

Flight Plan

STS-68

(FRR Cycle Trajectory)

**Mission Operations Directorate
Operations Division**

**Final
July 14, 1994**

EVENT

Launch	05:54 CDT	Thur	August 18
KSC Landing	10:36 CDT	Sun	August 28

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



MISSION OPERATIONS DIRECTORATE

STS-68 FLIGHT PLAN


FINAL
July 14, 1994

PREPARED BY:

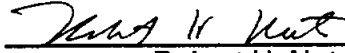


Ann Bowersox
Book Manager

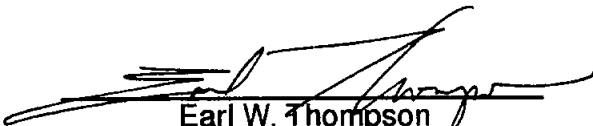
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Incorporates the following:		
482#:	FLT PLN-1163	FLT PLN-1166
	FLT PLN-1164	FLT PLN-1167
	FLT PLN-1165	FLT PLN-1647
Exemption: #63, #64		

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager/Lead FAO	DO4/A. Bowersox	244-1148
Nominal Timelines	DO4/T. Hall	244-1139
Attitude & Pointing	DO4/J. McKune	244-5368

FLIGHT PLAN
STS-68

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STS-68 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
DAP A, DAP B TOC	6-5	FLT PLN-1a/68/O/A
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DAP A	6-6	FLT PLN-2a/68/O/A
DAP A1	6-6	FLT PLN-2b/68/O/A
A1	6-6	FLT PLN-3a/68/O/A
DAP A2	6-6	FLT PLN-3b/68/O/A
A2	6-7	FLT PLN-4a/68/O/A
DAP A3	6-7	FLT PLN-4b/68/O/A
A3	6-7	FLT PLN-5a/68/O/A
DAP A4	6-7	FLT PLN-5b/68/O/A
A4	6-8	FLT PLN-6a/68/O/A
DAP A5	6-8	FLT PLN-6b/68/O/A
A5	6-8	FLT PLN-7a/68/O/A
DAP A6	6-8	FLT PLN-7b/68/O/A
A6	6-9	FLT PLN-8a/68/O/A
DAP A7	6-9	FLT PLN-8b/68/O/A
A7	6-9	FLT PLN-9a/68/O/A
DAP A8	6-9	FLT PLN-9b/68/O/A
A8	6-10	FLT PLN-10a/68/O/A
DAP A9	6-10	FLT PLN-10b/68/O/A
A9	6-10	FLT PLN-11a/68/O/A
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DAP B1	6-11	FLT PLN-12b/68/O/A
B1	6-11	FLT PLN-13a/68/O/A
DAP B2	6-11	FLT PLN-13b/68/O/A
B2	6-12	FLT PLN-14a/68/O/A
DAP B3	6-12	FLT PLN-14b/68/O/A
B3	6-12	FLT PLN-15a/68/O/A
DAP B4	6-12	FLT PLN-15b/68/O/A
B4	6-13	FLT PLN-16a/68/O/A
DAP B5	6-13	FLT PLN-16b/68/O/A
B5	6-13	FLT PLN-17a/68/O/A
DAP B6	6-13	FLT PLN-17b/68/O/A
B6	6-14	FLT PLN-18a/68/O/A
DAP B7	6-14	FLT PLN-18b/68/O/A
B7	6-14	FLT PLN-19a/68/O/A
DAP B8	6-14	FLT PLN-19b/68/O/A
B8	6-15	FLT PLN-20a/68/O/A
DAP B10	6-15	FLT PLN-20b/68/O/A
B10	6-15	FLT PLN-21a/68/O/A
DAP B11	6-15	FLT PLN-21b/68/O/A
B11	6-16	FLT PLN-22a/68/O/A
DAP B15	6-16	FLT PLN-22b/68/O/A
B15	6-16	FLT PLN-28a/68/O/A
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DAP ALT1	6-17	FLT PLN-23b/68/O/A
ALT1	6-17	FLT PLN-24a/68/O/A
DAP ALT2	6-17	FLT PLN-24b/68/O/A
ALT2	6-18	FLT PLN-25a/68/O/A
DAP ALT3	6-18	FLT PLN-25b/68/O/A
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INTRODUCTION

The STS-68 Flight Plan is the Flight Data File article that contains the onorbit timeline. The Ascent, Post Insertion, Deorbit Prep, and Entry Checklists contain the detailed timelines that the Flight Plan does not cover. For continuity, the summary level timeline includes the entire flight.

This onorbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS-68 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the STS-68 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of August 18, 1994 at 10:54 GMT.

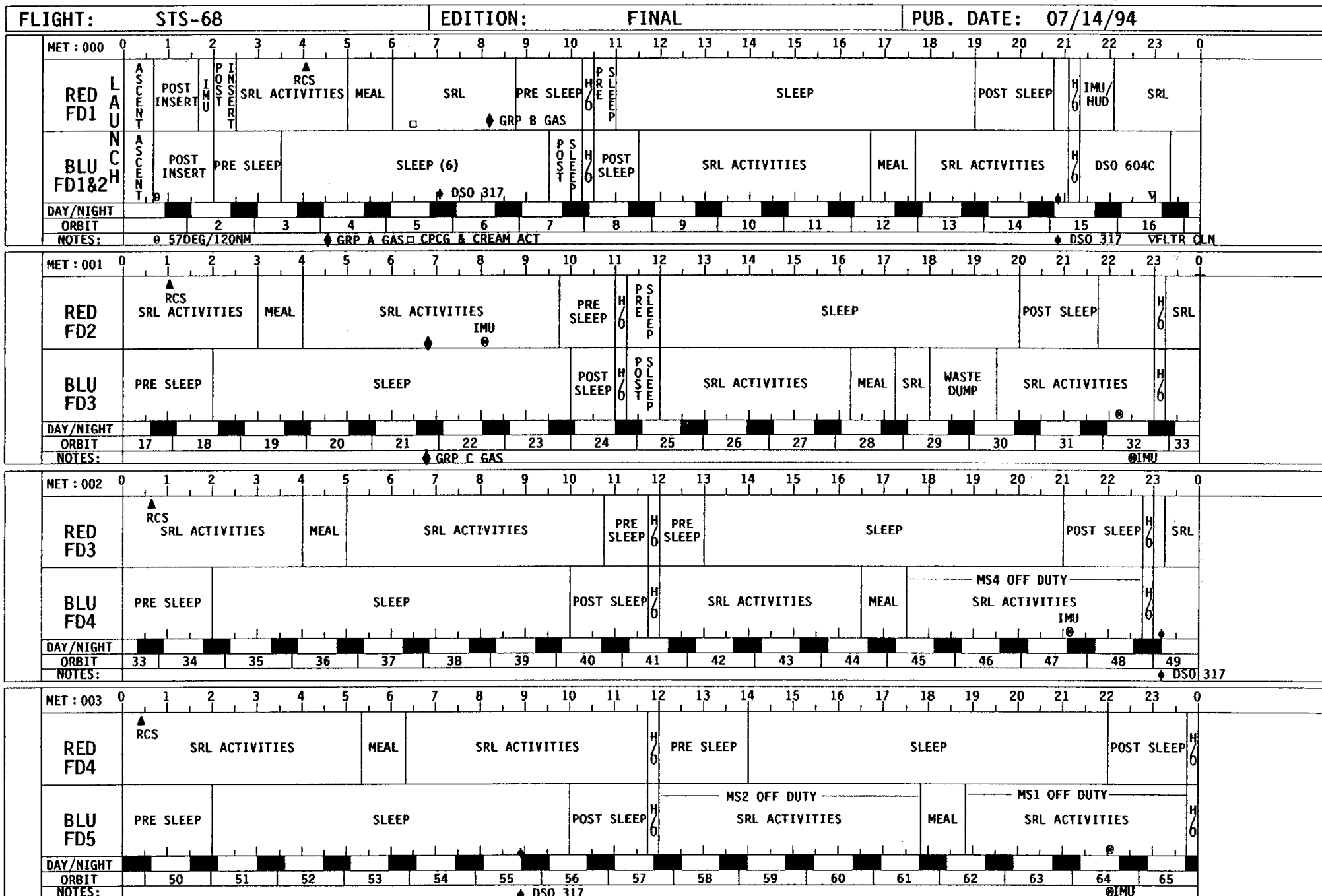
JSC-22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992, has been used to build the timelines contained in this Flight Plan.

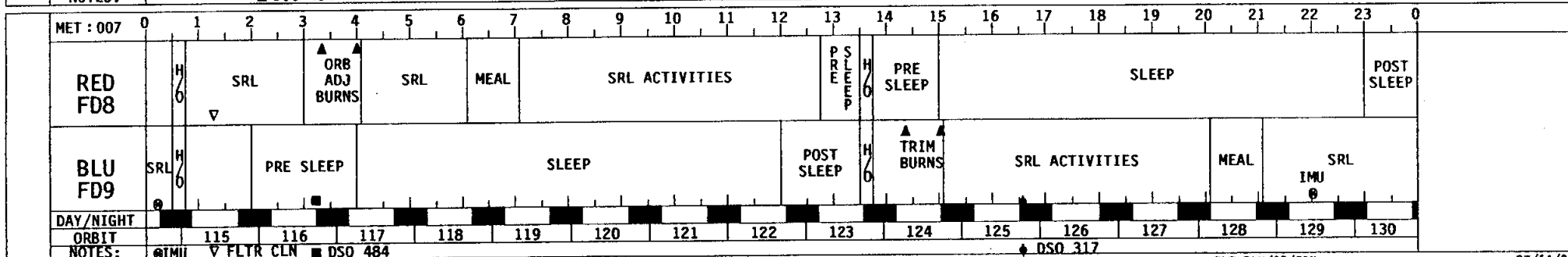
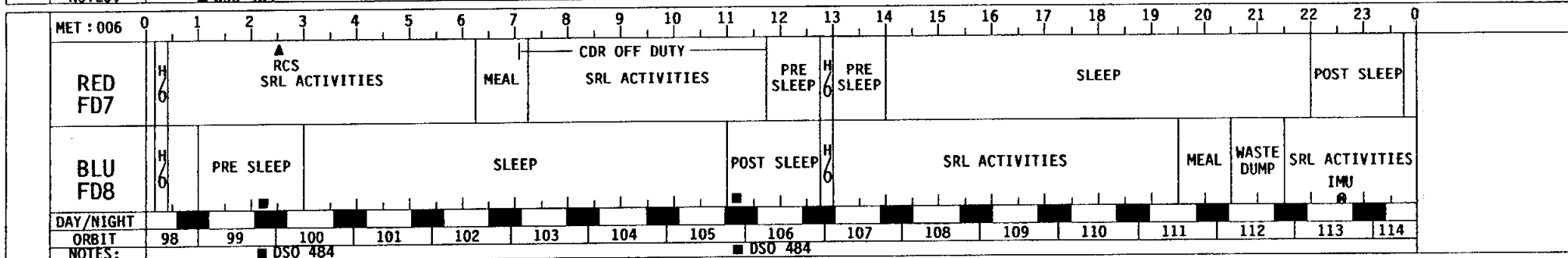
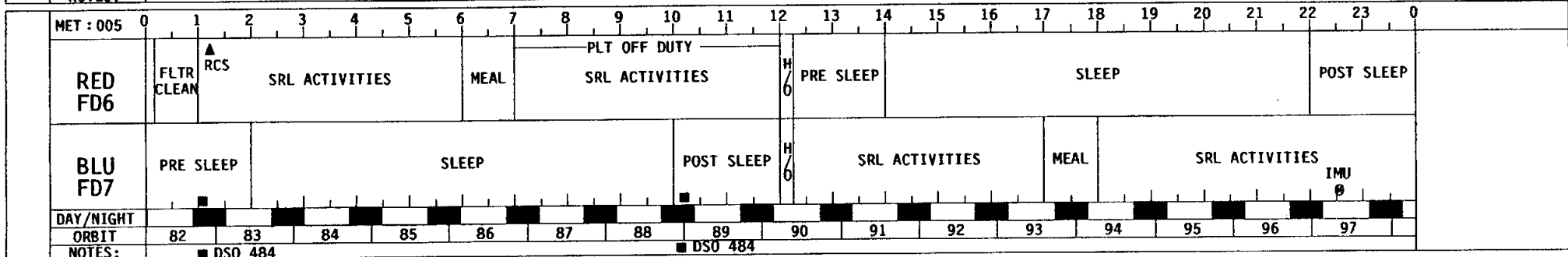
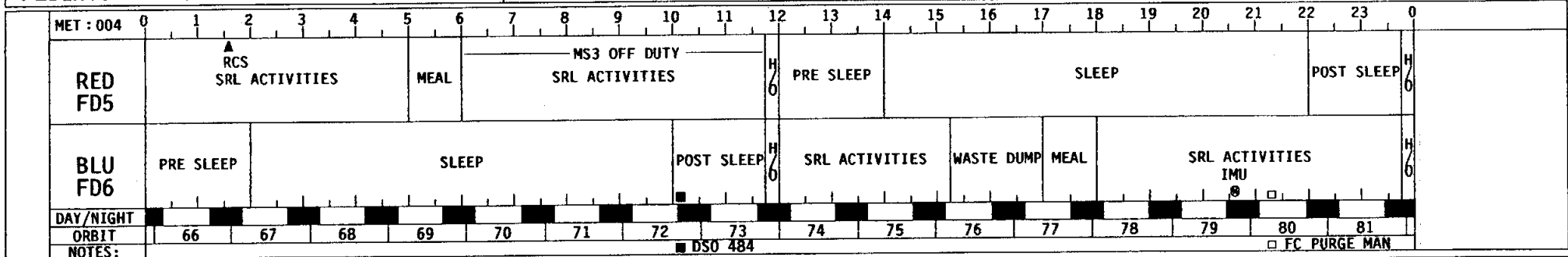
- #63 – Allows the crew to collect 40 minutes of DSO 484 data just prior to sleeping and immediately upon waking.
- #64 – Allows the Blue team to be awake 14:40 at landing in order to maximize the Red team's final sleep period.

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

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STS-68 OVERVIEW





MET : 008	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD9	POST SLEEP	CONF	H/O	SRL	▲ TRIM BURNS	SRL	MEAL	SRL ACTIVITIES							PSA	▲ TRIM BURNS	H/O	PSA	SLEEP						POST SLEEP
BLU FD10	SRL	CONF	H/O	PRE SLEEP	SLEEP							POST SLEEP	H/O	PSA	SRL ACTIVITIES			MEAL	SRL ACTIVITIES IMU						
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146									
NOTES:	♦ DSO 317																								

MET : 009	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD10	POST SLEEP	H/O	FCS C/O	PD A/RK	▲ TRIM BURNS	SRL	MEAL	SRL & CABIN STOW						PRE SLEEP	WASTE DUMP	H/O	PSA	SLEEP (7.5)						POST SLEEP	
BLU FD10	SRL	H/O	PD A/RK	PRE SLEEP	SLEEP							PH S/A	POST SLEEP	SECD PL DEACT	SRL & CABIN STOW	SD RE LAC	CABIN STOW	ENT DSO PREP	MEAL						
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162									
NOTES:	● X-SAR, MPM, KU STOW □ GAS, CREAM, CPCG DEACT ● DSO 603C ● DEORBIT PREP																								

MET : 010	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD11				D/O	LANDING																				
BLU FD11	DEORBIT PREP			BURNING																					
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179								
NOTES:	● IMU ● 03:54 * KSC LANDING 10/04:42																								



MET : 011	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED																									
BLU																									
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195									
NOTES:																									

SUMMARY TIMELINE

SUMMARY TIMELINE



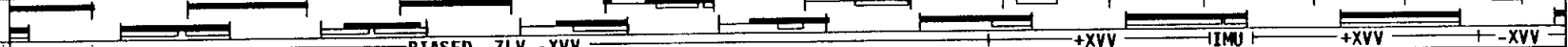
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230:10:54/ 230:22:54		000:00:00/ 000:12:00		230:05:54/ 230:17:54		01/230 CDT	-37.0		AUGUST 18, 1994	STS-68	FINAL	07/14/94		
CDT	:230	6	7	8	9	10	11	12	13	14	15	16	17	12
MET	:000	0	1	2	3	4	5	6	7	8	9	10	11	12
REDFD 1	CDR				PLB/LIMU MNV R TF MNVR									
	PLT	DIRECT			POST INSERTION									
	MS3	LAUNCH	OMS-2		POST INSERTION									
BLUEFD 1	MS2				POST INSERTION									
	MS1				POST INSERTION									
	MS4				POST INSERTION									
DAY/NIGHT ORBIT														
EARTH TRACE														
TDRS E W														
ATT		ASCENT IMU STEP 8 STEP 9 -ZLV-XVV ROLLED 26												
NOTES:														

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
230:22:54/ 231:10:54		000:12:00/ 001:00:00		230:17:54/ 231:05:54		/230 CDT	-35.8		AUGUST 18, 1994	STS-68	FINAL	07/14/94				
CDT	:230	18	19	20	21	22	23	0	CDT:231	1	2	3	4	5	0	
MET	:000	12	13	14	15	16	17	18	19	20	21	22	23	24	0	
RED FD 1	CDR															
	PLT															
	MS3															
BLUE FD 2	MS2															
	MS1															
	MS4															
DAY/NIGHT																
ORBIT	9	10	11	12	13	14	15	16	17							
EARTH TRACE																
TDRS																
ATT																
NOTES:	●TREATED SAMPLE		-ZLV-XVV ROLLED 26					●UNTREATED SAMPLE			●AFT STATION		●PL UPDATE			

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON 	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE							
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CDT	:231	6	7	8	9	10	11	12	13	14	15	16	17	11 BLU FD03 12					
MET	:001	0	1	2	3	4	5	6	7	8	9	10	11						
RED FD 2	CDR	MULT AXIS RCS BURN		MEAL		MEAL		GRP C GAS		EXERC-DSO 624		H/OPRE SLEEP							
	PLT	MULT AXIS RCS BURN		EXERC-DSO 624		MEAL		CHROMEX K		PRE SLEEP		H/OPRE SLEEP							
	MS3	PHRR 2		MEAL		EXERCISE		PRE SLEEP		H/OPRE SLEEP									
BLUE FD 2	MS2	PRE SLEEP		SLEEP		POST SLEEP H/O		POST SLEEP		H/O		POST SLEEP							
	MS1	PRE SLEEP		SLEEP		POST SLEEP H/O		POST SLEEP		H/O		POST SLEEP							
	MS4	PRE SLEEP		SLEEP		POST SLEEP H/O		POST SLEEP		H/O		POST SLEEP							
DAY/NIGHT		ORBIT		EARTH TRACE		TDRS		ATT		NOTES:									
		17		18		19		20		21		22		23		24		25	
																			
		+XVV		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26		-ZLV-XVV BIASED 26	

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
231:22:54/ 232:10:54		001:12:00/ 002:00:00		231:17:54/ 232:05:54		/231 CDT	-33.0		AUGUST 19, 1994	STS-68	FINAL	07/14/94						
CDT	:231	18	19	20	21	22	23	0	CDT:232	1	2	3	4	5	23	RED FD03 0	MET:002	
MET	:001	12	13	14	15	16	17	18		19	20	21	22					
RED FD 2	CDR	SLEEP													POST SLEEP	H/O		
	PLT	SLEEP													POST SLEEP	H/O		
	MS3	SLEEP													POST SLEEP	H/O		
BLUE FD 3	MS2																	
	MS1																	
	MS4																	
DAY/NIGHT	[Day/Night Cycle]																	
ORBIT	[Orbit Diagram]																	
EARTH TRACE	[Earth Trace Diagram]																	
TDRS	[TDRS Diagram]																	
ATT	-ZLV-XVV ROLLED 26 +XVV -XVV +XVV +XVV																	
NOTES:																		

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
232:10:54/ 232:22:54		002:00:00/ 002:12:00		232:05:54/ 232:17:54		/232 CDT	-31.4		AUGUST 20, 1994	STS-68	FINAL	07/14/94			
CDT	:232	6	7	8	9	10	11	12	13	14	15	16	17	18	
MET	:002	0	1	2	3	4	5	6	7	8	9	10	11	12	
REDFD 3	CDR	MULT AXIS RCS BURN		TF MNVR		MEAL	MEAL				EXERC-DSO 624	FAN CORL PMC	PRE SLEEP	H/O	
	PLT	MULT AXIS RCS BURN		CTF PEL CMT GPR & KC	PHRRR 2	PHRRR 1	PHRRR 3	MEAL		PHRRR 2 STATUS C CHROMEX	EXERC-DSO 624	TF MNVR	PRE SLEEP	H/O	
	MS3	PHRRR 1			EXERCISE	MEAL			P/TV07 SETUP PAO	PAO OPP	PHRRR 1		PRE SLEEP	H/O	
BLUFD 3	MS2	PRE SLEEP						SLEEP					POST SLEEP	H/O	
	MS1	PRE SLEEP						SLEEP					POST SLEEP	H/O	
	MS4	PRE SLEEP						SLEEP					POST SLEEP	H/O	
DAY/NIGHT															
ORBIT															
EARTH TRACE															
TDRS															
ATT		-XVV +XVV BIASED -ZLV -XVV													
NOTES:		STATION 1 NADIR MNVR													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON 	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
232:22:54/ 233:10:54		002:12:00/ 003:00:00		232:17:54/ 233:05:54		/232 CDT	-29.8		AUGUST 20, 1994	STS-68	FINAL	07/14/94					
CDT	:232	18	19	20	21	22	23	0	CDT:233	1	2	3	4	5	0	MET:003	
MET	:002	12	13	14	15	16	17	18		19	20	21	22	23			
RED FD 3	CDR	PRE SLEEP		SLEEP						POST SLEEP		H/O	NOV 0000	NOV 0000	NOV 0000	NOV 0000	NOV 0000
	PLT	PRE SLEEP		SLEEP						POST SLEEP		H/O	NOV 0000	NOV 0000	NOV 0000	NOV 0000	NOV 0000
	MS3	PRE SLEEP		SLEEP						POST SLEEP		H/O	NOV 0000	NOV 0000	NOV 0000	NOV 0000	NOV 0000
BLUE FD 4	MS2	EXERC-DSO 624		MEAL		MEAL										H/O	
	MS1	P 2	P 3	P 1	P/TV02 OR 03 SETUP	EXERCISE		MEAL		DTO 664		P 1				H/O	
	MS4			MEAL		MEAL		OFF DUTY/EXERCISE								H/O	
DAY/NIGHT	[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		[Day/Night Cycle]		
ORBIT	41		42		43		44		45		46		47		48		49
EARTH TRACE																	
TDRS																	
ATT	BIASED -ZLV -XVV ► NADIR MNVR +XVV IIMU +XVV -XVV																
NOTES:																	

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
233:10:54/ 233:22:54		003:00:00/ 003:12:00		233:05:54/ 233:17:54		/233 CDT	-28.1	☉	AUGUST 21, 1994	STS-68	FINAL	07/14/94						
CDT	:233	6	7	8	9	10	11	12	13	14	15	16	17	12				
MET	:003	0	1	2	3	4	5	6	7	8	9	10	11	12				
RED FD 4	CDR	MULT AXIS RCS BURN		TF		MEAL		MEAL		EXERC-DSO 624		H/O						
	PLT	MULT AXIS RCS BURN		P/TV07 SETUP PAO		PAO OPP		EXERC-DSO 624		MEAL		H/O						
	MS3	PHRRR 317 COLL		PHRRR 317 COLL		PHRRR 317 COLL		MEAL		EXERCISE		H/O						
	MS2	PRE SLEEP		SLEEP		POST SLEEP		H/O										
BLUE FD 4	MS1	PRE SLEEP		SLEEP		POST SLEEP		H/O										
	MS4	PRE SLEEP		SLEEP		POST SLEEP		H/O										
	DAY/NIGHT	ORBIT		EARTH TRACE		TDRS		ATT		NOTES:								
	49		50		51		52		53		54		55		56		57	
	E		W		-XVV		+XVV		BIASED -ZLV		-XVV		o NADIR MNVR					
	o TREATED SAMPLE		o PL UPDATE		o UNTREATED SAMPLE		o NADIR MNVR											

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
233:22:54/ 234:10:54		003:12:00/ 004:00:00		233:17:54/ 234:05:54		/233 CDT	-26.3		AUGUST 21, 1994	STS-68	FINAL	07/14/94				
CDT	:233	18	19	20	21	22	23	0	CDT:234	1	2	3	4	5	0	MET:004
MET	:003	12	13	14	15	16	17	18	19	20	21	22	23			
RED FD 4	CDR	PRE SLEEP	PMC	FAM CONT	P S S U M E	SLEEP								POST SLEEP	H/O	
	PLT	PRE SLEEP			SLEEP								POST SLEEP	H/O		
	MS3	PRE SLEEP			SLEEP								POST SLEEP	H/O		
BLUE FD 5	MS2	OFF DUT	N F M N V R	OFF DUTY/EXERCISE (DSO 624)								MEAL	MEAL	N F M N V R	H/O	
	MS1	P H R R 3	N F M N V R	C T P E L G P R	N F M N V R	P H R R 1	N F M N V R	P H R R 2	N F M N V R	M A G H E A D C L N 1	M A G C H G 1	MEAL	OFF DUTY/EXERCISE		H/O	
	MS4	EXERCISE	N F M N V R	N F M N V R	N F M N V R	N F M N V R	N F M N V R	N F M N V R	N F M N V R	N F M N V R	MEAL	N F M N V R	N F M N V R	P H R R 1	P A O O P P	N F M N V R
DAY/NIGHT	[Day/Night Cycle Diagram]															
ORBIT	[Orbit Diagram]															
EARTH TRACE	[Earth Trace Diagram]															
TDRS	[TDRS Diagram]															
ATT	[ATT Diagram]															
NOTES:	[Notes Section]															

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
234:10:54/ 234:22:54		004:00:00/ 004:12:00		234:05:54/ 234:17:54		/234 CDT	-24.4	☉	AUGUST 22, 1994	STS-68	FINAL	07/14/94					
CDT	:234	0	6	7	8	9	10	11	12	13	14	15	16	17	18		
MET	:004	0	6	7	8	9	10	11	12	13	14	15	16	17	18		
RED FD 5	CDR	MULTI AXIS RCS BURN		EXERC-DSO 624		MEAL		MEAL		OFF DUTY/EXERCISE		OFF DUTY/EXERCISE		H/O			
	PLT	MULTI AXIS RCS BURN		EXERC-DSO 624		MEAL		OFF DUTY/EXERCISE		OFF DUTY/EXERCISE		OFF DUTY/EXERCISE		H/O			
	MS3	PRE SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP			
	MS2	PRE SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP			
	MS1	PRE SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP			
MS4	PRE SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP				
DAY/NIGHT		ORBIT		EARTH TRACE		TDRS		ATT		NOTES:							
		66		67		68		69		70		71		72		73	
		E		W		-XVV		-ZLV-XVV ROLLED 26		+XVV		-XVV		+XVV			
		PL UPDATE						STATION 2									

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE												
234:22:54/ 235:10:54		004:12:00/ 005:00:00		234:17:54/ 235:05:54		/234 CDT	-22.5	☉	AUGUST 22, 1994	STS-68	FINAL	07/14/94												
CDT	:234	18	19	20	21	22	23	0	CDT:235	1	2	3	4	5	0	MET:005								
MET	:004	12	13	14	15	16	17	18	19	20	21	22	23											
RED FD 5	CDR	PRE SLEEP	PMC FAM CONF	PRE SLEEP	SLEEP										POST SLEEP	H/O								
	PLT	PRE SLEEP			SLEEP										POST SLEEP	H/O								
	MS3	PRE SLEEP			SLEEP										POST SLEEP	H/O								
BLUE FD 6	MS2	SALV/SAT	POST SLEEP	NAG/SOUTH	P/TV07 SETUP PAO	SALV/SAT	PAO OPP	EXRC-DSO 624	SALV/SAT	NAG/SOUTH	MEAL	MEAL	SALV/SAT	NAG/SOUTH	SALV/SAT	IMU MNV	TF MNV	NAG/SOUTH	SALV/SAT	NAG/SOUTH	PRE SLEEP	PRE SLEEP	NAG/SOUTH	H/O
	MS1	SALV/SAT	POST SLEEP	MAG/CHG	MAG HEAD CLN 2	SALV/SAT	CTF PEL GMT & CK	NAG/SOUTH	MEAL	PHRR 2	MEAL	SALV/SAT	PHRR 1	DTO 664	SALV/SAT	PHRR 2	EXERCISE			PRE SLEEP	H/O			
	MS4	PHRR 3	EXERCISE			PHRR 1	PHRR 2	MEAL	PHRR 3	PHRR 1	PHRR 2	PHRR 3	PHRR 1	PHRR 2	PHRR 3	PHRR 1	PHRR 2	PHRR 3	PHRR 1	PHRR 2	PHRR 3	H/O		
DAY/NIGHT	74		75		76		77		78		79		80		81									
ORBIT																								
EARTH TRACE																								
TDRS																								
ATT	-ZLV-XV ROLLED 26												-XV						-XV					
NOTES:													IMU						PL UPDATE					

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
235:10:54/ 235:22:54		005:00:00/ 005:12:00		235:05:54/ 235:17:54		/235 CDT	-20.6	☉	AUGUST 23, 1994	STS-68	FINAL	07/14/94		
CDT	:235	6	7	8	9	10	11	12	13	14	15	16	17	12
MET	:005	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 6	CDR	MULTI AXIS RCS BURN		P/TVO2 OR 03 SETUP		P/TVO3		MEAL		MEAL		EXERC-DSO 624		
	PLT	MULTI AXIS RCS BURN		P/TVO2 OR 03 SETUP		P/TVO3		MEAL		OFF DUTY/EXERCISE (DSO 624)				
	MS3	EXERCISE		MEAL				MEAL		ORB/PL FILTER CLN				
BLUE FD 6	MS2	PRE SLEEP	DSO 484 PSA	SLEEP						DSO 484 PSA		POST SLEEP		
	MS1	PRE SLEEP	DSO 484 PSA	SLEEP						DSO 484 PSA		POST SLEEP		
	MS4	PRE SLEEP		SLEEP						POST SLEEP				
DAY/NIGHT	[Day/Night Cycle Diagram]													
ORBIT	82 83 84 85 86 87 88 89 90													
EARTH TRACE	[Earth Trace Diagram]													
TDRS	[TDRS Diagram]													
ATT	+XVV -ZLV-XVV ROLLED 26 +XVV -XVV +XVV													
NOTES:	@MANUAL @CABIN TEMP CNTL RECONFIG o NADIR MNVR o NF MNVR RJD OFF													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
235:22:54/ 236:10:54		005:12:00/ 006:00:00		235:17:54/ 236:05:54		/235 CDT	-18.6	☉	AUGUST 23, 1994	STS-68	FINAL	07/14/94					
CDT	:235	18	19	20	21	22	23	0	CDT:236	1	2	3	4	5	0	MET:006	
MET	:005	12	13	14	15	16	17	18		19	20	21	22	23			
RED FD 6	CDR	H/O	PRE SLEEP	PRE SLEEP				SLEEP								POST SLEEP	
	PLT	H/O	PRE SLEEP					SLEEP								POST SLEEP	
	MS3	H/O	PRE SLEEP					SLEEP								POST SLEEP	
BLUE FD 7	MS2	H/O	POST SLEEP	EXERC-DSO 624			MEAL	MEAL									
	MS1	H/O	POST SLEEP	CTF PEL CMT GPR & C			MEAL	MEAL				DTO 664	P/TV07 SETUP PAO	PAO OPP		EXERCISE	
	MS4	H/O			EXERCISE		MEAL										
DAY/NIGHT ORBIT		90	91	92	93	94	95	96	97	98							
EARTH TRACE																	
TDRS																	
ATT		BIASED -ZLV -XVV ▶ NADIR MNVR ▶ NADIR MNVR IMU -XVV															
NOTES:		⊙PL UPDATE ▶ ZDS NORTH															

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
236:10:54 / 236:22:54		006:00:00 / 006:12:00		236:05:54 / 236:17:54		/236 CDT	-16.5	☉	AUGUST 24, 1994	STS-68	FINAL	07/14/94					
CDT	:236	6	7	8	9	10	11	12	13	14	15	16	17	18			
MET	:006	0	1	2	3	4	5	6	7	8	9	10	11	12			
RED FD 7	CDR	H/O	TF MNVR	NADIR MNVR	MULTI AXIS RCS BURN	NADIR MNVR	NADIR MNVR	NADIR MNVR	NADIR MNVR	MEAL	TF MNVR	OFF DUTY/EXERCISE (DSO 624)			PRE SLEEP		
	PLT	H/O	CTF PEL CMT GPR & KC	WINDOORS	MULTI AXIS RCS BURN	EXERC-DSO 624	CHROMEX	CREAM	MEAL	ARRR 1	ARRR 2	MAG HEAD CLN 3	TF MNVR	ARRR 1	ARRR 2	ARRR 3	PRE SLEEP
	MS3	H/O	ARRR 1	ARRR 2	ARRR 3	ARRR 1	ARRR 2	MEAL	ARRR 1	ARRR 2	ARRR 3	P/TVO2 OR 03 SETUP	ARRR 1	ARRR 2	ARRR 3	EXERCISE	PRE SLEEP
BLUE FD 7	MS2	H/O	SALIV/SAT	PRE SLEEP	DSO 484 PSA	SLEEP						DSO 484 PSA	POST SLEEP				
	MS1	H/O	SALIV/SAT	PRE SLEEP	DSO 484 PSA	SLEEP						DSO 484 PSA	POST SLEEP				
	MS4	H/O	PHRR 1	PRE SLEEP	SLEEP						POST SLEEP						
DAY/NIGHT	ORBIT																
EARTH TRACE	98 99 100 101 102 103 104 105 106																
TDRS	E W																
ATT	+XVV -ZLV-XVV ROLLED 26 +XVV -XVV +XVV -XVV																
NOTES:	ZDS NORTH STATION 1 NADIR MNVR NADIR MNVR																

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
236:22:54 / 237:10:54	006:12:00 / 007:00:00	236:17:54 / 237:05:54	/236 CDT	-14.4	☉	AUGUST 24, 1994	STS-68	FINAL	07/14/94

CDT	236	18	19	20	21	22	23	0	CDT:237	1	2	3	4	5	0	MET:007
MET	:006	12	13	14	15	16	17	18	19	20	21	22	23			

		RED				D				7					
		CDR	PLT	MS3											
CDR		P PRRR S SLEEP P PRRR S SLEEP N PRRR S SLEEP	P PRRR S SLEEP P PRRR S SLEEP N PRRR S SLEEP	N PRRR S SLEEP H/O	P PRRR S SLEEP PMC	P PRRR S SLEEP FAM COM	P PRRR S SLEEP P PRRR S SLEEP	SLEEP				POST SLEEP			
PLT		P PRRR S SLEEP P PRRR S SLEEP N PRRR S SLEEP	P PRRR S SLEEP P PRRR S SLEEP N PRRR S SLEEP	N PRRR S SLEEP H/O	P PRRR S SLEEP	SLEEP				POST SLEEP					
MS3		P PRRR S SLEEP H/O	P PRRR S SLEEP	SLEEP				POST SLEEP							

		BLU				E				8									
		MS2	MS1	MS4															
MS2		POST SLEEP	H/O	SALIV/SAT POST SLEEP	EXERC-DSO 624	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	MEAL	MEAL	WASTE	DUMP INIT	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP				
MS1		POST SLEEP	H/O	SALIV/SAT POST SLEEP	CTF PEL CMT GPR & C	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	EXERCISE	PHRR 1	SALIV/SAT ADJ TRK 3 PHRR 3	PHRR 2	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	PHRR 1	MEAL	SALIV/SAT PHRR 2	DTO 664	PHRR 1	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP	PHRR 1	SALIV/SAT N PRRR S SLEEP N PRRR S SLEEP
MS4		POST SLEEP	H/O	SALIV/SAT PHRR 1	PHRR 1	SALIV/SAT PHRR 2	SALIV/SAT PHRR 2	SALIV/SAT PHRR 2	SALIV/SAT PHRR 2	SALIV/SAT PHRR 2	MEAL	MEAL	P/TVO2 OR 03 SETUP	P/TVO2 OR 03 SETUP	P/TVO2 OR 03 SETUP	P/TVO2 OR 03 SETUP	P/TVO2 OR 03 SETUP	SALIV/SAT PHRR 2	EXERCISE

DAY/NIGHT	ORBIT	106	107	108	109	110	111	112	113	114
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TDRS										
ATT	-XVV					-XVV				
NOTES:	▶ NADIR MNVR					▶ TF MNVR				

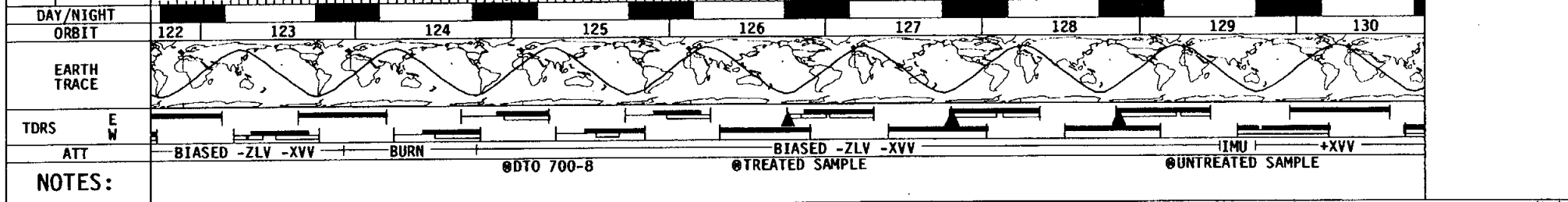
GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
237:10:54/ 237:22:54		007:00:00/ 007:12:00		237:05:54/ 237:17:54		/237 CDT	-12.3	☾	AUGUST 25, 1994	STS-68	FINAL	07/14/94		
CDT	:237	6	7	8	9	10	11	12	13	14	15	16	17	18
MET	:007	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 8	CDR		H/O		MULTI AXIS RCS BURN	OMS BURN	NF MNVR		MEAL	MEAL				EXERC-DSO 624
	PLT		H/O	CTF MGT GPR & 3	MAG HEAD CLN 1	MAG CHG 1	MULTI AXIS RCS BURN	OMS BURN	W IND DOW S	CH RIST US K 1	EEEE AAAA RRRR TTTT HHHH SSSS	MEAL	P/TV02 OR 03 SETUP	EXERC-DSO 624
	MS3		H/O	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS	EXERCISE	EEEE AAAA RRRR TTTT HHHH SSSS	MEAL	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS	EEEE AAAA RRRR TTTT HHHH SSSS
BLUE FD 8	MS2		H/O	SALV/SAT	PRE SLEEP	DSO 484 PSA								SLEEP
	MS1	P H R R 2	H/O	SALV/SAT	PRE SLEEP	DSO 484 PSA								SLEEP
	MS4	EXERCISE	H/O		PRE SLEEP									SLEEP
DAY/NIGHT	[Day/Night Cycle Diagram]													
ORBIT	114 115 116 117 118 119 120 121 122													
EARTH TRACE	[Earth Trace Diagram]													
TDRS	[TDRS Diagram]													
ATT	-XVV BURN +XVV @DT0 700-8 @DT0 700-8 @DT0 700-8 BIASED -ZLV -XVV													
NOTES:														

GMT (D:H:M) MET (D:H:M) CDT (D:H:M) FD/ DOY BETA MOON HOUSTON DATE FLIGHT EDITION PUB. DATE
 237:22:54/ 238:10:54 007:12:00/ 008:00:00 237:17:54/ 238:05:54 /237 CDT -10.2 AUGUST 25, 1994 STS-68 FINAL 07/14/94

CDT :237 18 19 20 21 22 23 0 CDT:238 1 2 3 4 5 0 MET:008
 MET :007 12 13 14 15 BLU FD09 16 17 18 19 20 21 22 23

RED FD 8	CDR	EXRC-DSO 624	PRE SLEEP	H/O	PRE SLEEP	SLEEP	POST SLEEP
	PLT	CTF PEL CMT GPR & KC	PRE SLEEP	H/O	PRE SLEEP	SLEEP	POST SLEEP
	MS3	PHRRR 3 1	PRE SLEEP/H/O		PRE SLEEP	SLEEP	POST SLEEP

BLUE FD 9	MS2	POST SLEEP	H/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	EXRC-DSO 624	MEAL	MEAL	P/TV02 OR 03 SETUP	IMU	POST SLEEP			
	MS1	POST SLEEP	H/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	EXERCISE	3 17 SETUP	PHRRR 2	3 17 COLL	PHRRR 1	PHRRR 2	PHRRR 1	PHRRR 2	PHRRR 3
	MS4	POST SLEEP	H/O	PHRRR 1	EXERCISE	PHRRR 2	PHRRR 3	PHRRR 1	PHRRR 2	PHRRR 3	PHRRR 1	PHRRR 2	PHRRR 3	PHRRR 1



GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
238:10:54/ 238:22:54		008:00:00/ 008:12:00		238:05:54/ 238:17:54		/238 CDT	-8.0		AUGUST 26, 1994	STS-68	FINAL	07/14/94		
CDT	:238	6	7	8	9	10	11	12	13	14	15	16	17	12
MET	:008	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 9	CDR	POST SLEEP	CREW CONF	H/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	MEAL						EXRC-DSO 624	
	PLT	POST SLEEP	CREW CONF	H/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	MEAL						EXRC-DSO 624	
	MS3	POST SLEEP	CREW CONF	H/O	EXERCISE		MEAL							
BLUE FD 9	MS2	P/TV04 SETUP	POPS/TV04	H/O	PRE SLEEP								SLEEP	
	MS1	CTF PEL CMT GPR & RC	317 SLOW	CREW CONF	ORB/PL FILTER CLN	ORB/PL FILTER CLN	PRE SLEEP						SLEEP	
	MS4			CREW CONF	H/O	PRE SLEEP							SLEEP	
DAY/NIGHT	[Day/Night Cycle]													
ORBIT	131 132 133 134 135 136 137 138													
EARTH TRACE														
TDRS	[TDRS Events]													
ATT	+XVV BURN +XVV -XVV													
NOTES:	@PL UPDATE @DTO 700-8 @STATION 2													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
238:22:54/ 239:10:54		008:12:00/ 009:00:00		238:17:54/ 239:05:54		/238 CDT	-5.8		AUGUST 26, 1994	STS-68	FINAL	07/14/94				
CDT	:238	18	19	20	21	22	23	0	CDT:239	1	2	3	4	5	0	MET:009
MET	:008	12	13	14	15	16	17	18	19	20	21	22	23			
RED FD 9	CDR	PRE SLEEP	MULTI AXIS BURN	PRE SLEEP	MULTI AXIS RCS BURN	H/O	PRE SLEEP	SLEEP							POST SLEEP	
	PLT	PRE SLEEP	MULTI AXIS RCS BURN	PRE SLEEP	MULTI AXIS RCS BURN	H/O	PRE SLEEP	SLEEP							POST SLEEP	
	MS3	PRE SLEEP	PRE SLEEP	PRE SLEEP	H/O	PRE SLEEP	SLEEP							POST SLEEP		
BLUE FD 10	MS2	SLEEP	POST SLEEP	H/O	POST SLEEP	EXERC-DSO 624	P/TV07 SETUP PAO	PAO OPP	MEAL	MEAL	MEAL	MEAL	MEAL	MEAL	MEAL	MEAL
	MS1	SLEEP	POST SLEEP	H/O	POST SLEEP	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE
	MS4	SLEEP	POST SLEEP	H/O	POST SLEEP	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE
DAY/NIGHT ORBIT	139		140		141		142		143		144		145		146	
EARTH TRACE																
TDRS ATT	-XVV BURN BIASED -ZLV -XVV TIMU +XVV															
NOTES:																

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
239:10:54 / 239:22:54		009:00:00 / 009:12:00		239:05:54 / 239:17:54		/239 CDT	-3.5		AUGUST 27, 1994	STS-68	FINAL	07/14/94		
CDT	:239	6	7	8	9	10	11	12	13	14	15	16	17	18
MET	:009	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD10	CDR	POST SLEEP	H/O	FCS C/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	EXERCISE	EXERCISE	MEAL	MEAL	P/TVO7 SETUP PAO	PAO OPP	P/TVO1 SETUP X-SAR	
	PLT	POST SLEEP	H/O	FCS C/O	MULT AXIS RCS BURN	MULT AXIS RCS BURN	DSO 604C	MEAL	MEAL	CHROMEX	EXERCISE	EXERCISE	EXERCISE	
	MS3	POST SLEEP	H/O		D/O PREP BRIEF			MEAL					EXERCISE	
BLUE FD10	MS2		H/O	FCS C/O	D/O PREP BRIEF		PRE SLEEP				SLEEP			
	MS1		H/O	DSO 604C	D/O PREP BRIEF		PRE SLEEP				SLEEP			
	MS4	EXERCISE	H/O		D/O PREP BRIEF		PRE SLEEP				SLEEP			
DAY/NIGHT	[Day/Night Cycle Diagram]													
ORBIT	[Orbit Diagram]													
EARTH TRACE	[Earth Trace Diagram]													
TDRS	[TDRS Diagram]													
ATT	[ATT Diagram]													
NOTES:	▶ APU HTR ACT +XVV TRIM +XVV +XVV BIASED -ZLV -XVV ◎DTO 700-8 ◎PL UPDATE ◎DTO 700-8													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE								
239:22:54/ 240:10:54		009:12:00/ 010:00:00		239:17:54/ 240:05:54		/239 CDT	-1.3		AUGUST 27, 1994	STS-68	FINAL	07/14/94								
CDT	:239	18	19	20	21	22	23	0	CDT:240	1	2	3	4	5	23	0	MET:010			
MET	:009	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
RED FD10	CDR	POPS TV01	PRE SLEEP	WASTE INIT	PRE SLEEP	H/O	H/O	SLEEP (7.5)										POST SLEEP		
	PLT		PRE SLEEP		PRE SLEEP	H/O	H/O	SLEEP (7.5)											POST SLEEP	
	MS3		PRE SLEEP		PRE SLEEP	H/O	H/O	SLEEP (7.5)											POST SLEEP	
BLUE FD11	MS2		SLEEP		POST SLEEP	H/O	POST SLEEP	POST SLEEP	GRD GAS	GR E GAS	HBIAS STOW	DEACT	OCAC STOW	GPS DEACT	-ZLV MNVB	PGWRP UB		CABIN STOW	MEAL	
	MS1		SLEEP		POST SLEEP	H/O	POST SLEEP	PHRR 3	PHRR 2	CHROMEX C	DEACT							CABIN STOW	ENT DSO PREP	MEAL
	MS4		SLEEP		POST SLEEP	H/O	POST SLEEP	PHRR 1	PHRR 2	PHRR 1	PHRR 2	DEACT						CABIN STOW	ENT DSO PREP	MEAL
DAY/NIGHT		ORBIT		155	156	157	158	159	160	161	162	163								
EARTH TRACE																				
TDRS																				
ATT		BIASD -ZLV -XVV											-ZLV, +YVV		-ZLV +YVV		0 DEORBIT PREP			
NOTES:																				

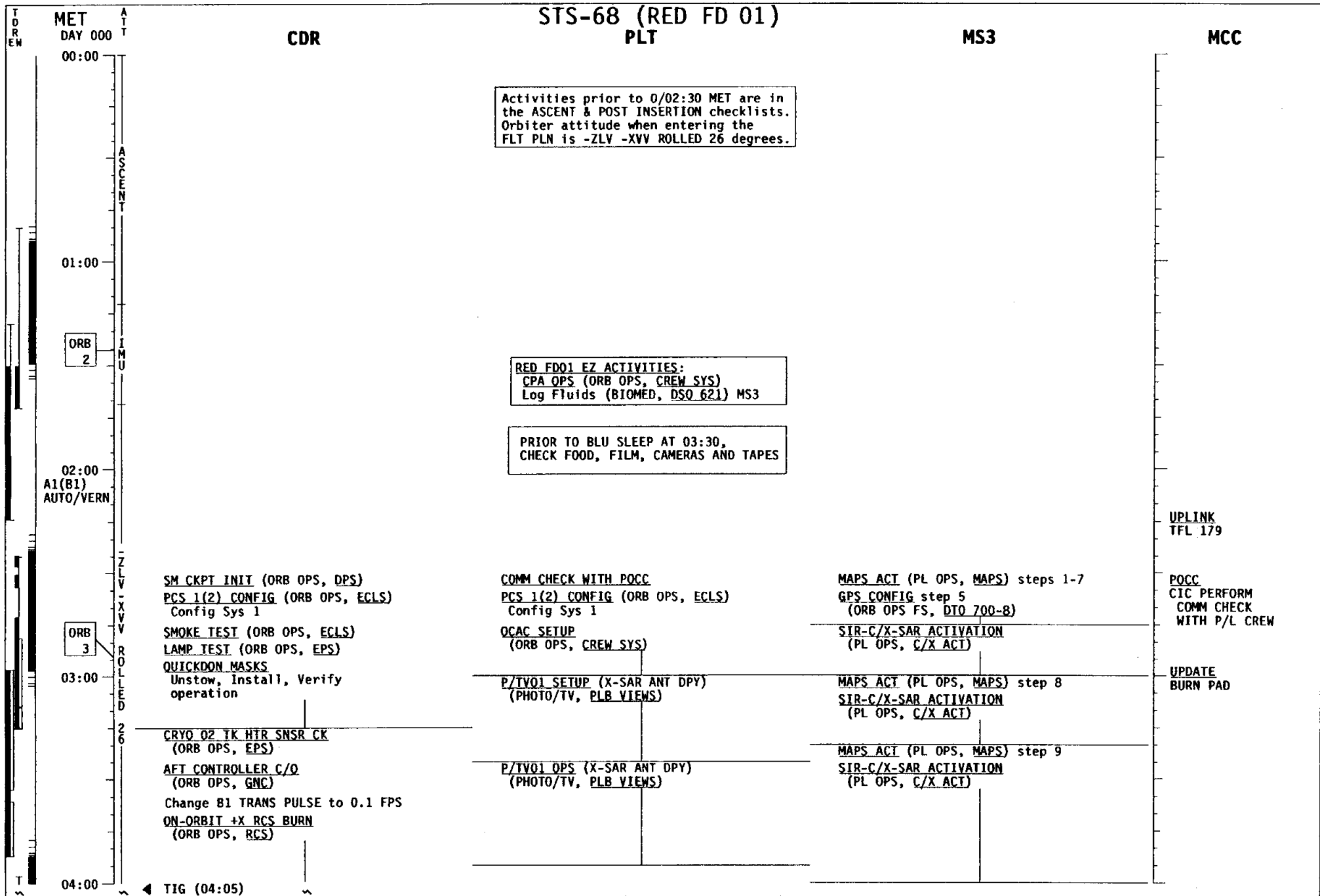
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240:10:54/ 240:22:54		010:00:00/ 010:12:00		240:05:54/ 240:17:54		/240 CDT	1.0		AUGUST 28, 1994	STS-68	FINAL	07/14/94										
CDT	:240	6	7	8	9	10	11	12	13	14	15	16	17	18								
MET	:010	0	1	2	3	4	5	6	7	8	9	10	11	12								
RED FD 11	CDR	DEORBIT PREP		DEORBIT PREP																		
	PLT			DEORBIT PREP		DEORBIT BURN *		KSC LANDING *														
	MS3	ENT DSO PREP	DEORBIT PREP																			
BLUE FD 11	MS2			DEORBIT PREP																		
	MS1			DEORBIT PREP																		
	MS4			DEORBIT PREP																		
DAY/NIGHT																						
ORBIT													163	164	165	166	167	168	169	170	171	
EARTH TRACE																						
TDRS																						
ATT													-XSI		+IMU		COMM		ENTRY			
NOTES:													*DEORBIT BURN 10/03:54		*KSC LANDING 10/04:42							

DETAILED TIMELINE

RED FD1	3-2
BLUE FD1	3-3
BLUE FD2	3-9
RED FD2	3-14
BLUE FD3	3-21
RED FD3	3-24
BLUE FD4	3-33
RED FD4	3-38
BLUE FD5	3-45
RED FD5	3-50
BLUE FD6	3-57
RED FD6	3-62
BLUE FD7	3-69
RED FD7	3-74
BLUE FD8	3-81
RED FD8	3-86
BLUE FD9	3-95
RED FD9	3-100
BLUE FD10	3-107
RED FD10	3-110
BLUE FD11	3-119

DETAILED
TIMELINE

DETAILED TIMELINE



◀ TIG (04:05)

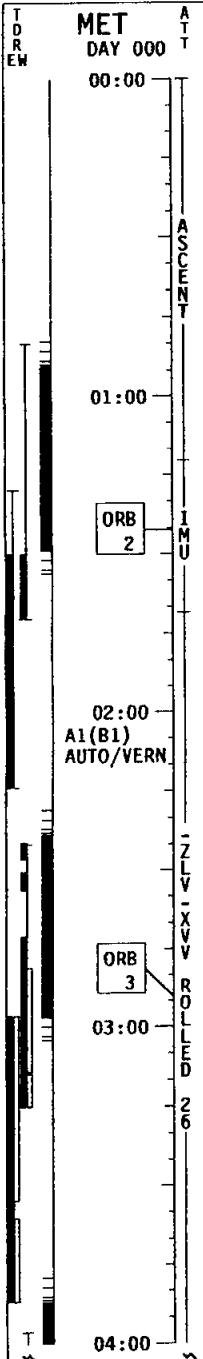
STS-68 (BLU FD 01)

MS2

MS1

MS4

MCC



DUAL SHIFT PRE-SLEEP

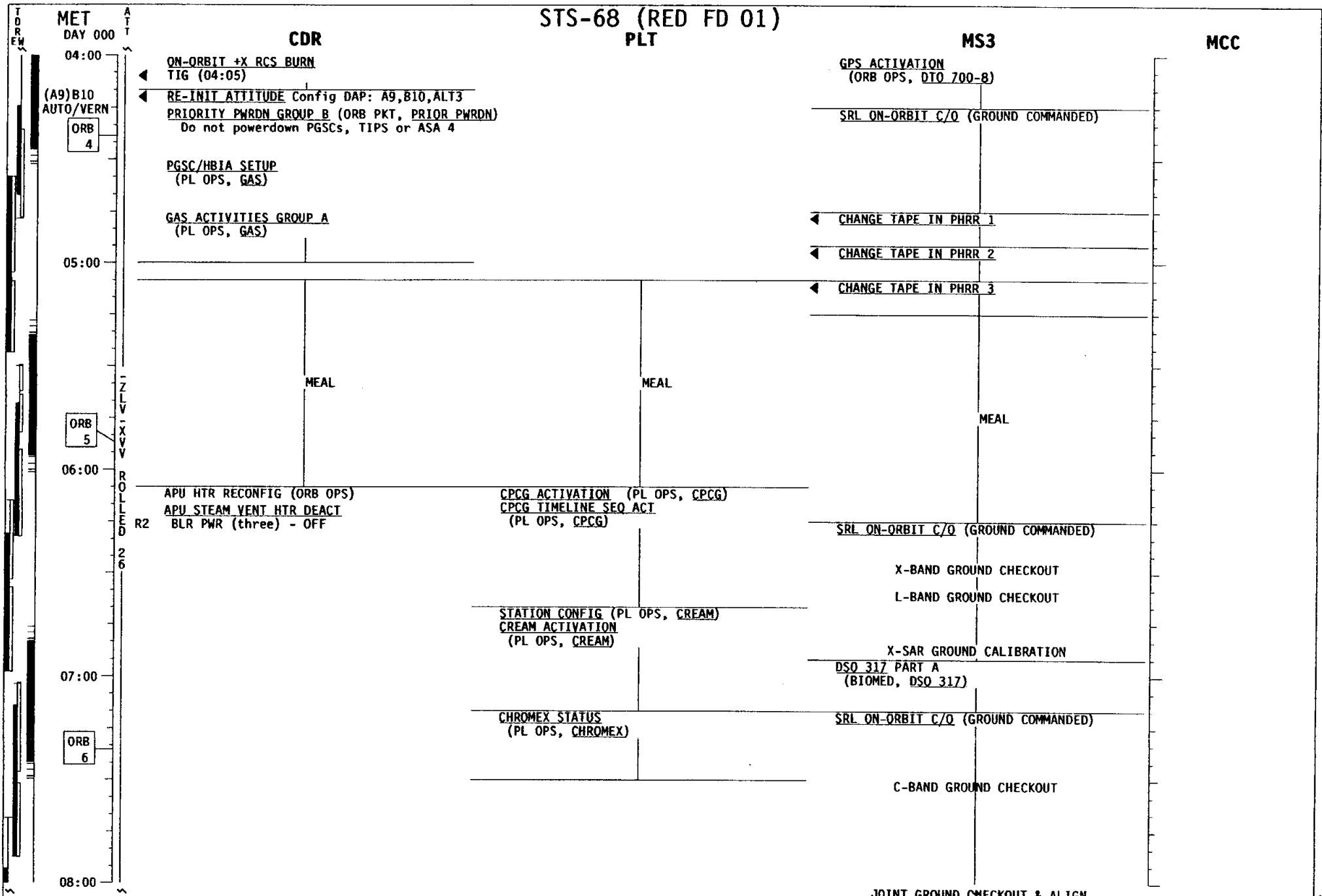
DUAL SHIFT PRE-SLEEP

DUAL SHIFT PRE-SLEEP

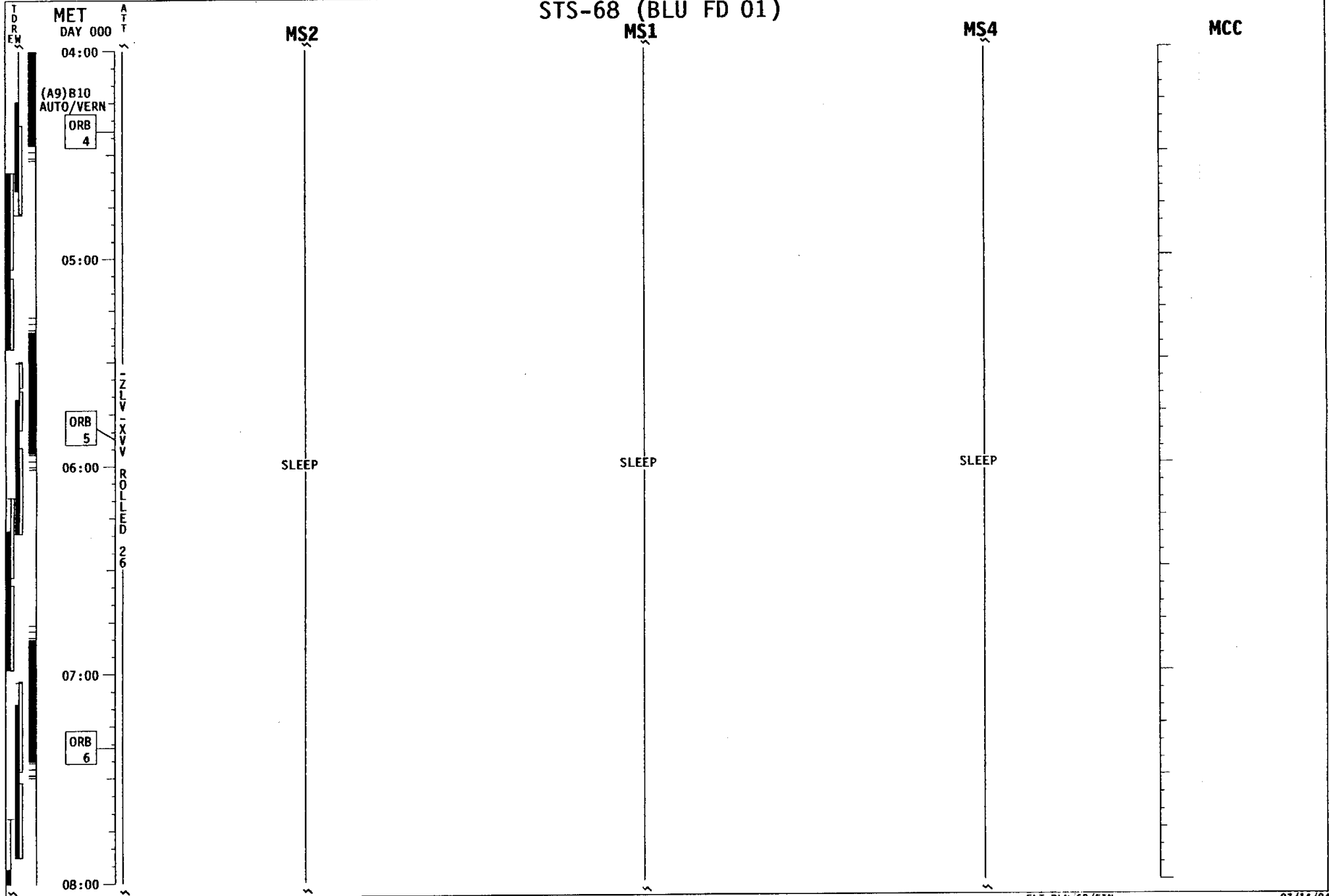
SLEEP

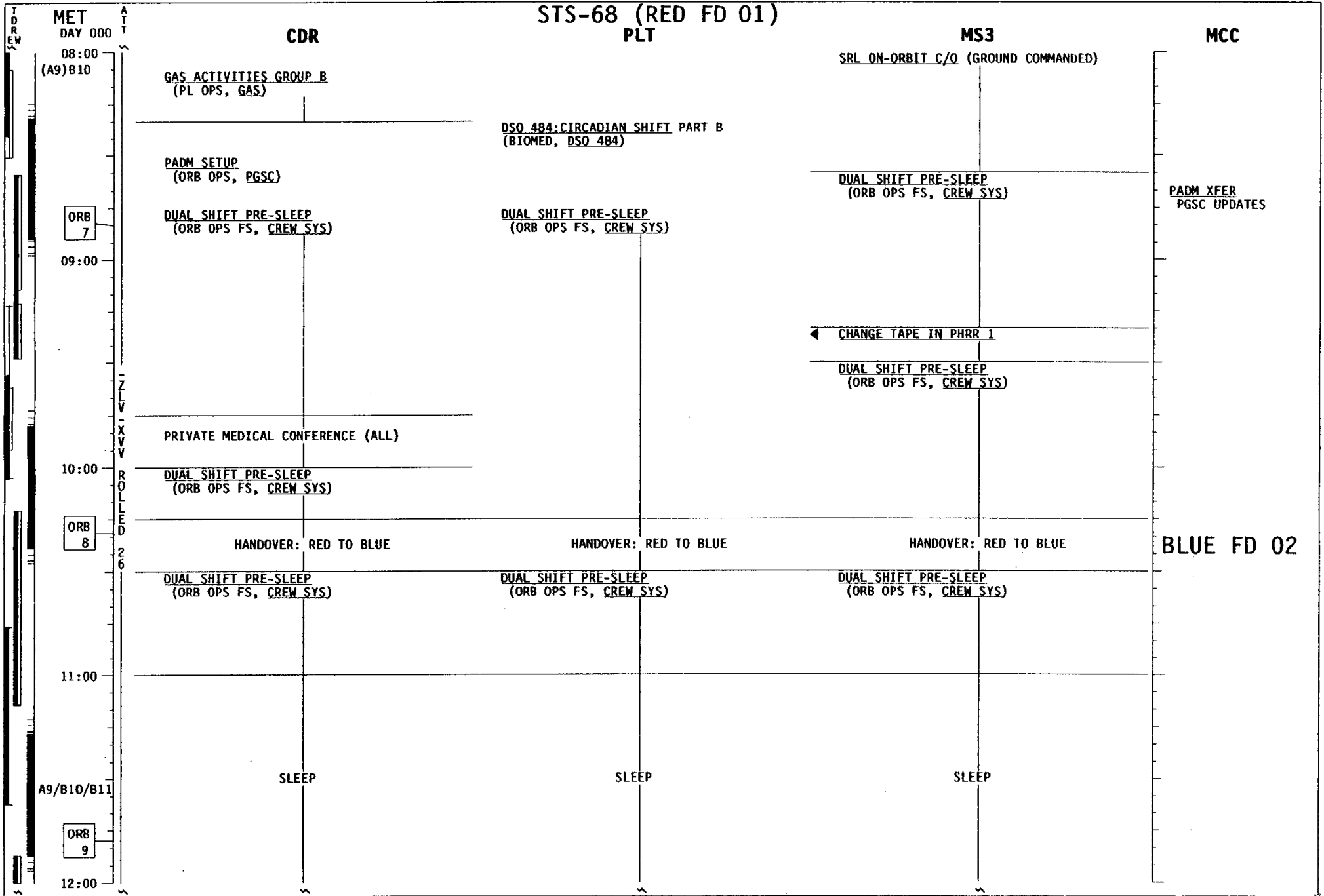
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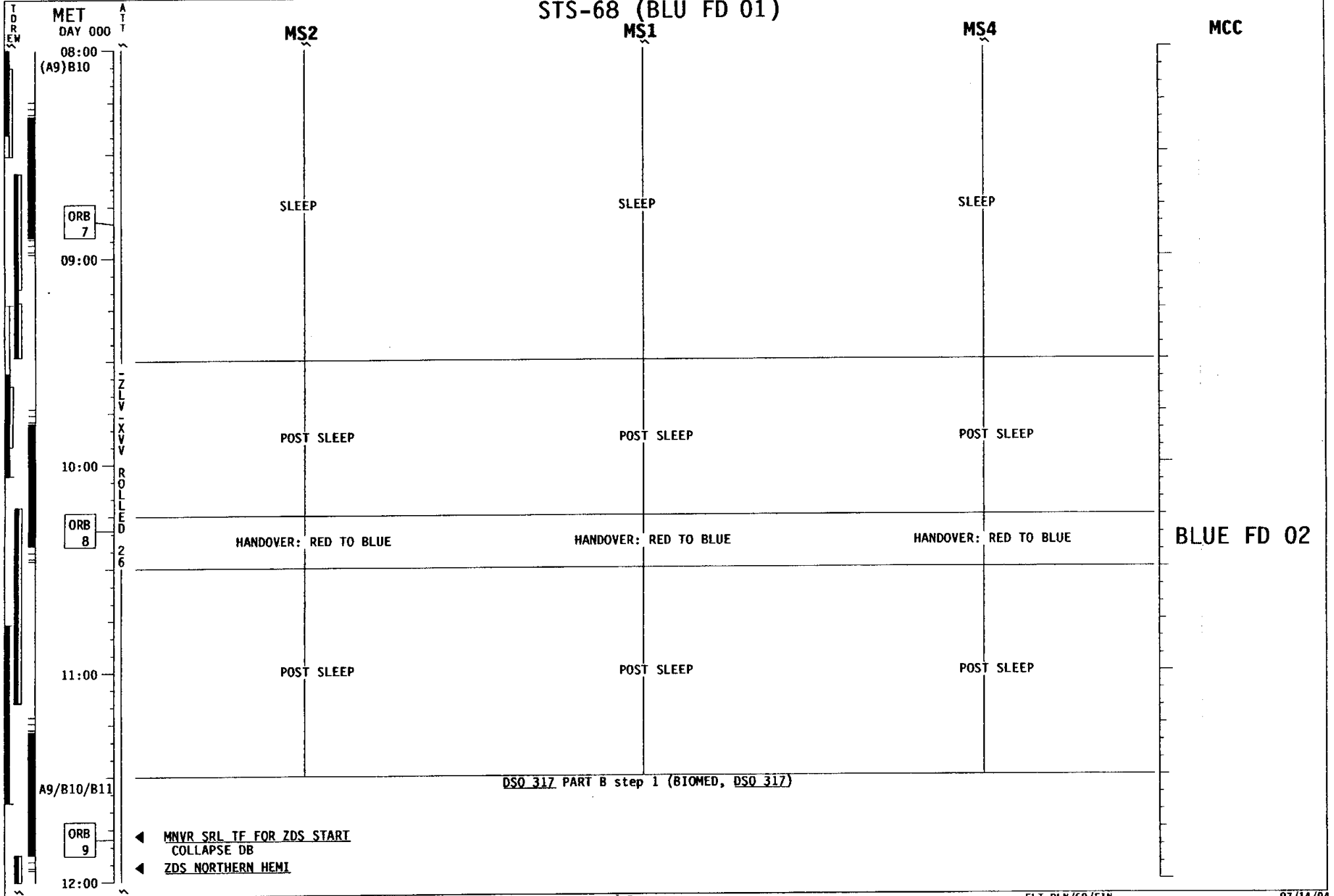
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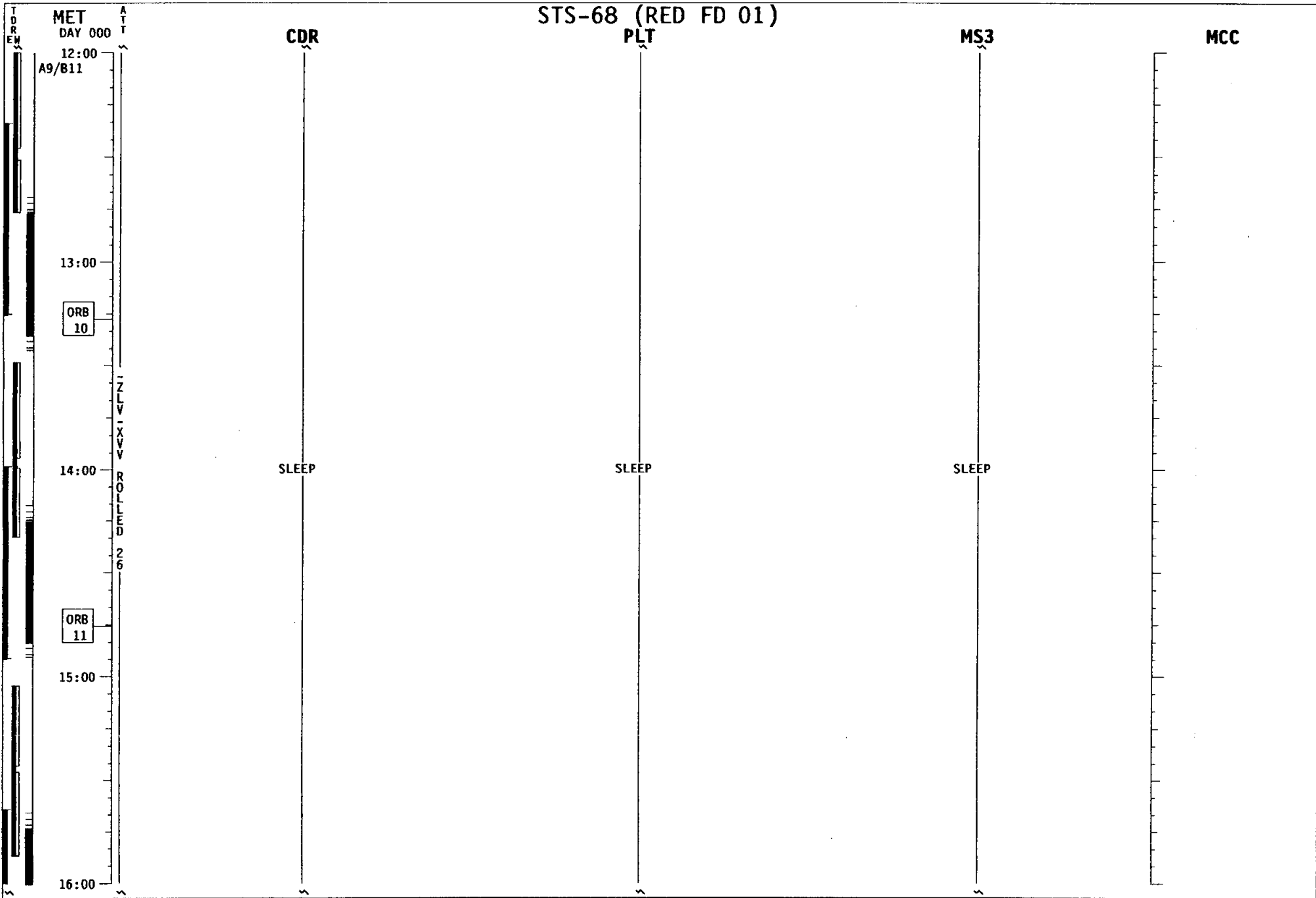


