP	CRWDPC T/U	CTR DISK RMV	CTR DISK BAR XFR			
	GIDZENKO	SLEEP	POST SLEEP	CRWDPC T/U		EXERCISE			
	KRIKALEV	SLEEP	POST SLEEP	CRWDPC T/U					
MCC-H		1 - 1 COMPLETE PMA2 MATE 1C							
DAY/NIGHT									
ORBIT	81	82	83	84	85	86	87	88	89
DAILY ORBIT	8	9	10	11	12	13	14	15	1
TDRS	E -47								
	W -171								
ISS S-BAND									
RGS									
STS ATT									
ISS ATT									
NOTES									

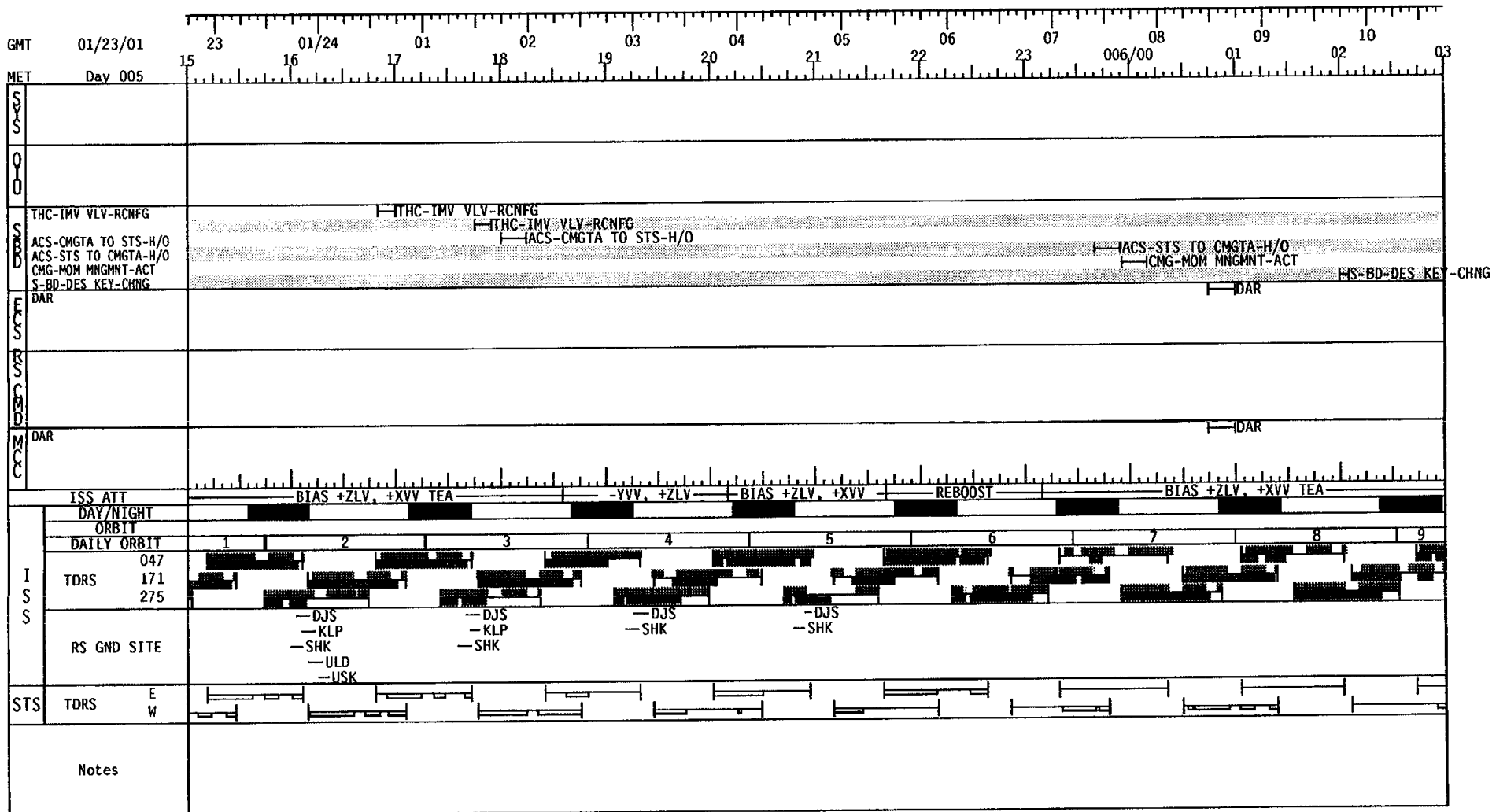


BETA 6.28

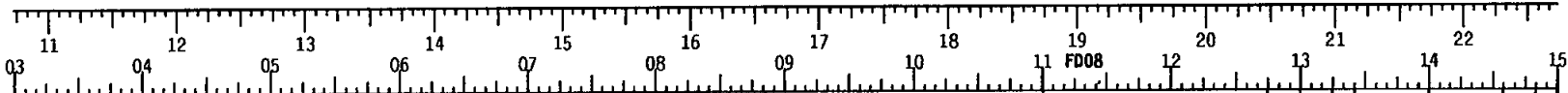
GMT 01/23/01
 FDO7
 MET Day 005



S T S	CDR COCKRELL	OFF DUTY			AH T/O*	DTO 263*	M+ NYV RVV	MEAL	EXERCISE			MNVR -ZVV	RE BOOST	MNVR +ZLV	AH T/O*	EVA PROC RVW	PMC	PRE SLEEP
	PLT POLANSKY	OFF DUTY			W D S U T M P			MEAL	T E N R M	M + Z L V	C W C # 8 I N I T		RE BOOST	P E A V O E N T	EVA PROC RVW	M A I N T	PRE SLEEP - GIRA	
	MS2 IVINS	OFF DUTY						MEAL	EXERCISE			P/TV 07 S/U	P/TV 07 OPS	P E A V O E N T	I O F U M	EVA PROC RVW		PRE SLEEP
	MS3 JONES	OFF DUTY						MEAL	T X O F O E L R	M D D K P R E P	E V A T O O L C N F G # 3	S C A F O E R	EXERCISE		P/TV 02 S/U	P E A V O E N T	EVA PROC RVW	PRE SLEEP
	MS1 CURBEAM	O D F U T Y	P F C	OFF DUTY				MEAL	T X O F O E L R	M D D K P R E P	E V A T O O L C N F G # 3	S C A F O E R	EXERCISE		P E A V O E N T	EVA PROC RVW	PRE SLEEP	
I S S	SHEPHERD	*	CBCS REMOVAL	N1 FLTR R&R			MEAL	LAB IWIS S/U			I W I S A C T		I W I S O F F		D A R	PRE SLEEP		
	GIDZENKO						MEAL								D A R	PRE SLEEP		
	KRIKALEV		EXERCISE	N1 FLTR R&R	AH T/O*		MEAL							AH T/O*		D A R	PRE SLEEP	
	MCC-H	DTO 261 CAMERA SETUP			AH T/O*									AH T/O*	M M T O G M M T			
DAY/NIGHT		ORBIT		DAILY ORBIT		TDRS		ISS S-BAND		RGS		STS ATT		ISS ATT		NOTES		
		89	90	91	92	93	94	95	96	97								
		1	2	3	4	5	6	7	8	9								
		E -47		W -171														
		BIAS +ZLV, -XVV		+YVV, +ZLV		BIAS +ZLV, -XVV		-REBOOST		BIAS +ZLV, -XVV								
		BIAS +ZLV, +XVV TEA		-YVV, +ZLV		BIAS +ZLV, +XVV		-REBOOST		BIAS +ZLV, +XVV TEA								
		*CTR DISK INSTL		*AUTO REBOOST TUNING		*+ZLV, -XVV		+XLV, -ZVV		*+ZLV, -XVV								
				* CMGTA TO ORBITER												* ORBITER TO CMGTA		



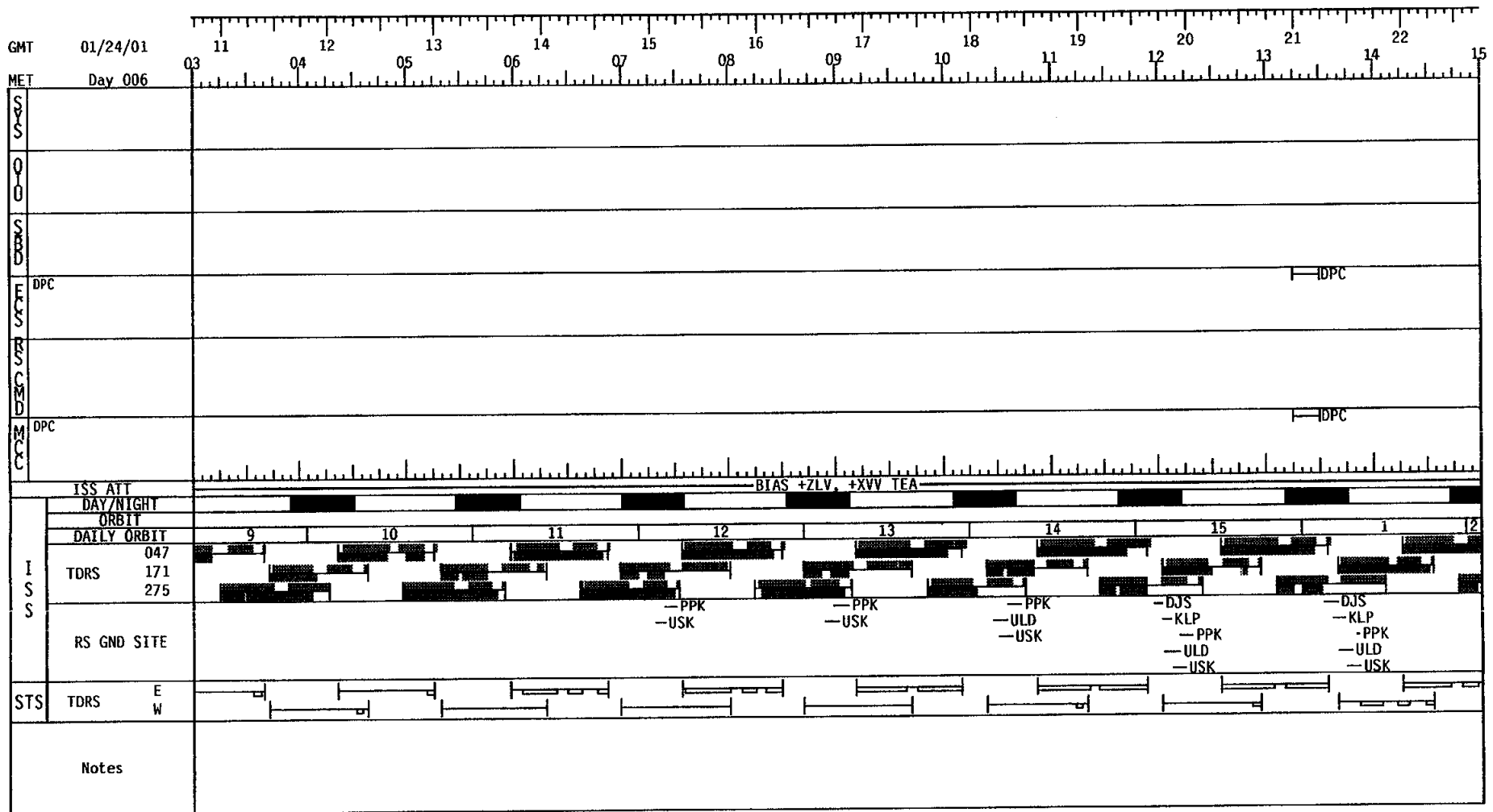
BETA 8.38
 GMT 01/24/01
 FD07/08
 MET Day 006



S T S	CDR COCKRELL	SLEEP	POST SLEEP	PMC	MAINT	POST SLEEP	CIN CIT 9			
	PLT POLANSKY	SLEEP	POST SLEEP - GIRAL	POST SLEEP	EVA PREP					
	MS2 IVINS	SLEEP	POST SLEEP			P/TV 23 S/U				
	MS3 JONES	SLEEP	POST SLEEP		EVA PREP					
	MS1 CURBEAM	SLEEP	POST SLEEP		EVA PREP					
I S S	SHEPHERD	SLEEP	POST SLEEP	CRWDPC T/U	PAO EVT	RACK RSTRNT RELEASE				
	GIDZENKO	SLEEP	POST SLEEP	CRWDPC T/U	PAO EVT		♦			
	KRIKALEV	SLEEP	POST SLEEP	CRWDPC T/U	PAO EVT	IMAX-OPS				
	MCC-H									
DAY/NIGHT										
ORBIT		97	98	99	100	101	102	103	104	
DAILY ORBIT		9	10	11	12	13	14	15	1	2
TDRS		E -47								
		W -171								
ISS S-BAND										
RGS										
STS ATT										
ISS ATT										
NOTES										

BIAS +ZLV, -XVV
 BIAS +ZLV, +XVV TEA

⊗EXERCISE
 ♦EXERCISE

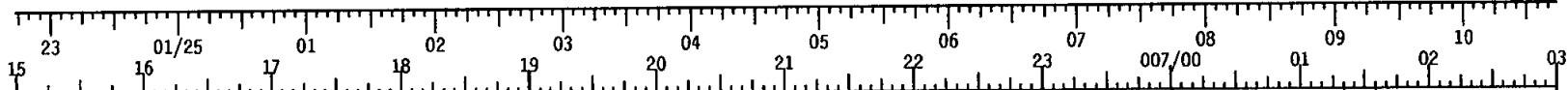


BETA 10.44

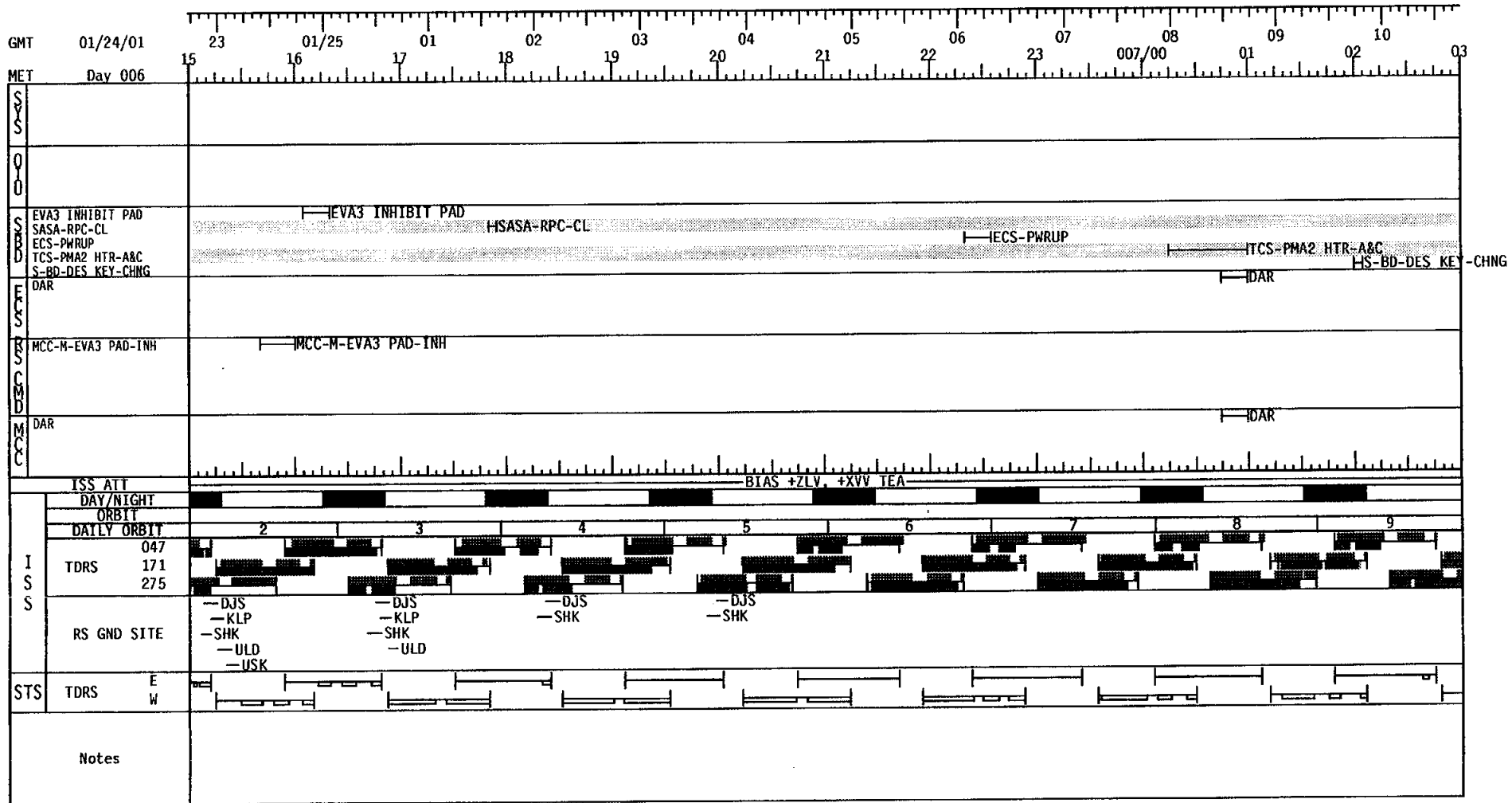
GMT 01/24/01

FD08

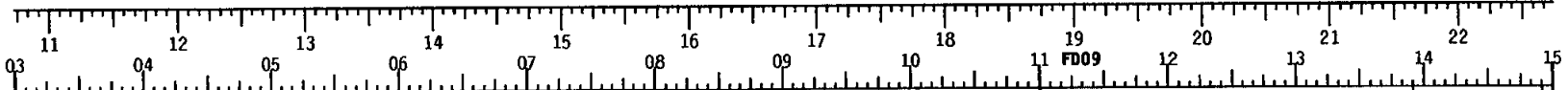
MET Day 006



STS	CDR COCKRELL	EXERCISE	INH PDS											14.7 REPRS	HOP/TECH	PRE SLEEP	PMC	PRE SLEEP					
	PLT POLANSKY	EMU PURGE P/B	EVA 3 SUPPORT										POST EVA W/O H20			PRE SLEEP - GIRA	CCO/MN/MI/G						
	MS2 IVINS	RPMSRUP	A/C/LESSES	PAD OPS	SUANSATOW	SINSSATL	A/C/LESSES	LAB WDW	MTNOVMA	PAD OPS	SVS TGT INSPECT	14.7 REPRS	HOP/TECH	RPMSRUP	PDE/FACT	IONLUM	PRE SLEEP						
	EV 1 MS3 JONES	EMU PURGE P/B	DPRS	PESTRDESSES	TRANSFER SASA	SHTR GEAR BOX	PMA2/LAB UMB	SORTIE CLEAN UP	INCAP CREW DEMO	IPRRSESS	POST EVA W/O H20	BATT RCHG INIT (3)	PRE SLEEP										
	EV 2 MS1 CURBEAM	EMU PURGE P/B	DPRS	PESTRDESSES	SORT SET UP	TRANSFER SASA	INSTL SHTR/GEAR BOX	PMA2/LAB UMB	SORTIE CLEAN UP	INCAP CREW DEMO	IPRRSESS	POST EVA W/O H20	BATT RCHG INIT (3)	PRE SLEEP									
ISS	SHEPHERD	RACK RSTRNT RELEASE											MEAL			HOT/CEHN	WINDOW COVER INSTL	DAR	PRE SLEEP				
	GIDZENKO	EXERCISE											MEAL			EXERCISE			DAR	PRE SLEEP			
	KRIKALEV	IMAX-OPS											MEAL			EXERCISE			DAR	PRE SLEEP			
	MCC-H											INH PDS											PMA2 SHELL HTR
DAY/NIGHT		ORBIT		105		106		107		108		109		110		111		112					
DAILY ORBIT		2		3		4		5		6		7		8		9							
TDRS		E -47		W -171																			
ISS S-BAND																							
RGS																							
STS ATT																							
ISS ATT																							
NOTES		▼EVA PREP @CWC 9 TERM ▲EVA PREP ◆EVA PREP				•SASA-RPC-CL										ΦVHF1 OFF							



BETA 12.47
 GMT 01/25/01
 FD08/09
 MET Day 007



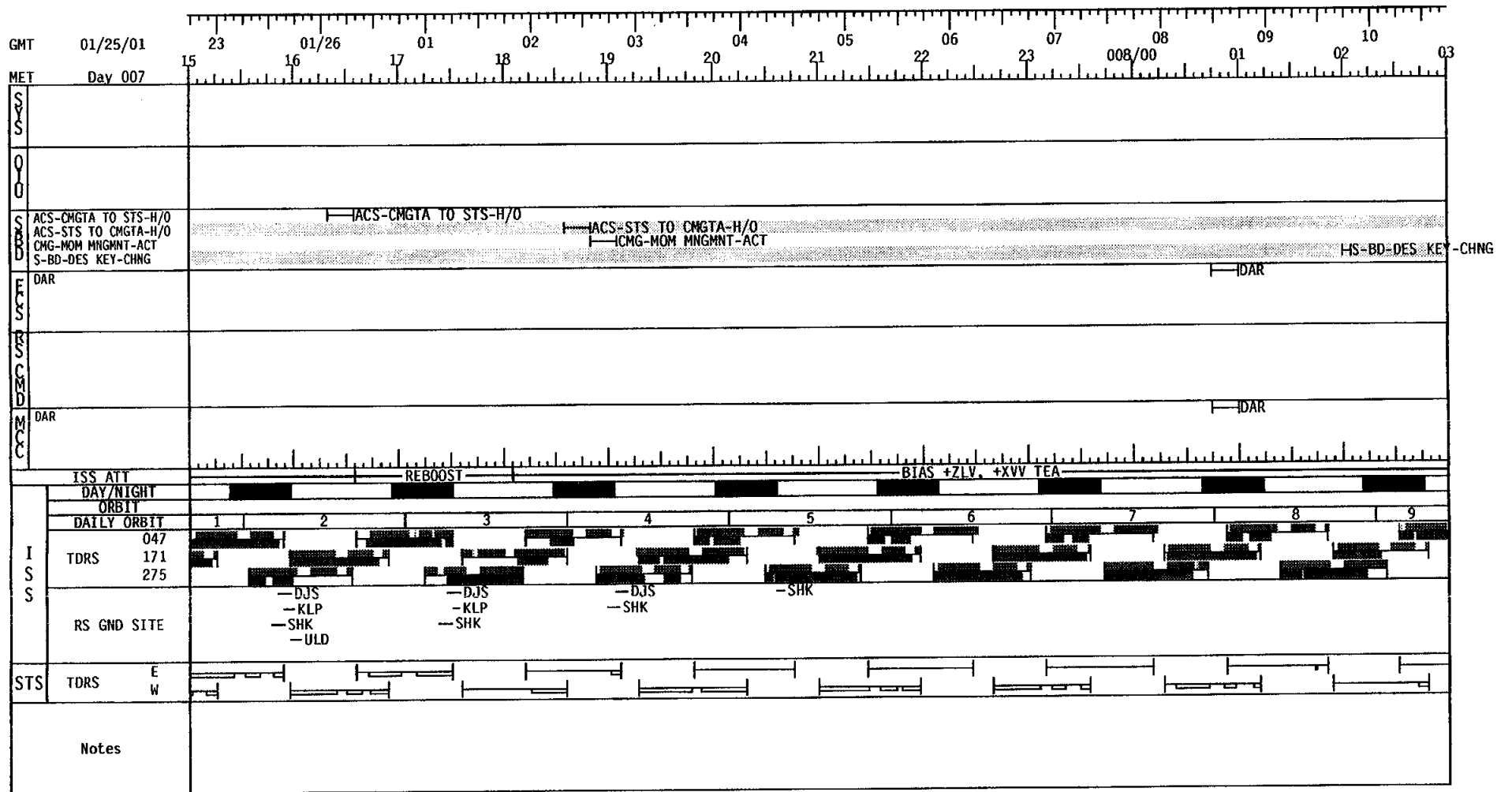
S T S	CDR COCKRELL	SLEEP	POST SLEEP	EXERCISE					
	PLT POLANSKY	SLEEP	POST SLEEP - GIRA	CC OO MN MF MI IG MCI U C I W N C I T I O					
	MS2 IVINS	SLEEP	POST SLEEP	P/TV 02 S/U					
	MS3 JONES	SLEEP	POST SLEEP						
	MS1 CURBEAM	SLEEP	POST SLEEP						
I S S	SHEPHERD	SLEEP	POST SLEEP	CRWDPC T/U INSTL ELPS NOD1P1 INSTL ELPS NOD1P4 ⊕					
	GIDZENKO	SLEEP	POST SLEEP	CRWDPC T/U					
	KRIKALEV	SLEEP	POST SLEEP	CRWDPC T/U INSTL ELPS NOD1P1 INSTL ELPS NOD1P4 ⊕					
MCC-H	ISS EXTERNAL SURVEY		REBOOST CAMERA SETUP						
DAY/NIGHT	[Bar chart showing day/night cycle]								
ORBIT	113	114	115	116	117	118	119	120	
DAILY ORBIT	9	10	11	12	13	14	15	16	1
TDRS	E -47				W -171				
ISS S-BAND	[Bar chart]				[Bar chart]				
RGS	[Bar chart]				[Bar chart]				
STS ATT	BIAS +ZLV, -XVV				BIAS +ZLV, +XVV TEA				
ISS ATT					♦VHF1 OFF				
NOTES									

VDSO 8C
 P/TV02
 DSO 80
 DSO 8C
 ⊕ELPS NOI

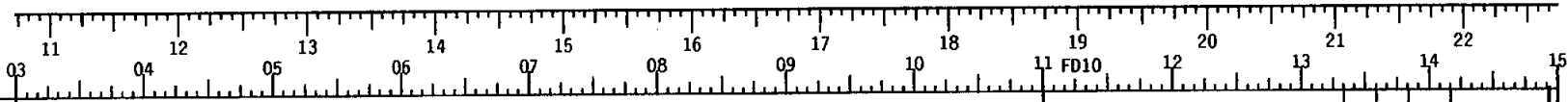
BETA 14.41

GMT 01/25/01
 FD09
 MET Day 007

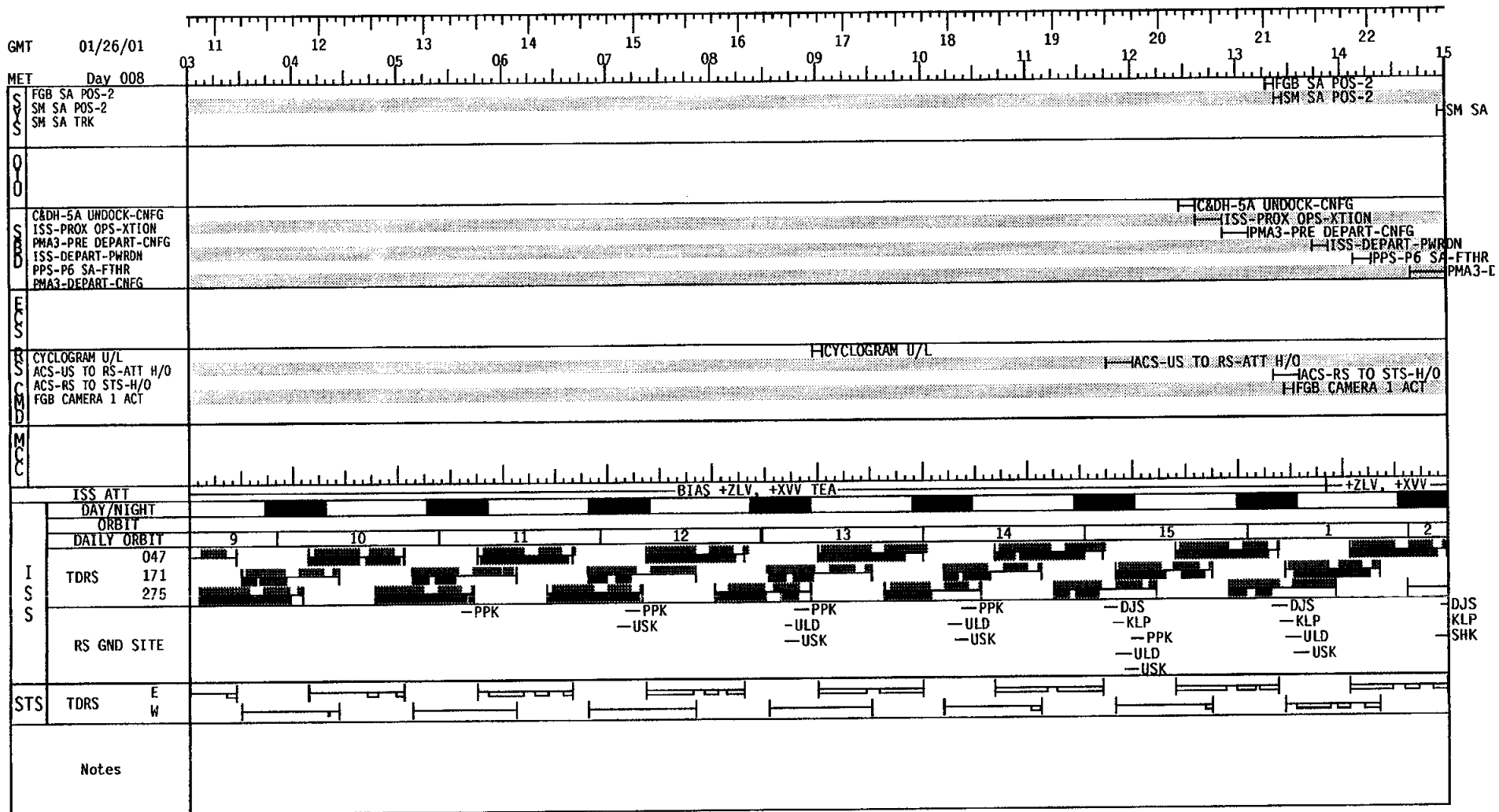
		23		01/26		01		02		03		04		05		06		07		008/00		01		02		10		03		
S T S	CDR COCKRELL	DS0 802		AH T/O *	MNVR +ZLV +XVV	RE BOOST		MNVR BIAS +ZLV	AH T/O *	CP RH EO WT O	CREW CONF	MEAL		XFER				14.9 REPRS		PRE SLEEP	PMC				PRE SLEEP					
	PLT POLANSKY	CT WE CRM 1 0				RE BOOST			P/TV 22 S/U	CP RH EO WT O	CREW CONF	MEAL	EXERCISE		REC NFG			14.9 REPRS							PRE SLEEP - GIRA					
	MS2 IVINS	PO P TS V O 2		EXERCISE		P/TV 07 SETUP		P/TV 07 OPS	R P M S R D M	I O F L U M	CP RH EO WT O	CREW CONF	MEAL	TRANSFER OPS							X B F R E R				PRE SLEEP					
	MS3 JONES	DS0 802		TRANSFER OPS				BATT RCHG TERM (3)	S C A / F O E R	CP RH EO WT O	CREW CONF	MEAL		EXERCISE					RNDZ PGSC S/U		RNDZ TOOLS C/O				PRE SLEEP					
	MS1 CURBEAM	DS0 802	EXERCISE		TRANSFER OPS			BATT RCHG TERM (3)	S C A / F O E R	CP RH EO WT O	CREW CONF	MEAL	TRANSFER OPS						RNDZ PGSC S/U		RNDZ TOOLS C/O				PRE SLEEP					
I S S	SHEPHERD	♥		IWIS ACT				IWIS OFF		CREW PHOT	CREW CONF	MEAL	PMA2 PRES	PMA2 PRESS						RAM DOSIMETER	S D A R			PRE SLEEP						
	GIDZENKO									CREW PHOT	CREW CONF	MEAL		EXERCISE							D A R			PRE SLEEP						
	KRIKALEV	Δ		AH T/O *					AH T/O *	CP RH EO WT O	CREW CONF	MEAL								EXERCISE	D A R			PRE SLEEP						
	MCC-H			AH T/O *					AH T/O *	CP RH EO WT O																				
DAY/NIGHT		ORBIT		DAILY ORBIT		TDRS		ISS S-BAND		RGS		SYS ATT		ISS ATT		NOTES														
		120		121		122		123		124		125		126		127		128												
		1		2		3		4		5		6		7		8		9												
		E -47		W -171																										
		BIAS +ZLV, -XVV		REBOOST		REBOOST		BIAS +ZLV, -XVV		BIAS +ZLV, -XVV		BIAS +ZLV, -XVV		BIAS +ZLV, -XVV		BIAS +ZLV, -XVV		BIAS +ZLV, -XVV												
		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV		* +ZLV, -XVV												
		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER		* CMGTA TO ORBITER												
		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA		* ORBITER TO CMGTA												



BETA 16.37
 GMT 01/26/01
 FD09/10
 MET Day 008



S T S	CDR COCKRELL	SLEEP	POST SLEEP	AH T/O *	MNVR +ZLV	UNDOCK				
	PLT POLANSKY	SLEEP	POST SLEEP - GIRAL	A G L	G P R W P R B U P	UNDOCK				
	MS2 IVINS	SLEEP	POST SLEEP		P/TV 20 S/U	UNDOCK				
	MS3 JONES	SLEEP	POST SLEEP	H C A L T O C S H E	DPRS LEAK CK	UNDOCK				
	MS1 CURBEAM	SLEEP	POST SLEEP	H C A L T O C S H E	DPRS LEAK CK	UNDOCK				
I S S	SHEPHERD	SLEEP	POST SLEEP	H T C L		UNDOCK				
	GIDZENKO	SLEEP	POST SLEEP		UNDOCK AT					
	KRIKALEV	SLEEP	POST SLEEP		8/14:56					
M C C	MCC-H	ISS EXTERNAL SURVEY		AH T/O *	C P O P D & R P R P D D I O S E R T H X	AH T/O *				
	MCC-M			AH T/O *		C A M				
DAY/NIGHT										
ORBIT		128	129	130	131	132	133	134	135	136
DAILY ORBIT		9	10	11	12	13	14	15	1	2
TDRS		E -47		W -171						
ISS S-BAND										
RGS										
STS ATT				BIAS +ZLV, -XVV						+ZLV, -XVV
ISS ATT				BIAS +ZLV, +XVV TEA						+ZLV, +XVV
NOTES				▲CYCLOGRAM U/L				◊FGB SA POS-2		VSM SA
								* US/CMTGA TO RS		* RS TO ORBITER

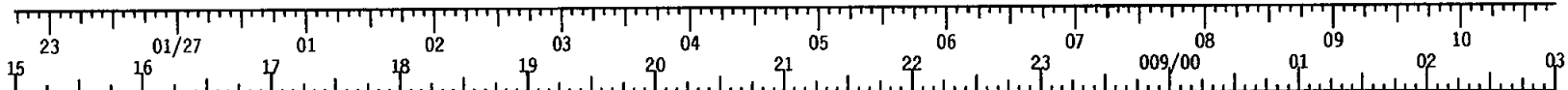


BETA 18.18

GMT 01/26/01

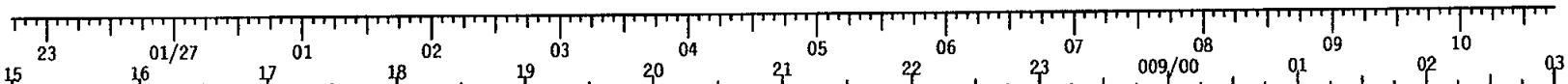
FD10

MET Day 008



STS	CDR COCKRELL	SEPA FLYAROUND & SEP BURN	-M ZN LVR	OD I E A C T	EXERCISE		DTO 700-14 OPS 3 TST	MEAL	PE A V O E N T	GPS NAV	SMP LX O P P T Y	OFF DUTY	G I P N S H B	PRE SLEEP	
	PLT POLANSKY	FLYAROUND & SEP BURN	G P R W P R D B N	H D V O M P			DTO 700-14 OPS 3 TST	MEAL	EXERCISE		SMP LX O P P T Y	OFF DUTY	C O M M 1	PRE SLEEP - GIRA	
	MS2 IVINS	P/TV20 OPS	V P I L D B E K O	C/L C A M R M V			EXERCISE	MEAL	PE A V O E N T	I S S V I D E O P L B K	C A B I N S T O W	OFF DUTY		PRE SLEEP	
	MS3 JONES	FLYAROUND & SEP BURN	F I L T E R C L E A N			C O N D C O L S T O W	P O S T E V A E N T P R E P	P/TV 02 S/U	MEAL	PE A V O E N T		EXERCISE	OFF DUTY		PRE SLEEP
	MS1 CURBEAM	FLYAROUND & SEP BURN	EXERCISE				P O S T E V A E N T P R E P		MEAL	PE A V O E N T	C A B I N S T O W	OFF DUTY		PRE SLEEP	
ISS	SHEPHERD						EXERCISE	MEAL				OFF DUTY		PRE SLEEP	
	GIDZENKO						EXERCISE	MEAL				OFF DUTY		PRE SLEEP	
	KRIKALEV			M V R			EXERCISE	MEAL				OFF DUTY		PRE SLEEP	
MCC	MCC-H	S A C & D H	P M A 3 P O S T D P R T	*	A H M M T O G T O M M T										
	MCC-M				M V R	A H M M T O G T O M M T									
DAY/NIGHT		[Timeline bar with alternating black and white segments]													
ORBIT		136	137	138	139	140	141	142	143						
DAILY ORBIT		2	3	4	5	6	7	8	9						
TDRS		E -47	[Timeline bar with horizontal lines]												
W -171		[Timeline bar with horizontal lines]													
ISS S-BAND		[Timeline bar with horizontal lines]													
RGS		[Timeline bar with horizontal lines]													
STS ATT		[Timeline bar with horizontal lines]													
ISS ATT		[Timeline bar with horizontal lines]													
NOTES		*ZLV, +XVV *STANDARD MODE *RS TO US CMGTA *BIAS +ZLV, +XVV TEA *SM SA TRK *FGB SA TRK ACT *FGB CAMERA 1 DEACT													

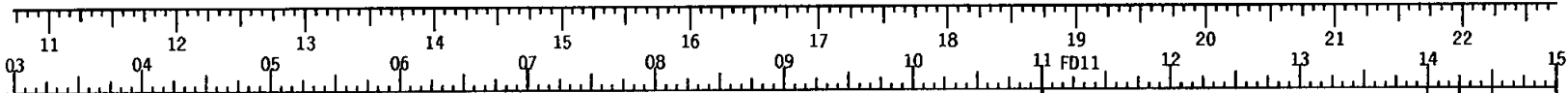
GMT 01/26/01



MET Day 008

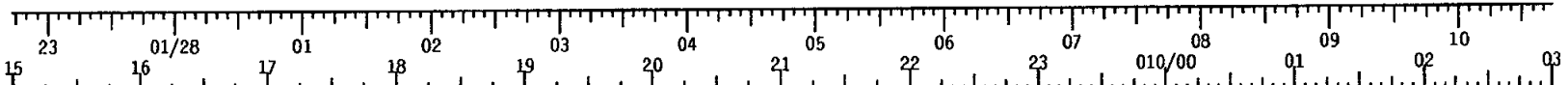
S S	SM SA TRK FGB SA TRK ACT	SM SA TRK FGB SA TRK ACT
O D		
S B D	PMA3-DEPART-CNFG PPS-SA TRACK-MODE C&DH-5A UNDOCK-CNFG ISS-POWER-RCVRY PMA3-PST DEPART-CNFG ISS-STAND MODE-XTION ACS-RS TO US-ATT H/O CMG-MOM MNGMNT-ACT S-BD-DES KEY-CHNG	IPMA3-DEPART-CNFG IPPS-SA TRACK-MODE IC&DH-5A UNDOCK-CNFG IISS-POWER-RCVRY IPMA3-PST DEPART-CNFG IISS-STAND MODE-XTION IACS-RS TO US-ATT H/O ICMG-MOM MNGMNT-ACT
		HS-BD-DES KEY-CHNG
F K S		
R S C B C	FGB CAMERA 1 DEACT ISS-BIAS XVV-MNVR ACS-RS TO US-ATT H/O	IFGB CAMERA 1 DEACT IISS-BIAS XVV-MNVR IACS-RS TO US-ATT H/O
I S S	ISS ATT DAY/NIGHT ORBIT DAILY ORBIT TDRS 047 171 275 RS GND SITE -DJS -KLP -ULD -USK	
STS	TDRS E W	
	Notes	

BETA 20.00
 GMT 01/27/01
 FD10
 MET Day 009



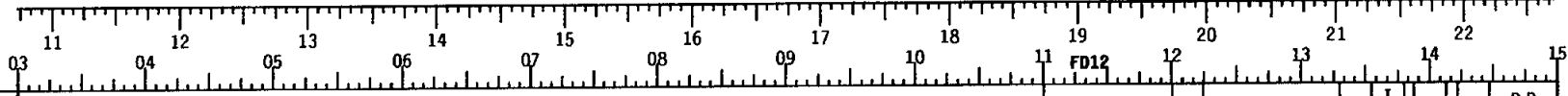
CDR COCKRELL	SLEEP	POST SLEEP	P C R L O S E	FCS C/O
PLT POLANSKY	SLEEP	POST SLEEP - GIRA	S D E M A C H T	FCS C/O
MS2 IVINS	SLEEP	POST SLEEP	EXERCISE	FCS C/O
MS3 JONES	SLEEP	POST SLEEP		
MS1 CURBEAM	SLEEP	POST SLEEP	EXERCISE	
ISS	SLEEP	POST SLEEP		
DAY/NIGHT	[Timeline with alternating black and white bars]			
ORBIT	144 145 146 147 148 149 150 151			
TDRS	E -47 W -141			
RGS	[Timeline with horizontal bars]			
STS ATT	-ZLV.-XVV			
NOTES:				

BETA 21.71
 GMT 01/27/01
 FD11
 MET Day 009



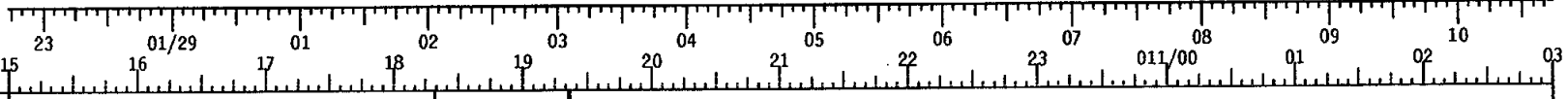
CDR COCKRELL	FCS C/O	RCS HF	PILOT WITH RHC	D/O BRIEF	MEAL	EXERCISE	L-1 COMM CK	CABIN STOW	PMO ET NET R P Y	C O M M M 2	PRE SLEEP
PLT POLANSKY	FCS C/O	RCS HF	PILOT WITH RHC	D/O BRIEF	MEAL	PE AV O E N T	EXERCISE	L-1 COMM CK	CABIN STOW		PRE SLEEP - GIRA
MS2 IVINS	FCS C/O	RCS HF	CABIN STOW	D/O BRIEF	MEAL	PE AV O E N T	CABIN STOW	K U S T O W	M F X A C T	P/TV 05 S/U*	PRE SLEEP
MS3 JONES			EXERCISE	D/O BRIEF	MEAL	PE AV O E N T	CABIN STOW	ERGOM STOW	CABIN STOW		PRE SLEEP
MS1 CURBEAM	EXERCISE		P/TV 02 S/U	D/O BRIEF	MEAL	PE AV O E N T	FRED STOW	CABIN STOW			PRE SLEEP
ISS											PRE SLEEP
DAY/NIGHT	[Timeline with alternating black and white bars]										
ORBIT	151	152	153	154	155	156	157	158	159		
TDRS	E -47	[Timeline with horizontal bars]									
	W -141	[Timeline with horizontal bars]									
RGS	[Timeline with horizontal bars]										
STS ATT	-ZLV, -XVV										
NOTES:	*ENTRY VIDEO										

BETA 23.36
 GMT 01/28/01
 FD11/12
 MET Day 010



CDR COCKRELL	SLEEP	POST SLEEP	PMC	POST SLEEP	GP RW PR UB PI	IM UN NV R	IV EN VR IF	MV EX SR IF	M X V R	DE OR BI T
PLT POLANSKY	SLEEP	POST SLEEP - GIRA				GIRA STOW	TA NK C			DE OR BI T P R E P
MS2 IVINS	SLEEP	POST SLEEP				A I R S A M P	OC AC S T O W			DE OR BI T P R E P
MS3 JONES	SLEEP	POST SLEEP								DE OR BI T P R E P
MS1 CURBEAM	SLEEP	POST SLEEP				TE P C O F F	CP OR L O S T O W			DE OR BI T P R E P
ISS	SLEEP				POST SLEEP					
DAY/NIGHT ORBIT	159	160	161	162	163	164	165	166	167	
TDRS E -47 W -141	[Timeline bars indicating TDRS operations]									
RGS STS ATT	-ZLV, -XVV- IMU									
NOTES:										

BETA 24.95
 GMT 01/28/01
 FD12
 MET Day 010

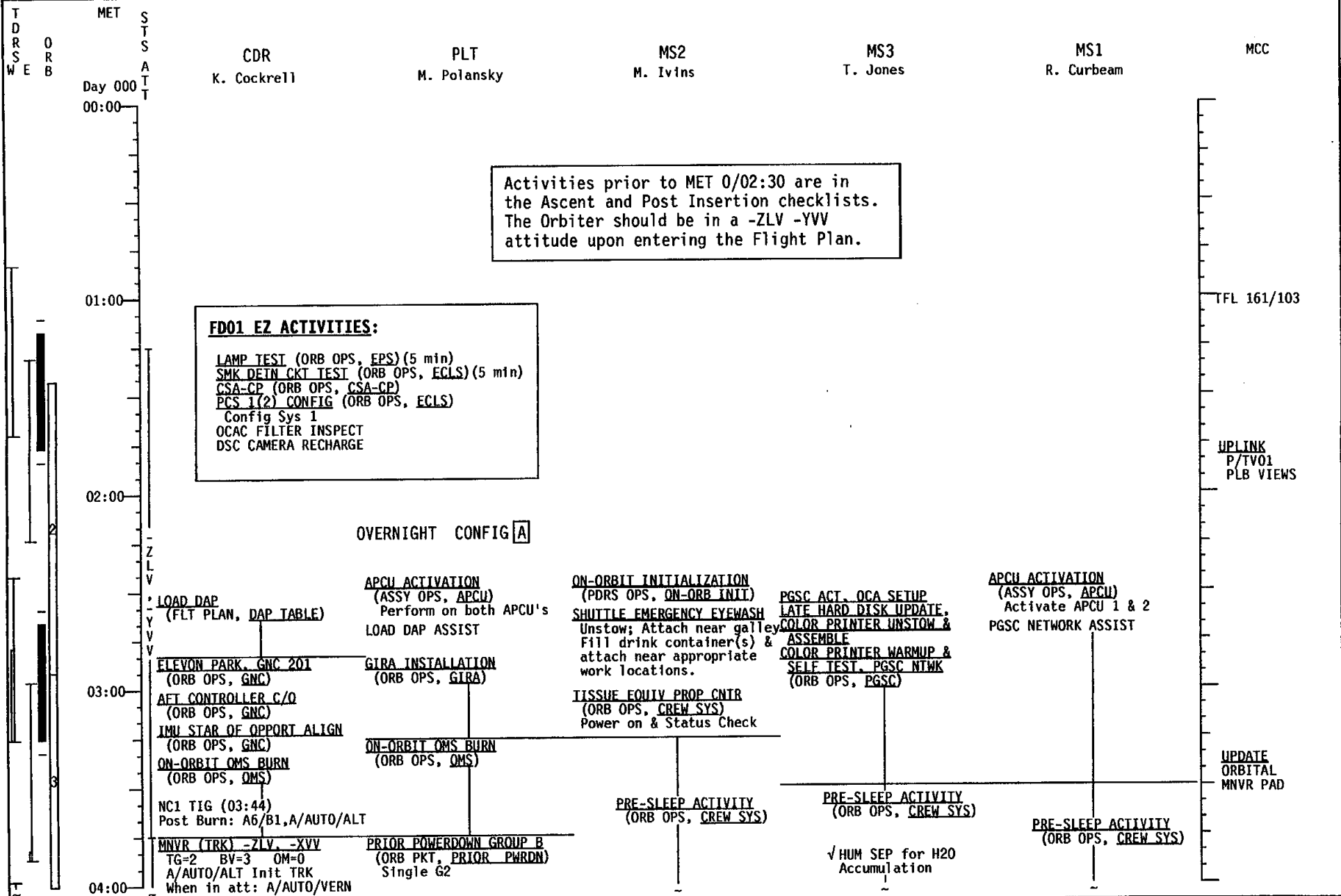


CDR COCKRELL	DEORBIT PREP	D E O R B I T B U R N *	K S C L A N D I N G *
PLT POLANSKY	DEORBIT PREP		
MS2 IVINS	DEORBIT PREP		
MS3 JONES	DEORBIT PREP		
MS1 CURBEAM	DEORBIT PREP		
ISS			
DAY/NIGHT ORBIT	<p>A timeline from Day 167 to 175. Shaded blocks represent day/night cycles. Horizontal bars represent orbit events, including TDRS (E/W) and RGS (SOLAR INERTIAL).</p>		
TDRS E -47 W -141	<p>Timeline showing TDRS E (-47) and W (-141) event bars from Day 167 to 175.</p>		
RGS STS ATT	<p>Timeline showing RGS and STS ATT event bars from Day 167 to 175. One bar is labeled '-X SOLAR INERTIAL'.</p>		
NOTES:	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;"> * DEORBIT BURN 010/18:13 </div> <div style="border: 1px solid black; padding: 2px;"> * KSC LANDING 010/19:19 </div> </div>		

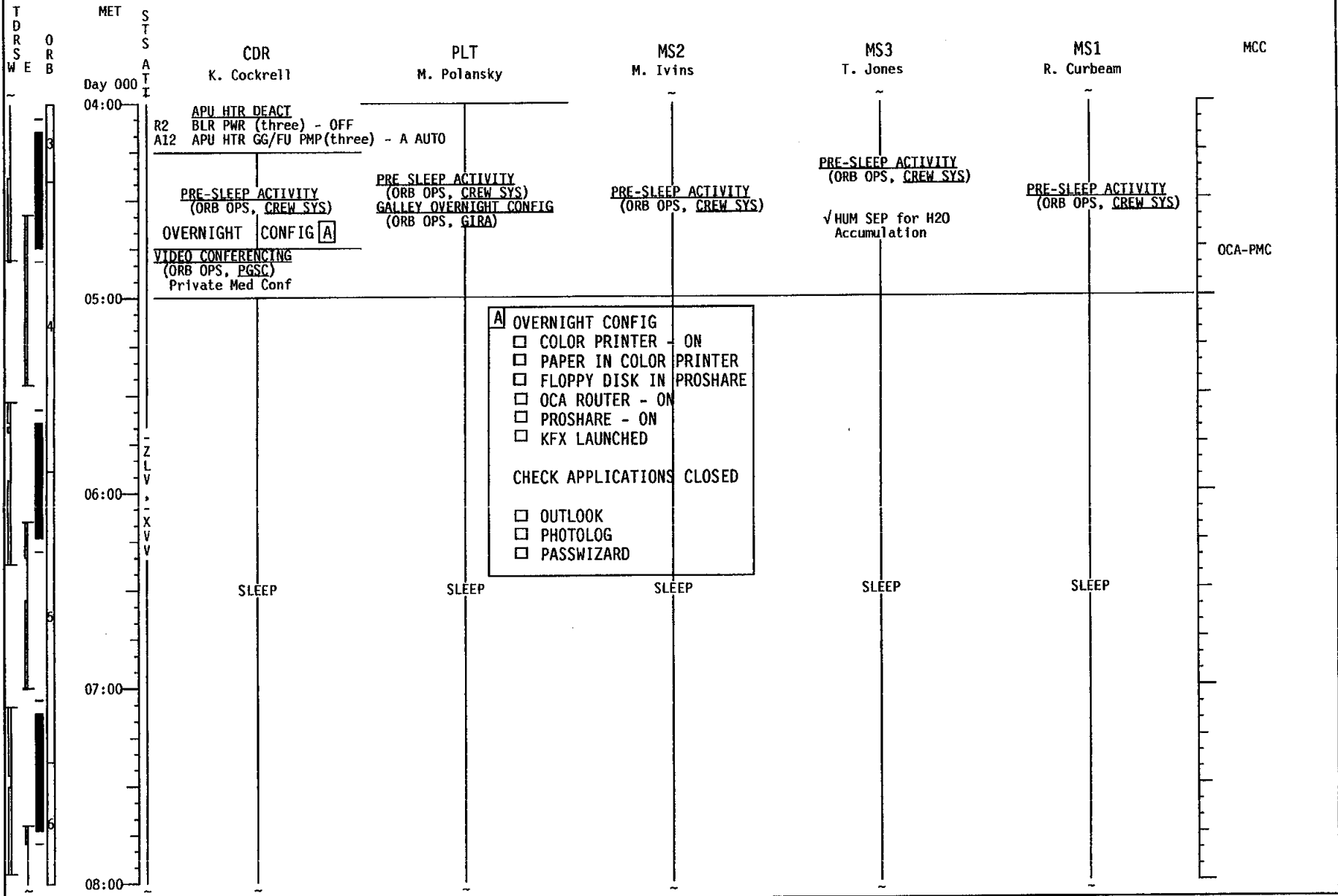
DETAILED TIMELINE

**DETAILED
TIMELINE**

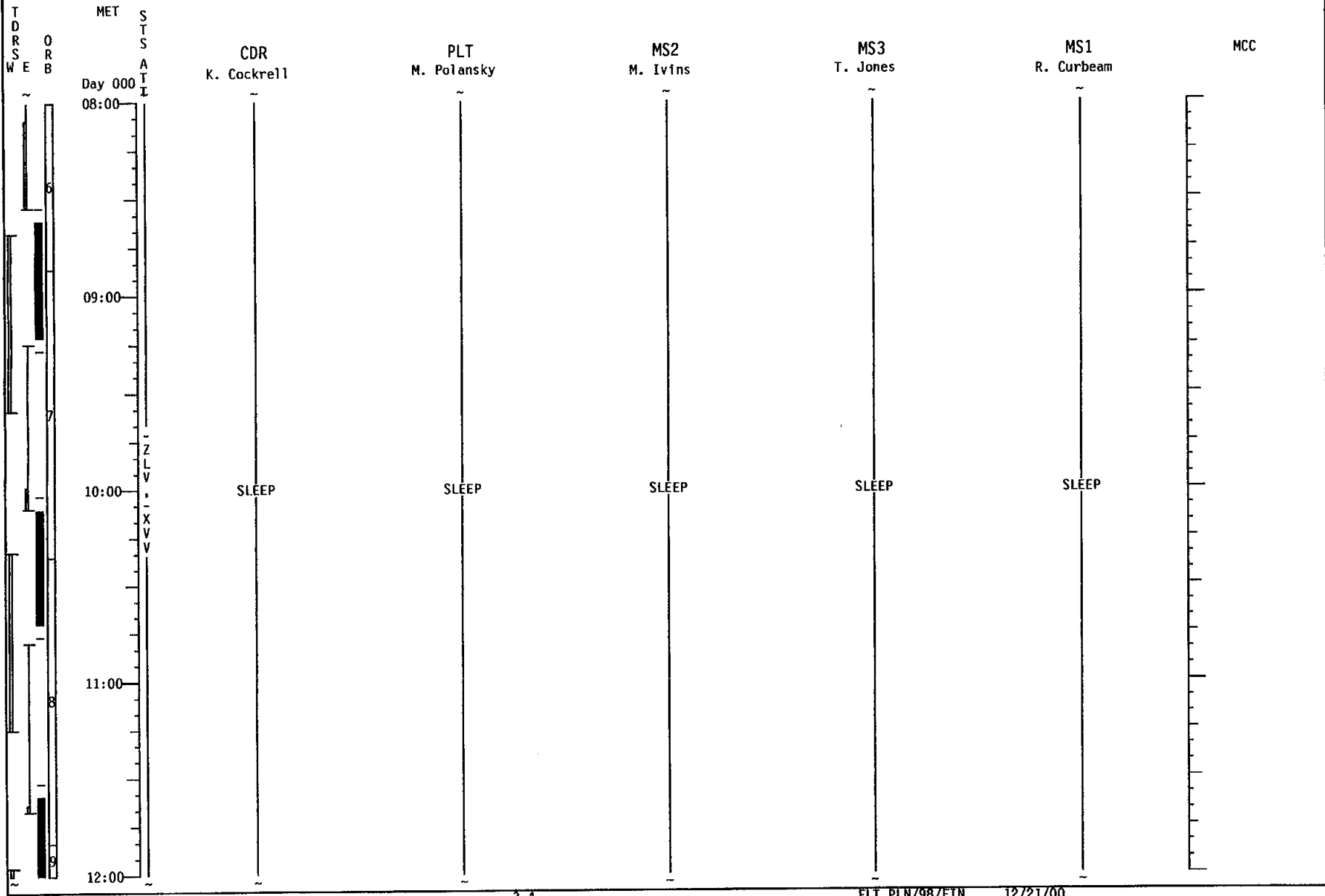
STS-98 (FD 01)



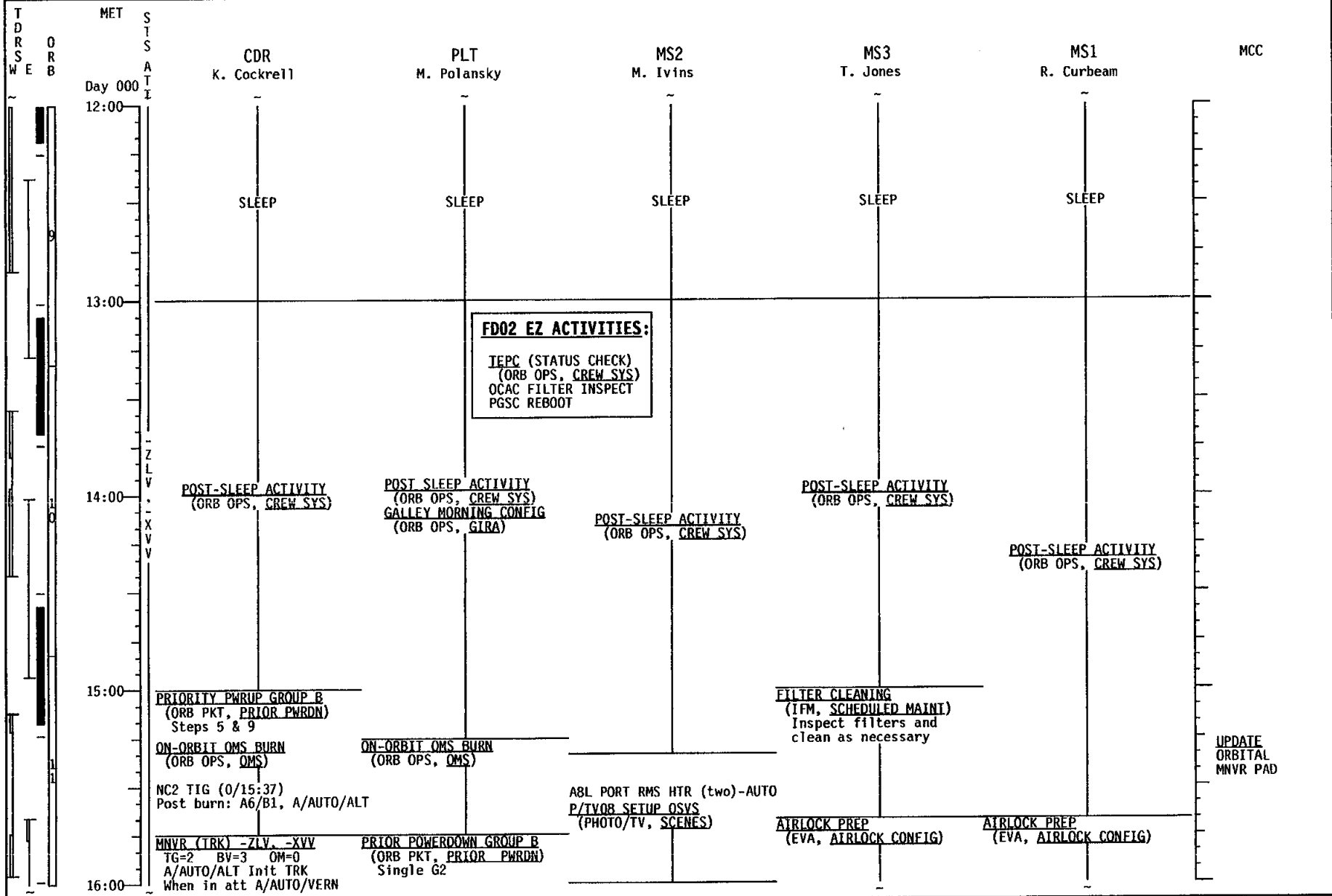
STS-98 (FD 01)



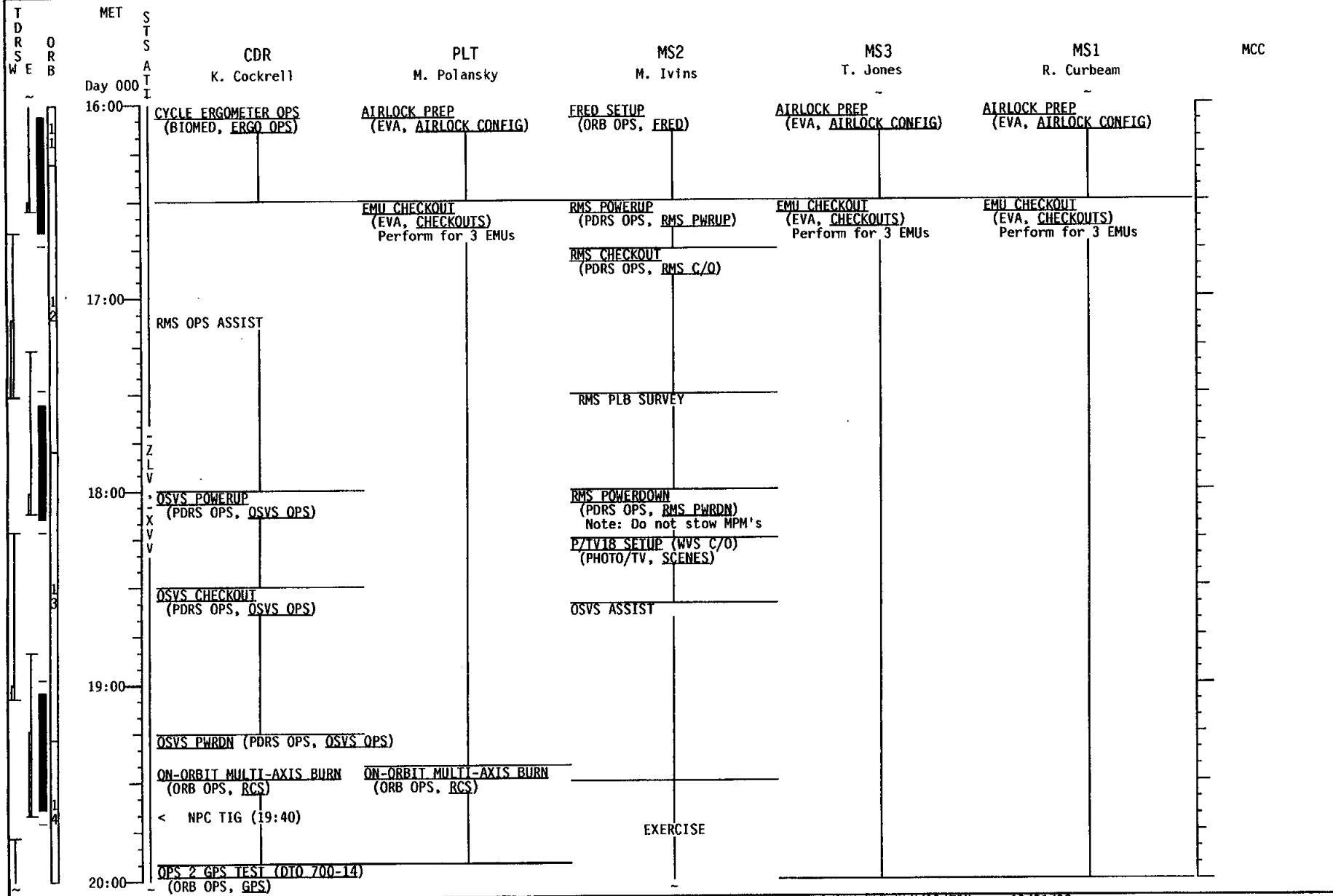
STS-98 (FD 01)



