

FLIGHT DATA FILE

Flight Plan

STS-39

(CTLP Trajectory)

**Mission Operations Directorate
Operations Division**

**Final, Rev B
April 9, 1991**

<u>EVENT</u>	<u>CDT</u>		
Launch	05:58	Tue	Apr 30
IBSS Deploy	02:51	Thu	May 3
IBSS Retrieve	17:06	Fri	May 4
EDW Landing	13:23	Wed	May 8



National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



MISSION OPERATIONS DIRECTORATE

STS-39 FLIGHT PLAN

FINAL, REVISION B
April 9, 1991

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	FLT PLN-1082	FLT PLN-1089	MULTI-405		
	FLT PLN-1083	FLT PLN-1090			
	FLT PLN-1084	FLT PLN 1091			
	FLT PLN-1085	FLT PLN 1093			

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STS-39 FLIGHT PLAN

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(*) - Omit from flight book

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DAP A9.....	7-9	FLT PLN-10b/39/0/B
A9.....	7-9	FLT PLN-11a/39/0/B
DAP A10.....	7-10	FLT PLN-11b/39/0/B
A10.....	7-10	FLT PLN-12a/39/0/C
DAP A11.....	7-10	FLT PLN-12b/39/0/A
A11.....	7-10	FLT PLN-13a/39/0/C
DAP A52.....	7-11	FLT PLN-13b/39/0/A
A52.....	7-11	FLT PLN-14a/39/0/B
(Blank).....	7-11	FLT PLN-14b/39/0/A
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DAP B2.....	7-12	FLT PLN-16b/39/0/C
B2.....	7-12	FLT PLN-17a/39/0/C
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B3.....	7-13	FLT PLN-18a/39/0/C
DAP B4.....	7-13	FLT PLN-18b/39/0/C
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DAP B5.....	7-14	FLT PLN-19b/39/0/C
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DAP B6.....	7-14	FLT PLN-20b/39/0/C
B6.....	7-14	FLT PLN-21a/39/0/C
DAP B7.....	7-15	FLT PLN-21b/39/0/C
B7.....	7-15	FLT PLN-22a/39/0/C
DAP B8.....	7-15	FLT PLN-22b/39/0/C
B8.....	7-15	FLT PLN-23a/39/0/C
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B10.....	7-16	FLT PLN-25a/39/0/C
DAP B11.....	7-17	FLT PLN-25b/39/0/C
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INTRODUCTION

The STS-39 Flight Plan is the flight data file article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. The detailed deploy and rendezvous procedures required for the deploy timeframe are in the IBSS Rendezvous Checklist. For continuity, the entire flight is shown in the summary level timeline.

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS-39 Flight Requirements Document. This Flight Plan, as part of the Flight Data File, meets the specifications of the Close to Launch Cycle version of the STS-39 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of April 30, 1991, 05:58 CDT. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

JSC-22354 Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev A, January 1990, has been used to build the timelines contained in this Flight Plan. Exemption Request #13 authorizes the lack of exercise on the day before entry for two of the crewmembers. Exemption Request #16 authorizes an extended entry day for the non-entry team, with a nap scheduled prior to deorbit for the Minimum Duration Flight and 48 Hour Late IBSS Deploy (EVA) cases.

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

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STS-39 OVERVIEW

OVERVIEW

RED BLU		FLIGHT STS 39		EDITION FINAL, REV B		PUB. DATE 04/09/91																			
MET :000	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 FD 1&2	DI O R M - S	POST INSERTION	AFP 675	RMS C/O	MEAL	IBSS ON-ORBIT C/O	AFP 675	PRE SLEEP	H/ O	SLEEP										POST SLEEP	H/ O	AFP 675			
BLU FD 1&2	IN C H R T	PRE SLEEP	SLEEP (6.0)				POST SLEEP	H/ O	AFP 675						MEAL	AFP 675		H/ O							
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	0 57/139X141 0 RME-III ACT & C/O 0 PRE SLEEP 0 DSO 602																								
NOTES:	■ POST INSERTION ■ POST SLEEP ■ BLOOD PRESSURE PRE SLEEP																								

MET :001	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 FD 2&3	AFP 675	MEAL	AFP 675						PRE SLEEP	H/ O	PRE SLEEP	SLEEP (7.0)										POST SLEEP	H/ O	Δ RS HE LP	Δ NFF IBSS DEPLOYED OPS
BLU FD 3	PRE SLEEP	SLEEP						PS OL SE TE P	H/ O	POST SLEEP	AFP 675						MEAL	SPAS PRE-DPY C/O	S U P N A B S E R T H	H/ O	PRE SLEEP				
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 ■ SPAS PRE-DPY C/O ■ RME-III MEM MOD REPLACEMENT 0 DSO 602 BLOOD PRESSURE																								
NOTES:																									

MET :002	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 FD 3&4	Δ O V P 1 P 1	MEAL	Δ NCSK1	Δ NCSK2				Δ T A G F U P 2	IBSS	PRE SLEEP	NCSK3 Δ NCSK4						Δ NCC NF	Δ TNF	POST SLEEP	H/ O	IBSS DEPLOYED OPS				
BLU FD 4	PRE SLEEP	SLEEP (7.0)						PS OL SE TE P	T A G F U P 2	PS OL SE TE P	O P P 2 V	O P P 3 V	O C S P V	IBSS DEPLOYED OPS	CD RF OY C	IBSS DEPLOYED OPS	MEAL	IBSS DEPLOYED OPS	O P P 4 V	O P P 5 V	H/ O	PS RL EE P			
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 0 H/O																								
NOTES:																									

RED BLU		FLIGHT STS 39		EDITION FINAL, REV B		PUB. DATE 04/09/91																				
MET :003	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 FD 4&5		OPC		NORC		IBSS	MEAL	IBSS	CD RP OY B		NCC TI	MAN		HA1	CIRCI										POST SLEEP	H/ O
BLU FD 5		PRE SLEEP				SLEEP						POST SLEEP	S B P E R T H H/ O			APP 675			MEAL				APP 675		H/ O	
DAY/NIGHT																										
ORBIT	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64										
NOTES:																										

MET :004	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 FD 5			APP 675			MEAL				APP 675			H/ O		PRE SLEEP					SLEEP					PS OL SE TE P
BLU FD 5&6			PRE SLEEP					SLEEP				POST SLEEP	H/ O			APP 675			MEAL		APP 675	CRC A DPY		APP 675	
DAY/NIGHT																									
ORBIT	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81								
NOTES:																									

MET :005	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 FD 6		POST SLEEP		H/ O		APP 675			APP 675	SPAS PRE- DPY C/O	MEAL	S U P N A B S E R T H	IBSS RMS OPS	S B P E R T H	HA2	C I R C 2	S U P N A B S E R T H		IBSS RMS OPS	H/ O		PRE SLEEP		SLEEP		
BLU FD 6&7		APP 675		H/ O		PRE SLEEP						SLEEP				POST SLEEP	H/ O					IBSS RMS OPS		MEAL	IBSS RMS OPS	
DAY/NIGHT																										
ORBIT	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97									
NOTES:																										

RED BLU				FLIGHT STS 39		EDITION FINAL, REV B		PUB. DATE 04/09/91																	
MET :006	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 FD 7	SLEEP	POST SLEEP	H/O	APP 675	MEAL	APP 675	PRE SLEEP	H/O	PRE SLEEP	SLEEP															
BLU FD 7&8	SPAS BERTH	IBSS IN-BAY OPS	H/O	PRE SLEEP	SLEEP	POST SLEEP	H/O	APP 675																	
DAY/NIGHT	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112									
ORBIT																									
NOTES:																									
MET :007	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 FD 8	SLEEP	POST SLEEP	H/O	FCS C/O	APP 675	MEAL	STP-1/APP-675	PRE SLEEP	H/O	SLEEP (6.0)															
BLU FD 8&9	MEAL	APP 675	H/O	FCS C/O	PRE SLEEP	SLEEP	PS POLH S E / T E O P	PS POLH S E / T E O P	PAYLOAD DEACT	M P E C D P Y	PAYLOAD DEACT	MEAL	C A B I N S T O W												
DAY/NIGHT	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129								
ORBIT																									
NOTES:																									
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 FD 9	SLEEP	POST SLEEP	DEORBIT PREP	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT
BLU FD 9	CABIN STOW	DEORBIT PREP	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT	DEORBIT
DAY/NIGHT	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145								
ORBIT																									
NOTES:																									

SUMMARY TIMELINE

SUMMARY TIMELINE

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
120:10:58/ 120:22:58	000:00:00/ 000:12:00	120:05:58/ 120:17:58	/ 120 CDT	-36.7		APRIL 30, 1991	STS 39	FINAL, REV B	04/09/91
CDT :120								BLU 17	
FD :001								FD:00211	
MET :000									
STS									
PL									
DAY/NIGHT									
ORBIT									
CONTINGENCY GSTDN									
CONTINGENCY RTS									
TDRS									
ATTITUDE									
RED SLEEP									
BLU SLEEP									
CONTAM									
NOTES:									

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
121:22:58/ 122:10:58	001:12:00/ 002:00:00	121:17:58/ 122:05:58	/121 CDT	-32.4	☉	MAY 1, 1991	STS 39	FINAL, REV B	04/09/91						
CDT :121	18	19	20	21	22	23	0	CDT:122	1	2	3	4	5	0	MET:002
BLU FD :003	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
MET :001															
STS	MNVR & INIT GG														
PL		PC12A FAR IR	PC12B NEAR IR												
DAY/NIGHT															
ORBIT	25	26	27	28	29	30	31	32							
CONTINGENCY GSTDN COVERAGE	-VAN				-DKR		-DKR								
CONTINGENCY RIS COVERAGE	-VTS	-IOS	-HIS			-GTS							-NHS		
TDRS															
ATTITUDE															
RED SLEEP															
BLU SLEEP															
CONTAM															
KV RADAR															
NOTES:	PU02B AUTO CEL TGT				@steps 1,2 @GND		@steps 3-15 @IBSS		@RELEASE @RADAR		@MEMORY MODULE REPLACE		@PITCH, YAW @steps 2,3 @ROLL		
					@RMS HTR ACT		@RAD OUT HI		@H/O BLUE TO RED		@-YLV, -ZVV		@RADAR @step 5		@RAD OUT NORM
							@DSO 602 BLOOD PRESSURE		@ACS SETUP/L3TV ACT @step 1						

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
122:10:58/ 122:22:58	002:00:00/ 002:12:00	122:05:58/ 122:17:58	/122 CDT	-30.9		MAY 2, 1991	STS 39	FINAL, REV B	04/09/91
CDT :122 RED FD :003 MET :002							BLU FD:004		
STS	YLV MNV R	AAA NON FPO FIP 1 1 1 1	AAA M C F F	AAA V N P P 1	YLV MNV R	NC SKI RCS BURN	YLV MNV R	NC SK2 RCS BURN	YLV MNV R
	EXERCISE		MEAL					EXERCISE	
	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R	SPAS MNV R
PL									
DAY/NIGHT									
ORBIT	33	34	35	36	37	38	39	40	41
CONTINGENCY GSTDN		-VAN -GDX							
CONTINGENCY RTS	NHS -TCS	-CTS -NHS	-VTS -NHS	-HTS -NHS					
CONTINGENCY COVERAGE									
TDRS									
ATTITUDE									
RED SLEEP									
BLU SLEEP									
CONTAM									
KU RADAR									
NOTES:									

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE									
123:10:58/ 123:22:58	003:00:00/ 003:12:00	123:05:58/ 123:17:58	/123 CDT	-27.2		MAY 3, 1991	STS 39	FINAL, REV B	04/09/91									
CDT :123 RED FD :004 MET :003									BLU FD:00512									
STS	YLV MNVVR	OPC/NC	ECLES C/O	RCS BURN	YLV MNVVR	IMU MNVVR	YLV MNVVR	NCC MNVVR	TRK MNVVR	TI MNVVR	MPN MNVVR	MMN MNVVR	MMN MNVVR	MMN MNVVR	TRK MNVVR	GRAP MNVVR	H/O	KU CABLE
	EXERCISE	RMS PWRDN			MEAL	P/TV06 ACT FT DR				RMS PWRUP								EXERCISE
	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	SPAS MNVVR	F/TV02 ACT IBSS			SPAS BERTH
PL		CO2 EARTHLIMB	CRC OBS	NEO6	STRAP DOWN	EARTHLIMB SET 1	EARTHLIMB SET 1	CRO B DELY	NEO6	STRAP DOWN	INTL REF	EARTH SCAN	SPATIAL	CRO B OBS			H/O	
DAY/NIGHT																		
ORBIT	49	50	51	52	53	54	55	56	57									
CONTINGENCY GSTDN		-VAN -GDX																
CONTINGENCY RTS	TCS -IOS	-NHS -TCS	-VTS -CTS	-NHS -MIL	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS	-NHS
TDRS																		
ATTITUDE		OPC	NOPC															
RED SLEEP																		
BLU SLEEP																		
CONTAM																		
KU RADAR																		
NOTES:																		

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
124:22:58/ 125:10:58	004:12:00/ 005:00:00	124:17:58/ 125:05:58	/ 124 CDT	-21.5		MAY 4, 1991	STS 39	FINAL, REV B	04/09/91						
CDT :124	18	19	BLU 20	21	22	23	0	CDT:125	1	2	3	4	5	0	MET:005
RED FD :005	12	13	FD:00614	15	16	17	18	19	20	21	22	23			
MET :004															
STS	PT FOR 6 DAY	AUTO MNVR	H/O	AUTO MNVR	PC36A TRANS BORE	TRK MNVR	MEAL	PU02A TRK	YLV MNVR	W/TV02 SETUP IBSS	AUTO MNVR	AUTO MNVR	IMU		
				EXERCISE											
	P/TV03 3675		H/O				PH06 DARK COUNT								
PL	PT FOR 6 DAY	PU02B AUTO CEL TGT	PU02A	PC36A TRANS BORE	PC11E AG & TERM	PC11D AG & TERM	PQ03 RAM 3/3	PU02A	CRO A DPLY	PFU02B FAR UV/URA	PU02A		VTTR	VTTR	
DAY/NIGHT															
ORBIT	73	74	75	76	77	78	79	80	81						
CONTINGENCY GSTDN COVERAGE					-DKR			-BDA					-MIL		
CONTINGENCY RTS COVERAGE	-HTS	IOS	-HTS										-NHS	IOS	-CTS
TDRS															
ATTITUDE	PF06	URA	PC36A		BIASED +XLV +YVV		GRAM	-YLV -ZVV	URA	IMU					
RED SLEEP															
BLU SLEEP	PSA		PSA												
CONTAM															
NOTES:	steps 11-45		NC02 DEWAR HTR ON				-YLV, -ZVV		NC02 DEWAR HTR ON						MNVR & INIT GG
	H/O RED TO BLUE						RADAR								
	NC02 DEWAR HTR ON						A NC01 RUN HTR ON								
							COMM								

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE							
127:22:58/ 128:10:58	007:12:00/ 008:00:00	127:17:58/ 128:05:58	/ 127 CDT	-8.8		MAY 7, 1991	STS 39	FINAL, REV B	04/09/91							
CDT :127	RED FD :008	MET :007														
	18	19	20	21	22	23	0	1	2	3	4	5	0			
	12	13	14	15	16	17	18	19	20	21	22	23				
													MET:008			
STS	TRK MNV R	TRK MNV R	AUTO MNV R	TRK MNV R	TRK MNV R	MNVR & INIT GG	TRK MNV R	H/C ROT MNVR	TRK MNV R	TRK MNV R	YLV MNV R	IMU MNV R	ZLV MNV R	MEAL	WSD ACU SML TEP E	
							PC RO IN VF									CABIN STOW
		PACTV OSTP-1				PACTV OSTP-1			PU TOA 2/ QIN MS	SC VIF R INTL	SL PN AD SG	PS /E TT6 ACT VU7 OP5 3	P/TV03 ACT 675			
PL	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N	U L I M B S C A N
DAY/NIGHT																
ORBIT	121	122	123	124	125	126	127	128	129							
CONTINGENCY GSTDN				-DKR	-DKR	-BDA								-MLX -BDA -MIL		
COVERAGE														-MLX -MIL -BDA		-VAN -GDX -GDS
CONTINGENCY RTS				-GTS	-GTS									-MIL -NHS	-IOS	-NHS
COVERAGE														-NHS		-VTS -CTS
TDRS																
ATTITUDE		U L V I M B S C A N	CAL	IMAGING	BIASED +XLV +YVV	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING	IMAGING
RED SLEEP																
BLU SLEEP																
CONTAM																
NOTES:																

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
128:10:58/ 128:22:58	008:00:00/ 008:12:00	128:05:58/ 128:17:58	/ 128 CDT	-6.8		MAY 8, 1991	STS 39	FINAL, REV B	04/09/91			
CDT :128	RED 7	8	9	10	11	12	13	14	15	16	17	18
BLU FD :009	FD:009 1	2	3	4	5	6	7	8	9	10	11	12
MET :008	0											
STS	SD PULM LM YF HERE	X S I M N V R	P R O N V F M E D	PG NR RP UB P	I M U M N V R	I M L U B B R D N N						
	CABIN STOW			DEORBIT PREP			D E O R B I T	E D W L A N D				
							B U R N *	I N G *				
PL	SH H C B	DSO 602	RD ME EA C IT I/ IS T C W									
DAY/NIGHT												
ORBIT	129	130	131	132	133	134	135	136	137			
CONTINGENCY GSTDN		-VAN -GDS -GDY		-DKR		-BDA		-VAN -GDS -GDY -VAN -MIL -MLX		-VAN -GDS -GDY		
COVERAGE												
CONTINGENCY RNS		-HTS -VTS -CTS -NHS		-HTS -NHS		-NHS		-GTS -CTS -NHS		-VTS -CTS		-IOS -HTS
COVERAGE												
TDRS	E W											
ATTITUDE	-ELV +YVV	BIASED -XSI			IMU/VERF		D/O		ENTRY			
RED SLEEP	PSA											
BLU SLEEP												
CONTAM	CONTAM 1											
NOTES:	@DSO 602 BLOOD PRESSURE ▶ STP-1 DEACT ▶ PT04 ESS DEACT * DEORBIT BURN 8/06:28 * * EDW LANDING 8/07:25 *											

DETAILED TIMELINE

DETAILED
TIMELINE

DETAILED TIMELINE

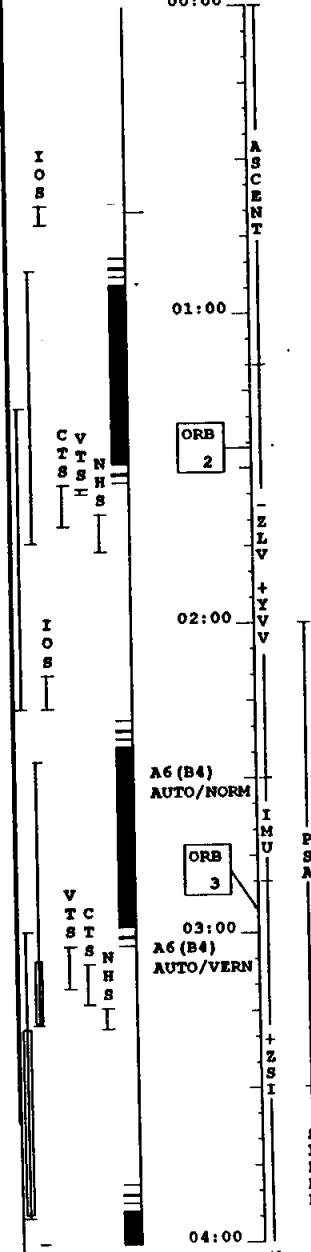
STS 39 (FD 01)

PL

MCC

Activities prior to 0/02:30 MET
are in the ASCENT & POST INSERTION
checklists. Orbiter attitude when
entering the FLT PLN is -ZLV +YVV.

TD
R
EW
CONT
RTS
MET
DAY 000
00:00
ARB
TEL
TDU
STS



IMU ALIGN LOG
REQD ID:

-Y____, -Z____ ANG ERR ____

 1 2 3

ANG:

ΔX () _ _ _ () _ _ _ () _ _ _

ΔY () _ _ _ () _ _ _ () _ _ _

ΔZ () _ _ _ () _ _ _ () _ _ _

EXECUTION TIME:

_ _ / _ _ : _ _ : _ _

RED/BLU FD01 EE ACTIVITIES:

FOOD PREP/POST (Cue Card) (45 Min)
Do at earliest convenience:

LES CLEANING & DRYING (25 Min)
PCS 1(2) CONFIG (ORB OPS, ECLS)
Config Sys 1 (5 Min/2 Cmn)

BODY COMPOSITION (DSO 608)
(MED FS, MED DSOs)

Change DAP A, B to A6, B4

MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/NORM (02:30) Init MNVR
When in Att: A/AUTO/VERN
IMU ALIGN - S TRK (ORB OPS)

MNVR (TRK) +ESI ATT
TG=4 BV=5
P=270 Y=0 OM=0
A/AUTO/VERN (02:50) Init TRK
KU-BD ANT DEPLOY
(ORB OPS, COMM/INST)

KU-BD ACTIVATION (COMM mode)
(ORB OPS, COMM/INST)

SM CRPT INIT (ORB OPS, DPS)
APU STEAM VENT HTR DEACT

R2 BLR PWR (three) - OFF
AFT CONTROLLER C/O
(ORB OPS, GNC)

PRIORITY PWRDN GROUP B
(ORB PKT, PRIOR ENRDN)
Perform steps 4-7, 10-12, 14

UNSTOW CABIN EQUIP
(ALL)

LAMP TEST (ORB OPS, EPS)
SMK DETN CKT TEST
(ORB OPS, ECLS)

RMS POWERUP
(EDRS OPS, RMS PWRUP)

RMS CHECKOUT
(EDRS OPS, RMS C/O)
(2 Cmn)

CONFIG TV-675
(Cue Card, CCTV PAYLOADS)

ON-ORBIT CHECKOUT step 2
(PL OPS, SYS OPS-NOMINAL)

P/TV CAMERA ASSEMBLY
(PHOTO/TV, P/TV REF DATA)

LOAD PCMMU FMT (ORB OPS FS)
Load 184/205

STP-1 ACTIVATION
(PL OPS, STP-1)

REQ2 ESS INITIALIZE & C/O
(675 OPS, ESS)
BLOCK START = 03:00

LOAD FUTURE SEQ - NC01
(675 OPS, CIRRIIS)
BLOCK START = 04:55

CONFIG CMP TV

TV (TDRE)
(CREW CNTL-PLB)

STS 39 (RED FD 01)

MET

DAY 000
04:00

A6 (B4)
AUTO/VERN

ORB 4

A6 (B4)
AUTO/NORM

05:00

ORB 5

06:00
A6 (B4)
AUTO/VERN

07:00
(A6) B4
MAN/VERN

A6 (B4)
AUTO/VERN

ORB 6

(A6) B4
AUTO/VERN

(A6) B75
AUTO/VERN

08:00

STS

APU COOL OFF (On MCC Cue)

R2 APU FUEL PUMP/VLV COOL B-OFF

RMS CHECKOUT
(PDRS OPS, RMS C/O)
(2 Can)

RJD CONFIG

015,016 RJD DRIVER 1A F2, 2A F3 (two) - OFF

014 RJDA 2A L4/R4 DRIVER - OFF

← MNVR (TRK) - ZSI ATT
TC-4 BV-3 OM-0
A/AUTO/NORM (04:35) Init TRK

MEAL
(All)

← MNVR (TRK) +ZSI ATT
TC-4 BV-5
P=270 Y=0 OM=0
A/AUTO/VERN (05:45) Init TRK

RMS POWERDOWN
(PDRS OPS, RMS PWRDN)

← NC02 CIRRISS DNR TNK HTR ON
(675 OPS, NON-BLOCK)
BLOCK START = 06:55

← Change DAP B to B75

PL

RME-III ACTIVATION/CHECKOUT
(PL OPS, RME-III)

VTR CONFIG
VTR 1 ON, VTR 2 OFF

← PRELOADED NC01 (04:55)

ON-ORBIT C/O steps 3-27
(PL OPS, SYS OPS-NOMINAL)

← NC03 CIRRISS T/R CONDITION
(675 OPS, NON-BLOCK)
BLOCK START = 07:55

MCC

INFORM CREW
GO FOR APU
COOL OFF

TV (TDRW)
(CREW CNTL-PLB)

INFORM CREW
GO FOR CRYO EL
PWR ON

INFORM CREW
GO FOR PWR CYCLE
AND BATT MON

STS 39 (RED FD 01)

PL

MCC

MET DAY 000 08:00
 (A6) B75 AUTO/VERN
 A6(B75) AUTO/VERN
 ORB 7
 09:00
 (A6) B75 AUTO/NORM 10:00
 AUTO/VERN
 (A6) B5 MAN/VERN
 ORB 8
 11:00
 A6(B75) AUTO/VERN
 MAN/VERN
 ORB 9
 AUTO/VERN 12:00

ARB TEL DU
 STS
 SLEEP
 MNRV (TRK) -ZLV, +XVY
 TG-2 BV-3 OM-270
 A/AUTO/VERN Init TRK
 FC PURGE - AUTO (Cue Card)
 MNRV (TRK) -ZSI ATT
 TG-4 BV-3 OM-0
 A/AUTO/VERN (09:15) Init TRK
 A7U /PLB FLOOD AFT - OFF
 CRYO 02 TK HTR SNDR CK
 (ORB OPS, EPE)
 O19 /COAS PWR-OFF Mount COAS-AFT
 MNRV IMU ALIGN ATT
 STAR PAIR (A1)
 A/AUTO/NORM Init MNRV at SS
 When in ATT: A/AUTO/VERN
 IMU ALIGN - S TRK (ORB OPS)
 COAS CALIBRATION (ORB OPS)
 O19 /COAS PWR - OFF Stow COAS
 L1 FLASH EVAP CNTLR PRI A(B)-OFF
 HANDOVER: RED TO BLUE
 PRIVATE MEDICAL CONFERENCE
 Change DAP A,B to A6,B75
 MNRV (TRK) PQ02 ATT
 TG-2 BV-5
 P-90 Y-335 OM-270
 A/AUTO/VERN (11:00) Init TRK
 DAP: Free drift (11:15)
 A12 APU HTR GAS GEN/FUEL PUMP (three) - A AUTO
 TK/FU LINE/H2O SYS 1A, 2A, 3A - AUTO
 TK/FU LINE/H2O SYS 1B, 2B, 3B - OFF
 Select DAP A/AUTO/VERN (11:55)

DUAL SHIFT PRE-SLEEP ACTIVITY
 (ORB OPS FS, CREW SYS)
 /HUM SEP for water accumulation

BLU FD02 EE ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WSC CLEANING
 (Cue Card, URINE COLLECTION)
 P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOe)
 BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOe)

DUAL SHIFT POST-SLEEP ACTIVITY
 AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOe) (MS2)

KU-BD ANT CABLE POSITIONING
 (ORB OPS, COMM/INST)

COAS CALIBRATION LOG
 STAR ID: -Z 20, ARCTURUS
 STAR AVAIL: 09:53 TO 10:37
 -Z Δ BIAS _____
 UPDATE TIME: ____ / ____ : ____ : ____

BLUE FD 02

IMU ALIGN LOG
 REQD ID:
 -Y _____, -Z _____ ANG ERR _____
 1 2 3
 ANG:
 ΔX () _____ () _____ () _____
 ΔY () _____ () _____ () _____
 ΔZ () _____ () _____ () _____
 EXECUTION TIME:
 ____ / ____ : ____ : ____

VTR CONFIG
 VTR 2 ON, VTR 1 OFF

CONFIG TV-STEP-1
 (Cue Card, CCTV PAYLOADS)

CONFIG TV-675
 (Cue Card, CCTV PAYLOADS)

◀ NC02 CIRRS DWR TNK HTR ON
 (675 OPS, NON-BLOCK)
 BLOCK START = 10:15

HANDOVER: RED TO BLUE

◀ PH01 INIT AND CHECKOUT
 (675 OPS, HUP)
 BLOCK START = 11:00

◀ PC32 INITIALIZE AND CAL
 (675 OPS, CIRRS)
 BLOCK START = 11:15

◀ PQ02 INIT AND CHECKOUT
 (675 OPS, QINMS)

UPLINK
 REFSMMAT
 NORMALIZAT'N

CONFIG
 CMP TV

STS 39 (BLU FD 02)

PL

MCC

CONT RTS
MET
 DAY 000
 12:00
 A6 (B75)
 AUTO/VERN
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 13:00
 A6 (B75)
 AUTO/VERN
 ORB
 10
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 14:00
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 ORB
 11
 15:00
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 16:00

ARB TEL
STP
STS
Q R A M
U R A
E L V
Y V V
S L E E P
F A R
U V / U R A
U R A

MNVR PU01 ATT
 R=327.29 P=31.25 Y=9.31
 B/AUTO/NORM (12:25) Init MNVR
 When in ATT: B/AUTO/VERN

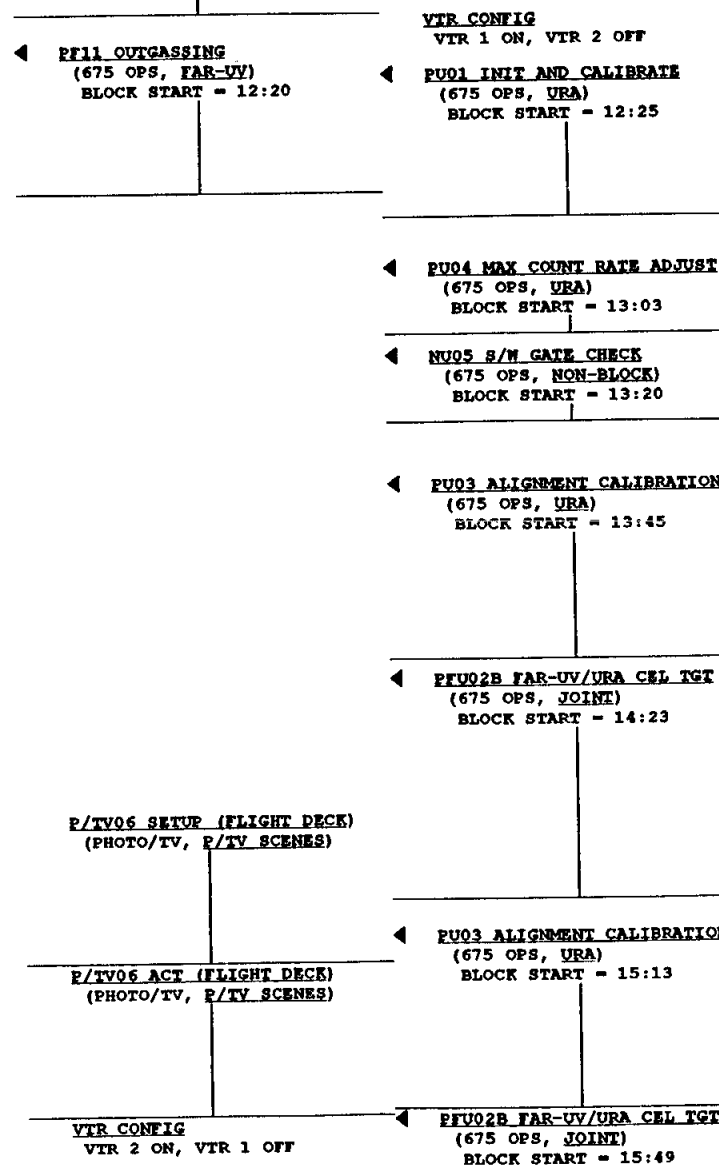
MNVR (TRK) -ZLV, +YVV
 TC=2 BV=3 OM=270
 A/AUTO/VERN (12:55) Init TRK

MNVR PU03 ATT
 R=17.81 P=334.07 Y=341.03
 B/AUTO/NORM (13:45) Init MNVR
 When in ATT: B/AUTO/VERN
PU03 ALIGNMENT CAL step 9
 (ORB OPS FS, 675 OPS)
 Perform MNVRs in A/AUTO/VERN
 When in ATT: B/AUTO/VERN

MNVR PFU02B ATT
 R=193.36 P=303.72 Y=333.22
 B/AUTO/NORM (14:23) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PU03 ATT
 R=17.81 P=334.07 Y=341.03
 B/AUTO/NORM (15:13) Init MNVR
 When in ATT: B/AUTO/VERN
PU03 ALIGNMENT CAL step 9
 (ORB OPS FS, 675 OPS)
 Perform MNVRs in A/AUTO/VERN
 When in ATT: B/AUTO/VERN

MNVR PFU02B ATT
 R=163.78 P=288.29 Y=336.50
 B/AUTO/NORM (15:49) Init MNVR
 When in ATT: B/AUTO/VERN



TV (TRW)
 (GND CNTL-CAB)
 CONFIG
 CMP TV

STS 39 (BLU FD 02)

MET
 DAY 000
 16:00
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 ORB
 12
 17:00
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 ORB
 13
 18:00
 (A6) B75
 AUTO/NORM
 AUTO/VERN
 ORB
 14
 (A3) B2
 AUTO/VERN
 20:00

STS

LOAD FUTURE SEQ - NC01, PU02B
 NC01 BLOCK START = 16:46
 (675 OPS, NON-BLOCK)
 PU02B BLOCK START = 17:34
 (675 OPS, URA)

PL

MCC
 UPDATE
 H2O SPLY DUMP
 QTY TR A & B

← **MNVR PU02B ATT**
 R=306.20 P=222.05 Y=352.13
 A/AUTO/NORM (16:39) Init MNVR
 When in ATT: A/AUTO/VERN
 LOAD FUTURE MNVR PU02B
 R=119.30 P=56.70 Y=340.32
 A/AUTO/VERN (17:34) Init MNVR

← **PRELOADED NC01 (16:46)**

← **PU02B CEL TGT NON LOG**
 (675 OPS, URA)
 BLOCK START = 16:39

SUPPLY WATER DUMP steps 1,2
 (ORB OPS, ECLS)
 FC PURGE - AUTO (Cue Card)

← **PRELOADED PU02B MNVR (17:34)**

IMU ALIGN LOG
 REQD ID:
 -Y___, -Z___ ANG ERR ___ . ___ . ___
 1 2 3
 ANG:
 ΔX()_ . . . ()_ . . . ()_ . . .
 ΔY()_ . . . ()_ . . . ()_ . . .
 ΔZ()_ . . . ()_ . . . ()_ . . .
 EXECUTION TIME:
 ___ / ___ : ___ : ___

MEAL
(ALL)

← **PRELOADED PU02B (17:34)**

← **MNVR (TRK) -ELV, -YV**
 TG=2 BV=3 OM=90
 A/AUTO/VERN (18:15) Init TRK

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)

← **PU05 TUNEUP**
 (675 OPS, URA)
 BLOCK START = 18:15

← **DAP: free drift (18:30)**

DUAL SHIFT POST-SLEEP ACTIVITY
 AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)

**RED FD02
 EZ ACTIVITIES
 on pg. 3-6**

BLOOD PRESSURE VAR (DSO 602)
 (MED FS, MED DSOs)
 (CDR, PLT, MS5)

← **MNVR IMU ALIGN ATT**
 STAR PAIR (B1)
 A/AUTO/NORM (19:15) Init MNVR
 When in ATT: A/AUTO/VERN
 IMU ALIGN - S TRK (ORB OPS)

GGN	
PLANNED	ACTUAL
P=356.	---
Y=2.	---
OM=238.	---

VTR CONFIG
 VTR 1 ON, VTR 2 OFF

← **PU08 CAL BACKGROUND TEST**
 (675 OPS, URA)
 BLOCK START = 19:20

← **GG FREE DRIFT, Steps 1 & 2**
 (ORB OPS, RCS) (19:46)
 BODY VECTOR 5 PER GG PAD

← **PC35 ANCILLARY/GG CHECKOUT**
 (675 OPS, CIRRIE)
 BLOCK START = 19:46

STS 39 (BLU FD 02)

MET DAY 000 20:00
 A3 (B2) MAN/VERN
 ORB 15
 21:00
 A6 (B75) MAN/VERN
 22:00
 A6 (B75) AUTO/VERN
 ORB 16
 (A3) B2 AUTO/VERN
 23:00
 A3 (B2) MAN/VERN
 ORB 17
 001 00:00