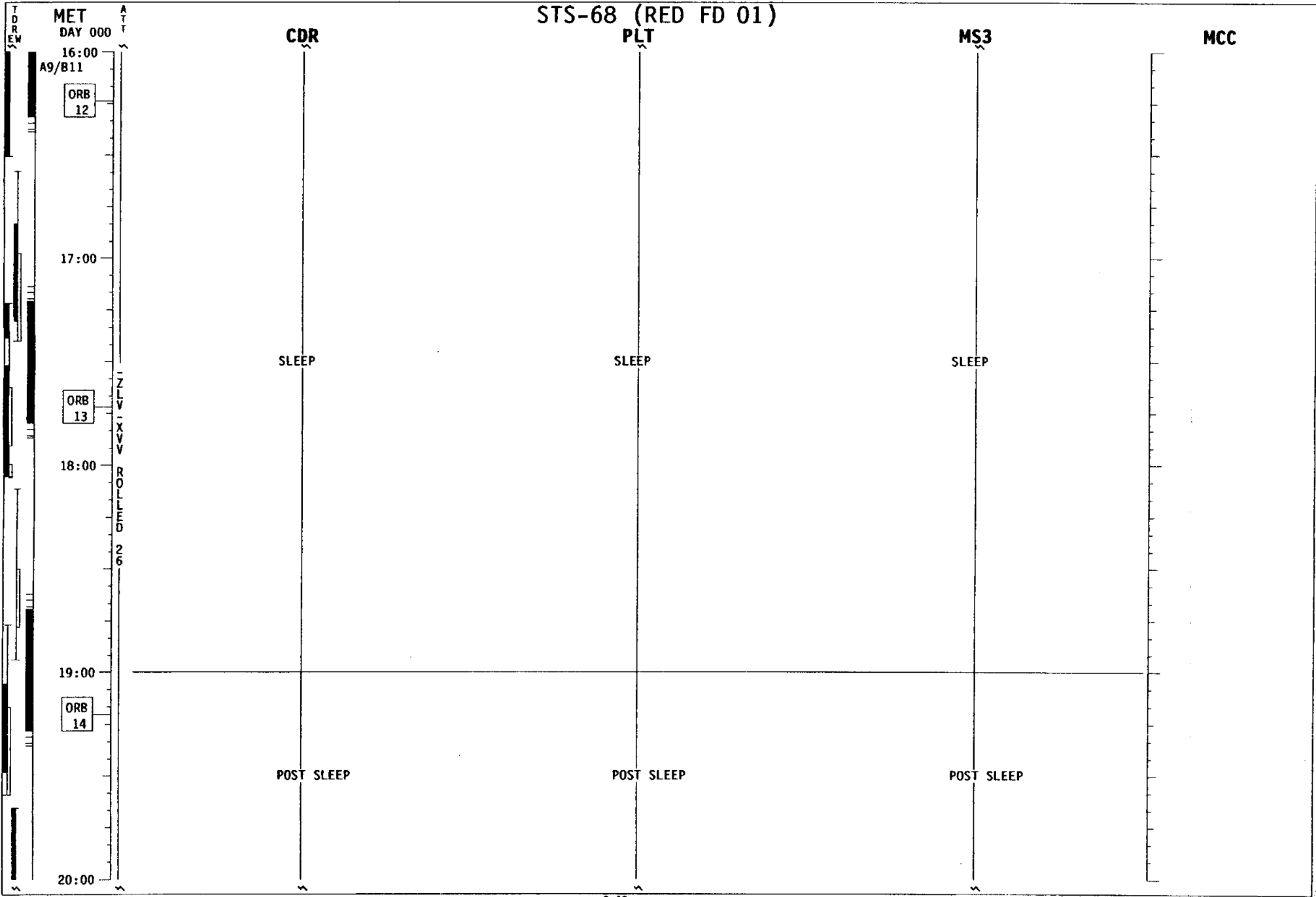
STS-68 (BLU FD 01)











STS-68 (BLU FD 02)

MS2

MS1

MS4

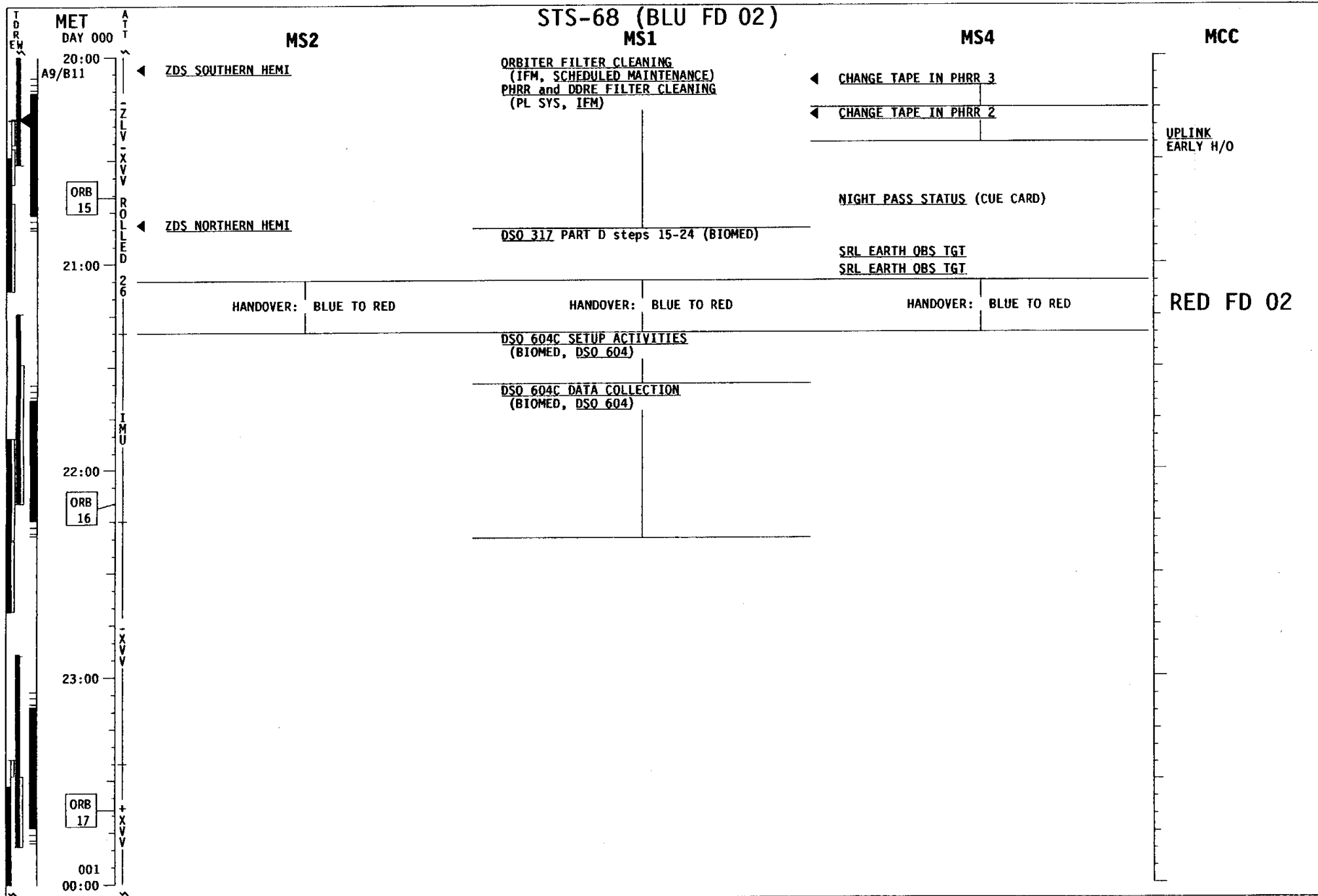
MCC

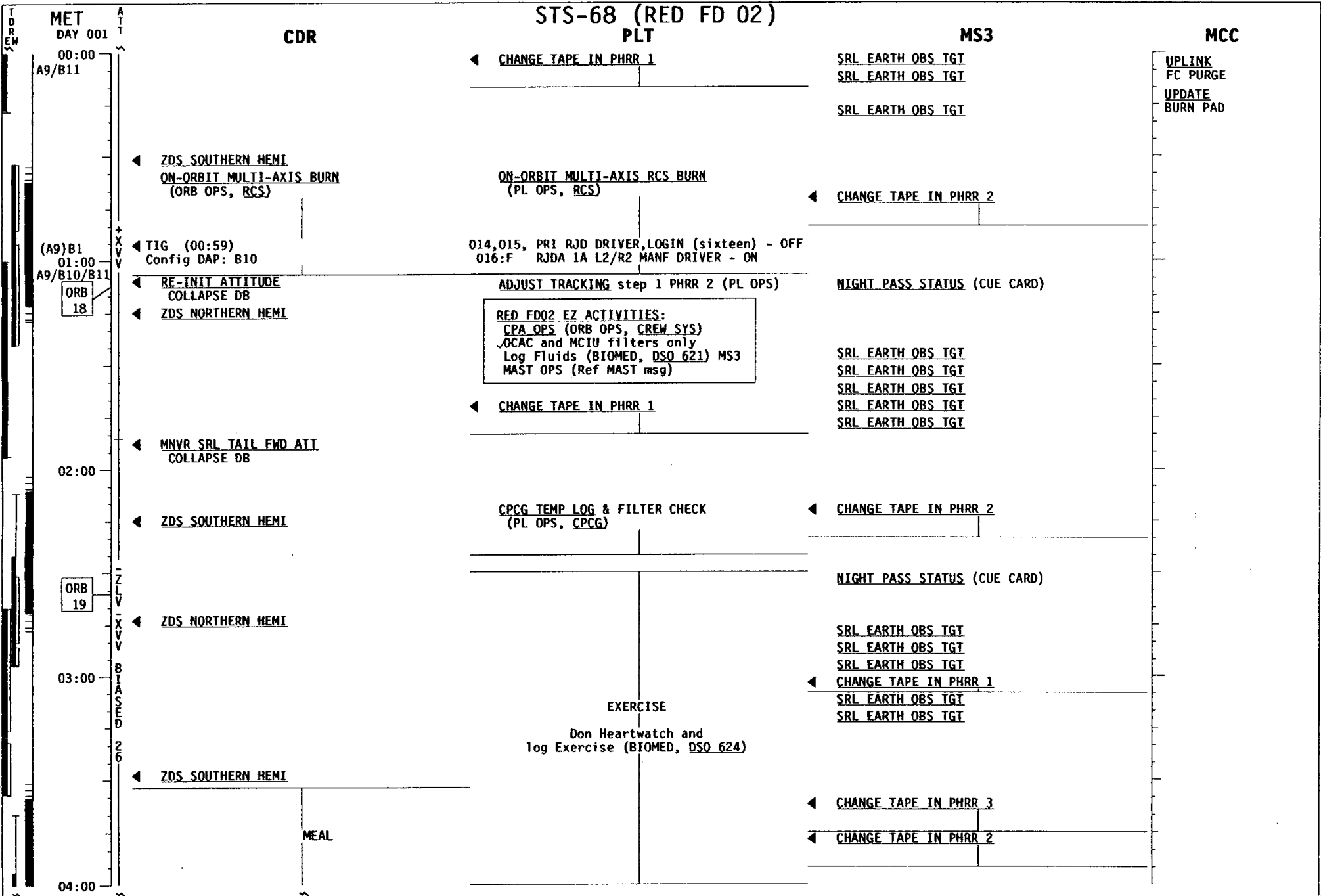
T D R E W
 A T T
 16:00
 A9/B11
 ORB 12
 17:00
 ORB 13
 18:00
 R O L L E D
 2 6
 19:00
 ORB 14
 20:00

	<p>◀ <u>ZDS NORTHERN HEMI</u></p>	<p><u>DSO 317 PART C steps 13-16 (BIOMED)</u> <u>DSO 317 PART D steps 1-5 (BIOMED)</u></p>	<p><u>NIGHT PASS STATUS (CUE CARD)</u></p> <p><u>SRL EARTH OBS TGT</u></p>
16:00			
17:00	<p>MEAL</p> <p>◀ <u>ZDS SOUTHERN HEMI</u></p> <p>MEAL</p>	<p>MEAL</p>	<p><u>SRL EARTH OBS TGT</u> <u>SRL EARTH OBS TGT</u></p>
18:00	<p>◀ <u>ZDS NORTHERN HEMI</u></p>	<p><u>DSO 317 PART D steps 6-14 (BIOMED)</u></p>	<p><u>NIGHT PASS STATUS (CUE CARD)</u></p> <p><u>SRL EARTH OBS TGT</u></p>
19:00	<p>◀ <u>ZDS SOUTHERN HEMI</u></p>	<p><u>DSO 317 PART D steps 6-14 (BIOMED)</u></p> <p><u>CPCG FILTER CHECK</u></p>	<p><u>SRL EARTH OBS TGT</u> <u>SRL EARTH OBS TGT</u></p>
20:00	<p>◀ <u>ZDS NORTHERN HEMI</u></p>	<p><u>CABIN TEMP SURVEY</u> <u>(ORB OPS, DTO 664)</u></p>	<p><u>NIGHT PASS STATUS (CUE CARD)</u></p> <p><u>SRL EARTH OBS TGT</u> <u>SRL EARTH OBS TGT</u></p>
		<p><u>DSO 317 PART D steps 6-14 (BIOMED)</u> <u>ORBITER FILTER CLEANING</u> <u>(IFM, SCHEDULED MAINTENANCE)</u></p>	<p><u>SRL EARTH OBS TGT</u> <u>SRL EARTH OBS TGT</u></p>

STS-68 (RED FD 01)

	MET DAY 000 20:00 A9/B11	CDR POST SLEEP	PLT POST SLEEP	MS3 POST SLEEP	MCC
		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> COAS CALIBRATION LOG STAR ID: -Z 17, ACRUX STAR AVAIL: 0/21:19-22:05 -Z Δ BIAS: ____ . ____ UPDATE TIME: __/__:__:__ </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> HUD CALIBRATION LOG STAR ID: 22, ALTAIR STAR AVAIL: 0/21:30-22:15 +X Δ BIAS: ____ . ____ UPDATE TIME: __/__:__:__ </div>		UPLINK EARLY H/O
ORB 15	21:00	HANDOVER: BLUE TO RED	HANDOVER: BLUE TO RED	HANDOVER: BLUE TO RED	RED FD 02
		◀ MNVR IMU ALIGN/COAS CAL ATT	019 COAS PWR-OFF Mount COAS-AFT		SNAPSHOT TFL 184
(A9)B5		IMU ALIGN - S TRK (ORB OPS) COAS CALIBRATION (ORB OPS)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> A BLEED ORIFICE CONFIG If O2 Bleed Orifice Assembly not installed M069M LEH O2 8 vlv - c1 Insert O2 Bleed Orifice Assembly into LEH O2 8 QD LEH O2 8 vlv - op C7 LEH O2 SPLY 1,2 vlv - op </div>	◀ CHANGE TAPE IN PHRR 1	
	22:00	◀ MNVR HUD CAL ATT HUD CALIBRATION (ORB OPS, GNC)		NIGHT PASS STATUS (CUE CARD)	
ORB 16		Config DAP: B10 ◀ MNVR SRL TAIL FWD ATT COLLAPSE DB	DSO 604C DATA COLLECTION (BIOMED, DSO 604)	SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT	
A9/B10/B11		019 COAS PWR - OFF Stow COAS ◀ ZDS NORTHERN HEMI			
		BLEED ORIFICE CONFIG A			
	23:00	◀ ZDS SOUTHERN HEMI	DSO 604C STOW ACTIVITIES (BIOMED, DSO 604)	◀ CHANGE TAPE IN PHRR 2	
		◀ MNVR SRL NOSE FWD ATT COLLAPSE DB	DSO 624 PART A ERGOMETER SETUP (BIOMED, ERGO NOM OPS)	POCC STATUS REPORT TO CREW NIGHT PASS STATUS (CUE CARD)	POCC PL STATUS
ORB 17		◀ ZDS NORTHERN HEMI		SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT	
001 00:00					





STS-68 (BLU FD 02)

MS2

MS1

MS4

MCC

MET
DAY 001

00:00
A9/B11

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

01:00

ORB
18

02:00

ORB
19

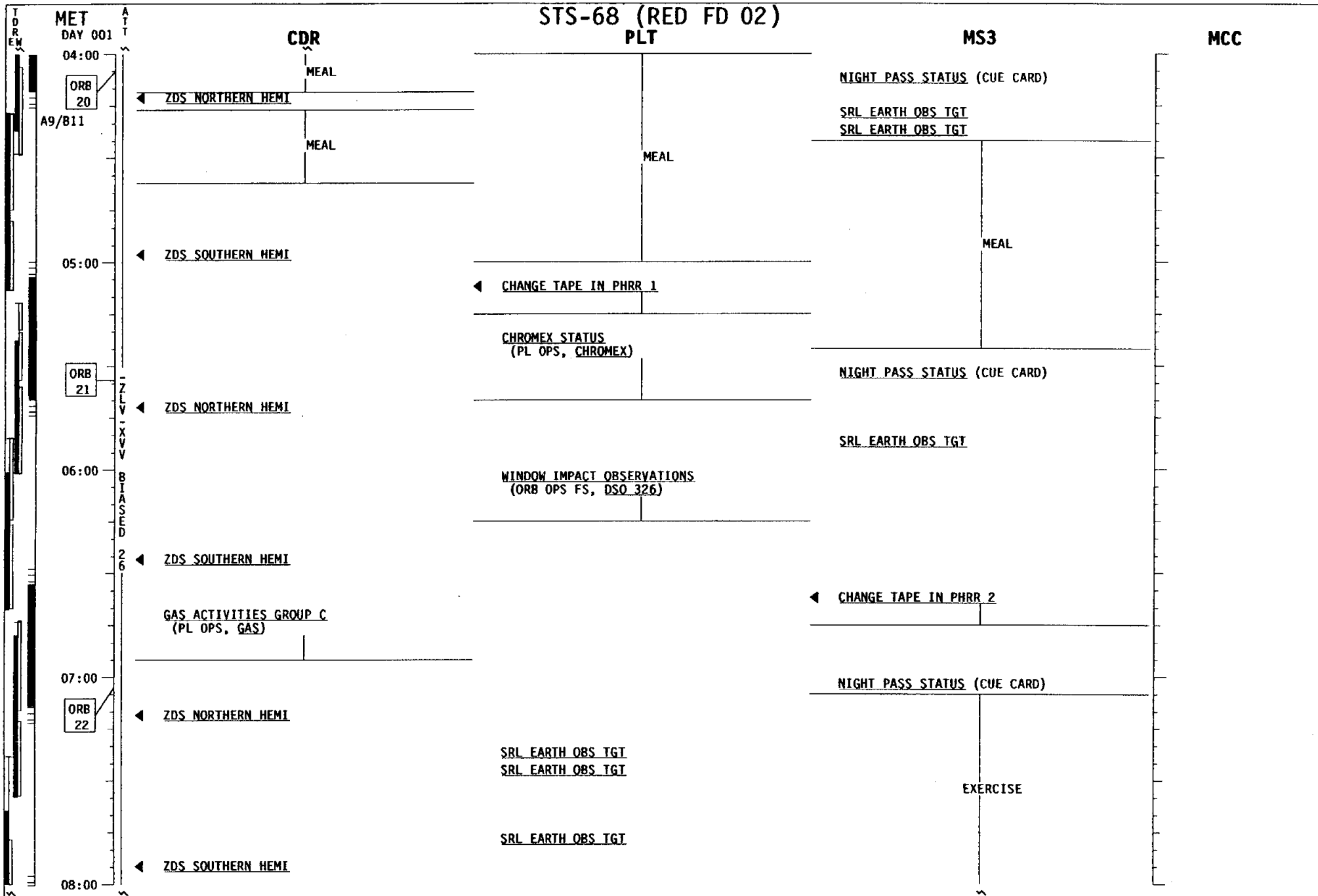
03:00

SLEEP

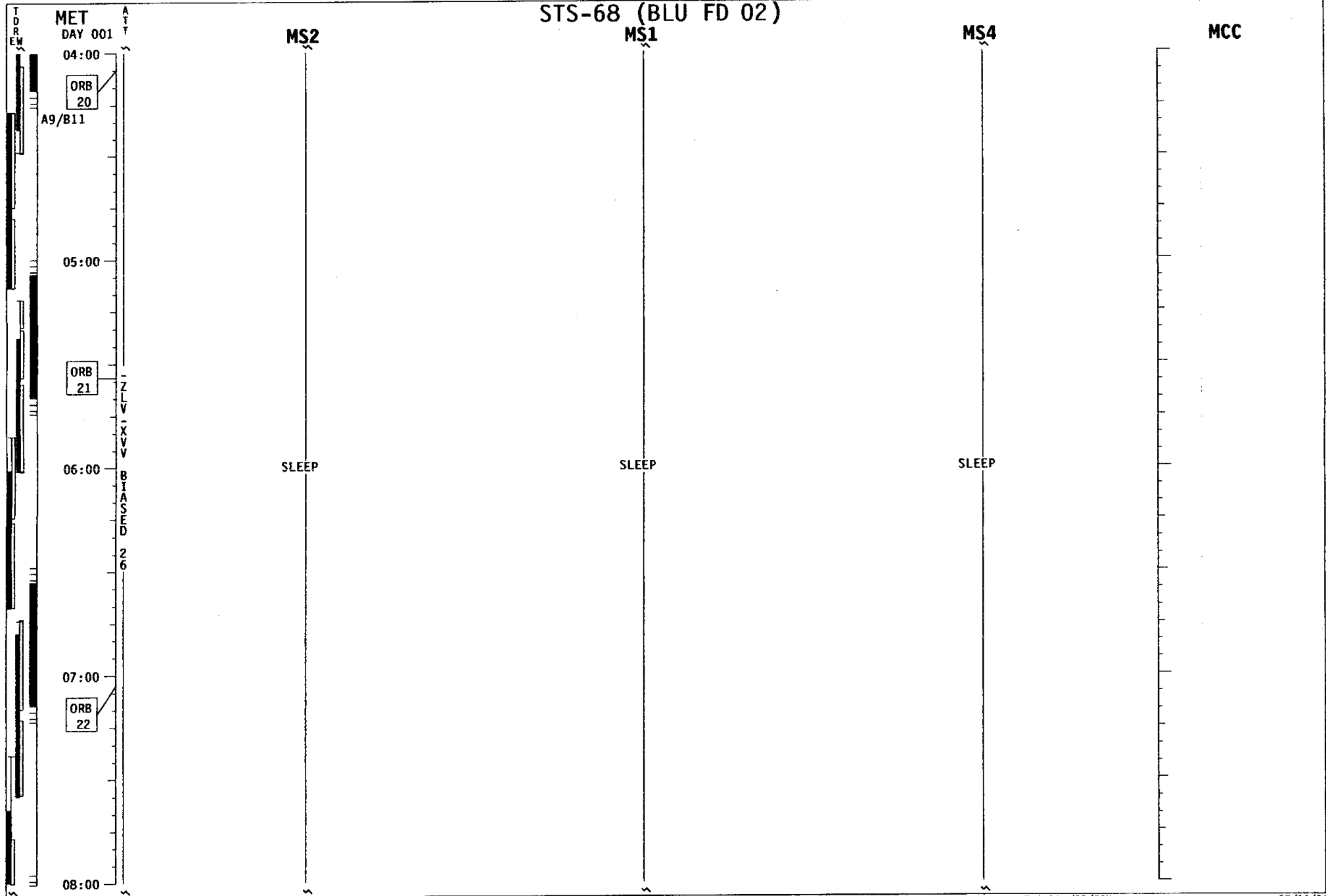
SLEEP

SLEEP

04:00

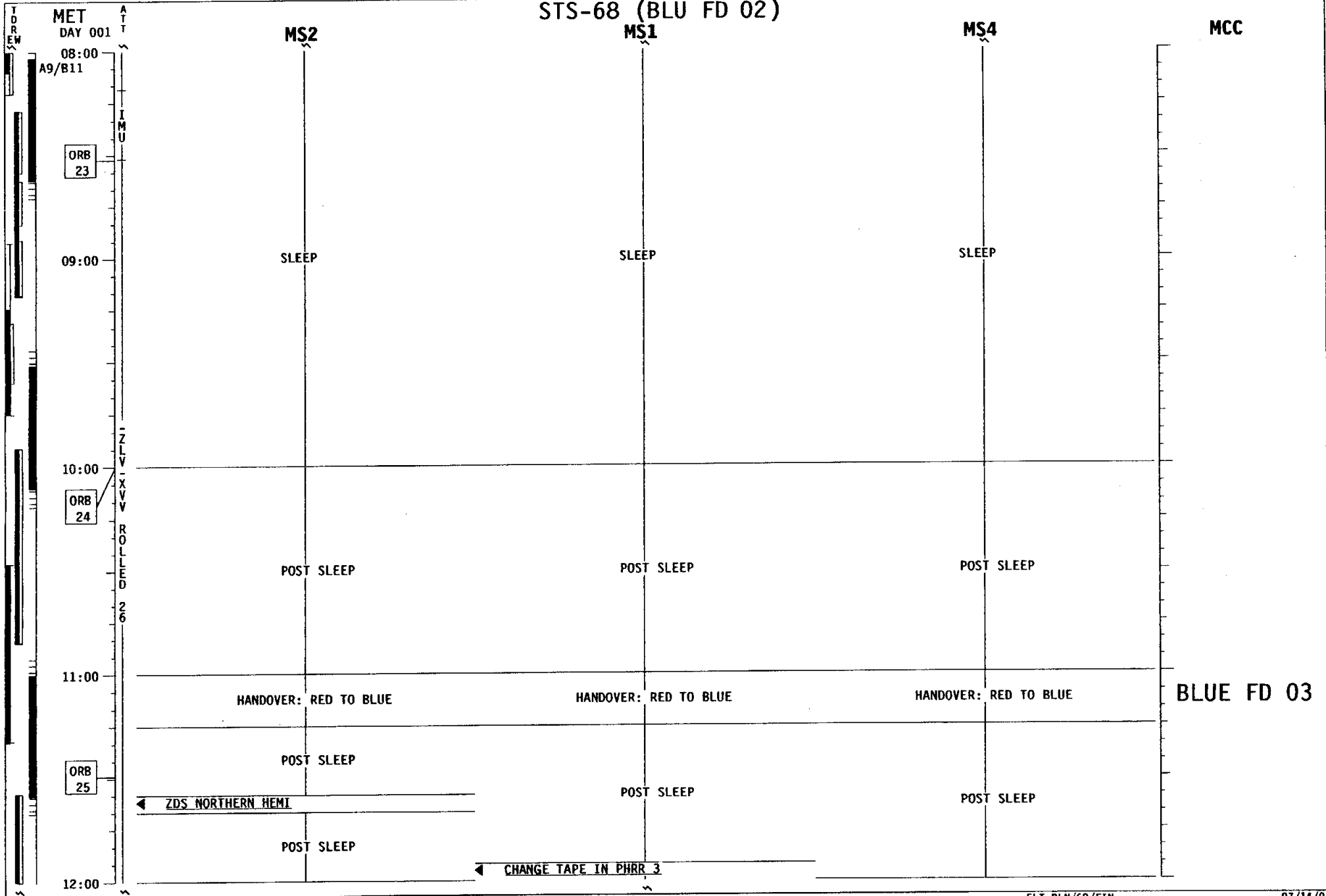


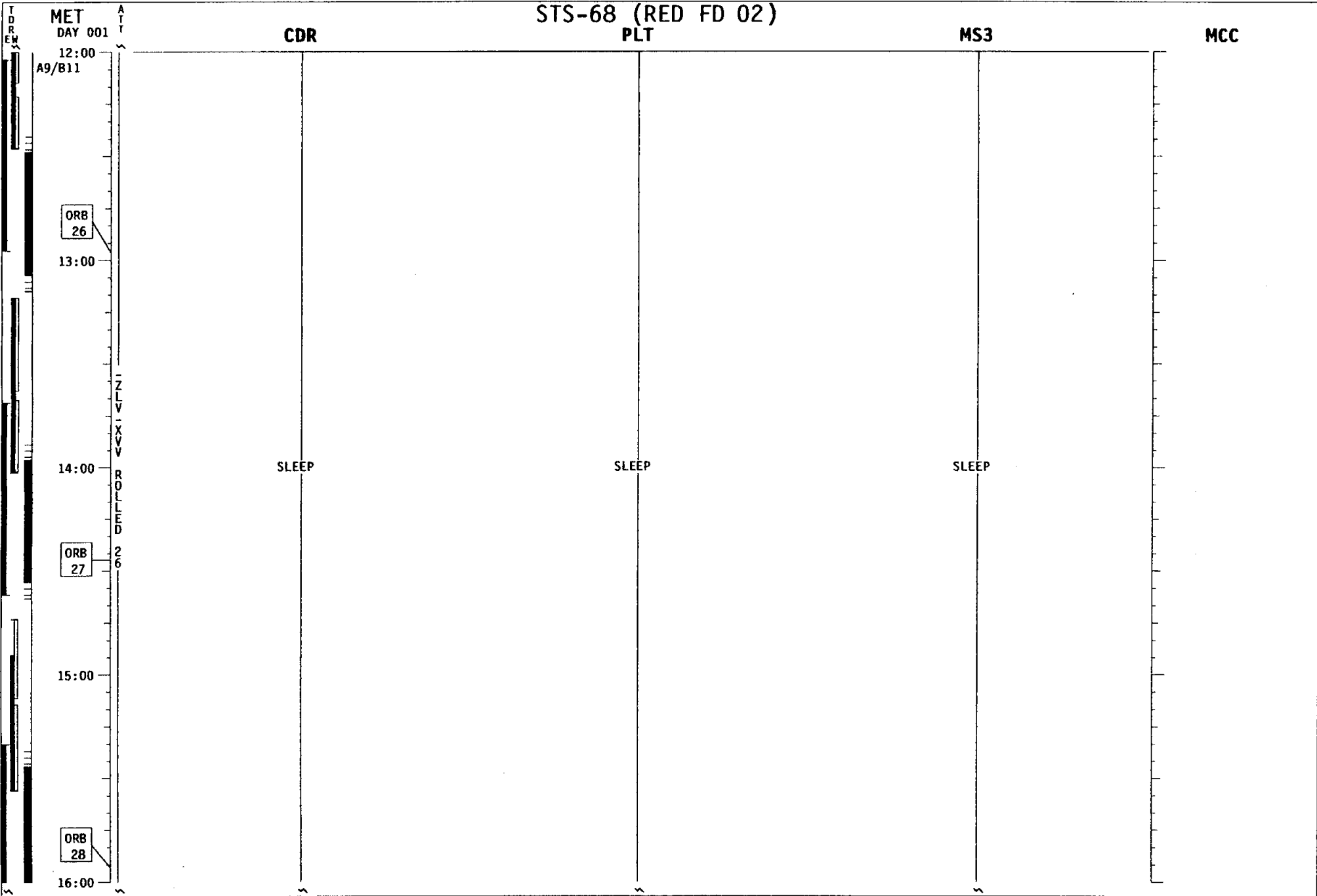
STS-68 (BLU FD 02)

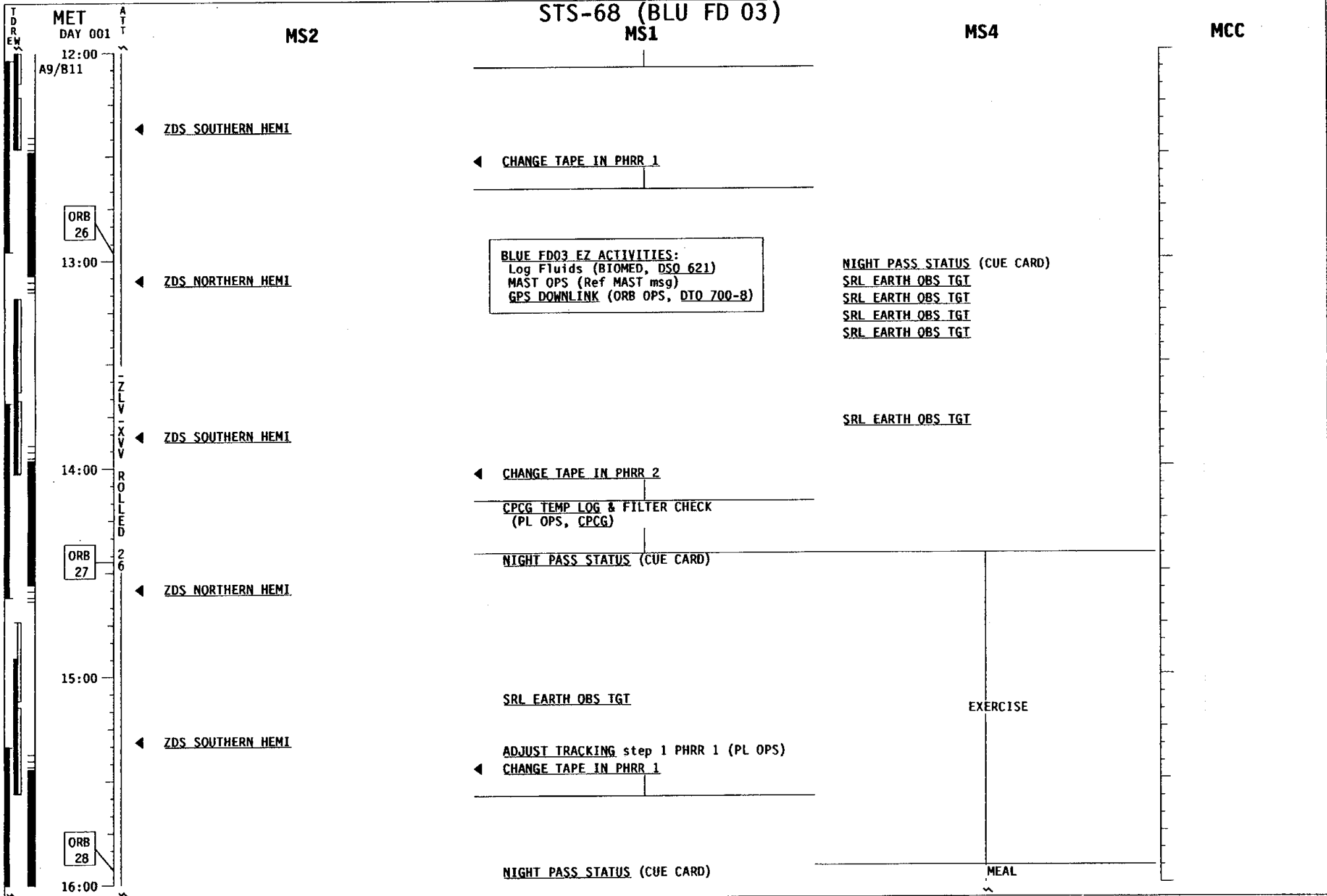


		STS-68 (RED FD 02)			
		CDR	PLT	MS3	
		MCC			
MET DAY 001 08:00 A9/B11 ORB 23 09:00 ORB 24 10:00 ORB 25 11:00 12:00	T D R E W A T T I M U Z L V - X V V R O L L E D 2 6		◀ CHANGE TAPE IN PHRR 1 ◀ MNVR IMU ALIGN ATT IMU ALIGN - S TRK (ORB OPS) ◀ MNVR SRL TAIL FWD ATT COLLAPSE DB ◀ ZDS NORTHERN HEMI ◀ ZDS SOUTHERN HEMI ◀ CHANGE TAPE IN PHRR 2 CPG FILTER CHECK DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	EXERCISE NIGHT PASS STATUS (CUE CARD) SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT NIGHT PASS STATUS (CUE CARD) DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	SNAPSHOT TFL 184
		EXERCISE Don Heartwatch and Log Exercise (BIOMED, DSO 624)			
		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	
		◀ ZDS NORTHERN HEMI DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)			
		PRIVATE MEDICAL CONFERENCE (ALL)			
		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)			
		◀ ZDS SOUTHERN HEMI			
		HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	
		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	

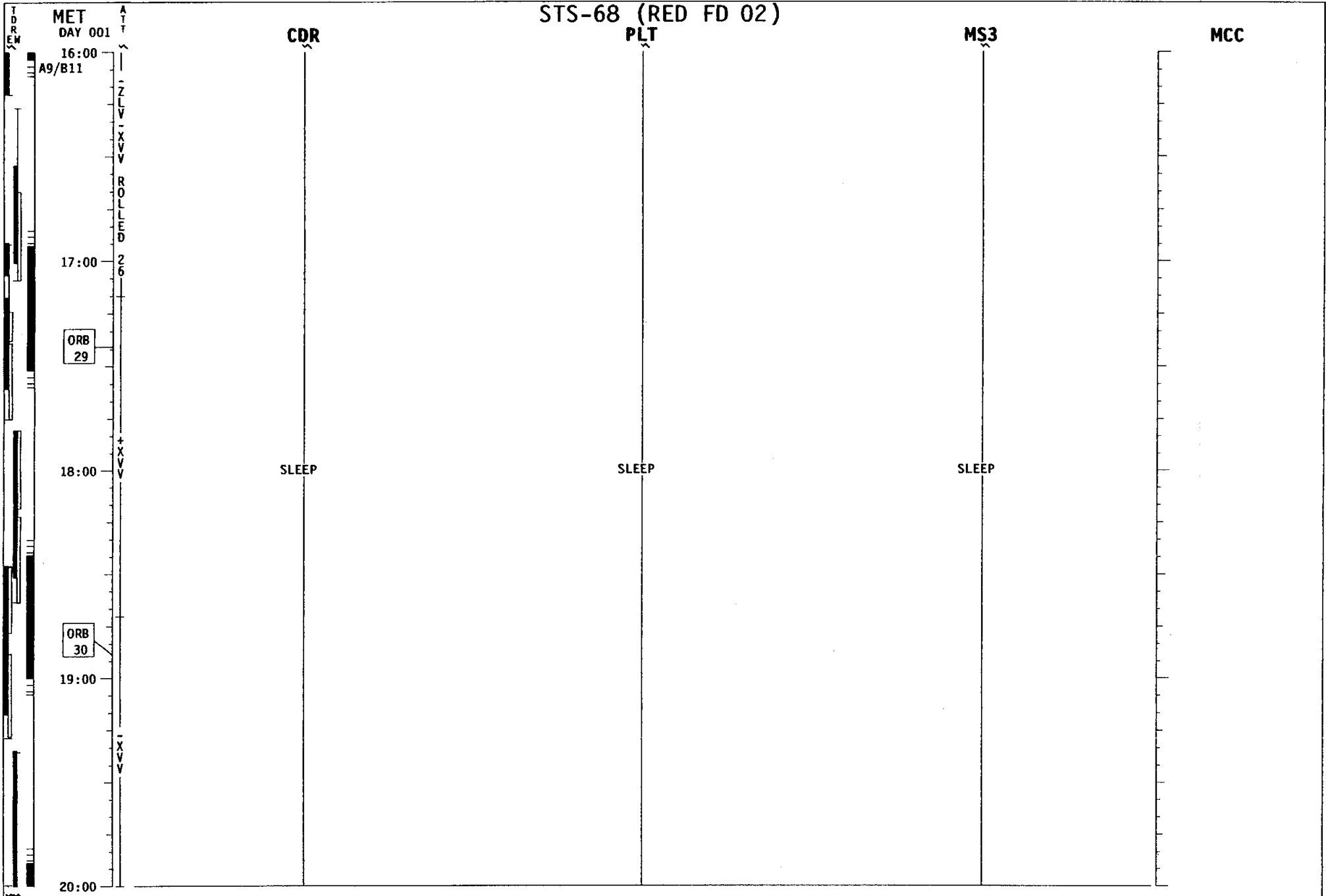
STS-68 (BLU FD 02)







STS-68 (RED FD 02)



MET
DAY 001

CDR

PLT

MS3

MCC

16:00
A9/B11

17:00

18:00

19:00

20:00

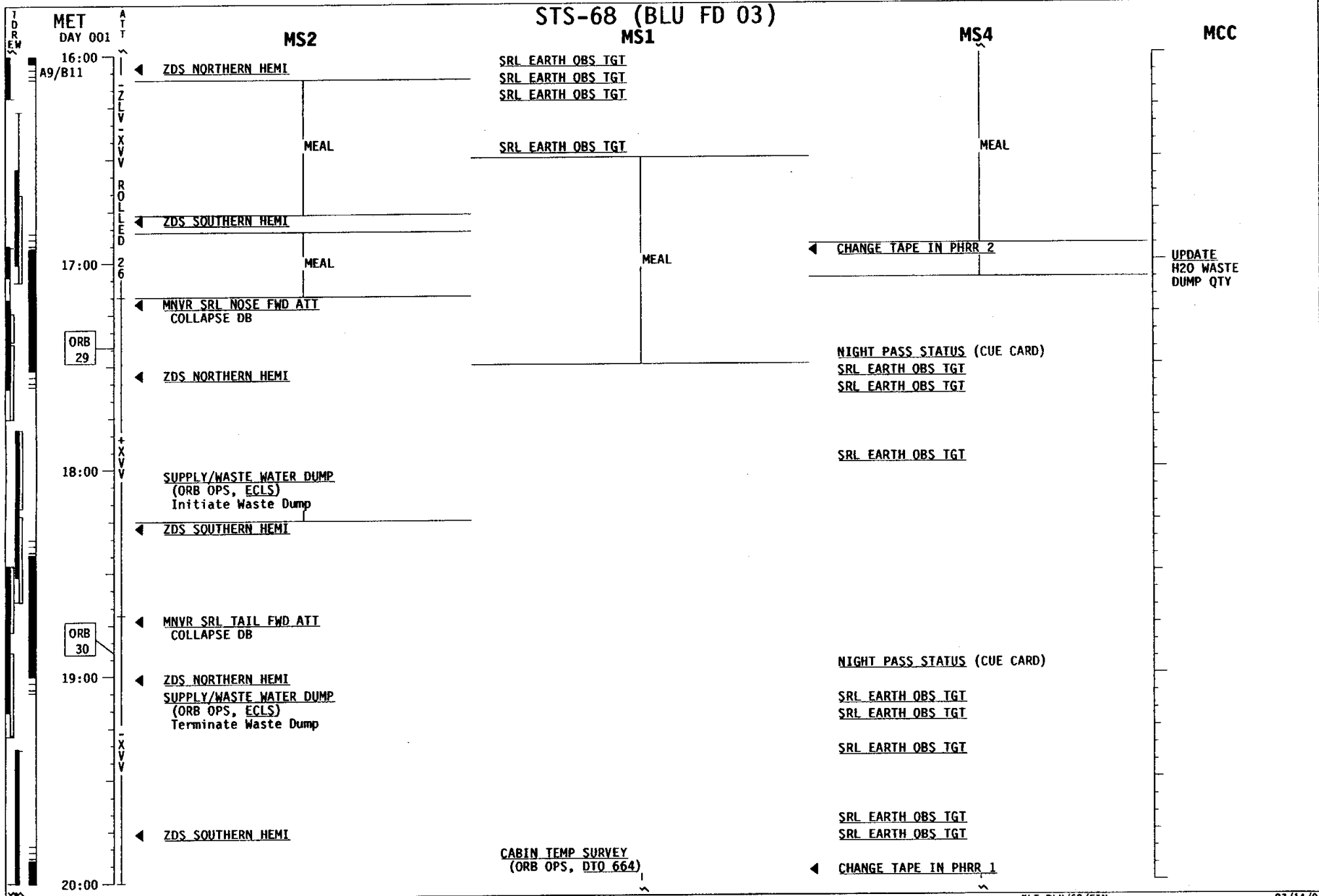
ORB
29

ORB
30

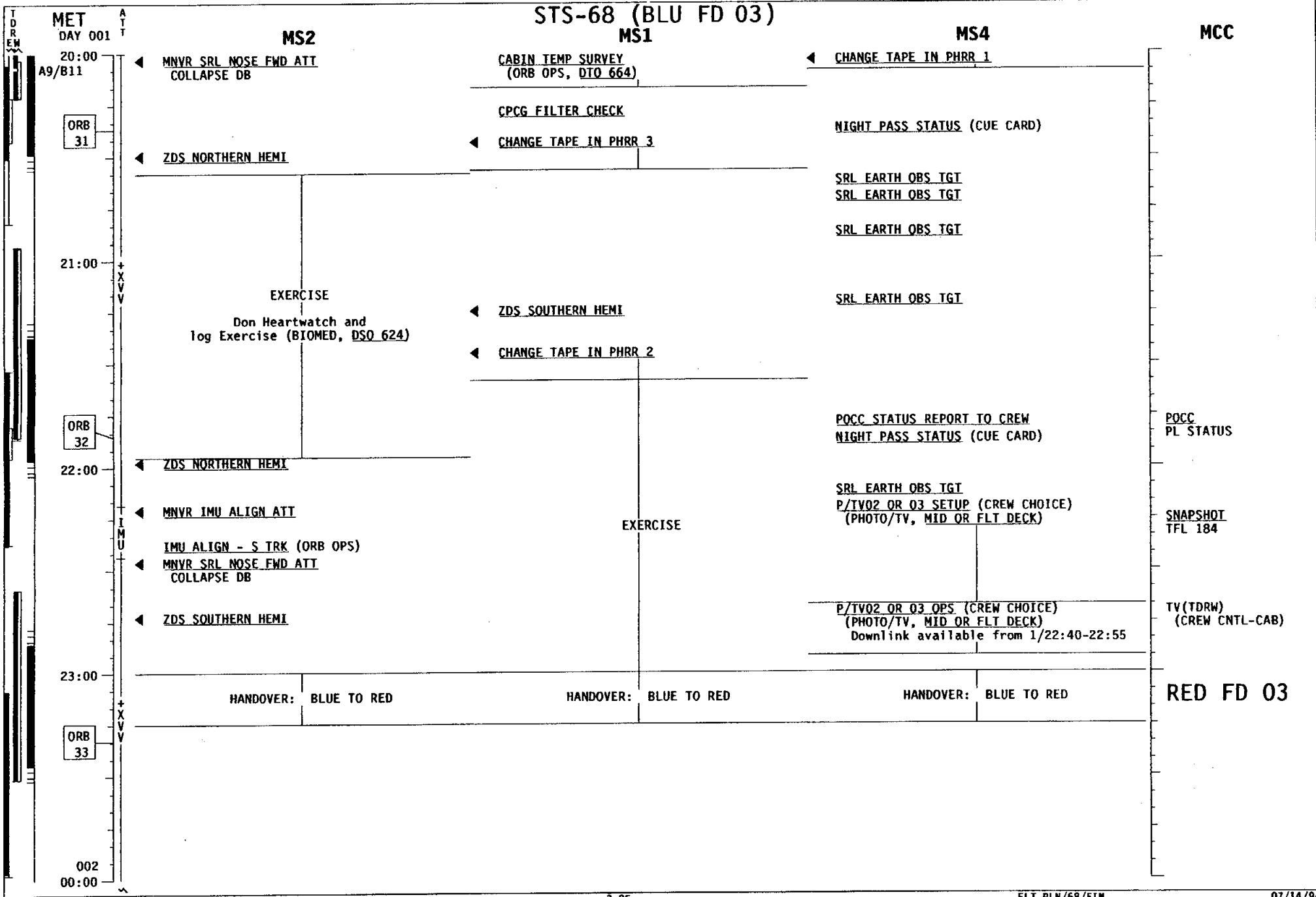
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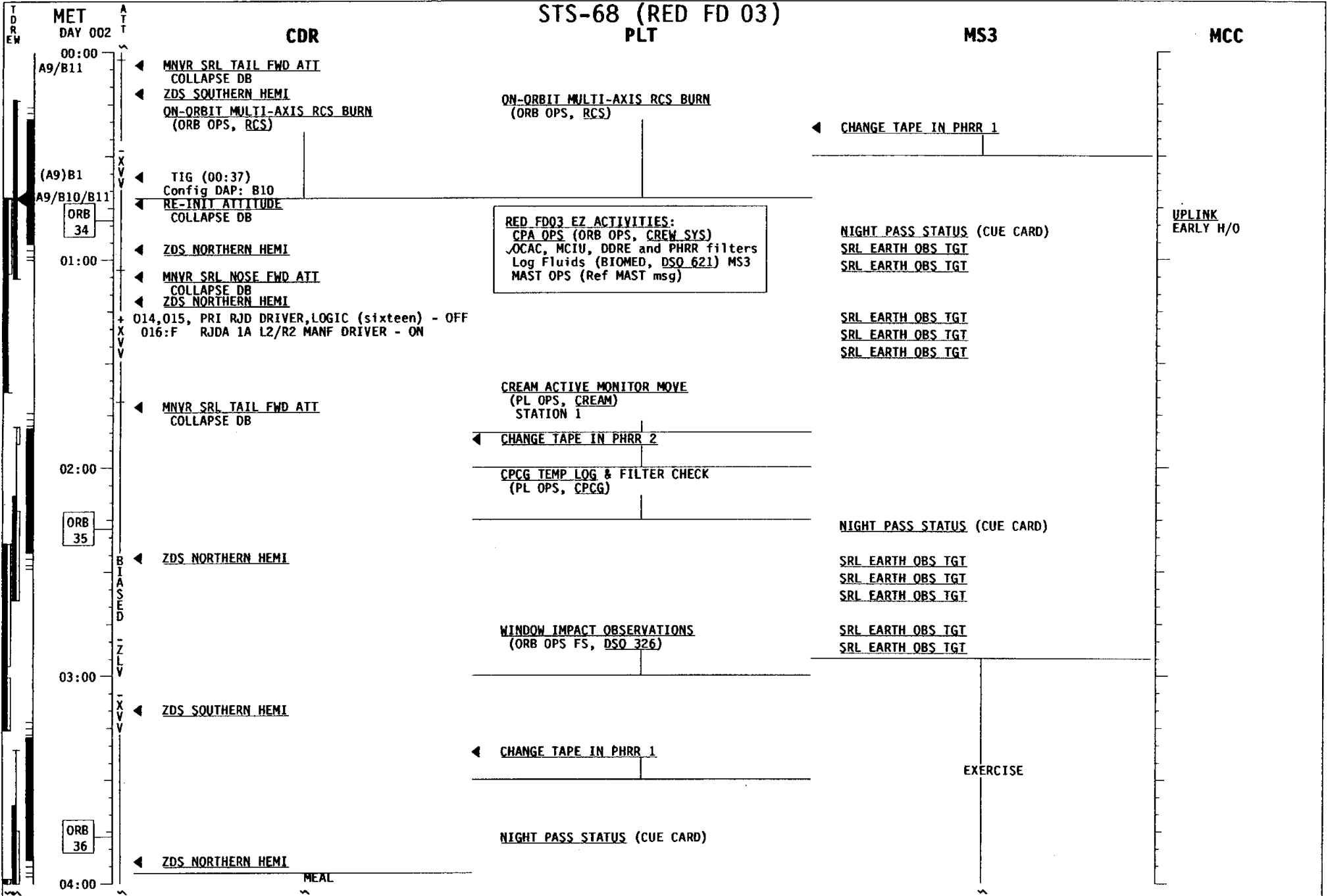
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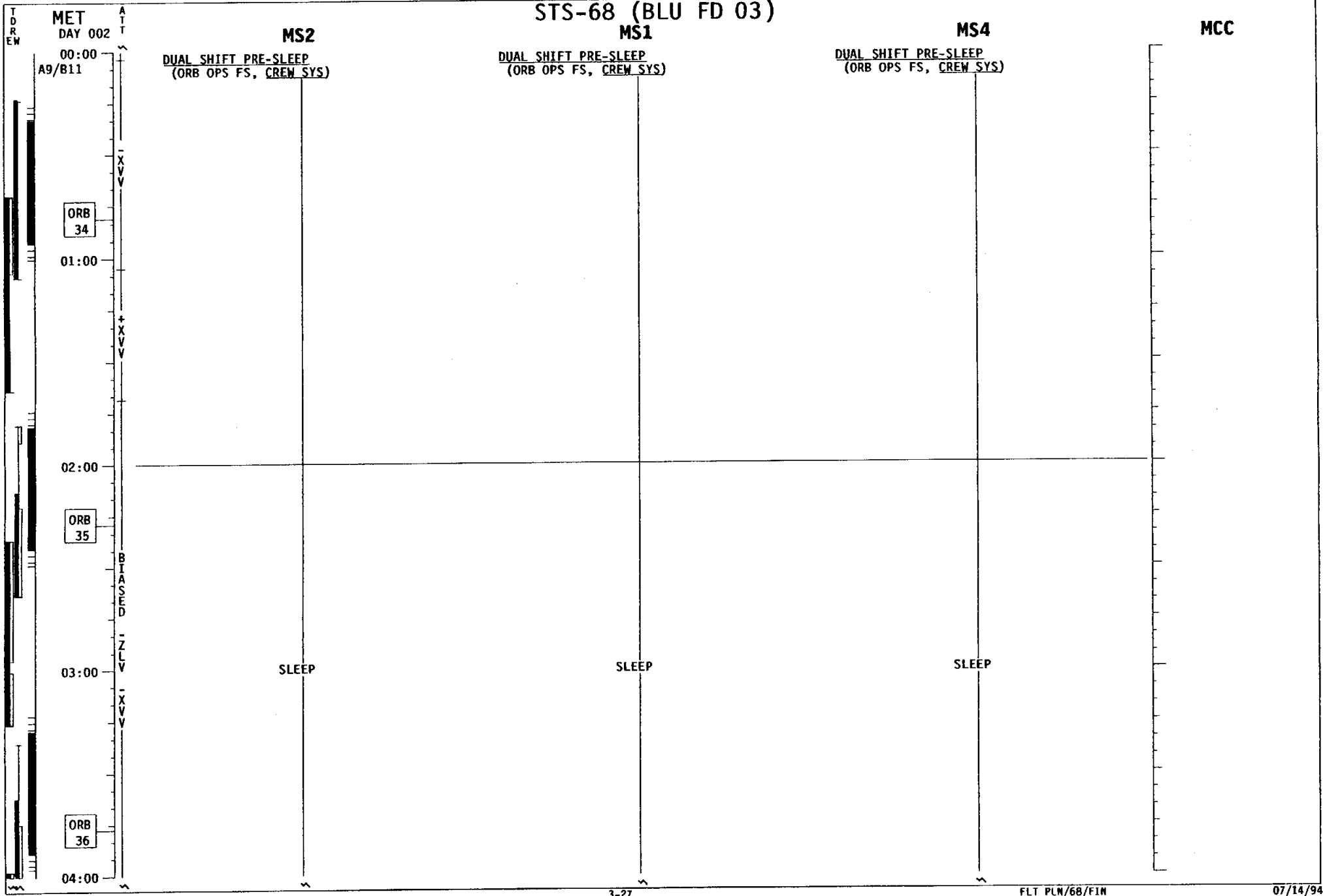
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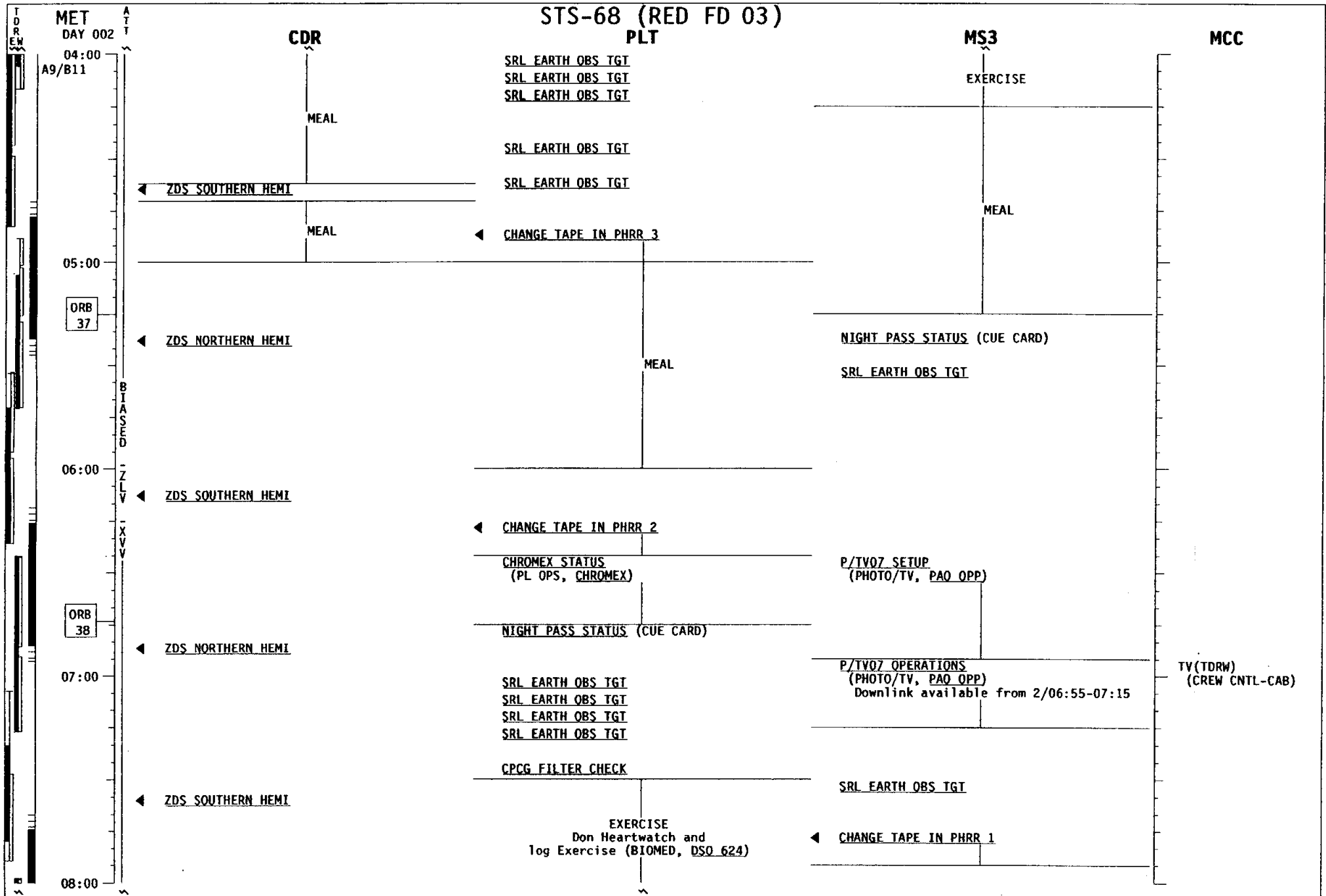


		STS-68 (RED FD 03)				
MET DAY 001		CDR	PLT	MS3	MCC	
T D R E W	20:00 A9/B11					
	ORB 31					
	21:00	POST SLEEP	POST SLEEP	POST SLEEP		
	22:00					
	23:00	HANDOVER: BLUE TO RED	HANDOVER: BLUE TO RED	HANDOVER: BLUE TO RED		RED FD 03
	ORB 33	◀ ZDS NORTHERN HEMI				
	002 00:00	014 PRI RJD DRIVER, LOGIC (sixteen) - ON			NIGHT PASS STATUS (CUE CARD) SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT	UPDATE BURN PAD

