SFOC-FL2183

Space Flight Operations Contract

Operations Support Timeline (OST)

STS-93

Final, Rev A

July 13, 1999

Verify that this is the correct version before use

Contract NAS9-20000

United Space Alliance

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STS-93

Final, Rev A

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REVISION LOG

REV LTR	CHANGE NO	DESCRIPTION	DATE
		Preliminary	9/24/98
		Preliminary, Revision A	3/20/98
		Preliminary, Revision B	4/20/98
		Preliminary, Revision C	5/20/98
		Preliminary, Revision D	6/26/98
		Basic	7/30/98
		Basic, Revision A	9/17/98
		Basic, Revision B	10/6/98
		Basic, Revision C - Electronic Distribution	3/1/99
		Basic, Revision D	4/7/99
		Final	6/17/99
		Final, Revision A	7/13/99

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CONTENTS

Section Page

NOMINAL TIMELINES

1 PRELAUNCH…… 1-1

2 REV 6 DEPLOY…… 2-1

BACKUP TIMELINES

3 REV 7 DEPLOY…… 3-1

4 REV 19 EVA DEPLOY…… 4-1

5 REV 20 DEPLOY…… 5-1

6 REV 21 DEPLOY…… 6-1

Appendix

A ACRONYMS AND ABBREVIATIONS…… A-1

B CHANGE REQUEST FORM…… B-1

Verify that this is the correct version before use

STS-93 PRELAUNCH TIMELINE

STS-93 PRELAUNCH TIMELINE

T-	MET Day -001	EVENT	CREW/KSC	JSC	5SOPS	OCC
-13:00	00:00	L-1 day flight crew weather briefing				
				JSC/SOC-52 command I/F test	JSC/SOC-52 command I/F test	
				JSC/OCC command I/F test		JSC/OCC command I/F test
-12:00	-23:00	<----------		L-1 day P/L briefing 1. Orbiter status 2. Payload status 3. Network/facility status 4. Documentation status	---------->	
					SOC-52 to OCC I/F Test	SOC-52 to OCC I/F Test
	-22:00		ASCENT - CONFIG 756 TFL: 166 FPL: 501 D Lk Inp DFL D1 Use 1 5 04 * 2.56K IUS 2 5 14 * 2.56K IUS 3 5 6 64K IUS 4 5 5 16K IUS			
	-21:00					
T-11:00						
	-20:00					
		IUS prelaunch configuration	IUS prelaunch configuration			
	-19:00					

STS-93 PRELAUNCH TIMELINE

MET	EVENT	CREW/KSC	JSC	5SOPS	OCC
T- Day 000 -20:00	IUS prelaunch configuration	IUS prelaunch configuration			
-19:00		AUX and PL CABIN buses on PL PRIMARY on IUS switch list			
-18:00					
-11:00	IUS RIMU power on				
-17:00					
	IUS AV power on and STS safety status checks			Continuous IUS data Monitor safety status check	Continuous IUS data
-16:00	IUS self-checks completed				
	T-0 GMT for IUS software				
-15:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
	-15:00					
-11:00		Master safe issued				
		T-11 counting IUS power switching and TVC checks	RSS to park			
-10:40	-14:00					
		Begin IUS RIMU calibration/ alignment				
-9:40	-13:00	IUS RIMU calibration/ alignment		P/L console manning begins		
				Voice Loop Check with 5SOPS and OCC	Voice Loop Check with JSC and OCC	Voice Loop Check with JSC and 5SOPS
			Begin fuel cell activation			
-8:40	-12:00					
			Clear pad for ET loading			
		IUS RIMU calibration/ alignment completed				
-7:40	-11:00					
			Fuel cell activation completed			
-6:40	-10:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
-6:40	-10:00			Cmd and Tlm Tests with 5SOPS and OCC	Cmd and Tlm Tests with JSC and OCC	Cmd and Tlm Tests with JSC and 5SOPS
		T-6 hr hold				
	-09:00					
-6:00						
		T-6 counting	Begin ET LO_2/LH_2 loading		Report to JSC: > DS/P-3 status	
-5:40	-08:00					
-4:40	-07:00					
-3:40	-06:00					
		T-0 GMT for IUS software T-3 hr hold				
	-05:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
	-05:00					
	-04:45		Crew wake-up			
-3:00	-04:30	(Begin IUS RIMU calibration/ alignment)				
	-04:15					
	-04:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
~	-04:00			Patch weather to Prime Ops		
	-03:45					
-3:00		Crew weather briefing		Coordinate 5SOPS cmd test B	Xmit cmd test B to JSC	
			Preingress switch reconfiguration	Coordinate OCC & 5SOPS cmd test B		Xmit cmd test B to JSC
	-03:30				SOC-52 to OCC 1/F Test	SOC-52 to OCC 1/F Test
		T-3 counting				
	-03:15	<----------		L-3 Hour briefing 1. Countdown status 2. Weather status 3. Orbiter status 4. IUS status B-side tlm status 5. AXAF status 6. Network status 7. Review OST Prelaunch calls	----------> Report to JSC: >CAR LOCK, CMD MOD, RF POWER ISL VLV OP STATUS (IUS B-Side)	
-2:50						
		LCC verification				
-2:40	-03:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
-2:40	-03:00	Report LCC status				
-2:30						
	-02:45	Crew ingress				
-2:20		(IUS RIMU calibration/ alignment complete)				
-2:10	-02:30	Postingress switch reconfiguration complete				
-2:00						
	-02:15					
-1:50						
-1:40	-02:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
-1:40	-02:00					
-1:30		MCC A/G voice checks	MCC A/G voice checks	MCC A/G voice checks		
	-01:45					
-1:20		GMT update		GMT update		
				Weather briefing		
-1:10	-01:30	Cargo hold fire checks	Cargo hold fire checks			
-1:00						
	-01:15					
-0:50						
-0:40	-01:00					

STS-93 PRELAUNCH TIMELINE

T-	MET Day 000	EVENT	CREW/KSC	JSC	5SOPS	OCC
-0:40	-01:00	GLS pre-sequencing start		Report to 5SOPS/OCC: > PLB temperatures		
-0:30						
	-00:45	LD/FD launch/RTLS weather briefing		LD/FD launch/RTLS weather briefing		
-0:20		T-20m hold SCU relay driver checks REM heaters on IMU preflight alignment complete		ASCENT - CONFIG 756 TFL: 166 FPL: 501 D Lk Inp DFL D1 Use 1 * 5 04 * 2.56K IUS 2 * 5 14 * 2.56K IUS 3 * 5 6 64K IUS 4 5 5 16K IUS Check PDI decommutators 1,2,3 locked	Processing 2.56K PDI data	
				Give GO for launch	Give GO for launch	Give GO for launch
	-00:30	PASS OPS 1 load BFS OPS 1 load GPC dump				
				Poll GO for launch		
-0:10		T-9m hold				
-0:09	-00:15	ASE batteries on line				
		Go for launch	Activate OPS recorders	Report to KSC: >GO for launch		
		Launch Commit Limits loaded IUS final launch configuration GLS auto seq start	IUS navigation flight mode auto-hold ENA		Last time for P/L commands Last time to call facility holds is L-9m	Last time for P/L commands Last time to call facility holds is L-9m
		APU start			Last time to call mission success or safty hold is T-31s IUS auto-hold disable is at T-10s	
			Clear C&W memory			
00:00	00:00	Liftoff				

IUS/AXAF TIMELINE - REV 6 DEPLOY (150 NM)

NOTE: TDRS-Z coverage is shown as "TDRS-S"

IUS/AXAF TIMELINE-REV 6 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ACTOM	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				00:00		**LIFTOFF**		ASCENT - CONFIG 756 TFL: 166 FPL: 501 D Lk Inp DFL Dl Use 1 * 5 4 * 2.56 IUS 2 * 5 14 * 2.56 IUS 3 * 5 6 64K IUS 4 5 5 16K IUS		
						SRB separation				
						MECO ET separation		OPS rcdr 1 - SSME data OPS rcdr 2 - OD data S band PM - OD data S band FM - SSME data INCO - FM source to DOD		
				00:15				Report to 5SOPS/OCC: > GMT of launch > MET of MECO		
				00:30				Xmit predicted post OMS-2 SV to 5SOPS		
								Fax SHO and gnd MET PSAT to SVALE PLANS and AXAF OC INCO uplink AMU VPs Notify 5SOPS	Report to JSC: > IUS health status	
				00:45	Z	**OMS-2 burn**				
					W		Configure GPCs for OPS 2	Report to 5SOPS/OCC: > OMS-2 burn status > Preliminary assessment > MET of OMS-2 cutoff Xmit post OMS-2 SV to 5SOPS		
				01:00						

IUS/AXAF TIMELINE-REV 6 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATM | COM

GDS | GDS | CTS | VTS | HTS | GDX | MIL | BDA

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
01:00	Start tracking arc	Load PCMMU TFL 183	64K - CONFIG 759 TFL: 183 FPL: 503 D Lk Inp DFL DL Use 1 2 8 * 2K AXAF 2 1 18 2K AXAF 3 * 5 6 * 64K IUS 4 5 5 16K IUS Load PDI FPL 503 and DECOM 1 and 2	Initiate Rev 6 & 7 guidance sims on post OMS-2 SV	
	W Mnvr to PLBD opening att				
01:15					
			Coordinate OCC & 5SOPS cmd test B		Xmit cmd test B to JSC
	Open PLBDs AXAF POWERUP	Open PLBDs AXAF POWERUP: 1. ACTIVATE PCP 2. POWER UP AXAF 3. FLOAT IUS S/C BATTS ONLINE	Report to OCC: PLBD OP start time	Xmit cmd test B to JSC Report to OCC: >S/C Bus Voltage and Current Report to JSC: > IUS health status	
01:30	ZLV+XVV				
	GO for orbit ops	Ku band deploy	Report to crew: > GO for orbit ops		
	AXAF COMM ACT	AXAF COMM ACT			
	E				
01:45			Report to OCC: >Good AXAF cmd uplink	Report to OCC: > S/C Bus Amp increase	Report to JSC/5SOPS: >Cmd CTU, IU, RCTU Activation
			64K - CONFIG 759 TFL: 183 FPL: 503 D Lk Inp DFL DL Use 1 * 2 8 * 2K AXAF 2 1 18 2K AXAF 3 * 5 6 * 64K IUS 4 5 5 16K IUS	Report to OCC: >AXAF t/m present in IUS stream	Report to JSC/5SOPS: >Select Format 6 >Verify TLM at OCC >Activate EIA, PCU, & Load Bus Current monitor >Start SOH AXAF
02:00					

IUS/AXAF TIMELINE-REV 6 DPY

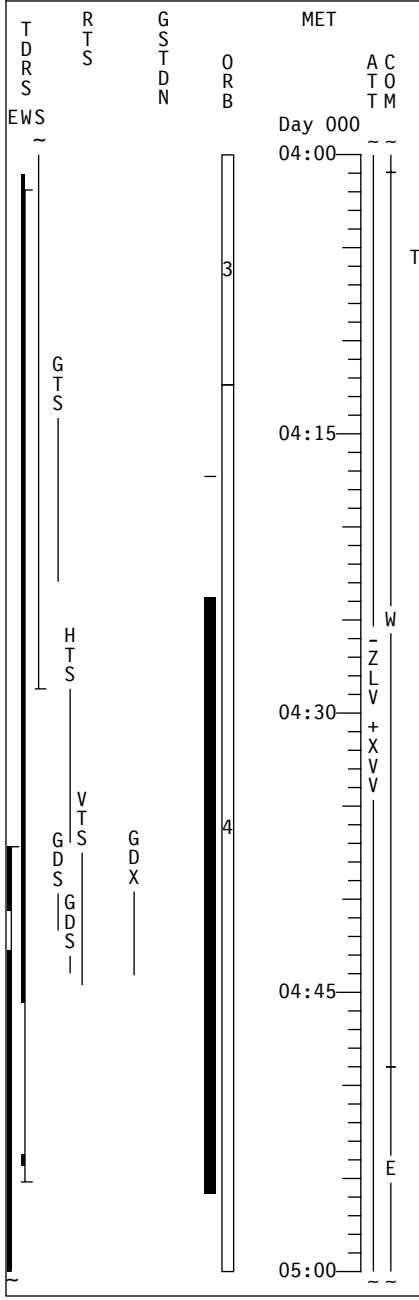
MET	EVENT	CREW	JSC	5SOPS	OCC
Day 000 02:00	AXAF initial orbit config cmding (30 min)				Report to JSC/5SOPS: >Cmd ACIS vent valve open
	PCP/CIU SSP ACT AND C/O:	PCP/CIU/SSP ACT AND C/O: 1. CIU PANEL CONFIG 2. CIU C/O 3. DISPLAY IUS SAFETY STATUS 4. PCP C/O 5. IUS BATT AND AFTA HTR ACT 6. SSP C/O AND ENABLE IUS ANT		Report to JSC/OCC: > Rev 6 deploy time & window Send post-burn SV predicts to JPL Relay burn loc data to P3/DS	
	Configure for VRCS control				
02:15	IUS AND AXAF SPECS C/O	IUS AND AXAF SPECS C/O: 1. IUS SPEC 200 C/O 2. AXAF SPEC 205 C/O 3. DISABLE IUS AUTO SHUTDOWN	Fax SHO and gnd MET PSAT to SVALE PLANS and AXAF OC Report to 5SOPS: > FDAs as expected	Report to JSC: >Auto-thermal shutdown disable	
			<---------- Presupport Briefing orbiter, network, IUS, AXAF status reports ---------->		
			Xmit state vector to 5SOPS on each GMT hour		
02:30	IUS PRE-DEPLOY C/O	IUS PRE-DEPLOY C/O: 1. PRECHECKS 2. On MCC GO: XFER IUS INT PWR 3. On MCC GO: PRE-DEPLOY CHECK 4. XFER IUS TO ORBITER PWR Notify MCC: PDCO complete 5. VERIFY THROUGHPUT CMD CAPABILITY	Report to crew: > GO for xfer to internal power > GO for PDCO > PDCO status	Report to JSC: > GO for xfer to internal power > Verify power xfer > GO for PDCO >Verify power xfer >PDCO status	Act OBC A & B, Load FSW & SCS
			Report to 5SOPS: > GO for throughput cmd > NO-GO for cmd Report to crew: > 5SOPS commanding cmplt	Xmit F-110 command to JSC Report to JSC: > Commanding complete	Report to JSC: >Expect temporary loss of AXAF TLM Report to JSC: < ACIS Vent Valve open complete Report to JSC: > AXAF health status
02:45		Notify MCC: Configured for throughput cmding Expect Decomm Fail Message			
			Report to crew: >CAR LOCK, CMD MOD RF POWER, ISL VLV OP STATUS (IUS B-Side)		Report to JSC/5SOPS: >Enable EIA-A Sequencer
03:00	Stop tracking arc				