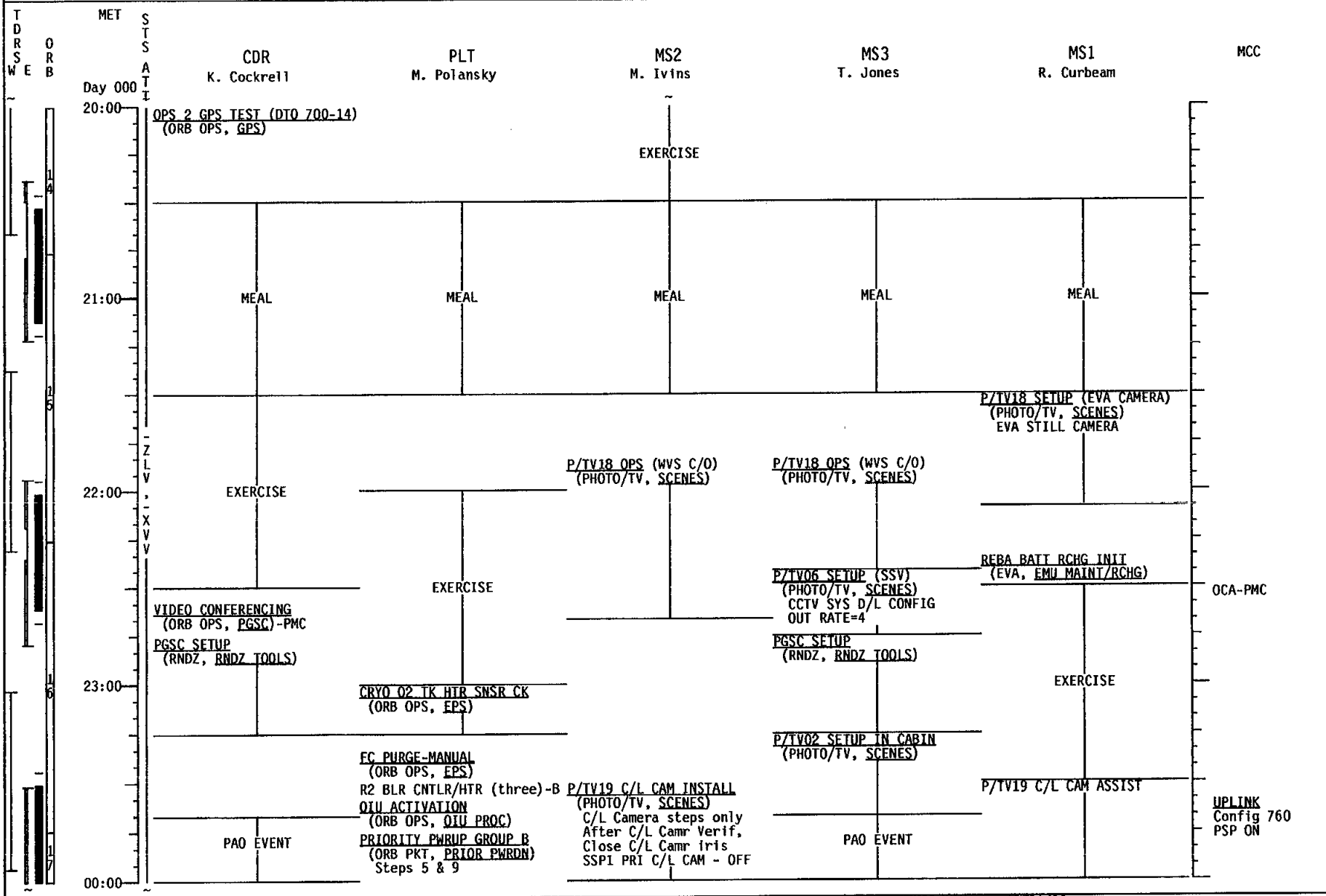
STS-98 (FD 02)



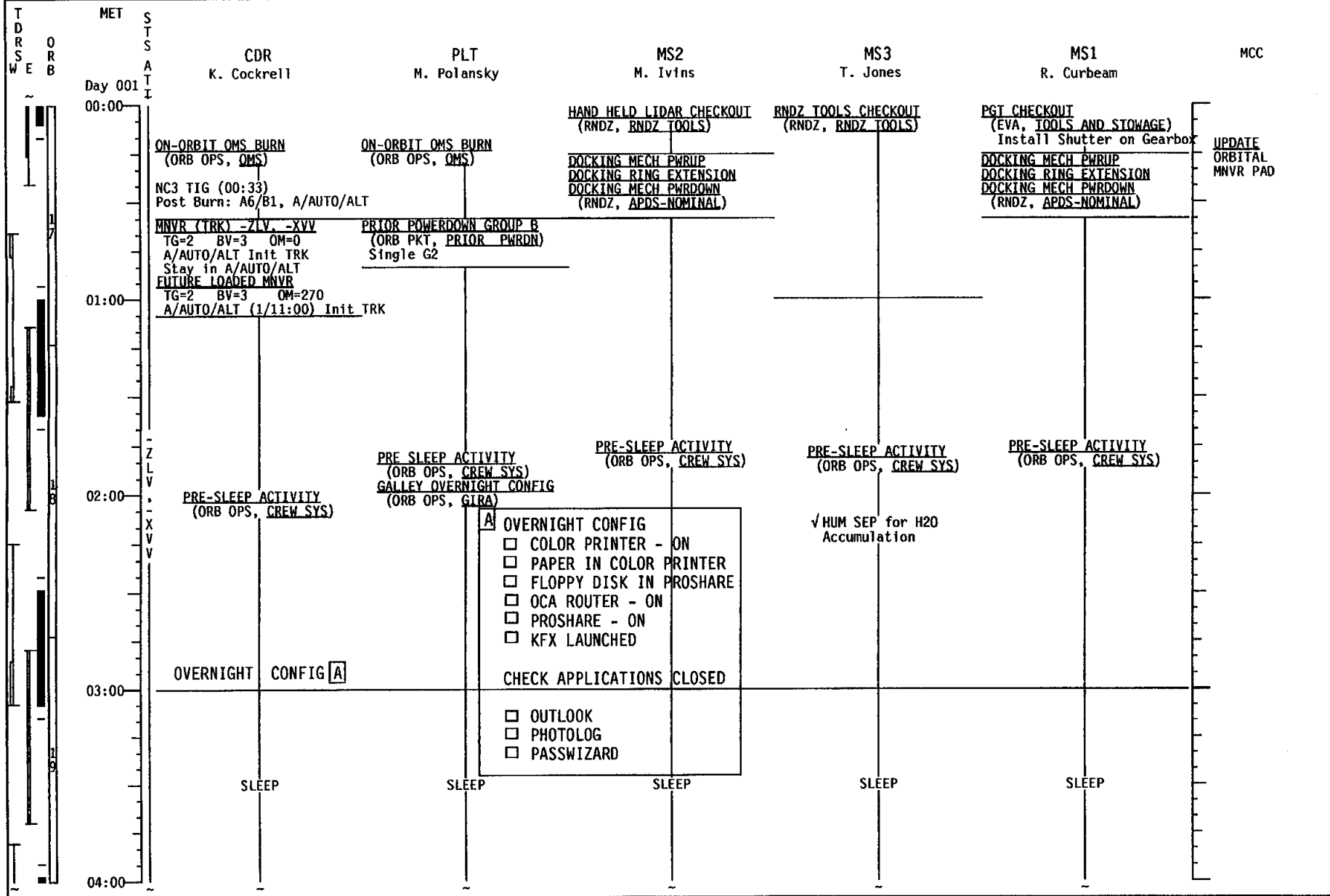
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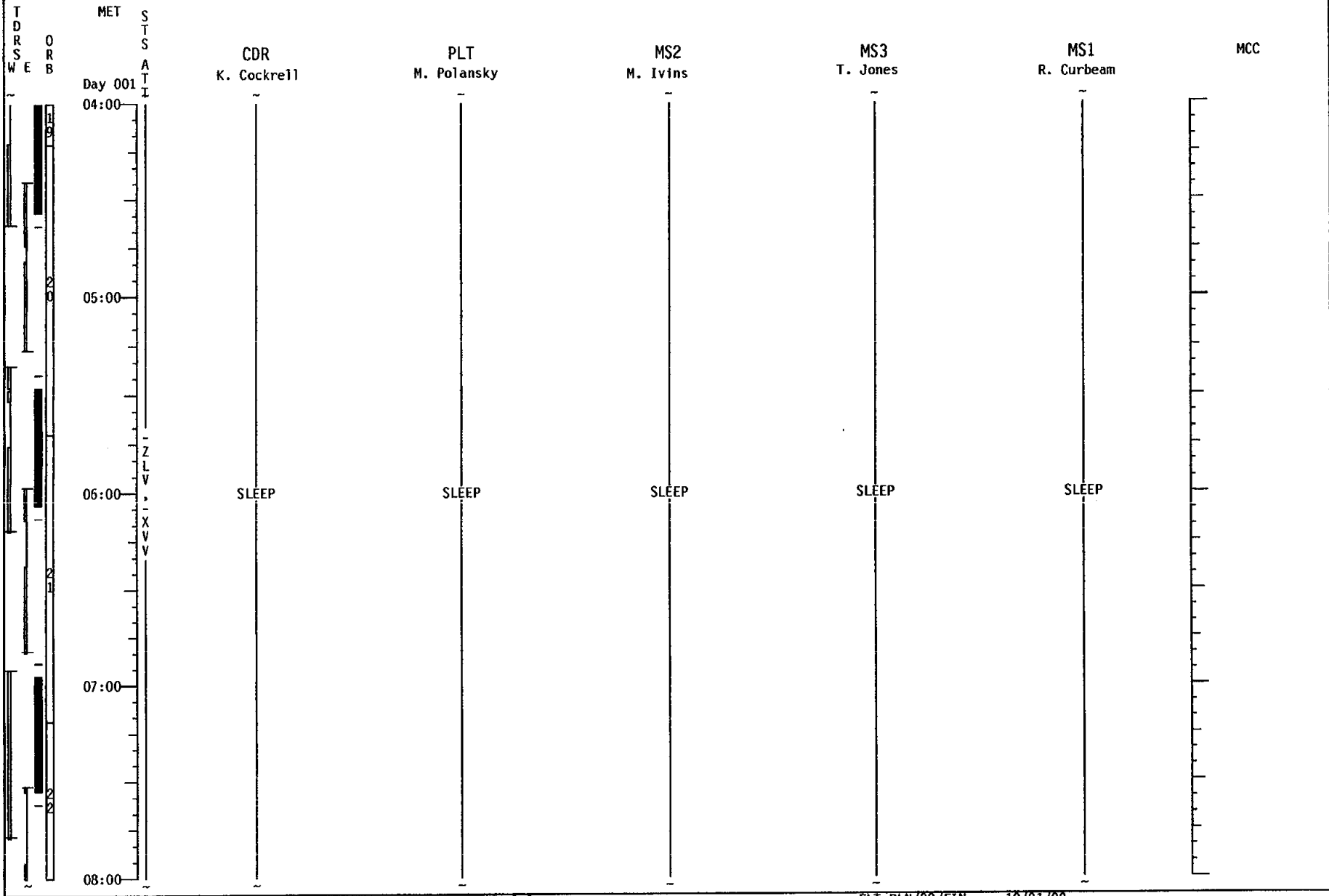
STS-98 (FD 02)



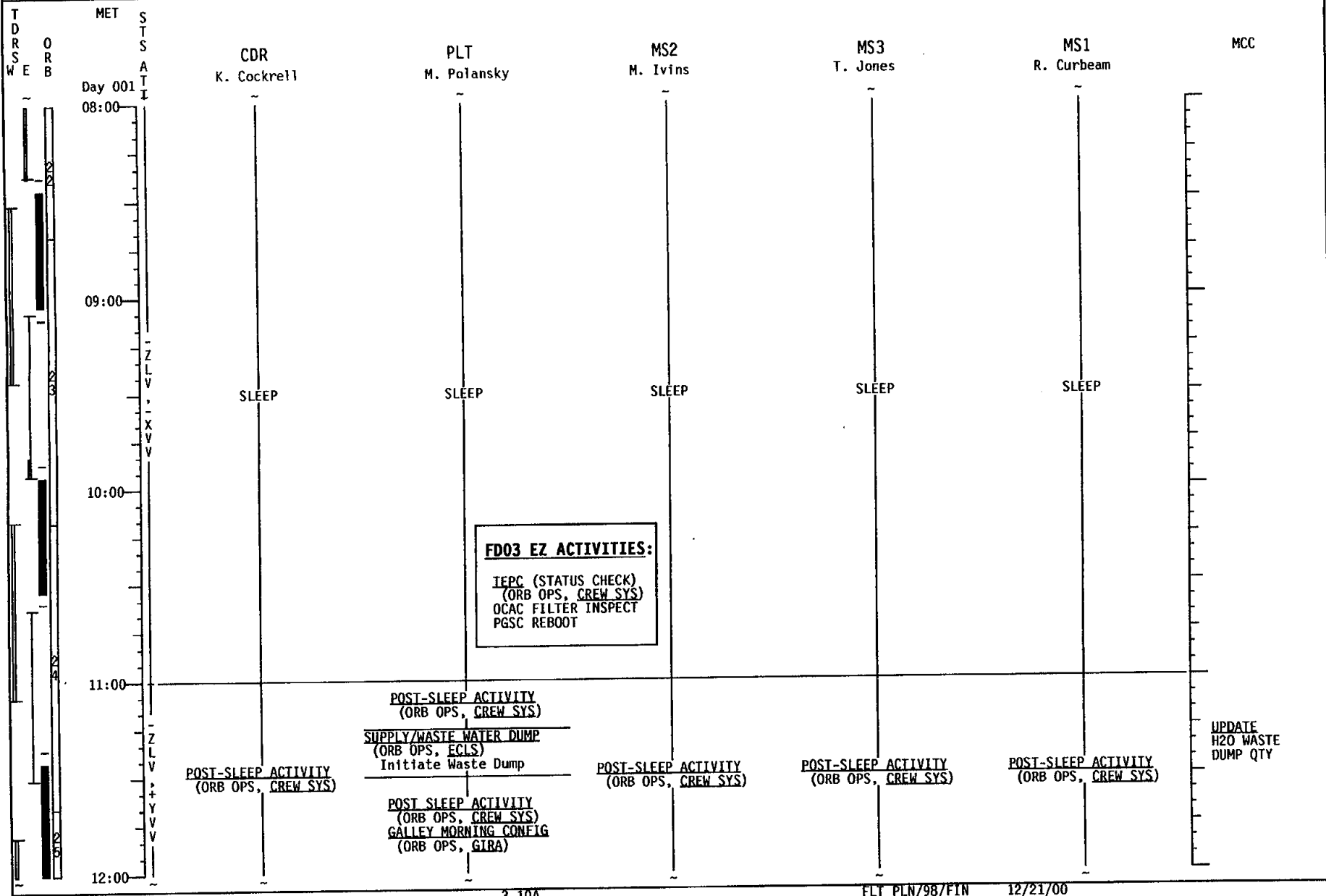
STS-98 (FD 02)



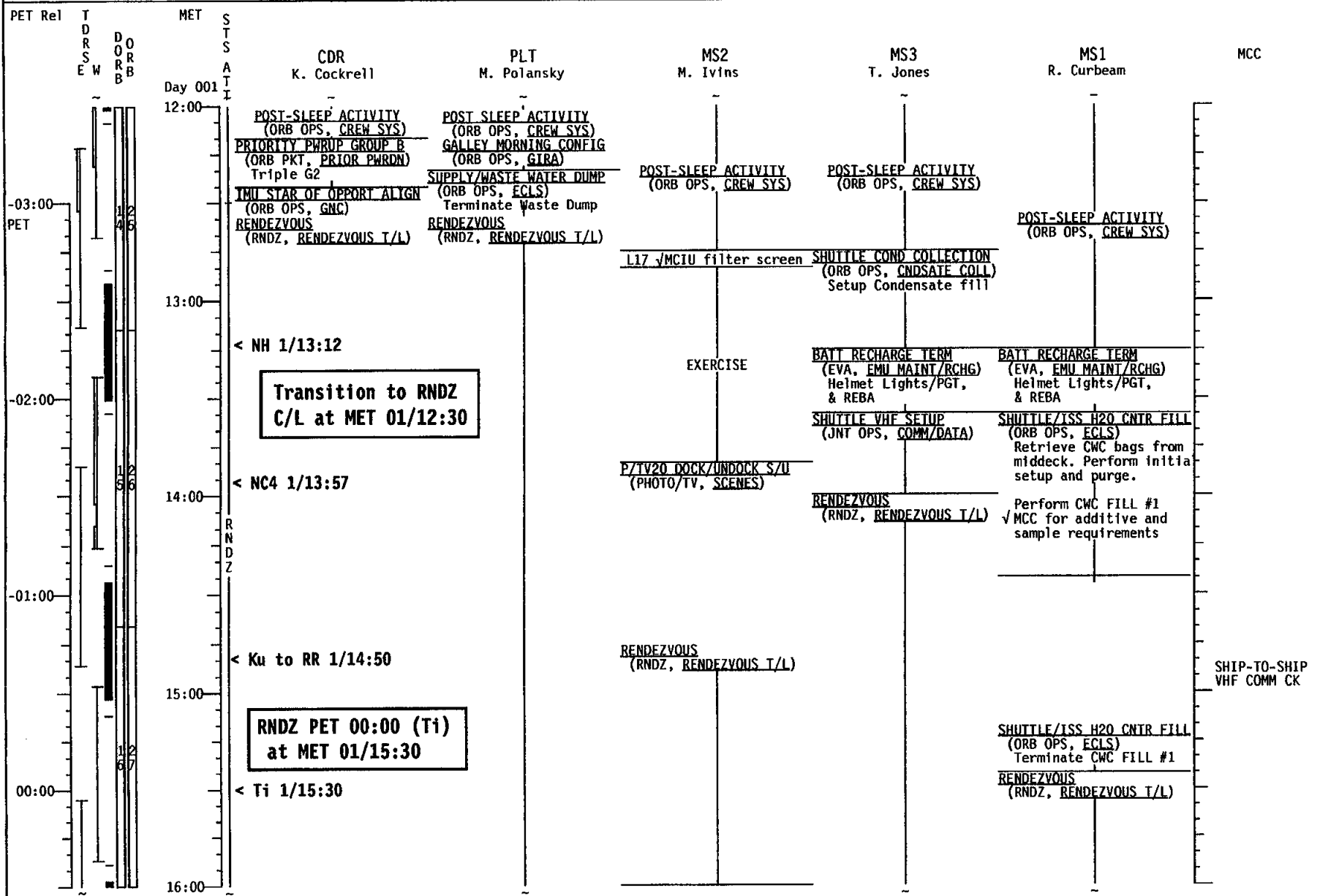
STS-98 (FD 02)



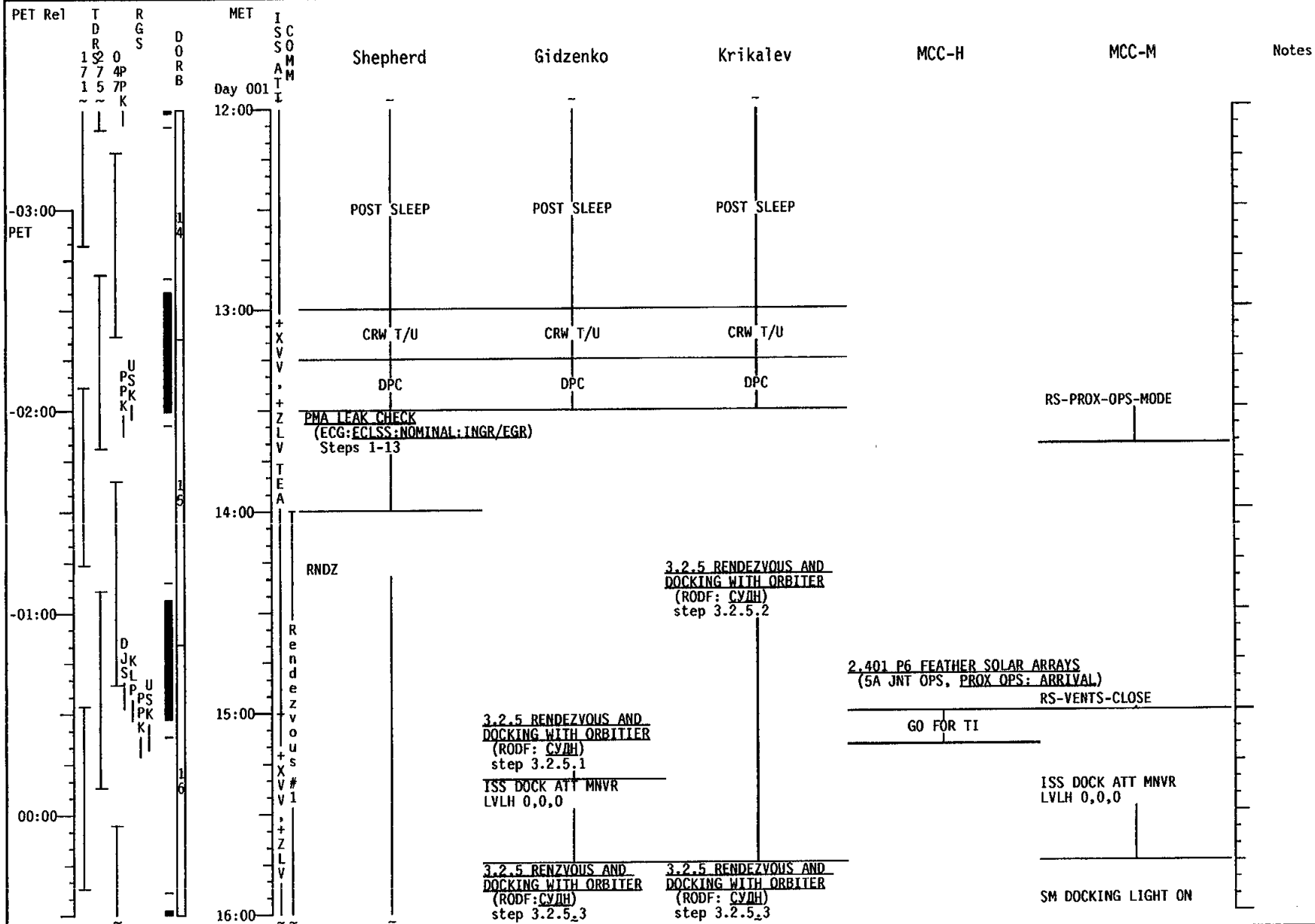
STS-98 (FD 03)



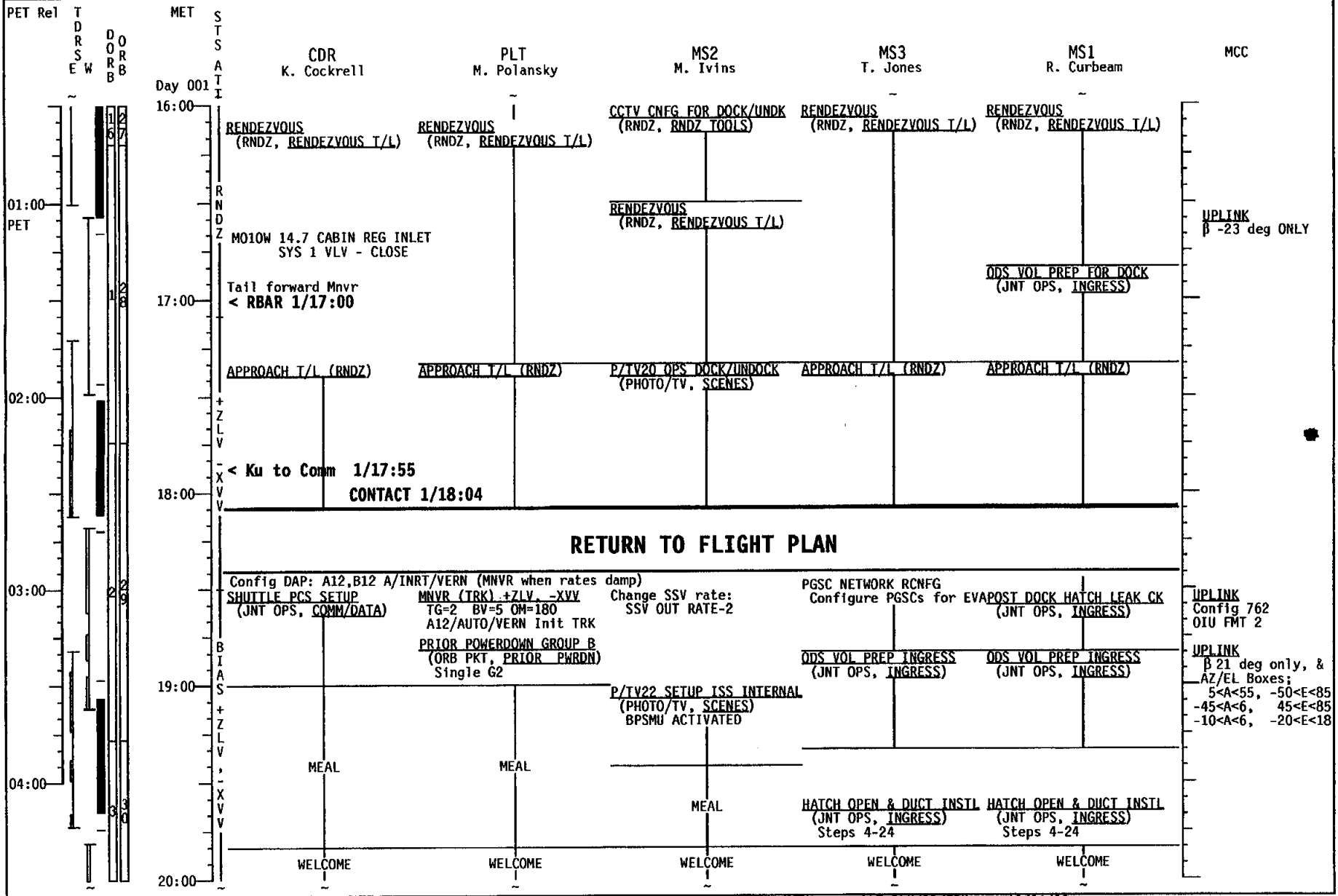
STS-98 (FD 03)



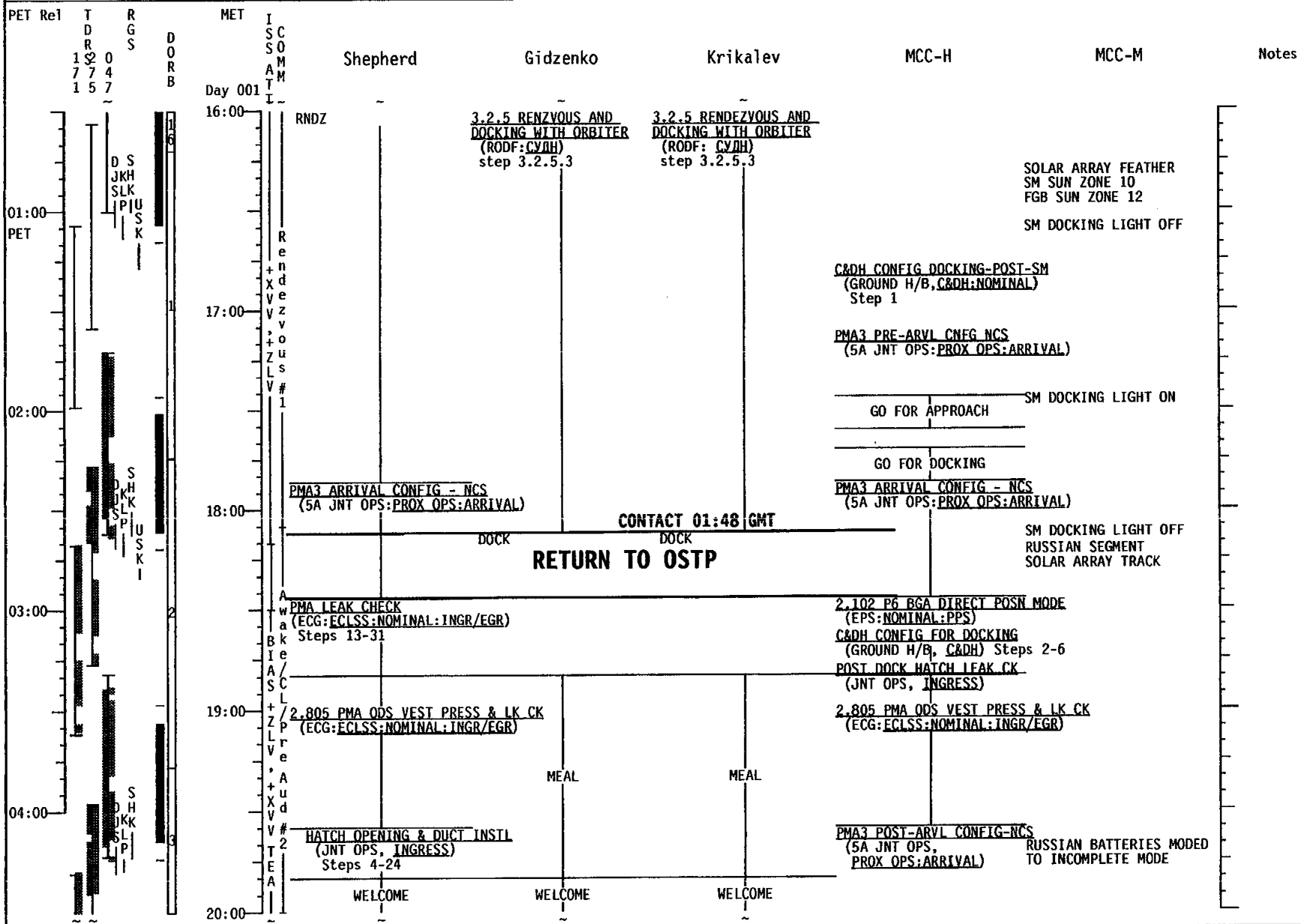
STS-98 (FD 03)



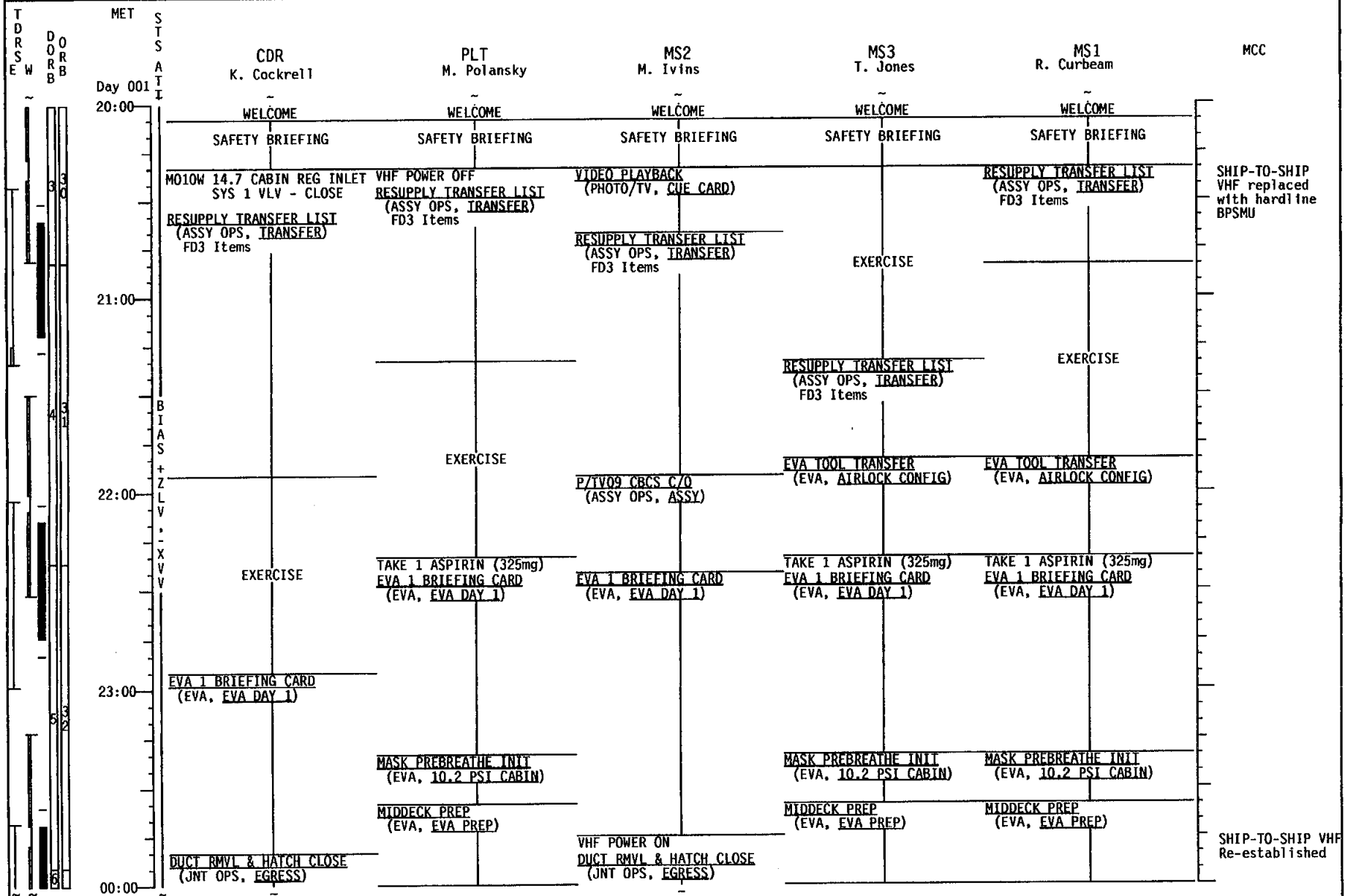
STS-98 (FD 03)



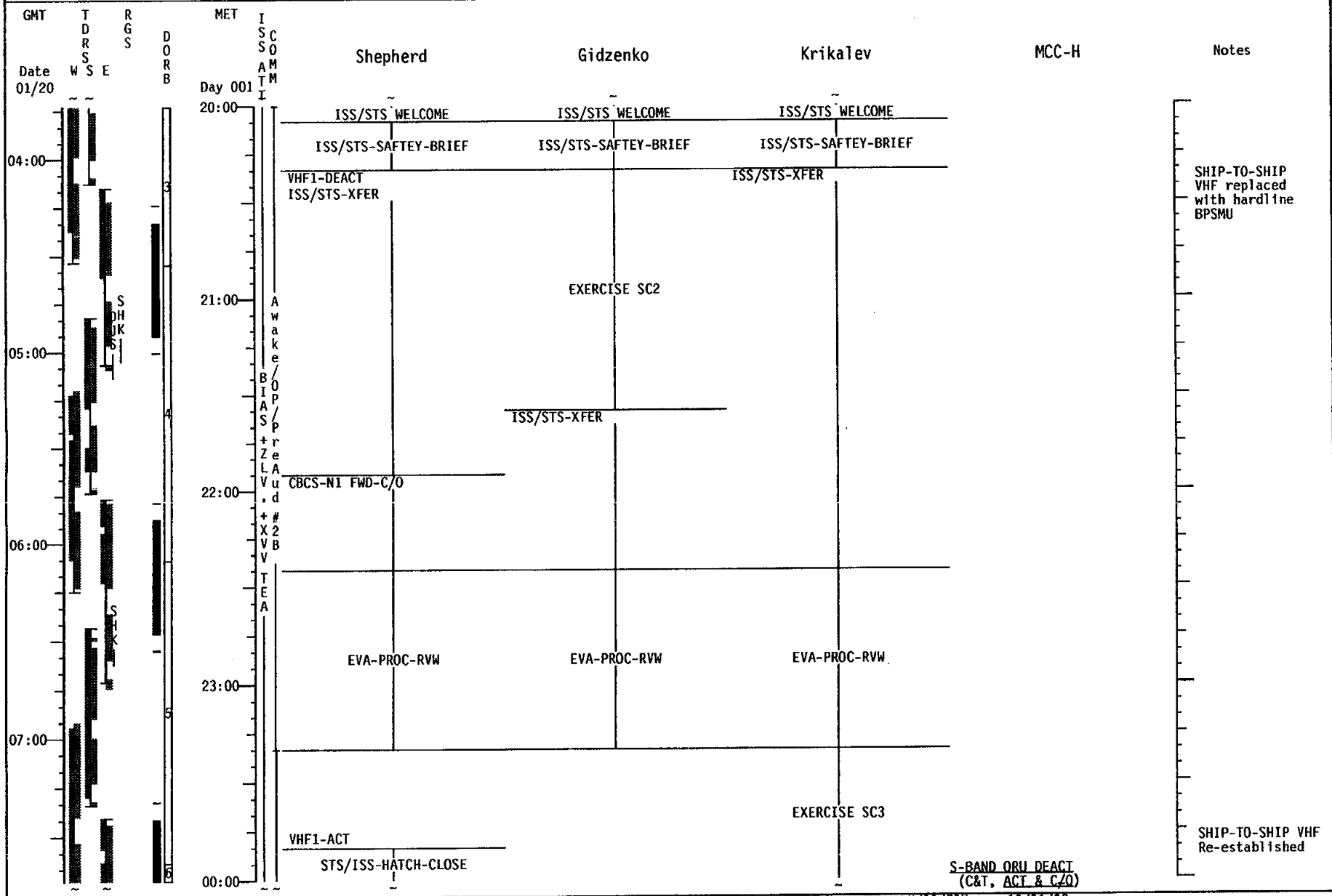
STS-98 (FD 03)



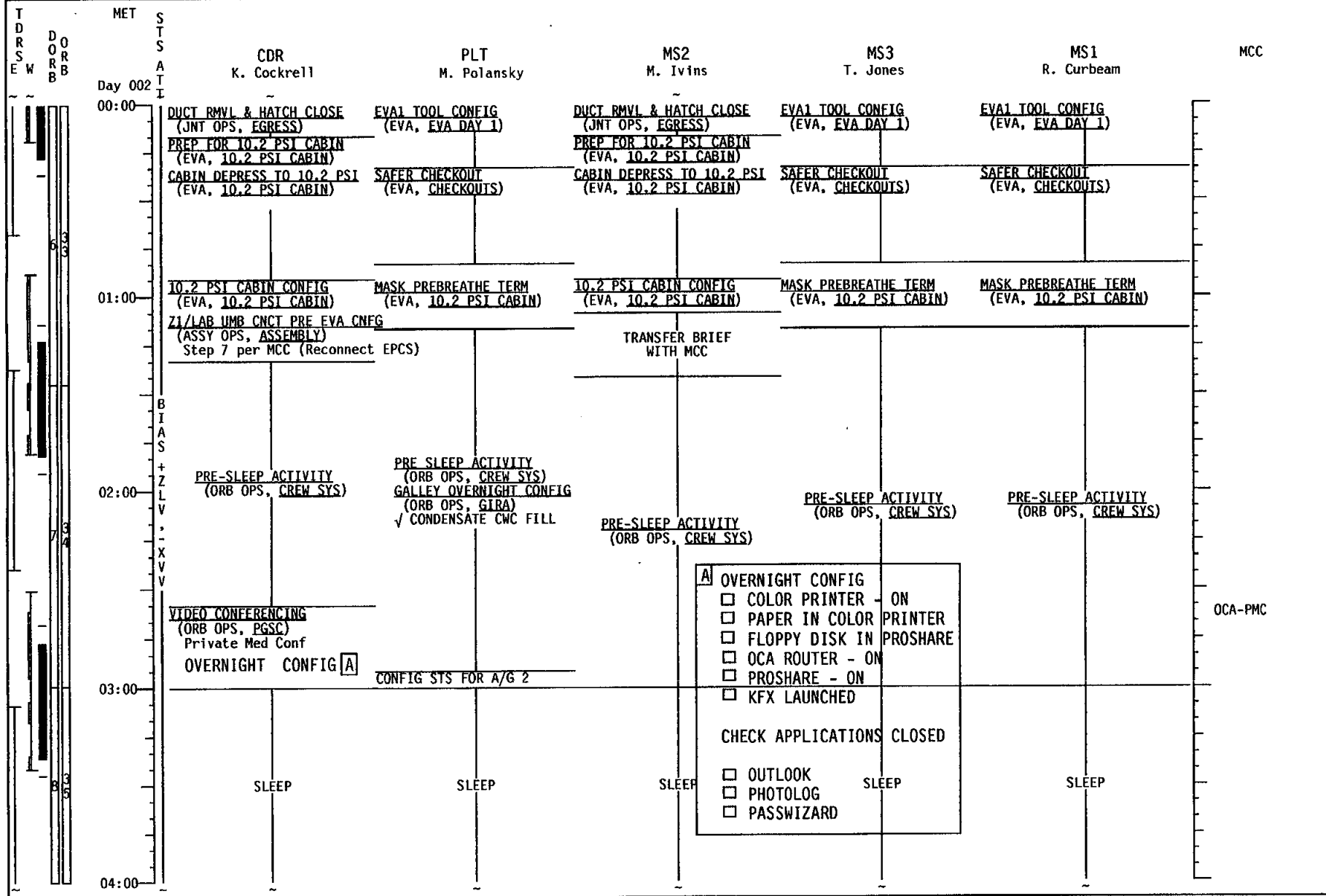
STS-98 (FD 03)



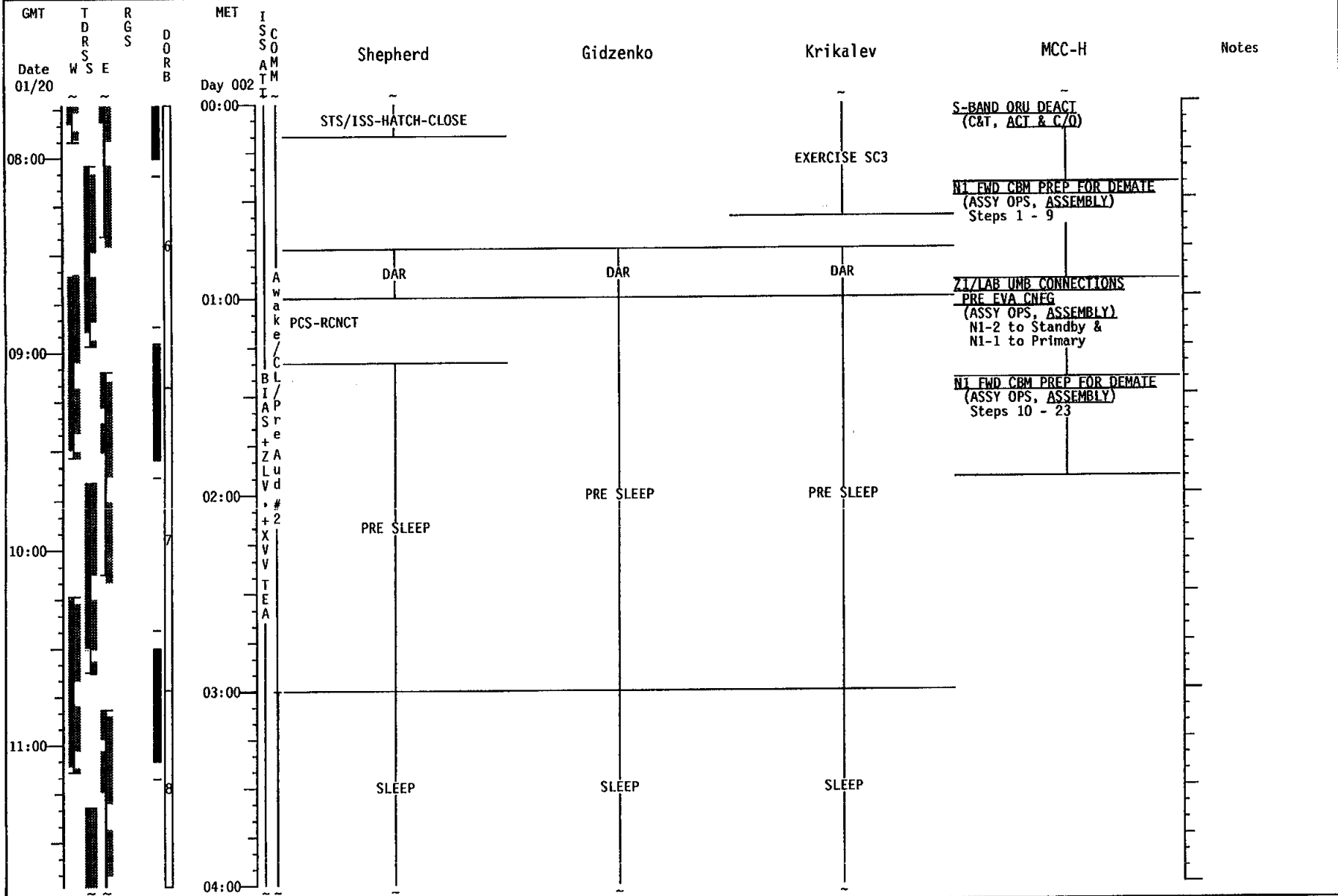
STS-98 (FD 03)



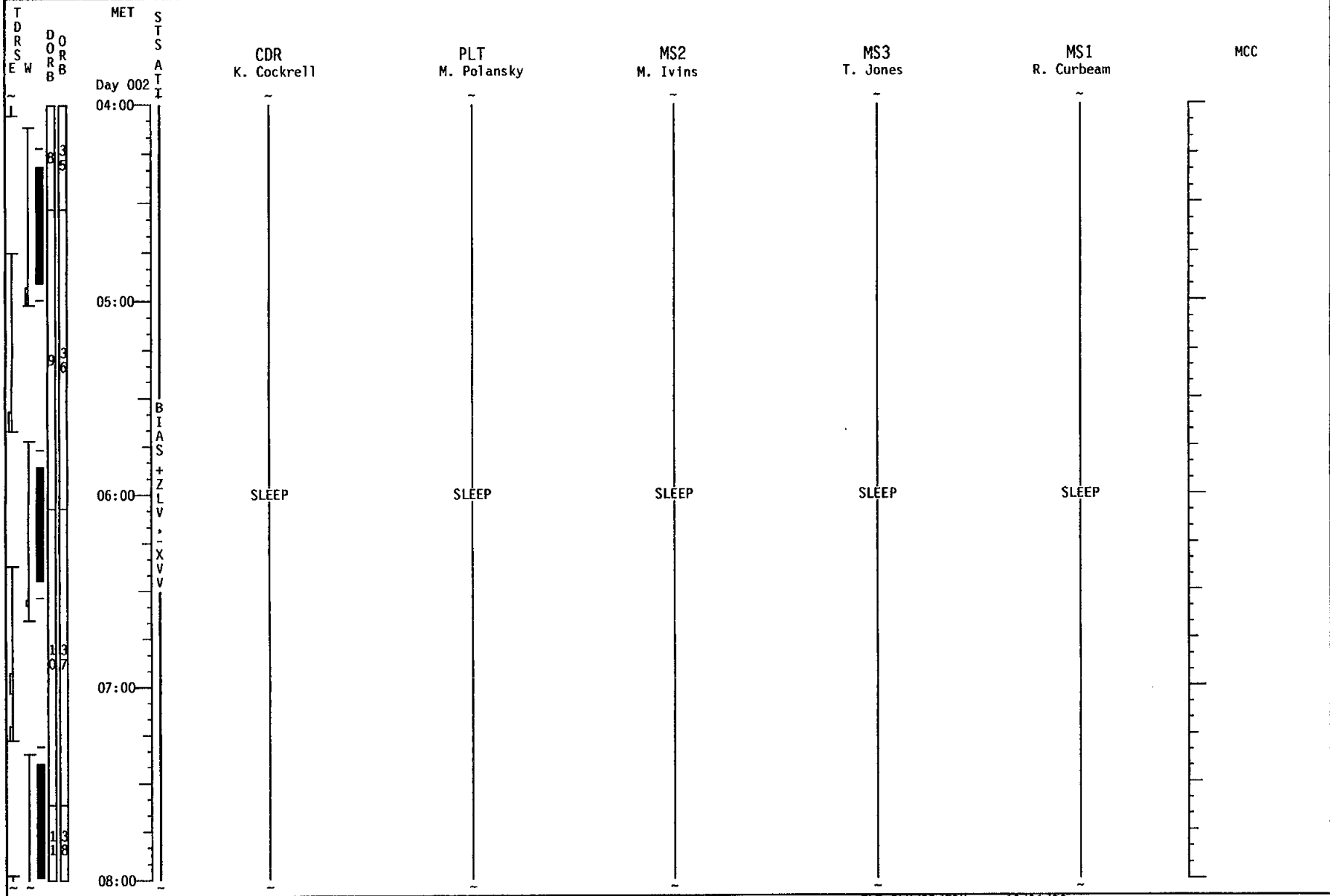
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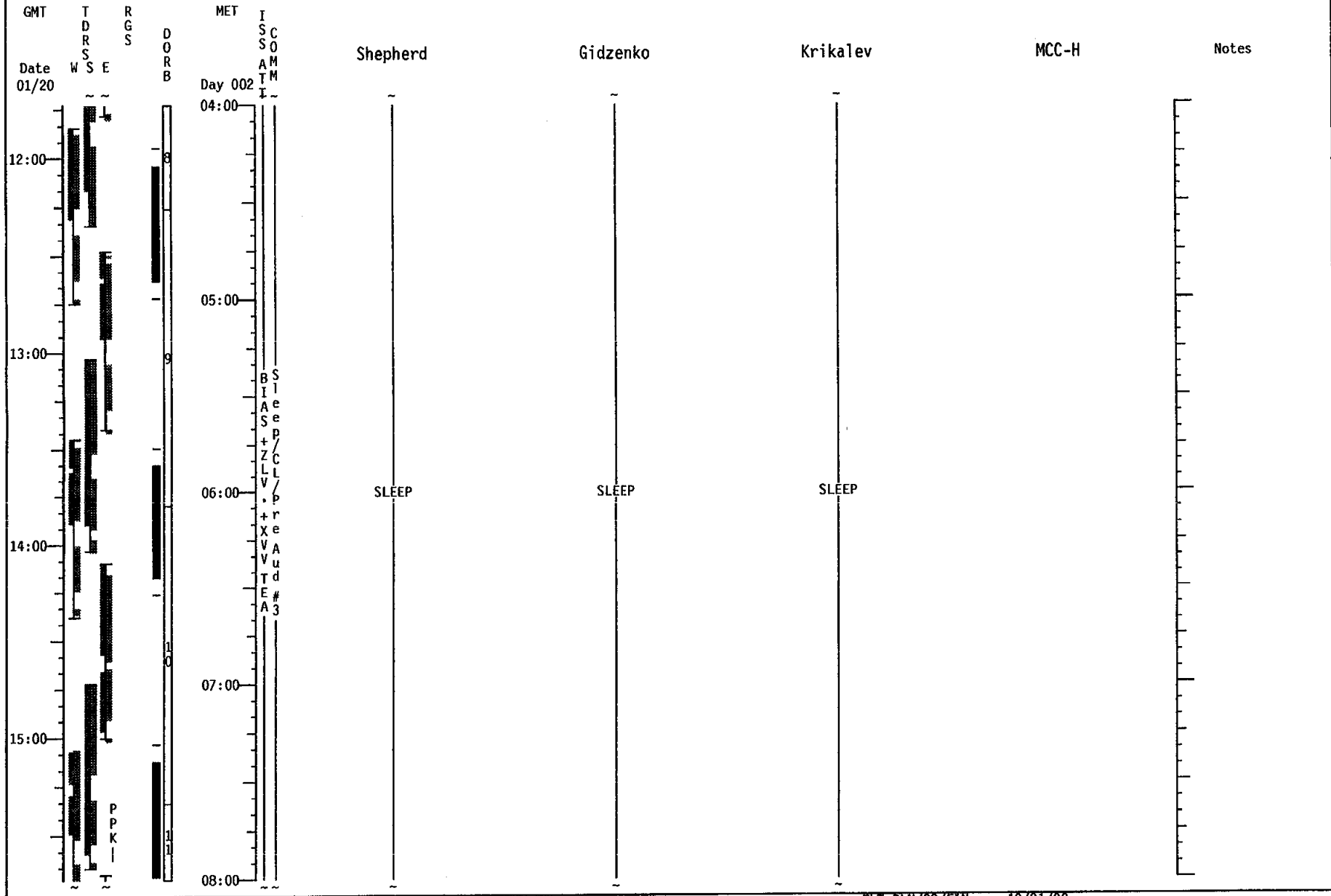
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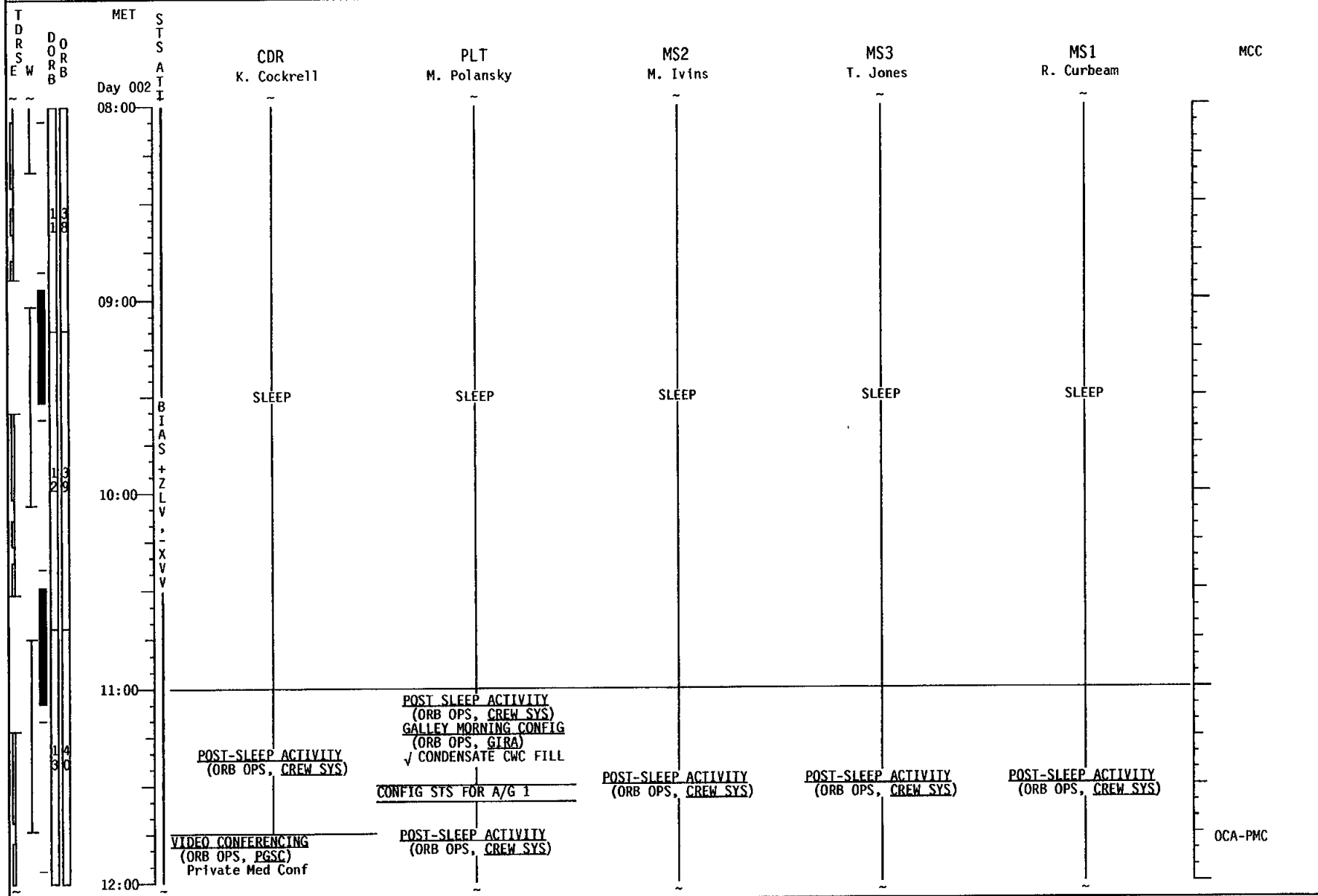
STS-98 (FD 03)



STS-98 (FD 03)



STS-98 (FD 03)

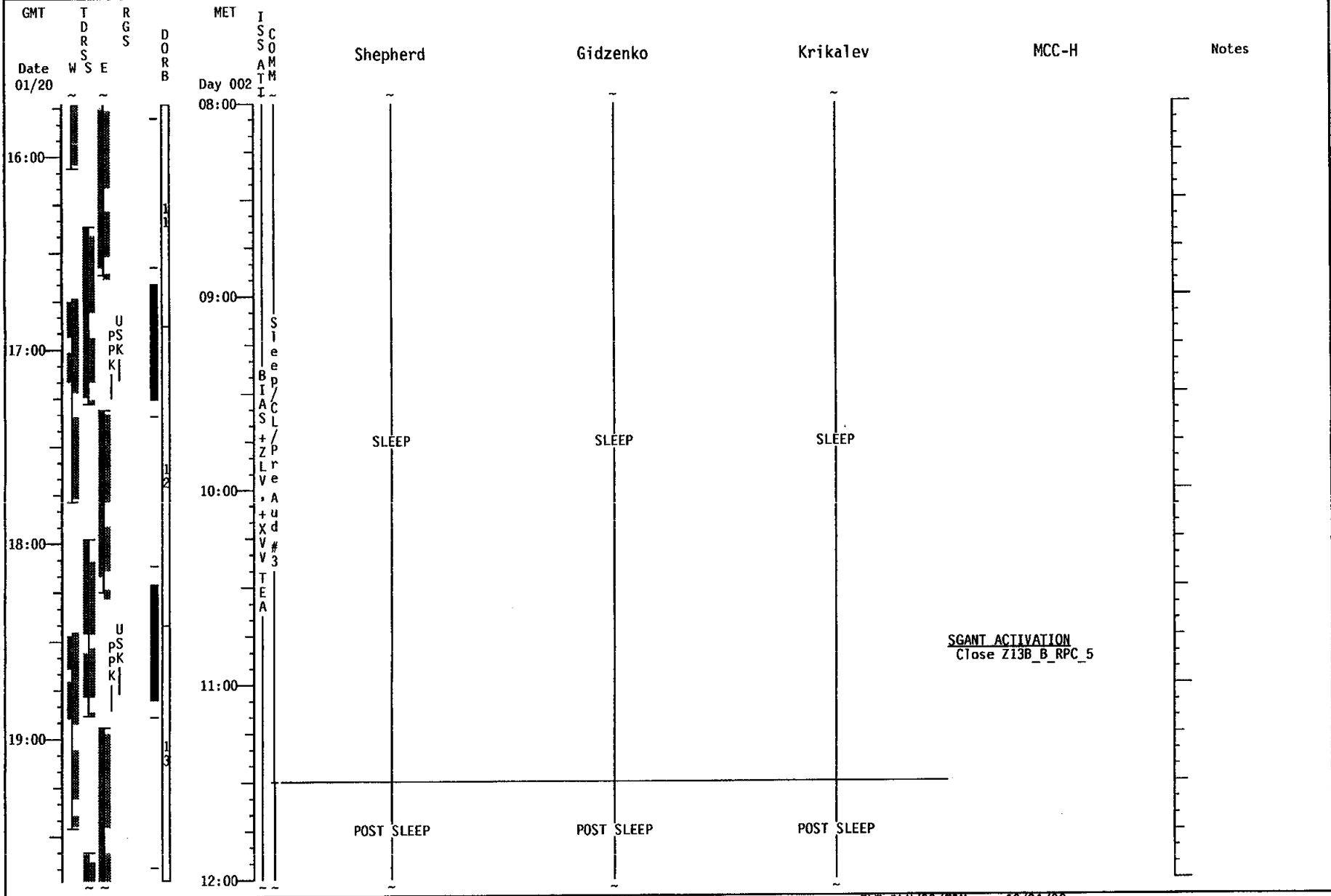


3-16A

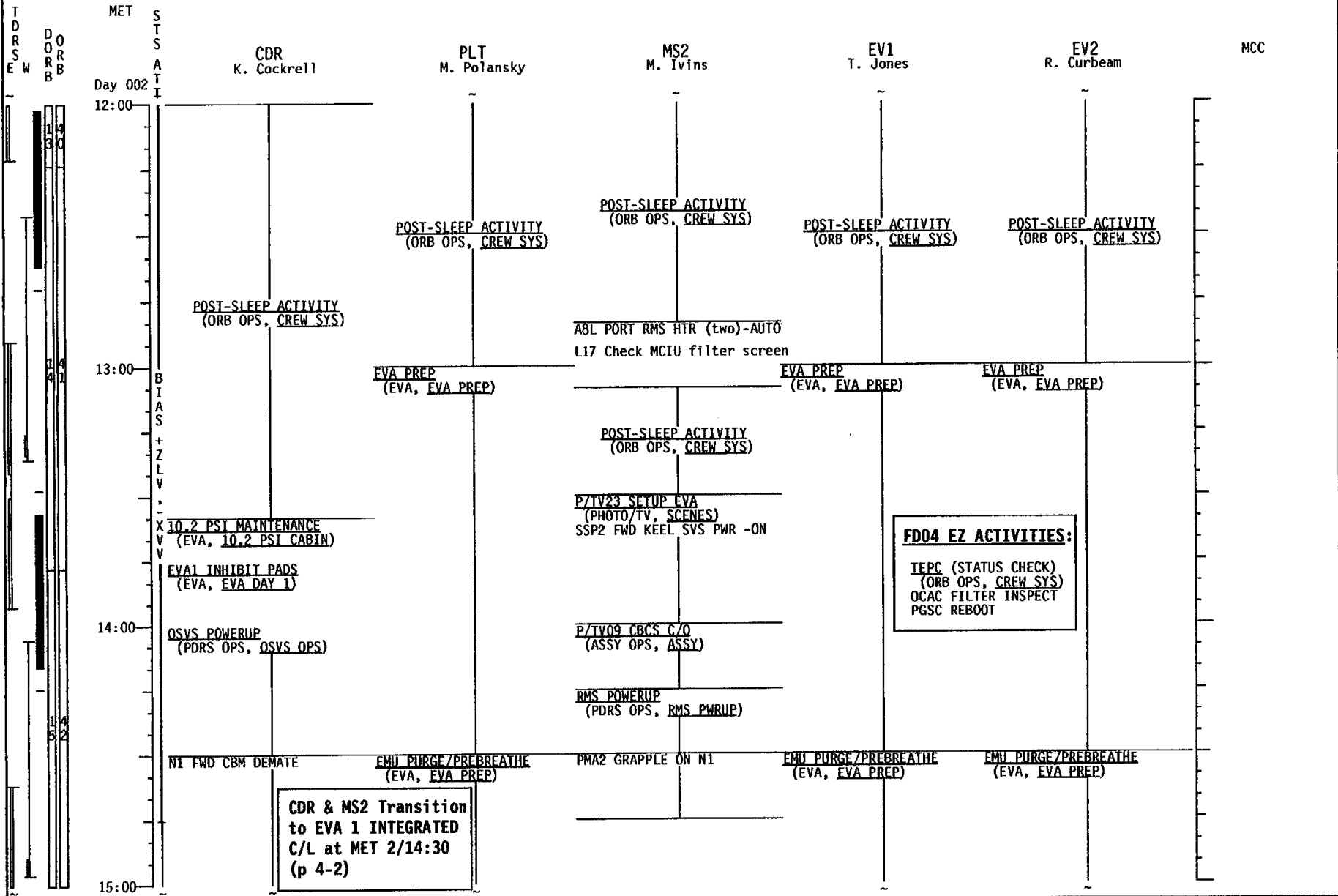
FLT PLN/98/FIN

12/21/00

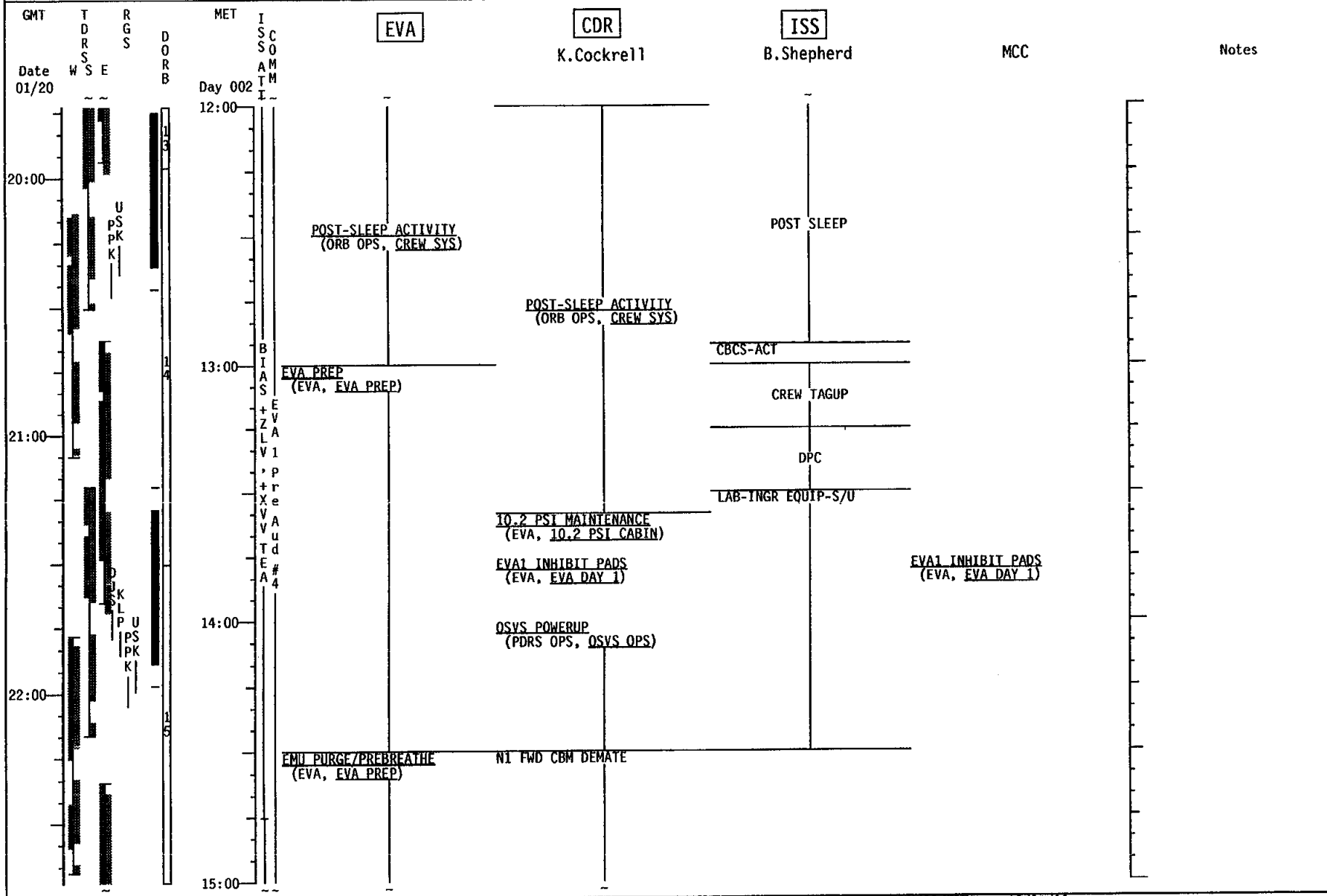
STS-98 (FD 03)