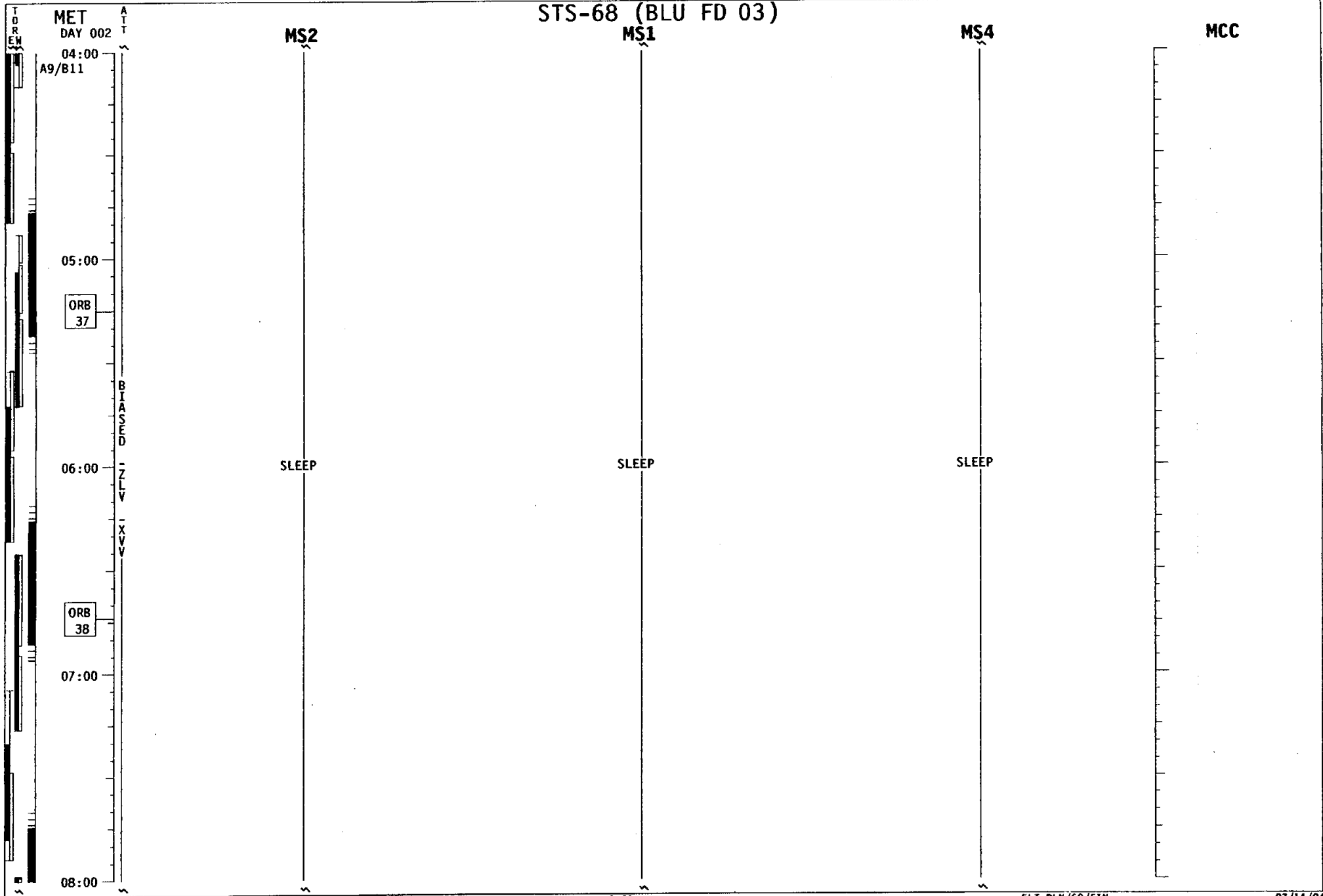


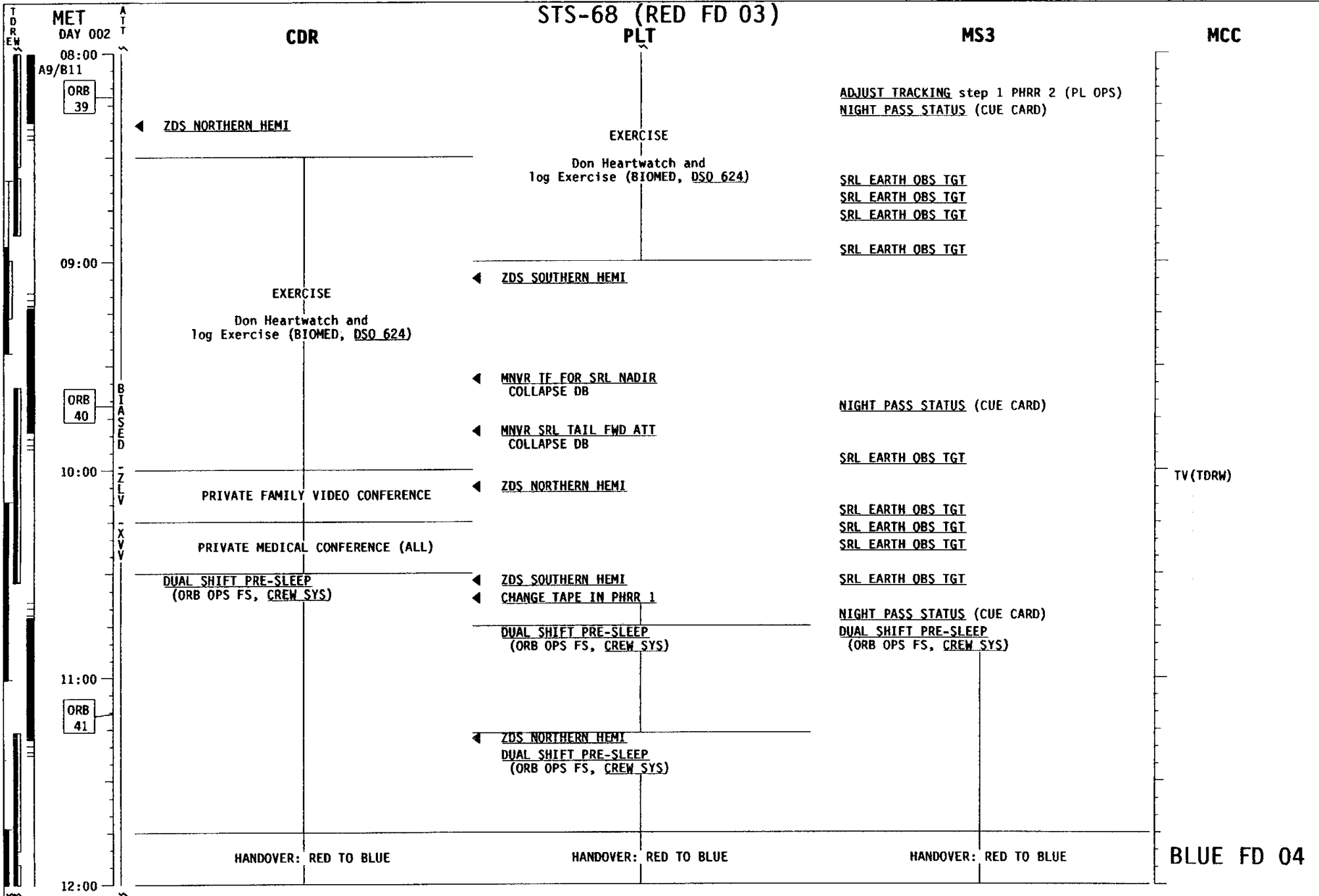




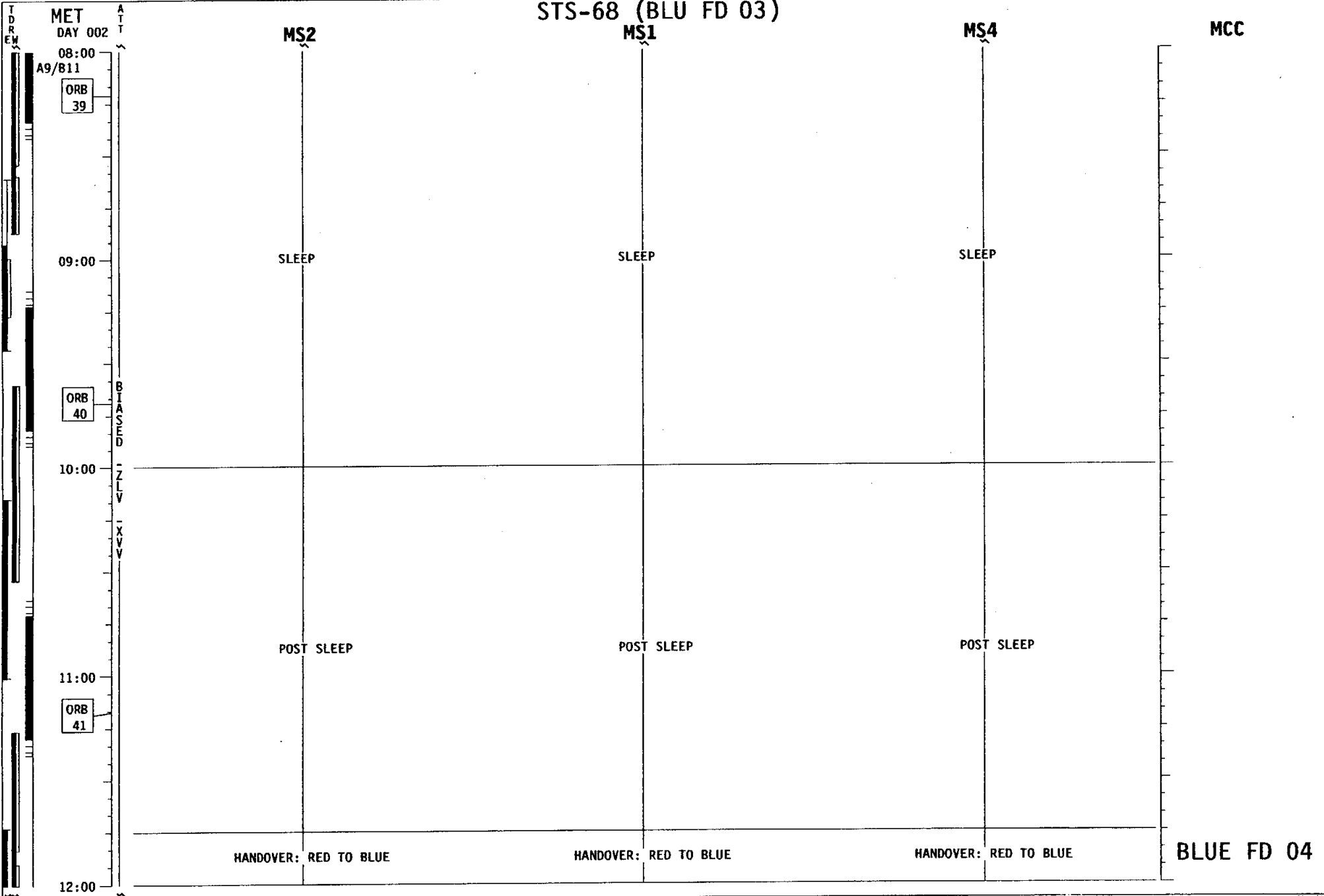


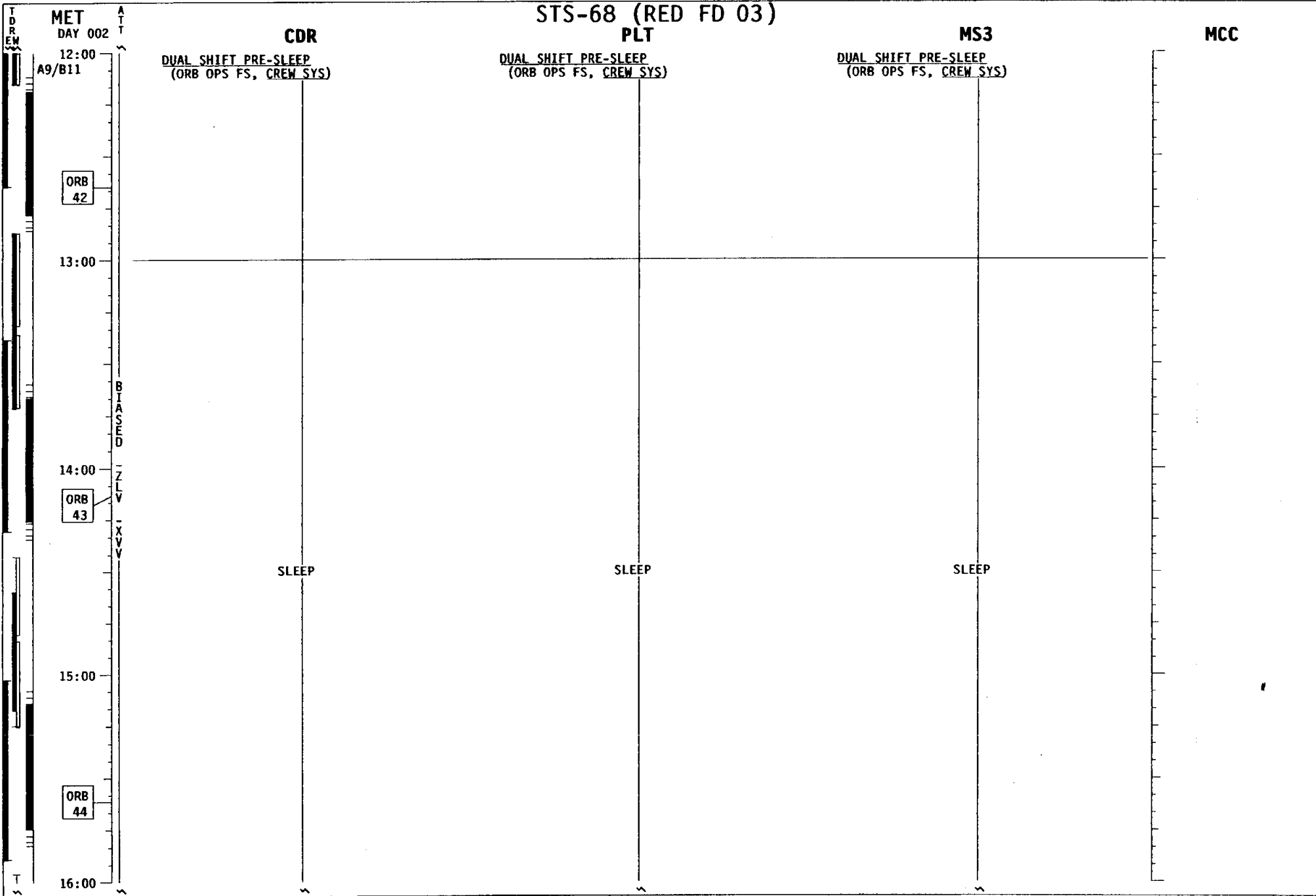
STS-68 (BLU FD 03)

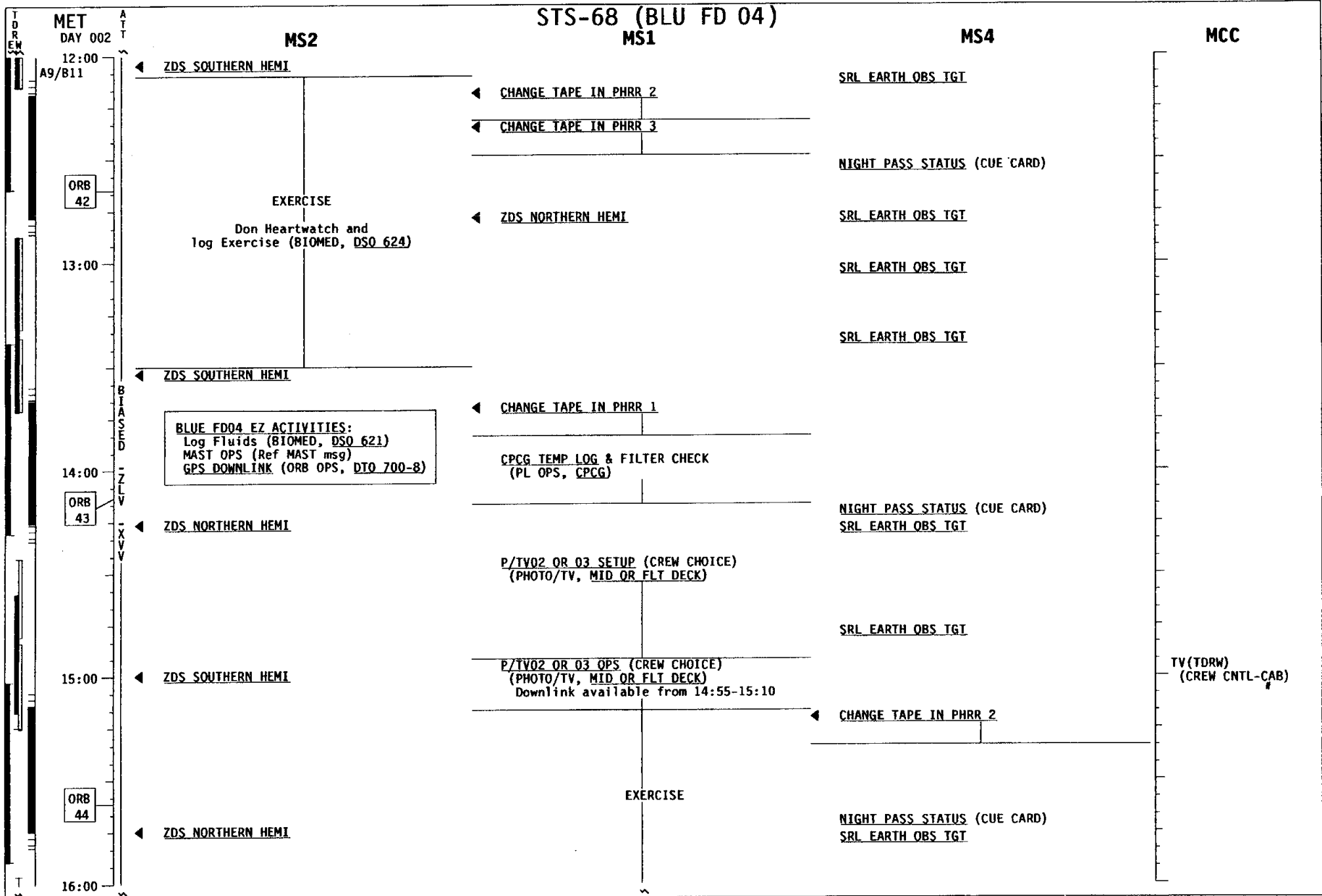


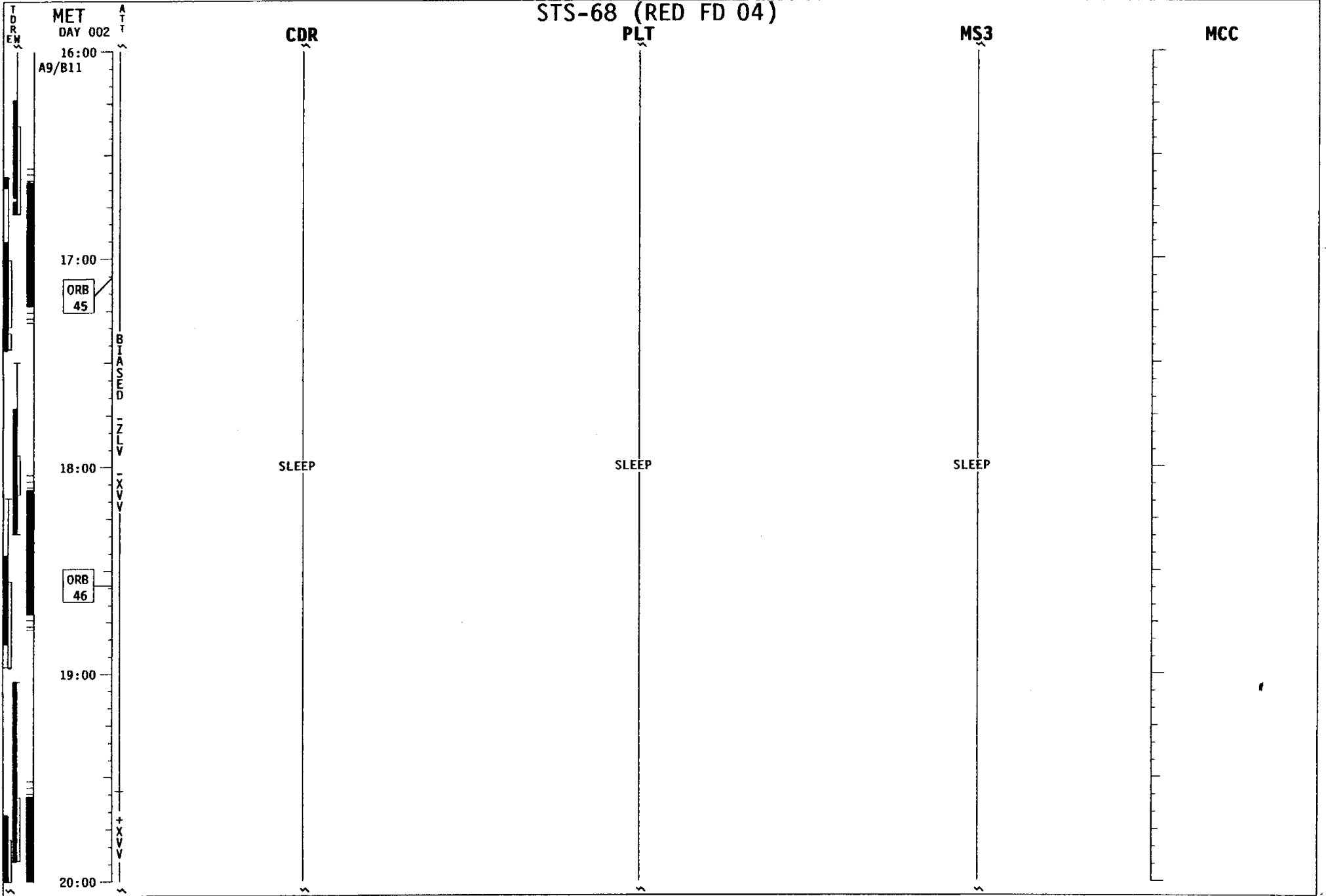


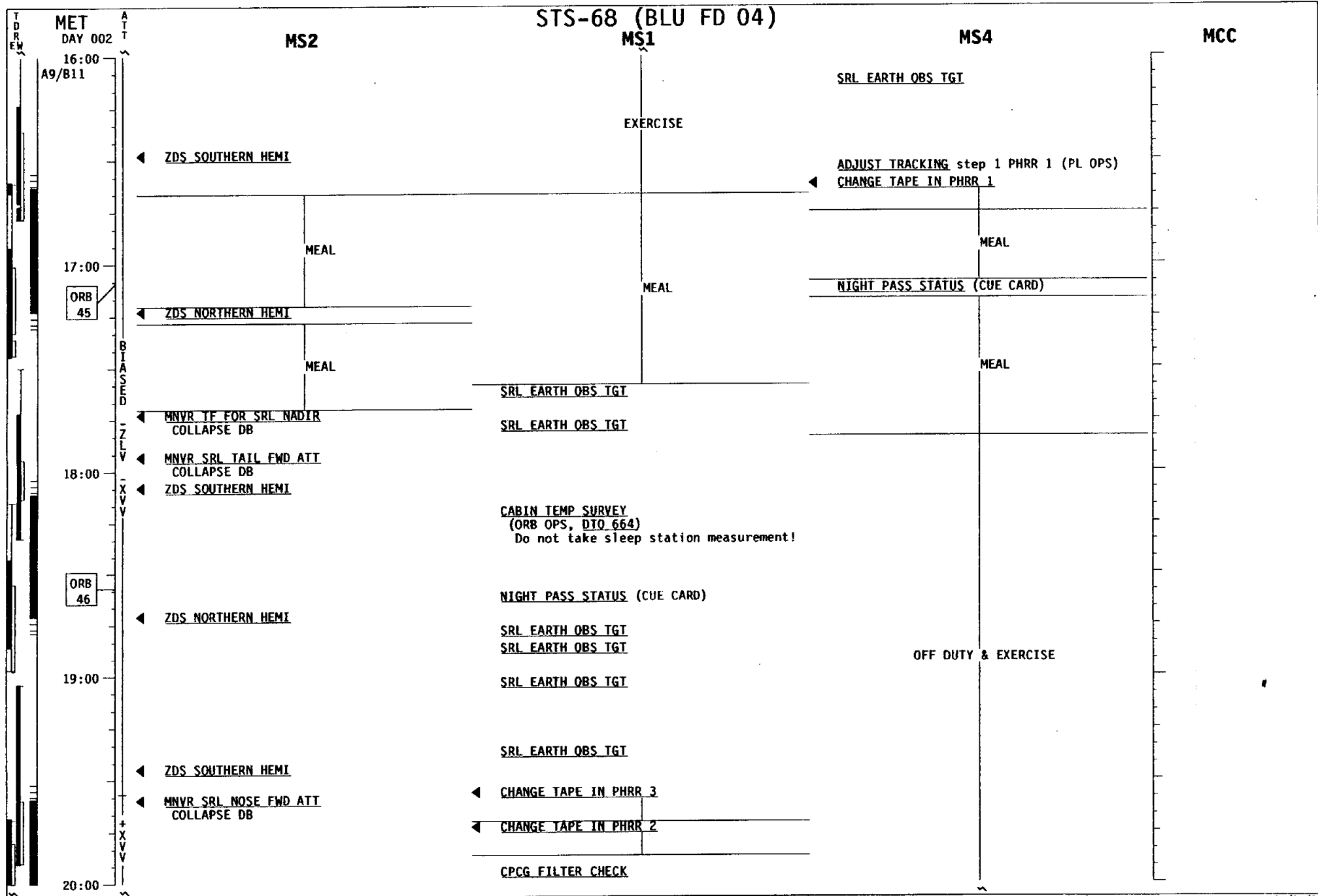
STS-68 (BLU FD 03)

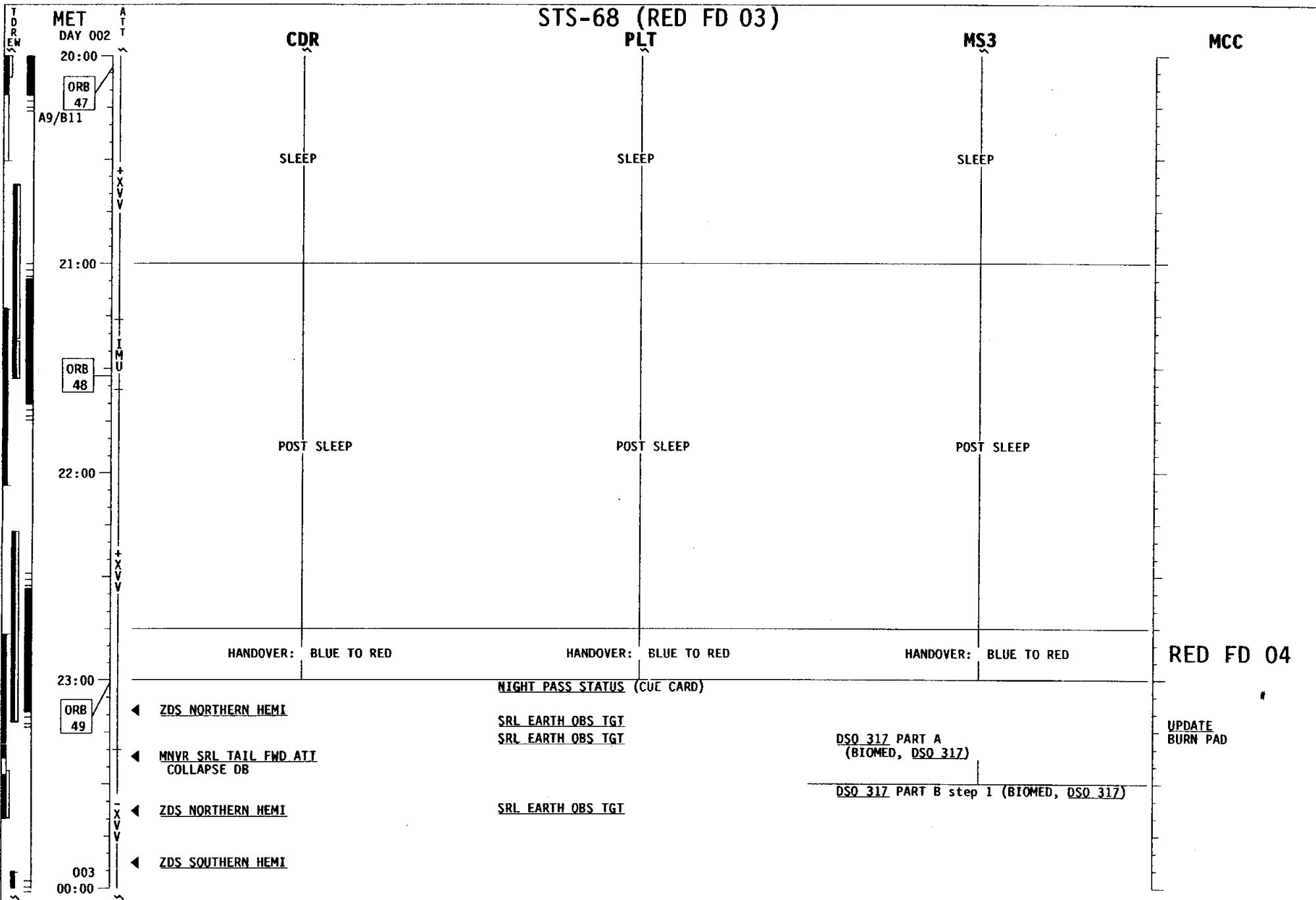


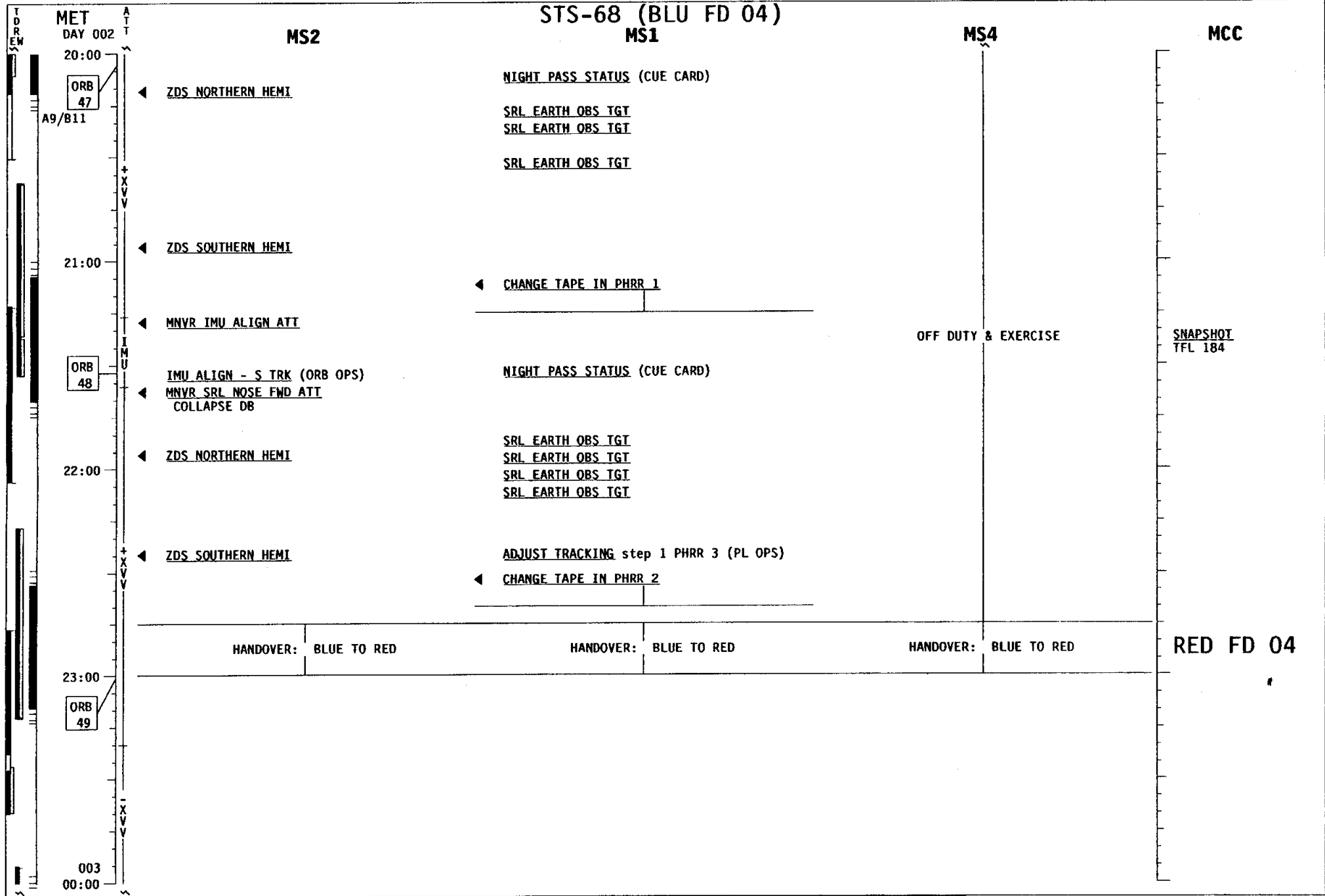


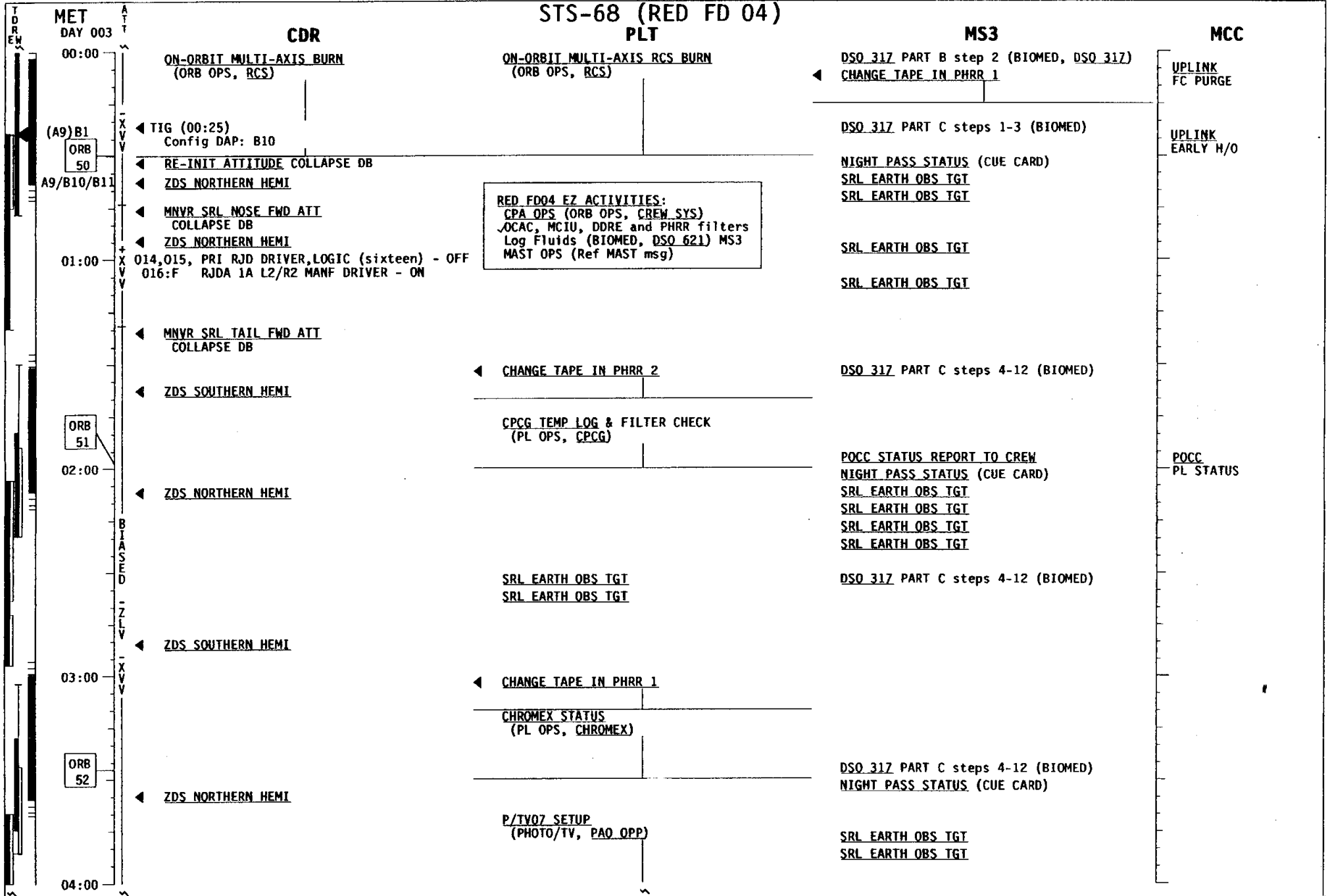


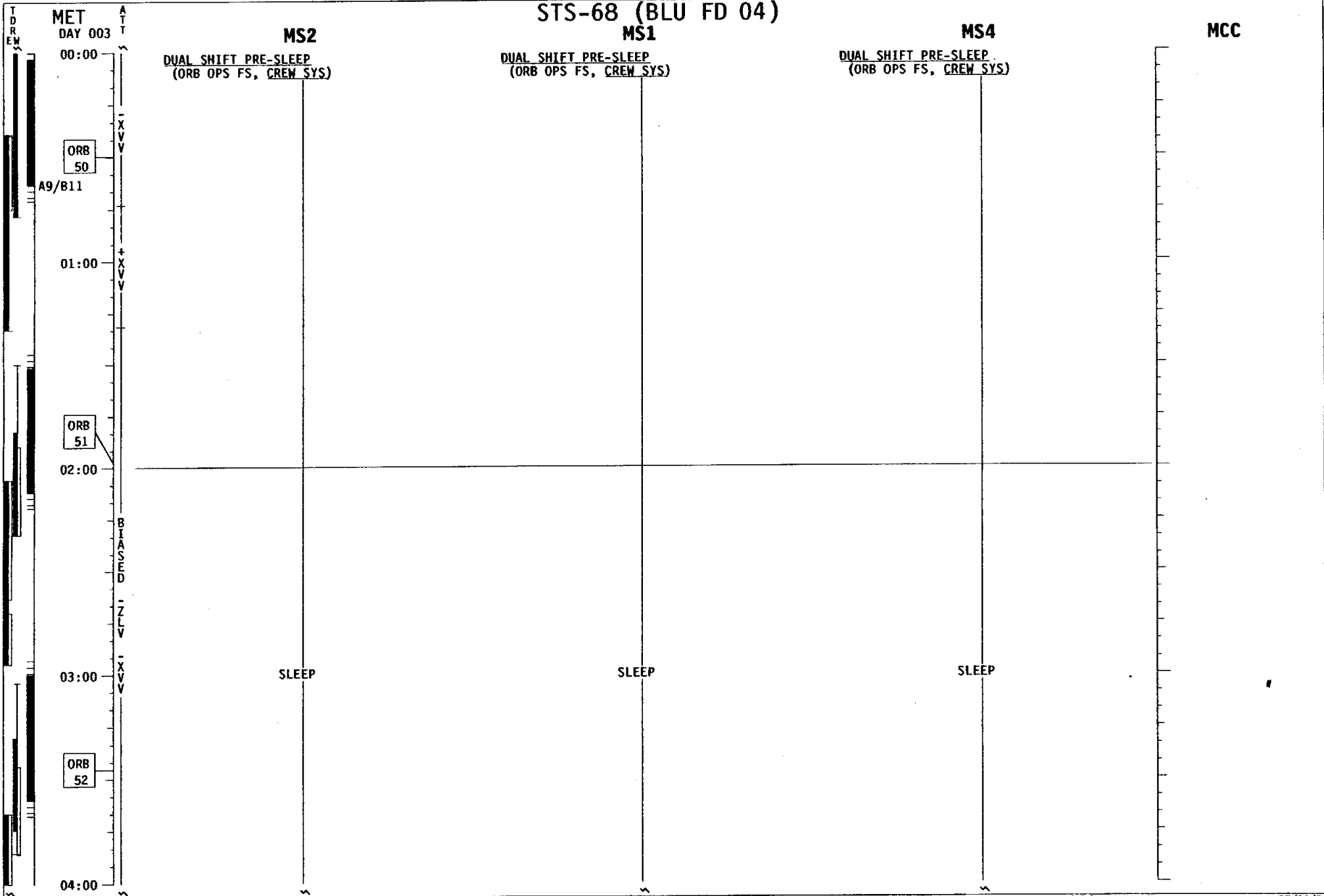


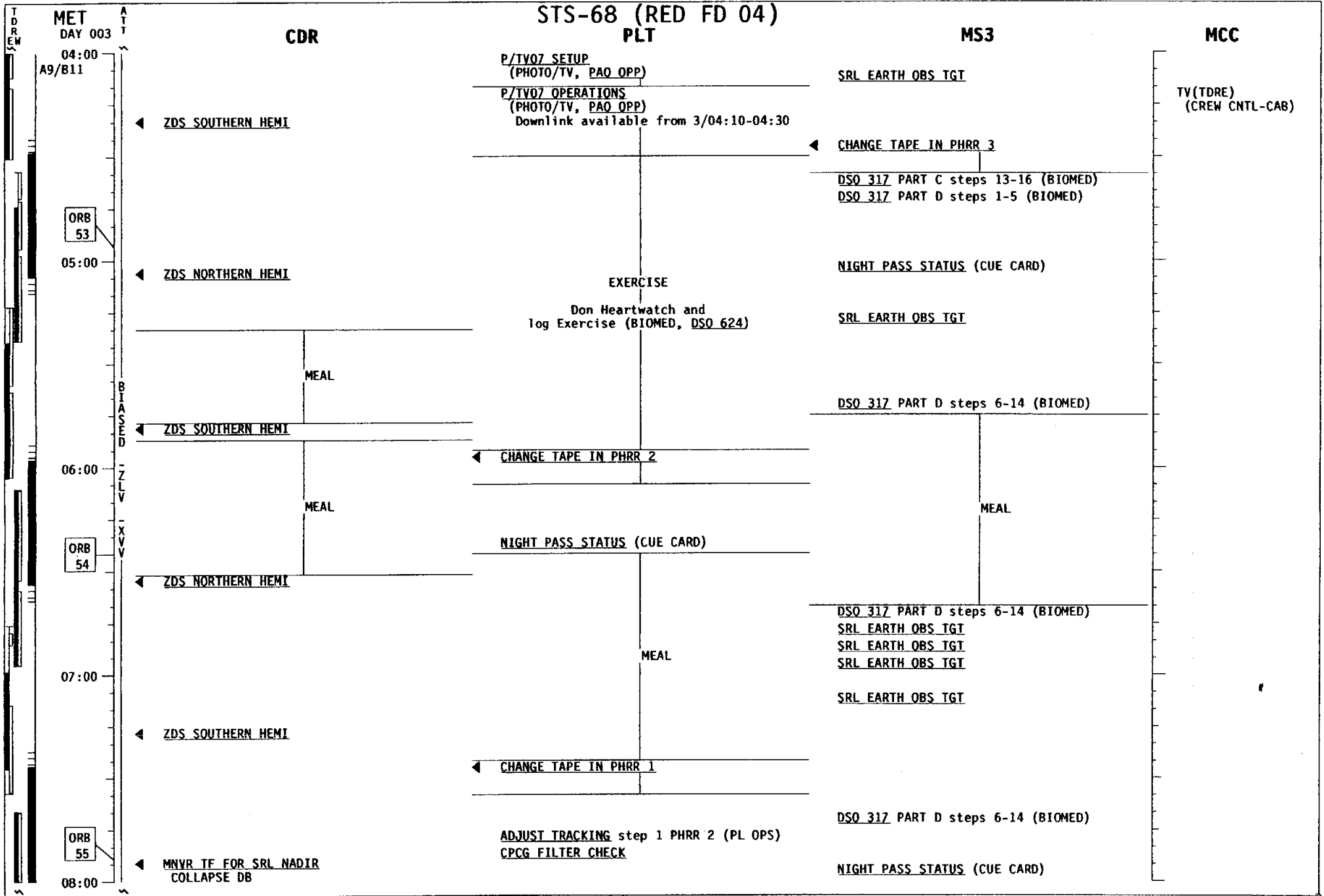




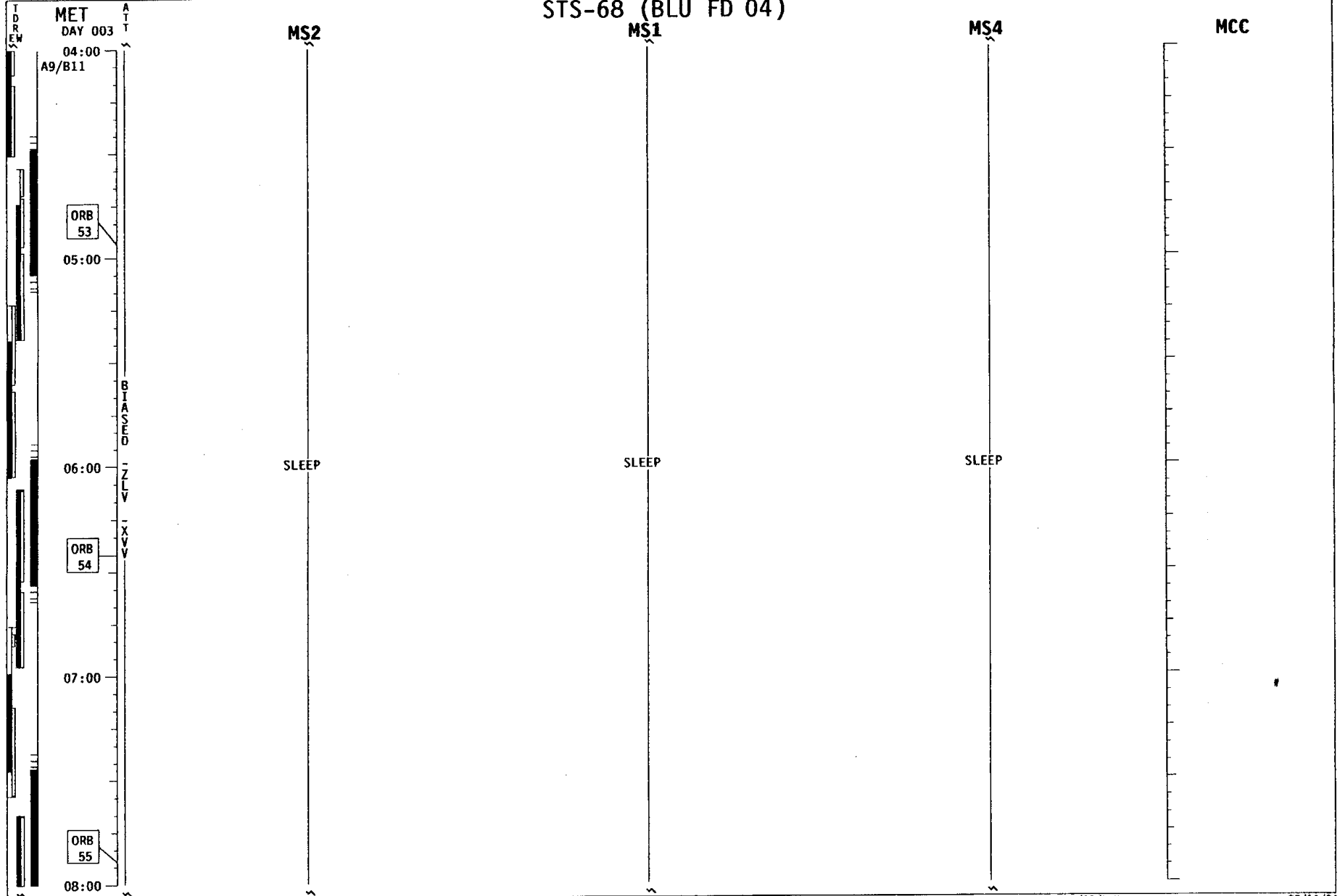


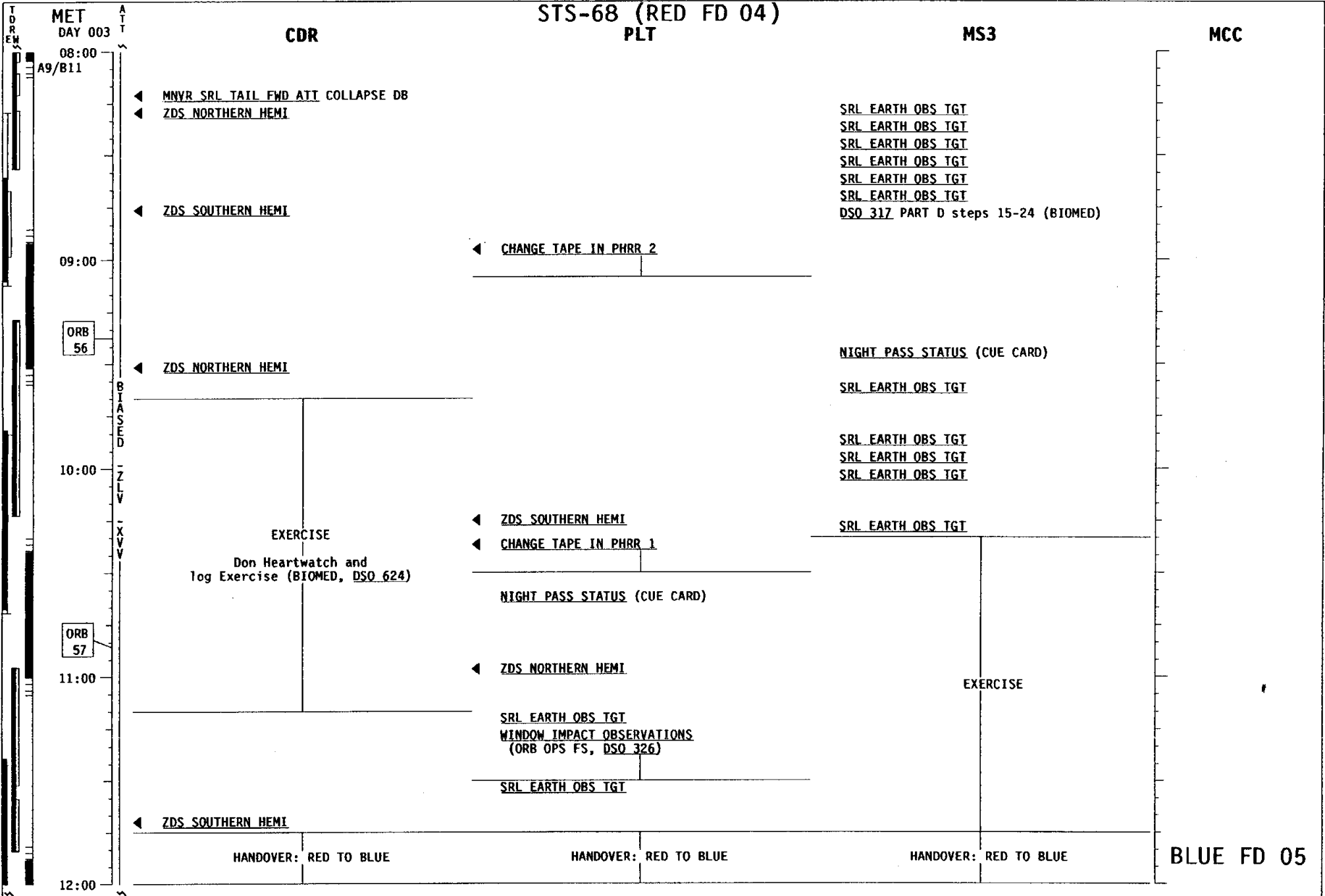




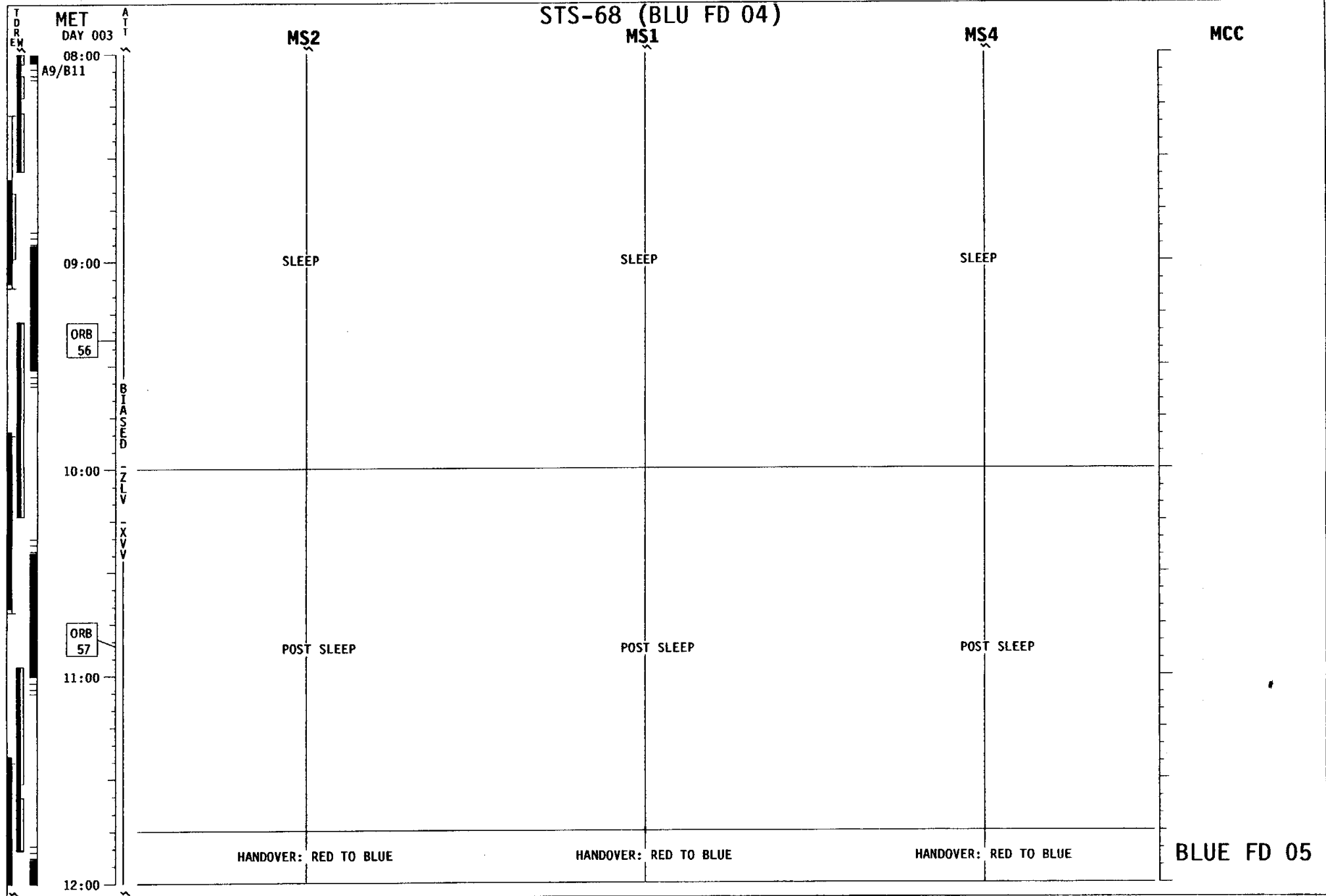


STS-68 (BLU FD 04)

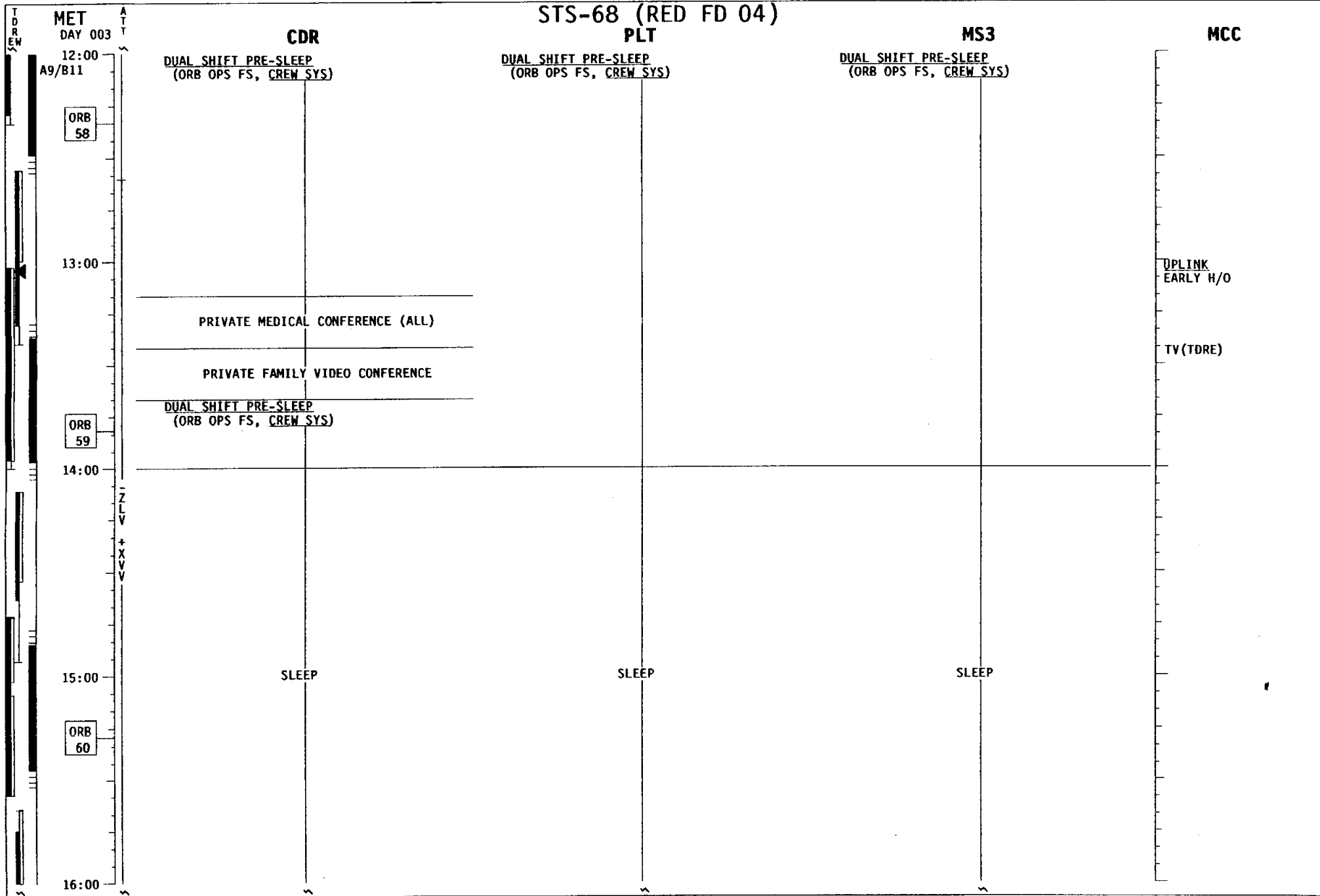




STS-68 (BLU FD 04)



STS-68 (RED FD 04)



MET DAY 003

CDR

PLT

MS3

MCC

DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)

PRIVATE MEDICAL CONFERENCE (ALL)

PRIVATE FAMILY VIDEO CONFERENCE

DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)

SLEEP

SLEEP

SLEEP

UPLINK EARLY H/O

TV(TDRE)

12:00

13:00

14:00

15:00

16:00

ORB 58

ORB 59

ORB 60

ATT

ZLV +XVV

STS-68 (BLU FD 05)
MS1

MET
DAY 003

MS2

MS4

MCC

12:00

A9/B11

ORB
58

◀ ZDS NORTHERN HEMI

◀ MNVR SRL NOSE FWD ATT
COLLAPSE DB

◀ CHANGE TAPE IN PHRR 3

NIGHT PASS STATUS (CUE CARD)

SRL EARTH OBS TGT

13:00

SRL EARTH OBS TGT

◀ ZDS SOUTHERN HEMI

◀ CHANGE TAPE IN PHRR 2

EXERCISE

UPLINK
EARLY H/O

CPCG TEMP LOG & FILTER CHECK
(PL OPS, CPCG)

ORB
59

NIGHT PASS STATUS (CUE CARD)

14:00

◀ ZDS NORTHERN HEMI

SRL EARTH OBS TGT

BLUE FD05 EZ ACTIVITIES:
Log Fluids (BIOMED, DSO 621)
MAST OPS (Ref MAST msg)
GPS DOWNLINK (ORB OPS, DTO 700-8)

OFF DUTY & EXERCISE
Don Heartwatch and log
EXERCISE (BIOMED, DSO 624)

SRL EARTH OBS TGT

ZLV
+XVV

◀ ZDS SOUTHERN HEMI

◀ CHANGE TAPE IN PHRR 1

UPLINK
EARLY H/O

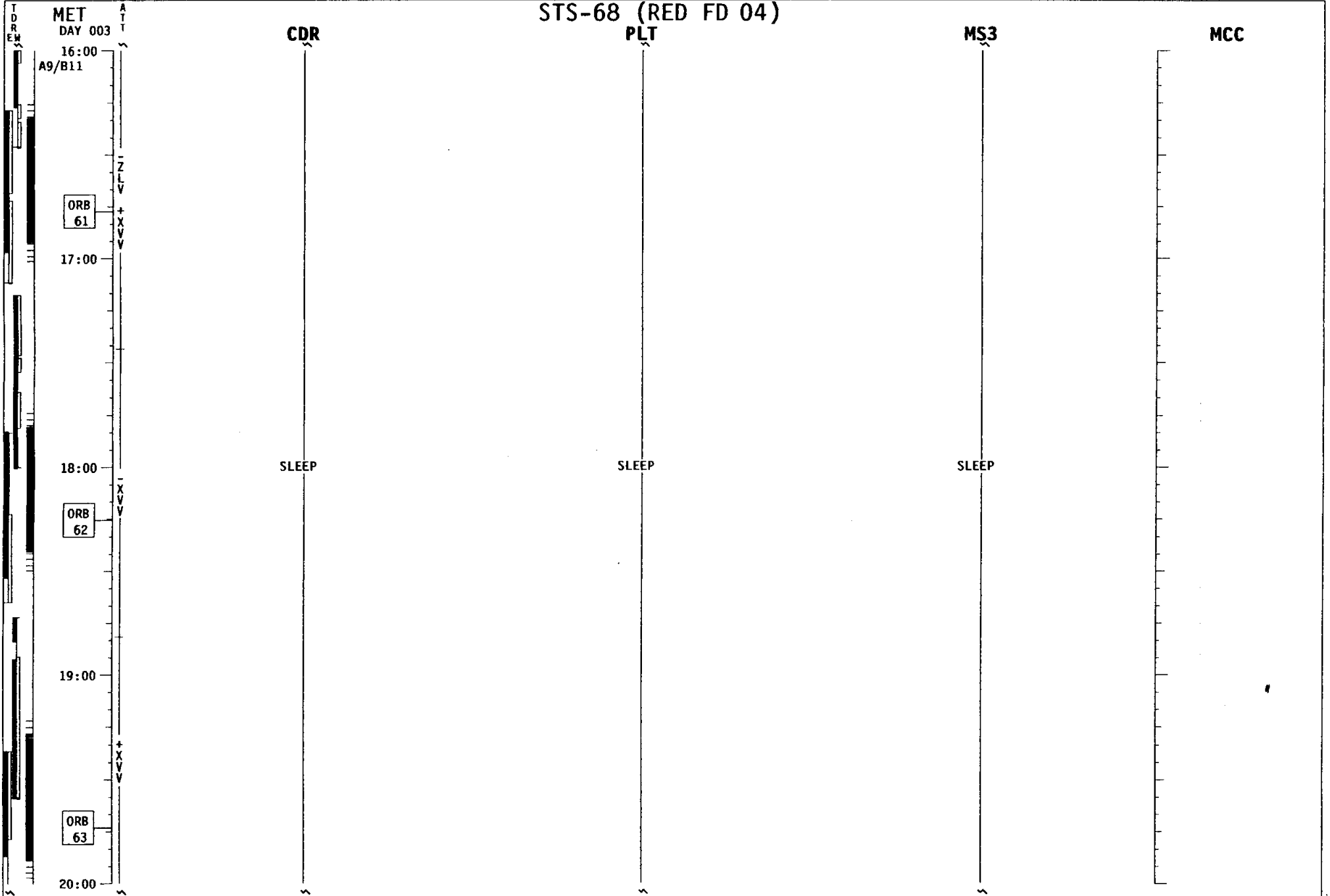
15:00

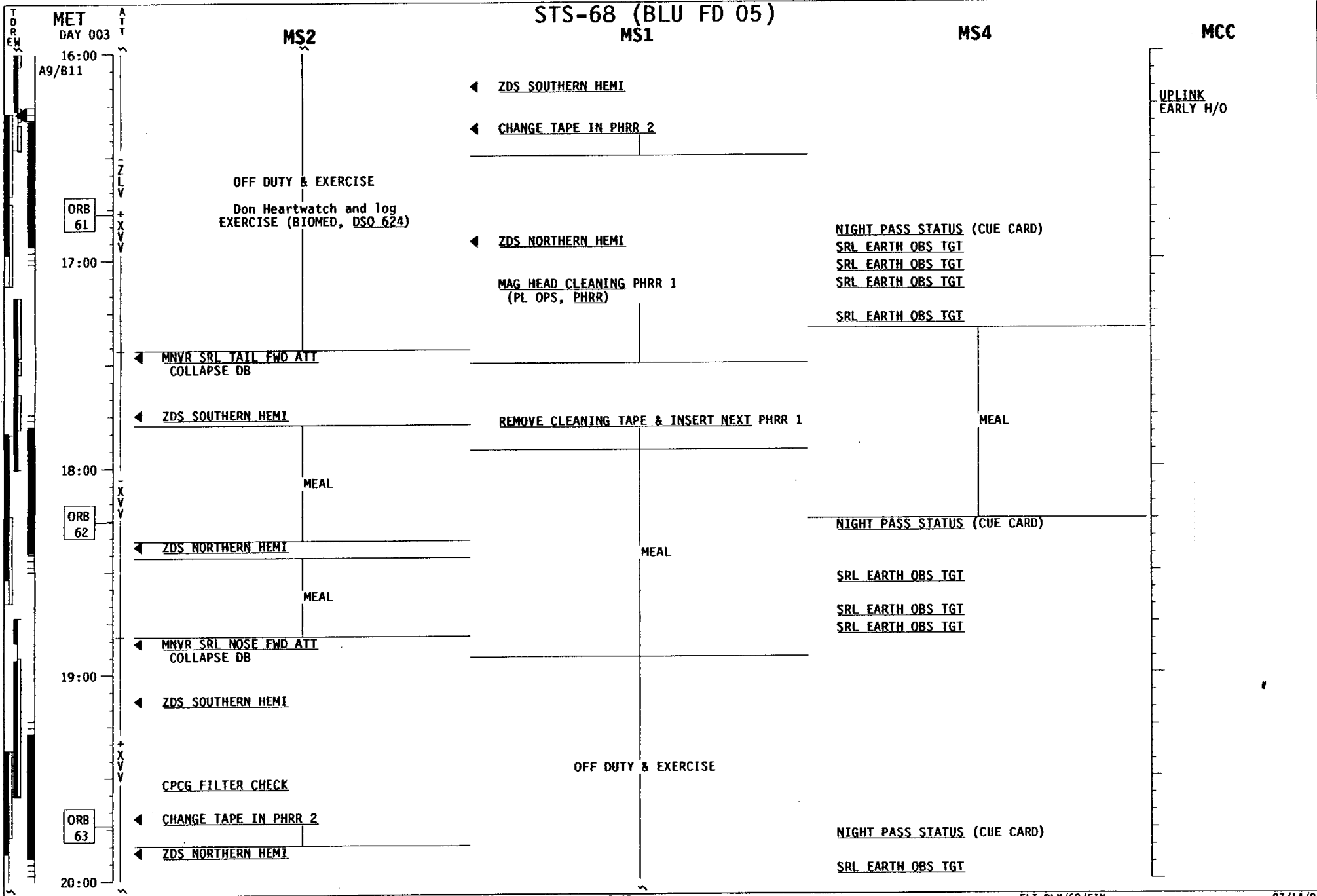
NIGHT PASS STATUS (CUE CARD)