RED FD02 EE ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WCB CLEANING (Cue Card, URINE COLLECTION)
 P/TV05 CLOUDS (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (PLT) (MED FS, MED DSOs)
 BODY COMPOSITION (DSO 608) (MS4) (MED FS, MED DSOs)

EXERCISE (2 RED Cmn)

FILTER CLEANING (IFM, SCHEDULED MAINTENANCE)

Change DAP A,B to A6,B75

KU-BD ANT CABLE POSITIONING (ORB OPS, COMM/INST)

LOAD FUTURE SEQ - NC02 (675 OPS, NON-BLOCK) BLOCK START = 21:46

UPLINK EARLY TDRS H/O KU-BD ONLY

HANDOVER: BLUE TO RED

RED FD 02

PRELOADED NC02 (21:46)

HANDOVER: BLUE TO RED

← MNVR (TRK) PQ04 AIT
 TG-2 BV-5
 P-90 Y-335 OM-270
 A/AUTO/VERN (22:00) Init TRK

← PQ04 PRE-CIRRS CONTAM (675 OPS, QINMS) BLOCK START = 22:00

MO32M ✓LEH O2 5 vlv -CL
 Insert O2 Bleed Orifice into LEH O2 5 OD
 LEH O2 5 vlv - OP
 ✓SPLY 1,2 vlvs - OP

EXERCISE (3 BLU Cmn)
 End treadmill ops at 23:20 for PC10

← PC10 INITIAL AIRGLOW (675 OPS, CIRRS) BLOCK START = 22:46

← GG FREE DRIFT steps 1,2 (ORB OPS, RCS) (22:46)
 BODY VECTOR 5 PER GG PAD

GGs	
PLANNED	ACTUAL
P-356.	-----
Y-358.	-----
OM-122.	-----

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

STS 39 (RED FD 02)

MET

DAY 001
00:00

A3 (B2)
MAN/VERN

A6 (B75)
MAN/VERN
A6 (B75)
AUTO/VERN

01:00

MAN/VERN
ORB
18

02:00

A6 (B75)
AUTO/VERN

ORB
19

03:00

(A3) B2
AUTO/VERN

A3 (B2)
MAN/VERN

04:00

STS

Change DAP A,B to A6,B75

◀ MNVR (TRK) PF07 ATT
TG=2 BV=5
P=135 Y=0 OM=0
A/AUTO/VERN (00:34) Init TRK
PF07 NIGHT THRSTERS steps 9-43
(ORB OPS FS, 675 OPS)

◀ DAP: free drift (01:15)

◀ LOAD FUTURE MNVR PU02B
R=141.17 P=57.66 Y=339.11
A/AUTO/VERN (02:26) Init MNVR
PRELOADED PU02B MNVR (02:26)

GGs	
PLANNED	ACTUAL
P=356.	-----
Y=358.	-----
OM=122.	-----

◀ GG FREE DRIFT steps 1,2
(ORB OPS, RCs) (03:20)
BODY VECTOR 5 PER GG PAD

PL

LOAD FUT SEQ-NC02,PU02B,NC02
NC02 BLOCK START - 00:45
(675 OPS, NON-BLOCK)
PU02B BLOCK START - 02:26
(675 OPS, URA)
NC02 BLOCK START - 03:05
(675 OPS, NON BLOCK)

◀ PRELOADED NC02 (00:45)

P/TVO3 SETUP (AFP-675)
(PHOTO/TV, P/TV SCENES)

MEAL
(All)

P/TVO3 ACT (AFP-675)
(PHOTO/TV, P/TV SCENES)

MCC

VTR CONFIG
VTR 2 ON, VTR 1 OFF

◀ PF07 NIGHT THRUSTER FIRINGS
(675 OPS, FAR-UV)
BLOCK START - 00:34

◀ PC33N AUTO ALIGN NEAR START
(675 OPS, CIRRS)
BLOCK START - 01:15

◀ PRELOADED PU02B (02:26)

◀ PRELOADED NC02 (03:05)

◀ PC42A AURORA 1A
(675 OPS, CIRRS)
BLOCK START - 03:35

STS 39 (RED FD 02)

TDR
CONT
RTS
MET
DAY 001
04:00
A3 (B2)
MAN/VERN
ORB
20
05:00
ORB
21
06:00
ORB
22
07:00
08:00

ARB
TEL
DU
STS
HTS
VTS
NRS
NHS
GTS
CTHS
BIA
S
E
E
D
S
L
E
E
P
+
X
L
V
-
Y
V
V

STS

PL

MCC

VTR CONFIG

VTR 1 ON, VTR 2 OFF

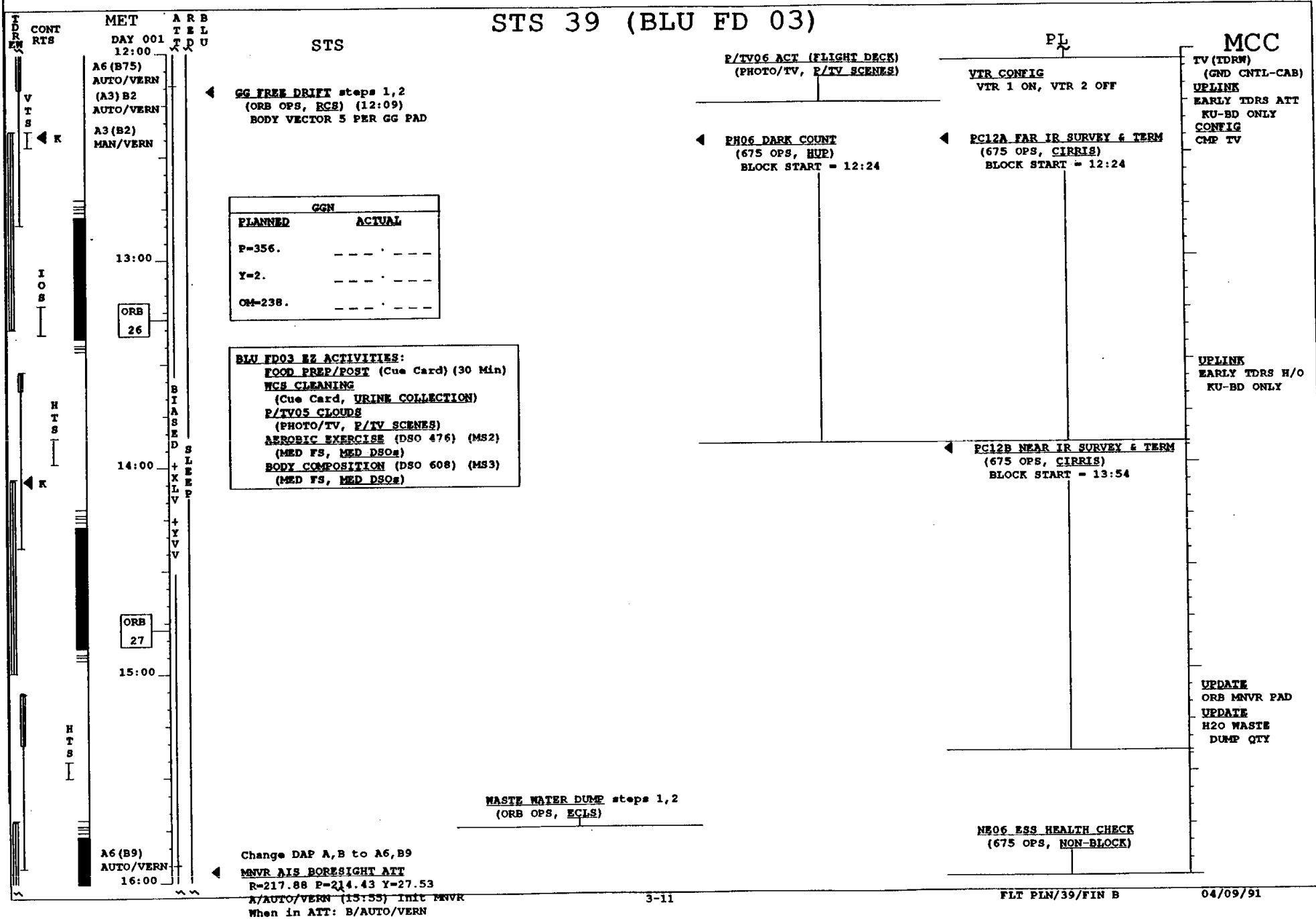
◀ **PC42A AURORA 2A**
 (675 OPS, CIRRIE)
 BLOCK START = 05:05

◀ **PC44A AURORA 3A**
 (675 OPS, CIRRIE)
 BLOCK START = 06:35

UPDATE
 H2O SPLY DUMP
 QTY TK A & B

◀ **PU08 CAL BACKGROUND TEST**
 (675 OPS, URA)
 BLOCK START = 07:55
 FLT PLN/39/FIN B

STS 39 (BLU FD 03)



MET DAY 001 12:00
 A6 (B75) AUTO/VERN
 (A3) B2 AUTO/VERN
 A3 (B2) MAN/VERN
 13:00
 ORB 26
 14:00
 ORB 27
 15:00
 A6 (B9) AUTO/VERN
 16:00

STS
 GG FREE DRIFT steps 1,2
 (ORB OPS, ECE) (12:09)
 BODY VECTOR 5 PER GG PAD

GGN	
PLANNED	ACTUAL
P-356.	---
Y-2.	---
OM-238.	---

BLU FD03 EZ ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WCB CLEANING
 (Cue Card, URINE COLLECTION)
 P/TVO5 CLOUDS
 (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOs)
 BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOs)

WASTE WATER DUMP steps 1,2
 (ORB OPS, ECLS)

Change DAP A,B to A6,B9
 MNVR AIS BORESIGHT ATT
 R=217.88 P=214.43 Y=27.53
 A/AUTO/VERN (15:55) Init MNVR
 When in ATT: B/AUTO/VERN

P/TVO6 ACT (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

PH06 DARK COUNT
 (675 OPS, HUP)
 BLOCK START = 12:24

VTR CONFIG
 VTR 1 ON, VTR 2 OFF

PC12A FAR IR SURVEY & TERM
 (675 OPS, CIRRIIS)
 BLOCK START = 12:24

PC12B NEAR IR SURVEY & TERM
 (675 OPS, CIRRIIS)
 BLOCK START = 13:54

NE06 ESS HEALTH CHECK
 (675 OPS, NON-BLOCK)

MCC
 TV (TDRW)
 (GND CNTRL-CAB)
 UPLINK
 EARLY TDRS ATT
 KU-BD ONLY
 CONFIG
 CMP TV

UPLINK
 EARLY TDRS H/O
 KU-BD ONLY

UPDATE
 ORB MNVR PAD
 UPDATE
 H2O WASTE
 DUMP QTY

STS 39 (BLU FD 03)

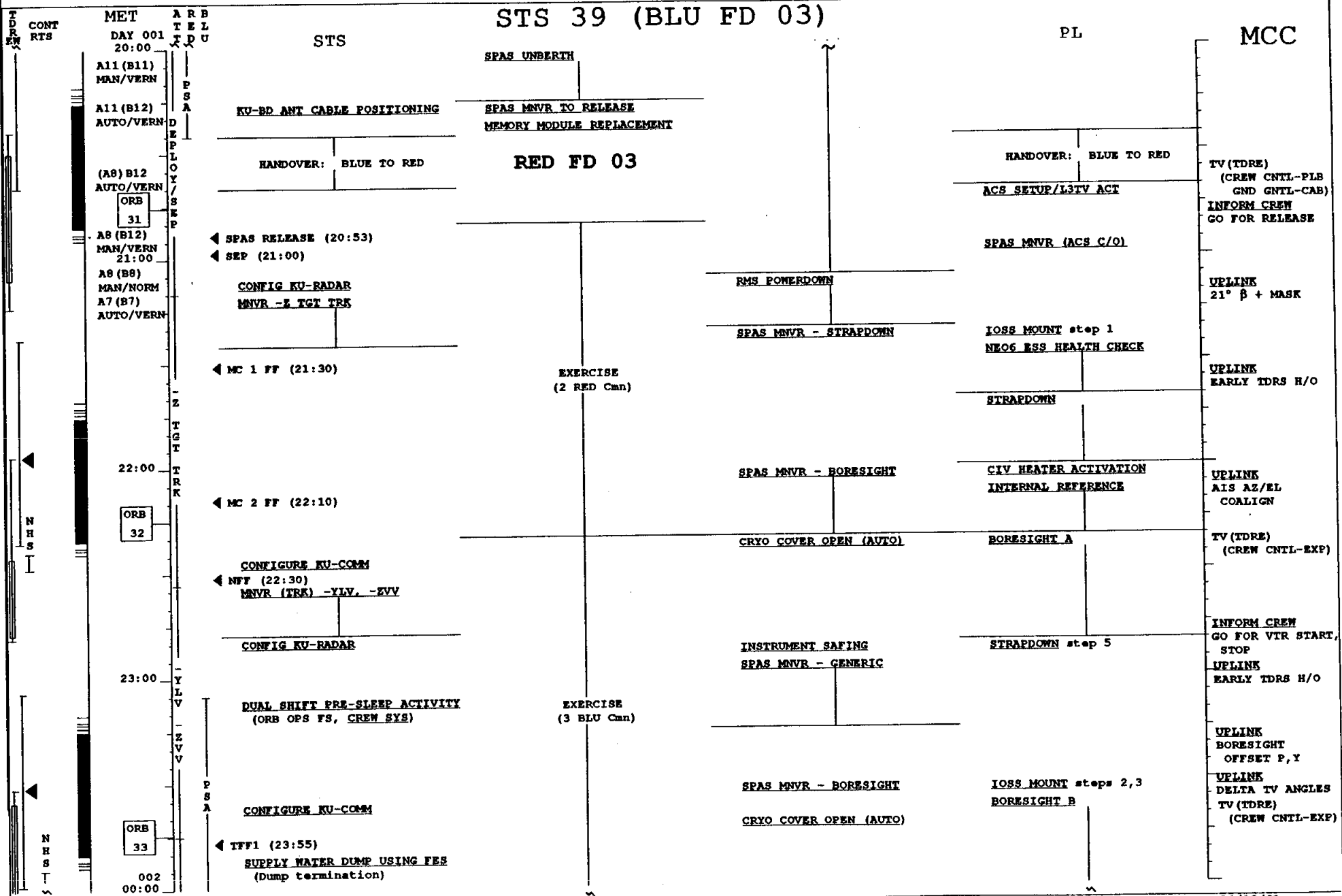
CONT RTS
MET
 DAY 001
 16:00
 A6 (B9)
 AUTO/VERN
 ORB 28
 (A6) B9
 AUTO/VERN
 A6 (B9)
 AUTO/VERN
 (A6) B9
 AUTO/VERN
 17:00
 A6 (B9)
 AUTO/VERN
 ORB 29
 18:00
 19:00
 ORB 30
 All (B11)
 MAN/VERN
 20:00

STS
 WASTE WATER DUMP step 3
 (ORB OPS, ECLS)
 MNVR AIS RADIOMETRIC ATT
 R=3.91 P=169.67 Y= 22.29
 A/AUTO/VERN (16:30) Init MNVR
 When in ATT: B/AUTO/VERN
 LOAD FUTURE MNVR IMU ALIGN
 STAR PAIR (B1)
 B/AUTO/VERN (17:25) Init MNVR
 PRELOADED IMU MNVR (17:25)
 A/AUTO/VERN (17:25)
 IMU ALIGN - S TRK (ORB OPS)
 MNVR SPAS INIT ATT
 R=0 P=180 Y=0
 A/AUTO/VERN (17:45) Init MNVR
 FC PURGE - AUTO (Cue Card)
 SUPPLY WATER DUMP USING FES
 (ORB OPS, ECLS) Steps 1,2
 DUAL SHIFT POST-SLEEP ACTIVITY
 AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)
 SEPARATION TIMELINE
 (RNDZ, SEP TIMELINE)
 PRIORITY PWRUP GROUP B
 MNVR TO DEPLOY ATTITUDE

MEAL (All)
 NOTE DAP CHANGE DURING MEAL
IMU ALIGN LOG
 REQD ID:
 -Y __ , -Z __ ANG ERR __ . __
 1 2 3
 ANG:
 ΔX () . . . () . . . () . . .
 ΔY () . . . () . . . () . . .
 ΔZ () . . . () . . . () . . .
 EXECUTION TIME:
 - / - : - : -
CONFIG TV-IBSS
 (Cue Card, CCTV PAYLOADS)
PET 00:00 = 1/21:00 MET (SEP)
(RNDZ OPS)
RED FD03 EZ ACTIVITIES
on pg. 3-14
 RMS POWERUP
 SPAS GRAPPLE
 SPAS UNBERTH TO LOW HOVER

VTR CONFIG
 VTR 2 ON, VTR 1 OFF
AIS BORESIGHT
 (PL OPS, IN-BAY OPS-NOM)
 AOS = 16:10
 LOS = 16:33
PREDEPLOY steps 1,2
 (PL OPS, DPY EXP OPS-NOM)
AIS RADIOMETRIC
 GROUND COMMANDED
 AOS = 16:44
 LOS = 17:07
PREDEPLOY steps 3-15
 (PL OPS, DPY EXP OPS-NOM)
VTR CONFIG
 VTR 1 ON, VTR 2 OFF
BLOOD PRESSURE VAR (DSO 602)
 (MED FS, MED DSOs)
 (CDR, PLT, MS5)

MCC
PERFORM (16:10)
 AIS BORESIGHT
PERFORM (16:45)
 AIS RADIOMETRIC
INFORM CREW
 GO FOR CMD EXEC
INFORM CREW
 GO FOR CMD EXEC
UPLINK
 -15° β



STS 39 (RED FD 03)

T D R
CONT RTS
MET
DAY 002
02:00
A6 (B7)
AUTO/VERN
ORB
35
03:00
(A6) B1
AUTO/NORM
(A6) B1
MAN/NORM
A6 (B1)
AUTO/VERN
04:00

ARB TEL DU
ST S
YLV
ZVV
SLEEP
NCSK 1

STS
CONFIGURE KU-COMM step 3
(Cue Card, KU OPS)
SUPPLY WATER DUMP USING FES
(ORB OPS, ECLS) steps 1,2

CONFIGURE KU-RADAR steps 1,2
(Cue Card, KU OPS)

ALL S-BD PL CNTL - CMD

MEAL (All)

SPAS MNVR - STRAPDOWN
GROUND COMMANDED
STAR ID: 0
ROLL = 170
ANT#: 2

RCS BURN
(Cue Card, RCS BURN)
(2 Cmn)

ALL S-BD PL CNTL - PNL

← B/AUTO/NORM (TIG--:10) Init MNVR

← NCSK1 (3:45)

MNVR (TRK) -YLV, -ZVV
TC=2 BV=5
P=0 Y=270 OM=270
A/AUTO/VERN Init TRK

SPAS MNVR- GENERIC
(PL OPS, DPY EXP OPS-NOM)
REF, CNTL-LVLH
R=57 P=21 Y=95
ANT#:2
Init MNVR 03:30

VTR CONFIG
VTR 1 ON, VTR 2 OFF

PL
OFVR (EARTH)
(PL OPS, DPY EXP OPS-NOM)
SV TRANSFER req'd
R=-175.53 Y=-150

INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)
Close cover at 02:17

STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: 0, AOS= 2/03:15
LOS= 2/03:40

NE06 ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

MCC
TV (IDRE)
(CREW CNTL-EXP)

PERFORM (03:00)
SPAS MNVR
-STRAPDOWN

UPDATE
ORB MNVR PAD

T D R SW
CONT RTS
MET
DAY 002
04:00
A6 (B1)
AUTO/VERN

ORB
36

05:00

ORB
37

06:00

ARB TEL
T D U

STS

STS 39 (RED FD 03)

P/TV02 ACT (IBSS)
(PHOTO/TV, P/TV SCENES)

CONFIGURE KU-COMM step 3
(Cue Card, KU OPS)

CONFIGURE KU-RADAR steps 1,2
(Cue Card, KU OPS)

CONFIGURE KU-COMM step 3
(Cue Card, KU OPS)

CONFIGURE KU-RADAR steps 1,2
(Cue Card, KU OPS)

SPAS MNVR - RADIOMETRIC/POINT
(PL OPS, DPY EXP OPS-NOM)
STAR ID: BT
ROLL = -15
ANT#: 2
Init MNVR 04:00

INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)
Close cover at 04:32

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
Open cover when in SPAS ATT

PL

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
Open cover at 4:08
RADIOMETRIC/POINT
(PL OPS, DPY EXP OPS-NOM)
STAR ID: BT, AOS= 2/04:09
LOS= 2/04:36

◀ Force ANT# 3 at 04:24

EARTHLIMB MEASUREMENT SET 2
(PL OPS, DPY EXP OPS-NOM)
Set #2, NORTH
Perform as follows::
step 1
step 3 DUSK
step 2 NITE until 05:41
step 3 DAWN
step 2 DAY until 06:10
TERMINATOR CROSSINGS:
DUSK 2/05:07:15
DAWN 2/05:55:54

MCC

TV (TDRW)
(CREW CNTL-EXP)

UPLINK
EARLY TDRS H/O

TV (TDRW)
(CREW CNTL-CAB)

UPDATE
ORB MNVR PAD

STS 39 (RED FD 03)

CONT RES
MET
 DAY 002
 06:00
 A6 (B1)
 AUTO/VERN
 (A6) B1
 AUTO/NORM
 (A6) B1
 MAN/NORM
 A6 (B1)
 AUTO/VERN
 07:00
 ORB
 38
 08:00

ARR TEL DU
STS
RCS BURN
 (Cue Card, **RCS BURN**)
 (2 Cmn)
B/AUTO/NORM (TIG-:10) Init MNVR
NCSR2 (06:25)
MNVR IMU ALIGN ATT
 R=262 P=145 Y=31
 A/AUTO/VERN (06:30) Init MNVR
IMU ALIGN - 8 TRK (ORB OPS)
MNVR (TRK) -YLV, -ZVV
 TG=2 BV=5
 P=0 Y=270 OM=270
 A/AUTO/VERN (06:50) Init TRK
SUPPLY WATER DUMP USING FES
 (ORB OPS, ECLS)
 Perform step 3 w/FES not req
CONFIGURE KU-COMM step 3
 (Cue Card, **KU OPS**)
CONFIGURE KU-RADAR steps 1,2
 (Cue Card, **KU OPS**)
FC PURGE - AUTO (Cue Card)

IMU
SLEEP
YLV
ZVV

T N H S L
T C T S L
T C T S L

IMU ALIGN LOG			
STAR ID:	-Y: 16	Achernar	
	-Z: 30	Antares	
	ANG DIF: 88.9		
STARS AVAIL: 0 6 : 4 2 TO 0 7 : 1 2			
REQD ID:			
	-Y	-Z	ANG ERR
	1	2	3
ANG:			
AX	()	()	()
AY	()	()	()
AZ	()	()	()
EXECUTION TIME:			
-- / -- : -- : --			

PL
MCC
NE06 ESS HEALTH CHECK
 (675 OPS, NON-BLOCK)
VTR CONFIG
 VTR 2 ON, VTR 1 OFF
STRAPDOWN
 (PL OPS, DPY EXP OPS-NOM)
 STAR ID: Q, AOS= 2/07:13
 LOS= 2/07:38
 step 5 NET 07:22
SPAS MNVR - CO2 EARTHSWEEP
 (PL OPS, DPY EXP OPS-NOM)
 YAW = -134
 Init MNVR 07:25
 ANT#: 3
CO2 EARTHSWEEP steps 1,2
 (PL OPS, DPY EXP OPS-NOM)
CO2 EARTHSWEEP
 GROUND COMMANDED
 See pg. 3-18 for
 observation order.
UPDATE
 CO2 EARTHSWEEP
 YAW
 UPLINK
 EARLY TDRS H/O
 VTR (TDRW)
PERFORM (07:45)
 CO2 EARTHSWEEP

T D R MET A R B
 D CONT TEL
 R RTS DAY 002 T E L
 W 08:00 T D U

STS 39 (RED FD 03)

STS

PL
 CO2 EARTHSWEEP
 GROUND COMMANDED
 Perform as follows:
 step 3 DAY
 step 4 until 07:52
 step 5 DUSK
 step 3 NIGHT
 step 4 until 08:38
 step 5 DAWN
 TERMINATOR CROSSINGS:
 DUSK 2/08:08:22
 DAWN 2/08:54:21

MCC

BLU FD04 EZ ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WCS CLEANING
 (Cue Card, URINE COLLECTION)
 P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOs)
 BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOs)

DUAL SHIFT POST-SLEEP ACTIVITY
 AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (MS2)

FAR FIELD OPS T/L
 (RNDZ, FAR FIELD OPS T/L)

PET 00:00 = MET 2/09:59 (NEF2)
 (RNDZ OPS)

A6 (B1)
 AUTO/VERN

A7 (B7)
 AUTO/VERN

ORB
 39

A52 (B52)
 AUTO/VERN

09:00

← TFF2 (08:59)
 MNVR OMS OBS ATT

ALL S-BD PL CNTL - CMD

PREHANDOVER TAGUP
 RED TO BLUE

INTERNAL REFERENCE
 GROUND COMMANDED

SPAS MNVR - STRAPDOWN
 GROUND COMMANDED
 STAR ID: 0
 ROLL = 180
 ANTI#: 2

PREHANDOVER TAGUP
 RED TO BLUE

PERFORM (09:05)
 SPAS MNVR
 -STRAPDOWN

PERFORM (09:15)
 INTL REFERENCE

ALL S-BD PL CNTL - PNL

← MCF2 (09:39)

HANDOVER : RED TO BLUE

BLUE FD 04

SPAS MNVR-PLUMES

STRAPDOWN

INSTRUMENT SAFING

HANDOVER : RED TO BLUE

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

EXERCISE
 (2 RED Cmn)

CRYO COVER OPEN (AUTO)

10:00

← NFF2 (09:59)

TDRS
CONT RTS
EW
MET
DAY 002
10:00
A52 (B52)
AUTO/VERN
(A52) B52
AUTO/NORM
ORB
40
OMS
OBS
A52 (B52)
AUTO/VERN
(A52) B52
AUTO/NORM
A52 (B52)
AUTO/VERN
11:00
PRCS
A6 (B1)
AUTO/VERN
ORB
41
YLV
ZVLSLEEP
12:00

ARB TEL
TRU
STS
 ◀ OP2 (10:06)
 ◀ NOP2 (10:11)
 ◀ MCP2 (10:23)
 ◀ VNP2 (10:33)
 ◀ OP3 (10:40)
 ◀ NOP3 (10:45)
MNVR PRCS OBS ATT
 ◀ MCP3 (10:57)
 ◀ VNP3 (11:07)
 ◀ RCSP (11:14)
 ◀ NRCS (11:15)
MNVR (TRK) -YLV, -ZVY
Transition to Flight Plan

STS 39 (BLU FD 04)
EXERCISE
(2 RED Cmn)
PRIVATE MEDICAL CONFERENCE
VTR SETUP (PLUMES)
(Cue Card, TV/VTR)

NEO6 ESS HEALTH CHECK
BY TRANSFER
INSTRUMENT SAFING
CRYO COVER OPEN (AUTO)
INSTRUMENT SAFING
CRYO COVER OPEN (AUTO)
SPAS MNVR - STRAPDOWN
VTR CONFIG
VTR 1 ON, VTR 2 OFF
SPAS MNVR - EARTHSCAN SSP
(PL OPS, DPY EXP OPS-NOM)
R = 51.80 P = -49.91 Y = 135.81
ANT# 2
Init MNVR 11:55

PL
STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: X, AOS= 2/11:37
LOS= 2/12:04
step 5 NET 11:53
Load NEXT ANT# 4
INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)
Close cover at 11:57

MCC
UPLINK (10:50)
EARLY TDRS H/O
UPDATE
ESCAN SSP ATT

STS 39 (BLU FD 04)

CONT RTS
MET
DAY 002
12:00
A6 (B1)
AUTO/VERN

ARB
TEL
U

STS
SUPPLY WATER DUMP USING FES
(ORB OPS, ECLS) steps 1,2

PL

MCC

UPLINK
EARLY TDRS H/O

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
Open cover at 12:13
ESE/SPATIAL SCAN
(PL OPS, DPY EXP OPS-NOM)
SV TRANSFER req'd
SSP = 2/12:23
FLT WHL: 2D

CONFIGURE KU-COMM step 3
(Cue Card, KU OPS)

VTR PLAYBACK (PLUMES)
(Cue Card, TV/VTR)
VTR at TDRE (12:35-12:50)

INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)
Close cover at 12:40

VTR (TDRE)

CONFIGURE KU-RADAR steps 1,2
(Cue Card, KU OPS)

SPAS MNVR - RADIOMETRIC/POINT
(PL OPS, DPY EXP OPS-NOM)
STAR ID: BL
ROLL = 100
ANT#: 3
Init MNVR 12:45

13:00

ORB
42

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
Open cover at 13:11

RADIOMETRIC/POINT
(PL OPS, DPY EXP OPS-NOM)
STAR ID: BL, AOS= 2/13:12
LOS= 2/13:36
Force ANT# 2 at 13:29

SPAS MNVR - GENERIC
(PL OPS, DPY EXP OPS-NOM)
REF, CNTL - LVLH
R=-75 P=16 Y=-116
ANT#: 2
Init MNVR 13:35

P/TV02 ACT (IBSS)
(PHOTO/TV, P/TV SCENES)

CRO SUB-SATELLITE DEPLOY
(PL OPS, CRO) CRO C
DEPLOY TIME
2/13:57:00 MET

CRO C Deploy

RCS BURN
(Cue Card, RCS BURN)
(2 Cmn)

UPDATE
CRO DPY PAD
UPDATE
ORB MNVR PAD

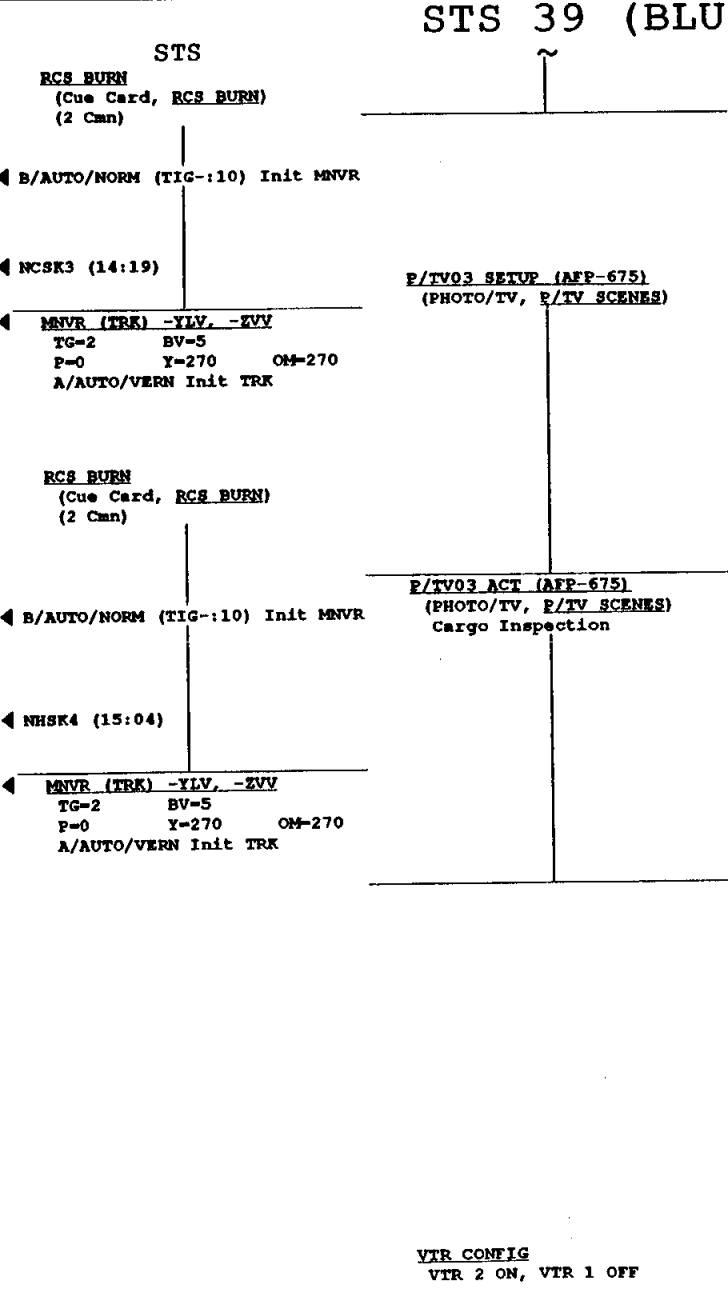
STS 39 (BLU FD 04)

PL

MCC

T D B
CONT
RTS
MET
 DAY 002
 14:00
 A6 (B1)
 AUTO/VERN
 (A6) B1
 AUTO/NORM
 (A6) B1
 MAN/NORM
 A6 (B1)
 AUTO/VERN
 ORB
 43
 (A6) B1
 AUTO/NORM
 15:00
 (A6) B1
 MAN/NORM
 A6 (B1)
 AUTO/VERN
 16:00

A R B
T E L
F P U
STS
RCS BURN
 (Cue Card, RCS BURN)
 (2 Cmn)
B/AUTO/NORM (TIG-:10) Init MNVR
NCSK3 (14:19)
MNVR (TRK) -YLV, -ZVV
 TG-2 BV-5
 P=0 Y-270 OM-270
 A/AUTO/VERN Init TRK
RCS BURN
 (Cue Card, RCS BURN)
 (2 Cmn)
B/AUTO/NORM (TIG-:10) Init MNVR
NHSEK4 (15:04)
MNVR (TRK) -YLV, -ZVV
 TG-2 BV-5
 P=0 Y-270 OM-270
 A/AUTO/VERN Init TRK



P/TVO3 SETUP (AFP-675)
(PHOTO/TV, P/TV SCENES)

P/TVO3 ACT (AFP-675)
(PHOTO/TV, P/TV SCENES)
Cargo Inspection

SPAS MNVR - STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: 0
ROLL = -170
ANT#: 2
Init MNVR 15:20

NR06 ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: 0, AOS= 2/15:11
LOS= 2/15:36

SPAS MNVR - EARTHLIME SCAN
(PL OPS, DPY EXP OPS)
NORTH
ATT#: 8 (0 km)
ANT#: 2
Init MNVR 15:30

EARTHLIME SCAN
(PL OPS, DPY EXP OPS)
SV TRANSFER req'd
NIGHT, 0 km to LH

VTR CONFIG
VTR 2 ON, VTR 1 OFF

SPAS MNVR - EARTHSCAN LIMB TO EARTH (LOCAL HORIZONTAL)
(PL OPS, DPY EXP OPS-NOM)
NORTH
Init MNVR 15:55

UPDATE
ORB MNVR PAD

T D CONT MET A R B
R TS DAY 002 T E L
R 16:00 T D U
EW

STS 39 (BLU FD 04)

PL
EARTHSCAN LIMB TO EARTH
(PL OPS, DRY EXP OPS-NOM)
NORTH
FLT WHL: 2D, 5E

MCC

A6 (B1)
AUTO/VERN

STS
MNVR IMU ALIGN AIT
R=25 P=230 Y=295
A/AUTO/VERN (16:00) Init MNVR

ORB
44

IMU ALIGN - S TRK (ORB OPS)

MNVR (TRK) -XIV, -XV
TG=2 BV=5
P=0 Y=270 OM=270
A/AUTO/VERN Init TRK

SUPPLY WATER DUMP USING FES
(ORB OPS, ECLS)
Perform step 3 w/FES not req

EARTHSCAN LIMB TO EARTH
(PL OPS, DRY EXP OPS-NOM)
NORTH
FLT WHL: 2D, 5E

UPDATE
ESCAN SSP ATT

FC PURGE - AUTO (Cue Card) ALL S-BD PL CNTL - CMD

SPAS MNVR - EARTHSCAN SSP
(PL OPS, DRY EXP OPS-NOM)
R=49.25 P=-47.40 Y=139.50
ANT#: 2
Init MNVR 16:30
Perform SV TRANSFER

NEAR FIELD OPS T/L
(RNDZ, NEAR FIELD OPS T/L)

