

Flight Data File Crew Activity Plan

STS-12

17:24 GMT Launch Time

Mission Operations Directorate
Operations Division

Preliminary
May 23, 1983



National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

FLIGHT DATA FILE

CONTROL

Ascent Checklist
Post Insertion Book
Crew Activity Plan
Deorbit Preparation Book
Entry Checklist

SUPPORT

Cue Cards
EVA Checklist
Flight Maps and Charts
Orbit Operations Checklist
Payload Deploy Checklist*
Payload Operations Checklist*
PDRS Operations Checklist*
Photo/TV Checklist
Proximity Operations Book*

OFF-NOMINAL

Ascent Pocket Checklist
Orbit Pocket Checklist
Entry Pocket Checklist
Ascent/Entry Systems Procedures
Contingency Deorbit Preparation Book
Contingency EVA Operations Book
In-Flight Maintenance Checklist
Medical Checklist
Payload Systems Data and Malfunction Procedures*
Systems Malfunction Procedures

REFERENCE

Data Processing System Dictionary
Reference Data
Systems Data Book

*If required

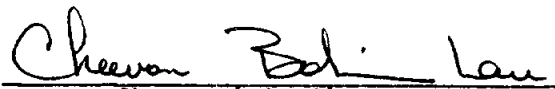
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MISSION OPERATIONS DIRECTORATE

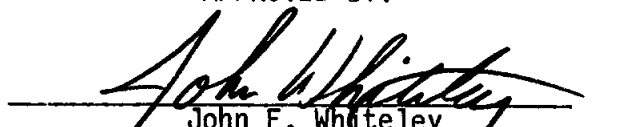
STS-12 CREW ACTIVITY PLAN


PRELIMINARY
May 23, 1983


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ACKNOWLEDGMENTS

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INTRODUCTION

The STS-12 Crew Activity 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. 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 (Ref. 1).

The flight profile (CIT trajectory data, Ref. 3) used for this Crew Activity Plan is for a launch date and time of March 28, 1984, 17:24 GMT.

The GWM/GTS sites at ~09:05 are questionable; therefore, activities required for a 'Go for Deploy' should not be scheduled over these sites.

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TIMELINE FORMAT SYMBOL NOMENCLATURE

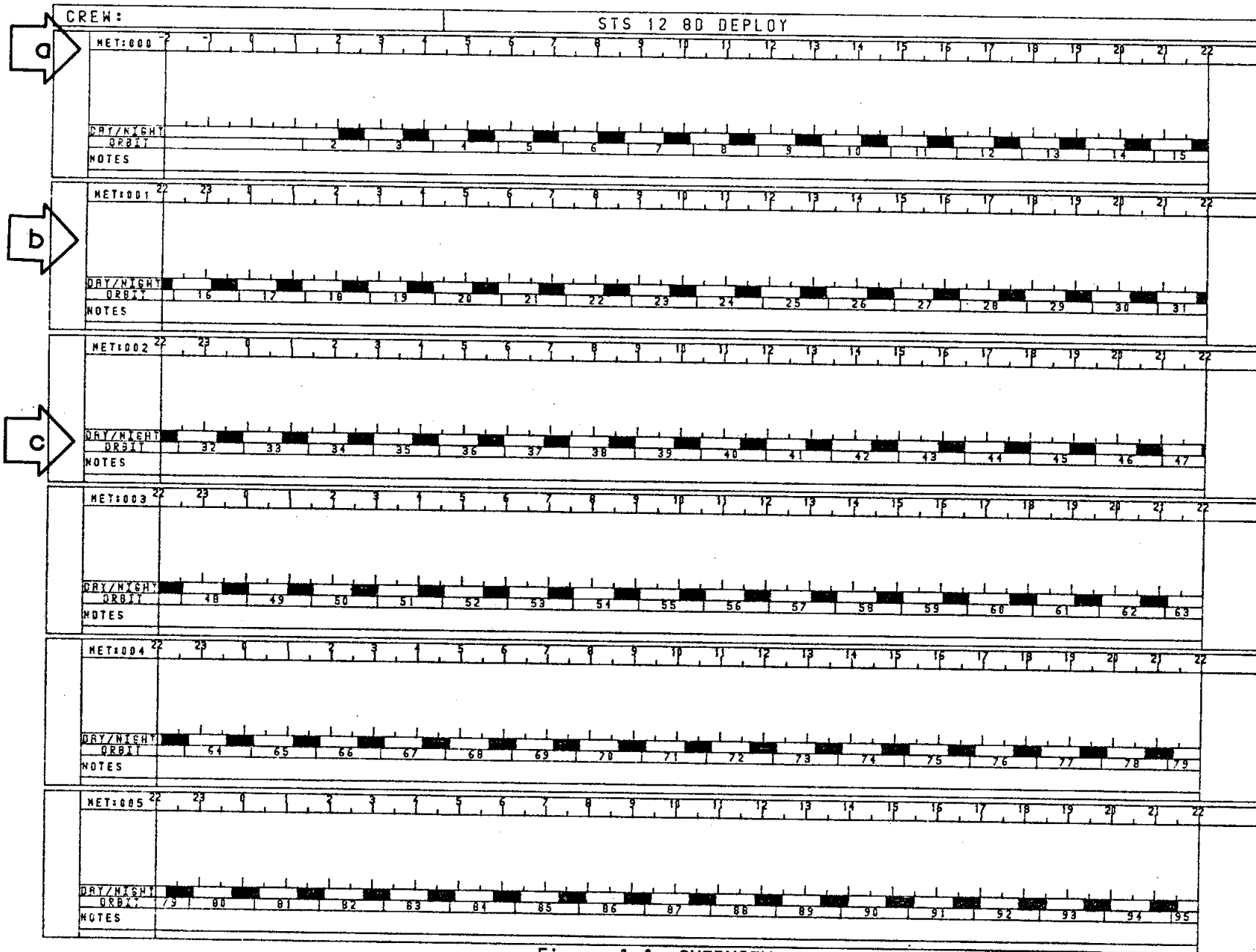


Figure 1-1 OVERVIEW
1-2

05/23/83

STS-12 PRE

A. FORMAT SYMBOL NOMENCLATURE

1. Overview Timeline

The following letters (a-c) refer to those highlighted in Figure 1-1.

- a. **TIMESCALE** - The time reference used on this format is Mission Elapsed Time (MET) expressed in days and hours. MET is referenced to liftoff, which occurs at 0/00:00:00 (days, hours, minutes, seconds).
- b. **ACTIVITY COLUMN** - This column presents an overview of activities scheduled during the flight. For clarity of presentation, only major activities are presented and activity durations are sometimes lengthened. Abbreviated activity titles can be found in the Abbreviations/Acronyms section of this CAP.
- c. **ORBIT and DAY/NIGHT**
 - 1) **Orbit** - Indicates which orbit the spacecraft is in by numerical sequence. The beginning of an orbit occurs when the Orbiter crosses the Earth's equator going from the southern to the northern hemisphere (ascending node). The succession of orbits is numbered in this column starting with Orbit 1 for launch.
 - 2) **Day/Night** - The orbital day/night intervals are delineated with black bars indicating when the Orbiter is in darkness.

2. Summary Level Timeline (12-Hr Timespan)

The following letters (a-g) refer to those highlighted in Figure 1-2.

- a. **TIMESCALES** - Two of the three time references are presented in this section of the summary timeline format. The time references used are Time Ignition minus (TIG), Greenwich Mean Time (GMT), and Mission Elapsed Time (MET). MET is referenced to liftoff, beginning at 0/00:00:00 (days, hours, minutes, seconds). TIG is referenced to the deorbit ignition time and counts down to 0/00:00:00 at ignition on the CRT timer. TIG is only used on the deorbit preparations on entry day.
- b. **CREWMAN (CDR, PLT, MS1, MS2, MS3)** - This is the crewman column of the format, where titles of scheduled activities are shown for the commander (CDR), pilot (PLT), and each mission specialist (MS1, MS2, & MS3) at the appropriate times in the flight.