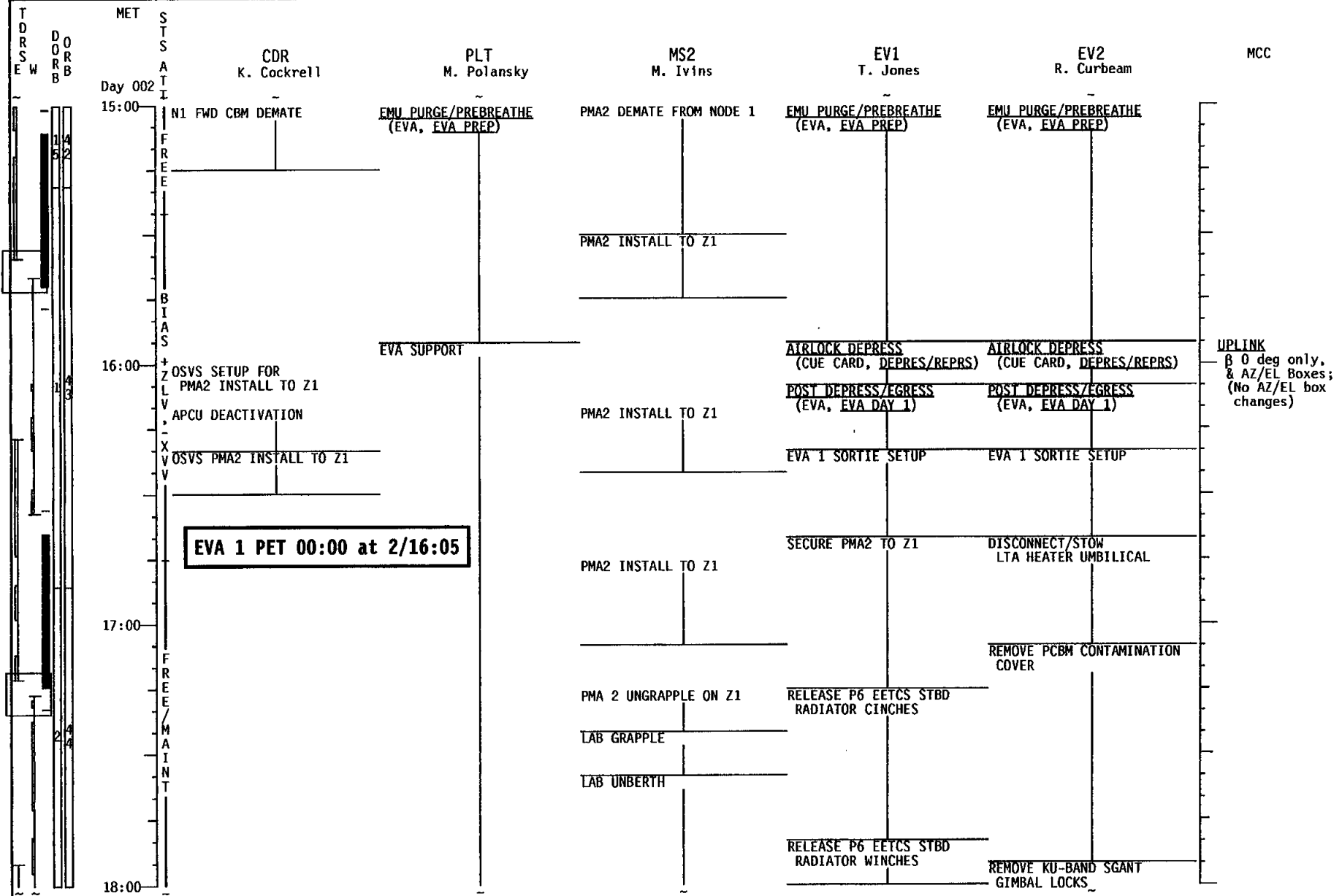
STS-98 (FD 04)



STS-98 (FD04)

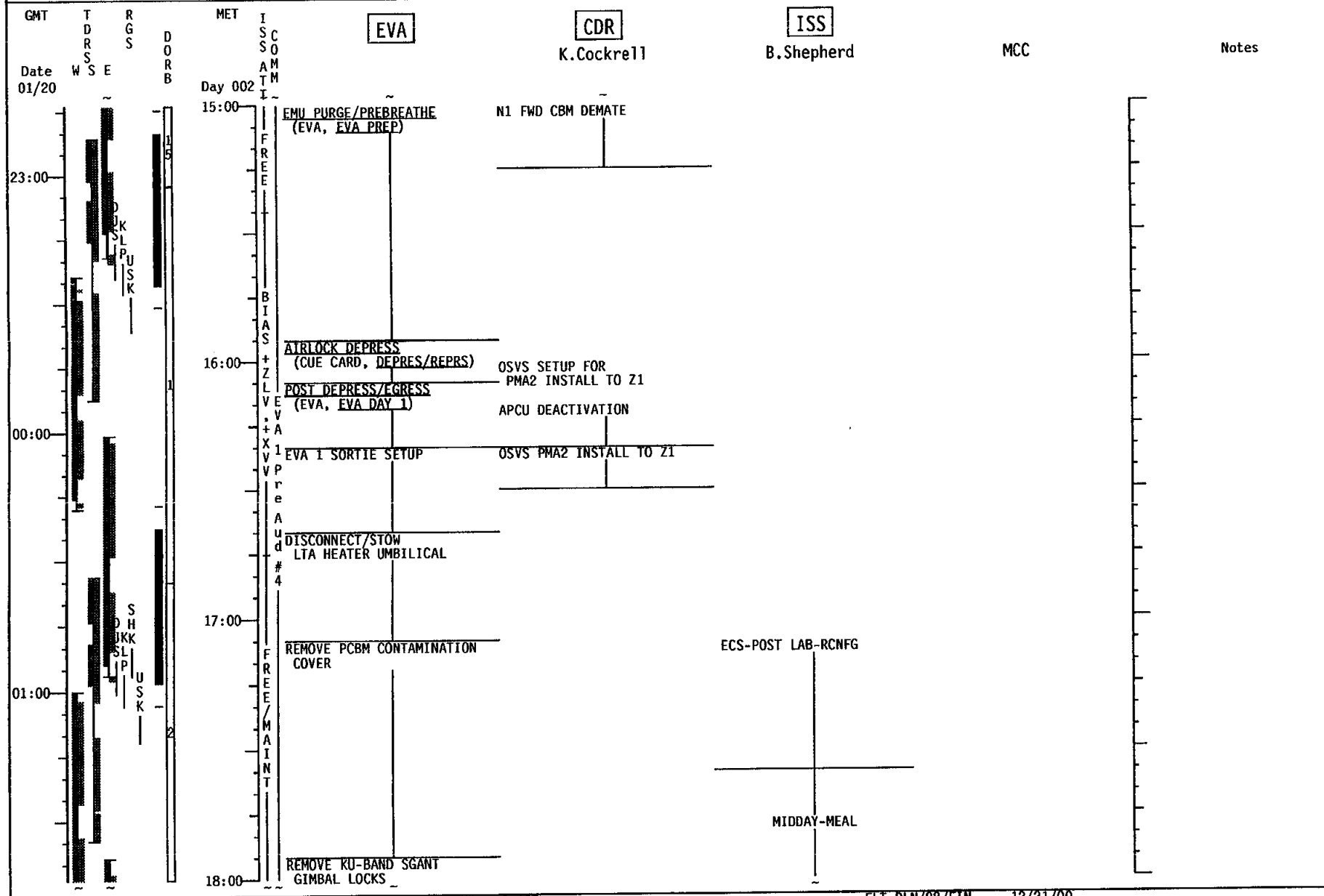


STS-98 (FD 04)

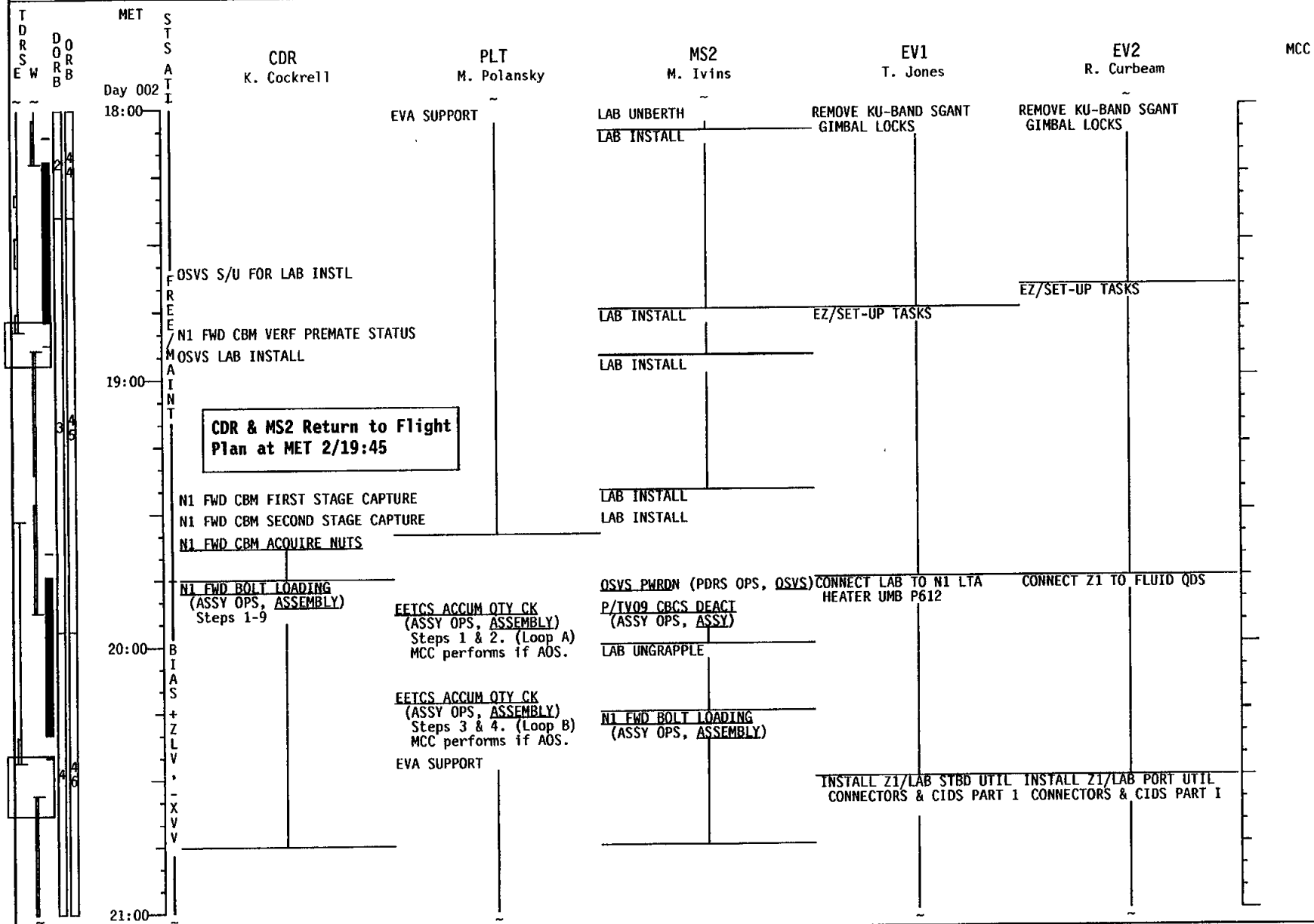


EVA 1 PET 00:00 at 2/16:05

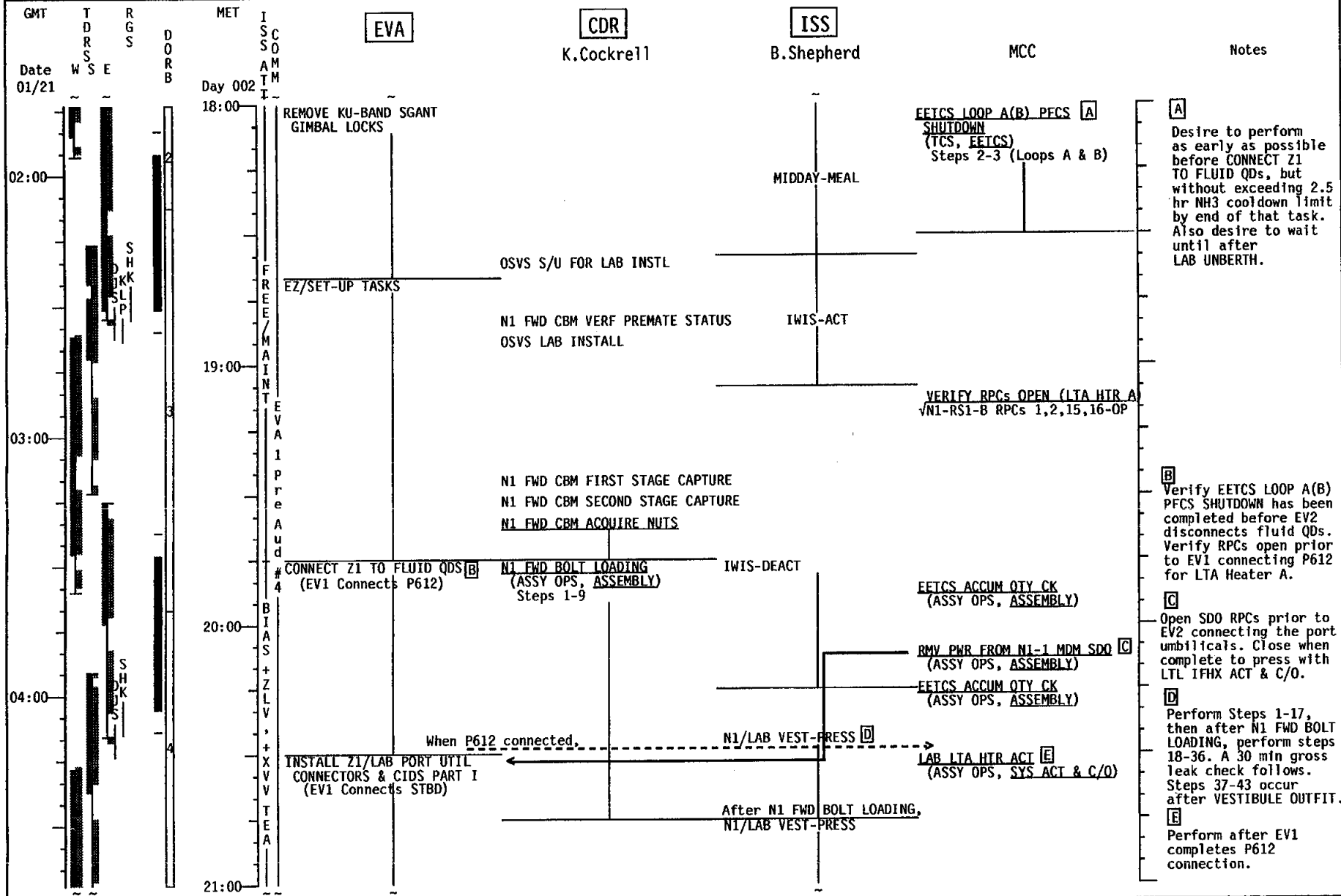
STS-98 (FD 04)



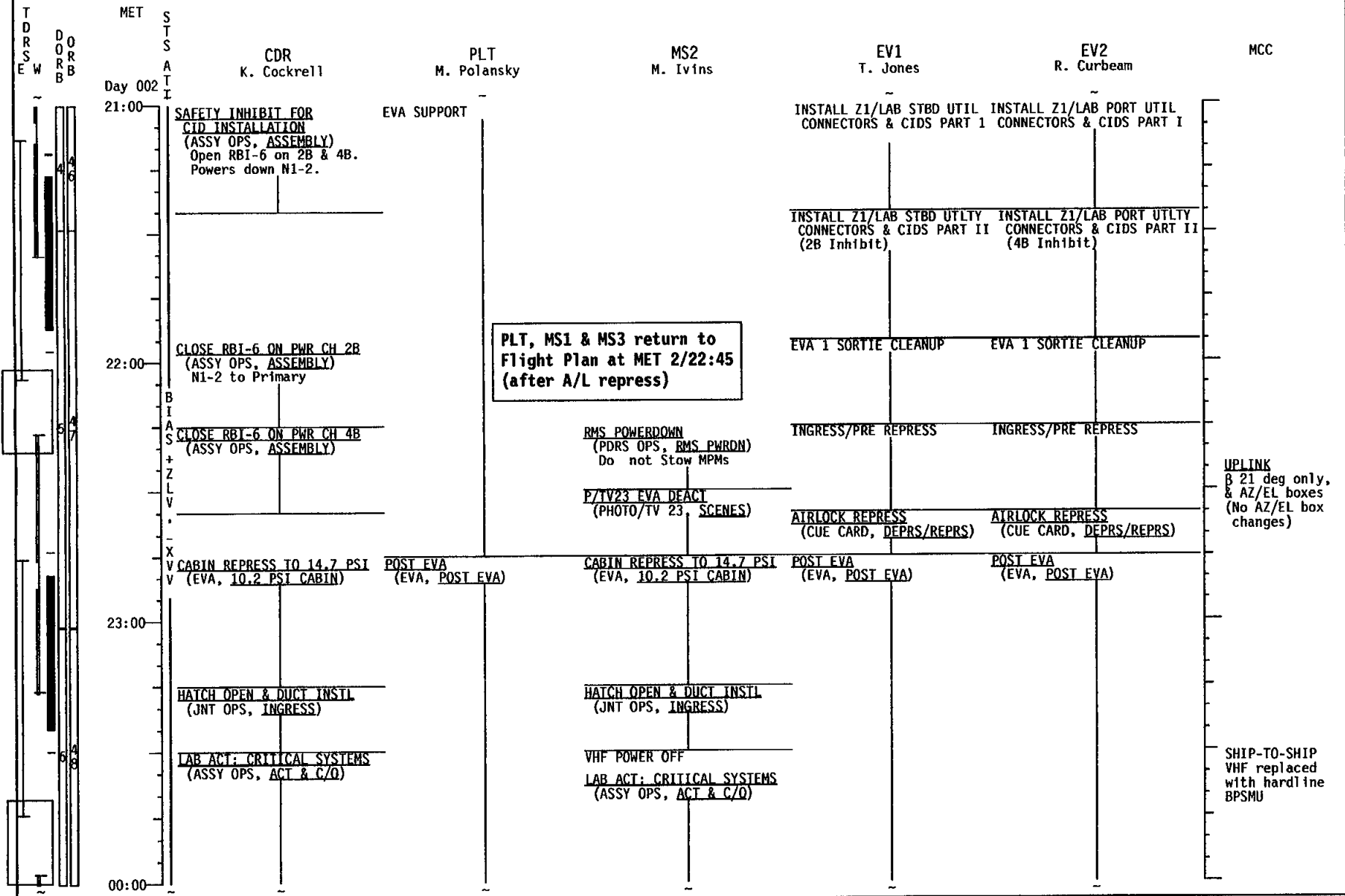
STS-98 (FD 04)



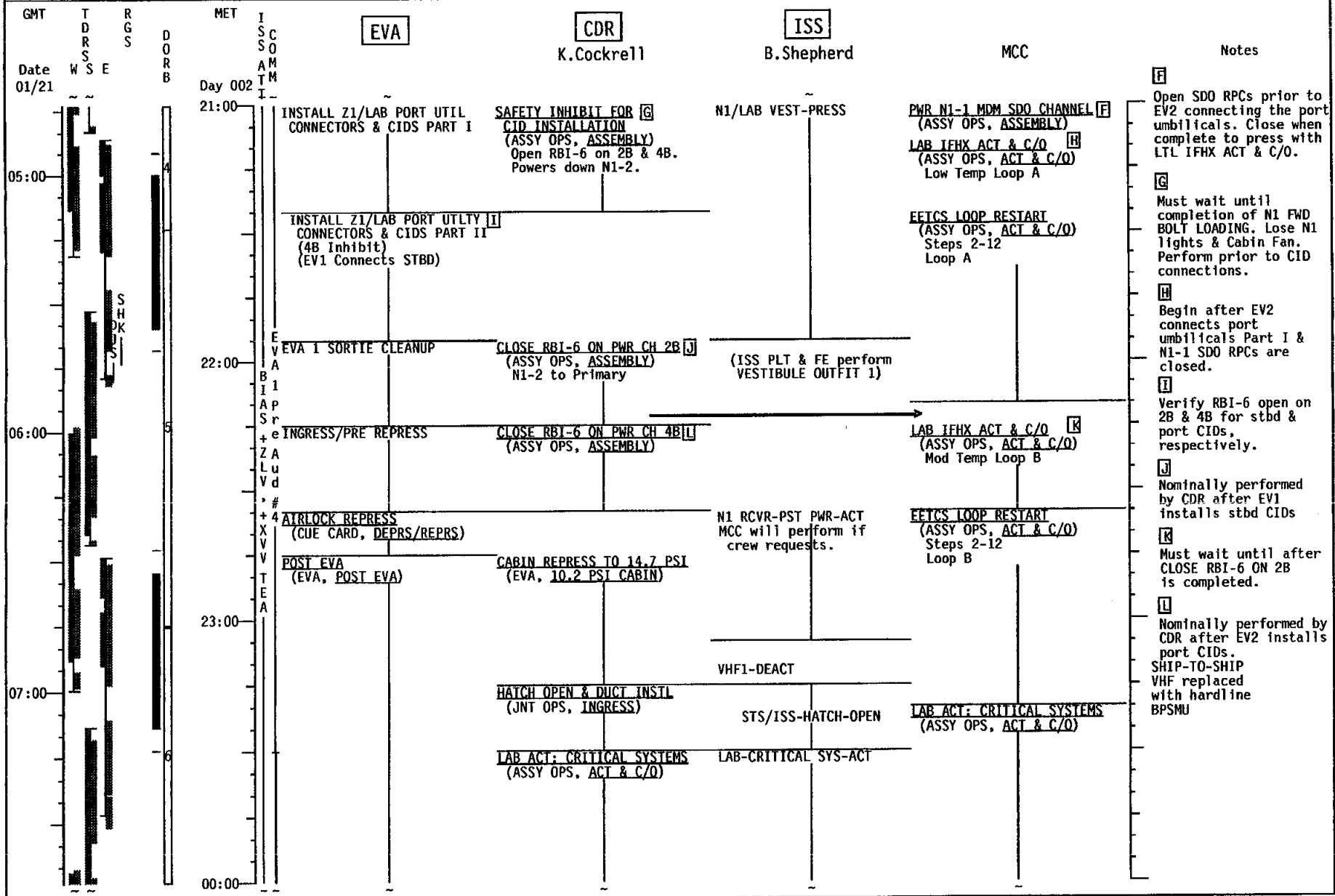
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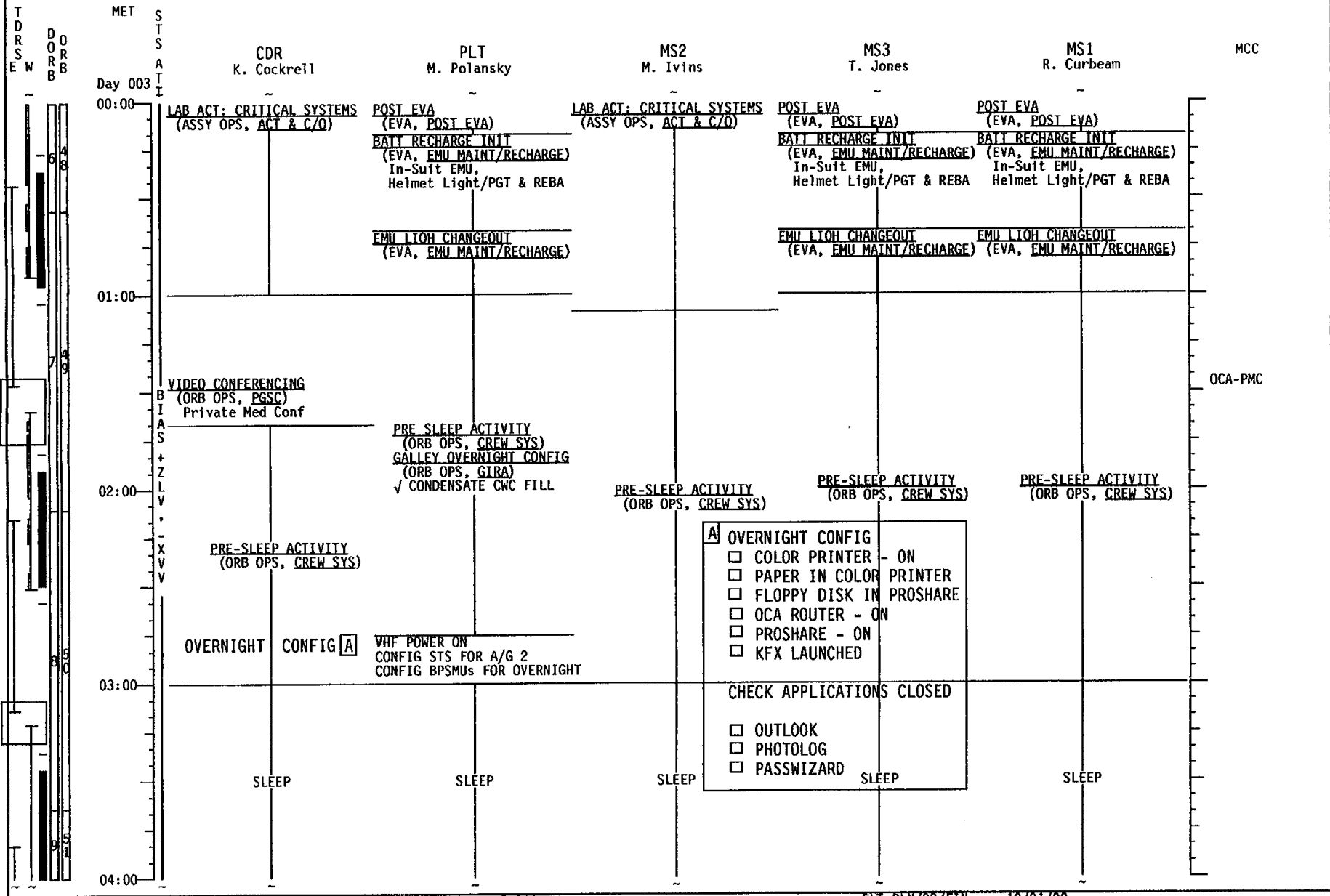
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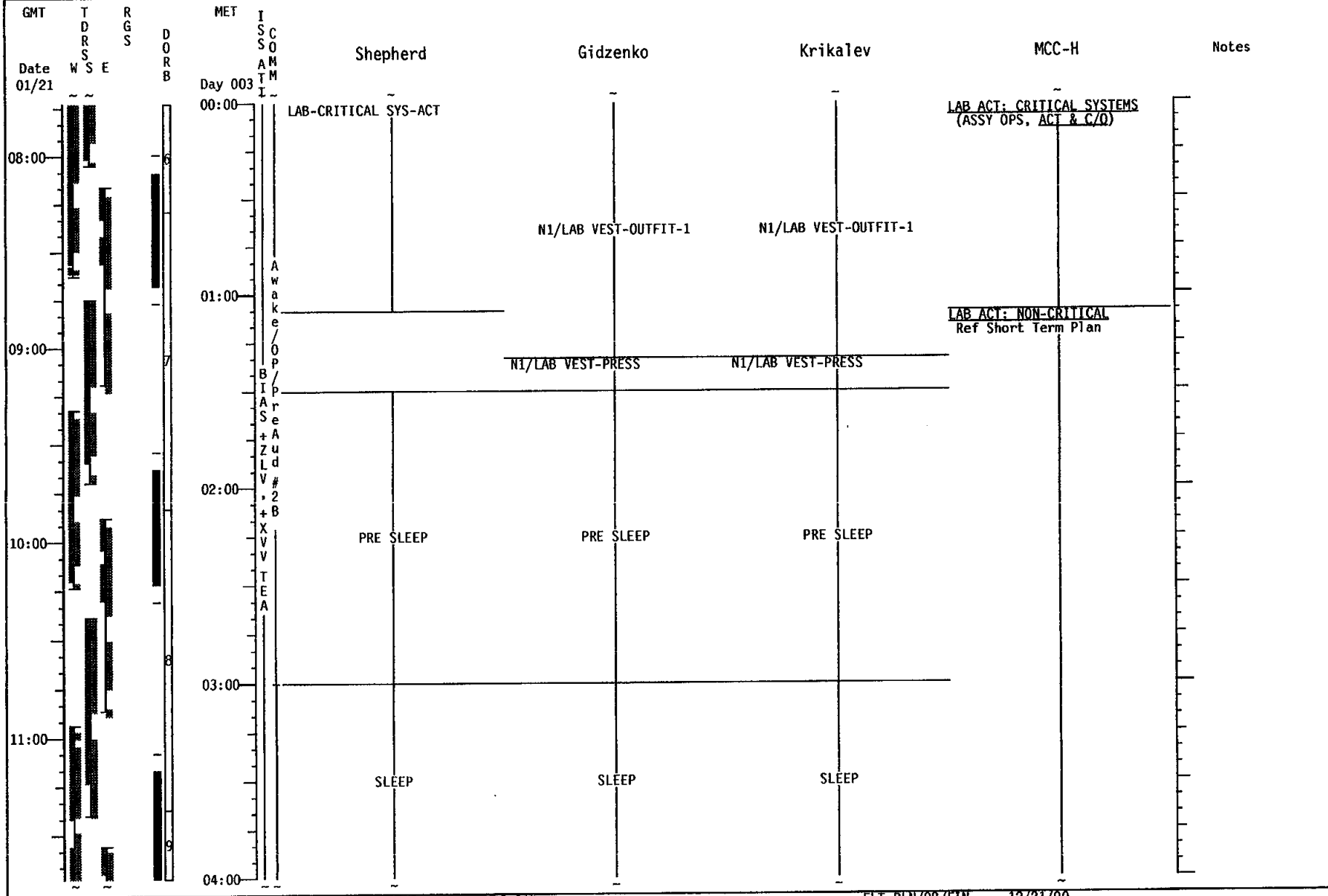
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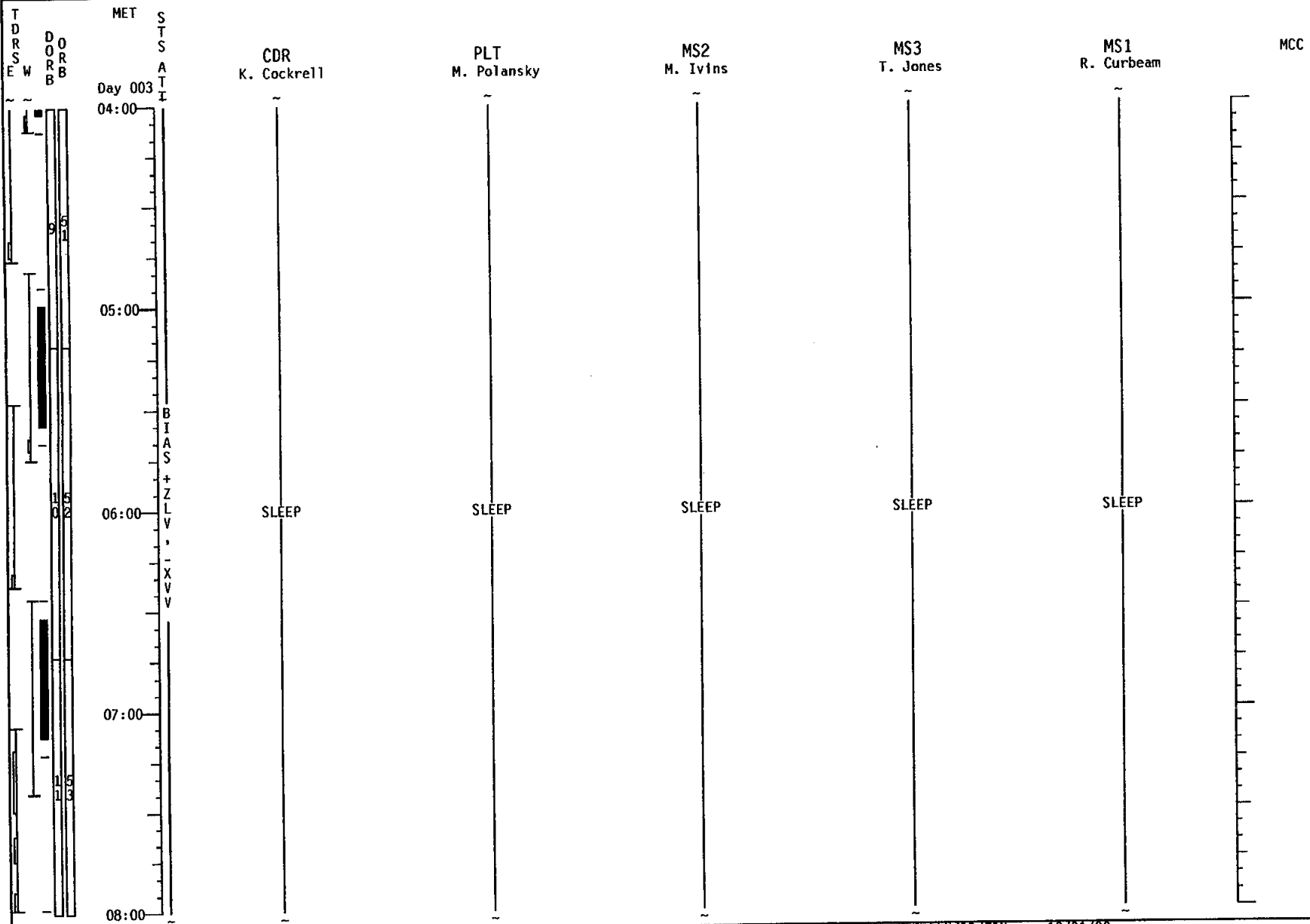
STS-98 (FD04)



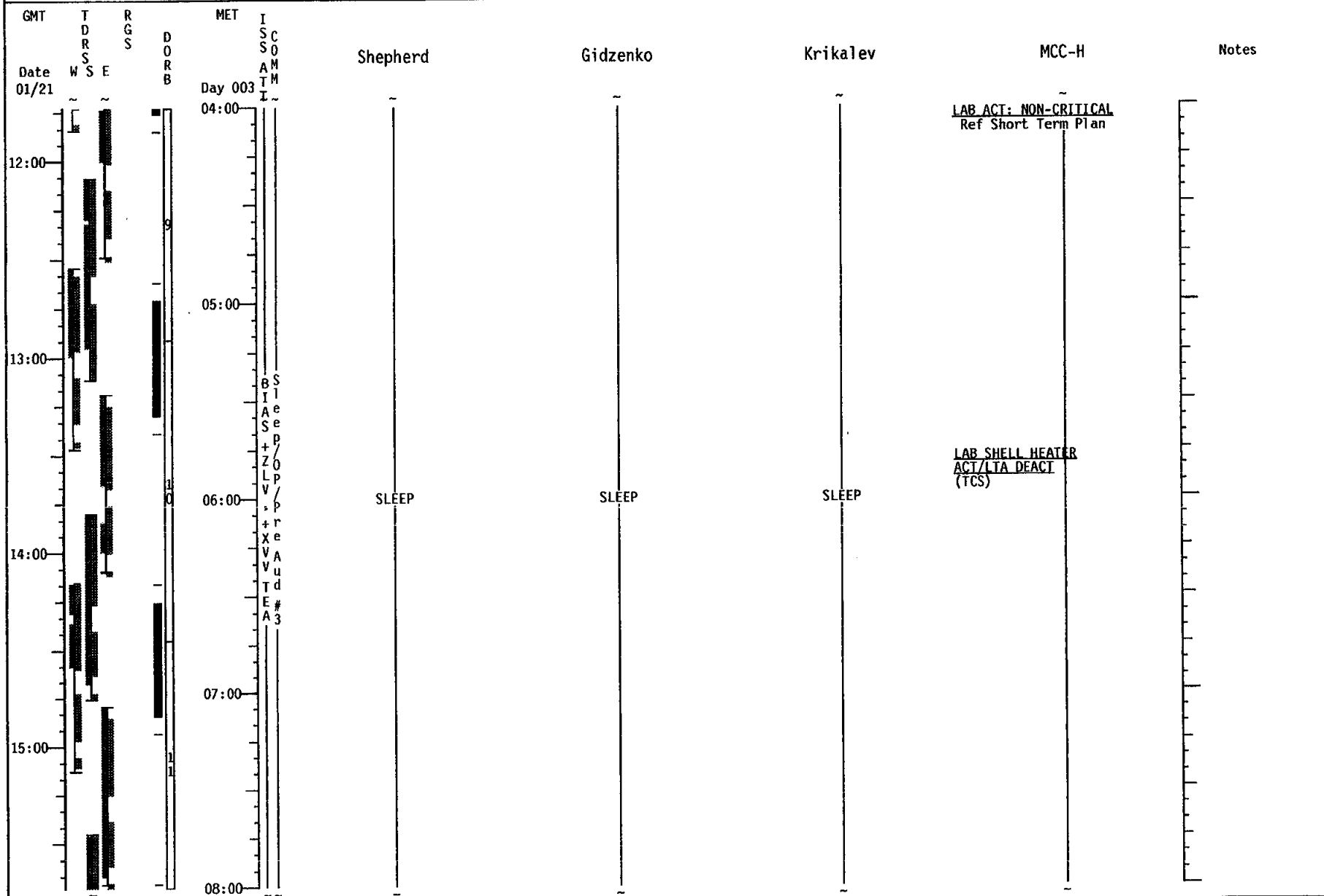
STS-98 (FD 04)



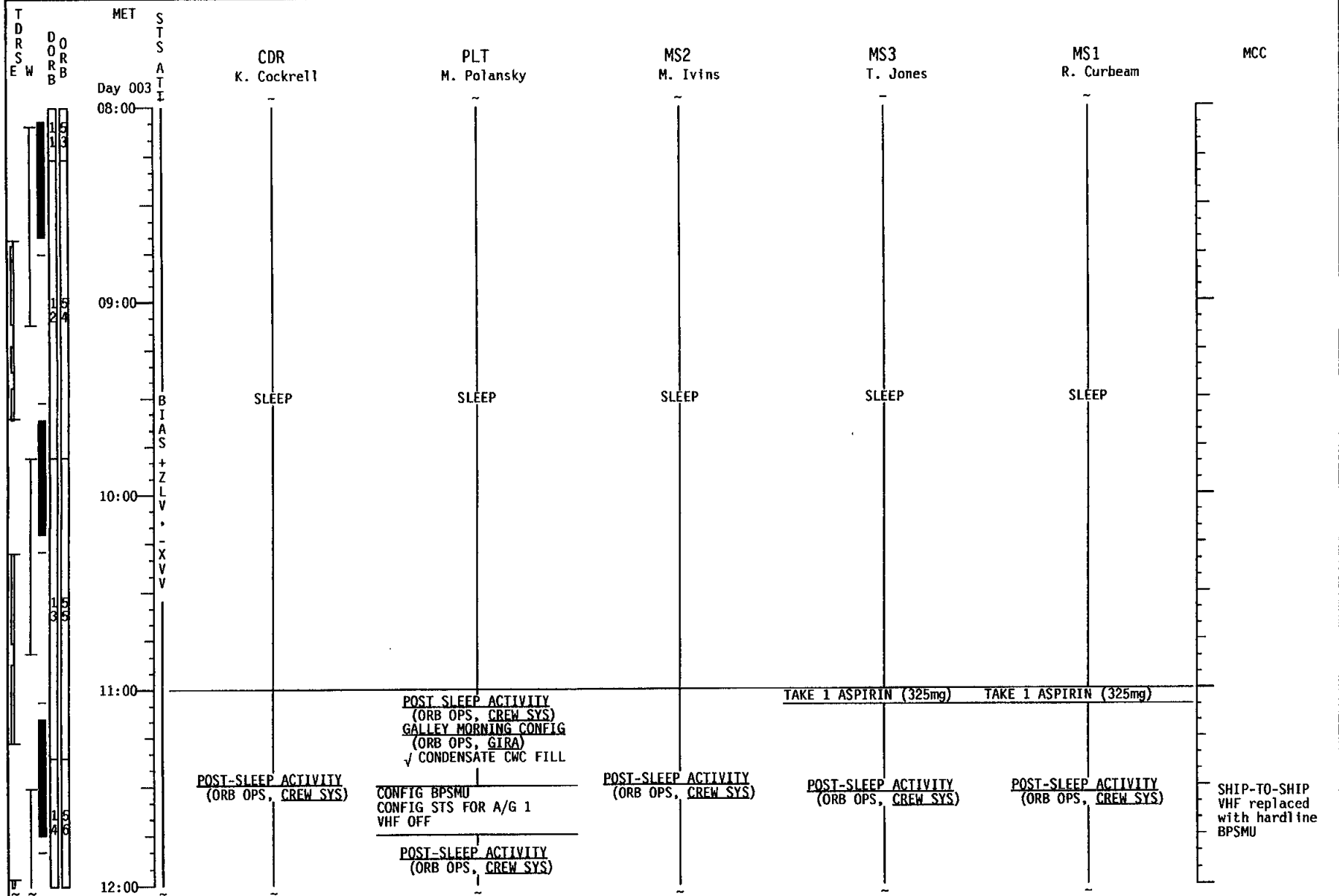
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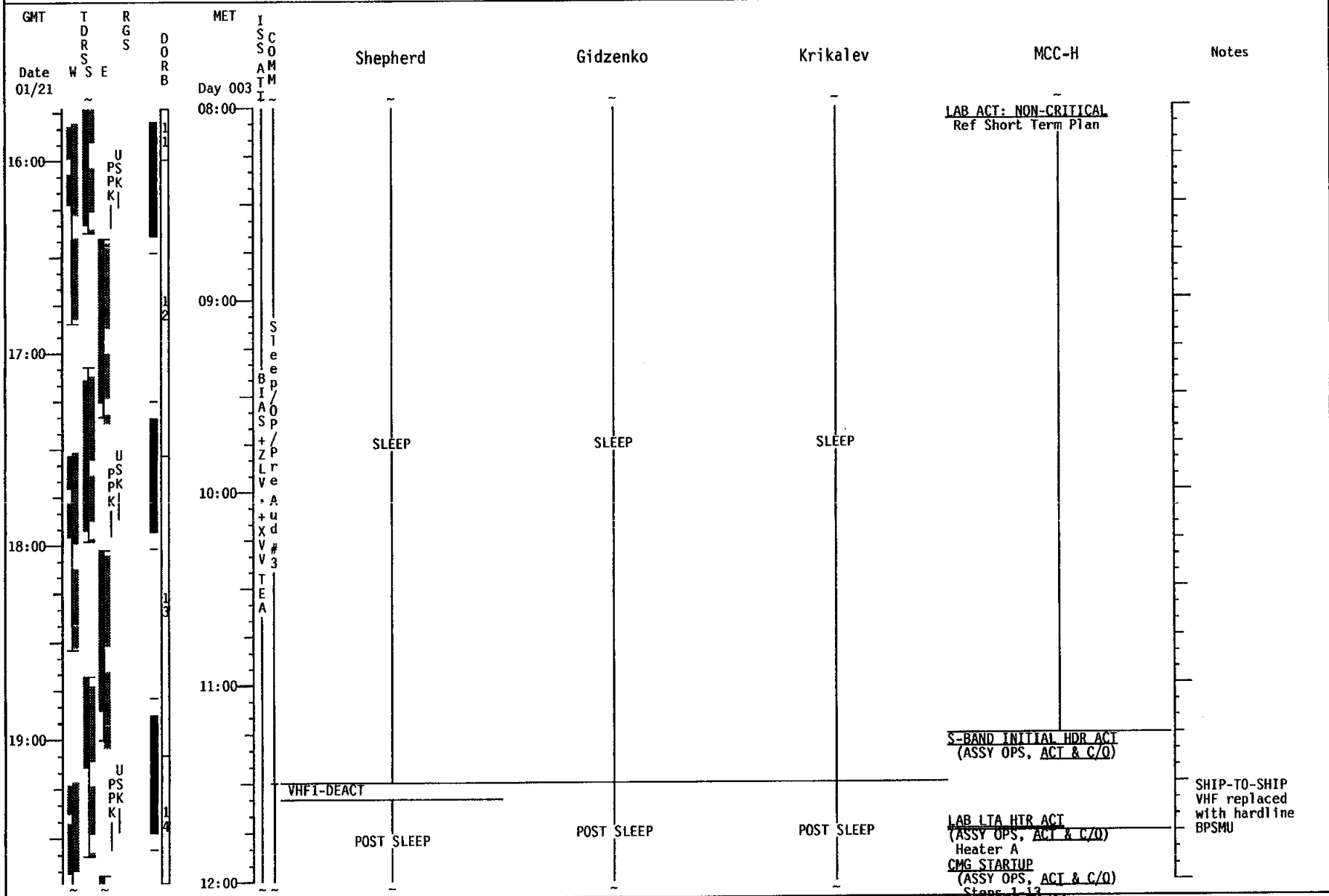
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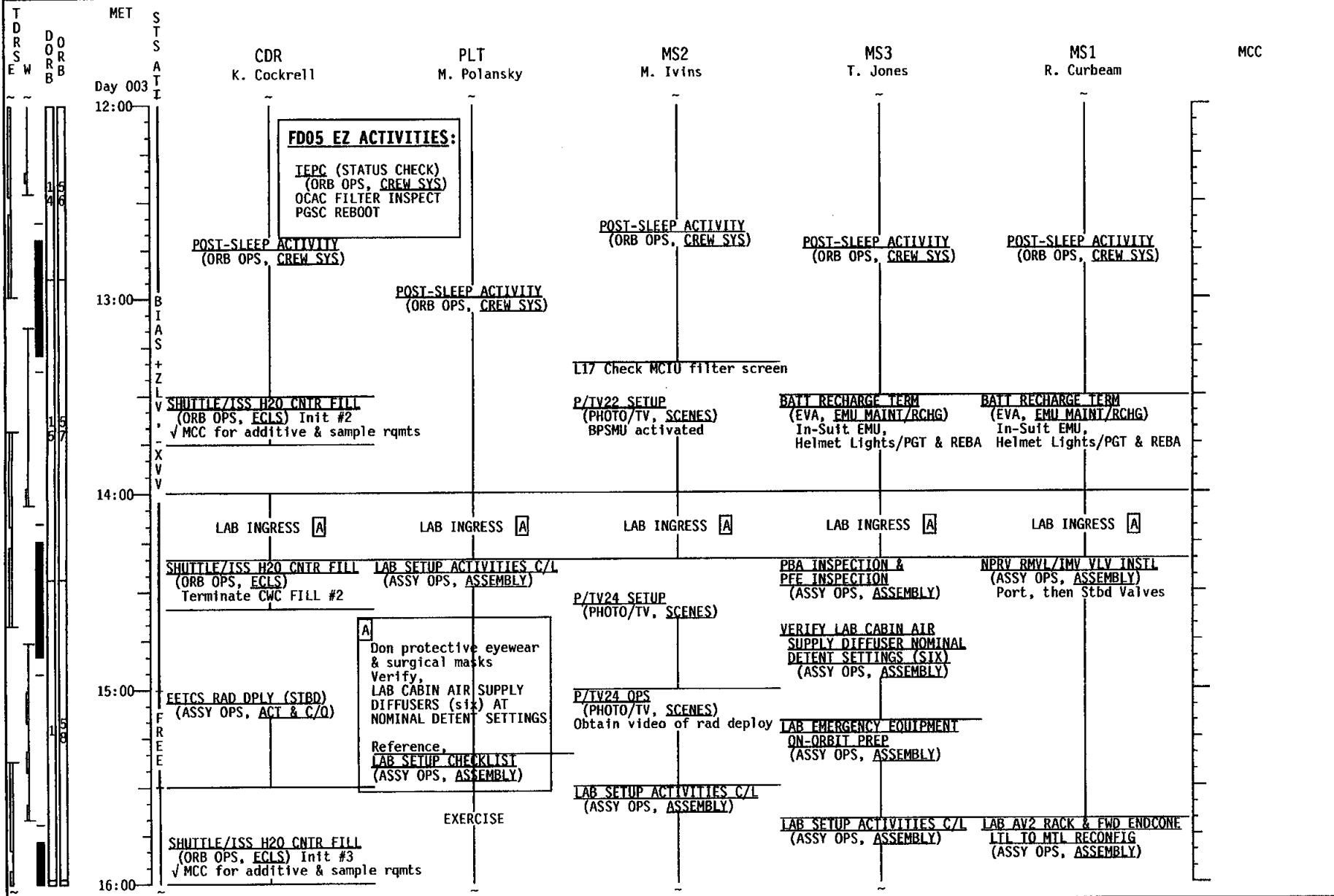
STS-98 (FD 04)



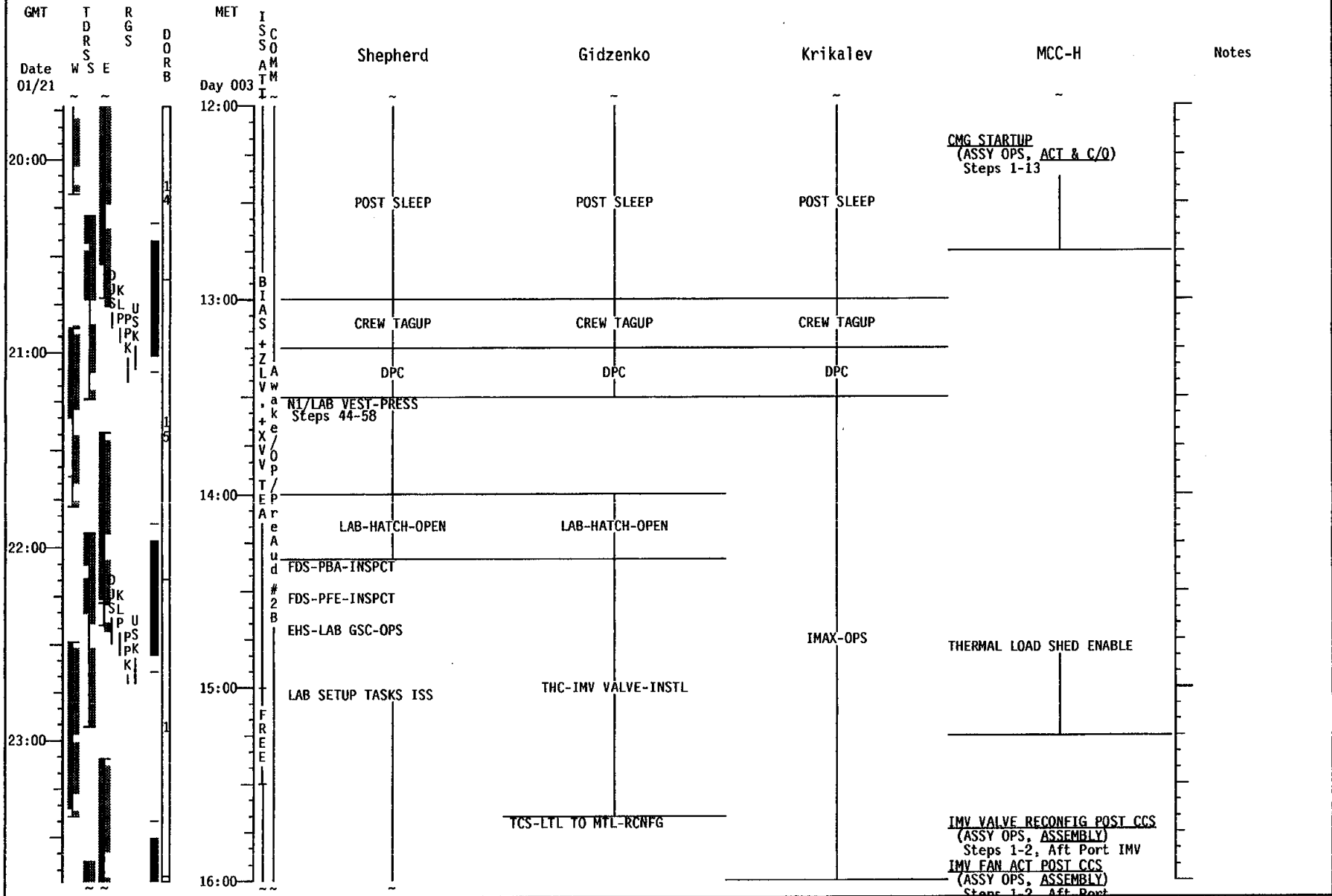
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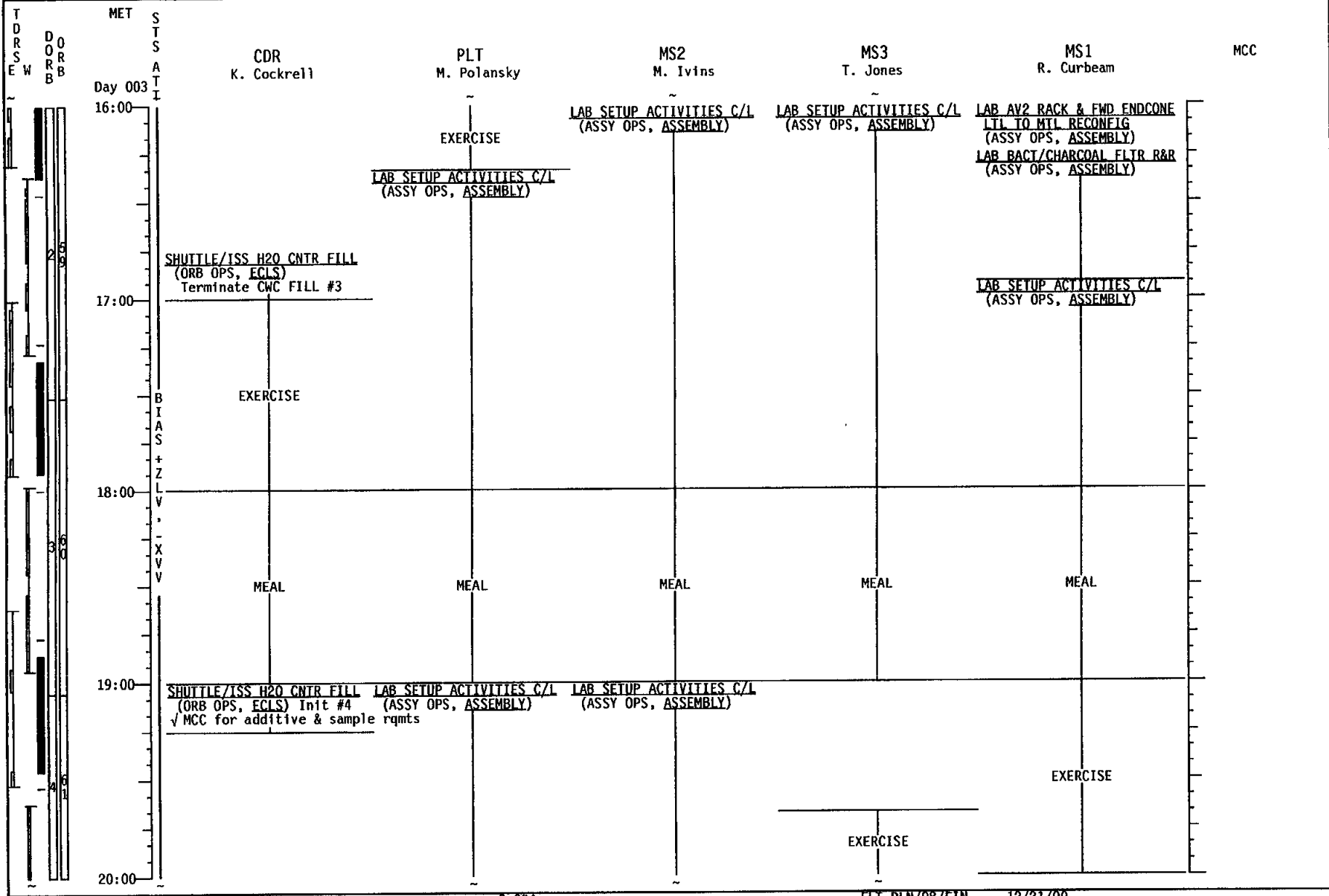
STS-98 (FD 05)



STS-98 (FD 05)



STS-98 (FD 05)