SSP/SPATIAL SCAN
GROUND COMMANDED
SSP = 16:53
FLT WHL: 5E

PERFORM (16:45)
SSP/SPATIAL
SCAN

17:00

S
L
W
P
Y
I
V
L
V
Z
V
V

IMU ALIGN LOG		
STAR ID:	-Y: 58 , Deneb Algeid	
	-Z: 38 , Navi	
	ANG DIF: 85.7	
STARS AVAIL: 1 6 : 0 9 TO 1 6 : 3 5		
REQD ID:		
-Y	-Z	ANG ERR
1	2	3
ANG:		
ΔX ()	()	()
ΔY ()	()	()
ΔZ ()	()	()
EXECUTION TIME:		
-- / -- : -- : --		

SPAS MNVR - RAD/FLAT FIELD
GROUND COMMANDED

PERFORM (17:05)
SPAS MNVR
- RAD/FLAT

MEAL
(ALL)
ON MCC GO,
START VTR RECORD

RADIOMETRIC/FLAT
GROUND COMMANDED

PERFORM (17:20)
RADIOMETRIC/FLAT

ORB
45

NEAR FIELD OPS T/L
(RNDZ, NEAR FIELD OPS T/L) ALL S-BD PL CNTL - PNL

SPAS MNVR - STRAPDOWN

INSTRUMENT SAFING
GROUND COMMANDED

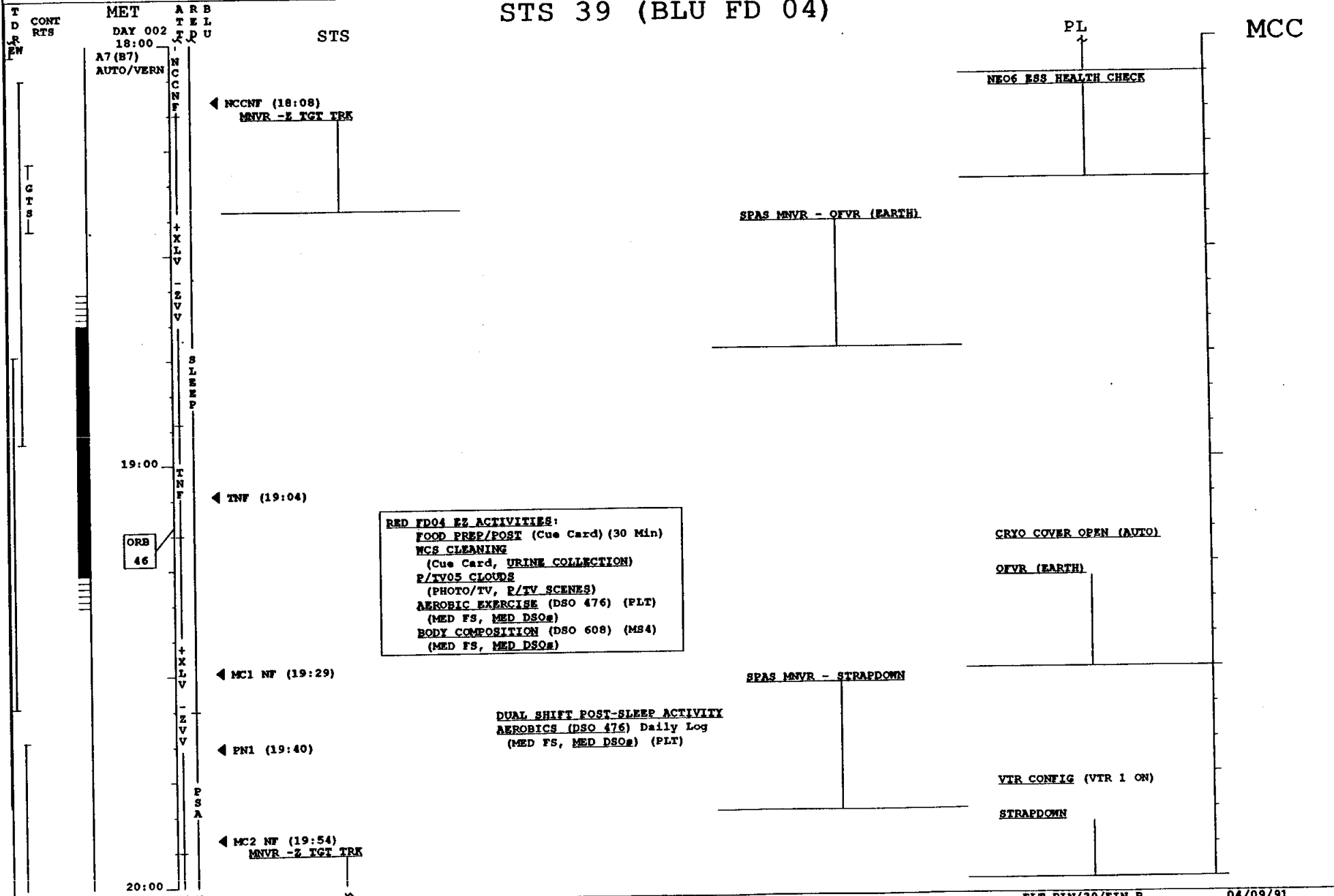
PERFORM (17:35)
INST SAFING

PET 00:00 = MET 2/20:24 (NNF)
(RNDZ OPS)

STRAPDOWN

A7 (B7)
AUTO/VERN
18:00

STS 39 (BLU FD 04)



RED FD04 EE ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WCS CLEANING
 (Cue Card, URINE COLLECTION)
 P/TVO5 CLOUDS
 (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (PLT)
 (MED FS, MED DSOs)
 BODY COMPOSITION (DSO 608) (MS4)
 (MED FS, MED DSOs)

DUAL SHIFT POST-SLEEP ACTIVITY
 AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)

STS 39 (BLU FD 04)

T D R EV
CONT RTS
MET DAY 002
20:00
A7 (B7)
AUTO/VERN

A R B
T E L
T D U

STS

SPAS MNVR-PLUMES

PL
INTERNAL REFERENCE

MCC

A8L PORT RMS HTR (two) - AUTO

UPLINK
EARLY TDRS H/O

◀ MC3 NF (20:09)

MNVR OMS OBS ATT

◀ MNF (20:24)

(A52) B52
AUTO/NORM

◀ OP4 (20:31)

◀ NOP4 (20:36)

ORB
47

A52 (B52)
AUTO/VERN

◀ MCP4 (20:48)

21:00

◀ VNF4 (20:58)

(A52) B52
AUTO/NORM

◀ OP5 (21:05)

◀ NOP5 (21:10)
MNVR +YLVL -ZVV

A52 (B52)
AUTO/VERN

◀ MCP5 (21:22)

EXERCISE
(2 RED Cmn)

◀ NBR5 (21:32)

INSTRUMENT SAFING

A7 (B7)
AUTO/VERN

RMS POWERUP

22:00

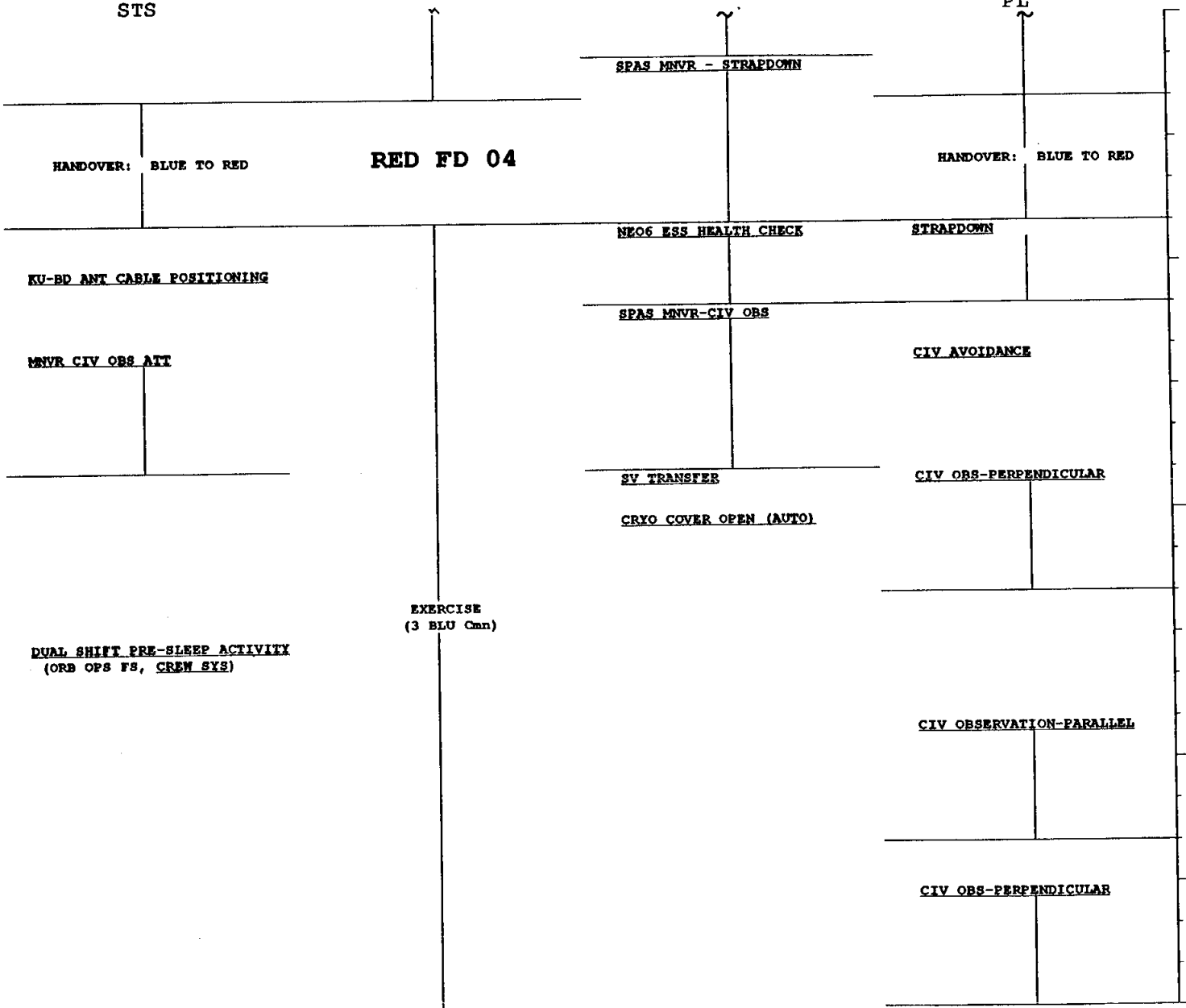
STS 39 (BLU FD 04)

STS

PL

MCC

T D
 CONT RTS
 MET DAY 002
 22:00
 A7 (B7)
 AUTO/VERN
 ORB 48
 T N H S L
 O M S
 O B S
 23:00
 A7 (B7)
 MAN/VERN
 AUTO/VERN
 C I V
 O B S
 A7 (B7)
 MAN/VERN
 ORB 49
 AUTO/VERN
 P S A
 A7 (B7)
 MAN/VERN
 003
 00:00



STS 39 (RED FD 04)

TDR
CONT RTS
MET DAY 003 00:00
A7 (B7) AUTO/VERN
ARB TEL DU
CIV OBS
PSA
YLV ZVV
01:00
ORB 50
NHS
A6 (B1) AUTO/VERN
OPC
SLEEP
02:00

STS

MNVR (TRK) -YLV, -ZVV

SUPPLY WATER DUMP USING FES

RMS POWERDOWN

← OPC/NC (01:42)

Transition to Flight Plan

INSTRUMENT SAFING

SPAS MNVR - STRAPDOWN

SPAS MNVR- GENERIC

PL
VTR CONFIG (VTR 2 ON)

STRAPDOWN

CRYO COVER OPEN (AUTO)

CO2 EARTHLINE

MCC

UPDATE
CRO OBS PAD

STS 39 (RED FD 04)

T D R E W
CONT RTS
MET
 DAY 003
 02:00
ARB TEL DU
STS
PL
MCC
 A6 (B1)
 AUTO/VERN
 ORB
 51
 HTS
 VTS
 NHTS
 03:00
 SLEEP
 YLV
 ZVV
 (A6) B1
 AUTO/NORM
 (A6) B1
 MAN/NORM
 NOPC
 04:00

ECLSS REDUND COMPONENT C/O
(ORB OPS, ECLS)

ECS 1(2) CONFIG(ORB OPS) (2Cmn)

HEATER RECONFIG-Config B
(ORB OPS, EPS)

RCS REGULATOR RECONFIGURE
07/08 He PRESS A(three)-OP(th-OP)
B(three)-OP(th-OP)
then GPC
A(three)-CL(th-CL)

CABIN TEMP CNTL RECONFIG
MD44F Pin CAB TEMP CNTL act link
to secondary act
L1 CABIN TEMP CNTLR - 2

CONFIGURE KU-COMM step 3
(Cue Card, KU OPS)

CONFIGURE KU-RADAR steps 1,2
(Cue Card, KU OPS)

RCS BURN
(Cue Card, RCS BURN)
(2 Cmn)

◀ B/AUTO/NORM (TIG--10) Init MNVR

◀ NOPC (03:56)

SPAS MNVR - CRO
(PL OPS, DPY EXP OPS-NOM)
ANT#: 1
Init MNVR 02:25

SPAS MNVR - STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: 0
ROLL = 180
ANT#: 2
Init MNVR 02:55

SPAS MNVR- GENERIC
(PL OPS, DPY EXP OPS-NOM)
REF, CNTL-LVLH
R = -90
P = -14.45
Y = -100
ANT#: 2
Init MNVR 03:25

CRO
(PL OPS, DPY EXP OPS-NOM)
SV TRANSFER req'd
CRO C RELEASE TIME =
3/02:49:00 MET CRO C OBS ▶

NEOS ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

STRAPDOWN
(PL OPS, DPY EXP OPS-NOM)
STAR ID: 0, AOS= 3/03:07
LOS= 3/03:32

EARTHLIMB SET 1 step 1
(PL OPS, DPY EXP OPS-NOM)

PSP HARDLINE/RF CONFIG
(CUE CARD) step 1

ALFE ACT - GROUND COMMANDED

PSP HARDLINE/RF CONFIG
(Cue Card) step 2

VTR CONFIG
VTR 1 ON, VTR 2 OFF

UPLINE
EARLY IDRS H/O
TV (TDRW/E)
(CREW CNTL-EXP)

UPDATE
ORB MNVR PAD

PERFORM (03:45)
ALFE ACTIVATION

T D R E V
 CONT RTS
 MET
 DAY 003
 04:00
 A6 (B1)
 AUTO/VERN
 ORB
 52
 05:00
 Y I V
 S L E E P
 E V V
 06:00
 T N H S L
 T N H S L

STS 39 (RED FD 04)

STS

MVR (TRK) -YLV, -ZVV
 IG-2 BV-5
 P=0 Y=270 OM=270
 A/AUTO/VERN Init TRK

MEAL
(ALL)

CONFIGURE KU-COMM step 3
 (Cue Card, KU OPS)

P/TV06 ACT (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

CONFIGURE KU-RADAR steps 1,2
 (Cue Card, KU OPS)

PL

EARTHLIMB MEASUREMENT SET 1
 GROUND COMMANDED
 Set #1, NORTH
 Perform as follows:
 step 2 DAY until 04:46
 step 3 DUSK
 TERMINATOR CROSSINGS:
 DUSK 3/05:01:47

EARTHLIMB MEASUREMENT SET 1
 (PL OPS, DEY EXP OPS-NOM)
 SV TRANSFER req'd
 Set #1, NORTH
 Perform as follows:
 step 2 NIGHT until 05:34
 step 3 DAWN
 step 2 DAY until 06:05
 TERMINATOR CROSSINGS:
 DAWN 3/05:49:25

PERFORM (04:15)
 EARTHLIMB SET 1

TV(TDRW)
 (CREW CNTL-EXP
 GND CNTL-CAB)

MCC

STS 39 (RED FD 04)

CONT RTS
MET
 DAY 003
 06:00
 A6 (B1)
 AUTO/VERN
 07:00
 08:00
 A7 (B7)
 AUTO/VERN
 08:00

ARB TEL
TDU
STS
YLV
ZVV
SLEEP
IMU
YLV
ZVV

GNSS
GNSS

IMU ALIGN LOG

STAR ID: -Y: 54 , Diphda
 -Z: 18 , Capella
 ANG DIF: 88. 7

STARS AVAIL: 0 7 : 2 0 TO 0 7 : 5 7

REQD ID:

-Y ___ , -Z ___ ANG ERR ___ . ___

1 2 3

ANG:

ΔX () () ()

ΔY () () ()

ΔZ () () ()

EXECUTION TIME:

___ / ___ : ___ : ___

MNVR IMU ALIGN ATT
 R-113 P-312 Y-319
 A/AUTO/VERN (07:05) Init MNVR

IMU ALIGN - S TRK (ORB OPS)

MNVR (TRK) -YLV, -ZVV
 TG-2 BV-5
 P=0 Y=270 OM=270
 A/AUTO/VERN Init TRK

FC PURGE - AUTO (Cue Card)

RETRIEVE TIMELINE
 (RNDZ, RETRV TIMELINE)

SUPPLY WATER DUMP USING FES
 (Dump termination)

PET 00:00 = 3/09:07:04 (Ti)
 (RNDZ OPS)

SPAS MNVR - EARTHLIMB SCAN
 (PL OPS, DPY EXP OPS)
 ATT#: 8 (0 km)
 Init MNVR 06:10

P/TVO2 ACT (IBSS)
 (PHOTO/TV, P/TV SCENES)

SPAS MNVR - STRAPDOWN
 (PL OPS, DPY EXP OPS-NOM)
 STAR ID: V
 ROLL = 0
 ANT#: 2
 Init MNVR 07:00

SPAS MNVR - OFVR (EARTH)
 (PL OPS, DPY EXP OPS-NOM)
 R--175.45 Y--150
 ANT#: 1
 Init MNVR 07:30

EARTHLIMB SCAN
 (PL OPS, DPY EXP OPS)
 DAY, 0 km to LH
INSTRUMENT SAFING
 (PL OPS, SYS OPS-NOM)
 Close cover at 06:27
CRO SUBSATELLITE DEPLOY
 (PL OPS, CRO) CRO B
 DEPLOY TIME =
 3/06:46:00 MET

CRO B DEPLOY ▶

NEOG ESS HEALTH CHECK
 (675 OPS, NON-BLOCK)

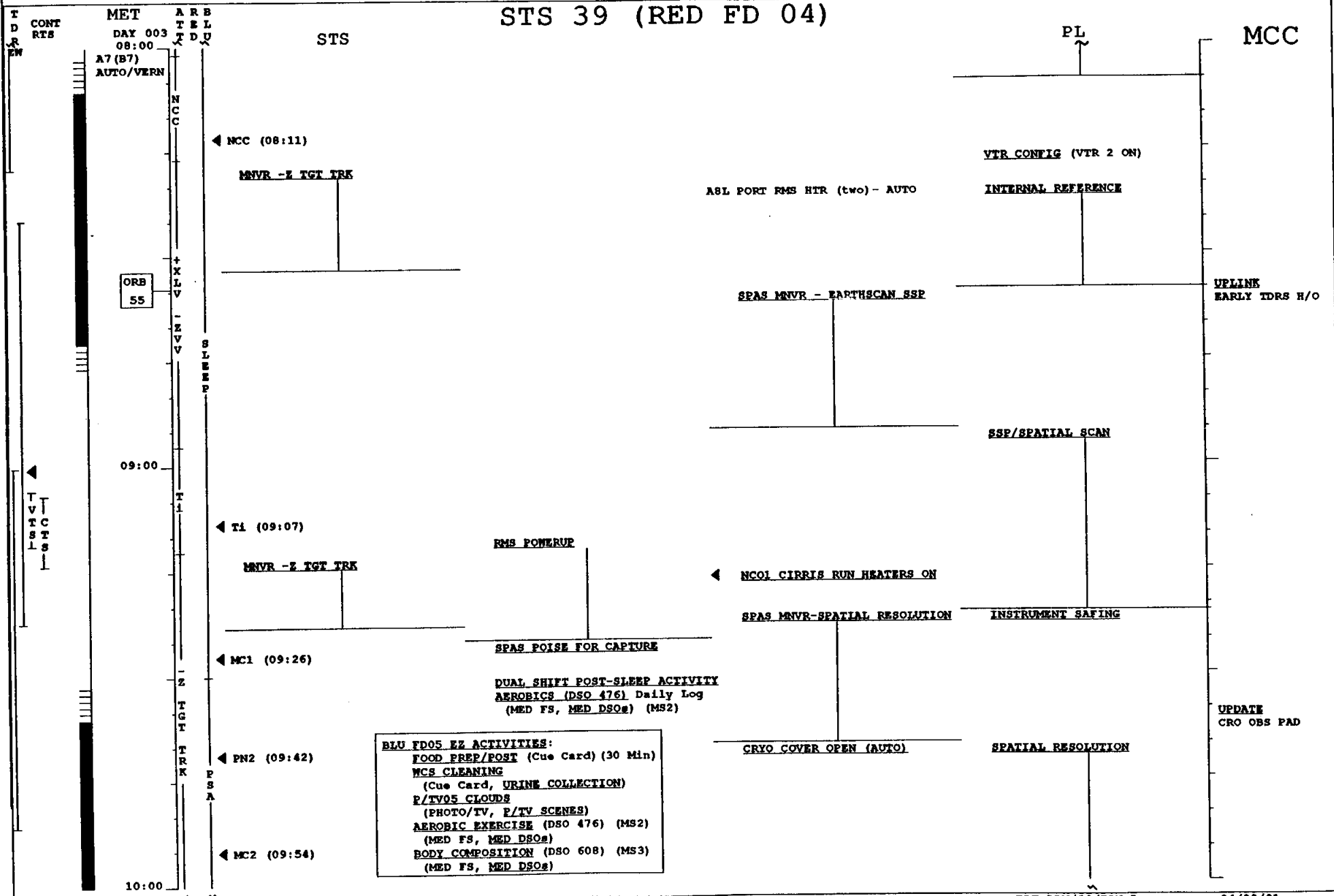
STRAPDOWN
 (PL OPS, DPY EXP OPS-NOM)
 STAR ID: V, AOS= 3/07:20
 LOS= 3/07:43

CRYO COVER OPEN (AUTO)
 (PL OPS, SYS OPS-NOM)
 Open cover at 07:45
OFVR (EARTH)

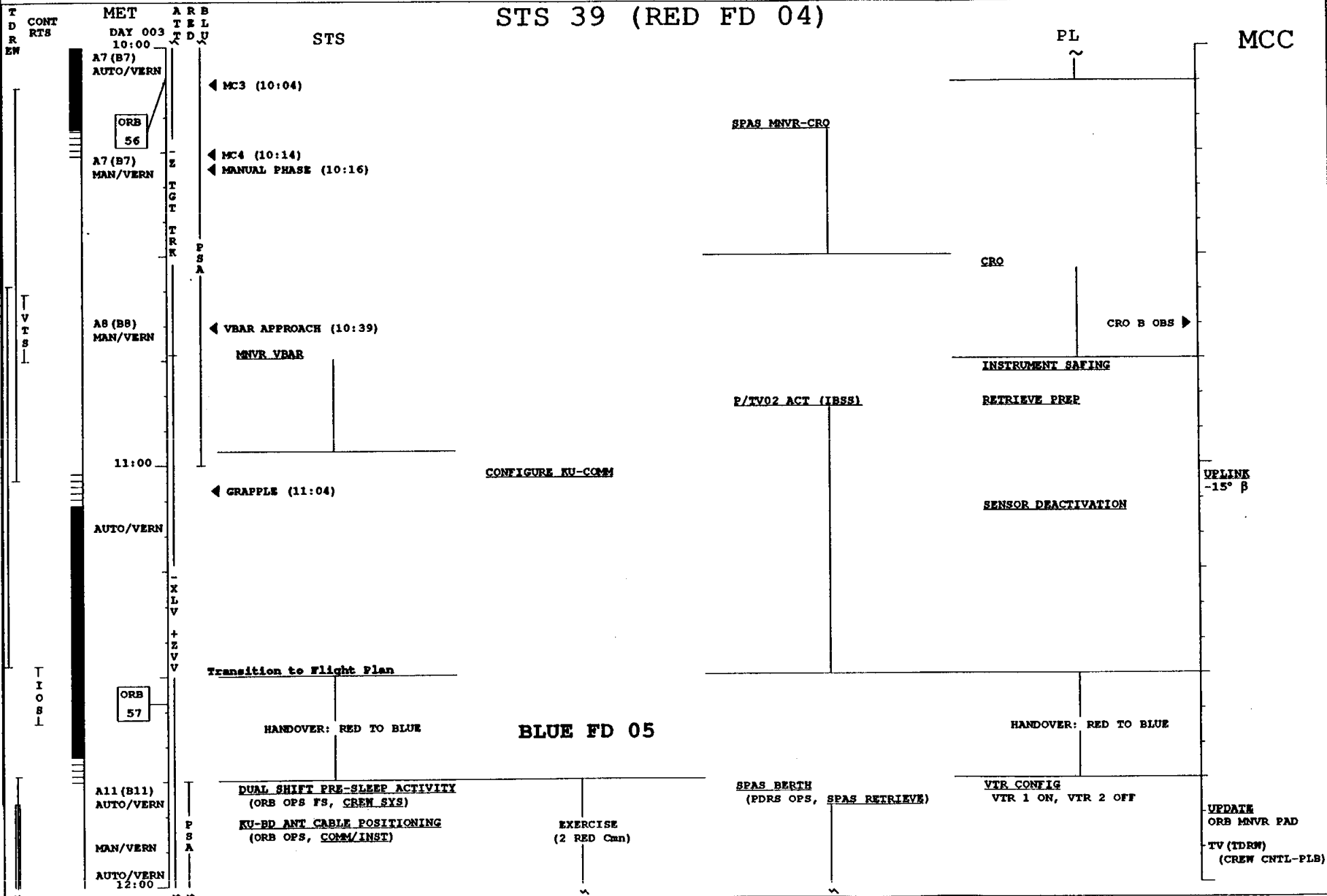
MCC

UPDATE
CRO DPY PAD

STS 39 (RED FD 04)



STS 39 (RED FD 04)



STS 39 (BLU FD 05)

MET
 DAY 003
 12:00
 (All)B11
 AUTO/VERN
 (A6)B1
 AUTO/VERN

 MAN/NORM
 AUTO/VERN

 13:00
 MAN/NORM
 ORB 58

 A6 (B75)
 AUTO/VERN

 (A6)B75
 AUTO/VERN

 14:00

 A6 (B75)
 AUTO/VERN

 ORB 59

 15:00
 (A3)B2
 AUTO/VERN
 A3 (B2)
 MAN/VERN

 16:00

STS
 Change DAP A, B to A6, B1
ON-ORBIT RCS BURN
 (ORB OPS, RCS)
 (2 Cmn)
 Postburn go freedrift
 for 60 sec for ALFE

 ◀ HAI (12:30)
 Config DAP: B/AUTO/VERN

ON-ORBIT RCS BURN
 (ORB OPS, RCS)
 (2 Cmn)
 Postburn go freedrift
 for 60 sec for ALFE
 ◀ CIRCL (13:15)

 Change DAP B to B75
 ◀ MNVR PU02A ATT
 R=315.81 P=246.69 Y=324.02
 A/AUTO/VERN (13:22) Init MNVR
 When in ATT: B/AUTO/VERN
PRIORITY PWRDN GROUP B
 (ORB PKT, PRIOR PWRDN)
 Perform steps 4-7,10-12,14

 ◀ MNVR (TRK) PQ04 ATT
 TG=2 BV=5
 P=90 Y=335 OM=270
 A/AUTO/VERN (14:10) Init TRK

RJD CONFIG
 015,016 RJDF DRIVER 1A F2, 2A F3 (two) - OFF
 014 RJDA 2A L4/R4 DRIVER - OFF

 ◀ GG FREE DRIFT steps 1,2
 (ORB OPS, RCS) (14:57)
 BODY VECTOR 5 PAD PER GG PAD

GCN	
PLANNED	ACTUAL
P=356.	-----
Y=2.	-----
OM=238.	-----

PRIVATE MEDICAL CONFERENCE

VTR SETUP (GRAPPLE)
 (Cue Card, TV/VTR)

VTR PLAYBACK (GRAPPLE)
 (Cue Card, TV/VTR)
 VTR at TDRW (13:50-14:10)

IN-BAY OPS PREP steps 1,3-6
 (PL OPS, IN-BAY OPS-NOM)

CONFIG TV-675
 (Cue Card, CCTV PAYLOADS)

LOAD FUTURE SEQ - NC02
 (675 OPS, NON BLOCK)
 BLOCK START = 14:12

 ◀ **PRELOADED NC02 (14:12)**

P/TV06 SETUP (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

P/TV06 ACT (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

P/TV03 SETUP (AFF-675)
 (PHOTO/TV, P/TV SCENES)

PL
CONFIG TV-STR-1
 (Cue Card, CCTV PAYLOADS)

PSP HARDLINE/RF CONFIG
 (CUE CARD) step 1

ALFE PHASE C
 GROUND COMMANDED

RMS POWERDOWN
 (PDRS OPS, RMS PWRDN)

ALFE PHASE C
 GROUND COMMANDED

 ◀ **PU02A CELESTIAL TARGET**
 (675 OPS, URA)
 BLOCK START = 13:22

MEMORY MODULE REPLACEMENT
 (PL OPS, RME-III)
 ◀ **PQ04 PRE-CIRRS CONTAM**
 (675 OPS, QINMS)
 BLOCK START = 14:10

P/TV06 SETUP (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

P/TV06 ACT (FLIGHT DECK)
 (PHOTO/TV, P/TV SCENES)

P/TV03 SETUP (AFF-675)
 (PHOTO/TV, P/TV SCENES)
 ◀ **PC16 HORIZONTAL STARE**
 (675 OPS, CIRRS)
 BLOCK START = 15:12

MCC

 PERFORM (12:20)
 ALFE PHASE C
 UPLINK
 21° β + MASK
 UPDATE
 ORB MNVR PAD

 PERFORM (13:05)
 ALFE PHASE C

 CONFIG
 CMP TV

 VTR (TDRW)

 TV (TDRW)
 (GND CNTL-CAB)

 CONFIG
 CMP TV

MET
 DAY 003
 16:00
 A3 (B2)
 MAN/VERN
 ORB
 60
 17:00
 ORB
 61
 A6 (B2)
 MAN/VERN
 A6 (B2)
 AUTO/VERN
 18:00
 ORB
 62
 (A3) B2
 AUTO/VERN
 A3 (B2)
 MAN/VERN
 20:00

STS

STS 39 (BLU FD 05)

VISUAL VESTIBULAR (DSO 604)
(MED, MED DSOs) MS1

PL

MCC

Change DAP A to A6

WASTE WATER DUMP steps 1,2
(ORB OPS, ECLS)

MNVR PU02B ATT
 R=64.33 P=196.26 Y=40.25
 A/AUTO/VERN (17:52) Init MNVR
 LOAD FUTURE MNVR PU02B
 R=196.75 P=73.62 Y=42.51
 A/AUTO/VERN (18:32) Init MNVR

MEAL
(All)

PRELOADED PU02B MNVR (18:32)

WASTE WATER DUMP step 3
 (ORB OPS, ECLS)
 Stop dump NLT 18:41

LOAD FUTURE SEQ - PU02B, NC02
 PU02B BLOCK START = 18:32
 (675 OPS, URA)
 NC02 BLOCK START = 18:41
 (675 OPS, NON-BLOCK)

VTR CONFIG
 VTR 2 ON, VTR 1 OFF
 PU02B CEL TGT NON LOG
 (675 OPS, URA)
 BLOCK START = 17:52

UPDATE
H2O WASTE
DUMP QTY

PRELOADED NC02 (18:41)

PRELOADED PU02B (18:32)

VTR SETUP (NF PLUMES)
 (Cue Card, TV/VTR)

VTR PLAYBACK (NF PLUMES)
 (Cue Card, TV/VTR)
 VTR at TDRE (19:15-19:28)

VTR (TDRE)

GG FREE DRIFT steps 1,2
 (ORB OPS, RCS) (19:26)
 BODY VECTOR 5 PER GG PAD

PLANNED	GGN	
	ACTUAL	
P=356.	---	---
Y=2.	---	---
OM=238.	---	---

PC11B AIRGLOW AND TERM
 (675 OPS, CIRRIIS)
 BLOCK START = 19:41

STS 39 (BLU FD 05)

TDR
CONT
RTS
MET
DAY 003
20:00
A3 (B2)
MAN/VERN
ORB 63
21:00
A6 (B75)
MAN/VERN
A6 (B75)
AUTO/NORM
22:00
A6 (B75)
AUTO/NORM
23:00
A6 (B75)
AUTO/VERN
(A6) B75
AUTO/VERN
004
00:00
(A3) B2
AUTO/VERN

STS

IMU ALIGN LOG
 REQD ID:
 -Y____, -Z____ ANG ERR ____
 1 2 3
 ANG:
 ΔX () () ()
 ΔY () () ()
 ΔZ () () ()
 EXECUTION TIME:
 ____ / ____ : ____ : ____

RED FD05 EE ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 Min)
WCS CLEANING
 (Cue Card, URINE COLLECTION)
P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (PLT)
 (MED FS, MED DSOs)
BODY COMPOSITION (DSO 608) (MS4)
 (MED FS, MED DSOs)

LOAD FUTURE SEQ - NC02
 (675 OPS, NON-BLOCK)
 BLOCK START - 23:11
NC01 CIRRIE RUN HEATERS ON
 (675 OPS, NON-BLOCK)
 BLOCK START - 21:11

KU-BD ANT CABLE POSITIONING
 (ORB OPS, COMM/INST)

Change DAP A,B to A6,B75
MNVR IMU ALIGN ATT
 STAR PAIR (B1)
 A/AUTO/NORM (21:45) Init MNVR
 When in ATT: A/AUTO/VERN
IMU ALIGN - 8 TRK (ORB OPS)

DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)

FILTER CLEANING
 (IFM, SCHEDULED MAINTENANCE)

PH05 LAMP TEST MODE
 (675 OPS, HUP)
 BLOCK START - 21:30

PU08 CAL BACKGROUND TEST
 (675 OPS, URA)
 BLOCK START - 21:46

MNVR PU02A ATT
 R=69.49 P=186.32 Y=21.14
 B/AUTO/NORM (22:21) Init MNVR
 When in ATT: B/AUTO/VERN

SUPPLY WATER DUMP steps 1,2
 (ORB OPS, ECLS)

FC PURGE - AUTO (Cue Card)

PU02A CELESTIAL TARGET
 (675 OPS, URA)
 BLOCK START - 22:21

GCN	
PLANNED	ACTUAL
P=356.	-----
Y=2.	-----
OM=238.	-----

MNVR PU02B ATT
 R=178.20 P=279.16 Y=309.60
 A/AUTO/VERN (22:57) Init MNVR
 When in ATT: B/AUTO/VERN

PRELOADED NC02 (23:11)

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)

EXERCISE
 (2 RED Cmn)

PU02B FAR-UV/URA CEL TGT
 (675 OPS, JOINT)
 BLOCK START= 22:57

HANDOVER: BLUE TO RED

RED FD 05

HANDOVER: BLUE TO RED

GG FREE DRIFT, Steps 1 & 2
 (ORB OPS, RCE) (23:56)
 BODY VECTOR PER GG PAD

MCC

PL

UPLINK
 EARLY TDRS H/O
 KU-BD ONLY

UPDATE
 H2O SPLY DUMP
 QTY TK A & B

STS 39 (RED FD 05)

CONT RTS
MET
DAY 004
00:00
(A3) B2
AUTO/VERN
A3 (B2)
MAN/VERN

ARB TEL
T DU

STS

ORB 66
ORB 67

BIASED
+XLV
+YVV
P S A
SLEEP

VTSTNS
HTS
VTSTNS

01:00
02:00
03:00
04:00

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

EXERCISE
(3 BLU Cmn)

BLOOD PRESSURE VAR (DSO 602)
(MED FS, MED DSO₂)
(CDR, FLT, MSS)