A

B

C

D

E

F

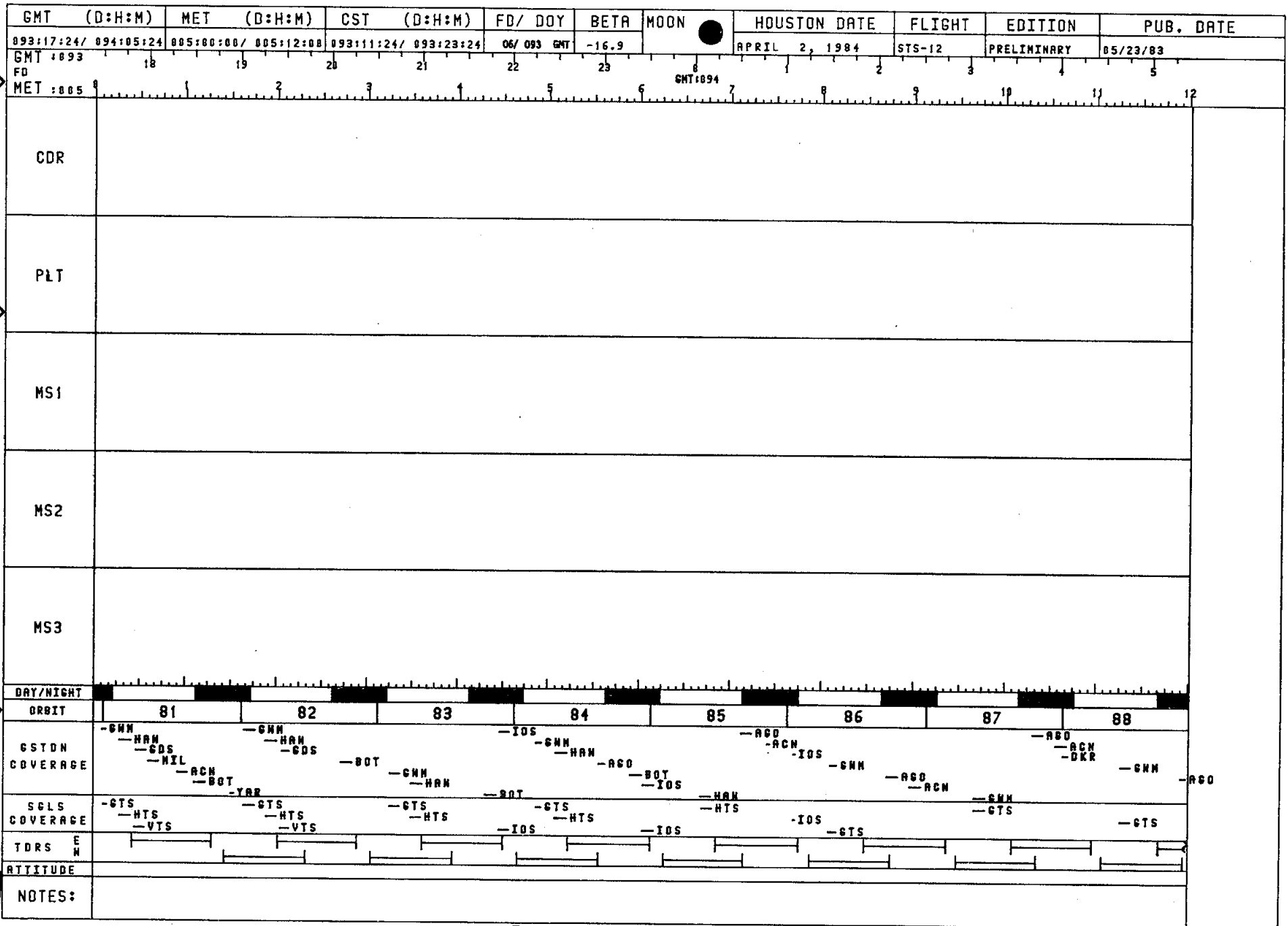


Figure 1-2 SUMMARY LEVEL

c. DAY/NIGHT and ORBIT

1) Day/Night - The orbital day/night intervals are delineated with black bars indicating when the Orbiter is in darkness.

2) Orbit - Indicates which orbit the spacecraft is in by numerical sequence. The beginning of an orbit occurs when the Orbiter crosses the Earth's equator going from the southern to the northern hemisphere (ascending node). The succession of orbits is numbered in this column starting with Orbit 1 for launch.

d. GSTDN COVERAGE - The GSTDN communication coverage periods are identified in this area with a horizontal line indicating when communication is available; the GSTDN site is identified to the right of the line.

e. SGLS COVERAGE - The SGLS communication coverage periods are identified in this area with a horizontal line indicating when communication is available; the RTS site is identified to the right of the line.

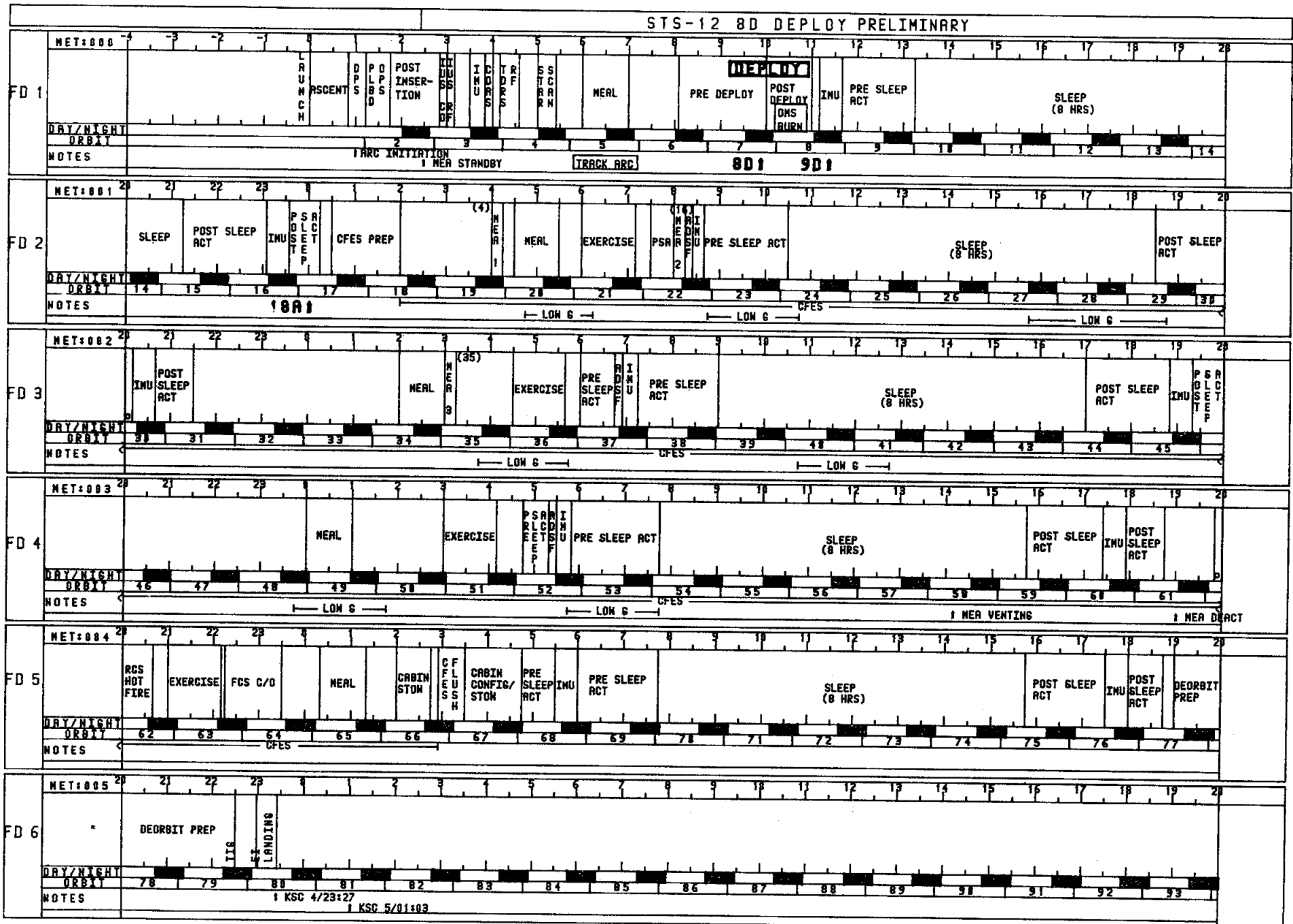
f. TDRS - The TDRS communication coverage periods are identified in this area with a horizontal line indicating when there is a line-of-sight between TDRS and the Orbiter. These coverage periods have been computed utilizing the assumption that there are two TDRS operating in geosynchronous orbits at 171° west and 41° west longitude and does not account for Orbiter blockage or other attenuation of the KU- or S-Band signal.

g. ATTITUDE - The attitude of the vehicle (-ZLV, IMU, etc.) is shown in this column.