TDRS EWS | RTS | GSTDN | ORB | ATT | COM | Z | -ZLV | +XVV | W | GTS | HTS | 2 | 3

IUS/AXAF TIMELINE-REV 6 DPY

MET	EVENT	CREW	JSC	5SOPS	OCC
Day 000 03:00	ACTUATOR ENGAGEMENT	ACTUATOR ENGAGEMENT			Report to JSC/5SOPS: >AXAF enable for rapid deploy >OCC starts cmd TS Htrs Ena
	REMOVE AXAF RF INH (No E.T. PLBD OP + 30min)	On MCC GO: REMOVE AXAF RF INH	Report to crew: > GO for AXAF RF INH removal		Report to JSC: > GO for AXAF RF inh rm
03:15	AXAF RF CK (UPR ANT)	AXAF RF CK (UPR ANT): ON MCC GO: 1. CONFIG FOR AXAF RF TLM ON MCC GO: 2. RESTORE AXAF HDLN TLM Notify MCC when AXAF RF CK complete	INCO turns FM OFF (If required)		Report to JSC: >TS Htrs Ena Report to JSC: >GO for step 1 OCC command xmtr & PA on Verify RF TLM in high & low pwr Report to JSC: >GO for step 2 OCC cmd xmtr & PA off
03:30				SOC-52 to OCC I/F Test	Report to JSC/5SOPS: SOC-52 to OCC I/F Test Report to JSC/5SOPS: Begin EIA Sequencer Self-test
03:45	Uplink tracking arc SV	Uplink tracking arc SV Xmit tracking arc SV to 5SOPS		Report to JSC/OCC: > Rev 7 deploy time & window Send post-burn SV to JPL Relay burn loc data to P3/DS Initiate guidance sims on post tracking arc SV for Rev 6 & 7	Report to JSC/5SOPS: EIA Sequencer Self-Test Complete
04:00	(DGS pass is unusable)				

IUS/AXAF TIMELINE-REV 6 DPY



EVENT	CREW	JSC	5SOPS	OCC
TRANSFER SV	On MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	
	Meal (1 hr)		IUS State Vector Uplink (contingency - NCF)	
			IUS State Vector Uplink (contingency - GTS)	
			IUS State Vector Uplink (contingency - HTS)	Report to JSC/5SOPS: >AXAF status
			Report to JSC/OCC: > Rev 6 deploy time & window Send post-burn SV predicts to JPL Relay burn loc data to P3/DS	

IUS/AXAF TIMELINE-REV 6 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT | COM

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
05:00	IMU align		Start review of crew GO/NO-GO cue card Xmit post separation SV to 5SOPS	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card
			<----------	Presupport Briefing orbiter, network, IUS, AXAF status reports	---------->
05:15					
	MNVR TO DEPLOY ATTITUDE	MNVR TO DEPLOY ATTITUDE		Report to JSC/OCC: > Rev 7 deploy time & window Send post-burn SV predicts to JPL Relay burn loc data to P3/DS	
05:30					
	TILT TABLE ELEVATION TO 29°	TILT TABLE ELEVATION TO 29°: 1. PRLA RELEASE 2. RAISE TO 29° Report to MCC: >Tilt table at 29°	Report to 5SOPS: > PRLA release		
05:45					
	AXAF RF CHECK (LOWER ANTENNA)	AXAF RF CHECK (LWR ANT): 1. On MCC GO, AXAF RF TLM CHECK (LWR ANT) 2. On MCC GO, RESTORE AXAF HDLN TLM Report to MCC: AXAF RF check complete	Complete review of crew GO/NO-GO cue card Report to crew: >GO for step 1 Report to crew: >GO for step 2	Report to JSC: Changes to crew GO/NO GO cue card	Report to JSC: Changes to crew GO/NO GO cue card OCC cmd xmtr & PA on Report to JSC: > GO for step 1 Verify RF TLM in high & low pwr Report to JSC: >GO for step 2 OCC cmd xmtr & PA off
06:00					

ORB: 4, 5

ATT: IMU, ZOE, DPY

COM: E, W

DGS

GTS

IUS/AXAF TIMELINE-REV 6 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	COM	EVENT	CREW	JSC	5SOPS	OCC
	HTS			Day 000 06:00					Report to crew: > Go/NO-GO cue card > Deploy PAD > Sep burn PAD		
	VTS			06:15		W			<---------- MD Deploy Conference Poll Operations/Mgmt teams for remaining deploy criteria including AXAF Batt. Taps status	---------->	
											Report to 5SOPS/JSC: >Closing AXAF battery taps upon Mission Director approval
							TRANSFER SV	On MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	Report to JSC: >TS Heaters OFF >AXAF GO for PI transfer
			5	06:30		DPY	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64→16 RF Report to MCC: > IUS/PI lock complete	Report to Crew: >Go for IUS/PI LOCK		Config OCC for IUS strip & ship TLM display
				06:45		E					
				D-20 >			DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VERIFY PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS			
				07:00							

16K - CONFIG 760
TFL: 184 FPL: 502

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

IUS/AXAF TIMELINE-REV 6 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATM | COM

Day 000

MET	ATM	COM	EVENT	CREW	JSC	5SOPS	OCC
07:00		E	16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS		Poll teams for deploy GO		
				DEPLOY COUNTDOWN (cont): 6. At MCC GO for deploy: RELEASE UMBILICALS 7. RAISE TO 58° 8. OMS SEP BURN PREP 9.-X BACKOFF MNVR PREP 10.XFER ORB SV TO TGT 11.ORBITER TO FREE DRIFT	Report to crew; > GO for deploy	Report to JSC: > GO for deploy	Report to JSC: > GO for deploy
		Z					
		DPY					
07:15							
			DEPLOY IUS (7:17) (8.7 min. window) Issue S/C disc #3 & 7 (RF INH) SEP MNVR	DEPLOY IUS	Report to 5SOPS/OCC: > DEPLOY		
				SEP MNVR: 1. OMS BURN PREP 2. OMS BURN PRECHECK 3. LOAD OMS TGT AND BURN DATA		Report to JSC/OCC: >Disc #3 & 7 issued	Report to 5SOPS/JSC: >Disc 3 & 7 rcvd
			LOWER TILT TABLE TO -6°	LOWER TILT TABLE TO -6°: 1. REACTIVATE ASE HTRS 2. LOWER TILT TABLE TO -6°			
			IUS RCS enable & initial warmup pulses Mnvr to thermal att & hold			Report to JSC/OCC: >RCS enable >Mnvr to thermal att >In thermal att	
07:30		SEP					
				SEP MNVR (cont): 4. OMS BURN EXEC 5. POST OMS BURN RECONFIG 6. CYCLIC SV XFER TO IUS 7. MNVR TO IUS VIEWING ATTITUDE	Report to 5SOPS: > Separation burn complete > Maneuver to IUS viewing attitude complete > Handover IUS/AXAF flight operations		
		W	Handover AXAF/IUS flight operations				
07:45		VW					
08:00							

For DPY, cancel OST Support
For WAVEOFF, see CSCH Waveoff Support Plan, Case _____

DGS 5 | GTS 6 | HTS

IUS/AXAF TIMELINE-REV 6 DPY

RTS | GSTDN | ORB | IUS/AXAF COVERAGE | DGS

MET | ATT | COM

MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
Day 000						
08:00			SEP MNVR (cont): 8. MNVR TO PROTECT ATTITUDE	Report to 5SOPS: > Maneuver to window protect attitude complete		Report to 5SOPS/JSC:
	W	Apply ordnance bus power Guidance initialization			Report to JSC/OCC: >Ord bus pwr >Guidance init >Titan sep disc	>Titan disc rcvd
	W	Mnvr to SRM-1 burn att Issue S/C disc #1 (safety INH #1) & 6 (TLM, SSR, LGA's, batt's)			>Mnvr to SRM-1 att >Disc #1 and #6 issued	>Disc #1 & 6 rcvd
08:15	P A		SEP MNVR (cont): 9. DESELECT RNDZ NAV 10.TURN OFF PI/PSP		>AXAF beacon receipt & TLM rate	
		SRM-1 ignition			>SRM-1 ignition	
		SRM-1 burnout Mnvr to SRM-2 burn att Xfer pwr Stage 1→2 Stage sep & RCS spacing burn			>SRM-1 burnout >Mnvr to SRM-2 att	
		SRM-2 ignition SRM-2 burnout			>SRM-2 ignition >SRM-2 burnout	
	E	Mnvr to RCS burn att **RCS burn** CLOSEOUT Mnvr to SA DPY att	CLOSEOUT: 1. PRI ACT DISENGAGE 2. (ALT ACT DISENGAGE) 3. REMOVE CIU PWR 4. REMOVE PCP PWR Pre sleep Ku band activation		>Mnvr to RCS burn att >RCS burn ignition >RCS burn cutoff >Mnvr to SA DPY att	
08:30						Report to 5SOPS/JSC: >TLM thru DGS
				Report to JSC/OCC: > IUS health status		Report to 5SOPS/JSC: > AXAF health status
		Cmd IUS ranging and coho drive on			Send ranging and coho drive on (S-3000 & S-3030) Xmit post SRM-1 SV and post RCS SV to JSC/JPL/OCC	
	M a x	Issue S/C disc #2 (safety INH #2)				
08:45	K u	Issue S/C disc #5 (PA, TX, SA DPY) IUS RCS INH			>Disc #2 & 5 issued >IUS Rates (R, P, Y) at RCS Inh for SA DPY	Report to 5SOPS/JSC: >Disc # 2 & 5 rcvd
	Z	AXAF SA DPY start				
	W					
09:00						

ORB: 6, 7

IUS/AXAF TIMELINE-REV 6 DPY

RTS	GSTDN	ORB	MET	ACTOM	EVENT	CREW	JSC	5SOPS	OCC
			Day 000						
			09:00						
GTS					AXAF SA DPY complete IUS RCS ENA & mnvr to AXAF sun att AXAF MUPS/PCAD Act			Report to OCC/JSC: >IUS RCS ENA >Mnvr to sun att	Report to 5SOPS/JSC: >SA DPY complete >MUPS/PCAD Act complete
					AXAF Heaters re-enabled				
HTS					AXAF SA connected to MN bus				>SA's connected to MN bus
			09:15			VTR PLAYBACK			
					IUS RCS INH **IUS/AXAF SEP** IUS RCS ENA to hold sep att IUS mnvr to CCAM/BTD att IUS CCAM/BTD ignition		Handover msn responsibility to OCC	Report to OCC/JSC: >IUS RCS INH >IUS/AXAF sep Report to JSC/OCC: >IUS status	Report to 5SOPS/JSC: >IUS/AXAF sep Report to JSC: > AXAF health status
				Max Ku				Xmit post separation SV to JPL, OCC	
		7	09:30						
						VTR SETUP			
			09:45						
			10:00						

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IUS/AXAF TIMELINE - REV 7 DEPLOY (150 NM)

REV 7 TIMELINE ASSUMPTIONS:
- The orbiter is in -ZLV -YVV attitude
- Reschedule the VTR playback on FD2
- Return to the nominal timeline at 0/11:00
- AXAF/IUS coverage will be used throughout

NOTE: TDRS-Z coverage is shown as "TDRS-S"

IUS/AXAF TIMELINE-REV 7 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ACTM	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				00:00		**LIFTOFF**		ASCENT - CONFIG 756 TFL: 166 FPL: 501 D Lk Inp DFL Dl Use 1 * 5 4 * 2.56 IUS 2 * 5 14 * 2.56 IUS 3 * 5 6 64K IUS 4 5 5 16K IUS		
						SRB separation				
						MECO ET separation		OPS rcdr 1 - SSME data OPS rcdr 2 - OD data S band PM - OD data S band FM - SSME data INCO - FM source to DOD		
				00:15				Report to 5SOPS/OCC: > GMT of launch > MET of MECO		
				00:30				Xmit predicted post OMS-2 SV to 5SOPS		
								Fax SHO and gnd MET PSAT to SVALE PLANS and AXAF OC	Report to JSC: > IUS health status	
						OMS-2 burn				
				00:45	Z			INCO uplink AMU VPs Notify 5SOPS		
					W		Configure GPCs for OPS 2	Report to 5SOPS/OCC: > OMS-2 burn status > Preliminary assessment > MET of OMS-2 cutoff Xmit post OMS-2 SV to 5SOPS		
				01:00						

IUS/AXAF TIMELINE-REV 7 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATM | COM