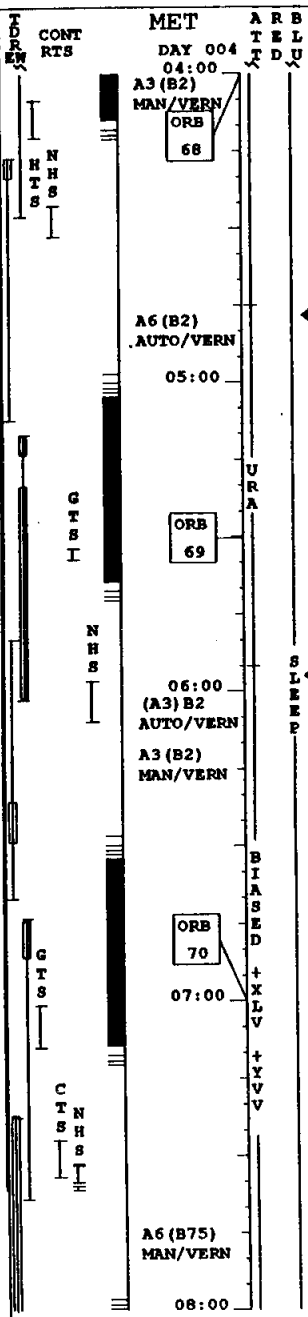
PL
VTR CONEIG
VTR 1 ON, VTR 2 OFF
PC13 2D AG & TERM
(675 PL OPS, CIRRIIS)
BLOCK START = 00:11

PC11G AIRGLOW AND TERM
(675 OPS, CIRRIIS)
BLOCK START = 01:41

PC11A AIRGLOW AND TERM
(675 OPS, CIRRIIS)
BLOCK START = 03:11

MCC

STS 39 (RED FD 05)



Change DAP A to A6
MNVR PU02B ATT
 R=156.84 P=204.77 Y=16.18
 A/AUTO/VERN (04:45) Init MNVR

LOAD FUTURE SEQ - PU02B, NCO2
 PU02B BLOCK START = 05:09
 (675 OPS, URA)
 NCO2 BLOCK START = 05:10
 (675 OPS, NON-BLOCK)

MEAL
(All)

GG FREE DRIFT steps 1,2
 (ORB OPS, RCS) (05:55)
 BODY VECTOR 5 PER GG PAD

VTR CONFIG
 VTR 2 ON, VTR 1 OFF

← **PRELOADED PU02B TGT (05:09)**

← **PC11F AIRGLOW AND TERM**
 (675 OPS, CIRIS)
 BLOCK START = 06:10

GGN	
PLANNED	ACTUAL
P=356.	---
Y=2.	---
OM=238.	---

Change DAP A,B to A6,B75

PL

MCC

STS 39 (RED FD 05)

CONT RTS
MET
DAY 004
08:00
A6 (B75)
MAN/VERN
A6 (B75)
AUTO/VERN
MAN/VERN
ORB
71
A6 (B75)
AUTO/VERN
A6 (B75)
09:00
MAN/VERN
ORB
72
A6 (B75)
AUTO/NORM
ORB
72
AUTO/VERN
10:00
(A6) B75
AUTO/NORM
AUTO/VERN
11:00
A6 (B75)
AUTO/VERN
ORB
73
12:00

STS
MNVR PC36B ATT
R=243.40 P=311.85 Y=316.37
A/AUTO/VERN (08:05) Init MNVR
DAP: free drift (08:20)
MNVR (TRK) -ZLV, -YV
TG=2 BV=3 OM=90
A/AUTO/VERN (08:47) Init TRK
DAP: free drift (09:02)
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/NORM (09:35) Init MNVR
When in ATT: A/AUTO/VERN
IMU ALIGN - S TRK (ORB OPS)
KU-BD ANT CABLE POSITIONING
(ORB OPS, COMM/INST)
MNVR PU02A ATT
R=86.08 P=209.84 Y=6.58
B/AUTO/NORM (10:25) Init MNVR
When in ATT: B/AUTO/VERN
MNVR PF10 ATT
TG=2 BV=1 OM=90
A/AUTO/VERN (11:05) Init TRK
DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
(MED FS, MED DSOs) (MS2)
MNVR PF06 ATT
R=246 P=324 Y=12
A/AUTO/VERN (11:45) Init MNVR

IMU ALIGN LOG
REQD ID:

-Y ____ , -Z ____ ANG ERR ____
1 2 3

ANG:
ΔX () _ _ _ () _ _ _ () _ _ _
ΔY () _ _ _ () _ _ _ () _ _ _
ΔZ () _ _ _ () _ _ _ () _ _ _
EXECUTION TIME:
__ / __ : __ : __

SUPPLY WATER DUMP steps 1,2
(ORB OPS, ECLS)
FC PURGE - AUTO (Cue Card)

BLU FD06 EE ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 Min)
WCS CLEANING
Cue Card, URINE COLLECTION
P/TV05 CLOUDS
(PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (MS2)
(MED FS, MED DSOs)
BODY COMPOSITION (DSO 608) (MS3)
(MED FS, MED DSOs)

SUPPLY WATER DUMP steps 3,4
(ORB OPS, ECLS)
P/TV03 ACT (AFP-675)
(PHOTO/TV, P/TV SCENES)

PL
PC36B CELESTIAL CAL
(675 OPS, CIRRIE)
BLOCK START = 08:05

PC51 GROUND CAL
(675 OPS, CIRRIE)
BLOCK START = 08:47

LOAD FUTURE SEQ - NC01
(675 OPS, NON-BLOCK)
BLOCK START = 11:04
PU08 CAL BACKGROUND TEST
(675 OPS, URA)
BLOCK START = 09:47

PU02A CELESTIAL TARGET
(675 OPS, URA)
BLOCK START = 10:25

PRELOADED NC01 (11:04)
PF10 SHUTTLE GLOW
(675 OPS, FAR-UV)
BLOCK START = 11:05

PF06 DAY THRUSTER FIRINGS
(675 OPS, FAR-UV)
BLOCK START = 11:45

MCC
TV (TDRK/W)
(GND CNTL-CAB)

UPDATE
H2O SPLY DUMP
QTY TR A & B

CONFIG
COMP TV

TV (TDRW)
(CREW CNTL-PLB)

STS 39 (BLU FD 06)

MET
 DAY 004
 16:00
 A3 (B2)
 MAN/VERN
 A3 (B2)
 MAN/VERN
 17:00
 ORB
 77
 18:00
 A6 (B75)
 MAN/VERN
 A6 (B75)
 AUTO/NORM
 AUTO/VERN
 ORB
 78
 19:00
 20:00

A R B
 T E L
 U
 B I A S E D
 + X L V
 + Y V V
 S L E E P
 Q R A M

STS

Change DAP A,B to A6,B75
 ← MNVR (TRK) PQ03 ATT
 TC=2 BV=5
 P=90.00 Y=335.0 OM=270
 A/AUTO/NORM (18:15) Init TRK
 When in ATT: A/AUTO/VERN

MEAL
(All)

PL

MCC

← PC11D AIRGLOW AND TERM
 (675 OPS, CIRRIS)
 BLOCK START - 16:38

← VTR CONFIG
 VTR 2 ON, VTR 1 OFF
 PQ03 RAM 3/3
 (675 OPS, QINMS)
 BLOCK START - 18:15

← PH06 DARK COUNT
 (675 OPS, HUP)
 BLOCK START - 18:30

UPDATE
 H2O WSTE
 DUMP QTY

STS 39 (BLU FD 06)

FOR RTG
CONT RTS
MET
DAY 004
20:00
A6 (B75)
AUTO/VERN
ORB 79
21:00
(A6) B75
AUTO/NORM
AUTO/VERN
ORB 80
22:00
(A6) B75
AUTO/NORM
AUTO/VERN
ORB 81
23:00
(A6) B75
AUTO/NORM
AUTO/VERN
ORB 81
00:00
(A3) B2
AUTO/VERN
005
00:00

STS

MNVR PU02A ATT
 R=165.20 P=129.70 Y=46.15
 A/AUTO/VERN (20:00) Init MNVR
 When in ATT, change
 DAP A VERN DISC RT -.008
 BV=5
 P=270 Y=1.16
 Init ROT (20:15)
 CANCEL (20:36)
 Change DAP A VERN DISC RT -.2

MNVR (TRK) -YLV. -ZVV
 TG=2 BV=5
 P=0 Y=270 OM=270
 A/AUTO/VERN Init TRK
CONFIGURE KU-RADAR steps 1,2
 (Cue Card, KU OPS)
WASTE WATER DUMP step 3
 (ORB OPS, ECLS)

MNVR PFU02B ATT
 R=155.16 P=211.37 Y=13.18
 B/AUTO/NORM (21:24) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PU02A ATT
 R=117.60 P=48.59 Y=355.76
 B/AUTO/NORM (22:14) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR IMU ALIGN ATT
 STAR PAIR (A1)
 A/AUTO/NORM (23:05) Init MNVR
 When in ATT: A/AUTO/VERN
IMU ALIGN - S TRK (ORB OPS)

DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSO) (PLT)

GG FREE DRIFT, Steps 1 & 2
 (ORB OPS, RCS) (23:52)
 BODY VECTOR 5 PER GG PAD

WASTE WATER DUMP steps 1,2
 (ORB OPS, ECLS)
FC PURGE - AUTO (Cue Card)

P/TV02 SETUP (IBSS)
 (PHOTO/TV, P/TV SCENES)

P/TV02 ACT (IBSS)
 (PHOTO/TV, P/TV SCENES)

CONFIGURE KU-COMM step 3
 (CUE CARD, KU OPS)

KU-BD ANT CABLE POSITIONING
 (ORB OPS, COMM/INST)

SUPPLY WATER DUMP steps 1,2
 (ORB OPS, ECLS)

GGN	
PLANNED	ACTUAL
P=356.	-----
Y=2.	-----
OM=238.	-----

IMU ALIGN LOG

REQD ID: _____

-Y _____ -Z _____ ANG ERR _____

1 2 3

ANG:

ΔX () () () () () ()

ΔY () () () () () ()

ΔZ () () () () () ()

EXECUTION TIME: _____

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)

RED FD06 EZ ACTIVITIES:

FOOD PREP/POST (Cue Card) (30 Min)
MCS CLEANING (Cue Card)
P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (PLT)
 (MED FS, MED DSO)
BODY COMPOSITION (DSO 608) (MS4)
 (MED FS, MED DSO)

PL

PU02A CELESTIAL TARGET
 (675 OPS, URA)
 BLOCK START = 20:00

LOAD FUTURE SEQ - NC01, NC02
 NC01 BLOCK START = 21:07
 (675 OPS, NON-BLOCK)
 NC02 BLOCK START = 23:07
 (675 OPS, NON-BLOCK)

CRO SUBSATELITE DEPLOY
 (PL OPS, CRO) CRO A
 DEPLOY TIME CRO A DEPLOY
 4/21:15:00 MET

PFU02B FAR-UV/ URA CEL TGT
 (675 OPS, JOINT)
 BLOCK START = 21:24

PU02A CELESTIAL TARGET
 (675 OPS, URA)
 BLOCK START = 22:14

PRELOADED NC02 (23:07)
VTR SETUP (CRO A DEPLOY)
 (Cue Card, TV/VTR)

VTR PLAYBACK (CRO A DEPLOY)
 (Cue Card, TV/VTR)
 VTR at TDRW (23:25-23:40)

MCC

UPDATE
 CRO DPY PAD

UPDATE
 H2O SPLY DUMP
 QTY TR A & B

TV (TDRE)
 (GND CNTRL-CAB)

VTR (TDRW)

STS 39 (BLU FD 06)

CONT RTS
MET
DAY 005
00:00
(A3) B2
AUTO/VERN
A3 (B2)
MAN/VERN
ORB 82
01:00
A6 (B2)
MAN/VERN
02:00
A6 (B2)
AUTO/NORM
AUTO/VERN
ORB 83
03:00
(A3) B2
AUTO/VERN
A3 (B2)
MAN/VERN
ORB 84
04:00

STS
EXERCISE
(2 RED Cmn)
Change DAP A to A6
HANDOVER: BLUE TO RED
MANVR (TRK) PF10 AIT
TG=2 BV=1 OM=90
A/AUTO/NORM (02:00) Init TRK
When in AIT: A/AUTO/VERN

GCS	
PLANNED	ACTUAL
P=356.	-----
Y=358.	-----
OM=122.	-----

PRELOADED NC02 (02:15)
EXERCISE
(3 BLU Cmn)
GG FREE DRIFT steps 1,2
(ORB OPS, RCS) (03:00)
BODY VECTOR 5 PAD PER GG PAD
DUAL SHIFT PRE-SLEEP ACTIVITY
(ORB OPS FS, CREW EYE)
ABL PORT RMS HTR (two) - AUTO

RED FD 06

LOAD FUTURE SEQ - NC02
(675 OPS, NON-BLOCK)
BLOCK START = 02:15

P/TV03 SETUP (AFP-675)
(PHOTO/TV, P/TV SCENES)

P/TV03 ACT (AFP-675)
(PHOTO/TV, P/TV SCENES)

BLOOD PRESSURE VAR (DSO 602)
(MED FS, MED DSOe)
(CDR, FLT, MS5)

P/TV03 ACT (AFP-675)
(PHOTO/TV, P/TV SCENES)

PL

VTR CONFIG
VTR 1 ON, VTR 2 OFF
PC11C AIRGLOW AND TERM
(675 OPS, CIRRIE)
BLOCK START = 00:07

HANDOVER: BLUE TO RED

PF10 SHUTTLE GLOW
(675 OPS, FAR-UV)
BLOCK START = 02:00

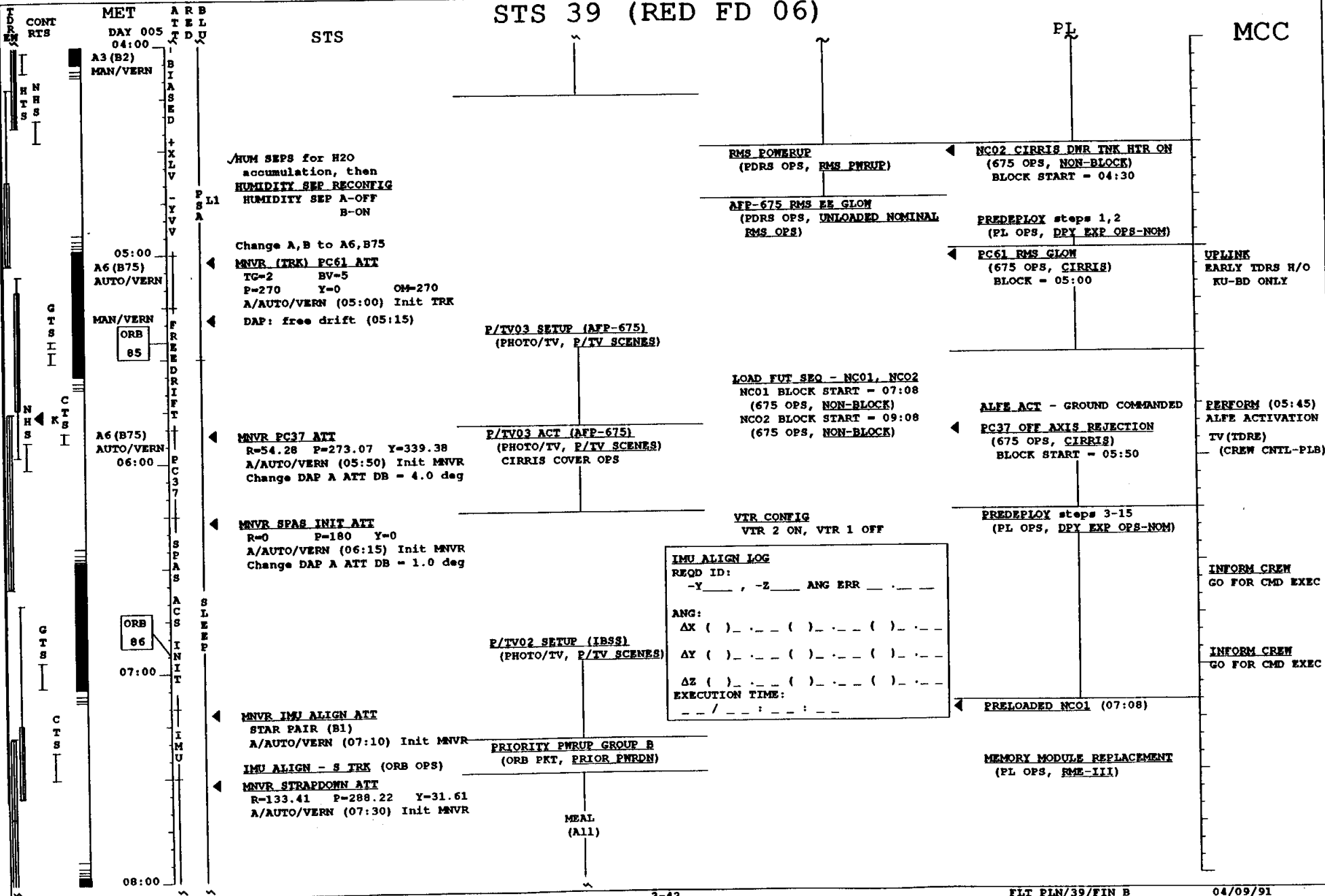
PU08 CAL BACKGROUND TEST
(675 OPS, URA)
BLOCK START = 02:55

PC42A AURORA 1A
(675 OPS, CIRRIE)
BLOCK START = 03:15

MCC

CONFIG
CMP TV

STS 39 (RED FD 06)



T D CONT MET A R B
R RTS DAY 005 T E L
EW 08:00 X D U

STS

STS 39 (RED FD 06)

PL

MCC

A6 (B75)
AUTO/VERN

ORB
87

A11 (B11)
AUTO/VERN

MAN/VERN
09:00

(A11) B11
AUTO/VERN

(A11) B13
AUTO/VERN

A11 (B13)
AUTO/VERN

ORB
88

10:00

MEAL
(All)

SPAS GRAPPLE
(PDRS OPS, SPAS DEPLOY)

SPAS UNBERTH
(PDRS, SPAS DEPLOY)

◀ PRELOADED NC02 (09:08)

E/TV02 ACT (IBSS)
(PHOTO/TV, E/TV SCENES)

RMS MNVR TO OBS START
(PL OPS, RMS EXP OPS-NOM)
MOP

CONFIG TV-IBSS
(Cue Card, CCTV PAYLOADS)

L3TV ON/LOCK LOSS ON

SM 210 SPAS INIT
POWER L3TV STBY-ITEM 19 EXEC
(* ,CMD 186)
LOCK LOSS ACT ENA-ITEM 53 EXEC
(* ,CMD 181)

UPLINK
-15° β

STRAPDOWN
(PL OPS, RMS EXP OPS-NOM)
STAR ID: N, AOS= 5/08:56
LOS= 5/09:50
step 5 NLT 09:22

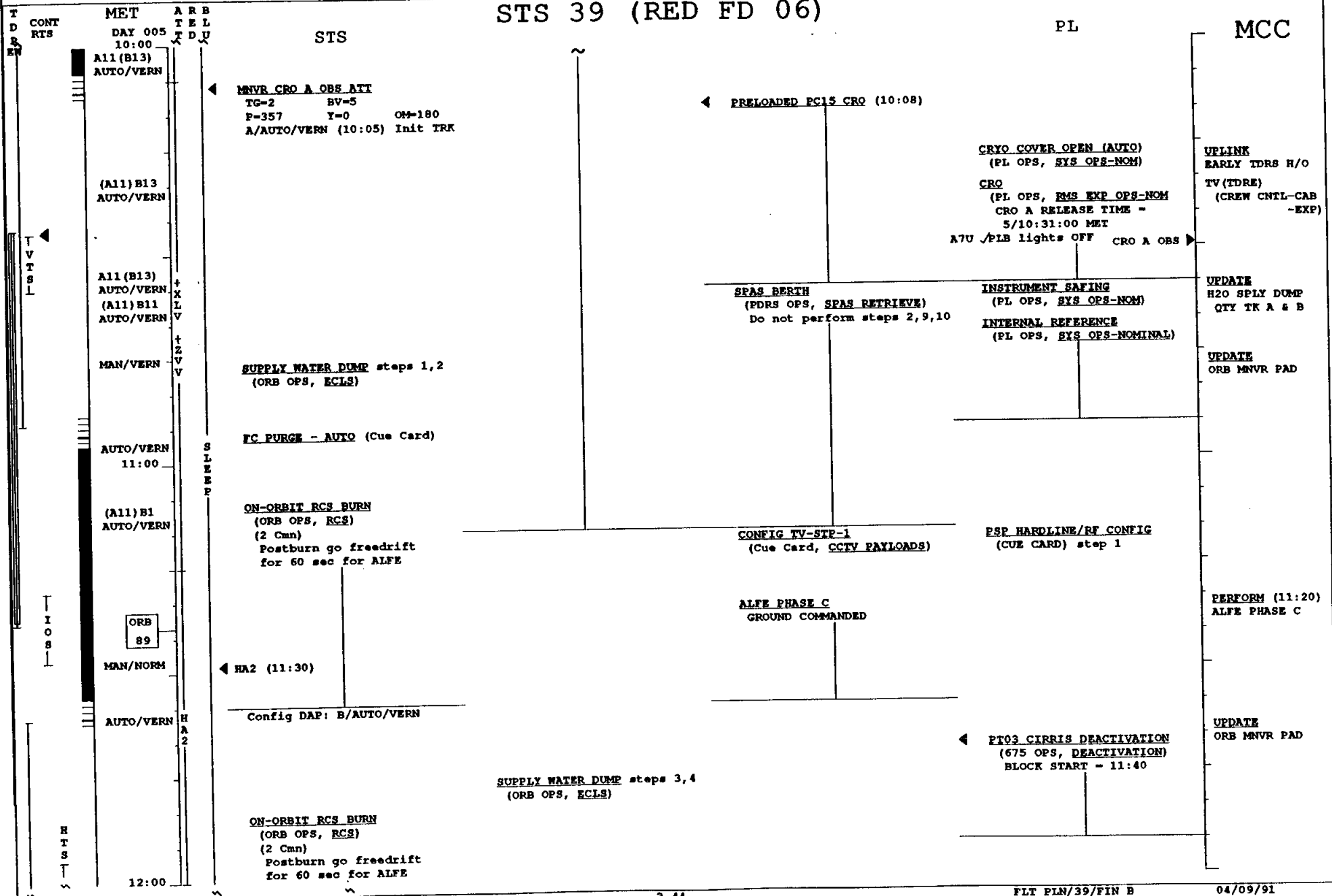
UPDATE
CRO OBS PAD

NE06 ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

LOAD FUTURE SEQ - FC15 CRO
(675 OPS, CIRRI'S)
steps 2-11
BLOCK START - 10:08

KU-BD ANT CABLE POSITIONING
(ORB OPS, COMM/INST)

STS 39 (RED FD 06)



STS 39 (RED FD 06)

MET
 DAY 005
 12:00
 (All) B1
 AUTO/VERN
 MAN/NORM
 All (B11)
 AUTO/VERN
 13:00
 (All) B13
 AUTO/VERN
 All (B13)
 AUTO/VERN
 (All) B13
 AUTO/VERN
 A10 (B13)
 AUTO/VERN
 All (B13)
 AUTO/VERN
 14:00

ARB
 TEL
 TDU
 CIRC2
 UNBERTH/SD
 GND TRU
 GAT

STS

◀ CIRC2 (12:15)

Change DAP B to B11
 MNVR STRAPDOWN ATT
 R=285.09 P=108.52 Y=310.14
 A/AUTO/VERN (12:20) Init MNVR

BLU FD07 E2 ACTIVITIES:
 FOOD PREP/POST (Cue Card) (30 Min)
 WCS CLEANING
 (Cue Card, URINE COLLECTION)
 P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
 AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOs)
 BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOs)

◀ MNVR GROUND TRUTH ATT
 R=336.88 P=129.61 Y=342.45
 A/AUTO/VERN (13:20) Init MNVR

LOAD FUTURE MNVR GROUND TRUTH DUAL SHIFT POST-SLEEP ACTIVITY
 R=9.44 P=204.32 Y=332.74 AEROBICS (DSO 476) Daily Log
 A/AUTO/VERN (13:43:57) Init MNVR (MED FS, MED DSOs) (MS2)

◀ On MS GO, B/AUTO/VERN
 Config DAP A to A10
 Select DAP A (13:43:54)
 PRELOADED GND TRUTH MNVR (13:43:57)

◀ MNVR NO EARTHLIMB ATT
 TG=2 BV=5
 P=90 Y=78.22 OM=350
 A/AUTO/VERN (13:51) Init TRK

ALFE PHASE C
 GROUND COMMANDED

PSP HARDLINE/RF CONFIG
 (Cue Card) step 2

SPAS UNBERTH
 (PDRS, SPAS DEPLOY)
 Do not perform step 2

RMS MNVR TO OBS START
 (PL OPS, RMS EXP OPS-NOM)
 MOP

P/TV02 ACT (IBSS)
 (PHOTO/TV, P/TV SCENES)

NE06 ESS HEALTH CHECK
 (675 OPS, NON-BLOCK)

PL

VTR CONFIG
 VTR 1 ON, VTR 2 OFF
 CONFIG TV-IBSS
 (Cue Card, CCTV PAYLOADS)

P/TV02 ACT (IBSS)
 (PHOTO/TV, P/TV SCENES)

STRAPDOWN
 (PL OPS, RMS EXP OPS-NOM)
 STAR ID: V, AOS= 5/13:09
 LOS= 5/13:32

CRYO COVER OPEN (AUTO)
 (PL OPS, SYS OPS-NOM)

GROUND TRUTH
 (PL OPS, RMS EXP OPS-NOM)
 SV TRANSFER req'd
 TGT: FRENCH POLYNESIA
 AOS= 5/13:44:27
 LOS= 5/13:48:24

INSTRUMENT SAFING
 (PL OPS, SYS OPS-NOM)

MCC

UPLINK
 EARLY TDRE H/O
 PERFORM (12:05)
 ALFE PHASE C
 TV (TDRE)
 (GND CNTL-EXP)

TV (TDRE)
 (CREW CNTL-CAB
 -PLB)

UPDATE
 GROUND TRUTH ATT
 FILTER WHEEL

T D
CONT
RTS

MET
DAY 005
14:00

A R B
T E L
T D U

STS 39 (RED FD 06)

PL

MCC

STS

A11 (B13)
AUTO/VERN
A11 (B11)
AUTO/VERN

(A11) B13
AUTO/VERN

ORB
91

E
A
R
T
H
L
I
M
B

P
S
A

LOAD FUTURE MNVR STRAEDOWN
R=129.74 P=294.77 Y=36.43
B/AUTO/VERN (15:00) Init MNVR

PRIVATE MEDICAL CONFERENCE

15:00
A11 (B13)
AUTO/VERN

Select DAP A (15:00)
PRELOADED STRAEDOWN MNVR (15:00)

HANDOVER: RED TO BLUE

BLUE FD 07

HANDOVER: RED TO BLUE

(A11) B13
AUTO/VERN

S
D

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

A11 (B13)
AUTO/VERN

M
W
P
I
S
R
A

MNVR MNIR EARTHSWEEP ATT
TG-2 BV-5
P=155.00 Y=0.00 OM=59.00
A/AUTO/VERN (15:25) Init MNVR

EXERCISE
(2 RED Cmn)

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOMINAL)
Open cover at 15:35

MNIR EARTHSWEEP
(PL OPS, RMS EXP OPS-ALT)
SV TRANSFER req'd
NORTH
Perform as follows:
steps 1,2
step 3 NIGHT until 15:47
step 4 DAWN
step 3 DAY until 16:44
TERMINATOR CROSSING=
DAWN 5/16:08:14

(A11) B13
AUTO/VERN

ORB
92

E
S
W
E
E
P

16:00

STS 39 (BLU FD 07)

T D R W
 CONT RTS
 MET DAY 005
 16:00
 (A11) B13
 AUTO/VERN
 T S S I
 M W I R
 E S W E E P
 P S A
 A11 (B13)
 AUTO/VERN
 17:00
 ORB
 93
 (A11) B13
 AUTO/VERN
 A11 (B13)
 AUTO/VERN
 S L E E P
 O F V R
 A11 (B11)
 AUTO/VERN
 18:00

STS

PL

MCC

◀ MNVR STRAPDOWN ATT
 R=233.6 P=338.97 Y=310.09
 A/AUTO/VERN (17:10) Init MNVR

NE06 ESS HEALTH CHECK
 (675 OPS, NON-BLOCK)

INSTRUMENT SAFING
 (PL OPS, SYS OPS-NOM)

STRAPDOWN
 (PL OPS, RMS EXP OPS-NOM)
 STAR ID: Q, AOS= 17:26
 LOS= 17:49
 step 5 NET 17:36

INSTRUMENT SAFING step 2
 (PL OPS, SYS OPS-NOM)

◀ MNVR OFVR ATT
 R=56.63 P=292.59 Y=320.48
 A/AUTO/VERN (17:40) Init MNVR

RMS MNVR TO OBS START
 (PL OPS, RMS EXP OPS-NOM)
 OFVR

VTR CONFIG
 VTR 2 ON, VTR 1 OFF

OFVR SUN - RMS
 (PL OPS, RMS EXP OPS-NOM)
 SET TIMER ZERO = 18:00

STS 39 (BLU FD 07)

T D R E
CONT RTS
MET
 DAY 005
 18:00
 (A11) B13
 AUTO/VERN
 A11 (B13)
 AUTO/VERN
 A11 (B11)
 AUTO/VERN
 ORB
 94
 (A11) B13
 AUTO/VERN
 19:00
 A11 (B11)
 AUTO/VERN
 (A11) B13
 AUTO/VERN
 A11 (B13)
 AUTO/VERN
 A11 (B11)
 AUTO/VERN
 (A11) B13
 AUTO/VERN
 20:00

ARB TEL DU
OFFVR
EARLIMB

STS
MNVR OFVR SCAN
 R=126.58 P=107.38 Y=36.65
 B/AUTO/VERN (18:01) Init MNVR
 (18:02) Start RMS SCAN

MNVR MWIR ELLIMB TERM ATT
 TG=2 BV=5
 P=90 Y=74.55 OM=350
 A/AUTO/VERN (18:30) Init TRK

MNVR CIV OBS ATT
 TG=2 BV=5
 P=340 Y=0 OM=0
 A/AUTO/VERN (19:35) Init TRK

CRYO COVER OPEN (AUTO)
 (PL OPS, SYS OPS-NOM)

PL

MCC

INSTRUMENT SAFING
 (PL OPS, SYS OPS-NOM)

RMS MNVR TO OBS START
 (PL OPS, RMS EXP OPS-NOM)
 MOP

CRYO COVER OPEN (AUTO)
 (PL OPS, SYS OPS-NOM)

MWIR EARTHLINE TERMINATOR
 (PL OPS, RMS EXP OPS-ALT)
 sv TRANSFER req'd
 NORTH
 OBS 1
 TERMINATOR CROSSING:
 5/19:08:32

RMS MNVR TO OBS START
 (PL OPS, RMS EXP OPS-NOM)
 MOP

NO EARTHLINE
 (PL OPS, RMS EXP OPS-ALT)
 NORTH
 DAY
 OBS order: 1,2,3

INSTRUMENT SAFING
 (PL OPS, SYS OPS-NOM)

RMS MNVR TO OBS START
 (PL OPS, RMS EXP OPS-NOM)
 CIV

T D R E W
CONT RTS
MET DAY 005
20:00

A R B
T E L
T R U

STS 39 (BLU FD 07)

STS

P/TV02 ACT (IBSS)
(PHOTO/TV, P/TV SCENES)

PL
CIV OBSERVATION-PARALLEL
(PL OPS, RMS EXP OPS-ALT)
NIGHT
CIV GAS RELEASE:
5/20:17

MCC

UPLINK
EARLY TDRS H/O
TV (IDRE)
(CREW CNTL-EXP)

A11 (B13)
AUTO/VERN
A11 (B13)
MAN/VERN

IMU ALIGN LOG

REQD ID:

-Y____, -Z____ ANG ERR ____
1 2 3

ANG:

ΔX () _ _ _ () _ _ _ () _ _ _

ΔY () _ _ _ () _ _ _ () _ _ _

ΔZ () _ _ _ () _ _ _ () _ _ _

EXECUTION TIME:

_ _ / _ _ : _ _ : _ _

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
Open cover at 20:15

ORB
95

A11 (B13)
AUTO/VERN

A11 (B13)
MAN/VERN

A11 (B13)
AUTO/VERN

◀ MNVR STRAPDOWN ATT
R=133.49 P=288.07 Y=31.48
A/AUTO/VERN (20:50) Init MNVR

21:00

A11 (B11)
AUTO/VERN

KU-BD ANT CABLE POSITIONING
(ORB OPS, COMM/INST)

RMS MNVR TO OBS START
(PL OPS, RMS EXP OPS-NOM)
MOP

(A11) B13
AUTO/VERN

A11 (B13)
AUTO/VERN

◀ MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN (21:25) Init MNVR

IMU ALIGN - S TRK (ORB OPS)

SUPPLY WATER DUMP steps 1,2
(ORB OPS, ECLS)

ORB
96

◀ MNVR (TRK) -ZLV, +YVV
TG=2 BV=3 OM=270
A/AUTO/VERN (21:45) Init TRK

FC PURGE - AUTO (Cue Card)

CIV FINAL PURGE
(PL OPS, RMS EXP OPS-NOM)

INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)
ASAP after CIV data take

STRAPDOWN
(PL OPS, RMS EXP OPS-NOM)
STAR ID: N, AOS= 5/20:54
LOS= 5/21:49
step 5 NLT 21:22

NE06 ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

UPDATE
H2O SPLY DUMP
QTY TK A & B

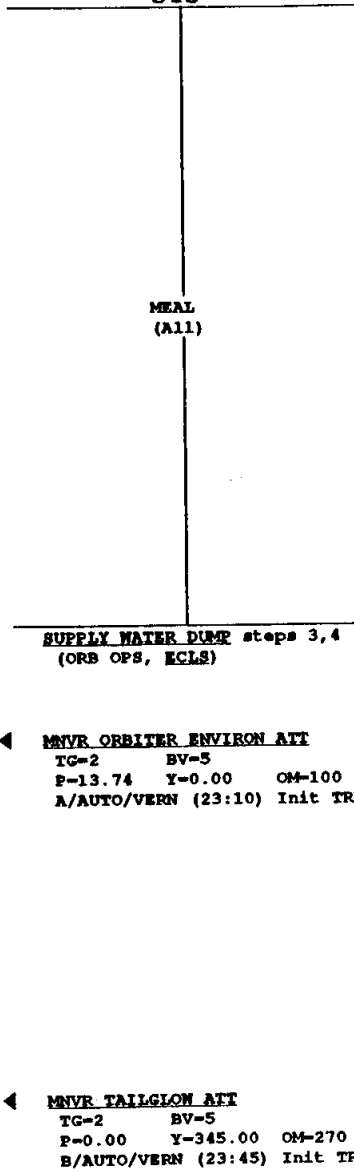
22:00

STS 39 (BLU FD 07)

PL

MCC

T D
CONT
RTS
MET
DAY 005
22:00
A11 (B13)
AUTO/VERN
ARB
TEL
DU
STS
MEAL
(A11)
23:00
SLEEP
SUPPLY WATER DUMP steps 3,4
(ORB OPS, ECLS)
MNVR ORBITER ENVIRON ATT
TG-2 BV-5
P-13.74 Y=0.00 OM-100
A/AUTO/VERN (23:10) Init TRK
ORB
97
(A11) B13
AUTO/VERN
(A11) B11
AUTO/VERN
006
00:00



TV (TDRW)
 (GND CNTRL-PLB)
 (HUP)

VTR CONFIG
 VTR 1 ON, VTR 2 OFF
CRYO COVER OPEN (AUTO)
 (PL OPS, SYS OPS-NOM)
ORBITER ENVIRON steps 1-15
 (PL OPS, RMS EXP OPS-NOM)
 SV TRANSFER req'd

STS 39 (BLU FD 07)