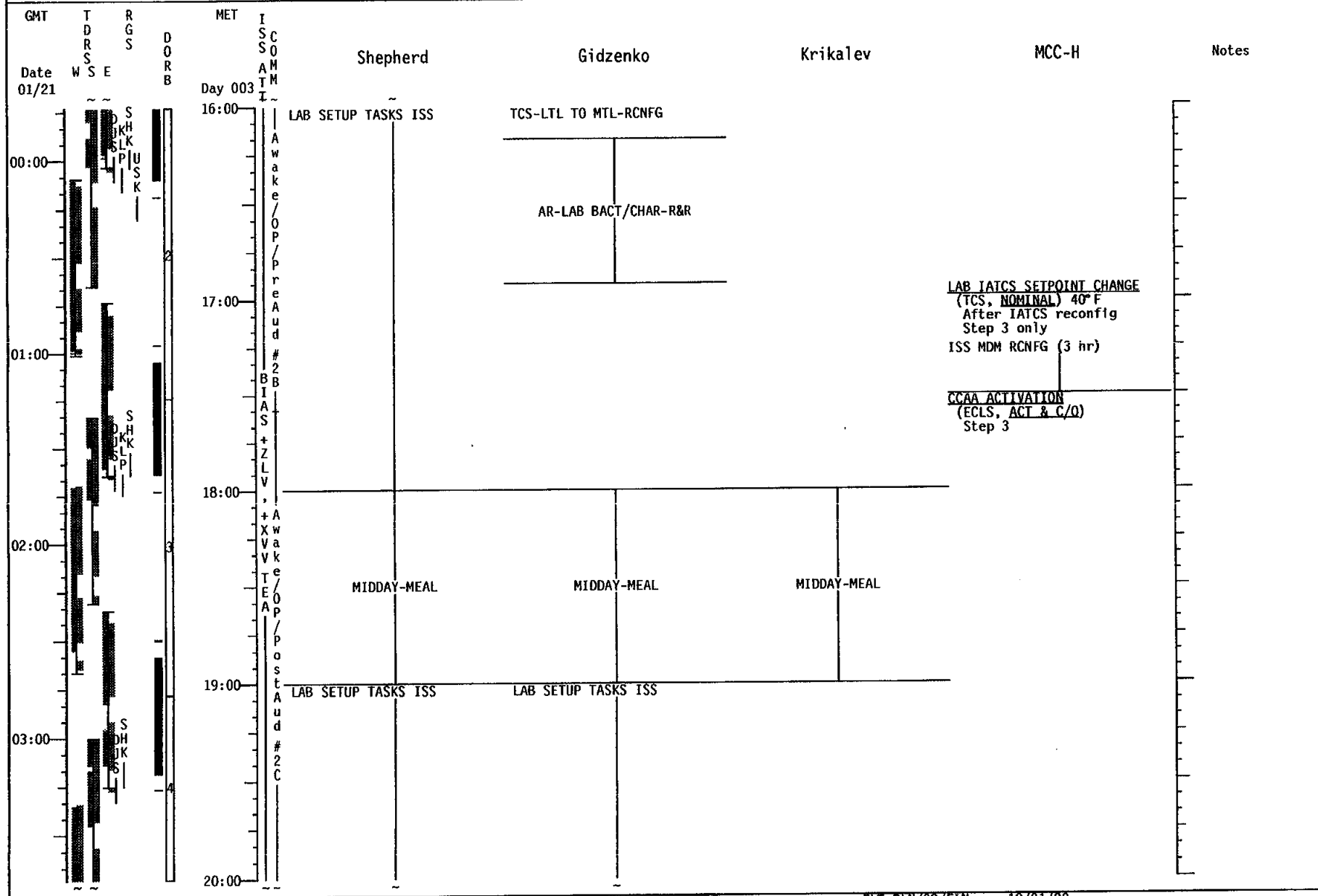


3-25A

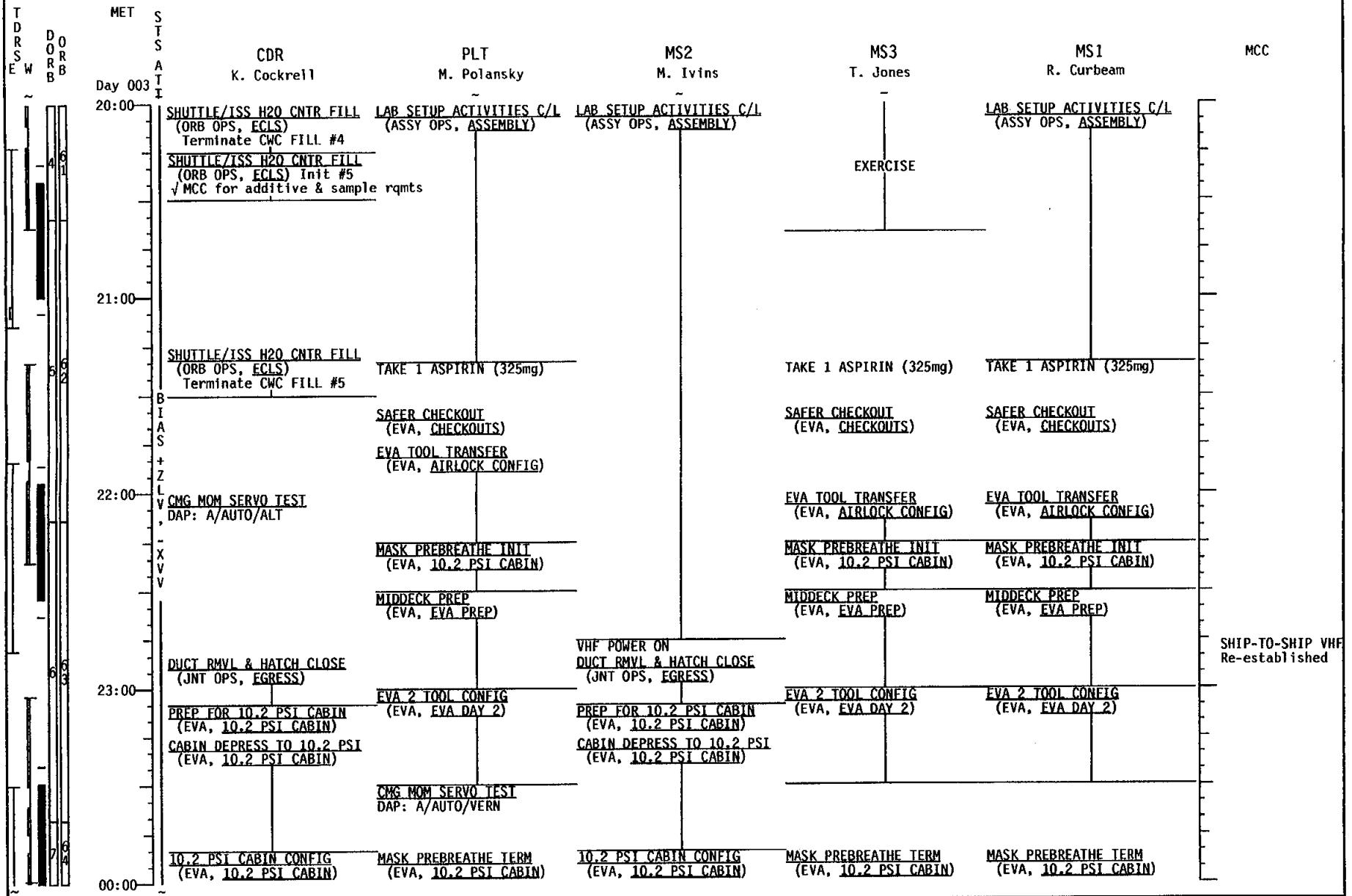
FLT PLN/98/FIN

12/21/00

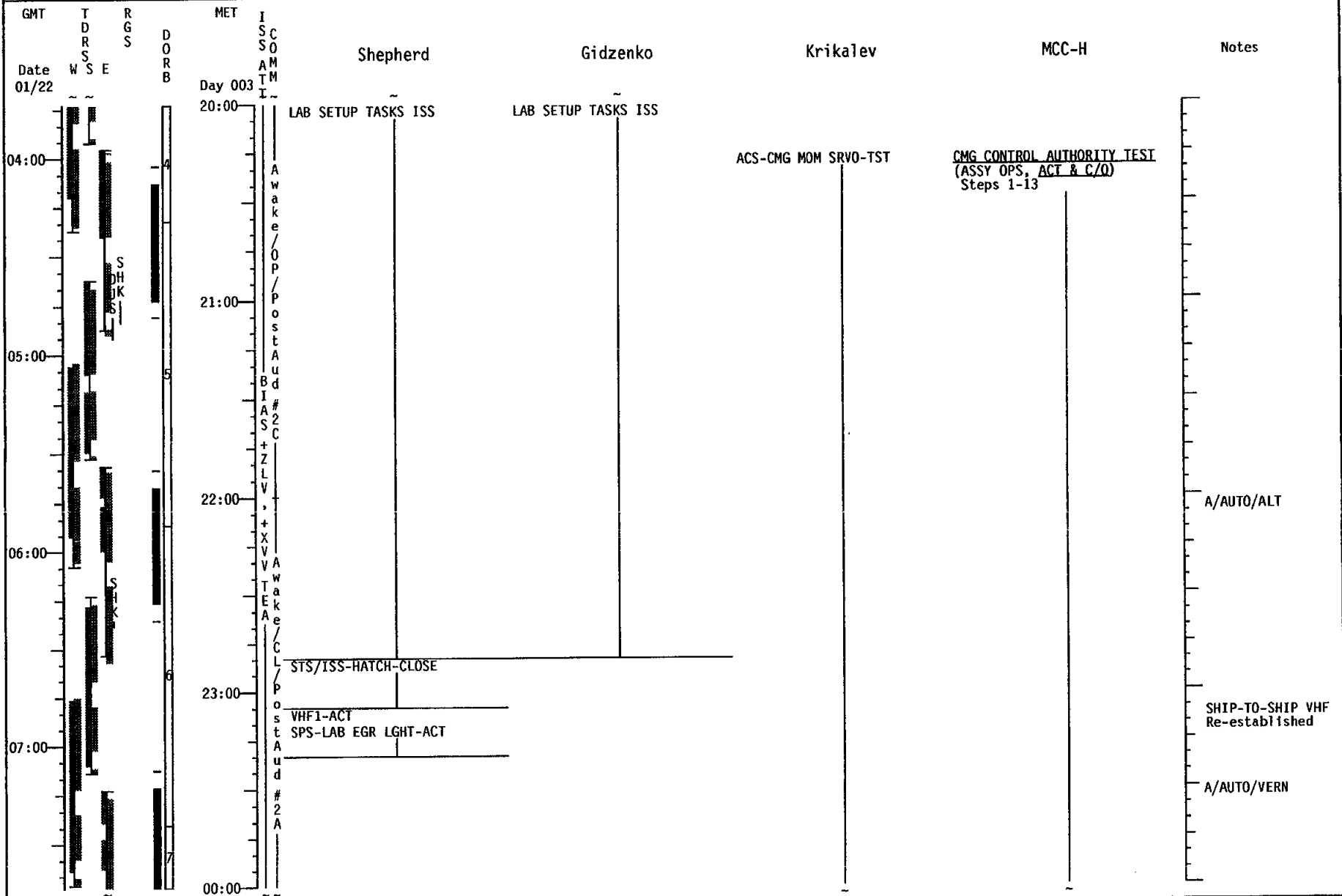
STS-98 (FD 05)



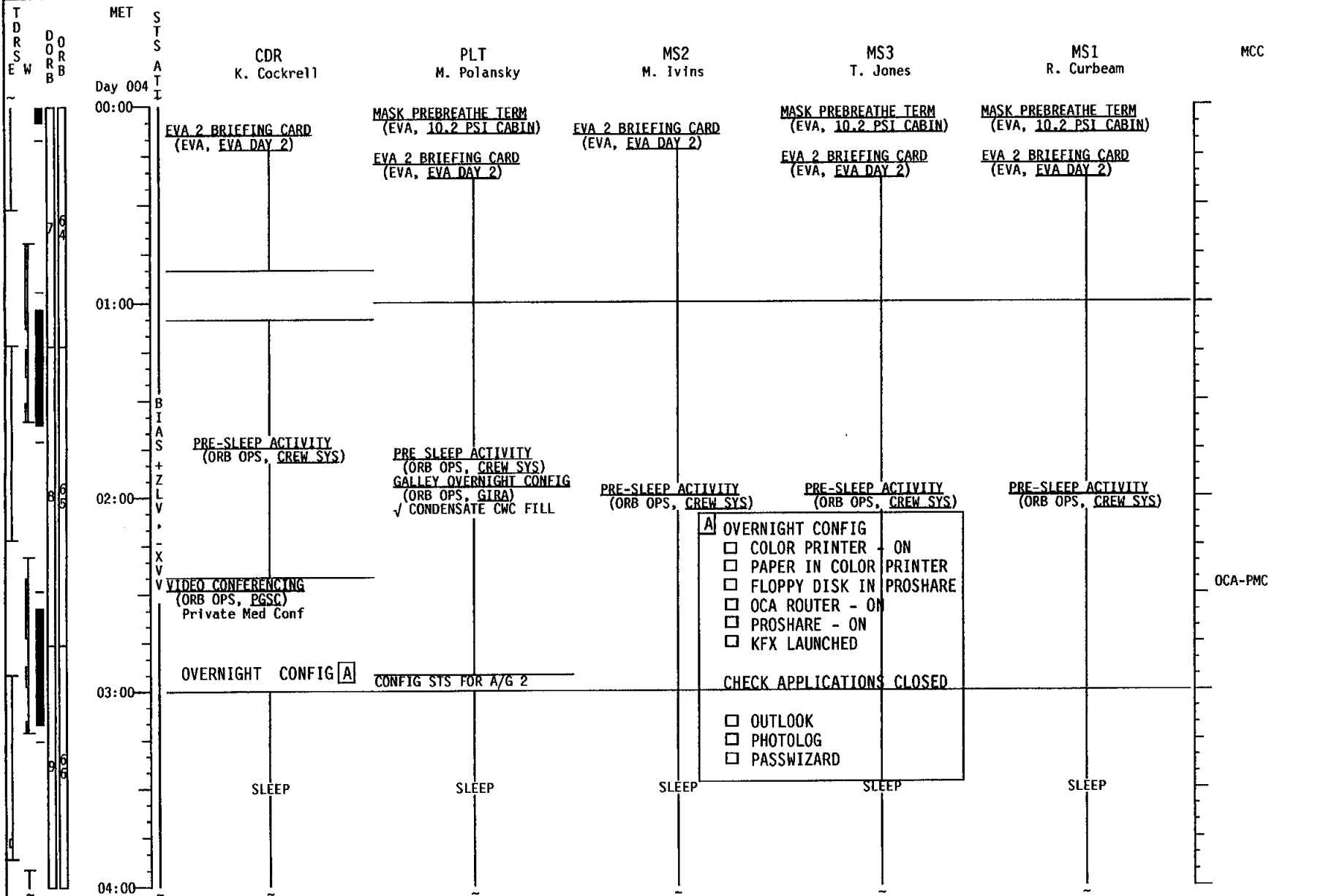
STS-98 (FD 05)



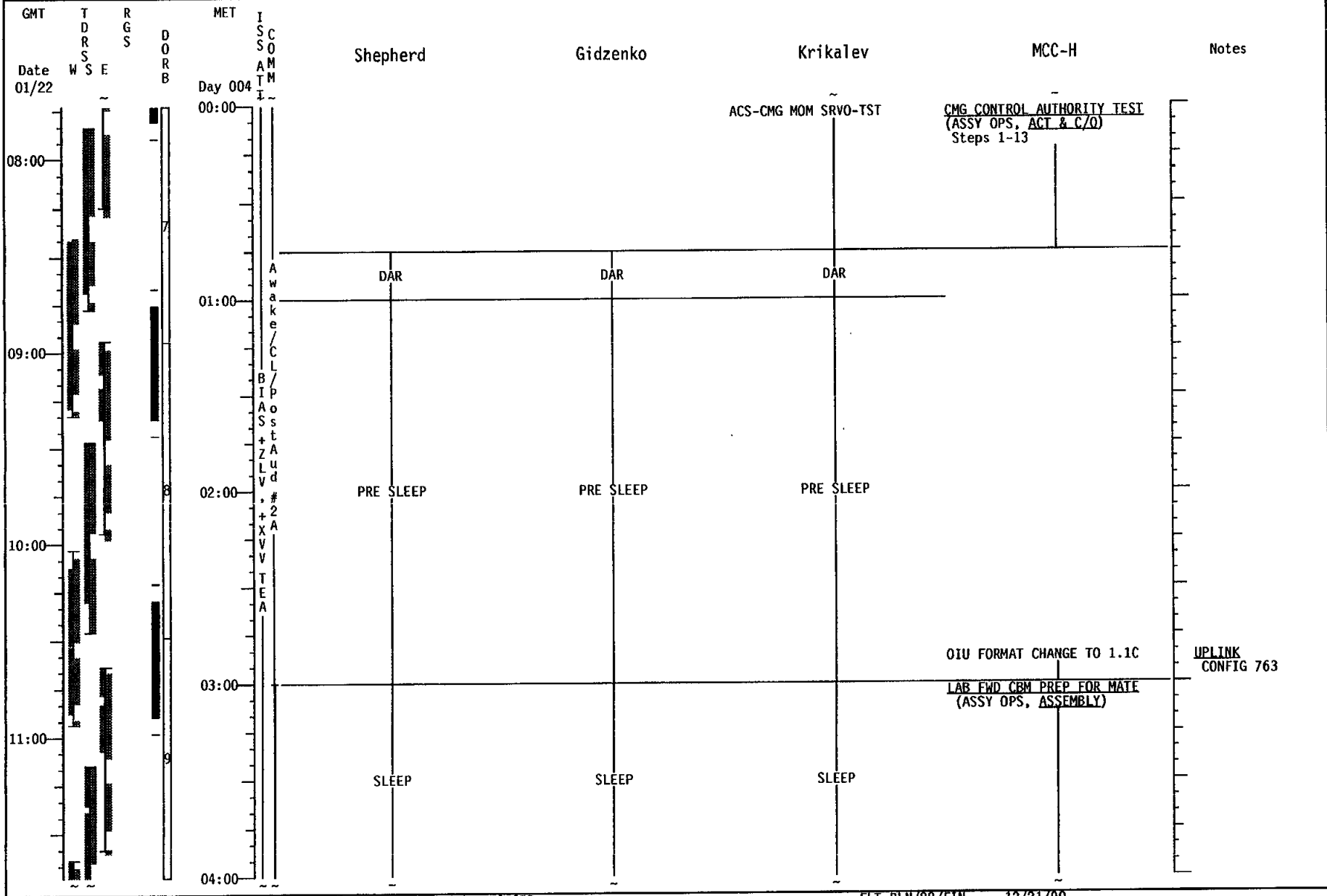
STS-98 (FD 05)



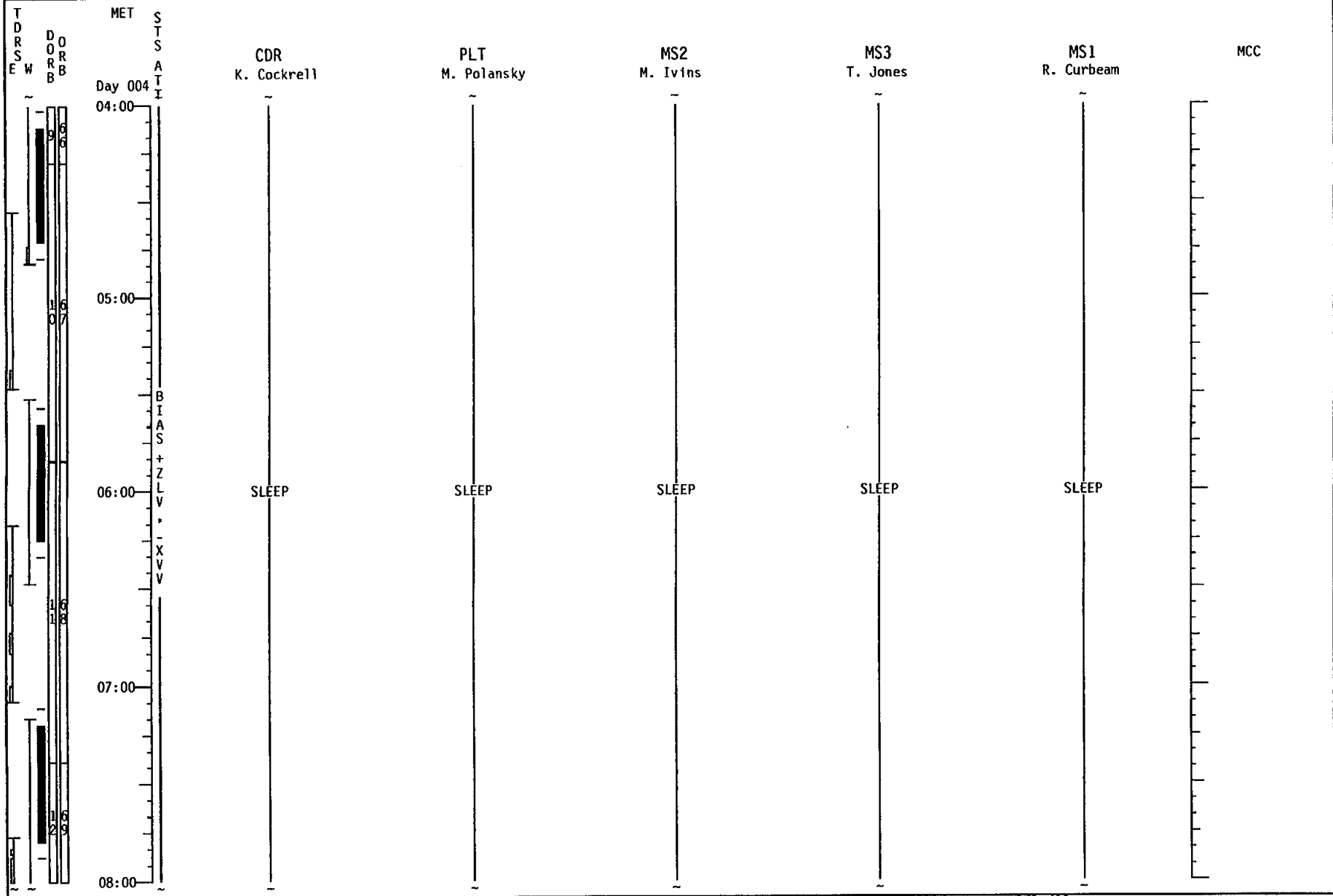
STS-98 (FD 05)



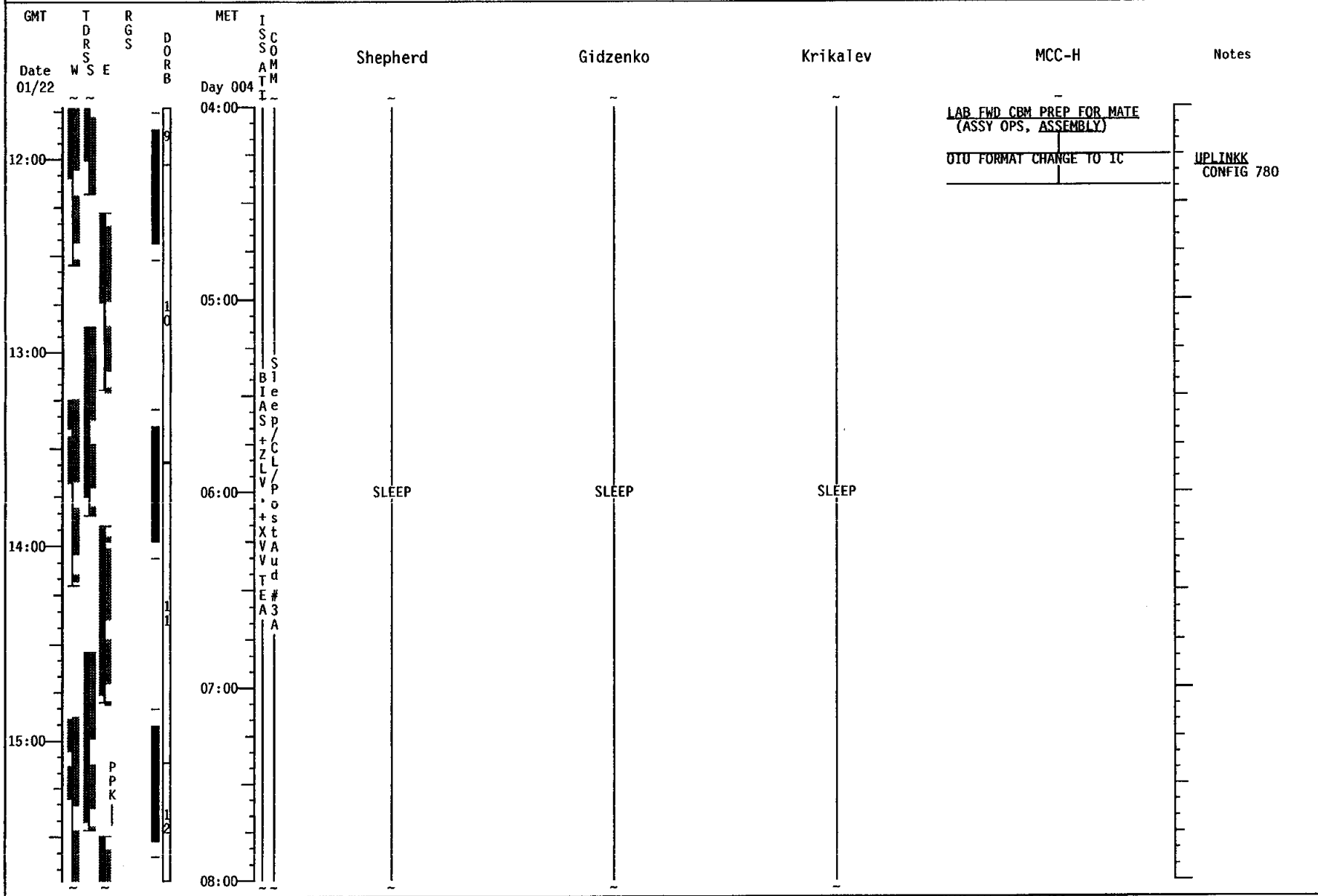
STS-98 (FD 05)



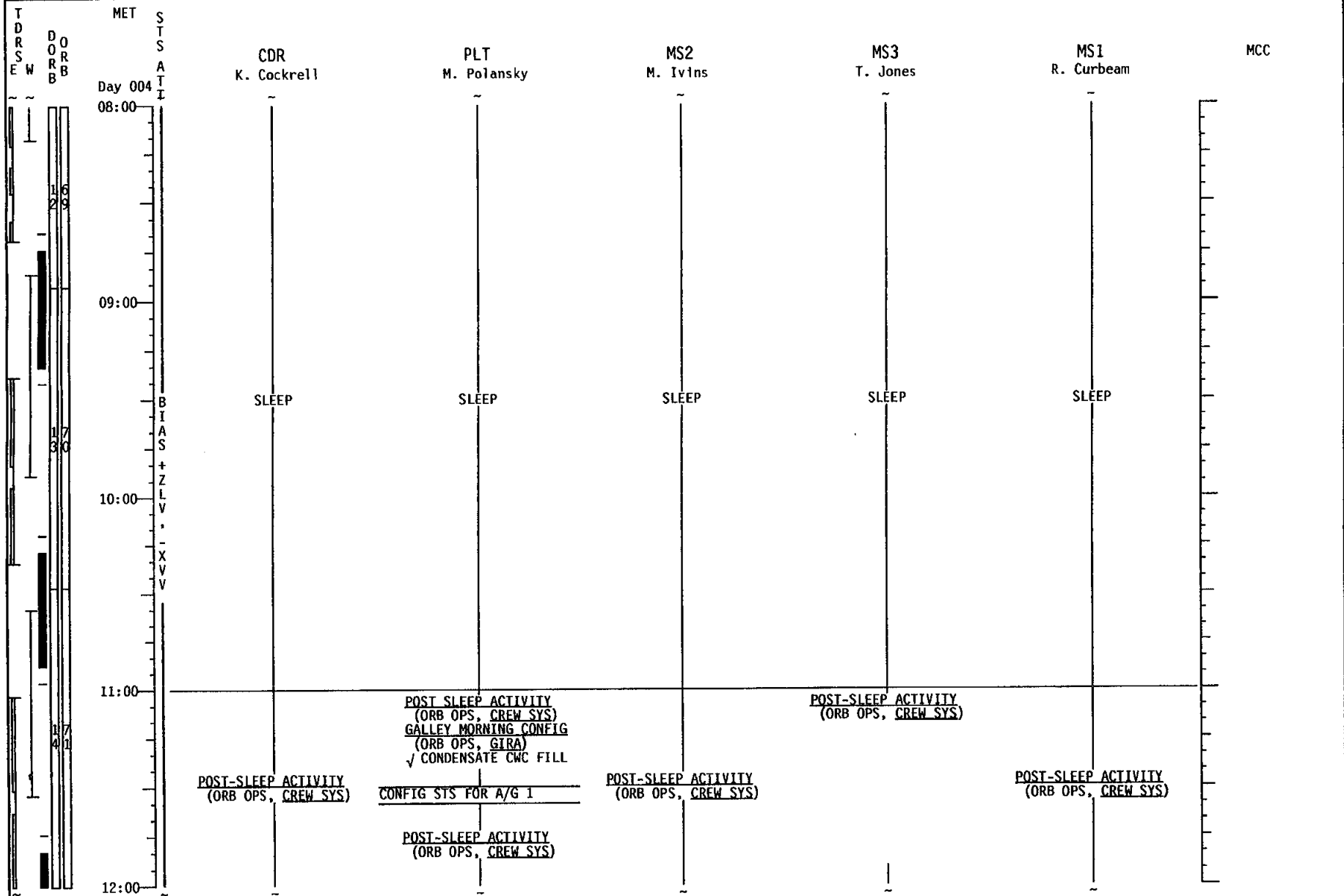
STS-98 (FD 05)



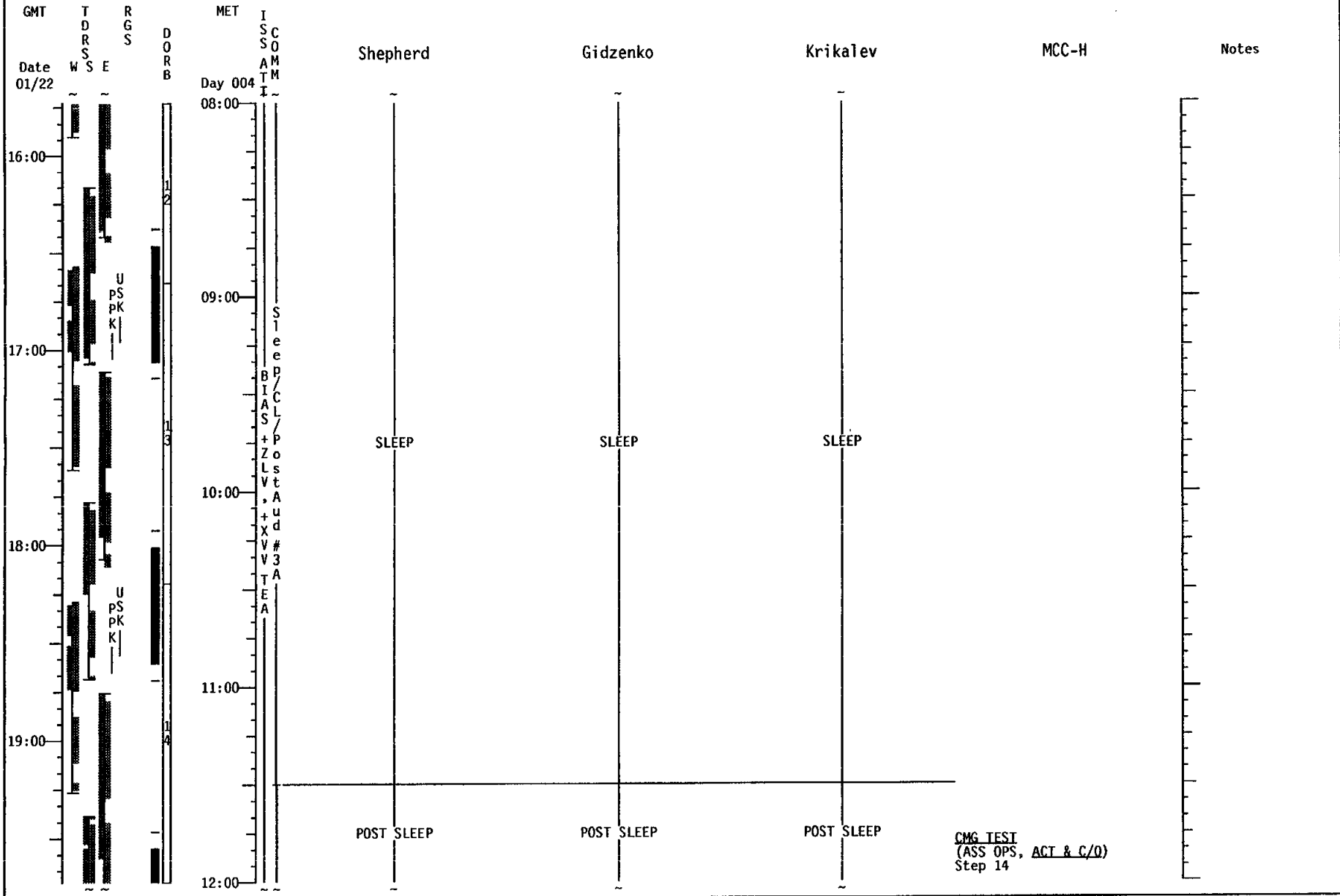
STS-98 (FD 05)



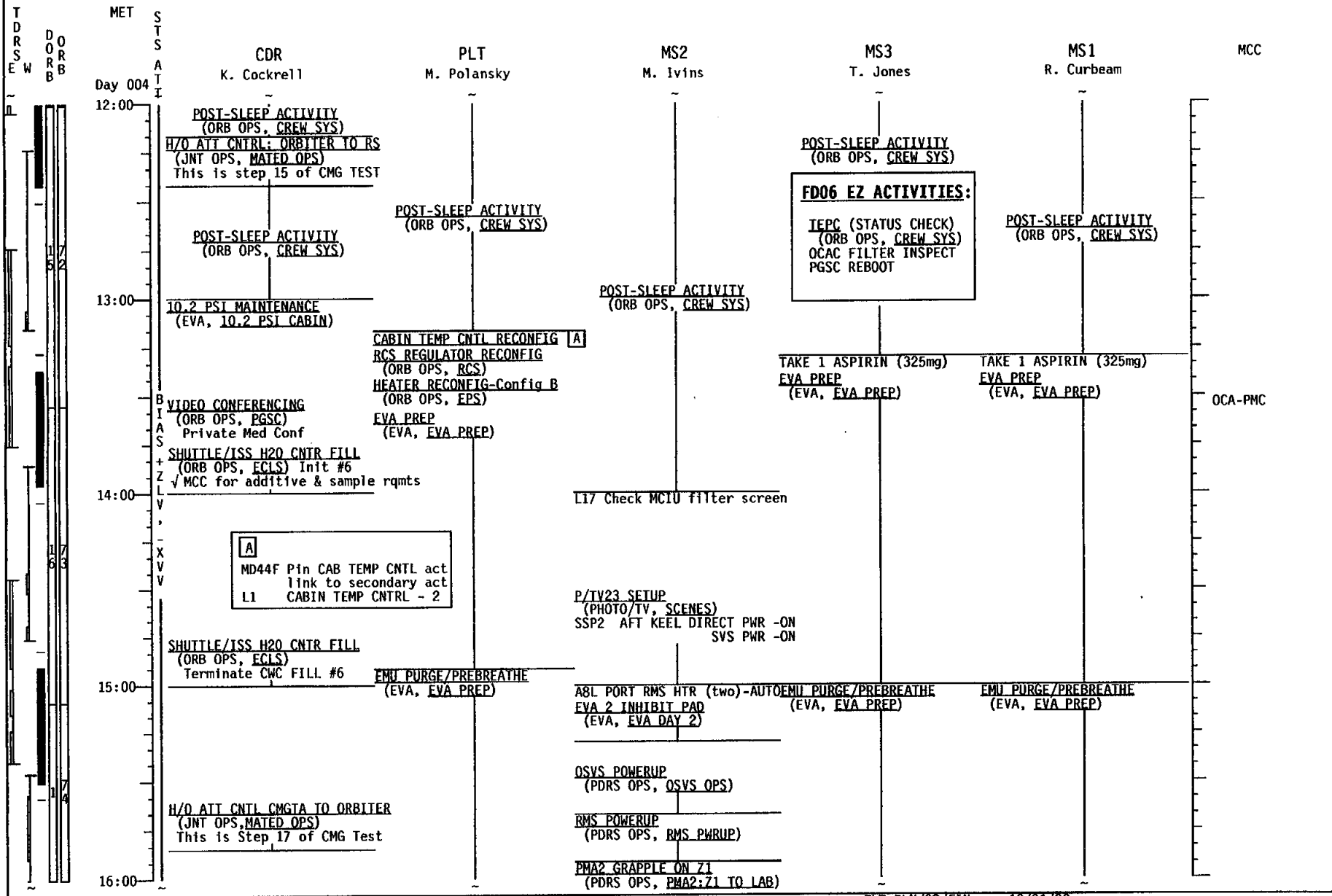
STS-98 (FD 05)



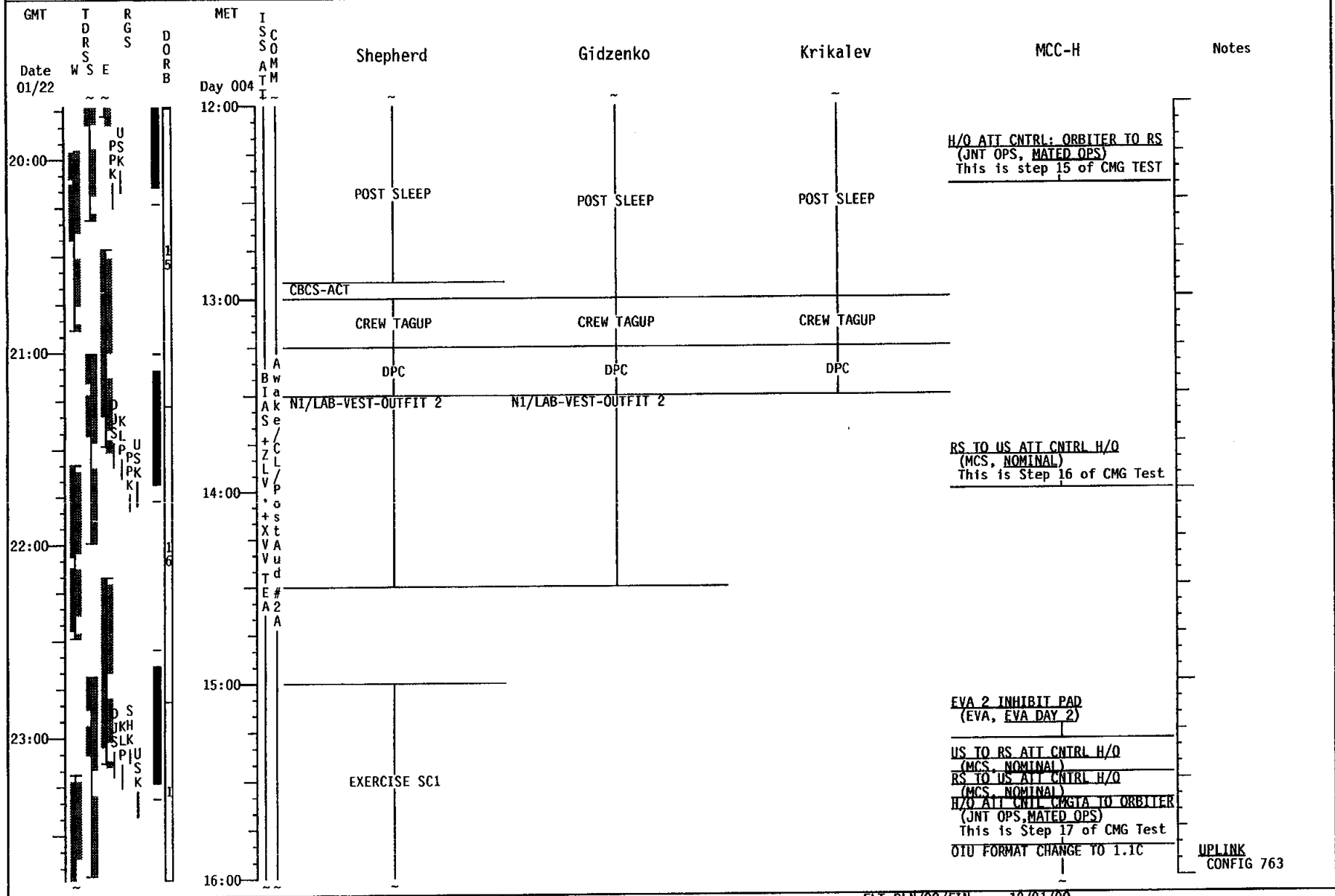
STS-98 (FD 05)



STS-98 (FD 06)

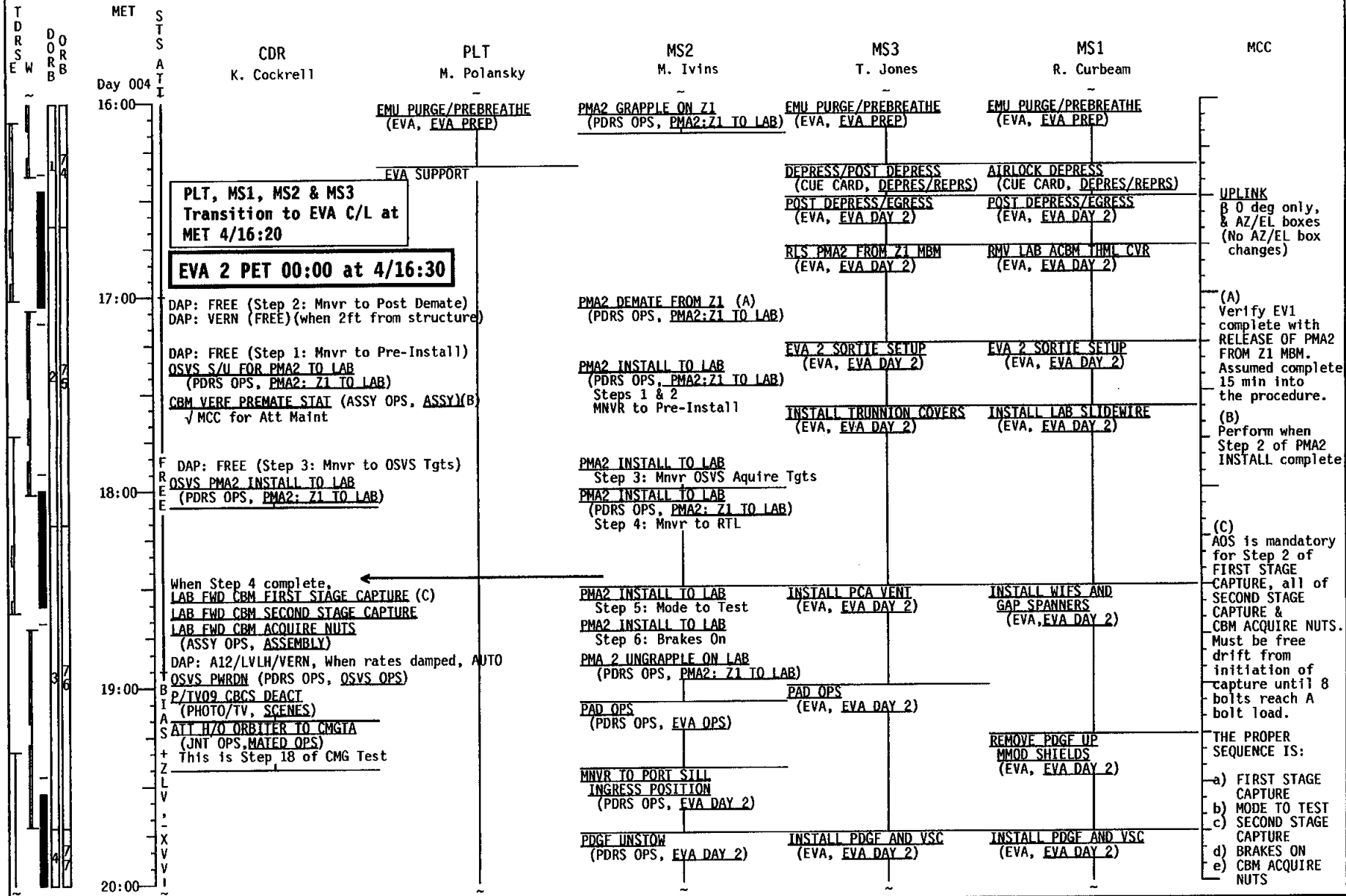


STS-98 (FD 06)

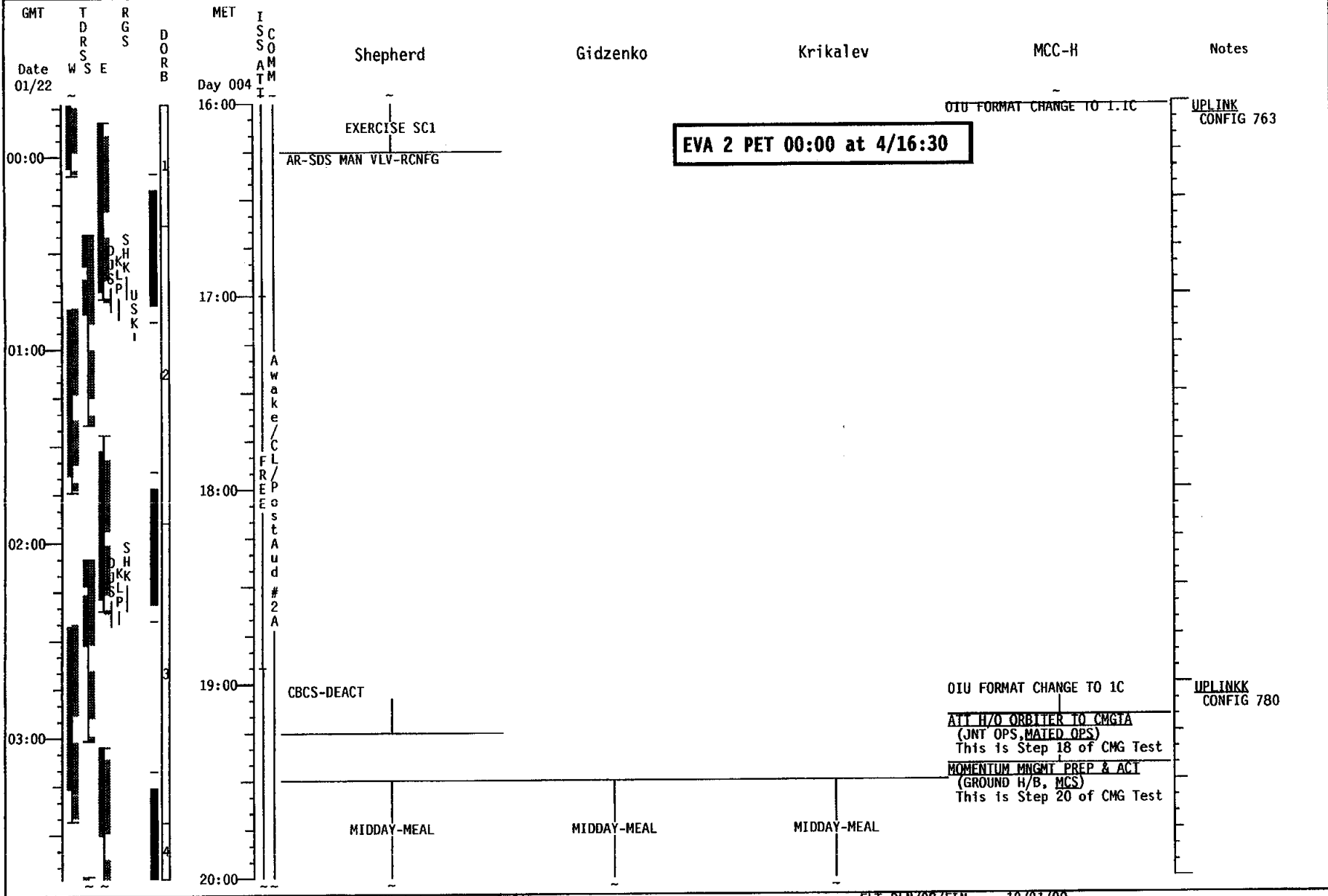


UPLINK
CONFIG 763

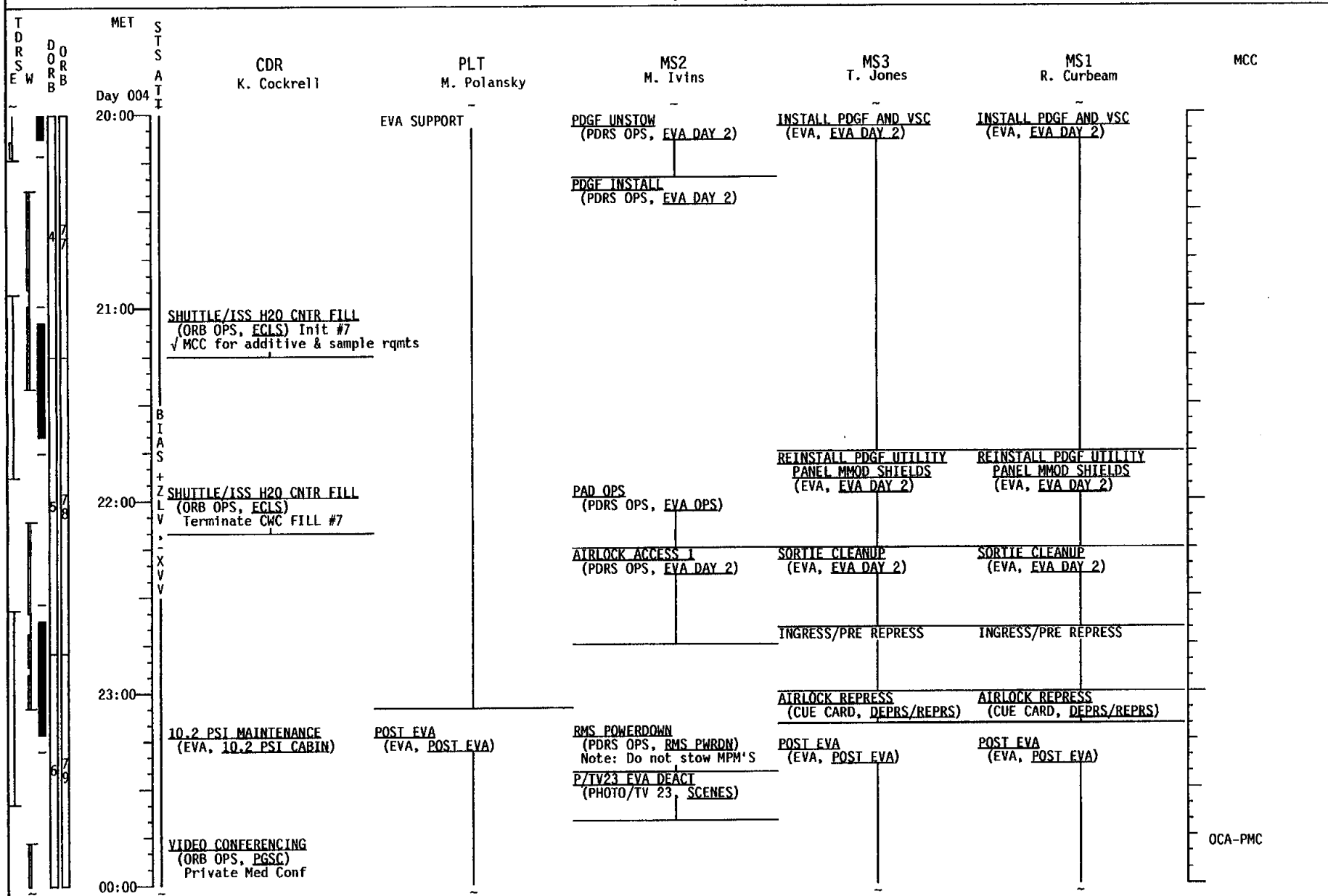
STS-98 (FD06)



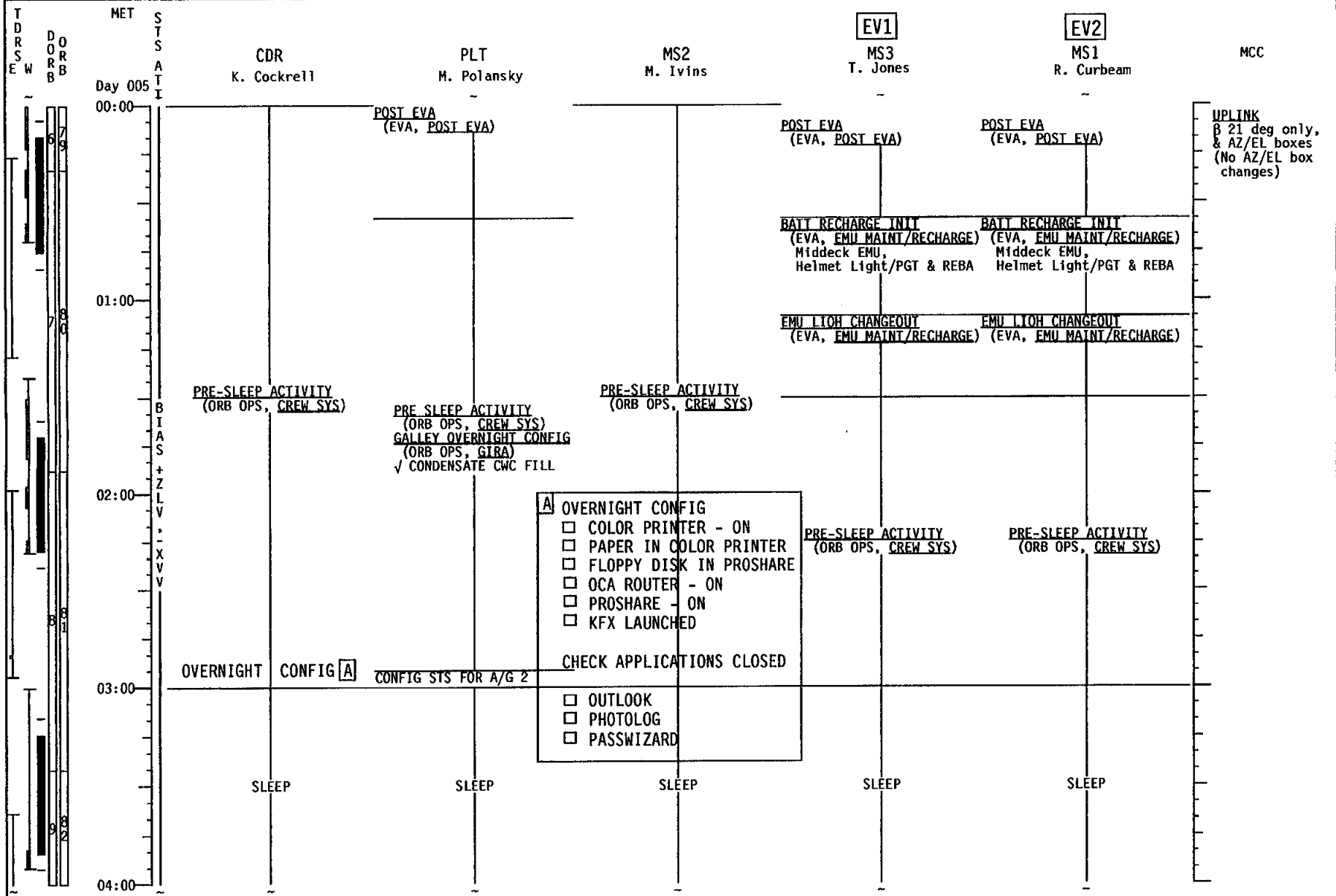
STS-98 (FD 06)



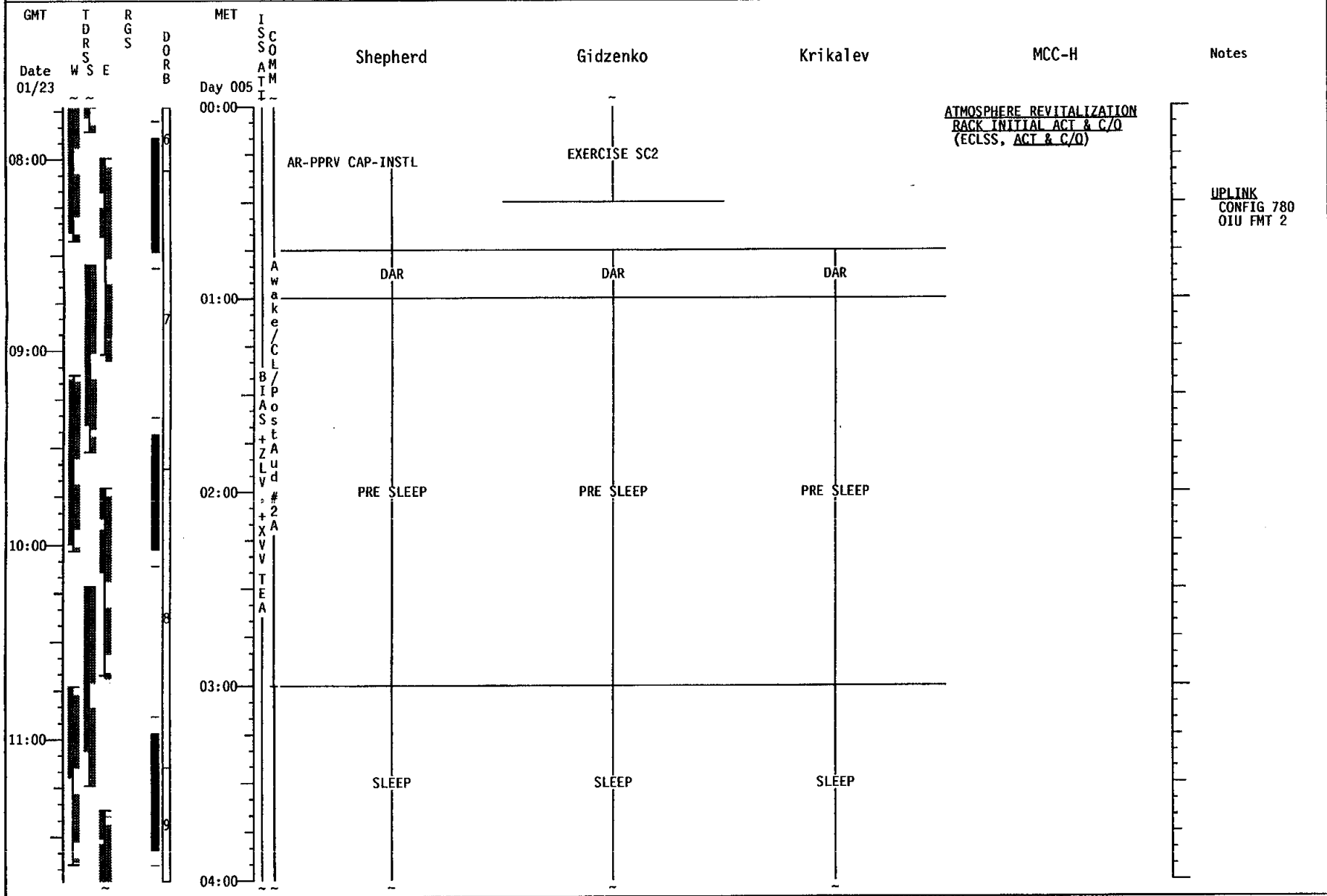
STS-98 (FD 06)



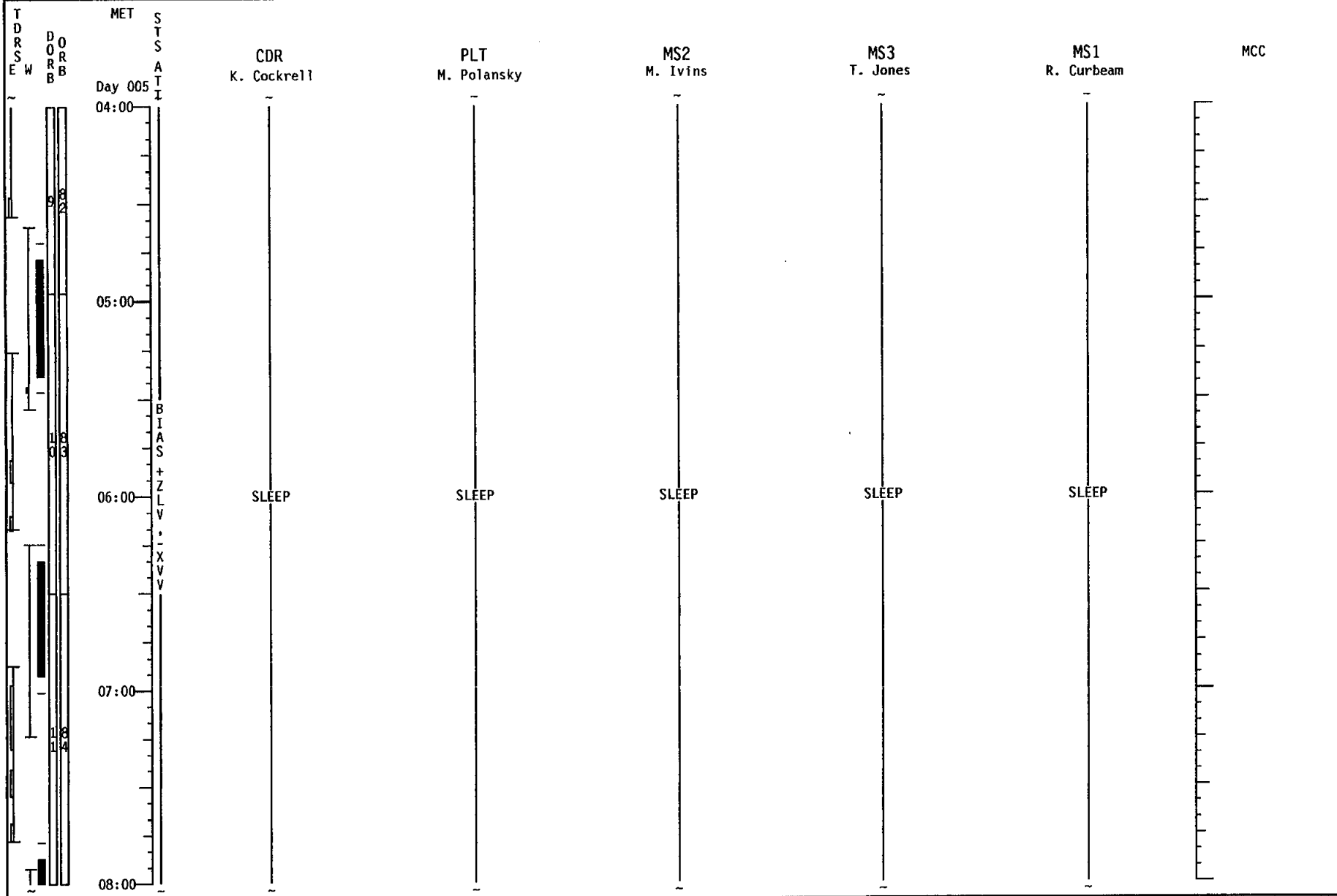
STS-98 (FD 06)



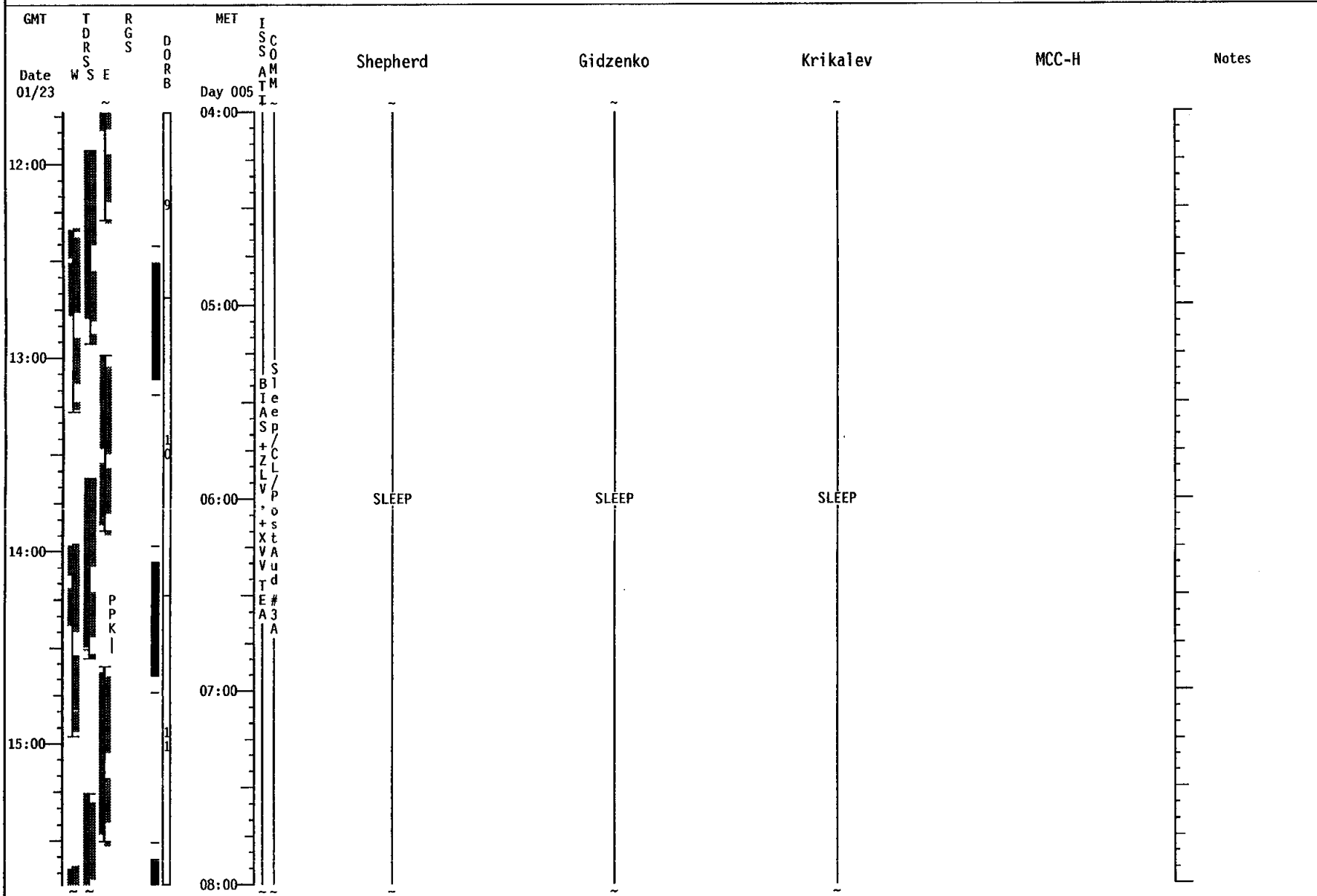
STS-98 (FD 06)