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
01:00	Start tracking arc	Load PCMMU TFL 183	64K - CONFIG 759 TFL: 183 FPL: 503 D Lk Inp DFL DL Use 1 2 8 * 2K AXAF 2 1 18 2K AXAF 3 * 5 6 * 64K IUS 4 5 5 16K IUS Load PDI FPL 503 and DECOM 1 and 2	Initiate Rev 6 & 7 guidance sims on post OMS-2 SV	
	W Mnvr to PLBD opening att				
01:15					
			Coordinate OCC & 5SOPS cmd test B		Xmit cmd test B to JSC
	Open PLBDs AXAF POWERUP	Open PLBDs AXAF POWERUP: 1. ACTIVATE PCP 2. POWER UP AXAF 3. FLOAT IUS S/C BATTS ONLINE	Report to OCC: PLBD OP start time	Xmit cmd test B to JSC	
01:30				Report to OCC: >S/C Bus Voltage and Current Report to JSC: > IUS health status	
	GO for orbit ops	Ku band deploy	Report to crew: > GO for orbit ops		
	AXAF COMM ACT	AXAF COMM ACT			
01:45			Report to OCC: >Good AXAF cmd uplink	Report to OCC: > S/C Bus Amp increase	Report to JSC/5SOPS: >Cmd CTU, IU, RCTU Activation
			64K - CONFIG 759 TFL: 183 FPL: 503 D Lk Inp DFL DL Use 1 * 2 8 * 2K AXAF 2 1 18 2K AXAF 3 * 5 6 * 64K IUS 4 5 5 16K IUS	Report to OCC: >AXAF t/m present in IUS stream	Report to JSC 5SOPS: >Select Format 6 >Verify TLM at OCC >Activate EIA, PCU, & Load Bus Current monitor >Start SOH AXAF
02:00					

HTS | GDS | GDS | CTS | VTS | GDX | MIL | BDA | ORB 2 | ZLV | XVV

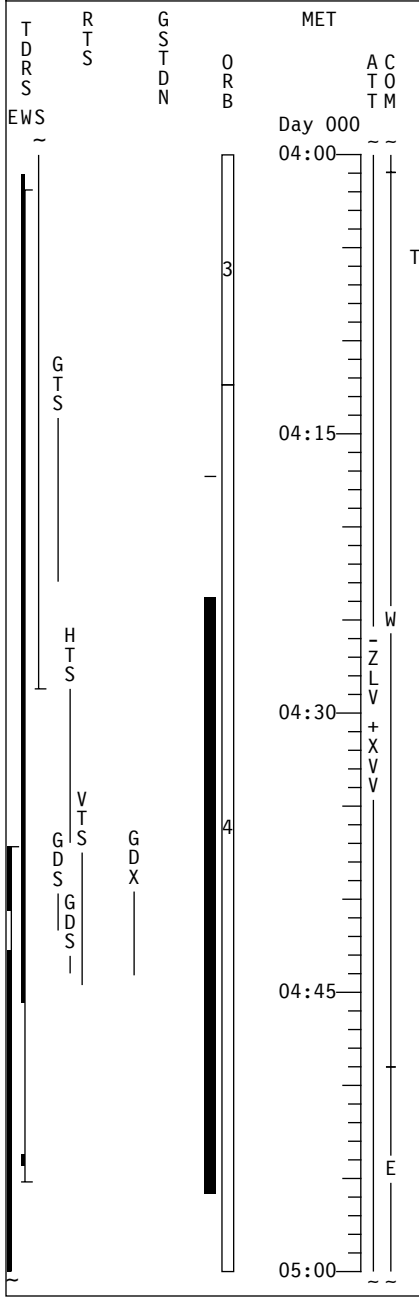
IUS/AXAF TIMELINE-REV 7 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	COM	EVENT	CREW	JSC	5SOPS	OCC
				Day 000							
				02:00			AXAF initial orbit config cmding (30 min)				Report to JSC/5SOPS: >Cmd ACIS vent valve open
							PCP/CIU SSP ACT AND C/O	PCP/CIU/SSP ACT AND C/O: 1. CIU PANEL CONFIG 2. CIU C/O 3. DISPLAY IUS SAFETY STATUS 4. PCP C/O 5. IUS BATT AND AFTA HTR ACT 6. SSP C/O AND ENABLE IUS ANT		Report to JSC/OCC: >Rev 6 deploy time and window	
							Configure for VRCS control			Send post-burn SV predicts to JPL	
					Z					Relay burn loc data to P3/DS	
				02:15			IUS AND AXAF SPECS C/O	IUS AND AXAF SPECS C/O: 1. IUS SPEC 200 C/O 2. AXAF SPEC 205 C/O 3. DISABLE IUS AUTO SHUTDOWN	Fax SHO and gnd MET PSAT to SVALE CNTL and AXAF OC	Report to JSC: > Auto-thermal shutdown disable	
			2						Report to 5SOPS: > FDAs as expected		
									Presupport Briefing <---------- orbiter, network, IUS, AXAF --------> status reports		
					-ZLV				Xmit state vector to 5SOPS on each GMT hour		
				02:30	+XVV		IUS PRE-DEPLOY C/O	IUS PRE-DEPLOY C/O: 1. PRECHECKS 2. On MCC GO: XFER IUS TO INT PWR 3. On MCC GO: PRE-DEPLOY CHECK 4. XFER IUS TO ORBITER PWR Notify MCC: PDCO complete 5. VERIFY THROUGHPUT CMD CAPABILITY	Report to crew: > GO for xfer to internal power	Report to JSC: > GO for xfer to internal power	
										> Verify power xfer	
									> GO for PDCO	> GO for PDCO	
											Act OBC A & B, Load FSW & SCS
										> Verify power xfer	
	GTS								> PDCO status	> PDCO status	
											Report to JSC: > Expect temporary loss of AXAF TLM
		GTS			W			Notify MCC: Configured for throughput cmding Expect Decom fail message	Report to 5SOPS: > GO for throughput cmd	Xmit F-110 command to JSC	
				02:45						Report to JSC: > Commanding complete	
									> NO-GO for cmd		Report to JSC: < ACIS Vent Valve open complete
									Report to crew: > 5SOPS commanding cmplt		Report to JSC: > AXAF health status
	HTS		3								
											Report to JSC/5SOPS: >Enable EIA-A Sequencer
				03:00			Stop tracking arc				

IUS/AXAF TIMELINE-REV 7 DPY

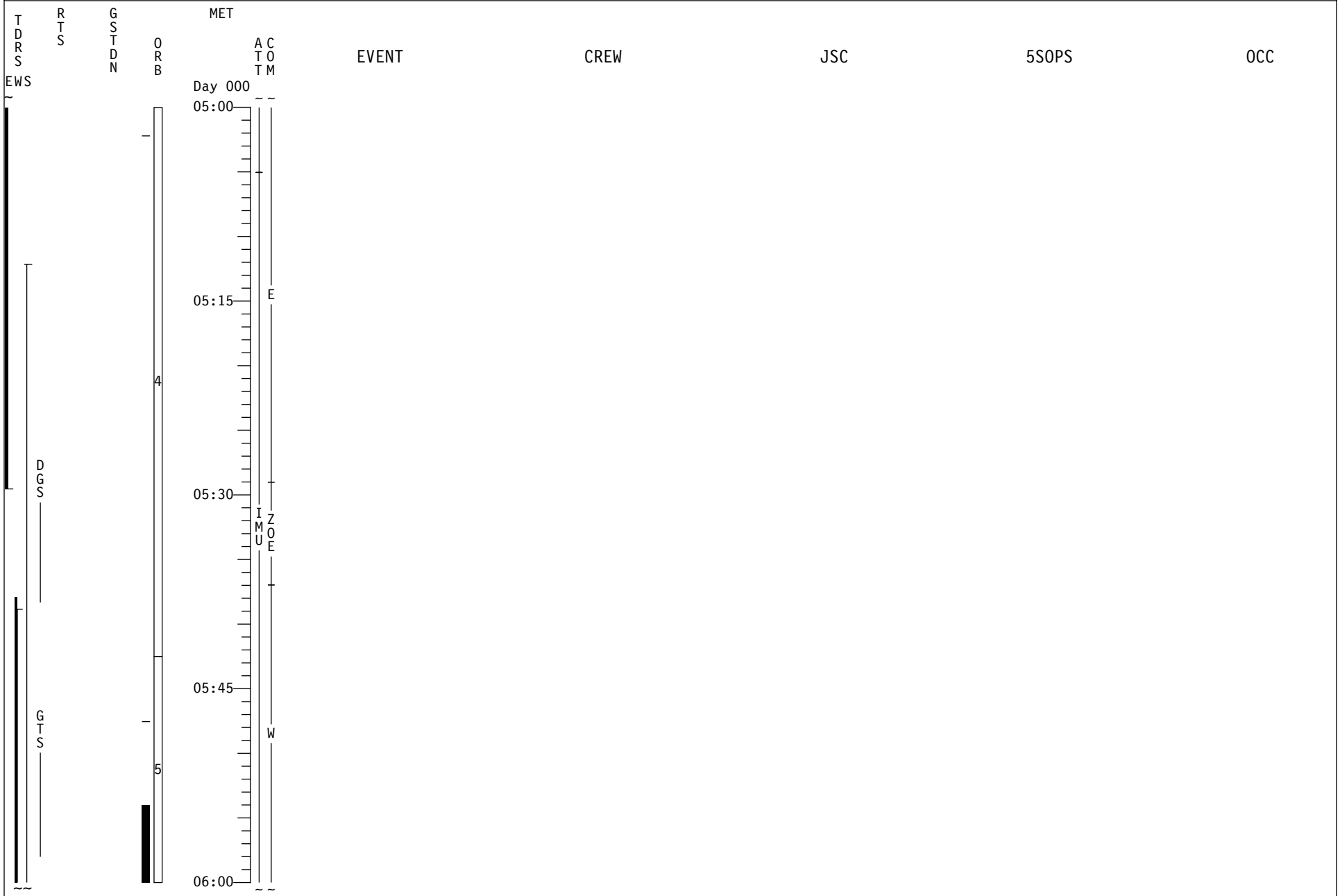
MET	EVENT	CREW	JSC	5SOPS	OCC
Day 000 03:00	ACTUATOR ENGAGEMENT	ACTUATOR ENGAGEMENT			Report to JSC/5SOPS: >AXAF enabled for rapid deploy >OCC starts cmd TS Htvs Ena
	REMOVE AXAF RF INH (No E.T. PLBD OP + 30min)	On MCC GO: REMOVE AXAF RF INH	Report to crew: > GO for AXAF RF INH removal		Report to JSC: > GO for AXAF RF inh rm
03:15	AXAF RF CK (UPR ANT)	AXAF RF CK (UPR ANT): On MCC GO: 1. CONFIG FOR AXAF RF TLM CHECK On MCC GO: 2. Restore AXAF HDLN TLM Notify MCC when AXAF RF CK complete	INCO turns FM OFF (If required)		Report to JSC: >TS Htrs Ena Report to JSC: > GO for step 1 OCC command xmtr & PA on Verify RF TLM in high & low pwr Report to JSC: > GO for step 2 OCC cmd xmtv & PA off
03:30				SOC-52 TO OCC I/F test	Report to JSC/5SOPS: SOC-52 TO OCC I/F test Report to JSC/5SOPS: Begin EIA Sequence Self-Test
03:45	Uplink tracking arc SV	Uplink tracking arc SV Xmit tracking arc SV to 5SOPS		Report to JSC/OCC: > Rev 7 deploy time & window Send post-burn SV predicts to JPL Relay burn loc data to P3/DS Initiate guidance sims on post tracking arc SV for Rev 6 & 7	Report to JSC/5SOPS: EIA Sequence Self-Test Complete
04:00	(DGS unusable)				

IUS/AXAF TIMELINE-REV 7 DPY



EVENT	CREW	JSC	5SOPS	OCC
TRANSFER SV	On MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	
	Meal (1 hr)		IUS State Vector Uplink (contingency - NCF)	
			IUS State Vector Uplink (contingency - GTS)	
			IUS State Vector Uplink (contingency - HTS)	Report to JSC/5SOPS: >AXAF status
			Report to JSC/OCC: >Rev 6 deploy time & window Send post-burn SV predicts to JPL Relay burn loc data to P3/DS	

IUS/AXAF TIMELINE-REV 7 DPY



IUS/AXAF TIMELINE-REV 7 DPY

MET	TDRS EWS	RTS	GSTDN	ORB	ATT	COM	EVENT	CREW	JSC	5SOPS	OCC
Day 000											
06:00		HTS									
		VTS									
06:15						W					
					IMU						
06:30				5			IMU align		Start review of crew GO/NO-GO cue card Xmit post separation SV to 5SOPS	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card
									<---------- Presupport Briefing Orbiter, network, IUS, AXAF status reports ---------->		
06:45						E	MNVR TO DEPLOY ATTITUDE	MNVR TO DEPLOY ATTITUDE		Report to JSC/OCC: > Rev 7 deploy time window > Send post-burn sv predicts to JPL > Relay burn loc data to P3/DS	
					DPY						
07:00											

IUS/AXAF TIMELINE-REV 7 DPY

TDRS EWS | RTS → | GSTDN | DGS | GTS | HTS | ORB | MET | ATT | COM

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
07:00					
	TILT TABLE ELEVATION TO 29 °	TILT TABLE ELEVATION TO 29°: 1. PRLA RELEASE 2. RAISE TO 29° Report to MCC: >Tilt table at 29°	Report to 5SOPS: > PRLA release		
07:15					
	AXAF RF CHECK (LOWER ANTENNA)	AXAF RF CK (LWR ANT) 1. On MCC GO, AXAF RF TLM CHECK (LWR ANT) 2. On MCC GO, RESTORE AXAF HDLN TLM	Complete review of crew GO/NO-GO cue card Report to crew: > GO for step 1 Report to crew: > GO for step 2	Report to JSC: Changes to crew GO/ NO-GO cue card	Report to JSC: Changes to crew GO/ NO-GO cue card OCC command xmtr & PA on Report to JSC: > GO for step 1 Verify RF TLM in high & low pwr Report to JSC: > GO for step 2 OCC cmd xmtr & PA off
07:30					
			Report to crew: > Go/NO-GO cue card > Deploy PAD > Sep burn PAD		
07:45			<----------	MD Deploy Conference Poll Operations/Mgmt teams for remaining deploy criteria including AXAF Batt. Taps status	---------->
					Report to 5SOPS/JSC: >Closing AXAF batery tap upon Mission Director approval
	TRANSFER SV	On MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer Report to crew: > GO for IUS/PI LOCK	Report to JSC: > GO for SV xfer > Verify SV xfer	Report to JSC: >TS Heaters OFF >AXAF GO for PI transfer
08:00					