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STS-12 OVERVIEW

STS-12 8D DEPLOY PRELIMINARY



SUMMARY TIMELINE

SUMMARY
TIMELINE

SUMMARY TIMELINE

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. D/
088:17:24 / 089:05:24	000:00:00 / 000:12:00	088:11:24 / 088:23:24	00 / 088 GMT	-25.1	●	MARCH 28, 1984	STS-12	PRELIMINARY	05/23/83
GMT :000	18	19	20	21	22	23	2	3	4
FD :1									
MET :000	1	2	3	4	5	6	7	8	9
CDR									
PLT									
MS1 LAUNCH									
MS2									
MS3									
DAY/NIGHT									
ORBIT		2	3	4	5	6	7	8	9
SSTDN COVERAGE		-HAN -GDS -MIL -BDR -DKR -ACN -BOT	-YAR -HAN -GDS -MIL -ACN -BOT	-GWN -HAN -GDS -BOT	-GWN -HAN -BOT	-IOS -GWN -HAN -ACG -BOT	-IOS -GWN -HAN -ACG -BOT	-ACG -BOT -IOS -GWN -HAN -ACN	-ACG -BOT -IOS -GWN -HAN -ACN
SGLS COVERAGE		-HTS -VTS	-VTS -HTS	-GTS -HTS	-GTS -HTS	-IOS -GTS -HTS	-IOS -GTS -HTS	-IOS -GTS -HTS	-GTS -HTS
TDRS E N									
ATTITUDE		-ZLV NOSE NORTH	ZNU COAS -ZLV NOSE NORTH	STAR SCAN [NOSE]	TRK -ZLV NOSE 1ST [NOSE]	-ZLV TORS CK ATT	DPLY ATT SEP	EVS VIEW AT	INU NOSE 2
NOTES:		▲ IUS TO ORB PMR ▲ PMR IUS BATT HTRS ▲ 64 TO 16 KBPS	● 64 TO 16 KBPS ● IUS RF CK (VTS) ● TDRS PI CK (ACN) ● FWD STATION	▲ 16 TO 64 KBPS ▲ TDRS DIRECT CK (GWN) ▲ 64 TO 16 KBPS	▲ 16 TO 64 KBPS ▲ 16 TO 64 KBPS	● IUS RF CK (VTS) ● TDRS PI CK (ACN) ▲ REM HY ACT	● IUS RF CK (VTS) ● TDRS PI CK (ACN) ● RELEASE UMB	● IUS SRM-1 ICHIZATION ● POST DPLY CLEANUP	● Y-POP (NOSE FWD)

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
089:05:24/ 089:17:24	000:12:00/ 001:00:00	088:23:24/ 089:11:24	01/ 089 GMT	-25.0	●	MARCH 29, 1984	STS-12	PRELIMINARY	05/23/83						
GMT : 089 FD : 01	6	7	8	9	10	11	12	13	14	15	16	17			
MET : 000	12	13	14	15	16	17	18	19	20	21	22	23	0		
CDR	PRE SLEEP ACT	SLEEP										POST SLEEP ACT			
PLT	PRE SLEEP ACT	SLEEP										POST SLEEP ACT	INU NNVR	ZLV NNVR	POST ACT
MS1	PRE SLEEP ACT	SLEEP										POST SLEEP ACT			
MS2	PRE SLEEP ACT	SLEEP										POST SLEEP ACT			
MS3	PRE SLEEP ACT	SLEEP										POST SLEEP ACT			
DAY/NIGHT	[Day/Night Cycle]														
ORBIT	9	10	11	12	13	14	15	16							
GSTDN COVERAGE	-SNH	-AGD -ACH	-SNH	-AGD -DKR	-DKR -MAD	-YAR -ORR	-IOS -YAR -ORR	-YAR -ORR	-NIL -BDA -DKR	-NIL -BDA -DKR	-IOS -YAR	-ORR -MAD			
SGLS COVERAGE	-STS	-STS													
TDRS E M	[TDRS Coverage]														
ATTITUDE	-ZLV NOSE 1ST												INU	TAIL 2	
NOTES:															

PRE

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB.
089:17:24 / 090:05:24	001:00:00 / 001:12:00	089:11:24 / 089:23:24	02 / 089 GMT	-24.7		MARCH 29, 1984	STS-12	PRELIMINARY	85/23/83
GMT : 089	18	20	21	22	23	24			
FD : 02									
MET : 001									
CDR	EXERCISE			NEAR				PRE SLEEP ACT	SLEEP
PLT	EXERCISE			NEAR			PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
MS1		EXERCISE		NEAR				PRE SLEEP ACT	SLEEP
MS2			NEAR PREP	EXERCISE	NEAR			PRE SLEEP ACT	SLEEP
MS3	CFES STATUS CHECK	CFES SAMP COLLECT		NEAR		EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
DRY/NIGHT	[Shaded bars indicating dry/night periods]								
ORBIT	17	18	19	20	21	22	23	24	
GSTDN COVERAGE	-GDS -NIL -BDA -DKR -RCN -BOT	-HAN -GDS -NIL -BDA -RCN -BOT	-SNH -HAN -GDS -NIL -RCN -BOT	-HAN -GDS -BOT -SNH -HAN		-BOT -SNH -HAN -BOT -IOS	-HAN -RCO -BOT -IOS	-HAN -RCO -RCN	-GDS -RCN
SLS COVERAGE	-VTS	-HTS -VTS	-GTS -HTS -VTS	-GTS -HTS -VTS	-GTS -HTS	-GTS -HTS -IOS	-GTS -HTS -IOS	-GTS -HTS	-GTS
TORS	[Timeline of TORS events]								
ATTITUDE	-ZLV TAIL 1ST NEAR LOW G -ZLV TAIL FIRST INU NEAR LOW G -ZLV NOSE 1ST								
NOTES:	<p>Y-POP (NOSE FWD) 8 RUN 1 INITIATE-PAUSE</p>								

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
090:05:24/ 090:17:24	001:12:00/ 002:00:00	089:23:24/ 090:11:24	02/ 090 GMT	-24.2	●	MARCH 30, 1984	STS-12	PRELIMINARY	05/23/83				
GMT :090 FD :02 MET :001	6	7	8	9	10	11	12	13	14	15	16	17	
	12	13	14	15	16	17	18	19	20	21	22	23	24
CDR	SLEEP						POST SLEEP ACT	IMU MNRV	ZLV MNRV	POST SLEEP ACT	EXERCISE		
PLT	SLEEP						POST SLEEP ACT			EXERCISE			
MS1	SLEEP						POST SLEEP ACT						
MS2	SLEEP						POST SLEEP ACT						
MS3	SLEEP						POST SLEEP ACT						
DAY/NIGHT	[Day/Night Cycle]												
ORBIT	25	26	27	28	29	30	31	32					
GSTDN COVERAGE	-GWH	-AGO -ACH -DKR	-GWH -DKR	-RAD -YAR -ORR	-DKR -RAD	-YAR -ORR	-MIL -BDA -DKR -RAD	-MIL -BDA -DKR	-MIL -BDA -DKR -BOT	-YAR -ORR	-GDS	-YAR	
SGLS COVERAGE	-STS	-STS		-DKR		-YAR -ORR	-IOS -YAR -ORR		-IOS		-VTG		
YDRS E M	[Coverage Bars]												
ATTITUDE	-ZLV NOSE 1ST			MER LOW 6			-ZLV NOSE 1ST		INU	-ZLV TAIL 1ST			
NOTES:	* Y-POP (TAIL FWD)												

GMT (D:H:M)	MET (D:H:M)	GST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB.
090:17:24/ 091:05:24	002:00:00/ 002:12:00	090:11:24/ 090:23:24	03/ 090	GHT -23.6	☉	MARCH 30, 1984	STS-12	PRELIMINARY	05/29/83
GMT :090 FD :03 MET :002	18	19	20	21	22	23	24	25	26
CDR	MUSICAL	NEAL	NEAL	NEAL	EXERCISE	EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
PLT		NEAL	NEAL	NEAL	EXERCISE	EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
MS1		NEAL	NEAL	NEAL	EXERCISE	EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
MS2	NEAL PREP	NEAL	NEAL	NEAL	EXERCISE	EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
MS3	EXERCISE	NEAL	NEAL	NEAL	EXERCISE	EXERCISE	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP
DAY/NIGHT	[Day/Night Cycle: 33-34-35-36-37-38-39-40]								
ORBIT	33	34	35	36	37	38	39	40	
GSTDH COVERAGE	HAN -SDS -NIL -BDR -RCN -BOT	-YRR -HAN -CDS -NIL -RCN -BOT	-GNN -HAN -EDS -NIL -RCN -BOT	-HAN	-BOT -IOS	-IOS -GNN -HAN -AGD -BOT	-IOS -HAN -AGD -BOT -IOS	-RCN -GNN -AGD	-RCN -GNN -AGD
SCLS COVERAGE	-HTS -VTS	-VTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS	-VTS -CTS -HTS
TDRS	[Timeline of TDRS events]								
ATTITUDE	-ZLV TAIL 1ST NEAR LOW G -ZLV TAIL 1ST INU -ZLV NOSE 1ST NEAR LOW G								
NOTES:	* Y-POP (NOSE FWD) * RUM 2 * ANNUAL INITIATE-PRUSE								