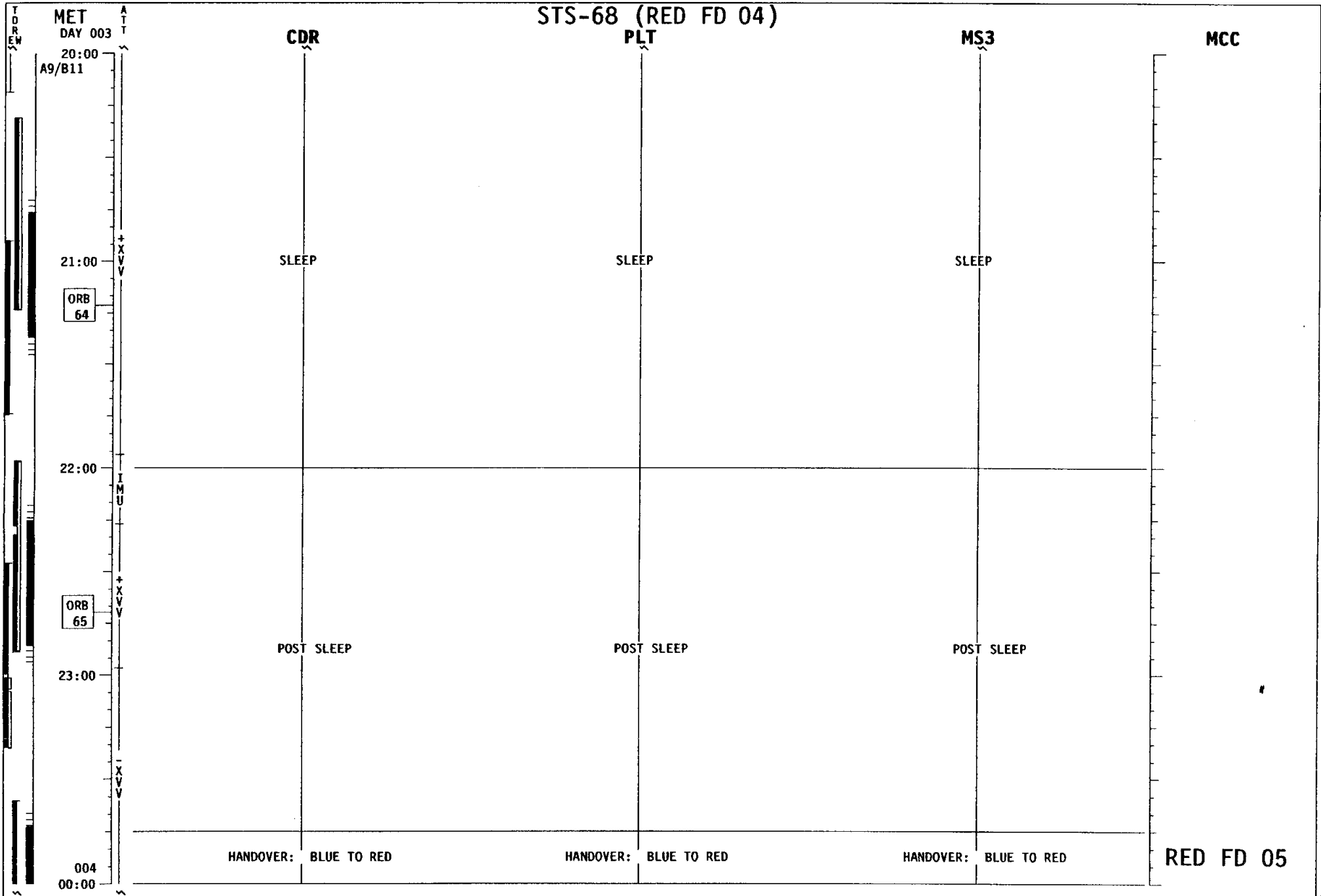
ORB
60

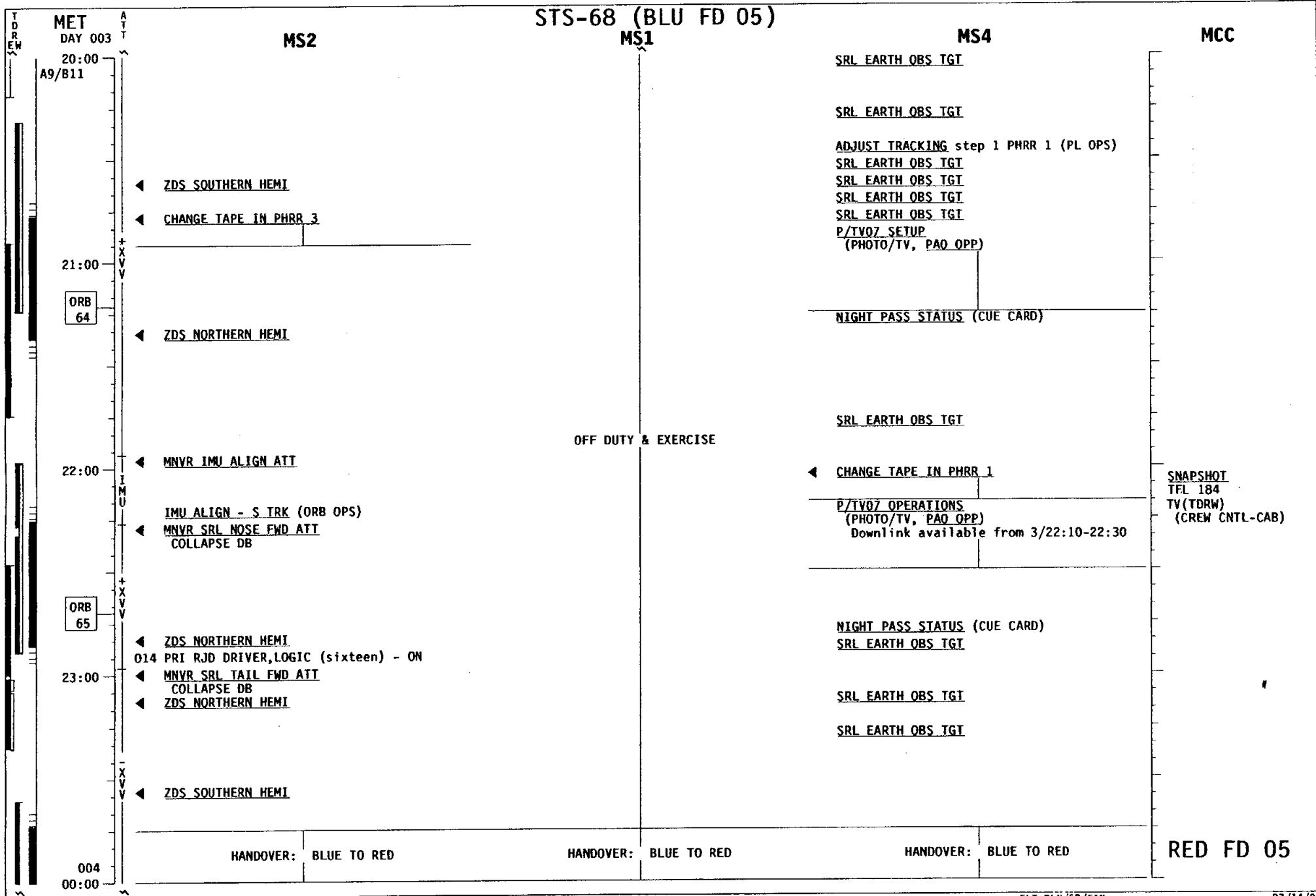
◀ ZDS NORTHERN HEMI

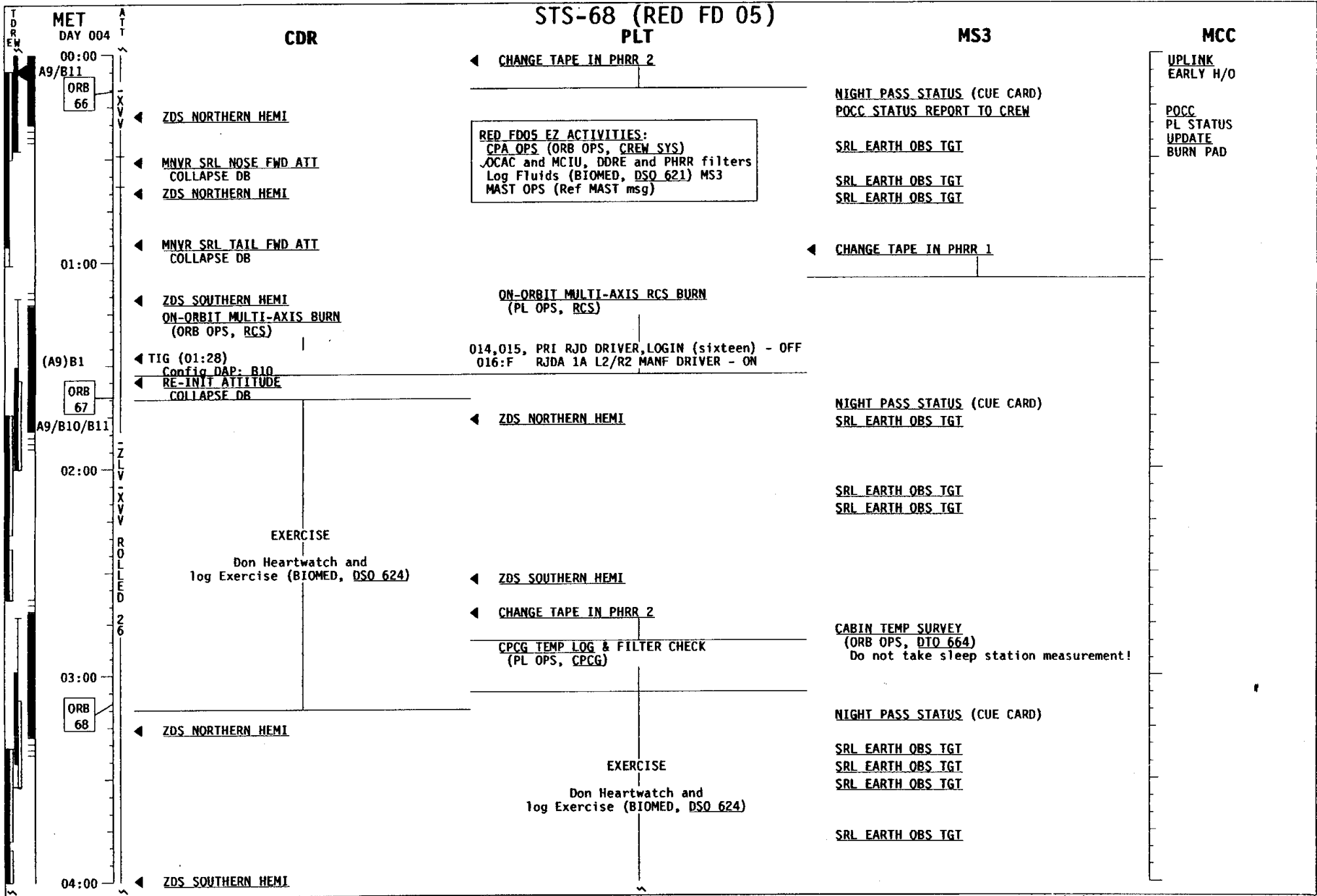
16:00

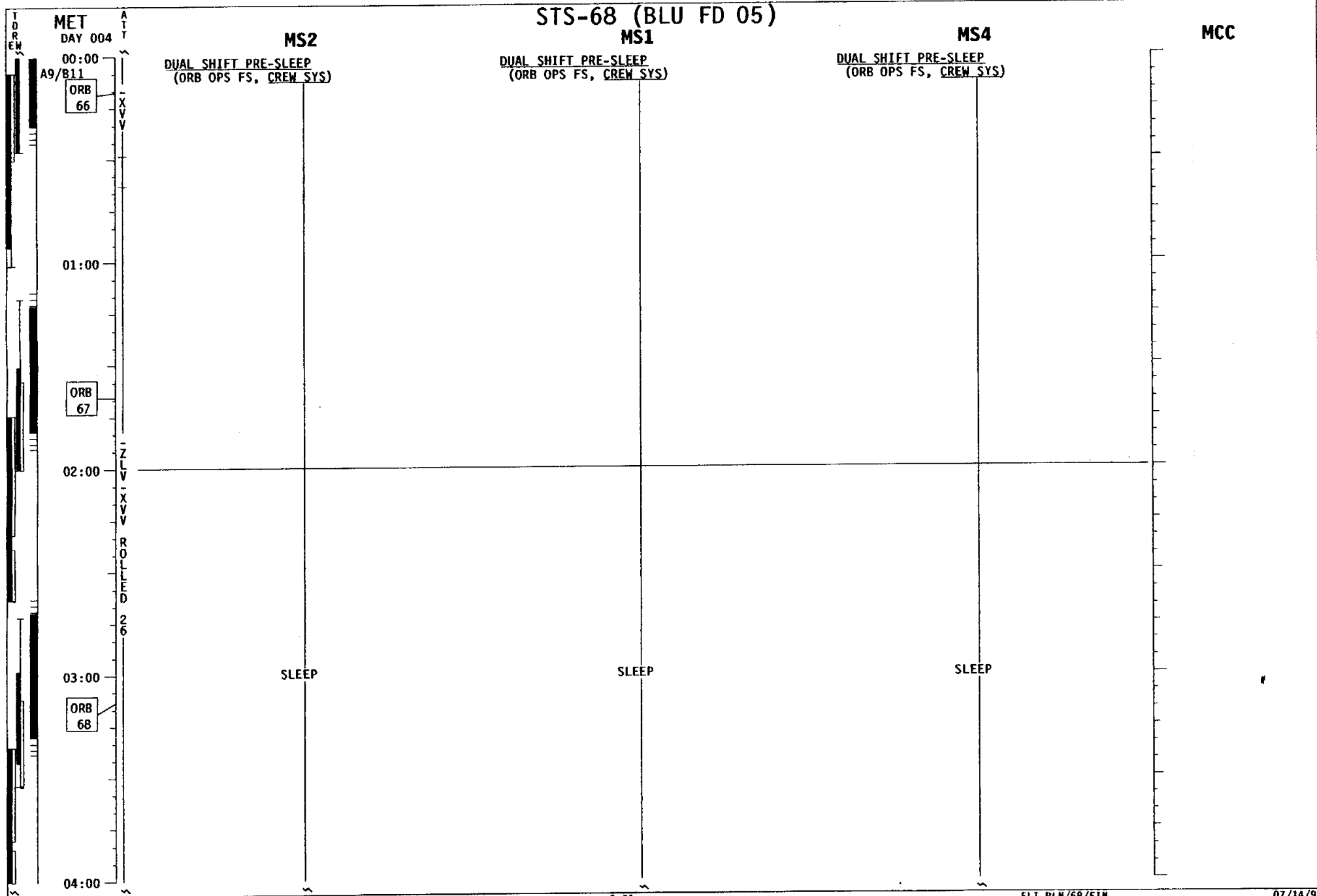


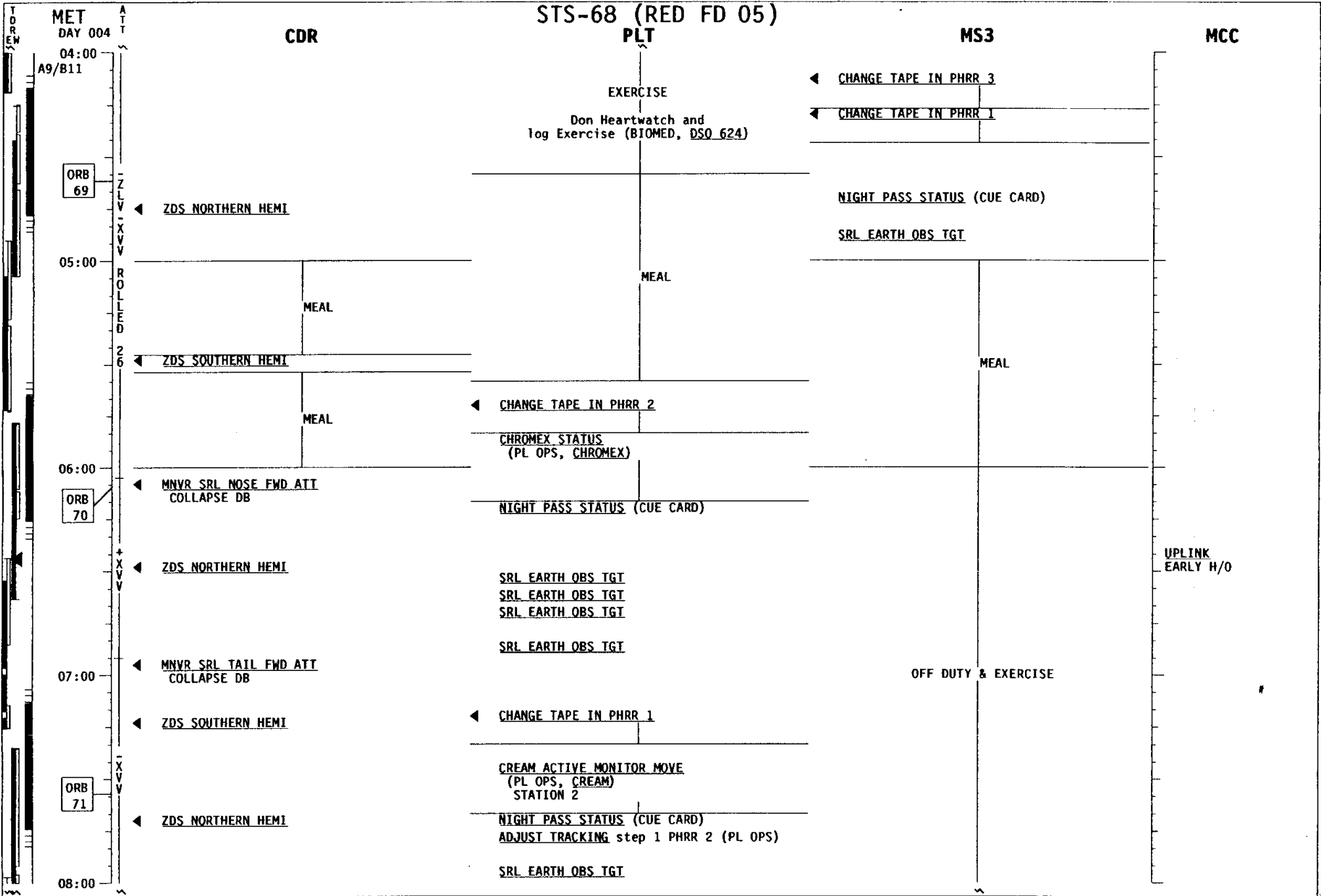




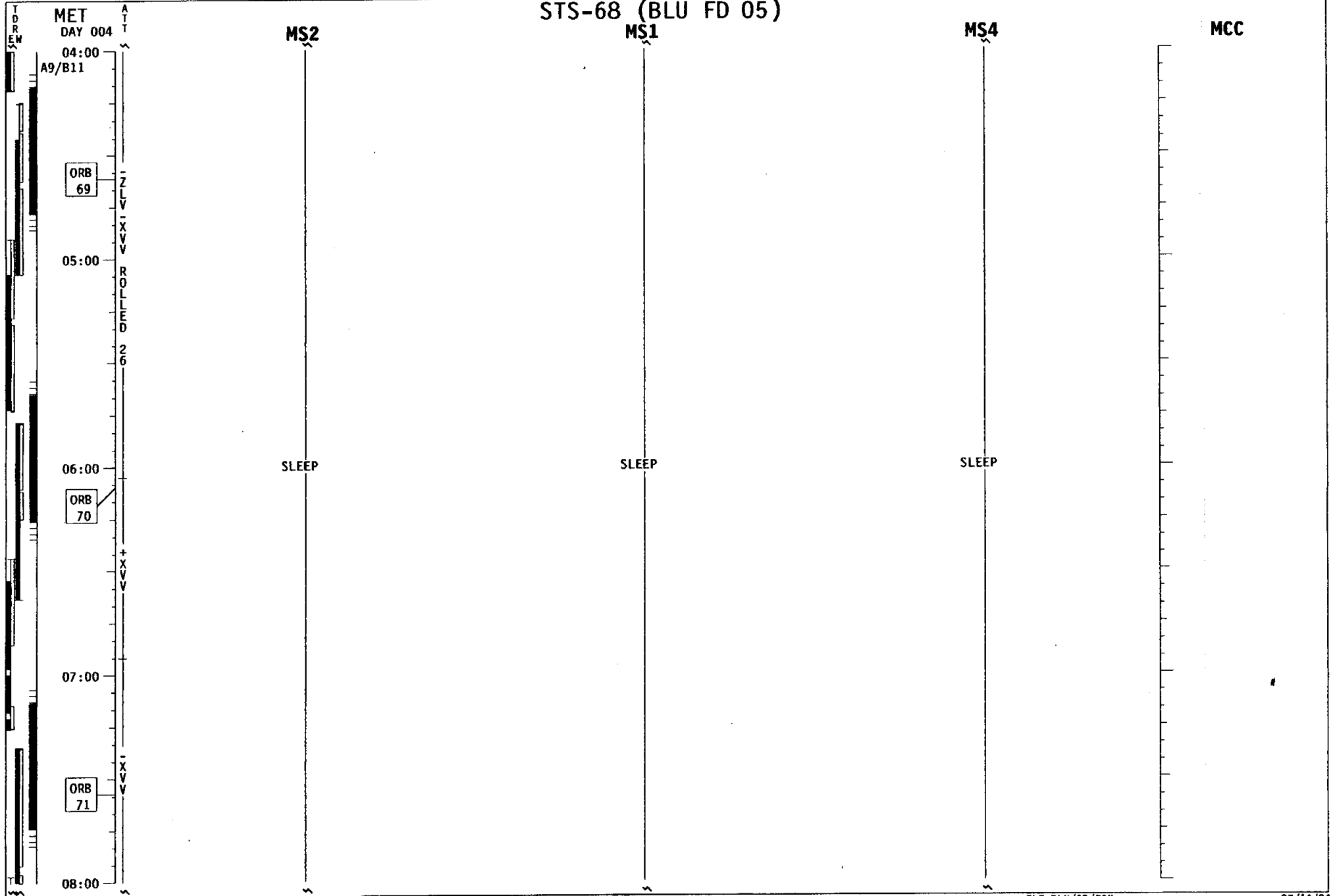




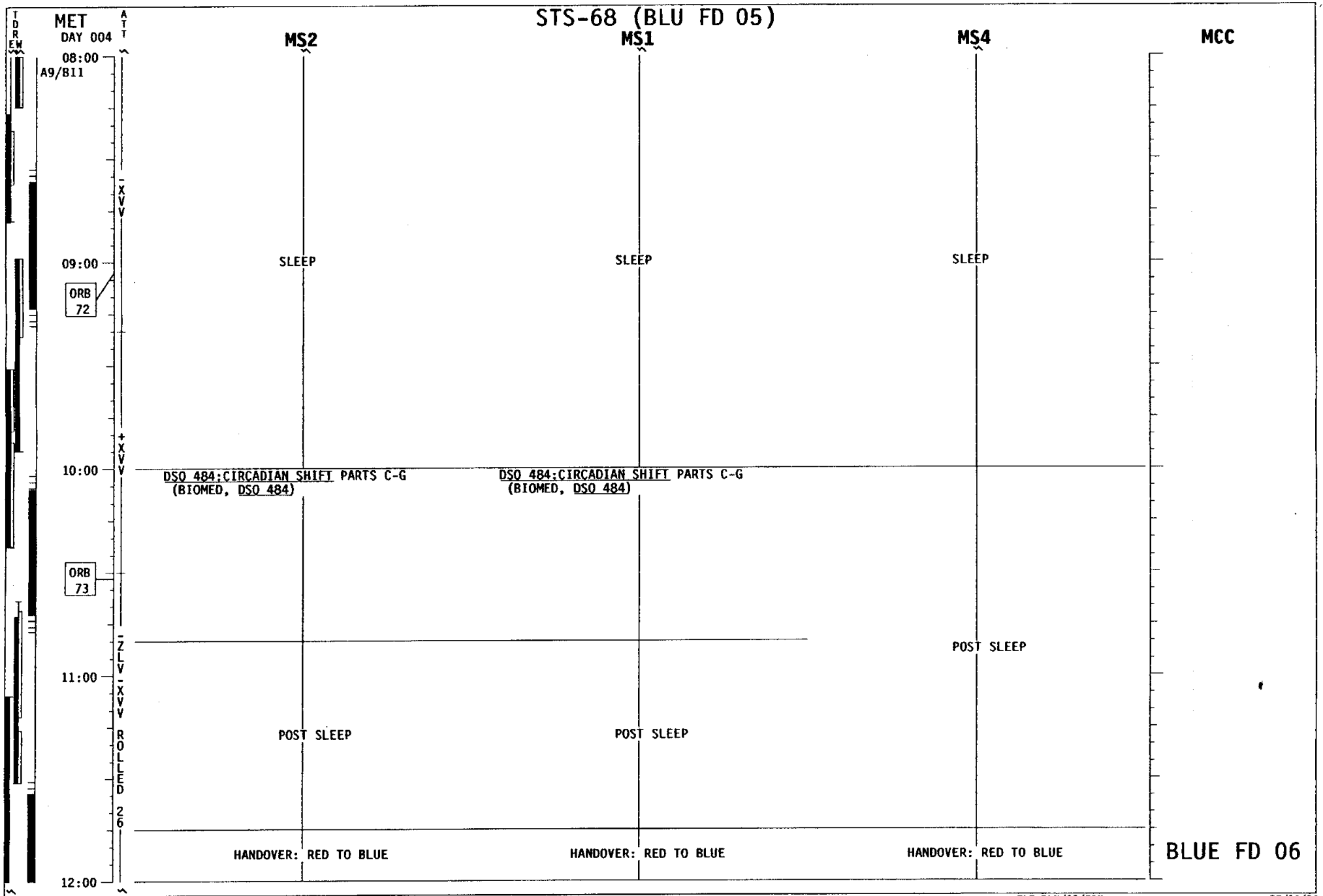


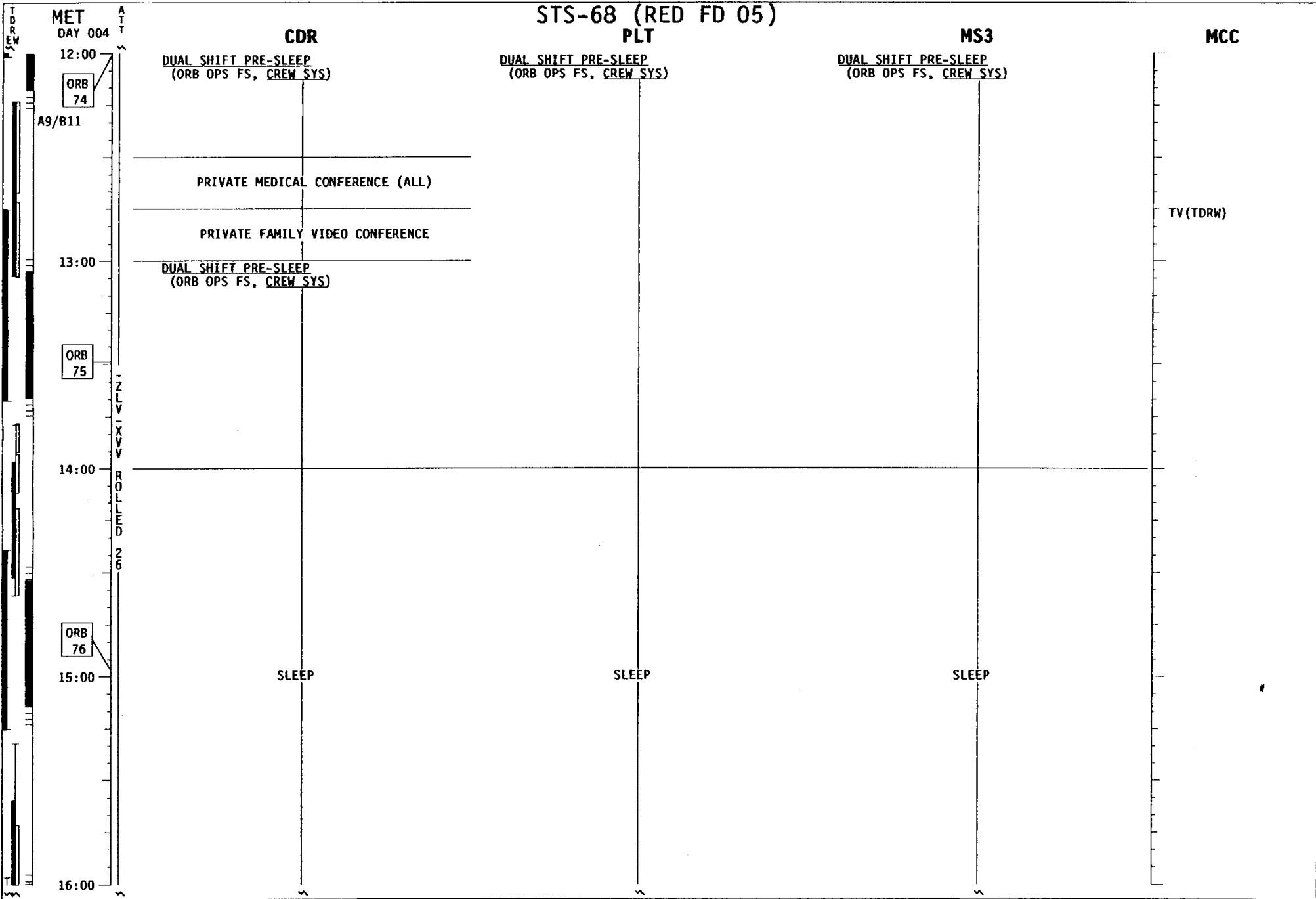


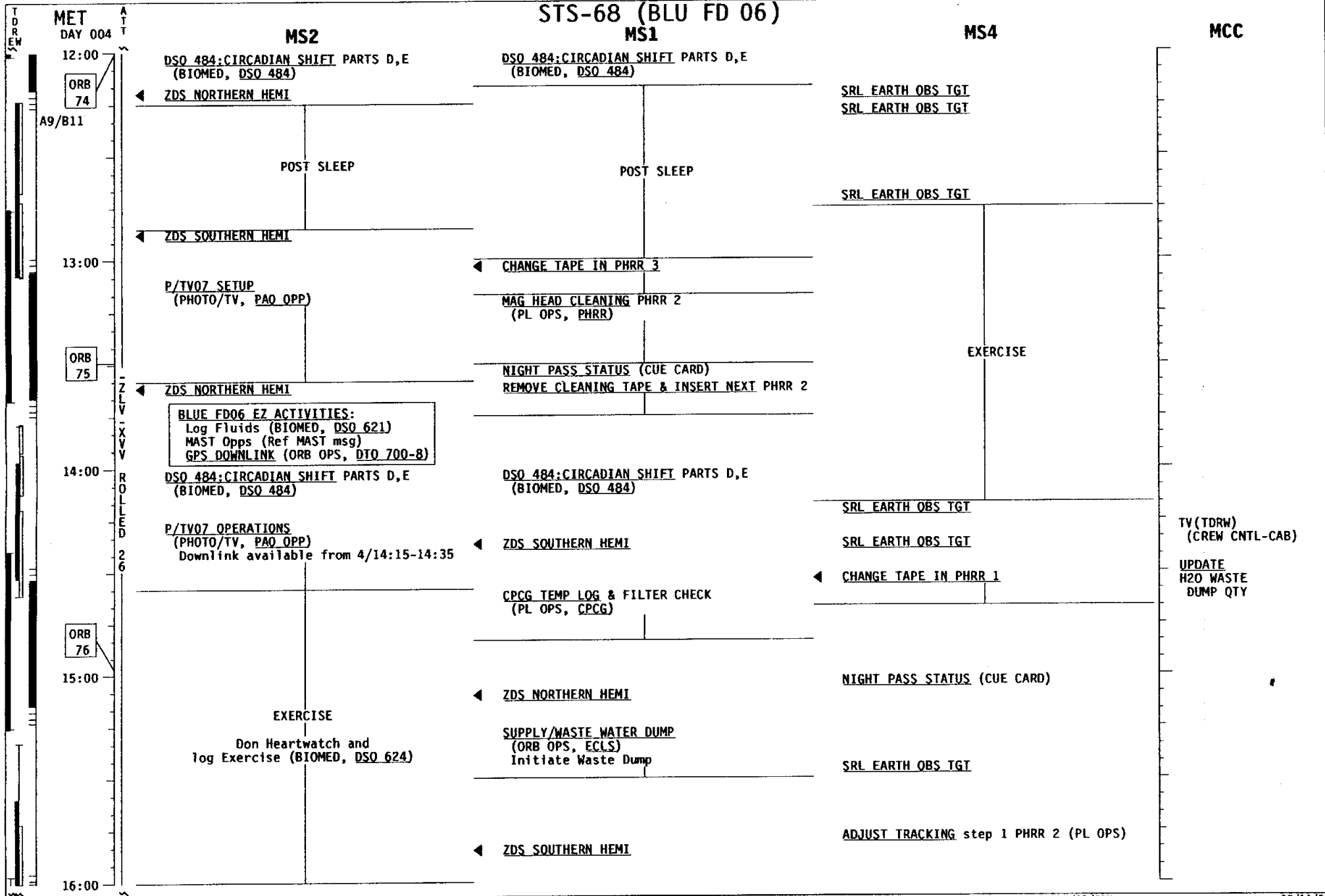
STS-68 (BLU FD 05)

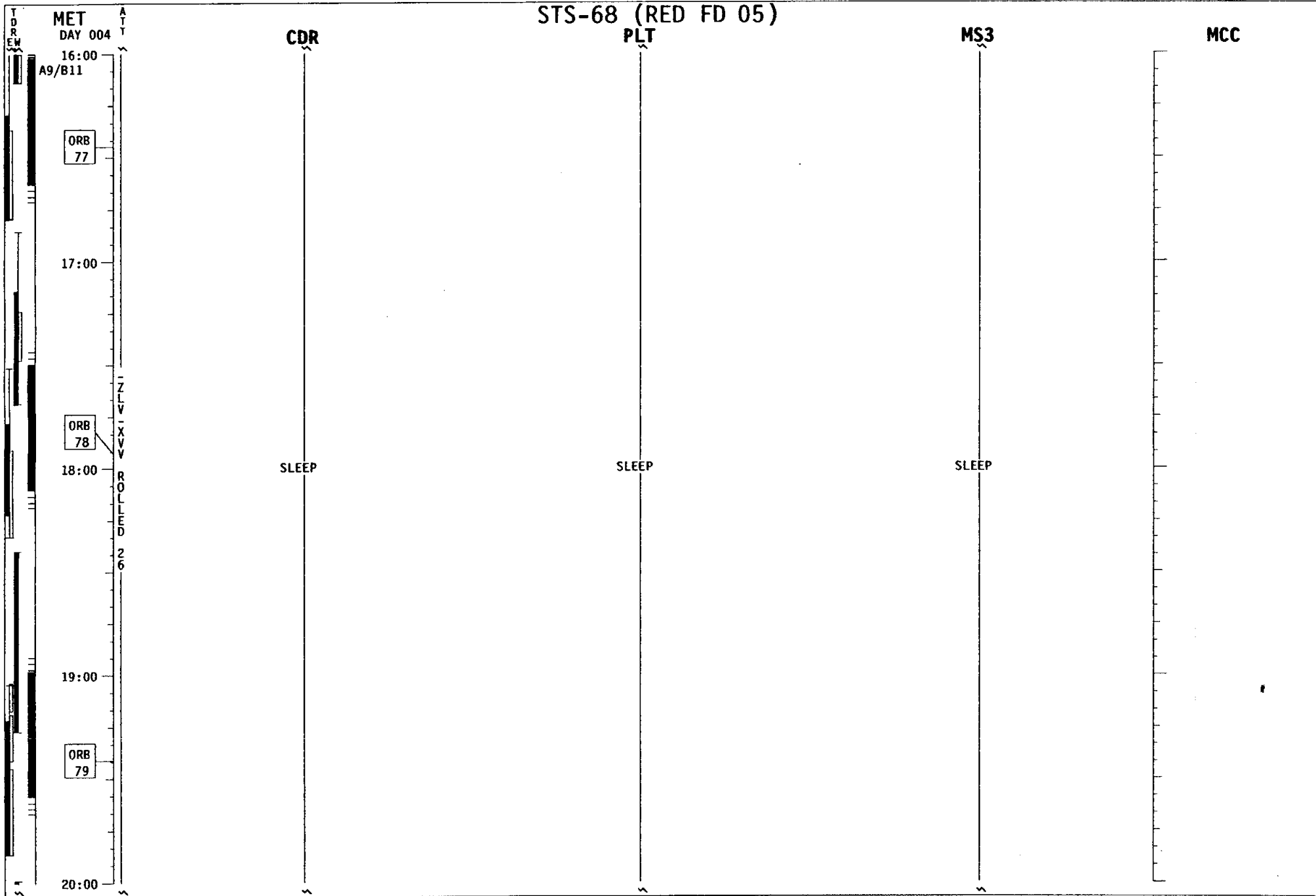


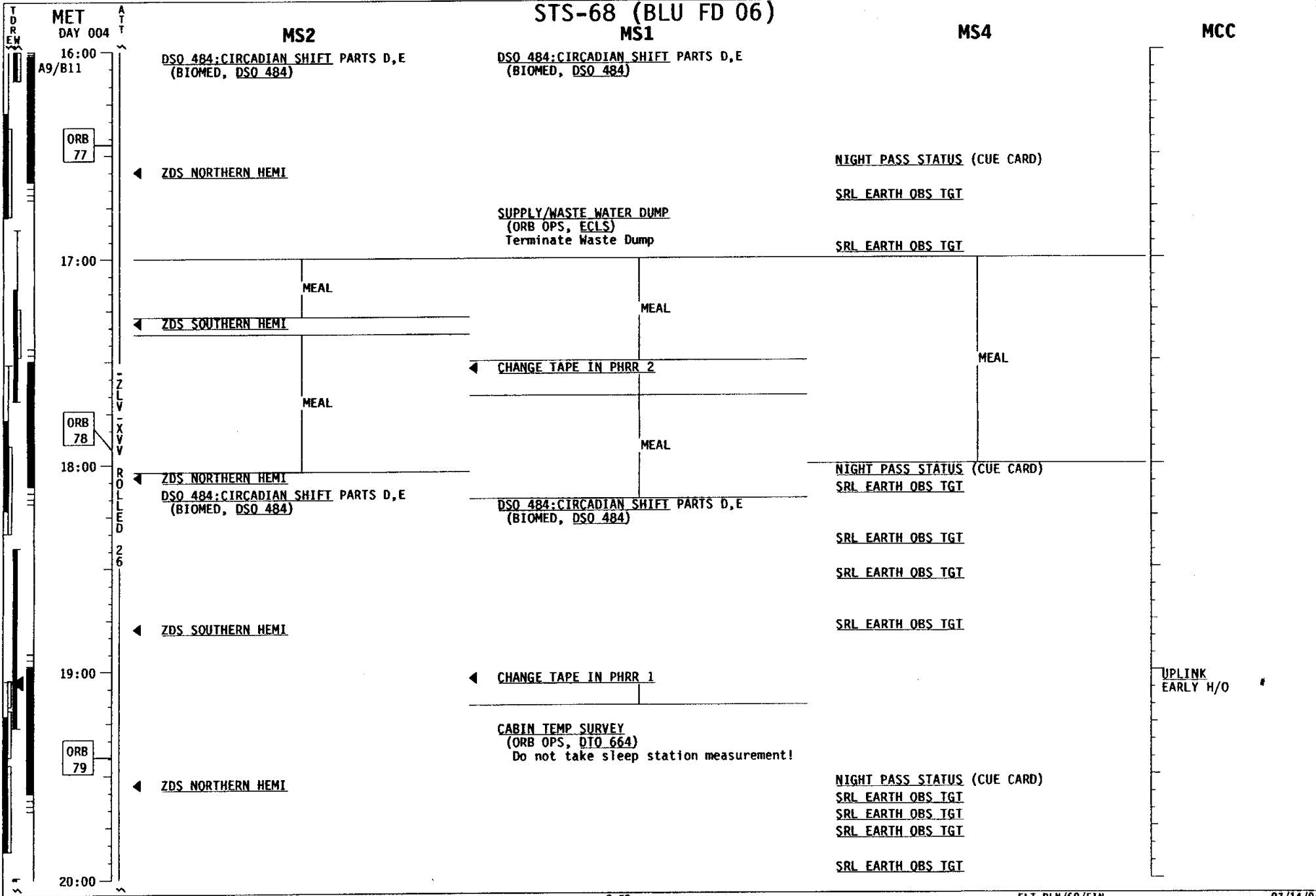
MET DAY 004		STS-68 (RED FD 05)		MS3	MCC
CDR		PLT			
08:00	A9/B11	◀ ZDS SOUTHERN HEMI	SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT SRL EARTH OBS TGT		
			◀ CHANGE TAPE IN PHRR 2	OFF DUTY & EXERCISE	
			CPCG FILTER CHECK		
09:00	ORB 72	◀ ZDS NORTHERN HEMI 014 PRI RJD DRIVER, LOGIC (sixteen) - ON	NIGHT PASS STATUS (CUE CARD) SRL EARTH OBS TGT		
		◀ MNVR SRL NOSE FWD ATT COLLAPSE DB			
		◀ ZDS NORTHERN HEMI 014, 015, PRI RJD DRIVER, LOGIC (sixteen) - OFF 016:F RJDA 1A L2/R2 MANF DRIVER - ON	SRL EARTH OBS TGT SRL EARTH OBS TGT	P/TV07 SETUP (PHOTO/TV, PAO OPP)	UPLINK EARLY H/O
			SRL EARTH OBS TGT		
10:00		◀ ZDS SOUTHERN HEMI	◀ CHANGE TAPE IN PHRR 1	P/TV07 OPERATIONS (PHOTO/TV, PAO OPP) Downlink available from 4/10:05-10:20	TV(TDRE) (CREW CNTL-CAB)
	ORB 73	◀ MNVR SRL TAIL FWD ATT COLLAPSE DB	NIGHT PASS STATUS (CUE CARD)		
		◀ ZDS NORTHERN HEMI	SRL EARTH OBS TGT		
11:00			WINDOW IMPACT OBSERVATIONS (ORB OPS FS, DSO 326)	OFF DUTY & EXERCISE	
		◀ ZDS SOUTHERN HEMI			
			SRL EARTH OBS TGT		
12:00		HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	BLUE FD 06











TDR
 EW
 MET
 DAY 004
 20:00
 A9/B11
 ORB
 80
 21:00
 ORB
 81
 22:00
 ORB
 82
 005
 23:00
 00:00

STS-68 (RED FD 05)

CDR

PLT

MS3

MCC

SLEEP

SLEEP

SLEEP

POST SLEEP

POST SLEEP

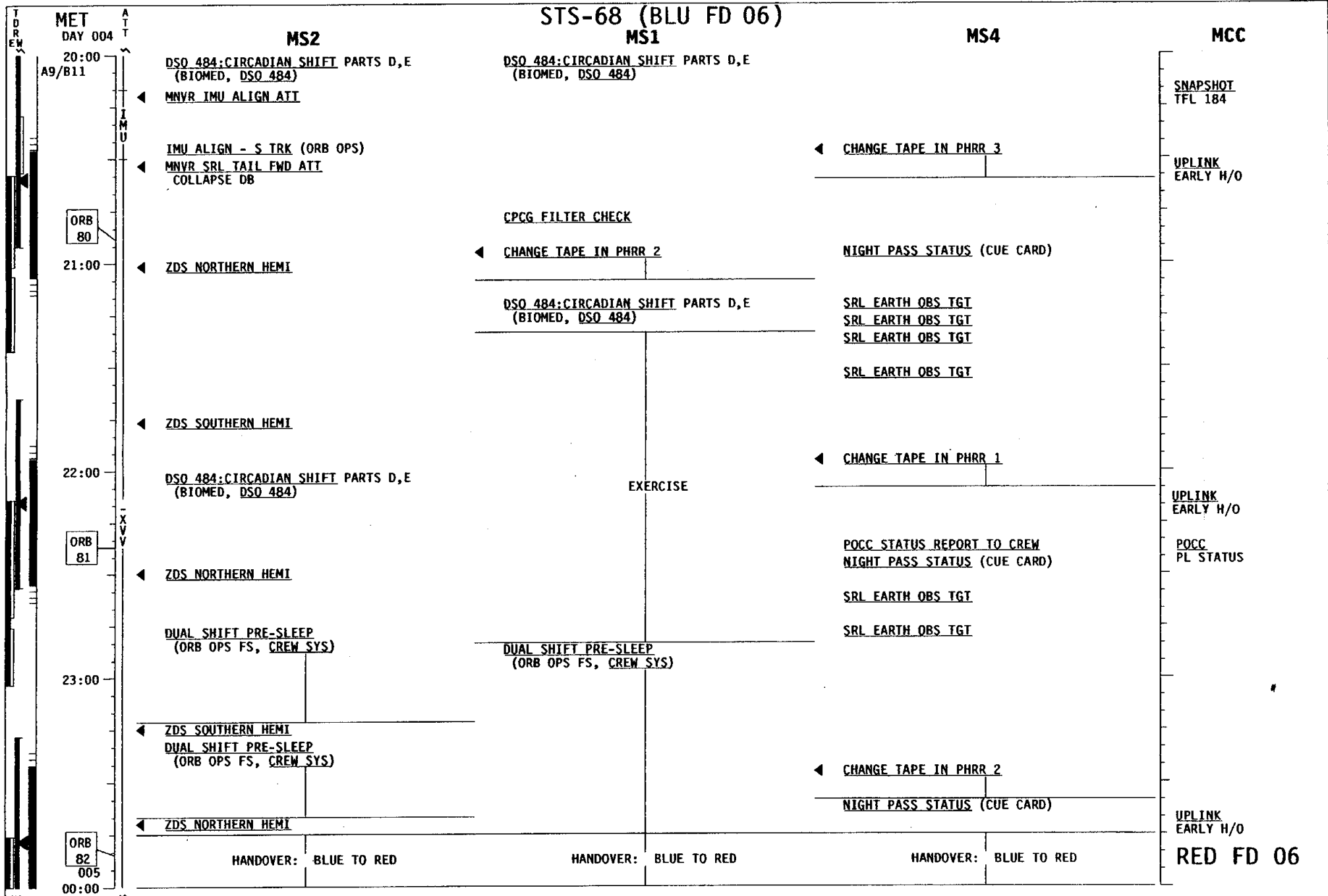
POST SLEEP

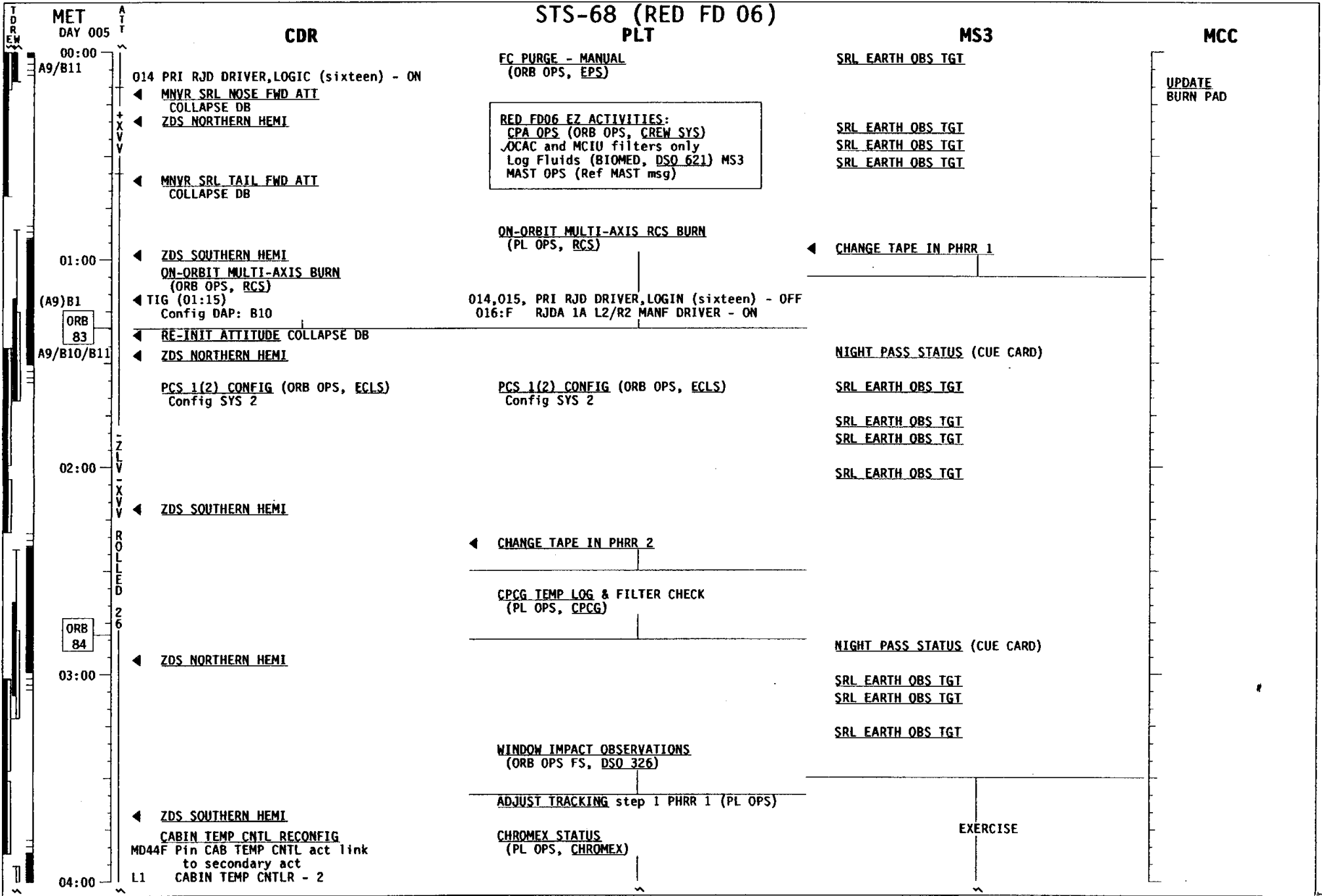
HANDOVER: BLUE TO RED

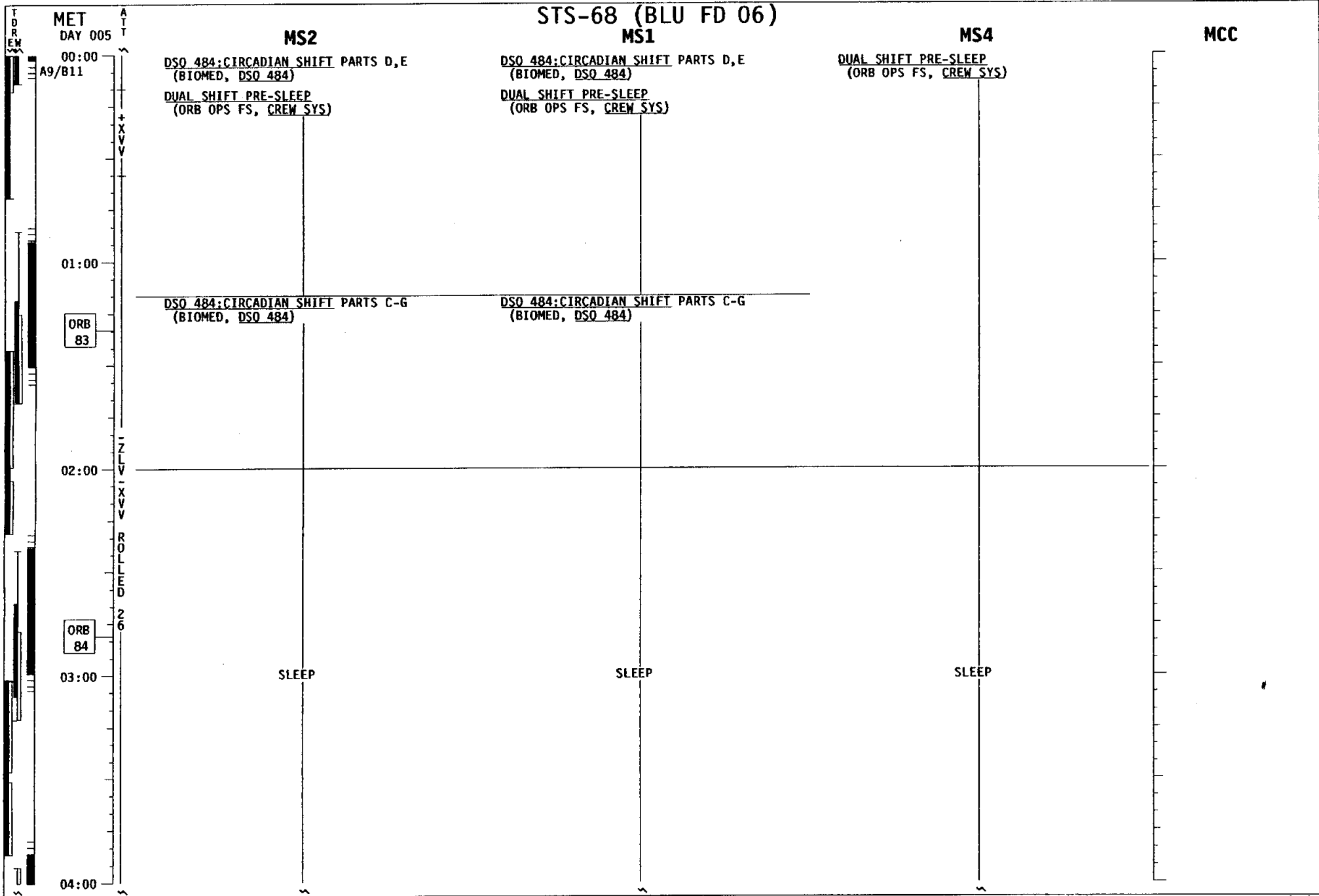
HANDOVER: BLUE TO RED

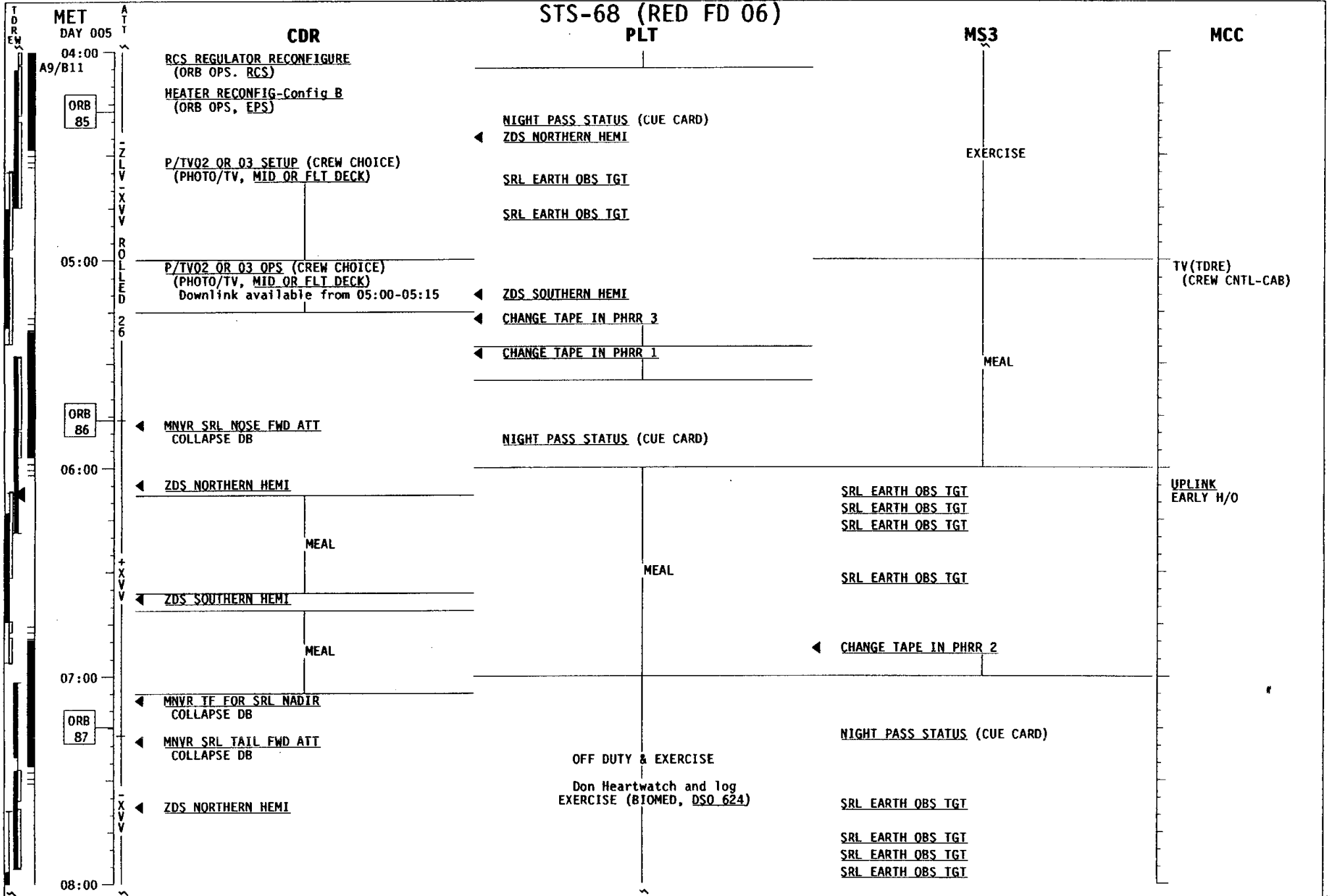
HANDOVER: BLUE TO RED

RED FD 06

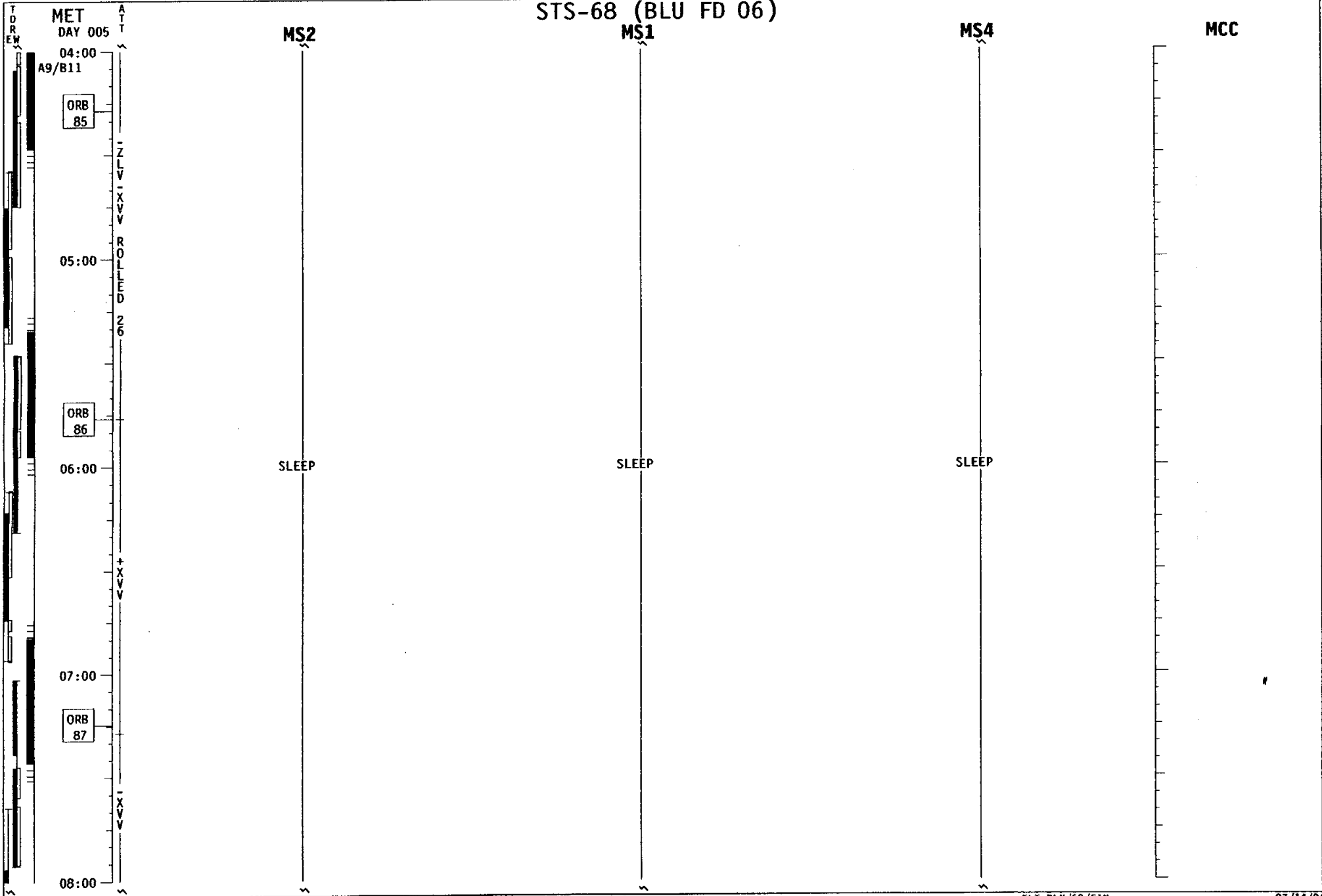


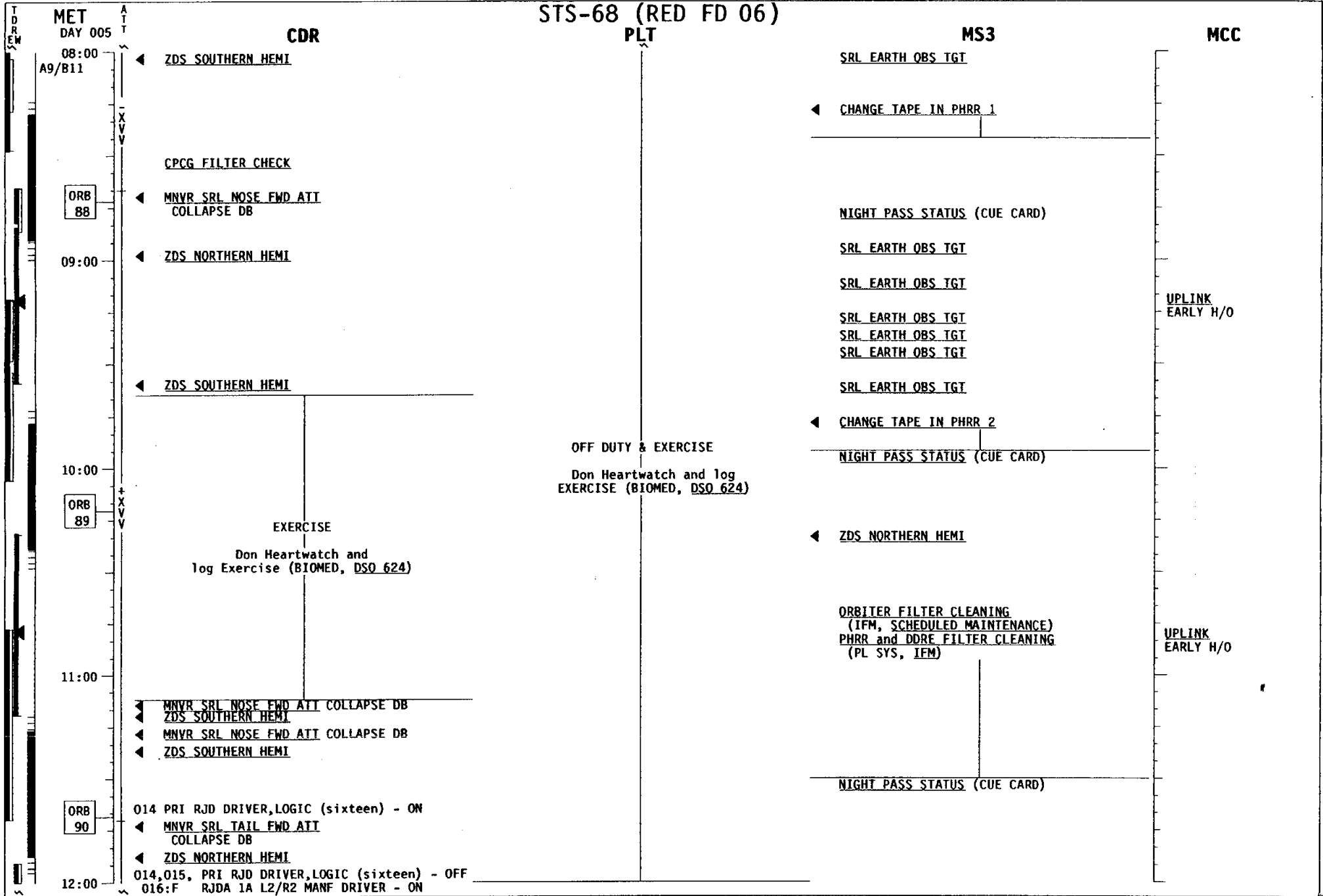


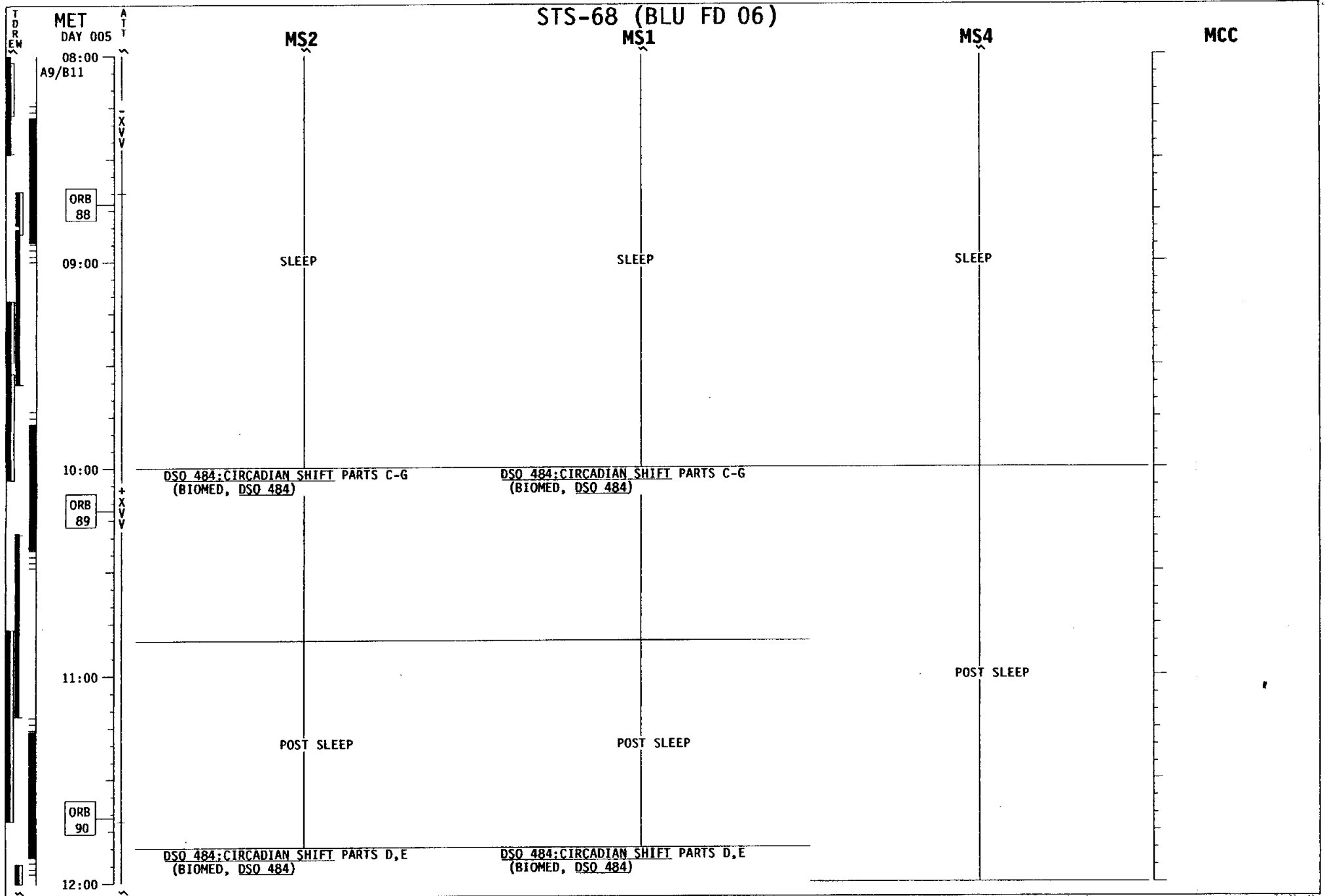




STS-68 (BLU FD 06)