STS

MET
DAY 006
00:00

A11 (B11)
AUTO/VERN

(A11) B11
MAN/VERN

A11 (B11)
AUTO/VERN

MAN/VERN

AUTO/VERN
(A11) B11
AUTO/VERN

MAN/VERN

ORB
98

AUTO/VERN

01:00
(A11) B5
AUTO/VERN

A6 (B9)
AUTO/VERN

(A6) B9
AUTO/VERN
02:00

T I O S L

V T C N H S I

B I A S S E L D E E P

P S A

A I S

R12U FC PURGE HTR - OFF, then GPC

PRIORITY PWRDN GROUP B
(ORB PKT, PRIOR PWRDN)
Perform steps 4-7, 10-12, 14

RJD CONFIG
015,016 RJDF DRIVER 1A F2, 2A F3 (two) - OFF
014 RJDA 2A L4/R4 DRIVER - OFF

Change DAP A, B to A6, B9

DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
(MED FS, MED DSOs) (PLT)

← **MNVR AIS RAD CAL**
R=125.2 P=259.73 Y=315.67
A/AUTO/VERN (01:40) Init MNVR

RED FD07 EZ ACTIVITIES:

FOOD PREP/POST (Cue Card) (30 Min)

WCS CLEANING
(Cue Card, URINE COLLECTION)

P/TV05 CLOUDS
(PHOTO/TV, P/TV SCENES)

AEROBIC EXERCISE (DSO 476) (PLT)
(MED FS, MED DSOs)

BODY COMPOSITION (DSO 608) (MS4)
(MED FS, MED DSOs)

RMS MNVR TO OBS START
(PL OPS, RMS EXP OPS-NOM)
MOP

SPAS BERTH
(PDRS OPS, SPAS RETRIEVE)

RMS POWERDOWN
(PDRS OPS, RMS PWRDN)

INSTRUMENT SAFING
(PL OPS, SYS OPS-NOM)

P/TV02 ACT (IBSS)
(PHOTO/TV, P/TV SCENES)

IN BAY OPS PREP steps 1,2
(PL OPS, IN-BAY OPS-NOM)

NE06 ESS HEALTH CHECK
(675 OPS, NON-BLOCK)

INTERNAL REFERENCE
(PL OPS, SYS OPS-NOMINAL)

AIS RADIOMETRIC
(PL OPS, IN-BAY OPS-NOM)
AOS= 6/01:52
LOS= 6/02:17

PL
~

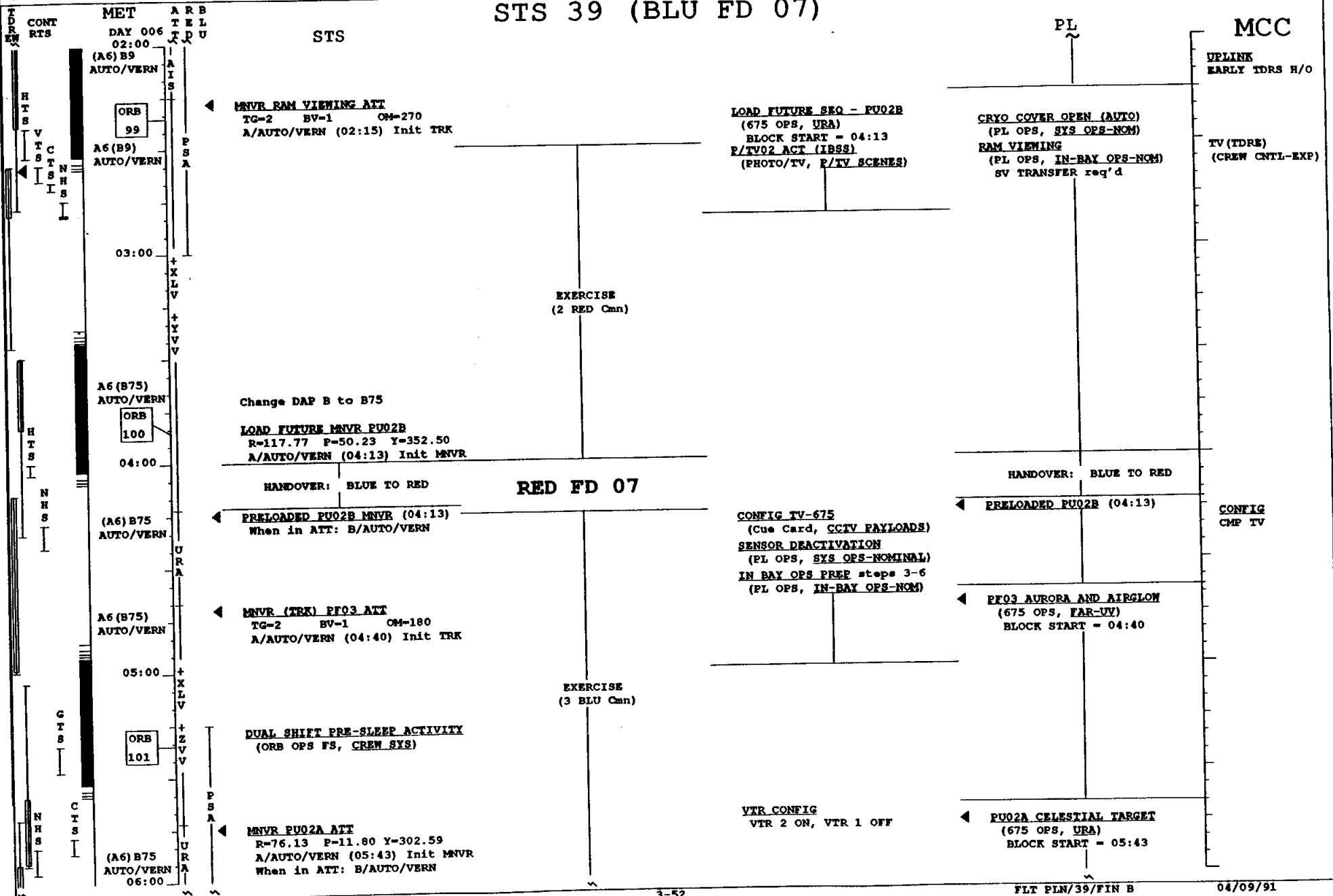
TV (TDROW)
(CREW CNTL-PLB
-CAB)

UPLINK
21° β + MASK

UPDATE
AIS AZ/EL PAD

MCC

STS 39 (BLU FD 07)



MET
DAY 006
02:00
(A6) B9
AUTO/VERN
ORB 99
A6 (B9)
AUTO/VERN
03:00
A6 (B75)
AUTO/VERN
ORB 100
04:00
(A6) B75
AUTO/VERN
A6 (B75)
AUTO/VERN
05:00
ORB 101
(A6) B75
AUTO/VERN
06:00

← **MNVR RAM VIEWING ATT**
TG-2 BV-1 OM-270
A/AUTO/VERN (02:15) Init TRK

LOAD FUTURE SEQ - PU02B
(675 OPS, URA)
BLOCK START - 04:13
P/TVO2 ACT (IBSS)
(PHOTO/TV, P/TV SCENES)

CRYO COVER OPEN (AUTO)
(PL OPS, SYS OPS-NOM)
RAM VIEWING
(PL OPS, IN-BAY OPS-NOM)
SV TRANSFER req'd

EXERCISE
(2 RED Cmn)

Change DAP B to B75
LOAD FUTURE MNVR PU02B
R-117.77 P-50.23 Y-352.50
A/AUTO/VERN (04:13) Init MNVR

RED FD 07

← **PRELOADED PU02B MNVR (04:13)**
When in ATT: B/AUTO/VERN

CONFIG TV-675
(Cue Card, CCTV PAYLOADS)
SENSOR DEACTIVATION
(PL OPS, SYS OPS-NOMINAL)
IN BAY OPS FREE steps 3-6
(PL OPS, IN-BAY OPS-NOM)

← **PRELOADED PU02B (04:13)**

← **MNVR (TRK) PF03 ATT**
TG-2 BV-1 OM-180
A/AUTO/VERN (04:40) Init TRK

← **PF03 AURORA AND AIRGLOW**
(675 OPS, FAR-UV)
BLOCK START - 04:40

EXERCISE
(3 BLU Cmn)

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

VTR CONFIG
VTR 2 ON, VTR 1 OFF

← **MNVR PU02A ATT**
R-76.13 P-11.80 Y-302.59
A/AUTO/VERN (05:43) Init MNVR
When in ATT: B/AUTO/VERN

← **PU02A CELESTIAL TARGET**
(675 OPS, URA)
BLOCK START - 05:43

STS 39 (RED FD 07)

MET **ARB**
DAY 006 **TELE**
06:00 **DU**
(A6) B75 **UR**
AUTO/VERN **A**
A6 (B75) **F**
AUTO/VERN **A**
(A6) B75 **U**
AUTO/VERN **V**
ORB **A**
102
07:00 **F**
A6 (B75) **A**
AUTO/VERN **R**
(A6) B75 **U**
AUTO/VERN **V**
A6 (B75) **F**
AUTO/VERN **A**
(A6) B75 **U**
AUTO/VERN **V**
ORB **A**
103
08:00 **F**
A6 (B75) **A**
AUTO/VERN **R**
(A6) B75 **U**
AUTO/VERN **V**
ORB **A**
104
09:00 **F**
A6 (B75) **A**
AUTO/VERN **R**
(A6) B75 **U**
AUTO/VERN **V**
A6 (B75) **F**
AUTO/VERN **A**
ORB **U**
104 **V**
10:00 **A**

MNVR PF02B ATT
 R=340.03 P=26.61 Y=312.90
 A/AUTO/VERN (06:13) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PF14 ATT
 R=295.93 P=151.06 Y=329.30
 A/AUTO/VERN (07:03) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PF02B ATT
 R=239.62 P=118.06 Y=41.25
 A/AUTO/VERN (07:37) Init MNVR
 When in ATT: B/AUTO/VERN

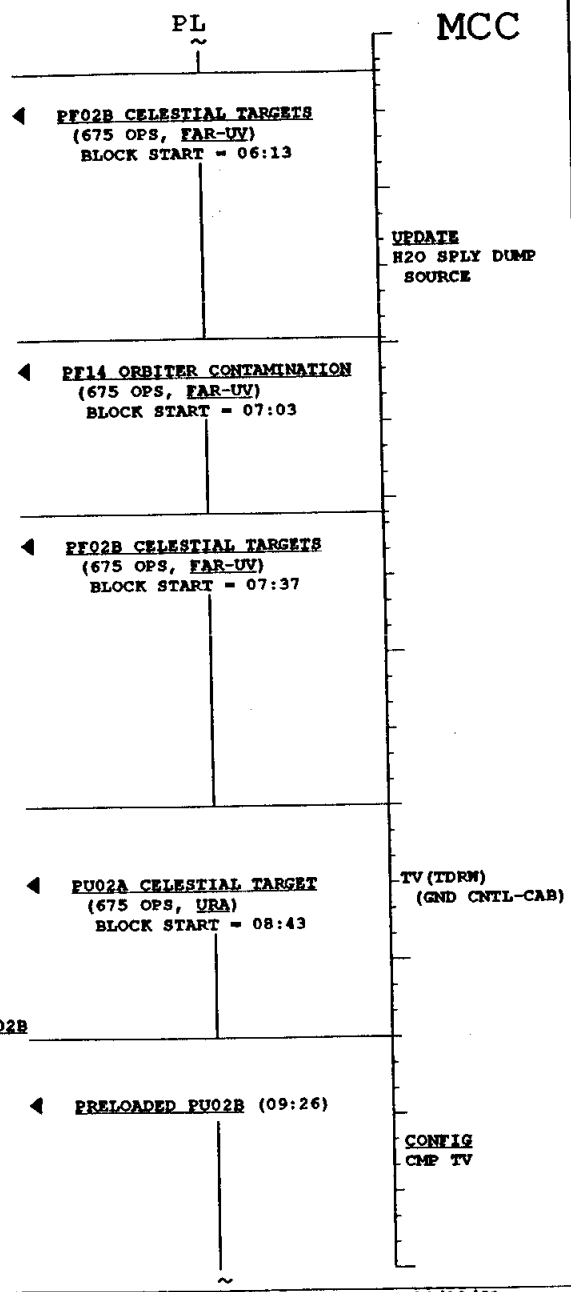
MNVR PU02A ATT
 R=320.35 P=203.93 Y=15.84
 A/AUTO/VERN (08:43) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PU02B ATT
 R=181.99 P=144.72 Y=28.92
 A/AUTO/VERN (09:26) Init MNVR
LOAD FUTURE PU02B MNVR
 R=42.78 P=55.78 Y=13.10
 A/AUTO/VERN (10:11) Init MNVR

SUPPLY WATER DUMP steps 1,2
 (ORB OPS, ECLS)
 Open DUMP VLV at 07:20

SUPPLY WATER DUMP, steps 3&4
 (ORB OPS, ECLS)

MEAL
 (All)



LOAD FUTURE SEQ - PU02B, PU02B
 PU02B BLOCK START = 09:26
 PU02B BLOCK START = 10:11
 (675 OPS, URA)

STS 39 (RED FD 07)

TDR EN CONT RTS MET DAY 006 10:00 A6 (B75) AUTO/VERN
 VTS
 I O S
 H T S
 H T S
 H T S
 A6 (B75) AUTO/VERN
 (A6) B75 AUTO/VERN
 A6 (B75) AUTO/VERN
 A6 (B75) AUTO/VERN
 A6 (B75) AUTO/VERN
 14:00

ARB TEL DU
 STS
 URA
 I M U
 S L E E P
 U R A
 F A R
 U V / U R A
 U R A

PRELOADED PU02B ATT (10:11)
 MNVR IMU ALIGN ATT
 STAR PAIR (A1)
 A/AUTO/VERN (11:00) Init MNVR
 IMU ALIGN - S TRK (ORB OPS)
 KU-BD ANT CABLE POSITIONING
 (ORB OPS, COMM/INST)
 MNVR PU02A ATT
 R=32.45 P=82.22 Y=31.56
 A/AUTO/VERN (11:40) Init MNVR
 When in ATT: B/AUTO/VERN
 MNVR PFU02B ATT
 R=225.42 P=216.30 Y=1.63
 A/AUTO/VERN (12:24) Init MNVR
 When in ATT: B/AUTO/VERN
 MNVR PU02A
 R=66.49 P=185.01 Y=17.70
 A/AUTO/VERN (13:09) Init MNVR
 When in ATT: B/AUTO/VERN
 MNVR PFU02B ATT
 R=152.03 P=192.85 Y=357.34
 A/AUTO/VERN (13:48) Init MNVR
 When in ATT: B/AUTO/VERN

MEAL (All)

IMU ALIGN LOG

REQD ID:

-Y _____, -Z _____ ANG ERR _____

1 2 3

ANG:

ΔX () _ _ _ _ () _ _ _ _ () _ _ _ _

ΔY () _ _ _ _ () _ _ _ _ () _ _ _ _

ΔZ () _ _ _ _ () _ _ _ _ () _ _ _ _

EXECUTION TIME:

_ / _ : _ : _

SUPPLY WATER DUMP, steps 1&2 VTR CONFIG
 (ORB OPS, ECLS) VTR 1 ON, VTR 2 OFF

FC PURGE - AUTO (Cue Card)

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)

MCC

PL

PRELOADED PU02B (10:11)

UPDATE
H2O SPLY DUMP
QTY TK A & B

PU02B CAL BACKGROUND TEST
(675 OPS, URA)
BLOCK START = 11:13

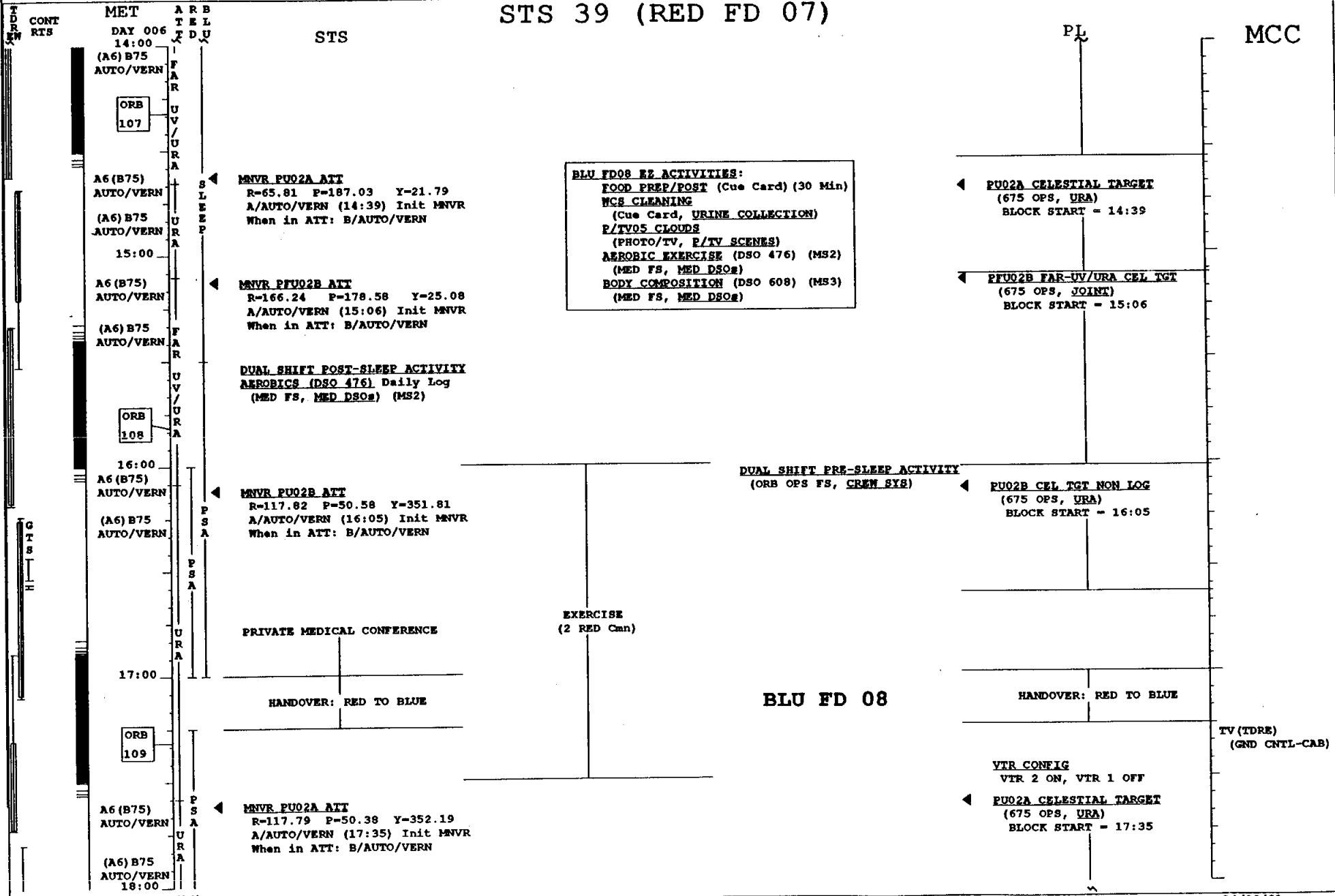
PU02A CELESTIAL TARGET
(675 OPS, URA)
BLOCK START = 11:40

PFU02B FAR-UV/URA CEL TGT
(675 OPS, JOINT)
BLOCK START = 12:24

PU02A CELESTIAL TARGET
(675 OPS, URA)
BLOCK START = 13:09

PFU02B FAR-UV/URA CEL TGT
(675 OPS, JOINT)
BLOCK START = 13:48

STS 39 (RED FD 07)



BLU FD08 EE ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 Min)
WCS CLEANING
 (Cue Card, URINE COLLECTION)
P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOe)
BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOe)

EXERCISE
 (2 RED Cmn)

BLU FD 08

STS 39 (BLU FD 08)

PL

MCC

MET
 DAY 006
 18:00
 (A6) B75
 AUTO/VERN
 A6 (B75)
 AUTO/VERN
 (A6) B75
 AUTO/VERN
 ORB
 110
 19:00
 A6 (B75)
 AUTO/VERN
 (A6) B75
 AUTO/VERN
 A6 (B75)
 AUTO/VERN
 20:00
 ORB
 111
 21:00
 ORB
 112
 22:00

A R B
 T E L
 T P U
 U R A P S A
 F A R
 U V / U R A
 U R A
 S L E E P
 R O O T P
 Q R A M

STS

◀ **MNVR PQ02B ATT**
 R=224.66 P=204.97 Y=350.71
 A/AUTO/VERN (18:13) Init MNVR
 When in ATT: B/AUTO/VERN

VISUAL VESTIBULAR (DSO 604)
 (MED, MED DROs) (MS1)

◀ **MNVR PQ02A ATT**
 R=353.48 P=119.20 Y=25.89
 A/AUTO/VERN (19:05) Init MNVR
 When in ATT: B/AUTO/VERN

◀ **MNVR PQ02A ATT**
 R=169.54 P=121.90 Y=21.17
 A/AUTO/VERN (19:50) Init MNVR
 When in ATT, change
 DAP A VERN DISC RT = .008
 BV=5
 P=270 Y=1.16
 Init ROT (20:05)
 CANCEL (20:27)
 Change DAP A VERN DISC RT = .2

◀ **MNVR (TRK) PQ05 ATT**
 TC=2 BV=5
 P=90 Y=335 OM=270
 A/AUTO/VERN (20:30) Init TRK

◀ **PQ02B FAR-UV/URA CEL TGT**
 (675 OPS, JOINT)
 BLOCK START - 18:13

CONFIG
 CMP TV

◀ **PQ02A CELESTIAL TARGET**
 (675 OPS, URA)
 BLOCK START - 19:05

◀ **PQ02A CELESTIAL TARGET**
 (675 OPS, URA)
 BLOCK START - 19:50

◀ **PQ05 RAM-ALL ION**
 (675 OPS, QINMS)
 BLOCK START - 20:30

UPLINK
 EARLY TDRS H/O
 KU-BD ONLY
 UPDATE
 H2O SPLY DUMP
 QTY TK A & B

STS 39 (BLU FD 08)

PL

MCC

CONT RTS
MET DAY 006 22:00
ARB TEL DU
STS
 A6 (B75) AUTO/VERN
 (A6) B75 MAN/VERN
 23:00 A6 (B75) AUTO/NORM
 007 00:00
 01:00
 A6 (B75) AUTO/VERN
 (A6) B75 AUTO/VERN
 A6 (B75) AUTO/VERN
 (A6) B75 AUTO/VERN
 02:00

SUPPLY WATER DUMP steps 1,2
 (ORB OPS, ECLS)
 FC PURGE - AUTO (Cue Card)
 MNVR PU02A ATT
 R=351.06 P=259.27 Y=334.90
 A/AUTO/VERN (22:15) Init MNVR
 When in ATT: B/AUTO/VERN
 KU-BD ANT CABLE POSITIONING
 (ORB OPS, COMM/INST)

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)
 MNVR IMU ALIGN ATT
 STAR PAIR (B1)
 A/AUTO/NORM (23:00) Init MNVR
 When in Att: A/AUTO/VERN
 IMU ALIGN - S TRK (ORB OPS)

LOAD FUTURE PU02B MNVR
 R=82.62 P=21.64 Y=340.18
 A/AUTO/VERN (23:37) Init MNVR
 LOAD FUTURE PU02B MNVR
 R=155.27 P=85.92 Y=322.72
 A/AUTO/VERN (00:24) Init MNVR

PRELOADED PU02B MNVR (00:24)
 MEAL (All)

MNVR PU02A ATT
 R=306.68 P=224.86 Y=348.21
 A/AUTO/VERN (01:08) Init MNVR
 When in ATT: B/AUTO/VERN

MNVR PU02B ATT
 R=320.57 P=89.80 Y=33.77
 A/AUTO/VERN (01:42) Init MNVR
 When in ATT: B/AUTO/VERN

IMU ALIGN LOG
 REQD ID:
 -Y ____ , -Z ____ ANG ERR ____
 1 2 3
 ANG:
 ΔX () . . . () . . . () . . .
 ΔY () . . . () . . . () . . .
 ΔZ () . . . () . . . () . . .
 EXECUTION TIME:
 _ _ / _ _ : _ _ : _ _

LOAD FUTURE SEQ - PU02B
 (675 OPS, URA)
 BLOCK START = 00:24
 VTR CONFIG
 VTR 1 ON, VTR 2 OFF

PU02A CELESTIAL TARGET
 (675 OPS, URA)
 BLOCK START = 22:15

MEMORY MODULE REPLACEMENT
 (PL OPS, RME-III)
 PU02B CEL TGT NON LOG
 (675 OPS, URA)
 BLOCK START = 23:37

PRELOADED PU02B (00:24)

PU02A CELESTIAL TARGET
 (675 OPS, URA)
 BLOCK START = 01:08

PU02B CELESTIAL TARGETS
 (675 OPS, FAR-UY)
 BLOCK START = 01:42

STS 39 (BLU FD 08)

PL

MCC

MET
 DAY 007
 02:00
 (A6) B75
 AUTO/VERN
 ORB
 115
 A6 (B75)
 AUTO/VERN
 (A6) B75
 AUTO/VERN
 03:00
 A6 (B75)
 AUTO/VERN
 (A6) B75
 AUTO/VERN
 ORB
 116
 04:00
 A6 (B75)
 AUTO/VERN
 A6 (B75)
 AUTO/VERN
 ORB
 117
 05:00
 06:00

STS

DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)

◀ **MNVR PU02A ATT**
 R-57.66 P-228.09 Y-12.74
 A/AUTO/VERN (02:39) Init MNVR
 When in ATT: B/AUTO/VERN

CREW CONF AUDIO/TV CK

◀ **MNVR PFU02B ATT**
 R-225.41 P-216.68 Y-2.00
 A/AUTO/VERN (03:18) Init MNVR
 When in ATT: B/AUTO/VERN

EXERCISE
 (1 RED Cmn)

RJD CONFIG
 014,015,016 /PRIMARY RJD DRIVERS (eight) - ON

HANDOVER: BLUE TO RED

RED FD 08

◀ **MNVR TDRE ATT**
 R-101 P-37 Y-317
 A/AUTO/VERN (04:15) Init MNVR

CREW CONF
 (All)

FCS CHECKOUT
 (ORB OPS, GNC)
 (2 Cmn)

FCS C/O & HOT FIRE CONFIG
 06 MDM FF2,4 (two) - ON
 FA4 - ON
 /014:E, cb DDU L (two) - cl
 015:E
 GNC, I/O RESET

P/TV08 SETUP (CREW CONF)
 (PHOTO/TV, P/TV SCENES)

◀ **PU02A CELESTIAL TARGET**
 (675 OPS, URA)
 BLOCK START = 02:39

TV (TDRE)
 (GND CNTL-CAB)

◀ **PFU02B FAR-UV/URA CEL TGT**
 (675 OPS, JOINT)
 BLOCK START = 03:18

APU STEAM VENT HTR ACT
 R2 BLR CNTLR/HTR (three) -B
 PWR (three) -ON

HANDOVER: BLUE TO RED

RED FD08 EZ ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 Min)
MCS CLEANING
 (Cue Card, URINE COLLECTION)
P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (PLT)
 (MED FS, MED DSOs)
BODY COMPOSITION (DSO 608) (MS4)
 (MED FS, MED DSOs)

TV (TDRE)
 (GND CNTL-CAB)

STS 39 (RED FD 08)

PL

MCC

DR
CONT
RTS
MET
DAY 007
06:00
A1 (B75)
MAN/NORM
A6 (B75)
AUTO/VERN
(A6) B75
AUTO/VERN
ORB
118
07:00
A6 (B75)
AUTO/VERN
(A6) B75
AUTO/VERN
A6 (B75)
AUTO/VERN
(A6) B75
AUTO/VERN
08:00
ORB
119
A6 (B75)
AUTO/VERN
(A6) B75
AUTO/VERN
09:00
A6 (B75)
AUTO/NORM
AUTO/VERN
ORB
120
10:00

ARB
TELE
DU
STS
RCS HOT FIRE TEST
(ORB OPS, RCS) (2 Can)
Change DAP A to A6
MNVR PF13 ATT
R-220.70 P-63.22 Y-321.89
A/AUTO/VERN (06:23) Init MNVR
When in ATT: B/AUTO/VERN
APU HTR RECONFIG (ORB OPS)
APU COOL OFF (On MCC Cue)
R2 APU FUEL PUMP/VLV COOL A-OFF
RJD CONFIG
015,016 RJDF DRIVER 1A F2, 2A F3 (two) - OFF
014 RJDA 2A L4/R4 DRIVER - OFF
MNVR PU02A ATT
R-28.85 P-236.64 Y-63.32
A/AUTO/VERN (07:09) Init MNVR
When in ATT: B/AUTO/VERN
MNVR PFU02B ATT
R-152.95 P-202.64 Y-351.99
A/AUTO/VERN (07:34) Init MNVR
When in ATT: B/AUTO/VERN

IMU ALIGN LOG			
REQD ID:	-Y	-Z	ANG ERR
	1	2	3
ANG:			
ΔX ()	()	()	()
ΔY ()	()	()	()
ΔZ ()	()	()	()
EXECUTION TIME:	-- / -- : --		

MNVR PU02A ATT
R-85.82 P-210.99 Y-18.95
A/AUTO/VERN (08:44) Init MNVR
When in ATT: B/AUTO/VERN
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/NORM (09:25) Init MNVR
When in ATT: A/AUTO/VERN
IMU ALIGN - S TRK (ORB OPS)
LOAD FUTURE PU02B MNVR
R-58.79 P-200.07 Y-42.05
A/AUTO/VERN (10:07) Init MNVR

EXERCISE
(1 RED Can)
POST FCS/HOT FIRE CONFIG
06 MDM FF2,4 (two) - OFF
FA4 - OFF
/b14:E, ob DDU L (two) - as req'd
015:E
EXERCISE
(3 BLU Can)
BLOOD PRESSURE VAR (DSO 602)
(MED FS, MED DSO#)
(CDR, PLT, MSS)
SUPPLY WATER DUMP steps 1,2
(ORB OPS, ECLS)
FC PURGE - AUTO (Cue Card)
P/TV04 SETUP (STP-1)
(PHOTO/TV, P/TV SCENES)
LOAD FUTURE SEQ - PU02B
(675 OPS, URA)
BLOCK START = 10:07
SUPPLY WATER DUMP steps 3,4
(ORB OPS, ECLS)

VTR CONFIG
VTR 2 ON, VTR 1 OFF
PF13 RAM CONTAMINATION
(675 OPS, FAR-UV)
BLOCK START = 06:23
PU02A CELESTIAL TARGET
(675 OPS, URA)
BLOCK START = 07:09
PFU02B FAR-UV/URA CEL TGT
(675 OPS, JOINT)
BLOCK START = 07:34
PU02A CELESTIAL TARGET
(675 OPS, URA)
BLOCK START = 08:44
PH05 LAMP TEST MODE
(675 OPS, HUR)
BLOCK START = 09:20
PU08 CAL BACKGROUND TEST
(675 OPS, URA)
BLOCK START = 09:36

CONFIG
CMP TV
INFORM CREW
GO FOR APU
COOL OFF
UPDATE
H2O SPLY DUMP
QTY TK A & B

STS 39 (RED FD 08)

TDR	CONT RTS	MET	ARB TEL DU	STS	PL	MCC
		DAY 007 10:00		PRELOADED PU02B MNVR (10:07)	PRELOADED PU02B (10:07)	
		A6 (B75) AUTO/VERN		MEAL (All)		
		11:00			P/TV04 ACT (STP-1) (PHOTO/TV, P/TV SCENES)	CONFIG TV-STP-1 (Cue Card, CCTV PAYLOADS)
		ORB 121		KU-BD ANT CABLE POSITIONING (ORB OPS, COMM/INST)		TV(TDRE) (CREW CNTL-PLB)
		MAN/VERN		MNVR UVLIM SCAN ATT TG-2 BV-5 P-215 Y=0 OM-0 A/AUTO/VERN (11:27) Init TRK DAP ROT:DISC/DISC/DISC A/MAN/VERN (11:42) Inform MCC when MAN	UVLIM LIMB SCAN GROUND COMMANDED	PERFORM (11:42) UVLIM LIMB SCAN
		12:00		PLB Lights - OFF MNVR UVLIM SCAN ATT TG-2 BV-5 P-215 Y=354 OM-8 A/AUTO/VERN (11:57) Init TRK A/MAN/VERN (12:03) Inform MCC when MAN	UVLIM LIMB SCAN GROUND COMMANDED	PERFORM (12:03) UVLIM LIMB SCAN
		A6 (B75) AUTO/VERN		MNVR SKIRT CVF INTRL ATT TG-2 BV-5 P=0 Y=90 OM=180 A/AUTO/VERN (12:20) Init TRK Load BV=5 P=270 Y=0 When in ATT, change DAP A VERN DISC RATE = .1 Init ROT (12:35) Inform MCC of ROT start	VTR CONFIG VTR 1 ON, VTR 2 OFF SKIRT CVF INERTIAL GROUND COMMANDED	TV(TDRE) (CREW CNTL-PLB) PERFORM (12:35) SKIRT CVF INRTL
		ORB 122			P/TV04 ACT (STP-1) (PHOTO/TV, P/TV SCENES)	
		13:00		MNVR UVLIM SCAN ATT TG-2 BV-5 P-215 Y=0 OM-0 Change DAP A VERN DISC RT = .2 A/AUTO/VERN (12:57) Init TRK DAP ROT:DISC/DISC/DISC A/MAN/VERN (13:12) Inform MCC when MAN	UVLIM LIMB SCAN GROUND COMMANDED	PERFORM (13:12) UVLIM LIMB SCAN
		A6 (B75) AUTO/VERN		MNVR UVLIM SCAN ATT TG-2 BV-5 P-214 Y=353 OM=10 A/AUTO/VERN (13:27) Init TRK A/MAN/VERN (13:33) Inform MCC when MAN	UVLIM LIMB SCAN GROUND COMMANDED	PERFORM (13:33) UVLIM LIMB SCAN
		MAN/VERN		MNVR MOON CAL ATT R=226 P=137 Y=314 A/AUTO/VERN (13:50) Init MNVR		
		A6 (B75) AUTO/VERN 14:00				

STS 39 (RED FD 08)

CONT RTS
MET
 DAY 007
 14:00
 A6 (B75)
 AUTO/VERN
 ORB 123
 (A6) B75
 AUTO/VERN
 15:00
 A6 (B75)
 AUTO/VERN
 ORB 124
 (A3) B2
 AUTO/VERN
 16:00
 A3 (B2)
 MAN/VERN
 17:00
 ORB 125
 A6 (B2)
 AUTO/VERN
 18:00

STS
MNVR UVLM IMAGING SCAN ATT
 TG=2 BV=5
 P=0 Y=270 OM=90
 A/AUTO/VERN (14:13) Init TRK
 When in ATT: B/AUTO/VERN
 Change DAP B VERN DISC RT = .06
 VERN ATT DB = .5
 Load BV = 1
 Init ROT (14:28)
 Inform MCC of ROT start
 A7U /PLB Lights - OFF
 15:00
MNVR SKIRT CVF INRTL ATT
 TG=2 BV=5
 P=0 Y=90 OM=180
 A/AUTO/VERN (15:10) Init TRK
 Load BV=5 P=270 Y=0
 When in ATT, change
 DAP A VERN DISC RATE = .1
 Init ROT (15:25)
 Inform MCC of ROT start
 A7U /PLB Lights - OFF
GG FREE DRIFT, Steps 1 & 2
 (ORB OPS, RCS) (15:55)
 BODY VECTOR 5 PER GG PAD
 17:00
DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (MS2)
 Change A to A6
MNVR SKIRT CVF INRTL ATT
 TG=2 BV=5
 P=0 Y=90 OM=180
 A/AUTO/VERN (17:45) Init TRK

PLANNED	GGN	
	PLANNED	ACTUAL
P=356.	---	---
Y=2.	---	---
OM=238.	---	---

BLU FD09 EE ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 Min)
WCS CLEANING
 (Cue Card, URINE COLLECTION)
P/TV05 CLOUDS
 (PHOTO/TV, P/TV SCENES)
AEROBIC EXERCISE (DSO 476) (MS2)
 (MED FS, MED DSOs)
BODY COMPOSITION (DSO 608) (MS3)
 (MED FS, MED DSOs)