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
091:05:24/ 091:17:24	002:12:00/ 003:00:00	090:23:24/ 091:11:24	03/ 091 GMT	-22.8		MARCH 31, 1984	STS-12	PRELIMINARY	05/29/83			
GMT : 091	6	7	8	9	10	11	12	13	14	15	16	17
FD : 03												
MET : 002	12	13	14	15	16	17	18	19	20	21	22	23
CDR	SLEEP			POST SLEEP ACT			IMU MNR	ZLV MNR	POST SLEEP ACT	EXERCISE		
PLT	SLEEP			POST SLEEP ACT						EXERCISE		
MS1	SLEEP			POST SLEEP ACT						NEAR PREP	EXERCISE	
MS2	SLEEP			POST SLEEP ACT								
MS3	SLEEP			POST SLEEP ACT								
DAY/NIGHT	[Day/Night Cycle]											
ORBIT	41	42	43	44	45	46	47	48				
GSTDN COVERAGE	-GNH	-ACD -DKR	-GNH	-DKR	-YAR -ORR	-ORR	-NIL -BDA -DKR	-DKR -IOS -YAR -ORR	-NIL -BDA -DKR -IOS -YAR -ORR	-BDA -DKR -ACH -BOT -YAR		
SOLS COVERAGE	-STS				-DKR -MNR	-IOS -YAR	-IOS	-IOS	-IOS	-HTS -VTS		
TDRS E H	[TDRS Coverage]											
ATTITUDE	NEAR LOW 6	-ZLV NOSE 1ST			IMU	-ZLV TAIL 1ST			NEAR LOW			
NOTES:	* Y-POP (TAIL FWD)											

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB.	
091:17:24 / 092:05:24	003:00:00 / 003:12:00	091:11:24 / 091:23:24	04 / 091.GMT	-21.9	●	MAR 31, 1984	STS-12	PRELIMINARY	05/23/83	
GMT :091	18	19	20	21	22	23	24	25	26	
FD :04										
MET :003	1	2	3	4	5	6	7	8	9	
CDR	NEAL				PRE SLEEP ACT	ZMU MNVR ZLV MNVR	PRE SLEEP ACT		SLEEP	
PLT	NEAL						PRE SLEEP ACT		SLEEP	
MS1	NEAL						PRE SLEEP ACT		SLEEP	
MS2	NEAL		EXERCISE				PRE SLEEP ACT		SLEEP	
MS3	NEAL		EXERCISE		PRE SLEEP ACT	RDSF	PRE SLEEP ACT		SLEEP	
DRY/NIGHT	[Shaded bars indicating dry/night periods]									
ORBIT	49	50	51	52	53	54	55	56		
CSTDN COVERAGE	-HAN -GDS -MIL -BDR	-GNN -HAN -GDS -MIL	-HAN -GDS	-BOT	-GNN -HAN	-HAN -RCD -BOT -IOS	-GNN -RCD -RCH	-GNN -RCD -RCH	-GNN -RCD	
SGLS COVERAGE	-HTS -VTS	-HTS -VTS -GTS	-HTS -VTS -GTS	-HTS -VTS -GTS	-HTS -VTS -GTS	-HTS -VTS -GTS -IOS	-HTS -VTS -GTS -IOS	-HTS -VTS -GTS	-HTS -VTS -GTS	
TDRS E M	[Timeline bars for TDRS E and M]									
ATTITUDE	NEAR LOW G		-ZLV TRAIL 1ST		IMU	NEAR LOW G		-ZLV NOSE 1ST		
NOTES:	● Y-POP (NOSE FWD) ● RUN 3 & 4 INITIATE-AUTO									

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
092:05:24/ 092:17:24	009:12:00/ 004:00:00	091:29:24/ 092:11:24	05/ 092 GMT	-20.8		APRIL 1, 1984	STS-12	PRELIMINARY	05/23/83
GMT :092	FD :05								
MET :009									
CDR	SLEEP	POST SLEEP ACT	INU MNR	ZLV POST MNR SLEEP ACT		R C I S E H O T	EXERCISE	FCS C/O	
PLT	SLEEP	POST SLEEP ACT				R C I S E H O T		FCS C/O	
MS1	SLEEP	POST SLEEP ACT					EXERCISE	NEAL PREP	
MS2	SLEEP	POST SLEEP ACT						EXERCISE	
MS3	SLEEP	POST SLEEP ACT						EXERCISE	
DAY/NIGHT									
ORBIT	57	58	59	60	61	62	63	64	
GSTON COVERAGE	-ACN -DKR	-GWN -DKR	-DKR -HND	-DKR -HND	-DKR -HND	-DKR -HND	-DKR -HND	-DKR -HND	-DKR -HND
SGLS COVERAGE	-GTS	-GTS	-YAR	-YAR	-YAR	-YAR	-YAR	-YAR	-YAR
TDRS E H									
ATTITUDE		-ZLV NOSE 1ST		INU	-ZLV TRAIL 1ST	RCS		-ZLV TRAIL 1ST	
NOTES:					● Y-POP (TAIL FND)			○ RPU HTR ACT	

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
092:17:24 / 093:05:24	004:00:00 / 004:12:00	092:11:24 / 092:23:24	05 / 092 GMT	-19.7		APRIL 1, 1984	STS-12	PRELIMINARY	05/23/83
GMT :092	18	19	20	21	22	23	24	25	26
FD :05									
MET :004	1	2	3	4	5	6	7	8	9
CDR	NEAR		CABIN CONFIG/STOW	PRE SLEEP ACT	END MNVR	ZLV MNVR	PRE SLEEP ACT		SLEEP
PLT	NEAR	CABIN STOW	LAMP / SMOKE	EXERCISE	CABIN CONFIG/STOW		PRE SLEEP ACT		SLEEP
MS1	NEAR		CABIN CONFIG/STOW				PRE SLEEP ACT		SLEEP
MS2	NEAR		CABIN CONFIG/STOW				PRE SLEEP ACT		SLEEP
MS3	NEAR	CABIN STOW	CABIN CONFIG/STOW				PRE SLEEP ACT		SLEEP
DAY/NIGHT									
ORBIT	65	66	67	68	69	70	71	72	
GSTDN COVERAGE	YBR -HAN -GDS -NIL -BDR -ACN -BOT	-YBR -GNH -HAN -GDS -NIL -ACN -BOT	-GNH -HAN	-BOT -IOS	-GNH -HAN	-HAN -ACG -BOT -IOS	-HAN -ACG -ACN	-GNH -ACG -ACN	-GNH
SCLS COVERAGE	-HTS -VTS	-HTS -VTS	-HTS -VTS	-GTS -HTS	-GTS -HTS	-HTS	-IOS -GTS	-GTS	-GTS
TDRS E H									
ATTITUDE		-ZLV TAIL 1ST			INU		-ZLV NOSE 1ST		
NOTES:			● CFES CLOSEOUT/PARDN		● Y-POP (NOSE FND)				

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
099:05:24/ 099:17:24	004:12:00/ 005:00:00	092:23:24/ 099:11:24	06/ 099 GMT	-18.4	●	APRIL 2, 1984	STS-12	PRELIMINARY	05/29/83
T16 FD #06 MET : 004 12 13 14 15 16 17 18 19 20 21 22 23									
CDR	SLEEP	POST SLEEP ACT	INU MNR	NSI MNR	POST SLEEP ACT	DEORBIT PREP			
PLT	SLEEP	POST SLEEP ACT	POST SLEEP ACT	POST SLEEP ACT	POST SLEEP ACT	DEORBIT PREP			
MS1	SLEEP	POST SLEEP ACT				DEORBIT PREP		DEORBIT BURN	LANDING
MS2	SLEEP	POST SLEEP ACT				DEORBIT PREP			
MS3	SLEEP	POST SLEEP ACT				DEORBIT PREP			
DAY/NIGHT									
ORBIT	73	74	75	76	77	78	79	80	
GSTON COVERAGE	-AGD -ACN -DKR	-GNN	-YBR -ORR	-BDA -DKR -HAD -IOS	-ORR	-NIL -BDA -DKR	-IOS -YBR -ORR	-NIL -BDA -DKR -BOT -YBR	-NIL -BDA -ACN -BOT
SGLS COVERAGE	-GTS		-DKR -HAD	-IOS -YBR		-IOS	-IOS -VTS	-GDS -VTS	-HAW -GDS -VTS
TDRS E N									
ATTITUDE	-ZLV NOSE 1ST		INU	TAIL SWH	INU	BURN RTT	ENTRY		
NOTES:	• HI LOAD HTB ON @ FES CENTER CHECK								