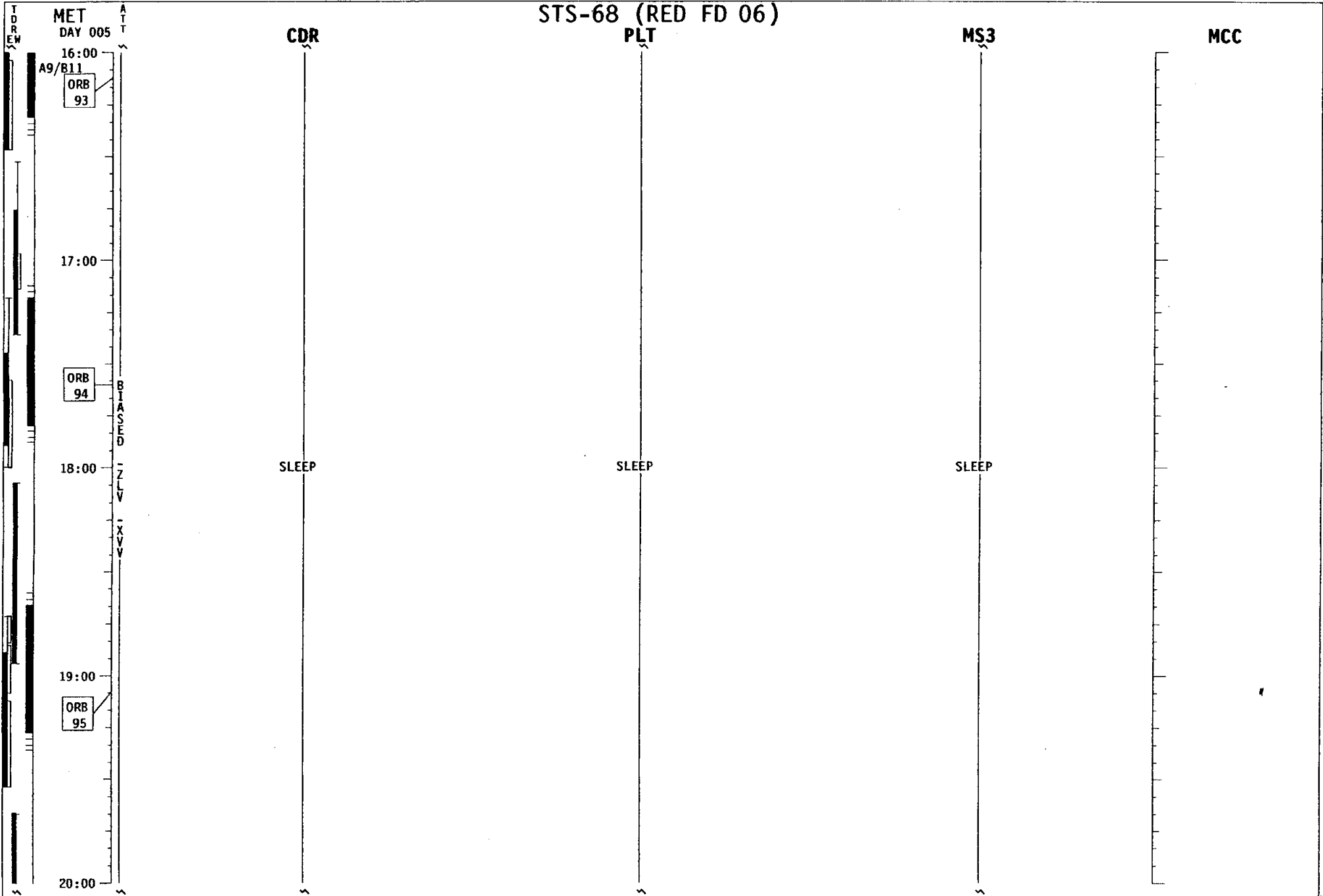


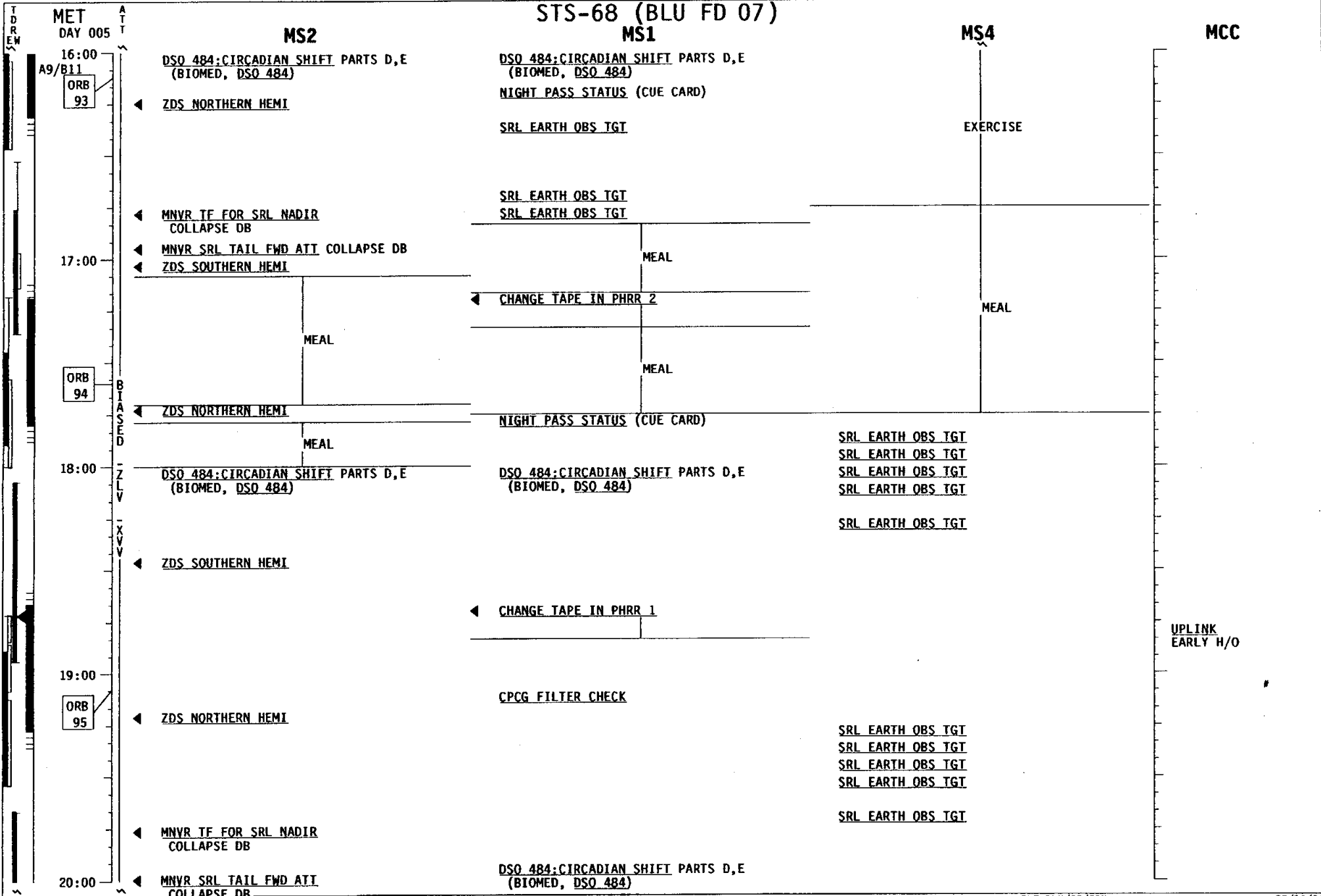


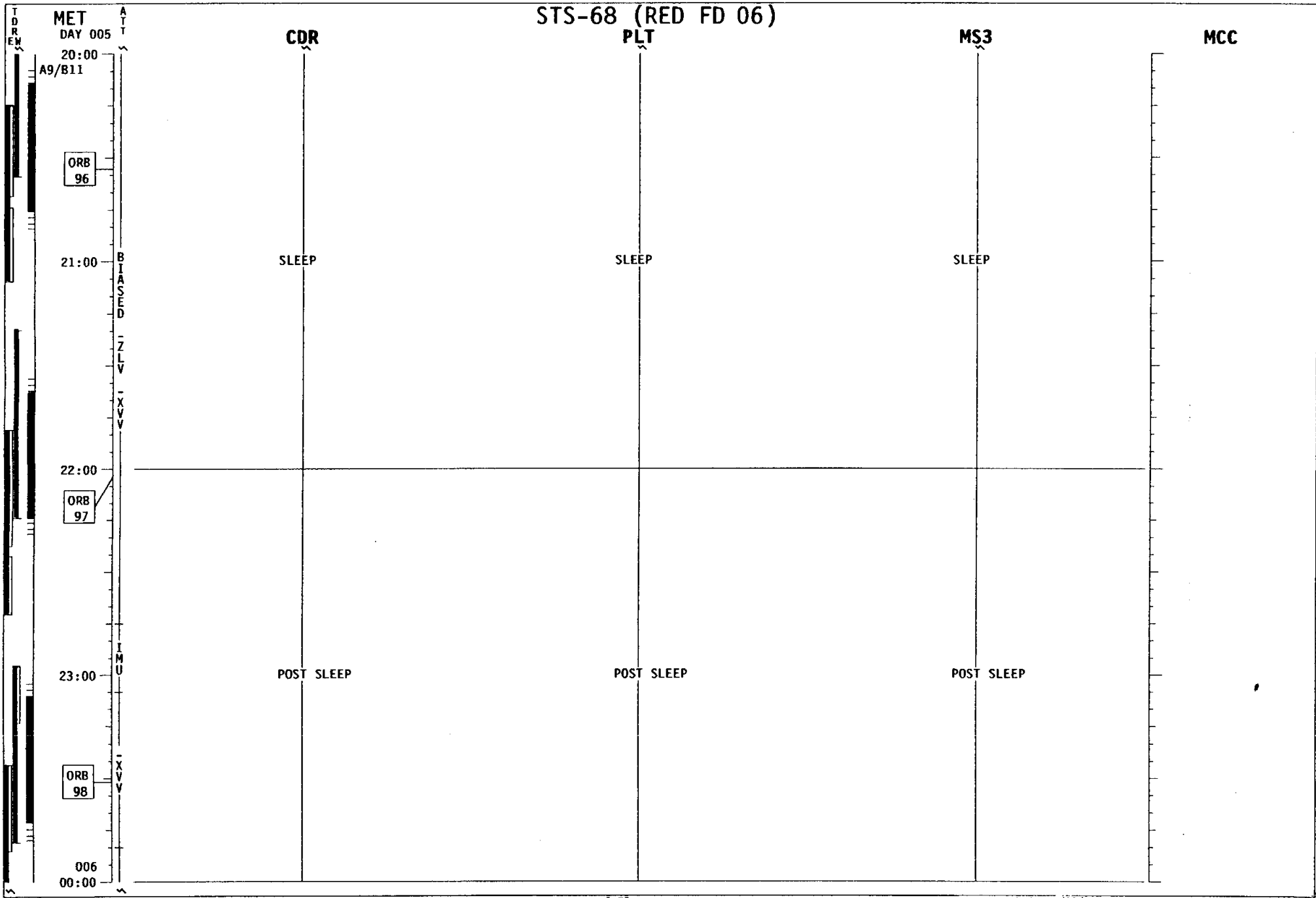
MET DAY 005 A9/B11		STS-68 (RED FD 06)			MCC BLUE FD 07	
		CDR	PLT	MS3		
12:00		HANDOVER: RED TO BLUE		HANDOVER: RED TO BLUE		
		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)		
		PRIVATE FAMILY VIDEO CONFERENCE				TV(TDRW)
		PRIVATE MEDICAL CONFERENCE (ALL)				
13:00		DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)				
ORB 91						
14:00						
ORB 92						
15:00		SLEEP		SLEEP		
16:00						

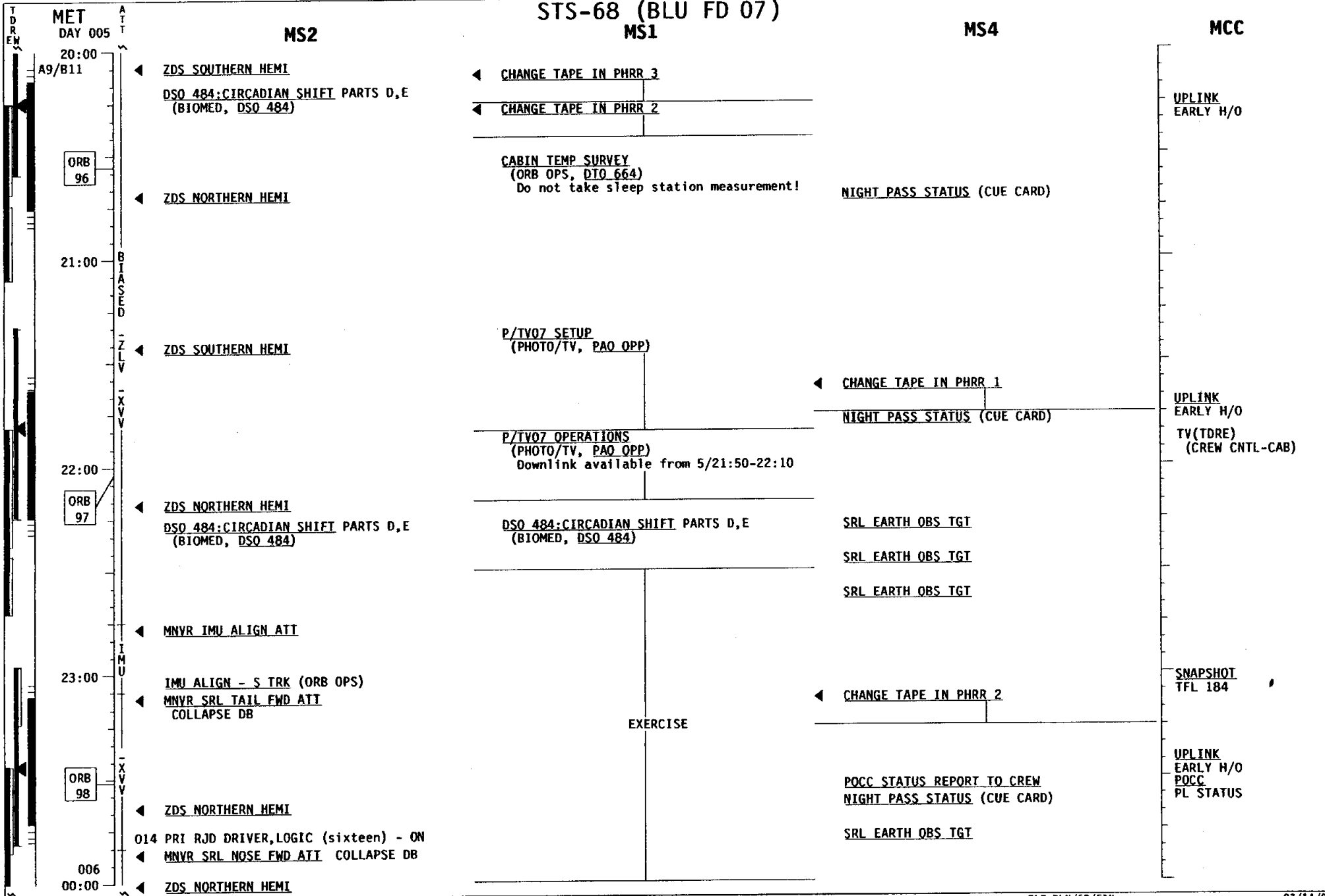
MET DAY 005		STS-68 (BLU FD 07)		MCC	
A9/B11		MS2	MS1	MS4	BLUE FD 07
12:00		HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	HANDOVER: RED TO BLUE	
		DUAL SHIFT POST-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT POST-SLEEP (ORB OPS FS, CREW SYS)	SRL EARTH OBS TGT	
		◀ ZDS SOUTHERN HEMI DUAL SHIFT POST-SLEEP (ORB OPS FS, CREW SYS)		◀ CHANGE TAPE IN PHRR 1	
13:00			CPCG TEMP LOG & FILTER CHECK (PL OPS, CPCG)	NIGHT PASS STATUS (CUE CARD)	
	ORB 91	◀ ZDS NORTHERN HEMI		SRL EARTH OBS TGT	
		<div style="border: 1px solid black; padding: 5px;"> BLUE FD07 EZ ACTIVITIES: Log Fluids (BIOMED, DSO 621) MAST OPS (Ref MAST msg) GPS DOWNLINK (ORB OPS, DTO 700-8) </div>		SRL EARTH OBS TGT	
14:00		◀ ZDS SOUTHERN HEMI DSO 484:CIRCADIAN SHIFT PARTS D,E (BIOMED, DSO 484)	DSO 484:CIRCADIAN SHIFT PARTS D,E (BIOMED, DSO 484)		
			◀ CHANGE TAPE IN PHRR 3		
			◀ CHANGE TAPE IN PHRR 2		
	ORB 92		◀ ZDS NORTHERN HEMI	NIGHT PASS STATUS (CUE CARD)	
		EXERCISE Don Heartwatch and Log Exercise (BIOMED, DSO 624)		SRL EARTH OBS TGT	
15:00				SRL EARTH OBS TGT	
			◀ ZDS SOUTHERN HEMI ADJUST TRACKING step 1 PHRR 2 (PL OPS)	EXERCISE	
			◀ CHANGE TAPE IN PHRR 1		
16:00					

STS-68 (RED FD 06)

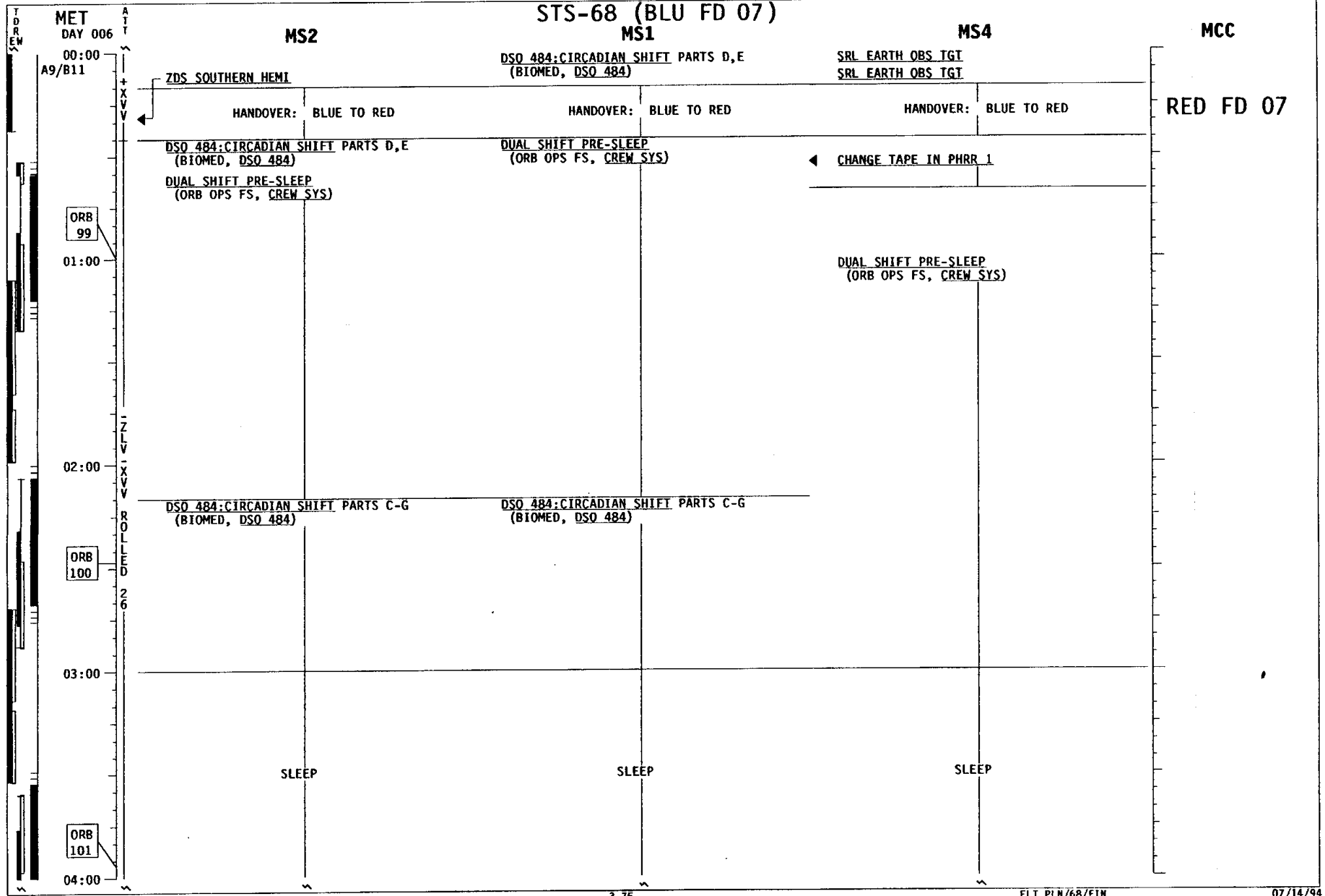


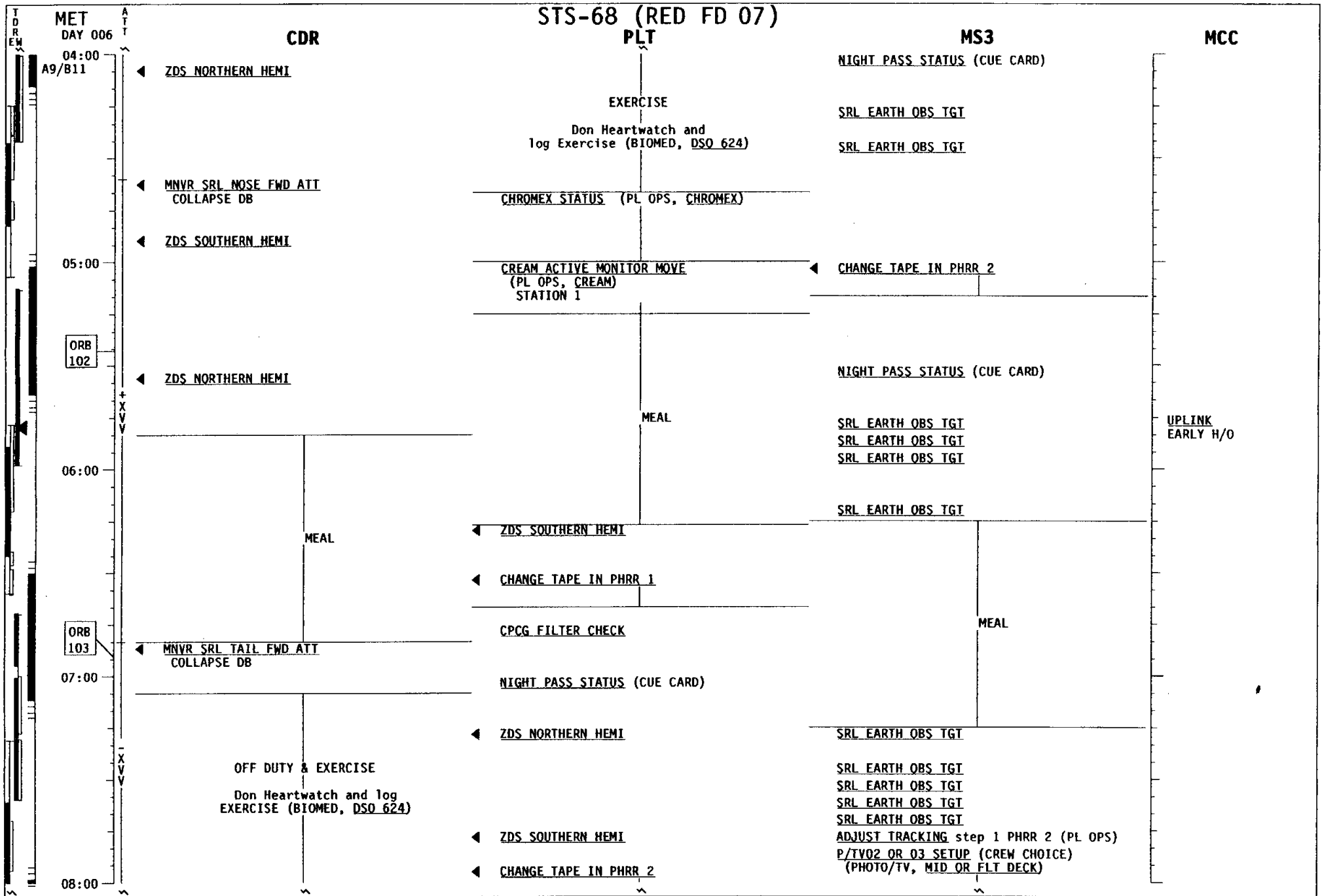


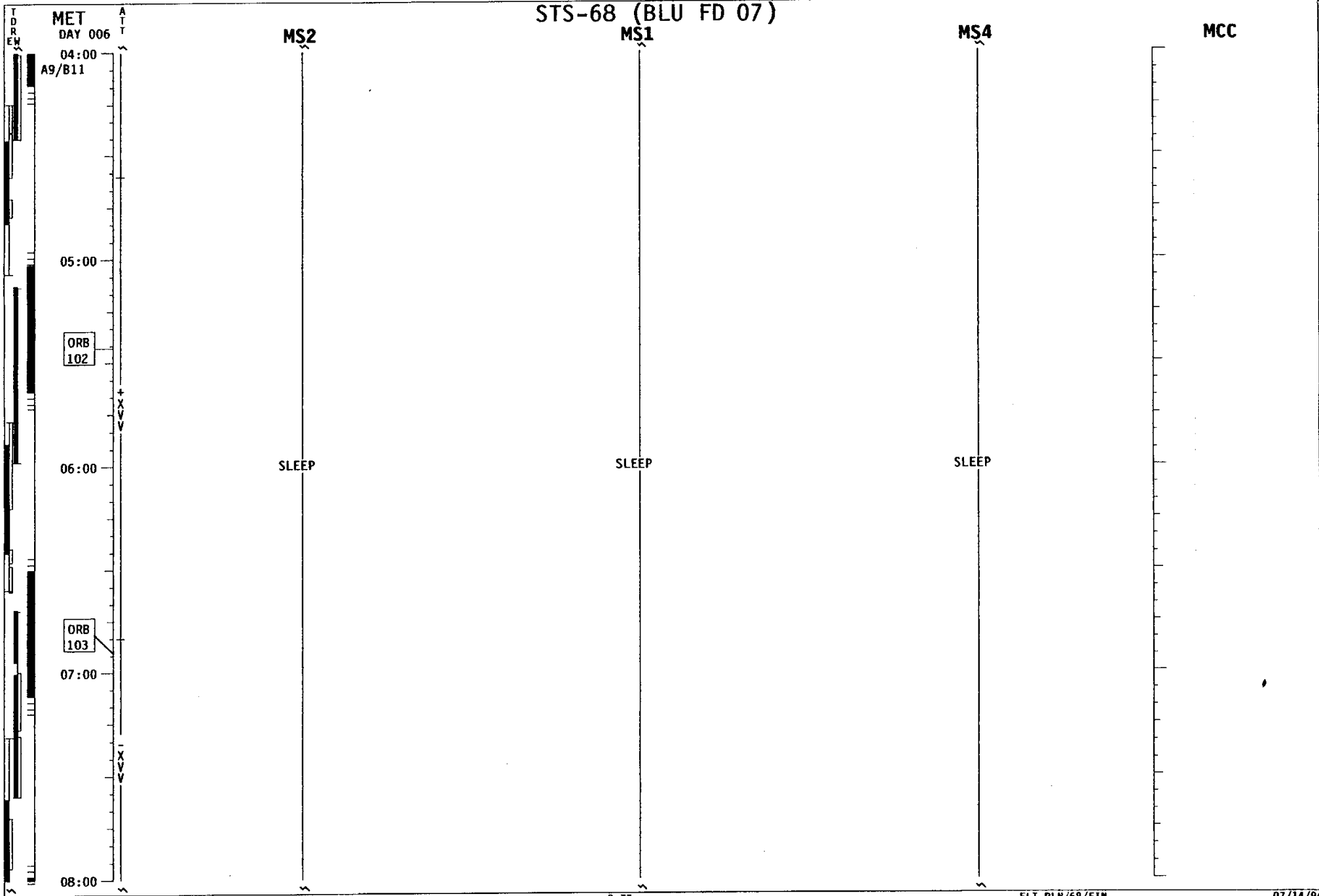


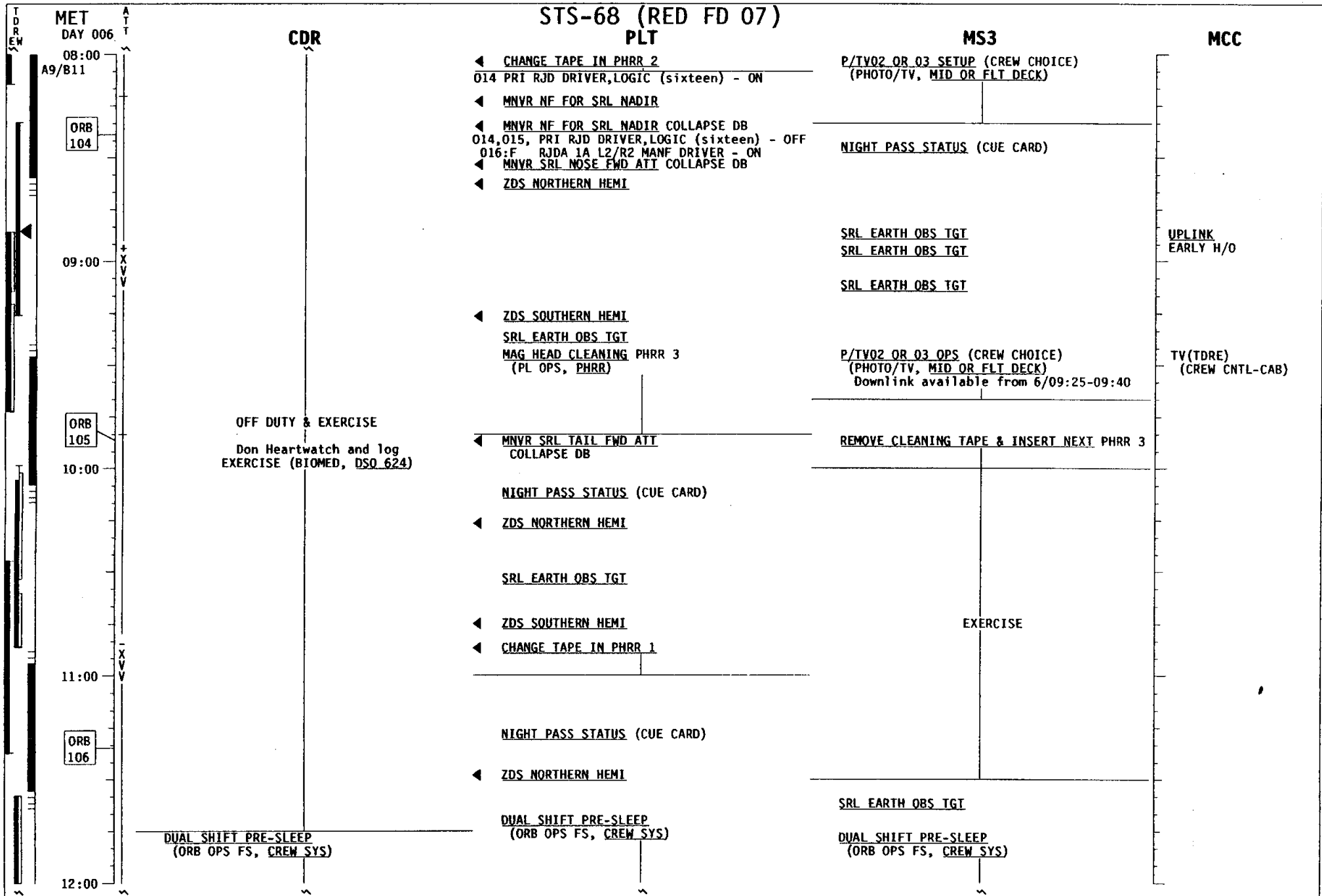


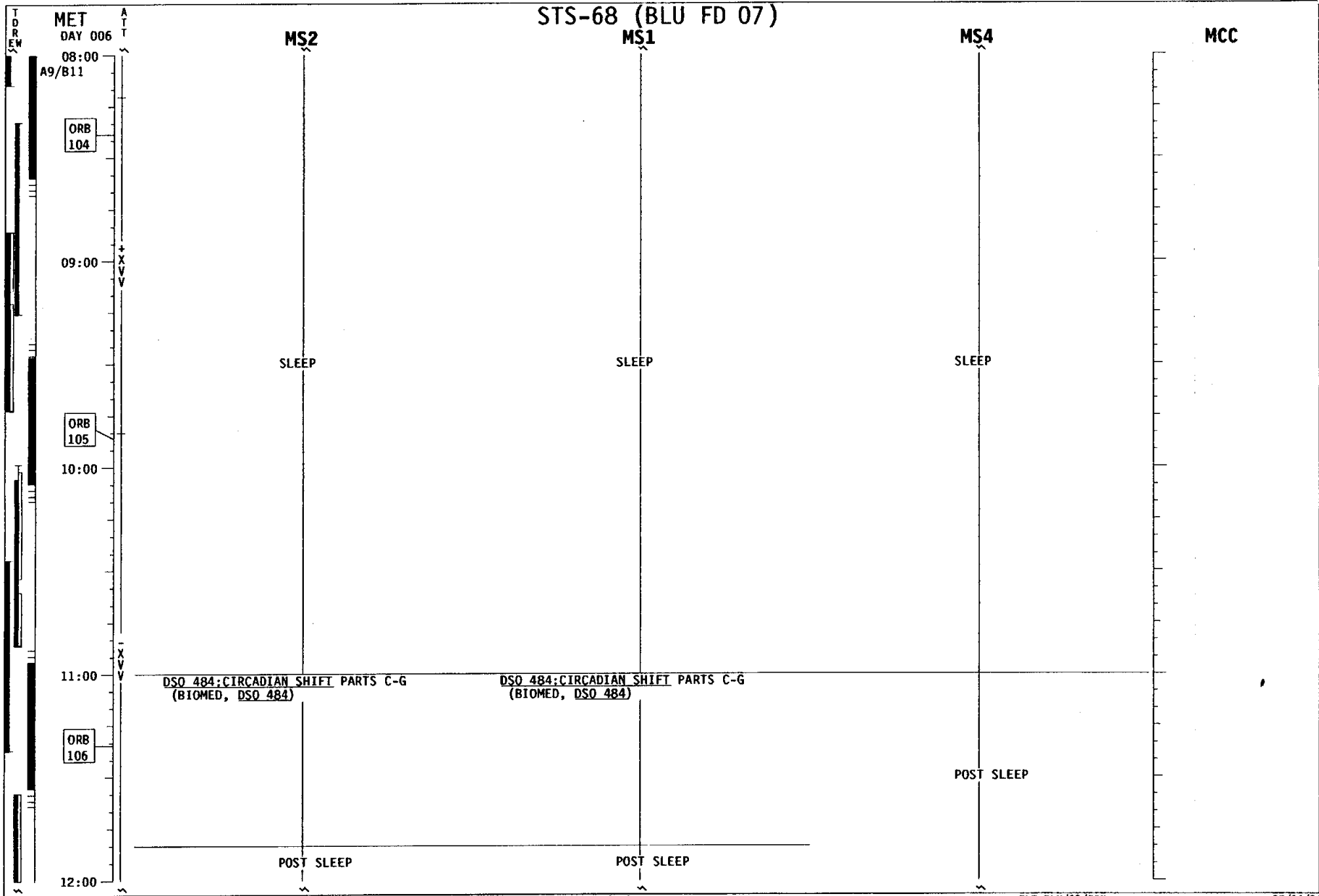
MET		CDR		STS-68 (RED FD 07)		MS3		MCC	
DAY 006				PLT					
00:00	A9/B11		HANDOVER: BLUE TO RED		HANDOVER: BLUE TO RED		HANDOVER: BLUE TO RED		RED FD 07
			◀ MNVR SRL TAIL FWD ATT COLLAPSE DB						
	ORB 99		<div style="border: 1px solid black; padding: 5px;"> RED FD07 EZ ACTIVITIES: CPA OPS (ORB OPS, CREW SYS) OCAC, MCIU, DDRE and PHRR filters Log Fluids (BIOMED, DSO 621) MS3 MAST OPS (Ref MAST msg) </div>		CPCG TEMP LOG & FILTER CHECK (PL OPS, CPCG)				
01:00			◀ ZDS NORTHERN HEMI				NIGHT PASS STATUS (CUE CARD)		UPDATE BURN PAD
							SRL EARTH OBS TGT		
					WINDOW IMPACT OBSERVATIONS (ORB OPS FS, DSO 326)		SRL EARTH OBS TGT		
							SRL EARTH OBS TGT		
			◀ ZDS SOUTHERN HEMI				SRL EARTH OBS TGT		
02:00			ON-ORBIT MULTI-AXIS BURN (ORB OPS, RCS)		ON-ORBIT MULTI-AXIS RCS BURN (PL OPS, RCS)		◀ CHANGE TAPE IN PHRR 3		
							◀ CHANGE TAPE IN PHRR 2		
	(A9)B1		◀ TIG (02:25) Config DAP: B10		014,015, PRI RJD DRIVER, LOGIN (sixteen) - OFF 016:F RJDA 1A L2/R2 MANF DRIVER - ON				
	ORB 100		◀ RE-INIT ATTITUDE COLLAPSE DB				NIGHT PASS STATUS (CUE CARD)		
	A9/B10/B11		◀ ZDS NORTHERN HEMI				SRL EARTH OBS TGT		
							SRL EARTH OBS TGT		
							SRL EARTH OBS TGT		
03:00							SRL EARTH OBS TGT		
			◀ ZDS SOUTHERN HEMI						
					EXERCISE Don Heartwatch and log Exercise (BIOMED, DSO 624)		◀ CHANGE TAPE IN PHRR 1		
04:00	ORB 101								

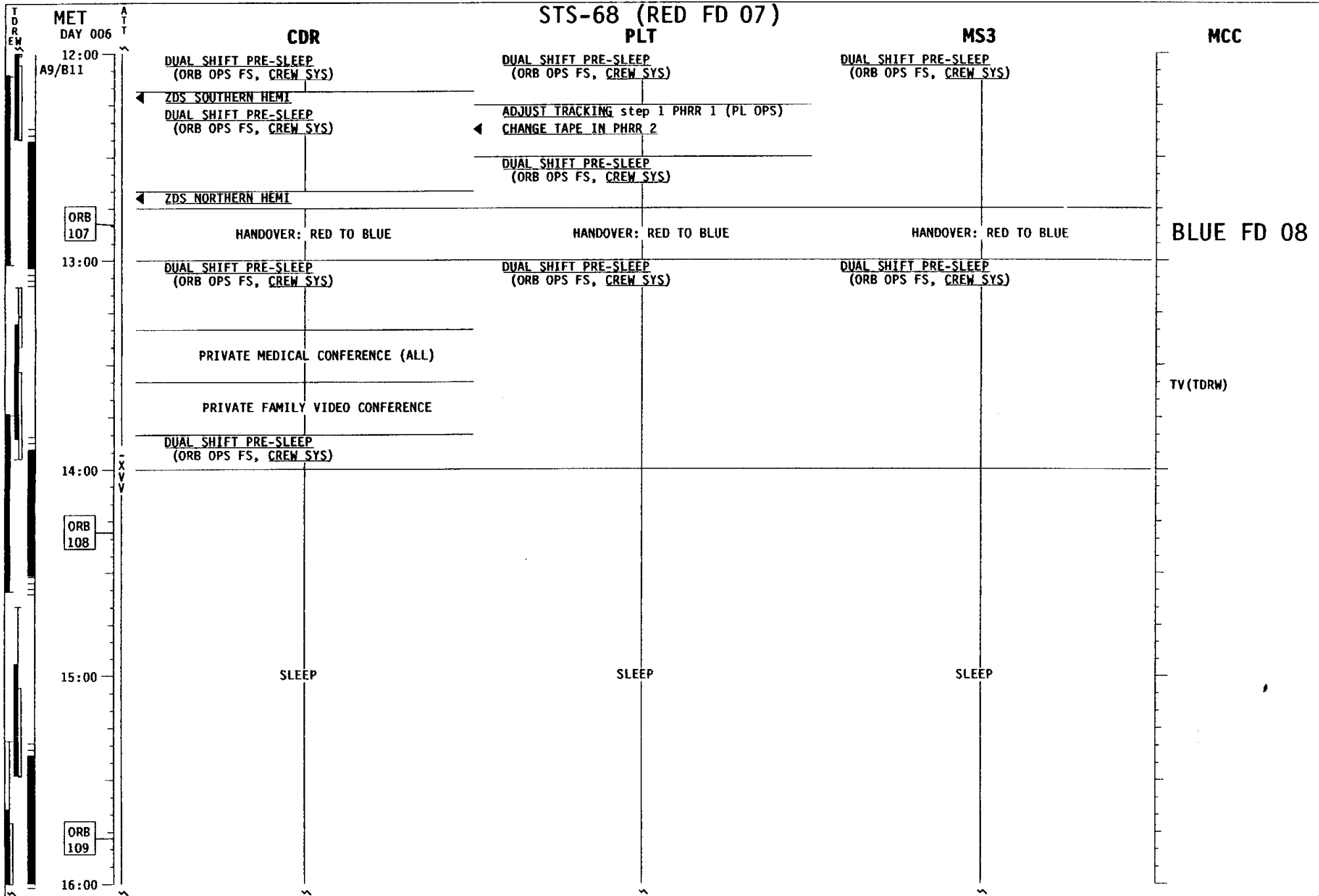


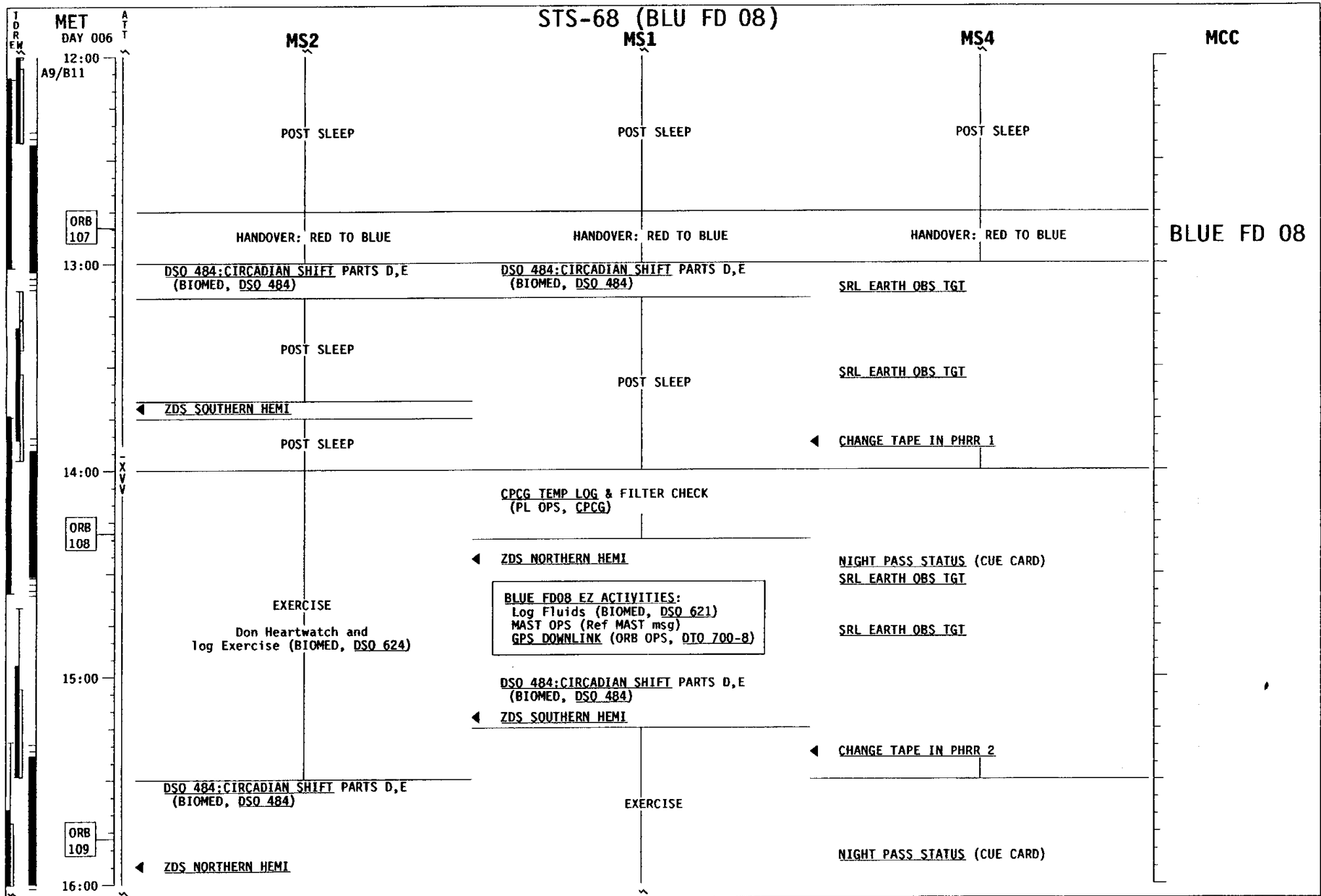


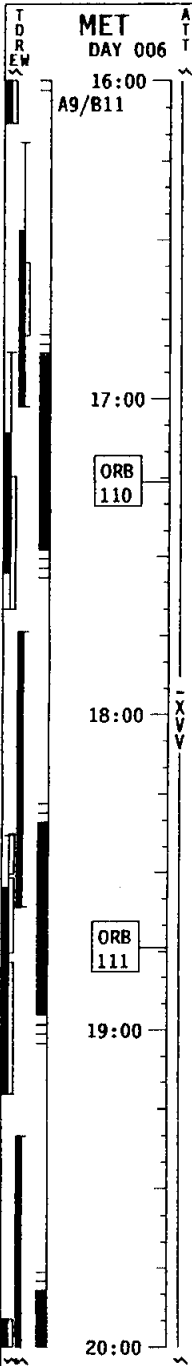












STS-68 (RED FD 07)

CDR

PLT

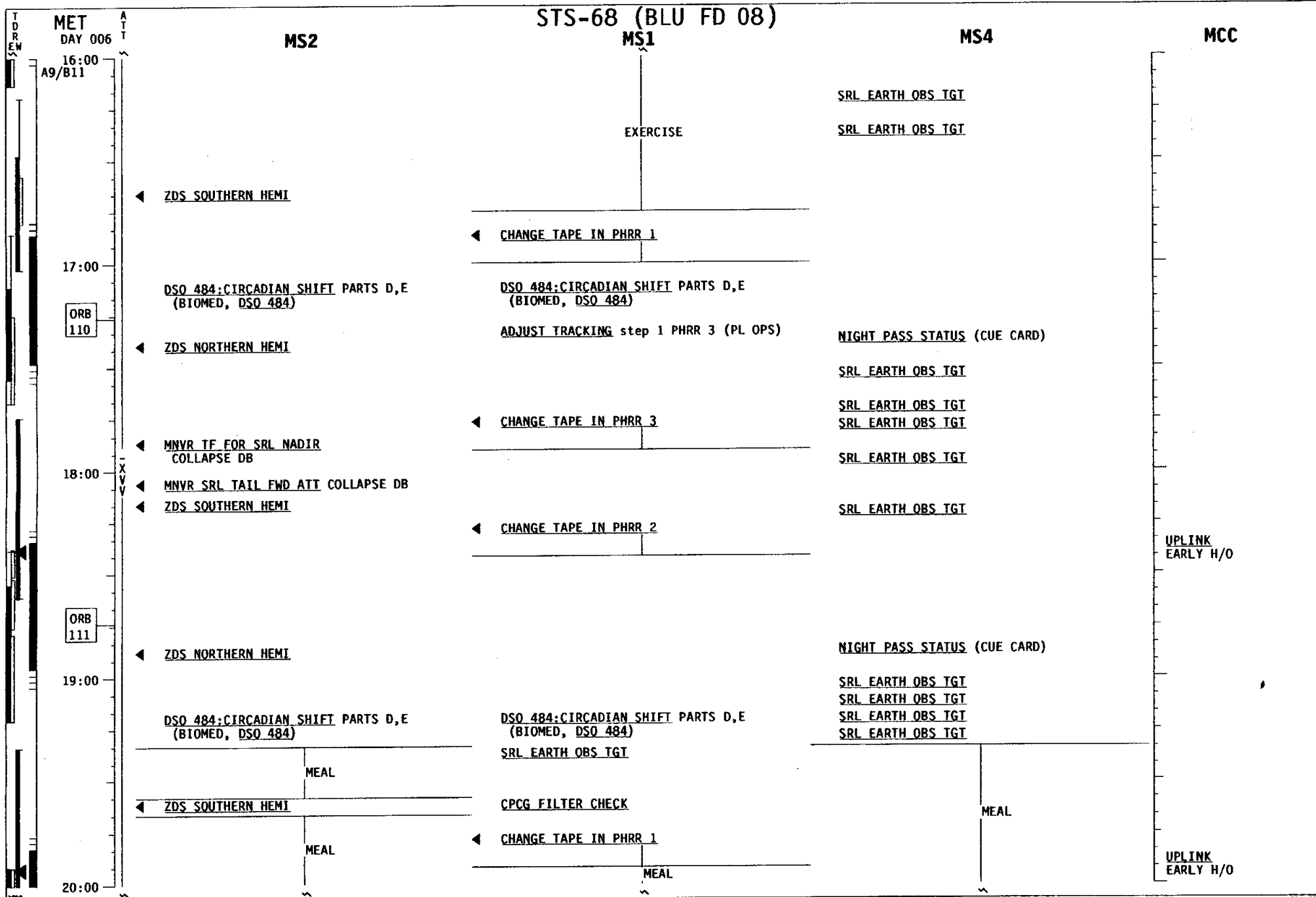
MS3

MCC

SLEEP

SLEEP

SLEEP



T D R E H A T
 MET
 DAY 006
 20:00
 A9/B11
 ORB 112
 21:00
 ORB 113
 22:00
 I M U
 23:00
 ORB 114
 007
 00:00

STS-68 (RED FD 07)

CDR

PLT

MS3

MCC

SLEEP

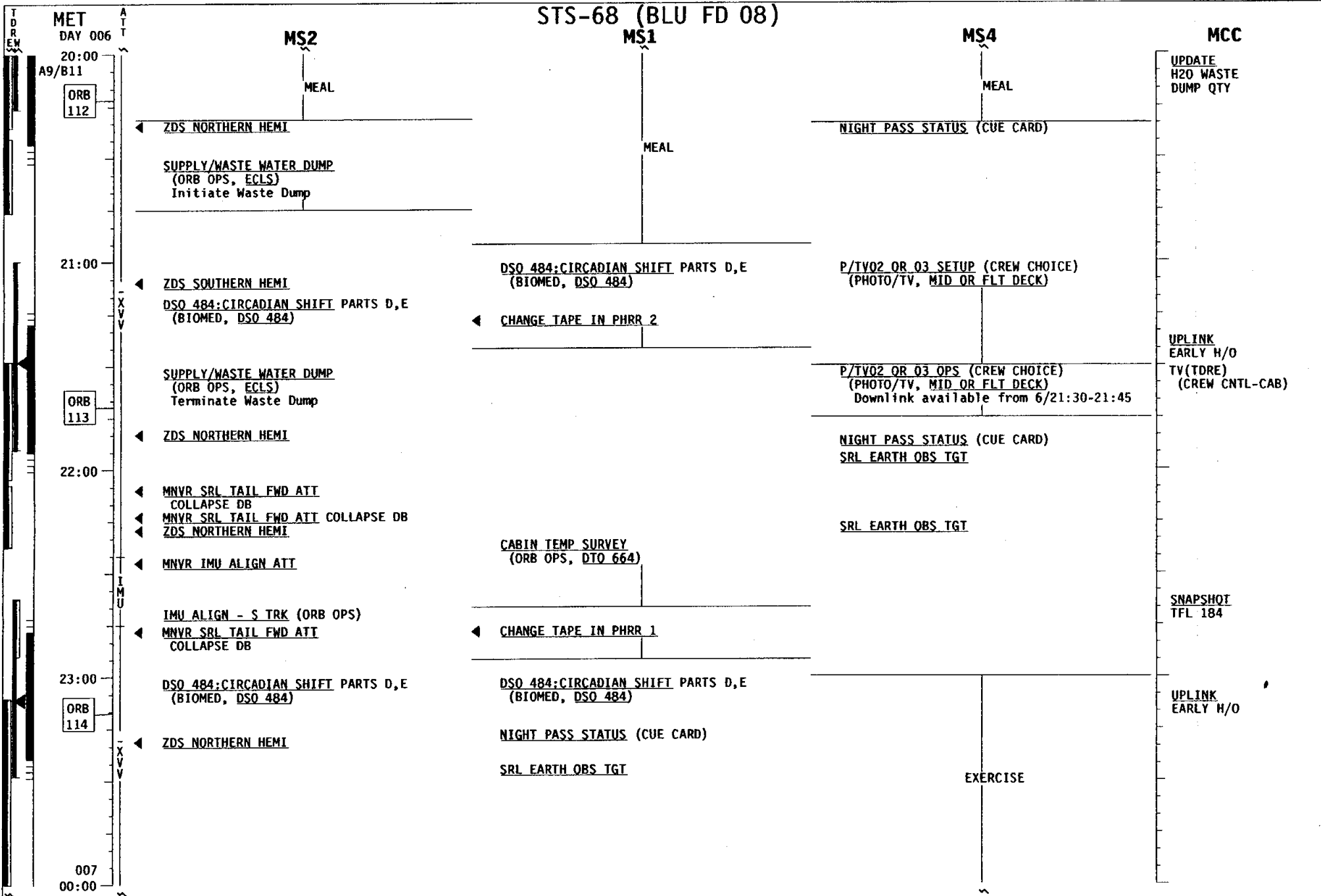
SLEEP

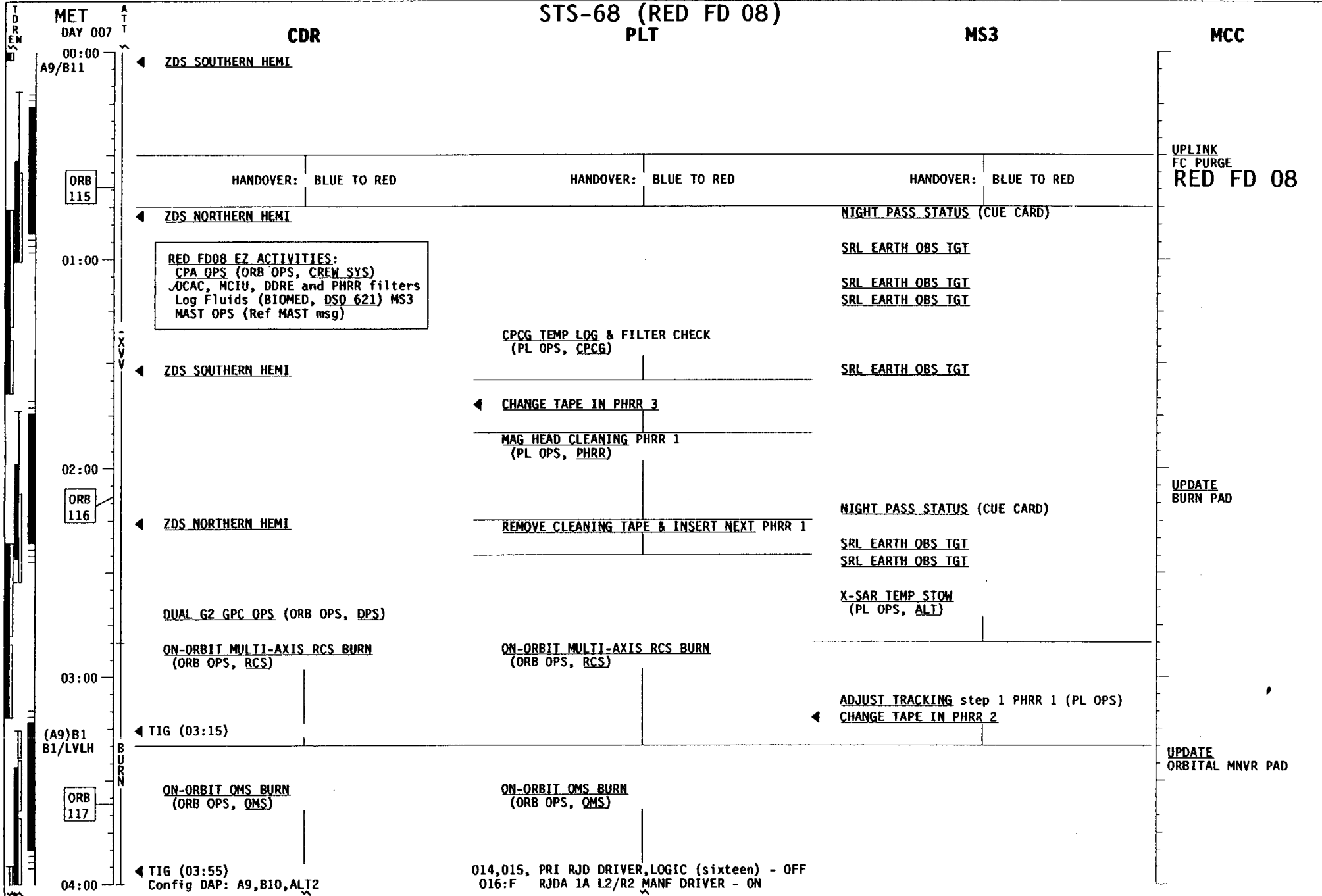
SLEEP

POST SLEEP

POST SLEEP

POST SLEEP





STS-68 (BLU FD 08)
MS1

MS2

MS4

MCC

MET
DAY 007

00:00

A9/B11

◀ CHANGE TAPE IN PHRR 2

EXERCISE

HANDOVER: BLUE TO RED

HANDOVER: BLUE TO RED

HANDOVER: BLUE TO RED

RED FD 08

ORB
115

01:00

DSO 484:CIRCADIAN SHIFT PARTS D,E
(BIOMED, DSO 484)
DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DSO 484:CIRCADIAN SHIFT PARTS D,E
(BIOMED, DSO 484)
DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

02:00

ORB
116

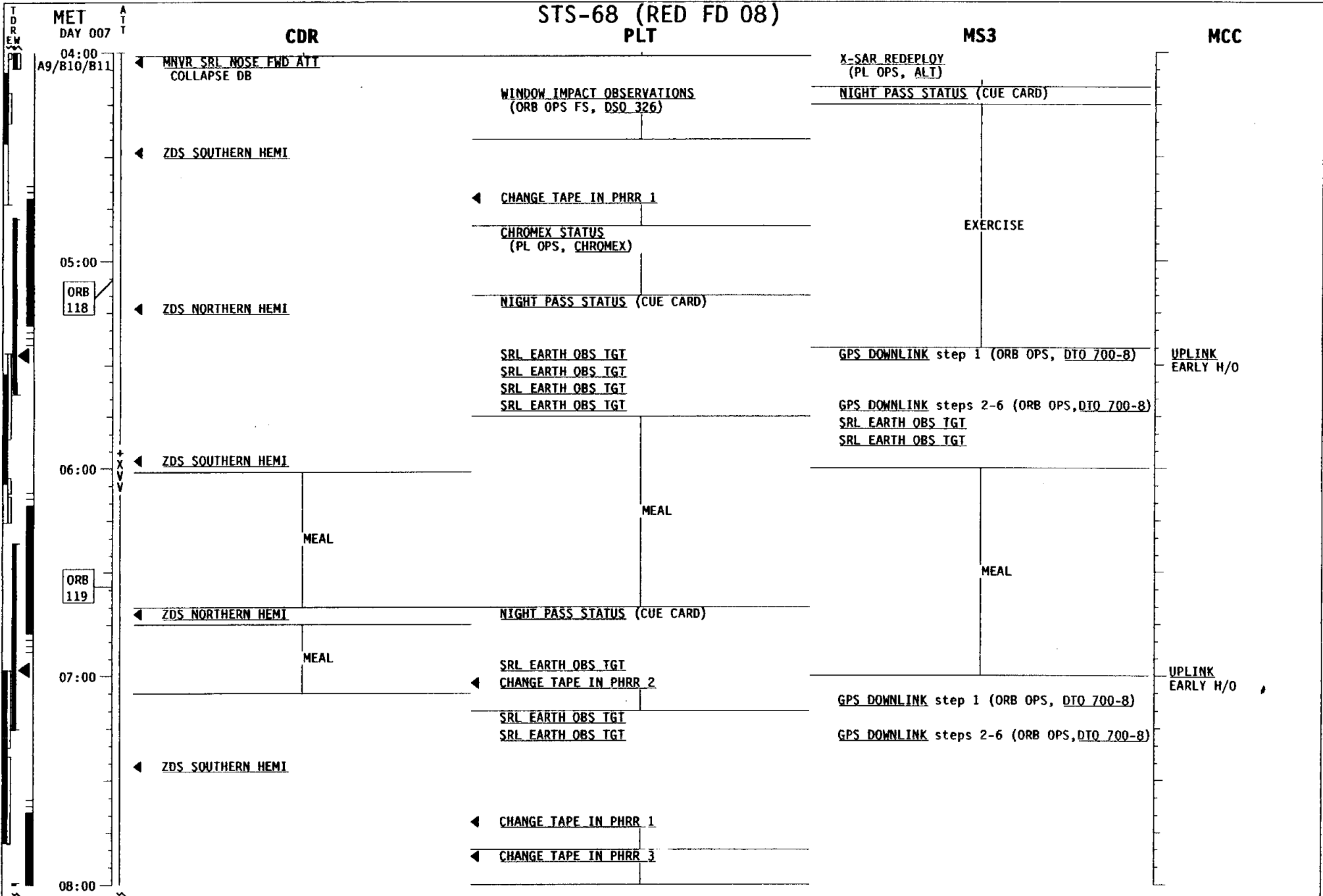
03:00

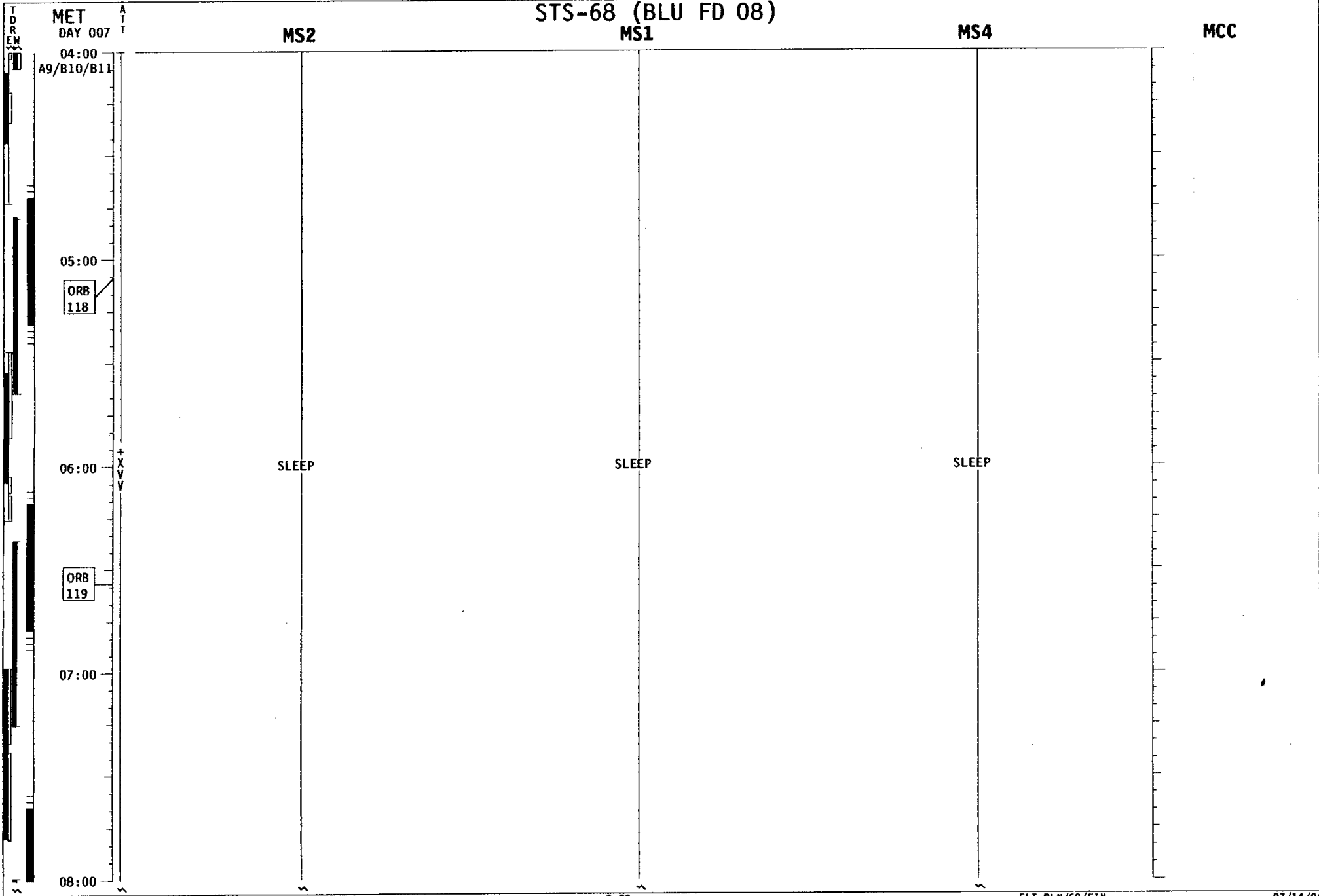
DSO 484:CIRCADIAN SHIFT PARTS C-G
(BIOMED, DSO 484)