IUS/AXAF TIMELINE-REV 7 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ACTM	COM	EVENT	CREW	JSC	5SOPS	OCC
				Day 000 08:00		W	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64 ~~16~~ RF Report to MCC: > IUS/PI lock complete	16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 * 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS		Config OCC for IUS strip & ship TLM display
			6	08:15							
				D-20 >	DPY	E	DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VERIFY PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS			
				08:30			16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS	6. At MCC GO for deploy RELEASE UMBILICAL 7. Raise to 58° 8. OMS SEP BURN PREP 9. -X BACKOFF MNVR PREP 10.XFER ORB SV TO TGT 11.ORBITER TO FREE DRIFT	Poll teams for deploy GO Report to crew: > GO for deploy	Report to JSC: > GO for deploy	Report to JSC: > GO for deploy
	DGS			08:45	ZOE		**DEPLOY IUS** (8:47) 8.7 min window Issue S/C disc #3 & 7 (RF INH) SEP MNVR	**DEPLOY IUS** SEP MNVR: 1. OMS BURN PREP 2. OMS BURN PRECHECK 3. LOAD OMS TGT AND BURN DATA	Report to 5SOPS/OCC: > DEPLOY	Report to JSC/OCC: >Disc #3 & 7 issued	Report to 5SOPS/JSC: >Disc 3 & 7 rcvd
			7		SEP	W	LOWER TILT TABLE TO -6 °	LOWER TILT TABLE TO -6°: 1. REACTIVATE ASE HTRS 2. LOWER TILT TABLE TO -6°		Report to JSC/OCC: >RCS enable >Mnvr to thermal att >In thermal att	
				09:00			IUS RCS enable & initial warmup pulses Mnvr to thermal att & hold	SEP MNVR (cont): 4. OMS BURN EXEC 5. POST OMS BURN RECONFIG 6. CYCLIC SV XFER TO IUS	Report to 5SOPS: > Separation burn complete		

IUS/AXAF TIMELINE-REV 7 DPY

RTS	GSTDN	ORB	MET	ACTOM	EVENT	CREW	JSC	5SOPS	OCC
IUS/AXAF COVERAGE			Day 000						
GTS			09:00			SEP MNVR (cont): 7. MNVR TO IUS VIEWING ATTITUDE	Report to 5SOPS: > Maneuver to IUS viewing attitude complete		
					Handover AXAF/IUS flight operations		> Handover IUS/AXAF flight operations		
							For DPY, cancel OST Support For WAVEOFF, see CSCH Waveoff Support Plan, Case _____		
HTS			09:15	VW					
		7	09:30			SEP MNVR (cont): 8. MNVR TO PROTECT ATTITUDE	Report to 5SOPS: > Maneuver to window protect attitude complete		Report to 5SOPS/JSC:
					Apply ordnance bus power Guidance initialization			Report to JSC/OCC: >Ord bus pwr >Guidance init >Titan sep disc	>Titan disc rcvd
				WPA					
					Mnvr to SRM-1 burn att Issue S/C disc #1 (safety INH #1) & 6 (TLM, SSR, LGA's, batt's)			>Mnvr to SRM-1 att >Disc #1 to 6 issued	>Disc #1 & 6 rcvd
			09:45			SEP MNVR (cont): 9. DESELECT RNDZ NAV 10.TURN OFF PI		>AXAF beacon receipt & TLM rate >SRM-1 ignition	
					SRM-1 ignition				
					SRM-1 burnout Mnvr to SRM-2 burn att Xfer pwr Stage 1→2 Stage sep & RCS spacing burn			>SRM-1 burnout >Mnvr to SRM-2 att	
				Max Ku	CLOSEOUT **SRM-2 ignition** SRM-2 burnout Mnvr to RCS burn att **RCS burn**	CLOSEOUT: 1. PRI ACT DISENGAGE 2. (ALT ACT DISENGAGE) 3. REMOVE CUI PWR 4. REMOVE PCP PWR		SRM-2 ignition SRM-2 burnout >Mnvr to RCS burn att >RCS burn ignition >RCS burn cutoff	
			10:00		Mnvr to SA DPY att			>Mnvr to SA DPY att	

IUS/AXAF TIMELINE-REV 7 DPY

RTS	GSTDN	ORB	MET	ACTOM	EVENT	CREW	JSC	5SOPS	OCC
			Day 000						
			10:00			Ku band activation Pre sleep			
		7							
					Issue S/C disc #2 (safety INH #2)				
			10:15						
					Issue S/C disc #5 (PA, TX, SA DPY) IUS RCS INH AXAF SA DPY start Cmd IUS ranging and coho drive on			Disc #2 & 5 issued > IUS Rates (R, P, Y) at RCS Inh for SA DPY Send ranging and coho drive on (S-3000 & S-3030) Report to JSC: > IUS health status Xmit post SRM-1 and post RCS SV burn to JSC/GSFC/JPL/OCC	Report to 5SOPS/JSC: > TLM thru IOS Report to 5SOPS/JSC > Disc #2 & 5 rcvd Report to JSC: > AXAF health status
				Max Ku					
			10:30						
					AXAF SA DPY complete IUS RCS ENA & mnvr to AXAF sun att AXAF MUPS/PCAD Act			Report to OCC/JSC: >IUS RCS ENA >Mnvr to sun att	Report to 5SOPS/JSC: >SA DPY complete >MUPS/PCAD Act complete
GTS		8							
					AXAF Heaters re-enabled				
					AXAF SA connected to MN bus				>SA's connected to MN bus
			10:45						
					IUS RCS INH **IUS/AXAF SEP** IUS RCS ENA to hold sep att IUS mnvr to CCAM/BTD att IUS CCAM/BTD ignition		Handover msn responsibility to OCC	Report to OCC/JSC: >IUS RCS INH >IUS/AXAF sep Report to JSC/OCC: > IUS status Xmit separation SV to JPL, GSFC, OCC	Report to 5SOPS/JSC: >IUS/AXAF sep Report to JSC: > AXAF health status
			11:00						

IUS/AXAF TIMELINE - REV 19 EVA DEPLOY

REV 19 EVA TIMELINE ASSUMPTIONS
- "GO FOR EVA" occurs following failure to raise tilt table to 29°.
- IUS thermally deployable on FD2.
- Attempts will be made to raise the IUS/AXAF prior to AIRLOCK DEPRESS.

NOTE: TDRS-Z coverage is shown as "TDRS-S"

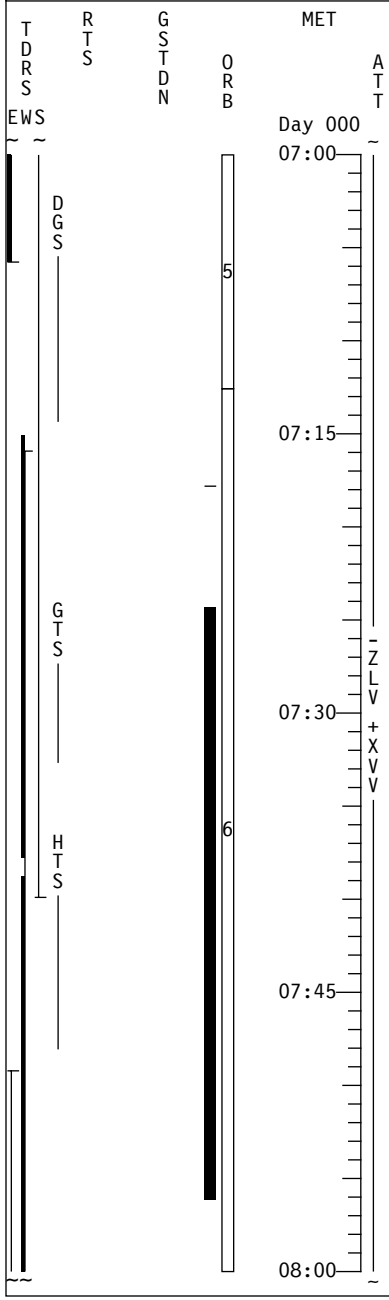
IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW/KSC	JSC	5SOPS	OCC
				Day 000						
				05:00	IMU	IMU align		Start review of crew GO/NO-GO cue card Xmit post separation SV to 5SOPS	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card
								<---------- Presupport Briefing orbiter, network, IUS, AXAF status reports		---------->
				05:15						
			4			MNVR TO DEPLOY ATTITUDE	MNVR TO DEPLOY ATTITUDE		Report to JSC/OCC: > Rev 7 deploy time & window Send post-burn SV rpedicts to JPL Relay burn loc data to P3/DS	
	DGS			05:30						
					DPY	TILT TABLE ELEVATION TO 29 °	TILT TABLE ELEVATION TO 29°: 1. PRLA RELEASE 2. RAISE TO 29° Mal 1.1c TILT TABLE FAILS TO ELEVATE	Report to 5SOPS: > PRLA release		
						TILT TABLE FAILURE				
						GO for EVA				
				05:45		ASE CRU test	CYCLE IUS PRLAs ASE CRU test 1. PRE CHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
	GTS		5			AXAF RF CHECK (LOWER ANTENNA)	AXAF RF CHECK (LWR ANT) 1. On MCC GO, AXAF RF TLM CHECK (LWR ANT) 2. On MCC GO, RESTORE AXAF HDLN TLM Report to MCC: AXAF RF check complete	Report to crew: >GO for step 1 Report to crew: >GO for step 2		OCC cmd xmtr & PA on Report to crew: >GO for step 1 Verify RF TLM in high & low pwr Report to crew: >GO for step 2 OCC cmd xmtr & PA off
				06:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				06:00						
	HTS						AIRLOCK PREP			
	VTS			ORB 6						
				06:15	DPY					
			5	06:30						
							EMU CHECKOUT AT 10.2 PSI: 1. EMU 1 & 2 POWERUP			
						Mnvr AXAF thermal attitude				
				06:45	-ZLV +XVV		2. Primary REGULATOR/FAN/PUMP CHECK			
							3. SOP CHECK GROUP B POWERDOWN			
				07:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY



EVENT	CREW	JSC	5SOPS	OCC
	EVA ASPIRIN PROTOCOL			
	4. COMM CHECK			
	5. BATTERY CHARGE CHECK			

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000 08:00			Pre sleep			
							MASK PREBREATHE INITIATE			
				08:15						
			6		-ZLV +XVV					
	DGS			08:30						
				08:45				Initial FD2 timeline inputs due to JSC		Initial FD2 timeline inputs due to JSC
			7							
				09:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS GTS HTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000 09:00			10.2 PREP DEPRESS TO 10.2	Initial FD2 timeline inputs due to FAO		
			7	ORB 7		Latest time for CABIN DEPRESS TO 10.2 PSI (airlock depress minus 12 hours)	10.2 PSI CABIN CONFIG MASK PREBREATHE TERMINATE			
				10:00		Private medical conference				
	GTS					ASE CRU test	ASE CRU test 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
			8	11:00				Review integrated timeline	Review integrated timeline	Review integrated timeline
				ORB 8	-ZLV +XVV			Final FD2 timeline changes due to FAO	Final FD2 timeline changes due to JSC	Final FD2 timeline changes due to JSC
	GTS			12:00						
			9	ORB 9			Sleep	Fax TIPS message to 5SOPS, OCC		
				13:00				Review message for uplink	Review message for uplink	Review message for uplink
	GTS		10	14:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				14:00						
			10	ORB 10						
				15:00						
			11	ORB 11	-ZLV +XVV					
				16:00			Sleep			
			12	17:00						
				ORB 12						
			13	18:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
	MAX			Day 000 18:00						
				18:15						
	DGS									
			13	18:30	-ZLV +XVV		Sleep			
	CANI	CANI		18:45						
				ORB 13						
				19:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				19:00			Post Sleep		<--------	Presupport Briefing orbiter, network, IUS/AXAF status reports ------->
			13				EVA ASPIRIN PROTOCOL 10.2 PSI MAINTENANCE			
		MIL		19:15		ASE CRU TEST	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
				19:30	-ZLV +XVV					
	MAX		14							
				19:45						
	DGS									
				20:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	DGS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
					Day 000						
					20:00			EVA PREP: 1. MIDDECK PREP			
	CAN		CAN		20:15		ORB 14				
				14		-ZLV		2. PREP FOR DONNING			
					20:30	+XVV		EVA TOOL CONFIGURATION			
								EVA PREP (cont): 3. EMV DONNING			
					20:45				INCO uplink orb & tgt SV		
			MIL	15							
					21:00						

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	MILL	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
					Day 000						
					21:00				DPS verify AMU VPs onboard		
					21:15	-ZLV +XVV	TRANSFER SV	At MCC GO: TRANSFER SV EVA PREP (cont): 4. EMV CHECK	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	
	DGS			15	21:30						OCC-MAD command I/F test
										IUS State Vector Uplink (contingency - DGS)	
	CAN	CAN			21:45 ORB 15	AMU/IMU	AMU/IMU SEQUENCE: 1. MNVR TO AMU ATT 1 2. DESELECT IMU 3. AMU DATA TAKE #1 4. MNVR TO AMU ATT 2			SOC-52 to OCC I/F test	SOC-52 to OCC I/F test
					22:00		5. AMU DATA TAKE #2				