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DETAILED TIMELINE
(TBS)

DETAILED
TIMELINE

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DETAILED
TIMELINE

CONTINGENCY TIMELINES

9D DEPLOYMENT..... 5A-1

18A DEPLOYMENT..... 5B-1

CONTINGENCY
TIMELINES

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9D DEPLOYMENT

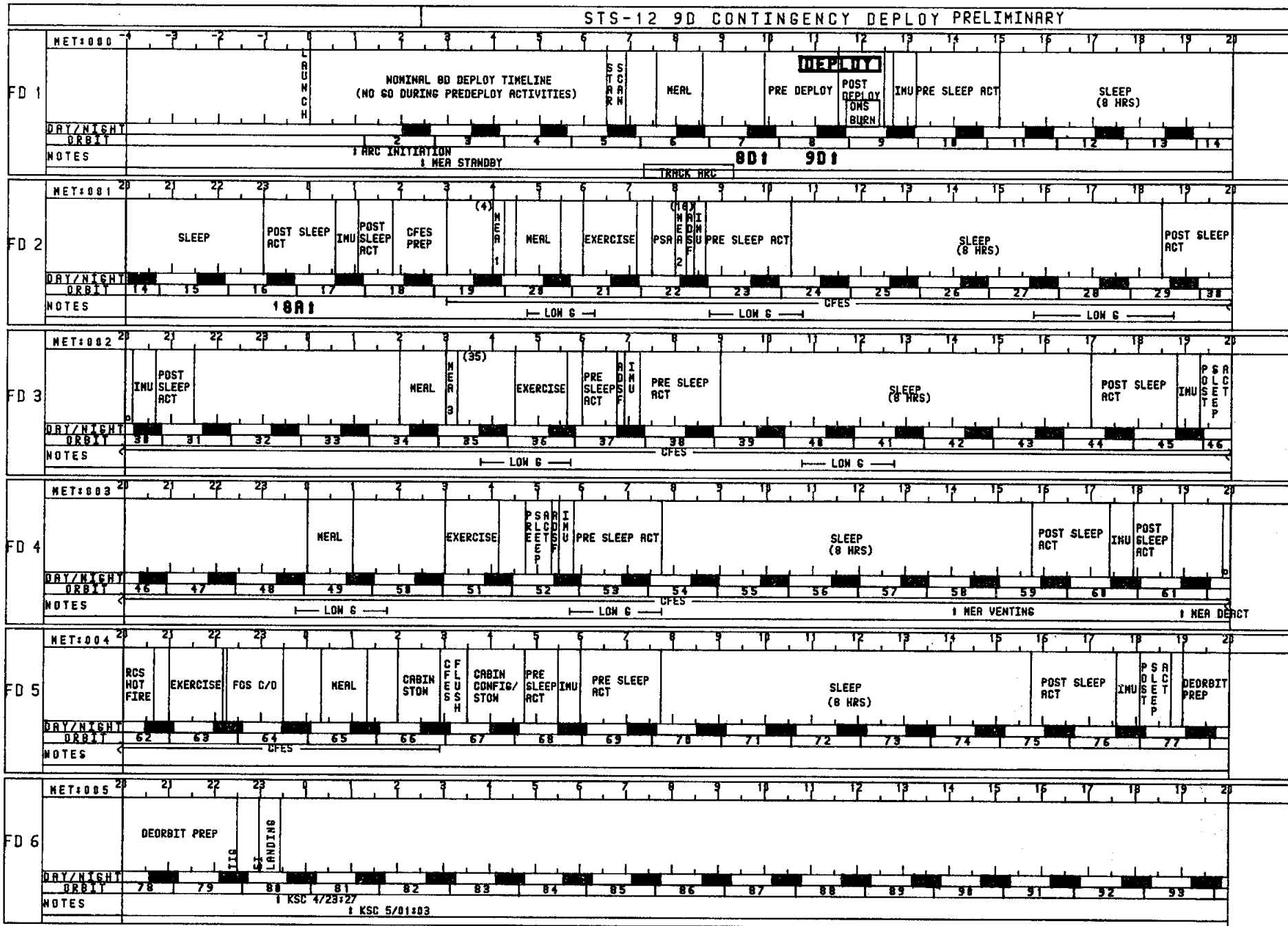
The 9D Deployment Timeline is designed to accommodate delaying deployment to the 9D opportunity prior to starting the predeploy activities. The nominal timeline is used up to 06:00 MET. A starscan is included for the thermal pwrn case (if required). All nominal deployment activities are included except the late IUS direct check. Late IUS/TDRS checks are scheduled at the last acceptable RTS/STDN site.

This timeline is based on the 18A (CIT) flight profile.

The 9D timeline transitions back to the nominal 8D timeline at 1/4:00 MET.

9D DEPLOYMENT

STS-12 9D CONTINGENCY DEPLOY PRELIMINARY



18A DEPLOYMENT

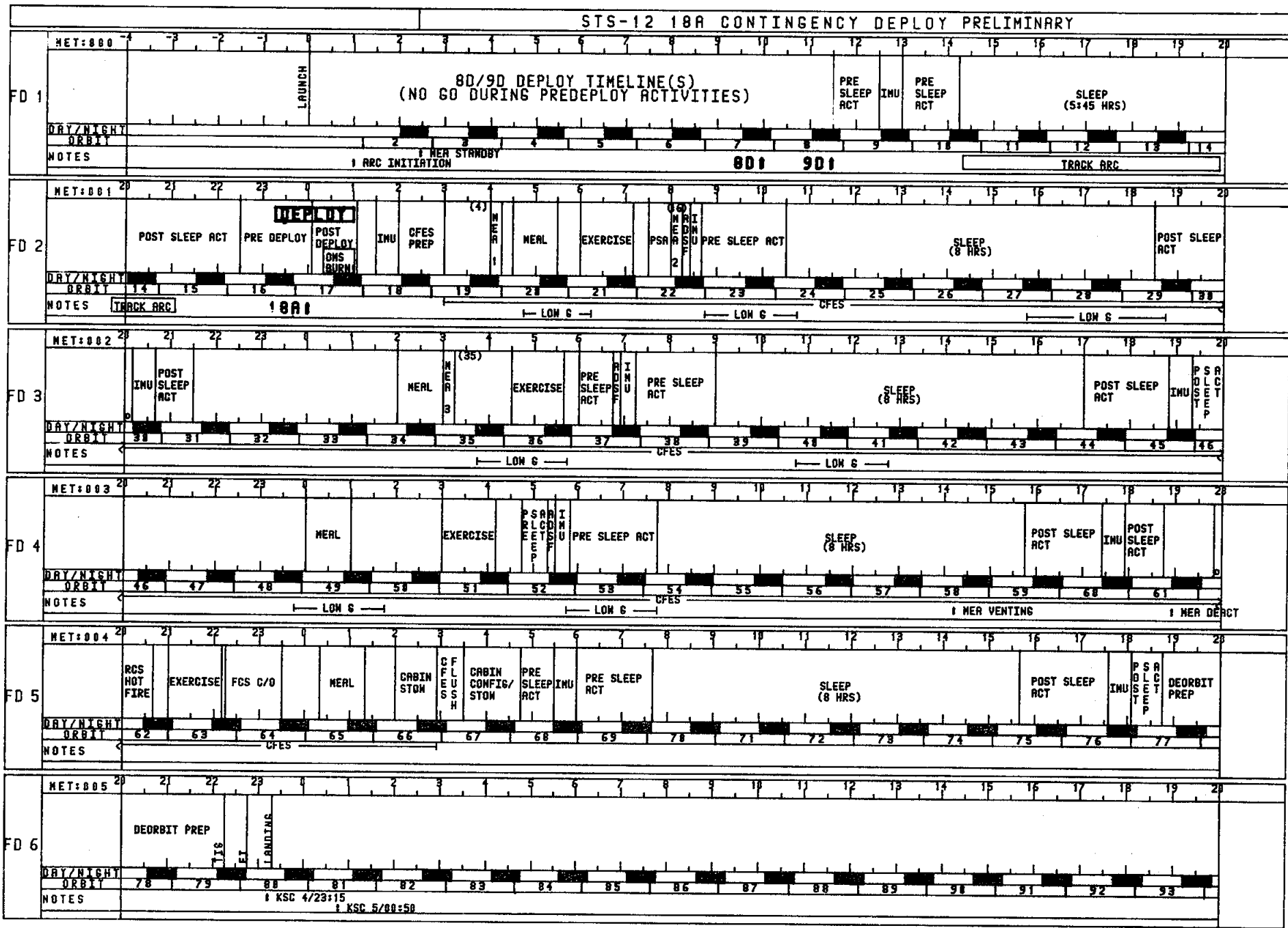
The 18A Deployment Timeline is designed to accommodate delaying deployment to the 18A opportunity after attempting the 8D and 9D deployment. All nominal deployment activities are included except the late IUS direct check, RF Check Late (Part I), and star scan.