DSO 484:CIRCADIAN SHIFT PARTS C-G
(BIOMED, DSO 484)

ORB
117

04:00





MET
DAY 007

STS-68 (BLU FD 08)

MS2

MS1

MS4

MCC

04:00
A9/B10/B11

05:00

ORB
118

06:00

SLEEP

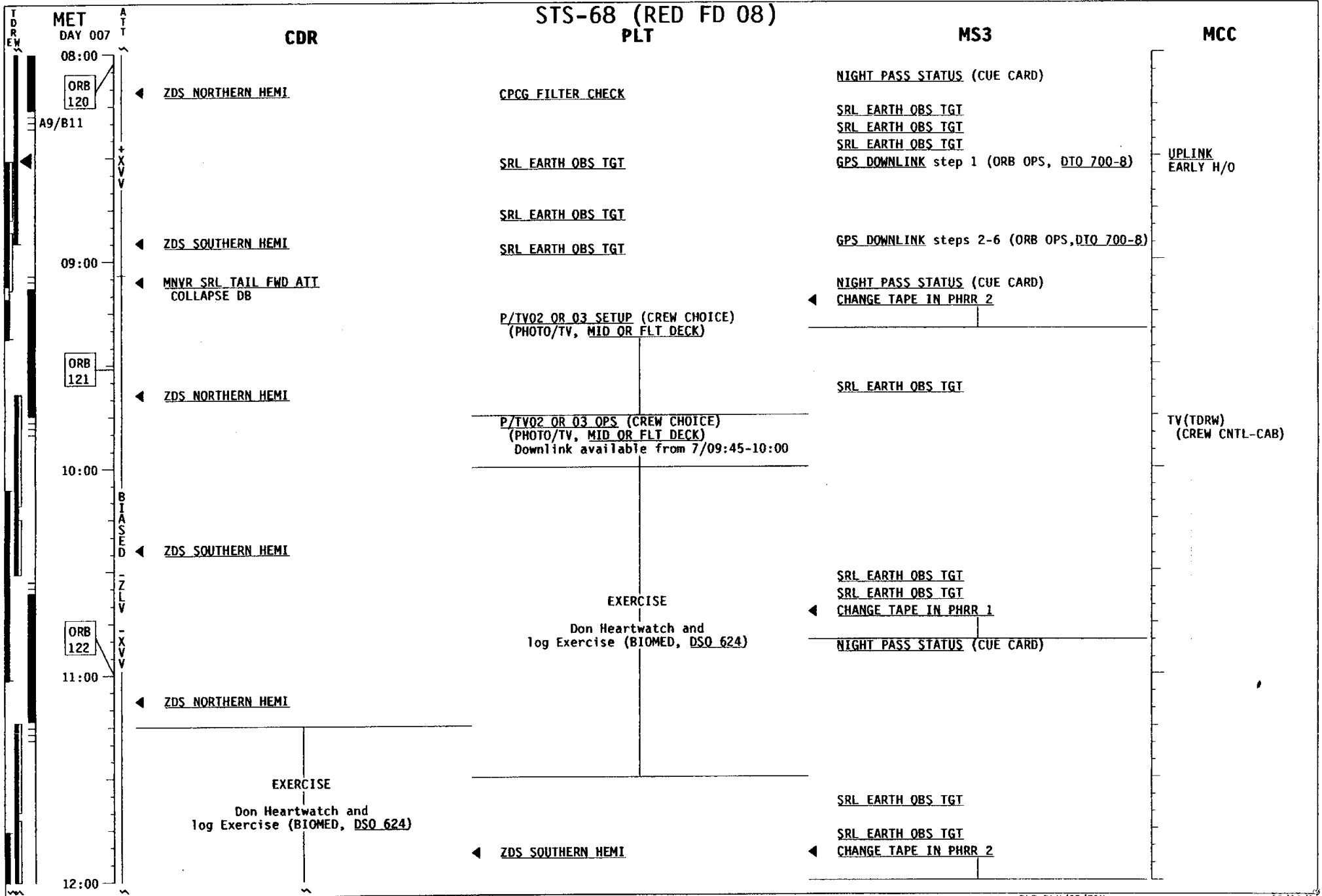
SLEEP

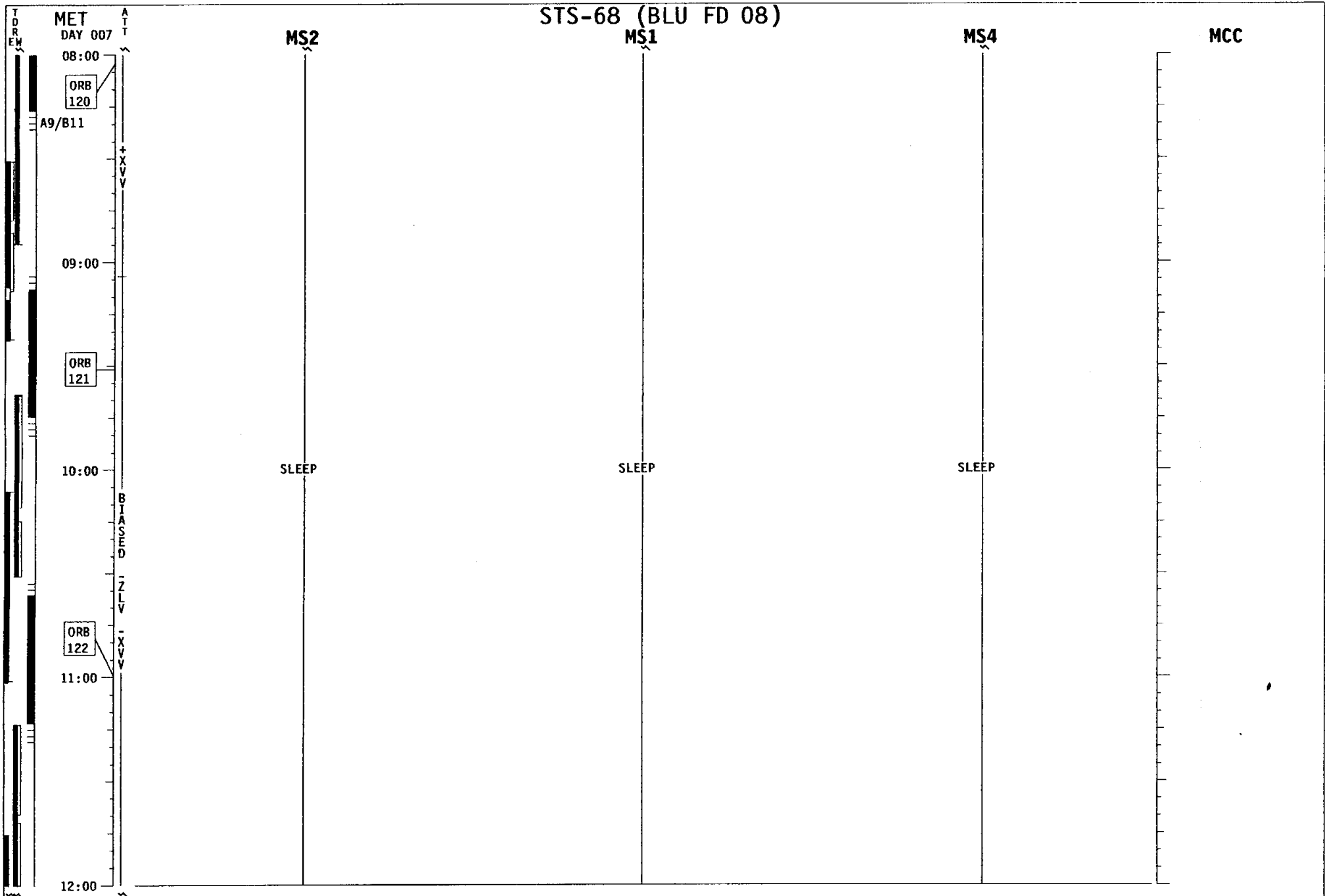
SLEEP

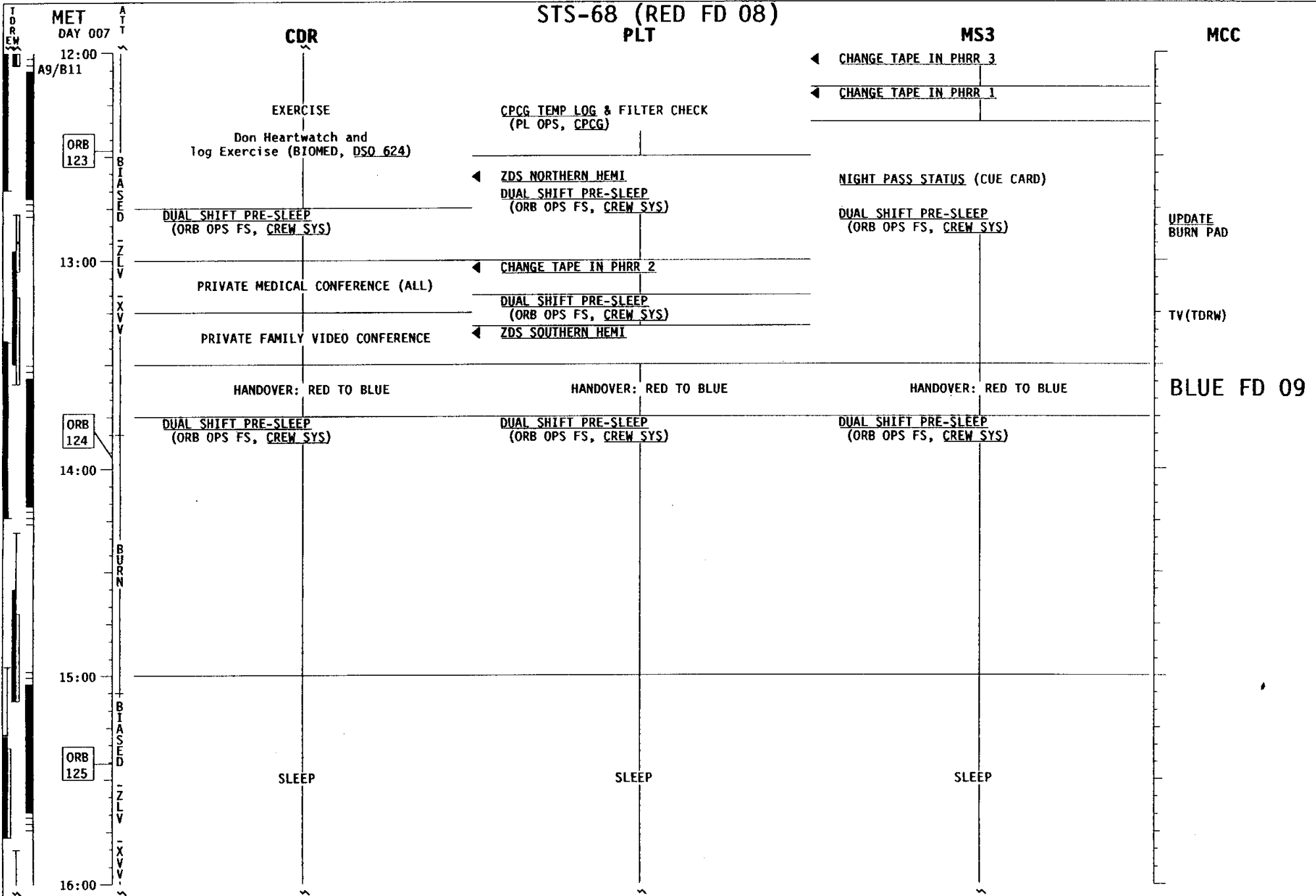
ORB
119

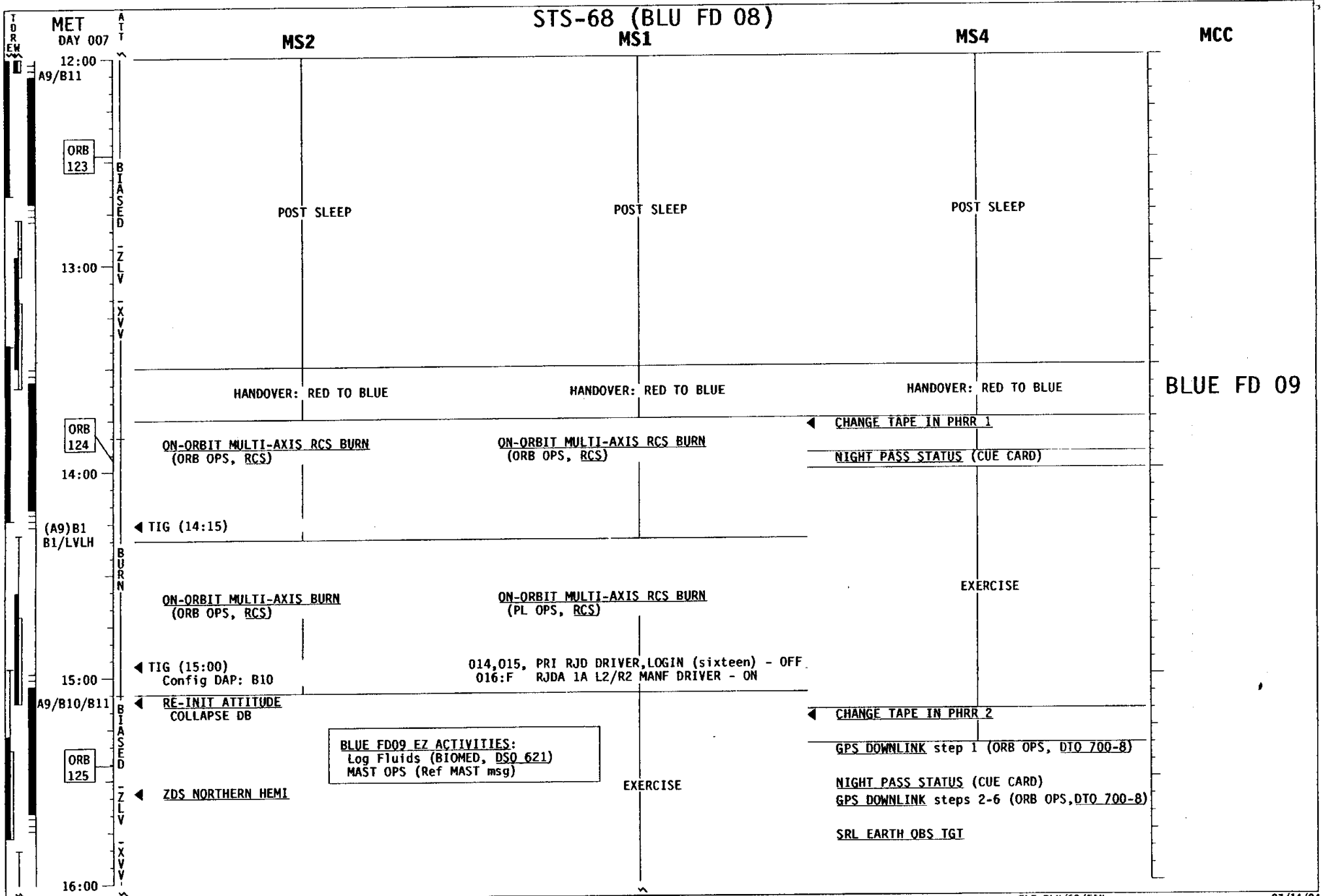
07:00

08:00









MET DAY 007

STS-68 (BLU FD 08)

MS2

MS1

MS4

MCC

12:00

A9/B11

ORB 123

13:00

ORB 124

14:00

(A9)B1
B1/LVLH

15:00

A9/B10/B11

ORB 125

16:00

ATTITUDE
BIASED
ZLV
XVV
BURR N
BIASED
ZLV
XVV

POST SLEEP

POST SLEEP

POST SLEEP

HANDOVER: RED TO BLUE

HANDOVER: RED TO BLUE

HANDOVER: RED TO BLUE

ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS)

ON-ORBIT MULTI-AXIS RCS BURN (ORB OPS, RCS)

CHANGE TAPE IN PHRR 1

NIGHT PASS STATUS (CUE CARD)

TIG (14:15)

ON-ORBIT MULTI-AXIS BURN (ORB OPS, RCS)

ON-ORBIT MULTI-AXIS RCS BURN (PL OPS, RCS)

EXERCISE

TIG (15:00)
Config DAP: B10

014,015, PRI RJD DRIVER, LOGIN (sixteen) - OFF
016:F RJDA 1A L2/R2 MANF DRIVER - ON

RE-INIT ATTITUDE
COLLAPSE DB

CHANGE TAPE IN PHRR 2

GPS DOWNLINK step 1 (ORB OPS, DTO 700-8)

BLUE FD09 EZ ACTIVITIES:
Log Fluids (BIOMED, DSO 621)
MAST OPS (Ref MAST msg)

NIGHT PASS STATUS (CUE CARD)

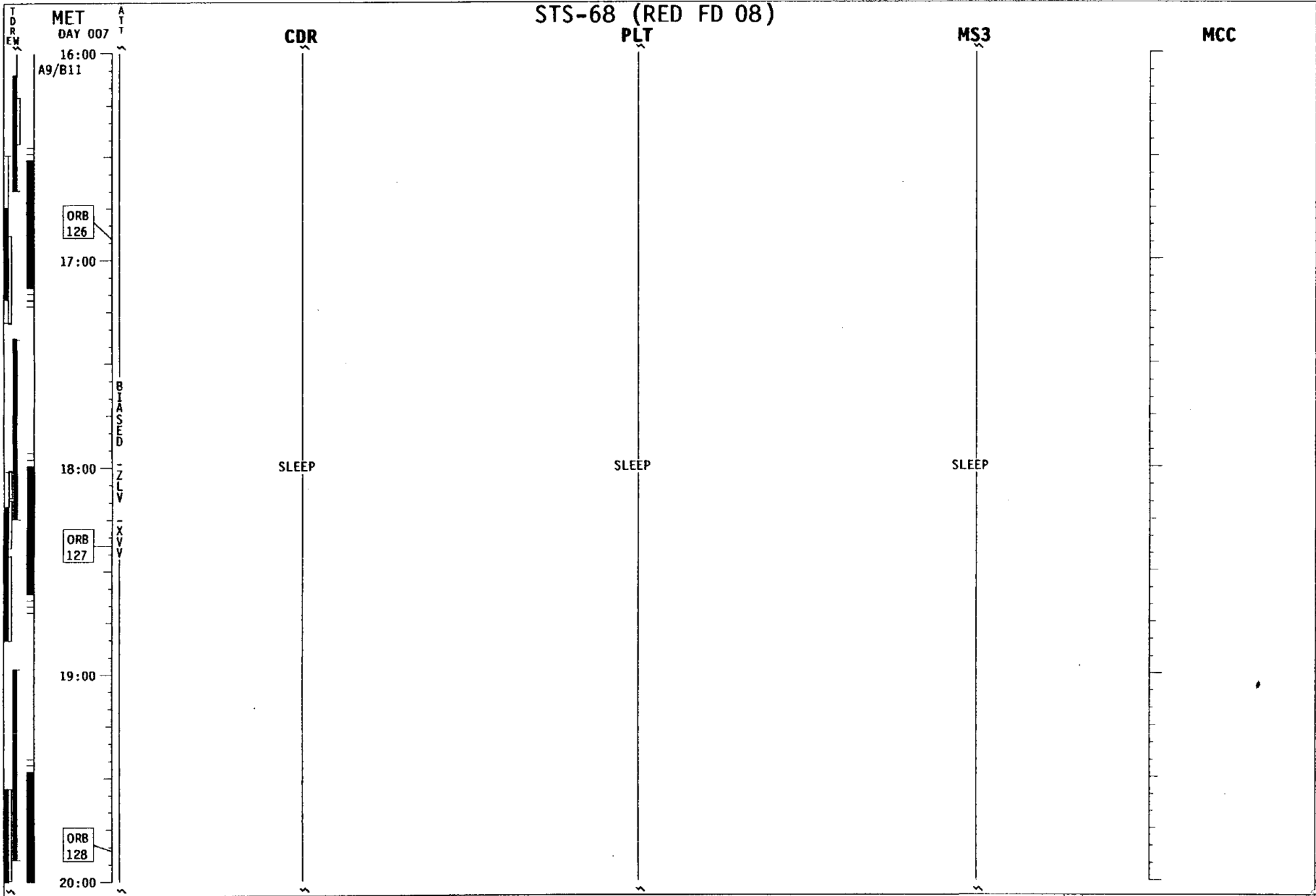
GPS DOWNLINK steps 2-6 (ORB OPS, DTO 700-8)

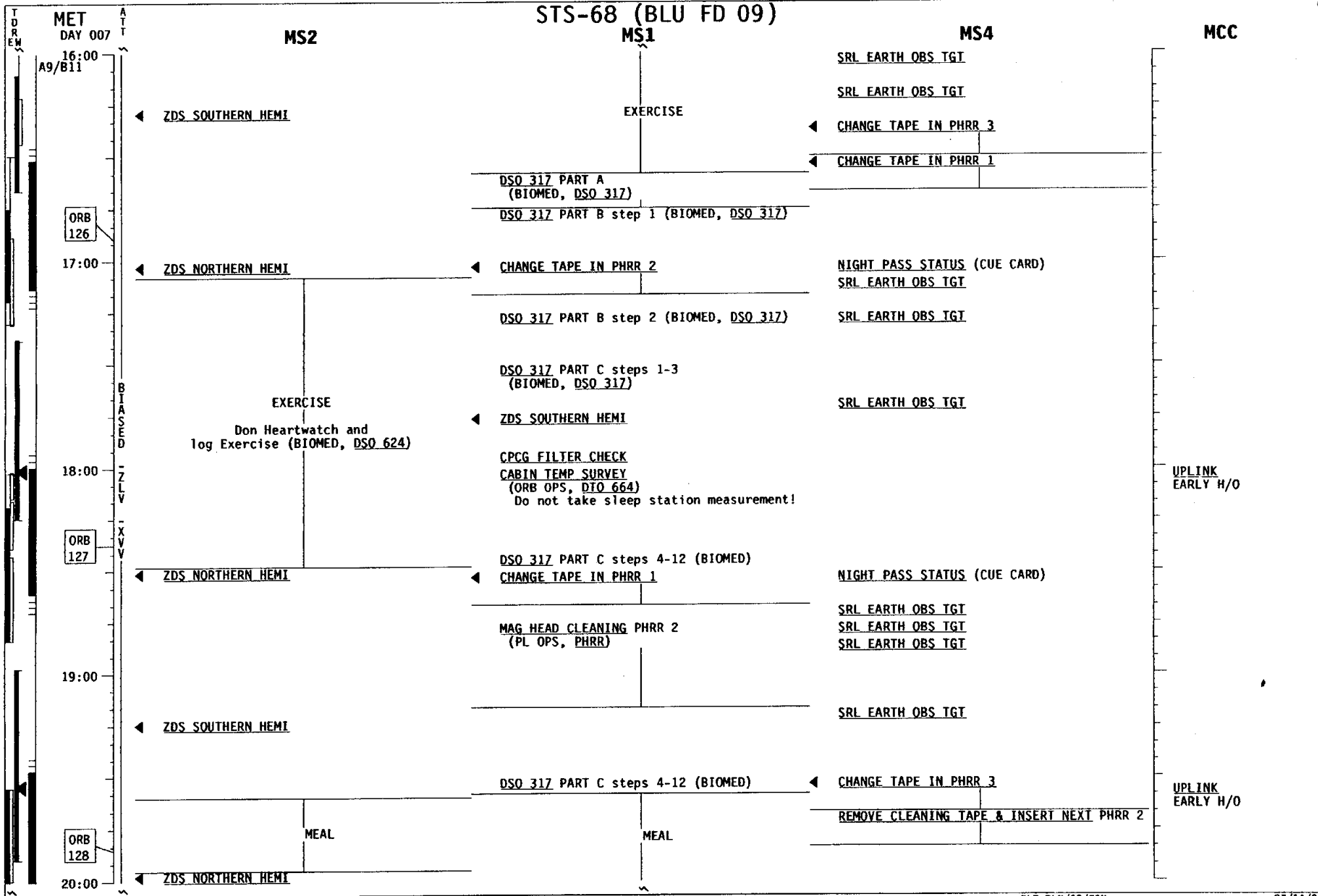
ZDS NORTHERN HEMI

EXERCISE

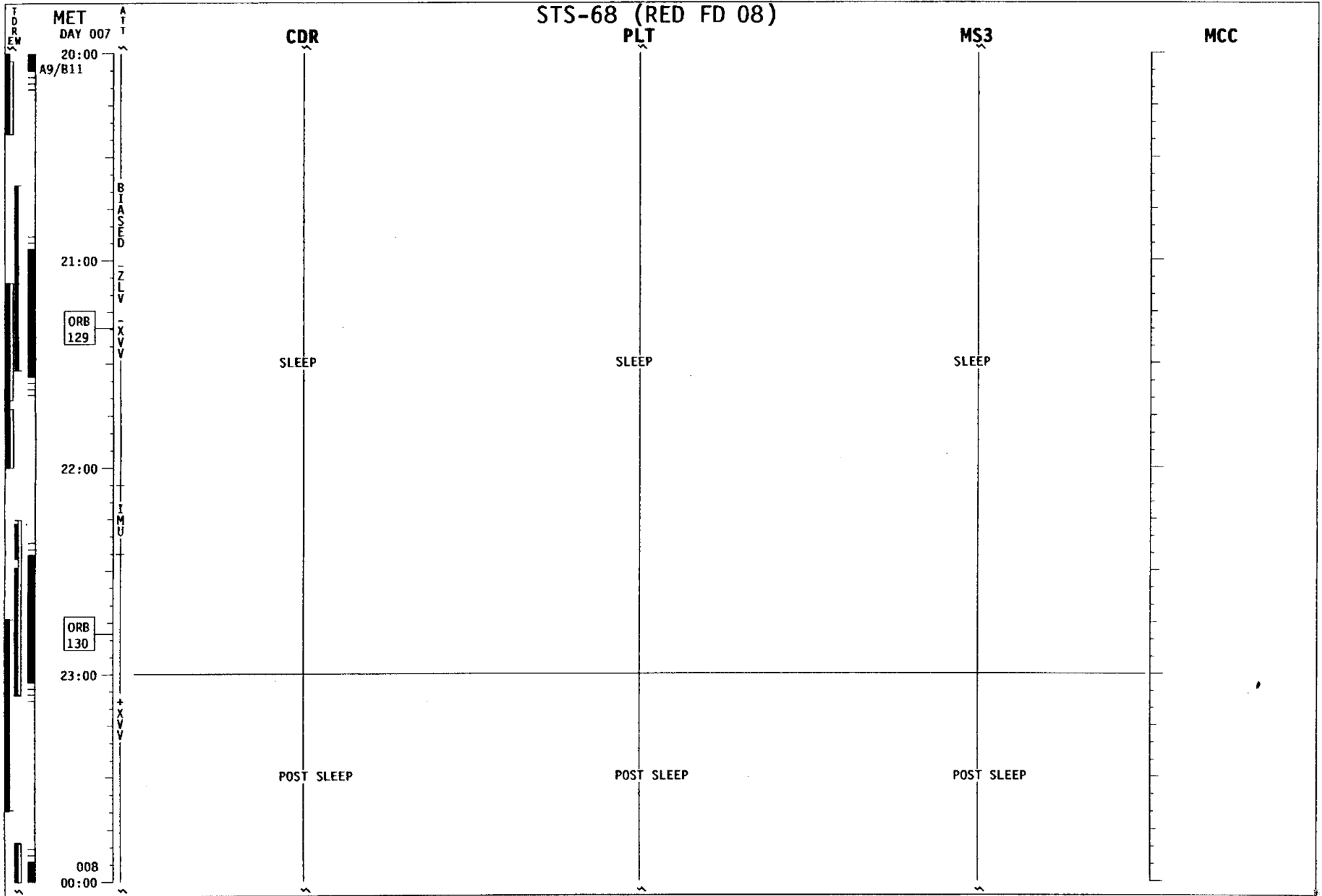
SRL EARTH OBS TGT

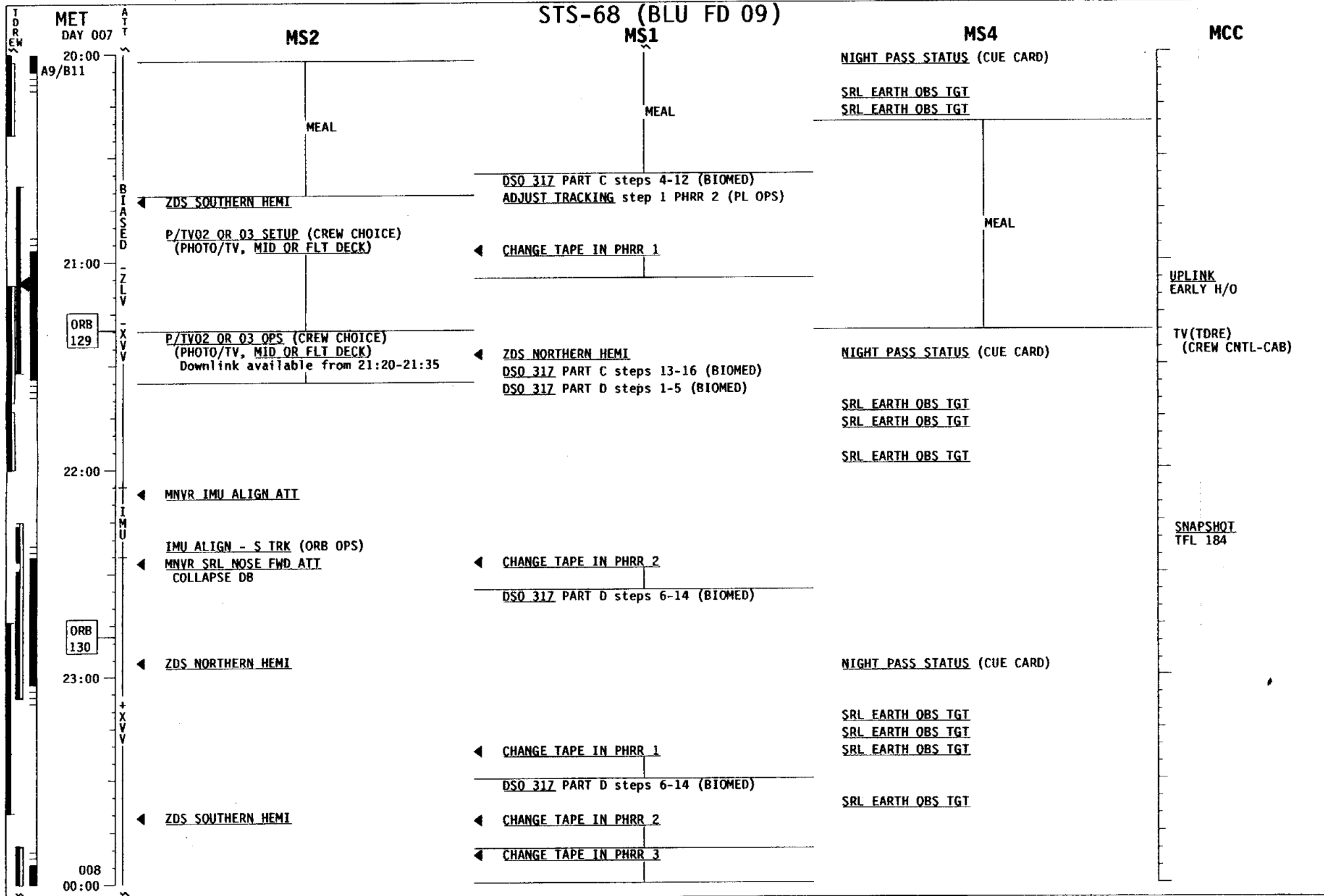
STS-68 (RED FD 08)

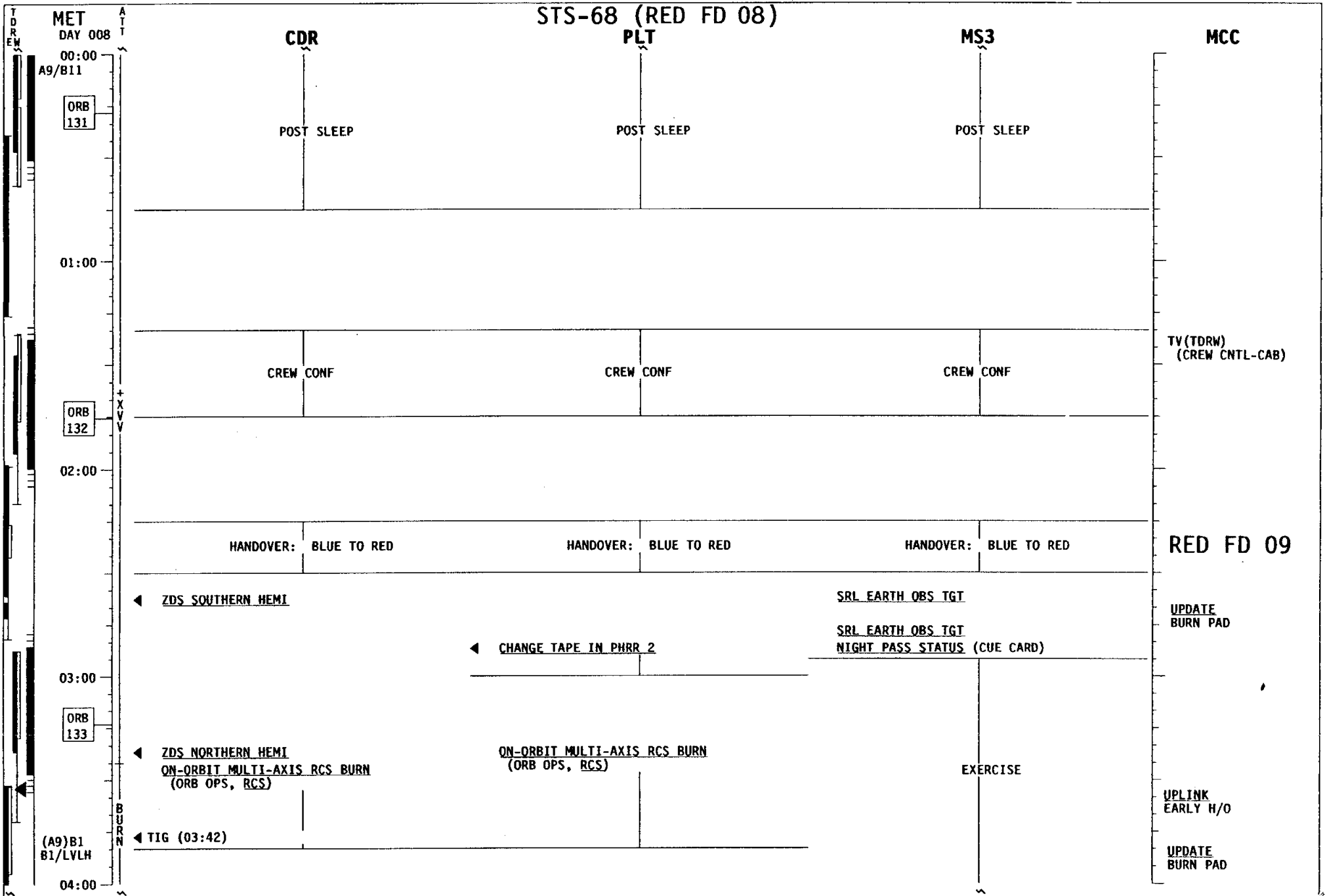


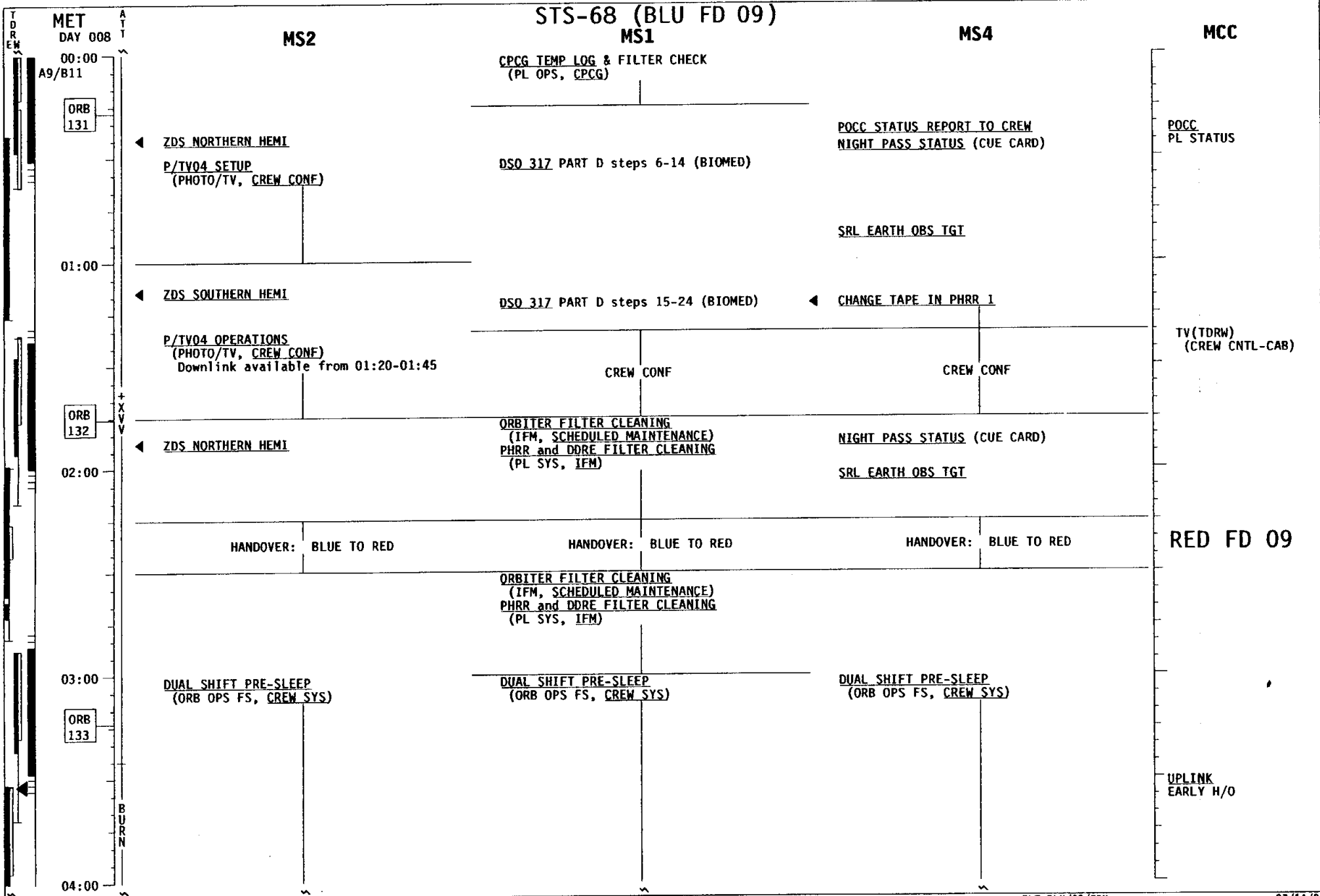


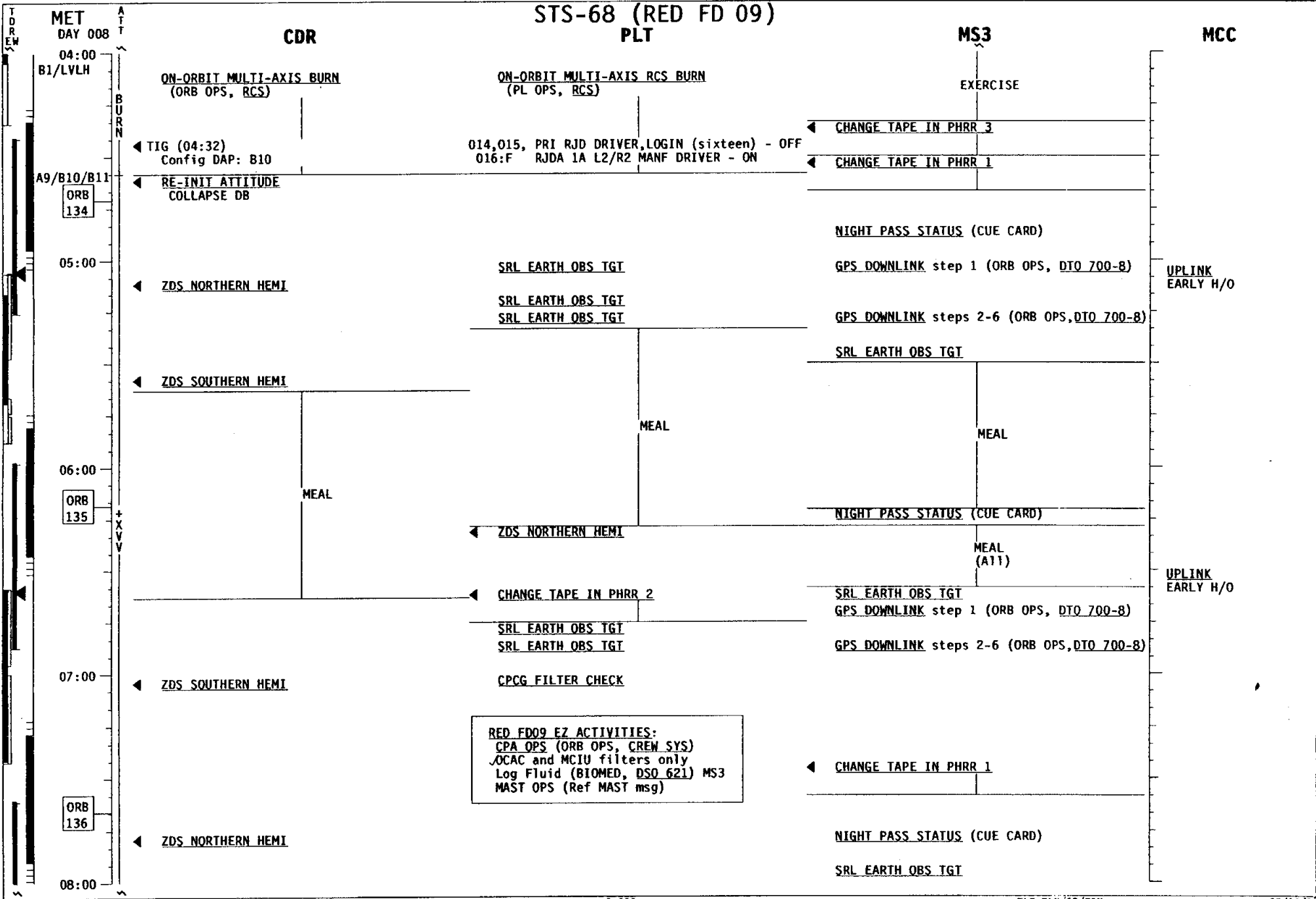
STS-68 (RED FD 08)

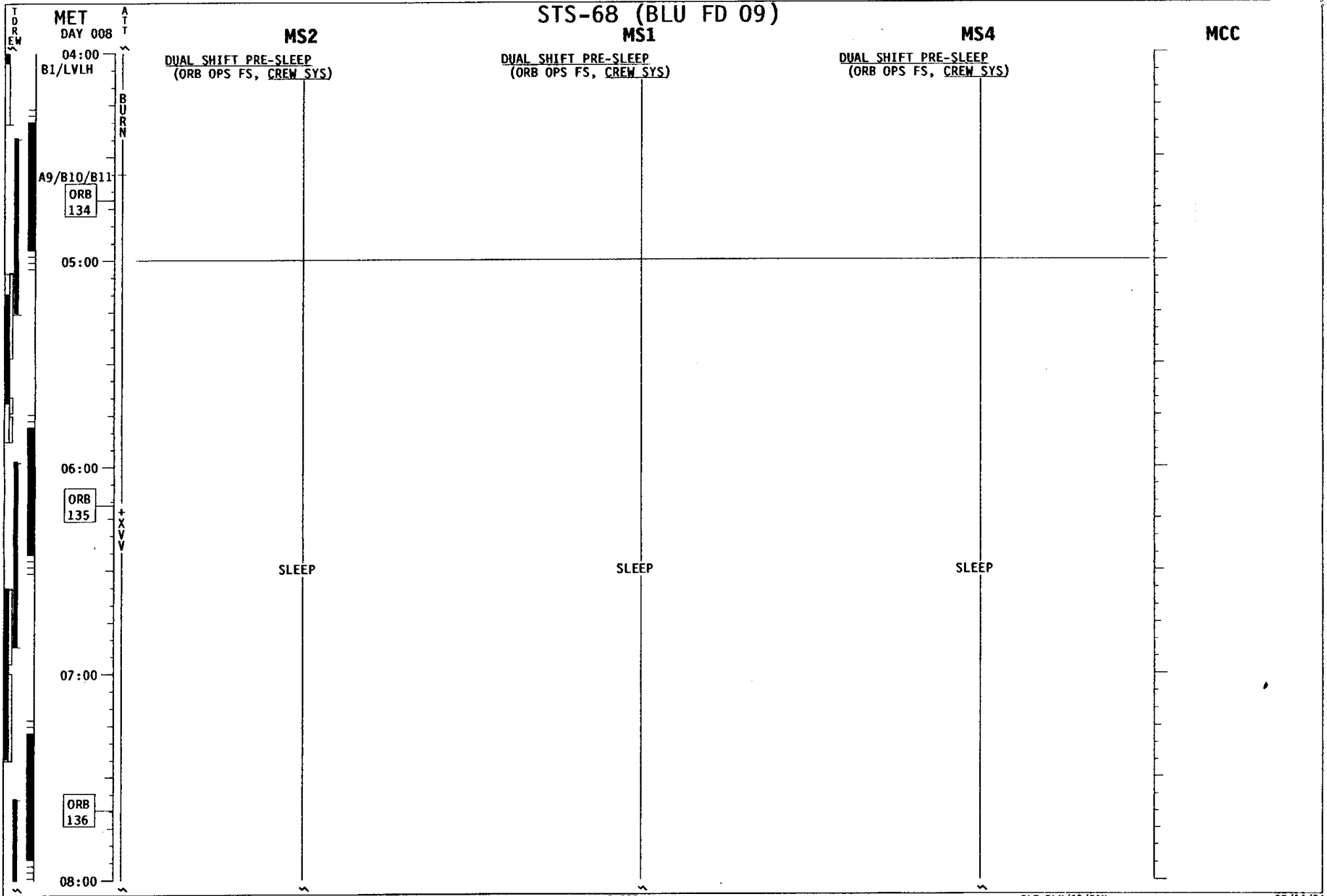


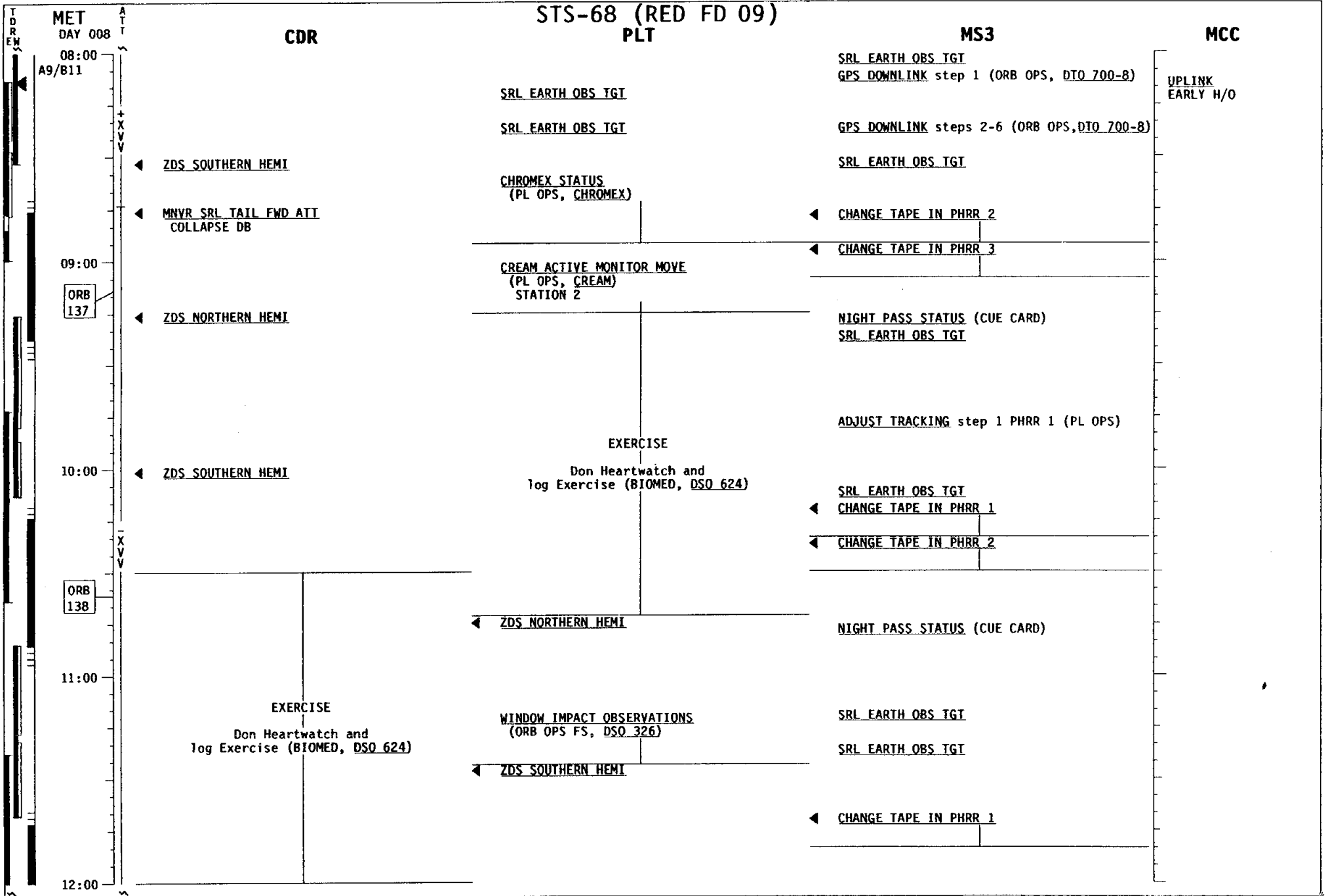




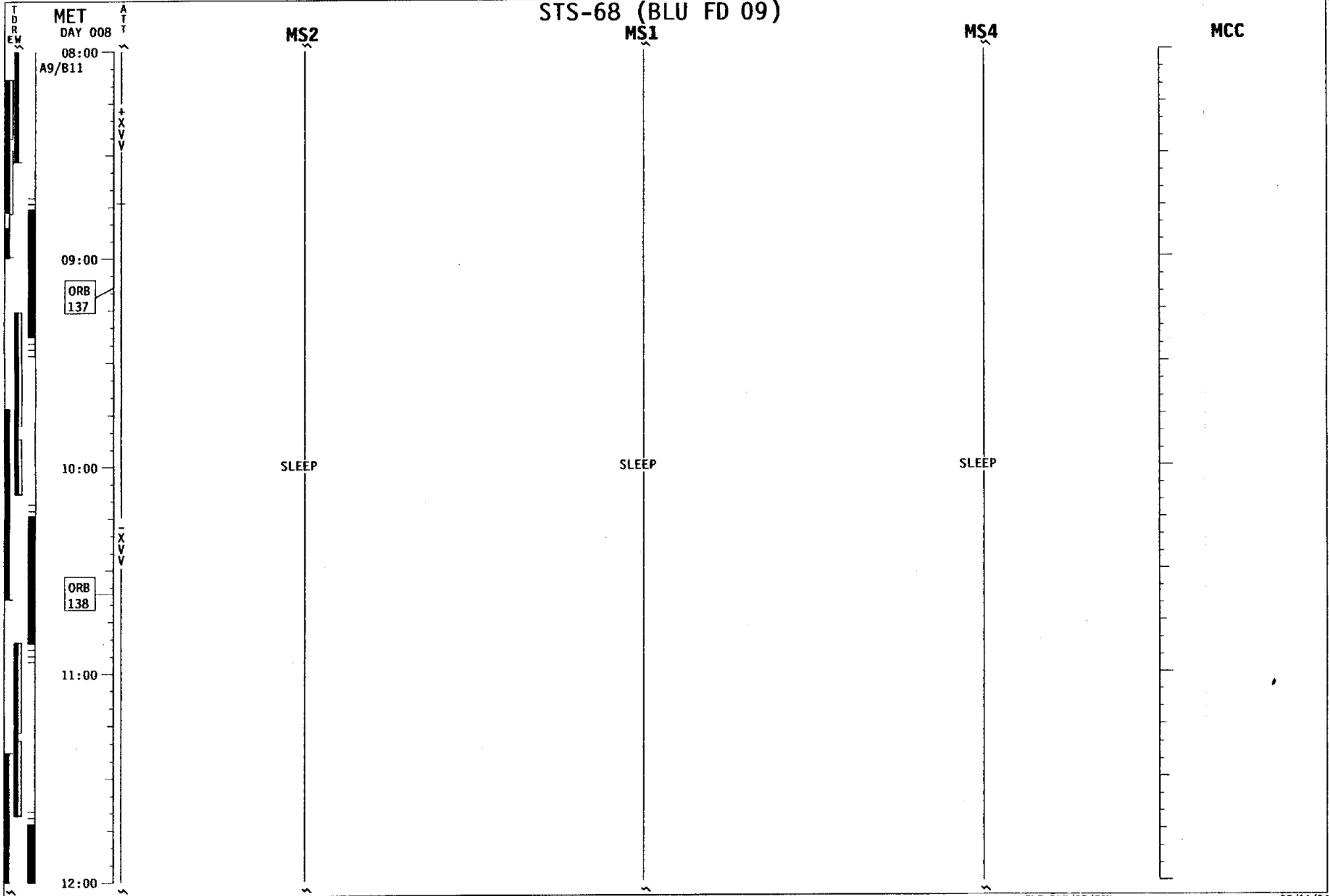


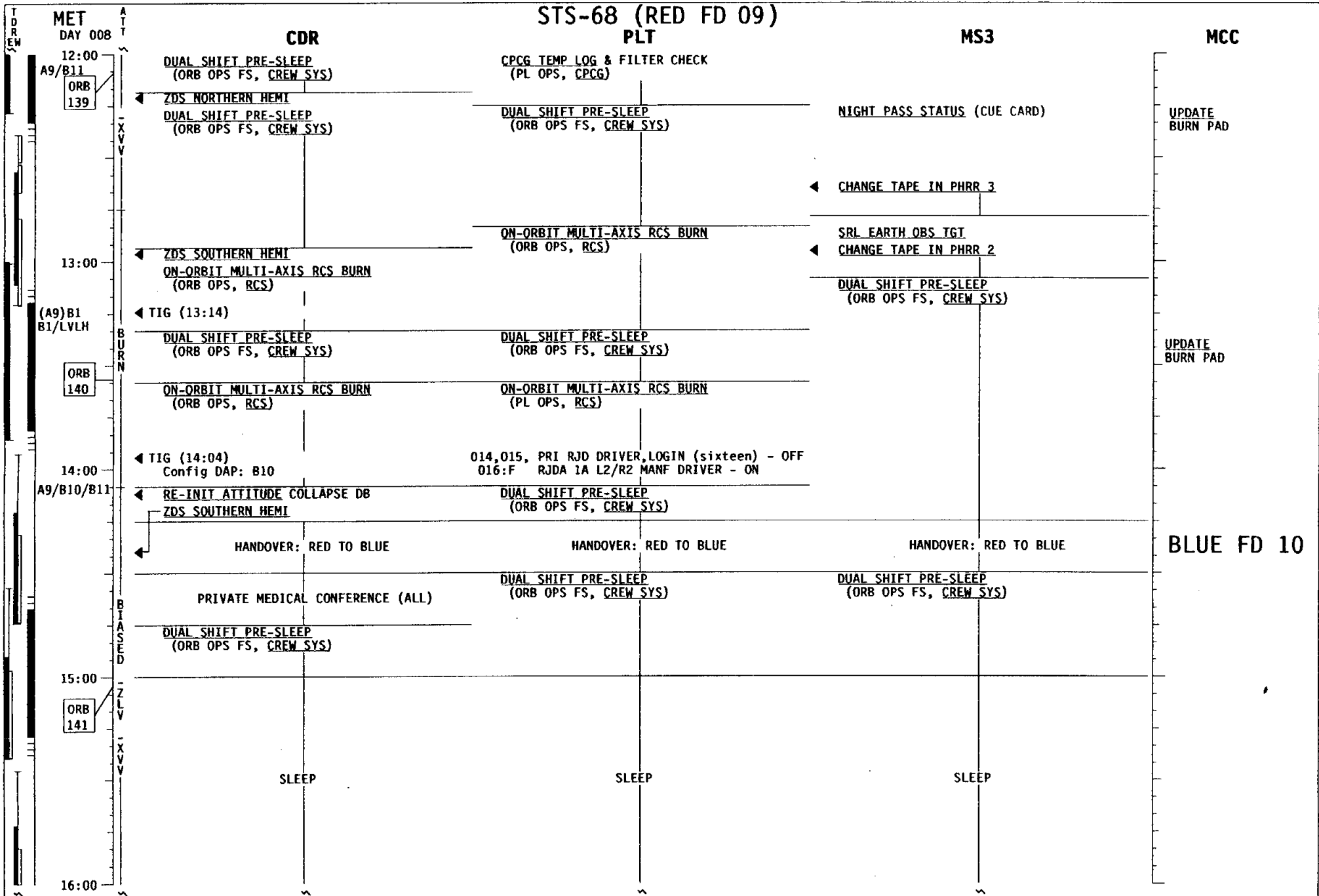


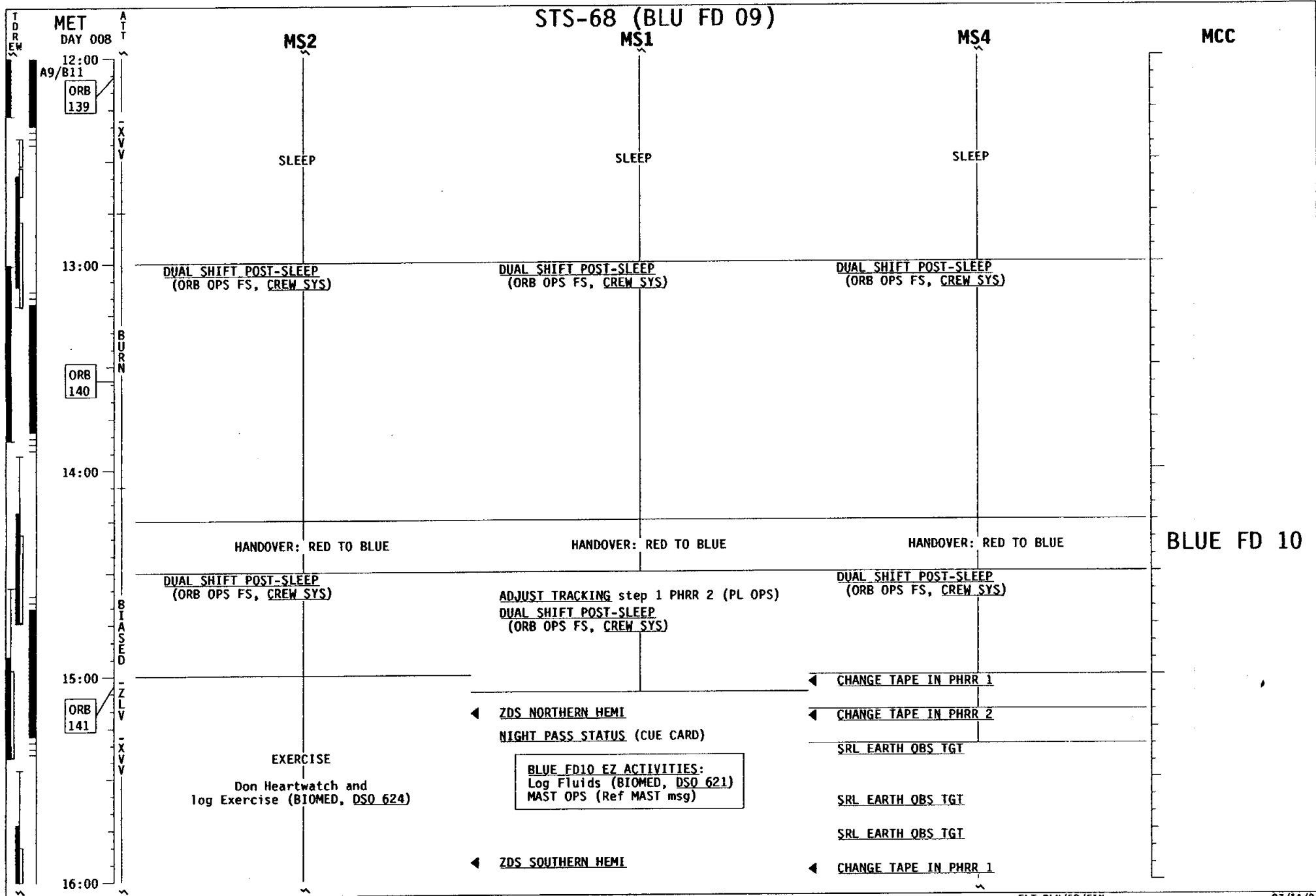




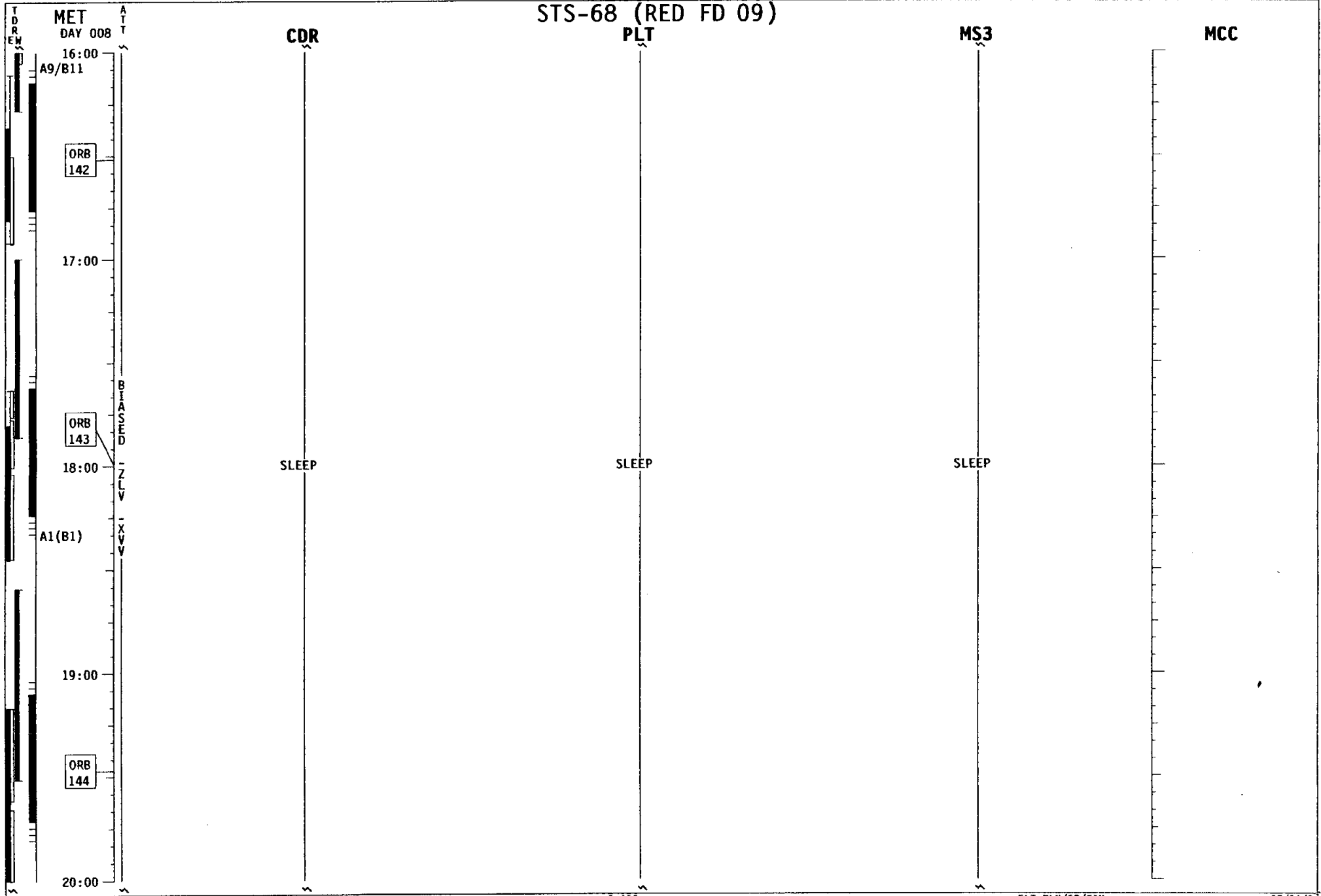
STS-68 (BLU FD 09)