IUS/AXAF TIMELINE-REV 19 EVA DPY

MET	TDRS EWS	RTS	VTCS TS	GSTDN	MIL	MIL'	ORB	ATT	EVENT	CREW	JSC	5SOPS	OCC
Day 000													
22:00							15	AMU/IMU	AMU/IMU SEQUENCE (cont): 6. MNVR TO AMU ATT 3				
									Rev 19 IUS battery window open 7. AMU DATA TAKE #3 8. PERFORM IMU ALIGN				
22:15									9. AMU DATA TAKE #4 10. RESELECT IMU				
													Send post-burn SV predicts to JPL Relay burn loc data to P3/DS
22:30							16	ZLV+XVV	IUS PRE-DEPLOY C/O	IUS PRE-DEPLOY C/O: 1. PRECHECKS 2. On MCC GO: XFER IUS INT PWR 3. On MCC GO: PRE-DEPLOY CHECK 4. XFER IUS TO ORBITER PWR Notify MCC: >PDCO complete 5. VERIFY THROUGHPUT CMD CAPABILITY	>GO for PDCO >PDCO STATUS	>GO for PDCO >Verify power xfer >PDCO STATUS	
22:45										Notify MCC: Configured for throughput cmding Expect Decomm Fail Message	Report to 5SOPS: > GO for thoughput cmd > NO-GO for cmd Report to crew: > 5SOPS commanding complete	Xmit F-110 command to JSC Report to JSC: >Commanding complete	
23:00													

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET Day 000	ATT	EVENT	CREW	JSC	5SOPS	OCC
	DGS			23:00			EVA PREP (cont): 5. EMV PURGE			
							6. PREBREATHE			
				23:15			GROUP B POWERUP			
	CAN	CAN	16		-ZLV+XVV					
				23:30				Xmit post separation(AMU uplink) SV to 5SOPS		
	HTS					EVA PREP FOR IUS MAN ELEV	EVA PREP FOR IUS MAN ELEV 1. Ver PCP/SSP config 2. Attempt tilt table raise 3. ACTUATOR DISENGAGE FOR MANUAL AFTA INSTALL 4. Perform XFER 64→16 HDLN			
				23:45						
	VTS		17							
GDS GCDTSS		GDS GDS		00:00						

16K - CONFIG 760					
TFL: 184		FPL: 502			
D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

IUS/AXAF TIMELINE-REV 19 EVA DPY

MET	EVENT	CREW	JSC	5SOPS	OCC
Day 001 00:00					
00:15	TRANSFER SV	On MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer Report to crew >GO for EVA	Report to JSC: > GO for SV xfer > Verify SV xfer	
	EV ACTIVITY:	IV ACTIVITY:	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card
	AIRLOCK DEPRESS				
00:30					
00:45	EGRESS				
	MNVR TO DEPLOY ATTITUDE	IUS MANUAL ELEV MNVR TO DEPLOY ATTITUDE			
01:00					

TDRS EWS | GCV DTT SSS | RTS | GDS MIL | GSTDN | ORB 17 | ATT -ZLV +XVV DPY

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT

HTS | GDS | GDS | CTS | VTS | GDS | GDS | MIL

Day 001

MET	EVENT	CREW	JSC	5SOPS	OCC
01:00	ASE CRU test	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete	Complete review of crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card
01:15	Raise tilt table to 29°			IUS State Vector Uplink (contingency - NCF)	
01:30				IUS State Vector Uplink (contingency - HTS)	
	AXAF RF CHECK (LOWER ANTENNA)	AXAF RF CHECK (LWR ANT) 1. On MCC GO, AXAF RF TLM CHECK (LWR ANT) 2. On MCC GO, RESTORE AXAF HDLN TLM	Report to crew: >GO for step 1 Report to crew: >GO for step 2		OCC command Xmtr on Report to JSC: >GO for step 1 Verify AXAF RF TLM Report to JSC: >GO for step 2
01:45	Raise tilt table to 45°		<---------- Poll Operations/Mgmt teams ---------->	MD Deploy Conference for remaining deploy criteria including AXAF Batt. Taps status	
02:00					

ORB: 17, 18

DPY

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT

Day 001

MET	EVENT	CREW	JSC	5SOPS	OCC
02:00	TRANSFER SV	At MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer Report to crew: > GO/NO-GO cue card update > Deploy PAD > Sep burn PAD	Report to JSC: > GO for SV xfer > Verify SV xfer	Report to 5SOPS/JSC: >Closing AXAF battery taps upon Mission Director approval Report to JSC: >TS Heaters OFF
	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64→16 RF Report to MCC: >IUS/PI lock complete	Report to crew: >GO for IUS/PI LOCK		
02:15	INGRESS				
D-20 >					
02:30	DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VERIFY PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS	Poll teams for deploy GO Report to crew; > GO for deploy	Report to JSC: > GO for deploy	Report to JSC: > GO for deploy
		DEPLOY COUNTDOWN (cont): 6. At MCC GO for deploy: RELEASE UMBILICALS 7. RAISE TO 58 °-not performed 8. OMS SEP BURN PREP 9. -X BACKOFF MNVR PREP 10. XFER ORB SV TO TGT 11. ORBITER TO FREE DRIFT			
02:45	DEPLOY IUS (02:48) (8.7 min. window) Issue S/C disc #3 & 7 (RF INH) SEP MNVR	DEPLOY IUS	Report to 5SOPS/OCC: > DEPLOY	Report to JSC/OCC: >Disc #3 & 7 issued	Report to 5SOPS/JSC: >Disc 3 & 7 rcvd
		SEP MNVR: 1. OMS BURN PREP 2. OMS BURN PRECHECK 3. LOAD OMS TGT AND BURN DATA			
03:00					

16K - CONFIG 760
TFL: 184 FPL: 502

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

16K - CONFIG 760
TFL: 184 FPL: 502

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

ORB: 18, 19

GTS, HTS

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS | RTS HTS | GDS GDS GDS CTS | VTS | GDS GDS GDS | MIL MIL MIL | GSTDN | ORB 19 | DGS

MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
Day 001						
03:00	DPY	IUS RCS enable & initial warmup pulses Mnvr to thermal att & hold	SEP MNVR (cont): 4. OMS BURN EXEC 5. POST OMS BURN RECONFIG 6. CYCLIC SV XFER TO IUS 7. MNVR TO IUS VIEWING ATTITUDE	Report to 5SOPS: > Separation burn complete > Maneuver to IUS viewing attitude complete > Handover IUS/AXAF flight operations	Report to JSC/OCC: >RCS enable >Mnvr to thermal att >In thermal att	
	SEP	Handover AXAF/IUS flight operations	EVA PREP FOR TILT TABLE STOWAGE EGRESS	Report to crew: GO for EVA		
03:15				For DPY, cancel OST Support For WAVEOFF, see CSCH Waveoff Support Plan, Case _____		
		EVA TILT TABLE STOWAGE	EVA TILT TABLE STOWAGE			
	VW					
03:30			SEP MNVR (cont): 8. MNVR TO PROTECT ATTITUDE	Report to 5SOPS: > Maneuver to window protect attitude complete		
		Apply ordnance bus power Guidance initialization			Report to JSC/OCC: >Ord bus pwr >Guidance init >Titan sep disc	Report to 5SOPS/JSC: >Titan disc rcvd
03:45		Mnvr to SRM-1 burn att Issue S/C disc #1 (safety INH #1) & 6 (TLM, SSR, LGA's, batt's)	SEP MNVR (cont): 9. DESELECT RNDZ NAV 10.TURN OFF PI		>Mnvr to SRM-1 att >Disc #1 to 6 issued	>Disc #1 & 6 rcvd
	WPA	**SRM-1 ignition**			>AXAF beacon receipt & TLM rate >SRM-1 ignition	
		SRM-1 burnout Mnvr to SRM-2 burn att Xfer pwr Stage 1→2 Stage sep & RCS spacing burn			>SRM-1 burnout >Mnvr to SRM-2 att	
		SRM-2 ignition SRM-2 burnout Mnvr to RCS burn att **RCS burn**			>SRM-2 ignition >SRM-2 burnout >Mnvr to RCS burn att >RCS burn	
04:00		Mnvr to SA DPY att			>Mnvr to SA DPY att	

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS | DGS | RTS | GTS | HTS | VTS | GDS | GSTDN | GDS | ORB 19 | ORB 20 | ATT -ZLV- -XVV-

MET	EVENT	CREW	JSC	5SOPS	OCC
Day 001					
04:00		INGRESS			
	Cmd IUS ranging and coho drive on			Send ranging and coho drive on (S-3000 & S-3030) Report to JSC/OCC: > IUS health status	Report to 5SOPS/JSC: >TLM thru DGS Report to 5SOPS/JSC: > AXAF health status
	Issue S/C disc #2 (safety INH #2)			Xmit post SRM-1 SV and post RCS SV to JSC/GSFC/JPL/OCC	
04:15	AIRLOCK DEPRESS	AIRLOCK DEPRESS			
	Issue S/C disc #5 (PA, TX, SA DPY) IUS RCS INH AXAF SA DPY start			>Disc #2 & 5 issued >IUS Rates (R, P, Y) at RCS Inh for SA DPY	Report to 5SOPS/JSC: >Disc # 2 & 5 rcvd
		VTR SETUP			
04:30		Ku Band Activation VTR PLAYBACK			
	AXAF SA DPY complete IUS RCS ENA & mnvr to AXAF sun att AXAF MUPS/PCAD Act			Report to OCC/JSC: >IUS RCS ENA >Mnvr to sun att	Report to 5SOPS/JSC: >SA DPY complete >MUPS/PCAD Act complete
	AXAF Heaters re-enabled				
04:45	AXAF SAs connected to MN bus				>SA's connected to MN bus
	IUS RCS INH **IUS/AXAF SEP** IUS RCS ENA to hold sep att IUS mnvr to CCAM/BTD att IUS CCAM/BTD ignition		Handover msn responsibility to OCC	Report to OCC/JSC: >IUS RCS INH >IUS/AXAF sep Report to OCC/JSC: >IUS status	Report to 5SOPS/JSC: >IUS/AXAF sep Report to 5SOPS/JSC: > AXAF health status
05:00				Xmit separation SV to JPL, OCC	

IUS/AXAF TIMELINE-REV 19 EVA DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 001						
				05:00						
				05:15		CLOSEOUT	CLOSEOUT: 1. REMOVE CIU PWR 2. REMOVE PCP PWR			
	DGS		20		-ZLV					
				05:30	-XVV					
				05:45						
	GTS		21							
				06:00						

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IUS/AXAF TIMELINE - REV 20 DEPLOY

REV 20 TIMELINE ASSUMPTIONS
- Enter timeline after NO-GO for Rev 7.
- IUS thermally deployable on FD2.
- P/TV CAMERA SETUP in place.
- Return to nominal timeline at 1/07:00

NOTE: TDRS-Z coverage is
shown as "TDRS-S"

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
08:00	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64 →16 RF Report to MCC: >IUS/PI lock complete	16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 * 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS		Config OCC for IUS strip & ship TLM display
08:15					
D-20 >	DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VER PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS **REV 7 DEPLOY WAVEOFF**	Poll teams for deploy GO		
08:30					
08:45	ASE CRU test	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: >ASE CRU test complete		Initial FD2 timeline inputs due to JSC	Initial FD2 timeline inputs due to JSC
	RESTOW IUS	RESTOW IUS 1. IUS TO ORBITER PWR 2. IUS XMTR OFF 3. CAMERA PREP 4. LOWER TILT TABLE TO 0° 5. ENGAGE PRLAs 6. IUS TO 64 KBPS 7. DESELECT RNDZ NAV step 8-12 - not performed	64K - CONFIG 759 TFL: 183 FPL: 503 D Lk Inp DFL Dl Use 1 * 2 8 * 2K AXAF 2 1 18 2K AXAF 3 * 5 6 * 64K IUS 4 5 5 16K IUS		
09:00					

ORB: 6, 7

ATT: DPY; -ZLV; +XVV

DGS

IUS/AXAF TIMELINE-REV 20 DPY

MET	EVENT	CREW	JSC	5SOPS	OCC
Day 000 09:00	MNVR to AXAF overnight Attitude		Initial FD2 timeline inputs due to FAO		
	IUS OVERNIGHT CONFIG	IUS OVERNIGHT CONFIG Report to MCC: >Orbiter PL comm setup complete			Report to JSC/5SOPS: >OCC cmds TS heaters on
ORB 7					
10:00		Pre sleep			
	Private medical conference				
	ASE CRU test	ASE CRU test 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
11:00			Review integrated timeline	Review integrated timeline	Review integrated timeline
ORB 8				Final FD2 timeline changes due to JSC	Final FD2 timeline changes due to JSC
12:00			Final FD2 timeline changes due to FAO		
		Sleep	Fax TIPS message to 5SOPS, OCC		
ORB 9					
13:00			Review message for uplink	Review message for uplink	Review message for uplink
14:00					

TDRS EWS | RTS GTS HTS | GSTDN | ORB 7 8 9 10 | ATT -ZLV +XVV | GTS

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				14:00					All message inputs due to FAO	
			10	ORB 10						
				15:00						
			11	ORB 11	-ZLV					
				16:00	+XVV		Sleep			
			12	17:00						
				ORB 12						
			13	18:00						

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
	MAX			Day 000 18:00					Message review complete	
				18:15						
	DGS				-ZLV					
			13	18:30	+XVV		Sleep			
	CAN	CAN		18:45						
				ORB 13						
				19:00					Execute package uplink	

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				19:00			Post Sleep		<----------orbiter, network, IUS/AXAF status reports---------->	Presupport Briefing
			13							
		MIL		19:15		ASE CRU TEST	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
				19:30	-ZLV +XVV					
	MAX		14							
				19:45						
	DGS			20:00						

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	DGS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
					Day 000						
					20:00						
	CAN		CAN		20:15						
					ORB 14						
				14							
						-ZLV					
					20:30	+XVV					
					20:45				INCO uplink orb & tgt SV		
			MIL	15							
					21:00						

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	MILL	GSTDN	ORB	MET Day 000	ATT	EVENT	CREW	JSC	5SOPS	OCC
					21:00				DPS verify AMU VPs onboard		
					21:15	-ZLV	TRANSFER SV	At MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	
	DGS			15	21:30	+XVV					
										IUS State Vector Uplink (contingency - DGS)	
	CAN	CAN			21:45 ORB 15		AMU/IMU SEQUENCE: 1. MNVR TO AMU ATT 1 2. DESELECT IMU 3. AMU DATA TAKE #1 4. MNVR TO AMU ATT 2				
					22:00		5. AMU DATA TAKE #2				