This timeline is based on the 18A (CIT) flight profile.

The 18A timeline transitions back to the nominal 8D timeline at 1/4:00 MET.

18A DEPLOYMENT

STS-12 18A CONTINGENCY DEPLOY PRELIMINARY



CONSUMABLES CURVES(TBS)

CONSUMABLES
CURVES

CONSUMABLES
CURVES

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

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

FLIGHT DESCRIPTION..... 7-2

CREW..... 7-3

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PAYLOADS..... 7-5

CAP NOTES

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

STS-12 will launch from KSC on March 28, 1984, into a 153.5-NM orbit at an inclination of 28.5°. The flight duration will be 6 flight days (~119.5 hrs). Nominal landing will occur at KSC on April 2, 1984. The vehicle will be OV-103 (Discovery).

		<u>LANDING ORBIT NO.</u>	<u>SITE</u>	<u>LOCAL TIME</u>
Nominal	Primary	80	KSC	11:51 EDT
	Backup	81		12:27 EDT
	Weather Alternate	80	EDW	8:42 PDT
	Backup	81		10:18 PDT
1 Day Late	Primary	96	KSC	12:01 EDT
	Backup	NONE		
	Weather Alternate	96	EDW	8:52 PDT
	Backup	97		10:28 PDT
2 Days Late	Primary	112	KSC	12:10 EDT
	Backup	NONE		
	Weather Alternate	112	EDW	9:02 PDT
	Backup	113		10:37 PDT

MAJOR EVENTS

<u>LAUNCH (KSC)</u>	28 March 1984
MET (DD:HH:MM:SS)	0/00:00:00
Day of Year	88
CST/GMT	11:24/17:24

<u>MECO</u>	
MET (DD:HH:MM:SS)	0/00:08:23
ALT (nm)	57

<u>OMS-1</u>	
MET (DD:HH:MM:SS)	0/00:10:19
ΔV (fps)	226
ΔT (MM:SS)	2:26
ORBIT ha/hp (nm)	153.5 x 51

<u>OMS-2</u>	
MET (DD:HH:MM:SS)	0/00:43:37
ΔV (fps)	186
ΔT (MM:SS)	2:02
ORBIT ha/hp (nm)	153.5 x 153.5

<u>TDRS/IUS DEPLOY (8D OPPORTUNITY)</u>	
MET (DD:HH:MM:SS)	0/10:01:22

<u>OMS SEPARATION BURN</u>	
MET (DD:HH:MM)	0/10:20:25
ΔV (fps)	40
ORBIT ha/hp (nm)	175 x 153
<u>IUS SRM-1 IGNITION</u>	
(DD:HH:MM:SS)	0/10:56:38
<u>IUS SRM-2 IGNITION</u>	
(DD:HH:MM:SS)	~0/16:08:00
<u>DEORBIT BURN</u>	
MET (DD:HH:MM)	4/22:26
ΔV (fps)	272
ΔT (MM:SS)	2:26
ORBIT ha/hp (nm)	174 x 6
<u>LANDING (EDW)</u>	
MET (DD:HH:MM:SS)	4/23:27
Day of year	93
CST/GMT	10:51/16:51

B. CREW

1. The crew will launch with an emergency egress harness restraint over Intravehicular Activity (IVA) clothing. Anti-G suits will be worn by all crewmembers for entry.
2. All crewmembers will launch wearing the Launch/Entry Helmets (LEH). After ascent, the Wireless Communication Control Units (WCCUs) are unstowed and distributed to the crew. Prior to seat ingress on entry day, the WCCUs are stowed, and the LEHs are donned for entry until landing.

C. ORBITER SYSTEMS

1. Communications and Instrumentation
 - a. The Operational Instrumentation (OI) system will nominally be managed from the ground through uplink RTC commands coordinated with the crew.
 - b. There are 13 GSTDN sites available for on-orbit coverage: ORR, GDS, MIL, BDA, HAW, GWM, AGO, ACN, MAD, YAR, BOT, DKR and BUC.
 - c. There are 3 GSTDN sites available for real-time TV: GDS (GDY), MIL (MLX), and HAW.
 - d. There are 2 GSTDN sites available for UHF voice only: YAR and BOT.

- e. There is 1 SGLS site available for on-orbit coverage: IOS.
- f. There are 5 RTS sites available for on-orbit coverage: GTS, HTS, NHS, VTS, & IOS. Only IOS provides Orbiter coverage through the SGLS mode. The other 4 provide payload support.
- g. Ku-Band TDRSS coverage (high data rate) is available approximately 50% of the time while in a -ZLV +XVV attitude.

2. Guidance and Navigation

- a. The Orbiter state vector must be uplinked whenever down track error in the on-board vector becomes greater than 20 nm, but it is usually uplinked when errors are much greater than 5 nm. These are real-time calls.
- b. IMU alignments are scheduled approximately every 12 hours in morning and evening activities and prior to major events requiring low navigation uncertainty.
- c. The on-orbit avionics configuration is listed below. GPC 2 may be shut down during orbit to reduce electrical loads and can be powered when redundancy is required.

GPC 1	- GNC OPS 2
GPC 2	- GNC OPS 2 (OFF)
GPC 3	- FD OPS 3 (OFF)
GPC 4	- SM OPS 2
GPC 5	- BFS (OFF)
IMUs (3)	- OPERATE
STAR TRACKERS (2)	- ON
MASS MEMORY UNITS (2)	- ON
FLIGHT-CRITICAL MDMs (8)	- ON

3. Environmental Control and Life Support Subsystem (ECLSS)

- a. The Orbiter is launched with CO2 absorber canisters installed.
- b. The four supply water tanks and one waste water tank are loaded for launch with volumes sufficient to meet an orbit 3 launch day deorbit opportunity with PLBDs failed closed. (TK A = 2%, TK B = 100%, TK C = 75%, TK D = 75%, Waste TK = 2%). If waste water production exceeds storage capacity, a real-time call will be made to perform a dump. No dumps are estimated to occur. Potential supply water dumps are scheduled, based upon predicted fuel cell water production. A real-time call will be made prior to each to inform the crew whether a dump is required, and to what level. 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.

D. TEXT UPLINK SYSTEM

1. The teleprinter (TPR) will not be carried on the flight.
2. The Text and Graphics System (TAGS) is basically a hard copy machine that operates via telemetry. The system provides the capability to transmit text material, maps, schematics, and photographs to the Orbiter through a two-way Ku-Band link using the TDRS. Transmission time for an 8- x 11-in. page can vary from just over 1 minute to just over 16 minutes, depending on the hard-copy resolution desired. The hard-copier is installed on a dual coldplate in Avionics Bay 3B of the Orbiter.

E. TELEVISION/PHOTOGRAPHY

1. The CCTV system provides 2 color cameras for in-cabin coverage and 4 (color) payload bay TV cameras for coverage of payload activities.
2. The video tape recorder (VTR) is available with 30-min cassettes.
3. 16mm, 35mm, and 70mm camera systems are available.

F. REMOTE MANIPULATOR SYSTEM

The RMS will not be carried on this flight.

G. PAYLOADS

1. TDRS (Tracking and Data Relay Satellite)

The TDRS is a communication satellite that will be launched in the process of assembling the Tracking and Data Relay Satellite System. The system will provide a high-capacity communication and data link with the STS as well as other spacecraft and launch vehicles. The nominal IUS/TDRS deployment opportunity occurs 55 minutes prior to revolution 8D (descending) at ~0/10:01:22 MET (D/HH:MM:SS). Alternate deployment opportunities occur on the subsequent orbit (9D) and the following day (18A).

2. IUS (Inertial Upper Stage)

The IUS is a two-stage, solid-rocket, inertially stabilized upper stage which will place the TDRS in a geosynchronous orbit. The IUS ignites its first stage (SRM-1) for transfer orbit insertion 55 minutes after TDRS/IUS deployment. The second burn (SRM-2) occurs at approximately 6:07 (hr:min) after deployment, resulting in a 0° inclination.

3. CFES (Continuous Flow Electrophoresis System)

This is the first flight for CFES block III. The CFES provides a processing system that continuously segregates a biological sample using a separation process based on the relative motion of charged particles through an electric field (electrophoresis). The payload is located on the Orbiter middeck. A low acceleration level is desired during CFES operations. CFES activation and closeout times are provided in Table 9-2.