PRIVATE MEDICAL CONFERENCE

PL
SKIRT CVF PLANET CAL
 GROUND COMMANDED
UVLM IMAGING SCAN
 GROUND COMMANDED
SKIRT CVF INERTIAL
 GROUND COMMANDED
PT01 FAR-UV & HUP DEACT
 (675 OPS, DEACTIVATION)
 BLOCK START = 15:45
ALFE PHASE A
 GROUND COMMANDED
ALFE PHASE B
 GROUNDED COMMANDED
ALFE PHASE D
 GROUND COMMANDED

MCC
PERFORM (14:05)
 SKIRT PLANET CAL
PERFORM (14:28)
 UVLM IMAGING SCAN
PERFORM (15:25)
 SKIRT CVF INRTL
PERFORM (16:10)
 ALFE PHASE A
 TV (TDRW/E)
 (GND CNTL-CAB -EXP)
PERFORM (16:40)
 ALFE PHASE B
PERFORM (17:10)
 ALFE PHASE D
TV (TDRE)
 (CREW CNTL-PLB)

STS 39 (BLU FD 09)

BLUE FD 09

IMU ALIGN LOG
 REQD ID:
 -Y _____ -Z _____ ANG ERR _____
 1 2 3
 ANG:
 ΔX () () () ()
 ΔY () () () ()
 ΔZ () () () ()
 EXECUTION TIME:
 - - / - - : - - : - -

PT02 URA & QINMS DEACT
 (675 OPS, DEACTIVATION)
 BLOCK START- 19:20

PT05 ESS T/R REEL BALANCE
 (675 OPS, DEACTIVATION)
 BLOCK START = 19:45

P/TV04 ACT (STR-1)
 (PHOTO/TV, P/TV SCENES)

SKIRT CVF INERTIAL
 GROUND COMMANDED

LANDING PREP
 (PL OPS, SYS OPS-NOMINAL)

MPEC DEPLOY
 (PL OPS, MPEC)
 DEPLOY TIME =
 7/21:00:00 MET

P/TV03 SETUP (AFP-675)
 (PHOTO/TV, P/TV SCENES)

P/TV03 ACT (AFP-675)
 (PHOTO/TV, P/TV SCENES)

MET ARB
 TEL
 DU
 STS
 HANDOVER: RED TO BLUE
 MNVR SKIRT CVF INTRL ROT
 Load BV=5 P=270 Y=0
 DAP A VERN DISC RT = .1
 A/AUTO/VERN (18:20) Init ROT
 Inform MCC of ROT start
 A7U /PLB Lights - OFF
 MNVR UVLIM IMAGING SCAN ATT
 TG=2 BV=5
 P=0 Y=270 OM=90
 B/AUTO/VERN (18:42) Init TRK
 When in ATT, change
 DAP B VERN DISC RT = .06
 VERN ATT DB = .5
 VERN RT DB = .01
 Load BV = 1
 Init ROT (18:57)
 Inform MCC of ROT start
 A7U /PLB Lights - OFF
 Config DAP: B2/AUTO/VERN
 MNVR SKIRT CVF INTRL ATT
 TG=2 BV=5
 P=0 Y=90 OM=180
 B/AUTO/VERN (19:50) Init TRK
 Load BV=5 P=270 Y=0
 When in ATT,
 DAP A VERN DISC RATE = .1
 A/AUTO/VERN Init ROT (20:05)
 Inform MCC of ROT start
 A7U /PLB Lights - OFF
 MNVR (TRK) MPEC DEPLOY
 TG=2 BV=5
 P=0 Y=270 OM=90
 B/AUTO/VERN (20:35) Init TRK
 Change DAP A to A6
 MNVR IMJ ALIGN ATT
 STAR PAIR (A1)
 A/AUTO/VERN (21:25) Init MNVR
 IMU ALIGN - S TRK (ORB OPS)
 MNVR (TRK) -ELV, +YVV
 TG=2 BV=3 OM=270
 A/AUTO/VERN Init TRK

ORB
126

(A6) B2
 AUTO/VERN
 19:00

(A6) B2
 AUTO/VERN
 20:00

(A6) B2
 AUTO/VERN
 20:05

ORB
127

(A6) B2
 AUTO/VERN
 21:00

(A6) B2
 AUTO/VERN
 21:00

ORB
128

22:00

PL

MCC

HANDOVER: RED TO BLUE

UPLINK
 EARLY TDRS H/O

SKIRT CVF INERTIAL
 GROUND COMMANDED

PERFORM (18:20)
 SKIRT CVF INTRL

VTR CONFIG
 VTR 2 ON, VTR 1 OFF

UVLIM IMAGING SCAN
 GROUND COMMANDED

PERFORM (19:00)
 UVLIM IMAGING
 SCAN

PT05 ESS T/R REEL BALANCE
 (675 OPS, DEACTIVATION)
 BLOCK START = 19:45

PERFORM (20:05)
 SKIRT CVF INTRL

MPEC DEPLOY

UPDATE
 H2O WASTE
 DUMP QTY

TV (TDRE)
 (CREW CNTL-PLB)

STS 39 (BLU FD 09)

PL

MCC

CONT RTS
MET
 DAY 007
 22:00
 A6 (B2)
 AUTO/VERN
ARB TEL TDU
SLEEP
 23:00
ORB 129
ELV + YVVV
 008
 00:00
ORB 130
PASA
 01:00
XS I
 02:00

STS
KU-BD ANT STON
 (ORB OPS, COMM/INST)

WASTE WATER DUMP steps 1,2
 (ORB OPS, ECLS)
FC PURGE - AUTO (Cue Card) L1

CABIN TEMP CNTL RECONFIG
 CABIN TEMP - full COOL
 wait 20 min then,
 CABIN TEMP CNTLR - OFF

MEAL
 (All)

WASTE WATER DUMP, step 3
 (ORB OPS, ECLS)
SUPPLY WATER DUMP, steps 1&2
 (ORB OPS, ECLS)

RED FD 09

SUPPLY WATER DUMP steps 3,4
 (ORB OPS, ECLS)

CABIN CONFIG/STON
 (All)

DUAL SHIFT POST-SLEEP ACTIVITY
AEROBICS (DSO 476) Daily Log
 (MED FS, MED DSOs) (PLT)

VTR CONFIG
 VTR 1 ON, VTR 2 OFF
BLOOD PRESSURE VAR (DSO 602)
 (MED FS, MED DSOs)
 (CDR, PLT, MS5)

◀ **MNVR (TRK) -XSI ATT**
 TG-4 BV-5
 P-184 Y=0 OM-270
 A/AUTO/VERN (01:00) Init TRK
 PRIVATE MEDICAL CONFERENCE

RED FD09 EZ ACTIVITIES:
FOOD PREP/POST (Cue Card) (30 min)
WCS CLEANING
 (Cue Card, URINE COLLECTION)
BODY COMPOSITION (DSO 608) (PLT)
 (MED FS, MED DSOs)

UPDATE
 H2O SPLY DUMP
 QTY TK A & B

STS 39 (FD 09)

STS

PL

MCC

MET DAY 008 02:00
 A6 (B2) AUTO/VERN
 ORB 131

03:00

ORB 132

04:00

05:00

ORB 133

06:00

CONT RTS
 HTS
 NHTS
 NHTS
 GTS
 CTS
 NHTS

ARB TEL TDU
 BIASSED
 XSI
 IMU/VERF
 D/O

PRIORITY PWRUP GROUP B
 (ORB PKT, PRIOR PWRDN)

Update: CRT TIMER SETUP PAD
 in NOMINAL DEORBIT PREP

MO32M LEH 02 5 vlv - CL
 Remove and stow 02 Bleed
 Orifice
 LEH 02 5 vlv - R

RME-III DEACT/STOW
 (PL OPS, RME-III)

STEP-1 DEACTIVATION
 (PL OPS, STEP-1)

PT04 P/L DEACT
 (675 OPS, DEORBIT PREP)
 BLOCK START- 02:25

UPDATE
 CRT TIMER
 SETUP PAD

EE ACTIVITIES BEFORE LEAVING FLT PLN:
AIR SAMPLE
 Red MET on bottle
FLUID LOADING PREP
 Fill 6 drink containers with
 8 oz H2O each (per person)

GO TO DEORBIT PREP at 8/02:28 MET

CPA OPS

CPA

1. Destow CPA
2. Selector SW - Scan
Two minute warmup
3. Log middeck readings
each sensor
4. Selector SW - Off
5. Restow CPA

DATA LOG

MET	LOCATION	DATA READINGS, ppm	REMARKS
___/___:___		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
___/___:___		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
___/___:___		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
___/___:___		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
___/___:___		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	

MET	LOCATION	DATA READINGS, ppm	REMARKS
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	
/:--		1. CO _____ 2. HCN _____ 3. HF _____ 4. HCl _____	

CONTINGENCY TIMELINES

**CONTINGENCY
TIMELINES**

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MINIMUM DURATION FLIGHT

The minimum duration flight timeline is designed to accommodate the Rev 55 landing opportunity. This timeline assumes that the MDF was discovered prior to 1/07:00 MET. The IBSS deploy is moved approximately 12 hours earlier and IBSS detached operations have been shortened to approximately 24 hours to accommodate the earlier landing. The final sleep period for the BLU team ends 24 hours prior to landing, which necessitates the scheduling of a 4-hour nap prior to deorbit. The timeline is based on the nominal flight cycle trajectory.

MINIMUM
DURATION FLT

MINIMUM DURATION FLIGHT

RED BLUMDF TIMELINE				FLIGHT				STS 39		EDITION		FINAL, REV B		PUB. DATE		04/09/91																		
MET :000	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 FD 1&2	DIR	POST INSERTION	AFP 675	RMS C/O	MEAL	IBSS ON-ORBIT C/O	AFP 675	PRE SLEEP	H/O				SLEEP								POST SLEEP		H/O		AFP 675									
BLU FD 1&2	UNINS								H/O						AFP 675						MEAL		AFP 675		H/O									
DAY/NIGHT																																		
ORBIT		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0										
NOTES:		057/139X141		0 RME-III ACT & C/O						ODSO 602 BLOOD PRESSURE																PRE SLEEP								
MET :001	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 FD 2&3		AFP 675	MEAL		AFP 675			SPAS PRE-DPY C/O				Δ Δ	Δ											Δ	Δ	Δ								
BLU FD 3												POST SLEEP	H/O	IBSS DEPLOYED OPS	CD RE OX								IBSS DEPLOYED OPS	RME		IBSS DEPLOYED OPS								
DAY/NIGHT																																		
ORBIT	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32																		
NOTES:																																		
MET :002	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 FD 3&4	Δ H/O	Δ OPC/NC IBSS DEPLOYED OPS	Δ NOPC IBSS DEPLOYED OPS		MEAL	CD RE OX		Δ NCC TI	Δ M	Δ		Δ H/O	Δ HA CIRC	Δ										POST SLEEP	H/O	FCS C/O								
BLU FD 4	H/O	PRE SLEEP										POST SLEEP	H/O	IBSS DEPLOYED OPS	SEPARATION									AFP 675	CRO A DPY	MEAL	MD PE EX C	PAYLOAD DEACT				PRE SLEEP	H/O	SLEEP
DAY/NIGHT																																		
ORBIT	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48																		
NOTES:																																		
MET :003	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 FD 4	FCS C/O		CABIN STOW			DEORBIT PREP																												
BLU FD 5																																		
DAY/NIGHT																																		
ORBIT	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64																		
NOTES:																																		

48 HOUR LATE IBSS DEPLOY (EVA)

The 48 HOUR LATE IBSS DEPLOY (EVA) Timeline is designed to accommodate delaying IBSS deploy until Rev 63 following an EVA. AFP-675 activities are extended until IBSS EVA preparation begins. All IBSS detached activities are planned to occur approximately 48 hours later than nominal. Grapple is planned to occur on Rev 88. The last BLU sleep cycle is early, in comparison to landing, so a 4-hour nap has been scheduled for the BLU team prior to deorbit. The timeline is based on the nominal flight trajectory.

48-HR LATE
IBSS DPY (EVA)

RED BLU 48 HR LATE IBSS DPLY (EVA)			FLIGHT STS-39		EDITION FINAL, REV B		PUB. DATE 04/09/91																			
MET :000	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 FD 1&2	D O L I A R M S - N 2 C H S B R T		POST INSERTION	APP 675	RMS C/O	MEAL	IBSS ON-ORBIT C/O	APP 675	PRE SLEEP	H/O	SLEEP								POST SLEEP	H/O	APP 675					
BLU FD 1&2	PRE SLEEP		SLEEP (6.0)				POST SLEEP	H/O	APP 675				MEAL	APP 675		H/O										
DAY/NIGHT	[Day/Night Cycle]																									
ORBIT	[Orbit Cycle]																									
NOTES:	0 57/139X141 0 RME-III ACT & C/O 0 PRE SLEEP 0 DSO 602 BLOOD PRESSURE ■ POST INSERTION ■ POST SLEEP ■ PRE SLEEP																									
MET :001	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 FD 2&3	APP 675		MEAL	APP 675				PRE SLEEP	H/O	PRE SLEEP	SLEEP (7.0)								POST SLEEP	H/O	APP 675					
BLU FD3	PRE SLEEP		SLEEP				PS OL SE TE P	H/O	POST SLEEP	APP 675				MEAL	SPAS PRE-DPY C/O	F A I L U R E	IBSS PWRDN	H/O								
DAY/NIGHT	[Day/Night Cycle]																									
ORBIT	[Orbit Cycle]																									
NOTES:	■ SPAS PRE-DPY C/O ■ RME-III MEM MOD REPLACEMENT 0 DSO 602 BLOOD PRESSURE ■ PRE SLEEP ■ SPAS UNBERTH																									
MET :002	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 FD 3&4	APP 675		MEAL	APP 675				PRE SLEEP	H/O	PRE SLEEP	SLEEP								POST SLEEP	H/O	APP 675					
BLU FD4	PRE SLEEP		SLEEP				PS OL SE TE P	H/O	POST SLEEP	APP 675	P/B I N I T	APP 675	1 D E P R E S S	E B Q U I P M	APP 675	MEAL	APP 675	EMU C/O	H/O							
DAY/NIGHT	[Day/Night Cycle]																									
ORBIT	[Orbit Cycle]																									
NOTES:	■ 10.2 PREP ■ 10.2 CONFIG ODSO 602 BLOOD PRESSURE ■ PRE SLEEP																									

RED BLU 48 HR LATE IBSS DPLY (EVA)			FLIGHT STS-39			EDITION FINAL, REV B			PUB. DATE 04/09/91																	
MET 1006	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 FD 7&8	IBSS RMS OPS	SEPARATION	14.7 PRESS	HA2 CIRC2	MEAL	APP 675	PRE SLEEP	H/O	PRE SLEEP	SLEEP	POST SLEEP	H/O	POST SLEEP	H/O	RME	FCS C/O	H/O	H/O	H/O	H/O	H/O	H/O	H/O	H/O	H/O	H/O
BLU FD8	PRE SLEEP	SLEEP	SLEEP	SLEEP	SLEEP	SLEEP	POST SLEEP	H/O	APP 675	MEAL	APP 675	POST SLEEP	H/O	POST EVA ENT PREP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP	PS R L SLEEP
DAY/NIGHT	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	
ORBIT	o CRO A OBS												o DSO 604 VISUAL VESTIBULAR												o CREW CONF	
NOTES:																										
MET 1007	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 FD 8&9	APP 675	MEAL	APP 675	PS R L SLEEP	H/O	PS R L SLEEP	H/O	SLEEP	PS R L SLEEP	H/O	PS R L SLEEP	H/O	POST SLEEP	MPEC DPLY	CABIN STOW											
BLU FD9	PRE SLEEP	SLEEP	POST SLEEP	H/O	PS R L SLEEP	H/O	APP-675/STP-1	MEAL	PAYLOAD DEACT	H/O	SLEEP (4.0)															
DAY/NIGHT	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129									
ORBIT	o DSO 602 BLOOD PRESSURE																									
NOTES:																										
MET 1008	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	CABIN STOW	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	
BLU FD10	SLEEP	POST SLEEP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	DEORBIT PREP	
DAY/NIGHT	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145									
ORBIT	o DSO 602 BLOOD PRESSURE o DSO 603 ORTHOSTATIC FUNCTION ■ RME-III DEACT & STOW																									
NOTES:																										

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

STS-39
ATTITUDE TIMELINE

Attitude Timeline

ATTITUDE
TIMELINE

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 0/01:12:00	TRK TGT=2 BV=3(90.00, 0.00) OM=270.00	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+ 90	PLBD OPENING -ZLV +YVV
2 0/02:30:00 43:59	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 101 P 147	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
3 0/02:50:00 03:04:40	TRK TGT=4 BV=5(270.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 91 P 180	INRTL R+249 P+316 Y+308	+ZSI
4 0/04:35:00 50:00	TRK TGT=4 BV=3(90.00, 0.00) OM= 0.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 89 P 360	INRTL R+111 P+136 Y+ 52	-ZSI
5 0/05:45:00 59:56	TRK TGT=4 BV=5(270.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 90 P 180	INRTL R+249 P+315 Y+309	+ZSI
6 0/08:25:00 34:44	TRK TGT=2 BV=3(90.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+ 90	-ZLV +YVV
7 0/09:15:00 29:45	TRK TGT=4 BV=3(90.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 90 P 360	INRTL R+112 P+134 Y+ 51	-ZSI
8 0/09:50:00 10:02:19	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 100 P 147	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN -Z COAS CAL
9 0/11:00:00 09:37	TRK TGT=2 BV=5(90.00, 335.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 335	LVLH R+ 25 P+180 Y+ 90	PQ02 QRAM
10 0/12:25:00 26:24	MNVR R+327.29 P+ 31.25 Y+ 9.31	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 52 P 174		PU01 NON-X6
11 0/12:55:00 13:05:44	TRK TGT=2 BV=3(90.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+ 90	-ZLV +YVV
12 0/13:45:00 50:47	MNVR R+ 17.81 P+334.07 Y+341.03	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 56 P 65		PU03 CRAB NEBULA POINT 1

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 0/13:54:00 54:07	MNVR R+ 17.69 P+333.67 Y+342.31	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 54 P 65		PU03 CRAB NEBULA POINT 2
2 0/13:57:00 57:07	MNVR R+ 17.57 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 64		PU03 CRAB NEBULA POINT 3
3 0/14:00:00 00:07	MNVR R+ 17.46 P+332.88 Y+344.87	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 52 P 64		PU03 CRAB NEBULA POINT 4
4 0/14:03:00 03:07	MNVR R+ 17.37 P+332.49 Y+346.15	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 51 P 63		PU03 CRAB NEBULA POINT 5
5 0/14:06:00 06:19	MNVR R+ 14.90 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 67		PU03 CRAB NEBULA POINT 6
6 0/14:09:00 09:07	MNVR R+ 16.24 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 66		PU03 CRAB NEBULA POINT 7
7 0/14:12:00 12:07	MNVR R+ 17.57 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 64		PU03 CRAB NEBULA POINT 8
8 0/14:15:00 15:07	MNVR R+ 18.90 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 63		PU03 CRAB NEBULA POINT 9
9 0/14:18:00 18:07	MNVR R+ 20.24 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 62		PU03 CRAB NEBULA POINT 10
10 0/14:23:00 37:39	MNVR R+193.36 P+303.72 Y+333.22	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 72 P 226		PFU02B GALACTIC CENTER N G P
11 0/15:13:00 27:23	MNVR R+ 17.81 P+334.07 Y+341.03	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 56 P 65		PU03 CRAB NEBULA POINT 1
12 0/15:30:00 30:07	MNVR R+ 17.69 P+333.67 Y+342.31	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 55 P 65		PU03 CRAB NEBULA POINT 2

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 0/15:32:00 32:07	MNVR R+ 17.57 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 64		PU03 CRAB NEBULA POINT 3
2 0/15:34:00 34:07	MNVR R+ 17.46 P+332.88 Y+344.87	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 52 P 64		PU03 CRAB NEBULA POINT 4
3 0/15:36:00 36:07	MNVR R+ 17.37 P+332.49 Y+346.15	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 51 P 63		PU03 CRAB NEBULA POINT 5
4 0/15:38:00 38:19	MNVR R+ 14.90 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 67		PU03 CRAB NEBULA POINT 6
5 0/15:40:00 40:07	MNVR R+ 16.24 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 66		PU03 CRAB NEBULA POINT 7
6 0/15:42:00 42:07	MNVR R+ 17.57 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 64		PU03 CRAB NEBULA POINT 8
7 0/15:44:00 44:07	MNVR R+ 18.90 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 63		PU03 CRAB NEBULA POINT 9
8 0/15:46:00 46:07	MNVR R+ 20.24 P+333.27 Y+343.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 53 P 62		PU03 CRAB NEBULA POINT 10
9 0/15:49:00 16:02:25	MNVR R+163.78 P+288.29 Y+336.50	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 78 P 245		PFU02B SCO-X1 VIRCL1
10 0/16:39:00 52:47	MNVR R+306.20 P+222.05 Y+352.13	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 118 P 91		PU02B PERSCL
11 0/17:34:00 46:48	MNVR R+119.30 P+ 56.70 Y+340.32	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 90 P 22		PU02B CYGX-2
12 0/18:15:00 27:10	TRK TGT=2 BV=3(90.00, 0.00) OM= 90.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 360	LVLH R+180 P+ 0 Y+270	-ZLV -YVV

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 0/19:15:00 26:44	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 36 P 103	STAR PR B1 -Y: 29 -Z: 22	IMU ALIGN
2 0/19:46:00 20:00:55	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC35 GGN
3 0/22:00:00 08:52	TRK TGT=2 BV=5(90.00, 335.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 335	LVLH R+ 25 P+180 Y+ 90	PQ04 QRAM
4 0/22:46:00 23:00:49	TRK TGT=2 BV=5(356.00, 358.00) OM=122.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 211	LVLH R+122 P+266 Y+ 2	PC10 GGS
5 1/00:34:00 47:12	TRK TGT=2 BV=5(135.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 135 P 0	LVLH R+ 0 P+135 Y+ 0	PF07 P+135 NIGHT PRCS
6 1/02:26:00 34:16	MNVR R+141.17 P+ 57.66 Y+339.11	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 92 P 0		PU02B CYGX-1
7 1/03:20:00 25:04	TRK TGT=2 BV=5(356.00, 358.00) OM=122.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 211	LVLH R+122 P+266 Y+ 2	PC42A, 43A, 44A GGS
8 1/08:27:00 40:27	MNVR R+197.12 P+309.70 Y+313.85	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 88 P 228		PU02A
9 1/08:41:00	CHANGE DAP A VERN DISC RT=.008	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02			
10 1/08:42:00	ROT BV=5(90.00, 358.84)	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02		ROT R+197 START P+310 ATT Y+314	PU02A URA SCAN
11 1/09:03:00	CANCEL	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02	SUN T 80 P 228	INRTL R+195 P+306 Y+324	PU02A SCAN TERM
12 1/09:11:00 24:06	MNVR R+314.66 P+188.43 Y+ 34.30	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 104 P 113		PU02B PERSCL

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 1/09:40:00 52:55	MNVR R+320.00 P+333.00 Y+300.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 97 P 124	STAR PR A2 -Y: 20 -Z: 51 +X: 22	IMU ALIGN +X COAS CAL
2 1/11:23:00 36:45	MNVR R+178.45 P+103.63 Y+ 29.12	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 95 P 314		PU02B GALACTIC CENTER
3 1/12:09:00 21:41	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC12A,12B GGN
4 1/15:55:00 16:02:16	MNVR R+217.88 P+214.43 Y+ 27.53	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 98 P 192	STAR ID: UV TGT U AOS 16:10- 16:33	AIS BORESIGHT RA 246.58 DEC -26.32
5 1/16:30:00 40:50	MNVR R+ 3.91 P+169.67 Y+ 22.29	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 120 P 78	STAR ID: UV TGT A AOS 16:44- 17:07	AIS RAD CAL RA 29.78 DEC 72.18
6 1/17:25:00 34:51	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 36 P 104	STAR PR B1 -Y: 29 -Z: 22	IMU ALIGN
7 1/17:45:00 55:19	MNVR R+ 0.00 P+180.00 Y+ 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 139 P 67		SPAS PREDEPLOY C/O ACS INIT
8 1/19:40:00 51:06	TRK TGT=2 BV=2(180.00, 0.00) OM= 0.00 SEP TIG = 1/21:00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 180 P 180	LVLH R+ 0 P+ 90 Y+ 0	IBSS DEPLOY ATT SEP1
9 1/21:10:00 25:00	TRK TGT=1 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+ 0 P+270 Y+ 0	-Z TGT TRACK
10 1/22:22:00 29:30	TRK TGT=2 BV=5(270.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 180	LVLH R+ 0 P+ 0 Y+ 0	NFF TIG 1/22:30
11 1/22:33:00 43:00	TRK TGT=2 BV=5(0.00,270.00) OM=270.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
12 1/23:50:00	TBD	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			TFF1 TIG 1/23:55

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FLT PLN/39/FIN B

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 2/00:10:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OMS OBS ATT
2 2/00:55:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	NFF1 TIG 2/00:55
3 2/01:02:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OP1 TIG 2/01:02
4 2/01:04:30 06:41	TRK TGT=2 BV=5(2.00, 282.00) OM=343.00	B52 AUTO NORM	DSC 1.200 DB AT 2.00 DB RT 0.20	EARTH T 78 P 270	LVLH R+308 P+320 Y+ 71	NOP1 TIG 2/01:07
5 2/01:16:00 24:43	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	VNP1 TIG 2/01:29
6 2/01:35:00 49:00	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
7 2/03:35:00 TIG -10:00	TBD	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20			NCSK1 TIG 2/03:45
8 2/03:50:00	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
9 2/06:15:00 TIG -10:00	TBD	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			NCSK2 TIG 2/06:25
10 2/06:30:00	MNVR R+262.00 P+145.00 Y+ 31.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 110 P 201	-Y: 16 -Z: 30	IMU ALIGN (MAINTAIN PI)
11 2/06:50:00 59:23	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
12 2/09:04:00 18:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OMS OBS ATT

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 2/09:59:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	NFF2 TIG 2/09:59
2 2/10:06:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OP2 TIG 2/10:06
3 2/10:08:00 10:11	TRK TGT=2 BV=5(2.00, 282.00) OM=343.00	B52 AUTO NORM	DSC 1.200 DB AT 2.00 DB RT 0.20	EARTH T 78 P 270	LVLH R+308 P+320 Y+ 71	NOP2 TIG 2/10:11
4 2/10:23:00 31:43	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	VNP2 TIG 2/10:33
5 2/10:40:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OP3 TIG 2/10:40
6 2/10:42:00 44:11	TRK TGT=2 BV=5(2.00, 282.00) OM=343.00	B52 AUTO NORM	DSC 1.200 DB AT 2.00 DB RT 0.20	EARTH T 78 P 270	LVLH R+308 P+320 Y+ 71	NOP3 TIG 2/10:45
7 2/10:47:00 56:20	TRK TGT=2 BV=5(0.00, 90.00) OM=270.00	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 90 P 90	LVLH R+ 90 P+ 0 Y+270	PRCS OBS ATT
8 2/11:07:00	TRK TGT=2 BV=5(0.00, 90.00) OM=270.40	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 90 P 90	LVLH R+ 90 P+ 0 Y+270	VNP3 TIG 2/11:07
9 2/11:19:00 34:00	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
10 2/14:09:00 TIG -10:00	TBD	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20			NCSK3 TIG 2/14:19
11 2/14:24:00	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
12 2/14:54:00 TIG -10:00	TBD	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20			NHSK4 TIG 2/15:04

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FLT PLN/39/FIN B

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 2/15:09:00	TRK TGT=2 BV=5(0.00,270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
2 2/16:00:00 09:50	MNVR R+ 25.00 P+230.00 Y+295.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 132 P 336	-Y: 58 -Z: 38	IMU ALIGN (MAINTAIN PI)
3 2/16:20:00 29:50	TRK TGT=2 BV=5(0.00,270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
4 2/18:08:00	TBD	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			NCC/NF TIG 2/18:08
5 2/18:10:00	TRK TGT=1 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+ 0 P+270 Y+ 0	-Z TGT TRK +XLV -ZVV
6 2/18:50:00 57:30	TRK TGT=2 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 0	LVLH R+ 0 P+180 Y+ 0	TNF TIG 2/19:04
7 2/19:10:00 17:30	TRK TGT=1 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+ 0 P+270 Y+ 0	-Z TGT TRACK +XLV -ZVV
8 2/19:55:00 20:02:30	TRK TGT=1 BV=3(90.00, 0.00) OM= 90.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 90	LVLH R+ 0 P+270 Y+270	XPOP -Z TGT TRACK +YLV -ZVV
9 2/20:15:00 16:35	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OMS OBS ATT
10 2/20:24:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	NNF TIG 2/20:24
11 2/20:31:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OP4 TIG 2/20:31
12 2/20:33:00 35:11	TRK TGT=2 BV=5(2.00,282.00) OM=343.00	B52 AUTO NORM	DSC 1.200 DB AT 2.00 DB RT 0.20	EARTH T 78 P 270	LVLH R+308 P+320 Y+ 71	NOP4 TIG 2/20:36

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FLT PLN/39/FIN B

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 2/20:48:00 56:43	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	VNP4 TIG 2/20:58
2 2/21:05:00	TRK TGT=2 BV=5(4.13, 77.82) OM= 19.07	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 78 P 90	LVLH R+ 52 P+320 Y+289	OP5 TIG 2/21:05
3 2/21:07:00 09:11	TRK TGT=2 BV=5(2.00, 282.00) OM=343.00	B52 AUTO NORM	DSC 1.200 DB AT 2.00 DB RT 0.20	EARTH T 78 P 270	LVLH R+308 P+320 Y+ 71	NOP5 TIG 2/21:10
4 2/21:11:00 20:20	TRK TGT=2 BV=5(0.00, 90.00) OM=270.00	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 90 P 90	LVLH R+ 0 P+270 Y+270	+YLV -ZVV
5 2/21:22:00	TRK TGT=2 BV=5(0.00, 90.00) OM=270.00	A52 AUTO NORM	DSC 0.300 DB AT 2.00 DB RT 0.20	EARTH T 90 P 90	LVLH R+ 0 P+270 Y+270	NSR5 TIG 2/21:32
6 2/22:49:00 51:21	TRK TGT=2 BV=5(270.00, 70.00) OM=290.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 110	LVLH R+ 70 P+ 0 Y+290	CIV ATT
7 3/00:17:00 31:43	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
8 3/01:39:00 41:05	TRK TGT=2 BV=5(0.00, 270.00) OM=245.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+270 P+ 0 Y+ 65	OPC/NC TIG 3/01:42
9 3/01:47:00 49:05	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
10 3/03:46:00 46:20 TIG -10:00	TRK TGT=2 BV=5(0.00, 270.00) OM=260.00	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	EARTH T 90 P 270	LVLH R+270 P+ 0 Y+ 80	NOPC TIG 3/03:56
11 3/04:03:00 03:50	TRK TGT=2 BV=5(0.00, 270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
12 3/07:05:00 12:13	MNVR R+113.00 P+312.00 Y+319.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 84 P 315	STAR PR C1 -Y: 54 -Z: 18	IMU ALIGN (MAINTAIN PI)

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 3/07:25:00 32:43	TRK TGT=2 BV=5(0.00,270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	-YLV -ZVV
2 3/08:11:00	TBD	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			NCC TIG 3/08:11
3 3/08:13:00	TRK TGT=1 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+ 0 P+270 Y+ 0	-Z TGT TRACK +XLV -ZVV
4 3/09:07:00	TBD	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			TI TIG 3/09:07
5 3/09:12:00	TRK TGT=1 BV=3(90.00, 0.00) OM= 0.00	A7 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+ 0 P+270 Y+ 0	-Z TGT TRACK +XLV -ZVV
6 3/10:26:00 41:00	TRK TGT=2 BV=2(180.00, 0.00) OM= 0.00	A8 MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 180 P 180	LVLH R+ 0 P+ 90 Y+ 0	SPAS RETRIEVE -XLV +ZVV
7 3/12:30:00	TBD	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			HA1 TIG 3/12:30
8 3/13:15:00	TBD	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			CIRC1 TIG 3/13:15
9 3/13:22:00	MNVR R+315.81 P+246.69 Y+324.02	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 114 P 76		PU02A PERSCL
10 3/14:10:00 24:05	TRK TGT=2 BV=5(90.00,335.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 335	LVLH R+ 25 P+180 Y+ 90	PQ04 GRAM
11 3/14:57:00 15:05:52	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC16 GGN
12 3/17:52:00 18:03:27	MNVR R+ 64.33 P+196.26 Y+ 40.25	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 94 P 358		PU02B LGMGX1

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 3/18:32:00 39:16	MNVR R+196.75 P+ 73.82 Y+ 42.51	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 68 P 310		PU02B X17354
2 3/19:27:00 40:15	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC11B GGN
3 3/21:45:00 57:21	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 35 P 108	STAR PR B1 -Y: 29 -Z: 22	IMU ALIGN
4 3/22:21:00 31:19	MNVR R+ 69.49 P+186.32 Y+ 21.14	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 115 P 358		PU02A LGMGX1
5 3/22:57:00 23:07:17	MNVR R+178.20 P+279.16 Y+309.60	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 104 P 228		PFU02B GX3394 VIRCL2
6 3/23:56:00 4/00:06:48	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC13,PC11G,A GGN
7 4/04:45:00 56:10	MNVR R+156.84 P+204.77 Y+ 16.18	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 110 P 257		PU02B SCO-X1
8 4/05:55:00 06:09:32	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC11F GGN
9 4/08:05:00 13:32	MNVR R+243.40 P+311.85 Y+316.37	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 87 P 186		PC36B ANTARES ARCTURUS
10 4/08:47:00 55:59	TRK TGT=2 BV=3(90.00, 0.00) OM= 90.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+270	PC51 -ZLV -YVV
11 4/09:35:00 42:32	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 97 P 144	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
12 4/10:25:00 38:43	MNVR R+ 86.08 P+209.84 Y+ 6.58	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 114 P 323		PU02A CENX-3

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 4/11:05:00 15:33	TRK TGT=2 BV=1(0.00, 0.00) OM= 90.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 0	LVLH R+ 90 P+270 Y+ 0	PF10 SHUTTLE SRFC +XLV -YVV
2 4/11:45:00 56:33	MNVR R+246.00 P+324.00 Y+ 12.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 31 P 181		PF06 DAY PRCS
3 4/12:37:00 52:00	MNVR R+153.94 P+167.56 Y+ 11.10	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 129 P 288		PU02B GALACTIC CENTER
4 4/13:17:00 29:53	MNVR R+ 56.16 P+ 31.33 Y+352.48	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 67 P 75		PU02A PERSCL
5 4/14:04:00 07:40	TRK TGT=2 BV=5(270.00, 0.00) OM= 90.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 180	LVLH R+ 0 P+ 0 Y+ 90	PC36A ANTARES +ZLV -YVV
6 4/14:53:00 15:05:56	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC11E,11D GGN
7 4/18:15:00 23:52	TRK TGT=2 BV=5(90.00,335.00) OM=270.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	EARTH T 90 P 335	LVLH R+ 25 P+180 Y+ 90	PQ03 GRAM
8 4/20:00:00 08:30	MNVR R+165.20 P+129.70 Y+ 46.15	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 90 P 307		PU02A ROT START ATT
9 4/20:14:00	CHANGE DAP A VERN DISC RT=.008	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02			
10 4/20:15:00	ROT BV=5(270.00, 1.16)	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02		ROT R+165 START P+130 ATT Y+ 46	PU02A URA SCAN
11 4/20:36:00	CANCEL	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02	SUN T 98 P 307	INRTL R+167 P+126 Y+ 36	PU02A SCAN TERM
12 4/20:50:00 21:01:01	TRK TGT=2 BV=5(0.00,270.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+270 Y+ 90	CRO A DEPLOY -YLV -ZVV