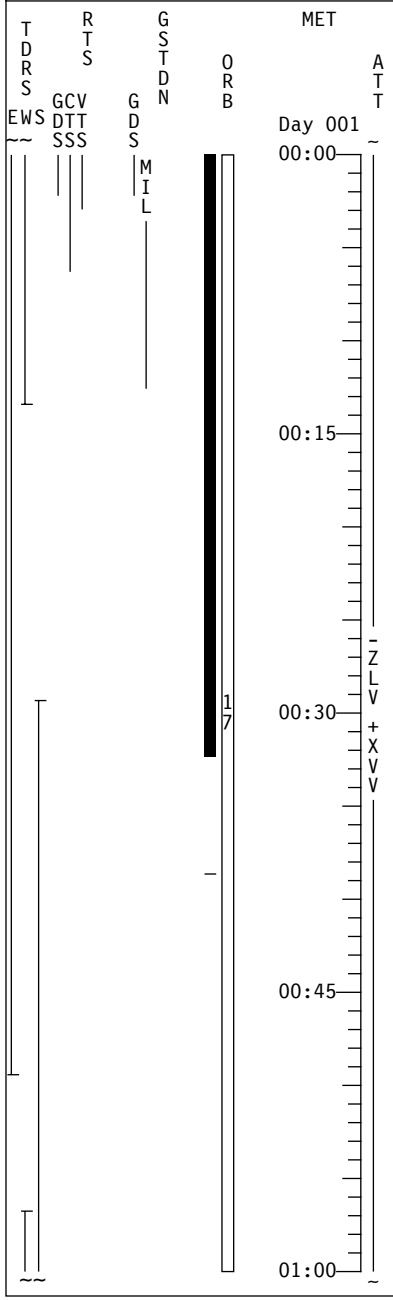
IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				22:00		AMU/IMU SEQUENCE (cont): 6. MNVR TO AMU ATT 3				
			15		-ZLV					
					+XVV	7. AMU DATA TAKE #3 8. PERFORM IMU ALIGN				
				22:15						
						9. AMU DATA TAKE #4				
						10. RESELECT IMU		>GO for PDCO	>GO for PDCO	
						IUS PRE-DEPLOY C/O	IUS PRE-DEPLOY C/O: 1. PRECHECKS 2. On MCC GO: XFER IUS INT PWR 3. On MCC GO: PRE-DEPLOY CHECK 4. XFER IUS TO ORBITER PWR Notify MCC: >PDCO complete	>PDCO STATUS	>Verify power xfer >PDCO STATUS	
	VTCS'S									
		MIL								
		MIL'								
				22:30						
			16		AMU/IMU					
				22:45						
					-ZLV					
					+XVV					
				23:00						

IUS/AXAF TIMELINE-REV 20 DPY

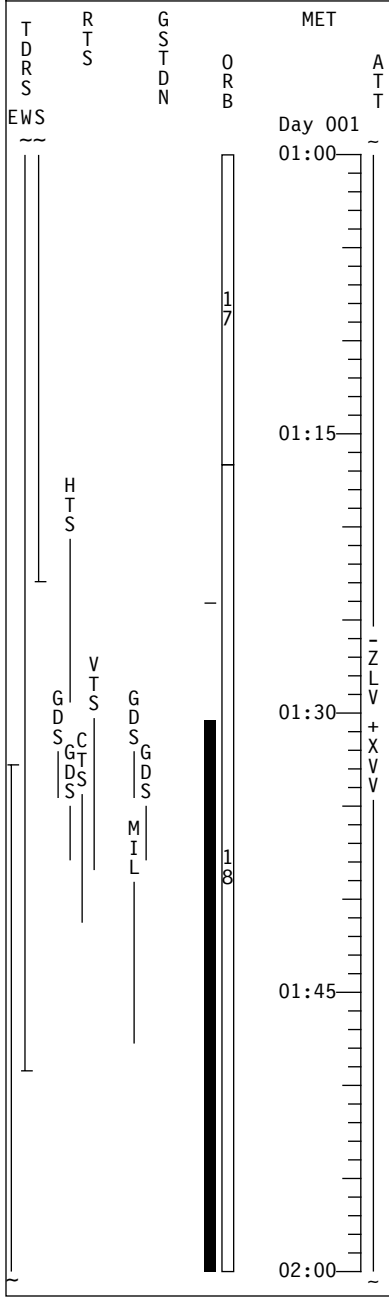
TDRS EWS	RTS	GSTDN	ORB	MET Day 000	ATT	EVENT	CREW	JSC	5SOPS	OCC
				23:00						OCC-MAD command I/F test
	DGS									
				23:15					SOC-52 to OCC I/F test	SOC-52 to OCC I/F test
	CAN CAN	CAN CAN	16		-ZLV					
				23:30	+XVV			Xmit post separation(AMU uplink) SV to 5SOPS		
	HTS			23:45						
	VTS		17							Send post-burn SV predicts to JPL Relay burn loc data to P3/DS
	GDS GC DT SS	GDS GDS		00:00						

IUS/AXAF TIMELINE-REV 20 DPY



EVENT	CREW	JSC	5SOPS	OCC

IUS/AXAF TIMELINE-REV 20 DPY



EVENT	CREW	JSC	5SOPS	OCC
			IUS State Vector Uplink (contingency - NCF)	
			IUS State Vector Uplink (contingency - HTS)	
		Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 001						
				02:00						
				02:15						
			18		-ZLV					
				02:30	+XVV					
								Complete review of crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card
	GTS			02:45						
	GTS		19							
	HTS			03:00						

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS ~ | RTS HTS | GDS GDS GDS CTS | VTS | GDS GDS GDS | MIL MIL MIL | GSTDN | ORB | DGS

MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
Day 001						
03:00		MNVR TO DEPLOY ATTITUDE	MNVR TO DEPLOY ATTITUDE			Report to 5SOPS/JSC: >Closing AXAF battery taps upon Mission Director approval
				MD Deploy Conference <---------- Poll Operations/Mgmt teams ----------> for remaining deploy criteria including AXAF Batt. Taps status		
03:15		TILT TABLE ELEVATION TO 29°	TILT TABLE ELEVATION TO 29°: 1. PRLA RELEASE 2. RAISE TO 29° Report to MCC: >Tilt table at 29°	Report to 5SOPS: > PRLA release		
03:30	DPY 19	TRANSFER SV	At MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer Report to crew: > GO/NO-GO cue card update > Deploy PAD > Sep burn PAD	Report to JSC: > GO for SV xfer > Verify SV xfer	Report to JSC: >TS Heaters OFF
		IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64→16 RF Report to MCC: >IUS/PI lock complete	Report to crew: >GO for IUS/PI LOCK		
03:45		DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VERIFY PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS			
D-20 >						
04:00						

16K - CONFIG 760
TFL: 184 FPL: 502

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS | DGS | RTS | GTS | HTS | VTS | GDS | GSTDN | GDS | ORB 19 | ORB 20

MET — Day 001

MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
04:00			16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS			
				Poll teams for deploy GO		
				Report to crew: > GO for deploy	Report to JSC: > GO for deploy	Report to JSC: > GO for deploy
04:15	DPY		DEPLOY COUNTDOWN (cont): 6. At MCC GO for deploy: RELEASE UMBILICALS 7. RAISE TO 58° 8. OMS SEP BURN PREP 9. -X BACKOFF MNVR PREP 10. XFER ORB SV TO TGT 11. ORBITER TO FREE DRIFT			
		DEPLOY IUS (04:17) (8.7 min. window) Issue S/C disc #3 & 7 (RF INH) SEP MNVR	DEPLOY IUS	Report to 5SOPS/OCC: > DEPLOY		
					Report to JSC/OCC: >Disc #3 & 7 issued	Report to 5SOPS/JSC: >Disc 3 & 7 rcvd
			SEP MNVR: 1. OMS BURN PREP 2. OMS BURN PRECHECK 3. LOAD OMS TGT AND BURN DATA			
		LOWER TILT TABLE TO -6°	LOWER TILT TABLE TO -6°: 1. REACTIVATE ASE HTRS 2. LOWER TILT TABLE TO -6°			
04:30	SEP					
		IUS RCS enable & initial warmup pulses Mnvr to thermal att & hold	SEP MNVR (cont): 4. OMS BURN EXEC 5. POST OMS BURN RECONFIG 6. CYCLIC SV XFER TO IUS 7. MNVR TO IUS VIEWING ATTITUDE	Report to 5SOPS: > Separation burn complete	Report to JSC/OCC: >RCS enable >Mnvr to thermal att >In thermal att	
				> Maneuver to IUS viewing attitude complete		
		Handover AXAF/IUS flight operations		> Handover IUS/AXAF flight operations		
04:45	VW					
05:00						

For DPY, cancel OST Support
For WAVEOFF, see CSCH Waveoff Support Plan, Case _____

IUS/AXAF TIMELINE-REV 20 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 001						
				05:00	V W		SEP MNVR (cont): 8. MNVR TO PROTECT ATTITUDE	Report to 5SOPS: > Maneuver to window protect attitude complete		
					V W	Apply ordnance bus power Guidance initialization			Report to JSC/OCC: >Ord bus pwr >Guidance init >Titan sep disc	Report to 5SOPS/JSC: >Titan disc rcvd
				05:15		Mnvr to SRM-1 burn att Issue S/C disc #1 (safety INH #1) & 6 (TLM, SSR, LGA's, batt's)	SEP MNVR (cont): 9. DESELECT RNDZ NAV 10.TURN OFF PI		>Mnvr to SRM-1 att >Disc #1 to 6 issued	>Disc #1 & 6 rcvd
						SRM-1 ignition CLOSEOUT	CLOSEOUT:		>AXAF beacon receipt & TLM rate >SRM-1 ignition	
			20		W P A	SRM-1 burnout Mnvr to SRM-2 burn att Xfer pwr Stage 1→2 Stage sep & RCS spacing burn **SRM-2 ignition** SRM-2 burnout Mnvr to RCS burn att **RCS burn** Mnvr to SA DPY att	1. PRI ACT DISENGAGE 2. (ALT ACT DISENGAGE) 3. REMOVE CUI PWR 4. REMOVE PCP PWR Ku band activation		>SRM-1 burnout >Mnvr to SRM-2 att >SRM-2 ignition >SRM-2 burnout >Mnvr to RCS burn att >RCS burn >Mnvr to SA DPY att	
	DGS			05:30	X V V	Cmd IUS ranging and coho drive on			Send ranging and coho drive on (S-3000 & S-3030) Report to JSC/OCC: > IUS health status Xmit post SRM-1 SV and post RCS SV to JSC/GSFC/JPL/OCC	Report to 5SOPS/JSC: >TLM thru DGS Report to 5SOPS/JSC: > AXAF health status
						Issue S/C disc #2 (safety INH #2)				
				05:45						Report to 5SOPS/JSC: >Disc # 2 & 5 rcvd
			21		O M S	Issue S/C disc #5 (PA, TX, SA DPY) IUS RCS INH AXAF SA DPY start			>Disc #2 & 5 issued >IUS Rates (R, P, Y) at RCS Inh for SA DPY	
	GTS			06:00			Ku Band Activation			

IUS/AXAF TIMELINE-REV 20 DPY

MET	EVENT	CREW	JSC	5SOPS	OCC
Day 001 06:00		VTR SETUP			
	AXAF SA DPY complete IUS RCS ENA & mnvr to AXAF sun att AXAF MUPS/PCAD Act			Report to OCC/JSC: >IUS RCS ENA >Mnvr to sun att	Report to 5SOPS/JSC: >SA DPY complete >MUPS/PCAD Act complete
		VTR PLAYBACK			
	AXAF Heaters re-enabled				
06:15	AXAF SAs connected to MN bus				>SA's connected to MN bus
	IUS RCS INH **IUS/AXAF SEP** IUS RCS ENA to hold sep att IUS mnvr to CCAM/BTD att IUS CCAM/BTD ignition		Handover msn responsibility to OCC	Report to OCC/JSC: >IUS RCS INH >IUS/AXAF sep Report to OCC/JSC: >IUS status	Report to 5SOPS/JSC: >IUS/AXAF sep Report to 5SOPS/JSC: > AXAF health status
06:30				Xmit separation SV to JPL, OCC	
06:45					
07:00					

TDRS EWS ~~ | GTS | HTS | RTS | GSTDN | ORB 21 | ATT OMS

IUS/AXAF TIMELINE - REV 21 DEPLOY

REV 21 TIMELINE ASSUMPTIONS
- Enter timeline after NO-GO for Rev 7.
- IUS thermally deployable on FD2.
- P/TV CAMERA SETUP in place.
- Return to nominal timeline at 01/09:00

NOTE: TDRS-Z coverage is
shown as "TDRS-S"

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT

Day 000

MET	EVENT	CREW	JSC	5SOPS	OCC
08:00	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64 →16 RF Report to MCC: >IUS/PI lock complete			Config OCC for IUS strip & ship TLM display
08:15					
	DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VER PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS			
D-20 >			Poll teams for deploy GO		
08:30		**REV 7 DEPLOY WAVEOFF**			
08:45	ASE CRU test	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: >ASE CRU test complete		Initial FD2 timeline inputs due to JSC	Initial FD2 timeline inputs due to JSC
	RESTOW IUS	RESTOW IUS 1. IUS TO ORBITER PWR 2. IUS XMTR OFF 3. CAMERA PREP 4. LOWER TILT TABLE TO 0° 5. ENGAGE PRLAs 6. IUS TO 64 KBPS 7. DESELECT RNDZ NAV step 8-12 - not performed			
09:00					

ORB: 6, 7

ATT: -ZLV, +XVV

DGS

16K - CONFIG 760
TFL: 184 FPL: 502

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18	*	2K AXAF
3		5	6		64K IUS
4	*	5	5	*	16K IUS