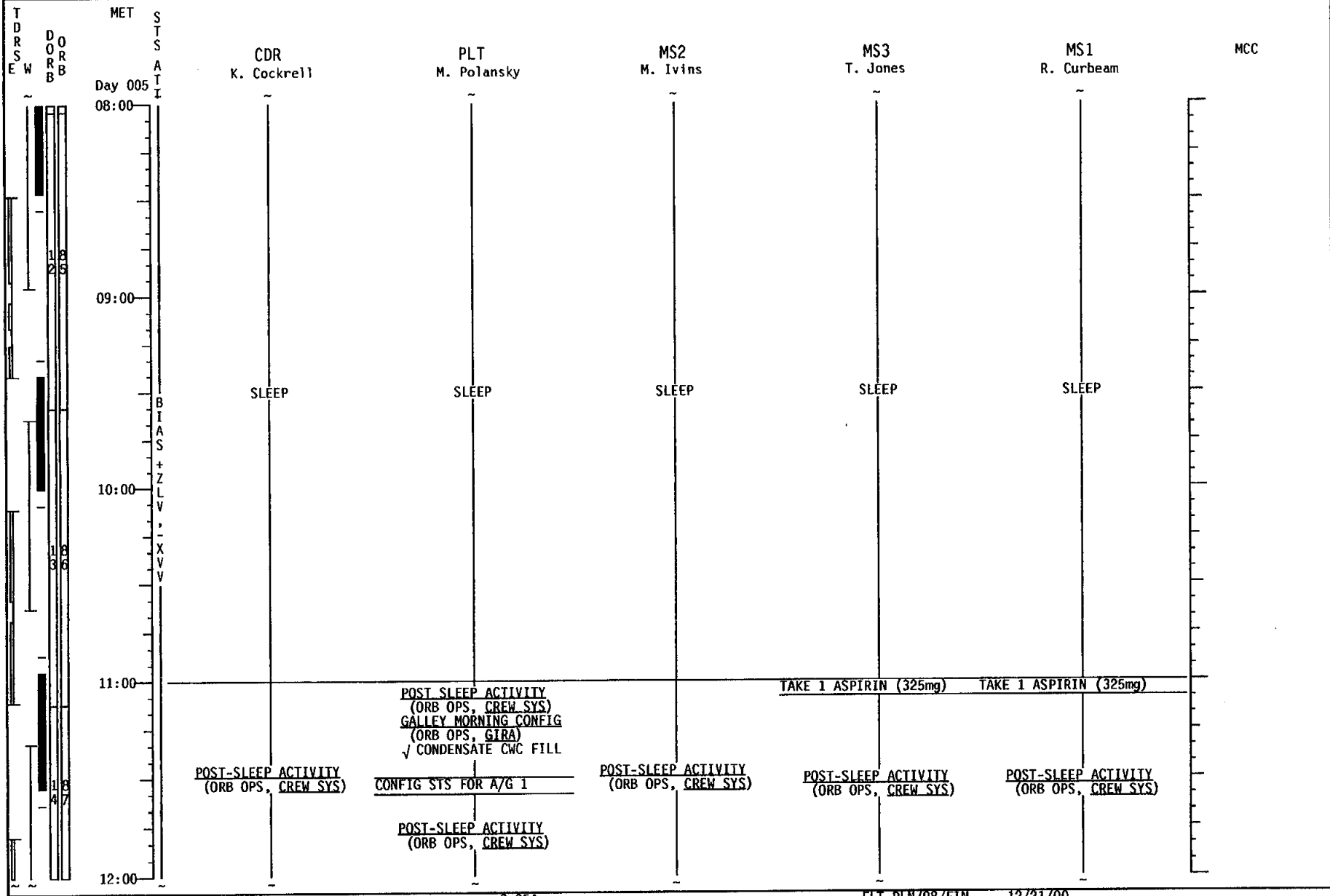
STS-98 (FD 06)



STS-98 (FD 06)



STS-98 (FD 06)

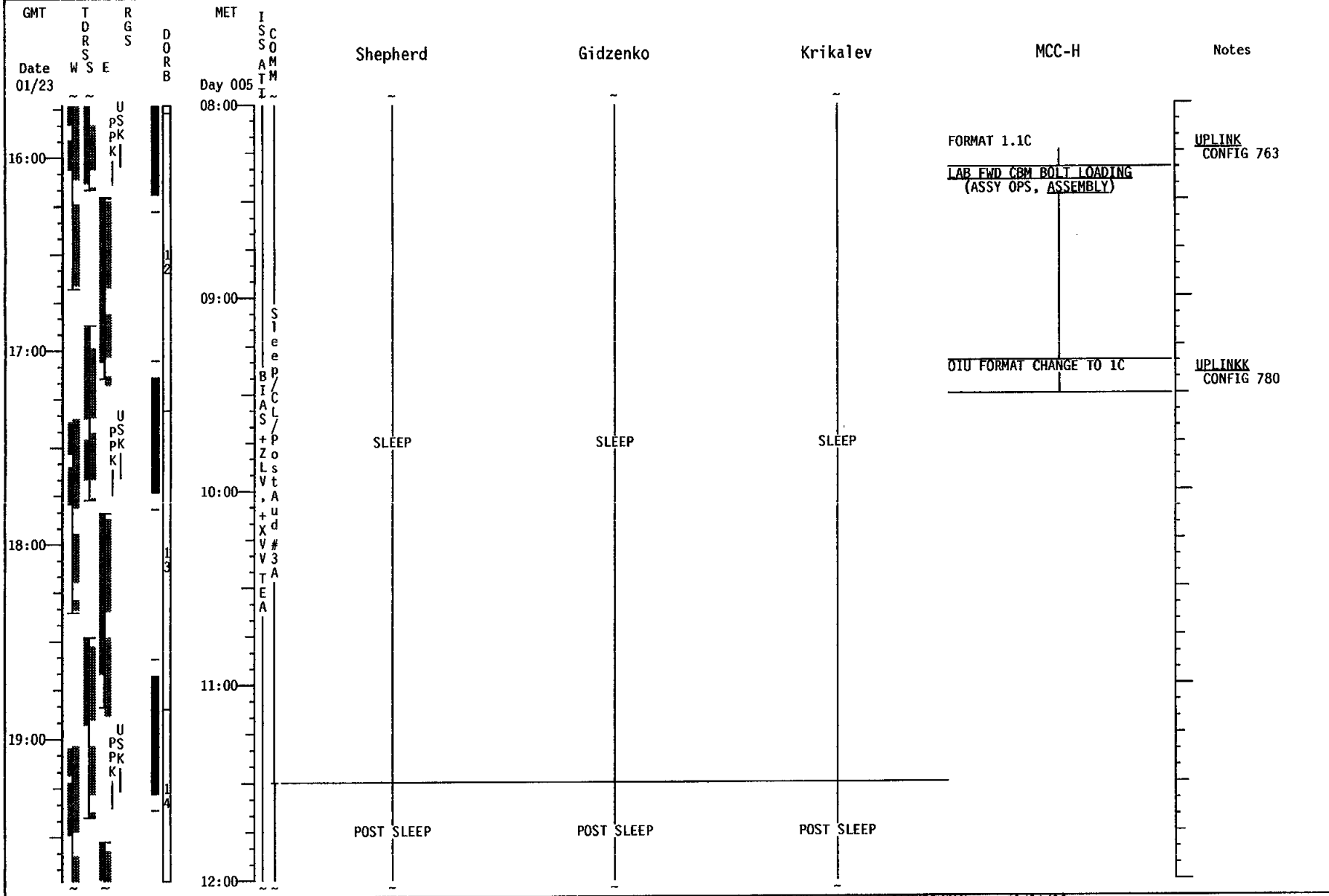


3-35A

FLT PLN/98/FIN

12/21/00

STS-98 (FD 06)



STS-98 (FD 07)

T D R S
E W

MET
Day 005
S T S
A T T

12:00
13:00
14:00
15:00
16:00

CDR
K. Cockrell

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

VIDEO CONFERENCING
(ORB OPS, PGSC)

Private Fam Conf

10.2 PSI MAINTENANCE
(EVA, 10.2 PSI CABIN)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

OFF DUTY

PLT
M. Polansky

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

EXERCISE

VIDEO CONFERENCING
(ORB OPS, PGSC)

Private Fam Conf

OFF DUTY

MS2
M. Ivins

FD07 EZ ACTIVITIES:

IEPC (STATUS CHECK)
(ORB OPS, CREW SYS)
OCAC FILTER INSPECT
PGSC REBOOT

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

ILLUMINATOR OPS
(CUE CARD, ILLUM OPS)

A7 Camr A,B,C,D & Elbow Illuminators - ON

VIDEO CONFERENCING
(ORB OPS, PGSC)

Private Fam Conf

OFF DUTY

OFF DUTY

MS3
T. Jones

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

BATT RECHARGE TERM
(EVA, EMU MAINT/RCHG)

In-suit EMU,
Helmet Lights/PGT & REBA

VIDEO CONFERENCING
(ORB OPS, PGSC)

Private Fam Conf

OFF DUTY

MS1
R. Curbeam

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

BATT RECHARGE TERM
(EVA, EMU MAINT/RCHG)

In-suit EMU,
Helmet Lights/PGT & REBA

OFF DUTY

VIDEO CONFERENCING
(ORB OPS, PGSC)

Private Fam Conf

OFF DUTY

MCC

OCA-PFC

OCA-PFC

OCA-PFC

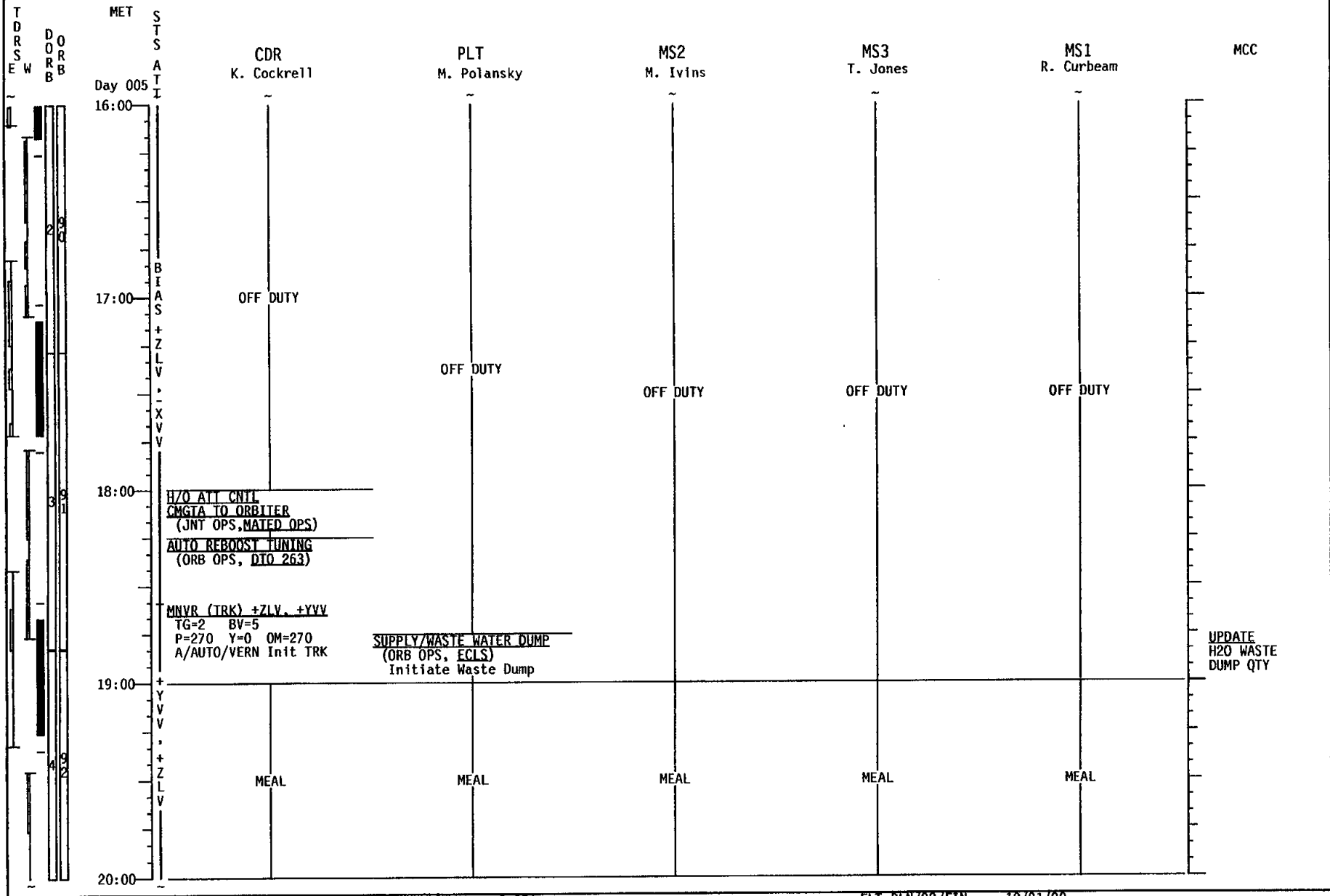
OCA-PFC

OCA-PFC

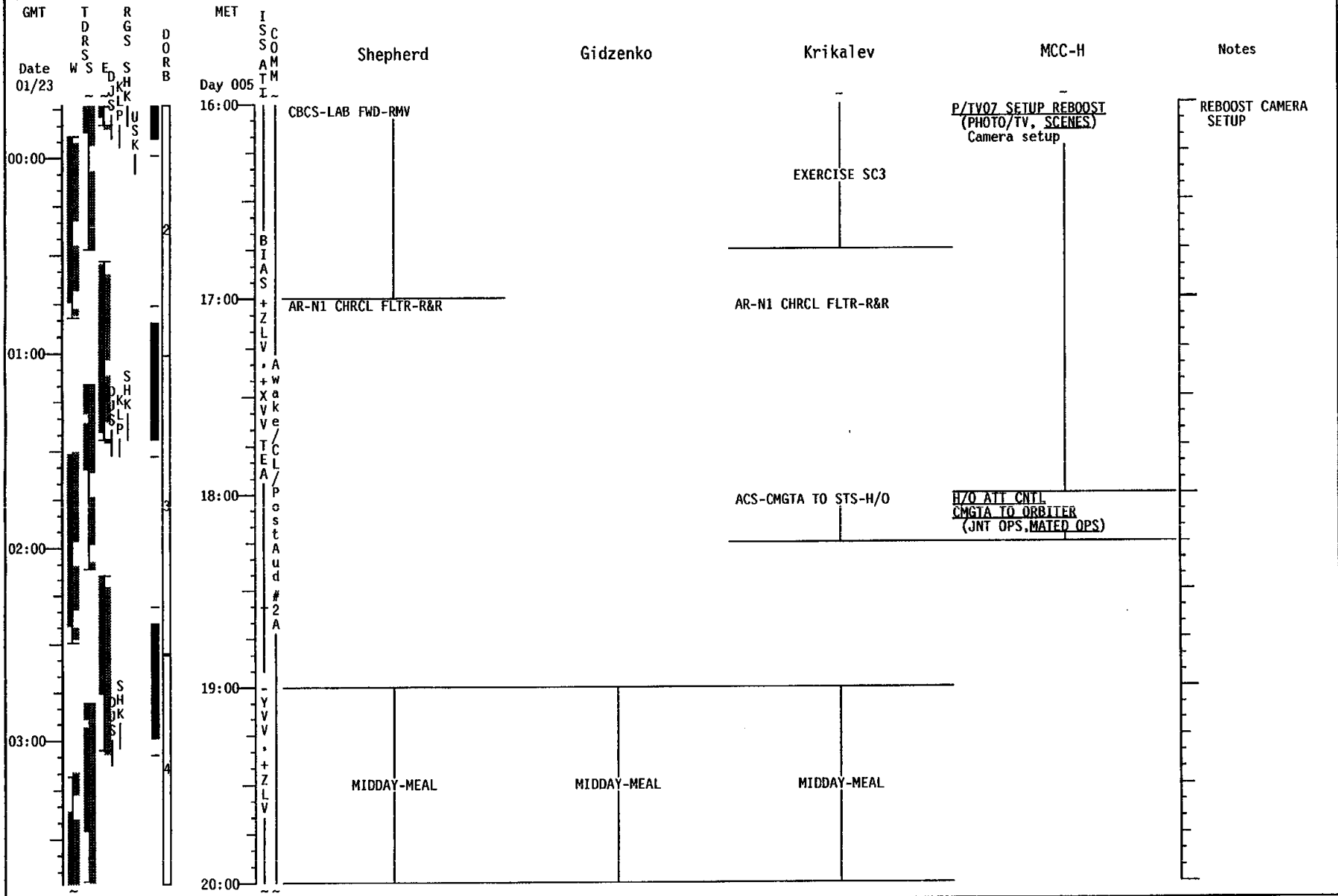
B I A S
+ Z L V
+ X V V

D O R B
1 4 7
1 8 5 8
1 8 9
2 9 0

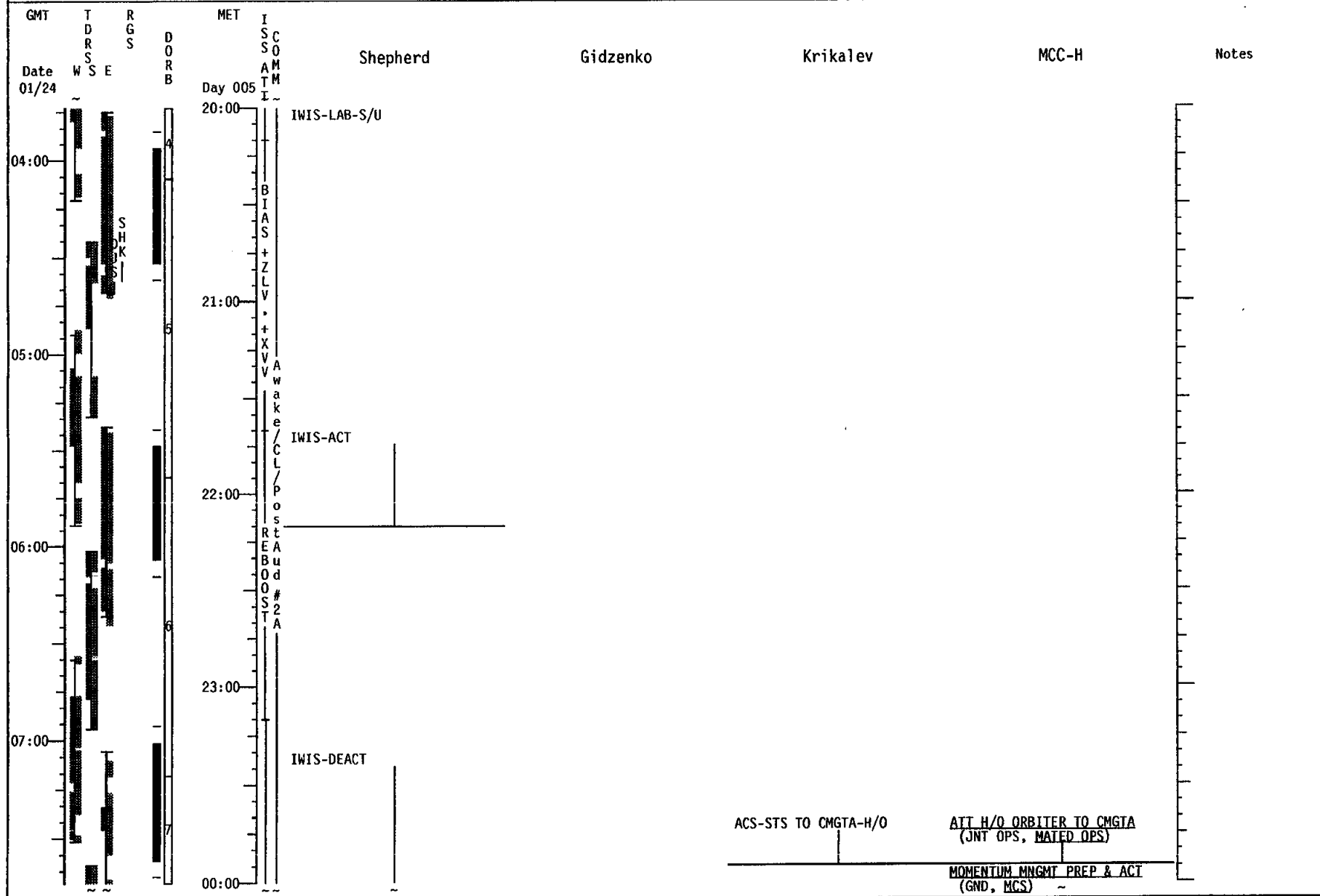
STS-98 (FD 07)



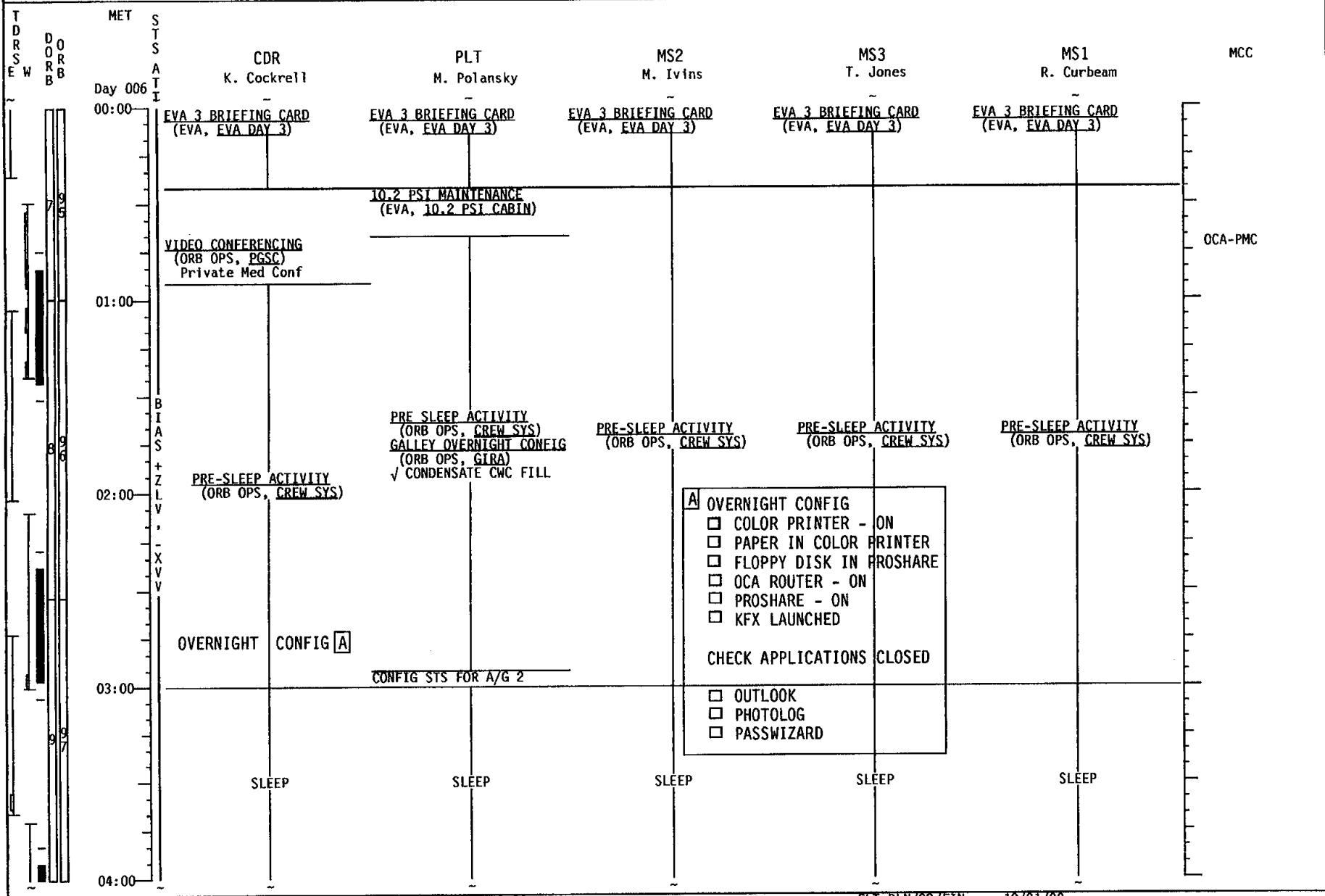
STS-98 (FD 07)



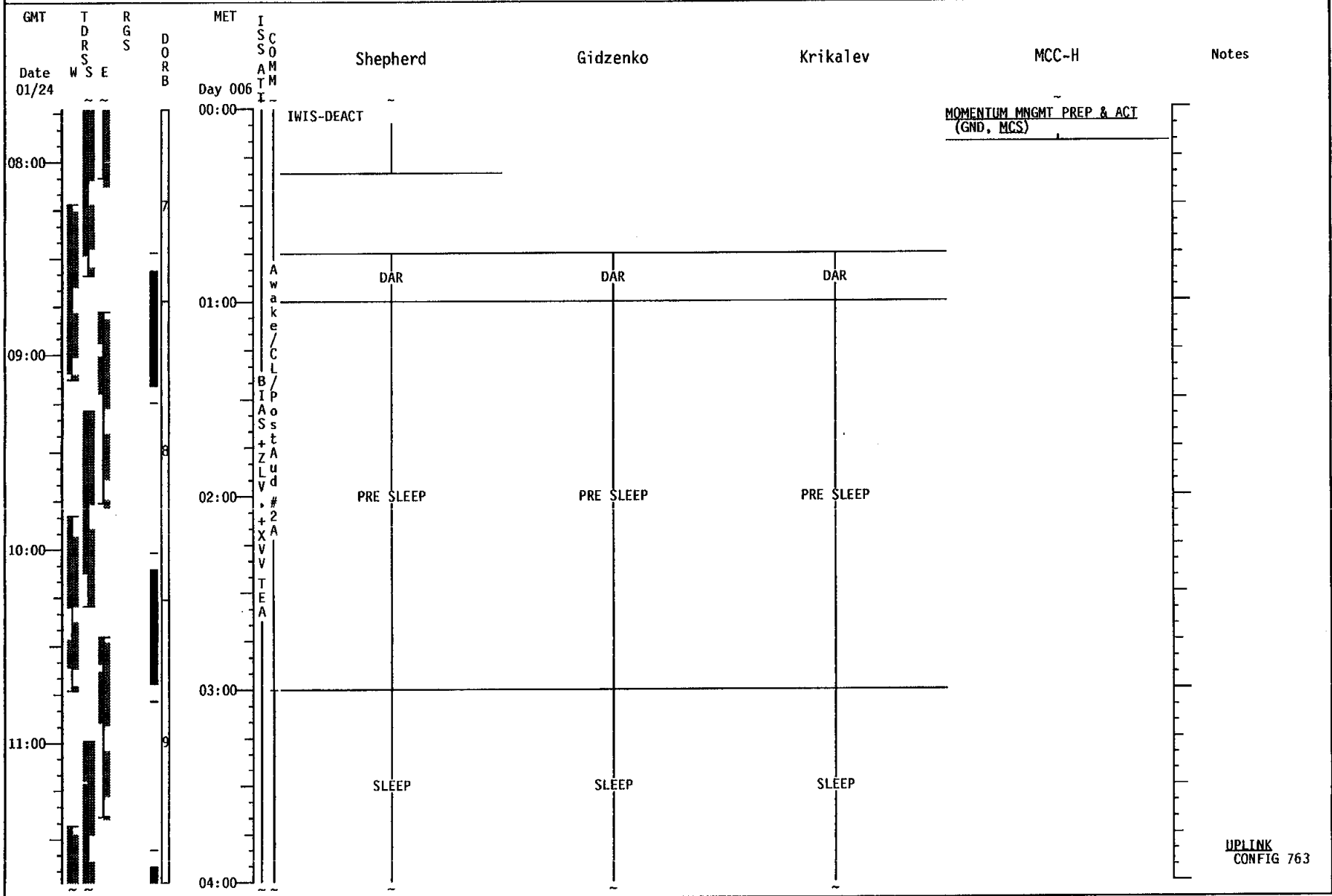
STS-98 (FD 07)



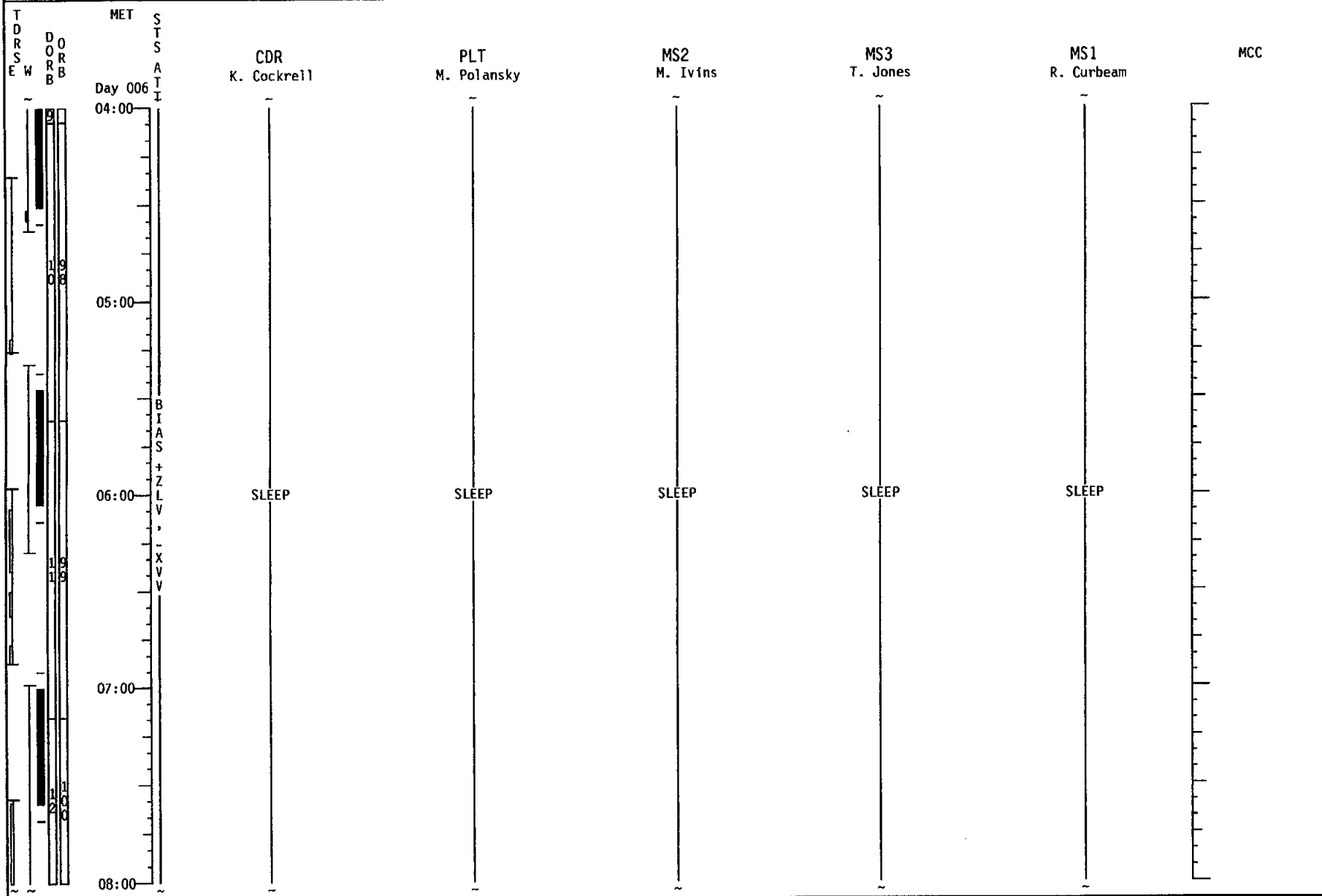
STS-98 (FD 07)



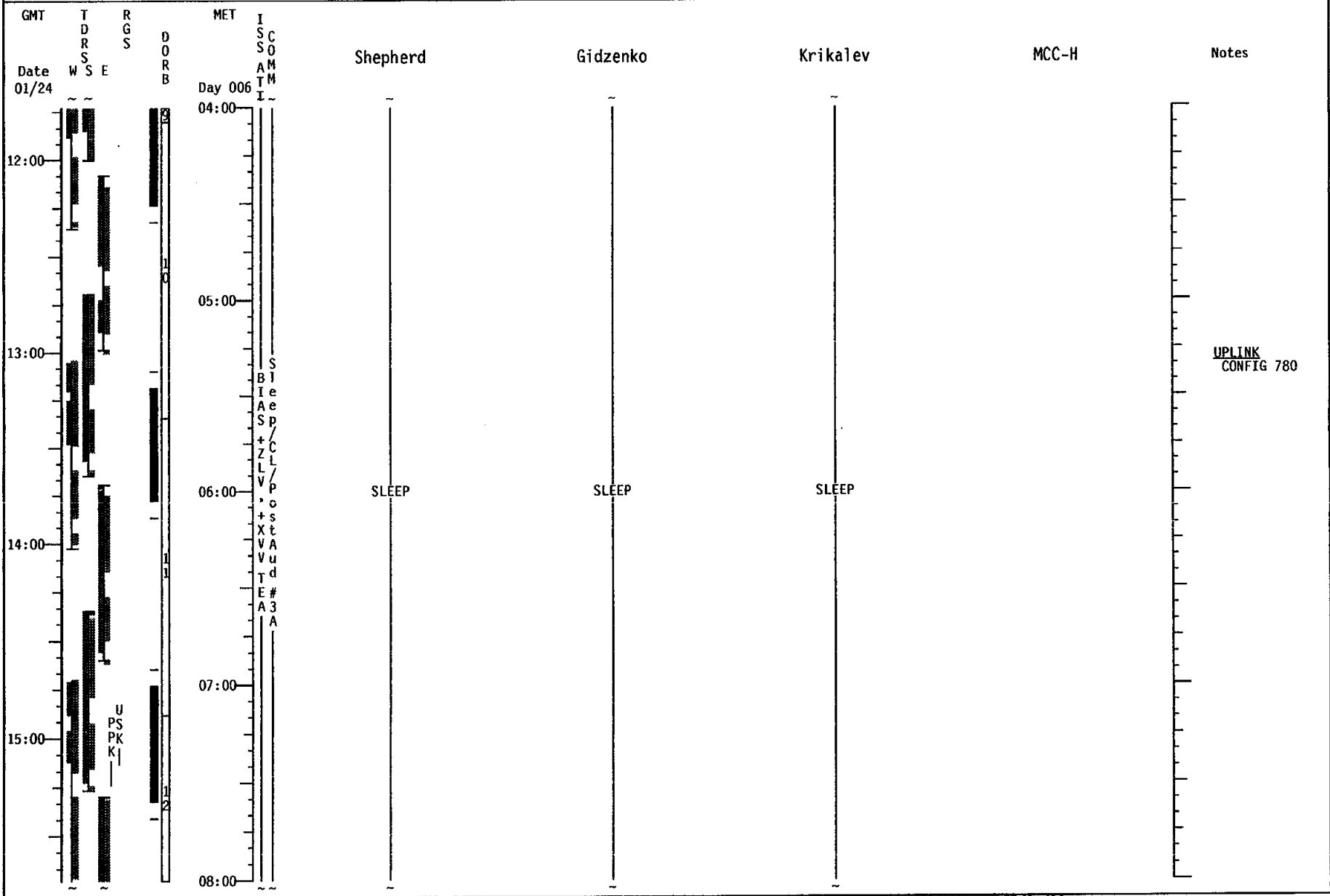
STS-98 (FD 07)



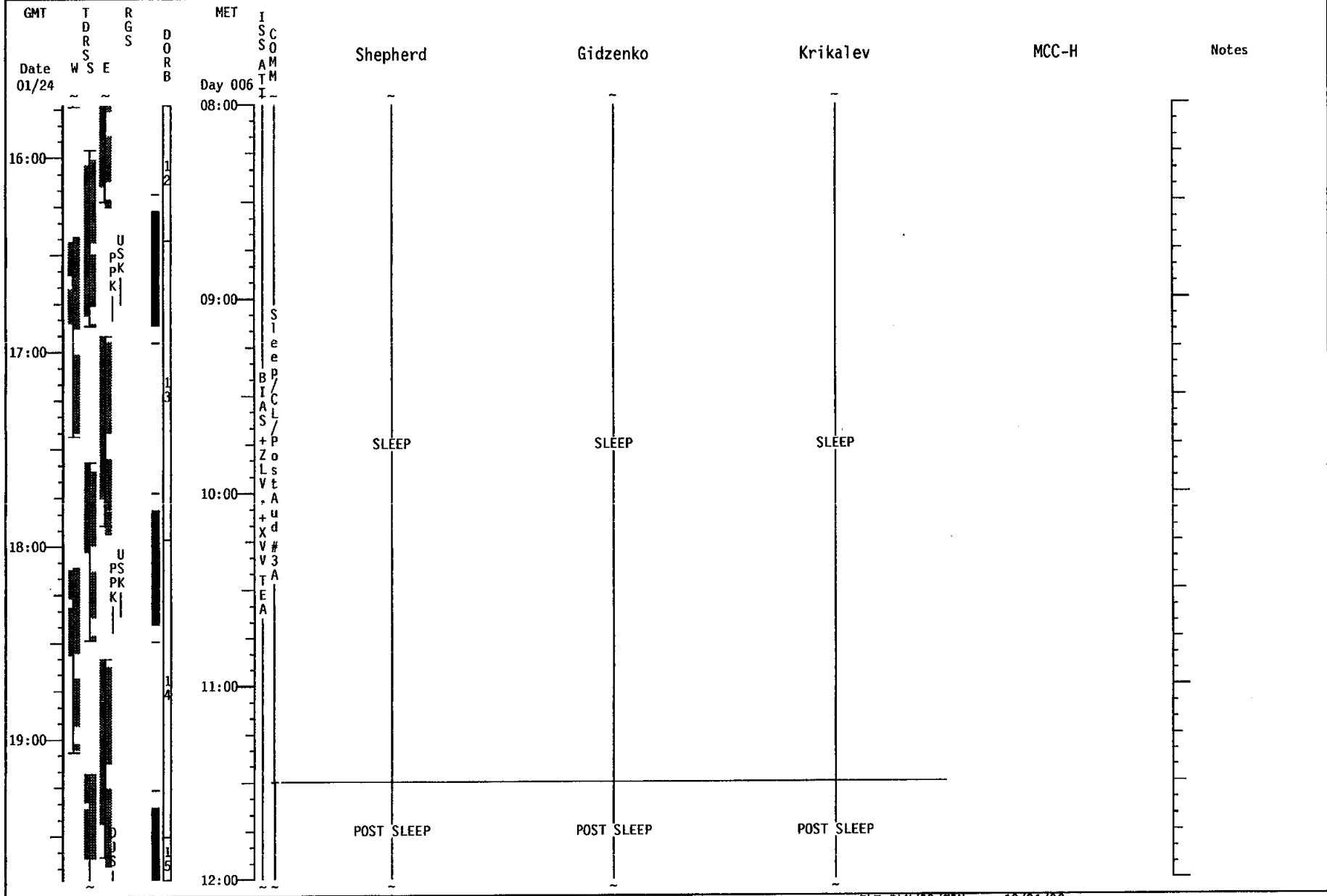
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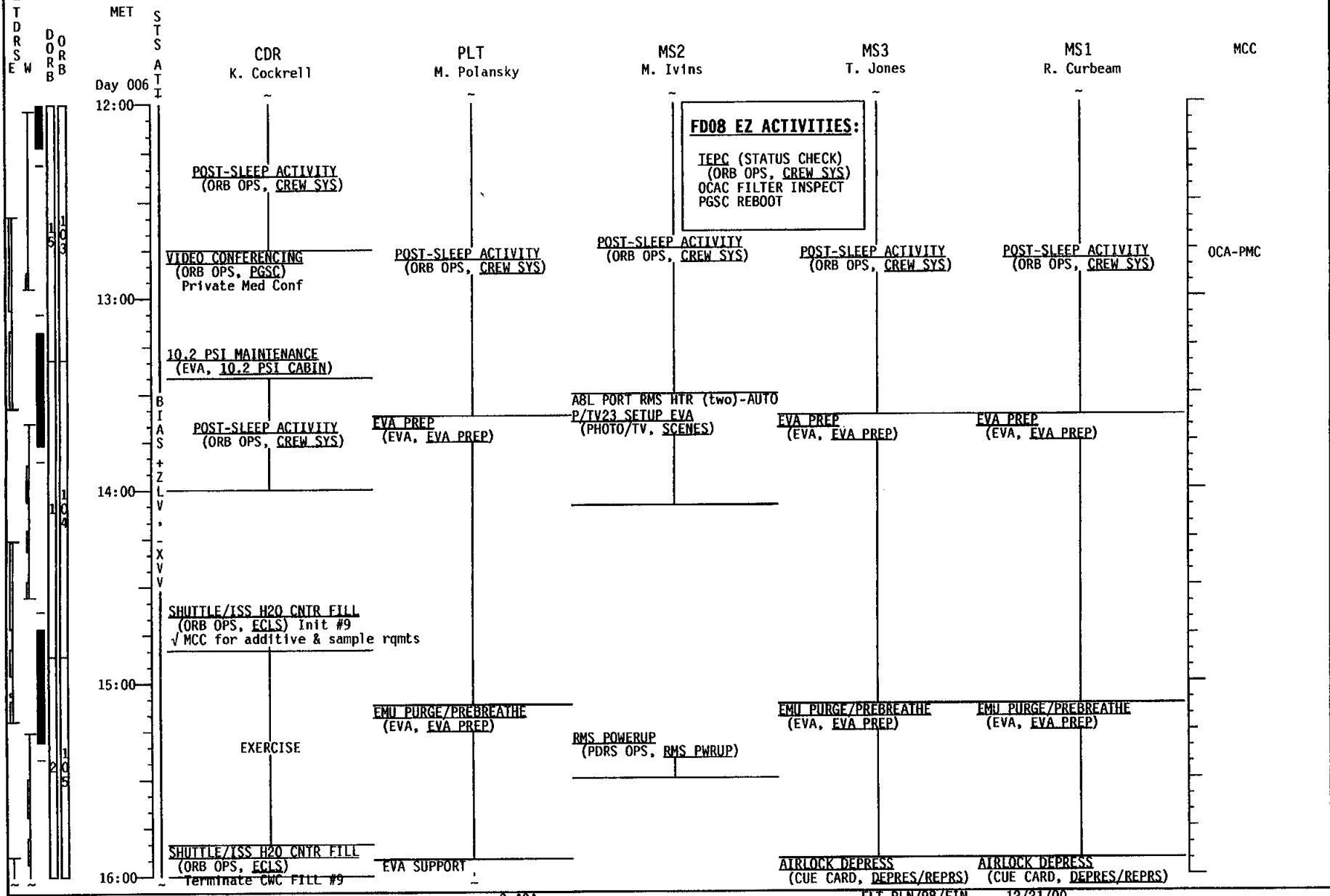
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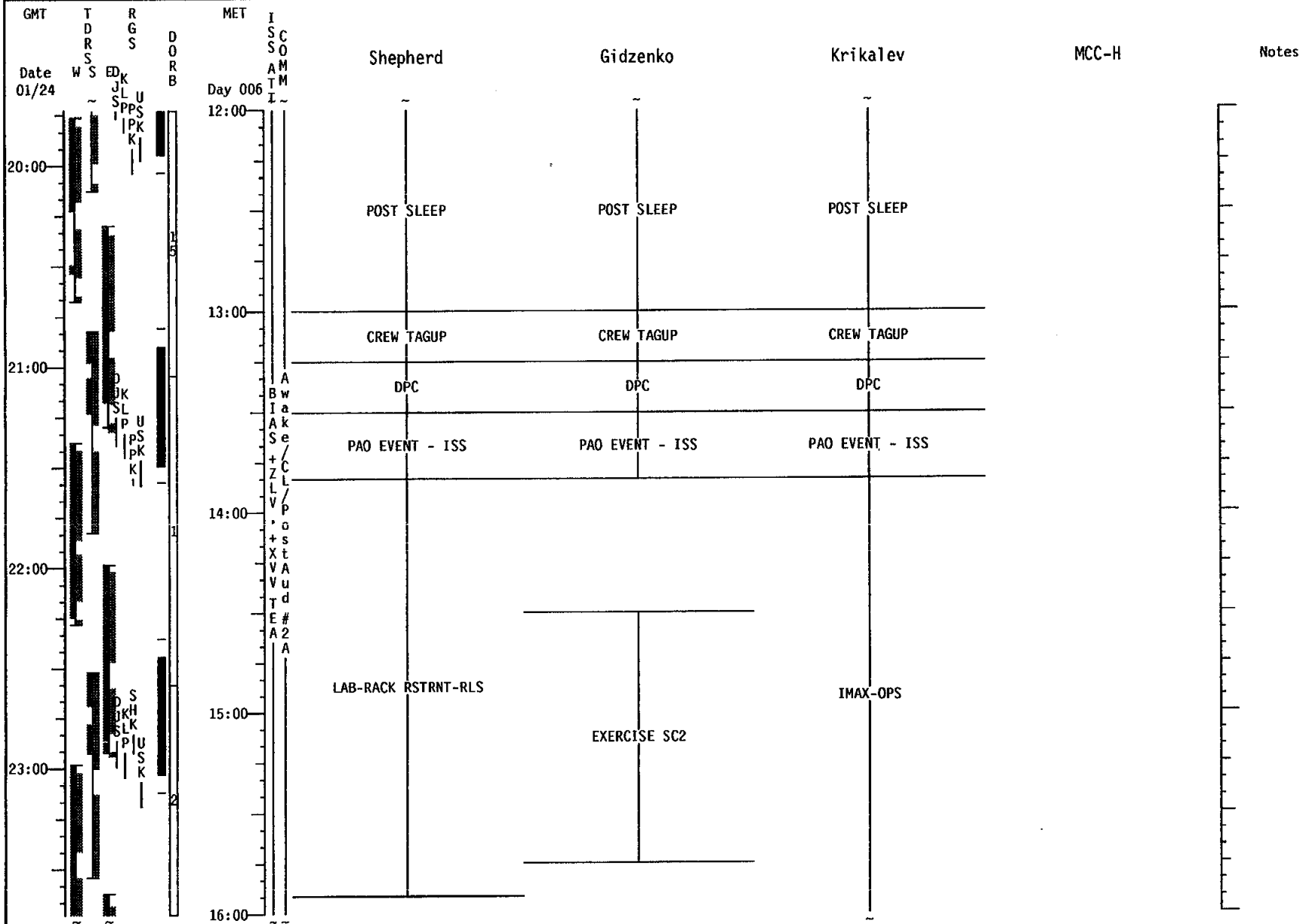
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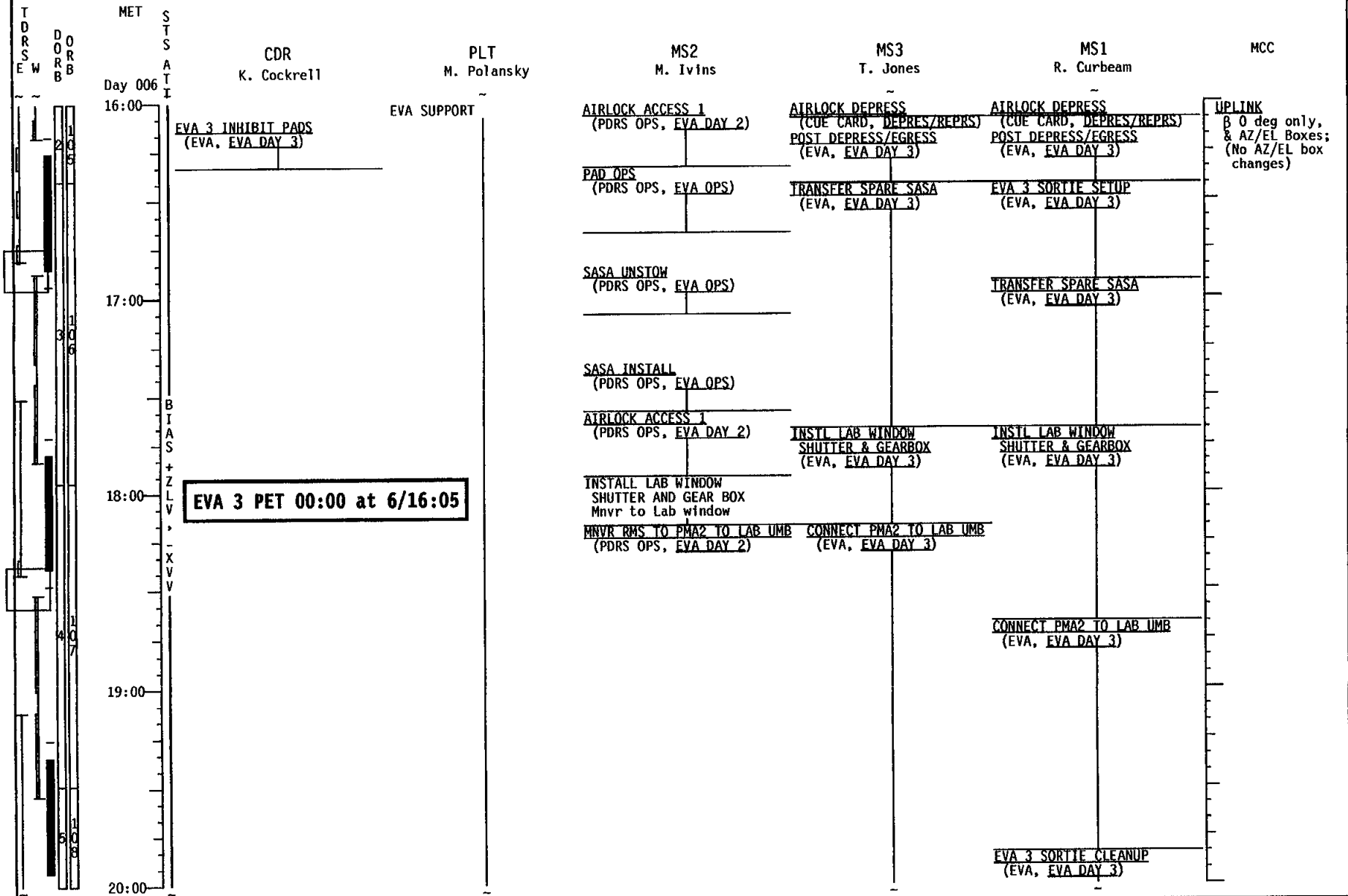
STS-98 (FD08)



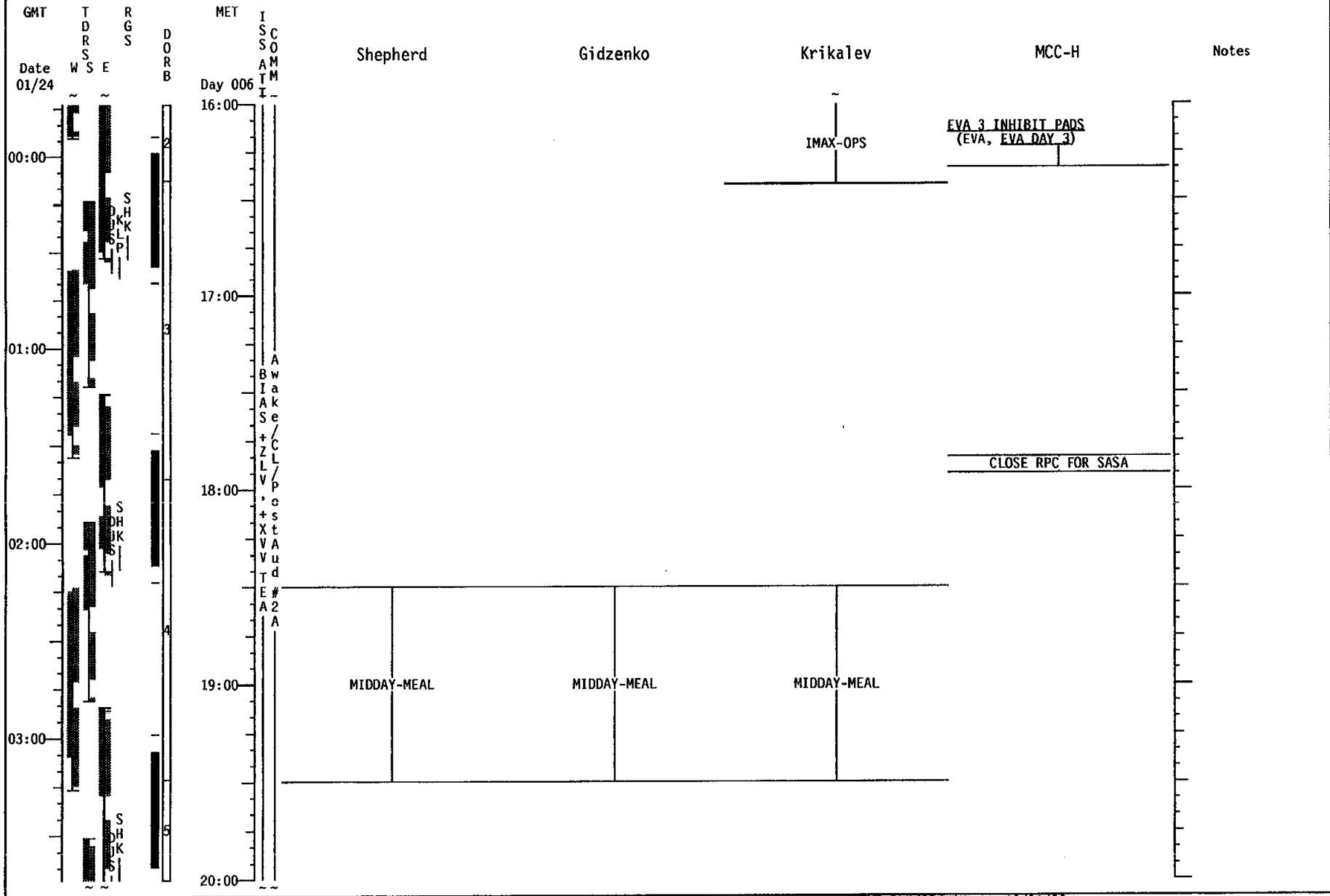
STS-98 (FD08)



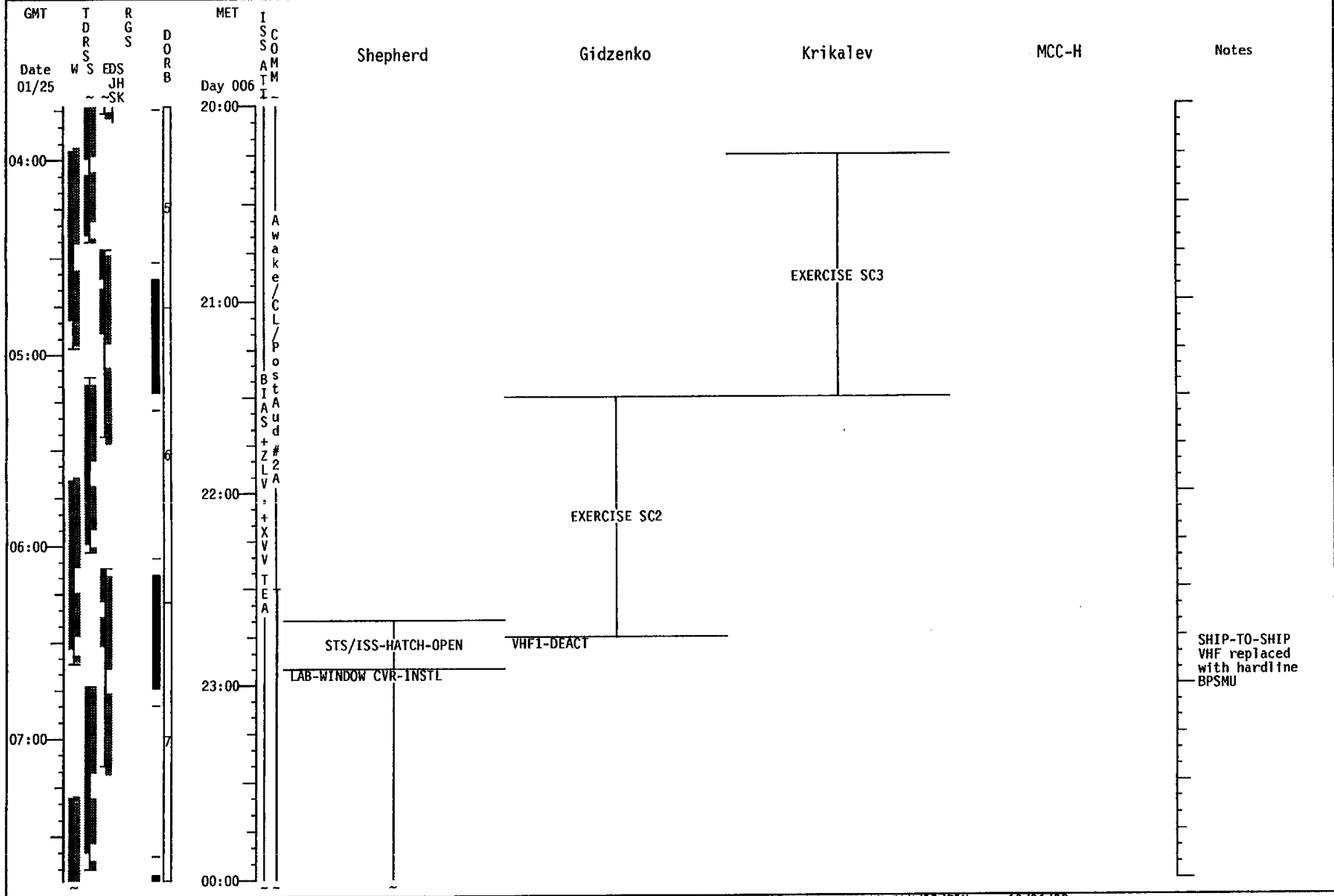
STS-98 (FD 08)