4. ADSF (Automatic Directional Solidification Furnace)

The ADSF payload is a furnace facility designed to conduct materials processing experiments. It is located on the Orbiter middeck. The acceleration level should be minimized during ADSF operations. ADSF activation and auto deactivation times are provided in Table 9-3.

5. ARC (Aggregation of Red Blood Cells)

The ARC is a cooperative program with the Government of the Commonwealth of Australia. The payload will collect data on the aggregation of human red blood cells and the viscosity of blood at low flow rates under conditions approaching zero gravity. Since the blood cells have a shelf life of 48 hours, the payload must be activated within 40 hours after the blood is drawn (needs 8 hours of processing time).

The payload is located on the Orbiter middeck. Even though it desires low accelerations, periods of Primary Reaction Control System (PRCS) and Orbital Maneuvering System (OMS) burns are acceptable. ARC activation and closeout times are provided in Table 9-4.

6. MSL (Materials Science Laboratory)

a. MEA (Materials Experiment Assembly) is a self-contained facility that accommodates multidiscipline experiments in the materials processing field. The three MEA experiments must be activated in sequence (MEA 1, followed by MEA 2, followed by MEA 3), and are activated by a single switch on the aft flight deck. These experiments require periods of minimum vehicle-induced G forces (VRCS attitude control is acceptable). The activation times and minimum G periods are listed in Table 9-5.

b. GAS (Get-Away-Special)

The GAS payload (TBD) is a self-contained experiment package that requires minimal crew activity. Gas experiment activation and operation times are provided in Table 9-6 (TBS).

ON-ORBIT CREW ACTIVITY
DETAILED TEST OBJECTIVES (DTOs),
DETAILED SUPPLEMENTARY OBJECTIVES (DSOs)

INTRODUCTION..... 8-2
TABLE 8-1 - STS-12 DTOs..... 8-3
TABLE 8-2 - STS-12 DSOs..... 8-4

DTOs/DSOs

INTRODUCTION

The following Tables describe the scheduling data and rationale for on-orbit crew activity related DTOs/DSOs for STS-12.

DTOs/DSOs

TABLE 8-1 STS-12 ON-ORBIT CREW ACTIVITY RELATED DTOS

DTO NUMBER	TITLE	SCHEDULED (DD/HH:MM)	SCHEDULING REMARKS
DTO 0402	Follow-on Vehicle PRCS Hot Fire Test	3/19:50	

TABLE 8-2 STS-12 ON-ORBIT CREW ACTIVITY RELATED DSOs

DSO NUMBER	TITLE	SCHEDULED (DD/HH:MM)	SCHEDULING REMARKS
DSO 0401	Validation of Predictive Tests and Countermeasures for Space Motion Sickness	Presleep Activity	Uses C/L and inflight Cassette Recorder
DSO 0402	Cardiovascular Deconditioning Countermeasure Assessment	(ENTRY DAY)	
DSO 0901	Documentary Television	TBS	
DSO 0902	Documentary Motion Picture Photography	TBS	
DSO 0903	Documentary Still Photography	TBS	

TABLES

TABLE 9-1 - IUS/TDRS MAJOR DEPLOYMENT EVENTS AND TIMES..... 9-2

TABLE 9-2 - CFES EXPERIMENT ACTIVATION AND OPERATION TIMES..... 9-3

TABLE 9-3 - ADSF EXPERIMENT ACTIVATION AND OPERATION TIMES..... 9-4

TABLE 9-4 - ARC EXPERIMENT ACTIVATION AND OPERATION TIMES..... 9-5

TABLE 9-5 - MEA EXPERIMENT ACTIVATION AND OPERATION TIMES..... 9-6

TABLE 9-6 - GAS EXPERIMENT ACTIVATION AND OPERATION TIMES..... 9-7

TABLE 9-7 - STS-12 ATTITUDE TIMELINE..... 9-8

TABLES

TABLE 9-1
IUS/TDRS MAJOR DEPLOYMENT EVENTS AND TIMES
(8D DEPLOY)

EVENT	MET (D/HH:MM)	DEPLOY MINUS (HH:MM)
AUTO MNVR TO TDRS CK ATT	0/08:03	01:58
RAISE TILT TABLE TO 29°	0/08:07	01:54
XFER STATE VECTOR TO IUS	0/08:40	01:21
IUS C/O LATE	0/08:45	01:16
IUS DIRECT CK	0/09:05	00:56
TDRS RF CK	0/09:15	00:46
GO/NO GO FOR DEPLOYMENT	0/09:21	00:40
AUTO MNVR TO DEPLOY ATT	0/09:28	00:33
XFER IUS TO INTERNAL POWER	0/09:42	00:19
RELEASE IUS UMBILICAL	0/09:52	00:09
RAISE TILT TABLE TO 59°	0/09:53	00:08
DEPLOY TDRS/IUS	0/10:01	00:00
LOWER TILT TABLE TO -6°	0/10:06	+00:05
OMS SEPARATION BURN	0/10:20	+00:19
MNVR TO IUS VIEWING ATT	0/10:22	+00:21
MNVR TO WINDOW PROTECTION ATT	0/10:41	+00:40
IUS MNVR TO BURN ATT	0/10:48	+00:47
IUS SRM-1 IGNITION	0/10:56	+00:55
IUS SRM-2 IGNITION	0/16:08	+06:07

TABLES

TABLE 9-2
CFES EXPERIMENT ACTIVATION AND OPERATION TIMES

EVENT	APPROX MET (D/HH:MM)	DURATION (HH:MM)
FOR 8D DEPLOY:		
CFES ACTIVATION	1/0:30	74:25
CFES FLUSH & CLOSEOUT	4/2:55	
FOR 9D DEPLOY:		
CFES ACTIVATION	1/1:50	73:05
CFES FLUSH & CLOSEOUT	4/2:55	
FOR 18A DEPLOY:		
CFES ACTIVATION	1/1:50	73:05
CFES FLUSH & CLOSEOUT	4/2:55	

TABLE 9-3
 ADSF EXPERIMENT ACTIVATION AND OPERATION TIMES

EVENT	APPROX MET (D/HH:MM)	DURATION (HH:MM)
ADSF ACTIVATION (RUN 1) AUTO. DEACT	1/8:15 1/20:15	12:00
ADSF ACTIVATION (RUN 2) AUTO. DEACT	2/6:45 2/18:45	12:00
ADSF ACTIVATION (RUNS 3 & 4) AUTO. DEACT	3/5:20 3/14:55	9:35

TABLE 9-4
ARC EXPERIMENT ACTIVATION AND OPERATION TIMES

EVENT	APPROX MET (D/HH:MM)	DURATION (HH:MM)
ARC ACTIVATION	0/1:00	8:00
ARC AUTO. DEACT	0/9:00	

TABLE 9-5
MEA EXPERIMENT ACTIVATION AND OPERATION TIMES

	EVENT	APPROX MET (D/HH:MM)	DURATION (HH:MM)
MEA-1	ACTIVATION	1/4:00	3:45
	LOW ACCEL CONSTRAINT	1/4:45	1:30
	AUTO. DEACT	1/7:45	
MEA-2	ACTIVATION	1/8:00	15:45
	LOW ACCEL CONSTRAINT	1/8:45	2:00
	LOW ACCEL CONSTRAINT	1/15:45	3:00
	AUTO. DEACT	1/28:45	
MEA-3	ACTIVATION	2/3:00	35:15
	LOW ACCEL CONSTRAINT	2/3:45	2:00
	LOW ACCEL CONSTRAINT	2/10:45	2:00
	LOW ACCEL CONSTRAINT	2/23:45	2:00
	LOW ACCEL CONSTRAINT	3/5:45	2:00
	AUTO. DEACT	3/14:15	

TABLE 9-6
GAS EXPERIMENT ACTIVATION AND OPERATION TIMES

(TBS)

TABLE 9-7
STS-12 ATTITUDE TIMELINE

(TBS)

ABBREVIATIONS/ACRONYMS

More complete compilations of abbreviations and acronyms are available in the Acronyms and Abbreviations Dictionary (Ref. 5).