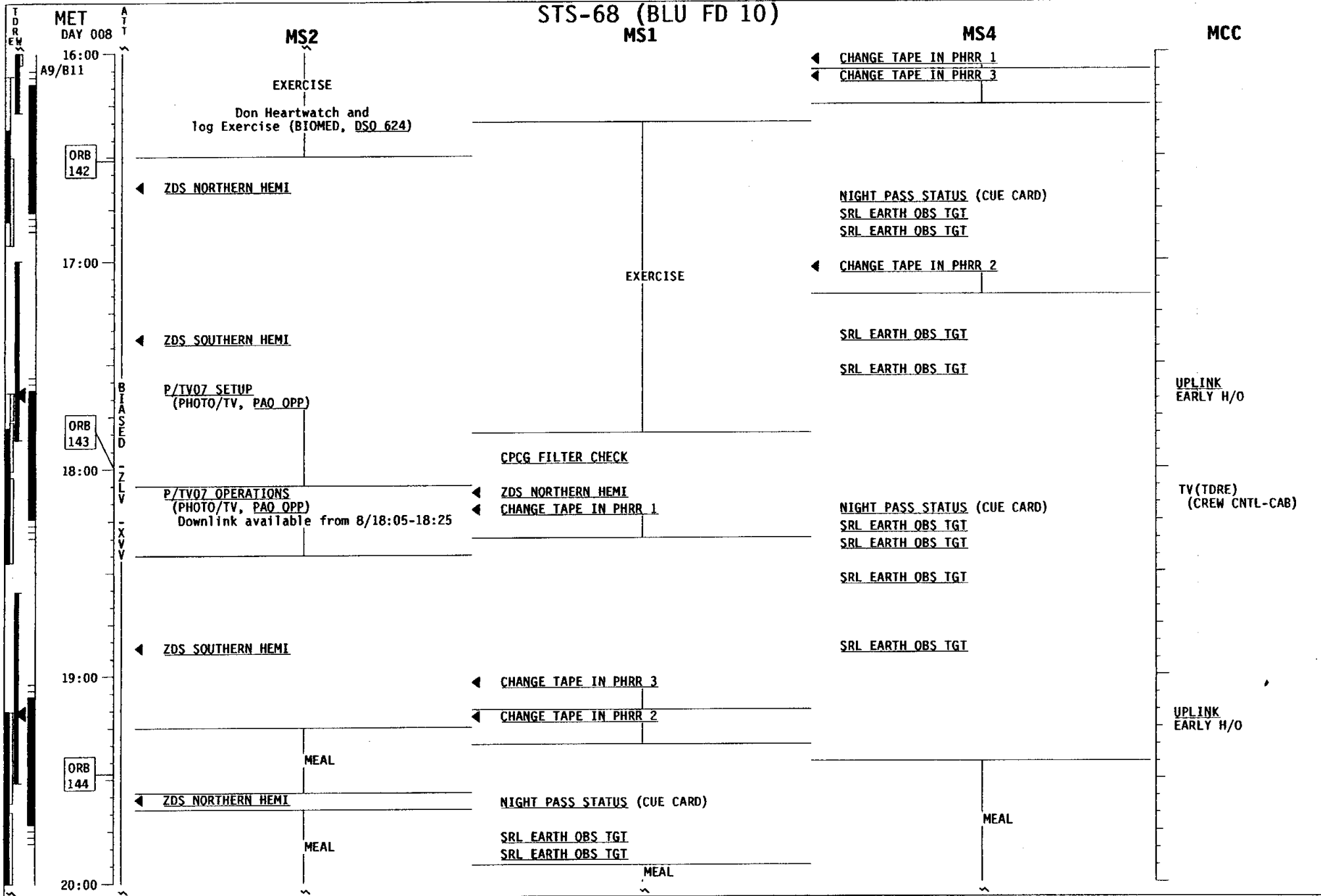


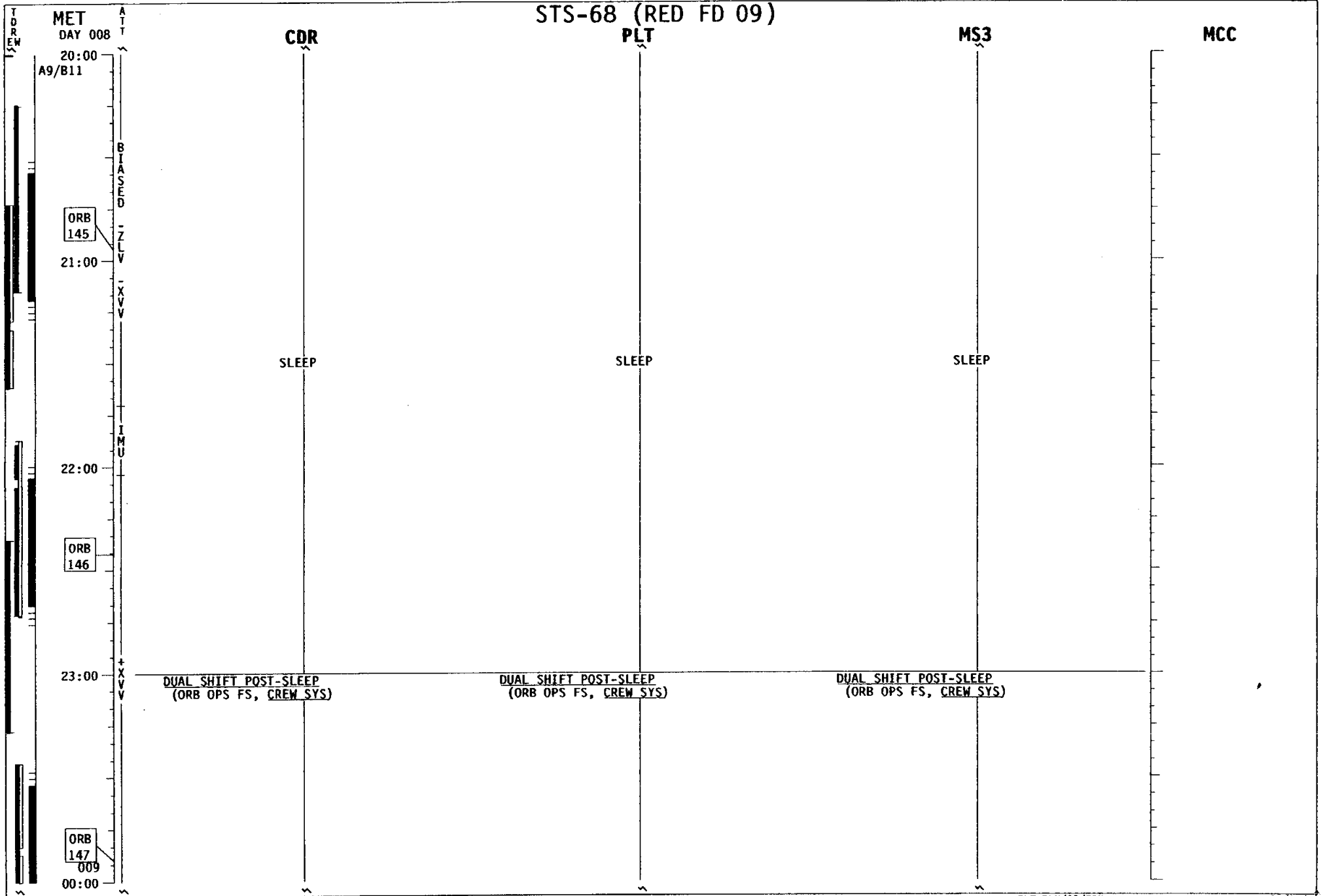


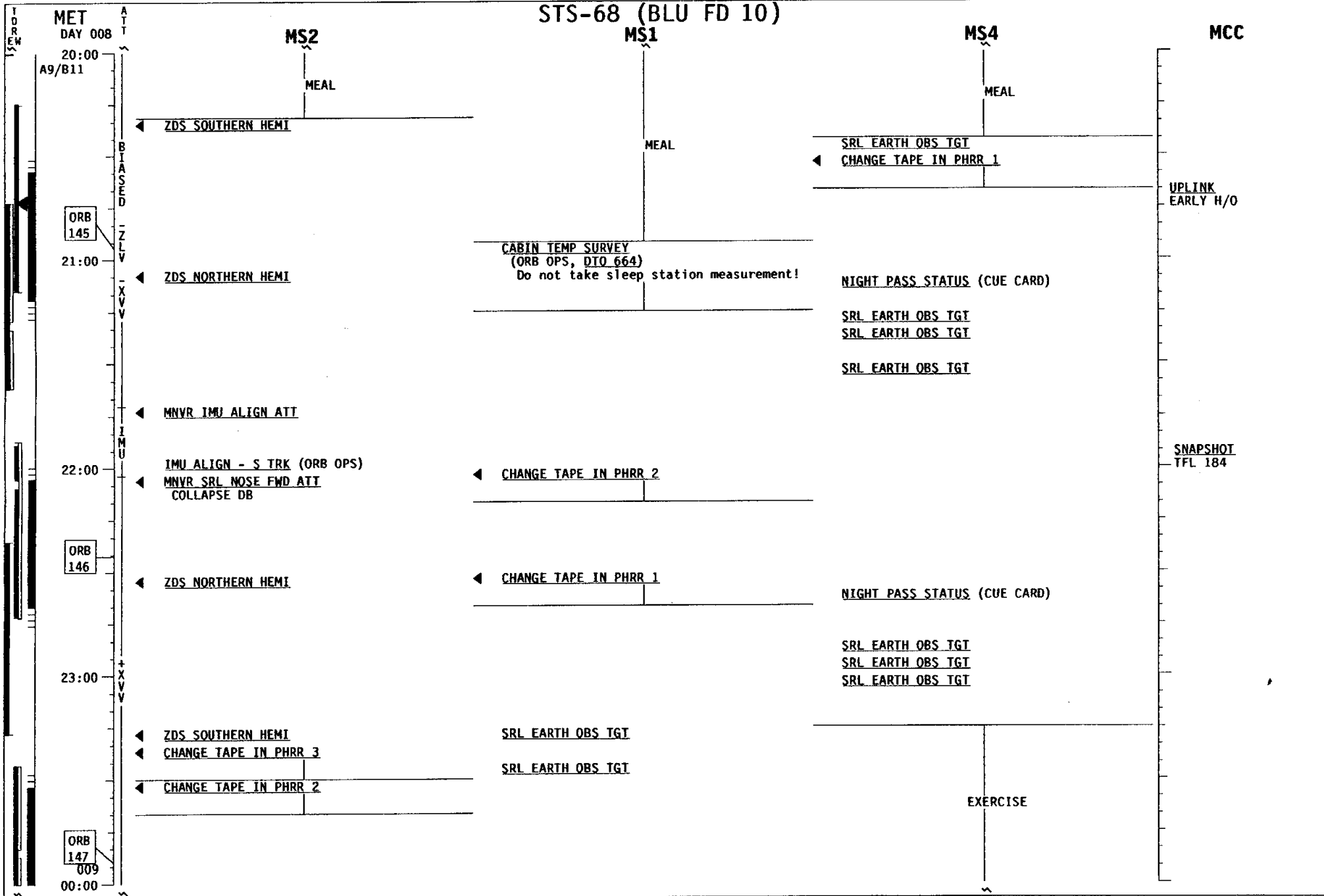


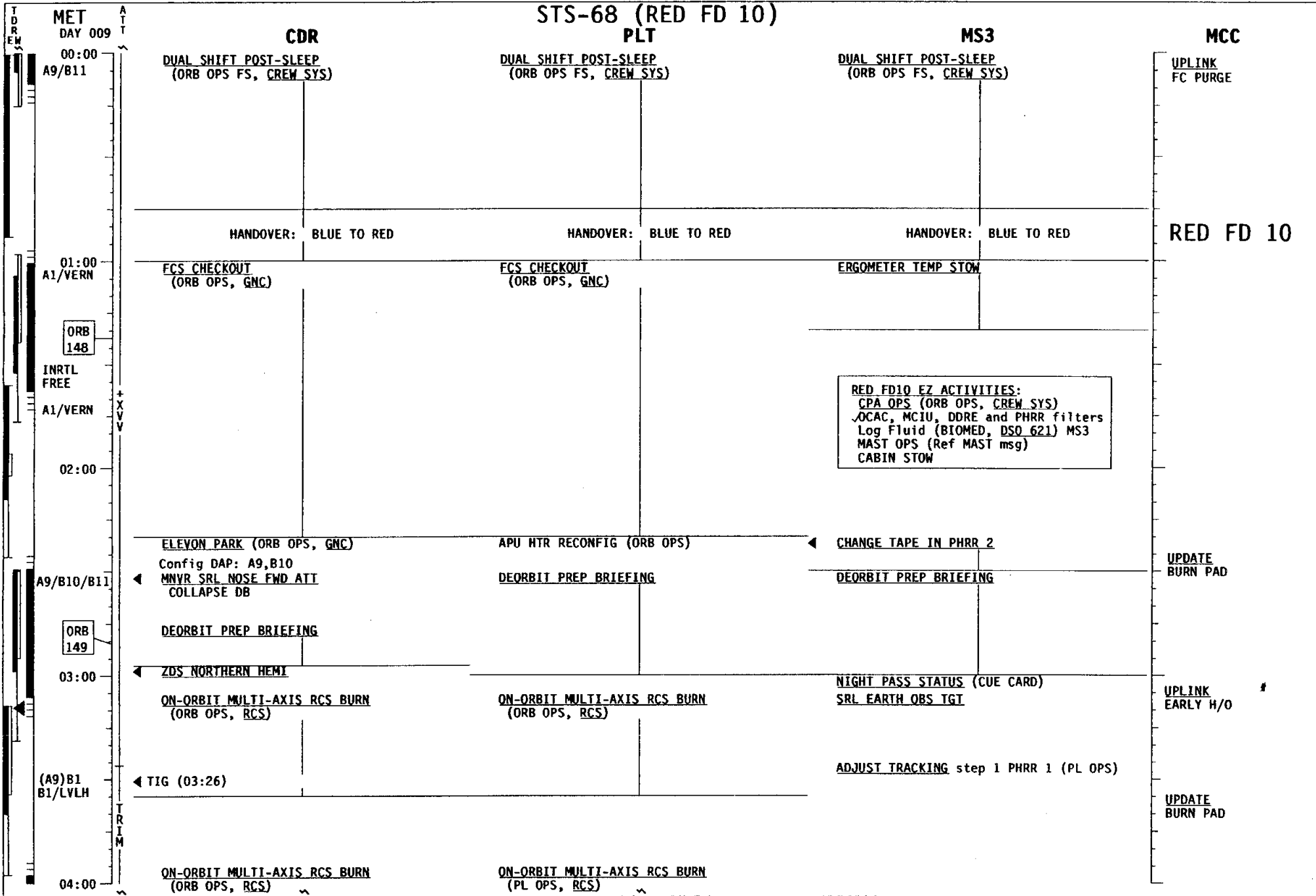
STS-68 (RED FD 09)

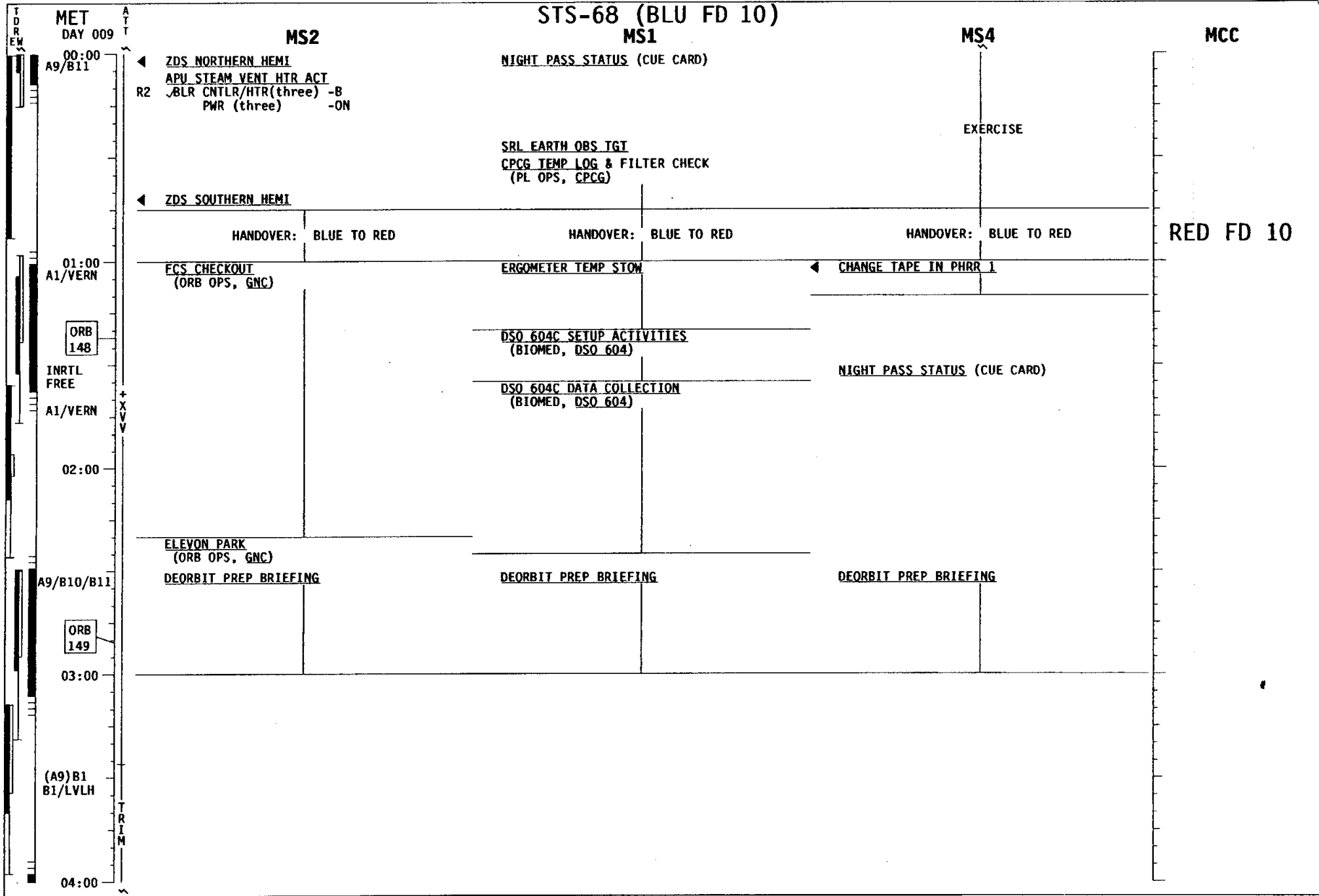


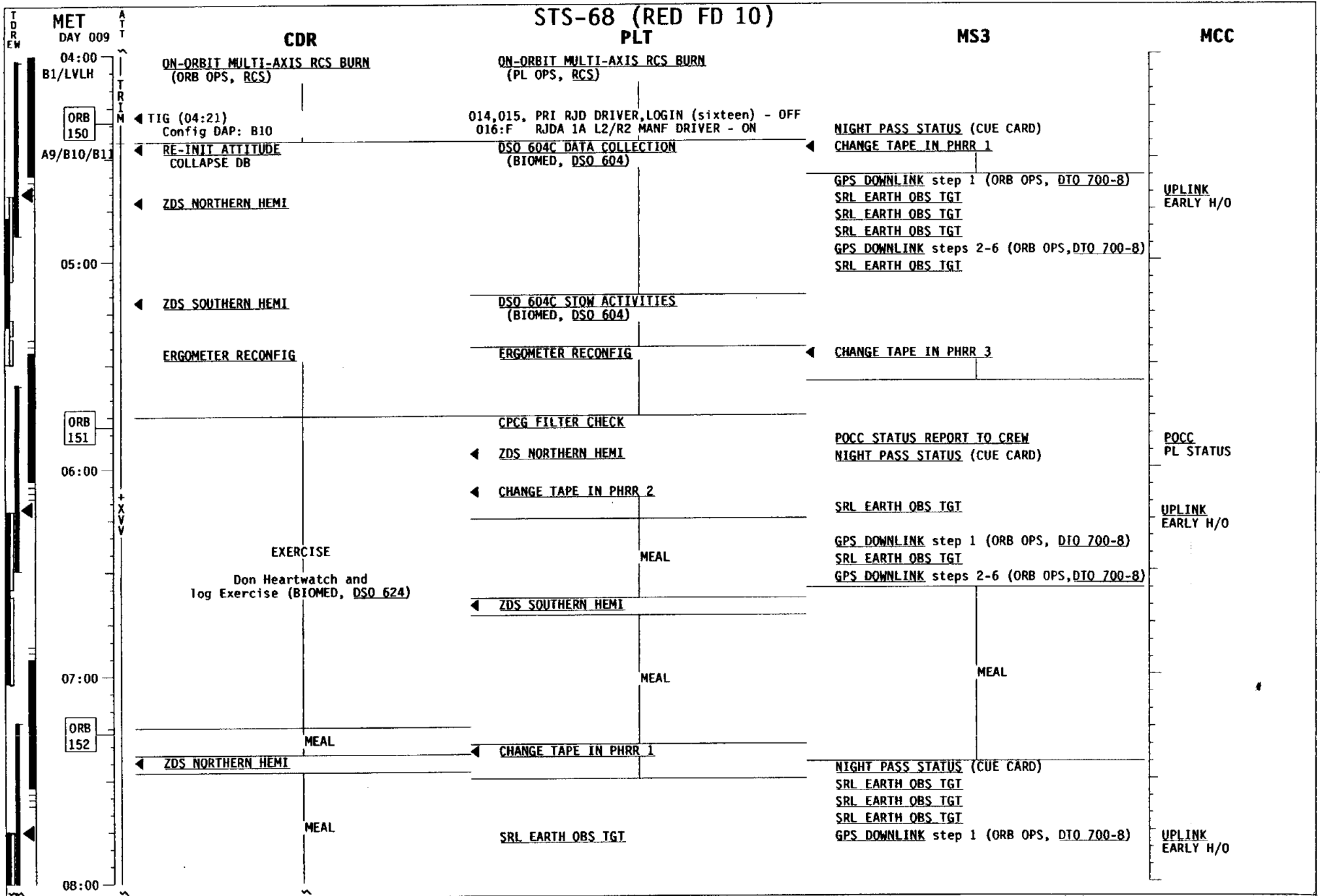












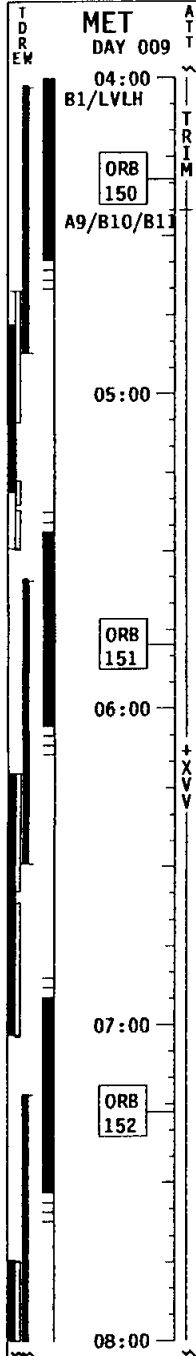
STS-68 (BLU FD 10)

MS2

MS1

MS4

MCC



DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

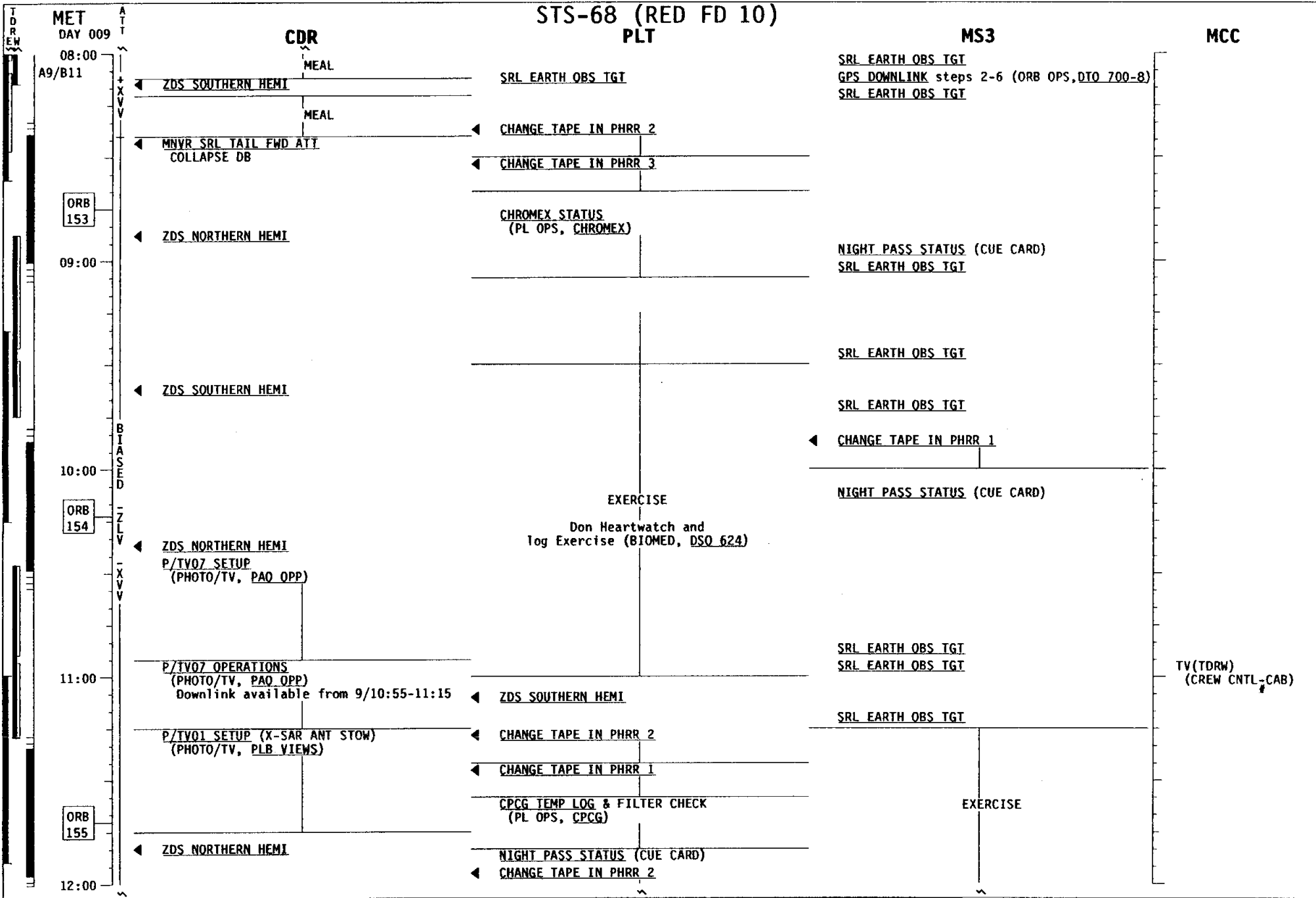
DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

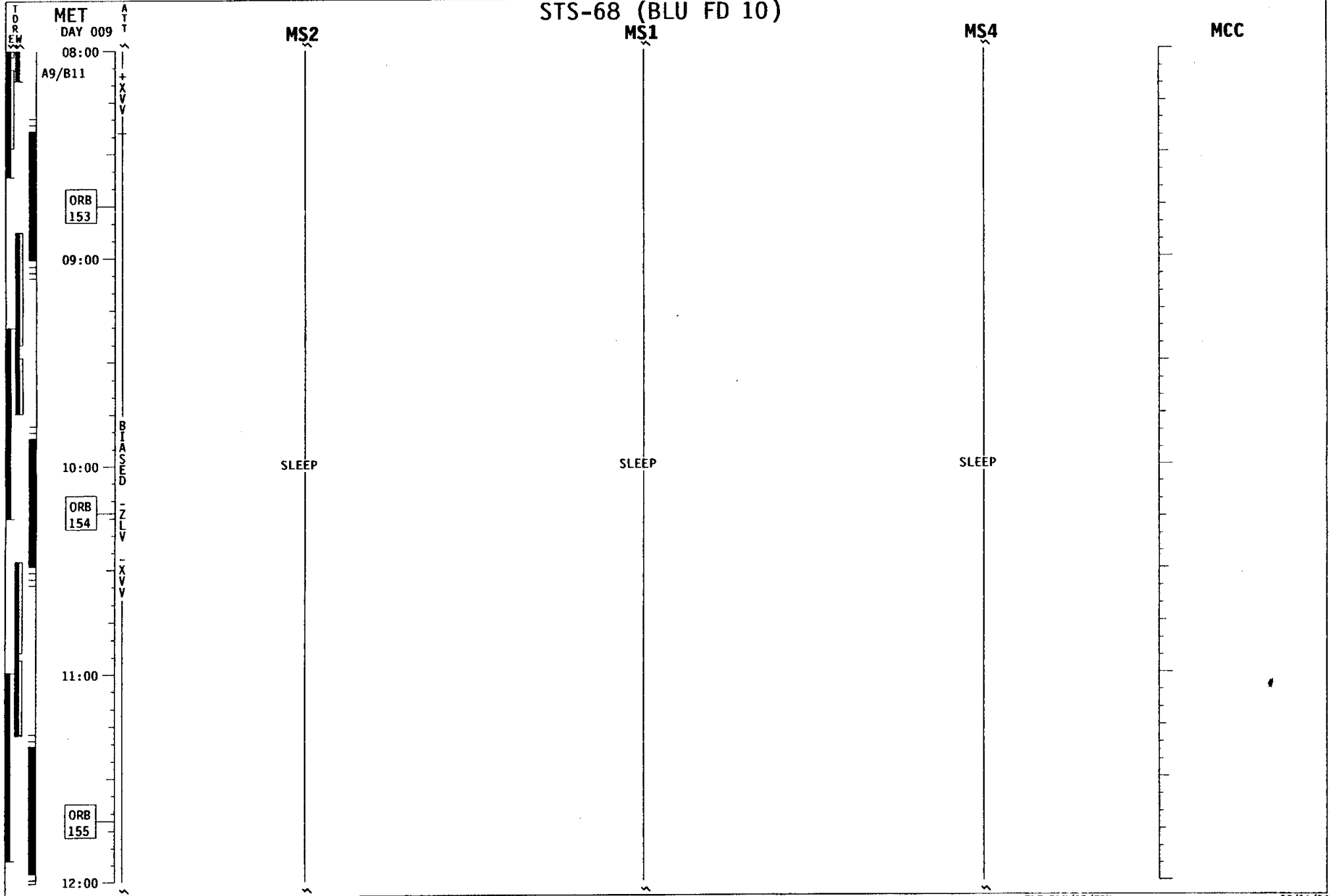
SLEEP

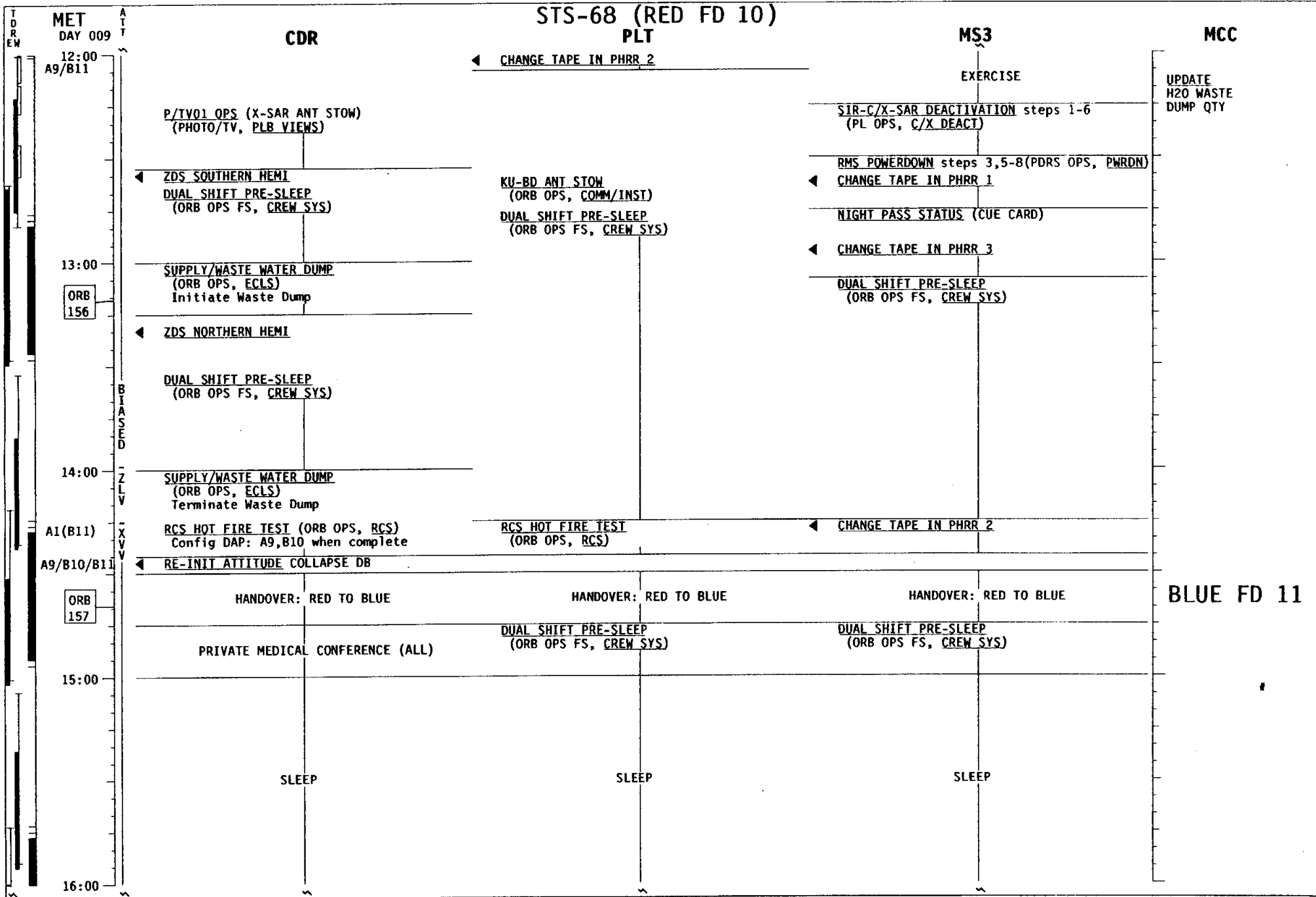
SLEEP

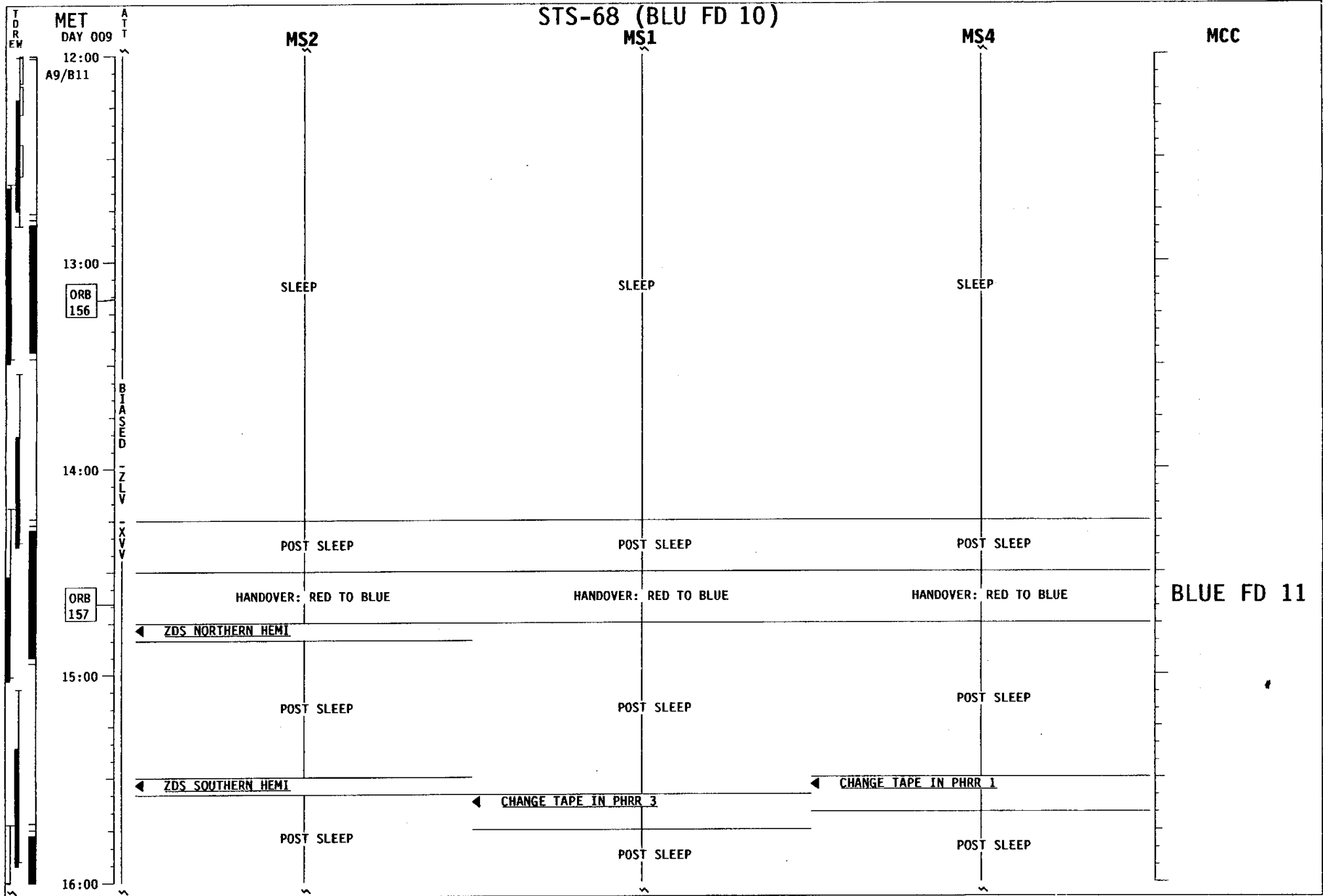
SLEEP

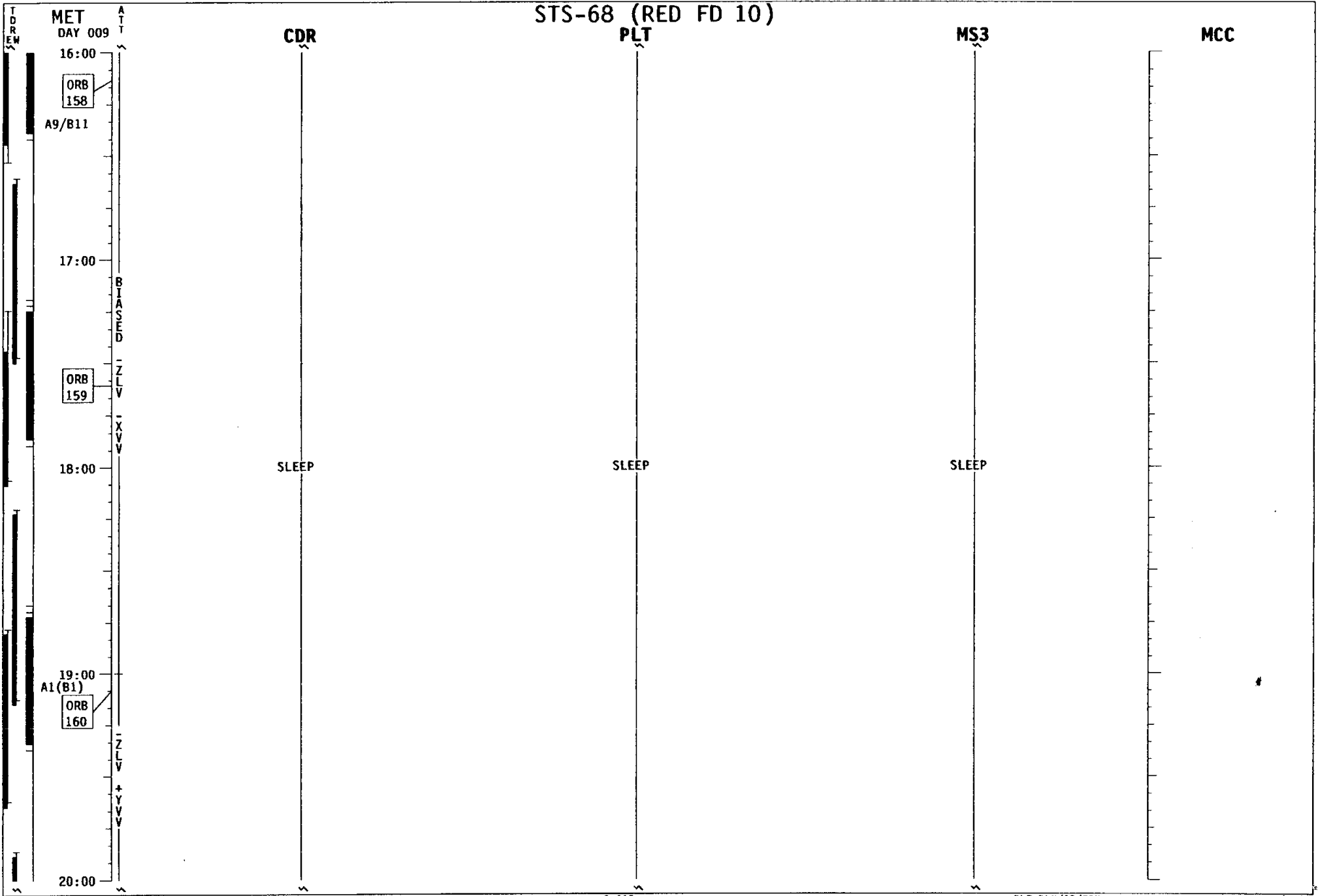


STS-68 (BLU FD 10)

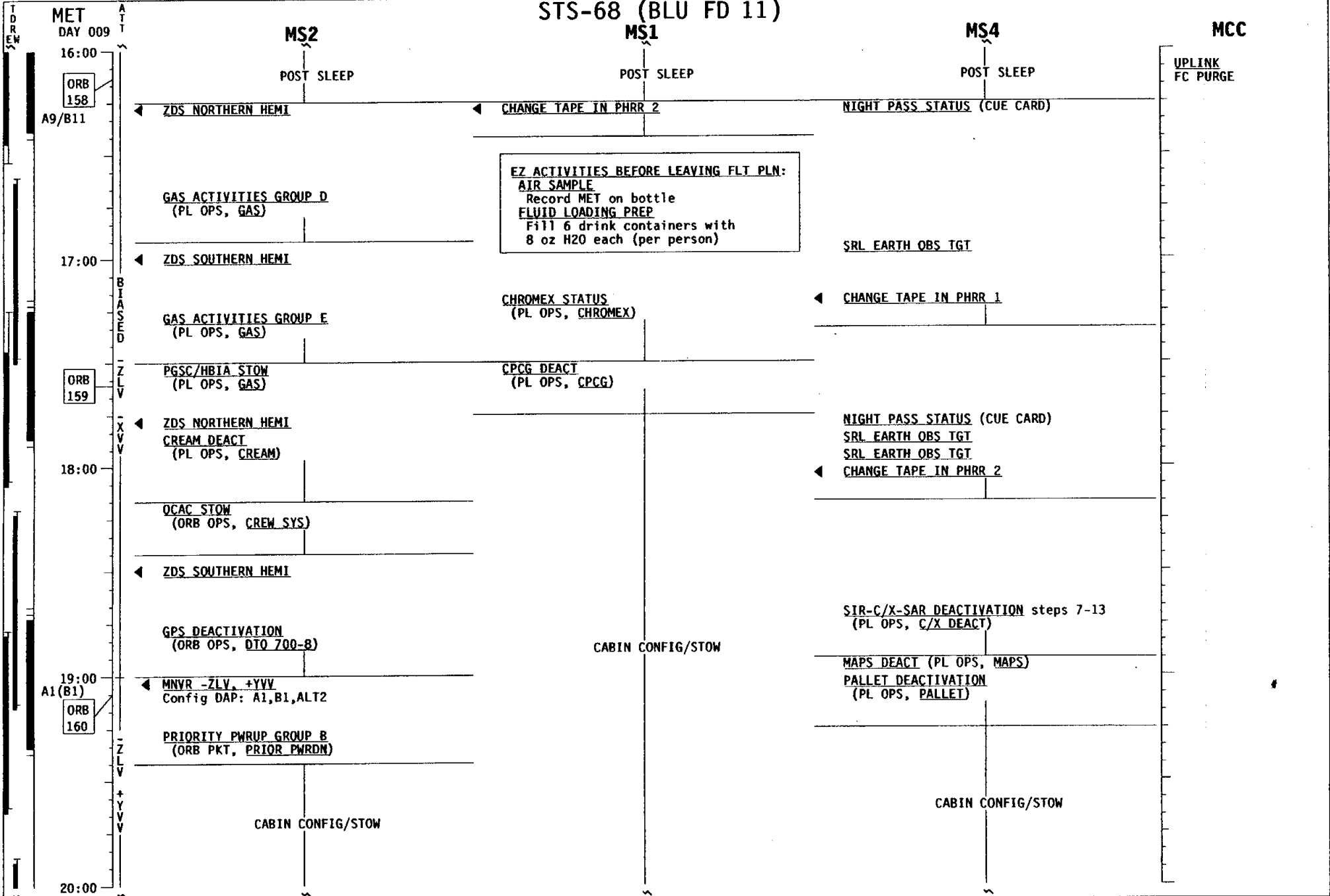




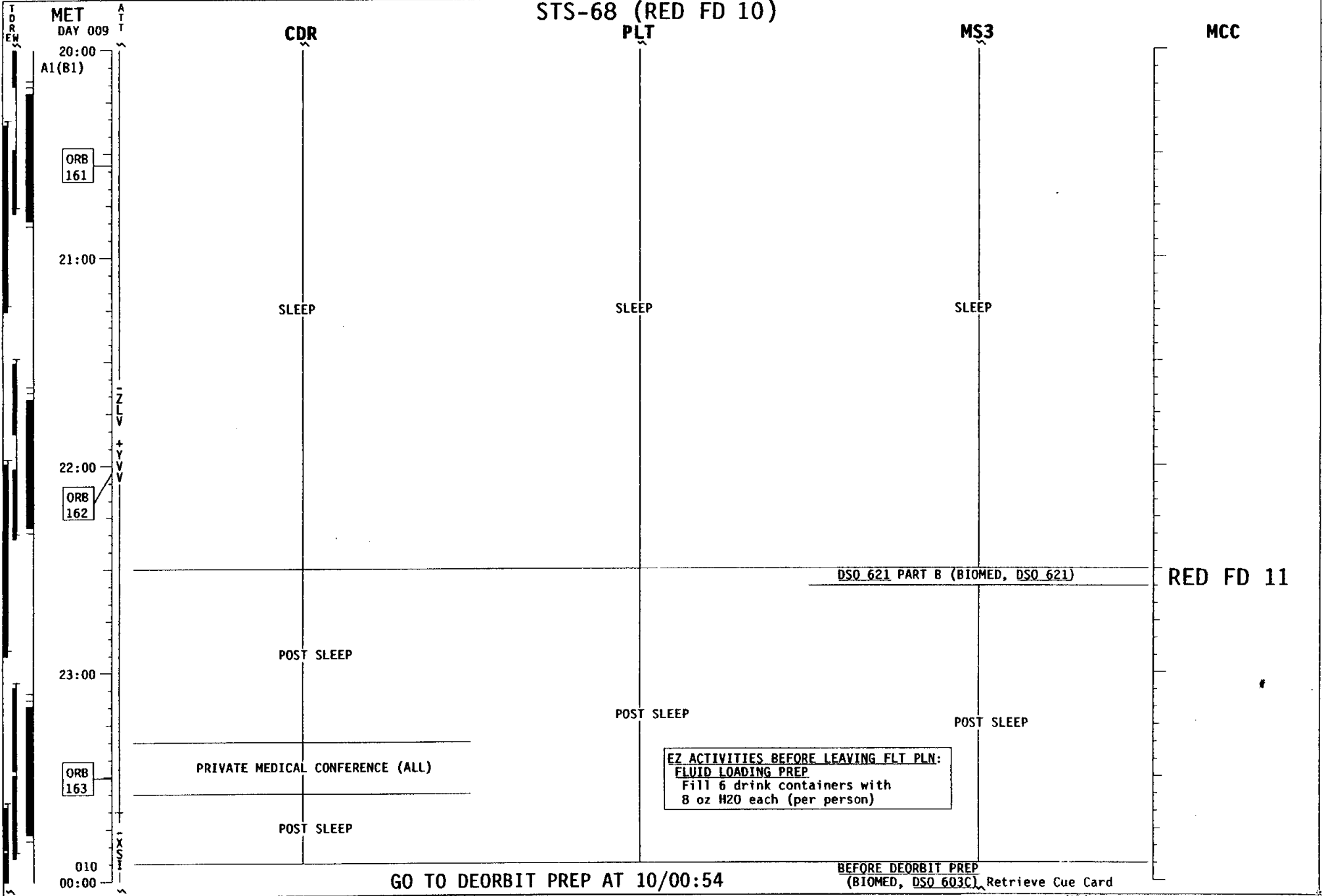


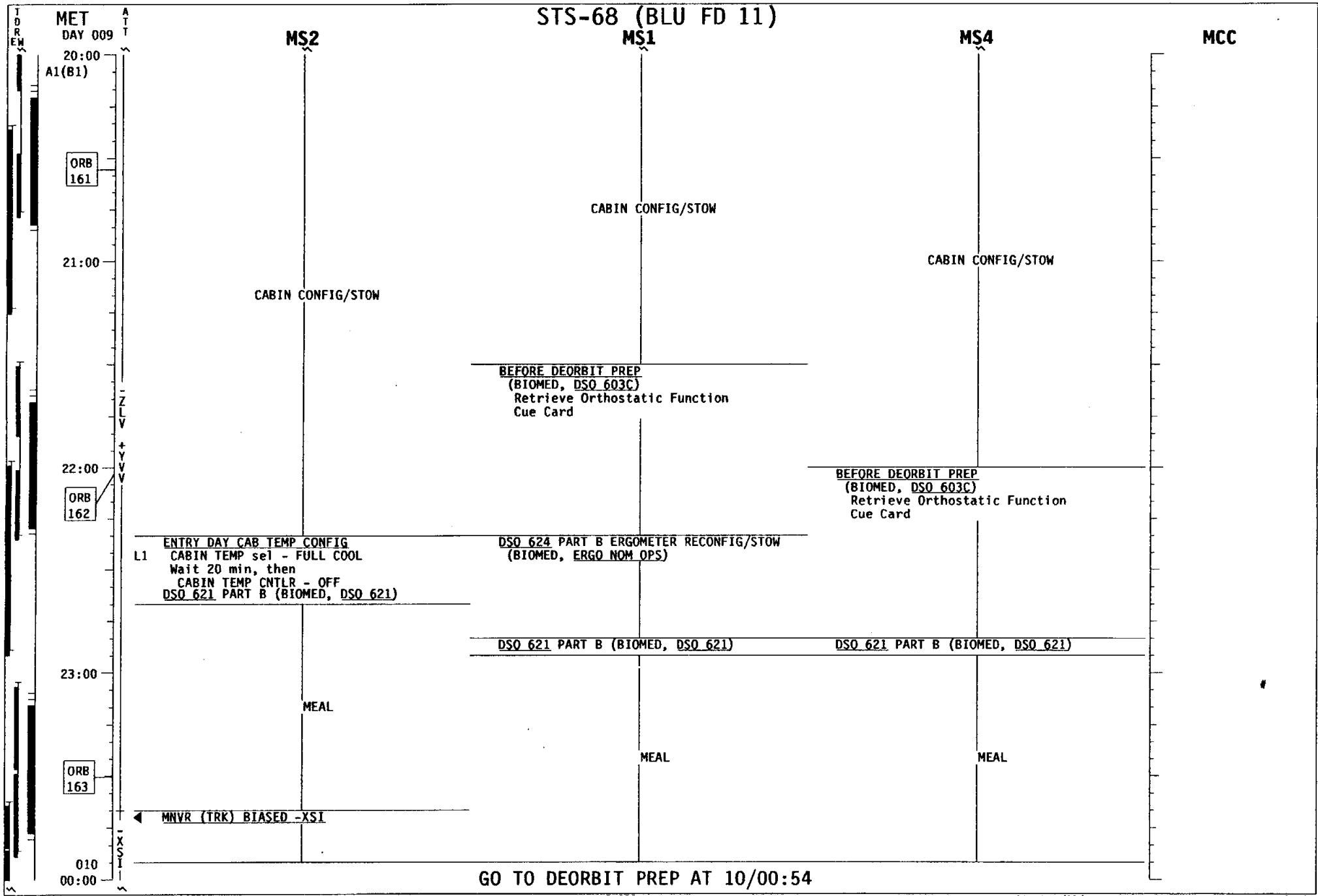


STS-68 (BLU FD 11)



STS-68 (RED FD 10)





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24 HR WEATHER WAVE-OFF TIMELINE

WAVE-OFF
TIMELINE

WAVE-OFF TIMELINE

FLIGHT: STS-68		EDITION: 24 HR WAVEOFF		PUB. DATE: 07/14/94																							
MET: 008 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0																											
RED FD9	24 HR WEATHER WAVEOFF														H/O PSA	SLEEP				POST SLEEP							
BLU FD10	DEORBIT TIG 11/03:31														H/O PSA	SRL ACTIVITIES			MEAL	SRL ACTIVITIES IMU							
DAY/NIGHT	[Day/Night Cycle]																										
ORBIT	131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146																										
NOTES:																											
MET: 009 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0																											
RED FD10	P S L E P	H/O FCS C/O	D/O BRIEF	▲ TRIM BURNS	SRL	MEAL	SRL & CABIN STOW				PRE SLEEP	H/O PSA	SLEEP (7.5)				POST SLEEP										
BLU FD10	SRL	H/O	D/O BRIEF	PRE SLEEP	SLEEP				H/O PSA	POST SLEEP	SECD PL DEACT	CABIN STOW	SD RE LACT	CABIN STOW	ENT DSO PREP	MEAL											
DAY/NIGHT	[Day/Night Cycle]																										
ORBIT	147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162																										
NOTES:	◆ GRP D ◆ GRP E GAS ○ MPM & KU STOW □ CREAM, CPG DEACT ● DSO 603 ■ DEORBIT PREP																										
MET: 010 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0																											
RED FD11	DEORBIT PREP			1 S T T I G	2 N D D O P R E P B A C K O U T	MEAL	PRE SLEEP				H/O PSA	SLEEP (8.0)				POST SLEEP											
BLU FD11	DEORBIT PREP			D O	D O	PRE SLEEP	SLEEP (6.5)				H/O PSA	POST SLEEP	SD RE LACT	CABIN STOW	MEAL	ENT DSO PREP											
DAY/NIGHT	[Day/Night Cycle]																										
ORBIT	163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179																										
NOTES:	● IMU ○ 03:54 ○ 05:26 ● DSO 603 ■ DEORBIT PREP																										
MET: 011 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0																											
RED FD12	DEORBIT PREP			D O	L A N D I N G																						
BLU FD12	DEORBIT PREP			B U R N	I N G																						
DAY/NIGHT	[Day/Night Cycle]																										
ORBIT	180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195																										
NOTES:	○ 03:31 * KSC LANDING 11/04:19																										

ATTITUDE TIMELINE

STS-68 ATTITUDE TIMELINE 5-2
ZERO DOPPLER STEERING (ZDS) DIAGRAMS 5-51

ATTITUDE
TIMELINE

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
1 000/01:12:00 MET 19:46	INRTL R=185.00 MNVR P=358.00 Y= 9.00	A1 AUTO PRI	RATE 0.2000 DB AT 5.00 DB RT 0.20	SUN R 287 P 136	Star Pair B2 -Y: 23 -Z: 45	IMU Align PLBD Opening
2 000/01:41:00 MET 46:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	B1 AUTO PRI	RATE 0.5000 DB AT 3.00 DB RT 0.20	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward ZDS: None
3	Ref Burn PAD				TIG: ~0/04:05	Orbit Adjust
4 000/04:10:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward ZDS: None
* If Trim Req'd						
5	Config DAPs: A to A9 B to B10 ALT to ALT3					SRL DAP Config
6	On MCC Call: B10/AUTO/VERN					Collapse DBs
7 000/11:45:00 MET 14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
8	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
9 000/11:54:07 MET 12:25:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
10 000/12:38:31 MET 13:09:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
11 000/13:22:56 MET 54:03	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
12 000/14:07:22 MET 38:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

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

ATTITUDE
TIMELINE

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
13 000/14:51:47 MET 15:22:54	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
14 000/15:36:13 MET 16:07:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
15 000/16:20:38 MET 51:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
16 000/17:05:03 MET 36:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
17 000/17:49:29 MET 18:20:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
18 000/18:33:54 MET 19:05:01	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
19 000/19:18:20 MET 49:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
20 000/20:02:45 MET 33:52	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
21 000/20:47:11 MET 21:18:18	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
22 000/21:20:00 MET 32:34	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 284 P 142	Star Pair D1 -Y: 20 -Z: 17	IMU Align COAS CAL -Z: 17, ACRUX
23 000/21:50:00 MET 51:17	INRTL R=326.00 MNVR P=347.00 Y=294.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 264 P 141		HUD CAL +X: 22, ALTAIR
24 000/22:15:00 MET 20:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Top of Orbit

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
25	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
26 000/22:31:34 MET 47:07	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
27 000/23:00:27 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: S. Hemi
28 000/23:25:00 MET 39:54	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
29	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
30 000/23:44:52 MET 001/00:15:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
31 001/00:29:16 MET 01:00:23	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
32	Ref Burn PAD				TIG: ~1/00:59 Trim	
33 001/01:04:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
* If Trim Req'd						
34	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
* If Trim Req'd						
35 001/01:13:41 MET 44:48	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
36 001/01:51:00 MET 02:05:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Bottom of Orb

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

Attitude Timeline

MET	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT	
37	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
38 001/02:13:40 MET 29:13	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
39 001/02:42:32 MET 03:13:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
40 001/03:26:57 MET 58:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
41 001/04:11:23 MET 42:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
42 001/04:55:48 MET 05:26:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
43 001/05:40:13 MET 06:11:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
44 001/06:24:39 MET 55:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
45 001/07:09:04 MET 40:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
46 001/07:53:29 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: S. Hemi
47 001/08:11:00 MET 23:38	*** MNVR INTERRUPT *** INRTL R= 19.00 MNVR P=322.00 Y= 42.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 114 P 92	Star Pair A1 -Y: 60 -Z: 16	IMU Align
48 001/08:31:00 MET 41:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=359.10	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.90	Tail Forward Start ZDS at: To0 -5 min

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
49	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
001/08:48:28 MET 09:09:01	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
001/09:22:20 MET 53:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
001/10:06:45 MET 37:52	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
001/10:51:10 MET 11:22:17	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
001/11:35:36 MET 12:06:43	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
001/12:19:58 MET 51:05	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
001/13:04:23 MET 35:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
001/13:48:48 MET 14:19:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
001/14:33:13 MET 15:04:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
001/15:17:38 MET 48:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
001/16:02:03 MET 33:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO DB AT 0.100 VERN DB RT 0.010	RATE 0.0030 EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
61 001/16:46:28 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010		Tail Forward ZDS: S. Hemi
62 001/17:10:00 MET 24:53	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20 Nose Forward Start ZDS at: Asc Node +
63	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
64 001/17:30:53 MET 18:02:00	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80 Nose Forward ZDS: N. Hemi
65 001/18:15:17 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010		Nose Forward ZDS: S. Hemi
66 001/18:42:00 MET 56:56	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80 Tail Forward Start ZDS at: Asc Node +
67	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
68 001/18:59:42 MET 19:30:49	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20 Tail Forward ZDS: N. Hemi
69 001/19:44:07 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010		Tail Forward ZDS: S. Hemi
70 001/20:00:00 MET 14:46	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20 Nose Forward Start ZDS at: Asc Node +
71	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
72 001/20:28:32 MET 59:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80 Nose Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
73 001/21:12:57 MET 44:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
74 001/21:57:22 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: N. Hemi
75 001/22:11:00 MET 21:45	*** MNVR INTERRUPT *** INRTL R=202.00 MNVR P=312.00 Y= 24.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 299 P 99	Star Pair C1 -Y: 21 -Z: 29	IMU Align
76 001/22:26:00 MET 40:13	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward Start ZDS at: Desc Node +
77	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
78 001/22:41:48 MET 23:12:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
79 001/23:26:12 MET 57:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
80 002/00:02:00 MET 08:00	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward Start ZDS at: Desc Node +
* PRCS RJD's on	ALT JET OPT 1					
81	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
82 002/00:10:36 MET 41:43	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
83	Ref Burn PAD				TIG: ~2/00:37	Trim
84 002/00:42:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +

* If Trim Req'd

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
85	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN * If Trim Req'd				Collapse DBs Load ZDS DSC RT
86 002/00:55:01 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010		Tail Forward ZDS: N. Hemi
87 002/01:03:00 MET 08:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00 * PRCS RJD's on ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00 Nose Forward Start ZDS at: Top of Orbit
88	When in att VERN then B10 When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
89 002/01:10:34 MET 26:07	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80 Nose Forward ZDS: N. Hemi
90 002/01:41:00 MET 55:32	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80 Tail Forward Start ZDS at: Asc Node +
91	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
92 002/02:23:50 MET 54:57	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20 Tail Forward ZDS: N. Hemi
93 002/03:08:15 MET 39:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80 Tail Forward ZDS: S. Hemi
94 002/03:52:40 MET 04:23:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20 Tail Forward ZDS: N. Hemi
95 002/04:37:05 MET 05:08:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80 Tail Forward ZDS: S. Hemi
96 002/05:21:29 MET 52:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20 Tail Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
97 002/06:05:54 MET 37:01	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
98 002/06:50:19 MET 07:21:26	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
99 002/07:34:44 MET 08:05:51	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
100 002/08:19:09 MET 50:16	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
101 002/09:03:33 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: S. Hemi
102 002/09:32:00 MET 35:20	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None
103	When in att B10/AUTO/VERN					Collapse DBs
104 002/09:47:00 MET 50:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Top of Orbit
105	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
106 002/10:03:31 MET 19:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
107 002/10:32:23 MET 11:03:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
108 002/11:16:48 MET 47:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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FLT PLN/68/FIN

Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
T09 002/12:01:13 MET 32:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
T10 002/12:45:36 MET 13:16:43	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
T11 002/13:30:01 MET 14:01:08	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
T12 002/14:14:26 MET 45:33	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
T13 002/14:58:50 MET 15:29:57	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
T14 002/15:43:15 MET 16:14:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
T15 002/16:27:40 MET 58:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
T16 002/17:12:04 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
T17 002/17:42:00 MET 45:20	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None
T18	When in att B10/AUTO/VERN					Collapse DBs
T19 002/17:54:00 MET 57:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 1.62	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=358.38	Tail Forward Start ZDS at: Bo0 -9 min
T20	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
121 002/18:03:02 MET 27:35	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
122 002/18:40:54 MET 19:12:01	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
123 002/19:25:18 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: S. Hemi
124 002/19:34:00 MET 48:40	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
125	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
126 002/20:09:43 MET 40:50	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
127 002/20:54:08 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
128 002/21:16:00 MET 28:04	*** MNVR INTERRUPT *** INRTL R=235.00 MNVR P=118.00 Y=313.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 155 P 103	Star Pair A2 -Y: 16 -Z: 60	IMU Align
129 002/21:36:00 MET 47:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward Start ZDS at: Top of Orbit
130	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
131 002/21:54:05 MET 22:09:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
132 002/22:22:57 MET 54:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
133 002/23:07:22 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: N. Hemi
134 002/23:20:00 MET 34:45	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.52	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.48	Tail Forward Start ZDS at: ToO +14 min
135	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
136 002/23:36:55 MET 38:28	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
137 002/23:51:46 MET 003/00:22:53	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
138	Ref Burn PAD				TIG: ~3/00:25	Trim
139 003/00:30:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
* If Trim Req'd						
140	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
* If Trim Req'd						
141 003/00:36:09 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
142 003/00:44:00 MET 49:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.36	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.36	Nose Forward Start ZDS at: ToO +2 min
* PRCS RJD's on ALT JET OPT 1						
143	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
144 003/00:53:42 MET 01:07:15	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
145 003/01:19:00 MET 33:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Bottom of Orb
146	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
147 003/01:36:06 MET 51:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
148 003/02:04:57 MET 36:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
149 003/02:49:22 MET 03:20:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
150 003/03:33:46 MET 04:04:53	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
151 003/04:18:11 MET 49:18	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
152 003/05:02:35 MET 33:42	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
153 003/05:46:59 MET 06:18:06	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
154 003/06:31:24 MET 07:02:31	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
155 003/07:15:48 MET 46:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
156 003/07:53:00 MET 56:20	TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
157	When in att B10/AUTO/VERN				Collapse DBs	
158 003/08:11:00 MET 14:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.18	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=359.82	Tail Forward Start ZDS at: To0 +1 min
159	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
160 003/08:16:46 MET 31:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
161 003/08:44:37 MET 09:15:44	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
162 003/09:29:02 MET 10:00:09	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
163 003/10:13:26 MET 44:33	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
164 003/10:57:51 MET 11:28:58	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
165 003/11:42:15 MET 12:13:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
166 003/12:26:38 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
167 003/12:36:00 MET 50:40	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward Start ZDS at: Desc Node +
168	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	