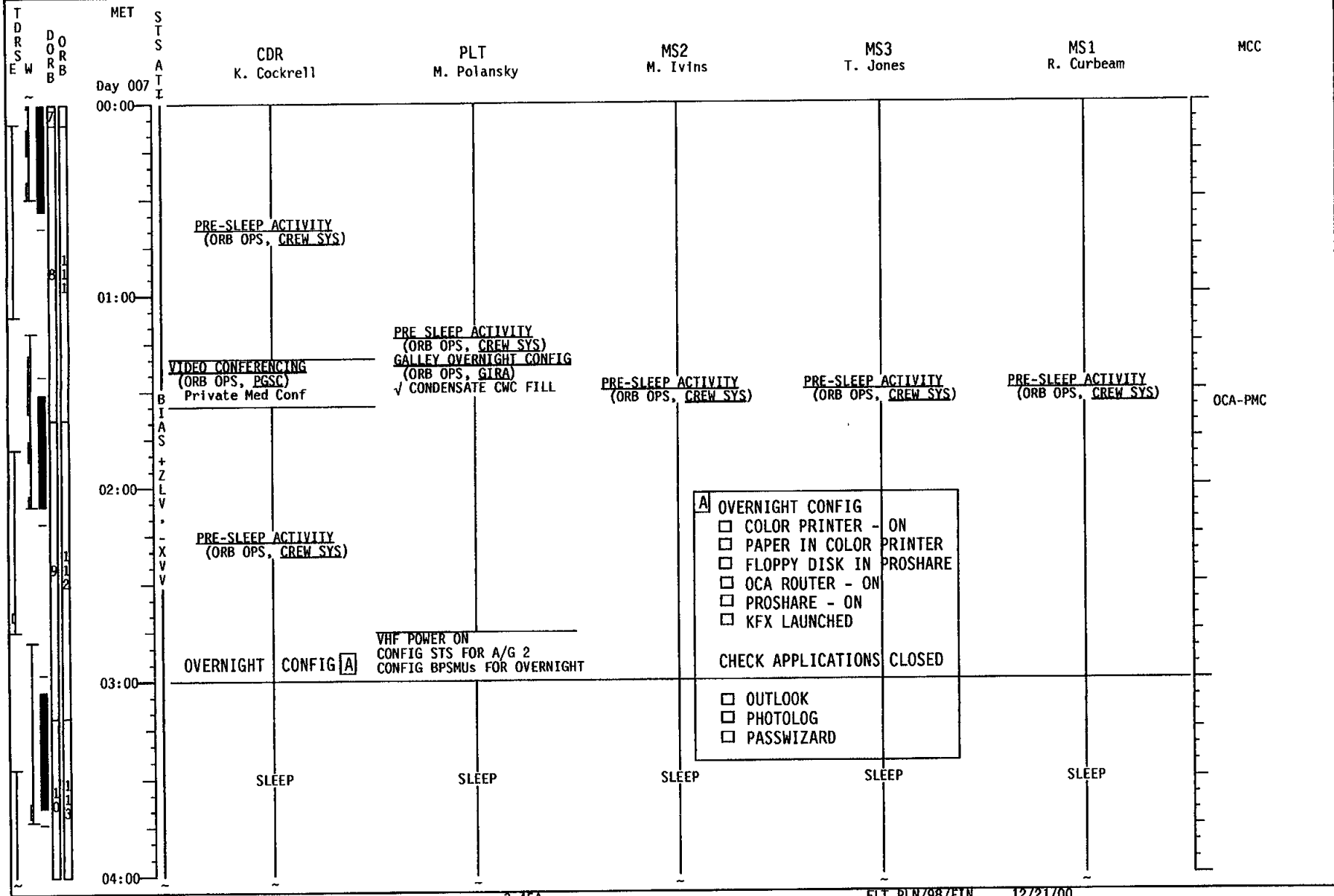
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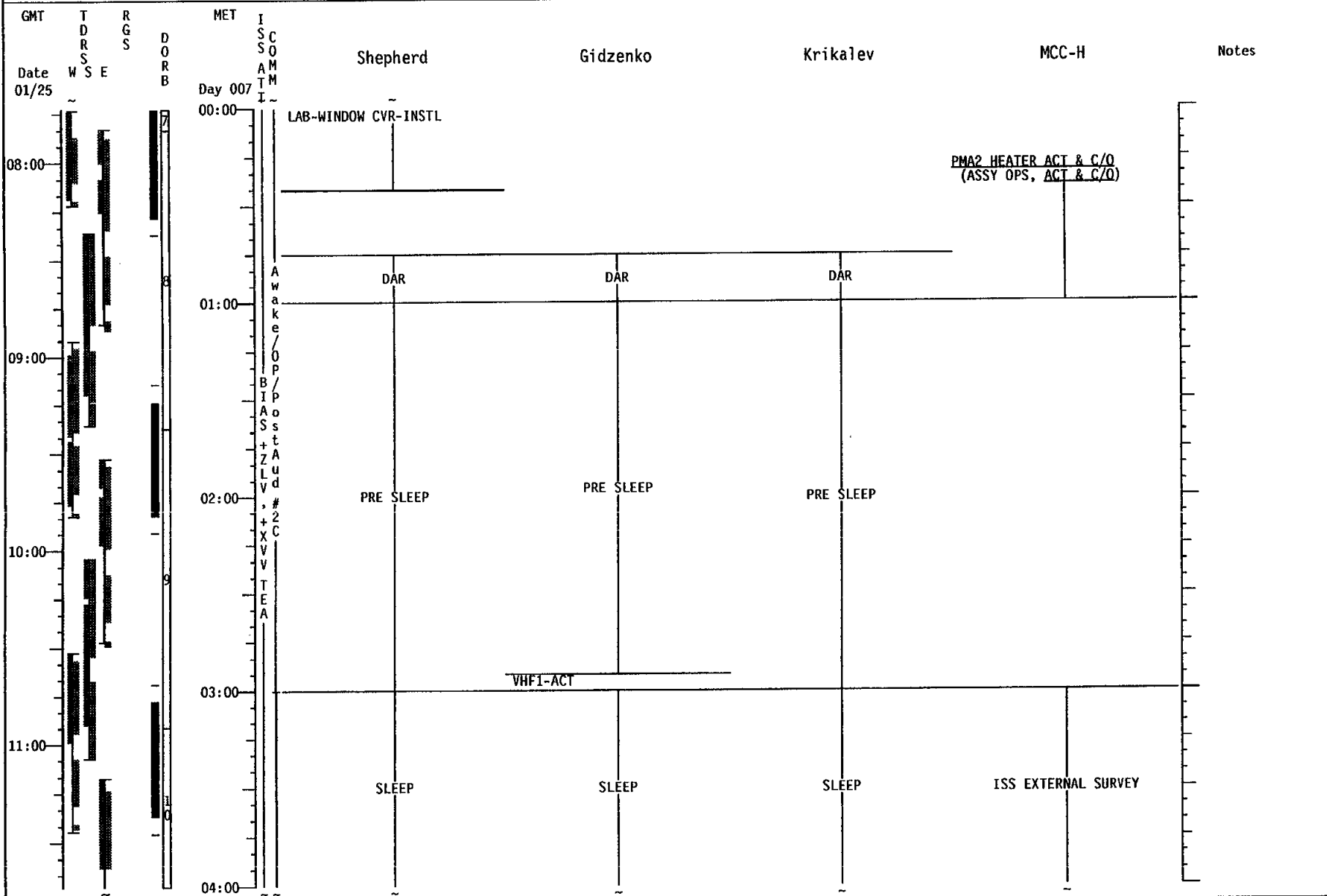
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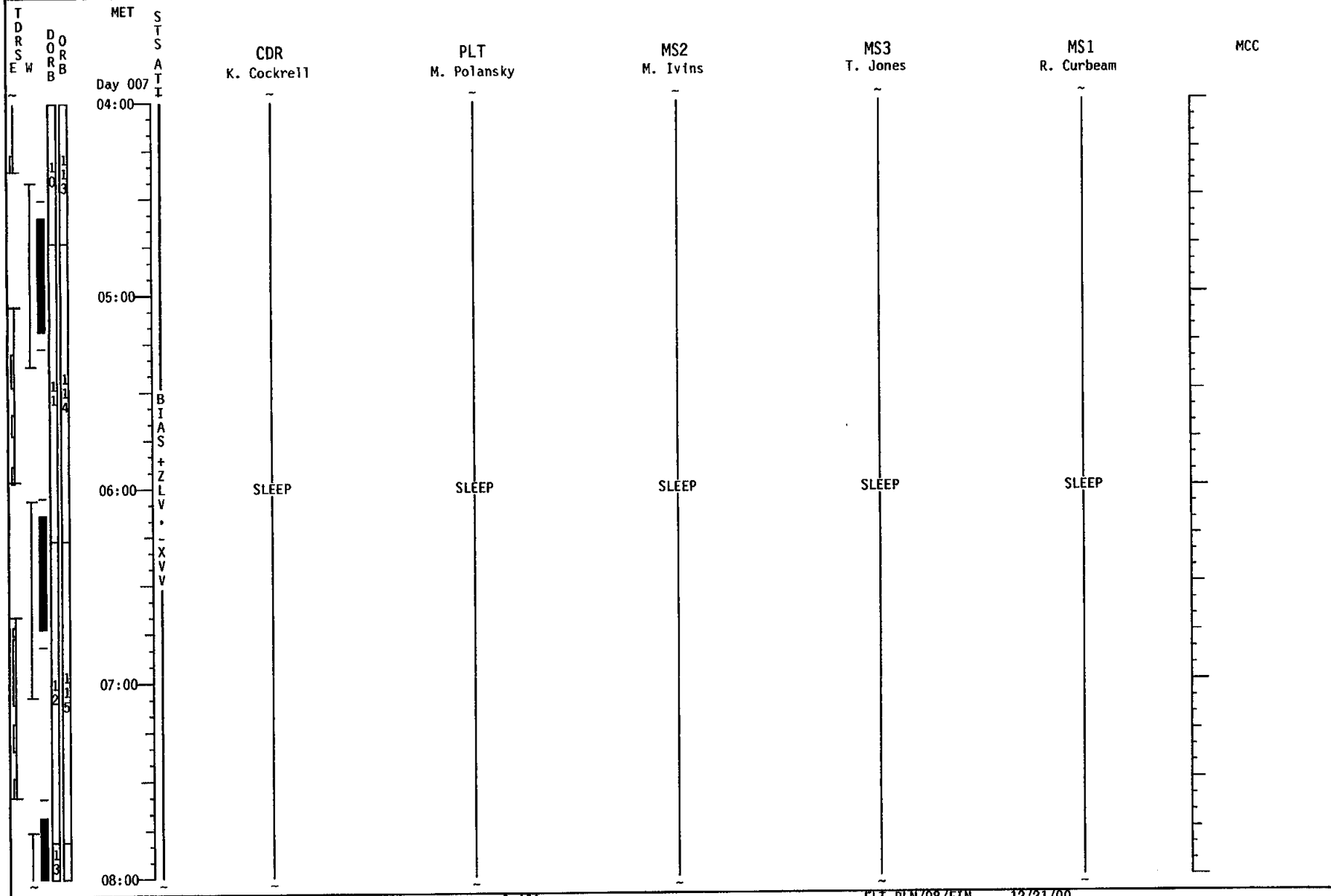
STS-98 (FD 08)



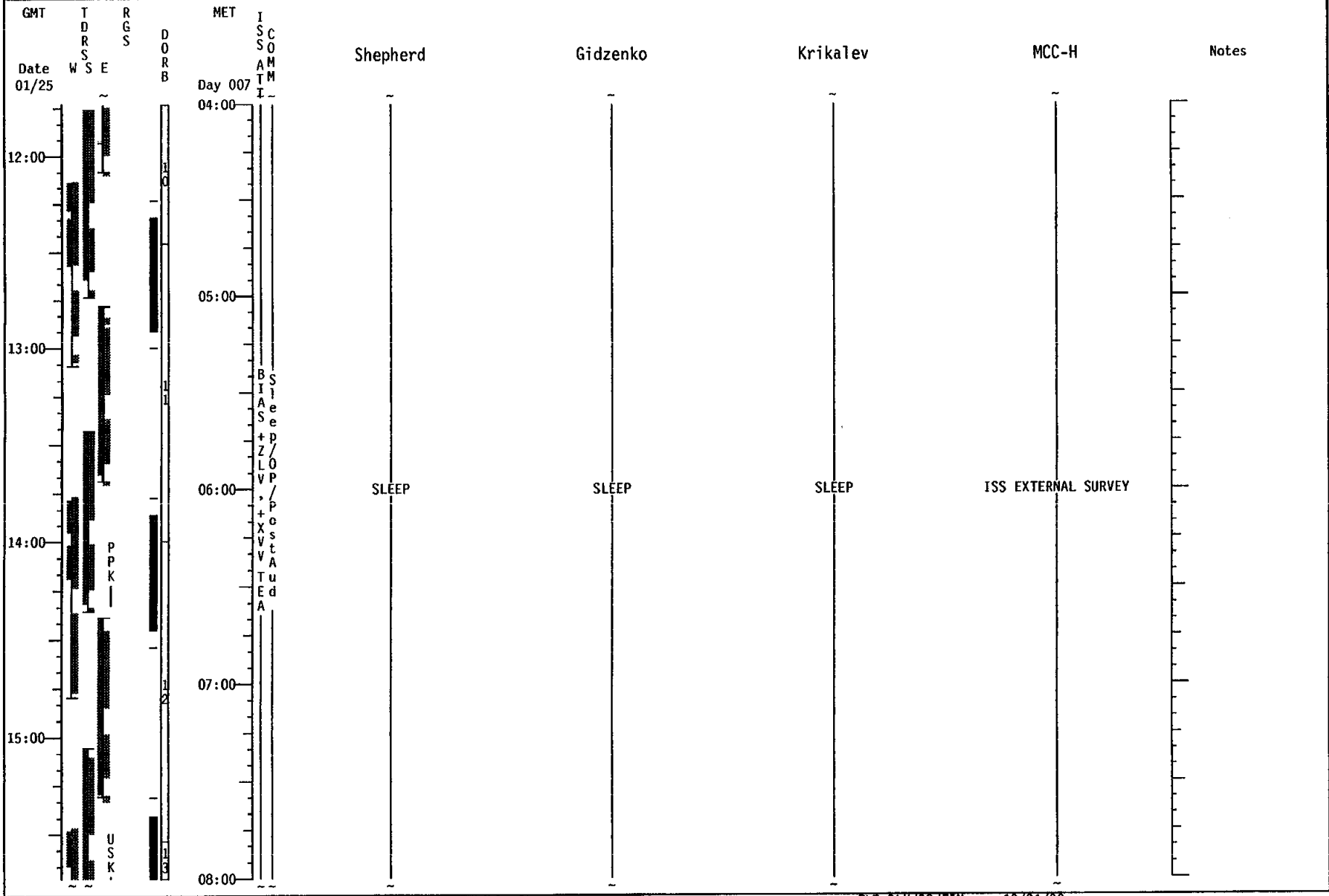
STS-98 (FD 08)



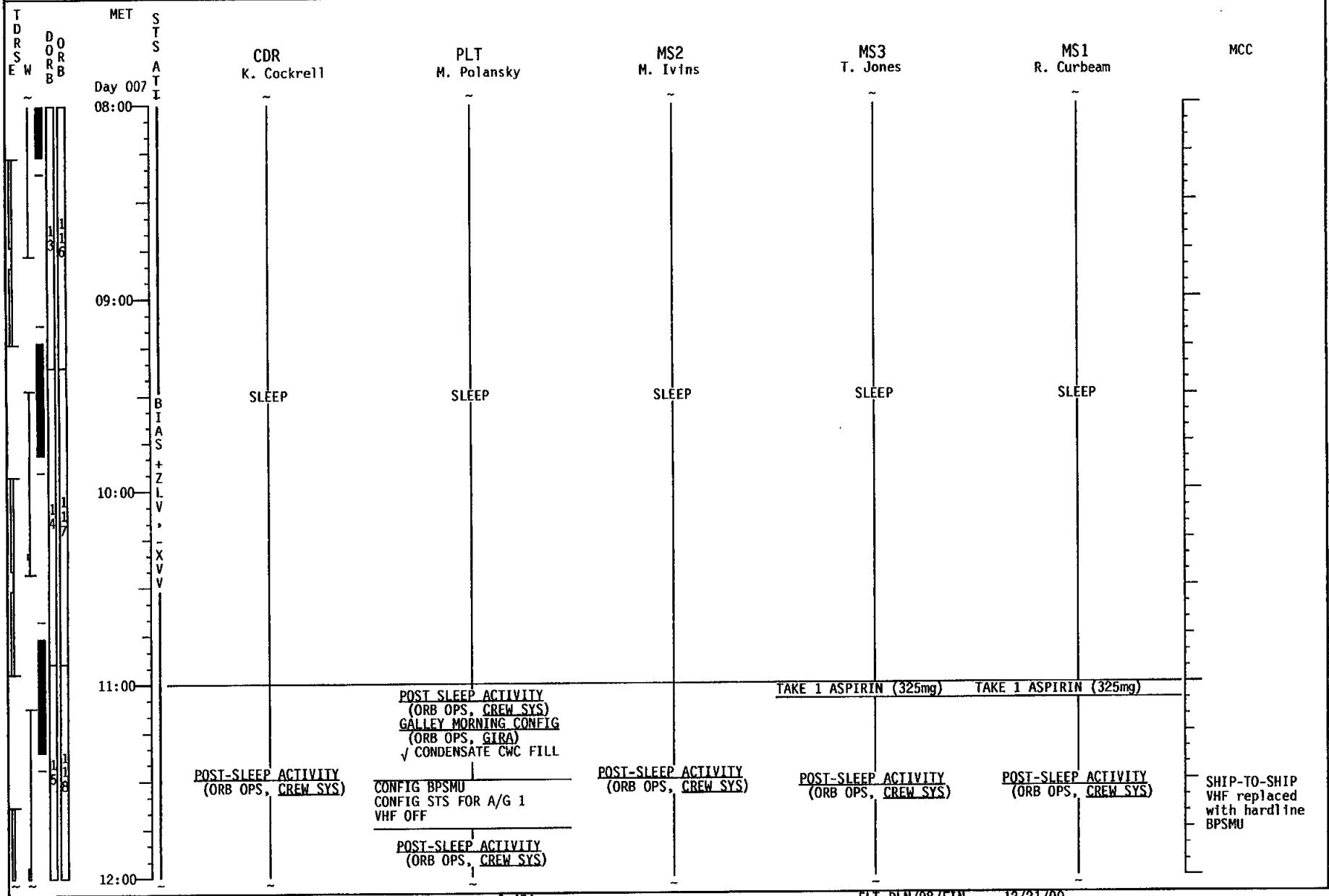
STS-98 (FD 08)



STS-98 (FD 08)



STS-98 (FD 08)

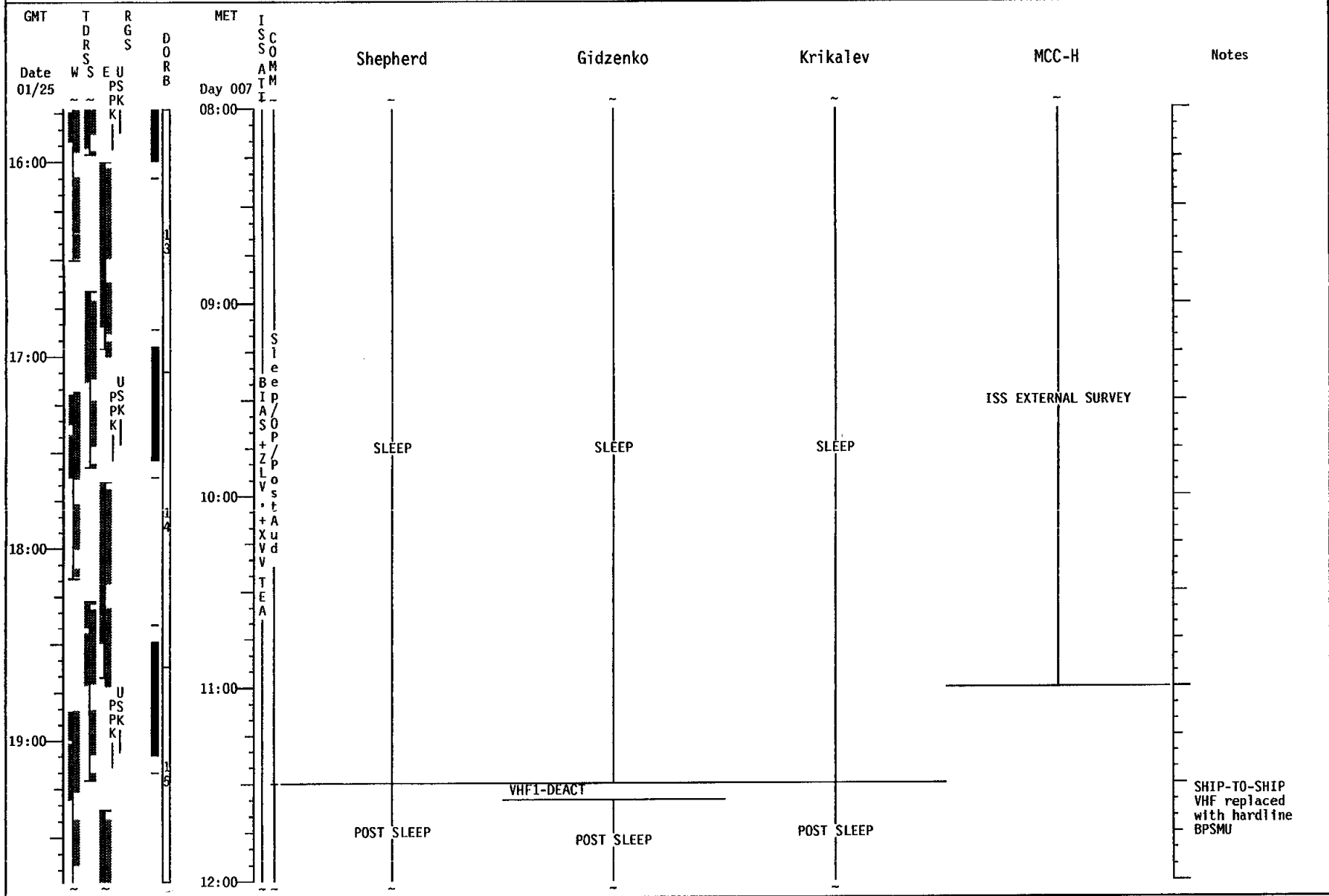


3-47A

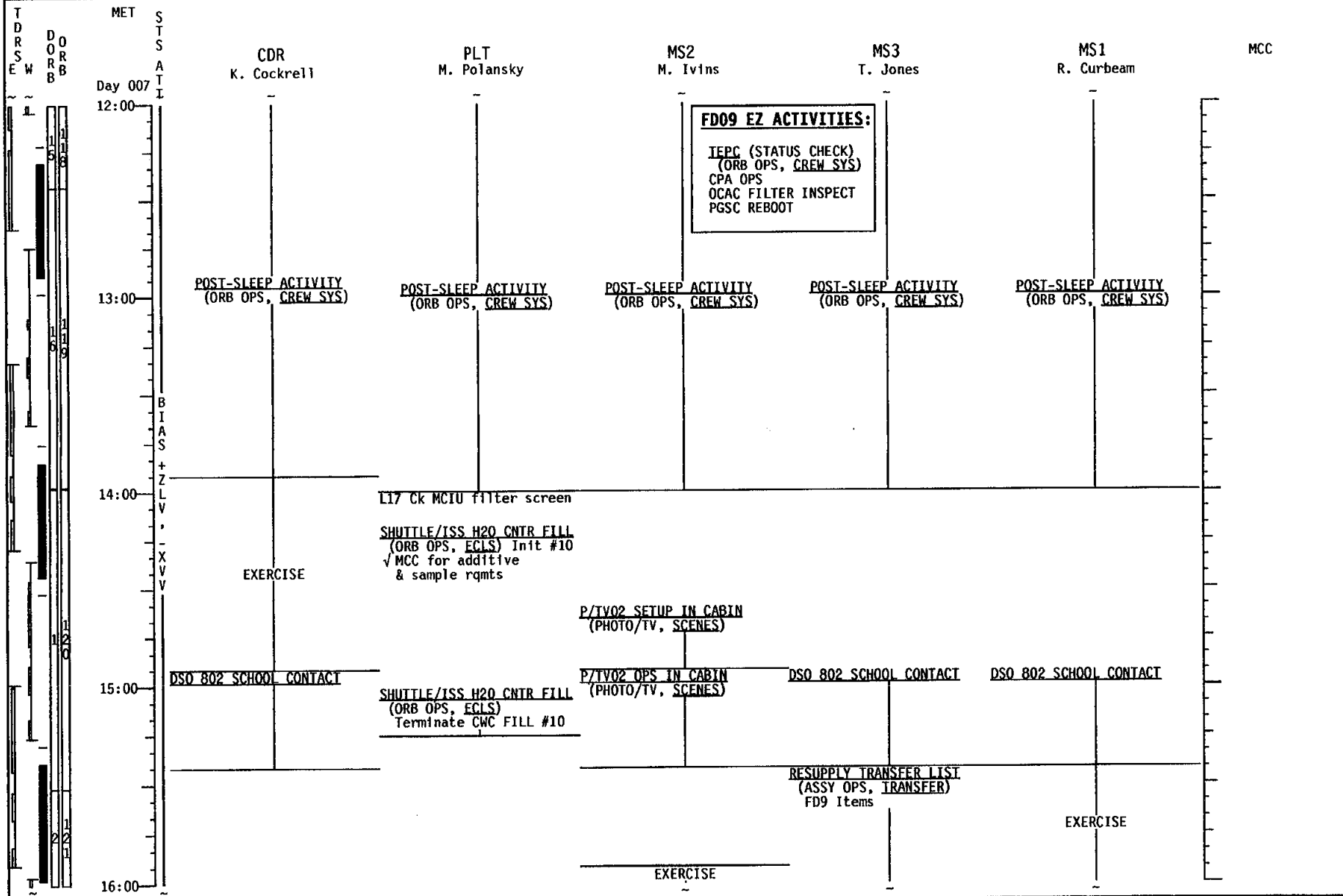
FLT PLN/98/FIN

12/21/00

STS-98 (FD 08)

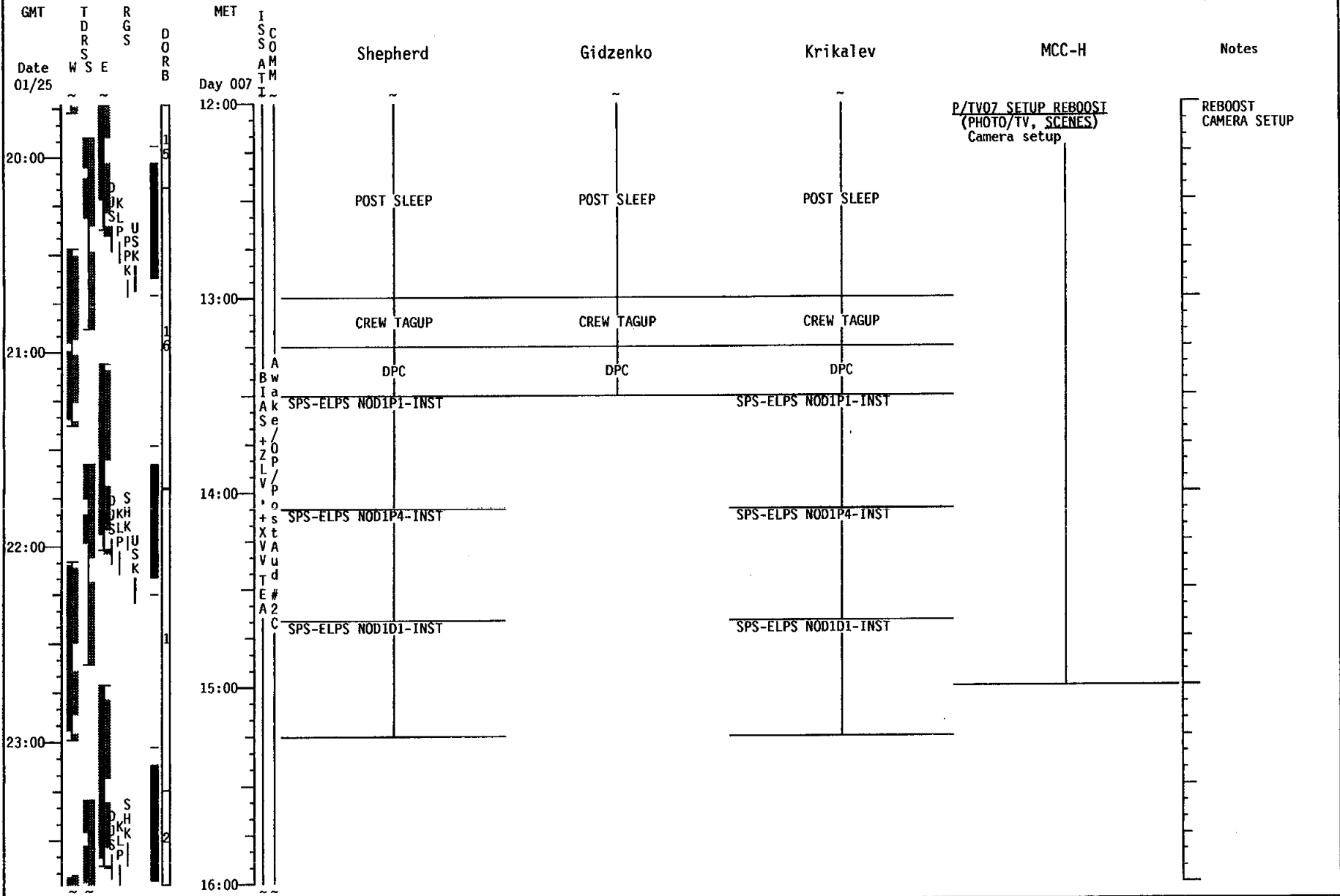


STS-98 (FD 09)

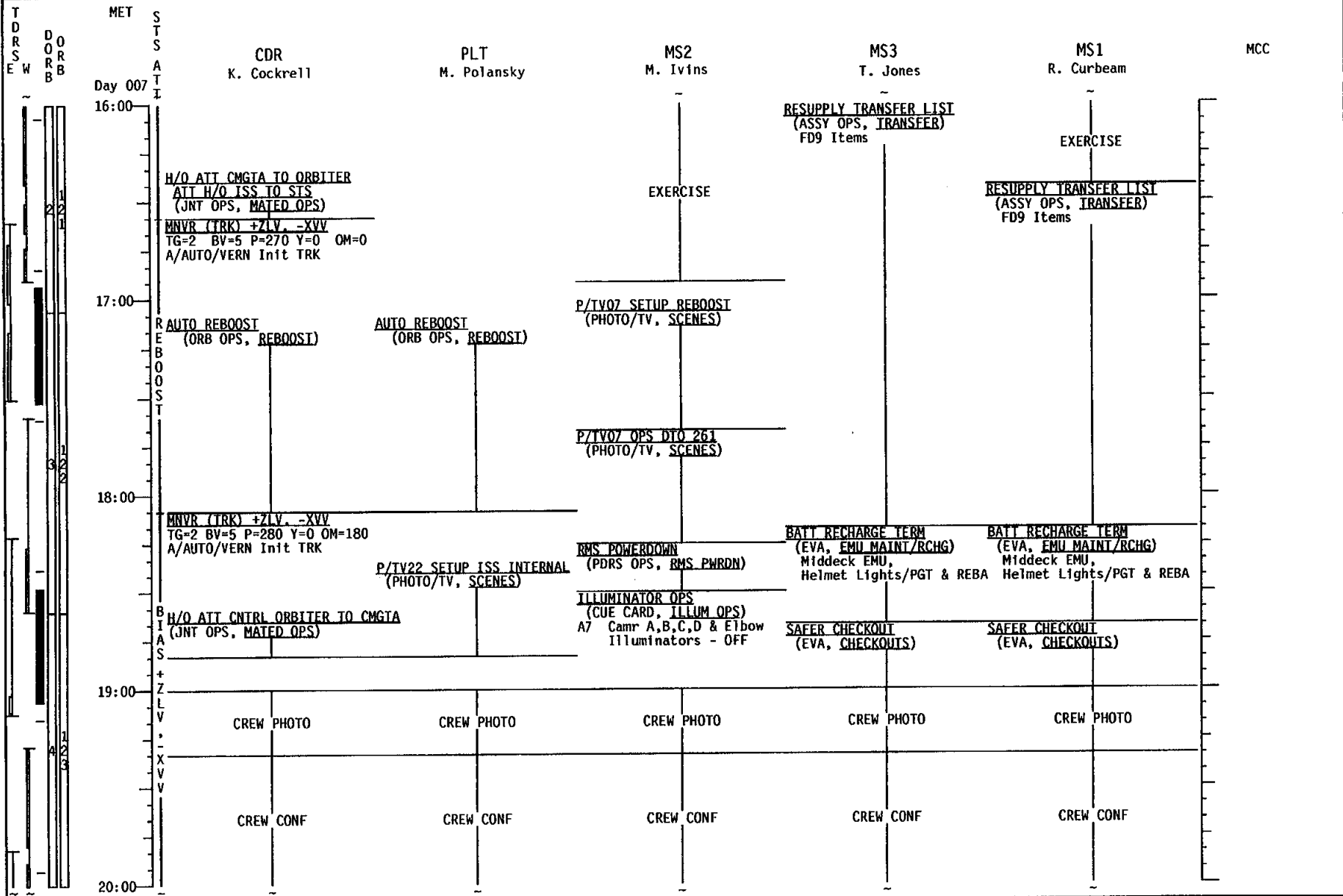


FD09 EZ ACTIVITIES:
 IEPC (STATUS CHECK)
 (ORB OPS, CREW SYS)
 CPA OPS
 OCAC FILTER INSPECT
 PGSC REBOOT

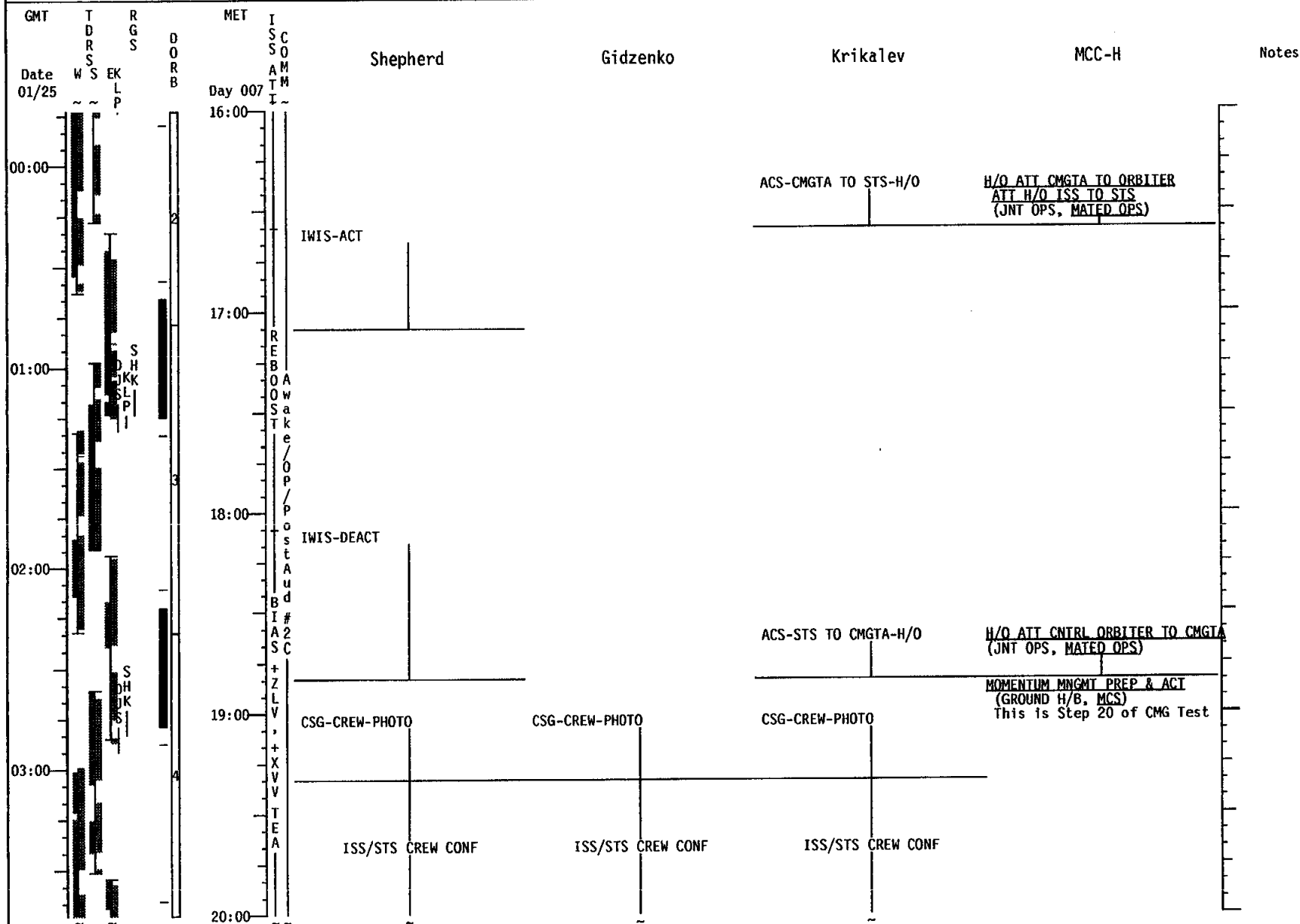
STS-98 (FD 09)



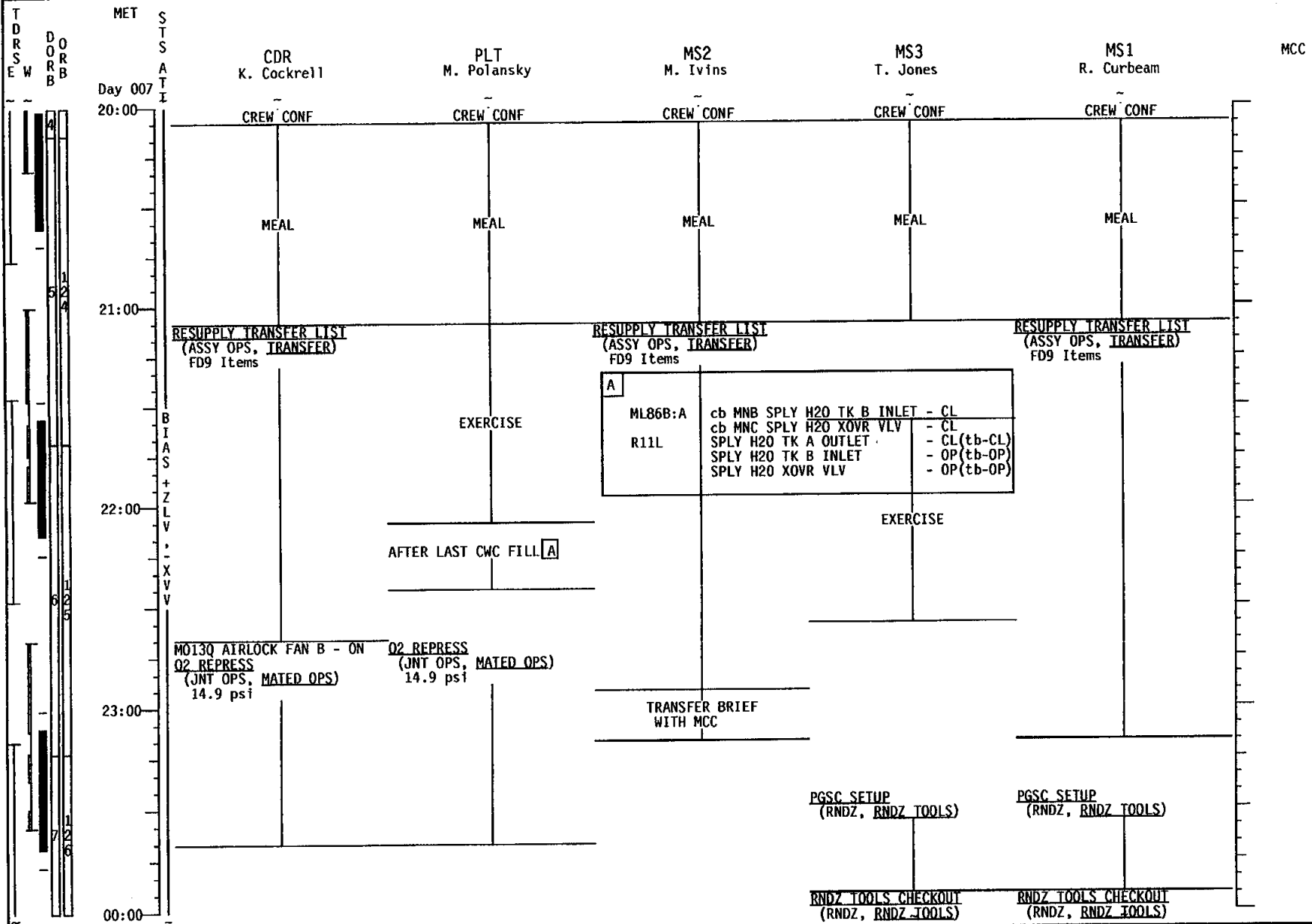
STS-98 (FD 09)



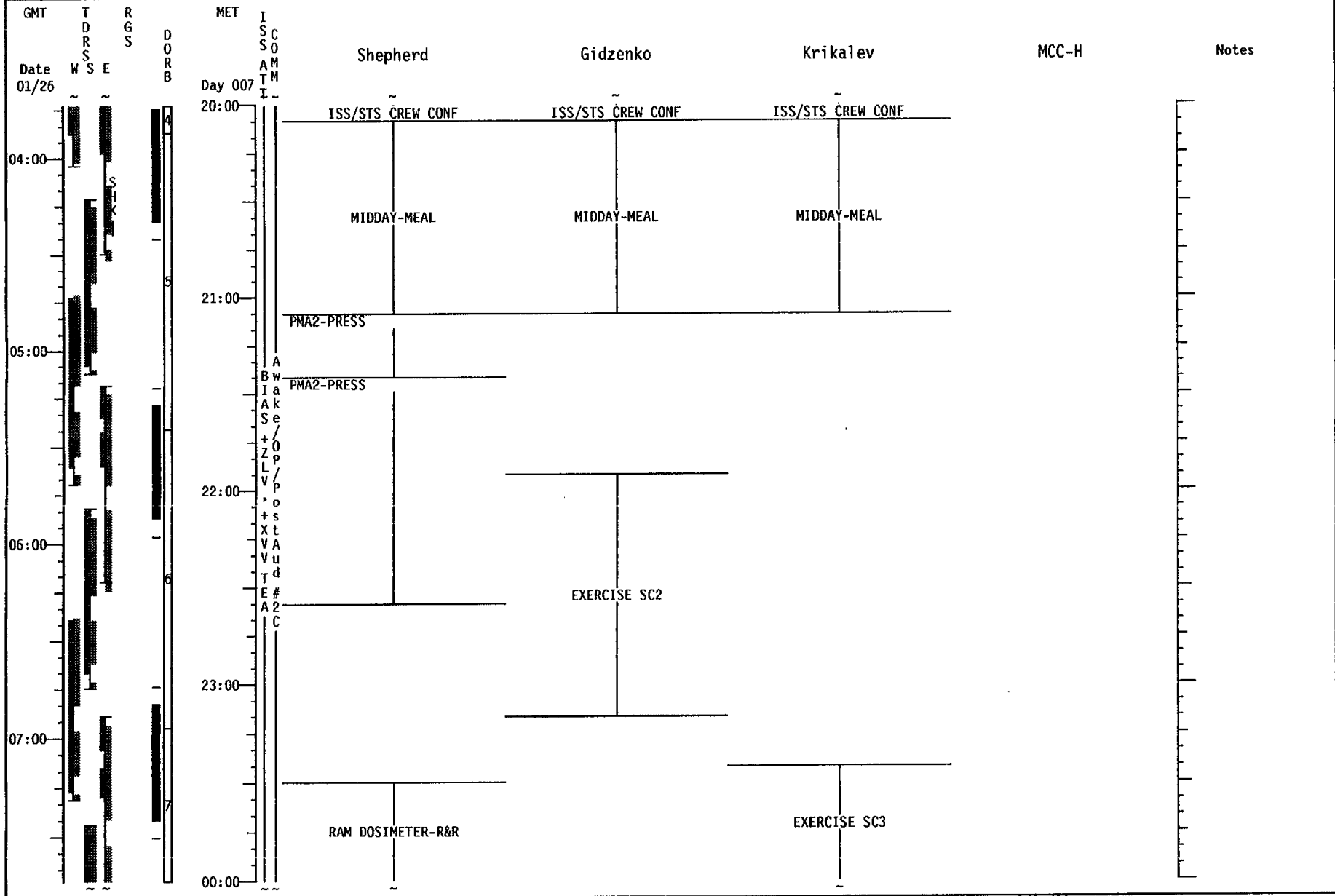
STS-98 (FD 09)



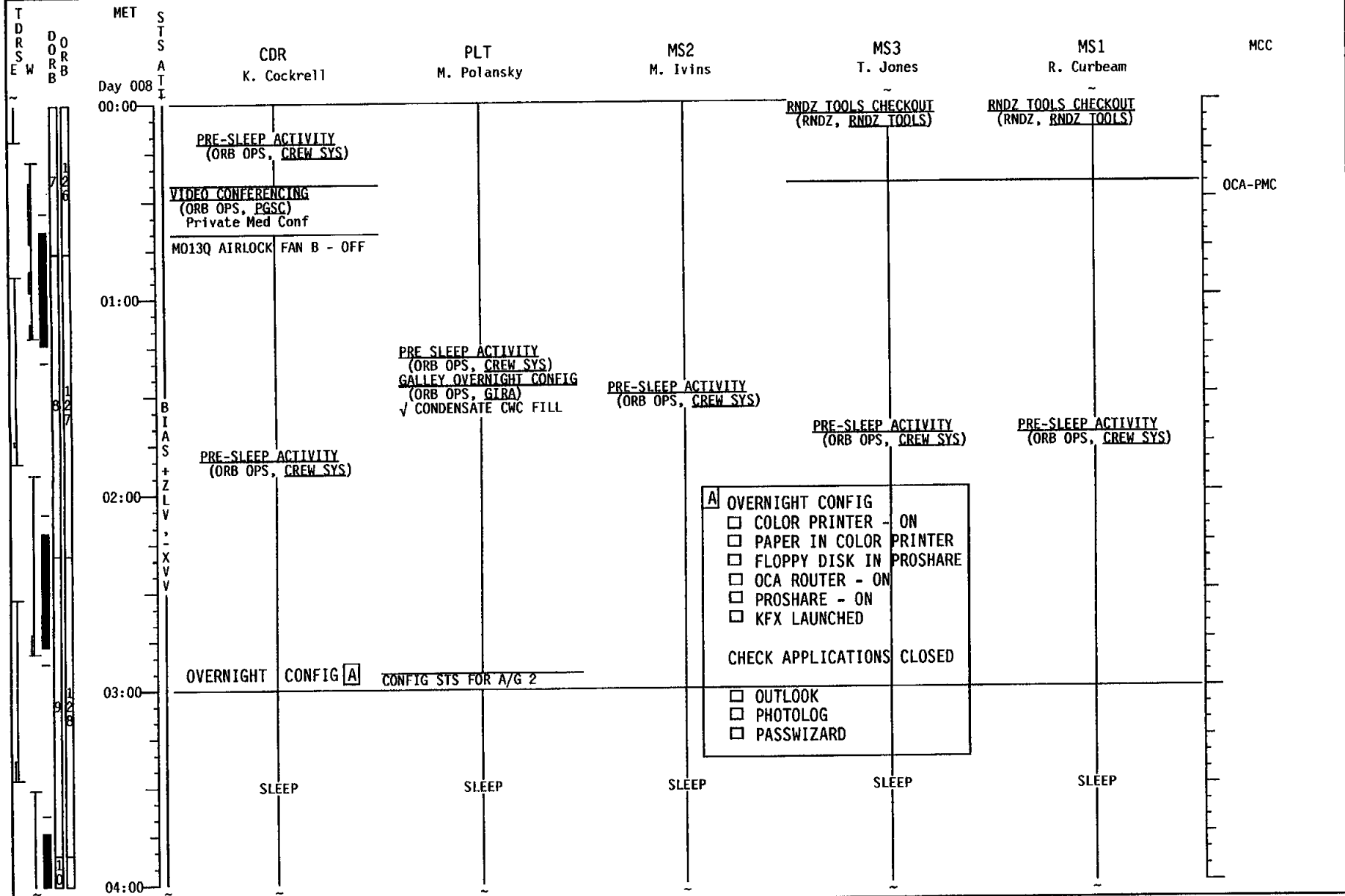
STS-98 (FD 09)



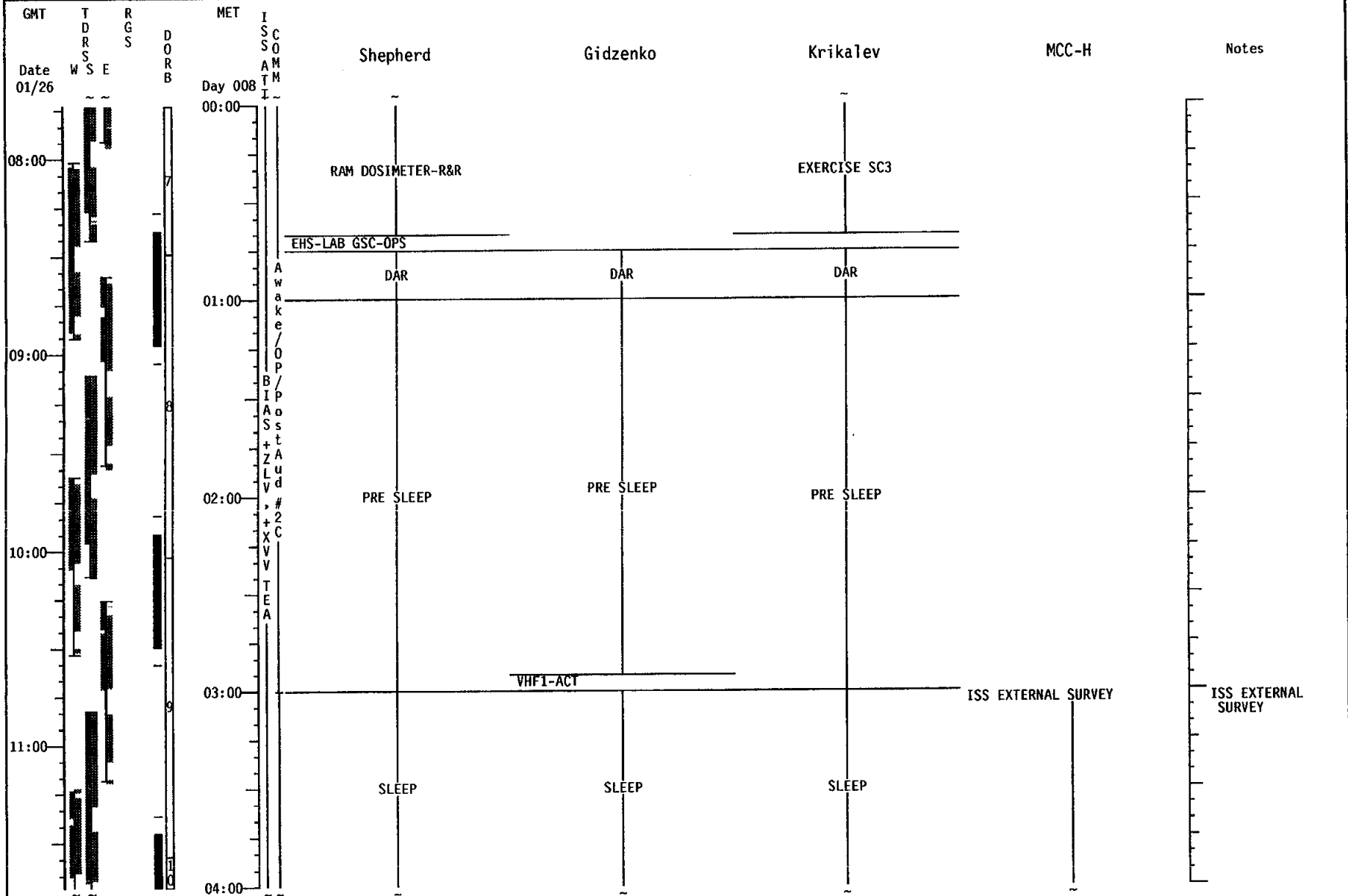
STS-98 (FD 09)



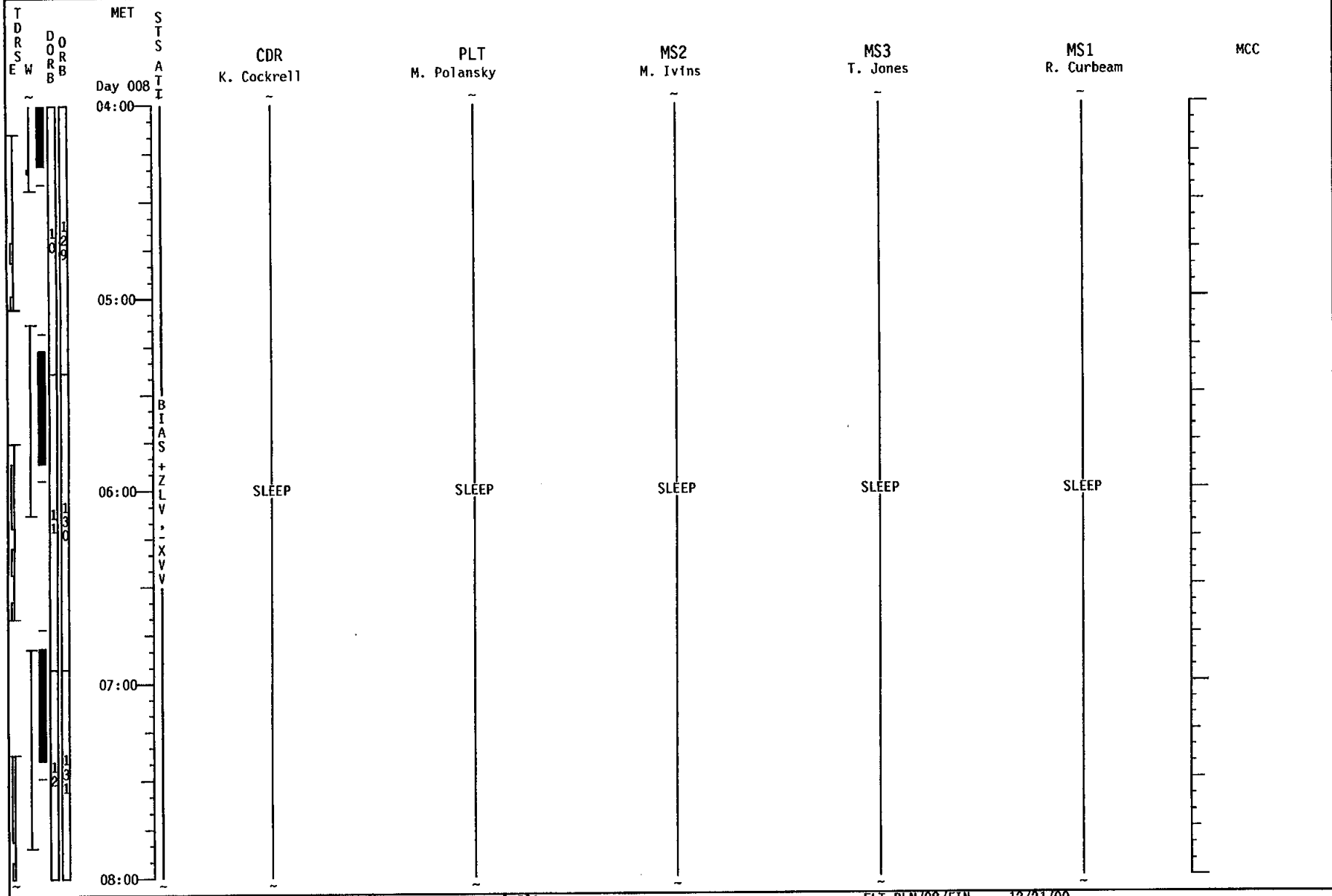
STS-98 (FD 09)



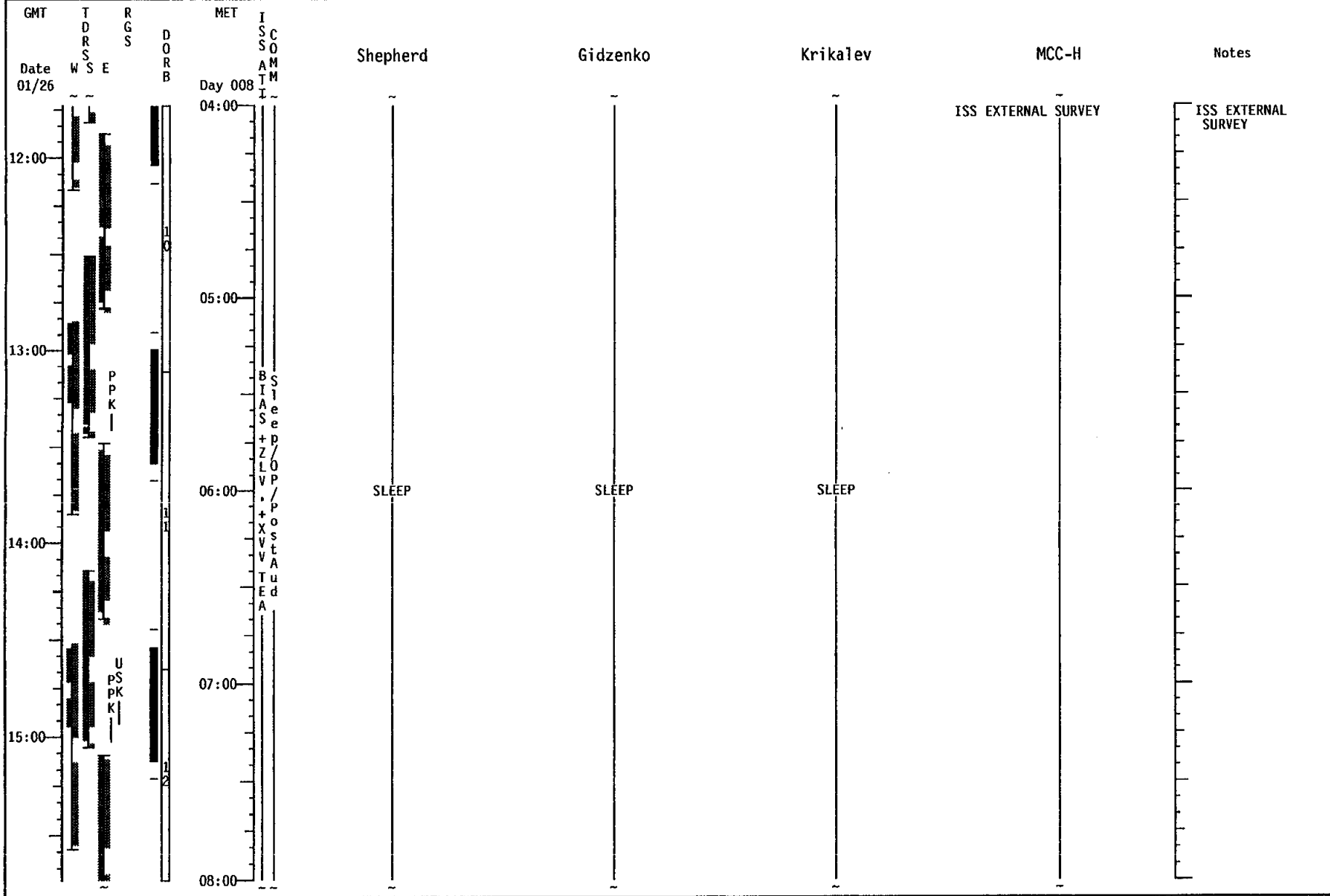
STS-98 (FD 09)



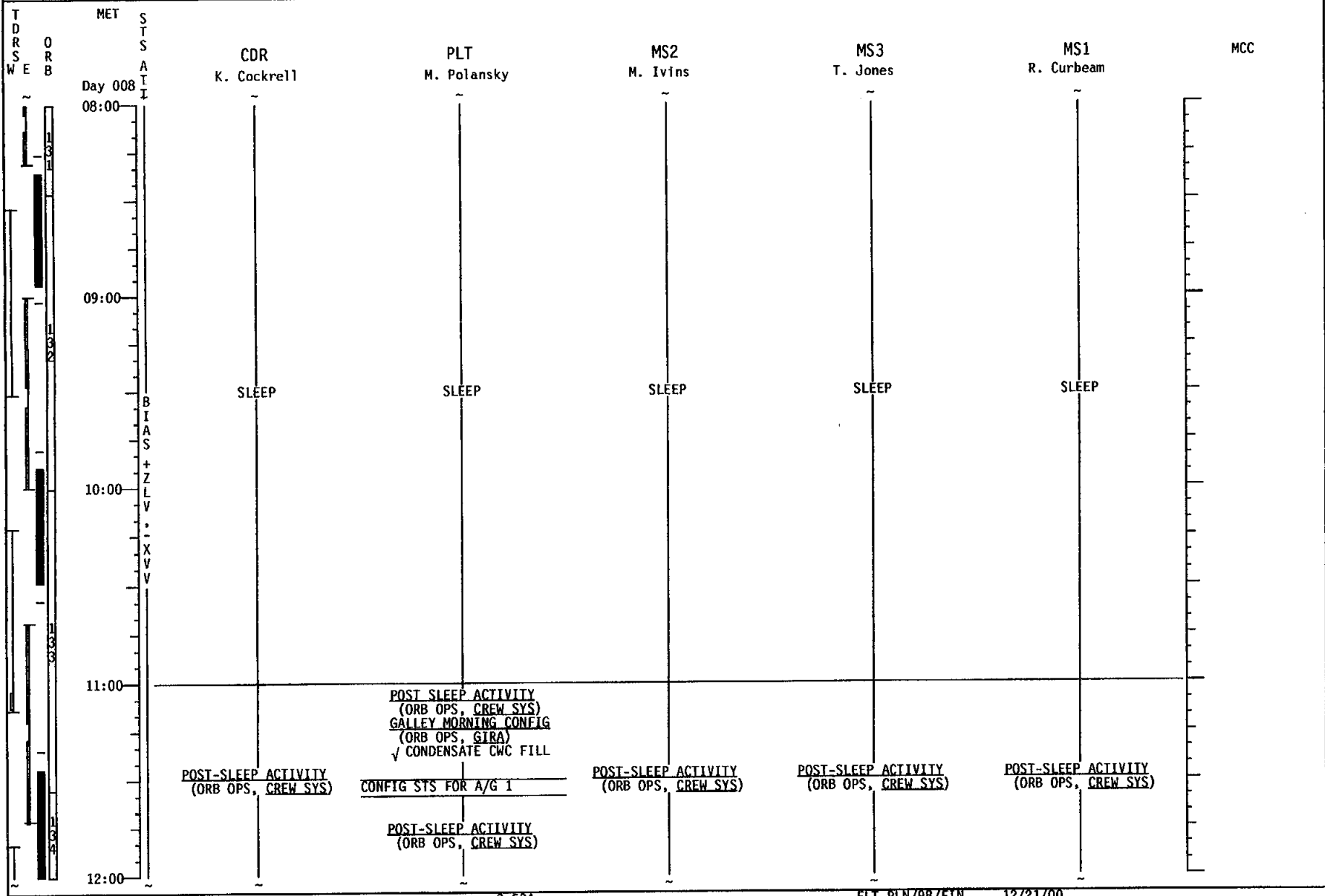
STS-98 (FD 09)



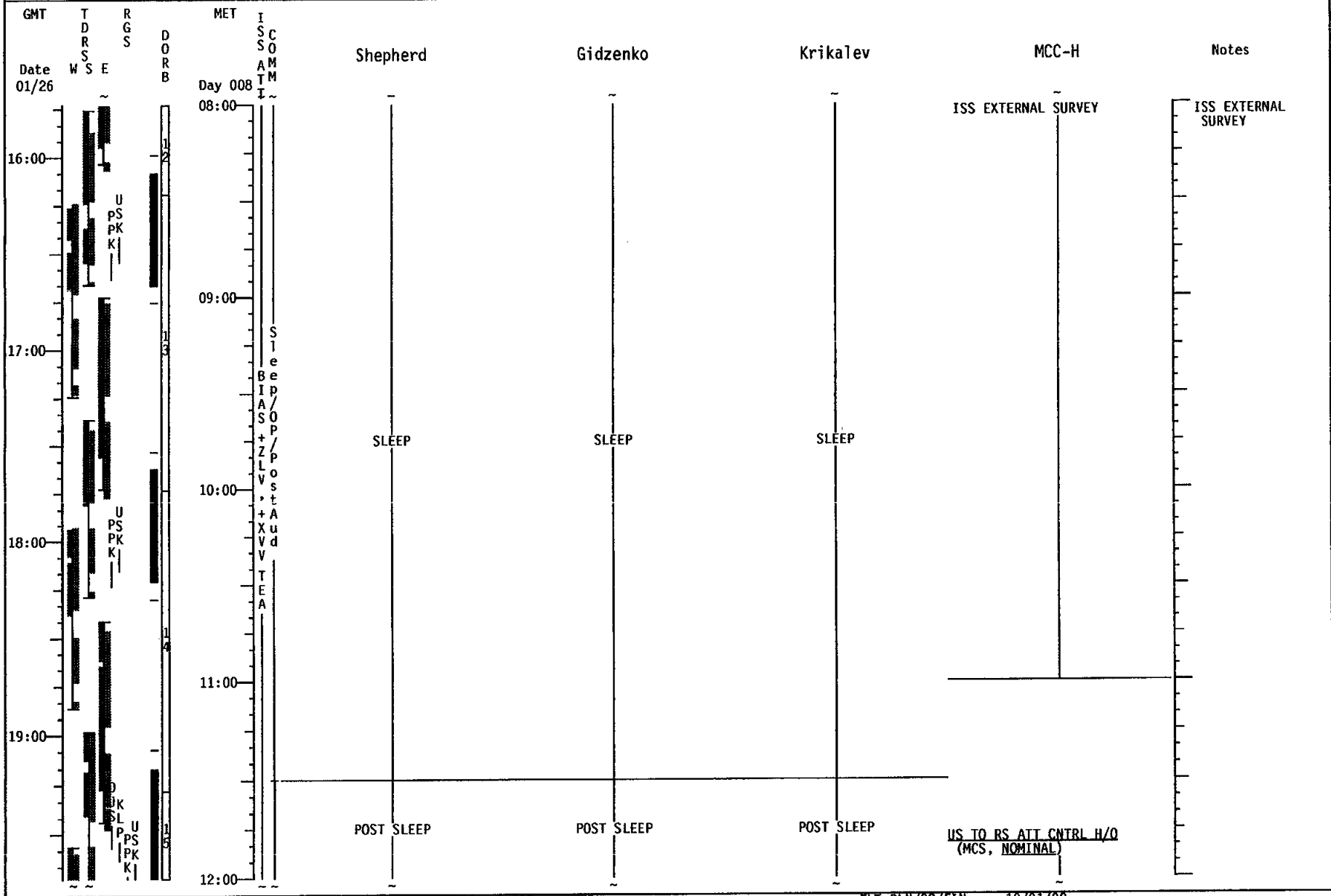
STS-98 (FD 09)