16K - CONFIG 759
TFL: 183 FPL: 503

D	Lk	Inp	DFL	Dl	Use
1	*	2	8	*	2K AXAF
2		1	18		2K AXAF
3	*	5	6	*	64K IUS
4		5	5		16K IUS

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	GTS HTS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
					Day 000						
					09:00		MNVR to AXAF overnight Attitude		Initial FD2 timeline inputs due to FAO		
							IUS OVERNIGHT CONFIG	IUS OVERNIGHT CONFIG Report to MCC: >Orbiter PL comm setup complete			Report to JSC/5SOPS: >OCC cmds TS heaters on
				7	ORB 7						
					10:00			Pre sleep			
							Private medical conference				
	GTS						ASE CRU test	ASE CRU test 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
				8	11:00				Review integrated timeline	Review integrated timeline	Review integrated timeline
					ORB 8	-ZLV +XVV				Final FD2 timeline changes due to JSC	Final FD2 timeline changes due to JSC
	GTS				12:00				Final FD2 timeline changes due to FAO		
				9				Sleep	Fax OCA message to 5SOPS, OCC		
					ORB 9						
					13:00				Review message for uplink	Review message for uplink	Review message for uplink
	GTS			10							
					14:00						

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				14:00					All message inputs due to FAO	
			10	ORB 10						
				15:00						
			11	ORB 11	-ZLV					
				16:00	+XVV		Sleep			
			12	17:00						
				ORB 12						
			13	18:00						

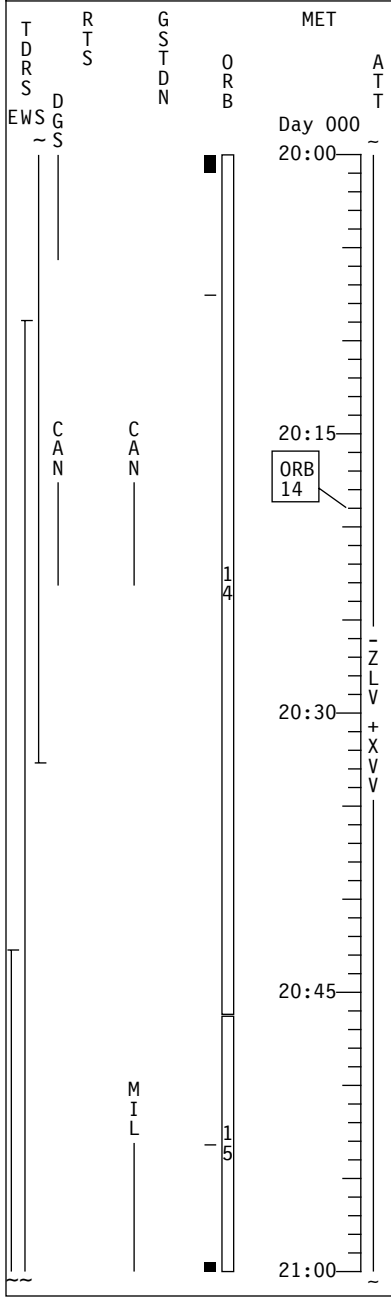
IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
	MAX			Day 000 18:00					Message review complete	
				18:15						
	DGS				-ZLV					
			13	18:30	+XVV		Sleep			
	CAN	CAN		18:45						
				ORB 13						
				19:00					Execute package uplink	

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000 19:00			Post Sleep		<----------Presupport Briefing orbiter, network, IUS/AXAF status reports---------->	
			13	19:15		ASE CRU TEST	ASE CRU TEST 1. PRECHECKS 2. ASE CRU TEST Report to MCC: ASE CRU test complete			
		MIL			-ZLV					
				19:30	+XVV					
	MAX		14							
				19:45						
	DGS			20:00						

IUS/AXAF TIMELINE-REV 21 DPY



EVENT	CREW	JSC	5SOPS	OCC

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	MILL	GSTDN	ORB	MET Day 000	ATT	EVENT	CREW	JSC	5SOPS	OCC
					21:00				DPS verify AMU VPs onboard		
					21:15	-ZLV +XVV	TRANSFER SV	At MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer	Report to JSC: > GO for SV xfer > Verify SV xfer	
	DGS			15	21:30				IUS State Vector Uplink (contingency - DGS)		
	CAN	CAN			21:45		ORB 15				
					22:00						

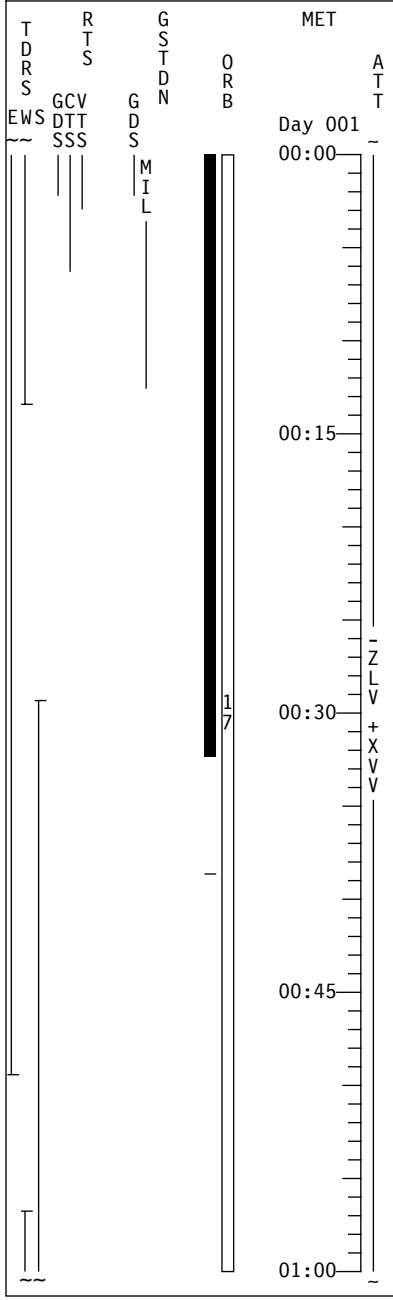
IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				22:00						
						IUS PRE-DEPLOY C/O	IUS PRE-DEPLOY C/O: 1. PRECHECKS 2. On MCC GO: XFER IUS INT PWR 3. On MCC GO: PRE-DEPLOY CHECK 4. XFER IUS TO ORBITER PWR Notify MCC: >PDCO complete	>GO for PDCO >PDCO STATUS	>GO for PDCO >Verify power xfer >PDCO STATUS	
			15		-ZLV+XVV					
				22:15						
	VTCS'S					AMU/IMU SEQUENCE: 1. MNVR TO AMU ATT 1				
		MIL-MIL'		22:30	AMU/IMU	2. DESELECT IMU 3. AMU DATA TAKE #1 4. MNVR TO AMU ATT 2				
			16			5. AMU DATA TAKE #2				
					-ZLV+XVV	6. MNVR TO AMU ATT 3				
				22:45						
						7. AMU DATA TAKE #3 8. PERFORM IMU ALIGN				
						9. AMU DATA TAKE #4 10. RESELECT IMU				
				23:00						

IUS/AXAF TIMELINE-REV 21 DPY

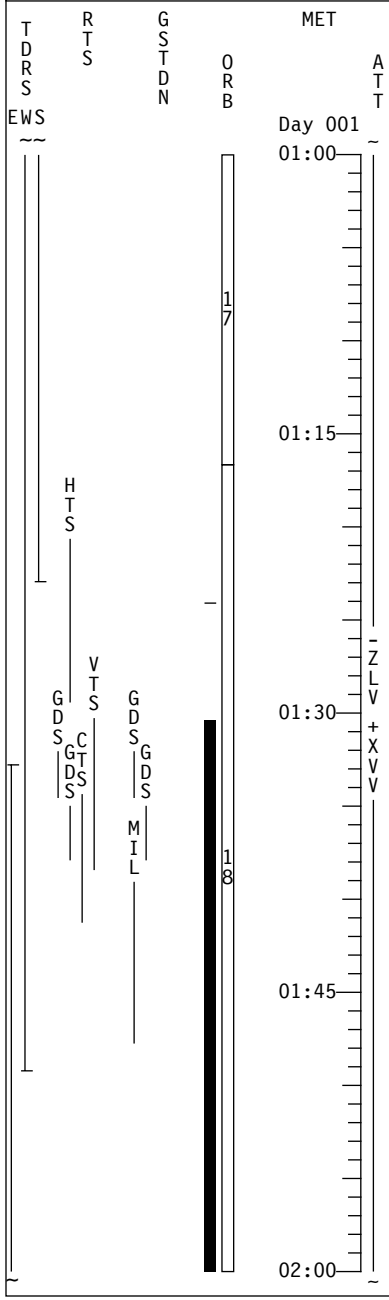
TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 000						
				23:00						OCC-MAD command I/F test
	DGS									
				23:15					SOC-52 to OCC I/F test	SOC-52 to OCC I/F test
			16							
	CAN	CAN			-ZLV					
				23:30	+XVV			Xmit post separation(AMU uplink) SV to 5SOPS		
	HTS			23:45						
			17							Send post-burn SV predicts to JPL Relay burn loc data to P3/DS
	GDS VTS	GDS								
				00:00						

IUS/AXAF TIMELINE-REV 21 DPY



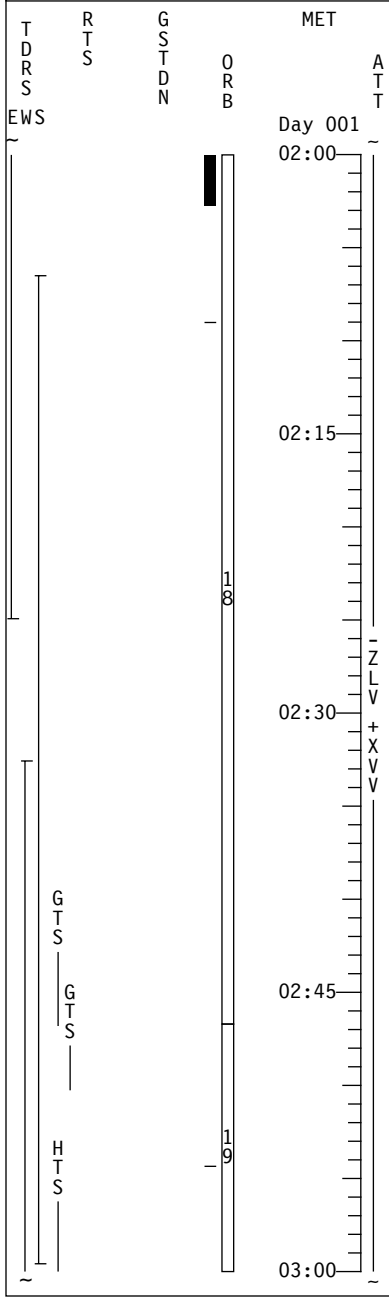
EVENT	CREW	JSC	5SOPS	OCC

IUS/AXAF TIMELINE-REV 21 DPY



EVENT	CREW	JSC	5SOPS	OCC
			IUS State Vector Uplink (contingency - NCF)	
			IUS State Vector Uplink (contingency - HTS)	
		Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card	Start review of crew GO/NO-GO cue card

IUS/AXAF TIMELINE-REV 21 DPY



EVENT	CREW	JSC	5SOPS	OCC

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS HTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
	GDS' GDS GDS CTS VTS	GDS' GDS GDS MIL MIL MIL MIL	19	Day 001 03:00						
				03:15	ZLV + XVV					
				03:30		MNVR TO DEPLOY ATTITUDE	MNVR TO DEPLOY ATTITUDE			
DGS				03:45	DPY					
				04:00						

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	DGS	RTS	GTS	HTS	VTS	GDS	GDS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
										Day 001 04:00						
									19					Complete review of crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card	Report to JSC: Changes to crew GO/NO-GO cue card
										04:15		TILT TABLE ELEVATION TO 29°	TILT TABLE ELEVATION TO 29°: 1. PRLA RELEASE 2. RAISE TO 29° Report to MCC: >Tilt table at 29°	Report to 5SOPS: > PRLA release		
										04:30	DPY					
									20					MD Deploy Conference <---------- Poll Operations/Mgmt teams ----------> for remaining deploy criteria including AXAF Batt. Taps status		
										04:45						
										05:00						

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS | RTS | GSTDN | ORB | MET | ATT

Day 001

MET	EVENT	CREW	JSC	5SOPS	OCC
05:00	TRANSFER SV	At MCC GO: TRANSFER SV	Report to crew: > GO for SV xfer Report to crew: > GO/NO-GO cue card update > Deploy PAD > Sep burn PAD	Report to JSC: > GO for SV xfer > Verify SV xfer	Report to 5SOPS/JSC: >Closing AXAF taps upon Mission Director approval Report to JSC: >TS Heaters OFF
05:15	IUS/PI LOCK	On MCC GO: IUS/PI LOCK: 1. PI SETUP 2. PI LOCK XFER 64→16 RF Report to MCC: >IUS/PI lock complete	Report to crew: >GO for IUS/PI LOCK 16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 * 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS		
05:30	DEPLOY COUNTDOWN	DEPLOY COUNTDOWN: 1. VERIFY PI LOCKED TO IUS 2. ENABLE RNDZ NAV 3. XFER IUS TO INT PWR 4. DEADFACE UMBILICALS 5. FINAL PAYLOAD CHECKS 16K - CONFIG 760 TFL: 184 FPL: 502 D Lk Inp DFL Dl Use 1 2 8 * 2K AXAF 2 1 18 * 2K AXAF 3 5 6 64K IUS 4 * 5 5 * 16K IUS DEPLOY COUNTDOWN (cont): 6. At MCC GO for deploy: RELEASE UMBILICALS 7. RAISE TO 58° 8. OMS SEP BURN PREP 9. -X BACKOFF MNVR PREP 10. XFER ORB SV TO TGT 11. ORBITER TO FREE DRIFT	Poll teams for deploy GO Report to crew: > GO for deploy	Report to JSC: > GO for deploy	Report to JSC: > GO for deploy
05:45	DEPLOY IUS (05:48) (8.7 min. window) Issue S/C disc #3 & 7 (RF INH) SEP MNVR	DEPLOY IUS SEP MNVR: 1. OMS BURN PREP 2. OMS BURN PRECHECK 3. LOAD OMS TGT AND BURN DATA	Report to 5SOPS/OCC: > DEPLOY	Report to JSC/OCC: >Disc #3 & 7 issued	Report to 5SOPS/JSC: >Disc 3 & 7 rcvd
06:00	LOWER TILT TABLE TO -6°	LOWER TILT TABLE TO -6°: 1. REACTIVATE ASE HTRS 2. LOWER TILT TABLE TO -6°			