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REMARKS	EVENT	
1 4/21:24:00 38:39	MNVR R+155.16 P+211.37 Y+ 13.18	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 108 P 255		PFU02B SCO-X1 NCAREG
2 4/22:14:00 27:54	MNVR R+117.60 P+ 48.59 Y+355.76	B75 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 78 P 20		PU02A CYGX-2
3 4/23:05:00 16:48	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 97 P 144	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
4 4/23:52:00 57:02	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	PC11C GGN
5 5/02:00:00 12:21	TRK TGT=2 BV=1(0.00, 0.00) OM= 90.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	EARTH T 0 P 0	LVLH R+ 90 P+270 Y+ 0	PF10 SHUTTLE SURFC +XLV -YVV
6 5/03:00:00 02:41	TRK TGT=2 BV=5(356.00, 358.00) OM=122.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 211	LVLH R+122 P+266 Y+ 2	PC42A GGS
7 5/05:00:00 12:56	TRK TGT=2 BV=5(270.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 180	LVLH R+ 0 P+ 0 Y+270	PC61 +ZLV +YVV
8 5/05:50:00 56:32	MNVR R+ 54.28 P+273.07 Y+339.38	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 86 P 352		PC37 -ZSI
9 5/06:15:00 23:06	MNVR R+ 0.00 P+180.00 Y+ 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 135 P 67		SPAS ACS INIT
10 5/07:10:00 20:19	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 35 P 110	STAR PR B1 -Y: 29 -Z: 22	IMU ALIGN
11 5/07:30:00 43:44	MNVR R+133.41 P+288.22 Y+ 31.61 COVER IS CLOSED	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 41 P 253	STAR ID: N ALP HYA AOS 08:56- 09:50	SPAS UNBERTH STRAPDOWN/RMS
12 5/10:05:00 13:27	TRK TGT=2 BV=5(357.00, 0.00) OM=180.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 3 P 180	LVLH R+180 P+267 Y+ 0	CRO A OBS

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REMARKS	EVENT	
1 5/11:05:00	TBD	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02		HA2 TIG 5/11:30	
2 5/11:50:00	TBD	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02		CIRC2 TIG 5/12:15	
3 5/12:20:00	MNVR R+285.09 P+108.52 Y+310.14	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 144 P 251	STAR ID: V GAM DRA AOS 13:09- 13:32	STRAPDOWN/RMS
4 5/13:20:00 24:26	MNVR R+336.88 P+129.61 Y+342.45	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 146 P 154		GROUND TRUTH START ATT
5 5/13:30:00	LOAD NEXT ATT AS FUTURE START	B13 AUTO VERN	DSC 0.100 DB AT 0.50 DB RT 0.04			FUTURE START
6 5/13:43:57 45:58	MNVR R+ 9.44 P+204.32 Y+332.74	A10 AUTO VERN	DSC 0.567 DB AT 3.00 DB RT 0.20	SUN T 140 P 22		GROUND TRUTH MNVR
7 5/13:51:00 14:05:54	TRK TGT=2 BV=5(90.00, 78.22) OM=350.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 90 P 78	LVLH R+282 P+180 Y+ 10	NO EARTHLIMB NORTH/OBS 3 (130K)
8 5/15:00:00 07:43	MNVR R+129.74 P+294.77 Y+ 36.43 COVER IS CLOSED	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 34 P 251	STAR ID: N ALP HYA AOS 14:55- 15:50	STRAPDOWN/RMS
9 5/15:25:00 36:45	TRK TGT=2 BV=5(155.00, 0.00) OM= 59.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 155 P 1	LVLH R+304 P+104 Y+339	MWIR EARTHSWEEP BETA= -16.76
10 5/17:10:00 19:56	MNVR R+233.60 P+338.97 Y+310.09	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 90 P 217	STAR ID: Q ALP BOO AOS 17:26- 17:49	STRAPDOWN/RMS
11 5/17:40:00 52:05	MNVR R+ 56.63 P+292.59 Y+320.48	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 90 P 1		OFVR (SUN) START ATT
12 5/18:01:00 30:10	MNVR R+126.58 P+107.38 Y+ 36.65	B13 AUTO VERN	DSC 0.100 DB AT 0.50 DB RT 0.04	SUN T 90 P 359		OFVR (SUN) SCAN MNVR

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 5/18:30:00 38:10	TRK TGT=2 BV=5(90.00, 74.55) OM=350.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 90 P 75	LVLH R+285 P+180 Y+ 10	MWIR EARTH- LIMB TERM NORTH/OBS 1 (30K)
2 5/19:35:00 45:58	TRK TGT=2 BV=5(340.00, 0.00) OM= 0.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 20 P 180	LVLH R+ 0 P+290 Y+ 0	CIV OBS FINAL PURGE
3 5/20:50:00 21:04:40	MNVR R+133.49 P+288.07 Y+ 31.48 COVER IS CLOSED	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 41 P 254	STAR ID: N ALP HYA AOS 20:54- 21:49	STRAPDOWN/RMS
4 5/21:25:00 34:14	MNVR R+312.00 P+151.00 Y+ 43.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	SUN T 96 P 143	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
5 5/21:45:00 57:41	TRK TGT=2 BV=3(90.00, 0.00) OM=270.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+ 90	-ZLV +YVV
6 5/23:10:00 18:42	TRK TGT=2 BV=5(13.74, 0.00) OM=100.00	A11 AUTO VERN	DSC 0.200 DB AT 2.00 DB RT 0.04	EARTH T 14 P 358	LVLH R+100 P+272 Y+346	ORBITER ENVIRONMENT
7 5/23:45:00 59:03	TRK TGT=2 BV=5(0.00, 345.00) OM=270.00	B11 AUTO VERN	DSC 0.200 DB AT 3.00 DB RT 0.20	EARTH T 15 P 270	LVLH R+270 P+285 Y+ 0	ORB ENVIRON TAIL GLOW
8 6/01:40:00 43:48	MNVR R+125.20 P+259.73 Y+315.67	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 110 P 273	UV TGT G AOS 01:52- 02:17	AIS RAD CAL RA 137.94 DEC 2.53
9 6/02:15:00 24:42	TRK TGT=2 BV=1(0.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 0	LVLH R+270 P+270 Y+ 0	RAM VIEWING
10 6/04:13:00 22:53	MNVR R+117.77 P+ 50.23 Y+352.50	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 82 P 19		PU02B CYGX-2
11 6/04:40:00 49:45	TRK TGT=2 BV=1(0.00, 0.00) OM=180.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 0 P 180	LVLH R+180 P+270 Y+ 0	PF03 AURORA
12 6/05:43:00 56:04	MNVR R+ 76.13 P+ 11.80 Y+302.59	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 102 P 39		PU02A 4U0115

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FLT PLN/39/FIN B

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 6/06:13:00 22:02	MNVR R+340.03 P+ 26.61 Y+312.90	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 98 P 145		PF02B AREA & SSCORP
2 6/07:03:00 15:54	MNVR R+295.93 P+151.06 Y+329.30	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 168 P 180		PF14 67+15
3 6/07:37:00 44:58	MNVR R+239.62 P+118.06 Y+ 41.25	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 90 P 239		PF02B L M C M8
4 6/08:43:00 54:45	MNVR R+320.35 P+203.93 Y+ 15.84	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 109 P 95		PU02A XPERSE
5 6/09:26:00 39:45	MNVR R+181.99 P+144.72 Y+ 28.92	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 109 P 278		PU02B SCO-X1
6 6/10:11:00 25:54	MNVR R+ 42.78 P+ 55.78 Y+ 13.10	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 72 P 98		PU02B XPERSE
7 6/11:00:00 07:32	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 96 P 143	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
8 6/11:40:00 45:20	MNVR R+ 32.45 P+ 82.22 Y+ 31.56	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 79 P 105		PU02A XPERSE
9 6/12:24:00 36:03	MNVR R+225.42 P+216.30 Y+ 1.63	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 112 P 181		PFU02B CYGX-1 352+15
10 6/13:09:00 22:45	MNVR R+ 66.49 P+185.01 Y+ 17.70	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 116 P 1		PU02A LGMGX4
11 6/13:48:00 55:24	MNVR R+152.03 P+192.85 Y+357.34	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 130 P 263		PFU02B GALACTIC CENTER CHAMLN
12 6/14:39:00 46:30	MNVR R+ 65.81 P+187.03 Y+ 21.79	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 111 P 1		PU02A LGMGX4

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 6/15:06:00 14:07	MNVR R+166.24 P+178.58 Y+ 25.08	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 111 P 267		PFU02B SCO-X1 S M C 300--0
2 6/16:05:00 16:48	MNVR R+117.82 P+ 50.58 Y+351.81	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 83 P 19		PU02B CYGX-2
3 6/17:35:00 35:02	MNVR R+117.79 P+ 50.38 Y+352.19	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 83 P 18		PU02A CYGX-2
4 6/18:13:00 25:37	MNVR R+224.66 P+204.97 Y+350.71	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 127 P 181		PFU02B CYGX-1 322-15 PSCORP
5 6/19:05:00 16:10	MNVR R+353.48 P+119.20 Y+ 25.89	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 104 P 125		PU02A A53526
6 6/19:50:00 20:04:46	MNVR R+169.54 P+121.90 Y+ 21.17	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 109 P 308		PU02A INIT ROLL ATT
7 6/20:04:00	CHANGE DAP A VERN DISC RT=.008	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02			
8 6/20:05:00	ROT BV=5(270.00, 1.16)	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02		ROT R+170 START P+122 ATT Y+ 21	PU02A URA SCAN
9 6/20:27:00	CANCEL	A6 AUTO VERN	DSC 0.008 DB AT 1.00 DB RT 0.02	SUN T 117 P 311	INRTL R+170 P+120 Y+ 11	PU02A SCAN TERM
10 6/20:30:00 39:41	TRK TGT=2 BV=5(90.00,335.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 335	LVLH R+ 25 P+180 Y+ 90	PQ05 GRAM
11 6/22:15:00 25:36	MNVR R+351.06 P+259.27 Y+334.90	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 98 P 51		PU02A A53526
12 6/23:00:00 07:11	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 35 P 113	STAR PR B1 -Y: 29 -Z: 22	IMU ALIGN

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 6/23:37:00 50:21	MNVR R+ 82.62 P+ 21.64 Y+340.18	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 74 P 40		PU02B 4U0115
2 7/00:24:00 29:44	MNVR R+155.27 P+ 85.92 Y+322.72	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 126 P 356		PU02B CYGX-1
3 7/01:08:00 18:25	MNVR R+306.68 P+224.86 Y+348.21	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 115 P 94		PU02A PERSCL
4 7/01:42:00 53:22	MNVR R+320.57 P+ 89.80 Y+ 33.77	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 82 P 174		PF02B NG5128 M83
5 7/02:39:00 53:34	MNVR R+ 57.66 P+228.09 Y+ 12.74	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 95 P 347		PU02A VELAX1
6 7/03:18:00 31:52	MNVR R+225.41 P+216.68 Y+ 2.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 111 P 181		PFU02B CYGX-1 337+15
7 7/04:15:00 26:59	MNVR R+101.00 P+ 37.00 Y+317.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 100 P 30		TDRS ATT
8 7/06:23:00 31:40	MNVR R+220.70 P+ 63.22 Y+321.89	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 112 P 282		PF13 NAMNEB
9 7/07:09:00 21:57	MNVR R+ 28.85 P+236.64 Y+ 63.32	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 58 P 1		PU02A LGMGX4
10 7/07:34:00 44:11	MNVR R+152.95 P+202.64 Y+351.99	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 128 P 255		PFU02B GALACTIC CENTER CHAMLN 292+15
11 7/08:44:00 49:57	MNVR R+ 85.82 P+210.99 Y+ 18.95	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 101 P 326		PU02A CENX-3
12 7/09:25:00 39:05	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO NORM	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN T 95 P 143	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 7/10:07:00 18:55	MNVR R+ 58.79 P+200.07 Y+ 42.05	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 87 P 1		PU02B LGMGX4
2 7/11:27:00 40:10	TRK TGT=2 BV=5(215.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 145 P 180	LVLH R+ 0 P+ 55 Y+ 0	UVLIM LIMB SCAN START ATT
3 7/11:42:00	CANCEL MAN DISC	A6 MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 15 P 145	INRTL R+246 P+320 Y+ 36	UVLIM LIMB SCAN INRTL HOLD
4 7/11:57:00 12:02:04	TRK TGT=2 BV=5(215.00, 354.00) OM= 8.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 145 P 190	LVLH R+350 P+ 55 Y+ 0	UVLIM LIMB SCAN START ATT
5 7/12:03:00	CANCEL MAN DISC	A6 MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 72 P 19	INRTL R+113 P+ 98 Y+ 53	UVLIM LIMB SCAN INRTL HOLD
6 7/12:20:00 27:56	TRK TGT=2 BV=5(0.00, 90.00) OM=180.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 90	LVLH R+270 P+180 Y+ 0	SKIRT CVF AIRGLOW OBS START ATT
7 7/12:34:00	CHANGE DAP A VERN DISC RT=.1	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02			
8 7/12:35:00	ROT BV=5(270.00, 0.00)	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02		ROT R+ 31 START P+101 ATT Y+ 50	SKIRT CVF AIRGLOW OBS ROTATION
9 7/12:57:00 13:04:35	TRK TGT=2 BV=5(215.00, 0.00) OM= 0.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 145 P 180	LVLH R+ 0 P+ 55 Y+ 0	UVLIM LIMB SCAN START ATT
10 7/13:12:00	CANCEL MAN DISC	A6 MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 14 P 144	INRTL R+245 P+321 Y+ 36	UVLIM LIMB SCAN INRTL HOLD
11 7/13:27:00 32:06	TRK TGT=2 BV=5(214.00, 353.00) OM= 10.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 145 P 192	LVLH R+348 P+ 55 Y+ 0	UVLIM LIMB SCAN START ATT
12 7/13:33:00	CANCEL MAN DISC	A6 MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 73 P 20	INRTL R+111 P+ 98 Y+ 52	UVLIM LIMB SCAN INRTL HOLD

5-20

FLT PLN/39/FIN B

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 7/13:50:00 14:01:54	MNVR R+226.00 P+137.00 Y+314.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 165 P 322		MOON CAL
2 7/14:13:00 23:25	TRK TGT=2 BV=5(0.00,270.00) OM= 90.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+ 90 Y+270	UVLIM IMAGING SCAN START ATT
3 7/14:27:00	CHANGE DAP B VERN DISC RT=.06 VERN ATT DB=.5	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			
4 7/14:28:00	ROT BV=1(0.00, 0.00)	B75 AUTO VERN	DSC 0.060 DB AT 0.10 DB RT 0.01		ROT R+219 START P+216 ATT Y+ 20	UVLIM IMAGING SCAN START ROT
5 7/15:10:00 24:00	TRK TGT=2 BV=5(0.00, 90.00) OM=180.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 90	LVLH R+270 P+180 Y+ 0	SKIRT CVF AIRGLOW OBS START ATT
6 7/15:24:00	CHANGE DAP A VERN DISC RT=.1	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02			
7 7/15:25:00	ROT BV=5(270.00, 0.00)	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02		ROT R+ 97 START P+ 28 ATT Y+ 70	SKIRT CVF AIRGLOW OBS ROTATION
8 7/15:55:00 16:07:18	TRK TGT=2 BV=5(356.00, 2.00) OM=238.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 4 P 149	LVLH R+238 P+266 Y+358	ALFE GGN
9 7/17:45:00 52:36	TRK TGT=2 BV=5(0.00, 90.00) OM=180.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 90	LVLH R+270 P+180 Y+ 0	SKIRT CVF AIRGLOW OBS START ATT
10 7/18:19:00	CHANGE DAP A VERN DISC RT=.1	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02			
11 7/18:20:00	ROT BV=5(270.00, 0.00)	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02		ROT R+134 START P+348 ATT Y+ 61	SKIRT CVF AIRGLOW OBS ROTATION
12 7/18:42:00 50:04	TRK TGT=2 BV=5(0.00,270.00) OM= 90.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+ 90 Y+270	UVLIM IMAGING SCAN START ATT

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION	DAP	E/S	REMARKS	EVENT	
1 7/18:56:00	CHANGE DAP B VERN DISC RT=.06 VERN ATT DB=.5 VERN RT DB=.01	B2 AUTO VERN	DSC 0.060 DB AT 1.00 DB RT 0.01	T P		
2 7/18:57:00	ROT BV=1(0.00, 0.00)	B2 AUTO VERN	DSC 0.060 DB AT 1.00 DB RT 0.01		ROT R+218 START P+216 ATT Y+ 20	UVLIM IMAGING SCAN START ROT
3 7/19:50:00 20:03:44	TRK TGT=2 BV=5(0.00, 90.00) OM=180.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 90	LVLH R+270 P+180 Y+ 0	SKIRT CVF AIRGLOW OBS START ATT
4 7/20:04:00	CHANGE DAP A VERN DISC RT=.1	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			
5 7/20:05:00	ROT BV=5(270.00, 0.00)	A6 AUTO VERN	DSC 0.100 DB AT 1.00 DB RT 0.02		ROT R+ 30 START P+103 ATT Y+ 45	SKIRT CVF AIRGLOW OBS ROTATION
6 7/20:35:00 46:34	TRK TGT=2 BV=5(0.00,270.00) OM= 90.00	B2 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 270	LVLH R+ 0 P+ 90 Y+270	MPEC DEPLOY
7 7/21:25:00 39:48	MNVR R+312.00 P+151.00 Y+ 43.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 94 P 142	STAR PR A1 -Y: 51 -Z: 20	IMU ALIGN
8 7/21:45:00 57:14	TRK TGT=2 BV=3(90.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH T 90 P 0	LVLH R+180 P+ 0 Y+ 90	-ZLV +YVV
9 8/01:00:00 10:38	TRK TGT=4 BV=5(184.00, 0.00) OM=270.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 176 P 179	INRTL R+219 P+161 Y+320	TAIL SUN
10 8/03:30:00 41:57 TIG -02:58	MNVR R+291.00 P+304.00 Y+ 21.00	A6 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN T 35 P 115	-Y: 29 -Z: 22	DEORBIT IMU ALIGN
11 8/03:50:00 55:59	MNVR R+113.00 P+312.00 Y+319.00	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN T 86 P 319	-Y: 54 -Z: 18	DEORBIT IMU VERIF
12 8/04:00:00 05:05	MNVR R+144.00 P+ 76.00 Y+ 62.00	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN T 57 P 6	TIG 8/06:27:30	DEORBIT BURN

ALL ATTITUDES IN MEAN OF 1950

STS-39
FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

The STS-39 (OV-103) launch from KSC on April 30, 1991, will be into a 140nm orbit at an inclination of 57 degrees. The mission duration will be 8 days. Nominal landing occurs at EDW on May 8, 1991.

Landing opportunities are:

		<u>Landing Orbit No.</u>	<u>Site</u>	<u>CDT Time</u>
Nominal	Primary	134	EDW	13:23
	Backup	135	EDW	14:26
	Weather Alt.	134	NOR	13:25
1 Day Late	Primary	150	EDW	13:19
	Backup	151	EDW	13:52
	Weather Alt.	150	NOR	13:21
2 Days Late	Primary	166	EDW	13:14
	Weather Alt.	166	NOR	13:16

MAJOR EVENTS

<u>LAUNCH (KSC)</u>	April 30, 1991
<u>MET (DD/HH:MM:SS)</u>	0/00:00:00
<u>Day of year</u>	120
<u>CDT/GMT</u>	05:58/10:58
<u>OMS-2</u>	
<u>MET (DD/HH:MM)</u>	00/00:38
<u>DV (fps)</u>	209.9
<u>ORBIT ha/hp (nm)</u>	141/139
<u>IBSS DEPLOY</u>	
<u>MET (DD/HH:MM)</u>	01/20:53
<u>CRO C DEPLOY</u>	
<u>MET (DD/HH:MM)</u>	02/13:57
<u>CRO B DEPLOY</u>	
<u>MET (DD/HH:MM)</u>	03/06:56
<u>IBSS RETRIEVE</u>	
<u>MET (DD/HH:MM)</u>	03/11:08 (APPROX.)
<u>HEIGHT ADJUST #1</u>	
<u>MET (DD/HH:MM)</u>	03/12:30
<u>DV (fps)</u>	9.0
<u>ORBIT ha/hp (nm)</u>	142/137

FLT PLN NOTES

<u>CIRC #1</u>	
MET (DD/HH:MM)	03/13:15
DV (fps)	9.0
ORBIT ha/hp (nm)	143/141
<u>CRO A DEPLOY</u>	
MET (DD/HH:MM)	04/21:15
<u>HEIGHT ADJUST #2</u>	
MET (DD/HH:MM)	05/11:30
DV (fps)	6.0
ORBIT ha/hp (nm)	145/140
<u>CIRC #2</u>	
MET (DD/HH:MM)	05/12:15
DV (fps)	6.0
ORBIT ha/hp (nm)	145/143
<u>MPEC DEPLOY</u>	
MET (DD/HH:MM)	07/21:00
<u>DEORBIT BURN</u>	
MET (DD/HH:MM)	08/06:28
<u>LANDING (EDW)</u>	
MET (DD/HH:MM)	08/07:25
Day of year	128
CDT/GMT	13:23/18:23

B. CREW

1. There will be 7 crewmembers onboard divided into teams as follows:

RED Team - PLT, MS4, MS5
 BLUE Team - MS1, MS2, MS3

The CDR is not assigned to a team and is free to adjust his hours real-time as necessary. Each team works approximately 12 hours followed by 12 hours off duty. This allows continuous 24 hour/day payload operations.

2. The crewmembers assigned to the mission are:

CDR - Michael L. Coats
 PLT - L. Blaine Hammond
 MS1 - Gregory J. Harbaugh
 MS2 - Donald R. McMonagle
 MS3 - Guion S. Bluford
 MS4 - Charles L. Veach
 MS5 - Richard J. Hieb

3. The crewmembers responsible for performing an EVA, should one become necessary, are: MS1, MS2.

4. Crew assignments are as follows:

CDR - Overall mission decisions, vehicle control, DPS, ECLSS, GNC, C&W, PCS, DTOs

PLT - APU/HYD, EPS, MPS, OMS/RCS

MS1 - EV1, RMS, COMM/INST, PLB/RAD, EARTH OBS

MS2 - IFM, EV2, RME

MS3 - AFP-675, STP-1, MPEC, SPOC, IV1

MS4 - AFP-675, CLOUDS-1A, MEDICAL, CREW EQUIP.

MS5 - IBSS, RMS, PHOTO/TV, LES/CREW ESCAPE

C. ORBITER SYSTEMS

1. Communications and Instrumentation

a. The Operational Instrumentation (OI) system will nominally be managed from the ground through uplink real-time commands (RTCs) coordinated with the crew.

b. TDRS coverage is assumed to be supported by TDRS-E (41 degrees W) and TDRS-W (171 degrees W) and is the prime mode of communication coverage.

c. There are five GN sites available for on-orbit contingency support: VAN, MIL (MLX), BDA (BDX), DKR, and DFR (2-hour call-up). (NOTE: DFR is not shown in FLT PLN.)

d. TDRS Ku-band is the prime mode of real-time TV; however, there are also 3 GN sites available as backups on GDG, (GDS), MIL (MLX), and VAN (90-min lead time required).

e. RTS sites are available for contingency support or when scheduled in advance (4-hour lead time required): HTS, GTS, VTS, IOS, CTS, NTS, and OTS. (NOTE: OTS is not shown in FLT PLN.)

f. TDRS-W and TDRS-E are assumed available to support Ku-band uplink (e.g., TAGS).

g. HDR uplink (e.g., Teleprinter) is available through TDRS-E and TDRS-W.

2. Guidance and Navigation

a. The orbiter state vector must be uplinked whenever downtrack error in the on-board vector becomes greater than 20nm, but is usually uplinked when errors are greater than 5nm. These are real-time calls. In addition, state vectors must be uplinked for specified targets when utilizing an orbiting vehicle as a TGT ID with Universal Pointing.

- b. IMU alignments occur approximately every 12 hours in the pre-sleep and post-sleep activities and prior to major events requiring low navigation uncertainty.

3. Environmental Control and Life Support Subsystem (ECLSS)

- a. Two CO2 absorbers are installed prior to launch. On-orbit, the canisters are alternately replaced as required per the cue card.
- b. There are four supply water tanks and one waste water tank which are loaded for launch with volumes sufficient to meet an Orbit 3 launch day deorbit with PLBDs failed closed. Normally two supply water dumps will occur per flight day during AFP-675 operation. A real-time call will be made prior to each to inform the crew to what level each dump is made. Tanks A and B will be dumped to a level that will allow the tanks to be full prior to the next daily group of deorbit opportunities. The Flash Evaporator System will be used during IBSS deployed operations.

4. DC Utility Power Usage

The following tables are the DC and AC Utility Power Outlet Schedules. The times of outlet reconfiguration during the mission are shown.

DC UTILITY POWER OUTLET SCHEDULE

OUTLET \ MET		PRELAUNCH	POST INSERTION	ON-ORBIT		DEORBIT PREP
			0/1:46	0/19:45	8/5:45	
MNA	019	PLT*	--	--	--	PLT*
	M052J	MS3,MS4,MS5*	--	--	--	MS3,MS3,MS5*
MNB	F1	--	--	--	--	--
	M013Q	--	--	--	--	--
MNC	A11	MS1*,MS2*	--	--	--	MS1*,MS2*
	A15 M030F	CDR*	TPR --	TPR --	TPR --	CDR*
MNA OR MNB	L15	--	--	--	--	--

NOTES: *Crewmember suit fan

AC UTILITY POWER OUTLET SCHEDULE

MET OUTLET		PRELAUNCH	POST INSERTION	ON-ORBIT		DEORBIT PREP
			0/1:46	5/17:45	8/8:30	
AC1	M052J	--	--	--	--	--
	F1	--	PGSC	PGSC	PGSC	--
AC3	M013Q	--	--	--	--	--
	A15	--	PGSC	PGSC	PGSC	--

NOTE: Intermittent AC outlets are needed for the vacuum cleaner and the photo floodlight.

D. TEXT UPLINK SYSTEM

1. The Text and Graphics System (TAGS) is a high-resolution facsimile system that scans text or graphics material and converts the analog SCAN data into serial digital data. This data is transmitted via a telemetry link to the cathode-ray tube hardcopier. Transmission time for an 8-1/2 by 11-inch page can vary from just over 1 minute to just over 16 minutes depending on the hardcopy resolution desired. The TAGS can only uplink images using Ku-band. The TAGS system is operational with the operational status of TDRS-C in the 171 degree W position. This Flight Plan assumes TDRS-C is operational. Instrumentation has the capability to uplink onboard hardcopier control commands via S-band or Ku-band for power on, advance, ready, standby, and off.
2. The teleprinter (TPR) will provide a back-up on-orbit capability to receive and reproduce text-only data from MCC. The TPR uses S-band and is not dependent on TDRS Ku-band. TPR requires 1 to 2.5 minutes per message, depending on the number of lines (up to 66).

E. TELEVISION/PHOTOGRAPHY

1. The CCTV systems provide two color, wide-angle cameras for in-cabin coverage. There will also be four PLB TV and two RMS cameras. For the PLB cameras there are three different lens assemblies: color lens assembly (CLA), monochrome lens assembly (MLA), and wide-angle lens assembly (WLA), and two for the RMS cameras (WLA and MLA). The type of lens assembly for each camera is documented in the Flight Requirements Document.
2. There are two video tape recorders available with 30-minute cassettes.
3. Three camera systems are available: 35mm, 16mm, and 70mm.

F. PAYLOADS

1. IBSS

The IBSS is a SDIO-sponsored experiment, designed to collect infrared, ultraviolet and visible data. Phenomena to be observed include orbital maneuvering system (OMS) and primary reaction control system (PRCS) firings, the orbiter environment, the Earth

and its limb, chemicals released into space and calibration sources. An IR and an UV sensor, a pressure gauge, and two television cameras are mounted on the deployable SPAS II platform. The Critical Ionization Velocity (CIV) and the Chemical Release Observation (CRO) subexperiments are mounted in the payload bay. The CIV experiment releases gases from the bay to be observed by the SPAS-II while deployed, or on the RMS, or by the CIV Monitor Package mounted in the bay as part of the CIV Payload Element. The CRO subsatellites are deployed and their gases released later via ground commands for two deployed and one RMS SPAS-II observations.

The nominal IBSS/SPAS deploy opportunity is on Orbit 31 with a backup opportunity on Orbit 32. Nominal retrieve is planned for Orbit 56 with a backup on Orbit 57.

2. AFP-675

The AFP-675 is a DOD-sponsored collection of experiments designed to collect IR, UV, X-ray, and contamination data. Phenomena to be observed include the Earth's limb and airglow, aurora, celestial objects, orbiter surface glow and contamination events.

The five experiments (CIRRIS-1A, FARUV, URA, HUP, and QINMS) are mounted on the nondeployable Experiment Support Structure (ESS) in the cargo bay.

3. STP-1

The STP-1 experiment is a collection of experiments designed to collect UV, IR, zero gravity, and data management data. Phenomena to be observed include the Earth's airglow and limb, liquid feed and collection systems, and electronic data. The four experiments (UVLIMB, SKIRT, ALFE, DSE) with their associated electronics and control systems are mounted on a Hitchhiker-M across-the-bay carrier.

4. MPEC

The MPEC is a DOD-sponsored ejectable payload housed in a Get-Away Special (GAS) canister. The payload shall be deployed by the crew late in the mission.

5. CLOUDS 1A

The CLOUDS 1A is a DOD-sponsored payload consisting of a 35mm camera assembled with a motor drive, data recording system, 105mm lens, and red filter. The objective of CLOUDS 1A is to photograph sequences of cloud fields over various ground sites.

6. RME-III (Radiation Monitor Experiment III)

The RME III payload measures the ionizing radiation exposure in the orbiter crew compartment. The unit contains a Liquid Crystal Display (LCD) for real-time data display and a keyboard for controlling its functions.

G. ON-ORBIT DSOs

1. Inflight Aerobic Exercise (DSO 476)

This DSO investigates the effects of regular aerobic exercise on the maintenance of aerobic power and economy. Daily aerobic exercise should inhibit the decrease in cardiac dimensions observed during space flight, improve orthostatic tolerance, and minimize the loss of aerobic capacity postflight.

2. Blood Pressure Variability During Space Flight (DSO 602)

This DSO shall determine whether arterial blood pressure and heart rate exhibit less variability in a microgravity environment than on Earth, and if variability in blood pressure can be correlated to any baroflex attenuation measured postflight.

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

This DSO will document the orthostatic function of crewmembers during entry, landing, and egress to help determine if additional countermeasures are needed for an emergency egress.

4. Visual-Vestibular Integration as a Function of Adaptation (DSO 604)

This DSO investigates visual vestibular and perceptual adaptive responses as a function of longer missions to determine the operational impacts to performance during entry, landing, and egress.

5. Effects of Space Flight on Aerobic and Anaerobic Metabolism During Rest and Exercise: The Role of Body Composition (DSO 608)

This DSO quantifies the changes in aerobic and anaerobic metabolism and relates those changes to alterations in total body water, dry lean tissue, fat mass, and fluid volume intake during space flight. The data obtained shall be used to develop nutrition, fluid, and exercise countermeasures for extended missions.

6. Documentary Television (DSO 0901)

This DSO 0901 provides live television or VTR dumps of crew activities, orbiter operations, payload deployment/retrieval and operations, Earth views, rendezvous and proximity operations. Telecasts are planned for communication periods with 7 or more minutes of uninterrupted viewing time. The broadcast is accompanied with operational air-to-ground and/or operational intercom audio. VTR recording may be used when live television is not possible.

7. Documentary Motion Picture Photography (DSO 0902)

This DSO 0902 provides documentary and public affair motion picture photography of the orbiter's basic capabilities and key flight objectives. Documentation shall include launch, crew activities, payload deployment, landing, and unscheduled activities of special interest.

8. Documentary Still Photography (DSO 0903)

This DSO 0903 provides still photography of crew activities, orbiter operations, payload deployment/retrieval and operation, Earth views, and unscheduled items of interest.