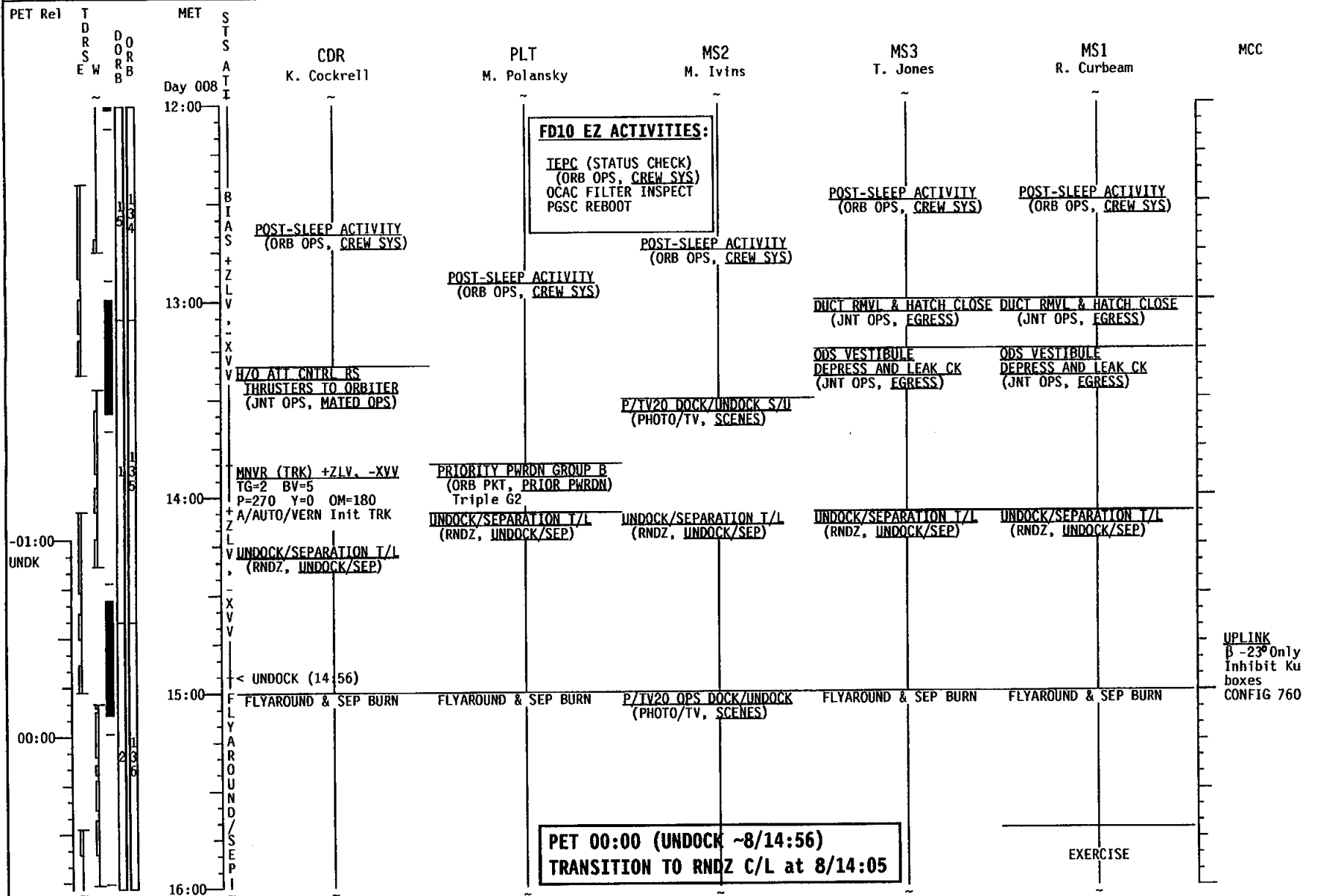
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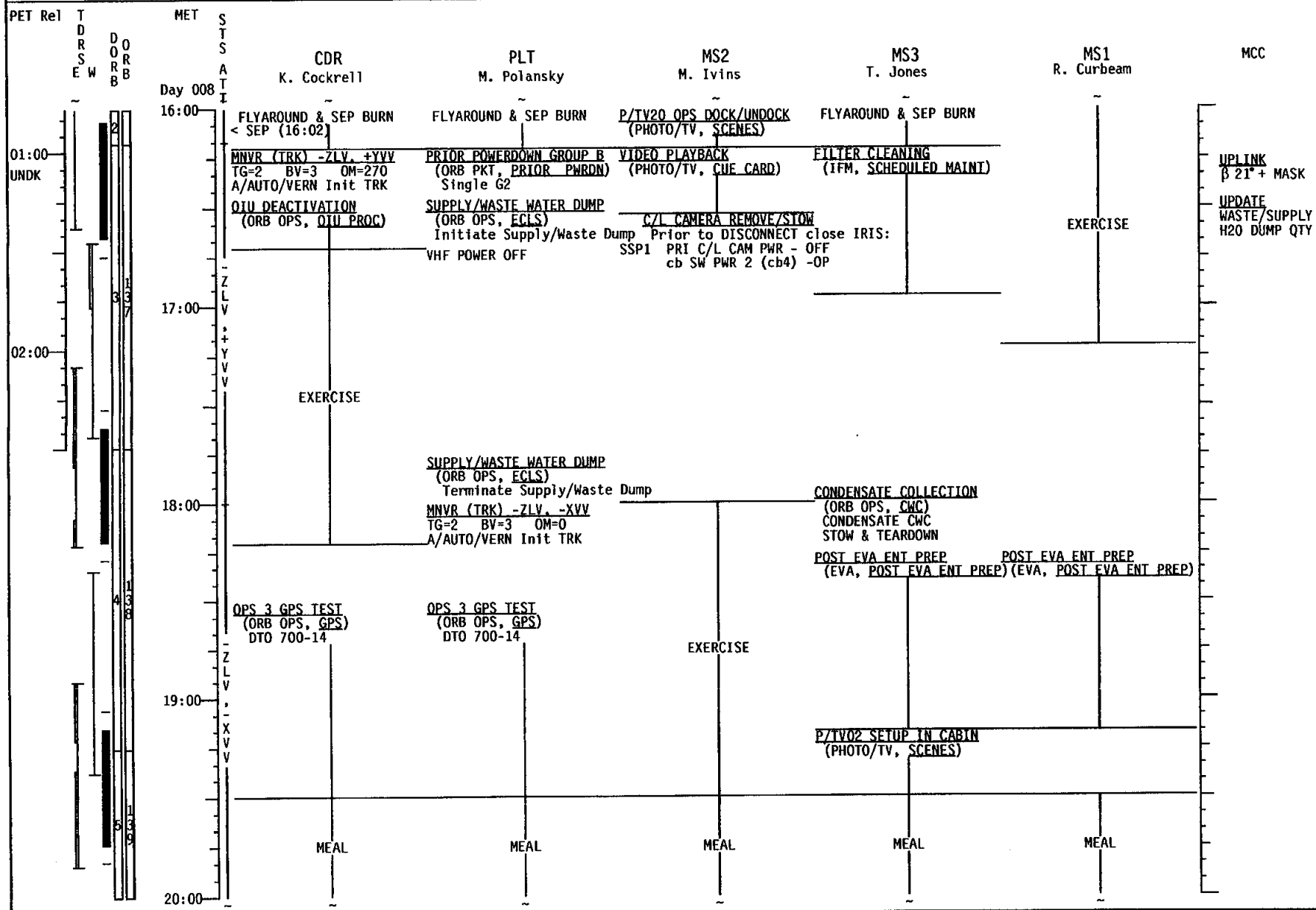
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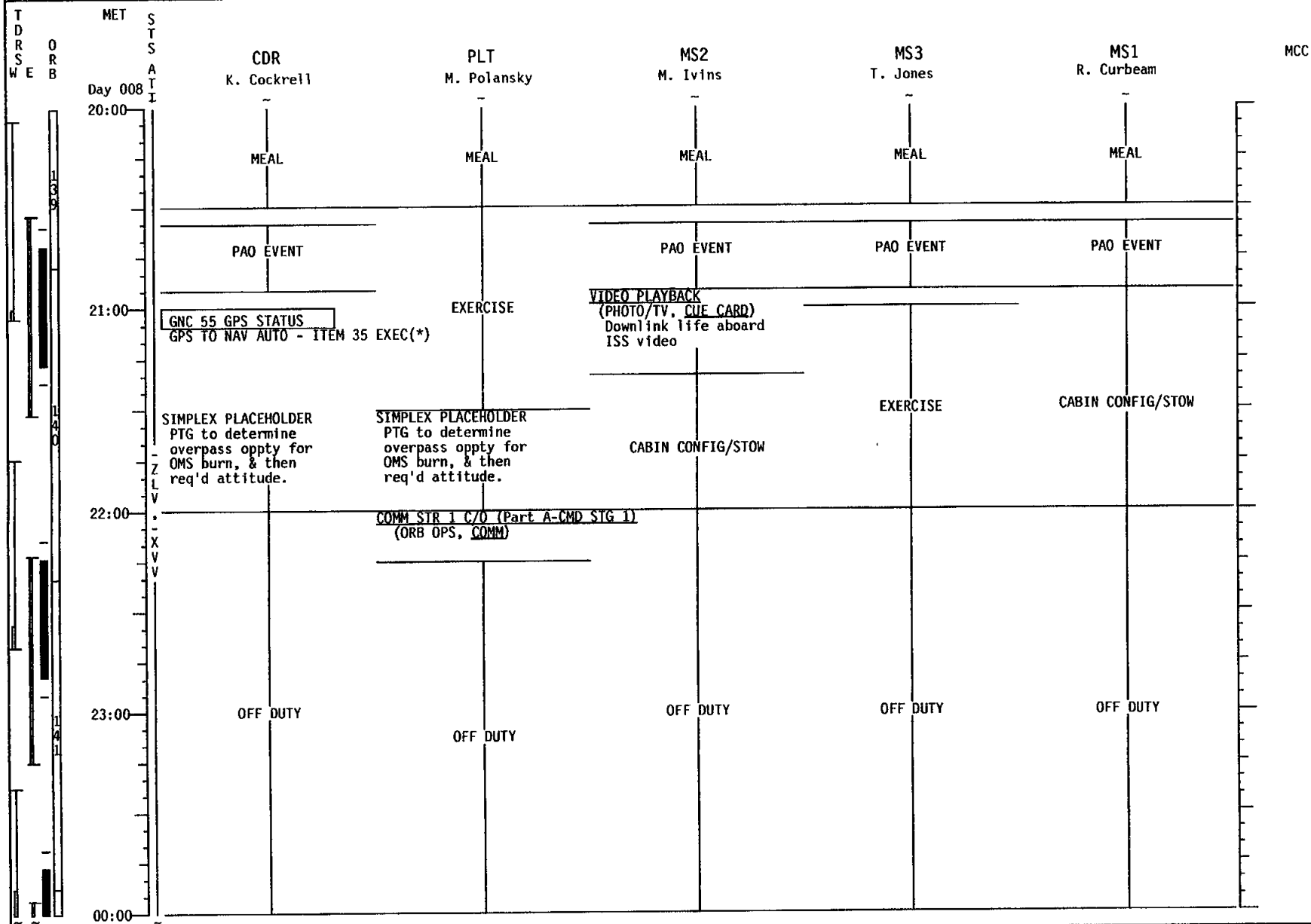
STS-98 (FD 10)



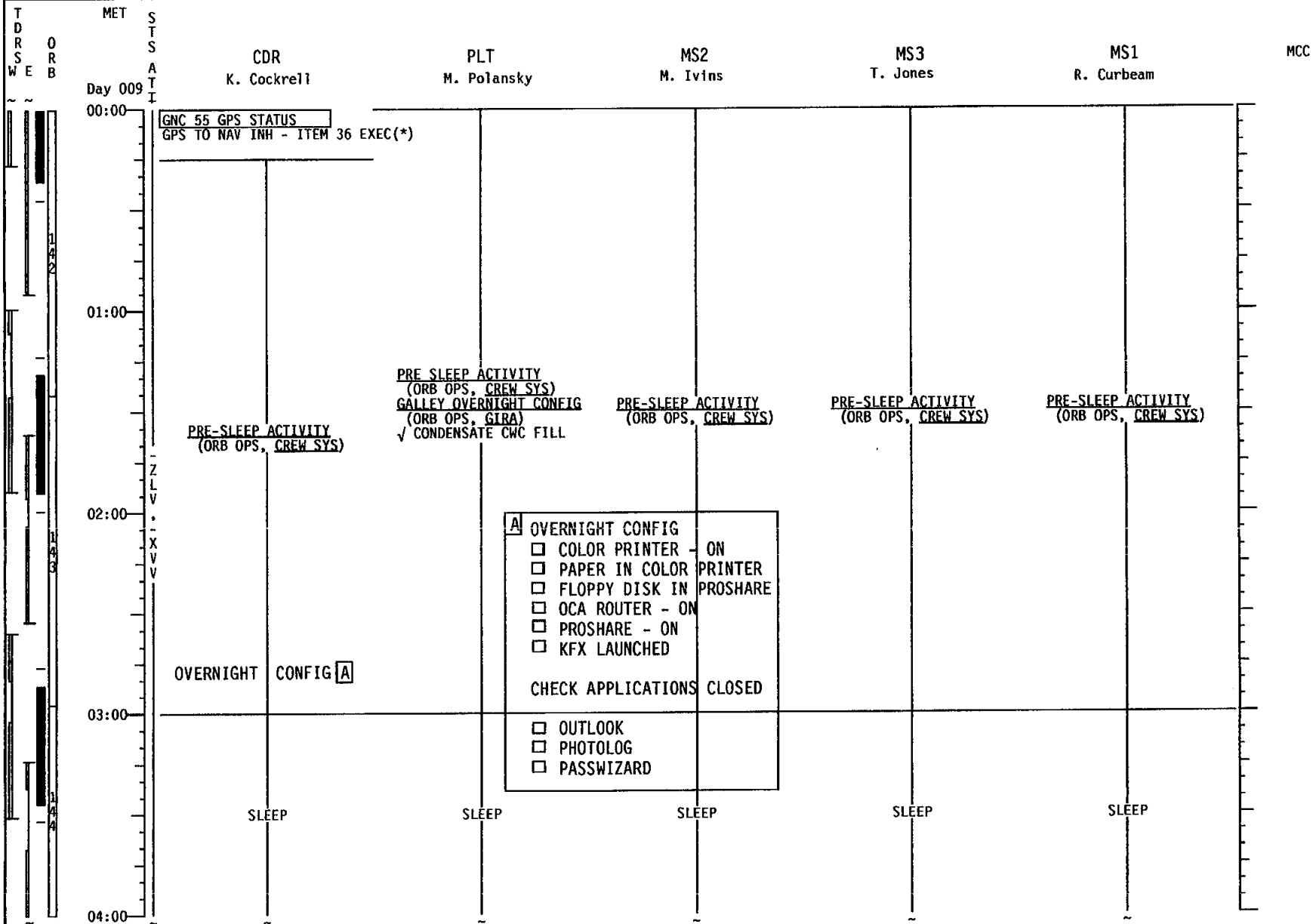
STS-98 (FD 10)



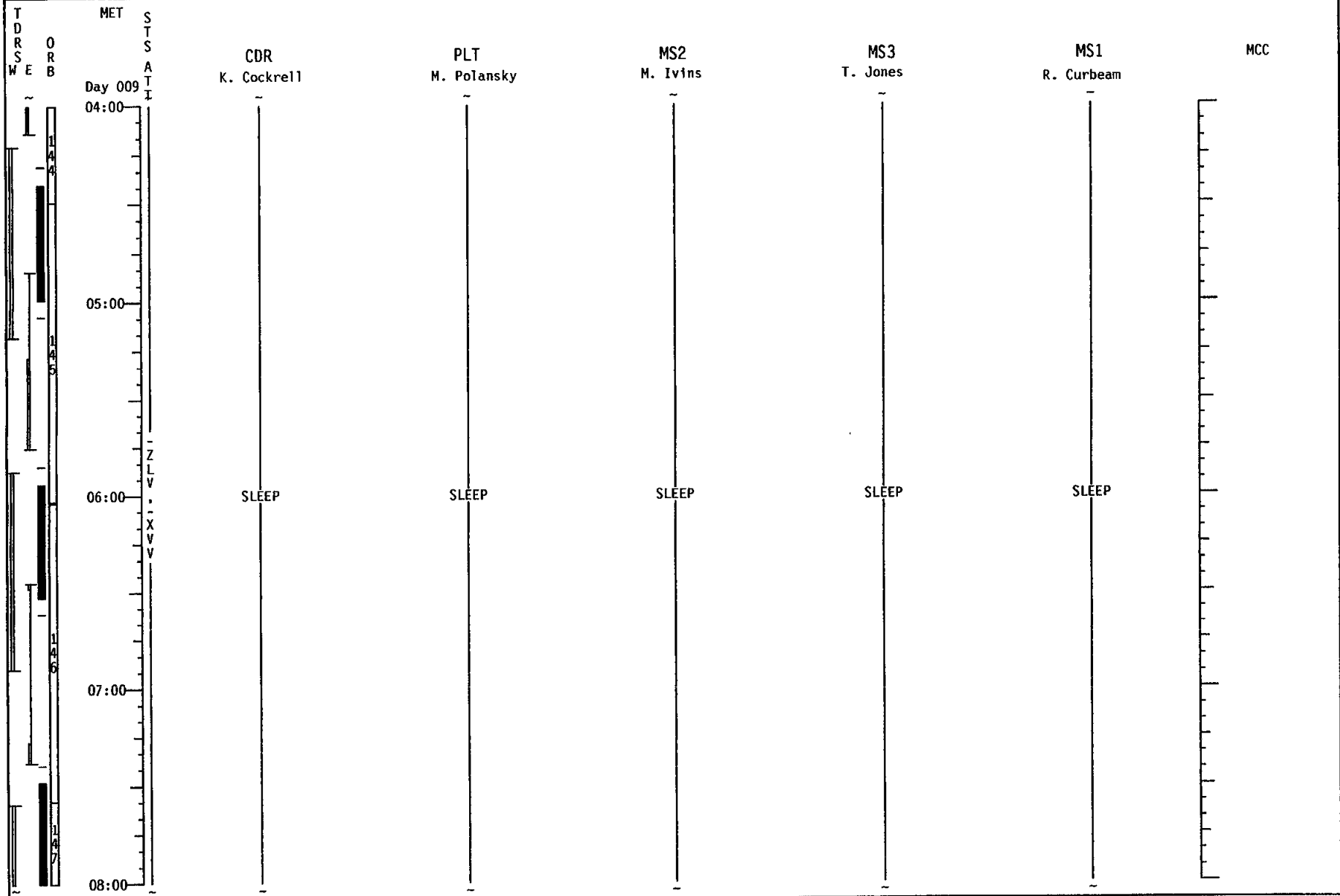
STS-98 (FD 10)



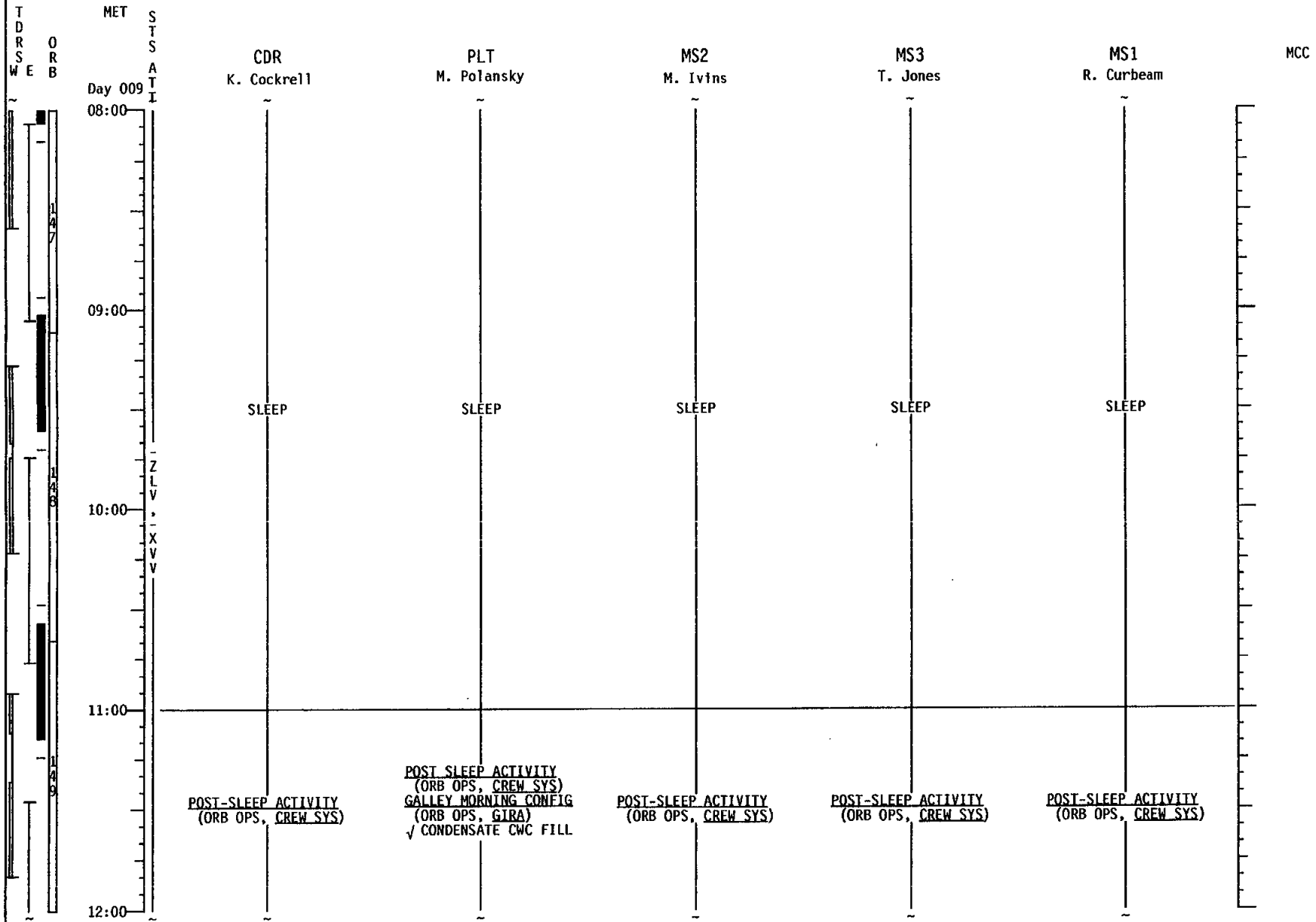
STS-98 (FD 10)



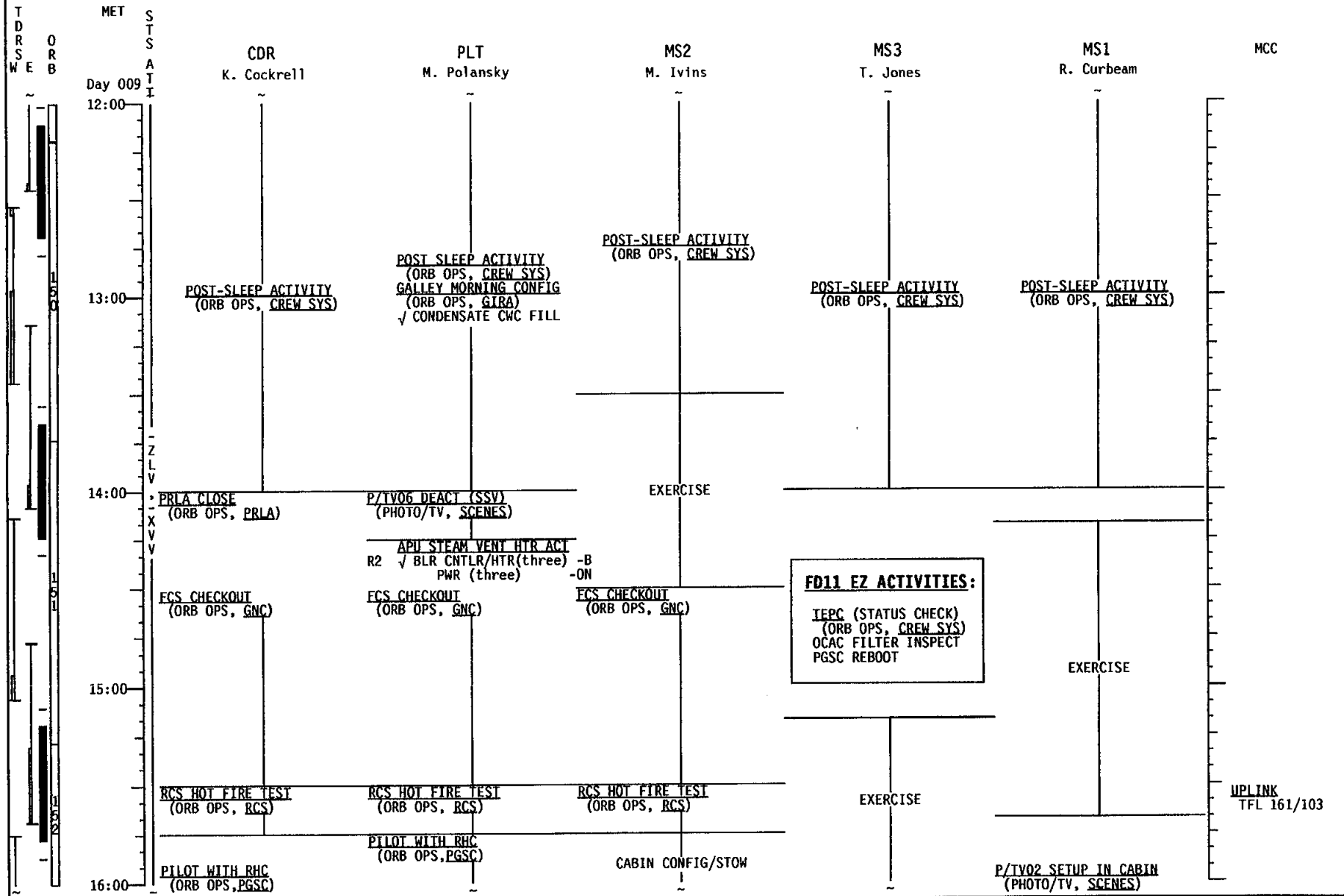
STS-98 (FD10)



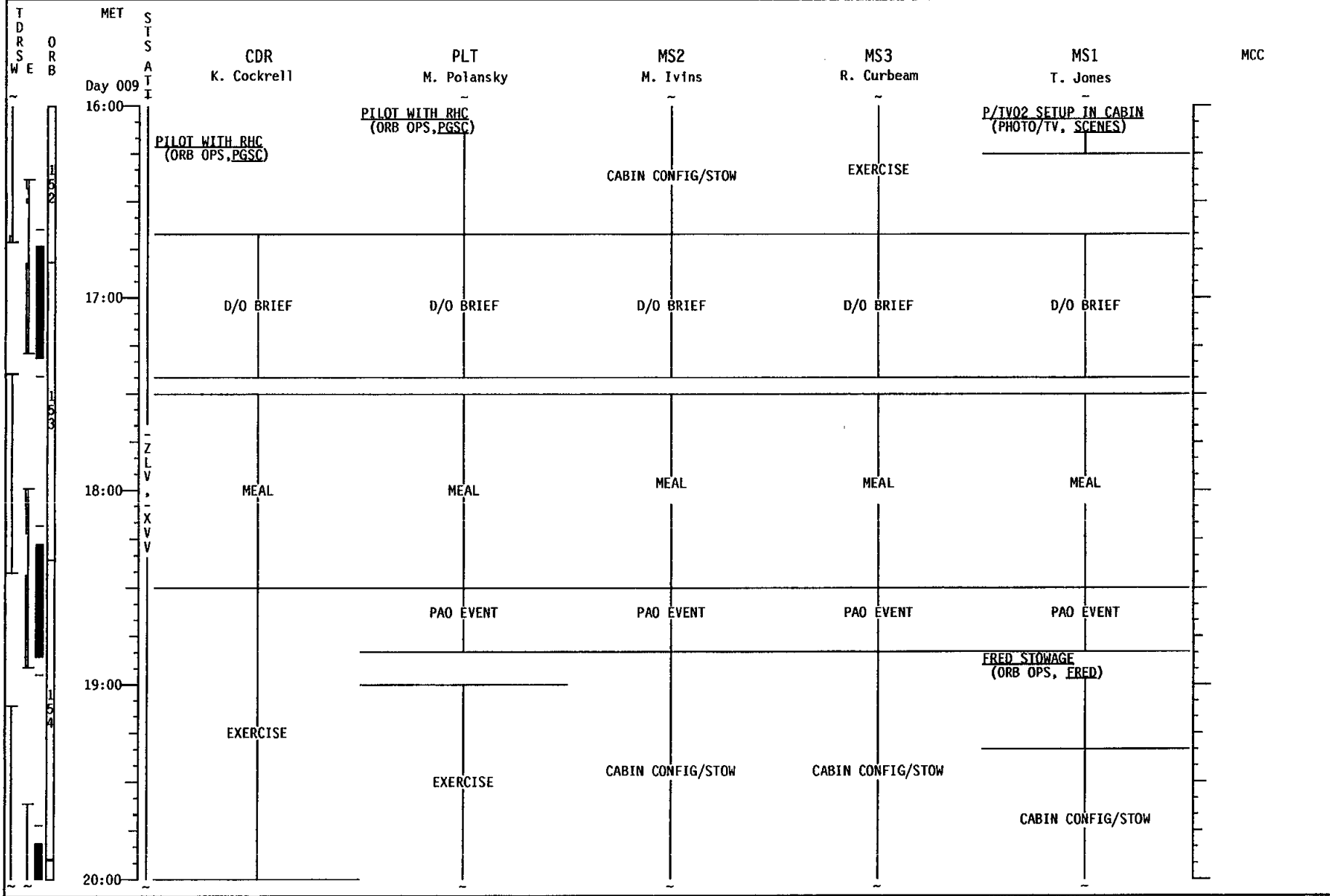
STS-98 (FD 11)



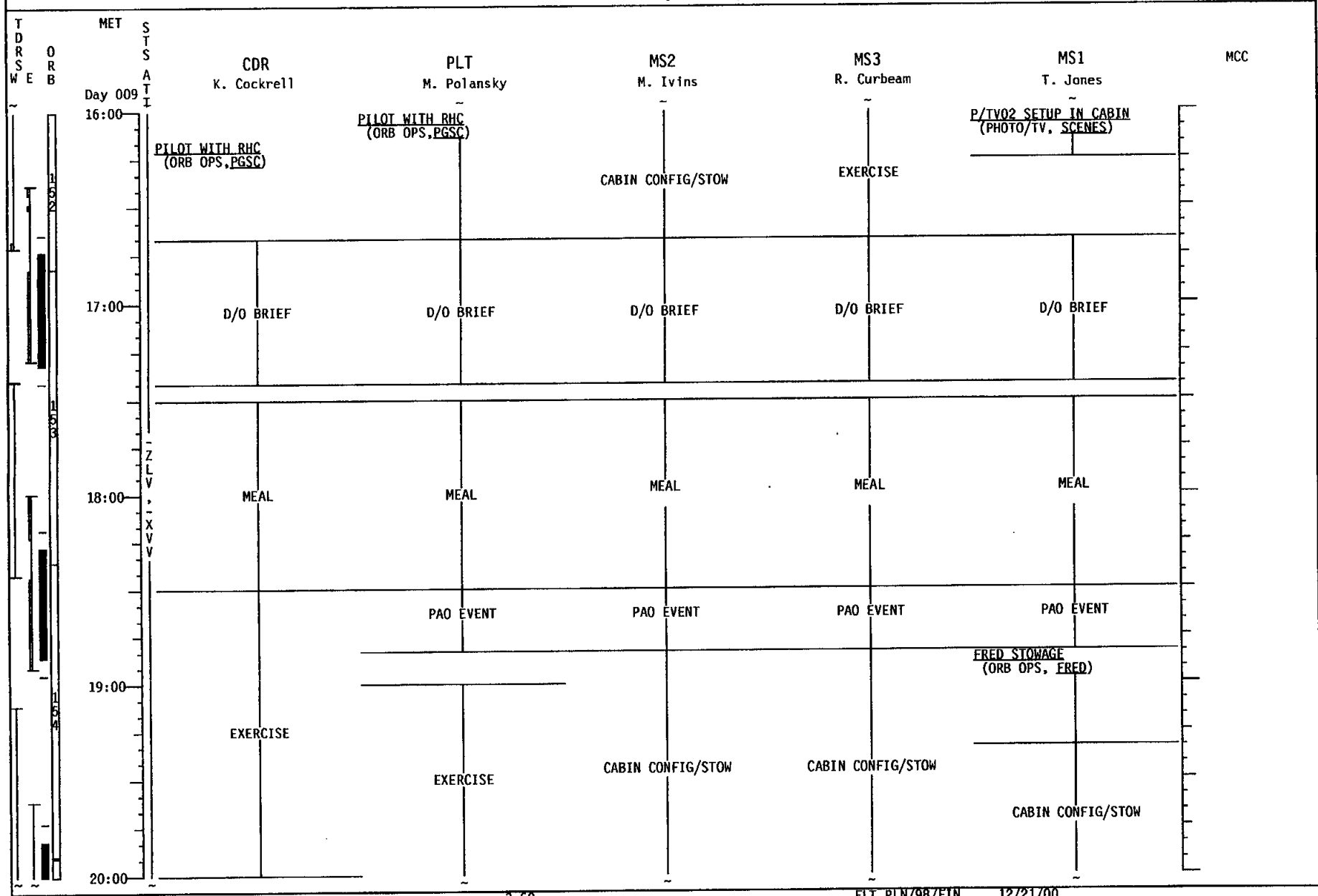
STS-98 (FD 11)



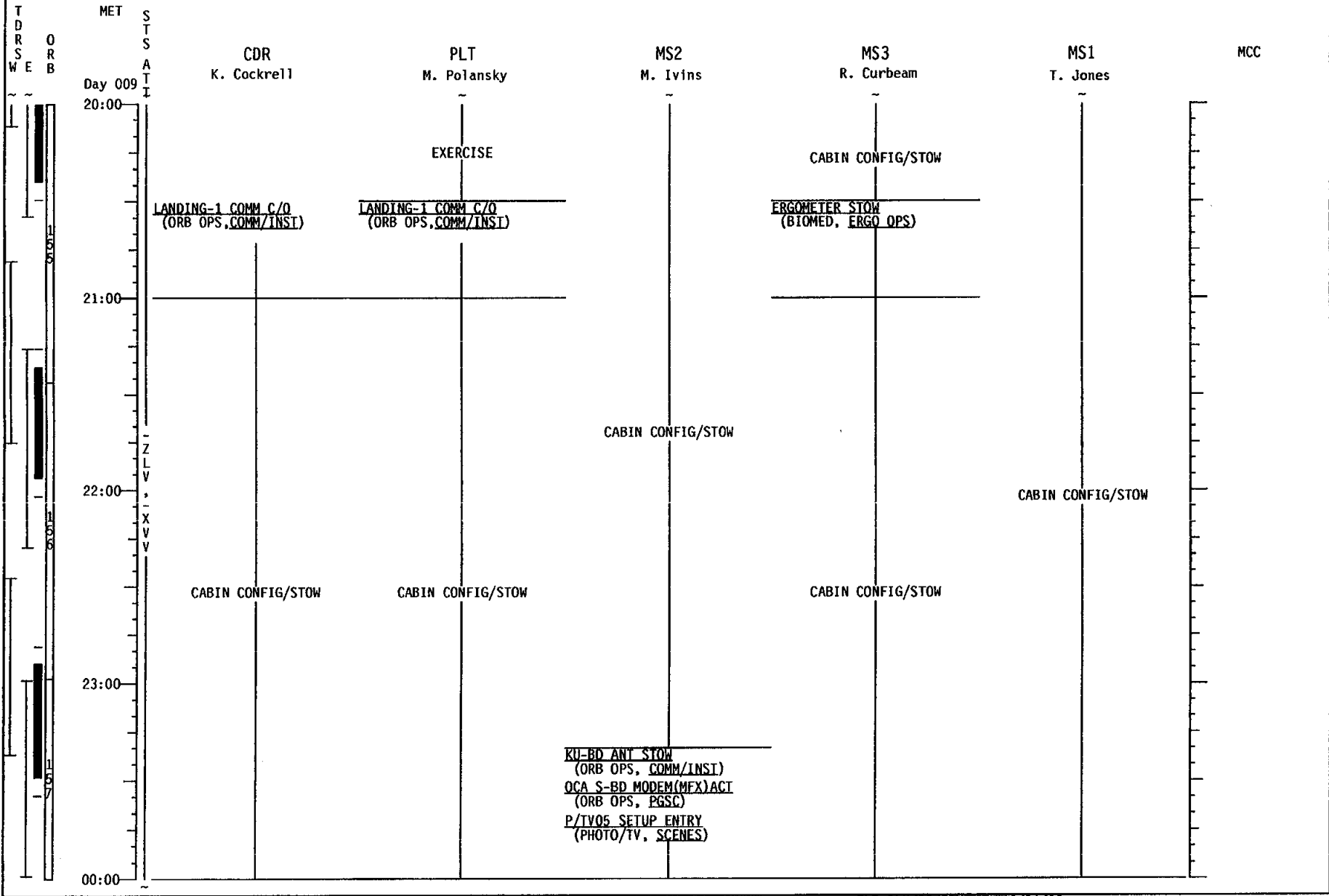
STS-98 (FD 11)



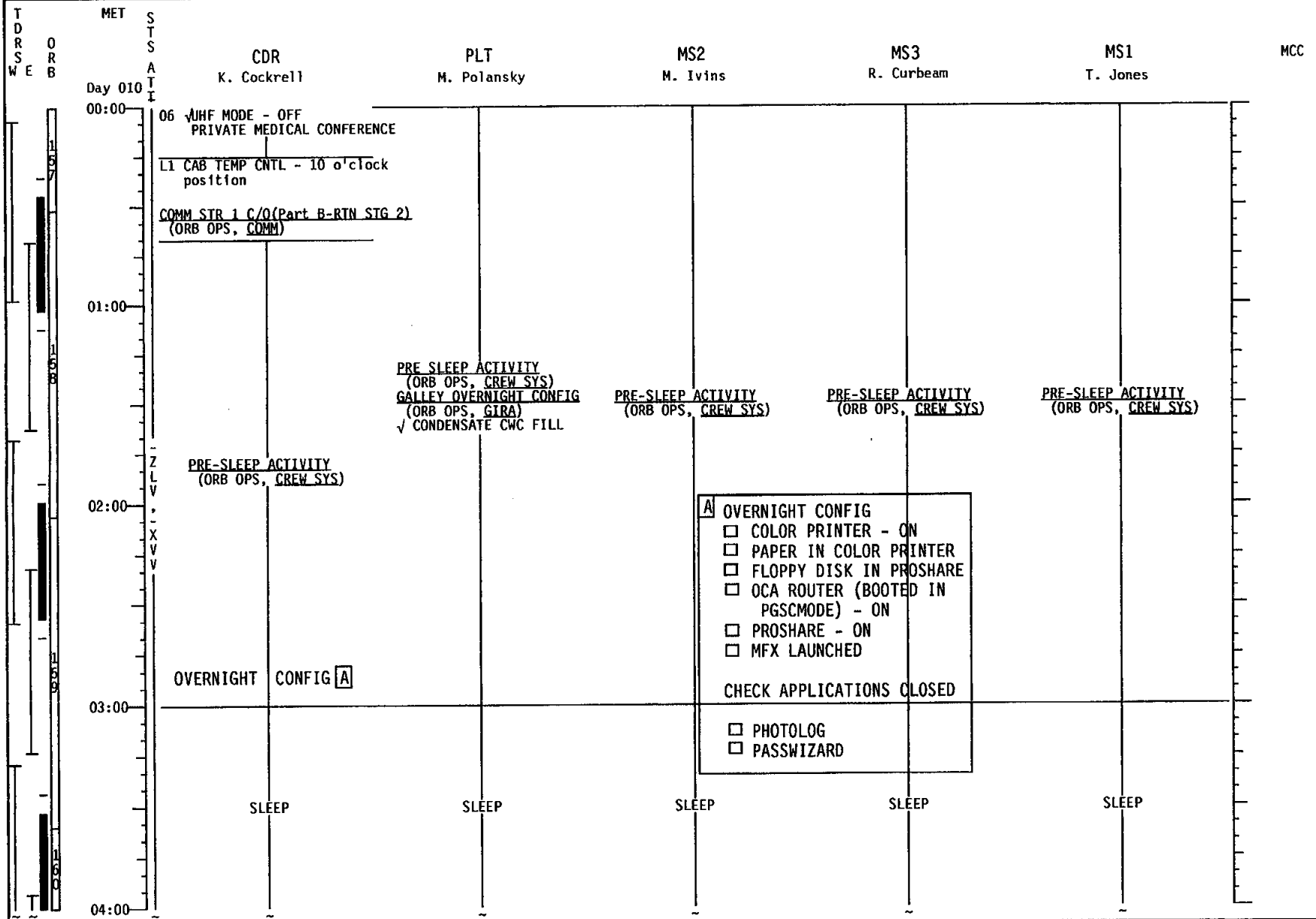
STS-98 (FD 11)



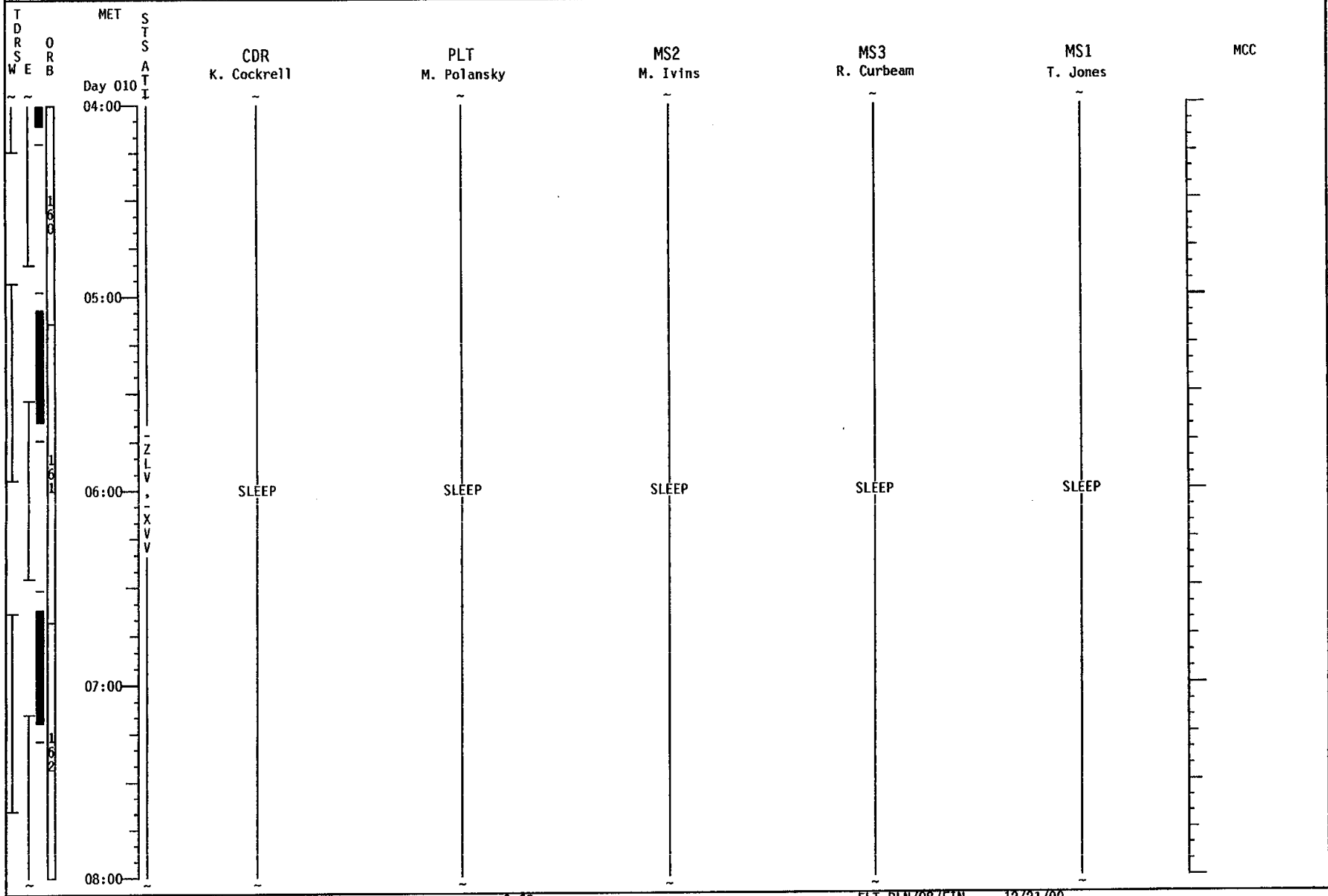
STS-98 (FD 11)



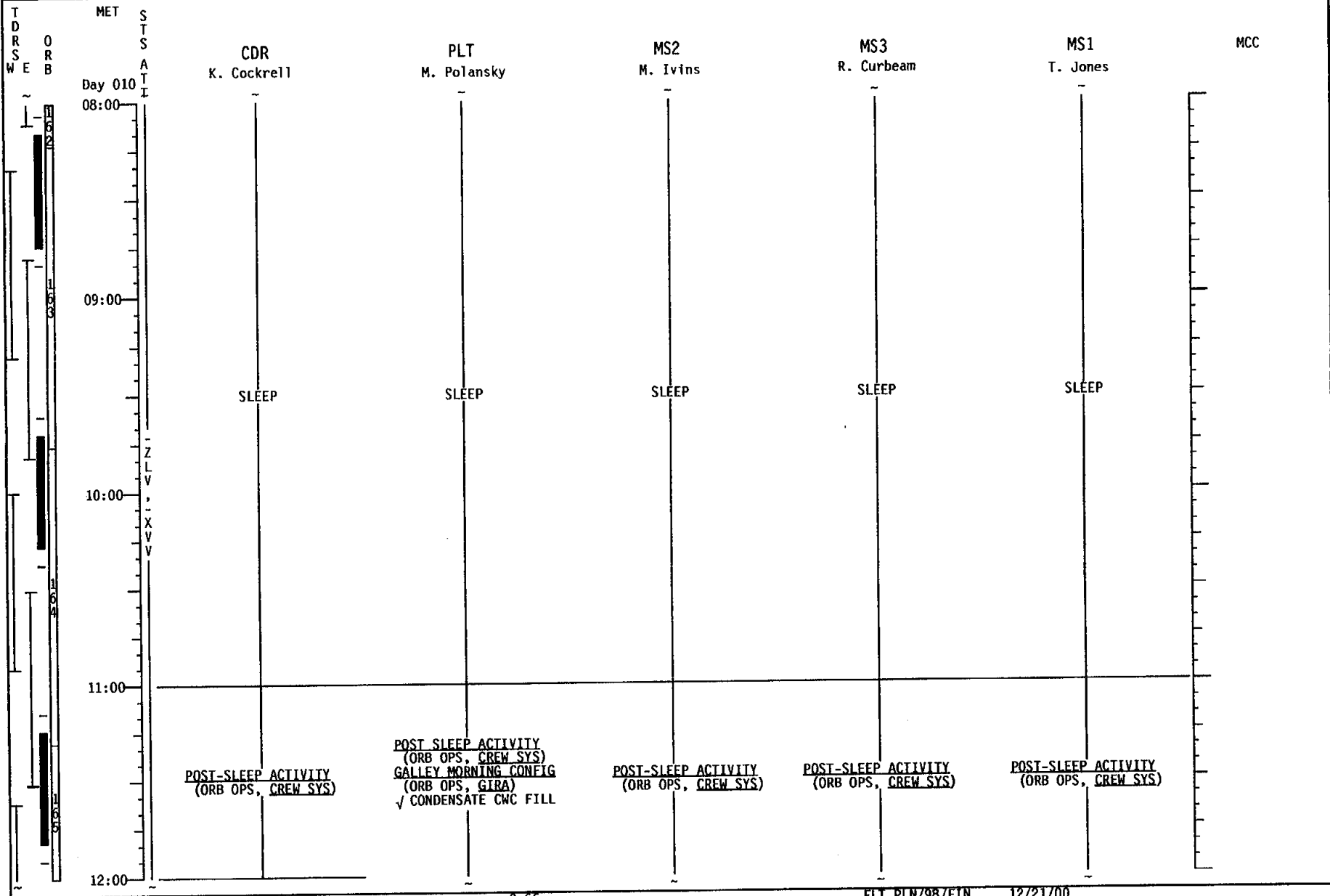
STS-98 (FD 11)



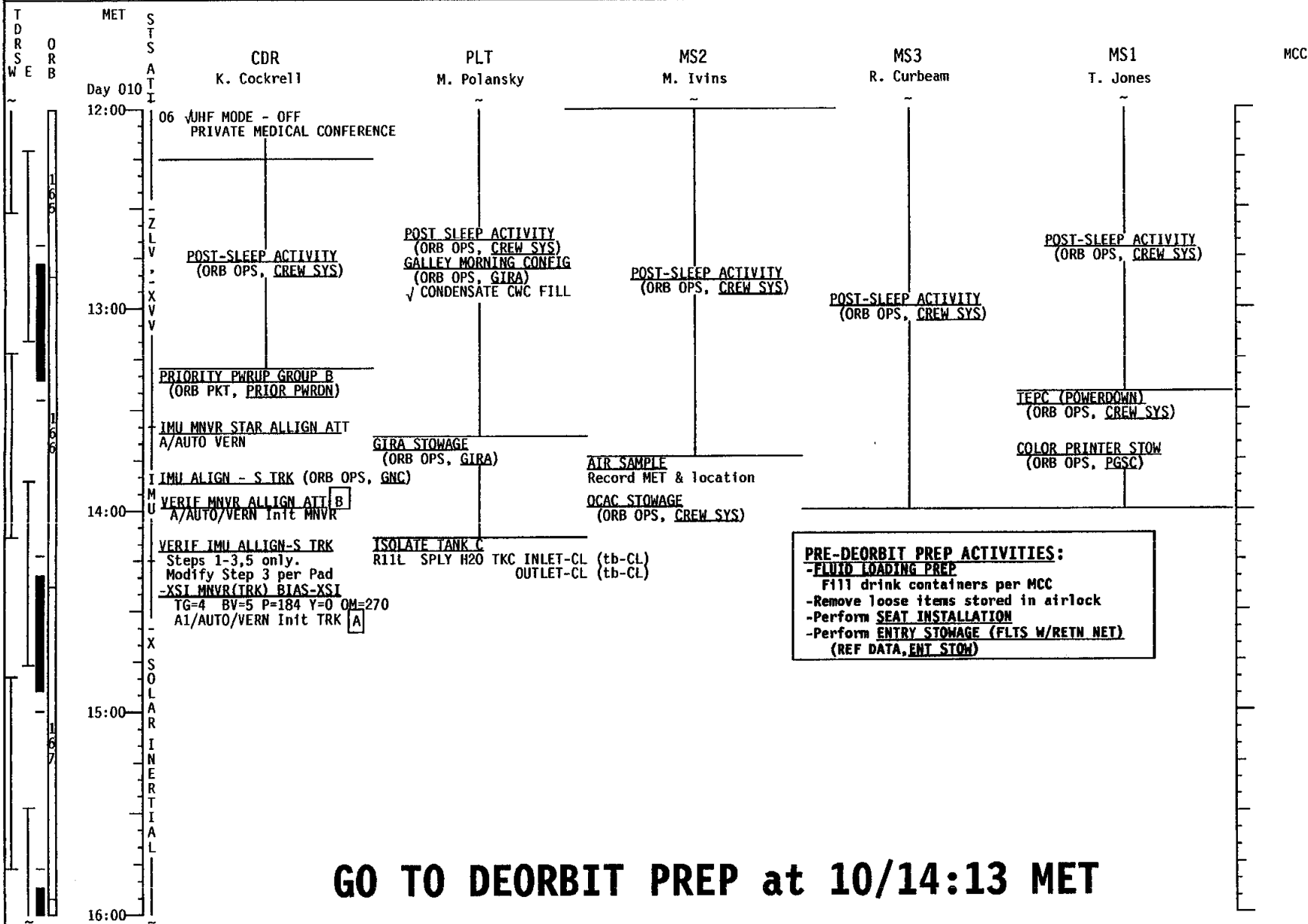
STS-98 (FD 11)



STS-98 (FD 11)



STS-98 (FD 12)



GO TO DEORBIT PREP at 10/14:13 MET

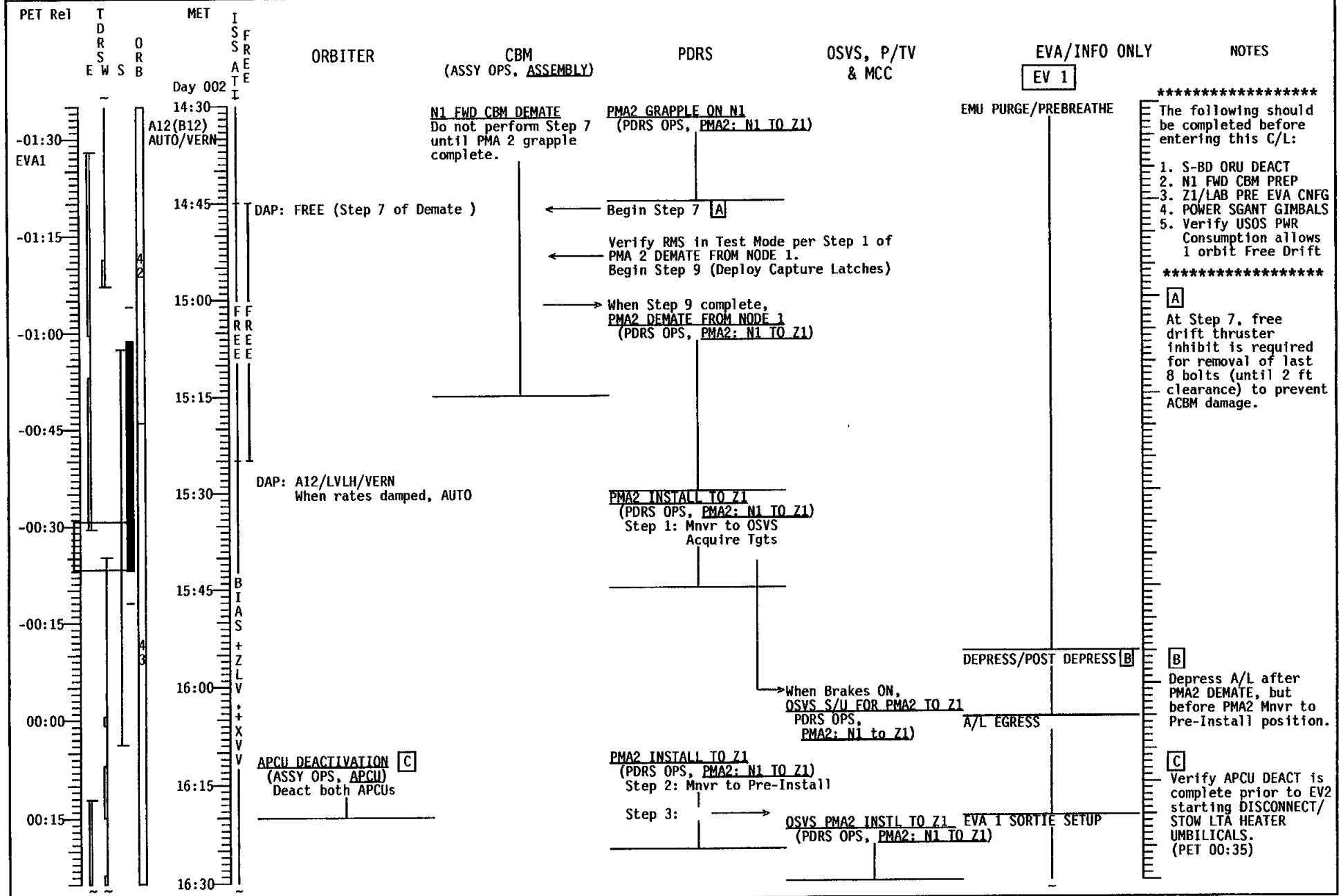
A	<p>IMU STAR ALIGN:</p> <p><u>MNVR TO DUAL S TRK ALIGN ATT</u> R=310 P=24 Y=52 A/AUTO/VERN Init MNVR</p> <p>ID: -Y: 59, SCHEAT MET: 10/13:37-14:54</p> <p>-Z: 33, PEACOCK MET: 10/13:32-14:17</p> <p>ANG DIFF: 91.2</p> <p>2ND ATTITUDE (SINGLE S TRK) -Z: 59 -Y: 33 R=224 R=19 P=21 P=48 Y=67 Y=51</p> <p>Perform <u>IMU ALIGN-S TRK</u> (ORB OPS, GNC)</p>
	<p>REQD ID:</p> <p>-Y: _____, -Z: _____, ANG ERR _____, _____</p> <p>ANG: 1 2 3</p> <p>ΔX () _____, _____ () _____, _____ () _____</p> <p>ΔY () _____, _____ () _____, _____ () _____</p> <p>ΔZ () _____, _____ () _____, _____ () _____</p> <p>EXECUTION TIME: ___/___:___:___ MET</p>

B	<p>IMU ALIGN VERIFICATION:</p> <p><u>MNVR TO DUAL S TRK ALIGN ATT</u> R=155 P=82 Y=296 A/AUTO/VERN Init MNVR</p> <p>ID: -Y: 34, MIAPLACIDUS MET: 10/13:41-14:34</p> <p>-Z: 54, DIPHDA MET: 10/13:44-14:34</p> <p>ANG DIFF: 89.9</p> <p>2ND ATTITUDE (SINGLE S TRK) -Z: 34 -Y: 54 R=98 R=209 P=112 P=47 Y=286 Y=293</p>
	<p>REQD ID:</p> <p>-Y: _____, -Z: _____, ANG ERR _____, _____</p> <p>ANG: 1 2 3</p> <p>ΔX () _____, _____ () _____, _____ () _____</p> <p>ΔY () _____, _____ () _____, _____ () _____</p> <p>ΔZ () _____, _____ () _____, _____ () _____</p> <p>EXECUTION TIME: ___/___:___:___ MET</p>

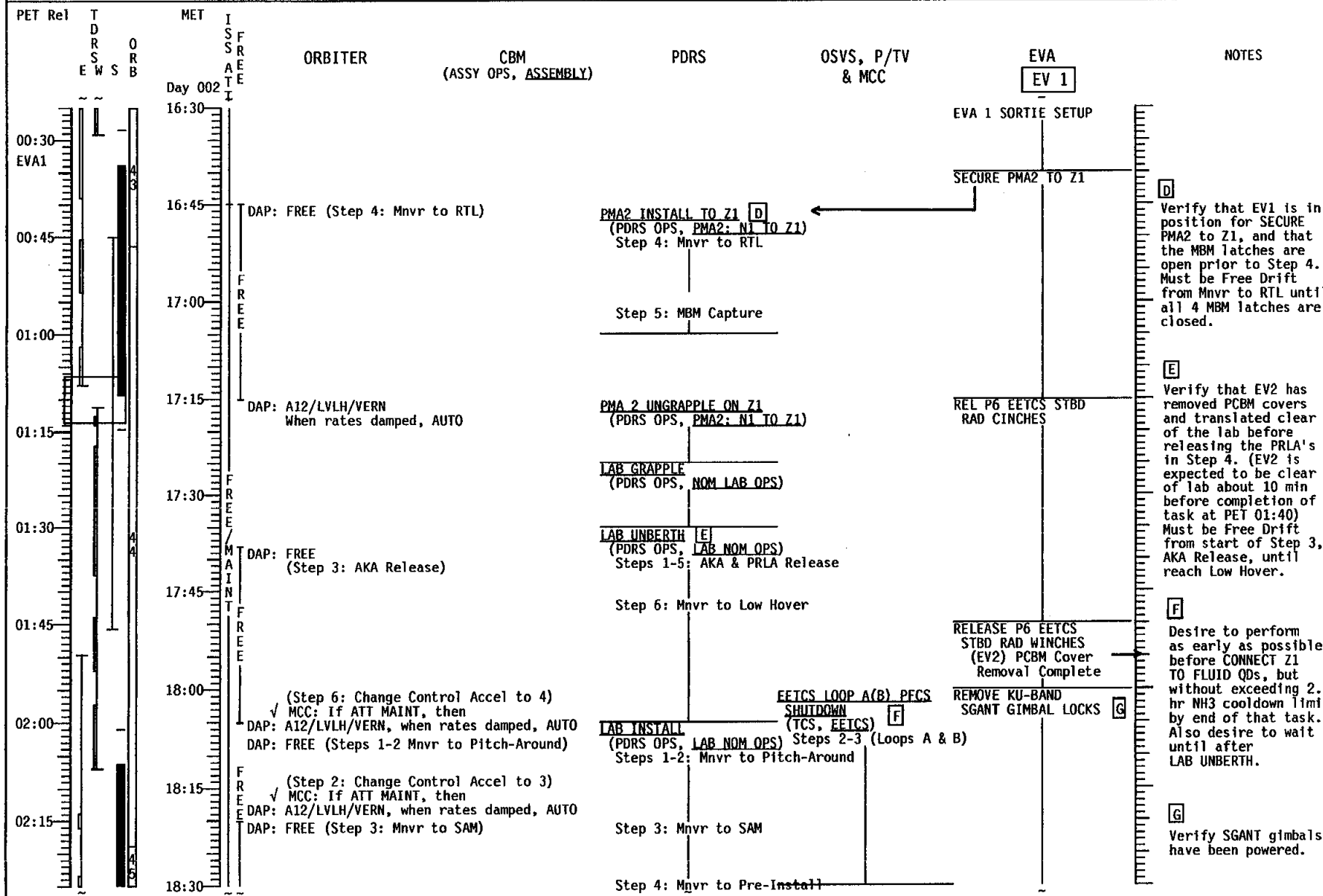
EVA 1 AND EVA 3 INTEGRATED PROCEDURES

EVA 1 AND EVA 3 INTEG PROCS

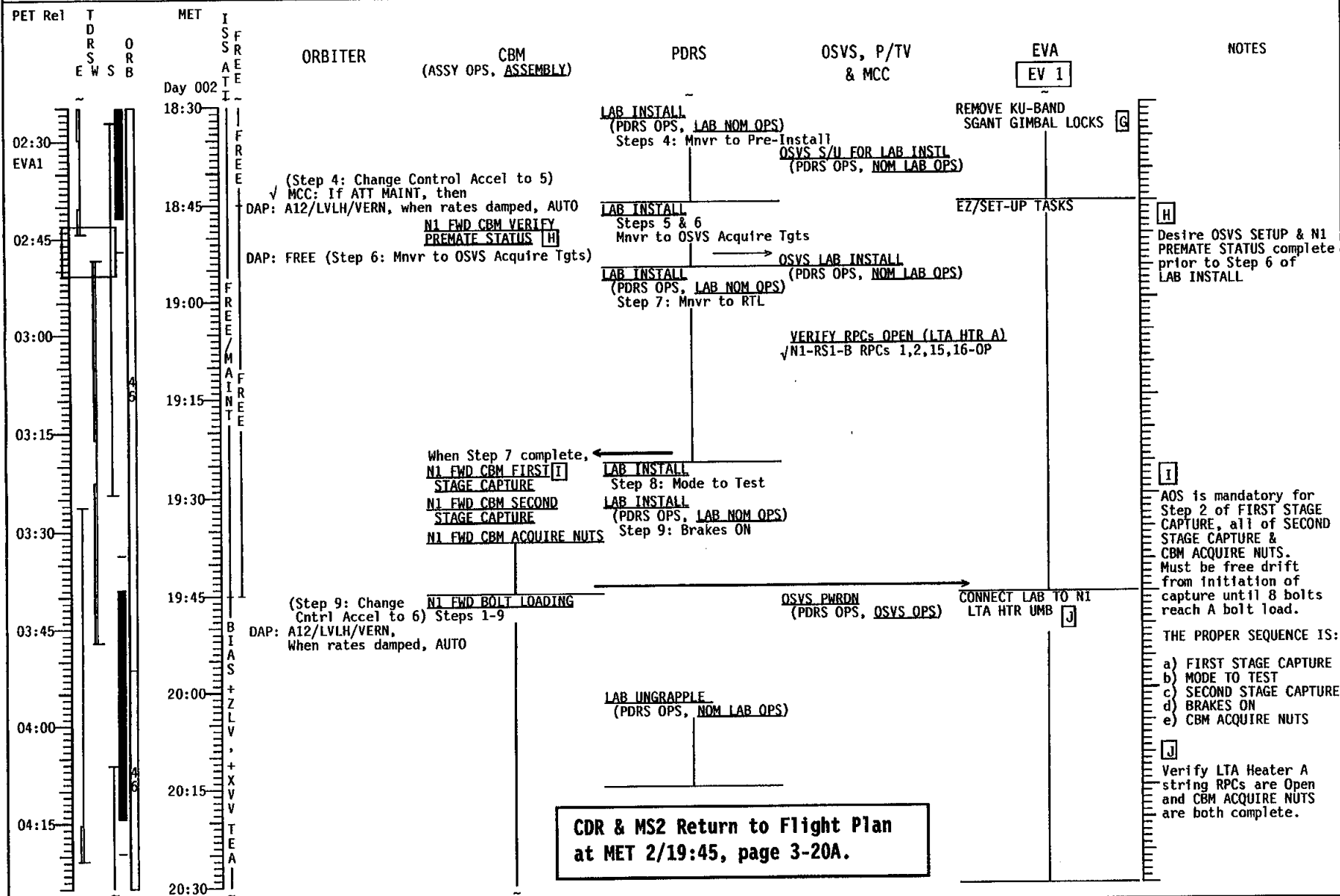
EVA 1 INTEGRATED PROCEDURE CHECKLIST



EVA 1 INTEGRATED PROCEDURE CHECKLIST



EVA 1 INTEGRATED PROCEDURE CHECKLIST



STS-98 DAP TABLE

STS-98
DAP TABLE

**STS-98
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)	B6	- (no planned use)
A7	- RNDZ	B7	- RNDZ
A8	- TERMINAL PHASE	B8	- TERMINAL PHASE
A9	- PROX OPS/FLYAROUND	B9	- PROX OPS/FLYAROUND
A10	- DOCKING	B10	- DOCKING
A11	- AUTO REBOOST	B11	- MANUAL REBOOST
A12	- MATED STACK MNVR & RMS OPS	B12	- MATED STACK RATE DAMPING
A13	- (no planned use)	B13	- (no planned use)
A14	- (no planned use)	B14	- (no planned use)
A15	- (no planned use)	B15	- (no planned use)