DGS

GTS

IUS/AXAF TIMELINE-REV 21 DPY

MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
Day 001						
06:00		IUS RCS enable & initial warmup pulses Mnvr to thermal att & hold	SEP MNVR (cont): 4. OMS BURN EXEC 5. POST OMS BURN RECONFIG 6. CYCLIC SV XFER TO IUS 7. MNVR TO IUS VIEWING ATTITUDE	Report to 5SOPS: > Separation burn complete > Maneuver to IUS viewing attitude complete > Handover IUS/AXAF flight operations	Report to JSC/OCC: >RCS enable >Mnvr to thermal att >In thermal att	
		Handover AXAF/IUS flight operations				
06:15	V W					
06:30			SEP MNVR (cont): 8. MNVR TO PROTECT ATTITUDE	Report to 5SOPS: > Maneuver to window protect attitude complete		
		Apply ordnance bus power Guidance initialization			Report to JSC/OCC: >Ord bus pwr >Guidance init >Titan sep disc	Report to 5SOPS/JSC: >Titan disc rcvd
06:45	W P A	Mnvr to SRM-1 burn att Issue S/C disc #1 (safety INH #1) & 6 (TLM, SSR, LGA's, batt's)	SEP MNVR (cont): 9. DESELECT RNDZ NAV 10.TURN OFF PI		>Mnvr to SRM-1 att >Disc #1 to 6 issued	>Disc #1 & 6 rcvd
	- Z L V - X V V	**SRM-1 ignition** CLOSEOUT SRM-1 burnout Mnvr to SRM-2 burn att Xfer pwr Stage 1→2 Stage sep & RCS spacing burn **SRM-2 ignition** SRM-2 burnout Mnvr to RCS burn att	CLOSEOUT: 1. PRI ACT DISENGAGE 2. (ALT ACT DISENGAGE) 3. REMOVE CUI PWR 4. REMOVE PCP PWR Ku band activation		>AXAF beacon receipt & TLM rate >SRM-1 ignition >SRM-1 burnout >Mnvr to SRM-2 att >SRM-2 ignition >SRM-2 burnout >Mnvr to RCS burn att	
07:00		**RCS burn** Mnvr to SA DPY att			>RCS burn >Mnvr to SA DPY att	

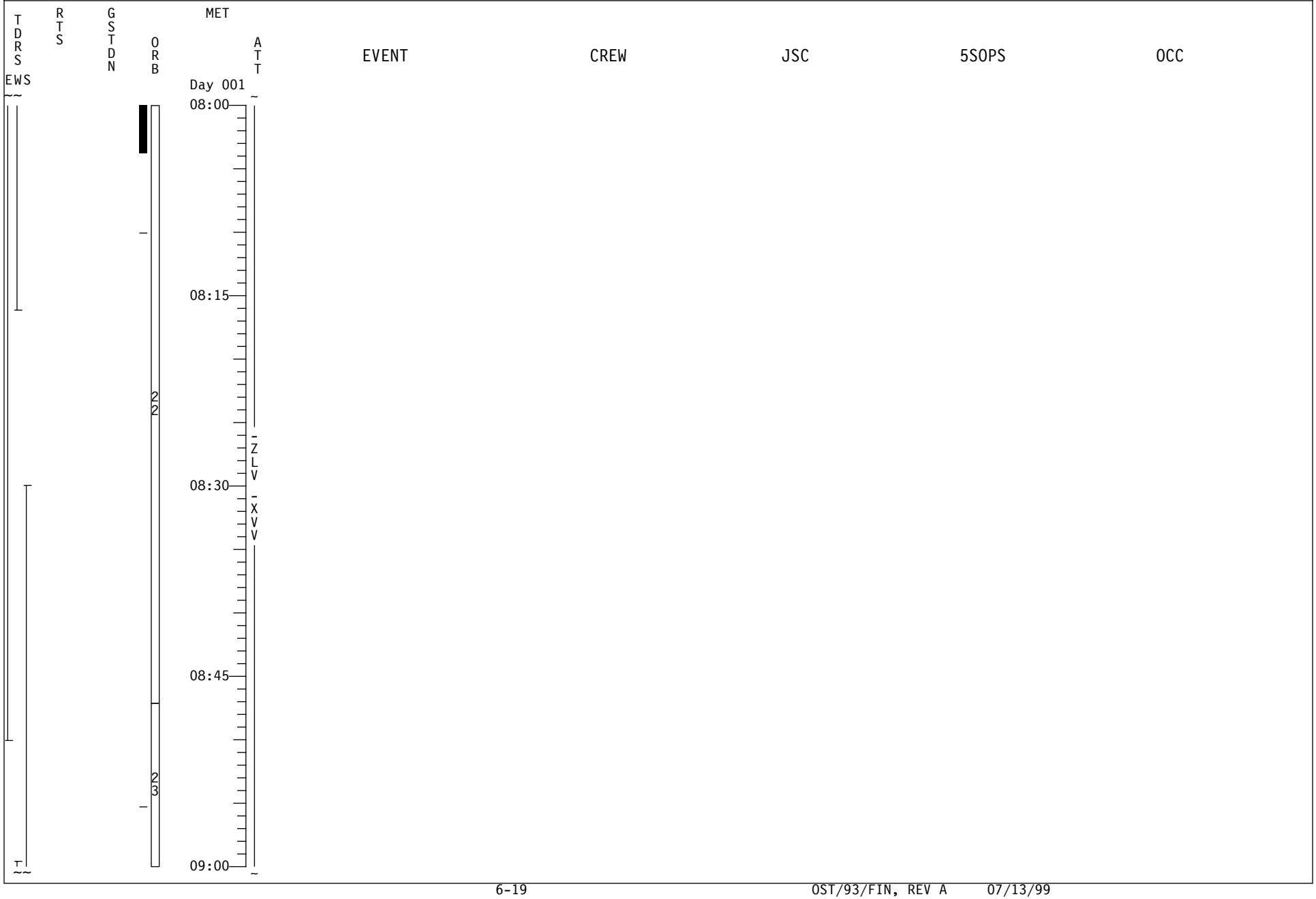
For DPY, cancel OST Support
For WAVEOFF, see CSCH Waveoff Support Plan, Case _____

TDRS EWS ~~ | GTS | HTS | RTS | GSTDN | ORB 21

IUS/AXAF TIMELINE-REV 21 DPY

TDRS EWS	RTS	GSTDN	ORB	MET	ATT	EVENT	CREW	JSC	5SOPS	OCC
				Day 001 07:00						
	DGS		21			Cmd IUS ranging and coho drive on			Send ranging and coho drive on (S-3000 & S-3030) Report to JSC/OCC: > IUS health status Xmit post SRM-1 SV and post RCS SV to JSC/GSFC/JPL/OCC	Report to 5SOPS/JSC: >TLM thru DGS Report to 5SOPS/JSC: > AXAF health status
						Issue S/C disc #2 (safety INH #2)				
				07:15						Report to 5SOPS/JSC:
						Issue S/C disc #5 (PA, TX, SA DPY) IUS RCS INH AXAF SA DPY start			>Disc #2 & 5 issued >IUS Rates (R, P, Y) at RCS Inh for SA DPY	>Disc # 2 & 5 rcvd
					-ZLV					
	GTS			07:30			Ku Band Activation VTR SETUP			
					-XVV					
			22			AXAF SA DPY complete IUS RCS ENA & mnvr to AXAF sun att AXAF MUPS/PCAD Act			Report to OCC/JSC: >IUS RCS ENA >Mnvr to sun att	Report to 5SOPS/JSC: >SA DPY complete >MUPS/PCAD Act complete
	HTS					AXAF Heaters re-enabled	VTR PLAYBACK			
				07:45		AXAF SAs connected to MN bus				>SA's connected to MN bus
						IUS RCS INH **IUS/AXAF SEP** IUS RCS ENA to hold sep att		Handover msn responsibility to OCC	Report to OCC/JSC: >IUS RCS INH >IUS/AXAF sep Report to OCC/JSC: >IUS status	Report to 5SOPS/JSC: >IUS/AXAF sep Report to 5SOPS/JSC: > AXAF health status
						IUS mnvr to CCAM/BTD att IUS CCAM/BTD ignition				
				08:00					Xmit separation SV to JPL, OCC	

IUS/AXAF TIMELINE-REV 21 DPY



APPENDIX A
ACRONYMS AND ABBREVIATIONS

5SOPS	5th Space Operations Squadron
ACIS	AXAF Charge Coupled Device Imaging Spectrometer
AFTA	Aft Frame Tilt Actuator
A/G	Air-to-Ground
AMU	Attitude Match Update
AOS	Acquisition Of Signal
ASE	Airborne Support Equipment
ATT	Attitude
AXAF	Advanced X-ray Astrophysics Facility
BFS	Backup Flight Software
BTD	Burn To Depletion
CCAM	Collision/Contamination Avoidance Maneuver
CIU	Communications Interface Unit
C/O	Checkout
CRU	Converter Regulator Unit
CTS	Colorado Tracking Station
C&W	Caution and Warning
D	Decommutator
DAT	Data
DFL	Decommutator Format Load
DGS	Diego Garcia Remote Tracking Station
DOD	Department Of Defense
DS/P-3	Deployed Station/Navy P-3 Orion Aircraft

E	East
ET	External Tank
ETR	Eastern Test Range
FD	Flight Day
FD	Flight Director
FDA	Fault Detection and Annunciation
FM	Frequency Modulation
FPL	Fetch Pointer Load
FSW	Flight SoftWare
GDX	Goldstone Deep Space Station
GLS	Ground Launch Sequencer
GMT	Greenwich Mean Time
GPC	General Purpose Computer
GSTDN	Ground-Space Tracking Data Network
GTS	Guam Remote Tracking Station
HTS	Hawaii Remote Tracking Station
I/F	Interface
IMU	Inertial Measurement Unit
INCO	INstrumentation and Communication Officer
IUS	Inertial Upper Stage
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center
K	Kilobits per second
KSC	Kennedy Space Center
LCC	Launch Commit Criteria

LD	Launch Director
LGA	Low Gain Antenna
LH_2	Liquid Hydrogen
LO_2	Liquid Oxygen
MCC	Mission Control Center
MD	Mission Director
MECO	Main Engine Cut Off
MET	Mission Elapsed Time
MIL	Merrit Island Tracking Station
MUPS	Momentum Unloading Propulsion System
NM	Nautical Miles
OBC	On Board Computer
OCC	Operations Control Center
OD	Operational Downlink
ODDL	Onboard Digital Data Load
OI	Operation Instrumentation
OMI	Operation Maintenance Instruction
OMS	Orbit Maneuvering System
OPS	Operation Sequence
ORB	Orbit
OST	Operations Support Timeline
PA	Power Amplifier
PASS	Primary Avionics Software Set
PCAD	Pointing Control and Aspect Determination
PCMMU	Pulse Code Modulation Master Unit

PCP	Power Control Panel
PDCO	Pre-Deploy Check Out
PDI	Payload Data Interleaver
PI	Payload Interrogator
P/L	Payload
PLB	Payload Bay
PLBD	Payload Bay Door
PM	Phase Modulation
PRLA	Payload Retention Latch Assembly
PSAT	Predicted Site Acquisition Table
PSP	Payload Signal Processor
RCS	Reaction Control System
REM	Rocket Engine Module
RIMU	Redundant Inertial Measurement Unit
RM	Redundancy Management
RSS	Rotating Service Structure
RTLS	Return To Launch Site
RTS	Remote Tracking Site
SA	Solar Array
S/C	Spacecraft
SCS	Stored Command Sequence
SCU	Signal Conditioner Unit
SOC-52	Space Operations Center - 52
SRB	Solid Rocket Booster
SRM	Solid Rocket Motor

SSME	Space Shuttle Main Engine
SSP	Standard Switch Panel
SSR	Solid State Recorder
SV	State Vector
TDRS	Tracking Data Relay Satellite
TFL	Telemetry Format Load
TLM	Telemetry
T/M	Telemetry
TS	Telescope Structure
TX	Transmitter
TVC	Thrust Vector Control
VP	Variable Parameter
VRCS	Vernier Reaction Control System
VTR	Video Tape Recorder
VTS	Vandenberg Remote Tracking Station
W	West
WPA	Window Protect Attitude
+XVV	+X Velocity Vector
-ZLV	-Z Local Vertical

CARGO OPERATIONS CHANGE REQUEST FORM

DOCUMENT TYPE: CSCH ☐ JOIP ☐ CSM ☐ OST ☐ FLIGHT_____ NUMBER:_____
(ASSIGNED BY BOOK MGR)

SECTION(S) AFFECTED:

WAS:

IS:

RATIONALE FOR CHANGE:

ORIGINATOR:

NAME: DATE:

ORGANIZATION:

TELEPHONE:

CONCURRENCE:

LEAD PAYLOAD OFFICER DATE

CUSTOMER REPRESENTATIVE DATE
(IF REQUIRED)

BY: FAX ☐ VERBAL ☐

BOOK MANAGER:

NAME: DATE:

☐ APPROVED ☐ DISAPPROVED

☐ APPROVED WITH CHANGES INDICATED

FOR JOIP ONLY

OTHER MCC DISCIPLINE(s) AFFECTED:

_____, _____, _____

CONCURRENCE BY: _____, _____, _____

DATE: _____, _____, _____

FOR MAJOR OPS PHILOSOPHY CHANGES:

FLIGHT DIRECTOR CONCURRENCE_____

DATE _____

Figure B-1. Change Request Form