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STS-39 DAP BOOK

DAP BOOK

DAP BOOK

DAP A CONFIGURATIONS

	A1*	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A52
<u>TRANSLATION</u>												
PULSE ft/sec	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.25	0.10	0.05	0.10
<u>ROTATION</u>												
DSC RT NORM °/sec	0.200	0.400	0.200	0.500	0.200	0.200	0.200	0.200	0.200	0.567	0.200	0.300
VERN °/sec	0.200	0.400	0.008	0.200	0.200	0.200	0.200	0.200	0.200	0.567	0.200	0.200
PULSE NORM °/sec	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.04	0.04	0.10
VERN °/sec	0.010	0.010	0.010	0.010	0.050	0.010	0.010	0.010	0.010	0.005	0.005	0.010
COMP NORM °/sec	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
VERN °/sec	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<u>DEADBAND</u>												
ATT NORM (deg)	5.00	1.00	1.00	3.00	5.00	5.00	2.00	2.00	1.00	5.00	5.00	2.0
VERN (deg)	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000	1.000	3.000	2.000	1.0
RATE NORM °/sec	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
VERN °/sec	.020	.020	.010	.020	.020	.020	.020	.020	.010	.200	.040	.020
<u>JET OPT</u>												
P	1	1	1	1	1	3	1 or 3	1	1	1 or 3	1 or 3	1
Y	1	1	3	1	1	3	1 or 3	1	1	1 or 3	1 or 3	1
CNTL ACCEL	0	0	0	0	0	0	0	0	0	1	0-3	0

*I-LOADED OPS-2 DAP Configuration

DAP B CONFIGURATIONS

	B1*	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B52	B75
<u>TRANSLATION</u>															
PULSE ft/sec	0.02	0.02	0.02	0.02	0.02		0.05	0.01	0.02	0.01	0.01	0.01	0.01	0.05	0.02
<u>ROTATION</u>															
DSC RT NORM °/sec	0.500	0.200	0.200	0.200	0.200		0.500	0.200	0.200	0.100	0.200	0.200	0.200	1.200	0.200
VERN °/sec	0.200	0.200	0.200	0.008	0.016		0.200	0.200	.032	.045	0.200	.05	.100	0.05	.045
PULSE NORM °/sec	0.04	0.04	0.04	0.04	0.04		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
VERN °/sec	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.002	0.002
COMP NORM °/sec	.00	.00	.00	.00	.00		.00	.00	.00	.00	.00	.00	.00	.00	.00
VERN °/sec	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
<u>DEADBAND</u>															
ATT NORM (deg)	3.00	3.00	3.00	0.30	3.00		2.00	2.00	0.30	0.30	5.00	2.00	2.00	2.00	5.00
VERN (deg)	1.000	1.000	1.000	0.100	0.033		1.000	1.000	0.050	0.100	3.000	0.500	0.500	0.100	0.100
RATE NORM °/sec	0.20	0.20	0.20	0.20	0.20		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
VERN °/sec	.020	.020	.020	.010	.020		.020	.020	.010	.05	.200	.010	.040	.065	.01
<u>JET OPT</u>															
P	1	3	1	3	3		1 or 3	1	3	3	1 or 3	1 or 3	1 or 3	3	3
Y	1	3	1	3	3		1 or 3	1	3	3	1 or 3	1 or 3	1 or 3	3	3
CNTL ACCEL	0	0	0	0	0		0	0	0	0	0-3	0-3	0-3	0	0

*I-LOADED OPS-2 DAP Configuration

DAP BOOK

HOOK
VELCRO

FLT PLN-1a/39/0/A

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	PTC (-2° below +X)*
= 5	Optional
	Input P (0-359.99)
	Y (270-359.99, 0-90)
* input OM \rightarrow	OM (0-359.99)
MON AXIS = 1	+X
2	-X

FLT PLN-1b/39/0/B

G20 DAP CONFIG	
CNTL ACCEL = 1	AIS, DPY, NR, MOP, OFVR, WD, SJR
= 2	low hover
= 3	TG, CIV
= 4,5	not used
JET OPT = 1	Normal
= 2	Nose only
= 3	Tail only

TOP



DAP PURPOSE

- A1 - NOMINAL
IMU ALIGN
LOSS OF VERN
(NOSE & TAIL)
- A2 - PTC
- A3 - GG
- A4 - PRE/POST DEPLOY
- A5 - IMU ROTATION
- A6 - LOSS OF VERN
(TAIL ONLY)
- A7 - RENDEZVOUS
- A8 - PROX OPS
- A9 - IUS DEPLOY
- A10 - GROUND TRUTH
- A11 - RMS BRAKES .N
- A52 - PLUME OBS

FLT PLN-2a/39/0/C



A1

DAPA1

PURPOSE:

- NOMINAL
- IMU ALIGN
- LOSS OF VERN
(NOSE & TAIL)

0.1 0

TOP

A1

TRANSLATION
PULSE

0.2 0 0

ROTATION
DSC RT NORM

0.2 0 0

3 VERN

0.1 0 0

4 PULSE NORM

0.0 1 0 0

5 VERN

.0 0 0 0

6 COMP NORM

.0 0 0 0

7 VERN

5.0 0 0

DEADBAND
8 ATT NORM

1.0 0 0

9 VERN

0.2 0 0

10 RATE NORM

0.2 0 0

11 VERN

1

12 JET OPT P

1

13 Y

0

14 CNTL ACCEL

FLT PLN-2b/39/0/A

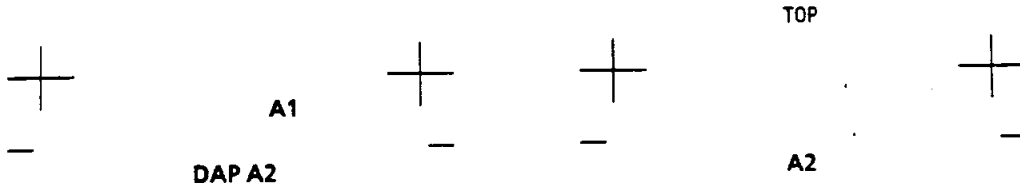


TOP

FLT PLN-3a/39/0/A



A2



PURPOSE:
PTC

0.1 0

1 TRANSLATION PULSE

0.4 0 0
0.4 0 0
0.1 0 0
0.0 1 0
0.0 0 0
0.0 0 0

2 ROTATION DSC RT NORM
3 VERN
4 PULSE NORM
5 VERN
6 COMP NORM
7 VERN

1.0 0 0
1.0 0 0

8 DEADBAND ATT NORM
9 VERN

0.2 0 0
0.2 0 0

10 RATE NORM
11 VERN

1
1

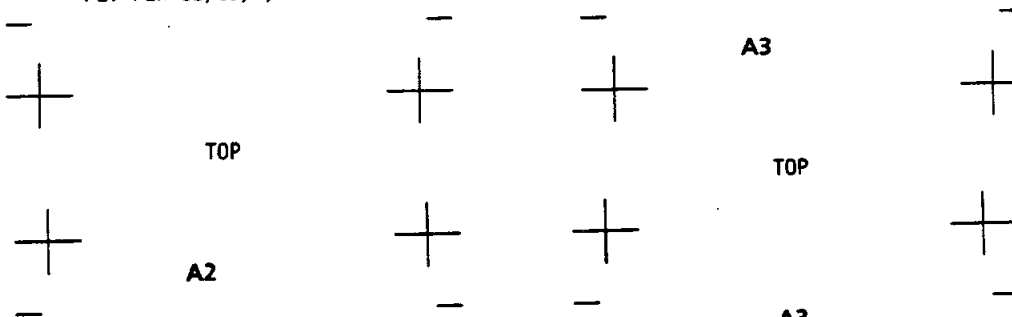
12 JET OPT P
13 Y

0

14 CNTL ACCEL

FLT PLN-3b/39/0/A

FLT PLN-4a/39/0/A



TOP

TOP

A2

A3

DAP A3

A3

PURPOSE:
GG

0.1 0

1 TRANSLATION PULSE

0.2 0 0
0.0 0 0
0.1 0 0
0.0 1 0
0.0 0 0
0.0 0 0

2 ROTATION DSC RT NORM
3 VERN
4 PULSE NORM
5 VERN
6 COMP NORM
7 VERN

1.0 0 0
0.0 7 0

8 DEADBAND ATT NORM
9 VERN

0.2 0 0
0.1 0 0

10 RATE NORM
11 VERN

1
3

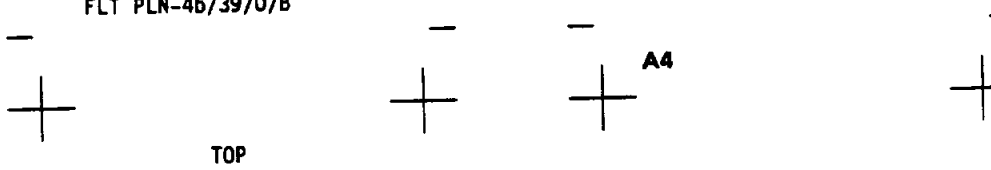
12 JET OPT P
13 Y

0

14 CNTL ACCEL

FLT PLN-4b/39/0/B

FLT PLN-5a/39/0/B



TOP

A4

+

A3

DAP A4

PURPOSE:
PRE/POST DEPLOY

FLT PLN-5b/39/0/B

+

TOP

+

DAP A5

PURPOSE:
IMU ROTATION

FLT PLN-6b/39/0/A

+

TOP

+

+

TOP

A4

0.1 0 1 TRANSLATION PULSE

0.5 0 0 2 ROTATION DSC RT NORM

0.2 0 0 3 VERN

0.1 0 0 4 PULSE NORM

0.0 1 0 5 VERN

.0 0 0 6 COMP NORM

.0 0 0 7 VERN

3.0 0 8 DEADBAND ATT NORM

1.0 0 0 9 VERN

0.2 0 10 RATE NORM

0.0 2 0 11 VERN

1 12 JET OPT P

1 13 Y

0 14 CNTL ACCEL

FLT PLN-6a/39/0/B

+

+

TOP

+

A4

+

A5

0.1 0 1 TRANSLATION PULSE

0.2 0 0 2 ROTATION DSC RT NORM

0.2 0 0 3 VERN

0.1 0 0 4 PULSE NORM

0.0 5 0 5 VERN

.0 0 0 6 COMP NORM

.0 0 0 7 VERN

5.0 0 8 DEADBAND ATT NORM

1.0 0 0 9 VERN

0.2 0 10 RATE NORM

0.0 2 0 11 VERN

1 12 JET OPT P

1 13 Y

0 14 CNTL ACCEL

FLT PLN-7a/39/0/A

+

+

A6

+

TOP



A5



DAP A6

PURPOSE:

LOSS OF VERN
(TAIL ONLY)

A6

0.1 0	1	TRANSLATION	
		PULSE	
0.2 0 0	2	ROTATION	
0.2 0 0	3	DSC RT	NORM
0.1 0 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0 0	6	COMP	NORM
	7		VERN
DEADBAND			
5.0 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
1	13		Y
0	14	CNTL ACCEL	

FLT PLN-7b/39/0/A

FLT PLN-8a/39/0/A



TOP



A7



A6

DAP A7

PURPOSE:

RENDEZVOUS

TOP

A7

0.1 0	1	TRANSLATION	
		PULSE	
0.2 0 0	2	ROTATION	
0.2 0 0	3	DSC RT	NORM
0.1 0 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0 0	6	COMP	NORM
	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 or 3	12	JET OPT	P
1 or 3	13		Y
0	14	CNTL ACCEL	

FLT PLN-8b/39/0/B

FLT PLN-9a/39/0/C



TOP



A8



A7

DAP A8

PURPOSE:
PROX OPS

0.0 5

TOP

A8

TRANSLATION
PULSE

ROTATION

0.2	0	0	2	DSC RT	NORM
0.2	0	0	3		VERN
0.1	0	0	4	PULSE	NORM
0.0	1	0	5		VERN
.0	0	0	6	COMP	NORM
.0	0	0	7		VERN

DEADBAND

2.0	0	0	8	ATT	NORM
1.0	0	0	9		VERN
0.2	0	0	10	RATE	NORM
.0	2	0	11		VERN

1	12	JET OPT	P
1	13		Y

0 14 CNTL ACCEL

FLT PLN-9b/39/0/B

FLT PLN-10a/39/0/B

+

TOP

+

+

A9

+

+

A8

+

+

+

DAP A9

PURPOSE:
IUS DEPLOY

0.2 5

A9

TRANSLATION
PULSE

ROTATION

0.2	0	0	2	DSC RT	NORM
0.2	0	0	3		VERN
0.0	0	5	4	PULSE	NORM
0.0	1	0	5		VERN
.0	0	0	6	COMP	NORM
.0	0	0	7		VERN

DEADBAND

1.0	0	0	8	ATT	NORM
1.0	0	0	9		VERN
0.2	0	0	10	RATE	NORM
.0	1	0	11		VERN

1	12	JET OPT	P
1	13		Y

0 14 CNTL ACCEL

FLT PLN-10b/39/0/B

FLT PLN-11a/39/0/B

+

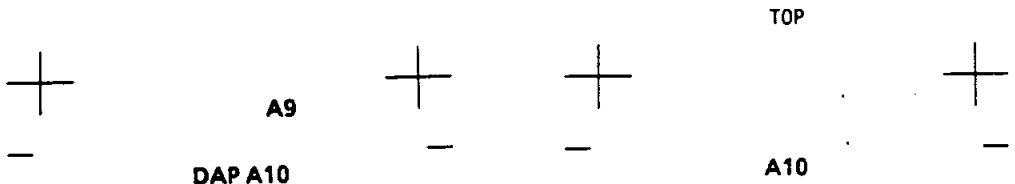
TOP

+

+

A10

+

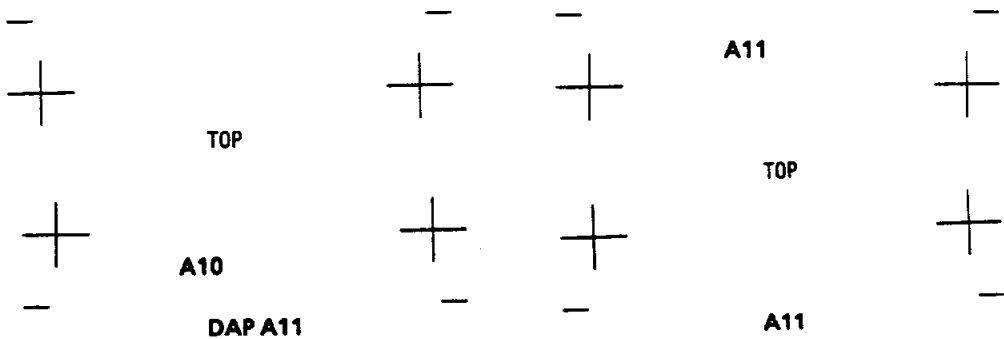


PURPOSE:
GROUND TRUTH

0.1 0 1 TRANSLATION PULSE
 0.5 6 7 2 ROTATION DSC RT NORM
 0.5 6 7 3 VERN
 0.0 4 4 PULSE NORM
 0.0 0 5 5 VERN
 .0 0 6 6 COMP NORM
 .0 0 7 7 VERN
 5.0 0 8 DEADBAND ATT NORM
 3.0 0 9 VERN
 0.2 0 10 RATE NORM
 .2 0 11 VERN
 1 or 3 12 JET OPT P
 1 or 3 13 Y
 1 14 CNTL ACCEL

FLT PLN-11b/39/0/B

FLT PLN-12a/39/0/C

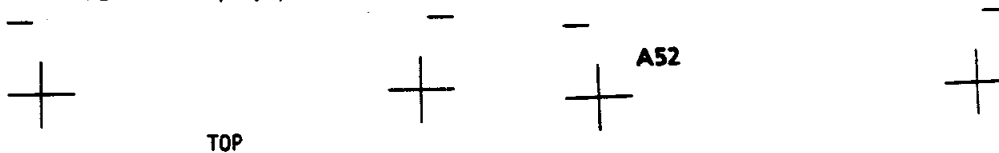


PURPOSE:
RMS BRAKES ON

0.0 5 1 TRANSLATION PULSE
 0.2 0 0 2 ROTATION DSC RT NORM
 0.2 0 0 3 VERN
 0.0 4 4 PULSE NORM
 0.0 0 5 5 VERN
 .0 0 6 6 COMP NORM
 .0 0 7 7 VERN
 5.0 0 8 DEADBAND ATT NORM
 2.0 0 9 VERN
 0.2 0 10 RATE NORM
 .0 4 11 VERN
 1 or 3 12 JET OPT P
 1 or 3 13 Y
 0-3 14 CNTL ACCEL

FLT PLN-12b/39/0/A

FLT PLN-13a/39/0/C



A11

DAP A52

PURPOSE:
PLUME OBS

TOP

A52

0.1	0	0	1	TRANSLATION	
				PULSE	
				ROTATION	
0.3	0	0	2	DSC RT	NORM
0.2	0	0	3		VERN
0.1	0	0	4	PULSE	NORM
0.0	1	0	5		VERN
0.0	0	0	6	COMP	NORM
0.0	0	0	7		VERN
				DEADBAND	
2.0	0	0	8	ATT	NORM
1.0	0	0	9		VERN
0.2	0	0	10	RATE	NORM
0.2	0	0	11		VERN
			1	JET OPT	P
			1		Y
			0	CNTL ACCEL	

FLT PLN-13b/39/0/A

FLT PLN-14a/39/0/B

A52

TOP

A52

TOP

DAP

PURPOSE

- B1 - NOMINAL
PRCS IMU ALIGN
OMS & RCS BURNS
- B2 - LOSS OF VERN
(TAIL ONLY)
- B3 - LOSS OF VERN
(NOSE & TAIL)
GG MNVR
- B4 - SSUS DEPLOY
- B5 - COAS CAL
- B6 - (Blank)
- B7 - RENDEZVOUS
- B8 - PROX OPS
- B9 - IN-BAY FINE POINTING
- 310 - IN-BAY SCANS
- B11 - RMS MNVRS
- B12 - RMS DEADBAND COLLAPSE
- B13 - RMS SCANS/POSITION HOLD
- B52 - PLUME OBS
- B75 - P675

FLT PLN-14b/39/0/A

FLT PLN-15a/39/0/C

TOP

B1



TOP



DAP B1

PURPOSE:

NOMINAL
PRCS IMU ALIGN
OMS & RCS BURNS

FLT PLN-15b/39/0/C



TOP



B1

TOP



B1



B2



DAP B2

PURPOSE:

LOSS OF VERN
(TAIL ONLY)

FLT PLN-16b/39/0/C



TOP



B2



TRANSLATION			
PULSE	15	0.0	2

ROTATION			
DSC RT	NORM 16	0.5	0 0
	VERN 17	0.2	0 0 0
PULSE	NORM 18	0.0	0 4
	VERN 19	0.0	0 2
COMP	NORM 20	.0	0 0
	VERN 21	.0	0 0

DEADBAND			
ATT	NORM 22	3.0	0
	VERN 23	1.0	0 0

RATE	NORM 24	0.2	0
	VERN 25	.0	2 0

JET OPT	P 26	1	
	Y 27	1	

CNTL ACCEL	28	0	
------------	----	---	--

FLT PLN-16a/39/0/C

TRANSLATION			
PULSE	15	0.0	2

ROTATION			
DSC RT	NORM 16	0.2	0 0
	VERN 17	0.2	0 0 0
PULSE	NORM 18	0.0	0 4
	VERN 19	0.0	0 2
COMP	NORM 20	.0	0 0
	VERN 21	.0	0 0

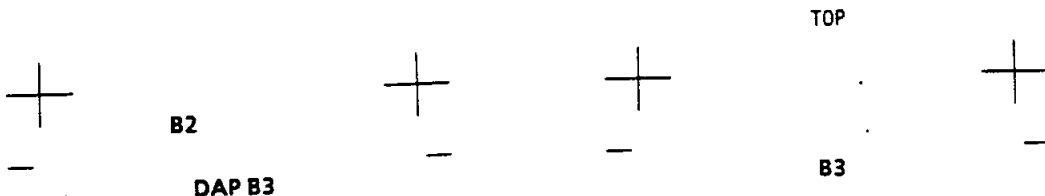
DEADBAND			
ATT	NORM 22	3.0	0
	VERN 23	1.0	0 0

RATE	NORM 24	0.2	0
	VERN 25	.0	2 0

JET OPT	P 26	3	
	Y 27	3	

CNTL ACCEL	28	0	
------------	----	---	--

FLT PLN-17a/39/0/C



B2
DAP B3

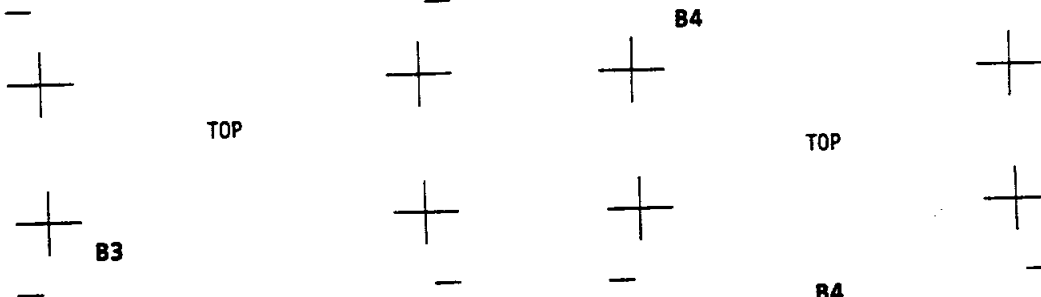
PURPOSE:
LOSS OF VERN
(NOSE & TAIL)
GG MNVR

B3

TRANSLATION			
PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0 0
	VERN 17	0.2	0 0
PULSE	NORM 18	0.0	0 4
	VERN 19	0.0	0 2
COMP	NORM 20	0.0	0 0
	VERN 21	0.0	0 0
DEADBAND			
ATT	NORM 22	3.0	0
	VERN 23	1.0	0 0
RATE			
	NORM 24	0.2	0
	VERN 25	0.2	0
JET OPT			
	P 26	1	
	Y 27	1	
CNTL ACCEL	28	0	

FLT PLN-17b/39/0/C

FLT PLN-18a/39/0/C



B3
DAP B4

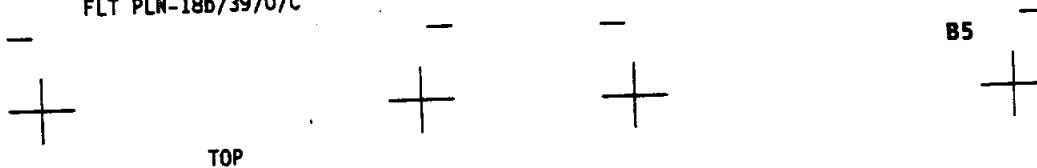
PURPOSE:
SSUS DEPLOY

B4

TRANSLATION			
PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0 0
	VERN 17	0.0	0 8
PULSE	NORM 18	0.0	0 4
	VERN 19	0.0	0 2
COMP	NORM 20	0.0	0 0
	VERN 21	0.0	0 0
DEADBAND			
ATT	NORM 22	0.3	0
	VERN 23	0.1	0 0
RATE			
	NORM 24	0.2	0
	VERN 25	0.1	0
JET OPT			
	P 26	3	
	Y 27	3	
CNTL ACCEL	28	0	

FLT PLN-18b/39/0/C

FLT PLN-19a/39/0/C



TOP

B4

DAP B5

PURPOSE:
COAS CAL

B5

TRANSLATION			
PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0 0
	VERN 17	0.0	1 6
PULSE	NORM 18	0.0	0 4
	VERN 19	0.0	0 2
COMP	NORM 20	.0	0 0
	VERN 21	.0	0 0
DEADBAND			
ATT	NORM 22	3.0	0
	VERN 23	0.0	3 3
RATE			
	NORM 24	0.2	0
	VERN 25	0.2	0
JET OPT			
	P 26		3
	Y 27		3
CNTL ACCEL 28 0			

FLT PLN-19b/39/0/C

FLT PLN-20a/39/0/C

TOP

B5

DAP B6

PURPOSE: (Blank)

B6

TOP

B6

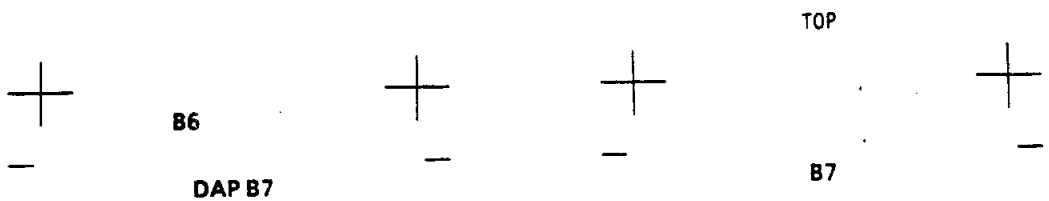
TRANSLATION			
PULSE	15	-. -	-
ROTATION			
DSC RT	NORM 16	-. -	-
	VERN 17	-. -	-
PULSE	NORM 18	-. -	-
	VERN 19	-. -	-
COMP	NORM 20	. -	-
	VERN 21	. -	-
DEADBAND			
ATT	NORM 22	-. -	-
	VERN 23	-. -	-
RATE			
	NORM 24	-. -	-
	VERN 25	-. -	-
JET OPT			
	P 26		-
	Y 27		-
CNTL ACCEL 28 -			

FLT PLN-20b/39/0/C

FLT PLN-21a/39/0/C

TOP

B7

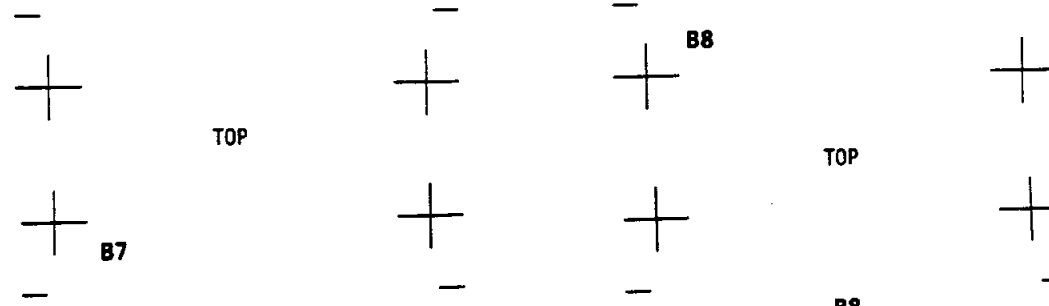


B6

DAP B7

PURPOSE:
RENDEZVOUS

FLT PLN-21b/39/0/C



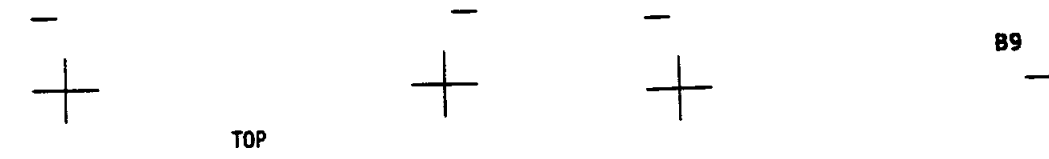
TOP

B7

DAP B8

PURPOSE:
PROX OPS

FLT PLN-22b/39/0/C



TOP

TOP

B7

TRANSLATION
PULSE 15 0.0 5

ROTATION
DSC RT NORM 16 0.5 0 0
VERN 17 0.2 0 0
PULSE NORM 18 0.0 0 4
VERN 19 0.0 0 2
COMP NORM 20 .0 0 0
VERN 21 .0 0 0

DEADBAND
ATT NORM 22 2.0 0
VERN 23 1.0 0 0

RATE NORM 24 0.2 0
VERN 25 .0 2 0

JET OPT P 26 1 or 3
Y 27 1 or 3

CNTL ACCEL 28 0

FLT PLN-22a/39/0/C

B8

TOP

B8

TRANSLATION
PULSE 15 0.0 1

ROTATION
DSC RT NORM 16 0.2 0 0
VERN 17 0.2 0 0
PULSE NORM 18 0.0 0 4
VERN 19 0.0 0 2
COMP NORM 20 .0 0 0
VERN 21 .0 0 0

DEADBAND
ATT NORM 22 2.0 0
VERN 23 1.0 0 0

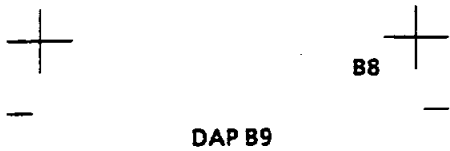
RATE NORM 24 0.2 0
VERN 25 .0 2 0

JET OPT P 26 1
Y 27 1

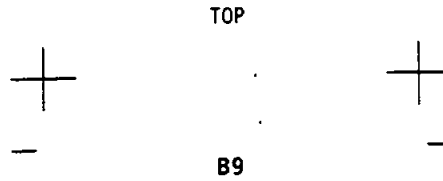
CNTL ACCEL 28 0

FLT PLN-23a/39/0/C

B9



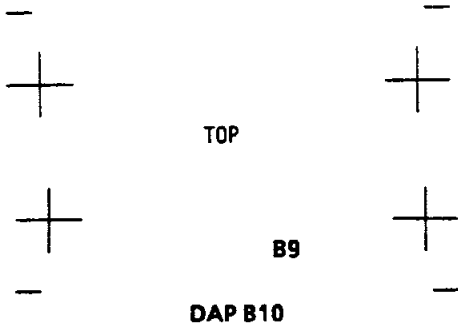
PURPOSE:
IN-BAY FINE POINTING



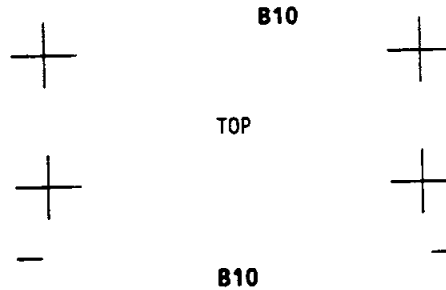
TRANSLATION				
PULSE	15	0.0	2	
ROTATION				
DSC RT	NORM 16	0.2	0	0
	VERN 17	.0	3	2
PULSE	NORM 18	0.0	4	
	VERN 19	0.0	0	2
COMP	NORM 20	.0	0	0
	VERN 21	.0	0	0
DEADBAND				
ATT	NORM 22	0.3	0	
	VERN 23	0.0	5	0
RATE				
	NORM 24	0.2	0	
	VERN 25	.0	1	0
JET OPT				
	P 26		3	
	Y 27		3	
CNTL ACCEL	28		0	

FLT PLN-23b/39/0/C

FLT PLN-24a/39/0/C



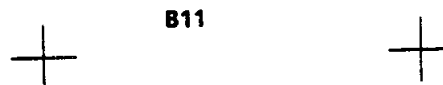
PURPOSE:
IN-BAY SCANS

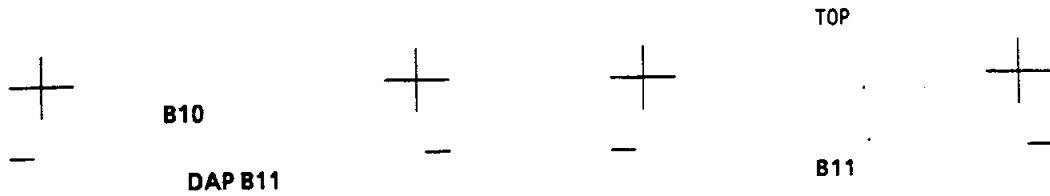


TRANSLATION				
PULSE	15	0.0	1	
ROTATION				
DSC RT	NORM 16	0.1	0	0
	VERN 17	.0	4	5
PULSE	NORM 18	0.0	4	
	VERN 19	0.0	0	2
COMP	NORM 20	.0	0	0
	VERN 21	.0	0	0
DEADBAND				
ATT	NORM 22	0.3	0	
	VERN 23	0.1	0	0
RATE				
	NORM 24	0.2	0	
	VERN 25	.0	5	
JET OPT				
	P 26		3	
	Y 27		3	
CNTL ACCEL	28		0	

FLT PLN-24b/39/0/C

FLT PLN-25a/39/0/C



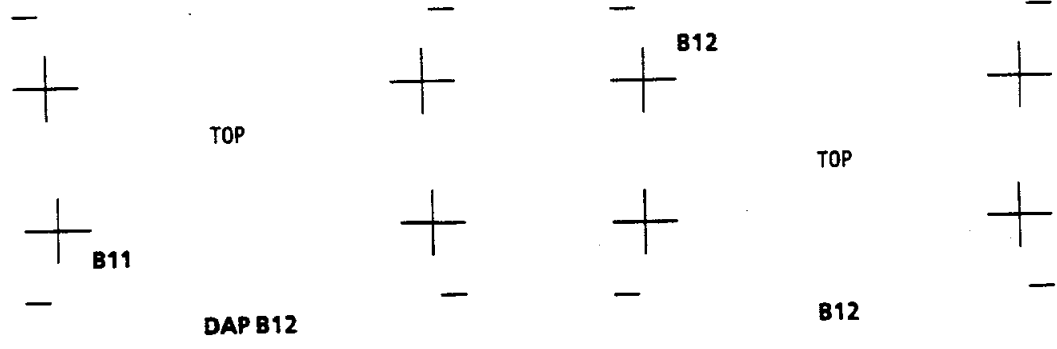


PURPOSE:
RMS MNVRS

TRANSLATION				
PULSE	15		0.0	1
ROTATION				
DSC RT	NORM 16		0.2	0 0
	VERN 17		0.2	0 0
PULSE	NORM 18		0.0	0 4
	VERN 19		0.0	0 5
COMP	NORM 20		0.0	0 0
	VERN 21		0.0	0 0
DEADBAND				
ATT	NORM 22		5.0	0 0
	VERN 23		3.0	0 0
RATE				
	NORM 24		0.2	0
	VERN 25		0.2	0
JET OPT				
	P 26		1	or 3
	Y 27		1	or 3
CNTL ACCEL 28 0-3				

FLT PLN-25b/39/0/C

FLT PLN-26a/39/0/C

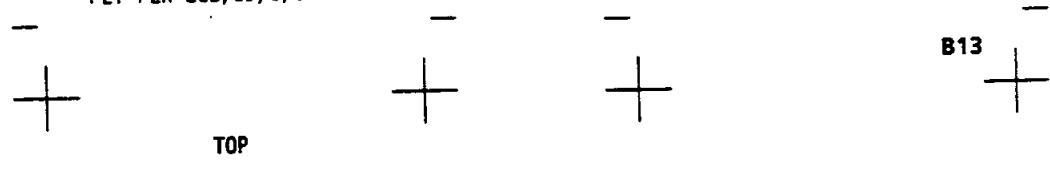


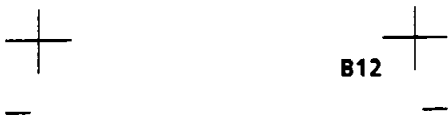
PURPOSE:
RMS POSITION HOLD

TRANSLATION				
PULSE	15		0.0	1
ROTATION				
DSC RT	NORM 16		0.2	0 0
	VERN 17		0.0	5 0
PULSE	NORM 18		0.0	0 4
	VERN 19		0.0	0 5
COMP	NORM 20		0.0	0 0
	VERN 21		0.0	0 0
DEADBAND				
ATT	NORM 22		2.0	0 0
	VERN 23		0.5	0 0
RATE				
	NORM 24		0.2	0
	VERN 25		0.0	1 0
JET OPT				
	P 26		1	or 3
	Y 27		1	or 3
CNTL ACCEL 28 0-3				

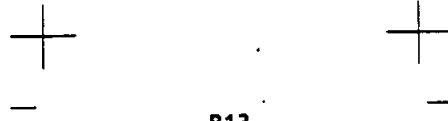
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FLT PLN-27a/39/0/C





B12



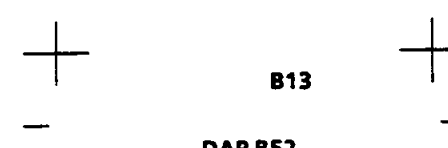
DAP B13

PURPOSE:
RMS SCANS

FLT PLN-27b/39/0/C



TOP



B13

DAP B52

PURPOSE:
PLUME OBS

FLT PLN-28b/39/0/C



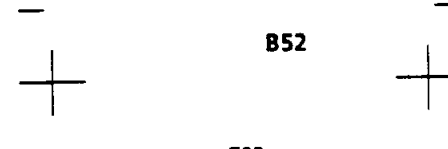
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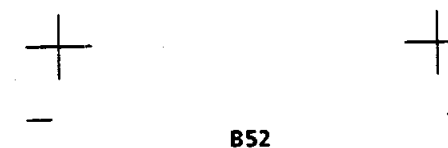
B13

TRANSLATION				
PULSE		15	0.0	1
ROTATION				
DSC RT	NORM	16	0.2	0 0
	VERN	17	.1	0 0 0
PULSE	NORM	18	0.0	4
	VERN	19	0.0	0 5
COMP	NORM	20	0.0	0 0
	VERN	21	.0	0 0
DEADBAND				
ATT	NORM	22	2.0	0
	VERN	23	0.5	0 0
RATE	NORM	24	0.2	0
	VERN	25	0.4	0
JET OPT	P	26	1	or 3
	Y	27	1	or 3
CNTL ACCEL		28	0-3	

FLT PLN-28a/39/0/C



B52

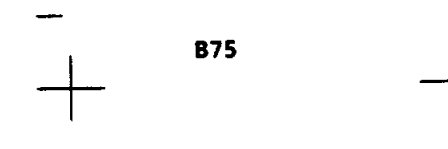


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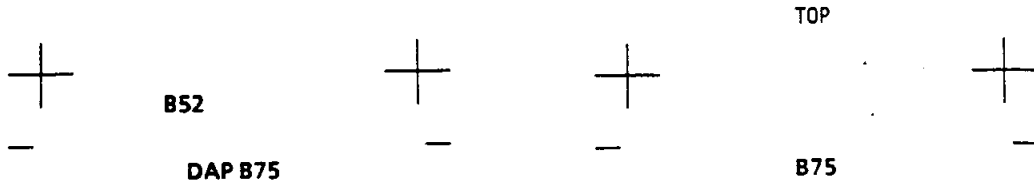
B52

TRANSLATION				
PULSE		15	0.0	5
ROTATION				
DSC RT	NORM	16	1.2	0 0
	VERN	17	.0	5
PULSE	NORM	18	0.0	4
	VERN	19	0.0	0 2
COMP	NORM	20	0.0	0 0
	VERN	21	.0	0 0
DEADBAND				
ATT	NORM	22	2.0	0
	VERN	23	0.1	0 0
RATE	NORM	24	0.2	0
	VERN	25	0.6	5
JET OPT	P	26	3	
	Y	27	3	
CNTL ACCEL		28	0	

FLT PLN-29a/39/0/E



B75

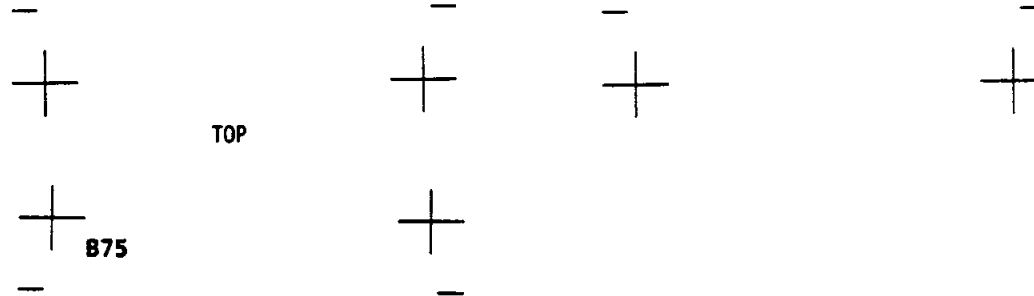


PURPOSE:
P675

TRANSLATION				
PULSE	15		0.0	2
ROTATION				
DSC RT	NORM 16		0.2	0 0
	VERN 17		.0	4 5
PULSE	NORM 18		0.0	4
	VERN 19		0.0	2
COMP	NORM 20		.0	0
	VERN 21		.0	0
DEADBAND				
ATT	NORM 22		5.0	
	VERN 23		0.1	0 0
RATE	NORM 24		0.2	0
	VERN 25		.0	1
JET OPT	P 26			3
	Y 27			3
CNTL ACCEL	28			0

FLT PLN-29b/39/0/B

FLT PLN-30a/39/0/C



FLT PLN-30b/39/0/B



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