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

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

CNTL ACC	= 0 UNLOADED RMS
	= 1 5A INITIAL, VRCS CONTROL
	= 2 5A INITIAL, ALT PRCS CONTROL
	= 3 LAB PITCHED
	= 4 LAB LOW HOVER
	= 5 LAB PRE-INSTALL
	= 6 5A FINAL, VRCS CONTROL
	= 7 5A FINAL, PRCS CONTROL
	= 8-9 NOT USED

STS-98 DAP A1 THRU A8 CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6	A7	A8
PRI									
ROT RATE	10(50)	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000	0.2000	0.0500
ATT DB	11(51)	5.00	1.00	0.30	3.00	5.00	5.00	2.00	2.00
RATE DB	12(52)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14(54)	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15(55)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
Y OPTION	16(56)	ALL	ALL	TAIL	ALL	ALL	TAIL	ALL	ALL
TRAN PLS	17(57)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ALT									
RATE DB	18(58)	0.200	0.200	0.070	0.200	0.070	0.070	0.100	0.100
JET OPT	19(59)	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
# JETS	20(60)	2	2	1	2	1	1	2	2
ON TIME	21(61)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VERN									
ROT RATE	23(63)	0.2000	0.4000	0.0080	0.2000	0.0500	0.0500	0.0160	0.0500
ATT DB	24(64)	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000
RATE DB	25(65)	.020	.020	.010	.020	.020	.020	.020	.020
ROT PLS	26(66)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.050
COMP	27(67)	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	0	0	0	0	0	0
PURPOSE		NOMINAL	PTC	GG	PRE/POST DEPLOY	LOSS OF VERN (ALL)	LOSS OF VERN (TAIL ONLY)	RNDZ	TERMINAL PHASE

STS-98 DAP HRU A12 CONFIGURATIONS

	ITEM #	A9	A10	A11	A12
PRI					
ROT RATE	10(50)	0.1300	0.0500	0.1000	0.1000
ATT DB	11(51)	1.00	0.50	5.00	5.00
RATE DB	12(52)	0.10	0.10	0.20	0.20
ROT PLS	13(53)	0.10	0.10	0.04	0.04
COMP	14(54)	.000	.000	.000	.000
P OPTION	15(55)	TAIL	TAIL	TAIL	TAIL
Y OPTION	16(56)	TAIL	TAIL	TAIL	TAIL
TRAN PLS	17(57)	0.05	0.05	0.01	0.01
ALT					
RATE DB	18(58)	0.100	0.100	0.070	0.070
JET OPT	19(59)	TAIL	TAIL	TAIL	TAIL
# JETS	20(60)	2	2	2	2
ON TIME	21(61)	0.08	0.08	0.08	0.08
DELAY	22(62)	0.00	0.00	9.28	11.60
VERN					
ROT RATE	23(63)	0.1300	0.0500	0.1000	0.1000
ATT DB	24(64)	1.000	0.500	5.000	3.000
RATE DB	25(65)	.020	.020	.050	0.08 **
ROT PLS	26(66)	0.050	0.050	0.010	0.002
COMP	27(67)	.000	.000	.000	.000
CNTL ACC	28(68)	0	0	6	1 *
PURPOSE		PROX OPS/ FLYAROUND	DOCKING	AUTO REBOOST	MATED STACK AND RMS OPS

BOLD-ITALIC indicate a change from I-load

* CNTL ACCEL settings will vary from 1 through 7 dependent on Lab position

** VERN RATE DB will vary dependent on CNTL ACC or state of ODS pressurization

STS-98 DAP B1 THRU B8 CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5	B7	B8
PRI								
ROT RATE	30(50)	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000	0.0500
ATT DB	31(51)	3.00	3.00	3.00	0.30	3.00	2.00	2.00
RATE DB	32(52)	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000	.000	.000	.000
P OPTION	35(55)	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL
Y OPTION	36(56)	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL
TRAN PLS	37(57)	0.10	0.02	0.02	0.02	0.02	0.05	0.05
ALT								
RATE DB	38(58)	0.200	0.070	0.070	0.100	0.200	0.100	0.100
JET OPT	39(59)	ALL	TAIL	ALL	ALL	ALL	ALL	ALL
# JETS	40(60)	2	1	1	2	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VERN								
ROT RATE	43(63)	0.2000	0.2000	0.2000	0.0080	0.0160	0.2000	0.0500
ATT DB	44(64)	1.000	1.000	1.000	0.100	0.033	1.000	1.000
RATE DB	45(65)	.020	.020	.020	.010	.020	.020	.020
ROT PLS	46(66)	0.002	0.002	0.002	0.002	0.002	0.002	0.020
COMP	47(67)	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	0	0	0	0	0
PURPOSE		NOM OMS & RCS BURNS	LOSS OF VERN (TAIL ONLY)	LOSS OF VERN (ALL)	SSUS DEPLOY	COAS/HUD CAL	RNDZ	TERMINAL PHASE

STS-98 DAP B9 THRU B12 CONFIGURATIONS

	ITEM #	B9	B10	B11	B12
PRI					
ROT RATE	30(50)	0.1300	0.0500	0.0500	0.1000
ATT DB	31(51)	1.00	0.50	40.00	5.00
RATE DB	32(52)	0.10	0.10	5.00	0.20
ROT PLS	33(53)	0.04	0.04	0.04	0.04
COMP	34(54)	.000	.000	.000	.000
P OPTION	35(55)	TAIL	TAIL	TAIL	TAIL
Y OPTION	36(56)	TAIL	TAIL	TAIL	TAIL
TRAN PLS	37(57)	0.01	0.01	0.01	0.01
ALT					
RATE DB	38(58)	0.100	0.100	0.200	0.070
JET OPT	39(59)	TAIL	TAIL	TAIL	TAIL
# JETS	40(60)	2	2	2	2
ON TIME	41(61)	0.08	0.08	0.08	0.08
DELAY	42(62)	0.00	0.00	12.00	11.60
VERN					
ROT RATE	43(63)	0.1300	0.0500	0.5000	0.1000
ATT DB	44(64)	1.000	0.500	5.000	40.000
RATE DB	45(65)	.020	.020	.200	.050 **
ROT PLS	46(66)	0.020	0.020	0.020	0.002
COMP	47(67)	.000	.000	.000	.000
CNTL ACC	48(68)	0	0	6	1 *
PURPOSE		PROX OPS/ FLYAROUND	DOCKING	MANUAL REBOOST	MATED STACK RATE DAMPING

BOLD-ITALIC indicate a change from I-load

* CNTL ACCEL settings will vary from 1 through 7 dependent on Lab position

** VERN RATE DB will vary dependent on CNTL ACC or state of ODS pressurization

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

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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
1 000/00:30:00 MET 018/08:13:44 GMT	INRTL R=237.00 MNVR P= 60.00 Y= 25.00	TRN RATE 0.5000 AUTO DB AT 3.50 PRI DB RT 0.20	SUN R 20 P 82	LVLH EQUIV R= 0.00 P= 12.00 Y= 0.00	OMS-2 Posi Heads Up Dual OMS TIG 00:44
2 000/01:12:00 MET 20:35 018/08:55:44 GMT 09:04:19	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 90.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y=270.00	-ZLV -YVV PLBD, SOPA When available, config A6/VERN
3 000/03:20:00 MET 30:38 018/11:03:44 GMT 14:22	INRTL R= 46.00 MNVR P= 79.00 Y= 45.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	SUN R 200 P 105	LVLH EQUIV R=180.00 P=348.00 Y= 0.00	NC-1 Posi Heads Down Dual OMS TIG 03:43
4 000/03:45:00 MET 04:00:00 018/11:28:44 GMT 43:44	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00 WIA A6/VERN	A6 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
5 000/15:15:00 MET 29:55 018/22:58:44 GMT 23:13:39	INRTL R= 50.00 MNVR P= 75.00 Y= 44.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	SUN R 198 P 103	LVLH EQUIV R=180.00 P=348.00 Y= 0.00	NC-2 Posi Heads Down Dual OMS TIG 15:37
6 000/15:45:00 MET 59:58 018/23:28:44 GMT 43:42	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00 WIA A6/VERN	A6 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
7 000/19:40:00 MET 019/03:23:44 GMT					NPC Multi-Axis (if required) TIG 19:40
8 001/00:10:00 MET 24:59 019/07:53:44 GMT 08:08:43	INRTL R= 53.00 MNVR P= 74.00 Y= 43.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	SUN R 195 P 102	LVLH EQUIV R=180.00 P=348.00 Y= 0.00	NC-3 Posi Heads Down Dual OMS TIG 00:33
9 001/00:35:00 MET 49:59 019/08:18:44 GMT 33:43	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00 STAY IN A6/ALT	A6 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV Crew Sleep
10 001/11:00:00 MET 07:30 019/18:43:44 GMT 51:14	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A6 AUTO DB AT 5.00 ALT DB RT 0.070	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Dump, SOPA Future Load
11 001/12:50:00 MET 13:00:39 019/20:33:44 GMT 44:23	INRTL R=116.00 MNVR P=237.00 Y=340.00 BURN IN DAP B1	A6 AUTO DB AT 5.00 ALT DB RT 0.070	SUN R 167 P 104	LVLH EQUIV R= 0.00 P= 12.00 Y= 0.00	NH Posi Heads Up Dual OMS TIG 13:12
12 001/13:15:00 MET 019/20:58:44 GMT		B1 LVLH DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 115	LVLH R= 0.34 HOLD P= 24.71 Y=359.79	HOLD for NC-4

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
13						
001/13:45:00 MET	INRTL R=245.00	B1	RATE 0.2000	SUN	LVLH EQUIV	NC-4
49:55	MNVR P= 57.00	AUTO	DB AT 1.000	R 12	R= 0.00	Posi Heads Up
019/21:28:44 GMT	Y= 20.00	VERN	DB RT 0.020	P 76	P= 12.00	Dual OMS
33:39					Y= 0.00	TIG 13:57
	SET DAP A7,B7					
14						
001/14:00:00 MET	TGT=2	B7	RATE 0.5000	EARTH	LVLH R= 0.00	-Z Target Track
03:48	BV=1	AUTO	DB AT 2.00	R 188	P=270.00	
019/21:43:44 GMT	P= 0.00	PRI	DB RT 0.20	P 0	Y= 0.00	First Trk Pass
47:32	Y= 0.00					Sunset 14:26
	OM= 0.00					
	WIA A7/VERN					
15						
001/14:10:00 MET	TGT=2	A7	RATE 0.0080	EARTH	LVLH R= 0.00	-Z Target Track
41:15	BV=5	AUTO	DB AT 1.000	R 180	P=285.00	
019/21:53:44 GMT	P=345.00	VERN	DB RT 0.020	P 15	Y= 0.00	
22:24:59	Y= 0.00					
	OM= 0.00					
16						
001/14:42:00 MET	TGT=2	A7	RATE 0.0120	EARTH	LVLH R= 0.00	-Z Target Track
15:02:50	BV=1	AUTO	DB AT 1.000	R 275	P=270.00	
019/22:25:44 GMT	P= 0.00	VERN	DB RT 0.020	P 0	Y= 0.00	
46:34	Y= 0.00					
	OM= 0.00					
17						
001/15:10:00 MET	INRTL R=244.00	A7	RATE 0.2000	SUN	LVLH EQUIV	TI
12:03	MNVR P= 58.00	AUTO	DB AT 1.000	R 12	R= 0.00	Posi Heads Up
019/22:53:44 GMT	Y= 22.00	VERN	DB RT 0.020	P 78	P= 12.00	Dual OMS
55:47					Y= 0.00	TIG 15:30
18						
001/15:35:00 MET	TGT=2	B7	RATE 0.5000	EARTH	LVLH R= 0.00	-Z Target Track
38:44	BV=5	AUTO	DB AT 2.00	R 180	P=280.00	
019/23:18:44 GMT	P=350.00	PRI	DB RT 0.20	P 10	Y= 0.00	Second Trk Pass
22:28	Y= 0.00					Sunset 15:58
	OM= 0.00					
	WIA A7/VERN					
19						
001/15:40:00 MET	TGT=2	A7	RATE 0.0120	EARTH	LVLH R= 0.00	-Z Target Track
16:49:27	BV=5	AUTO	DB AT 1.000	R 180	P=330.00	
019/23:23:44 GMT	P=300.00	VERN	DB RT 0.020	P 60	Y= 0.00	
020/00:33:11	Y= 0.00					
	OM= 0.00					
20						
001/16:50:00 MET	TGT=2	A8	RATE 0.2000	EARTH	LVLH R= 0.00	+ZLV +XVV
52:30	BV=5	AUTO	DB AT 1.000	R 180	P= 0.00	
020/00:33:44 GMT	P=270.00	VERN	DB RT 0.020	P 90	Y= 0.00	Establish RBAR
36:14	Y= 0.00					after MC4
	OM= 0.00					
21						
001/17:00:00 MET	TGT=2	B7	RATE 0.5000			START TAIL FWD
	BV=5	AUTO	DB AT 2.00			
020/00:43:44 GMT	P=270.00	PRI	DB RT 0.20			After Mnv Init
	Y= 0.00					Load OM 180
	OM= 90.00					
22						
001/17:01:00 MET	*** MNVR INTERRUPT ***	B7	RATE 0.5000	EARTH	LVLH R=180.00	+ZLV -XVV
06:00	TGT=2	AUTO	DB AT 2.00	R 180	P=180.00	
020/00:44:44 GMT	BV=5	PRI	DB RT 0.20	P 90	Y= 0.00	Config DAP:A9
49:44	P=270.00					At Mnv Finish
	Y= 0.00					
	OM=180.00					
23						
001/17:17:00 MET	TGT=2	B9	RATE 0.2000	EARTH	LVLH R=180.00	170 FT SK
	BV=5	AUTO	DB AT 1.000	R 180	P=180.00	
020/01:00:44 GMT	P=270.00	VERN	DB RT 0.020	P 90	Y= 0.00	Config for
	Y= 0.00					Final Approach
	OM=180.00					
24						
001/17:32:00 MET	TGT=2	A9	RATE 0.1300	EARTH	LVLH R=180.00	INIT APPROACH
	BV=5	AUTO	DB AT 1.000	R 180	P=180.00	
020/01:15:44 GMT	P=270.00	VERN	DB RT 0.020	P 90	Y= 0.00	RNG=100 Ku Comm
	Y= 0.00					RNG= 75 DAP:A10
	OM=180.00					

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
25						
001/18:04:26 MET	TGT=2 BV=5 P=270.00	A10 FREE DB AT 1.000 VERN DB RT 0.020	RATE 0.2000 DB AT 1.000 P 90	EARTH R 180	LVLH R=180.00 P=180.00 Y= 0.00	DOCK Free Drift Config DAP:A12 for Att Cntl
020/01:48:10 GMT	Y= 0.00 OM=180.00					
ACR 1						
26						
001/18:30:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	BIAS +ZLV -XVV ISS LVLH YPR (0,10,0)
020/02:13:44 GMT	Y= 0.00 OM=180.00					
ACR 2						
27						
002/14:45:00 MET	TGT=2 BV=5 P=280.00	A12 FREE DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP FREE EVA 1 PMA2 De-Mate
020/22:28:44 GMT	Y= 0.00 OM=180.00					
ACR 3						
28						
002/15:25:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP AUTO
020/23:08:44 GMT	Y= 0.00 OM=180.00					
ACR 4						
29						
002/16:45:00 MET	TGT=2 BV=5 P=280.00	A12 FREE DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP FREE EVA 1 PMA2 to Z1
021/00:28:44 GMT	Y= 0.00 OM=180.00					
ACR 4						
30						
002/17:15:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP AUTO
021/00:58:44 GMT	Y= 0.00 OM=180.00					
ACR 5						
31						
002/17:35:00 MET	TGT=2 BV=5 P=280.00	A12 FREE DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP FREE EVA 1 Lab Unberth and Installation
021/01:18:44 GMT	Y= 0.00 OM=180.00					
ACR 5						
32						
002/18:00:00 MET					Att Maintenance If Required Between RMS Maneuvers	
021/01:43:44 GMT						
ACR 5						
33						
002/19:45:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO DB AT 3.000 VERN DB RT 0.050	RATE 0.1000 DB AT 3.000 P 80	EARTH R 180	LVLH R=180.00 P=190.00 Y= 0.00	DAP AUTO
021/03:28:44 GMT	Y= 0.00 OM=180.00					
ACR 5						
34						
002/23:20:00 MET					Lab Activation Critical 23:20 - 01:05	
021/07:03:44 GMT						
ACR 5						
35						
003/11:15:00 MET					ISS S-Band HDR Activation	
021/18:58:44 GMT						
ACR 5						
36						
003/11:45:00 MET					CMG Spin-Up 11:45 - 12:45	
021/19:28:44 GMT					CMG CAT 1-6	

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
37						
003/15:00:00 MET	TGT=2 BV=5 P=280.00	A12 FREE VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP FREE Stbd Rad Deploy
021/22:43:44 GMT	Y= 0.00 OM=180.00					
ACR 6						
38						
003/15:30:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP AUTO
021/23:13:44 GMT	Y= 0.00 OM=180.00					
39						
003/20:15:00 MET						CMG CAT 7-10
022/03:58:44 GMT						
40						
003/22:00:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO ALT	RATE 0.1000 DB AT 5.00 DB RT 0.070	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP ALT CMG CAT 11-12
022/05:43:44 GMT	Y= 0.00 OM=180.00					
ACR 7						
41						
003/23:30:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP VERN CMG CAT 13
022/07:13:44 GMT	Y= 0.00 OM=180.00					
ACR 8						
42						
004/11:45:00 MET						CMG CAT 14
022/19:28:44 GMT						
43						
004/12:10:00 MET	TGT=2 BV=5 P=280.00	A12 FREE VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	ISS ATT CNTL RS Thrusters CMG CAT 15
022/19:53:44 GMT	Y= 0.00 OM=180.00					
ACR 9						
44						
004/13:45:00 MET	TGT=2 BV=5 P=280.00	A12 FREE VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	ISS ATT CNTL US CMG/TA CMG CAT 16
022/21:28:44 GMT	Y= 0.00 OM=180.00					
ACR 10						
45						
004/15:35:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	STS ATT CNTL CMG CAT 17
022/23:18:44 GMT	Y= 0.00 OM=180.00					
ACR 11						
46						
004/17:00:00 MET	TGT=2 BV=5 P=280.00	A12 FREE VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP FREE EVA 2 FMA2 Move From Z1 to Lab
023/00:43:44 GMT	Y= 0.00 OM=180.00					
ACR 12						
47						
004/18:50:00 MET	TGT=2 BV=5 P=280.00	A12 AUTO VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	DAP AUTO
023/02:33:44 GMT	Y= 0.00 OM=180.00					
48						
004/19:10:00 MET	TGT=2 BV=5 P=280.00	A12 FREE VERN	RATE 0.1000 DB AT 3.000 DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	ISS ATT CNTL US CMG/TA CMG CAT 18
023/02:53:44 GMT	Y= 0.00 OM=180.00					
ACR 13						

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

6-5

FLT PLN/98/FIN

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
49					
004/19:25:00 MET 50	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	SETUP CCDB ATT CMG CAT 19 ISS LVLH YPR (-5, 9.79, 0)
023/03:08:44 GMT 09:34	Y= 0.00 OM=175.00				
ACR 14					
50					
004/19:40:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	MOMENTUM MGMT CMG CAT 20
023/03:23:44 GMT	Y= 0.00 OM=175.00				
ACR 15					
51					
005/18:00:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	STS ATT CNTL
024/01:43:44 GMT	Y= 0.00 OM=175.00				
ACR 16					
52					
005/18:15:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	DTO 263 Auto Reboost Tuning
024/01:58:44 GMT	Y= 0.00 OM=175.00				
ACR 17					
53					
005/18:35:00 MET 50:54	TGT=2 BV=5 P=270.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y=270.00	+ZLV +YVV Waste Dump ISS LVLH YPR (90,0,0)
024/02:18:44 GMT 34:38	Y= 0.00 OM=270.00				
ACR 17					
54					
005/20:10:00 MET 25:04	TGT=2 BV=5 P=280.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	BIAS +ZLV -XVV ISS LVLH YPR (0,10,0)
024/03:53:44 GMT 04:08:48	Y= 0.00 OM=180.00				
ACR 18					
55					
005/21:40:00 MET 22:10:00	TGT=2 BV=1 P= 0.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 0 P 0	LVLH R= 0.00 P=270.00 Y= 0.00	+XLV -ZVV VRCS Reboost ISS LVLH YPR (180,90,0)
024/05:23:44 GMT 53:44	Y= 0.00 OM= 0.00				
ACR 19					
56					
005/23:10:00 MET 40:00	TGT=2 BV=5 P=280.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	BIAS +ZLV -XVV ISS LVLH YPR (0,10,0)
024/06:53:44 GMT 07:23:44	Y= 0.00 OM=180.00				
ACR 20					
57					
005/23:40:00 MET	TGT=2 BV=5 P=280.00	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	ISS ATT CNTL US CMG/TA
024/07:23:44 GMT	Y= 0.00 OM=180.00				
ACR 21					
58					
005/23:55:00 MET 50	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	SETUP CCDB ATT ISS LVLH YPR (-5, 9.79, 0)
024/07:38:44 GMT 39:34	Y= 0.00 OM=175.00				
ACR 22					
59					
006/00:10:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	MOMENTUM MGMT
024/07:53:44 GMT	Y= 0.00 OM=175.00				
ACR 23					
60					
006/16:00:00 MET					EVA 3
024/23:43:44 GMT					Spare SASA and Umbilicals

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
61 007/16:20:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	STS ATT CNTL
026/00:03:44 GMT	Y= 0.00 OM=175.00				
ACR 24					
62 007/16:35:00 MET	TGT=2 BV=5 P=270.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 90	LVLH R= 0.00 P= 0.00 Y= 0.00	+ZLV +XVV +X PRCS Reboost ISS LVLH YPR (180,0,0)
17:04:10	Y= 0.00 OM= 0.00				
026/00:18:44 GMT					
47:54					
ACR 25					
63 007/18:05:00 MET	TGT=2 BV=5 P=280.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	BIAS +ZLV -XVV ISS LVLH YPR (0,10,0)
35:00	Y= 0.00 OM=180.00				
026/01:48:44 GMT					
02:18:44					
ACR 26					
64 007/18:35:00 MET	TGT=2 BV=5 P=280.00	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=180.00 P=190.00 Y= 0.00	ISS ATT CNTL US CMG/TA
026/02:18:44 GMT	Y= 0.00 OM=180.00				
ACR 27					
65 007/18:50:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	SETUP CCDB ATT ISS LVLH YPR (-5, 9.79, 0)
50	Y= 0.00 OM=175.00				
026/02:33:44 GMT					
34:34					
ACR 28					
66 007/19:05:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	MOMENTUM MGMT
026/02:48:44 GMT	Y= 0.00 OM=175.00				
ACR 29					
67 008/13:35:00 MET	TGT=2 BV=5 P=279.79	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 80	LVLH R=179.15 P=189.83 Y= 4.93	STS ATT CNTL
026/21:18:44 GMT	Y= 0.00 OM=175.00				
ACR 30					
68 008/13:50:00 MET	TGT=2 BV=5 P=270.00	A12 RATE 0.1000 AUTO DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	+ZLV -XVV ISS LVLH YPR (0,0,0)
51:50	Y= 0.00 OM=180.00				
026/21:33:44 GMT					
35:34					
ACR 31					
69 008/14:53:00 MET	TGT=2 BV=5 P=270.00	A12 RATE 0.1000 FREE DB AT 3.000 VERN DB RT 0.050	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	DAP FREE Undock -3 Min Config DAP A,B to A9,B9
026/22:36:44 GMT	Y= 0.00 OM=180.00				
ACR 32					
70 008/14:56:00 MET	TGT=2 BV=5 P=270.00	A9 RATE 0.1300 FREE DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	UNDOCK When Petals Clr DAP: LVLH
026/22:39:44 GMT	Y= 0.00 OM=180.00				
ACR 33					
71 008/15:00:00 MET	TGT=2 BV=5 P=270.00	A9 RATE 0.1300 AUTO DB AT 1.000 VERN DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	DAP AUTO Fly Around at Range = 450 ft
026/22:43:44 GMT	Y= 0.00 OM=180.00				
ACR 34					
72 008/15:15:00 MET	TGT=2 BV=1 P= 0.00	A9 RATE 0.1300 AUTO DB AT 1.000 VERN DB RT 0.020			FLY AROUND +VBAR 15:26
026/22:58:44 GMT	Y= 0.00 OM=180.00				

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
73 008/15:20:00 MET 026/23:03:44 GMT	*** MNVR INTERRUPT *** TGT=2 BV=3 P= 90.00 Y= 0.00 OM=180.00	A9 AUTO VERN RATE 0.1300 DB AT 1.000 DB RT 0.020			FLY AROUND -RBAR 15:37
74 008/15:31:00 MET 026/23:14:44 GMT	*** MNVR INTERRUPT *** TGT=2 BV=2 P=180.00 Y= 0.00 OM=180.00	A9 AUTO VERN RATE 0.1300 DB AT 1.000 DB RT 0.020			FLY AROUND -VBAR 15:49
75 008/15:44:00 MET 16:01:09 026/23:27:44 GMT 44:53	*** MNVR INTERRUPT *** TGT=2 BV=5 P=270.00 Y= 0.00 OM=180.00	A9 AUTO VERN RATE 0.1300 DB AT 1.000 DB RT 0.020	EARTH R 180 P 90	LVLH R=180.00 P=180.00 Y= 0.00	FLY AROUND +RBAR 16:01
76 008/16:02:00 MET 026/23:45:44 GMT		A1 LVLH PRI RATE 0.2000 DB AT 5.00 DB RT 0.20	EARTH R 180 P 90	LVLH R=180.00 HOLD P=180.00 Y= 0.00	FINAL SEP Retro Heads Up +X PRCS TIG 16:02
77 008/16:12:00 MET 27:00 026/23:55:44 GMT 027/00:10:44	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV Water Dump SOPA
78 008/18:00:00 MET 07:30 027/01:43:44 GMT 51:14	TGT=2 BV=3 P= 90.00 Y= 0.00 OM= 0.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 0 P 90	LVLH R= 0.00 P=180.00 Y= 0.00	-ZLV -XVV
79 008/18:30:00 MET 027/02:13:44 GMT					DTO 700-14 OPS 3 TEST Inertial Mnvz for Comm if Req
80 010/13:35:00 MET 44:01 028/21:18:44 GMT 27:45	INRTL R=310.00 MNVR P= 24.00 Y= 52.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 322 P 98	-Y:59 13:37 -Z:33 14:54 13:32 14:17	IMU ALIGN
81 010/13:50:00 MET 14:04:31 028/21:33:44 GMT 48:15	INRTL R=155.00 MNVR P= 82.00 Y=296.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 21 P 35	-Y:34 13:41 -Z:54 13:44 14:34	VERIFICATION
82 010/14:10:00 MET 22:25 028/21:53:44 GMT 22:06:09	TGT=4 RA= 310.775 BV=5 DEC= -18.182S P=184.00 Y= 0.00 OM=270.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 180 P 176	INRTL R=185.81 P=212.43 Y= 46.56	-XSI D/O PREP 14:13
83 010/15:43:00 MET 48:30 028/23:26:44 GMT 32:14	INRTL R=229.00 MNVR P=240.00 Y= 30.00	A1 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 90 P 150		COMM
84 010/17:53:00 MET 58:08 029/01:36:44 GMT 41:52	INRTL R= 77.00 MNVR P=236.00 Y= 24.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 233 P 148	LVLH EQUIV R= 0.00 P=192.00 Y= 0.00	D/O Burn Retro Head Down Dual OMS TIG 18:13

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

Attitude Timeline

MET/GMT	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
85						
010/18:18:00 MET	INRTL R=286.19	TRN	RATE 0.5000	SUN		EI-5 INRTL
21:43	MNVR P= 39.66	AUTO	DB AT 3.50	R 335		
	Y= 42.96	PRI	DB RT 0.20	P 90		
029/02:01:44 GMT						
05:27						
86						
010/18:38:00 MET	TGT=2	TRN	RATE 0.5000	EARTH	LVLH R= 0.00	EI-5 LVLH
	BV=5	AUTO	DB AT 3.50	R 180	P= 40.00	
	P=230.00	PRI	DB RT 0.20	P 130	Y= 0.00	
029/02:21:44 GMT	Y= 0.00					
	OM= 0.00					

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

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FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Launch Date: January 18, 2001
 Orbiter: OV104/Atlantis
 Inclination: 51.6°
 Insertion Altitude: 173 nm
 Rendezvous Altitude: 215 nm
 Duration: 10 + 1 + 2 days

B. SHUTTLE AND STATION CREW

SHUTTLE CREW		STATION CREW	
CDR	-Ken Cockrell	SC1	-Bill Shepard
PLT/IV	-Mark Polansky	SC2	-Yuri Gidzenko
MS1/EV2	-Robert Curbeam	SC3	-Sergei Krikalev
MS2/RMS	-Marsha Ivins		
MS3/EV1	-Tom Jones		

C. MAJOR EVENTS

<u>EVENT</u>	<u>MET</u>	<u>CST</u>	<u>GMT</u>	<u>DV (ft/s)</u>	<u>HP/HA</u>
Launch	00/00:00	1/18/01 01:44	18/07:44	—	—
OMS2	00/00:44	1/18/01 02:28	18/08:28	79.9	85/175
NC1	00/03:43	1/18/01 05:27	18/11:27	6.7	89/174
NC2	00/15:38	1/18/01 17:22	18/23:22	3.0	90/174
NPC	00/19:40	1/18/01 21:24	19/03:24	4.8	90/174
NC3	01/00:34	1/19/01 02:18	19/08:18	3.0	92/173
NH	01/13:13	1/19/01 14:57	19/20:57	82.7	91/220
NC4	01/13:58	1/19/01 15:42	19/21:42	198.8	203/220
Ti	01/15:30	1/19/01 17:14	19/23:14	8.8	208/221
ISS Docking	01/18:04	1/19/01 19:48	20/01:48	—	209/221
Undock	08/14:56	1/26/01 16:40	26/22:40	—	208/221
Final Sep	08/16:44	1/26/01 18:28	27/00:28	3.0	208/220
Deorbit	10/18:13	1/28/01 19:57	29/01:57	TBD	—
KSC Landing	10/19:19	1/28/01 21:03	29/03:03	—	—

D. LANDING OPPORTUNITIES

<u>Landing Days</u>	<u>Landing Orbit #</u>	<u>Site</u>	<u>MET</u>	<u>Local Time</u>
Nominal	Primary	170	KSC	10/19:19 1/28/01 21:03
	1 Rev Late	171	KSC	10/20:56 1/28/01 22:39
	Weather Alt	172	EDW	10/22:27 1/29/01 00:10
EOM +1	Primary	185	KSC	11/18:24 1/29/01 20:07
	1 Rev Late	186	KSC	11/20:00 1/29/01 21:43
	Weather Alt	187	EDW	11/21:32 1/29/01 23:15
EOM + 2	Primary	201	KSC	12/19:05 1/30/01 20:48
	1 Rev Late	202	KSC	12/02:42 1/30/01 22:25
	Weather Alt	203	EDW	12/22:13 1/30/01 23:56

FLIGHT PLAN NOTES

E. COMMUNICATIONS

Shuttle

TDRS Support: East (47° W), West (171° W), Z (85° E)
Contingency GSTDN: MLX, BDA, (BDX*), GDS, and WLP
Contingency RTS: DGS, GTS, HTS, MIL, BDA, OTS, VTS, and NHS

(*) UHF Capability

Lead time for site callup – 2 hrs for GSTDN; 4 hrs for RTS

ISS

TDRS Support: East (41° W), West (174° W), Z (85° E)
Russian RTS (*): DJS, PPK, ULD, SHK, and USK

*The five Russian Remote Tracking Sites (RTS) represent the available Regul SM Command Sites. The AOS/LOS of the sites are integrated into a single band on summary timeline tab data, but are displayed individually on the ISS detail timeline pages.

The ISS S-band tab data combine the S-band unblocked data with the requested SHO Schedule to more accurately represent S-band availability via the ISS. This data will be useful should the shuttle S-band experience unpredictable dropouts during ground commanding activities. The ISS S-band data will reflect Low Data Rate (LDR) from post docking until Lab/Node Vestibule Outfitting Part 1 on FD5, and High Data Rate (HDR) from post lab Activation on FD6 until Undocking on FD9.

The detail timelines include a COMM CONFIG tab data field that specifies which of several audio routing configurations is in use for voice communications between the shuttle and ISS.

F. PAYLOADS

1. INTERNATIONAL SPACE STATION LAUNCH PACKAGE 5A

The 5A launch package consists of the US Lab module “Destiny”, a Power and Data Grapple Fixture (PDGF), an S-band Antenna Support Assembly (SASA) critical spare, and ISS logistic items for transfer.

The US Lab is outfitted with five system racks: Avionics No. 1, Avionics No. 2, Cabin Air/Moderate Temperature Loop (MTL)/Temperature and Humidity Control (THC), Cabin Air/Low Temperature Loop (LTL) THC, and Atmospheric Revitalization System (ARS). The ARS rack must be relocated to its final location during the mission. Prior to installation on the Node, the APCUs are used to provide power to the Lab survival heaters.

The orbiter will dock to PMA3 on the Node 1 nadir port. A short ingress is planned after docking to transfer required assembly hardware and water.

The first EVA relocates PMA2 to the Z1 MBM, disconnects the APCU power umbilicals from the Lab, berths the Lab to the Node 1 forward CBM, and connects power and ammonia umbilicals from the Z1 element to the Lab in preparation for Lab activation. The EEATCS is shut down at this time to connect the ammonia jumpers to Lab heat exchangers. Power is lost to the separate power channels of Node 1 during the connection of power jumpers to the Lab. The EEATCS is restarted after the thermal jumpers have been connected. Also installed during this EVA are circuit interrupt devices.

The ISS crew initiates the outfitting of the Node 1/Lab vestibule in preparation for Lab activation. The vestibule outfitting includes removing the CBM Control Power Assemblies and the PCBM internal connectors; as well as installing groundstraps, fluid/power/data jumpers, IMV supply and return ducts, and the axial port closeouts. Station low data rate S-band is lost at this time and is not available until after lab C&C MDM activation.

Upon completion of EVA 1, hatch opening, and 1553 cable connections, the shuttle crew begins activation of the Lab critical systems from the orbiter aft flight deck. Critical Lab activation consists of routing power to the LAB DDCUs and MDMs, activating the Lab command and control system, and then activating the Internal Thermal Control System (ITCS).

Immediately after the ITCS is operational, the activation of the remaining Lab systems may begin. These "noncritical Lab activation" tasks will be commanded from MCC-H throughout the remainder of FD4, including the STS and ISS crew sleep period. Noncritical Lab activation includes reactivation of low rate S-band, activation of high data rate S-band, and activation of the CMGs and other Lab components.

The ISS Control Moment Gyros (CMGs) are activated and spun up during noncritical Lab activation. A CMG Control Authority Test occurs on FD5, once the CMGs have reached a particular spin-up rate. Upon successful completion of the CMG authority test, the USOS GN&C may assume attitude control of the station as required.

During Lab ingress, the crew configures various safety equipment and performs various tasks to support nominal system operations. These tasks include: installation of intermodule and manual pressure equalization valves, and PCS laptop computers provide for commanding and monitoring capabilities; activation of internal audio and caution and warning systems; and relocation of the Atmosphere Revitalization System rack.

The second EVA relocates PMA2 from the Z1 MBM to the Lab Forward CMB. A lab EVA translation aid (slidewire) is also installed during this EVA, as well as trunnion covers, a pressure control assembly vent, the Lab PDGF, and a Video Signal Converter. The third EVA transfers the critical spare (SASA) to the ISS exterior and connects the PMA2 to lab umbilicals in preparation for the next shuttle docking. The Lab window shutter and gearbox is installed. The Incapacitated EVA crewmember (DTO 675) may be performed.

The hatches are opened on the evening after the third EVA and a full ingress day is planned for FD09, with undocking the next morning.

G. DETAILED TEST OBJECTIVES (DTO)

1. SHUTTLE AUTOMATIC REBOOST TUNING (DTO 263)

Shuttle reboost of ISS using automatic reboost software requires jet firing separation to avoid excitation of the joined shuttle/ISS structural natural frequencies. A brief execution of the reboost software, utilizing benign parameters such as burn length, will allow acquisition of the structural dynamics data to validate the preflight estimate of the structural natural frequencies and damping, and thus the jet firing separation time. The DTO requires a single firing of the I-loaded reboost constants, a minimum of 4 hours prior to a shuttle reboost of ISS.

2. INCAPACITATED EVA CREMEMBER TRANSLATION (DTO 675) |

The purpose of this DTO is to verify techniques to allow an EVA crewmember to return an incapacitated crewmember to the shuttle airlock. The DTO will evaluate two of three techniques to determine the efficiency of each. The demonstrations will be conducted by one of the EVA crewmembers. The evaluations will be conducted in the orbiter payload bay with one IV crewmember to monitor the DTO and manage video cameras and recorder. This DTO will be performed time permitting.

3. SINGLE STRING GLOBAL POSITIONING SYSTEM (DTO 700-14), MAGR WITHOUT PGSC |

This DTO's purpose is to demonstrate the performance and operation of the Global Positioning System (GPS) during orbiter on-orbit phases, utilizing a modified military GPS receiver processor and the existing orbiter GPS antennas. The crew will be requested to perform various activities exercising certain GPS commands and/or cycling power to the GPS receiver while in OPS 201 (PASS) and OPS 301 (PASS and BFS).

4. CROSSWIND LANDING PERFORMANCE (DTO 805) |

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

H. DETAILED SUPPLEMENTAL OBJECTIVES (DSO)

1. DSO 496 – INDIVIDUAL SUSCEPTIBILITY TO POST SPACEFLIGHT ORTHOSTATIC INTOLERANCE.

This activity is performed pre/post flight only. The details of this DSO are contained in the FTSOD, NSTS 16725.

2. DSO 498 – SPACEFLIGHT AND IMMUNE FUNCTION

This activity is performed pre/post flight only. The details of this DSO are contained in the FTSOD, NSTS 16725.

3. DSO 802 – EDUCATIONAL ACTIVITIES |

The purpose of this DSO is to use the attraction of space flight to capture the interest of students and motivate them toward careers in science, engineering, and mathematics. The objective on STS-98 is to support the live TV downlink of educational activities performed by the crew. This DSO will be limited to one 30-minute live downlink.

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DAP BOOK CONFIGURATION

DAP BOOK
CONFIGURATION

TOP

DAP	PURPOSE	DAP	PURPOSE
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)	B6	- (no planned use)
A7	- RNDZ	B7	- RNDZ
A8	- TERMINAL PHASE	B8	- TERMINAL PHASE
A9	- DOCKING	B9	- PROX OPS/FLYAROUND
A10	- AUTO REBOOST	B10	- DOCKING
A12	- MATED STACK (MNVR & RMS OPS)	B11	- MANUAL REBOOST
A13	- (no planned use)	B12	- MATED STACK RATE DAMPING
A14	- (no planned use)	B13	- (no planned use)
A15	- (no planned use)	B14	- (no planned use)
		B15	- (no planned use)

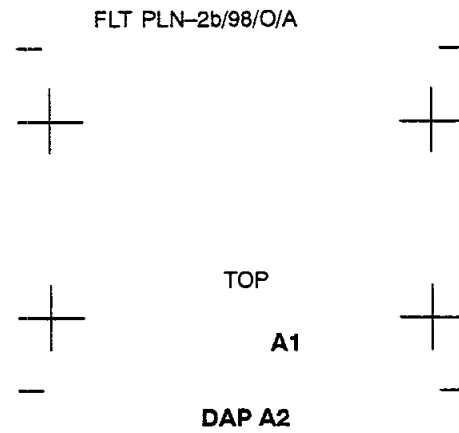
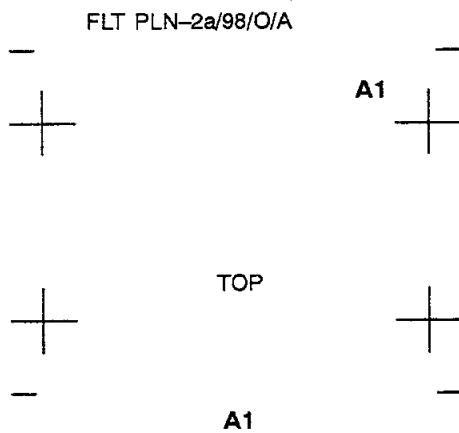
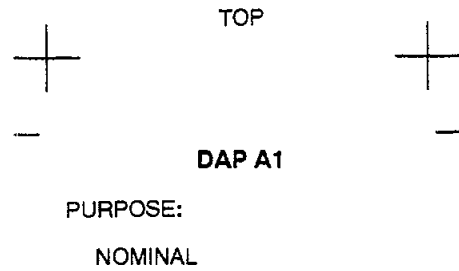
- CNTL ACC = 0
- = 1 5A INITIAL, VRCS CONTROL
- = 2 5A INITIAL, ALT PRCS CONTROL
- = 3 LAB PITCHED
- = 4 LAB LOW HOVER
- = 5 LAB PRE-INSTALL
- = 6 5A FINAL, VRCS CONTROL
- = 7 5A FINAL, PRCS CONTROL
- = 8-9 NOT USED

FLT PLN-1a/98/O/B

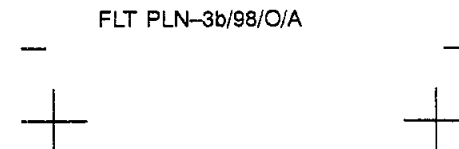
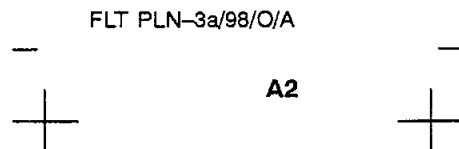
TOP

FLT PLN-1b/98/O/A

(reduced copy)



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



(reduced copy)

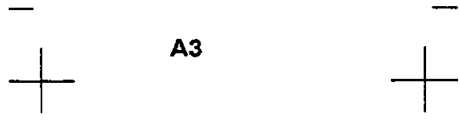


TOP

A2

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

FLT PLN-4a/98/O/A



A3



TOP

A3

DAP A 0 3	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 0.3 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
0.0 0	14/54	COMP
ALL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.0 7 0	18/58	RATE DB
ALL	19/59	JET OPT
1	20/60	#JETS
- 0.0 8	21/61	ON TIME
- 0.0 0	22/62	DELAY
		VERN
0.0 0 8 0	23/63	ROT RATE
- 0.0 7 0	24/64	ATT DB
0.1 0	25/65	RATE DB
0.0 1 0	26/66	ROT PLS
0.0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-5a/98/O/A



A4



TOP

A2

DAP A3

PURPOSE:

GG



TOP

FLT PLN-4b/98/O/A



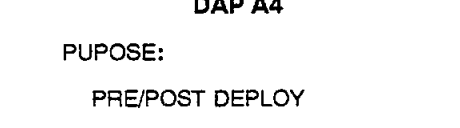
A3



DAP A4

PURPOSE:

PRE/POST DEPLOY



TOP

FLT PLN-5b/98/O/A



(reduced copy)

TOP

A4

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

FLT PLN-6a/98/O/A

A5

TOP

A5

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

FLT PLN-7a/98/O/A

A6

TOP

A4

DAP A5

PURPOSE:
LOSS OF VERN (ALL)

A5

TOP

A5

DAP A6

PURPOSE:
LOSS OF VERN (TAIL ONLY)

A6

(reduced copy)



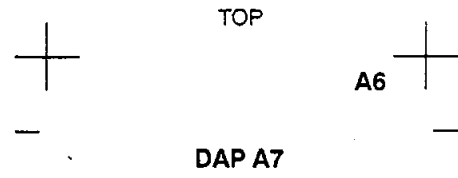
DAP A 0 6	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 5.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
.0 0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.0 7 0	18/58	RATE DB
TAIL	19/59	JET OPT
1	20/60	#JETS
0.0 8	21/61	ON TIME
0 0.0 0	22/62	DELAY
		VERN
0.0 5 0 0	23/63	ROT RATE
- 1.0 0 0	24/64	ATT DB
.0 2 0	25/65	RATE DB
0.0 1 0	26/66	ROT PLS
.0 0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-8a/98/O/A



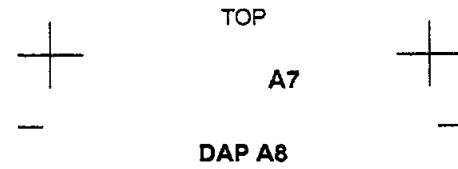
DAP A 0 Z	1	PRI
0.2 0 0 0	10/50	ROT RATE
- 2.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
.0 0 0	14/54	COMP
ALL	15/55	P OPTION
ALL	16/56	Y OPTION
0.1 0	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
ALL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
- 0.0 0	22/62	DELAY
		VERN
0.0 1 6 0	23/63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

FLT PLN-9a/98/O/A



PURPOSE:
RENDEZVOUS

FLT PLN-8b/98/O/A



PURPOSE:
TERMINAL PHASE

FLT PLN-9b/98/O/A





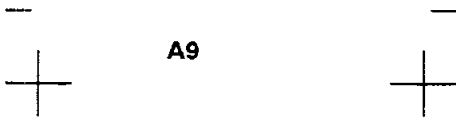
TOP



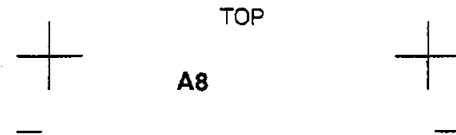
A8

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

FLT PLN-10a/98/O/A



A9



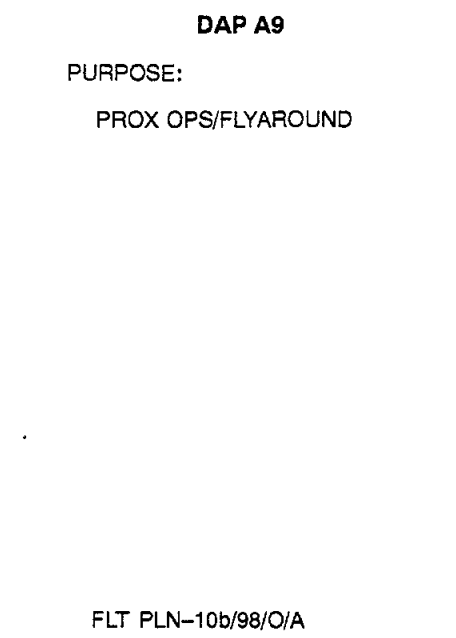
TOP



A8

DAP A9

PURPOSE:
PROX OPS/FLYAROUND



FLT PLN-10b/98/O/A



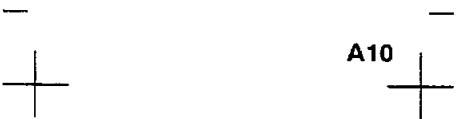
TOP



A9

DAP A 0 9	1	PRI
0.1 3 0 0	10/50	ROT RATE
1.0 0	11/51	ATT DB
0.1 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
.0 0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.0 5	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
0.0 0	22/62	DELAY
		VERN
0.1 3 0 0	23/63	ROT RATE
- 1.0 0 0	24/64	ATT DB
.0 2 0	25/65	RATE DB
0.0 5 0	26/66	ROT PLS
.0 0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-11a/98/O/A



A10



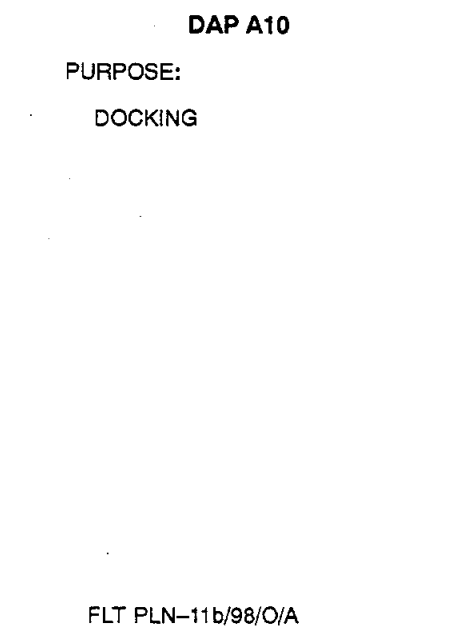
TOP



A9

DAP A10

PURPOSE:
DOCKING



FLT PLN-11b/98/O/A



(reduced copy)

TOP
+
-
A10

DAP A 1 0	1	PRI
0.0 5 0 0	10/50	ROT RATE
0.0 5 0 0	11/51	ATT DB
0.1 0	12/52	RATE DB
0.1 0	13/53	ROT PLS
0.0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.0 5	17/57	TRAN PLS
		ALT
0.1 0 0	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
0.0 0	22/62	DELAY
		VERN
0.0 5 0 0	23/63	ROT RATE
-0.5 0 0	24/64	ATT DB
0.2 0	25/65	RATE DB
0.0 5 0	26/66	ROT PLS
0.0 0	27/67	COMP
0	28/68	CNTL ACC

FLT PLN-12a/98/O/A

A11
+
-

TOP
+
-
A11

DAP A 1 1	1	PRI
0.1 0 0 0	10/50	ROT RATE
-5.0 0	11/51	ATT DB
0.2 0	12/52	RATE DB
0.0 4	13/53	ROT PLS
0.0 0	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.0 1	17/57	TRAN PLS
		ALT
0.0 7 0	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.0 8	21/61	ON TIME
9.2 8	22/62	DELAY
		VERN
0.1 0 0 0	23/63	ROT RATE
-5.0 0 0	24/64	ATT DB
0.5 0	25/65	RATE DB
0.0 1 0	26/66	ROT PLS
0.0 0	27/67	COMP
6	28/68	CNTL ACC

FLT PLN-13a/98/O/B

A12
+
-

TOP
+
-
A10
DAP A11

PURPOSE:
AUTO REBOOST

FLT PLN-12b/98/O/B
+
-

TOP
+
-
A11
DAP A12

PURPOSE:
MATED STACK & RMS OPS

FLT PLN-13b/98/O/B
+
-

(reduced copy)



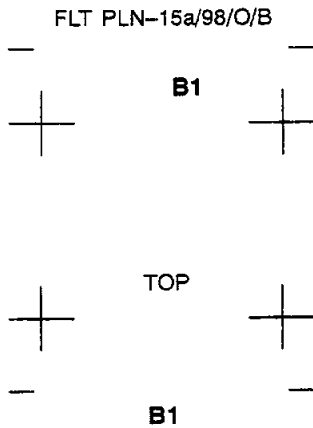
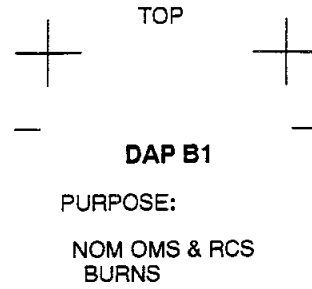
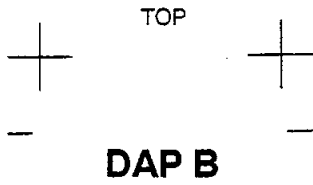
A12

DAP A12	1	PRI
0.1000	10/50	ROT RATE
-5.00	11/51	ATT DB
0.20	12/52	RATE DB
0.04	13/53	ROT PLS
.000	14/54	COMP
TAIL	15/55	P OPTION
TAIL	16/56	Y OPTION
0.01	17/57	TRAN PLS
		ALT
0.070	18/58	RATE DB
TAIL	19/59	JET OPT
2	20/60	#JETS
0.08	21/61	ON TIME
11.60	22/62	DELAY
		VERN
0.1000	23/63	ROT RATE
-3.000	24/64	ATT DB
.080	25/65	RATE DB
0.002	26/66	ROT PLS
.000	27/67	COMP
1	28/68	CNTL ACC

FLT PLN-14a/98/O/B

FLT PLN-14b/98/O/B

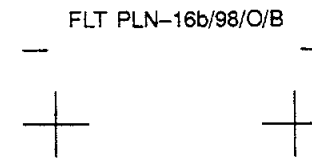
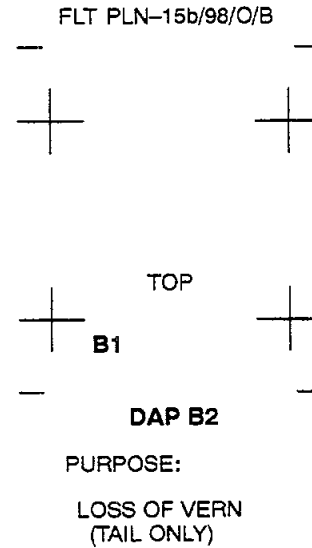
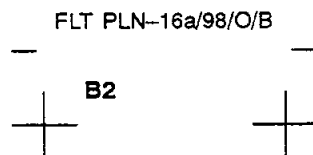




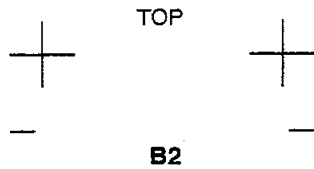
2	DAP B 0 1
30/50	0.5 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.1 0

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

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



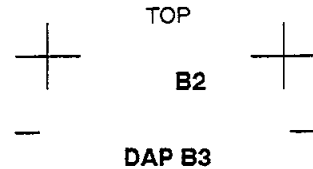
(reduced copy)



2	DAP B 0 2
30/50	0.2 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 2
38/58	0.0 7 0
39/59	TAIL
40/60	1
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0
FLT PLN-17a/98/O/B	

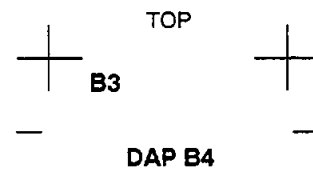


2	DAP B 0 3
30/50	0.2 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 2
38/58	0.0 7 0
39/59	ALL
40/60	1
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0
FLT PLN-18a/98/O/B	



PURPOSE:
LOSS OF VERN
(ALL)

FLT PLN-17b/98/O/B



PURPOSE:
SSUS DEPLOY

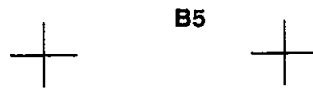
FLT PLN-18b/98/O/B





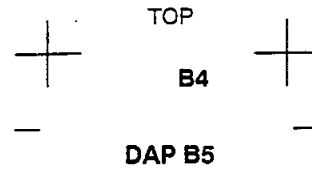
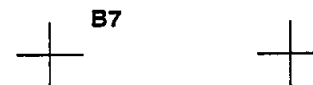
2/4	DAP B 0 4
30/50	0.2 0 0 0
31/51	- 0.3 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 2
38/58	0.1 0 0
39/59	ALL
40/50	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.0 0 8 0
44/64	- 0.1 0 0
45/65	.0 1 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-19a/98/O/B

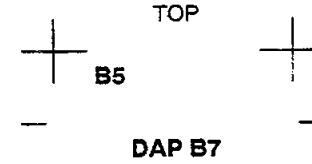
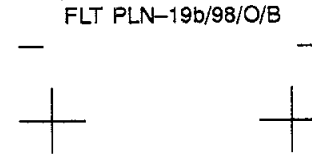


2	DAP B 0 5
30/50	0.2 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 2
38/58	0.2 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.0 1 6 0
44/64	- 0.0 3 3
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

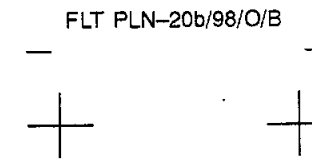
FLT PLN-20a/98/O/B



PURPOSE:
COAS/HUD CAL



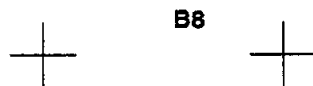
PURPOSE:
RENDEZVOUS



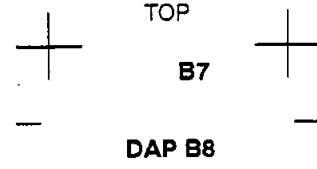
(reduced copy)



2/4	DAP B 0 7
30/50	0.5 0 0 0
31/51	- 2.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 5
38/58	0.1 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0
FLT PLN-21a/98/O/B	

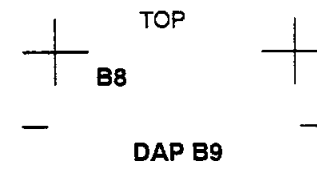


2/4	DAP B 0 8
30/50	0.0 5 0 0
31/51	- 2.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.0 5
38/58	0.1 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	0.0 0
43/63	0.0 5 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 2 0
47/67	.0 0 0
48/68	0
FLT PLN-22a/98/O/B	



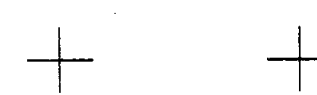
PURPOSE:
TERMINAL PHASE

FLT PLN-21b/98/O/A



PURPOSE:
PROX OPS/
FLYAROUND

FLT PLN-22b/98/O/B

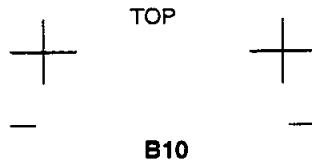
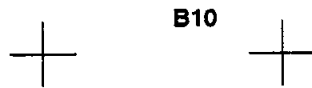




B9

2/4	DAP B 0 9
30/50	0.1 3 0 0
31/51	- 1.0 0
32/52	0.1 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 1
38/58	0.1 0 0
39/59	TAIL
40/60	2
41/61	0.0 8
42/62	0.0 0
43/63	0.1 3 0 0
44/64	1.0 0 0
45/65	.0 2 0
46/66	0.0 2 0
47/67	.0 0 0
48/68	0

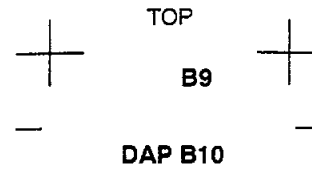
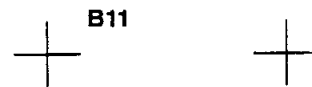
FLT PLN-23a/98/O/B



B10

2/4	DAP B 1 0
30/50	0.0 5 0 0
31/51	- 0.5 0
32/52	0.1 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 1
38/58	0.1 0 0
39/59	TAIL
40/60	2
41/61	0.0 8
42/62	0.0 0
43/63	0.0 5 0 0
44/64	- 0.5 0 0
45/65	.0 2 0
46/66	0.0 2 0
47/67	.0 0 0
48/68	0

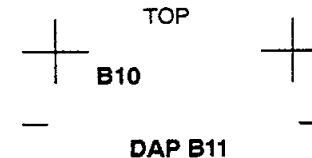
FLT PLN-24a/98/O/B



DAP B10

PURPOSE:
DOCKING

FLT PLN-23b/98/O/A



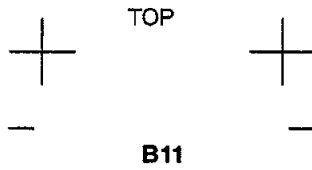
DAP B11

PURPOSE:
MANUAL REBOOST

FLT PLN-24b/98/O/B

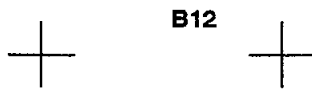


(reduced copy)



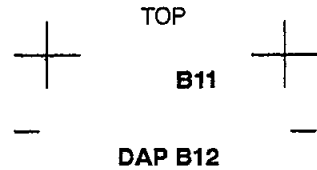
2/4	DAP B 1 1
30/50	0.0 5 0 0
31/51	4 0.0 0
32/52	5.0 0
33/53	0.0 4
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 1
38/58	0.2 0 0
39/59	TAIL
40/60	2
41/61	0.0 8
42/62	1 2.0 0
43/63	0.0 5 0 0
44/64	- 5.0 0 0
45/65	.2 0 0
46/66	0.0 2 0
47/67	.0 0 0
48/68	6

FLT PLN-25a/98/O/B



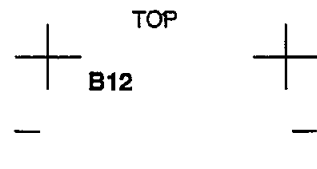
2/4	DAP B 1 2
30/50	0.1 0 0 0
31/51	4 0.0 0
32/52	0.2 0
33/53	0.0 4
34/54	- 0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.0 1
38/58	0.0 7 0
39/59	TAIL
40/60	2
41/61	0.0 8
42/62	1 1.6 0
43/63	0.1 0 0 0
44/64	4 0.0 0 0
45/65	.0 5 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	1

FLT PLN-26a/98/O/B



DAP B12
PURPOSE:
MATED STACK
RATE DAMPING

FLT PLN-25b/98/O/B



FLT PLN-26b/98/O/B



TOP

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

FLT PLN-27/98/O/B

FLT PLN-30/101/O/A is mounted on the back of the DAP Book

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FLIGHT DATA FILE
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98 FLT PLN FS FIN

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