ABBREVIATIONS/
ACRONYMS

ABBREVIATIONS/ACRONYMS

ABS	ABSORBER
ACN	ASCENSION ISLAND (STDN SITE)
ACT	ACTIVATE/ACTIVATION
ADI	ATTITUDE DIRECTION INDICATOR
ADSF	AUTOMATIC DIRECTIONAL SOLIDIFICATION FURNACE
AGO	SANTIAGO, CHILE (STDN SITE)
ALN	ALIGNMENT
ANT	ANTENNA
AOA	ABORT ONCE AROUND
AOS	ACQUISITION OF SIGNAL
ARC	AGGREGATION OF RED BLOOD CELLS
ATCS	ACTIVE THERMAL CONTROL SYSTEM
ATO	ABORT TO ORBIT
ATT	ATTITUDE
BDA	BERMUDA ISLAND, BWI (STDN SITE)
BHD	BULKHEAD
BLKT	BLANKET
BOT	BOTSWANA (STDN SITE)
BUC	BUCKHORN, CALIFORNIA (STDN SITE)
BYP	BYPASS
CAL	CALIBRATION
CCTV	CLOSED-CIRCUIT TV
CCU	CREWMAN COMMUNICATIONS UMBILICAL
CDR	COMMANDER
CFES	CONTINUOUS FLOW ELECTROPHORESIS
CHG	CHANGE
CL	CHECKLIST

ABBREVIATIONS/
ACRONYMS

CLN	CLEAN
C/O	CHECKOUT
COAS	CREWMAN OPTICAL ALIGNMENT SIGHT
COM	COMMUNICATIONS
CONFIG/CNFG	CONFIGURATION
CST	CENTRAL STANDARD TIME
CTLS	CONTROLS
C&W	CAUTION AND WARNING
DAP	DIGITAL AUTO PILOT
DB	DEADBAND
DEACT	DEACTIVATION
DEU	DISPLAY ELECTRONICS UNIT
DFI	DEVELOPMENT FLIGHT INSTRUMENTATION
DKR	DAKAR, SENEGAL (STDN SITE)
DMP	DUMP
DMS	DATA MANAGEMENT SYSTEM
DPLY	DEPLOY
DSO	DETAILED SUPPLEMENTARY OBJECTIVE
DTO	DETAILED TEST OBJECTIVE
ECLS	ENVIRONMENTAL CONTROL LIFE SUPPORT SYSTEM
EDW	EDWARDS AFB, CALIFORNIA (DEORB OPT SITE)
EMU	EXTRAVEHICULAR MOBILITY UNIT
ENA	ENABLE
ENT	ENTRY
EVA	EXTRAVEHICULAR ACTIVITY
EX/EXER	EXERCISE
EXPT	EXPERIMENT
F&S	FIRE AND SMOKE DETECTION

FC	FUEL CELL
FCS	FLIGHT CONTROL SYSTEM
FD	FREEZE DRIED
FDF	FLIGHT DATA FILE
FES	FLASH EVAPORATOR SYSTEM
FM	FREQUENCY MODULATION
FRD	FLIGHT REQUIREMENTS DOCUMENT
FSO	FUNCTIONAL SUPPLEMENTARY OBJECTIVE
FTO	FUNCTIONAL TEST OBJECTIVE
F/W	FOOD WARMER
FWD	FORWARD
GAS	GETAWAY SPECIAL
GDS	GOLDSTONE, CALIFORNIA (STDN SITE, 1ST ANTENNA)
GDX	GOLDSTONE, CALIFORNIA (STDN SITE, 2ND ANTENNA)
GG	GRAVITY GRADIENT (ATTITUDE CONTROL MODE)
GMT	GREENWICH MEAN TIME
GNC	GUIDANCE NAVIGATION AND CONTROL
GPC	GENERAL PURPOSE COMPUTER
GRP	GROUP
GSTDN	GROUND SPACE TRACKING & DATA NETWORK
GTS	GUAM ISLAND (SGLS SITE)
GWM	GUAM ISLAND, U.S. (STDN SITE)
HAW	HAWAII (KAUAI, STDN SITE)
HK	HOUSEKEEPING
HL	HI LOAD FLASH EVAPORATOR
HTR	HEATER
HTS	HAWAII (SGLS SITE)
HYD	HYDRAULIC

IMU	INERTIAL MEASUREMENT UNIT
INH	INHIBIT
INRTL	INERTIAL
IOS	INDIAN OCEAN (SGLS SITE)
IUS	INERTIAL UPPER STAGE
IVA	INTRA VEHICULAR ACTIVITY
KSC	KENNEDY SPACE CENTER
LEH	LAUNCH/ENTRY HELMET
LOS	LOSS-OF-SIGNAL
LVLH	LOCAL VERTICAL LOCAL HORIZONTAL
MAD	MADRID, SPAIN (STDN SITE, 1ST ANTENNA)
MADS	MODULAR AUXILIARY DATA SYSTEM
MAX	MADRID, SPAIN (STDN SITE, 2ND ANTENNA)
MCC	MISSION CONTROL CENTER
MD	MIDDECK
MDM	MULTIPLEXER/DEMULTIPLEXER
MEA	MATERIALS EXPERIMENT ASSEMBLY
MECH	MECHANISM; MECHANICAL
MECO	MAIN ENGINE CUTOFF
MET	MISSION ELAPSED TIME
MIL	MERRITT ISLAND, FLORIDA (STDN SITE)
MILA	MERRITT ISLAND LAUNCH AREA
MLX	MERRITT ISLAND, FLORIDA (STDN SITE, 2ND ANTENNA)
MNVR	MANEUVER
MPS	MAIN PROPULSION SYSTEM
MSG	MESSAGE
MSL	MATERIALS SCIENCE LABORATORY

MTVC	MANUAL THRUST VECTOR CONTROL
NAV	NAVIGATION
NHS	NEW HAMPSHIRE (SGLS SITE)
NOR	NORTHRUP STRIP
OI	OPERATIONAL INSTRUMENTATION
OMS	ORBITAL MANEUVERING SYSTEM
O/O	ON ORBIT
OPS	OPERATIONS; OPERATIONAL SEQUENCE
ORB	ORBITER
ORR	ORRORAL VALLEY, AUSTRALIA (STDN SITE)
OSTA	OFFICE OF SPACE AND TERRESTRIAL APPLICATIONS
PAM	PAYLOAD ASSIST MODULE
PCM	PULSE-CODE MODULATION
PCS	PRESSURE CONTROL SYSTEM
PDP	POST INSERTION DEORBIT PREP CHECKLIST
PKM	PERIGEE KICK MOTOR
PL	PAYLOAD
PLBD	PAYLOAD BAY DOORS
PLD	PAYLOAD
PLT	PILOT
PM	PHASE MODULATION
PMC	PRIVATE MEDICAL COMMUNICATION
PMP	PUMP
PRCS	PRIMARY REACTION CONTROL SYSTEM
PREP	PREPARATION
PRO	PROCEED
PSA	PRE/POST SLEEP ACTIVITY
PTC	PASSIVE THERMAL CONTROL

PWRDN	POWERDOWN
RAD	RADIATOR
RCS	REACTION CONTROL SYSTEM
REF	REFERENCE
REFSMAT	REFERENCE STABLE MEMBER MATRIX
RELMAT	RELATIVE MATRIX
RF	RADIO FREQUENCY
RHC	ROTATION HAND CONTROLLER
RMS	REMOTE MANIPULATOR SYSTEM
ROT	ROTATION/ROTA FIELD
RSET	RESET
RTC	REAL-TIME COMMAND
RTS	REMOTE TRACKING STATION
SAA	SOUTH ATLANTIC ANOMALY
S-BD	S-BAND
SEL	SELECT
SEP	SEPARATION
SEQ	SEQUENCE
SGLS	SPACE GROUND LINK SYSTEM/STATION (DOD)
SPC	STORED PROGRAM COMMAND
SPLY	SUPPLY
SRM	SOLID ROCKET MOTOR
ST/S TRKR	STAR TRACKER
STDN	SPACE TRACKING & DATA NETWORK
STS	SPACE TRANSPORTATION SYSTEM
STW	STOW
SW	SWITCH
SYS	SYSTEM

TAGS	TEXT AND GRAPHICS SYSTEMS
TB	TALKBACK
TDRS	TRACKING AND DATA RELAY SATELLITE SYSTEM
TERM	TERMINATE; TERMINAL
TH	THEODOLITE
THC	TRANSLATION HAND CONTROLLER
TIG	TIME OF IGNITION
TPR	TELEPRINTER
UHF	ULTRA HIGH FREQUENCY
VAC	VACUUM
VER	VERIFICATION
VRCS	VERNIER REACTION CONTROL SYSTEM
VTR	VIDEO TAPE RECORDER
VTS	VANDENBERG (SGLS SITE)
WB	WIDEBAND
WCS	WASTE COLLECTION SYSTEM
WMC	WASTE MANAGEMENT COMPARTMENT
XFER	TRANSFER
X-POP	X BODY AXIS PERPENDICULAR TO ORBIT PLANE
YAR	YARRAGADEE (STDN SITE)
Y-POP	Y BODY AXIS PERPENDICULAR TO ORBIT PLANE
-ZLV	-Z LOCAL VERTICAL (-Z BODY AXIS TOWARDS EARTH)

REFERENCES

REFERENCES

REFERENCES

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