*** ALL ATTITUDES IN MEAN OF 1950 ***
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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
169 003/13:11:02 MET 42:09	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
170 003/13:55:26 MET 14:26:33	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
171 003/14:39:50 MET 15:10:57	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
172 003/15:24:15 MET 55:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
173 003/16:08:39 MET 39:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
174 003/16:53:03 MET 17:24:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
175 003/17:26:00 MET 40:54	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 1.62	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=358.38	Tail Forward Start ZDS at: BoO -9 min
176	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
177 003/17:44:01 MET 18:08:34	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
178 003/18:21:52 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
179 003/18:49:00 MET 19:03:56	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward Start ZDS at: Desc Node +
180	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT

*** ALL ATTITUDES IN MEAN OF 1950 ***
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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
181 003/19:06:16 MET 37:23	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
182 003/19:50:40 MET 20:21:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
183 003/20:35:05 MET 21:06:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
184 003/21:19:29 MET 50:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
185 003/21:56:00 MET 22:08:11	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 286 P 139	Star Pair D1 -Y: 20 -Z: 17	IMU Align
186 003/22:16:00 MET 30:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
187	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
188 003/22:48:18 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: N. Hemi
189 003/22:58:00 MET 23:03:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.54 ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=359.46	Tail Forward Start ZDS at: To0 +3 min
* PRCS RJD's on 190	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
191 003/23:06:51 MET 19:24	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
192 003/23:32:42 MET 004/00:03:49	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

*** ALL ATTITUDES IN MEAN OF 1950 ***
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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
193 004/00:17:03 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
194 004/00:29:00 MET 34:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=181.08 * PRCS RJD's on ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 1.08	Nose Forward Start ZDS at: ToO +6 min
195	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
196 004/00:38:36 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
197 004/00:53:00 MET 01:07:46	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM= 1.26	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=358.74	Tail Forward Start ZDS at: BoO -7 min
198	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
199 004/01:10:00 MET 32:33	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
200	Ref Burn PAD				TIG: ~4/01:28	Trim
201 004/01:33:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20 * If Trim Req'd	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
202	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN * If Trim Req'd					Collapse DBs Load ZDS DSC RT
203 004/01:45:52 MET 02:16:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
204 004/02:30:16 MET 03:01:23	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
205 004/03:14:40 MET 45:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
206 004/03:59:04 MET 04:30:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
207 004/04:43:28 MET 05:14:35	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
208 004/05:27:52 MET 58:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
209 004/06:03:00 MET 17:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward Start ZDS at: Top of Orbit
210	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
211 004/06:27:49 MET 43:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
212 004/06:55:00 MET 07:09:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Bottom of Orb
213	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
214 004/07:12:13 MET 27:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
215 004/07:41:04 MET 08:12:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
216 004/08:25:28 MET 56:35	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

*** ALL ATTITUDES IN MEAN OF 1950 ***
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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
217 004/09:09:52 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
218 004/09:20:00 MET 25:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.72 * PRCS RJD's on ALT JET OPT 3	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.72	Nose Forward Start ZDS at: To0 +4 min
219	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
220 004/09:29:25 MET 40:58	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
221 004/09:54:16 MET 10:25:23	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
222 004/10:30:00 MET 44:52	TGT=2 BV=5 P= 90.00 Y=334.00 OM=358.74	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 1.26	Tail Forward Start ZDS at: To0 -7 min
223	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
224 004/10:47:13 MET 11:09:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
225 004/11:23:04 MET 54:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
226 004/12:07:26 MET 38:33	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
227 004/12:51:50 MET 13:22:57	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
228 004/13:36:14 MET 14:07:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

*** ALL ATTITUDES IN MEAN OF 1950 ***
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Attitude Timeline

MET	MNVR OPTION	DAF	E/S	REF ATT/REMARKS	EVENT
229 004/14:20:37 MET 51:44	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
230 004/15:05:01 MET 36:08	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
231 004/15:49:25 MET 16:20:32	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
232 004/16:33:49 MET 17:04:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
233 004/17:18:12 MET 49:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
234 004/18:02:36 MET 33:43	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
235 004/18:47:00 MET 19:18:07	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
236 004/19:31:24 MET 20:02:31	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
237 004/20:10:00 MET 23:57	INRTL R=289.00 MNVR P=184.00 Y= 55.00	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 359 P 28	Star Pair D2 -Y: 17 -Z: 20	IMU Align
238 004/20:30:00 MET 41:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
239	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
240 004/21:00:11 MET 31:18	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
241 004/21:44:35 MET 22:15:42	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
242 004/22:28:59 MET 23:00:06	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
243 004/23:13:23 MET 44:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
244 004/23:57:47 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
245 005/00:10:00 MET 15:57	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=181.08 * PRCS RJD's on ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 1.08	Nose Forward Start ZDS at: To0 +6 min
246	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
247 005/00:19:20 MET 28:53	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
248 005/00:35:00 MET 49:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Bottom of Orb
249	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
250 005/00:57:42 MET 01:13:15	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
251	Ref Burn PAD				TIG: ~5/01:15	Trim
252 005/01:20:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +

* If Trim Req'd

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
253	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
* If Trim Req'd						
254 005/01:26:32 MET 57:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
255 005/02:10:56 MET 42:03	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
256 005/02:55:19 MET 03:26:26	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
257 005/03:39:43 MET 04:10:50	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
258 005/04:24:07 MET 55:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
259 005/05:08:30 MET 39:37	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
260 005/05:46:00 MET 06:00:51	TGT=2 BV=5 P= 90.00 Y=334.00 OM=179.10	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=359.10	Nose Forward Start ZDS at: ToO -5 min
261	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
262 005/06:03:27 MET 24:00	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
263 005/06:37:17 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
264 005/07:05:00 MET 08:20	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y= 14.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=166.00 P= 0.00 Y= 0.00	Nose Forward SRL Nadir ZDS: None

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
265	When in att B10/AUTO/VERN					Collapse DBs
266 005/07:17:00 MET 32:00	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Top of Orbit
267	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
268 005/07:37:14 MET 52:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
269 005/08:06:04 MET 37:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
270 005/08:40:00 MET 54:53	TGT=2 BV=5 P= 90.00 Y=334.00 OM=178.56	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=358.56	Nose Forward Start ZDS at: To0 -8 min
271	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
272 005/08:58:01 MET 09:21:34	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
273 005/09:34:52 MET 10:05:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
274 005/10:19:15 MET 50:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
275 005/11:07:00 MET 31	TGT=2 BV=5 P= 90.00 Y=328.00 OM=181.62 *32 deg Roll*	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 328 P 90	LVLH R=212.00 P= 0.00 Y= 1.62	Nose Forward Start ZDS at: Bo0 -9 min
276	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
277 005/11:10:12 MET	TGT=2 BV=5 P= 90.00 Y=328.00 OM=180.00	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
278 005/11:15:00 MET 30	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward Start ZDS at: Bottom of Orb
279	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
280 005/11:19:12 MET 34:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
281 005/11:42:00 MET 47:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.84 ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.16	Tail Forward Start ZDS at: To0 -12 min
* PRCS RJD's on 282	When in att VERN then B10 When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
283 005/11:51:35 MET 12:19:08	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
284 005/12:32:24 MET 13:03:31	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
285 005/13:16:48 MET 47:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
286 005/14:01:07 MET 32:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
287 005/14:45:35 MET 15:16:42	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
288 005/15:29:58 MET 16:01:05	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
289 005/16:14:21 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
290 005/16:45:00 MET 48:20	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None
291	When in att B10/AUTO/VERN				Collapse DBs
292 005/16:55:00 MET 58:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.34	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.66	Tail Forward Start ZDS at: Bo0 -13 min
293	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT
294 005/17:01:18 MET 29:51	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
295 005/17:43:08 MET 18:14:15	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
296 005/18:27:31 MET 58:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
297 005/19:11:55 MET 43:02	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
298 005/19:44:00 MET 47:20	TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None
299	When in att B10/AUTO/VERN				Collapse DBs
300 005/19:58:00 MET 20:01:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 1.44	A9 AUTO VERN RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=358.56	Tail Forward Start ZDS at: Bo0 -8 min

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MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
301	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
302 005/20:03:51 MET 27:24	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
303 005/20:40:42 MET 21:11:49	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
304 005/21:25:05 MET 56:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
305 005/22:09:28 MET 40:35	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
306 005/22:45:00 MET 56:44	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 287 P 137	Star Pair D1 -Y: 20 -Z: 17	IMU Align
307 005/23:05:00 MET 17:03	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
308	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
309 005/23:38:15 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
310 005/23:50:00 MET 55:56	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=181.08 * PRCS RJD's on ALT JET OPT 1	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 1.08	Nose Forward Start ZDS at: ToO +6 min
311	When in att VERN then B10 When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
312 005/23:59:48 MET 006/00:09:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
313 006/00:22:37 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
314 006/00:25:00 MET 39:34	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
315	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
316 006/01:07:00 MET 38:07	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
317 006/01:51:23 MET 02:22:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
318	Ref Burn PAD				TIG: ~6/02:25	Trim
319 006/02:30:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
* If Trim Req'd						
320	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
* If Trim Req'd						
321 006/02:35:46 MET 03:06:53	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
322 006/03:20:10 MET 51:17	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
323 006/04:04:33 MET 35:40	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
324 006/04:36:00 MET 50:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=181.98	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 1.98	Nose Forward Start ZDS at: BoO -11 min

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
325	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
006/04:53:29 MET 05:20:02	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
006/05:33:19 MET 06:04:26	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
006/06:17:43 MET 48:50	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
006/06:50:00 MET 07:04:48	TGT=2 BV=5 P= 90.00 Y=334.00 OM=359.64	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.36	Tail Forward Start ZDS at: ToO -2 min
330	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
006/07:15:39 MET 33:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
006/07:46:29 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: S. Hemi
006/08:12:00 MET 17:56	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00 * PRCS RJD's on ALT JET OPT 3	A9 AUTO ALT3	RATE 0.5000 DB AT 3.00 DB RT 0.200	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward 1st Part of 2 Step MNVR
006/08:19:00 MET 22:20	TGT=2 BV=5 P= 90.00 Y= 14.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=166.00 P= 0.00 Y= 0.00	Nose Forward SRL Nadir ZDS: None
335	When in att B10/AUTO/VERN				Collapse DBs	
006/08:30:00 MET 33:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM=178.38	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=358.38	Nose Forward Start ZDS at: ToO -9 min

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
337	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
338 006/08:37:25 MET 09:01:58	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
339 006/09:15:15 MET 46:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
340 006/09:50:00 MET 10:04:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 0.00	Tail Forward Start ZDS at: Top of Orbit
341	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN				Collapse DBs Load ZDS DSC RT	
342 006/10:15:12 MET 30:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
343 006/10:44:02 MET 11:15:09	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
344 006/11:28:25 MET 59:32	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
345 006/12:12:45 MET 43:52	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
346 006/12:57:08 MET 13:28:15	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
347 006/13:41:31 MET 14:12:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
348 006/14:25:54 MET 57:01	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
349 006/15:09:07 MET 40:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
350 006/15:54:40 MET 16:25:47	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
351 006/16:39:03 MET 17:10:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
352 006/17:23:26 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
353 006/17:50:00 MET 53:20	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y= 14.00 OM= 0.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 14 P 90	LVLH R=346.00 P=180.00 Y= 0.00	Tail Forward SRL Nadir ZDS: None
354	When in att B10/AUTO/VERN					Collapse DBs
355 006/18:02:00 MET 05:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.52	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.48	Tail Forward Start ZDS at: BoO -14 min
356	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
357 006/18:09:22 MET 38:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
358 006/18:52:12 MET 19:23:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
359 006/19:36:35 MET 20:07:42	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
360 006/20:20:58 MET 52:05	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
361 006/21:05:20 MET 36:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
362 006/21:49:44 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Tail Forward ZDS: N. Hemi
363 006/22:04:00 MET 05:41	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM= 20.00 *20 deg Yaw*	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=340.00	Tail Forward ZDS: None
364	When in att B10/AUTO/VERN					Collapse DBs
365 006/22:12:00 MET 13:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.16	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.84	Tail Forward Start ZDS at: To0 +12 min
366	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
367 006/22:17:17 MET 20:50	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
368 006/22:25:00 MET 36:21	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 287 P 136	Star Pair D1 -Y: 20 -Z: 17	IMU Align
369 006/22:45:00 MET 57:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
370	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
371 006/23:18:29 MET 49:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
372 007/00:02:52 MET 33:59	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
373 007/00:47:13 MET 01:18:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
374 007/01:31:36 MET 02:02:43	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
375 007/02:15:59 MET 47:06	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
376	Ref Burn PAD Post Burn Go B1/LVLH/VERN				TIG: ~7/03:15	Orbit Lowering Burn #1 (RCS)
377	Ref Burn PAD Post Burn, Load Next ATT Before Going AUTO				TIG: ~7/03:55	Orbit Lowering Burn #2 (OMS)
378	Config DAPs: A to A9 B to B10 ALT to ALT2					Post Burn DAP Config
379 007/04:01:00 MET 16:00	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward Start ZDS at: Desc Node +
* Execute ASAP						
380	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
381 007/04:28:57 MET 05:00:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
382 007/05:13:14 MET 44:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
383 007/05:57:31 MET 06:28:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
384 007/06:41:48 MET 07:12:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi

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MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
385 007/07:26:05 MET 57:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
386 007/08:10:23 MET 41:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
387 007/08:54:40 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
388 007/09:04:00 MET 18:40	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
389	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
390 007/09:38:57 MET 10:10:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
391 007/10:23:14 MET 54:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
392 007/11:07:31 MET 38:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
393 007/11:51:48 MET 12:22:55	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
394 007/12:36:05 MET 13:07:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
395 007/13:20:22 MET 51:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
396 007/14:04:39 MET 35:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
397 007/14:48:56 MET 15:20:03	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
398 007/15:33:13 MET 16:04:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
399 007/16:17:30 MET 48:37	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
400 007/17:01:47 MET 32:54	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
401 007/17:46:04 MET 18:17:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
402 007/18:30:21 MET 19:01:28	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
403 007/19:14:38 MET 45:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
404 007/19:58:55 MET 20:30:02	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
405 007/20:43:12 MET 21:14:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
406 007/21:27:29 MET 58:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
407 007/22:05:00 MET 16:45	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 288 P 135	Star Pair D1 -Y: 20 -Z: 17	IMU Align
408 007/22:25:00 MET 39:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +

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Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
409	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
410 007/22:56:03 MET 23:27:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
411 007/23:40:20 MET 008/00:11:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
412 008/00:24:34 MET 55:41	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
413 008/01:08:51 MET 39:58	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
414 008/01:53:07 MET 02:24:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
415 008/02:37:24 MET 03:08:31	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
416 008/03:21:41 MET 52:48	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
417	Ref Burn PAD Burn in LVLH Post Burn Go B1/LVLH/VERN				TIG: ~8/03:42	North America Trim #1
418	Ref Burn PAD Burn in LVLH Load Next ATT Before AUTO				TIG: ~8/04:32	North America Trim #2
419 008/04:37:00 MET 14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward Start ZDS at: Top of Orbit
* Execute ASAP						
420	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
421 008/05:05:47 MET 21:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
422 008/05:34:31 MET 06:05:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
423 008/06:18:49 MET 49:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
424 008/07:03:06 MET 34:13	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
425 008/07:47:23 MET 08:18:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
426 008/08:31:40 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
427 008/08:44:00 MET 58:43	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
428	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
429 008/09:15:57 MET 47:04	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
430 008/10:00:14 MET 31:21	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
431 008/10:44:31 MET 11:15:38	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
432 008/11:28:49 MET 59:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi

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

Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
433 008/12:13:05 MET 44:12	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
434 008/12:57:22 MET 13:28:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
435	Ref Burn PAD Burn in LVLH Post Burn Go B1/LVLH/VERN				TIG: ~8/13:14	Africa Trim #1
436	Ref Burn PAD Burn in LVLH Load Next ATT Before AUTO				TIG: ~8/14:04	Africa Trim #2
437 008/14:08:00 MET 28	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward Start ZDS at: Desc Node +
* Execute ASAP						
438	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
439 008/14:25:56 MET 57:03	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
440 008/15:10:13 MET 41:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
441 008/15:54:30 MET 16:25:37	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
442 008/16:38:47 MET 17:09:54	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
443 008/17:23:04 MET 54:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
444 008/18:07:21 MET 38:28	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi

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

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
445 008/18:51:38 MET 19:22:45	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
446 008/19:35:55 MET 20:07:02	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
447 008/20:20:12 MET 51:19	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
448 008/21:04:29 MET 35:36	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
449 008/21:42:00 MET 53:27	INRTL R= 2.00 MNVR P= 27.00 Y=291.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 288 P 134	Star Pair D1 -Y: 20 -Z: 17	IMU Align
450 008/22:02:00 MET 16:23	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
451	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
452 008/22:33:03 MET 23:04:10	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
453 008/23:17:20 MET 48:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
454 009/00:01:37 MET 32:44	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
455 009/00:45:51 MET 01:16:58	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
456 009/01:00:00 MET	Ref ORB OPS					FCS C/O

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

Attitude Timeline

MET	MNVR OPTION	DAP		E/S	REF ATT/REMARKS	EVENT
457 009/02:20:00 MET	Ref ORB OPS					ELEVON PARK
458 009/02:30:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward Start ZDS at: Asc Node +
459	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
460 009/02:58:41 MET 03:29:48	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
461	Ref Burn PAD Burn in LVLH Post Burn Go B1/LVLH/VERN				TIG: ~9/03:26	North America Trim #3
462	Ref Burn PAD Burn in LVLH Load Next ATT Before AUTO				TIG: ~9/04:21	North America Trim #4
463 009/04:26:00 MET 14	TGT=2 BV=5 P= 90.00 Y=334.00 OM=180.00	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 0.00	Nose Forward Start ZDS at: Top of Orbit
* Execute ASAP						
464	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
465 009/04:42:47 MET 58:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
466 009/05:11:32 MET 42:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi
467 009/05:55:49 MET 06:26:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
468 009/06:40:06 MET 07:11:13	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y=357.20	Nose Forward ZDS: S. Hemi

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

5-40

FLT PLN/68/FIN

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
469 009/07:24:23 MET 55:30	TGT=2 BV=5 P= 90.00 Y=334.00 OM=182.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R=206.00 P= 0.00 Y= 2.80	Nose Forward ZDS: N. Hemi
470 009/08:08:41 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=177.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010			Nose Forward ZDS: S. Hemi
471 009/08:24:00 MET 38:46	*** MNVR INTERRUPT *** TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward Start ZDS at: Asc Node +
472	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT
473 009/08:52:58 MET 09:24:05	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
474 009/09:37:15 MET 10:08:22	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
475 009/10:21:32 MET 52:39	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
476 009/11:05:49 MET 36:56	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
477 009/11:50:07 MET 12:21:14	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
478 009/12:34:22 MET 13:05:29	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi
479 009/13:18:39 MET 49:46	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi
480 009/14:00:00 MET	Ref ORB OPS					RCS HOT FIRE

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

5-41

FLT PLN/68/FIN

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT		
481 009/14:15:00 MET	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	A9 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward Start ZDS at: Asc Node +	
482	When in att B10/AUTO/VERN When rates damp B11/AUTO/VERN					Collapse DBs Load ZDS DSC RT	
483 009/14:47:13 MET 15:18:20	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi	
484 009/15:31:30 MET 16:02:37	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi	
485 009/16:15:47 MET 46:54	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi	
486 009/17:00:04 MET 31:11	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi	
487 009/17:44:20 MET 18:15:27	TGT=2 BV=5 P= 90.00 Y=334.00 OM= 2.80	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y=357.20	Tail Forward ZDS: N. Hemi	
488 009/18:28:37 MET 59:44	TGT=2 BV=5 P= 90.00 Y=334.00 OM=357.20	B11 AUTO VERN	RATE 0.0030 DB AT 0.100 DB RT 0.010	EARTH R 334 P 90	LVLH R= 26.00 P=180.00 Y= 2.80	Tail Forward ZDS: S. Hemi	
489 009/19:00:00 MET 07:31	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A9 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= 90.00	-ZLV Nose South	
490	Config DAPs: A to A1 B to B1 ALT to ALT2					Post SRL DAP Config	
491 009/23:40:00 MET 52:22	TGT=4 BV=5 P=184.00 Y= 0.00 OM= 90.00	RA= 156.152 DEC= 9.944N	A1 AUTO VERN	RATE 0.2000 DB AT 1.000 DB RT 0.020	SUN R 180 P 176	INRTL R=241.68 P= 12.92 Y=340.04	Bias -XSI RAD Coldsoak
492 010/00:56:00 MET 01:01:55	INRTL R=176.00 MNVR P= 26.00 Y=356.00	A1 AUTO PRI	RATE 0.2000 DB AT 5.00 DB RT 0.20	SUN R 238 P 156	-Y: 13 -Z: 38	D/O Align	

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

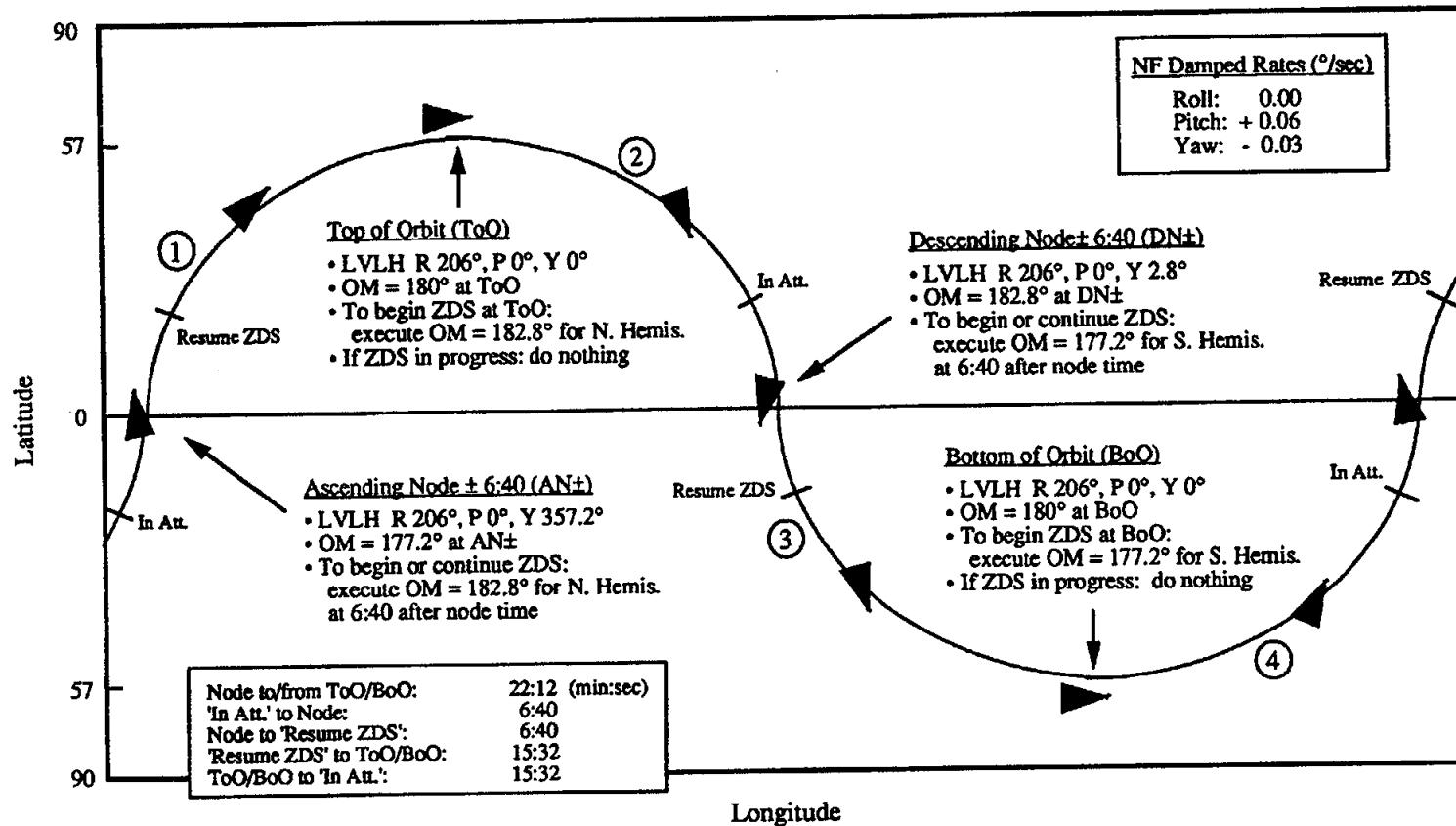
Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT
493 010/01:07:00 MET 09:12	INRTL R=183.00 MNVR P=321.00 Y= 5.00	B1 AUTO PRI RATE 0.5000 DB AT 3.00 DB RT 0.20	SUN R 324 P 124	-Y: 23 -Z: 46	Align Verif
494 010/01:24:00 MET 27:53	INRTL R=283.00 MNVR P= 42.00 Y=345.00	B1 AUTO PRI RATE 0.5000 DB AT 3.00 DB RT 0.20	SUN R 98 P 149	Sun BV: P 185 Y 30 OM 60	Bias -XSI COMM ATT
495 010/03:39:00 MET 42:46	INRTL R= 35.00 MNVR P=132.00 Y=344.00	TRN AUTO PRI RATE 0.5000 DB AT 3.50 DB RT 0.20	SUN R 358 P 70	TIG: ~10/03:54	D/O Burn
~TIG -15:00	* Ref Burn PAD				

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STS-68 Zero Steering (ZDS): Cardinal Points and Omicrons

NOSE FORWARD ATTITUDE (+26° Roll-biased -ZLV +XVV)



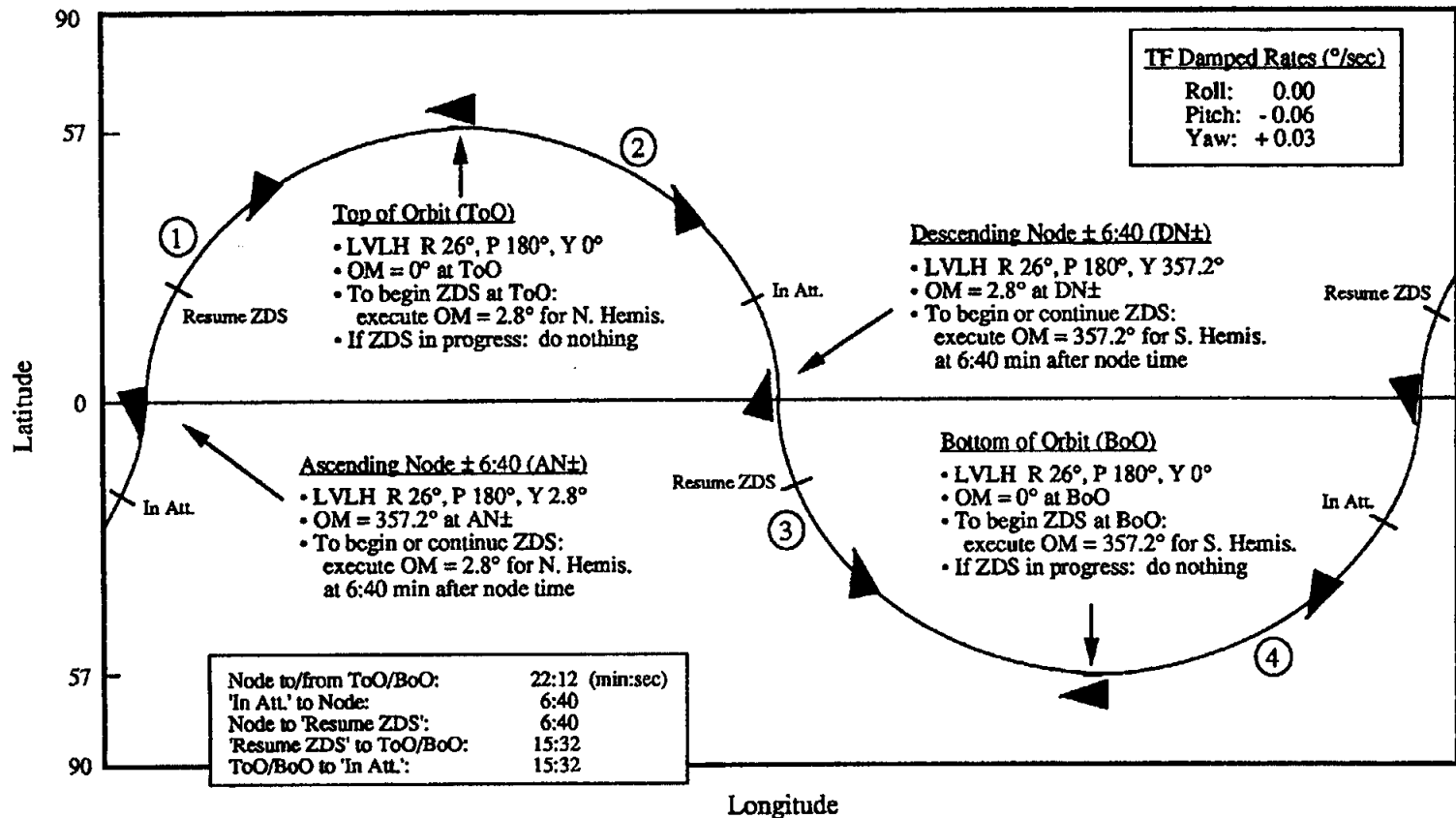
- ① If mnvr to NF finishes between AN+6:40 and ToO: exec 180° OM on A9, collapse DB & begin ZDS at ToO.
- ② If mnvr to NF finishes between ToO and DN+6:40: exec 182.8° OM on A9, collapse DB & begin ZDS at DN+6:40.
- ③ If mnvr to NF finishes between DN+6:40 and BoO: exec 180° OM on A9, collapse DB & begin ZDS at BoO.
- ④ If mnvr to NF finishes between BoO and AN+6:40: exec 177.2° OM on A9, collapse DB & begin ZDS at AN+6:40.

DAP Strategy with Verniers:

Mnvr Nose/Tail: A9/Vern or ALT3
 Collapse DB: B10/Vern (0.04 °/sec)
 Perform ZDS: B11/Vern (0.003 °/sec)

(Note: B10 and B11 only differ in their discrete rates; both have SRL's 0.1° att db & 0.01°/sec rate db.)

STS-68 Zero Steering (ZDS): Cardinal Points and Omicrons TAIL FORWARD ATTITUDE (+26° Roll-biased -ZLV -XVV)



- ① If mnvr to TF finishes between AN+6:40 and ToO: exec 0° OM on A9, collapse DB & begin ZDS at ToO.
- ② If mnvr to TF finishes between ToO and DN+6:40: exec 2.8° OM on A9, collapse DB & begin ZDS at DN+6:40.
- ③ If mnvr to TF finishes between DN+6:40 and BoO: exec 0° OM on A9, collapse DB & begin ZDS at BoO.
- ④ If mnvr to TF finishes between BoO and AN+6:40: exec 357.2° OM on A9, collapse DB & begin ZDS at AN+6:40.

DAP Strategy with Verniers:

Mnvr Nose/Tail: A9/Vern or ALT3
 Collapse DB: B10/Vern (0.04 °/sec)
 Perform ZDS: B11/Vern (0.003 °/sec)

(Note: B10 and B11 only differ in their discrete rates; both have SRL's 0.1° att db & 0.01°/sec rate db.)

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STS-68 DAP BOOK

DAP A CONFIGURATIONS

	ITEM #	A1*	A2	A3	A4	A5	A6	A7	A8	A9
<u>TRANSLATION</u>										
PULSE ft/sec	1	0.10	0.10	0.10	0.10		0.10	0.10	0.05	0.10
<u>ROTATION</u>										
DSC RT NORM °/sec	2	0.200	0.400	0.200	0.500		0.200	0.200	0.200	0.500
VERN °/sec	3	0.200	0.400	0.008	0.200		0.200	0.200	0.200	0.200
PULSE NORM °/sec	4	0.10	0.10	0.10	0.10		0.10	0.10	0.10	0.10
VERN °/sec	5	0.010	0.010	0.010	0.010		0.010	0.010	0.010	0.010
COMP NORM °/sec	6	.00	.00	.00	.00		.00	.00	.00	.00
VERN °/sec	7	.000	.000	.000	.000		.000	.000	.000	.000
<u>DEADBAND</u>										
ATT NORM (deg)	8	5.00	1.00	1.00	3.00		5.00	2.00	2.00	3.00
VERN (deg)	9	1.000	1.000	0.070	1.000		1.000	1.000	1.000	1.000
RATE NORM °/sec	10	0.20	0.20	0.20	0.20		0.20	0.20	0.20	0.20
VERN °/sec	11	.020	.020	.010	.020		.020	.020	.020	.020
<u>JET OPT</u>										
P	12	1	1	1	1		3	1 or 3	1	3
Y	13	1	1	3	1		3	1 or 3	1	3
CNTL ACCEL	14	0	0	0	0		0	0	0	0

*I-LOADED OPS-2 DAP Configuration

DAP B CONFIGURATIONS

	ITEM #	B1*	B2	B3	B4	B5	B6	B7	B8	B10	B11	B15
<u>TRANSLATION</u>												
PULSE ft/sec	15	0.10	0.10	0.10	0.10	0.10		0.05	0.01	0.10	0.10	0.10
<u>ROTATION</u>												
DSC RT NORM °/sec	16	0.500	0.200	0.200	0.200	0.200		0.500	0.200	0.200	0.200	0.200
VERN °/sec	17	0.200	0.200	0.200	0.008	0.016		0.200	0.200	0.040	0.003	0.040
PULSE NORM °/sec	18	0.04	0.04	0.04	0.04	0.04		0.04	0.04	0.04	0.04	0.04
VERN °/sec	19	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002
COMP NORM °/sec	20	.00	.00	.00	.00	.00		.00	.00	.00	.00	.00
VERN °/sec	21	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
<u>DEADBAND</u>												
ATT NORM (deg)	22	3.00	3.00	3.00	0.30	3.00		2.00	2.00	2.00	2.00	1.00
VERN (deg)	23	1.000	1.000	1.000	0.100	0.033		1.000	1.000	0.100	0.100	0.100
RATE NORM °/sec	24	0.20	0.20	0.20	0.20	0.20		0.20	0.20	0.20	0.20	0.20
VERN °/sec	25	.020	.020	.020	.010	.020		.020	.020	.010	.010	.010
<u>JET OPT</u>												
P	26	1	3	1	3	3		1 or 3	1	3	3	3
Y	27	1	3	1	3	3		1 or 3	1	3	3	3
CNTL ACCEL	28	0	0	0	0	0		0	0	0	0	0

*I-LOADED OPS-2 DAP Configuration except TRANSLATION PULSE (I-LOAD is 0.02 ft/sec)

ALT DAP CONFIGURATIONS

	ITEM #	ALT1*	ALT2	ALT3
RATE DEADBAND	32	0.200	0.070	0.100
JET OPTION	33	1	1 or 3	3
NUMBER OF JETS	34	2	1	2
ON TIME	35	0.08	0.08	0.08
DELAY	36	0.00	0.00	0.00

*I-LOADED OPS-2 DAP Configuration



<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL IMU ALIGN LOSS OF VERN (NOSE & TAIL)	B1	- NOMINAL PRCS IMU ALIGN OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (NOSE & TAIL)
A4	- PRE/POST DEPLOY		GG MNVR
A5	- (Blank)	B4	- SSUS DEPLOY
A6	- LOSS OF VERN (TAIL ONLY)	B5	- COAS CAL
A7	- RENDEZVOUS	B6	- (Blank)
A8	- PROX OPS	B7	- RENDEZVOUS
A9	- SRL MNVRS STS-68 IMU ALIGN	B8	- PROX OPS
		B10	- ZDS DB COLLAPSE SRL LOSS OF VERN (YAW BIASED)
		B11	- ZDS SLOW MNVRS
		B15	- SRL LOSS OF VERN (NON-YAW BIASED)

FLT PLN-1a/68/O/A



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FLT PLN-1b/68/O/A



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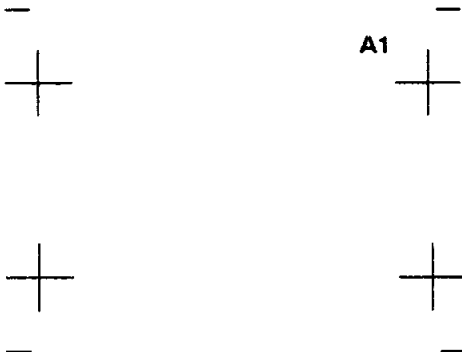


DAP A

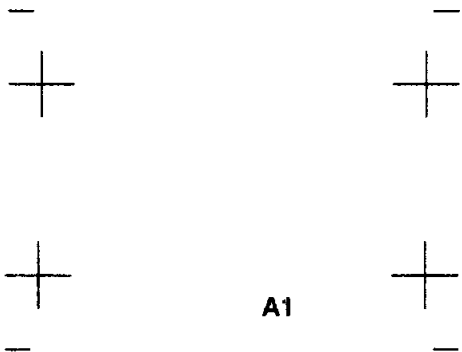
DAP A1

PURPOSE:
 NOMINAL
 IMU ALIGN
 LOSS OF VERN
 (NOSE & TAIL)

FLT PLN-2a/68/O/A



FLT PLN-2b/68/O/A



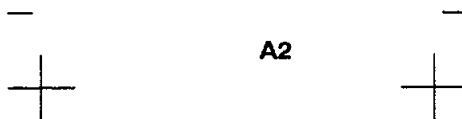
A1

DAP A2

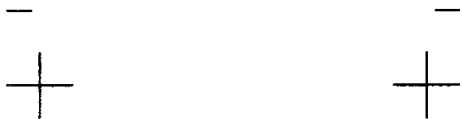
PURPOSE:
 PTC

- 0.10 1 TRANSLATION PULSE
- 0.200 2 ROTATION DSC RT NORM
- 0.200 3 VERN
- 0.10 4 PULSE NORM
- 0.010 5 VERN
- .00 6 COMP NORM
- .000 7 VERN
- 5.00 8 DEADBAND ATT NORM
- 1.000 9 VERN
- 0.20 10 RATE NORM
- .020 11 VERN
- 1 12 JET OPT P
- 1 13 Y
- 0 14 CNTL ACCEL

FLT PLN-3a/68/O/A



FLT PLN-3b/68/O/A



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+

-

A2

	TRANSLATION	
0.10	1 PULSE	
	ROTATION	
0.400	2 DSC RT NORM	
0.400	3 VERN	
0.10	4 PULSE NORM	
0.010	5 VERN	
.00	6 COMP NORM	
.000	7 VERN	
	DEADBAND	
-1.00	8 ATT NORM	
-1.000	9 VERN	
0.20	10 RATE NORM	
.020	11 VERN	
1	12 JET OPT P	
1	13 Y	
0	14 CNTL ACCEL	

FLT PLN-4a/68/O/A

+

-

A3

+

-

+

-

A3

	TRANSLATION	
0.10	1 PULSE	
	ROTATION	
0.200	2 DSC RT NORM	
0.000	3 VERN	
0.10	4 PULSE NORM	
0.010	5 VERN	
.00	6 COMP NORM	
.000	7 VERN	
	DEADBAND	
-1.00	8 ATT NORM	
-0.070	9 VERN	
0.20	10 RATE NORM	
.010	11 VERN	
1	12 JET OPT P	
3	13 Y	
0	14 CNTL ACCEL	

FLT PLN-5a/68/O/A

+

-

A4

+

-

+

-

A2

DAP A3

PURPOSE:
GG

+

-

A3

+

-

+

-

DAP A4

PURPOSE:
PRE/POST DEPLOY

+

-

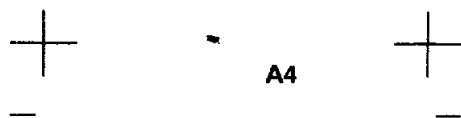
A4

+

-

FLT PLN-5b/68/O/A

(reduced copy)



A4

A4

DAP A5

0.10 1 TRANSLATION PULSE

ROTATION

0.500 2 DSC RT NORM

0.200 3 VERN

0.10 4 PULSE NORM

0.010 5 VERN

.00 6 COMP NORM

.000 7 VERN

DEADBAND

3.00 8 ATT NORM

1.000 9 VERN

0.20 10 RATE NORM

.020 11 VERN

1 12 JET OPT P

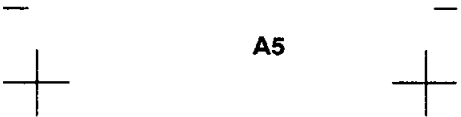
1 13 Y

0 14 CNTL ACCEL

PURPOSE:
(Blank)

FLT PLN-6a/68/O/A

FLT PLN-6b/68/O/A



A5

A5

DAP A6

1 TRANSLATION PULSE

ROTATION

2 DSC RT NORM

3 VERN

4 PULSE NORM

5 VERN

6 COMP NORM

7 VERN

DEADBAND

8 ATT NORM

9 VERN

10 RATE NORM

11 VERN

12 JET OPT P

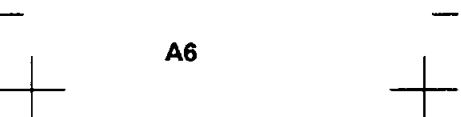
13 Y

14 CNTL ACCEL

PURPOSE:
LOSS OF VERN
(TAIL ONLY)

FLT PLN-7a/68/O/A

FLT PLN-7b/68/O/A



A6

(reduced copy)

A6

0.10	1	TRANSLATION	
		PULSE	
ROTATION			
0.200	2	DSC RT	NORM
0.200	3		VERN
0.10	4	PULSE	NORM
0.010	5		VERN
.00	6	COMP	NORM
.000	7		VERN
DEADBAND			
5.00	8	ATT	NORM
1.000	9		VERN
0.20	10	RATE	NORM
.020	11		VERN
3	12	JET OPT	P
3	13		Y
0	14	CNTL ACCEL	

FLT PLN-8a/68/O/A

A7

A7

0.10	1	TRANSLATION	
		PULSE	
ROTATION			
0.200	2	DSC RT	NORM
0.200	3		VERN
0.10	4	PULSE	NORM
0.010	5		VERN
.00	6	COMP	NORM
.000	7		VERN
DEADBAND			
2.00	8	ATT	NORM
1.000	9		VERN
0.20	10	RATE	NORM
.020	11		VERN
1 or 3	12	JET OPT	P
1 or 3	13		Y
0	14	CNTL ACCEL	

FLT PLN-9a/68/O/A

A8

A6

DAP A7

PURPOSE:
RENDEZVOUS

A7

DAP A8

PURPOSE:
PROX OPS

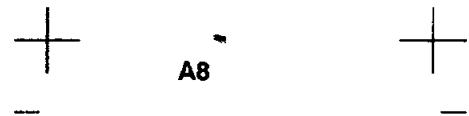
A7

DAP A8

PURPOSE:
PROX OPS

A8

(reduced copy)



A8

A8

DAP A9

0.0 5 1 TRANSLATION PULSE

ROTATION

0.2 0 0 2 DSC RT NORM

0.2 0 0 3 VERN

0.1 0 4 PULSE NORM

0.0 1 0 5 VERN

.0 0 6 COMP NORM

.0 0 0 7 VERN

DEADBAND

- 2.0 0 8 ATT NORM

- 1.0 0 0 9 VERN

0.2 0 10 RATE NORM

.0 2 0 11 VERN

1 12 JET OPT P

1 13 Y

0 14 CNTL ACCEL

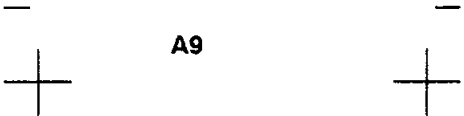
PURPOSE:

SRL MNVRS

STS-68 IMU ALIGN

FLT PLN-10a/68/O/A

FLT PLN-10b/68/O/A



A9



A9

0.1 0 1 TRANSLATION PULSE

ROTATION

0.5 0 0 2 DSC RT NORM

0.2 0 0 3 VERN

0.1 0 4 PULSE NORM

0.0 1 0 5 VERN

.0 0 6 COMP NORM

.0 0 0 7 VERN

DEADBAND

- 3.0 0 8 ATT NORM

- 1.0 0 0 9 VERN

0.2 0 10 RATE NORM

.0 2 0 11 VERN

3 12 JET OPT P

3 13 Y

0 14 CNTL ACCEL

A9

FLT PLN-11a/68/O/A

FLT PLN-11b/68/O/A



(reduced copy)



DAP B

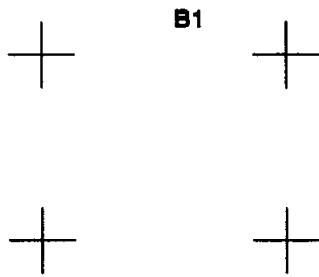


DAP B1

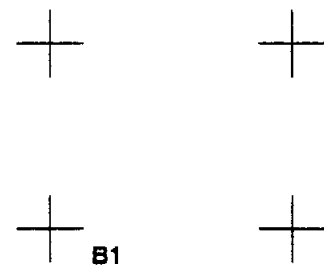
PURPOSE:

NOMINAL
PRCS IMU ALIGN
OMS & RCS
BURNS

FLT PLN-12a/68/O/A



FLT PLN-12b/68/O/A



B1

15	<u>0.1 0</u>
16	<u>0.5 0 0</u>
17	<u>0.2 0 0</u>
18	<u>0.0 4</u>
19	<u>0.0 0 2</u>
20	<u>.0 0</u>
21	<u>.0 0 0</u>
22	<u>3.0 0</u>
23	<u>1.0 0 0</u>
24	<u>0.2 0</u>
25	<u>.0 2 0</u>
26	<u>1</u>
27	<u>1</u>
28	<u>0</u>

DAP B2

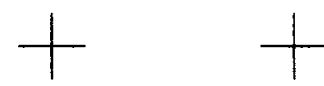
PURPOSE:

LOSS OF VERN
(TAIL ONLY)

FLT PLN-13a/68/O/A



FLT PLN-13b/68/O/A



(reduced copy)



B2

15	<u>0.10</u>
16	<u>0.200</u>
17	<u>0.200</u>
18	<u>0.04</u>
19	<u>0.002</u>
20	<u>.00</u>
21	<u>.000</u>
22	<u>-3.00</u>
23	<u>-1.000</u>
24	<u>0.20</u>
25	<u>.020</u>
26	<u>3</u>
27	<u>3</u>
28	<u>0</u>

FLT PLN-14a/68/O/A



B3



B3

15	<u>0.10</u>
16	<u>0.200</u>
17	<u>0.200</u>
18	<u>0.04</u>
19	<u>0.002</u>
20	<u>.00</u>
21	<u>.000</u>
22	<u>-3.00</u>
23	<u>-1.000</u>
24	<u>0.20</u>
25	<u>.020</u>
26	<u>1</u>
27	<u>1</u>
28	<u>0</u>

FLT PLN-15a/68/O/A



B4



B2

DAP B3

PURPOSE:

LOSS OF VERN
(NOSE & TAIL)
GG MNVR

FLT PLN-14b/68/O/A



B3

DAP B4

PURPOSE:

SSUS DEPLOY

FLT PLN-15b/68/O/A



(reduced copy)



B4

15	0.1 0
16	0.2 0 0
17	0.0 0 8
18	0.0 4
19	0.0 0 2
20	.0 0
21	.0 0 0
22	_ 0.3 0
23	_ 0.1 0 0
24	0.2 0
25	.0 1 0
26	3
27	3
28	0

FLT PLN-16a/68/O/A



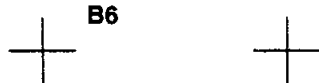
B5



B5

15	0.1 0
16	0.2 0 0
17	0.0 1 6
18	0.0 4
19	0.0 0 2
20	.0 0
21	.0 0 0
22	_ 3.0 0
23	_ 0.0 3 3
24	0.2 0
25	.0 2 0
26	3
27	3
28	0

FLT PLN-17a/68/O/A



B6



B4

DAP B5

PURPOSE:
COAS CAL

FLT PLN-16b/68/O/A



B5

DAP B6

PURPOSE:
(Blank)

FLT PLN-17b/68/O/A



(reduced copy)



B6

15	---
16	----
17	----
18	----
19	----
20	----
21	----
22	----
23	----
24	----
25	----
26	-
27	-
28	-

FLT PLN-18a/68/O/A



B7



B7

15	0.0 5
16	0.5 0 0
17	0.2 0 0
18	0.0 4
19	0.0 0 2
20	.0 0
21	.0 0 0
22	- 2.0 0
23	- 1.0 0 0
24	0.2 0
25	.0 2 0
26	1 or 3
27	1 or 3
28	0

FLT PLN-19a/68/O/A



B8



B6

DAP B7

PURPOSE:
RENDEZVOUS

FLT PLN-18b/68/O/A



B7

DAP B8

PURPOSE:
PROX OPS

FLT PLN-19b/68/O/A



(reduced copy)



B8

15	0.01
16	0.200
17	0.200
18	0.04
19	0.002
20	.00
21	.000
22	2.00
23	-1.000
24	0.20
25	.020
26	1
27	1
28	0

FLT PLN-20a/68/O/A



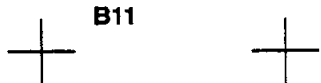
B10



B10

15	0.10
16	0.200
17	0.040
18	0.04
19	0.002
20	.00
21	.000
22	2.00
23	-0.100
24	0.20
25	.010
26	3
27	3
28	0

FLT PLN-21a/68/O/A



B11



B8

DAP B10

PURPOSE:

ZDS DB
COLLAPSE
SRL LOSS OF
VERN
(YAW BIASED)

FLT PLN-20b/68/O/A



B10

DAP B11

PURPOSE:

ZDS SLOW
MNVRS

FLT PLN-21b/68/O/A



(reduced copy)



B11

15	<u>0.1 0</u>
16	<u>0.2 0 0</u>
17	<u>0.0 0 3</u>
18	<u>0.0 4</u>
19	<u>0.0 0 2</u>
20	<u>.0 0</u>
21	<u>.0 0 0</u>
22	<u>2.0 0</u>
23	<u>- 0.1 0 0</u>
24	<u>0.2 0</u>
25	<u>.0 1 0</u>
26	<u>3</u>
27	<u>3</u>
28	<u>0</u>

FLT PLN-22a/68/O/A



B15

15	<u>0.1 0</u>
16	<u>0.2 0 0</u>
17	<u>0.0 4 0</u>
18	<u>0.0 4</u>
19	<u>0.0 0 2</u>
20	<u>.0 0</u>
21	<u>.0 0 0</u>
22	<u>1.0 0</u>
23	<u>- 0.1 0 0</u>
24	<u>0.2 0</u>
25	<u>.0 1 0</u>
26	<u>3</u>
27	<u>3</u>
28	<u>0</u>

FLT PLN-28a/68/O/A



B11

DAP B15

PURPOSE:

SRL LOSS
OF VERN
(NON-YAW
BIASED)

FLT PLN-22b/68/O/A



B15

FLT PLN-28b/68/O/A



(reduced copy)

+	DAP	PURPOSE	+
	ALT1	- NOMINAL I-LOAD	
	ALT2	- LOSS OF VERN	
	ALT3	- SRL PRCS MNVRS	

+	DAP ALT1	+
	PURPOSE:	
	NOMINAL I-LOAD	

FLT PLN-23a/68/O/A

FLT PLN-23b/68/O/A

+	ALT1	+
---	-------------	---

+		+
---	--	---

+	ALT1	+
	RATE DB	
	32	0.2 0 0
	JET OPT	
	33	1
	# JETS	
	34	2
	ON TIME	
	35	- 0.0 8
	DELAY	
	36	- 0.0 0
	FLT PLN-24a/68/O/A	

+	DAP ALT2	+
	PURPOSE:	
	LOSS OF VERN	
	FLT PLN-24b/68/O/A	

+	ALT2	+
---	-------------	---

+	ALT1	+
---	-------------	---

+	ALT2	+	+	DAP ALT3	+
	RATE DB			PURPOSE:	
	32	<u>0.070</u>			
	JET OPT			SRL PRCS	
	33	1 or 3		MNVRS	
	# JETS				
	34	1			
	ON TIME				
	35	<u>-0.08</u>			
	DELAY				
	36	<u>-0.00</u>			
	FLT PLN-25a/68/O/A			FLT PLN-25b/68/O/A	

+	ALT3	+	+	ALT2	+
---	-------------	---	---	-------------	---

+	ALT3	+	+	+	+
	RATE DB				
	32	<u>0.100</u>			
	JET OPT				
	33	<u>3</u>			
	# JETS				
	34	2			
	ON TIME				
	35	<u>-0.08</u>			
	DELAY				
	36	<u>0.00</u>			
	FLT PLN-26a/68/O/A			FLT PLN-26b/68/O/A	

+	ALT3	+	+	+	+
---	-------------	---	---	---	---

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

FLT PLN-27a/68/O/A

FLT PLN-27a/68/O/A is mounted on the back of the DAP Book

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**STS-68
FLIGHT PLAN NOTES**

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

A. FLIGHT DESCRIPTION

Orbiter: OV105/Endeavour
 Inclination: 57.0 deg
 Altitude: 119 x 120
 Duration: 10 + 2

B. MAJOR EVENTS

<u>EVENT</u>	<u>MET</u>	<u>DATE</u>	<u>CDT</u>	<u>GMT</u>	<u>ORBIT</u>
Launch	00/00:00	08/18/94	05:54	230/10:54	--
OMS-2 C/O	00/00:37	08/18/94	06:31	230/11:27	--
TRIM-1	00/04:05	08/18/94	11:17	230/16:17	3/4
ORB ADJ-1	07/03:00	08/25/94	10:07	237/15:07	116/117
ORB ADJ-2	07/03:45	08/25/94	10:52	237/15:52	116/117
D/O Burn	10:03:54	08/28/94	09:48	240/14:48	165
Landing	10:04:42	08/28/94	10:36	240/15:36	166

C. LANDING OPPORTUNITIES:

		<u>Landing Orbit</u>	<u>Site</u>	<u>Local Time</u>
		<u>No.</u>		
Nominal	Primary	166	KSC	11:36 EDT
	1 Rev late	167	KSC	13:08 EDT
1 Day Late	Primary	182	KSC	11:13 EDT
	1 Rev late	183	KSC	12:45 EDT
2 Days Late	Primary	198	KSC	10:49 EDT
	1 Rev late	199	KSC	12:21 EDT

D. CREW

CDR – Michael A. Baker
 PLT – Terrence W. Wilcutt
 MS1 – Steven L. Smith
 MS2 – Daniel W. Bursch
 MS3 – P. Jeffrey K. Wisoff
 MS4 – Thomas D. Jones

E. COMMUNICATIONS

TDRS Support: East (41 degW), West (174 degW)
 Backup Real-Time TV: GDS(GDX), MIL(MLX)
 Contingency GSTDN: MIL(MLX), BDA(BDX), DFR, GDS(GDX), and DKR (UHF voice only)
 Contingency RTS: HTS, GTS, VTS, IOS, CTS, DGS, NHS; OTS, and IDS also have VHF capability

Lead time for site call-up: GSTDN – 2 hr, RTS – 4 hr

**FLT PLN
NOTES**

F. TEXT UPLINK SYSTEM

The TIPS (Raytheon's TDU-850 Thermal Impulse Printer System) is a high-speed, gray-shade recorder employing a fixed thermal head to produce a line print. The recording medium is direct recording thermal paper. TIPS will provide onorbit capability to receive and reproduce data from MCC during onorbit operations. The information may be transmitted over the air-to-ground (nominally A/G 2) voice channel or through Ku-band forward link. Typical applications will include a hard copy of computer-generated data and pictorial information reproduced in almost photographic quality.

G. TELEVISION/PHOTOGRAPHY

1. The orbiter CCTV system provides in-cabin Camcorder coverage. There will also be four PLB TV Cameras and an RMS Wrist Camera. There are two different lens assemblies for the PLB and RMS Cameras (monochrome and wide-angle lens assemblies). The type of lens assembly for each Camera is documented in the Flight Requirements Document.
2. The orbiter has one TEAC 8mm video tape recorder (VTR) available which uses 120-minute cassettes.
3. Three Camera systems are available: 16mm, 35mm, and 70mm.

H. PAYLOADS

1. Space Radar Laboratory - 2 (SRL-2)

SRL-2 is a dedicated Earth observation payload which studies vegetation, hydrology, tectonics, topography, and global carbon monoxide distribution. The SRL payload is installed on a standard Spacelab 3-m MDM pallet and a Multipurpose Equipment Support Structure (MPSS).

SRL-2 consists of the following experiments:

- a. Spaceborne Imaging Radar - C (SIR-C)

SIR-C is the third generation of imaging radars flown on the shuttle. SIR-C is comprised of two antennas, C-band and L-band, with the capability of transmitting and receiving any combination of horizontally and vertically polarized L- and C-band signals.

- b. X-band Synthetic Aperature Radar (X-SAR)

X-SAR is a follow-up to the Microwave Remote Sensing Experiment (MRSE) flown as part of the Spacelab-1 mission. X-SAR consists of an X-band radar which will transmit and receive vertically polarized signals.

- c. Measurement of Air Pollution from Satellites (MAPS)

The MAPS experiment is a reflight of Earth photography and carbon monoxide sensing equipment flown on two earlier missions. MAPS is installed on an MPSS with a tilted support structure to compensate for the rolled orbiter attitude. This orientation points the MAPS optical axis toward nadir.

d. **Applied Physics Laboratory (APL)**

APL will observe ocean wave images and perform real-time processing of the image data. The APL is installed on the standard Spacelab pallet.

2. **Chromosome and Plant Cell Division in Space (CHROMEX)**

The objective of CHROMEX is to study the reproductive abnormalities which occur to plants exposed to microgravity. The effects of microgravity on the seed production of *Arabidopsis thaliana* will be studied. *Arabidopsis* plants will be flown inside a Plant Growth Unit (PGU) located in one orbiter middeck locker. The PGU will contain five Plant Growth Chambers (PGCs), each of which will contain a number of plant specimens. Another PGC will contain an Atmospheric Exchange System (AES) to provide air circulation to four of the PGCs (the fifth PGC is sealed). The crew will perform daily status checks during the PGU day cycle.

3. **Commercial Protein Crystal Growth (CPCG) Block I**

CPCG is designed to determine methods and commercial potential for growing large high-quality protein crystals in microgravity. The experiment is contained in one Commercial Refrigerator Incubator Module (CRIM) and is stowed in an orbiter middeck locker. In the Block I configuration, the CRIM contains a carrier which holds three Vapor Diffusion Apparatus (VDA) trays. Each VDA has 20 experiment chambers. The internal CRIM temperature profile is automatically adjusted by the CRIM software. The crew will activate and deactivate each VDA chamber on orbit. The crew will start the CRIM temperature profile software and check the status of the CRIM internal temperature daily. No seeding is required.

4. **Biological Research in Canisters (BRIC) 01 - Block I**

The objective of the BRIC 01 payload is to provide data into the effects of spaceflight on small arthropod animal specimens (wild gypsy moth eggs). Block I consists of five 82mm diameter canisters contained in a freezer and stowed in a single middeck locker. No crew interaction is required.

5. **Cosmic Radiation Effects and Activation Monitor (CREAM)**

The objective of CREAM is to collect data on cosmic ray energy loss spectra, neutron fluxes, and induced radioactivity as a function of geomagnetic coordinates and detector location within the orbiter. The CREAM payload consists of an active cosmic ray monitor, a passive sodium iodide detector, and five passive detector packages. The active monitor and passive detectors will obtain spectral data during the mission. The sodium iodide detector and one passive detector will remain in a middeck locker while the other four passive detector packages will be installed at four locations in the middeck. The active monitor will be positioned by the crew at two middeck stations throughout the mission.

6. **Military Application of Ship Tracks (MAST)**

The purpose of MAST is to evaluate the characteristics of ship track formation. A Hasselblad camera will be used to study high-resolution effects at track formation, examine cloud topography and induced circulations, and study the regional differences in track formation. Two dedicated 95-exposure data magazines will be available for MAST photography.

7. Get-Away Special (GAS) Canisters

Attached cargo operations will be performed with the three GAS canister experiments mounted on the GAS Bridge Assembly (GBA). Two additional GAS canisters will be used to fly 25th anniversary commemorative stamps. The three experiments are G-316, G-503, and G-541.

- a. The G-316 experiment is designed to study the effects of microgravity and cosmic radiation on milkweed bugs and on crystal growth.
- b. The G-503 experiment consists of five experiments. The first is a biological experiment designed to study microgravity and cosmic radiation effects on the growth of datom cultures in low Earth orbit. The second experiment consists of the measurement of cosmic radiation with a dosimeter. The third is designed to investigate characteristic of mixing and curing concrete in a microgravity environment. The fourth will study the effects of microgravity on root growth. Finally, the fifth experiment will study the phenomenon of pitting in metals.
- c. The G-541 experiment will study the breakdown of a planar solid/liquid interface when plant growth rate increases from stable to unstable conditions. A gradient furnace and a sample of Germanium doped with Gallium will be used.

I. ONORBIT DTOs

1. PGSC Single Event Upset Monitor (DTO 656)

The objective of this DTO is to determine Payload and General Support Computer (PGSC) random access memory susceptibility to single event upset (SEU) caused by cosmic radiation. This data could lead to procedure changes and software or hardware changes to reduce radiation effects.

2. Cabin Temperature Survey (DTO 664)

The purpose of this DTO is to compile a temperature profile of the crew cabin in a variety of orbiter attitudes and configurations and to correlate the cabin temperature sensor reading with the cabin temperature profile during onorbit operations. Cabin temperatures will be logged each flight day.

3. Global Positioning System Development Flight Test (DTO 700-8)

This DTO will demonstrate the performance and operation of the Global Positioning System (GPS) utilizing a modified GPS receiver processor and the existing orbiter GPS antennas. The GPS will estimate the orbiter's position, velocity, measurement discretions, and attitude during ascent, onorbit, entry, and landing phases. The GPS receiver output data will be recorded on the Modular Auxiliary Data System (MADS) recorder during ascent and entry, and the thinkpad during onorbit. Data will be downlinked for SRL or GPS via PADM.

J. ONORBIT DSOs

1. Collection of Shuttle Humidity Condensate for Analytical Evaluation (DSO 317)

The objective of this DSO is to characterize the content of the shuttle's humidity condensate to determine the cause of mechanical difficulties with the humidity condensate separator, and to assess the contaminant removal efficiency of the cabin heat exchanger. An in-line adsorption device will be tested to remove contaminants from the humidity condensate. A crewmember will collect condensate samples by attaching a container to the water dispenser valve assembly. Three untreated samples and three samples treated with the adsorption device will be collected over three flight days.

2. Window Impact Observations (DSO 326)

The objective of this DSO is to link window damages found during turnaround processing to a mission time, attitude, and altitude. The crewmembers will check the windows daily for new abrasions and will record their findings in a log. This data will aid significantly in the analysis of shuttle window impacts in the effort to identify the sources of these damages.

3. Assessment of Circadian Shifting in Astronauts by Bright Light (DSO 484) Config A

The objective of this DSO is to determine the effectiveness of using bright light to achieve preflight circadian shifting in crewmembers who require atypical work-rest cycles onorbit. Circadian shift will be monitored by examining physical activity and physiological properties such as melatonin and cortisol. Crewmembers will wear an Actigraph on their wrists to measure activity. Urine and saliva samples will be collected and blood pressure, heart rate and body temperature will be measured at crew wakeup and sleep. Saliva will be collected and a mood log will be completed every two hours onorbit.

4. Orthostatic Function During Entry, Landing, and Egress (DSO 603C)

The objective of this DSO is to measure the changes in orthostatic function of crewmembers during the actual stresses of entry, landing, and egress from the orbiter. Crewmembers will don and calibrate equipment prior to deorbit preparation. At LES donning, they will connect cables and power the equipment. Verbal comments will be recorded during entry, landing, and egress.

5. Visual-Vestibular Integration as a Function of Adaptation (OI-3C) (DSO 604C)

The purpose of this DSO is to investigate visual-vestibular and perceptual adaptive responses and to determine the operational impact on performance of entry, landing, and egress procedures. Crewmembers will test for visual distortion by executing head movements in all planes, twice onorbit.

6. In-Flight Use of Florinef to Improve Orthostatic Intolerance Postflight (DSO 621)

The purpose of the DSO is to evaluate the efficacy of florinef on postflight orthostatic tolerance using heart rate, blood pressure, stroke volume, and other cardiovascular responses to orthostatic stress. Crewmembers will ingest a Florinef tablet and a potassium supplement tablet 7 hours prior to landing, and will drink two quarts of fluid with meals for the last two days of flight.

7. Pre and Postflight Measurement of Cardiorespiratory Responses to Submaximal Exercise (DSO 624)

For this DSO the crewmembers will wear heart watches during exercise and log exercise to help evaluate the changes in aerobic capacity pre-, in-, and postflight. These evaluations will help develop optimal exercise protocols to prevent decrements in nominal cardiorespiratory response.

8. Documentary Television (DSO 901)

This DSO requires live television transmission or VTR dumps of crew activities and spacecraft functions which include: Payload Bay Views, STS and payload crew activities, VTR downlink of Crew Activities, Inflight Crew Conference, and unscheduled TV activities.

9. Documentary Motion Picture Photography (DSO 902)

DSO 902 requires documentary and public affairs motion picture photography of significant activities which best depict the basic capabilities of the space shuttle and key objectives. This DSO includes motion picture photography of flight deck activities, middeck activities, and any unscheduled motion picture photography.

10. Documentary Still Photography (DSO 903)

This DSO requires still photography of crew activities in the orbiter, and mission-related scenes of general public and historical interest. Still photography with 70mm format for exterior photography and 35mm format for interior photography is required.

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